



January 14, 2020

**Vista Work Order No. 1903651**

Ms. Delaney Peterson  
Anchor QEA, LLC  
720 Olive Way, Suite 1900  
Seattle, WA 98101

Dear Ms. Peterson,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 15, 2019 under your Project Name 'Gasco PDI'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at [mmaier@vista-analytical.com](mailto:mmaier@vista-analytical.com).

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier  
Laboratory Director



*Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.*

## **Vista Work Order No. 1903651**

### **Case Narrative**

#### **Sample Condition on Receipt:**

Seven sediment samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The report was amended to include the confirmation result for 2,3,7,8-TCDF for sample "PDI-037SC-A-14-14.5-191012".

#### **Analytical Notes:**

##### **EPA Method 1613B**

These samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-5MS GC column.

##### **Holding Times**

These samples were extracted and analyzed within the method hold times.

##### **Quality Control**

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. No analytes were detected in the Method Blanks above the quantitation limits. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

## TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	17
Certifications.....	18
Sample Receipt.....	21
Extraction Information.....	25
Sample Data - EPA Method 1613.....	37
Confirmation.....	280
Continuing Calibration.....	285
Initial Calibration.....	432

# Sample Inventory Report

<b>Vista Sample ID</b>	<b>Client Sample ID</b>	<b>Sampled</b>	<b>Received</b>	<b>Components/Containers</b>
1903651-01	PDI-015SC-A-14-15-191012	12-Oct-19 16:07	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-02	PDI-015SC-A-15-16-191012	12-Oct-19 16:07	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-03	PDI-037SC-A-13-14-191012	12-Oct-19 12:41	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-04	PDI-037SC-A-14-14.5-191012	12-Oct-19 12:41	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-05	PDI-074SC-A-11-12-191012	12-Oct-19 09:54	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-06	PDI-074SC-A-12-12.9-191012	12-Oct-19 09:54	15-Oct-19 08:51	Amber Glass, 120 mL
1903651-07	PDI-1074SC-A-11-12-191012	12-Oct-19 00:00	15-Oct-19 08:51	Amber Glass, 120 mL

## **ANALYTICAL RESULTS**

Sample ID: Method Blank					EPA Method 1613B				
Matrix: Solid Sample Size: 10.0 g		QC Batch: B9J0312 Date Extracted: 29-Oct-2019 7:26		Lab Sample: B9J0312-BLK1 Date Analyzed: 01-Nov-19 17:10 Column: ZB-5MS					
Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
2,3,7,8-TCDD	ND	0.0535			IS 13C-2,3,7,8-TCDD	95.3	25 - 164		
1,2,3,7,8-PeCDD	ND	0.101			13C-1,2,3,7,8-PeCDD	98.9	25 - 181		
1,2,3,4,7,8-HxCDD	ND	0.105			13C-1,2,3,4,7,8-HxCDD	102	32 - 141		
1,2,3,6,7,8-HxCDD	ND	0.110			13C-1,2,3,6,7,8-HxCDD	88.4	28 - 130		
1,2,3,7,8,9-HxCDD	ND	0.115			13C-1,2,3,7,8,9-HxCDD	91.9	32 - 141		
1,2,3,4,6,7,8-HpCDD	ND	0.148			13C-1,2,3,4,6,7,8-HpCDD	93.3	23 - 140		
OCDD	ND	0.179			13C-OCDD	85.6	17 - 157		
2,3,7,8-TCDF	ND	0.0610			13C-2,3,7,8-TCDF	92.3	24 - 169		
1,2,3,7,8-PeCDF	ND	0.0826			13C-1,2,3,7,8-PeCDF	106	24 - 185		
2,3,4,7,8-PeCDF	ND	0.0815			13C-2,3,4,7,8-PeCDF	101	21 - 178		
1,2,3,4,7,8-HxCDF	ND	0.0521			13C-1,2,3,4,7,8-HxCDF	113	26 - 152		
1,2,3,6,7,8-HxCDF	ND	0.0576			13C-1,2,3,6,7,8-HxCDF	97.9	26 - 123		
2,3,4,6,7,8-HxCDF	ND	0.0631			13C-2,3,4,6,7,8-HxCDF	94.6	28 - 136		
1,2,3,7,8,9-HxCDF	ND	0.0850			13C-1,2,3,7,8,9-HxCDF	102	29 - 147		
1,2,3,4,6,7,8-HpCDF	ND	0.0945			13C-1,2,3,4,6,7,8-HpCDF	83.9	28 - 143		
1,2,3,4,7,8,9-HpCDF	ND	0.0813			13C-1,2,3,4,7,8,9-HpCDF	97.4	26 - 138		
OCDF	ND		0.302		13C-OCDF	92.5	17 - 157		
					CRS 37Cl-2,3,7,8-TCDD	95.1	35 - 197		
					<b>Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)</b>				
					TEQMinWHO2005Dioxin		0.00		
<b>TOTALS</b>									
Total TCDD	ND	0.0535							
Total PeCDD	ND	0.101							
Total HxCDD	ND	0.111							
Total HpCDD	ND	0.148							
Total TCDF	ND	0.0610							
Total PeCDF	ND	0.0820							
Total HxCDF	ND	0.0636							
Total HpCDF	ND	0.0883							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: OPR					EPA Method 1613B		
Matrix: Solid	QC Batch: B9J0312	Lab Sample: B9J0312-BS1					
Sample Size: 10.0 g	Date Extracted: 29-Oct-2019 7:26	Date Analyzed: 01-Nov-19 15:34	Column: ZB-5MS				
Analyte	Amt Found (pg/g)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	23.2	20.0	116	67 - 158	IS 13C-2,3,7,8-TCDD	92.6	20 - 175
1,2,3,7,8-PeCDD	112	100	112	70 - 142	13C-1,2,3,7,8-PeCDD	91.1	21 - 227
1,2,3,4,7,8-HxCDD	111	100	111	70 - 164	13C-1,2,3,4,7,8-HxCDD	93.8	21 - 193
1,2,3,6,7,8-HxCDD	108	100	108	76 - 134	13C-1,2,3,6,7,8-HxCDD	80.8	25 - 163
1,2,3,7,8,9-HxCDD	110	100	110	64 - 162	13C-1,2,3,7,8,9-HxCDD	84.2	21 - 193
1,2,3,4,6,7,8-HpCDD	104	100	104	70 - 140	13C-1,2,3,4,6,7,8-HpCDD	87.0	26 - 166
OCDD	215	200	107	78 - 144	13C-OCDD	83.1	13 - 199
2,3,7,8-TCDF	20.9	20.0	105	75 - 158	13C-2,3,7,8-TCDF	86.8	22 - 152
1,2,3,7,8-PeCDF	110	100	110	80 - 134	13C-1,2,3,7,8-PeCDF	93.8	21 - 192
2,3,4,7,8-PeCDF	110	100	110	68 - 160	13C-2,3,4,7,8-PeCDF	89.4	13 - 328
1,2,3,4,7,8-HxCDF	103	100	103	72 - 134	13C-1,2,3,4,7,8-HxCDF	99.7	19 - 202
1,2,3,6,7,8-HxCDF	102	100	102	84 - 130	13C-1,2,3,6,7,8-HxCDF	88.8	21 - 159
2,3,4,6,7,8-HxCDF	105	100	105	70 - 156	13C-2,3,4,6,7,8-HxCDF	86.9	22 - 176
1,2,3,7,8,9-HxCDF	103	100	103	78 - 130	13C-1,2,3,7,8,9-HxCDF	92.9	17 - 205
1,2,3,4,6,7,8-HpCDF	100	100	100	82 - 122	13C-1,2,3,4,6,7,8-HpCDF	81.5	21 - 158
1,2,3,4,7,8,9-HpCDF	100	100	100	78 - 138	13C-1,2,3,4,7,8,9-HpCDF	90.6	20 - 186
OCDF	204	200	102	63 - 170	13C-OCDF	86.2	13 - 199
					CRS 37Cl-2,3,7,8-TCDD	99.0	31 - 191

LCL-UCL - Lower control limit - upper control limit

Sample ID: Method Blank					EPA Method 1613B			
Matrix: Solid Sample Size: 10.0 g		QC Batch: B9L0043 Date Extracted: 05-Dec-2019 6:06		Lab Sample: B9L0043-BLK1 Date Analyzed: 12-Dec-19 15:55 Column: ZB-5MS				
Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0807			IS 13C-2,3,7,8-TCDD	99.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.110			13C-1,2,3,7,8-PeCDD	96.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.190			13C-1,2,3,4,7,8-HxCDD	93.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.220			13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.214			13C-1,2,3,7,8,9-HxCDD	88.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.183			13C-1,2,3,4,6,7,8-HpCDD	87.7	23 - 140	
OCDD	0.658			J	13C-OCDD	85.9	17 - 157	
2,3,7,8-TCDF	ND	0.0559			13C-2,3,7,8-TCDF	94.3	24 - 169	
1,2,3,7,8-PeCDF	ND	0.128			13C-1,2,3,7,8-PeCDF	88.3	24 - 185	
2,3,4,7,8-PeCDF	ND	0.117			13C-2,3,4,7,8-PeCDF	90.4	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0544			13C-1,2,3,4,7,8-HxCDF	101	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0524			13C-1,2,3,6,7,8-HxCDF	94.8	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0582			13C-2,3,4,6,7,8-HxCDF	95.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0822			13C-1,2,3,7,8,9-HxCDF	96.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.0695			13C-1,2,3,4,6,7,8-HpCDF	85.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0640			13C-1,2,3,4,7,8,9-HpCDF	95.2	26 - 138	
OCDF	ND	0.167			13C-OCDF	94.7	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	102	35 - 197	
					<b>Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)</b>			
					TEQMinWHO2005Dioxin 0.000197			
<b>TOTALS</b>								
Total TCDD	ND	0.0807						
Total PeCDD	ND	0.110						
Total HxCDD	ND	0.209						
Total HpCDD	ND	0.183						
Total TCDF	ND	0.0559						
Total PeCDF	ND	0.122						
Total HxCDF	ND	0.0609						
Total HpCDF	ND	0.0670						

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.



Sample ID: OPR					EPA Method 1613B		
Matrix: Solid	QC Batch: B9L0043	Lab Sample: B9L0043-BS1					
Sample Size: 10.0 g	Date Extracted: 05-Dec-2019 6:06	Date Analyzed: 12-Dec-19 13:31	Column: ZB-5MS				
Analyte	Amt Found (pg/g)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	22.5	20.0	112	67 - 158	IS 13C-2,3,7,8-TCDD	102	20 - 175
1,2,3,7,8-PeCDD	110	100	110	70 - 142	13C-1,2,3,7,8-PeCDD	93.7	21 - 227
1,2,3,4,7,8-HxCDD	98.5	100	98.5	70 - 164	13C-1,2,3,4,7,8-HxCDD	103	21 - 193
1,2,3,6,7,8-HxCDD	107	100	107	76 - 134	13C-1,2,3,6,7,8-HxCDD	86.9	25 - 163
1,2,3,7,8,9-HxCDD	101	100	101	64 - 162	13C-1,2,3,7,8,9-HxCDD	96.3	21 - 193
1,2,3,4,6,7,8-HpCDD	103	100	103	70 - 140	13C-1,2,3,4,6,7,8-HpCDD	105	26 - 166
OCDD	207	200	104	78 - 144	13C-OCDD	98.0	13 - 199
2,3,7,8-TCDF	19.9	20.0	99.3	75 - 158	13C-2,3,7,8-TCDF	98.1	22 - 152
1,2,3,7,8-PeCDF	106	100	106	80 - 134	13C-1,2,3,7,8-PeCDF	91.2	21 - 192
2,3,4,7,8-PeCDF	106	100	106	68 - 160	13C-2,3,4,7,8-PeCDF	87.6	13 - 328
1,2,3,4,7,8-HxCDF	96.0	100	96.0	72 - 134	13C-1,2,3,4,7,8-HxCDF	106	19 - 202
1,2,3,6,7,8-HxCDF	95.9	100	95.9	84 - 130	13C-1,2,3,6,7,8-HxCDF	95.5	21 - 159
2,3,4,6,7,8-HxCDF	101	100	101	70 - 156	13C-2,3,4,6,7,8-HxCDF	93.9	22 - 176
1,2,3,7,8,9-HxCDF	92.3	100	92.3	78 - 130	13C-1,2,3,7,8,9-HxCDF	109	17 - 205
1,2,3,4,6,7,8-HpCDF	94.4	100	94.4	82 - 122	13C-1,2,3,4,6,7,8-HpCDF	106	21 - 158
1,2,3,4,7,8,9-HpCDF	92.6	100	92.6	78 - 138	13C-1,2,3,4,7,8,9-HpCDF	120	20 - 186
OCDF	192	200	95.8	63 - 170	13C-OCDF	110	13 - 199
					CRS 37Cl-2,3,7,8-TCDD	103	31 - 191

LCL-UCL - Lower control limit - upper control limit

**Sample ID: PDI-015SC-A-14-15-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-01      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 17.9 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 16:07	% Solids: 58.0	Date Analyzed: 04-Nov-19 19:41      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.177			IS 13C-2,3,7,8-TCDD	102	25 - 164	
1,2,3,7,8-PeCDD	ND	0.252			13C-1,2,3,7,8-PeCDD	101	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.268			13C-1,2,3,4,7,8-HxCDD	101	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.270			13C-1,2,3,6,7,8-HxCDD	85.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.287			13C-1,2,3,7,8,9-HxCDD	89.4	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND		0.634		13C-1,2,3,4,6,7,8-HpCDD	99.7	23 - 140	
OCDD	6.64				13C-OCDD	93.6	17 - 157	
2,3,7,8-TCDF	ND	0.107			13C-2,3,7,8-TCDF	99.3	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0989			13C-1,2,3,7,8-PeCDF	105	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0918			13C-2,3,4,7,8-PeCDF	102	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.109			13C-1,2,3,4,7,8-HxCDF	107	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.111			13C-1,2,3,6,7,8-HxCDF	95.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.118			13C-2,3,4,6,7,8-HxCDF	94.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.153			13C-1,2,3,7,8,9-HxCDF	104	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.313			13C-1,2,3,4,6,7,8-HpCDF	96.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.276			13C-1,2,3,4,7,8,9-HpCDF	107	26 - 138	
OCDF	ND	0.214			13C-OCDF	106	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	100	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**

TEQMinWHO2005Dioxin	0.00199
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<b>TOTALS</b>				
Total TCDD	ND		0.405	
Total PeCDD	ND	0.252		
Total HxCDD	1.01			
Total HpCDD	1.40		2.04	
Total TCDF	0.158			
Total PeCDF	ND	0.0989		
Total HxCDF	ND	0.153		
Total HpCDF	ND	0.313		

DL - Sample specific estimated detection limit  
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
The results are reported in dry weight. The sample size is reported in wet weight.  
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-015SC-A-15-16-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-02      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 14.9 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 16:07	% Solids: 67.0	Date Analyzed: 04-Nov-19 20:29      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.154			IS 13C-2,3,7,8-TCDD	96.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.198			13C-1,2,3,7,8-PeCDD	97.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.244			13C-1,2,3,4,7,8-HxCDD	98.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.245			13C-1,2,3,6,7,8-HxCDD	82.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.254			13C-1,2,3,7,8,9-HxCDD	87.8	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.274			13C-1,2,3,4,6,7,8-HpCDD	97.7	23 - 140	
OCDD	2.24			J	13C-OCDD	98.1	17 - 157	
2,3,7,8-TCDF	ND	0.117			13C-2,3,7,8-TCDF	94.4	24 - 169	
1,2,3,7,8-PeCDF	ND	0.102			13C-1,2,3,7,8-PeCDF	102	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0993			13C-2,3,4,7,8-PeCDF	99.9	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.117			13C-1,2,3,4,7,8-HxCDF	106	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.124			13C-1,2,3,6,7,8-HxCDF	92.3	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.135			13C-2,3,4,6,7,8-HxCDF	93.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.178			13C-1,2,3,7,8,9-HxCDF	100	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.358			13C-1,2,3,4,6,7,8-HpCDF	97.2	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.302			13C-1,2,3,4,7,8,9-HpCDF	107	26 - 138	
OCDF	ND	0.259			13C-OCDF	108	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	98.6	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**

TEQMinWHO2005Dioxin      0.000672

<b>TOTALS</b>			
Total TCDD	ND	0.154	
Total PeCDD	ND	0.198	
Total HxCDD	ND	0.254	
Total HpCDD	ND		0.355
Total TCDF	ND	0.117	
Total PeCDF	ND	0.102	
Total HxCDF	ND	0.178	
Total HpCDF	ND	0.358	

DL - Sample specific estimated detection limit  
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
The results are reported in dry weight. The sample size is reported in wet weight.  
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-037SC-A-13-14-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-03      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 13.4 g	QC Batch: B9L0043      Date Extracted: 05-Dec-2019 6:06
Date Collected: 12-Oct-2019 12:41	% Solids: 75.1	Date Analyzed: 12-Dec-19 22:18      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0535			IS 13C-2,3,7,8-TCDD	107	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0933			13C-1,2,3,7,8-PeCDD	98.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0947			13C-1,2,3,4,7,8-HxCDD	112	32 - 141	
1,2,3,6,7,8-HxCDD	0.214			J	13C-1,2,3,6,7,8-HxCDD	95.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.106			13C-1,2,3,7,8,9-HxCDD	102	32 - 141	
1,2,3,4,6,7,8-HpCDD	5.91				13C-1,2,3,4,6,7,8-HpCDD	103	23 - 140	
OCDD	39.2			B	13C-OCDD	108	17 - 157	
2,3,7,8-TCDF	0.158			J	13C-2,3,7,8-TCDF	98.8	24 - 169	
1,2,3,7,8-PeCDF	ND		0.216		13C-1,2,3,7,8-PeCDF	92.3	24 - 185	
2,3,4,7,8-PeCDF	0.128			J	13C-2,3,4,7,8-PeCDF	91.4	21 - 178	
1,2,3,4,7,8-HxCDF	0.282			J	13C-1,2,3,4,7,8-HxCDF	109	26 - 152	
1,2,3,6,7,8-HxCDF	0.0931			J	13C-1,2,3,6,7,8-HxCDF	100	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0368			13C-2,3,4,6,7,8-HxCDF	109	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0486			13C-1,2,3,7,8,9-HxCDF	118	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND		0.292		13C-1,2,3,4,6,7,8-HpCDF	109	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0461			13C-1,2,3,4,7,8,9-HpCDF	123	26 - 138	
OCDF	1.55			J	13C-OCDF	119	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	104	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**  
 TEQMinWHO2005Dioxin      0.184

<b>TOTALS</b>				
Total TCDD	0.635			
Total PeCDD	0.225			
Total HxCDD	2.12			
Total HpCDD	15.2			
Total TCDF	0.307			
Total PeCDF	0.128	0.402		
Total HxCDF	0.531	0.597		
Total HpCDF	0.847	1.14		

DL - Sample specific estimated detection limit  
 EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
 The results are reported in dry weight. The sample size is reported in wet weight.  
 Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-037SC-A-14-14.5-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-04      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 13.8 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 12:41	% Solids: 71.8	Date Analyzed : 04-Nov-19 22:04      Column: ZB-5MS 07-Nov-19 12:26      Column: DB-225

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.154			IS 13C-2,3,7,8-TCDD	95.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.167			13C-1,2,3,7,8-PeCDD	95.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.286			13C-1,2,3,4,7,8-HxCDD	94.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.300			13C-1,2,3,6,7,8-HxCDD	77.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.297			13C-1,2,3,7,8,9-HxCDD	84.3	32 - 141	
1,2,3,4,6,7,8-HpCDD	13.5				13C-1,2,3,4,6,7,8-HpCDD	94.0	23 - 140	
OCDD	98.5				13C-OCDD	95.2	17 - 157	
2,3,7,8-TCDF	0.538				13C-2,3,7,8-TCDF	88.9	24 - 169	
1,2,3,7,8-PeCDF	ND		0.516		13C-1,2,3,7,8-PeCDF	97.5	24 - 185	
2,3,4,7,8-PeCDF	ND		0.195		13C-2,3,4,7,8-PeCDF	93.9	21 - 178	
1,2,3,4,7,8-HxCDF	1.06			J	13C-1,2,3,4,7,8-HxCDF	103	26 - 152	
1,2,3,6,7,8-HxCDF	0.299			J	13C-1,2,3,6,7,8-HxCDF	91.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.196			13C-2,3,4,6,7,8-HxCDF	90.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.254			13C-1,2,3,7,8,9-HxCDF	97.8	29 - 147	
1,2,3,4,6,7,8-HpCDF	1.12			J	13C-1,2,3,4,6,7,8-HpCDF	96.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND		0.194		13C-1,2,3,4,7,8,9-HpCDF	105	26 - 138	
OCDF	4.37			J	13C-OCDF	104	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	91.2	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**

TEQMinWHO2005Dioxin      0.367

<b>TOTALS</b>								
Total TCDD	ND	0.154						
Total PeCDD	ND	0.167						
Total HxCDD	2.65							
Total HpCDD	31.8							
Total TCDF	0.998							
Total PeCDF	0.413		1.22					
Total HxCDF	1.57		1.94					
Total HpCDF	3.72		3.91					

DL - Sample specific estimated detection limit  
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
The results are reported in dry weight. The sample size is reported in wet weight.  
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-074SC-A-11-12-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-05      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 12.7 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 9:54	% Solids: 78.3	Date Analyzed: 06-Nov-19 15:41      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.189			IS 13C-2,3,7,8-TCDD	107	25 - 164	
1,2,3,7,8-PeCDD	ND	0.195			13C-1,2,3,7,8-PeCDD	108	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.403			13C-1,2,3,4,7,8-HxCDD	109	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.438			13C-1,2,3,6,7,8-HxCDD	94.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.450			13C-1,2,3,7,8,9-HxCDD	98.7	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND		1.87		13C-1,2,3,4,6,7,8-HpCDD	106	23 - 140	
OCDD	14.8				13C-OCDD	100	17 - 157	
2,3,7,8-TCDF	ND	0.161			13C-2,3,7,8-TCDF	95.6	24 - 169	
1,2,3,7,8-PeCDF	ND	0.173			13C-1,2,3,7,8-PeCDF	87.5	24 - 185	
2,3,4,7,8-PeCDF	ND	0.159			13C-2,3,4,7,8-PeCDF	91.0	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.153			13C-1,2,3,4,7,8-HxCDF	114	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.196			13C-1,2,3,6,7,8-HxCDF	94.4	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.212			13C-2,3,4,6,7,8-HxCDF	95.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.247			13C-1,2,3,7,8,9-HxCDF	105	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.343			13C-1,2,3,4,6,7,8-HpCDF	95.0	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.274			13C-1,2,3,4,7,8,9-HpCDF	106	26 - 138	
OCDF	0.608			J	13C-OCDF	98.3	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	108	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**  
 TEQMinWHO2005Dioxin      0.00462

<b>TOTALS</b>								
Total TCDD	ND	0.189						
Total PeCDD	ND	0.195						
Total HxCDD	ND		0.399					
Total HpCDD	2.58		4.45					
Total TCDF	ND	0.161						
Total PeCDF	ND	0.173						
Total HxCDF	ND	0.247						
Total HpCDF	ND		0.474					

DL - Sample specific estimated detection limit  
 EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
 The results are reported in dry weight. The sample size is reported in wet weight.  
 Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-074SC-A-12-12.9-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-06      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 14.2 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 9:54	% Solids: 70.9	Date Analyzed : 06-Nov-19 16:29      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.210			IS 13C-2,3,7,8-TCDD	90.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.274			13C-1,2,3,7,8-PeCDD	93.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.383			13C-1,2,3,4,7,8-HxCDD	101	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.425			13C-1,2,3,6,7,8-HxCDD	87.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.404			13C-1,2,3,7,8,9-HxCDD	93.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	2.09			J	13C-1,2,3,4,6,7,8-HpCDD	94.7	23 - 140	
OCDD	18.1				13C-OCDD	94.4	17 - 157	
2,3,7,8-TCDF	ND	0.166			13C-2,3,7,8-TCDF	91.9	24 - 169	
1,2,3,7,8-PeCDF	ND	0.128			13C-1,2,3,7,8-PeCDF	90.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.123			13C-2,3,4,7,8-PeCDF	90.3	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.158			13C-1,2,3,4,7,8-HxCDF	103	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.166			13C-1,2,3,6,7,8-HxCDF	90.0	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.164			13C-2,3,4,6,7,8-HxCDF	89.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.213			13C-1,2,3,7,8,9-HxCDF	98.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.220			13C-1,2,3,4,6,7,8-HpCDF	86.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.208			13C-1,2,3,4,7,8,9-HpCDF	96.5	26 - 138	
OCDF	0.713			J	13C-OCDF	98.2	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	92.4	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**  
 TEQMinWHO2005Dioxin      0.0265

<b>TOTALS</b>								
Total TCDD	ND	0.210						
Total PeCDD	ND	0.274						
Total HxCDD	ND		0.733					
Total HpCDD	5.15							
Total TCDF	ND	0.166						
Total PeCDF	ND	0.128						
Total HxCDF	ND	0.213						
Total HpCDF	ND		0.283					

DL - Sample specific estimated detection limit  
 EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
 The results are reported in dry weight. The sample size is reported in wet weight.  
 Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

**Sample ID: PDI-1074SC-A-11-12-191012** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903651-07      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 12.7 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 12-Oct-2019 0:00	% Solids: 78.5	Date Analyzed: 06-Nov-19 17:16      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.168			IS 13C-2,3,7,8-TCDD	92.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.128			13C-1,2,3,7,8-PeCDD	104	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.298			13C-1,2,3,4,7,8-HxCDD	106	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.351			13C-1,2,3,6,7,8-HxCDD	84.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.332			13C-1,2,3,7,8,9-HxCDD	92.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	1.64			J	13C-1,2,3,4,6,7,8-HpCDD	96.8	23 - 140	
OCDD	13.9				13C-OCDD	96.5	17 - 157	
2,3,7,8-TCDF	ND	0.121			13C-2,3,7,8-TCDF	94.2	24 - 169	
1,2,3,7,8-PeCDF	ND	0.128			13C-1,2,3,7,8-PeCDF	94.0	24 - 185	
2,3,4,7,8-PeCDF	ND	0.118			13C-2,3,4,7,8-PeCDF	89.9	21 - 178	
1,2,3,4,7,8-HxCDF	0.199			J	13C-1,2,3,4,7,8-HxCDF	107	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.128			13C-1,2,3,6,7,8-HxCDF	92.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.136			13C-2,3,4,6,7,8-HxCDF	95.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.184			13C-1,2,3,7,8,9-HxCDF	102	29 - 147	
1,2,3,4,6,7,8-HpCDF	0.233			J	13C-1,2,3,4,6,7,8-HpCDF	91.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.133			13C-1,2,3,4,7,8,9-HpCDF	100	26 - 138	
OCDF	0.737			J	13C-OCDF	101	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	92.5	35 - 197	

**Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)**  
 TEQMinWHO2005Dioxin      0.0430

<b>TOTALS</b>								
Total TCDD	ND	0.168						
Total PeCDD	ND	0.128						
Total HxCDD	ND		0.269					
Total HpCDD	3.96							
Total TCDF	ND	0.121						
Total PeCDF	ND	0.128						
Total HxCDF	0.199							
Total HpCDF	0.233		0.547					

DL - Sample specific estimated detection limit  
 EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit  
 The results are reported in dry weight. The sample size is reported in wet weight.  
 Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.



## DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

### Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

**ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY**

1903651

3.8°C, 2.5°C


**POC: #** Delaney Peterson (360-715-2707)  
1605 Cornwall Avenue, Bellingham, WA 98225

**Project:** Gasco PDI  
**Client:** NW Natural

**COC ID:** VISTA-20191012-174803  
**Sample Custodian:** SN  
**Lab:** VISTA

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-015SC-A-14-15-191012	N	SE	10/12/2019	16:07	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
002	PDI-015SC-A-15-16-191012	N	SE	10/12/2019	16:07	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
003	PDI-037SC-A-13-14-191012	N	SE	10/12/2019	12:41	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
004	PDI-037SC-A-14-14.5-191012	N	SE	10/12/2019	12:41	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
005	PDI-074SC-A-11-12-191012	N	SE	10/12/2019	9:54	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
006	PDI-074SC-A-12-12.9-191012	N	SE	10/12/2019	9:54	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
007	PDI-1074SC-A-11-12-191012	FD	SE	10/12/2019		1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: 	Signature: 	Signature:	Signature:	Signature:	Signature:
Print Name: C. ORZARO	Print Name: Hayden Canas	Print Name:	Print Name:	Print Name:	Print Name:
Company: AQ	Company: VAL	Company:	Company:	Company:	Company:
Date/Time: 10/14/19 0755	Date/Time: 10/15/19 08:51	Date/Time:	Date/Time:	Date/Time:	Date/Time:

\* Lab QC Requested for sample when box is checked \*\* TAT = Turn Around Time in DAYS # POC = Project Point of Contact

# Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903651 TAT std

Samples Arrival:	Date/Time <u>10/15/19 08:51</u>		Initials: <u>HOG</u>		Location: <u>WR-2</u>		
	Shelf/Rack: <u>NA</u>						
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac	<input type="radio"/> GSO	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered	<input type="radio"/> Other
Preservation:	<input checked="" type="radio"/> Ice		<input type="radio"/> Blue Ice		<input type="radio"/> Dry Ice		<input type="radio"/> None
Temp °C:	<u>3.8</u> (uncorrected)	Probe used: <u>Y</u> / <u>N</u>			Thermometer ID: <u>IR-4</u>		
Temp °C:	<u>3.8</u> (corrected)						

	YES	NO	NA
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Custody Seals Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Airbill <u>2 of 4</u> Trk # <u>7767 1463 7378</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Container	<input type="checkbox"/> Vista	<input checked="" type="checkbox"/> Client	<input type="checkbox"/> Retain
	<input type="checkbox"/>	<input checked="" type="checkbox"/> Return	<input type="checkbox"/> Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Logged In:	Date/Time <u>10/16/19 1042</u>		Initials: <u>ajm</u>
	Location: <u>WR-2</u>		
	Shelf/Rack: <u>A-1</u>		
COC Anomaly/Sample Acceptance Form completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

# Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903651 TAT Std

Samples Arrival:	Date/Time <u>10/15/19 08:51</u>		Initials: <u>HOG</u>		Location: <u>WR-2</u>		
	Shelf/Rack: <u>NA</u>						
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac	<input type="checkbox"/> GSO	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input type="checkbox"/> Ice		<input type="checkbox"/> Blue Ice		<input type="checkbox"/> Dry Ice		<input type="checkbox"/> None
Temp °C: <u>2.5</u> (uncorrected)	Probe used: Y <input checked="" type="checkbox"/> N			Thermometer ID: <u>IR-3</u>			
Temp °C: <u>2.5</u> (corrected)							

	YES	NO	NA		
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Custody Seals Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Airbill <u>3 of 4</u> Trk # <u>7767 1463 8102</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Container	<input type="checkbox"/> Vista	<input checked="" type="checkbox"/> Client	<input type="checkbox"/> Retain	<input checked="" type="checkbox"/> Return	<input type="checkbox"/> Dispose
Chain of Custody / Sample Documentation Present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Chain of Custody / Sample Documentation Complete?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Logged In:	Date/Time <u>10/16/19 1042</u>	Initials: <u>ajm</u>	Location: <u>WR-2</u>
	Shelf/Rack: <u>A-1</u>		
COC Anomaly/Sample Acceptance Form completed?			
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

# CoC/Label Reconciliation Report WO# 1903651

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
2	1903651-01 A PDI-015SC-A-14-15-191012	<input checked="" type="checkbox"/>		001	12-Oct-19 16:07	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
2	1903651-02 A PDI-015SC-A-15-16-191012	<input checked="" type="checkbox"/>		002	12-Oct-19 16:07	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
3	1903651-03 A PDI-037SC-A-13-14-191012	<input checked="" type="checkbox"/>		003	12-Oct-19 12:41	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
3	1903651-04 A PDI-037SC-A-14-14.5-191012	<input checked="" type="checkbox"/>		004	12-Oct-19 12:41	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
3	1903651-05 A PDI-074SC-A-11-12-191012	<input checked="" type="checkbox"/>		005	12-Oct-19 09:54	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
3	1903651-06 A PDI-074SC-A-12-12.9-191012	<input checked="" type="checkbox"/>		006	12-Oct-19 09:54	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
3	1903651-07 A PDI-1074SC-A-11-12-191012	<input checked="" type="checkbox"/>		007	<del>12-Oct-19 00:00</del>	<input type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	

	Yes	No	NA
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Custody Seals Intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Adequate Sample Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preservation Documented: Na2S2O3 Trizma <u>None</u> Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

\* time on bottle says "09:54"

"2" = Cooler 2

"3" = Cooler 3

Verified by/Date: HOG 10/17/19



## **EXTRACTION INFORMATION**

Process Sheet

Workorder: 1903651

05-Nov-19

Prep Expiration: 2020-10-11  
Client: Anchor QEA, LLC

Workorder Due: 12-Nov-19 00:00

TAT: 20 21 (2) 10/18/19

Method: 1613 Full List  
Matrix: Solid  
Client Matrix: Sediment  
Also run: Percent Solids

Prep Batch: B950312

Prep Data Entered: 10/31/19  
Date and Initials

Initial Sequence: S9K0005

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1903651-01	<input checked="" type="checkbox"/>	PDI-015SC-A-14-15-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-02	<input checked="" type="checkbox"/>	PDI-015SC-A-15-16-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-03	<input checked="" type="checkbox"/>	PDI-037SC-A-13-14-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-04	<input checked="" type="checkbox"/>	PDI-037SC-A-14-14.5-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-05	<input checked="" type="checkbox"/>	PDI-074SC-A-11-12-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-06	<input checked="" type="checkbox"/>	PDI-074SC-A-12-12.9-191012	15-Oct-19 08:51	WR-2 A-1	
1903651-07	<input checked="" type="checkbox"/>	PDI-1074SC-A-11-12-191012	15-Oct-19 08:51	WR-2 A-1	

WO Comments: ~~Percent extraction (dry weight)~~  
Dioxin - 10g (dry weight)  
~~PDD - 5g extraction (dry weight)~~

Pre-Prep Check Out: AO 10/22/19  
Pre-Prep Check In: AO 10/22/19

Prep Check Out: AZ 10/29/19  
Prep Check In: AZ 10/29/19

Prep Reconciled Initials/Date: AO 10/22/19  
Spike Reconciled Initials/Date: AZ 10/29/19  
VialBoxID: Dragon Ball Z

PREPARATION BENCH SHEET

Matrix: Solid

B9J0312

Chemist: AZ

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 29-Oct-19 06:14

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
<input type="checkbox"/>	B9J0312-BLK1	NA	(10.00)	00 AZ 10/29/19	TL 10/30/19	N/A	TL 10/30/19	TL 10/30/19	TL 10/30/19	TL 10/31/19
<input type="checkbox"/>	B9J0312-BS1	NA	(10.00)							
<input type="checkbox"/>	B9J0312-DUP1 1903546-07RE2	12.21	12.12							
<input type="checkbox"/>	B9J0312-DUP2 1903653-01	12.19	12.18							
<input type="checkbox"/>	1903546-07RE2	12.21	12.30							
<input type="checkbox"/>	1903546-09RE1	13.42	13.47							
<input type="checkbox"/>	1903546-15RE1	16.32	16.63							
<input type="checkbox"/>	1903642-01	26.95	27.03							
<input type="checkbox"/>	1903651-01	17.23	17.85							
<input type="checkbox"/>	1903651-02	14.92	14.93							
<input type="checkbox"/>	1903651-03	13.31	13.51							
<input type="checkbox"/>	1903651-04	13.93	13.84							
<input type="checkbox"/>	1903651-05	12.76	12.72							
<input type="checkbox"/>	1903651-06	14.11	14.17							
<input type="checkbox"/>	1903651-07	12.73	12.74							

IS Name <u>V2</u>	NS Name <u>V5</u>	CRS Name <u>V7</u>	RS Name <u>V7</u>	Cycle Time	APP: SEFUN SOX <u>SDS</u>	Check Out: Chemist/Date: <u>AZ 10/29/19</u>
PCDD/F <u>19C1902, 10uL</u>	PCDD/F <u>18F1913, 10uL</u>	PCDD/F <u>19I1602, 10uL</u>	PCDD/F <u>19JK03, 10uL</u>	Start Date/Time <u>10/29/19</u> <u>13:57</u>	SOLV: <u>TO1</u>	Check In: Chemist/Date: <u>AZ 10/29/19</u>
PCB _____	PCB _____	PCB _____	PCB _____	Stop Date/Time <u>10/30/19</u> <u>0613</u>	Other <u>NA</u>	Balance ID: <u>HRMS-8</u>
PAH _____	PAH _____	PAH _____	PAH _____	Final Volume(s) <u>20uL</u>	<u>C14</u>	

Comments:

- 1 = Sample approached dryness on rotovap
- 2 = Sample bumped on rotovap; lost < 5%
- 3 = Sample poured through Na2SO4 to remove water
- 4 = Precipitate present at Final Volume
- 5 = Sample homogenized in secondary container
- 6 = Sample clogged during extraction; pipetted and used Nitrogen to assist

PREPARATION BENCH SHEET

Matrix: Solid

B9J0312

Chemist: AZ

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 14-Oct-19 07:26

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
<input type="checkbox"/>	1903653-01	12.19	12.20	AD AZ 10/29/19	12 10/30/19	N/A	TL 10/30/19	TL 10/30/19	10/30/19	10/31/19
<input type="checkbox"/>	1903653-02	13.47	13.44	↓	↓	↓	↓	↓	↓	↓
<input type="checkbox"/>	1903653-03	15.66	15.50	↓	↓	↓	↓	↓	↓	↓
<input type="checkbox"/>	1903653-04	15.66	15.74	↓	↓	↓	↓	↓	↓	↓

10/30/19

IS Name <u>V3</u>	NS Name <u>V5</u>	CRS Name <u>V7</u>	RS Name <u>V9</u>	Cycle Time	APP: SEFUN SOX <u>SDS</u>	Check Out: Chemist/Date: <u>AZ 10/29/19</u>
PCDD/F <u>1901902, 10ml</u>	PCDD/F <u>18F1913, 10ml</u>	PCDD/F <u>19J1602, 10ml</u>	PCDD/F <u>19J1603, 10ml</u>	Start Date/Time <u>10/29/19</u> <u>13:57</u>	SOLV: <u>Tol</u>	Check In: Chemist/Date: <u>AZ 10/29/19</u>
PCB _____	PCB _____	PCB _____	PCB _____	Stop Date/Time <u>10/30/19</u> <u>06:3</u>	Other <u>NA</u>	Balance ID: <u>HRMS 8</u>
PAH _____	PAH _____	PAH _____	PAH _____	Final Volume(s) <u>20ml</u>	<u>Cin</u>	

Comments:

- 1 = Sample approached dryness on rotovap
- 2 = Sample bumped on rotovap; lost < 5%
- 3 = Sample poured through Na2SO4 to remove water
- 4 = Precipitate present at Final Volume
- 5 = Sample homogenized in secondary container
- 6 = Sample clogged during extraction; pipetted and used Nitrogen to assist

Percent Moisture/Percent Solids

D2216-90

BATCH ID B9J0196

<b>Analyst:</b> AO  <b>Analyte:</b> Dried at 110°C+/-5°C <b>Oven ID:</b> 01 02	<b>Test Code:</b> %Moist/%Solids  <b>Units:</b> %	Data Entry Verified by: (Initial and Date) <i>TL 10/24/19</i>
--	---	--

Inst: HRMS-8 Date/Time IN: Date/Time OUT  
10/22/2019 Time not re- 10/24/19 1345

B		C	D	E		F		G	H	I	K		L	M	N	O	P
Particle Size	SampID	SampType	Intial and Date:		AO 10/22/19		TL 10/24/19		Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl-	pH Before	pH After	Acid Added	AO 10/22/19	
			Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Sample Homogenized*											
	1903651-01	A	Sample	1.2800 ✓	6.1900 ✓	4.1300 ✓	2.8500	58.04	Mud	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-02	A	Sample	1.2800 ✓	10.2600 ✓	7.3000 ✓	6.0200	67.04	Mud	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-03	A	Sample	1.2900 ✓	7.5200 ✓	5.9700 ✓	4.6800	75.12	Mud	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-04	A	Sample	1.2900 ✓	6.7100 ✓	5.1800 ✓	3.8900	71.77	Wet Sand	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-05	A	Sample	1.2800 ✓	7.1900 ✓	5.9100 ✓	4.6300	78.34	Wet Sand	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-06	A	Sample	1.2900 ✓	8.6000 ✓	6.4700 ✓	5.1800	70.86	Wet Sand	NA	NA	NA	NA	NA	NA	NA	Y
	1903651-07	A	Sample	1.2900 ✓	9.2100 ✓	7.5100 ✓	6.2200	78.54	Wet Sand	NA	NA	NA	NA	NA	NA	NA	Y

\*Sample homogenized in sample container unless otherwise noted.

Percent Moisture/ Percent Solids

D2216-90

BATCH ID B9J0196

Analyst: <u>AD</u>	Test Code: %Moist/%Solids	Data Entry Verified by: (Initial and Date) <u>NA</u>
Analyte: Dried at 110°C +/- 5°C	Units: %	
Oven ID: <u>01</u> 02		

Inst HRMS-8 Date/Time IN: 10/22/19 Date/Time OUT: 10/24/19  
13:25

Particle Size	SampID	SampType	Initial and Date:		Dry Pan and Sample Weight (g)	%Solids RawVal	10/22/19 AM				Sample Homogenized*
			Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)			Visual Inspection	Cl-	pH Before	pH After	
	1903651-01	A Sample	1.28	6.19	4.13						X
	1903651-02	T Sample	1.28	10.26	7.30	90 10/22/19	Mud ↓ Wet sand ↓				X
	1903651-03	Sample	1.29	7.52	5.97						
	1903651-04	Sample	1.29	6.71	5.18						
	1903651-05	Sample	1.28	7.19	5.91						
	1903651-06	Sample	1.29	8.60	6.47						
	1903651-07	Sample	1.29	9.21	7.51						


\*Sample homogenized in sample container unless otherwise noted.

Batch: B9J0312

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1903546-07RE2	12.36 ✓	81.8868	10.1212	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903546-09RE1	13.47 ✓	74.5098	10.0365	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903546-15RE1	16.63 ✓	61.26447	10.1883	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903642-01	27.03 ✓	37.10407	10.0292	20	29-Oct-19 07:26	AZK			Soil	1613 Full List
1903642-01RE1	27.03 ✓	37.10407	10.0292	20	29-Oct-19 07:26	AZK			Soil	1613 Full List
1903651-01	17.85 ✓	58.04481	10.3610	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-02	14.93 ✓	67.03786	10.0088	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-03	13.51 ✓	75.12038	10.1488	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-04	13.84 ✓	71.77122	9.9331	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-05	12.72 ✓	78.34179	9.9651	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-06	14.17 ✓	70.86182	10.0411	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903651-07	12.74 ✓	78.53535	10.0054	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903653-01	12.2 ✓	82.01582	10.0059	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903653-02	13.44 ✓	74.26471	9.9812	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903653-03	15.5 ✓	63.85041	9.8968	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
1903653-04	15.76 ✓	63.84298	10.0617	20	29-Oct-19 07:26	AZK			Sediment	1613 Full List
B9J0312-BLK1	10 ✓			20	29-Oct-19 07:26	AZK				QC
B9J0312-BS1	10 ✓			20	29-Oct-19 07:26	AZK	18F1913 ✓	10 ✓		QC
B9J0312-DUP1	12.12 ✓	81.8868	9.9247	20	29-Oct-19 07:26	AZK				QC
B9J0312-DUP2	12.18 ✓	82.01582	9.9895	20	29-Oct-19 07:26	AZK				QC

All bolded data on report verified against written benchsheet by (initial/date)

11/06/19 

Printed: 11/6/2019 12:56:16PM  
Page 1 of 1

Workorder: **1903651**

Prep Expiration: 2020-10-11  
Client: Anchor QEA, LLC

Workorder Due: **12-Nov-19 00:00**

TAT: 28

Method: **1613 Full List**  
Matrix: **Solid**  
Client Matrix: Sediment  
Also run: **Percent Solids**

Prep Batch: **BAL0043**

Prep Data Entered: **KL 12/10/19**  
Date and Initials

Initial Sequence: **S9L0029**

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
<del>1903651-01</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	
<del>1903651-02</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	
1903651-03 <b>A</b>	<input checked="" type="checkbox"/>	PDI-037SC-A-13-14-191012	15-Oct-19 08:51	WR-2 A-1	
<del>1903651-04</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	
<del>1903651-05</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	
<del>1903651-06</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	
<del>1903651-07</del>	<input type="checkbox"/>	<del>PDI-037SC-A-13-14-191012</del>	15-Oct-19 08:51	WR-2 A-1	

WO Comments: ~~Fast - 1g extraction (dry weight)~~  
**Dioxin - 10g (dry weight)**  
~~Fast - 1g extraction (dry weight)~~

Pre-Prep Check Out: \_\_\_\_\_  
Pre-Prep Check In: \_\_\_\_\_

Prep Check Out: **AZ 12/05/19**  
Prep Check In: **AZ 12/05/19**

Prep Reconciled Initials/Date: **AZ 12/05/19**  
Spike Reconciled Initials/Date: \_\_\_\_\_  
VialBoxID: **one potato**



PREPARATION BENCH SHEET

Matrix: Solid

B9L0043

Chemist: AZ

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 05-Dec-19 06:06

Method: 8290 Full List

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
<input type="checkbox"/>	B9L0043-BLK1	NA	(10.00)	AO AZ 12/05/19	AO AZ 12/06/19	NA	AZ 12/08/19	AZ 12/08/19	AZ 12/01/19	NA 12/11/19
<input type="checkbox"/>	B9L0043-BS1	↓	(10.00)	↓	↓	↓	↓	↓	↓	↓
<input type="checkbox"/>	1903651-03RE2	13.31	13.37	↓	↓	↓	↓	↓	↓	↓
<input type="checkbox"/>	1904075-01	10.15	10.50	↓	↓	↓	↓	↓	↓	↓
<input type="checkbox"/>	1904075-02 (A)	10.09	10.05	↓	↓	↓	↓	↓	↓	↓

(A) Approached dryness overnight, Tol added AO 12/06/19

IS Name <u>V1</u>	NS Name <u>V5</u>	CRS Name <u>V6</u>	RS Name <u>V6</u>	Cycle Time	APP: SEFUN SOX <u>SDS</u>	Check Out:
PCDD/F <u>19C1902, 10mL</u>	PCDD/F <u>18F1913, 10mL</u>	PCDD/F <u>19I1602, 10mL</u>	PCDD/F <u>19I1603, 10mL</u>	Start Date/Time	SOLV: <u>Tol</u>	Chemist/Date: <u>AZ 12/05/19</u>
PCB	PCB	PCB	PCB	1400 12/05/19	Other: <u>NA</u>	Check In:
PAH	PAH	PAH	PAH	Stop Date/Time	Final Volume(s) <u>20mL</u>	Chemist/Date: <u>AZ 12/05/19</u>
				<u>600 12/06/19</u>	<u>C14</u>	Balance ID: <u>HRMS-8</u>

Comments:

- 1 = Sample approached dryness on rotovap
- 2 = Sample bumped on rotovap; lost < 5%
- 3 = Sample poured through Na2SO4 to remove water
- 4 = Precipitate present at Final Volume
- 5 = Sample homogenized in secondary container
- 6 = Sample clogged during extraction; pipetted and used Nitrogen to assist

Percent Moisture/ Percent Solids  
 D2216-90 BATCH ID B9J0196

Analyst: AO	Test Code: %Moist/%Solids	Data Entry Verified by: (Initial and Date) <u>TL 10/24/19</u>
Analyte: Dried at 110°C+/-5°C	Units: %	
Oven ID: 01 02		

Inst: HRMS-8 Date/Time IN: Date/Time OUT  
 10/22/2019 Time not re 10/24/19 1345

Particle Size	SampID	SampType	Initial and Date:	AO 10/22/19	TL 10/24/19	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl-	pH Before	pH After	Acid Added	Sample Homogenized*
	1903651-01	A	Pan Tare Wt. (gms)	1.2800 ✓	6.1900 ✓	4.1300 ✓	2.8500	58.04	Mud	NA	NA	NA	Y
	1903651-02	A	Wet Pan and Sample Weight (g)	1.2800 ✓	10.2600 ✓	7.3000 ✓	6.0200	67.04	Mud	NA	NA	NA	Y
	1903651-03	A	Dry Pan and Sample Weight (g)	1.2900 ✓	7.5200 ✓	5.9700 ✓	4.6800	75.12	Mud	NA	NA	NA	Y
	1903651-04	A		1.2900 ✓	6.7100 ✓	5.1800 ✓	3.8900	71.77	Wet Sand	NA	NA	NA	Y
	1903651-05	A		1.2800 ✓	7.1900 ✓	5.9100 ✓	4.6300	78.34	Wet Sand	NA	NA	NA	Y
	1903651-06	A		1.2900 ✓	8.6000 ✓	6.4700 ✓	5.1800	70.86	Wet Sand	NA	NA	NA	Y
	1903651-07	A		1.2900 ✓	9.2100 ✓	7.5100 ✓	6.2200	78.54	Wet Sand	NA	NA	NA	Y

\*Sample homogenized in sample container unless otherwise noted.

Percent Moisture/ Percent Solids

D2216-90

BATCH ID B9J0196

Analyst: <u>AD</u>	Test Code: %Moist/%Solids	Data Entry Verified by: (Initial and Date) <u>NA</u>
Analyte:	Units: %	
Oven ID: <u>01</u> 02	Dried at 110°C±1.5°C	

Inst HRMS-8      Date/Time IN: 10/22/19      Date/Time OUT: 10/24/19  
13:45

Particle Size	SampID	SampType	Intial and Date:		Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl- Before	pH After	pH Added	Acid Added	Sample Homogenized*
			Pan Tare Wt. (gms)	Date										
			<u>00</u>	<u>10/22/19</u>										
				<u>TL</u>					<u>00</u>	<u>10/22/19</u>		<u>AM</u>		<u>00</u> <u>10/22/19</u>
	<u>1903651-01</u>	<u>Sample</u>	<u>1.28</u>		<u>6.19</u>	<u>4.13</u>		<u>Mud</u>						X
	<u>1903651-02</u>	<u>Sample</u>	<u>1.28</u>		<u>10.26</u>	<u>7.30</u>								X
	<u>1903651-03</u>	<u>Sample</u>	<u>1.29</u>		<u>7.92</u>	<u>5.97</u>								X
	<u>1903651-04</u>	<u>Sample</u>	<u>1.29</u>		<u>6.71</u>	<u>5.18</u>								X
	<u>1903651-05</u>	<u>Sample</u>	<u>1.28</u>		<u>7.19</u>	<u>5.91</u>								X
	<u>1903651-06</u>	<u>Sample</u>	<u>1.29</u>		<u>8.60</u>	<u>6.47</u>								X
	<u>1903651-07</u>	<u>Sample</u>	<u>1.29</u>		<u>9.21</u>	<u>7.51</u>								X

\*Sample homogenized in sample container unless otherwise noted.

Batch: B9L0043

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1903651-03RE2	13.37 ✓	75.12038	10.0436	20	05-Dec-19 06:06	ACO			Sediment	1613 Full List
1904075-01	10.5 ✓	98.56115	10.3489	20	05-Dec-19 06:06	ACO			Clay	8290 Full List
1904075-02	10.05 ✓	99.09707	9.9593	20	05-Dec-19 06:06	ACO			Clay	8290 Full List
B9L0043-BLK1	10			20	05-Dec-19 06:06	ACO				QC
B9L0043-BS1	10			20	05-Dec-19 06:06	ACO	18F1913 ✓	10 ✓		QC

All bolded data on report verified against written benchsheet by (initial/date) KL 12/10/19

SAMPLE DATA – EPA METHOD 1613

Client ID: Method Blank  
 Lab ID: B9J0312 BLK1

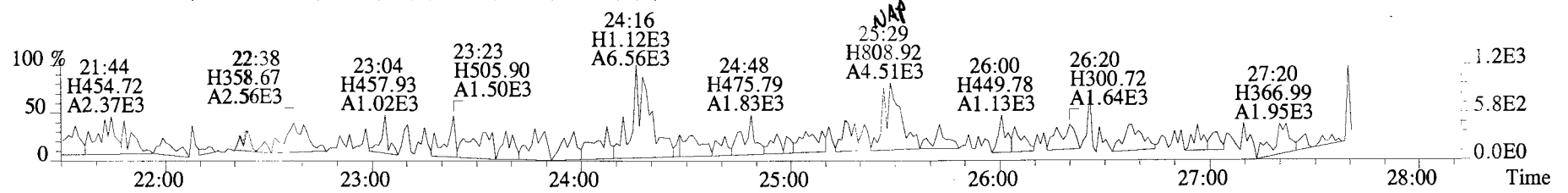
Filename: 191101D1 S:5 Acq:1-NOV-19 10:44  
 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol:10.000

ConCal: ST191101D1-1  
 EndCAL: NA

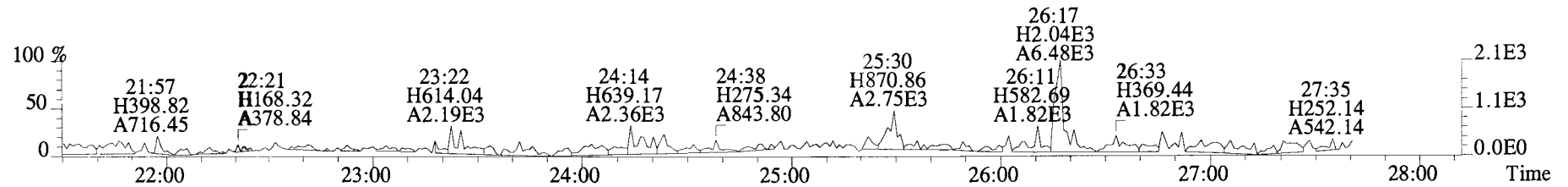
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	*	* n	0.91	Not F $\eta$	*		107	2.5	0.0535	Total Tetra-Dioxins	*	*		107	0.0535
1,2,3,7,8-PeCDD	*	* n	0.90	Not F $\eta$	*		231	2.5	0.101	Total Penta-Dioxins	*	*		231	0.101
1,2,3,4,7,8-HxCDD	*	* n	1.10	Not F $\eta$	*		130	2.5	0.105	Total Hexa-Dioxins	*	*		130	0.111
1,2,3,6,7,8-HxCDD	*	* n	0.94	Not F $\eta$	*		130	2.5	0.110	Total Hepta-Dioxins	*	*		158	0.148
1,2,3,7,8,9-HxCDD	*	* n	0.96	Not F $\eta$	*		130	2.5	0.115	Total Tetra-Furans	*	*		180	0.0610
1,2,3,4,6,7,8-HpCDD	*	* n	0.98	Not F $\eta$	*		158	2.5	0.148	Total Penta-Furans	0.0000	0.0000		200	0.0820
OCDD	*	* n	0.96	Not F $\eta$	*		142	2.5	0.179	Total Hexa-Furans	*	*		172	0.0636
										Total Hepta-Furans	*	*		147	0.0883
2,3,7,8-TCDF	*	* n	0.95	Not F $\eta$	*		180	2.5	0.0610						
1,2,3,7,8-PeCDF	*	* n	0.96	Not F $\eta$	*		200	2.5	0.0826						
2,3,4,7,8-PeCDF	*	* n	1.01	Not F $\eta$	*		200	2.5	0.0815						
1,2,3,4,7,8-HxCDF	*	* n	1.18	Not F $\eta$	*		172	2.5	0.0521						
1,2,3,6,7,8-HxCDF	*	* n	1.07	Not F $\eta$	*		172	2.5	0.0576						
2,3,4,6,7,8-HxCDF	*	* n	1.11	Not F $\eta$	*		172	2.5	0.0631						
1,2,3,7,8,9-HxCDF	*	* n	1.06	Not F $\eta$	*		172	2.5	0.0850						
1,2,3,4,6,7,8-HpCDF	*	* n	1.13	Not F $\eta$	*		147	2.5	0.0945						
1,2,3,4,7,8,9-HpCDF	*	* n	1.28	Not F $\eta$	*		147	2.5	0.0813						
OCDF	6.35e+03	1.05 n	0.95	41:26	0.30172		*	2.5	*						
										Rec			Qual		
IS	13C-2,3,7,8-TCDD	6.94e+06	0.78 y	1.10	26:15	190.67				95.3					
IS	13C-1,2,3,7,8-PeCDD	5.80e+06	0.62 y	0.88	30:44	197.81				98.9					
IS	13C-1,2,3,4,7,8-HxCDD	4.55e+06	1.31 y	0.64	34:03	203.31				102					
IS	13C-1,2,3,6,7,8-HxCDD	5.27e+06	1.31 y	0.86	34:09	176.76				88.4					
IS	13C-1,2,3,7,8,9-HxCDD	5.16e+06	1.27 y	0.81	34:27	183.77				91.9					
IS	13C-1,2,3,4,6,7,8-HpCDD	4.25e+06	1.08 y	0.65	37:54	186.51				93.3					
IS	13C-OCDD	6.91e+06	0.91 y	0.58	41:12	342.23				85.6					
IS	13C-2,3,7,8-TCDF	1.03e+07	0.78 y	1.03	25:29	184.51				92.3					
IS	13C-1,2,3,7,8-PeCDF	9.82e+06	1.58 y	0.85	29:35	212.40				106					
IS	13C-2,3,4,7,8-PeCDF	9.22e+06	1.58 y	0.85	30:27	201.10				101					
IS	13C-1,2,3,4,7,8-HxCDF	6.58e+06	0.50 y	0.83	33:09	226.97				113					
IS	13C-1,2,3,6,7,8-HxCDF	7.05e+06	0.53 y	1.03	33:17	195.73				97.9					
IS	13C-2,3,4,6,7,8-HxCDF	6.28e+06	0.51 y	0.95	33:53	189.26				94.6					
IS	13C-1,2,3,7,8,9-HxCDF	5.89e+06	0.51 y	0.83	34:50	204.19				102					
IS	13C-1,2,3,4,6,7,8-HpCDF	4.43e+06	0.44 y	0.76	36:41	167.73				83.9					
IS	13C-1,2,3,4,7,8,9-HpCDF	3.94e+06	0.43 y	0.58	38:27	194.75				97.4					
IS	13C-OCDF	8.88e+06	0.89 y	0.69	41:25	370.13				92.5					
C/Up	37C1-2,3,7,8-TCDD	3.03e+06		1.20	26:17	76.047				95.1					
RS/RT	13C-1,2,3,4-TCDD	6.65e+06	0.78 y	1.00	25:43	200.00									
RS	13C-1,2,3,4-TCDF	1.08e+07	0.78 y	1.00	24:17	200.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	6.97e+06	0.51 y	1.00	33:34	200.00									

Integrations  
 by DB  
 Analyst: DB  
 Reviewed  
 by CT  
 Analyst: CT  
 Date: 11/4/19  
 Date: 11/06/19

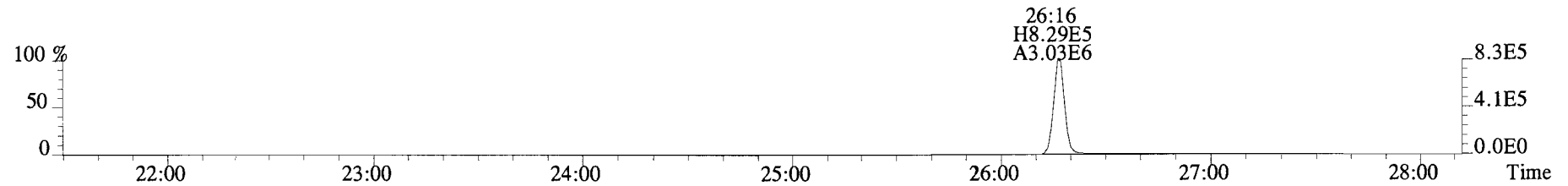
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



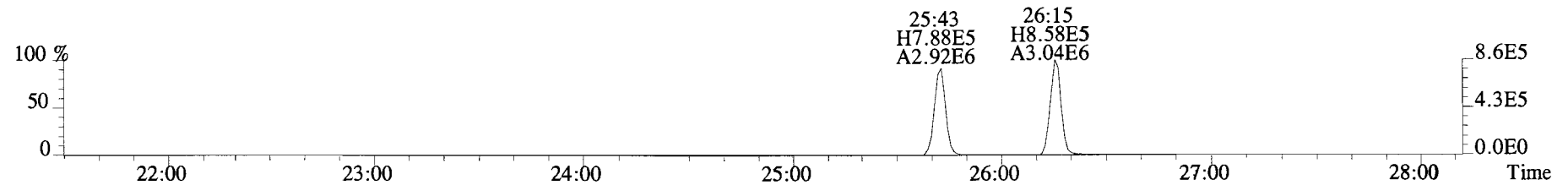
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



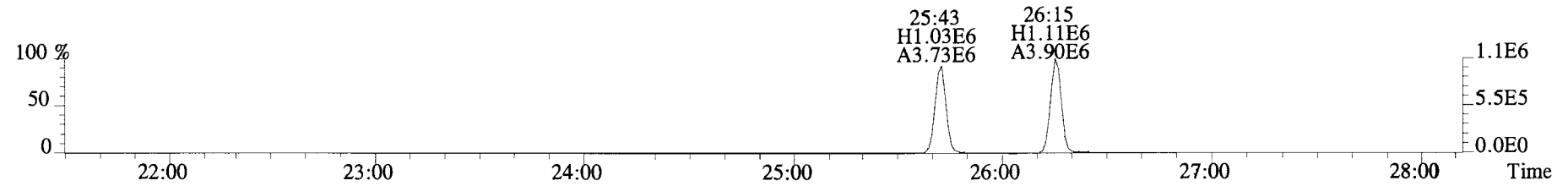
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



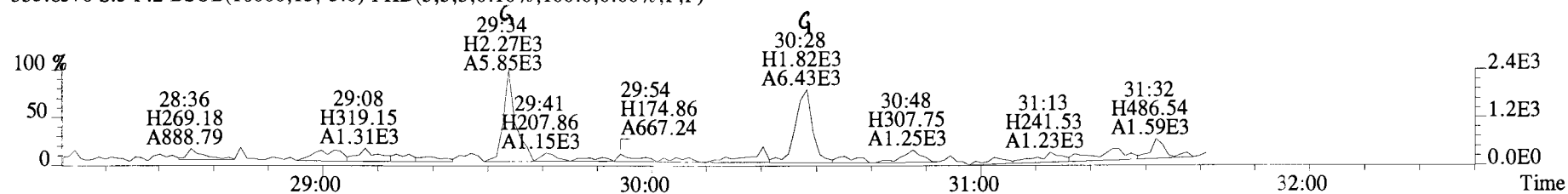
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



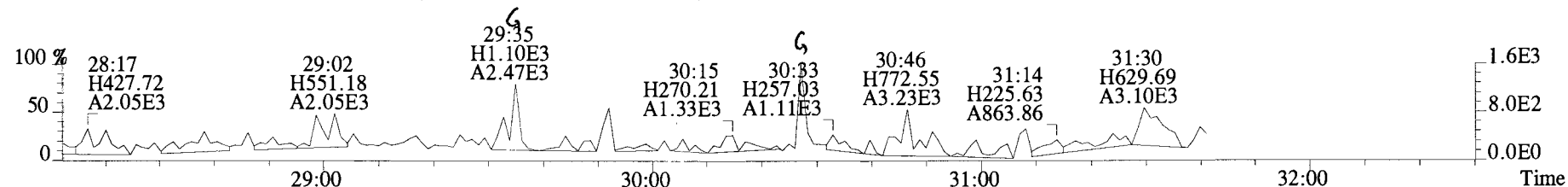
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



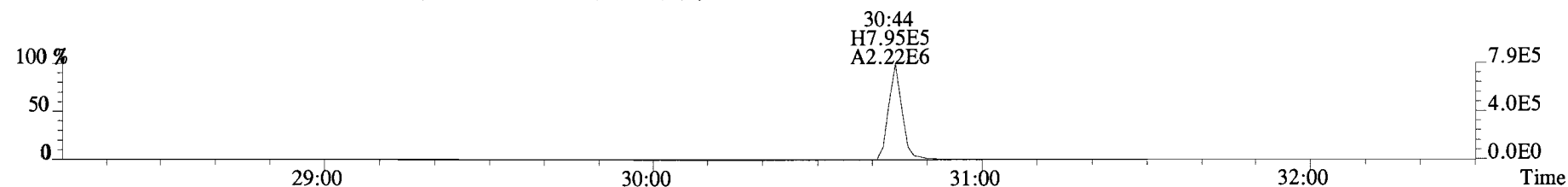
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Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



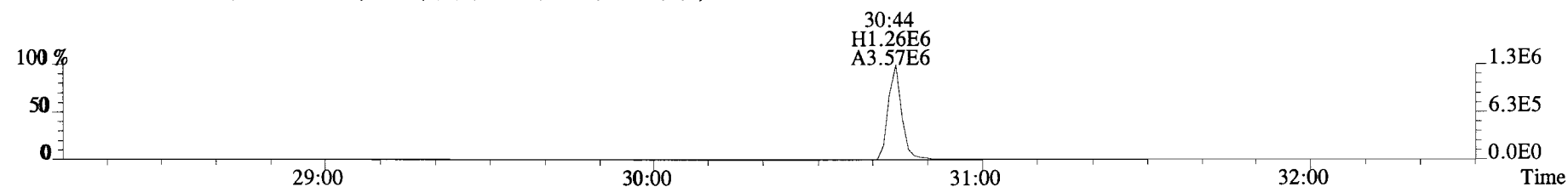
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



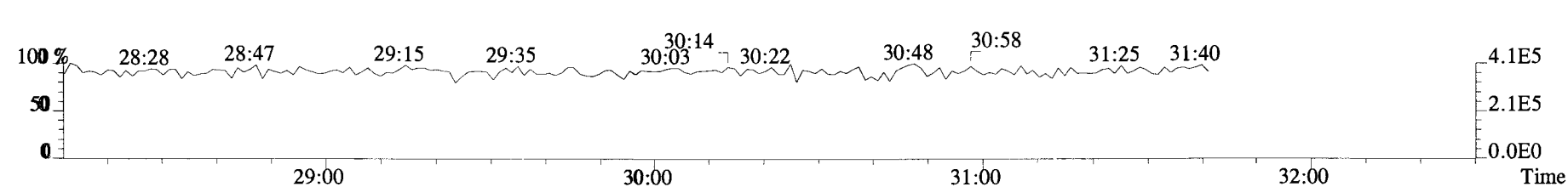
365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

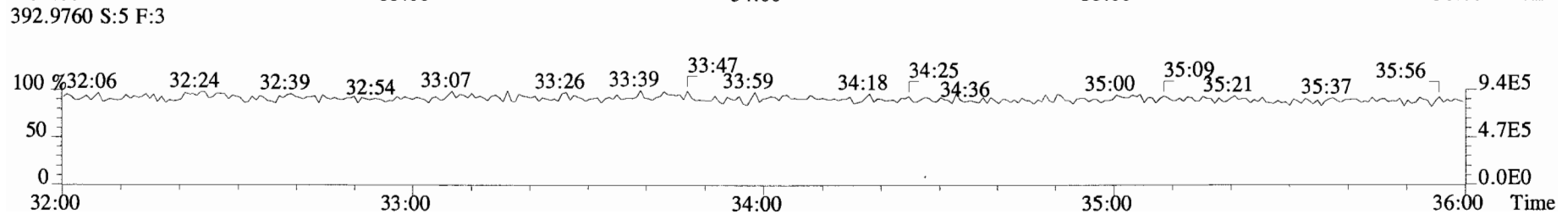
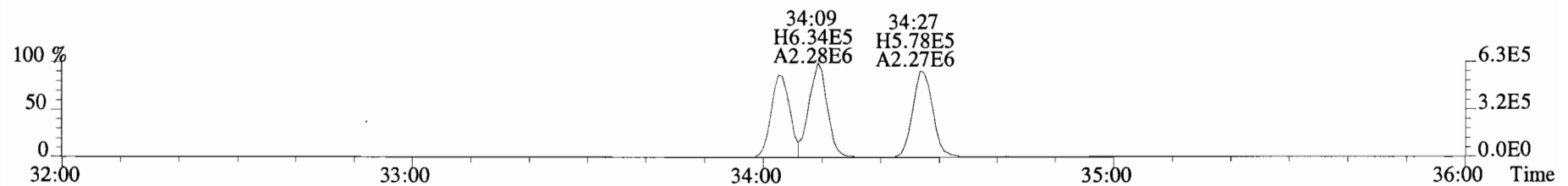
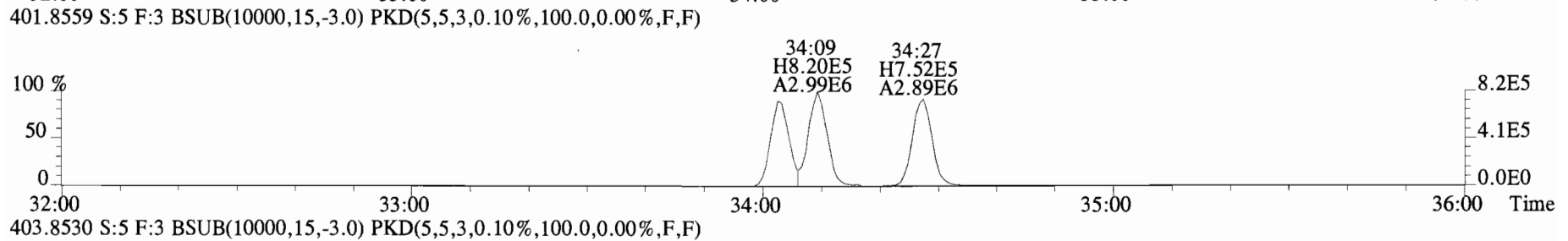
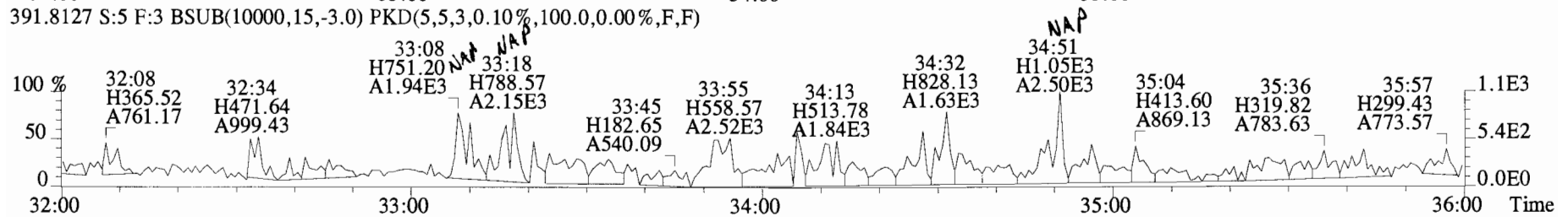
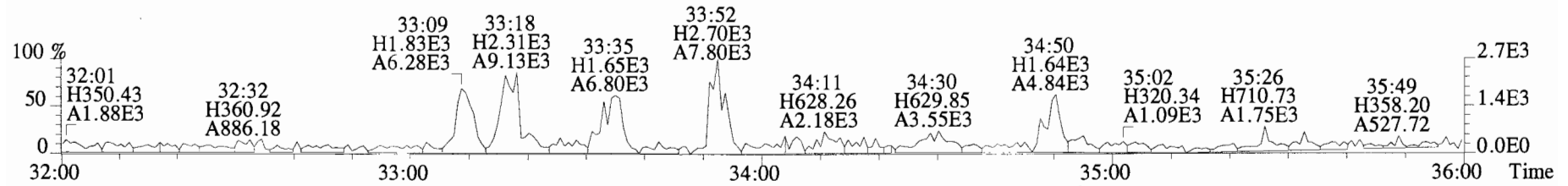


366.9792 S:5 F:2

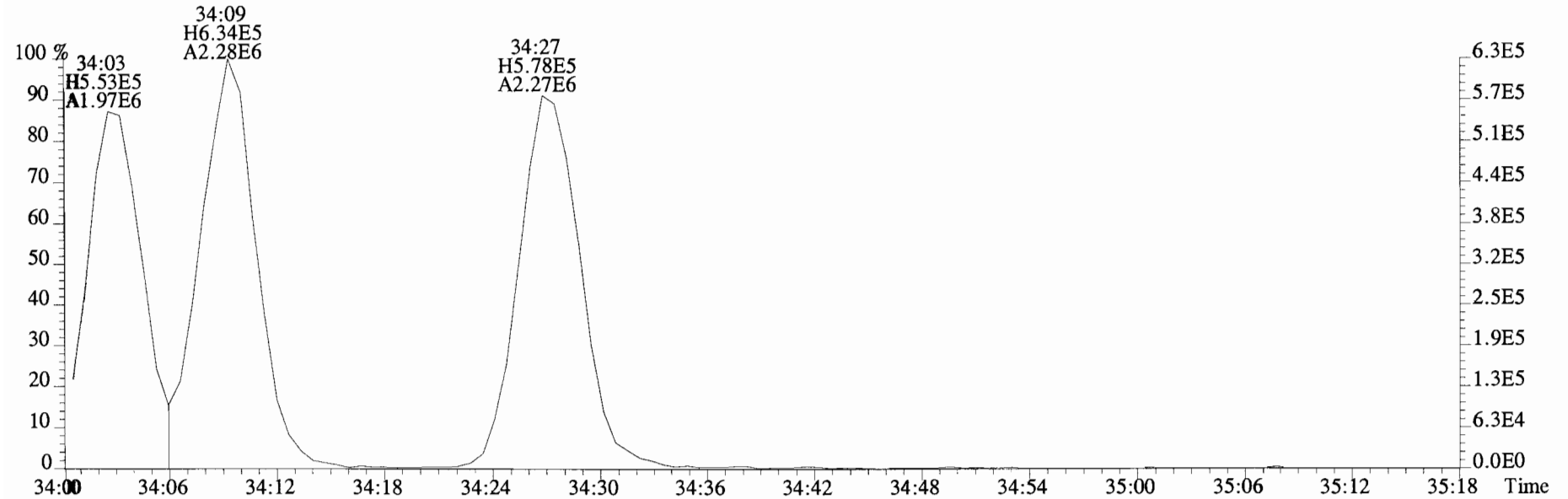
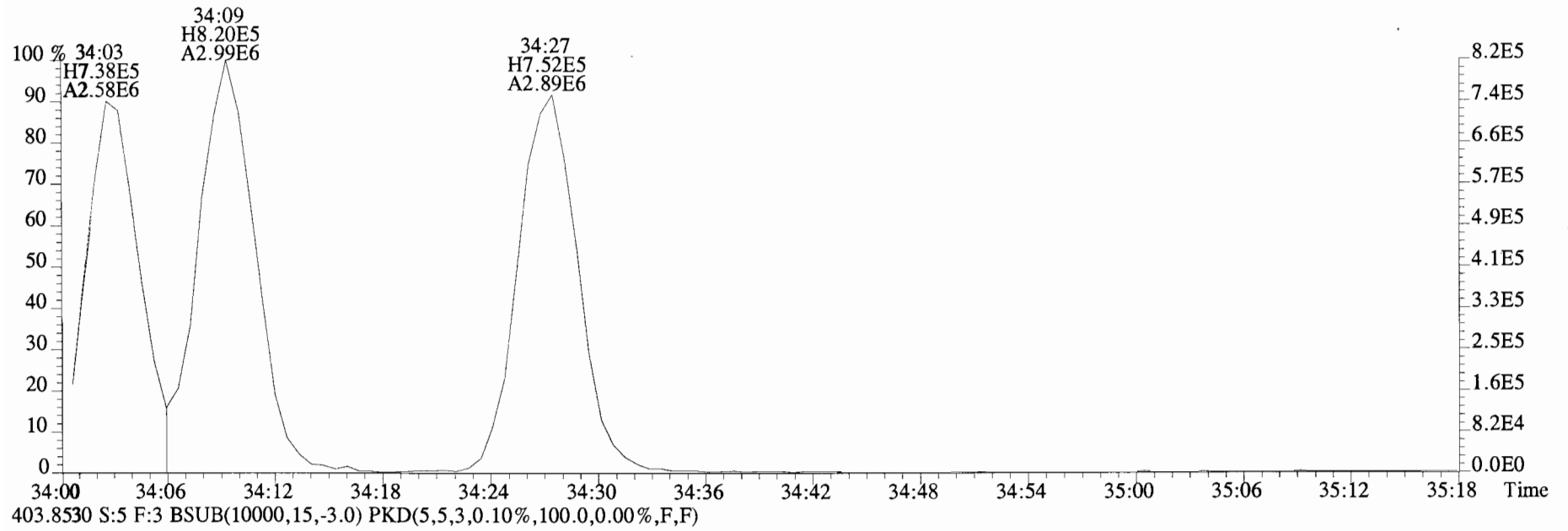




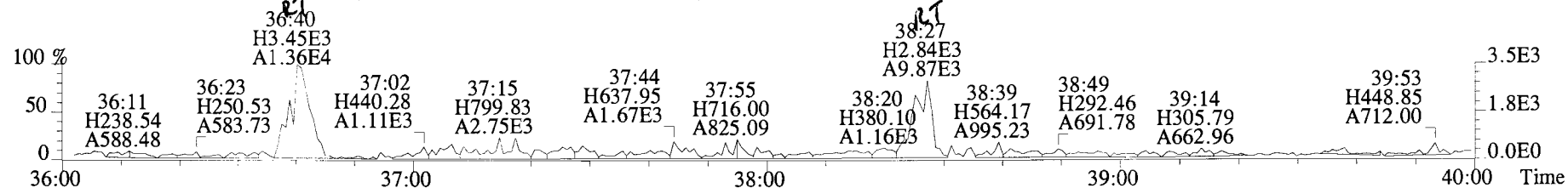
File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



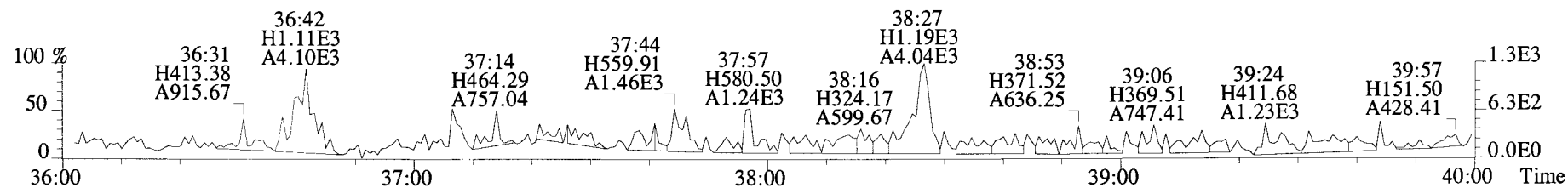
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Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



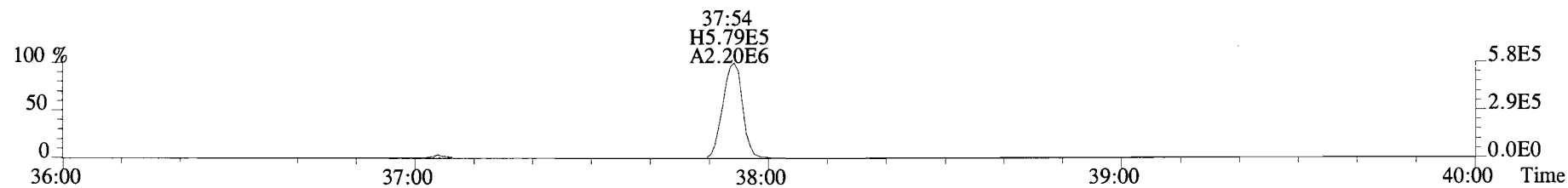
File:191101D1 #1-355 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



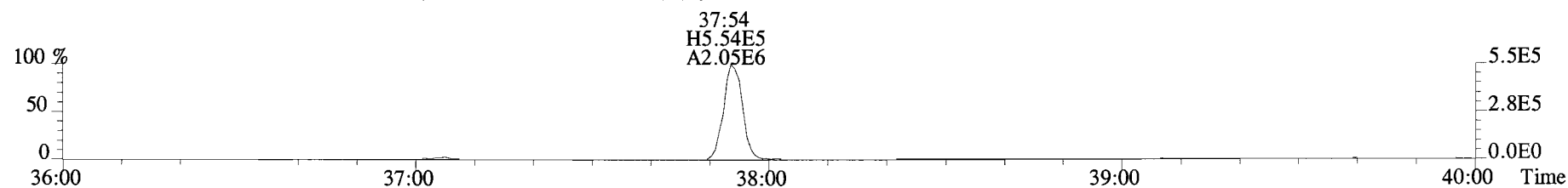
425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



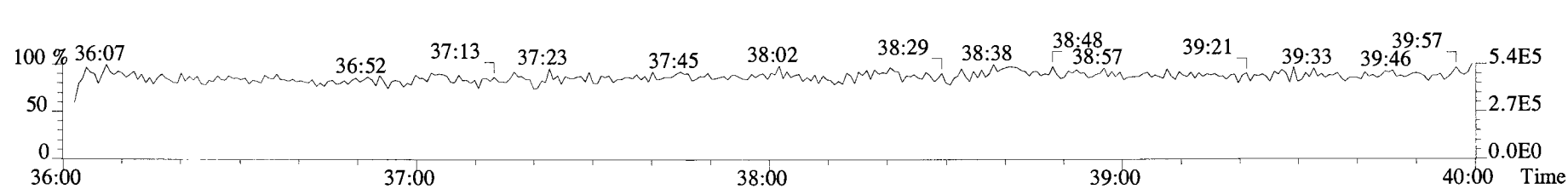
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



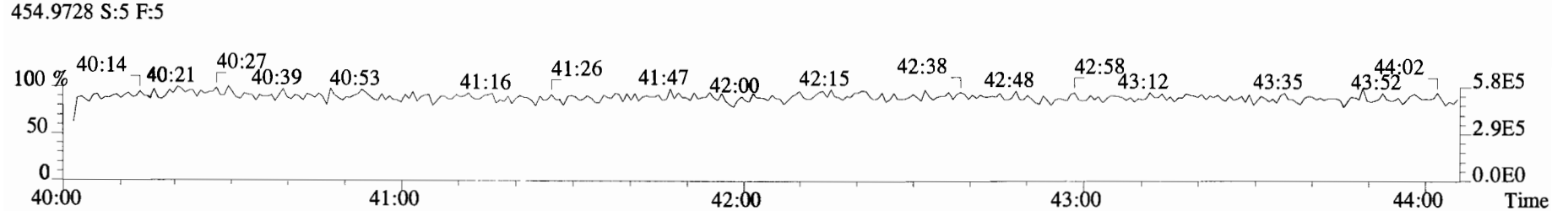
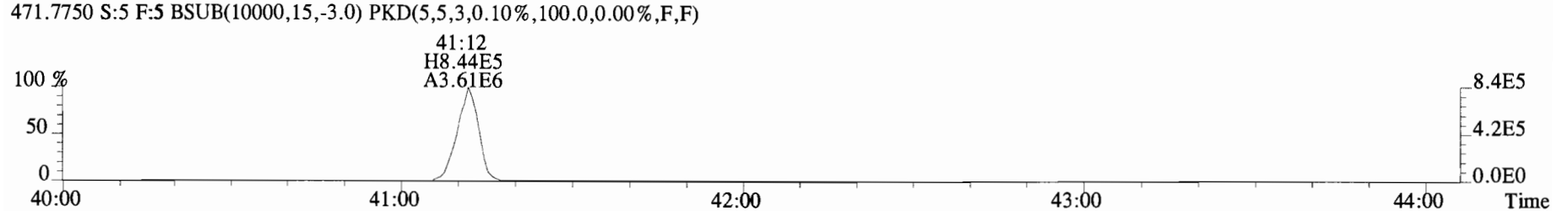
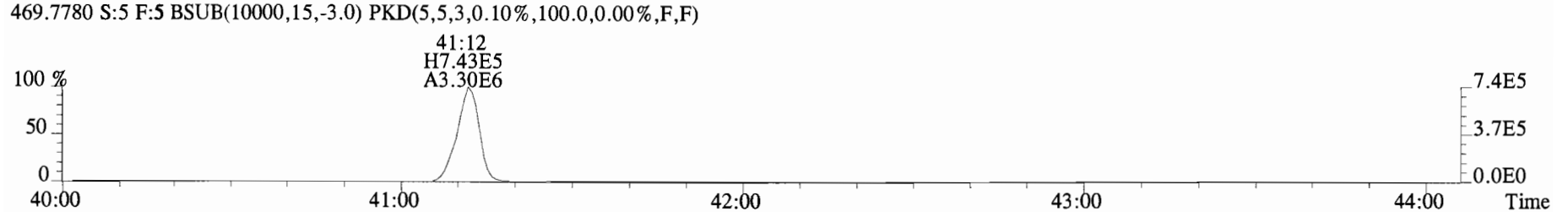
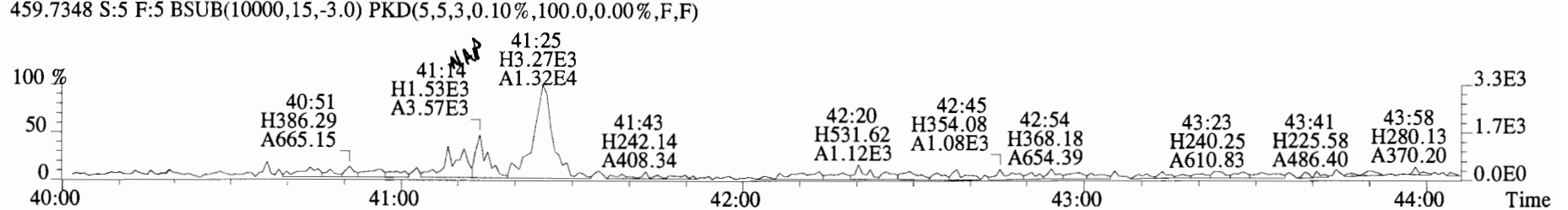
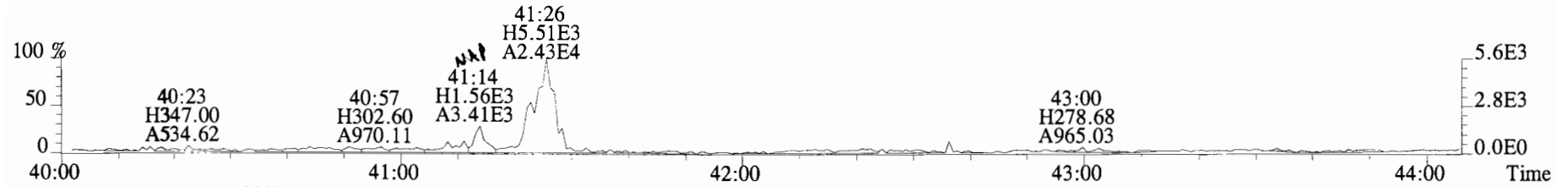
437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



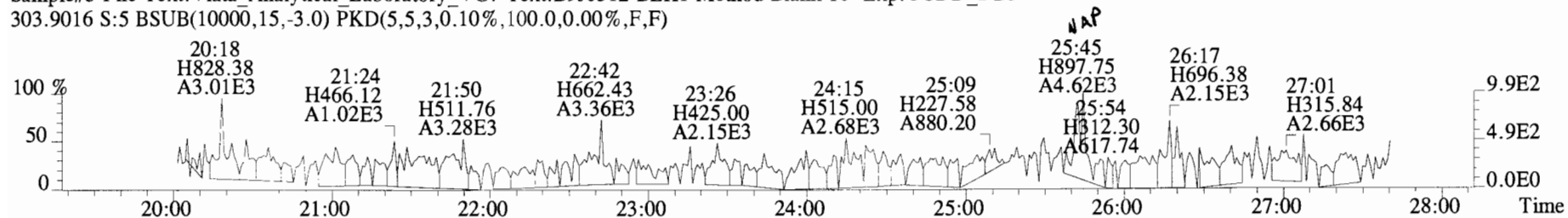
454.9728 S:5 F:4



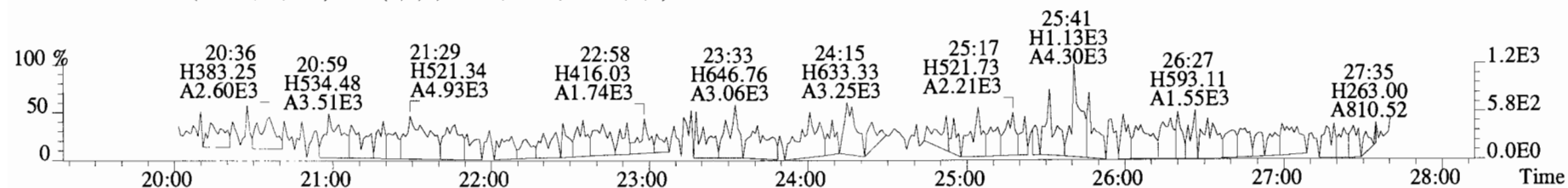
File:191101D1 #1-432 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



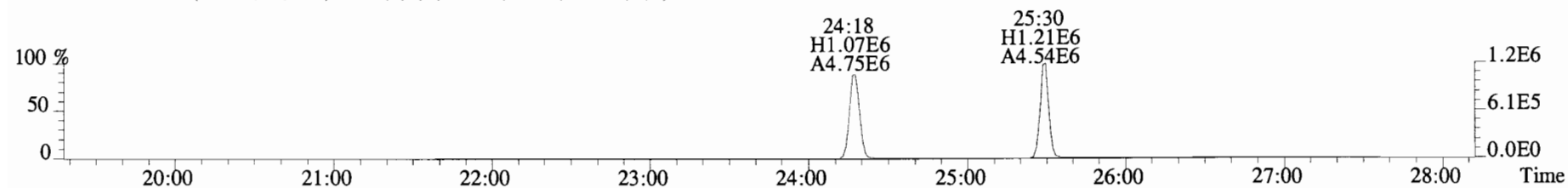
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



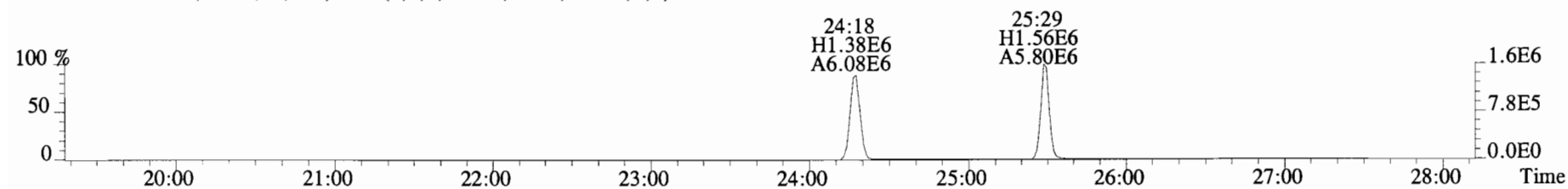
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



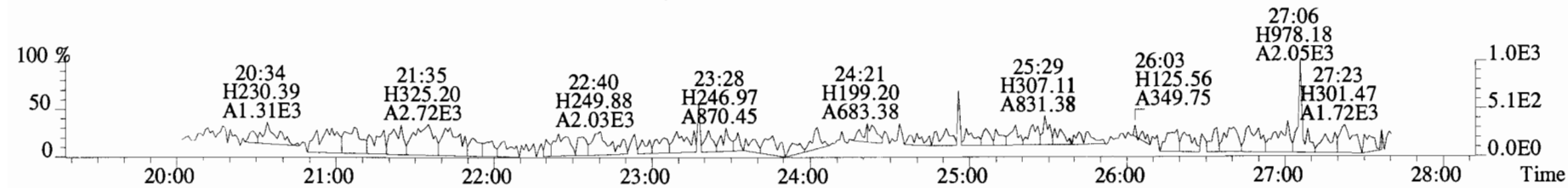
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



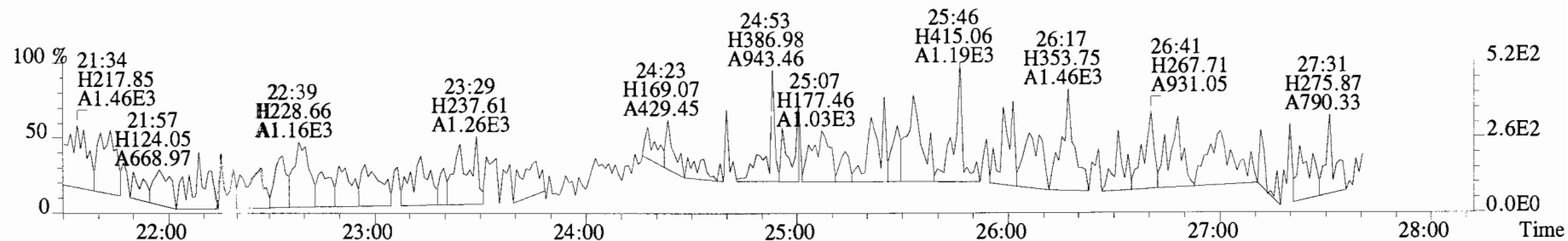
317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



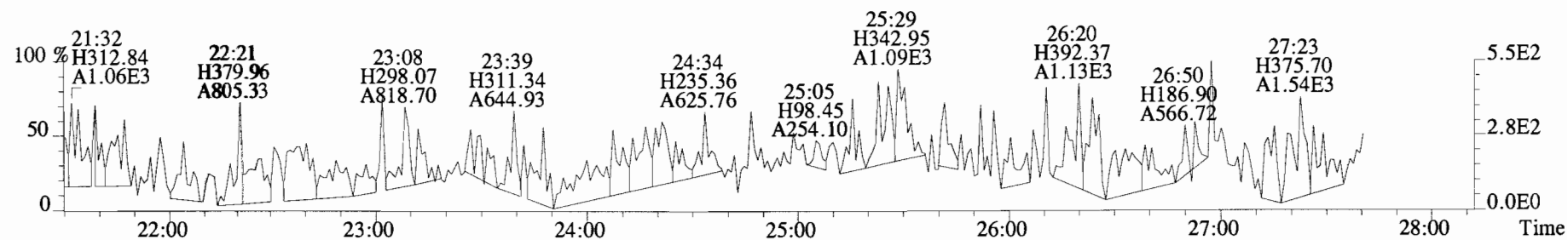
375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



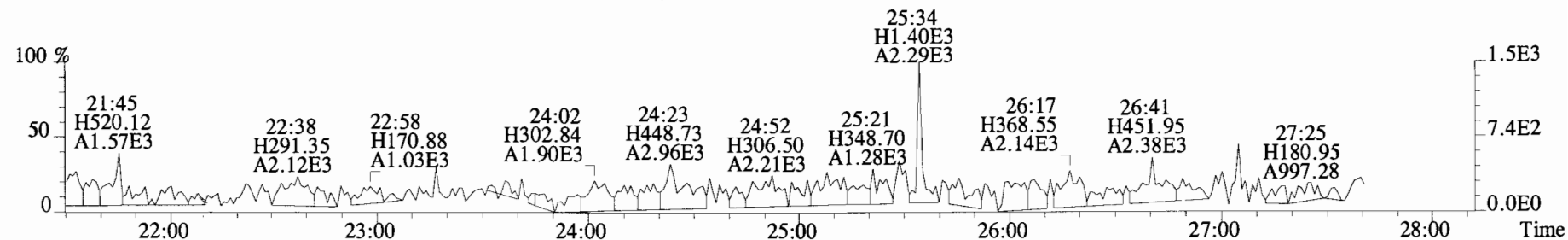
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



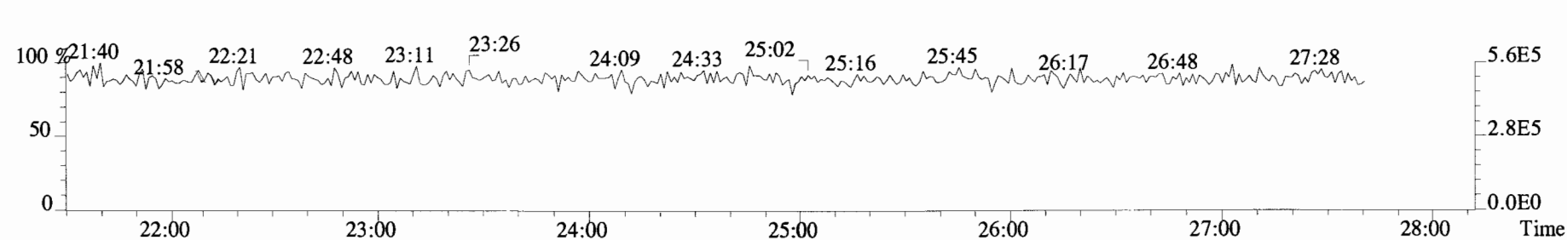
341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



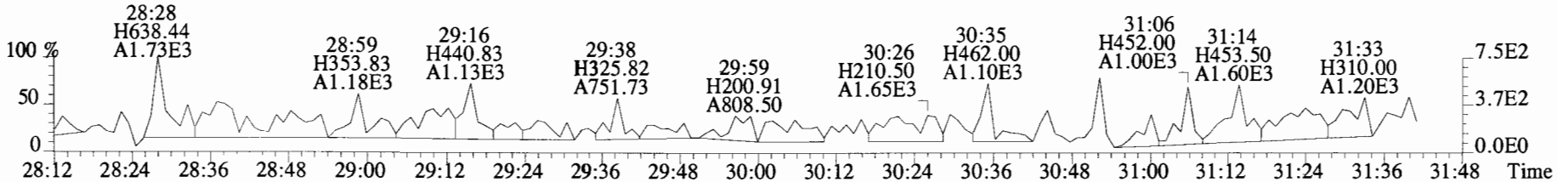
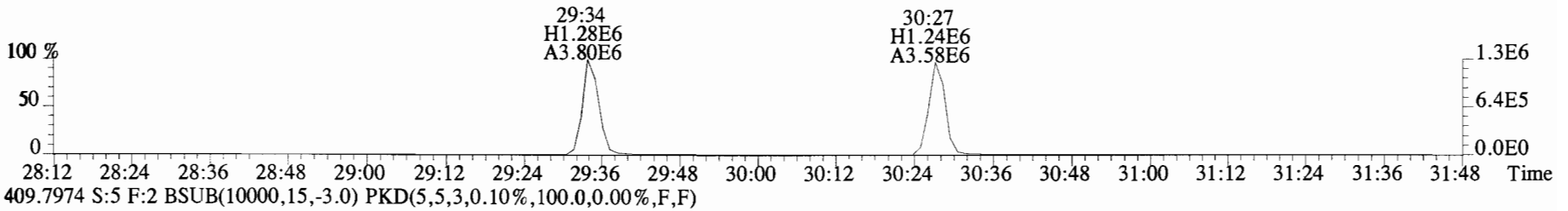
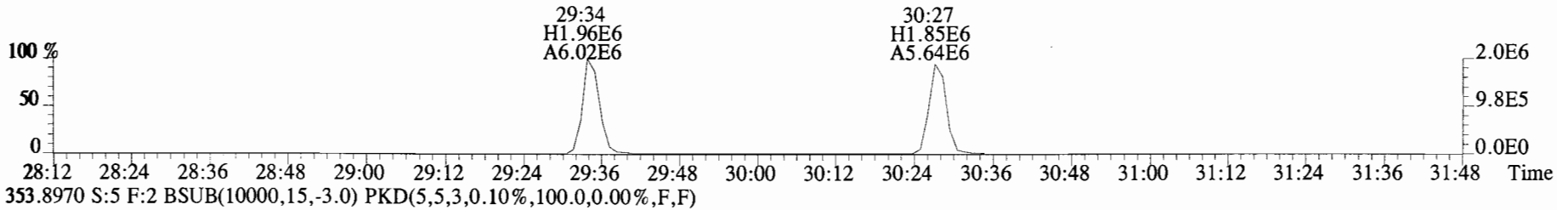
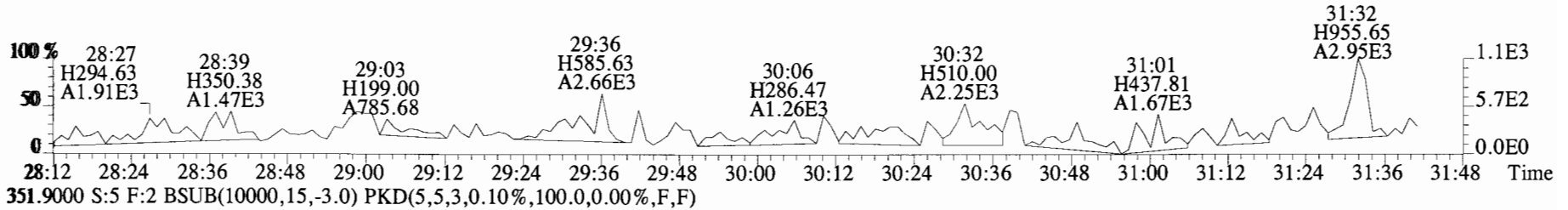
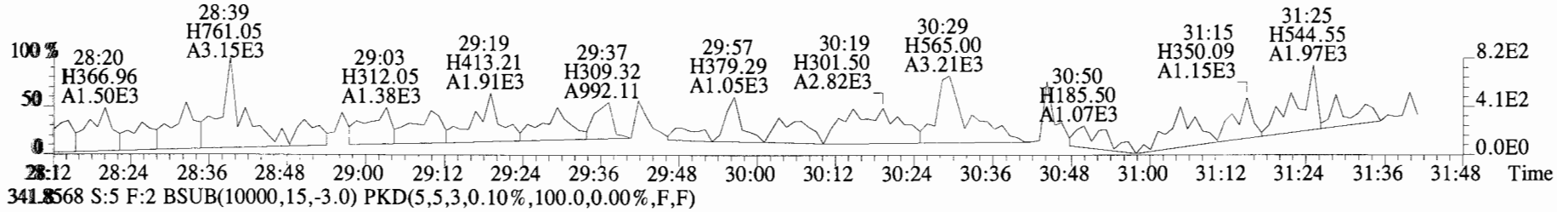
409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



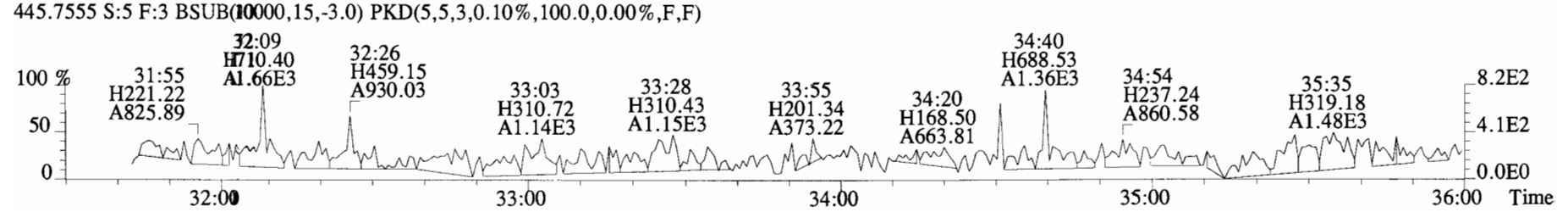
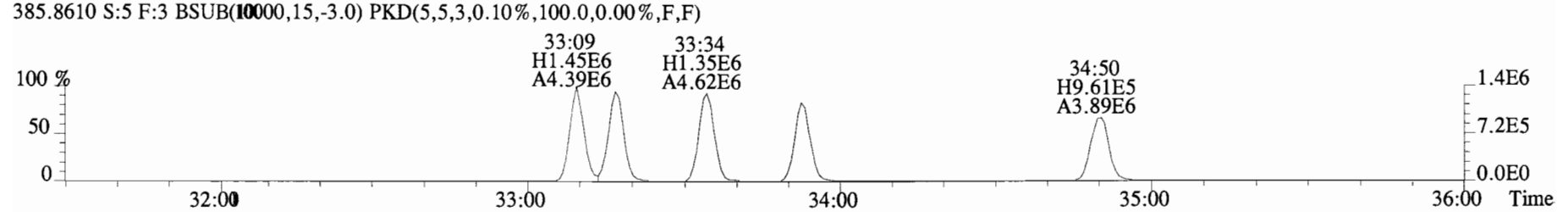
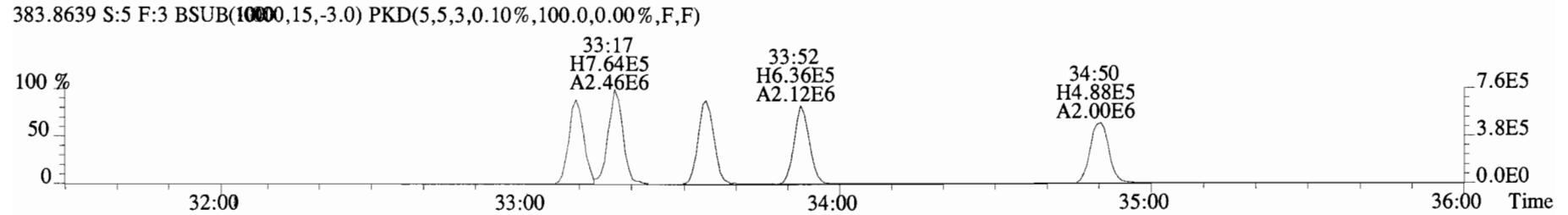
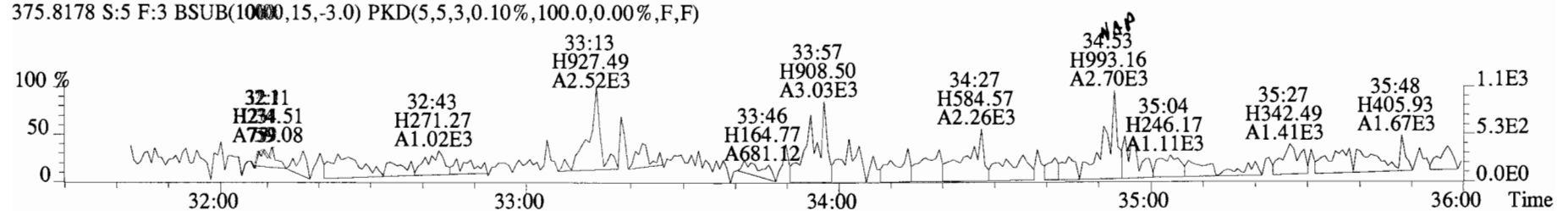
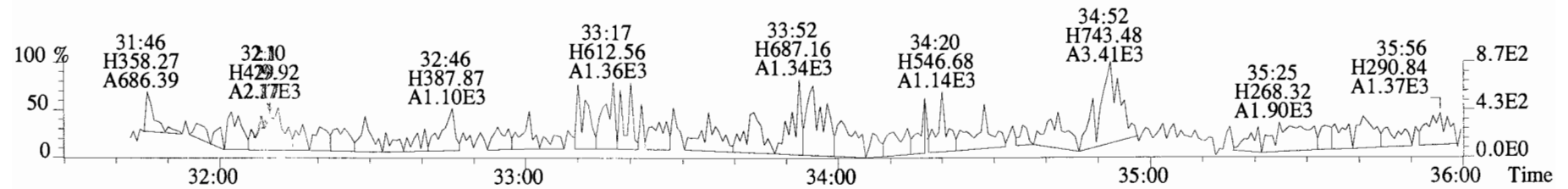
316.9824 S:5



File: 191101D1 #1-211 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Viata Analytical\_Laboratory\_VG7 Text: B9J0312-BLK1 Method Blank 10 Exp: OCDD\_DB5  
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

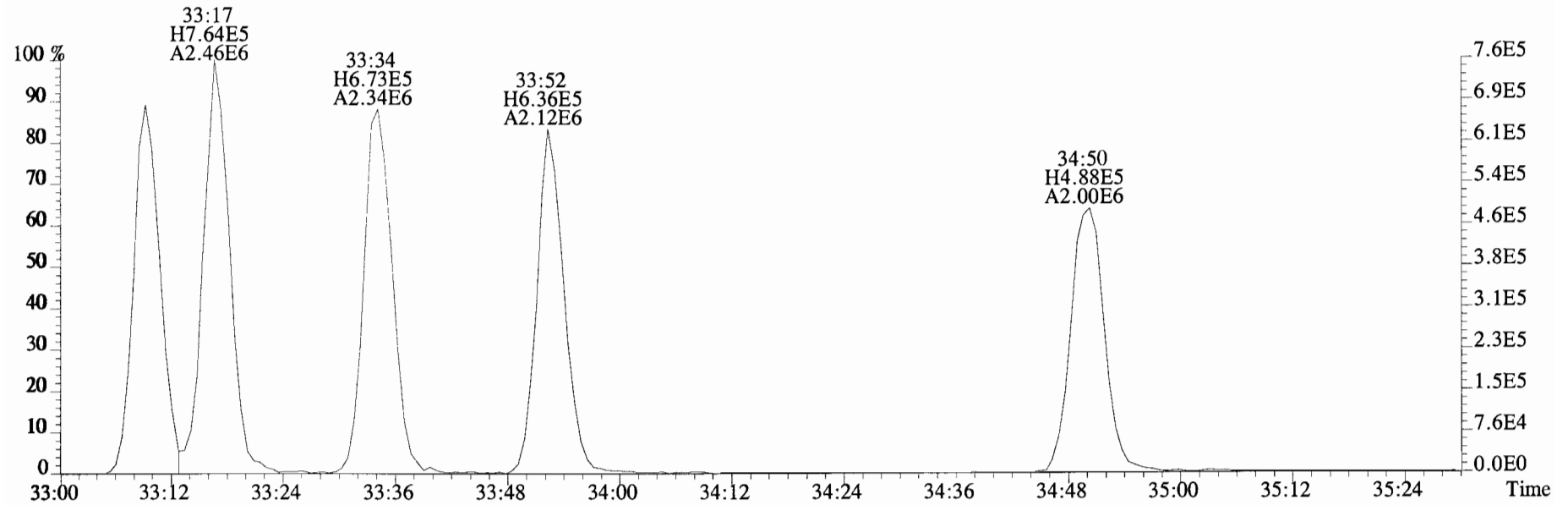


File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

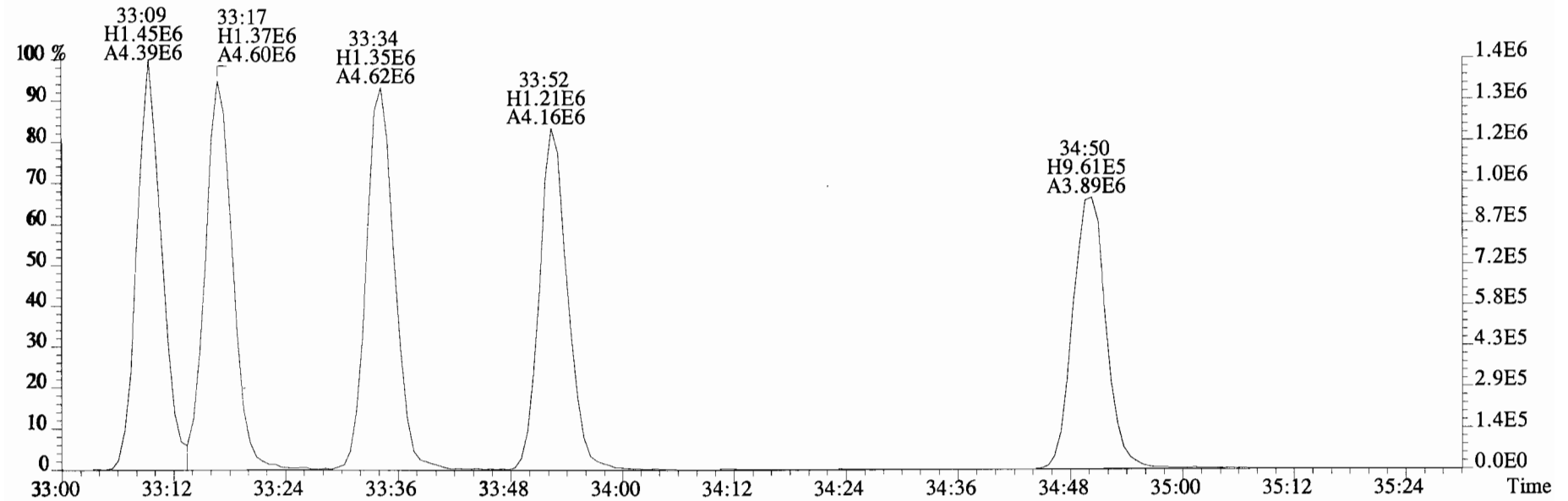




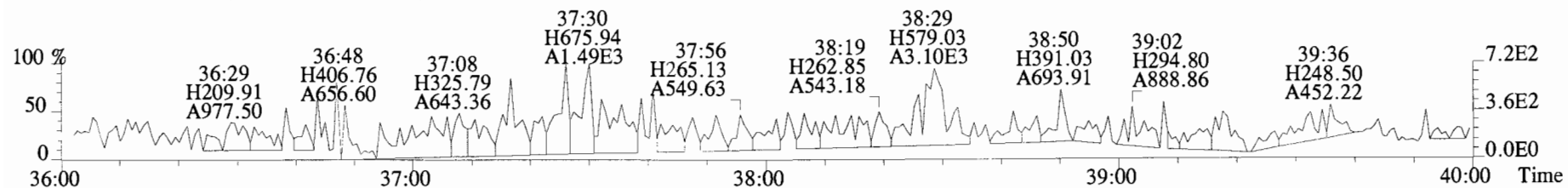
File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



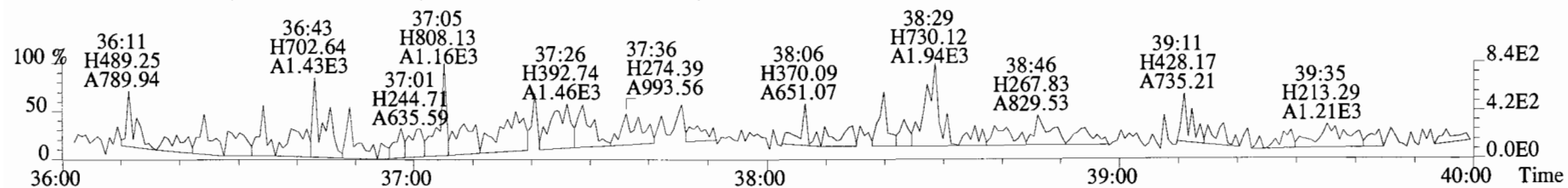
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



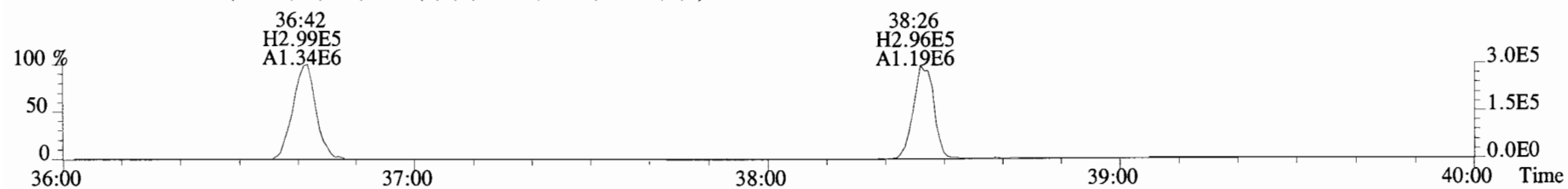
File:191101D1 #1-355 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
407.7818 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



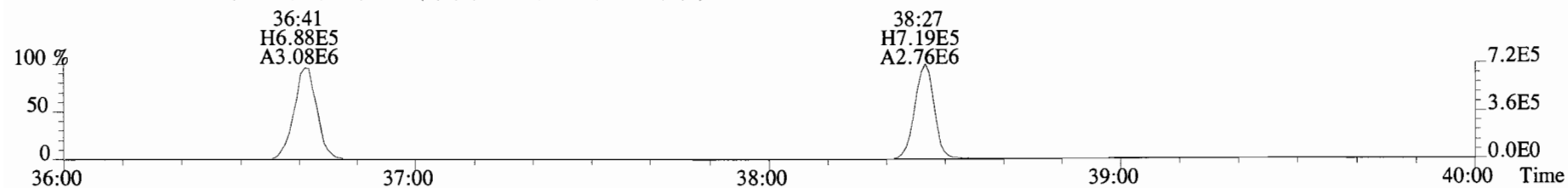
409.7788 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



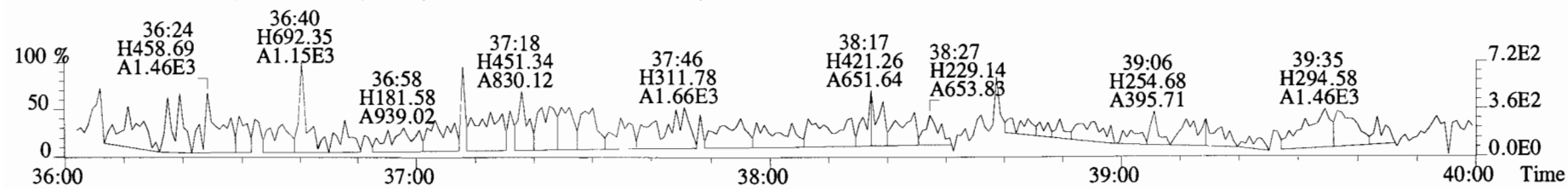
417.8253 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



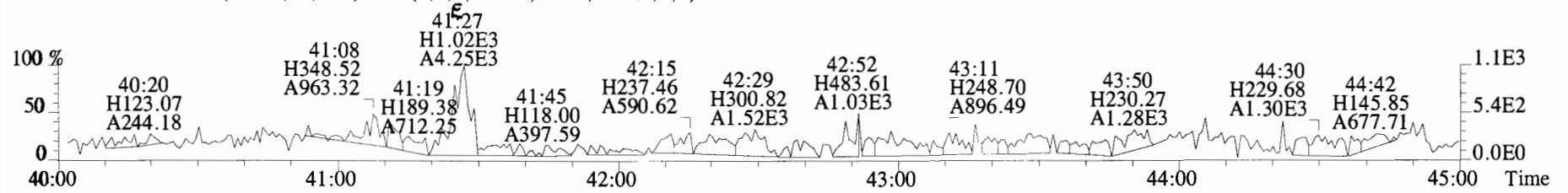
419.8220 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



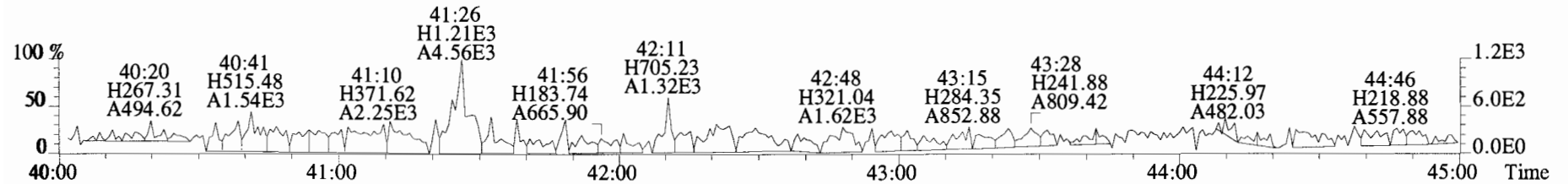
479.7165 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



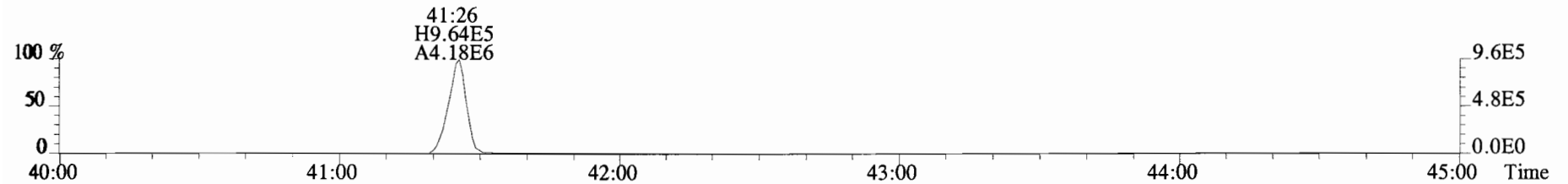
File:191101D1 #1-432 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



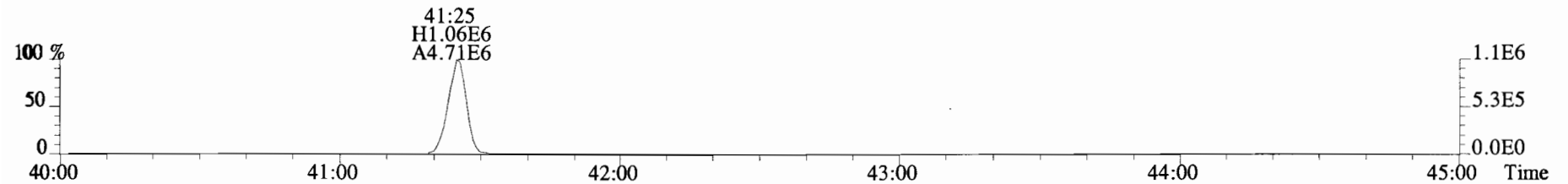
443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



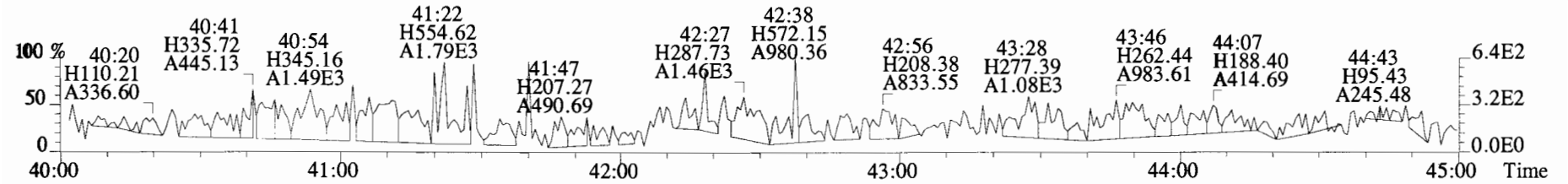
453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



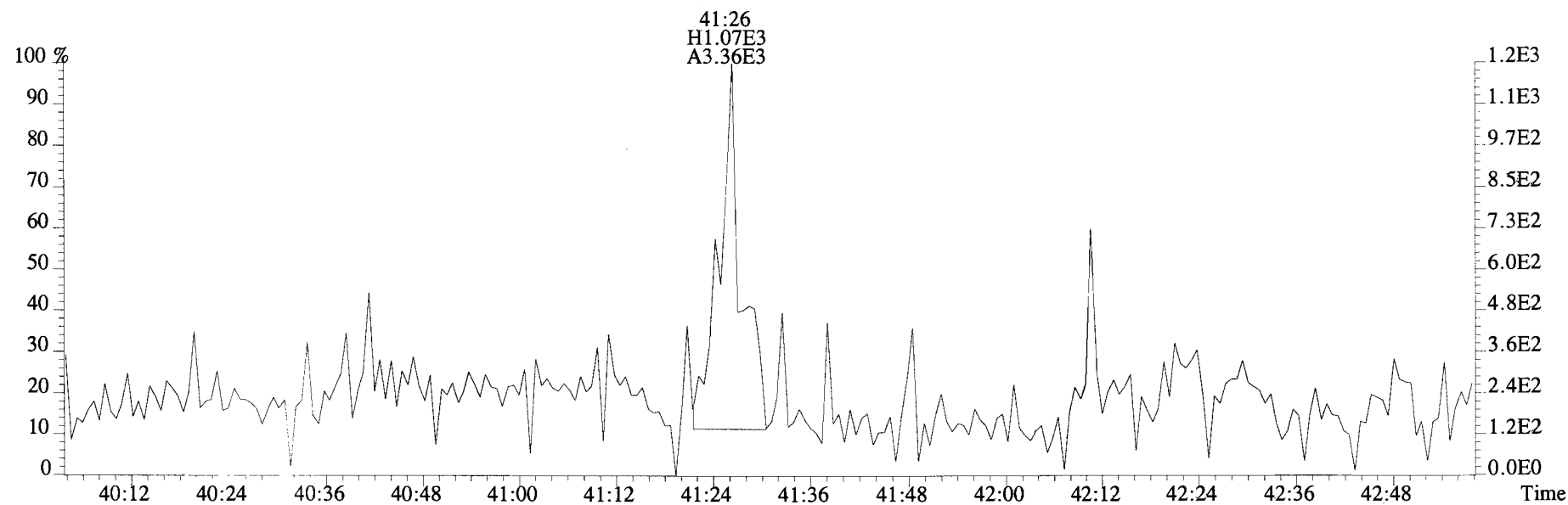
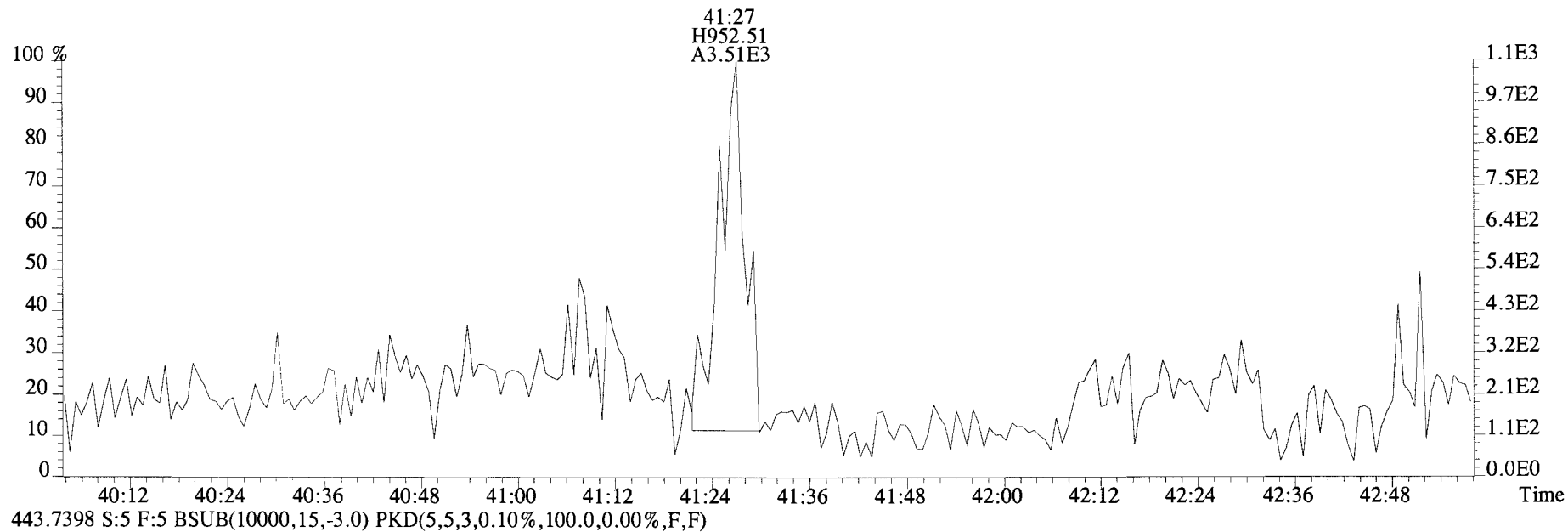
455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191101D1 #1-432 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



## FORM 8A

## PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory      Extraction Batch: B9J0312-BS1

Contract No.:      SAS No.:

Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191101D1-3

Ext. Date:      Shift: Day      Analysis Date: 1-NOV-19      Time: 15:34:58

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	11.6	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	55.8	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	55.4	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	54.0	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	55.2	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	52.2	35.0 - 70.0
OCDD	100	107	78.0 - 144.0
2,3,7,8-TCDF	10	10.5	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	55.2	40.0 - 67.0
2,3,4,7,8-PeCDF	50	55.1	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	51.5	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	51.0	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	52.6	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	51.3	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	50.1	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	50.1	39.0 - 69.0
OCDF	100	102	63.0 - 170.0

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DBDate: 11/4/19

FORM 8B  
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory      Extraction Batch: B9J0219-851

Contract No.:                      SAS No.:

Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191101D1-3

Ext. Date:                      Shift: Day      Analysis Date: 1-NOV-19      Time: 15:34:58

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

LABELLED COMPOUNDS	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
13C-2,3,7,8-TCDD	100	92.6	20.0 - 175.0 25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	91.1	21.0 - 227.0
13C-1,2,3,4,7,8-HxCDD	100	93.8	21.0 - 193.0
13C-1,2,3,6,7,8-HxCDD	100	80.8	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	84.2	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	87.0	26.0 - 166.0
13C-OCDD	200	166	26.0 - 397.0
13C-2,3,7,8-TCDF	100	86.8	22.0 - 152.0 26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	93.8	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	89.4	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	99.7	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	88.8	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	86.9	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	92.9	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	81.5	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	90.6	20.0 - 186.0
13C-OCDF	200	172	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	39.6	12.4 - 76.4

(1) Contract-required concentration limits for OPR  
as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR  
as specified in Table 6a, Method 1613. 10/94

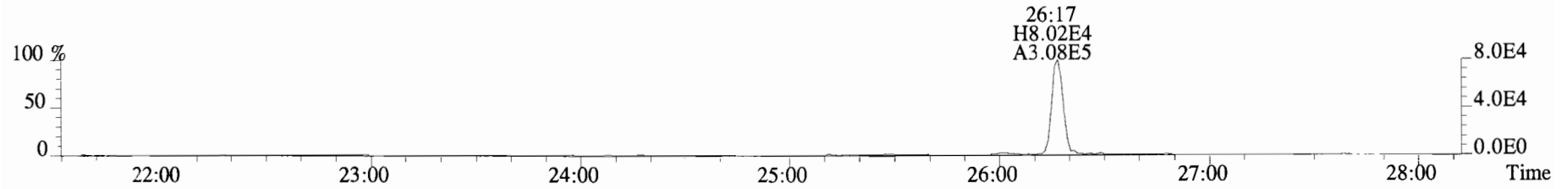
Analyst: DB

Date: 11/6/19

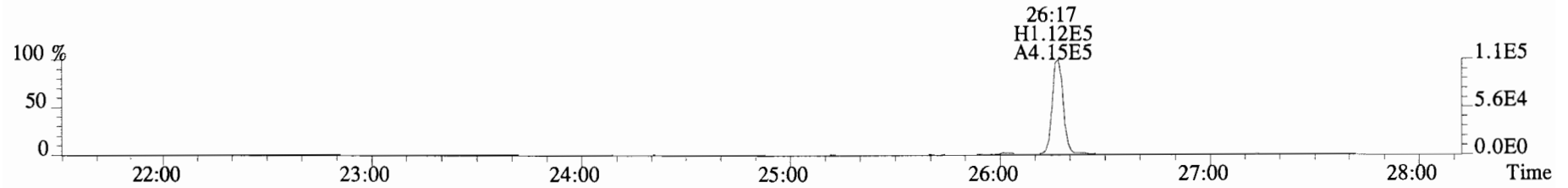
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac		Name	Conc	EMPC	Qual	noise	TD
2,3,7,8-TCDD	7.24e+05	0.74 y	0.91	26:17	11.596		* 2.5		*	Total Tetra-Dioxins	11.6	13.1	*		*
1,2,3,7,8-PeCDD	2.75e+06	0.62 y	0.90	30:46	55.848		* 2.5		*	Total Penta-Dioxins	56.0	56.1	*		*
1,2,3,4,7,8-HxCDD	2.60e+06	1.27 y	1.10	34:04	55.378		* 2.5		*	Total Hexa-Dioxins	165	166	*		*
1,2,3,6,7,8-HxCDD	2.48e+06	1.26 y	0.94	34:11	54.013		* 2.5		*	Total Hepta-Dioxins	52.9	54.5	*		*
1,2,3,7,8,9-HxCDD	2.55e+06	1.24 y	0.96	34:29	55.220		* 2.5		*	Total Tetra-Furans	11.0	12.6	*		*
1,2,3,4,6,7,8-HpCDD	2.05e+06	1.01 y	0.98	37:55	52.159		* 2.5		*	Total Penta-Furans	110.41	112.47	*		*
OCDD	3.51e+06	0.90 y	0.96	41:13	107.45		* 2.5		*	Total Hexa-Furans	207	207	*		*
										Total Hepta-Furans	101	102	*		*
2,3,7,8-TCDF	9.91e+05	0.79 y	0.95	25:30	10.453		* 2.5		*						
1,2,3,7,8-PeCDF	4.72e+06	1.57 y	0.96	29:35	55.234		* 2.5		*						
2,3,4,7,8-PeCDF	4.71e+06	1.59 y	1.01	30:29	55.143		* 2.5		*						
1,2,3,4,7,8-HxCDF	3.55e+06	1.23 y	1.18	33:11	51.522		* 2.5		*						
1,2,3,6,7,8-HxCDF	3.54e+06	1.22 y	1.07	33:18	50.998		* 2.5		*						
2,3,4,6,7,8-HxCDF	3.43e+06	1.22 y	1.11	33:54	52.564		* 2.5		*						
1,2,3,7,8,9-HxCDF	2.96e+06	1.27 y	1.06	34:52	51.290		* 2.5		*						
1,2,3,4,6,7,8-HpCDF	2.47e+06	1.03 y	1.13	36:43	50.147		* 2.5		*						
1,2,3,4,7,8,9-HpCDF	2.39e+06	1.04 y	1.28	38:28	50.095		* 2.5		*						
OCDF	4.05e+06	0.89 y	0.95	41:26	101.77		* 2.5		*						
										Rec	Qual				
IS 13C-2,3,7,8-TCDD	6.89e+06	0.78 y	1.10	26:16	92.638					92.6					
IS 13C-1,2,3,7,8-PeCDD	5.46e+06	0.63 y	0.88	30:45	91.139					91.1					
IS 13C-1,2,3,4,7,8-HxCDD	4.26e+06	1.30 y	0.64	34:03	93.769					93.8					
IS 13C-1,2,3,6,7,8-HxCDD	4.89e+06	1.26 y	0.86	34:10	80.797					80.8					
IS 13C-1,2,3,7,8,9-HxCDD	4.80e+06	1.26 y	0.81	34:28	84.208					84.2					
IS 13C-1,2,3,4,6,7,8-HpCDD	4.02e+06	1.06 y	0.65	37:54	86.981					87.0					
IS 13C-OCDD	6.81e+06	0.91 y	0.58	41:12	166.17					83.1					
IS 13C-2,3,7,8-TCDF	9.98e+06	0.81 y	1.03	25:29	86.813					86.8					
IS 13C-1,2,3,7,8-PeCDF	8.90e+06	1.59 y	0.85	29:34	93.820					93.8					
IS 13C-2,3,4,7,8-PeCDF	8.41e+06	1.59 y	0.85	30:28	89.408					89.4					
IS 13C-1,2,3,4,7,8-HxCDF	5.86e+06	0.51 y	0.83	33:10	99.682					99.7					
IS 13C-1,2,3,6,7,8-HxCDF	6.50e+06	0.51 y	1.03	33:18	88.831					88.8					
IS 13C-2,3,4,6,7,8-HxCDF	5.86e+06	0.51 y	0.95	33:53	86.931					86.9					
IS 13C-1,2,3,7,8,9-HxCDF	5.44e+06	0.52 y	0.83	34:51	92.945					92.9					
IS 13C-1,2,3,4,6,7,8-HpCDF	4.37e+06	0.44 y	0.76	36:42	81.489					81.5					
IS 13C-1,2,3,4,7,8,9-HpCDF	3.72e+06	0.44 y	0.58	38:27	90.592					90.6					
IS 13C-OCDF	8.40e+06	0.90 y	0.69	41:26	172.40					86.2					
C/Up 37Cl-2,3,7,8-TCDD	3.22e+06		1.20	26:17	39.606					99.0					
RS/RT 13C-1,2,3,4-TCDD	6.79e+06	0.80 y	1.00	25:42	100.00										
RS 13C-1,2,3,4-TCDF	1.11e+07	0.80 y	1.00	24:17	100.00										
RS/RT 13C-1,2,3,4,6,9-HxCDF	7.07e+06	0.51 y	1.00	33:35	100.00										

Integrations  
 by DB  
 Analyst: DB  
 Date: 11/6/19  
 Reviewed  
 by CT  
 Analyst: CT  
 Date: 11/06/19

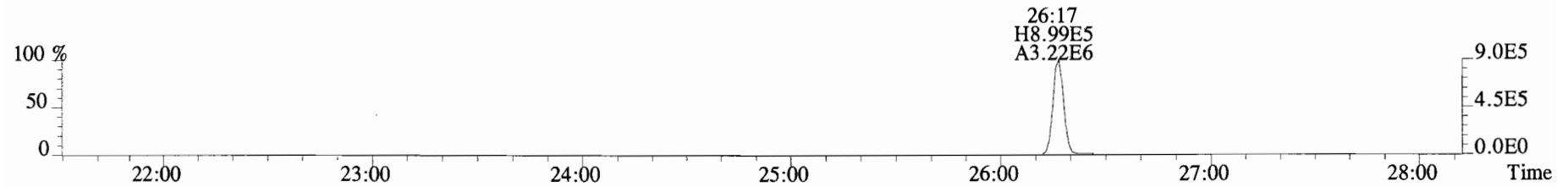
File:191101D1 #1-493 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



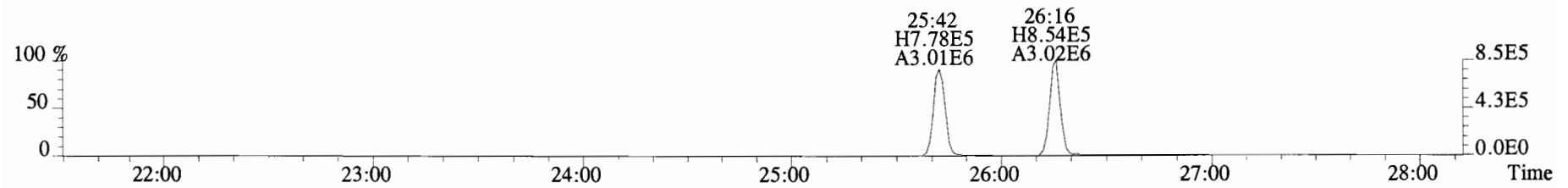
321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



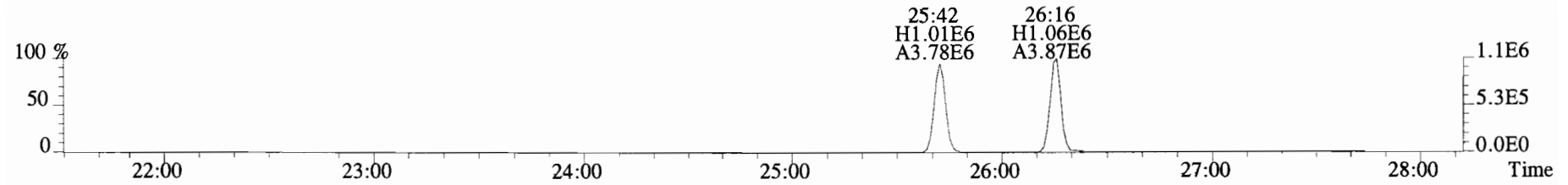
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

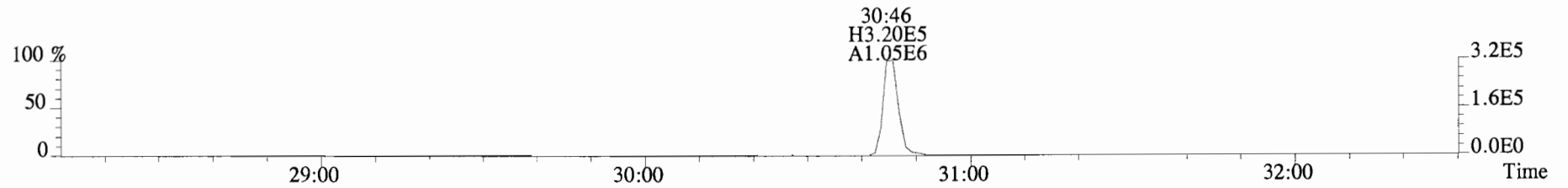


333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

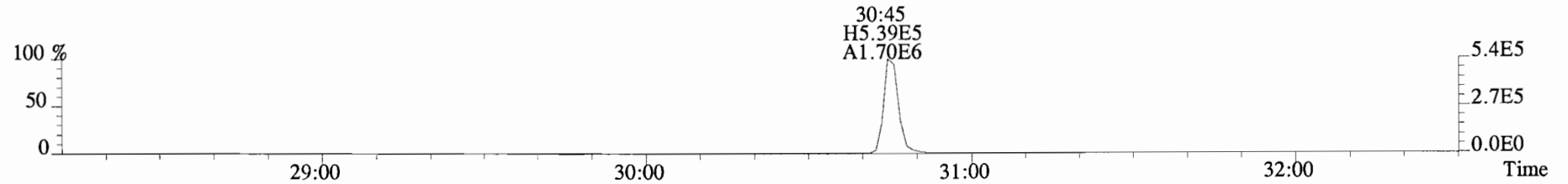




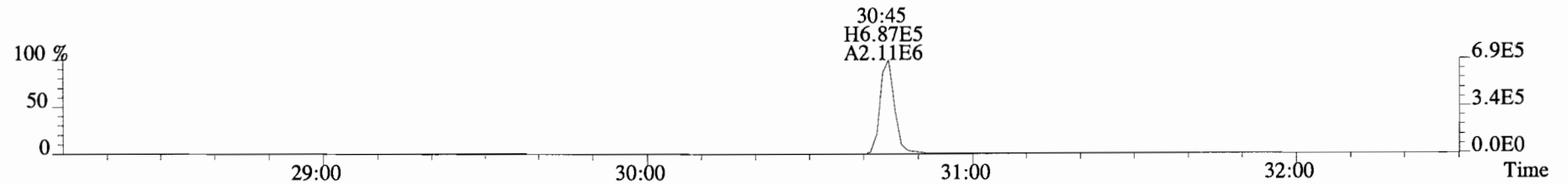
File:191101D1 #1-210 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



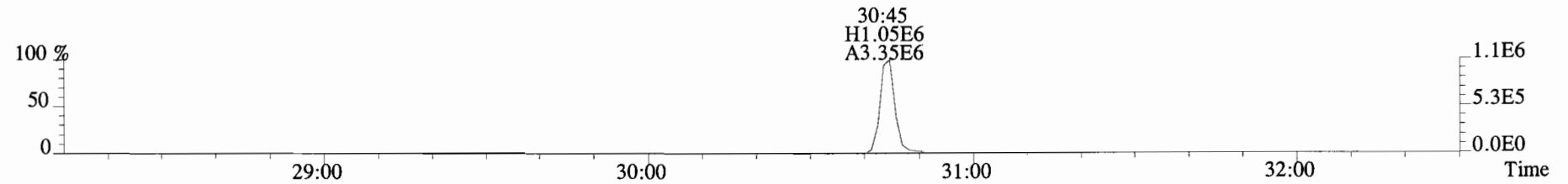
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



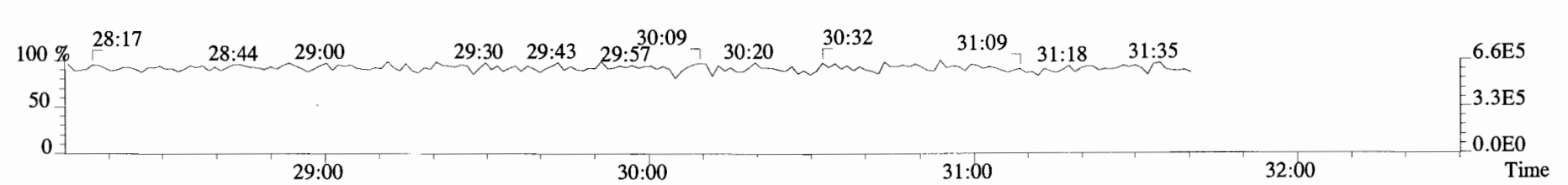
365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



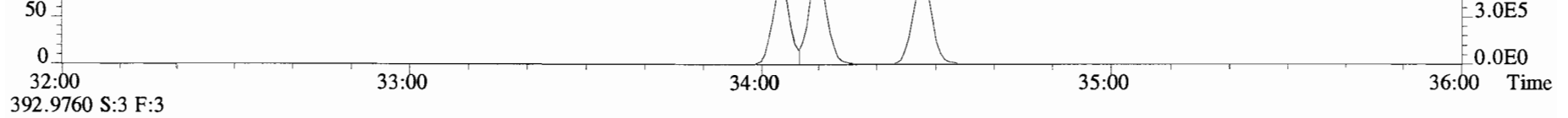
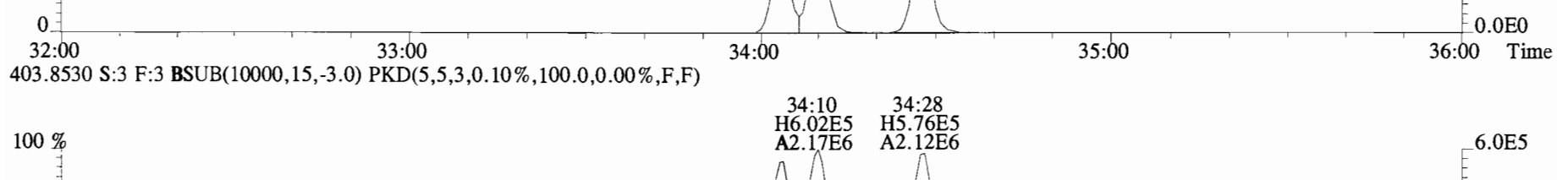
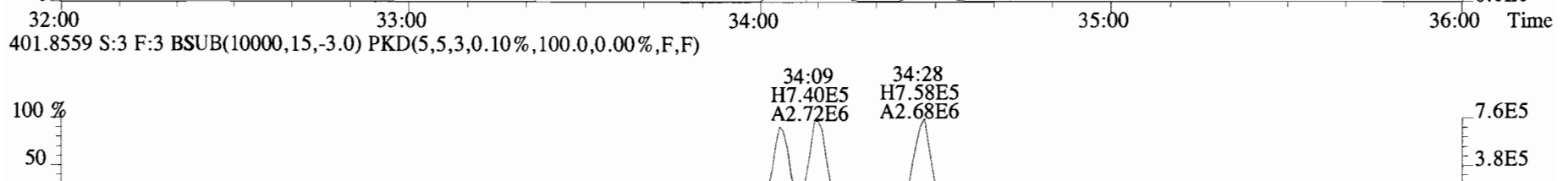
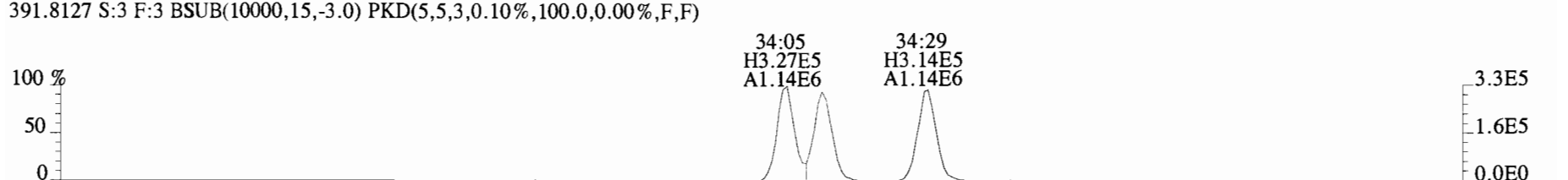
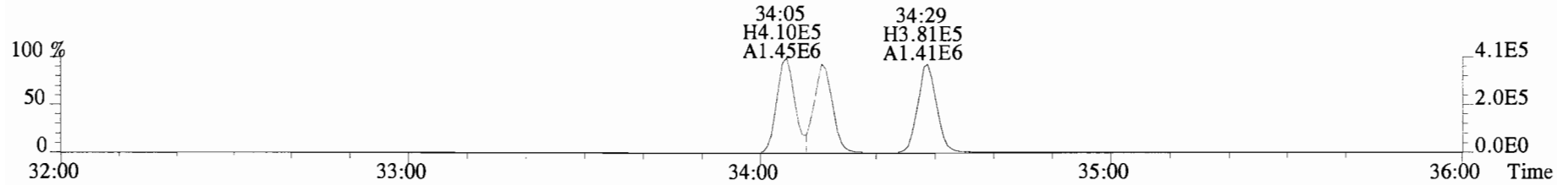
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



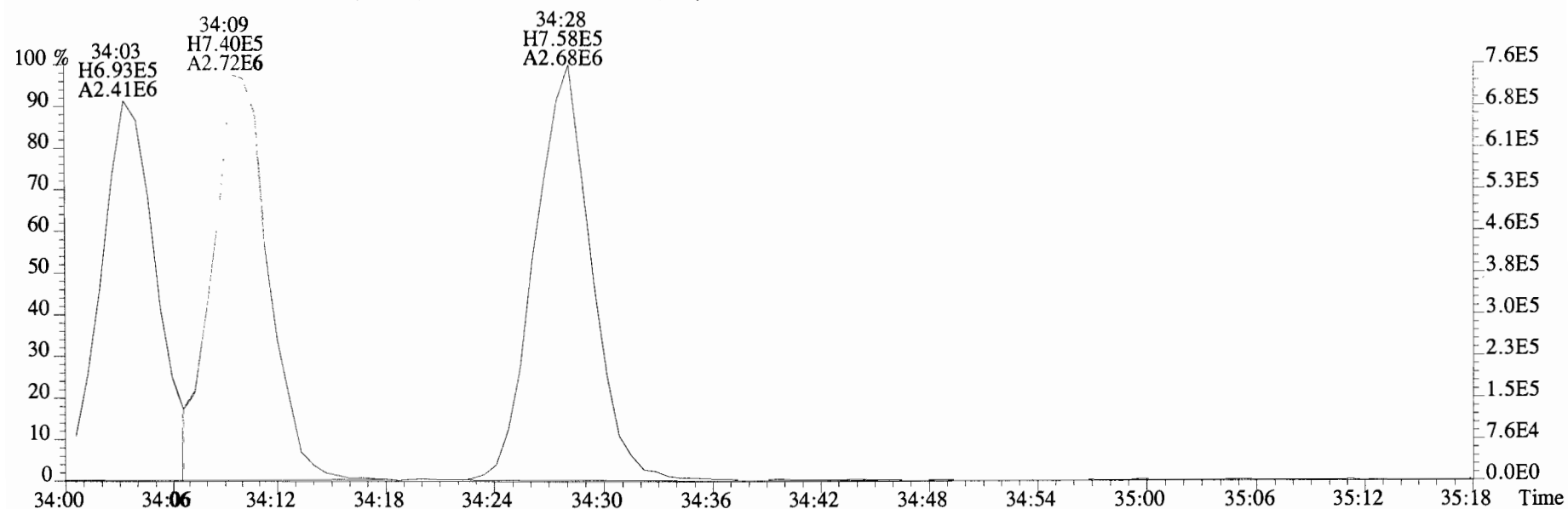
366.9792 S:3 F:2



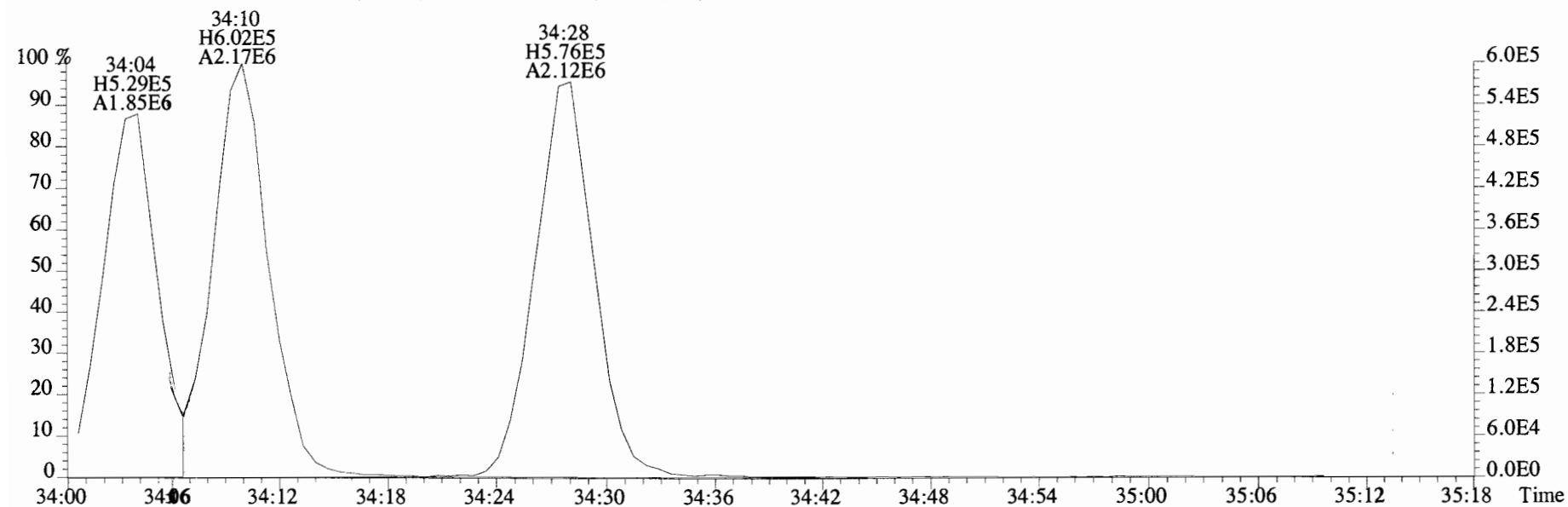
File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



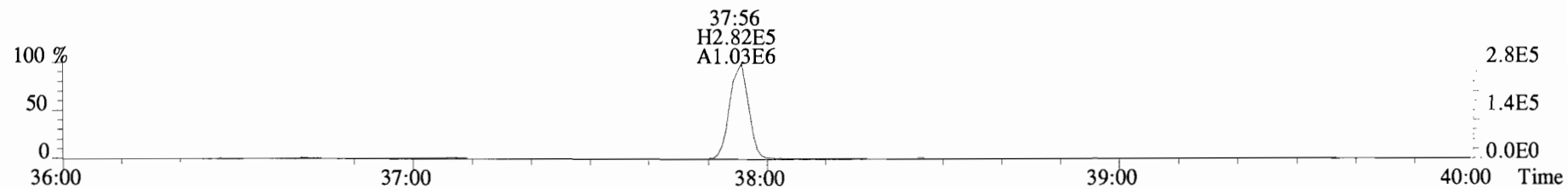
File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



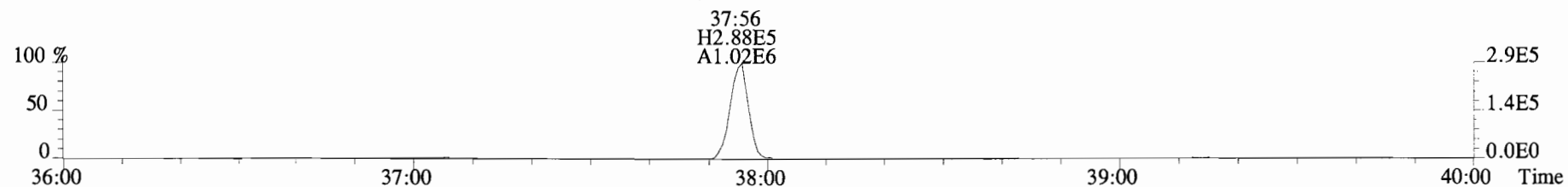
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



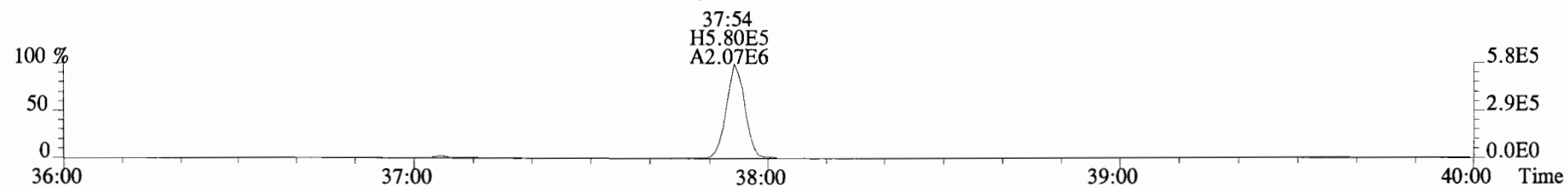
File:191101D1 #1-355 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



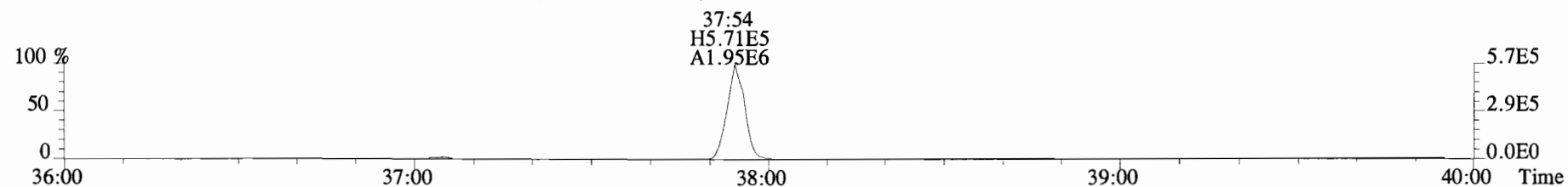
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



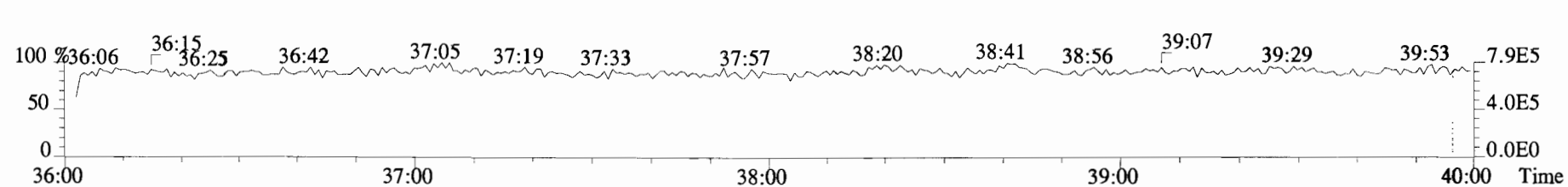
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



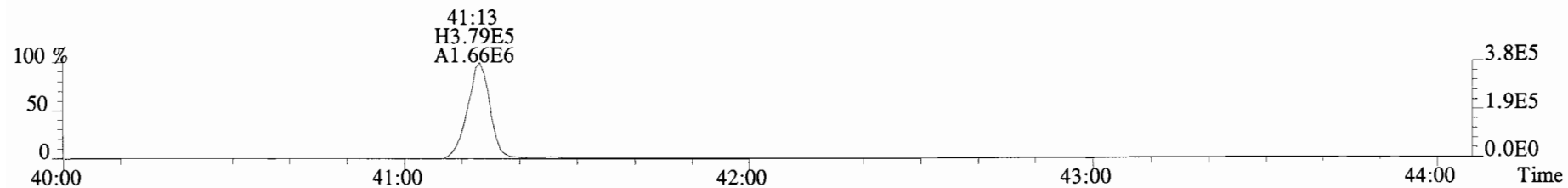
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



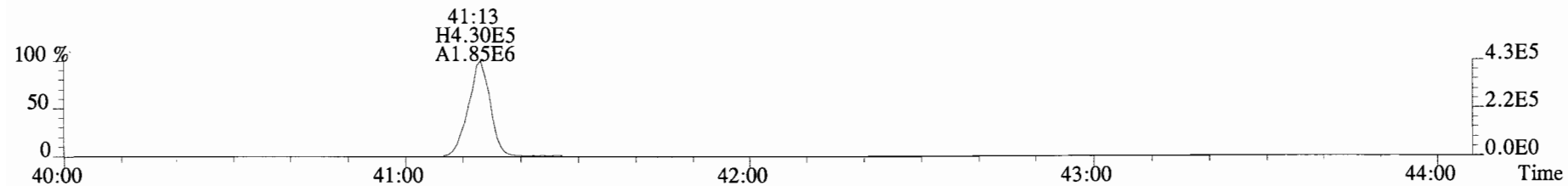
454.9728 S:3 F:4



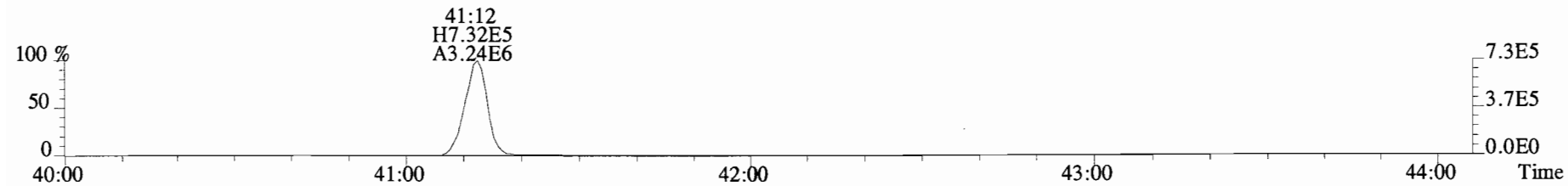
File:191101D1 #1-432 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



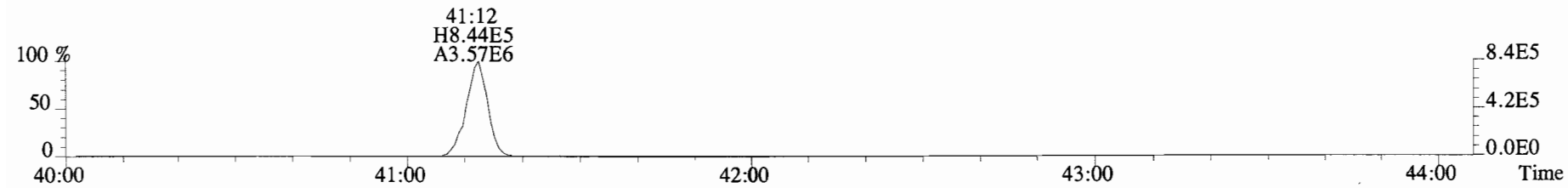
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



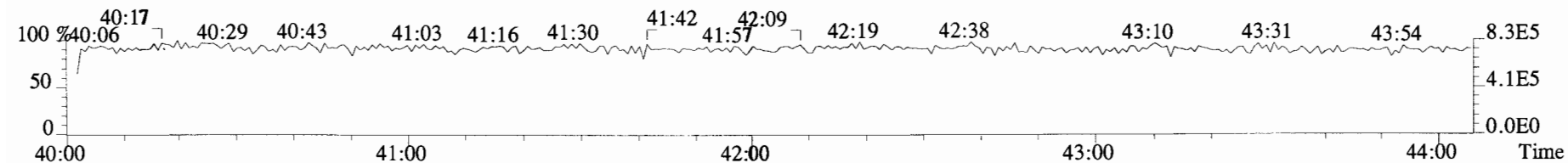
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



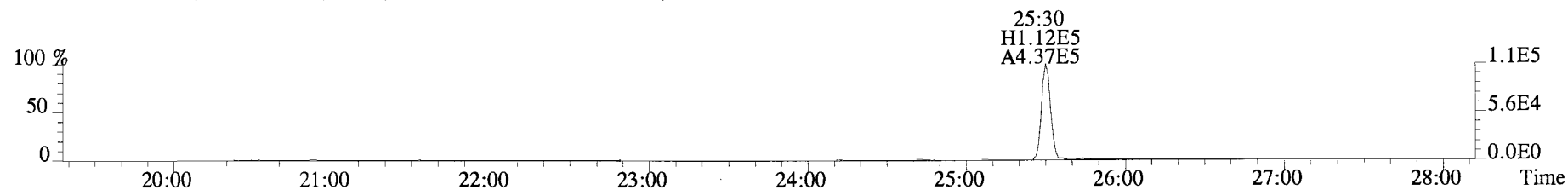
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



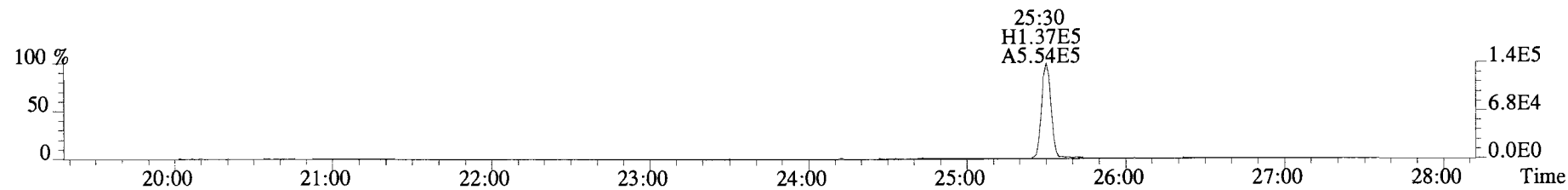
454.9728 S:3 F:5



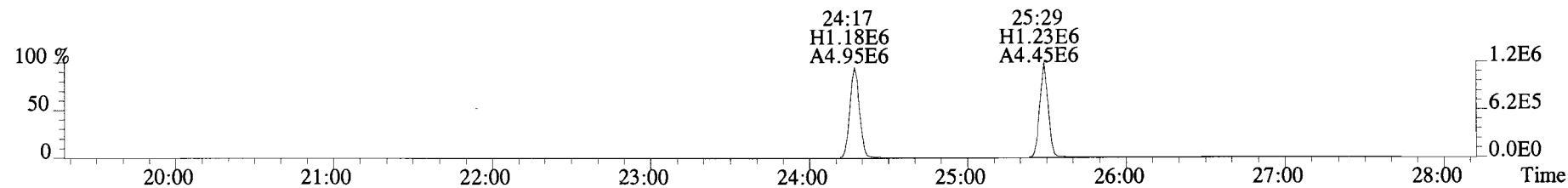
File:191101D1 #1-493 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



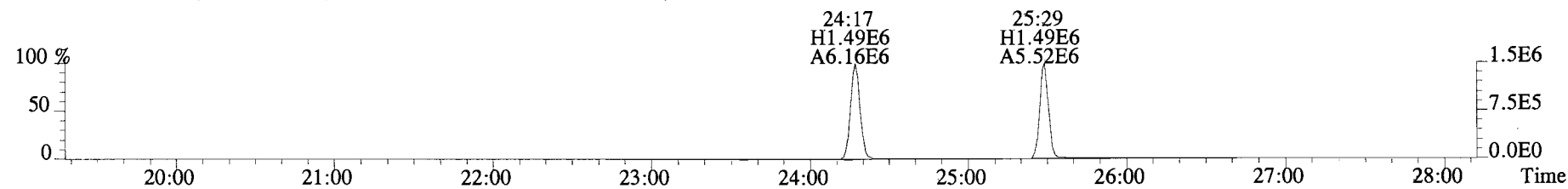
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



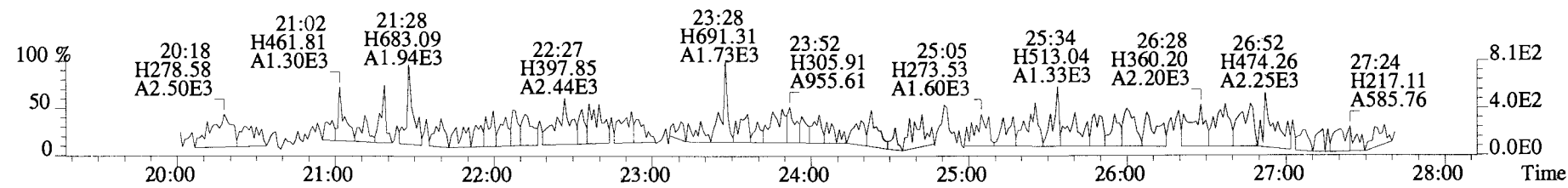
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



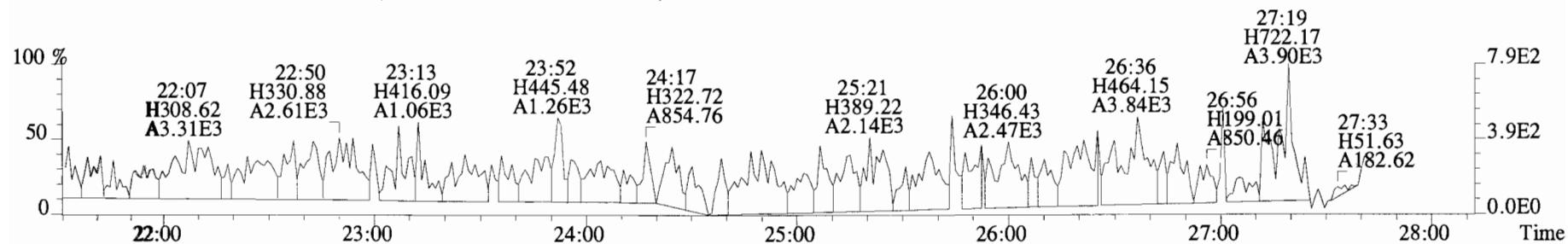
317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



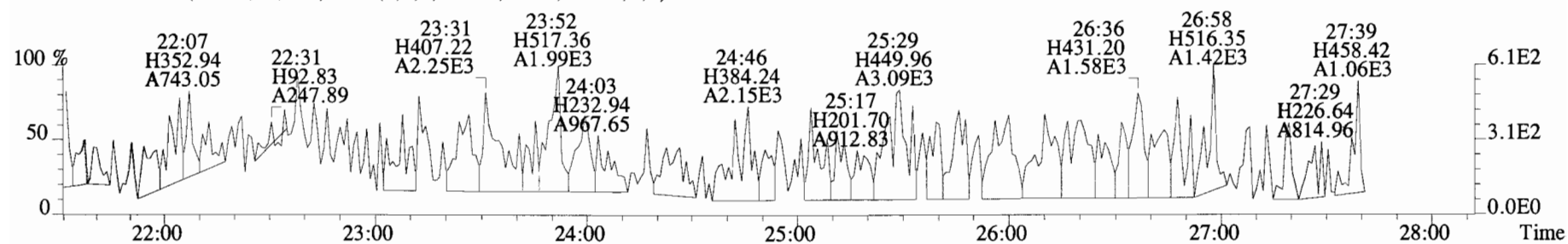
375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



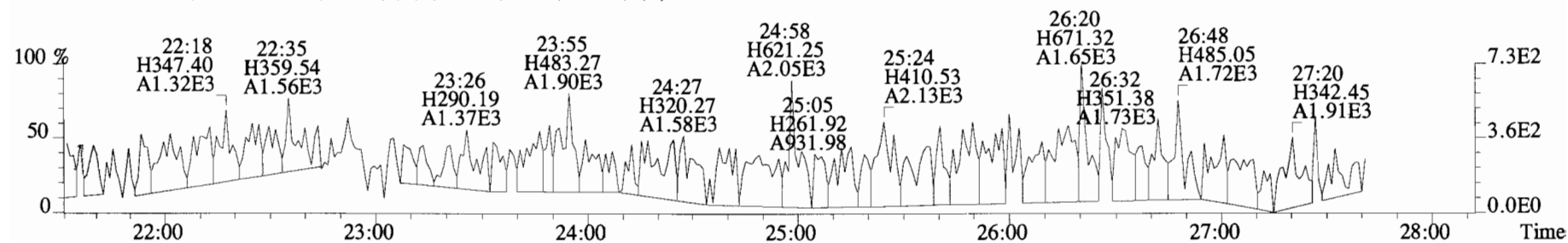
File:191101D1 #1-493 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
 339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



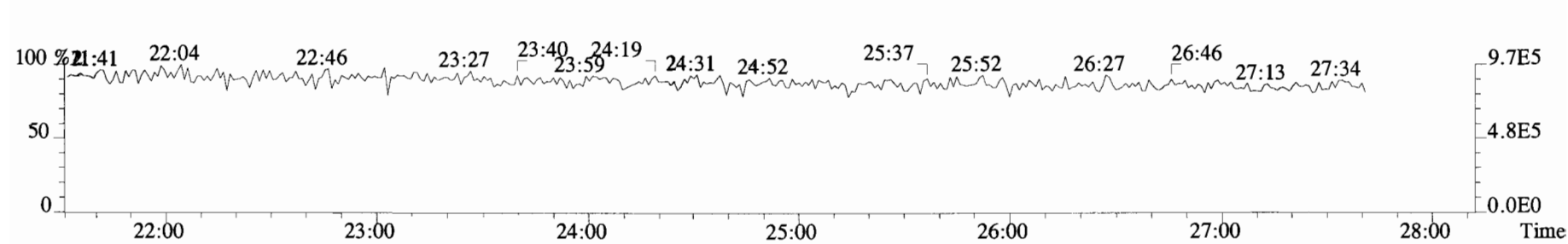
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



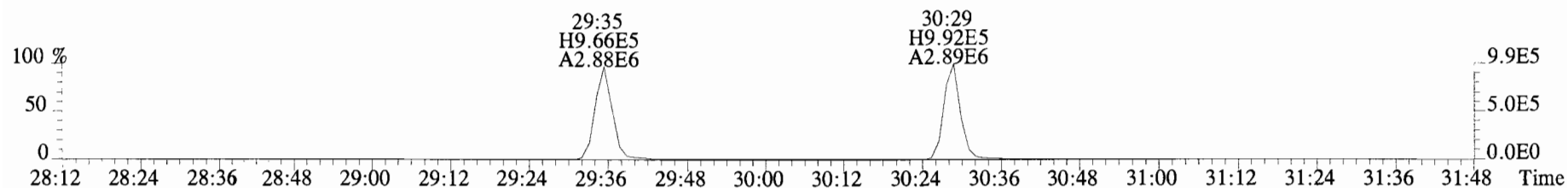
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



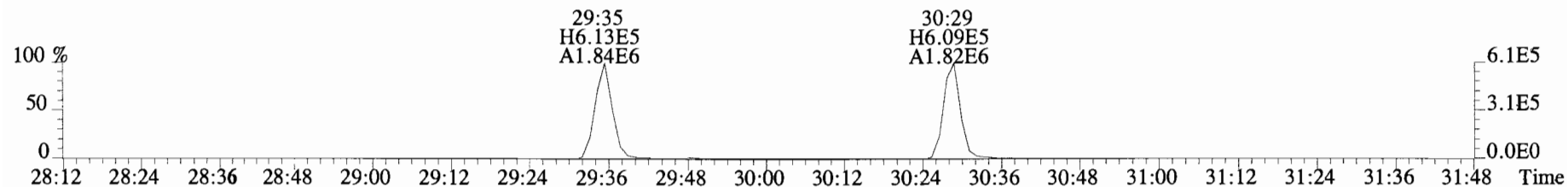
316.9824 S:3



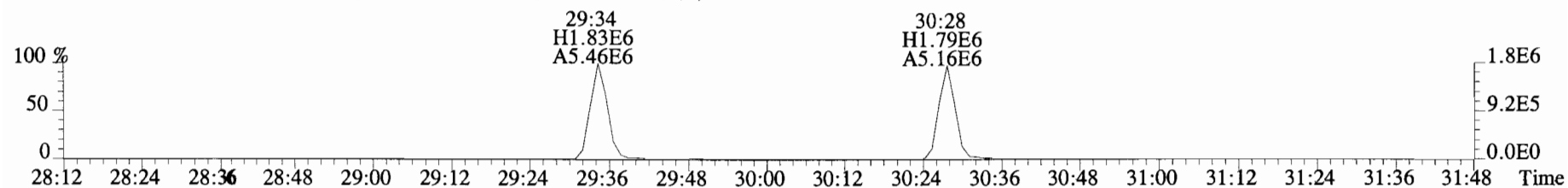
File:191101D1 #1-210 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



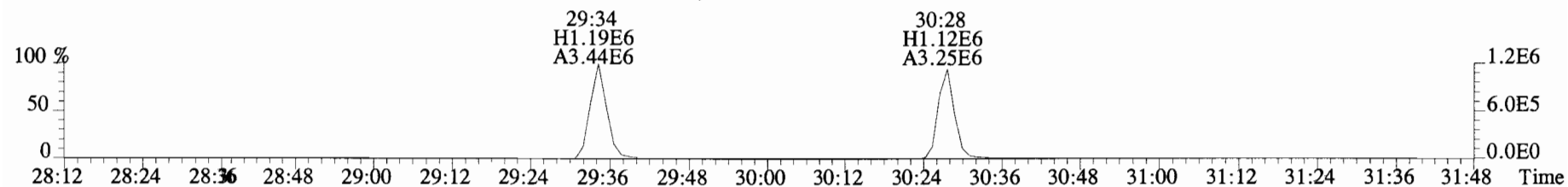
341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



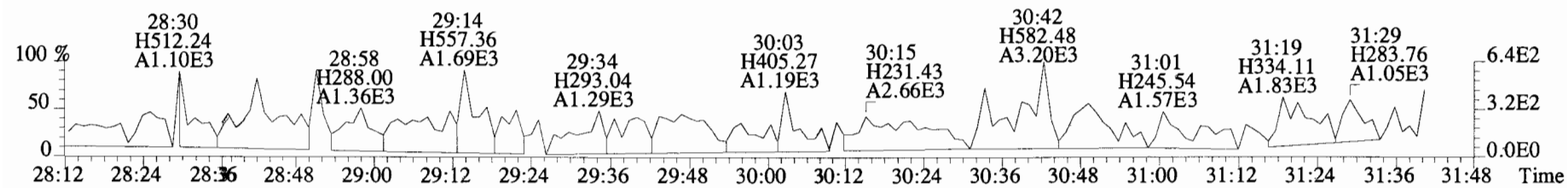
351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



353.8970 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

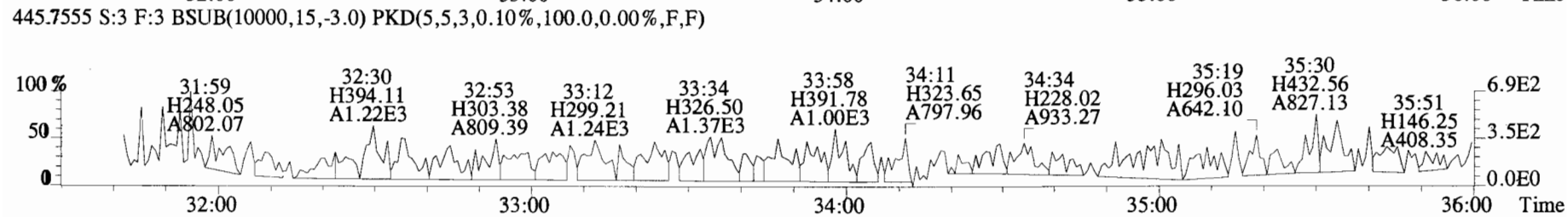
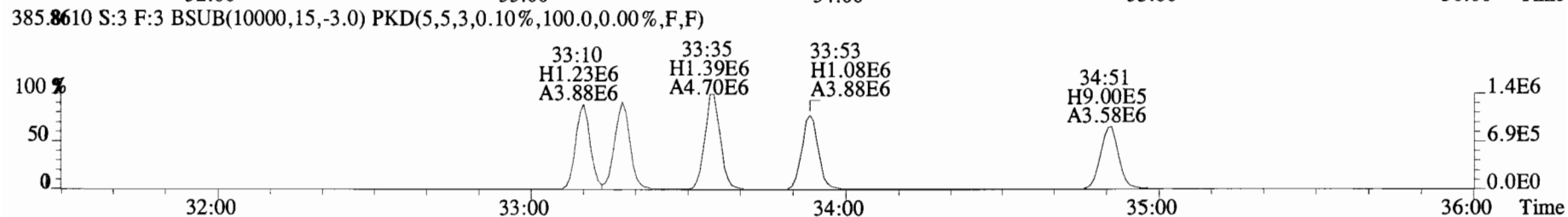
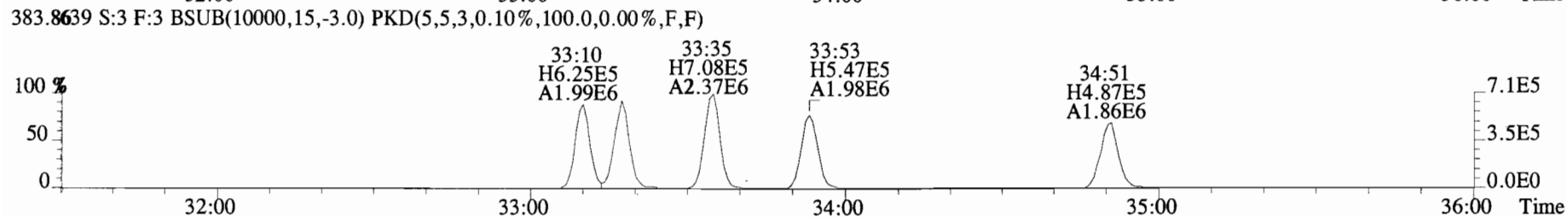
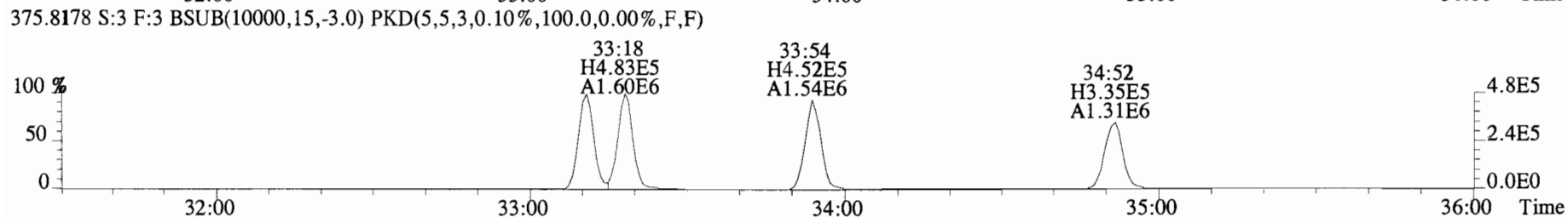
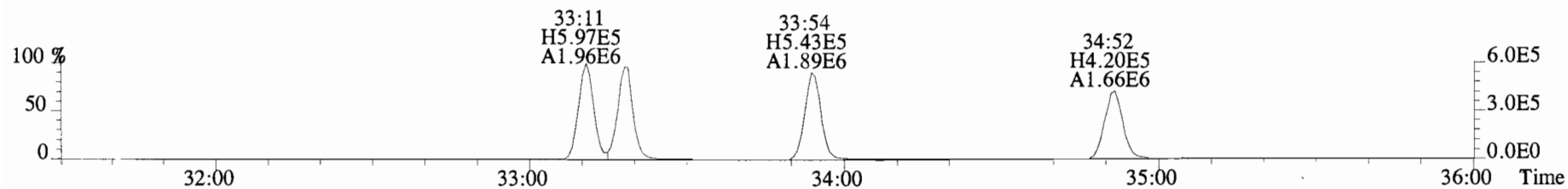


409.7974 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

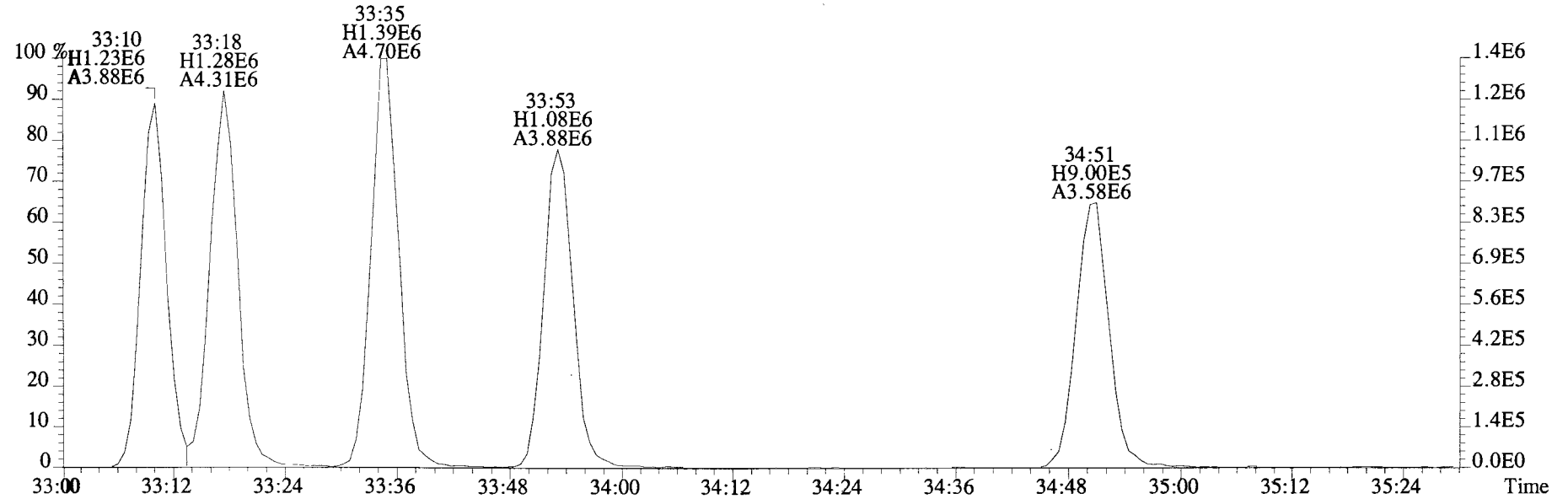
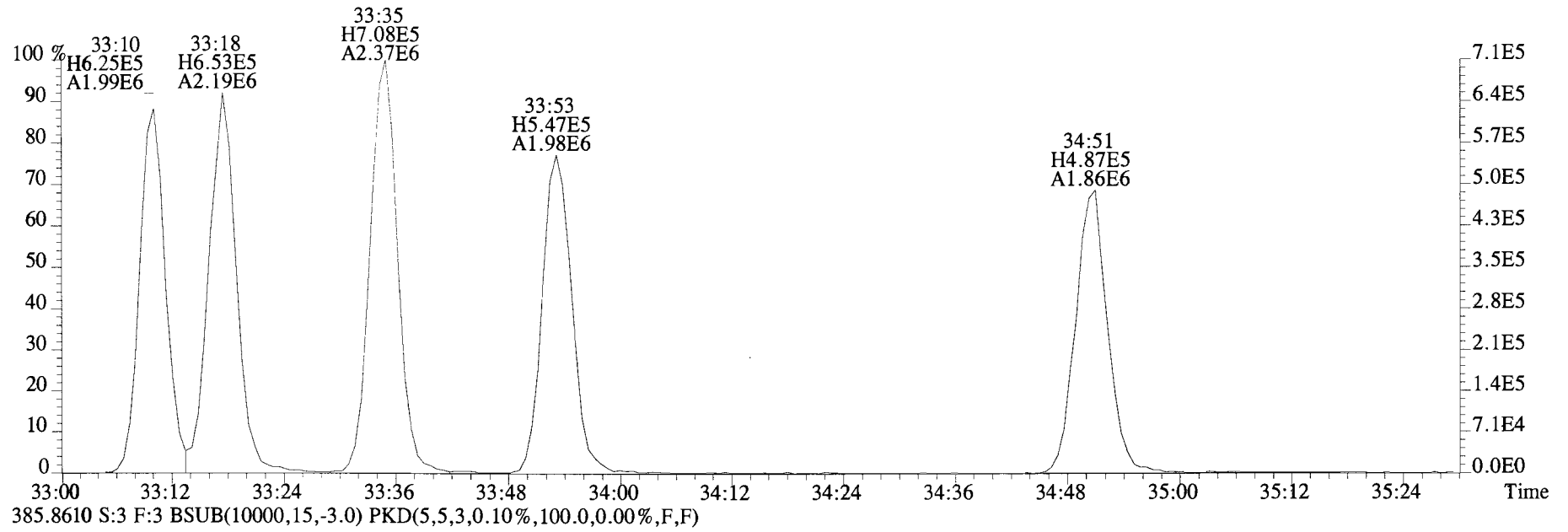




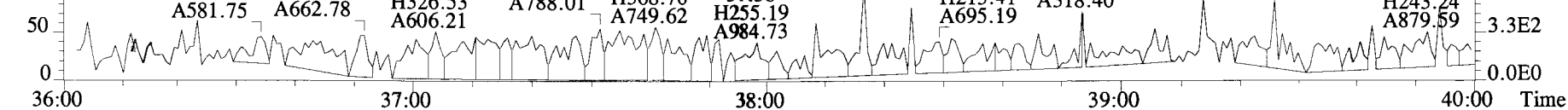
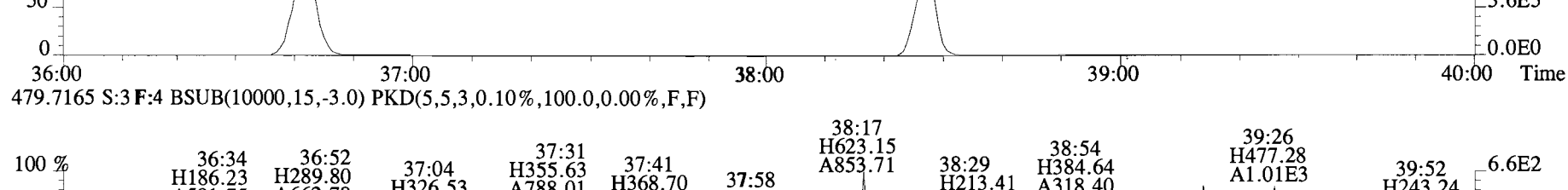
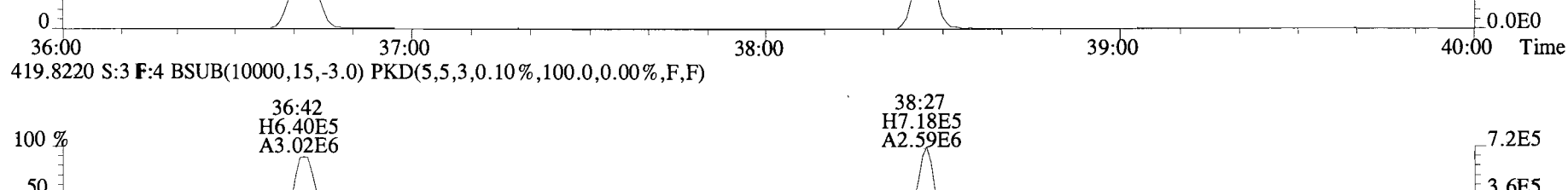
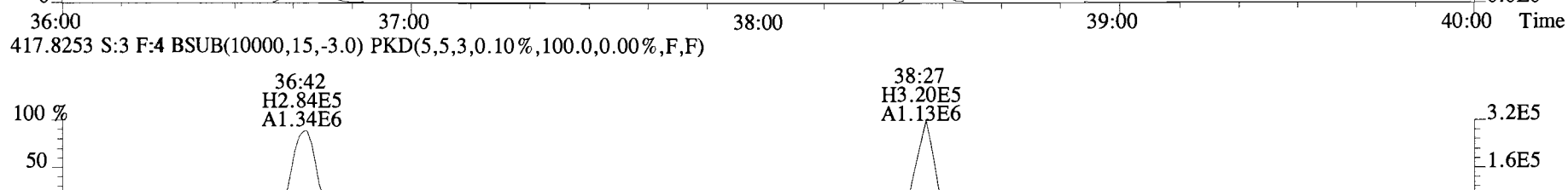
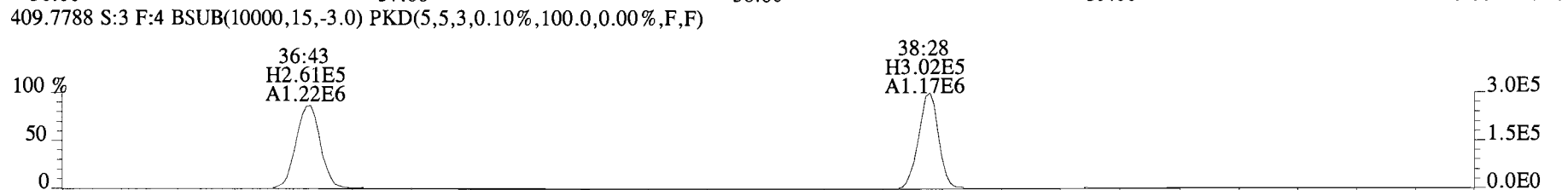
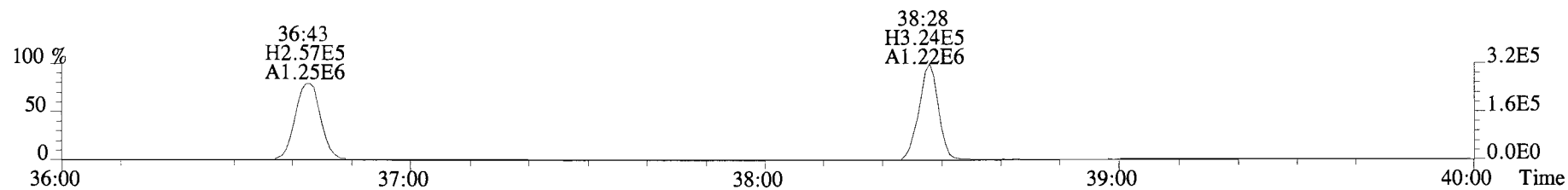
File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



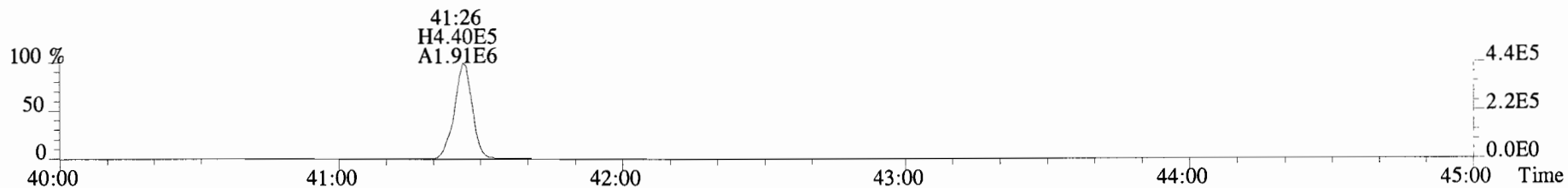
File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



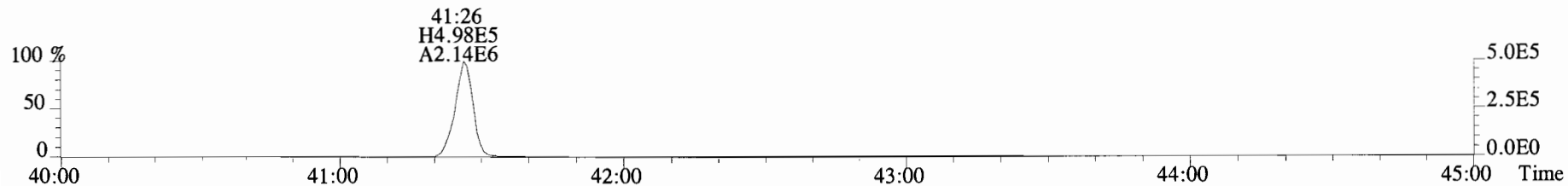
File:191101D1 #1-355 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
 407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



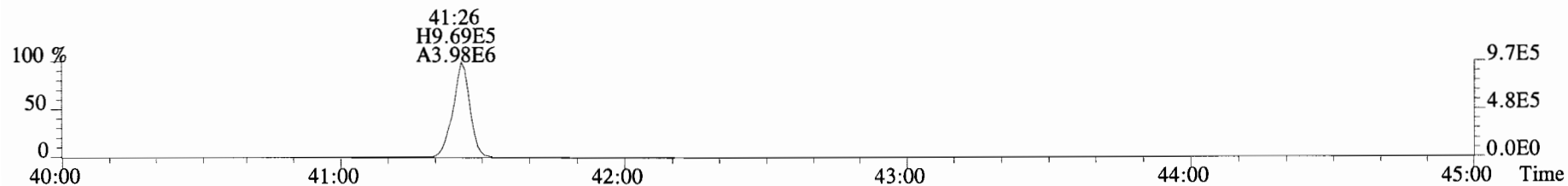
File:191101D1 #1-432 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



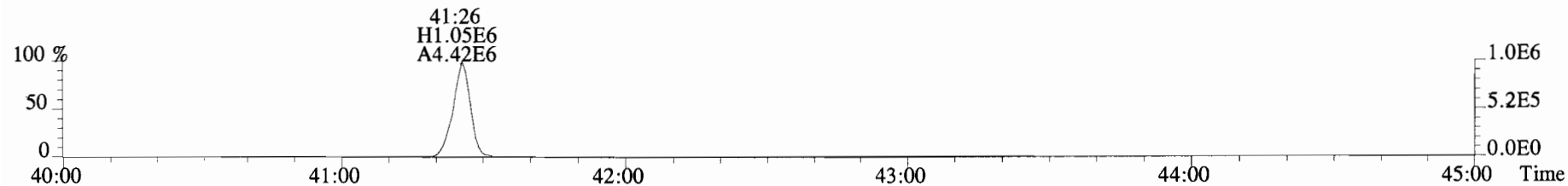
443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



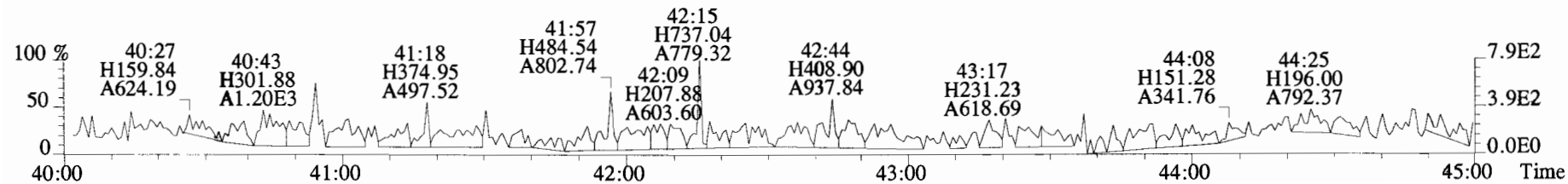
453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



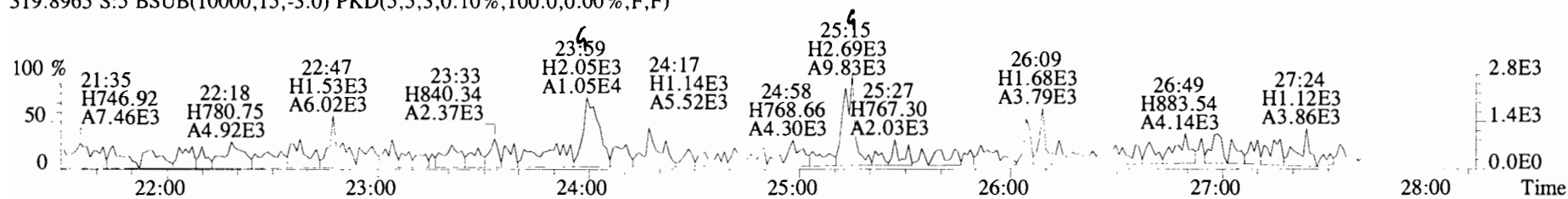
Client ID: Method Blank  
Lab ID: B9L0043-BLK1

Filename: 191212D1 S:5 Acq:12-DEC-19 15:55:37  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol:10.000

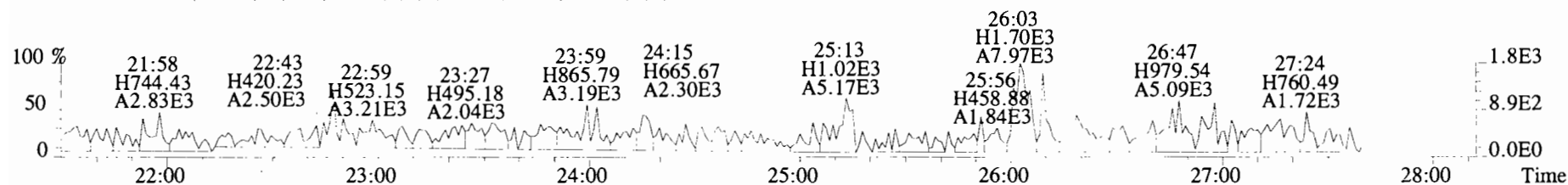
ConCal: ST191212D1-1  
EndCAL: ST191212D1-2

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	*	* n	0.91	NotF $\eta$	*		233 2.5	0.0807		Total Tetra-Dioxins	*	*		233 0.0807	
1,2,3,7,8-PeCDD	*	* n	0.90	NotF $\eta$	*		322 2.5	0.110		Total Penta-Dioxins	*	*		322 0.110	
1,2,3,4,7,8-HxCDD	*	* n	1.10	NotF $\eta$	*		420 2.5	0.190		Total Hexa-Dioxins	*	*		420 0.209	
1,2,3,6,7,8-HxCDD	*	* n	0.94	NotF $\eta$	*		420 2.5	0.220		Total Hepta-Dioxins	*	*		346 0.183	
1,2,3,7,8,9-HxCDD	*	* n	0.96	NotF $\eta$	*		420 2.5	0.214		Total Tetra-Furans	*	*		261 0.0559	
1,2,3,4,6,7,8-HpCDD	*	* n	0.98	NotF $\eta$	*		346 2.5	0.183		Total Penta-Furans	0.0000	0.0000		394 0.122	
OCDD	2.06e+04	1.00 y	0.96	40:59	0.65819		* 2.5	*		Total Hexa-Furans	*	*		285 0.0609	
										Total Hepta-Furans	*	*		199 0.0670	
2,3,7,8-TCDF	*	* n	0.95	NotF $\eta$	*		261 2.5	0.0559							
1,2,3,7,8-PeCDF	*	* n	0.96	NotF $\eta$	*		394 2.5	0.128							
2,3,4,7,8-PeCDF	*	* n	1.01	NotF $\eta$	*		394 2.5	0.117							
1,2,3,4,7,8-HxCDF	*	* n	1.18	NotF $\eta$	*		285 2.5	0.0544							
1,2,3,6,7,8-HxCDF	*	* n	1.07	NotF $\eta$	*		285 2.5	0.0524							
2,3,4,6,7,8-HxCDF	*	* n	1.11	NotF $\eta$	*		285 2.5	0.0582							
1,2,3,7,8,9-HxCDF	*	* n	1.06	NotF $\eta$	*		285 2.5	0.0822							
1,2,3,4,6,7,8-HpCDF	*	* n	1.13	NotF $\eta$	*		199 2.5	0.0695							
1,2,3,4,7,8,9-HpCDF	*	* n	1.28	NotF $\eta$	*		199 2.5	0.0640							
OCDF	*	* n	0.95	NotF $\eta$	*		321 2.5	0.167							
IS	13C-2,3,7,8-TCDD	1.11e+07	0.80 y	1.10	26:02	199.09				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	8.71e+06	0.63 y	0.88	30:34	193.44				99.5					
IS	13C-1,2,3,4,7,8-HxCDD	7.87e+06	1.27 y	0.64	33:52	186.78				96.7					
IS	13C-1,2,3,6,7,8-HxCDD	9.35e+06	1.29 y	0.86	33:58	166.52				93.4					
IS	13C-1,2,3,7,8,9-HxCDD	9.32e+06	1.26 y	0.81	34:16	176.04				83.3					
IS	13C-1,2,3,4,6,7,8-HpCDD	7.53e+06	1.05 y	0.65	37:44	175.35				88.0					
IS	13C-OCDD	1.31e+07	0.90 y	0.58	40:59	343.70				87.7					
IS	13C-2,3,7,8-TCDF	1.71e+07	0.82 y	1.03	25:15	188.60				85.9					
IS	13C-1,2,3,7,8-PeCDF	1.32e+07	1.61 y	0.85	29:23	176.58				94.3					
IS	13C-2,3,4,7,8-PeCDF	1.34e+07	1.58 y	0.85	30:17	180.83				88.3					
IS	13C-1,2,3,4,7,8-HxCDF	1.10e+07	0.51 y	0.83	32:59	201.24				90.4					
IS	13C-1,2,3,6,7,8-HxCDF	1.29e+07	0.51 y	1.03	33:06	189.58				101					
IS	13C-2,3,4,6,7,8-HxCDF	1.19e+07	0.52 y	0.95	33:42	190.21				94.8					
IS	13C-1,2,3,7,8,9-HxCDF	1.05e+07	0.52 y	0.83	34:39	193.36				95.1					
IS	13C-1,2,3,4,6,7,8-HpCDF	8.49e+06	0.43 y	0.76	36:28	170.83				96.7					
IS	13C-1,2,3,4,7,8,9-HpCDF	7.27e+06	0.43 y	0.58	38:16	190.46				85.4					
IS	13C-OCDF	1.71e+07	0.90 y	0.69	41:12	378.78				95.2					
C/Up	37C1-2,3,7,8-TCDD	4.98e+06		1.20	26:03	81.349				94.7					
RS/RT	13C-1,2,3,4-TCDD	1.02e+07	0.81 y	1.00	25:28	200.00				102	Integrations	Reviewed			
RS	13C-1,2,3,4-TCDF	1.75e+07	0.80 y	1.00	24:01	200.00				by	Analyst: <u>DB</u>	by	Analyst: <u>CT</u>		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.31e+07	0.52 y	1.00	33:23	200.00				Date: <u>12/13/19</u>	Date: <u>12/18/19</u>				

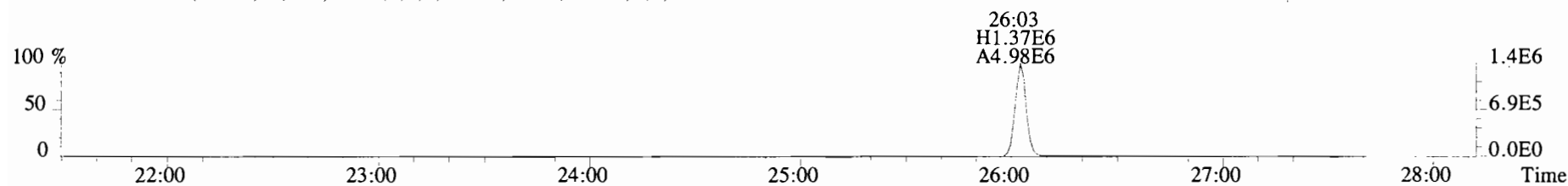
File:191212D1 #1-493 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



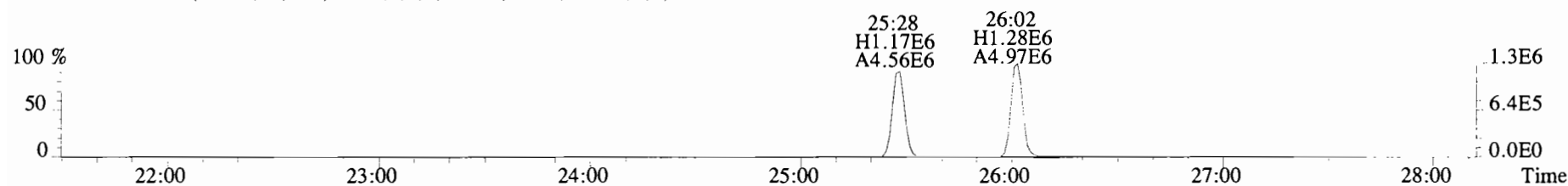
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



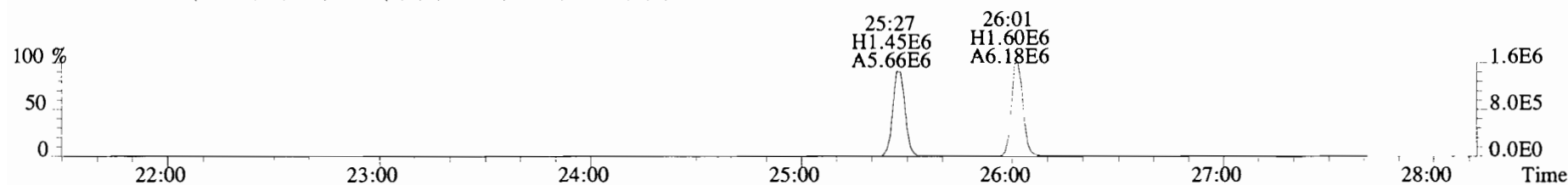
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



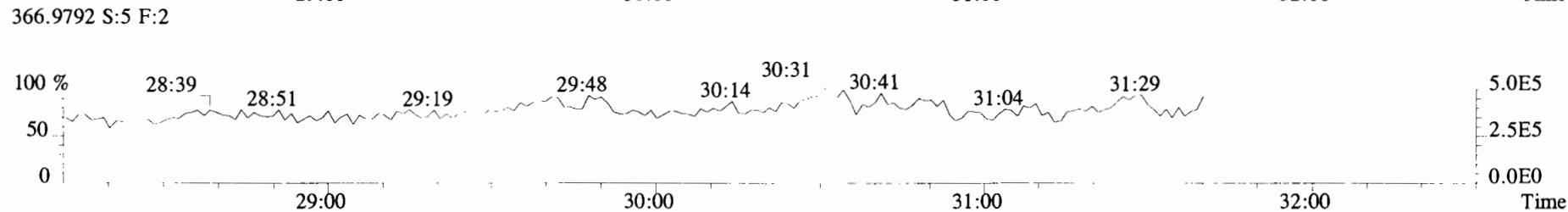
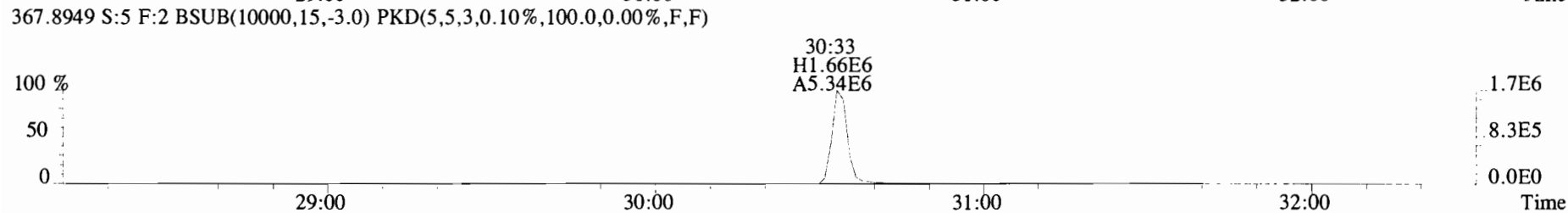
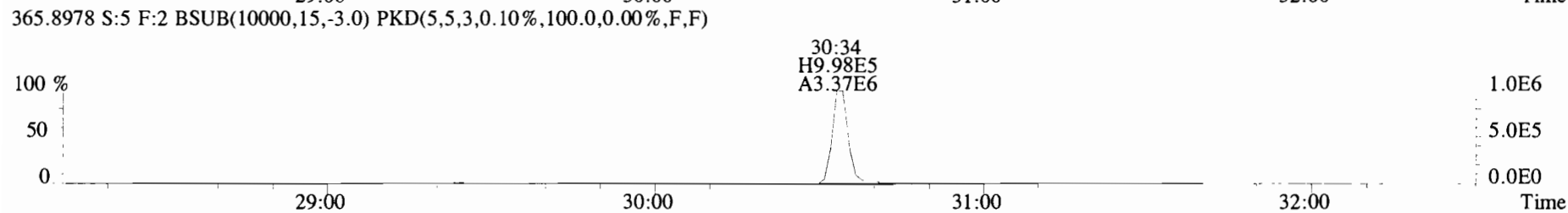
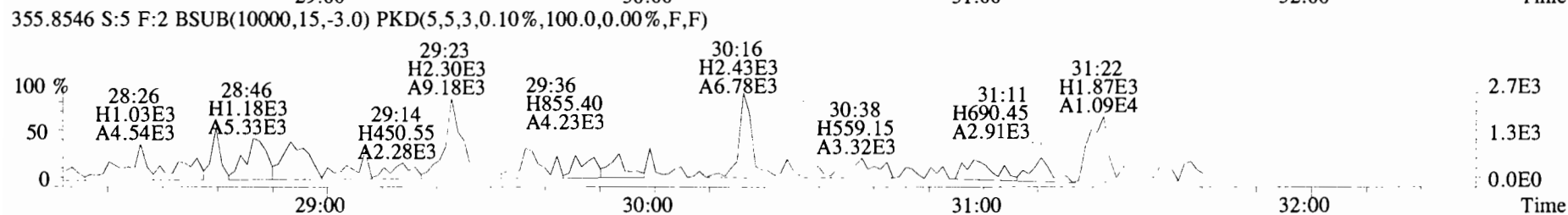
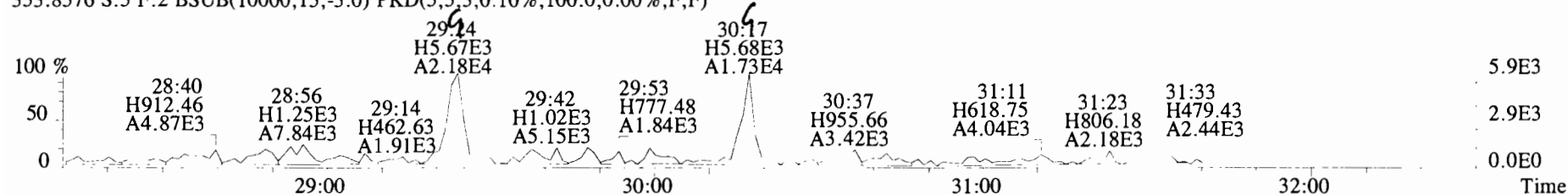
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



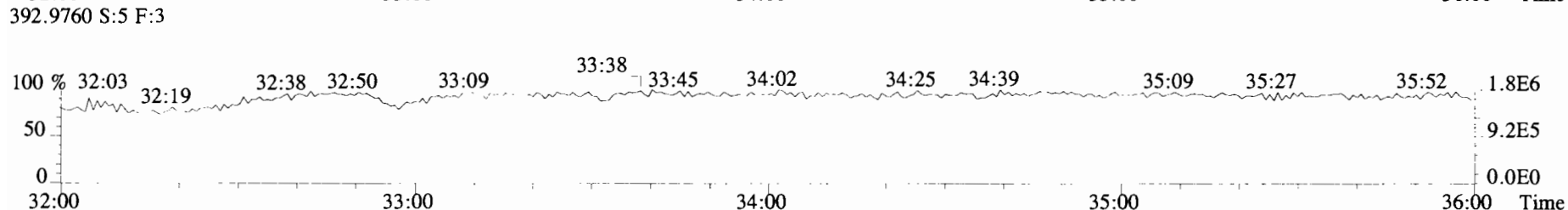
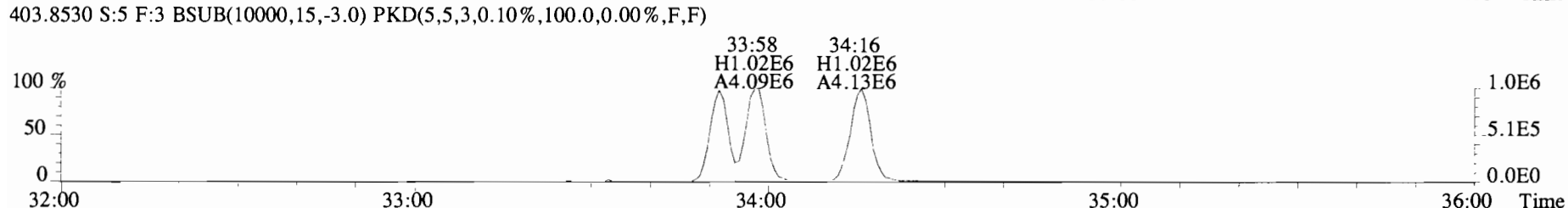
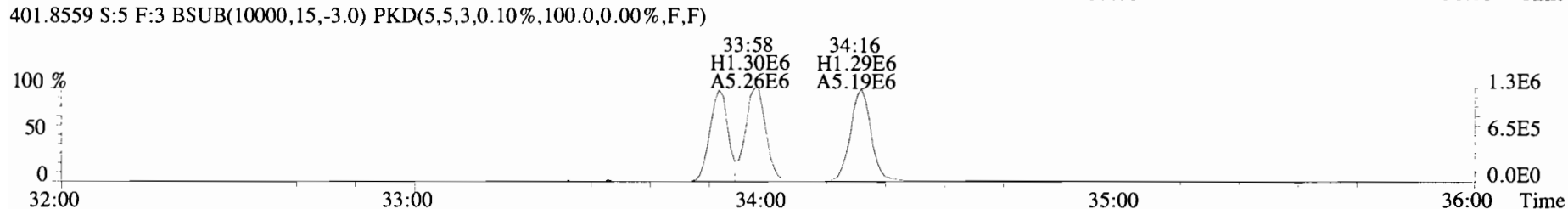
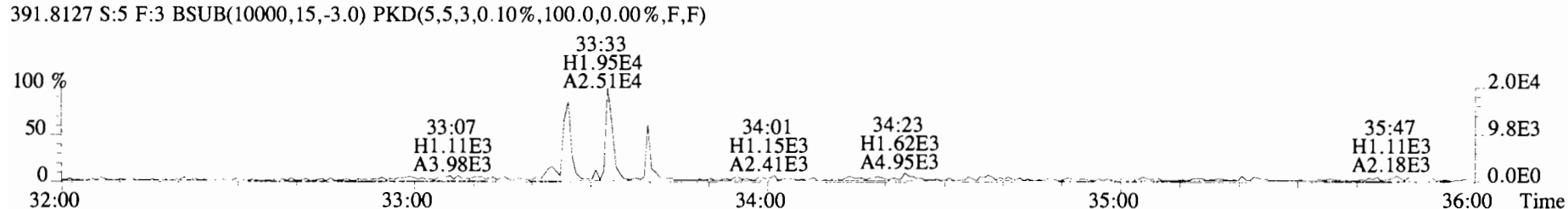
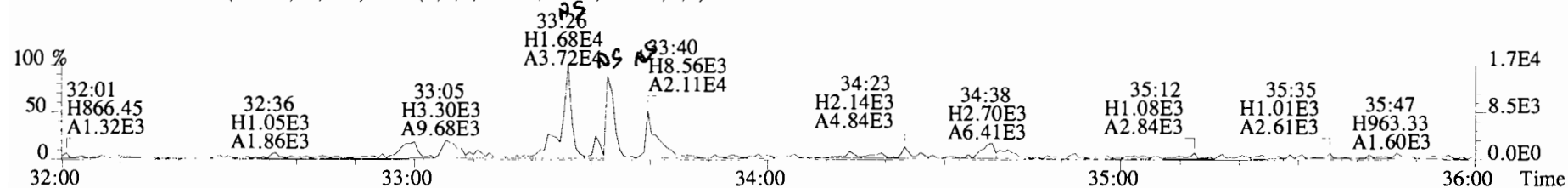
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191212D1 #1-210 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

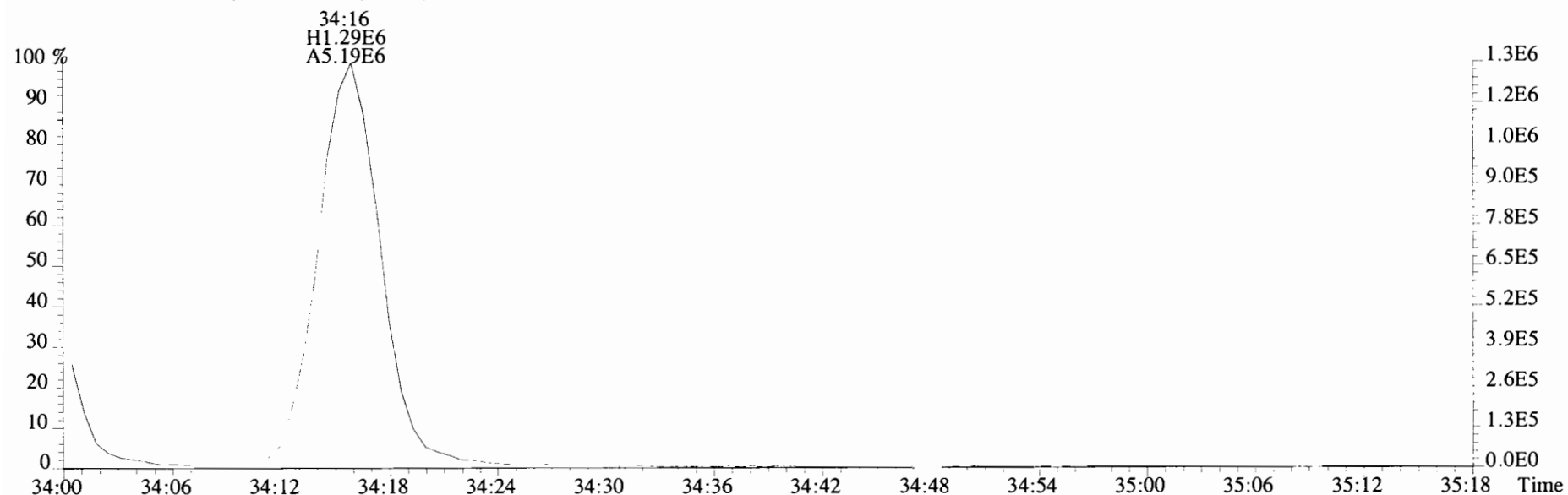


File:191212D1 #1-385 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

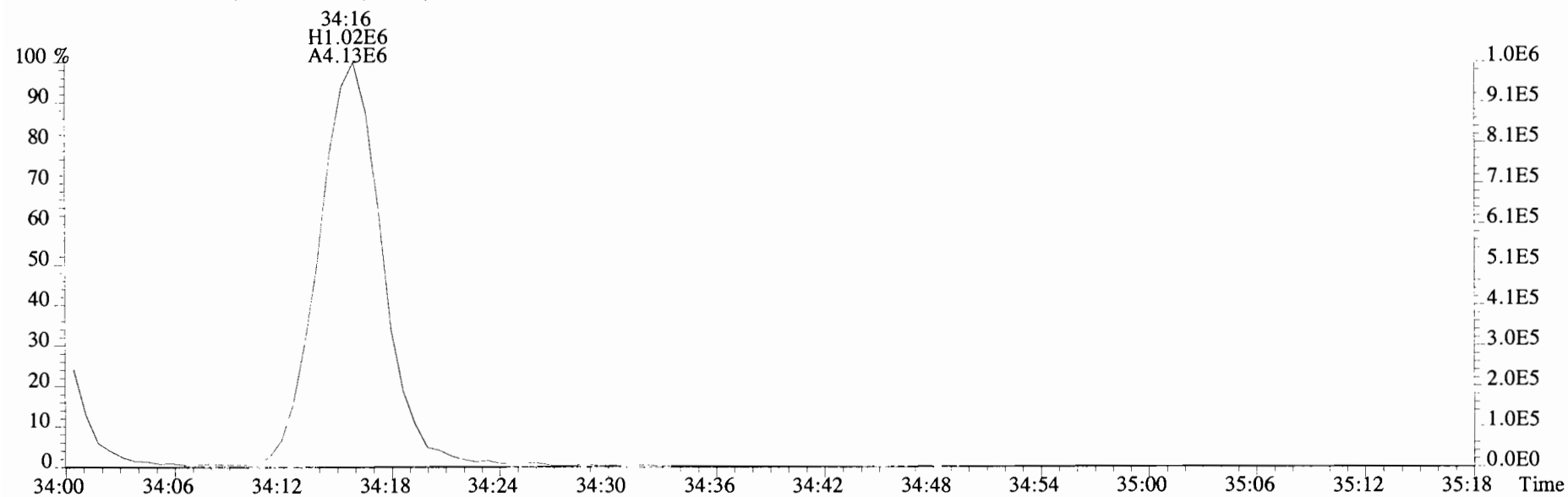




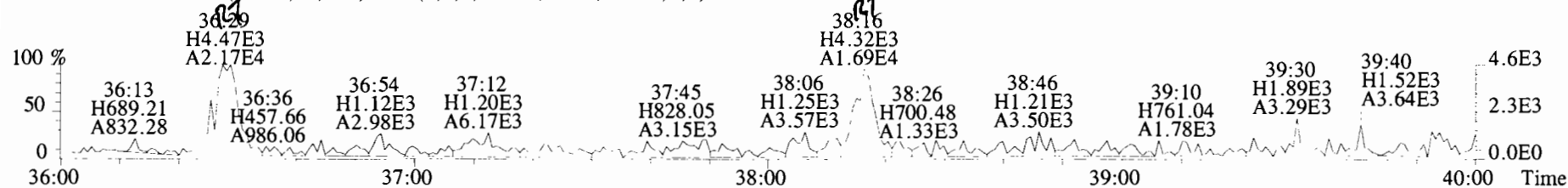
File:191212D1 #1-385 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



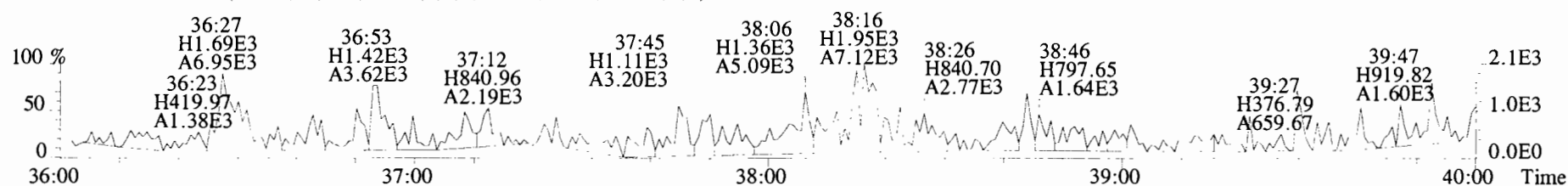
403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



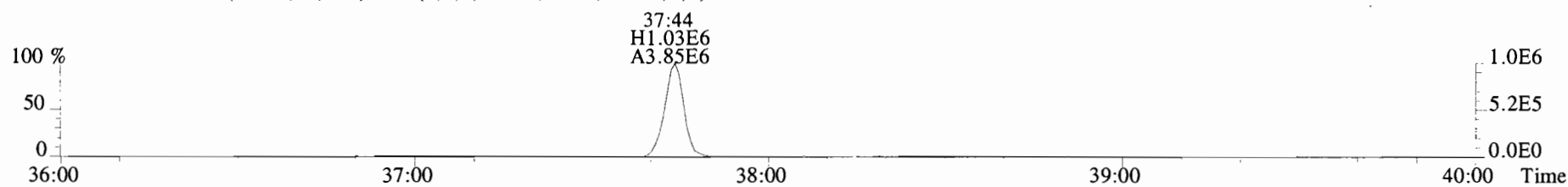
File:191212D1 #1-356 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



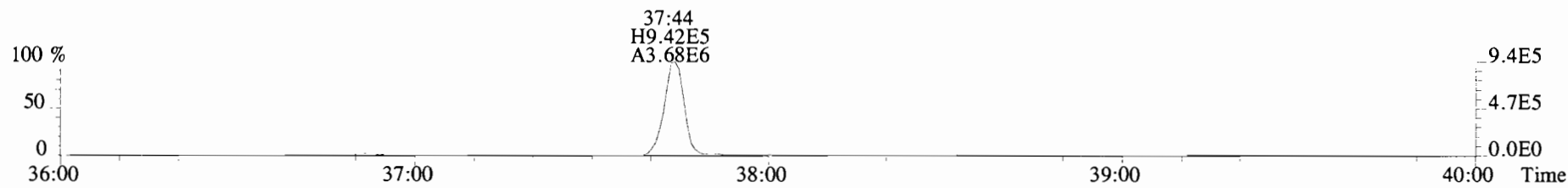
425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



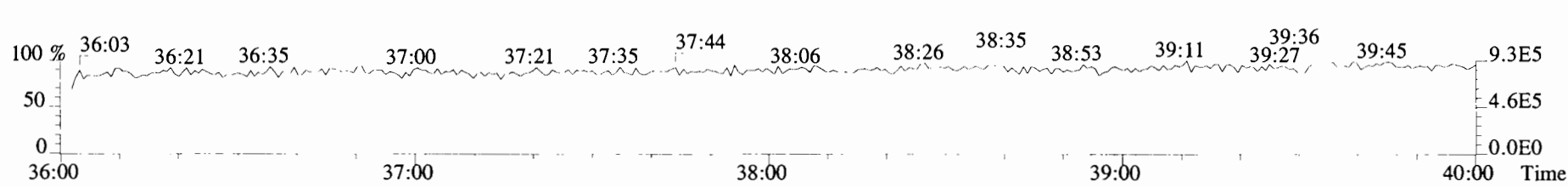
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



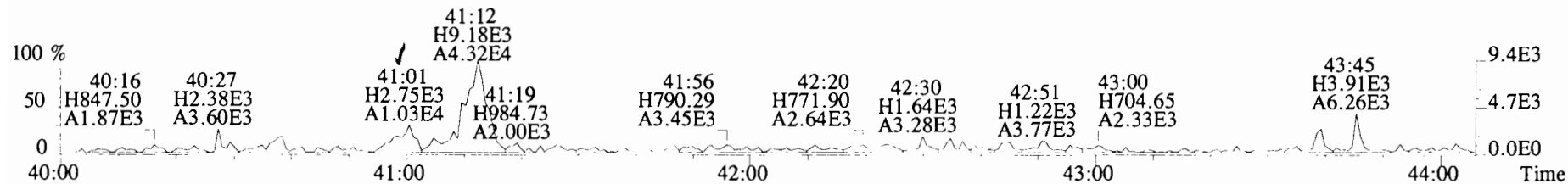
437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



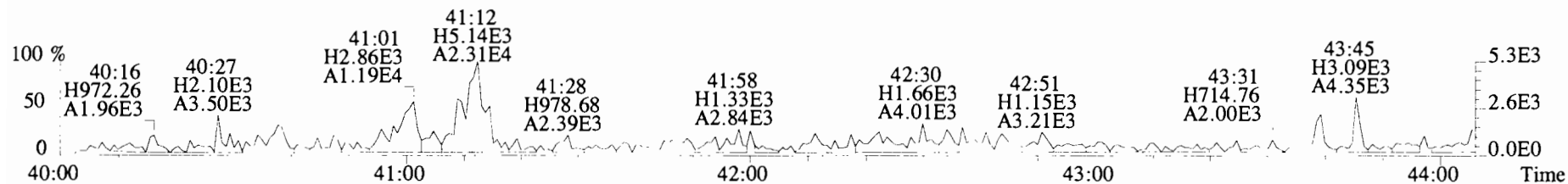
454.9728 S:5 F:4



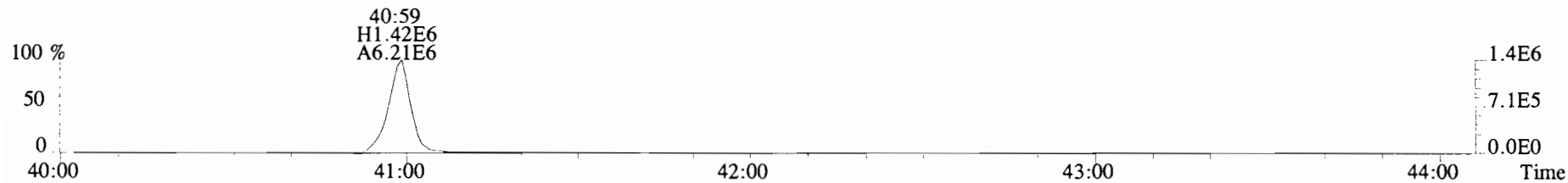
File:191212D1 #1-431 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



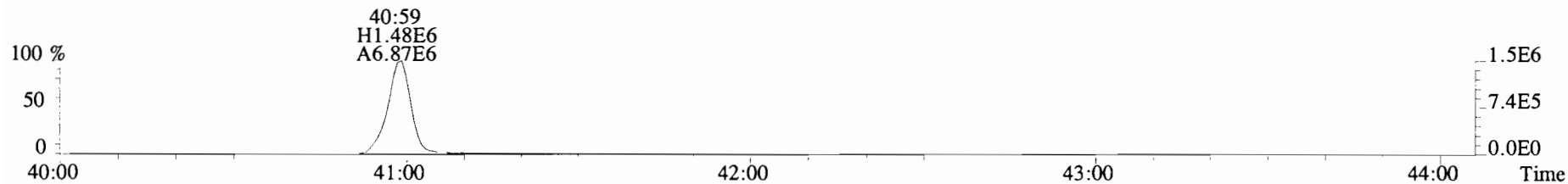
459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



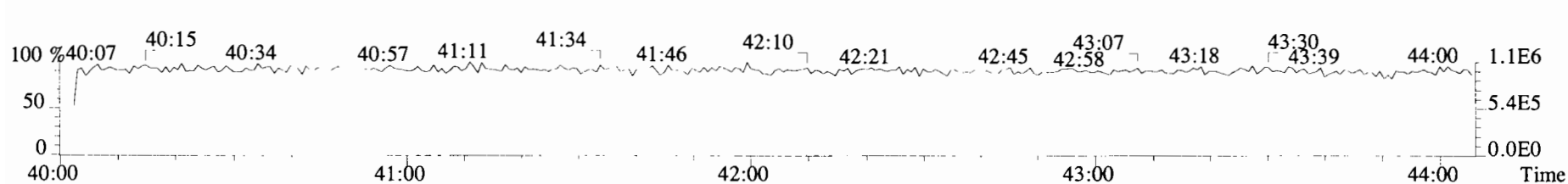
469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



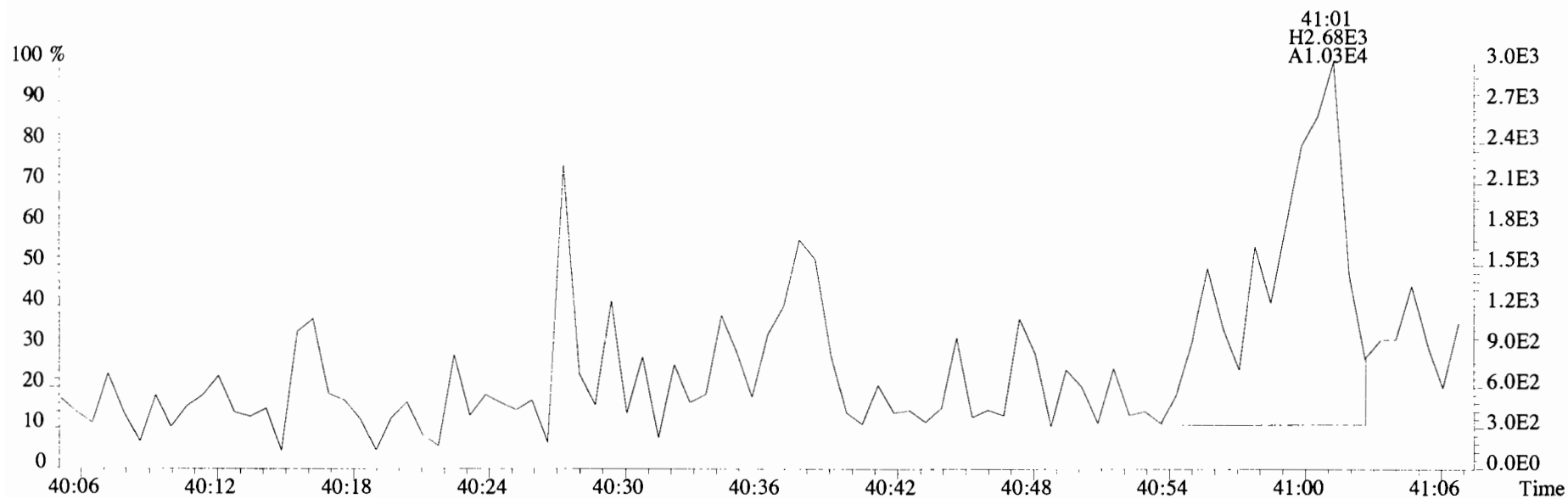
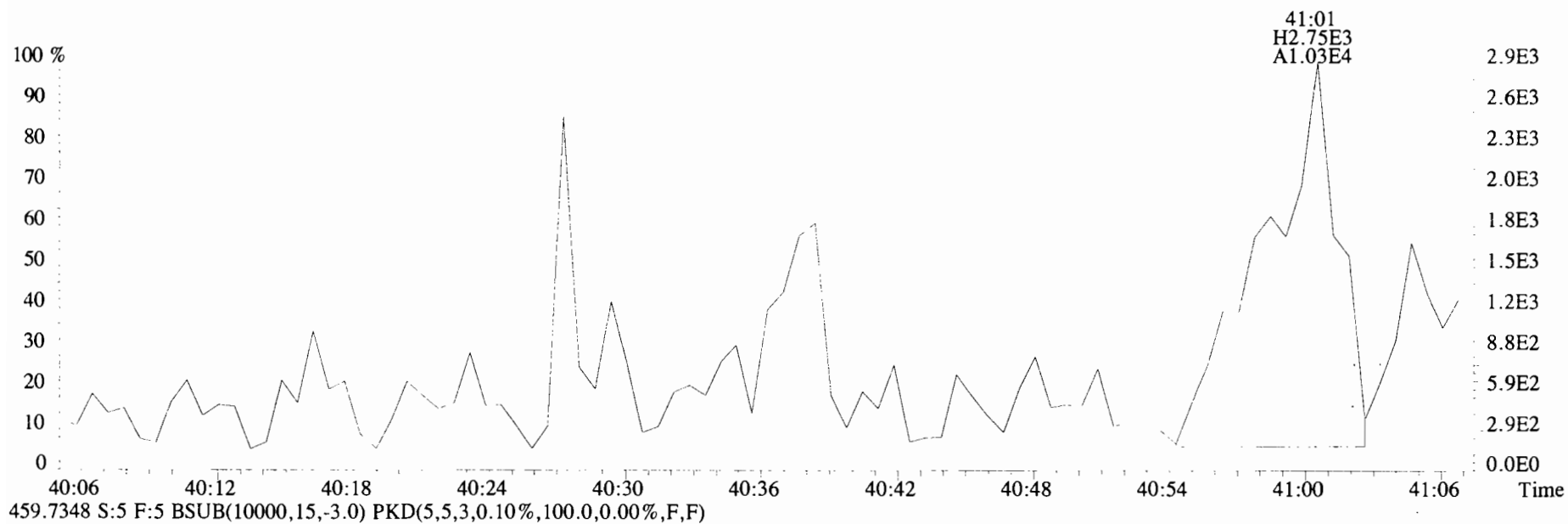
471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



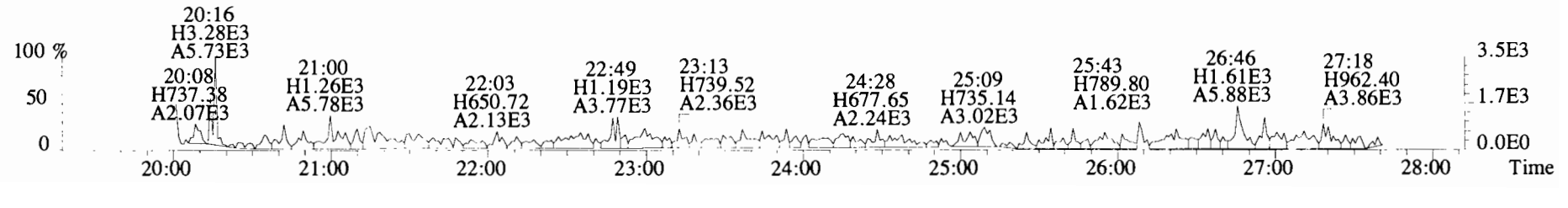
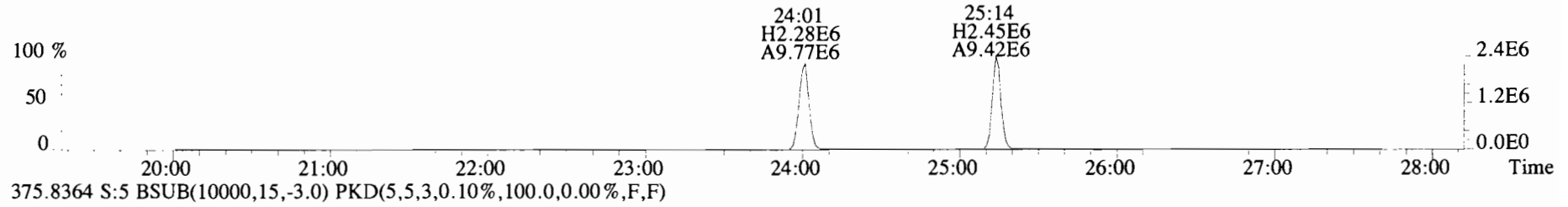
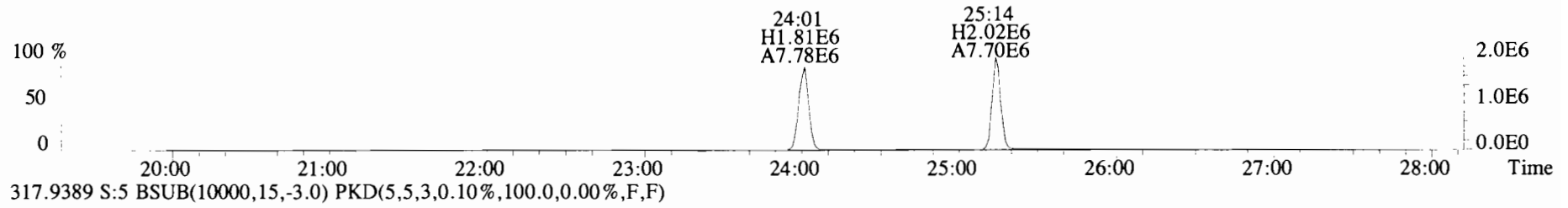
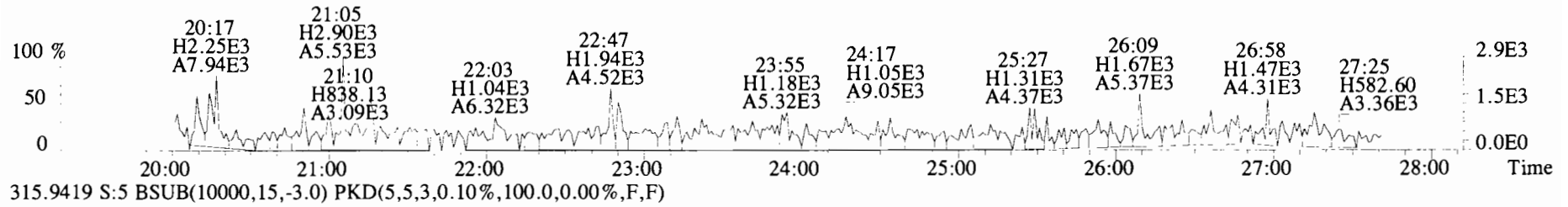
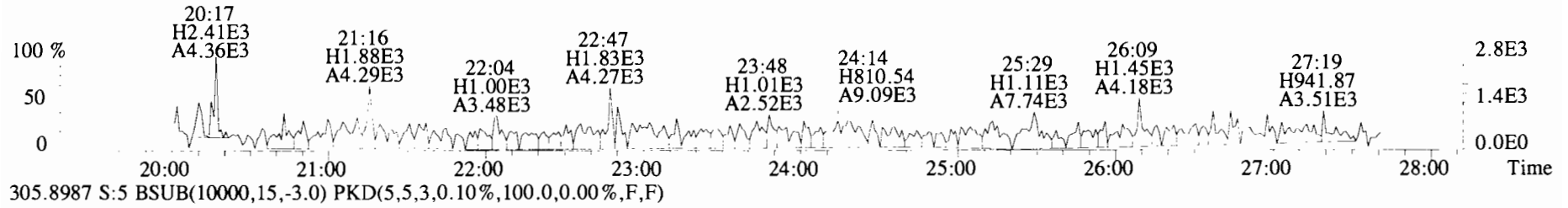
454.9728 S:5 F:5



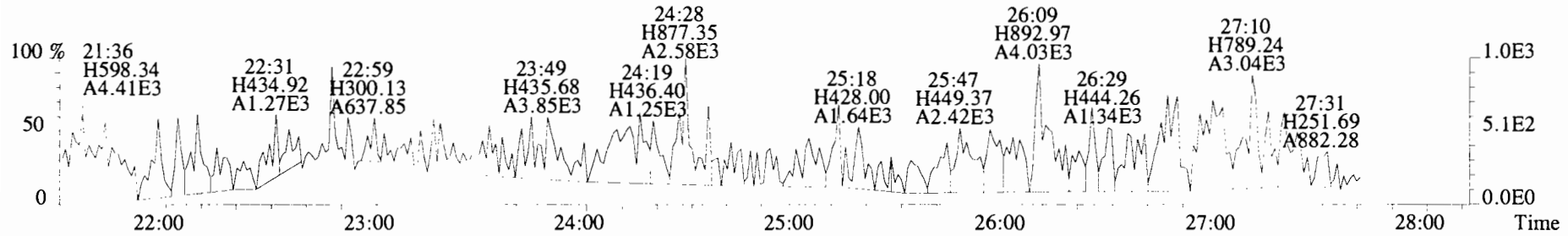
File:191212D1 #1-431 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



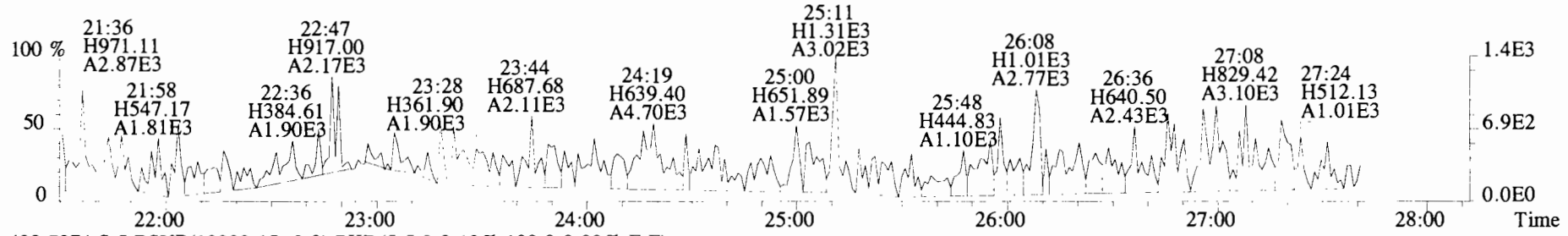
File:191212D1 #1-493 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



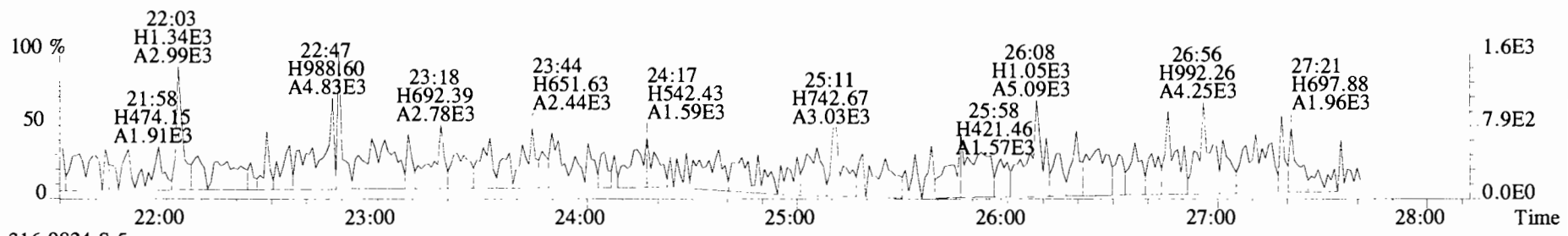
File:191212D1 #1-493 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



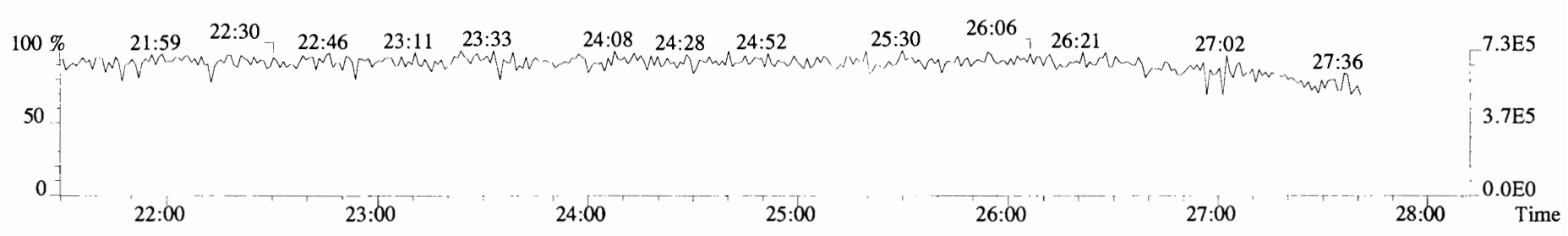
341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



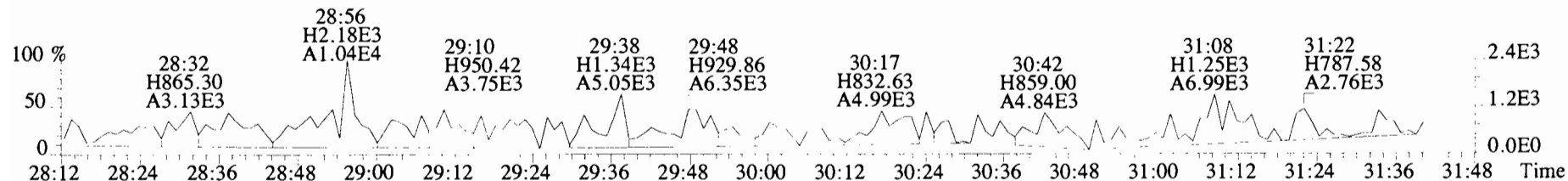
409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



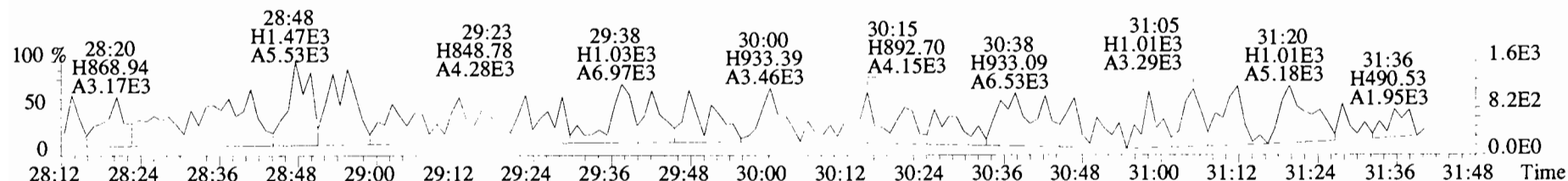
316.9824 S:5



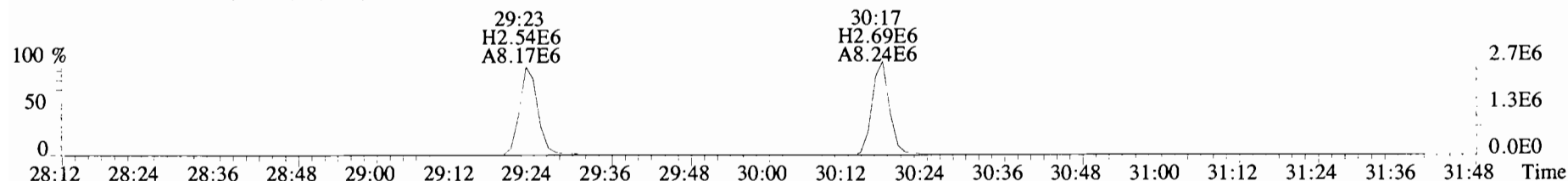
File:191212D1 #1-210 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



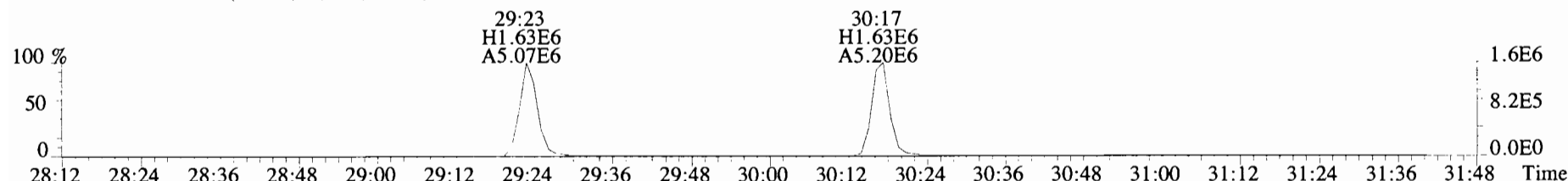
341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



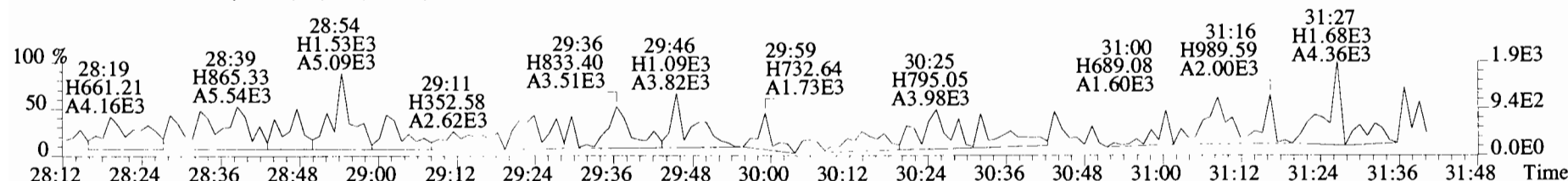
351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



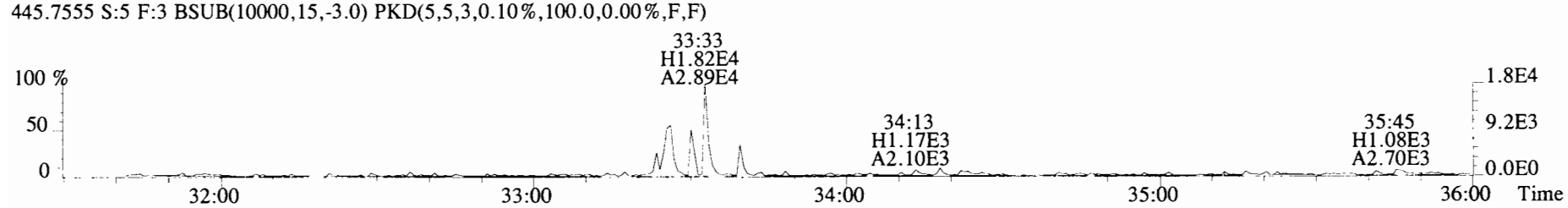
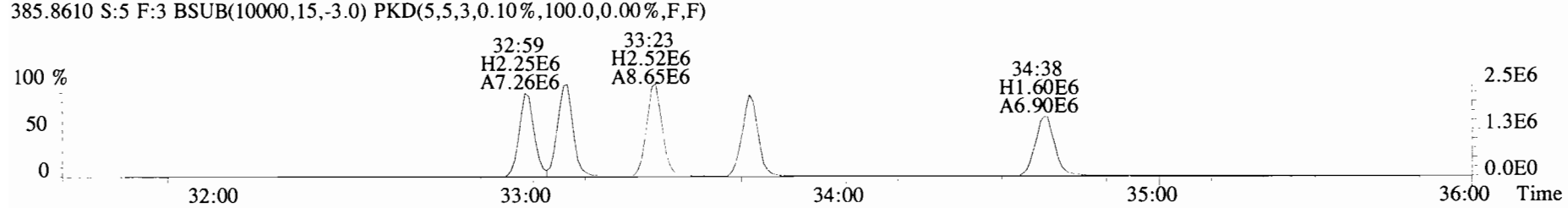
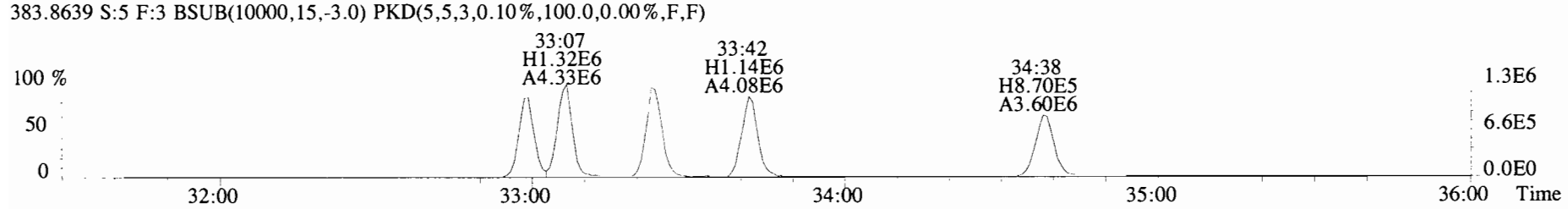
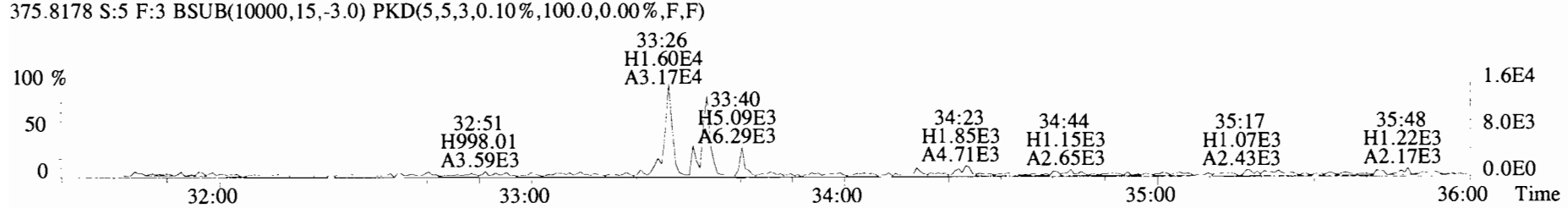
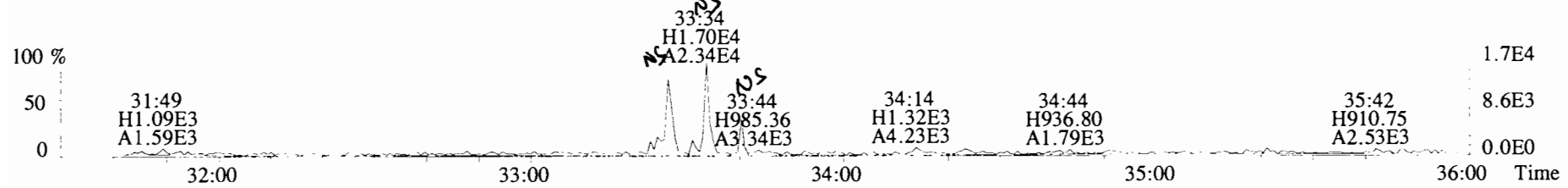
353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

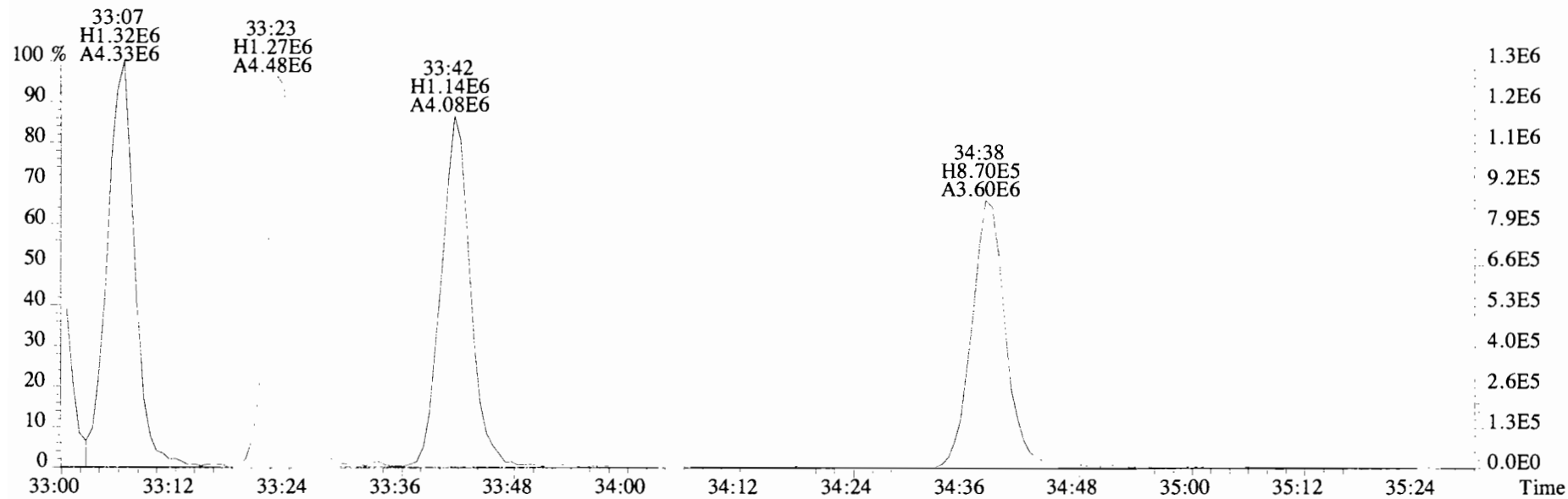


File:191212D1 #1-385 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

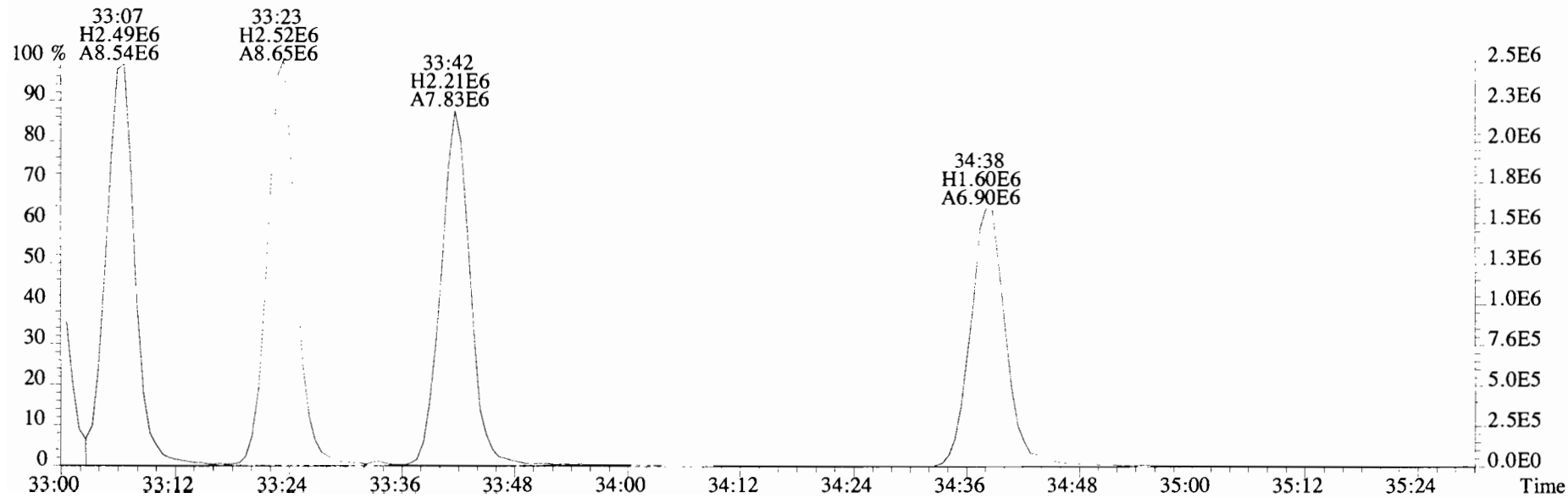




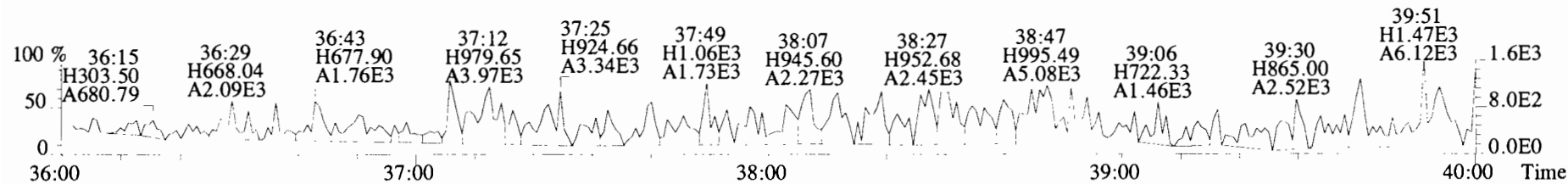
File:191212D1 #1-385 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



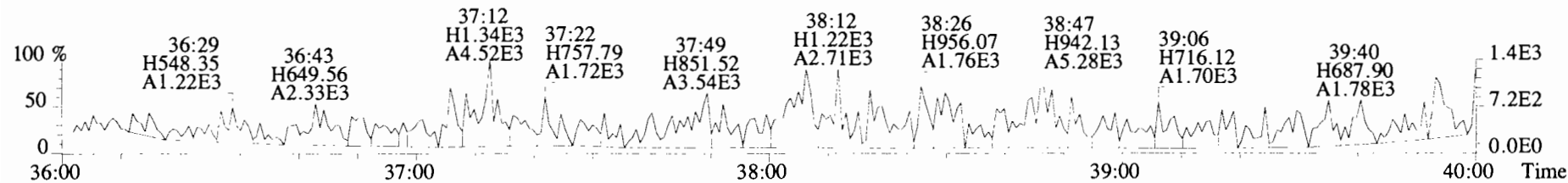
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



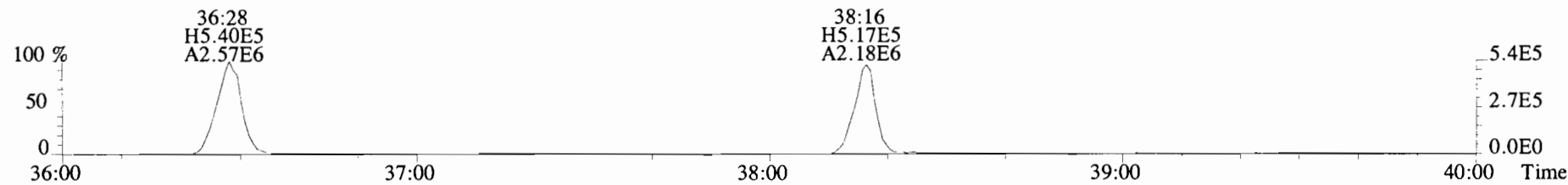
File:191212D1 #1-356 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



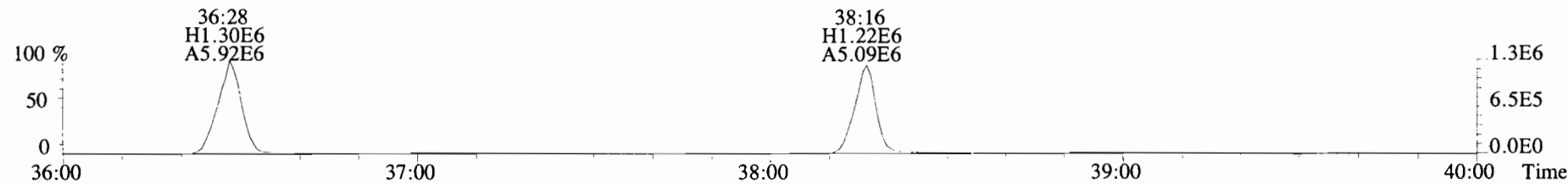
409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



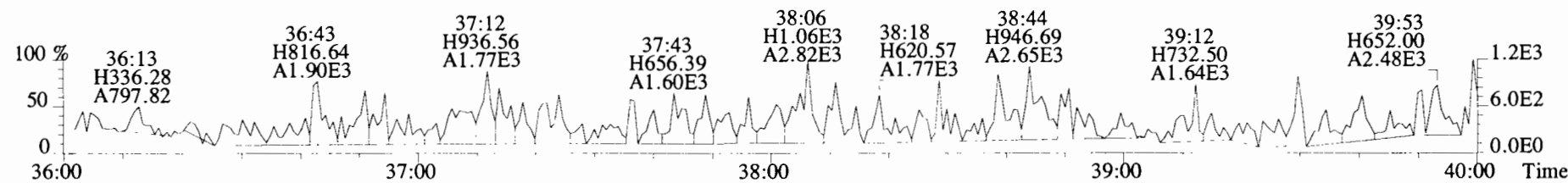
417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



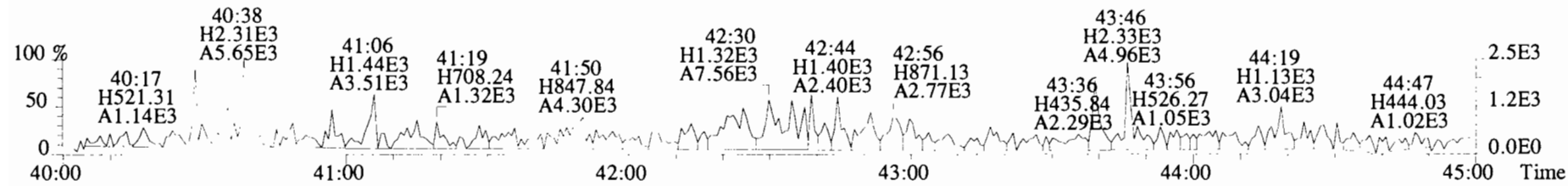
419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



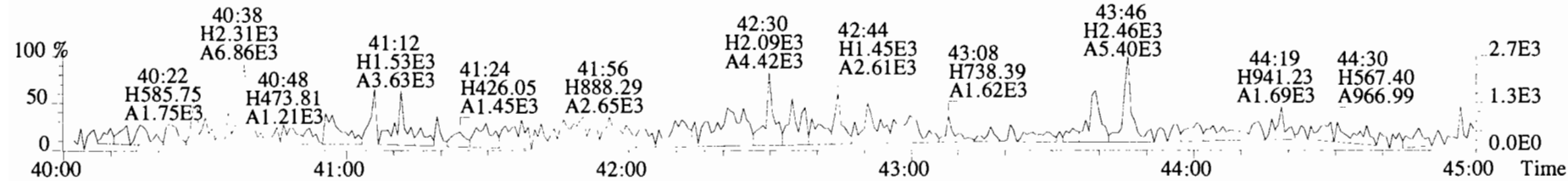
479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



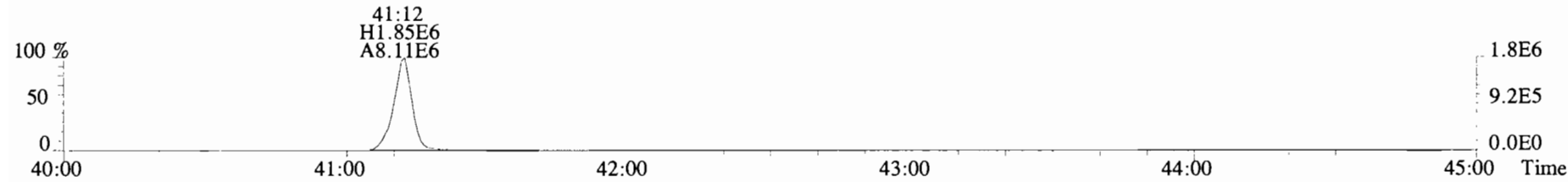
File:191212D1 #1-431 Acq:12-DEC-2019 15:55:37 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



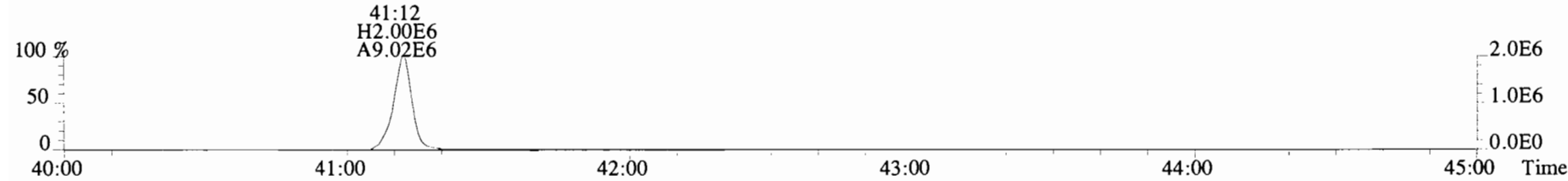
443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



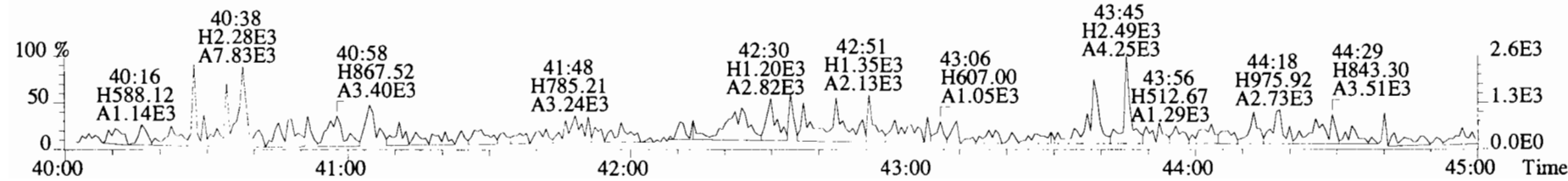
453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



FORM 8A  
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory      Extraction Batch: B9L0043-BS1

Contract No.:                      SAS No.:

Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191212D1-2

Ext. Date:                      Shift: Day      Analysis Date: 12-DEC-19      Time: 13:31:50

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	11.2	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	55.1	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	49.2	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	53.3	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	50.5	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	51.6	35.0 - 70.0
OCDD	100	104	78.0 - 144.0
2,3,7,8-TCDF	10	9.93	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	53.2	40.0 - 67.0
2,3,4,7,8-PeCDF	50	52.8	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	48.0	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	48.0	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	50.7	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	46.2	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	47.2	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	46.3	39.0 - 69.0
OCDF	100	95.8	63.0 - 170.0

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 12/13/19

FORM 8B  
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory      Extraction Batch: B9L0043-BS1

Contract No.:                      SAS No.:

Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191212D1-2

Ext. Date:                      Shift: Day      Analysis Date: 12-DEC-19      Time: 13:31:50

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

LABELED COMPOUNDS	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
13C-2,3,7,8-TCDD	100	102	20.0 - 175.0 25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	93.7	21.0 - 227.0
13C-1,2,3,4,7,8-HxCDD	100	103	21.0 - 193.0
13C-1,2,3,6,7,8-HxCDD	100	86.9	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	96.3	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	105	26.0 - 166.0
13C-OCDD	200	196	26.0 - 397.0
13C-2,3,7,8-TCDF	100	98.1	22.0 - 152.0 26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	91.2	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	87.6	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	106	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	95.5	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	93.9	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	109	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	106	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	120	20.0 - 186.0
13C-OCDF	200	220	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	41.2	12.4 - 76.4

(1) Contract-required concentration limits for OPR  
as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR  
as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 12/13/19

Client ID: OPR  
Lab ID: B9L0043-BS1

Filename: 191212D1 S:2 Acq:12-DEC-19 13:31:50  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

ConCal: ST191212D1-1  
EndCAL: ST191212D1-2

Name	Resp	RA	RRF	RT	Conc	Method	Vista Historical Limits		
						QC Limits	Aqueous Limits	Solid Limits	
2,3,7,8-TCDD	1.22e+06	0.81 y	0.91	26:04	11.2	7.0 - 13	7.73 - 12.4	7.53 - 12.5	
1,2,3,7,8-PeCDD	4.38e+06	0.63 y	0.90	30:36	55.1	35 - 65	37.8 - 57.5	40.4 - 65.1	
1,2,3,4,7,8-HxCDD	4.48e+06	1.26 y	1.10	33:53	49.2	35 - 65	38.3 - 58.0	41.2 - 63.2	
1,2,3,6,7,8-HxCDD	4.64e+06	1.24 y	0.94	33:59	53.3	35 - 65	38.7 - 57.0	40.8 - 65.2	
1,2,3,7,8,9-HxCDD	4.70e+06	1.23 y	0.96	34:17	50.5	35 - 65	37.0 - 57.5	41.7 - 65.4	
1,2,3,4,6,7,8-HpCDD	4.32e+06	1.00 y	0.98	37:45	51.6	35 - 65	39.0 - 58.5	21.3 - 87.7	
OCDD	7.04e+06	0.90 y	0.96	40:59	104	70 - 130	83.2 - 126	0 - 400	
2,3,7,8-TCDF	1.75e+06	0.78 y	0.95	25:16	9.93	7.0 - 13	7.65 - 12.4	7.82 - 12.0	
1,2,3,7,8-PeCDF	7.26e+06	1.58 y	0.96	29:25	53.2	35 - 65	41.4 - 64.9	39.6 - 65.6	
2,3,4,7,8-PeCDF	7.25e+06	1.54 y	1.01	30:19	52.8	35 - 65	36.9 - 56.0	40.2 - 66.5	
1,2,3,4,7,8-HxCDF	6.19e+06	1.24 y	1.18	33:00	48.0	35 - 65	33.4 - 59.4	39.4 - 63.9	
1,2,3,6,7,8-HxCDF	6.32e+06	1.20 y	1.07	33:07	48.0	35 - 65	38.7 - 59.0	41.1 - 62.9	
2,3,4,6,7,8-HxCDF	6.30e+06	1.26 y	1.11	33:43	50.7	35 - 65	39.3 - 58.0	40.9 - 63.3	
1,2,3,7,8,9-HxCDF	5.51e+06	1.23 y	1.06	34:40	46.2	35 - 65	38.8 - 58.0	39.5 - 64.9	
1,2,3,4,6,7,8-HpCDF	5.35e+06	1.02 y	1.13	36:29	47.2	35 - 65	40.2 - 63.1	31.9 - 74.7	
1,2,3,4,7,8,9-HpCDF	5.15e+06	1.00 y	1.28	38:17	46.3	35 - 65	40.5 - 62.2	39.8 - 63.8	
OCDF	8.59e+06	0.90 y	0.95	41:12	95.8	70 - 130	80.0 - 120	69.8 - 136	
						% Rec	Method QC Limits	Aqueous Limits	Solid Limits
13C-2,3,7,8-TCDD	1.20e+07	0.82 y	1.10	26:03	102	102	40 - 135	48.8 - 105	53.0 - 115
13C-1,2,3,7,8-PeCDD	8.82e+06	0.64 y	0.88	30:35	93.7	93.7	40 - 135	49.8 - 109	61.4 - 117
13C-1,2,3,4,7,8-HxCDD	8.25e+06	1.28 y	0.64	33:52	103	103	40 - 135	50.4 - 99.1	54.6 - 121
13C-1,2,3,6,7,8-HxCDD	9.28e+06	1.25 y	0.86	33:59	86.9	86.9	40 - 135	50.4 - 99.1	54.6 - 121
13C-1,2,3,7,8,9-HxCDD	9.69e+06	1.26 y	0.81	34:16	96.3	96.3	40 - 135	50.4 - 99.1	54.6 - 121
13C-1,2,3,4,6,7,8-HpCDD	8.54e+06	1.05 y	0.65	37:44	105	105	40 - 135	51.2 - 106	67.6 - 117
13C-OCDD	1.42e+07	0.89 y	0.58	40:59	196	98.0	40 - 135	30.8 - 113	14.0 - 147
13C-2,3,7,8-TCDF	1.85e+07	0.81 y	1.03	25:15	98.1	98.1	40 - 135	50.3 - 103	56.0 - 112
13C-1,2,3,7,8-PeCDF	1.42e+07	1.61 y	0.85	29:24	91.2	91.2	40 - 135	49.3 - 105	58.6 - 116
13C-2,3,4,7,8-PeCDF	1.35e+07	1.64 y	0.85	30:17	87.6	87.6	40 - 135	53.3 - 109	62.9 - 118
13C-1,2,3,4,7,8-HxCDF	1.10e+07	0.52 y	0.83	32:59	106	106	40 - 135	44.5 - 110	55.9 - 118
13C-1,2,3,6,7,8-HxCDF	1.23e+07	0.52 y	1.03	33:07	95.5	95.5	40 - 135	45.8 - 111	58.6 - 118
13C-2,3,4,6,7,8-HxCDF	1.12e+07	0.52 y	0.95	33:42	93.9	93.9	40 - 135	50.8 - 110	63.7 - 115
13C-1,2,3,7,8,9-HxCDF	1.12e+07	0.51 y	0.83	34:39	109	109	40 - 135	48.6 - 108	63.3 - 112
13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	0.44 y	0.76	36:28	106	106	40 - 135	45.9 - 104	55.0 - 117
13C-1,2,3,4,7,8,9-HpCDF	8.69e+06	0.42 y	0.58	38:16	120	120	40 - 135	41.1 - 114	53.2 - 122
13C-OCDF	1.90e+07	0.89 y	0.69	41:12	220	110	40 - 135	36.8 - 109	48.3 - 109
37Cl-2,3,7,8-TCDD	5.27e+06		1.20	26:04	41.2	103	40 - 135	51.1 - 117	49.6 - 106
13C-1,2,3,4-TCDD	1.07e+07	0.81 y	1.00	25:28	100			Analyst: <u>DB</u>	
13C-1,2,3,4-TCDF	1.82e+07	0.81 y	1.00	24:01	100			Date: <u>12/13/19</u>	
13C-1,2,3,4,6,9-HxCDF	1.25e+07	0.51 y	1.00	33:24	100				

Client ID: OPR  
Lab ID: B9L0043-BS1

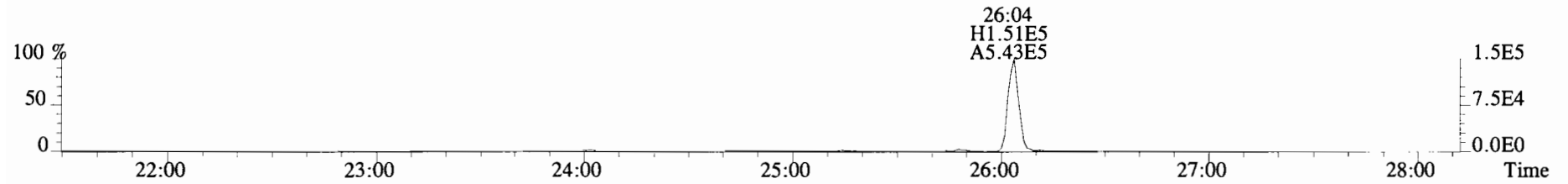
Filename: 191212D1 S:2 Acq:12-DEC-19 13:31:50  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

ConCal: ST191212D1-1  
EndCAL: ST191212D1-2

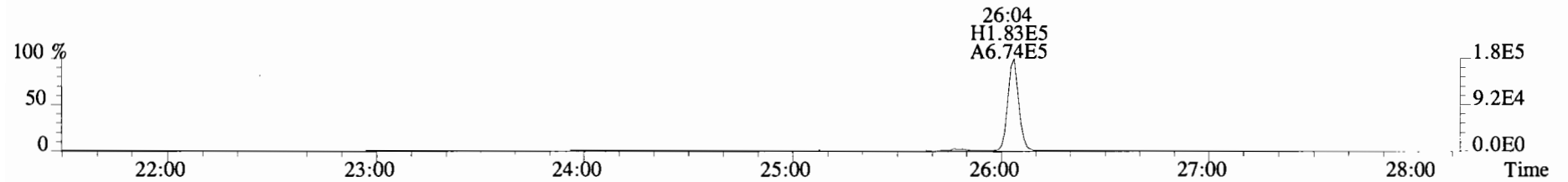
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	1.22e+06	0.81 y	0.91	26:04	11.233		* 2.5		*	Total Tetra-Dioxins	11.9	13.5		*	*
1,2,3,7,8-PeCDD	4.38e+06	0.63 y	0.90	30:36	55.053		* 2.5		*	Total Penta-Dioxins	55.3	56.1		*	*
1,2,3,4,7,8-HxCDD	4.48e+06	1.26 y	1.10	33:53	49.250		* 2.5		*	Total Hexa-Dioxins	154	156		*	*
1,2,3,6,7,8-HxCDD	4.64e+06	1.24 y	0.94	33:59	53.267		* 2.5		*	Total Hepta-Dioxins	51.9	56.9		*	*
1,2,3,7,8,9-HxCDD	4.70e+06	1.23 y	0.96	34:17	50.496		* 2.5		*	Total Tetra-Furans	10.5	11.8		*	*
1,2,3,4,6,7,8-HpCDD	4.32e+06	1.00 y	0.98	37:45	51.600		* 2.5		*	Total Penta-Furans	106.61	108.85		*	*
OCDD	7.04e+06	0.90 y	0.96	40:59	103.63		* 2.5		*	Total Hexa-Furans	193	194		*	*
										Total Hepta-Furans	94.4	95.5		*	*
2,3,7,8-TCDF	1.75e+06	0.78 y	0.95	25:16	9.9334		* 2.5		*						
1,2,3,7,8-PeCDF	7.26e+06	1.58 y	0.96	29:25	53.210		* 2.5		*						
2,3,4,7,8-PeCDF	7.25e+06	1.54 y	1.01	30:19	52.796		* 2.5		*						
1,2,3,4,7,8-HxCDF	6.19e+06	1.24 y	1.18	33:00	47.976		* 2.5		*						
1,2,3,6,7,8-HxCDF	6.32e+06	1.20 y	1.07	33:07	47.957		* 2.5		*						
2,3,4,6,7,8-HxCDF	6.30e+06	1.26 y	1.11	33:43	50.671		* 2.5		*						
1,2,3,7,8,9-HxCDF	5.51e+06	1.23 y	1.06	34:40	46.161		* 2.5		*						
1,2,3,4,6,7,8-HpCDF	5.35e+06	1.02 y	1.13	36:29	47.198		* 2.5		*						
1,2,3,4,7,8,9-HpCDF	5.15e+06	1.00 y	1.28	38:17	46.315		* 2.5		*						
OCDF	8.59e+06	0.90 y	0.95	41:12	95.767		* 2.5		*						
IS	13C-2,3,7,8-TCDD	1.20e+07	0.82 y	1.10	26:03	102.30				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	8.82e+06	0.64 y	0.88	30:35	93.675				102					
IS	13C-1,2,3,4,7,8-HxCDD	8.25e+06	1.28 y	0.64	33:52	102.98				93.7					
IS	13C-1,2,3,6,7,8-HxCDD	9.28e+06	1.25 y	0.86	33:59	86.871				103					
IS	13C-1,2,3,7,8,9-HxCDD	9.69e+06	1.26 y	0.81	34:16	96.267				86.9					
IS	13C-1,2,3,4,6,7,8-HpCDD	8.54e+06	1.05 y	0.65	37:44	104.64				96.3					
IS	13C-OCDD	1.42e+07	0.89 y	0.58	40:59	195.97				105					
IS	13C-2,3,7,8-TCDF	1.85e+07	0.81 y	1.03	25:15	98.086				98.0					
IS	13C-1,2,3,7,8-PeCDF	1.42e+07	1.61 y	0.85	29:24	91.226				98.1					
IS	13C-2,3,4,7,8-PeCDF	1.35e+07	1.64 y	0.85	30:17	87.560				91.2					
IS	13C-1,2,3,4,7,8-HxCDF	1.10e+07	0.52 y	0.83	32:59	105.55				87.6					
IS	13C-1,2,3,6,7,8-HxCDF	1.23e+07	0.52 y	1.03	33:07	95.475				106					
IS	13C-2,3,4,6,7,8-HxCDF	1.12e+07	0.52 y	0.95	33:42	93.903				95.5					
IS	13C-1,2,3,7,8,9-HxCDF	1.12e+07	0.51 y	0.83	34:39	108.75				93.9					
IS	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	0.44 y	0.76	36:28	106.43				109					
IS	13C-1,2,3,4,7,8,9-HpCDF	8.69e+06	0.42 y	0.58	38:16	119.79				106					
IS	13C-OCDF	1.90e+07	0.89 y	0.69	41:12	220.38				120					
C/Up	37C1-2,3,7,8-TCDD	5.27e+06		1.20	26:04	41.216				110					
RS/RT	13C-1,2,3,4-TCDD	1.07e+07	0.81 y	1.00	25:28	100.00									
RS	13C-1,2,3,4-TCDF	1.82e+07	0.81 y	1.00	24:01	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.25e+07	0.51 y	1.00	33:24	100.00									

Integrations  
by DB  
Analyst: DB  
Reviewed  
by CT  
Analyst: CT  
Date: 12/13/19  
Date: 12/12/19

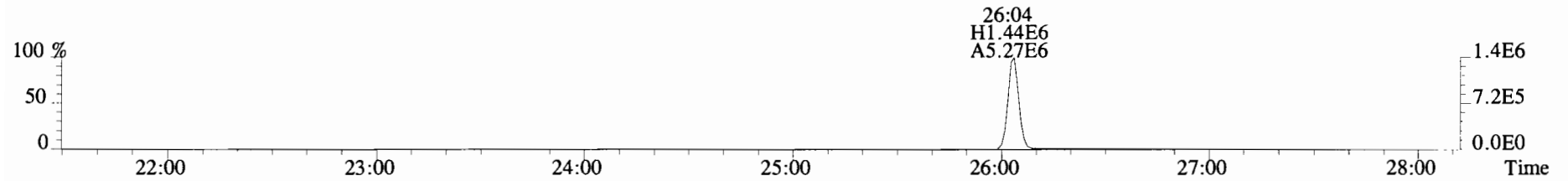
File:191212D1 #1-493 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



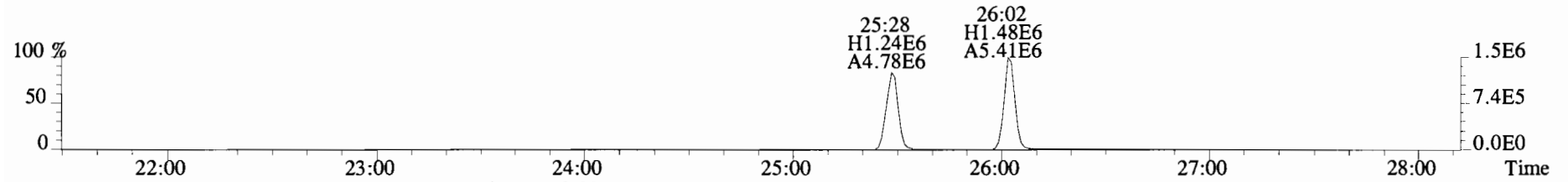
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



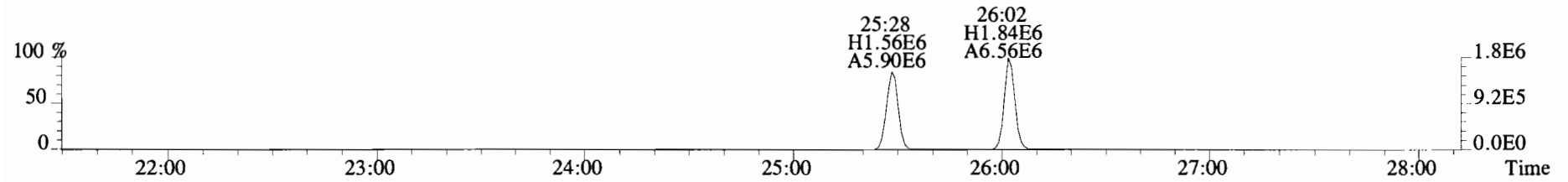
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

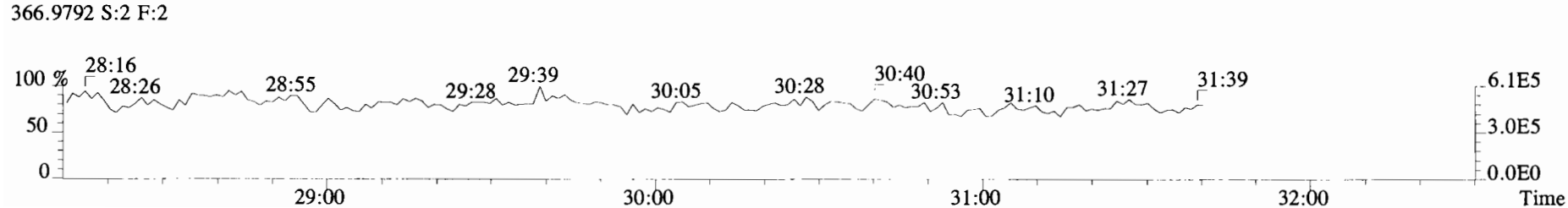
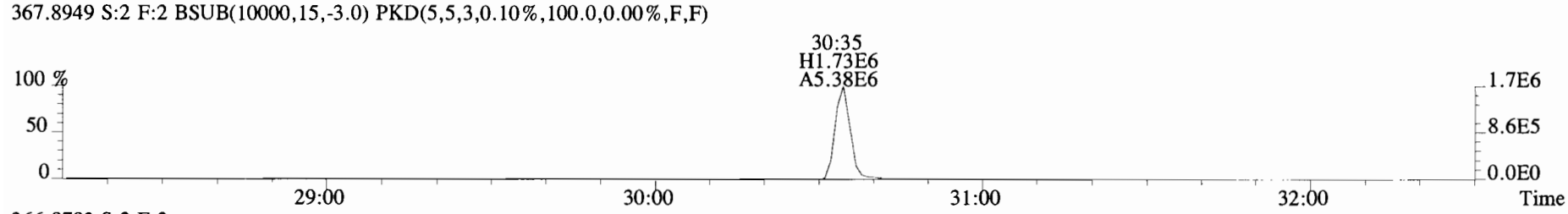
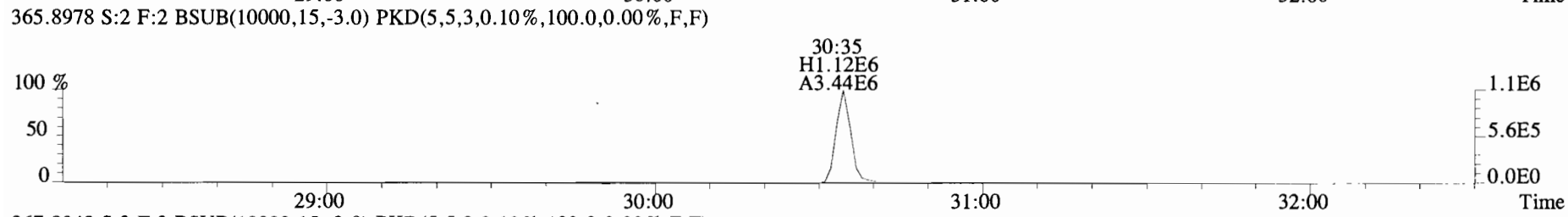
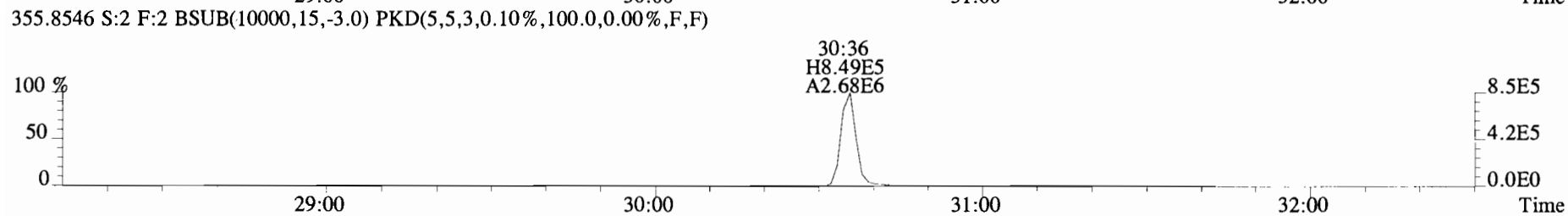
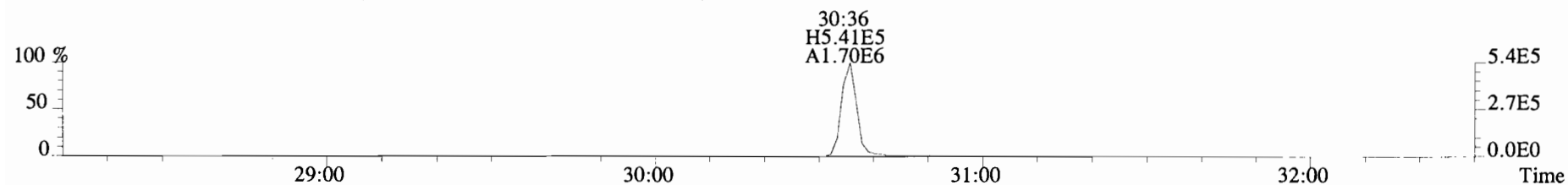


333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

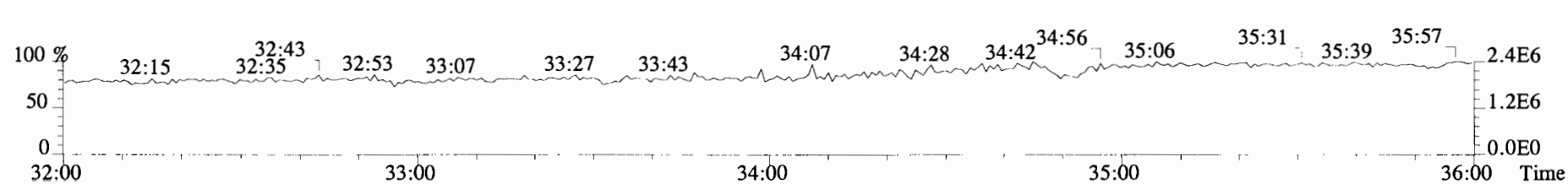
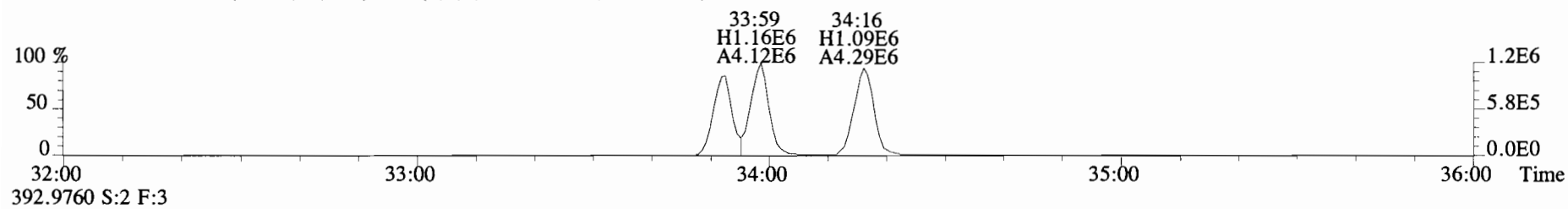
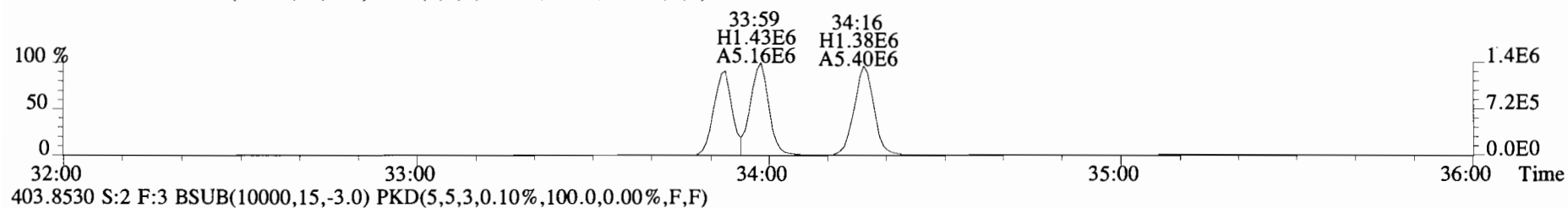
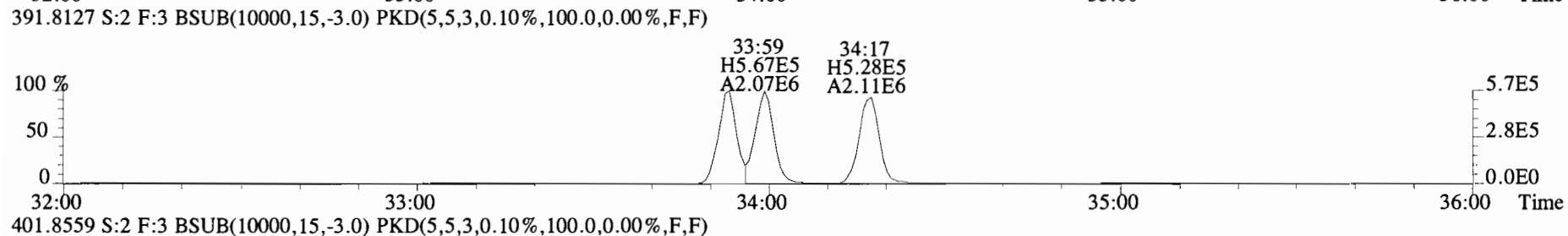
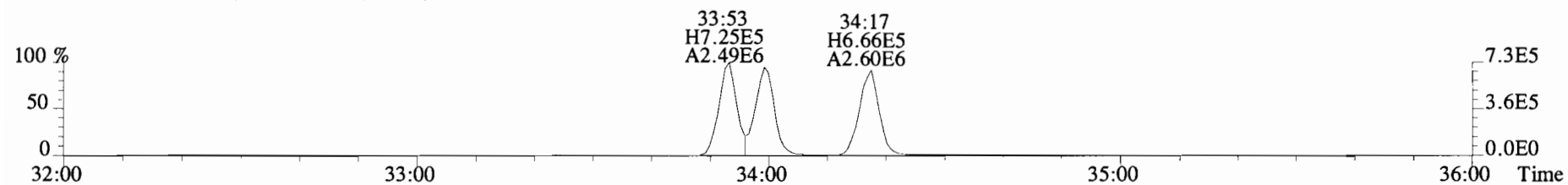




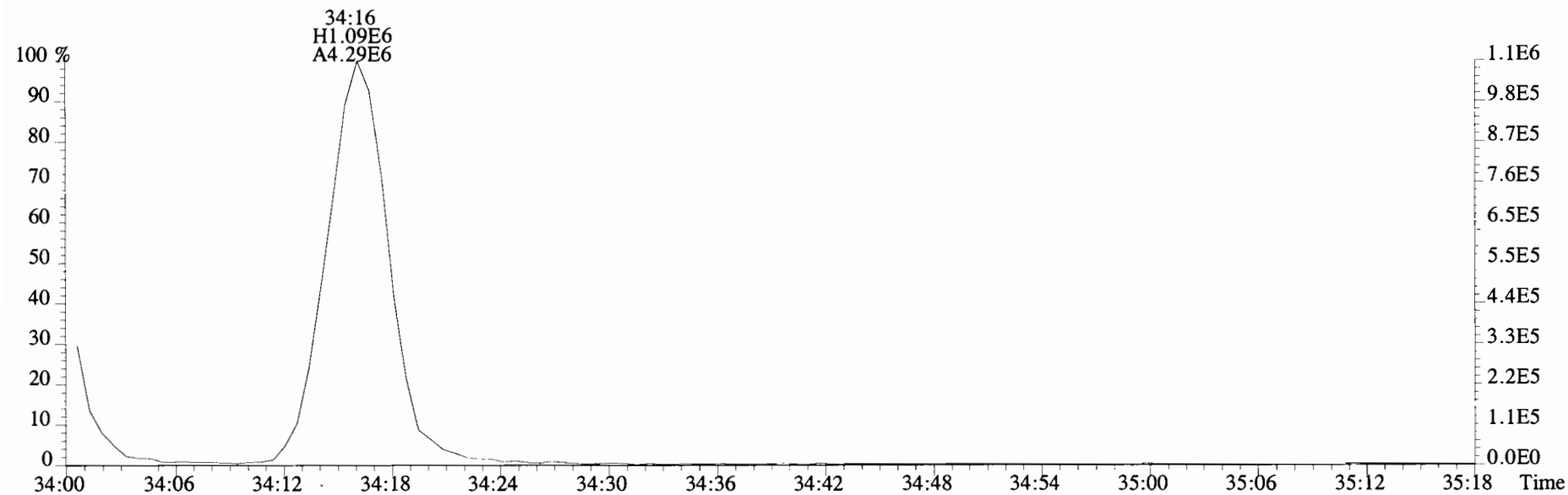
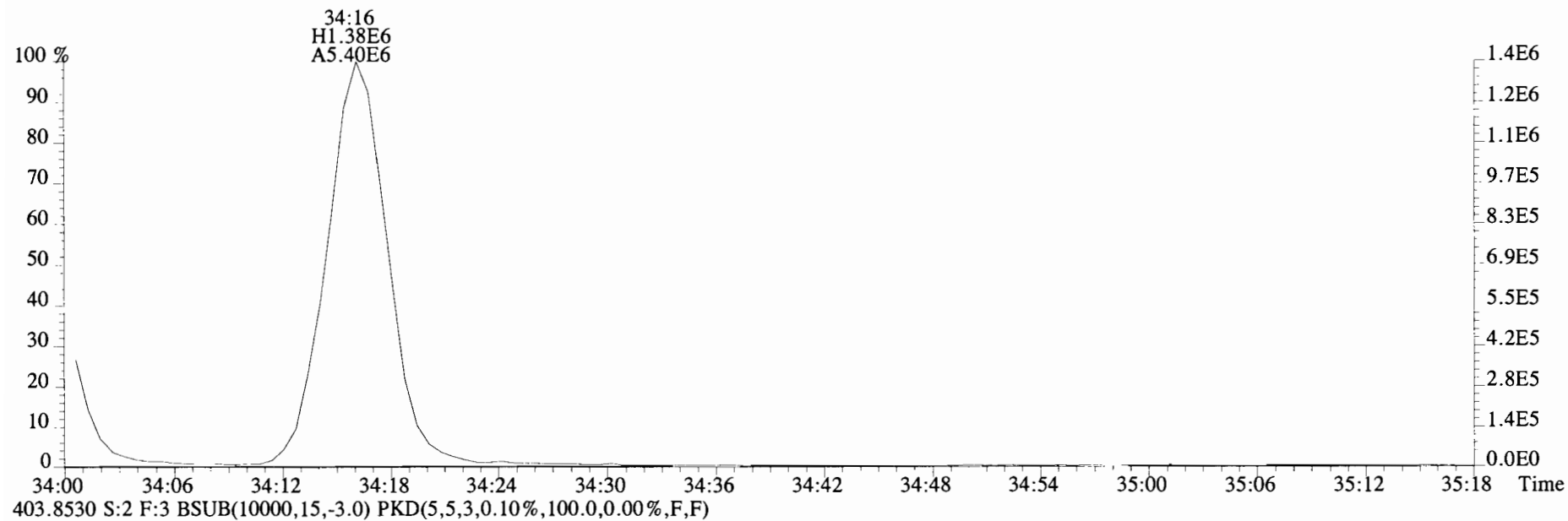
File:191212D1 #1-210 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



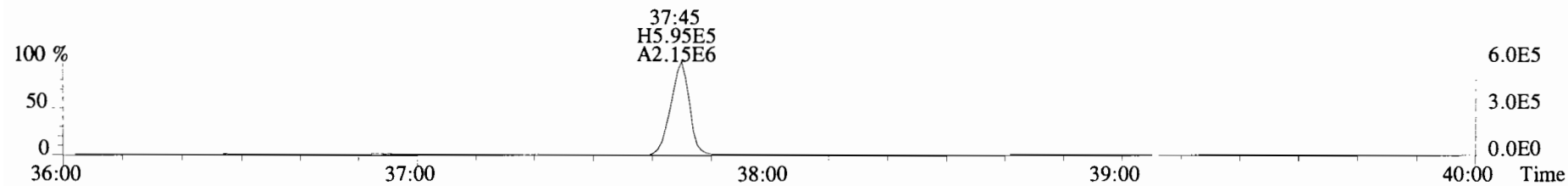
File:191212D1 #1-385 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
 389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



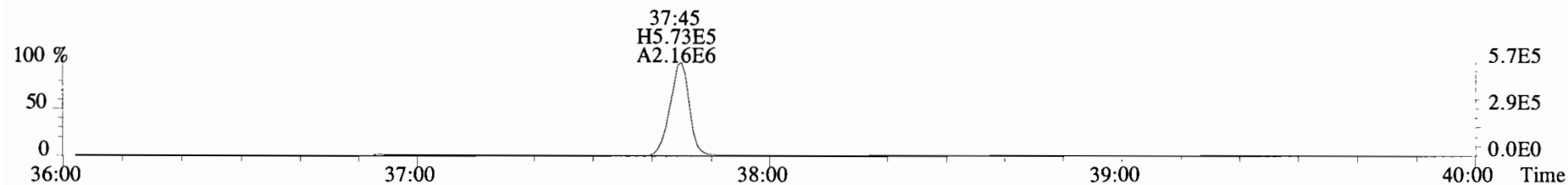
File:191212D1 #1-385 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



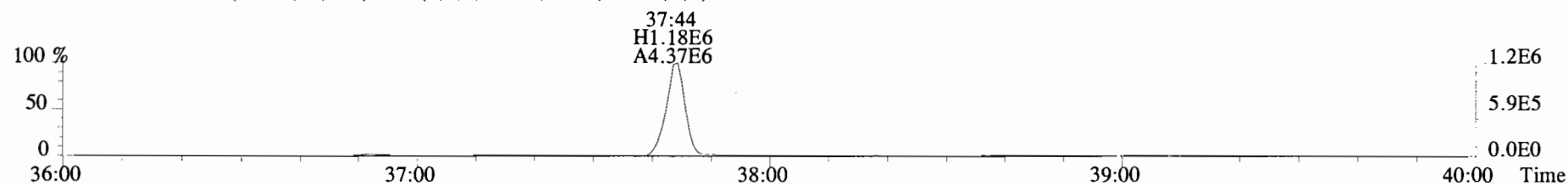
File:191212D1 #1-355 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



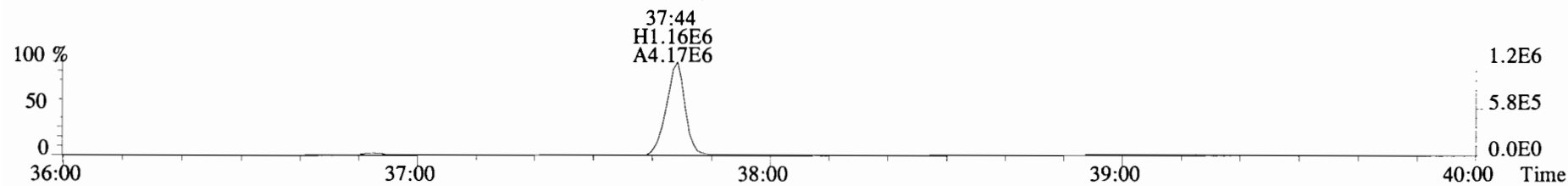
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



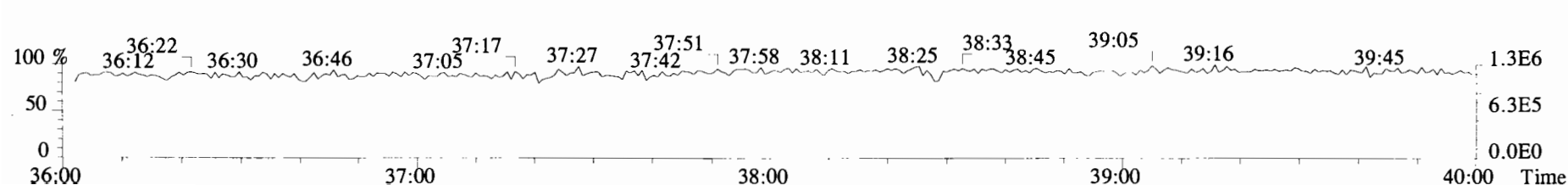
435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



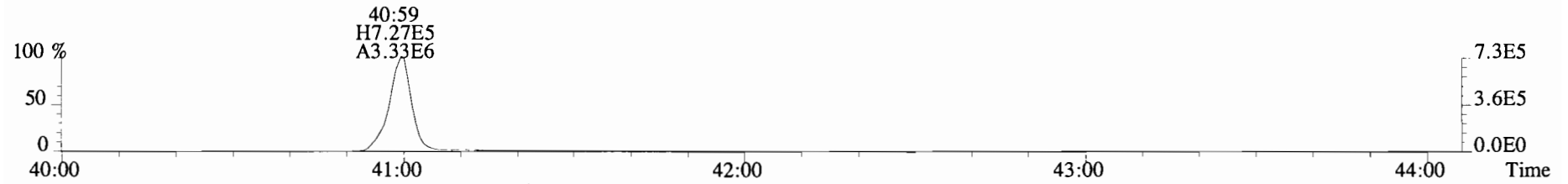
437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



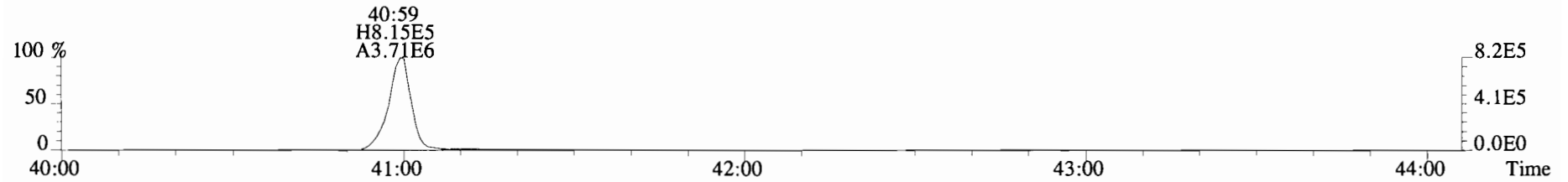
454.9728 S:2 F:4



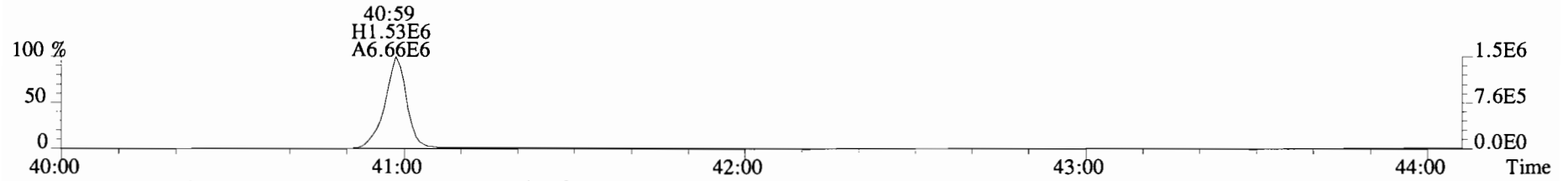
File:191212D1 #1-432 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



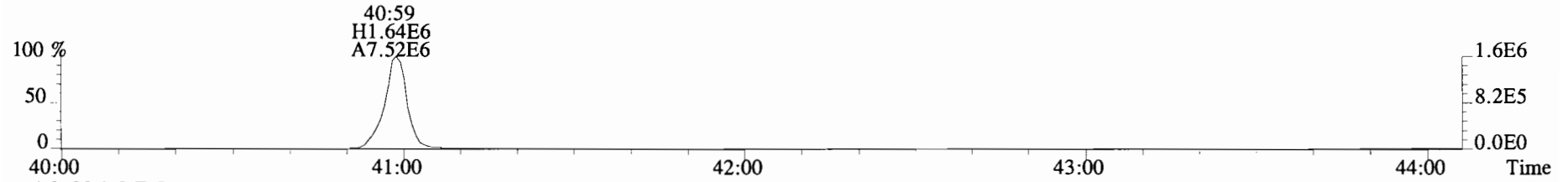
459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



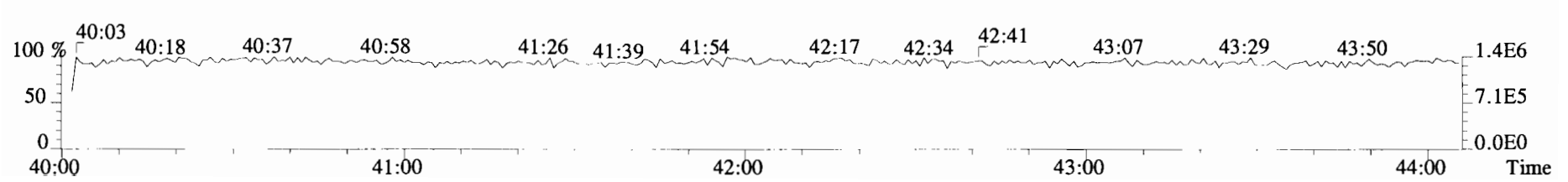
469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



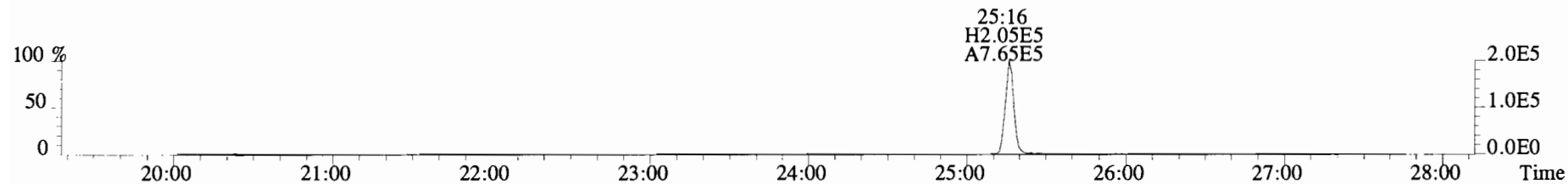
471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



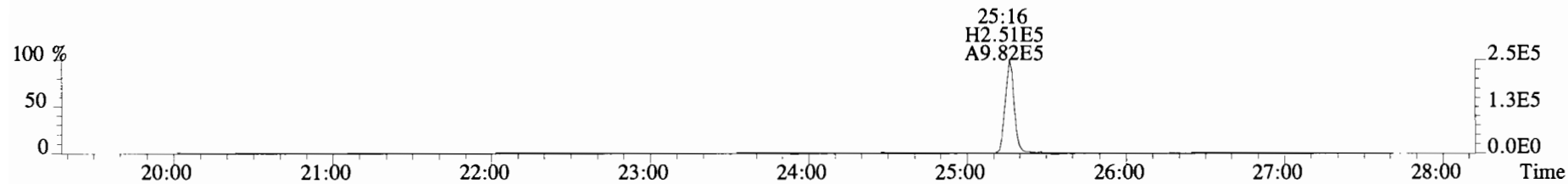
454.9728 S:2 F:5



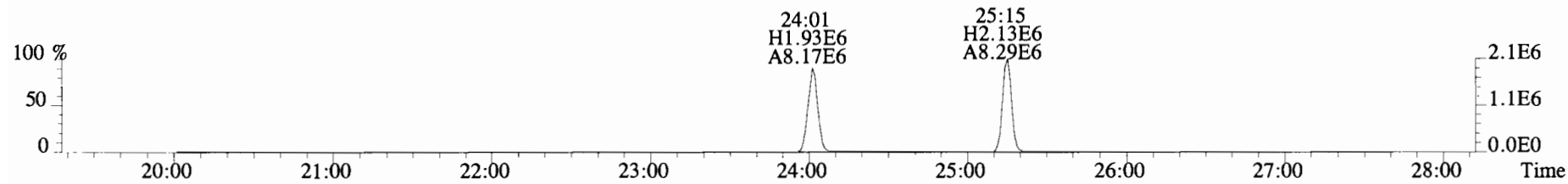
File:191212D1 #1-493 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



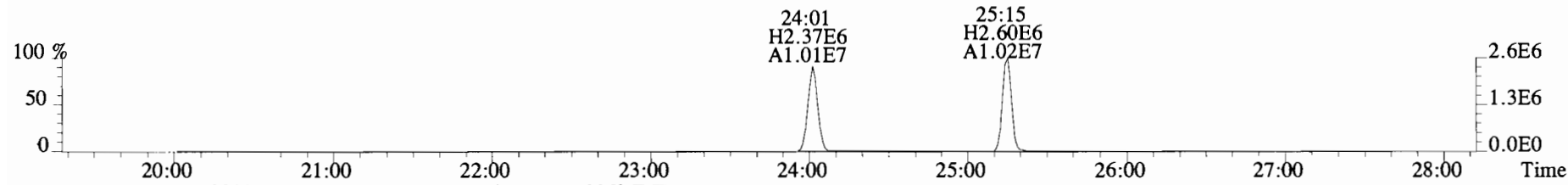
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



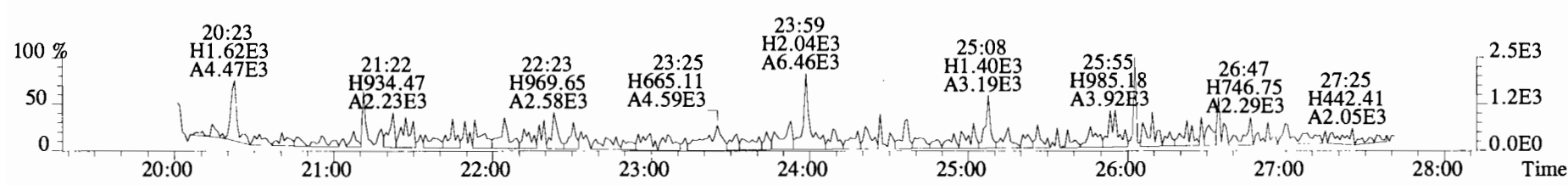
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



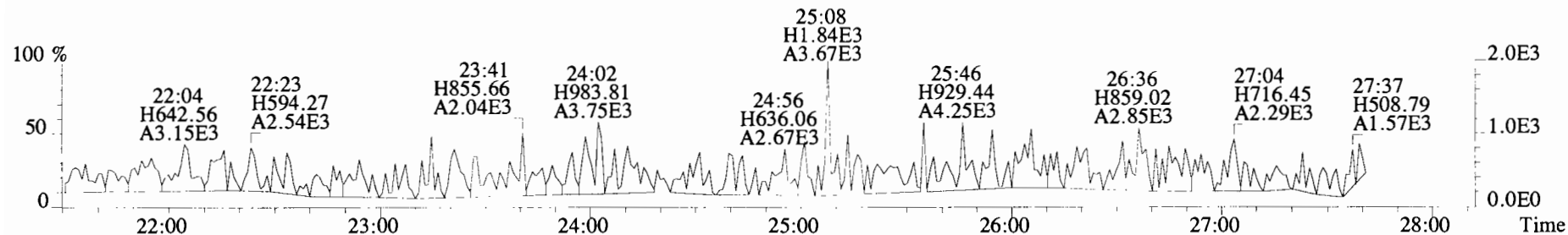
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



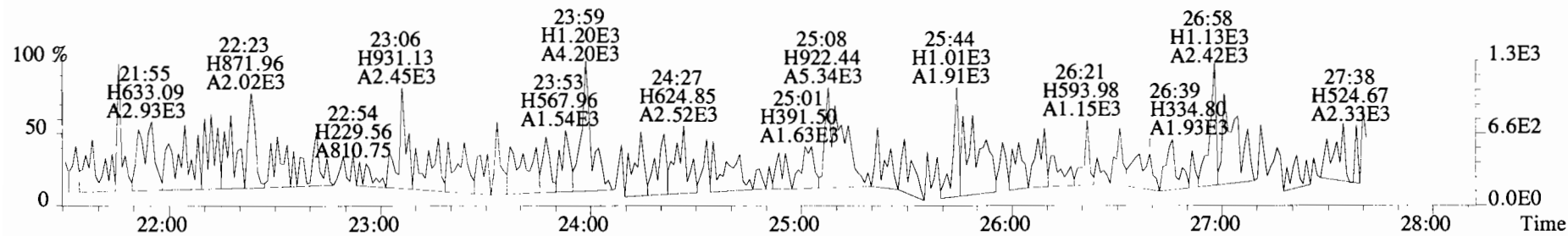
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



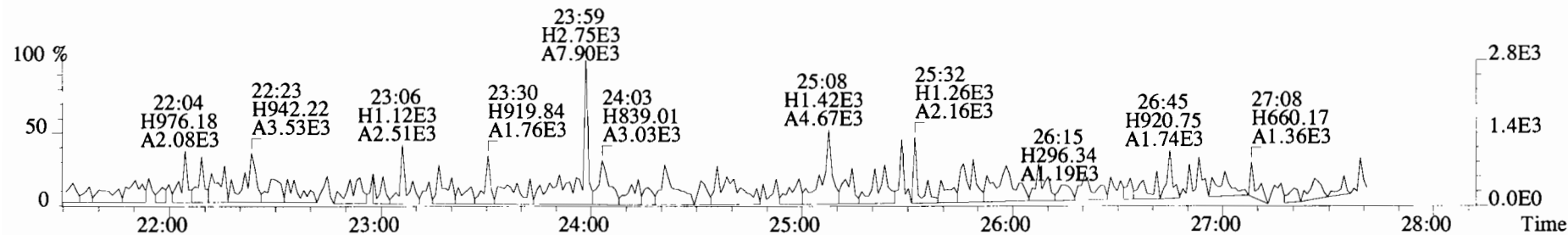
File:191212D1 #1-493 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
 339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



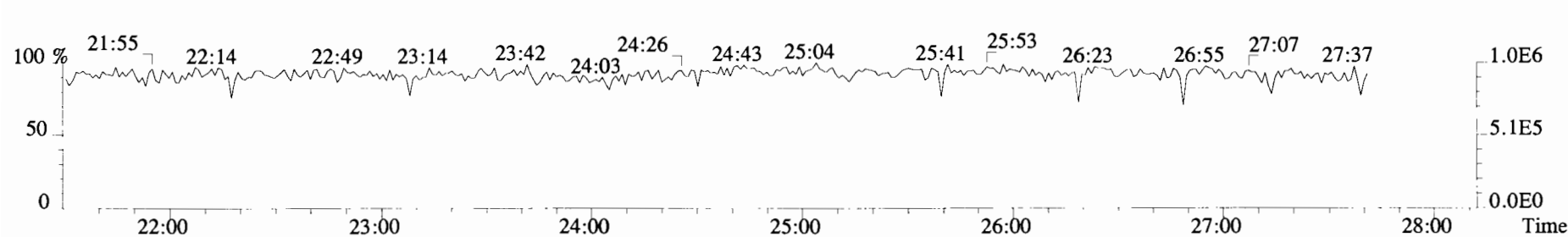
341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



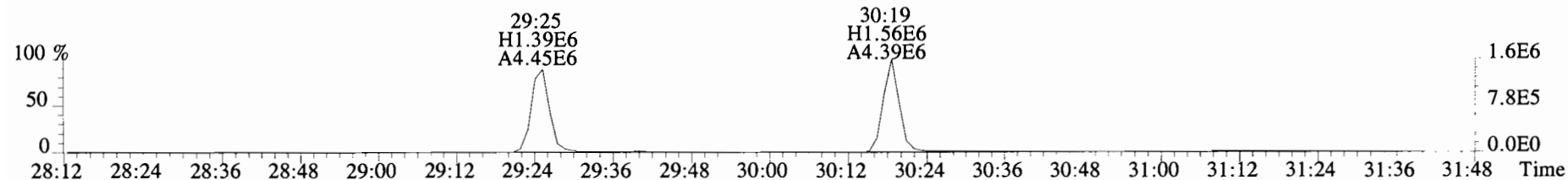
409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



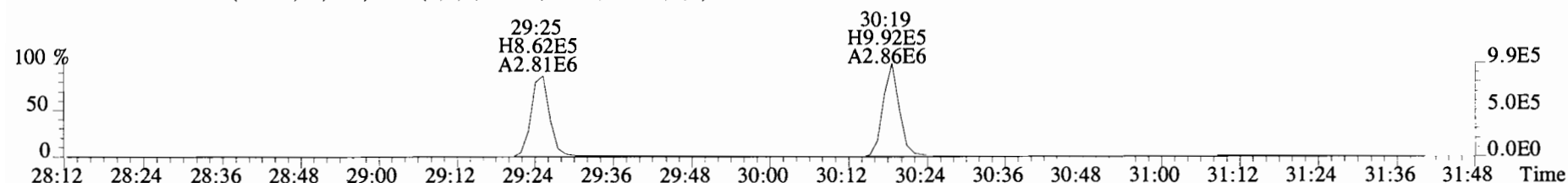
316.9824 S:2



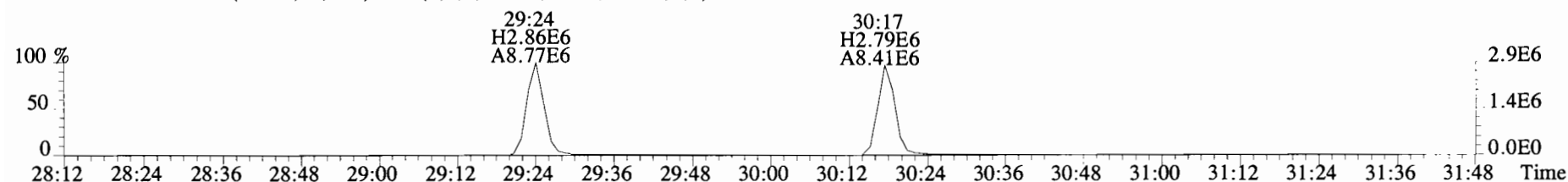
File:191212D1 #1-210 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



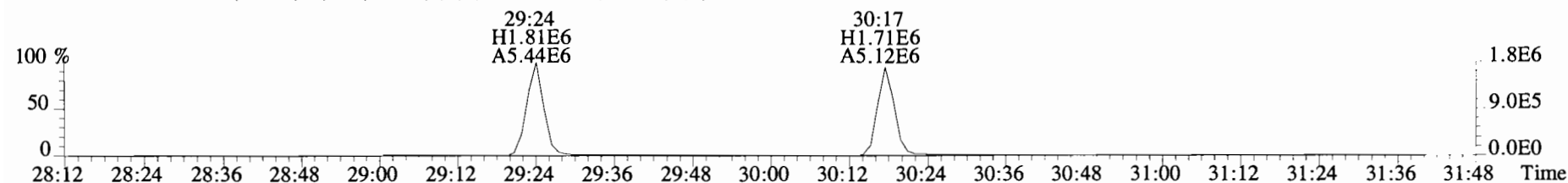
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



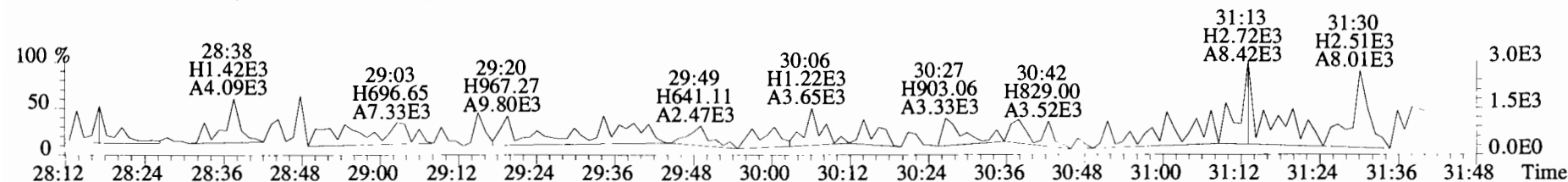
351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

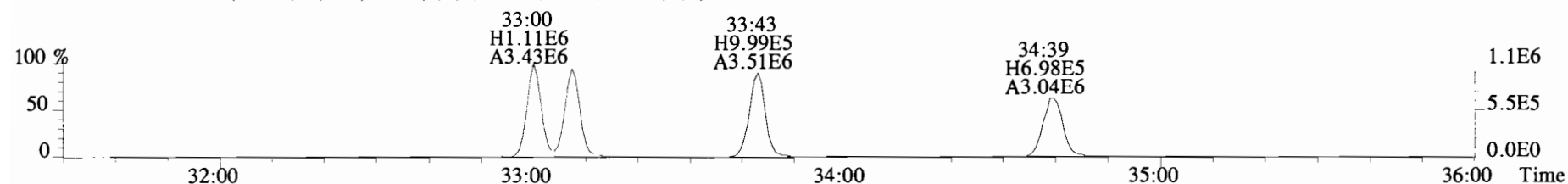


409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

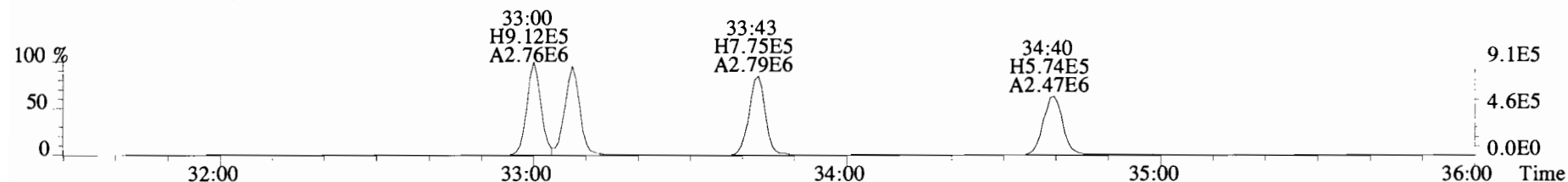




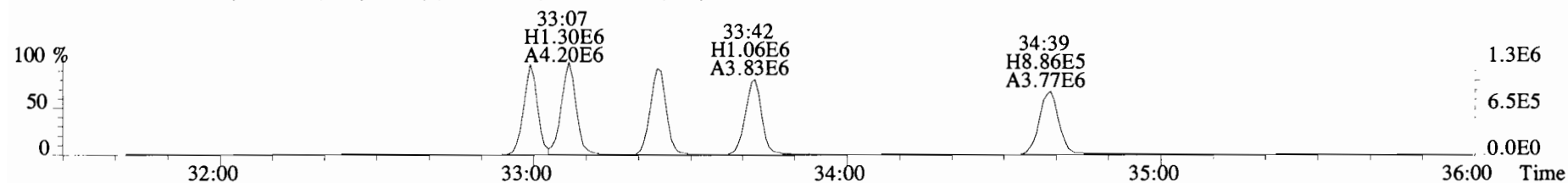
File:191212D1 #1-385 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
 373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



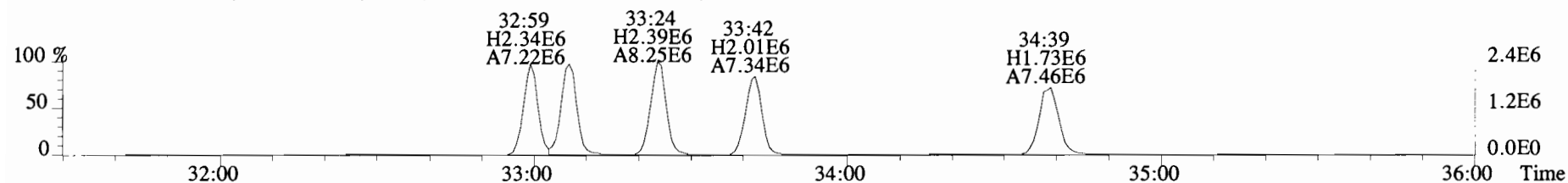
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



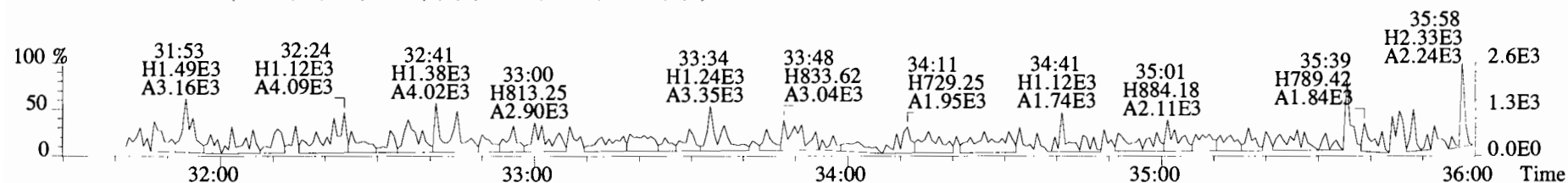
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



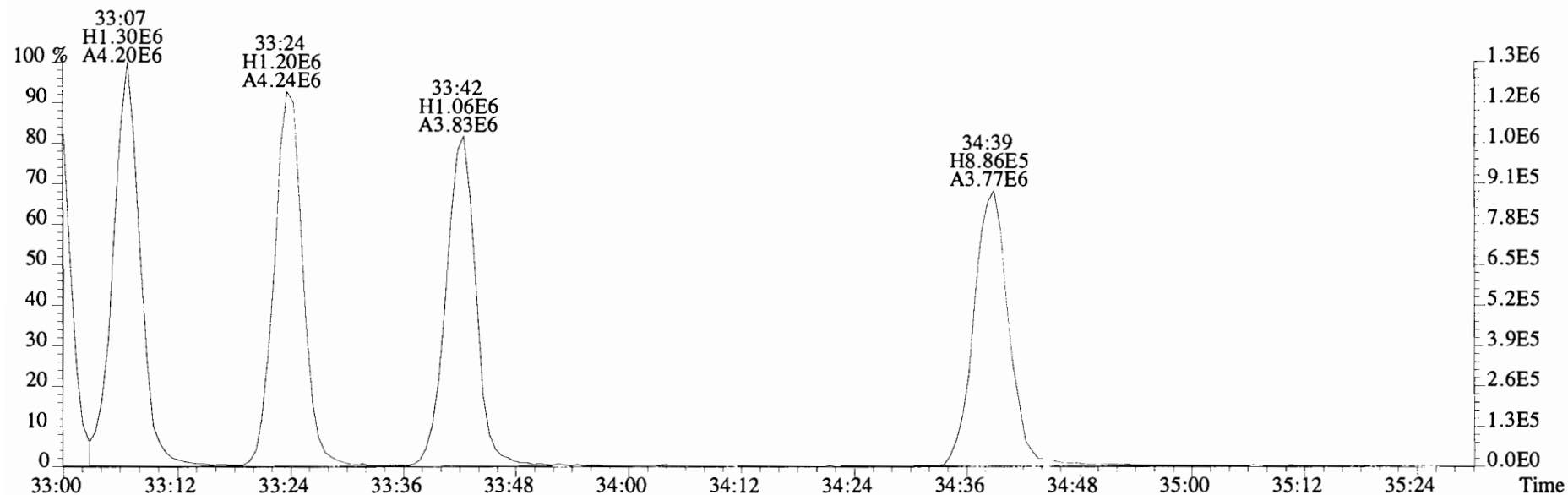
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



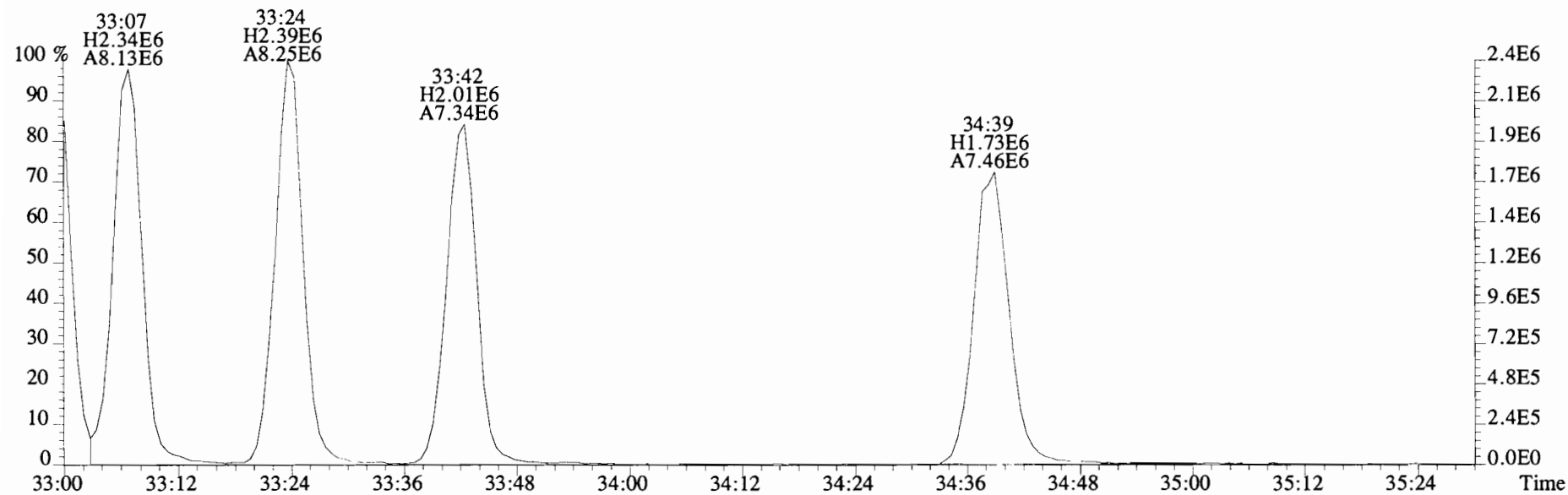
445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



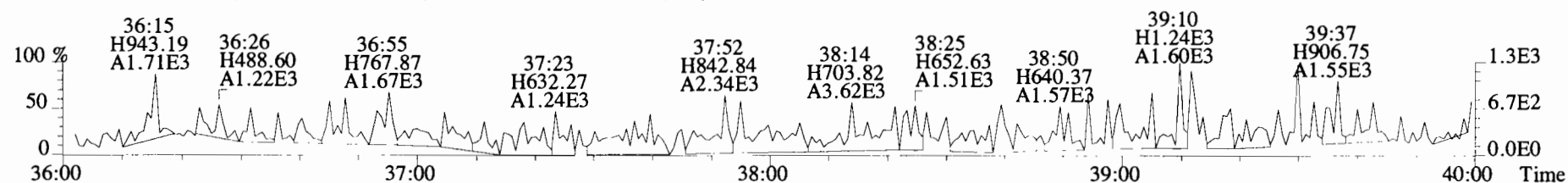
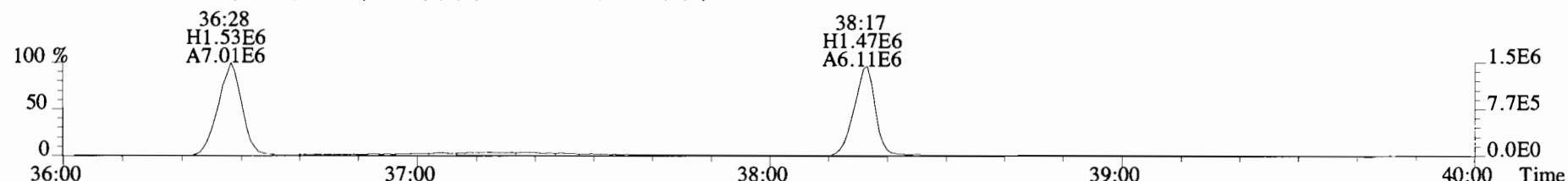
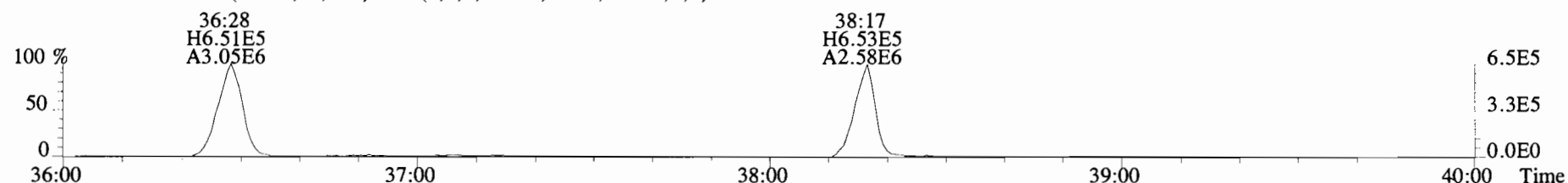
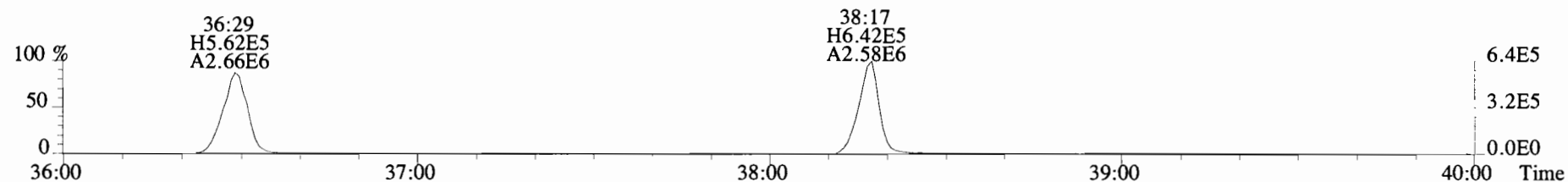
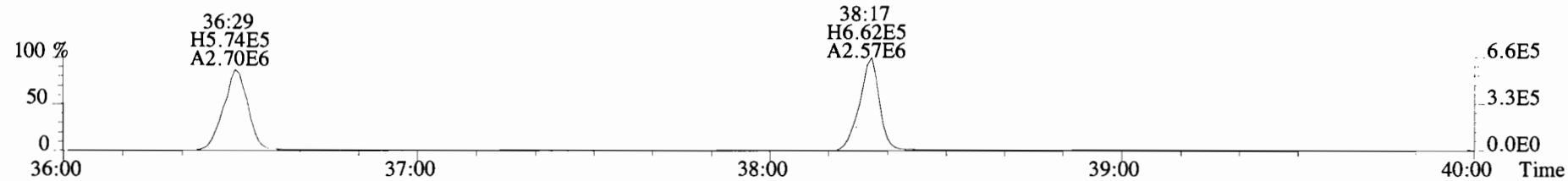
File:191212D1 #1-385 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
383.8639 S:2 F:3 BSUB(I0000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



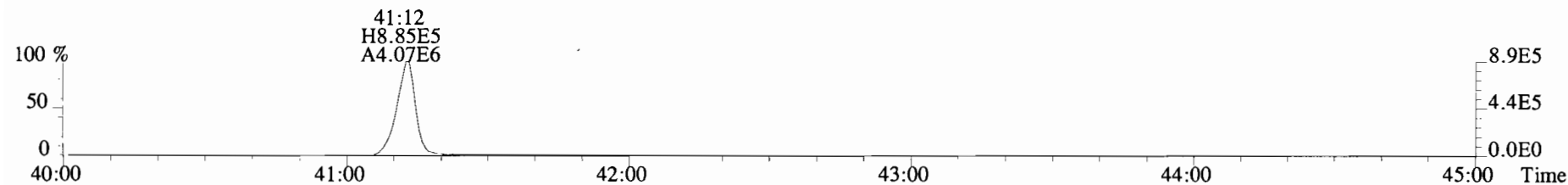
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



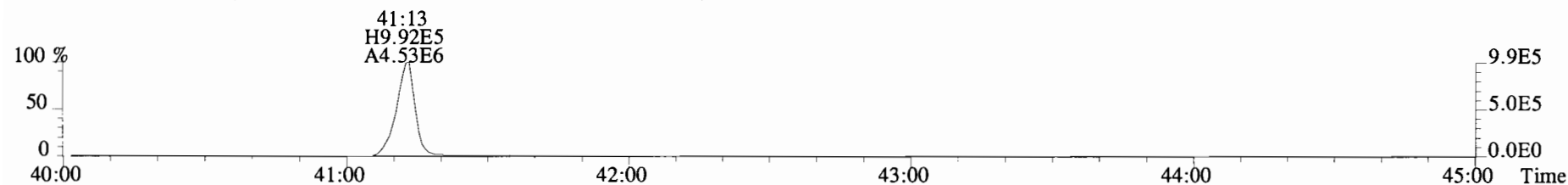
File:191212D1 #1-355 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



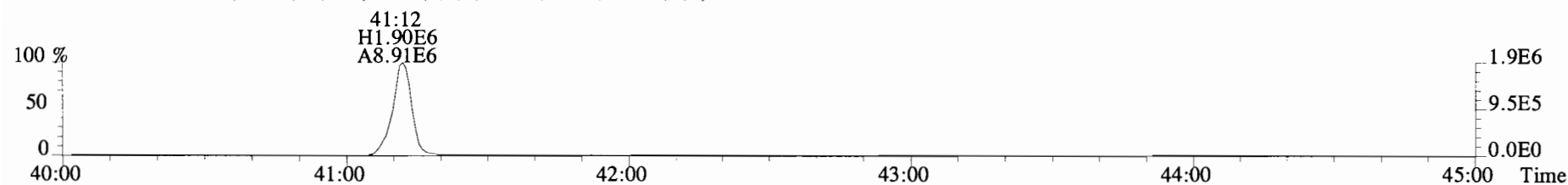
File:191212D1 #1-432 Acq:12-DEC-2019 13:31:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:B9L0043-BS1 OPR 10 Exp:OCDD\_DB5  
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



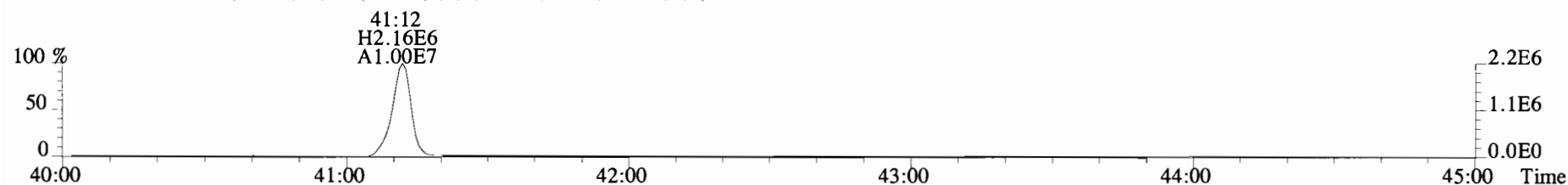
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



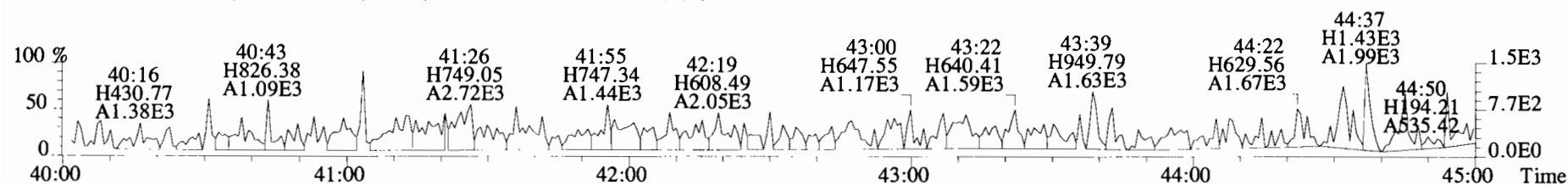
453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



455.7801 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Quantify Sample Summary Report

MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-10.qld

Last Altered: Thursday, December 05, 2019 09:53:15 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:54:20 Pacific Standard Time

EL 12/5/19

CT 12/10/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:51:05

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	1 2,3,7,8-TCDD		1.06e5	10.3610	0.905			1.001		26.30					0.177
2	2 1,2,3,7,8-PeCDD		8.44e4	10.3610	0.903			1.001		30.77					0.252
3	3 1,2,3,4,7,8-HxCDD		7.78e4	10.3610	1.101			1.000		34.08					0.268
4	4 1,2,3,6,7,8-HxCDD		8.70e4	10.3610	0.939			1.000		34.18					0.270
5	5 1,2,3,7,8,9-HxCDD		8.63e4	10.3610	0.961			1.001		34.52					0.287
6	6 1,2,3,4,6,7,8-HpCDD	2.94e2	7.80e4	10.3610	0.979	1.387	YES	1.000	1.001	37.93	37.94	0.74449		0.634	0.173
7	7 OCDD	2.14e3	1.30e5	10.3610	0.959	0.795	NO	1.000	1.000	41.22	41.23	6.6431		6.64	0.264
8	8 2,3,7,8-TCDF		1.61e5	10.3610	0.950			1.001		25.51					0.107
9	9 1,2,3,7,8-PeCDF		1.41e5	10.3610	0.960			1.001		29.61					0.0989
10	10 2,3,4,7,8-PeCDF		1.36e5	10.3610	1.015			1.001		30.49					0.0918
11	11 1,2,3,4,7,8-HxCDF		1.07e5	10.3610	1.177			1.000		33.17					0.109
12	12 1,2,3,6,7,8-HxCDF		1.18e5	10.3610	1.069			1.000		33.31					0.111
13	13 2,3,4,6,7,8-HxCDF		1.08e5	10.3610	1.114			1.001		33.93					0.118
14	14 1,2,3,7,8,9-HxCDF		1.03e5	10.3610	1.062			1.000		34.86					0.153
15	15 1,2,3,4,6,7,8-HpCDF		8.76e4	10.3610	1.128			1.001		36.75					0.313
16	16 1,2,3,4,7,8,9-HpCDF		7.41e4	10.3610	1.280			1.000		38.47					0.276
17	17 OCDF		1.75e5	10.3610	0.947			1.000		41.45					0.214
18	18 13C-2,3,7,8-TCDD	1.06e5	9.53e4	10.3610	1.095	0.798	NO	1.021	1.021	26.26	26.27	196.37	101.7		0.431
19	19 13C-1,2,3,7,8-PeCDD	8.44e4	9.53e4	10.3610	0.881	0.636	NO	1.187	1.195	30.52	30.75	194.01	100.5		0.264
20	20 13C-1,2,3,4,7,8-Hx...	7.78e4	1.20e5	10.3610	0.642	1.296	NO	1.014	1.014	34.06	34.07	195.34	101.2		0.802
21	21 13C-1,2,3,6,7,8-Hx...	8.70e4	1.20e5	10.3610	0.856	1.278	NO	1.017	1.017	34.18	34.18	164.01	85.0		0.602
22	22 13C-1,2,3,7,8,9-Hx...	8.63e4	1.20e5	10.3610	0.807	1.267	NO	1.026	1.026	34.48	34.48	172.48	89.4		0.639
23	23 13C-1,2,3,4,6,7,8-H...	7.80e4	1.20e5	10.3610	0.654	1.094	NO	1.126	1.129	37.83	37.92	192.46	99.7		0.851
24	24 13C-OCDD	1.30e5	1.20e5	10.3610	0.580	0.883	NO	1.226	1.227	41.19	41.22	361.29	93.6		0.843
25	25 13C-2,3,7,8-TCDF	1.61e5	1.57e5	10.3610	1.035	0.788	NO	0.993	0.991	25.55	25.49	191.69	99.3		0.559
26	26 13C-1,2,3,7,8-PeCDF	1.41e5	1.57e5	10.3610	0.854	1.650	NO	1.143	1.151	29.40	29.59	202.99	105.2		0.511
27	27 13C-2,3,4,7,8-PeCDF	1.36e5	1.57e5	10.3610	0.847	1.612	NO	1.176	1.184	30.26	30.46	197.58	102.4		0.515
28	28 13C-1,2,3,4,7,8-Hx...	1.07e5	1.20e5	10.3610	0.832	0.508	NO	0.987	0.987	33.17	33.17	207.17	107.3		0.849
29	29 13C-1,2,3,6,7,8-Hx...	1.18e5	1.20e5	10.3610	1.034	0.508	NO	0.991	0.991	33.29	33.30	184.27	95.5		0.683
30	30 13C-2,3,4,6,7,8-Hx...	1.08e5	1.20e5	10.3610	0.953	0.509	NO	1.009	1.009	33.90	33.90	183.27	94.9		0.741
31	31 13C-1,2,3,7,8,9-Hx...	1.03e5	1.20e5	10.3610	0.828	0.516	NO	1.039	1.038	34.90	34.86	201.56	104.4		0.854

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-10.qld

Last Altered: Thursday, December 05, 2019 09:53:15 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:54:20 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,  
 Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	32 13C-1,2,3,4,6,7,8-H...	8.76e4	1.20e5	10.3610	0.757	0.432	NO	1.093	1.093	36.71	36.72	186.43	96.6		0.729
33	33 13C-1,2,3,4,7,8,9-H...	7.41e4	1.20e5	10.3610	0.581	0.446	NO	1.143	1.145	38.40	38.47	205.66	106.5		0.951
34	34 13C-OCDF	1.75e5	1.20e5	10.3610	0.689	0.889	NO	1.233	1.234	41.43	41.45	410.08	106.2		0.875
35	35 37Cl-2,3,7,8-TCDD	4.59e4	9.53e4	10.3610	1.198			1.022	1.022	26.29	26.28	77.588	100.5		0.197
36	36 13C-1,2,3,4-TCDD	9.53e4	9.53e4	10.3610	1.000	0.769	NO	1.000	1.000	25.70	25.72	193.03	100.0		0.472
37	37 13C-1,2,3,4-TCDF	1.57e5	1.57e5	10.3610	1.000	0.825	NO	1.000	1.000	24.28	24.29	193.03	100.0		0.578
38	38 13C-1,2,3,4,6,9-Hx...	1.20e5	1.20e5	10.3610	1.000	0.509	NO	1.000	1.000	33.55	33.60	193.03	100.0		0.706
39	39 Total Tetra-Dioxins		1.06e5	10.3610	0.901			0.000		25.50		0.00000		0.405	0.0943
40	40 Total Penta-Dioxins		8.44e4	10.3610	0.872			0.000		30.00					0.0882
41	41 Total Hexa-Dioxins		0.00e0	10.3610	0.976			0.000		33.80		1.0062		1.01	0.281
42	42 Total Hepta-Dioxins		7.80e4	10.3610	0.989			0.000		37.75		1.4017		2.04	0.171
43	43 Total Tetra-Furans		1.61e5	10.3610	0.943			0.000		24.00		0.15800		0.158	0.108
44	44 1st Func. Penta-Fur...		0.00e0	10.3610	0.940			0.000		27.63					0.0304
45	45 Total Penta-Furans		0.00e0	10.3610	0.940			0.000		30.00					0.0448
46	46 Total Hexa-Furans		0.00e0	10.3610	1.078			0.000		33.00					0.0584
47	47 Total Hepta-Furans		0.00e0	10.3610	1.135			0.000		37.75					0.184

Quantify Totals Report MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-10.qld

Last Altered: Thursday, December 05, 2019 09:53:15 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:54:20 Pacific Standard Time

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:51:05

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Tetra-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	39 Total Tetra-Dioxins	YES	24.43	108.677	47117.699	0.000	MM	0.0000	0.41

Penta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	41 Total Hexa-Dioxins	NO	32.54	221.426	46983.491	10.174	MM	1.0062	1.01

Hepta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
6	1,2,3,4,6,7,8-HpCDD	YES	37.94	170.594	40780.480	0.000	MM	0.0000	0.63
42	Total Hepta-Dioxins	NO	37.12	297.200	40780.480	14.359	MM	1.4017	1.40

Tetra-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
43	Total Tetra-Furans	NO	22.01	55.434	71045.422	1.543	MM	0.1580	0.16

Penta-Furans function 1

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-10.qld

Last Altered: Thursday, December 05, 2019 09:53:15 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:54:20 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Penta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary	Flags	Conc.	EMPC
1										

Hexa-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary	Flags	Conc.	EMPC
1										

Hepta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary	Flags	Conc.	EMPC
1										



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 09:00:26

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

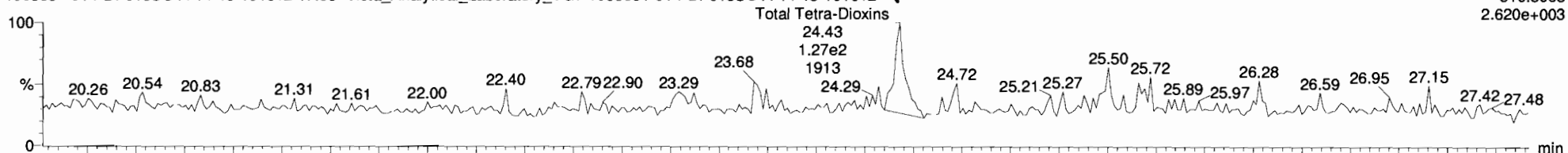
Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Total Tetra-Dioxins

191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

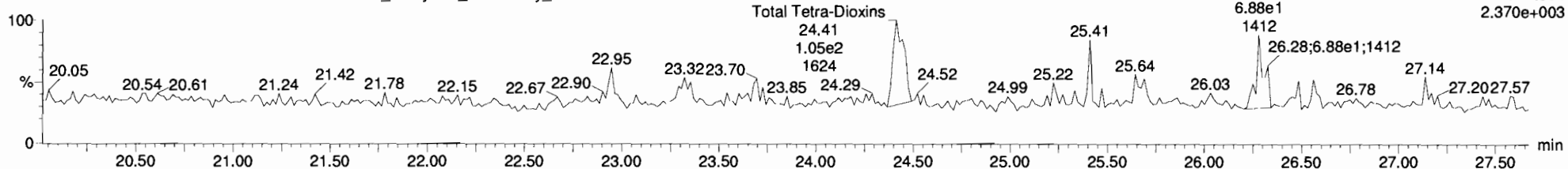
F1:SIR of 15 channels, EI+  
319.8965  
2.620e+003



191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+  
321.894  
2.370e+003

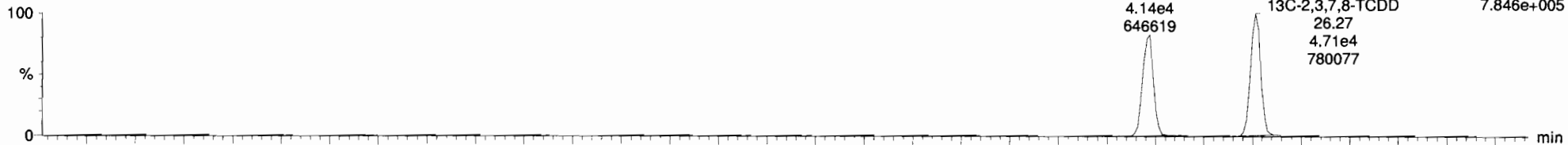


13C-2,3,7,8-TCDD

191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

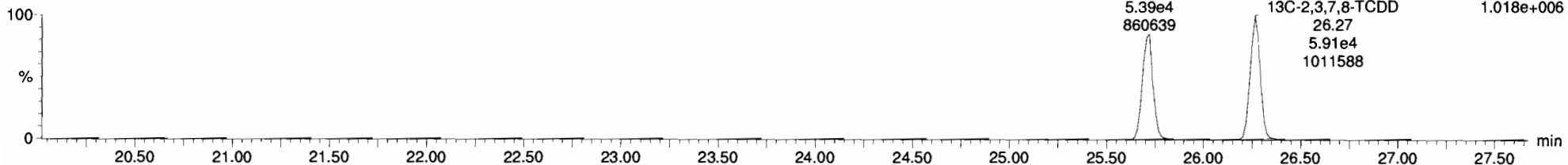
13C-1,2,3,4-TCDD  
25.72  
4.14e4  
646619  
13C-2,3,7,8-TCDD  
26.27  
4.71e4  
780077  
F1:SIR of 15 channels, EI+  
331.9368  
7.846e+005



191104D1\_10

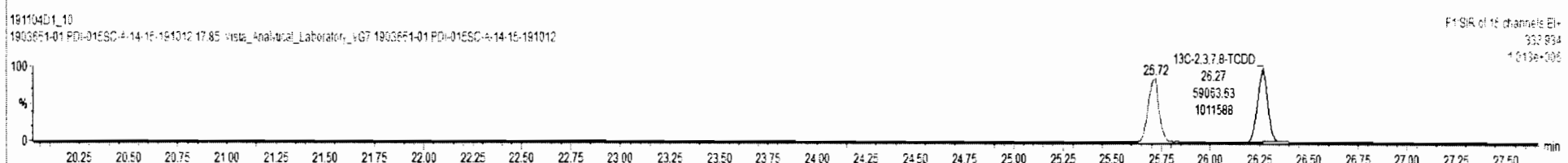
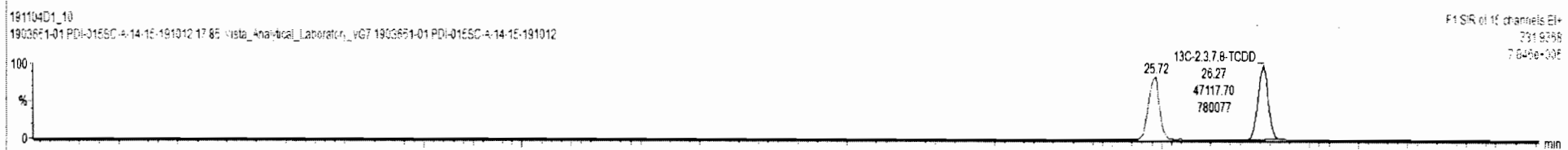
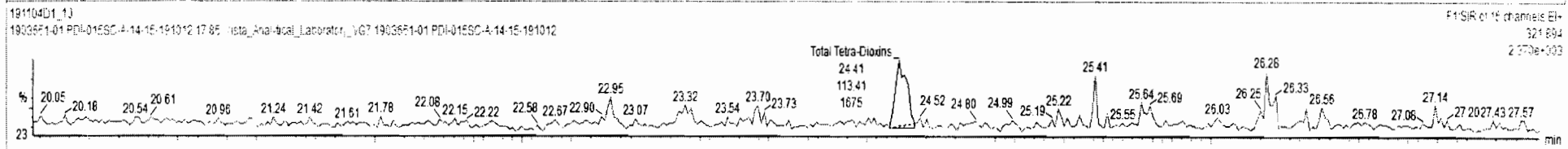
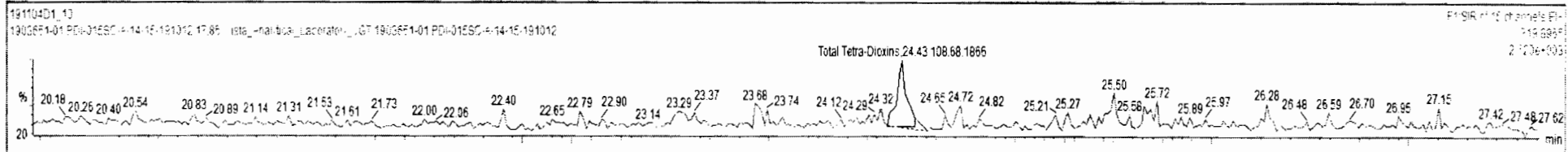
1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

13C-1,2,3,4-TCDD  
25.72  
5.39e4  
860639  
13C-2,3,7,8-TCDD  
26.27  
5.91e4  
1011588  
F1:SIR of 15 channels, EI+  
333.934  
1.018e+006



#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
1	1,2,3,7,8-TCDD		1.06e5	18			0.905	10.361	26.30			1.001	NO			0.177	
2	1,2,3,7,8-PeCDD		8.44e4	19			0.903	10.361	30.77			1.001	NO			0.252	
3	1,2,3,4,7,8-HxCDD		7.76e4	20			1.101	10.361	34.08			1.000	NO			0.268	
4	1,2,3,6,7,8-HxCDD		8.70e4	21			0.939	10.361	34.18			1.000	NO			0.270	
5	1,2,3,7,8,9-HxCDD		8.63e4	22			0.961	10.361	34.52			1.001	NO			0.287	
6	1,2,3,4,6,7,8-HpCDD	2.12e2	7.80e4	23	1.59	YES	0.979	10.361	37.93	37.94	1.061	1.000	NO	0.7385		0.173	0.6200
7	OCDD	2.28e2	1.30e5	24	0.82	NO	0.959	10.361	41.22	41.23	1.060	1.000	NO	7.068		0.264	7.068
8	2,3,7,8-TCDF		1.61e5	25			0.950	10.361	25.51			1.001	NO			0.107	
9	1,2,3,7,8-PeCDF		1.41e5	26			0.960	10.361	29.61			1.001	NO			0.0995	
10	2,3,4,7,8-PeCDF		1.36e5	27			1.015	10.361	30.49			1.001	NO			0.0918	
11	1,2,3,4,7,8-HxCDF		1.07e5	28			1.177	10.361	33.17			1.000	NO			0.109	
12	1,2,3,6,7,8-HxCDF		1.16e5	29			1.069	10.361	33.31			1.000	NO			0.111	
13	2,3,4,6,7,8-HxCDF		1.08e5	30			1.114	10.361	33.93			1.001	NO			0.118	
14	1,2,3,7,8,9-HxCDF		1.03e5	31			1.062	10.361	34.86			1.000	NO			0.153	
15	1,2,3,4,6,7,8-HpCDF		8.78e4	32			1.126	10.361	36.75			1.001	NO			0.313	
16	1,2,3,4,7,8,9-HpCDF		7.41e4	33			1.280	10.361	38.47			1.000	NO			0.276	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	35 Total Tetra-Dioxins	25.50	24.43	1.987e2	1.134e2	0.770	0.96	YES	0.40507	0.00000

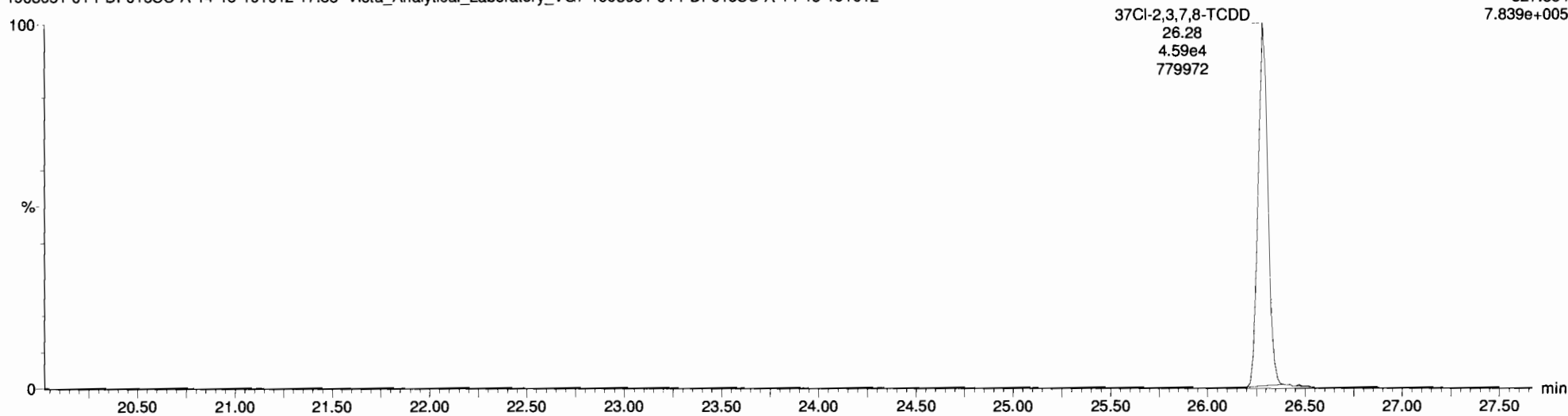


Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,  
Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

**37Cl-2,3,7,8-TCDD**

191104D1\_10  
1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

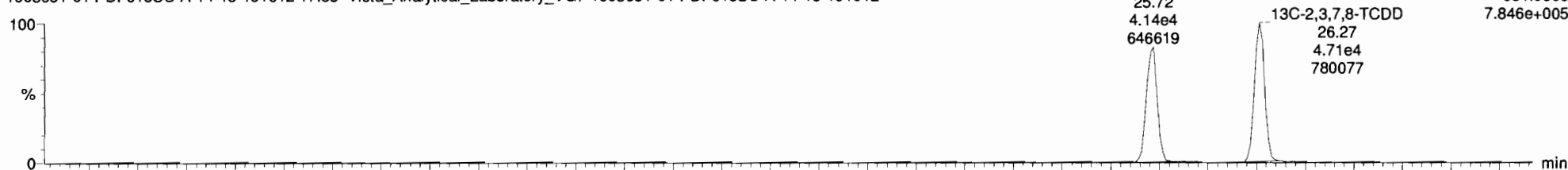
F1:SIR of 15 channels, EI+  
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7.839e+005



**13C-1,2,3,4-TCDD**

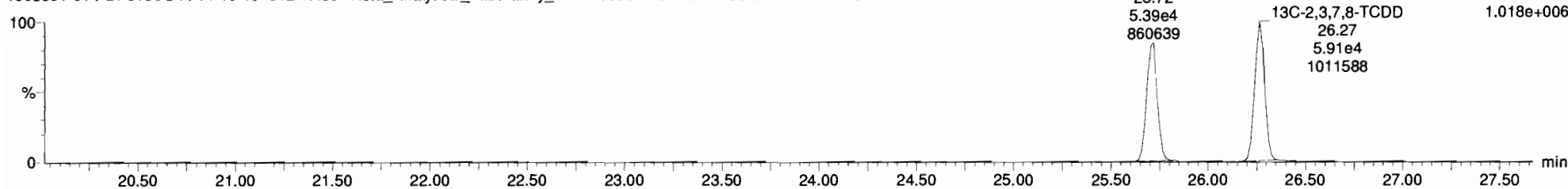
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1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+  
331.9368  
7.846e+005



191104D1\_10  
1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+  
333.934  
1.018e+006



Vista Analytical Laboratory

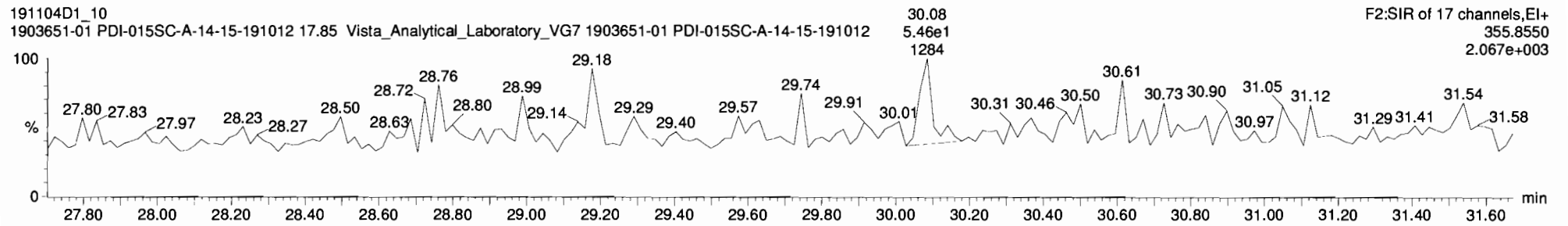
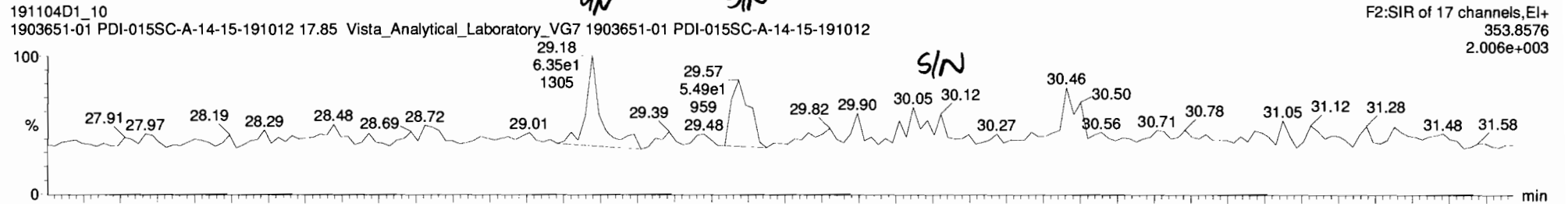
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Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

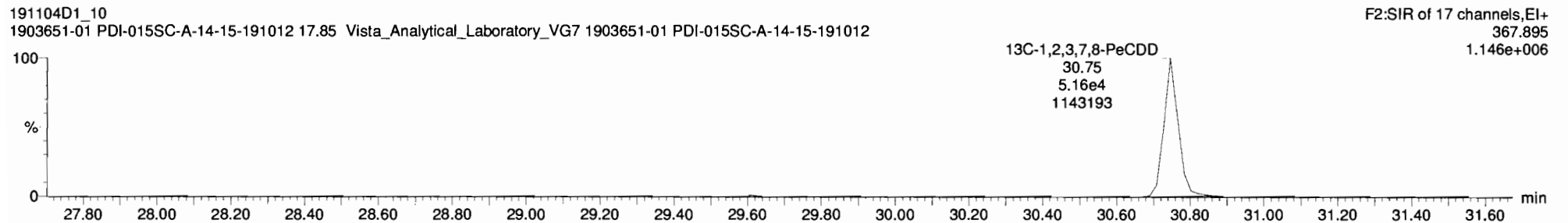
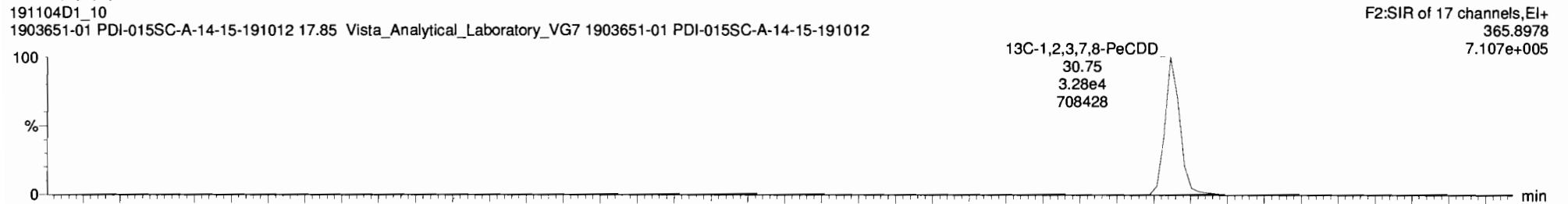
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Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,  
Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD

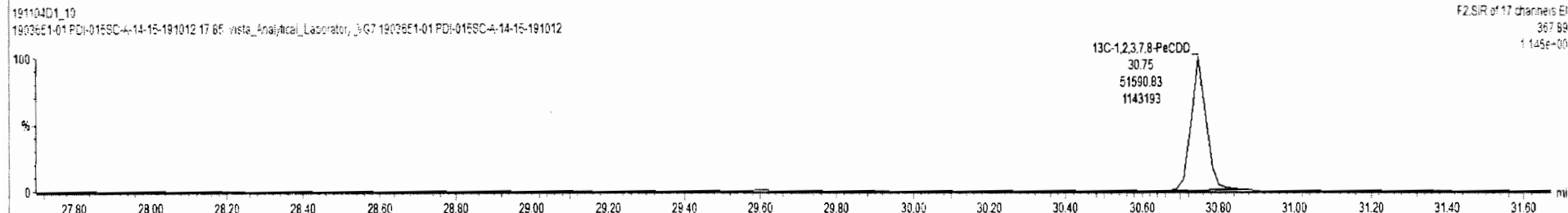
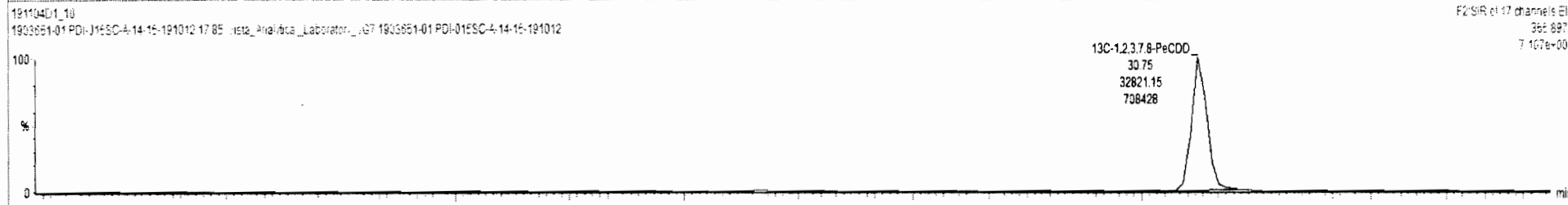
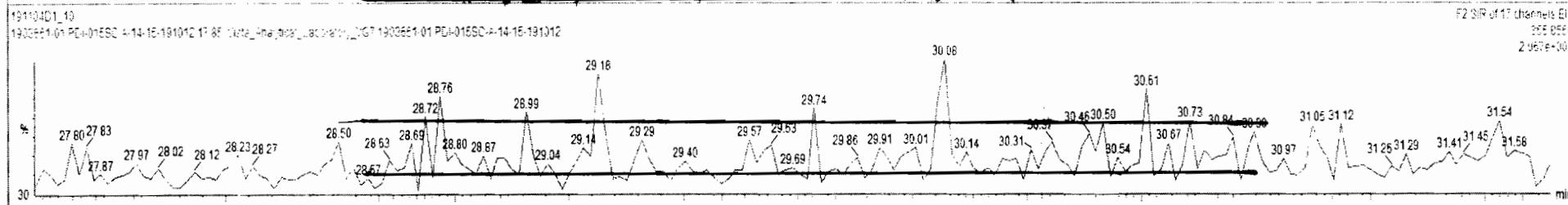
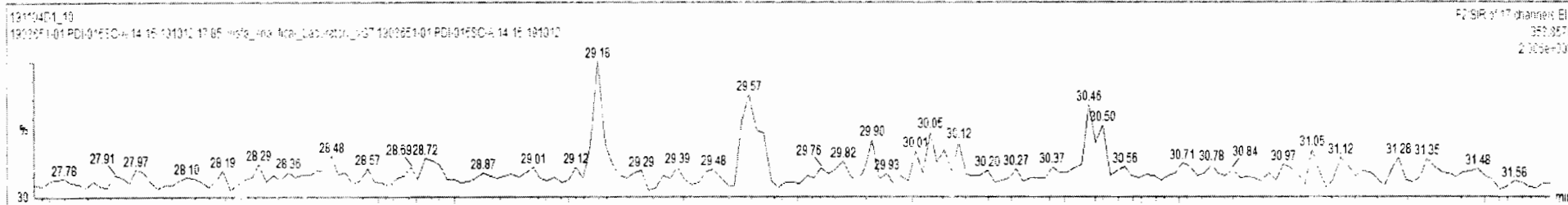




191104D1\_10 - 1903651-01 PDI-015SC-A-14-15-191012 - 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

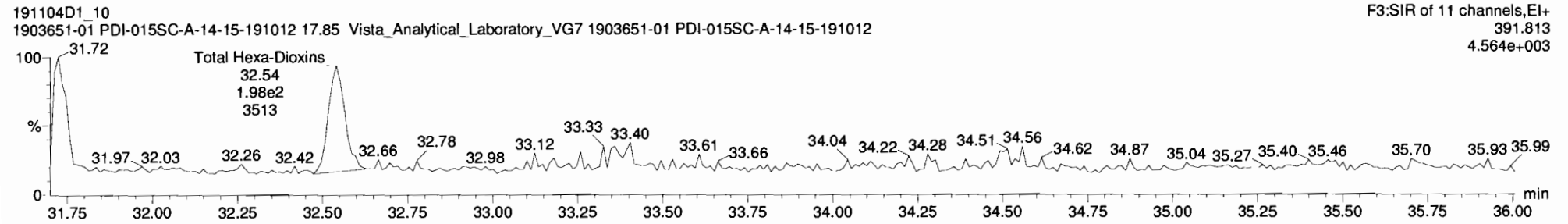
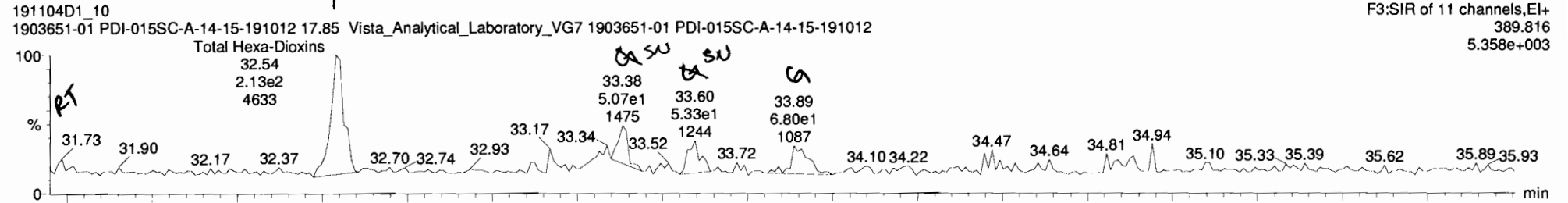
#	Name	Resp	S Resp	ES	RA	nly	RRF	wrtvol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
40	Total Penta-Dioxins		8.44e4				0.872	10.361	30.00			0.000	NO			0.0682	
41	Total Hexa-Dioxins		0.00e0				0.976	10.361	33.60			0.000	NO	1.00E		0.281	1.00E
42	Total Hepta-Dioxins		7.50e4				0.989	10.361	37.75			0.000	NO	1.39E		0.171	2.01E

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1										

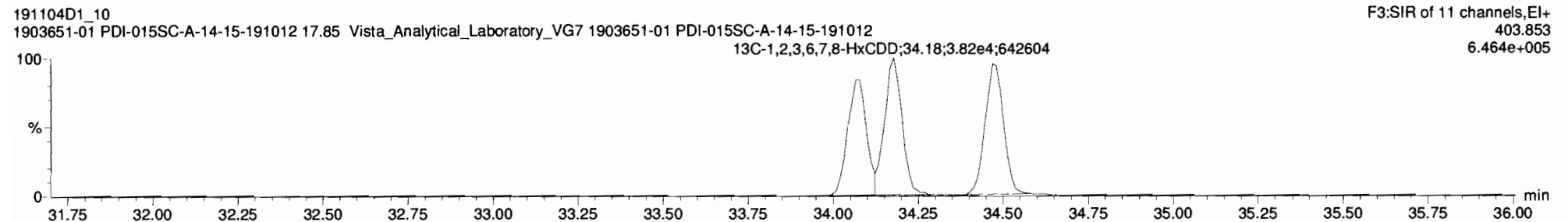
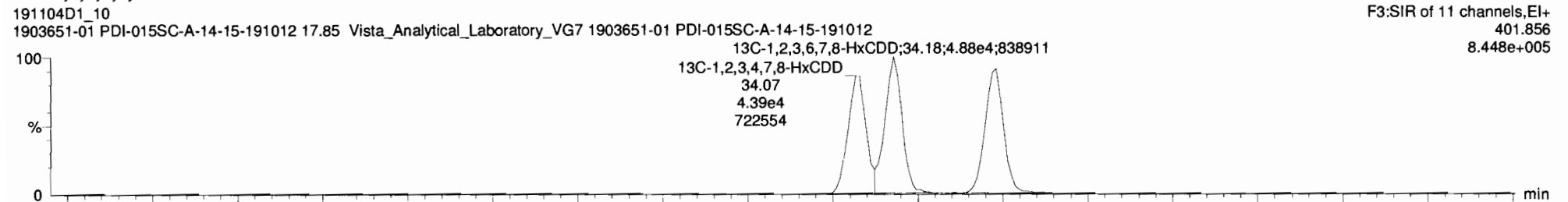


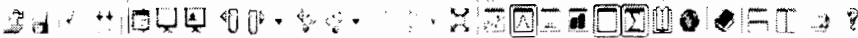
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Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Total Hexa-Dioxins



13C-1,2,3,4,7,8-HxCDD

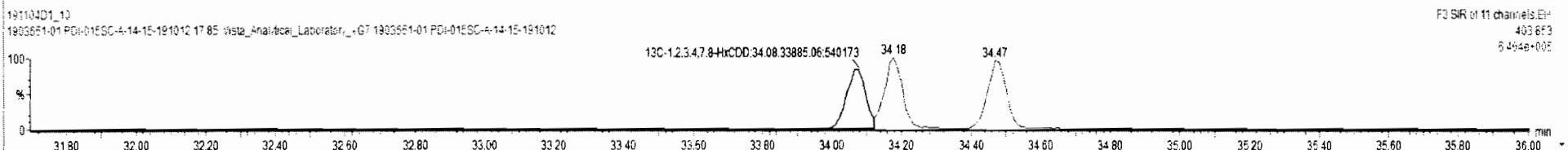
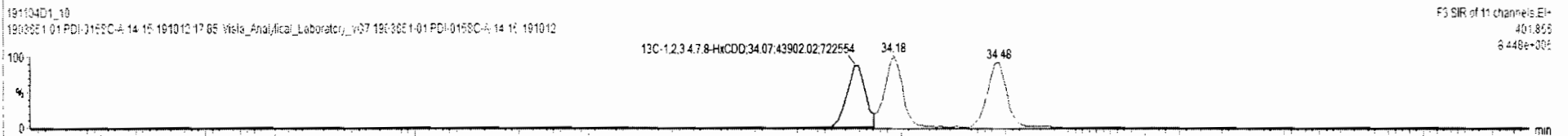
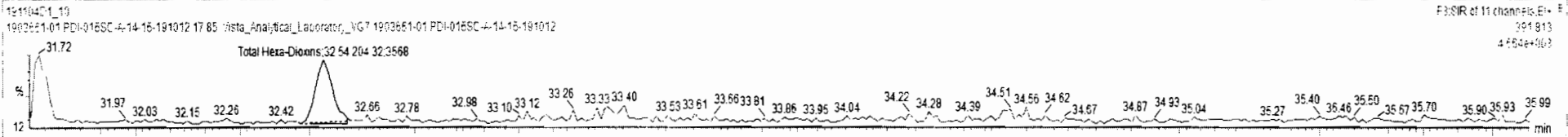
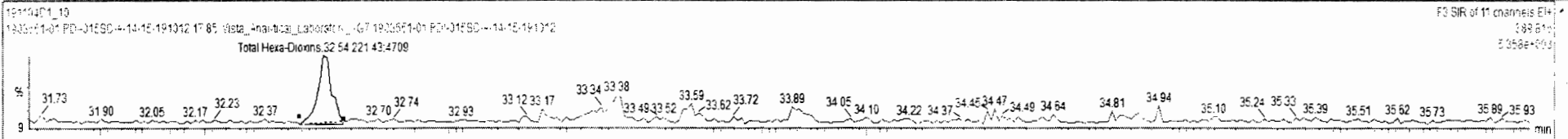




191104D1\_10 - 1903651-01 PDI-015SC-A-14-15-191012 - 1903651-01 PDI-015SC-A-14-15-191012 17:85 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
40	Total Penta-Dioxins		8.44e4				0.872	10.361	30.00			0.000	NO			0.0882	
41	Total Hexa-Dioxins		0.00e0				0.976	10.361	33.80			0.000	NO	1.006		0.281	1.006
42	Total Hepta-Dioxins		7.80e4				0.989	10.361	37.75			0.000	NO	1.196		0.171	2.916
43	Total Tetra-Furans		1.61e5				0.843	10.361	24.00			0.000	NO	0.1727		0.108	0.1727
44	1st Func. Penta-Furans		0.00e0				0.940	10.361	27.63			0.000	NO			0.0304	
45	Total Penta-Furans		0.00e0				0.940	10.361	30.00			0.000	NO			0.0446	
46	Total Hexa-Furans		0.00e0				1.078	10.361	33.00			0.000	NO			0.0584	
47	Total Hepta-Furans		0.00e0				1.135	10.361	37.75			0.000	NO			0.184	
48	PFK1																
49	PFK2																
50	PFK3																
51	PFK4																
52	PFK5																
53	DPE1																
54	DPE2																
55	DPE3																

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
41	Total Hexa-Dioxins	33.80	32.54	2.214e2	2.043e2	1.240	1.08	NO	1.0062	1.0062



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Vista Analytical Laboratory

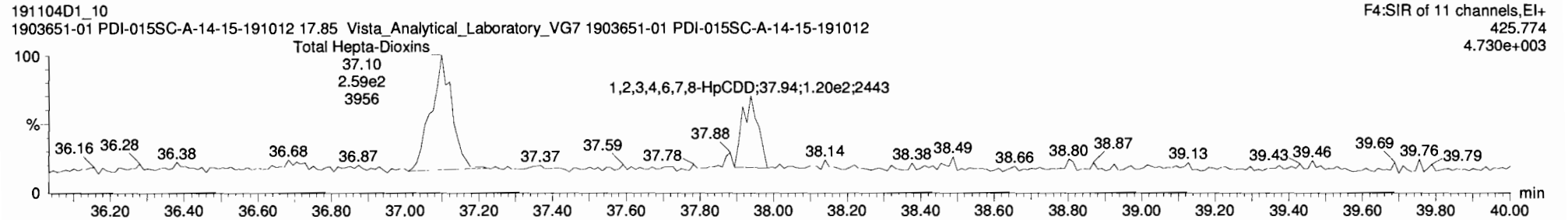
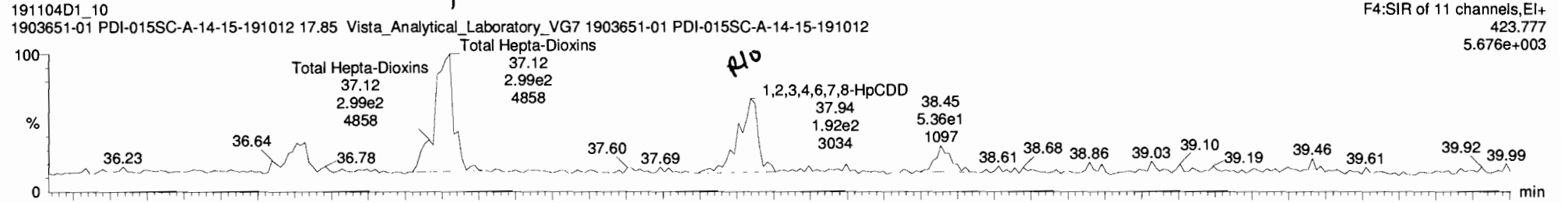
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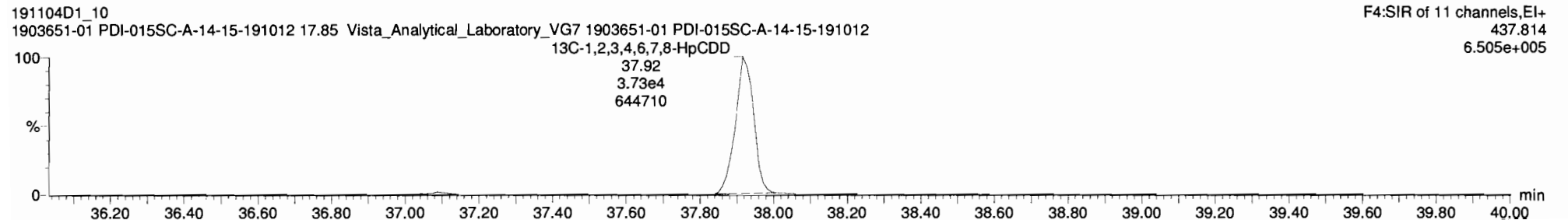
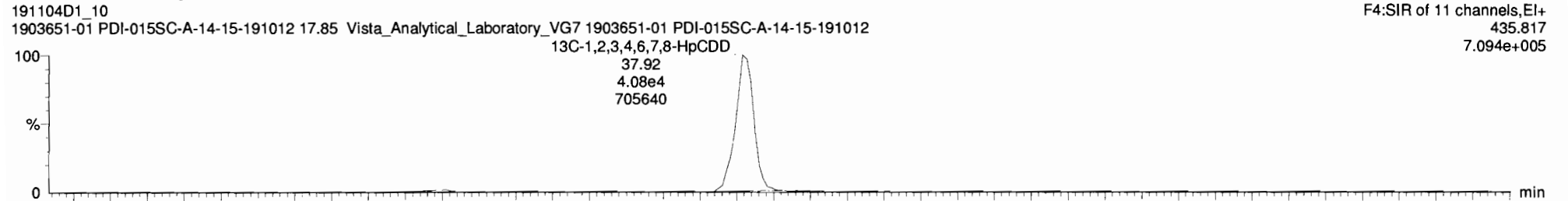
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Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012, Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

Total Hepta-Dioxins



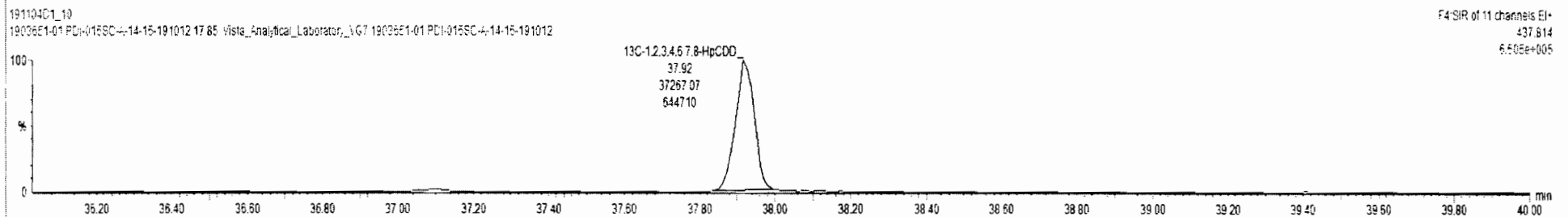
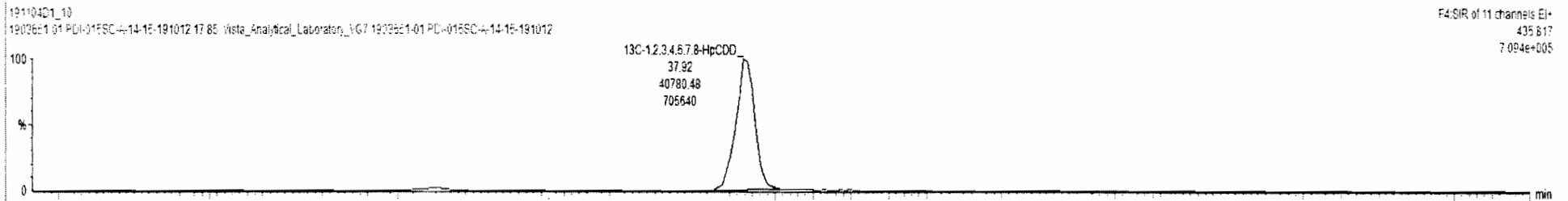
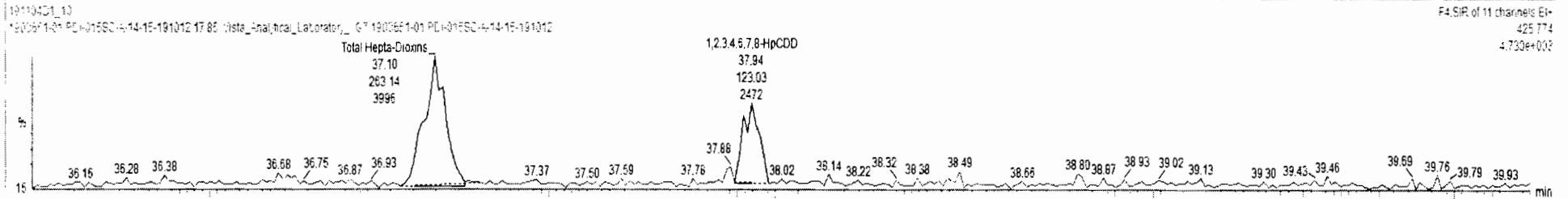
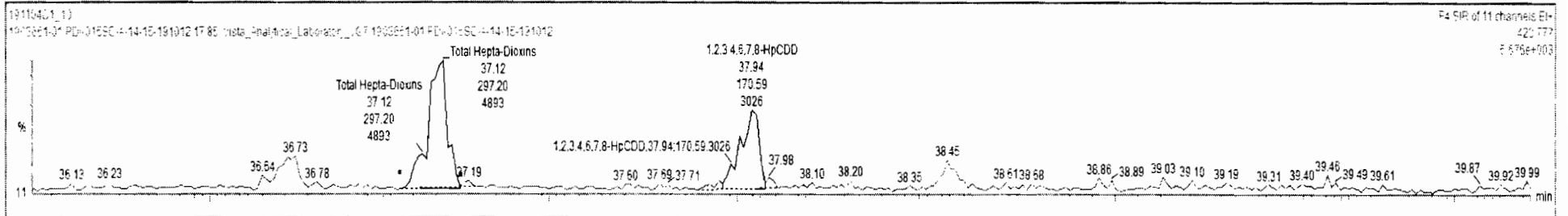
13C-1,2,3,4,6,7,8-HpCDD





#	Name	Resp	IS Resp	IS	RA	n/y	R/R	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
40	Total Penta-Dioxins		8.44e4				0.872	10.361	30.00			0.000	NO			0.0882	
41	Total Hexa-Dioxins		0.00e0				0.976	10.361	33.80			0.000	NO	1.006		0.281	1.006
42	Total Hepta-Dioxins		7.80e4				0.988	10.361	37.75			0.000	NO	1.402		0.171	2.036

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc
1	42 Total Hepta-Dioxins	37.75	37.12	2.972e2	2.631e2	1.040	1.13	NO	1.4017	1.4617
2	E 1,2,3,4,6,7,8-HpCDD	37.93	37.94	1.706e2	1.230e2	1.040	1.39	YES	0.63382	0.60000



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

**OCDD**

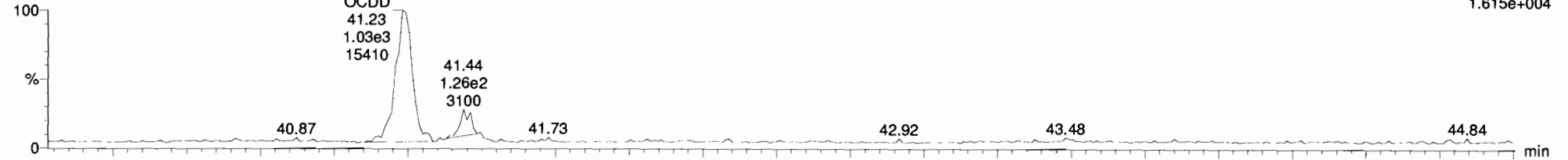
191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F5:SIR of 11 channels, EI+

457.738

1.615e+004



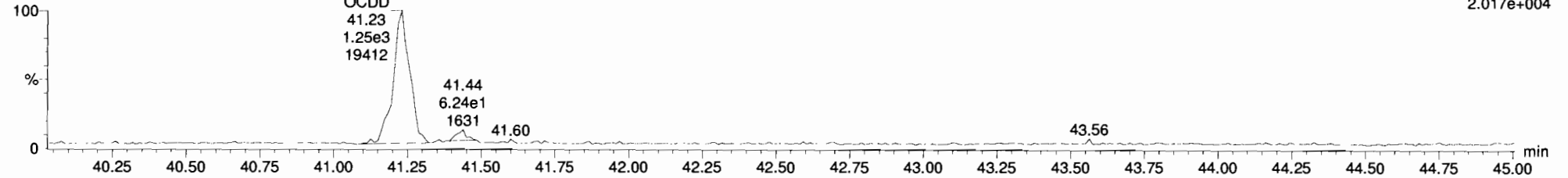
191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F5:SIR of 11 channels, EI+

459.735

2.017e+004



**13C-OCDD**

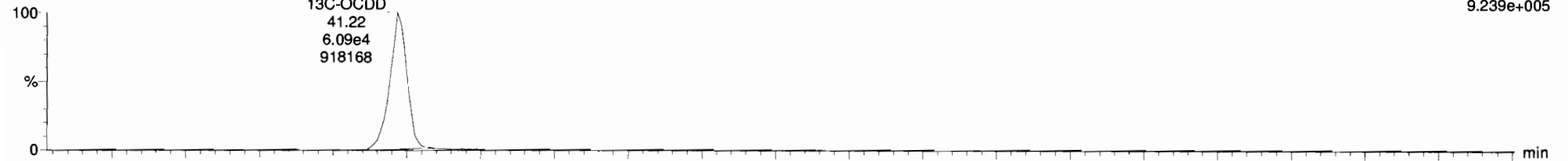
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1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F5:SIR of 11 channels, EI+

469.778

9.239e+005



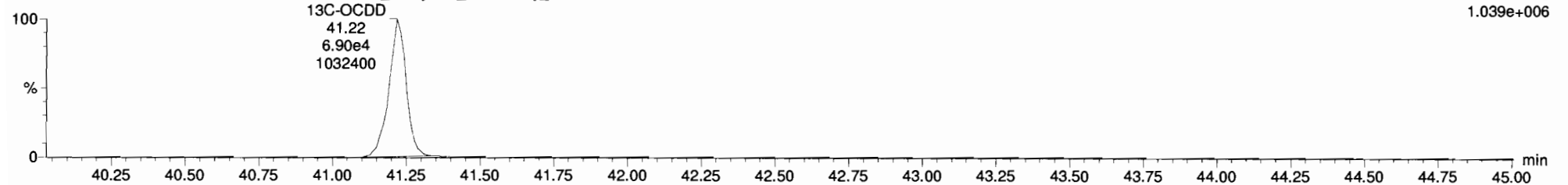
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1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F5:SIR of 11 channels, EI+

471.775

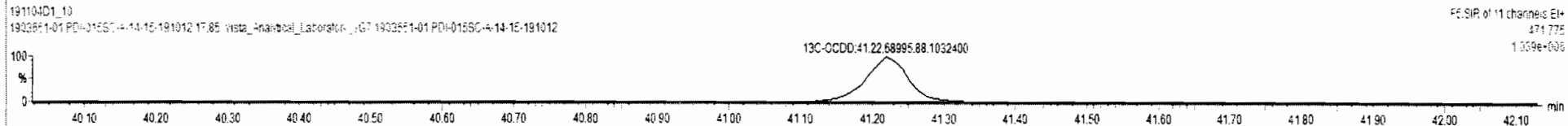
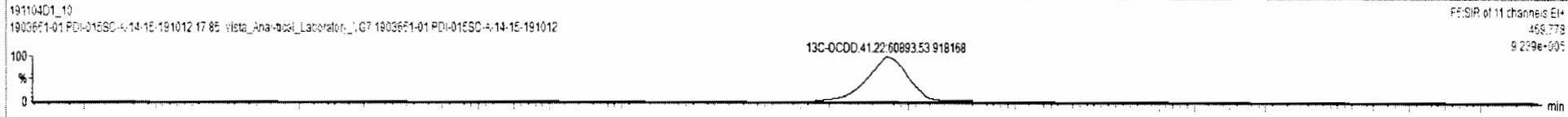
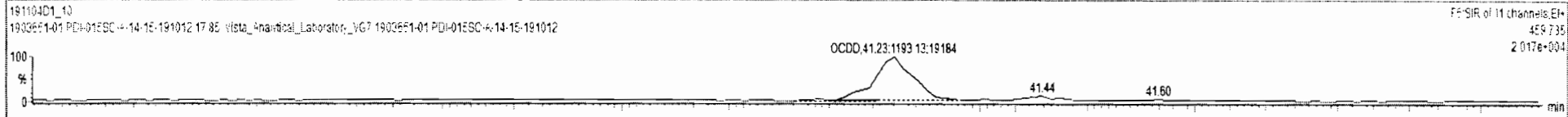
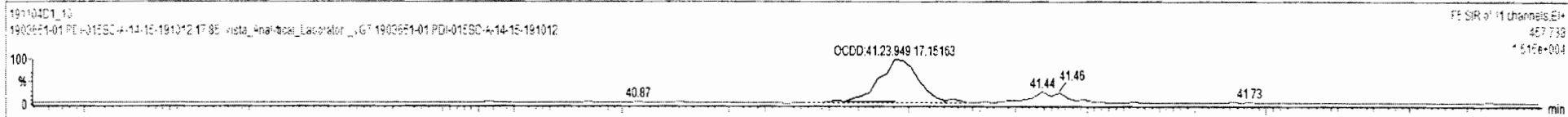
1.039e+006



191104D1\_10 - 1903651-01 PDI-015SC-A-14-15-191012 - 1903651-01 PDI-015SC-A-14-15-191012 17:85 Vista\_Analytical\_Laboratory\_V37

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wVol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
1	1 2 3 7 8-TCDD		1.06e5	18			0.995	10.361	26.30			1.001	ND			0.177	
2	2 1 2 3 7 8-PeCDD		8.44e4	19			0.993	10.361	30.77			1.001	ND			0.252	
3	3 1 2 3 4 7 8-HxCDD		7.78e4	20			1.101	10.361	34.08			1.000	ND			0.266	
4	4 1 2 3 6 7 8-HxCDD		8.70e4	21			0.939	10.361	34.18			1.000	ND			0.270	
5	5 1 2 3 7 8 9-HxCDD		8.63e4	22			0.961	10.361	34.52			1.001	ND			0.287	
6	6 1 2 3 4 6 7 8-HpCDD	2.94e2	7.80e4	23	1.39	YES	0.979	10.361	37.93	37.94	1.001	1.000	ND	0.7415		0.173	0.6338
7	7 OCDD	2.14e3	1.30e5	24	0.80	NO	0.959	10.361	41.22	41.23	1.000	1.000	ND	6.643		0.264	6.643
8	8 2 3 7 8-TCDF		1.61e5	25			0.950	10.361	25.51			1.001	ND			0.107	
9	9 1 2 3 7 8-PeCDF		1.41e5	26			0.960	10.361	29.61			1.001	ND			0.0889	
10	10 2 3 4 7 8-PeCDF		1.26e5	27			1.015	10.361	30.49			1.001	ND			0.0910	
11	11 1 2 3 4 7 8-HxCDF		1.07e5	28			1.177	10.361	33.17			1.000	ND			0.109	
12	12 1 2 3 6 7 8-HxCDF		1.18e5	29			1.069	10.361	33.31			1.000	ND			0.111	
13	13 2 3 4 6 7 8-HxCDF		1.08e5	30			1.114	10.361	33.93			1.001	ND			0.116	
14	14 1 2 3 7 8 9-HxCDF		1.03e5	31			1.062	10.361	34.86			1.000	ND			0.153	
15	15 1 2 3 4 6 7 8-HpCDF		8.76e4	32			1.128	10.361	36.75			1.001	ND			0.313	
16	16 1 2 3 4 7 8 9-HpCDF		7.41e4	33			1.280	10.361	38.47			1.000	ND			0.276	
17	17 OCDF		1.75e5	34			0.947	10.361	41.45			1.000	ND			0.214	
18	18 13C-2 3 7 8-TCDD	1.06e5	9.53e4	36	0.80	NO	1.095	10.361	26.26	26.27	1.021	1.021	ND	196.4	102	0.431	
19	19 13C-1 2 3 7 8-PeCDD	8.44e4	9.53e4	36	0.64	NO	0.881	10.361	30.52	30.75	1.195	1.187	ND	194.0	101	0.264	
20	20 13C-1 2 3 4 7 8-HxCDD	7.78e4	1.20e5	36	1.30	NO	0.642	10.361	34.06	34.07	1.014	1.014	ND	195.3	101	0.802	
21	21 13C-1 2 3 6 7 8-HxCDD	6.70e4	1.20e5	36	1.28	NO	0.856	10.361	34.18	34.18	1.017	1.017	ND	164.0	85.0	0.602	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1										

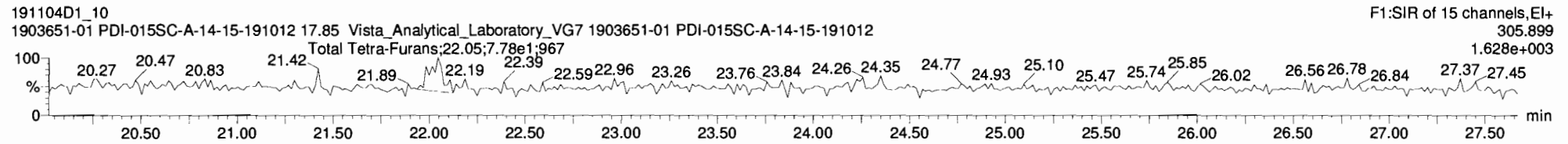
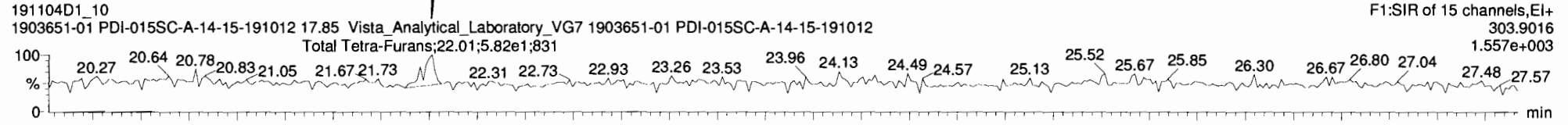


Custom Reporting: Select reports to generate

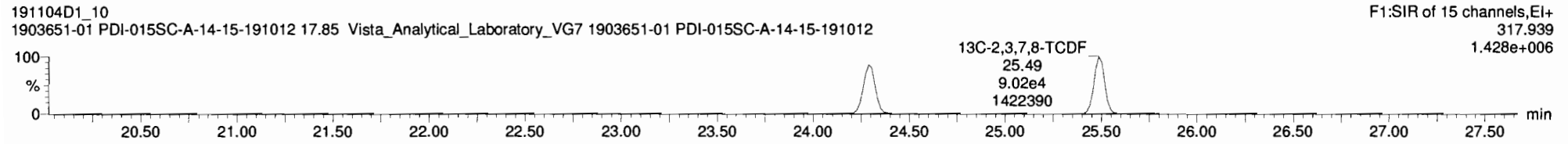
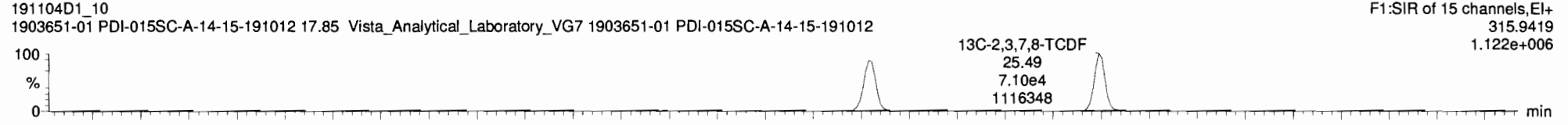
191104D1\_10 NUM

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,  
Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

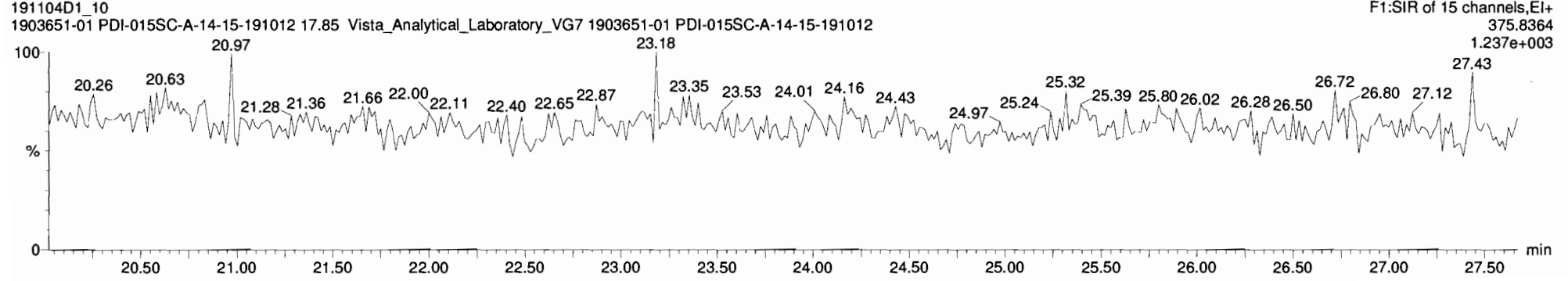
**Total Tetra-Furans**



**13C-2,3,7,8-TCDF**

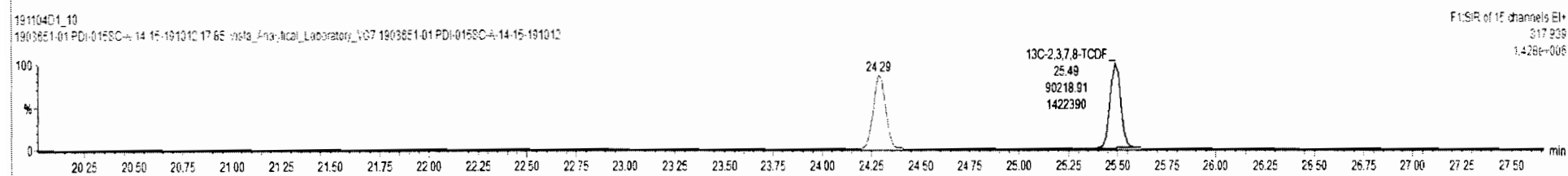
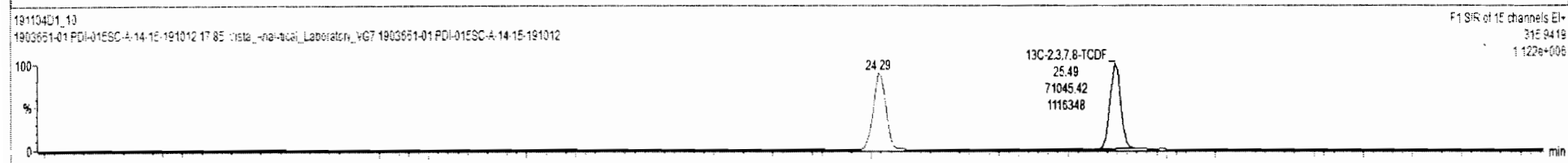
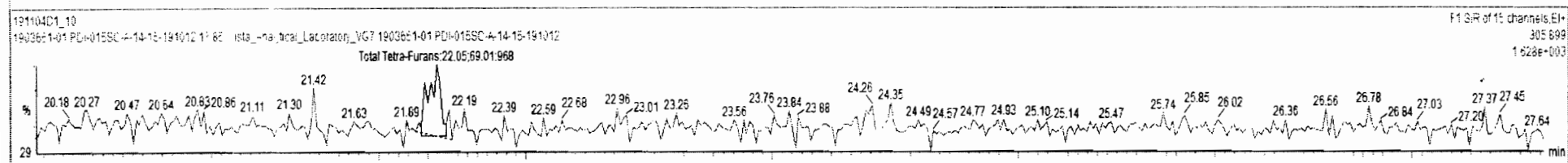
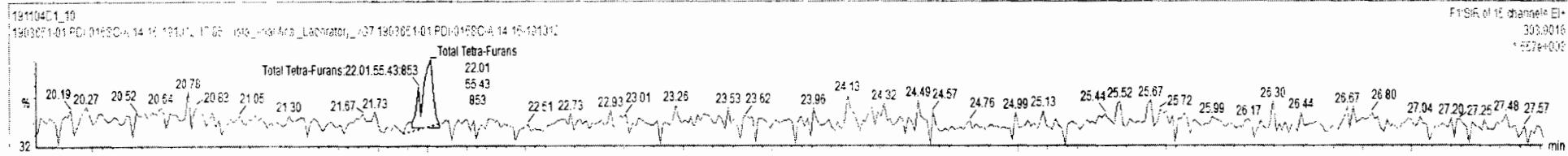


**DPE1**



#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
42	Total Hepta-Coxins		7.30e4				0.969	10.361	37.75			0.000	NO	1.402	0.171	2.036	
43	Total Tetra-Furans		1.01e5				0.943	10.361	24.00			0.000	NO	0.1580	0.100	0.1580	
44	1st Func. Penta-Furans		0.00e0				0.940	10.361	27.63			0.000	NO			0.0304	
45	Total Penta-Furans		0.00e0				0.940	10.361	30.00			0.000	NO			0.0448	
46	Total Hexa-Furans		0.00e0				1.078	10.361	33.00			0.000	NO			0.0584	
47	Total Hepta-Furans		0.00e0				1.135	10.361	37.75			0.000	NO			0.184	
48	PFK1																
49	PFK2																
50	PFK3																
51	PFK4																
52	PFK5																
53	DPE1																

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	43 Total Tetra-Furans	24.00	22.01	5.543e1	6.901e1	0.770	0.86	NO	0.15800	0.15800



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012,

Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

1st Func. Penta-Furans

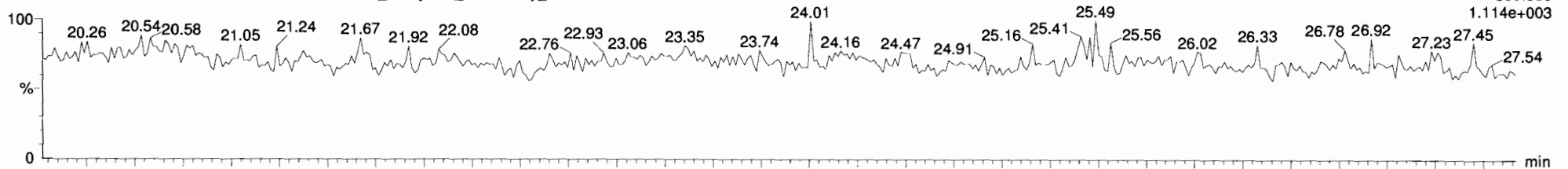
191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+

339.860

1.114e+003



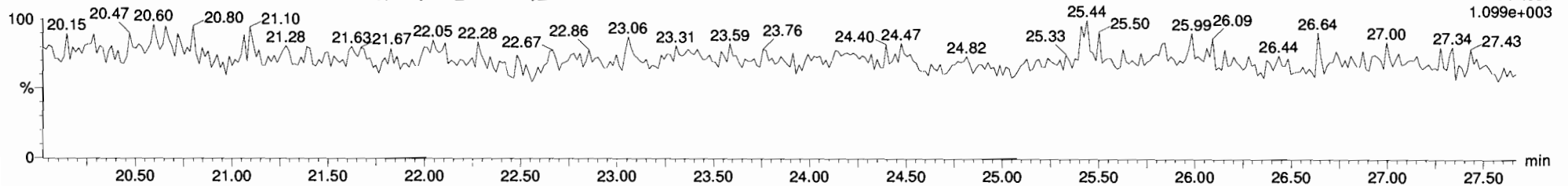
191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+

341.857

1.099e+003



DPE6

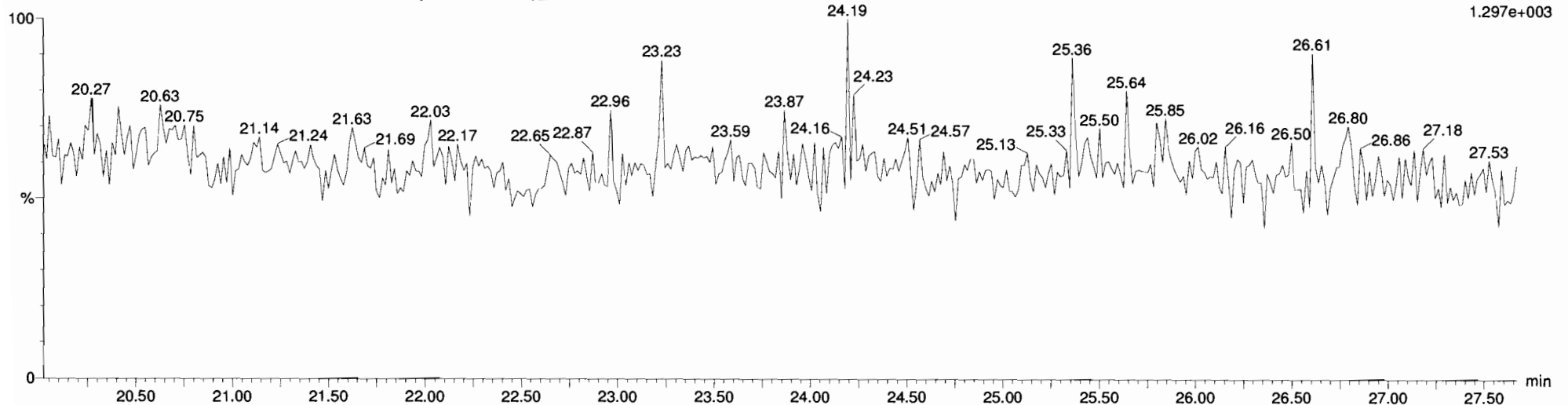
191104D1\_10

1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7 1903651-01 PDI-015SC-A-14-15-191012

F1:SIR of 15 channels, EI+

409.7974

1.297e+003



Vista Analytical Laboratory

Dataset: Untitled

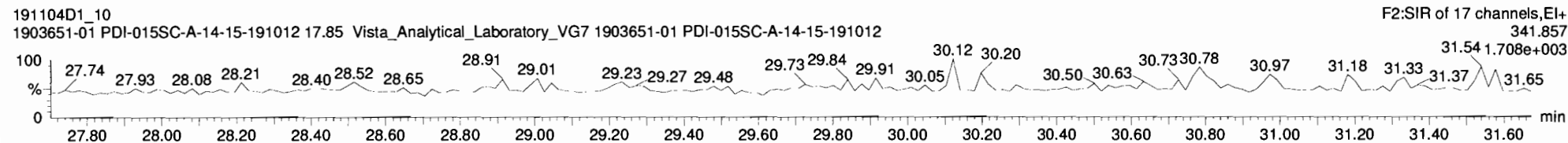
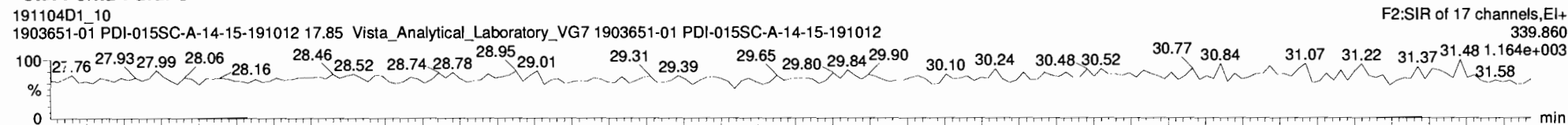
Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

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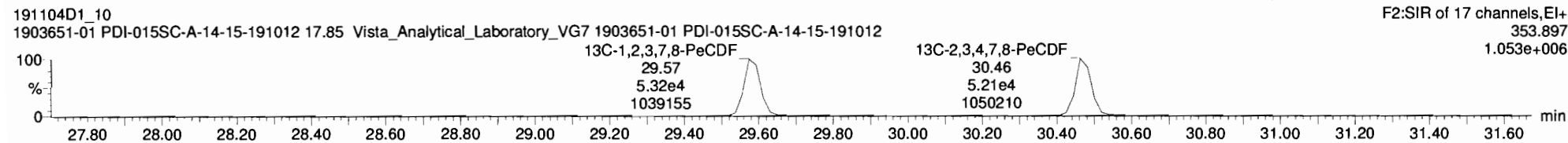
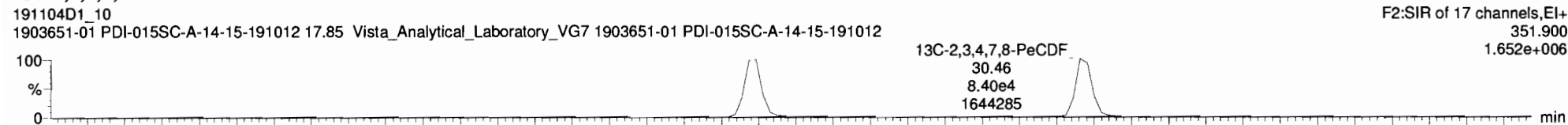
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Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

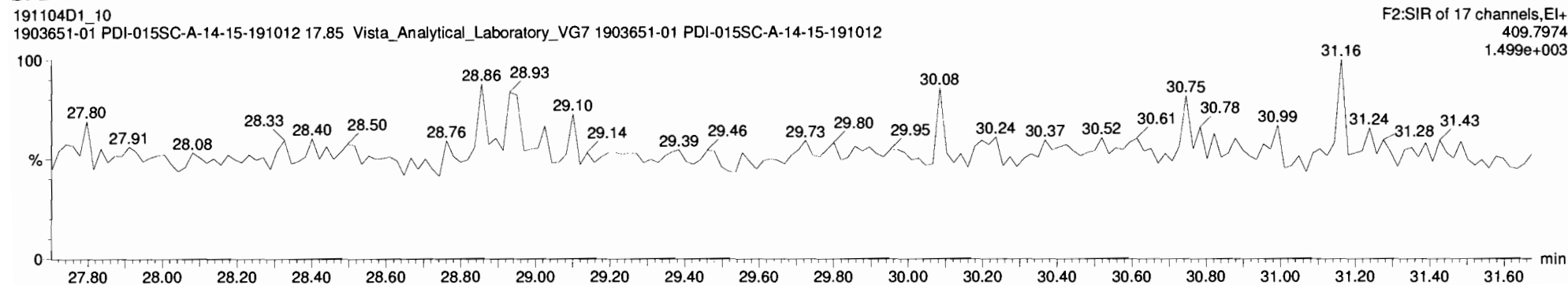
**Total Penta-Furans**



**13C-1,2,3,7,8-PeCDF**



**DPE2**



Vista Analytical Laboratory

Dataset: Untitled

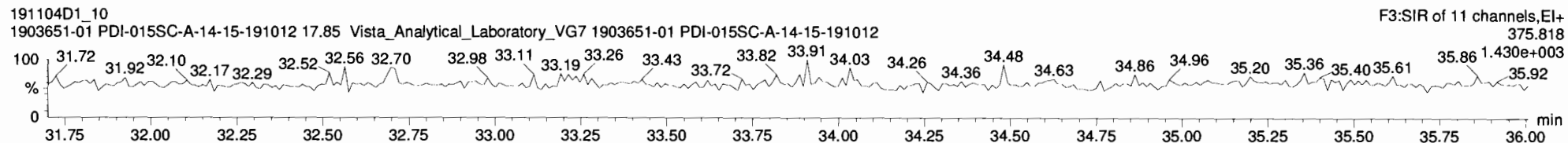
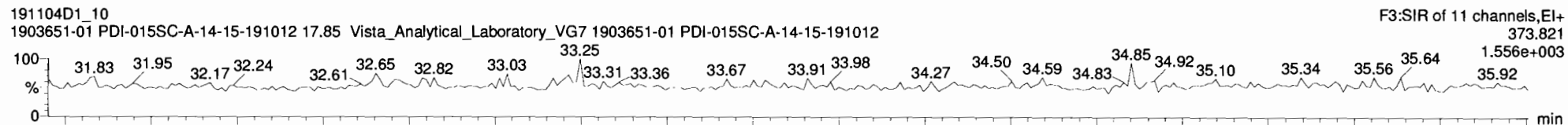
Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

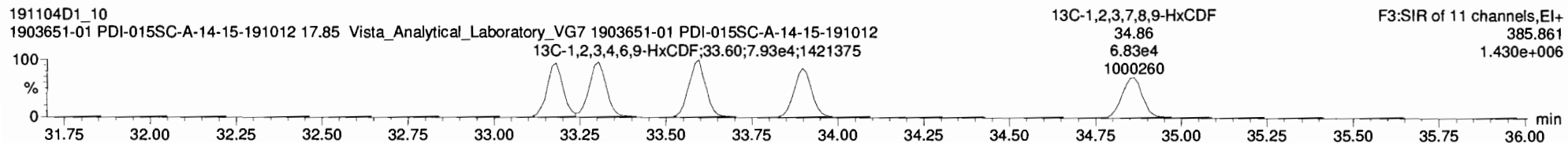
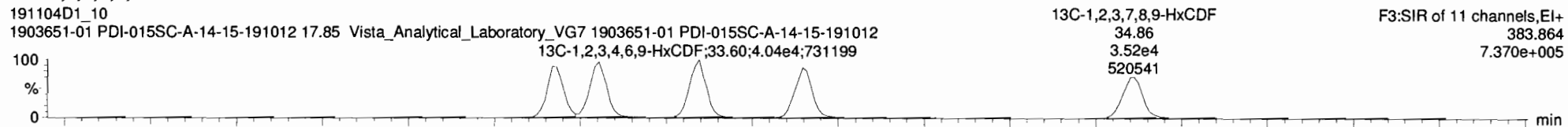
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Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

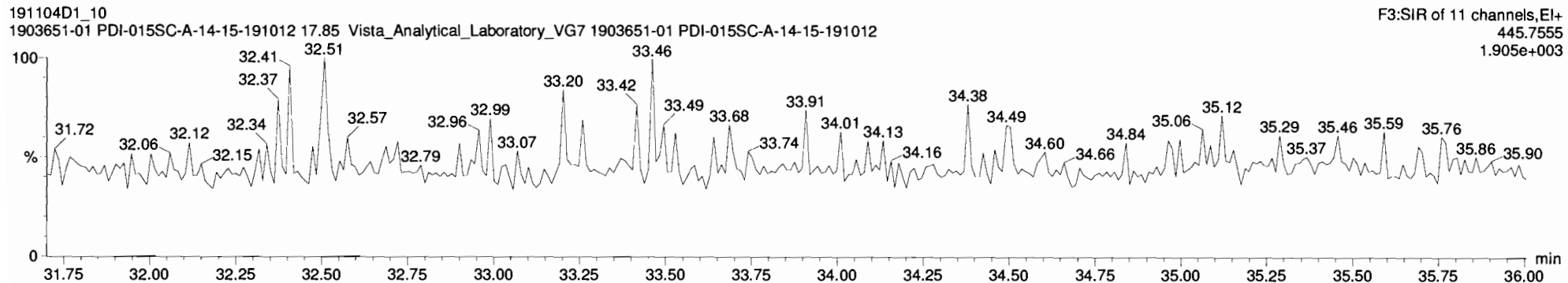
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3





Vista Analytical Laboratory

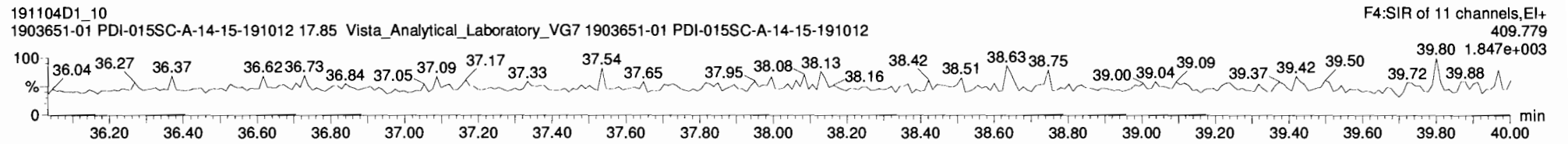
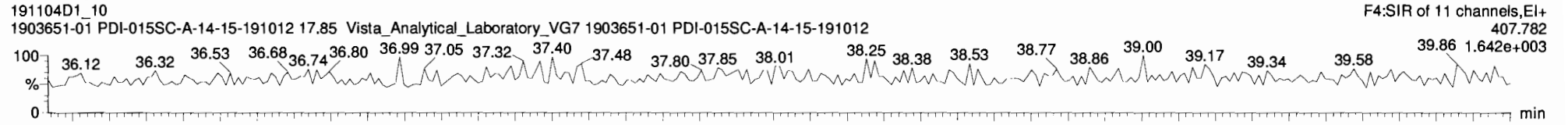
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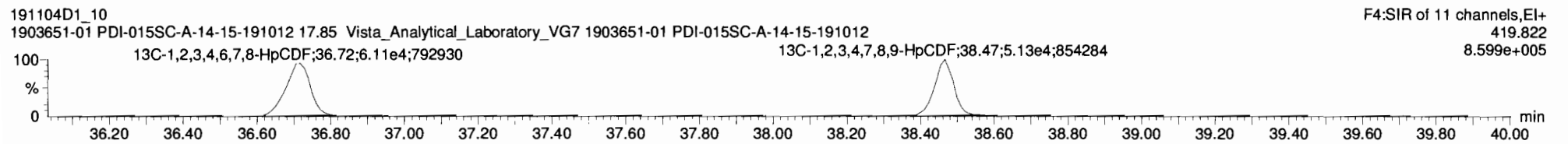
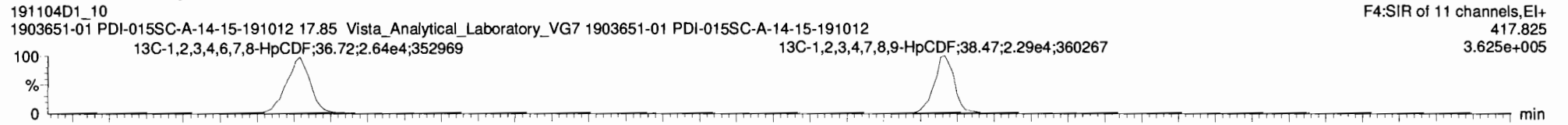
Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012, Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

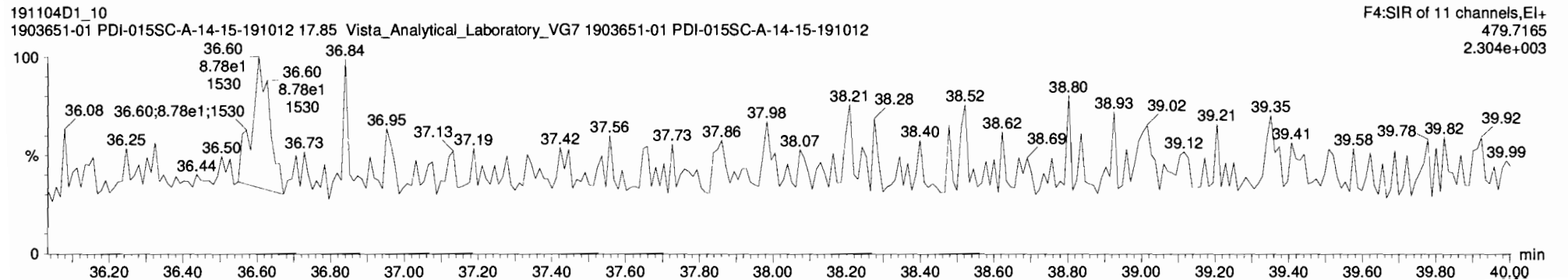
Total Hepta-Furans



13C-1,2,3,4,6,7,8-HpCDF



DPE4



Vista Analytical Laboratory

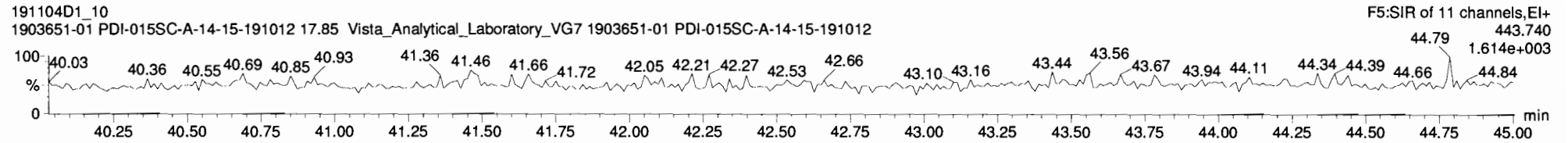
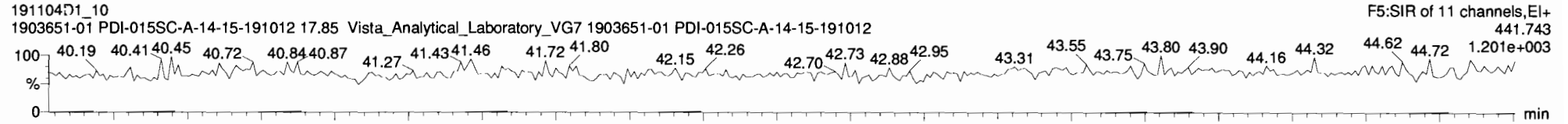
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Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

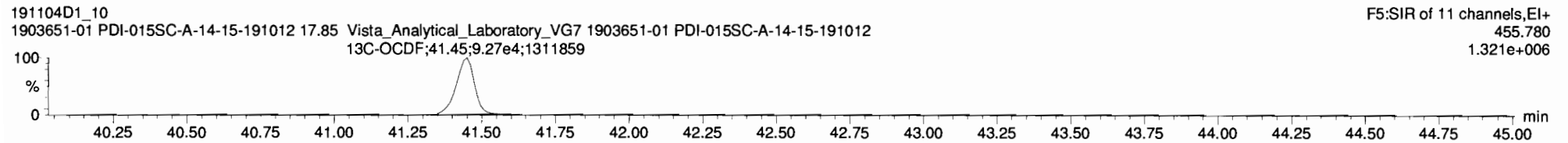
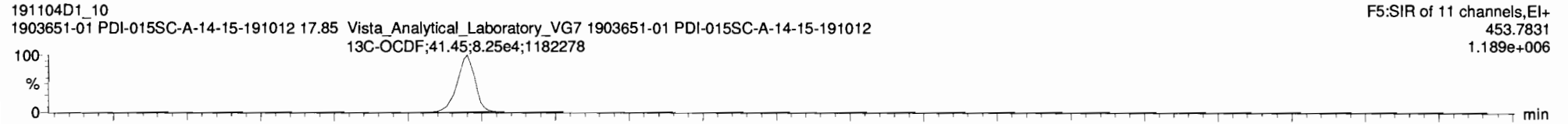
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Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012, Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

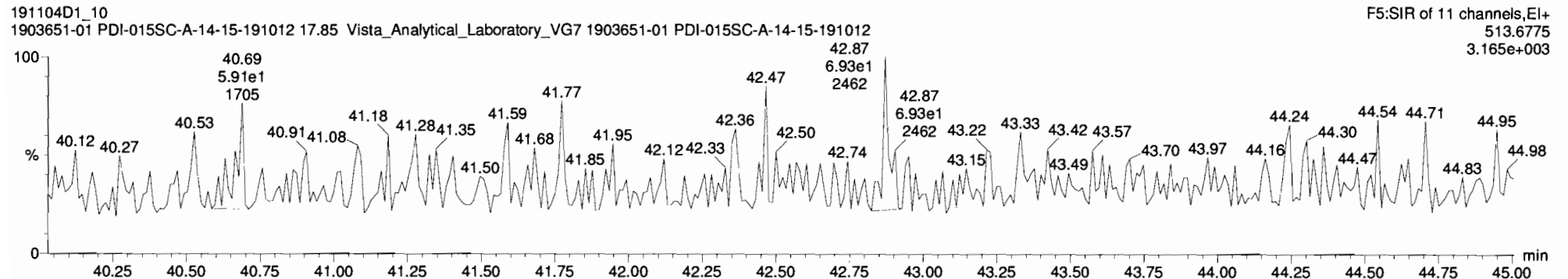
OCDF



13C-OCDF



DPE5



Vista Analytical Laboratory

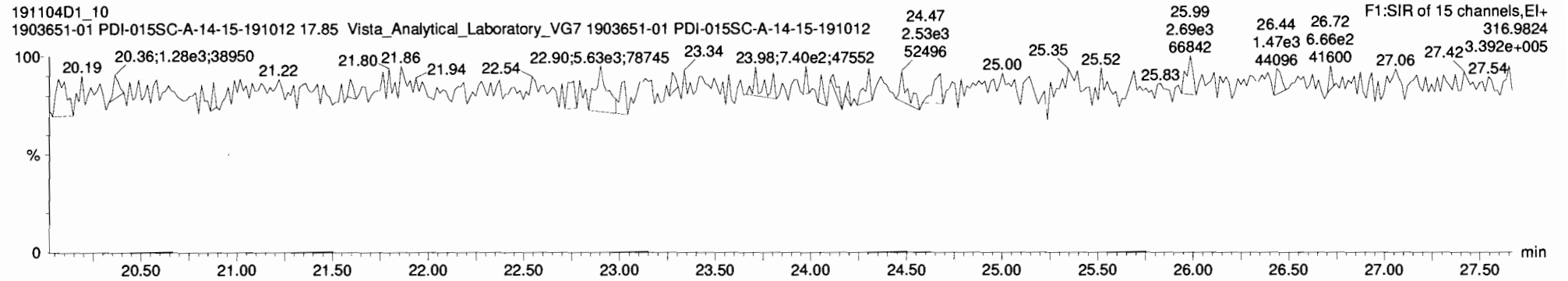
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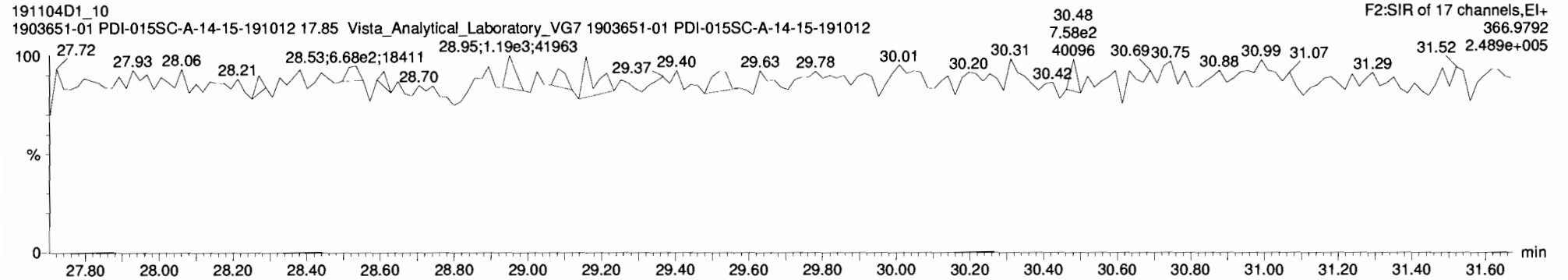
Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_10, Date: 4-NOV-2019, Time: 19:41:34, ID: 1903651-01 PDI-015SC-A-14-15-191012, Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

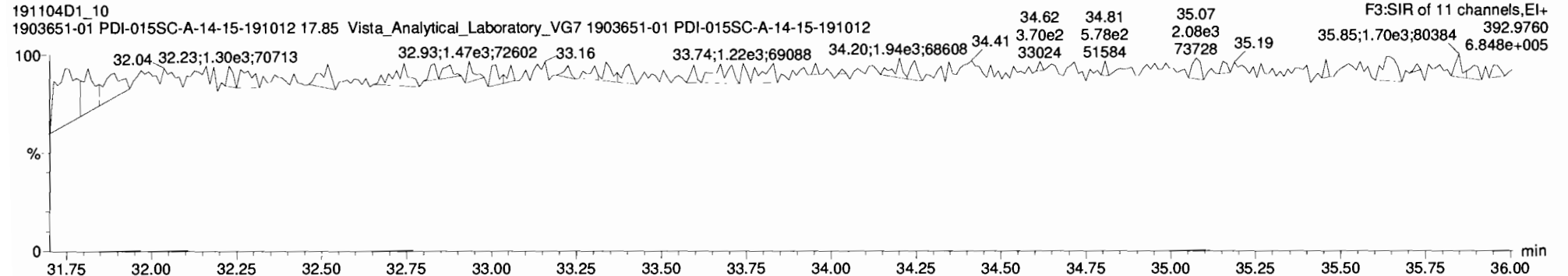
PFK1



PFK2

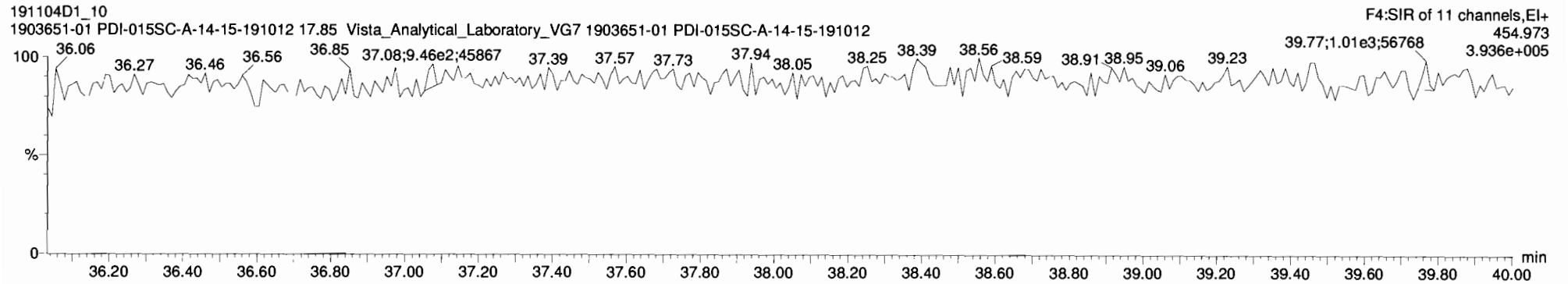


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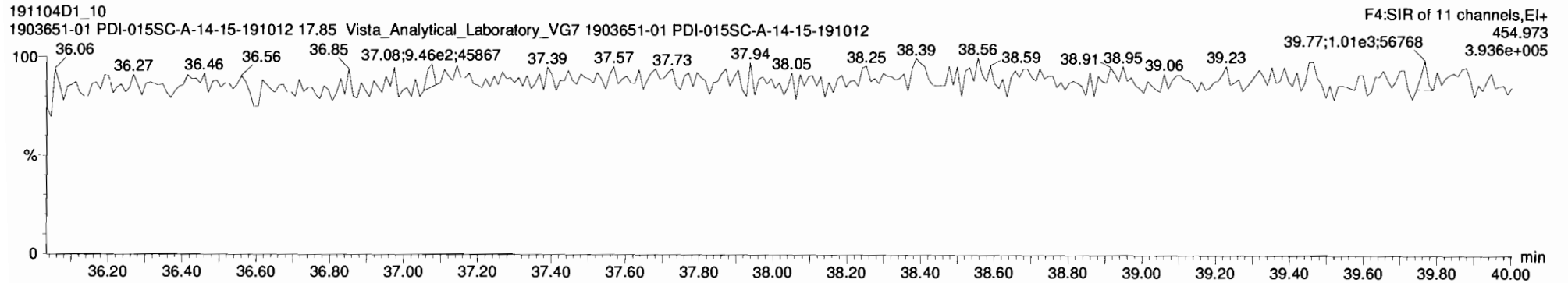


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Description: 1903651-01 PDI-015SC-A-14-15-191012 17.85 Vista\_Analytical\_Laboratory\_VG7

PFK4



PFK5



Quantify Sample Summary Report

MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-11.qld

Last Altered: Thursday, December 05, 2019 10:16:14 Pacific Standard Time

Printed: Thursday, December 05, 2019 10:19:44 Pacific Standard Time

EL 12/5/19

CT 12/18/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:51:43

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,

Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt/Vol	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	2,3,7,8-TCDD		9.19e4	10.0088	0.905			1.001		26.31					0.154
2	1,2,3,7,8-PeCDD		7.50e4	10.0088	0.903			1.001		30.78					0.198
3	1,2,3,4,7,8-HxCDD		6.86e4	10.0088	1.101			1.000		34.09					0.244
4	1,2,3,6,7,8-HxCDD		7.63e4	10.0088	0.939			1.000		34.19					0.245
5	1,2,3,7,8,9-HxCDD		7.68e4	10.0088	0.961			1.001		34.52					0.254
6	1,2,3,4,6,7,8-HpCDD		6.93e4	10.0088	0.979			1.000		37.94					0.274
7	OCDD	6.63e2	1.23e5	10.0088	0.959	0.922	NO	1.000	1.000	41.23	41.22	2.2387		2.24	0.314
8	2,3,7,8-TCDF		1.40e5	10.0088	0.950			1.001		25.54					0.117
9	1,2,3,7,8-PeCDF		1.25e5	10.0088	0.960			1.001		29.62					0.102
10	2,3,4,7,8-PeCDF		1.21e5	10.0088	1.015			1.001		30.52					0.0993
11	1,2,3,4,7,8-HxCDF		9.61e4	10.0088	1.177			1.000		33.19					0.117
12	1,2,3,6,7,8-HxCDF		1.04e5	10.0088	1.069			1.000		33.32					0.124
13	2,3,4,6,7,8-HxCDF		9.64e4	10.0088	1.114			1.001		33.94					0.135
14	1,2,3,7,8,9-HxCDF		8.99e4	10.0088	1.062			1.000		34.87					0.178
15	1,2,3,4,6,7,8-HpCDF		7.99e4	10.0088	1.128			1.001		36.76					0.358
16	1,2,3,4,7,8,9-HpCDF		6.72e4	10.0088	1.280			1.000		38.46					0.302
17	OCDF		1.62e5	10.0088	0.947			1.000		41.45					0.259
18	13C-2,3,7,8-TCDD	9.19e4	8.72e4	10.0088	1.095	0.762	NO	1.021	1.021	26.27	26.27	192.36	96.3		0.470
19	13C-1,2,3,7,8-PeCDD	7.50e4	8.72e4	10.0088	0.881	0.614	NO	1.187	1.195	30.53	30.76	195.03	97.6		0.404
20	13C-1,2,3,4,7,8-Hx...	6.86e4	1.09e5	10.0088	0.642	1.252	NO	1.014	1.014	34.06	34.07	196.81	98.5		0.753
21	13C-1,2,3,6,7,8-Hx...	7.63e4	1.09e5	10.0088	0.856	1.299	NO	1.017	1.018	34.18	34.19	164.22	82.2		0.565
22	13C-1,2,3,7,8,9-Hx...	7.68e4	1.09e5	10.0088	0.807	1.245	NO	1.026	1.027	34.48	34.49	175.46	87.8		0.599
23	13C-1,2,3,4,6,7,8-H...	6.93e4	1.09e5	10.0088	0.654	1.028	NO	1.126	1.129	37.83	37.93	195.17	97.7		0.954
24	13C-OCDD	1.23e5	1.09e5	10.0088	0.580	0.890	NO	1.226	1.227	41.19	41.23	392.21	98.1		0.844
25	13C-2,3,7,8-TCDF	1.40e5	1.44e5	10.0088	1.035	0.780	NO	0.993	0.992	25.56	25.51	188.55	94.4		0.557
26	13C-1,2,3,7,8-PeCDF	1.25e5	1.44e5	10.0088	0.854	1.675	NO	1.143	1.150	29.41	29.60	204.52	102.4		0.873
27	13C-2,3,4,7,8-PeCDF	1.21e5	1.44e5	10.0088	0.847	1.603	NO	1.176	1.185	30.27	30.49	199.62	99.9		0.880
28	13C-1,2,3,4,7,8-Hx...	9.61e4	1.09e5	10.0088	0.832	0.511	NO	0.987	0.988	33.17	33.19	212.80	106.5		1.05
29	13C-1,2,3,6,7,8-Hx...	1.04e5	1.09e5	10.0088	1.034	0.516	NO	0.991	0.992	33.28	33.31	184.37	92.3		0.847
30	13C-2,3,4,6,7,8-Hx...	9.64e4	1.09e5	10.0088	0.953	0.518	NO	1.009	1.009	33.90	33.91	186.31	93.2		0.919
31	13C-1,2,3,7,8,9-Hx...	8.99e4	1.09e5	10.0088	0.828	0.519	NO	1.039	1.038	34.89	34.87	200.04	100.1		1.06

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-11.qld

Last Altered: Thursday, December 05, 2019 10:16:14 Pacific Standard Time

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Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,  
 Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	13C-1,2,3,4,6,7,8-H...	7.99e4	1.09e5	10.0088	0.757	0.432	NO	1.093	1.093	36.71	36.73	194.18	97.2		0.985
33	13C-1,2,3,4,7,8,9-H...	6.72e4	1.09e5	10.0088	0.581	0.421	NO	1.143	1.145	38.40	38.46	213.06	106.6		1.28
34	13C-OCDF	1.62e5	1.09e5	10.0088	0.689	0.889	NO	1.233	1.234	41.43	41.45	432.36	108.2		0.612
35	37Cl-2,3,7,8-TCDD	4.12e4	8.72e4	10.0088	1.198			1.022	1.022	26.30	26.29	78.810	98.6		0.169
36	13C-1,2,3,4-TCDD	8.72e4	8.72e4	10.0088	1.000	0.805	NO	1.000	1.000	25.70	25.73	199.83	100.0		0.515
37	13C-1,2,3,4-TCDF	1.44e5	1.44e5	10.0088	1.000	0.822	NO	1.000	1.000	24.28	24.30	199.83	100.0		0.576
38	13C-1,2,3,4,6,9-Hx...	1.09e5	1.09e5	10.0088	1.000	0.511	NO	1.000	1.000	33.55	33.59	199.83	100.0		0.876
39	Total Tetra-Dioxins		9.19e4	10.0088	0.901			0.000		25.50					0.0895
40	Total Penta-Dioxins		7.50e4	10.0088	0.872			0.000		30.00					0.0789
41	Total Hexa-Dioxins		0.00e0	10.0088	0.976			0.000		33.80					0.139
42	Total Hepta-Dioxins		6.93e4	10.0088	0.989			0.000		37.75		0.00000		0.355	0.141
43	Total Tetra-Furans		1.40e5	10.0088	0.943			0.000		24.00					0.0540
44	1st Func. Penta-Fur...		0.00e0	10.0088	0.940			0.000		27.63					0.0342
45	Total Penta-Furans		0.00e0	10.0088	0.940			0.000		30.00					0.0546
46	Total Hexa-Furans		0.00e0	10.0088	1.078			0.000		33.00					0.0719
47	Total Hepta-Furans		0.00e0	10.0088	1.135			0.000		37.75					0.214

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-11.qld

Last Altered: Thursday, December 05, 2019 10:16:14 Pacific Standard Time

Printed: Thursday, December 05, 2019 10:19:44 Pacific Standard Time

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:51:43

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,

Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

Tetra-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Penta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hepta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
42	Total Hepta-Dioxins	YES	37.14	62.045	35119.504	0.000	MM	0.0000	0.35

Tetra-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Penta-Furans function 1

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Penta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-11.qld

Last Altered: Thursday, December 05, 2019 10:16:14 Pacific Standard Time

Printed: Thursday, December 05, 2019 10:19:44 Pacific Standard Time

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,

Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

Hexa-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary	Flags	Conc.	EMPC
1										

Hepta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary	Flags	Conc.	EMPC
1										



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,

Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

Total Tetra-Dioxins

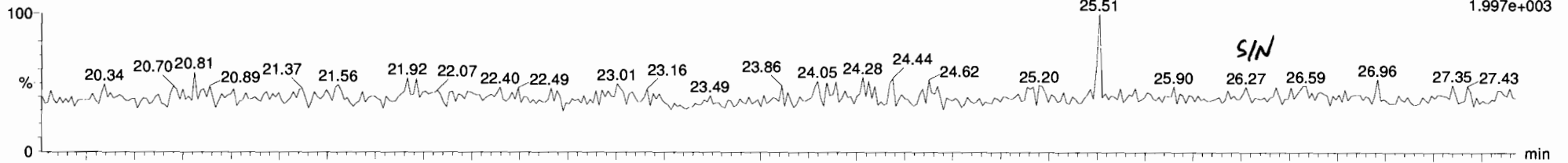
191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+

319.8965

1.997e+003



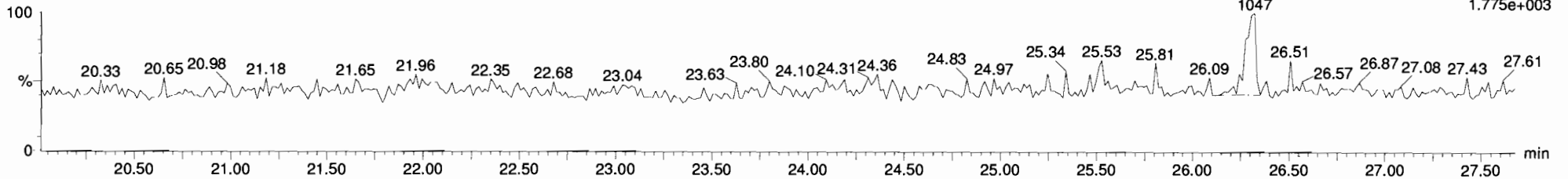
191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+

321.894

1.775e+003



13C-2,3,7,8-TCDD

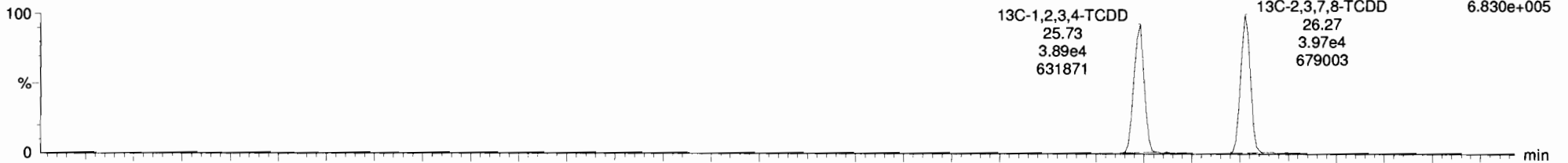
191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+

331.9368

6.830e+005



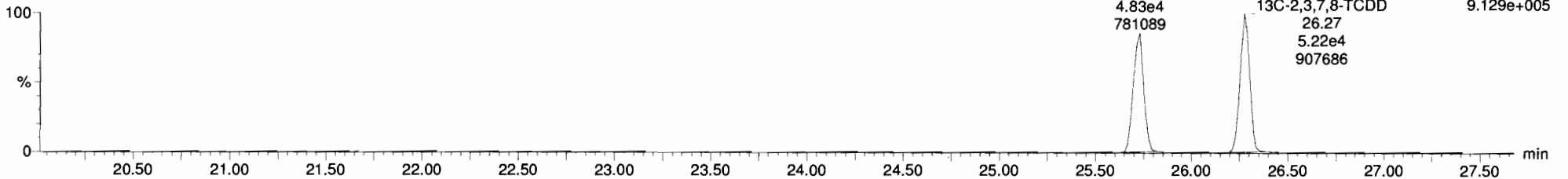
191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+

333.934

9.129e+005



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

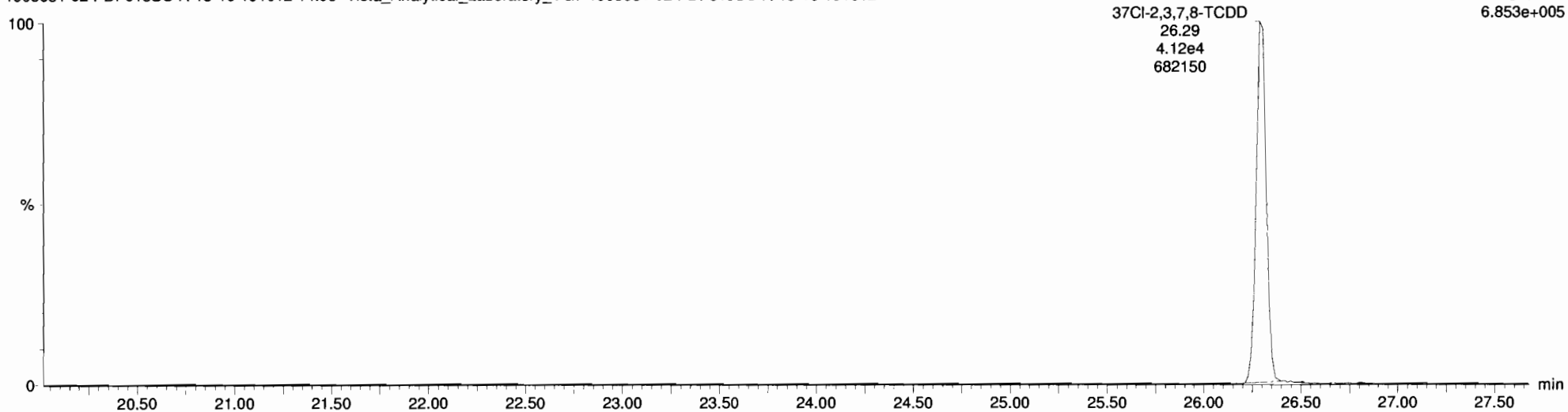
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Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

**37Cl-2,3,7,8-TCDD**

191104D1\_11  
1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

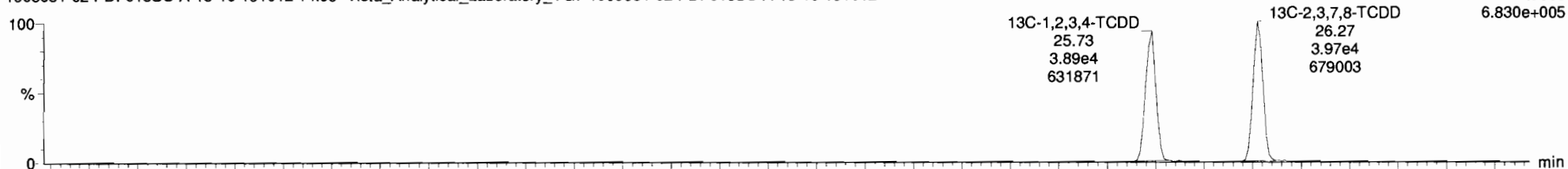
F1:SIR of 15 channels, EI+  
327.884  
6.853e+005



**13C-1,2,3,4-TCDD**

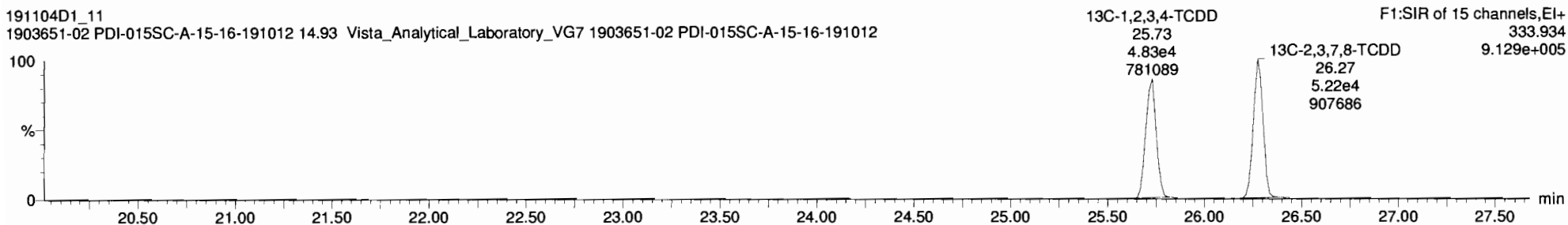
191104D1\_11  
1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+  
331.9368  
6.830e+005



191104D1\_11  
1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F1:SIR of 15 channels, EI+  
333.934  
9.129e+005



Vista Analytical Laboratory

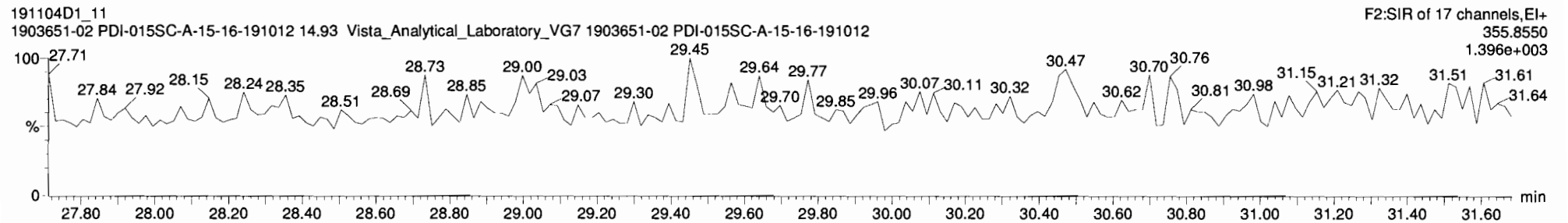
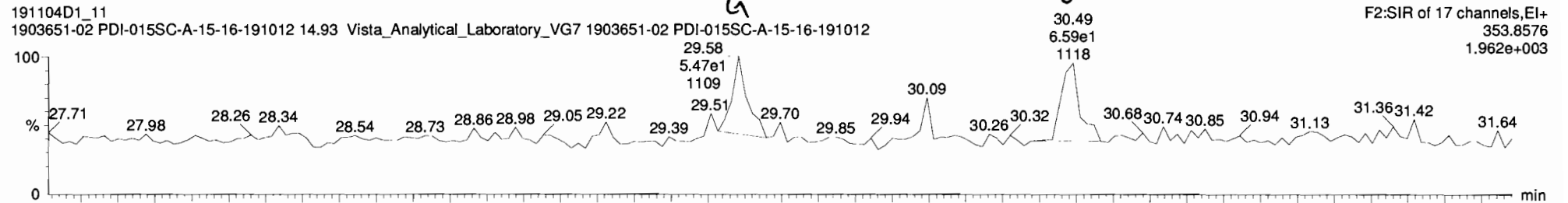
Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

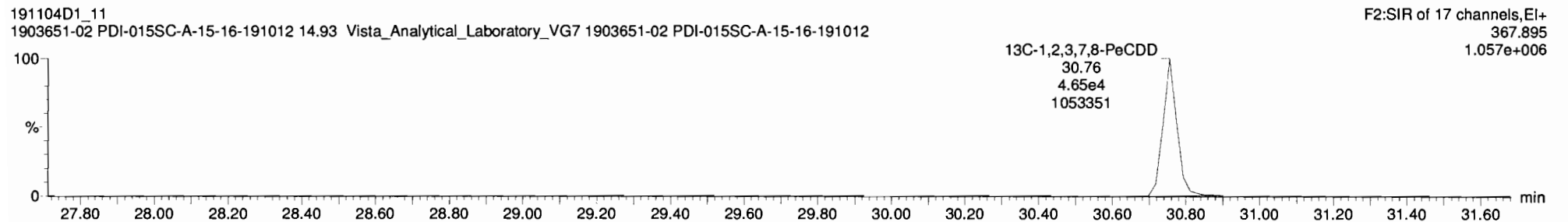
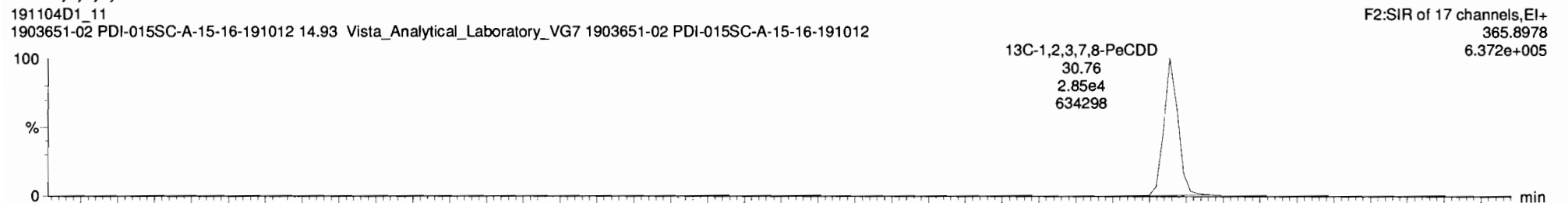
Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,  
Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD



Vista Analytical Laboratory

Dataset: Untitled

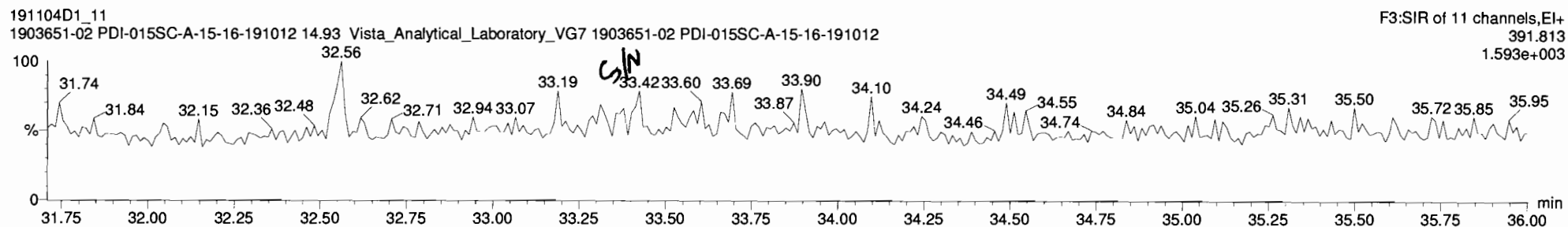
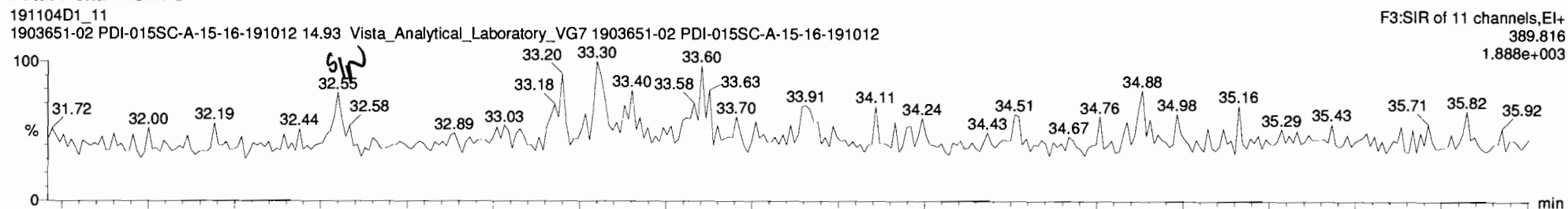
Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

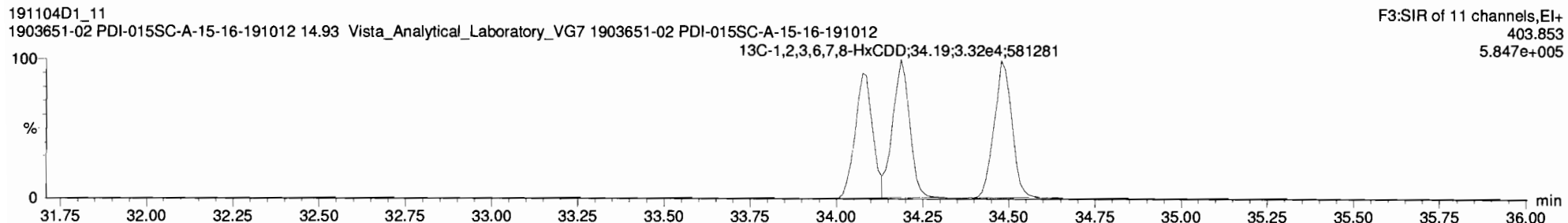
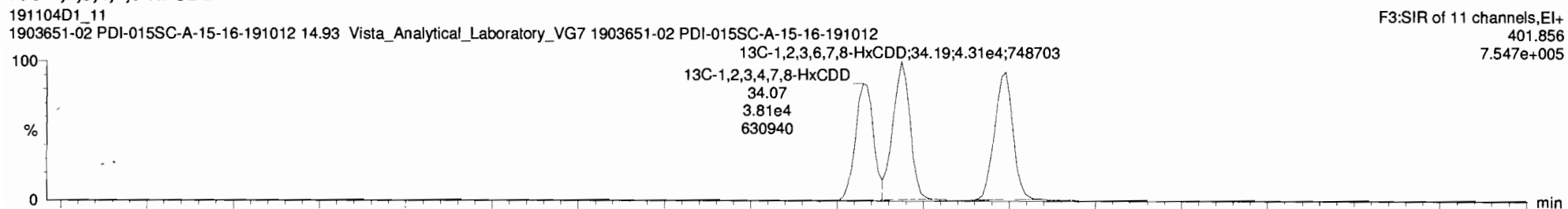
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Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

Total Hexa-Dioxins



13C-1,2,3,4,7,8-HxCDD

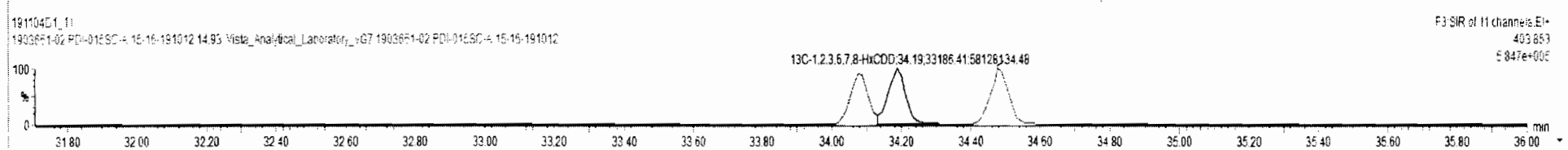
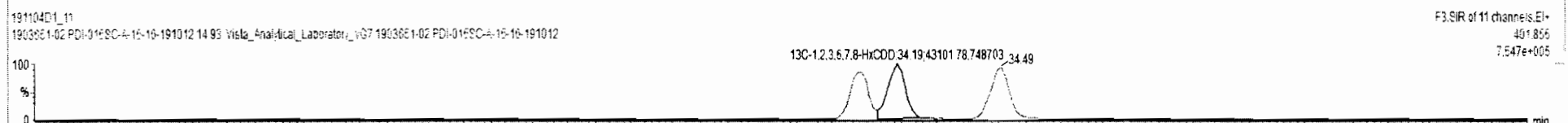
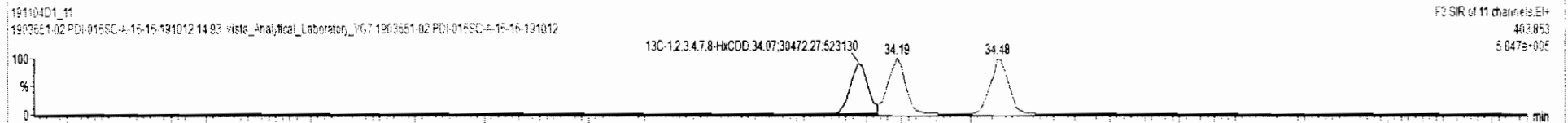
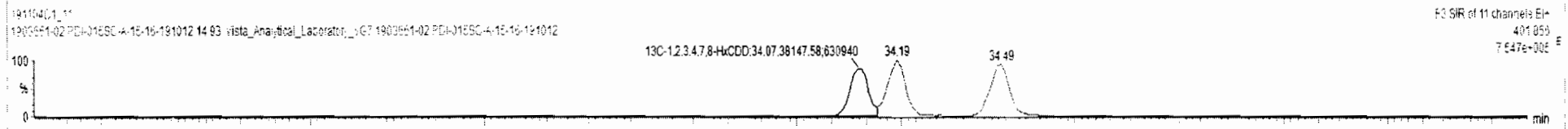
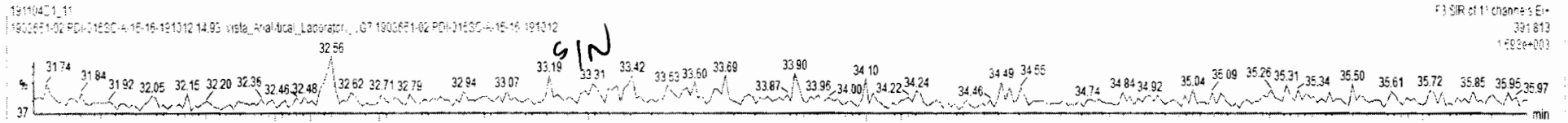
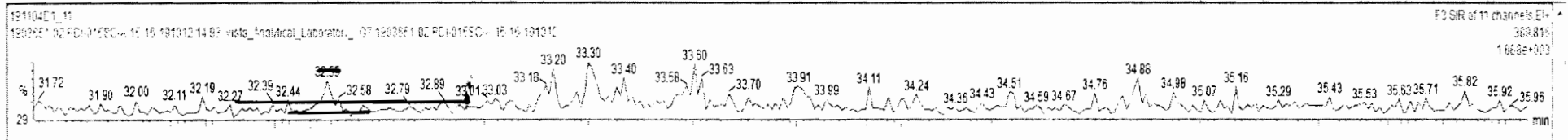




191104D1\_11 - 1903651-02 PDI-015SC-A-15-16-191012 - 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	S Resp	SE	RA	n/y	RRF	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
40	Total Penta-Dioxins		7.50e4				0.872	10.005	30.00			0.000	NO			0.0789	
41	Total Hexa-Dioxins		0.00e0				0.976	10.009	33.80			0.000	NO			0.139	
42	Total Hepta-Dioxins		6.90e4				0.989	10.005	27.75			0.000	NO			0.141	
43	Total Tetra-Furans		1.40e5				0.943	10.005	24.00			0.000	NO			0.0540	
44	1st Func. Penta-Furans		0.00e0				0.940	10.005	27.63			0.000	NO			0.0342	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012, Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

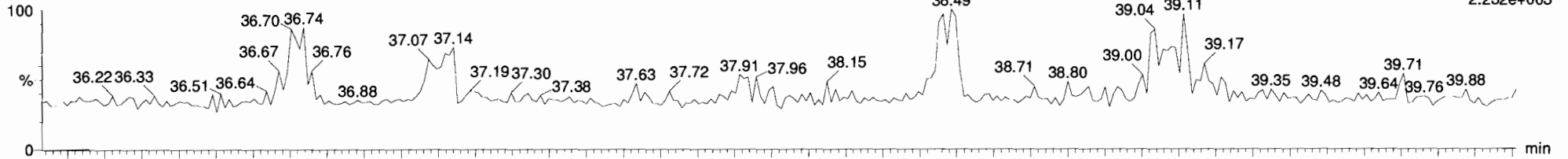
Total Hepta-Dioxins

*PLO*

191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

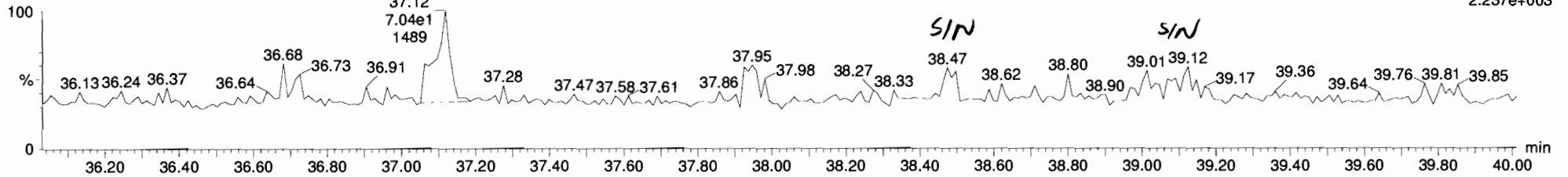
F4:SIR of 11 channels, EI+  
423.777  
2.232e+003



191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F4:SIR of 11 channels, EI+  
425.774  
2.237e+003

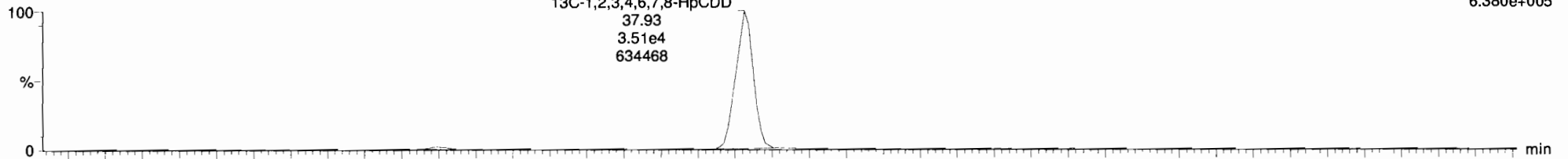


13C-1,2,3,4,6,7,8-HpCDD

191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

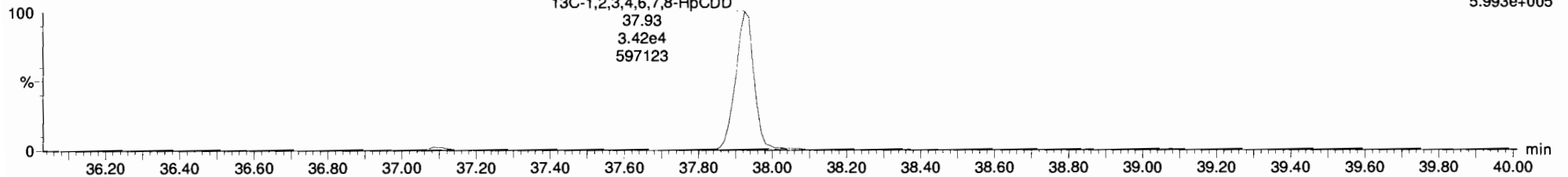
F4:SIR of 11 channels, EI+  
435.817  
6.380e+005



191104D1\_11

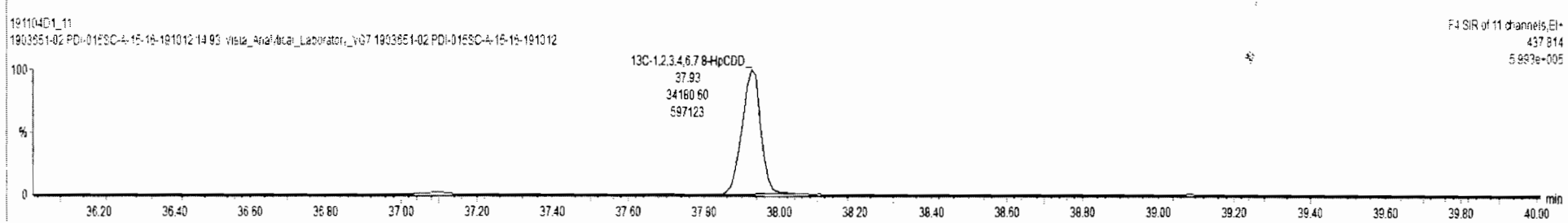
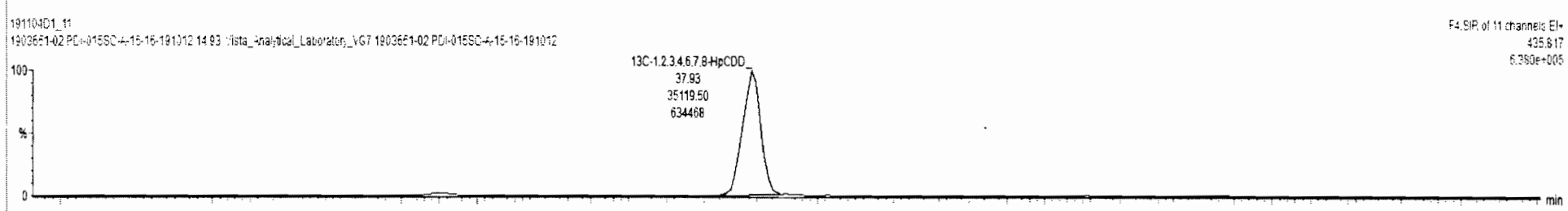
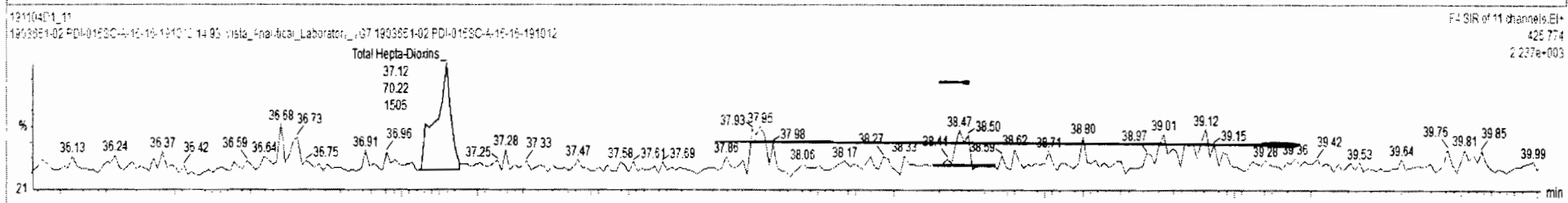
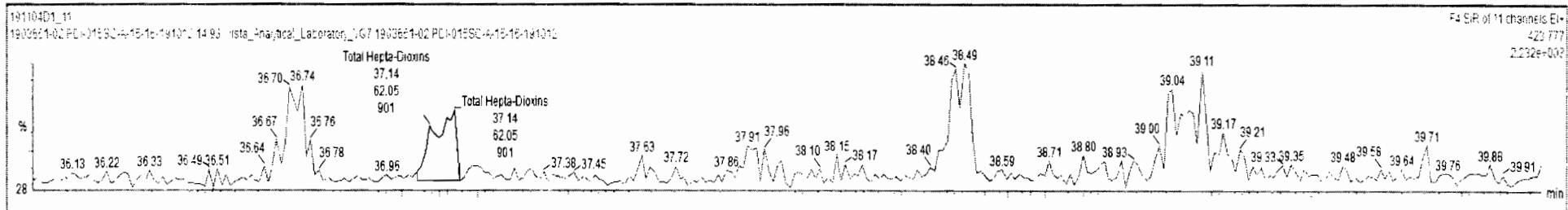
1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F4:SIR of 11 channels, EI+  
437.814  
5.993e+005



#	Name	Resp	S Resp	IS	RA	n/y	RRF	w/wot	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
40	Total Penta-Dioxins		7.50e4				0.872	10.009	30.00			0.000	NO				0.0789
41	Total Hexa-Dioxins		0.00e0				0.976	10.009	33.80			0.000	NO				0.139
42	Total Hepta-Dioxins		6.90e4				0.989	10.009	37.75			0.000	NO	0.0000		0.141	0.3549
43	Total Tetra-Furans		1.40e5				0.943	10.009	24.00			0.000	NO				0.0540
44	1st Func Penta-Furans		0.00e0				0.940	10.009	27.63			0.000	NO				0.0342

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.14	6.205e1	7.022e1	1.040	0.88	YES	0.35494	0.00000



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

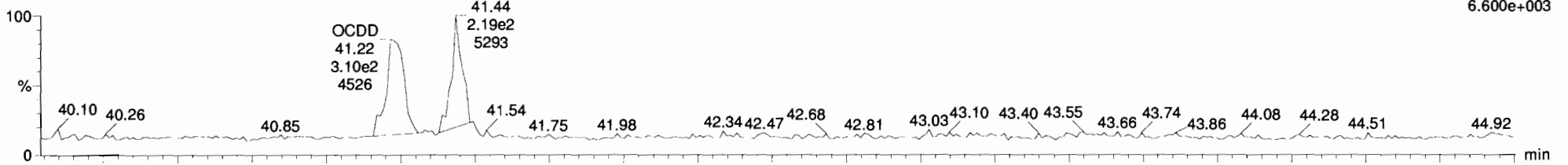
Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012, Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

OCDD

191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

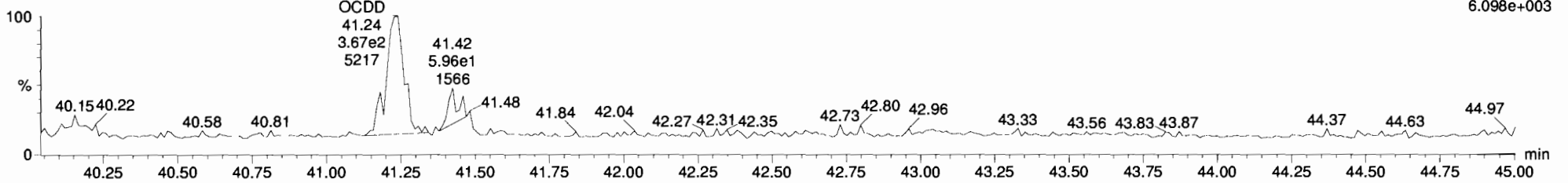
F5:SIR of 11 channels, EI+  
457.738  
6.600e+003



191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F5:SIR of 11 channels, EI+  
459.735  
6.098e+003

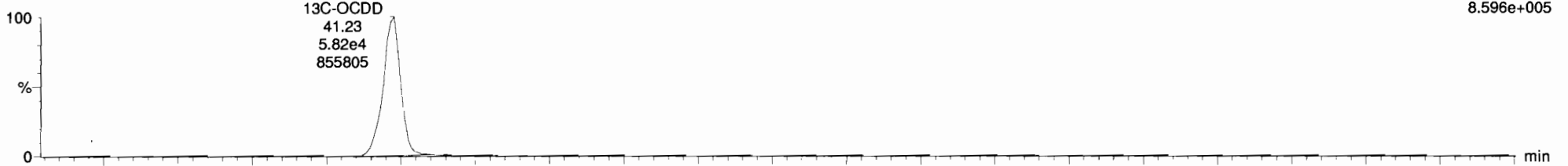


13C-OCDD

191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

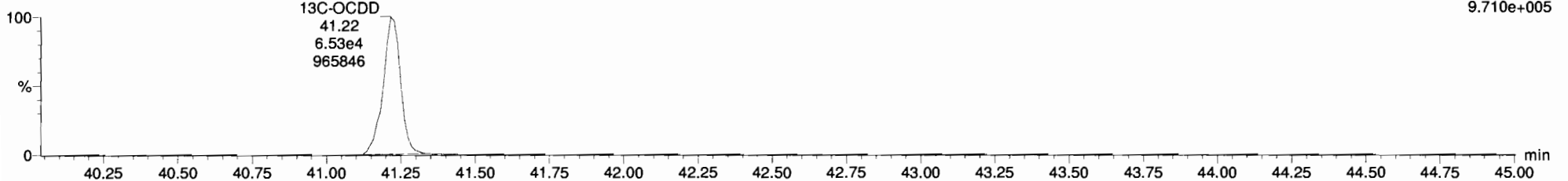
F5:SIR of 11 channels, EI+  
469.778  
8.596e+005



191104D1\_11

1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7 1903651-02 PDI-015SC-A-15-16-191012

F5:SIR of 11 channels, EI+  
471.775  
9.710e+005





Vista Analytical Laboratory

Dataset: Untitled

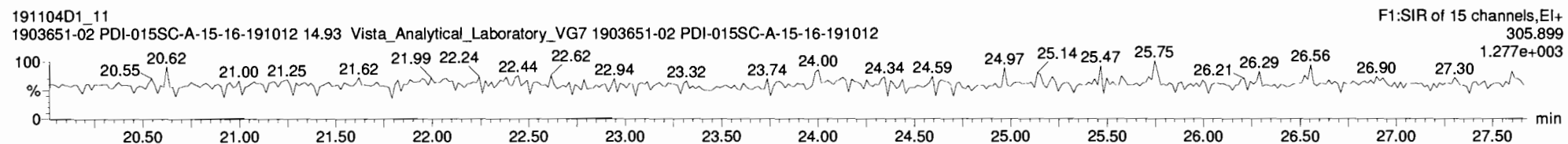
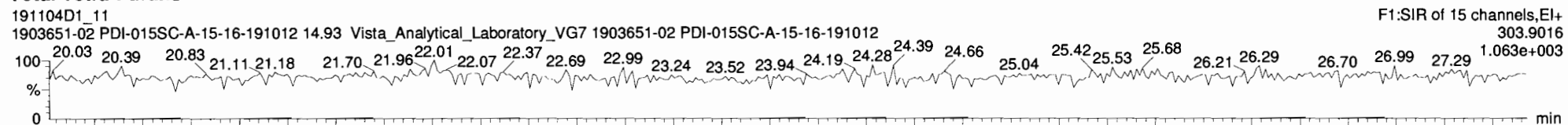
Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

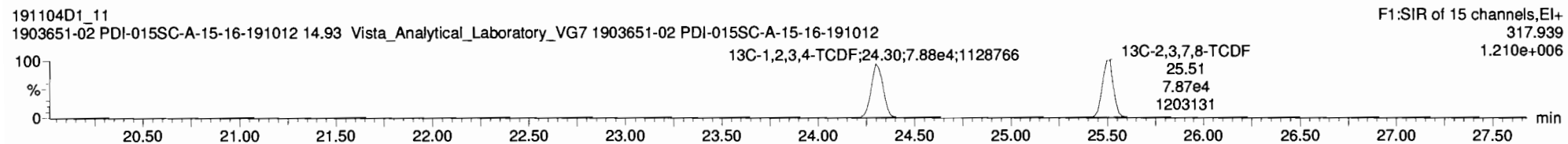
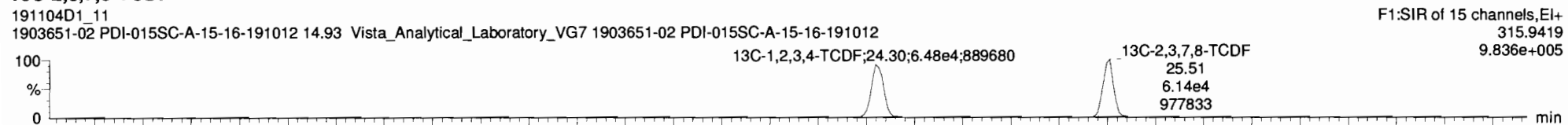
Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,

Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

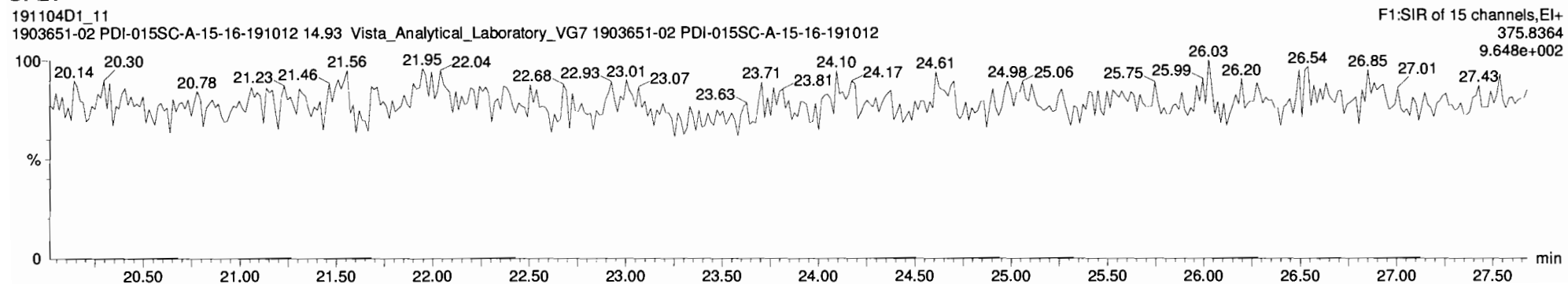
**Total Tetra-Furans**



**13C-2,3,7,8-TCDF**



**DPE1**



Vista Analytical Laboratory

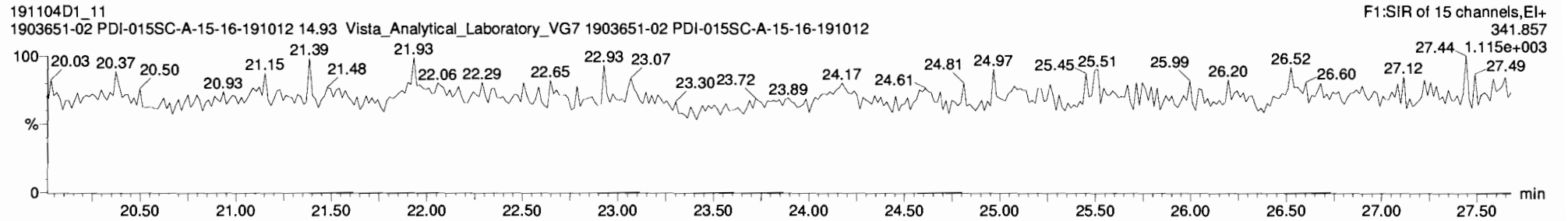
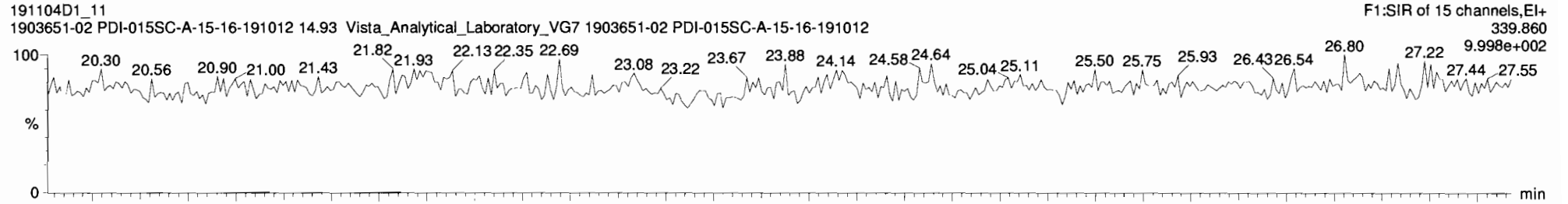
Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

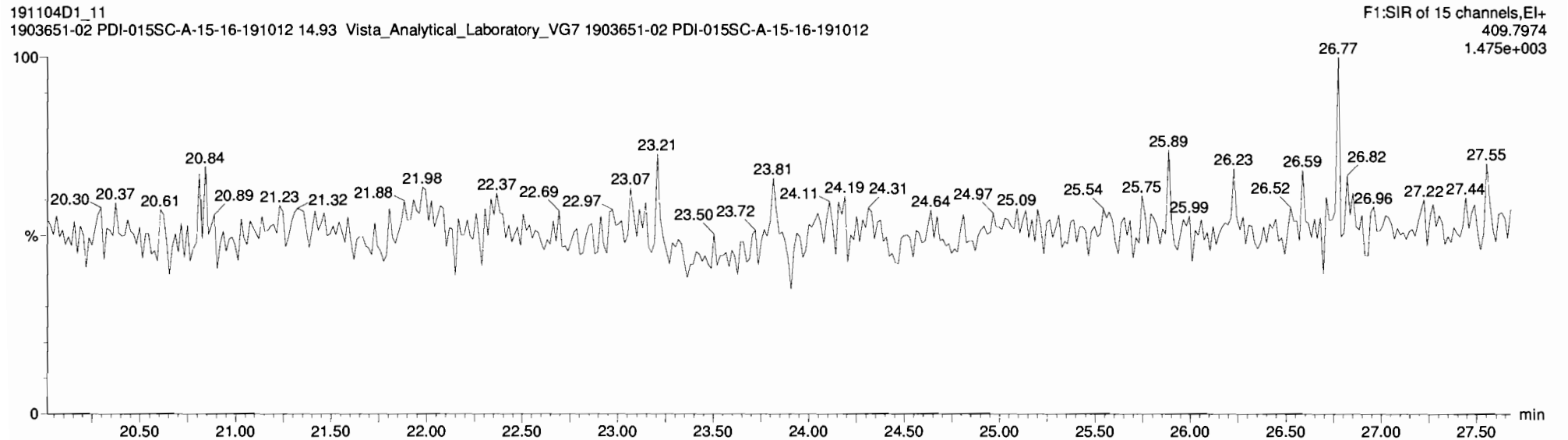
Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

Name: 191104D1\_11, Date: 4-NOV-2019, Time: 20:29:23, ID: 1903651-02 PDI-015SC-A-15-16-191012,  
Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

1st Func. Penta-Furans



DPE6



Vista Analytical Laboratory

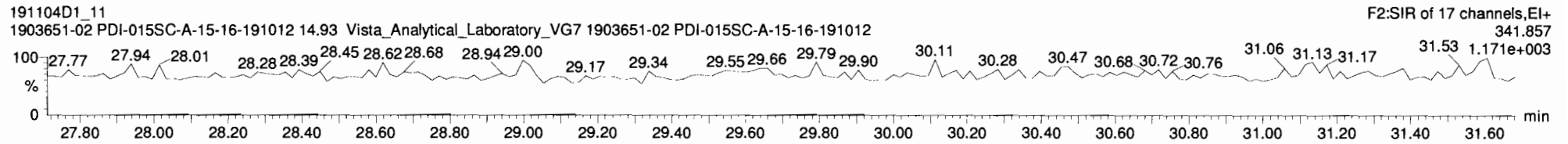
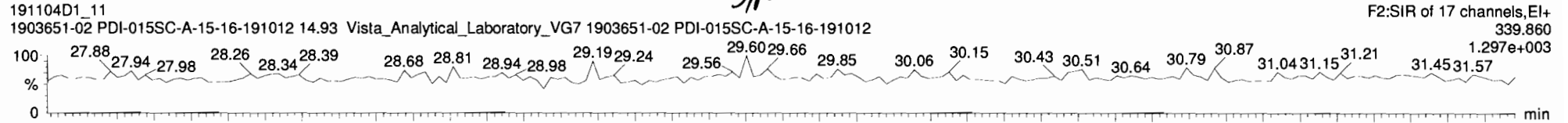
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Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

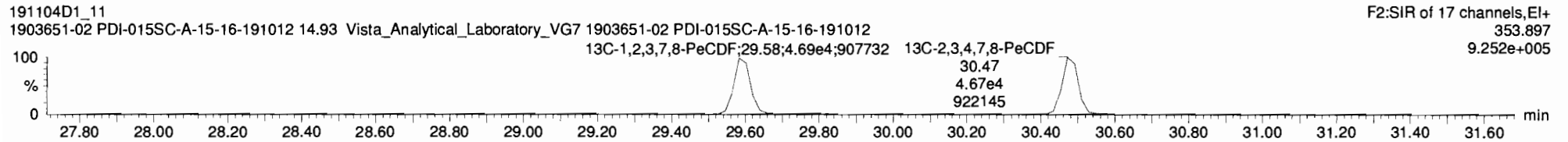
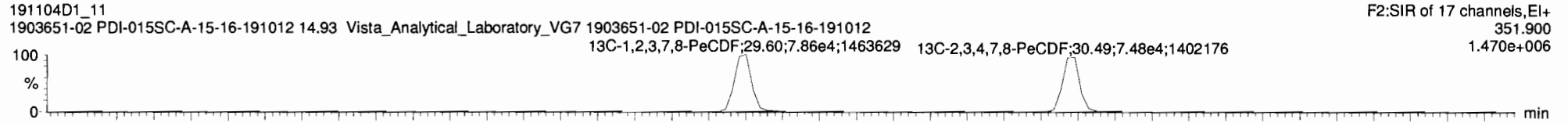
Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

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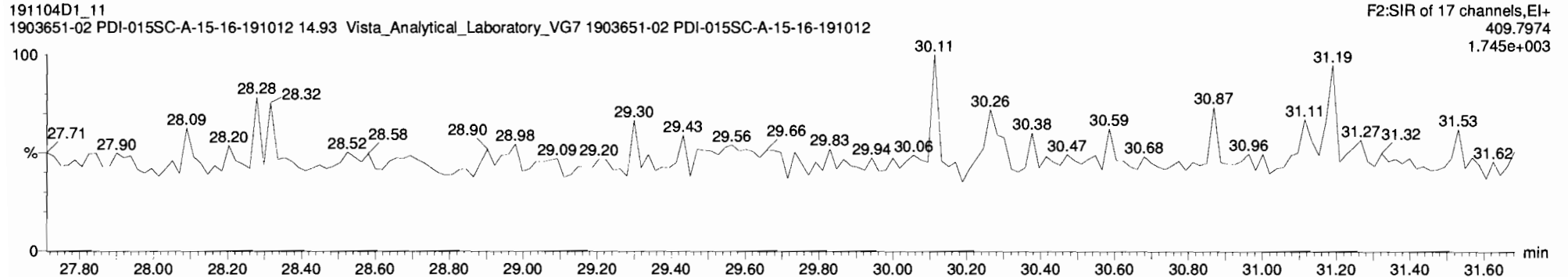
Total Penta-Furans



13C-1,2,3,7,8-PeCDF



DPE2



Vista Analytical Laboratory

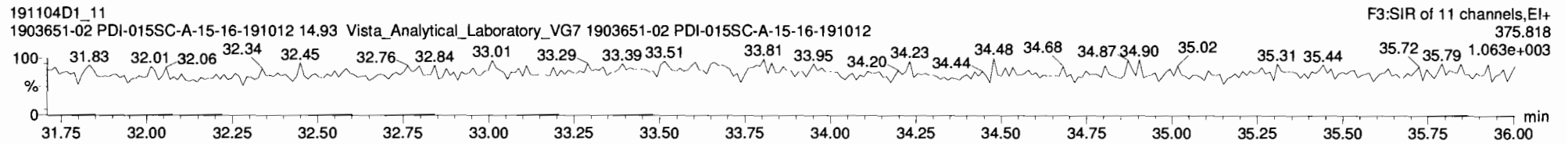
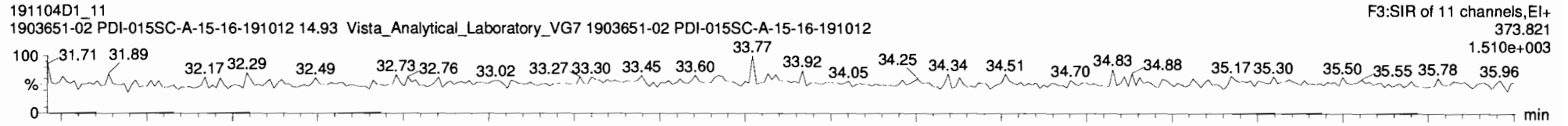
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Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

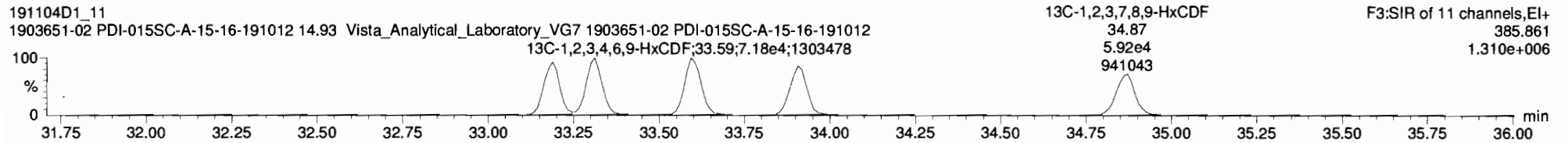
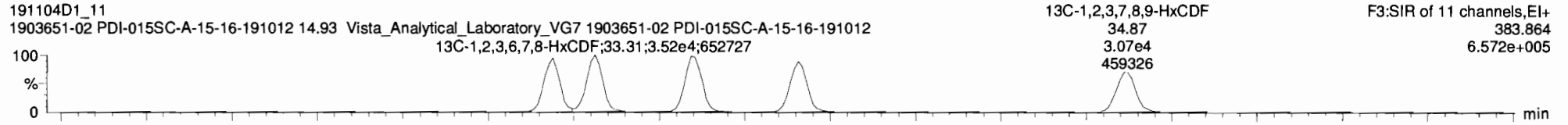
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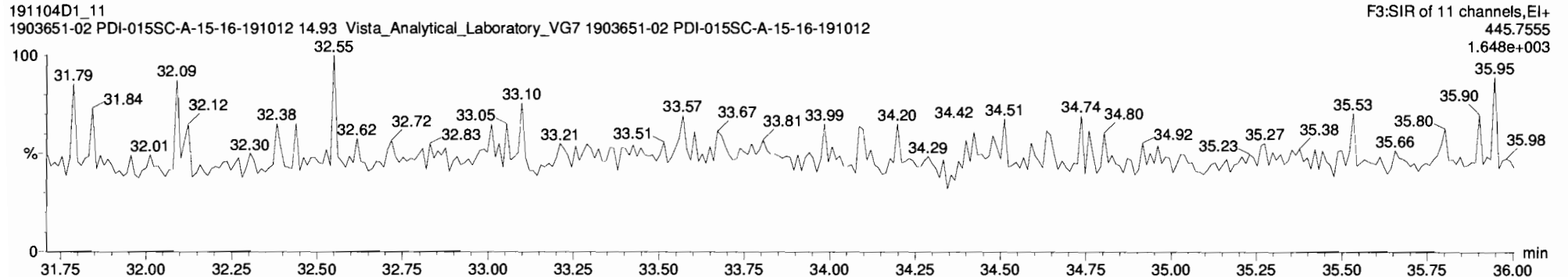
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3



Vista Analytical Laboratory

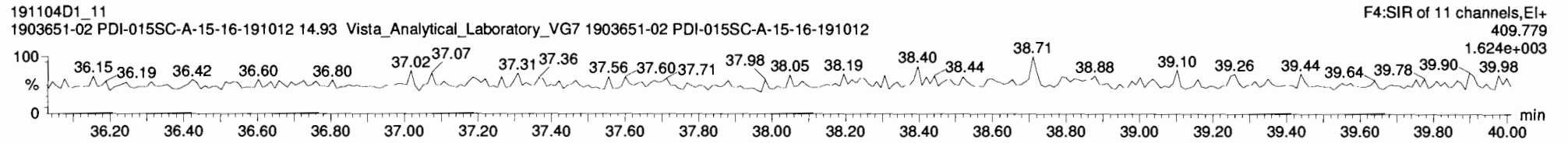
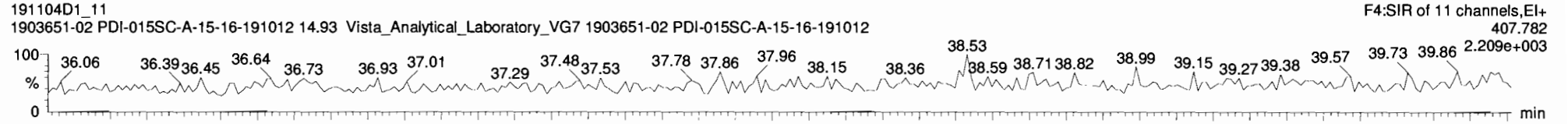
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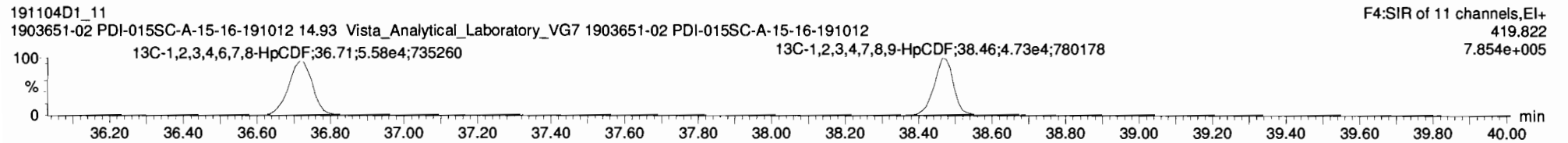
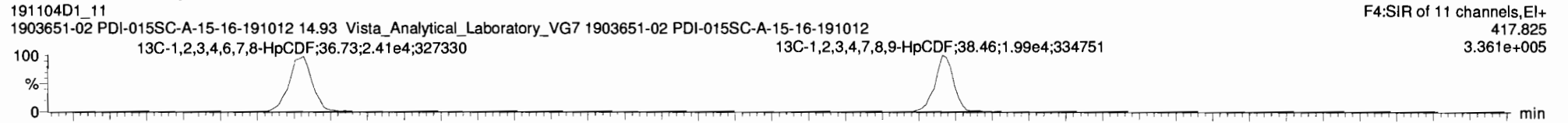
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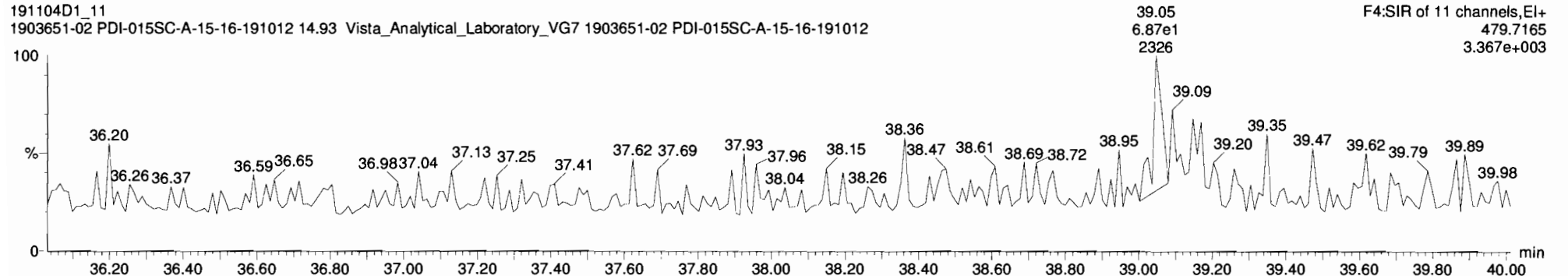
Total Hepta-Furans



13C-1,2,3,4,6,7,8-HpCDF



DPE4



Vista Analytical Laboratory

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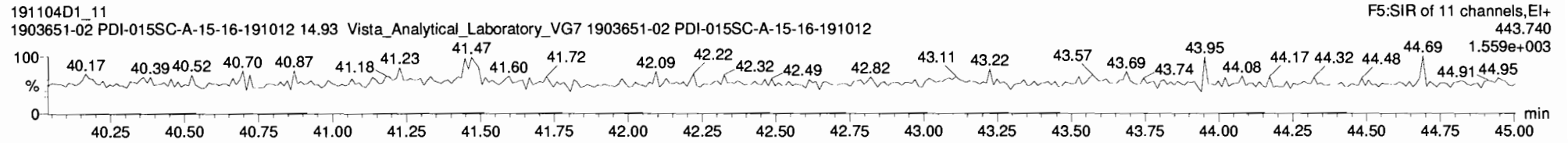
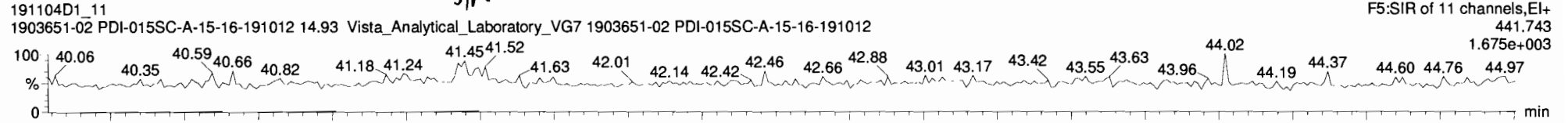
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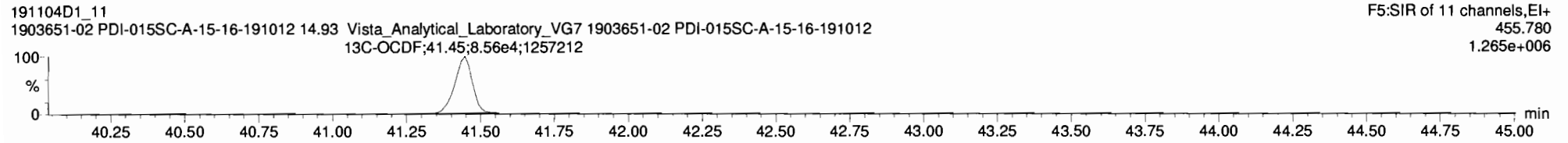
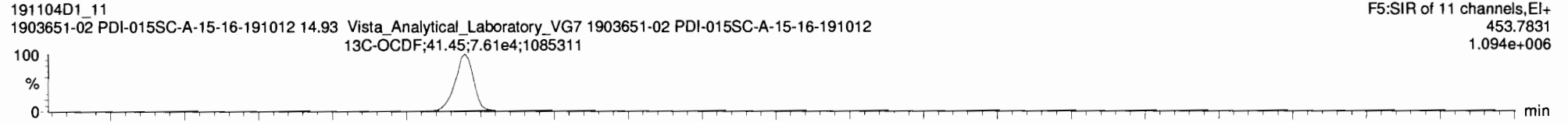
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Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

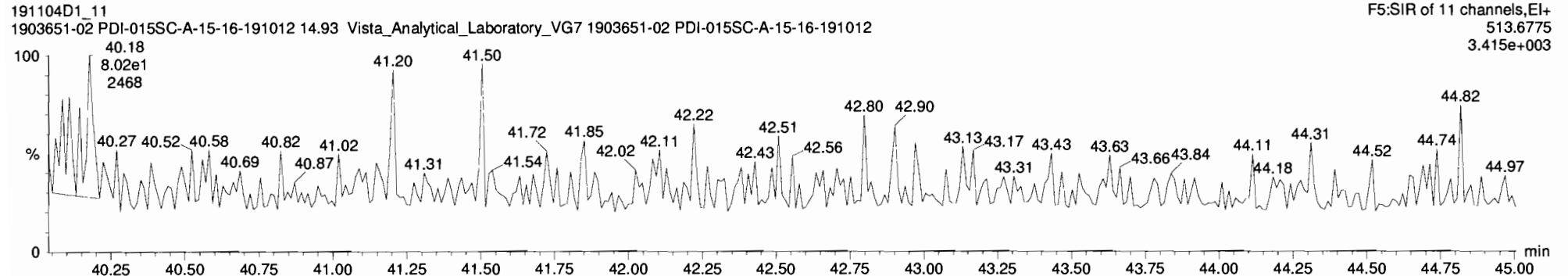
OCDF



13C-OCDF



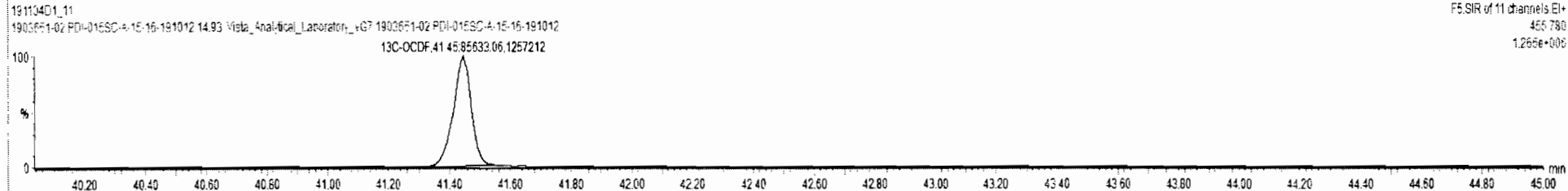
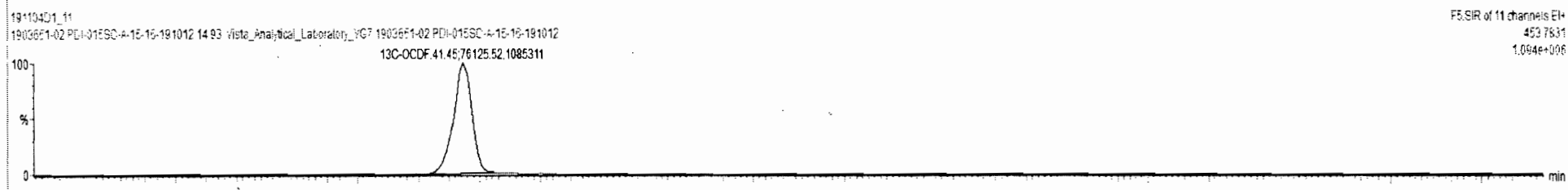
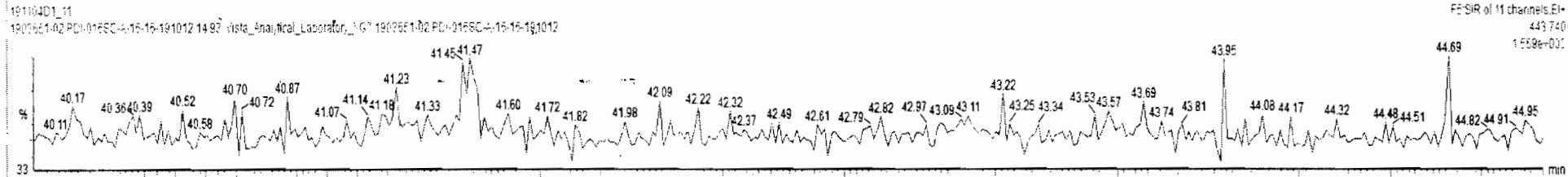
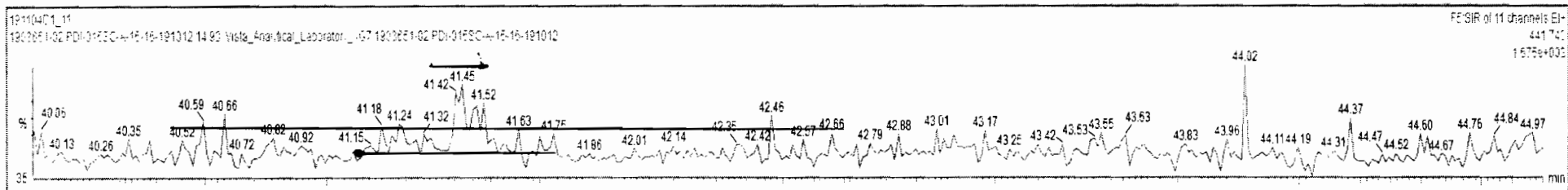
DPE5



191104D1\_11 - 1903651-02 PDI-015SC-A-15-16-191012 - 1903651-02 PDI-015SC-A-15-16-191012 14 93 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	S Resp	IS#	RA	n/y	RPF	w/Vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
11	1,2,3,4,7,8-HxCDF	9.61e4	28				1.177	10.009	32.19			1.000	NO			0.117	
12	1,2,3,6,7,8-HxCDF	1.04e5	29				1.069	10.009	33.32			1.000	NO			0.124	
13	2,3,4,6,7,8-HxCDF	5.648e4	30				1.114	10.009	33.94			1.001	NO			0.125	
14	1,2,3,7,8,9-HxCDF	8.99e4	31				1.052	10.009	34.87			1.000	NO			0.178	
15	1,2,3,4,6,7,8-HpCDF	7.96e4	32				1.128	10.009	36.76			1.001	NO			0.358	
16	1,2,3,4,7,8,9-HpCDF	6.72e4	33				1.280	10.009	38.46			1.000	NO			0.302	
17	OCDF	1.62e5	34				0.947	10.009	41.45			1.000	NO			0.259	
18	13C-2,3,7,8-TCDD	9.19e4	8.72e4	36	0.76	NO	1.095	10.009	26.27	26.27	1.021	1.021	NO	192.4	96.3	0.470	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										



Vista Analytical Laboratory

Dataset: Untitled

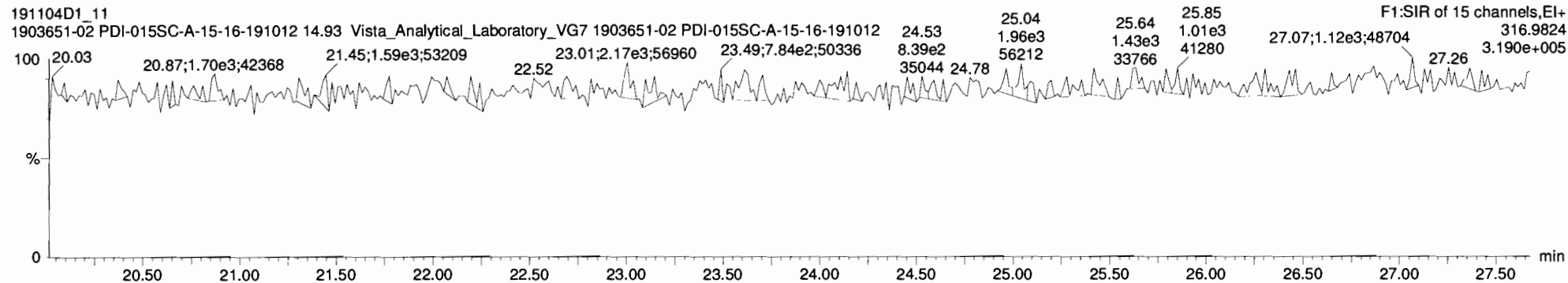
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Printed: Thursday, December 05, 2019 09:11:57 Pacific Standard Time

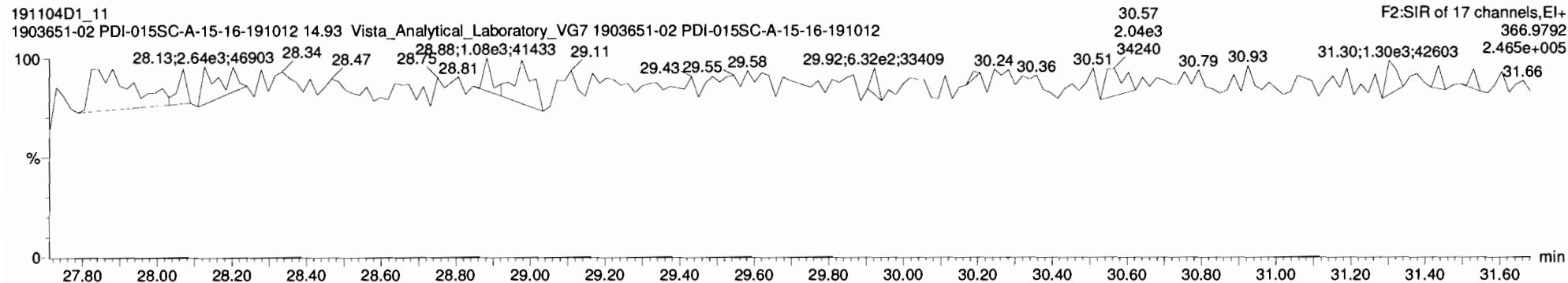
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Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

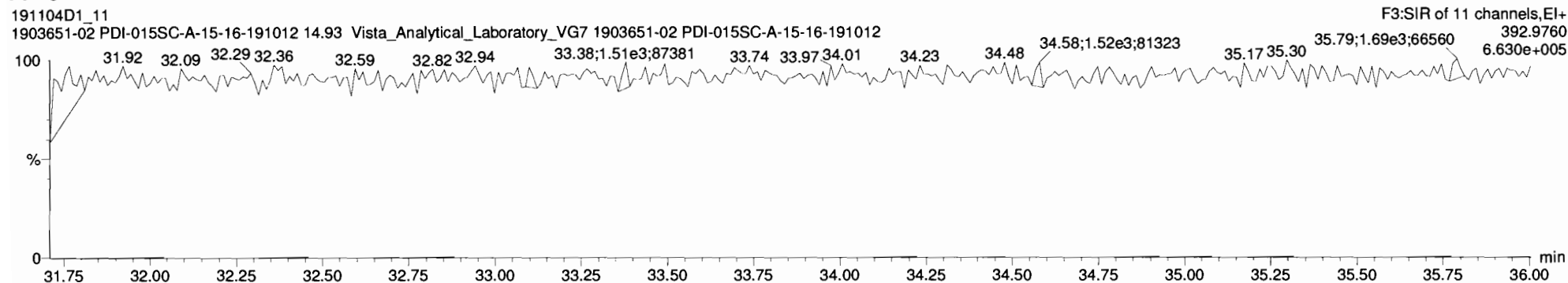
PFK1



PFK2



PFK3





Vista Analytical Laboratory

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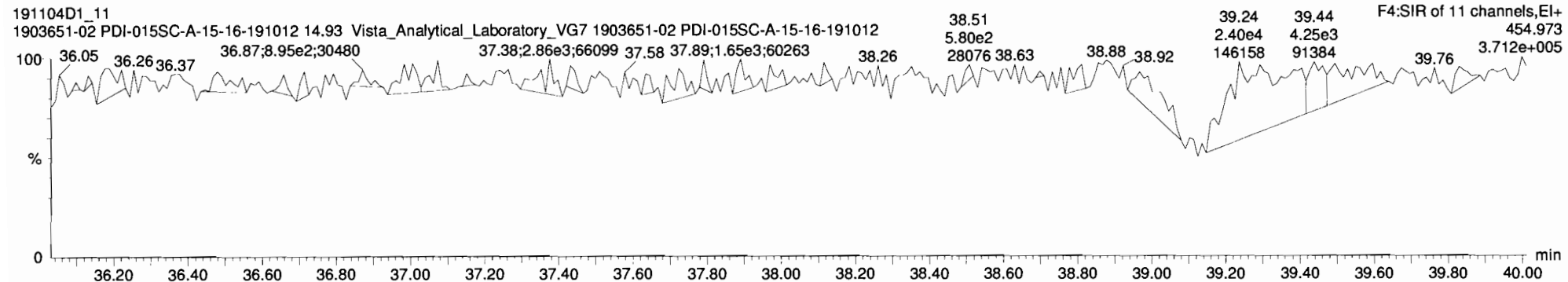
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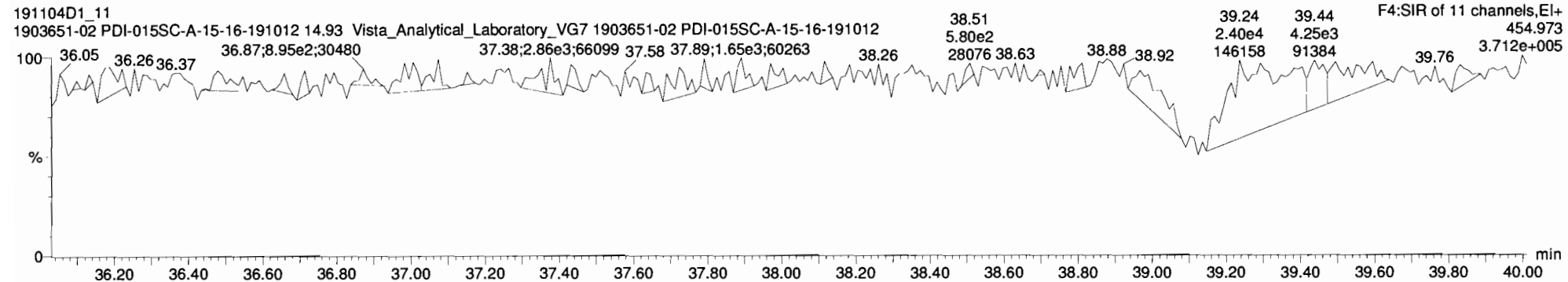
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Description: 1903651-02 PDI-015SC-A-15-16-191012 14.93 Vista\_Analytical\_Laboratory\_VG7

PFK4



PFK5



Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	*	* n	0.91	NotF $\eta$	*	189	2.5	0.0535		Total Tetra-Dioxins	0.635	0.635	*	*	
1,2,3,7,8-PeCDD	*	* n	0.90	NotF $\eta$	*	324	2.5	0.0933		Total Penta-Dioxins	0.225	0.225	*	*	
1,2,3,4,7,8-HxCDD	*	* n	1.10	NotF $\eta$	*	243	2.5	0.0947		Total Hexa-Dioxins	2.12	2.12	*	*	
1,2,3,6,7,8-HxCDD	1.10e+04	1.31 y	0.94	34:00	0.21403	*	2.5	*		Total Hepta-Dioxins	15.2	15.2	*	*	
1,2,3,7,8,9-HxCDD	*	* n	0.96	NotF $\eta$	*	243	2.5	0.106		Total Tetra-Furans	0.307	0.307	*	*	
1,2,3,4,6,7,8-HpCDD	2.61e+05	1.12 y	0.98	37:45	5.9128	*	2.5	*		Total Penta-Furans	0.12833	0.40210	*	*	
OCDD	1.58e+06	0.89 y	0.96	41:00	39.247	*	2.5	*		Total Hexa-Furans	0.531	0.597	*	*	
										Total Hepta-Furans	0.847	1.14	*	*	
2,3,7,8-TCDF	1.44e+04	0.71 y	0.95	25:17	0.15799	*	2.5	*							
1,2,3,7,8-PeCDF	1.54e-04	2.06 n	0.96	29:25	0.21617	*	2.5	*							
2,3,4,7,8-PeCDF	9.49e+03	1.54 y	1.01	30:18	0.12833	*	2.5	*							
1,2,3,4,7,8-HxCDF	2.01e-04	1.41 y	1.18	33:00	0.26156	*	2.5	*							
1,2,3,6,7,8-HxCDF	6.91e-03	1.29 y	1.07	33:07	0.093099	*	2.5	*							
2,3,4,6,7,8-HxCDF	*	* n	1.11	NotF $\eta$	*	203	2.5	0.0368							
1,2,3,7,8,9-HxCDF	*	* n	1.06	NotF $\eta$	*	203	2.5	0.0486							
1,2,3,4,6,7,8-HpCDF	1.82e+04	1.25 n	1.13	36:29	0.29241	*	2.5	*							
1,2,3,4,7,8,9-HpCDF	*	* n	1.28	NotF $\eta$	*	183	2.5	0.0461							
OCDF	8.11e+04	0.86 y	0.95	41:13	1.5535	*	2.5	*							
										Rec	Qual				
IS	13C-2,3,7,8-TCDD	1.31e+07	0.78 y	1.10	26:03	213.09				107					
IS	13C-1,2,3,7,8-PeCDD	9.68e+06	0.62 y	0.88	30:35	195.35				98.1					
IS	13C-1,2,3,4,7,8-HxCDD	9.63e+06	1.27 y	0.64	33:52	223.76				112					
IS	13C-1,2,3,6,7,8-HxCDD	1.09e+07	1.29 y	0.86	33:59	189.97				95.4					
IS	13C-1,2,3,7,8,9-HxCDD	1.09e+07	1.28 y	0.81	34:17	202.29				102					
IS	13C-1,2,3,4,6,7,8-HpCDD	8.98e+06	1.05 y	0.65	37:45	204.78				103					
IS	13C-OCDD	1.67e+07	0.92 y	0.58	41:00	430.88				108					
IS	13C-2,3,7,8-TCDF	1.92e+07	0.78 y	1.03	25:16	196.69				98.8					
IS	13C-1,2,3,7,8-PeCDF	1.48e+07	1.57 y	0.85	29:24	183.72				92.3					
IS	13C-2,3,4,7,8-PeCDF	1.45e+07	1.60 y	0.85	30:18	182.07				91.4					
IS	13C-1,2,3,4,7,8-HxCDF	1.21e+07	0.52 y	0.83	33:00	216.90				109					
IS	13C-1,2,3,6,7,8-HxCDF	1.38e+07	0.52 y	1.03	33:07	199.54				100					
IS	13C-2,3,4,6,7,8-HxCDF	1.38e+07	0.51 y	0.95	33:43	216.19				109					
IS	13C-1,2,3,7,8,9-HxCDF	1.30e+07	0.52 y	0.83	34:39	234.65				118					
IS	13C-1,2,3,4,6,7,8-HpCDF	1.10e+07	0.43 y	0.76	36:29	216.97				109					
IS	13C-1,2,3,4,7,8,9-HpCDF	9.51e+06	0.43 y	0.58	38:17	244.14				123					
IS	13C-OCDF	2.20e+07	0.91 y	0.69	41:13	475.36				119					
C/Up	37Cl-2,3,7,8-TCDD	5.56e+06		1.20	26:04	82.547				104					
											Integrations		Reviewed		
											by		by		
RS/RT	13C-1,2,3,4-TCDD	1.12e+07	0.81 y	1.00	25:30	199.13					Analyst: <u>DB</u>		Analyst: <u>CT</u>		
RS	13C-1,2,3,4-TCDF	1.87e+07	0.80 y	1.00	24:03	199.13									
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.33e+07	0.51 y	1.00	33:24	199.13									

Date: 12/17/19 Date: 12/18/19

Totals class: TCDD EMPC

Entry #: 19

Run: 18 File: 191212D1 S: 13 I: 1 F: 1  
Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 0.63499 Unnamed Concentration: 0.635

RT	m1 Resp	m2 Resp	RA	Resp Concentration	Name
24:10	1.640e+04	2.147e-04	0.76 y	3.788e-04	0.63499

Totals class: PeCDD EMPC

Entry #: 21

Run: 18 File: 191212D1 S: 13 I: 1 F: 2  
Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 0.22533 Unnamed Concentration: 0.225

RT	m1 Resp	m2 Resp	RA	Resp Concentration	Name
28:59	4.053e+03	5.834e+03	0.69 y	9.887e+03	0.22533

Totals class: HxCDD EMPC

Entry #: 23

Run: 18

File: 191212D1

S: 13 I: 1 F: 3

Acquired: 12-DEC-19 22:18:29

Processed: 13-DEC-19 10:08:37

Total Concentration: 2.1167

Unnamed Concentration: 1.903

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
12.32	3.587e+04	3.109e+04	1.15 y	6.695e+04	1.2820	
13.11	1.680e+04	1.562e+04	1.08 y	3.242e+04	0.62070	
14.00	6.240e+03	4.749e+03	1.31 y	1.099e+04	0.21403	1,2,3,6,7,8-HxCDD

Totals class: HpCDD EMPC

Entry #: 25

Run: 18 File: 191212D1 S: 13 I: 1 F: 4  
Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 15.224

Unnamed Concentration: 9.311

RT	m1 Resp	m2 Resp	RA	Resp Concentration	Name
36:54	2.085e+05	2.025e+05	1.03 y	4.110e+05	9.3113
37:45	1.377e+05	1.233e+05	1.12 y	2.610e+05	5.9128 1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC

Entry #: 27

Run: 18 File: 191212D1 S: 13 I: 1 F: 1  
Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 0.30698 Unnamed Concentration: 0.149

RT	m1 Resp	m2 Resp	RA	Resp Concentration	Resp Concentration	Name
24:28	6.273e+03	7.346e+03	0.85 y	1.362e+04	0.14899	
25:17	5.995e+03	8.447e+03	0.71 y	1.444e+04	0.15799	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC      Entry #: 29

Run: 18      File: 191212D1      S: 13 I: 1 F: 1  
Acquired: 12-DEC-19 22:18:29      Processed: 13-DEC-19 10:08:37

Total Concentration: 0.057603      Unnamed Concentration: 0.058

RT	m1 Resp	m2 Resp	RA	Resp Concentration	Name
27:04	2.542e+03	2.216e+03	1.15 n	4.183e+03	0.057603



Totals class: PeCDF EMPC

Entry #: 31

Run: 18 File: 191212D1 S: 13 I: 1 F: 2

Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 0.34449

Unnamed Concentration: \*

RT	m1 Resp	m2 Resp	RA		Resp Concentration	Name	
29:25	1.243e+04	6.039e+03	2.06 n		1.540e+04	0.21617	1,2,3,7,8-PeCDF
30:16	5.755e+03	3.737e+03	1.54 y		9.492e+03	0.12833	2,3,4,7,8-PeCDF

Totals class: HxCDF EMPC

Entry #: 33

Run: 18 File: 191212D1 S: 13 I: 1 F: 3  
 Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 0.59746 Unnamed Concentration: 0.223

RT	m1 Resp	m2 Resp	RA		Resp Concentration	Name
32:00	3.193e+03	2.152e+03	1.48	n	4.821e+03	0.065976
32:32	5.911e+03	5.549e+03	1.07	y	1.146e+04	0.15682
33:00	1.178e+04	8.343e+03	1.41	y	2.012e+04	0.28156 1,2,3,4,7,8-HxCDF
33:07	3.894e+03	3.019e+03	1.29	y	6.914e+03	0.093099 1,2,3,6,7,8-HxCDF

Totals class: HpCDF EMPC

Entry #: 35

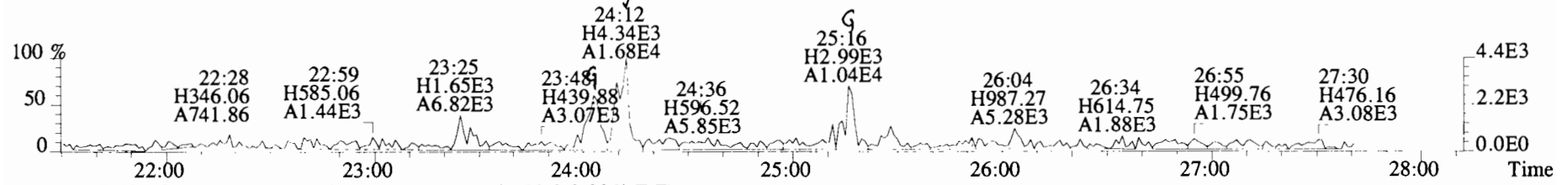
Run: 18 File: 191212D1 S: 13 I: 1 F: 4  
Acquired: 12-DEC-19 22:18:29 Processed: 13-DEC-19 10:08:37

Total Concentration: 1.1396

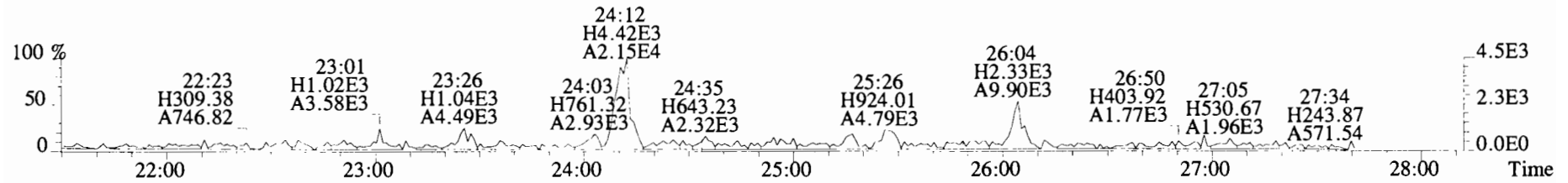
Unnamed Concentration: 0.847

RT	m1 Resp	m2 Resp	RA		Resp Concentration	Name	
36:29	1.118e+04	6.941e+03	1.25	n	1.824e+04	0.29241	1,2,3,4,6,7,8-HpCDF
37:06	2.593e+04	2.619e+04	0.99	y	5.212e+04	0.84716	

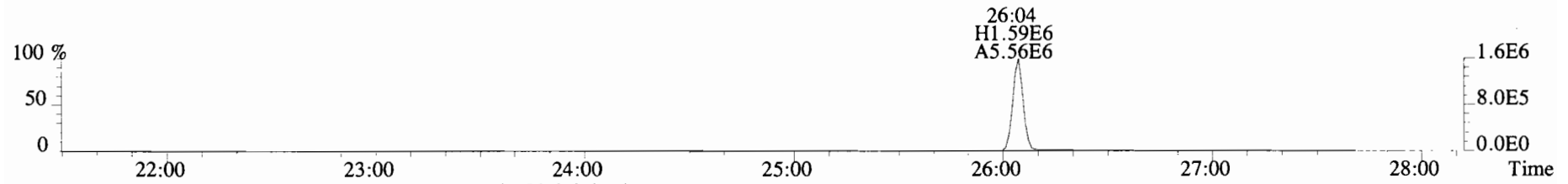
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
319.8965 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



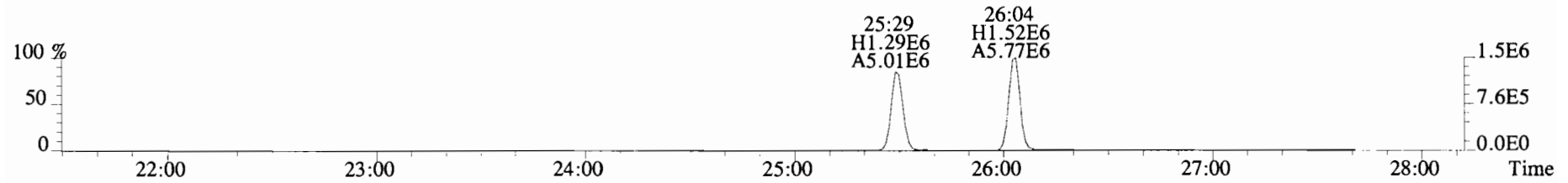
321.8936 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



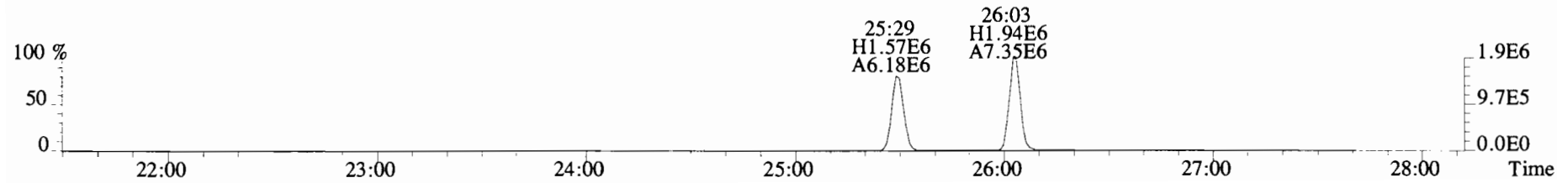
327.8847 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



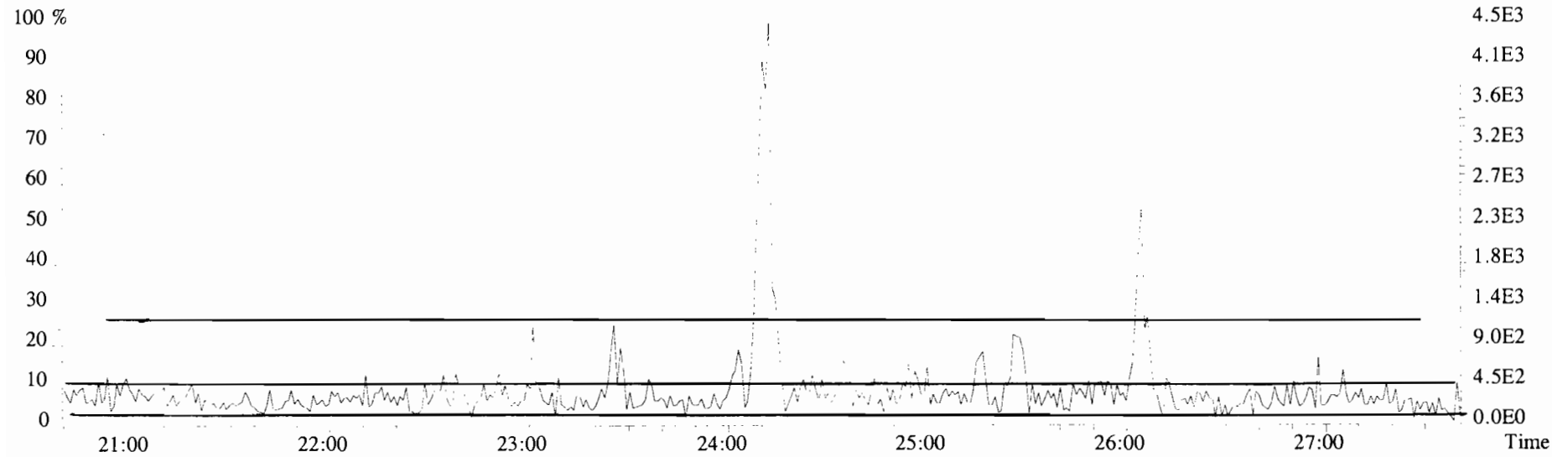
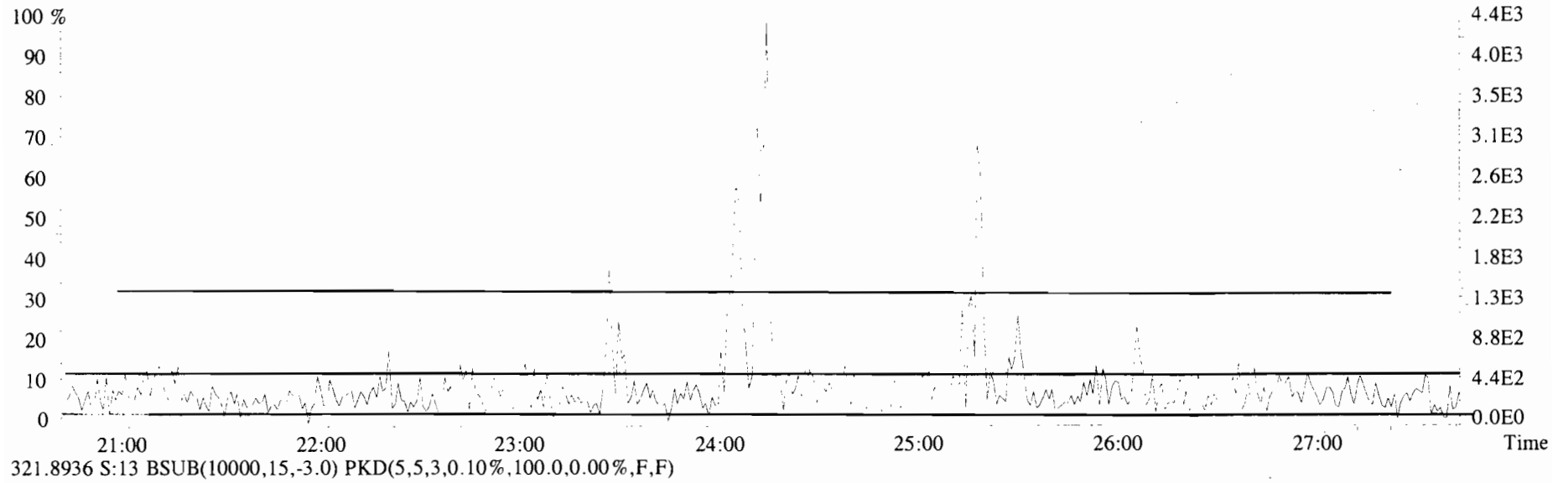
331.9368 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



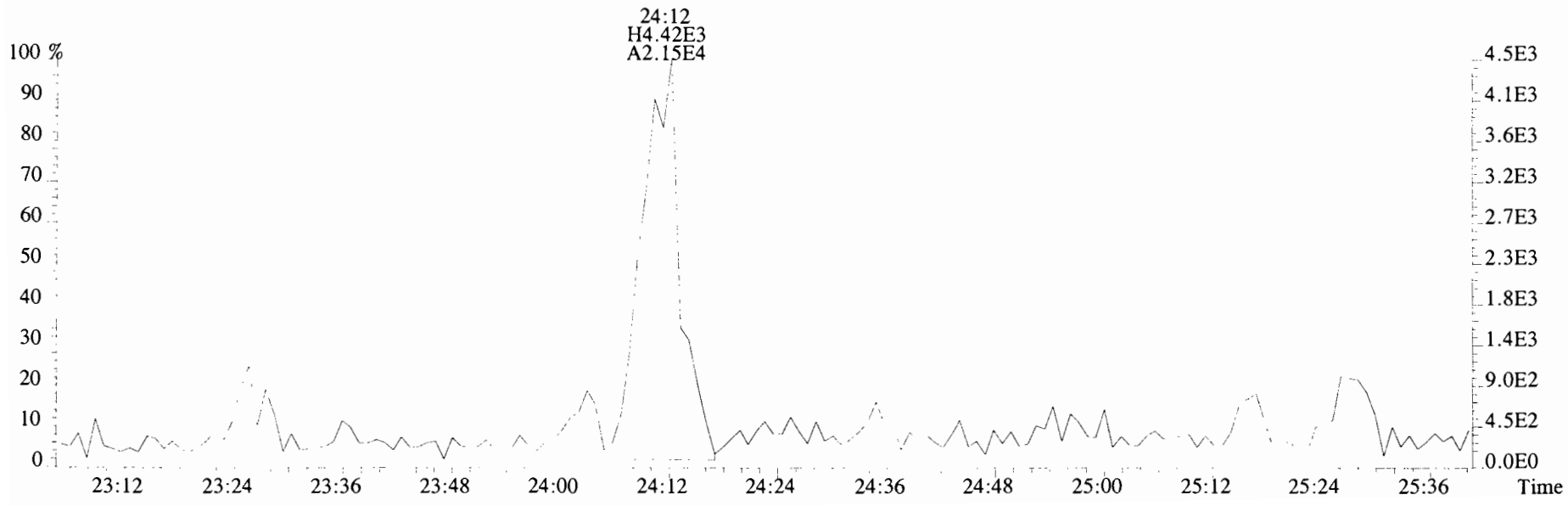
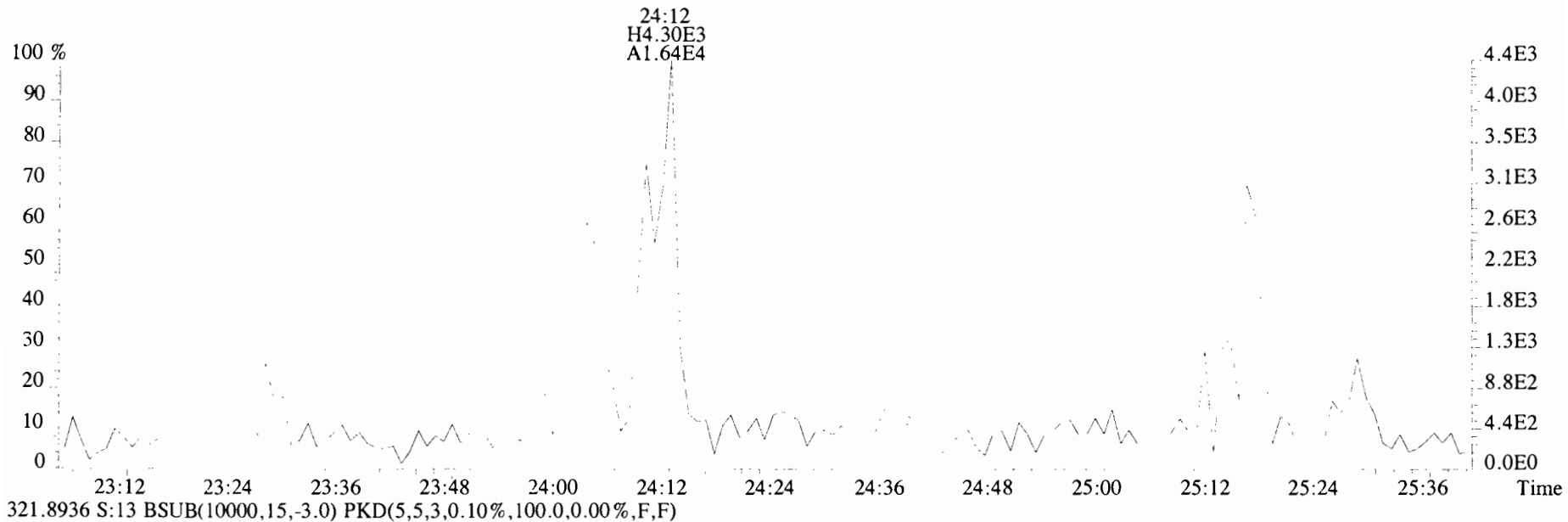
333.9339 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



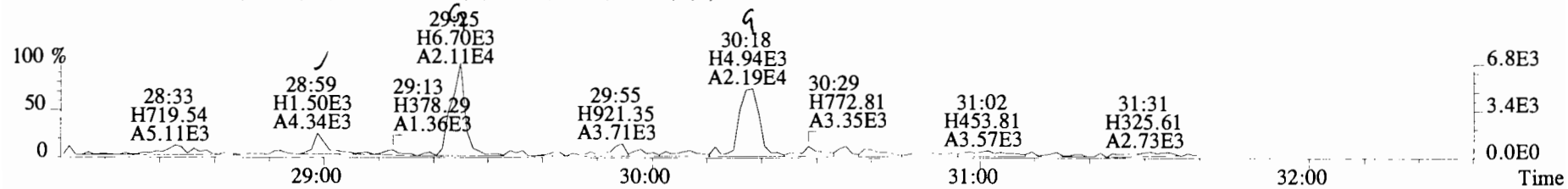
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
319.8965 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



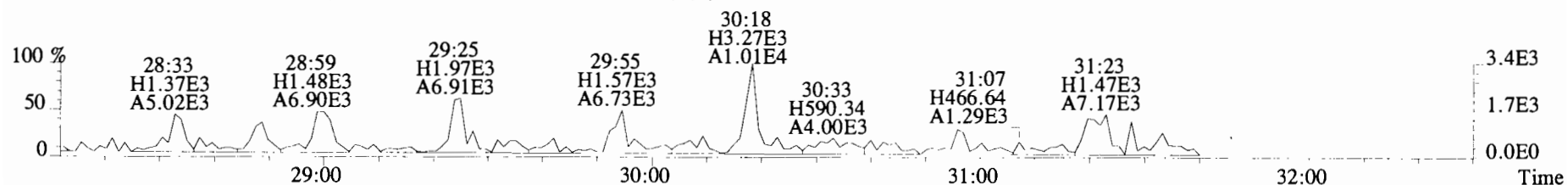
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
319.8965 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



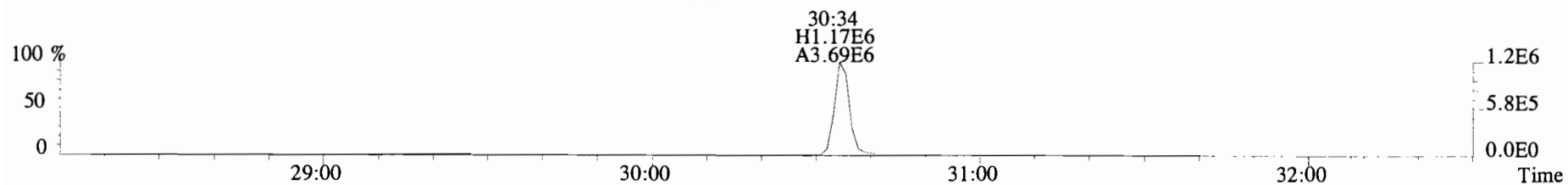
File:191212D1 #1-210 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 353.8576 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



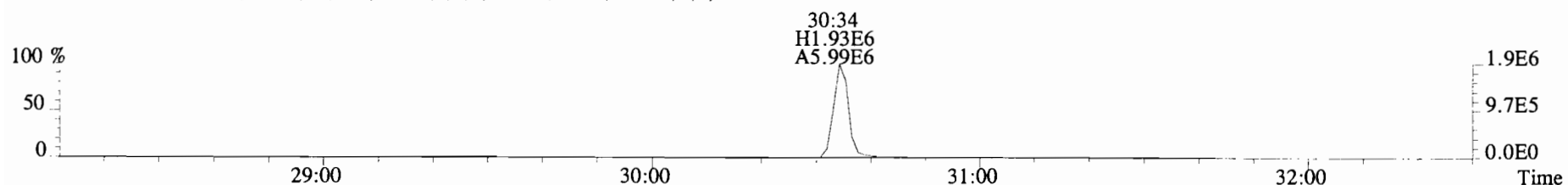
355.8546 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



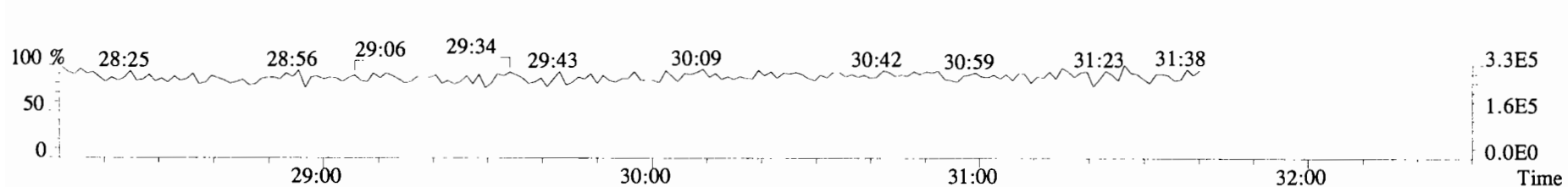
365.8978 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



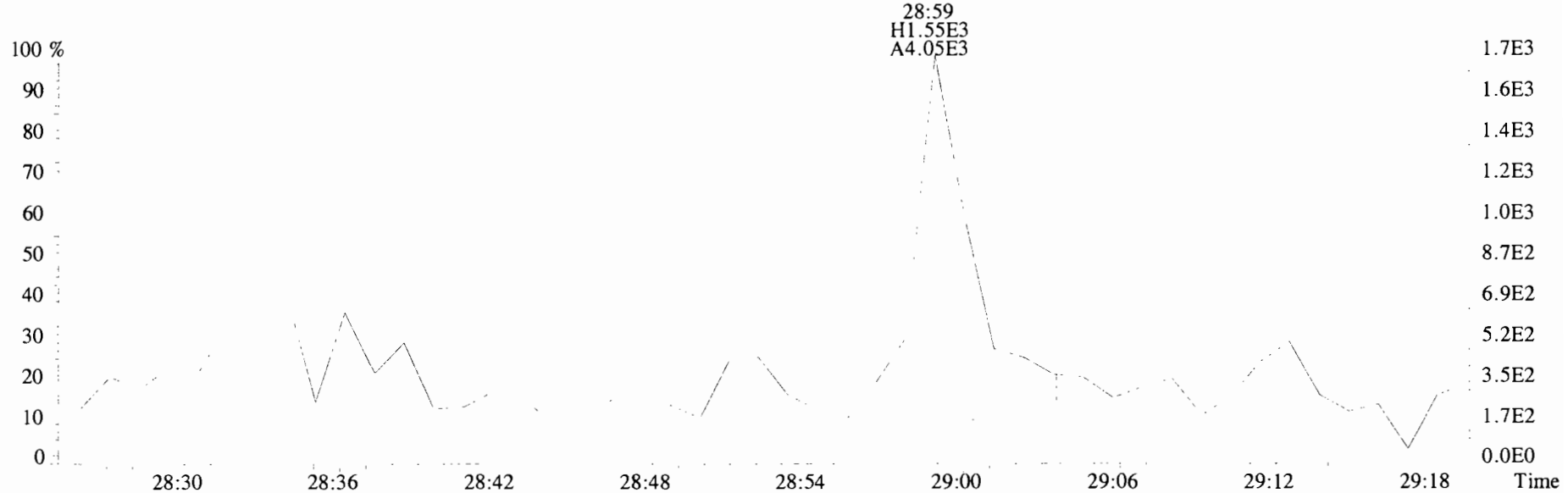
367.8949 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



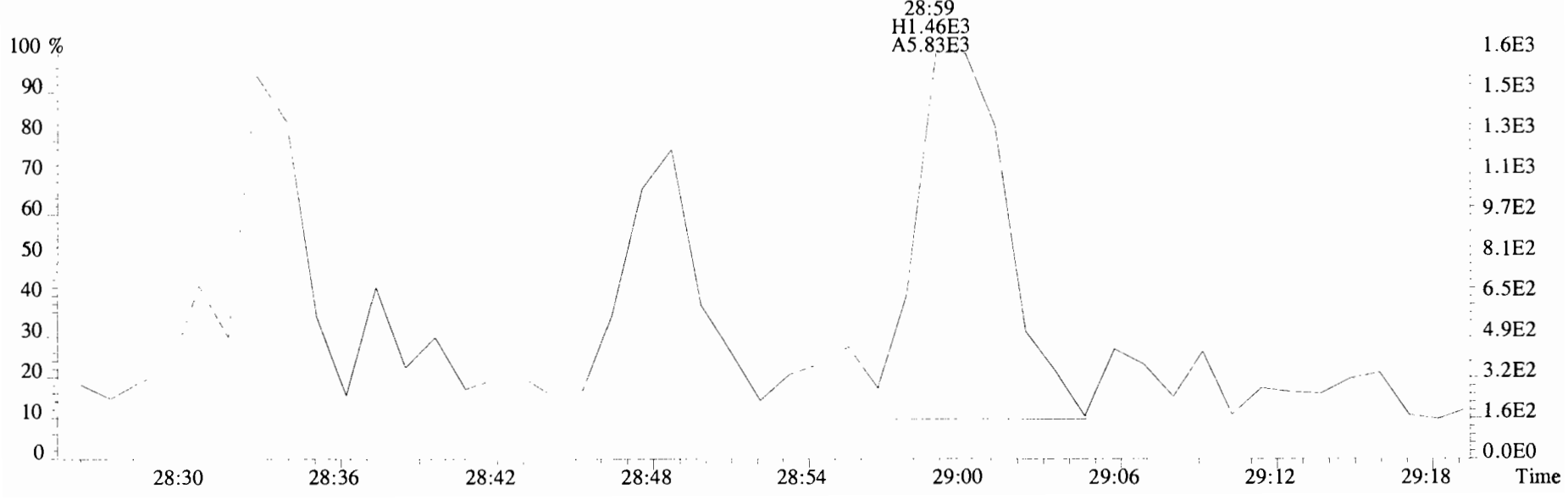
366.9792 S:13 F:2



File:191212D1 #1-210 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
353.8576 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

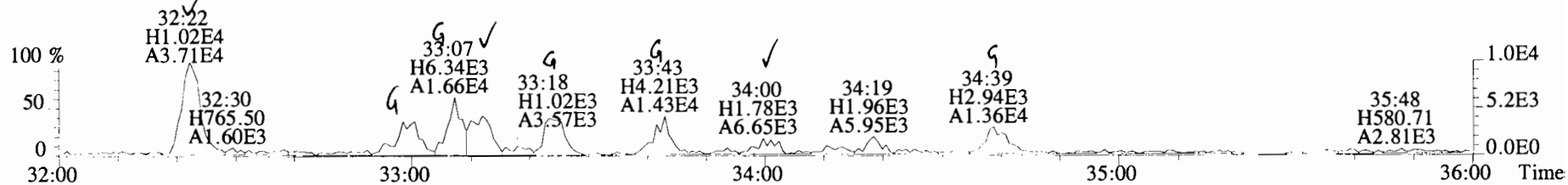


355.8546 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

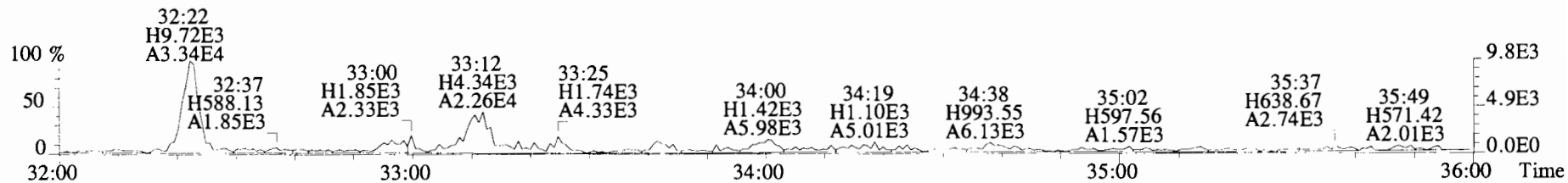




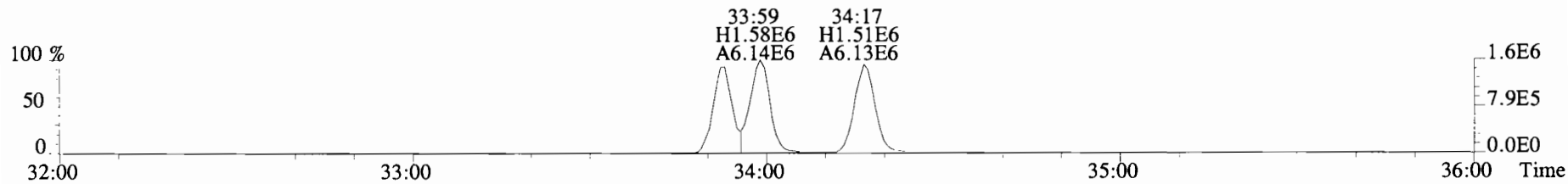
File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 389.8156 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



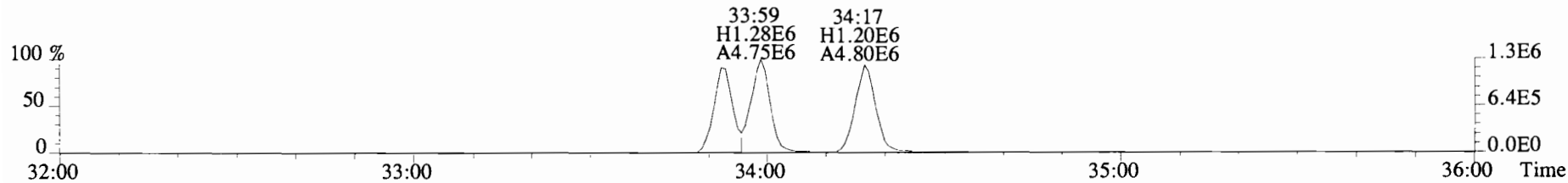
391.8127 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



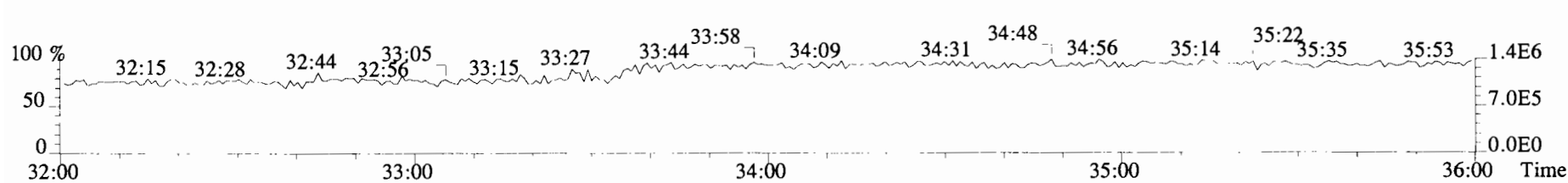
401.8559 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



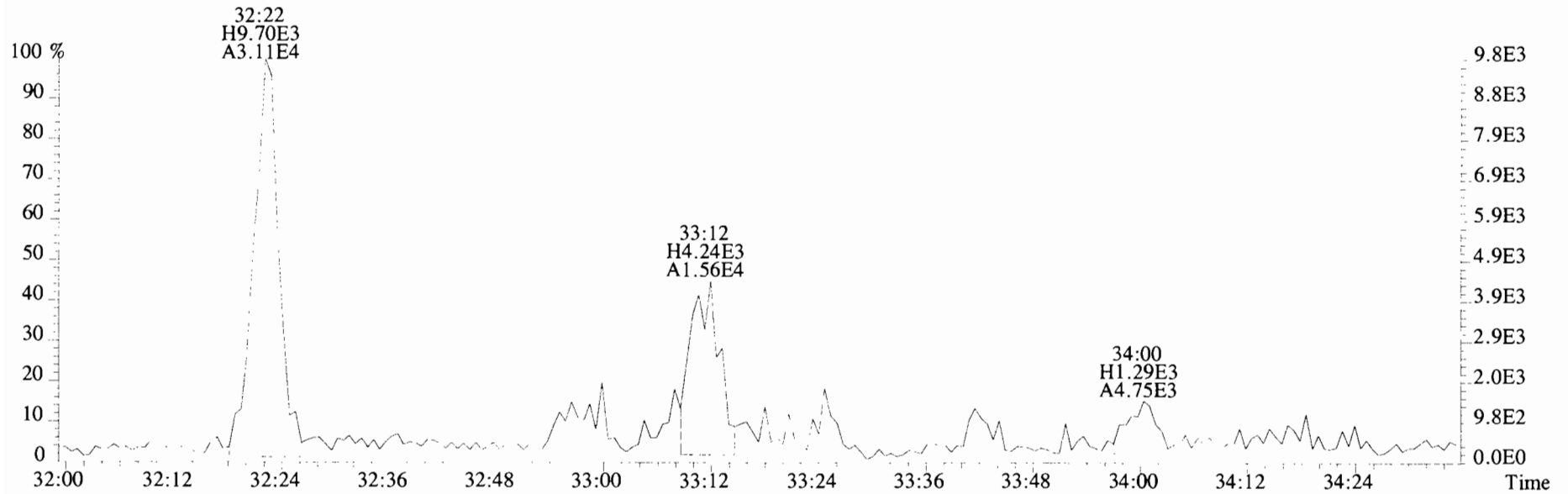
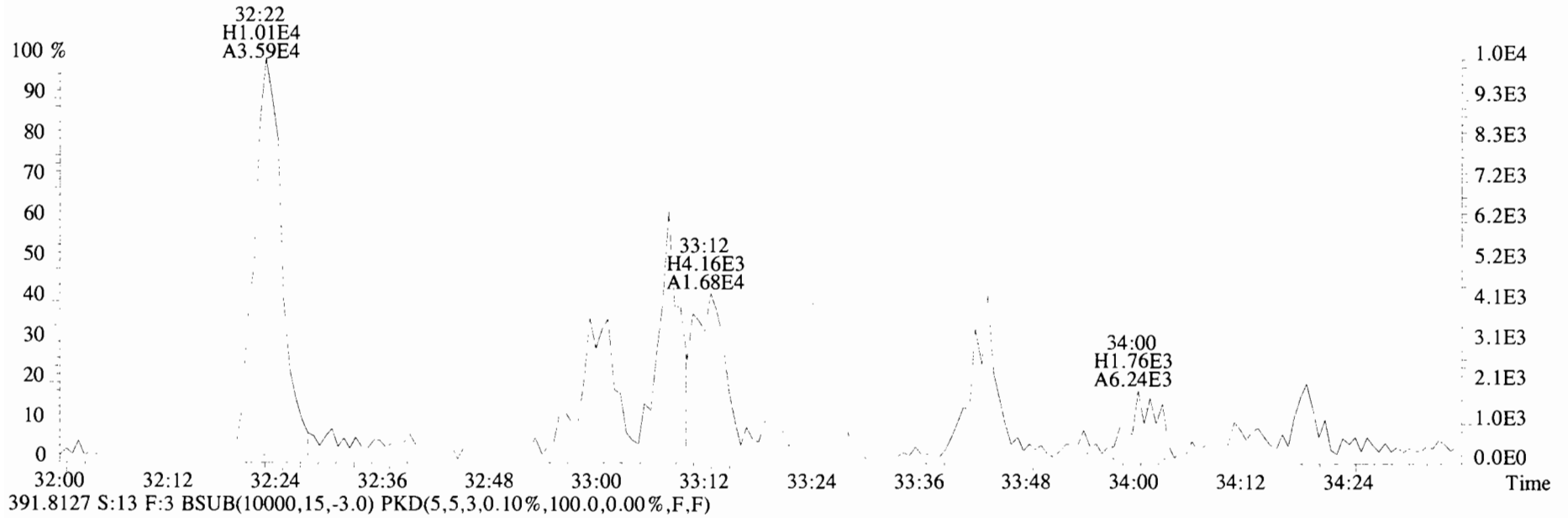
403.8530 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



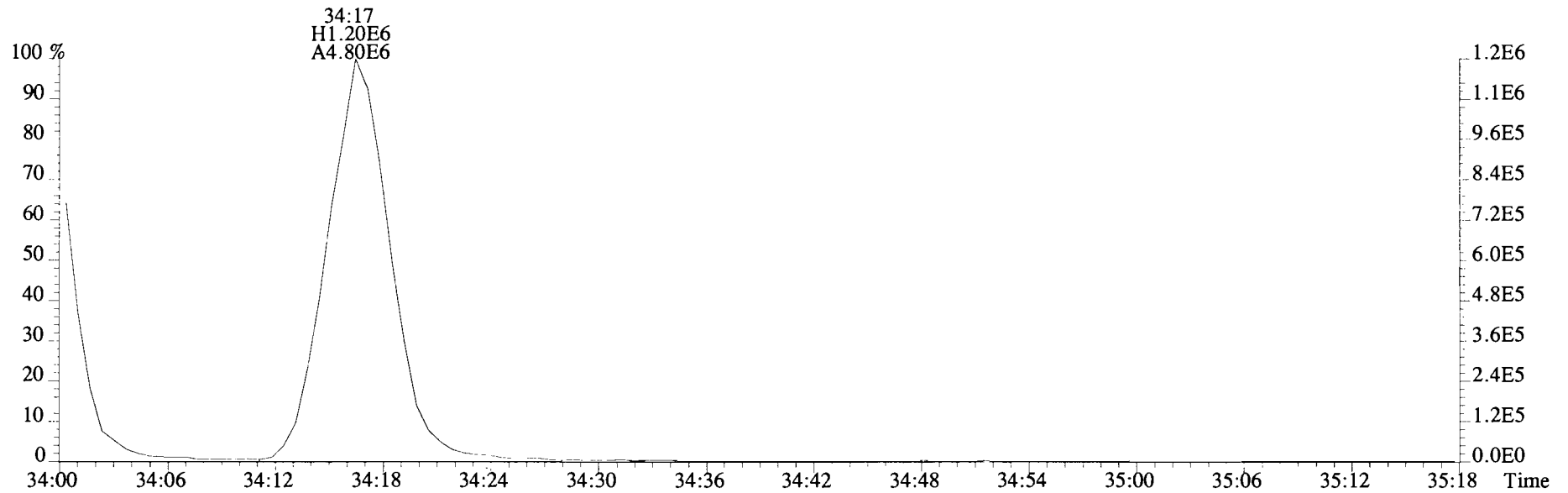
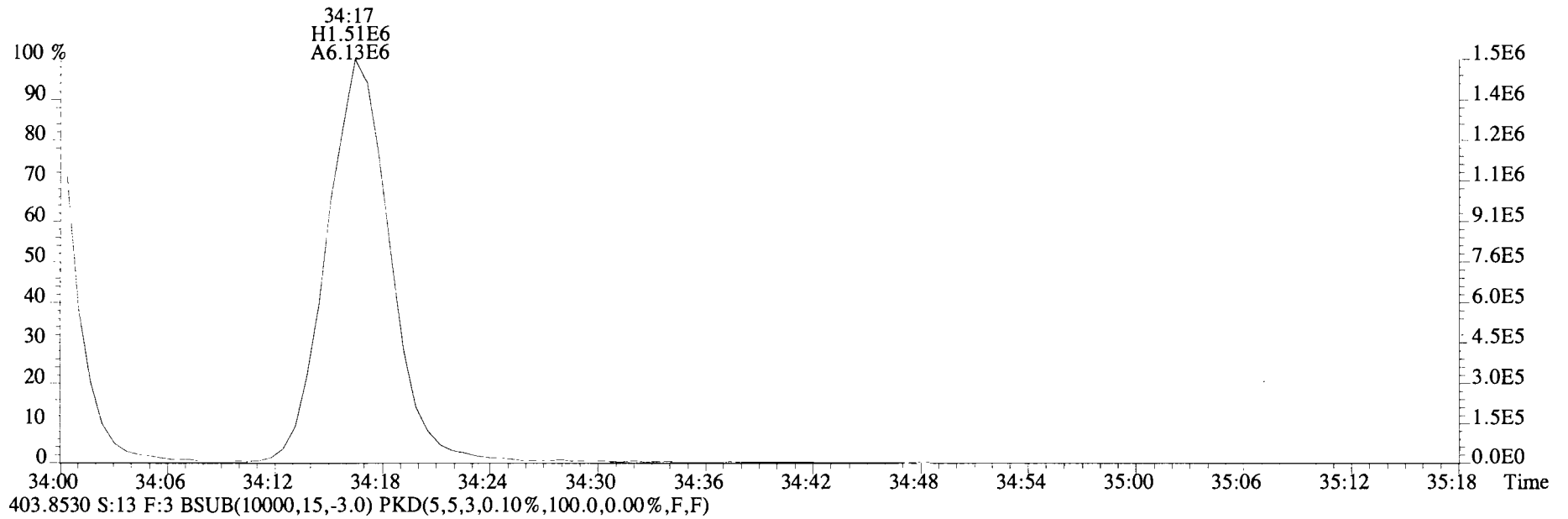
392.9760 S:13 F:3



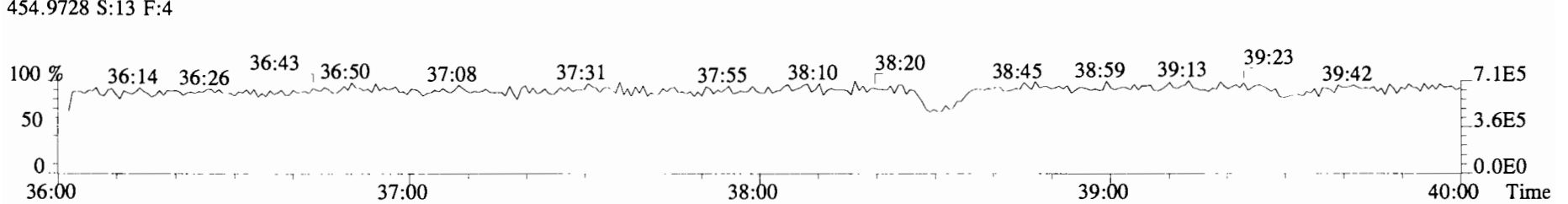
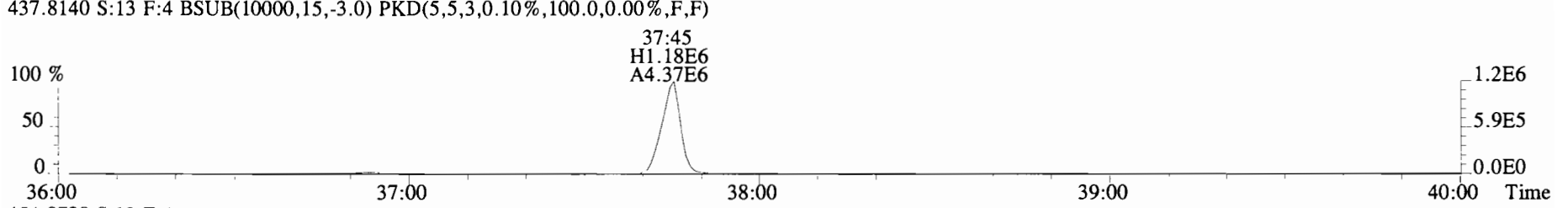
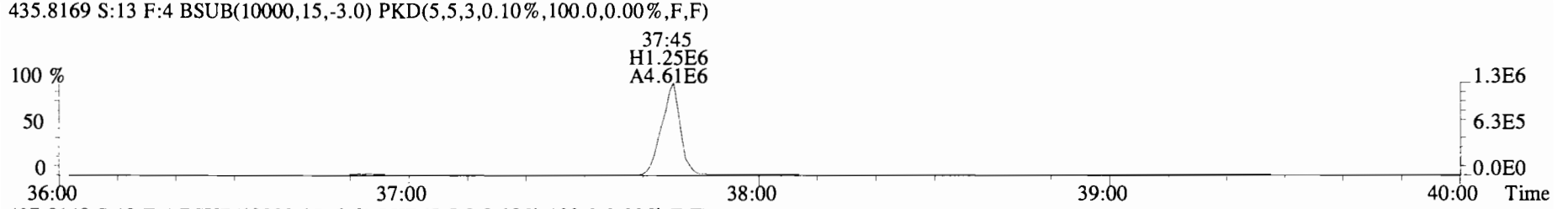
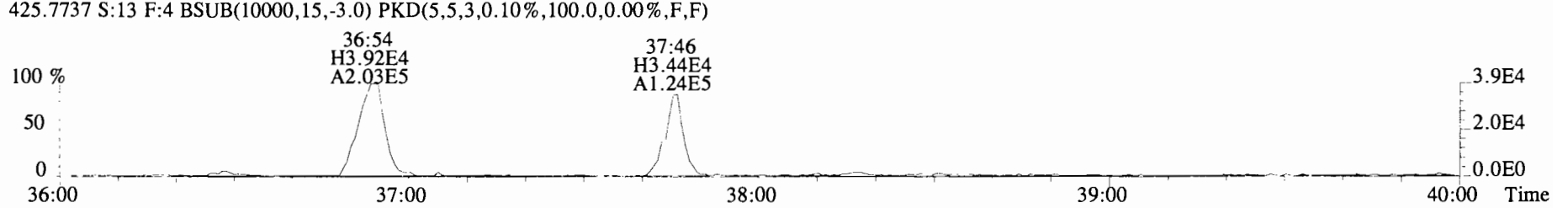
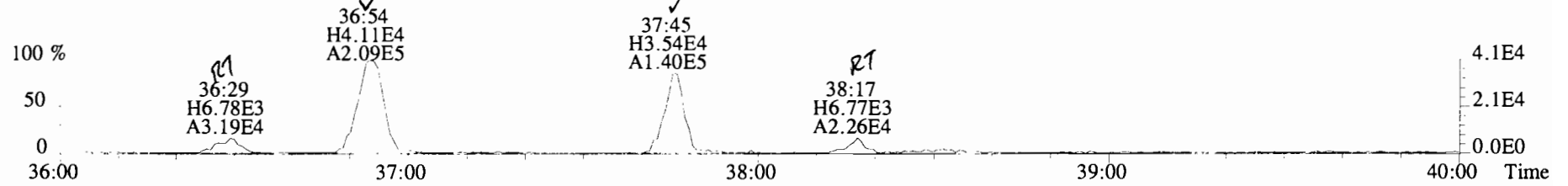
File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
389.8156 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



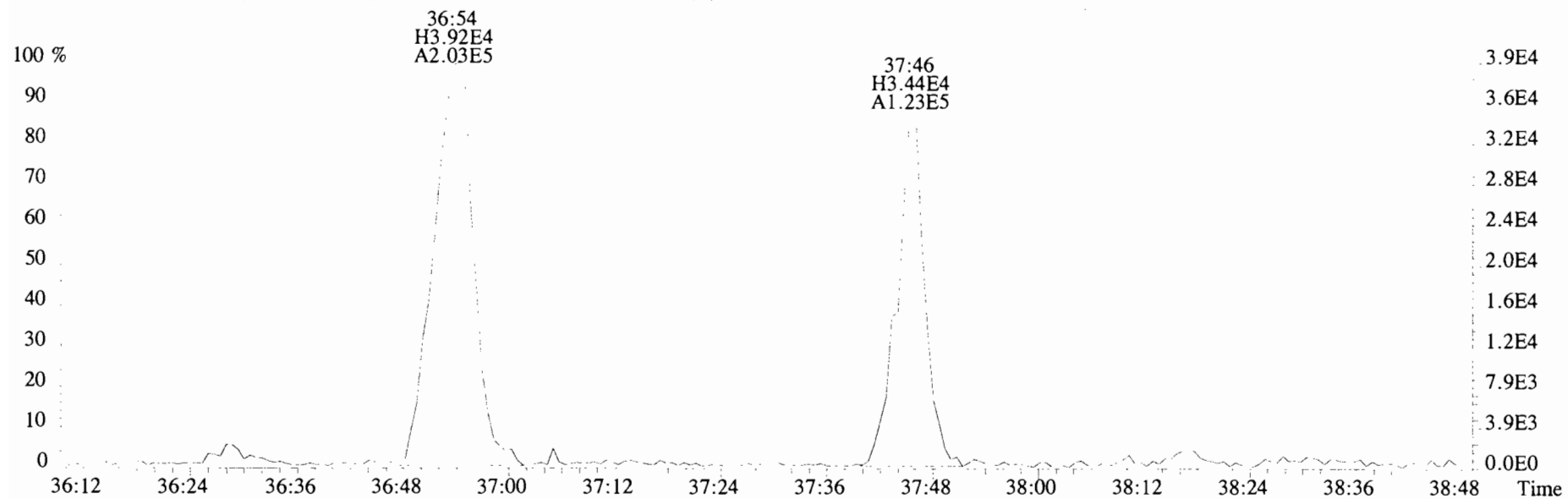
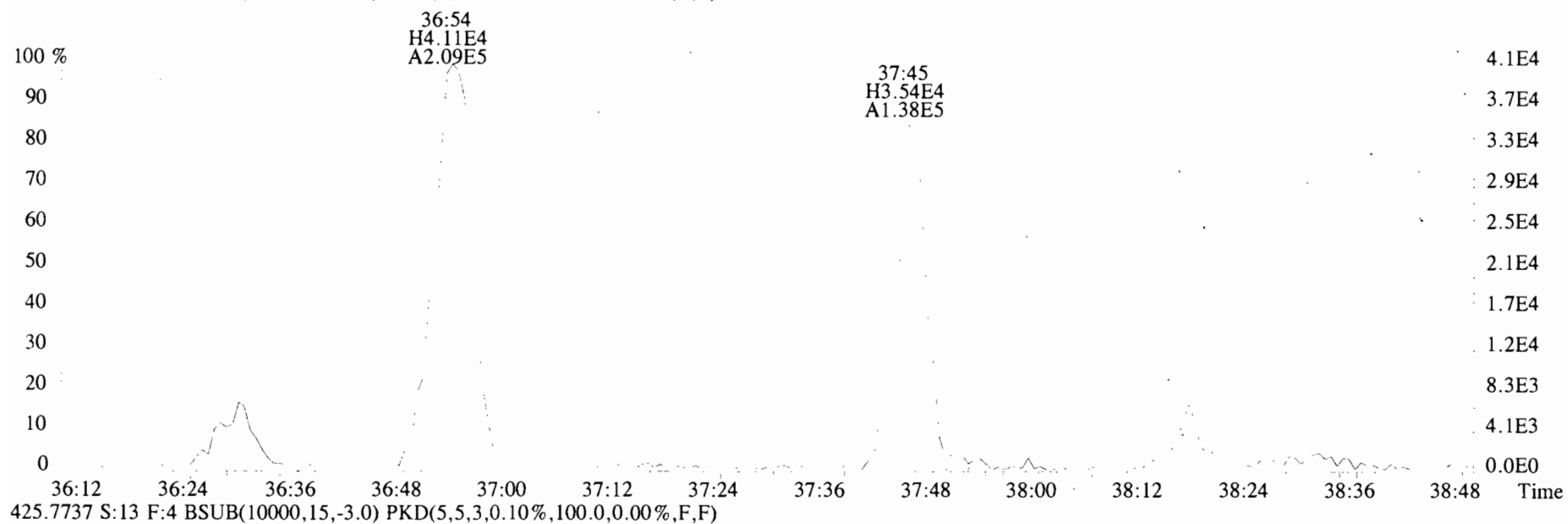
File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
401.8559 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



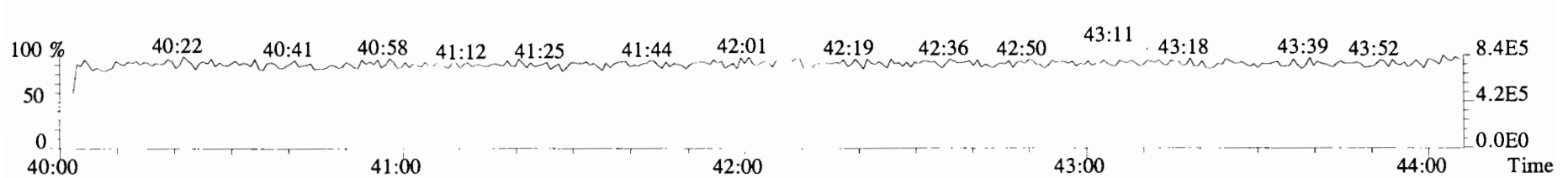
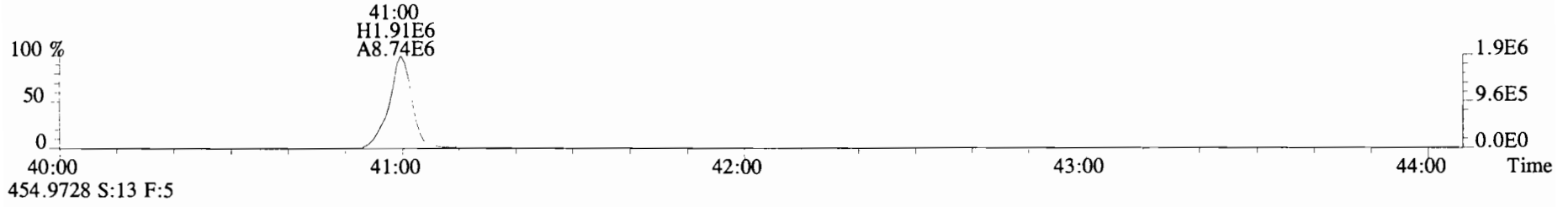
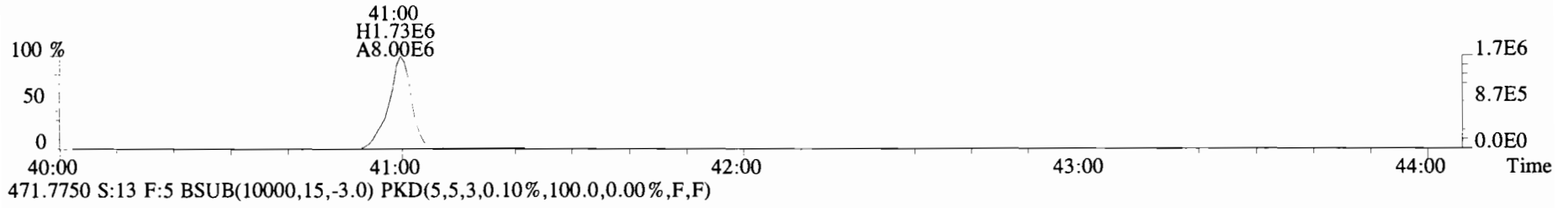
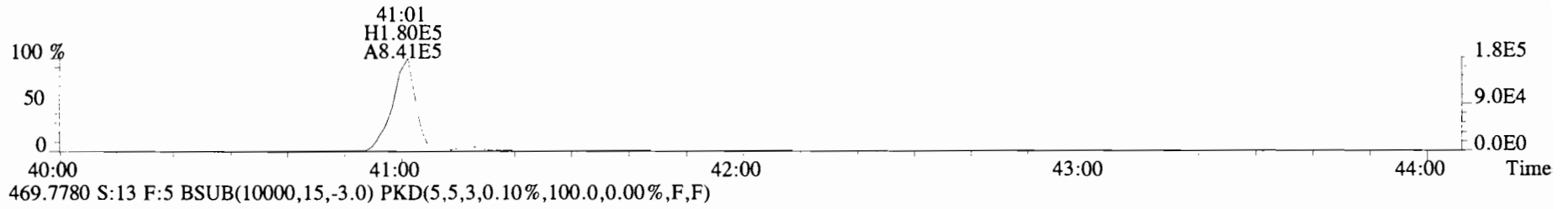
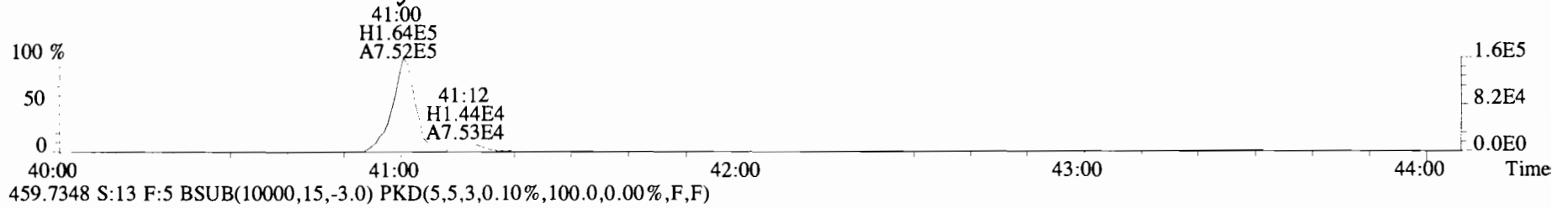
File:191212D1 #1-356 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
423.7767 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



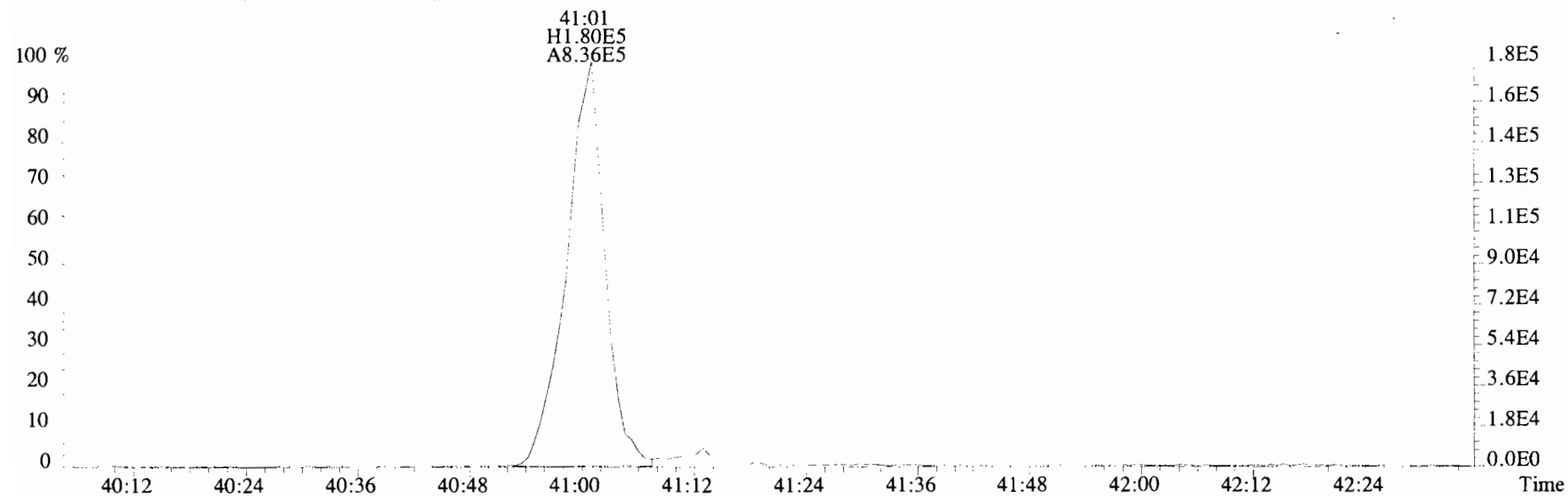
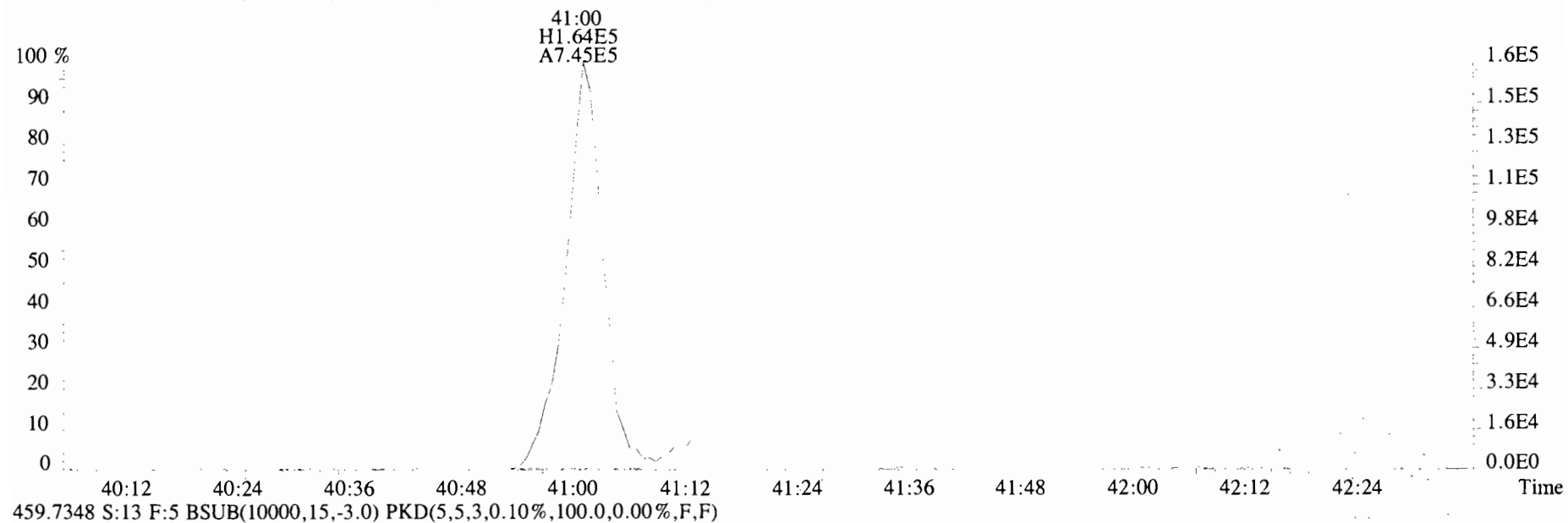
File:191212D1 #1-356 Acq:12-DEC-2019 22:18:29 GC E1+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
423.7767 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



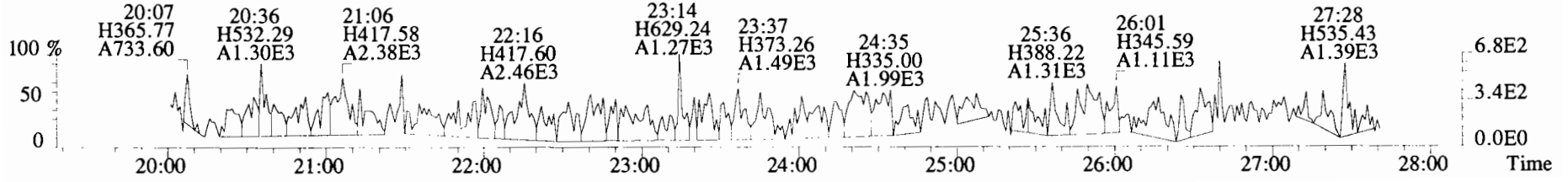
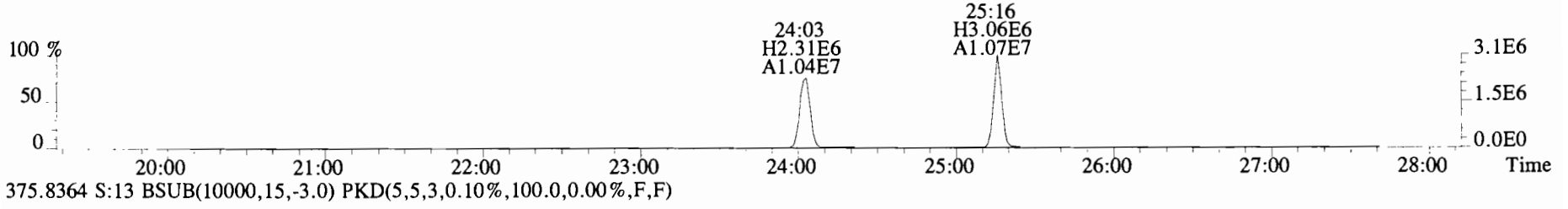
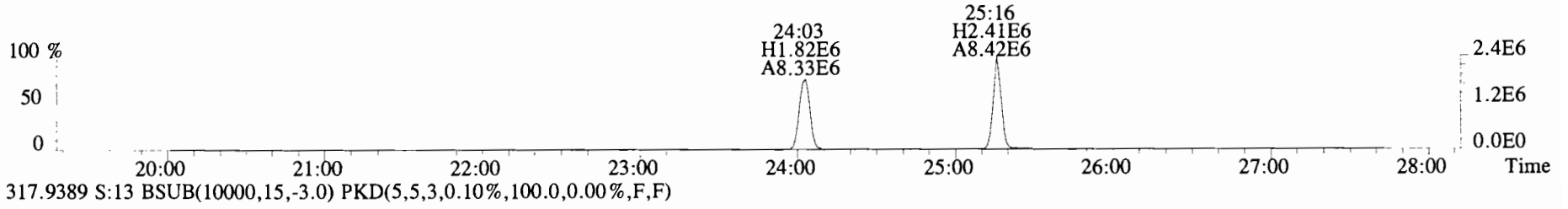
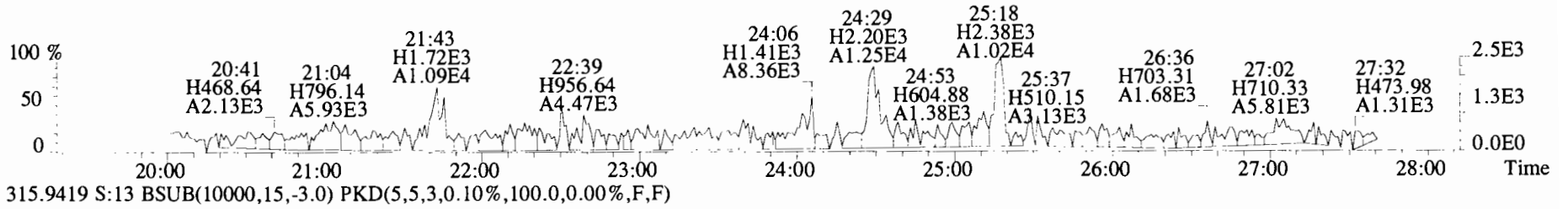
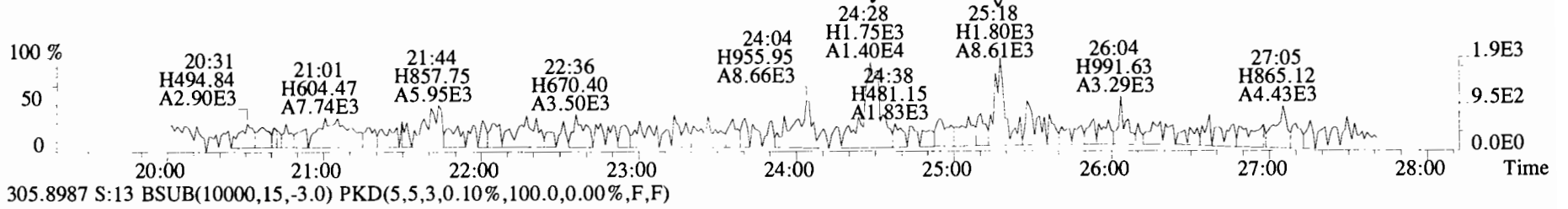
File:191212D1 #1-431 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
457.7377 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191212D1 #1-431 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
457.7377 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

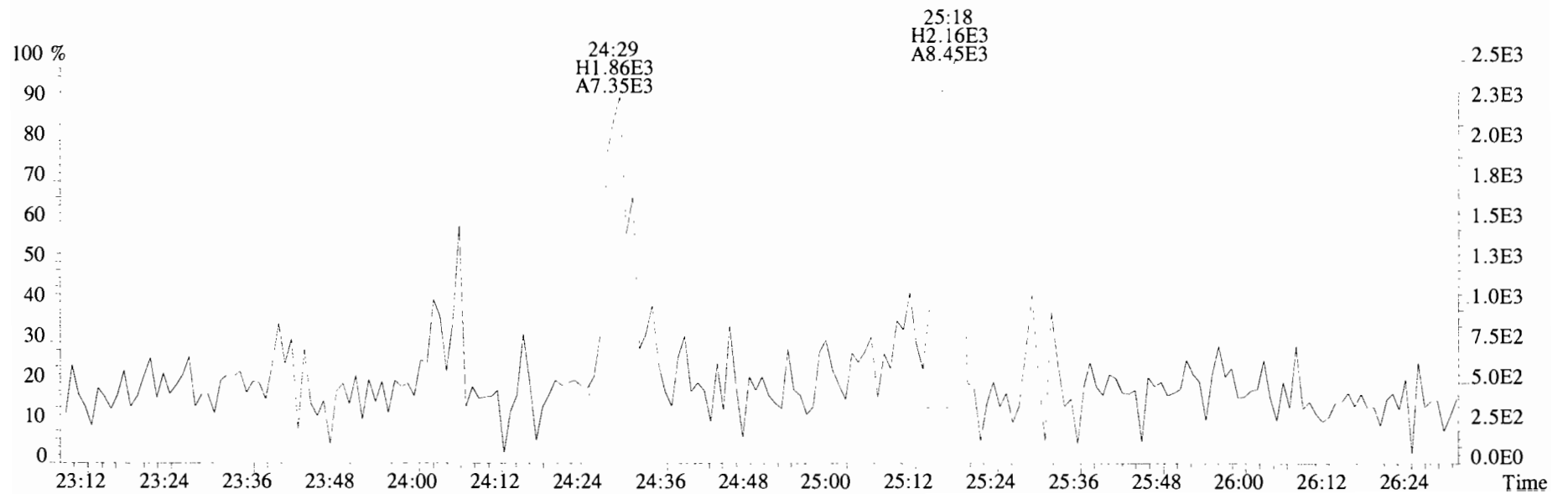
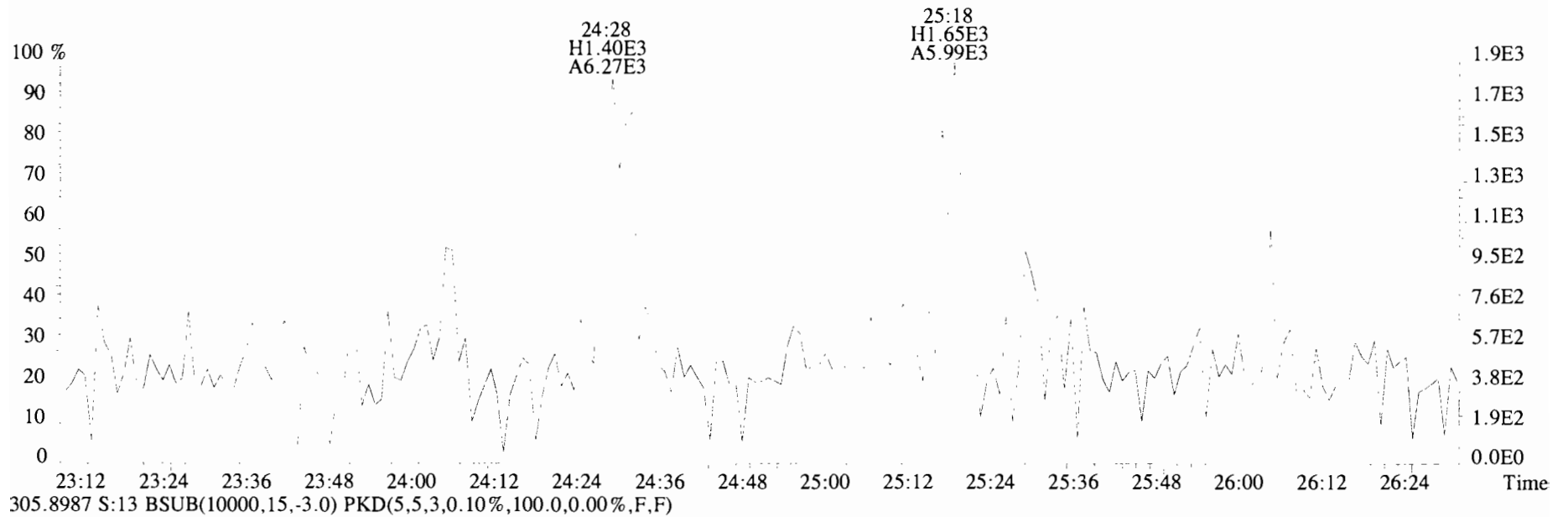


File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 303.9016 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

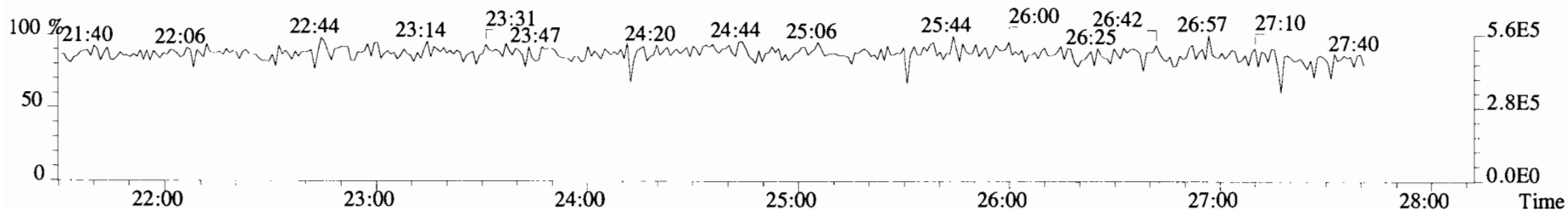
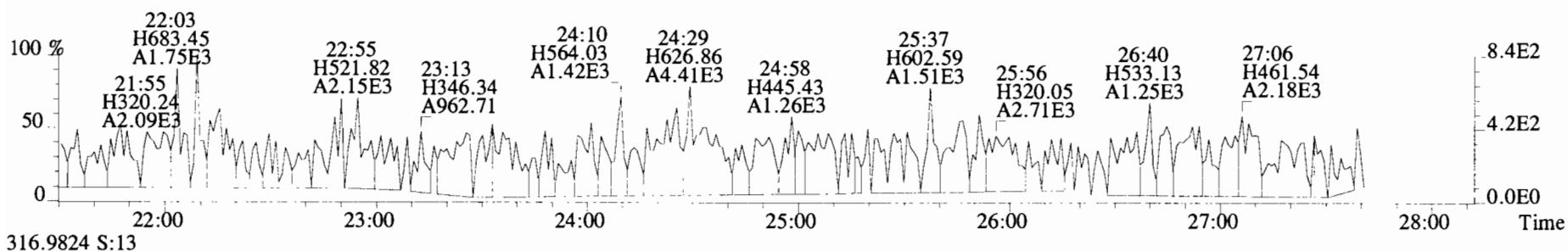
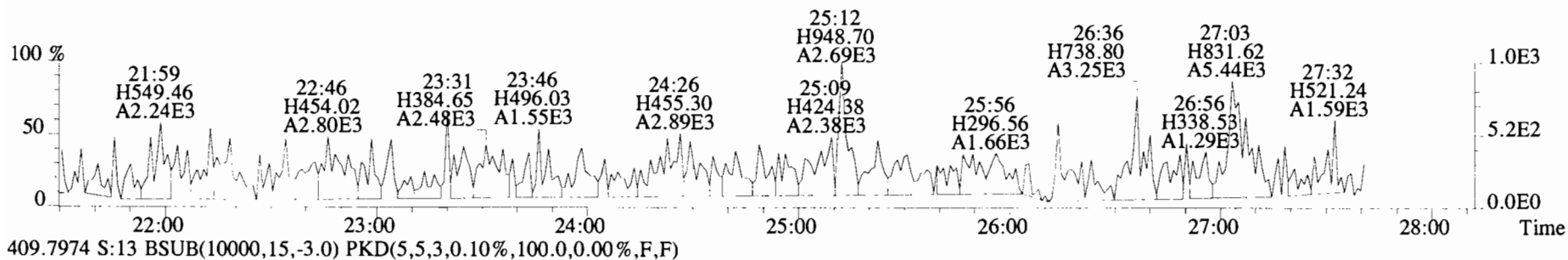
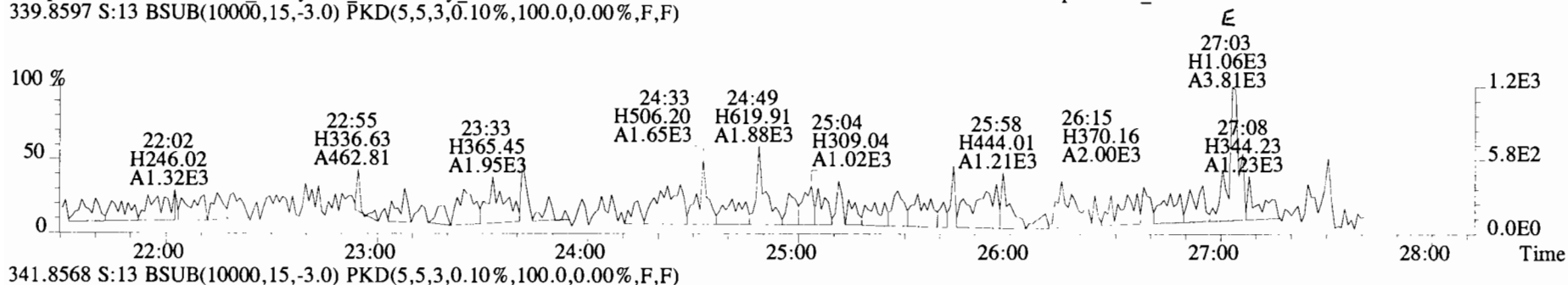




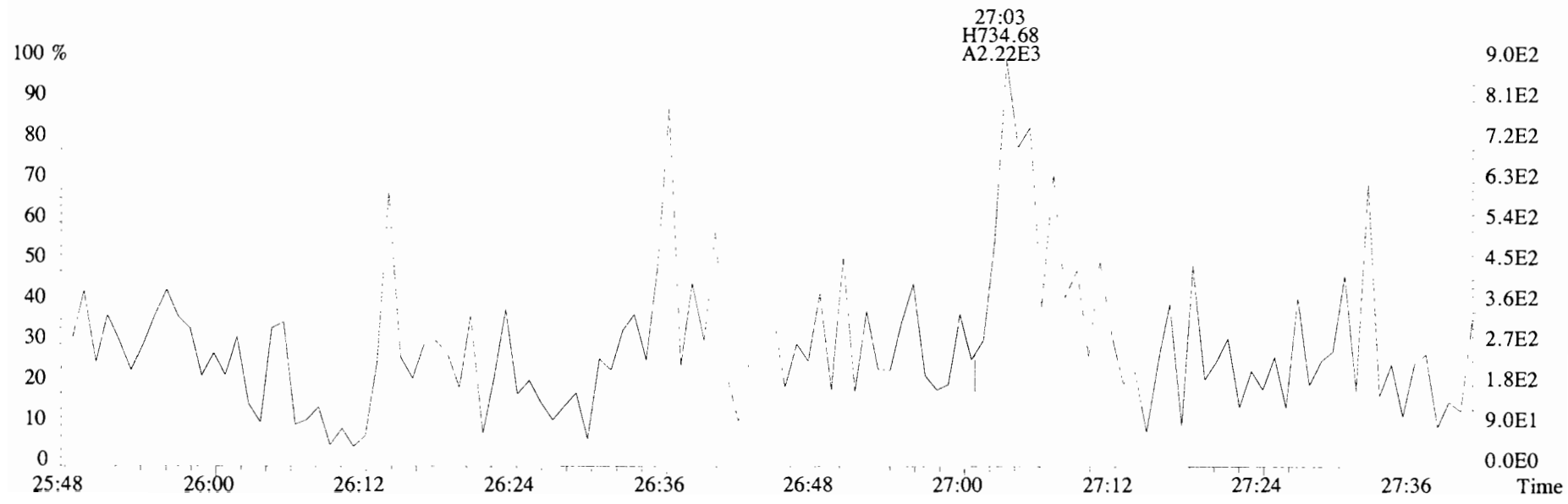
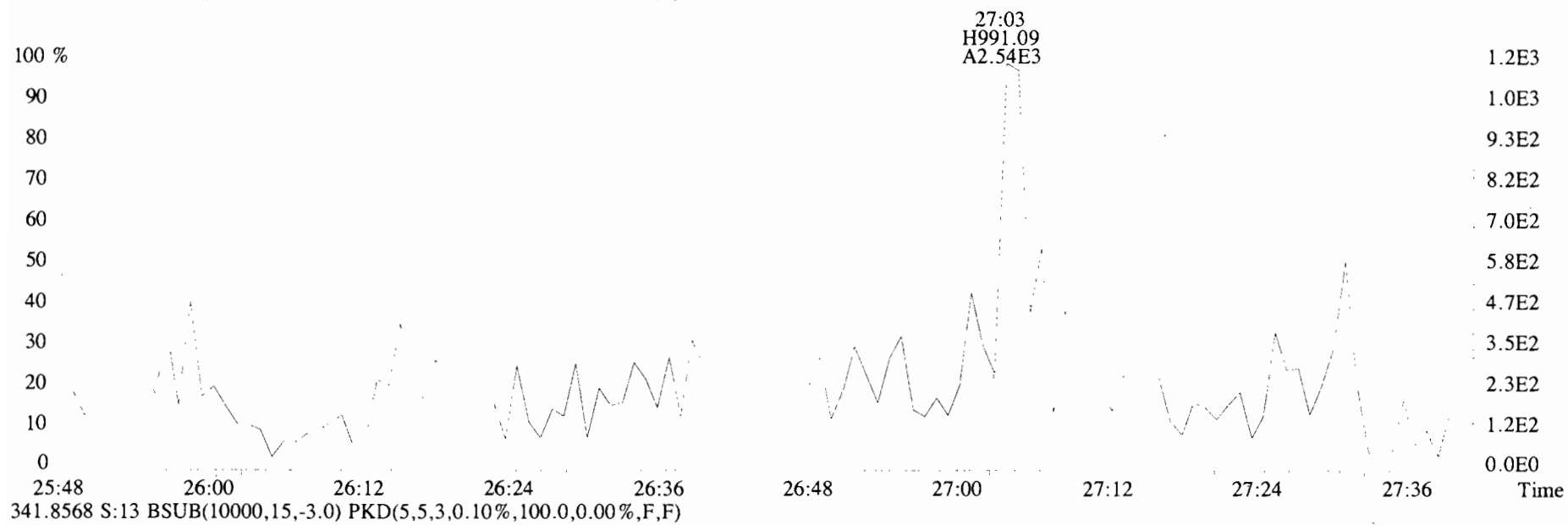
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
303.9016 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



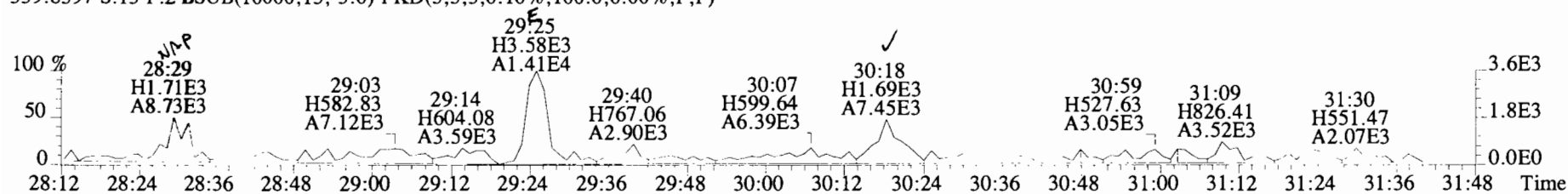
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 339.8597 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



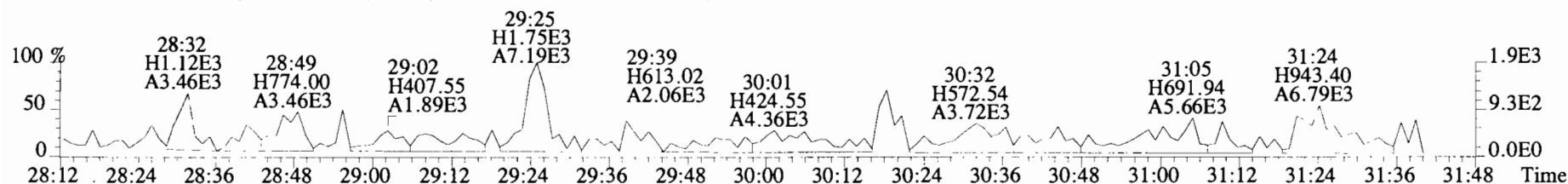
File:191212D1 #1-493 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
339.8597 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



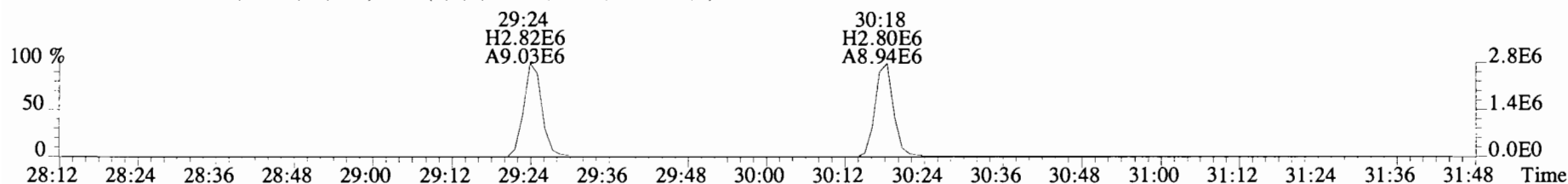
File:191212D1 #1-210 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
339.8597 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



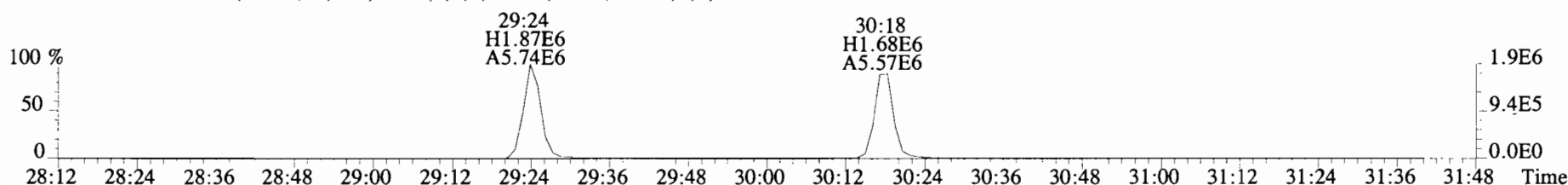
341.8568 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



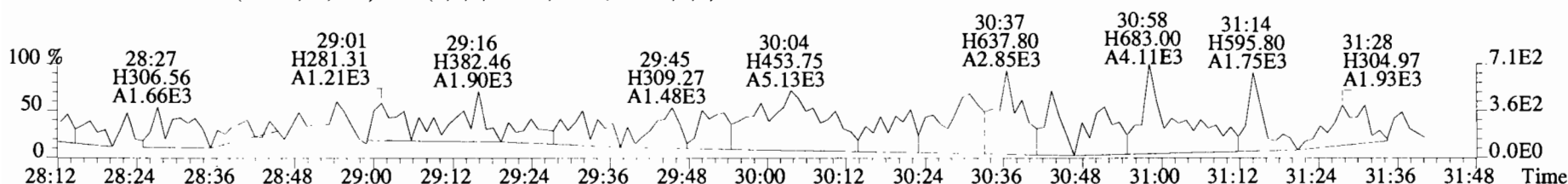
351.9000 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



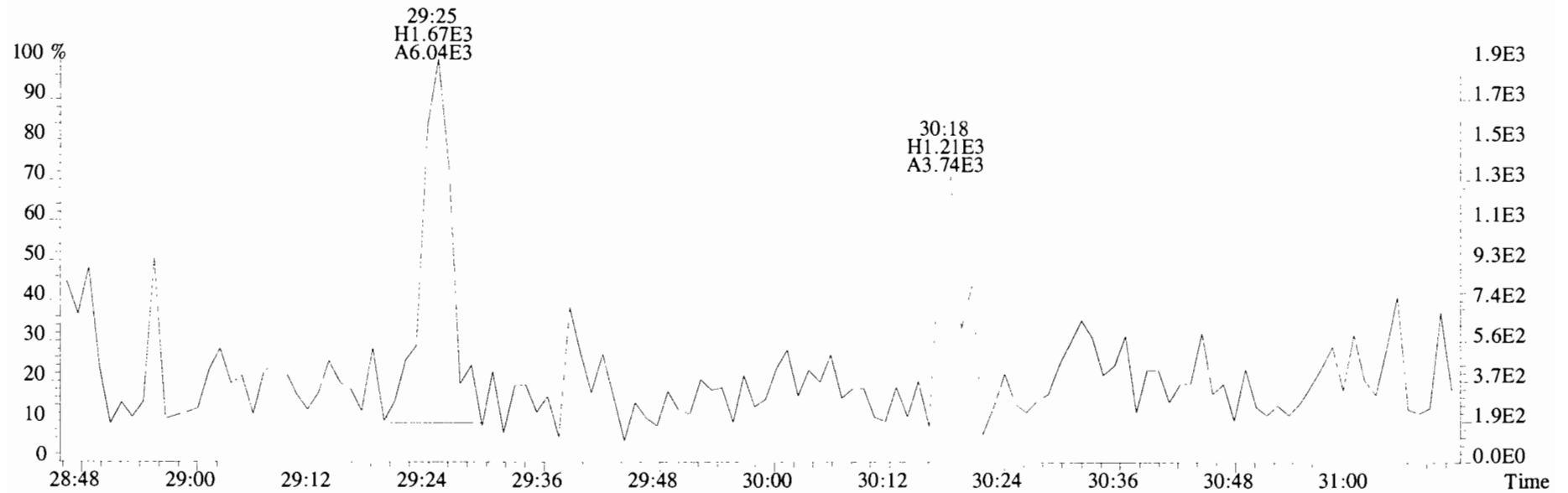
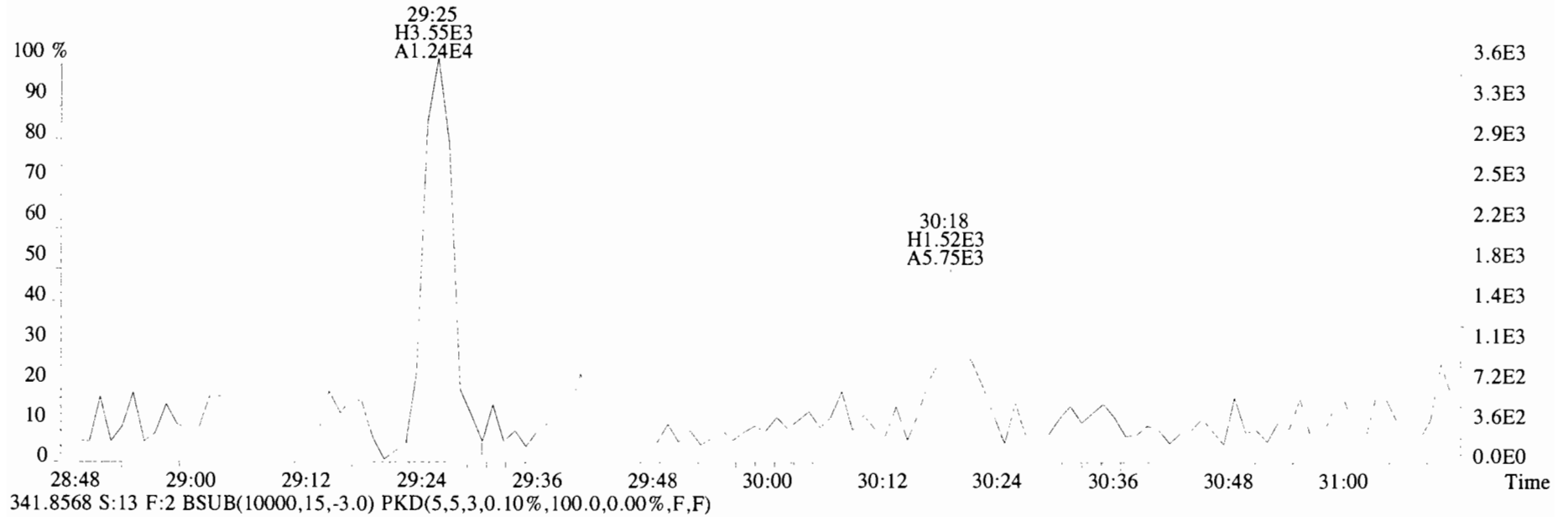
353.8970 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



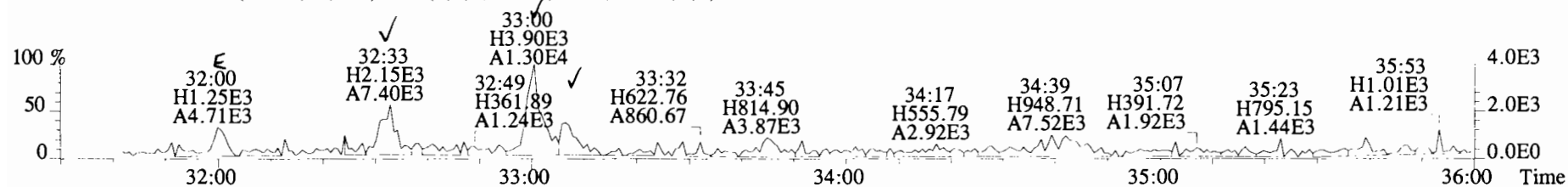
409.7974 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



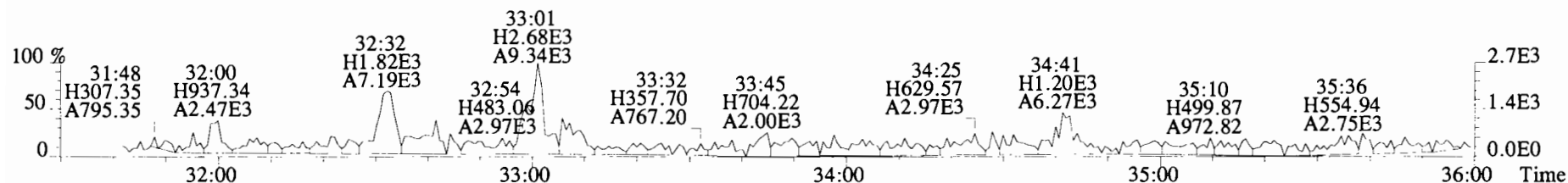
File:191212D1 #1-210 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 339.8597 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



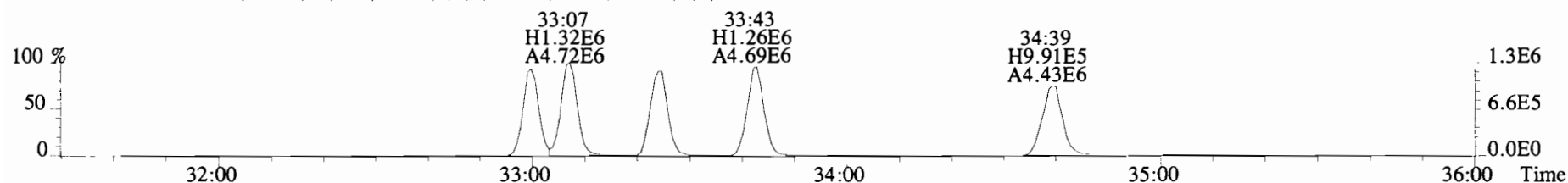
File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 373.8207 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



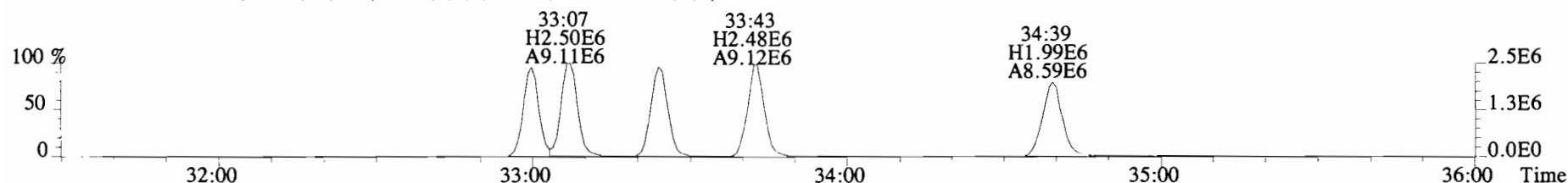
375.8178 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



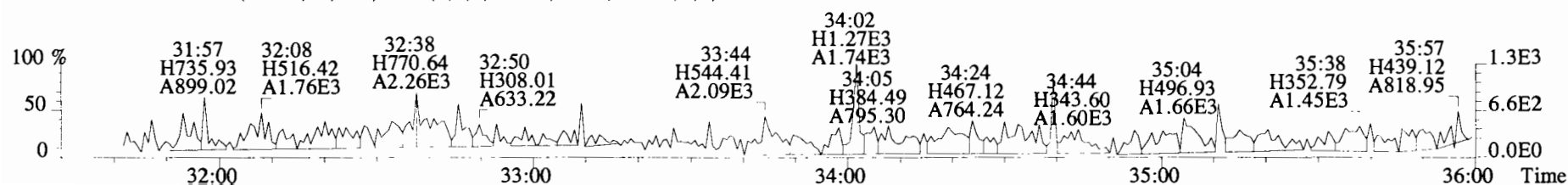
383.8639 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



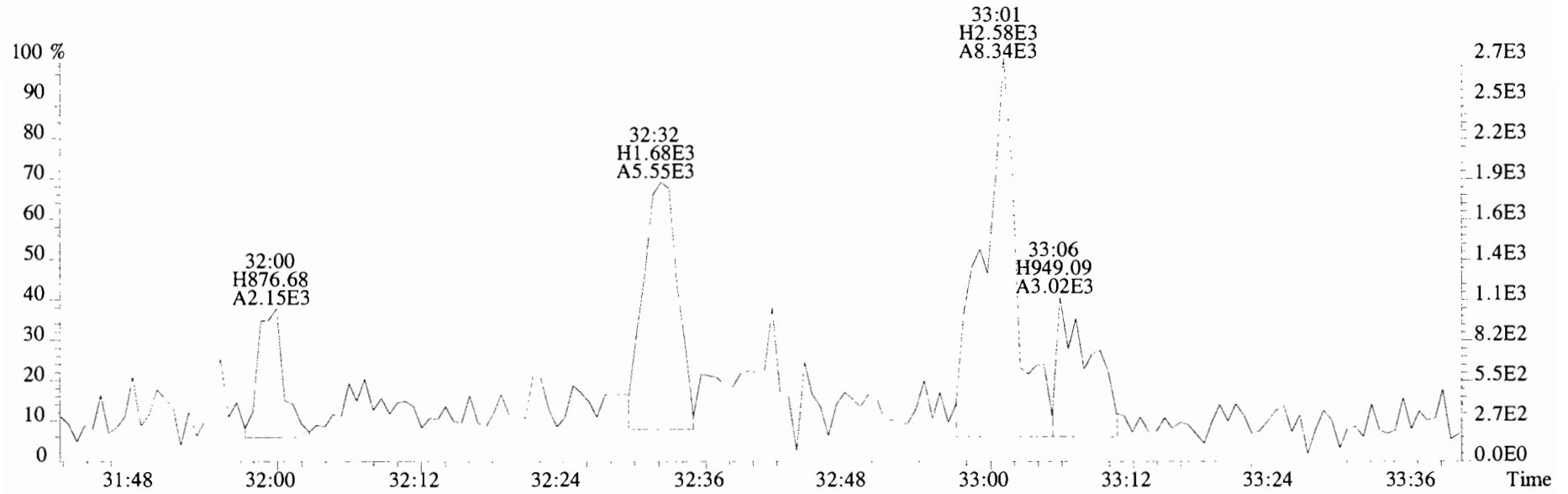
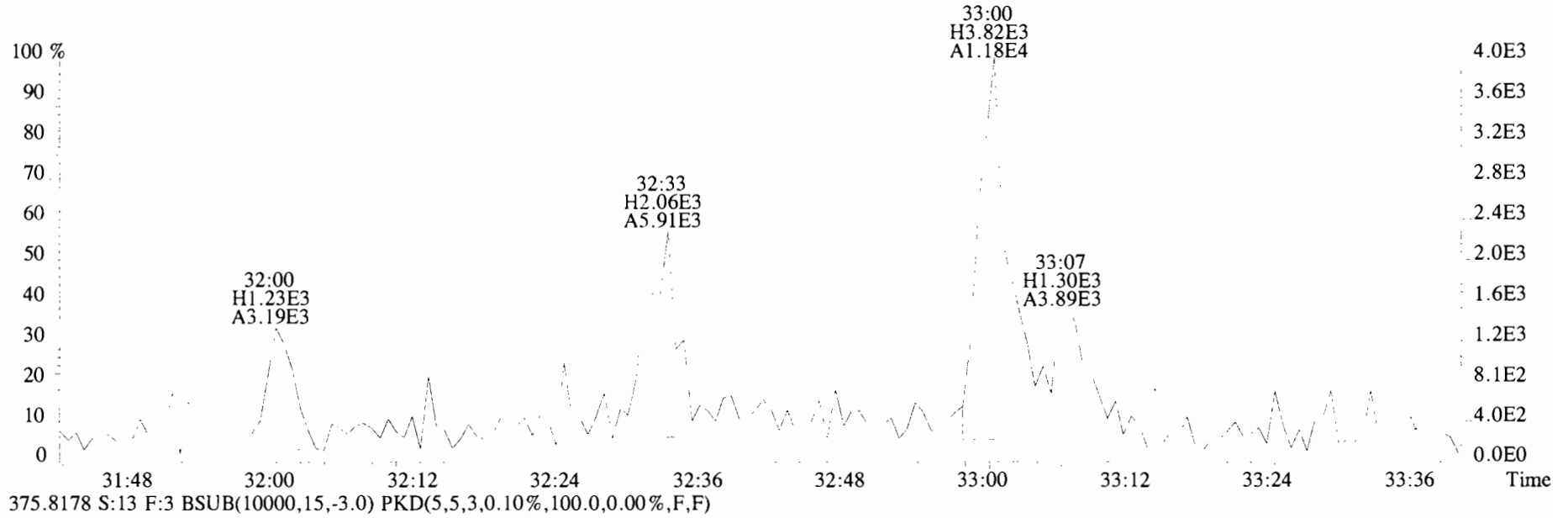
385.8610 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



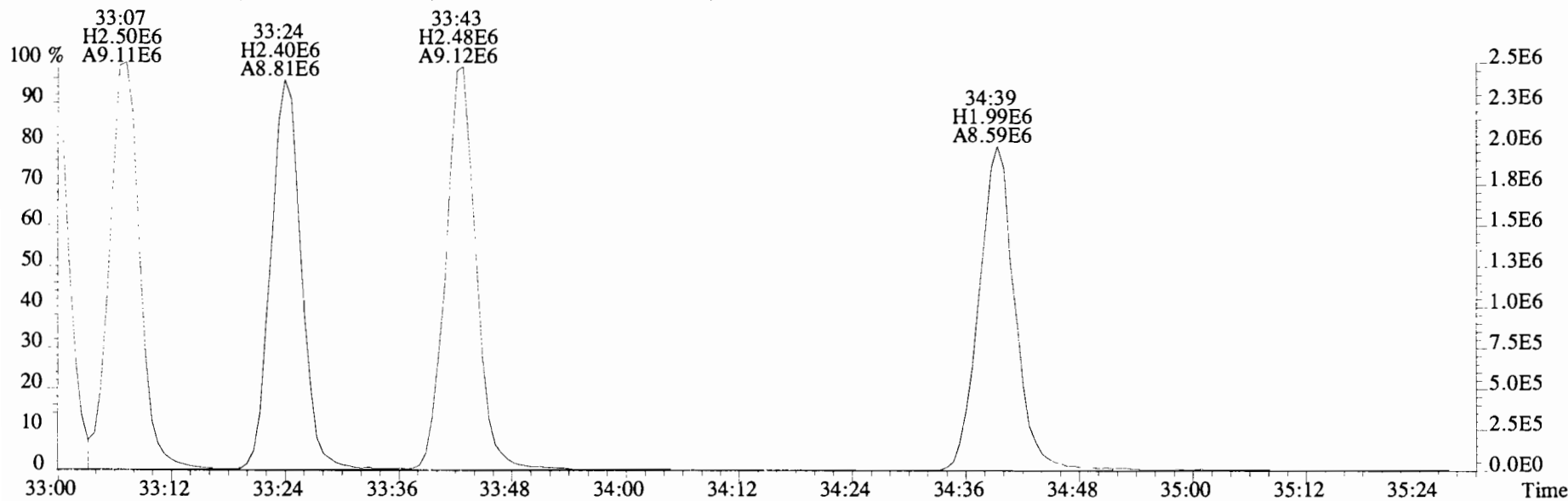
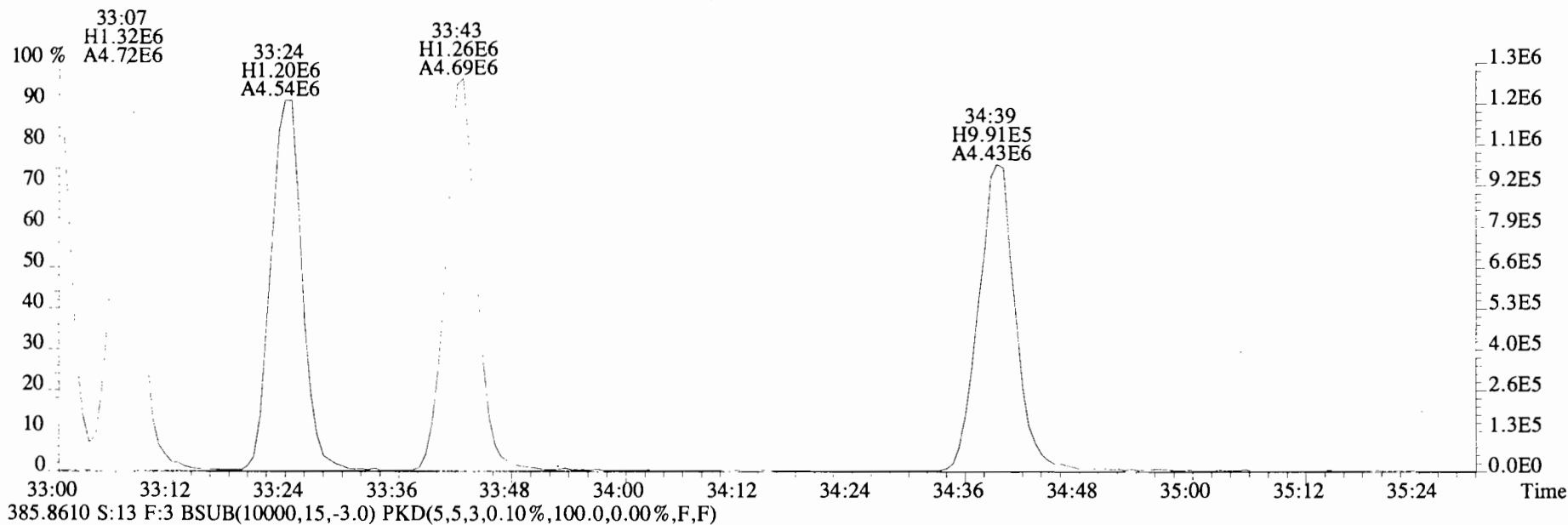
445.7555 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
373.8207 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

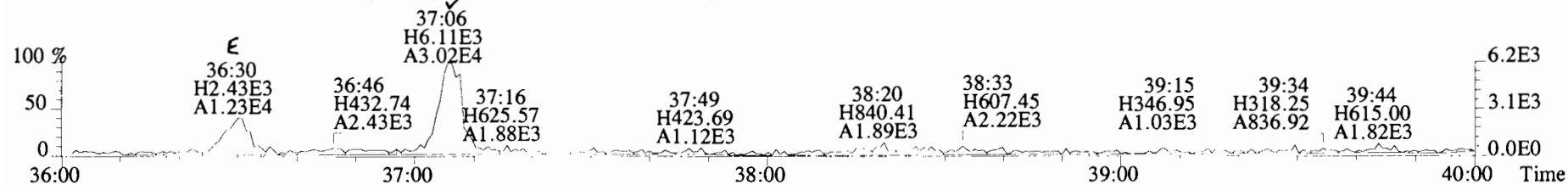


File:191212D1 #1-385 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
383.8639 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

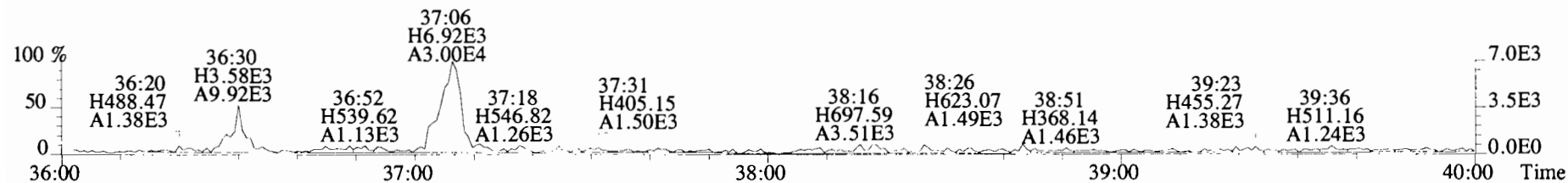




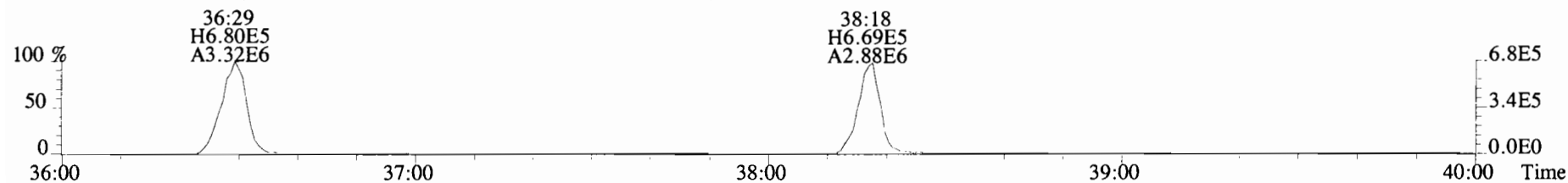
File:191212D1 #1-356 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 407.7818 S:13 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



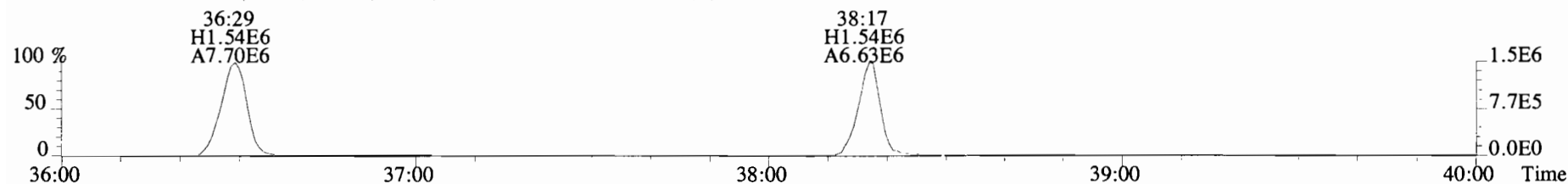
409.7788 S:13 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



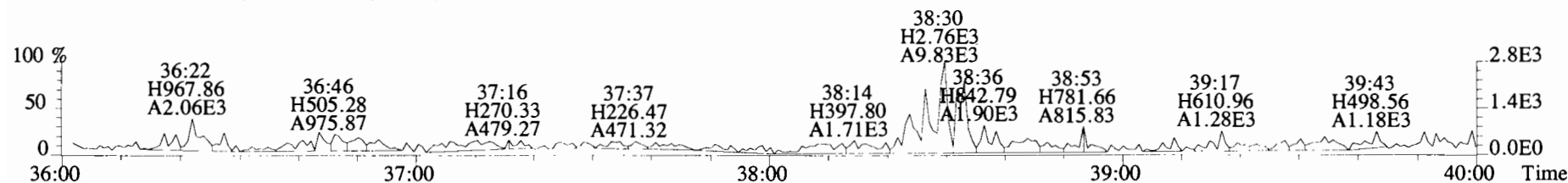
417.8253 S:13 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



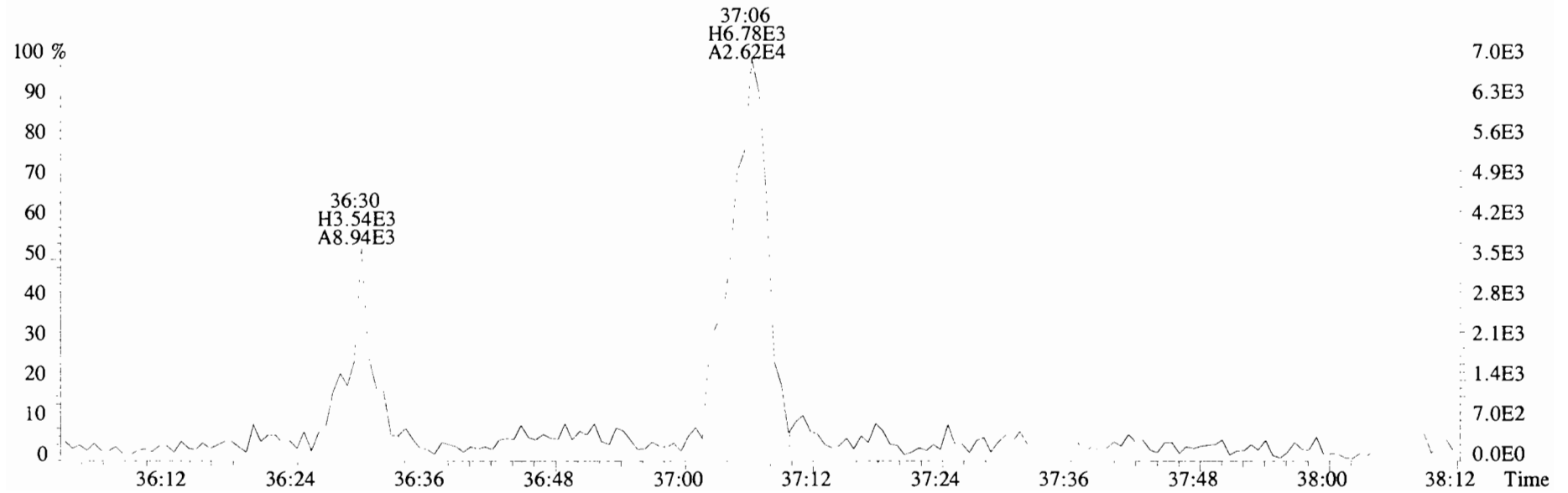
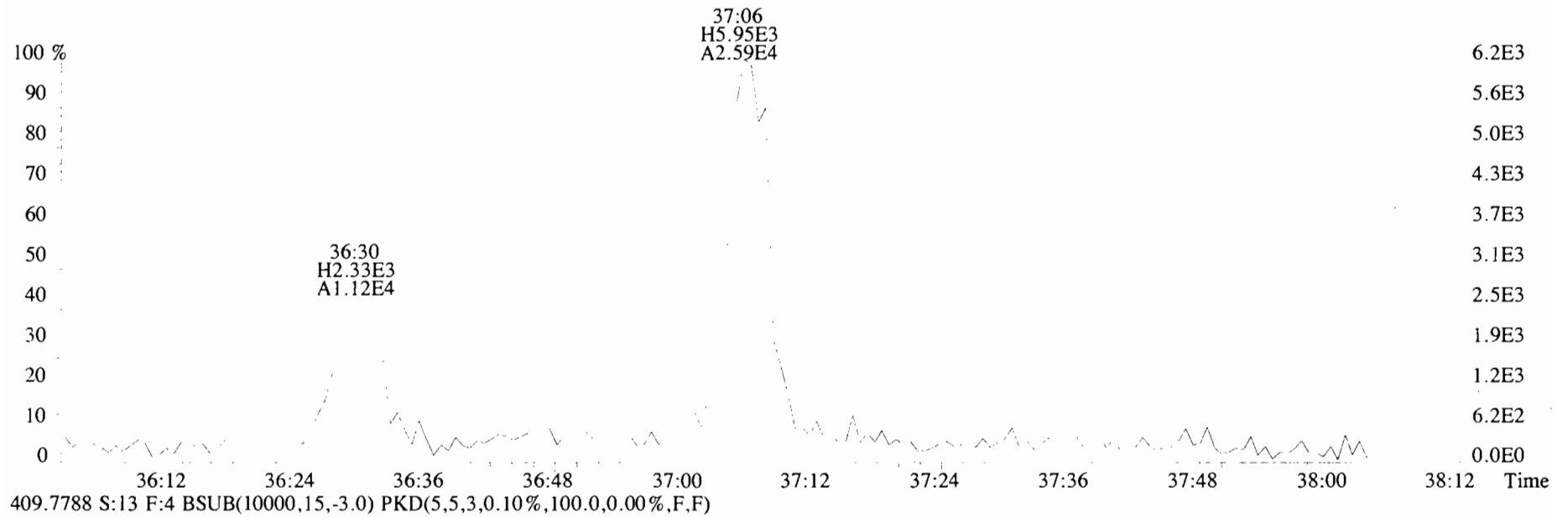
419.8220 S:13 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



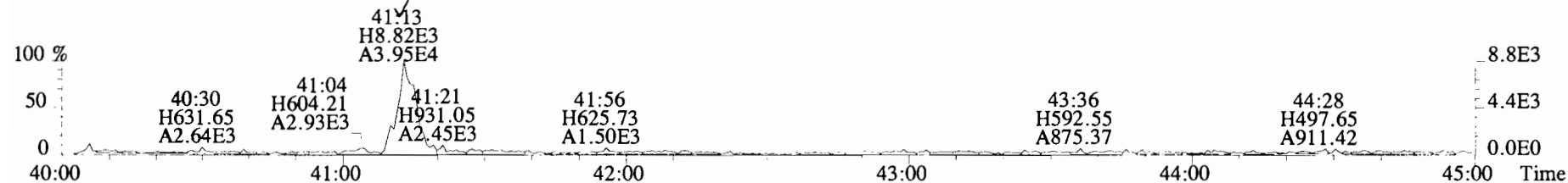
479.7165 S:13 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



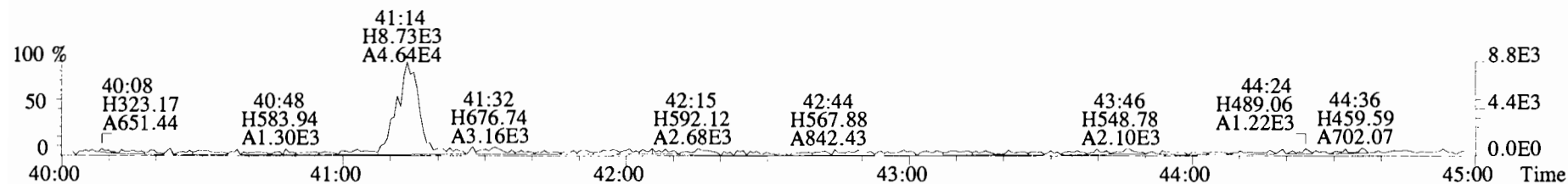
File:191212D1 #1-356 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#13 File Text:Vista Analytical Laboratory VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
 407.7818 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



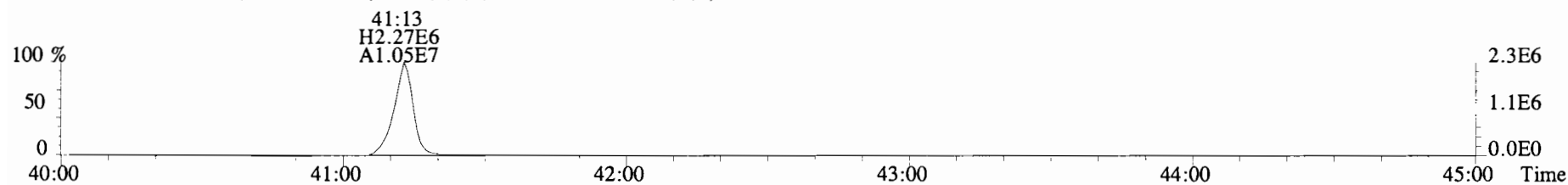
File:191212D1 #1-431 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
441.7428 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



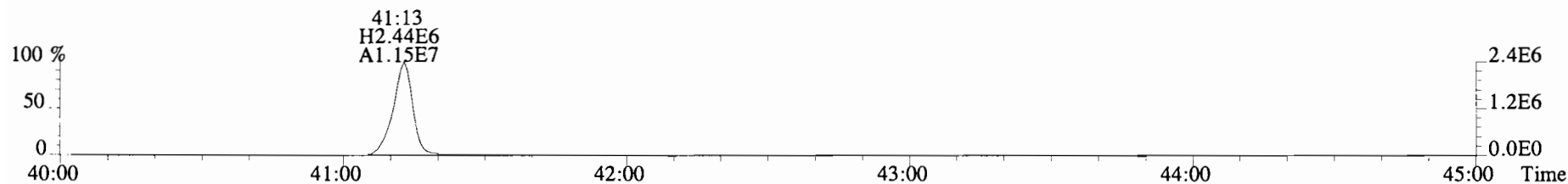
443.7398 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



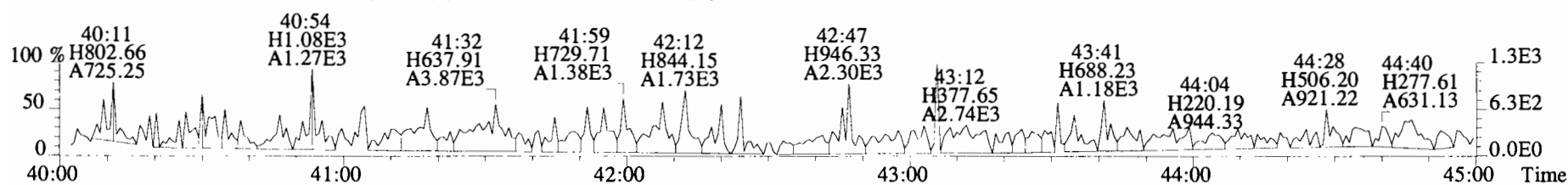
453.7831 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



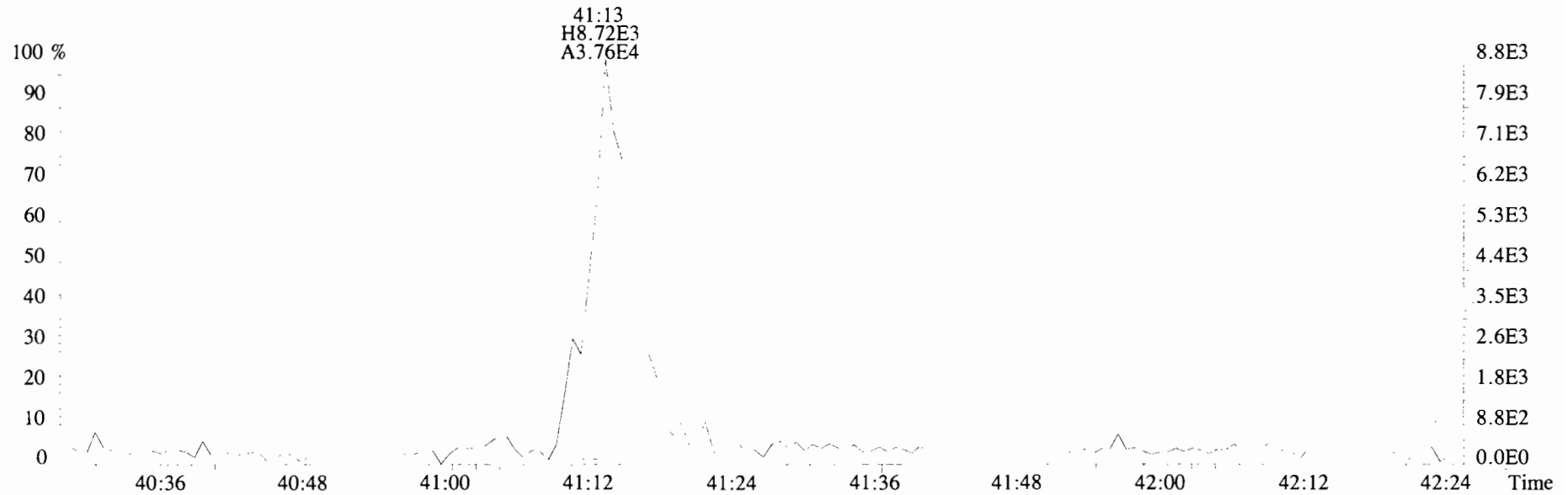
455.7801 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



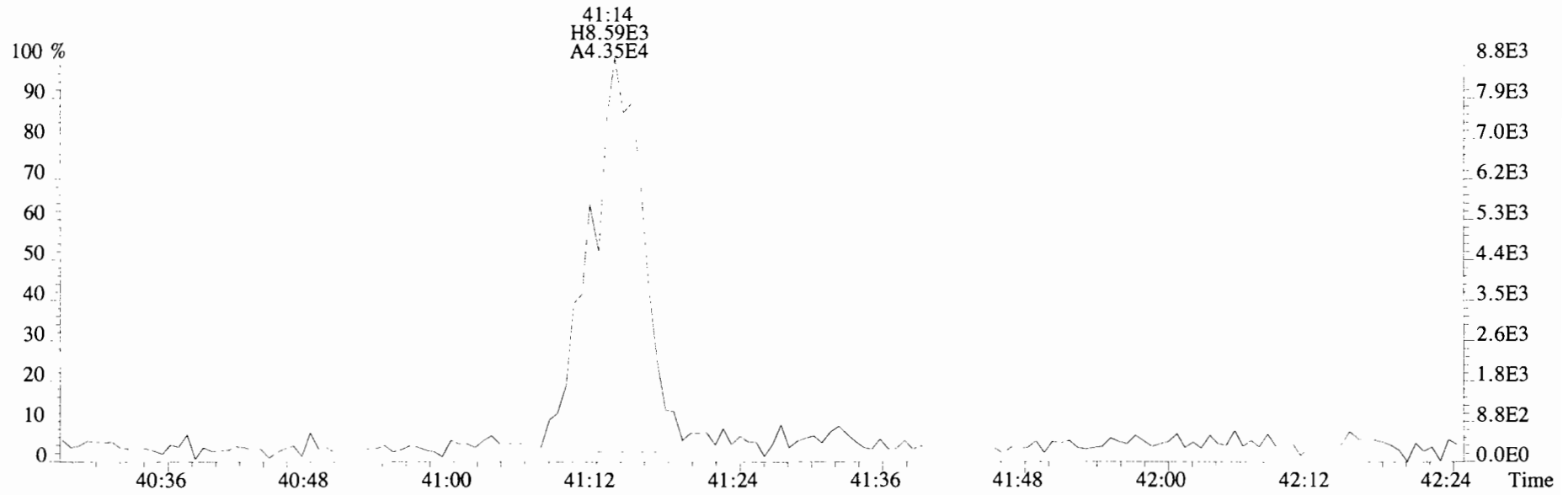
513.6775 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191212D1 #1-431 Acq:12-DEC-2019 22:18:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#13 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:1903651-03RE2 PDI-037SC-A-13-14-191012 13.37 Exp:OCDD\_DB5  
441.7428 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



443.7398 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-13.qld

Last Altered: Wednesday, December 18, 2019 10:29:26 Pacific Standard Time

Printed: Thursday, December 19, 2019 13:07:13 Pacific Standard Time

EL 12/19/19

CT 12/19/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:52:56

Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012,

Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	1 2,3,7,8-TCDD		1.09e5	9.9331	0.905			1.001		26.30					0.154
2	2 1,2,3,7,8-PeCDD		8.69e4	9.9331	0.903			1.001		30.77					0.167
3	3 1,2,3,4,7,8-HxCDD		7.91e4	9.9331	1.101			1.000		34.09					0.286
4	4 1,2,3,6,7,8-HxCDD		8.66e4	9.9331	0.939			1.000		34.18					0.300
5	5 1,2,3,7,8,9-HxCDD		8.83e4	9.9331	0.961			1.001		34.52					0.297
6	6 1,2,3,4,6,7,8-HpCDD	5.26e3	7.98e4	9.9331	0.979	1.026	NO	1.000	1.000	37.93	37.93	13.540		13.5	0.357
7	7 OCDD	3.36e4	1.43e5	9.9331	0.959	0.941	NO	1.000	1.000	41.22	41.23	98.483		98.5	0.359
8	8 2,3,7,8-TCDF	4.49e2	1.62e5	9.9331	0.950	0.713	NO	1.001	1.001	25.53	25.52	0.58880		0.589	0.160
9	9 1,2,3,7,8-PeCDF	4.44e2	1.46e5	9.9331	0.960	2.147	YES	1.001	1.000	29.62	29.59	0.62650		0.516	0.151
10	10 2,3,4,7,8-PeCDF	1.73e2	1.40e5	9.9331	1.015	2.205	YES	1.001	1.000	30.51	30.48	0.24658		0.195	0.142
11	11 1,2,3,4,7,8-HxCDF	6.84e2	1.11e5	9.9331	1.177	1.223	NO	1.000	1.000	33.18	33.18	1.0556		1.06	0.169
12	12 1,2,3,6,7,8-HxCDF	1.95e2	1.23e5	9.9331	1.069	1.401	NO	1.000	1.000	33.31	33.31	0.29936		0.299	0.187
13	13 2,3,4,6,7,8-HxCDF		1.12e5	9.9331	1.114			1.001		33.93					0.196
14	14 1,2,3,7,8,9-HxCDF		1.05e5	9.9331	1.062			1.000		34.86					0.254
15	15 1,2,3,4,6,7,8-HpCDF	5.91e2	9.45e4	9.9331	1.128	0.975	NO	1.001	1.001	36.76	36.74	1.1173		1.12	0.350
16	16 1,2,3,4,7,8,9-HpCDF	1.16e2	7.91e4	9.9331	1.280	1.420	YES	1.000	1.000	38.47	38.48	0.23067		0.194	0.288
17	17 OCDF	1.92e3	1.87e5	9.9331	0.947	0.932	NO	1.000	1.001	41.44	41.46	4.3704		4.37	0.220
18	18 13C-2,3,7,8-TCDD	1.09e5	1.04e5	9.9331	1.095	0.782	NO	1.021	1.021	26.26	26.27	192.45	95.6		0.442
19	19 13C-1,2,3,7,8-PeCDD	8.69e4	1.04e5	9.9331	0.881	0.629	NO	1.187	1.195	30.52	30.75	191.30	95.0		0.477
20	20 13C-1,2,3,4,7,8-Hx...	7.91e4	1.30e5	9.9331	0.642	1.283	NO	1.014	1.014	34.06	34.08	190.97	94.8		0.705
21	21 13C-1,2,3,6,7,8-Hx...	8.66e4	1.30e5	9.9331	0.856	1.275	NO	1.017	1.017	34.18	34.18	156.93	77.9		0.529
22	22 13C-1,2,3,7,8,9-Hx...	8.83e4	1.30e5	9.9331	0.807	1.255	NO	1.026	1.026	34.48	34.48	169.71	84.3		0.561
23	23 13C-1,2,3,4,6,7,8-H...	7.98e4	1.30e5	9.9331	0.654	1.063	NO	1.126	1.129	37.84	37.92	189.26	94.0		0.952
24	24 13C-OCDD	1.43e5	1.30e5	9.9331	0.580	0.909	NO	1.226	1.227	41.19	41.22	383.41	95.2		0.627
25	25 13C-2,3,7,8-TCDF	1.62e5	1.76e5	9.9331	1.035	0.791	NO	0.993	0.992	25.56	25.50	178.94	88.9		0.533
26	26 13C-1,2,3,7,8-PeCDF	1.46e5	1.76e5	9.9331	0.854	1.568	NO	1.143	1.151	29.40	29.59	196.27	97.5		0.601
27	27 13C-2,3,4,7,8-PeCDF	1.40e5	1.76e5	9.9331	0.847	1.587	NO	1.176	1.185	30.26	30.48	188.97	93.9		0.606
28	28 13C-1,2,3,4,7,8-Hx...	1.11e5	1.30e5	9.9331	0.832	0.503	NO	0.987	0.988	33.17	33.18	206.57	102.6		0.900
29	29 13C-1,2,3,6,7,8-Hx...	1.23e5	1.30e5	9.9331	1.034	0.511	NO	0.991	0.991	33.29	33.31	183.64	91.2		0.724
30	30 13C-2,3,4,6,7,8-Hx...	1.12e5	1.30e5	9.9331	0.953	0.527	NO	1.009	1.009	33.91	33.90	182.77	90.8		0.785
31	31 13C-1,2,3,7,8,9-Hx...	1.05e5	1.30e5	9.9331	0.828	0.533	NO	1.039	1.038	34.90	34.86	196.91	97.8		0.904

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-13.qld

Last Altered: Wednesday, December 18, 2019 10:29:26 Pacific Standard Time

Printed: Thursday, December 19, 2019 13:07:13 Pacific Standard Time

Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012,

Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	32 13C-1,2,3,4,6,7,8-H...	9.45e4	1.30e5	9.9331	0.757	0.424	NO	1.093	1.093	36.71	36.72	193.40	96.1		0.911
33	33 13C-1,2,3,4,7,8,9-H...	7.91e4	1.30e5	9.9331	0.581	0.425	NO	1.143	1.145	38.40	38.47	210.87	104.7		1.19
34	34 13C-OCDF	1.87e5	1.30e5	9.9331	0.689	0.884	NO	1.233	1.233	41.43	41.44	420.42	104.4		0.559
35	35 37Cl-2,3,7,8-TCDD	4.54e4	1.04e5	9.9331	1.198			1.022	1.022	26.29	26.30	73.487	91.2		0.0984
36	36 13C-1,2,3,4-TCDD	1.04e5	1.04e5	9.9331	1.000	0.785	NO	1.000	1.000	25.70	25.72	201.35	100.0		0.484
37	37 13C-1,2,3,4-TCDF	1.76e5	1.76e5	9.9331	1.000	0.812	NO	1.000	1.000	24.28	24.31	201.35	100.0		0.551
38	38 13C-1,2,3,4,6,9-Hx...	1.30e5	1.30e5	9.9331	1.000	0.510	NO	1.000	1.000	33.55	33.60	201.35	100.0		0.748
39	39 Total Tetra-Dioxins		1.09e5	9.9331	0.901			0.000		25.50					0.0865
40	40 Total Penta-Dioxins		8.69e4	9.9331	0.872			0.000		30.00					0.0686
41	41 Total Hexa-Dioxins		0.00e0	9.9331	0.976			0.000		33.80		2.6502		2.65	0.301
42	42 Total Hepta-Dioxins		7.98e4	9.9331	0.989			0.000		37.75		31.798		31.8	0.354
43	43 Total Tetra-Furans		1.62e5	9.9331	0.943			0.000		24.00		0.99804		0.998	0.161
44	44 1st Func. Penta-Fur...		0.00e0	9.9331	0.940			0.000		27.63					0.0395
45	45 Total Penta-Furans		0.00e0	9.9331	0.940			0.000		30.00		0.41284		1.22	0.154
46	46 Total Hexa-Furans		0.00e0	9.9331	1.078			0.000		33.00		1.5715		1.94	0.205
47	47 Total Hepta-Furans		0.00e0	9.9331	1.135			0.000		37.75		3.7171		3.91	0.338

**Quantify Totals Report MassLynx MassLynx V4.1 SCN 945**

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-13.qld  
 Last Altered: Wednesday, December 18, 2019 10:29:26 Pacific Standard Time  
 Printed: Thursday, December 19, 2019 13:07:13 Pacific Standard Time

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57  
 Calibration: 05 Dec 2019 08:52:56

Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012,  
 Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

**Tetra-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

**Penta-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

**Hexa-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	41 Total Hexa-Dioxins	NO	33.38	260.247	47375.762	11.000	MM	1.1347	1.14
2	41 Total Hexa-Dioxins	NO	32.54	345.433	47375.762	14.690	MM	1.5154	1.51

**Hepta-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	6 1,2,3,4,6,7,8-HpCDD	NO	37.93	2663.180	41142.230	131.720	MM	13.5396	13.54
2	42 Total Hepta-Dioxins	NO	37.11	3552.015	41142.230	179.315	bb	18.2585	18.26

**Tetra-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	8 2,3,7,8-TCDF	NO	25.52	186.995	71397.484	5.557	MM	0.5888	0.59
2	43 Total Tetra-Furans	NO	24.76	133.488	71397.484	3.833	MM	0.4092	0.41

**Penta-Furans function 1**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191104D1\191104D1-13.qld

Last Altered: Wednesday, December 18, 2019 10:29:26 Pacific Standard Time

Printed: Thursday, December 19, 2019 13:07:13 Pacific Standard Time

Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012,  
 Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

**Penta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	10 2,3,4,7,8-PeCDF	YES	30.48	118.907	85738.086	0.000	MM	0.0000	0.20
2	9 1,2,3,7,8-PeCDF	YES	29.59	303.169	89362.508	0.000	MM	0.0000	0.52
3	45 Total Penta-Furans	NO	28.71	174.054	87550.297	3.853	MM	0.4128	0.41
4	45 Total Penta-Furans	YES	30.50	56.224	87550.297	0.000	MM	0.0000	0.10

**Hexa-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	12 1,2,3,6,7,8-HxCDF	NO	33.31	113.630	41425.723	3.178	MM	0.2994	0.30
2	11 1,2,3,4,7,8-HxCDF	NO	33.18	376.154	37070.809	12.340	MM	1.0556	1.06
3	46 Total Hexa-Furans	YES	32.71	123.658	38460.486	0.000	bb	0.0000	0.37
4	46 Total Hexa-Furans	NO	32.18	75.336	38460.486	2.317	MM	0.2165	0.22

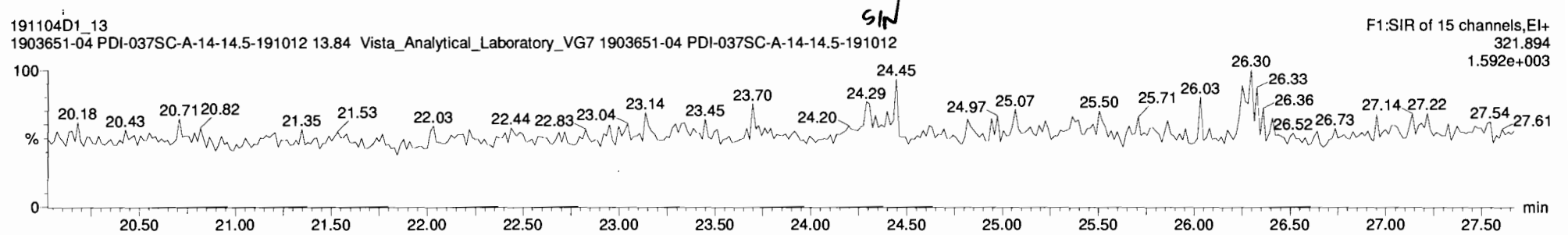
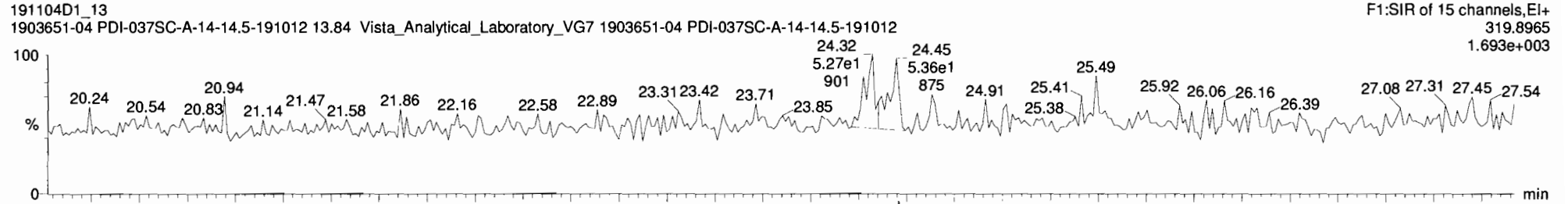
**Hepta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	16 1,2,3,4,7,8,9-HpCDF	YES	38.48	68.017	23572.686	0.000	MM	0.0000	0.19
2	47 Total Hepta-Furans	NO	37.29	631.210	25868.307	29.303	bb	2.5999	2.60
3	15 1,2,3,4,6,7,8-HpCDF	NO	36.74	291.951	28163.928	12.514	MM	1.1173	1.12

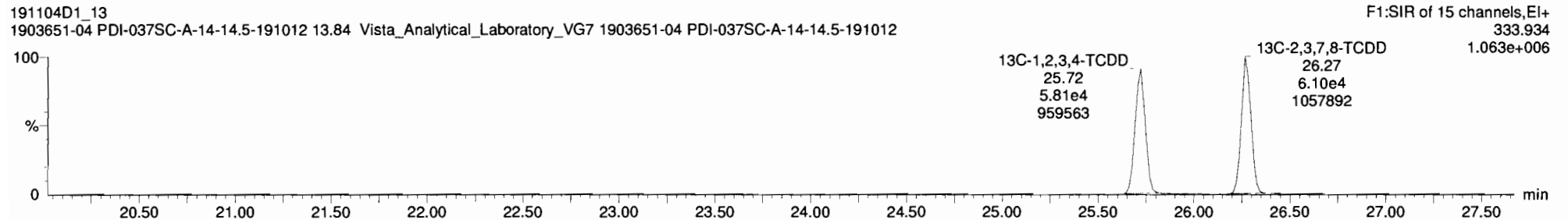
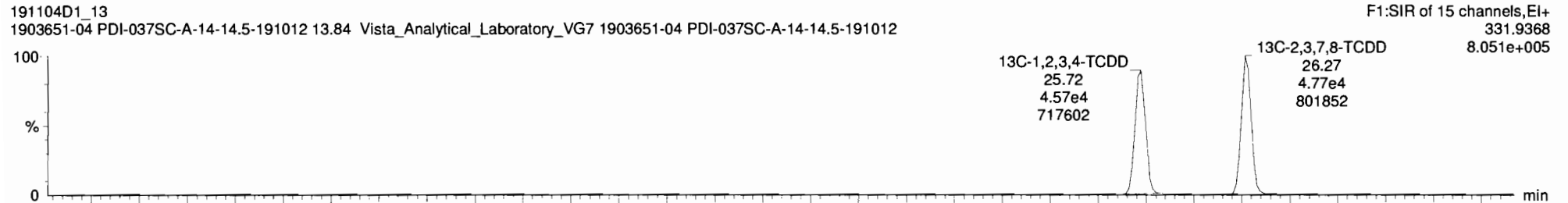


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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

**Total Tetra-Dioxins**



**13C-2,3,7,8-TCDD**



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

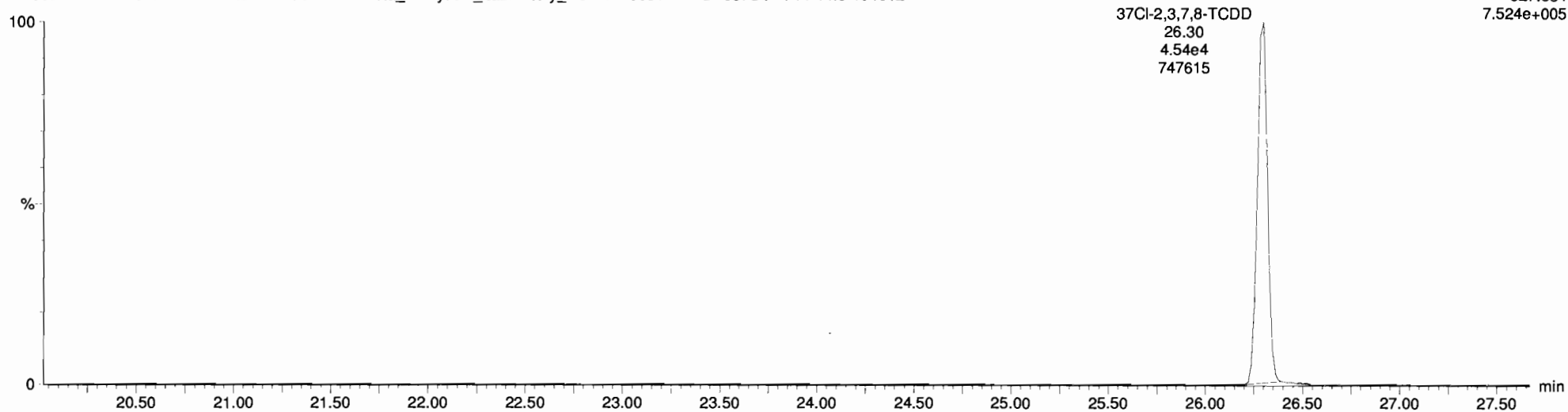
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37Cl-2,3,7,8-TCDD

191104D1\_13  
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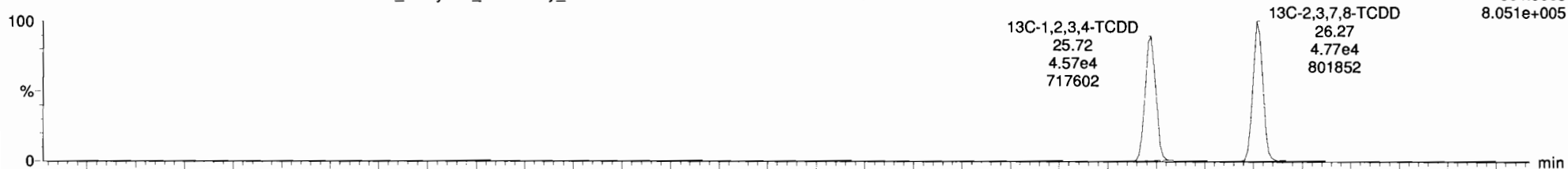
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13C-1,2,3,4-TCDD

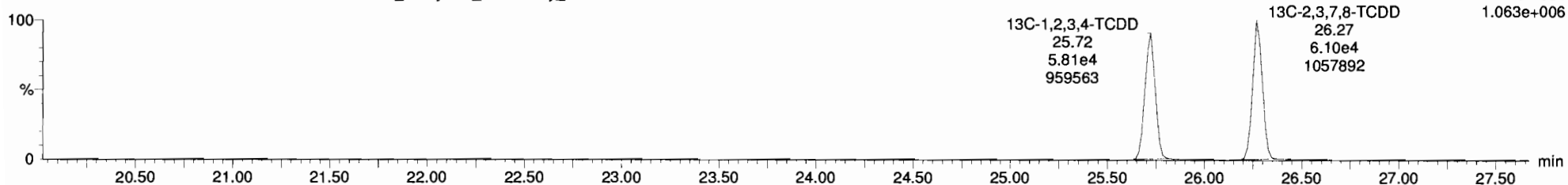
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F1:SIR of 15 channels, EI+  
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8.051e+005



191104D1\_13  
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F1:SIR of 15 channels, EI+  
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Vista Analytical Laboratory

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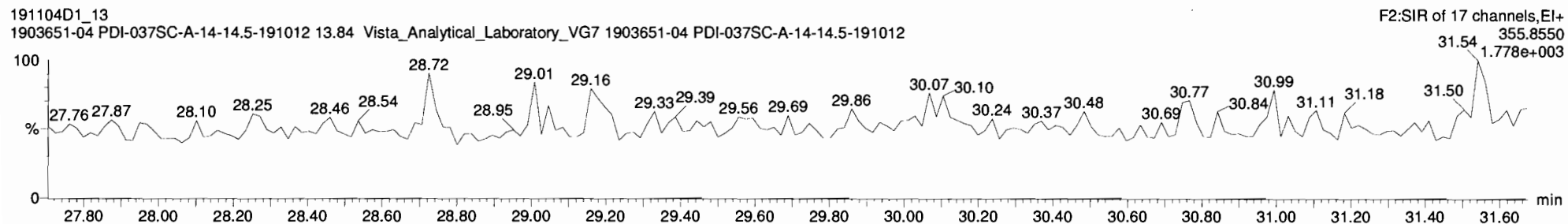
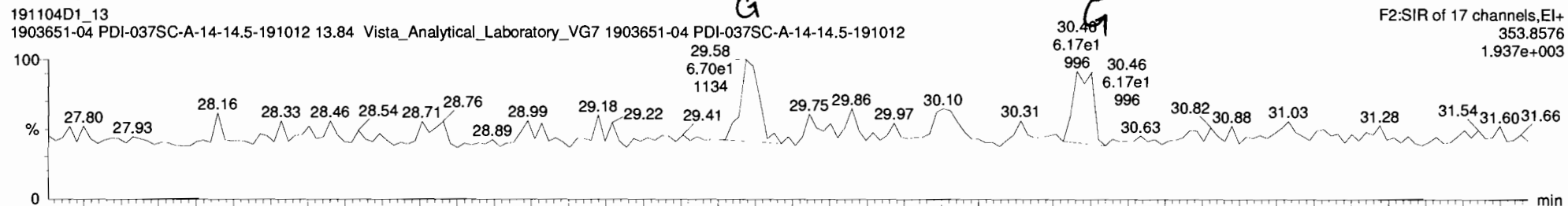
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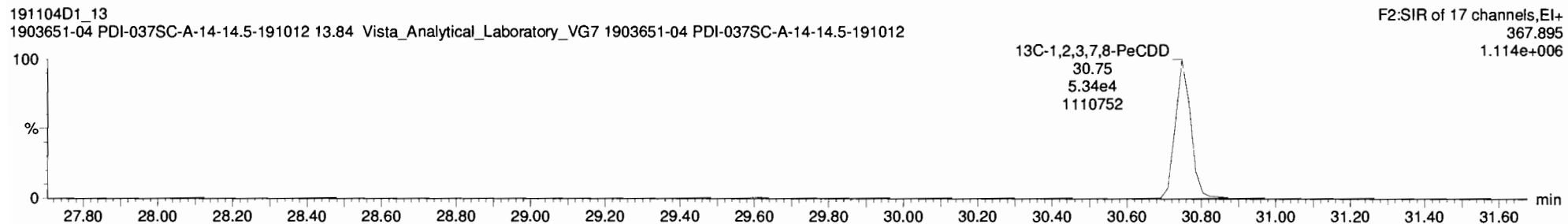
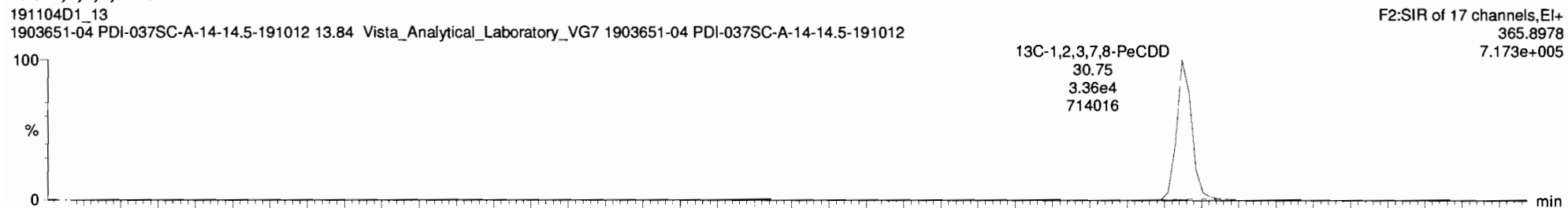
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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD



Vista Analytical Laboratory

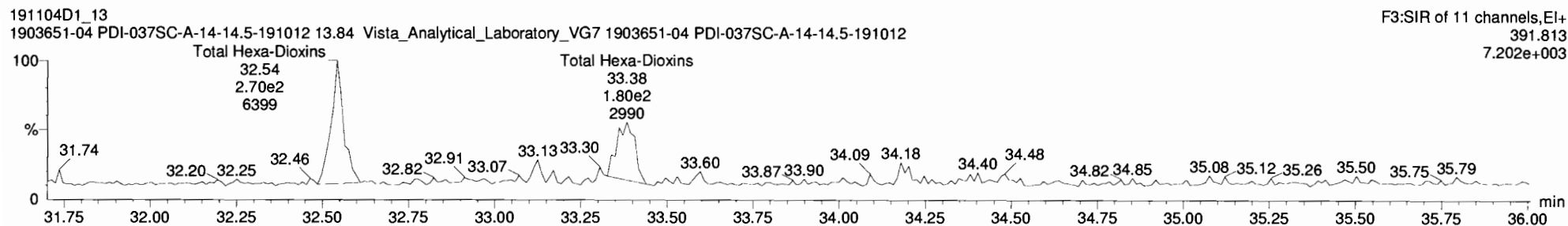
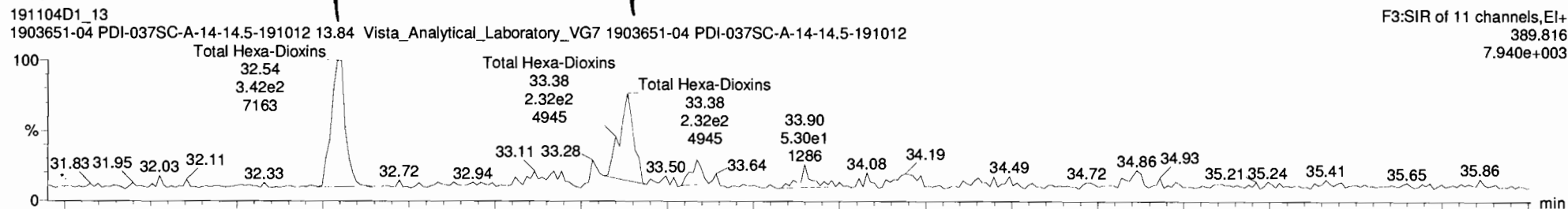
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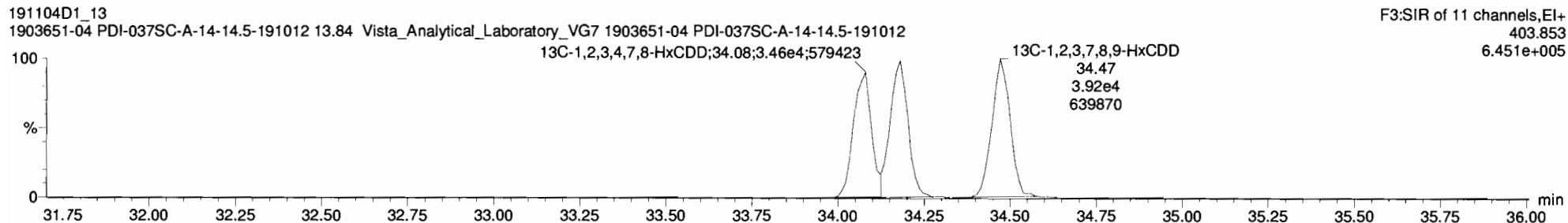
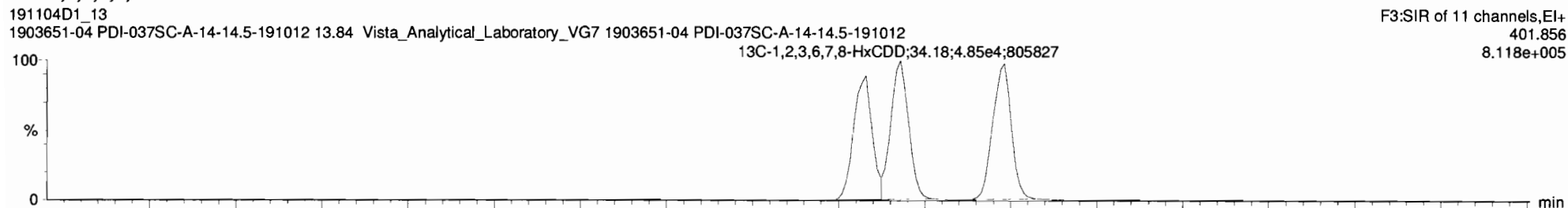
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Total Hexa-Dioxins

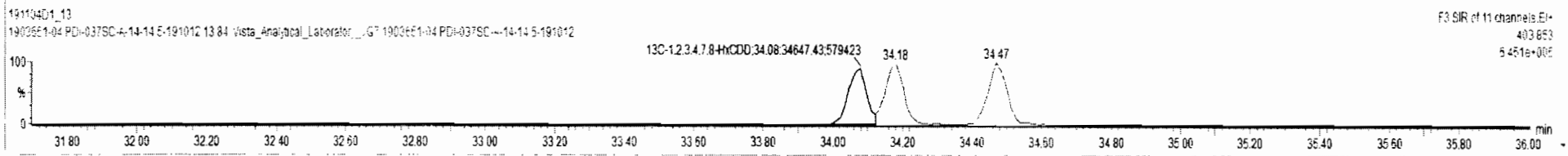
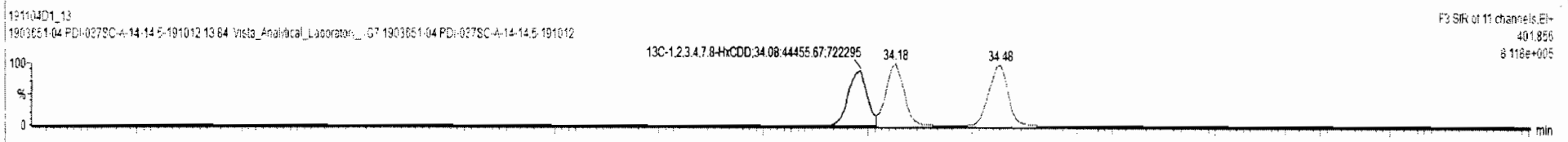
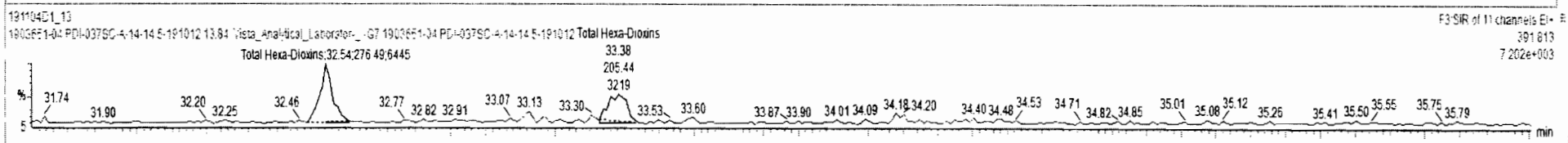
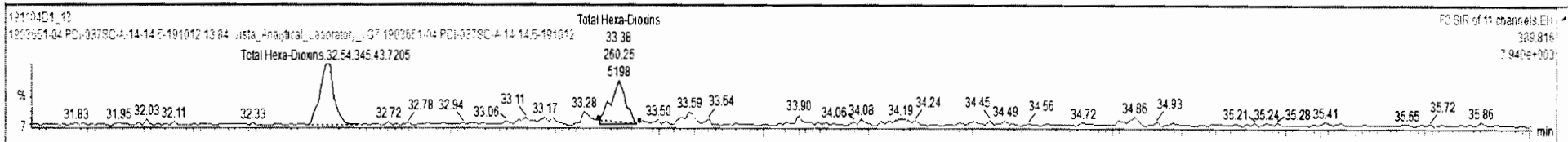


13C-1,2,3,4,7,8-HxCDD



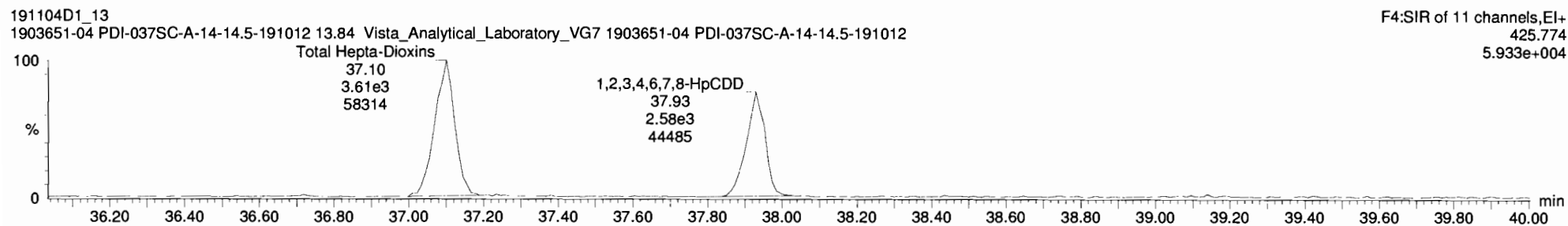
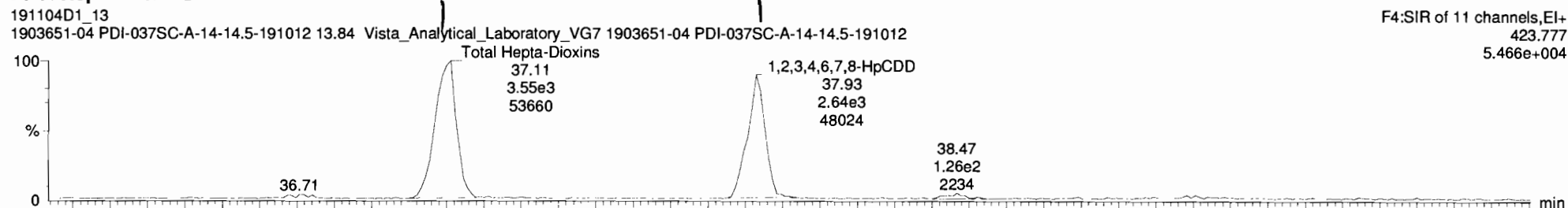
#	Name	Resp	IS Resp	IS4	RA	nly	RRF	wtVol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
27	13C-2,3,4,7,8-PeCDF	1.40e5	1.76e5	37	1.59	NO	0.847	9.933	30.26	30.48	1.185	1.176	NO	189.0	93.9	0.096	
28	13C-1,2,3,4,7,8-HxCDF	1.11e5	1.30e5	38	0.50	NO	0.832	9.933	33.17	33.18	0.988	0.987	NO	206.8	102	0.900	
29	13C-1,2,3,6,7,8-HxCDF	1.22e5	1.30e5	38	0.51	NO	1.034	9.933	33.29	33.31	0.991	0.991	NO	183.6	91.2	0.724	
30	13C-2,3,4,6,7,8-HxCDF	1.12e5	1.30e5	38	0.53	NO	0.953	9.933	33.51	33.90	1.009	1.009	NO	182.8	96.8	0.785	
31	13C-1,2,3,7,8,9-HxCDF	1.05e5	1.30e5	38	0.53	NO	0.828	9.933	34.90	34.86	1.038	1.039	NO	196.9	97.8	0.904	
32	13C-1,2,3,4,6,7,8-HpCDF	9.45e4	1.30e5	38	0.42	NO	0.757	9.933	36.71	36.72	1.093	1.093	NO	193.4	96.1	0.911	
33	13C-1,2,3,4,7,8,9-HpCDF	7.91e4	1.30e5	38	0.42	NO	0.581	9.933	38.40	38.47	1.145	1.143	NO	210.9	105	1.19	
34	13C-OCDF	1.87e5	1.30e5	38	0.96	NO	0.669	9.933	41.43	41.44	1.233	1.233	NO	420.4	104	0.559	
35	37C-2,3,7,8-TCDD	4.54e4	1.04e5	36			1.198	9.933	26.29	26.30	1.022	1.022	NO	72.49	91.2	0.0984	
36	13C-1,2,3,4-TCDD	1.04e5	1.04e5	36	0.79	NO	1.000	9.933	25.70	25.72	1.000	1.000	NO	201.3	100	0.484	
37	13C-1,2,3,4-TCDF	1.76e5	1.76e5	37	0.81	NO	1.000	9.933	24.28	24.31	1.000	1.000	NO	201.3	100	0.551	
38	13C-1,2,3,4,6,9-HxCDF	1.30e5	1.30e5	38	0.51	NO	1.000	9.933	33.55	33.60	1.000	1.000	NO	201.3	100	0.746	
39	Total Tetra-Dioxins	1.09e5					0.901	9.933	25.50			0.900	NO			0.0865	
40	Total Penta-Dioxins	6.69e4					0.672	9.933	30.00			0.900	NO			0.0686	
41	Total Hexa-Dioxins	0.00e0					0.976	9.933	33.80			0.000	NO	2.650	0.301	2.650	
42	Total Hepta-Dioxins	7.96e4					0.969	9.933	37.75			0.900	NO	31.70	0.354	31.70	
43	Total Tetra-Furans	1.62e5					0.543	9.933	24.00			0.900	NO	0.4376	0.161	0.9840	
44	1st Func Penta-Furans	0.00e0					0.940	9.933	27.62			0.900	NO			0.0395	

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.60	32.54	2.454e2	2.785e2	1.240	1.25	NO	1.5154	1.5154
2	41 Total Hexa-Dioxins	33.80	33.36	2.602e2	2.054e2	1.240	1.27	NO	1.1347	1.1347

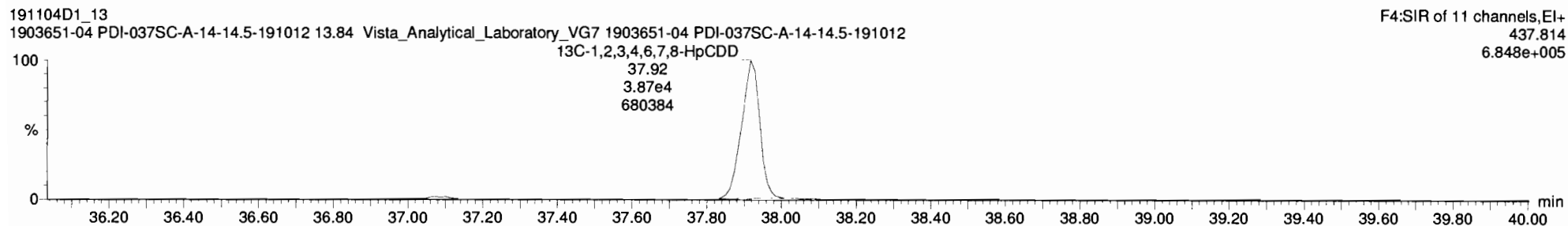
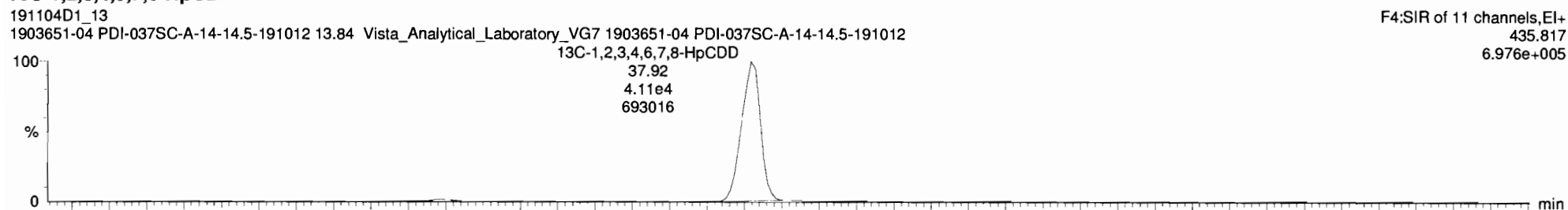


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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

Total Hepta-Dioxins

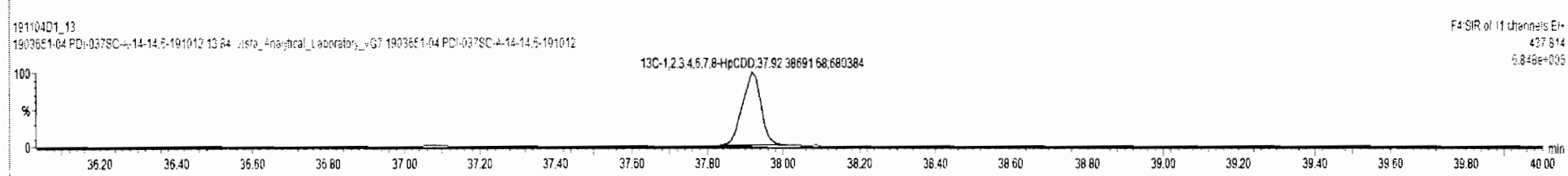
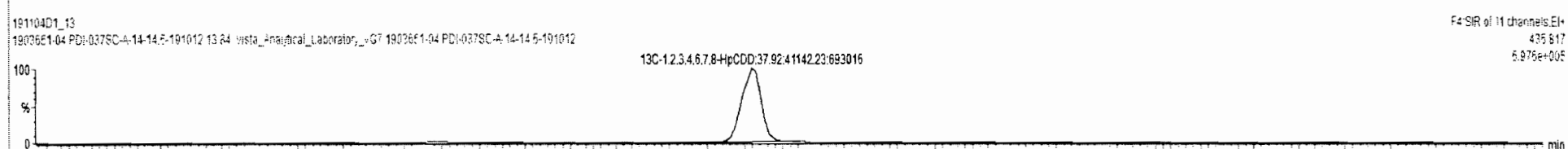
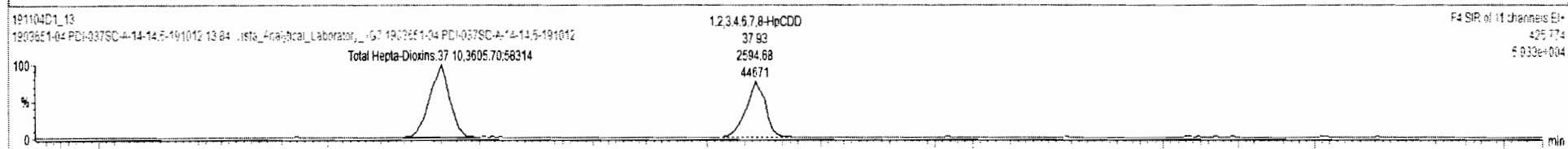
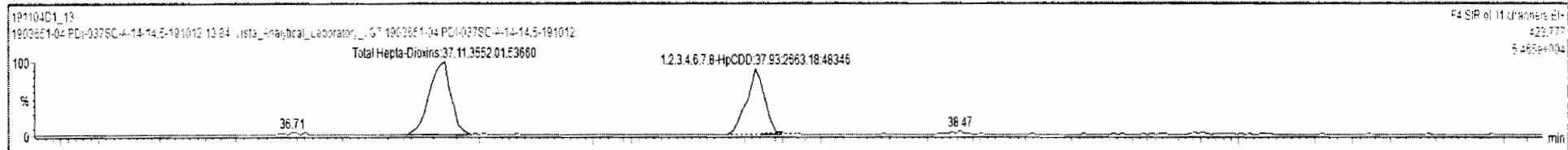


13C-1,2,3,4,6,7,8-HpCDD



#	Name	Resp	IS Resp	ISA	RA	n/y	RRF	w/Vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
27	13C-2,3,4,7,8-PeCDF	1.40e5	1.76e5	37	1.59	NO	0.847	9.933	30.26	30.48	1.185	1.176	NO	189.0	93.9	0.606	
28	13C-1,2,3,4,7,8-HxCDF	1.11e5	1.36e5	38	0.50	NO	0.832	9.933	33.17	33.18	0.988	0.987	NO	206.6	103	0.600	
29	13C-1,2,3,6,7,8-HxCDF	1.23e5	1.30e5	38	0.51	NO	1.034	9.933	33.29	33.31	0.991	0.991	NO	182.6	91.2	0.724	
30	13C-2,3,4,6,7,8-HxCDF	1.12e5	1.30e5	38	0.53	NO	0.953	9.933	33.91	33.90	1.009	1.009	NO	162.8	96.8	0.785	
31	13C-1,2,3,7,8,9-HxCDF	1.06e5	1.30e5	38	0.53	NO	0.828	9.933	34.90	34.96	1.038	1.038	NO	196.9	97.8	0.904	
32	13C-1,2,3,4,6,7,8-HpCDF	9.45e4	1.30e5	38	0.42	NO	0.757	9.933	36.71	36.72	1.093	1.093	NO	193.4	96.1	0.911	
33	13C-1,2,3,4,7,8,9-HpCDF	7.91e4	1.30e5	38	0.42	NO	0.581	9.933	38.40	38.47	1.145	1.142	NO	210.9	185	1.19	
34	13C-OCDF	1.87e5	1.30e5	38	0.98	NO	0.689	9.933	41.43	41.44	1.233	1.233	NO	420.4	134	0.559	
35	37Cl-2,3,7,8-TCDD	4.54e4	1.04e5	36			1.198	9.933	26.29	26.30	1.022	1.022	NO	73.49	91.2	0.0984	
36	13C-1,2,3,4-TCDD	1.94e5	1.04e5	36	0.79	NO	1.000	9.933	25.70	25.72	1.000	1.000	NO	201.3	100	0.484	
37	13C-1,2,3,4-TCDF	1.76e5	1.76e5	37	0.81	NO	1.000	9.933	24.28	24.31	1.000	1.000	NO	201.3	130	0.551	
38	13C-1,2,3,4,6,9-HxCDF	1.30e5	1.30e5	38	0.51	NO	1.000	9.933	33.55	33.60	1.000	1.000	NO	201.3	160	0.748	
39	Total Tetra-Dioxins		1.06e5				0.901	9.933	25.50			0.900	NO			0.0985	
40	Total Penta-Dioxins		8.65e4				0.872	9.933	30.00			0.990	NO			0.0686	
41	Total Hexa-Dioxins		0.90e0				0.576	9.933	33.80			0.990	NO	2.650		0.301	2.650

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.11	3.552e3	3.606e3	1.040	0.95	NO	18.259	18.259
2	6 1,2,3,4,6,7,8-HpCDD	37.93	37.93	2.663e3	2.695e3	1.040	1.03	NO	13.540	13.540



Vista Analytical Laboratory

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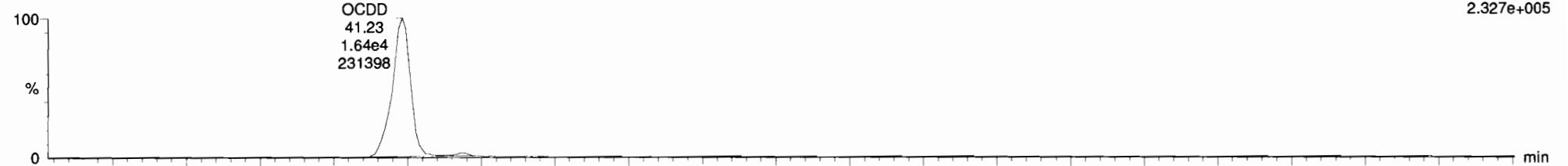
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OCDD

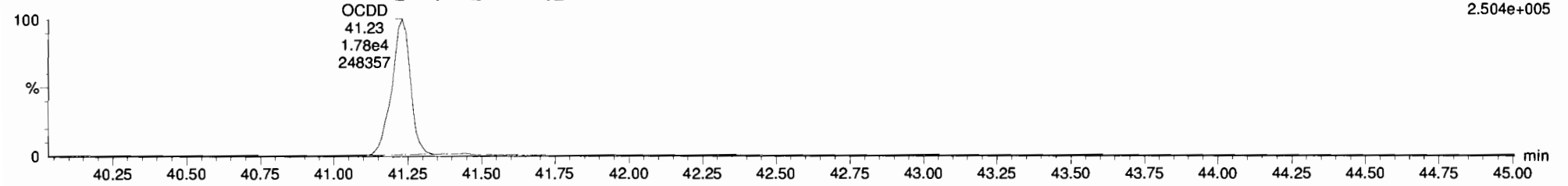
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F5:SIR of 11 channels, EI+  
457.738  
2.327e+005



191104D1\_13  
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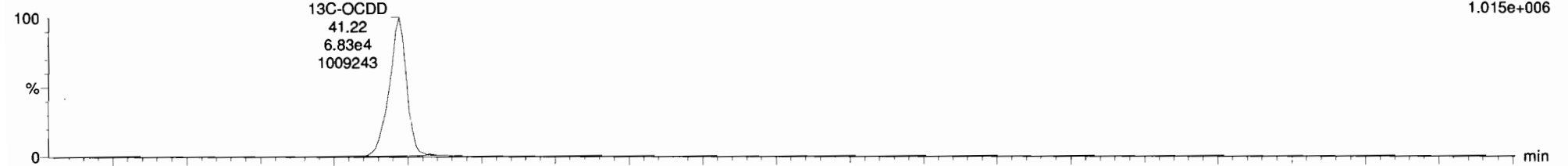
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2.504e+005



13C-OCDD

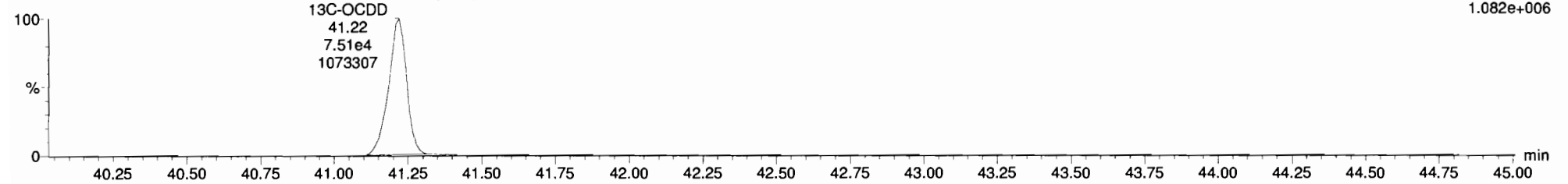
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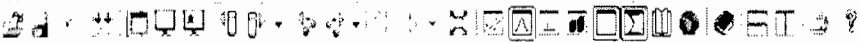


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F5:SIR of 11 channels, EI+  
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1.082e+006



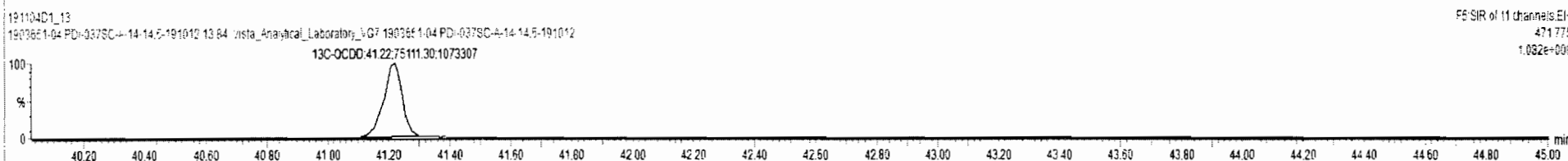
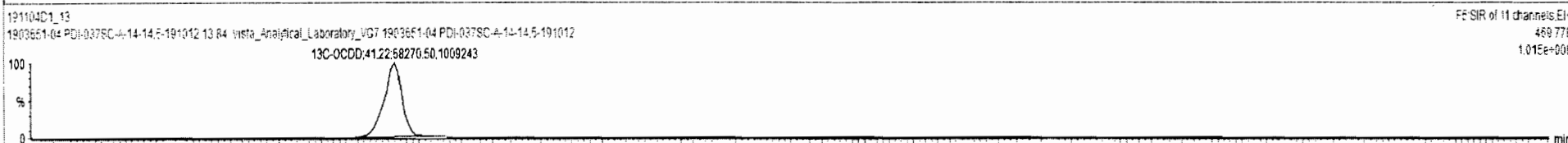
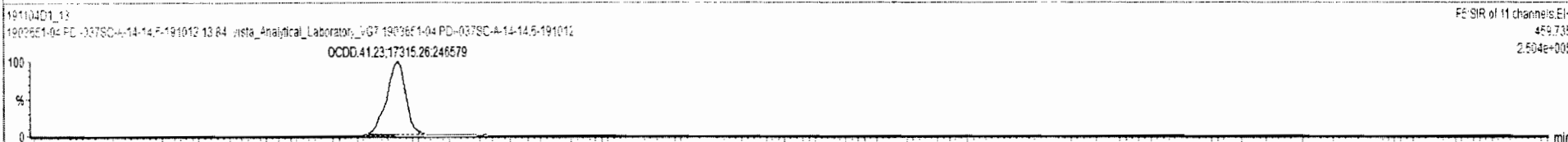
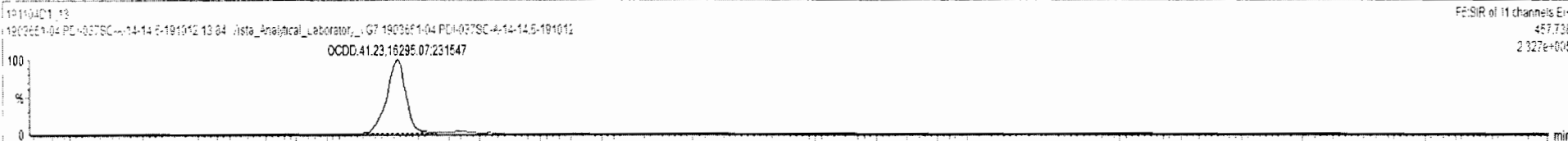




191104D1\_13 - 1903651-04 PDI-037SC-A-14-14-5-191012 - 1903651-04 PDI-037SC-A-14-14-5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtvol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
2	1,2,3,7,8-PeCDD		8.89e4	19			0.903	9.933	30.77			1.001	NO			0.197	
3	1,2,3,4,7,8-HxCDD		7.91e4	20			1.101	9.933	34.09			1.000	NO			0.286	
4	1,2,3,6,7,8-HxCDD		8.86e4	21			0.939	9.933	34.18			1.000	NO			0.300	
5	1,2,3,7,8,9-HxCDD		8.83e4	22			0.961	9.933	34.52			1.001	NO			0.297	
6	1,2,3,4,6,7,8-HpCDD	5.26e3	7.96e4	23	1.92	NO	0.979	9.933	37.92	37.93	1.000	1.000	NO	13.54		0.357	13.54
7	OCDD	3.36e4	1.43e5	24	0.94	NO	0.959	9.933	41.22	41.23	1.000	1.000	NO	98.48		0.359	98.48
8	2,3,7,8-TCDF	4.69e2	1.82e5	25	0.65	YES	0.950	9.933	26.53	26.52	1.001	1.001	NO	0.6024		0.160	0.5464
9	1,2,3,7,8-PeCDF	4.45e2	1.46e5	26	2.15	YES	0.960	9.933	29.62	29.59	1.000	1.001	NO	0.6373		0.151	0.5157
10	2,3,4,7,8-PeCDF	2.54e2	1.40e5	27	1.96	YES	1.015	9.933	30.51	30.48	1.000	1.001	NO	0.3606		0.142	0.3105
11	1,2,3,4,7,8-HxCDF	7.09e2	1.11e5	28	1.17	NO	1.177	9.933	33.18	33.18	1.000	1.000	NO	1.094		0.169	1.094
12	1,2,3,6,7,8-HxCDF	2.03e2	1.23e5	29	1.34	NO	1.069	9.933	33.31	33.31	1.000	1.000	NO	0.3125		0.187	0.3125
13	2,3,4,6,7,8-HxCDF		1.12e5	30			1.114	9.933	33.93			1.001	NO			0.196	
14	1,2,3,7,8,9-HxCDF		1.05e5	31			1.062	9.933	34.86			1.000	NO			0.254	
15	1,2,3,4,6,7,8-HpCDF	6.10e2	9.45e4	32	0.96	NO	1.128	9.933	36.76	36.74	1.001	1.001	NO	1.153		0.350	1.153
16	1,2,3,4,7,8,9-HpCDF	1.14e2	7.91e4	33	1.15	NO	1.280	9.933	38.47	38.48	1.000	1.000	NO	0.2267		0.288	0.2267

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1										



Vista Analytical Laboratory

Dataset: Untitled

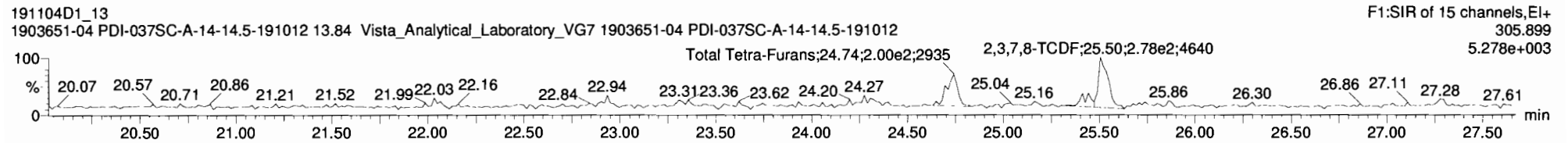
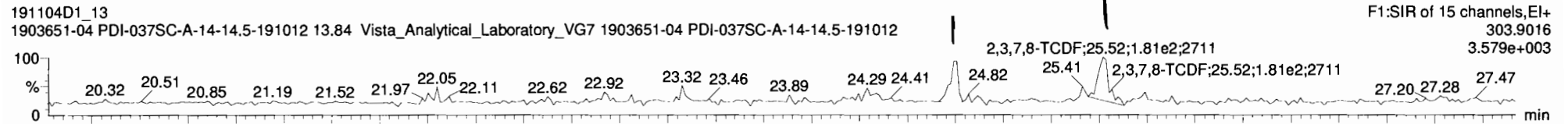
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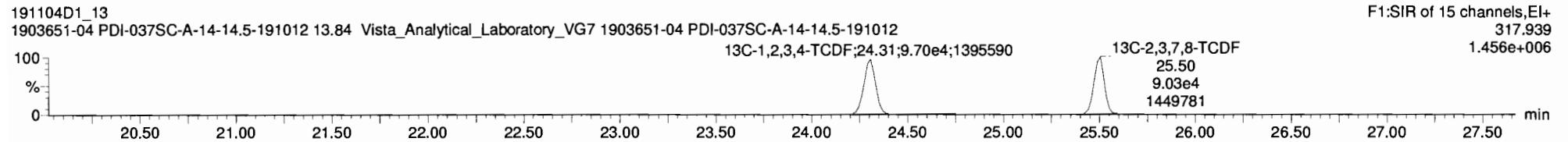
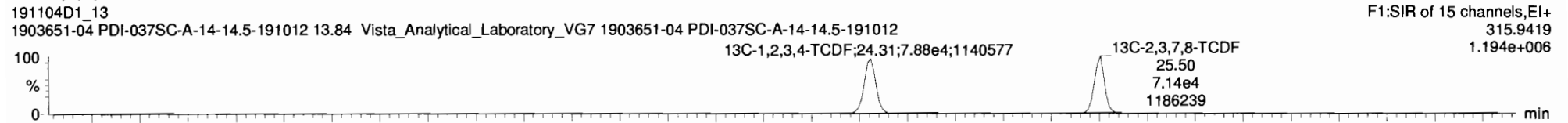
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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

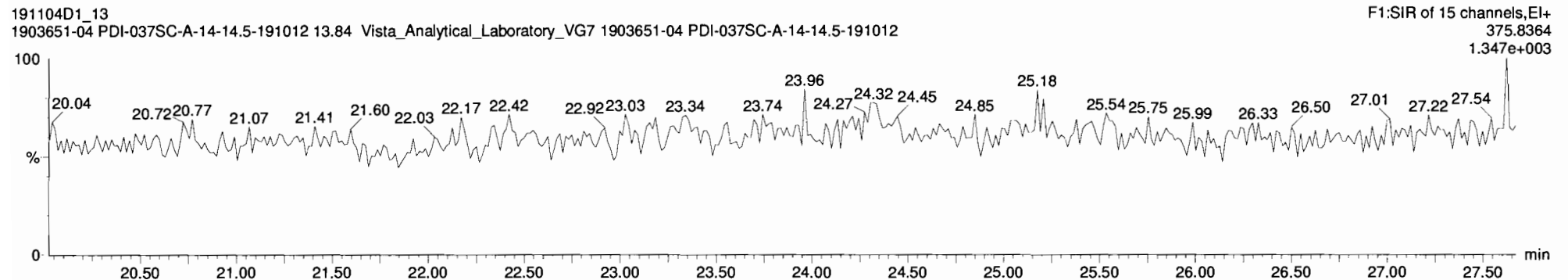
Total Tetra-Furans



13C-2,3,7,8-TCDF



DPE1

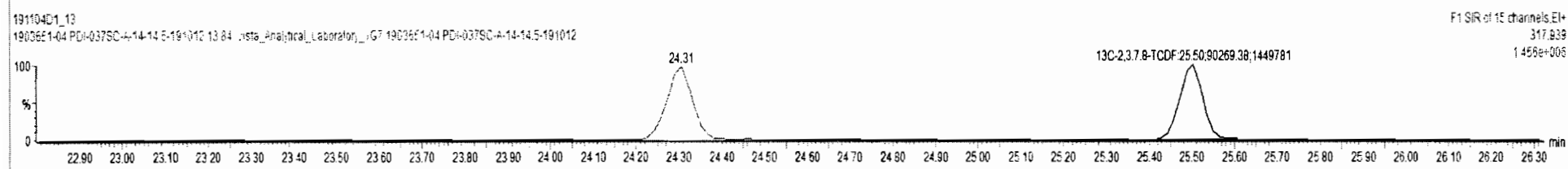
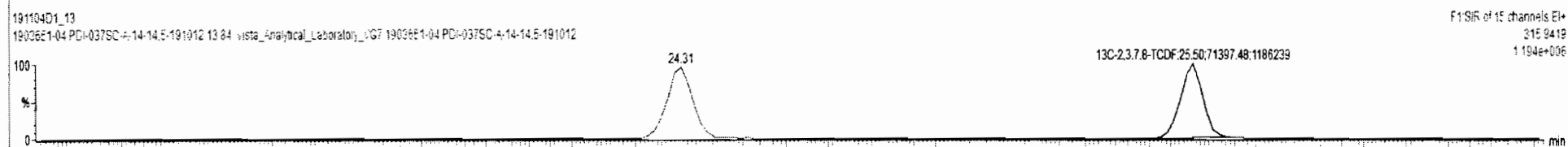
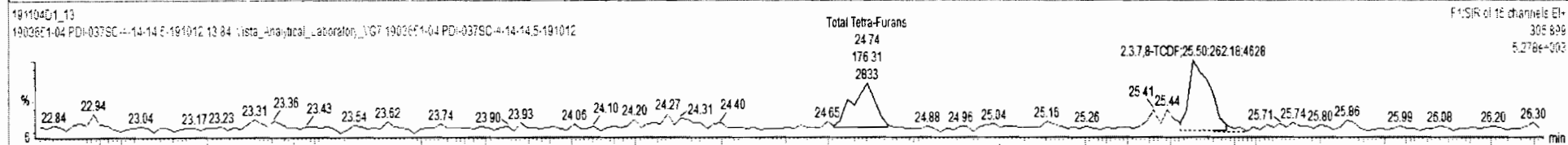
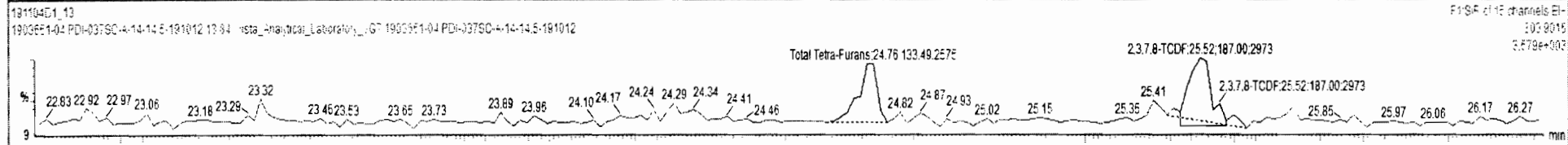




191104D1\_13 - 1903651-04 PDI-037SC-A-14-14.5-191012 - 1903651-04 PDI-037SC-A-14-14.5-191012 13 84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	IS Resp	ES	RA	nly	RRF	wt/vol	Pred.RT	RT	RRT	Pred.RRT	Check.RRT	Conc.	%Rec	DL	EMPC
30	13C-2,3,4,6,7,8-HxCDF	1.12e5	1.36e5	38	0.53	NO	0.953	9.933	33.91	33.90	1.009	1.009	NO	182.8	90.8	0.785	
31	13C-1,2,3,7,8,9-HxCDF	1.05e5	1.36e5	38	0.53	NO	0.828	9.933	34.50	34.86	1.038	1.029	NO	196.9	97.8	0.504	
32	13C-1,2,3,4,6,7,8-HpCDF	9.45e4	1.36e5	38	0.42	NO	0.757	9.933	36.71	36.72	1.093	1.093	NO	192.4	96.1	0.911	
33	13C-1,2,3,4,7,8,9-HpCDF	7.91e4	1.36e5	38	0.42	NO	0.561	9.933	38.40	38.47	1.145	1.143	NO	210.9	105	1.19	
34	13C-OCDF	1.87e5	1.36e5	38	0.88	NO	0.689	9.933	41.43	41.44	1.233	1.233	NO	426.4	104	0.559	
35	37C-2,3,7,8-TCDD	4.54e4	1.04e5	36			1.198	9.933	26.29	26.30	1.022	1.022	NO	73.49	91.2	0.0984	
36	13C-1,2,3,4-TCDD	1.04e5	1.04e5	36	0.79	NO	1.000	9.933	25.70	25.72	1.000	1.000	NO	201.3	100	0.494	
37	13C-1,2,3,4-TCDF	1.76e5	1.76e5	37	0.81	NO	1.000	9.933	24.28	24.31	1.000	1.000	NO	201.3	100	0.551	
38	13C-1,2,3,4,6,9-HxCDF	1.30e5	1.30e5	38	0.51	NO	1.000	9.933	33.55	33.60	1.000	1.000	NO	201.3	100	0.748	
39	Total Tetra-Dioxins	1.06e5					0.991	9.933	25.50			0.000	NO			0.0965	
40	Total Penta-Dioxins	8.66e4					0.672	9.933	30.00			0.000	NO			0.0636	
41	Total Hexa-Dioxins	0.00e0					0.976	9.933	33.60			0.000	NO	2.650		0.301	2.650
42	Total Hepta-Dioxine	7.96e4					0.989	9.933	37.75			0.000	NO	31.80		0.354	31.80
43	Total Tetra-Furans	1.62e5					0.943	9.933	24.00			0.000	NO	0.9980		0.161	0.9980
44	1st Func Penta-Furans	0.06e0					0.540	9.933	27.63			0.000	NO			0.0395	

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred.RA	RA	nly	EMPC	Conc.
1	43 Total Tetra-Furans	24.00	24.76	1.335e2	1.763e2	0.770	0.76	NO	0.40925	0.40925
2	8,2,3,7,8-TCDF	25.53	25.52	1.870e2	2.622e2	0.770	0.71	NO	0.58680	0.58680



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

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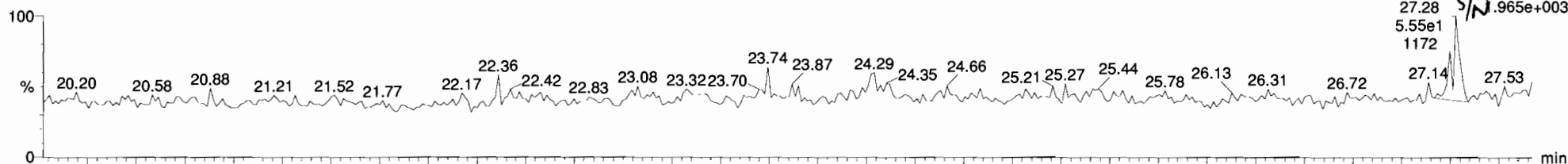
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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

1st Func. Penta-Furans

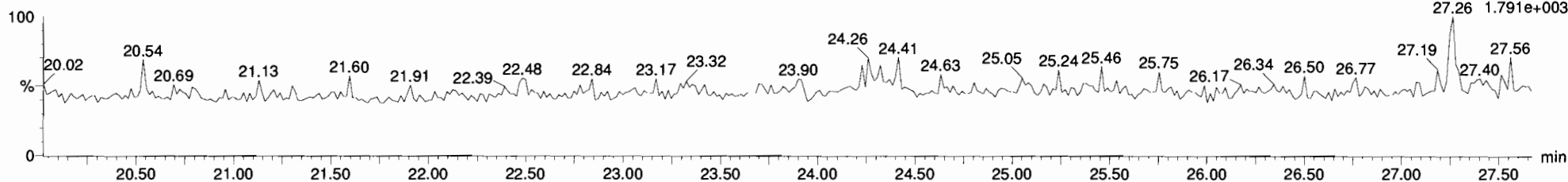
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1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7 1903651-04 PDI-037SC-A-14-14.5-191012

*sn*  
*HO*  
F1:SIR of 15 channels, EI+  
339.860  
27.28 S/N .965e+003  
5.55e1  
1172



191104D1\_13  
1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7 1903651-04 PDI-037SC-A-14-14.5-191012

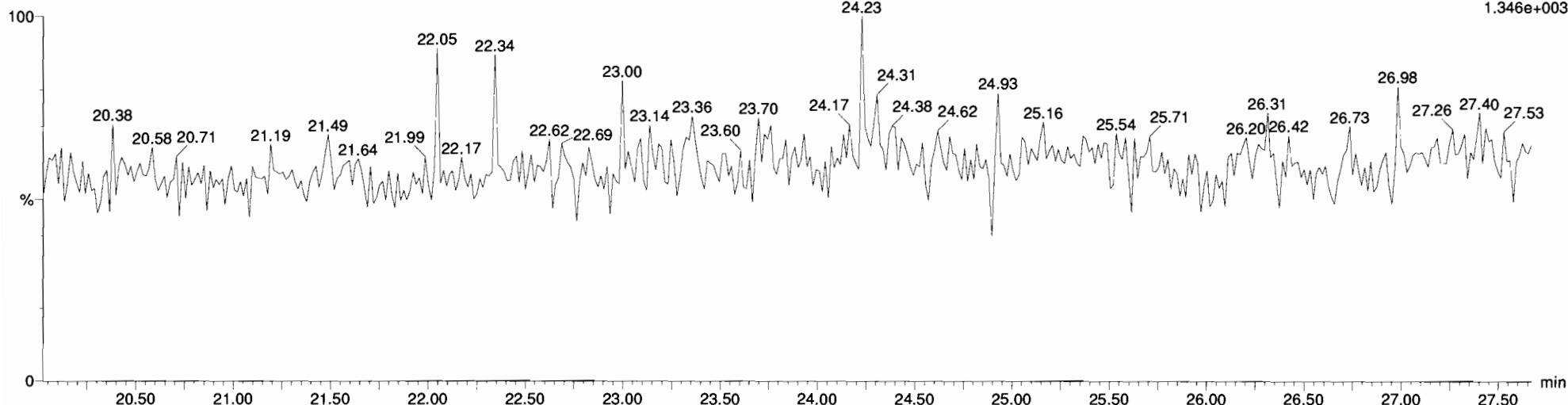
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DPE6

191104D1\_13  
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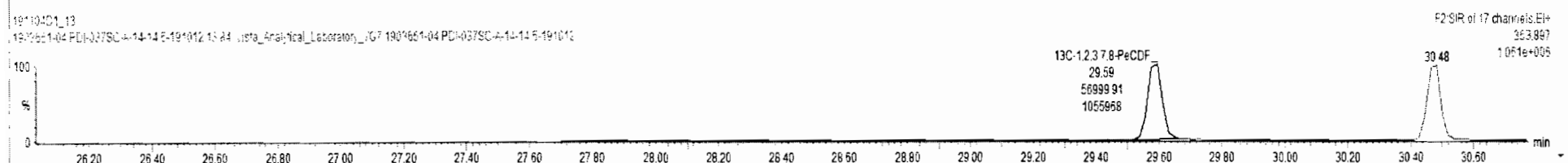
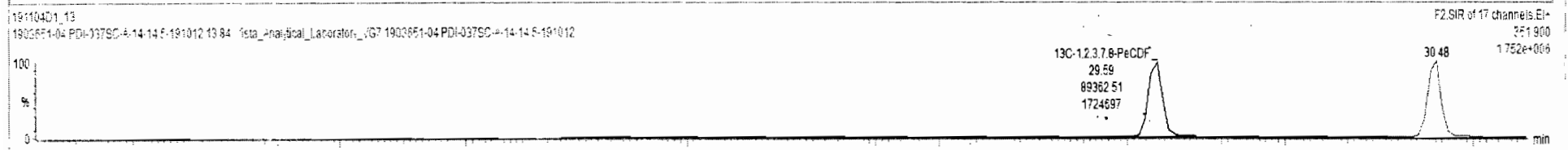
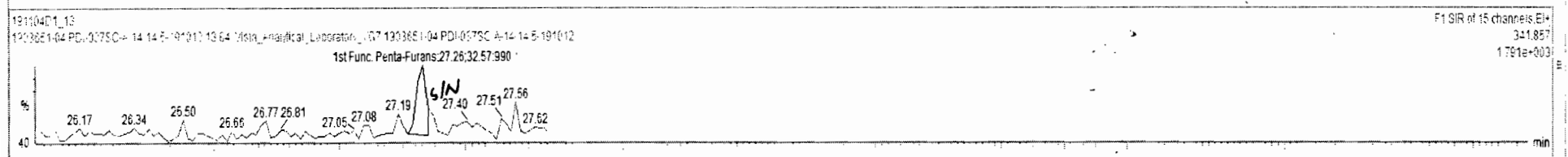
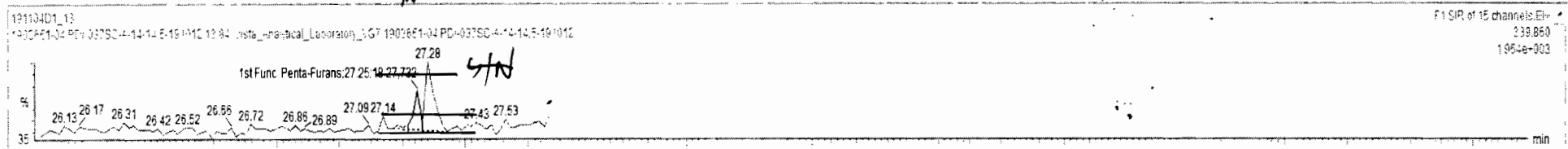
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#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
44	44 1st Func. Penta-Furans		0.00e0				0.940	9.933	27.63			0.000	NO	0.0000	0.0395	0.04504	
45	45 Total Penta-Furans		0.00e0				0.940	9.933	30.00			0.000	NO	0.4128	0.154	1.124	
46	46 Total Hexa-Furans		0.00e0				1.078	9.923	33.00			0.000	NO	1.571	0.205	1.942	
47	47 Total Hepta-Furans		0.00e0				1.135	9.933	37.75			0.000	NO	3.717	0.336	3.912	
48	48 PFK1																
49	49 PFK2																
50	50 PFK2																

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	44 1st Func. Penta-Furans	27.63	27.25	1.827e1	3.257e1	1.550	0.5E	YES	0.04503E	0.00000

S/N



Vista Analytical Laboratory

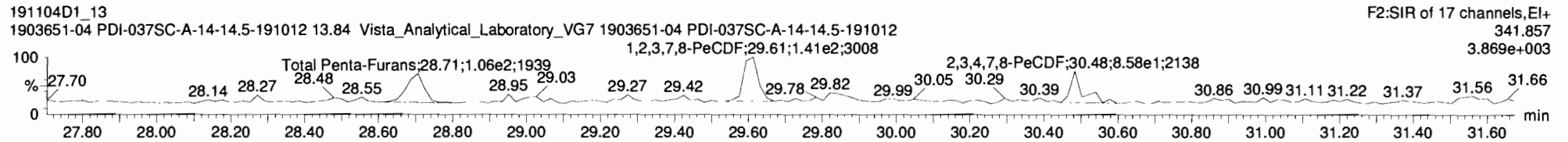
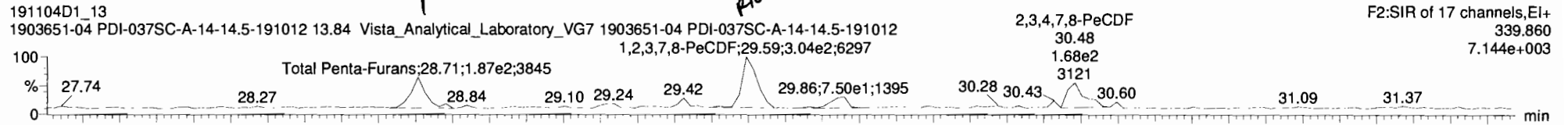
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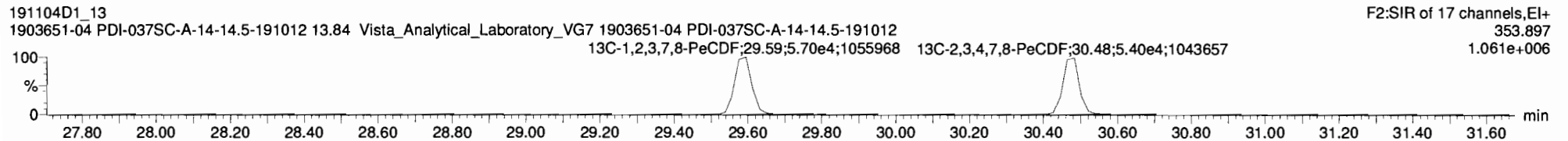
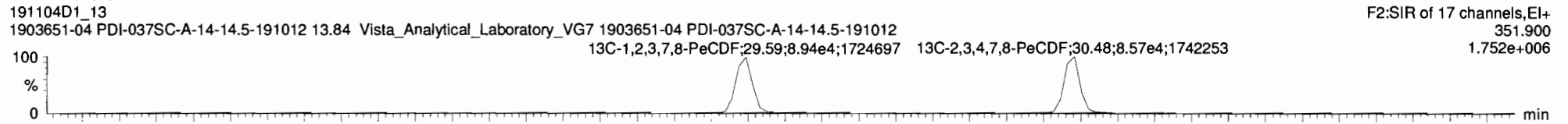
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Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012, Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

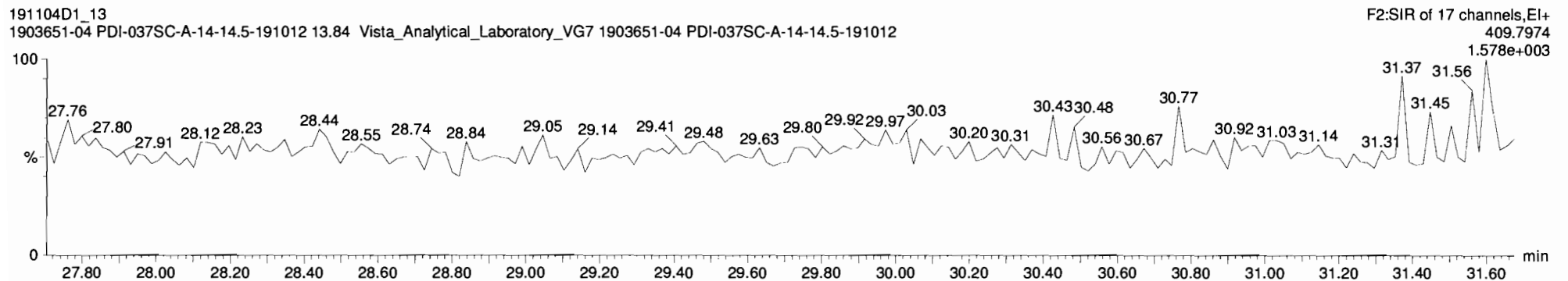
Total Penta-Furans



13C-1,2,3,7,8-PeCDF



DPE2

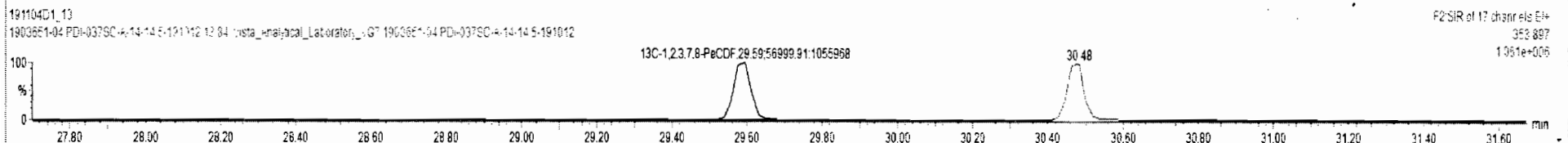
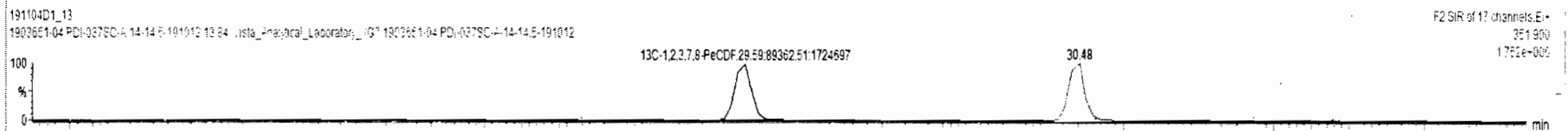
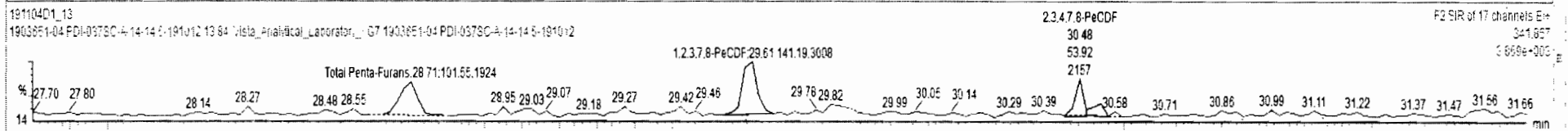
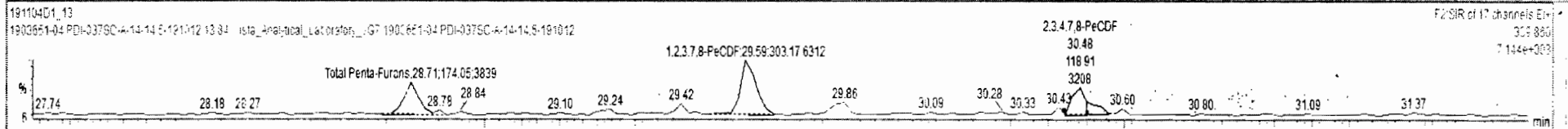




191104D1\_13 - 1903651-04 PDI-037SC-A-14-14 5-191012 - 1903651-04 PDI-037SC-A-14-14 5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	S Resp	IS#	RA	nly	RRF	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
37	37 13C-1,2,3,4-TCDF	1.76e5	1.76e5	37	0.81	NO	1.000	9.933	24.28	24.21	1.000	1.000	NO	201.3	130	0.551	
38	38 13C-1,2,3,4,6,8-HxCDF	1.30e5	1.30e5	38	0.51	NO	1.000	9.933	33.55	33.60	1.000	1.000	NO	201.2	100	0.748	
39	39 Total Tetra-Dioxins	1.09e5					0.901	9.933	25.50			0.000	NO			0.0865	
40	40 Total Penta-Dioxins	8.69e4					0.872	9.933	30.00			0.000	NO			0.0686	
41	41 Total Hexa-Dioxins	0.00e0					0.976	9.933	33.80			0.000	NO	2.650		0.301	2.650
42	42 Total Hepta-Dioxins	7.96e4					0.989	9.933	37.75			0.000	NO	31.80		0.354	31.80
43	43 Total Tetra-Furans	1.62e5					0.943	9.933	24.00			0.000	NO	0.9560		0.161	0.9560
44	44 1st Func. Penta-Furans	0.00e0					0.940	9.933	27.63			0.000	NO			0.0395	
45	45 Total Penta-Furans	0.00e0					0.940	9.933	30.00			0.000	NO	0.4128		0.154	1.224
46	46 Total Hexa-Furans	0.00e0					1.078	9.933	33.00			0.000	NO	1.571		0.205	1.942
47	47 Total Hepta-Furans	0.00e0					1.135	9.933	37.75			0.000	NO	3.717		0.328	3.912
48	48 PFK1																
49	49 PFK2																

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	45 Total Penta-Furans	30.00	28.71	1.741e2	1.015e2	1.550	1.71	NO	0.41300	0.41284
2	9 1,2,3,7,8-PeCDF	29.62	29.59	3.032e2	1.412e2	1.550	2.15	YES	0.51600	0.00000
3	10 2,3,4,7,8-PeCDF	30.51	30.48	1.189e2	5.392e1	1.550	2.21	YES	0.19500	0.00000
4	45 Total Penta-Furans	30.00	30.50	5.622e1	2.611e1	1.550	2.15	YES	0.10000	0.00000



Vista Analytical Laboratory

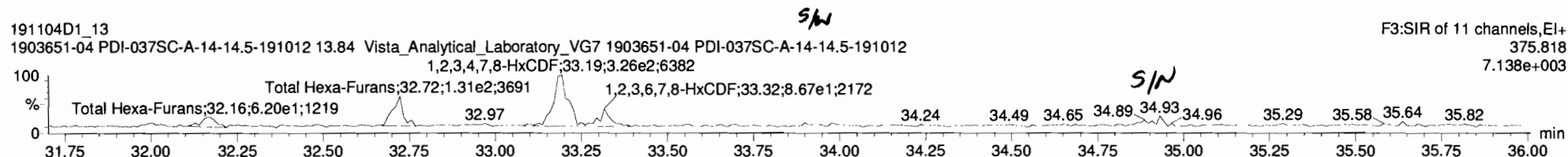
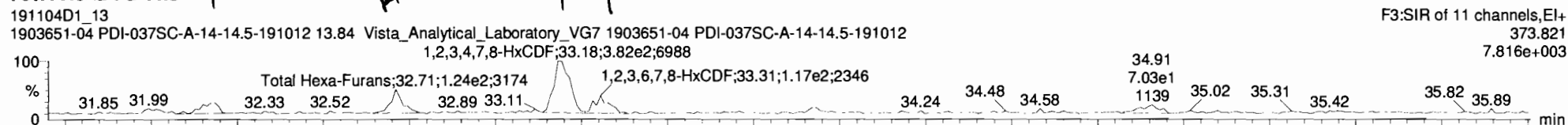
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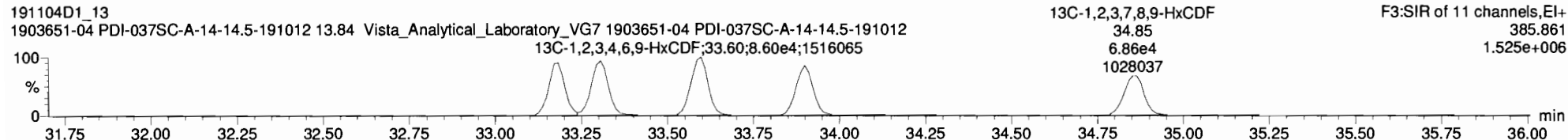
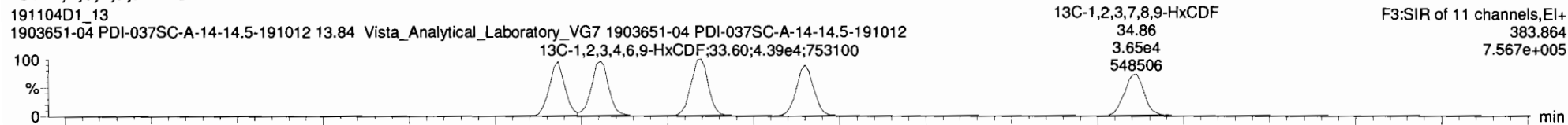
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Name: 191104D1\_13, Date: 4-NOV-2019, Time: 22:04:51, ID: 1903651-04 PDI-037SC-A-14-14.5-191012, Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

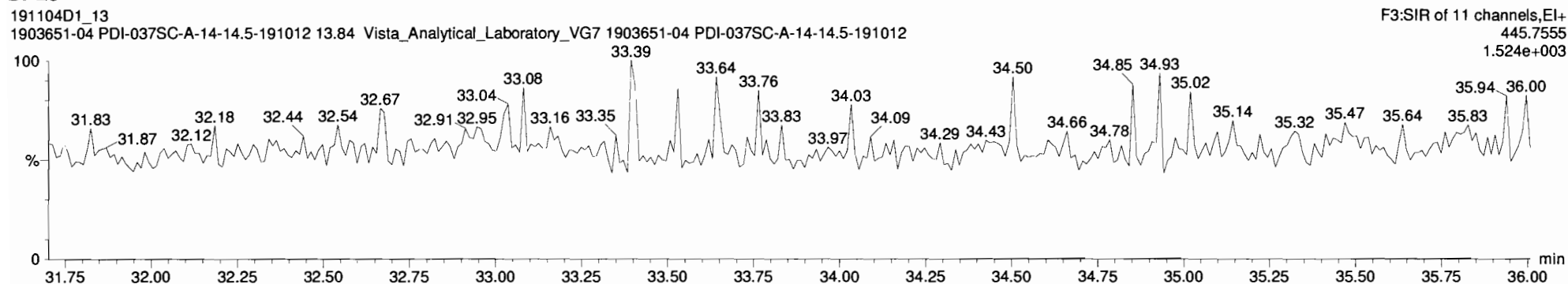
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3



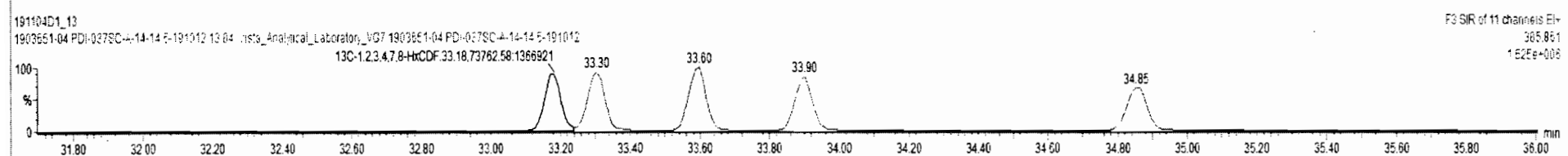
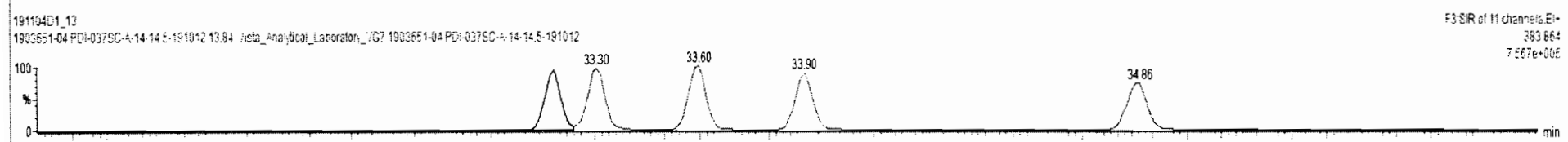
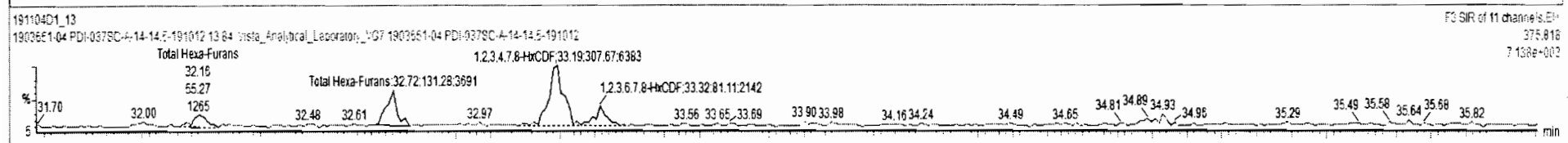
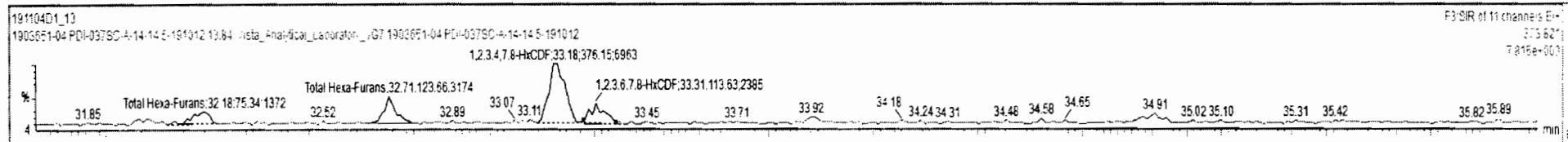




191104D1\_13 - 1903651-04 PDI-037SC-A-14-14.5-191012 - 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtVol	Pred.RT	RT	RRT	Pred.RRT	Check.RRT	Conc	%Rec	DL	EMPC
44	44 1st Func. Penta-Furans		0.0669				0.940	9.933	27.62			0.000	NO	0.0000		0.0395	0.08670
45	45 Total Penta-Furans		0.0600				0.940	9.933	30.00			0.000	NO	0.4128		0.154	1.124
46	46 Total Hexa-Furans		0.0000				1.078	9.933	33.00			0.000	NO	1.571		0.205	1.942
47	47 Total Hepta-Furans		0.0000				1.135	9.933	37.75			0.000	NO	3.993		0.238	3.993
48	48 PFK1																
49	49 PFK2																
50	50 PFK3																
51	51 PFK4																
52	52 PFK5																
53	53 DPE1																
54	54 DPE2																
55	55 DPE3																
56	56 DPE4																
57	57 DPE5																
58	58 DPE6																

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	46 Total Hexa-Furans	33.00	32.18	7.534e1	5.527e1	1.240	1.36	NO	0.21648	0.21648
2	46 Total Hexa-Furans	33.00	32.71	1.237e2	1.313e2	1.240	0.94	YES	0.37026	0.00000
3	11 1,2,3,4,7,8-HxCDF	33.18	33.16	3.762e2	3.077e2	1.240	1.22	NO	1.0556	1.0556
4	12 1,2,3,6,7,8-HxCDF	33.31	33.31	1.136e2	6.111e1	1.240	1.40	NO	0.29936	0.29936



Vista Analytical Laboratory

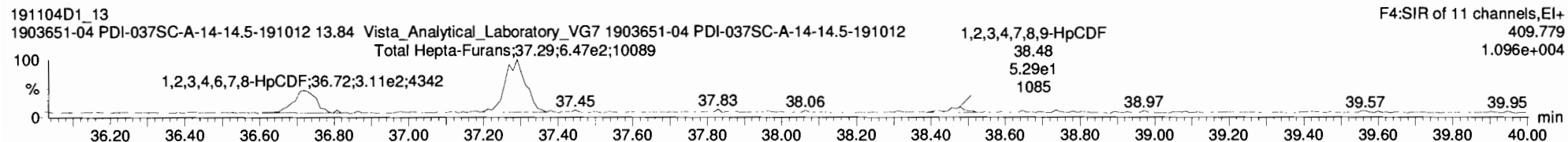
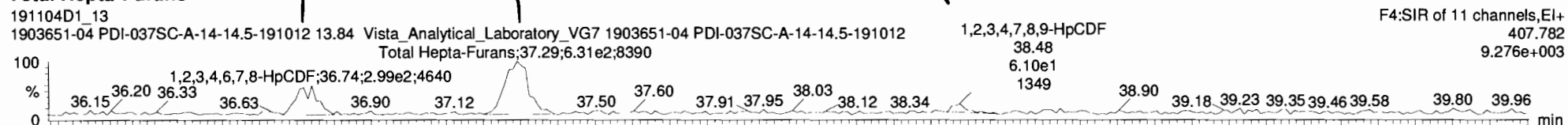
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Last Altered: Thursday, December 05, 2019 09:00:26 Pacific Standard Time

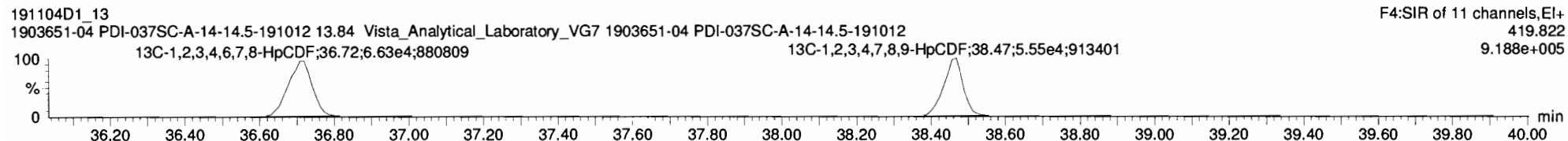
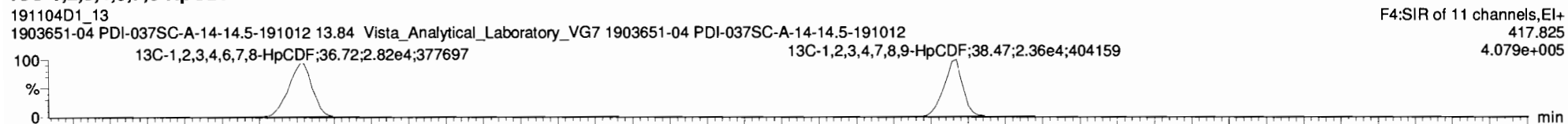
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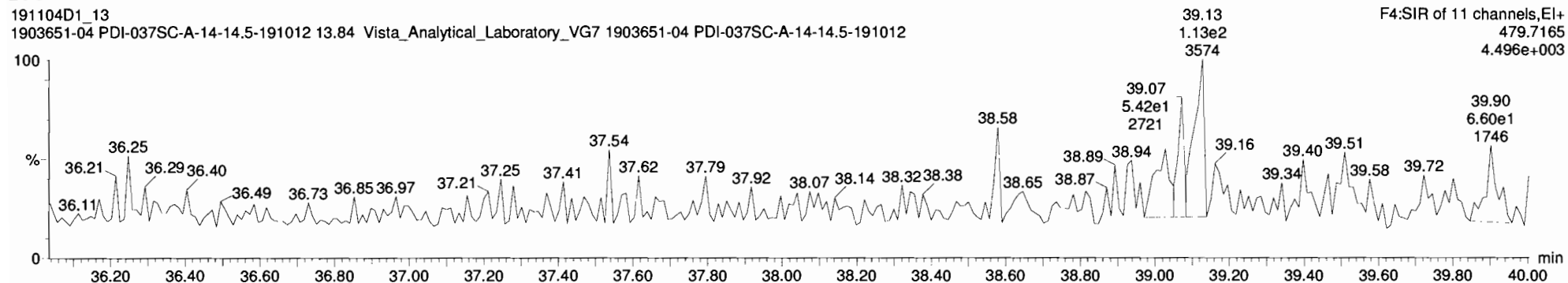
Total Hepta-Furans



13C-1,2,3,4,6,7,8-HpCDF



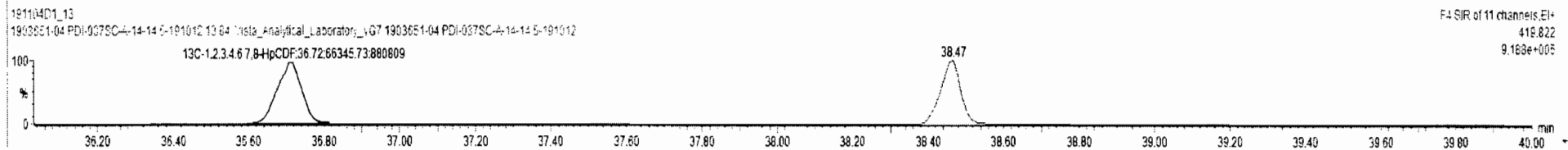
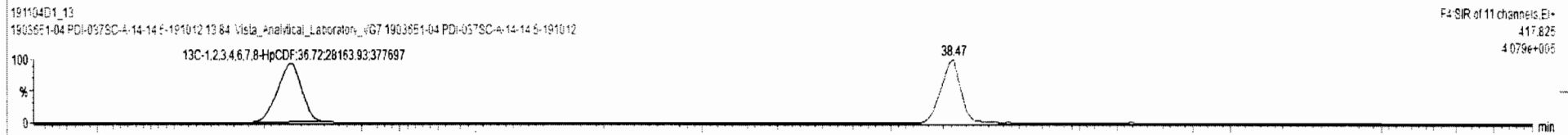
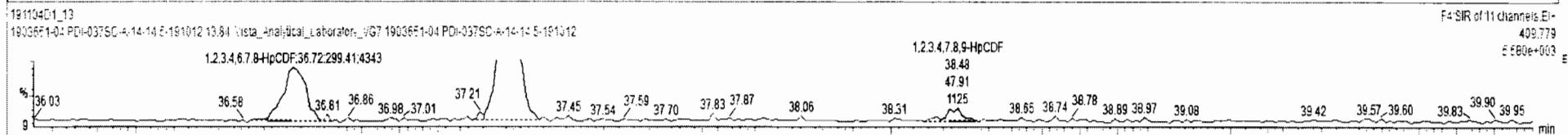
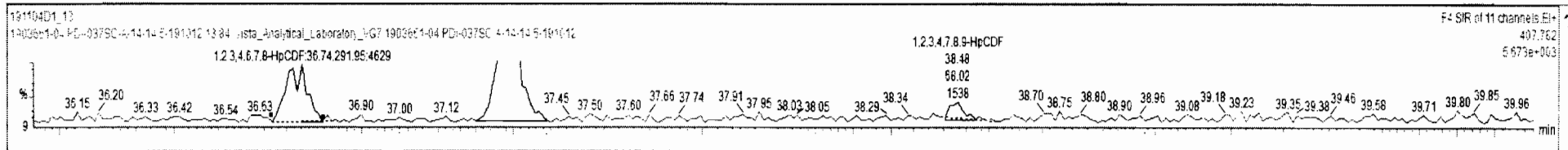
DPE4



191104D1\_13 - 1903651-04 PDI-037SC-A-14-14 5-191012 - 1903651-04 PDI-037SC-A-14-14 5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

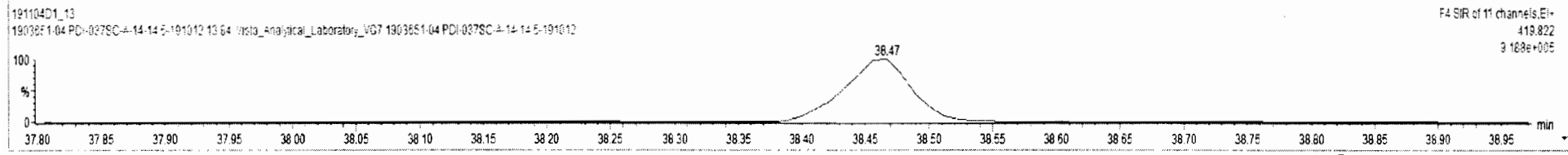
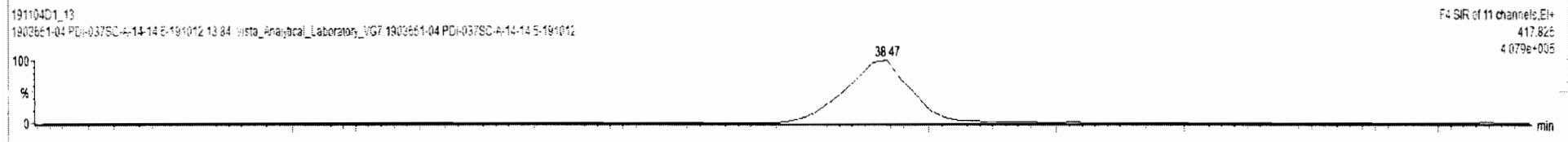
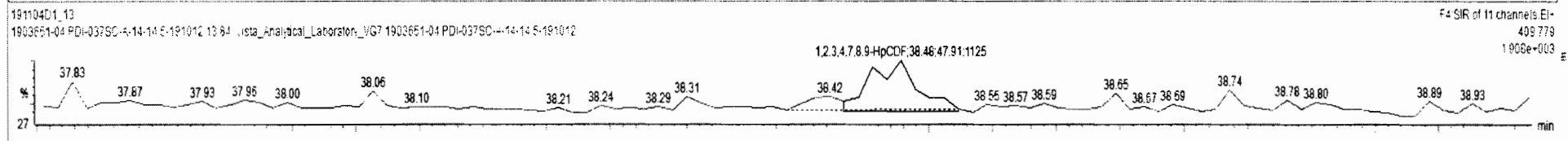
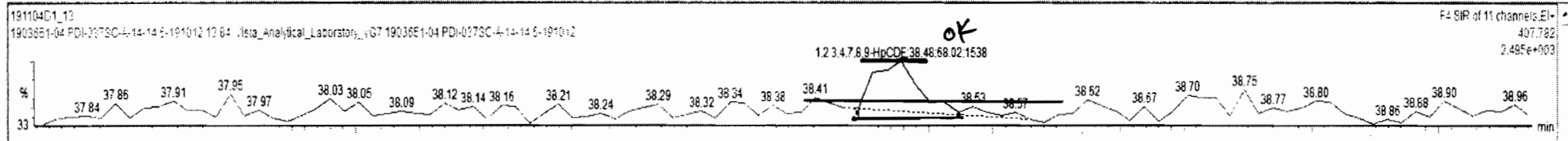
#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
44	1st Func. Penta-Furans		0.00e0				0.940	9.933	27.63			0.000	NO	0.0000		0.0395	0.08870
45	Total Penta-Furans		0.00e0				0.940	9.933	30.00			0.000	NO	0.4128		0.154	1.124
46	Total Hexa-Furans		0.00e0				1.078	9.933	33.00			0.000	NO	1.571		0.205	1.942
47	Total Hepta-Furans		0.00e0				1.135	9.933	37.75			0.000	NO	3.717		0.336	3.912
48	PFK1																
49	PFK2																
50	PFK3																
51	PFK4																
52	PFK5																
53	DPE1																
54	DPE2																
55	DPE3																
56	DPE4																
57	DPE5																
58	DPE6																

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred.RA	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDF	36.76	36.74	2.920e2	2.954e2	1.040	0.98	NO	1.1173	1.1173
2	Total Hepta-Furans	37.75	37.29	6.312e2	6.403e2	1.040	0.96	NO	2.5959	2.5959
3	1,2,3,4,7,8,9-HpCDF	38.47	38.48	6.802e1	4.791e1	1.040	1.42	YES	0.15447	0.00000



#	Name	Resp	IS Resp	ES	RA	n/y	RRF	rt/val	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
44	1st Func Penta-Furans		0.00e0				0.940	9.933	27.63			0.000	NO	0.0000		0.0295	0.08670
45	Total Penta-Furans		0.00e0				0.940	9.933	30.00			0.000	NO	0.4128		0.154	1.124
46	Total Hexa-Furans		0.00e0				1.078	9.933	33.00			0.000	NO	1.571		0.205	1.942
47	Total Hepta-Furans		0.00e0				1.135	9.933	37.75			0.000	NO	3.717		0.336	3.912
48	PFK1																
49	PFK2																
50	PFK3																
51	PFK4																
52	PFK5																
53	DPE1																
54	DPE2																
55	DPE3																
56	DPE4																
57	DPE5																
58	DPE6																

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDF	36.76	36.74	2.929e2	2.954e2	1.040	0.96	NO	1.1173	1.1172
2	Total Hepta-Furans	37.75	37.29	6.312e2	6.403e2	1.040	0.99	NO	2.5995	2.5999
3	1,2,3,4,7,8,9-HpCDF	38.47	38.48	6.802e1	4.791e1	1.040	1.42	YES	0.19447	0.00000



Vista Analytical Laboratory

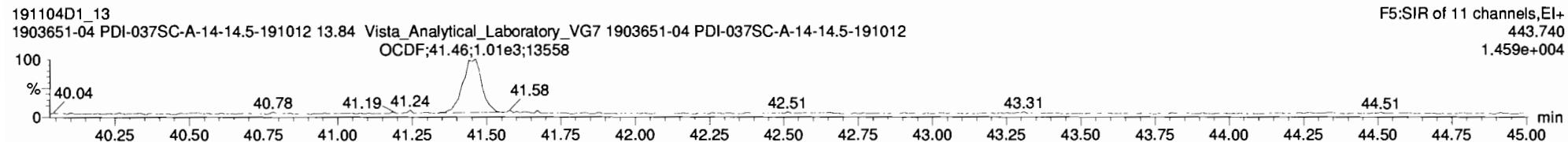
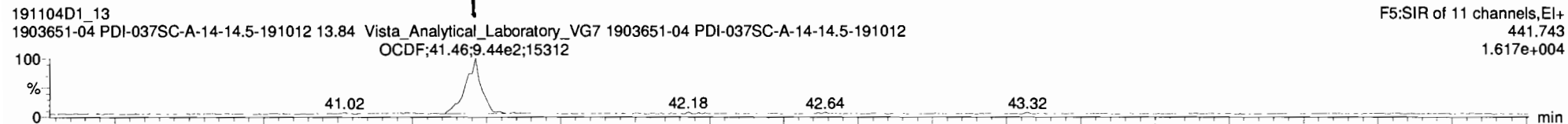
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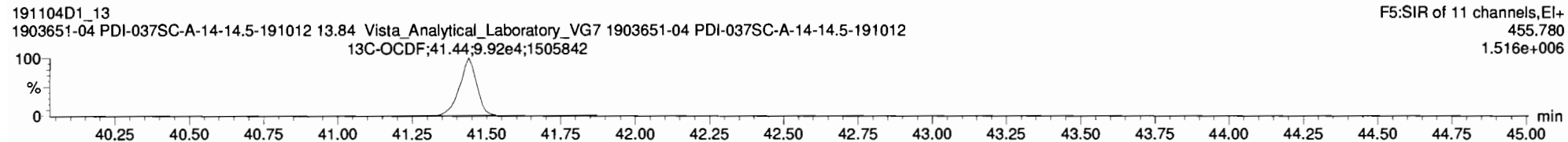
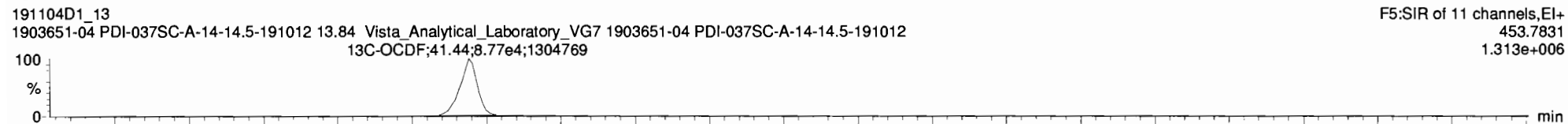
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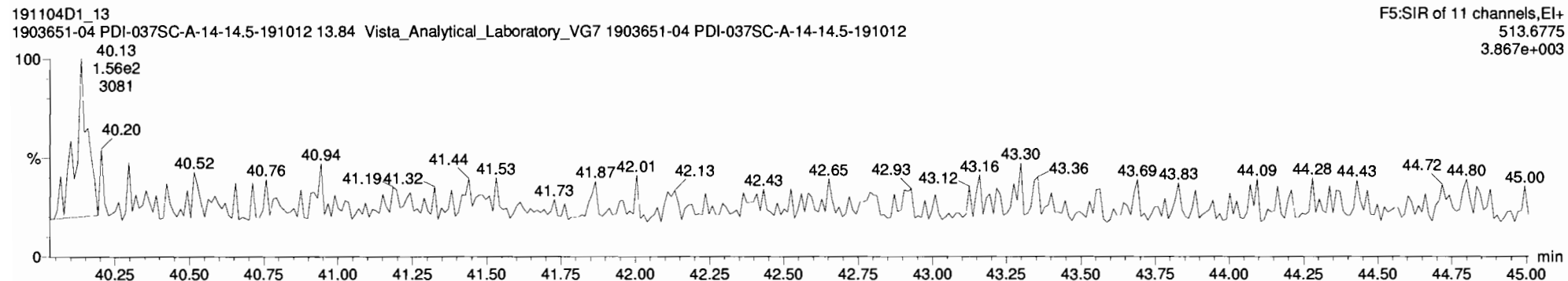
OCDF



13C-OCDF

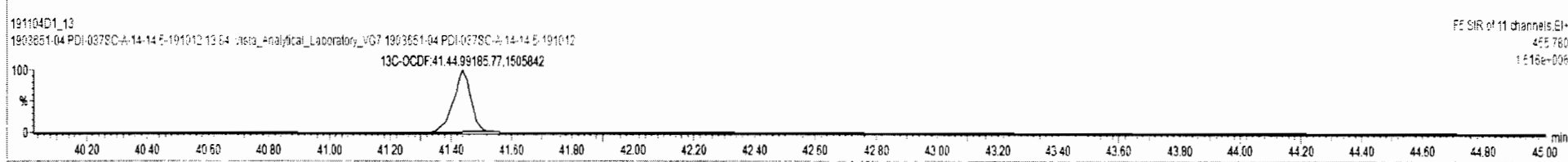
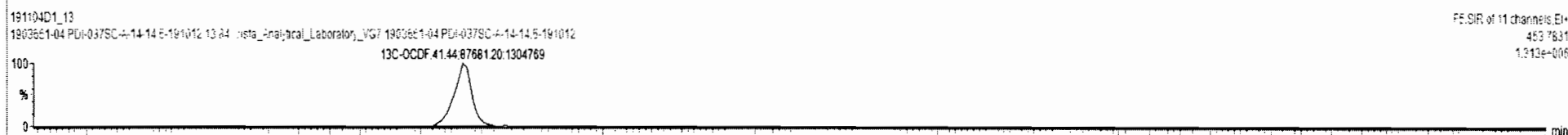
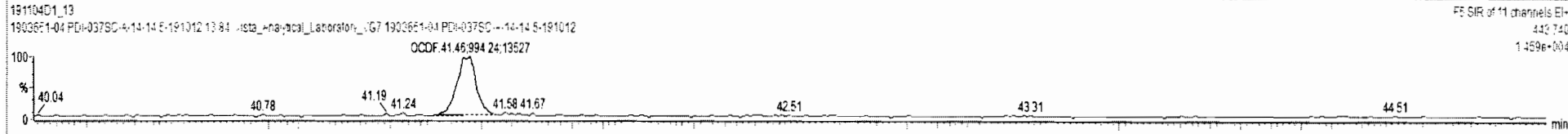
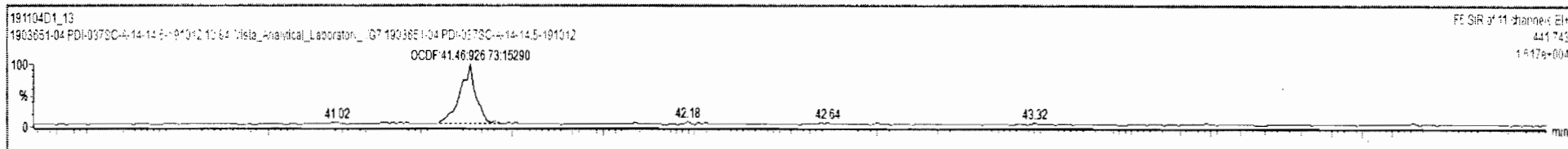


DPE5



#	Name	Resp	IS Resp	IS	RA	nly	RRF	wrtvol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
5	5 1.2.3.7.8.9-HxCDD		8.63e4	23	1.03	NO	0.961	9.933	34.52			1.001	NO			0.297	
6	6 1.2.3.4.6.7.8-HpCDD	5.26e3	7.96e4	23	1.03	NO	0.979	9.933	37.93	37.93	1.000	1.000	NO	13.54		0.357	13.54
7	7 OCDD	3.36e4	1.43e5	24	0.94	NO	0.959	9.933	41.22	41.23	1.000	1.000	NO	98.48		0.359	98.48
8	8 2.3.7.8-TCDF	4.49e2	1.62e5	25	0.71	NO	0.950	9.933	25.53	25.52	1.001	1.001	NO	0.5868		0.160	0.5868
9	9 1.2.3.7.8-PeCDF	4.44e2	1.46e5	26	2.15	YES	0.960	9.933	26.62	29.59	1.000	1.001	NO	0.6365		0.151	0.5157
10	10 2.3.4.7.8-PeCDF	1.73e2	1.40e5	27	2.21	YES	1.015	9.933	30.51	30.48	1.000	1.001	NO	0.2454		0.142	0.1952
11	11 1.2.3.4.7.8-HxCDF	6.64e2	1.11e5	28	1.22	NO	1.177	9.933	33.18	33.18	1.000	1.000	NO	1.056		0.166	1.056
12	12 1.2.3.6.7.8-HxCDF	1.95e2	1.23e5	29	1.40	NO	1.069	9.933	33.31	33.31	1.000	1.000	NO	0.2964		0.187	0.2964
13	13 2.3.4.6.7.8-HxCDF		1.12e5	30			1.114	9.933	33.93			1.001	NO			0.196	
14	14 1.2.3.7.8.9-HxCDF		1.05e5	31			1.062	9.933	34.86			1.000	NO			0.254	
15	15 1.2.4.6.7.8-HpCDF	5.91e2	9.45e4	32	0.96	NO	1.128	9.933	36.76	36.74	1.001	1.001	NO	1.117		0.350	1.117
16	16 1.2.3.4.7.8.9-HpCDF	1.16e2	7.91e4	33	1.42	YES	1.280	9.933	38.47	38.48	1.000	1.000	NO	0.2307		0.286	0.1945
17	17 OCDF	1.92e3	1.67e5	34	0.93	NO	0.947	9.933	41.44	41.46	1.001	1.001	NO	4.370		0.220	4.370
18	18 13C-2.3.7.8-TCDD	1.09e5	1.04e5	36	0.76	NO	1.095	9.933	26.26	26.27	1.021	1.021	NO	192.4	95.6	0.442	
19	19 13C-1.2.3.7.8-PeCDD	8.65e4	1.04e5	36	0.62	NO	0.881	9.933	30.52	30.75	1.195	1.187	NO	151.3	95.0	0.477	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1										



Vista Analytical Laboratory

Dataset: Untitled

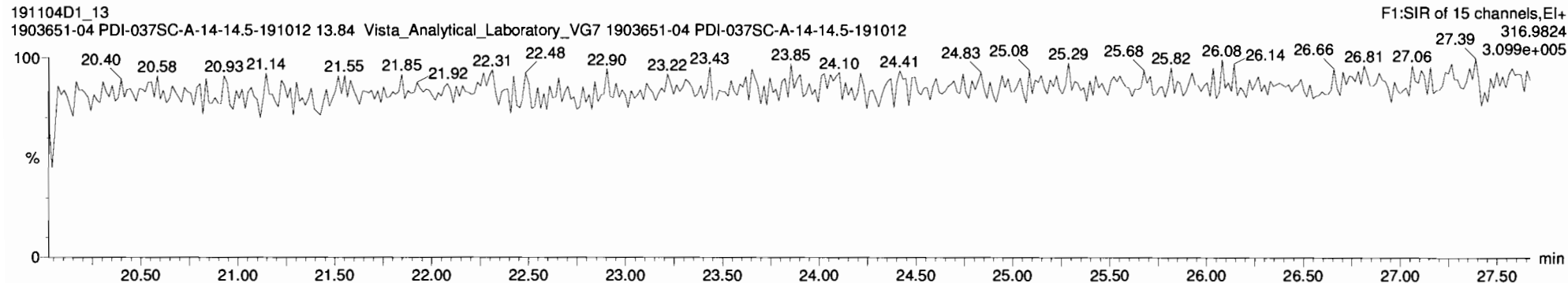
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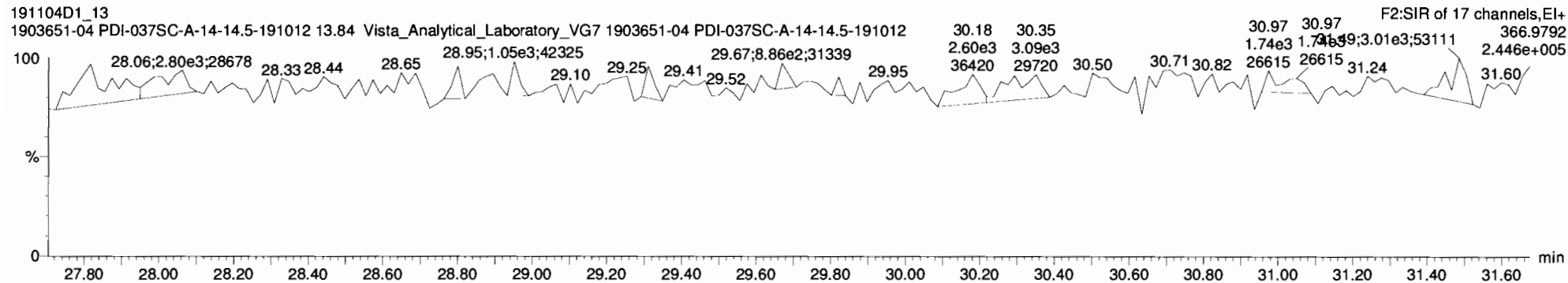
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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

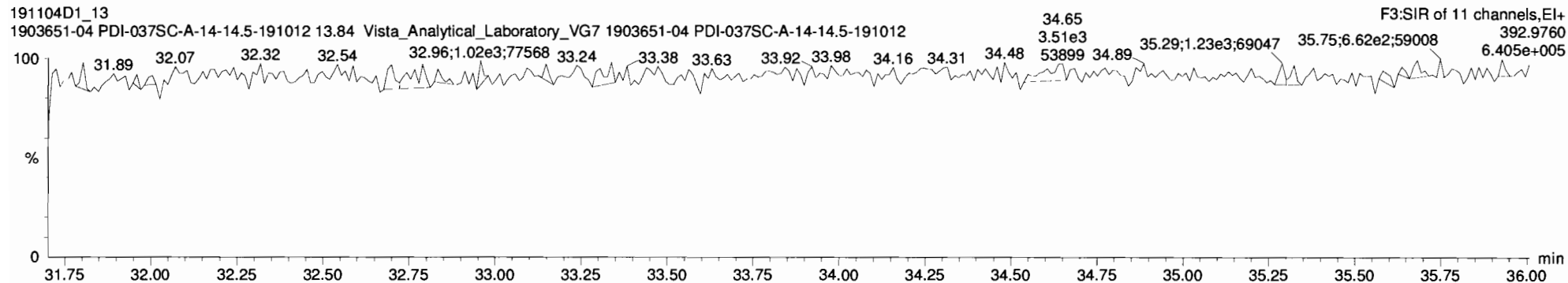
PFK1



PFK2

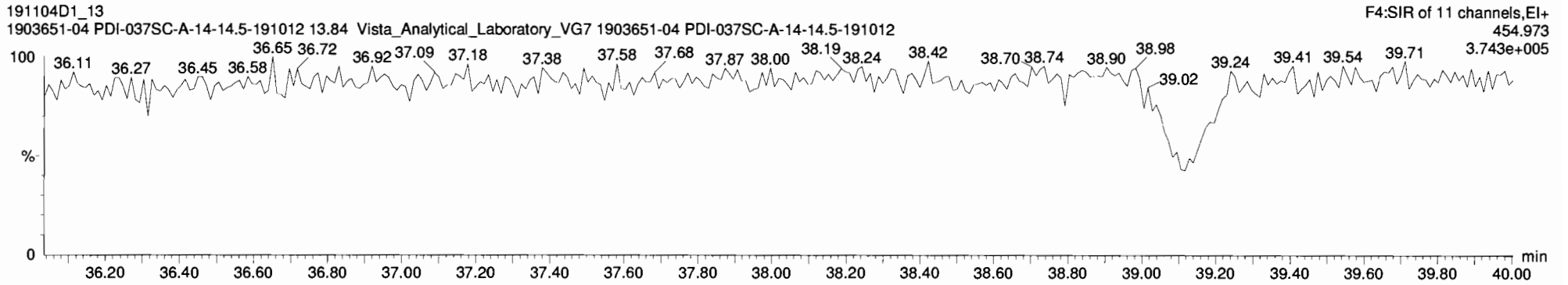


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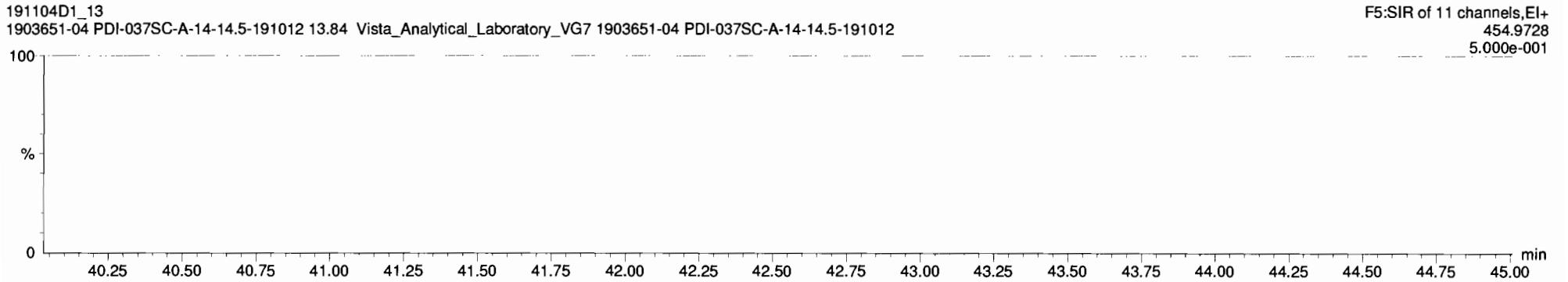


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Description: 1903651-04 PDI-037SC-A-14-14.5-191012 13.84 Vista\_Analytical\_Laboratory\_VG7

**PFK4**



**PFK5**





Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-6.qld  
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 Printed: Thursday, December 05, 2019 11:17:34 Pacific Standard Time

EL 12/5/19

CT 12/11/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57  
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 Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	Wt/Vol	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	2,3,7,8-TCDD		1.05e5	9.9651	0.905			1.001		26.29					0.189
2	1,2,3,7,8-PeCDD		8.51e4	9.9651	0.903			1.001		30.76					0.195
3	1,2,3,4,7,8-HxCDD		7.14e4	9.9651	1.101			1.000		34.05					0.403
4	1,2,3,6,7,8-HxCDD		8.19e4	9.9651	0.939			1.000		34.17					0.438
5	1,2,3,7,8,9-HxCDD		8.11e4	9.9651	0.961			1.001		34.49					0.450
6	1,2,3,4,6,7,8-HpCDD	7.09e2	7.03e4	9.9651	0.979	0.856	YES	1.000	1.001	37.91	37.92	2.0680		1.87	0.225
7	OCDD	4.18e3	1.18e5	9.9651	0.959	0.877	NO	1.000	1.000	41.19	41.20	14.777		14.8	0.417
8	2,3,7,8-TCDF		1.67e5	9.9651	0.950			1.001		25.51					0.161
9	1,2,3,7,8-PeCDF		1.26e5	9.9651	0.960			1.001		29.59					0.173
10	2,3,4,7,8-PeCDF		1.30e5	9.9651	1.015			1.001		30.49					0.159
11	1,2,3,4,7,8-HxCDF		9.66e4	9.9651	1.177			1.000		33.16					0.153
12	1,2,3,6,7,8-HxCDF		9.95e4	9.9651	1.069			1.000		33.29					0.196
13	2,3,4,6,7,8-HxCDF		9.24e4	9.9651	1.114			1.001		33.91					0.212
14	1,2,3,7,8,9-HxCDF		8.82e4	9.9651	1.062			1.000		34.84					0.247
15	1,2,3,4,6,7,8-HpCDF		7.33e4	9.9651	1.128			1.001		36.73					0.343
16	1,2,3,4,7,8,9-HpCDF		6.30e4	9.9651	1.280			1.000		38.44					0.274
17	OCDF	1.98e2	1.38e5	9.9651	0.947	0.892	NO	1.000	1.001	41.42	41.44	0.60768		0.608	0.464
18	13C-2,3,7,8-TCDD	1.05e5	8.95e4	9.9651	1.095	0.812	NO	1.021	1.022	26.25	26.26	215.42	107.3		0.480
19	13C-1,2,3,7,8-PeCDD	8.51e4	8.95e4	9.9651	0.881	0.639	NO	1.187	1.196	30.50	30.74	216.50	107.9		0.488
20	13C-1,2,3,4,7,8-Hx...	7.14e4	1.02e5	9.9651	0.642	1.305	NO	1.014	1.014	34.04	34.04	219.05	109.1		0.990
21	13C-1,2,3,6,7,8-Hx...	8.19e4	1.02e5	9.9651	0.856	1.248	NO	1.017	1.018	34.16	34.17	188.57	94.0		0.743
22	13C-1,2,3,7,8,9-Hx...	8.11e4	1.02e5	9.9651	0.807	1.249	NO	1.026	1.026	34.45	34.46	198.16	98.7		0.788
23	13C-1,2,3,4,6,7,8-H...	7.03e4	1.02e5	9.9651	0.654	1.040	NO	1.126	1.129	37.81	37.90	211.74	105.5		1.33
24	13C-OCDD	1.18e5	1.02e5	9.9651	0.580	0.875	NO	1.226	1.227	41.16	41.19	402.46	100.3		0.715
25	13C-2,3,7,8-TCDF	1.67e5	1.68e5	9.9651	1.035	0.780	NO	0.993	0.992	25.54	25.49	191.90	95.6		0.430
26	13C-1,2,3,7,8-PeCDF	1.26e5	1.68e5	9.9651	0.854	1.639	NO	1.143	1.150	29.38	29.57	175.66	87.5		0.693
27	13C-2,3,4,7,8-PeCDF	1.30e5	1.68e5	9.9651	0.847	1.634	NO	1.176	1.185	30.23	30.45	182.69	91.0		0.698
28	13C-1,2,3,4,7,8-Hx...	9.66e4	1.02e5	9.9651	0.832	0.512	NO	0.987	0.988	33.15	33.16	228.92	114.1		1.11
29	13C-1,2,3,6,7,8-Hx...	9.95e4	1.02e5	9.9651	1.034	0.504	NO	0.991	0.991	33.26	33.28	189.46	94.4		0.893
30	13C-2,3,4,6,7,8-Hx...	9.24e4	1.02e5	9.9651	0.953	0.520	NO	1.009	1.009	33.88	33.87	190.91	95.1		0.969
31	13C-1,2,3,7,8,9-Hx...	8.82e4	1.02e5	9.9651	0.828	0.508	NO	1.039	1.038	34.87	34.84	209.98	104.6		1.12

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-6.qld

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Printed: Thursday, December 05, 2019 11:17:34 Pacific Standard Time

Name: VG7 191106D1\_6, Date: 6-NOV-2019, Time: 15:41:12, ID: 1903651-05 PDI-074SC-A-11-12-191012,  
 Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	WL/Vol	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	32 13C-1,2,3,4,6,7,8-H...	7.33e4	1.02e5	9.9651	0.757	0.433	NO	1.093	1.093	36.69	36.69	190.72	95.0		1.04
33	33 13C-1,2,3,4,7,8,9-H...	6.30e4	1.02e5	9.9651	0.581	0.424	NO	1.143	1.145	38.38	38.44	213.51	106.4		1.36
34	34 13C-OCDF	1.38e5	1.02e5	9.9651	0.689	0.884	NO	1.233	1.234	41.40	41.42	394.51	98.3		0.762
35	35 37Cl-2,3,7,8-TCDD	4.65e4	8.95e4	9.9651	1.198			1.022	1.022	26.27	26.28	86.970	108.3		0.394
36	36 13C-1,2,3,4-TCDD	8.95e4	8.95e4	9.9651	1.000	0.853	NO	1.000	1.000	25.70	25.70	200.70	100.0		0.525
37	37 13C-1,2,3,4-TCDF	1.68e5	1.68e5	9.9651	1.000	0.799	NO	1.000	1.000	24.28	24.29	200.70	100.0		0.445
38	38 13C-1,2,3,4,6,9-Hx...	1.02e5	1.02e5	9.9651	1.000	0.520	NO	1.000	1.000	33.55	33.57	200.70	100.0		0.924
39	39 Total Tetra-Dioxins		1.05e5	9.9651	0.901			0.000		25.50					0.111
40	40 Total Penta-Dioxins		8.51e4	9.9651	0.872			0.000		30.00					0.0912
41	41 Total Hexa-Dioxins		0.00e0	9.9651	0.976			0.000		33.80		0.00000		0.399	0.236
42	42 Total Hepta-Dioxins		7.03e4	9.9651	0.989			0.000		37.75		2.5788		4.45	0.718
43	43 Total Tetra-Furans		1.67e5	9.9651	0.943			0.000		24.00					0.0788
44	44 1st Func. Penta-Fur...		0.00e0	9.9651	0.940			0.000		27.63					0.0458
45	45 Total Penta-Furans		0.00e0	9.9651	0.940			0.000		30.00					0.0878
46	46 Total Hexa-Furans		0.00e0	9.9651	1.078			0.000		33.00					0.0998
47	47 Total Hepta-Furans		0.00e0	9.9651	1.135			0.000		37.75		0.00000		0.474	0.169

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-6.qld

Last Altered: Thursday, December 05, 2019 11:12:37 Pacific Standard Time

Printed: Thursday, December 05, 2019 11:17:34 Pacific Standard Time

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Calibration: 05 Dec 2019 08:39:42

Name: VG7 191106D1\_6, Date: 6-NOV-2019, Time: 15:41:12, ID: 1903651-05 PDI-074SC-A-11-12-191012,

Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Tetra-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Penta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
41	Total Hexa-Dioxins	YES	32.52	97.220	43643.831	0.000	MM	0.0000	0.40

Hepta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
6	1,2,3,4,6,7,8-HpCDD	YES	37.92	327.056	35824.621	0.000	MM	0.0000	1.87
42	Total Hepta-Dioxins	NO	37.07	443.245	35824.621	25.407	bb	2.5788	2.58

Tetra-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Penta-Furans function 1

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-6.qld

Last Altered: Thursday, December 05, 2019 11:12:37 Pacific Standard Time

Printed: Thursday, December 05, 2019 11:17:34 Pacific Standard Time

Name: VG7 191106D1\_6, Date: 6-NOV-2019, Time: 15:41:12, ID: 1903651-05 PDI-074SC-A-11-12-191012,  
 Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Penta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc	EMPC
1									

Hexa-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc	EMPC
1									

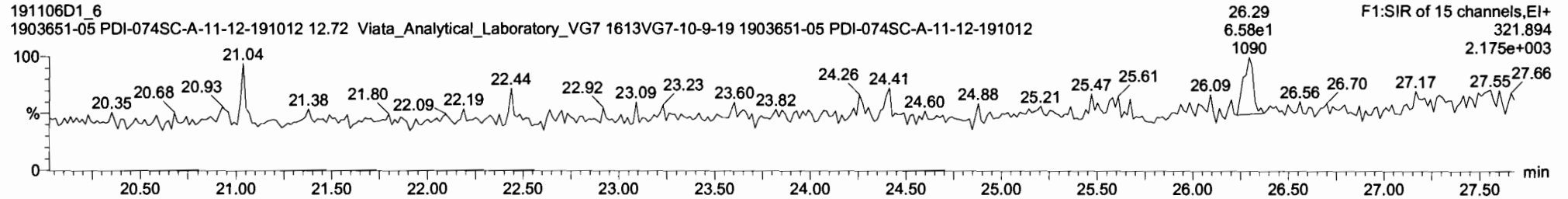
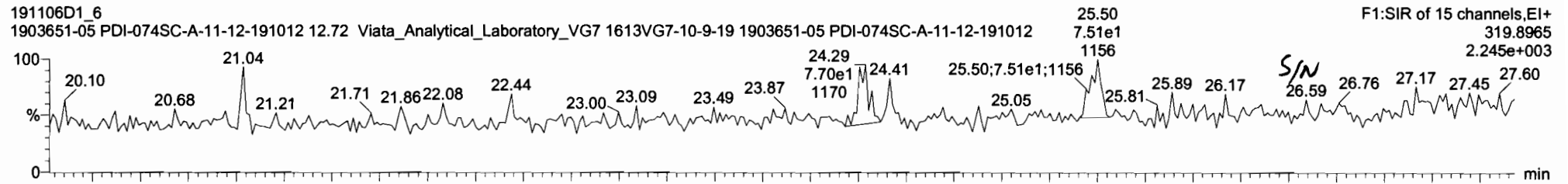
Hepta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc	EMPC
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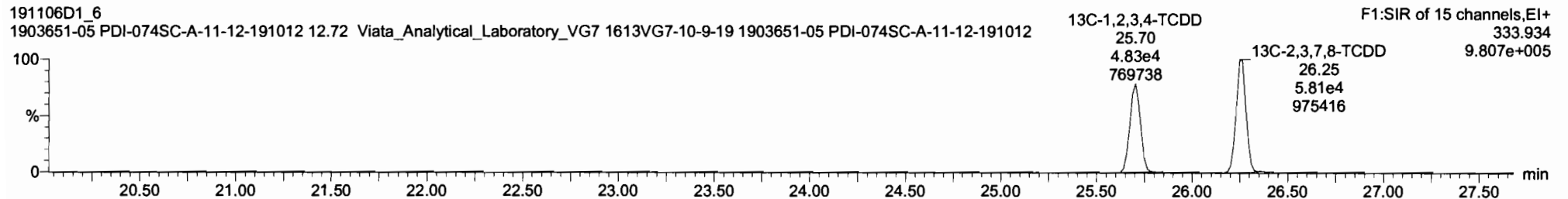
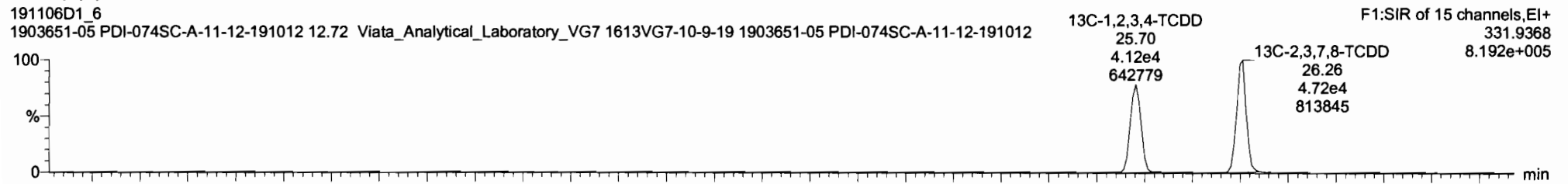
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**Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19**

**Total Tetra-Dioxins**



**13C-2,3,7,8-TCDD**



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

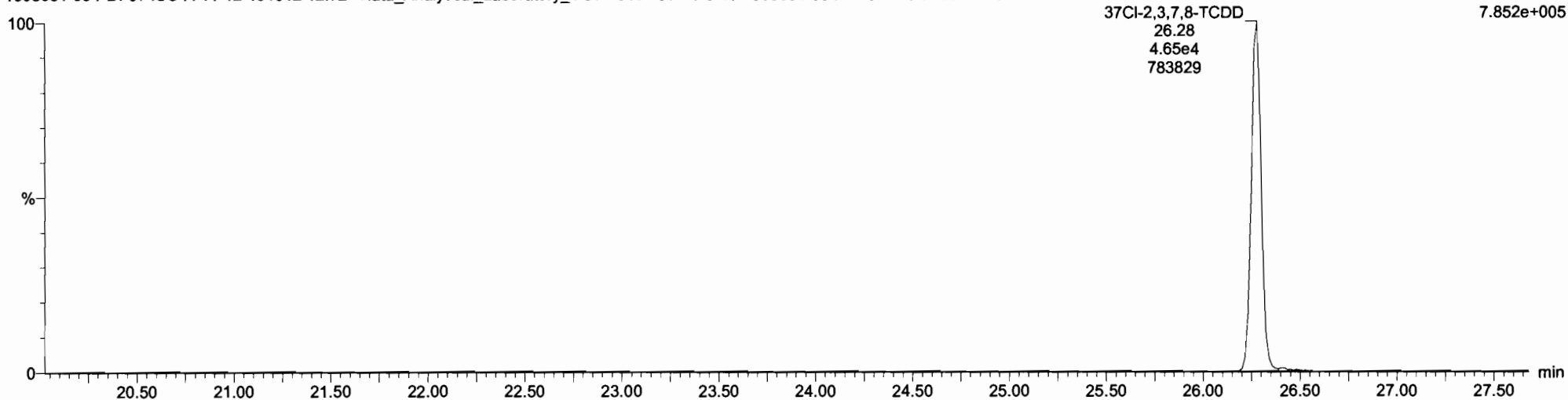
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37Cl-2,3,7,8-TCDD

191106D1\_6  
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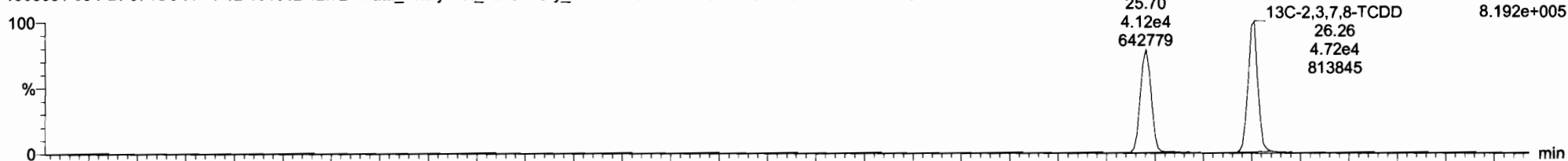
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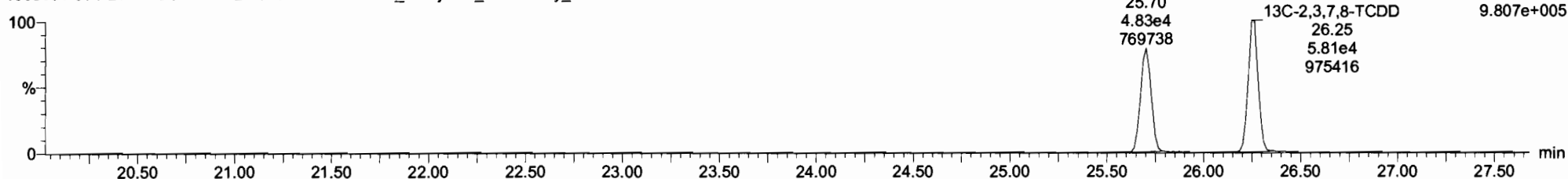
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F1:SIR of 15 channels,EI+  
331.9368  
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191106D1\_6  
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Vista Analytical Laboratory

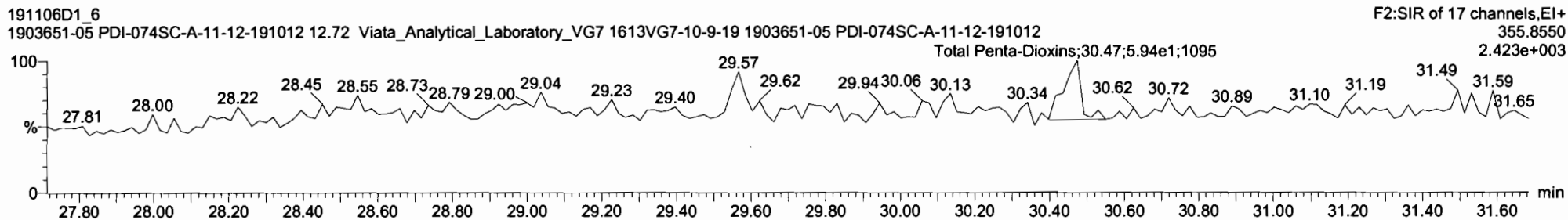
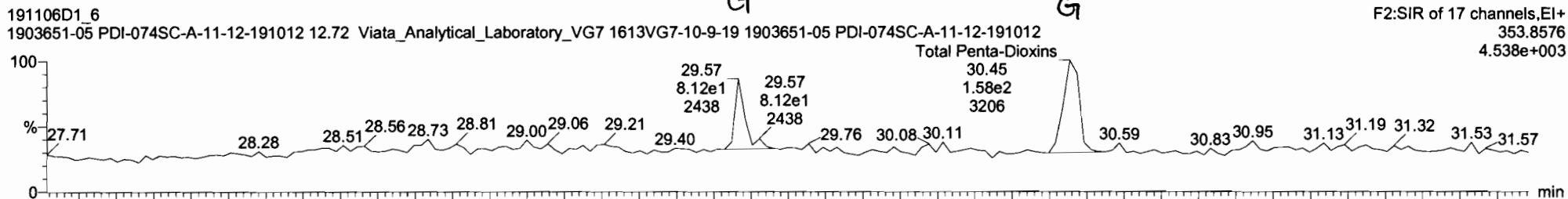
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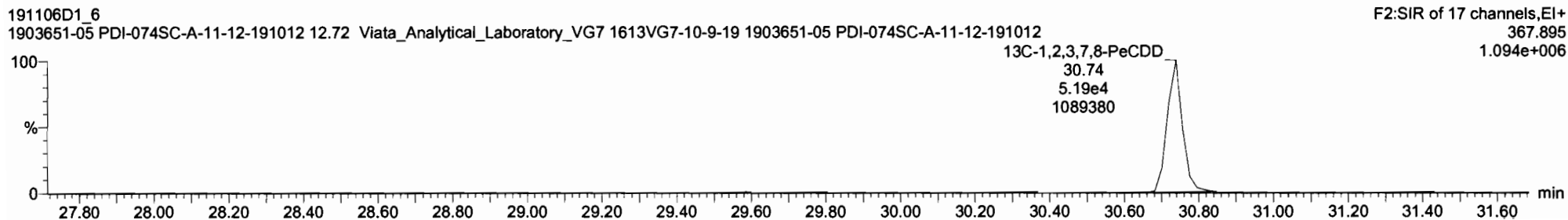
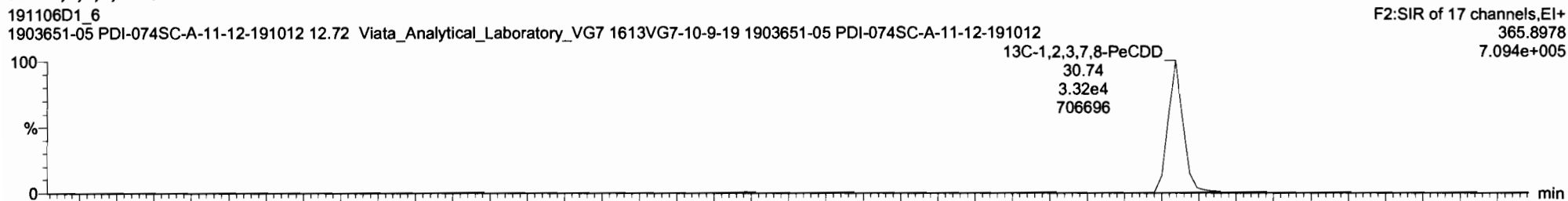
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Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD



Vista Analytical Laboratory

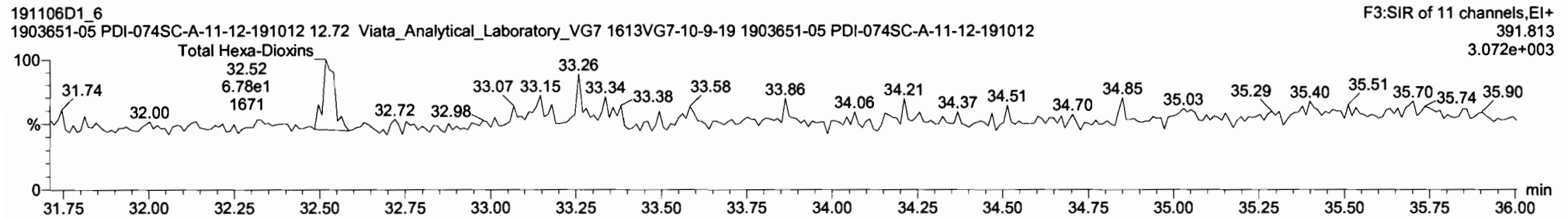
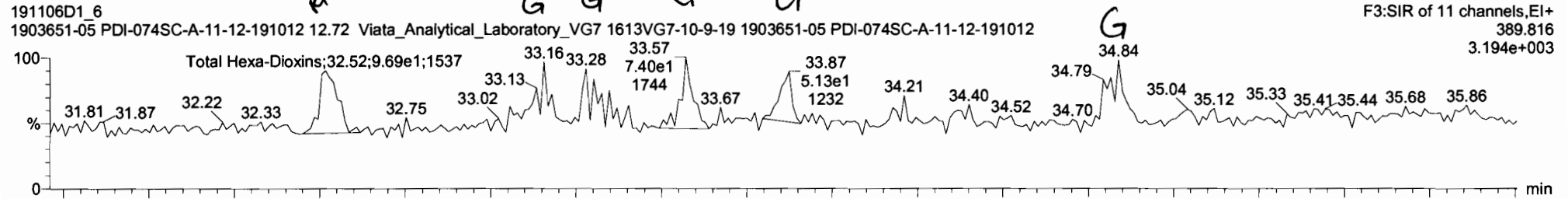
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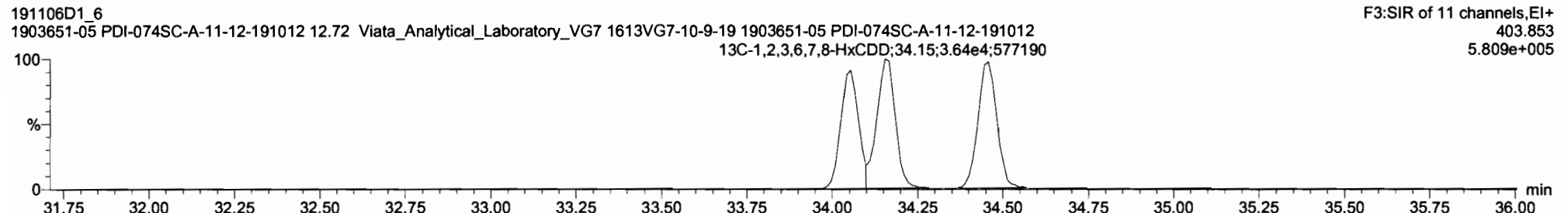
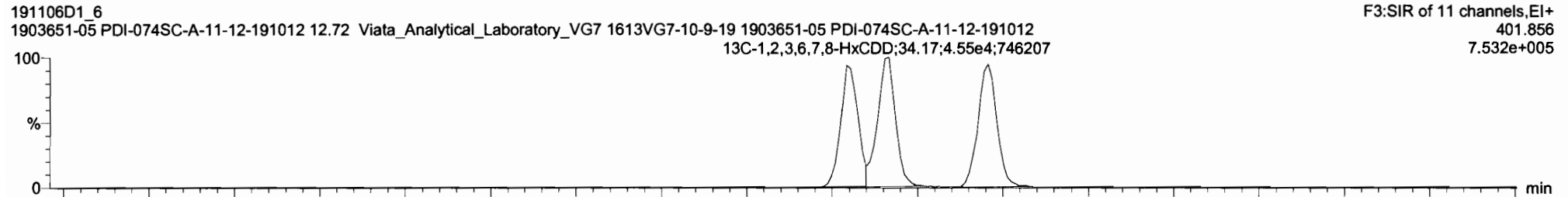
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Total Hexa-Dioxins



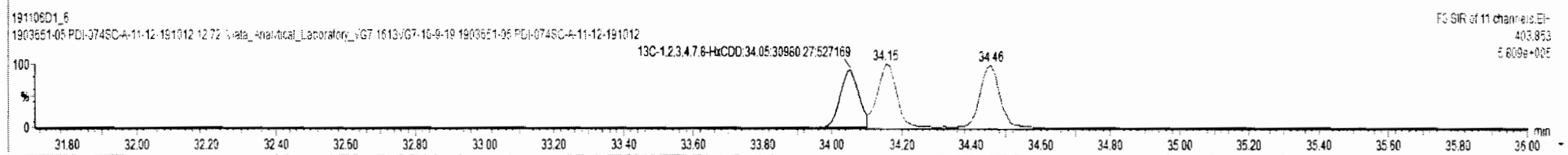
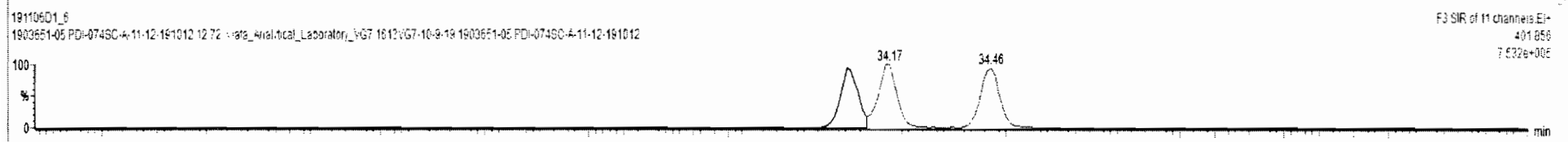
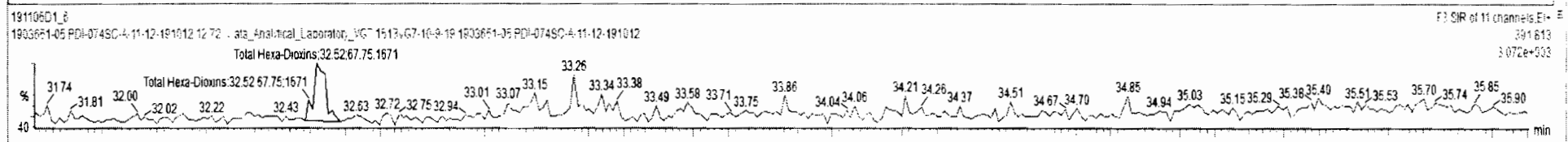
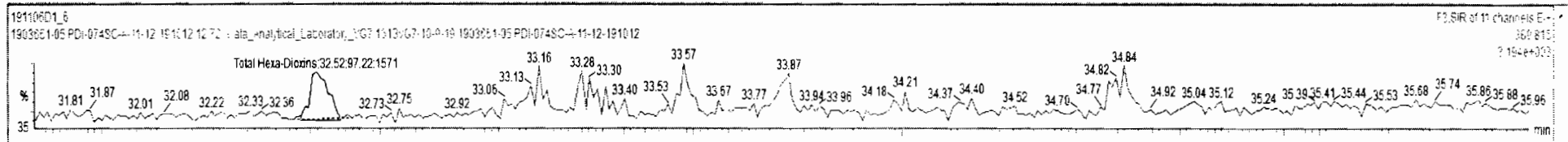
13C-1,2,3,4,7,8-HxCDD





#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HxCDF	8.30e4	1.02e5	38	0.42	NO	0.581	9.965	38.38	38.44	1.145	1.143	NO	213.5	106	1.36	
34	13C-OCDF	1.38e5	1.02e5	38	0.98	NO	0.689	9.965	41.40	41.42	1.234	1.233	NO	394.5	98.3	0.762	
35	37Cl-2,3,7,8-TCDD	4.65e4	8.95e4	36			1.198	9.965	26.27	26.28	1.022	1.022	NO	86.97	108	0.394	
36	13C-1,2,3,4-TCDF	8.95e4	8.95e4	36	0.85	NO	1.000	9.965	25.70	25.70	1.000	1.000	NO	200.7	100	0.525	
37	13C-1,2,3,4-TCDF	1.68e5	1.68e5	37	0.80	NO	1.000	9.965	24.28	24.29	1.000	1.000	NO	200.7	100	0.445	
38	13C-1,2,3,4,6,9-HxCDF	1.02e5	1.02e5	38	0.52	NO	1.000	9.965	33.55	33.57	1.000	1.000	NO	200.7	100	0.924	
39	Total Tetra-Dioxins	1.05e5					0.901	9.965	25.50			0.000	NO			0.111	
40	Total Penta-Dioxins	8.51e4					0.872	9.965	30.00			0.000	NO			0.0912	
41	Total Hexa-Dioxins	0.00e0					0.976	9.965	33.80			0.000	NO	0.0000		0.236	0.3994
42	Total Hepta-Dioxins	7.03e4					0.989	9.965	37.75			0.000	NO	4.627		0.718	4.627
43	Total Tetra-Furans	1.67e5					0.943	9.965	24.00			0.000	NO			0.0788	
44	1st Func Penta-Furans	0.00e0					0.940	9.965	27.63			0.000	NO			0.0456	
45	Total Penta-Furans	0.00e0					0.940	9.965	30.00			0.000	NO			0.0878	
46	Total Hexa-Furans	0.00e0					1.078	9.965	33.00			0.000	NO			0.0996	
47	Total Hepta-Furans	0.00e0					1.125	9.965	37.75			0.000	NO	0.0000		0.169	0.4489

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.80	32.52	9.722e1	6.775e1	1.240	1.43	YES	0.39545	0.00000



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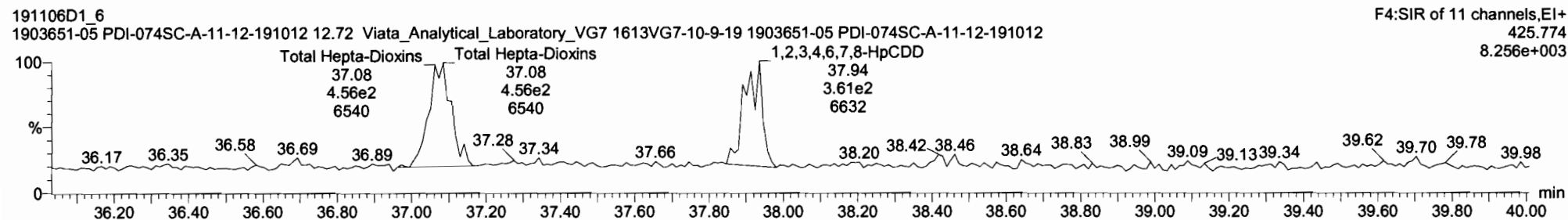
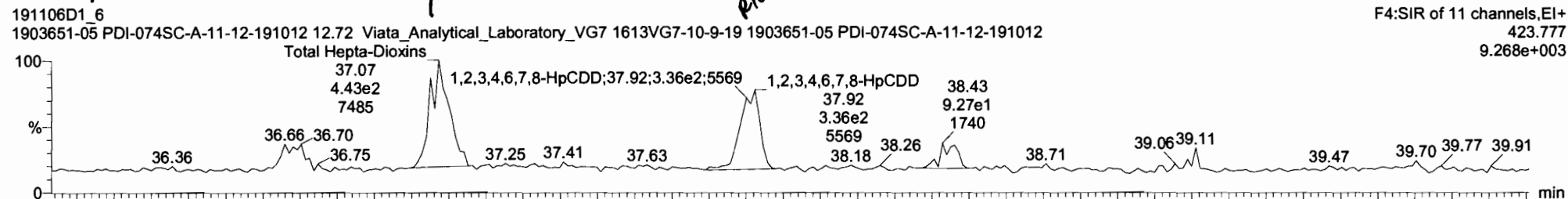
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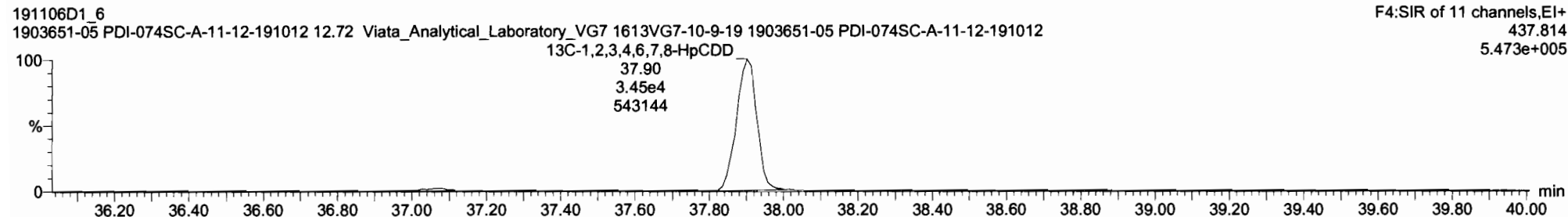
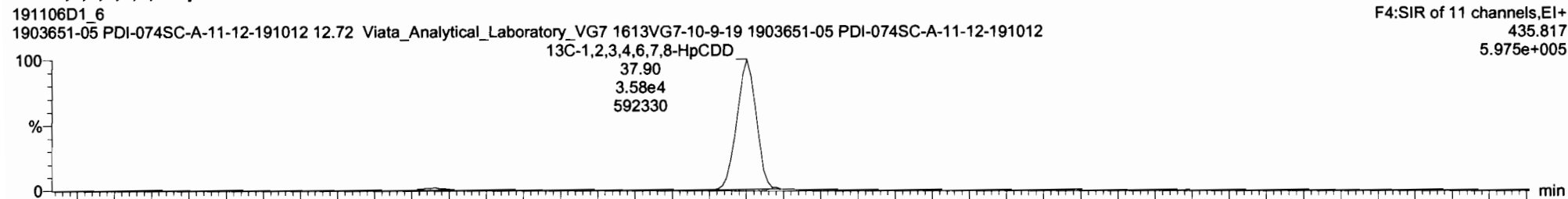
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Total Hepta-Dioxins



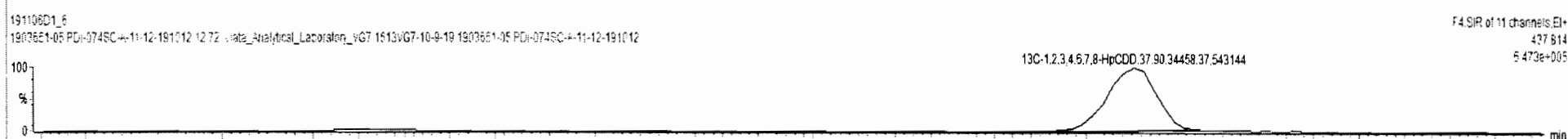
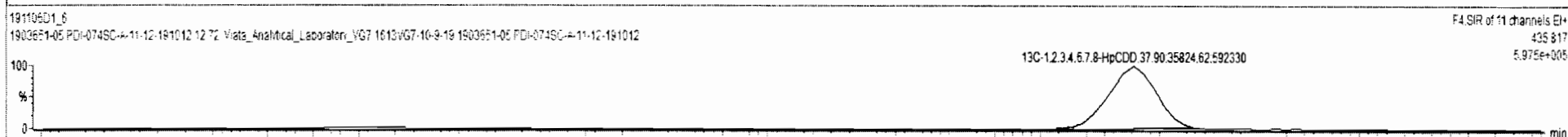
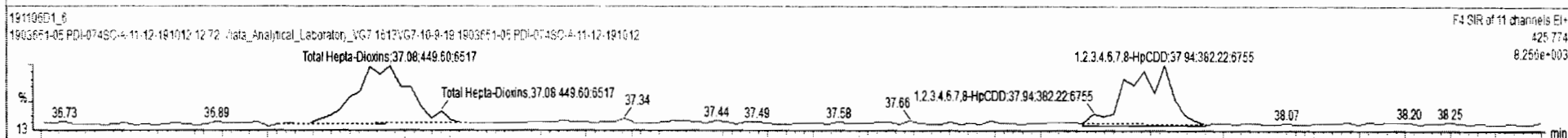
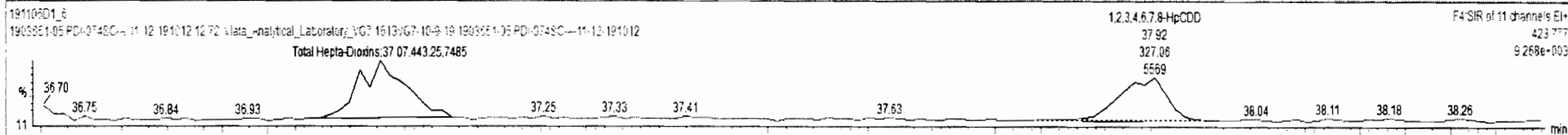
13C-1,2,3,4,6,7,8-HpCDD





#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HpCDF	6.30e4	1.02e5	38	0.42	NO	0.581	9.965	38.38	38.44	1.145	1.143	NO	210.5	106	1.36	
34	13C-OCDF	1.38e5	1.02e5	38	0.88	NO	0.689	9.965	41.40	41.42	1.234	1.233	NO	394.5	98.2	0.732	
35	37Cl-2,3,7,8-TCDF	4.65e4	8.95e4	36			1.198	9.965	26.27	26.28	1.022	1.022	NO	86.97	108	0.394	
36	13C-1,2,3,4-TCDF	8.55e4	8.95e4	36	0.85	NO	1.090	9.965	25.70	25.70	1.000	1.000	NO	200.7	106	0.525	
37	13C-1,2,3,4-TCDF	1.68e5	1.68e5	37	0.80	NO	1.000	9.965	24.28	24.29	1.000	1.000	NO	200.7	100	0.445	
38	13C-1,2,3,4,6,9-HxCDF	1.02e5	1.02e5	38	0.52	NO	1.000	9.965	23.55	23.57	1.000	1.000	NO	200.7	100	0.924	
39	Total Tetra-Dioxins		1.05e5				0.901	9.965	25.50			0.900	NO			0.111	
40	Total Penta-Dioxins		8.51e4				0.872	9.965	30.00			0.900	NO			0.0912	
41	Total Hexa-Dioxins		9.06e0				0.976	9.965	33.00			0.900	NO	0.0000		0.236	0.3954
42	Total Hepta-Dioxins		7.03e4				0.989	9.965	37.75			0.900	NO	2.579		0.718	4.449
43	Total Tetra-Furans		1.67e5				0.943	9.965	24.00			0.900	NO			0.0788	
44	1st Func. Penta-Furans		0.06e0				0.940	9.965	27.63			0.900	NO			0.0458	
45	Total Penta-Furans		0.06e0				0.940	9.965	30.00			0.900	NO			0.0678	
46	Total Hexa-Furans		0.06e0				1.078	9.965	33.00			0.900	NO			0.0996	
47	Total Hepta-Furans		0.06e0				1.135	9.965	37.75			0.900	NO	0.0000		0.169	0.4489

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.07	4.432e2	4.496e2	1.040	0.96	NO	2.5788	2.5788
2	6 1,2,3,4,6,7,8-HpCDD	37.91	37.92	3.271e2	3.822e2	1.040	0.86	YES	1.8706	0.00000



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Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

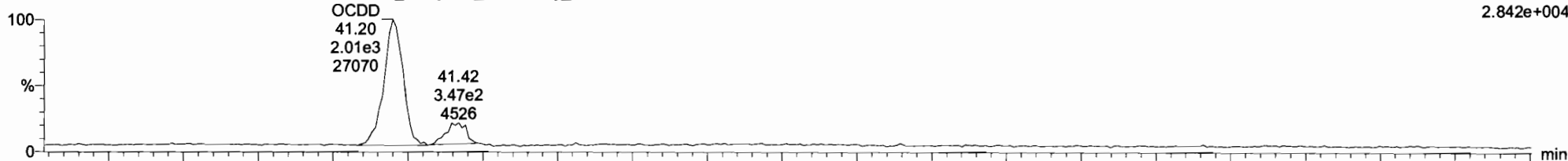
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OCDD

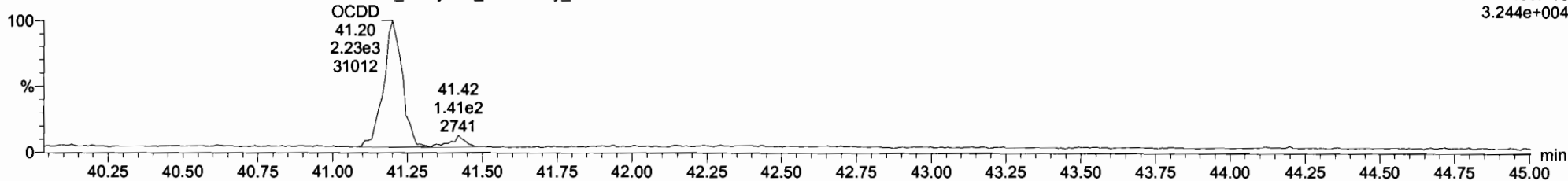
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F5:SIR of 11 channels,EI+  
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2.842e+004



191106L1\_6  
1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-05 PDI-074SC-A-11-12-191012

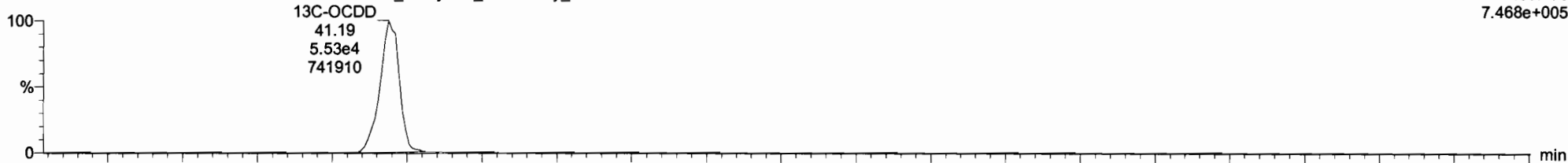
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13C-OCDD

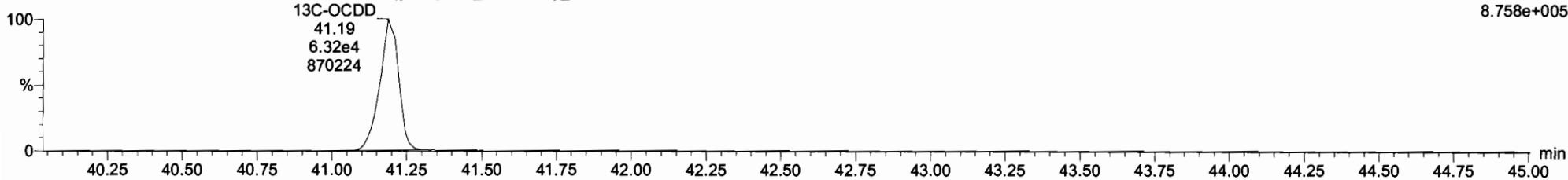
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F5:SIR of 11 channels,EI+  
469.778  
7.468e+005



191106D1\_6  
1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-05 PDI-074SC-A-11-12-191012

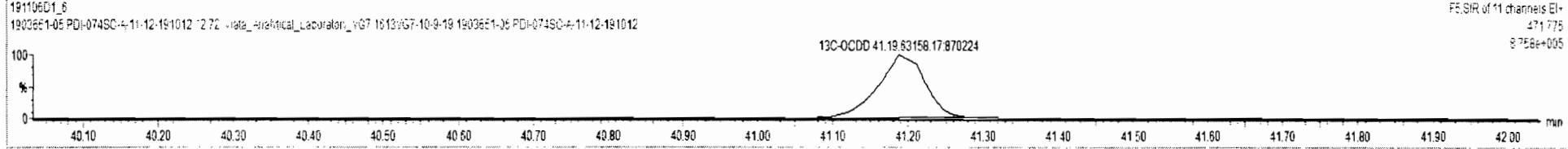
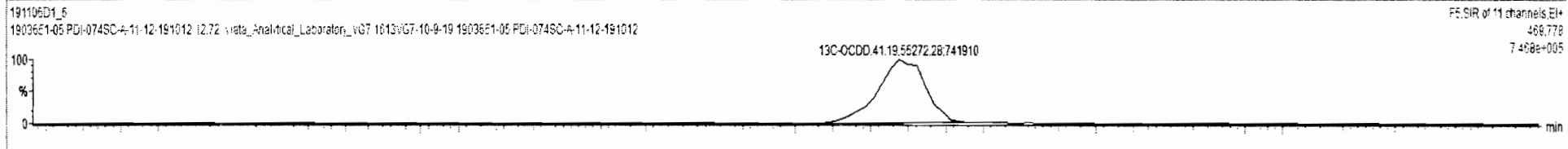
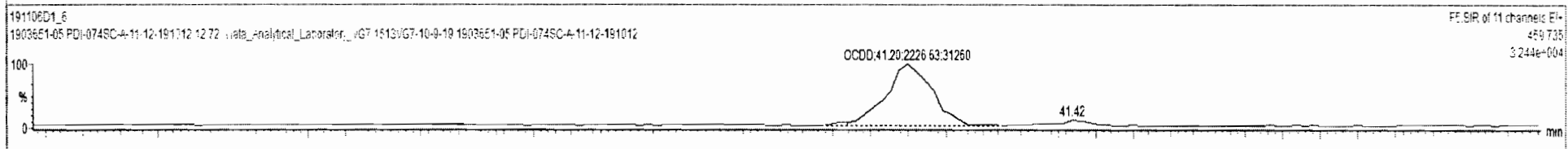
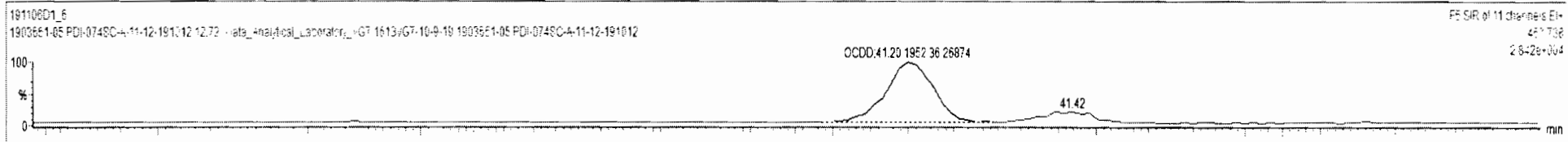
F5:SIR of 11 channels,EI+  
471.775  
8.758e+005



191106D1\_6 - 1903651-05 PDI-074SC-A-11-12-191012 - 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

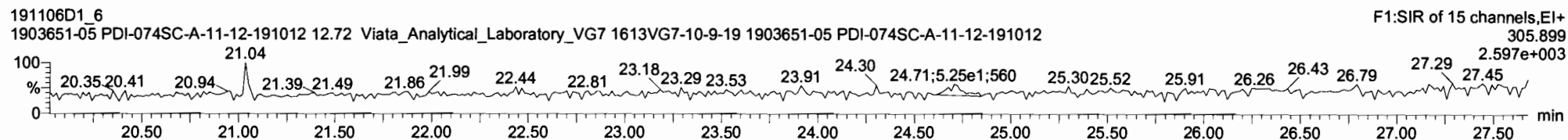
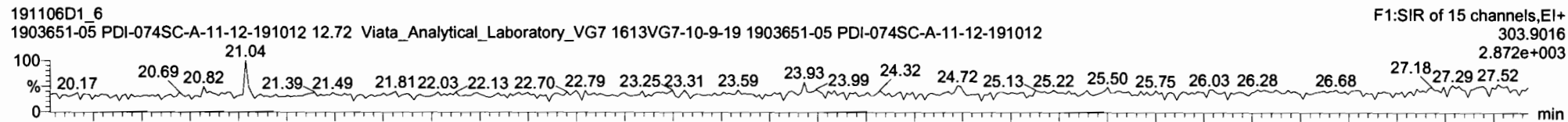
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3	1,2,3,4,7,8-HxCDD		7.14e4	20			1.101	9.965	34.05			1.000	NO			0.403	
4	1,2,3,6,7,8-HxCDD		8.19e4	21			0.939	9.965	34.17			1.000	NO			0.436	
5	1,2,3,7,8,9-HxCDD		8.11e4	22			0.961	9.965	34.49			1.001	NO			0.450	
6	1,2,3,4,6,7,8-HpCDD	7.09e2	7.03e4	23	0.86	YES	0.979	9.965	37.91	37.92	1.001	1.000	NO	2.066		0.725	1.671
7	OCDD	4.18e3	1.18e5	24	0.88	NO	0.959	9.965	41.19	41.20	1.000	1.000	NO	14.78		0.417	14.78
8	2,3,7,8-TCDF		1.67e5	25			0.950	9.965	25.51			1.001	NO			0.161	
9	1,2,3,7,8-PeCDF		1.26e5	26			0.960	9.965	29.59			1.001	NO			0.173	
10	2,3,4,7,8-PeCDF		1.20e5	27			1.015	9.965	30.49			1.001	NO			0.159	
11	1,2,3,4,7,8-HxCDF		9.66e4	28			1.177	9.965	33.16			1.000	NO			0.153	
12	1,2,3,6,7,8-HxCDF		9.95e4	29			1.069	9.965	33.29			1.000	NO			0.196	
13	2,3,4,6,7,8-HxCDF		9.24e4	30			1.114	9.965	33.91			1.001	NO			0.212	
14	1,2,3,7,8,9-HxCDF		8.02e4	31			1.062	9.965	34.84			1.000	NO			0.247	
15	1,2,3,4,6,7,8-HpCDF		7.33e4	32			1.128	9.965	36.73			1.001	NO			0.343	
16	1,2,3,4,7,8,9-HpCDF		6.30e4	33			1.280	9.965	38.44			1.000	NO			0.274	
17	OCDF		1.36e5	34			0.947	9.965	41.42			1.000	NO			0.454	

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										

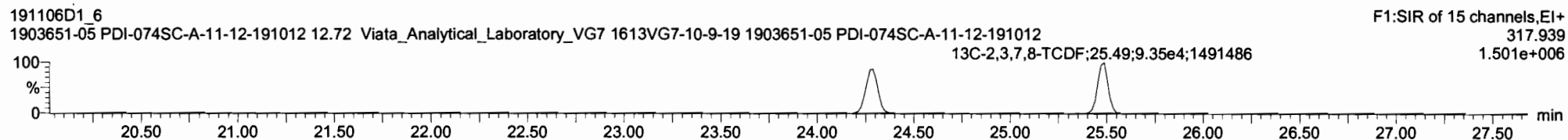
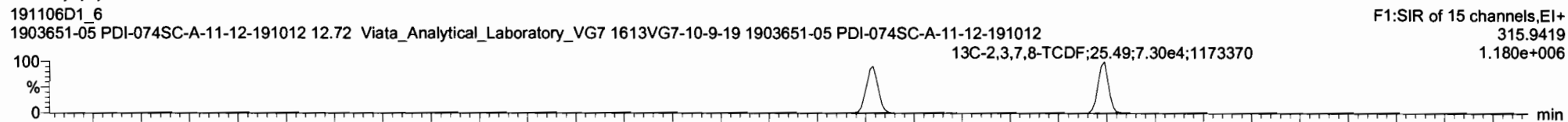


Name: VG7 191106D1\_6, Date: 6-NOV-2019, Time: 15:41:12, ID: 1903651-05 PDI-074SC-A-11-12-191012,  
Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

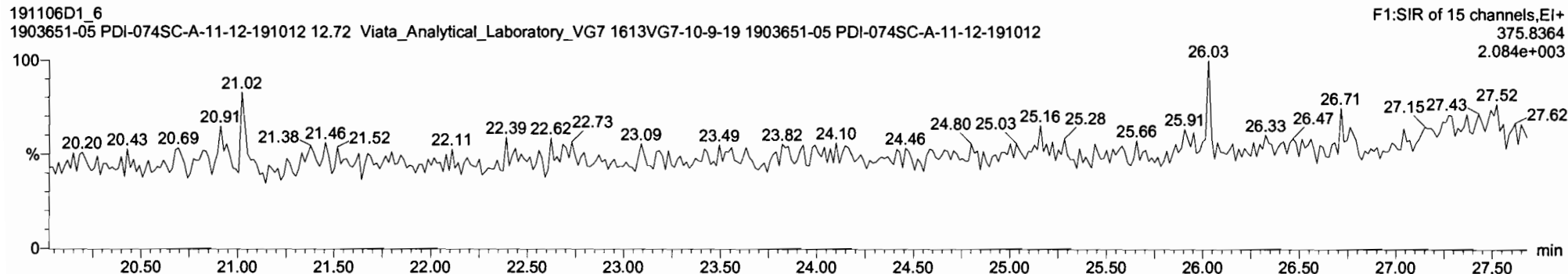
Total Tetra-Furans



13C-2,3,7,8-TCDF



DPE1



Vista Analytical Laboratory

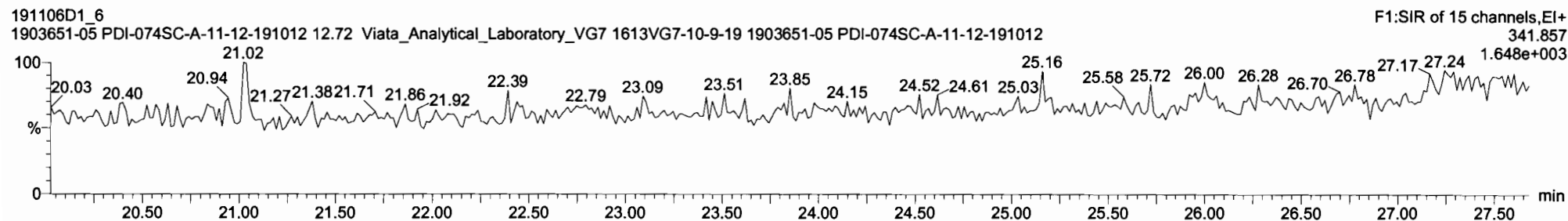
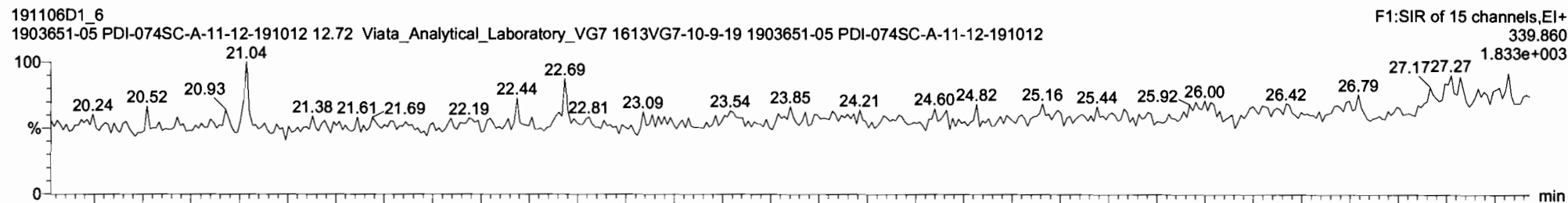
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Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

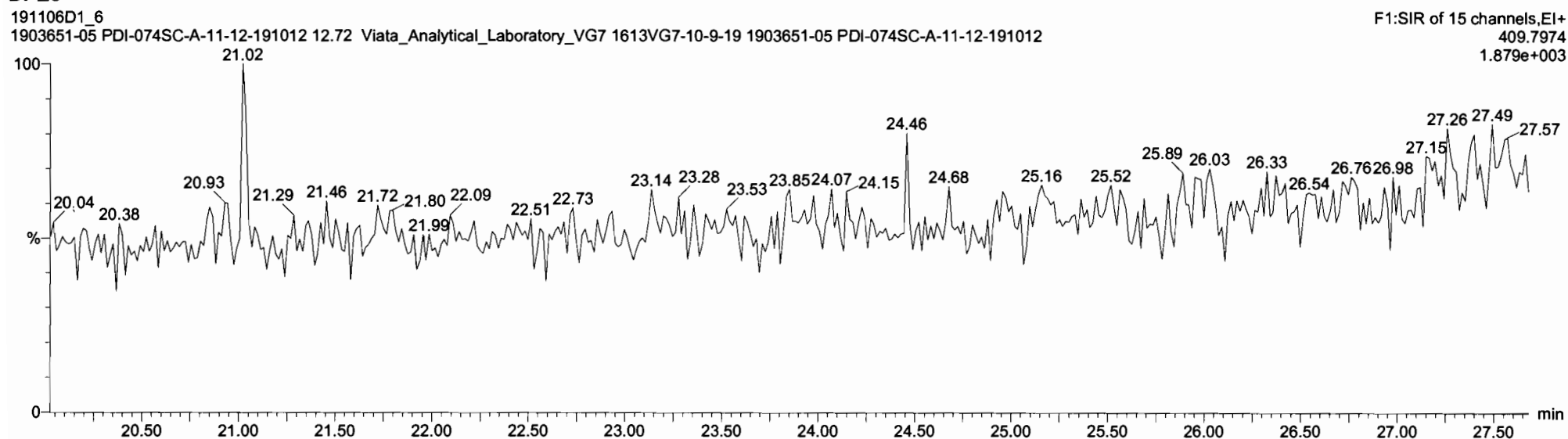
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Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

1st Func. Penta-Furans



DPE6



Vista Analytical Laboratory

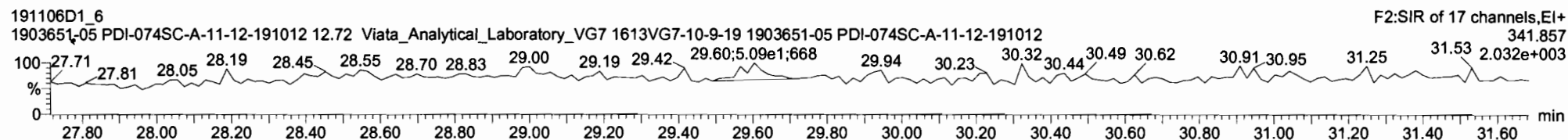
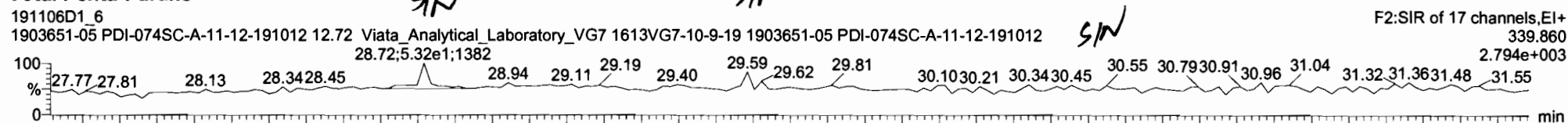
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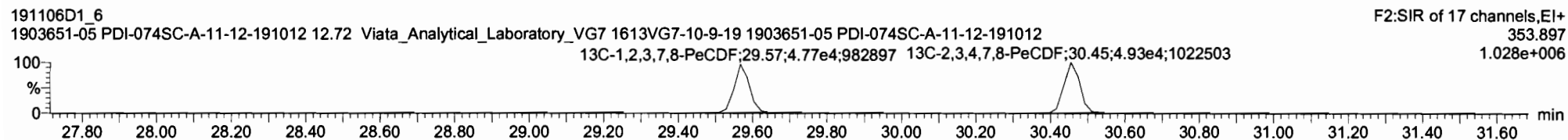
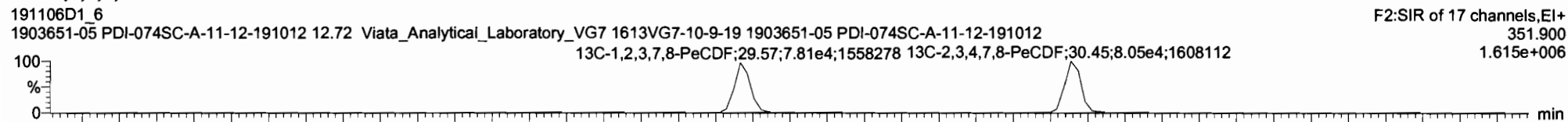
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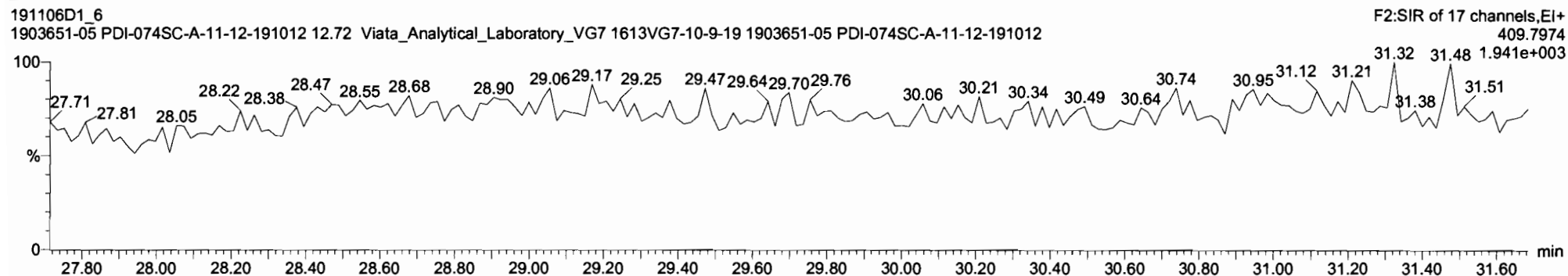
Total Penta-Furans



13C-1,2,3,7,8-PeCDF



DPE2





Vista Analytical Laboratory

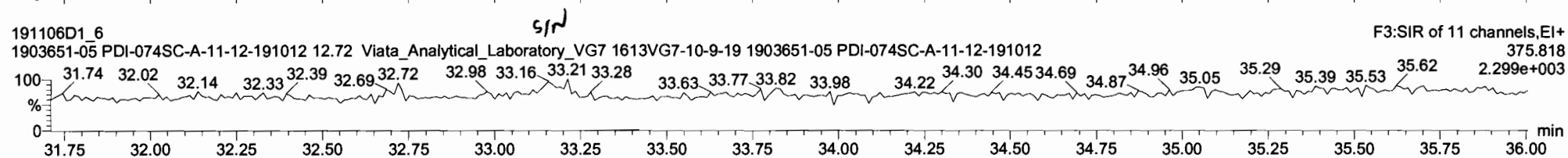
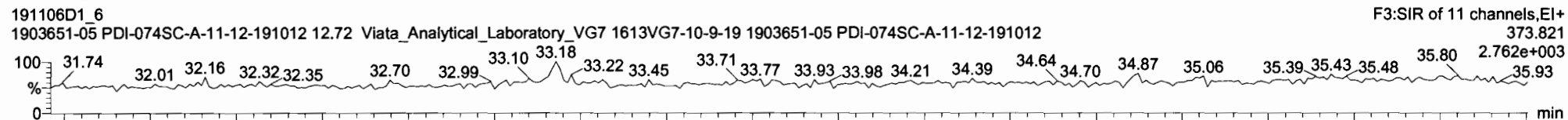
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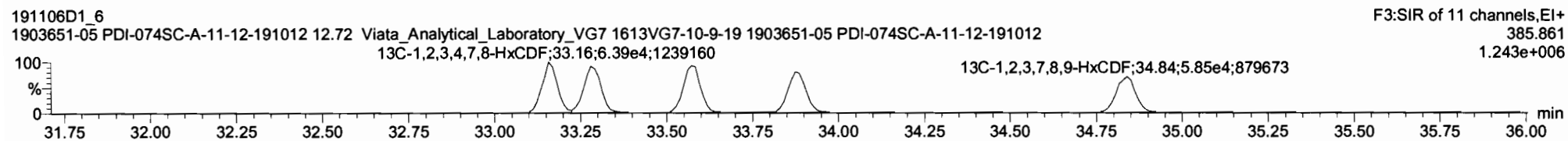
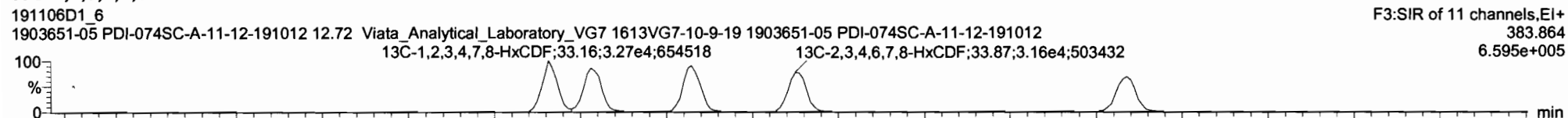
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Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

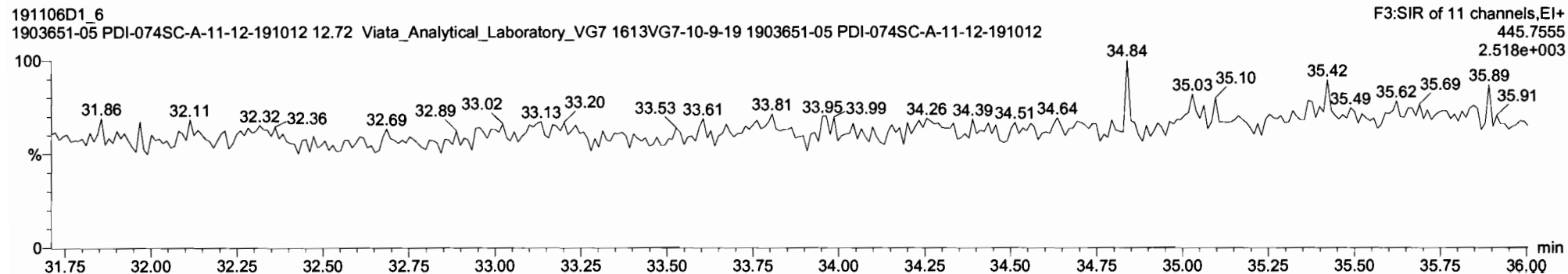
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3



Vista Analytical Laboratory

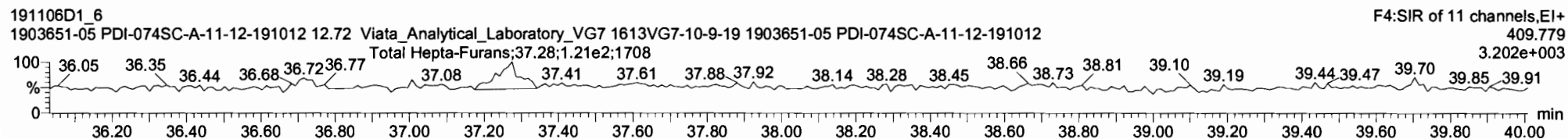
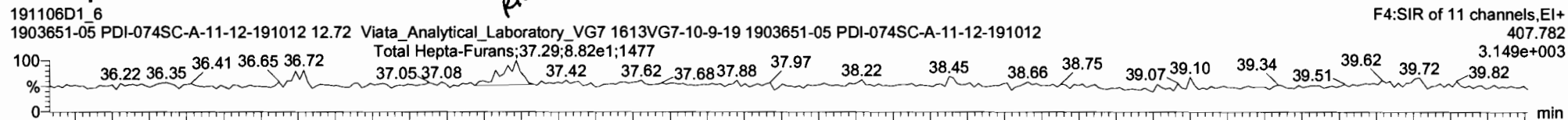
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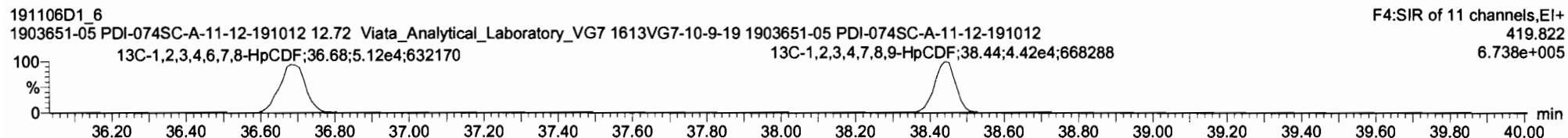
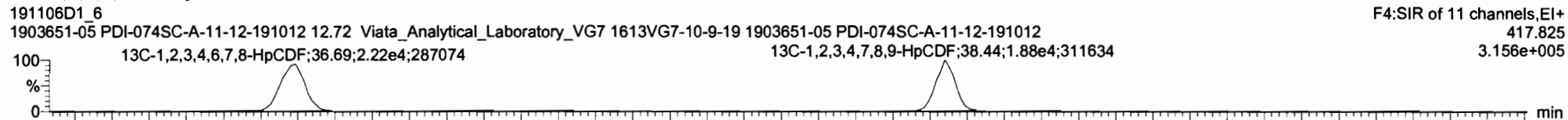
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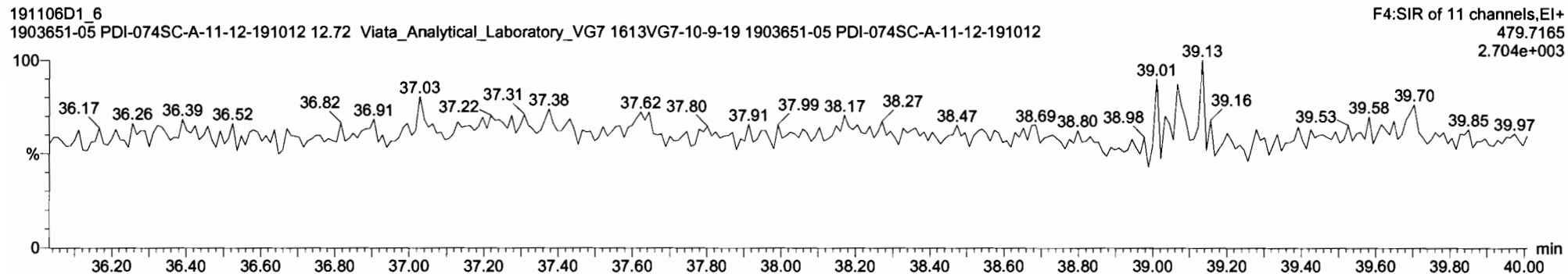
Total Hepta-Furans



13C-1,2,3,4,6,7,8-HpCDF



DPE4

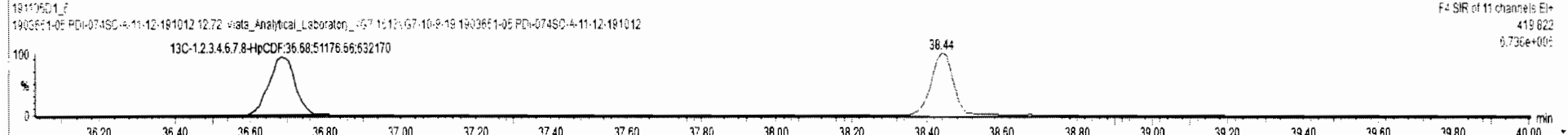
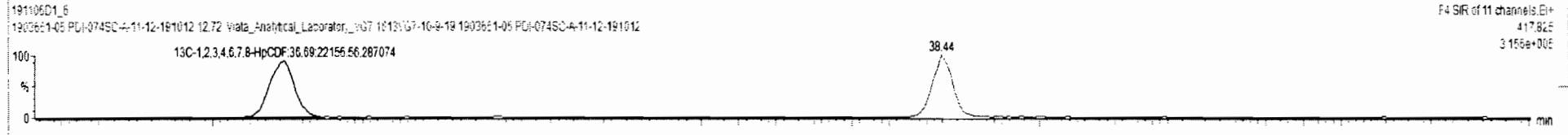
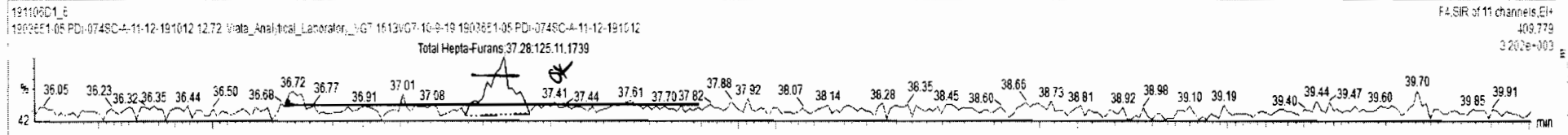
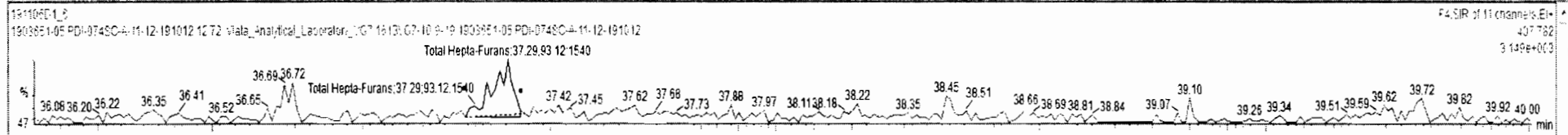




191106D1\_6 - 1903651-05 PDI-074SC-A-11-12-191012 - 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	S Resp	IS#	RA	n/y	RRF	w/Vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
34	13C-DCDF	1.38e5	1.02e5	38	0.86	NO	0.689	9.965	41.40	41.42	1.234	1.223	NO	394.5	98.3	0.782	
35	37C-2,3,7,8-TCDF	4.65e4	8.95e4	36			1.198	9.965	26.27	26.28	1.022	1.022	NO	36.97	108	0.394	
36	13C-1,2,3,4-TCDF	8.95e4	8.95e4	36	0.85	NO	1.000	9.965	26.70	26.70	1.000	1.000	NO	200.7	100	0.525	
37	13C-1,2,3,4-TCDF	1.68e5	1.88e5	37	0.88	NO	1.000	9.965	24.28	24.29	1.060	1.060	NO	200.7	100	0.445	
38	13C-1,2,3,4,6,9-HxCDF	1.02e5	1.02e5	38	0.52	NO	1.000	9.965	33.55	33.57	1.060	1.060	NO	200.7	100	0.924	
39	Total Tetra-Dioxins	1.05e5					0.901	9.965	25.50			0.900	NO			0.111	
40	Total Penta-Dioxins	6.51e4					0.672	9.965	30.00			0.900	NO			0.0912	
41	Total Hexa-Dioxins	0.00e0					0.978	9.965	33.80			0.900	NO	0.0000		0.236	0.3564
42	Total Hepta-Dioxins	7.03e4					0.989	9.965	37.75			0.900	NO	2.579		0.716	4.449
43	Total Tetra-Furans	1.67e5					0.943	9.965	24.00			0.900	NO			0.0788	
44	1st Func. Penta-Furans	0.00e0					0.940	9.965	27.63			0.900	NO			0.0458	
45	Total Penta-Furans	0.00e0					0.940	9.965	30.00			0.900	NO			0.0678	
46	Total Hexa-Furans	0.00e0					1.078	9.965	33.00			0.900	NO			0.0996	
47	Total Hepta-Furans	0.00e0					1.135	9.965	37.75			0.900	NO	0.9000		0.169	0.4740
48	PFK1																

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	47 Total Hepta-Furans	37.75	37.29	9.312e1	1.251e2	1.040	0.74	YES	0.47399	6.00000



Custom Reporting: Select reports to generate

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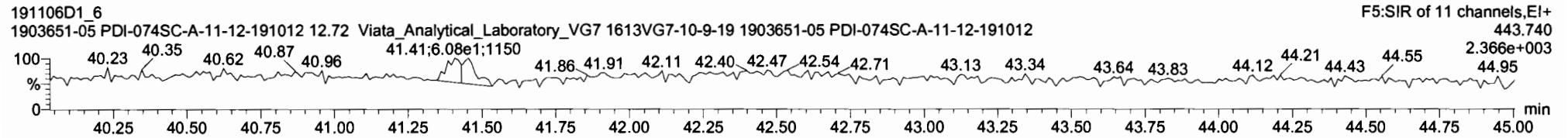
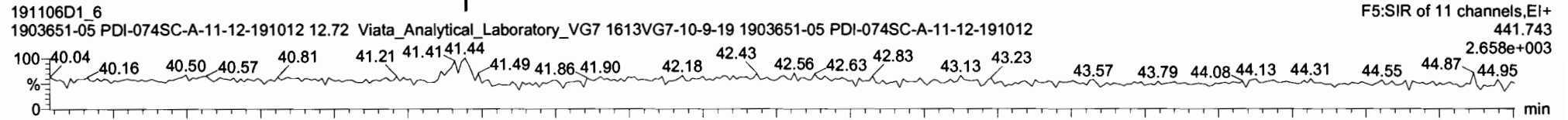
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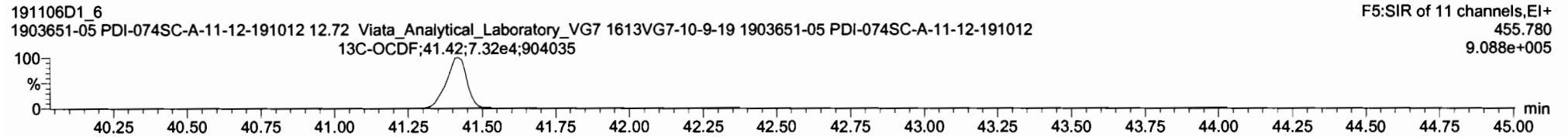
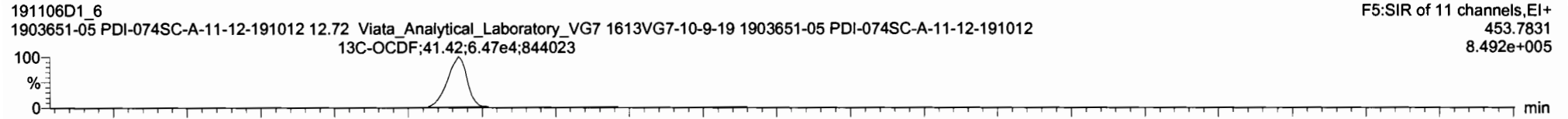
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Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

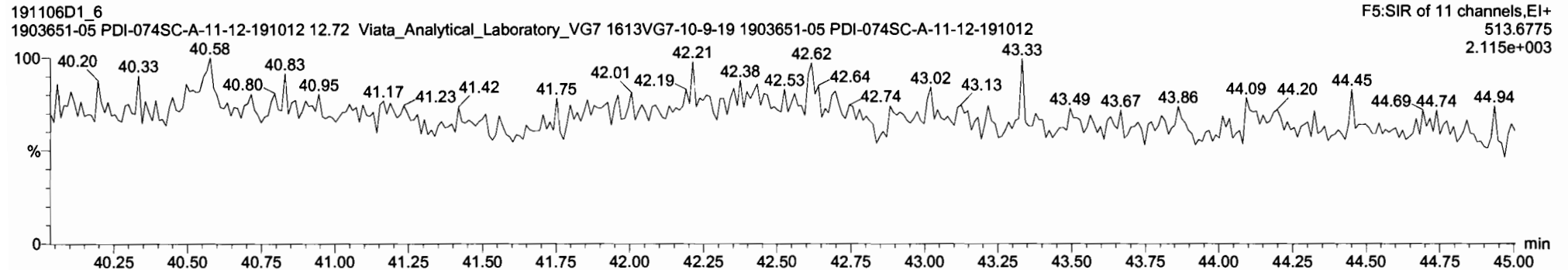
OCDF



13C-OCDF



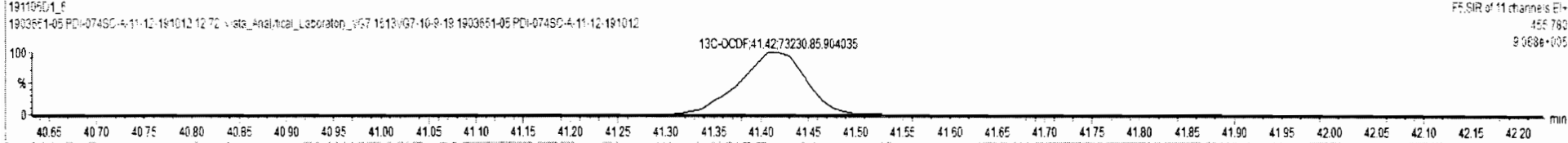
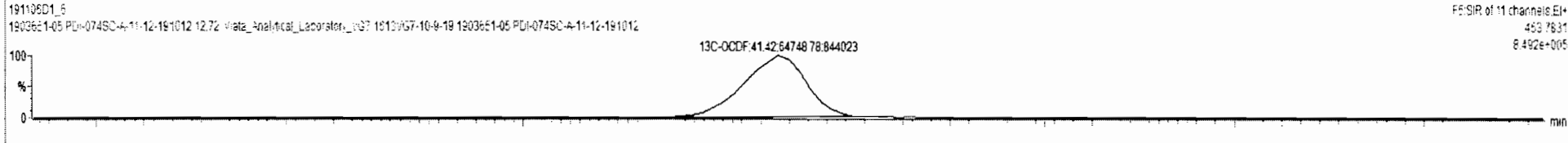
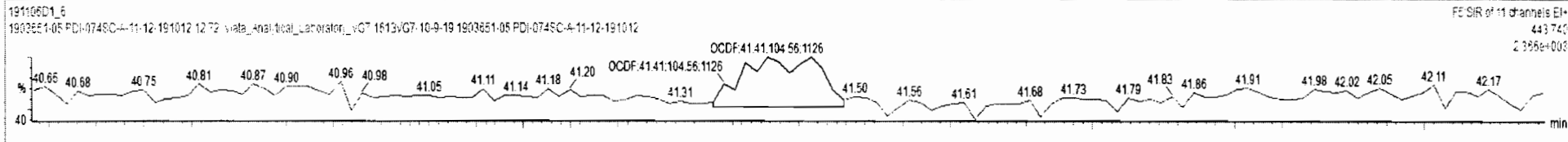
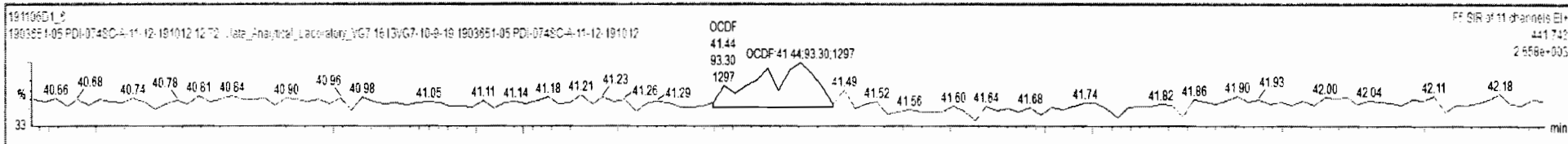
DPE5



191106D1\_6 - 1903651-05 PDI:074SC-A-11-12-191012 - 1903651-05 PDI:074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wt/vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
17	OCDF	1.88e2	1.38e5	34	0.89	NO	0.947	0.965	41.42	41.44	1.001	1.006	NO	8.6077		0.464	0.6077
18	13C-2,3,7,8-TCDD	1.05e5	8.95e4	36	0.81	NO	1.095	9.965	26.25	26.26	1.022	1.021	NO	215.4	107	0.480	
19	13C-1,2,3,7,8-PeCDD	8.51e4	8.95e4	36	0.64	NO	0.881	9.965	30.50	30.74	1.196	1.187	NO	216.5	106	0.486	
20	13C-1,2,3,4,7,8-HxCDD	7.14e4	1.02e5	36	1.30	NO	0.642	9.965	34.04	34.04	1.014	1.014	NO	219.0	109	0.390	
21	13C-1,2,3,6,7,8-HxCDD	8.19e4	1.02e5	36	1.25	NO	0.856	9.965	34.16	34.17	1.018	1.017	NO	188.8	94.0	0.743	
22	13C-1,2,3,7,8,9-HxCDD	8.11e4	1.02e5	36	1.25	NO	0.807	9.965	34.45	34.46	1.026	1.026	NO	198.2	98.7	0.788	
23	13C-1,2,3,4,6,7,8-HpCDD	7.03e4	1.02e5	36	1.04	NO	0.654	9.965	37.81	37.90	1.129	1.126	NO	211.7	106	1.133	
24	13C-OCDD	1.18e5	1.02e5	36	0.88	NO	0.580	9.965	41.16	41.15	1.227	1.226	NO	402.5	100	0.715	
25	13C-2,3,7,8-TCDF	1.67e5	1.68e5	37	0.78	NO	1.035	9.965	25.54	25.49	0.992	0.992	NO	191.8	95.6	0.430	
26	13C-1,2,3,7,8-PeCDF	1.26e5	1.68e5	37	1.64	NO	0.854	9.965	29.38	29.57	1.150	1.143	NO	175.7	87.5	0.693	
27	13C-2,3,4,7,8-PeCDF	1.10e5	1.68e5	37	1.63	NO	0.847	9.965	30.23	30.45	1.185	1.176	NO	182.7	91.0	0.698	
28	13C-1,2,3,4,7,8-HxCDF	9.66e4	1.02e5	36	0.51	NO	0.832	9.965	33.15	33.16	0.988	0.987	NO	228.9	114	1.11	
29	13C-1,2,3,6,7,8-HxCDF	9.95e4	1.02e5	36	0.50	NO	1.034	9.965	33.26	33.28	0.991	0.991	NO	189.5	94.4	0.893	
30	13C-2,3,4,6,7,8-HxCDF	9.24e4	1.02e5	36	0.52	NO	0.953	9.965	33.68	33.87	1.069	1.069	NO	190.9	95.1	0.969	
31	13C-1,2,3,7,8,9-HxCDF	8.82e4	1.02e5	36	0.51	NO	0.828	9.965	34.87	34.84	1.036	1.036	NO	210.0	105	1.12	

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1										



Vista Analytical Laboratory

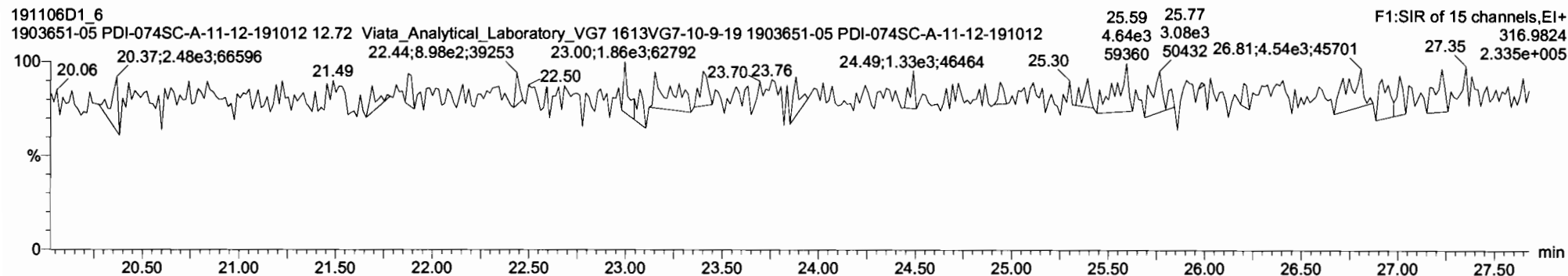
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Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

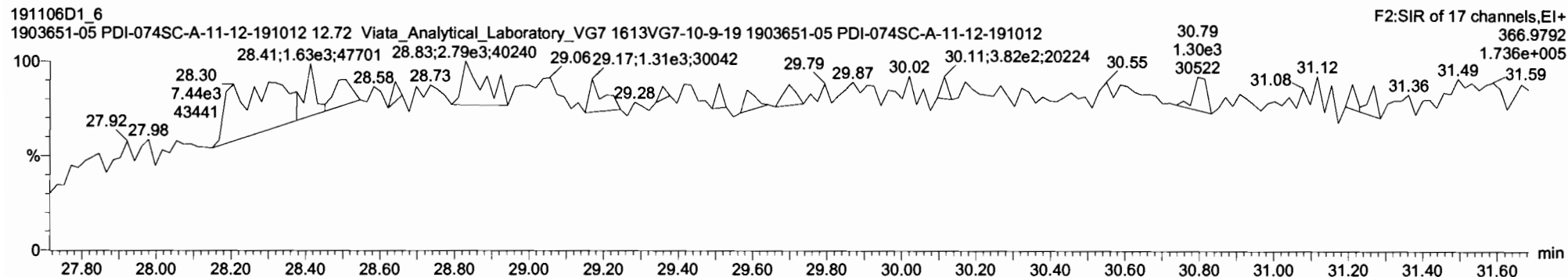
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Name: VG7 191106D1\_6, Date: 6-NOV-2019, Time: 15:41:12, ID: 1903651-05 PDI-074SC-A-11-12-191012,  
Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

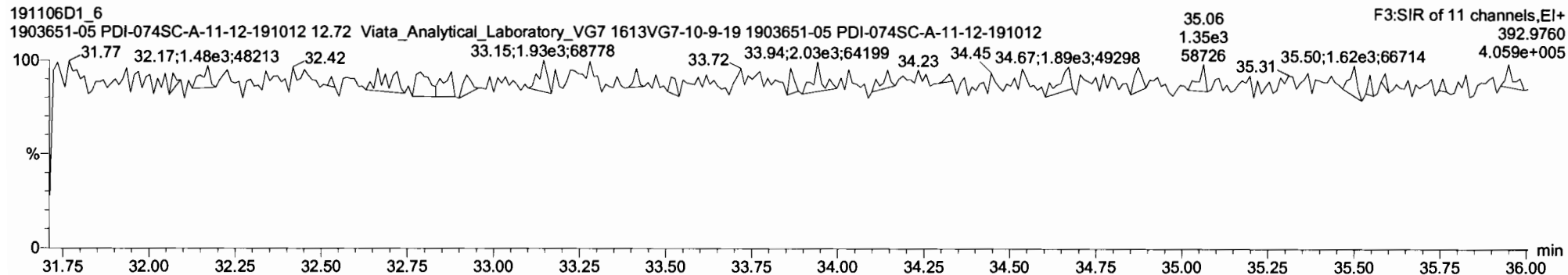
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PFK2



PFK3



Vista Analytical Laboratory

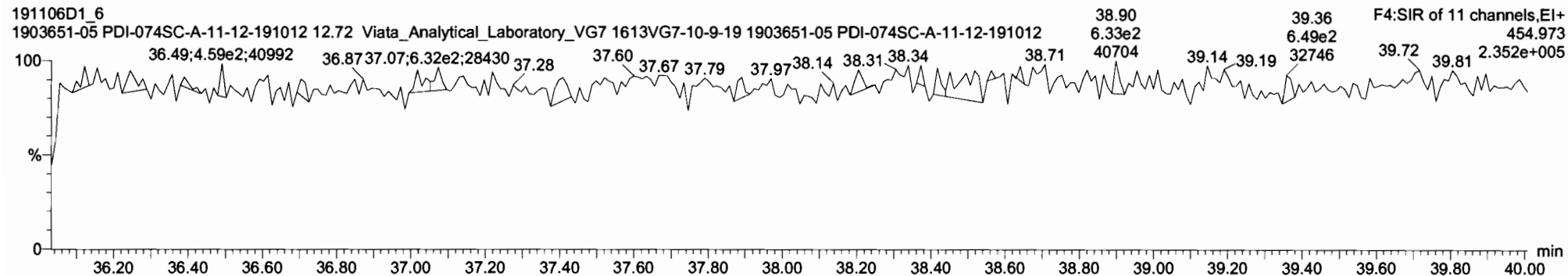
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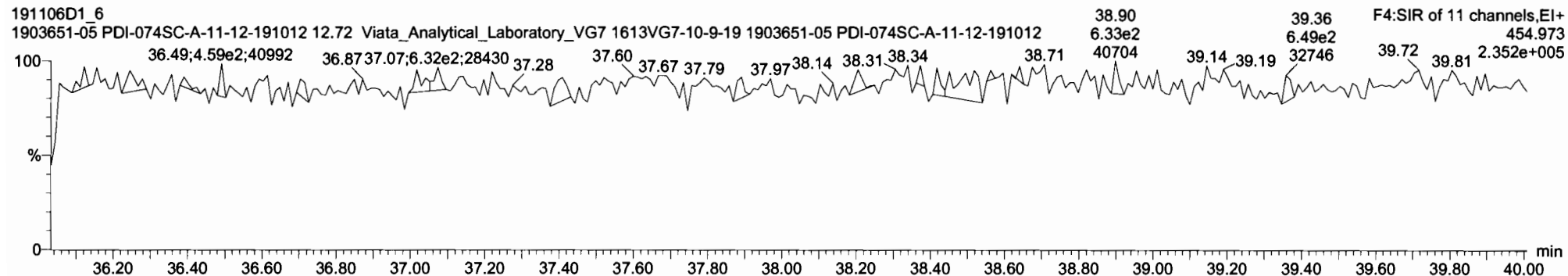
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Description: 1903651-05 PDI-074SC-A-11-12-191012 12.72 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

PFK4



PFK5



Quantify Sample Summary Report

MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-7.qld

Last Altered: Thursday, December 19, 2019 12:55:38 Pacific Standard Time

Printed: Thursday, December 19, 2019 12:57:41 Pacific Standard Time

EL 12/19/19

CT 12/19/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:40:21

Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012,

Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	1 2,3,7,8-TCDD		1.02e5	10.0411	0.905			1.001		26.29					0.210
2	2 1,2,3,7,8-PeCDD		8.42e4	10.0411	0.903			1.001		30.76					0.274
3	3 1,2,3,4,7,8-HxCDD		6.89e4	10.0411	1.101			1.000		34.07					0.383
4	4 1,2,3,6,7,8-HxCDD		7.95e4	10.0411	0.939			1.000		34.18					0.425
5	5 1,2,3,7,8,9-HxCDD		8.00e4	10.0411	0.961			1.001		34.50					0.404
6	6 1,2,3,4,6,7,8-HpCDD	6.74e2	6.57e4	10.0411	0.979	1.010	NO	1.000	1.001	37.93	37.94	2.0852		2.09	0.408
7	7 OCDD	5.07e3	1.16e5	10.0411	0.959	0.863	NO	1.000	1.000	41.22	41.23	18.147		18.1	0.349
8	8 2,3,7,8-TCDF		1.56e5	10.0411	0.950			1.001		25.50					0.166
9	9 1,2,3,7,8-PeCDF		1.26e5	10.0411	0.960			1.001		29.60					0.128
10	10 2,3,4,7,8-PeCDF		1.25e5	10.0411	1.015			1.001		30.50					0.123
11	11 1,2,3,4,7,8-HxCDF		9.12e4	10.0411	1.177			1.000		33.17					0.158
12	12 1,2,3,6,7,8-HxCDF		9.88e4	10.0411	1.069			1.000		33.31					0.166
13	13 2,3,4,6,7,8-HxCDF		9.06e4	10.0411	1.114			1.001		33.93					0.164
14	14 1,2,3,7,8,9-HxCDF		8.65e4	10.0411	1.062			1.000		34.85					0.213
15	15 1,2,3,4,6,7,8-HpCDF		6.96e4	10.0411	1.128			1.001		36.74					0.220
16	16 1,2,3,4,7,8,9-HpCDF		5.95e4	10.0411	1.280			1.000		38.46					0.208
17	17 OCDF	2.44e2	1.44e5	10.0411	0.947	0.809	NO	1.000	1.001	41.44	41.46	0.71344		0.713	0.270
18	18 13C-2,3,7,8-TCDD	1.02e5	1.02e5	10.0411	1.095	0.831	NO	1.021	1.022	26.24	26.25	180.97	90.9		0.578
19	19 13C-1,2,3,7,8-PeCDD	8.42e4	1.02e5	10.0411	0.881	0.643	NO	1.187	1.196	30.49	30.74	186.27	93.5		0.308
20	20 13C-1,2,3,4,7,8-Hx...	6.89e4	1.06e5	10.0411	0.642	1.239	NO	1.014	1.014	34.05	34.06	201.50	101.2		0.677
21	21 13C-1,2,3,6,7,8-Hx...	7.95e4	1.06e5	10.0411	0.856	1.261	NO	1.017	1.018	34.17	34.18	174.32	87.5		0.508
22	22 13C-1,2,3,7,8,9-Hx...	8.00e4	1.06e5	10.0411	0.807	1.237	NO	1.026	1.026	34.47	34.47	186.23	93.5		0.539
23	23 13C-1,2,3,4,6,7,8-H...	6.57e4	1.06e5	10.0411	0.654	1.052	NO	1.126	1.129	37.82	37.91	188.60	94.7		0.945
24	24 13C-OCDD	1.16e5	1.06e5	10.0411	0.580	0.893	NO	1.226	1.227	41.18	41.22	375.96	94.4		0.750
25	25 13C-2,3,7,8-TCDF	1.56e5	1.64e5	10.0411	1.035	0.779	NO	0.993	0.992	25.53	25.48	183.03	91.9		0.614
26	26 13C-1,2,3,7,8-PeCDF	1.26e5	1.64e5	10.0411	0.854	1.646	NO	1.143	1.151	29.37	29.58	179.60	90.2		0.861
27	27 13C-2,3,4,7,8-PeCDF	1.25e5	1.64e5	10.0411	0.847	1.689	NO	1.176	1.186	30.22	30.47	179.90	90.3		0.868
28	28 13C-1,2,3,4,7,8-Hx...	9.12e4	1.06e5	10.0411	0.832	0.513	NO	0.987	0.988	33.16	33.17	205.69	103.3		0.979
29	29 13C-1,2,3,6,7,8-Hx...	9.88e4	1.06e5	10.0411	1.034	0.518	NO	0.991	0.992	33.27	33.30	179.32	90.0		0.788
30	30 13C-2,3,4,6,7,8-Hx...	9.06e4	1.06e5	10.0411	0.953	0.511	NO	1.009	1.009	33.89	33.90	178.43	89.6		0.855
31	31 13C-1,2,3,7,8,9-Hx...	8.65e4	1.06e5	10.0411	0.828	0.500	NO	1.039	1.038	34.88	34.85	196.06	98.4		0.984



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-7.qld

Last Altered: Thursday, December 19, 2019 12:55:38 Pacific Standard Time

Printed: Thursday, December 19, 2019 12:57:41 Pacific Standard Time

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 Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	32 13C-1,2,3,4,6,7,8-H...	6.96e4	1.06e5	10.0411	0.757	0.438	NO	1.093	1.093	36.70	36.70	172.49	86.6		0.795
33	33 13C-1,2,3,4,7,8,9-H...	5.95e4	1.06e5	10.0411	0.581	0.444	NO	1.143	1.145	38.39	38.46	192.20	96.5		1.04
34	34 13C-OCDF	1.44e5	1.06e5	10.0411	0.689	0.866	NO	1.233	1.234	41.41	41.44	391.21	98.2		0.706
35	35 37Cl-2,3,7,8-TCDD	4.52e4	1.02e5	10.0411	1.198			1.022	1.022	26.26	26.27	73.629	92.4		0.192
36	36 13C-1,2,3,4-TCDD	1.02e5	1.02e5	10.0411	1.000	0.831	NO	1.000	1.000	25.70	25.69	199.18	100.0		0.633
37	37 13C-1,2,3,4-TCDF	1.64e5	1.64e5	10.0411	1.000	0.771	NO	1.000	1.000	24.28	24.28	199.18	100.0		0.635
38	38 13C-1,2,3,4,6,9-Hx...	1.06e5	1.06e5	10.0411	1.000	0.522	NO	1.000	1.000	33.55	33.58	199.18	100.0		0.815
39	39 Total Tetra-Dioxins		1.02e5	10.0411	0.901			0.000		25.50					0.119
40	40 Total Penta-Dioxins		8.42e4	10.0411	0.872			0.000		30.00					0.162
41	41 Total Hexa-Dioxins		0.00e0	10.0411	0.976			0.000		33.80		0.00000		0.733	0.196
42	42 Total Hepta-Dioxins		6.57e4	10.0411	0.989			0.000		37.75		5.1454		5.15	0.404
43	43 Total Tetra-Furans		1.56e5	10.0411	0.943			0.000		24.00					0.0845
44	44 1st Func. Penta-Fur...		0.00e0	10.0411	0.940			0.000		27.63					0.0457
45	45 Total Penta-Furans		0.00e0	10.0411	0.940			0.000		30.00					0.0573
46	46 Total Hexa-Furans		0.00e0	10.0411	1.078			0.000		33.00					0.0848
47	47 Total Hepta-Furans		0.00e0	10.0411	1.135			0.000		37.75		0.00000		0.283	0.126

Vista Analytical Laboratory

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Calibration: 05 Dec 2019 08:40:21

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Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Tetra-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Penta-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	41 Total Hexa-Dioxins	YES	32.53	178.218	42244.853	0.000	MM	0.0000	0.73

Hepta-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	6 1,2,3,4,6,7,8-HpCDD	NO	37.94	338.646	33696.930	20.506	MM	2.0852	2.09
2	42 Total Hepta-Dioxins	NO	37.11	493.920	33696.930	30.381	MM	3.0602	3.06

Tetra-Furans

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Penta-Furans function 1

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Vista Analytical Laboratory

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Last Altered: Thursday, December 19, 2019 12:55:38 Pacific Standard Time

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Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012, Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Penta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Hepta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
47	Total Hepta-Furans	YES	37.28	65.118	19757.133	0.000	MM	0.0000	0.28

Vista Analytical Laboratory

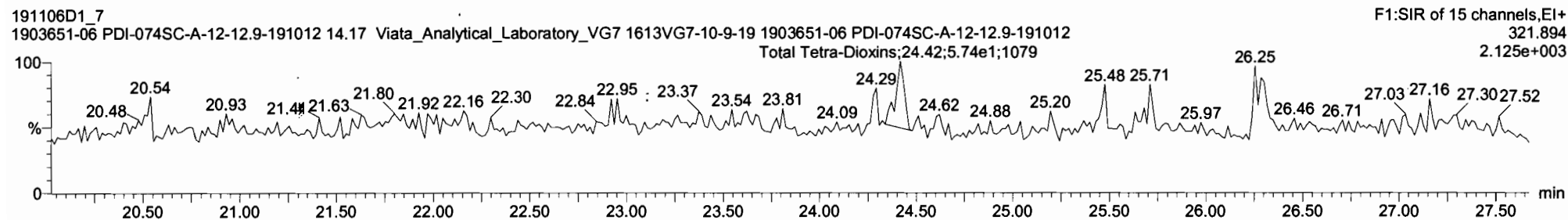
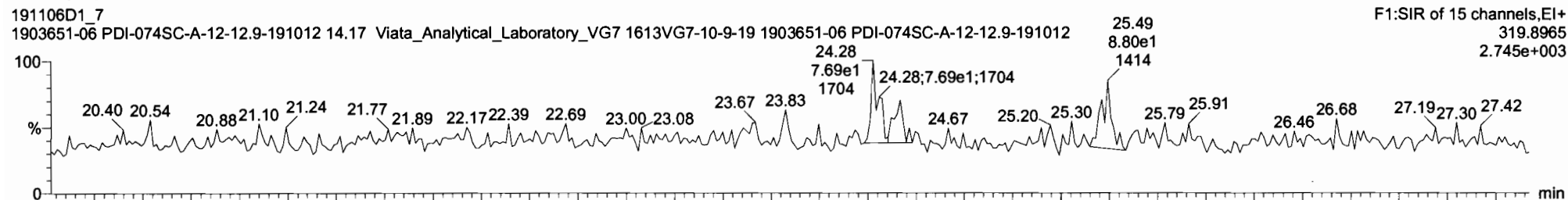
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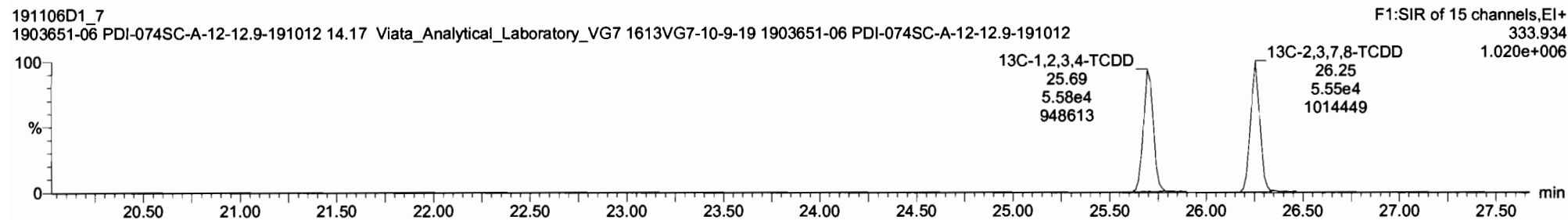
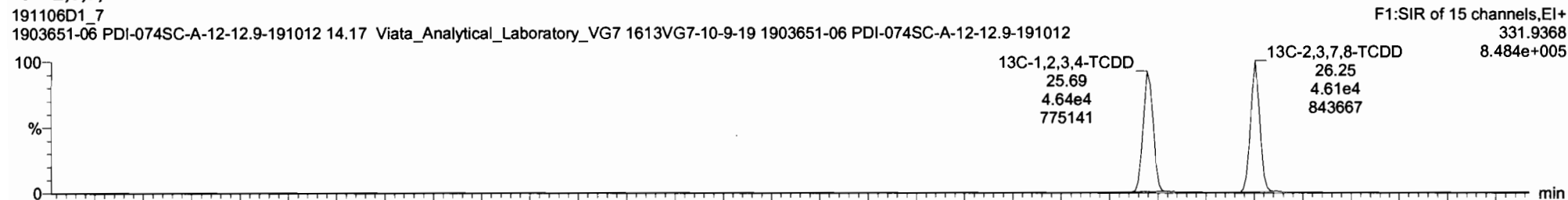
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Total Tetra-Dioxins



13C-2,3,7,8-TCDD

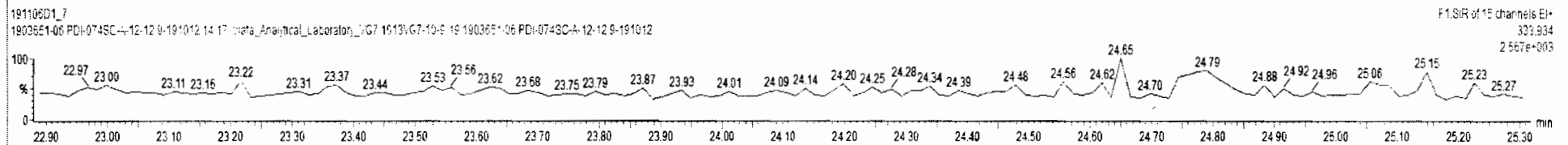
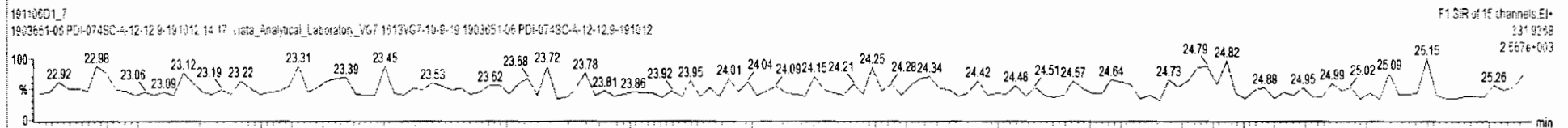
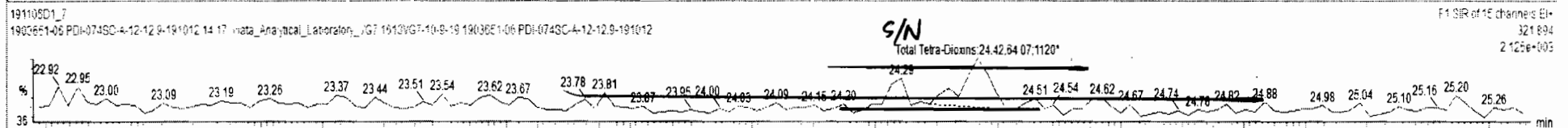
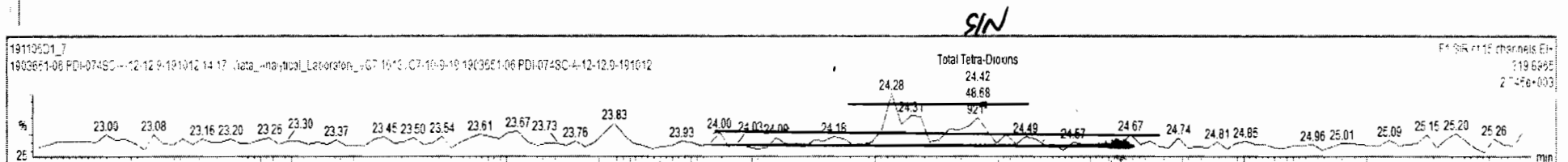




191106D1\_7 - 1903651-06 PDI-074SC-A-12-12-9-191012 - 1903651-06 PDI-074SC-A-12-12-9-191012 14 17 Viata\_Analytical\_Laboratory\_VG7 1513VG7-10-9-19

#	Name	Resp	S Resp	Std	RA	n/y	RPF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
32	13C-1,2,3,4,6,7,8-HpCDF	6.96e4	1.06e5	38	0.44	NO	0.757	10.041	36.70	36.70	1.093	1.093	NO	172.5	66.6	0.795	
33	13C-1,2,3,4,7,8-HpCDF	5.95e4	1.06e5	38	0.44	NO	0.581	10.041	38.39	38.48	1.145	1.143	NO	192.2	96.5	1.04	
34	13C-OCDF	1.44e5	1.06e5	38	0.67	NO	0.689	10.041	41.41	41.44	1.234	1.233	NO	391.2	96.2	0.706	
35	37C-2,3,7,8-TCDF	4.52e4	1.02e5	36			1.198	10.041	26.26	26.27	1.022	1.022	NO	73.63	92.4	0.152	
36	13C-1,2,3,4-TCDF	1.02e5	1.02e5	36	0.83	NO	1.000	10.041	25.70	25.69	1.000	1.000	NO	199.2	100	0.633	
37	13C-1,2,3,4-TCDF	1.64e5	1.64e5	37	0.77	NO	1.000	10.041	24.28	24.28	1.000	1.000	NO	199.2	100	0.633	
38	13C-1,2,3,4,6,8-HxCDF	1.06e5	1.06e5	38	0.52	NO	1.000	10.041	33.55	33.58	1.000	1.000	NO	199.2	100	0.815	
39	<b>Total Tetra-Dioxins</b>		1.02e5				<b>0.901</b>	<b>10.041</b>	<b>25.50</b>			<b>0.000</b>	<b>NO</b>	<b>0.2453</b>		<b>0.211</b>	<b>0.2453</b>
40	Total Penta-Dioxins	8.42e4					0.872	10.041	30.00			0.000	NO	0.0000		0.162	0.6909
41	Total Hexa-Dioxins	0.06e0					0.976	10.041	33.80			0.000	NO	0.7525		0.412	1.070
42	Total Hepta-Dioxins	6.57e4					0.989	10.041	37.75			0.000	NO	5.173		0.404	5.173
43	Total Tetra-Furans	1.56e5					0.943	10.041	24.60			0.000	NO			0.0845	
44	1st Func. Penta-Furans	0.06e0					0.940	10.041	27.63			0.000	NO			0.0457	
45	Total Penta-Furans	0.06e0					0.940	10.041	30.00			0.000	NO			0.0573	
46	Total Hexa-Furans	0.06e0					1.078	10.041	33.00			0.000	NO			0.0848	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	39 Total Tetra-Dioxins	25.50	24.42	4.868e1	6.407e1	0.770	0.76	NO	0.24528	0.24528



Custom Reporting: Select reports to generate

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NUM

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

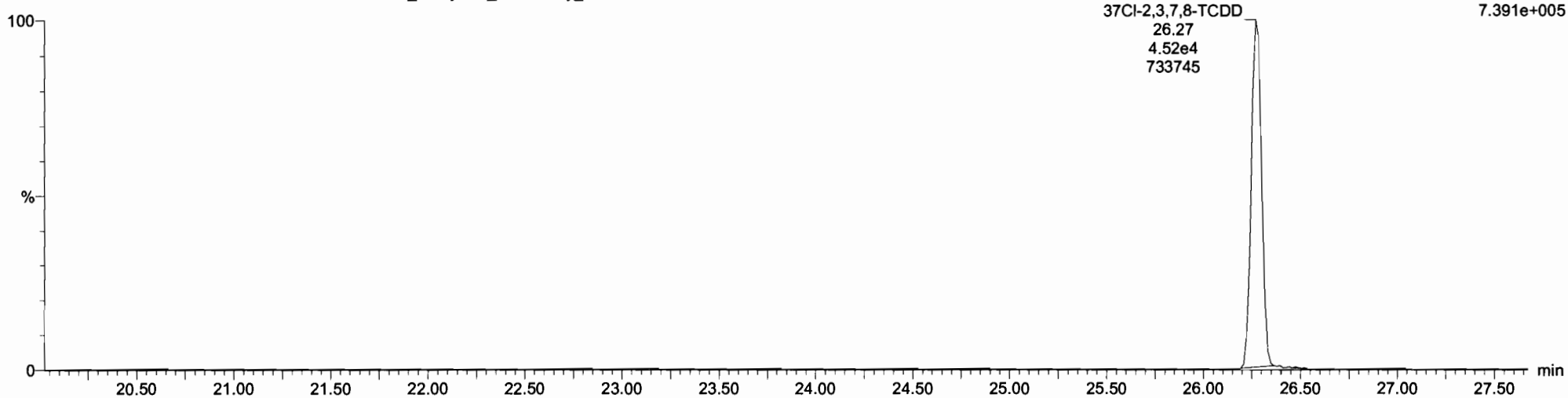
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191106D1\_7  
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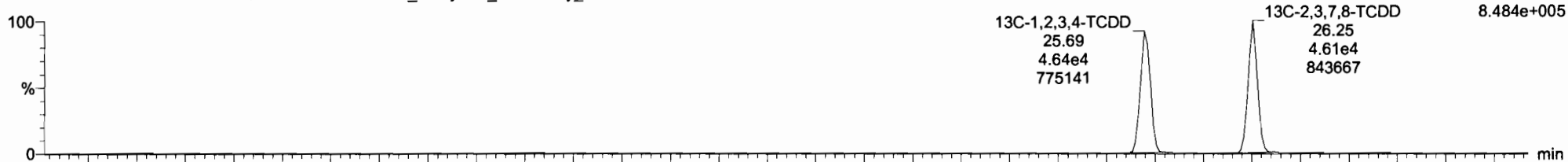
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327.884  
7.391e+005



13C-1,2,3,4-TCDD

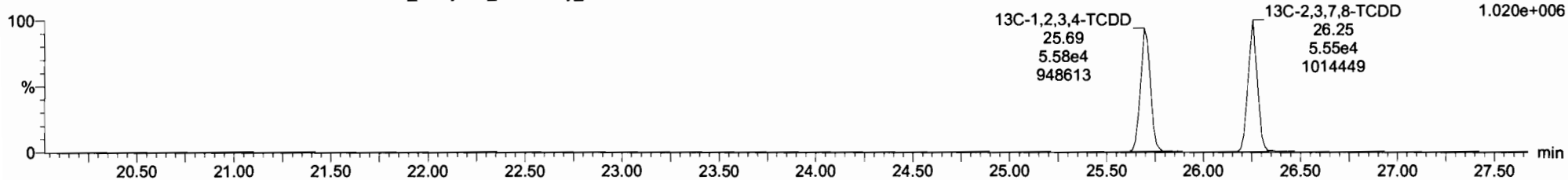
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F1:SIR of 15 channels,EI+  
331.9368  
8.484e+005



191106D1\_7  
1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-06 PDI-074SC-A-12-12.9-191012

F1:SIR of 15 channels,EI+  
333.934  
1.020e+006



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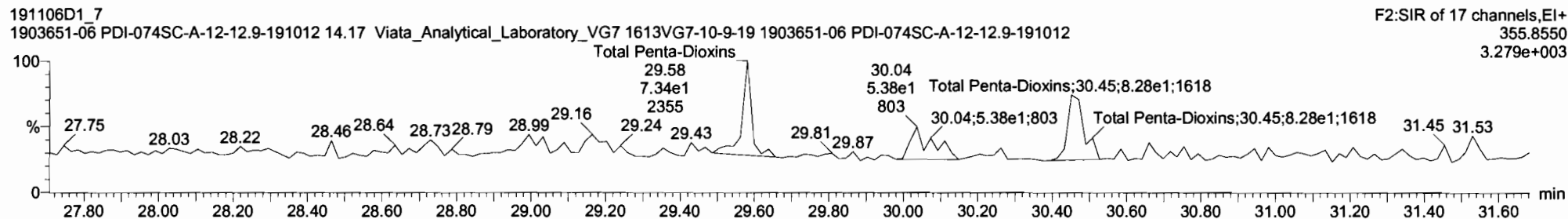
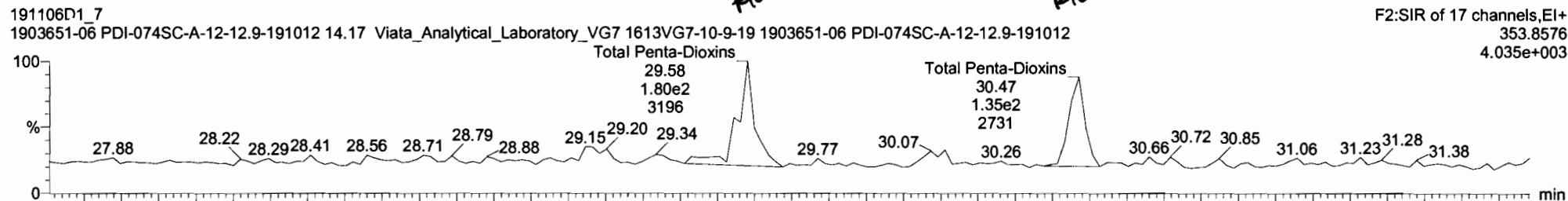
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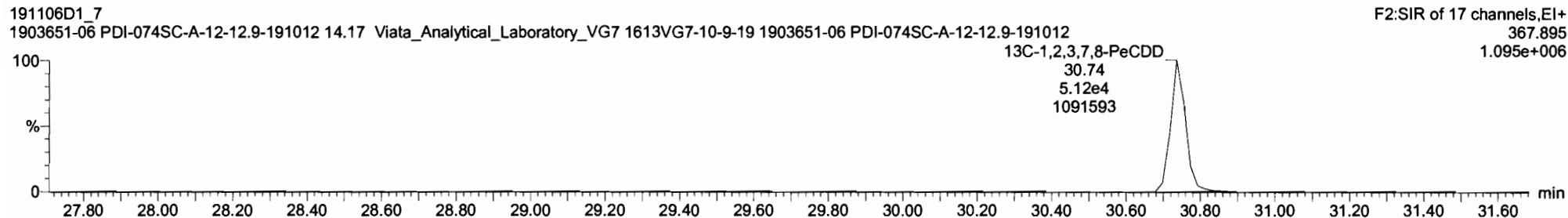
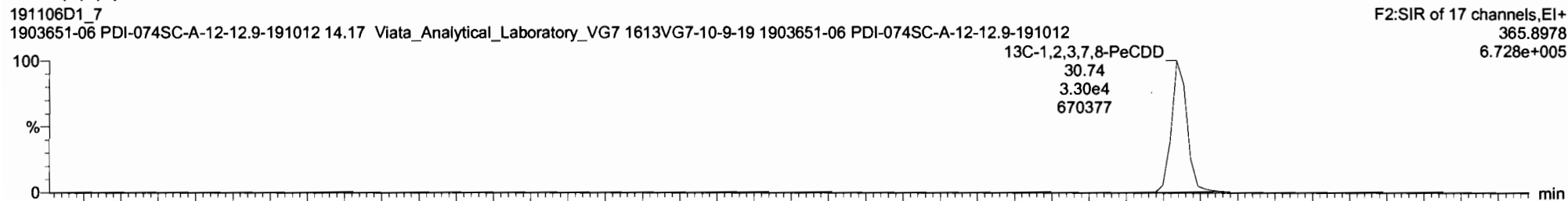
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Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012, Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD



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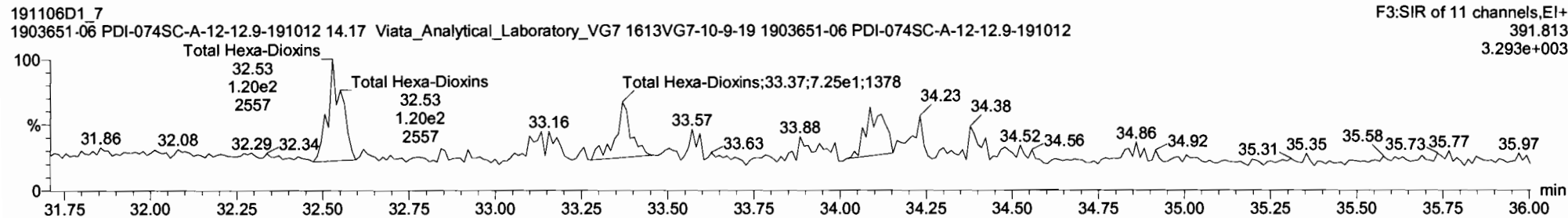
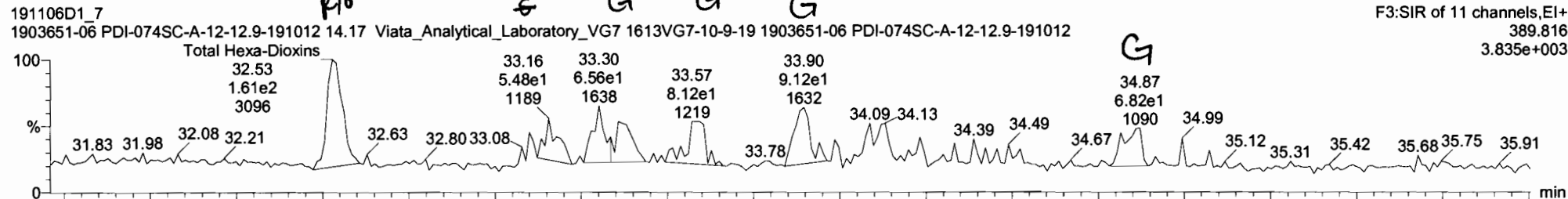
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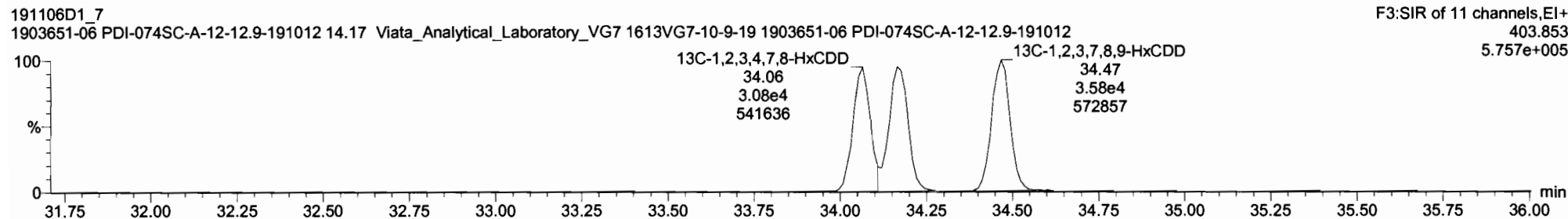
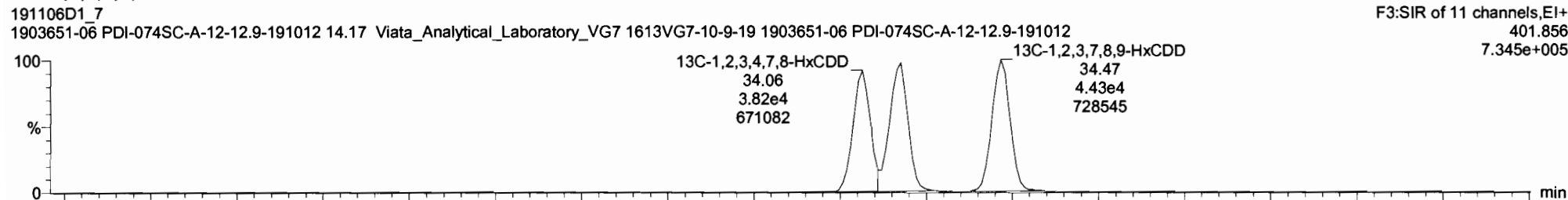
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Total Hexa-Dioxins



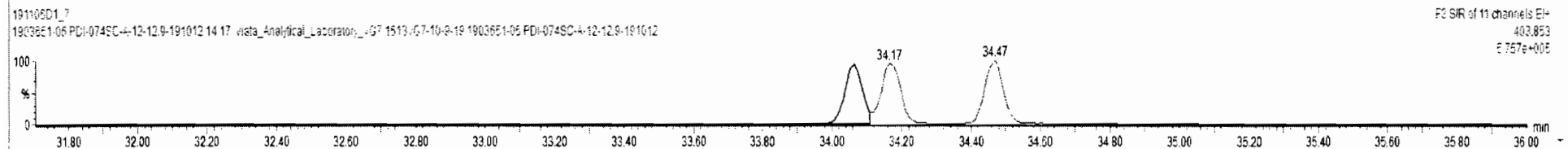
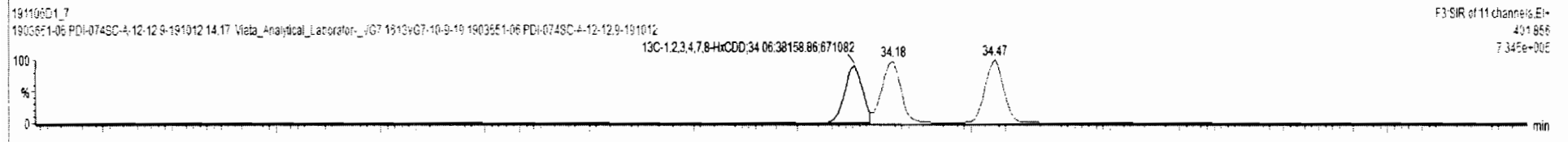
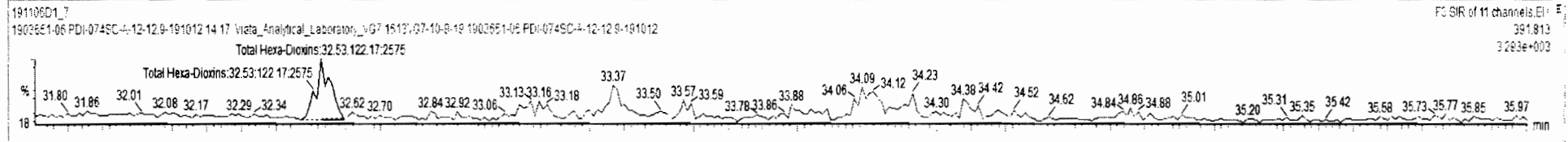
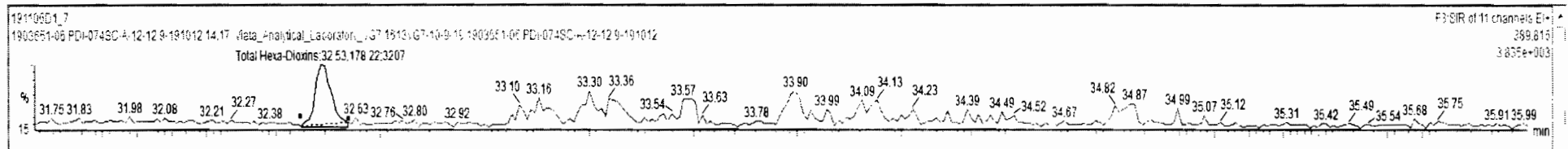
13C-1,2,3,4,7,8-HxCDD





#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	w/vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
32	13C-1,2,3,4,6,7,8-HpCDF	6.96e4	1.06e5	38	0.44	NO	0.757	10.041	36.70	36.70	1.093	1.093	NO	172.5	66.6	0.795	
33	13C-1,2,3,4,7,8-HpCDF	5.95e4	1.06e5	38	0.44	NO	0.561	10.041	38.39	38.46	1.145	1.143	NO	192.2	96.5	1.04	
34	13C-OCDF	1.44e5	1.06e5	38	0.87	NO	0.689	10.041	41.41	41.44	1.234	1.233	NO	391.2	98.2	0.706	
35	37Cl-2,3,7,8-TCDD	4.52e4	1.02e5	36			1.198	10.041	26.26	26.27	1.022	1.022	NO	73.63	92.4	0.192	
36	13C-1,2,3,4-TCDD	1.02e5	1.02e5	36	0.83	NO	1.000	10.041	25.70	25.69	1.000	1.000	NO	199.2	100	0.633	
37	13C-1,2,3,4-TCDF	1.64e5	1.64e5	37	0.77	NO	1.000	10.041	24.28	24.28	1.000	1.000	NO	199.2	100	0.625	
38	13C-1,2,3,4,6,9-HxCDF	1.06e5	1.06e5	38	0.52	NO	1.000	10.041	33.55	33.58	1.000	1.000	NO	199.2	100	0.815	
39	Total Tetra-Dioxins		1.02e5				0.901	10.041	25.50			0.000	NO			0.119	
40	Total Penta-Dioxins		8.42e4				0.872	10.041	30.00			0.000	NO	0.0000		0.162	0.6593
41	Total Hexa-Dioxins		0.00e0				0.976	10.041	33.60			0.000	NO	0.0000		0.196	0.7335
42	Total Hepta-Dioxins		6.57e4				0.989	10.041	37.75			0.000	NO	5.173		0.494	5.173
43	Total Tetra-Furans		1.56e5				0.943	10.041	24.00			0.000	NO			0.0845	
44	1st Func. Penta-Furans		0.00e0				0.940	10.041	27.63			0.000	NO			0.0457	
45	Total Penta-Furans		0.00e0				0.940	10.041	30.00			0.000	NO			0.0573	
46	Total Hexa-Furans		0.00e0				1.078	10.041	33.00			0.000	NO			0.0846	

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.80	32.53	1.782e2	1.222e2	1.240	1.46	YES	0.73346	0.00000



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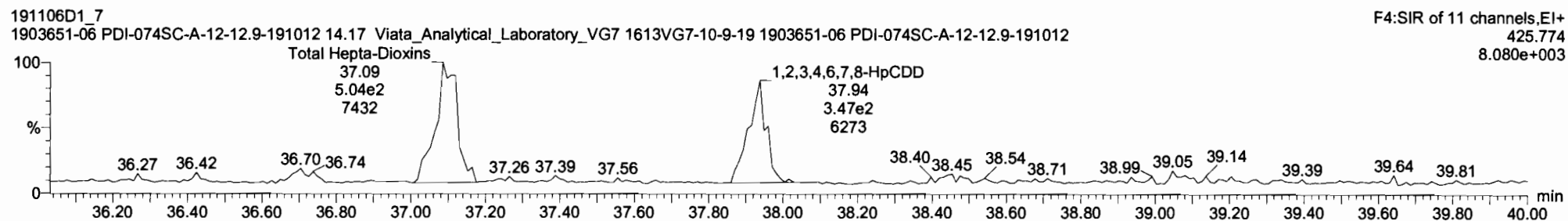
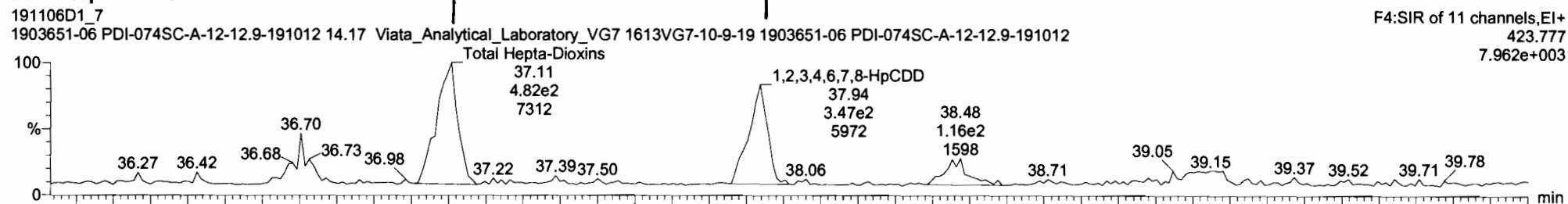
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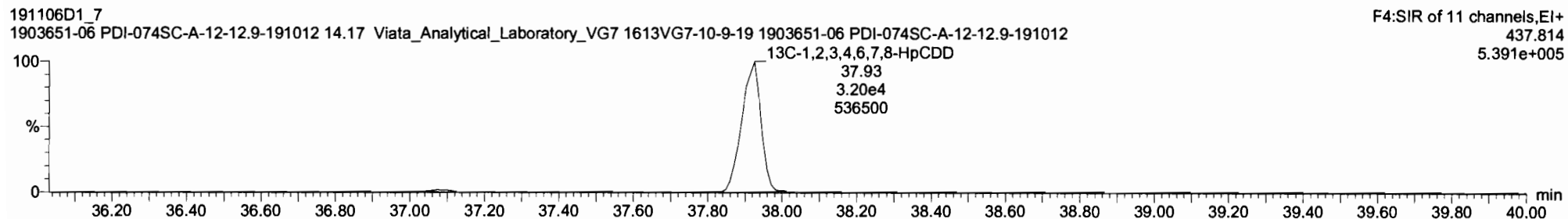
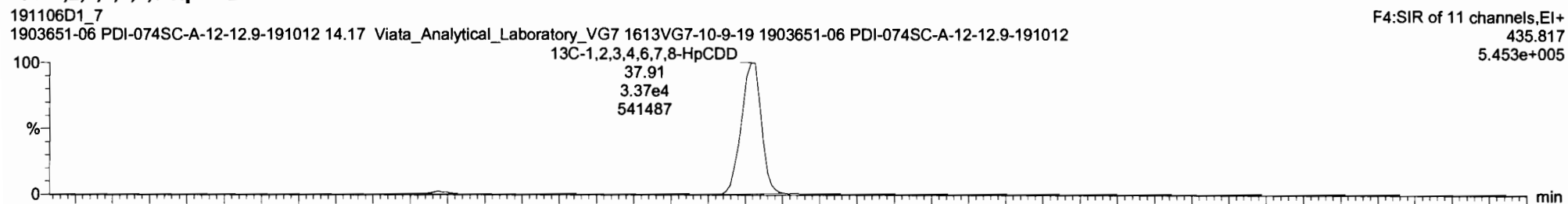
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Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012, Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Total Hepta-Dioxins



13C-1,2,3,4,6,7,8-HpCDD

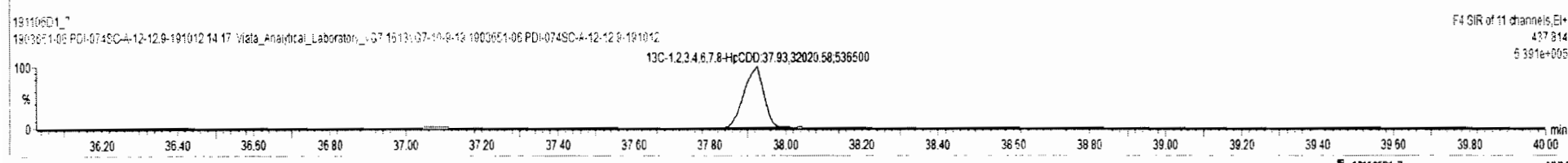
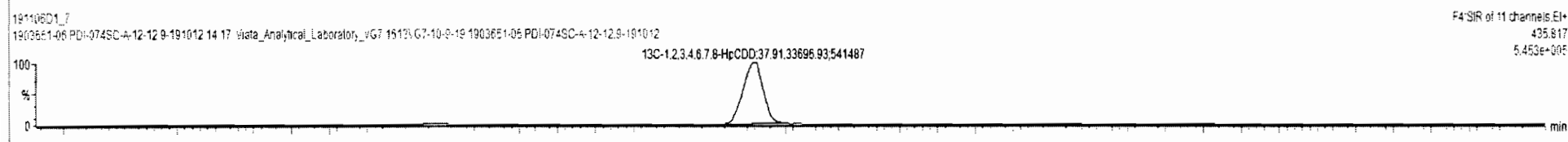
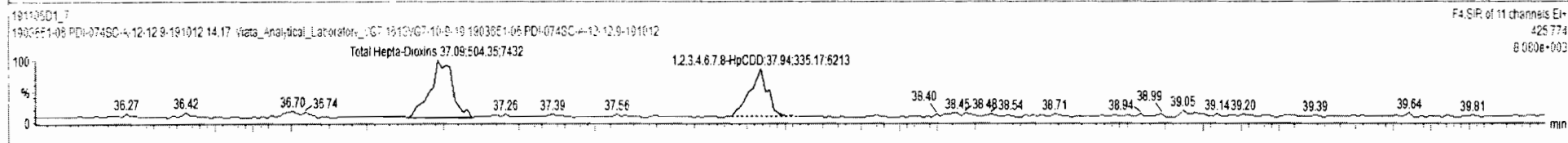
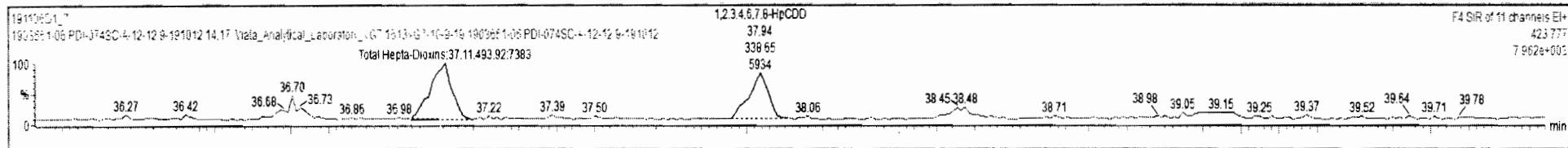




191106D1\_7\_1903651-06 PDI-074SC-A-12-12-9-191012-1903651-06 PDI-074SC-A-12-12-9-191012 14 17 Vieta\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
32	13C-1,2,3,4,6,7,8-HpCDF	6.96e4	1.06e5	38	0.44	NO	0.757	10.041	36.70	36.70	1.093	1.093	NG	172.5	86.6	0.795	
33	13C-1,2,3,4,7,8,9-HpCDF	5.95e4	1.06e5	38	0.44	NO	0.581	10.041	38.39	38.48	1.145	1.143	NG	192.2	96.5	1.04	
34	13C-OCDF	1.44e5	1.06e5	38	0.87	NO	0.689	10.041	41.41	41.44	1.234	1.233	NG	391.2	96.2	0.706	
35	37C-2,3,7,8-TCDD	4.52e4	1.02e5	36			1.198	10.041	26.28	26.27	1.022	1.022	NG	73.63	92.4	0.192	
36	13C-1,2,3,4-TCDD	1.92e5	1.02e5	36	0.83	NO	1.030	10.041	25.70	25.69	1.000	1.000	NG	196.2	100	0.633	
37	13C-1,2,3,4-TCDF	1.64e5	1.64e5	37	0.77	NO	1.000	10.041	24.28	24.28	1.000	1.000	NG	199.2	100	0.635	
38	13C-1,2,3,4,6,9-HxCDF	1.06e5	1.06e5	38	0.52	NO	1.000	10.041	23.55	23.58	1.000	1.000	NG	196.2	100	0.815	
39	Total Tetra-Dioxins		1.02e5				0.901	10.041	25.50			0.000	NG			0.119	
40	Total Penta-Dioxins		8.42e4				0.872	10.041	28.00			0.000	NG	0.0000		0.162	0.6593
41	Total Hexa-Dioxins		0.00e0				0.976	10.041	23.30			0.000	NG	0.0000		0.196	0.7335
42	Total Hepta-Dioxins		6.57e4				0.989	10.041	37.75			0.000	NG	5.145		0.404	5.145
43	Total Tetra-Furans		1.56e5				0.943	10.041	24.00			0.000	NG			0.0845	
44	1st Func. Penta-Furans		0.00e0				0.940	10.041	27.63			0.000	NG			0.0457	
45	Total Penta-Furans		0.00e0				0.940	10.041	30.00			0.000	NG			0.0573	
46	Total Hexa-Furans		0.00e0				1.078	10.041	23.00			0.000	NG			0.0348	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.11	4.93962	6.94462	1.040	0.96	NO	3.0602	3.0602
2	6 1,2,3,4,6,7,8-HpCDD	37.93	37.94	3.36662	3.35262	1.040	1.01	NO	2.0852	2.0852



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Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

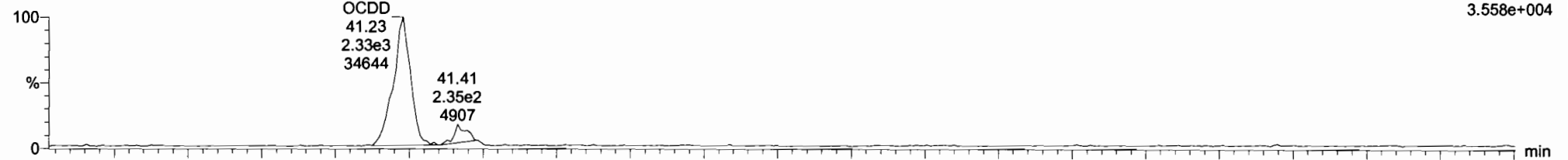
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Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

OCDD

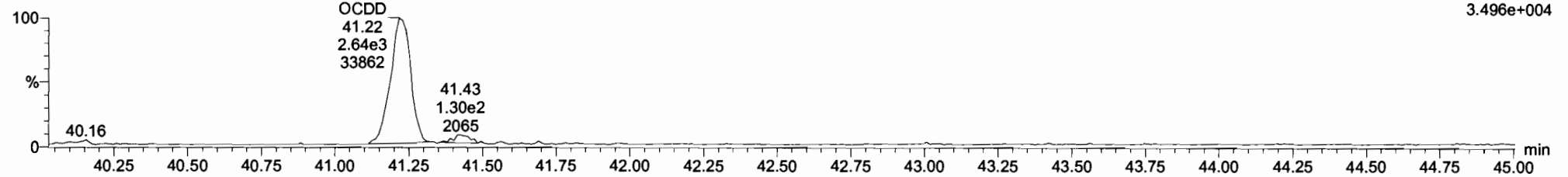
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F5:SIR of 11 channels,EI+  
457.738  
3.558e+004



191106D1\_7  
1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-06 PDI-074SC-A-12-12.9-191012

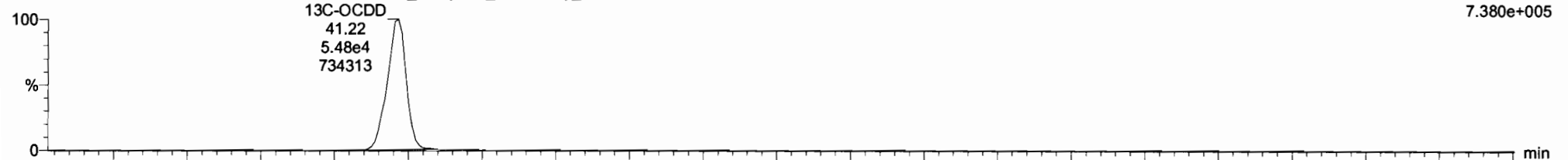
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13C-OCDD

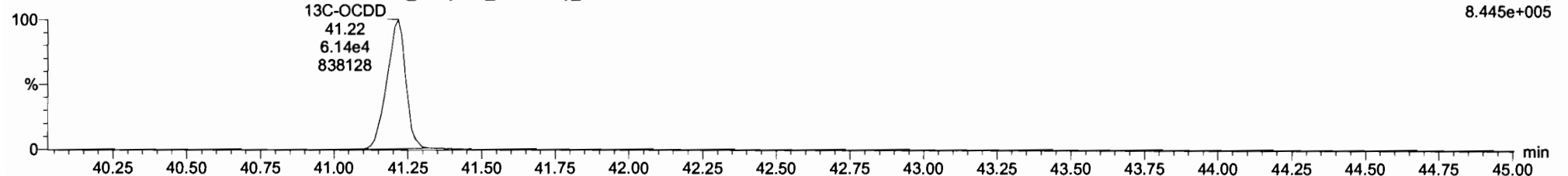
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F5:SIR of 11 channels,EI+  
469.778  
7.380e+005



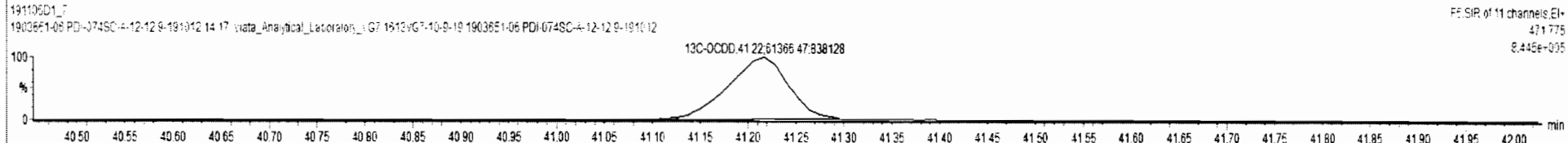
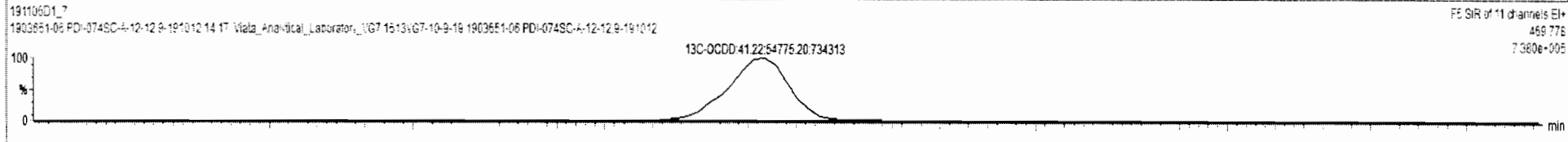
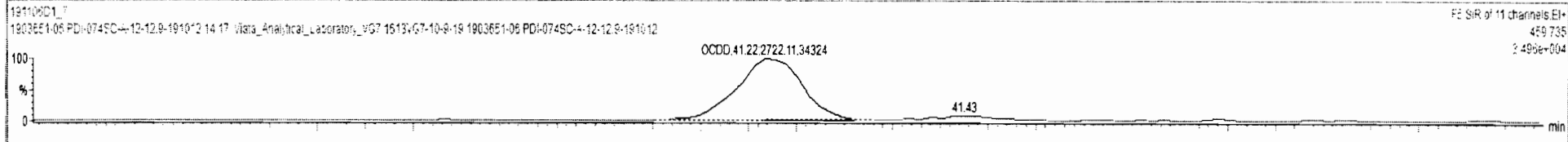
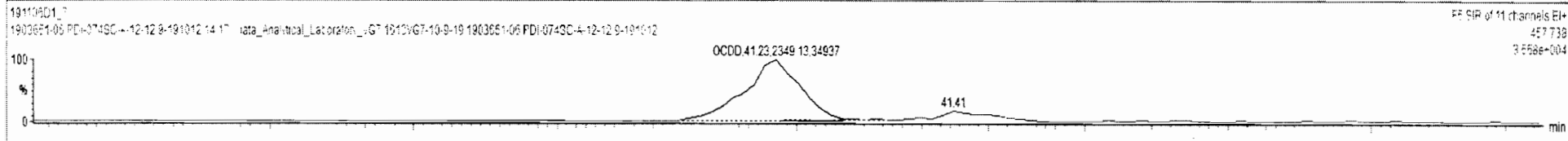
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F5:SIR of 11 channels,EI+  
471.775  
8.445e+005



#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wt/vol	Pred_RT	RT	RRT	Pred_RRT	Check_RRT	Conc	%Rec	DL	EMPC
1	1,2,3,7,8-TCDD		1.02e5	18			0.905	10.041	26.29			1.001	NO			0.210	
2	1,2,3,7,8-PeCDD		8.42e4	19			0.903	10.041	30.76			1.001	NO			0.274	
3	1,2,3,4,7,8-HxCDD		6.85e4	20			1.101	10.041	34.07			1.000	NO			0.383	
4	1,2,3,6,7,8-HxCDD		7.95e4	21			0.939	10.041	34.18			1.000	NO			0.425	
5	1,2,3,7,8,9-HxCDD		8.00e4	22			0.961	10.041	34.50			1.001	NO			0.404	
6	1,2,3,4,6,7,8-HpCDD	6.74e2	6.57e4	23	1.01	NO	0.979	10.041	37.93	37.94	1.001	1.000	NO	2.085		0.496	2.085
7	<b>OCDD</b>	<b>5.07e3</b>	<b>1.16e5</b>	<b>24</b>	<b>0.86</b>	<b>NO</b>	<b>0.959</b>	<b>10.041</b>	<b>41.22</b>	<b>41.23</b>	<b>1.000</b>	<b>1.000</b>	<b>NO</b>	<b>18.15</b>		<b>0.349</b>	<b>18.15</b>
8	2,3,7,8-TCDF		1.56e5	25			0.950	10.041	25.50			1.001	NO			0.166	
9	1,2,3,7,8-PeCDF		1.25e5	26			0.960	10.041	29.60			1.001	NO			0.126	
10	1,2,3,4,7,8-PeCDF		1.25e5	27			1.015	10.041	30.50			1.001	NO			0.123	
11	1,2,3,4,7,8-HxCDF		9.12e4	28			1.177	10.041	33.17			1.000	NO			0.158	
12	1,2,3,6,7,8-HxCDF		9.88e4	29			1.069	10.041	33.31			1.000	NO			0.166	
13	1,2,3,4,6,7,8-HxCDF		5.06e4	30			1.114	10.041	33.93			1.001	NO			0.154	
14	1,2,3,7,8,9-HxCDF		6.65e4	31			1.062	10.041	34.85			1.000	NO			0.213	
15	1,2,3,4,6,7,8-HpCDF		6.96e4	32			1.128	10.041	36.74			1.001	NO			0.220	

#	Name	Pred_RT	RT	m1 Resp	m2 Resp	Pred_RA	RA	nly	EMPC	Conc.
1										



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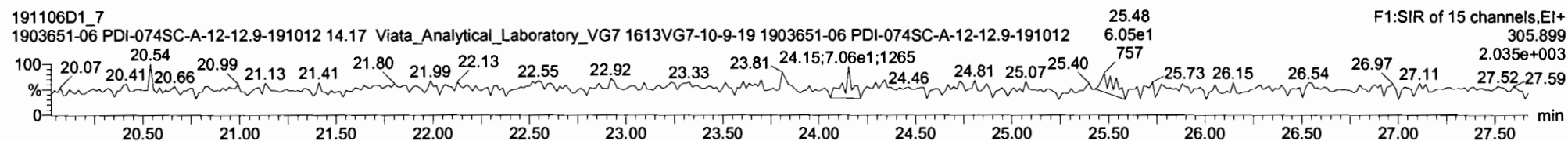
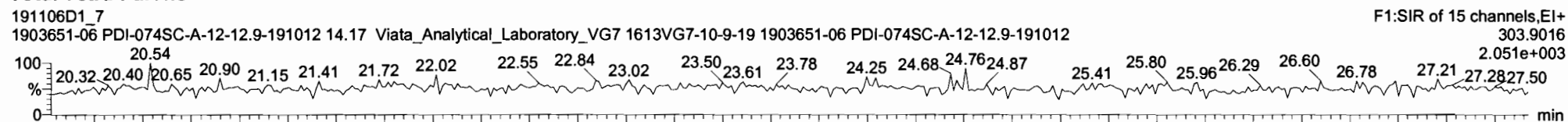
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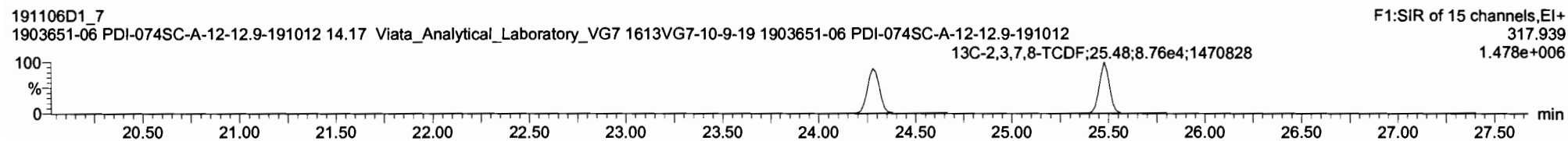
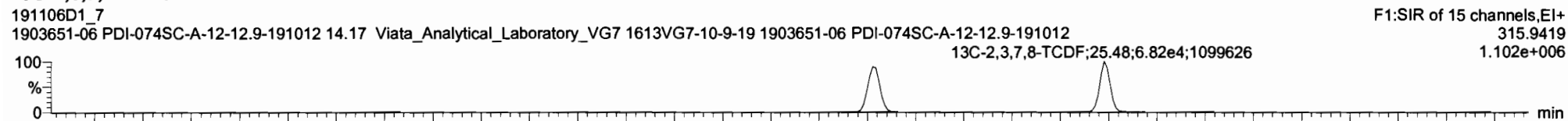
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Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012, Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

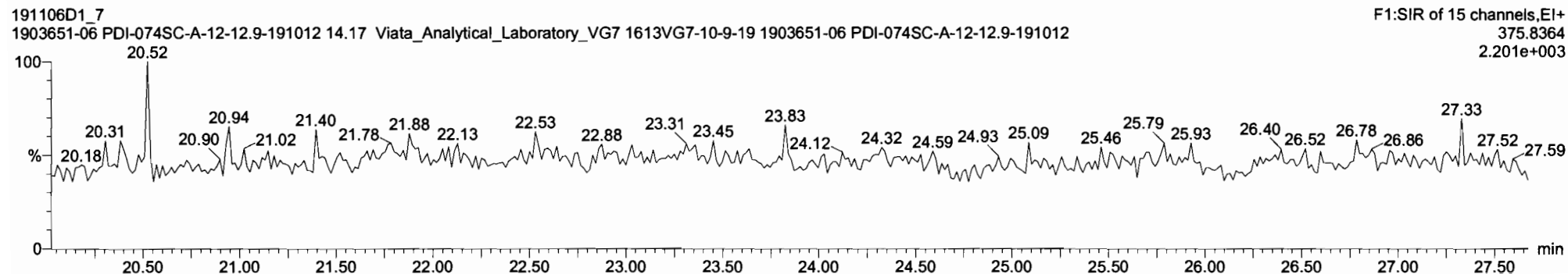
Total Tetra-Furans



13C-2,3,7,8-TCDF



DPE1



Vista Analytical Laboratory

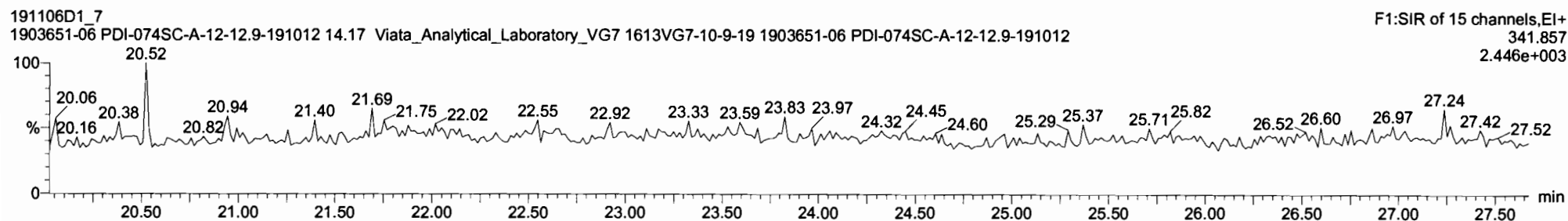
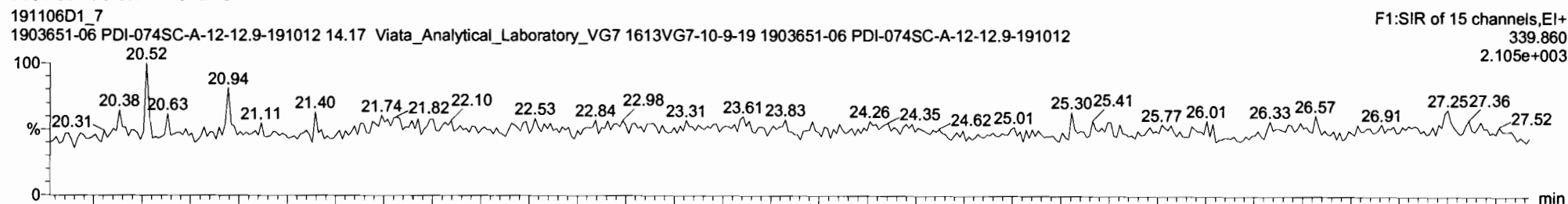
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Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

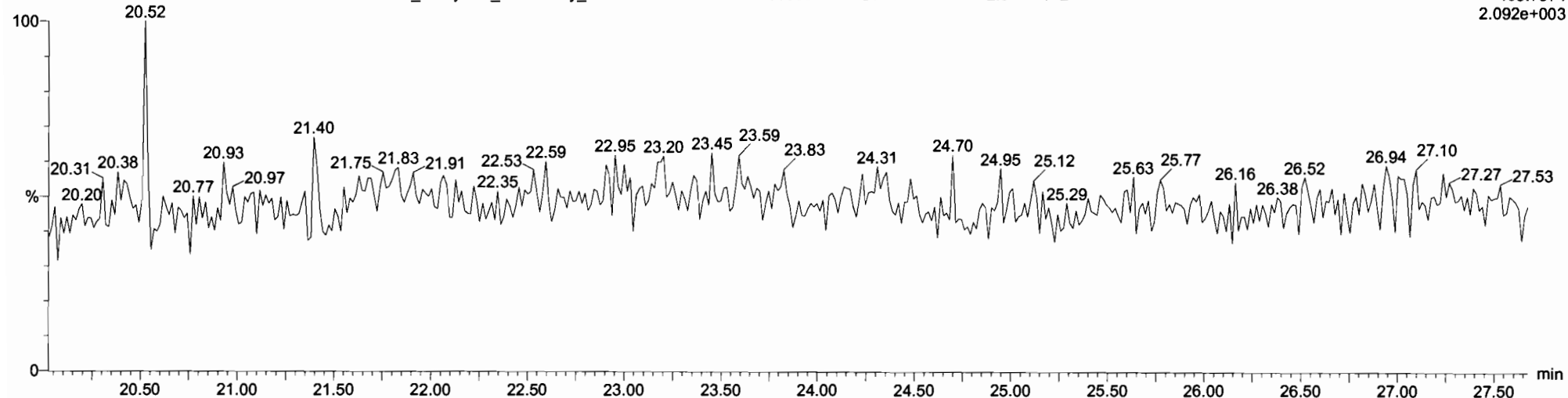
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Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

1st Func. Penta-Furans



DPE6  
191106D1\_7  
1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-06 PDI-074SC-A-12-12.9-191012

F1:SIR of 15 channels,EI+  
409.7974  
2.092e+003



Vista Analytical Laboratory

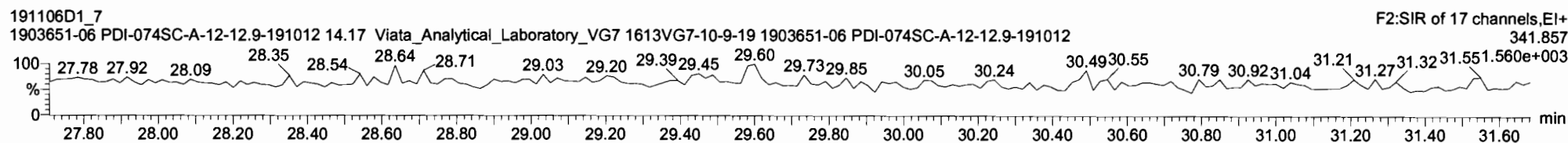
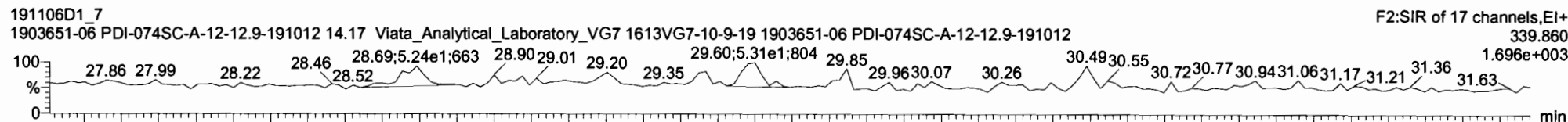
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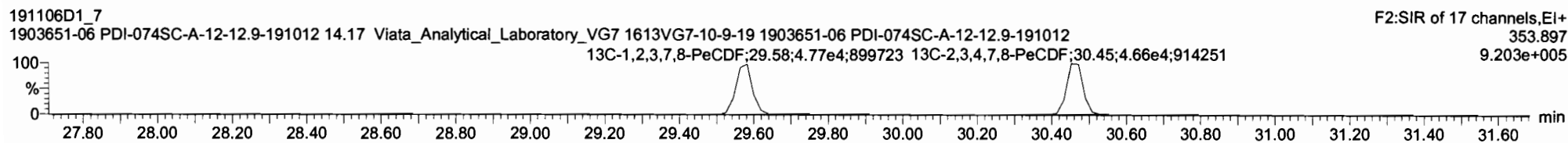
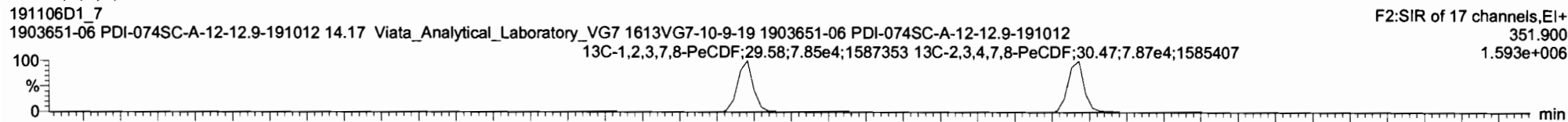
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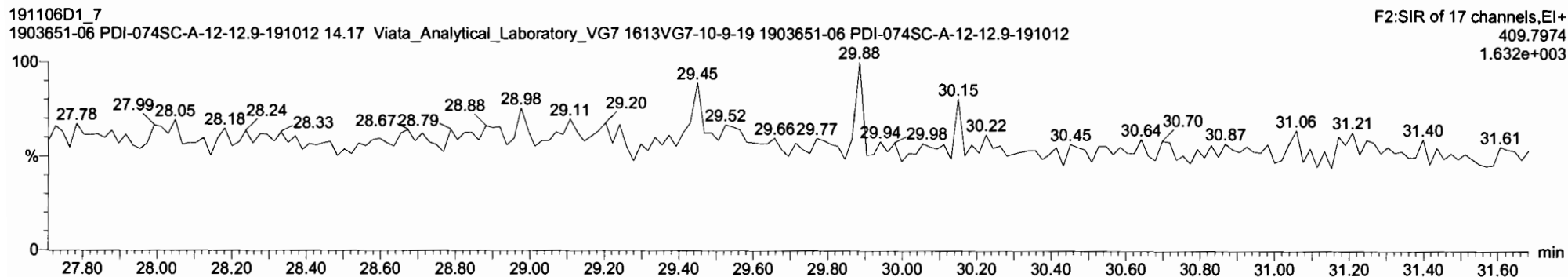
Total Penta-Furans



13C-1,2,3,7,8-PeCDF



DPE2





Vista Analytical Laboratory

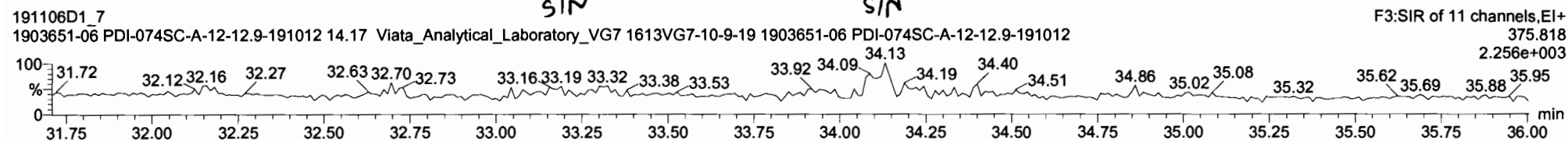
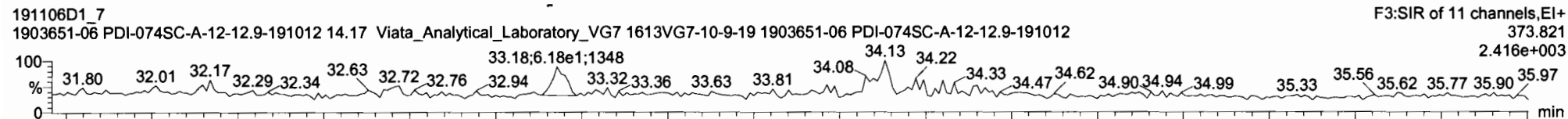
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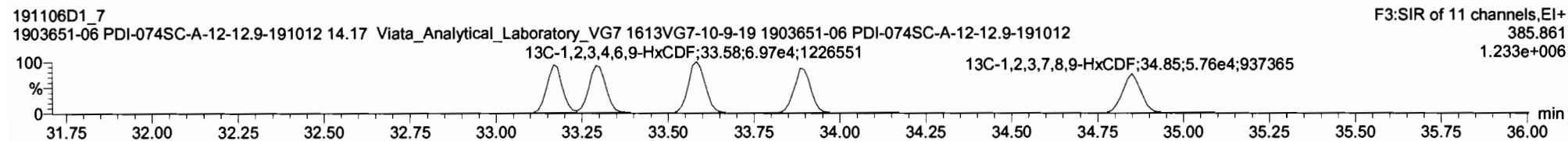
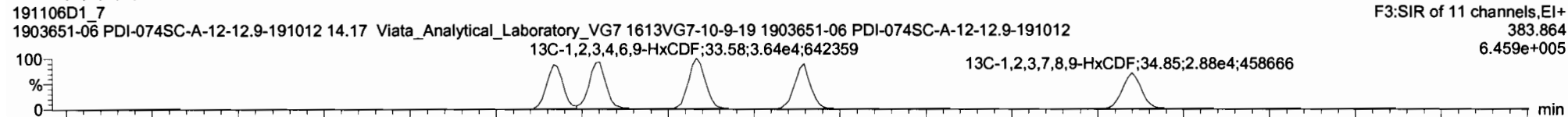
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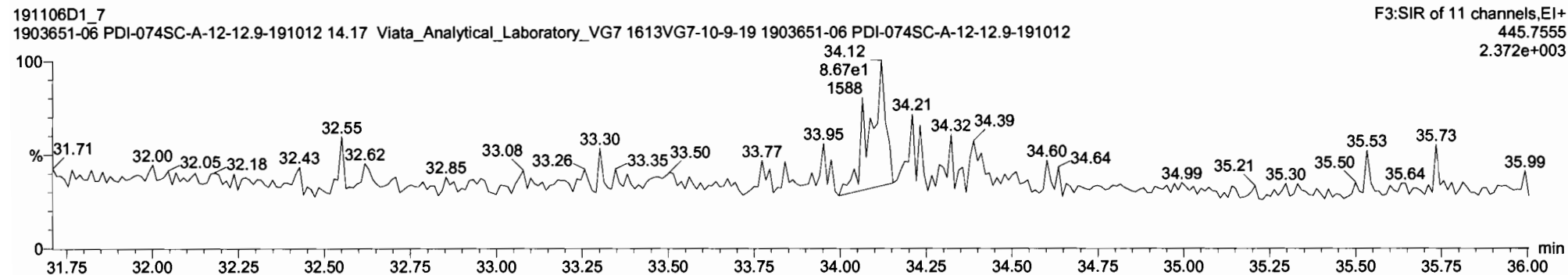
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3



Vista Analytical Laboratory

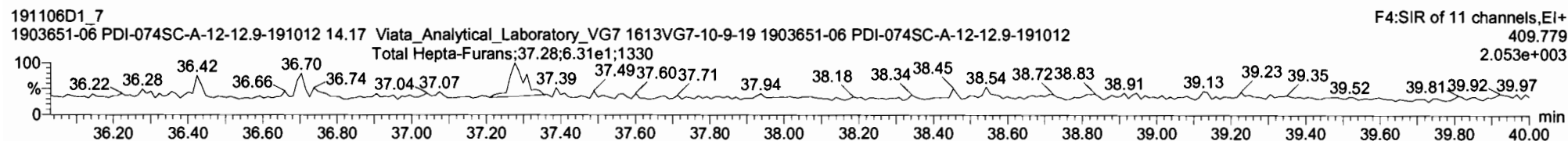
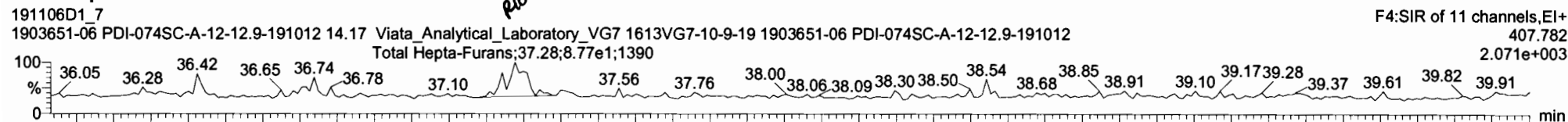
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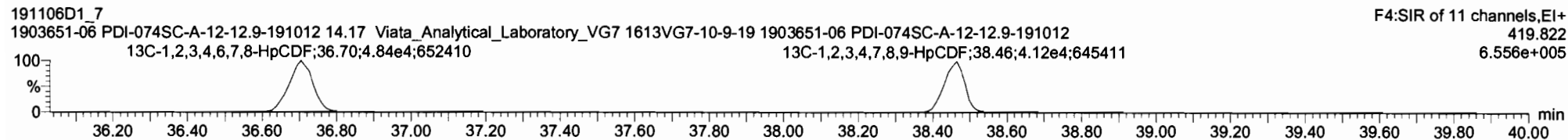
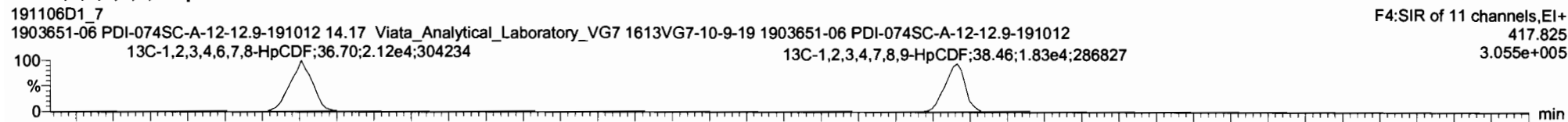
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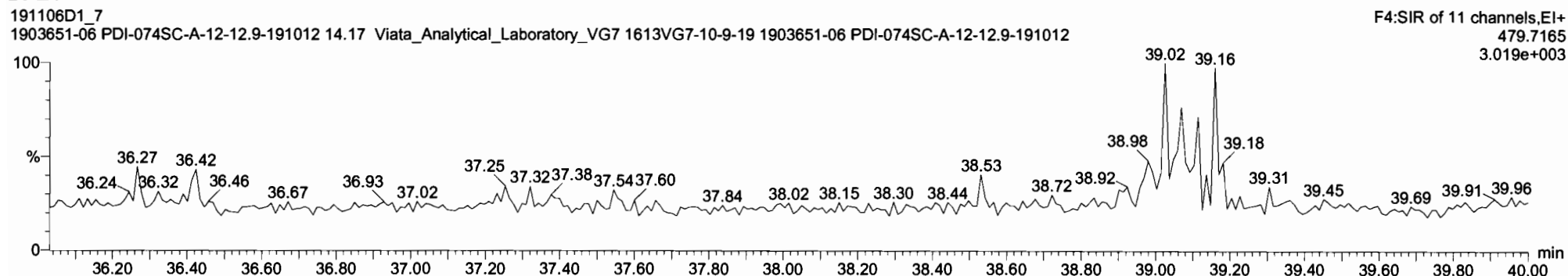
Total Hepta-Furans



13C-1,2,3,4,6,7,8-HpCDF

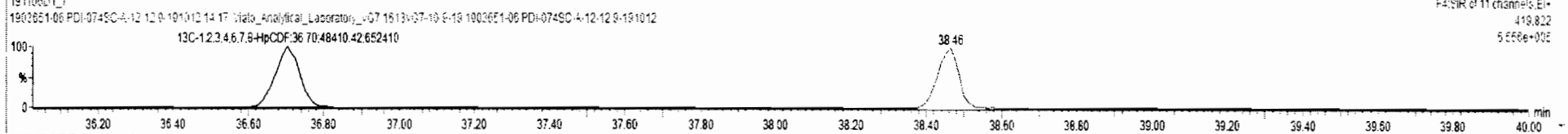
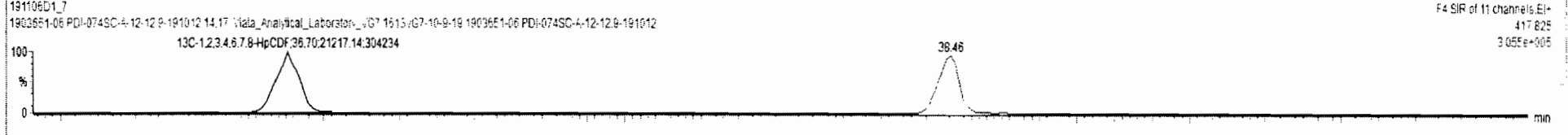
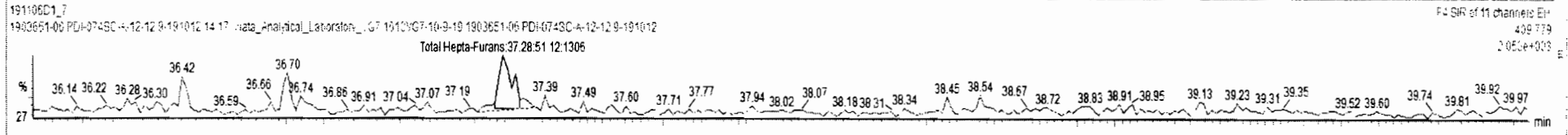
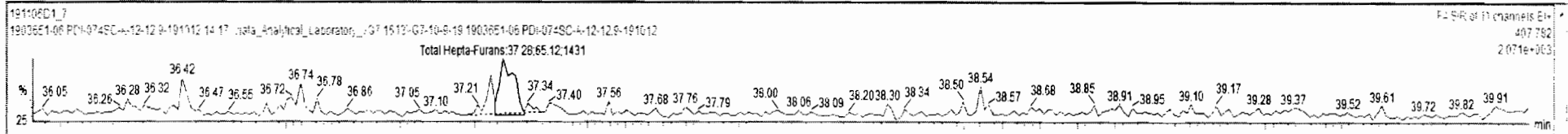


DPE4



#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
44	1st Func. Penta-Furans		0.00e0				0.940	10.041	27.63			0.000	NO			0.0457	
45	Total Penta-Furans		0.00e0				0.940	10.041	30.00			0.000	NO			0.0573	
46	Total Hexa-Furans		0.00e0				1.078	10.041	33.00			0.000	NO			0.0648	
47	Total Hepta-Furans		0.00e0				1.135	10.041	37.75			0.000	NO	0.0000		0.126	0.2835
48	PFK1																
49	PFK2																
50	PFK3																
51	PFK4																
52	PFK5																
53	DPE1																
54	DPE2																
55	DPE3																
56	DPE4																
57	DPE5																
58	DPE6																

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	47 Total Hepta-Furans	37.75	37.28	6.512e1	5.112e1	1.040	1.27	YES	0.28349	0.00000



Vista Analytical Laboratory

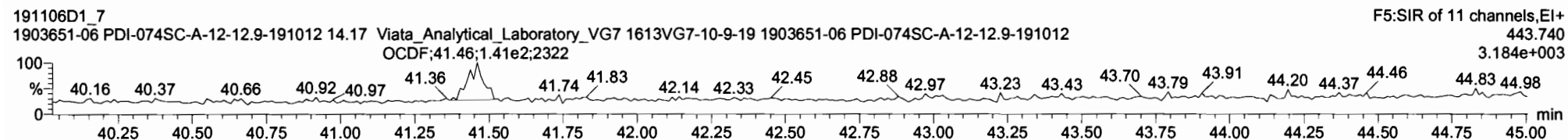
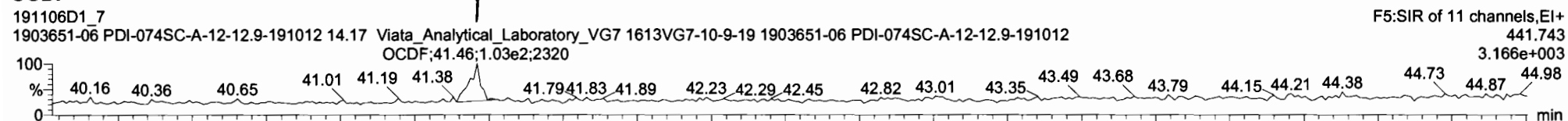
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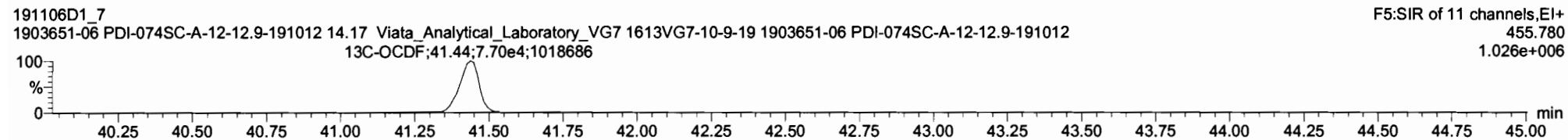
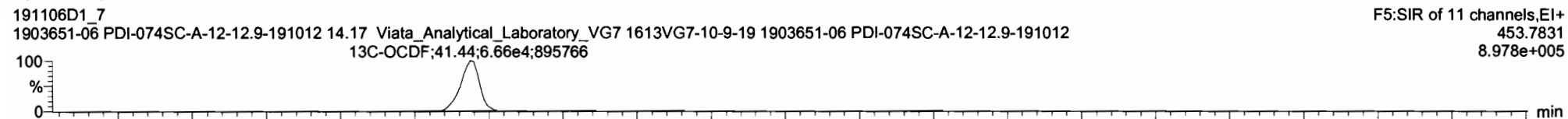
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Name: VG7 191106D1\_7, Date: 6-NOV-2019, Time: 16:29:02, ID: 1903651-06 PDI-074SC-A-12-12.9-191012,  
Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

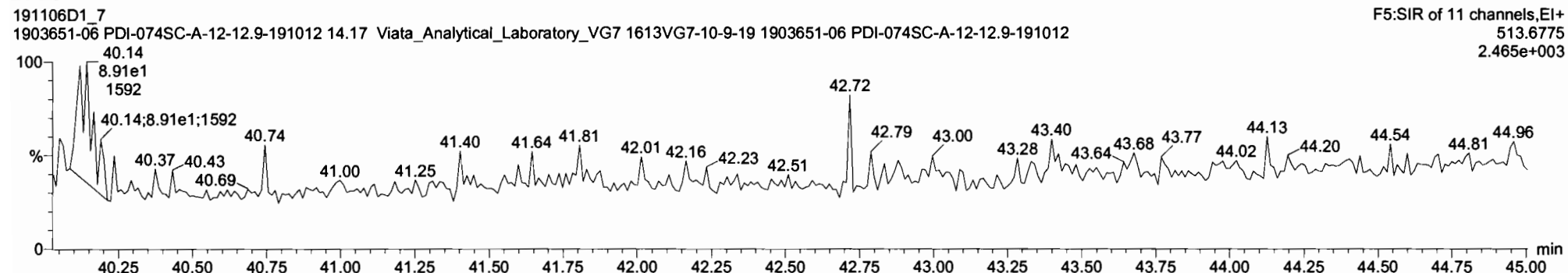
OCDF



13C-OCDF



DPE5

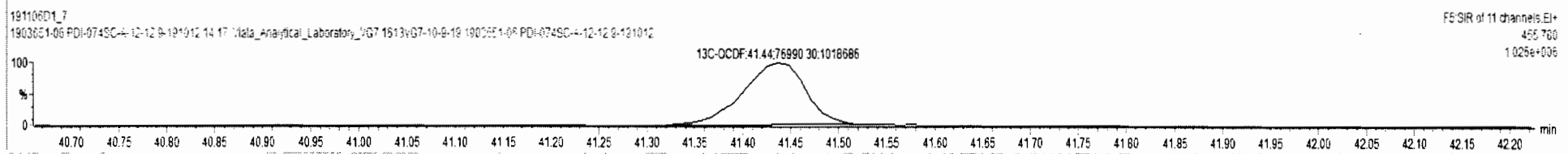
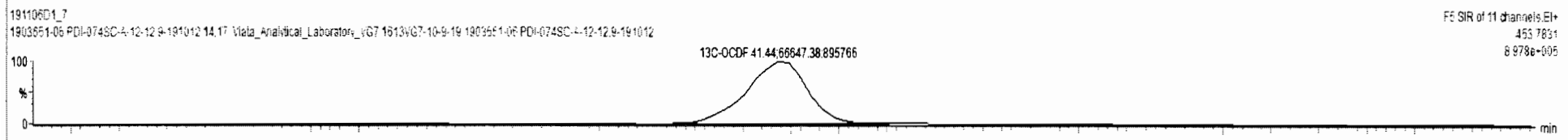
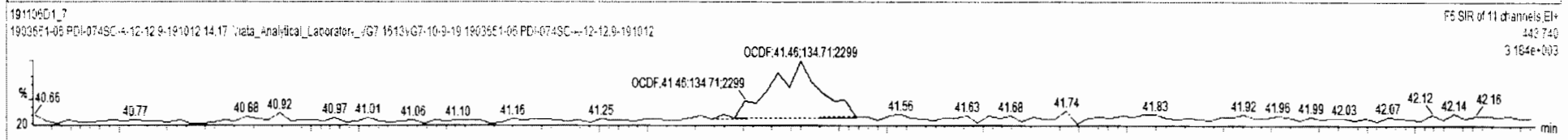
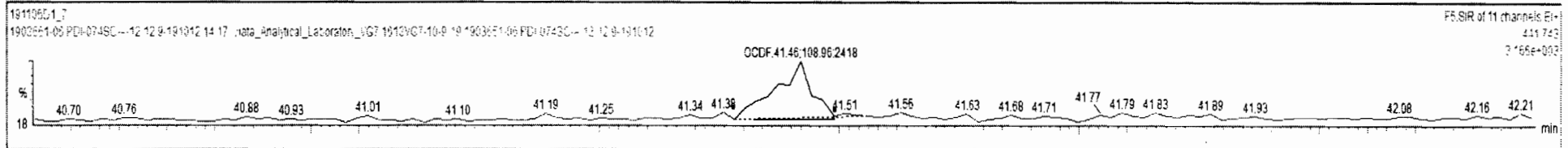




191106D1\_7 - 1903651-06 PDI-074SC-A-12-12-9-191012 - 1903651-06 PDI-074SC-A-12-12-9-191012 14 17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
12	12 1.2,3,6,7,8-HxCDF		9.88e4	29			1.069	10.041	32.31			1.906	NO			0.166	
13	13 2,3,4,6,7,8-HxCDF		9.96e4	30			1.114	10.041	33.93			1.901	NO			0.164	
14	14 1,2,3,7,8,9-HxCDF		8.65e4	31			1.062	10.041	34.86			1.906	NO			0.213	
15	15 1,2,3,4,6,7,8-HpCDF		6.96e4	32			1.128	10.041	36.74			1.901	NO			0.220	
16	16 1,2,3,4,7,8,9-HpCDF		5.95e4	33			1.280	10.041	38.46			1.906	NO			0.296	
17	17 OCDF	2.44e2	1.44e5	34	0.81	NO	0.947	10.041	41.44	41.46	1.001	1.000	NO	0.7134		0.270	0.7134
18	18 13C-2,3,7,8-TCDD	1.02e5	1.02e5	36	0.83	NO	1.095	10.041	26.24	26.25	1.022	1.021	NO	181.0	90.5	0.578	
19	19 17C-1,2,3,7,8-PeCDD	2.42e4	1.02e5	36	0.64	NO	0.881	10.041	30.49	30.74	1.196	1.187	NO	166.3	93.5	0.308	
20	20 13C-1,2,3,4,7,8-HxCDD	6.89e4	1.06e5	38	1.24	NO	0.642	10.041	34.05	34.06	1.014	1.014	NO	201.5	101	0.677	
21	21 13C-1,2,3,6,7,8-HxCDD	7.95e4	1.06e5	38	1.26	NO	0.856	10.041	34.17	34.18	1.018	1.017	NO	174.3	67.5	0.598	
22	22 13C-1,2,3,7,8,9-HxCDD	8.06e4	1.06e5	38	1.24	NO	0.807	10.041	34.47	34.47	1.026	1.026	NO	186.2	93.5	0.539	
23	23 13C-1,2,3,4,6,7,8-PeCDD	6.57e4	1.06e5	38	1.05	NO	0.654	10.041	37.82	37.91	1.129	1.126	NO	188.6	94.7	0.645	
24	24 13C-OCDD	1.16e5	1.06e5	38	0.89	NO	0.580	10.041	41.18	41.22	1.227	1.226	NO	378.0	94.4	0.750	
25	25 13C-2,3,7,8-TCDF	1.56e5	1.64e5	37	0.78	NO	1.035	10.041	25.53	25.48	0.992	0.993	NO	163.0	91.9	0.614	
26	26 13C-1,2,3,7,8-PeCDF	1.26e5	1.64e5	37	1.65	NO	0.854	10.041	29.37	29.58	1.151	1.143	NO	179.6	90.2	0.661	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										



Vista Analytical Laboratory

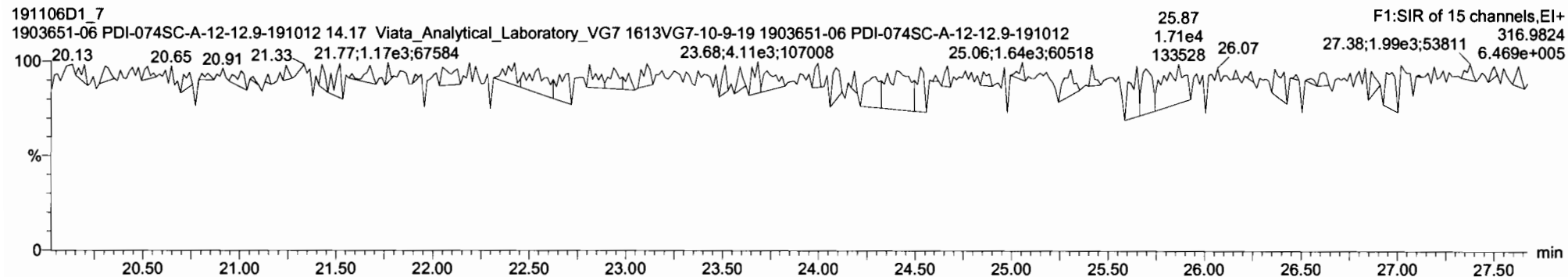
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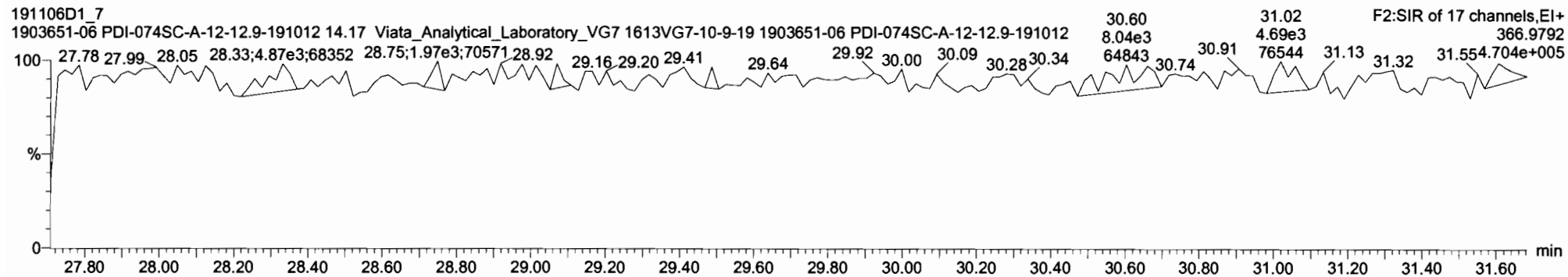
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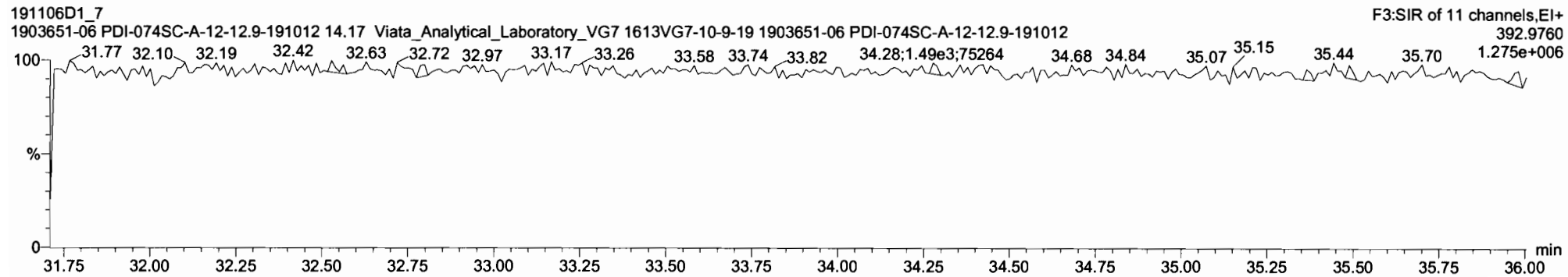
PFK1



PFK2



PFK3



Vista Analytical Laboratory

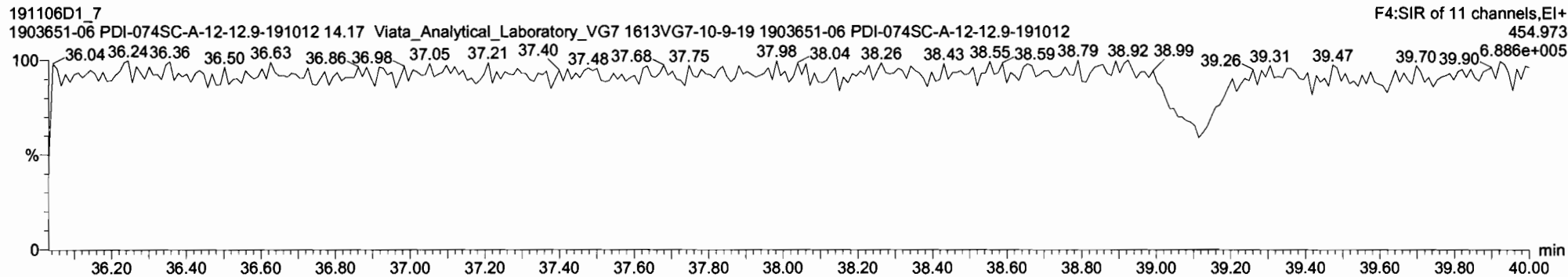
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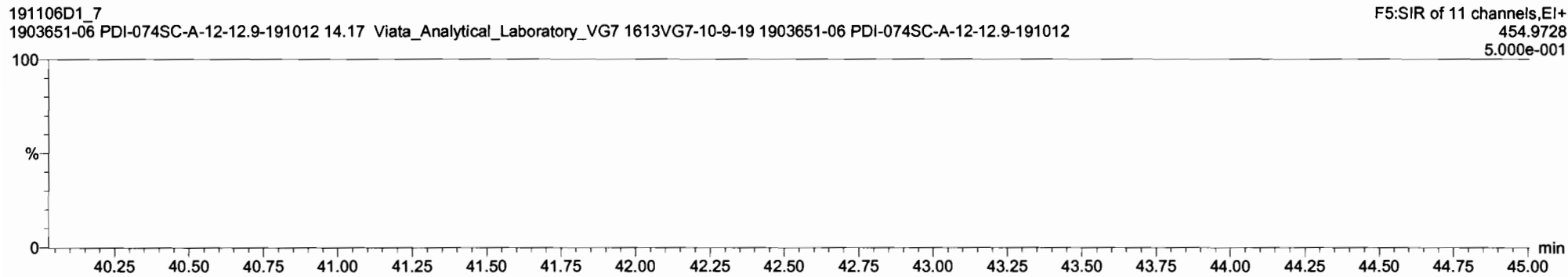
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Description: 1903651-06 PDI-074SC-A-12-12.9-191012 14.17 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

PFK4



PFK5



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-8.qld  
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 Printed: Thursday, December 05, 2019 12:33:05 Pacific Standard Time

EL 12/5/19

CT 12/18/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57

Calibration: 05 Dec 2019 08:41:35

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 Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	Wt./Vol.	RRF	RA	Y/N	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
1	1 2,3,7,8-TCDD		1.08e5	10.0054	0.905			1.001		26.29					0.168
2	2 1,2,3,7,8-PeCDD		9.79e4	10.0054	0.903			1.001		30.76					0.128
3	3 1,2,3,4,7,8-HxCDD		8.10e4	10.0054	1.101			1.000		34.06					0.298
4	4 1,2,3,6,7,8-HxCDD		8.62e4	10.0054	0.939			1.000		34.17					0.351
5	5 1,2,3,7,8,9-HxCDD		8.90e4	10.0054	0.961			1.001		34.49					0.332
6	6 1,2,3,4,6,7,8-HpCDD	6.06e2	7.55e4	10.0054	0.979	1.145	NO	1.000	1.001	37.92	37.93	1.6389		1.64	0.248
7	7 OCDD	4.44e3	1.33e5	10.0054	0.959	0.875	NO	1.000	1.000	41.21	41.21	13.882		13.9	0.348
8	8 2,3,7,8-TCDF		1.75e5	10.0054	0.950			1.001		25.50					0.121
9	9 1,2,3,7,8-PeCDF		1.44e5	10.0054	0.960			1.001		29.58					0.128
10	10 2,3,4,7,8-PeCDF		1.37e5	10.0054	1.015			1.001		30.48					0.118
11	11 1,2,3,4,7,8-HxCDF	1.24e2	1.06e5	10.0054	1.177	1.356	NO	1.000	1.000	33.16	33.17	0.19897		0.199	0.120
12	12 1,2,3,6,7,8-HxCDF		1.14e5	10.0054	1.069			1.000		33.30					0.128
13	13 2,3,4,6,7,8-HxCDF		1.09e5	10.0054	1.114			1.001		33.92					0.136
14	14 1,2,3,7,8,9-HxCDF		1.01e5	10.0054	1.062			1.000		34.84					0.184
15	15 1,2,3,4,6,7,8-HpCDF	1.09e2	8.27e4	10.0054	1.128	1.029	NO	1.001	1.000	36.72	36.69	0.23301		0.233	0.166
16	16 1,2,3,4,7,8,9-HpCDF		6.94e4	10.0054	1.280			1.000		38.44					0.133
17	17 OCDF	2.91e2	1.67e5	10.0054	0.947	0.985	NO	1.000	1.000	41.43	41.41	0.73662		0.737	0.218
18	18 13C-2,3,7,8-TCDD	1.08e5	1.06e5	10.0054	1.095	0.799	NO	1.021	1.022	26.24	26.26	185.61	92.9		0.631
19	19 13C-1,2,3,7,8-PeCDD	9.79e4	1.06e5	10.0054	0.881	0.644	NO	1.187	1.196	30.49	30.74	208.44	104.3		0.348
20	20 13C-1,2,3,4,7,8-Hx...	8.10e4	1.19e5	10.0054	0.642	1.299	NO	1.014	1.014	34.04	34.05	211.26	105.7		0.732
21	21 13C-1,2,3,6,7,8-Hx...	8.62e4	1.19e5	10.0054	0.856	1.307	NO	1.017	1.018	34.16	34.17	168.76	84.4		0.550
22	22 13C-1,2,3,7,8,9-Hx...	8.90e4	1.19e5	10.0054	0.807	1.248	NO	1.026	1.026	34.45	34.46	184.85	92.5		0.583
23	23 13C-1,2,3,4,6,7,8-H...	7.55e4	1.19e5	10.0054	0.654	1.021	NO	1.126	1.129	37.81	37.90	193.44	96.8		0.935
24	24 13C-OCDD	1.33e5	1.19e5	10.0054	0.580	0.886	NO	1.226	1.227	41.16	41.21	385.59	96.4		0.746
25	25 13C-2,3,7,8-TCDF	1.75e5	1.79e5	10.0054	1.035	0.785	NO	0.993	0.992	25.53	25.48	188.38	94.2		0.559
26	26 13C-1,2,3,7,8-PeCDF	1.44e5	1.79e5	10.0054	0.854	1.602	NO	1.143	1.151	29.37	29.56	187.86	94.0		0.556
27	27 13C-2,3,4,7,8-PeCDF	1.37e5	1.79e5	10.0054	0.847	1.586	NO	1.176	1.185	30.22	30.45	179.73	89.9		0.560
28	28 13C-1,2,3,4,7,8-Hx...	1.06e5	1.19e5	10.0054	0.832	0.516	NO	0.987	0.988	33.14	33.16	213.14	106.6		0.953
29	29 13C-1,2,3,6,7,8-Hx...	1.14e5	1.19e5	10.0054	1.034	0.516	NO	0.991	0.992	33.26	33.29	184.86	92.5		0.766
30	30 13C-2,3,4,6,7,8-Hx...	1.09e5	1.19e5	10.0054	0.953	0.513	NO	1.009	1.009	33.88	33.88	191.46	95.8		0.832
31	31 13C-1,2,3,7,8,9-Hx...	1.01e5	1.19e5	10.0054	0.828	0.519	NO	1.039	1.038	34.87	34.84	203.52	101.8		0.958



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-8.qld

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Printed: Thursday, December 05, 2019 12:33:05 Pacific Standard Time

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 Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Area	IS Area	WL/Vol	RRF	RA	Y/N	Pred.	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	13C-1,2,3,4,6,7,8-H...	8.27e4	1.19e5	10.0054	0.757	0.442	NO	1.093	1.093	36.69	36.68	182.79	91.4		0.905
33	13C-1,2,3,4,7,8,9-H...	6.94e4	1.19e5	10.0054	0.581	0.420	NO	1.143	1.145	38.37	38.44	199.91	100.0		1.18
34	13C-OCDF	1.67e5	1.19e5	10.0054	0.689	0.881	NO	1.233	1.234	41.40	41.43	405.60	101.5		0.524
35	37Cl-2,3,7,8-TCDD	4.72e4	1.06e5	10.0054	1.198			1.022	1.022	26.26	26.27	73.991	92.5		0.179
36	13C-1,2,3,4-TCDD	1.06e5	1.06e5	10.0054	1.000	0.858	NO	1.000	1.000	25.70	25.69	199.89	100.0		0.692
37	13C-1,2,3,4-TCDF	1.79e5	1.79e5	10.0054	1.000	0.796	NO	1.000	1.000	24.28	24.28	199.89	100.0		0.579
38	13C-1,2,3,4,6,9-Hx...	1.19e5	1.19e5	10.0054	1.000	0.518	NO	1.000	1.000	33.55	33.57	199.89	100.0		0.793
39	Total Tetra-Dioxins		1.08e5	10.0054	0.901			0.000		25.50					0.0904
40	Total Penta-Dioxins		9.79e4	10.0054	0.872			0.000		30.00					0.0577
41	Total Hexa-Dioxins		0.00e0	10.0054	0.976			0.000		33.80		0.00000		0.269	0.239
42	Total Hepta-Dioxins		7.55e4	10.0054	0.989			0.000		37.75		3.9603		3.96	0.245
43	Total Tetra-Furans		1.75e5	10.0054	0.943			0.000		24.00					0.0566
44	1st Func. Penta-Fur...		0.00e0	10.0054	0.940			0.000		27.63					0.0308
45	Total Penta-Furans		0.00e0	10.0054	0.940			0.000		30.00					0.0669
46	Total Hexa-Furans		0.00e0	10.0054	1.078			0.000		33.00		0.19897		0.199	0.144
47	Total Hepta-Furans		0.00e0	10.0054	1.135			0.000		37.75		0.23301		0.547	0.158

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-8.qld

Last Altered: Thursday, December 05, 2019 12:30:41 Pacific Standard Time

Printed: Thursday, December 05, 2019 12:33:05 Pacific Standard Time

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Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Tetra-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Penta-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

Hexa-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
41	Total Hexa-Dioxins	YES	32.54	62.092	48010.681	0.000	MM	0.0000	0.27

Hepta-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
6	1,2,3,4,6,7,8-HpCDD	NO	37.93	323.702	38148.977	16.060	MM	1.6389	1.64
42	Total Hepta-Dioxins	NO	37.07	453.567	38148.977	22.964	MM	2.3214	2.32

Tetra-Furans

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Penta-Furans function 1

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-8.qld

Last Altered: Thursday, December 05, 2019 12:30:41 Pacific Standard Time

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Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012,  
 Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

**Penta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1									

**Hexa-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
11	1,2,3,4,7,8-HxCDF	NO	33.17	71.363	36042.270	2.343	bb	0.1990	0.20

**Hepta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
47	Total Hepta-Furans	YES	37.26	84.135	22917.339	0.000	MM	0.0000	0.31
15	1,2,3,4,6,7,8-HpCDF	NO	36.69	55.101	25321.326	2.629	MM	0.2330	0.23

Vista Analytical Laboratory

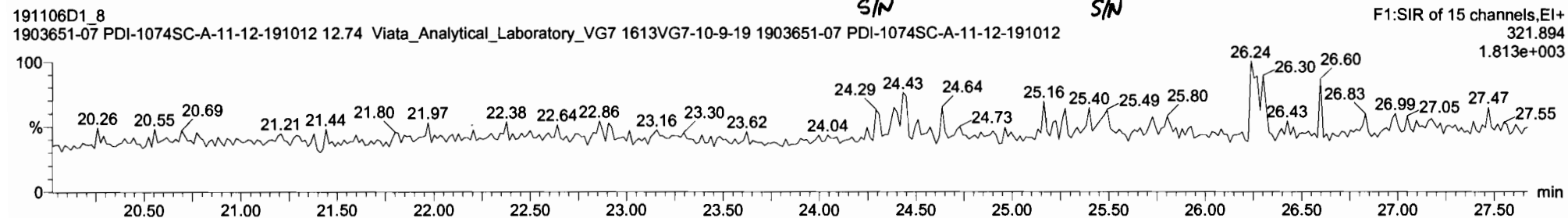
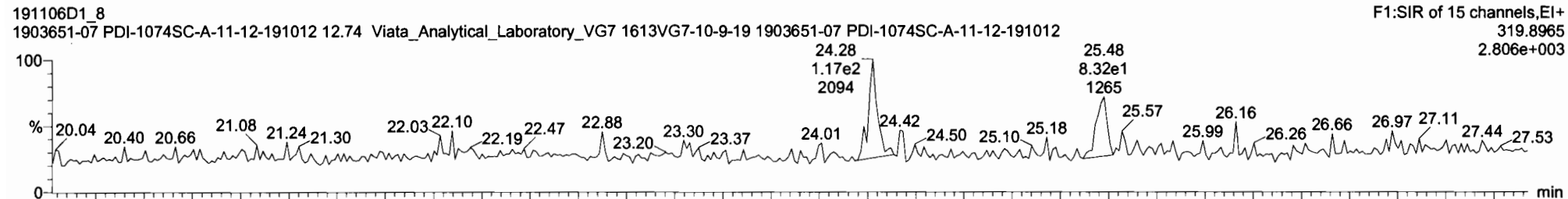
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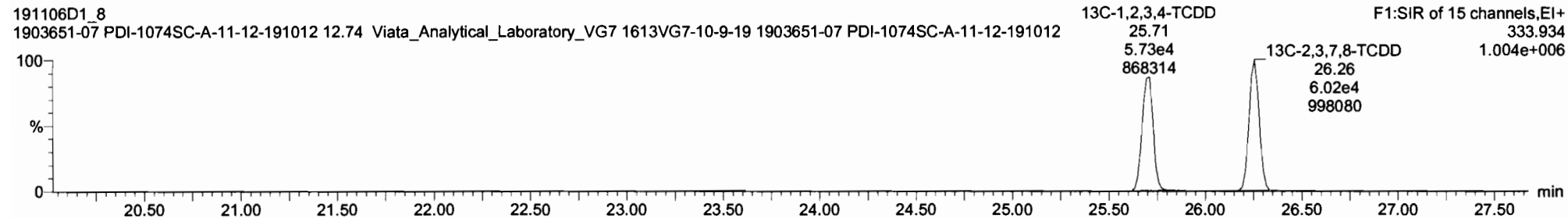
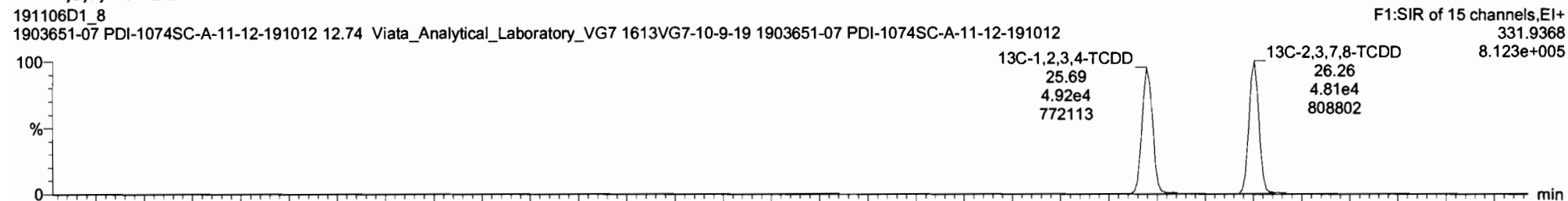
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Total Tetra-Dioxins



13C-2,3,7,8-TCDD



Vista Analytical Laboratory

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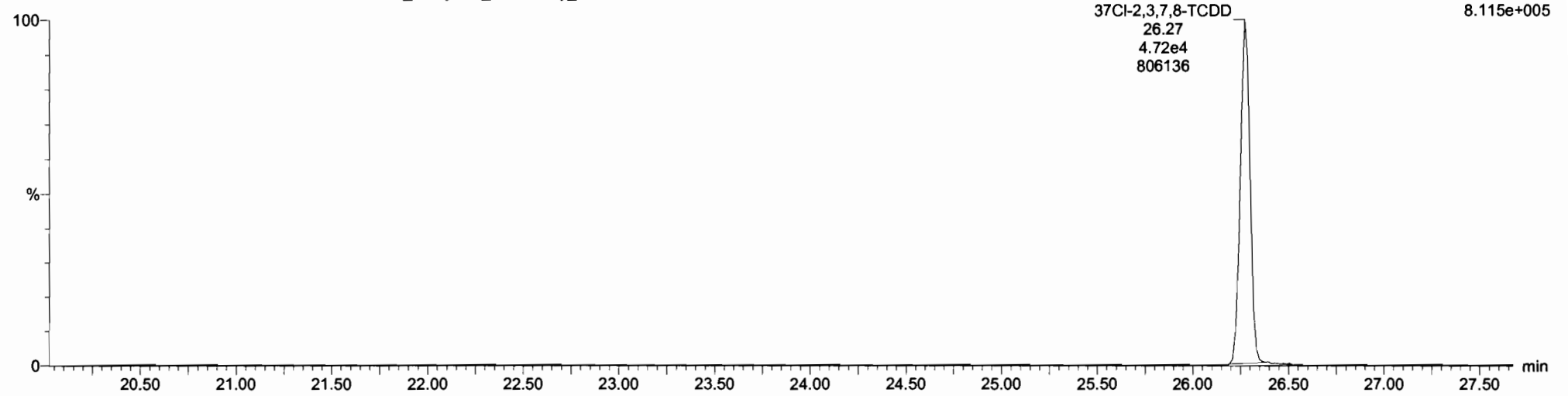
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37Cl-2,3,7,8-TCDD

191106D1\_8  
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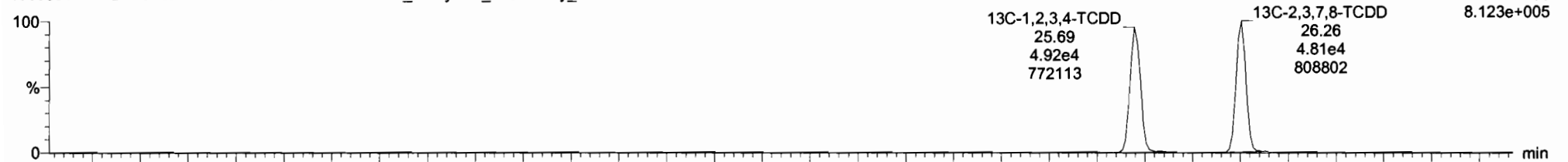
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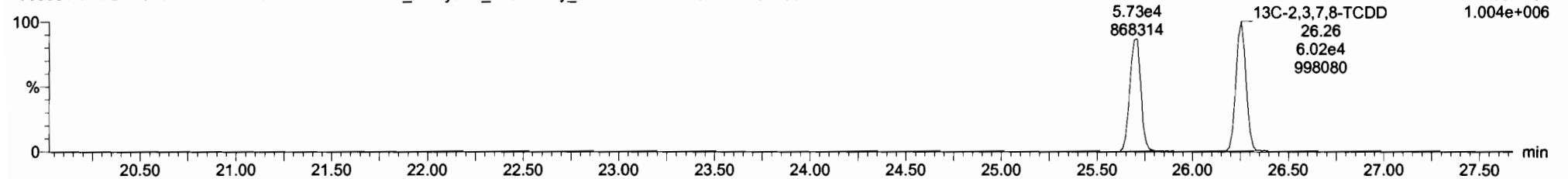
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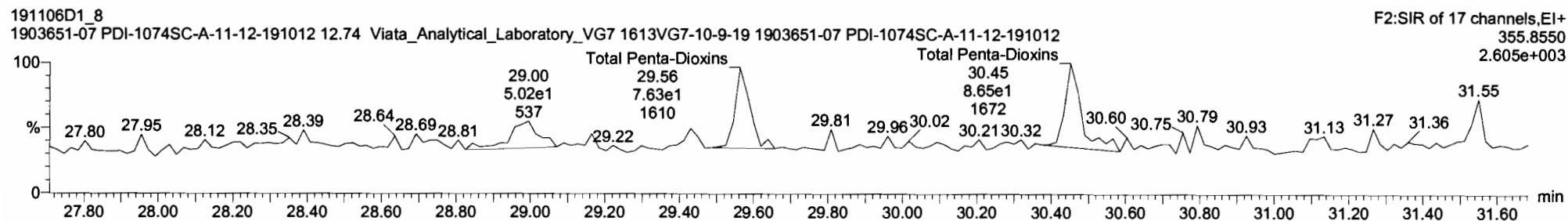
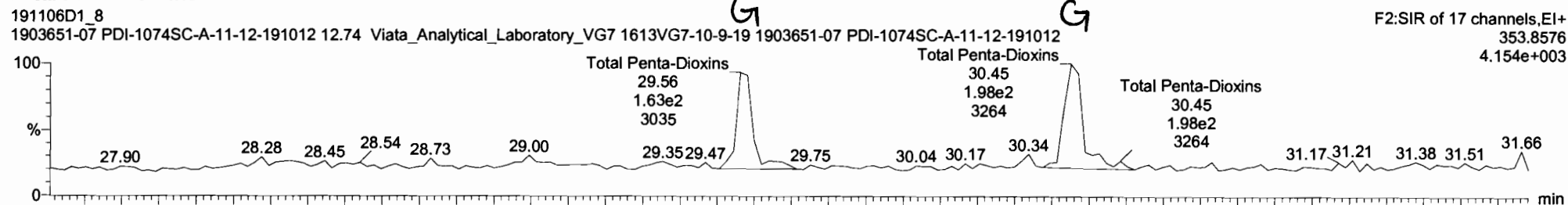
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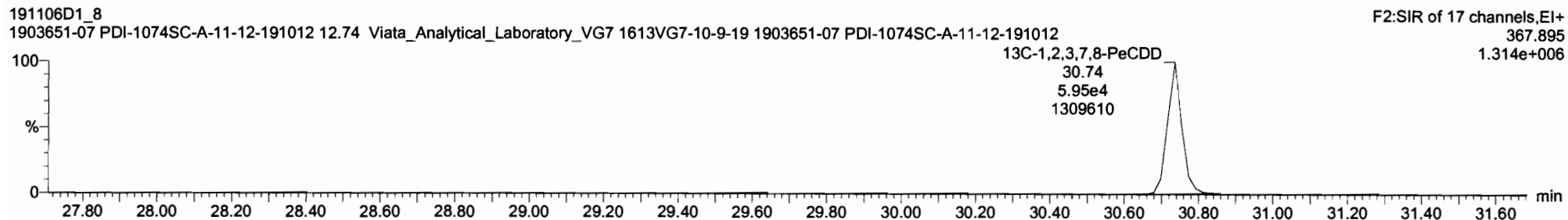
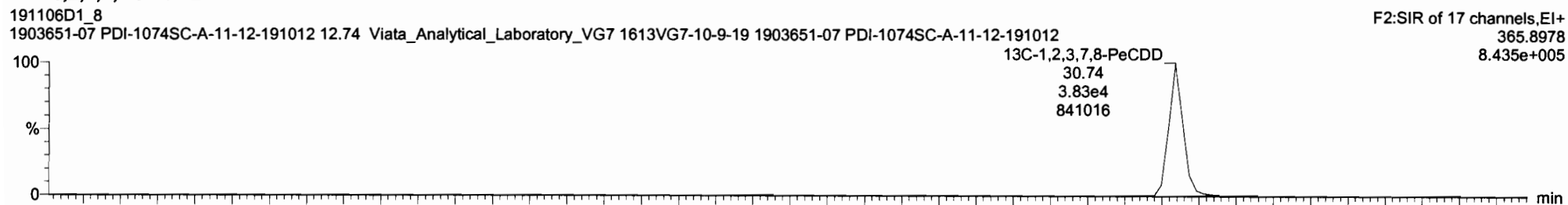
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Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Total Penta-Dioxins



13C-1,2,3,7,8-PeCDD



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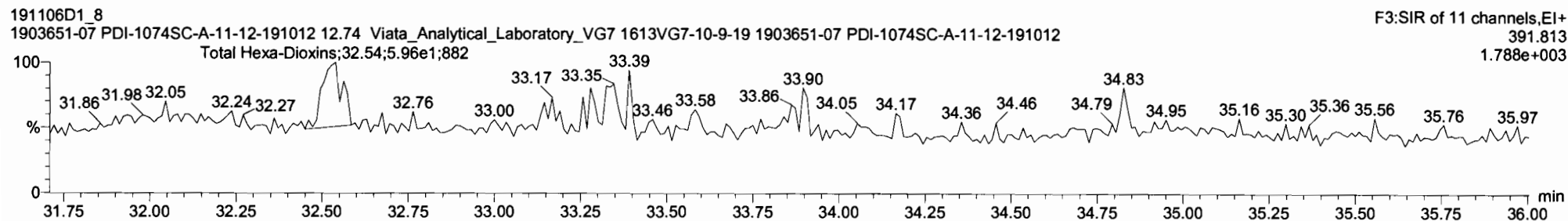
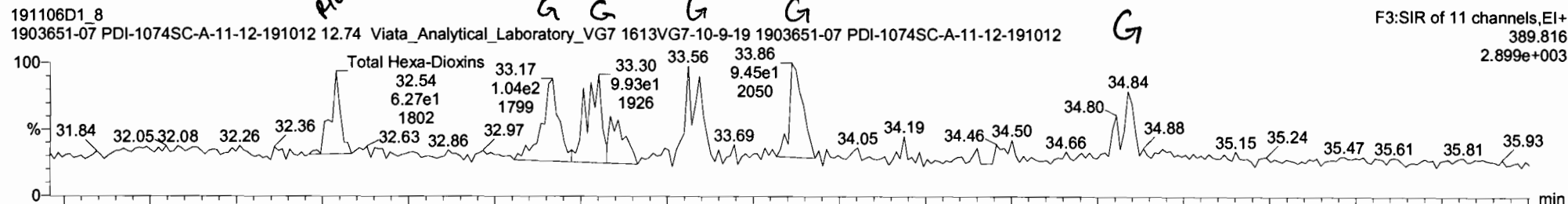
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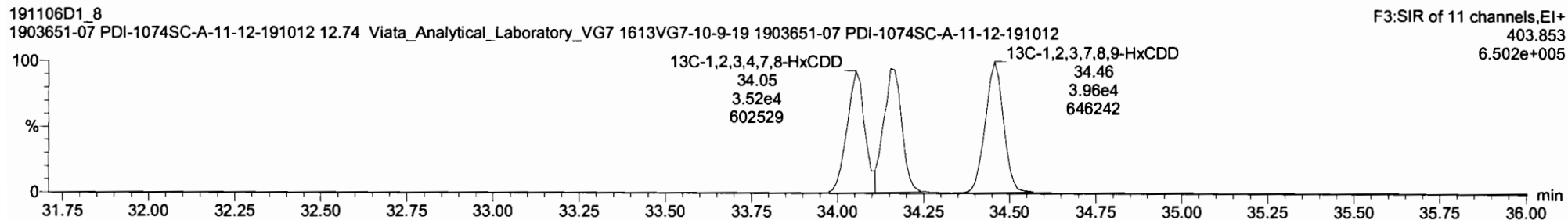
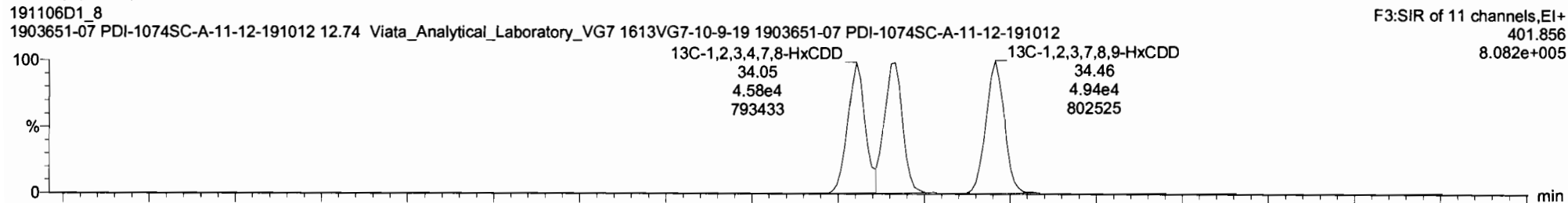
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Total Hexa-Dioxins



13C-1,2,3,4,7,8-HxCDD

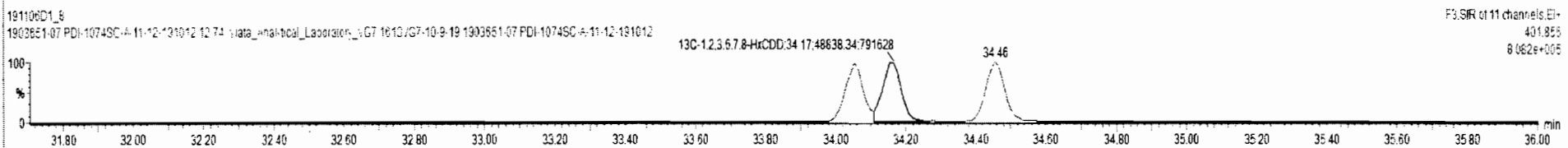
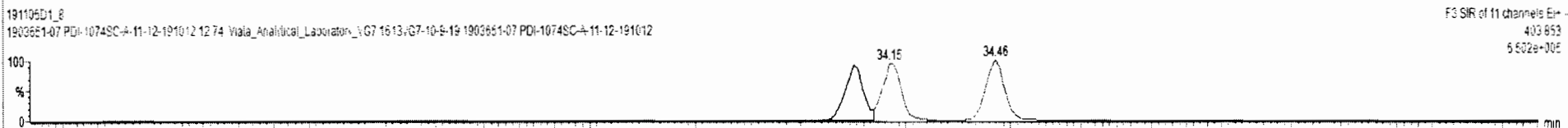
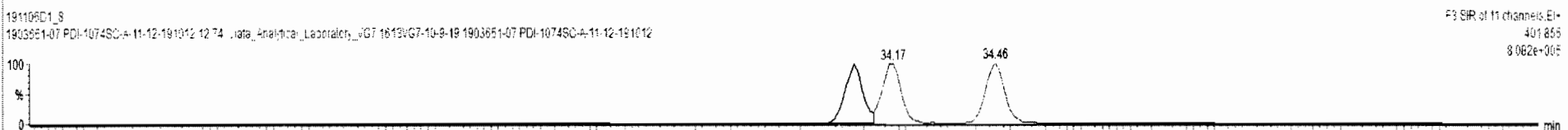
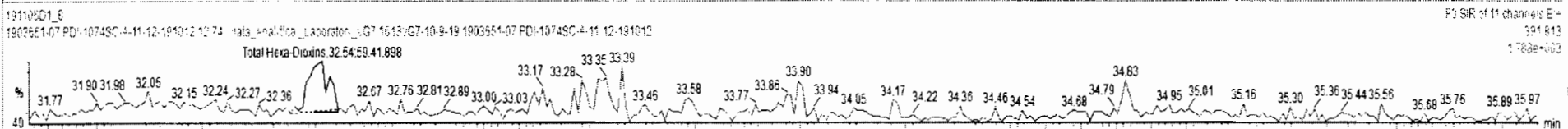
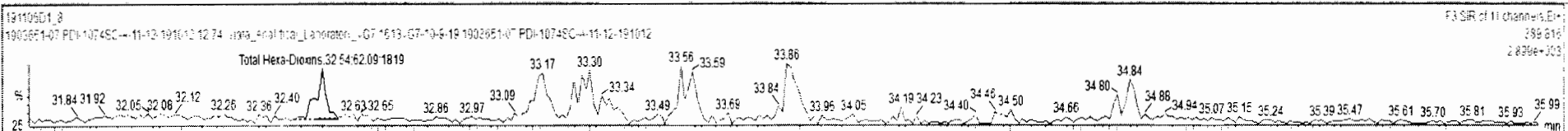




191106D1\_8 - 1903651-07 PDI-1074SC-A-11-12-191012 - 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RPF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
38	13C-1,2,3,4,6,8-HxCDF	1.19e5	1.19e5	38	0.52	NO	1.000	10.005	33.55	33.57	1.000	1.000	NO	199.9	100	0.793	
39	Total Tetra-Dioxins		1.08e5				0.901	10.005	25.50			0.000	NO			0.0904	
40	Total Penta-Dioxins		9.79e4				0.872	10.005	30.00			0.900	NO			0.0577	
41	Total Hexa-Dioxins		0.90e0				0.976	10.005	33.80			0.000	NO	0.0000		0.239	0.2690
42	Total Hepta-Dioxins		7.55e4				0.929	10.005	37.75			0.900	NO	4.032		0.245	4.032
43	Total Tetra-Furans		1.75e5				0.943	10.005	24.00			0.900	NO			0.0566	
44	1st Func. Penta-Furans		0.90e0				0.940	10.005	27.63			0.900	NO			0.0708	
45	Total Penta-Furans		0.90e0				0.940	10.005	30.00			0.900	NO			0.0689	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.60	32.54	6.209e1	5.941e1	1.240	1.05	YES	0.26901	0.00000





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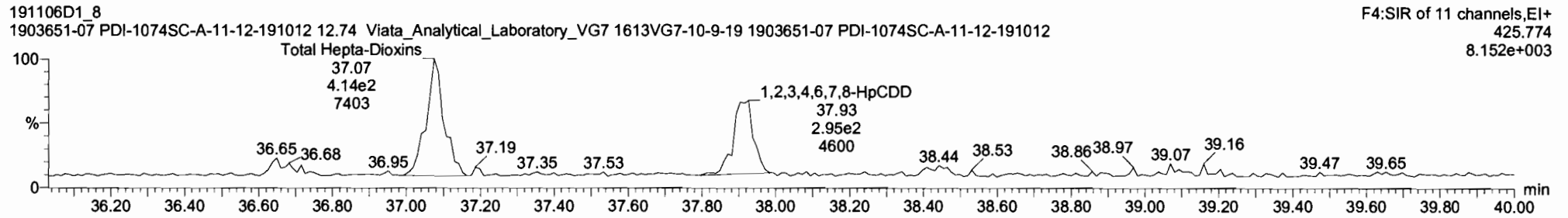
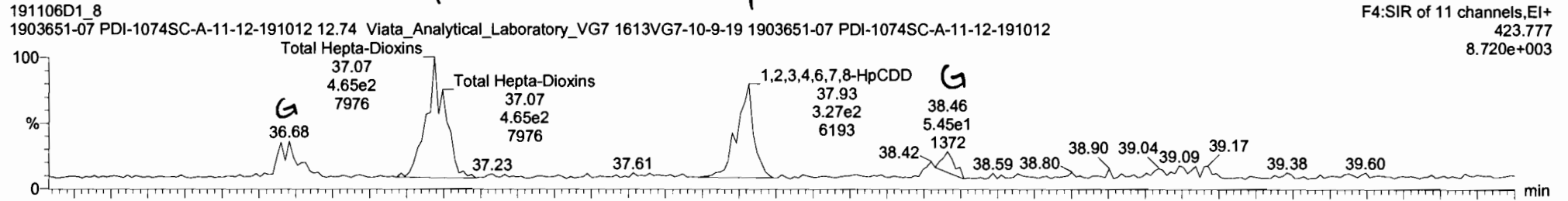
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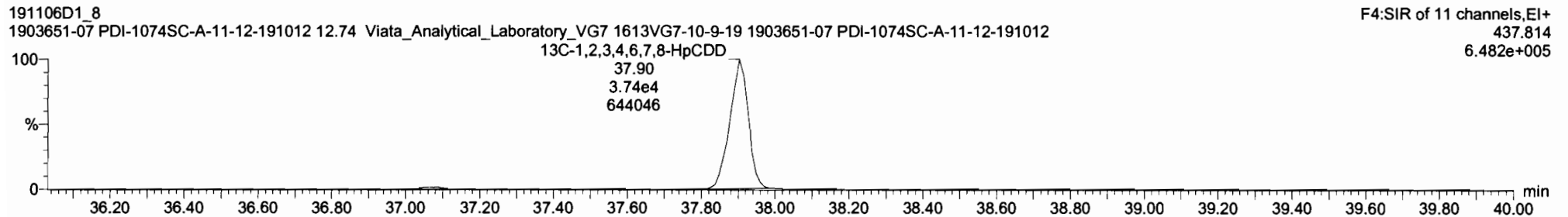
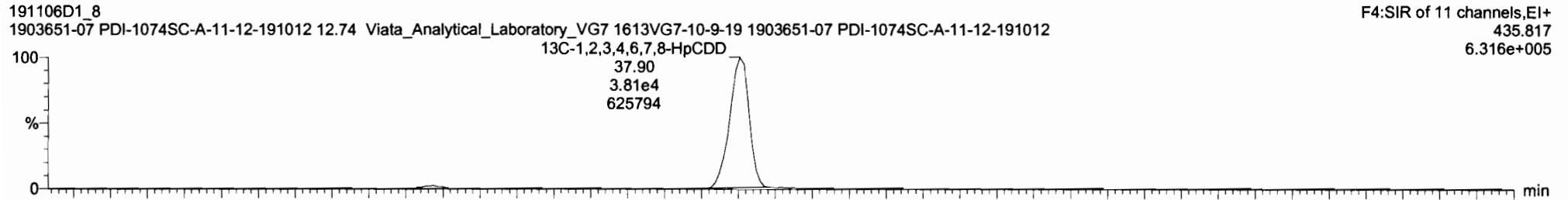
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Total Hepta-Dioxins



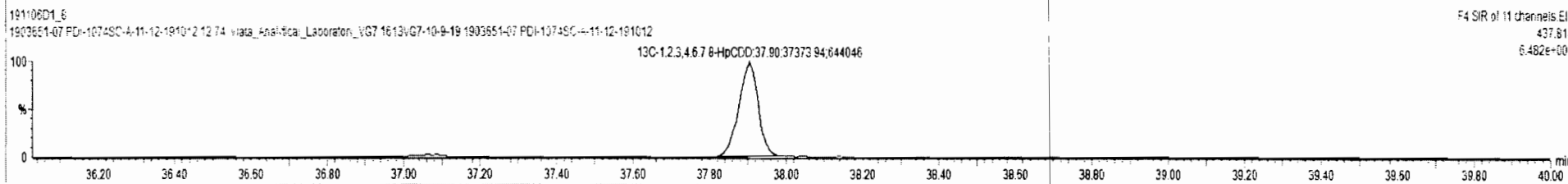
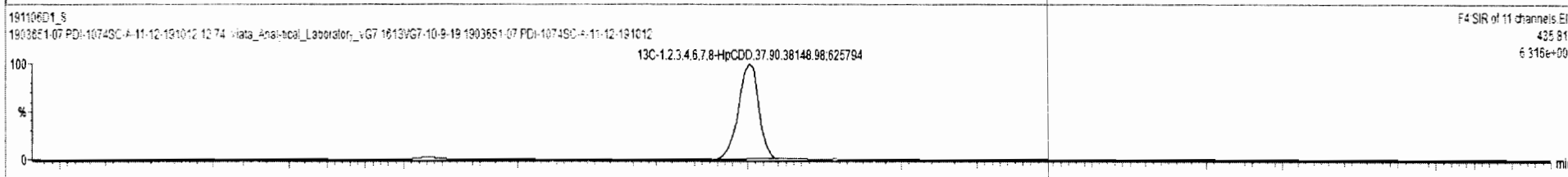
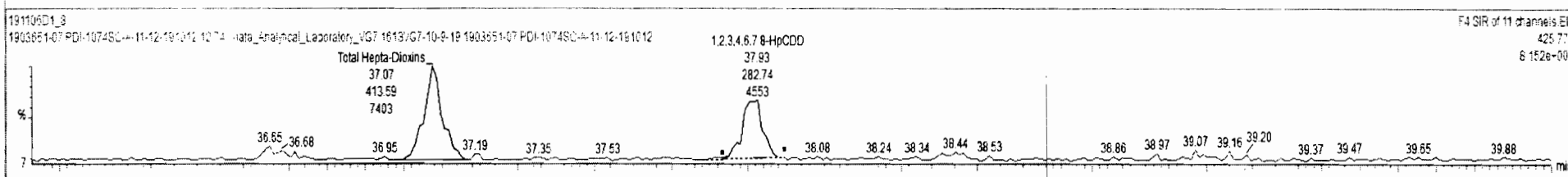
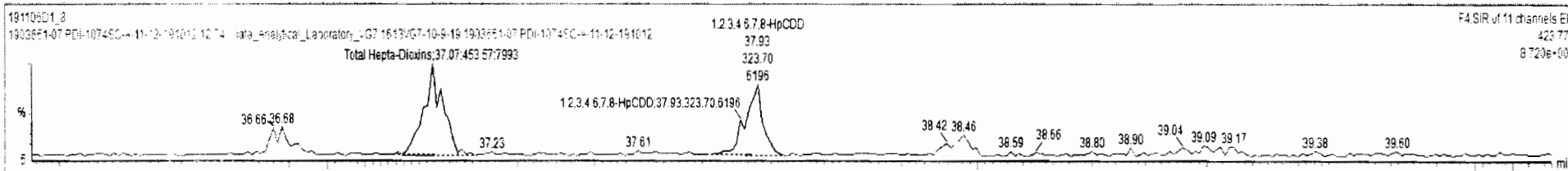
13C-1,2,3,4,6,7,8-HpCDD



191106D1\_8 - 1903651-07 PDI-1074SC-A-11-12-191012 - 1903651-07 PDI-1074SC-A-11-12-191012 12 74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
38	13C-1,2,3,4,6,8-HxCDF	1.15e4	1.19e5	38	0.52	NO	1.000	10.005	33.55	33.57	1.000	1.000	NO	199.8	100	0.793	
39	Total Tetra-Dioxins		1.08e5				0.901	10.005	25.50			0.000	NO			0.0904	
40	Total Penta-Dioxins		5.75e4				0.872	10.005	30.00			0.000	NO			0.0577	
41	Total Hexa-Dioxins		0.00e0				0.976	10.005	33.80			0.000	NO	0.0900		0.239	0.2650
42	Total Hepta-Dioxins		7.55e4				<b>0.989</b>	<b>10.005</b>	<b>37.75</b>			<b>0.000</b>	<b>NO</b>	<b>3.960</b>		<b>0.245</b>	<b>3.960</b>
43	Total Tetra-Furans		1.75e5				0.942	10.005	24.00			0.000	NO			0.0566	
44	1st Func. Penta-Furans		0.00e0				0.940	10.005	27.63			0.000	NO			0.0308	
45	Total Penta-Furans		0.00e0				0.940	10.005	30.00			0.000	NO			0.0620	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.07	4.536e2	4.136e2	1.040	1.10	NO	2.3214	2.3214
2	6 1,2,3,4,6,7,8-HpCDD	37.92	37.93	3.237e2	2.827e2	1.040	1.14	NO	1.6385	1.6385



Vista Analytical Laboratory

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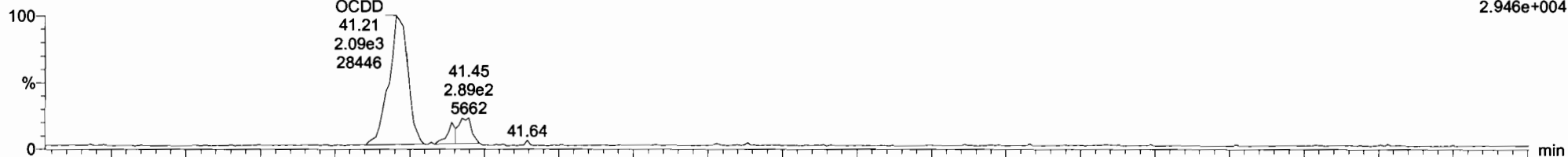
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OCDD

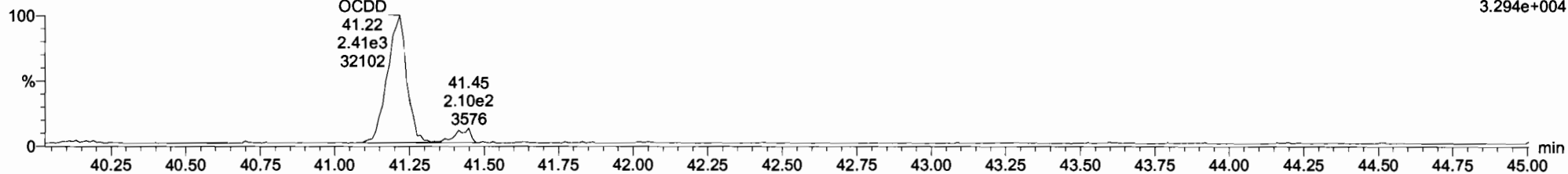
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1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-07 PDI-1074SC-A-11-12-191012

F5:SIR of 11 channels,EI+  
457.738  
2.946e+004



191106D1\_8  
1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-07 PDI-1074SC-A-11-12-191012

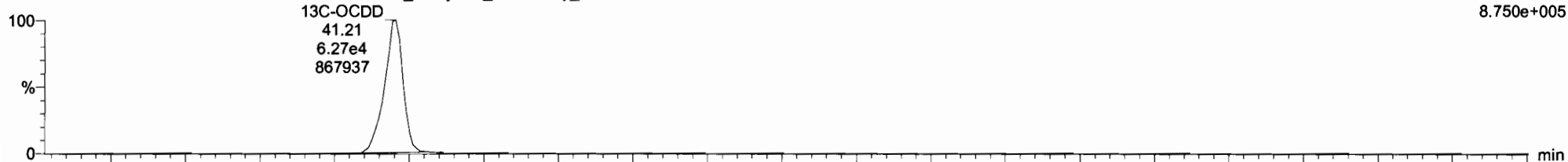
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459.735  
3.294e+004



13C-OCDD

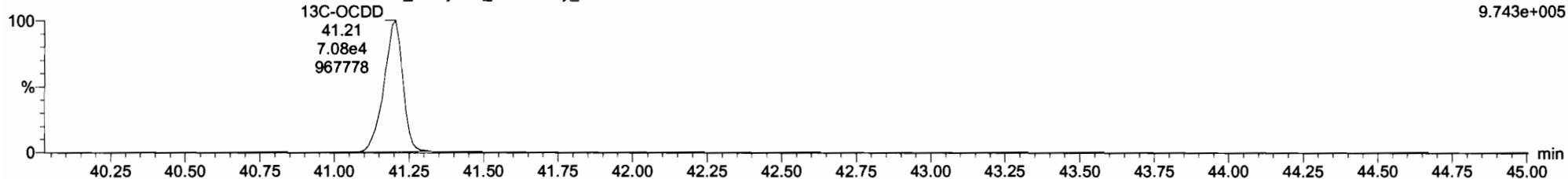
191106D1\_8  
1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-07 PDI-1074SC-A-11-12-191012

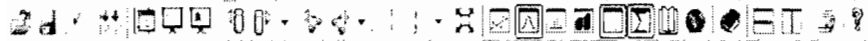
F5:SIR of 11 channels,EI+  
469.778  
8.750e+005



191106D1\_8  
1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903651-07 PDI-1074SC-A-11-12-191012

F5:SIR of 11 channels,EI+  
471.775  
9.743e+005

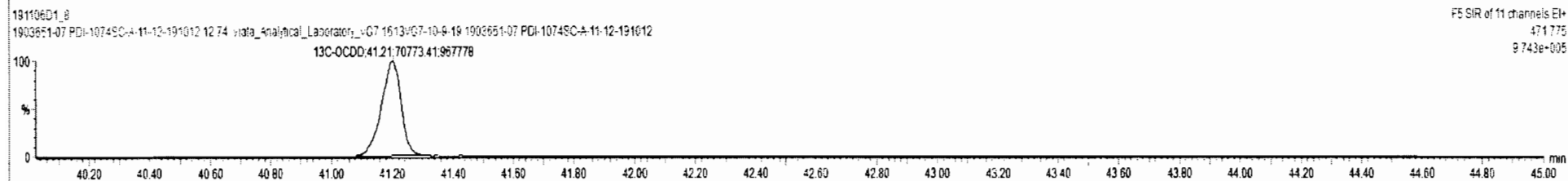
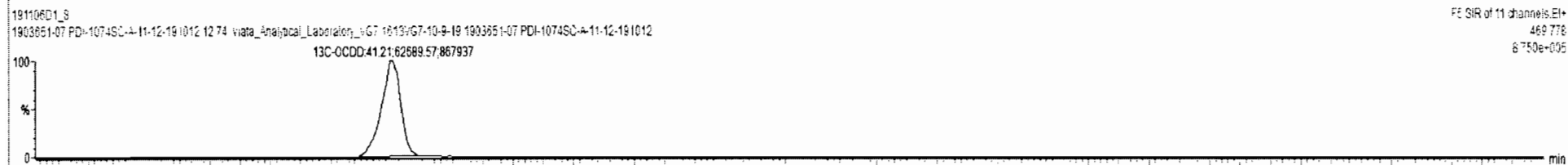
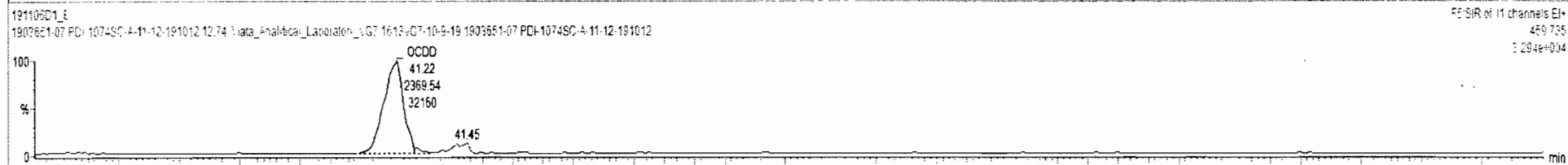
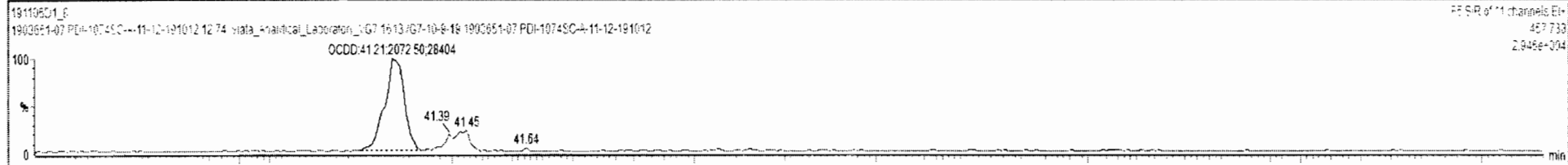




191106D1\_8 1903651-07 PDI-1074SC-A-11-12-191012 - 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytica\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
4	1,2,3,6,7,8-mxOCD		8.62e4	21			0.939	10.005	34.17			1.000	NO			0.351	
5	1,2,3,7,8,9-mxOCD		8.90e4	22			0.961	10.005	34.49			1.001	NO			0.352	
6	1,2,3,4,6,7,8-HpOCD	6.06e2	7.55e4	23	1.14	NO	0.979	10.005	37.92	37.93	1.001	1.000	NO	1.639		0.248	1.639
7	OCCD	4.44e3	1.33e5	24	0.67	NO	0.959	10.005	41.21	41.21	1.000	1.000	NO	13.88		0.348	13.88
8	2,3,7,8-TCDF		1.75e5	25			0.950	10.005	25.50			1.001	NO			0.121	
9	1,2,3,7,8-PeCDF		1.44e5	26			0.960	10.005	29.58			1.001	NO			0.128	
10	2,3,4,7,8-PeCDF		1.37e5	27			1.015	10.005	30.48			1.001	NO			0.118	
11	1,2,3,4,7,8-HxCDF	1.24e2	1.06e5	28	1.36	NO	1.177	10.005	33.16	33.17	1.000	1.000	NO	0.1960		0.120	0.1960

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										



Vista Analytical Laboratory

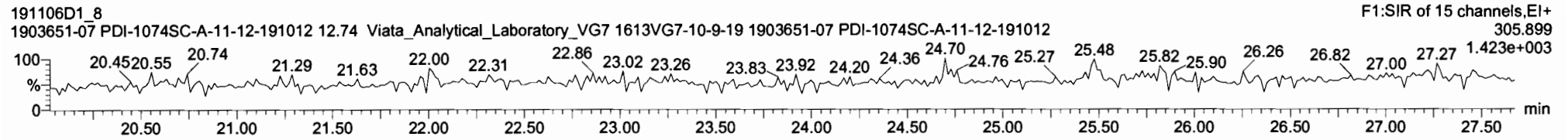
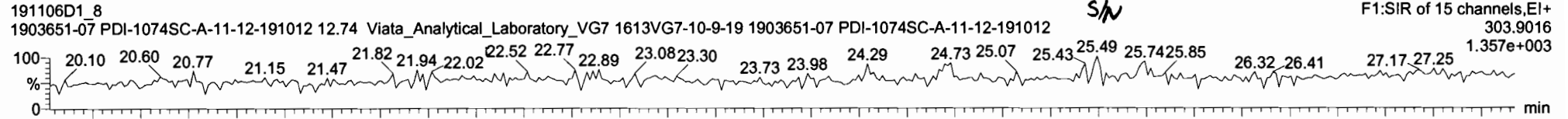
Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

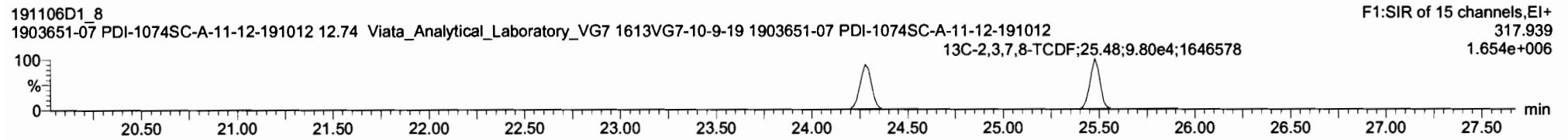
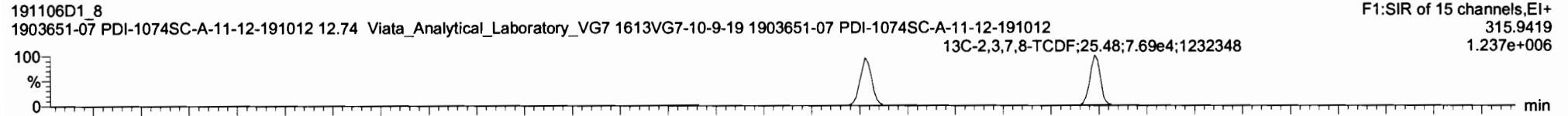
Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012, Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

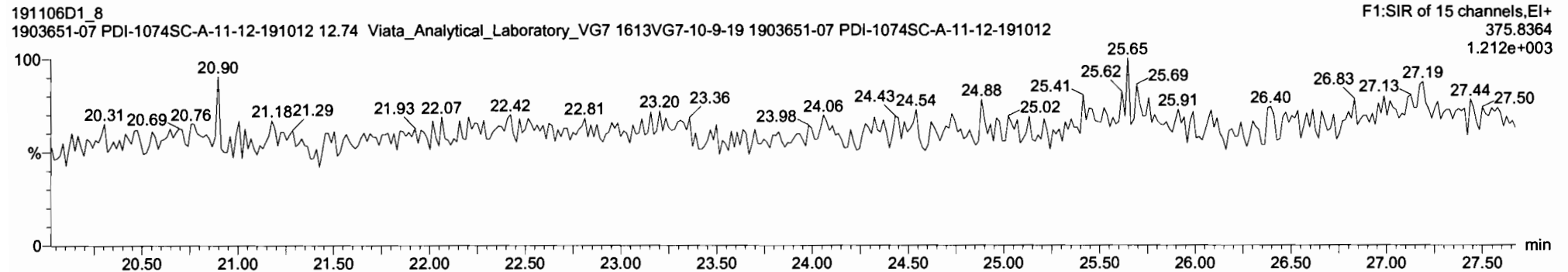
Total Tetra-Furans



13C-2,3,7,8-TCDF



DPE1



Vista Analytical Laboratory

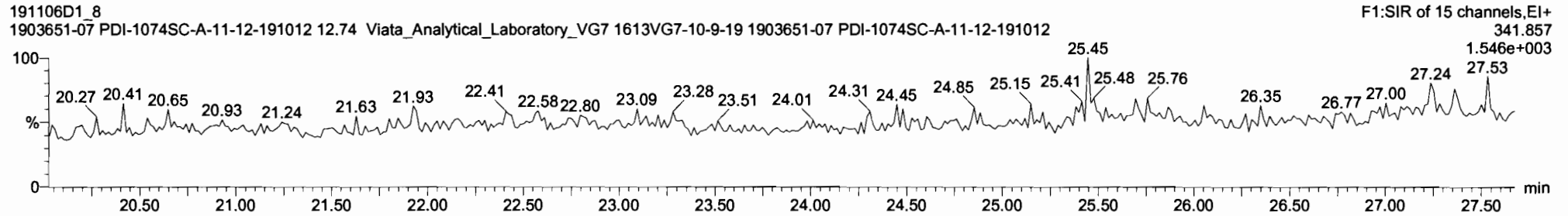
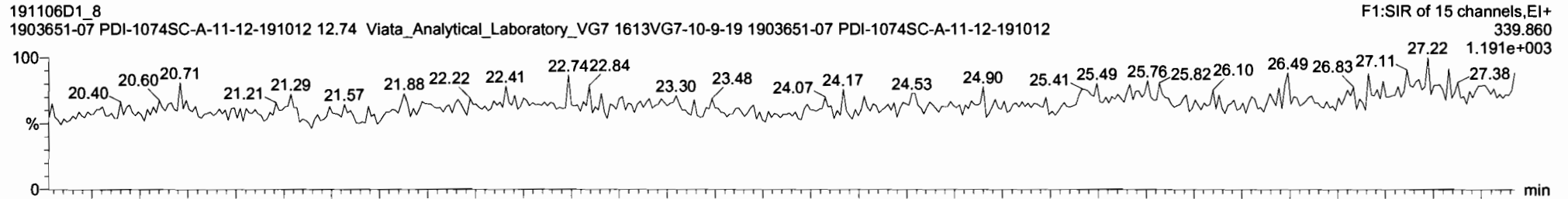
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Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

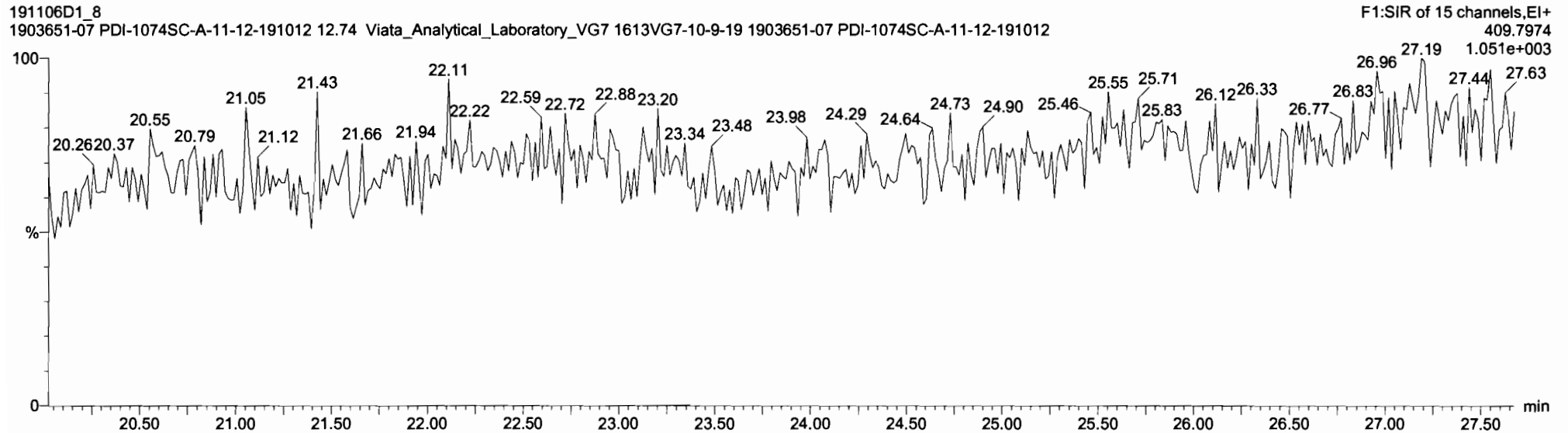
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Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012,  
Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

1st Func. Penta-Furans



DPE6



Vista Analytical Laboratory

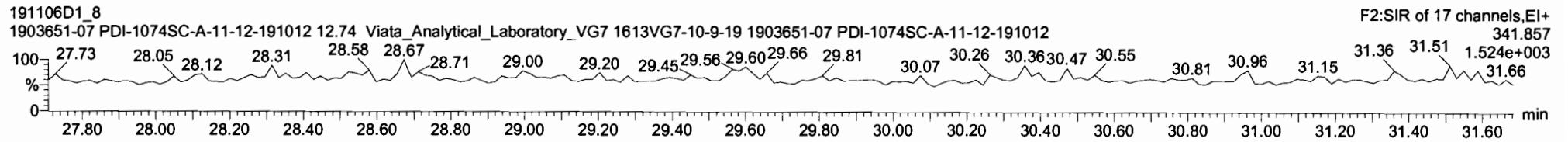
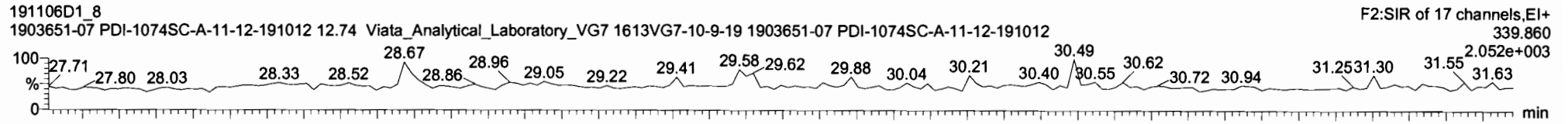
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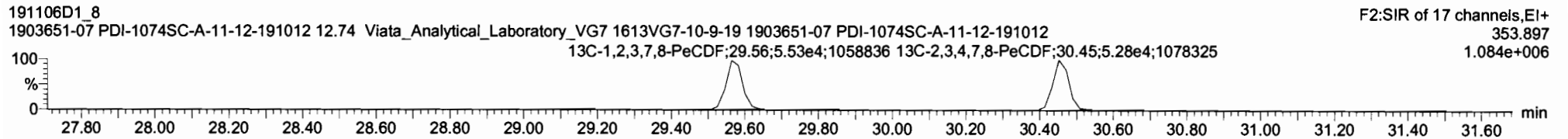
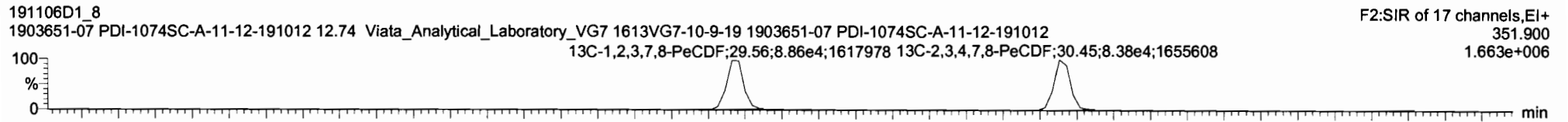
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Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

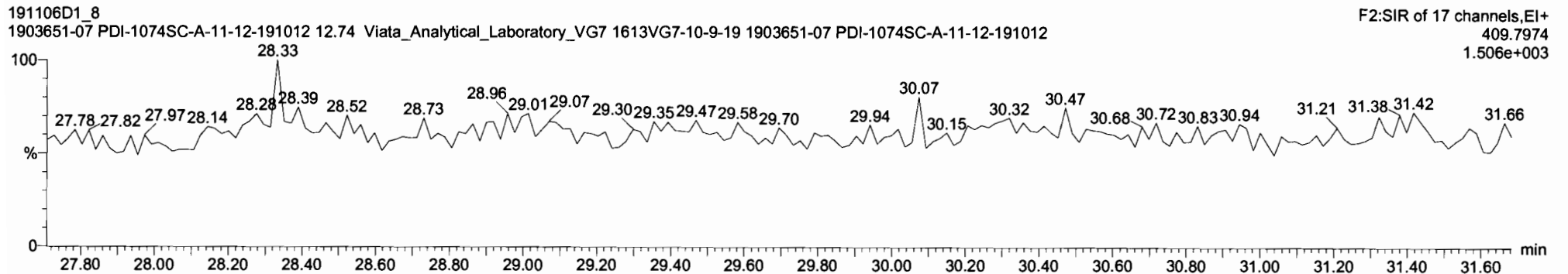
Total Penta-Furans



13C-1,2,3,7,8-PeCDF



DPE2



Vista Analytical Laboratory

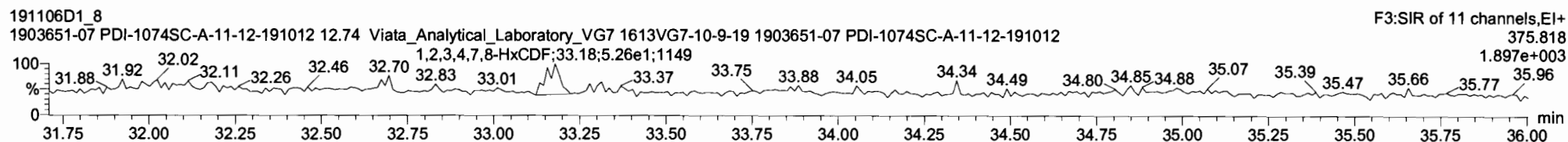
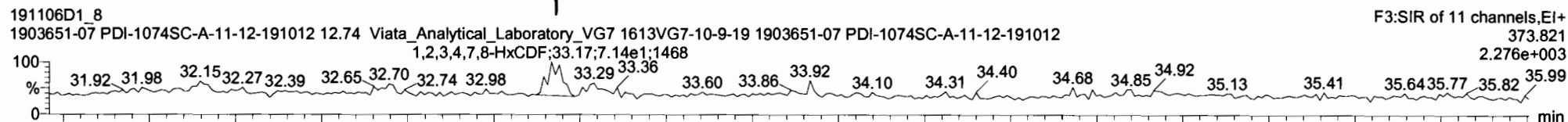
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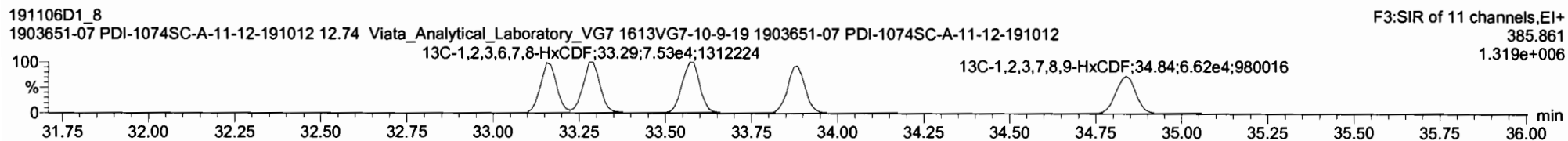
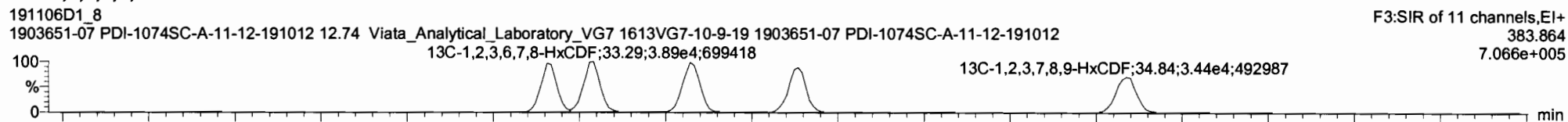
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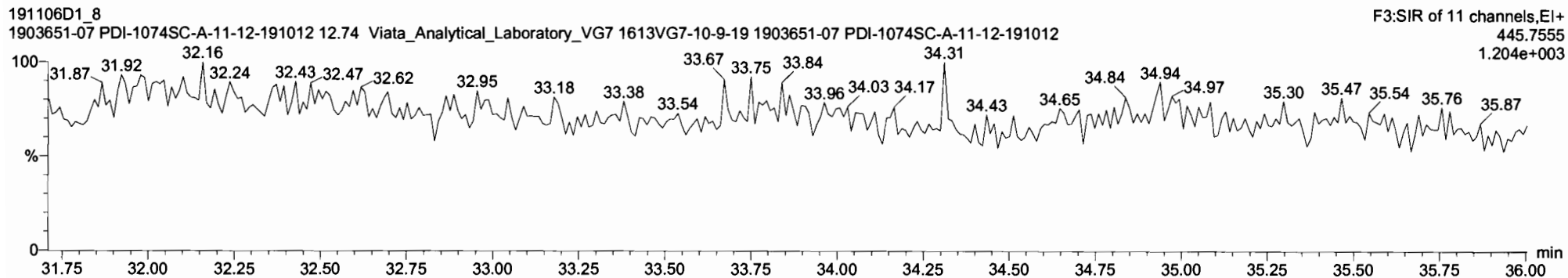
Total Hexa-Furans



13C-1,2,3,4,7,8-HxCDF



DPE3





Vista Analytical Laboratory

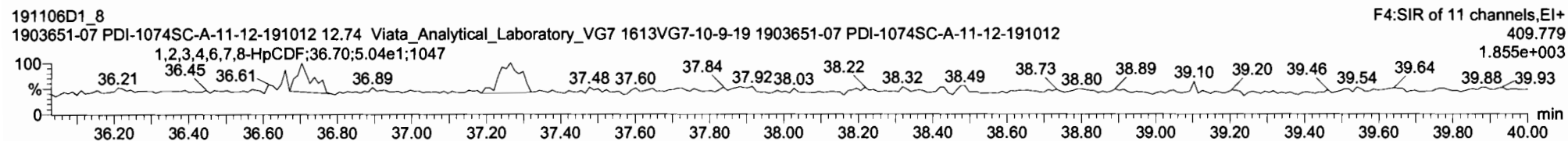
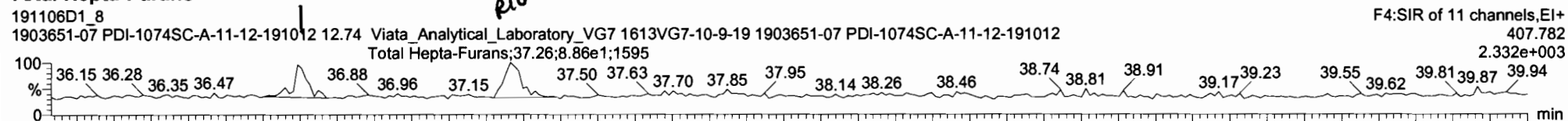
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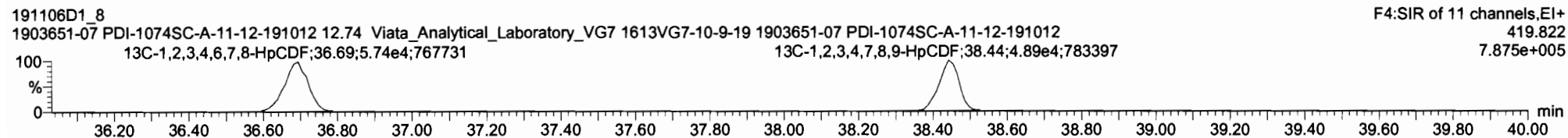
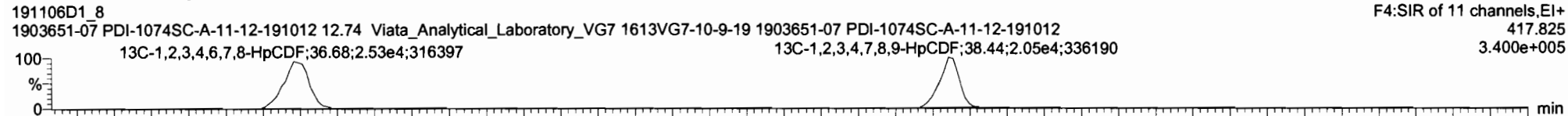
Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012, Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

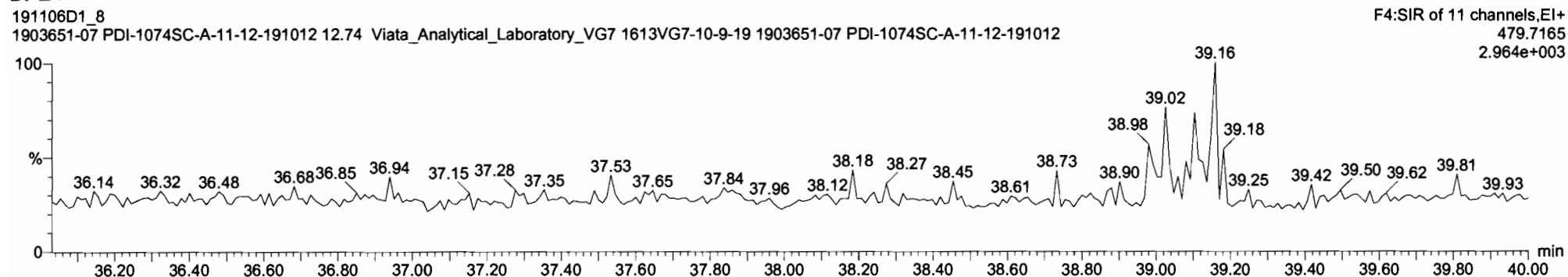
Total Hepta-Furans

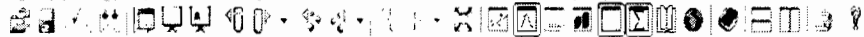


13C-1,2,3,4,6,7,8-HpCDF



DPE4

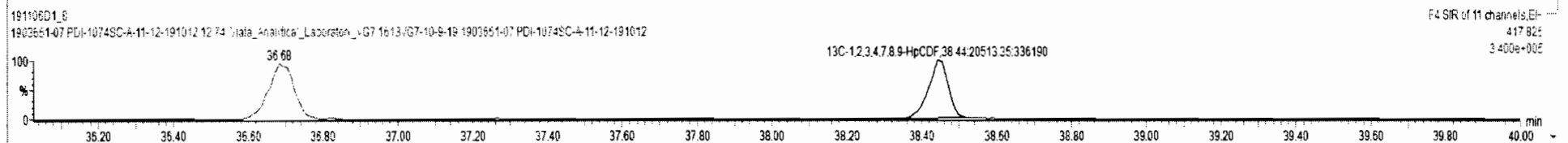
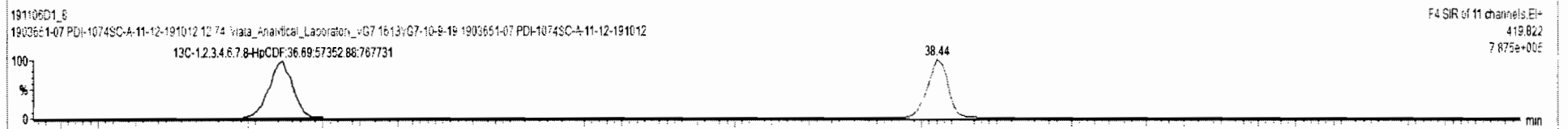
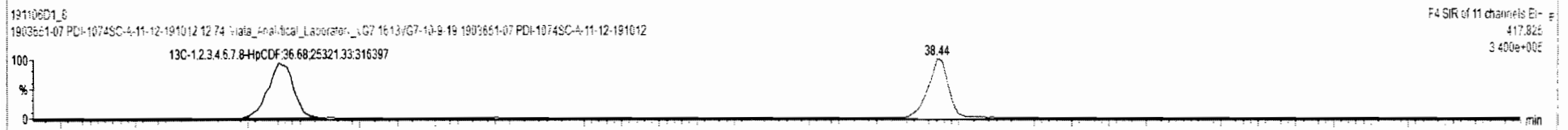
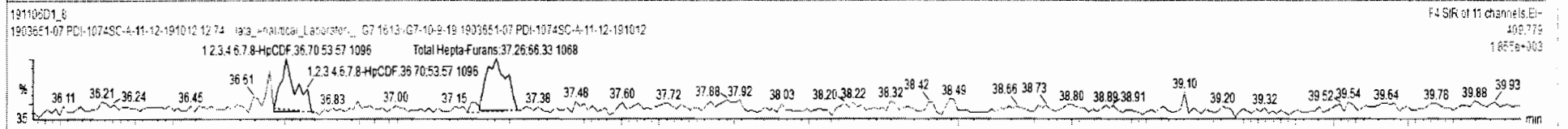
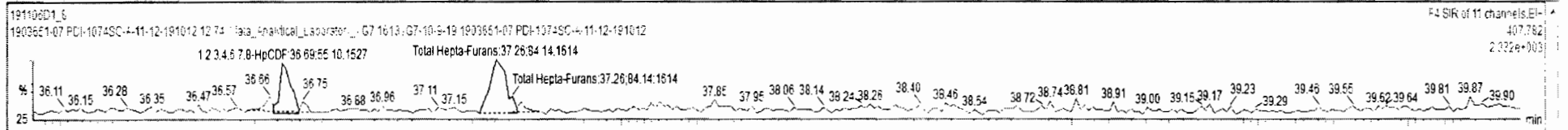




191106D1\_8\_1903651-07.PDI-1074SC-A-11-12-191012\_1903651-07.PDI-1074SC-A-11-12-191012\_1274\_Viata\_Analytical\_Laboratory\_VG71613VG710-9-19

#	Name	Resp	S Resp	IS#	RA	n/y	RFF	w/w/vol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
39	Total Tetra-Dioxins	1.08e5					0.901	10.005	25.50			0.000	NO			0.0904	
40	Total Penta-Dioxins	9.75e4					0.872	10.005	30.00			0.000	NO			0.0577	
41	Total Hexa-Dioxins	0.00e0					0.976	10.005	33.80			0.000	NO	0.0300		0.235	0.2690
42	Total Hepta-Dioxins	7.55e4					0.989	10.005	37.75			0.000	NO	3.960		0.245	3.960
43	Total Tetra-Furans	1.75e5					0.942	10.005	24.00			0.000	NO			0.0566	
44	1st Func. Penta-Furans	0.00e0					0.940	10.005	27.63			0.000	NO			0.0306	
45	Total Penta-Furans	0.00e0					0.940	10.005	30.00			0.000	NO			0.0629	
46	Total Hexa-Furans	0.00e0					1.078	10.005	33.00			0.000	NO	0.1990		0.144	0.1990

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDF	36.72	36.69	5.510e1	5.357e1	1.040	1.03	NO	0.23301	0.23301
2	Total Hepta-Furans	37.75	37.26	6.414e1	6.633e1	1.040	1.27	YES	0.31355	0.00000



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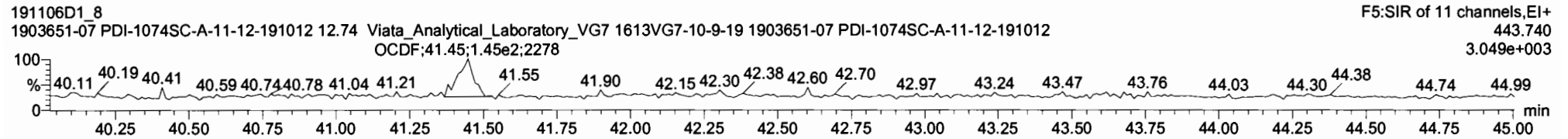
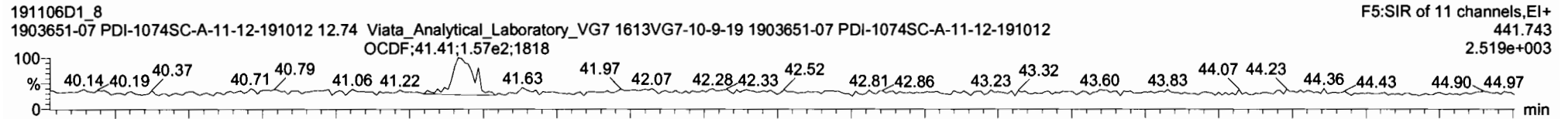
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Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

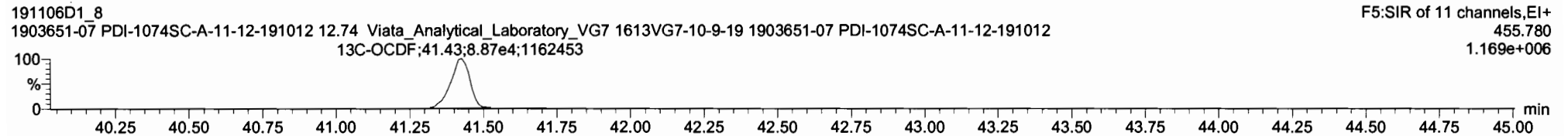
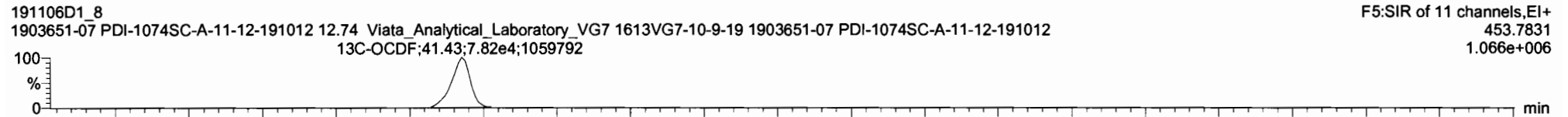
Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012, Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

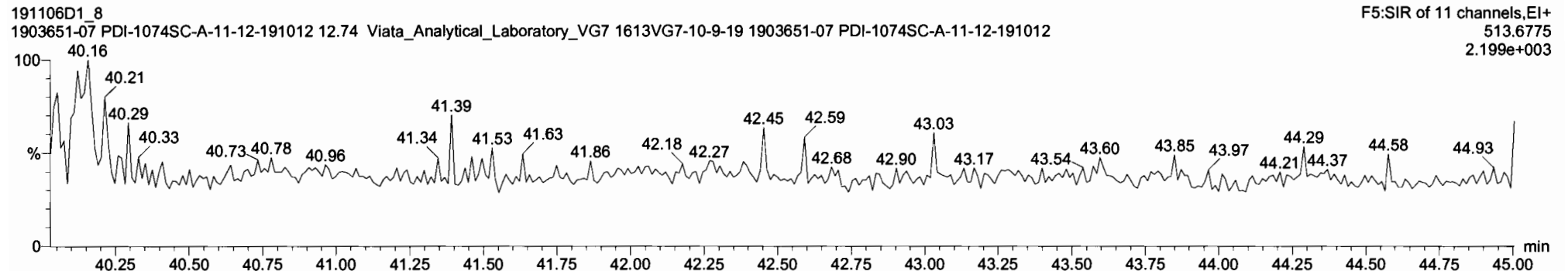
OCDF



13C-OCDF



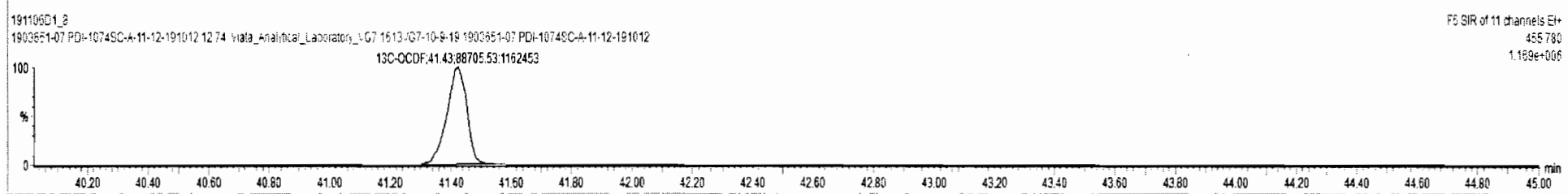
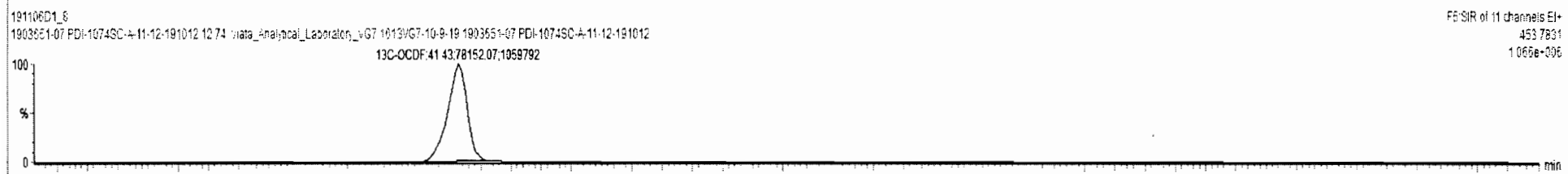
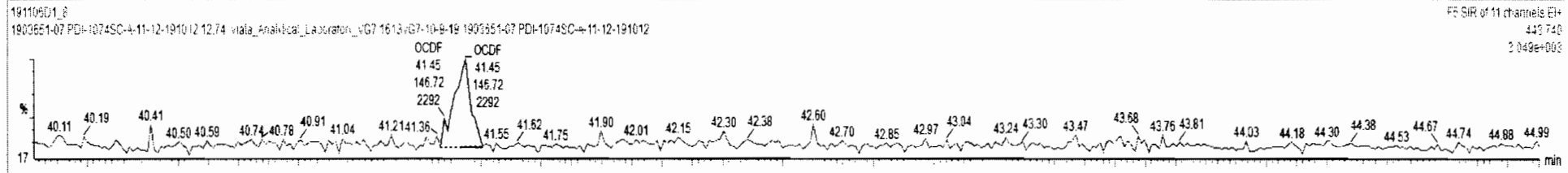
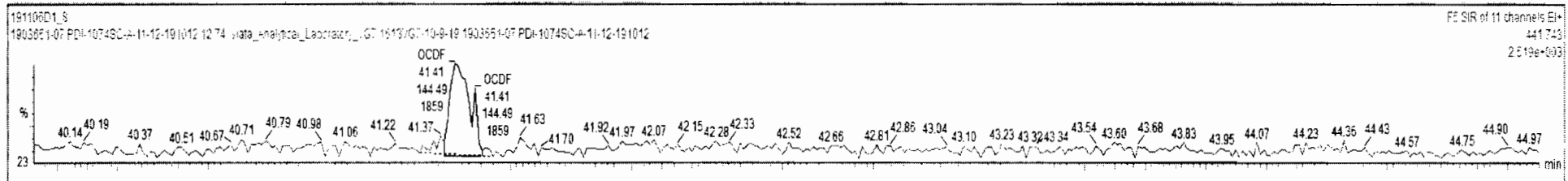
DPE5



191106D1\_8 - 1903651-07 PDI-1074SC-A-11-12-191012 - 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
10	10 2,3,4,7,8-PeCDF		1.37e5	27			1.015	10.005	39.48			1.001	NO			0.116	
11	11 1,2,3,4,7,8-HxCDF	1.24e2	1.96e5	28	1.36	NO	1.177	10.005	33.16	33.17	1.000	1.000	NO	0.1890		0.120	0.1960
12	12 1,2,3,6,7,8-HxCDF		1.14e5	29			1.069	10.005	33.30			1.000	NO			0.126	
13	13 2,3,4,6,7,8-HxCDF		1.09e5	30			1.114	10.005	33.92			1.001	NO			0.136	
14	14 1,2,3,7,8,9-HxCDF		1.01e5	31			1.052	10.005	34.84			1.000	NO			0.184	
15	15 1,2,3,4,6,7,8-HpCDF	1.09e2	8.27e4	32	1.52	NO	1.128	10.005	36.72	36.69	1.000	1.001	NO	0.2330		0.196	0.2330
16	16 1,2,3,4,7,8,9-HpCDF		6.94e4	33			1.280	10.005	38.44			1.000	NO			0.133	
17	17 OCDF	2.91e2	1.67e5	34	0.98	NO	0.947	10.005	41.43	41.41	1.000	1.000	NO	0.7366		0.218	0.7366

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1										



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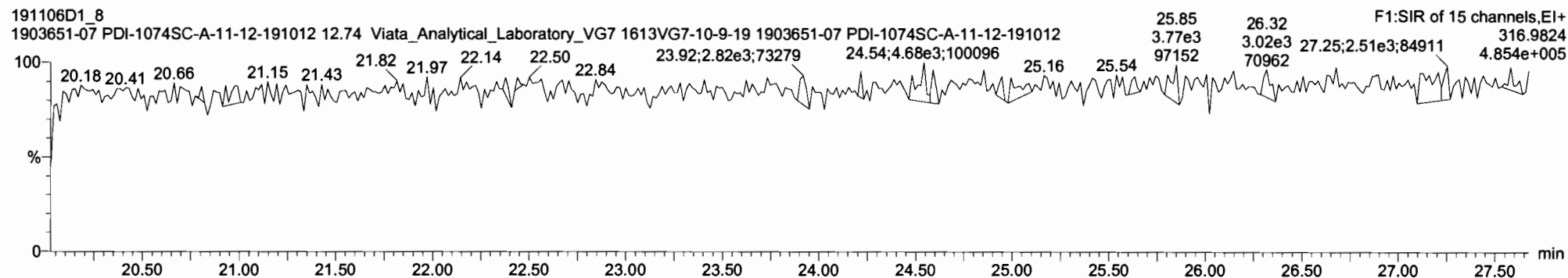
Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

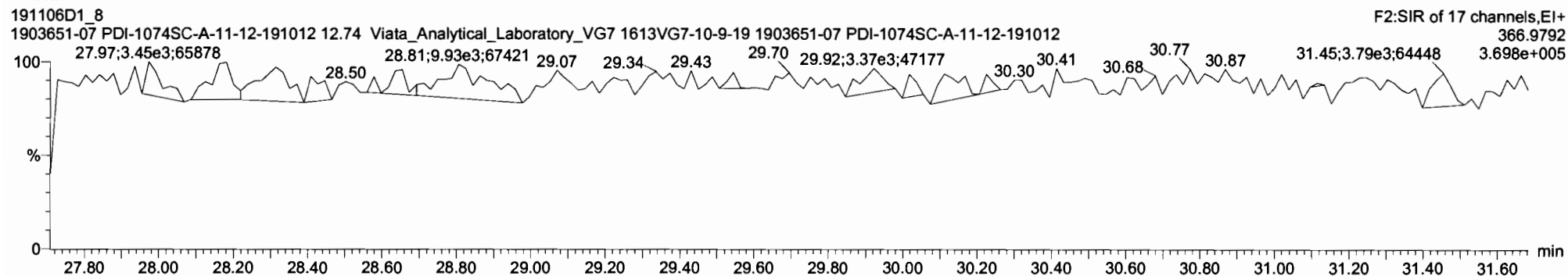
Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012, Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

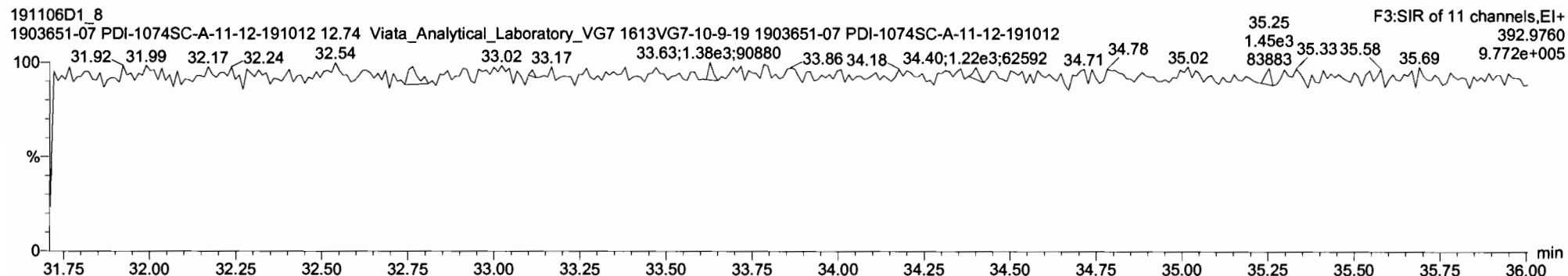
PFK1



PFK2



PFK3



Vista Analytical Laboratory

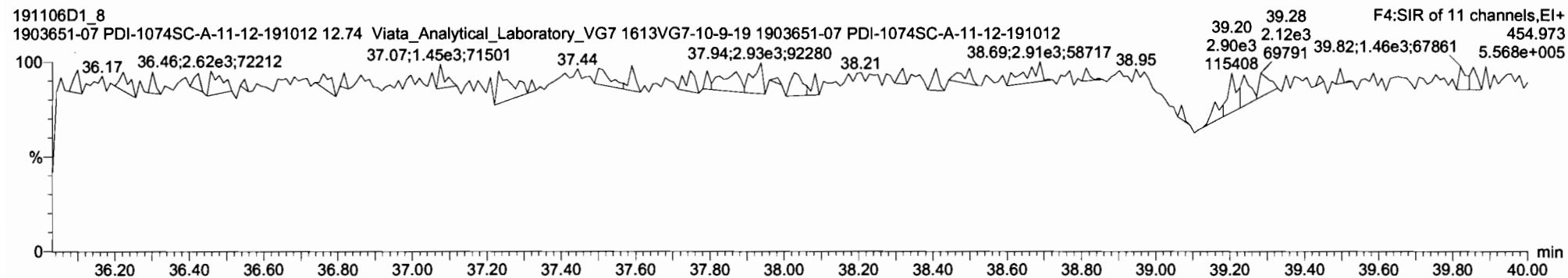
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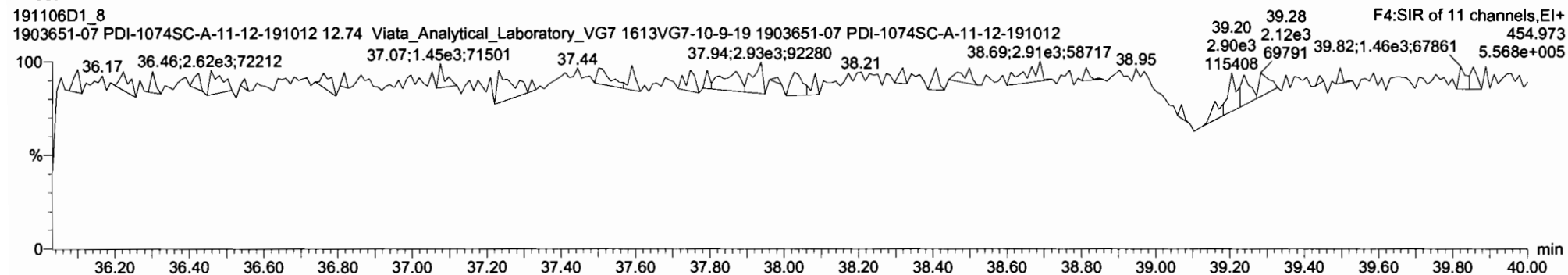
Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012,  
Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

PFK4



PFK5



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 05, 2019 09:16:39 Pacific Standard Time

Printed: Thursday, December 05, 2019 09:20:52 Pacific Standard Time

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**Name: VG7 191106D1\_8, Date: 6-NOV-2019, Time: 17:16:52, ID: 1903651-07 PDI-1074SC-A-11-12-191012,**

**Description: 1903651-07 PDI-1074SC-A-11-12-191012 12.74 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19**

## **CONFIRMATION**



Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	1.35e+07	0.82 y	15:35	1.00	201.3	-
13C-2,3,7,8-TCDF	1.23e+07	0.81 y	17:47	1.02	179.3	89.1
2,3,7,8-TCDF	3.11e+04	0.87 y	17:48	0.95	0.5382	

Integrations

by  
Analyst: DB

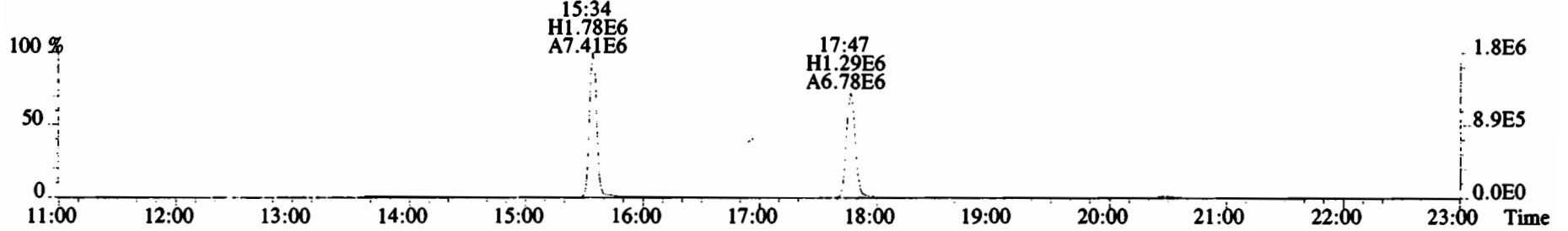
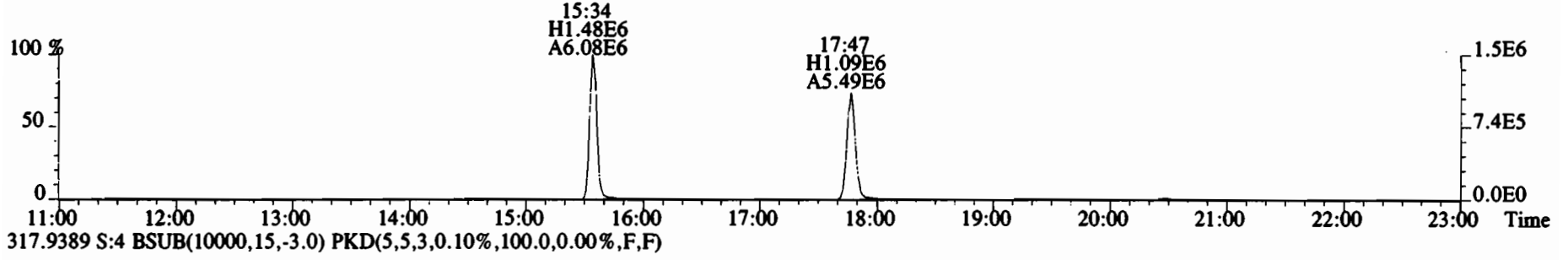
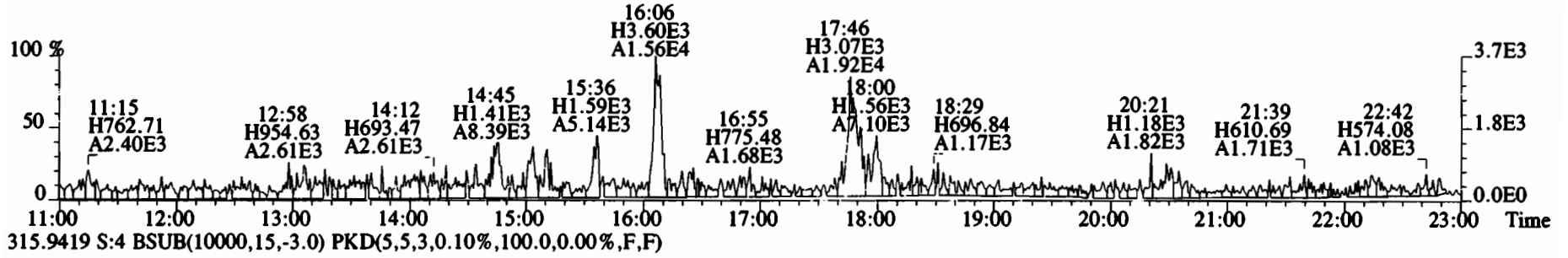
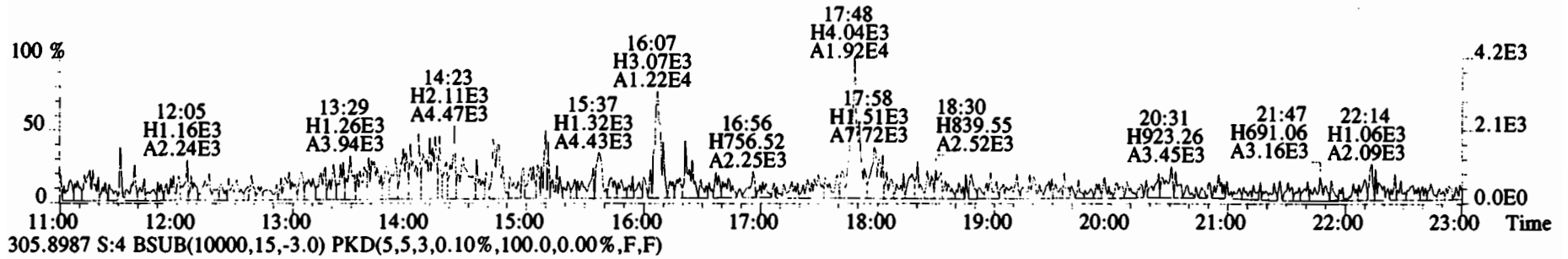
Date: 1/14/20

Reviewed

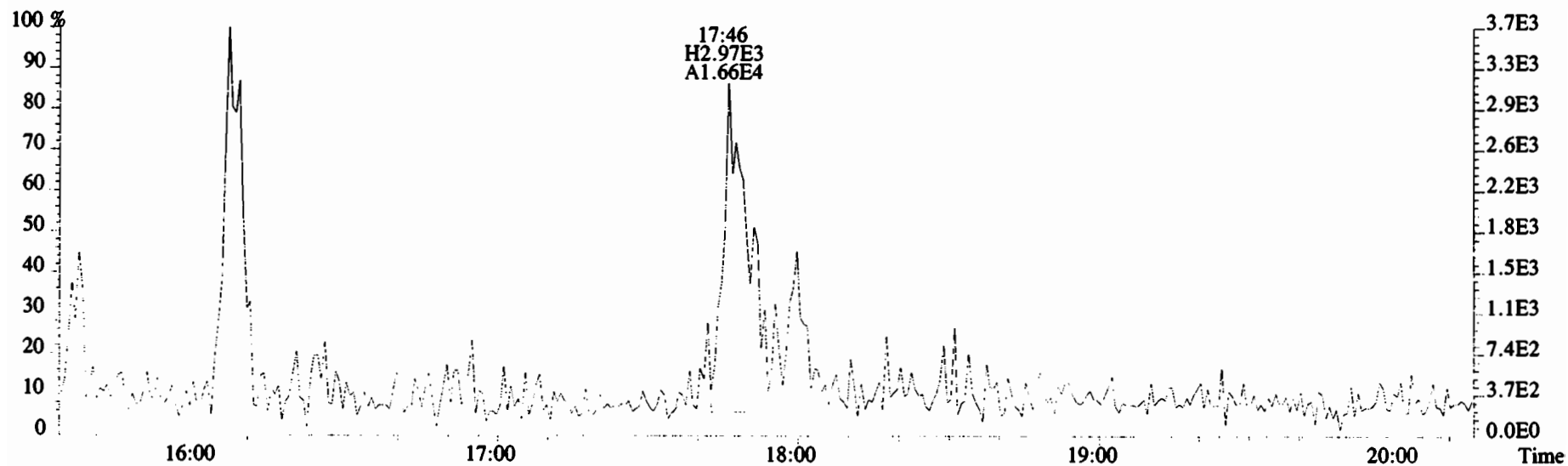
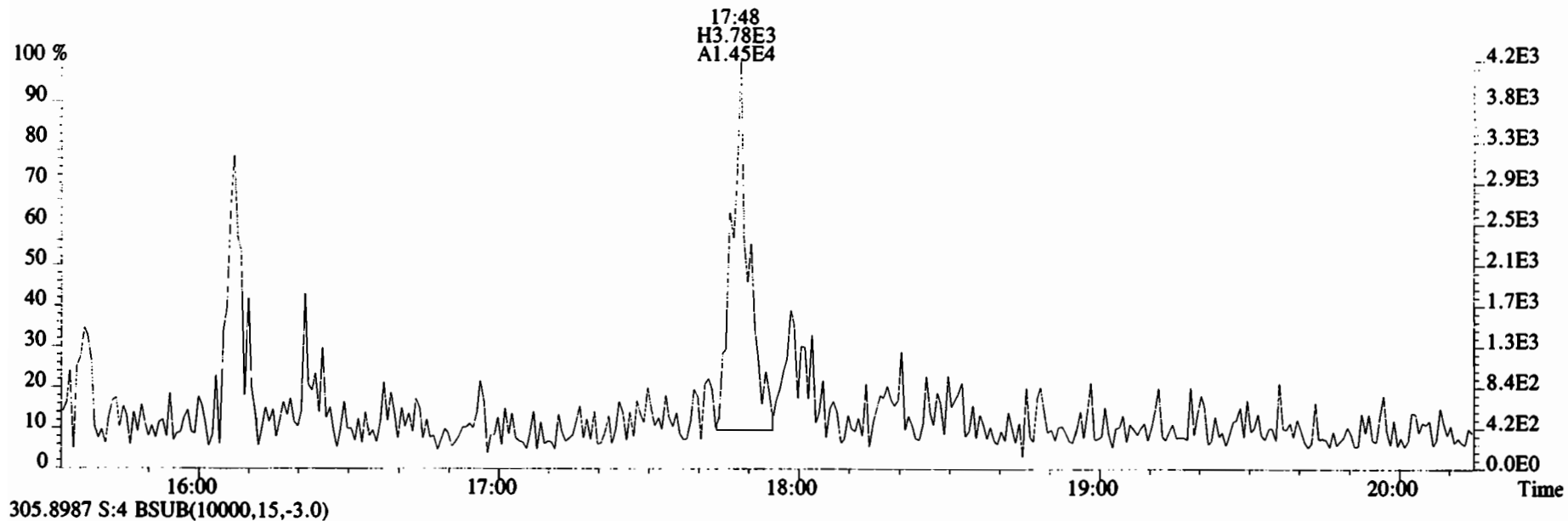
by  
Analyst: C7

Date: 01/14/2020

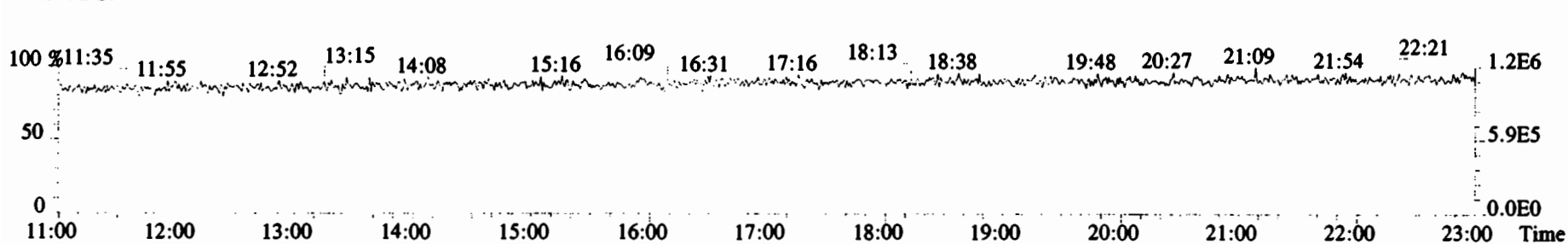
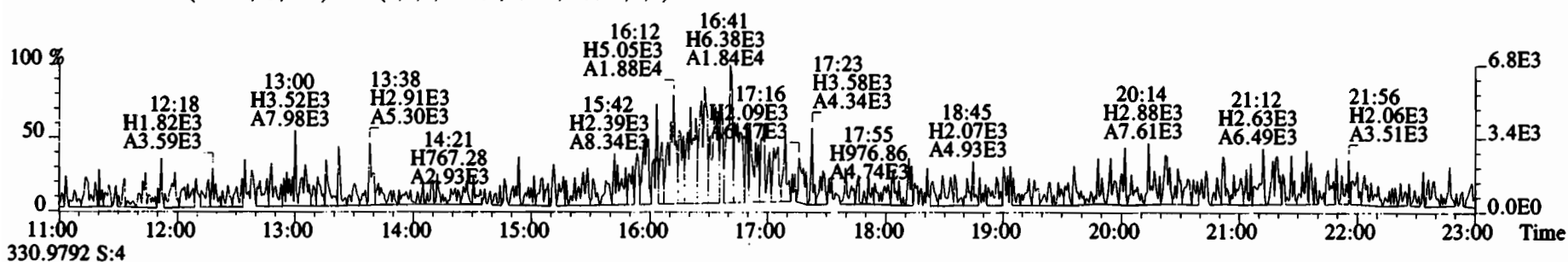
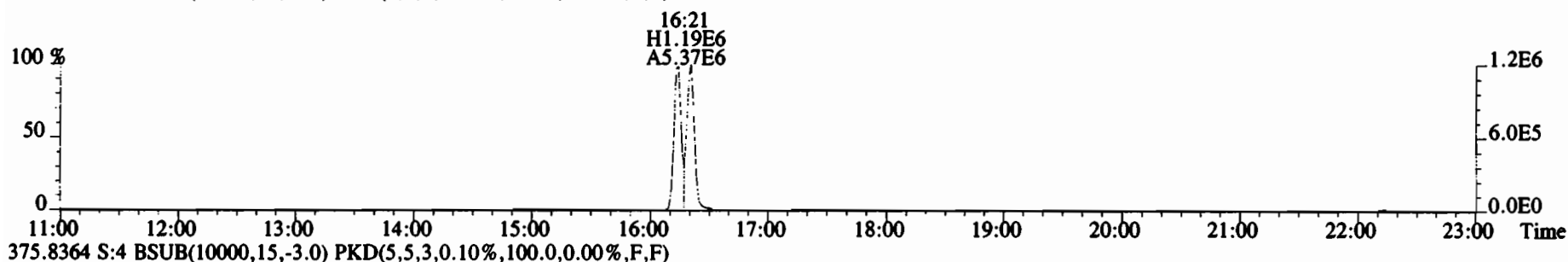
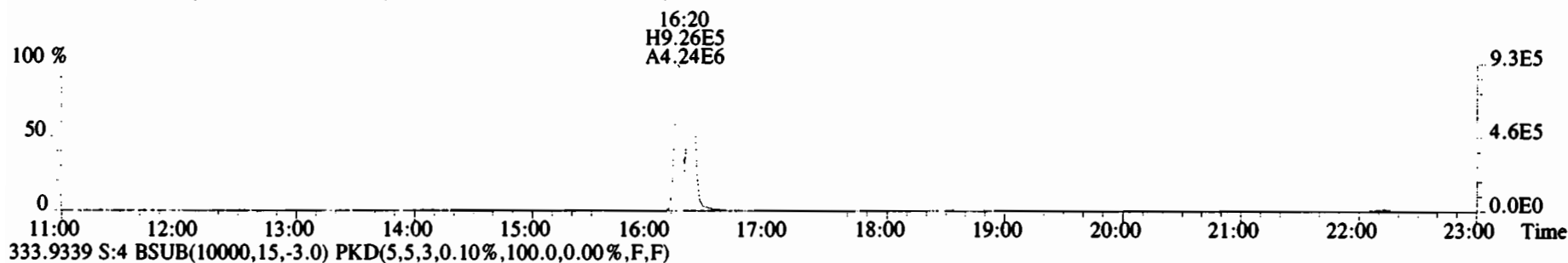
File:191107D1 #1-1682 Acq: 7-NOV-2019 12:26:19 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata Analytical Laboratory VG7 Text:1903651-04RE1 PDI-037SC-A-14-14.5-191012 13.84 Exp:TCDF\_DB225  
 303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191107D1 #1-1682 Acq: 7-NOV-2019 12:26:19 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical\_Laboratory\_VG7 Text:1903651-04RE1 PDI-037SC-A-14-14.5-191012 13.84 Exp:TCDF\_DB225  
303.9016 S:4 BSUB(10000,15,-3.0)



File:191107D1 #1-1682 Acq: 7-NOV-2019 12:26:19 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical Laboratory\_VG7 Text:1903651-04REI PDI-037SC-A-14-14.5-191012 13.84 Exp:TCDF\_DB225  
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



## **CONTINUING CALIBRATION**

**HRMS CALIBRATION STANDARDS REVIEW CHECKLIST**

**Beg. Calibration ID:** ST191101D1-1

**Reviewed By:** CT 11/04/19  
*Initials & Date*

**End Calibration ID:** NA

	<u>Beg.</u>	<u>End</u>
<b>Ion abundance within QC limits?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>Concentrations within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Verification Std. named correctly?</b> (ST-Year-Month-Day-VG ID)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Correct ICAL referenced?</b>	DB	<input type="checkbox"/>
<b><u>Run Log:</u></b>		
- Correct instrument listed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- Samples within 12 hour clock?	(Y)	N
- Bottle position verified?	DB	

**Mass resolution  $\geq$**

5k    6-8K    8K    10K  
 1614   1699   429   1613/1668/8280

**Intergrated peaks display correctly?**

**GC Break <20%**

**8280 CS1 End Standard:**

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours

**Comments:**

Vista Analytical Laboratory - Injection Log Run file: 191101D1 Instrument ID: V9-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191101D1	1	ST191101D1-1	DB	1-NOV-19	13:59:13	ST191101D1-1	NA
191101D1	2	ST191101D1-2	DB	1-NOV-19	14:47:02	ST191101D1-2	ST191101D1-3
191101D1	3	B9J0312-BS1	DB	1-NOV-19	15:34:58	ST191101D1-1	NA
191101D1	4	SOLVENT BLANK	DB	1-NOV-19	16:22:53	NA	NA
191101D1	5	B9J0312-BLK1	DB	1-NOV-19	17:10:44	ST191101D1-1	NA
191101D1	6	1903546-07RE2	DB	1-NOV-19	17:58:35	ST191101D1-1	NA
191101D1	7	B9J0312-DUP1	DB	1-NOV-19	18:46:30	ST191101D1-1	NA
191101D1	8	1903546-09RE1	DB	1-NOV-19	19:34:14	ST191101D1-1	NA
191101D1	9	1903546-15RE1	DB	1-NOV-19	20:21:58	ST191101D1-1	NA
191101D1	10	1903565-09RE1	DB	1-NOV-19	21:09:47	ST191101D1-1	NA
191101D1	11	1903565-14RE1	DB	1-NOV-19	21:57:30	ST191101D1-1	NA
191101D1	12	1903565-15RE1	DB	1-NOV-19	22:45:15	ST191101D1-1	NA
191101D1	13	1903565-16RE1@20X	DB	1-NOV-19	23:32:58	ST191101D1-1	NA
191101D1	14	1903260-01RE2@10X	DB	2-NOV-19	00:20:37	ST191101D1-2	ST191101D1-3
191101D1	15	SOLVENT BLANK	DB	2-NOV-19	01:08:28	NA	NA
191101D1	16	ST191101D1-3	DB	2-NOV-19	01:56:13	ST191101D1-2	ST191101D1-3

FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191101D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	10.2	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.64	0.54-0.72	y	50.6	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	47.3	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	51.8	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	y	51.3	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	48.4	43.0 - 58.0
OCDD	M+2/M+4	0.88	0.76-1.02	y	99.8	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	y	9.83	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	51.8	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	51.8	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	46.2	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	47.6	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	49.0	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.0	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	y	46.8	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	y	46.6	43.0 - 58.0
OCDF	M+2/M+4	0.87	0.76-1.02	y	92.6	63.0 - 159.0

(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 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: JB

Date: 11/1/19



FORM 4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	y	106	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	103	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	111	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	92.8	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	y	100	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	y	109	72.0 - 138.0
13C-OCDD	M/M+2	0.89	0.76-1.02	y	239	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.80	0.65-0.89	y	99.8	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	y	106	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.67	1.32-1.78	y	101	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	112	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	101	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	y	100	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	y	105	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.45	0.37-0.51	y	98.7	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	110	77.0 - 129.0
13C-OCDF	M+2/M+4	0.86	0.76-1.02	y	239	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.51	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 11/1/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 10-9-19

RT Window Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

ZB-5MS IS Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

DB\_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:54	1,3,6,8-TCDF (F)	20:47
1,2,8,9-TCDD (L)	27:07	1,2,8,9-TCDF (L)	27:15
1,2,4,7,9-PeCDD (F)	28:42	1,3,4,6,8-PeCDF (F)	27:13
1,2,3,8,9-PeCDD (L)	31:06	1,2,3,8,9-PeCDF (L)	31:20
1,2,4,6,7,9-HxCDD (F)	32:31	1,2,3,4,6,8-HxCDF (F)	31:59
1,2,3,7,8,9-HxCDD (L)	34:28	1,2,3,7,8,9-HxCDF (L)	34:50
1,2,3,4,6,7,9-HpCDD (F)	37:04	1,2,3,4,6,7,8-HpCDF (F)	36:41
1,2,3,4,6,7,8-HpCDD (L)	37:54	1,2,3,4,7,8,9-HpCDF (L)	38:26

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 11/1/19

FORM 6A  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME	RRT	RRT
	REFERENCE		QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002

LABELED COMPOUNDS

13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.021	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.196	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.991	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.151	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.185	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052

Analyst: DB

Date: 11/1/19

FORM 6B  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191101D1 S#1 Analysis Date: 1-NOV-19 Time: 13:59:13

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.001	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001

LABELED COMPOUNDS

13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.992	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.038	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.026	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.145	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.129	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.227	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.234	1.091-1.371

Analyst: DB

Date: 11/1/19

Client ID: 1613 CS3 19C2204  
Lab ID: ST191101D1-1

Filename: 191101D1 S:1 Acq: 1-NOV-19 13:59:13  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

ConCal: ST191101D1-1  
EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	7.33e+05	0.79 y	0.91	26:16	10.229			* 2.5	*	Total Tetra-Dioxins	74.2	74.8	*	*	
1,2,3,7,8-PeCDD	2.83e+06	0.64 y	0.90	30:45	50.570			* 2.5	*	Total Penta-Dioxins	201	202	*	*	
1,2,3,4,7,8-HxCDD	2.75e+06	1.25 y	1.10	34:03	47.317			* 2.5	*	Total Hexa-Dioxins	219	220	*	*	
1,2,3,6,7,8-HxCDD	2.85e+06	1.23 y	0.94	34:10	51.789			* 2.5	*	Total Hepta-Dioxins	111	113	*	*	
1,2,3,7,8,9-HxCDD	2.95e+06	1.24 y	0.96	34:28	51.334			* 2.5	*	Total Tetra-Furans	37.6	38.5	*	*	
1,2,3,4,6,7,8-HpCDD	2.50e+06	1.03 y	0.98	37:54	48.355			* 2.5	*	Total Penta-Furans	225.38	226.79	*	*	
OCDD	4.90e+06	0.88 y	0.96	41:11	99.819			* 2.5	*	Total Hexa-Furans	253	254	*	*	
										Total Hepta-Furans	93.6	94.9	*	*	
2,3,7,8-TCDF	1.05e+06	0.74 y	0.95	25:28	9.8324			* 2.5	*						
1,2,3,7,8-PeCDF	4.87e+06	1.60 y	0.96	29:35	51.787			* 2.5	*						
2,3,4,7,8-PeCDF	4.87e+06	1.60 y	1.01	30:28	51.831			* 2.5	*						
1,2,3,4,7,8-HxCDF	3.75e+06	1.25 y	1.18	33:10	46.232			* 2.5	*						
1,2,3,6,7,8-HxCDF	3.95e+06	1.23 y	1.07	33:17	47.630			* 2.5	*						
2,3,4,6,7,8-HxCDF	3.86e+06	1.23 y	1.11	33:53	48.962			* 2.5	*						
1,2,3,7,8,9-HxCDF	3.28e+06	1.24 y	1.06	34:50	47.983			* 2.5	*						
1,2,3,4,6,7,8-HpCDF	2.92e+06	1.04 y	1.13	36:41	46.792			* 2.5	*						
1,2,3,4,7,8,9-HpCDF	2.81e+06	1.02 y	1.28	38:26	46.553			* 2.5	*						
OCDF	5.34e+06	0.87 y	0.95	41:25	92.554			* 2.5	*						
IS	13C-2,3,7,8-TCDD	7.91e+06	0.78 y	1.10	26:14	105.52				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	6.19e+06	0.63 y	0.88	30:44	102.58				106					
IS	13C-1,2,3,4,7,8-HxCDD	5.28e+06	1.25 y	0.64	34:02	111.19				103					
IS	13C-1,2,3,6,7,8-HxCDD	5.87e+06	1.27 y	0.86	34:09	92.752				111					
IS	13C-1,2,3,7,8,9-HxCDD	5.98e+06	1.27 y	0.81	34:27	100.20				92.8					
IS	13C-1,2,3,4,6,7,8-HpCDD	5.28e+06	1.05 y	0.65	37:53	109.19				100					
IS	13C-OCDD	1.03e+07	0.89 y	0.58	41:11	239.04				109					
IS	13C-2,3,7,8-TCDF	1.12e+07	0.80 y	1.03	25:28	99.845				120					
IS	13C-1,2,3,7,8-PeCDF	9.79e+06	1.63 y	0.85	29:34	105.55				99.8					
IS	13C-2,3,4,7,8-PeCDF	9.26e+06	1.67 y	0.85	30:27	100.73				106					
IS	13C-1,2,3,4,7,8-HxCDF	6.88e+06	0.51 y	0.83	33:09	111.90				101					
IS	13C-1,2,3,6,7,8-HxCDF	7.75e+06	0.52 y	1.03	33:17	101.26				112					
IS	13C-2,3,4,6,7,8-HxCDF	7.09e+06	0.53 y	0.95	33:52	100.49				101					
IS	13C-1,2,3,7,8,9-HxCDF	6.44e+06	0.53 y	0.83	34:49	105.25				100					
IS	13C-1,2,3,4,6,7,8-HpCDF	5.53e+06	0.45 y	0.76	36:40	98.710				105					
IS	13C-1,2,3,4,7,8,9-HpCDF	4.72e+06	0.44 y	0.58	38:26	109.86				98.7					
IS	13C-OCDF	1.22e+07	0.86 y	0.69	41:24	239.07				110					
C/Up	37Cl-2,3,7,8-TCDD	7.80e+05		1.20	26:15	9.5098				120					
RS/RT	13C-1,2,3,4-TCDD	6.85e+06	0.80 y	1.00	25:41	100.00				95.1					
RS	13C-1,2,3,4-TCDF	1.09e+07	0.79 y	1.00	24:15	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	7.40e+06	0.52 y	1.00	33:33	100.00									

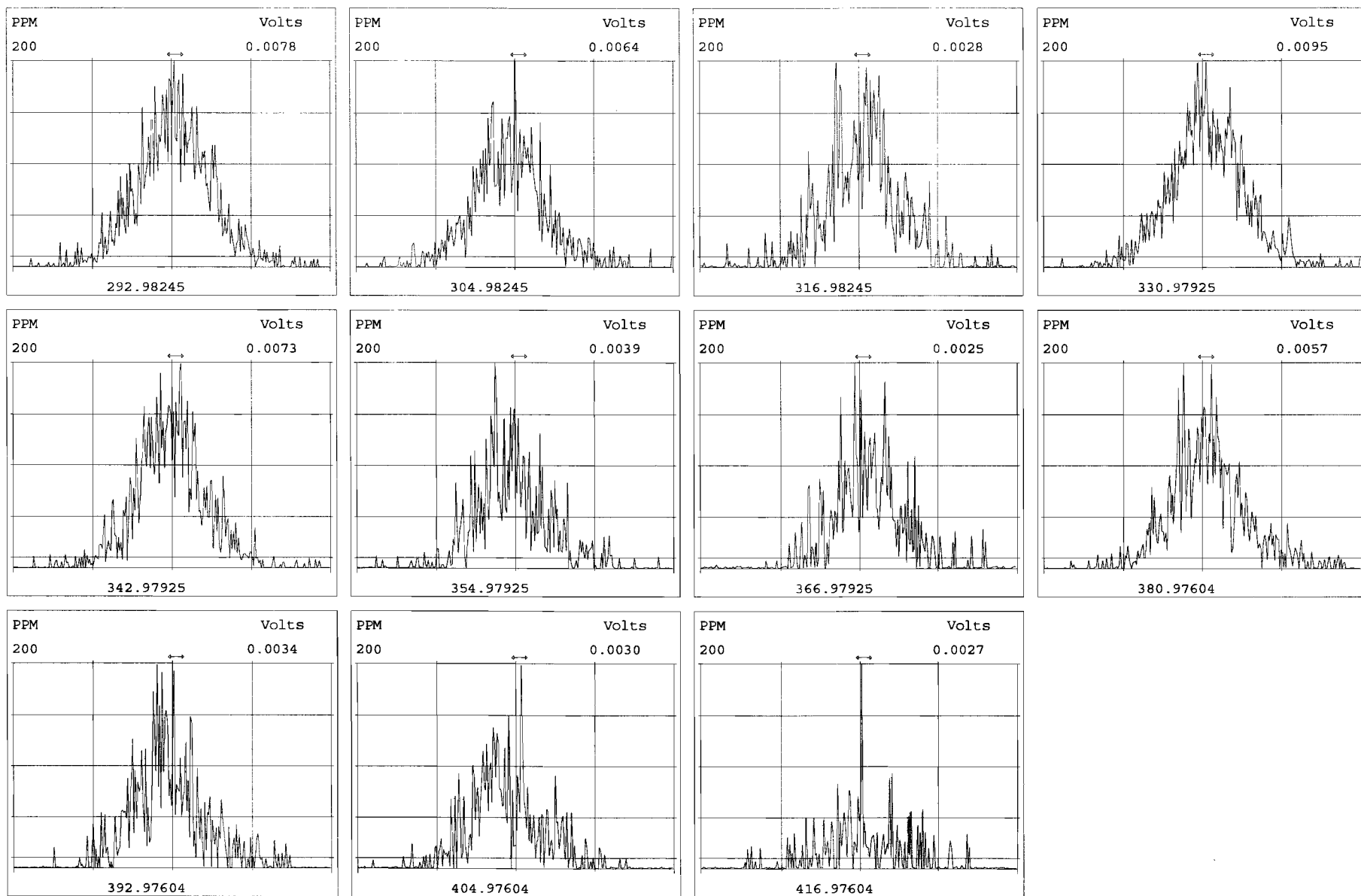
Integrations  
by DB  
Analyst: DB  
Date: 11/1/19  
Reviewed  
by CT  
Analyst: CT  
Date: 11/04/19

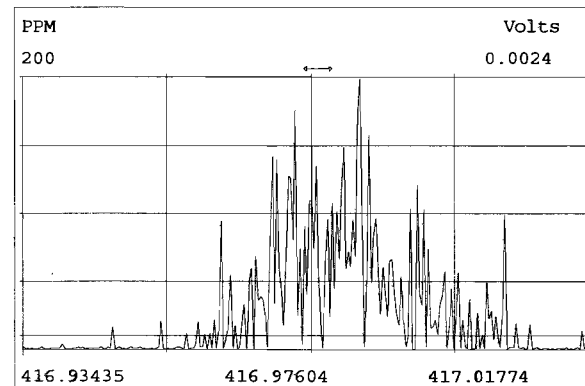
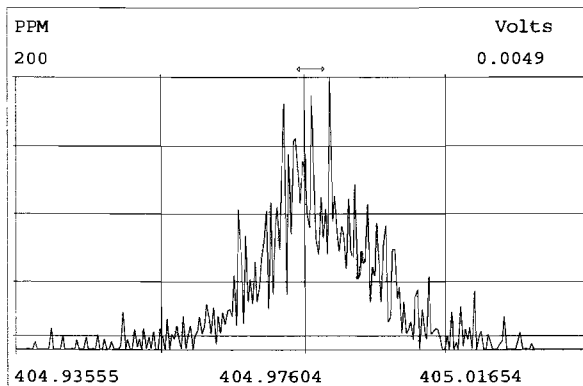
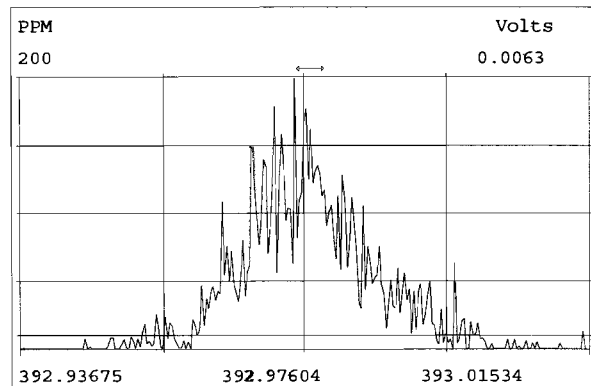
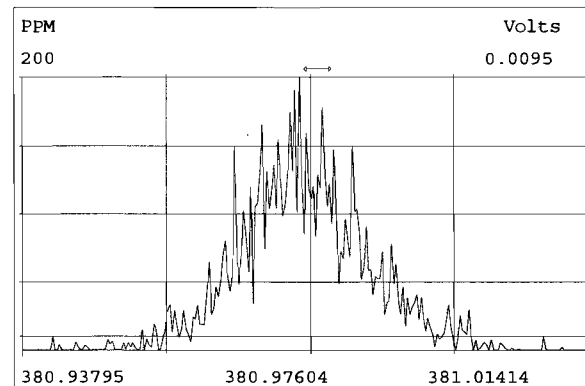
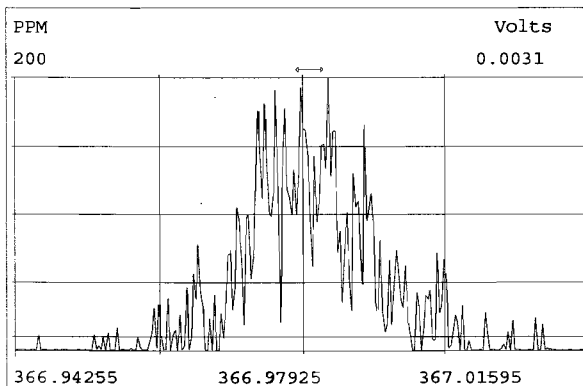
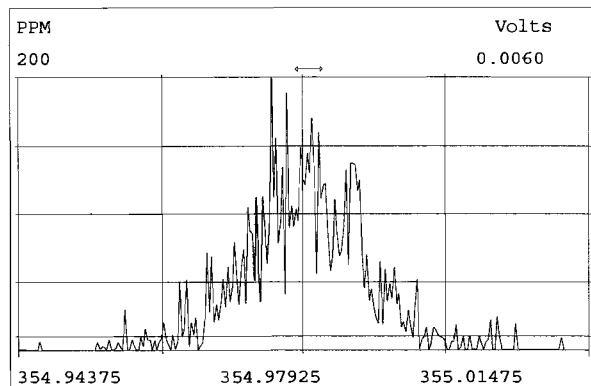
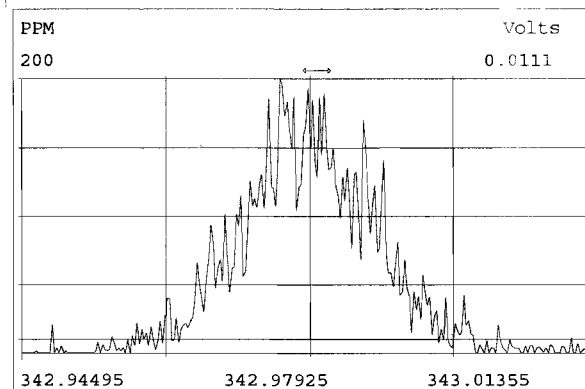
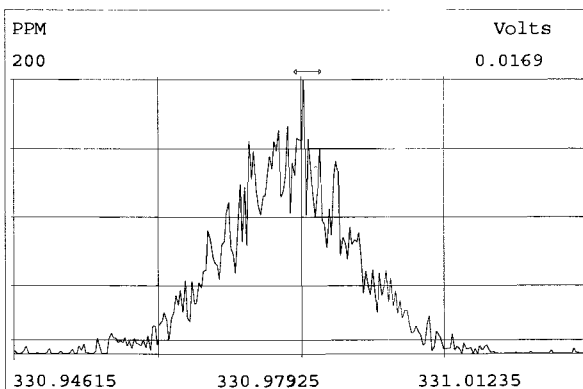
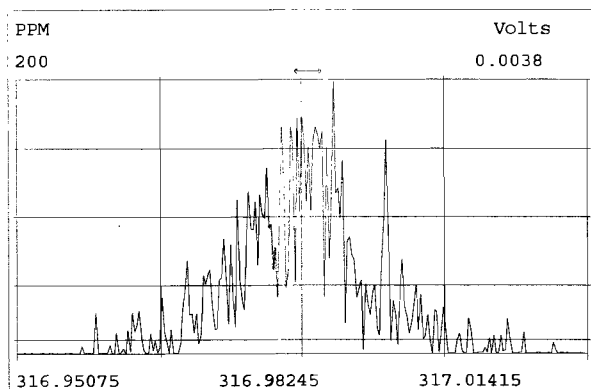
Vista Analytical Laboratory - Injection Log Run file: 191101D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191101D1	1	ST191101D1-1	DB	1-NOV-19	13:59:13	ST191101D1-1	NA
191101D1	2	ST191101D1-2	DB	1-NOV-19	14:47:02	ST191101D1-2	ST191101D1-3
191101D1	3	B9J0312-BS1	DB	1-NOV-19	15:34:58	ST191101D1-1	NA
191101D1	4	SOLVENT BLANK	DB	1-NOV-19	16:22:53	NA	NA
191101D1	5	B9J0312-BLK1	DB	1-NOV-19	17:10:44	ST191101D1-1	NA
191101D1	6	1903546-07RE2	DB	1-NOV-19	17:58:35	ST191101D1-1	NA
191101D1	7	B9J0312-DUP1	DB	1-NOV-19	18:46:30	ST191101D1-1	NA
191101D1	8	1903546-09RE1	DB	1-NOV-19	19:34:14	ST191101D1-1	NA
191101D1	9	1903546-15RE1	DB	1-NOV-19	20:21:58	ST191101D1-1	NA
191101D1	10	1903565-09RE1	DB	1-NOV-19	21:09:47	ST191101D1-1	NA
191101D1	11	1903565-14RE1	DB	1-NOV-19	21:57:30	ST191101D1-1	NA
191101D1	12	1903565-15RE1	DB	1-NOV-19	22:45:15	ST191101D1-1	NA
191101D1	13	1903565-16RE1@20X	DB	1-NOV-19	23:32:58	ST191101D1-1	NA
191101D1	14	1903260-01RE2@10X	DB	2-NOV-19	00:20:37	ST191101D1-2	ST191101D1-3
191101D1	15	SOLVENT BLANK	DB	2-NOV-19	01:08:28	NA	NA
191101D1	16	ST191101D1-3	DB	2-NOV-19	01:56:13	ST191101D1-2	ST191101D1-3

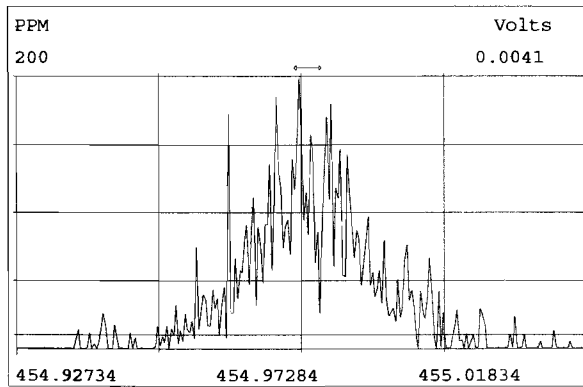
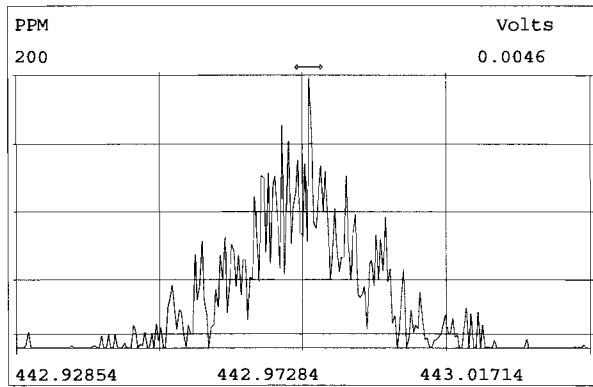
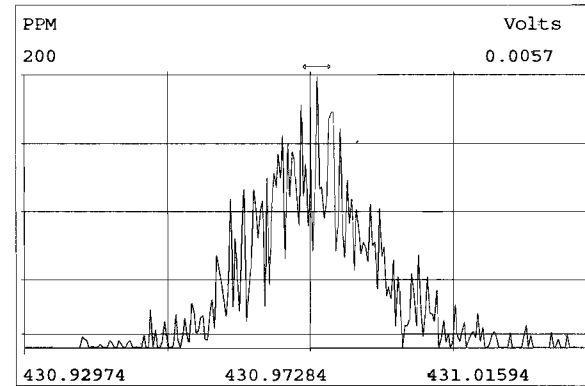
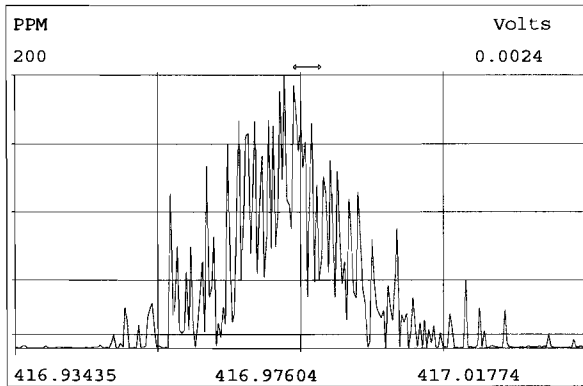
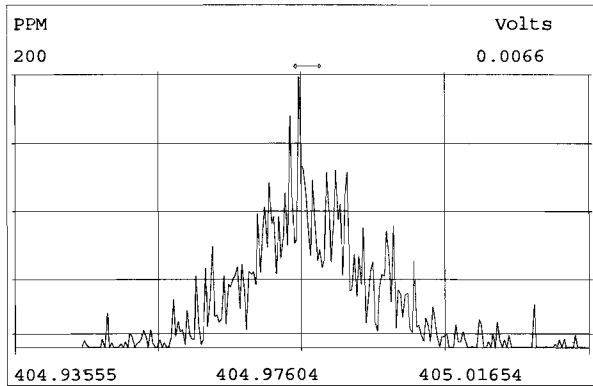
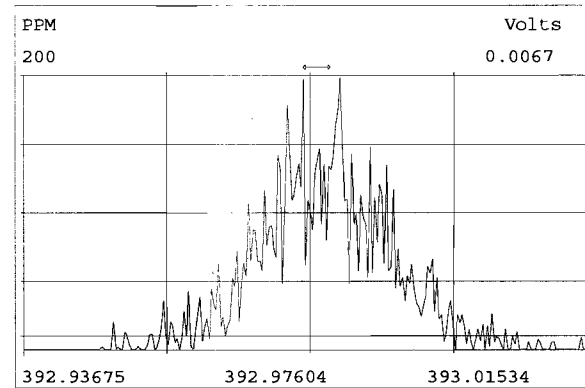
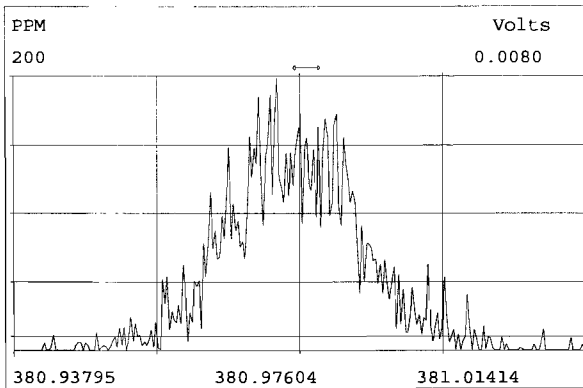
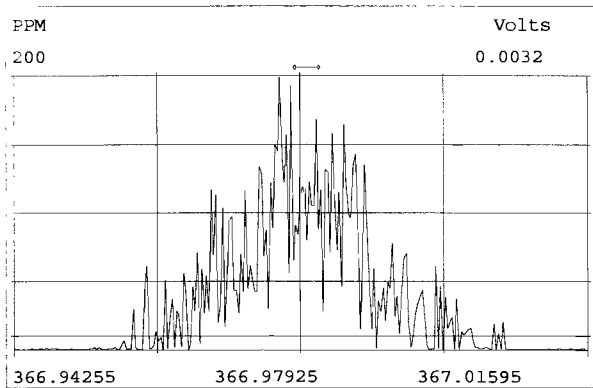
Peak Locate Examination: 1-NOV-2019:13:54 File:191101D1

Experiment:OCDD\_DB5 Function:1 Reference:PFK



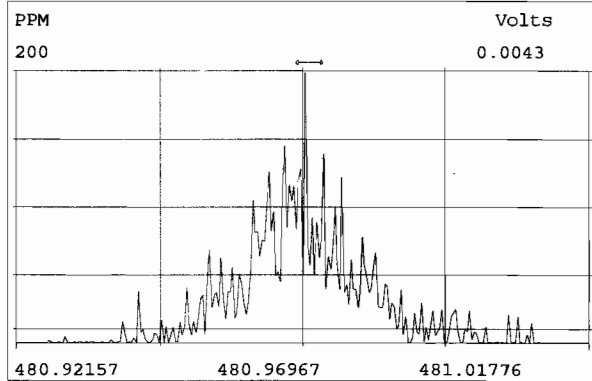
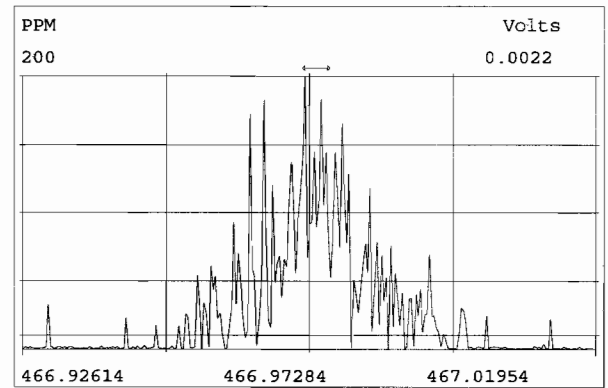
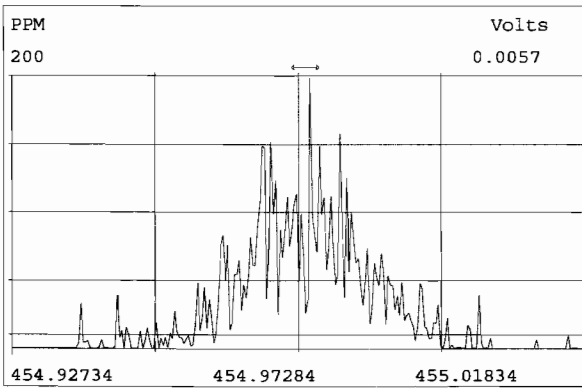
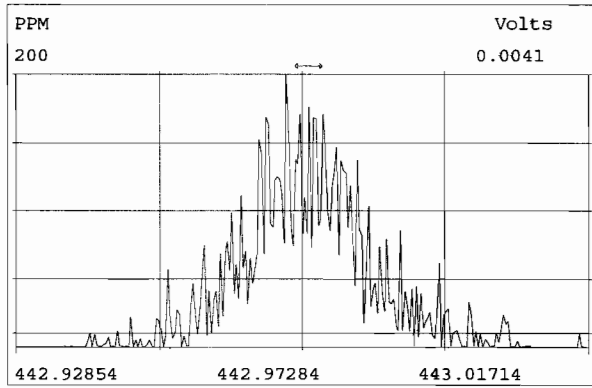
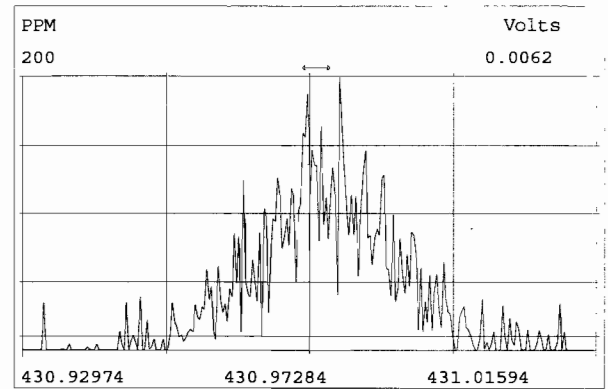
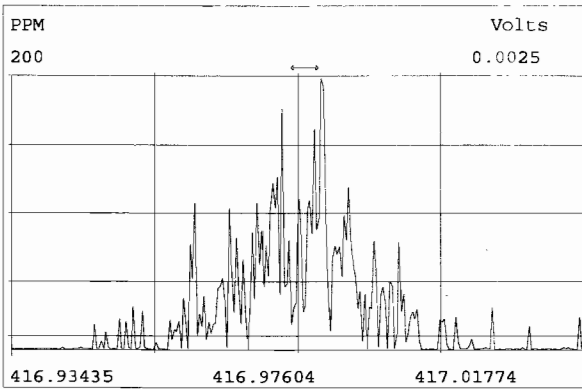
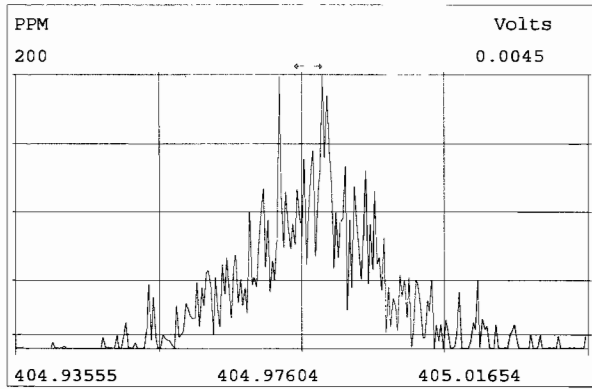






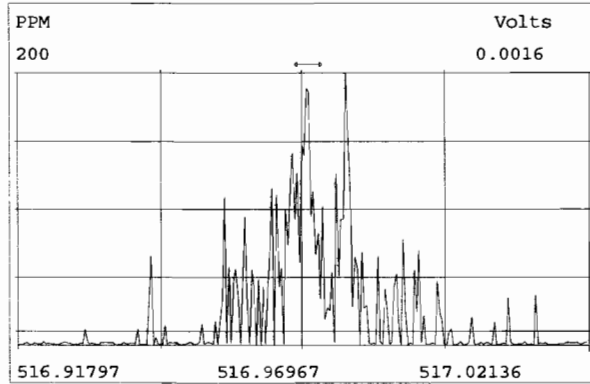
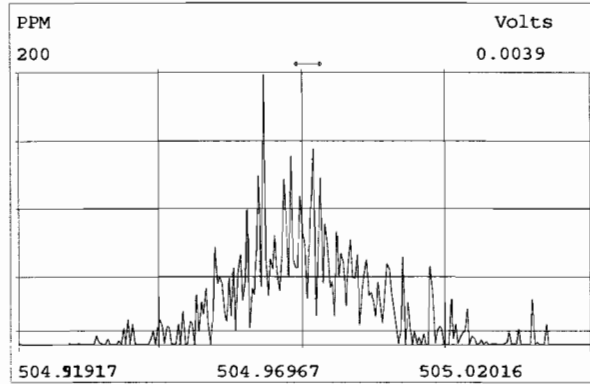
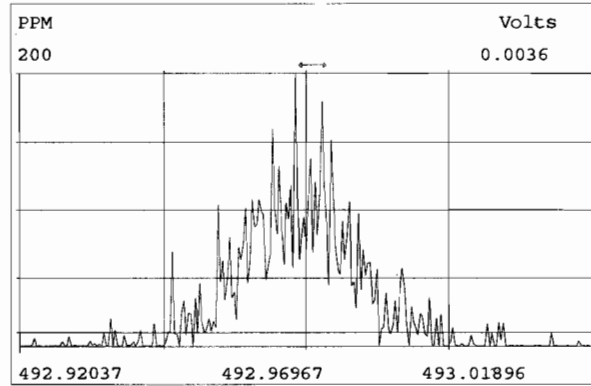
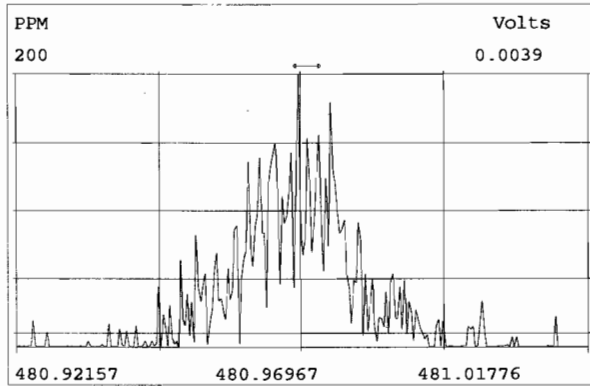
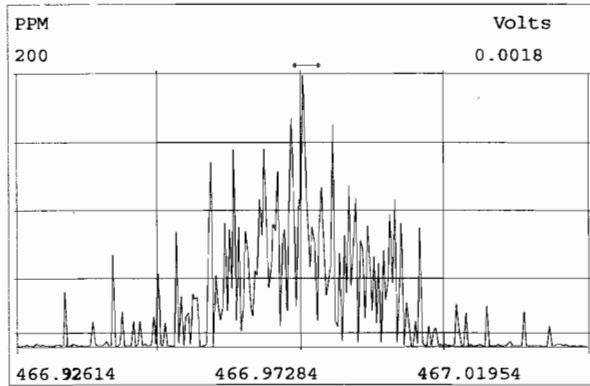
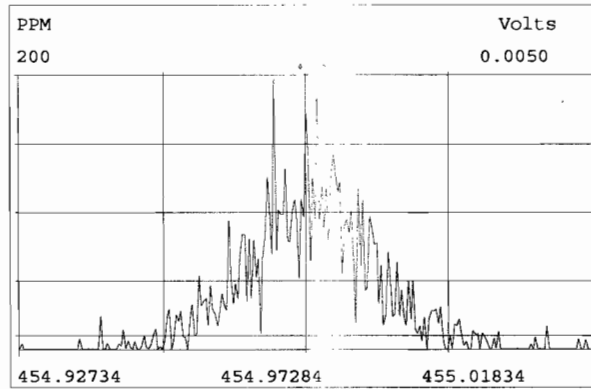
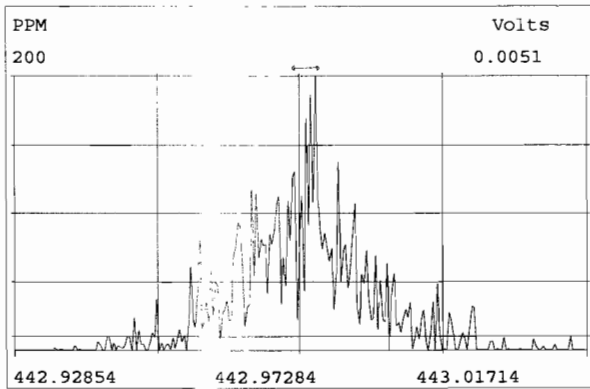
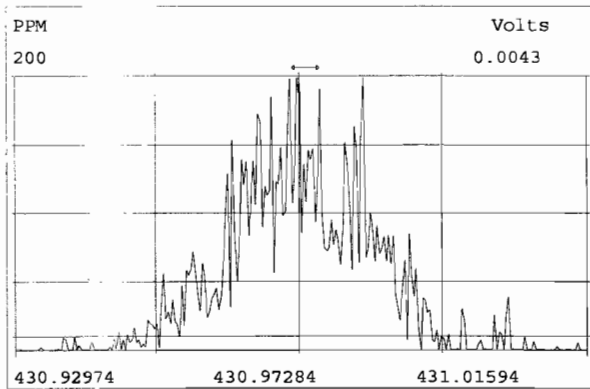
Peak Locate Examination: 1-NOV-2019:13:57 File:191101D1

Experiment:OCDD\_DB5 Function:4 Reference:PFK

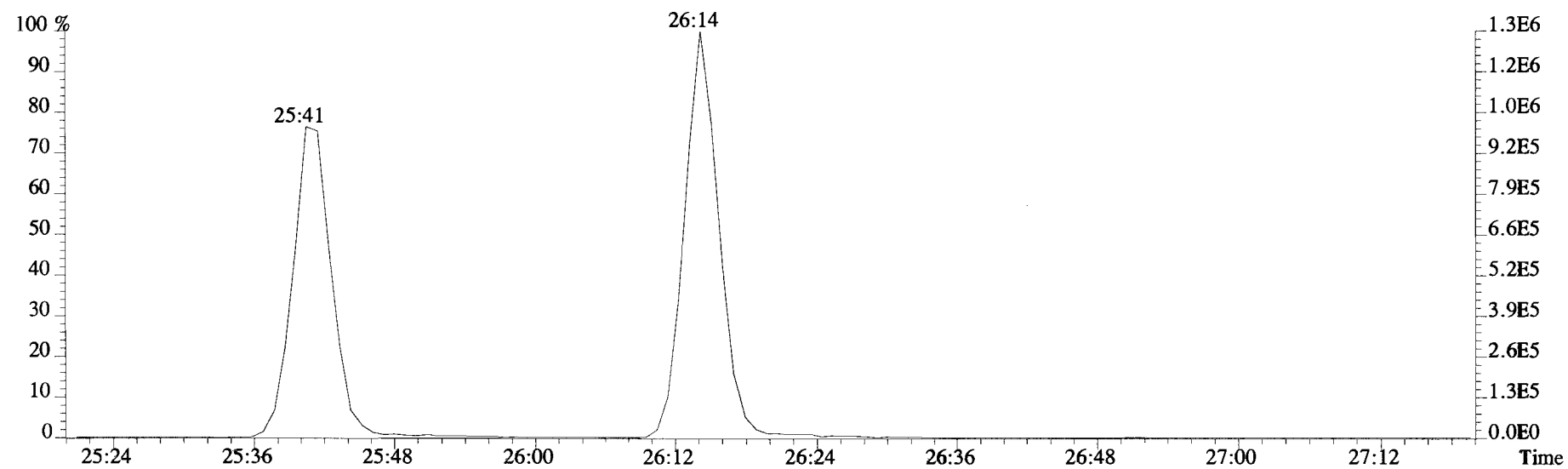
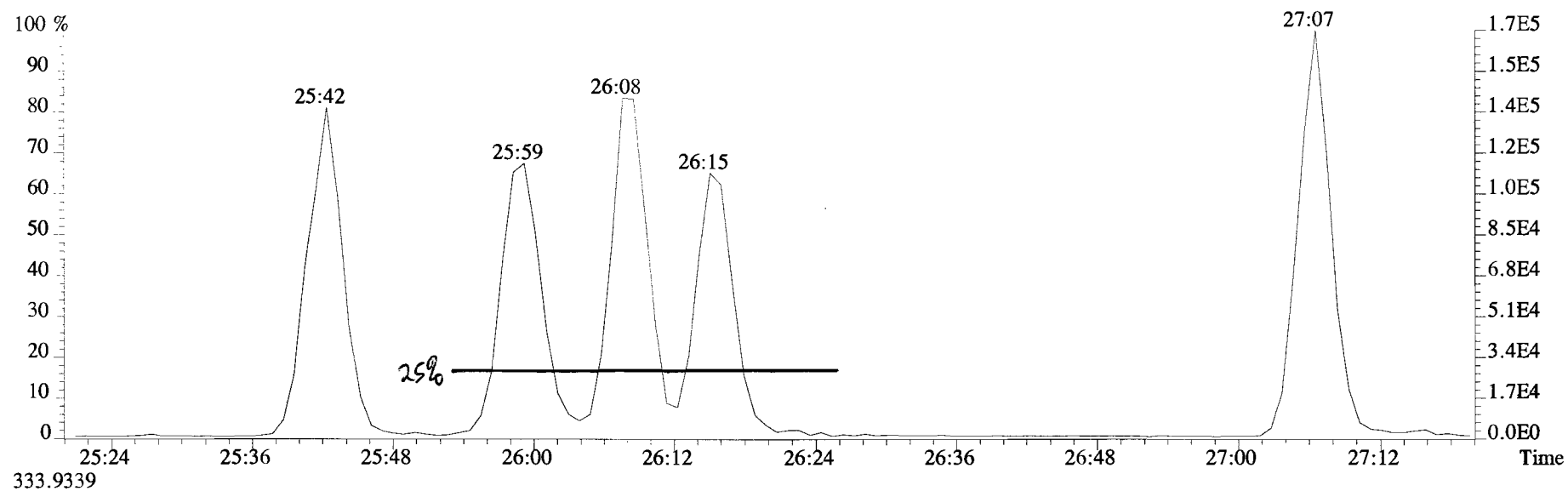


Peak Locate Examination: 1-NOV-2019:13:58 File:191101D1

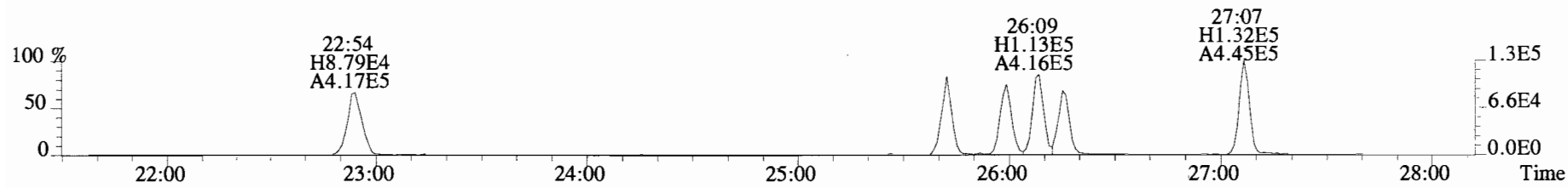
Experiment:OCDD\_DB5 Function:5 Reference:PFK



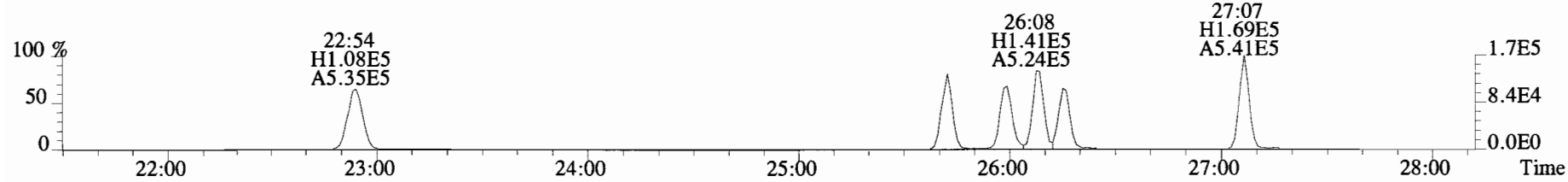
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936



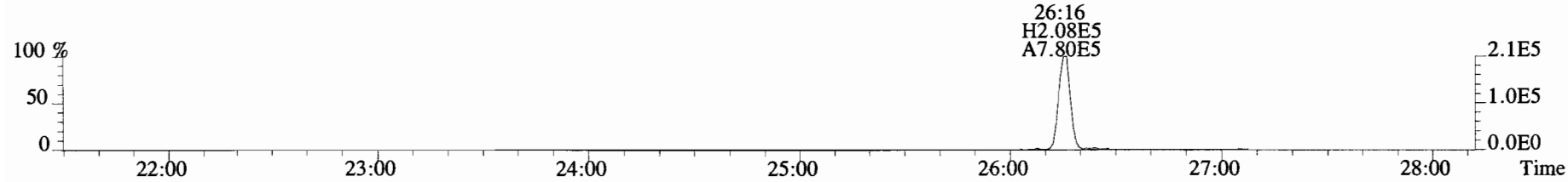
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319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



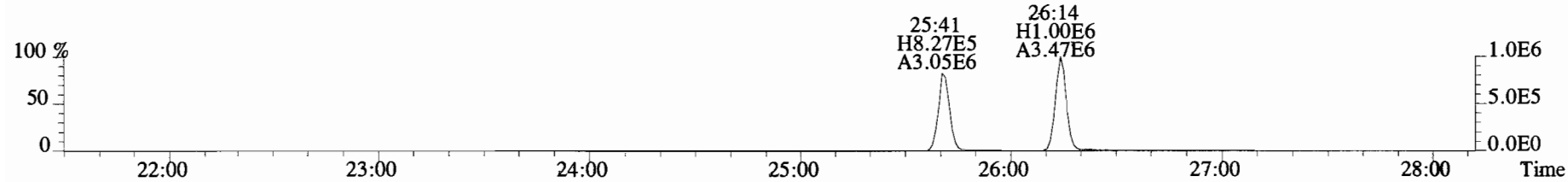
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



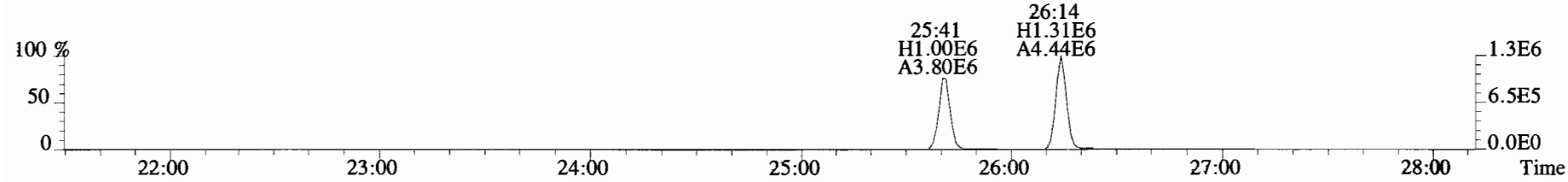
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



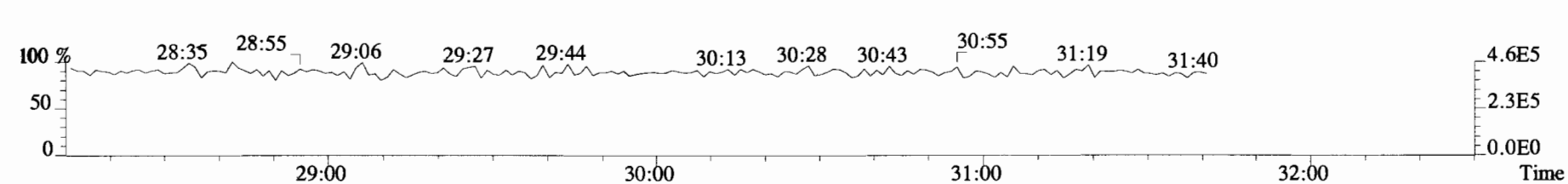
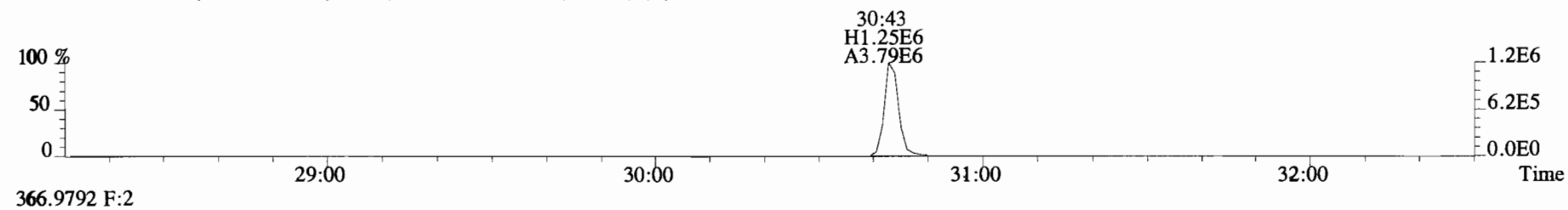
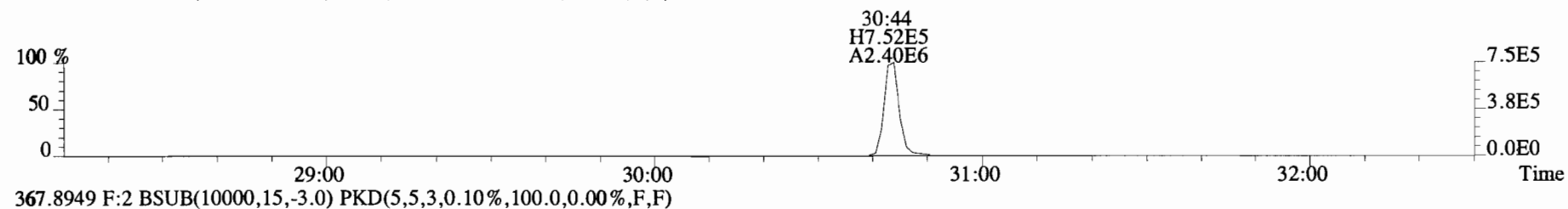
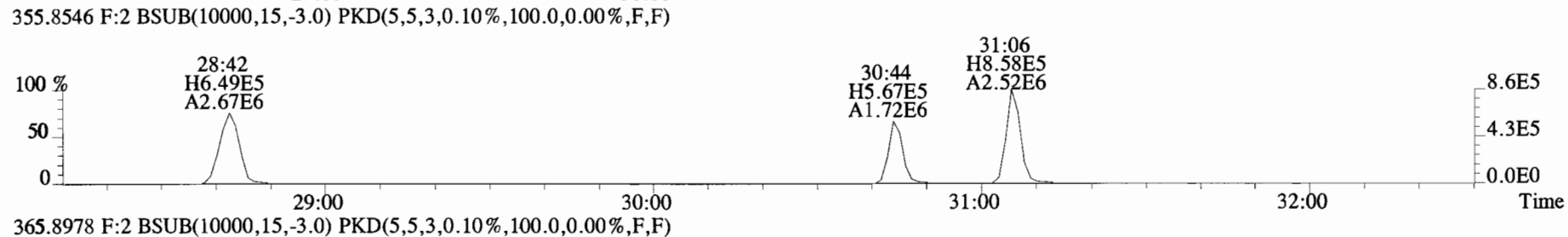
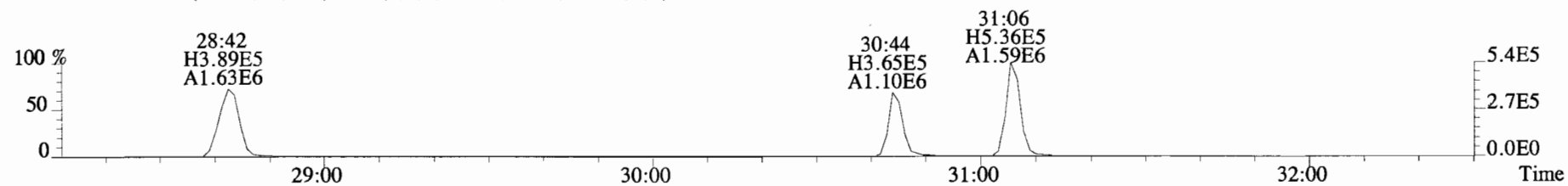
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



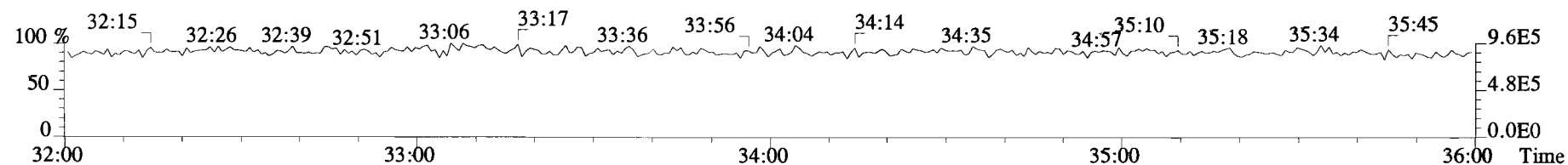
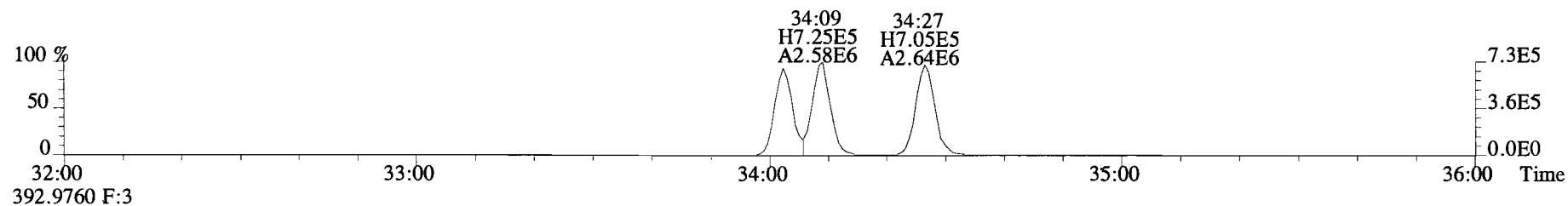
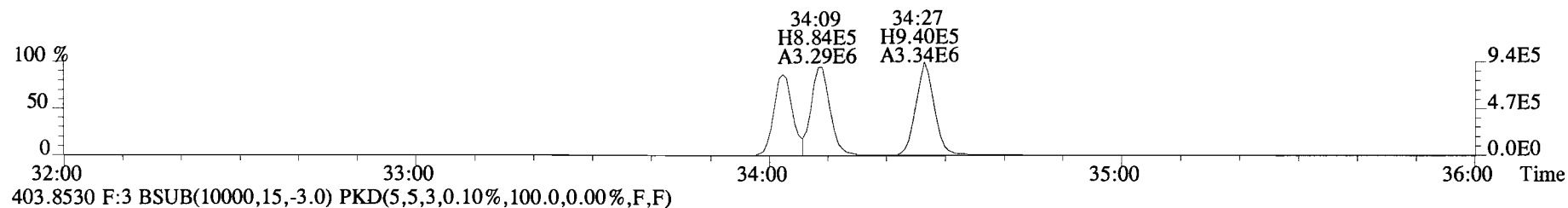
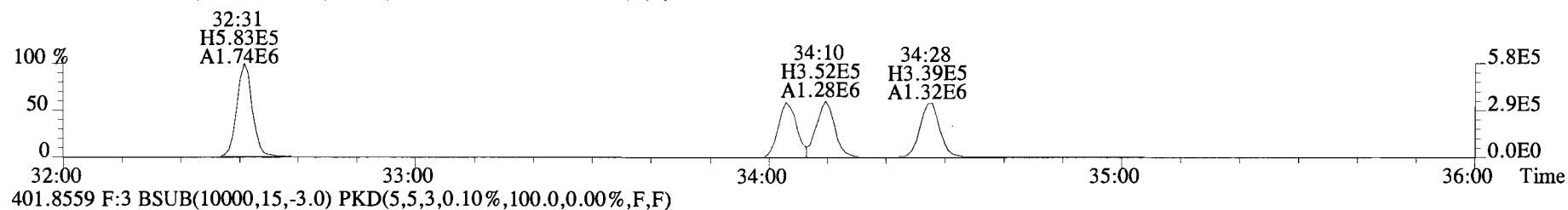
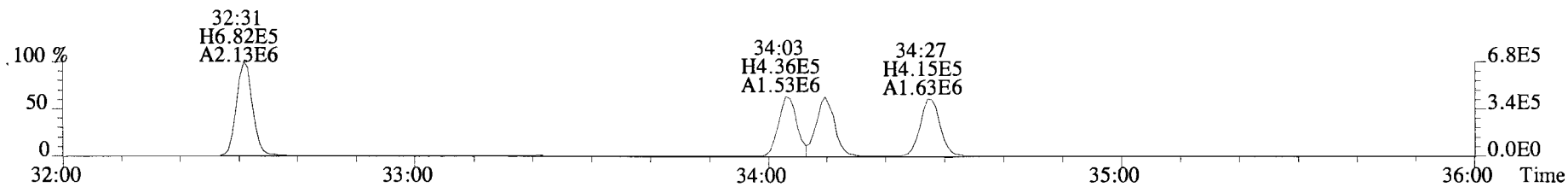
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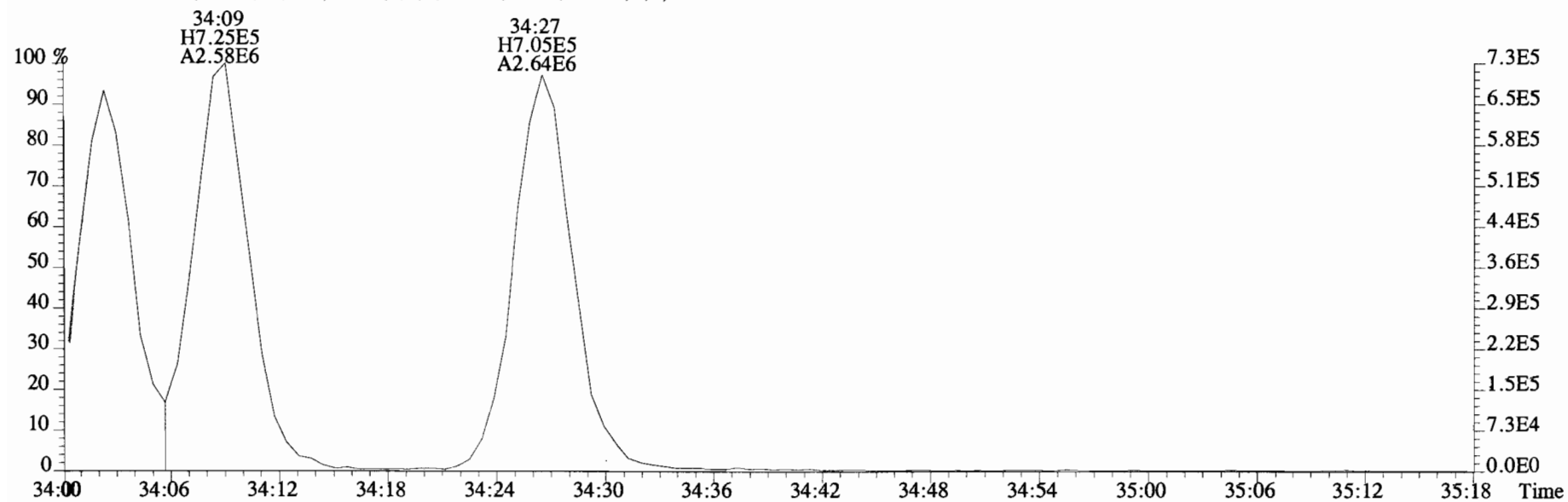
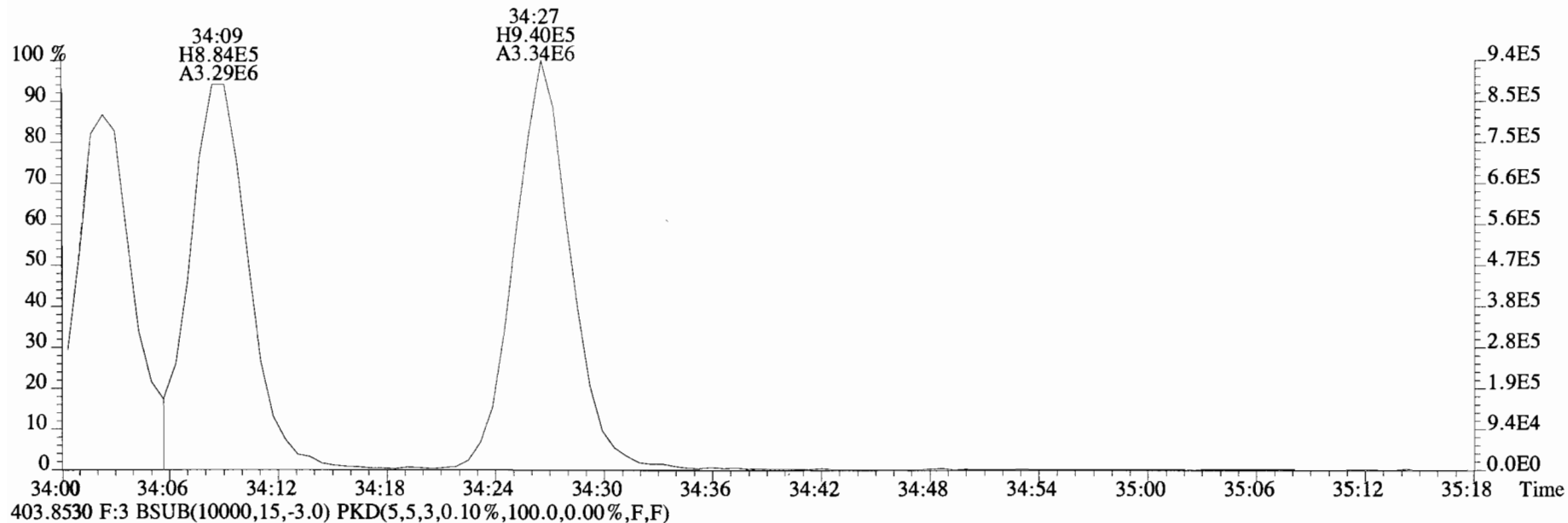
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 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
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File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

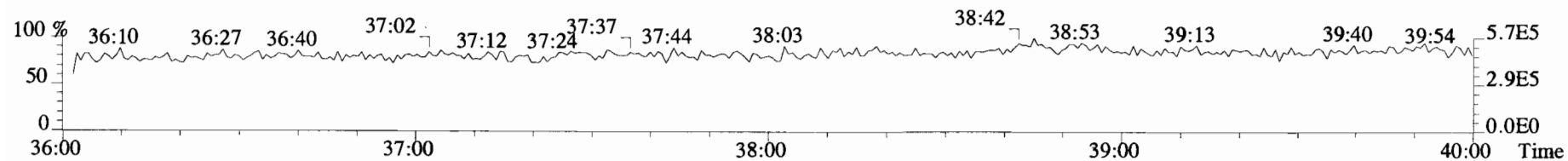
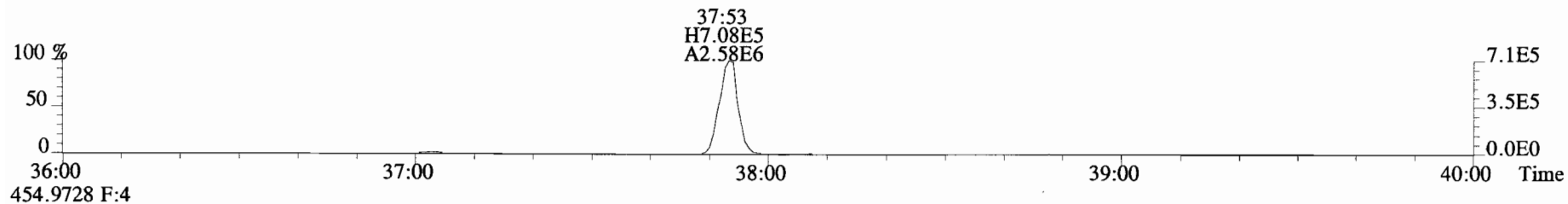
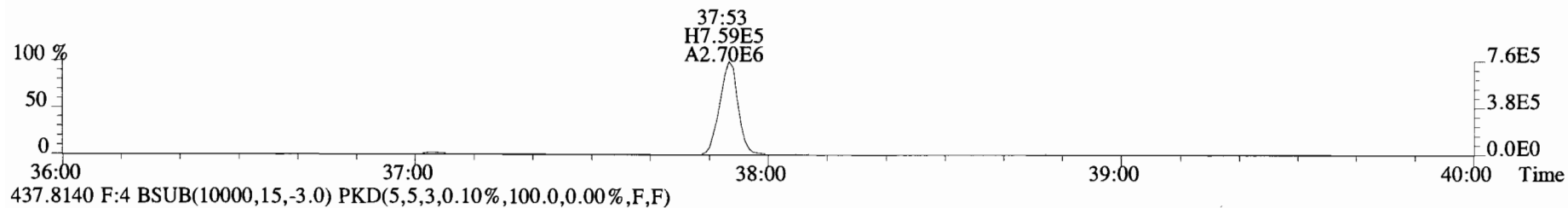
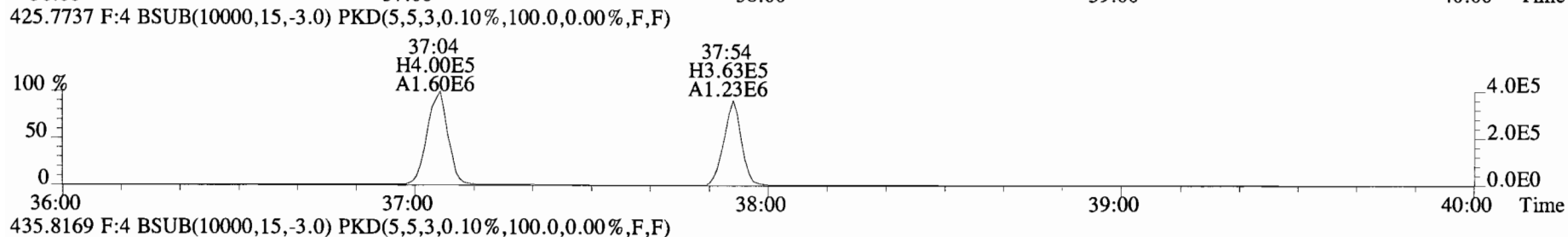
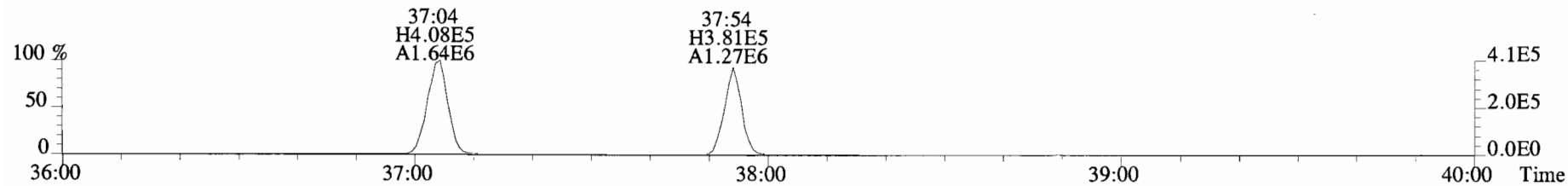


File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

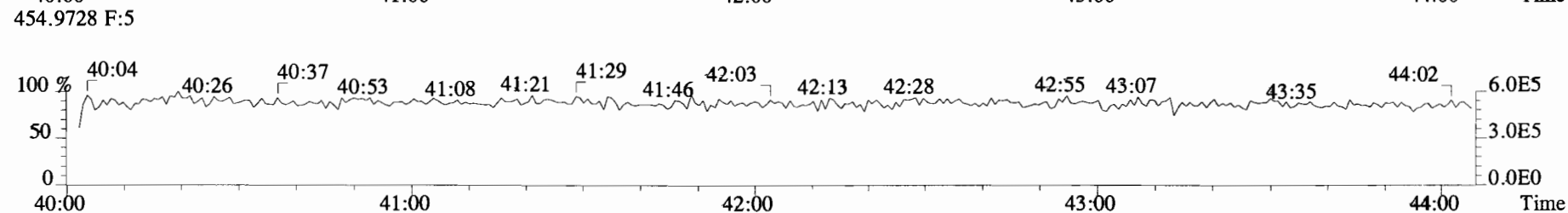
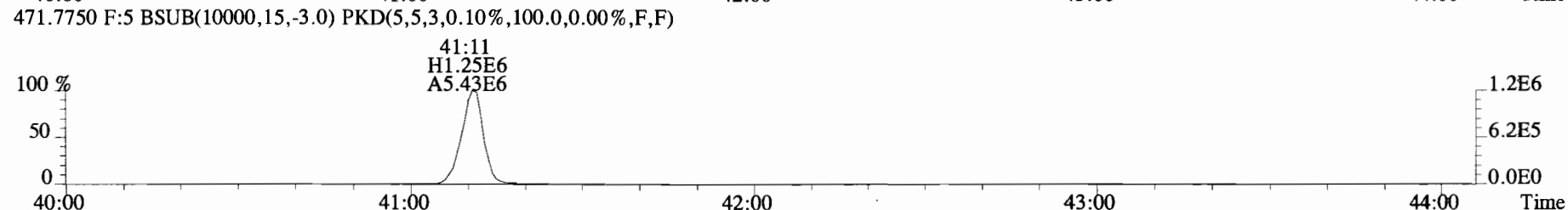
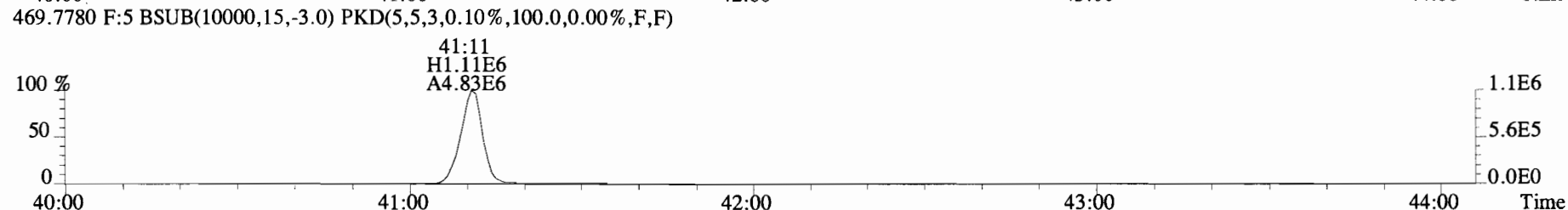
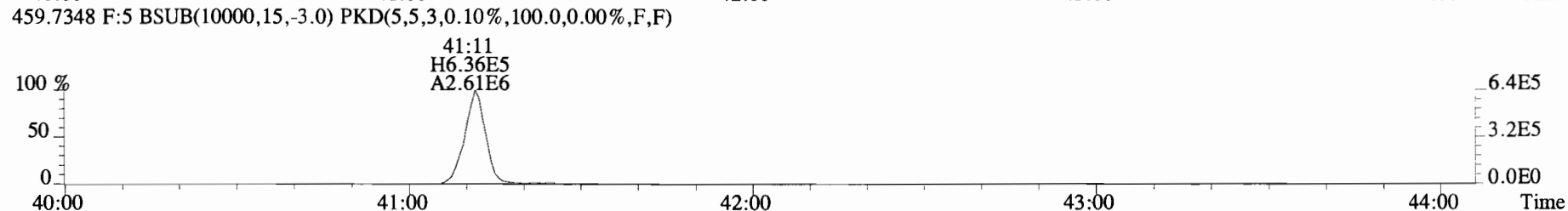
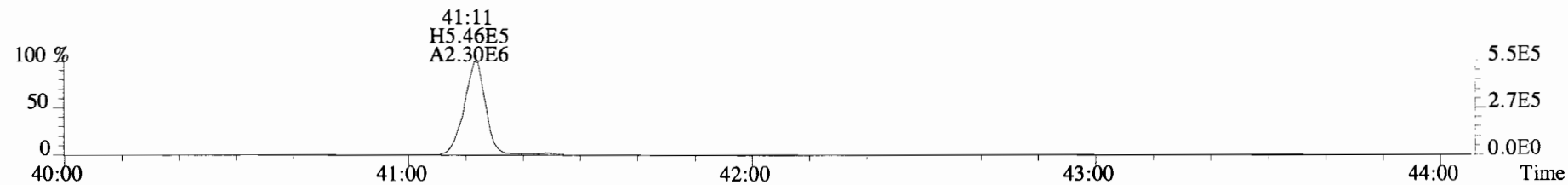




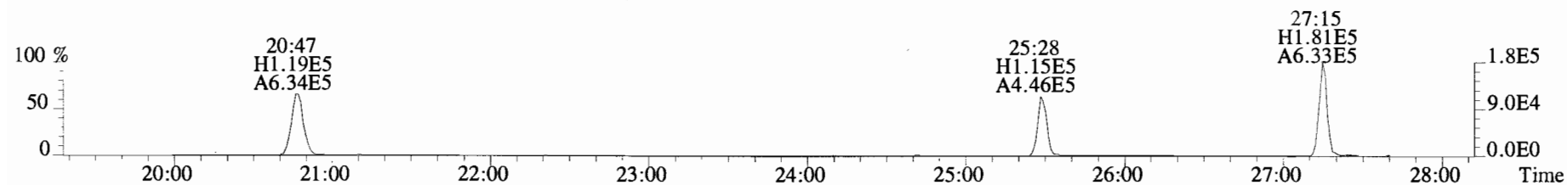
File:191101D1 #1-356 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



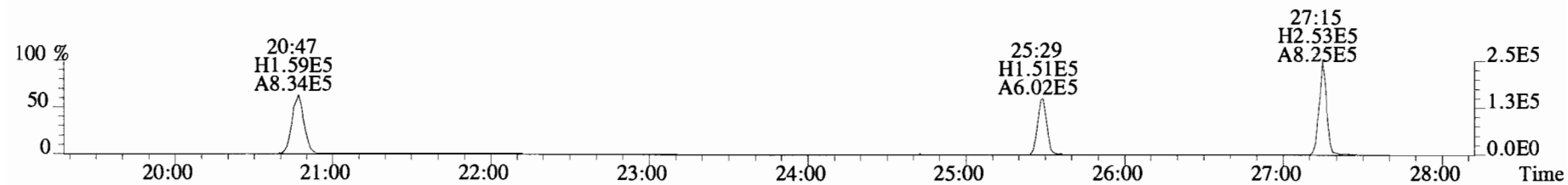
File:191101D1 #1-431 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



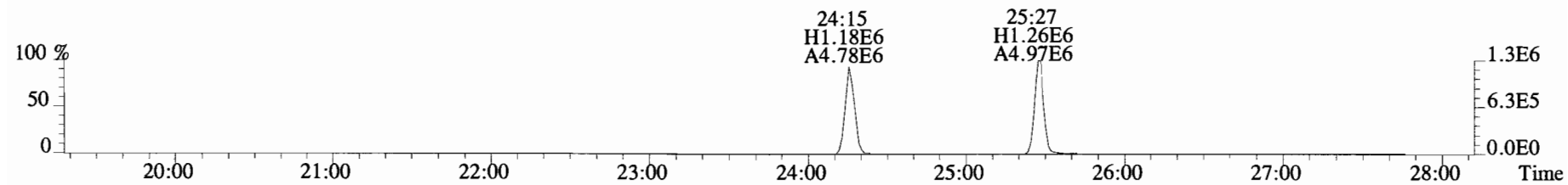
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



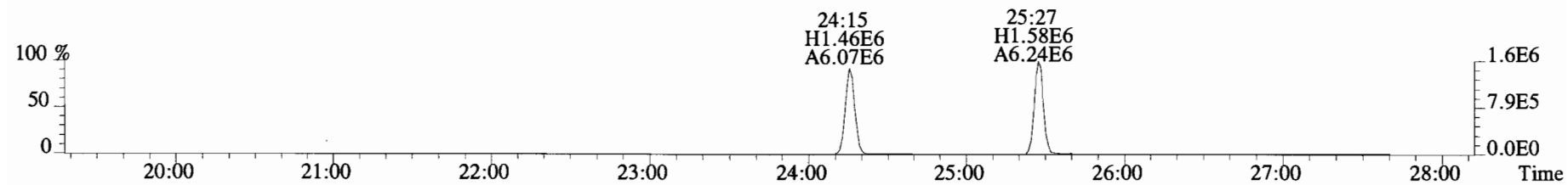
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



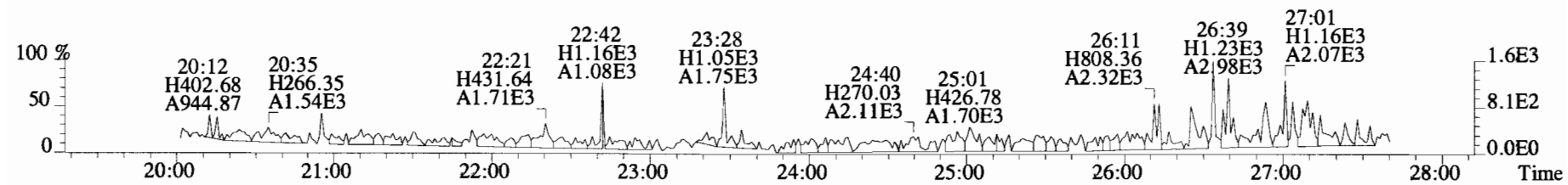
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



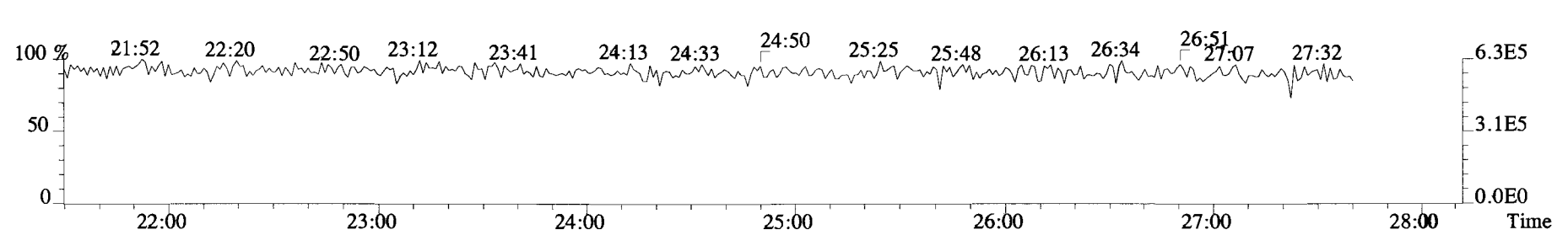
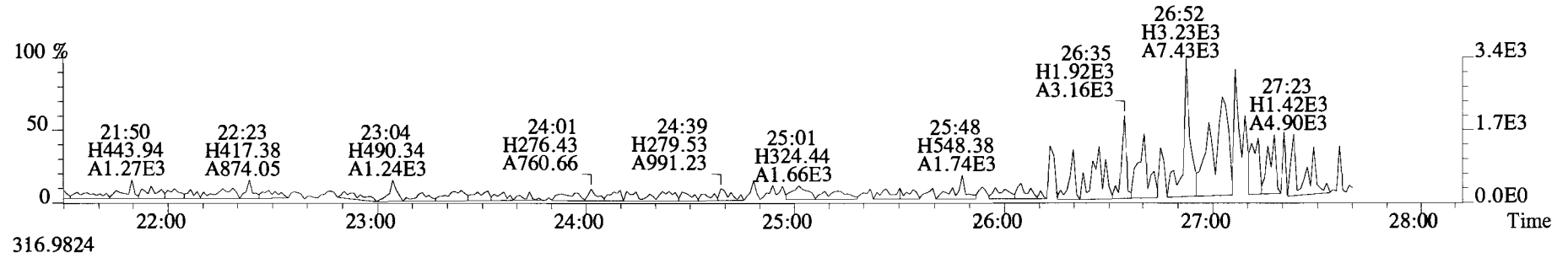
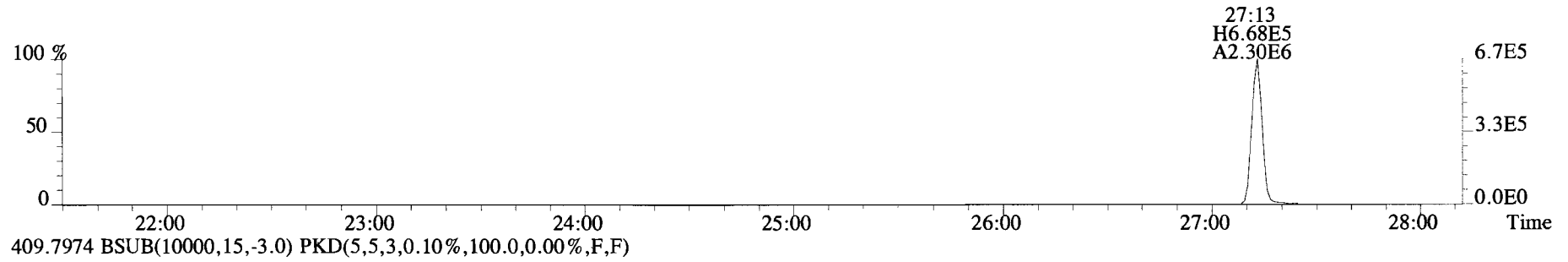
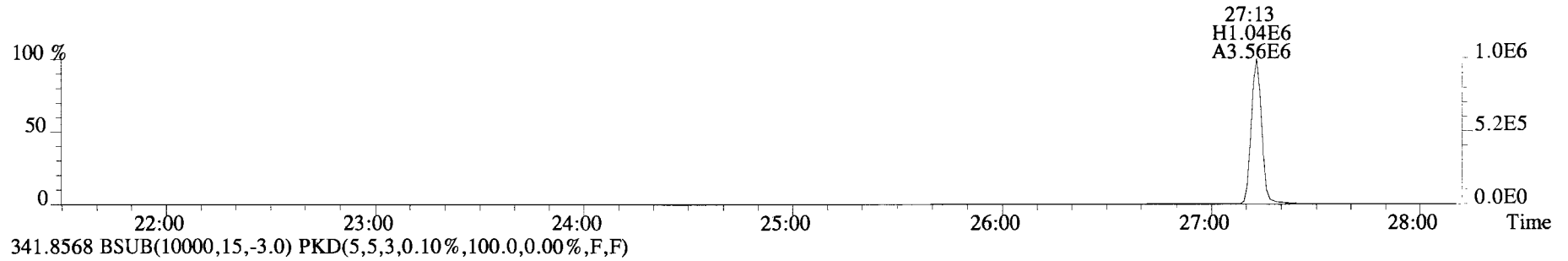
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



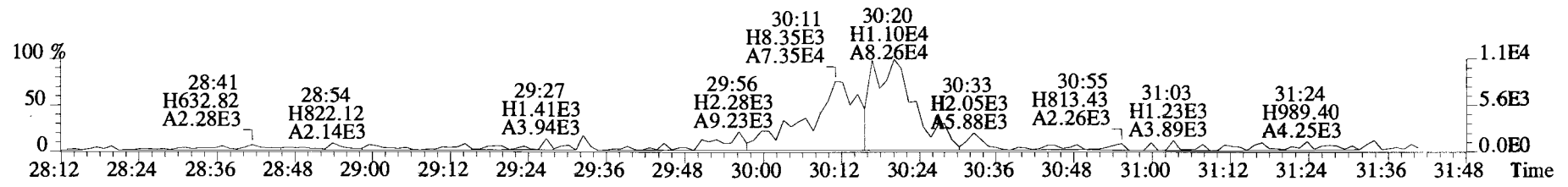
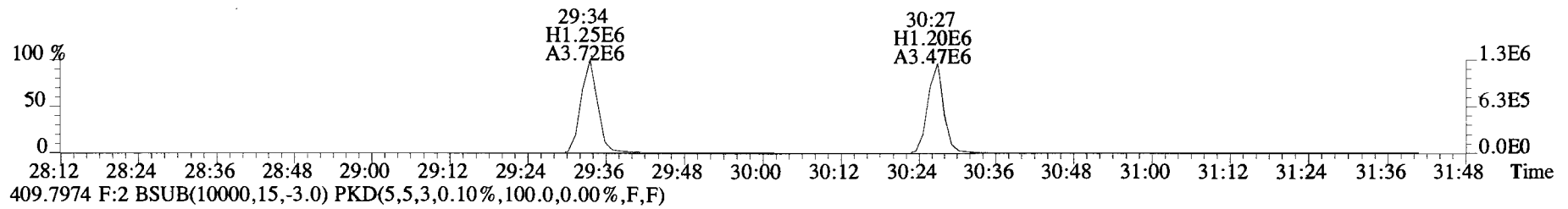
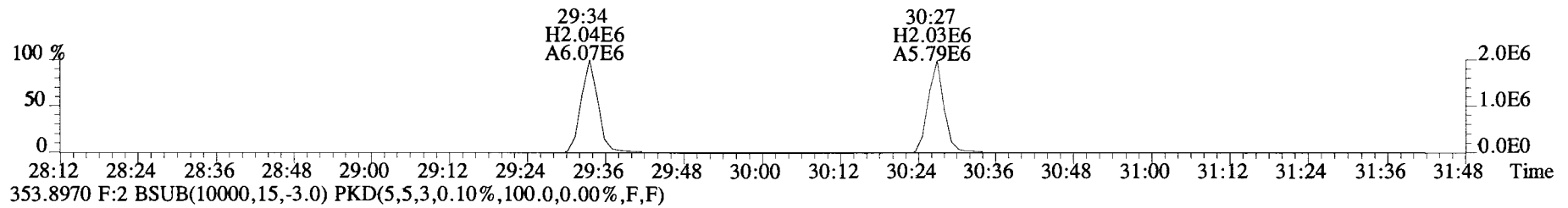
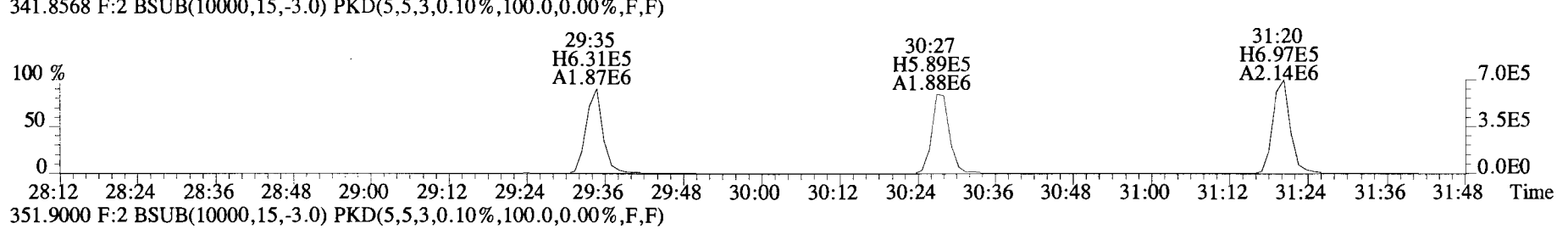
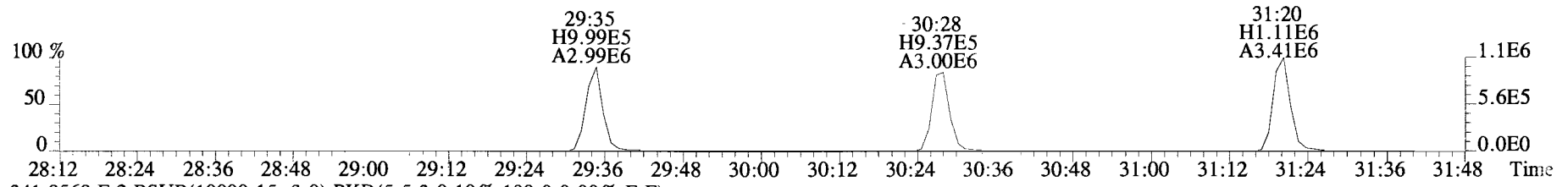
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



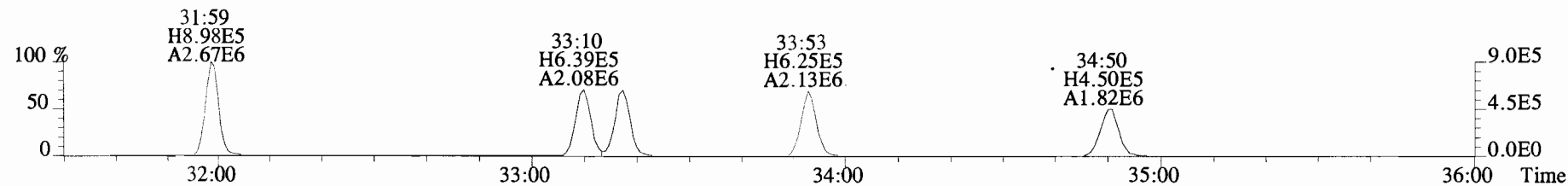
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



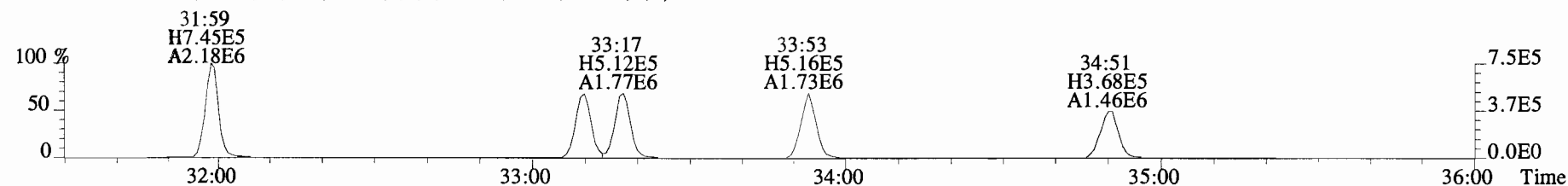
File:191101D1 #1-211 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



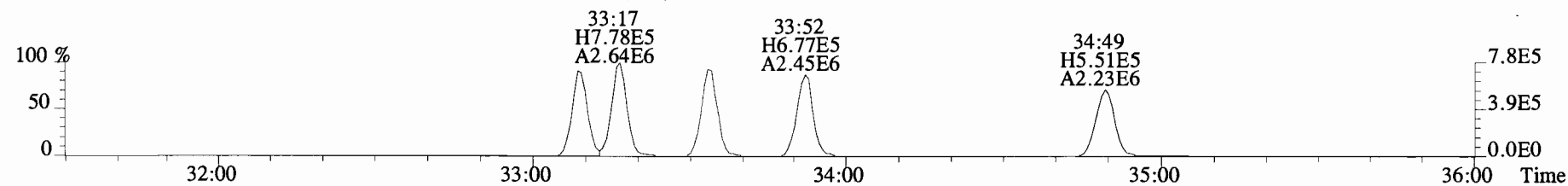
File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



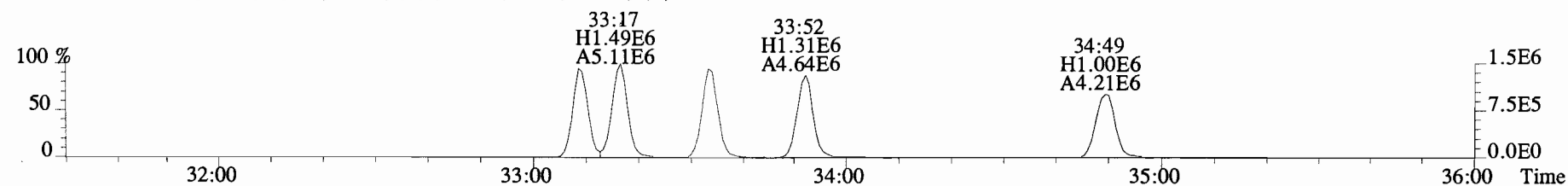
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



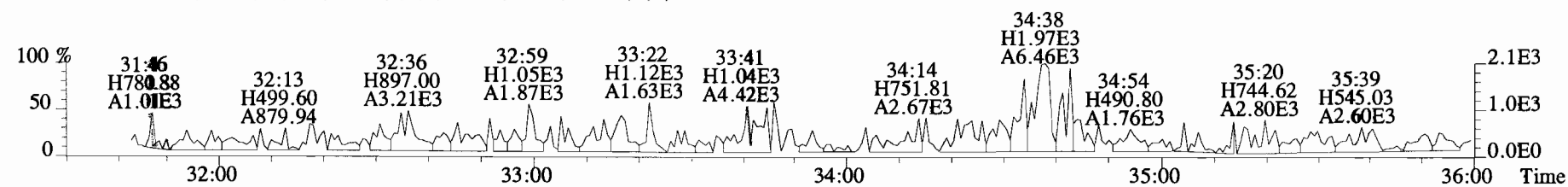
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



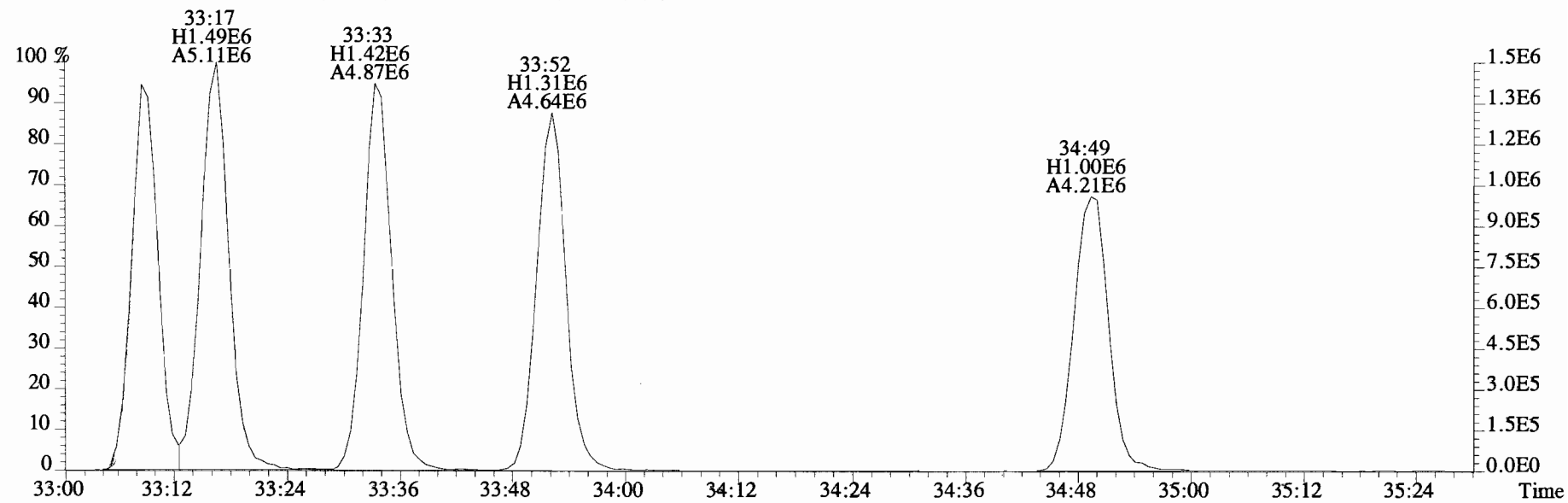
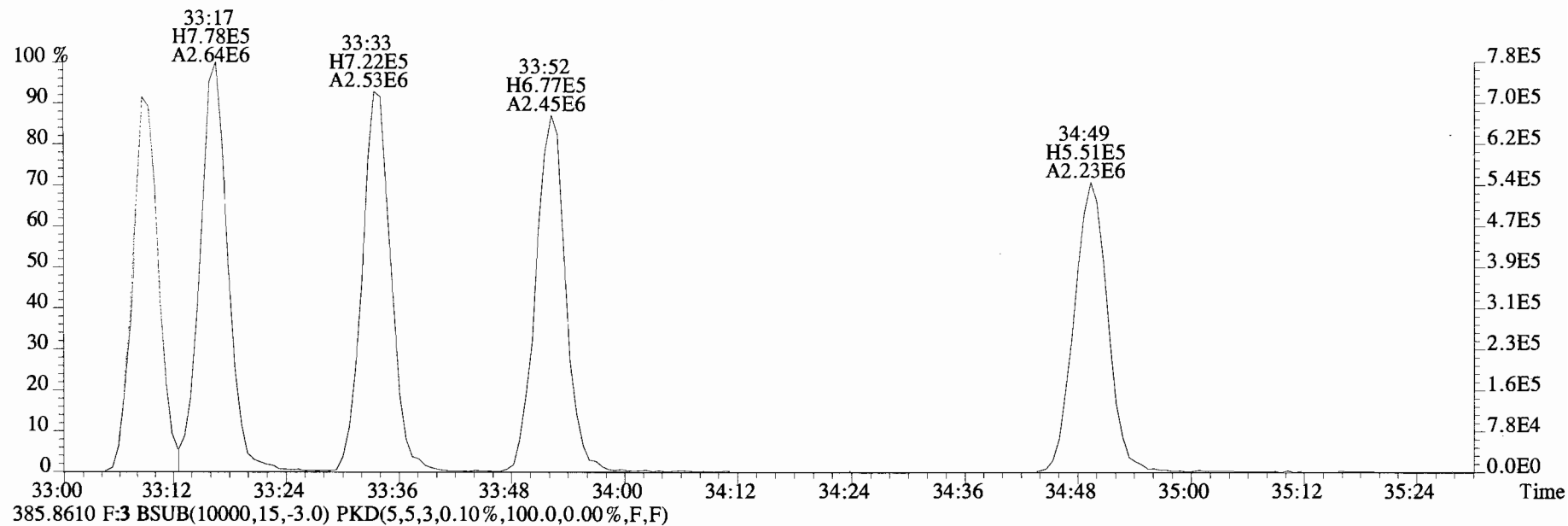
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



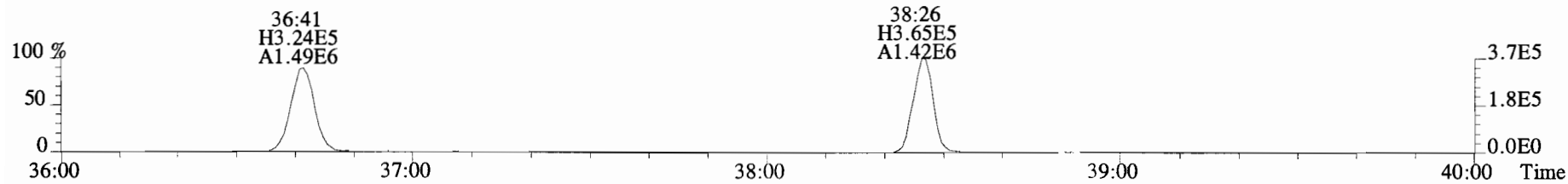
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



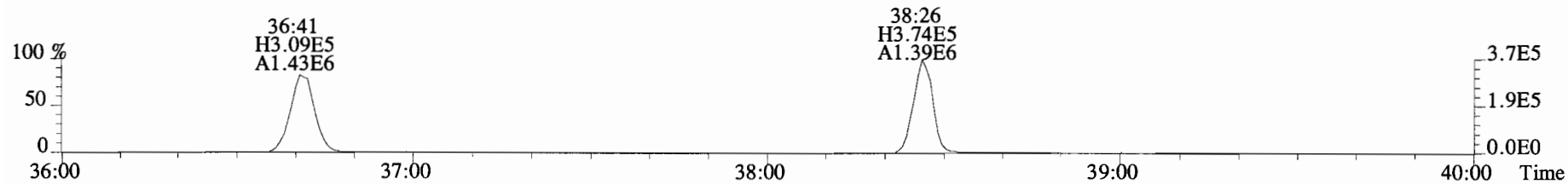
File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



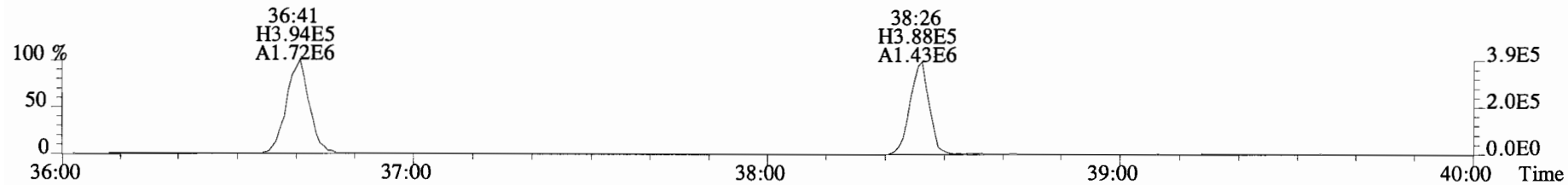
File:191101D1 #1-356 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



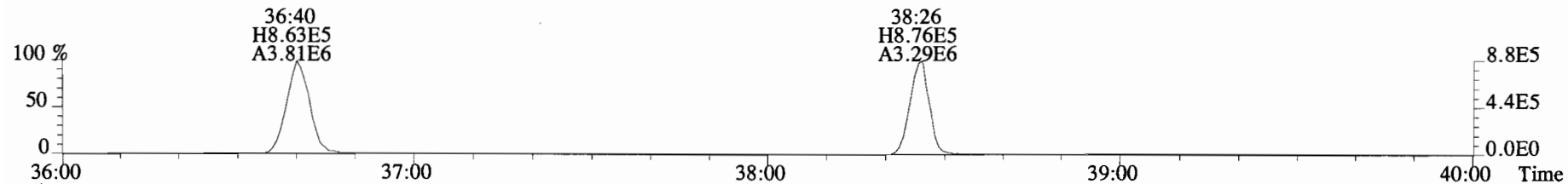
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



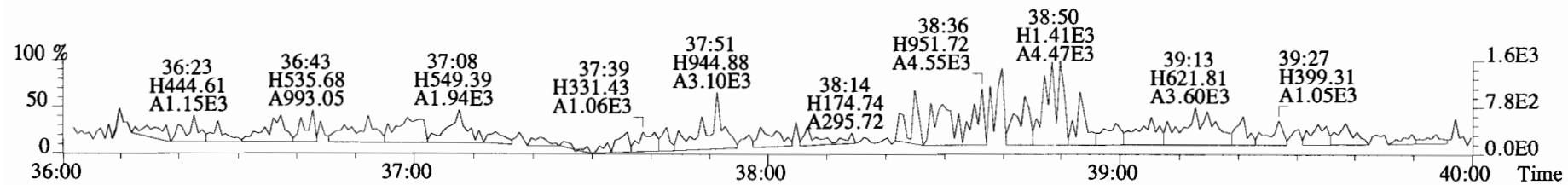
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

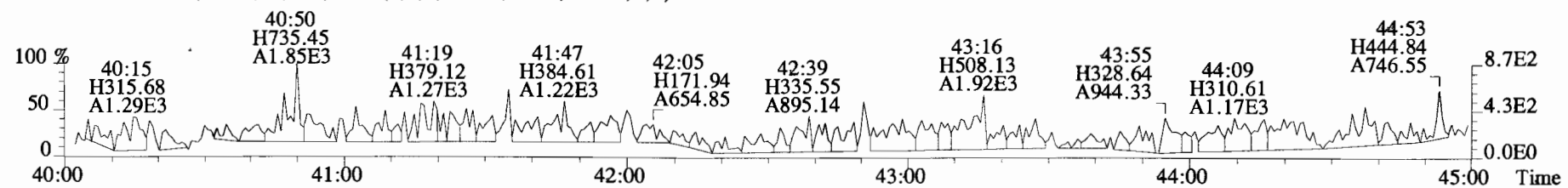
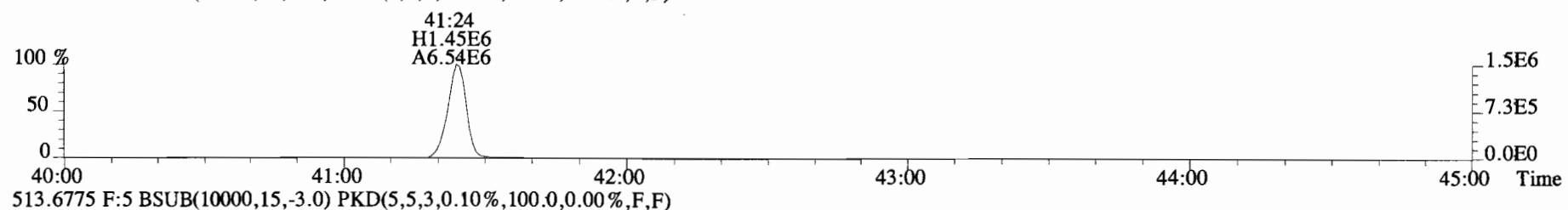
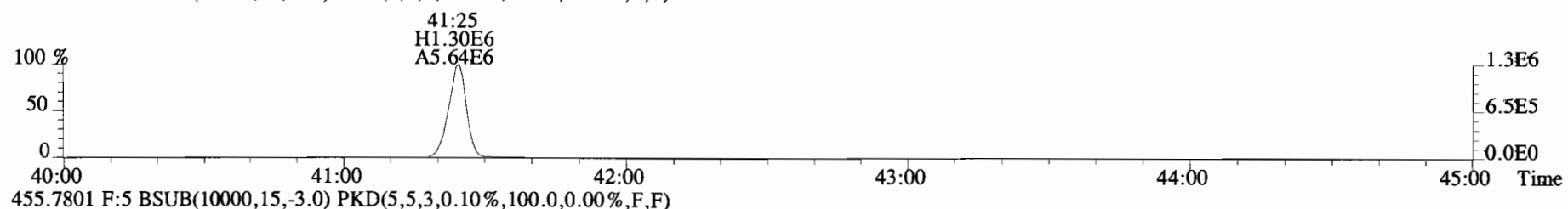
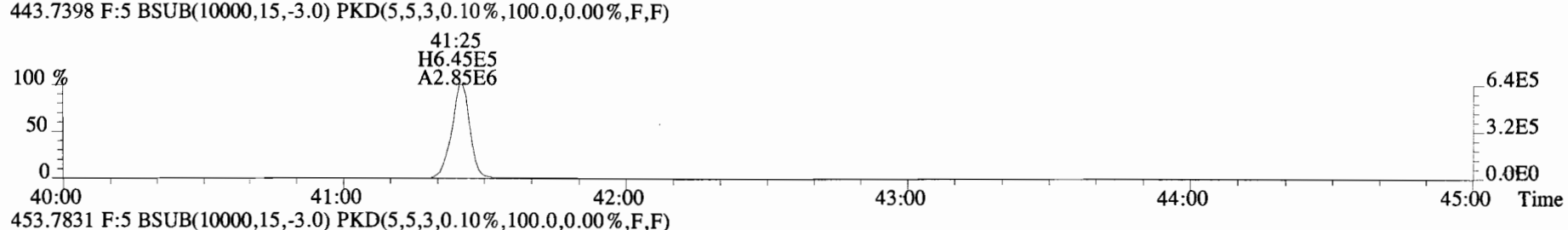
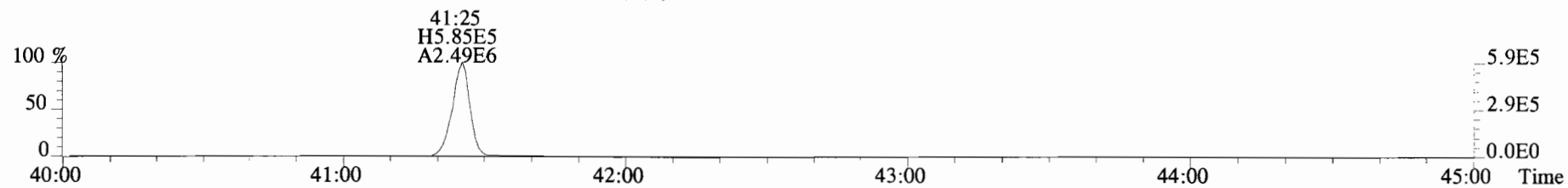


479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



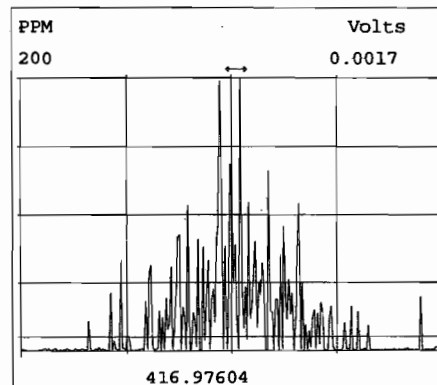
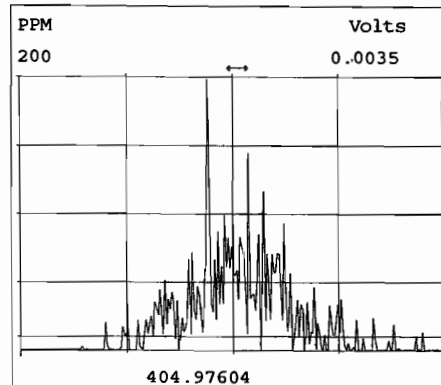
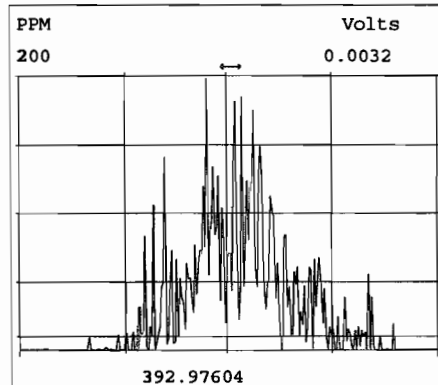
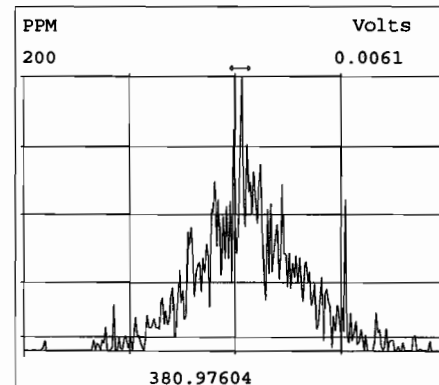
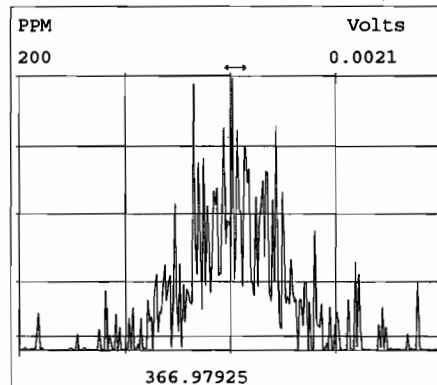
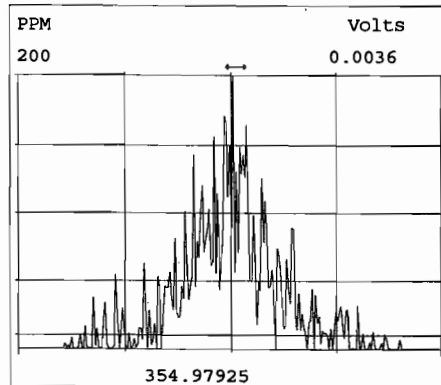
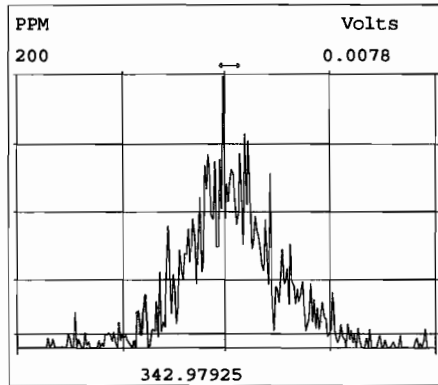
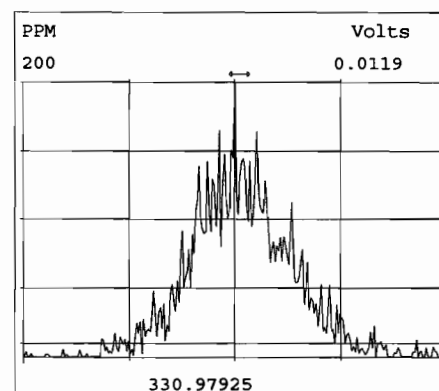
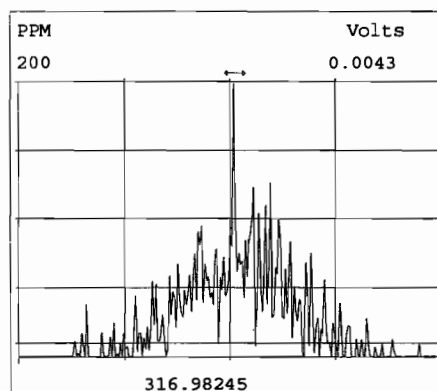
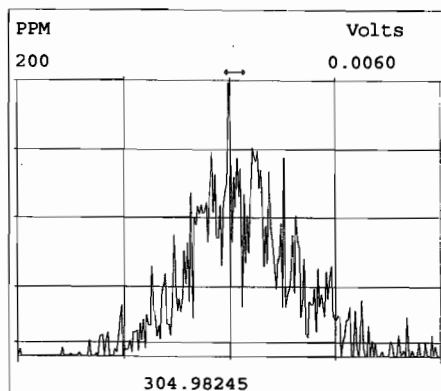
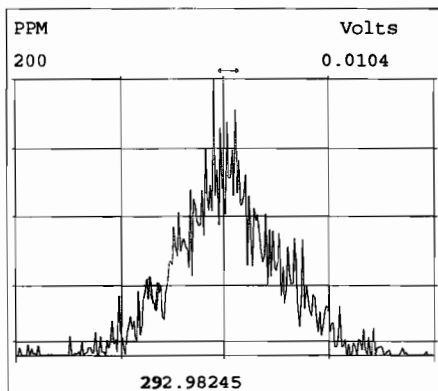


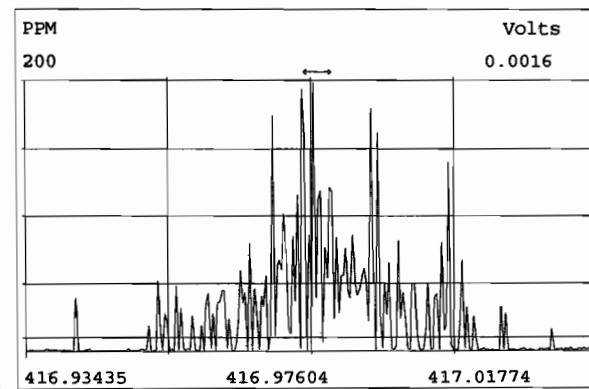
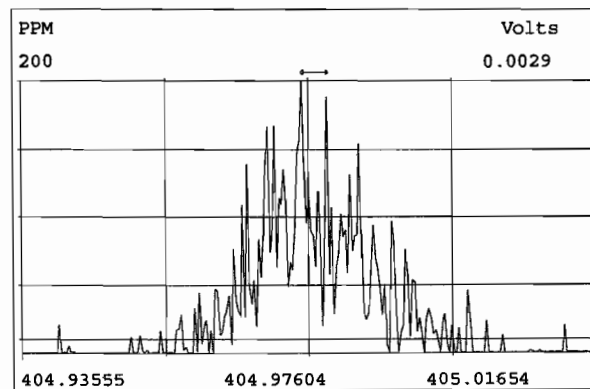
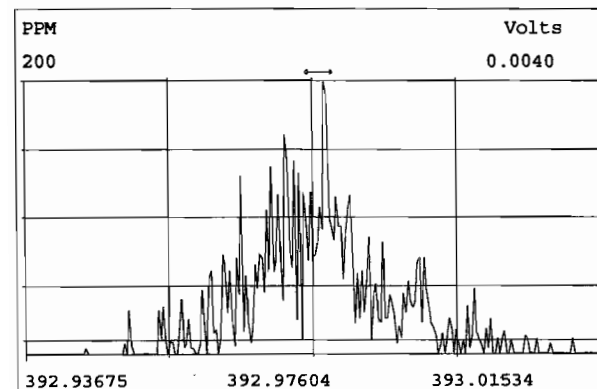
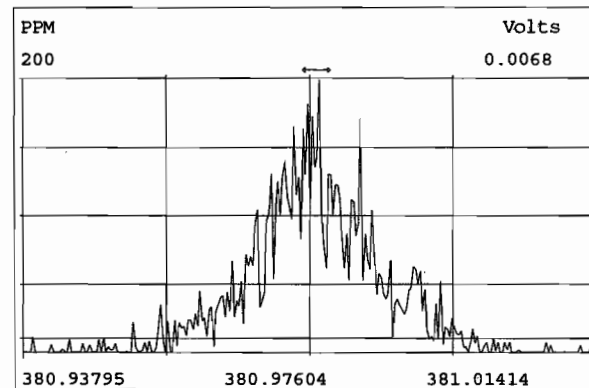
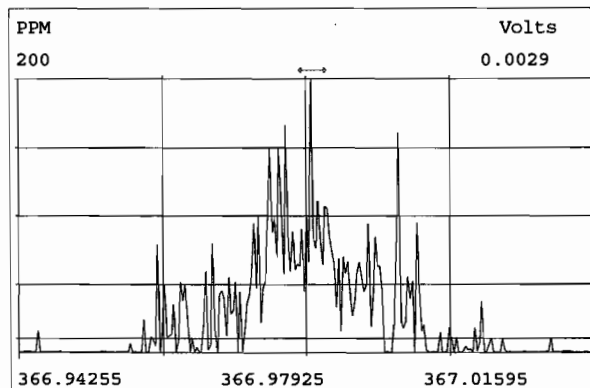
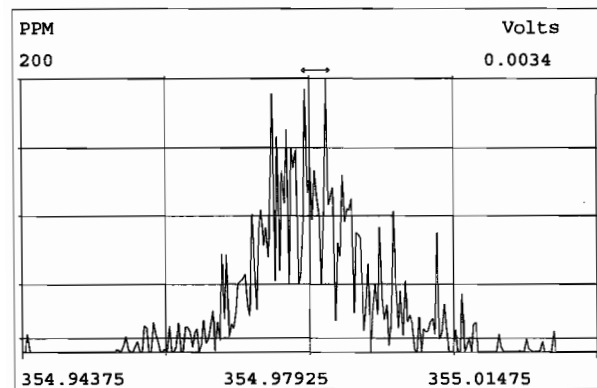
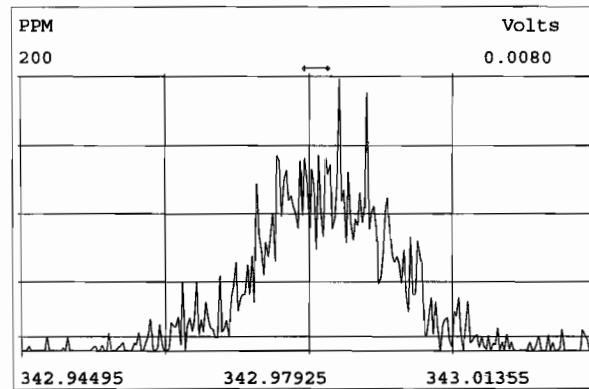
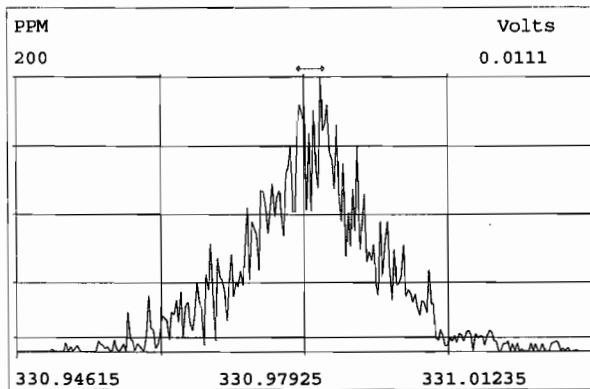
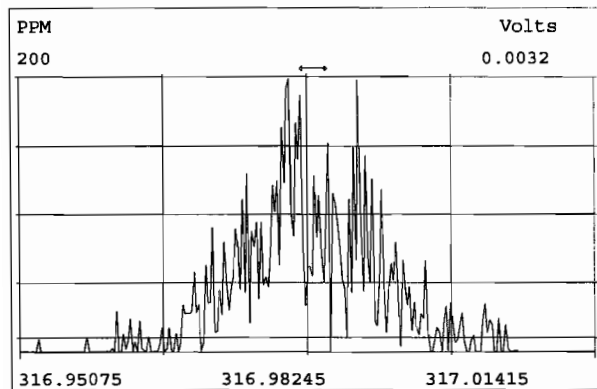
File:191101D1 #1-431 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Peak Locate Examination: 2-NOV-2019:02:53 File:RES\_CHECK

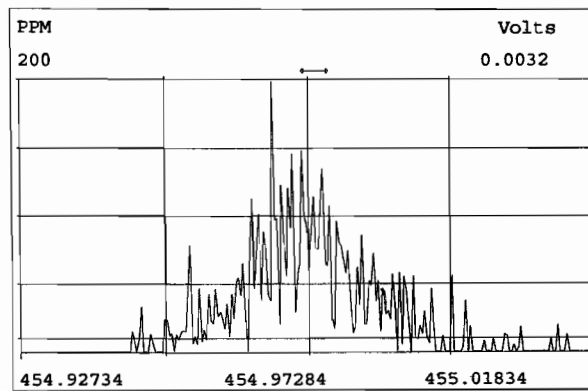
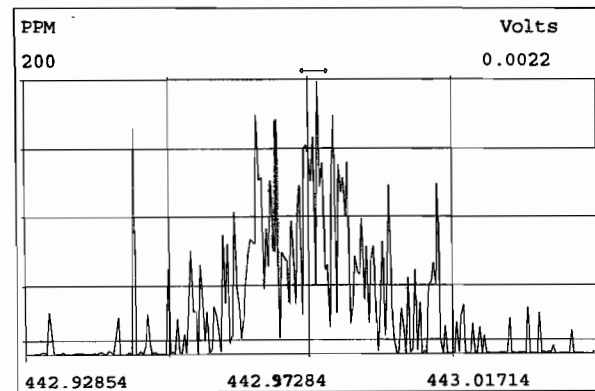
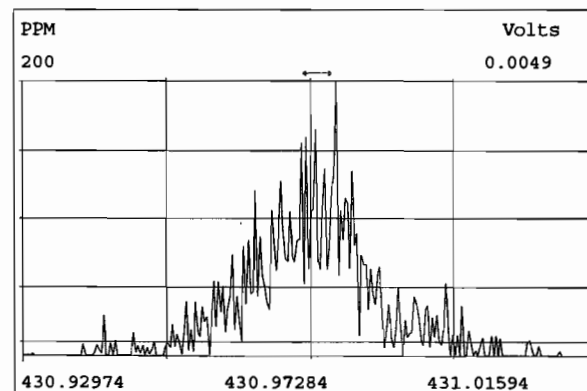
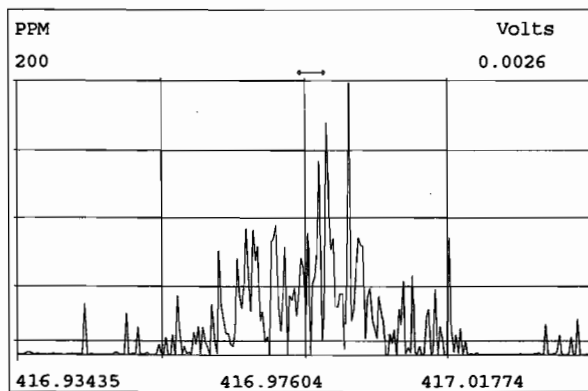
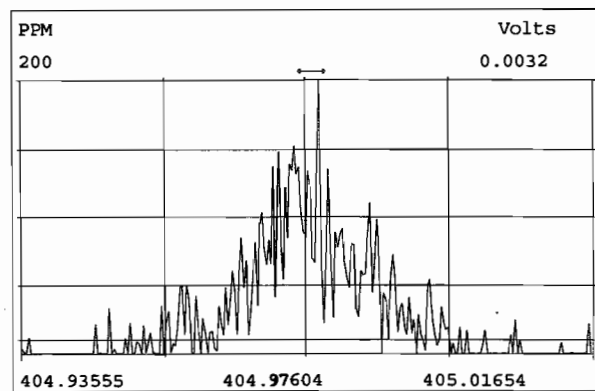
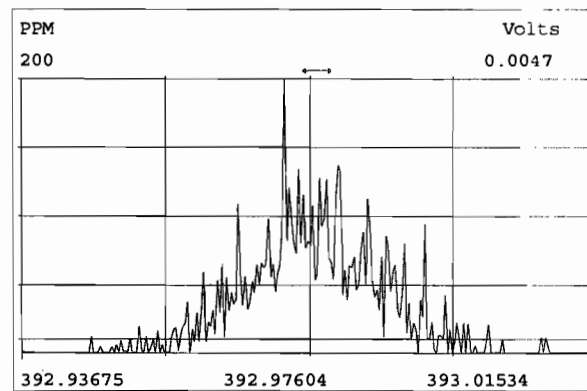
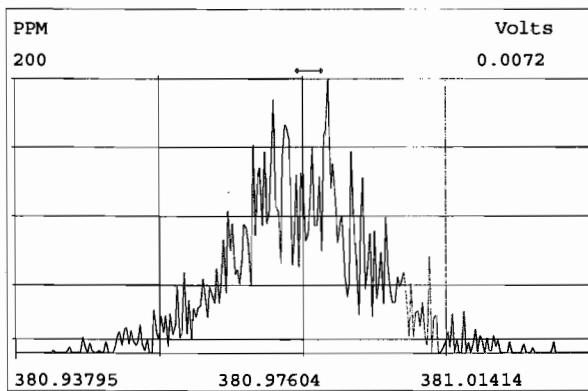
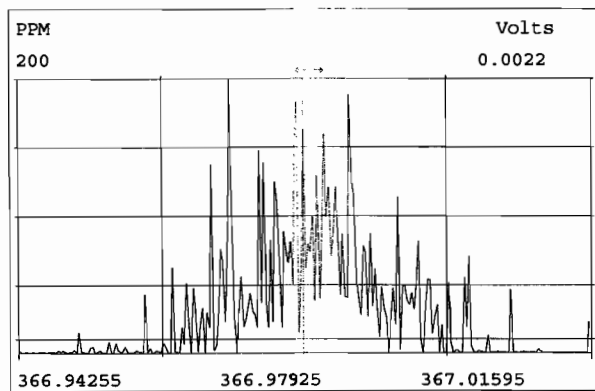
Experiment:OCDD\_DB5 Function:1 Reference:PFK





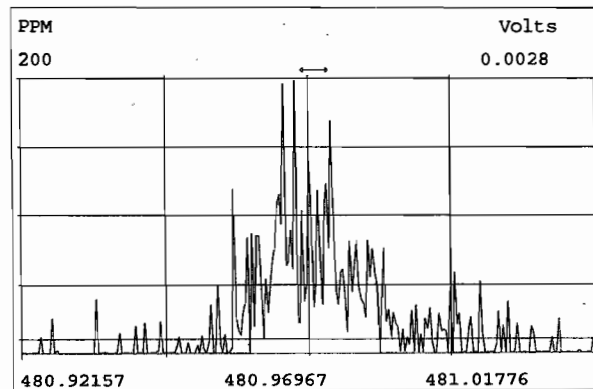
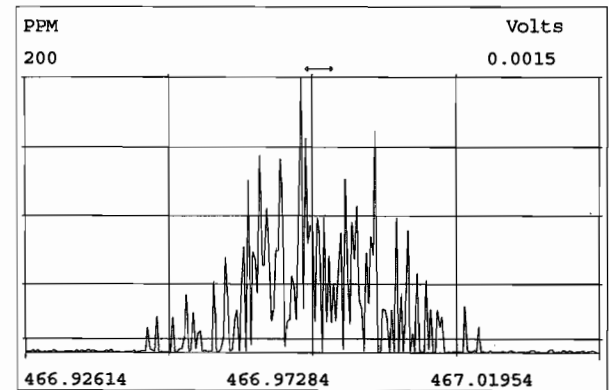
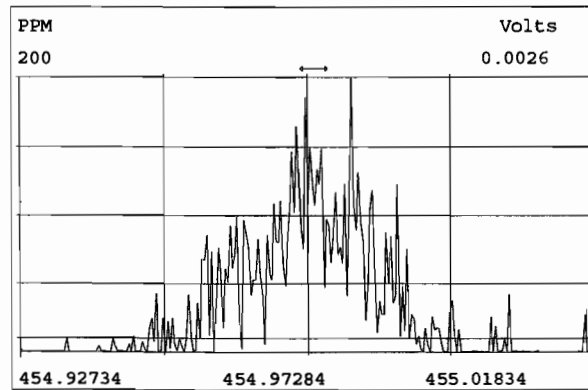
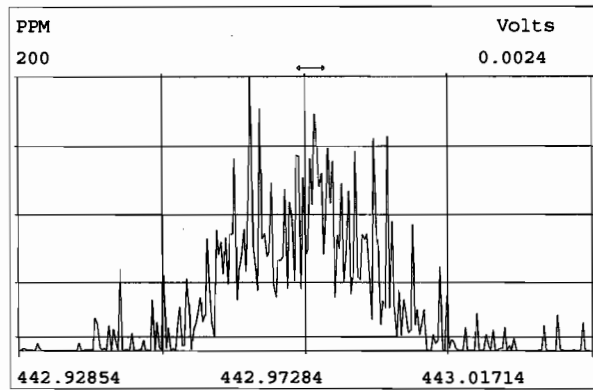
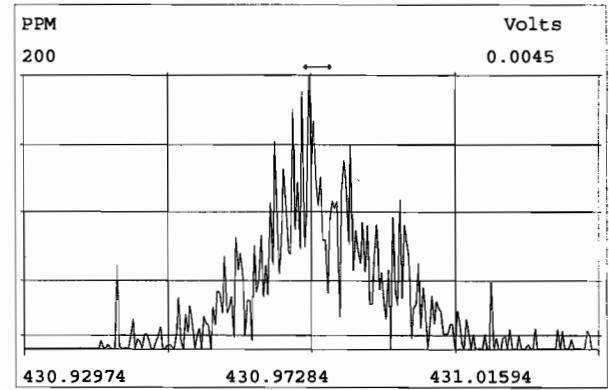
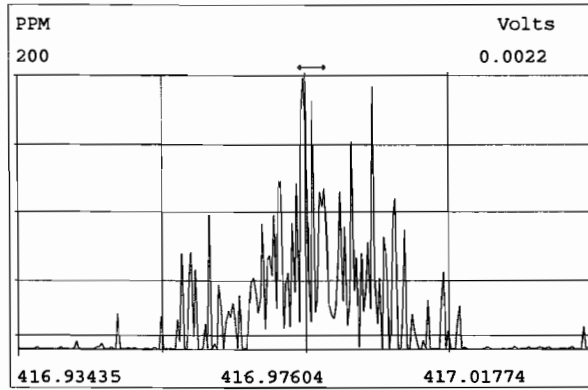
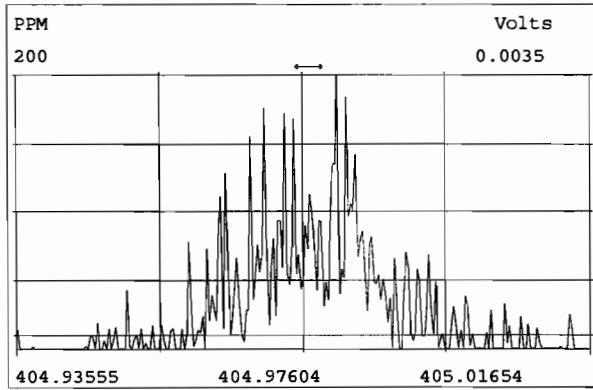
Peak Locate Examination: 2-NOV-2019:02:55 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:3 Reference:PFK



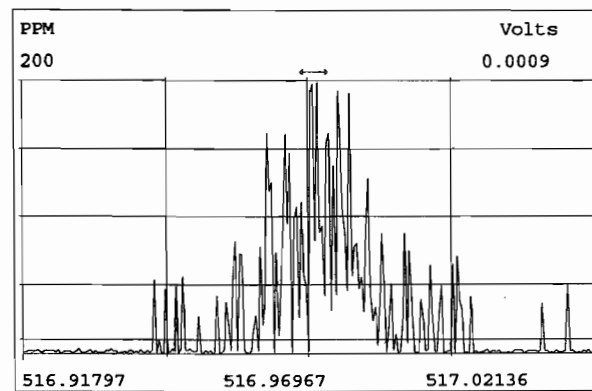
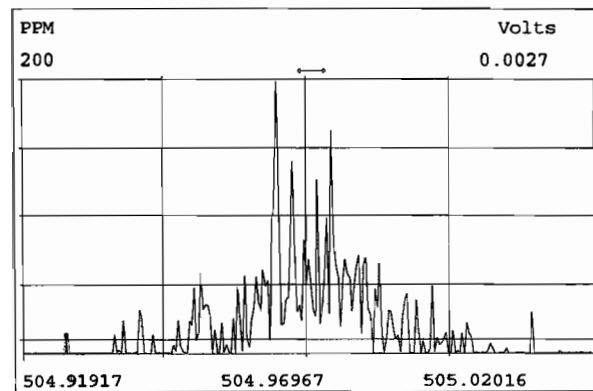
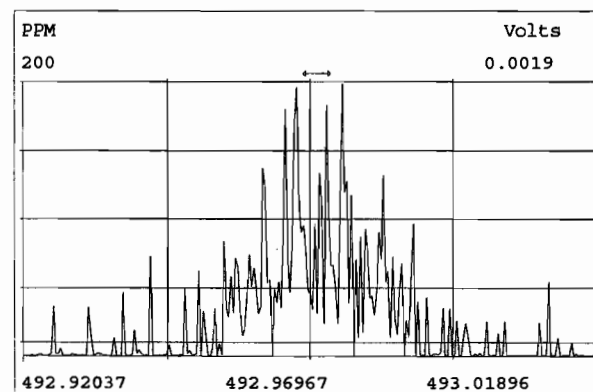
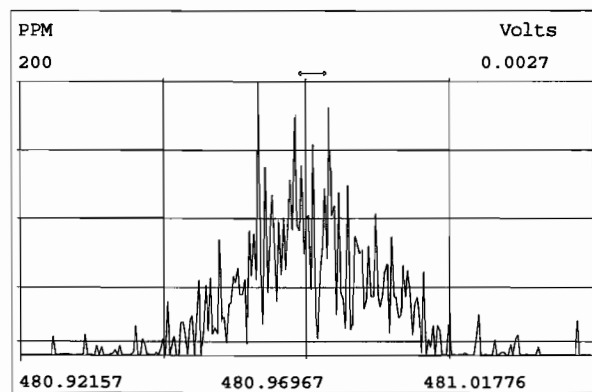
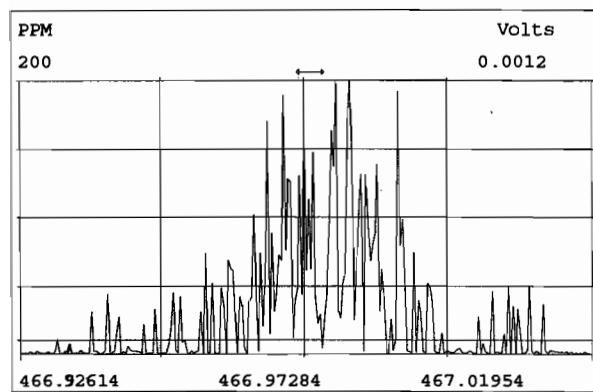
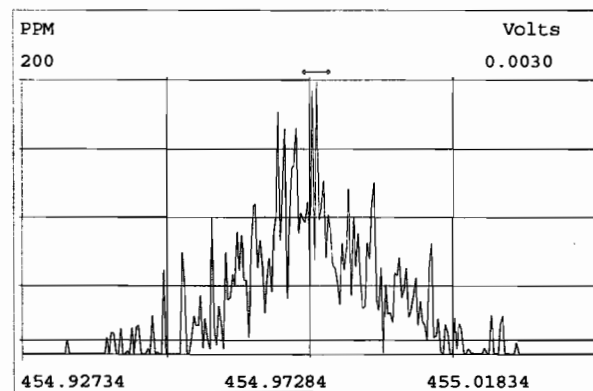
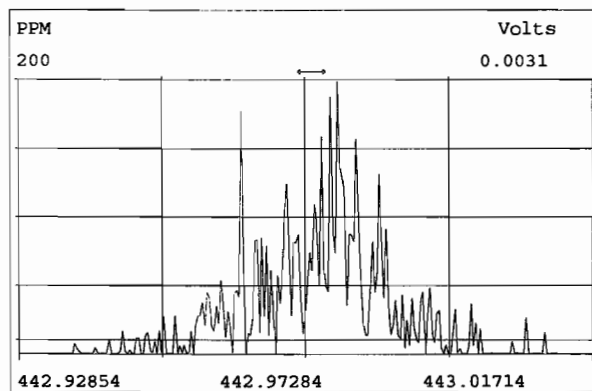
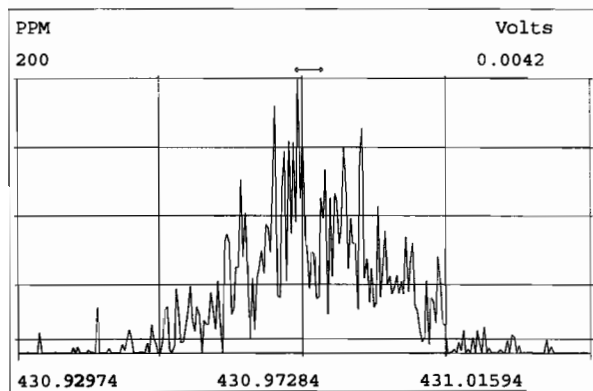
Peak Locate Examination: 2-NOV-2019:02:56 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:4 Reference:PFK



Peak Locate Examination: 2-NOV-2019:02:57 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 Reference:PFK



# HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

**Beg. Calibration ID:** ST191104D 1-1

**Reviewed By:** CT 11/05/19  
*Initials & Date*

**End Calibration ID:** NA

	<u>Beg.</u>	<u>End</u>
<b>Ion abundance within QC limits?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>Concentrations within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Verification Std. named correctly?</b> (ST-Year-Month-Day-VG ID)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Correct ICAL referenced?</b>	<u>DB</u>	<input type="checkbox"/>
<b>Run Log:</b>		
- Correct instrument listed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- Samples within 12 hour clock?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
- Bottle position verified?	<u>DB</u>	<input type="checkbox"/>

**Mass resolution  $\geq$**

5k    6-8K    8K    10K  
 1614   1699   429   1613/1668/8280

**Intergrated peaks display correctly?**

**GC Break <20%**

**8280 CS1 End Standard:**

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours

**Comments:**

SIOS CRASHED DURING END RES CHECK.  
 NO FUNCTIONS PRINTED.  
 RE-BOOTED & RES CHECK RUN IN THE MORNING  
 DB 11/5/19

Vista Analytical Laboratory - Injection Log Run file: 191104D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	Ecal
191104D1	1	ST191104D1-1	DB	4-NOV-19	12:30:33	ST191104D1-1	NA
191104D1	2	ST191104D1-2	DB	4-NOV-19	13:18:28	ST191104D1-2	ST191104D1-3
191104D1	3	B9J0166-BS1	DB	4-NOV-19	14:06:24	ST191104D1-1	NA
191104D1	4	B9J0144-BS1	DB	4-NOV-19	14:54:24	ST191104D1-1	NA
191104D1	5	SOLVENT BLANK	DB	4-NOV-19	15:42:20	NA	NA
191104D1	6	B9J0166-BLK1	DB	4-NOV-19	16:30:16	ST191104D1-1	NA
191104D1	7	B9J0144-BLK1	DB	4-NOV-19	17:18:01	ST191104D1-1	NA
191104D1	8	1903260-01RE2	DB	4-NOV-19	18:05:55	ST191104D1-2	ST191104D1-3
191104D1	9	1903565-16RE1	DB	4-NOV-19	18:53:40	ST191104D1-1	NA
191104D1	10	1903651-01	DB	4-NOV-19	19:41:34	ST191104D1-1	NA
191104D1	11	1903651-02	DB	4-NOV-19	20:29:23	ST191104D1-1	NA
191104D1	12	1903651-03	DB	4-NOV-19	21:17:07	ST191104D1-1	NA
191104D1	13	1903651-04	DB	4-NOV-19	22:04:51	ST191104D1-1	NA
191104D1	14	1903642-01	DB	4-NOV-19	22:52:35	ST191104D1-1	NA
191104D1	15	SOLVENT BLANK	DB	4-NOV-19	23:40:17	NA	NA
191104D1	16	ST191104D1-3	DB	5-NOV-19	00:28:12	ST191104D1-2	ST191104D1-3



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191104D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	y	11.2	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.61	0.54-0.72	y	54.3	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	y	50.8	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	y	51.6	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	51.9	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	50.2	43.0 - 58.0
OCDD	M+2/M+4	0.91	0.76-1.02	y	105	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	y	9.80	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	54.0	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	52.4	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.3	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	48.8	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	49.5	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	y	48.2	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	y	48.8	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	y	47.4	43.0 - 58.0
OCDF	M+2/M+4	0.89	0.76-1.02	y	94.7	63.0 - 159.0

(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 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 11/4/19

FORM 4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	y	102	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	103	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	y	102	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	y	89.2	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	y	96.0	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	y	108	72.0 - 138.0
13C-OCDD	M/M+2	0.87	0.76-1.02	y	218	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.80	0.65-0.89	y	104	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	107	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	107	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	y	106	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	98.1	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	100	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	106	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.44	0.37-0.51	y	102	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.45	0.37-0.51	y	115	77.0 - 129.0
13C-OCDF	M+2/M+4	0.90	0.76-1.02	y	232	96.0 - 415.0
CLEANUP STANDARD (3) 37Cl-2,3,7,8-TCDD					9.73	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 11/4/19

FORM 5  
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 10-9-19

RT Window Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

ZB-5MS IS Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

DB\_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:55	1,3,6,8-TCDF (F)	20:48
1,2,8,9-TCDD (L)	27:07	1,2,8,9-TCDF (L)	27:16
1,2,4,7,9-PeCDD (F)	28:43	1,3,4,6,8-PeCDF (F)	27:14
1,2,3,8,9-PeCDD (L)	31:07	1,2,3,8,9-PeCDF (L)	31:21
1,2,4,6,7,9-HxCDD (F)	32:32	1,2,3,4,6,8-HxCDF (F)	31:60
1,2,3,7,8,9-HxCDD (L)	34:28	1,2,3,7,8,9-HxCDF (L)	34:51
1,2,3,4,6,7,9-HpCDD (F)	37:05	1,2,3,4,6,7,8-HpCDF (F)	36:43
1,2,3,4,6,7,8-HpCDD (L)	37:55	1,2,3,4,7,8,9-HpCDF (L)	38:28

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

=====

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

<25%

Analyst: DB

Date: 11/4/19

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

FORM 6A  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME	RRT	RRT
	REFERENCE		QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.000	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002

LABELED COMPOUNDS

13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.196	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.991	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.151	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.185	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052

Analyst: JB

Date: 11/4/19

FORM 6B  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191104D1 S#1 Analysis Date: 4-NOV-19 Time: 12:30:33

NATIVE ANALYTES	RETENTION TIME	RRT	
	REFERENCE	RRT	QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001

LABELED COMPOUNDS

13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.992	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.038	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.026	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.145	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.129	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.227	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.234	1.091-1.371

Analyst: DB

Date: 11/4/19

Client ID: 1613 CS3 19C2204  
Lab ID: ST191104D1-1

Filename: 191104D1 S:1 Acq: 4-NOV-19 12:30:33  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

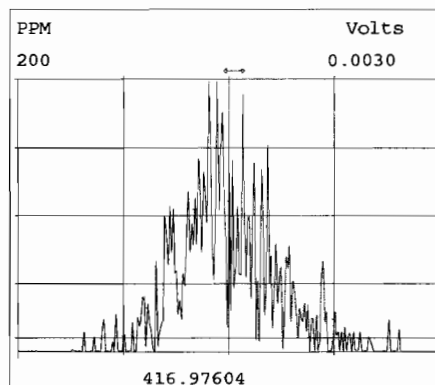
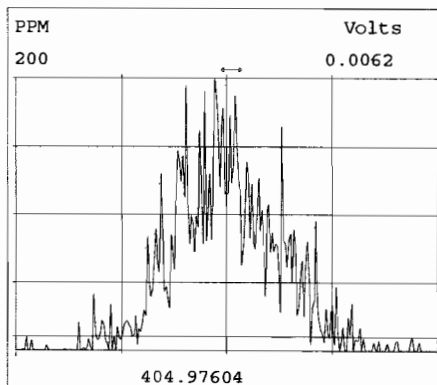
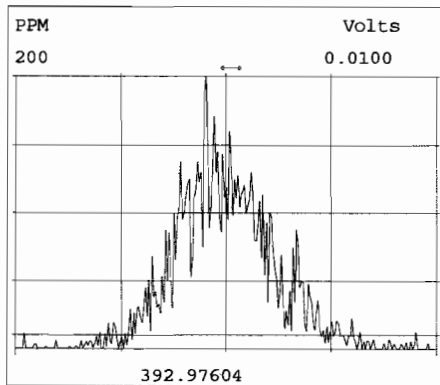
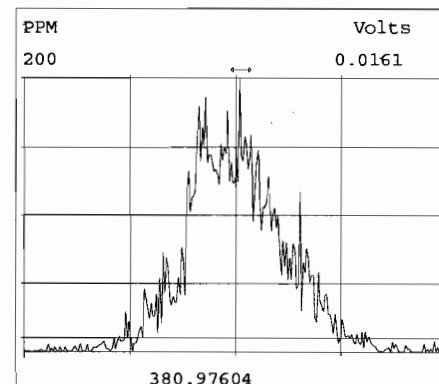
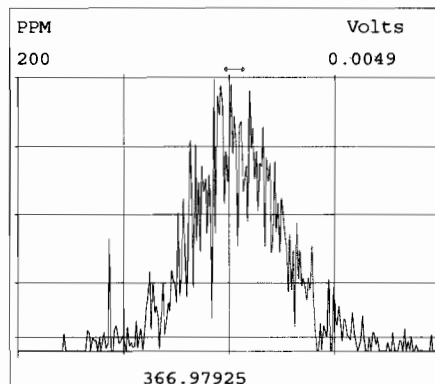
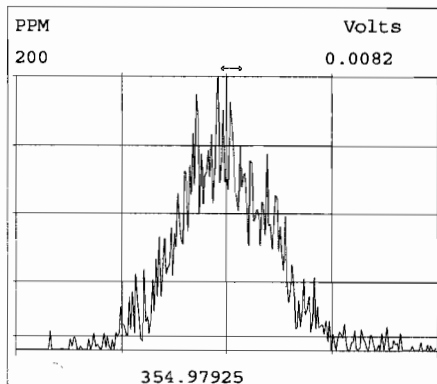
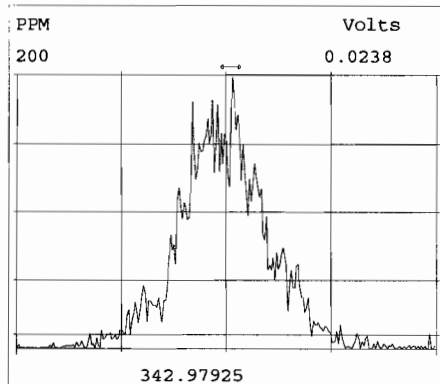
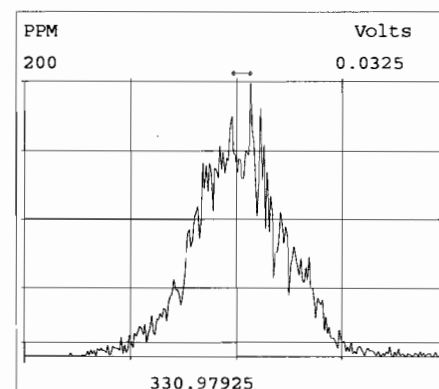
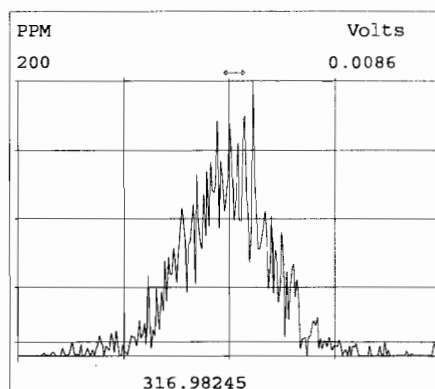
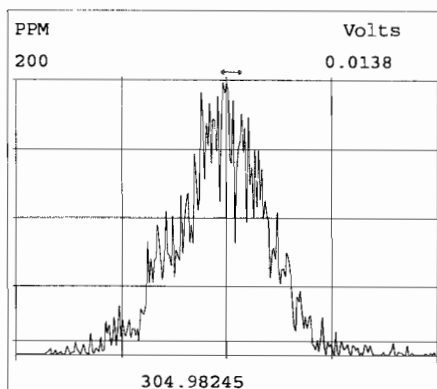
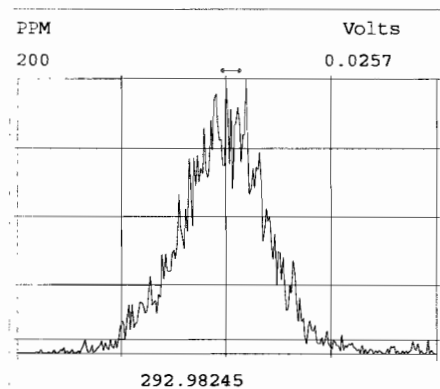
ConCal: ST191104D1-1  
EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	6.91e+05	0.81 y	0.91	26:17	11.165		*	2.5	*	Total Tetra-Dioxins	79.8	80.5	*	*	
1,2,3,7,8-PeCDD	2.72e+06	0.61 y	0.90	30:45	54.333		*	2.5	*	Total Penta-Dioxins	202	202	*	*	
1,2,3,4,7,8-HxCDD	2.83e+06	1.22 y	1.10	34:04	50.752		*	2.5	*	Total Hexa-Dioxins	227	228	*	*	
1,2,3,6,7,8-HxCDD	2.85e+06	1.24 y	0.94	34:11	51.606		*	2.5	*	Total Hepta-Dioxins	114	115	*	*	
1,2,3,7,8,9-HxCDD	2.98e+06	1.26 y	0.96	34:28	51.870		*	2.5	*	Total Tetra-Furans	36.9	38.0	*	*	
1,2,3,4,6,7,8-HpCDD	2.69e+06	1.04 y	0.98	37:55	50.236		*	2.5	*	Total Penta-Furans	226.42	227.73	*	*	
OCDD	4.90e+06	0.91 y	0.96	41:13	105.00		*	2.5	*	Total Hexa-Furans	259	259	*	*	
										Total Hepta-Furans	96.2	97.1	*	*	
2,3,7,8-TCDF	9.65e+05	0.78 y	0.95	25:30	9.8043		*	2.5	*						
1,2,3,7,8-PeCDF	4.53e+06	1.61 y	0.96	29:35	54.022		*	2.5	*						
2,3,4,7,8-PeCDF	4.62e+06	1.62 y	1.01	30:29	52.356		*	2.5	*						
1,2,3,4,7,8-HxCDF	3.86e+06	1.24 y	1.18	33:11	48.264		*	2.5	*						
1,2,3,6,7,8-HxCDF	4.08e+06	1.25 y	1.07	33:18	48.802		*	2.5	*						
2,3,4,6,7,8-HxCDF	4.06e+06	1.21 y	1.11	33:54	49.489		*	2.5	*						
1,2,3,7,8,9-HxCDF	3.46e+06	1.20 y	1.06	34:51	48.197		*	2.5	*						
1,2,3,4,6,7,8-HpCDF	3.29e+06	1.02 y	1.13	36:43	48.821		*	2.5	*						
1,2,3,4,7,8,9-HpCDF	3.11e+06	1.04 y	1.28	38:28	47.361		*	2.5	*						
OCDF	5.53e+06	0.89 y	0.95	41:27	94.695		*	2.5	*						
IS	13C-2,3,7,8-TCDD	6.83e+06	0.78 y	1.10	26:15	102.17				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	5.55e+06	0.63 y	0.88	30:45	103.05				102					
IS	13C-1,2,3,4,7,8-HxCDD	5.06e+06	1.20 y	0.64	34:03	102.15				103					
IS	13C-1,2,3,6,7,8-HxCDD	5.88e+06	1.33 y	0.86	34:10	89.162				102					
IS	13C-1,2,3,7,8,9-HxCDD	5.97e+06	1.30 y	0.81	34:28	96.017				89.2					
IS	13C-1,2,3,4,6,7,8-HpCDD	5.47e+06	1.07 y	0.65	37:54	108.49				96.0					
IS	13C-OCDD	9.74e+06	0.87 y	0.58	41:13	217.88				108					
IS	13C-2,3,7,8-TCDF	1.04e+07	0.80 y	1.03	25:28	104.23				109					
IS	13C-1,2,3,7,8-PeCDF	8.74e+06	1.60 y	0.85	29:34	106.54				104					
IS	13C-2,3,4,7,8-PeCDF	8.70e+06	1.60 y	0.85	30:28	106.94				107					
IS	13C-1,2,3,4,7,8-HxCDF	6.80e+06	0.50 y	0.83	33:10	105.99				106					
IS	13C-1,2,3,6,7,8-HxCDF	7.83e+06	0.52 y	1.03	33:18	98.077				98.1					
IS	13C-2,3,4,6,7,8-HxCDF	7.36e+06	0.52 y	0.95	33:53	100.14				100					
IS	13C-1,2,3,7,8,9-HxCDF	6.77e+06	0.51 y	0.83	34:51	105.99				106					
IS	13C-1,2,3,4,6,7,8-HpCDF	5.97e+06	0.44 y	0.76	36:42	102.17				102					
IS	13C-1,2,3,4,7,8,9-HpCDF	5.14e+06	0.45 y	0.58	38:27	114.55				115					
IS	13C-OCDF	1.23e+07	0.90 y	0.69	41:26	231.93				116					
C/Up	37C1-2,3,7,8-TCDD	7.11e+05		1.20	26:16	9.7269				97.3					
RS/RT	13C-1,2,3,4-TCDD	6.11e+06	0.79 y	1.00	25:42	100.00									
RS	13C-1,2,3,4-TCDF	9.60e+06	0.81 y	1.00	24:16	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	7.71e+06	0.53 y	1.00	33:35	100.00									

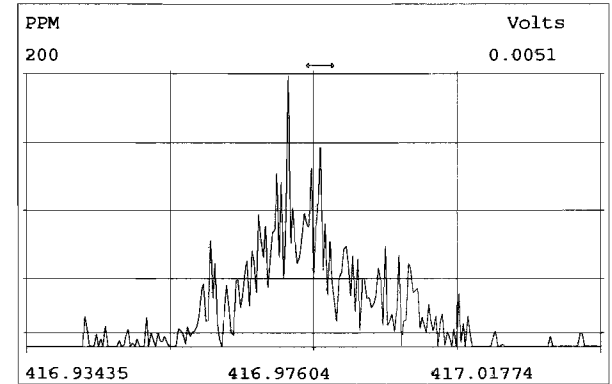
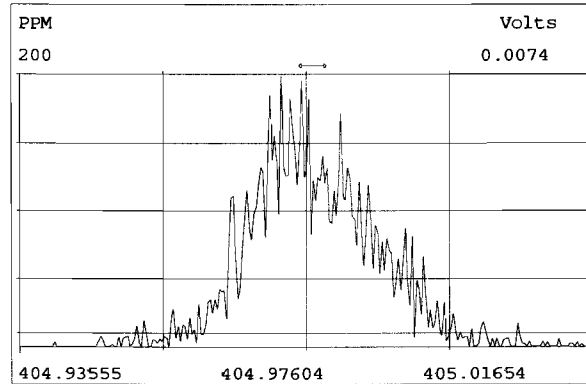
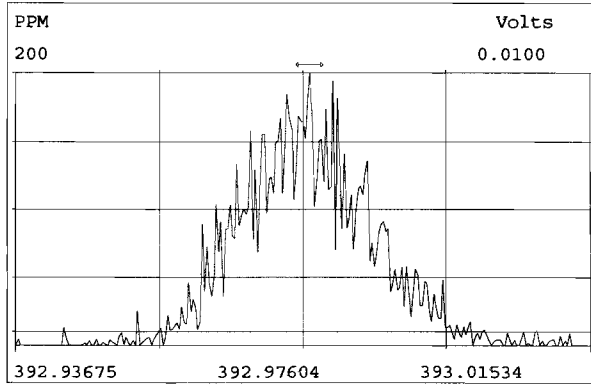
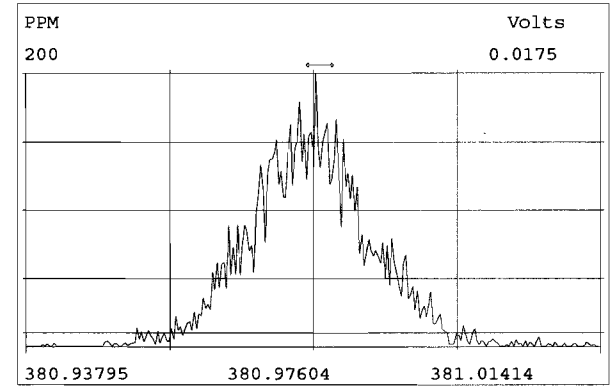
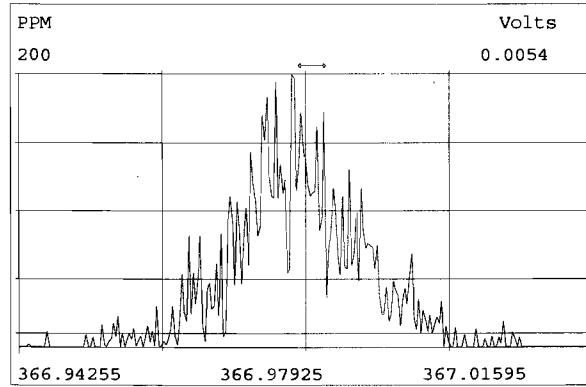
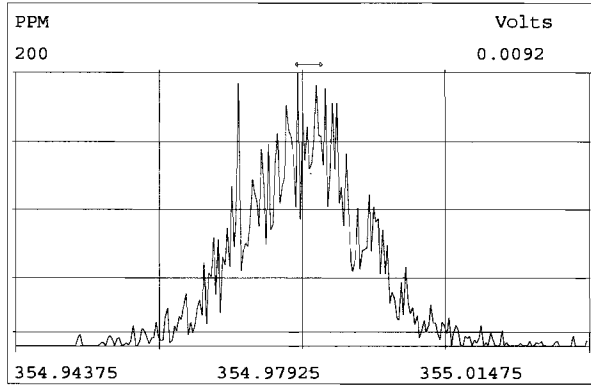
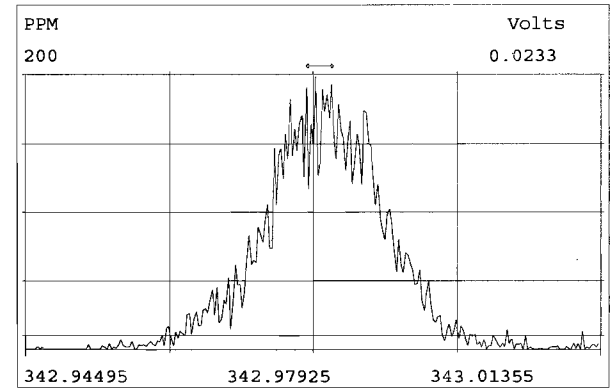
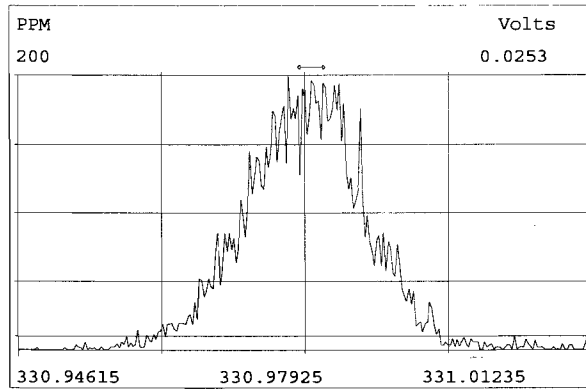
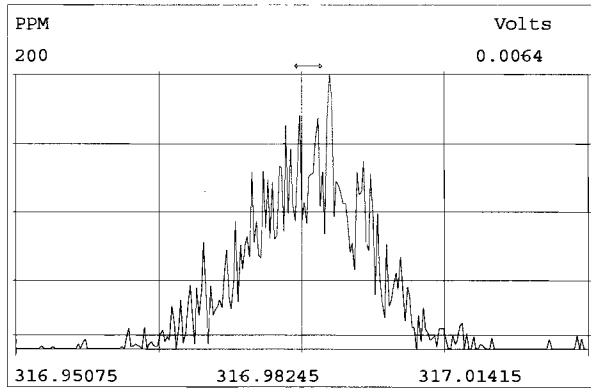
Integrations  
by DB  
Analyst: DB  
Date: 11/4/19  
Reviewed  
by CT  
Analyst: CT  
Date: 11/05/19

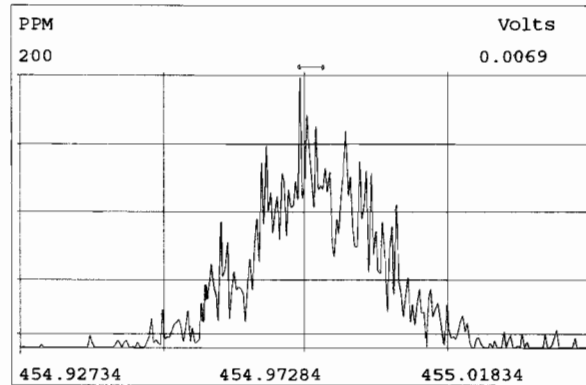
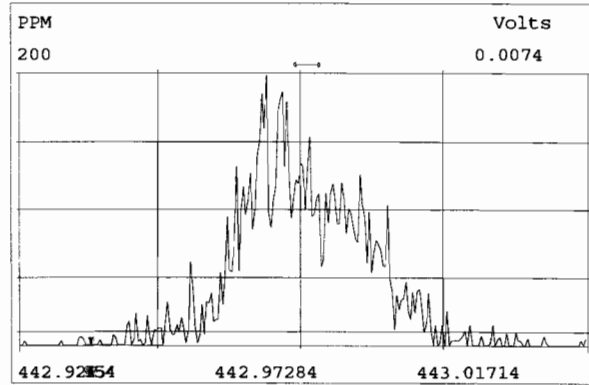
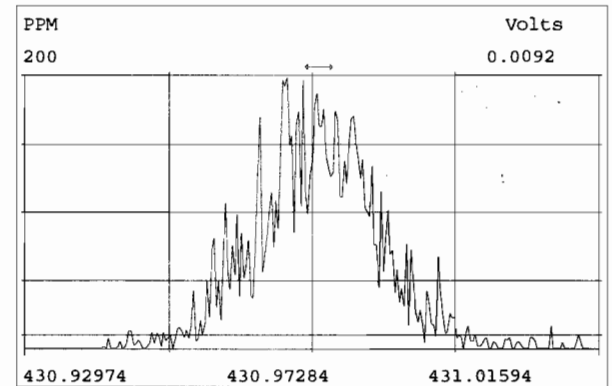
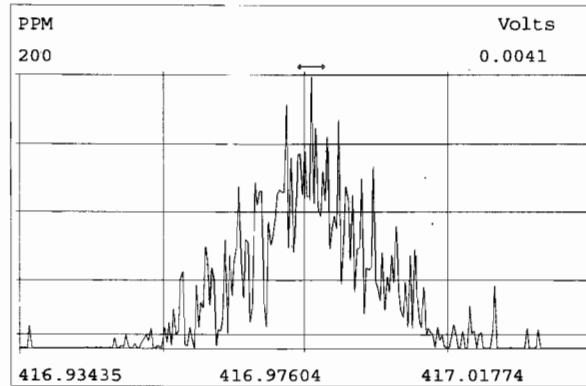
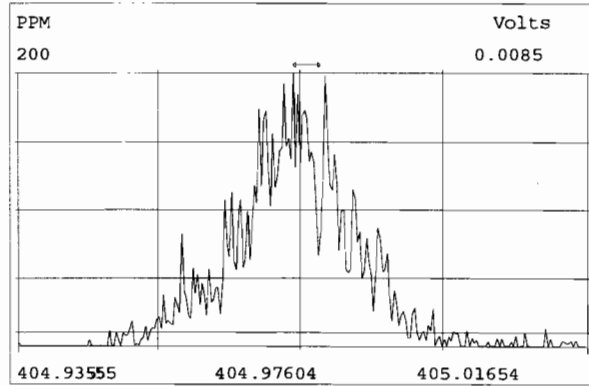
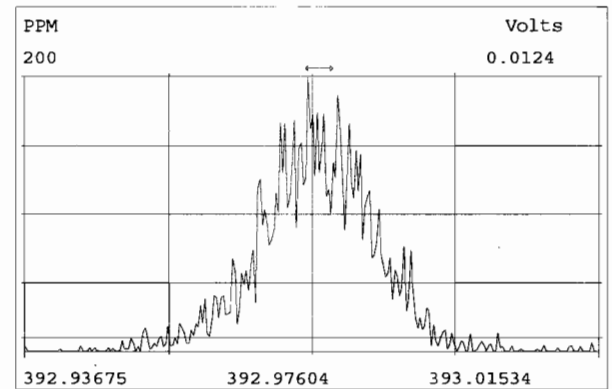
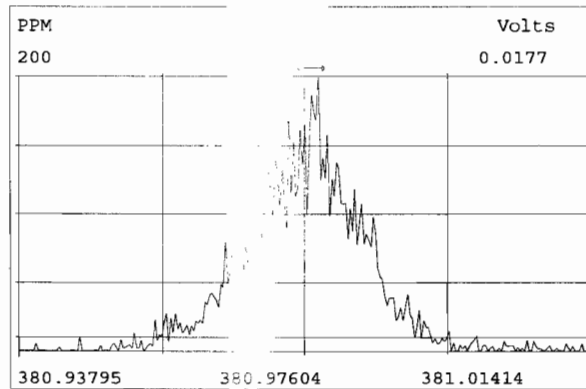
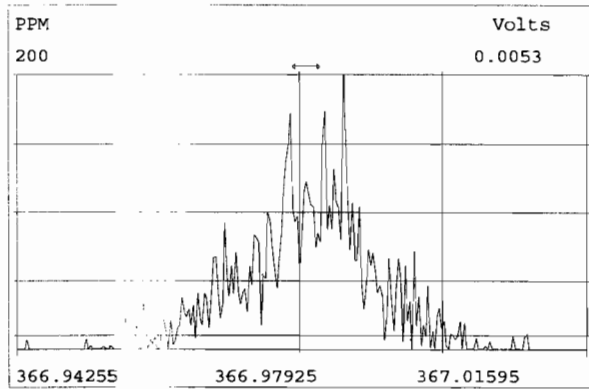
Vista Analytical Laboratory - Injection Log Run file: 191104D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

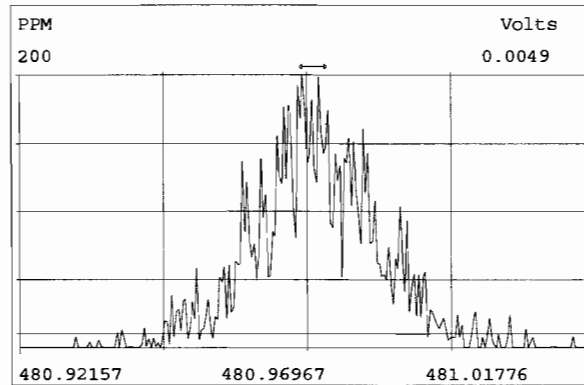
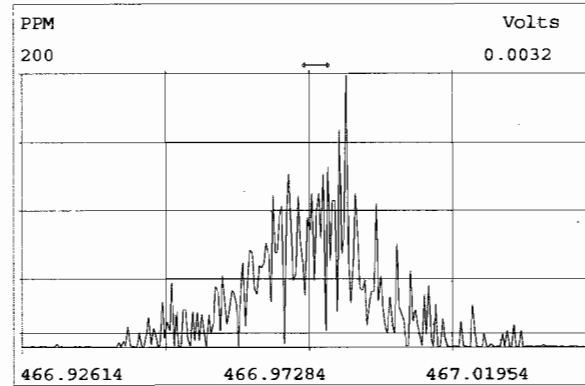
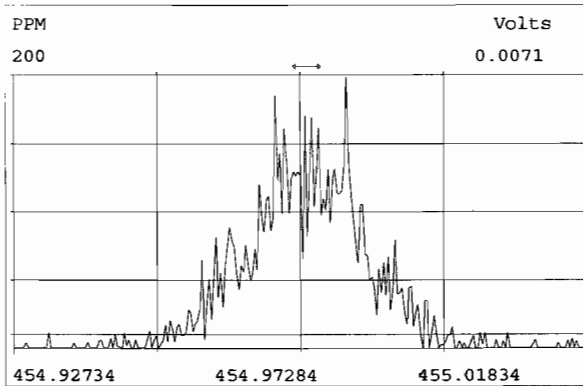
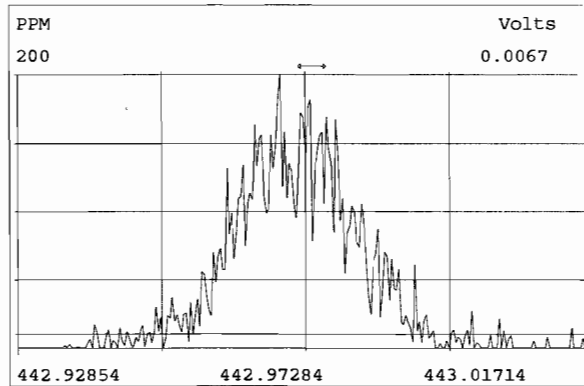
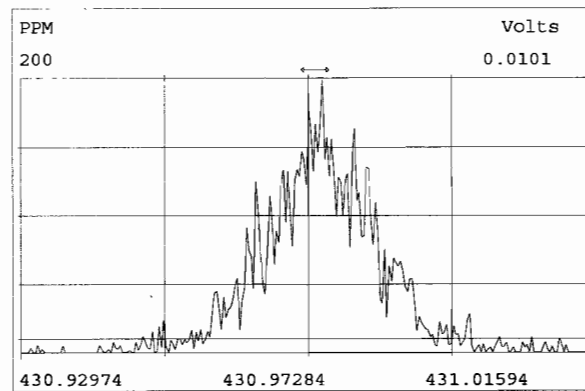
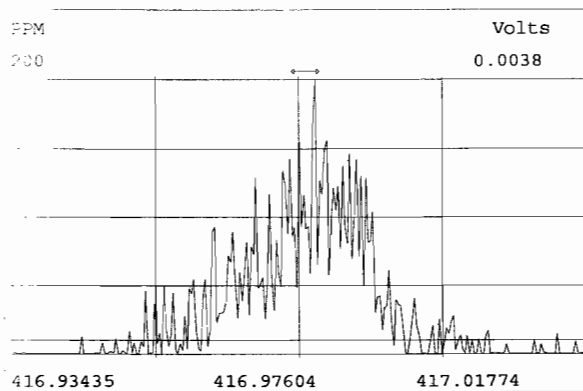
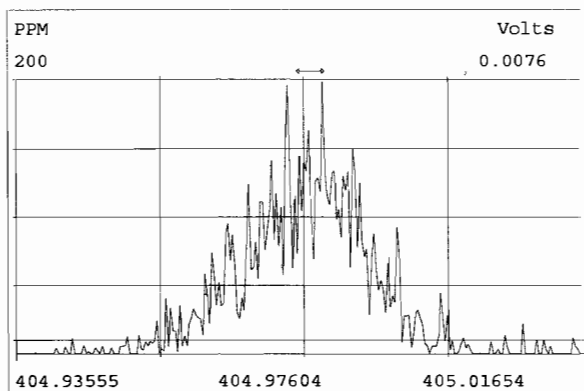
Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191104D1	1	ST191104D1-1	DB	4-NOV-19	12:30:33	ST191104D1-1	NA
191104D1	2	ST191104D1-2	DB	4-NOV-19	13:18:28	ST191104D1-2	ST191104D1-3
191104D1	3	B9J0166-BS1	DB	4-NOV-19	14:06:24	ST191104D1-1	NA
191104D1	4	B9J0144-BS1	DB	4-NOV-19	14:54:24	ST191104D1-1	NA
191104D1	5	SOLVENT BLANK	DB	4-NOV-19	15:42:20	NA	NA
191104D1	6	B9J0166-BLK1	DB	4-NOV-19	16:30:16	ST191104D1-1	NA
191104D1	7	B9J0144-BLK1	DB	4-NOV-19	17:18:01	ST191104D1-1	NA
191104D1	8	1903260-01RE2	DB	4-NOV-19	18:05:55	ST191104D1-2	ST191104D1-3
191104D1	9	1903565-16RE1	DB	4-NOV-19	18:53:40	ST191104D1-1	NA
191104D1	10	1903651-01	DB	4-NOV-19	19:41:34	ST191104D1-1	NA
191104D1	11	1903651-02	DB	4-NOV-19	20:29:23	ST191104D1-1	NA
191104D1	12	1903651-03	DB	4-NOV-19	21:17:07	ST191104D1-1	NA
191104D1	13	1903651-04	DB	4-NOV-19	22:04:51	ST191104D1-1	NA
191104D1	14	1903642-01	DB	4-NOV-19	22:52:35	ST191104D1-1	NA
191104D1	15	SOLVENT BLANK	DB	4-NOV-19	23:40:17	NA	NA
191104D1	16	ST191104D1-3	DB	5-NOV-19	00:28:12	ST191104D1-2	ST191104D1-3





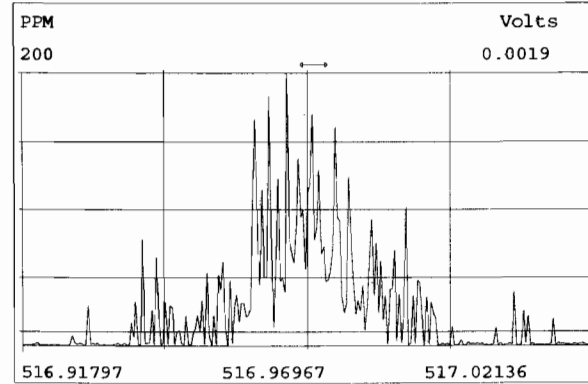
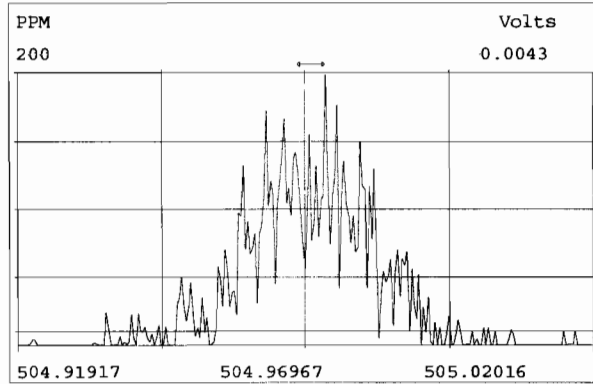
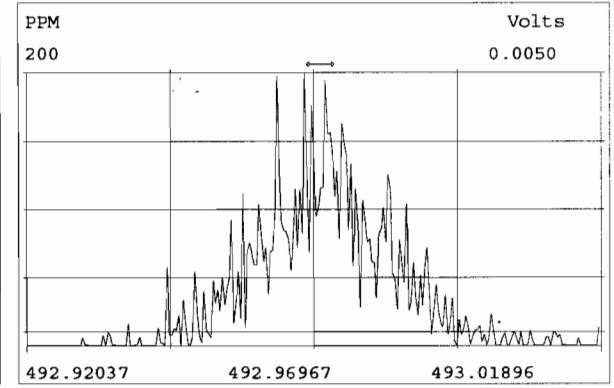
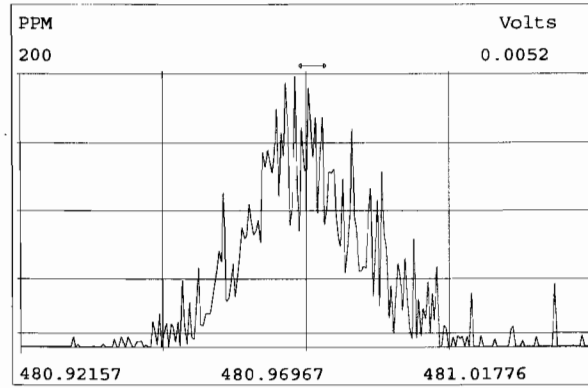
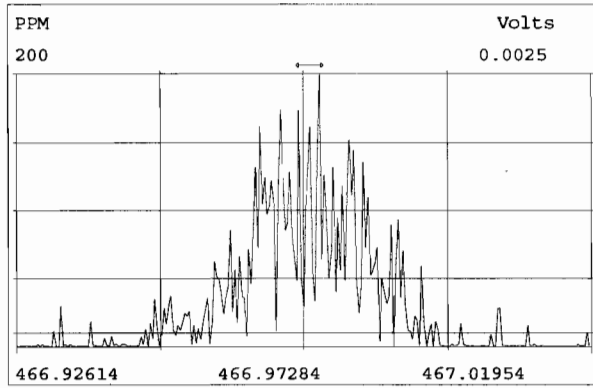
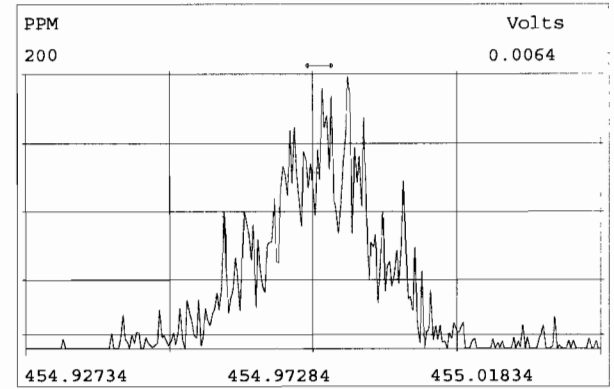
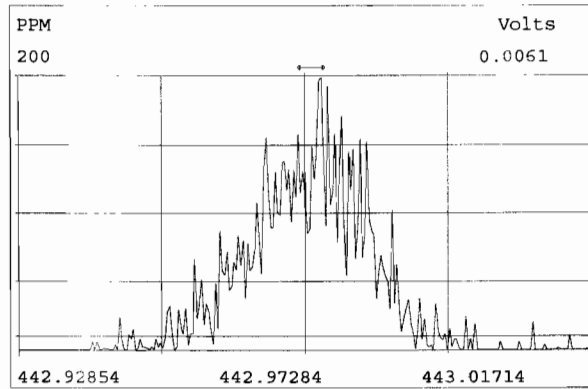
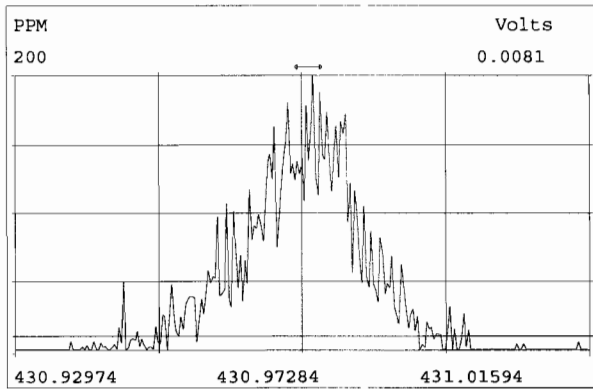




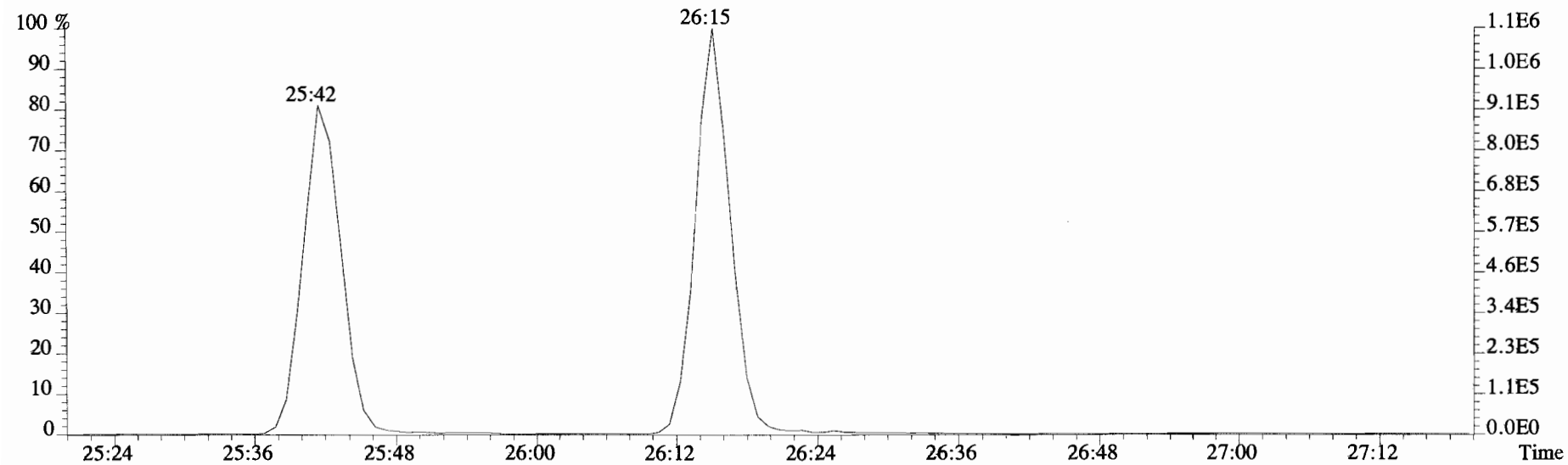
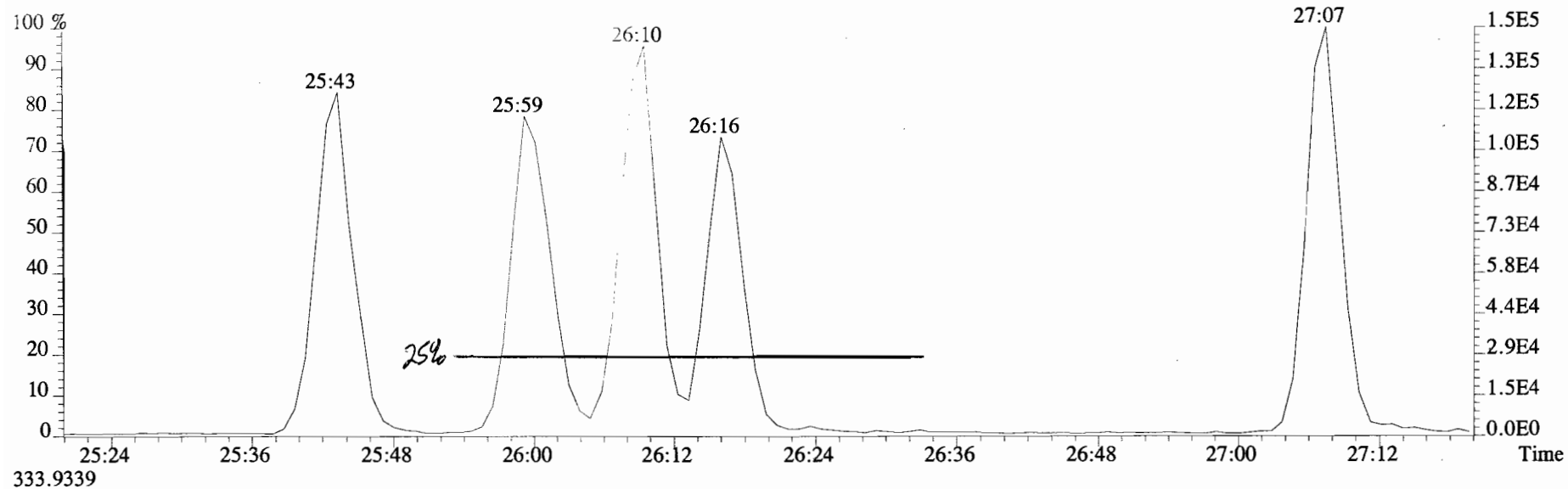


Peak Locate Examination: 4-NOV-2019:12:29 File:191104D1

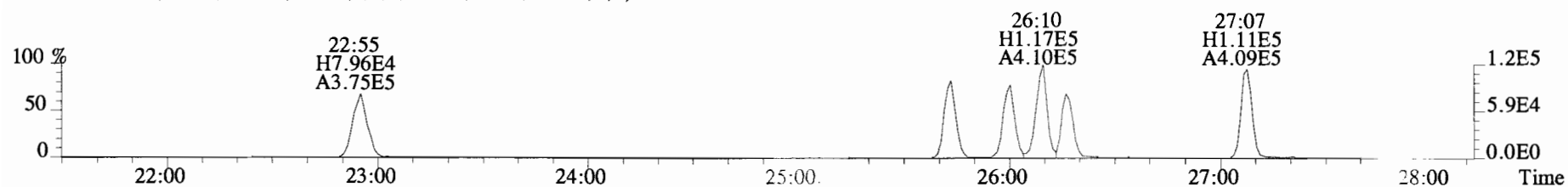
Experiment:OCDD\_E86 Function:5 Reference:PFK



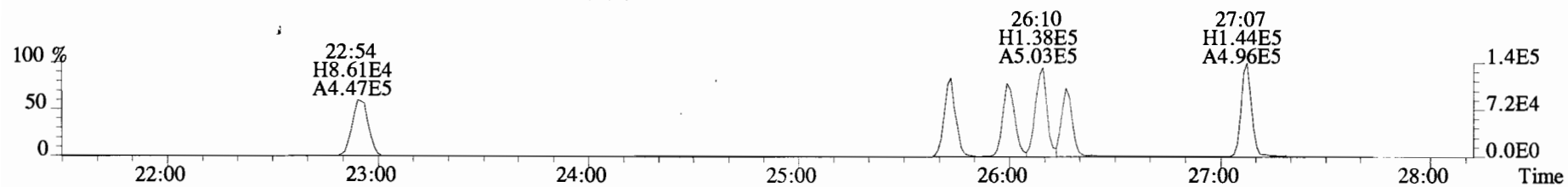
File:191104D1 #1-492 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST:191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
521.8936



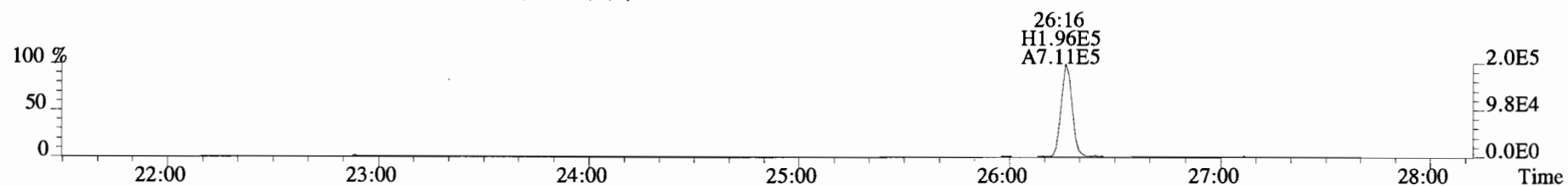
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Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



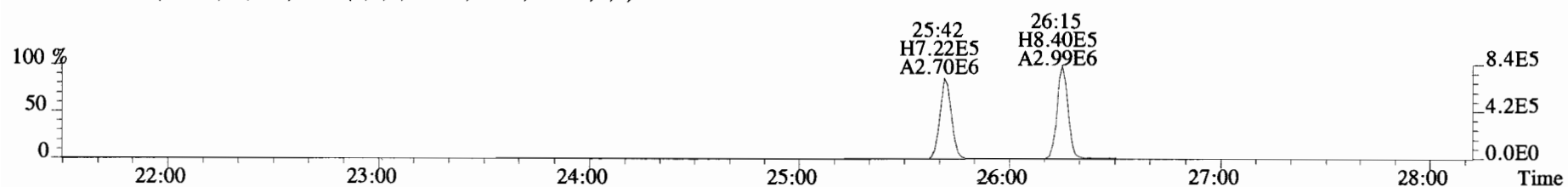
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



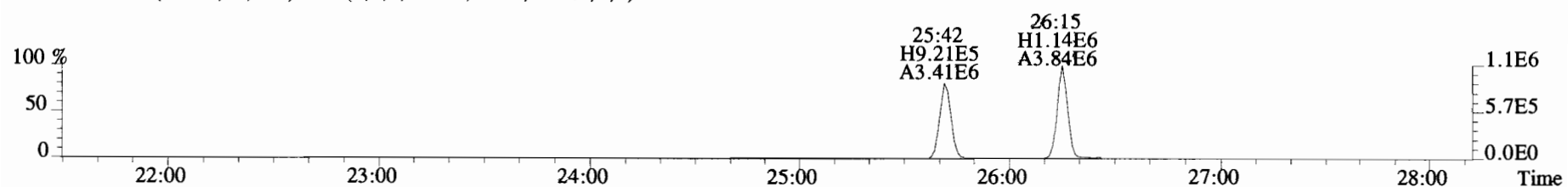
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



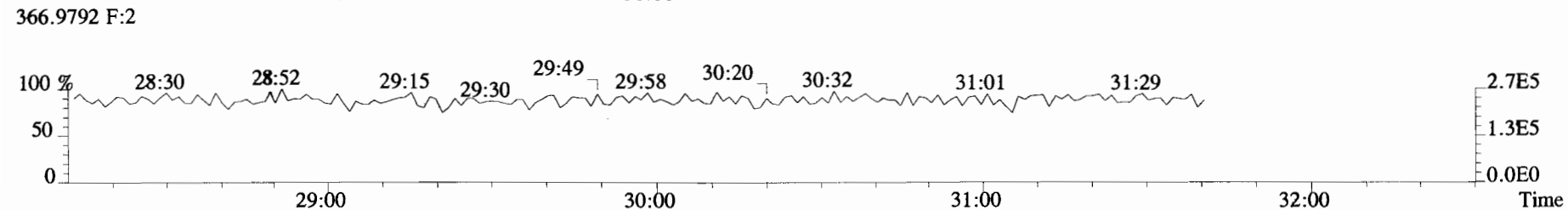
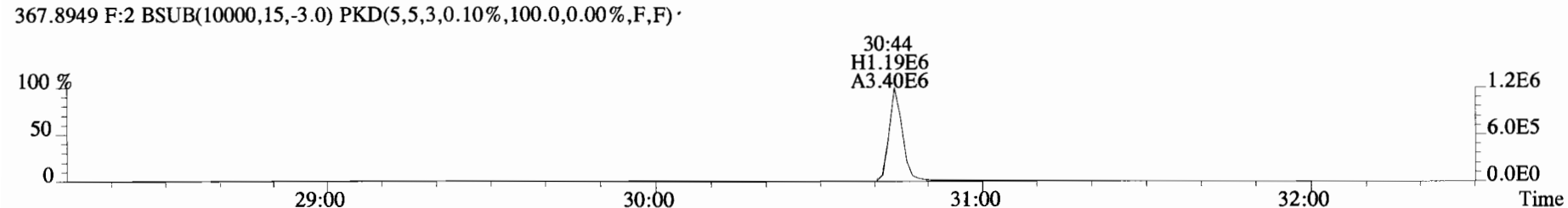
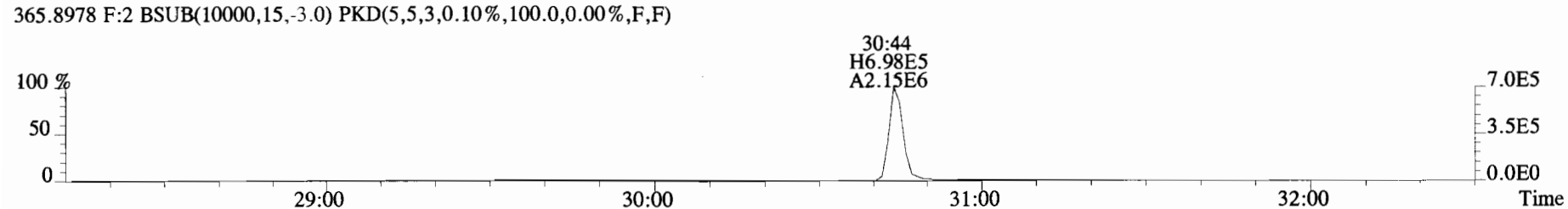
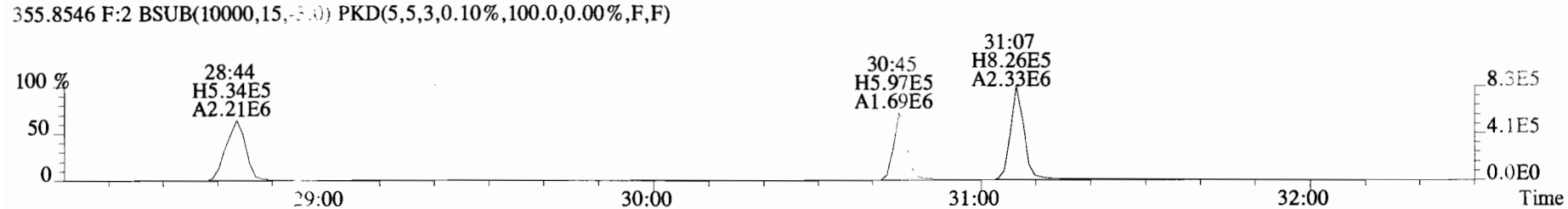
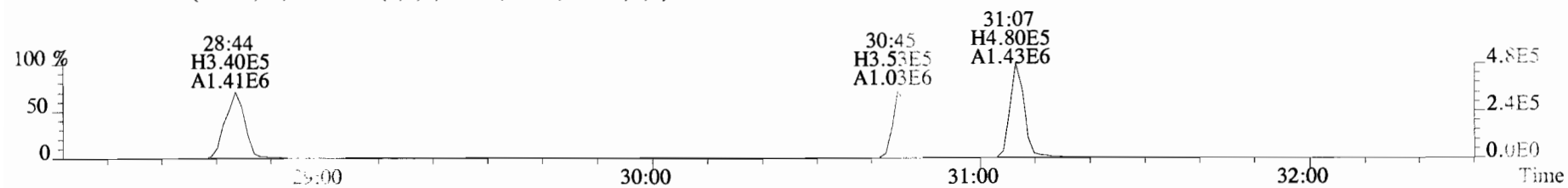
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



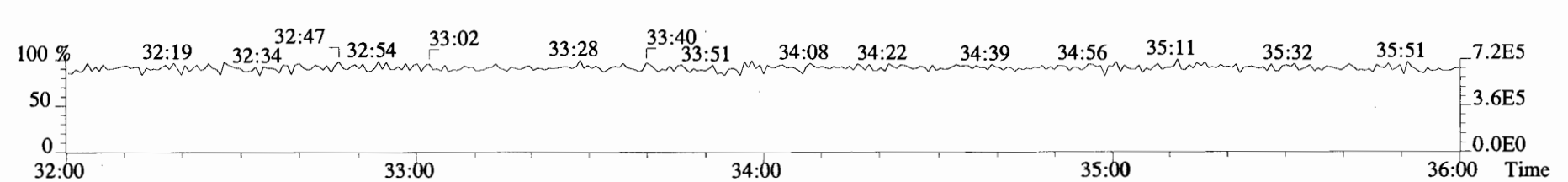
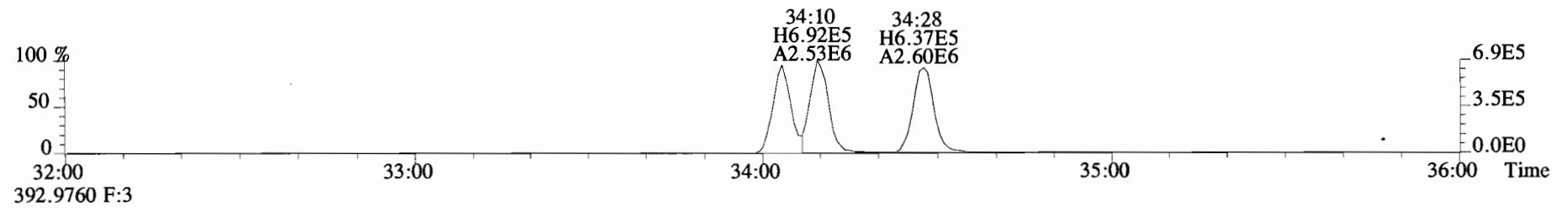
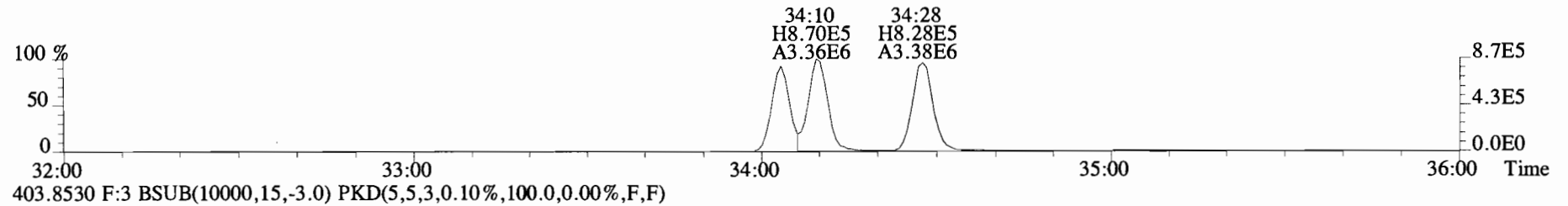
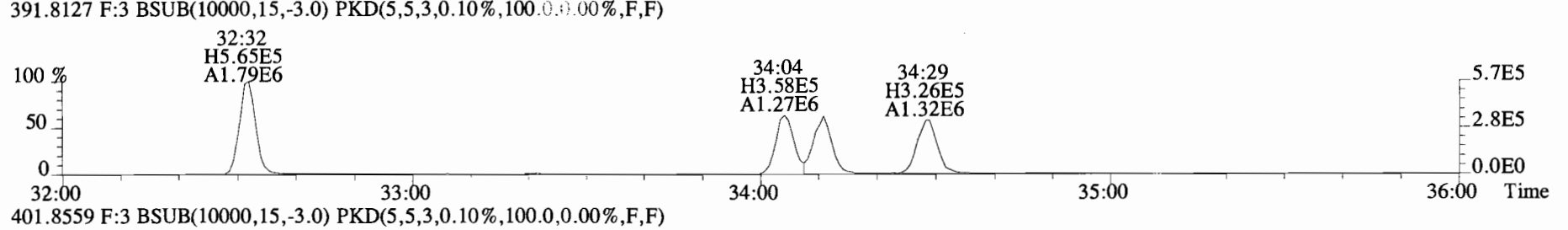
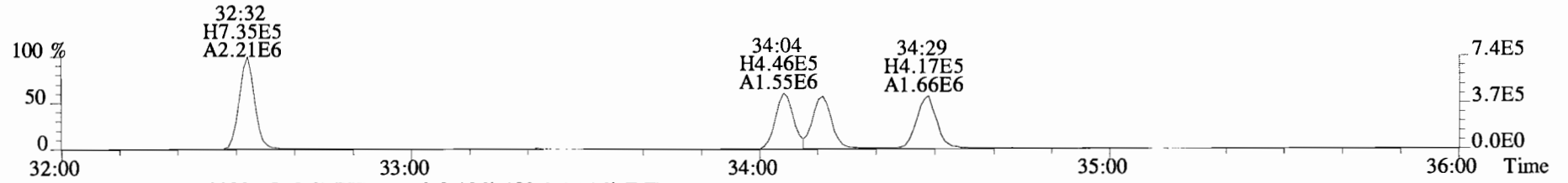
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File:191104D1 #1-211 Acq: 4-NON-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

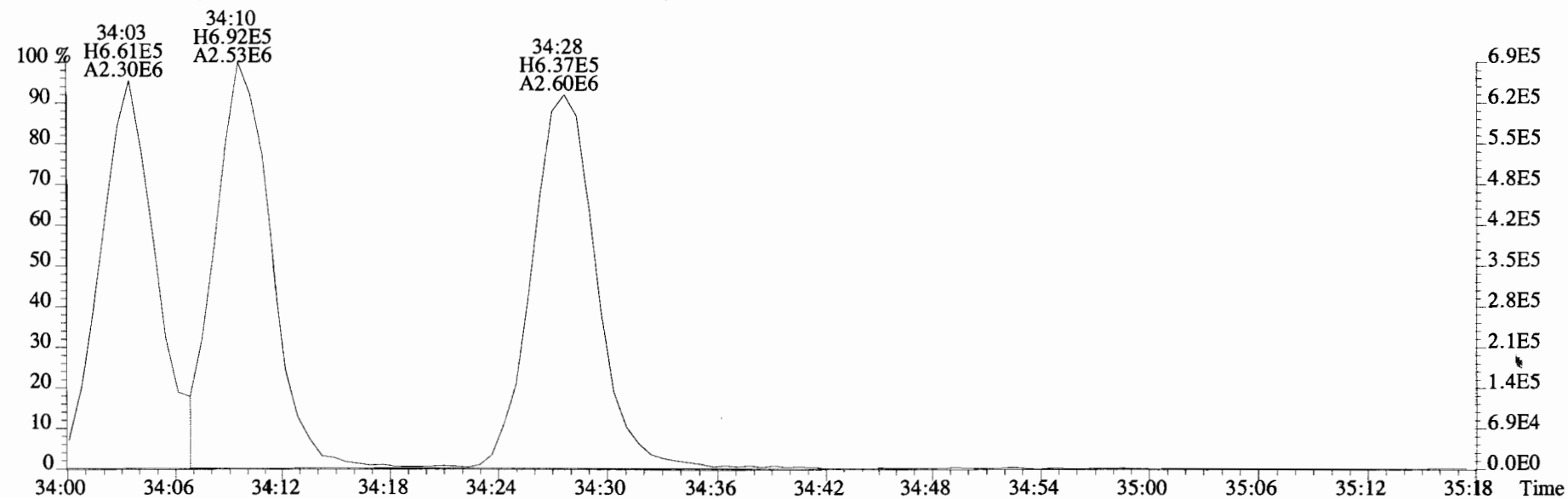
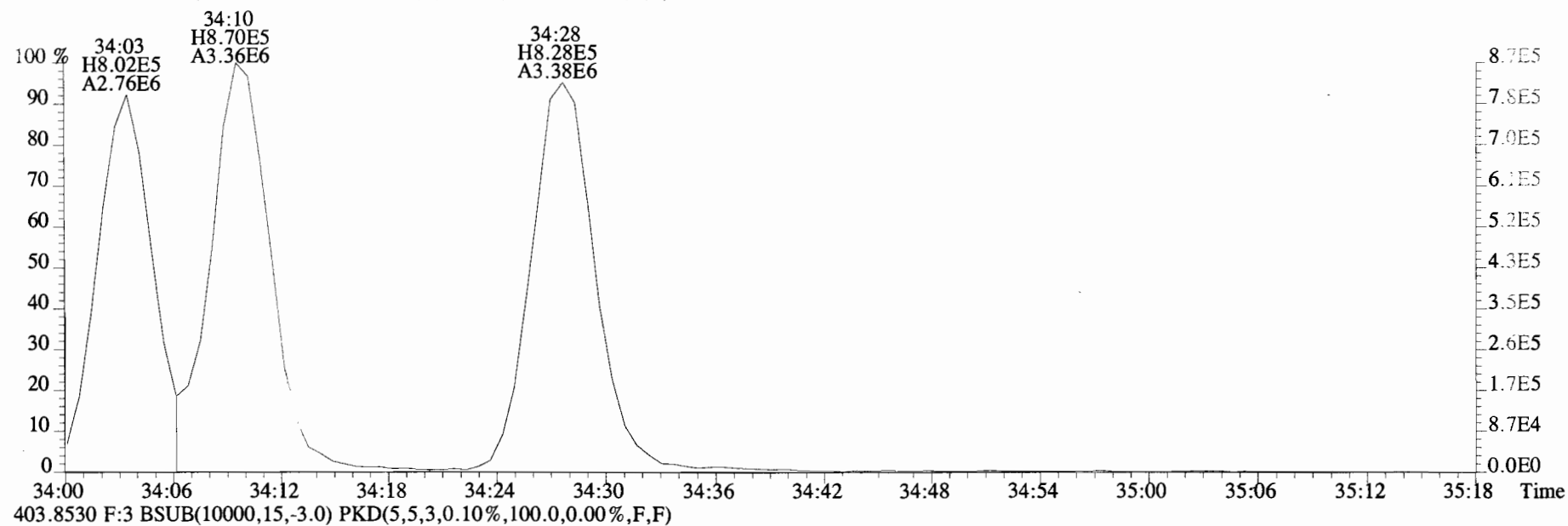


File:191104D1 #1-385 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

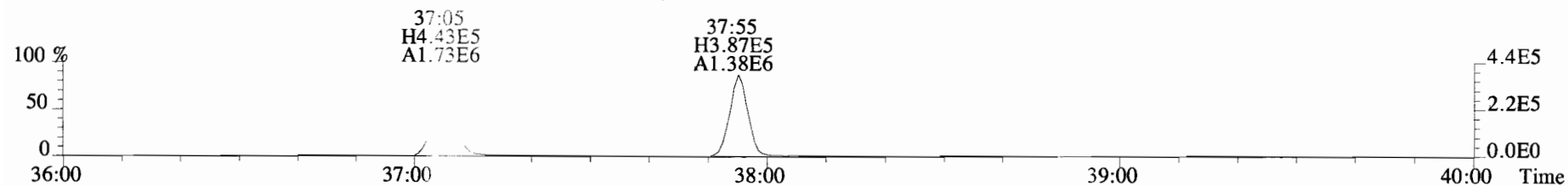




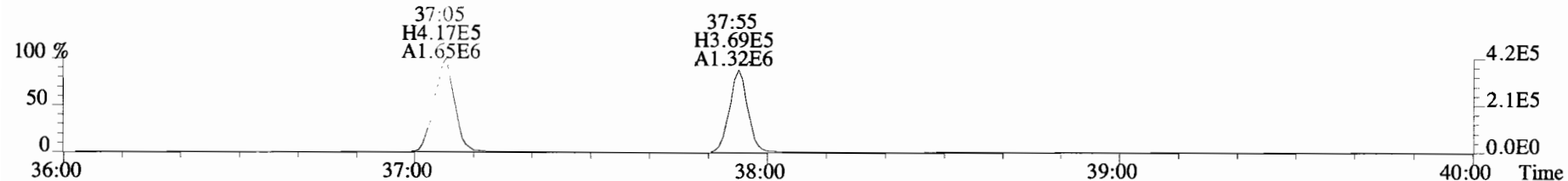
File:191104D1 #1-385 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



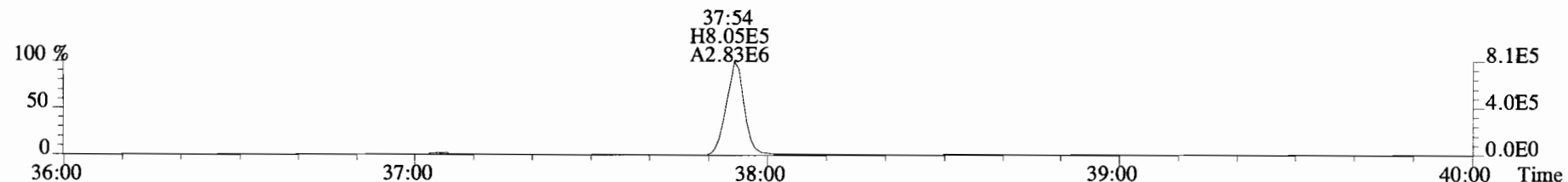
File:191104D1 #1-355 Acq: 4-NOV-2019 12:30:53 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



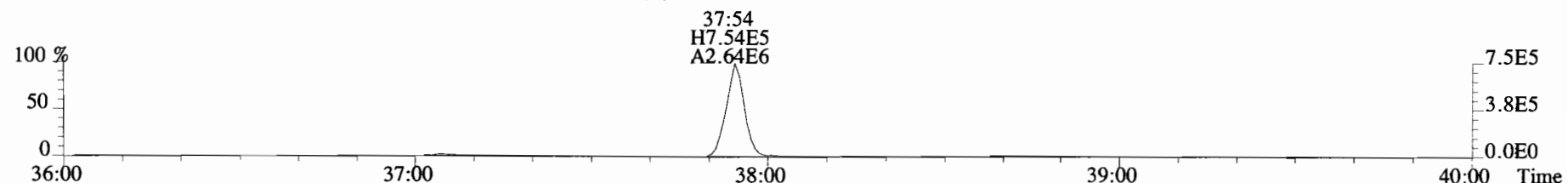
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



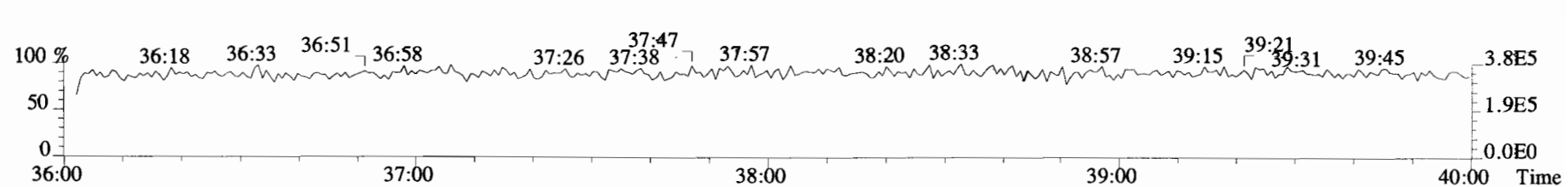
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



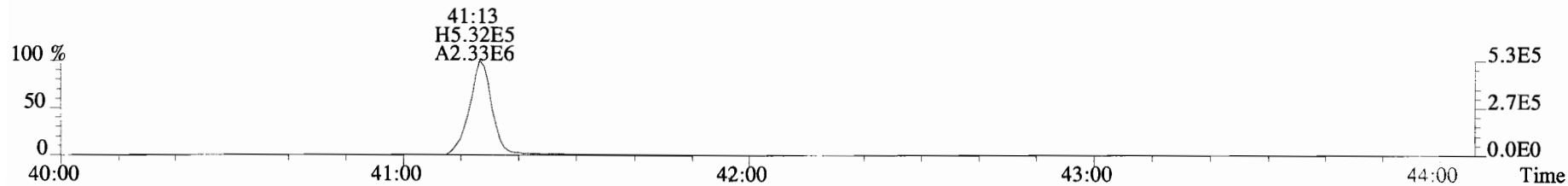
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



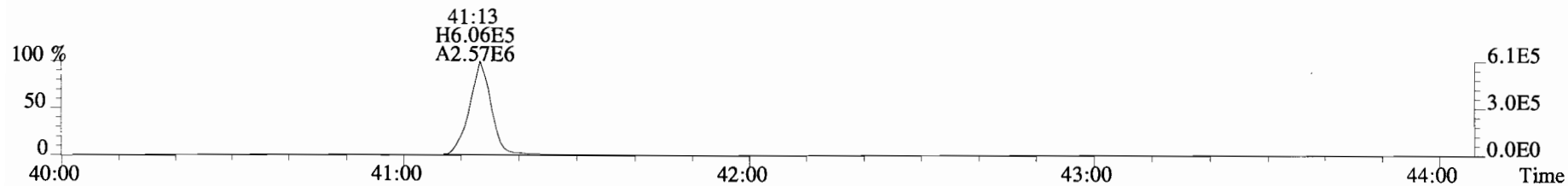
454.9728 F:4



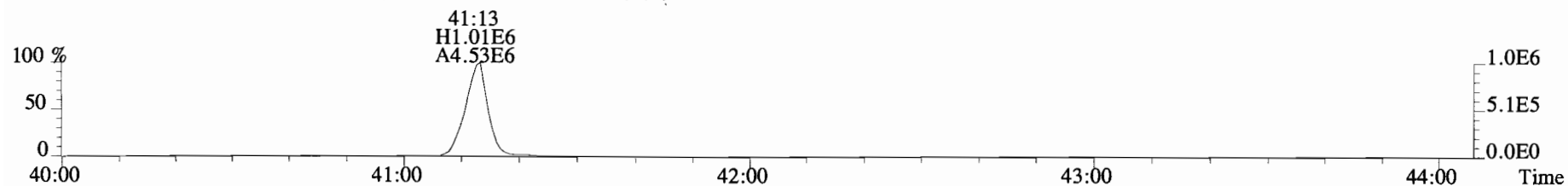
File:191104D1 #1-432 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



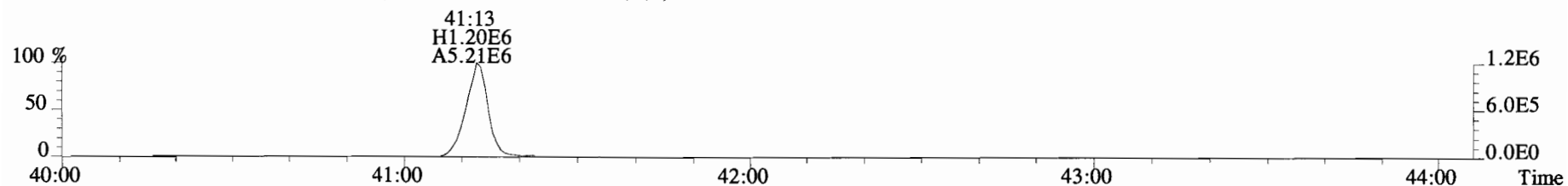
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



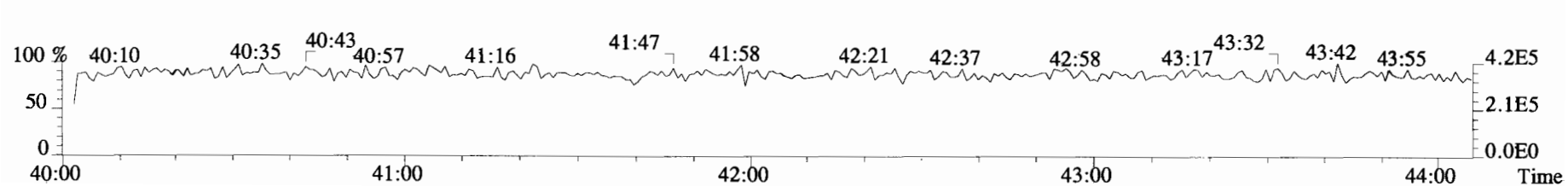
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



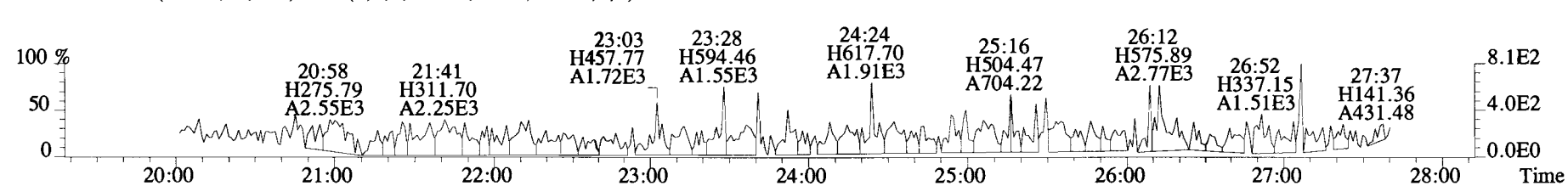
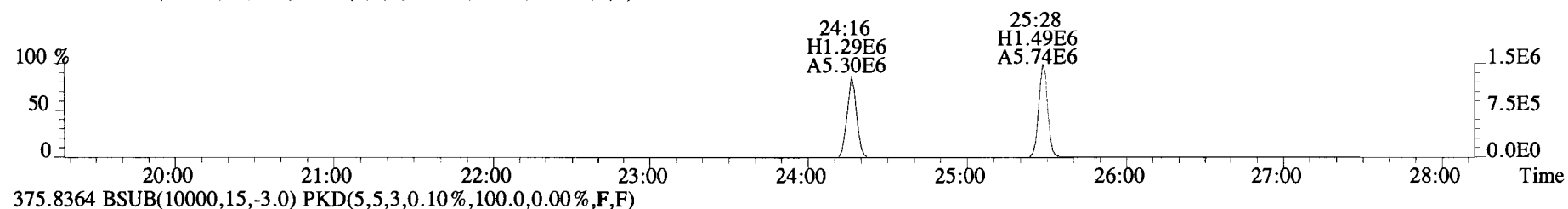
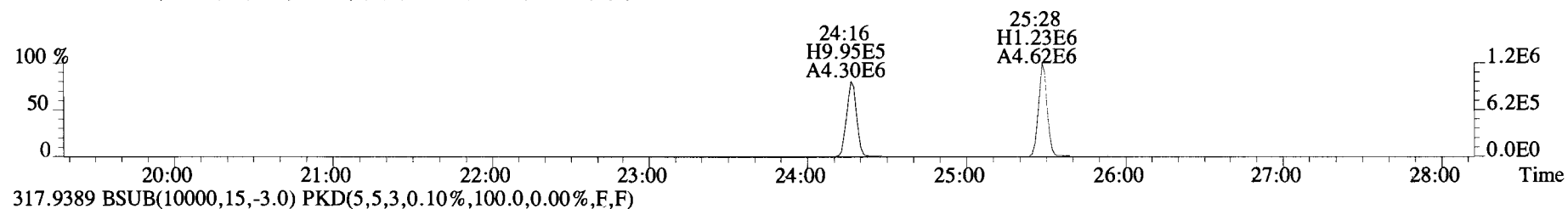
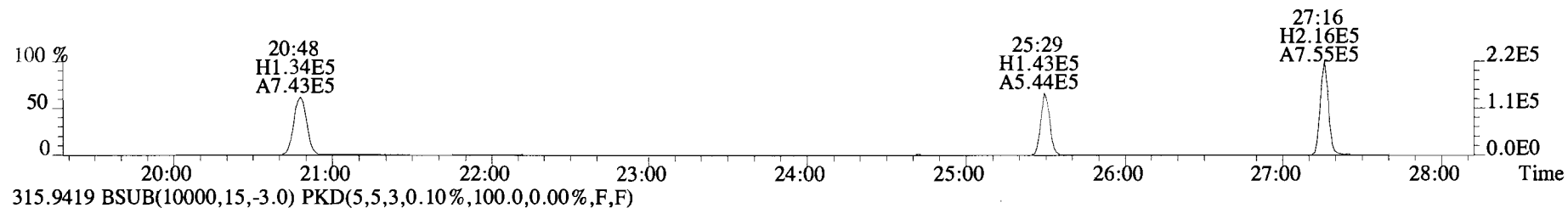
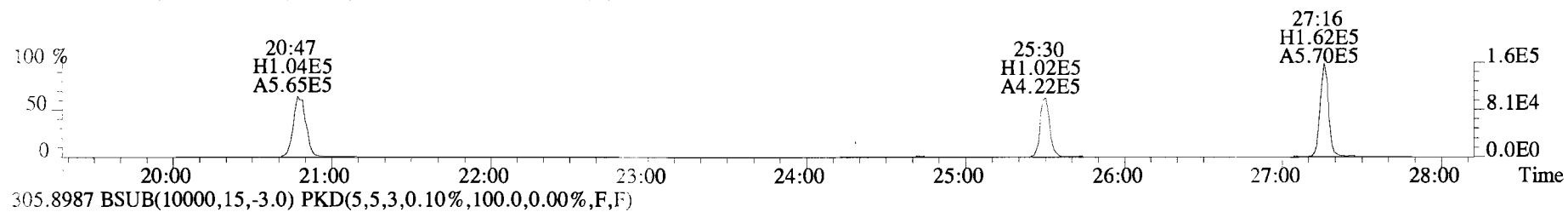
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



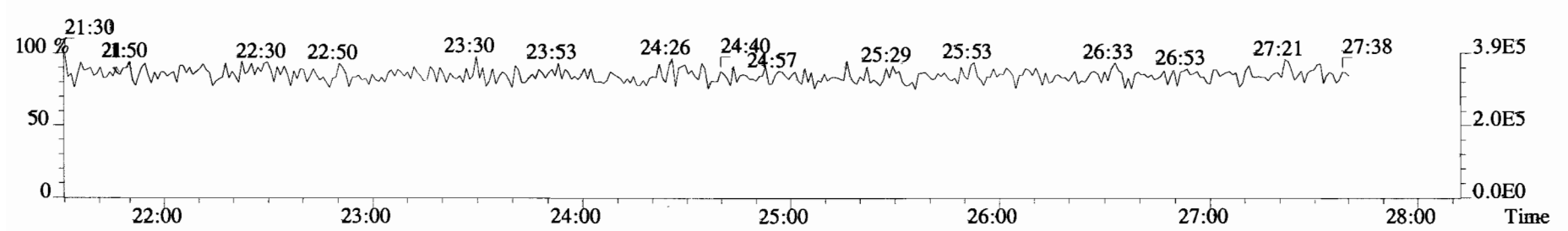
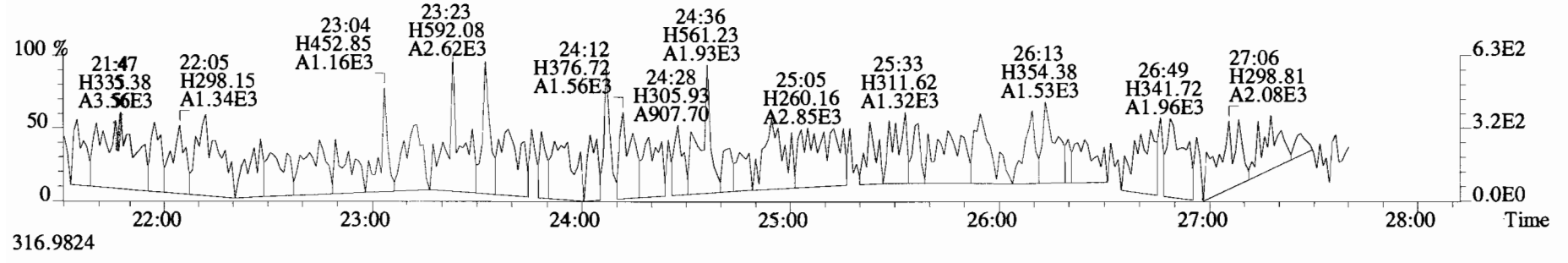
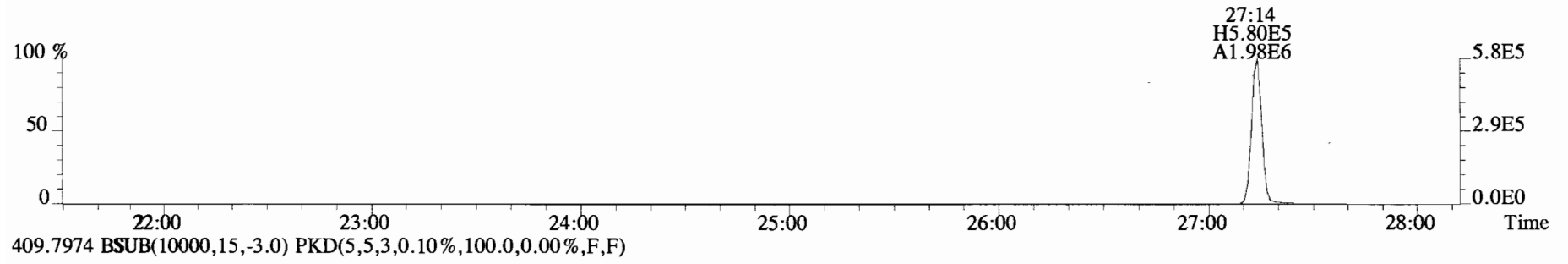
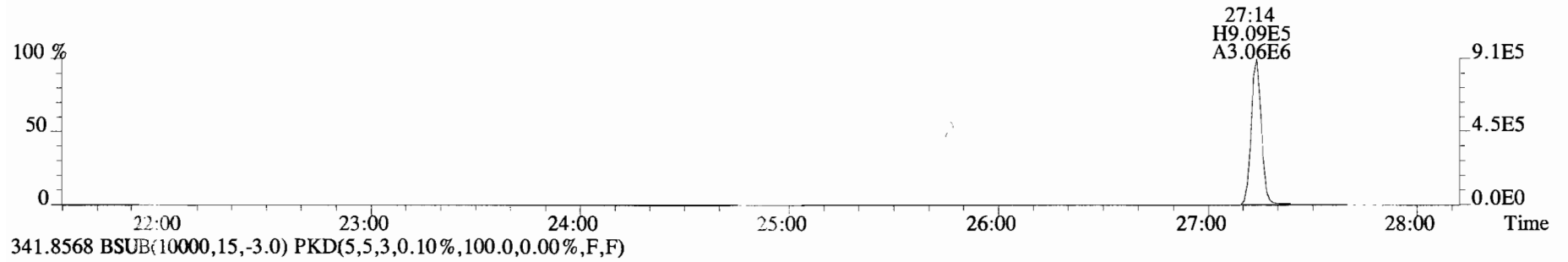
454.9728 F:5



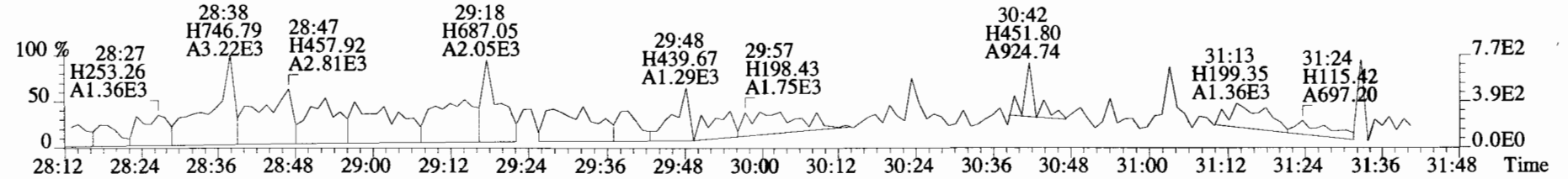
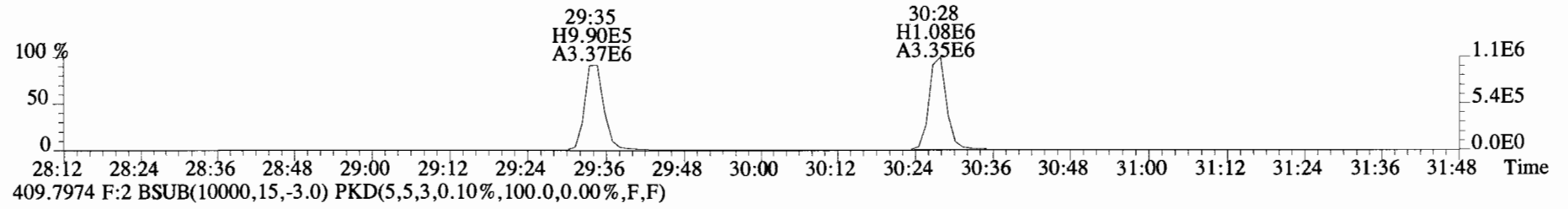
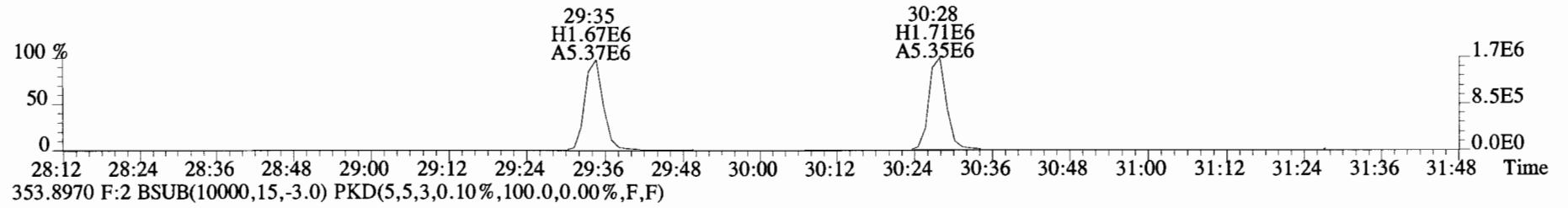
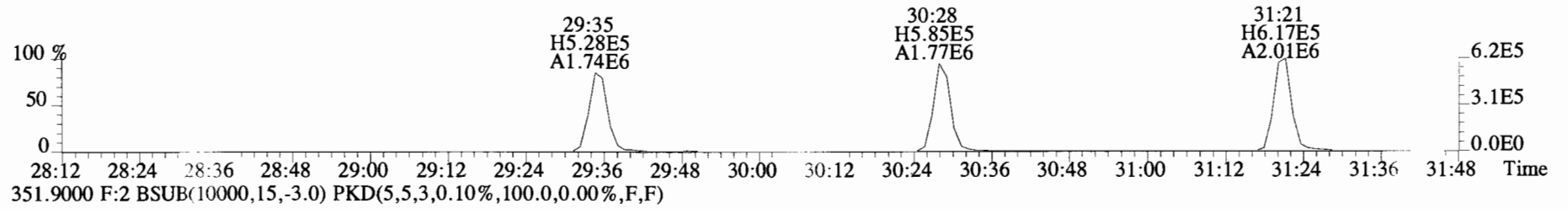
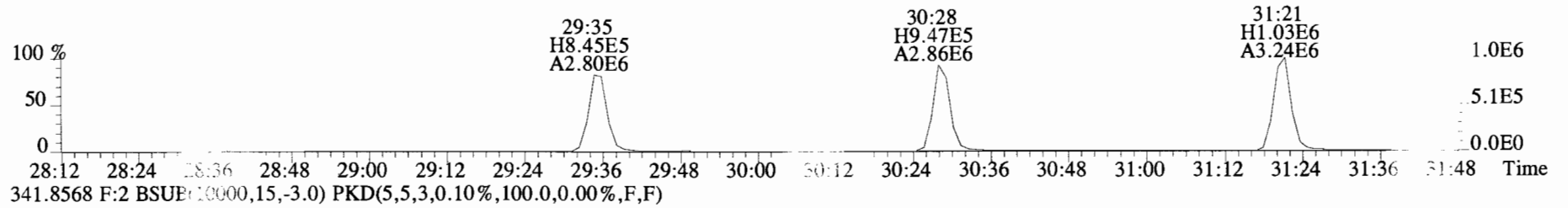
File:191104D1 #1-492 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



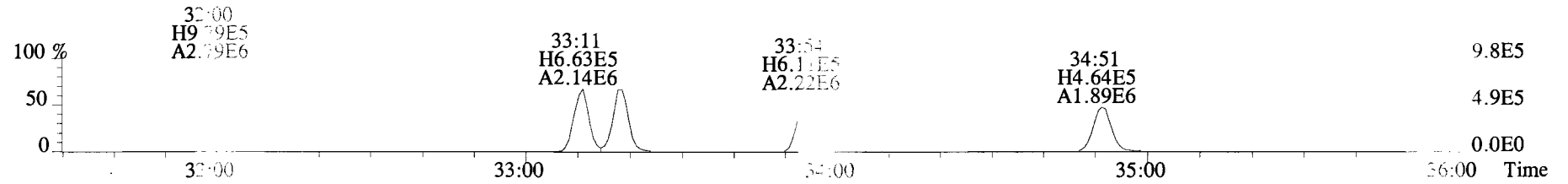
File:191104D1 #1-492 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



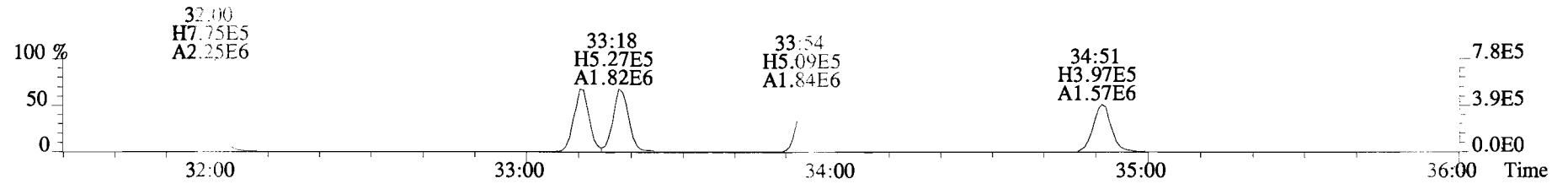
File:191104D1 #1-21 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-Ultimate  
Sample#1 File Text:Meta Analytical Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



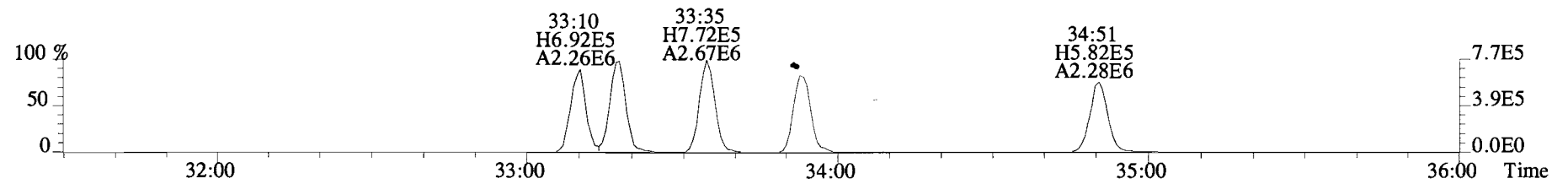
File:191104D1 #1-385 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-Ultima  
 Sample#1 File Text:Vira Analytical Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19112204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



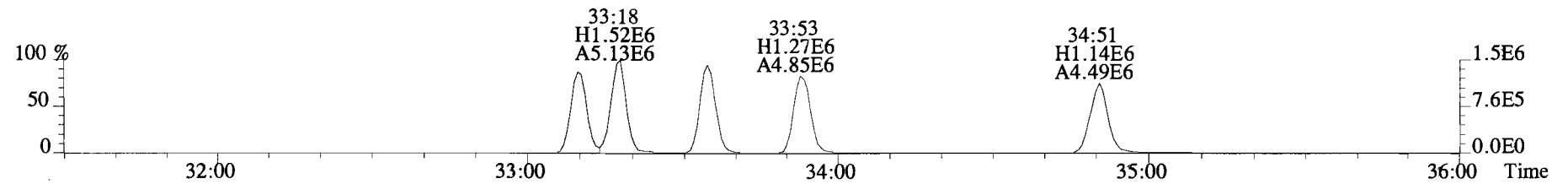
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



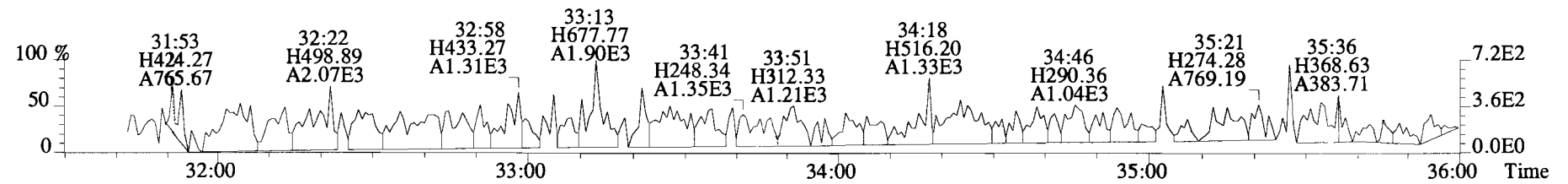
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



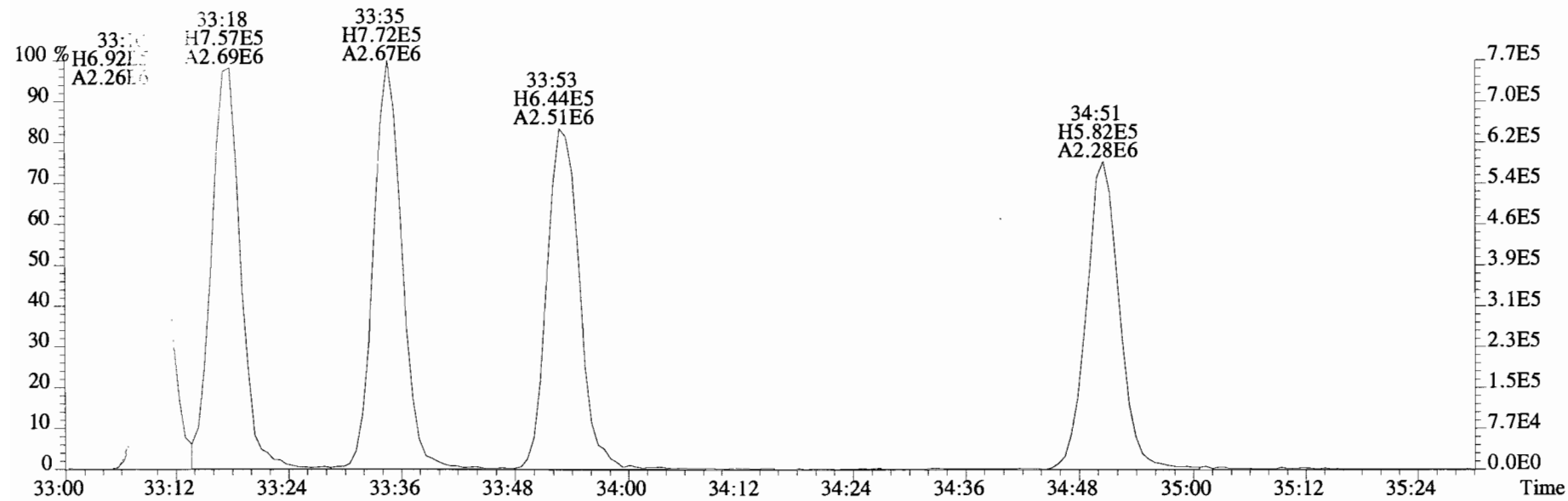
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



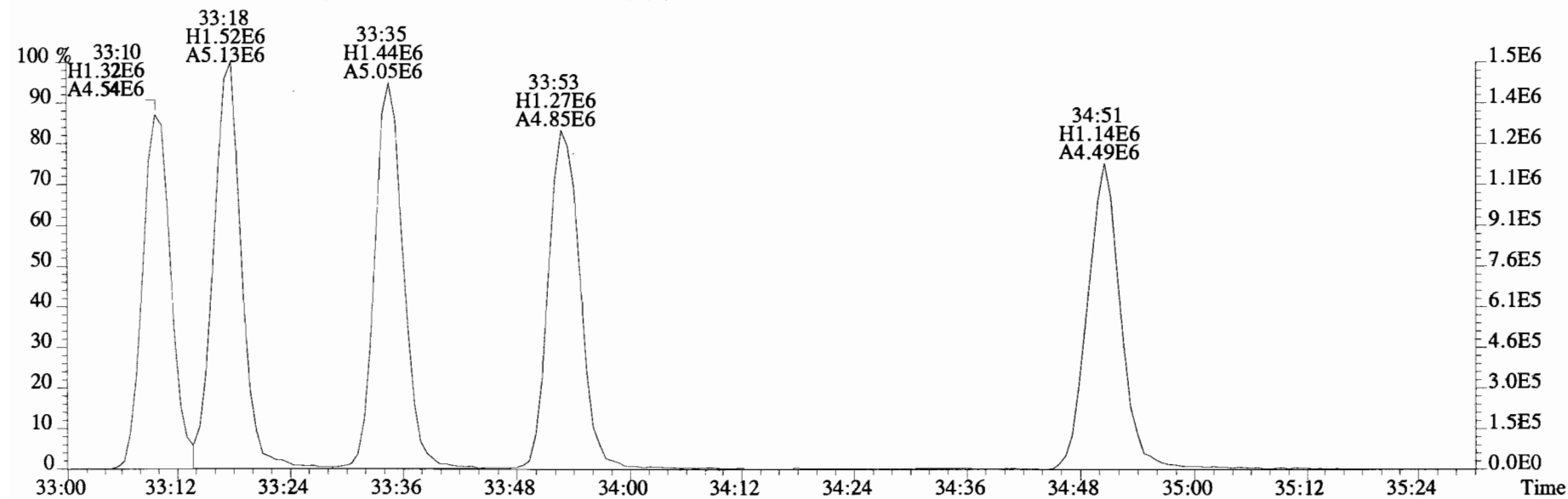
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191104D1-1-385 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec:UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191104D1-1 1615 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

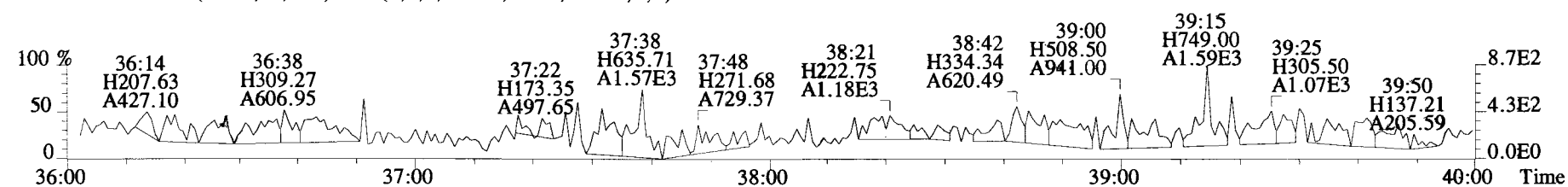
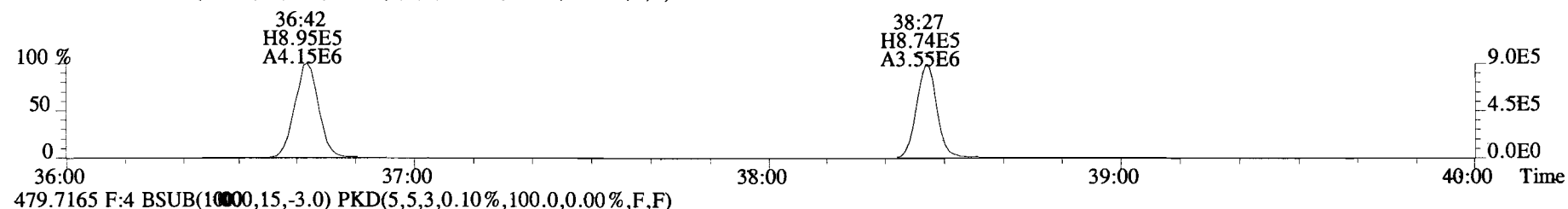
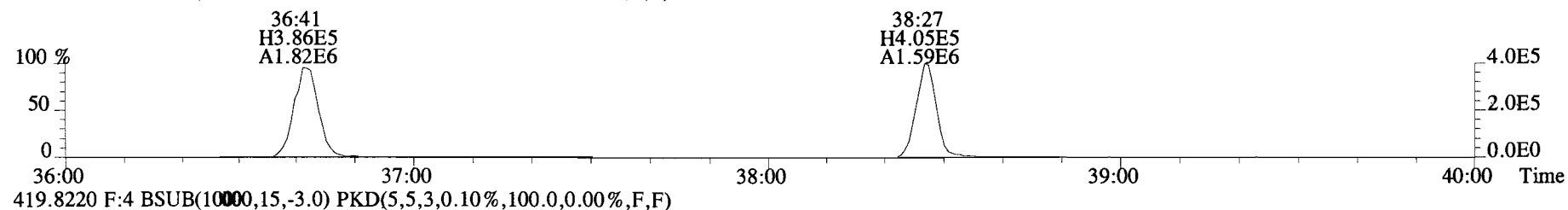
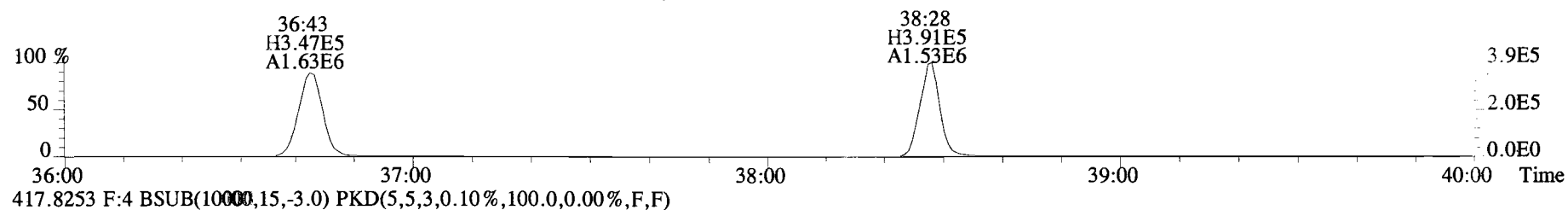
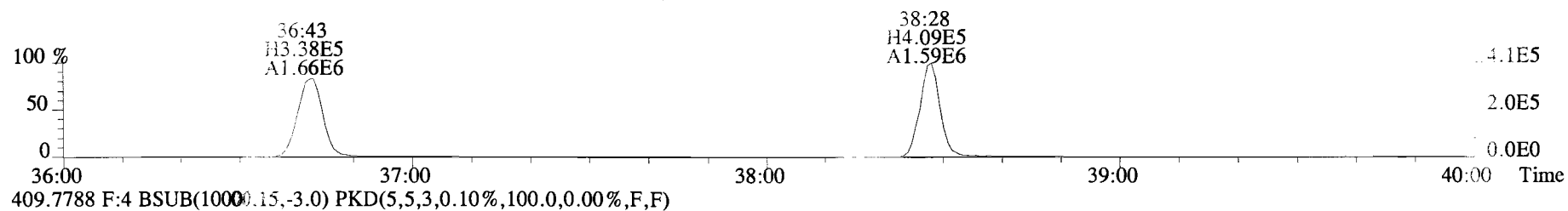


385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

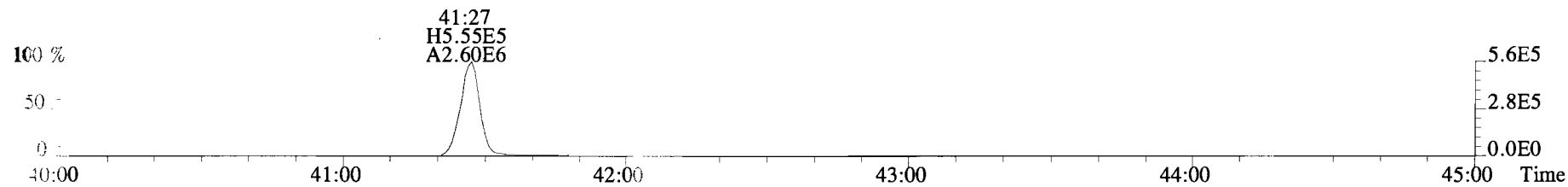




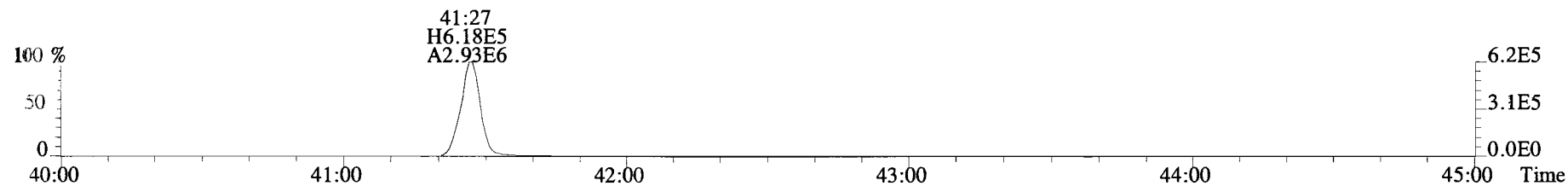
File:191104D1 #1-355 Acq:--NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



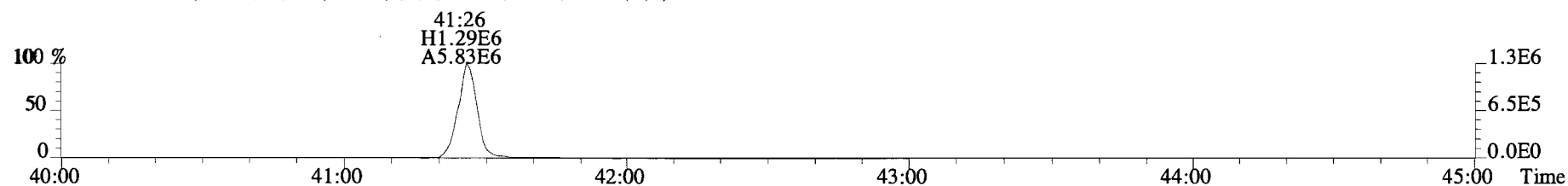
File:191104D1 #1-432 Acq: 4-NOV-2019 12:30:33 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191104D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



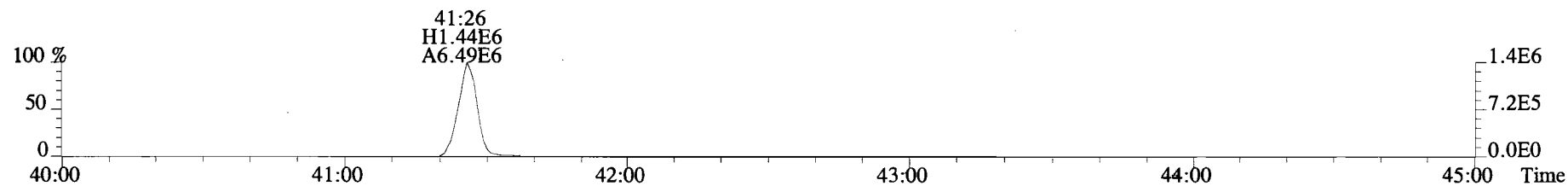
443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



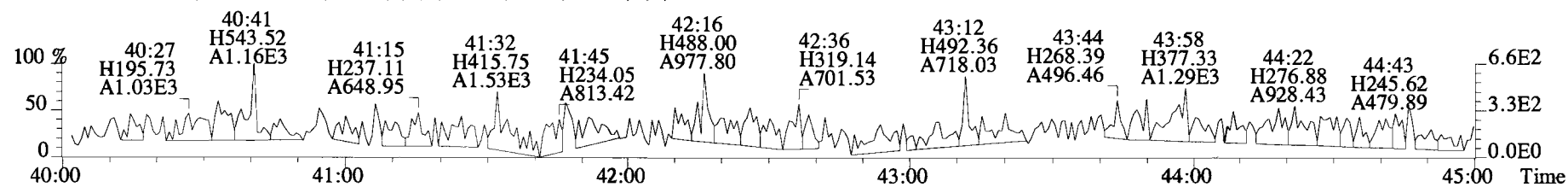
453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

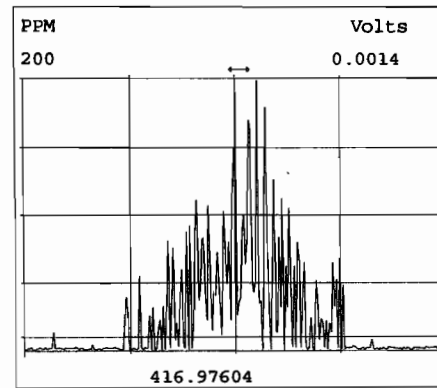
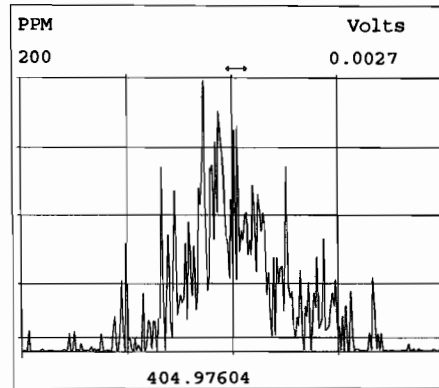
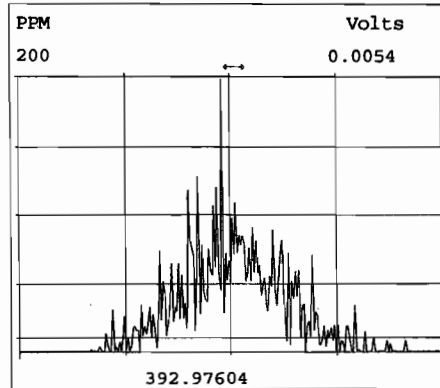
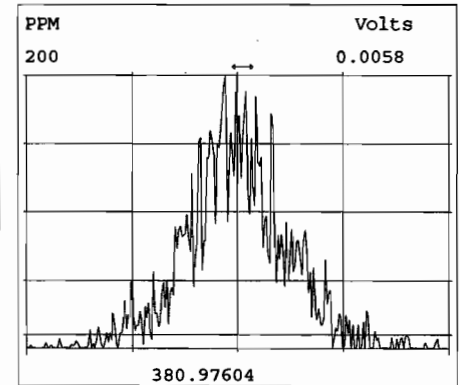
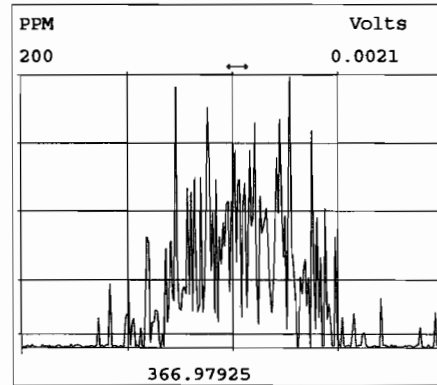
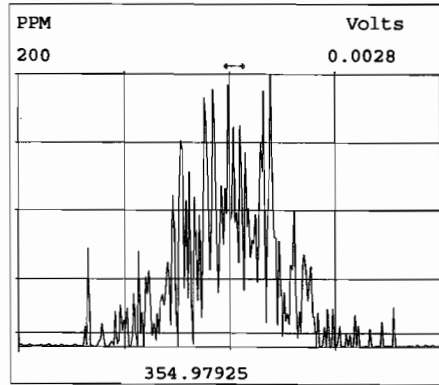
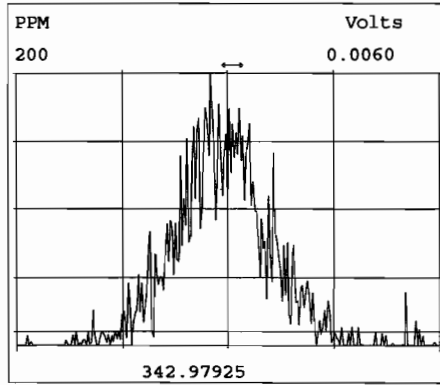
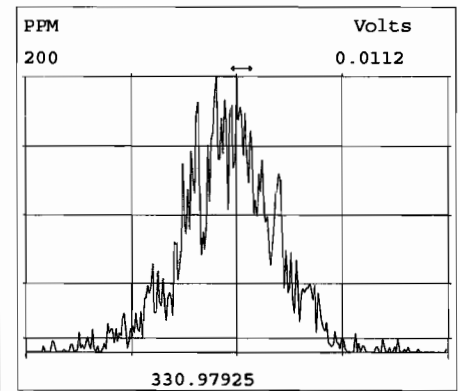
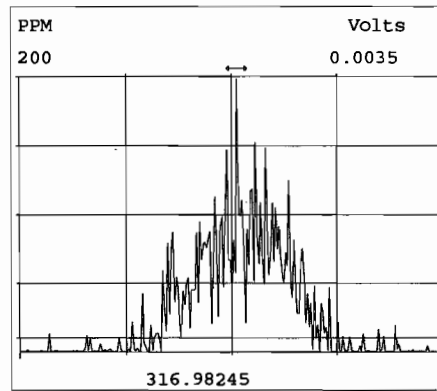
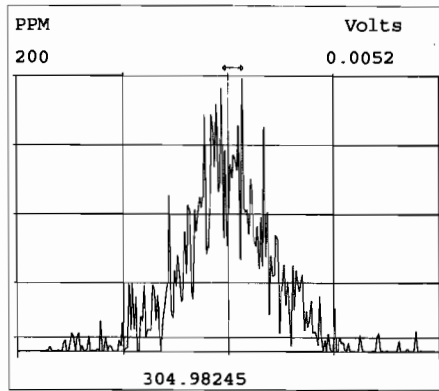
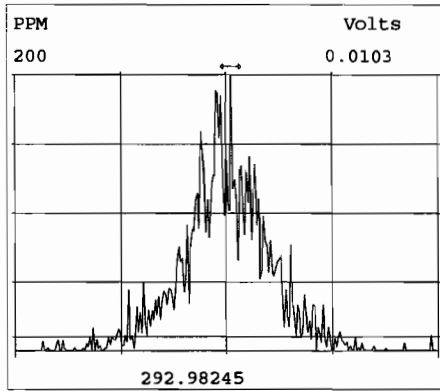


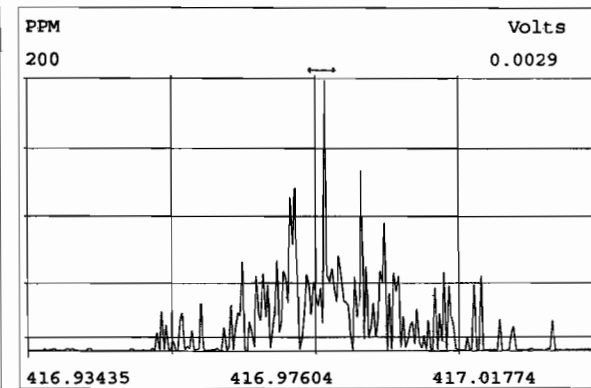
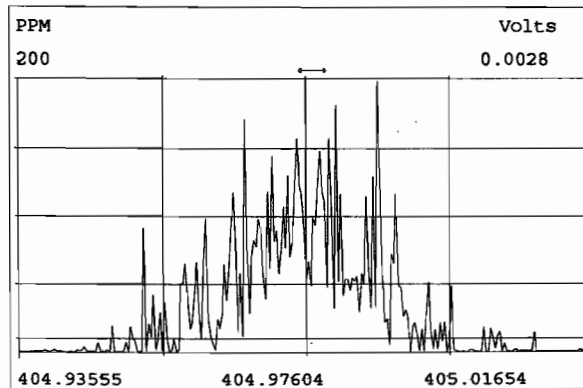
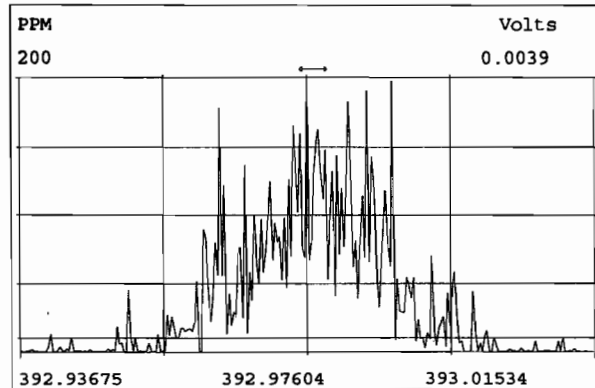
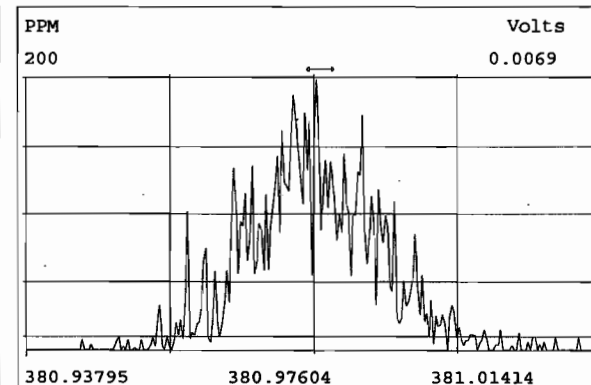
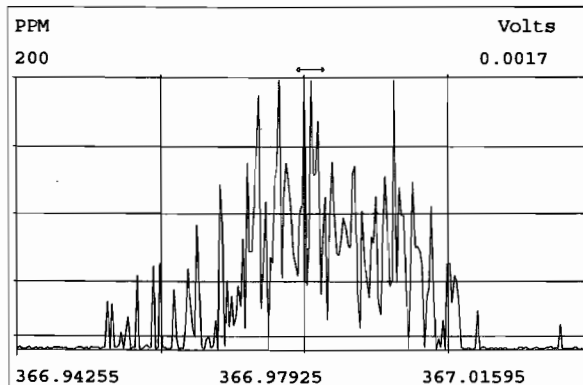
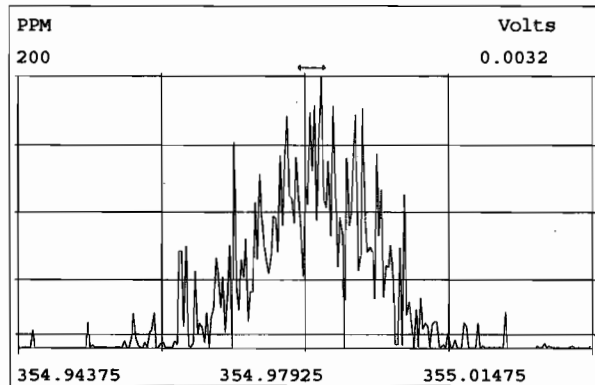
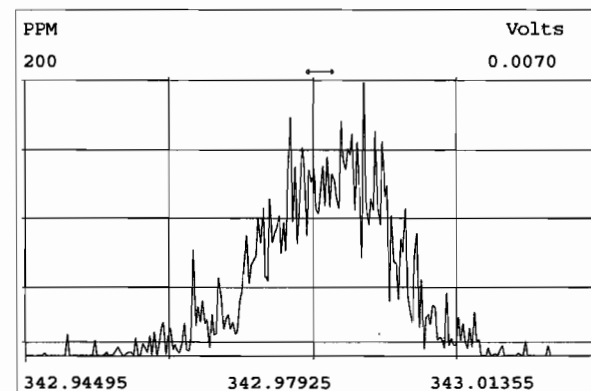
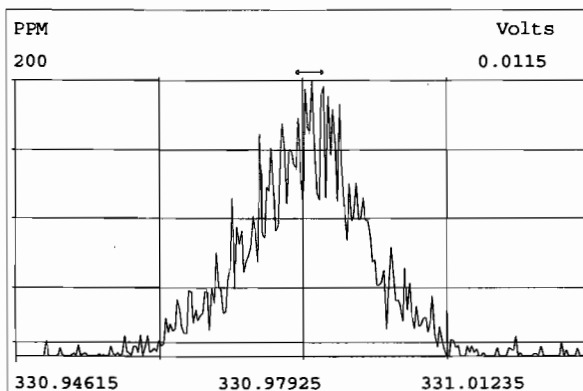
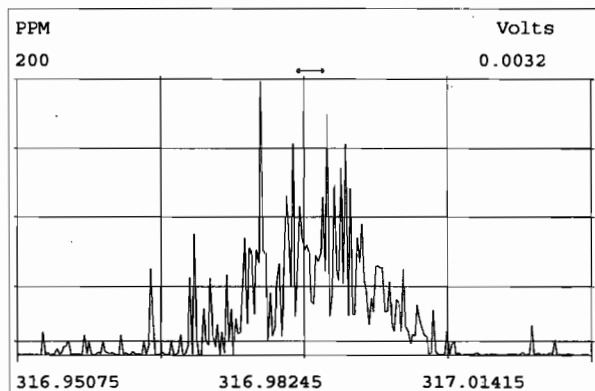
455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

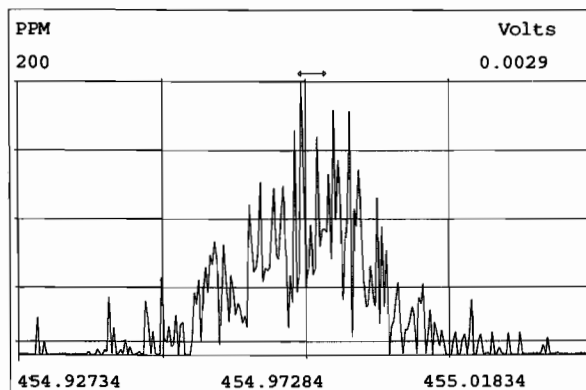
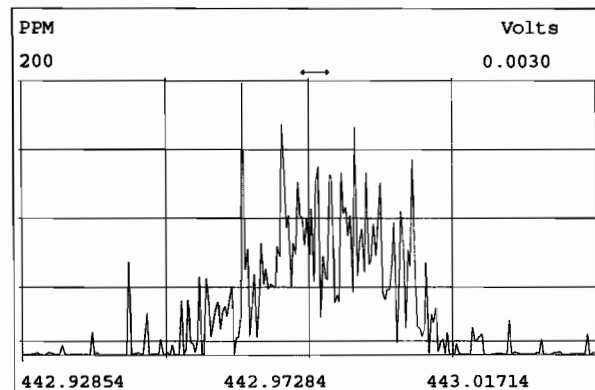
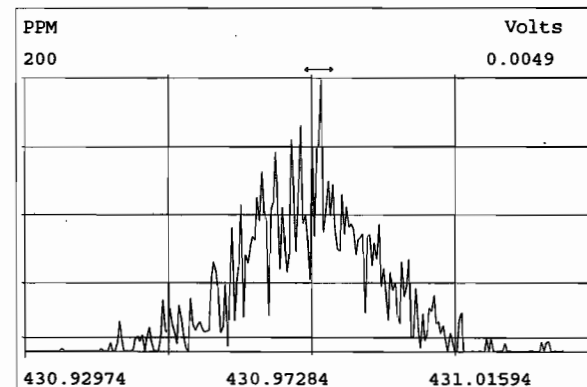
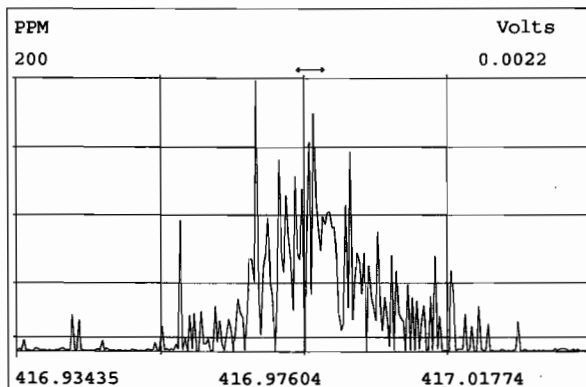
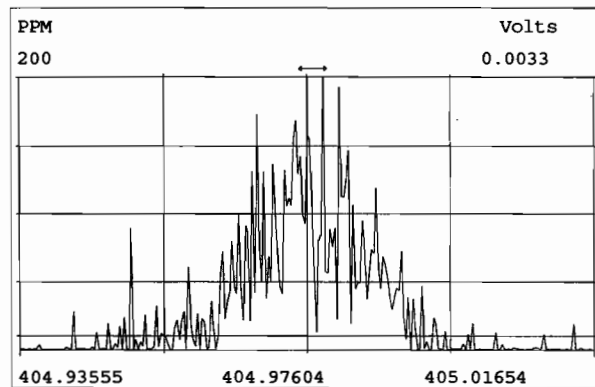
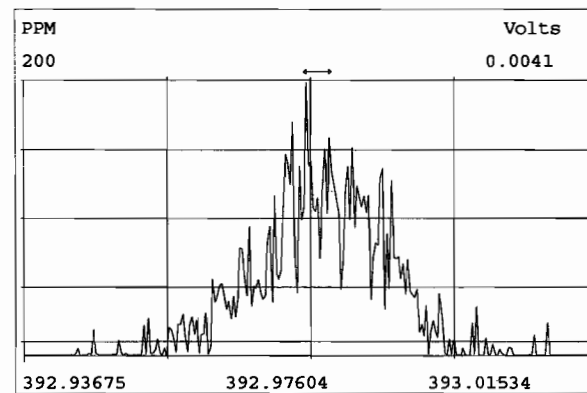
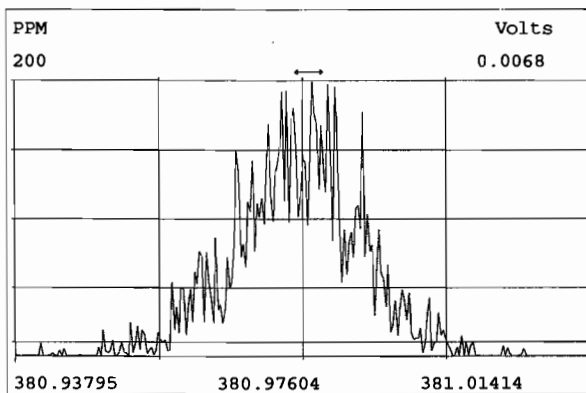
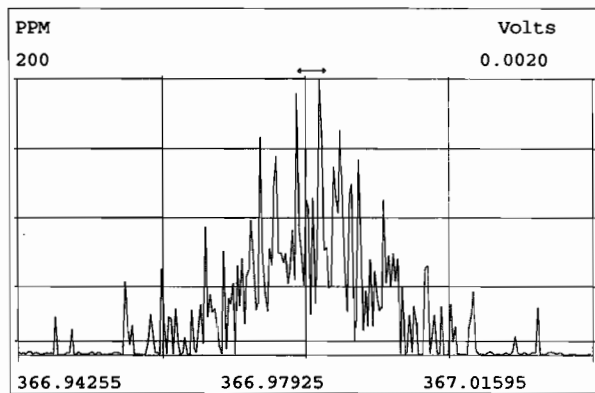






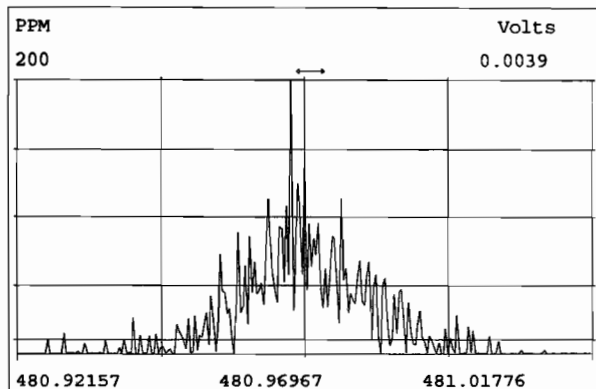
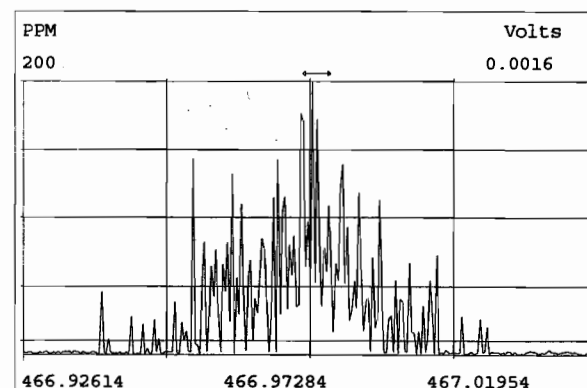
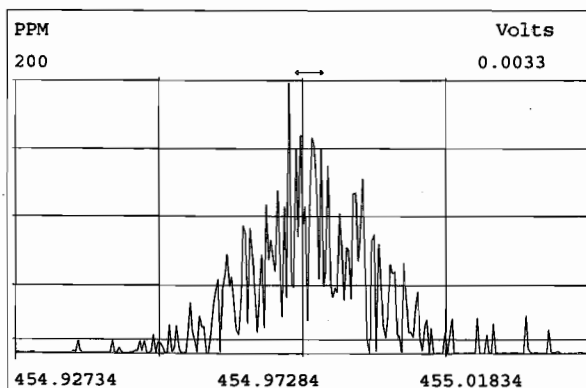
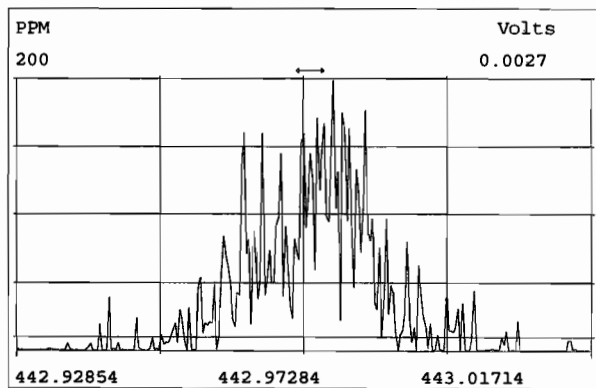
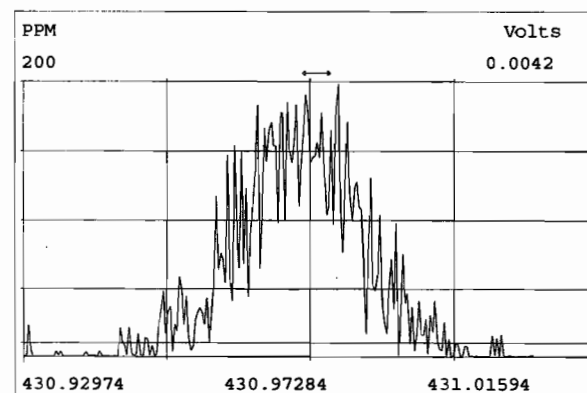
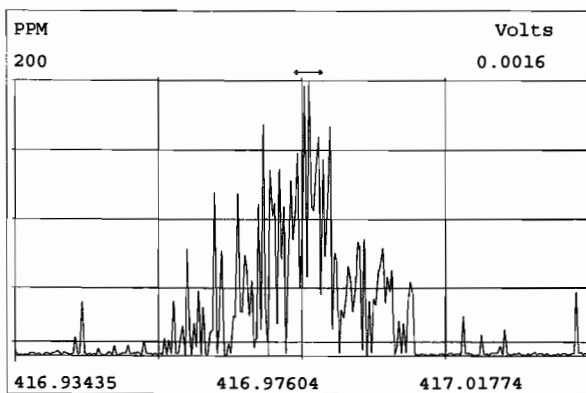
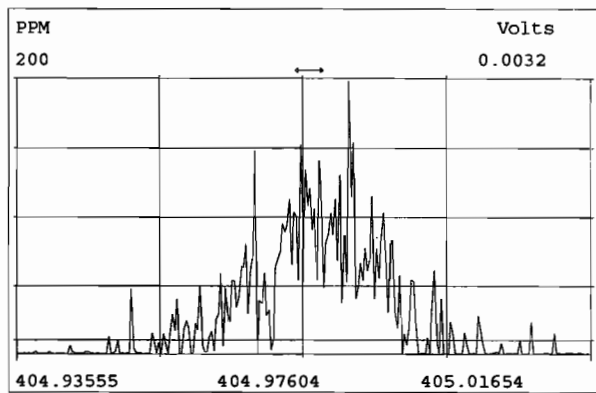
Peak Locate Examination: 5-NOV-2019:09:14 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:3 Reference:PFK



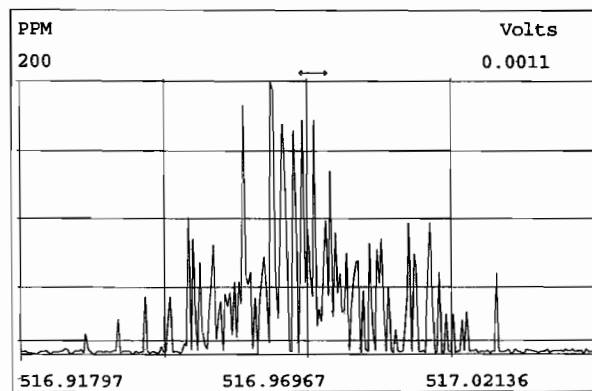
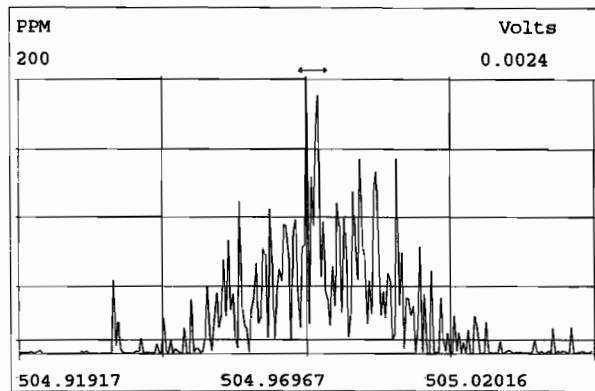
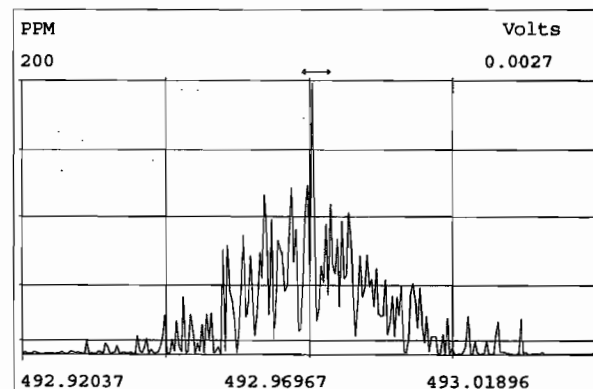
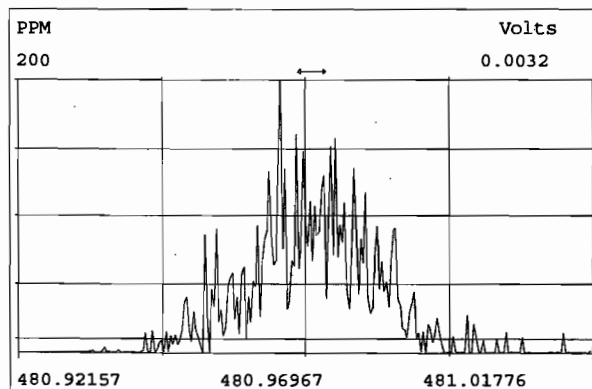
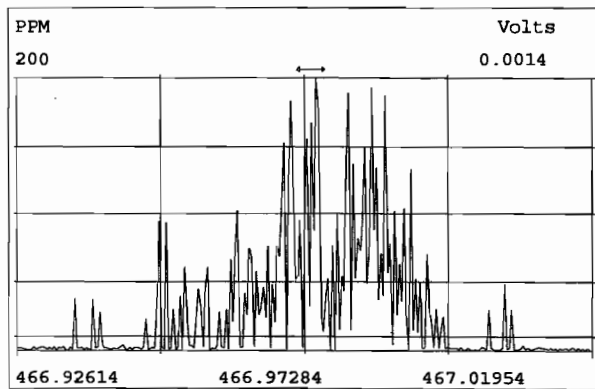
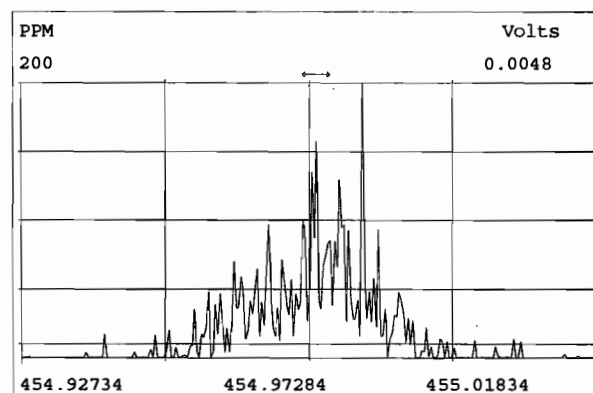
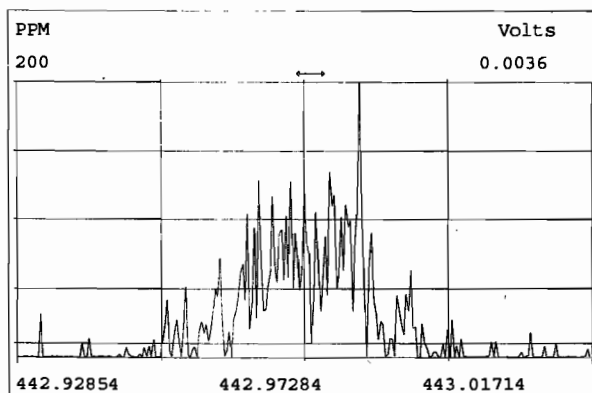
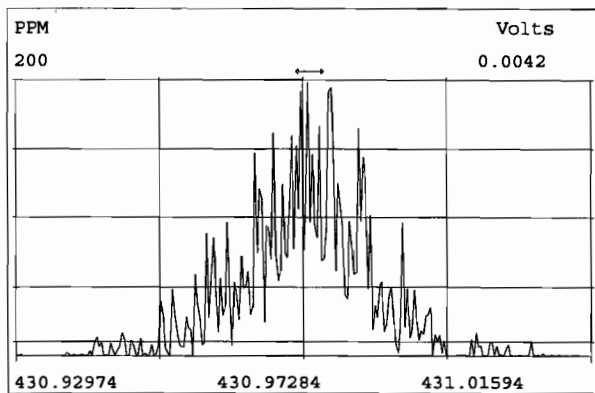
Peak Locate Examination: 5-NOV-2019:09:15 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:4 Reference:PFK



Peak Locate Examination: 5-NOV-2019:09:15 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 Reference:PFK



# HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

**Beg. Calibration ID:** ST191106D1-1

**Reviewed By:** CT 11/07/19  
*Initials & Date*

**End Calibration ID:** NA

	<u>Beg.</u>	<u>End</u>		<u>Beg.</u>	<u>End</u>
<b>Ion abundance within QC limits?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA	<b>Mass resolution <math>\geq</math></b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Concentrations within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 5k <input type="checkbox"/> 6-8K <input type="checkbox"/> 8K <input checked="" type="checkbox"/> 10K 1614    1699    429    1613/1668/8280		
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Intergrated peaks display correctly?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>GC Break &lt;20%</b>	<input type="checkbox"/> NA	
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b><u>8280 CS1 End Standard:</u></b>		
<b>Verification Std. named correctly?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>- Ratios within limits, S/N &lt;2.5:1, CS1 within 12 hours</b>	<input type="checkbox"/> NA	
<b>(ST-Year-Month-Day-VG ID)</b>					
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Comments:</b>		
<b>Correct ICAL referenced?</b>	<input type="checkbox"/> DB	<input type="checkbox"/>			
<b><u>Run Log:</u></b>					
<b>- Correct instrument listed?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> V			
<b>- Samples within 12 hour clock?</b>	<input type="checkbox"/> Y	<input type="checkbox"/> N			
<b>- Bottle position verified?</b>	<input type="checkbox"/> DB	<input type="checkbox"/>			



Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191106D1	1	ST191106D1-1	DB	6-NOV-19	11:41:40	ST191106D1-1	NA
191106D1	2	SOLVENT BLANK	DB	6-NOV-19	12:29:34	ST191106D1-1	NA
191106D1	3	1903565-05RE1@5X	DB	6-NOV-19	13:17:30	ST191106D1-1	NA
191106D1	4	1903565-16RE1	DB	6-NOV-19	14:05:25	ST191106D1-1	NA
191106D1	5	1903460-03	DB	6-NOV-19	14:53:21	ST191106D1-1	NA
191106D1	6	1903651-05	DB	6-NOV-19	15:41:12	ST191106D1-1	NA
191106D1	7	1903651-06	DB	6-NOV-19	16:29:02	ST191106D1-1	NA
191106D1	8	1903651-07	DB	6-NOV-19	17:16:52	ST191106D1-1	NA
191106D1	9	1903653-01	DB	6-NOV-19	18:04:47	ST191106D1-1	NA
191106D1	10	B9J0312-DUP2	DB	6-NOV-19	18:52:31	ST191106D1-1	NA
191106D1	11	1903653-02	DB	6-NOV-19	19:40:15	ST191106D1-1	NA
191106D1	12	1903653-03	DB	6-NOV-19	20:28:00	ST191106D1-1	NA
191106D1	13	1903653-04	DB	6-NOV-19	21:15:43	ST191106D1-1	NA
191106D1	14	1903431-01	DB	6-NOV-19	22:03:32	ST191106D1-1	NA
191106D1	15	1903431-02	DB	6-NOV-19	22:51:22	ST191106D1-1	NA

FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191106D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-SMS

VER Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	y	11.4	7.8 - 12.9
1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	50.5	8.2 - 12.3 (4) 39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	50.5	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	50.1	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	50.3	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	y	46.8	43.0 - 58.0
OCDD	M+2/M+4	0.87	0.76-1.02	y	98.8	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	y	8.85	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	y	55.7	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	y	54.2	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.9	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	47.7	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	50.1	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	y	47.8	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	y	47.2	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	y	47.7	43.0 - 58.0
OCDF	M+2/M+4	0.86	0.76-1.02	y	96.1	63.0 - 159.0

(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 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 11/6/19

FORM 4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

LABELLED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.84	0.65-0.89	y	95.1	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	98.8	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	y	112	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	y	97.2	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	99.5	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	y	107	72.0 - 138.0
13C-OCDD	M/M+2	0.89	0.76-1.02	y	241	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.77	0.65-0.89	y	103	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	95.4	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	92.6	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	108	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	103	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	y	105	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.44	0.37-0.51	y	97.5	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	106	77.0 - 129.0
13C-OCDF	M+2/M+4	0.86	0.76-1.02	y	242	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.45	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 11/6/19

FORM 5  
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 10-9-19

RT Window Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

ZB-5MS IS Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

DB\_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:54	1,3,6,8-TCDF (F)	20:47
1,2,8,9-TCDD (L)	27:07	1,2,8,9-TCDF (L)	27:15
1,2,4,7,9-PeCDD (F)	28:43	1,3,4,6,8-PeCDF (F)	27:13
1,2,3,8,9-PeCDD (L)	31:07	1,2,3,8,9-PeCDF (L)	31:21
1,2,4,6,7,9-HxCDD (F)	32:32	1,2,3,4,6,8-HxCDF (F)	31:60
1,2,3,7,8,9-HxCDD (L)	34:29	1,2,3,7,8,9-HxCDF (L)	34:51
1,2,3,4,6,7,9-HpCDD (F)	37:05	1,2,3,4,6,7,8-HpCDF (F)	36:43
1,2,3,4,6,7,8-HpCDD (L)	37:55	1,2,3,4,7,8,9-HpCDF (L)	38:28

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

-----  
ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 11/6/19

FORM 6A  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME	RRT	RRT
	REFERENCE		QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002

LABELED COMPOUNDS

13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.196	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.991	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.151	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.186	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052

Analyst: DB

Date: 11/6/19

FORM 6B  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191106D1 S#1 Analysis Date: 6-NOV-19 Time: 11:41:40

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.001	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001

LABELED COMPOUNDS

13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.038	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.026	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.145	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.129	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.227	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.234	1.091-1.371

Analyst: DB

Date: 11/6/19

Client ID: 1613 CS3 19C2204  
Lab ID: ST191106D1-1

Filename: 191106D1 S:1 Acq: 6-NOV-19 11:41:40  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

ConCal: ST191106D1-1  
EndCAL: NA

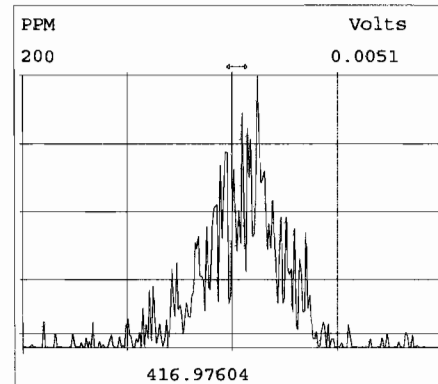
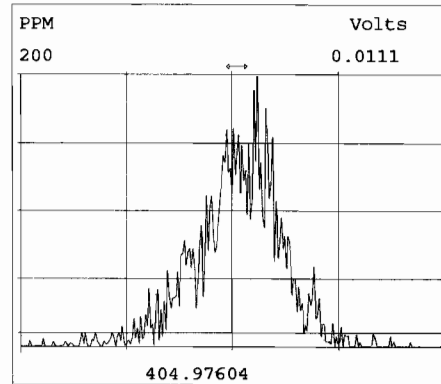
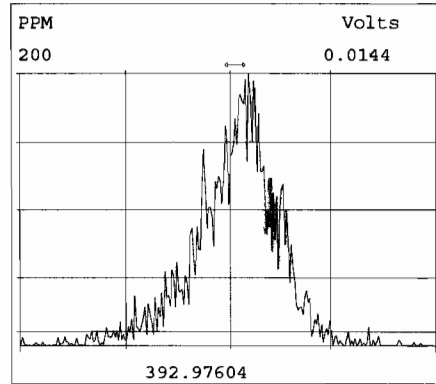
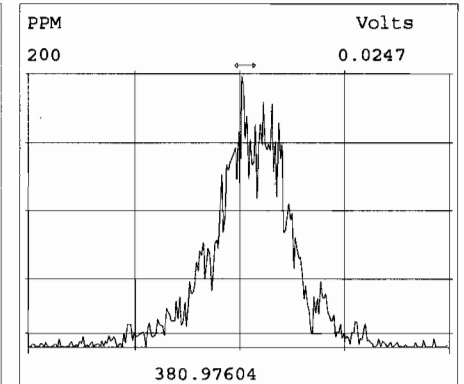
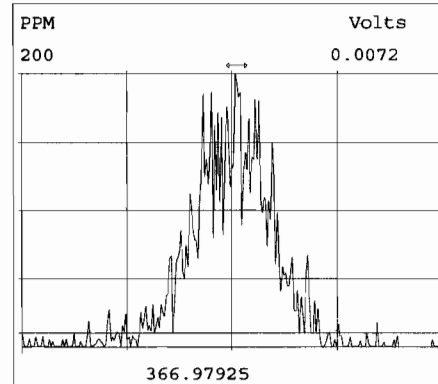
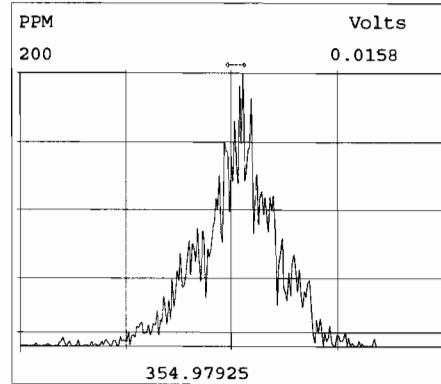
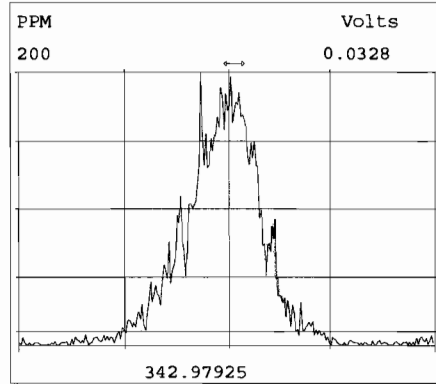
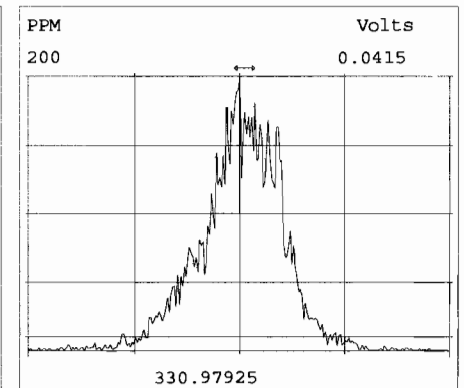
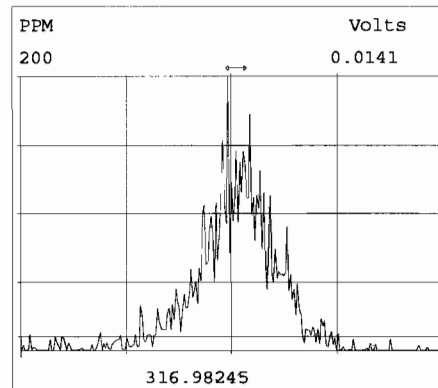
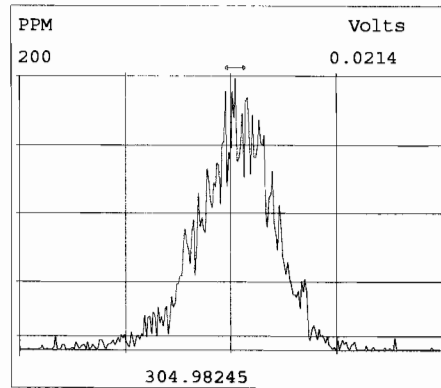
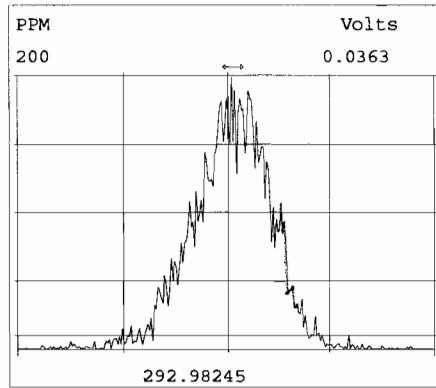
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	6.82e+05	0.77 y	0.91	26:16	11.450		* 2.5		*	Total Tetra-Dioxins	86.8	87.8	*	*	
1,2,3,7,8-PeCDD	2.51e+06	0.63 y	0.90	30:45	50.469		* 2.5		*	Total Penta-Dioxins	198	198	*	*	
1,2,3,4,7,8-HxCDD	2.74e+06	1.25 y	1.10	34:04	50.478		* 2.5		*	Total Hexa-Dioxins	222	223	*	*	
1,2,3,6,7,8-HxCDD	2.68e+06	1.29 y	0.94	34:11	50.148		* 2.5		*	Total Hepta-Dioxins	122	123	*	*	
1,2,3,7,8,9-HxCDD	2.65e+06	1.26 y	0.96	34:29	50.280		* 2.5		*	Total Tetra-Furans	34.0	34.9	*	*	
1,2,3,4,6,7,8-HpCDD	2.19e+06	1.02 y	0.98	37:55	46.849		* 2.5		*	Total Penta-Furans	238.77	240.08	*	*	
OCDD	4.52e+06	0.87 y	0.96	41:14	98.839		* 2.5		*	Total Hexa-Furans	257	258	*	*	
										Total Hepta-Furans	95.3	96.2	*	*	
2,3,7,8-TCDF	9.41e+05	0.72 y	0.95	25:29	8.8480		* 2.5		*						
1,2,3,7,8-PeCDF	4.56e+06	1.54 y	0.96	29:35	55.662		* 2.5		*						
2,3,4,7,8-PeCDF	4.51e+06	1.52 y	1.01	30:28	54.177		* 2.5		*						
1,2,3,4,7,8-HxCDF	3.55e+06	1.24 y	1.18	33:10	48.899		* 2.5		*						
1,2,3,6,7,8-HxCDF	3.70e+06	1.23 y	1.07	33:18	47.690		* 2.5		*						
2,3,4,6,7,8-HxCDF	3.72e+06	1.25 y	1.11	33:54	50.074		* 2.5		*						
1,2,3,7,8,9-HxCDF	3.02e+06	1.26 y	1.06	34:51	47.785		* 2.5		*						
1,2,3,4,6,7,8-HpCDF	2.69e+06	1.03 y	1.13	36:43	47.193		* 2.5		*						
1,2,3,4,7,8,9-HpCDF	2.58e+06	1.04 y	1.28	38:28	47.715		* 2.5		*						
OCDF	5.18e+06	0.86 y	0.95	41:27	96.090		* 2.5		*						
										Rec	Qual				
IS 13C-2,3,7,8-TCDD	6.58e+06	0.84 y	1.10	26:15	95.114					95.1					
IS 13C-1,2,3,7,8-PeCDD	5.51e+06	0.63 y	0.88	30:44	98.847					98.8					
IS 13C-1,2,3,4,7,8-HxCDD	4.94e+06	1.33 y	0.64	34:03	112.46					112					
IS 13C-1,2,3,6,7,8-HxCDD	5.68e+06	1.30 y	0.86	34:10	97.212					97.2					
IS 13C-1,2,3,7,8,9-HxCDD	5.48e+06	1.26 y	0.81	34:28	99.459					99.5					
IS 13C-1,2,3,4,6,7,8-HpCDD	4.78e+06	1.05 y	0.65	37:55	106.99					107					
IS 13C-OCDD	9.54e+06	0.89 y	0.58	41:13	240.70					120					
IS 13C-2,3,7,8-TCDF	1.12e+07	0.77 y	1.03	25:28	103.38					103					
IS 13C-1,2,3,7,8-PeCDF	8.53e+06	1.62 y	0.85	29:34	95.413					95.4					
IS 13C-2,3,4,7,8-PeCDF	8.21e+06	1.62 y	0.85	30:28	92.617					92.6					
IS 13C-1,2,3,4,7,8-HxCDF	6.17e+06	0.51 y	0.83	33:10	108.47					108					
IS 13C-1,2,3,6,7,8-HxCDF	7.26e+06	0.51 y	1.03	33:17	102.72					103					
IS 13C-2,3,4,6,7,8-HxCDF	6.68e+06	0.51 y	0.95	33:53	102.49					102					
IS 13C-1,2,3,7,8,9-HxCDF	5.95e+06	0.52 y	0.83	34:51	105.22					105					
IS 13C-1,2,3,4,6,7,8-HpCDF	5.05e+06	0.44 y	0.76	36:42	97.470					97.5					
IS 13C-1,2,3,4,7,8,9-HpCDF	4.22e+06	0.44 y	0.58	38:27	106.34					106					
IS 13C-OCDF	1.14e+07	0.86 y	0.69	41:26	241.89					121					
C/Up 37C1-2,3,7,8-TCDD	7.15e+05		1.20	26:16	9.4475					94.5					
RS/RT 13C-1,2,3,4-TCDD	6.32e+06	0.86 y	1.00	25:41	100.00										
RS 13C-1,2,3,4-TCDF	1.05e+07	0.80 y	1.00	24:16	100.00										
RS/RT 13C-1,2,3,4,6,9-HxCDF	6.84e+06	0.51 y	1.00	33:35	100.00										

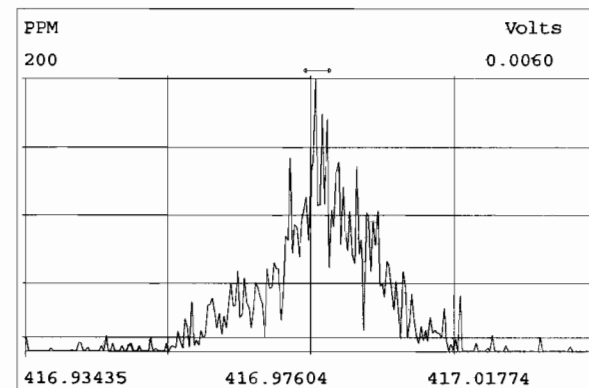
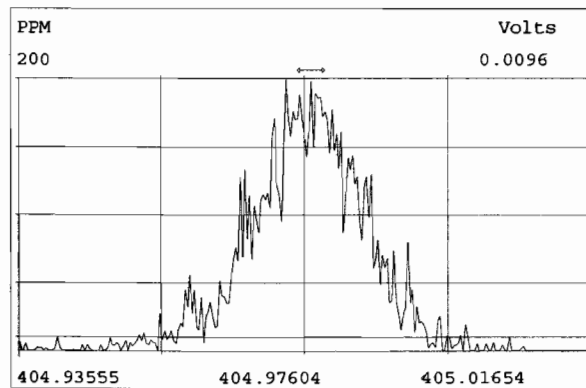
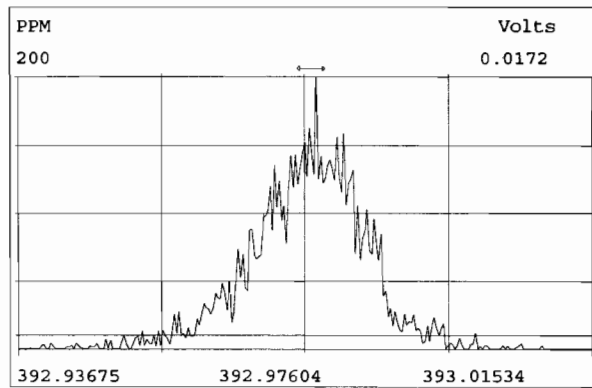
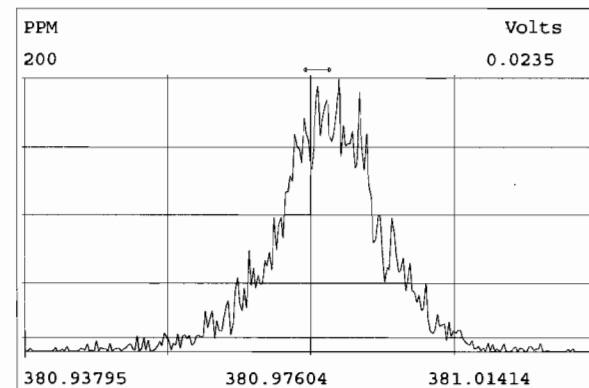
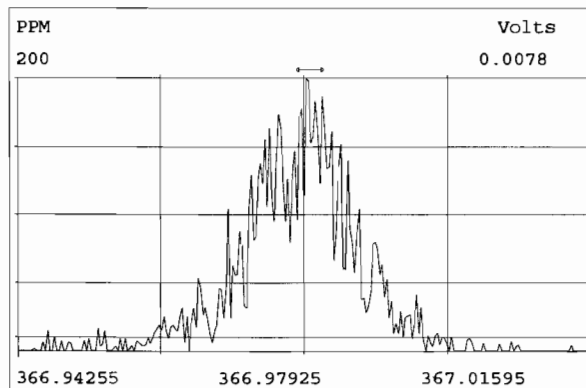
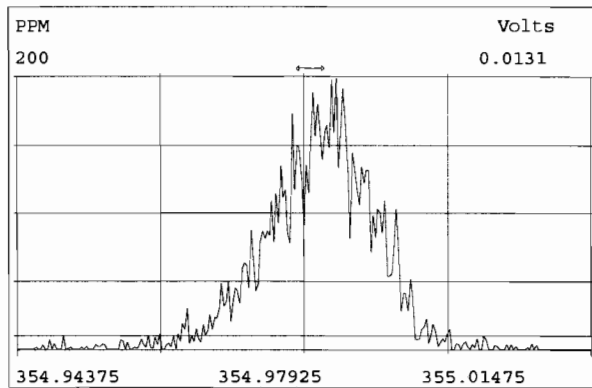
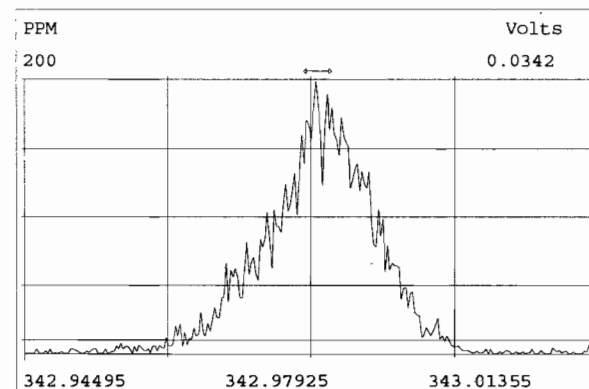
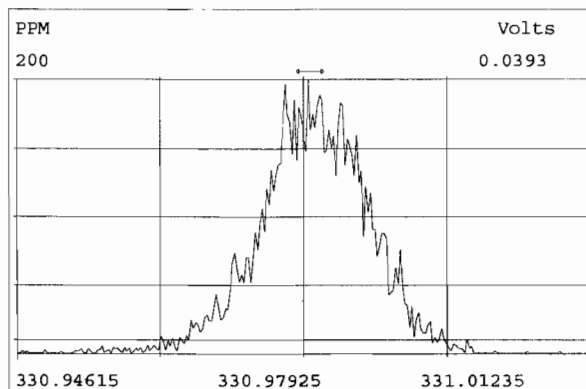
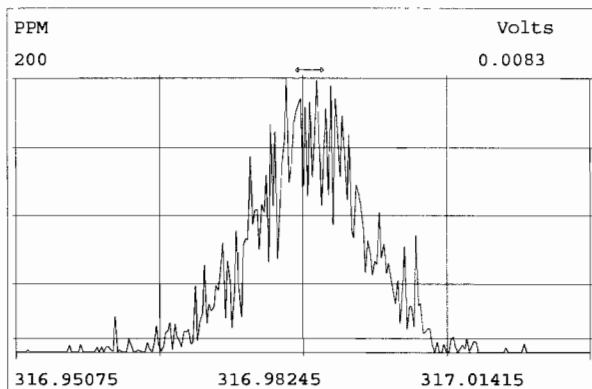
Integrations  
by DB  
Analyst: DB  
Date: 11/6/19  
Reviewed  
by CT  
Analyst: CT  
Date: 11/07/19

Vista Analytical Laboratory - Injection Log Run file: 191106D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191106D1	1	ST191106D1-1	DB	6-NOV-19	11:41:40	ST191106D1-1	NA
191106D1	2	SOLVENT BLANK	DB	6-NOV-19	12:29:34	ST191106D1-1	NA
191106D1	3	1903565-05RE1@5X	DB	6-NOV-19	13:17:30	ST191106D1-1	NA
191106D1	4	1903565-16RE1	DB	6-NOV-19	14:05:25	ST191106D1-1	NA
191106D1	5	1903460-03	DB	6-NOV-19	14:53:21	ST191106D1-1	NA
191106D1	6	1903651-05	DB	6-NOV-19	15:41:12	ST191106D1-1	NA
191106D1	7	1903651-06	DB	6-NOV-19	16:29:02	ST191106D1-1	NA
191106D1	8	1903651-07	DB	6-NOV-19	17:16:52	ST191106D1-1	NA
191106D1	9	1903653-01	DB	6-NOV-19	18:04:47	ST191106D1-1	NA
191106D1	10	B9J0312-DUP2	DB	6-NOV-19	18:52:31	ST191106D1-1	NA
191106D1	11	1903653-02	DB	6-NOV-19	19:40:15	ST191106D1-1	NA
191106D1	12	1903653-03	DB	6-NOV-19	20:28:00	ST191106D1-1	NA
191106D1	13	1903653-04	DB	6-NOV-19	21:15:43	ST191106D1-1	NA
191106D1	14	1903431-01	DB	6-NOV-19	22:03:32	ST191106D1-1	NA
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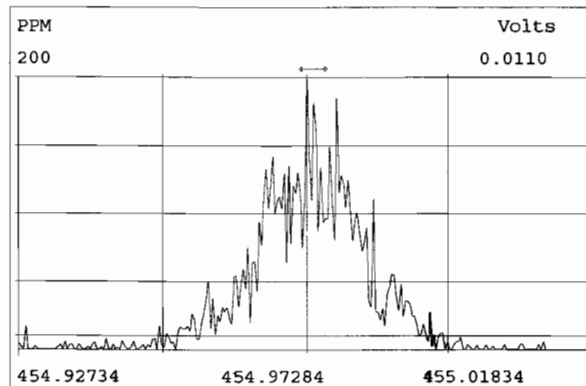
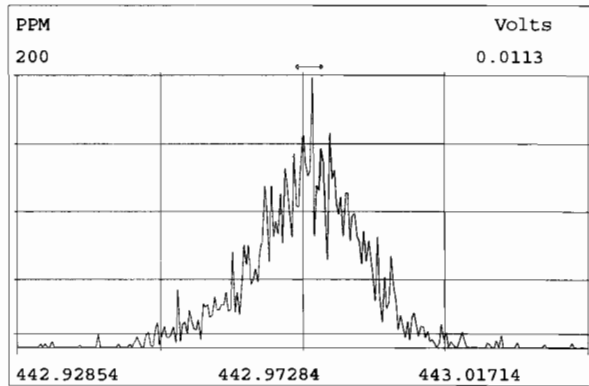
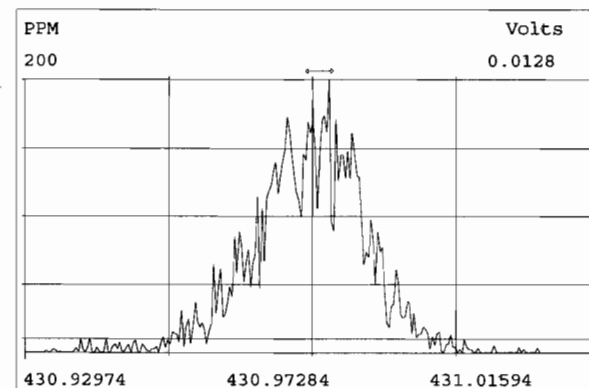
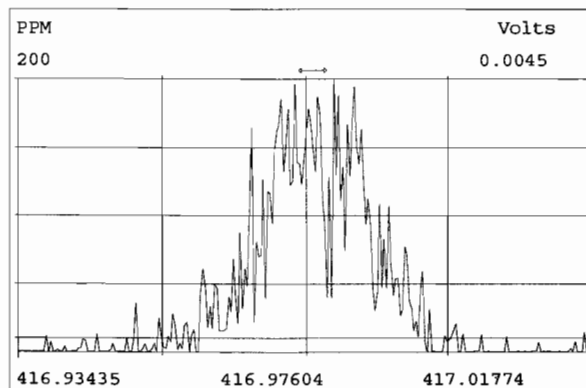
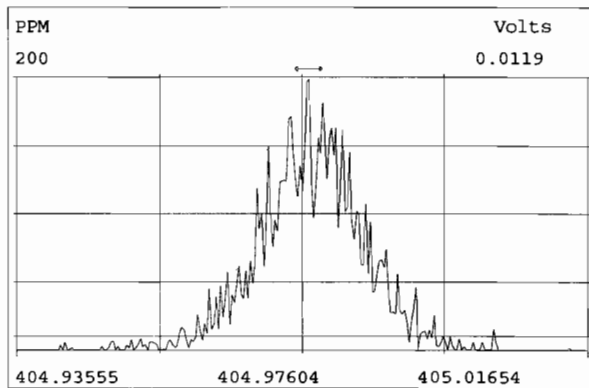
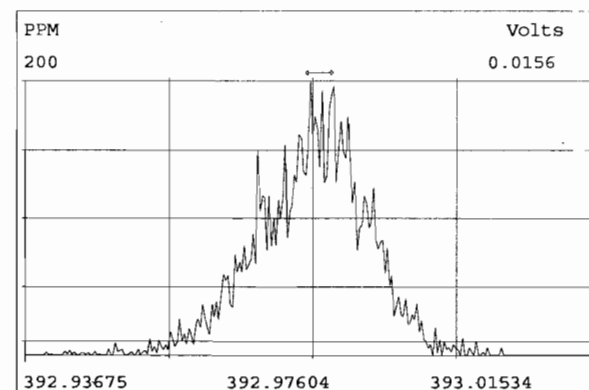
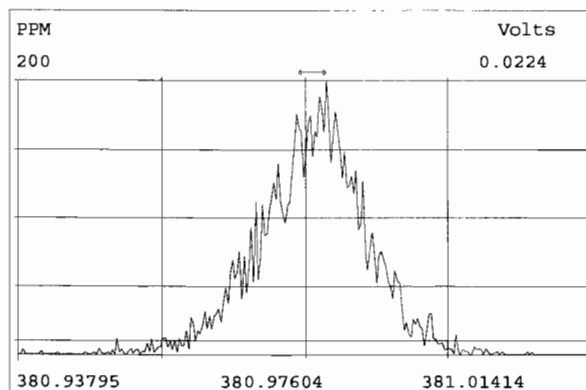
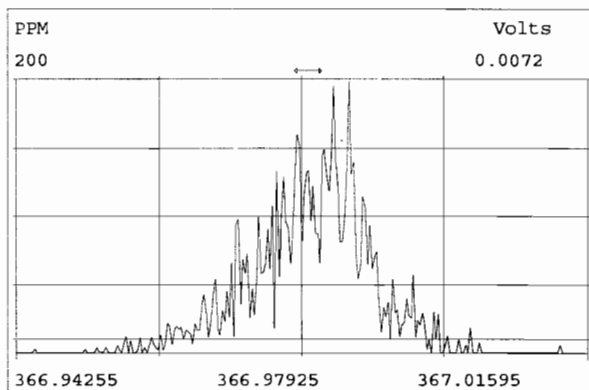






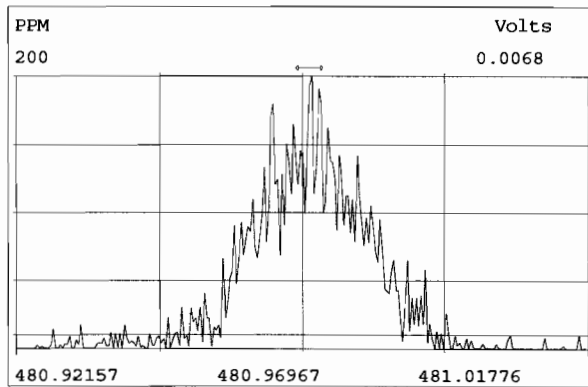
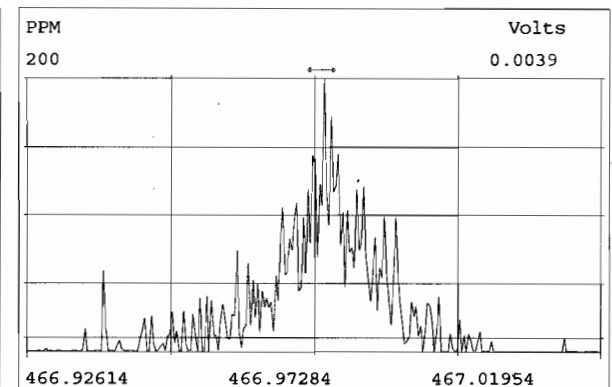
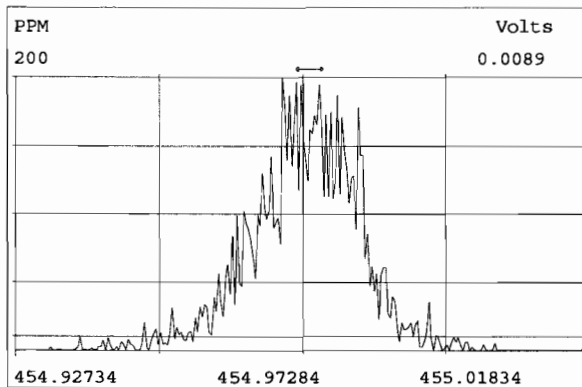
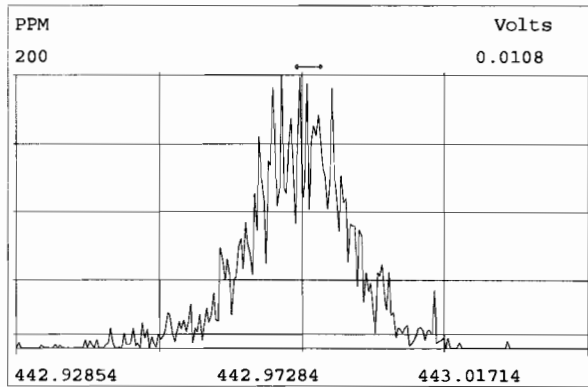
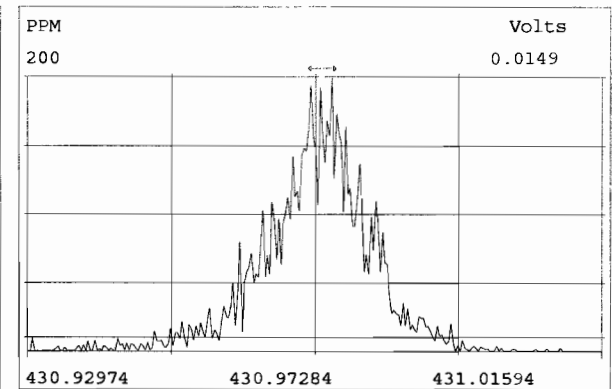
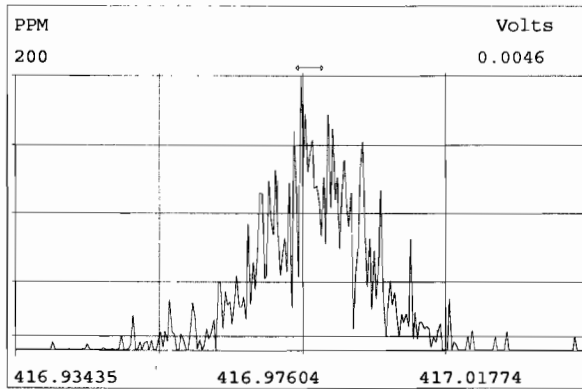
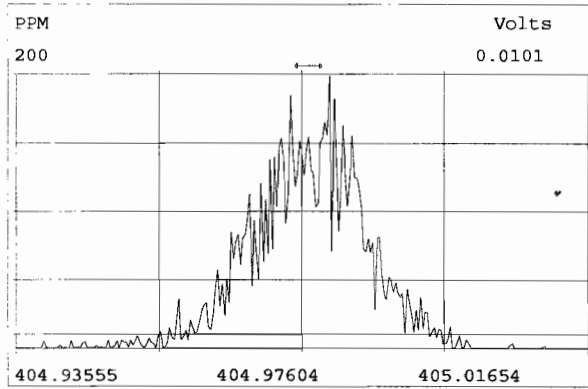
Peak Locate Examination: 6-NOV-2019:11:39 File:191106D1

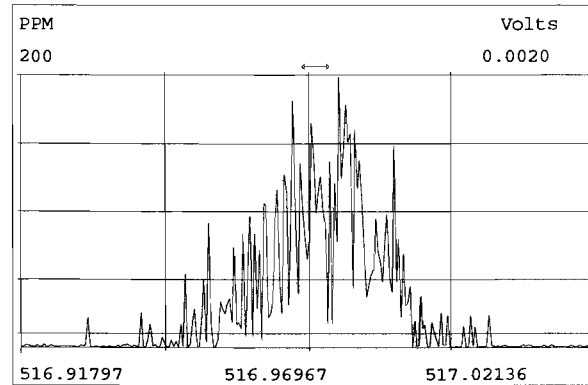
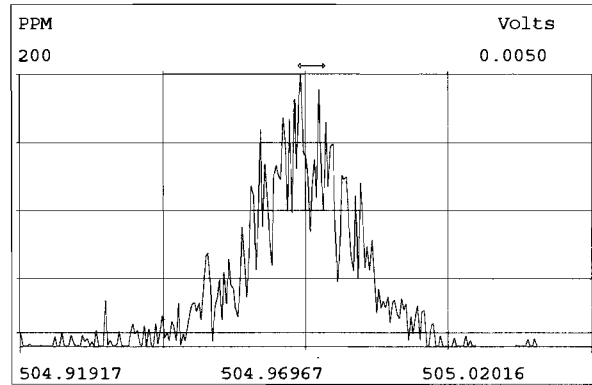
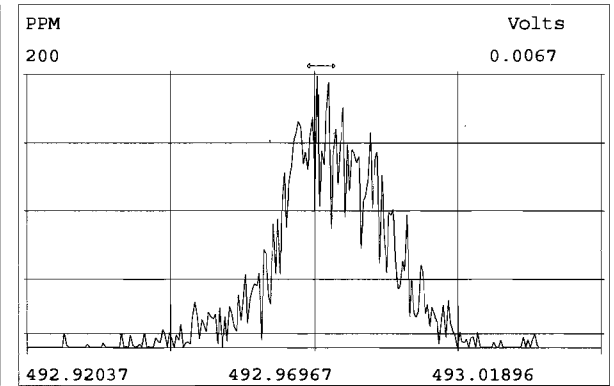
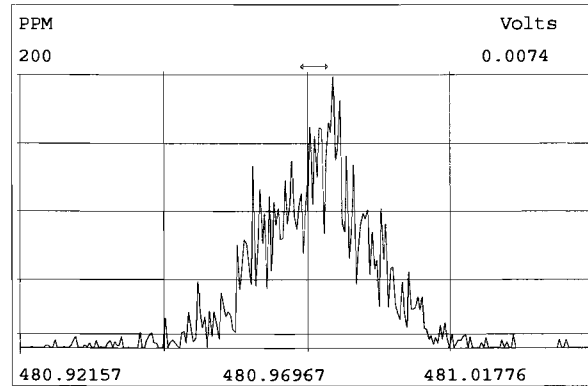
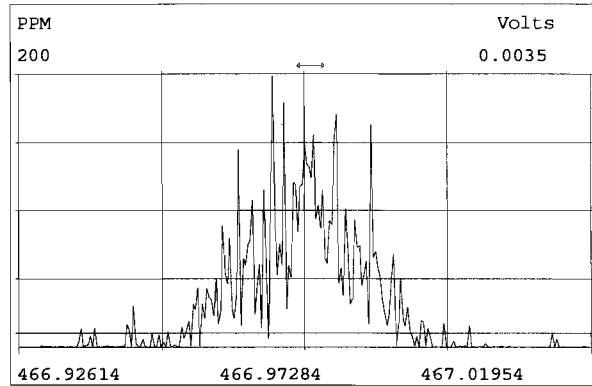
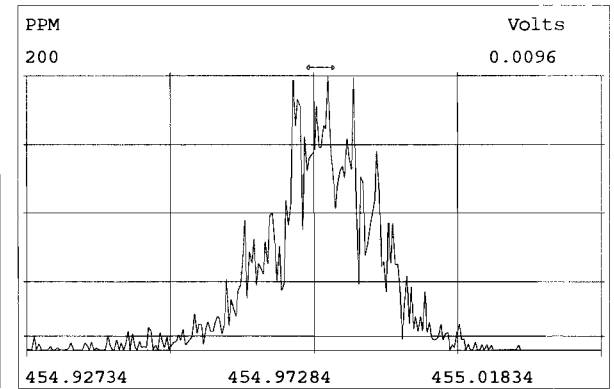
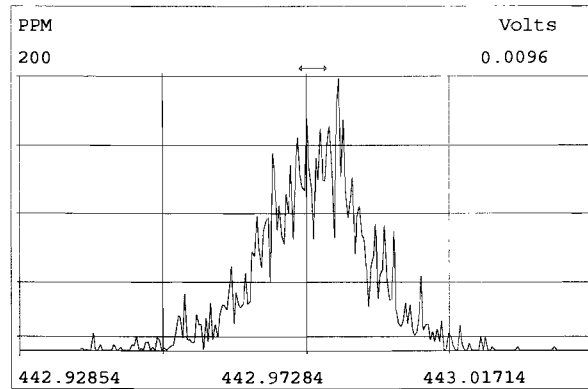
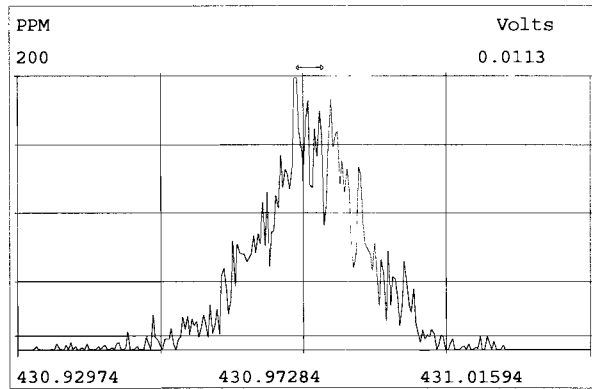
Experiment:OCDD\_DB5 Function:3 Reference:PFK



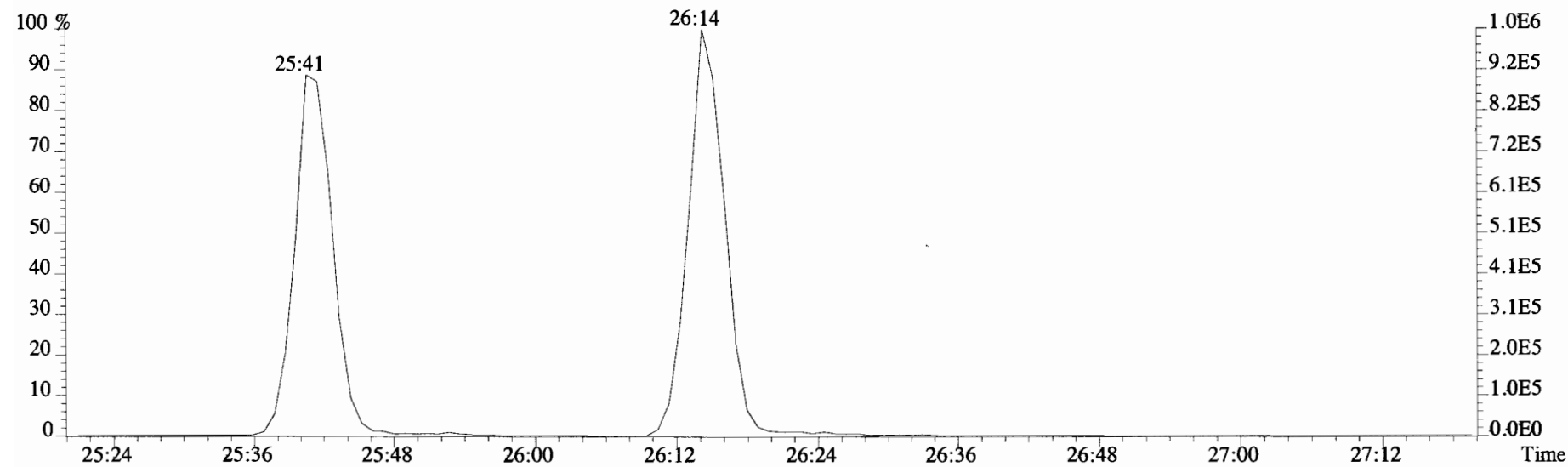
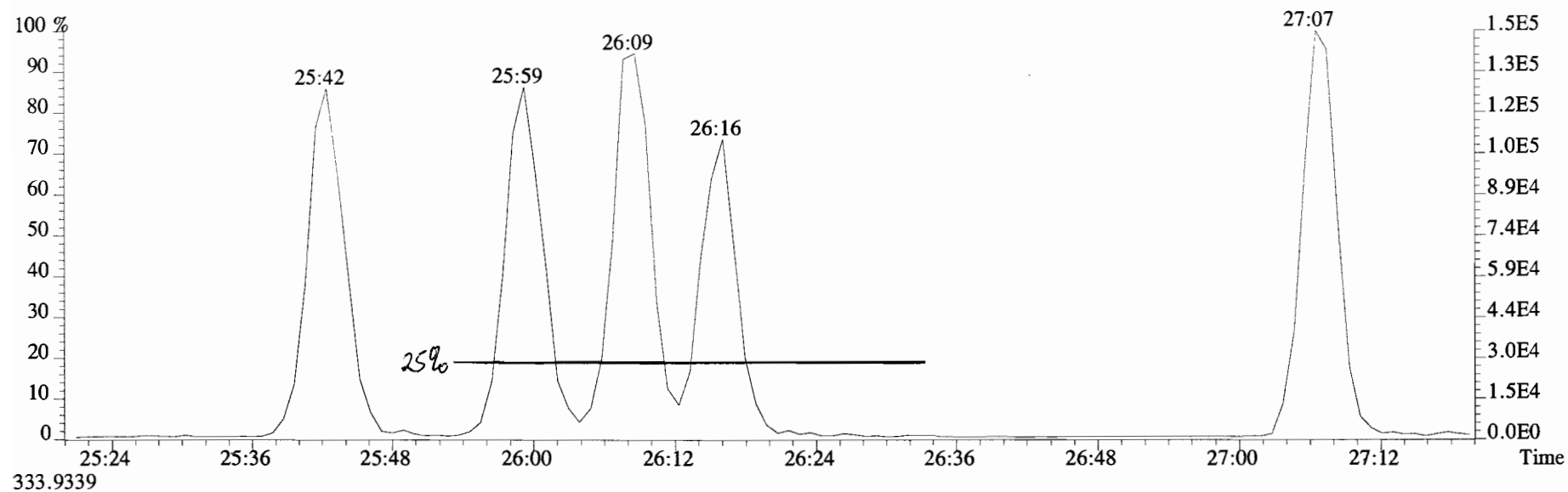
Peak Locate Examination: 6-NOV-2019:11:40 File:191106D1

Experiment:OCDD\_DB5 Function:4 Reference:PFK

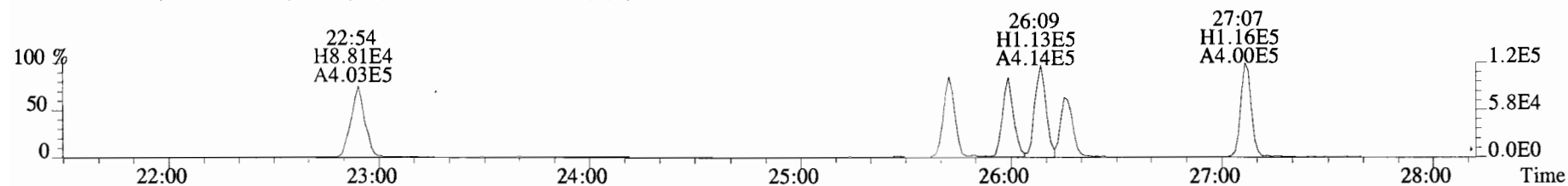




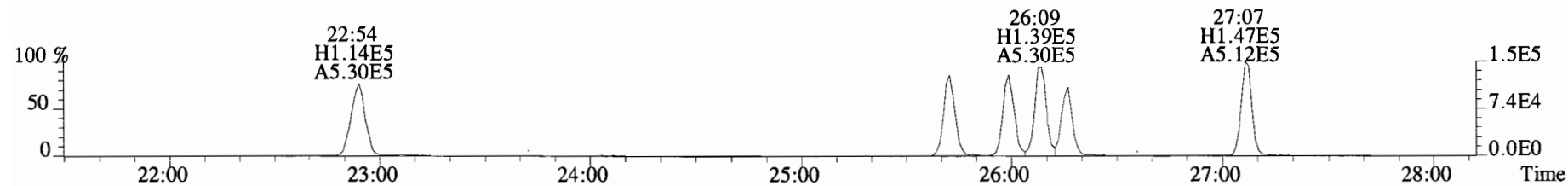
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936



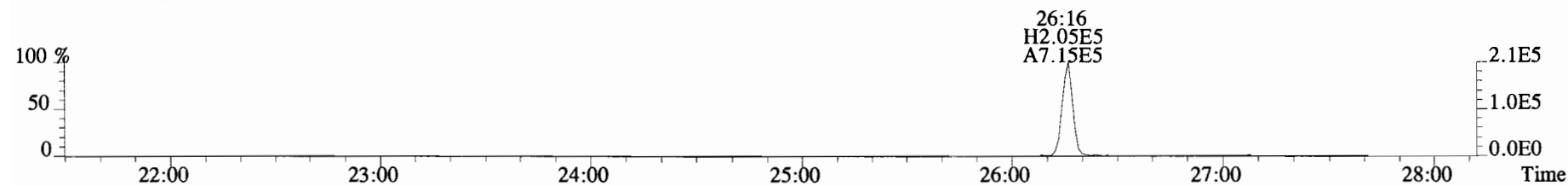
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



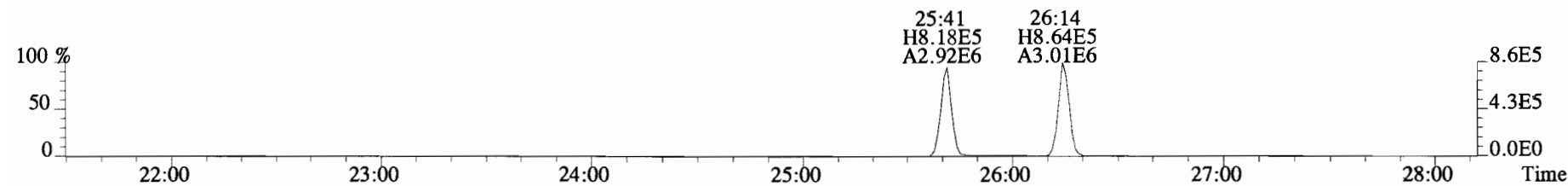
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



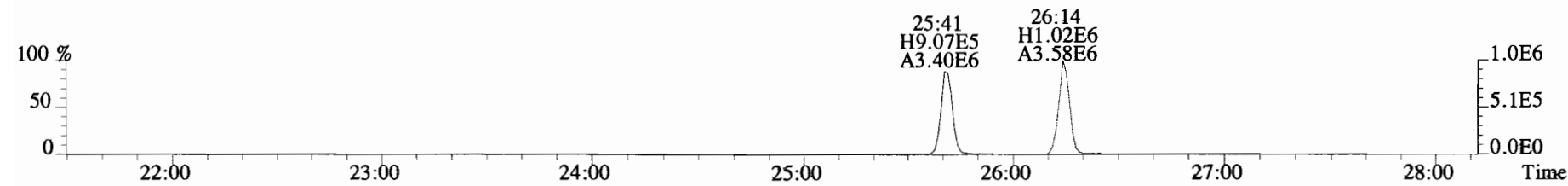
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



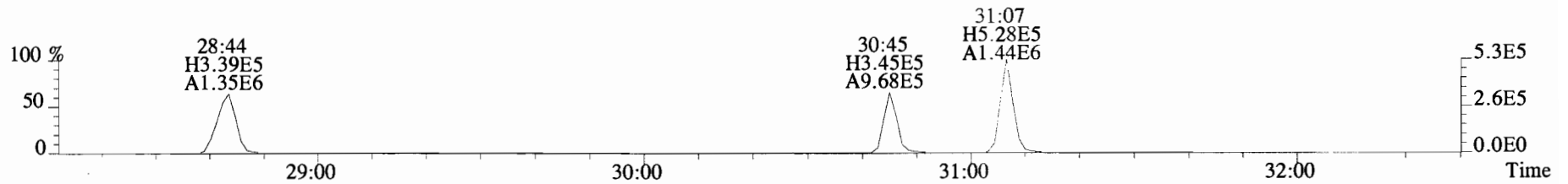
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



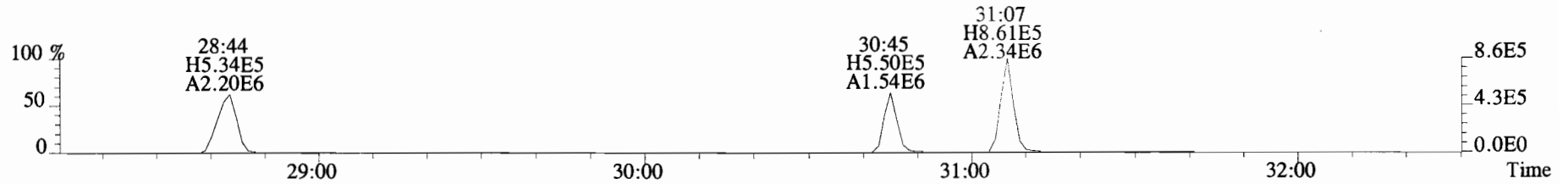
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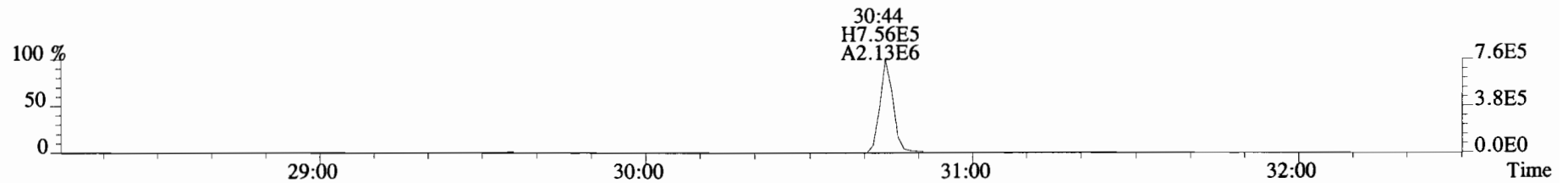
File:191106D1 #1-211 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



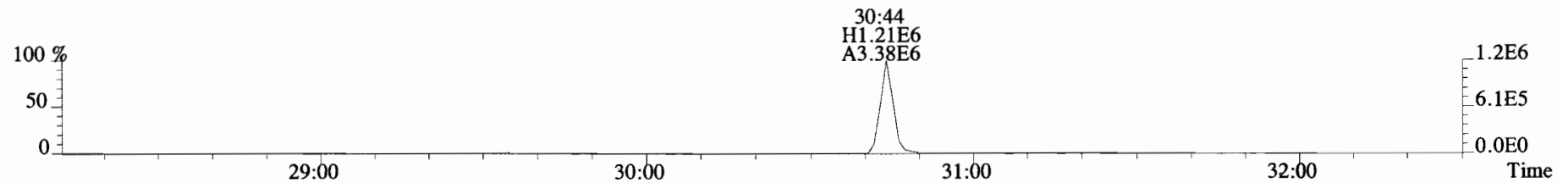
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



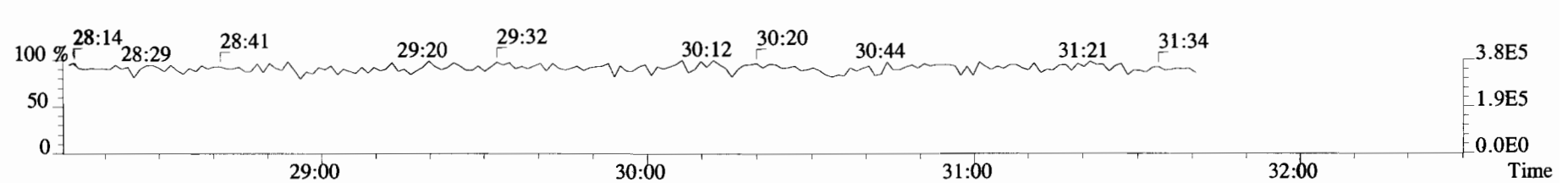
365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

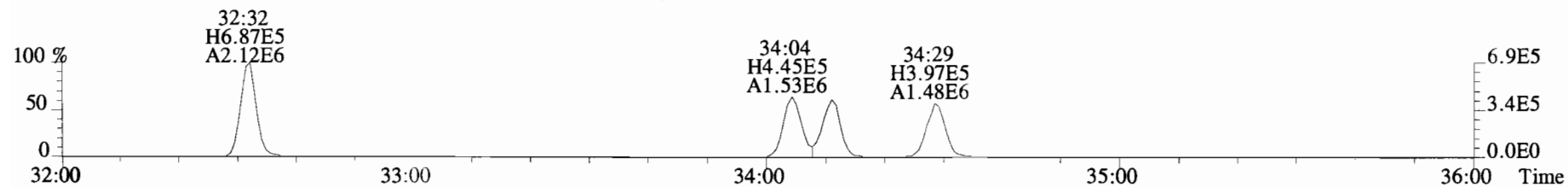


366.9792 F:2

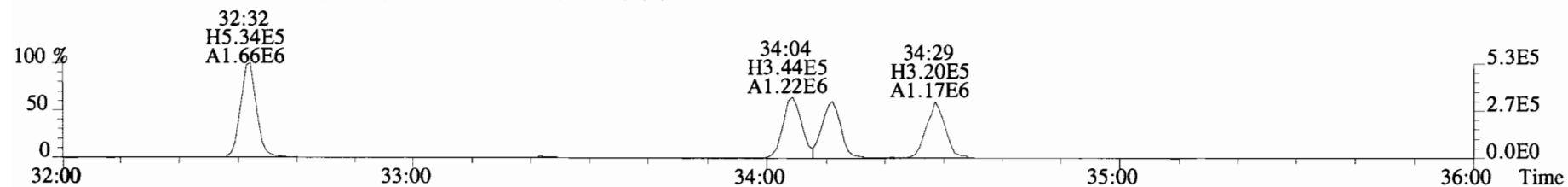




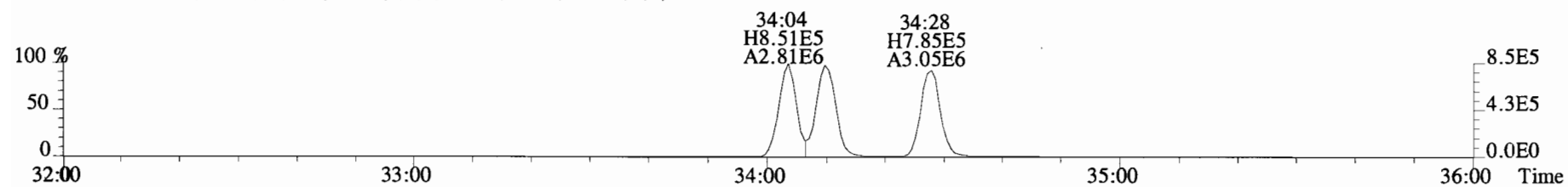
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



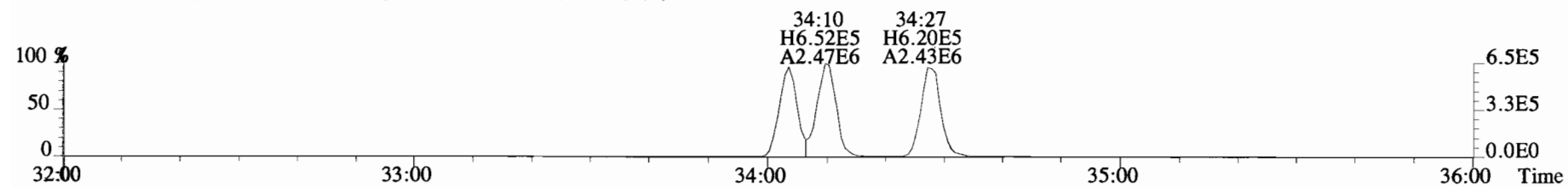
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



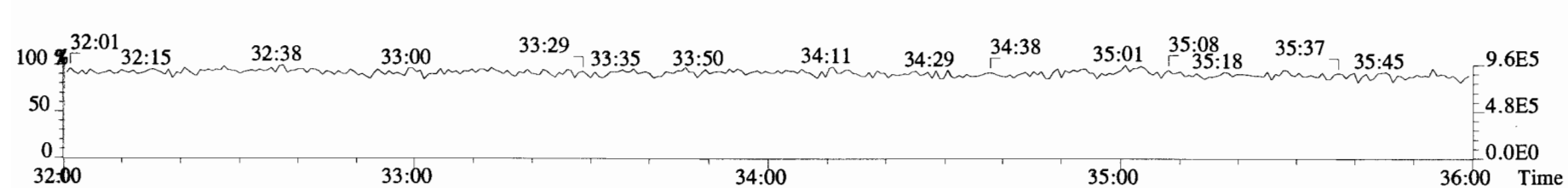
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



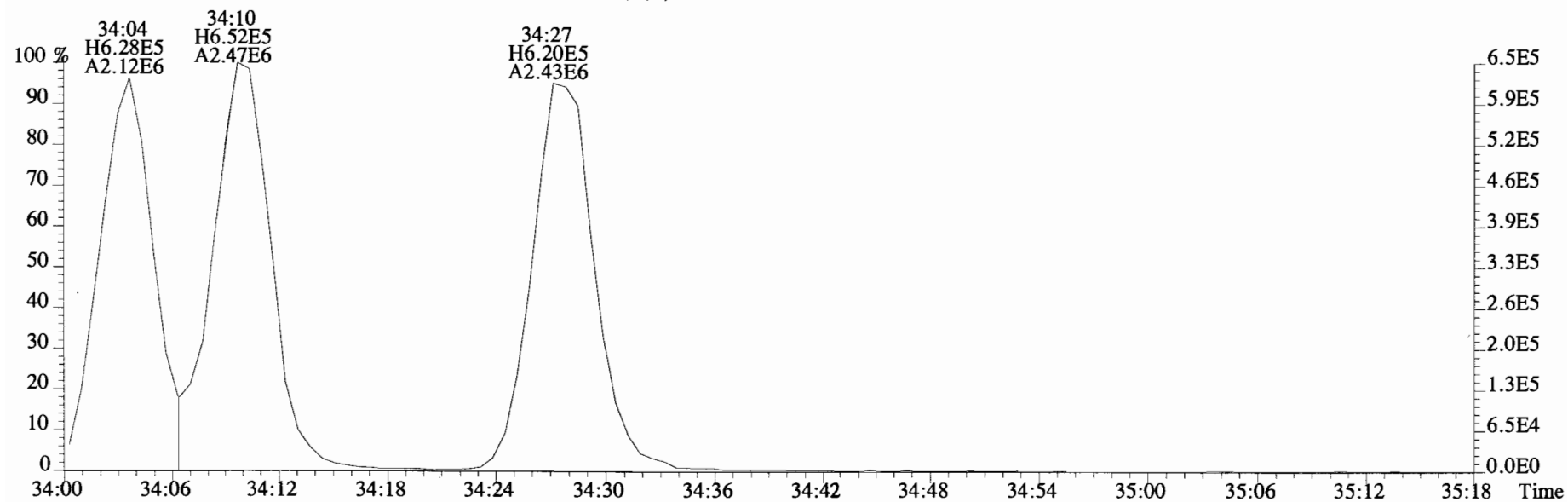
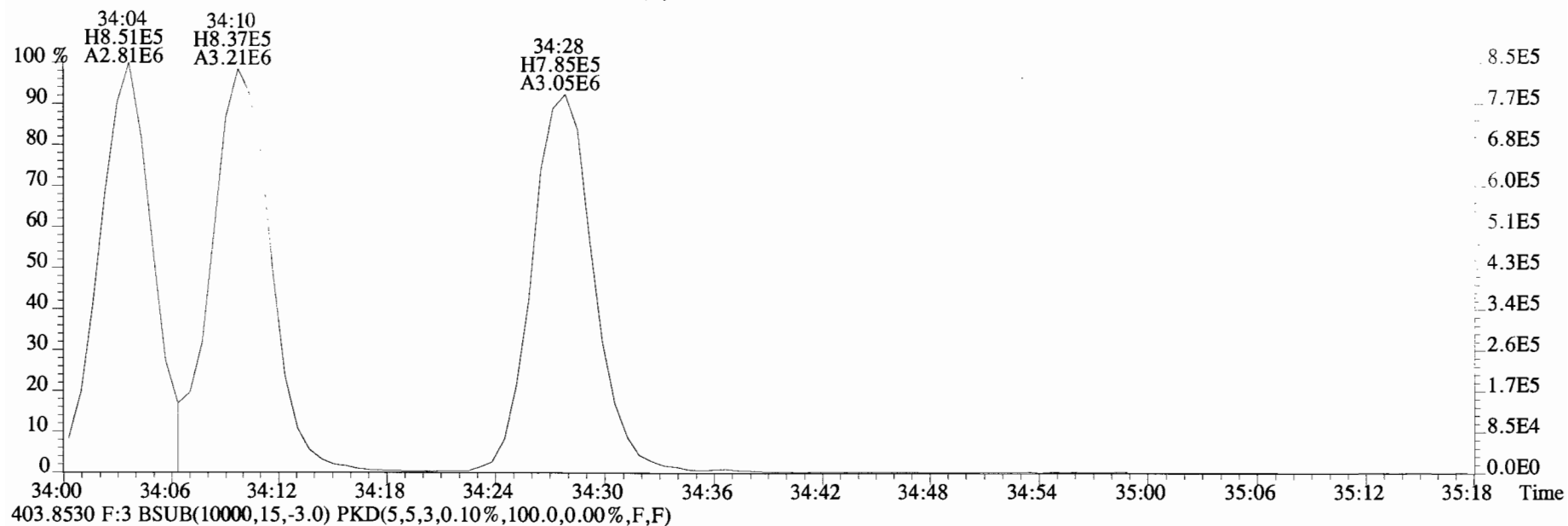
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



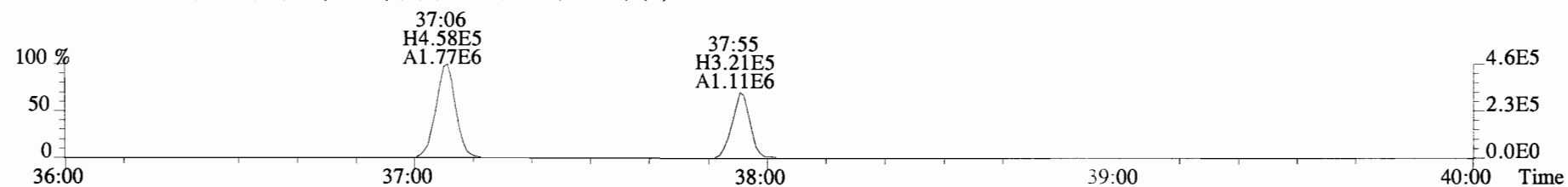
392.9760 F:3



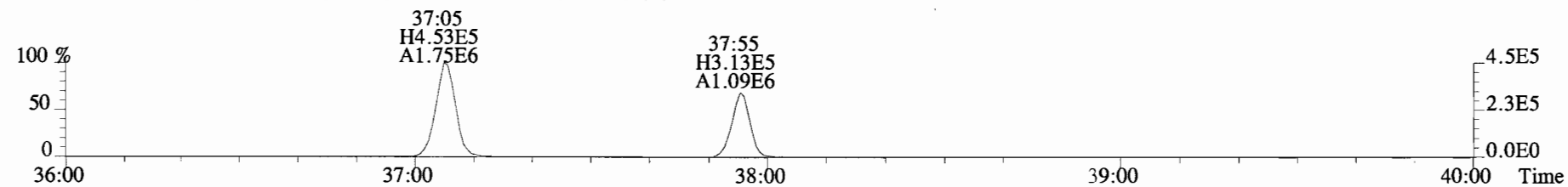
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



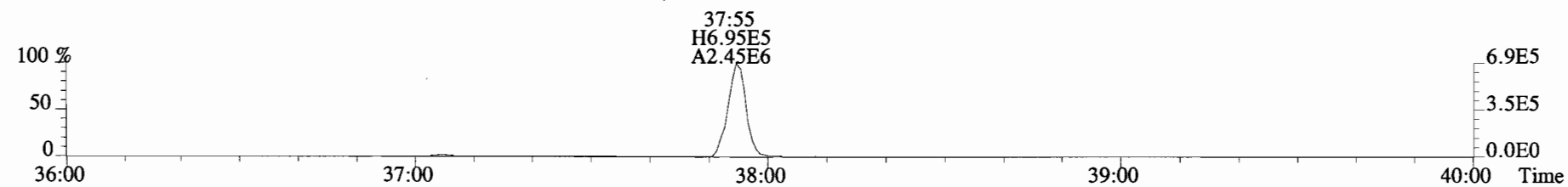
File:191106D1 #1-356 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



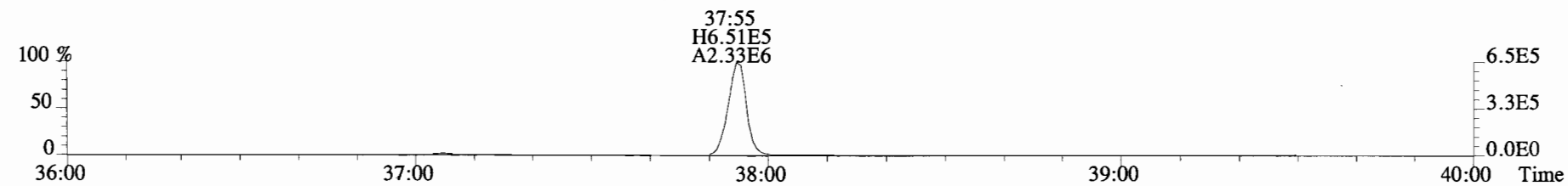
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



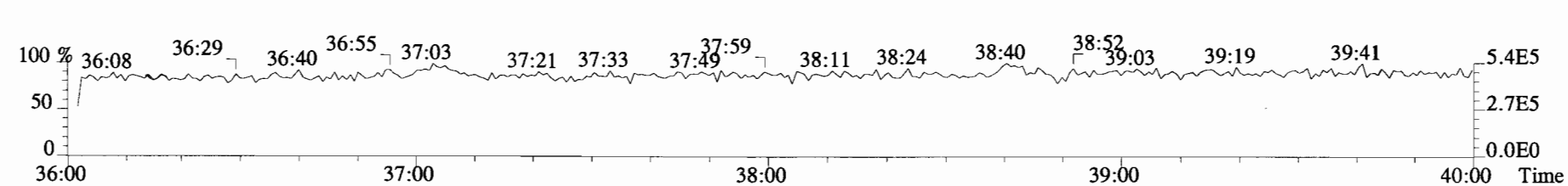
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



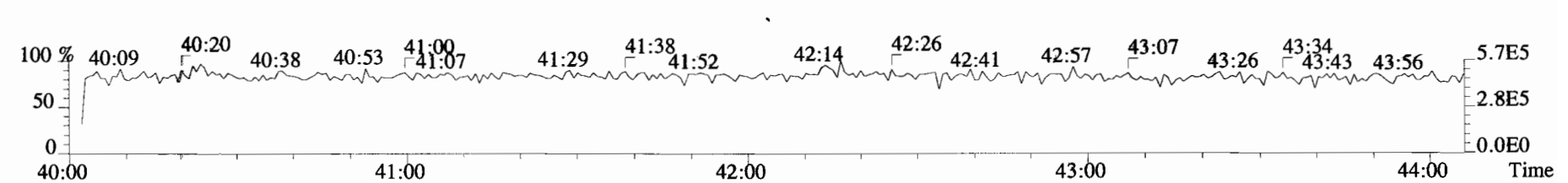
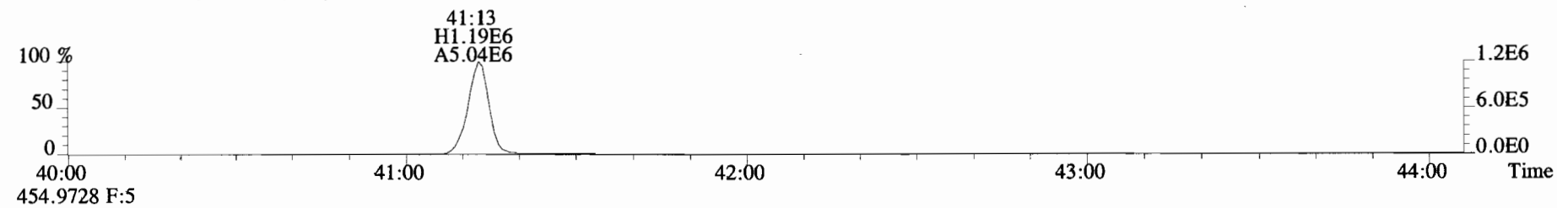
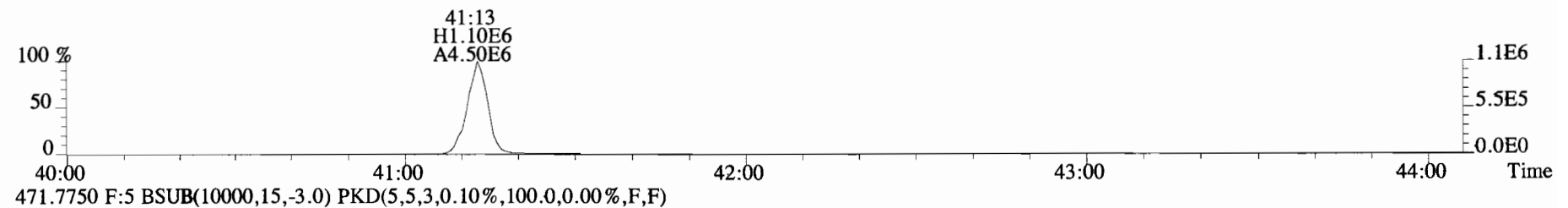
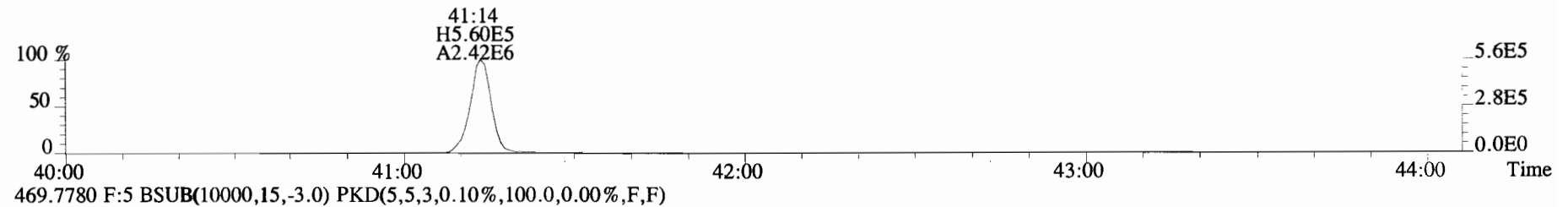
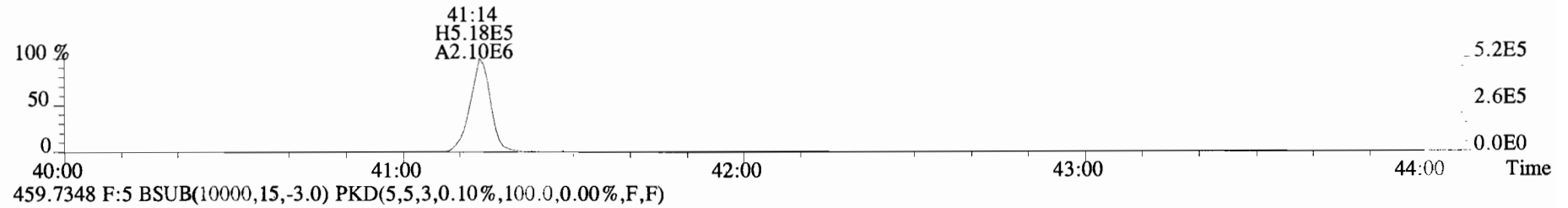
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



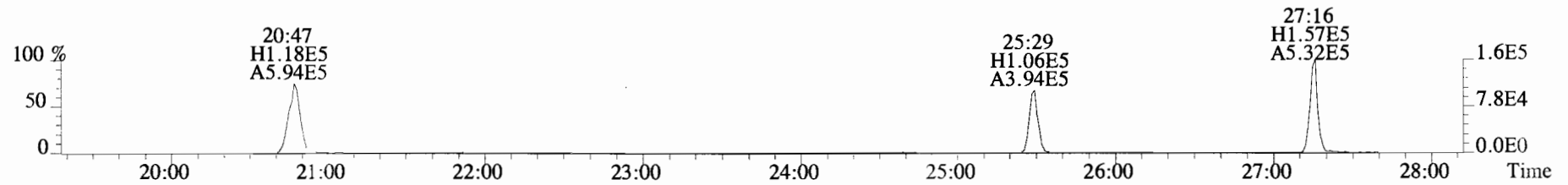
454.9728 F:4



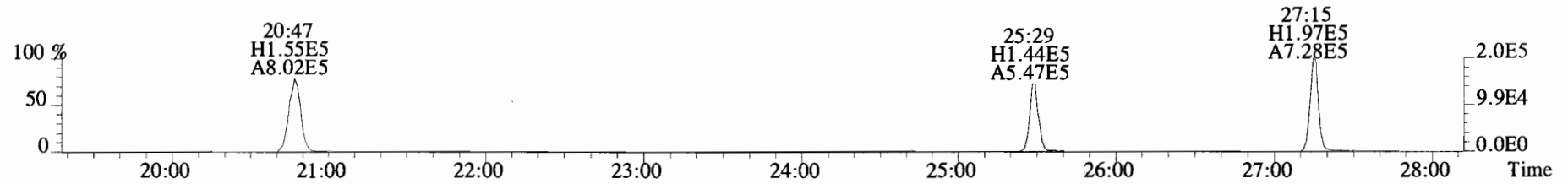
File:191106D1 #1-431 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



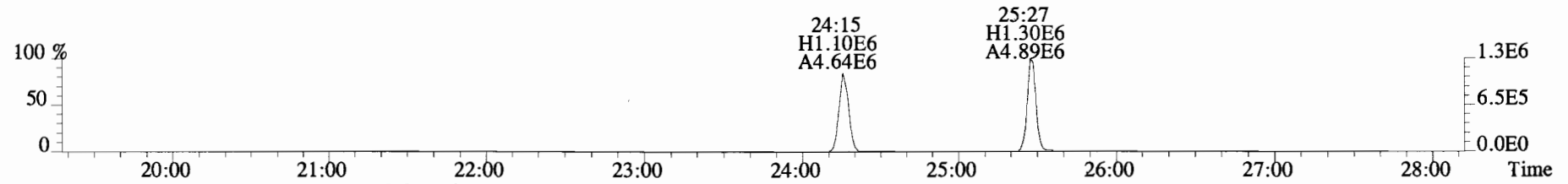
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



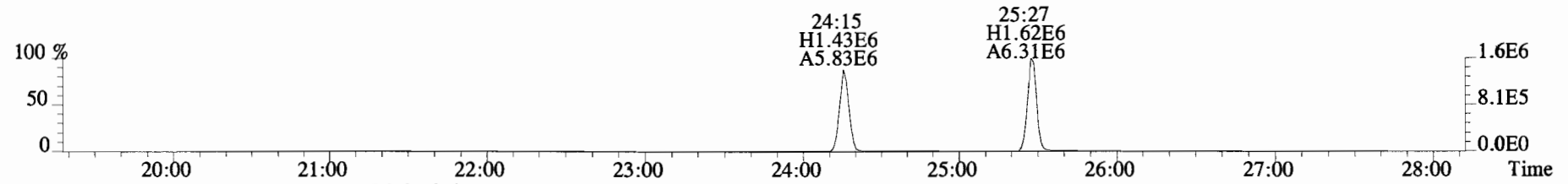
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



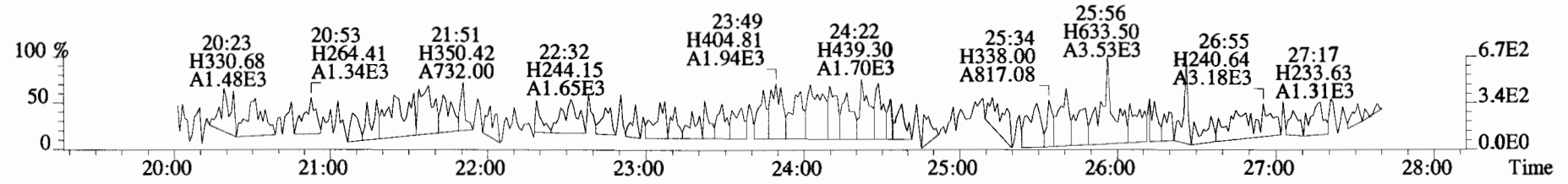
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



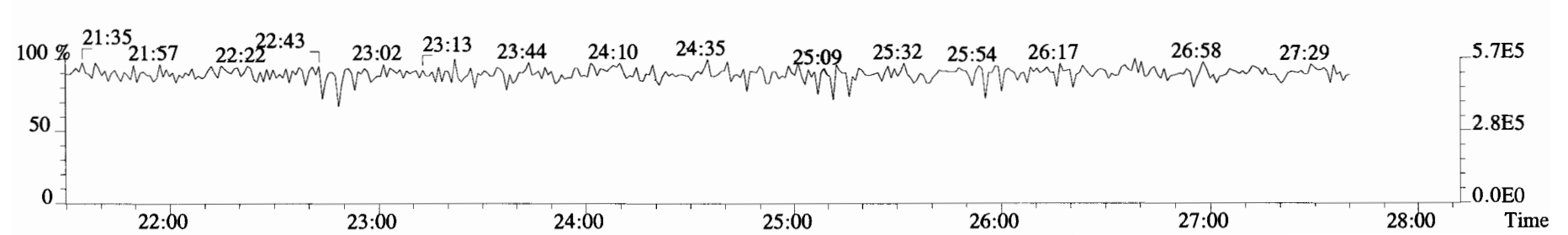
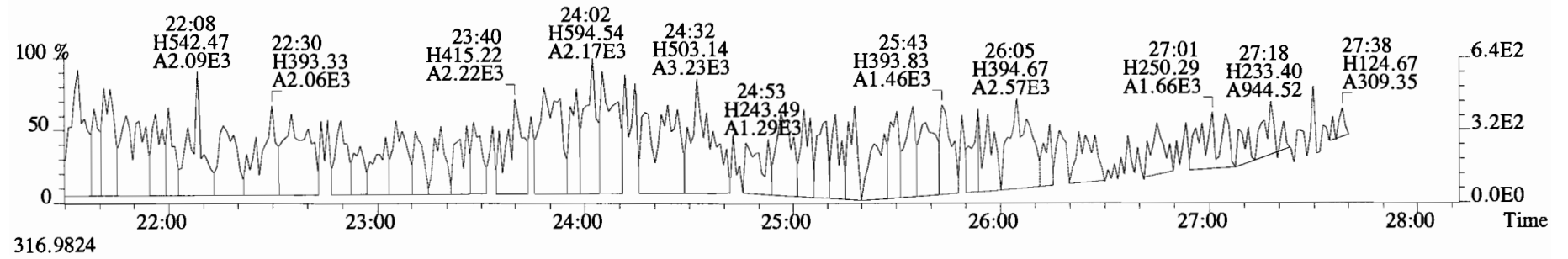
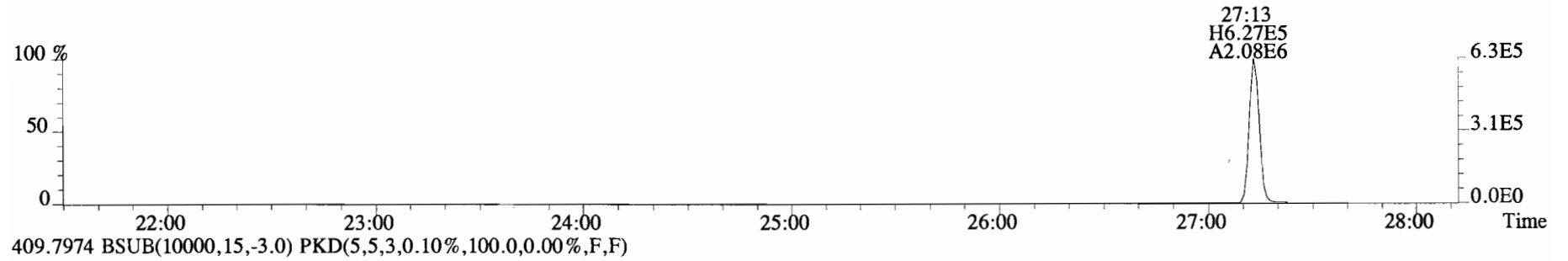
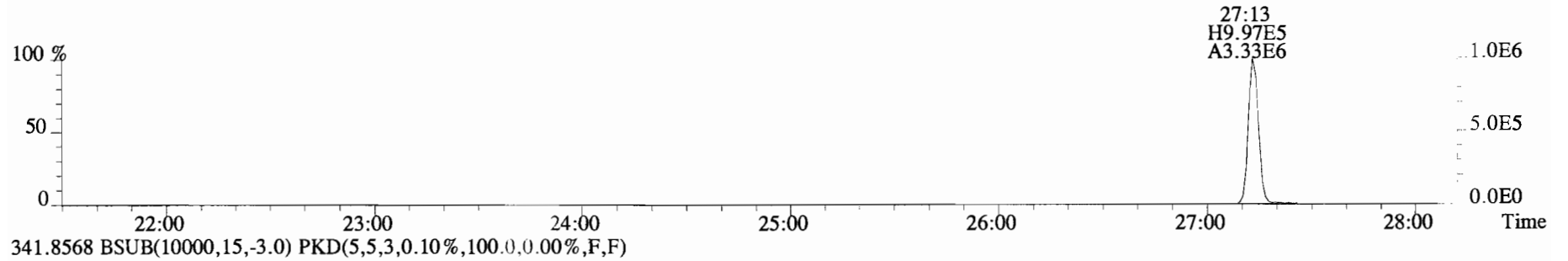
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



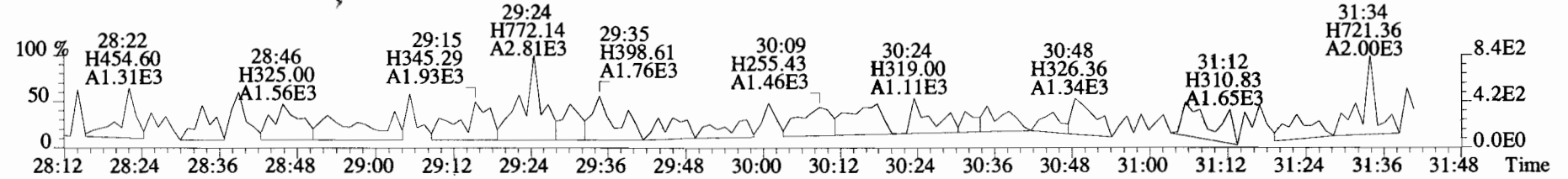
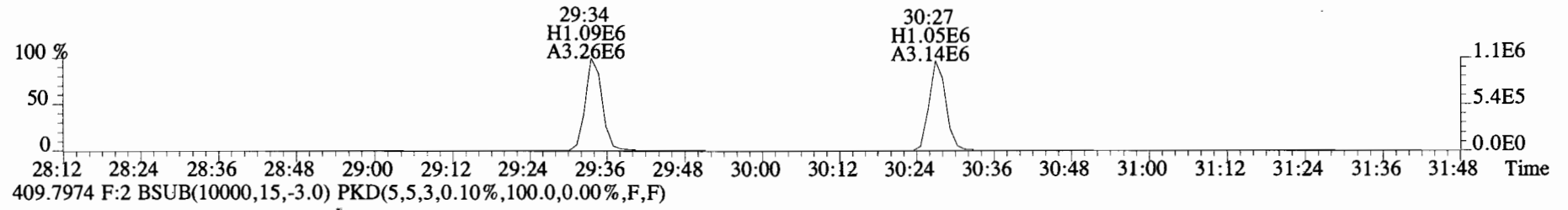
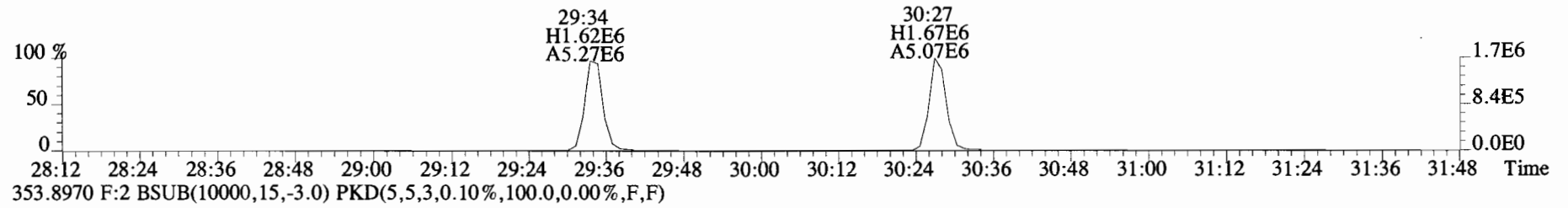
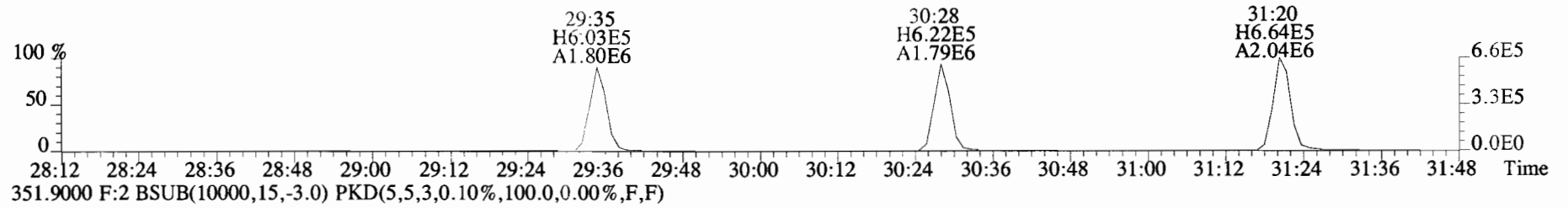
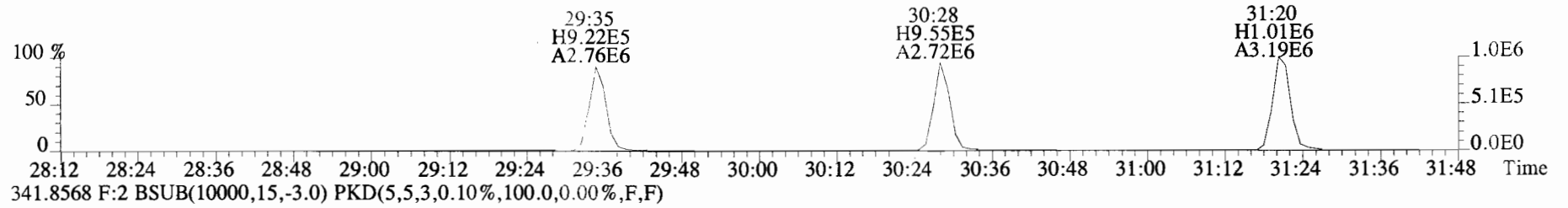
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



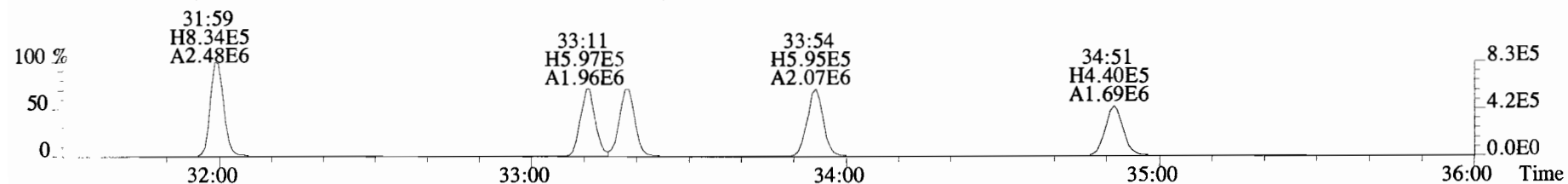
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



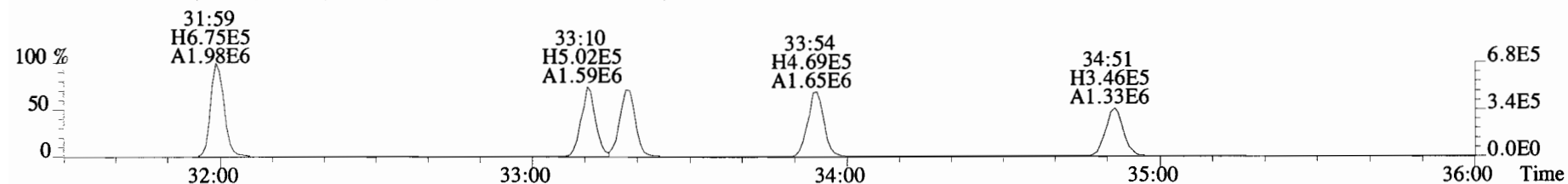
File:191106D1 #1-211 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



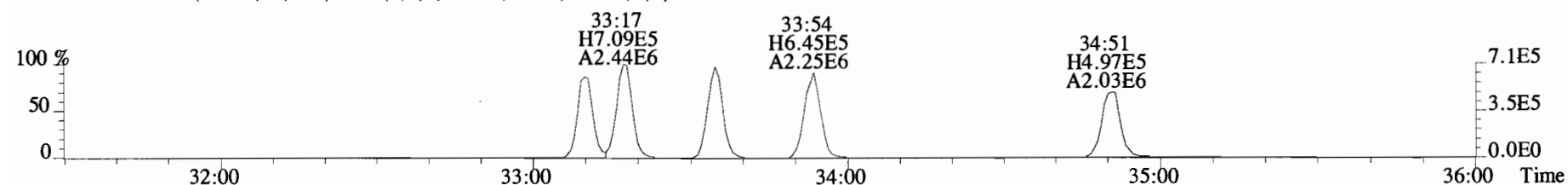
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



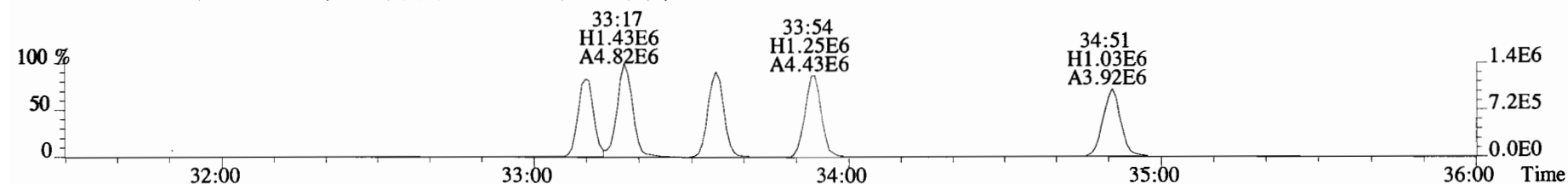
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



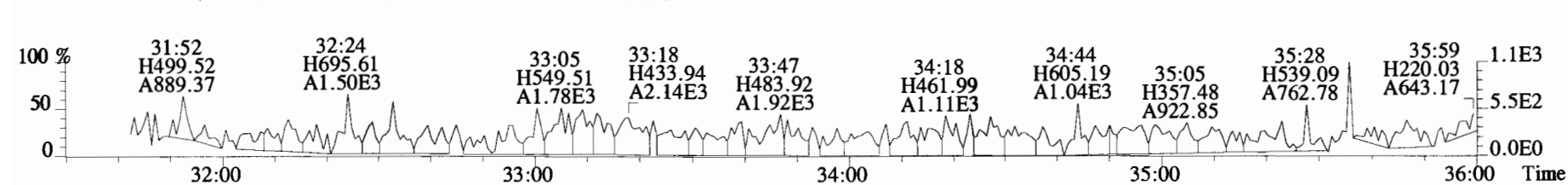
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

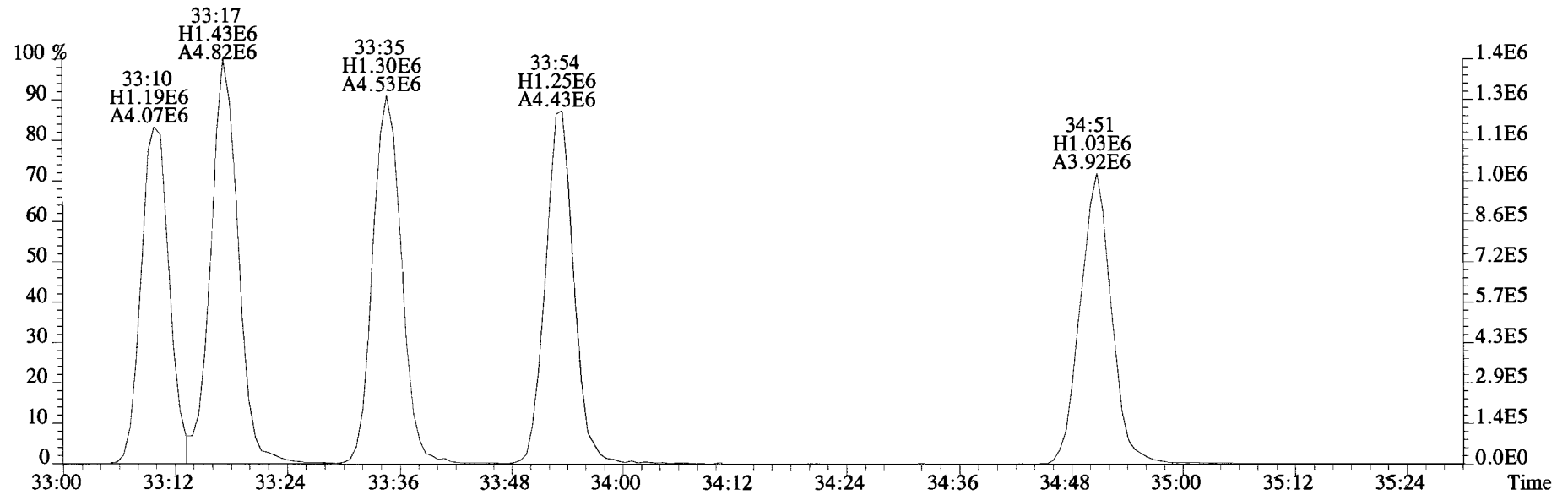
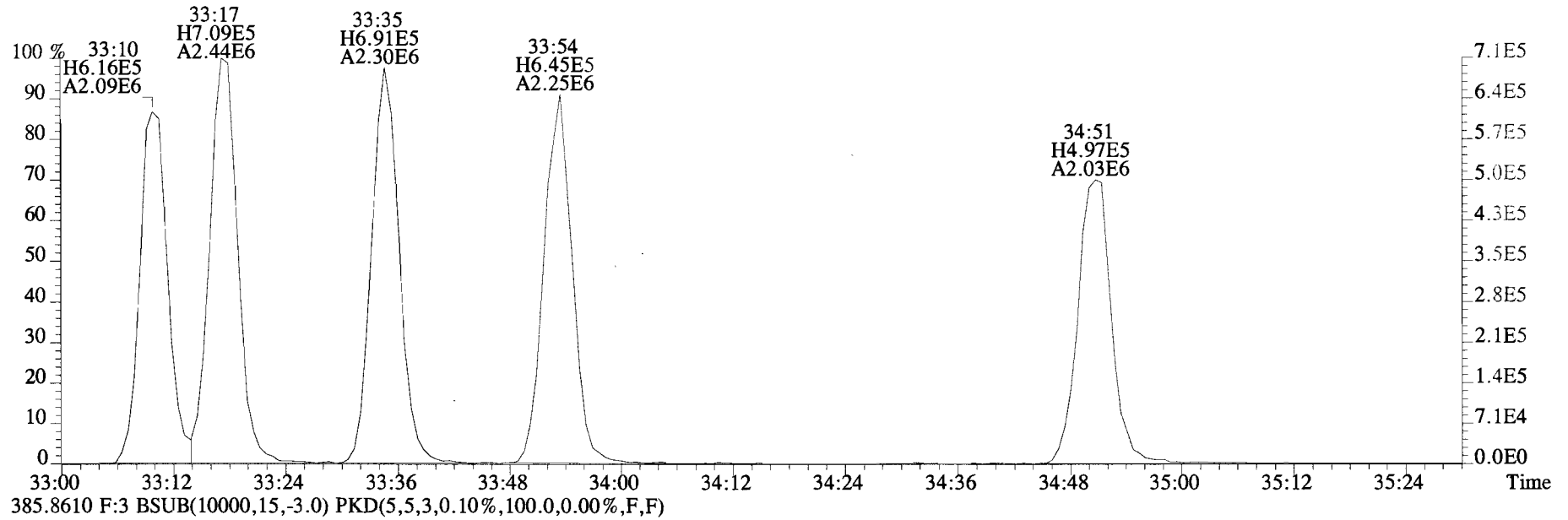


445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

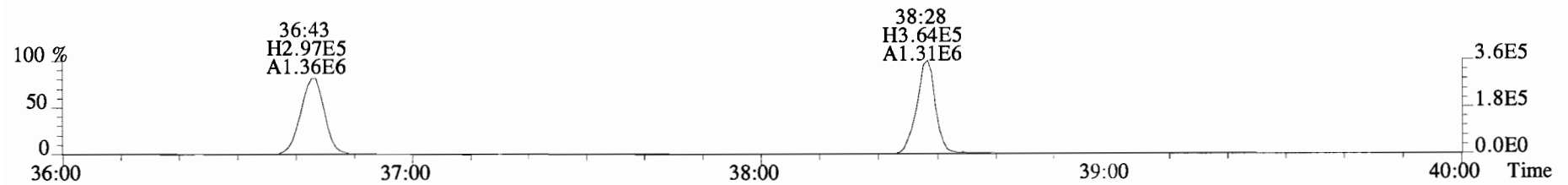




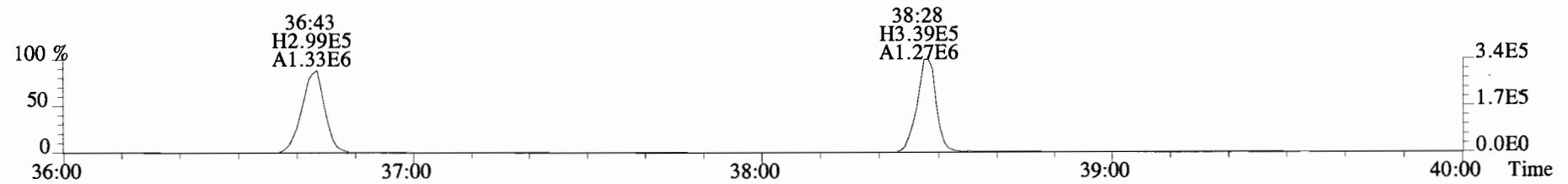
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



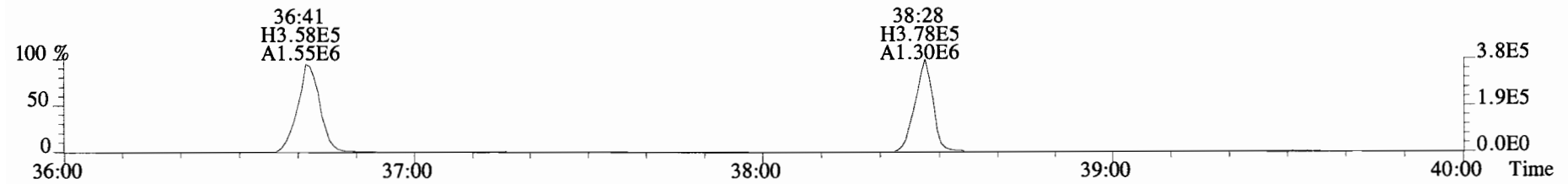
File:191106D1 #1-356 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)



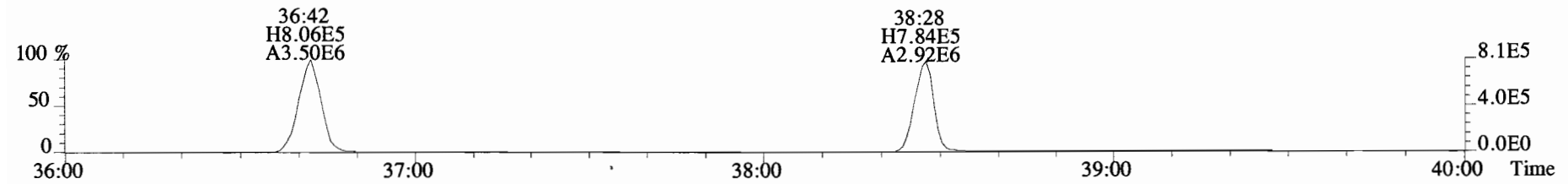
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)



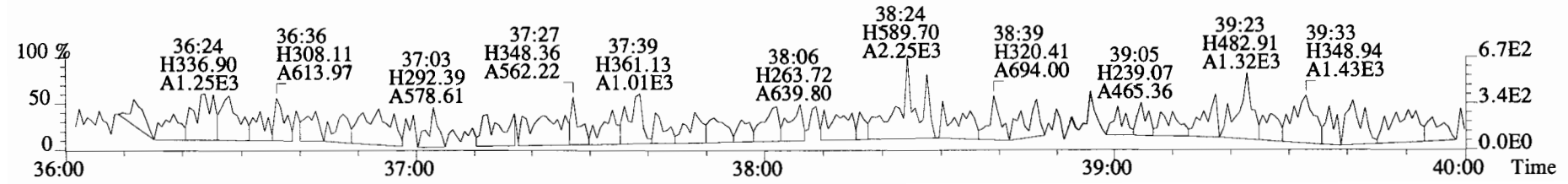
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)



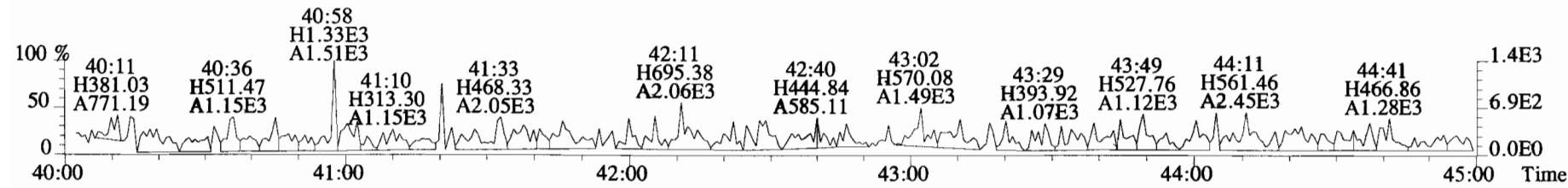
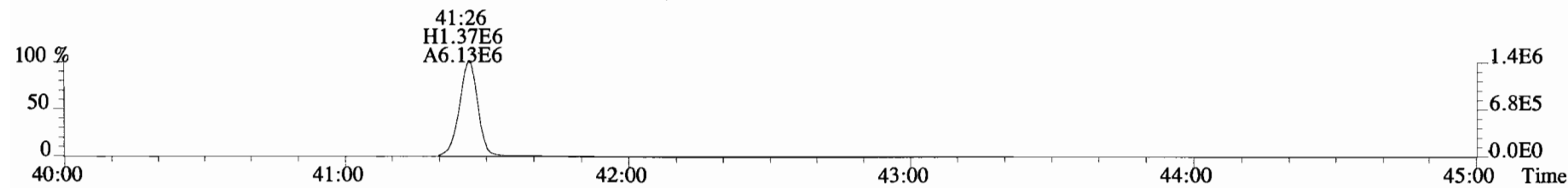
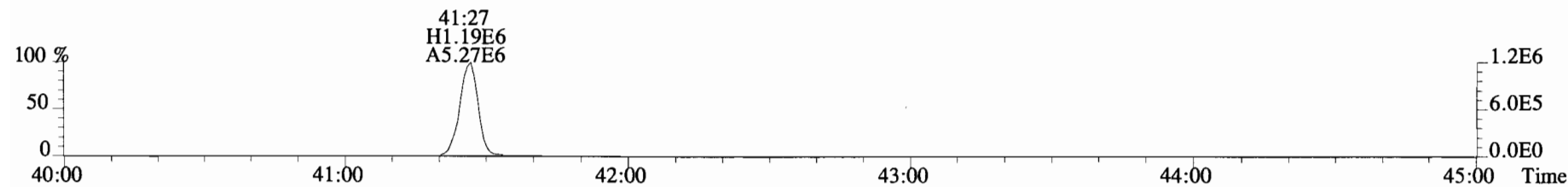
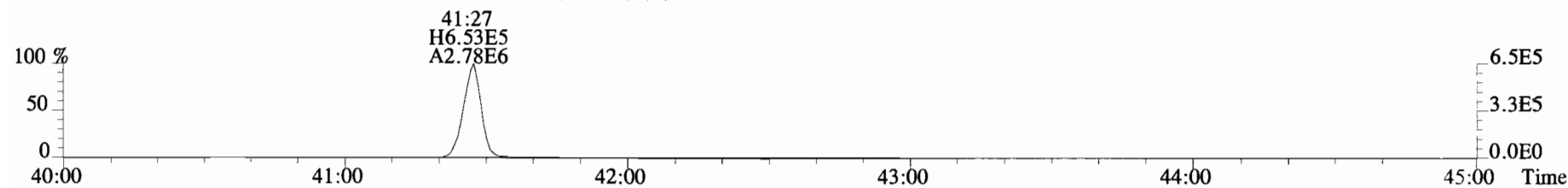
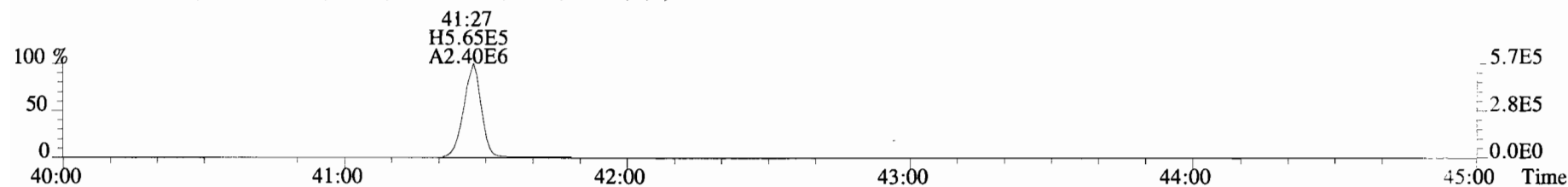
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)

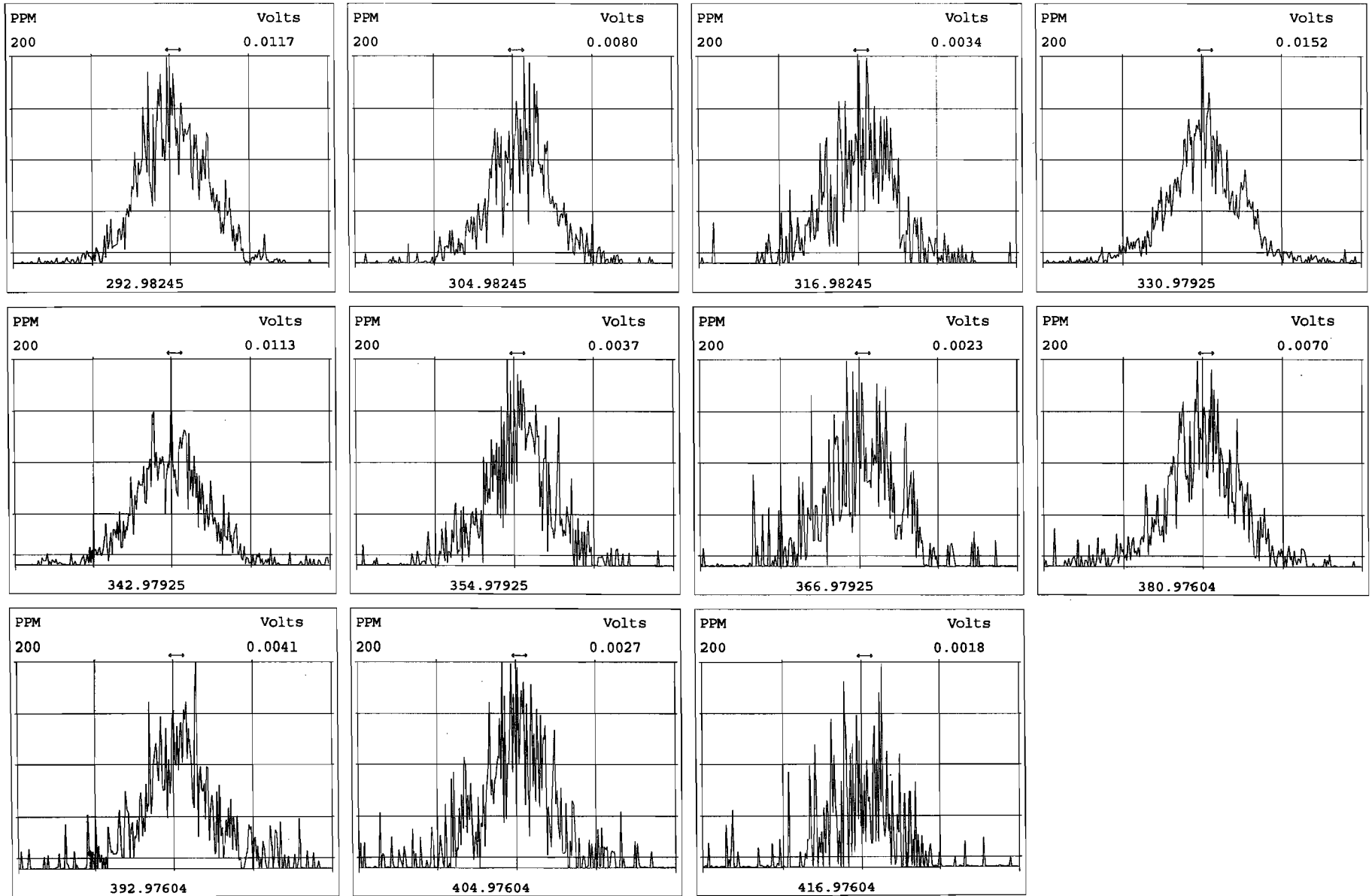


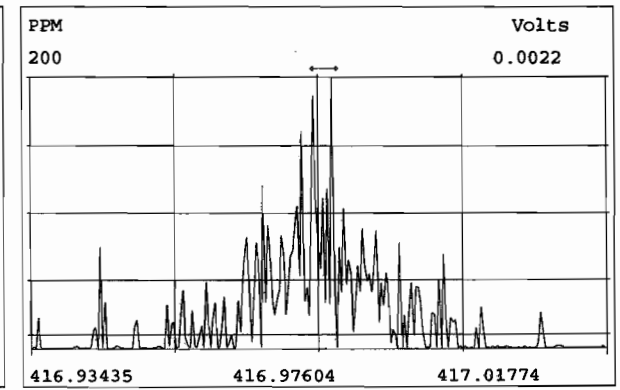
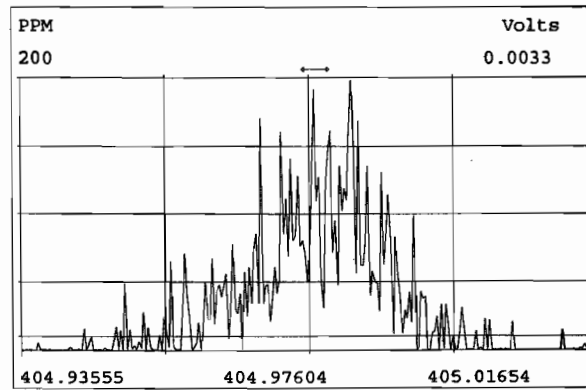
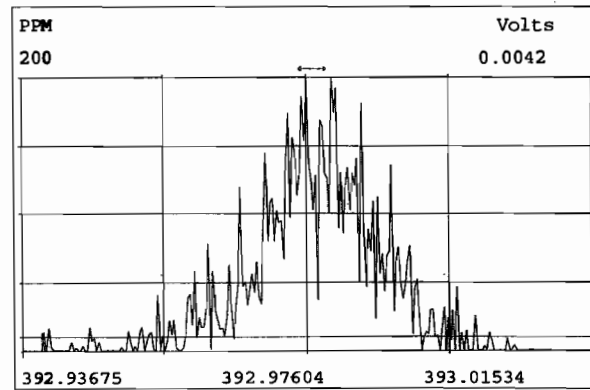
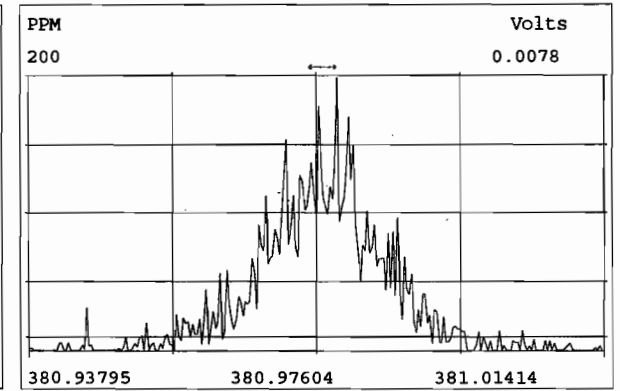
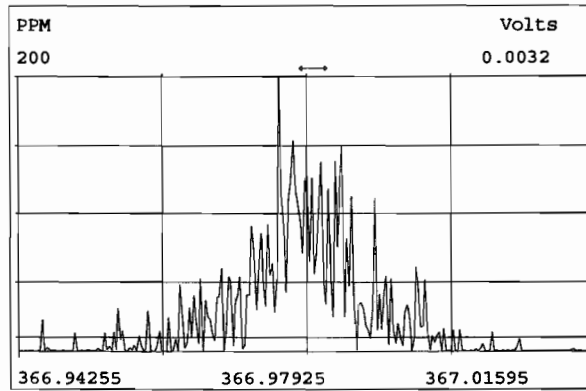
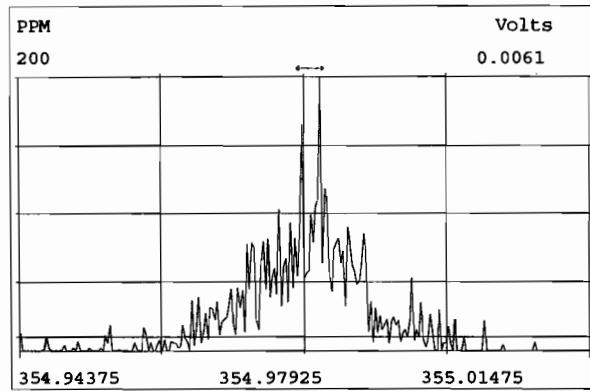
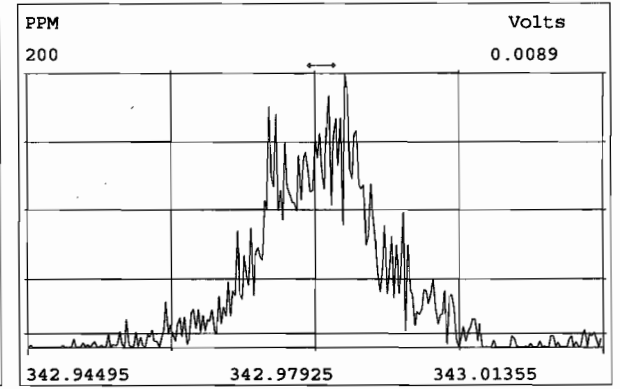
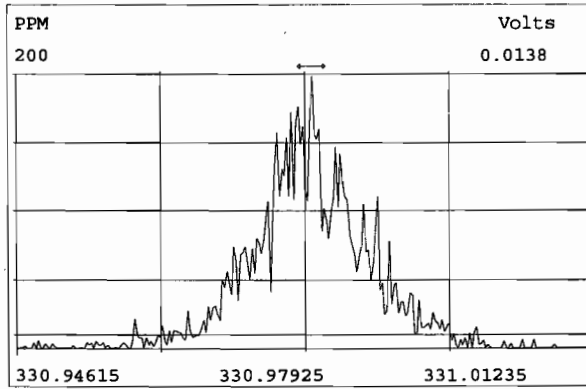
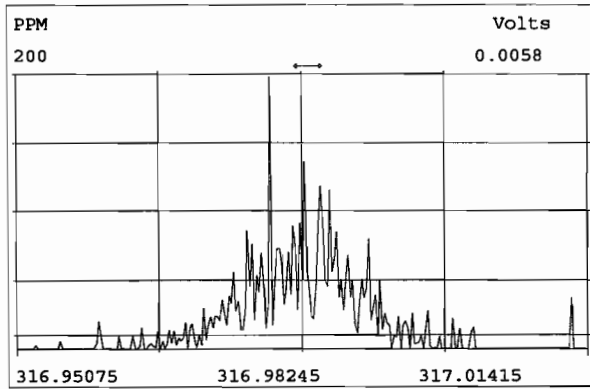
479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)

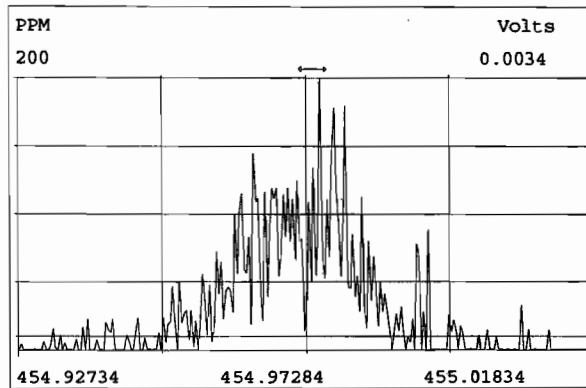
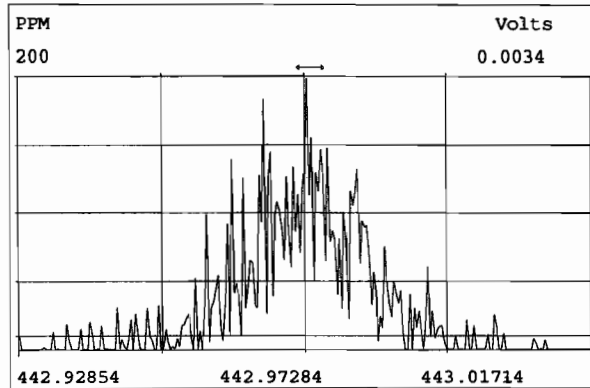
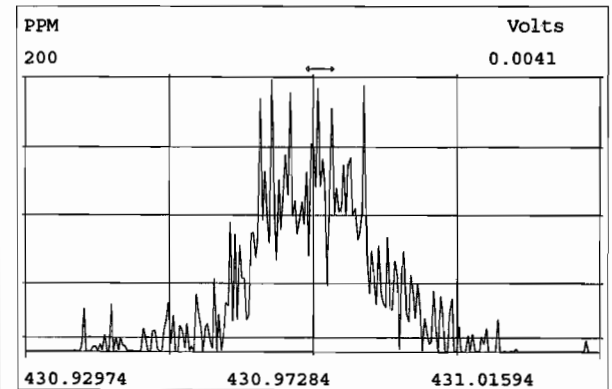
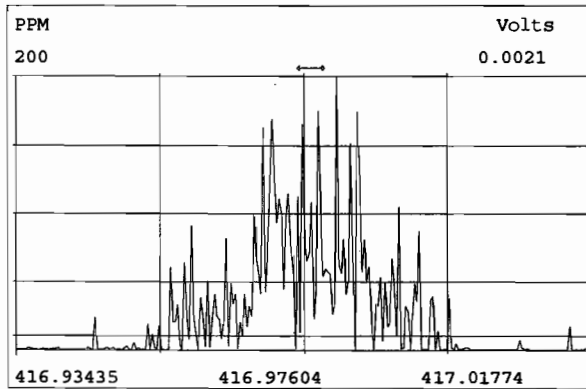
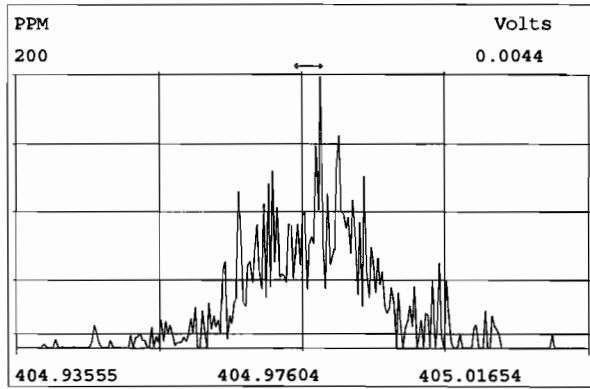
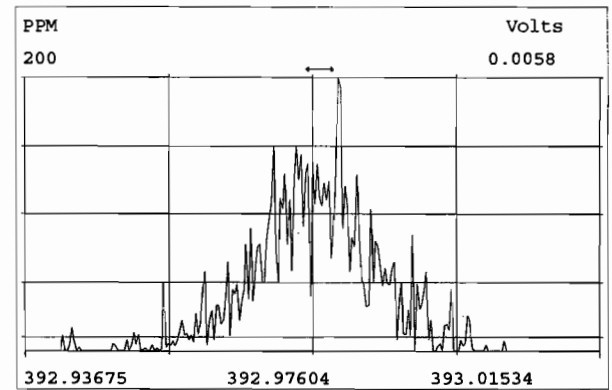
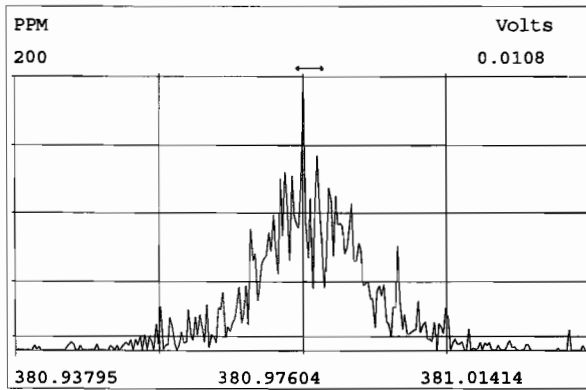
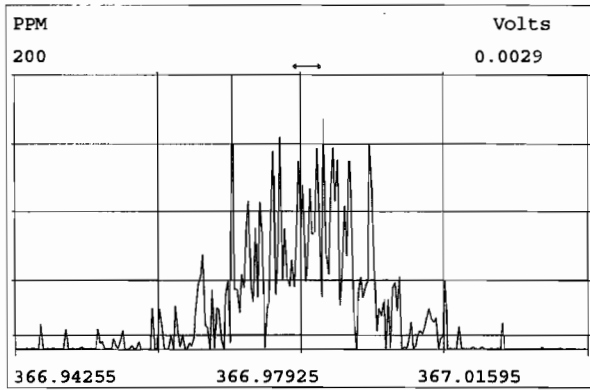


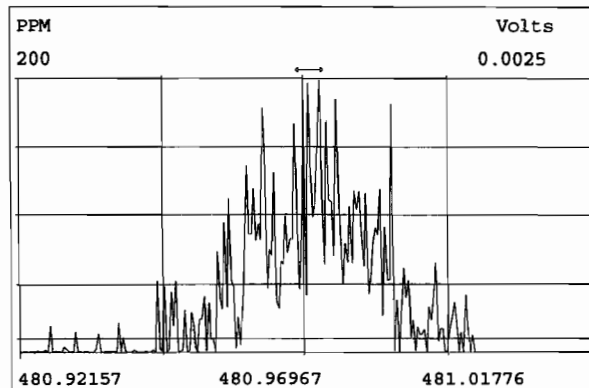
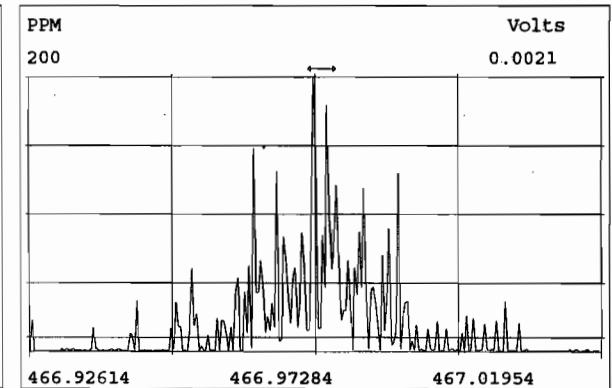
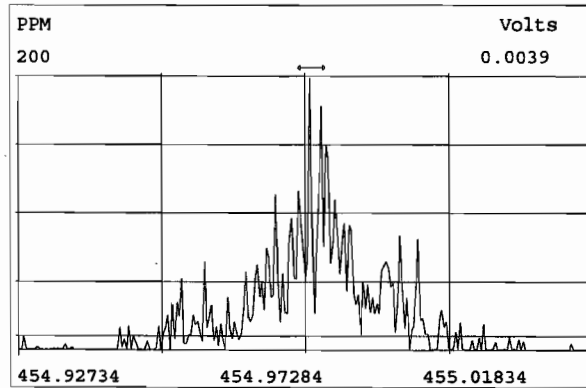
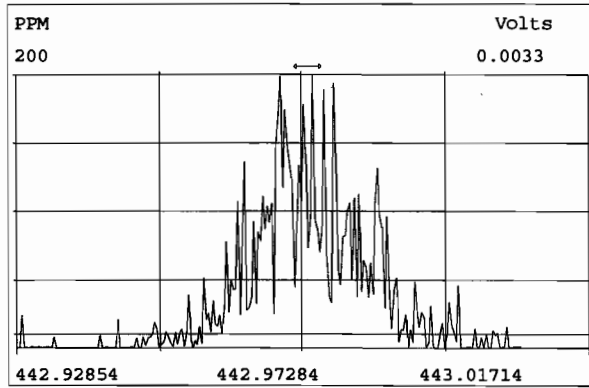
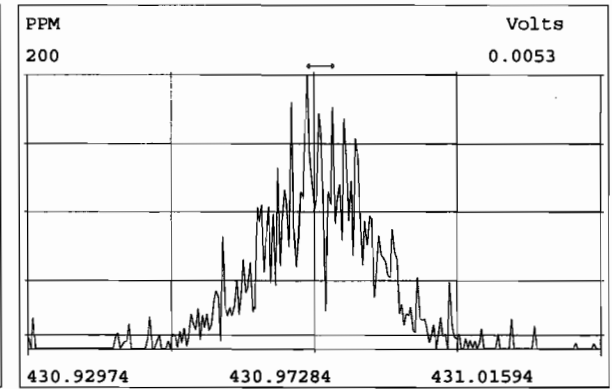
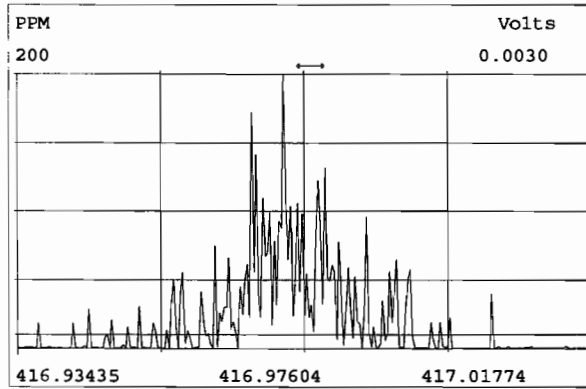
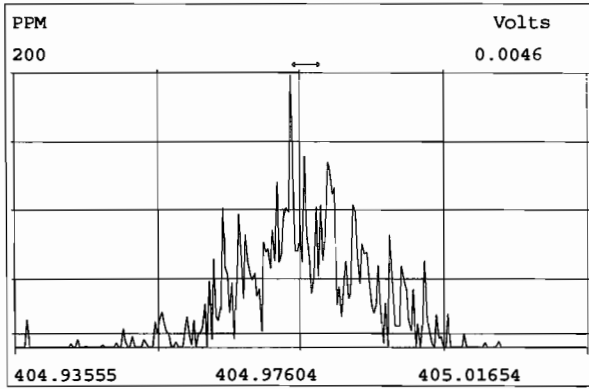
File:191106D1 #1-431 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)





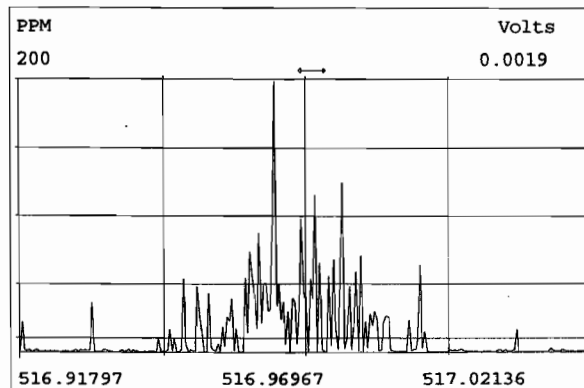
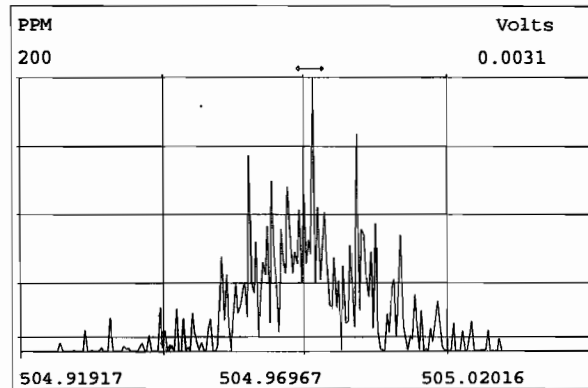
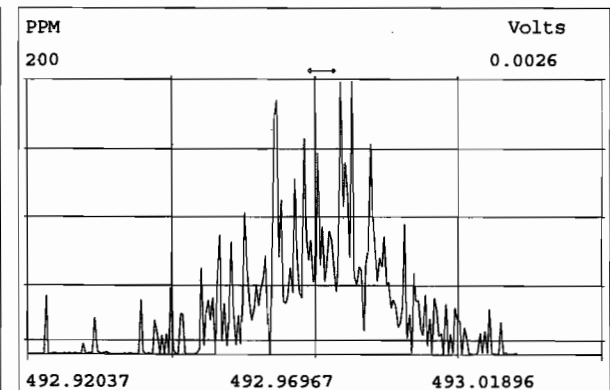
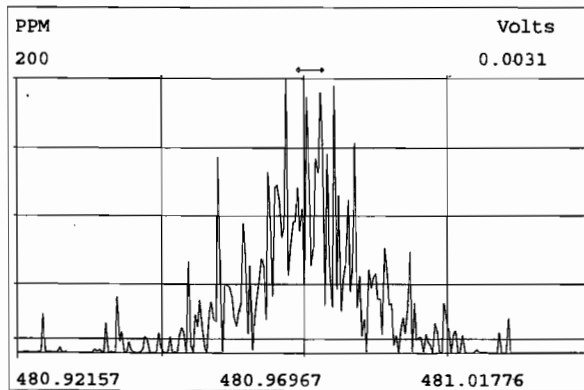
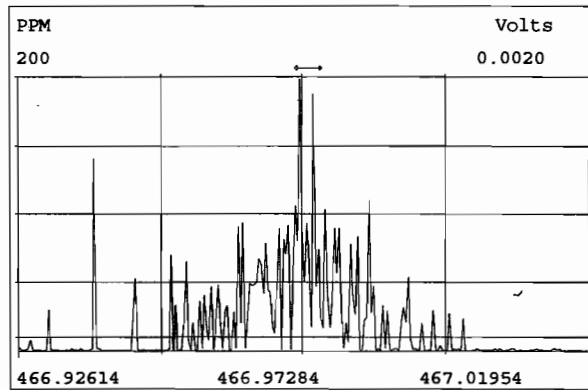
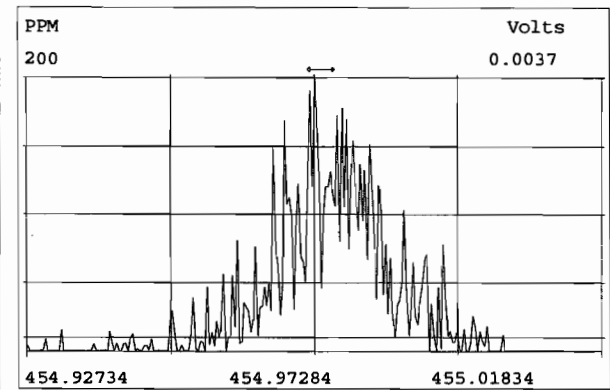
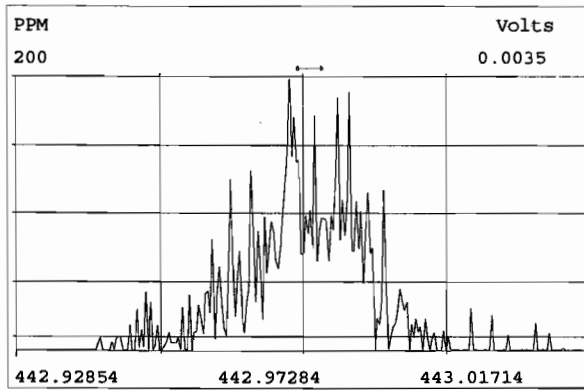
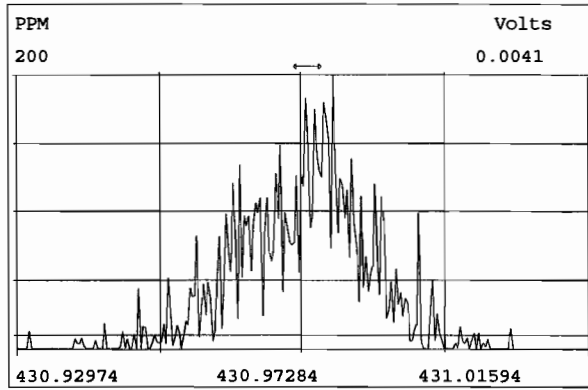






Peak Locate Examination: 6-NOV-2019:23:52 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 Reference:PFK





**HRMS CALIBRATION STANDARDS REVIEW CHECKLIST**

**Beg. Calibration ID:** ST191212D1-1

**Reviewed By:** C-12/13/19  
Initials & Date

**End Calibration ID:** ST191212D1-2

	<u>Beg.</u>	<u>End</u>
<b>Ion abundance within QC limits?</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Concentrations within criteria?</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Verification Std. named correctly?</b> (ST-Year-Month-Day-VG ID)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Correct ICAL referenced?</b>	<u>DB</u>	<u>DB</u>
<b><u>Run Log:</u></b>		
- Correct Instrument listed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- Samples within 12 hour clock?	<input checked="" type="checkbox"/> Y	N
- Bottle position verified?	<u>DB</u>	

**Mass resolution ≥**

5k    6-8K    8K    10K  
1614   1699   429   1613/1668/8280

**Intergrated peaks display correctly?**

**GC Break <20%**

NA

**8280 CS1 End Standard:**

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours

NA

**Comments:**

FORM: 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191212D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC.	CONC.
	FORMING	ABUND.	LIMITS		FOUND	RANGE (3)
	RATIO (1)	RATIO	(2)			(ng/mL)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	y	11.6	7.8 - 12.9
1,2,3,7,8-PeCDD	M/M+2	0.61	0.54-0.72	y	53.3	8.2 - 12.3 (4) 39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	49.2	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	y	53.9	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	52.6	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	49.8	43.0 - 58.0
OCDD	M+2/M+4	0.89	0.76-1.02	y	103	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	y	10.00	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	53.9	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	50.7	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	47.6	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.9	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	49.9	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	y	48.5	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	y	46.8	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	y	45.0	43.0 - 58.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	98.7	63.0 - 159.0

(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 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 12/12/19

FORM 4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	104	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.65	0.54-0.72	y	99.8	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	110	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	90.1	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	y	98.0	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	119	72.0 - 138.0
13C-OCDD	M/M+2	0.90	0.76-1.02	y	254	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	102	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	99.3	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	96.2	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	110	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	99.8	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	101	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	y	106	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	113	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.42	0.37-0.51	y	125	77.0 - 129.0
13C-OCDF	M+2/M+4	0.89	0.76-1.02	y	260	96.0 - 415.0
CLEANUP STANDARD (3)						
37C1-2,3,7,8-TCDD					10.0	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 12/12/19

EPA METHOD 8290

PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191212D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
	FORMING RATIO	ABUND. RATIO	LIMITS			
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	y	11.6	8.00 - 12.0
1,2,3,7,8-PeCDD	M/M+2	0.61	0.54-0.72	y	53.3	40.0 - 60.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	49.2	40.0 - 60.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	y	53.9	40.0 - 60.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	52.6	40.0 - 60.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	49.8	40.0 - 60.0
OCDD	M+2/M+4	0.89	0.76-1.02	y	103	80.0 - 120
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	y	10.00	8.00 - 12.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	53.9	40.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	50.7	40.0 - 60.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	47.6	40.0 - 60.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.9	40.0 - 60.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	49.9	40.0 - 60.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	y	48.5	40.0 - 60.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	y	46.8	40.0 - 60.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	y	45.0	40.0 - 60.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	98.7	80.0 - 120

Analyst: DB

Date: 12/12/19

## EPA METHOD 8290

## PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

LABELLED COMPOUNDS	M/Z'S FORMING RATIO	ION ABUND. RATIO	QC LIMITS	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	104	70.0 - 130
13C-1,2,3,7,8-PeCDD	M/M+2	0.65	0.54-0.72	y	99.8	70.0 - 130
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	110	70.0 - 130
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	90.1	70.0 - 130
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	y	98.0	70.0 - 130
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	119	70.0 - 130
13C-OCDD	M+2/M+4	0.90	0.76-1.02	y	254	140 - 260
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	y	102	70.0 - 130
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	99.3	70.0 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	96.2	70.0 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	110	70.0 - 130
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	99.8	70.0 - 130
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	101	70.0 - 130
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	y	106	70.0 - 130
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	y	113	70.0 - 130
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	y	125	70.0 - 130
13C-OCDF	M+2/M+4	0.89	0.76-1.02	y	260	140 - 260
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD					10.0	7.00 - 13.0

Analyst: DBDate: 12/12/19

FORM 5  
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 10-9-19

RT Window Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

ZB-5MS IS Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

DB\_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:36	1,3,6,8-TCDF (F)	20:27
1,2,8,9-TCDD (L)	26:53	1,2,8,9-TCDF (L)	27:02
1,2,4,7,9-PeCDD (F)	28:31	1,3,4,6,8-PeCDF (F)	26:60
1,2,3,8,9-PeCDD (L)	30:55	1,2,3,8,9-PeCDF (L)	31:10
1,2,4,6,7,9-HxCDD (F)	32:20	1,2,3,4,6,8-HxCDF (F)	31:48
1,2,3,7,8,9-HxCDD (L)	34:15	1,2,3,7,8,9-HxCDF (L)	34:38
1,2,3,4,6,7,9-HpCDD (F)	36:51	1,2,3,4,6,7,8-HpCDF (F)	36:27
1,2,3,4,6,7,8-HpCDD (L)	37:44	1,2,3,4,7,8,9-HpCDF (L)	38:16

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 12/12/19

FORM 6A  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1 S#1 Analysis Date: 12-DEC-19 Time: 12:43:56

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME		RRT	QC LIMITS (1)
	REFERENCE			
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002	
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002	
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003	
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002	
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.001	0.999-1.002	
Labeled Compounds				
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043	
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.201	1.000-1.567	
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.991	0.923-1.103	
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.154	1.000-1.425	
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.189	1.011-1.526	
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.989-1.052	

Analyst: DB

Date: 12/12/19

FORM 6B  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory      Episode No.:

Contract No.:                      SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191212D1    S#1    Analysis Date: 12-DEC-19    Time: 12:43:56

NATIVE ANALYTES	RETENTION TIME		RRT	QC LIMITS (1)
	REFERENCE			
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	1.000	0.999-1.001

LABELED COMPOUNDS

13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.992	0.992	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.037	1.037	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.026	1.026	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.092	1.092	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.146	1.146	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.130	1.130	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.234	1.234	1.091-1.371

Analyst: DB

Date: 12/12/19



Client ID: 1613 CS3 19C2204  
Lab ID: ST191212D1-1

Filename: 191212D1 S:1 Acq:12-DEC-19 12:43:56  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

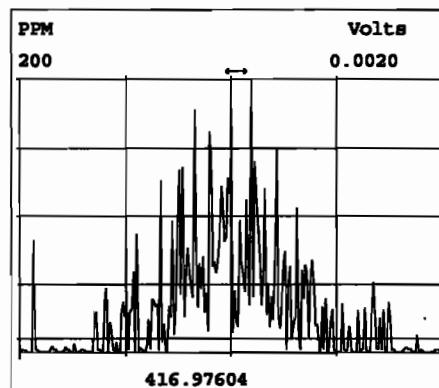
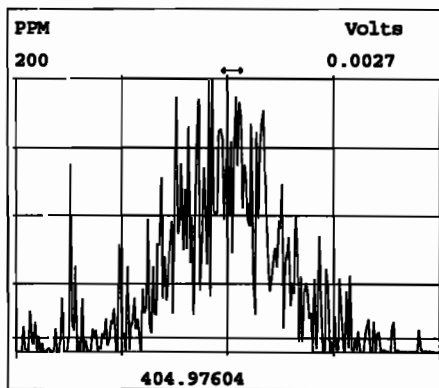
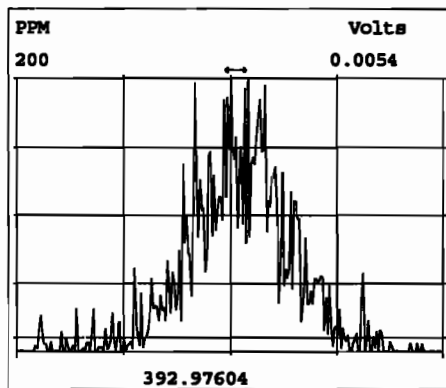
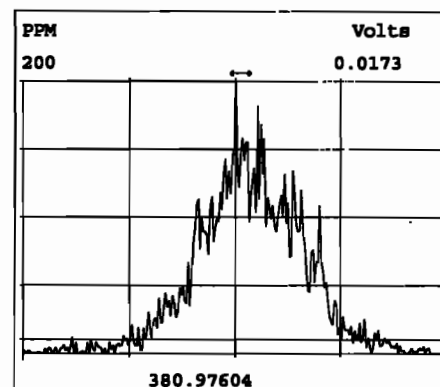
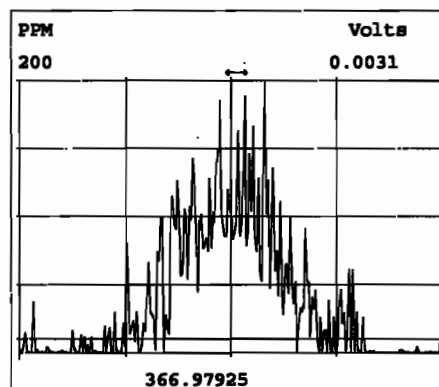
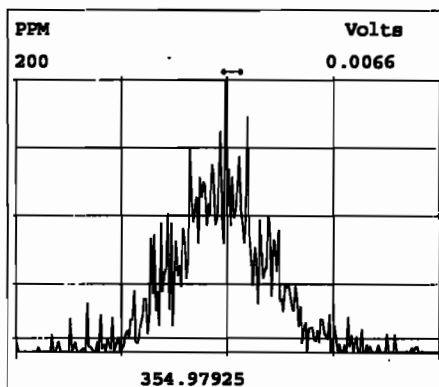
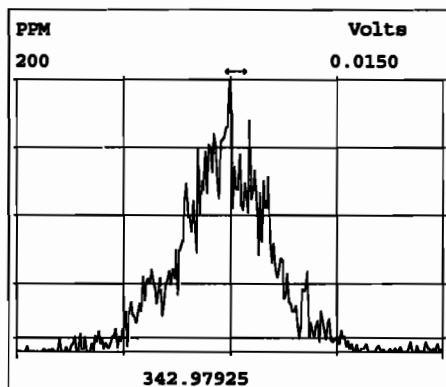
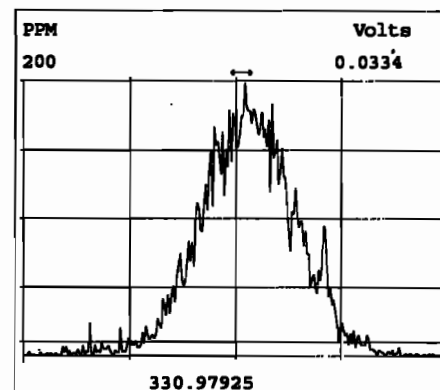
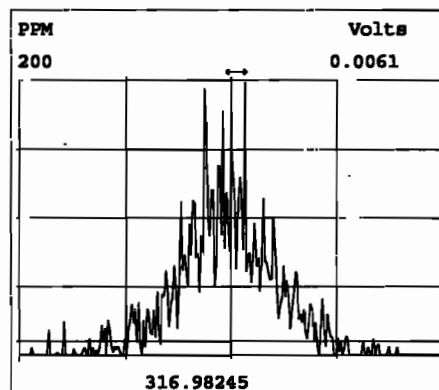
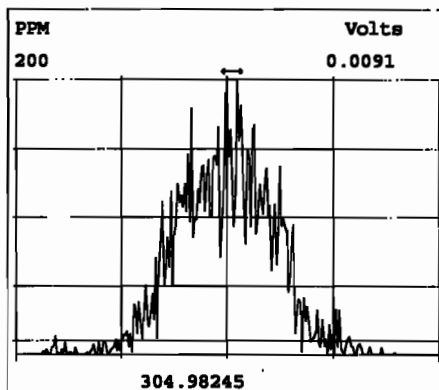
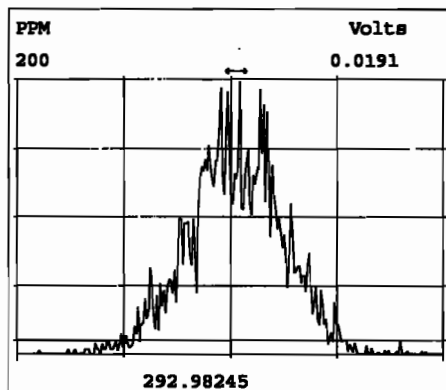
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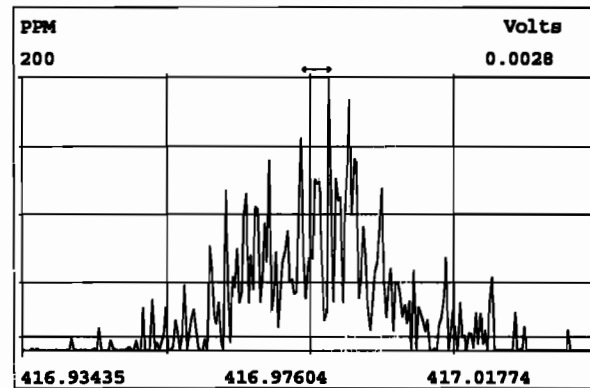
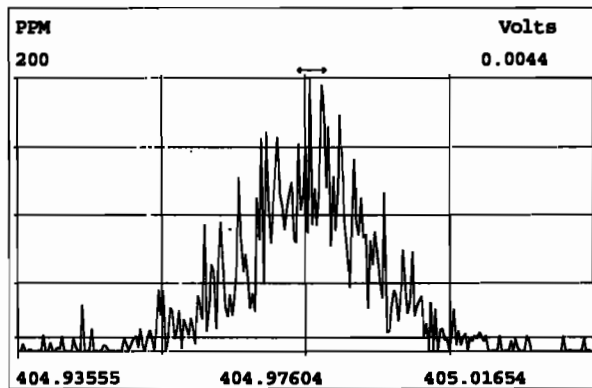
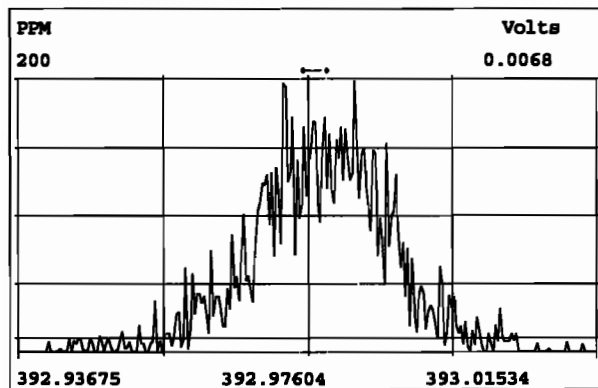
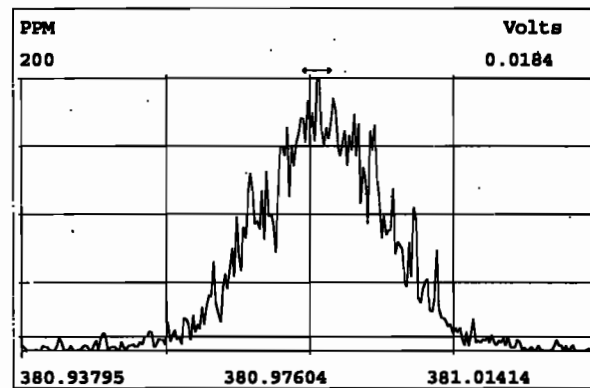
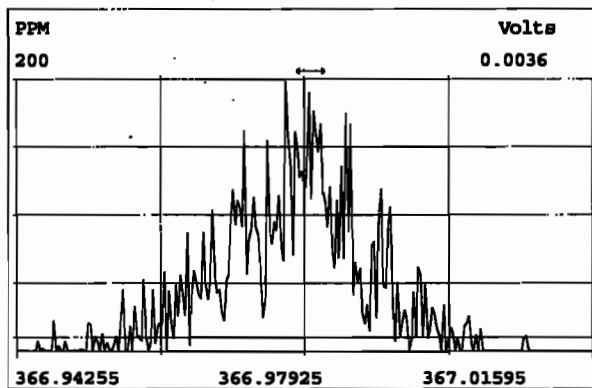
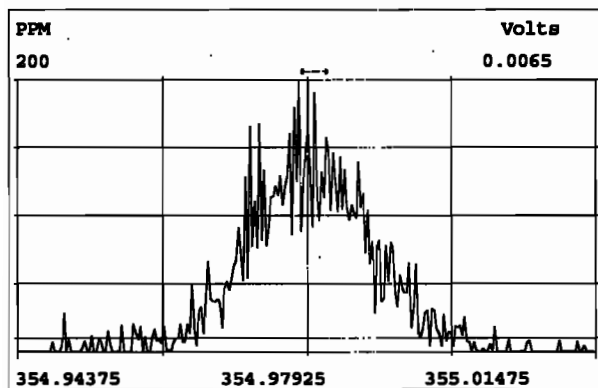
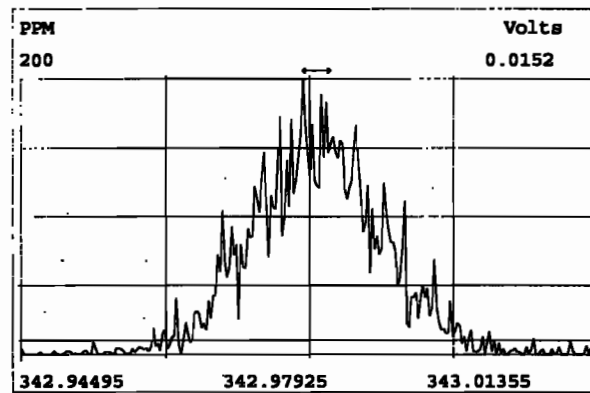
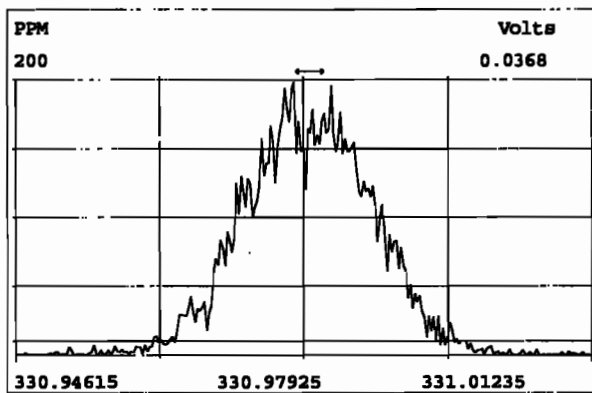
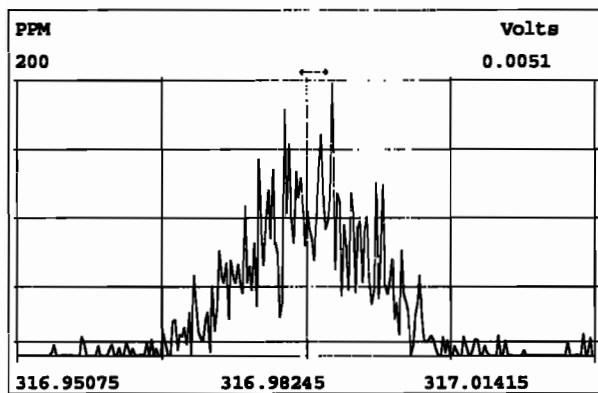
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2,3,7,8-TCDD	1.42e+06	0.77 y	0.91	26:02	11.555			* 2.5	*	Total Tetra-Dioxins	80.6	81.9	*	*	*
1,2,3,7,8-PeCDD	5.06e+06	0.61 y	0.90	30:34	53.344			* 2.5	*	Total Penta-Dioxins	203	205	*	*	*
1,2,3,4,7,8-HxCDD	5.37e+06	1.26 y	1.10	33:51	49.204			* 2.5	*	Total Hexa-Dioxins	228	230	*	*	*
1,2,3,6,7,8-HxCDD	5.46e+06	1.24 y	0.94	33:58	53.874			* 2.5	*	Total Hepta-Dioxins	115	117	*	*	*
1,2,3,7,8,9-HxCDD	5.60e+06	1.26 y	0.96	34:15	52.555			* 2.5	*	Total Tetra-Furans	38.3	39.5	*	*	*
1,2,3,4,6,7,8-HpCDD	5.31e+06	1.03 y	0.98	37:44	49.833			* 2.5	*	Total Penta-Furans	226.85	232.48	*	*	*
OCDD	1.02e+07	0.89 y	0.96	40:59	102.53			* 2.5	*	Total Hexa-Furans	258	260	*	*	*
										Total Hepta-Furans	92.6	93.8	*	*	*
2,3,7,8-TCDF	1.96e+06	0.76 y	0.95	25:14	9.9982			* 2.5	*						
1,2,3,7,8-PeCDF	8.62e+06	1.55 y	0.96	29:23	53.855			* 2.5	*						
2,3,4,7,8-PeCDF	8.22e+06	1.55 y	1.01	30:17	50.665			* 2.5	*						
1,2,3,4,7,8-HxCDF	7.16e+06	1.22 y	1.18	32:58	47.598			* 2.5	*						
1,2,3,6,7,8-HxCDF	7.57e+06	1.24 y	1.07	33:06	48.945			* 2.5	*						
2,3,4,6,7,8-HxCDF	7.51e+06	1.21 y	1.11	33:41	49.876			* 2.5	*						
1,2,3,7,8,9-HxCDF	6.34e+06	1.22 y	1.06	34:38	48.501			* 2.5	*						
1,2,3,4,6,7,8-HpCDF	6.31e+06	1.01 y	1.13	36:27	46.790			* 2.5	*						
1,2,3,4,7,8,9-HpCDF	5.89e+06	1.00 y	1.28	38:16	45.002			* 2.5	*						
OCDF	1.17e+07	0.91 y	0.95	41:12	98.678			* 2.5	*						
IS	13C-2,3,7,8-TCDD	1.36e+07	0.80 y	1.10	26:01	103.58				Rec					
IS	13C-1,2,3,7,8-PeCDD	1.05e+07	0.65 y	0.88	30:33	99.757				104					
IS	13C-1,2,3,4,7,8-HxCDD	9.91e+06	1.28 y	0.64	33:50	110.09				99.8					
IS	13C-1,2,3,6,7,8-HxCDD	1.08e+07	1.28 y	0.86	33:57	90.083				110					
IS	13C-1,2,3,7,8,9-HxCDD	1.11e+07	1.28 y	0.81	34:14	98.006				90.1					
IS	13C-1,2,3,4,6,7,8-HpCDD	1.09e+07	1.04 y	0.65	37:43	118.65				98.0					
IS	13C-OCDD	2.07e+07	0.90 y	0.58	40:58	254.22				119					
IS	13C-2,3,7,8-TCDF	2.06e+07	0.79 y	1.03	25:13	101.53				127					
IS	13C-1,2,3,7,8-PeCDF	1.67e+07	1.58 y	0.85	29:22	99.330				102					
IS	13C-2,3,4,7,8-PeCDF	1.60e+07	1.59 y	0.85	30:16	96.183				99.3					
IS	13C-1,2,3,4,7,8-HxCDF	1.28e+07	0.51 y	0.83	32:57	109.57				96.2					
IS	13C-1,2,3,6,7,8-HxCDF	1.45e+07	0.52 y	1.03	33:05	99.771				110					
IS	13C-2,3,4,6,7,8-HxCDF	1.35e+07	0.52 y	0.95	33:40	101.15				99.8					
IS	13C-1,2,3,7,8,9-HxCDF	1.23e+07	0.52 y	0.83	34:37	106.03				101					
IS	13C-1,2,3,4,6,7,8-HpCDF	1.20e+07	0.43 y	0.76	36:27	112.70				106					
IS	13C-1,2,3,4,7,8,9-HpCDF	1.02e+07	0.42 y	0.58	38:15	125.42				113					
IS	13C-OCDF	2.51e+07	0.89 y	0.69	41:11	259.84				125					
C/Up	37Cl-2,3,7,8-TCDD	1.44e+06		1.20	26:02	10.037				130					
RS/RT	13C-1,2,3,4-TCDD	1.19e+07	0.81 y	1.00	25:27	100.00				100					
RS	13C-1,2,3,4-TCDF	1.96e+07	0.78 y	1.00	23:60	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.40e+07	0.52 y	1.00	33:22	100.00									

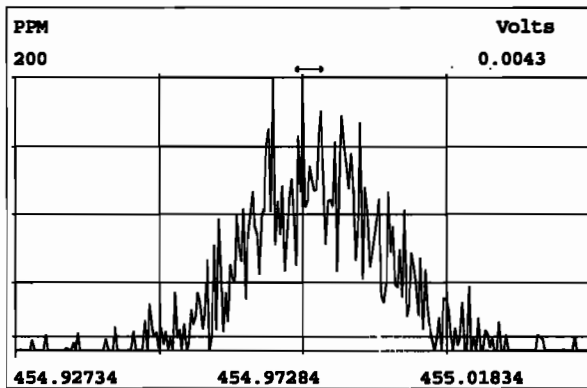
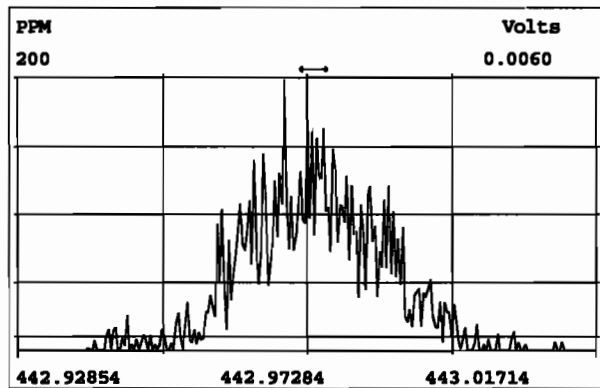
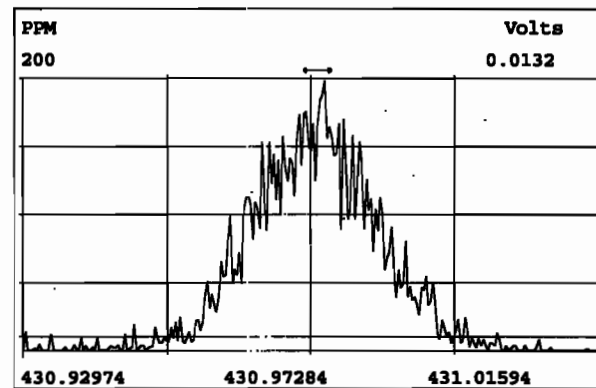
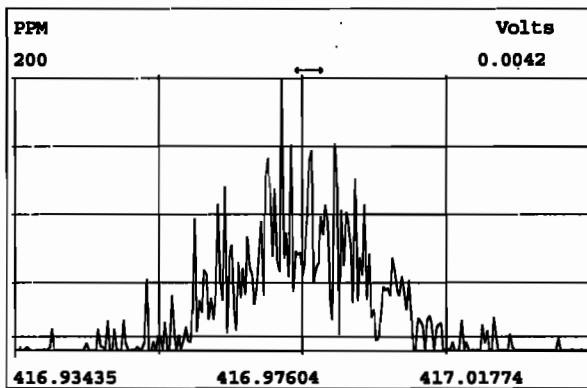
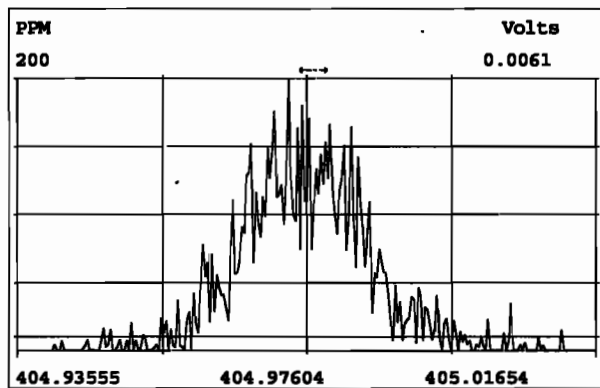
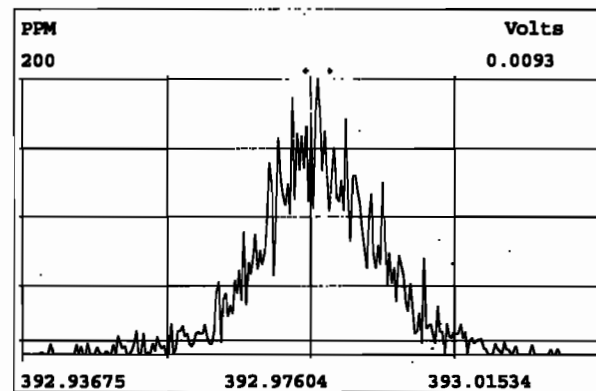
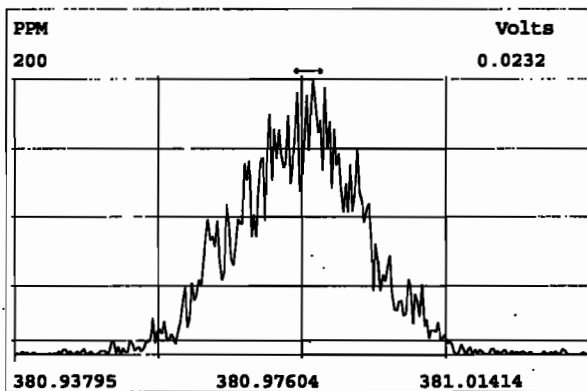
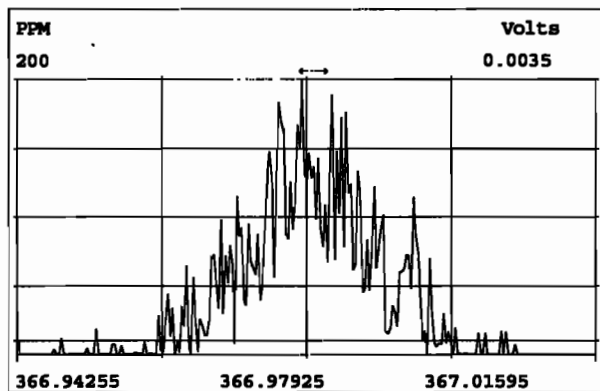
Integrations  
by DB  
Analyst: DB  
Reviewed  
by CT  
Analyst: CT  
Date: 12/12/19  
Date: 12/13/19

Vista Analytical Laboratory - Injection Log Run file: 191212D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191212D1	1	ST191212D1-1	DB	12-DEC-19	12:43:56	ST191212D1-1	ST191212D1-2
191212D1	2	B9L0043-BS1	DB	12-DEC-19	13:31:50	ST191212D1-1	ST191212D1-2
191212D1	3	B9K0034-BS1	DB	12-DEC-19	14:19:46	ST191212D1-1	ST191212D1-2
191212D1	4	SOLVENT BLANK	DB	12-DEC-19	15:07:41	NA	NA
191212D1	5	B9L0043-BLK1	DB	12-DEC-19	15:55:37	ST191212D1-1	ST191212D1-2
191212D1	6	B9K0034-BLK1	DB	12-DEC-19	16:43:33	ST191212D1-1	ST191212D1-2
191212D1	7	QC191212D1-1	DB	12-DEC-19	17:31:18	ST191212D1-1	NA
191212D1	8	QC191212D1-2	DB	12-DEC-19	18:19:14	ST191212D1-1	NA
191212D1	9	1903828-04	DB	12-DEC-19	19:07:08	ST191212D1-1	NA
191212D1	10	1903828-05	DB	12-DEC-19	19:54:57	ST191212D1-1	NA
191212D1	11	1904075-01	DB	12-DEC-19	20:42:51	ST191212D1-1	ST191212D1-2
191212D1	12	1904075-02	DB	12-DEC-19	21:30:40	ST191212D1-1	ST191212D1-2
191212D1	13	1903651-03RE2	DB	12-DEC-19	22:18:29	ST191212D1-1	NA
191212D1	14	SOLVENT BLANK	DB	12-DEC-19	23:06:14	NA	NA
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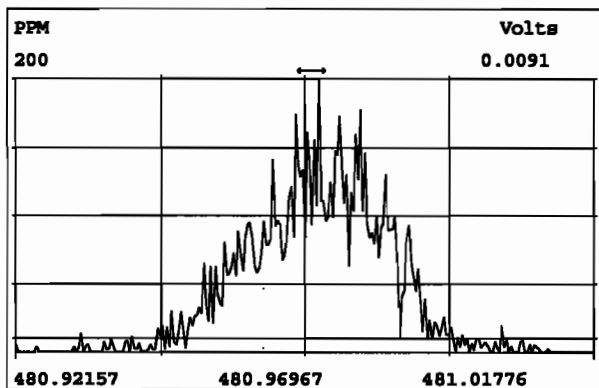
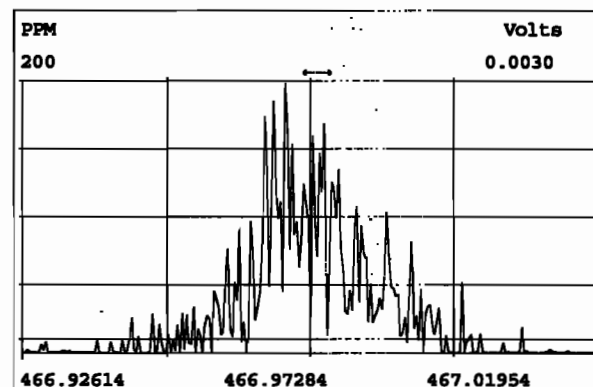
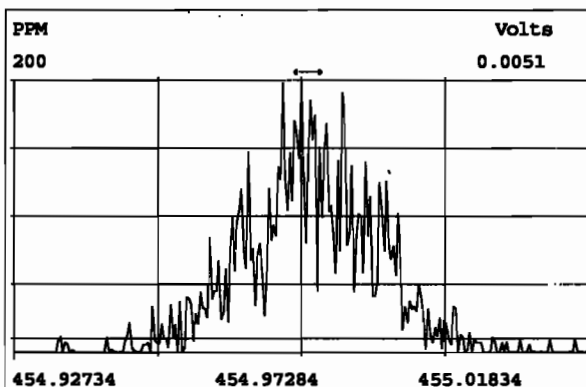
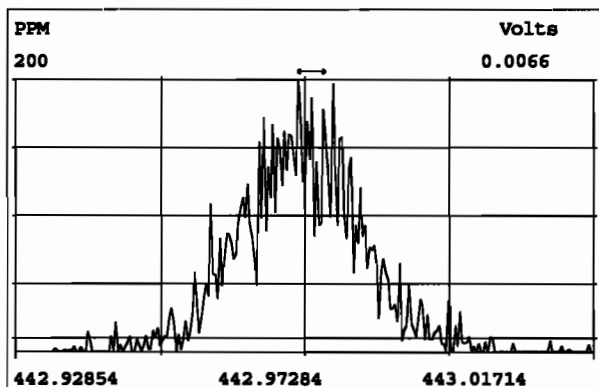
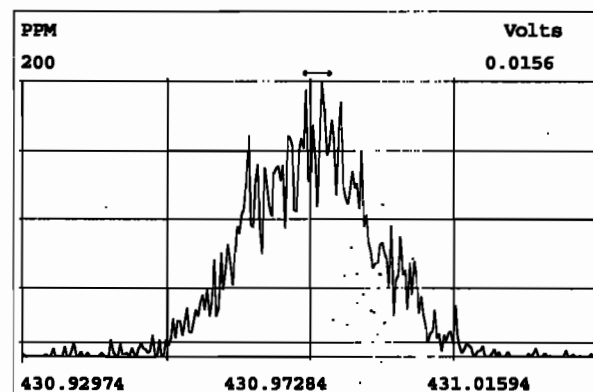
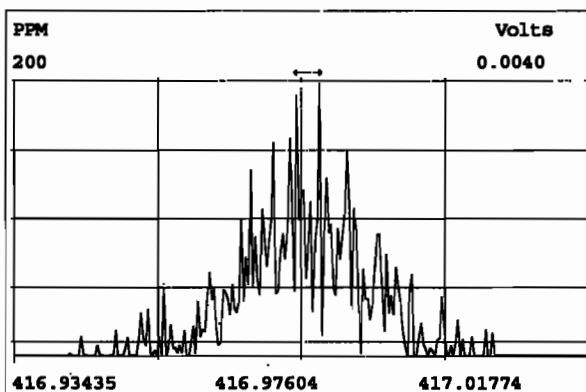
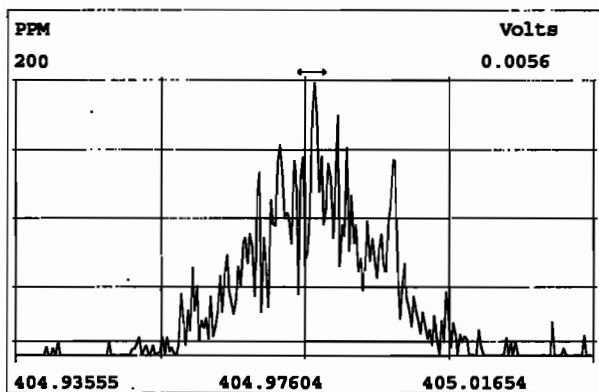


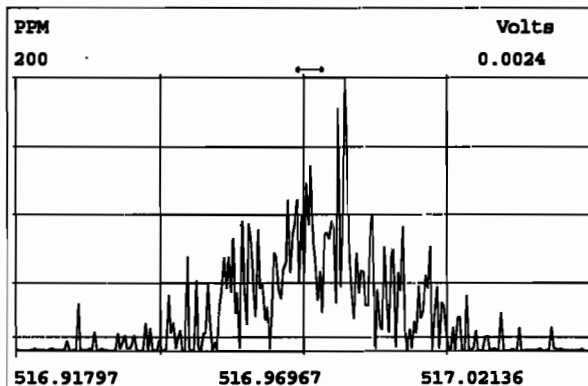
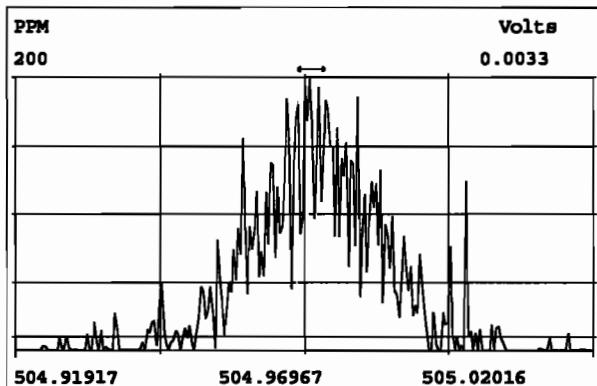
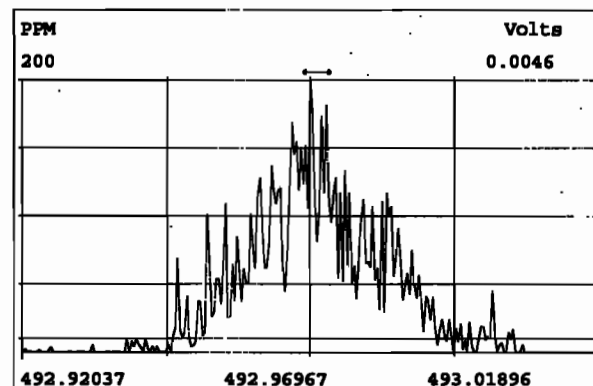
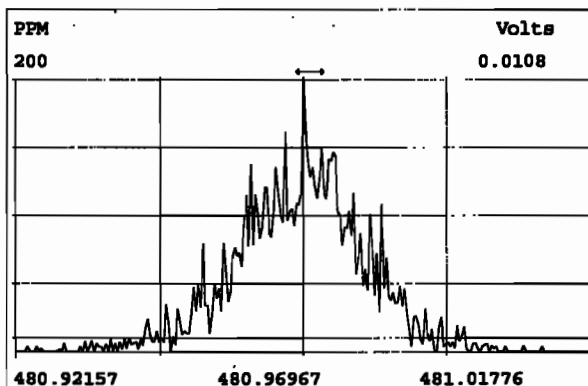
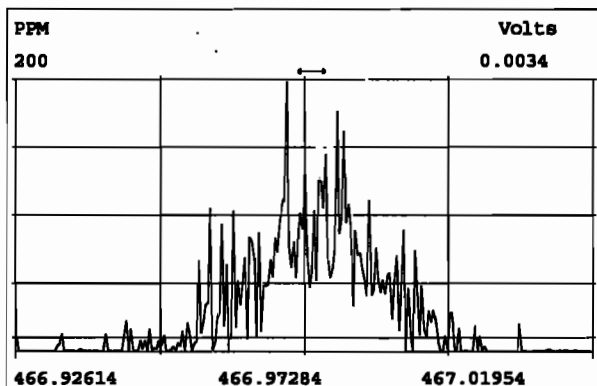
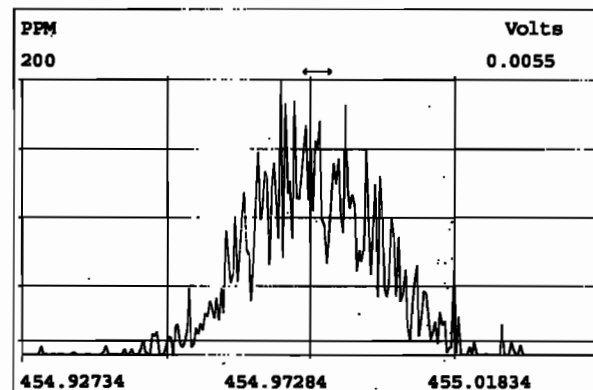
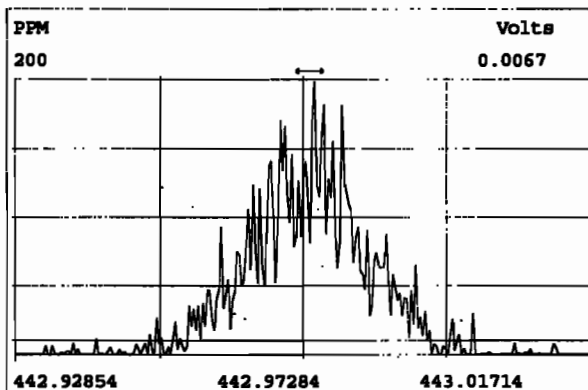
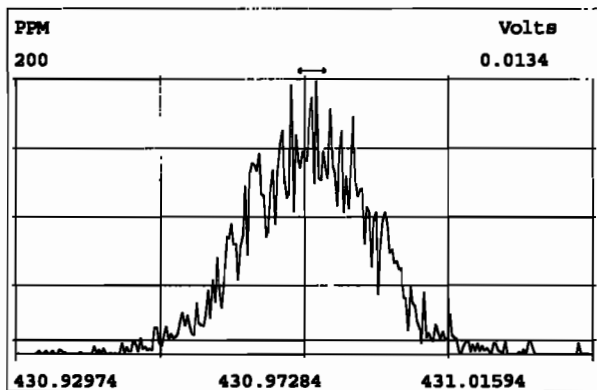




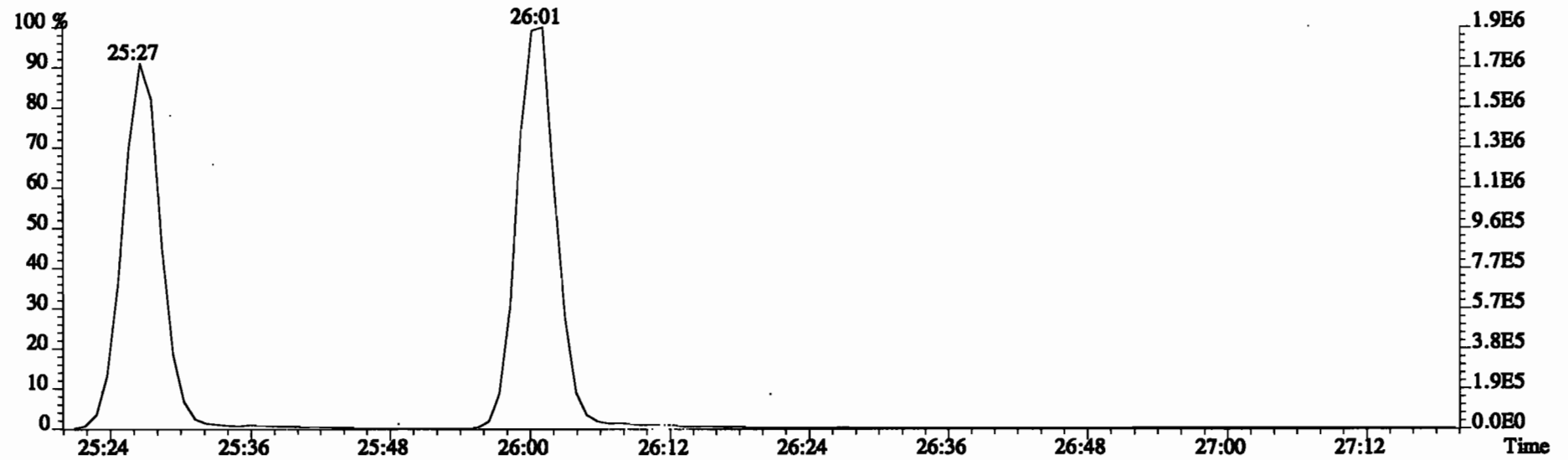
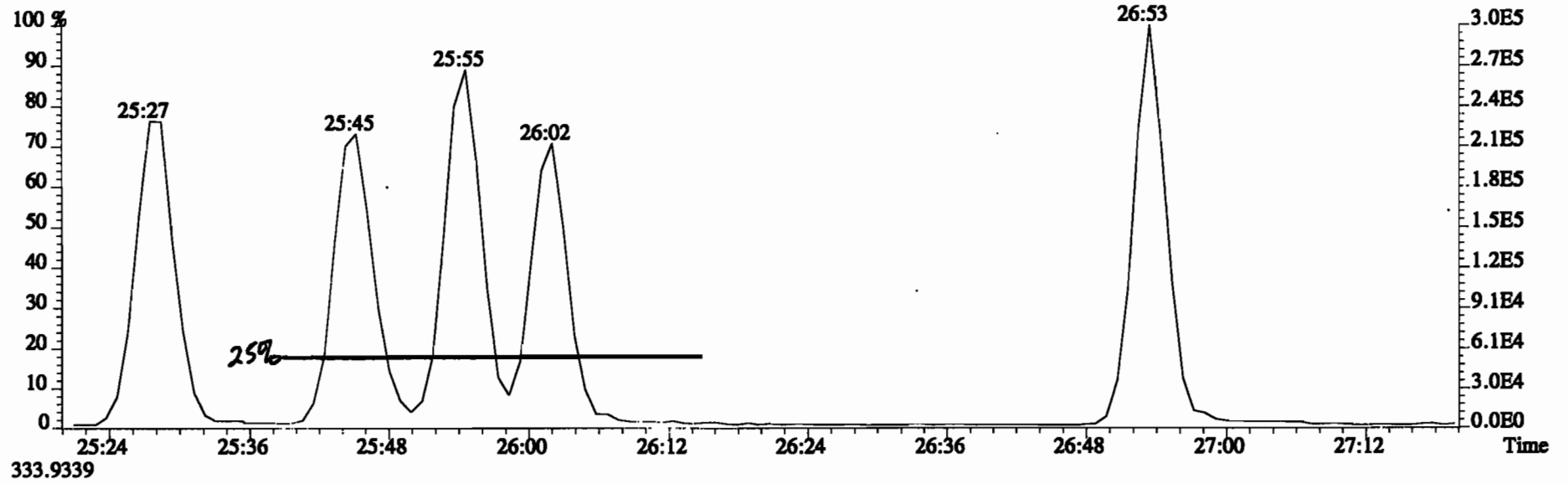
Peak Locate Examination:12-DEC-2019:12:42 File:191212D1

Experiment:OCDDB5 Function:4 Reference:PFK



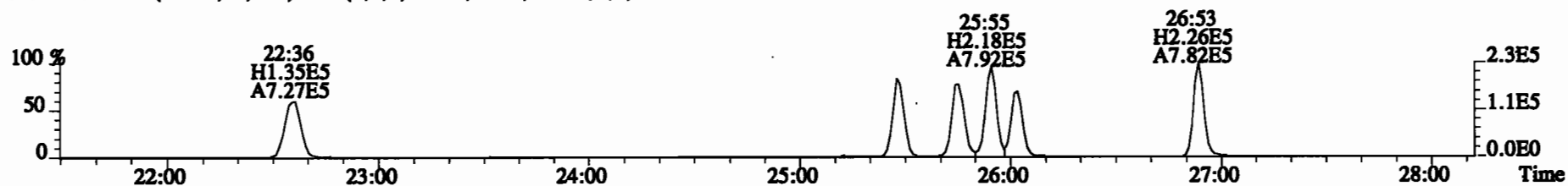


File:191212D1 #1-492 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936

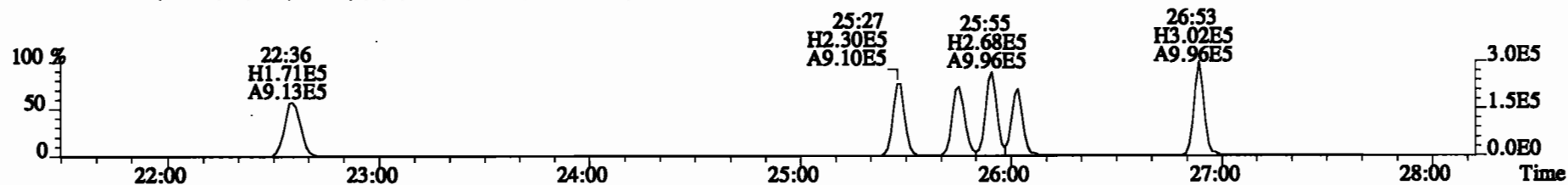




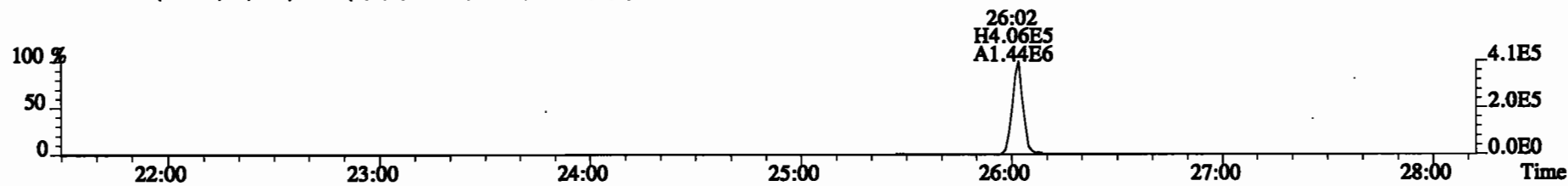
File:191212D1 #1-492 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



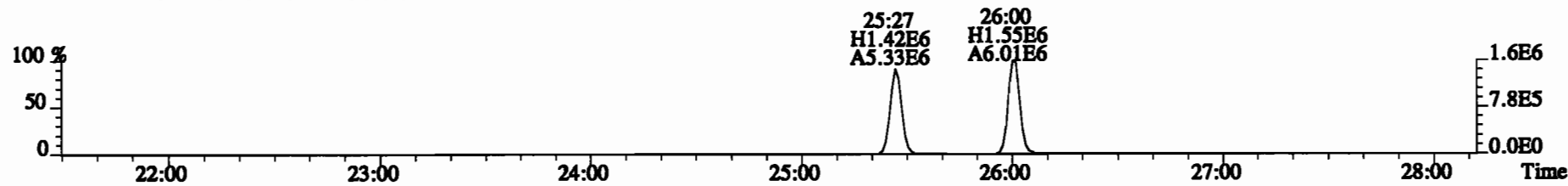
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



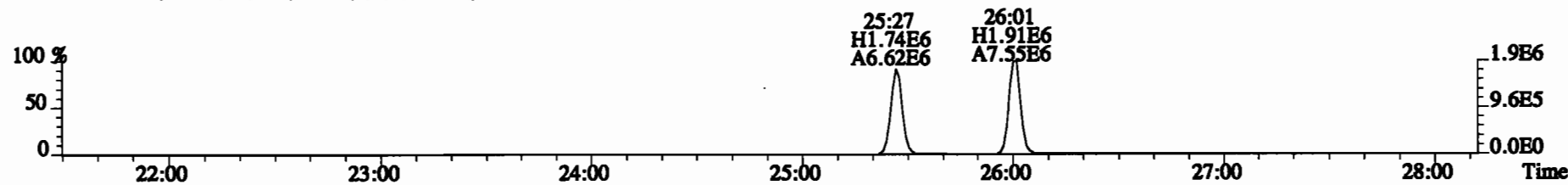
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



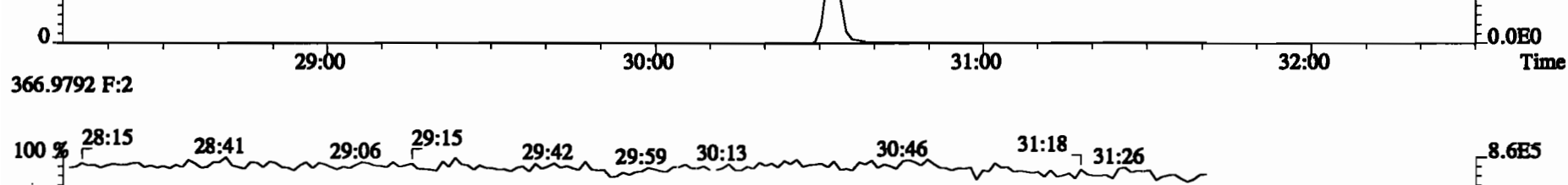
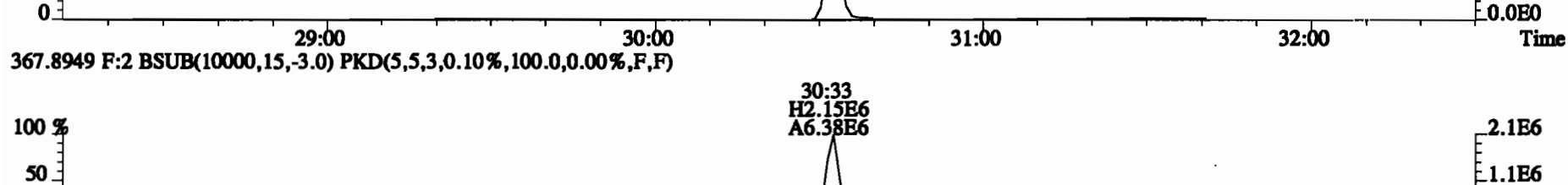
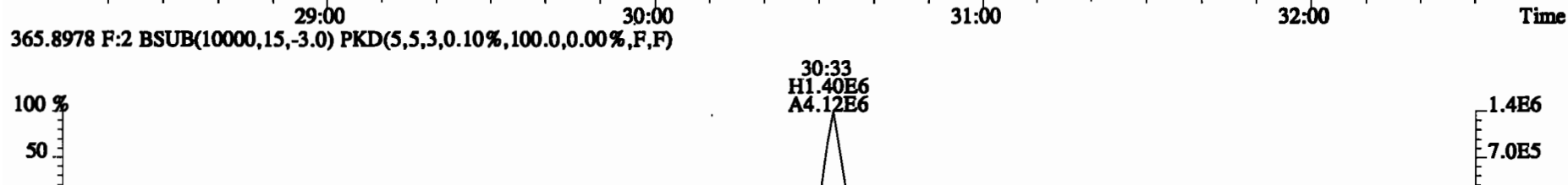
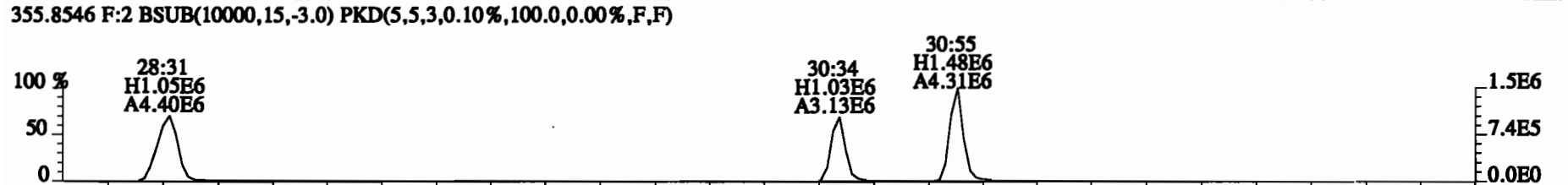
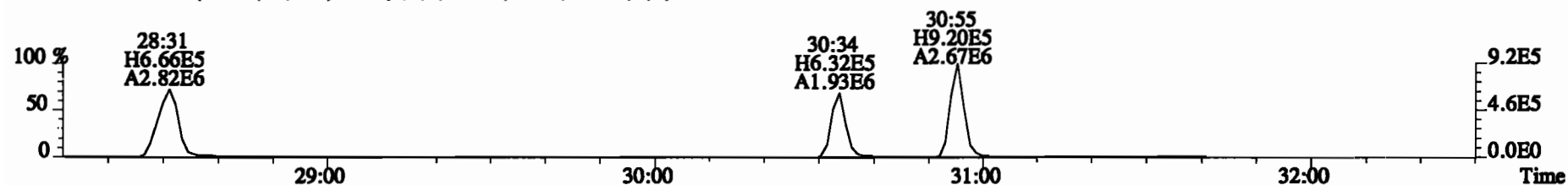
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



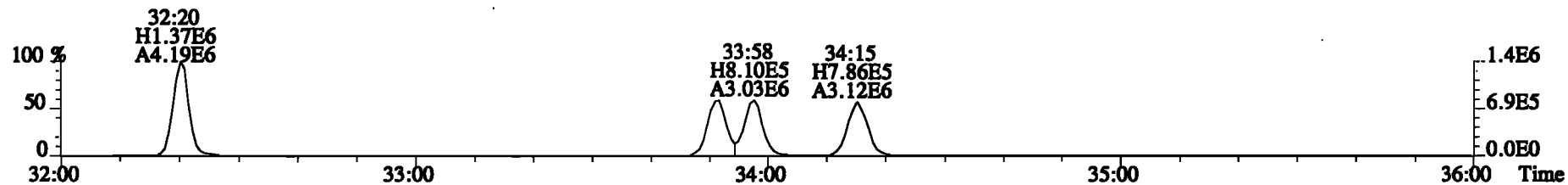
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



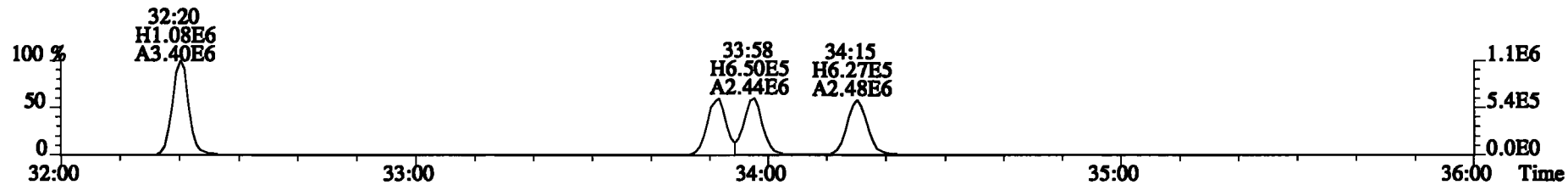
File:191212D1 #1-211 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



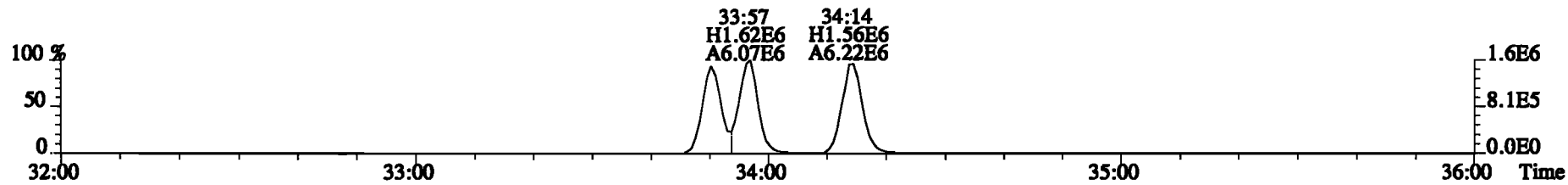
File:191212D1 #1-384 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



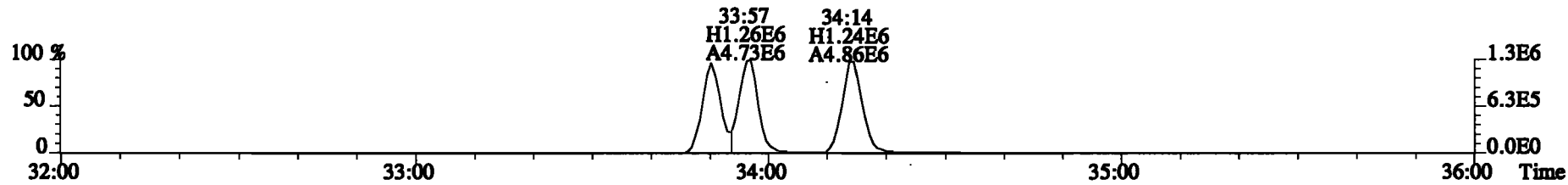
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



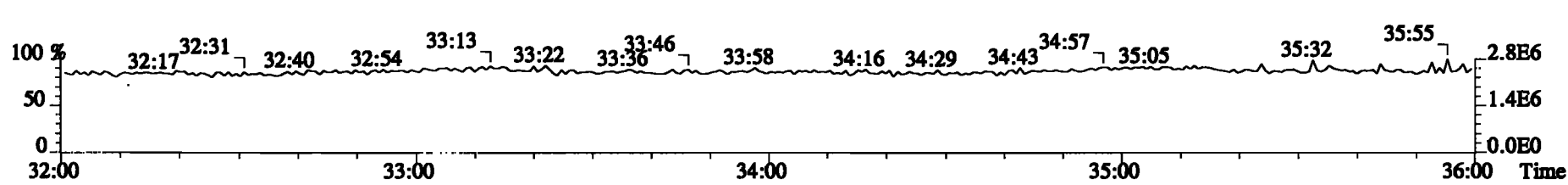
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



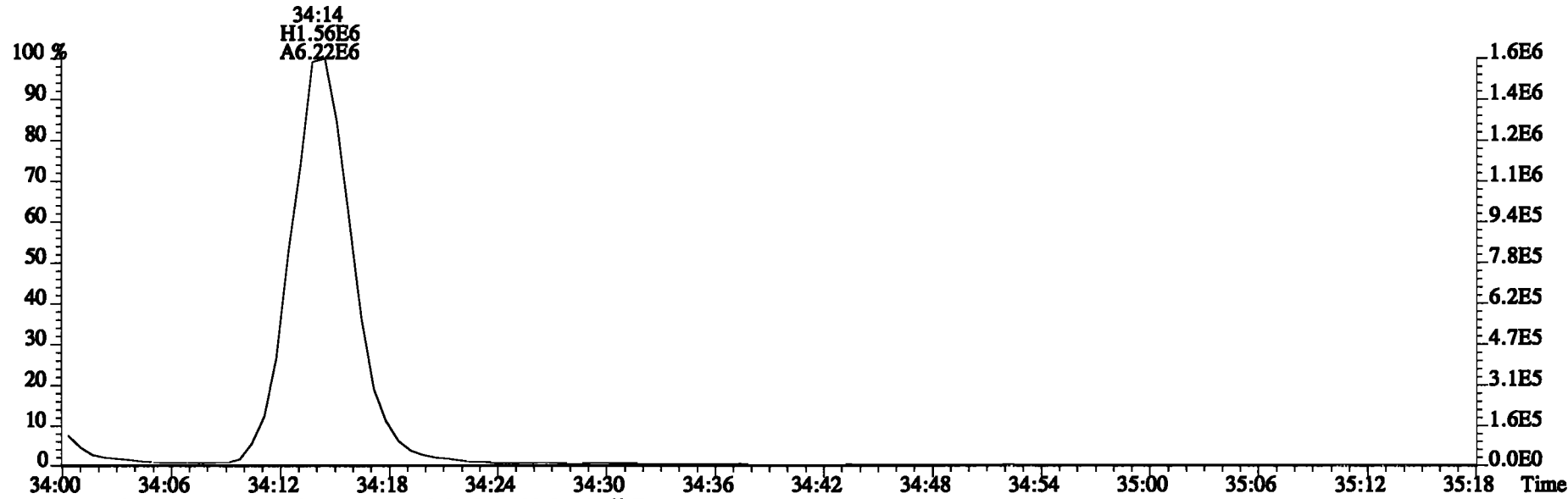
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



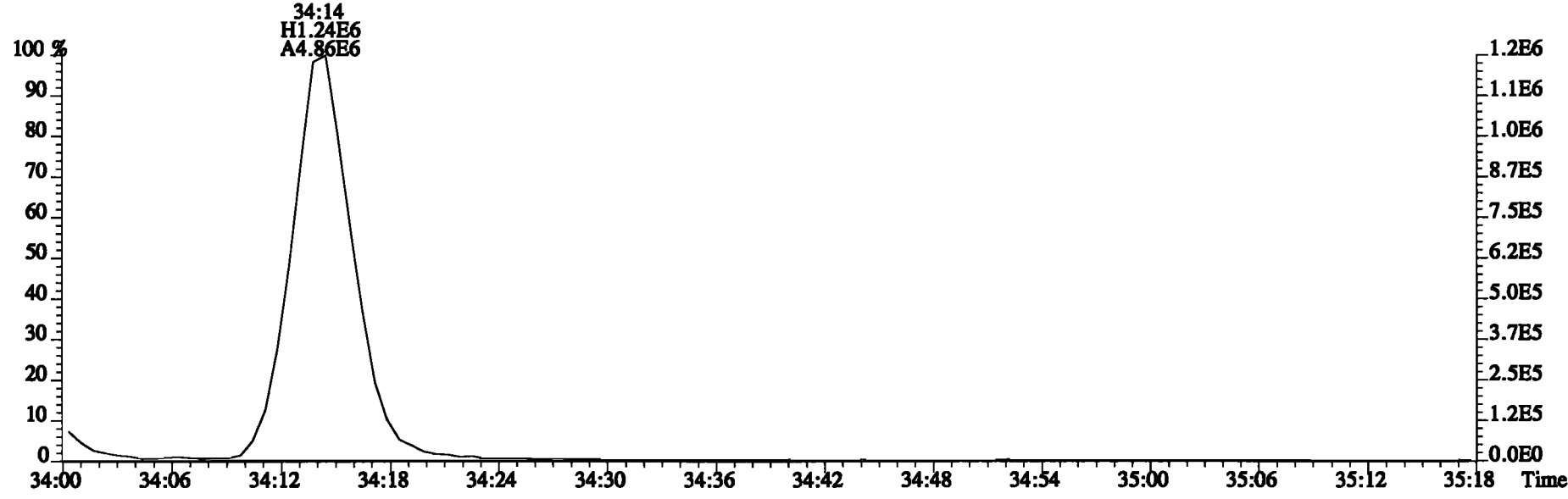
392.9760 F:3



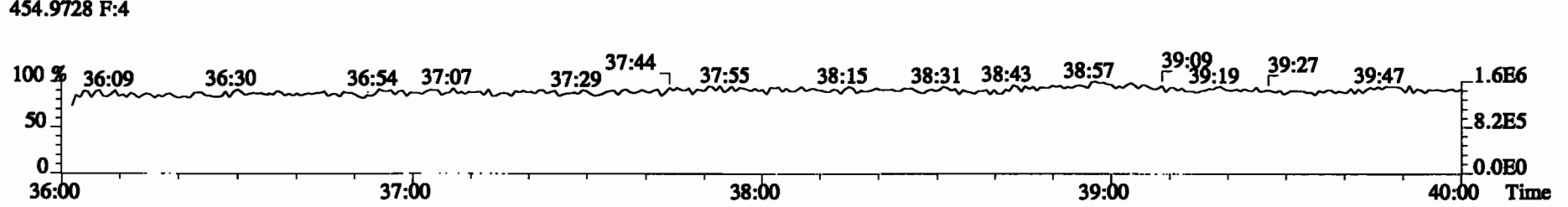
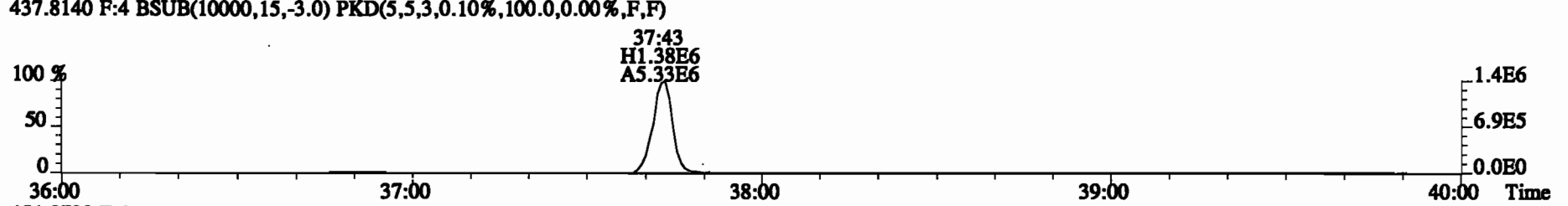
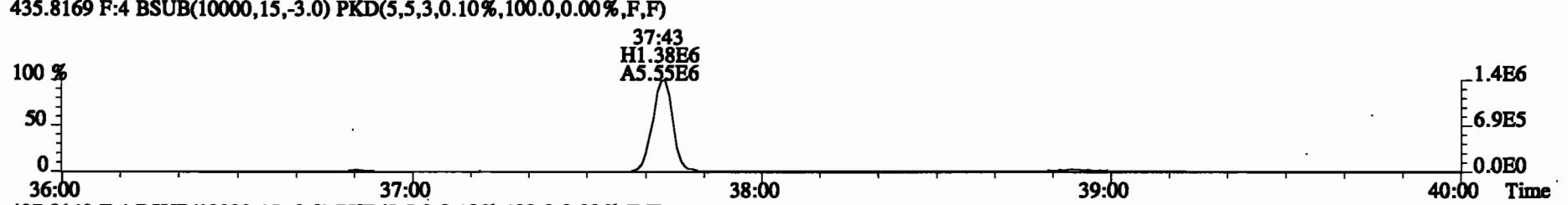
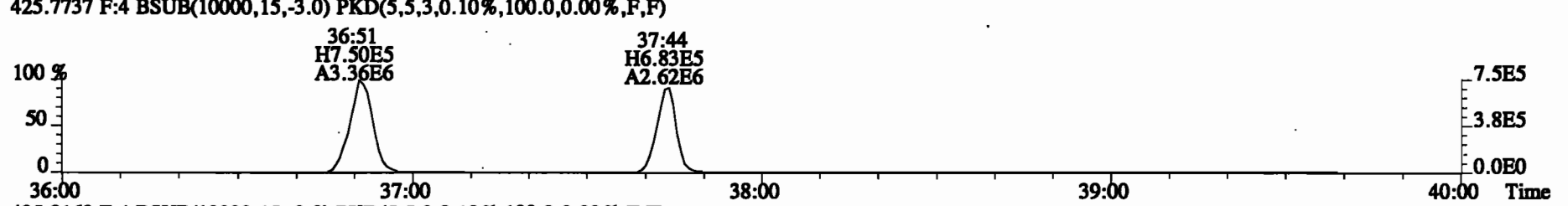
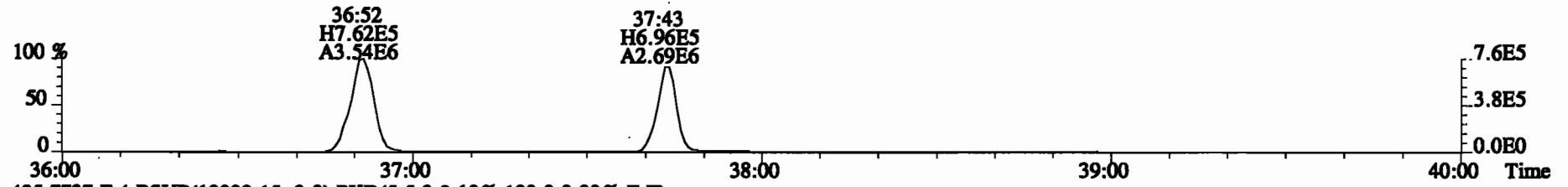
File:191212D1 #1-384 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



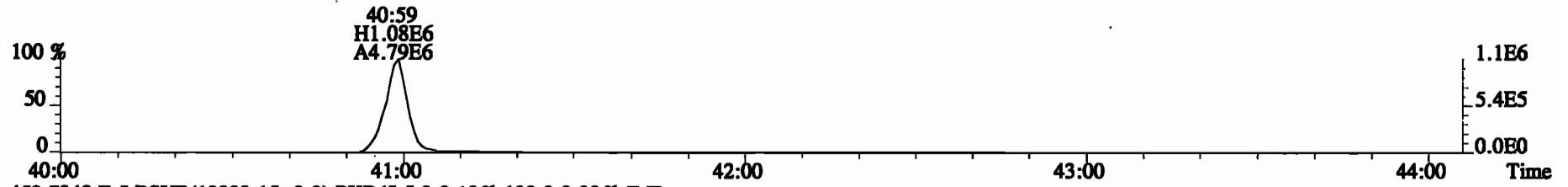
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



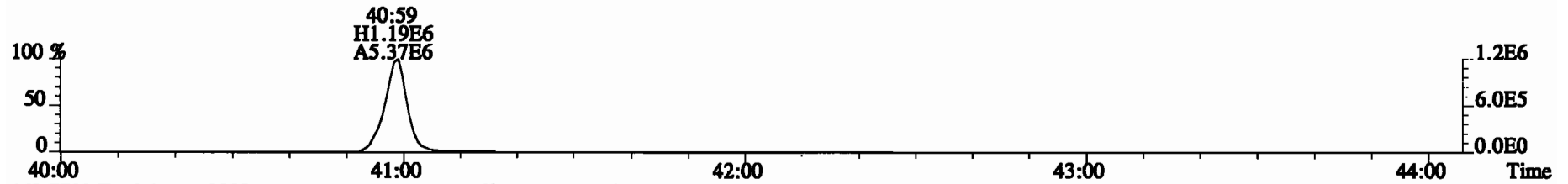
File:191212D1 #1-356 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



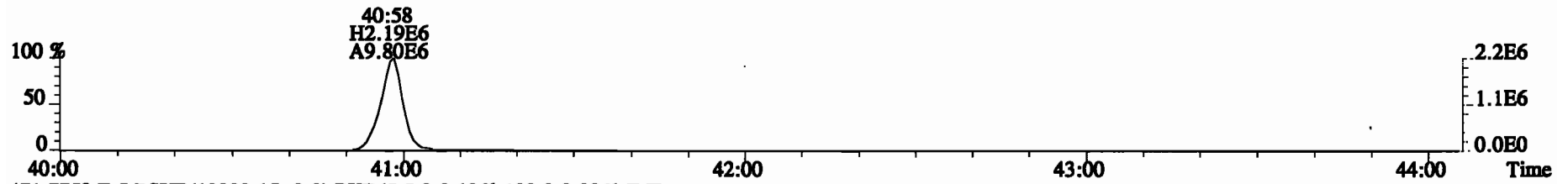
File:191212D1 #1-431 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



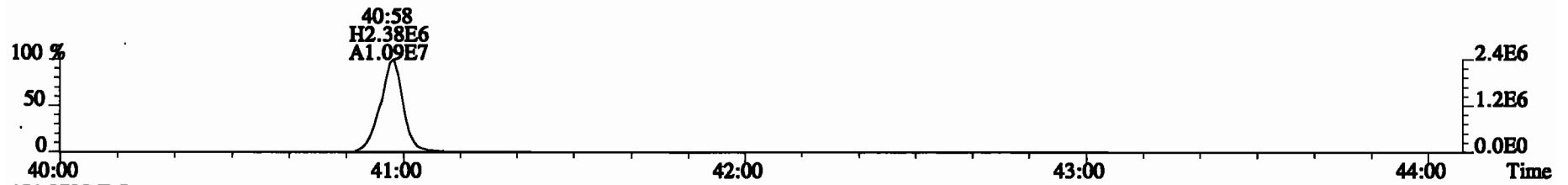
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



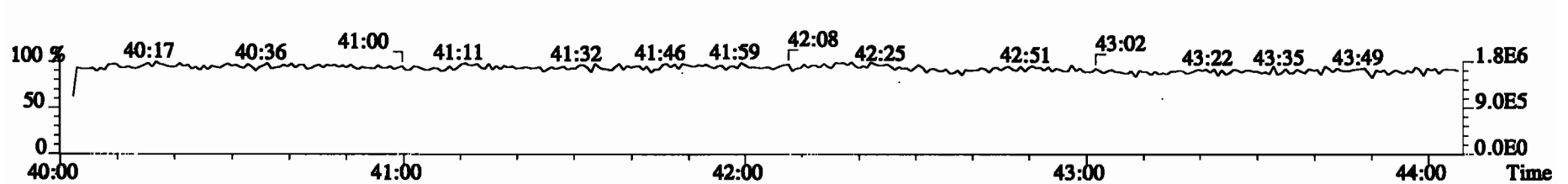
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



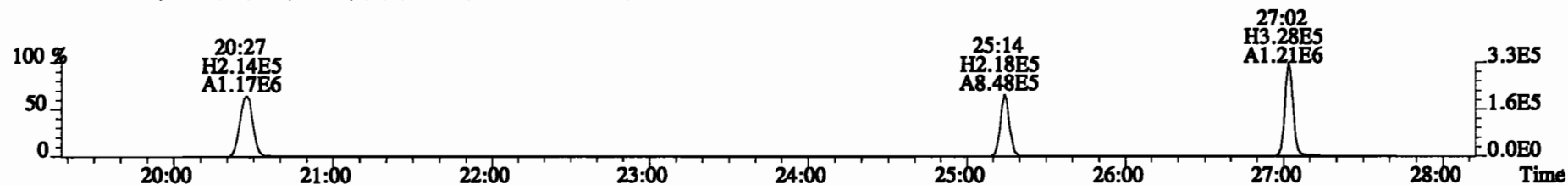
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



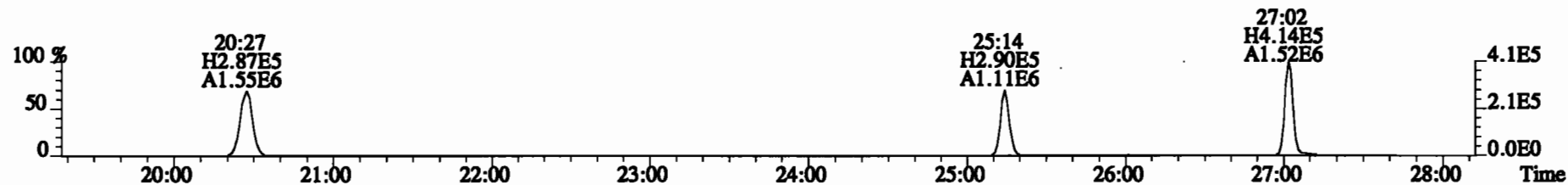
454.9728 F:5



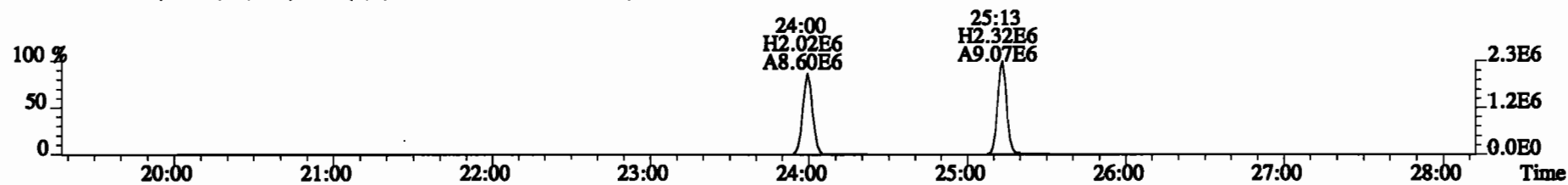
File:191212D1 #1-492 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



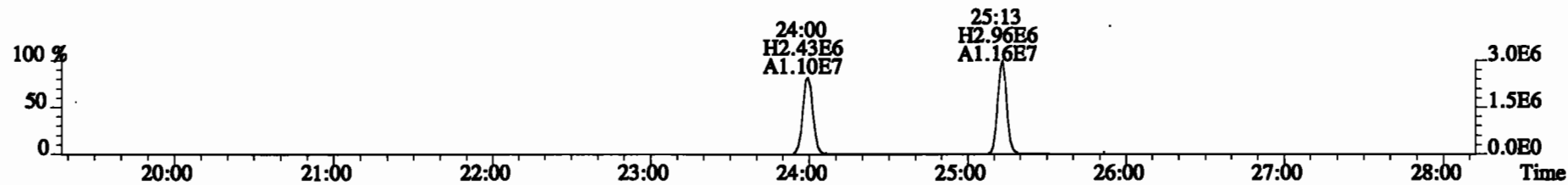
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



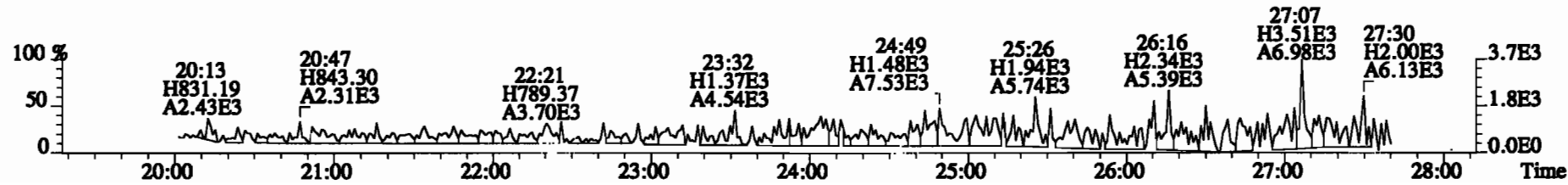
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



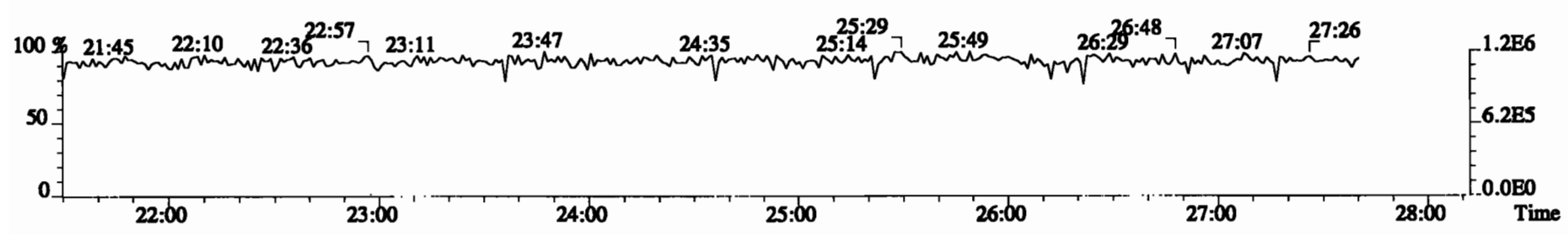
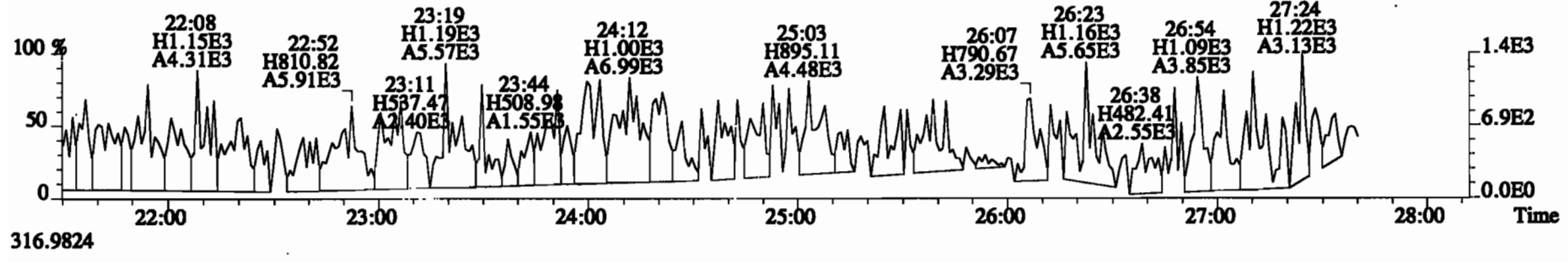
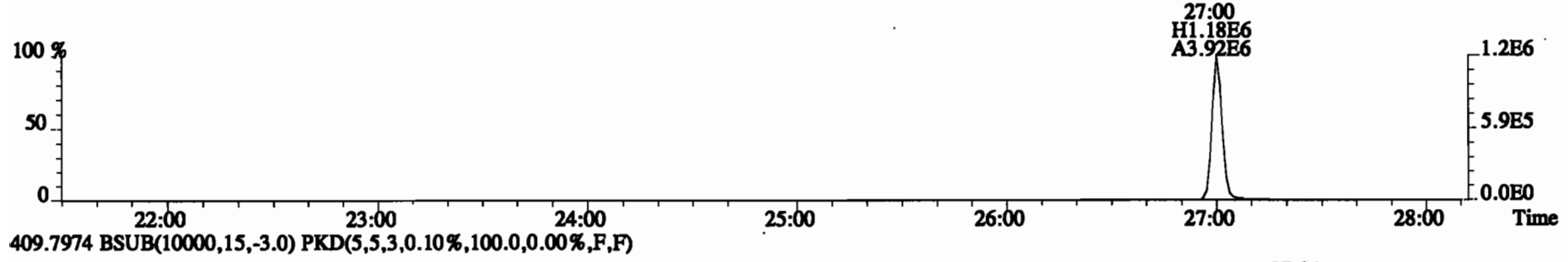
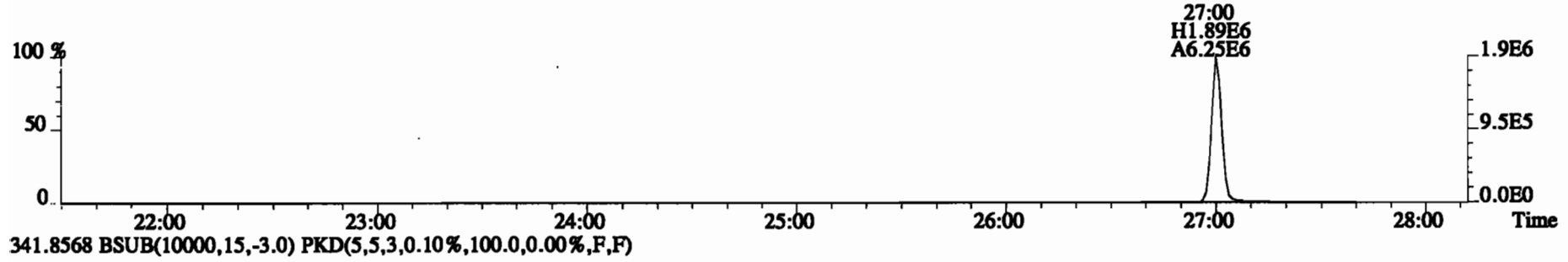
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

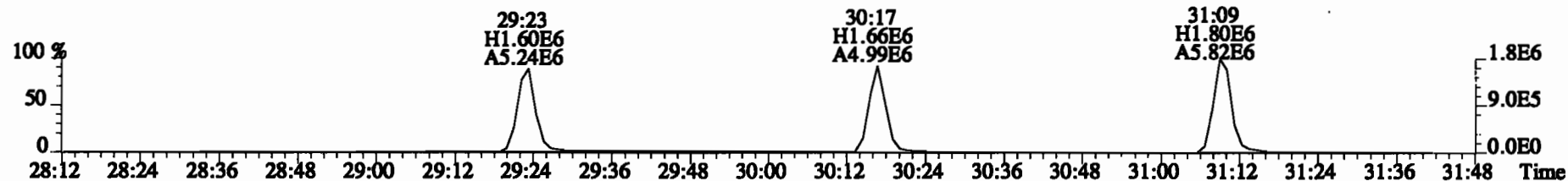


File:191212D1 #1-492 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

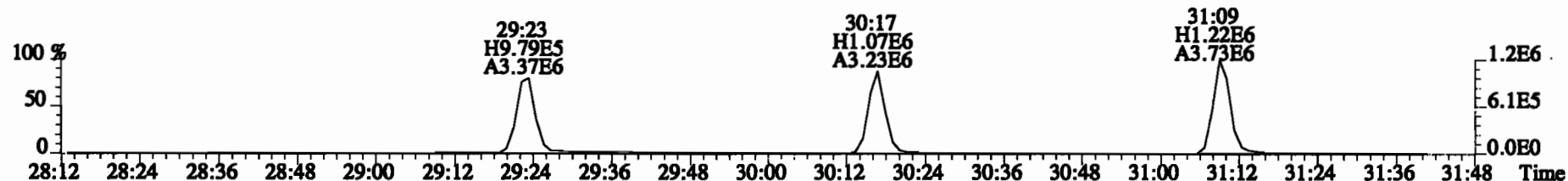




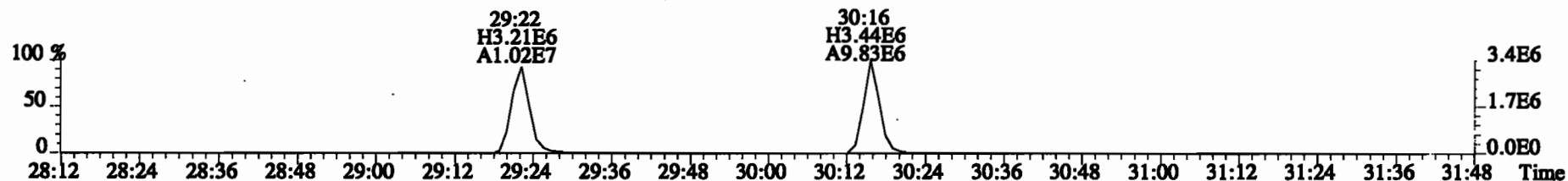
File:191212D1 #1-211 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



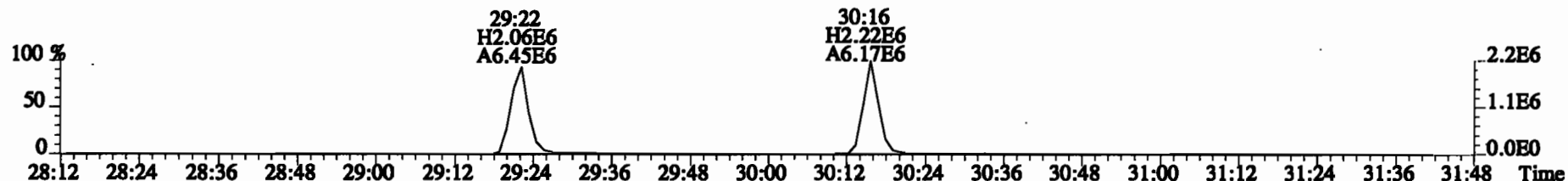
341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



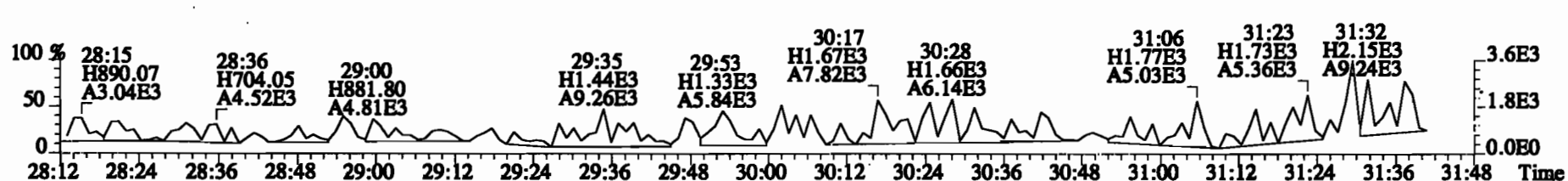
351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



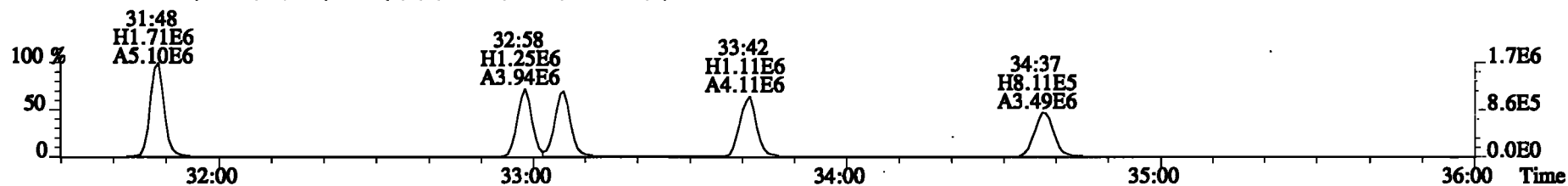
353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



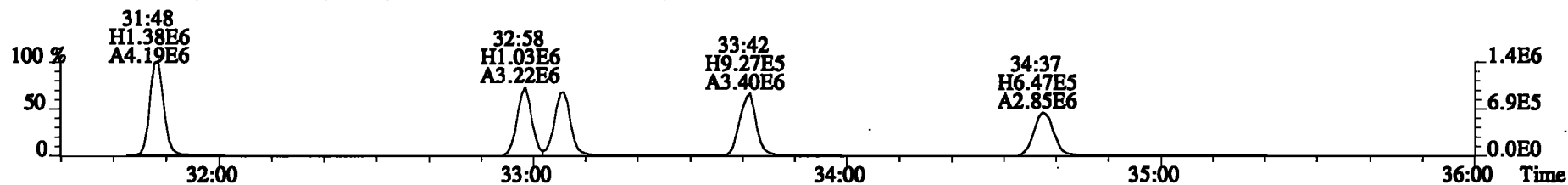
409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



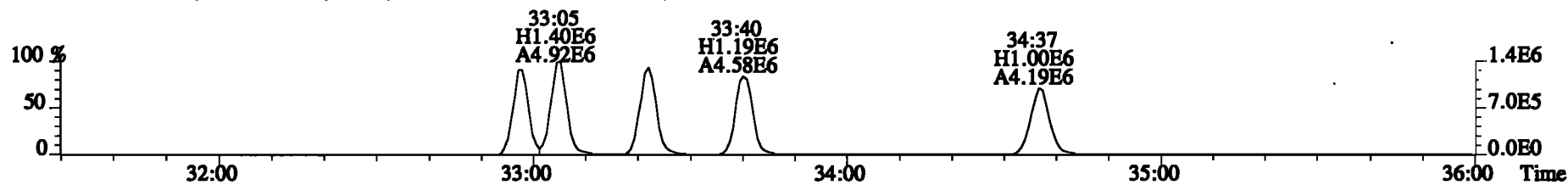
File:191212D1 #1-384 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



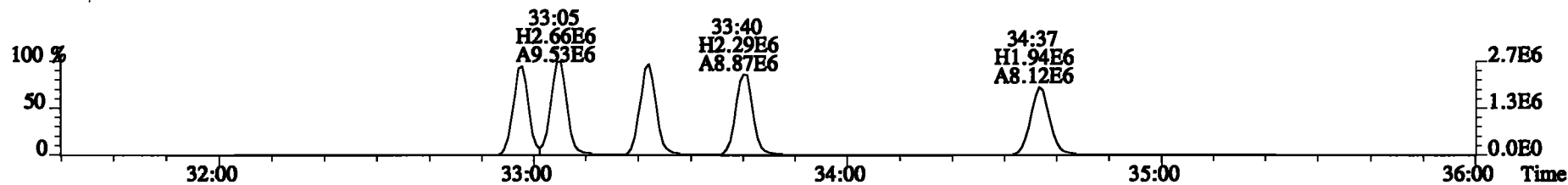
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



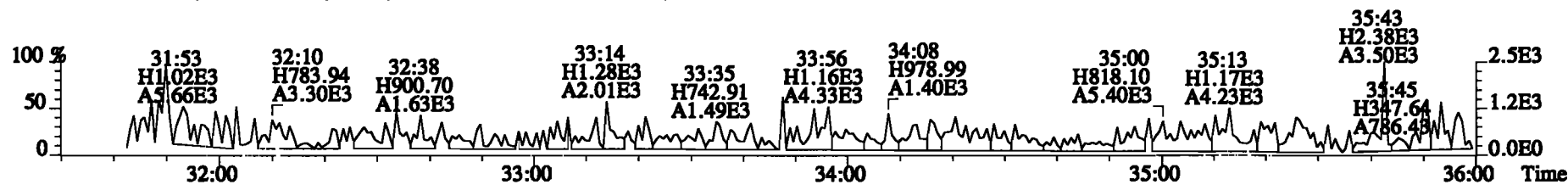
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



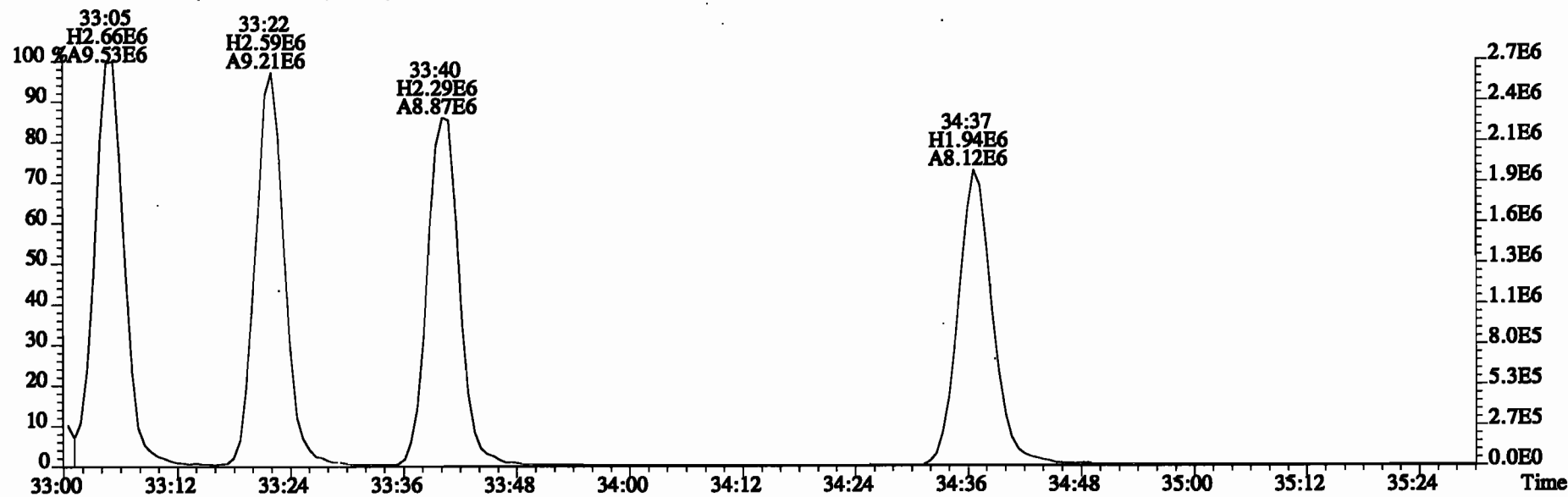
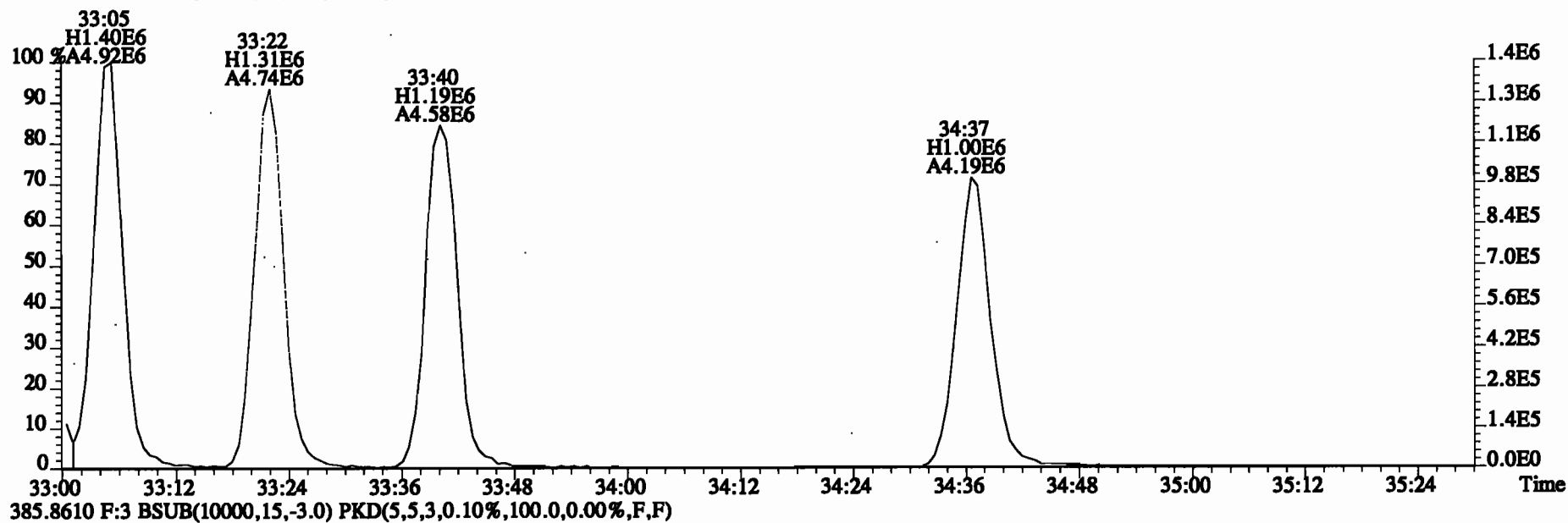
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



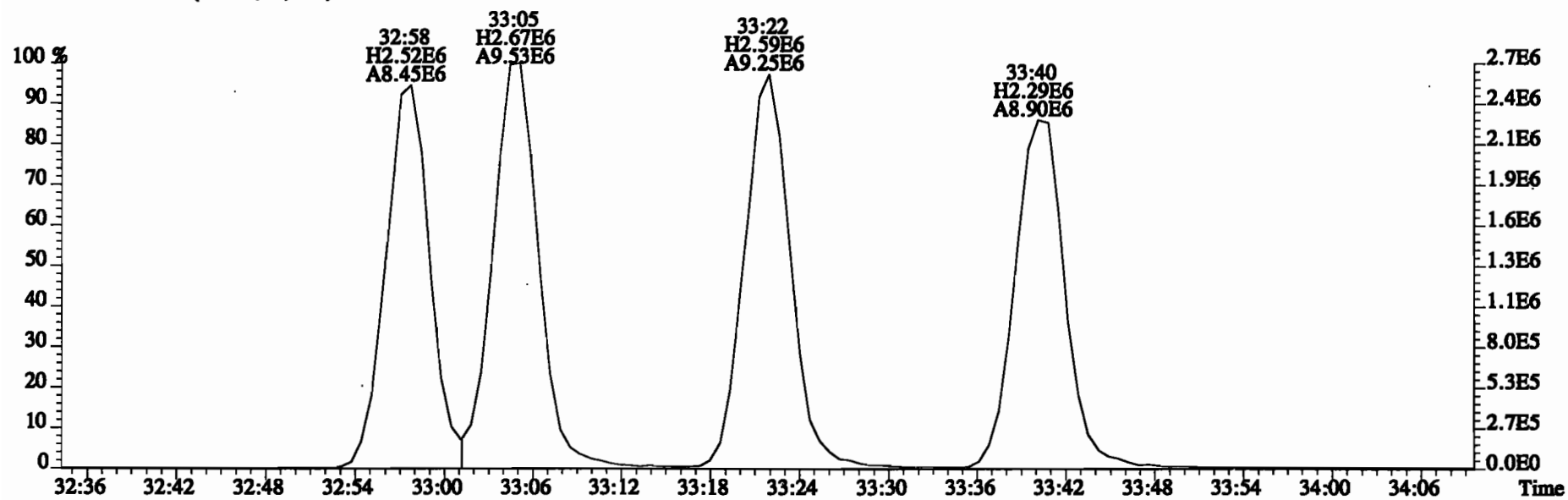
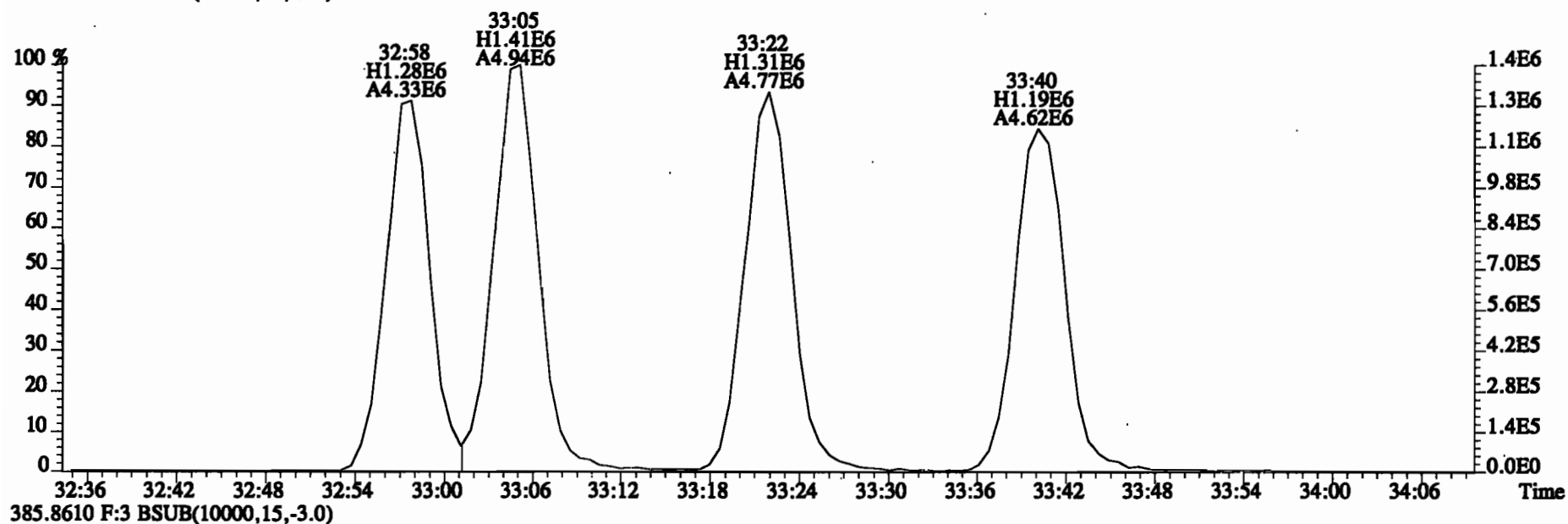
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



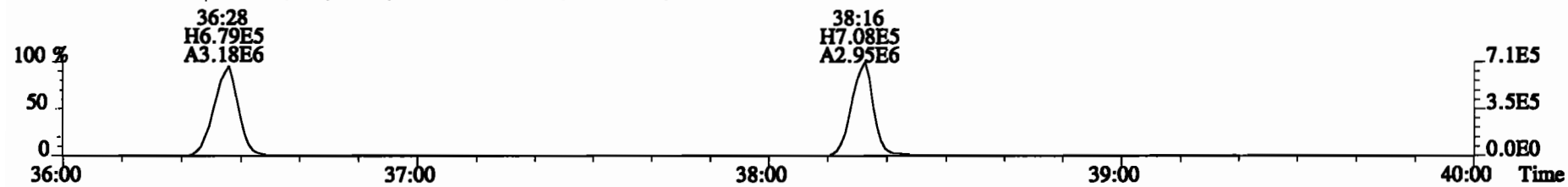
File:191212D1 #1-384 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



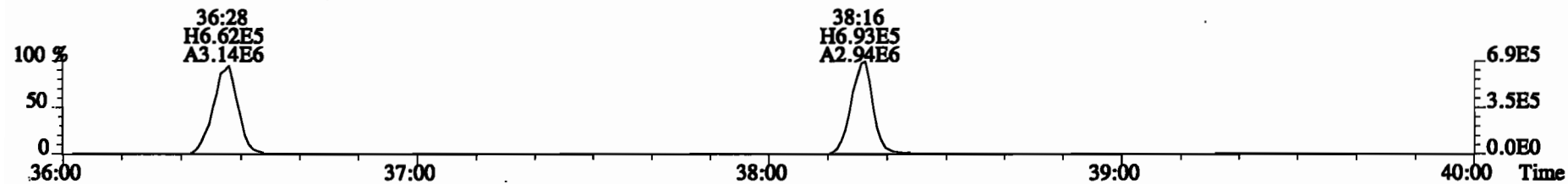
File:191212D1 #1-384 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0)



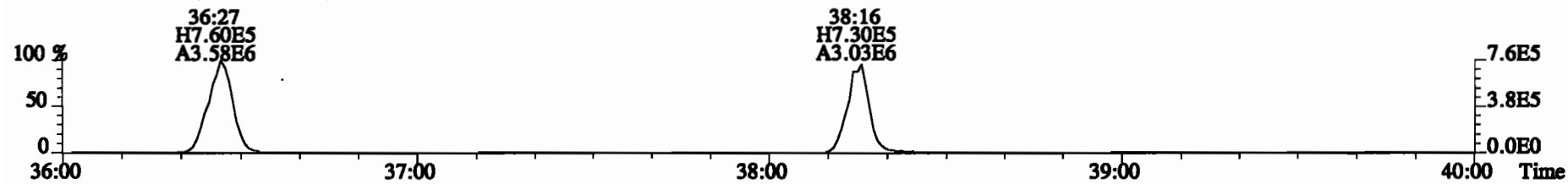
File:191212D1 #1-356 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



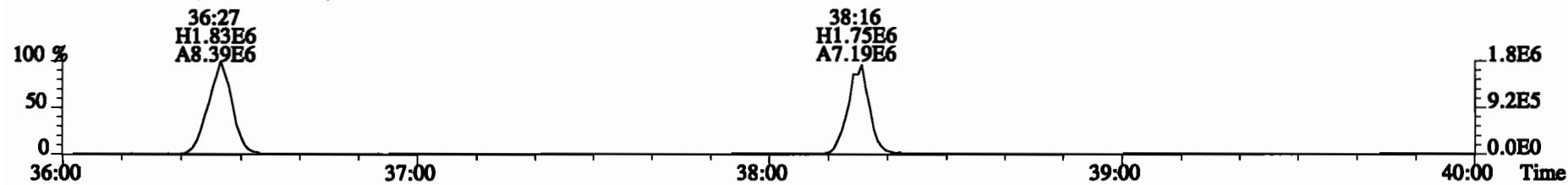
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



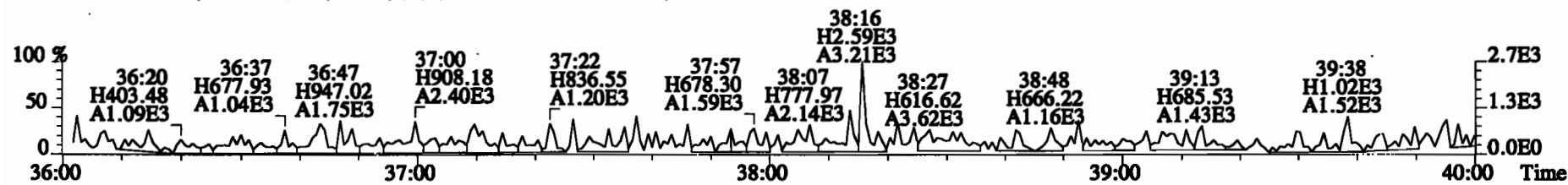
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



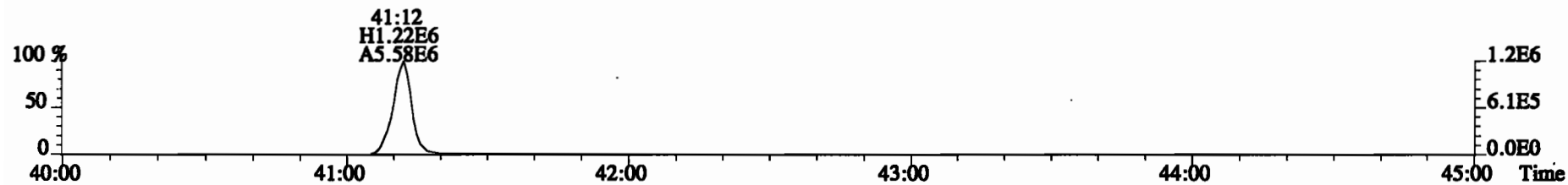
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



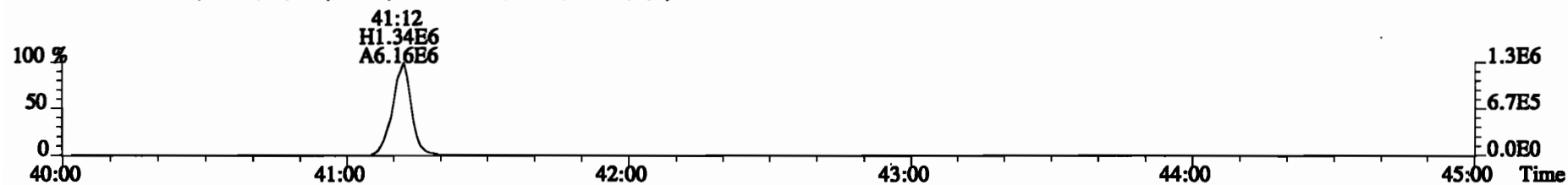
479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



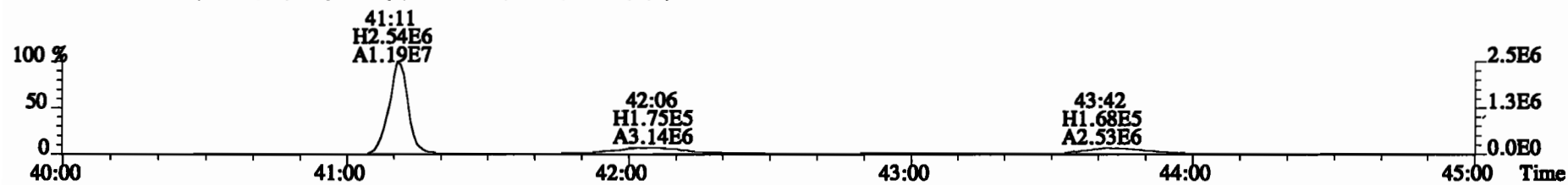
File:191212D1 #1-431 Acq:12-DEC-2019 12:43:56 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191212D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



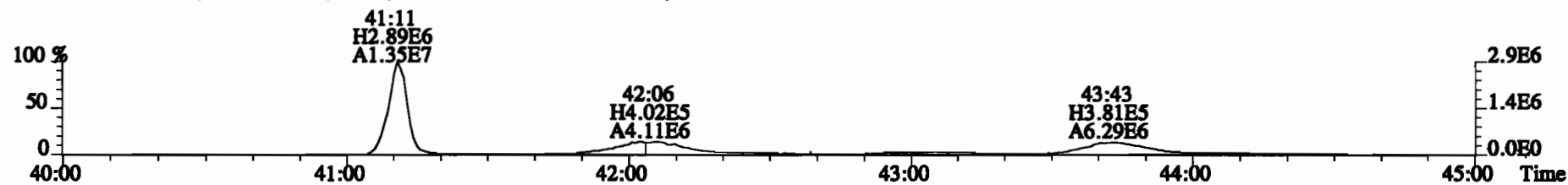
443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



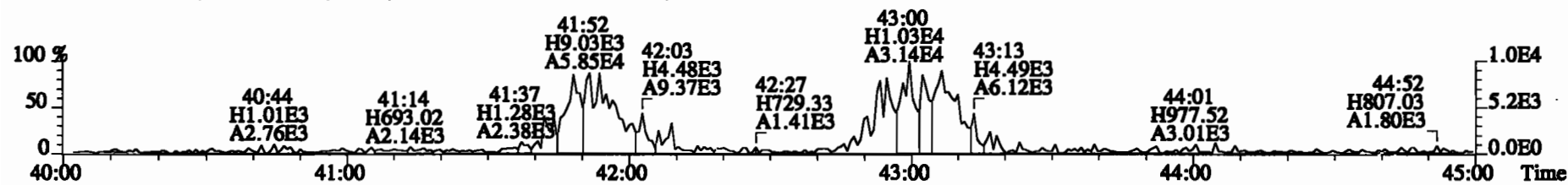
453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



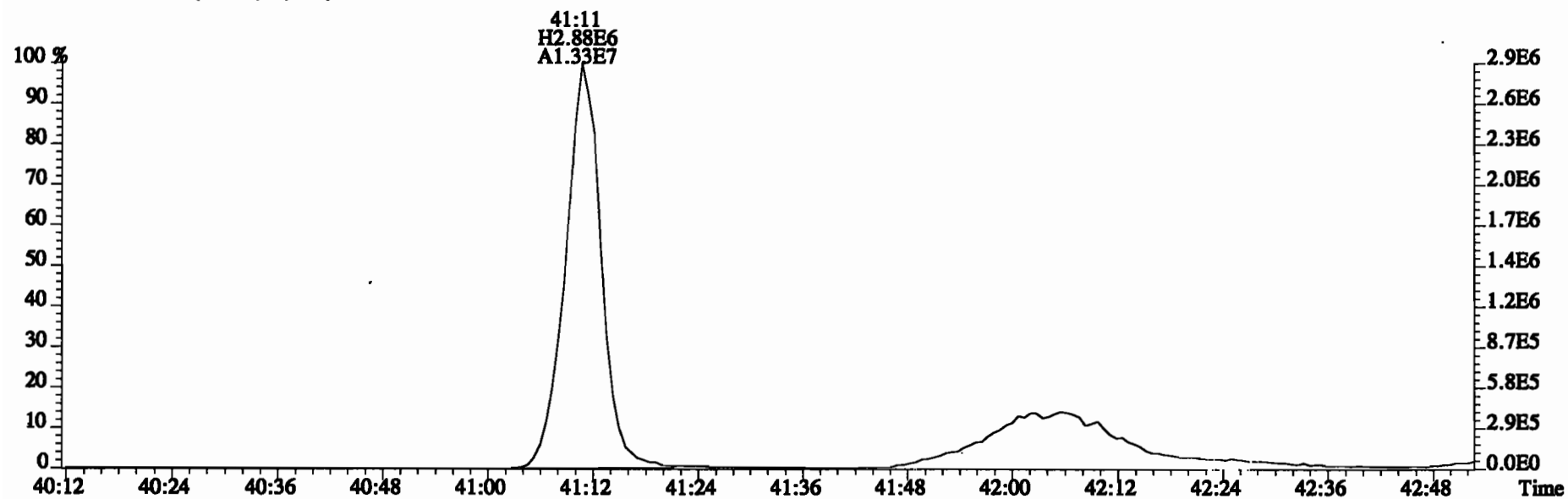
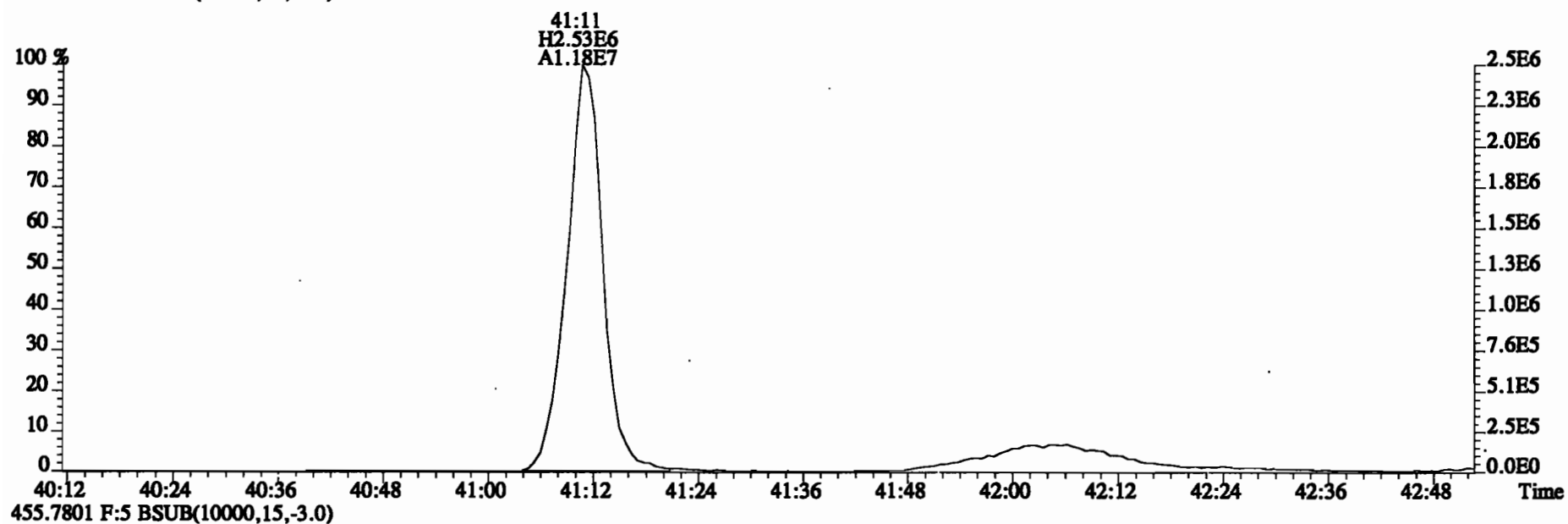
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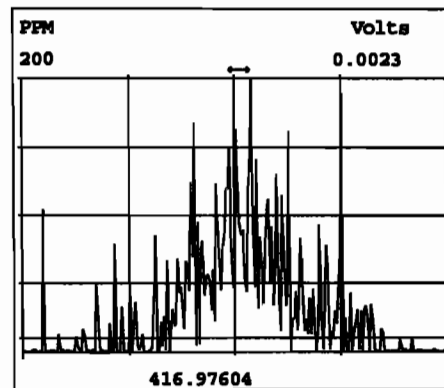
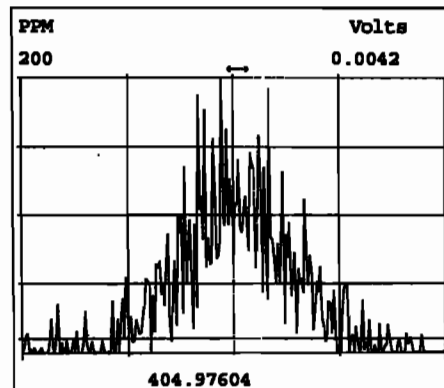
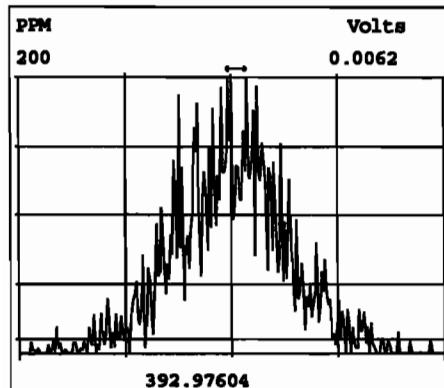
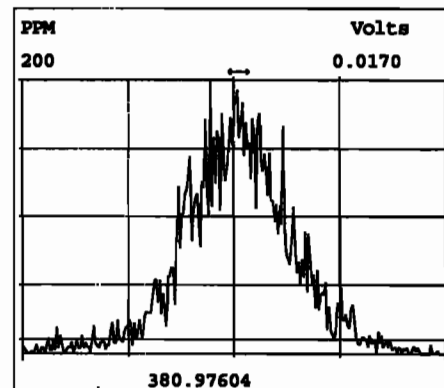
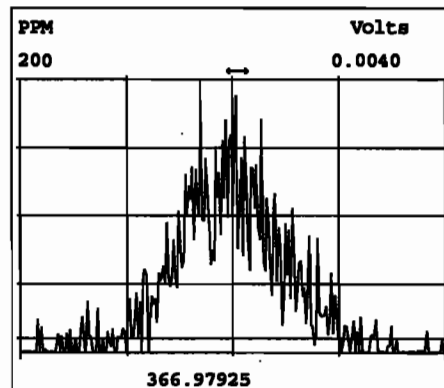
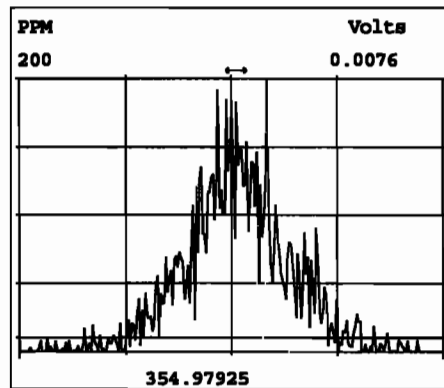
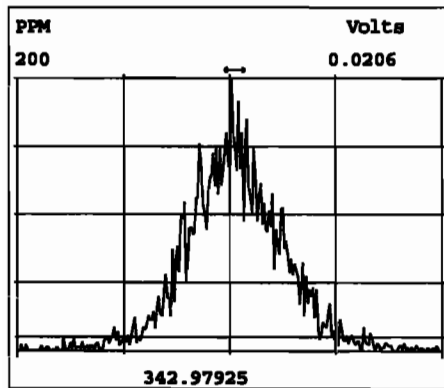
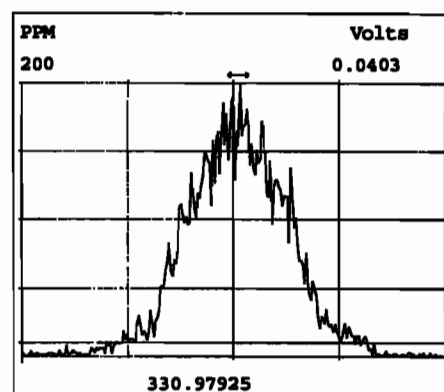
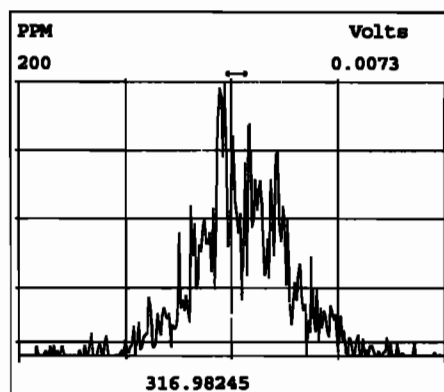
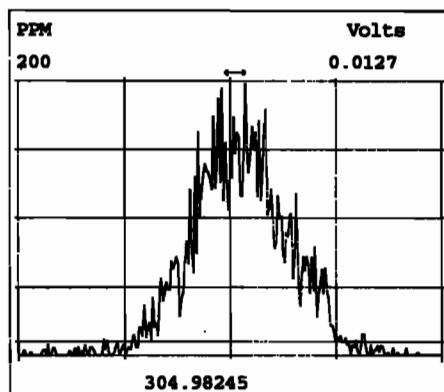
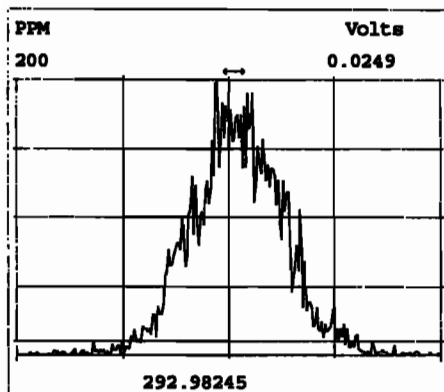


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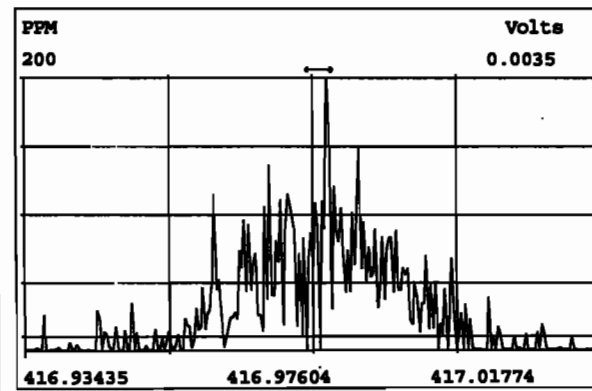
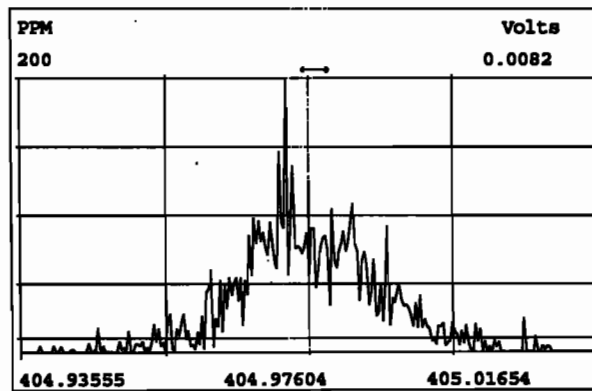
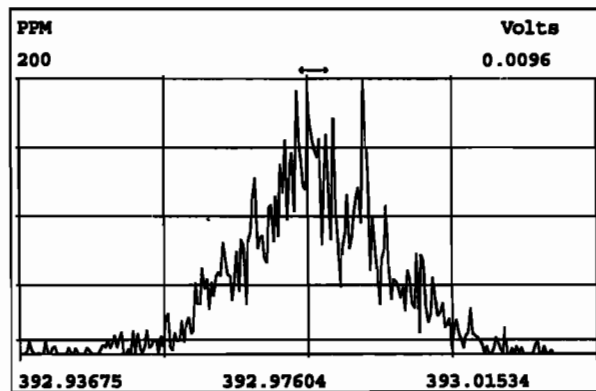
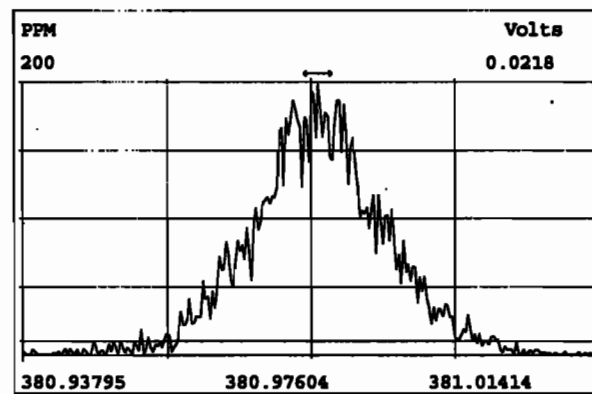
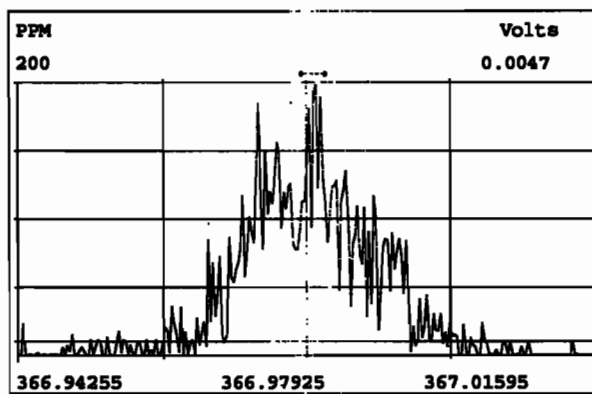
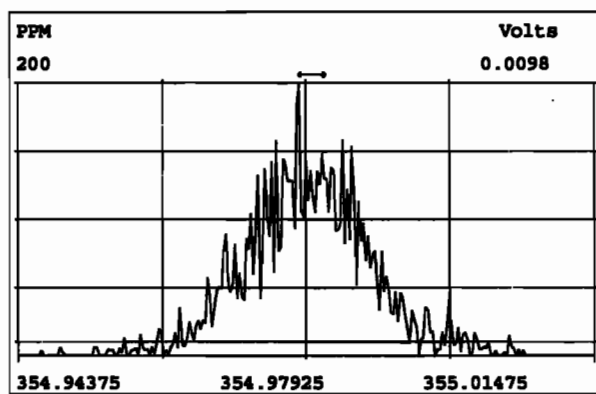
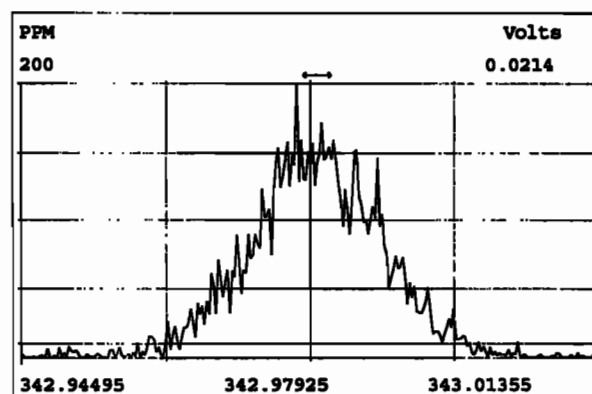
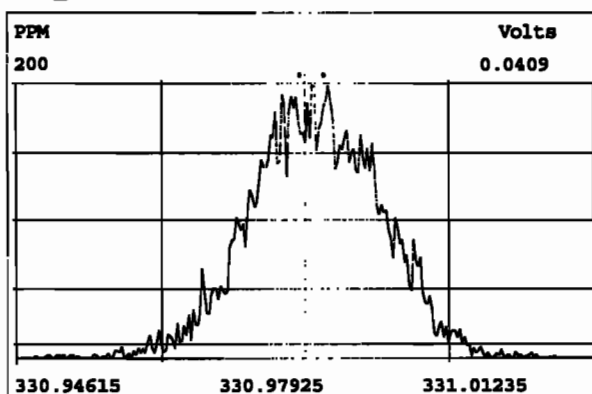
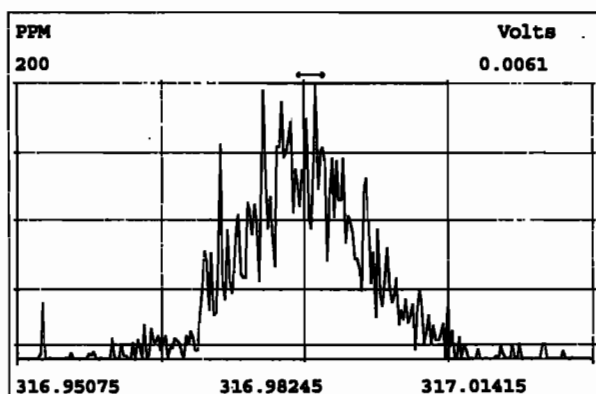


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453.7831 F:5 BSUB(10000,15,-3.0)



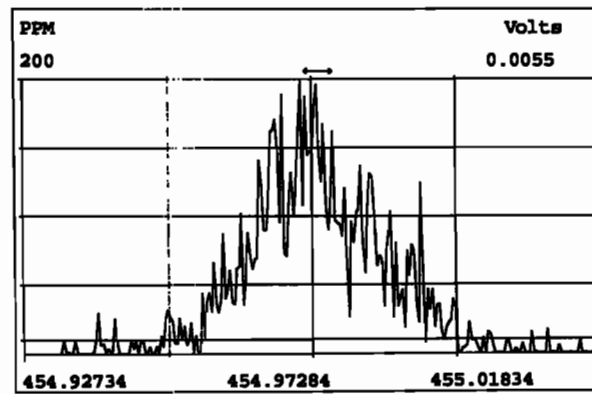
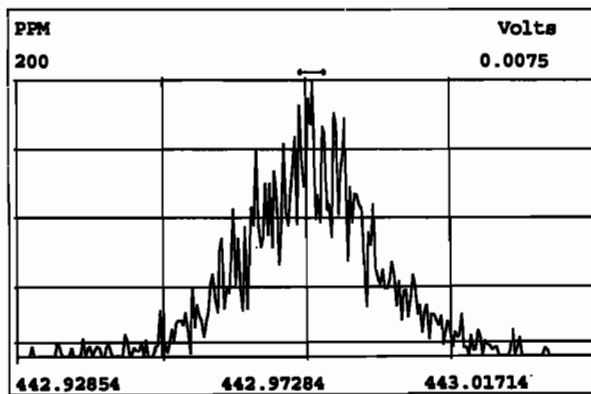
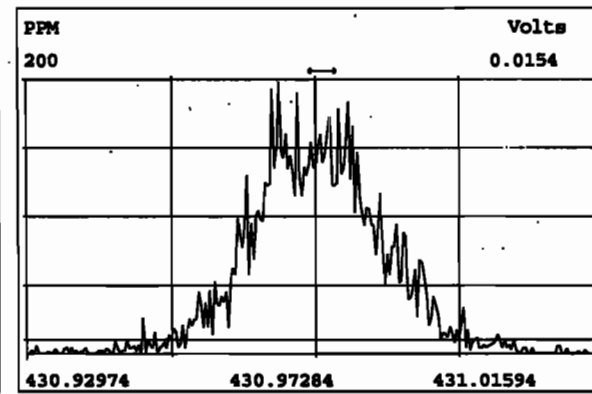
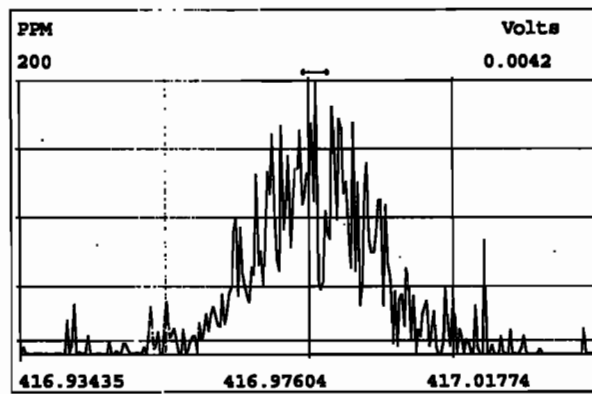
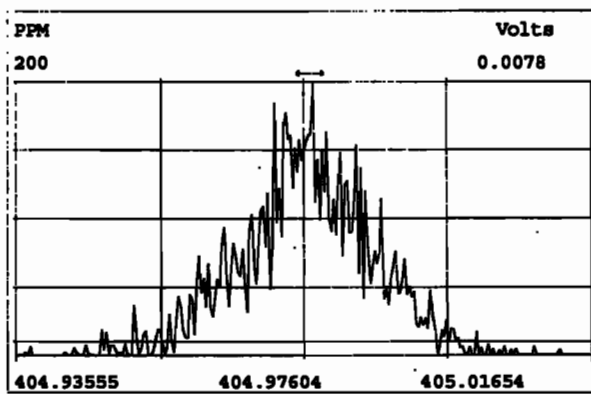
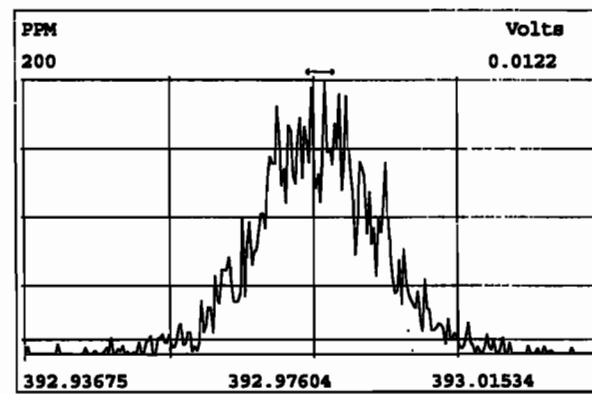
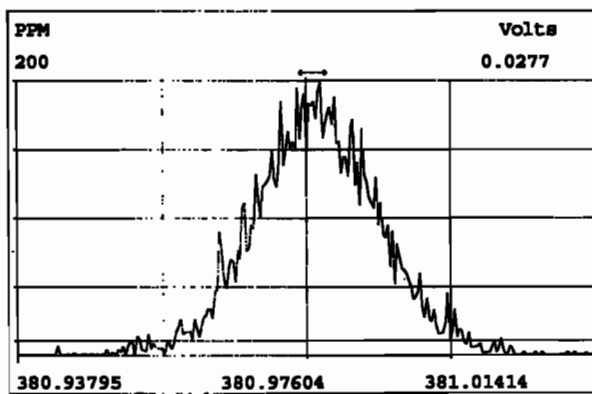
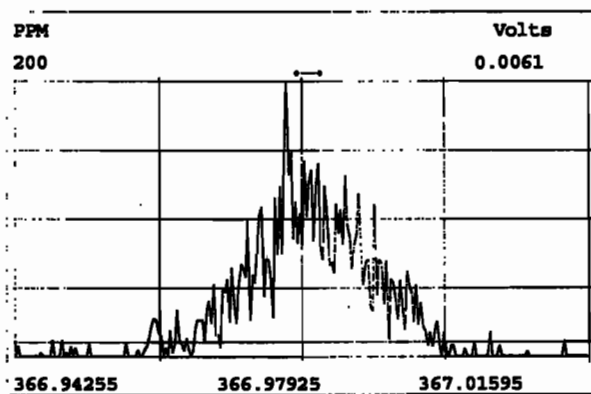






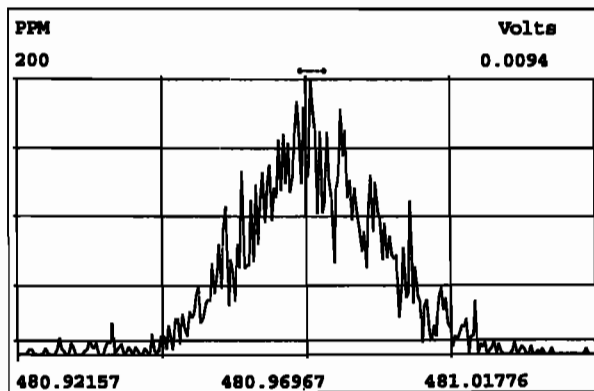
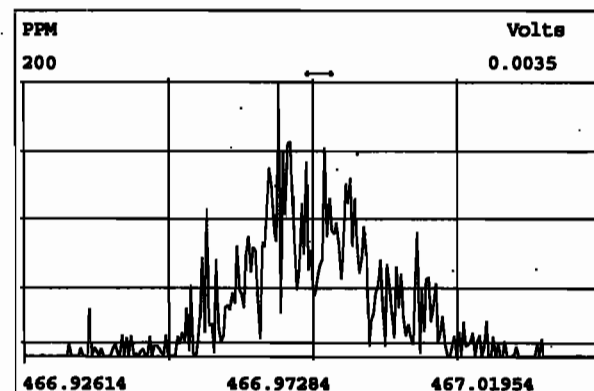
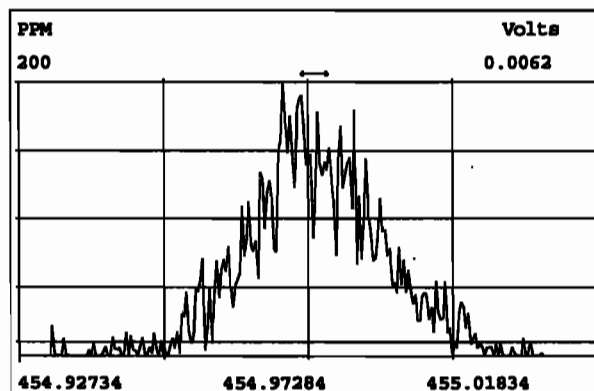
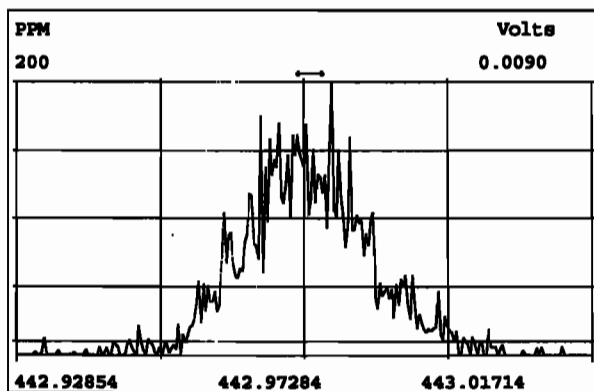
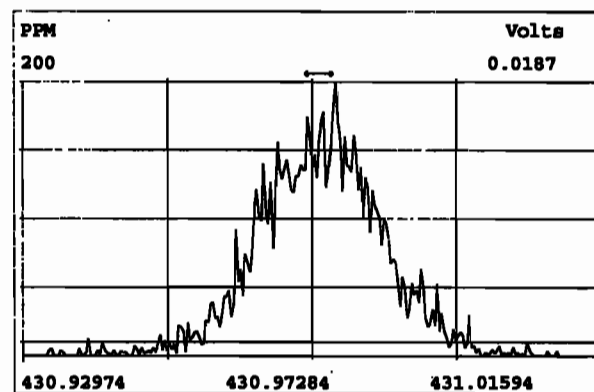
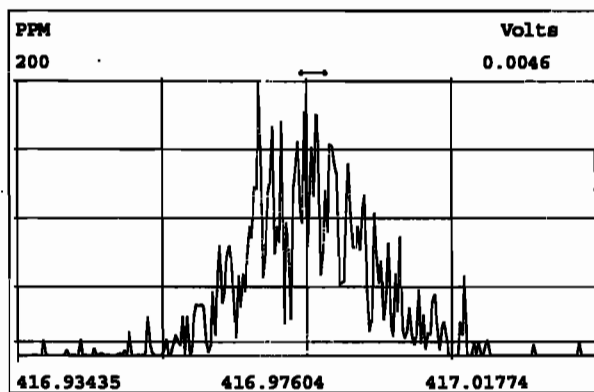
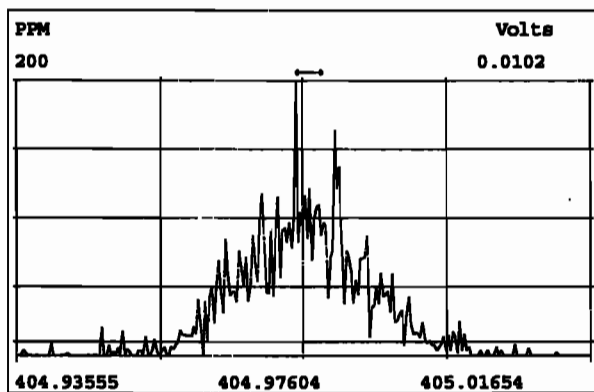
Peak Locate Examination:13-DEC-2019:00:53 File:RES\_CHECK

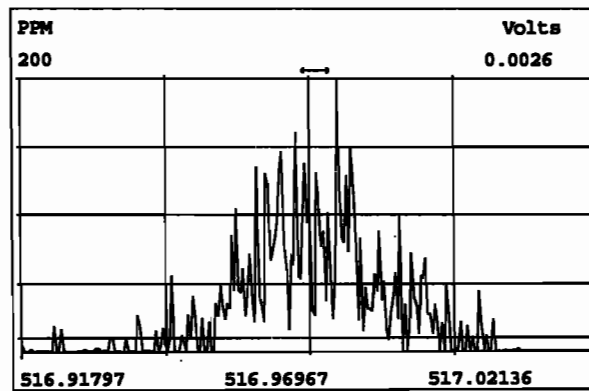
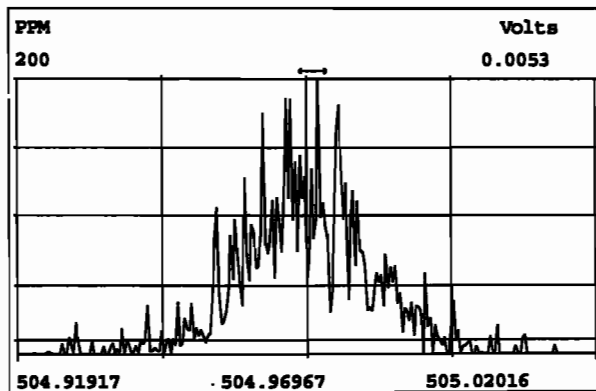
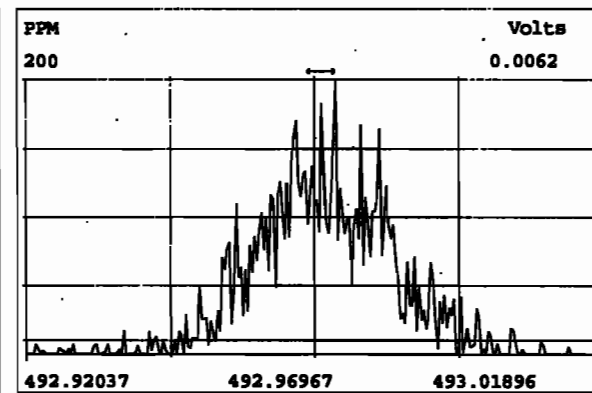
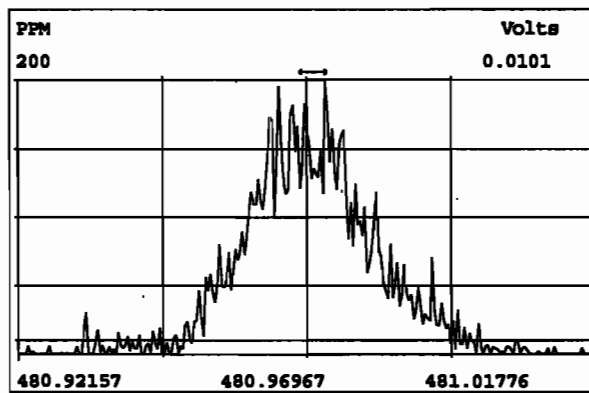
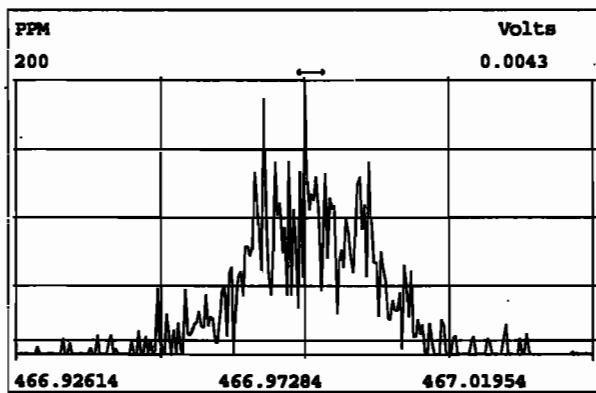
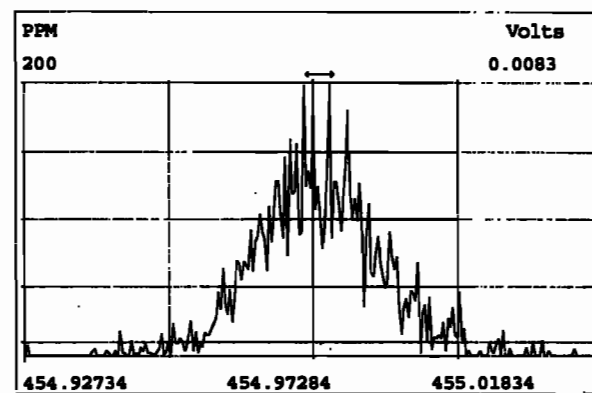
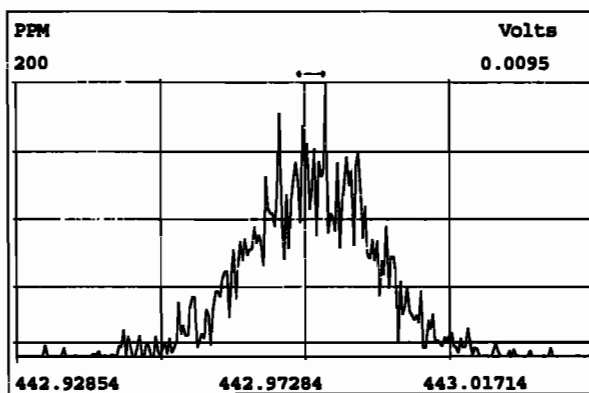
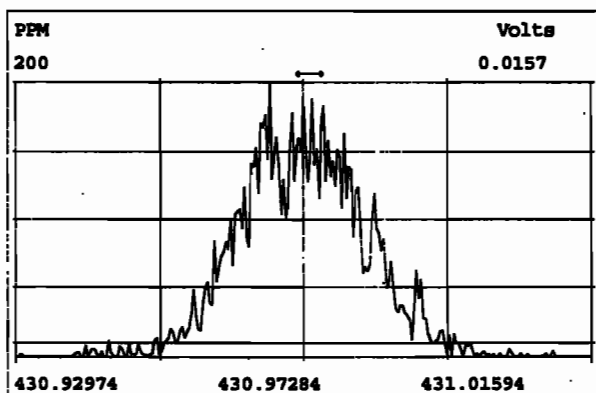
Experiment:OCDD\_DB5 Function:3 Reference:PFK



Peak Locate Examination:13-DEC-2019:00:54 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:4 Reference:PFK





# HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

**Beg. Calibration ID:** ST191107D1-1

**Reviewed By:** CT 11/07/19  
*Initials & Date*

**End Calibration ID:** NA

	<u>Beg.</u>	<u>End</u>
<b>Ion abundance within QC limits?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>Concentrations within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Verification Std. named correctly?</b> (ST-Year-Month-Day-VG ID)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Correct ICAL referenced?</b>	<u>DB</u>	<input type="checkbox"/>
<b><u>Run Log:</u></b>		
- Correct instrument listed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- Samples within 12 hour clock?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
- Bottle position verified?		

**Mass resolution  $\geq$**

5k    6-8K    8K    10K  
 1614   1699   429   1613/1668/8280

**Intergrated peaks display correctly?**

**GC Break <20%**

NA

**8280 CS1 End Standard:**

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours

	<u>Beg.</u>	<u>End</u>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA

**Comments:**

FORM 4A/4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory

CCAL ID: ST191107D1-1

Initial Calibration Date: 5-30-19

Instrument ID: VG-7

GC Column ID: DB-225

VER Data Filename: 191107D1 S#2 Analysis Date: 7-NOV-19 Time: 11:22:48

ANALYTES	M/Z'S	ION	QC	CONC.	CONC. RANGE	CONC. RANGE
	FORMING	ABUND.	LIMITS		1613	8290
	RATIO (1)	RATIO	(2)	FOUND	(ng/mL)	(ng/mL)
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	10.5	8.4 - 12.0 (3) 8.6 - 11.6 (4)	8.0 - 12.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	109.1	71.0 - 140.0 (3) 76.0 - 131.0 (4)	70.0 - 130.0

(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.

(4) Contract required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DBDate: 11/7/19

Client ID: 1613 CS3 19C2204

Filename: 191107D1 S:2 Acq: 7-NOV-19 11:22:48

ConCal: ST191107D1-1

Page 1 of 1

Lab ID: ST191107D1-1

GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 1.000

EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	1.37e+07	0.82 y	15:35	1.00	100.0	-
13C-2,3,7,8-TCDF	1.53e+07	0.80 y	17:47	1.02	109.1	109.1
2,3,7,8-TCDF	1.52e+06	0.78 y	17:48	0.95	10.50	

Integrations

by  
Analyst: DB

Date: 11/7/19

Reviewed

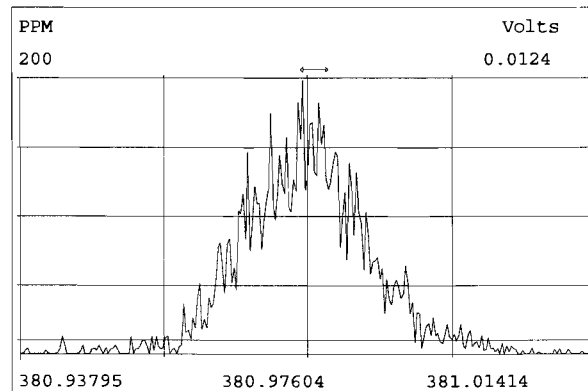
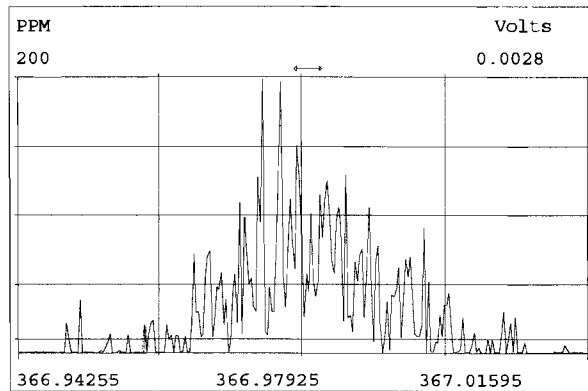
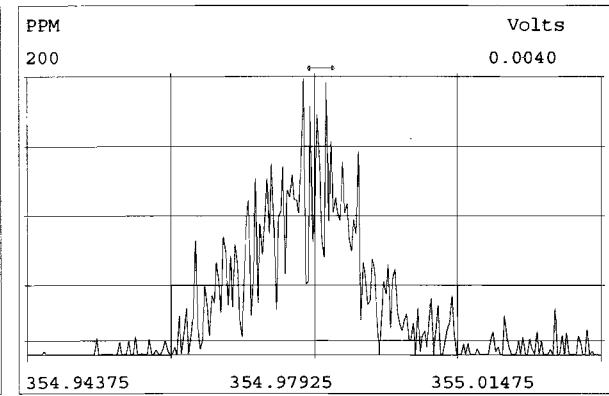
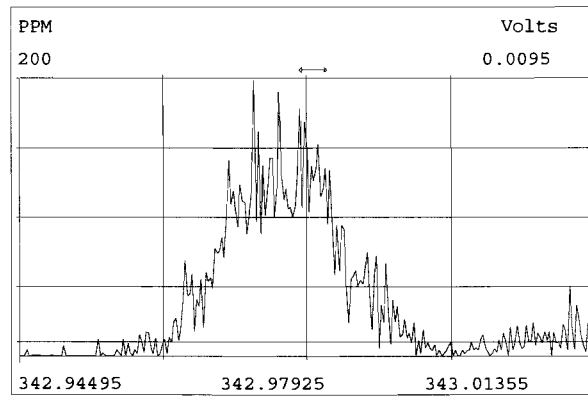
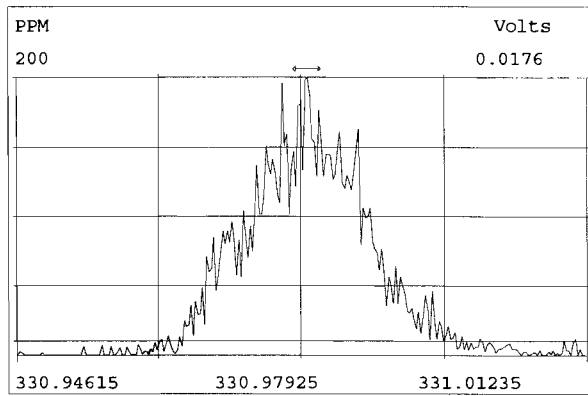
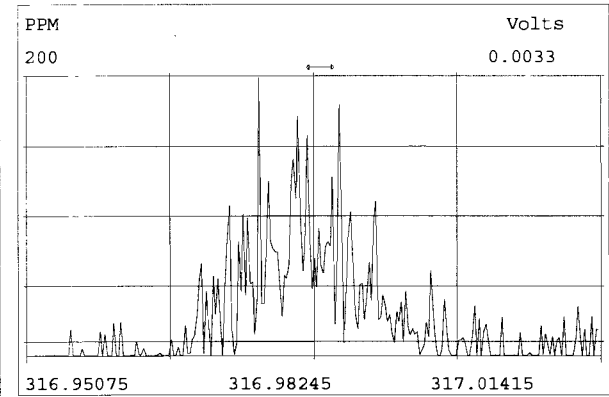
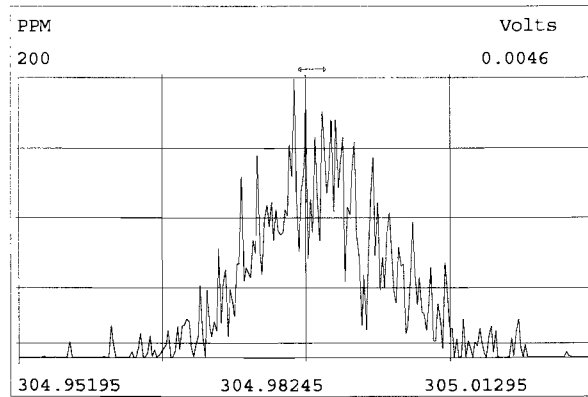
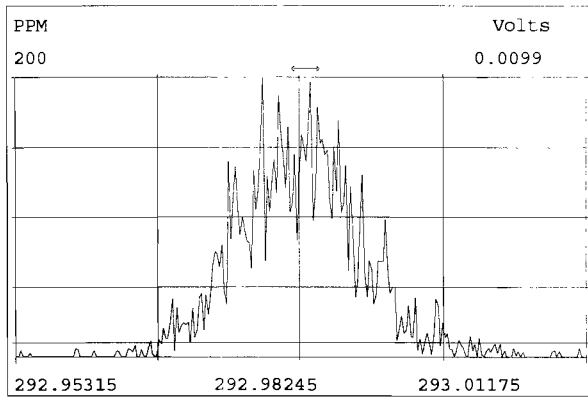
by  
Analyst: CT

Date: 11/07/19

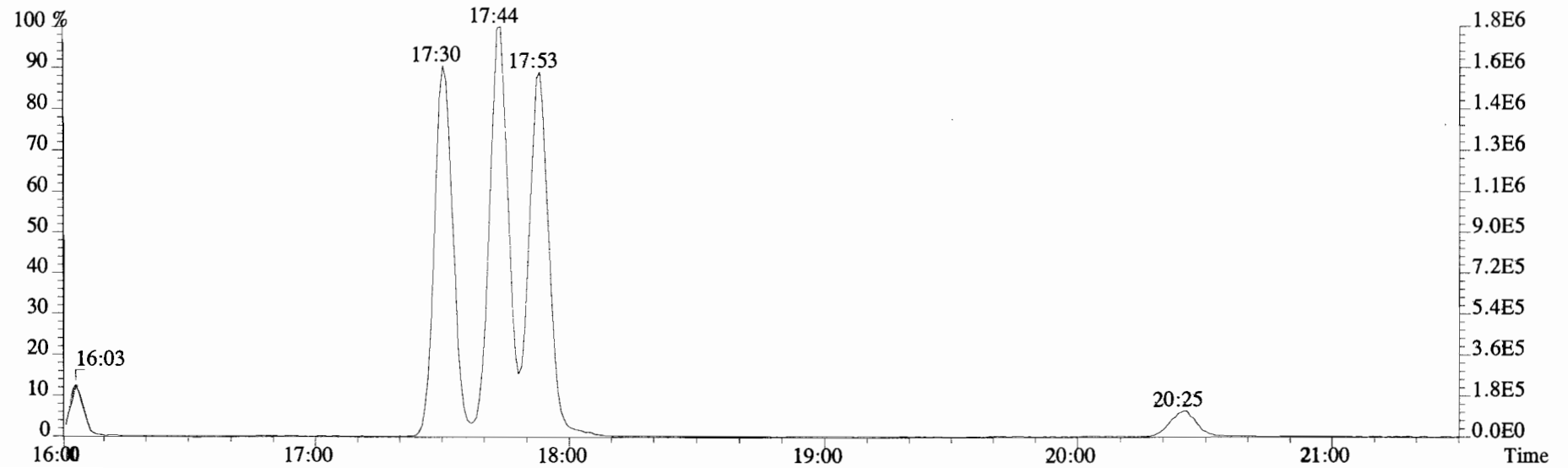
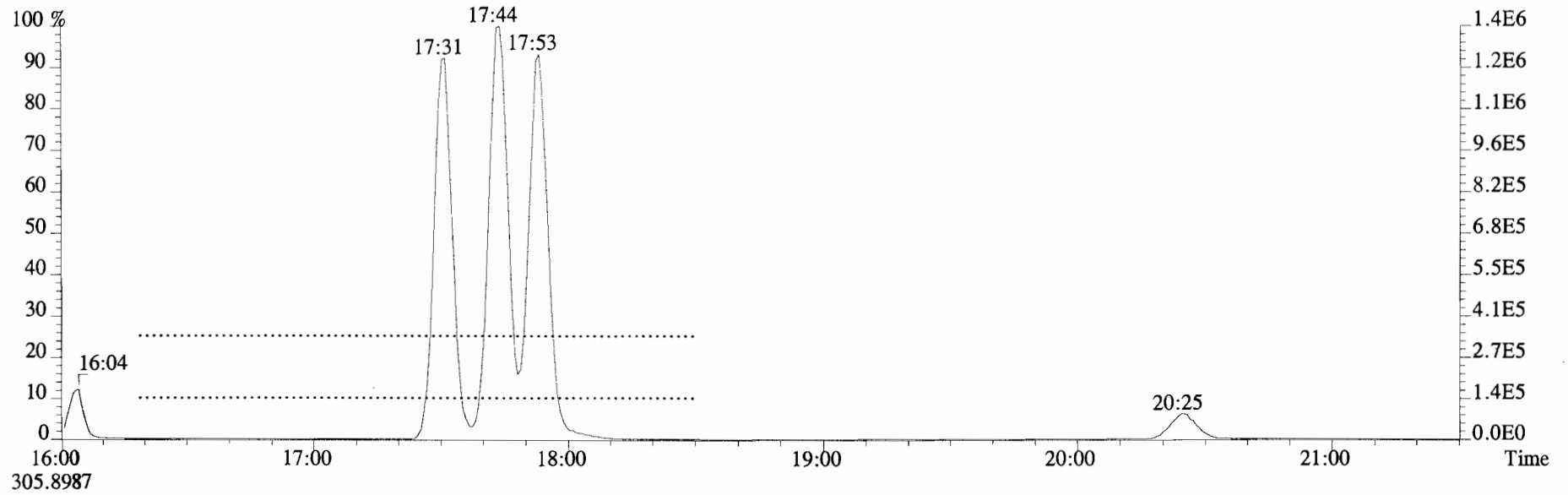
Vista Analytical Laboratory - Injection Log Run file: 191107D1 Instrument ID: VG-7 GC Column ID: DB-225

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
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191107D1	3	SOLVENT BLANK	DB	7-NOV-19	11:54:33	ST191107D1-1	NA
191107D1	4	1903651-04RE1	DB	7-NOV-19	12:26:19	ST191107D1-1	NA
191107D1	5	1903546-15RE2	DB	7-NOV-19	12:58:04	ST191107D1-1	NA
191107D1	6	1903565-16RE2	DB	7-NOV-19	13:29:50	ST191107D1-1	NA
191107D1	7	1903431-06RE1	DB	7-NOV-19	14:01:35	ST191107D1-1	NA

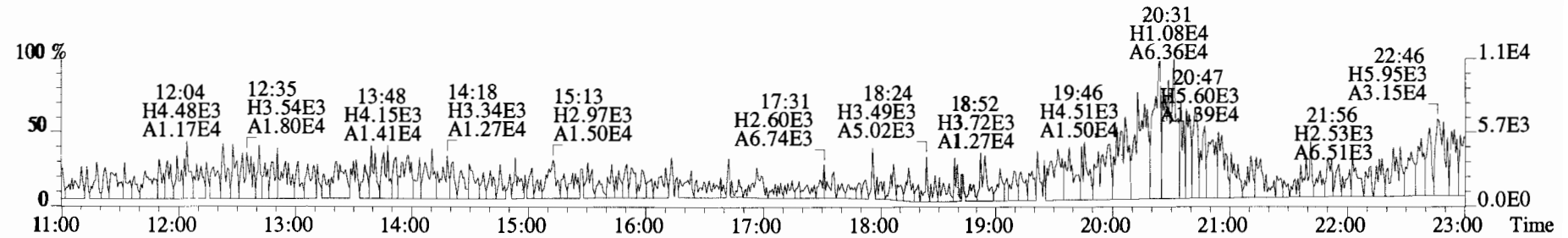
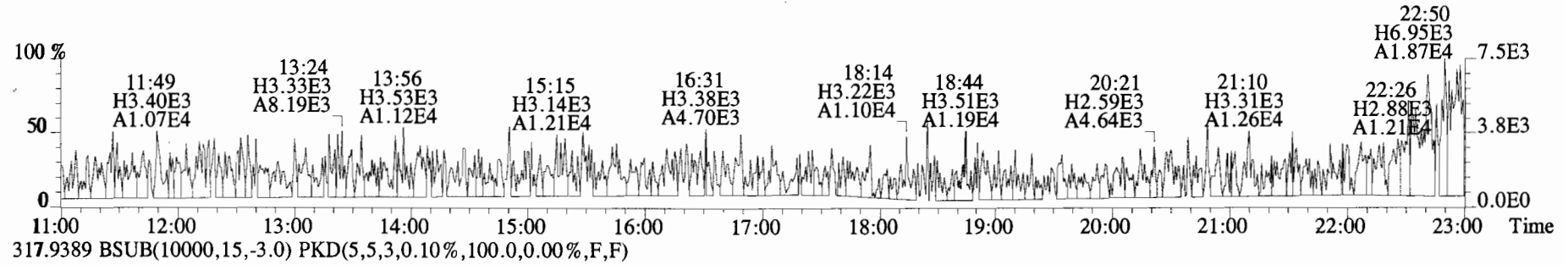
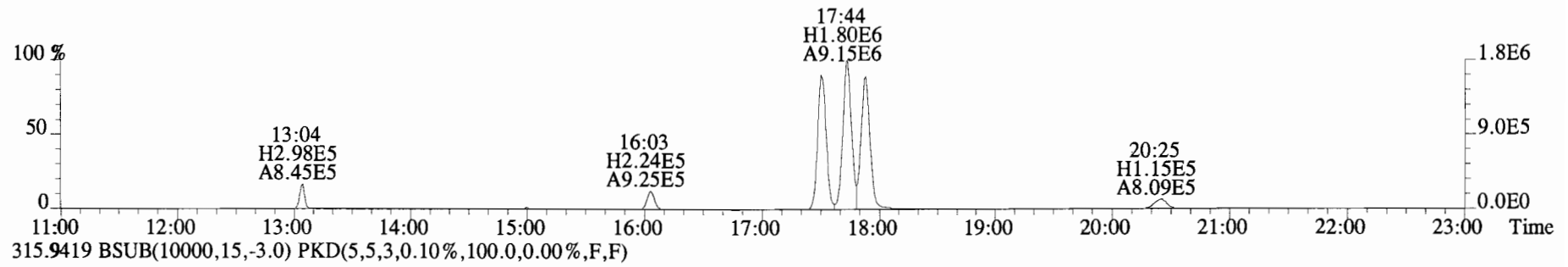
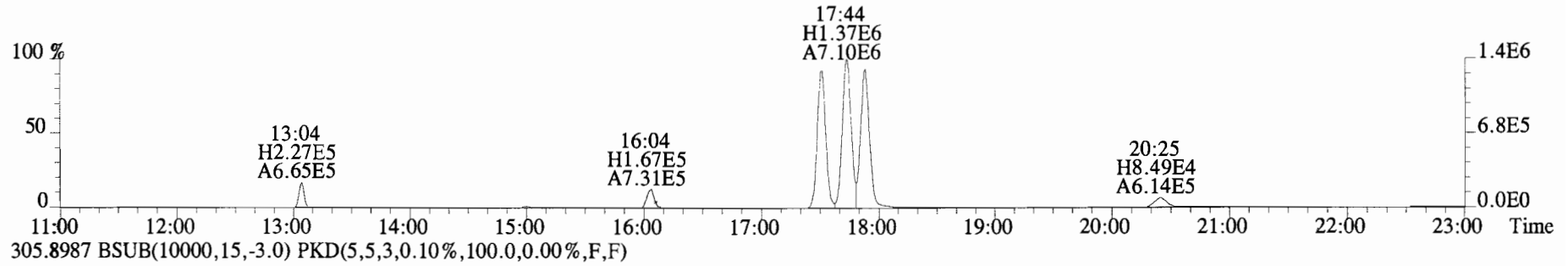




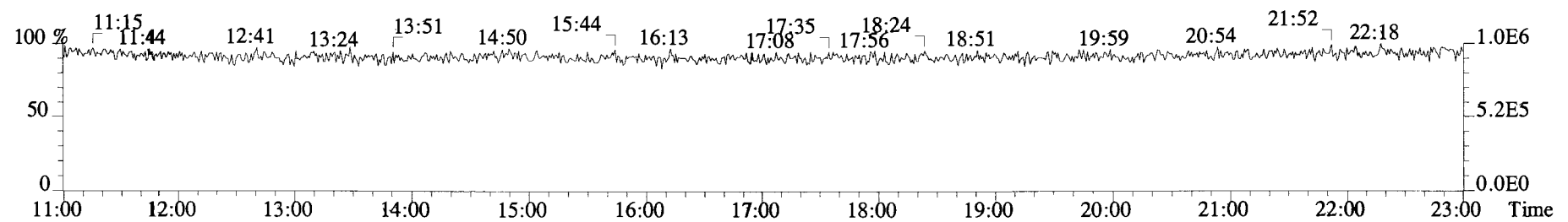
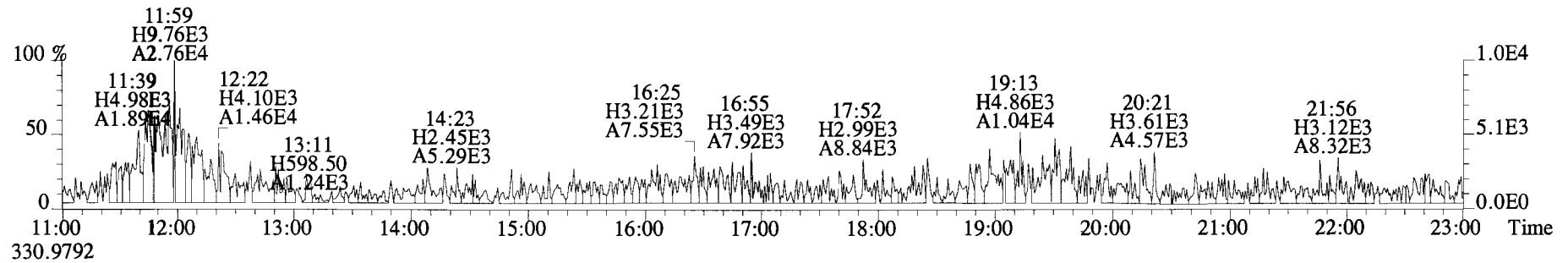
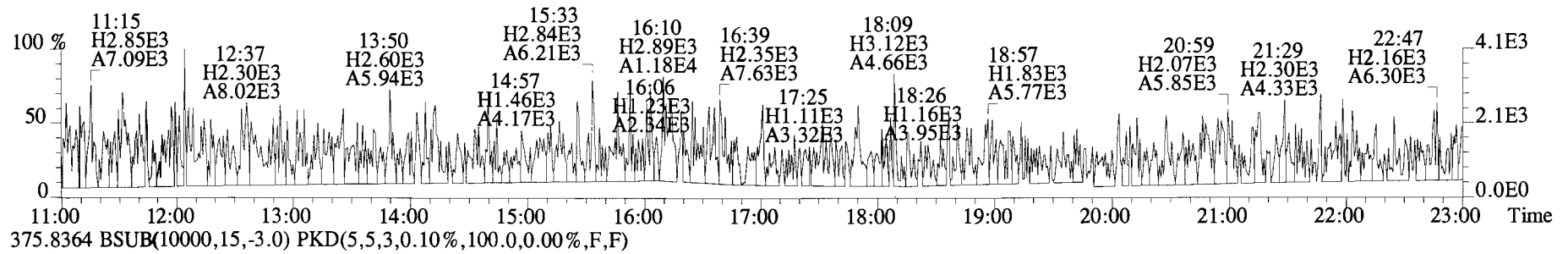
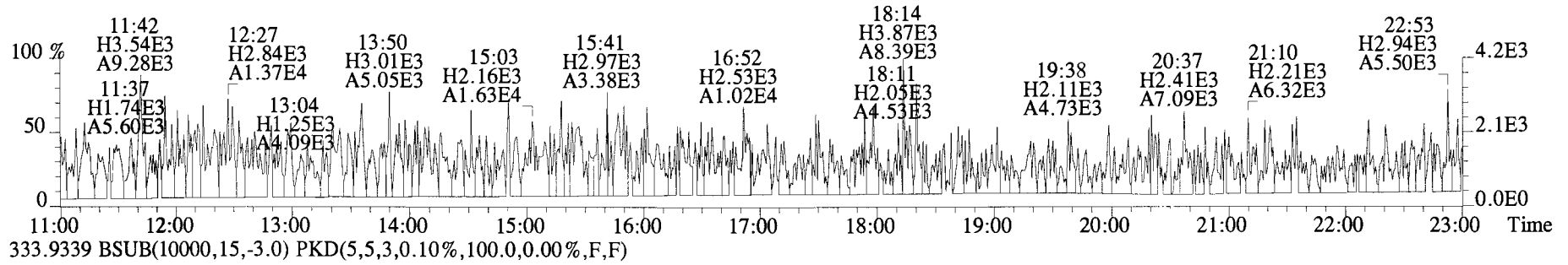
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303.9016



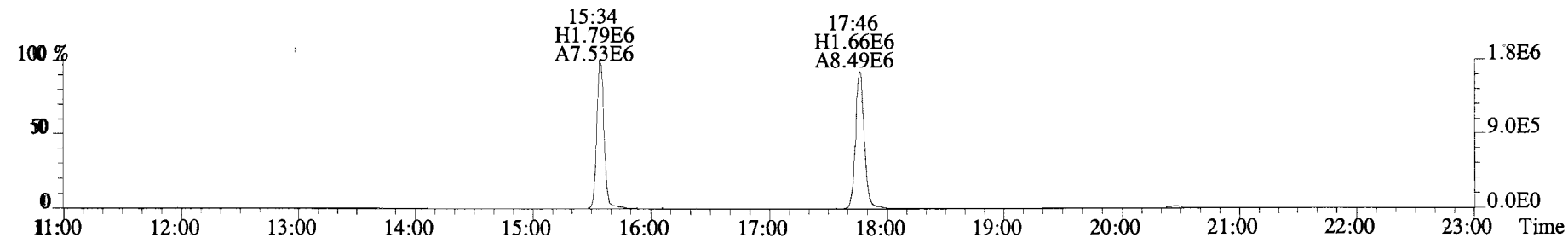
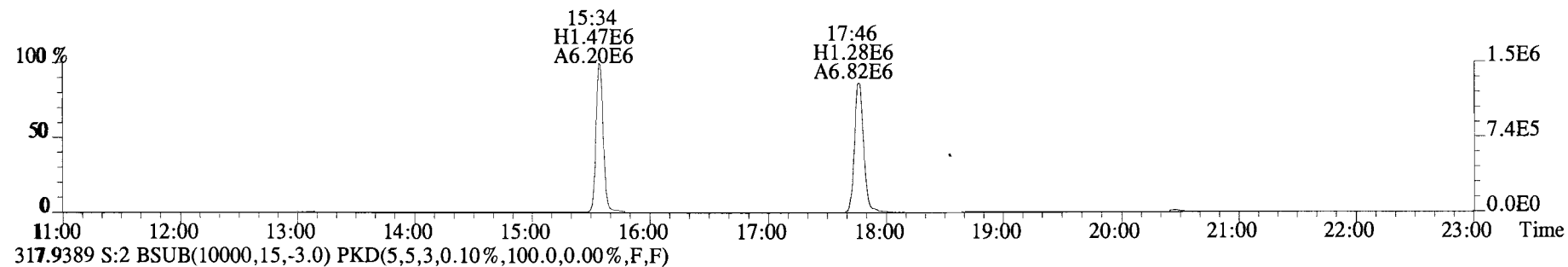
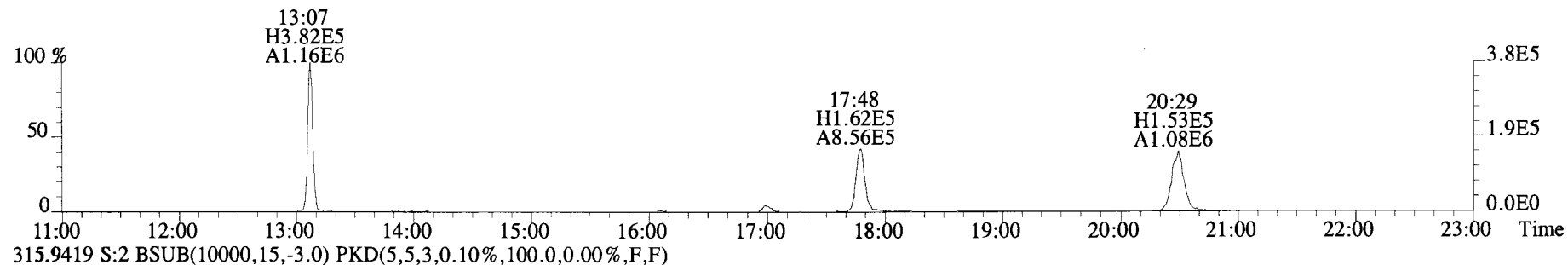
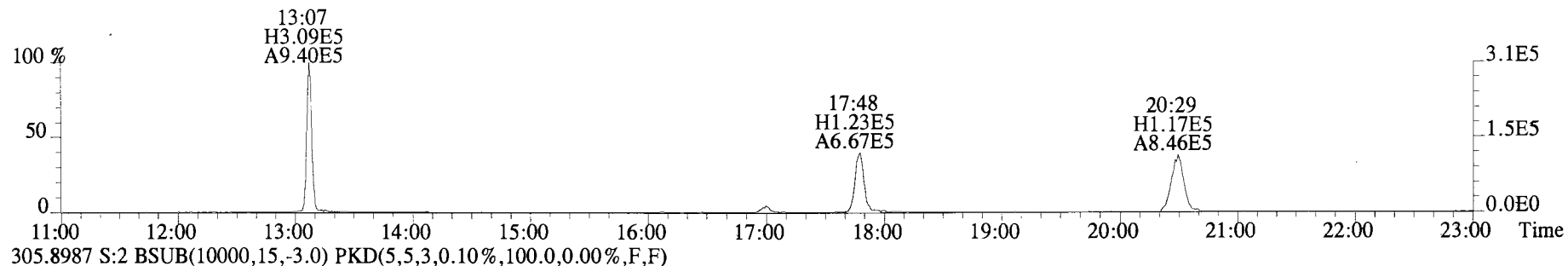
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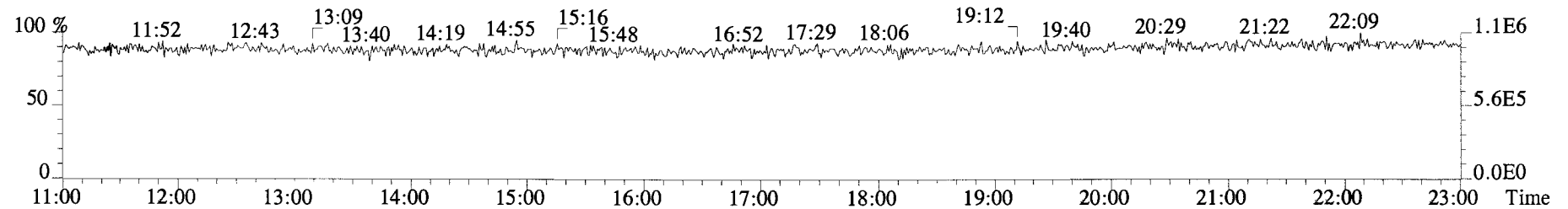
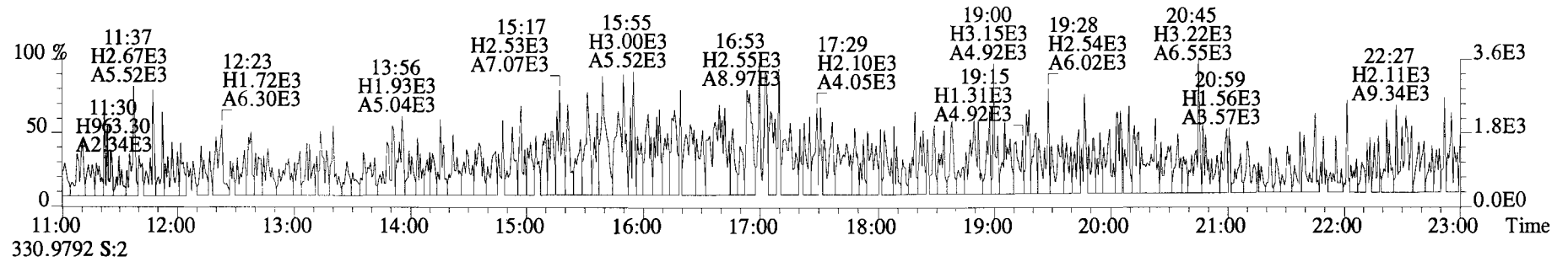
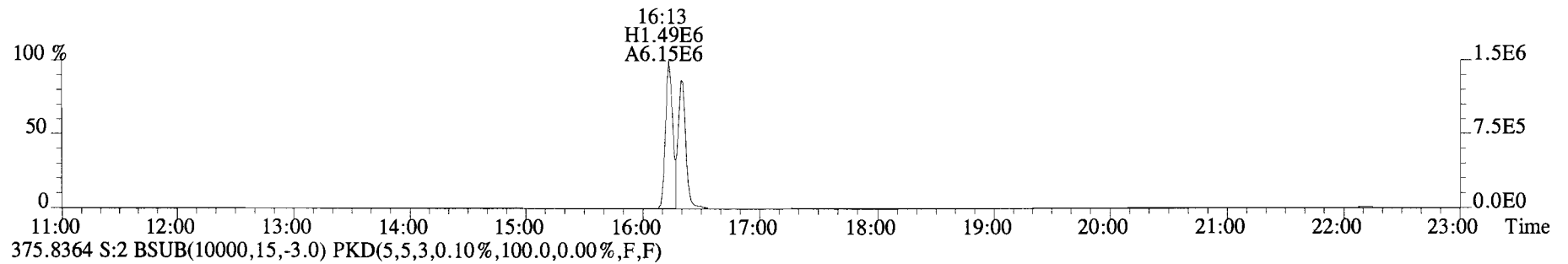
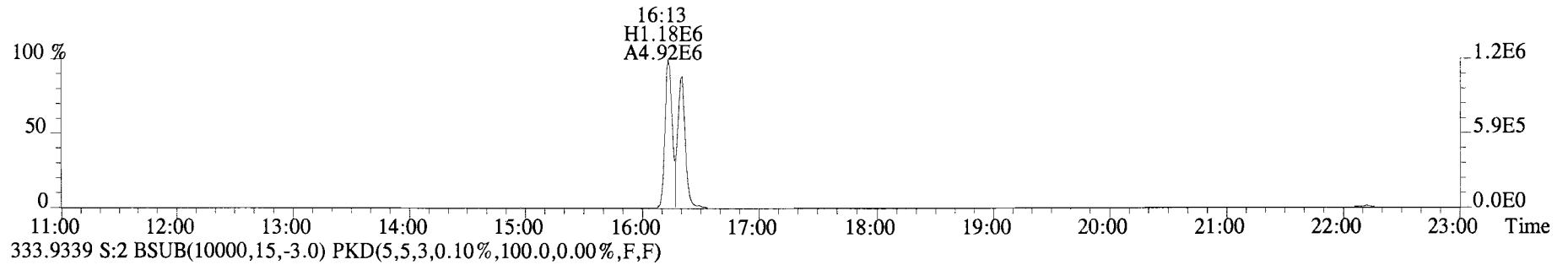
File:191107D1 #1-1683 Acq: 7-NOV-2019 10:51:03 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory VG7 Text:CP191107D1-1 DB225 CPSM Exp:TCDF\_DB225  
 331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191107D1 #1-1682 Acq: 7-NOV-2019 11:22:48 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Viata Analytical Laboratory\_VG7 Text:ST191107D1-1 1613 CS3 19C2204 Exp:TCDF\_DB225  
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

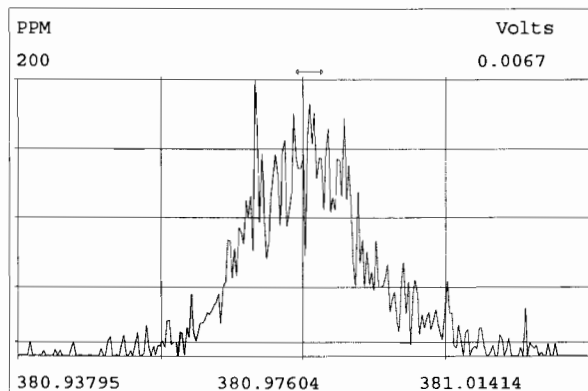
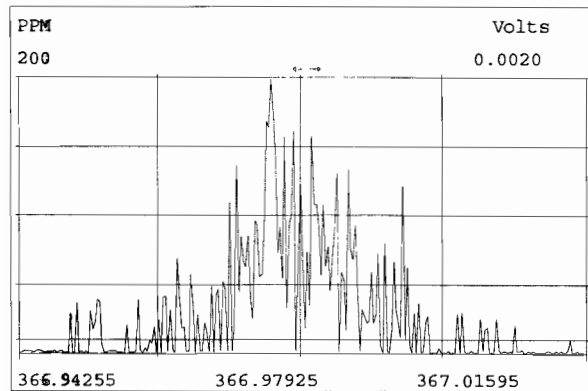
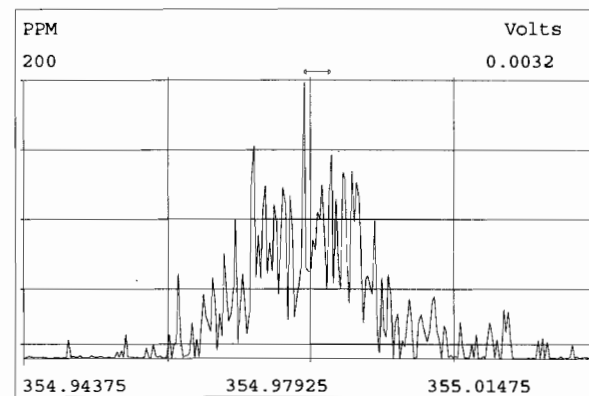
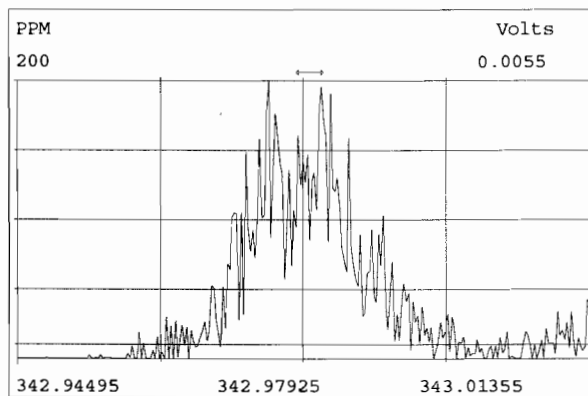
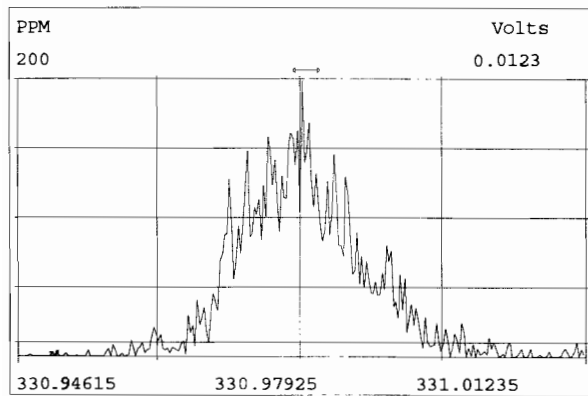
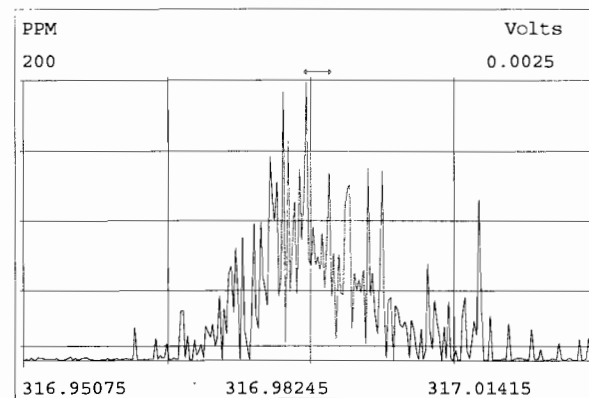
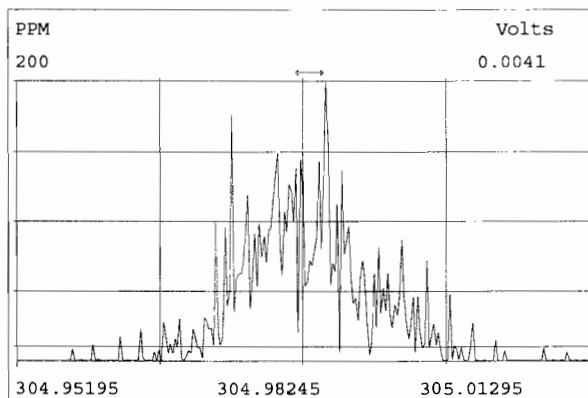
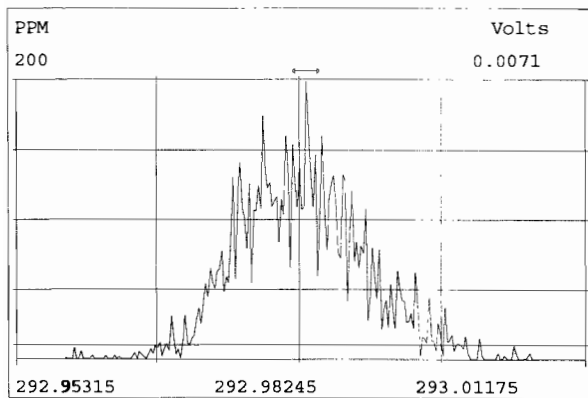


File:191107D1 #1-1682 Acq: 7-NOV-2019 11:22:48 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Viata Analytical Laboratory\_VG7 Text:ST191107D1-1 1613 CS3 19C2204 Exp:TCDF\_DB225  
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Peak Locate Examination: 7-NOV-2019:14:42 File:RES\_CHECK

Experiment:TCDF\_DB225 Function:1 Reference:PFK



## **INITIAL CALIBRATION**



Data filename: 191009D1  
 Samp# 1 0.25 Samp# 2 0.50 Samp# 3 2.0 Samp# 4 10 Samp# 5 40 Samp# 6 300

Name	Mean RRF	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6
2,3,7,8-TCDD	0.9053	7.55 %	0.84	0.83	0.87	0.99	0.92	0.98
1,2,3,7,8-PeCDD	0.9027	4.95 %	0.86	0.87	0.88	0.88	0.96	0.96
1,2,3,4,7,8-HxCDD	1.1013	3.97 %	1.12	1.13	1.03	1.08	1.09	1.15
1,2,3,6,7,8-HxCDD	0.9386	7.68 %	0.83	0.88	1.01	0.92	0.98	1.00
1,2,3,7,8,9-HxCDD	0.9613	4.62 %	0.95	0.90	0.93	0.95	1.00	1.03
1,2,3,4,6,7,8-HpCDD	0.9794	5.84 %	0.90	0.97	0.95	0.96	1.03	1.06
OCDD	0.9585	4.07 %	0.93	0.94	0.92	0.94	1.01	1.01
2,3,7,8-TCDF	0.9501	8.27 %	1.09	0.90	0.89	0.89	0.95	0.99
1,2,3,7,8-PeCDF	0.9603	4.05 %	0.94	0.94	0.92	0.95	1.00	1.01
2,3,4,7,8-PeCDF	1.0148	3.01 %	1.00	0.99	1.00	1.00	1.03	1.07
1,2,3,4,7,8-HxCDF	1.1768	4.35 %	1.23	1.11	1.15	1.14	1.20	1.24
1,2,3,6,7,8-HxCDF	1.0689	3.63 %	1.01	1.07	1.06	1.05	1.12	1.11
2,3,4,6,7,8-HxCDF	1.1136	5.58 %	1.06	1.03	1.12	1.11	1.16	1.20
1,2,3,7,8,9-HxCDF	1.0616	3.91 %	1.05	1.02	1.02	1.06	1.08	1.13
1,2,3,4,6,7,8-HpCDF	1.1276	3.90 %	1.13	1.13	1.06	1.10	1.17	1.18
1,2,3,4,7,8,9-HpCDF	1.2799	3.29 %	1.30	1.24	1.25	1.25	1.31	1.34
OCDF	0.9472	3.80 %	0.95	0.92	0.91	0.92	1.00	0.98
13C-2,3,7,8-TCDD	1.0954	1.91 %	1.11	1.08	1.06	1.10	1.12	1.11
13C-1,2,3,7,8-PeCDD	0.8814	5.11 %	0.89	0.86	0.83	0.86	0.89	0.96
13C-1,2,3,4,7,8-HxCDD	0.6421	10.35 %	0.65	0.60	0.58	0.61	0.65	0.77
13C-1,2,3,6,7,8-HxCDD	0.8555	4.13 %	0.86	0.87	0.82	0.87	0.80	0.90
13C-1,2,3,7,8,9-HxCDD	0.8066	5.57 %	0.84	0.80	0.76	0.80	0.76	0.88
13C-1,2,3,4,6,7,8-HpCDD	0.6539	9.07 %	0.70	0.63	0.59	0.62	0.63	0.75
13C-OCDD	0.5797	10.98 %	0.60	0.52	0.53	0.55	0.59	0.69
13C-2,3,7,8-TCDF	1.0349	1.62 %	1.04	1.00	1.03	1.05	1.04	1.04
13C-1,2,3,7,8-PeCDF	0.8542	4.58 %	0.84	0.82	0.82	0.87	0.86	0.92
13C-2,3,4,7,8-PeCDF	0.8471	3.79 %	0.81	0.84	0.83	0.84	0.85	0.91
13C-1,2,3,4,7,8-HxCDF	0.8317	8.50 %	0.76	0.80	0.79	0.86	0.83	0.96
13C-1,2,3,6,7,8-HxCDF	1.0344	5.35 %	1.00	1.03	1.03	1.03	0.98	1.14
13C-2,3,4,6,7,8-HxCDF	0.9533	6.17 %	0.94	0.94	0.90	0.93	0.93	1.07
13C-1,2,3,7,8,9-HxCDF	0.8277	8.68 %	0.82	0.80	0.77	0.78	0.83	0.96
13C-1,2,3,4,6,7,8-HpCDF	0.7575	6.47 %	0.76	0.73	0.72	0.75	0.73	0.85
13C-1,2,3,4,7,8,9-HpCDF	0.5812	8.97 %	0.62	0.54	0.52	0.55	0.58	0.66
13C-OCDF	0.6890	12.48 %	0.69	0.62	0.62	0.65	0.72	0.85
37Cl-2,3,7,8-TCDD	1.1977	8.83 %	1.40	1.16	1.16	1.11	1.15	1.21
13C-1,2,3,4-TCDD	1.0000	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-1,2,3,4-TCDF	1.0000	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-1,2,3,4,6,9-HxCDF	1.0000	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00

DB CT  
 10/10/19 10/10/19

Filename: 191009D1 S: 1      Acquired: 9-OCT-19 16:13:04  
 Run: 191009D1    Analyte:            Cal: 1613VG7-10-9-19            Results:  
 Sample text: ST191009D1-1 1613 CS0 19C2201

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	0.25	1.97e+04	0.80 y	26:32	-	0.84
2	Unk	1,2,3,7,8-PeCDD	1.25	8.06e+04	0.62 y	30:54	-	0.86
3	Unk	1,2,3,4,7,8-HxCDD	1.25	7.34e+04	1.23 y	34:16	-	1.12
4	Unk	1,2,3,6,7,8-HxCDD	1.25	7.23e+04	1.12 y	34:23	-	0.83
5	Unk	1,2,3,7,8,9-HxCDD	1.25	8.01e+04	1.19 y	34:43	-	0.95
6	Unk	1,2,3,4,6,7,8-HpCDD	1.25	6.39e+04	1.06 y	38:05	-	0.90
7	Unk	OCDD	2.50	1.14e+05	0.95 y	41:28	-	0.93
8	Unk	2,3,7,8-TCDF	0.25	3.62e+04	0.85 y	25:49	-	1.09
9	Unk	1,2,3,7,8-PeCDF	1.25	1.26e+05	1.52 y	29:46	-	0.94
10	Unk	2,3,4,7,8-PeCDF	1.25	1.31e+05	1.52 y	30:40	-	1.00
11	Unk	1,2,3,4,7,8-HxCDF	1.25	9.36e+04	1.22 y	33:22	-	1.23
12	Unk	1,2,3,6,7,8-HxCDF	1.25	1.02e+05	1.11 y	33:29	-	1.01
13	Unk	2,3,4,6,7,8-HxCDF	1.25	1.01e+05	1.30 y	34:07	-	1.06
14	Unk	1,2,3,7,8,9-HxCDF	1.25	8.74e+04	1.10 y	35:08	-	1.05
15	Unk	1,2,3,4,6,7,8-HpCDF	1.25	8.63e+04	1.01 y	36:57	-	1.13
16	Unk	1,2,3,4,7,8,9-HpCDF	1.25	8.18e+04	1.14 y	38:40	-	1.30
17	Unk	OCDF	2.50	1.32e+05	0.94 y	41:43	-	0.95
36	IS	13C-2,3,7,8-TCDD	100.00	9.40e+06	0.78 y	26:32	-	1.11
37	IS	13C-1,2,3,7,8-PeCDD	100.00	7.48e+06	0.62 y	30:55	-	0.89
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	5.24e+06	1.19 y	34:15	-	0.65
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	6.96e+06	1.32 y	34:22	-	0.86
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	6.74e+06	1.31 y	34:42	-	0.84
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	5.68e+06	1.05 y	38:05	-	0.70
42	IS	13C-OCDD	200.00	9.75e+06	0.88 y	41:28	-	0.60
43	IS	13C-2,3,7,8-TCDF	100.00	1.33e+07	0.79 y	25:49	-	1.04
44	IS	13C-1,2,3,7,8-PeCDF	100.00	1.07e+07	1.58 y	29:46	-	0.84
45	IS	13C-2,3,4,7,8-PeCDF	100.00	1.05e+07	1.58 y	30:39	-	0.81
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	6.11e+06	0.51 y	33:21	-	0.76
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	8.04e+06	0.50 y	33:29	-	1.00
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	7.61e+06	0.50 y	34:07	-	0.94
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	6.66e+06	0.48 y	35:07	-	0.82
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	6.12e+06	0.42 y	36:57	-	0.76
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	5.02e+06	0.45 y	38:41	-	0.62
52	IS	13C-OCDF	200.00	1.11e+07	0.90 y	41:43	-	0.69
53	C/Up	37Cl-2,3,7,8-TCDD	0.25	2.97e+04		26:33	-	1.40
54	RS/RT	13C-1,2,3,4-TCDD	100.00	8.45e+06	0.80 y	25:59	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.28e+07	0.79 y	24:39	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	8.07e+06	0.52 y	33:47	-	1.00

*DB*  
*10/10/14*

Filename: 191009D1 S: 2 Acquired: 9-OCT-19 17:00:45  
 Run: 191009D1 Analyte: Cal: 1613VG7-10-9-19 Results:  
 Sample text: ST191009D1-2 1613 CS1 19C2202

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	0.50	3.54e+04	0.78 y	26:34	-	0.83
2	Unk	1,2,3,7,8-PeCDD	2.50	1.46e+05	0.60 y	30:56	-	0.87
3	Unk	1,2,3,4,7,8-HxCDD	2.50	1.25e+05	1.20 y	34:16	-	1.13
4	Unk	1,2,3,6,7,8-HxCDD	2.50	1.40e+05	1.22 y	34:23	-	0.88
5	Unk	1,2,3,7,8,9-HxCDD	2.50	1.33e+05	1.15 y	34:43	-	0.90
6	Unk	1,2,3,4,6,7,8-HpCDD	2.50	1.13e+05	0.97 y	38:06	-	0.97
7	Unk	OCDD	5.00	1.78e+05	0.90 y	41:28	-	0.94
8	Unk	2,3,7,8-TCDF	0.50	5.25e+04	0.74 y	25:51	-	0.90
9	Unk	1,2,3,7,8-PeCDF	2.50	2.25e+05	1.59 y	29:48	-	0.94
10	Unk	2,3,4,7,8-PeCDF	2.50	2.42e+05	1.50 y	30:40	-	0.99
11	Unk	1,2,3,4,7,8-HxCDF	2.50	1.62e+05	1.16 y	33:22	-	1.11
12	Unk	1,2,3,6,7,8-HxCDF	2.50	2.03e+05	1.20 y	33:30	-	1.07
13	Unk	2,3,4,6,7,8-HxCDF	2.50	1.79e+05	1.30 y	34:07	-	1.03
14	Unk	1,2,3,7,8,9-HxCDF	2.50	1.49e+05	1.24 y	35:08	-	1.02
15	Unk	1,2,3,4,6,7,8-HpCDF	2.50	1.51e+05	0.91 y	36:57	-	1.13
16	Unk	1,2,3,4,7,8,9-HpCDF	2.50	1.23e+05	0.94 y	38:41	-	1.24
17	Unk	OCDF	5.00	2.09e+05	0.91 y	41:43	-	0.92
36	IS	13C-2,3,7,8-TCDD	100.00	8.50e+06	0.78 y	26:34	-	1.08
37	IS	13C-1,2,3,7,8-PeCDD	100.00	6.74e+06	0.63 y	30:56	-	0.86
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	4.41e+06	1.38 y	34:16	-	0.60
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	6.35e+06	1.20 y	34:23	-	0.87
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	5.87e+06	1.26 y	34:42	-	0.80
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	4.64e+06	1.05 y	38:05	-	0.63
42	IS	13C-OCDD	200.00	7.58e+06	0.89 y	41:28	-	0.52
43	IS	13C-2,3,7,8-TCDF	100.00	1.17e+07	0.80 y	25:51	-	1.00
44	IS	13C-1,2,3,7,8-PeCDF	100.00	9.60e+06	1.59 y	29:48	-	0.82
45	IS	13C-2,3,4,7,8-PeCDF	100.00	9.80e+06	1.58 y	30:40	-	0.84
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	5.84e+06	0.52 y	33:21	-	0.80
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	7.58e+06	0.51 y	33:29	-	1.03
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	6.92e+06	0.51 y	34:07	-	0.94
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.84e+06	0.49 y	35:08	-	0.80
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	5.38e+06	0.43 y	36:57	-	0.73
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	3.99e+06	0.43 y	38:41	-	0.54
52	IS	13C-OCDF	200.00	9.05e+06	0.88 y	41:43	-	0.62
53	C/Up	37Cl-2,3,7,8-TCDD	0.50	4.55e+04		26:34	-	1.16
54	RS/RT	13C-1,2,3,4-TCDD	100.00	7.86e+06	0.77 y	26:01	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.17e+07	0.83 y	24:41	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	7.33e+06	0.52 y	33:47	-	1.00

DB  
10/10/19

Filename: 191009D1 S: 3      Acquired: 9-OCT-19 17:48:27  
 Run: 191009D1    Analyte:            Cal: 1613VG7-10-9-19            Results:  
 Sample text: ST191009D1-3 1613 CS2 19C2203

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	2.00	1.35e+05	0.74 y	26:33	-	0.87
2	Unk	1,2,3,7,8-PeCDD	10.00	5.33e+05	0.64 y	30:56	-	0.88
3	Unk	1,2,3,4,7,8-HxCDD	10.00	3.94e+05	1.22 y	34:16	-	1.03
4	Unk	1,2,3,6,7,8-HxCDD	10.00	5.50e+05	1.25 y	34:23	-	1.01
5	Unk	1,2,3,7,8,9-HxCDD	10.00	4.71e+05	1.36 y	34:43	-	0.93
6	Unk	1,2,3,4,6,7,8-HpCDD	10.00	3.70e+05	1.02 y	38:06	-	0.95
7	Unk	OCDD	20.00	6.41e+05	0.90 y	41:29	-	0.92
8	Unk	2,3,7,8-TCDF	2.00	1.90e+05	0.83 y	25:49	-	0.89
9	Unk	1,2,3,7,8-PeCDF	10.00	7.88e+05	1.58 y	29:47	-	0.92
10	Unk	2,3,4,7,8-PeCDF	10.00	8.71e+05	1.56 y	30:40	-	1.00
11	Unk	1,2,3,4,7,8-HxCDF	10.00	6.02e+05	1.14 y	33:22	-	1.15
12	Unk	1,2,3,6,7,8-HxCDF	10.00	7.20e+05	1.27 y	33:30	-	1.06
13	Unk	2,3,4,6,7,8-HxCDF	10.00	6.66e+05	1.26 y	34:08	-	1.12
14	Unk	1,2,3,7,8,9-HxCDF	10.00	5.16e+05	1.16 y	35:08	-	1.02
15	Unk	1,2,3,4,6,7,8-HpCDF	10.00	5.02e+05	1.05 y	36:57	-	1.06
16	Unk	1,2,3,4,7,8,9-HpCDF	10.00	4.31e+05	1.08 y	38:41	-	1.25
17	Unk	OCDF	20.00	7.38e+05	0.91 y	41:44	-	0.91
36	IS	13C-2,3,7,8-TCDD	100.00	7.73e+06	0.78 y	26:33	-	1.06
37	IS	13C-1,2,3,7,8-PeCDD	100.00	6.03e+06	0.62 y	30:55	-	0.83
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	3.81e+06	1.24 y	34:15	-	0.58
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	5.44e+06	1.28 y	34:22	-	0.82
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	5.03e+06	1.21 y	34:42	-	0.76
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	3.89e+06	1.09 y	38:05	-	0.59
42	IS	13C-OCDD	200.00	6.97e+06	0.90 y	41:28	-	0.53
43	IS	13C-2,3,7,8-TCDF	100.00	1.08e+07	0.82 y	25:49	-	1.03
44	IS	13C-1,2,3,7,8-PeCDF	100.00	8.55e+06	1.59 y	29:47	-	0.82
45	IS	13C-2,3,4,7,8-PeCDF	100.00	8.70e+06	1.59 y	30:40	-	0.83
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	5.22e+06	0.49 y	33:21	-	0.79
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	6.80e+06	0.51 y	33:29	-	1.03
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	5.93e+06	0.52 y	34:07	-	0.90
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.05e+06	0.51 y	35:08	-	0.77
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	4.73e+06	0.44 y	36:57	-	0.72
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	3.46e+06	0.45 y	38:41	-	0.52
52	IS	13C-OCDF	200.00	8.15e+06	0.92 y	41:44	-	0.62
53	C/Up	37Cl-2,3,7,8-TCDD	2.00	1.69e+05		26:33	-	1.16
54	RS/RT	13C-1,2,3,4-TCDD	100.00	7.29e+06	0.77 y	25:59	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.04e+07	0.82 y	24:39	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	6.60e+06	0.52 y	33:47	-	1.00

DB  
10/10/19

Filename: 191009D1 S: 4      Acquired: 9-OCT-19 18:36:09  
 Run: 191009D1    Analyte:                    Cal: 1613VG7-10-9-19                    Results:  
 Sample text: ST191009D1-4 1613 CS3 19C2204

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	10.00	8.37e+05	0.80 y	26:35	-	0.99
2	Unk	1,2,3,7,8-PeCDD	50.00	2.94e+06	0.61 y	30:56	-	0.88
3	Unk	1,2,3,4,7,8-HxCDD	50.00	2.38e+06	1.21 y	34:16	-	1.08
4	Unk	1,2,3,6,7,8-HxCDD	50.00	2.90e+06	1.19 y	34:23	-	0.92
5	Unk	1,2,3,7,8,9-HxCDD	50.00	2.74e+06	1.24 y	34:42	-	0.95
6	Unk	1,2,3,4,6,7,8-HpCDD	50.00	2.15e+06	1.03 y	38:05	-	0.96
7	Unk	OCDD	100.00	3.73e+06	0.91 y	41:28	-	0.94
8	Unk	2,3,7,8-TCDF	10.00	1.05e+06	0.80 y	25:51	-	0.89
9	Unk	1,2,3,7,8-PeCDF	50.00	4.65e+06	1.59 y	29:47	-	0.95
10	Unk	2,3,4,7,8-PeCDF	50.00	4.70e+06	1.68 y	30:40	-	1.00
11	Unk	1,2,3,4,7,8-HxCDF	50.00	3.52e+06	1.24 y	33:21	-	1.14
12	Unk	1,2,3,6,7,8-HxCDF	50.00	3.92e+06	1.25 y	33:29	-	1.05
13	Unk	2,3,4,6,7,8-HxCDF	50.00	3.74e+06	1.22 y	34:07	-	1.11
14	Unk	1,2,3,7,8,9-HxCDF	50.00	3.00e+06	1.19 y	35:07	-	1.06
15	Unk	1,2,3,4,6,7,8-HpCDF	50.00	2.97e+06	1.04 y	36:57	-	1.10
16	Unk	1,2,3,4,7,8,9-HpCDF	50.00	2.49e+06	1.07 y	38:41	-	1.25
17	Unk	OCDF	100.00	4.33e+06	0.91 y	41:43	-	0.92
36	IS	13C-2,3,7,8-TCDD	100.00	8.46e+06	0.74 y	26:33	-	1.10
37	IS	13C-1,2,3,7,8-PeCDD	100.00	6.66e+06	0.62 y	30:55	-	0.86
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	4.42e+06	1.25 y	34:15	-	0.61
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	6.30e+06	1.28 y	34:22	-	0.87
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	5.76e+06	1.27 y	34:41	-	0.80
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	4.47e+06	1.05 y	38:05	-	0.62
42	IS	13C-OCDD	200.00	7.90e+06	0.94 y	41:27	-	0.55
43	IS	13C-2,3,7,8-TCDF	100.00	1.18e+07	0.79 y	25:50	-	1.05
44	IS	13C-1,2,3,7,8-PeCDF	100.00	9.79e+06	1.62 y	29:47	-	0.87
45	IS	13C-2,3,4,7,8-PeCDF	100.00	9.43e+06	1.61 y	30:39	-	0.84
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	6.19e+06	0.50 y	33:21	-	0.86
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	7.47e+06	0.51 y	33:29	-	1.03
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	6.75e+06	0.49 y	34:06	-	0.93
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.64e+06	0.49 y	35:07	-	0.78
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	5.40e+06	0.43 y	36:55	-	0.75
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	3.99e+06	0.44 y	38:40	-	0.55
52	IS	13C-OCDF	200.00	9.37e+06	0.89 y	41:43	-	0.65
53	C/Up	37Cl-2,3,7,8-TCDD	10.00	8.56e+05		26:35	-	1.11
54	RS/RT	13C-1,2,3,4-TCDD	100.00	7.70e+06	0.75 y	26:00	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.13e+07	0.82 y	24:41	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	7.23e+06	0.51 y	33:47	-	1.00

DB  
10/10/19

Filename: 191009D1 S: 5      Acquired: 9-OCT-19 19:23:46  
Run: 191009D1    Analyte:            Cal: 1613VG7-10-9-19      Results:  
Sample text: ST191009D1-5 1613 CS4 19C2205

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	40.00	3.53e+06	0.81 y	26:35	-	0.92
2	Unk	1,2,3,7,8-PeCDD	200.00	1.48e+07	0.63 y	30:55	-	0.96
3	Unk	1,2,3,4,7,8-HxCDD	200.00	1.19e+07	1.19 y	34:15	-	1.09
4	Unk	1,2,3,6,7,8-HxCDD	200.00	1.34e+07	1.20 y	34:22	-	0.98
5	Unk	1,2,3,7,8,9-HxCDD	200.00	1.30e+07	1.18 y	34:41	-	1.00
6	Unk	1,2,3,4,6,7,8-HpCDD	200.00	1.10e+07	1.03 y	38:04	-	1.03
7	Unk	OCDD	400.00	2.03e+07	0.91 y	41:26	-	1.01
8	Unk	2,3,7,8-TCDF	40.00	5.17e+06	0.77 y	25:52	-	0.95
9	Unk	1,2,3,7,8-PeCDF	200.00	2.24e+07	1.58 y	29:47	-	1.00
10	Unk	2,3,4,7,8-PeCDF	200.00	2.29e+07	1.55 y	30:40	-	1.03
11	Unk	1,2,3,4,7,8-HxCDF	200.00	1.69e+07	1.21 y	33:21	-	1.20
12	Unk	1,2,3,6,7,8-HxCDF	200.00	1.85e+07	1.21 y	33:29	-	1.12
13	Unk	2,3,4,6,7,8-HxCDF	200.00	1.83e+07	1.21 y	34:06	-	1.16
14	Unk	1,2,3,7,8,9-HxCDF	200.00	1.53e+07	1.22 y	35:06	-	1.08
15	Unk	1,2,3,4,6,7,8-HpCDF	200.00	1.46e+07	1.04 y	36:56	-	1.17
16	Unk	1,2,3,4,7,8,9-HpCDF	200.00	1.30e+07	1.05 y	38:39	-	1.31
17	Unk	OCDF	400.00	2.42e+07	0.91 y	41:41	-	1.00
36	IS	13C-2,3,7,8-TCDD	100.00	9.63e+06	0.75 y	26:34	-	1.12
37	IS	13C-1,2,3,7,8-PeCDD	100.00	7.72e+06	0.63 y	30:54	-	0.89
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	5.48e+06	1.31 y	34:14	-	0.65
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	6.83e+06	1.22 y	34:21	-	0.80
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	6.48e+06	1.26 y	34:40	-	0.76
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	5.36e+06	1.08 y	38:03	-	0.63
42	IS	13C-OCDD	200.00	1.01e+07	0.91 y	41:25	-	0.59
43	IS	13C-2,3,7,8-TCDF	100.00	1.36e+07	0.80 y	25:51	-	1.04
44	IS	13C-1,2,3,7,8-PeCDF	100.00	1.12e+07	1.57 y	29:46	-	0.86
45	IS	13C-2,3,4,7,8-PeCDF	100.00	1.11e+07	1.52 y	30:39	-	0.85
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	7.05e+06	0.50 y	33:20	-	0.83
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	8.28e+06	0.49 y	33:28	-	0.98
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	7.90e+06	0.51 y	34:05	-	0.93
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	7.08e+06	0.51 y	35:06	-	0.83
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	6.23e+06	0.46 y	36:55	-	0.73
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	4.95e+06	0.44 y	38:38	-	0.58
52	IS	13C-OCDF	200.00	1.22e+07	0.90 y	41:40	-	0.72
53	C/Up	37Cl-2,3,7,8-TCDD	40.00	3.96e+06		26:35	-	1.15
54	RS/RT	13C-1,2,3,4-TCDD	100.00	8.64e+06	0.78 y	26:00	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.30e+07	0.83 y	24:41	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	8.48e+06	0.51 y	33:46	-	1.00

DB  
10/10/19

Filename: 191009D1 S: 6      Acquired: 9-OCT-19 20:11:17  
 Run: 191009D1    Analyte:                    Cal: 1613VG7-10-9-19                    Results:  
 Sample text: ST191009D1-6 1613 CS5 19C2206

Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	300.00	2.80e+07	0.81 y	26:35	- 0.98
2	Unk	1,2,3,7,8-PeCDD	1500.00	1.19e+08	0.62 y	30:55	- 0.96
3	Unk	1,2,3,4,7,8-HxCDD	1500.00	1.04e+08	1.22 y	34:15	- 1.15
4	Unk	1,2,3,6,7,8-HxCDD	1500.00	1.07e+08	1.21 y	34:22	- 1.00
5	Unk	1,2,3,7,8,9-HxCDD	1500.00	1.06e+08	1.23 y	34:41	- 1.03
6	Unk	1,2,3,4,6,7,8-HpCDD	1500.00	9.32e+07	1.05 y	38:03	- 1.06
7	Unk	OCDD	3000.00	1.64e+08	0.92 y	41:25	- 1.01
8	Unk	2,3,7,8-TCDF	300.00	3.95e+07	0.79 y	25:52	- 0.99
9	Unk	1,2,3,7,8-PeCDF	1500.00	1.79e+08	1.58 y	29:47	- 1.01
10	Unk	2,3,4,7,8-PeCDF	1500.00	1.86e+08	1.57 y	30:39	- 1.07
11	Unk	1,2,3,4,7,8-HxCDF	1500.00	1.40e+08	1.20 y	33:21	- 1.24
12	Unk	1,2,3,6,7,8-HxCDF	1500.00	1.48e+08	1.21 y	33:29	- 1.11
13	Unk	2,3,4,6,7,8-HxCDF	1500.00	1.51e+08	1.22 y	34:06	- 1.20
14	Unk	1,2,3,7,8,9-HxCDF	1500.00	1.28e+08	1.25 y	35:06	- 1.13
15	Unk	1,2,3,4,6,7,8-HpCDF	1500.00	1.18e+08	1.03 y	36:55	- 1.18
16	Unk	1,2,3,4,7,8,9-HpCDF	1500.00	1.04e+08	1.05 y	38:38	- 1.34
17	Unk	OCDF	3000.00	1.96e+08	0.91 y	41:40	- 0.98
36	IS	13C-2,3,7,8-TCDD	100.00	9.53e+06	0.73 y	26:33	- 1.11
37	IS	13C-1,2,3,7,8-PeCDD	100.00	8.28e+06	0.64 y	30:54	- 0.96
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	6.01e+06	1.21 y	34:14	- 0.77
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	7.08e+06	1.32 y	34:21	- 0.90
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	6.90e+06	1.26 y	34:39	- 0.88
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	5.86e+06	1.08 y	38:03	- 0.75
42	IS	13C-OCDD	200.00	1.08e+07	0.92 y	41:25	- 0.69
43	IS	13C-2,3,7,8-TCDF	100.00	1.33e+07	0.80 y	25:51	- 1.04
44	IS	13C-1,2,3,7,8-PeCDF	100.00	1.18e+07	1.59 y	29:46	- 0.92
45	IS	13C-2,3,4,7,8-PeCDF	100.00	1.16e+07	1.60 y	30:38	- 0.91
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	7.52e+06	0.51 y	33:20	- 0.96
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	8.92e+06	0.50 y	33:28	- 1.14
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	8.38e+06	0.51 y	34:05	- 1.07
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	7.57e+06	0.52 y	35:05	- 0.96
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	6.70e+06	0.43 y	36:54	- 0.85
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	5.19e+06	0.43 y	38:37	- 0.66
52	IS	13C-OCDF	200.00	1.33e+07	0.89 y	41:39	- 0.85
53	C/Up	37Cl-2,3,7,8-TCDD	199.98	2.09e+07		26:35	- 1.21
54	RS/RT	13C-1,2,3,4-TCDD	100.00	8.62e+06	0.76 y	26:01	- 1.00
55	RS	13C-1,2,3,4-TCDF	100.00	1.27e+07	0.84 y	24:41	- 1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	7.85e+06	0.49 y	33:45	- 1.00

DB  
10/10/19

Run: 191009D1 Analyte: Cal: 1613VG7-10 9-19 Inst. ID. VG-7

Data filename: 191009D1  
Samp# 1 Samp# 2 Samp# 3 Samp# 4 Samp# 5 Samp# 6  
0.25 0.50 2.0 10 40 300

Name	Mean RRF	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6
Total Tetra-Dioxins	0.9053	7.55 %	0.84	0.83	0.87	0.99	0.92	0.98
TCDD EMPC	0.9053	7.55 %	0.84	0.83	0.87	0.99	0.92	0.98
Total Penta-Dioxins	0.9027	4.95 %	0.86	0.87	0.88	0.88	0.96	0.96
PeCDD EMPC	0.9027	4.95 %	0.86	0.87	0.88	0.88	0.96	0.96
Total Hexa-Dioxins	0.9918	4.02 %	0.95	0.96	0.99	0.97	1.02	1.06
HxCDD EMPC	0.9918	4.02 %	0.95	0.96	0.99	0.97	1.02	1.06
Total Hepta-Dioxins	0.9794	5.84 %	0.90	0.97	0.95	0.96	1.03	1.06
HpCDD EMPC	0.9794	5.84 %	0.90	0.97	0.95	0.96	1.03	1.06
Total Tetra-Furans	0.9501	8.27 %	1.09	0.90	0.89	0.89	0.95	0.99
TCDF EMPC	0.9501	8.27 %	1.09	0.90	0.89	0.89	0.95	0.99
1st Func. Penta-Furans	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
1st Func. PeCDF EMPC	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
Total Penta-Furans	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
PeCDF EMPC	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
Total Hexa-Furans	1.1033	3.70 %	1.08	1.06	1.09	1.09	1.14	1.17
HxCDF EMPC	1.1033	3.70 %	1.08	1.06	1.09	1.09	1.14	1.17
Total Hepta-Furans	1.1937	3.56 %	1.21	1.17	1.14	1.16	1.23	1.25
HpCDF EMPC	1.1937	3.56 %	1.21	1.17	1.14	1.16	1.23	1.25

DB  
10/10/19



Run: 191009D1

Analyte:

Cal: 1613VG7-10-9-19

Inst. ID: VG-7

Data filename: 191009D1

Samp# 1	Samp# 2	Samp# 3	Samp# 4	Samp# 5	Samp# 6
0.25	0.50	2.0	10	40	300

RRT Limits

Name	Lower	Upper	RRT#1	RRT#2	RRT#3	RRT#4	RRT#5	RRT#6
2,3,7,8-TCDD	0.999	-1.002	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,7,8-PeCDD	0.999	-1.002	0.999	1.000	1.001	1.001	1.001	1.001
1,2,3,4,7,8-HxCDD	0.999	-1.001	1.000	1.000	1.001	1.000	1.000	1.000
1,2,3,6,7,8-HxCDD	0.998	-1.004	1.000	1.000	1.000	1.001	1.001	1.000
1,2,3,7,8,9-HxCDD	0.998	-1.004	1.001	1.000	1.000	1.000	1.001	1.001
1,2,3,4,6,7,8-HpCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
OCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
2,3,7,8-TCDF	0.999	-1.003	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.000	1.000	1.001
2,3,4,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,4,7,8-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
1,2,3,6,7,8-HxCDF	0.997	-1.005	1.000	1.000	1.001	1.000	1.000	1.000
2,3,4,6,7,8-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.001	1.001	1.000
1,2,3,7,8,9-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
1,2,3,4,6,7,8-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.001	1.000	1.000
1,2,3,4,7,8,9-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
OCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
13C-2,3,7,8-TCDD	0.976	-1.043	1.022	1.022	1.022	1.021	1.021	1.021
13C-1,2,3,7,8-PeCDD	1.000	-1.567	1.190	1.189	1.190	1.189	1.188	1.188
13C-1,2,3,4,7,8-HxCDD	1.002	-1.026	1.014	1.014	1.014	1.014	1.014	1.014
13C-1,2,3,6,7,8-HxCDD	1.007	-1.029	1.017	1.018	1.018	1.017	1.017	1.018
13C-1,2,3,7,8,9-HxCDD	1.014	-1.038	1.027	1.027	1.027	1.027	1.027	1.027
13C-1,2,3,4,6,7,8-HpCDD	1.117	-1.141	1.127	1.127	1.128	1.127	1.127	1.127
13C-OCDD	1.085	-1.365	1.227	1.227	1.228	1.227	1.227	1.227
13C-2,3,7,8-TCDF	0.923	-1.103	0.994	0.994	0.994	0.994	0.994	0.994
13C-1,2,3,7,8-PeCDF	1.000	-1.425	1.146	1.146	1.146	1.145	1.145	1.144
13C-2,3,4,7,8-PeCDF	1.011	-1.526	1.180	1.179	1.180	1.179	1.178	1.178
13C-1,2,3,4,7,8-HxCDF	0.975	-1.001	0.987	0.987	0.987	0.987	0.987	0.987
13C-1,2,3,6,7,8-HxCDF	0.979	-1.005	0.991	0.991	0.991	0.991	0.991	0.991
13C-2,3,4,6,7,8-HxCDF	1.001	-1.020	1.010	1.010	1.010	1.009	1.009	1.010
13C-1,2,3,7,8,9-HxCDF	1.002	-1.072	1.040	1.040	1.040	1.039	1.039	1.039
13C-1,2,3,4,6,7,8-HpCDF	1.069	-1.111	1.093	1.093	1.094	1.093	1.093	1.093
13C-1,2,3,4,7,8,9-HpCDF	1.098	-1.192	1.145	1.145	1.145	1.145	1.144	1.144
13C-OCDF	1.091	-1.371	1.235	1.234	1.235	1.235	1.234	1.234
37Cl-2,3,7,8-TCDD	0.989	-1.052	1.022	1.021	1.022	1.022	1.022	1.022
13C-1,2,3,4-TCDD	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4-TCDF	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4,6,9-HxCDF	0.000	-0.000	*	*	*	*	*	*

D)B  
10/10/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 10-9-19

RT Window Data Filename: 191009D1 S#4 Analysis Date: 9-OCT-19 Time: 18:36:09

ZB-5MS IS Data Filename: 191009D1 S#4 Analysis Date: 9-OCT-19 Time: 18:36:09

DB\_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	23:24	1,3,6,8-TCDF (F)	21:25
1,2,8,9-TCDD (L)	27:24	1,2,8,9-TCDF (L)	27:33
1,2,4,7,9-PeCDD (F)	28:55	1,3,4,6,8-PeCDF (F)	27:28
1,2,3,8,9-PeCDD (L)	31:17	1,2,3,8,9-PeCDF (L)	31:32
1,2,4,6,7,9-HxCDD (F)	32:41	1,2,3,4,6,8-HxCDF (F)	32:08
1,2,3,7,8,9-HxCDD (L)	34:42	1,2,3,7,8,9-HxCDF (L)	35:07
1,2,3,4,6,7,9-HpCDD (F)	37:16	1,2,3,4,6,7,8-HpCDF (F)	36:57
1,2,3,4,6,7,8-HpCDD (L)	38:05	1,2,3,4,7,8,9-HpCDF (L)	38:41

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

=====

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

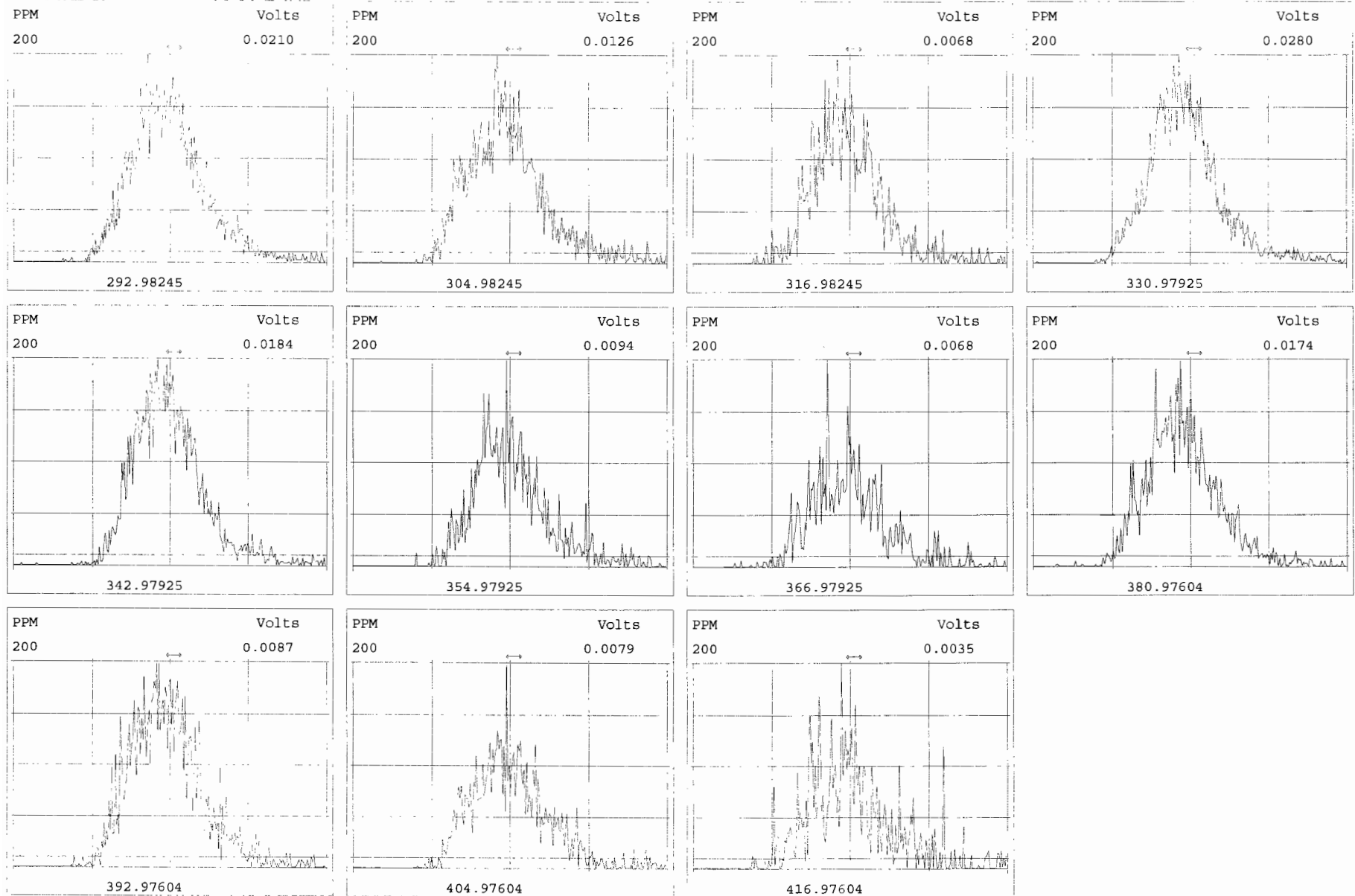
% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

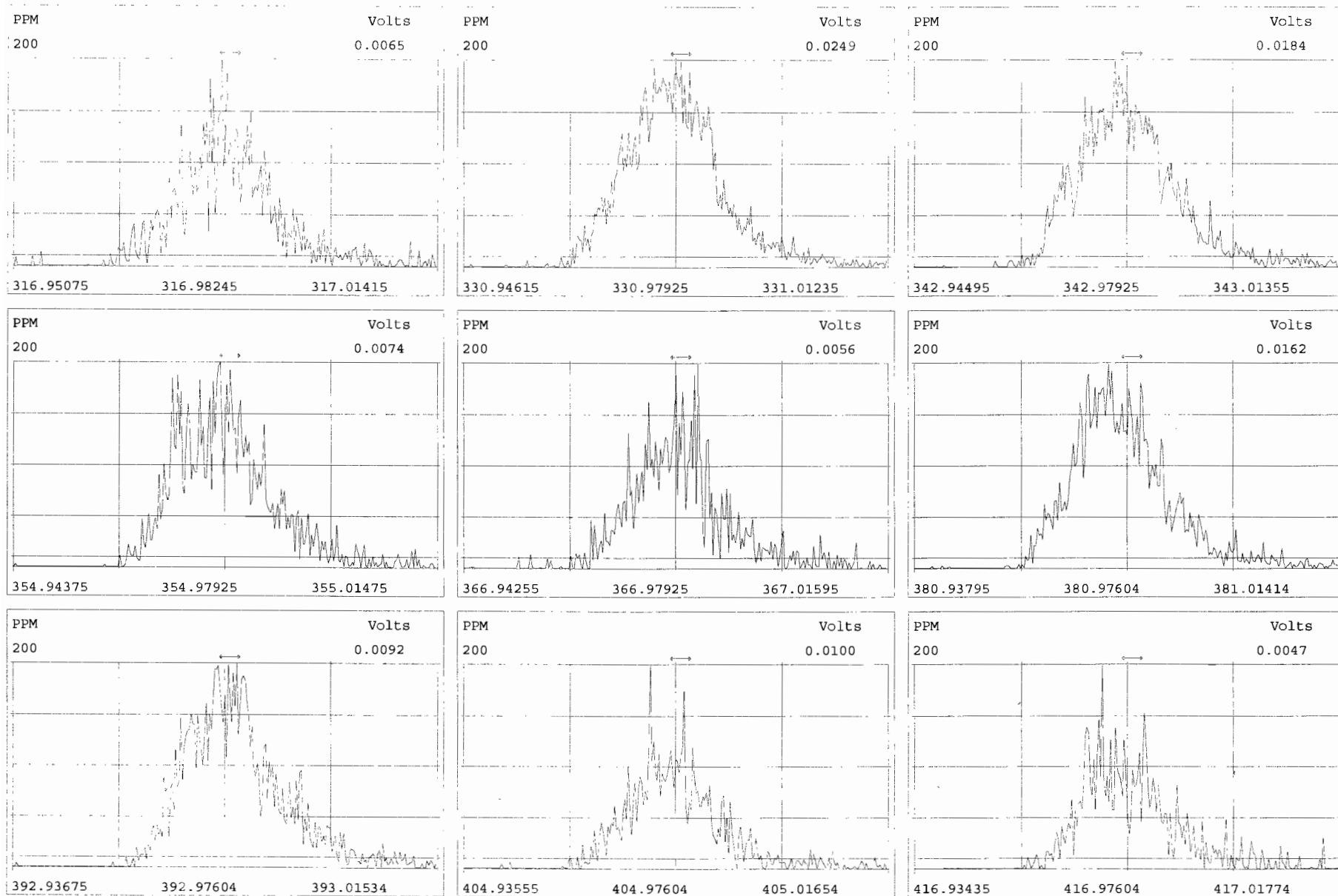
Analyst: DB

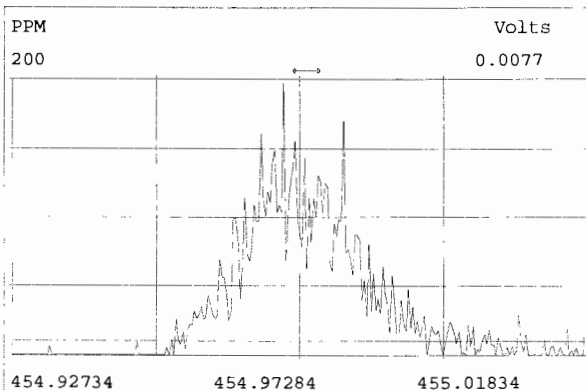
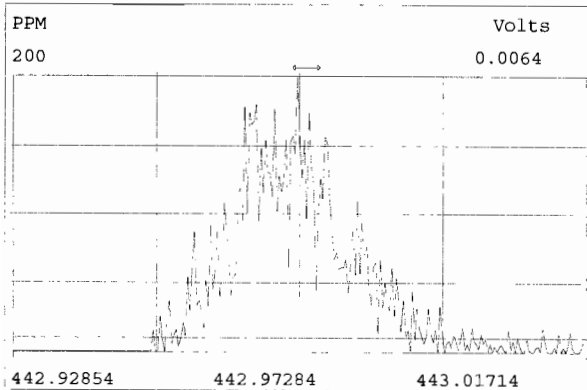
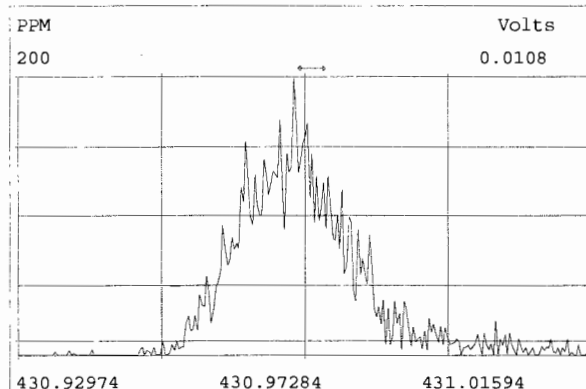
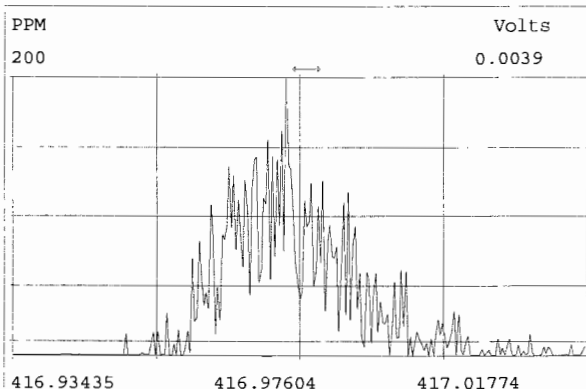
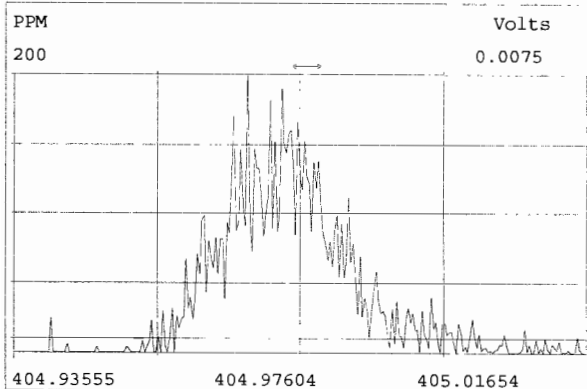
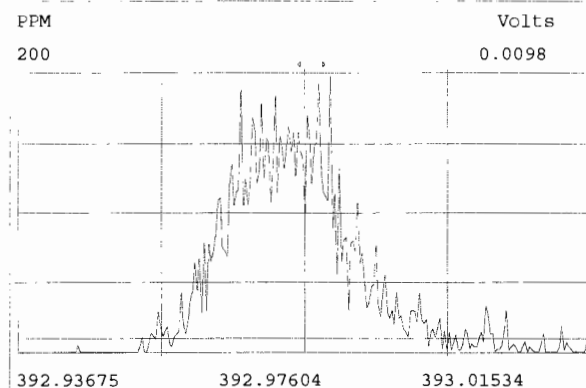
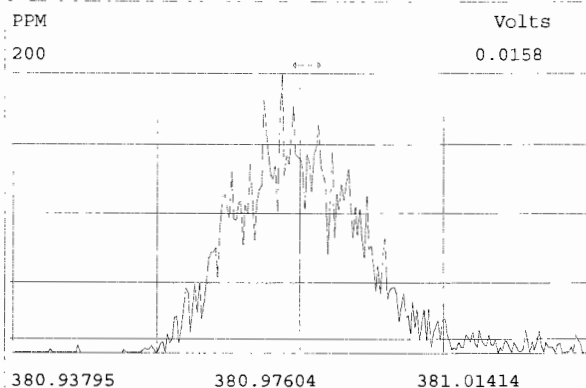
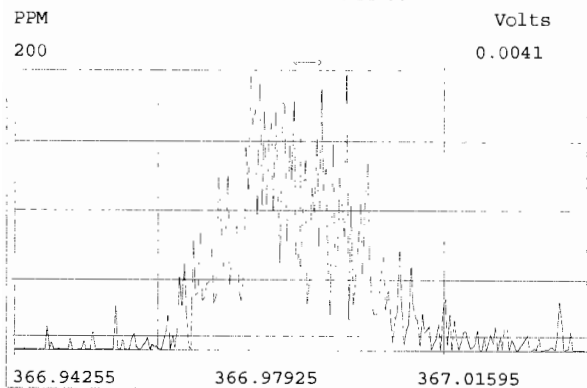
Date: 10/10/19

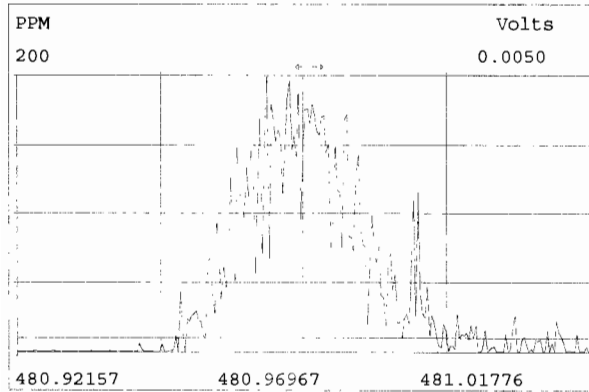
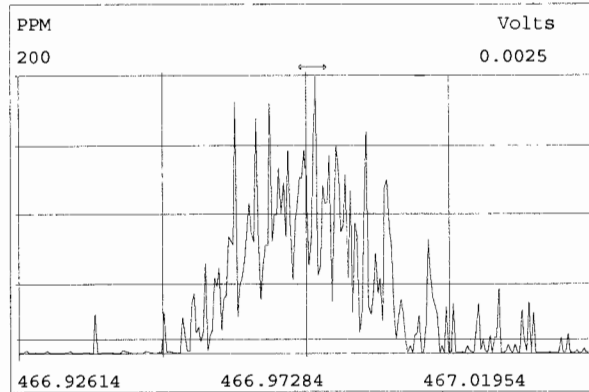
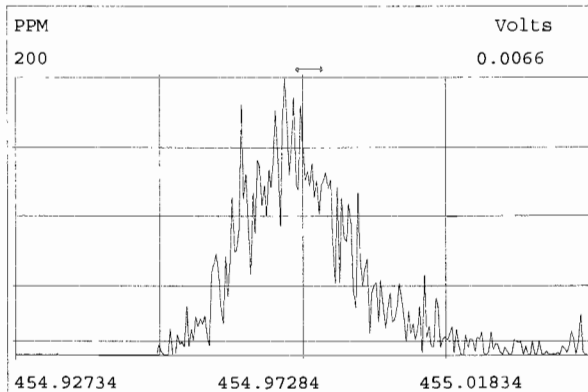
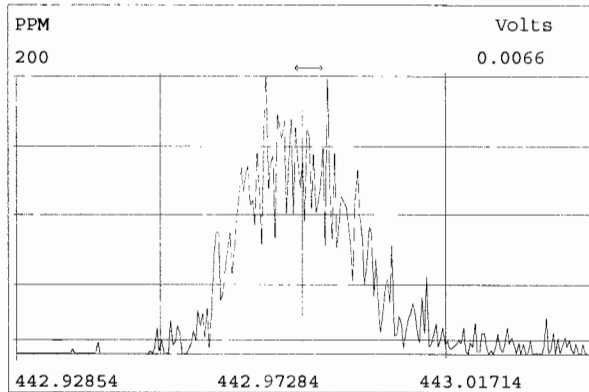
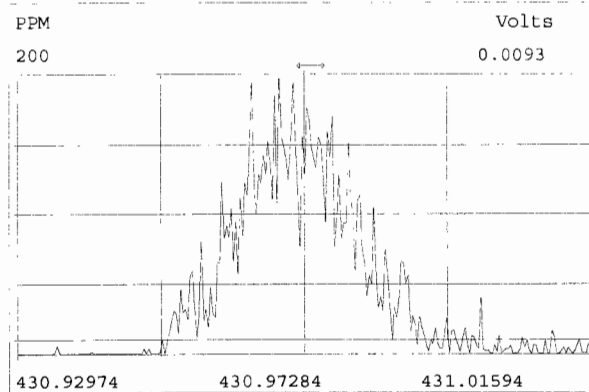
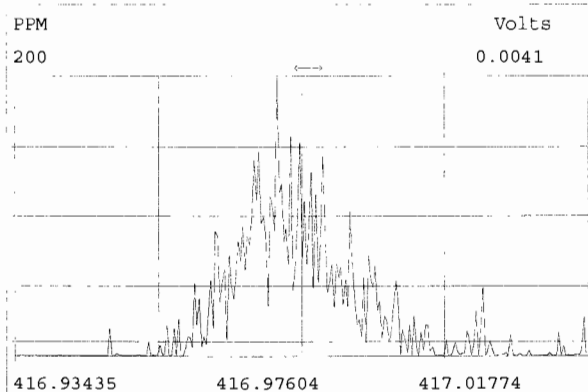
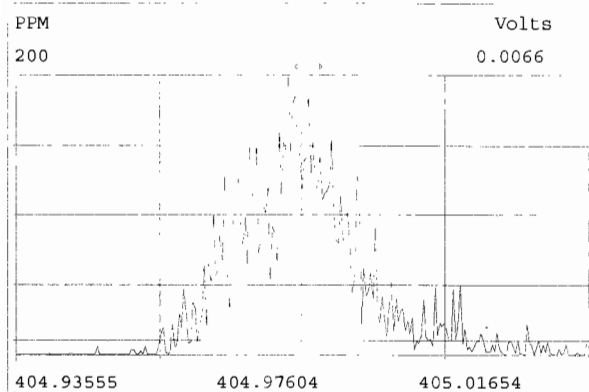


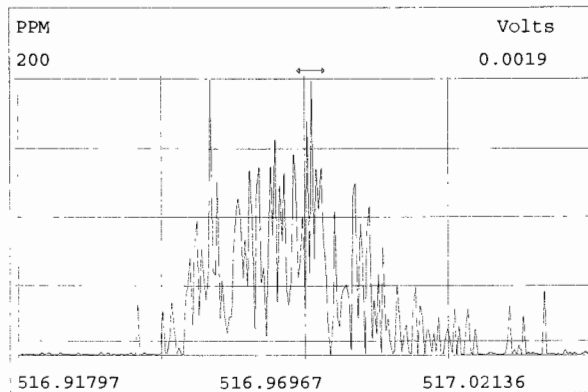
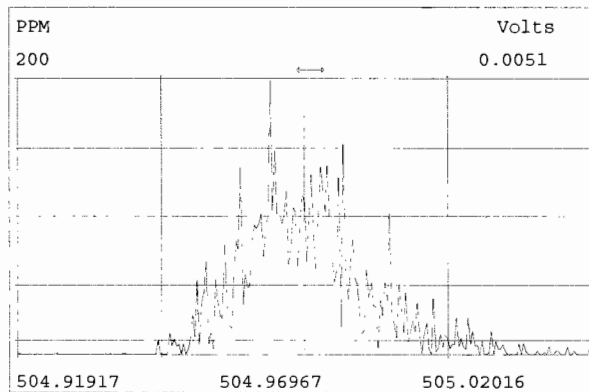
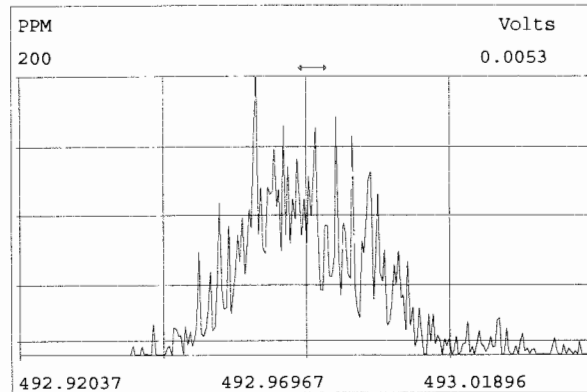
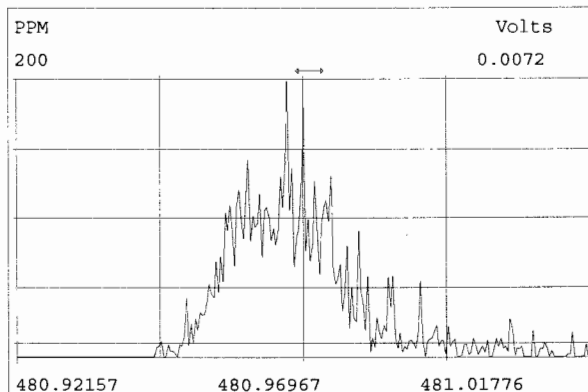
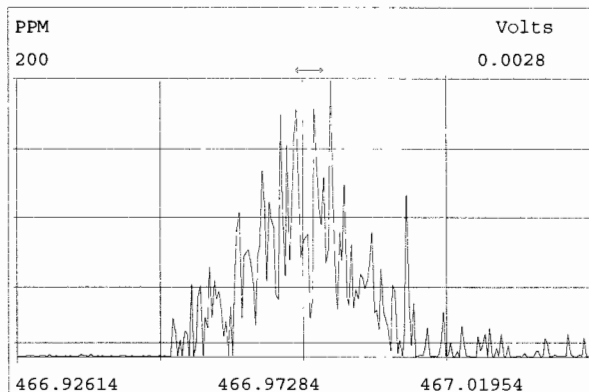
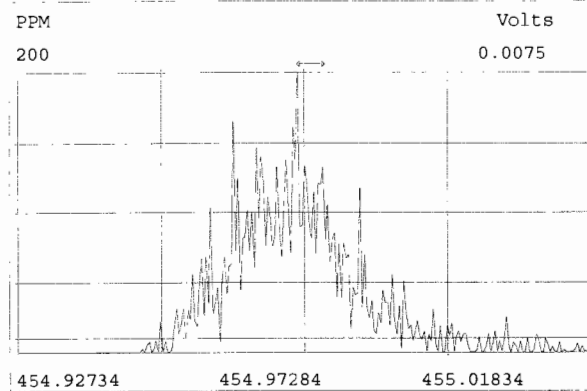
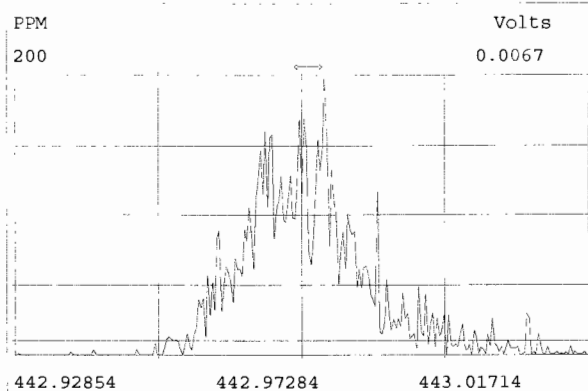
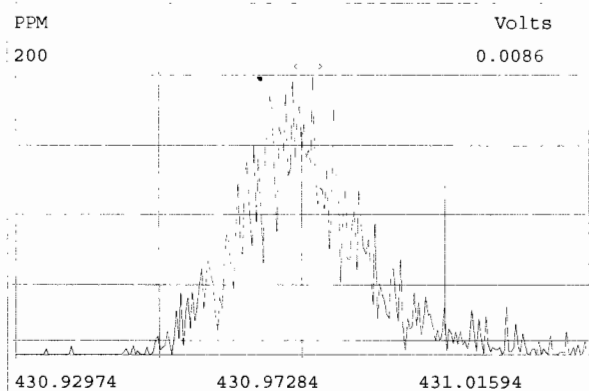
Peak Locate Examination: 9-OCT-2019:16:10 File:191009D1

Experiment:OCDD\_DB5 Function:2 Reference:PFK







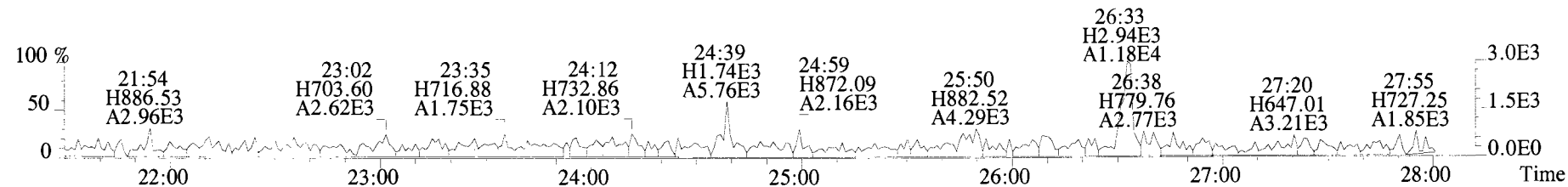


Vista Analytical Laboratory - Injection Log Run file: 191009D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

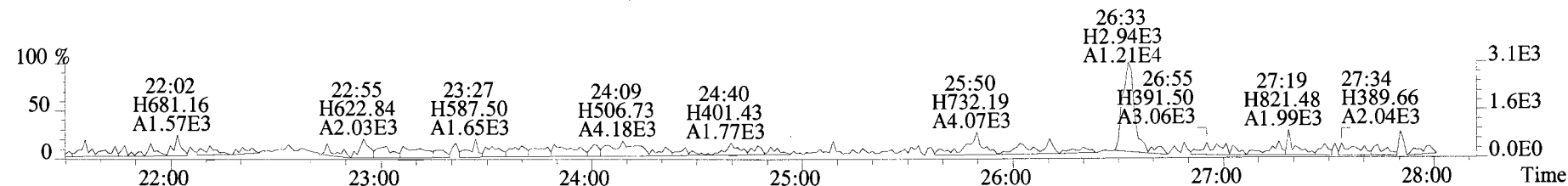
Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191009D1	1	ST191009D1-1	DB	9-OCT-19	16:13:04	ST191009D1-4	NA
191009D1	2	ST191009D1-2	DB	9-OCT-19	17:00:45	ST191009D1-4	NA
191009D1	3	ST191009D1-3	DB	9-OCT-19	17:48:27	ST191009D1-4	NA
191009D1	4	ST191009D1-4	DB	9-OCT-19	18:36:09	ST191009D1-4	NA
191009D1	5	ST191009D1-5	DB	9-OCT-19	19:23:46	ST191009D1-4	NA
191009D1	6	ST191009D1-6	DB	9-OCT-19	20:11:17	ST191009D1-4	NA
191009D1	7	SOLVENT BLANK	DB	9-OCT-19	20:58:57	ST191009D1-4	NA
191009D1	8	SS191009D1-1	DB	9-OCT-19	21:46:34	ST191009D1-4	NA
191009D1	9	B9J0001-BS1	DB	9-OCT-19	22:34:09	ST191009D1-4	NA
191009D1	10	SOLVENT BLANK	DB	9-OCT-19	23:21:45	ST191009D1-4	NA
191009D1	11	B9J0001-BLK1	DB	10-OCT-19	00:09:30	ST191009D1-4	NA
191009D1	12	QC191007D1-1	DB	10-OCT-19	00:57:00	ST191009D1-4	NA
191009D1	13	1903285-08	DB	10-OCT-19	01:44:36	ST191009D1-4	NA
191009D1	14	1903285-09	DB	10-OCT-19	02:32:11	ST191009D1-4	NA
191009D1	15	1903285-10	DB	10-OCT-19	03:19:47	ST191009D1-4	NA
191009D1	16	1903103-02@5X	DB	10-OCT-19	04:07:23	ST191009D1-4	NA
191009D1	17	1903103-01@5X	DB	10-OCT-19	04:54:54	ST191009D1-4	NA
191009D1	18	B9I0240-DUP1@5X	DB	10-OCT-19	05:42:38	ST191009D1-4	NA



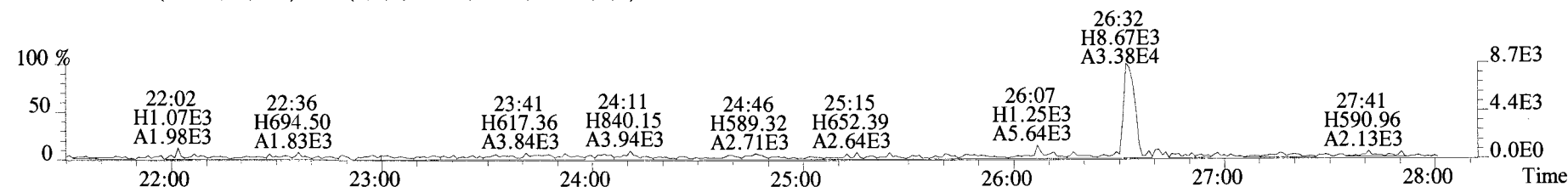
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



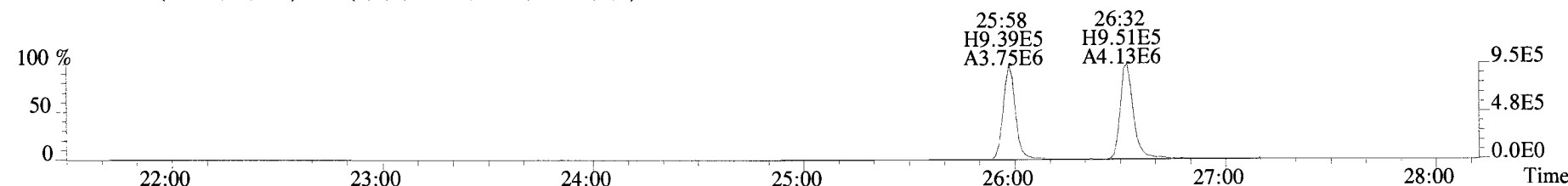
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



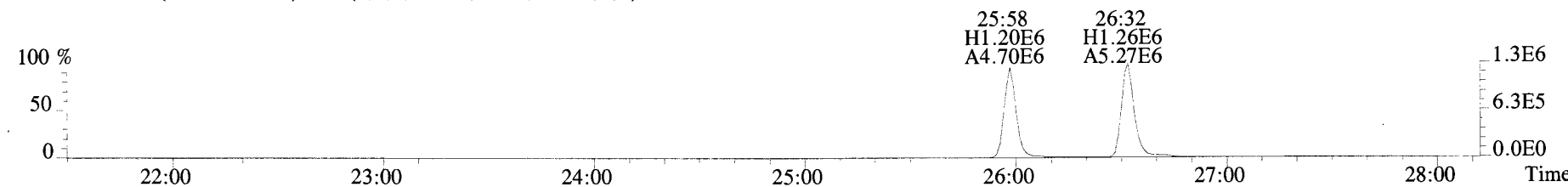
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



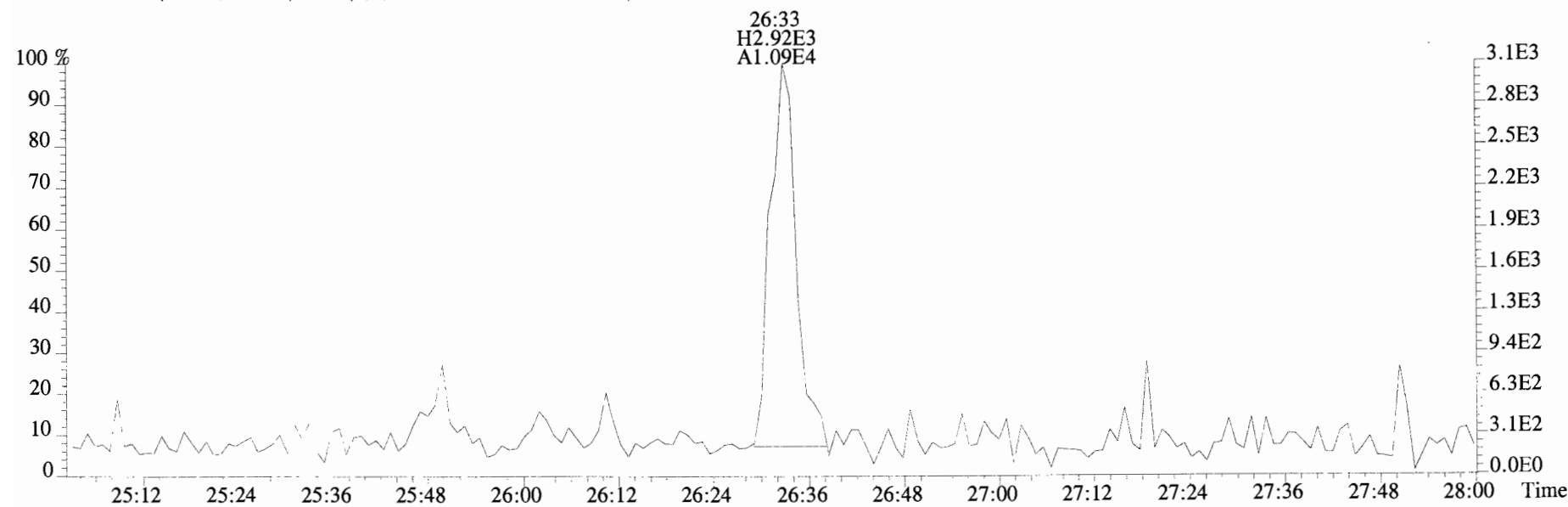
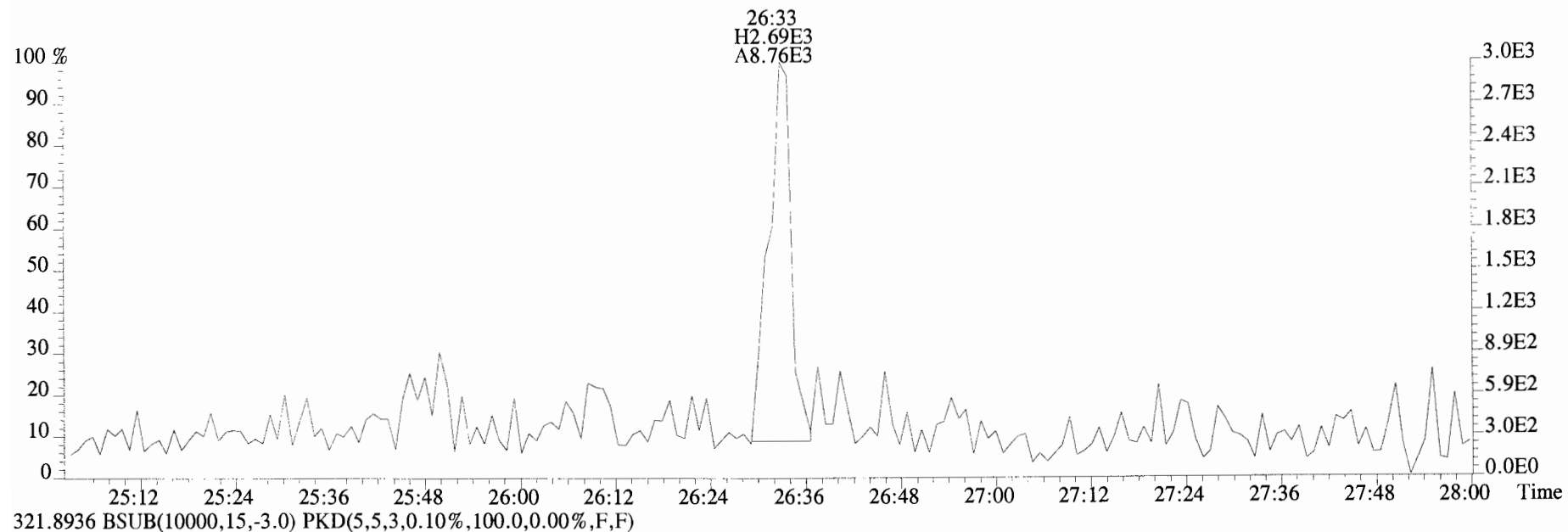
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



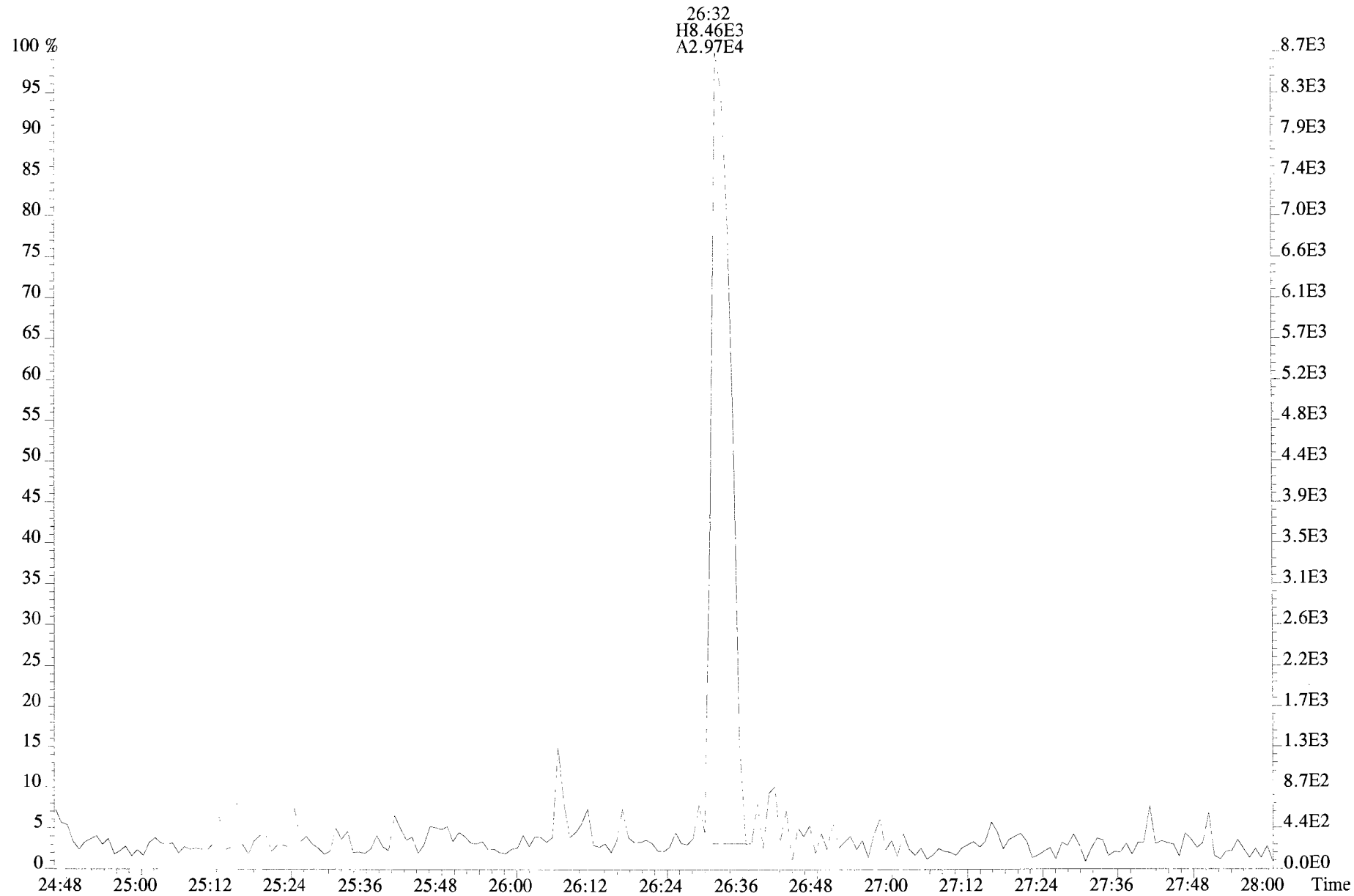
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



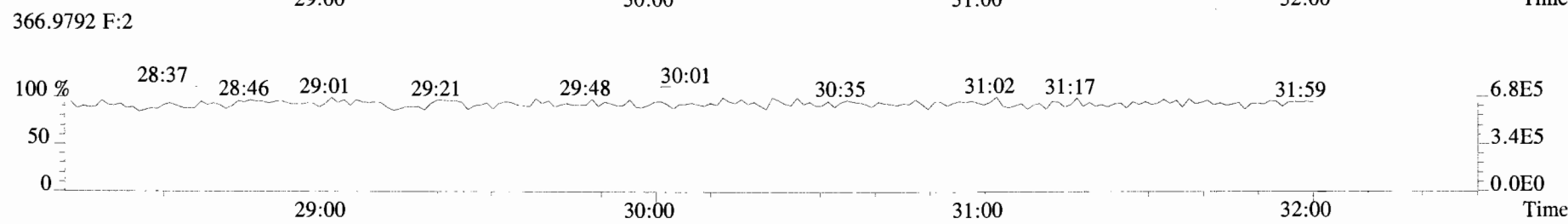
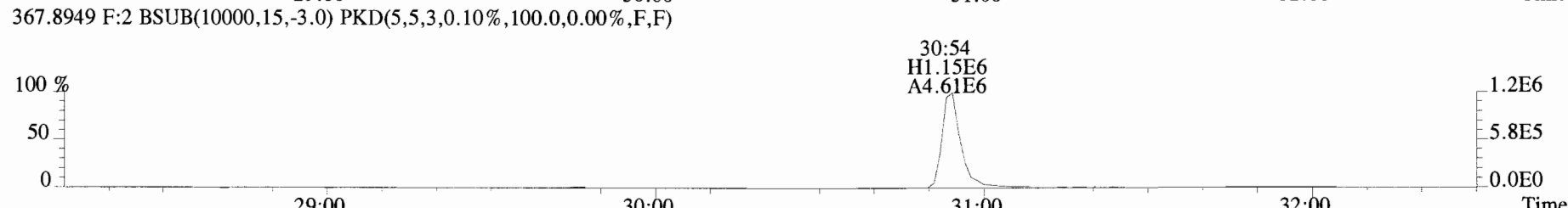
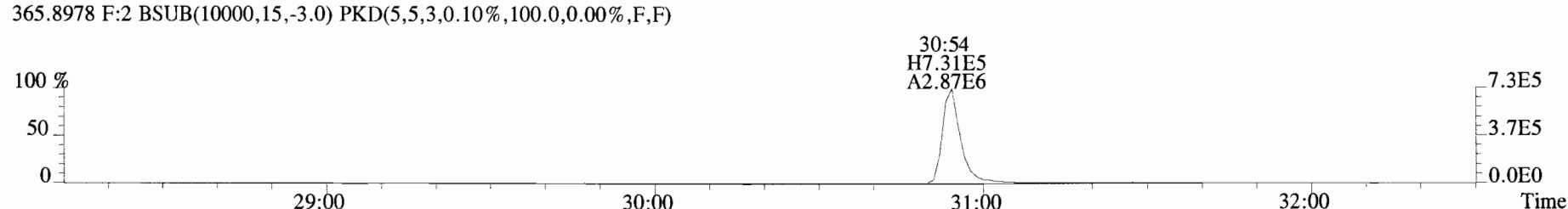
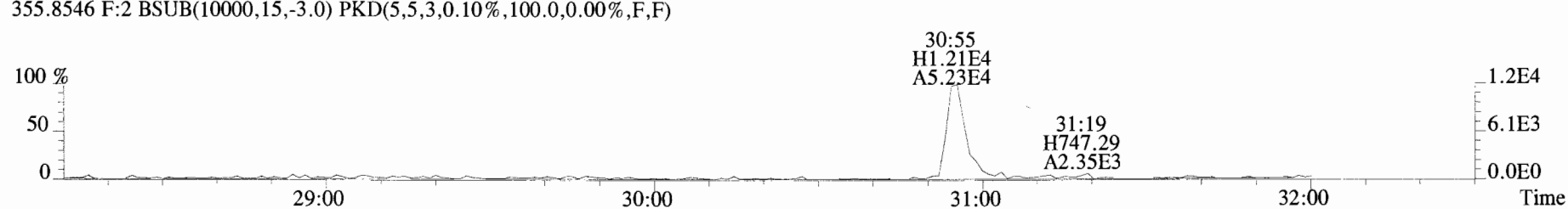
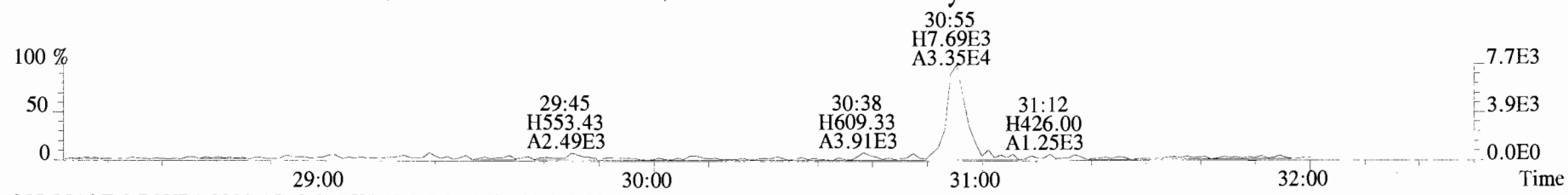
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



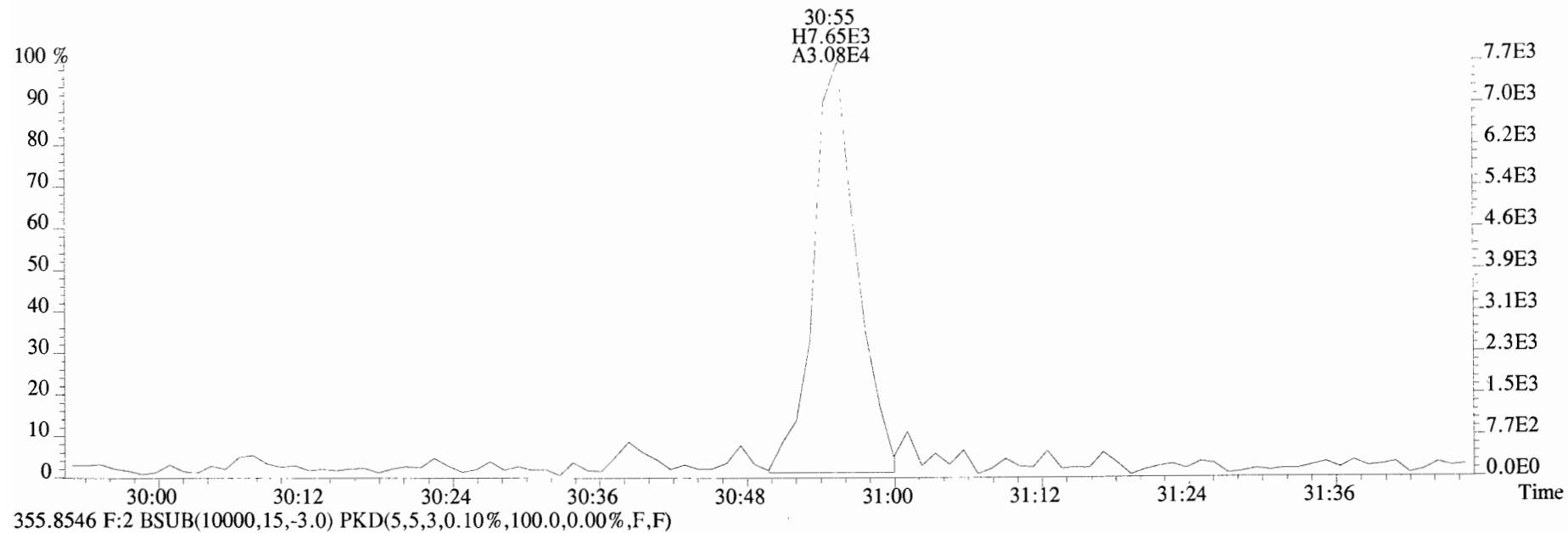
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
327.8847 BSUB(10000,15,-3.0)



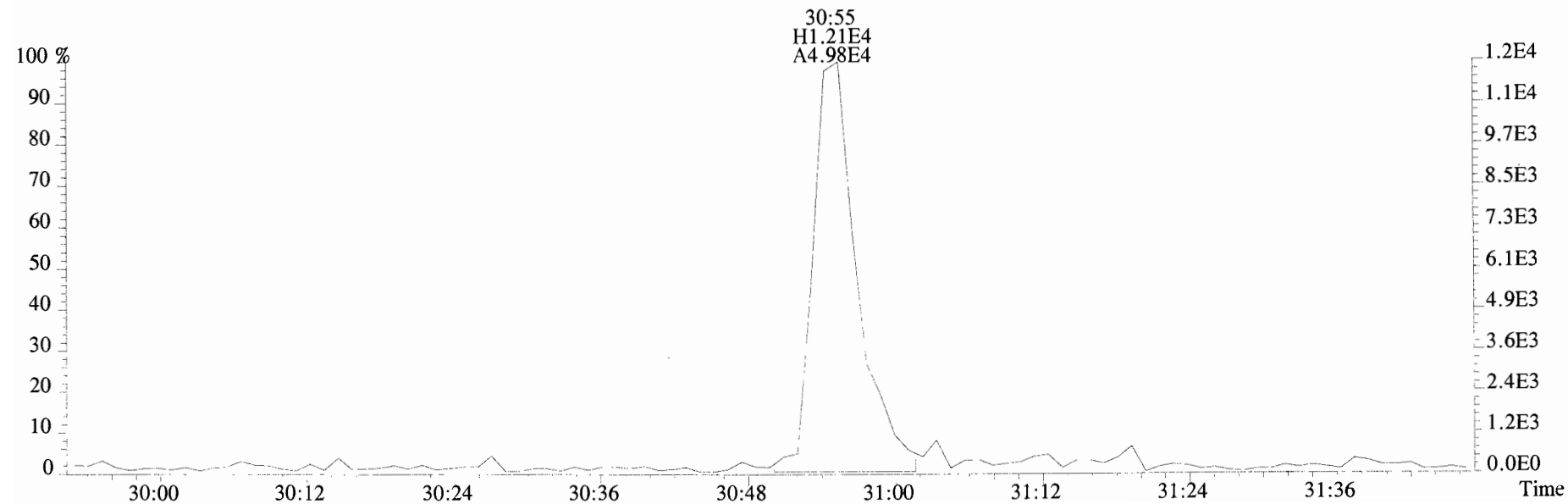
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



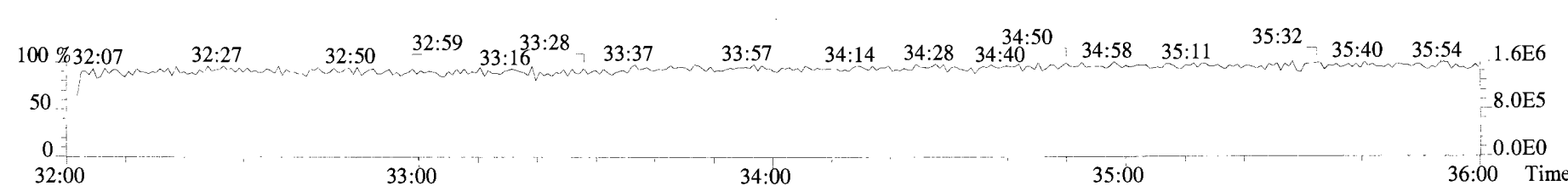
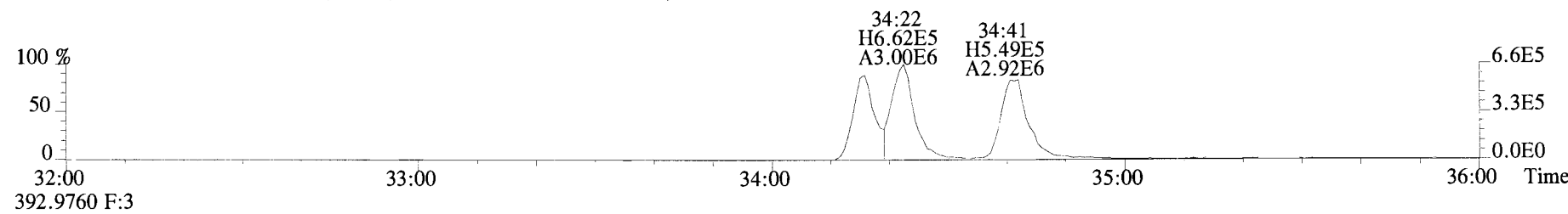
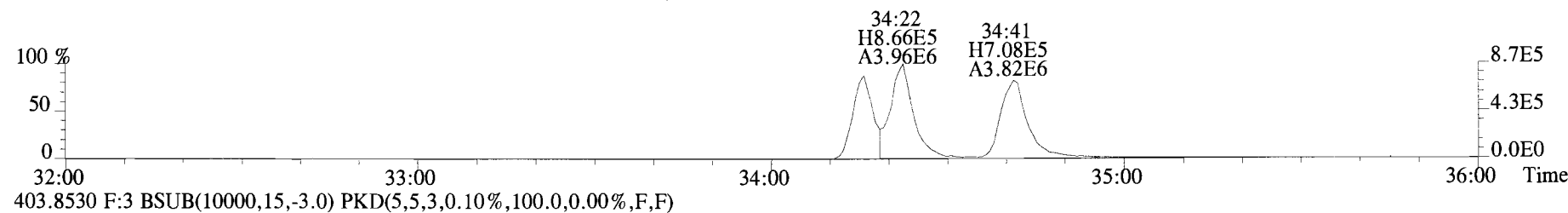
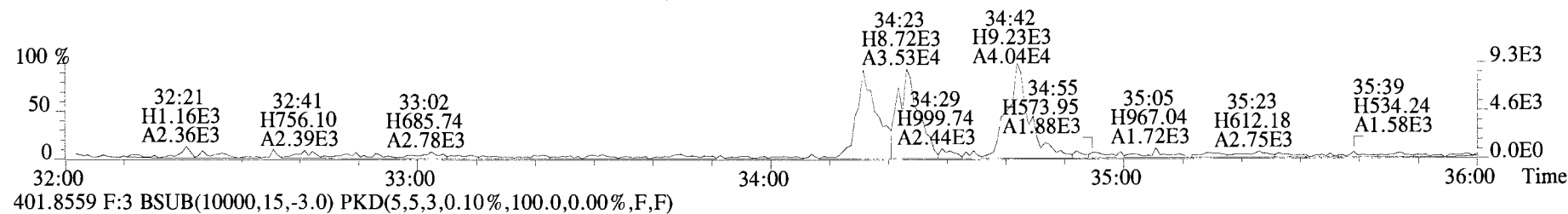
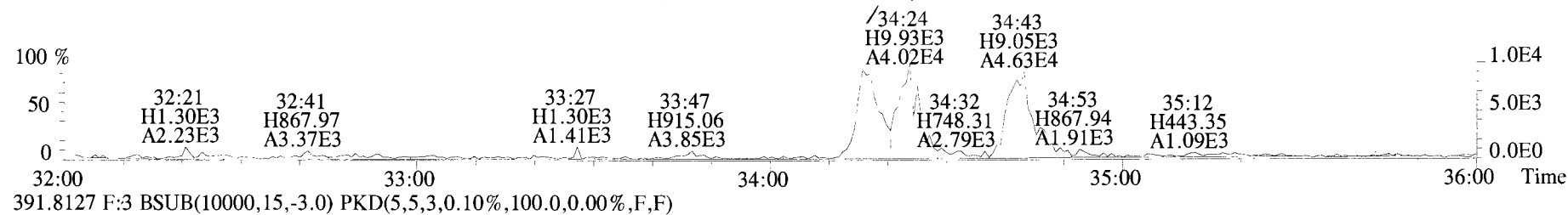
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



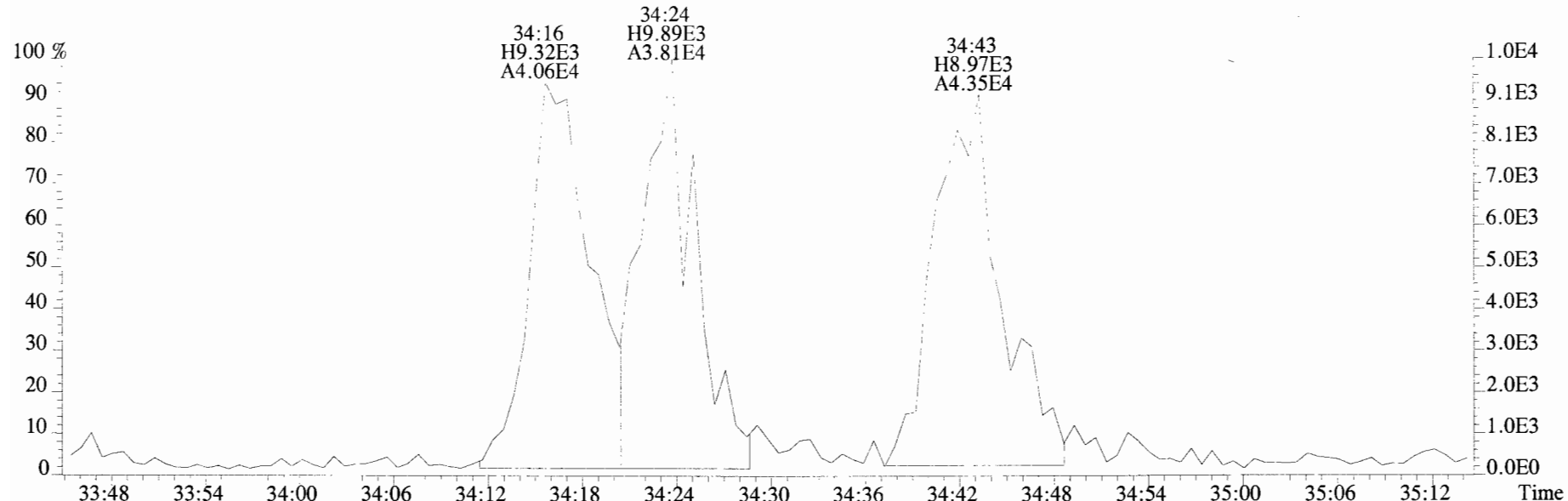
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



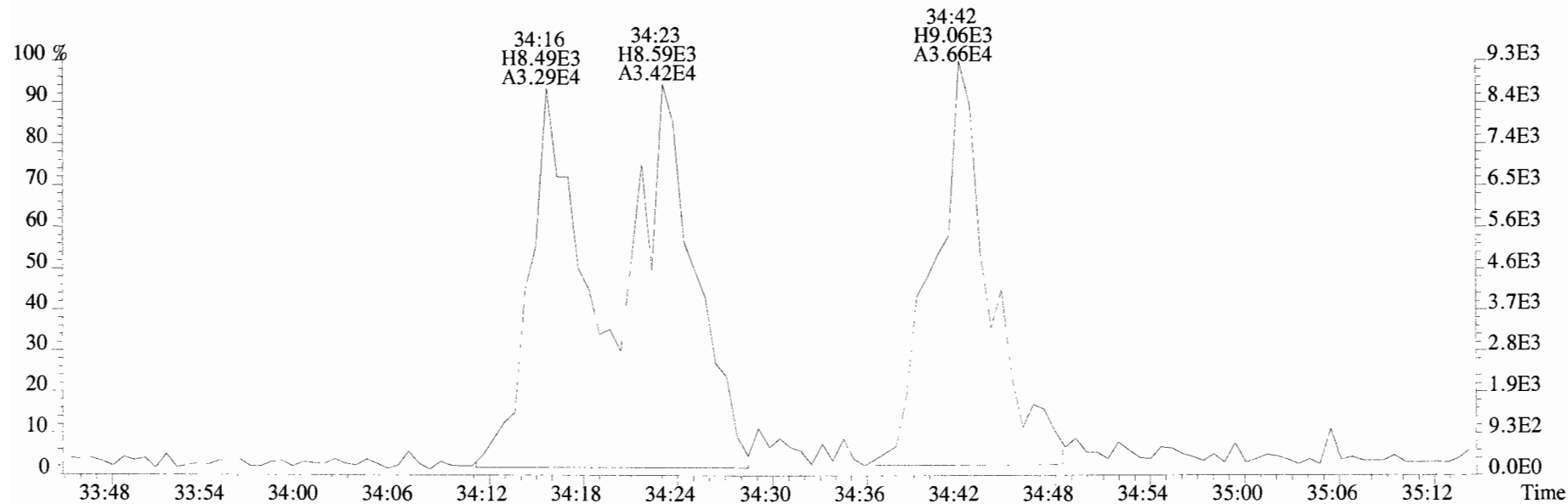
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



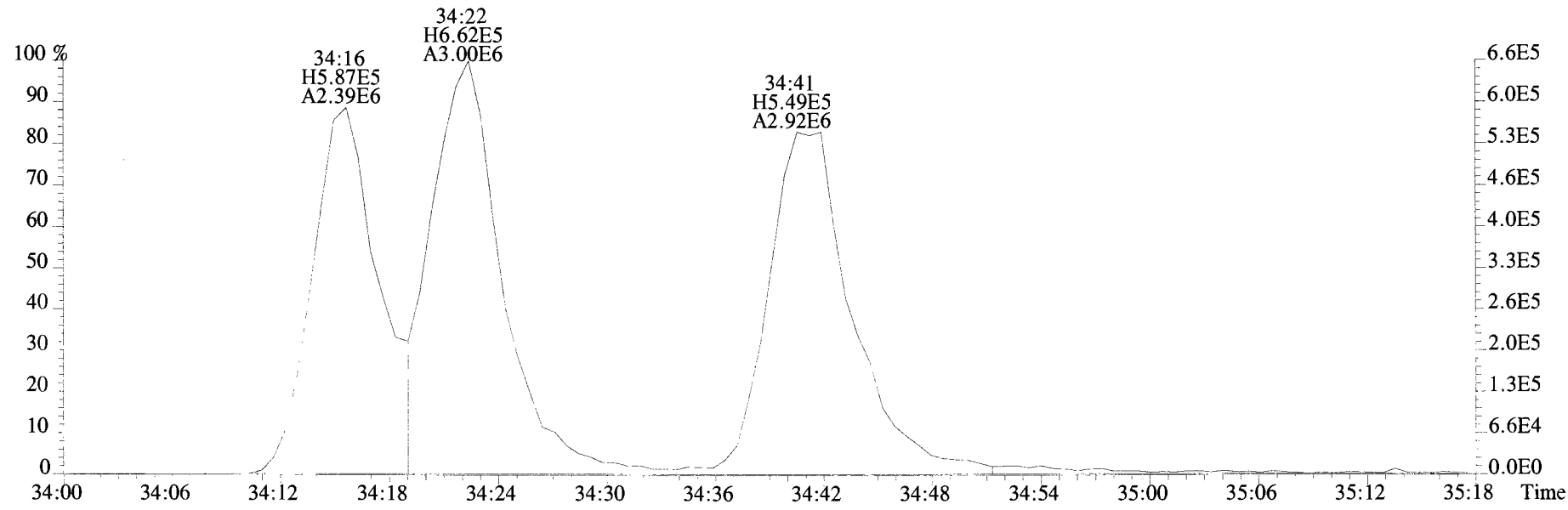
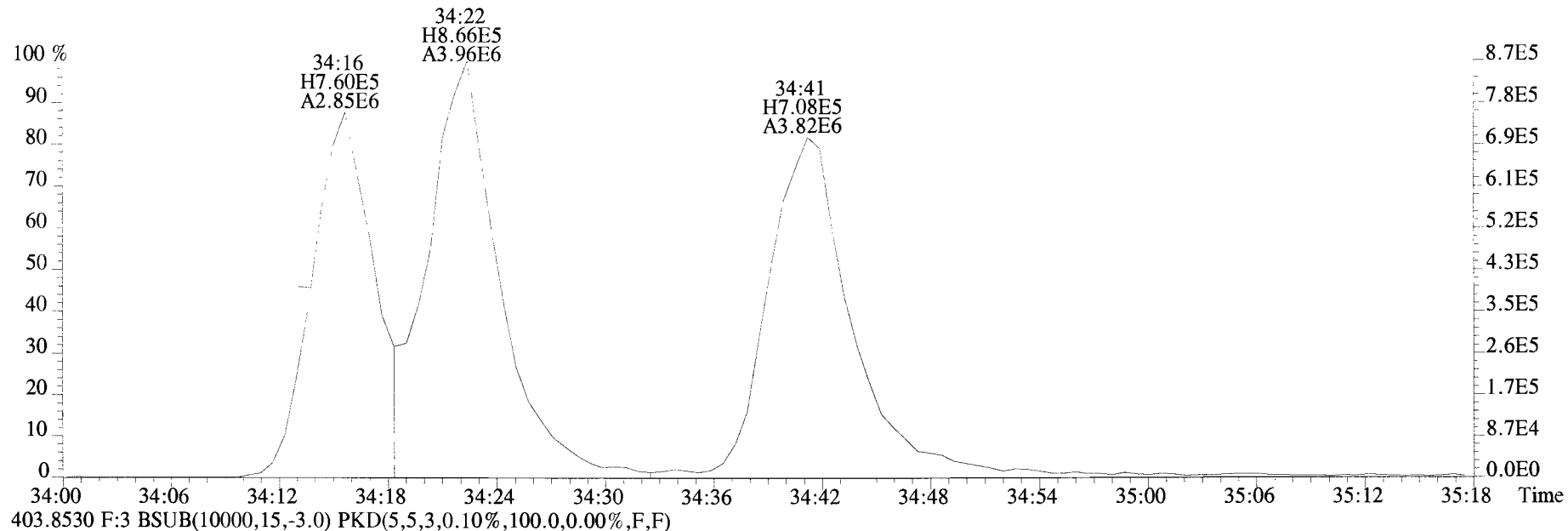
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

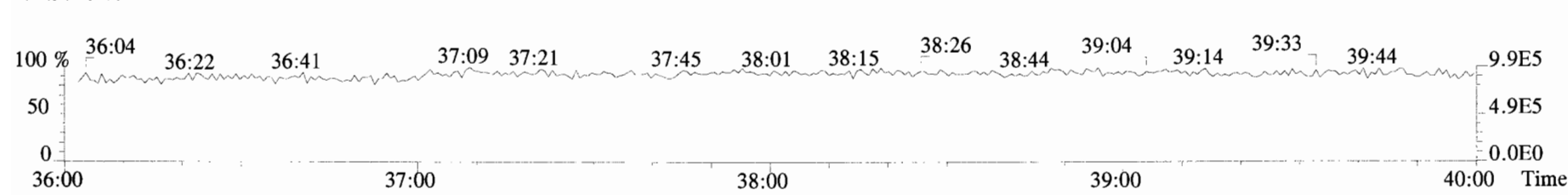
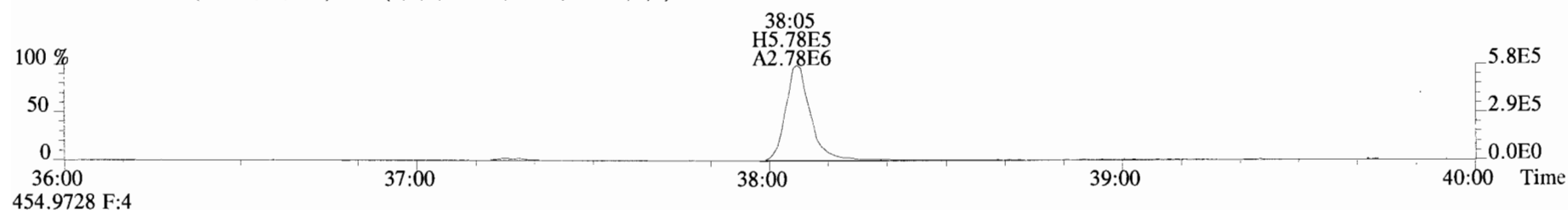
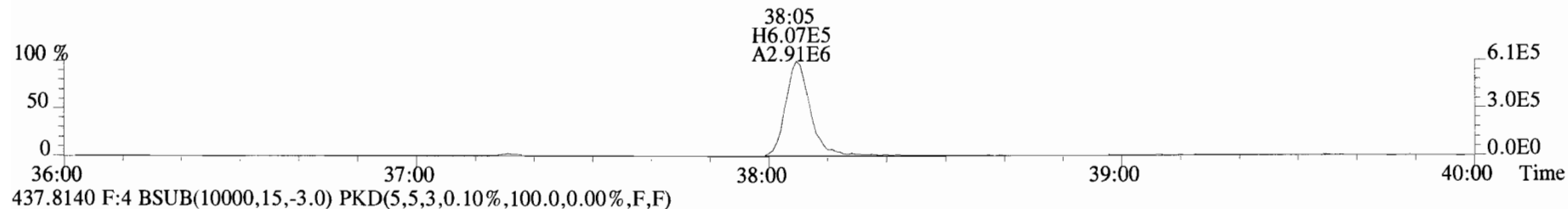
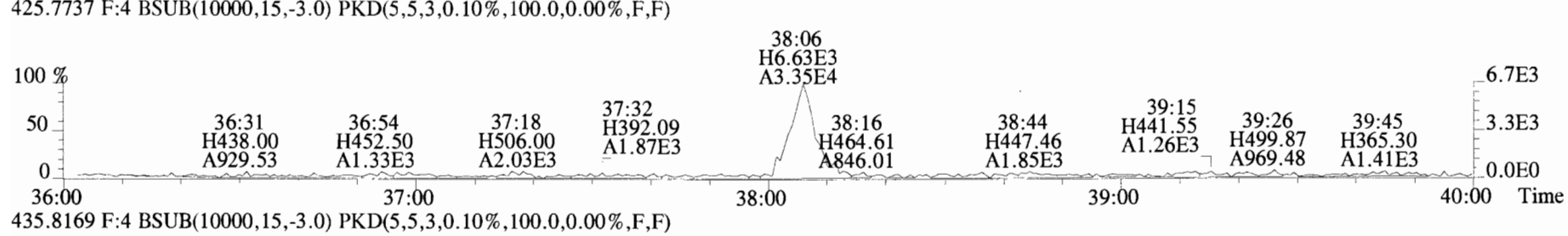
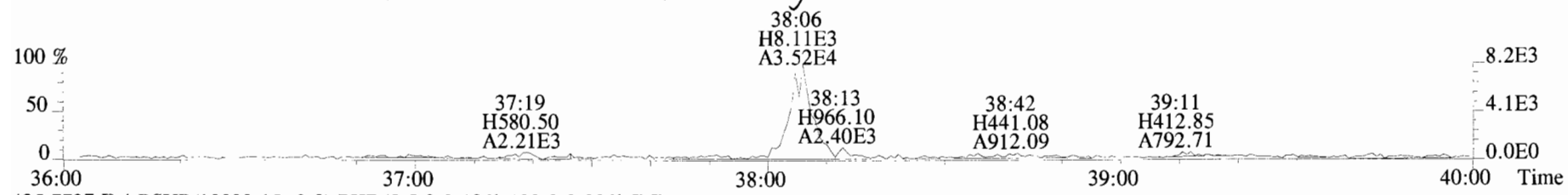


File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

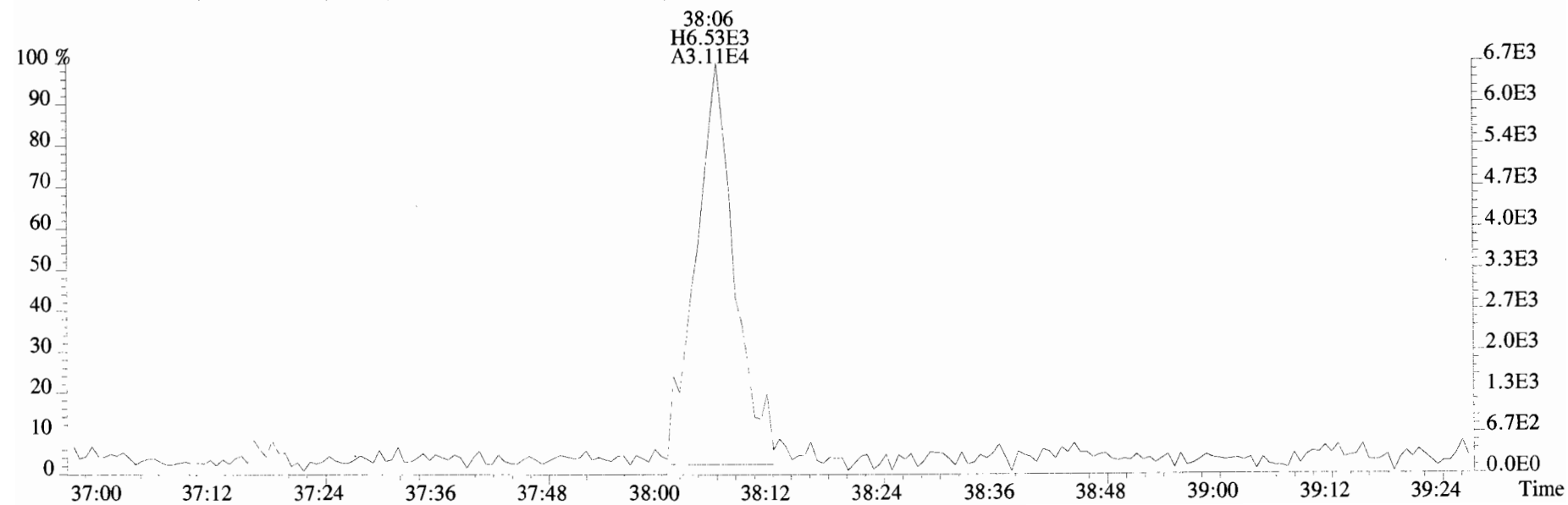
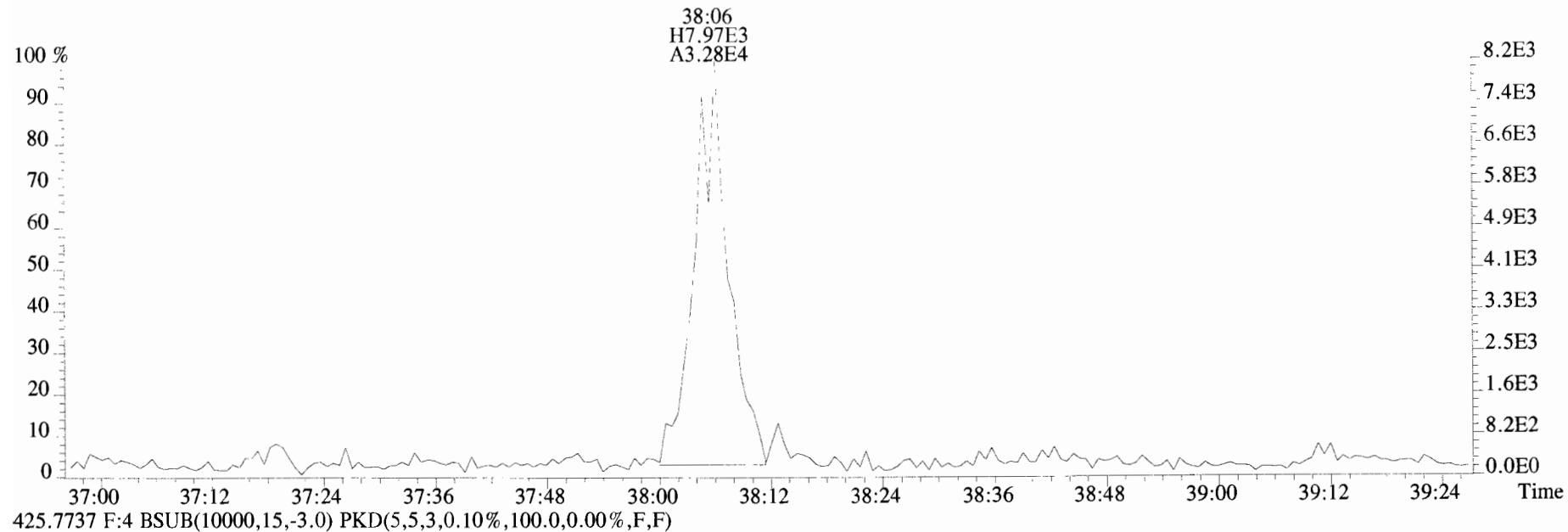




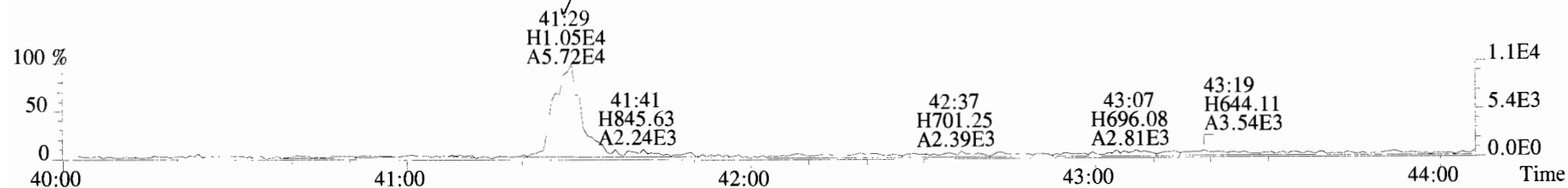
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



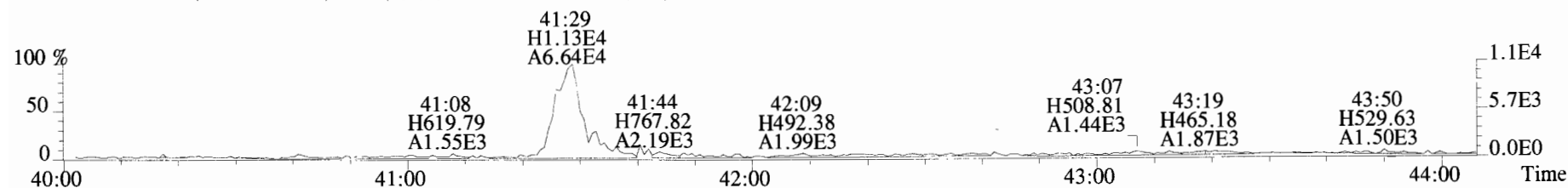
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



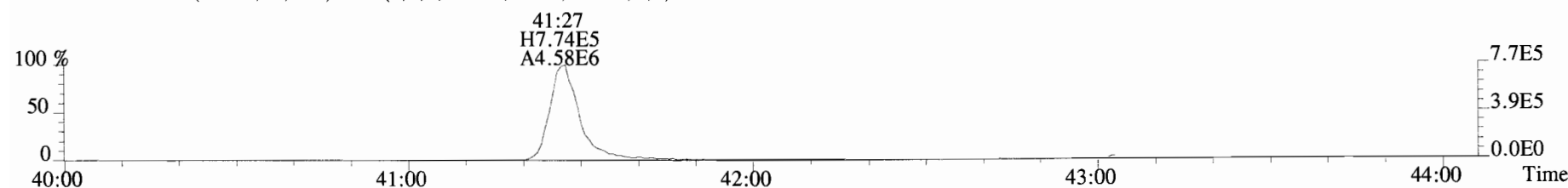
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



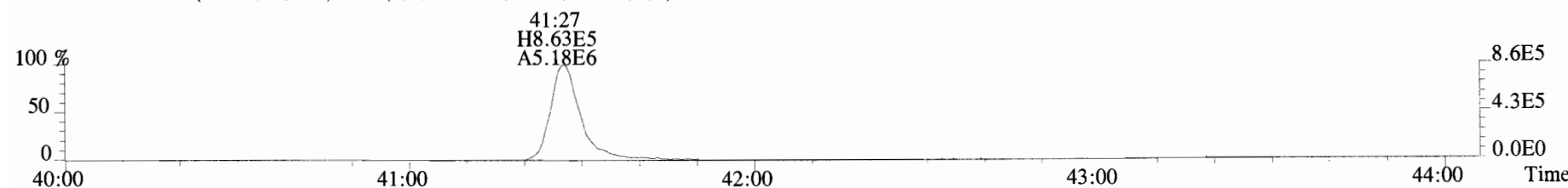
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



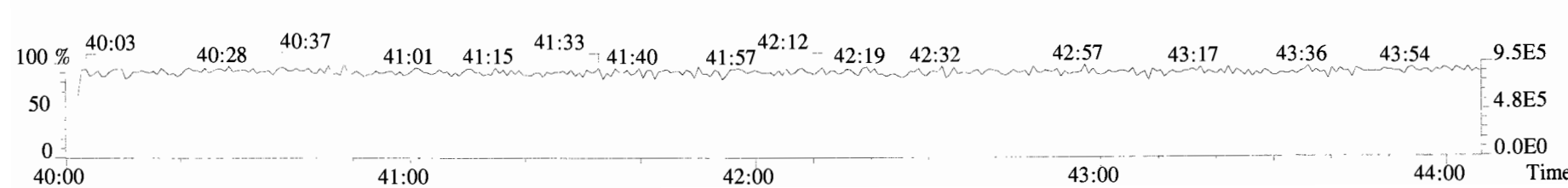
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



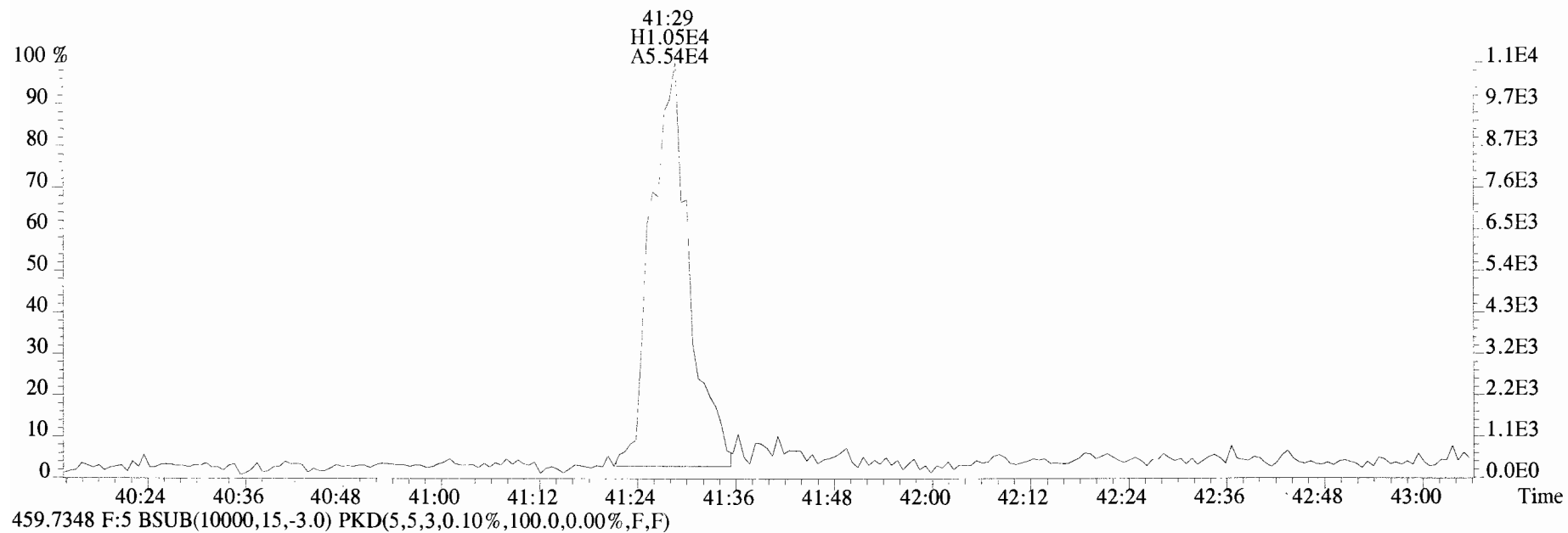
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



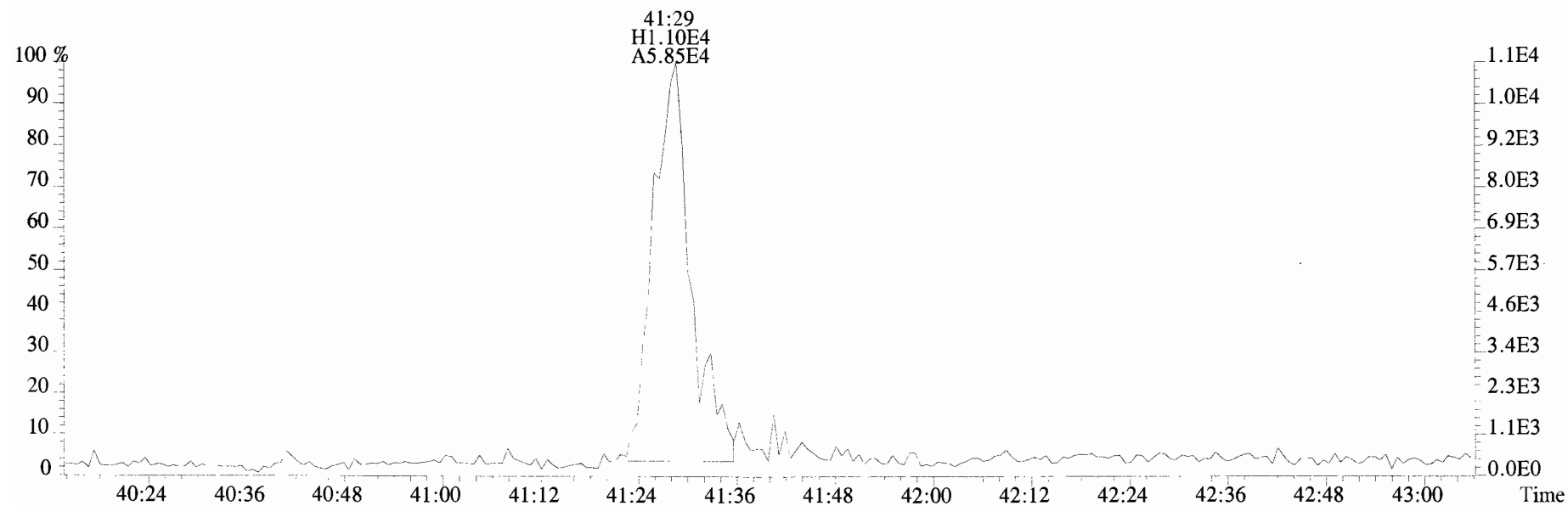
454.9728 F:5



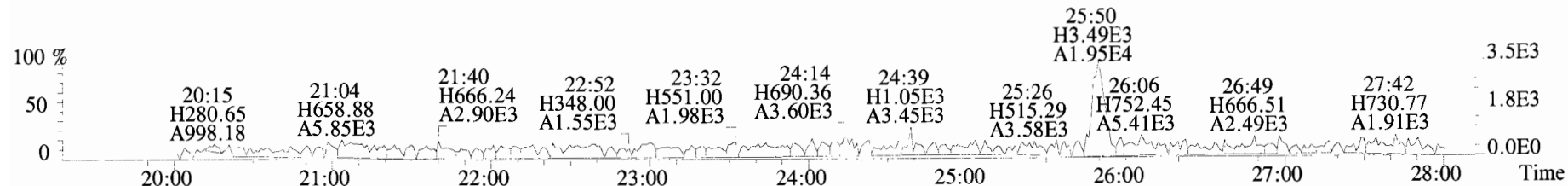
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



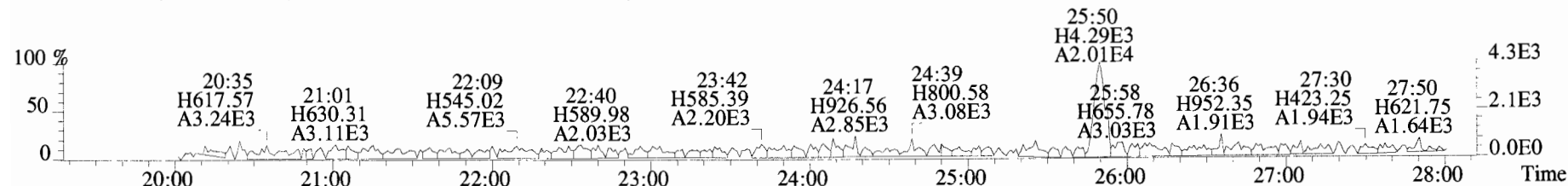
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



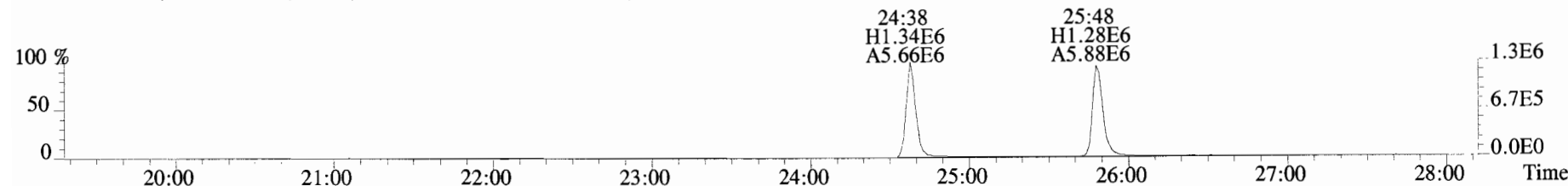
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



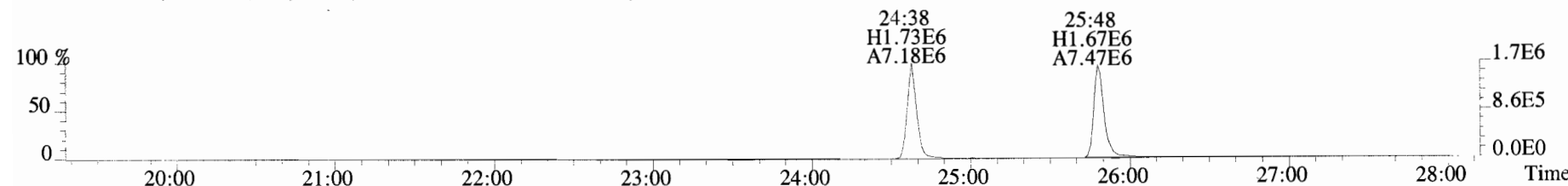
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



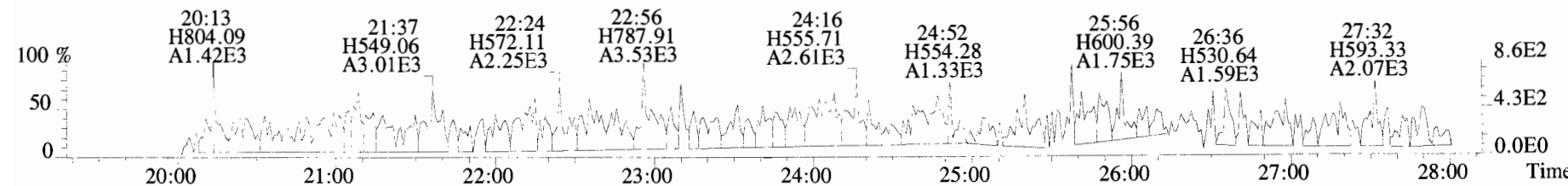
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



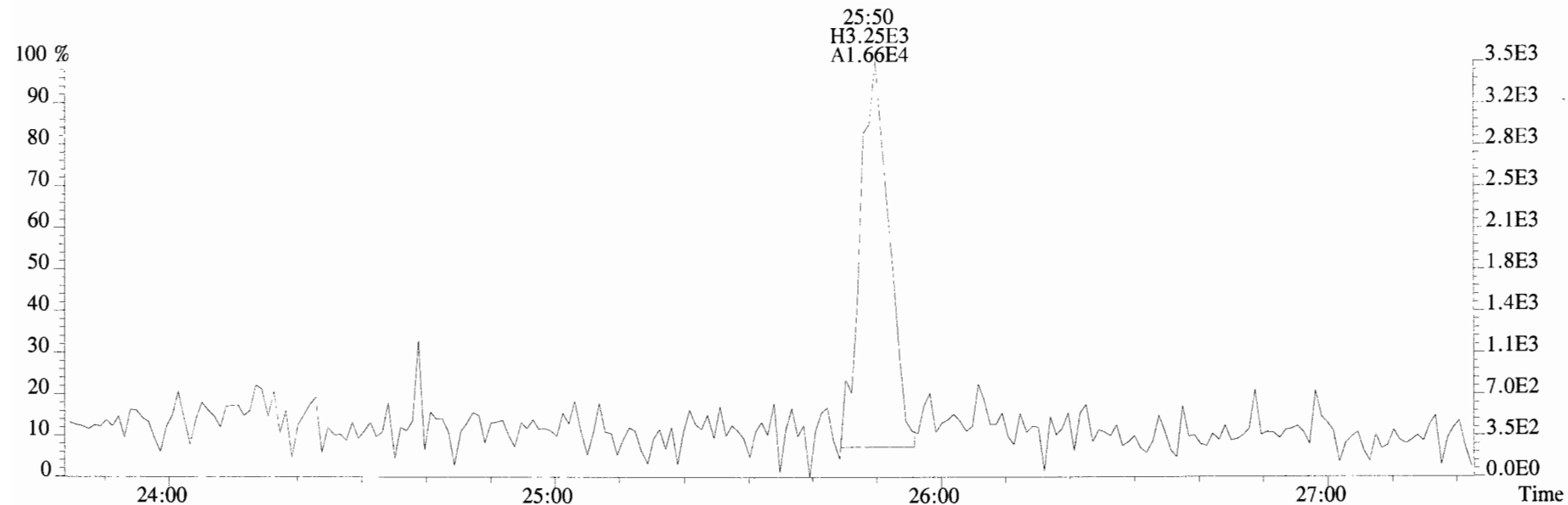
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



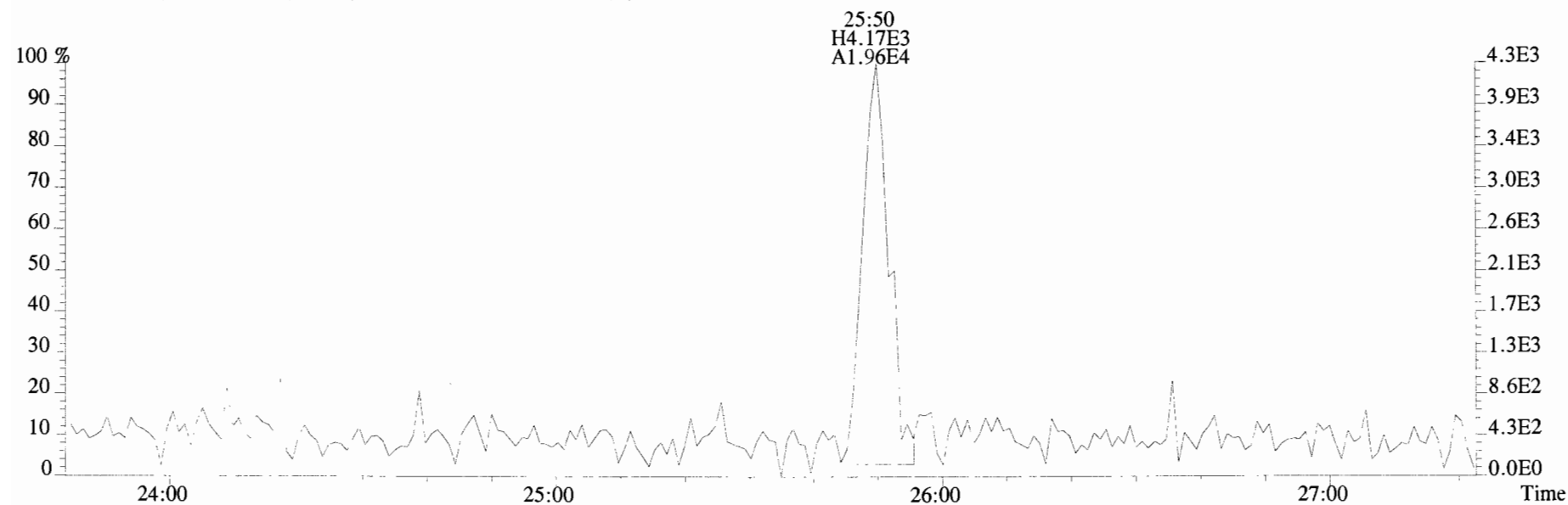
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



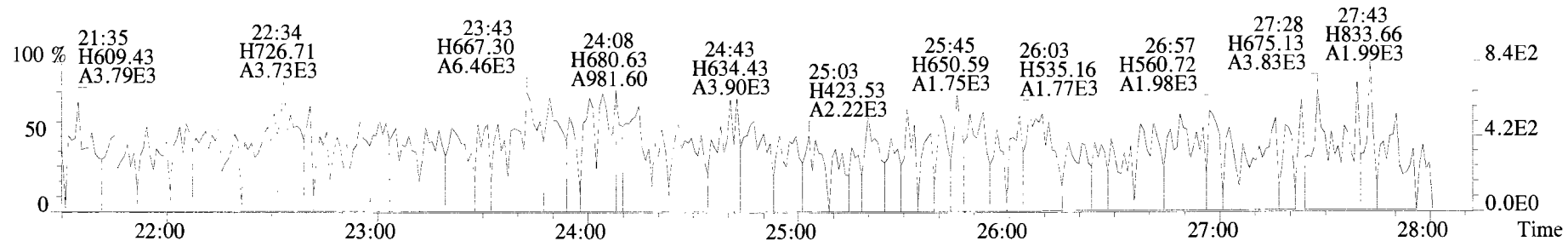
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



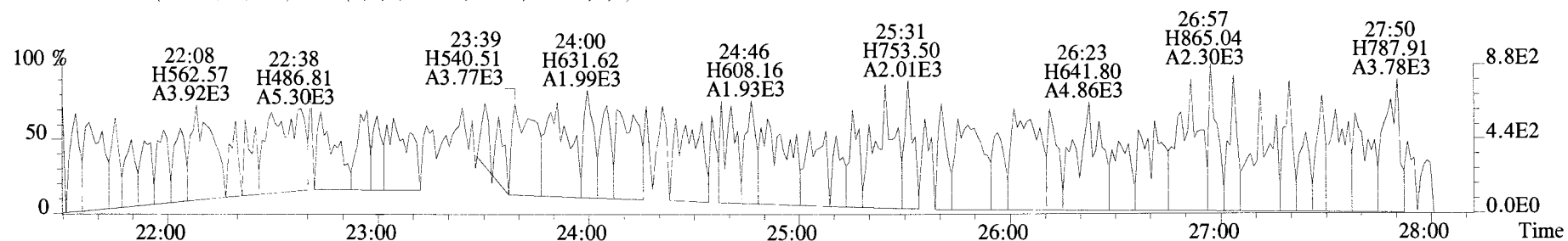
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



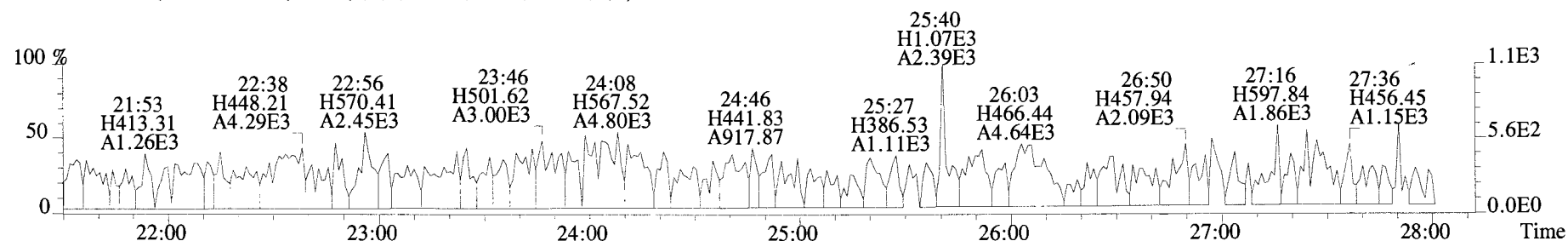
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



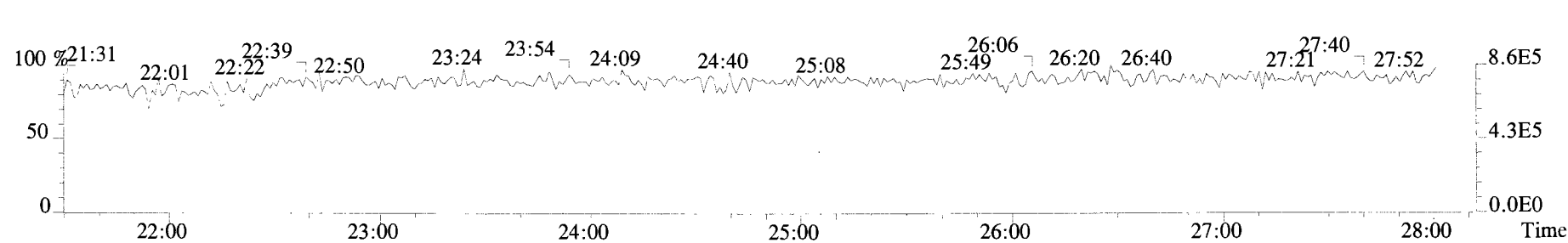
341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



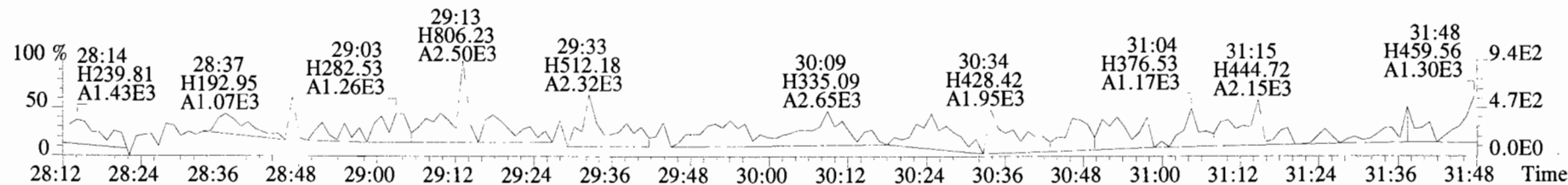
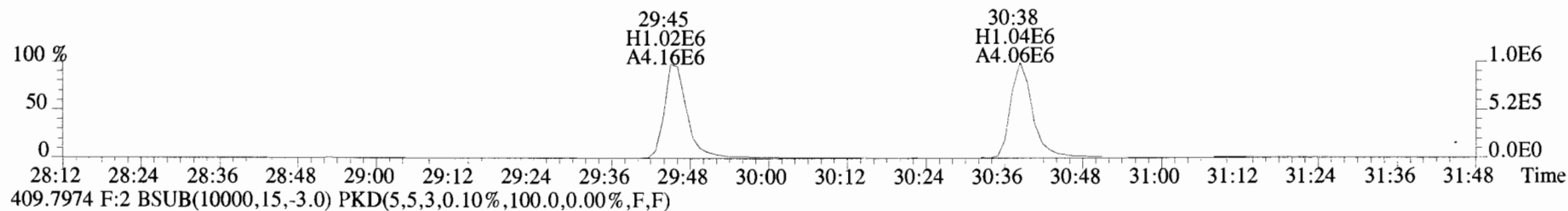
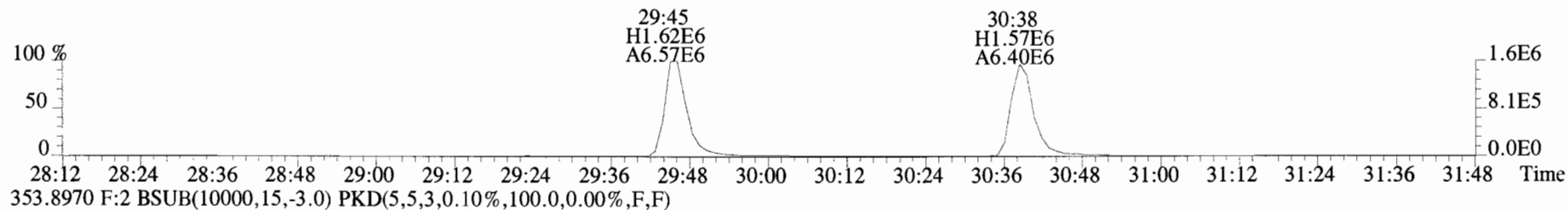
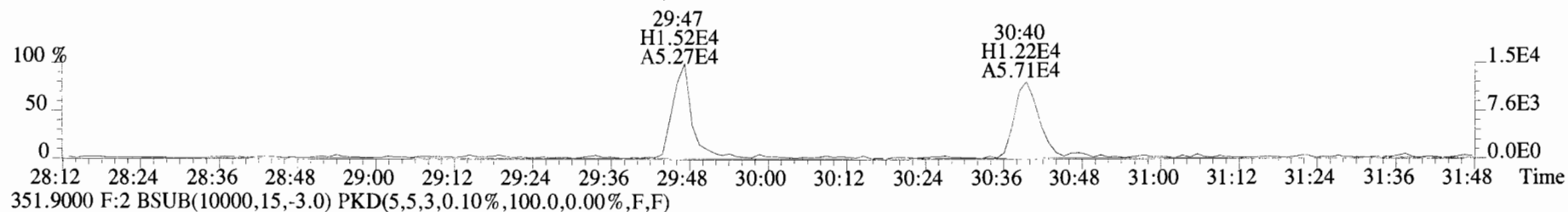
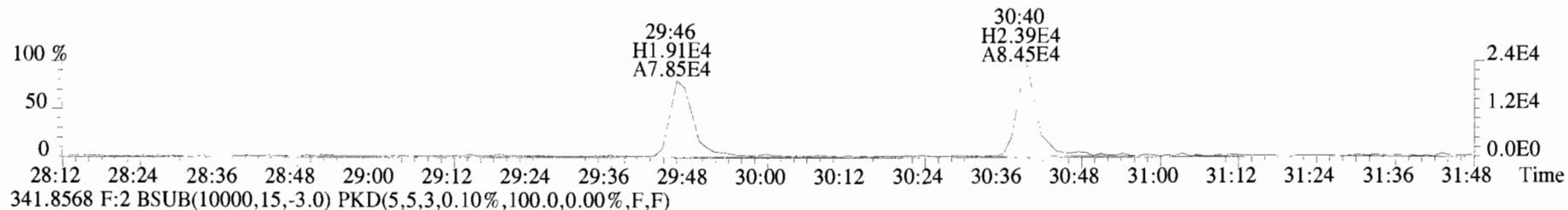
409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



316.9824

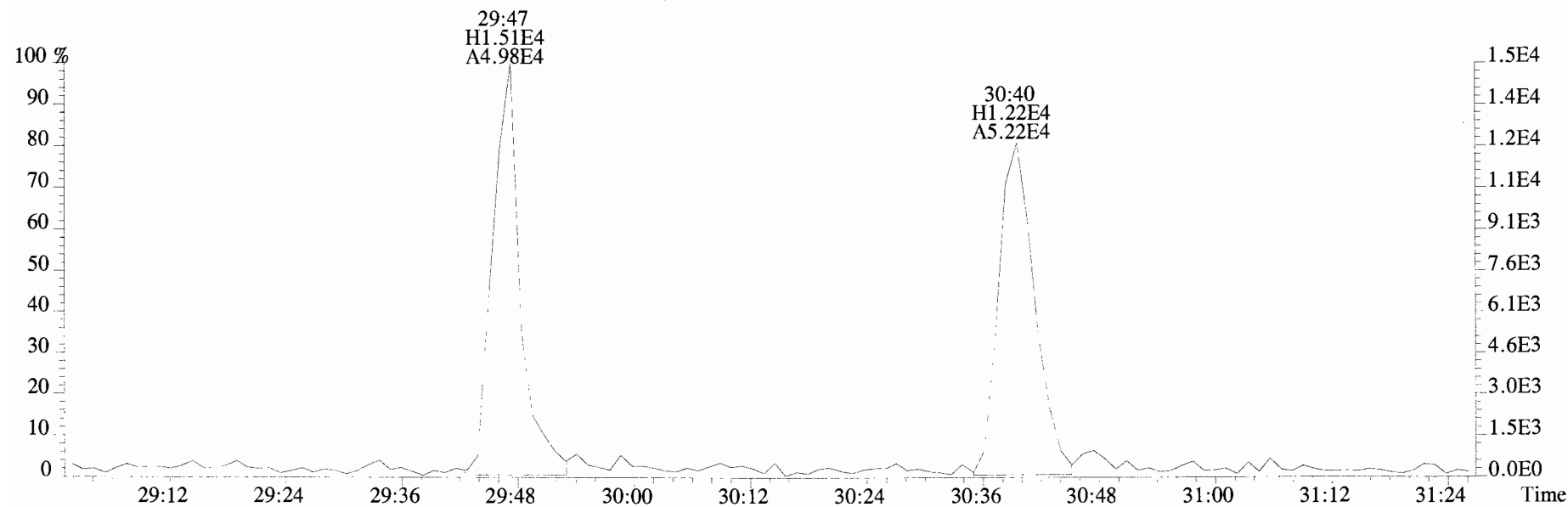
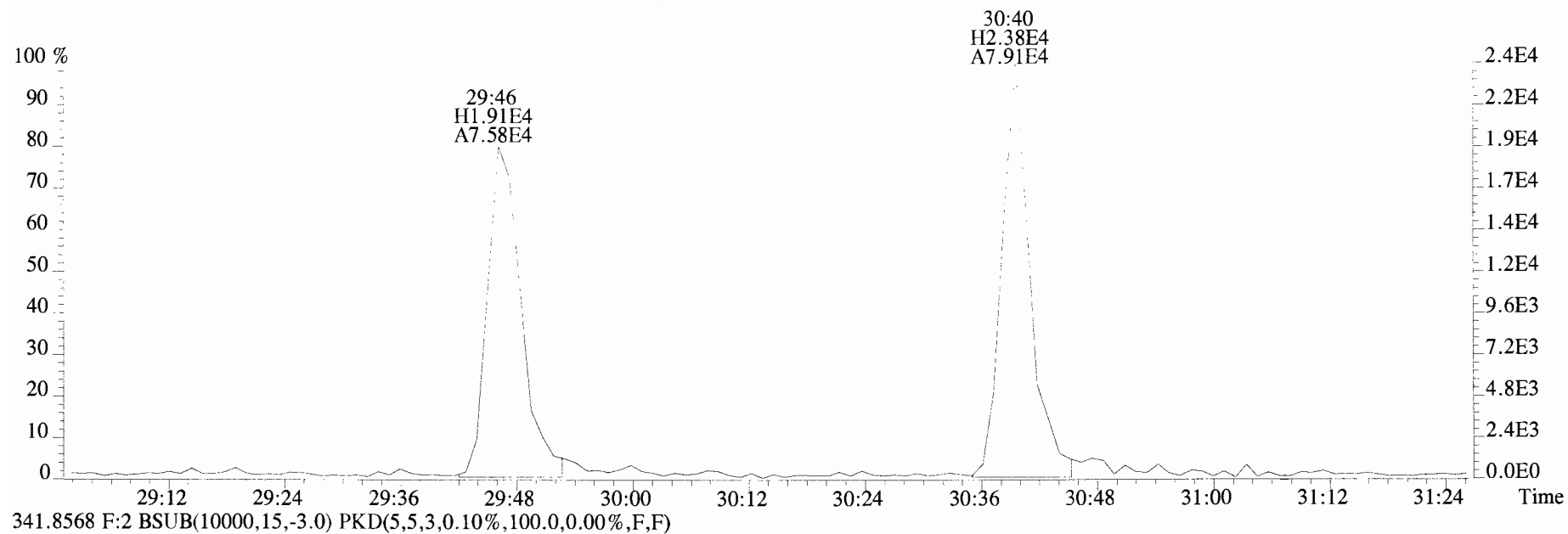


File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

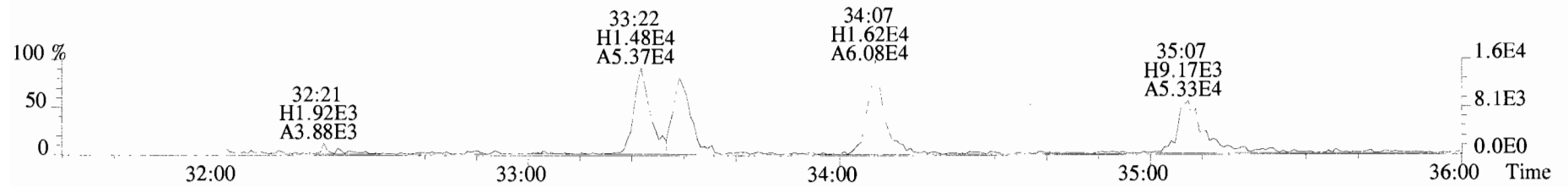




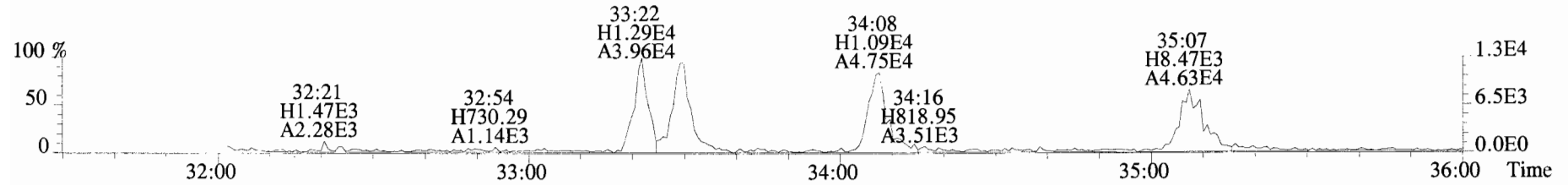
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



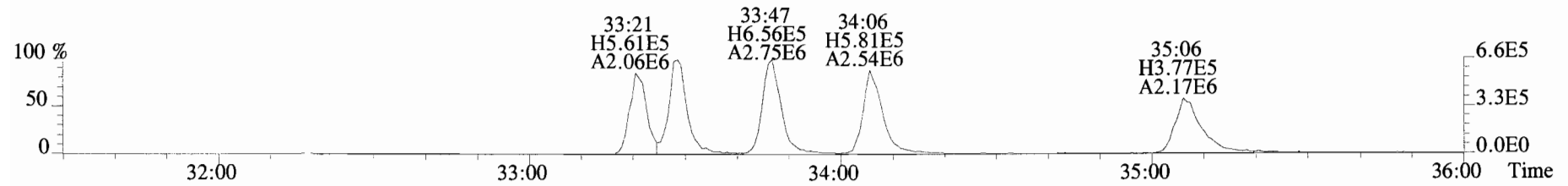
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



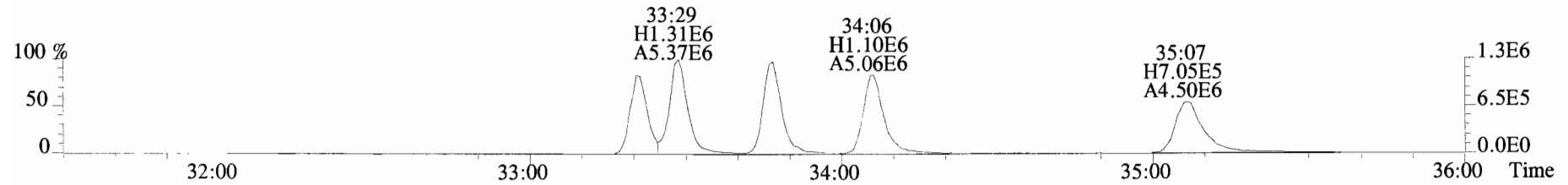
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



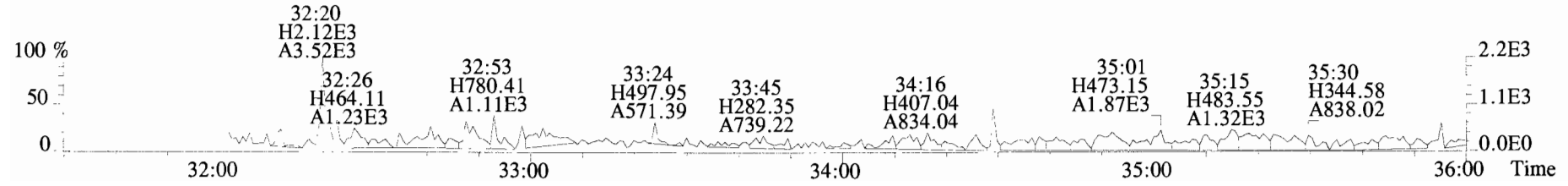
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



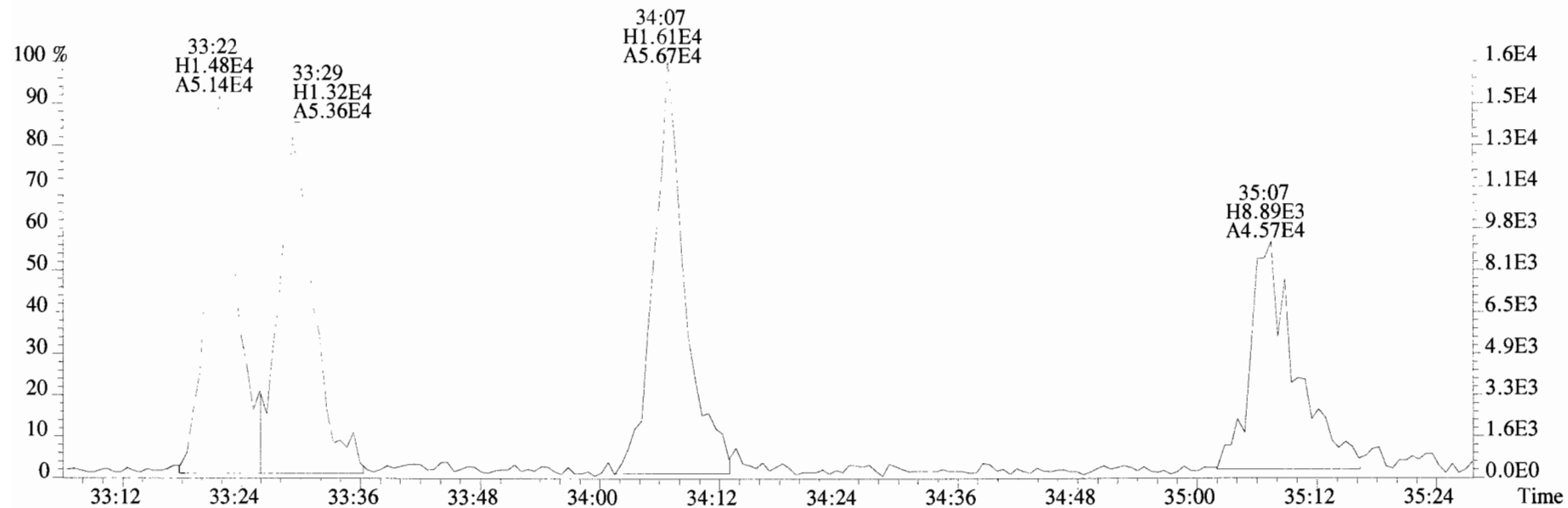
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



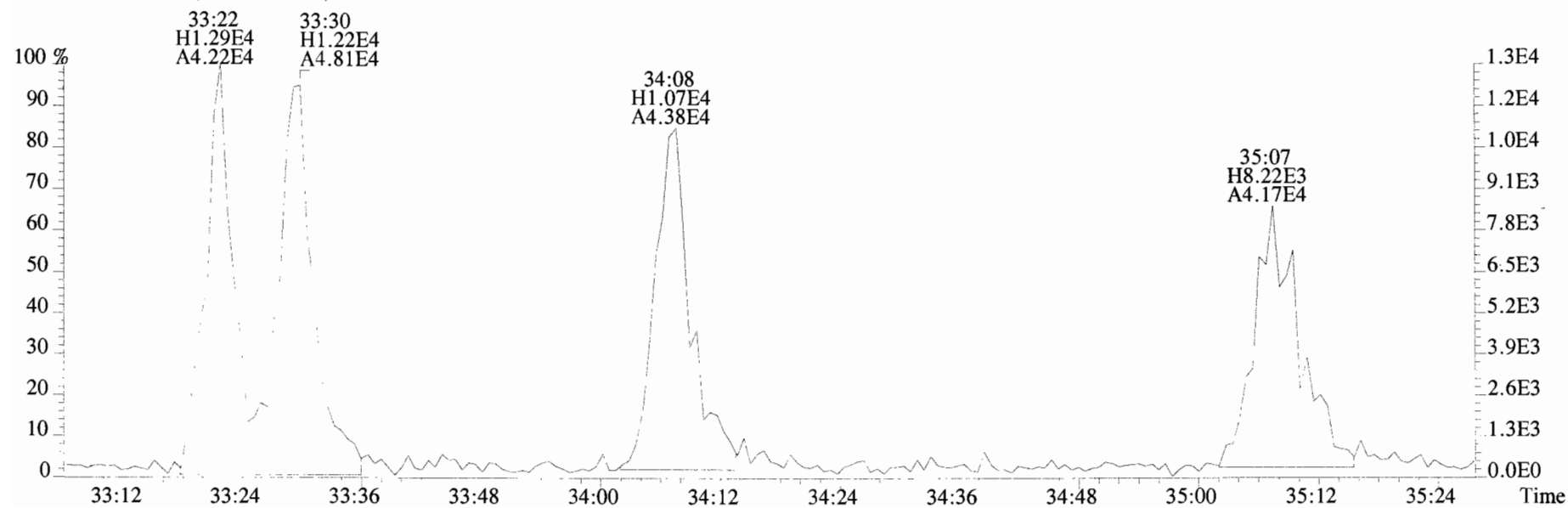
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



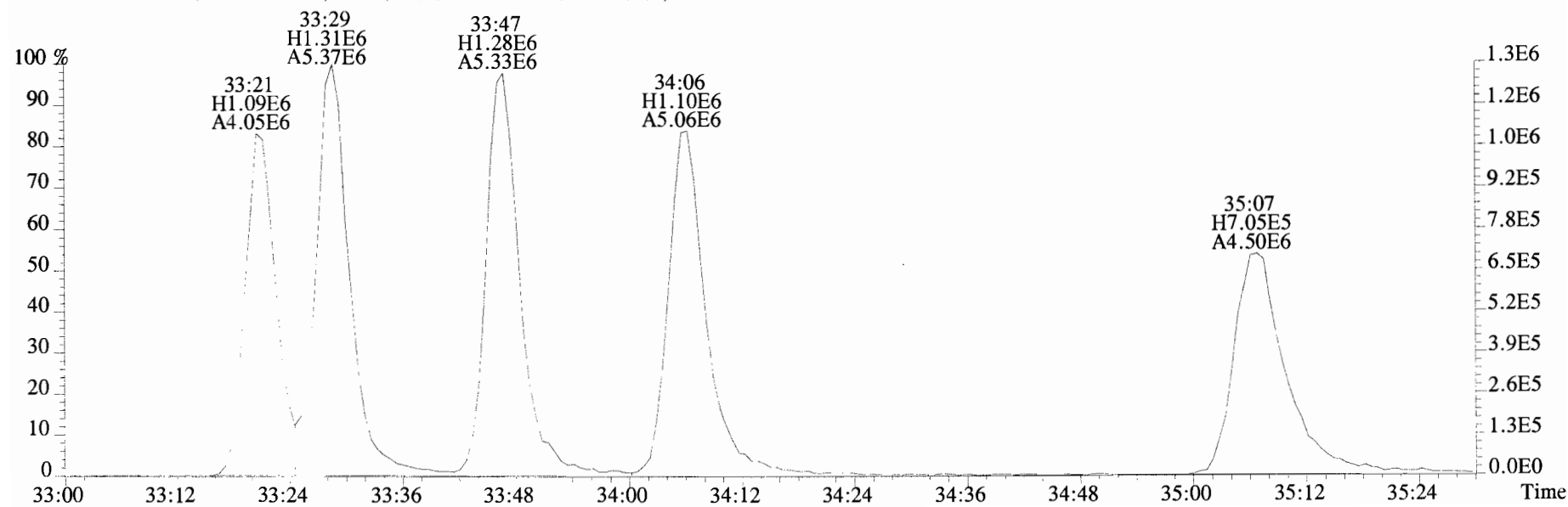
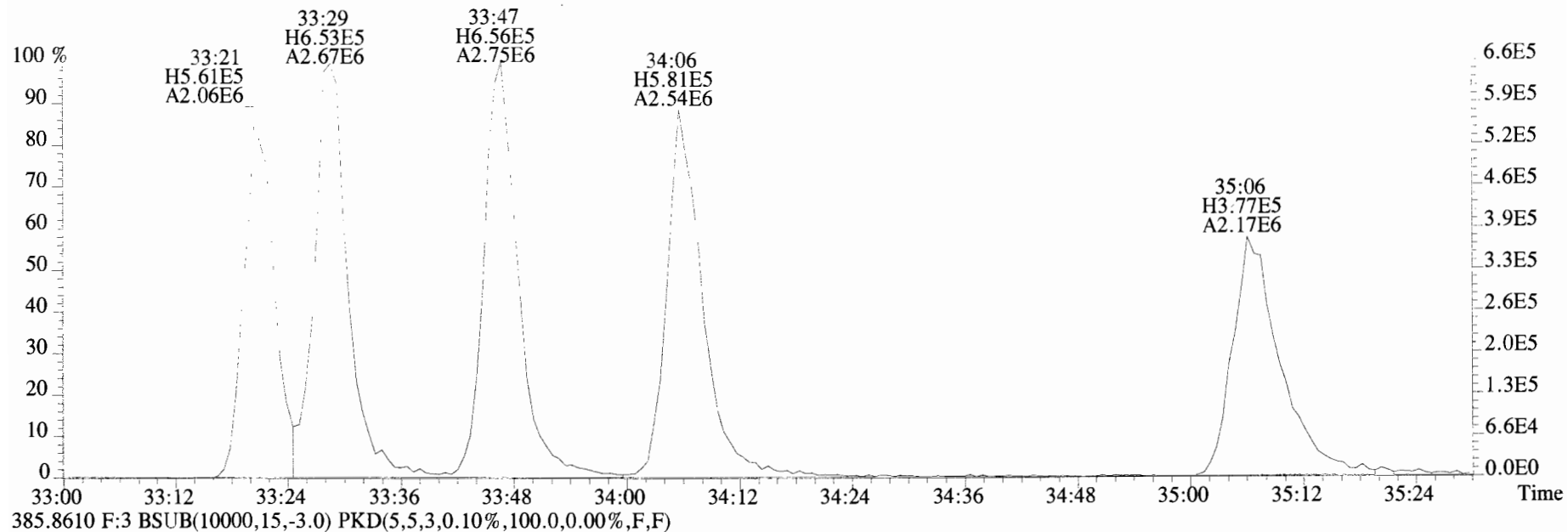
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
373.8207 F:3 BSUB(10000,15,-3.0)



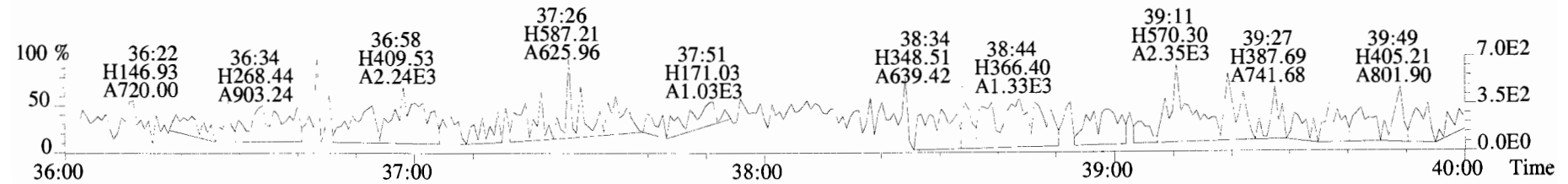
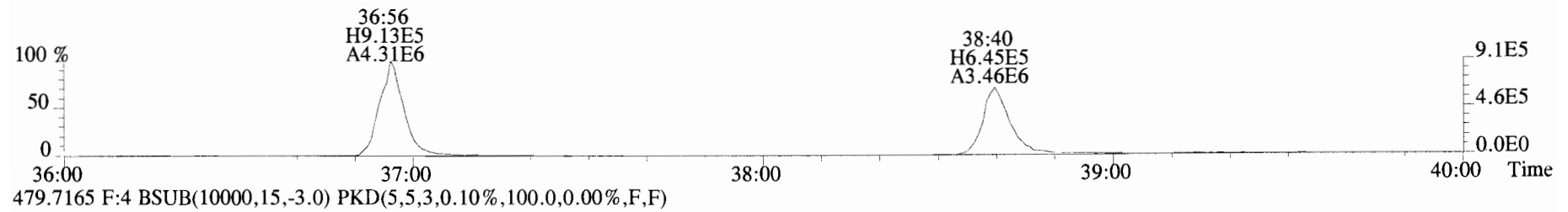
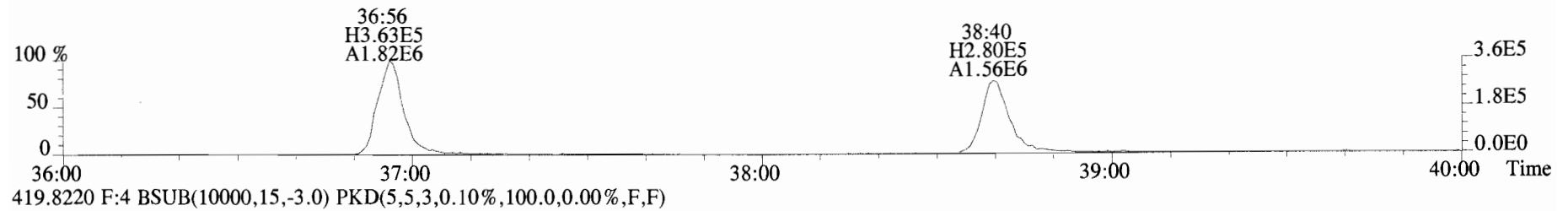
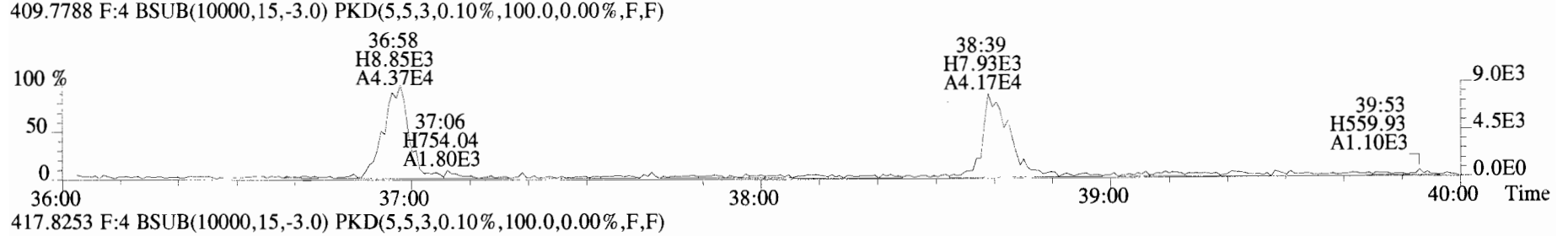
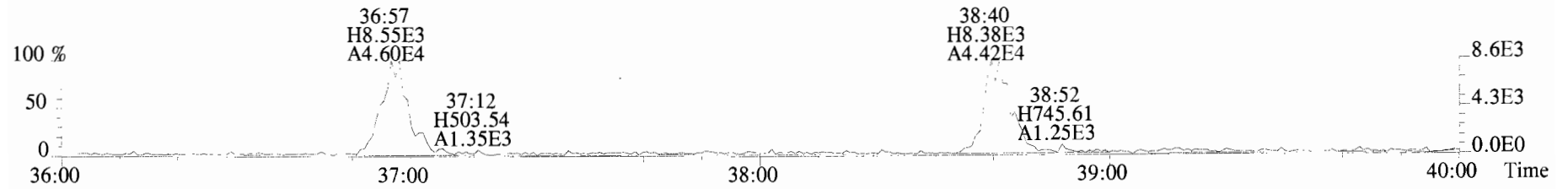
375.8178 F:3 BSUB(10000,15,-3.0)



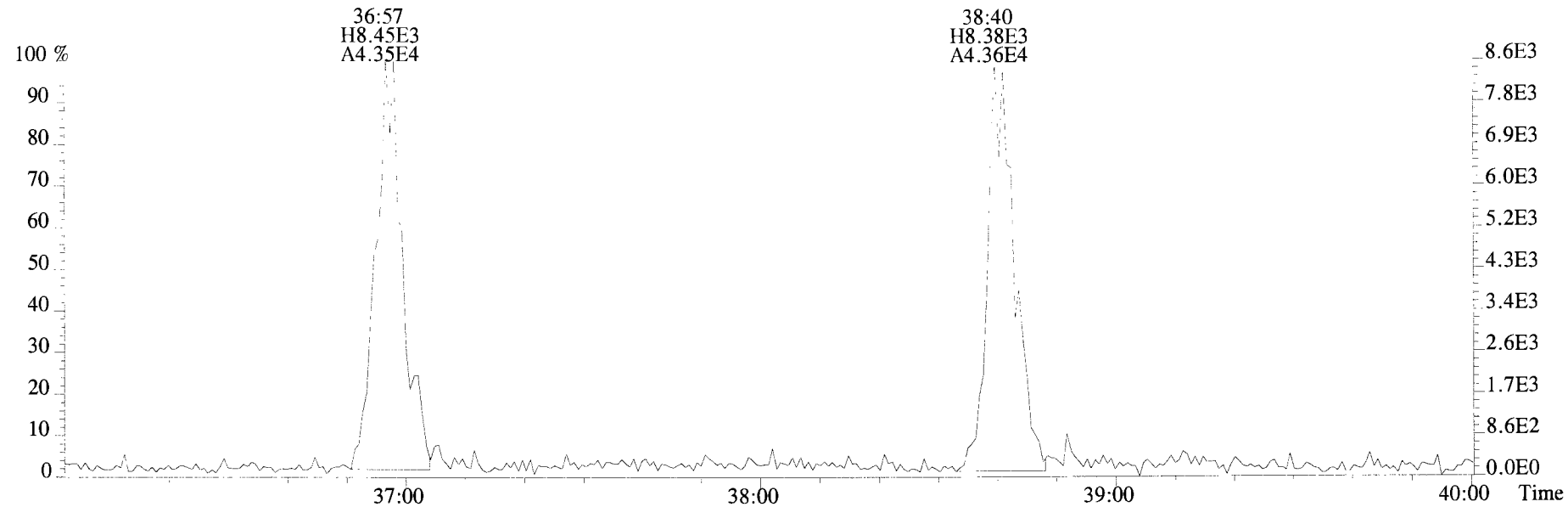
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
383.8639 F:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



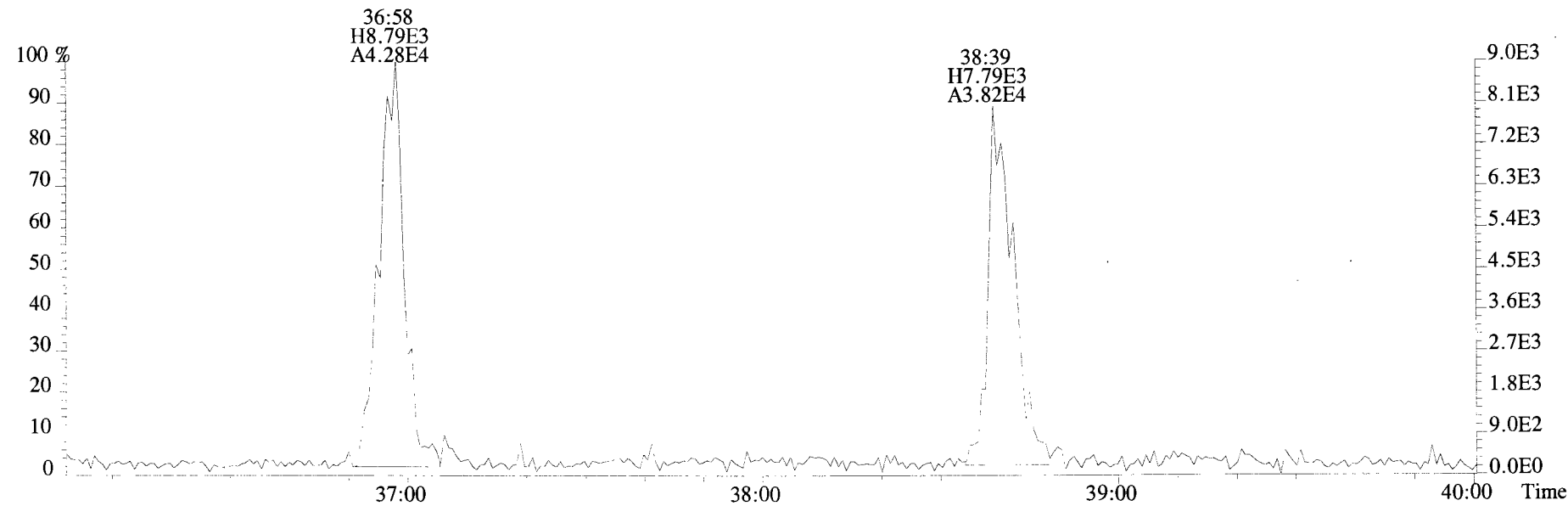
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



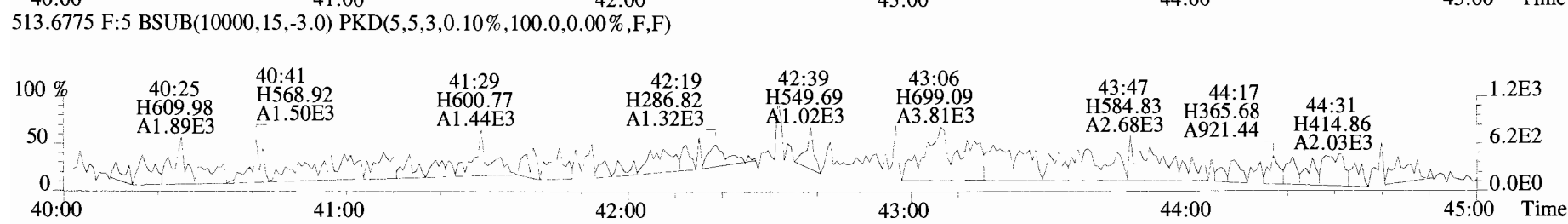
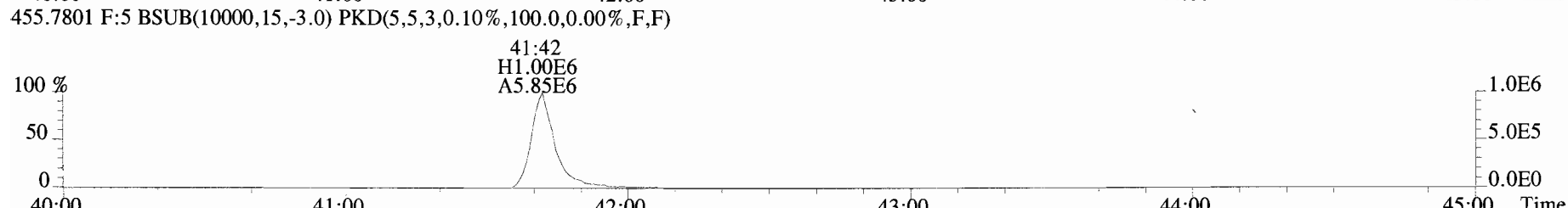
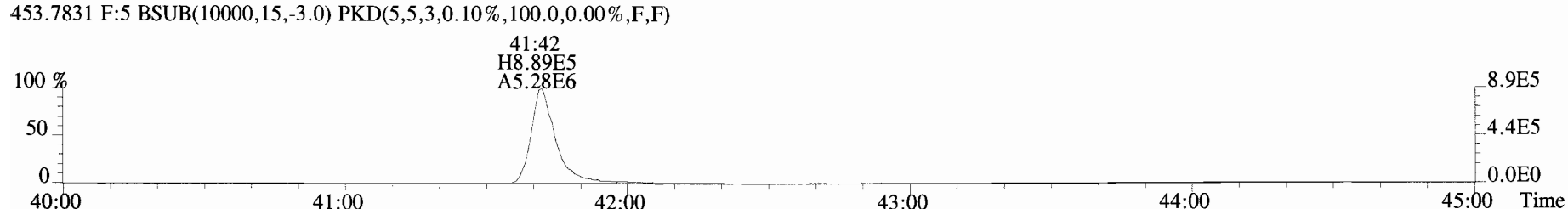
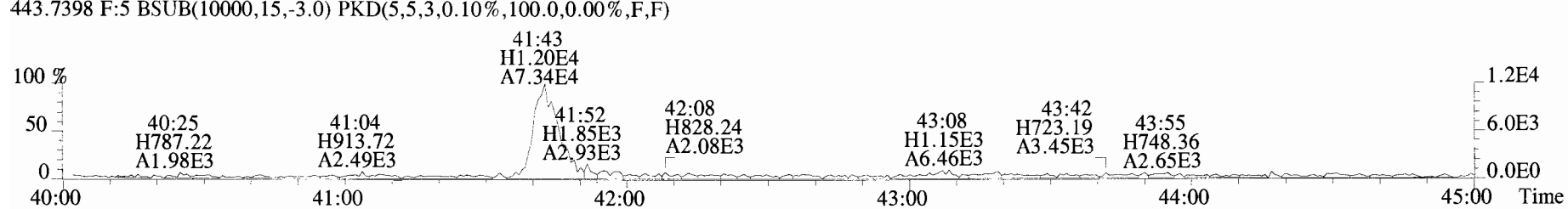
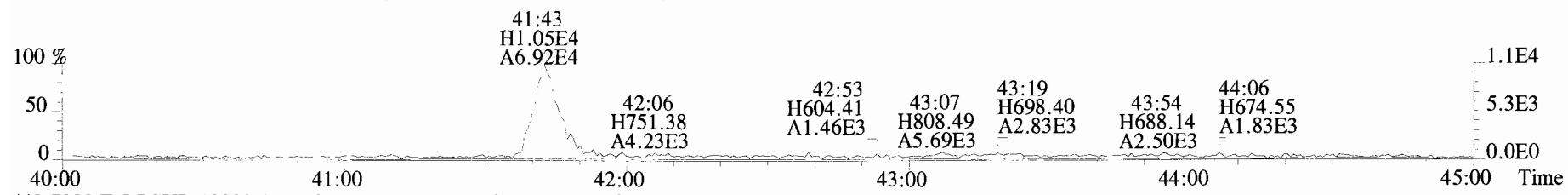
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



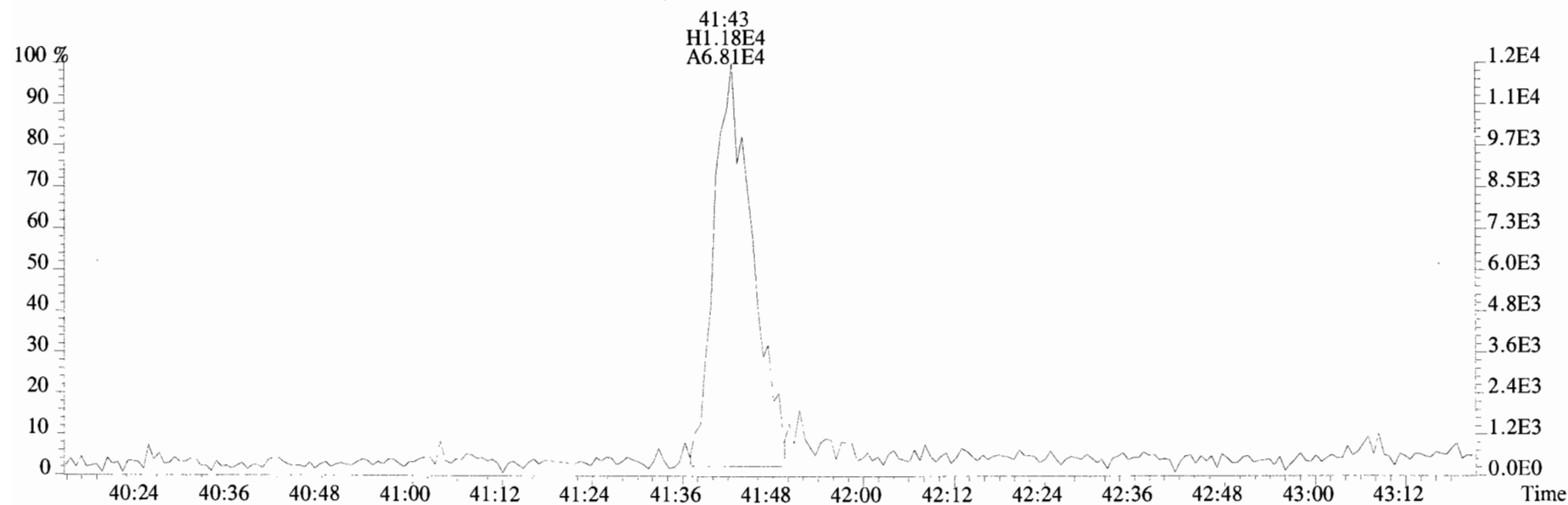
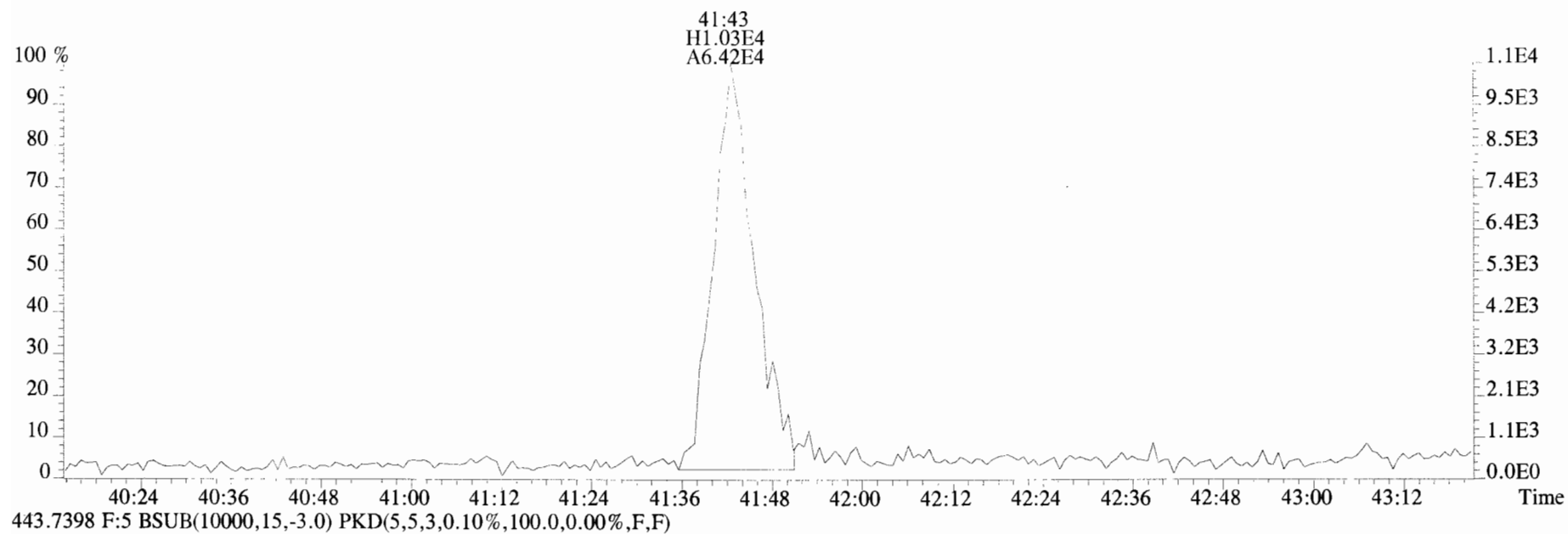
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

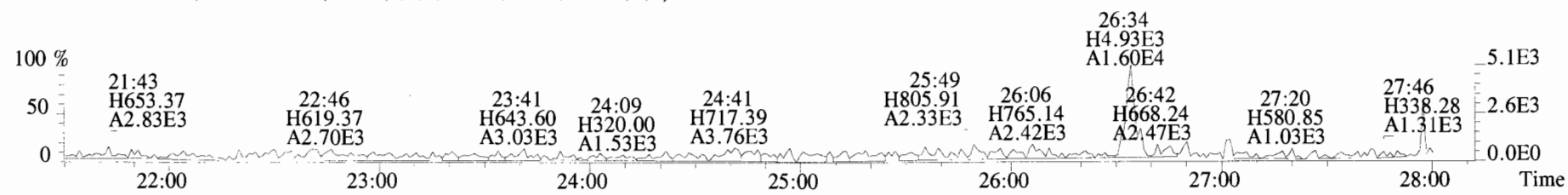


File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

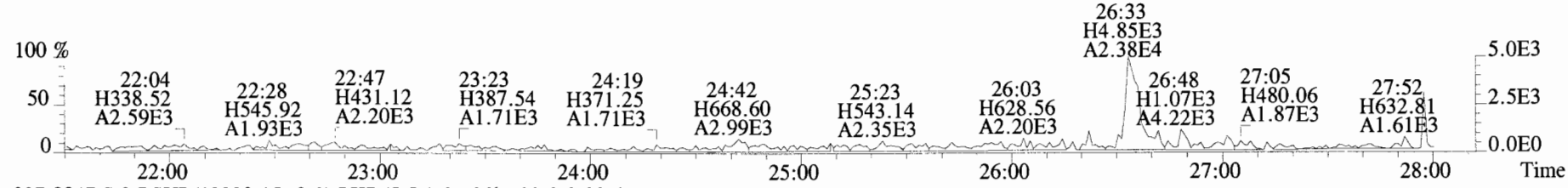




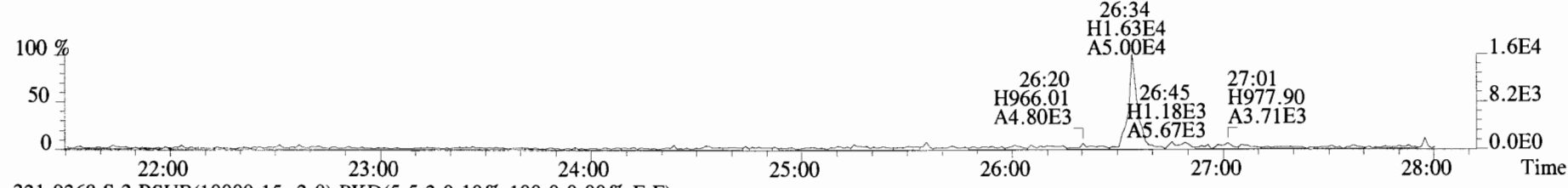
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



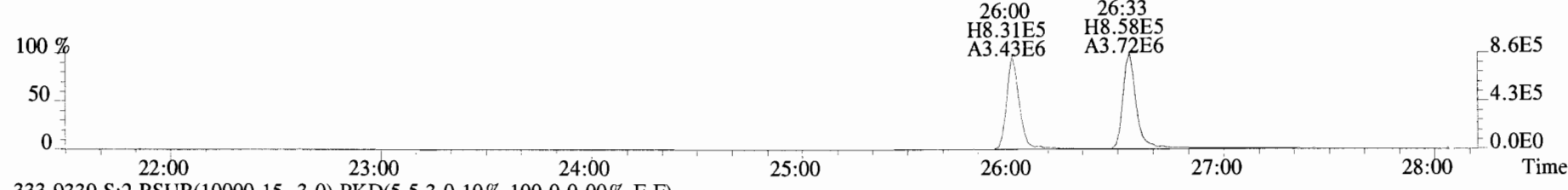
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



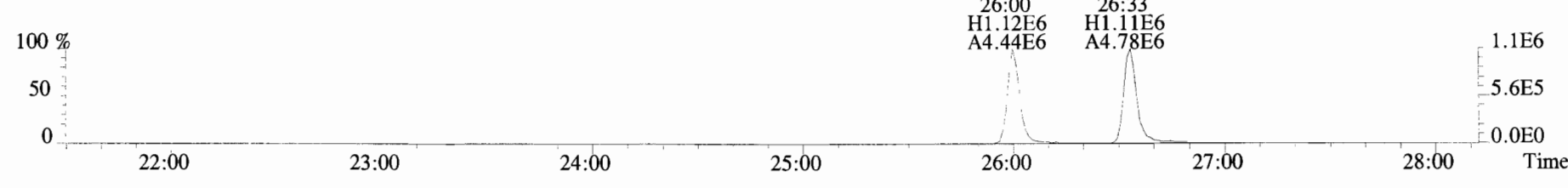
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



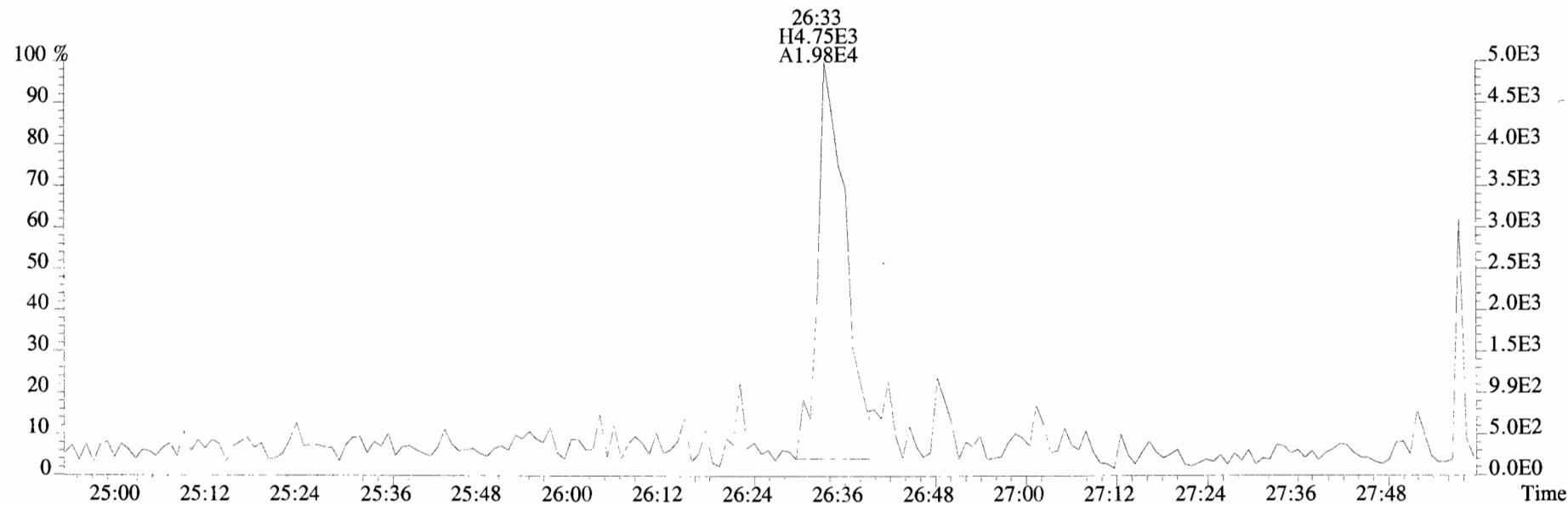
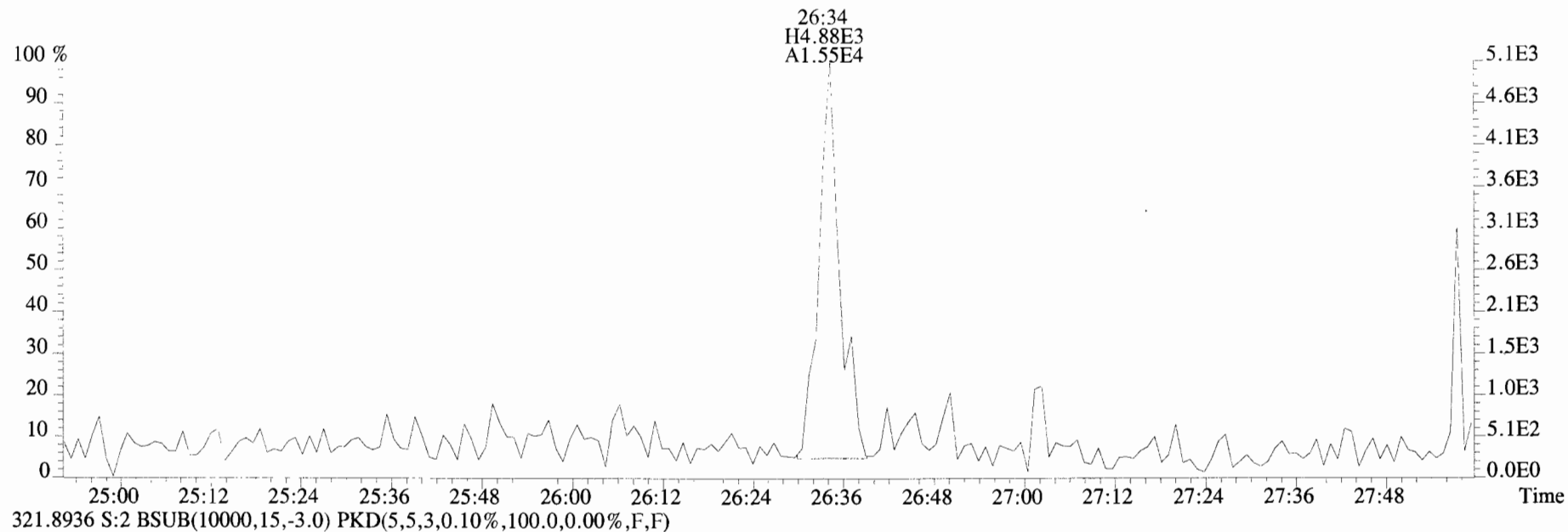
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



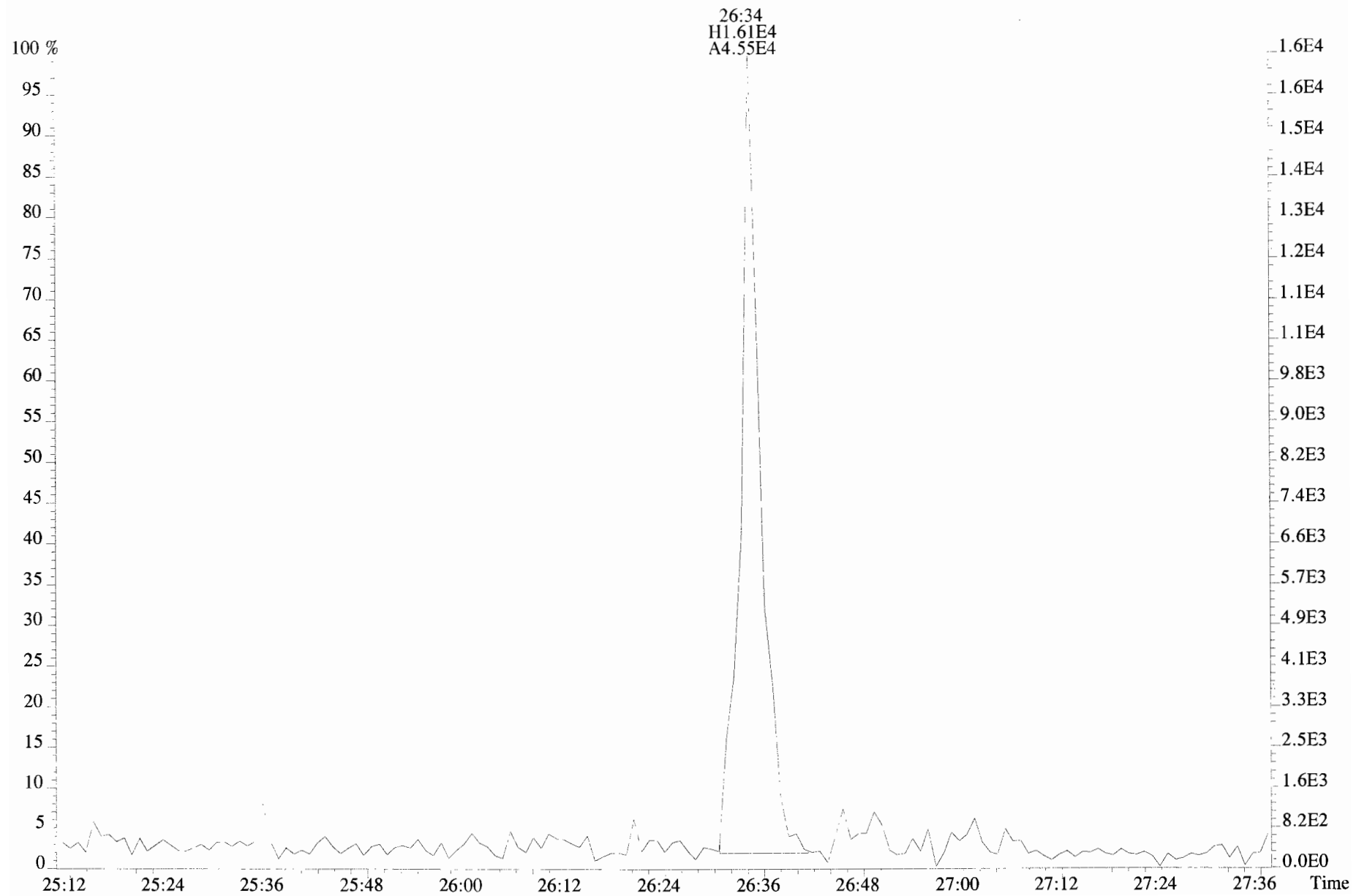
333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



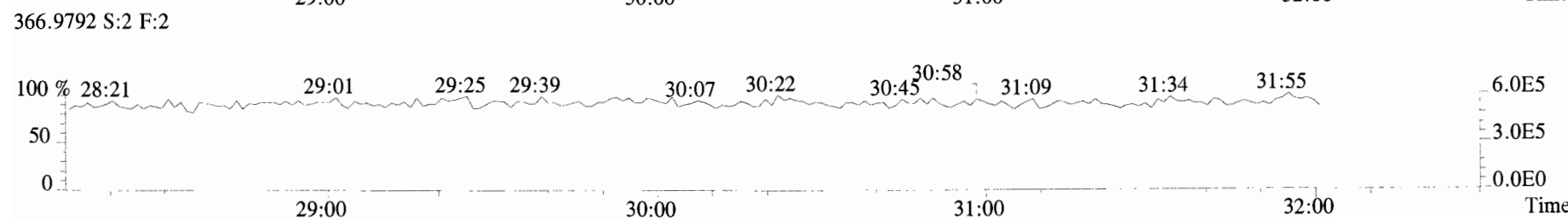
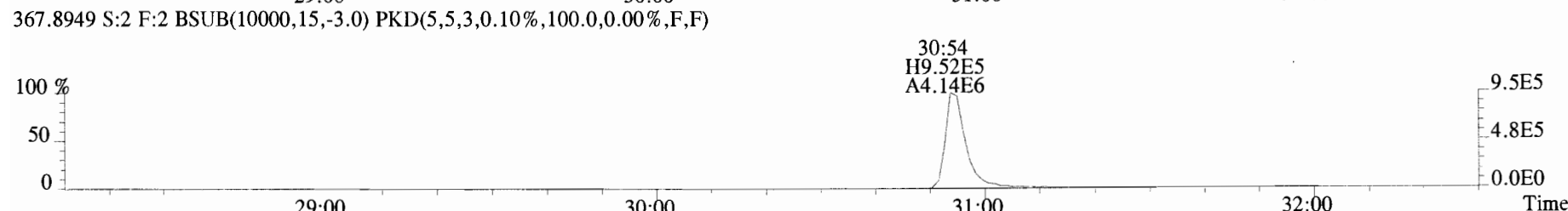
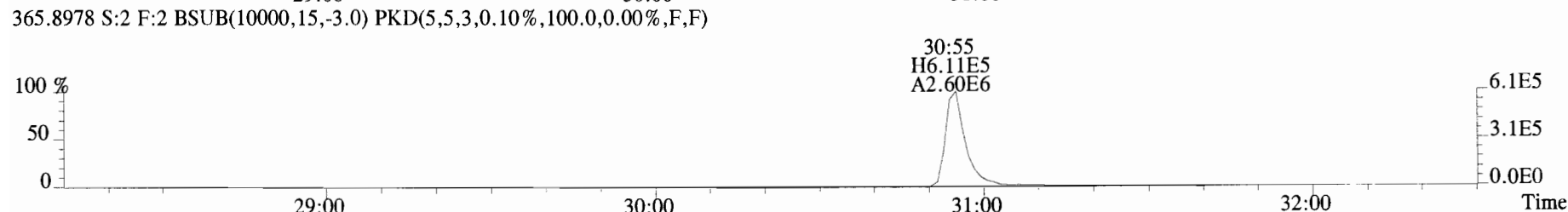
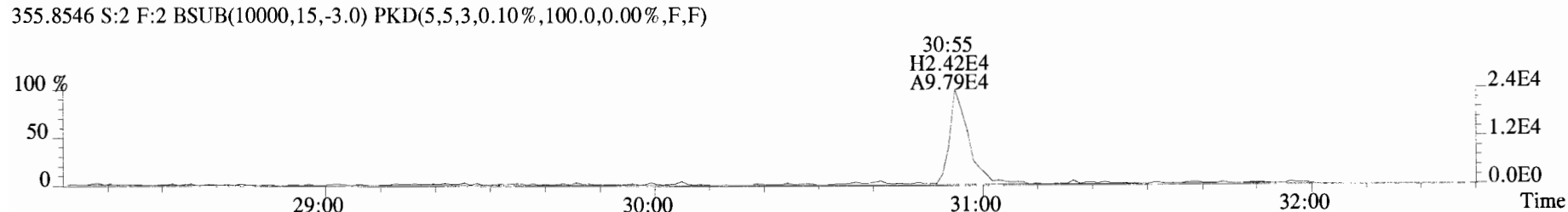
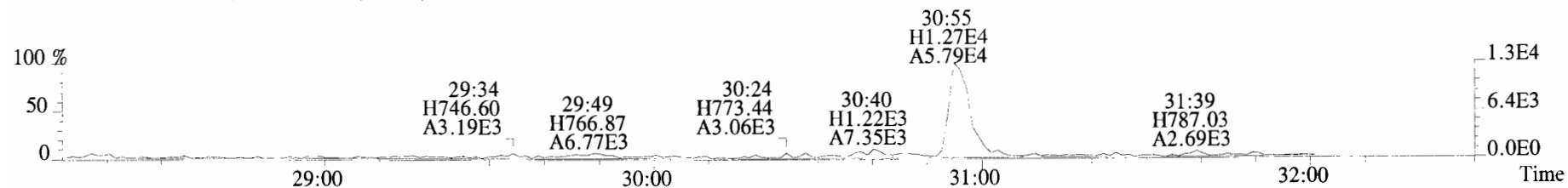
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



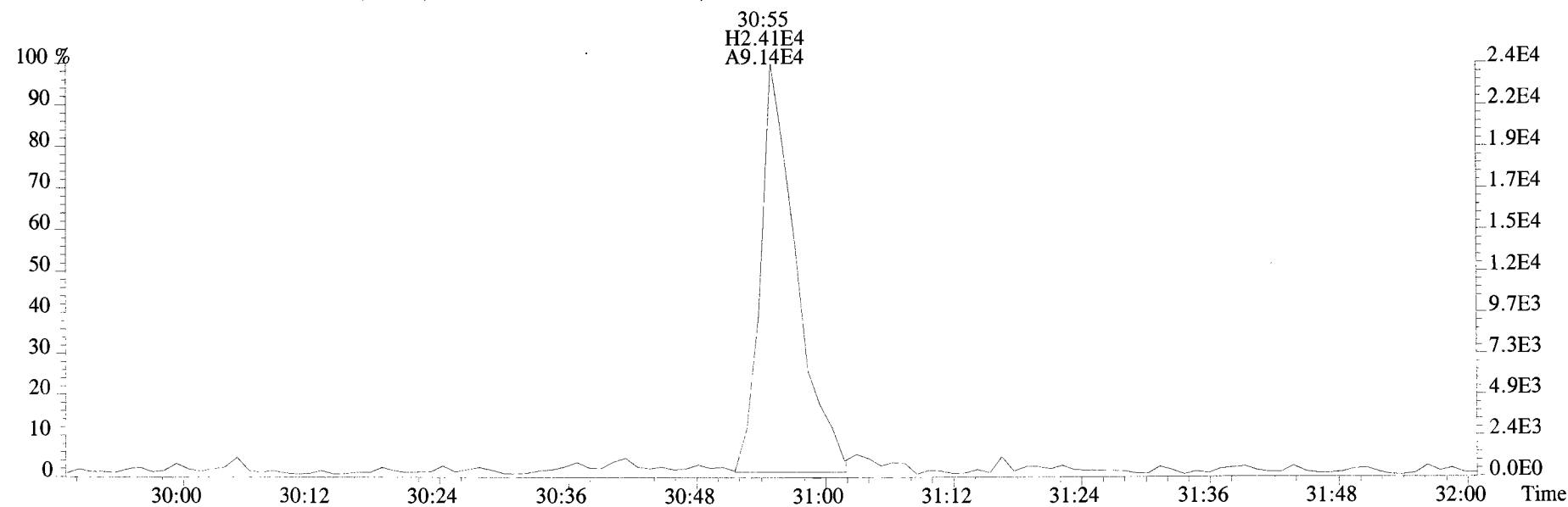
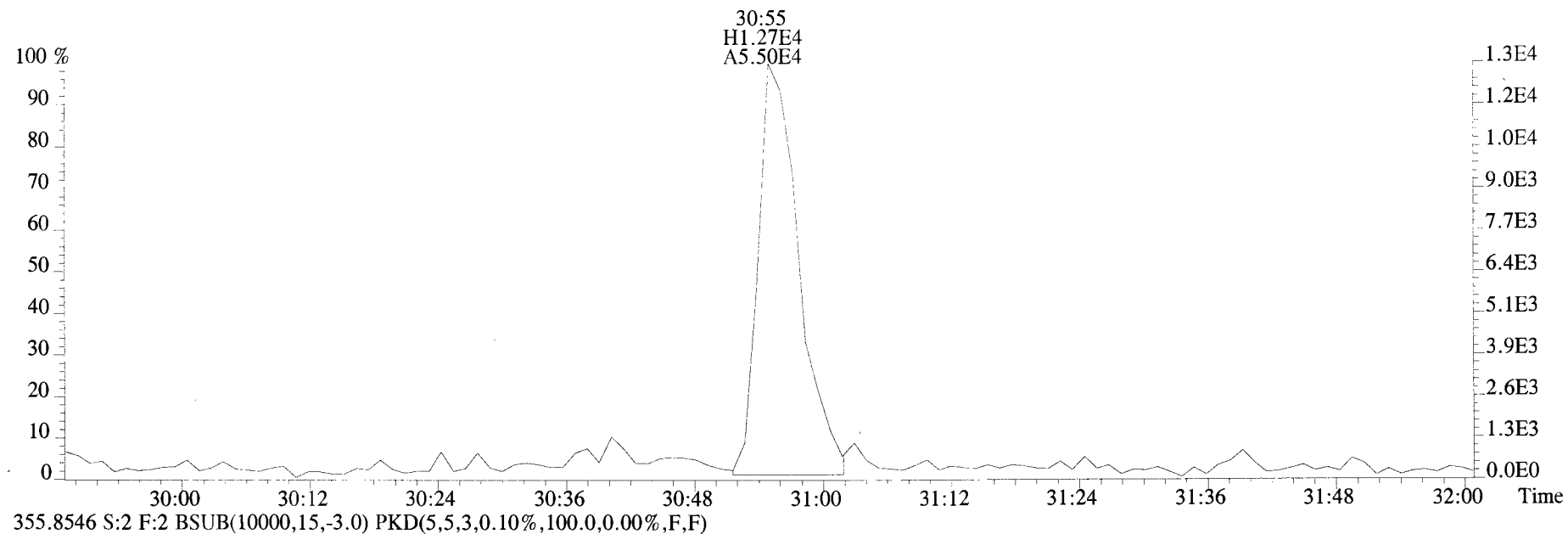
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



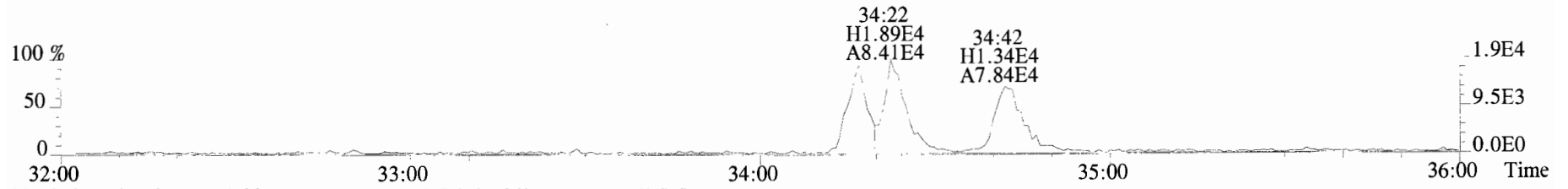
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



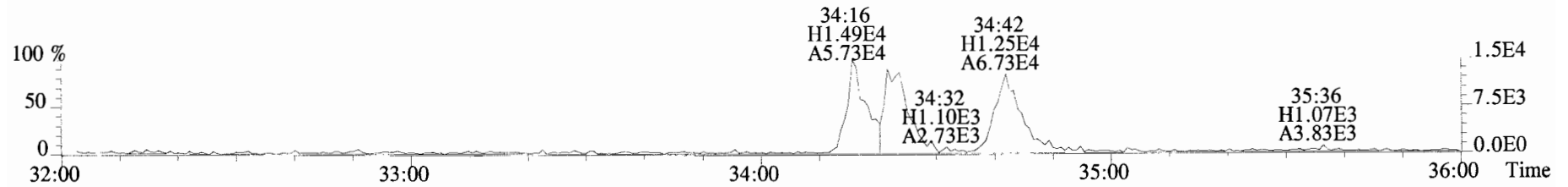
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



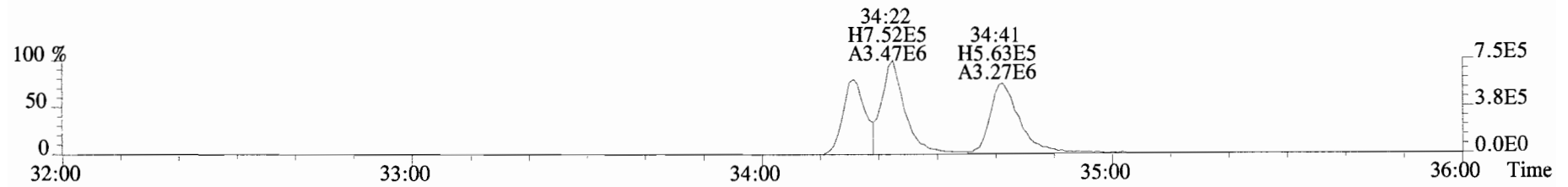
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



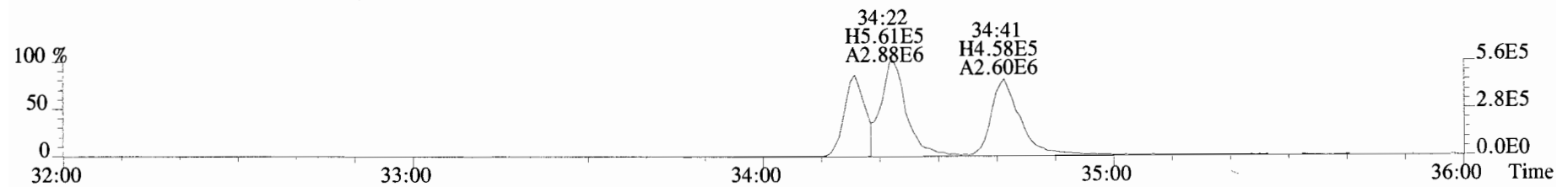
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



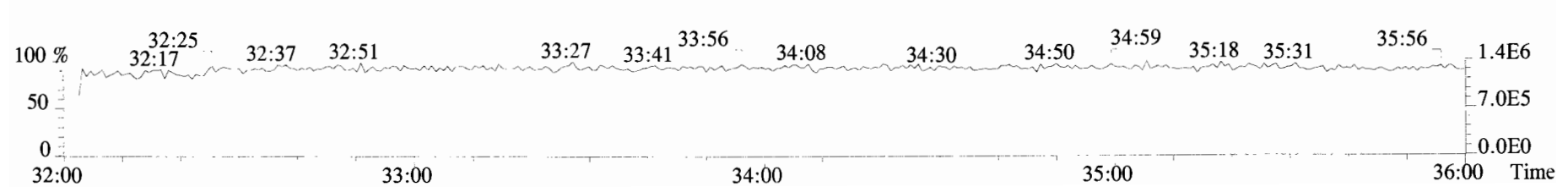
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



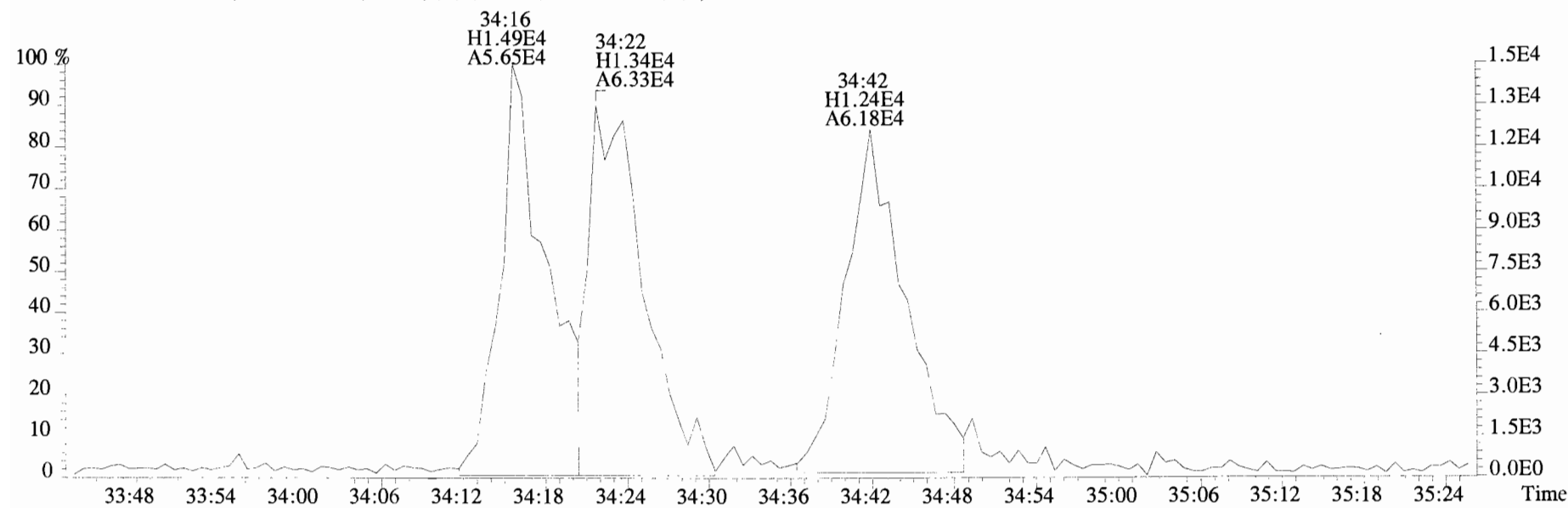
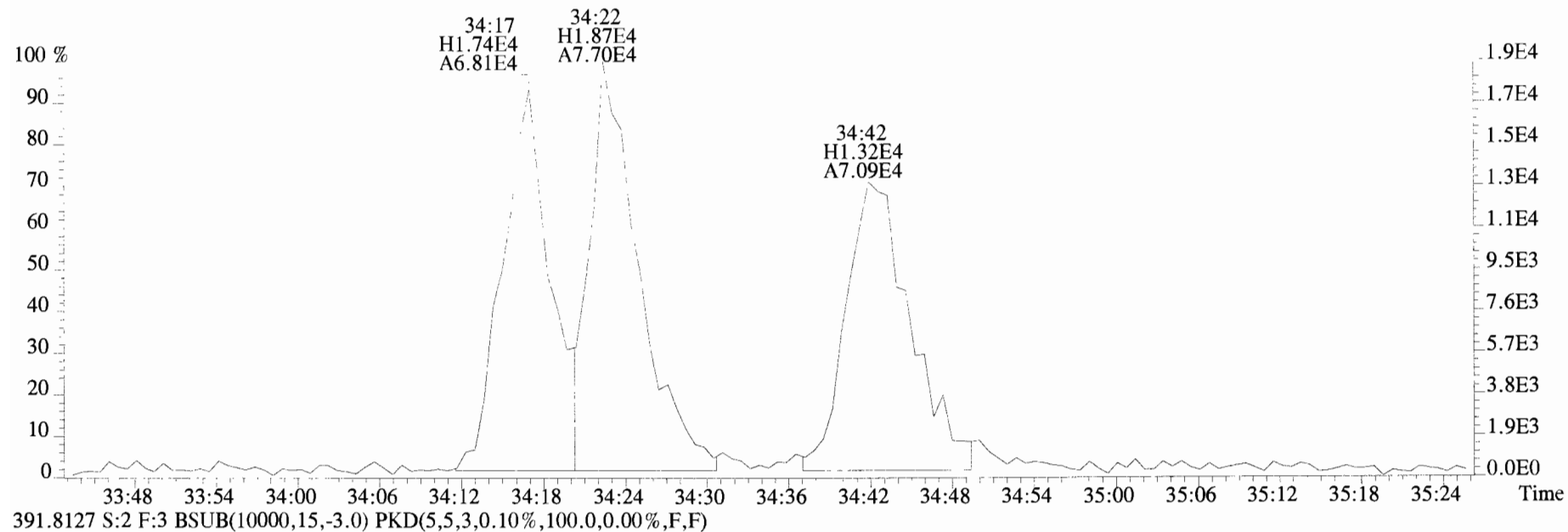
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



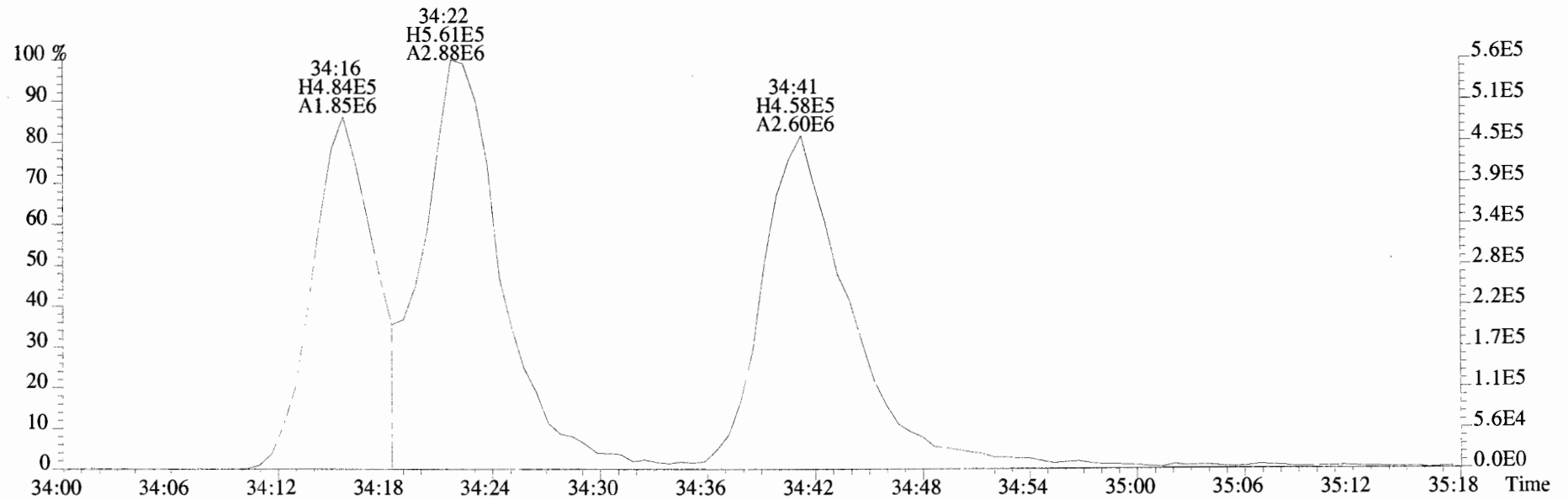
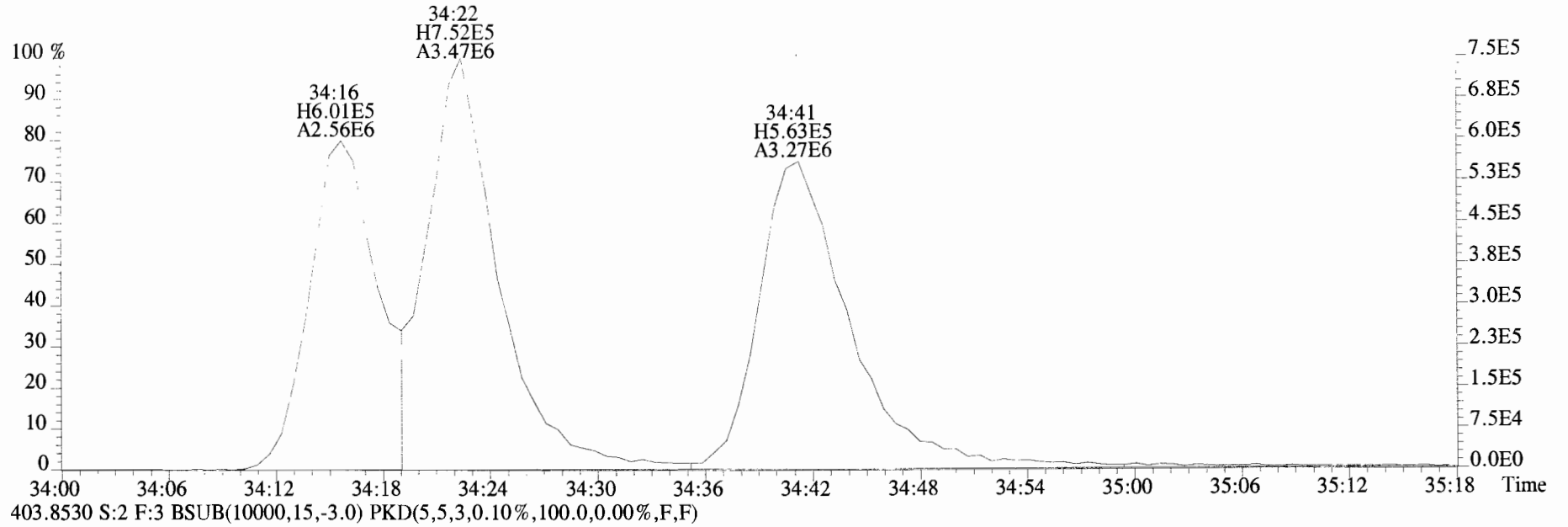
392.9760 S:2 F:3



File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

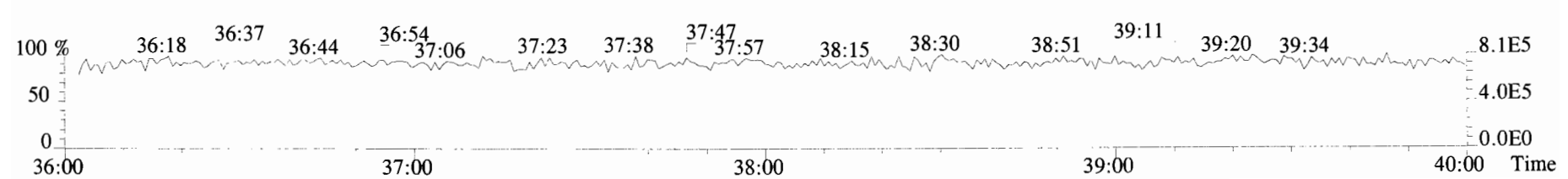
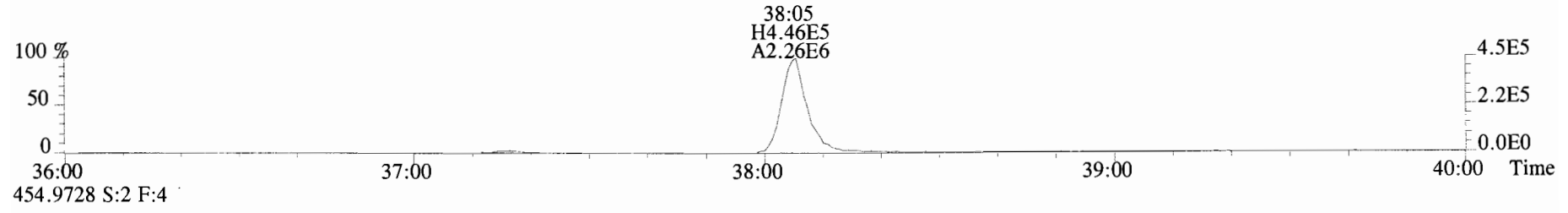
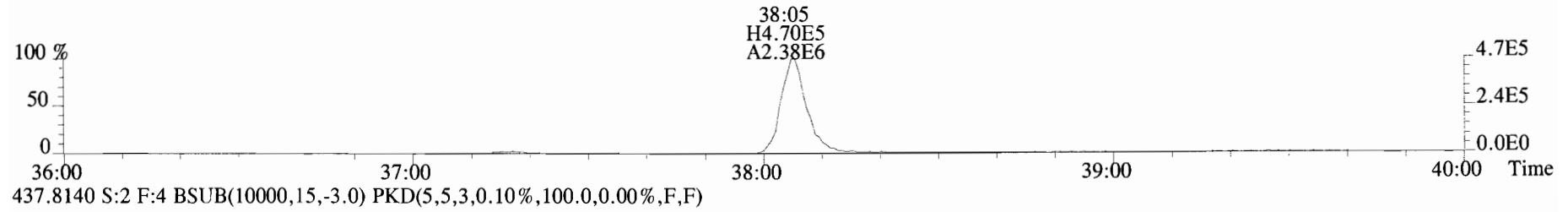
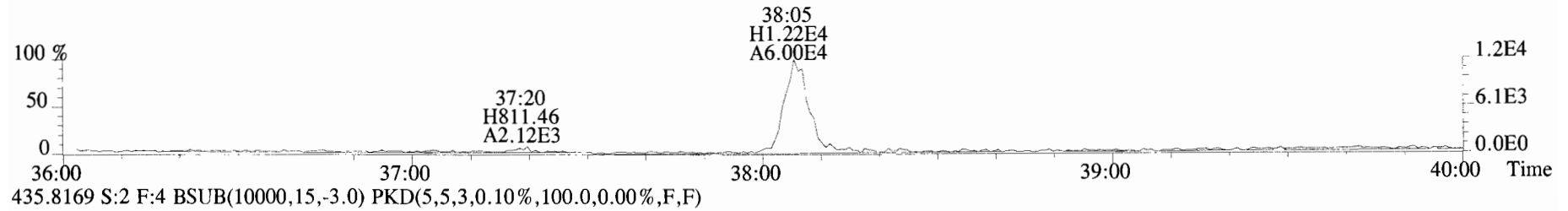
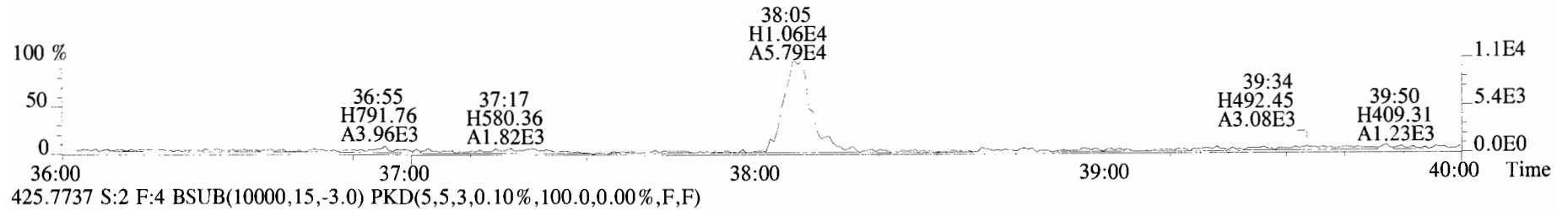


File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

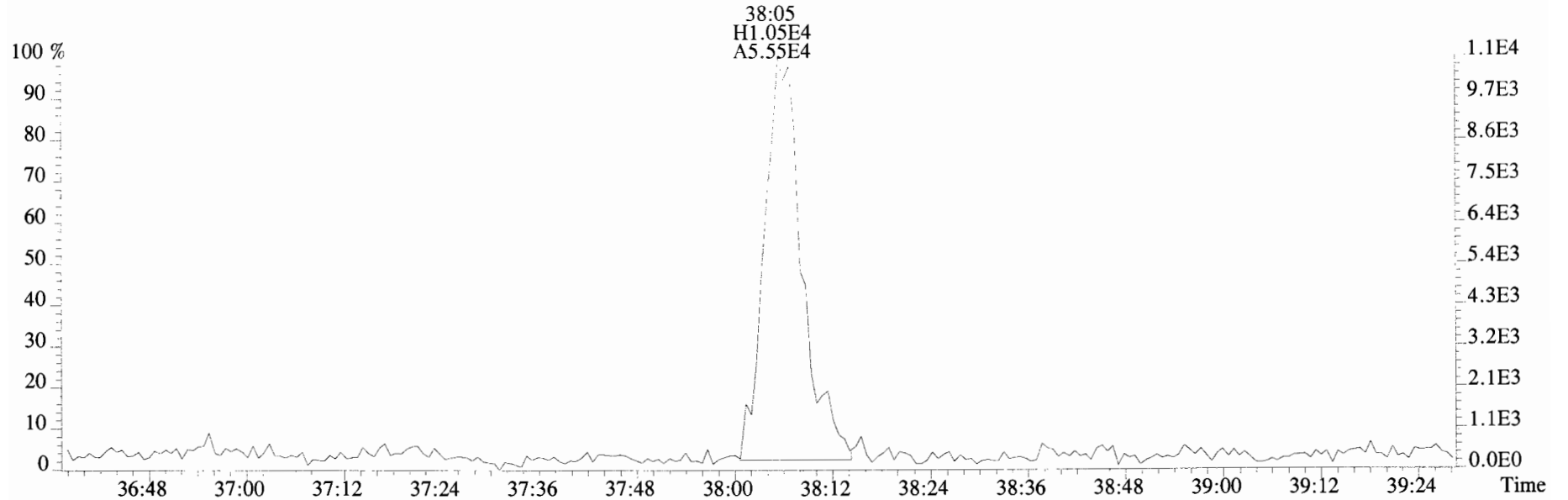




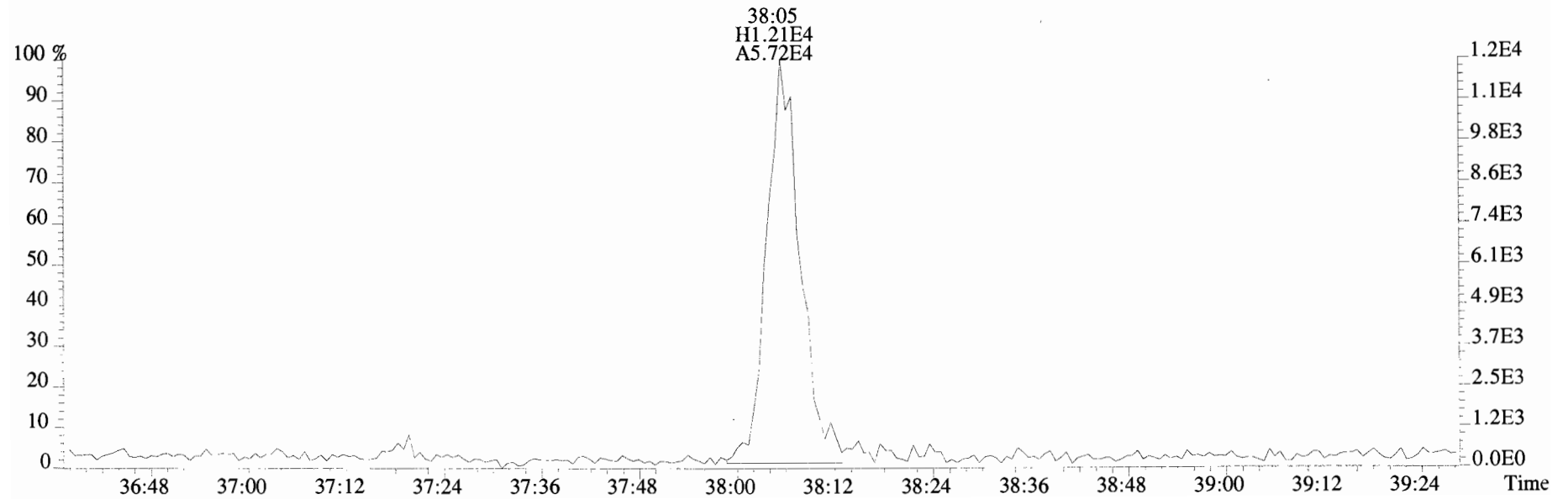
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



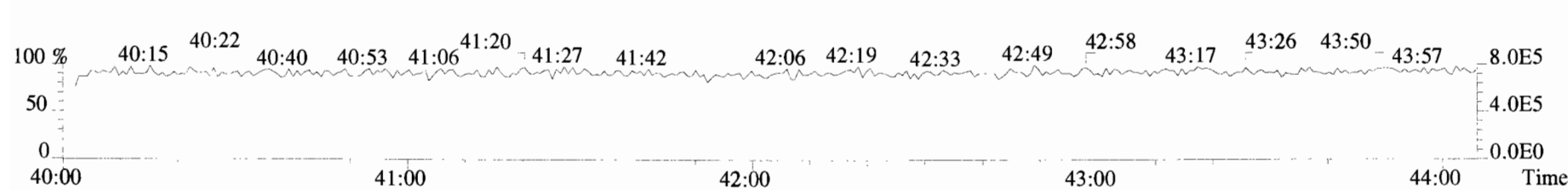
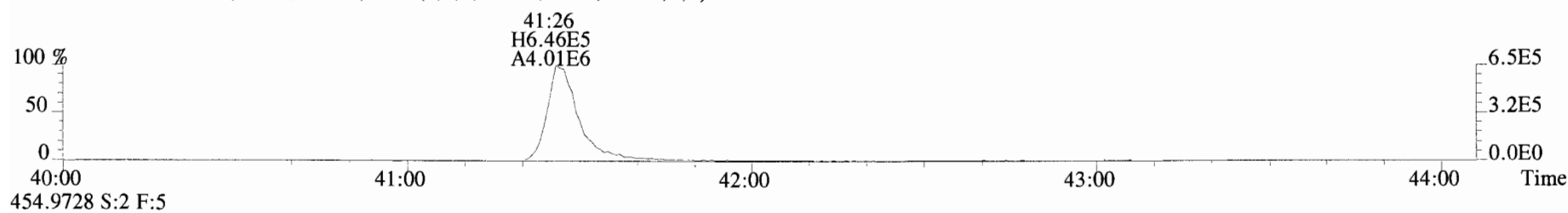
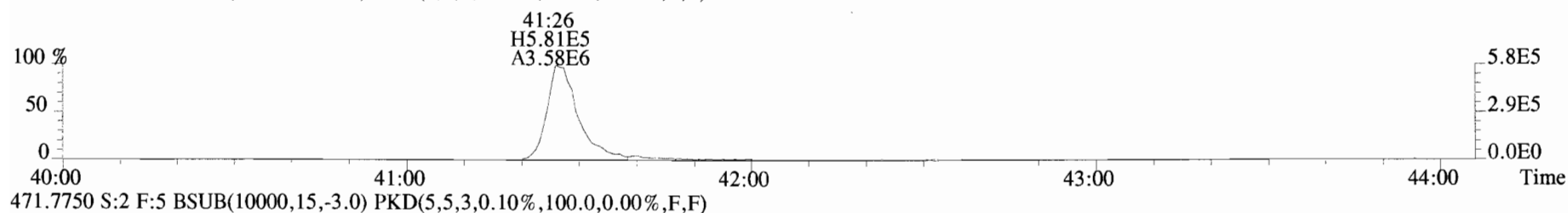
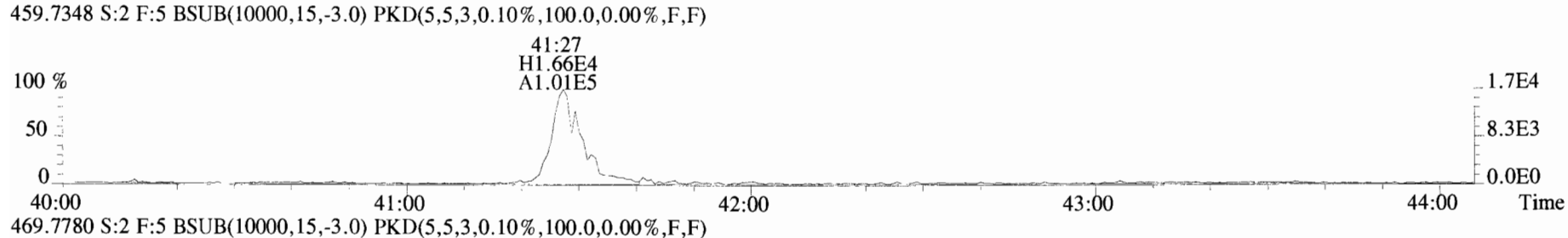
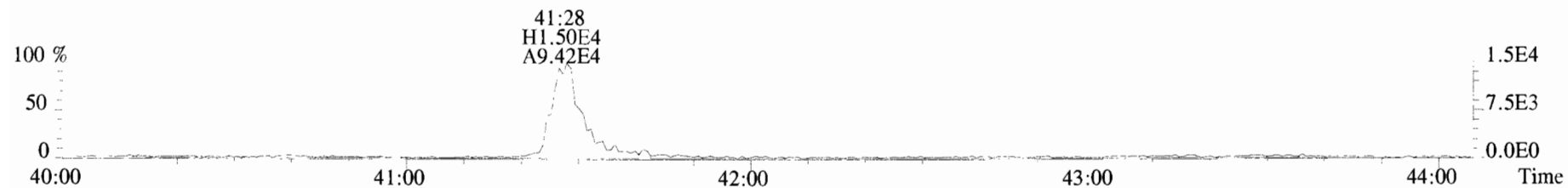
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



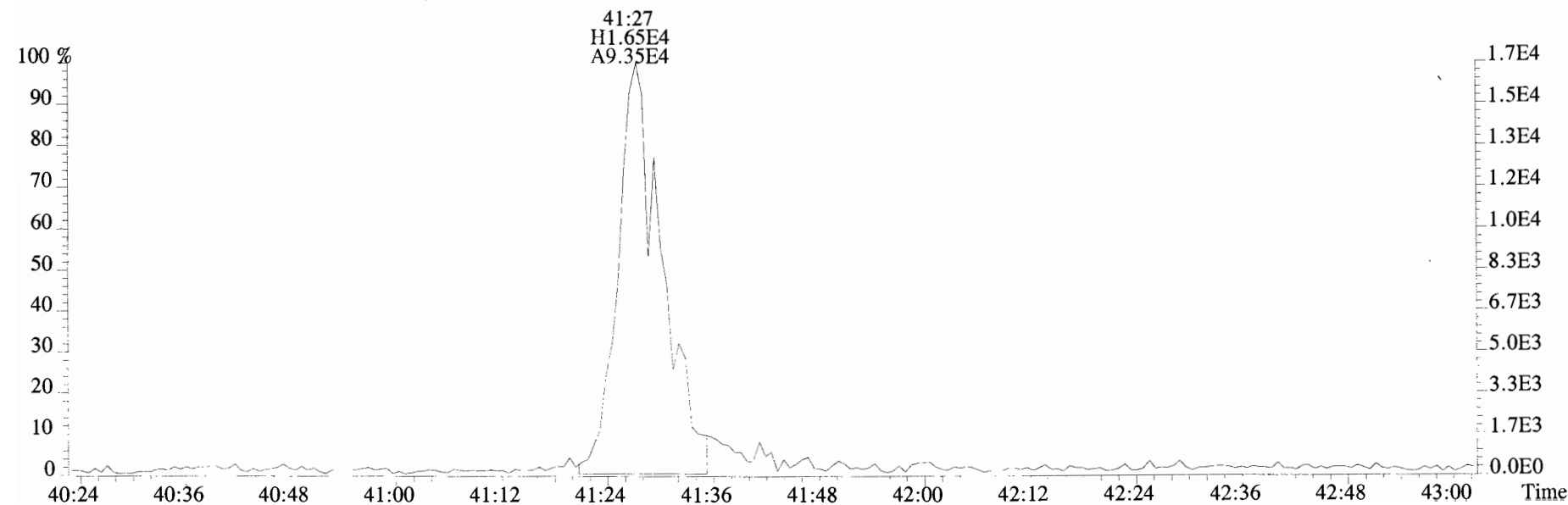
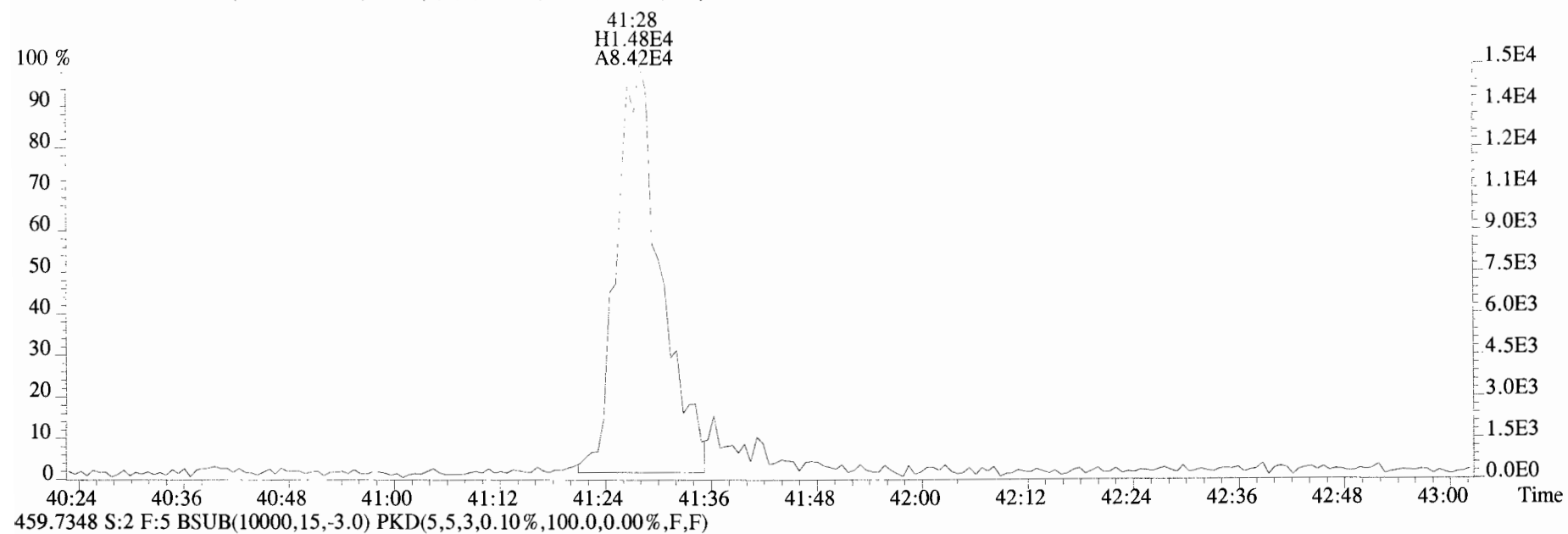
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



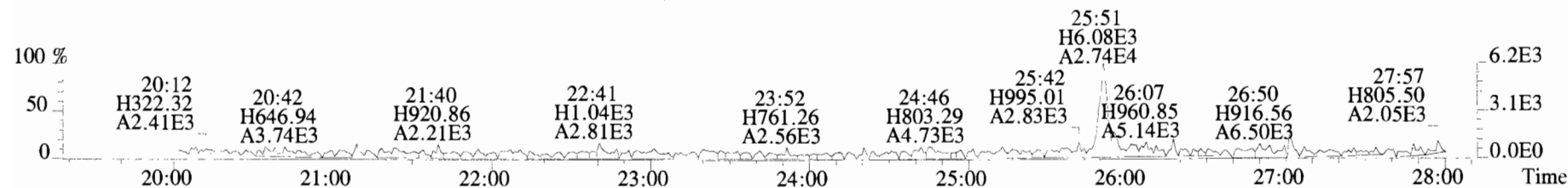
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



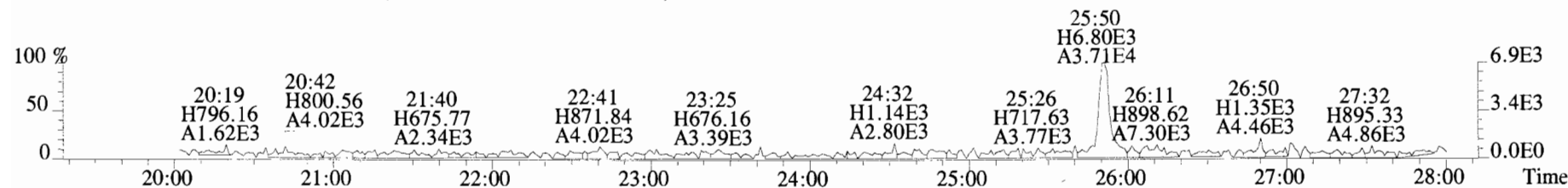
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



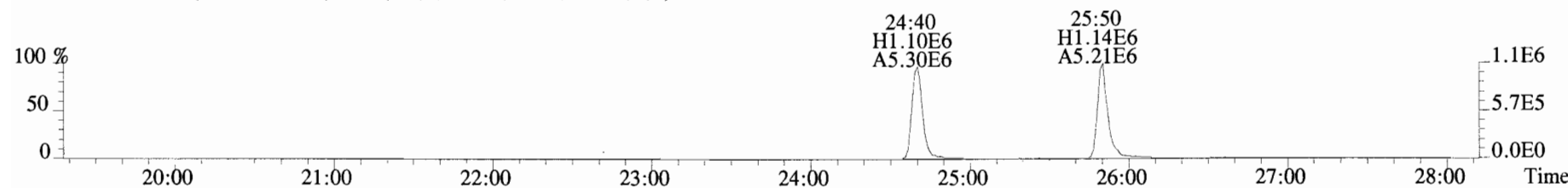
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



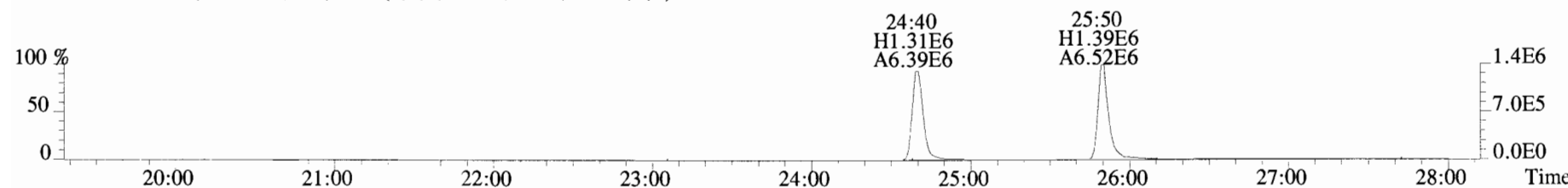
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



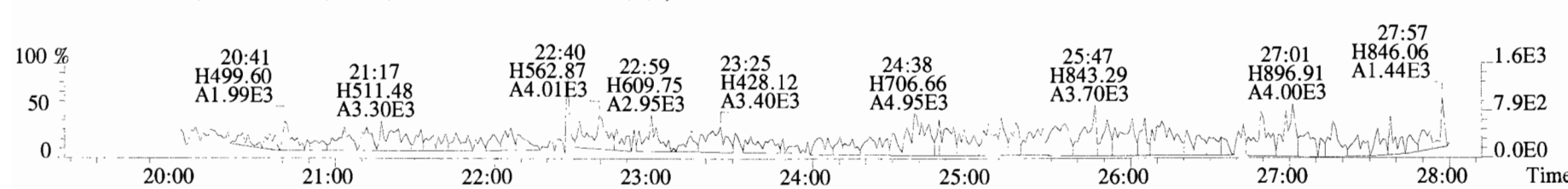
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



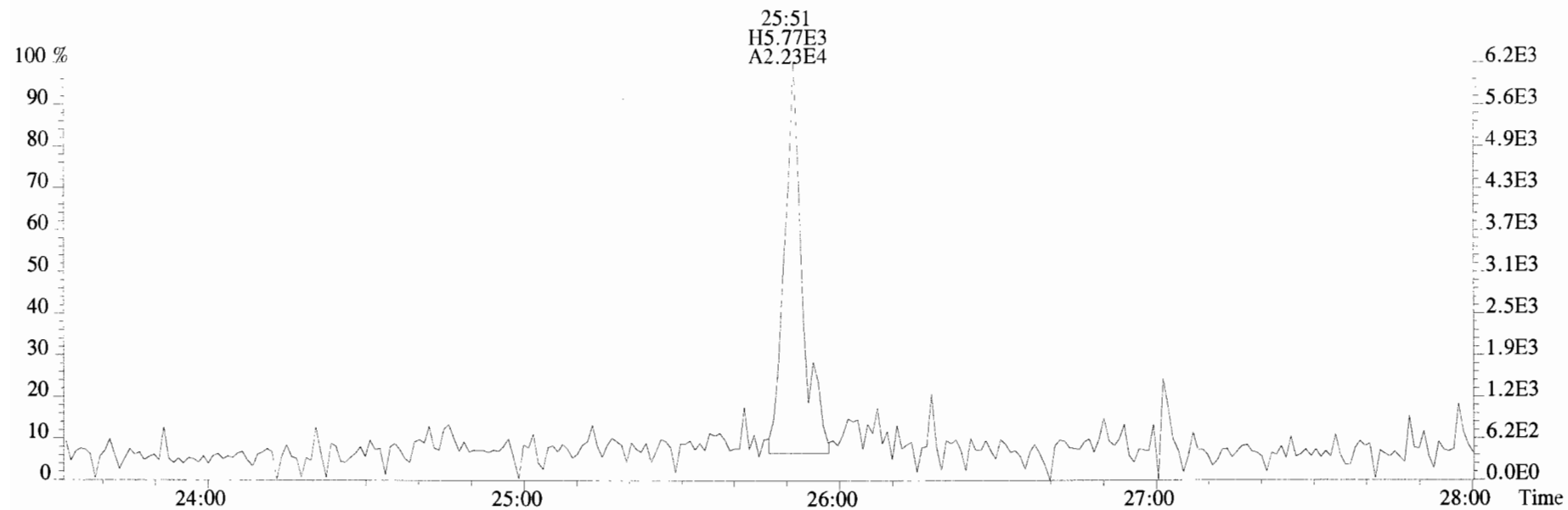
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



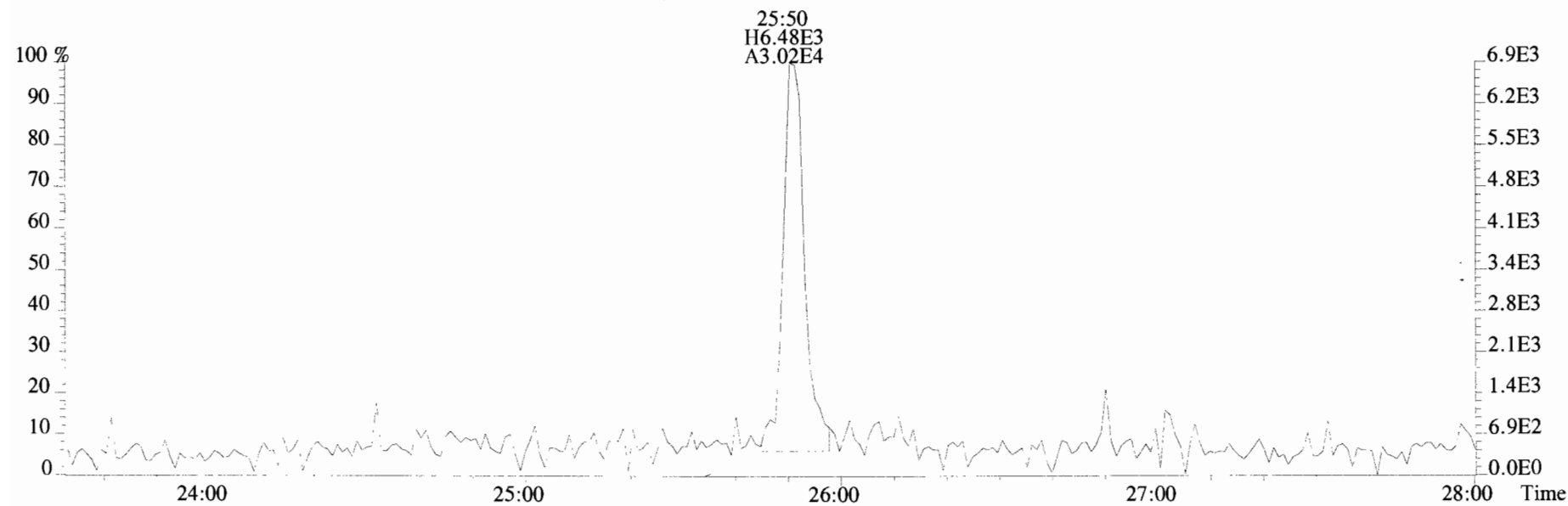
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



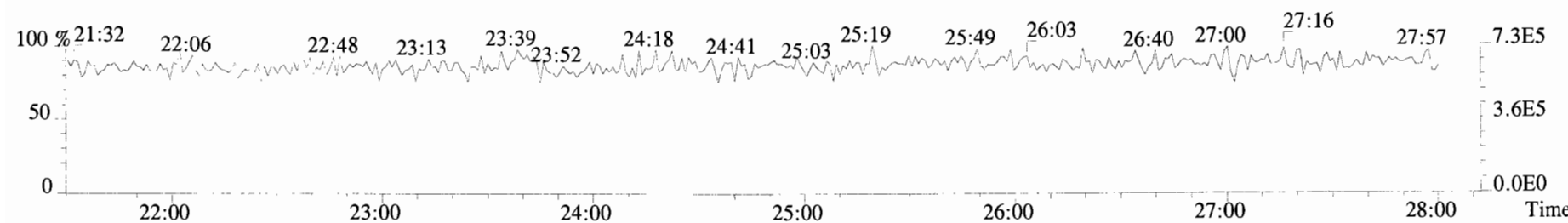
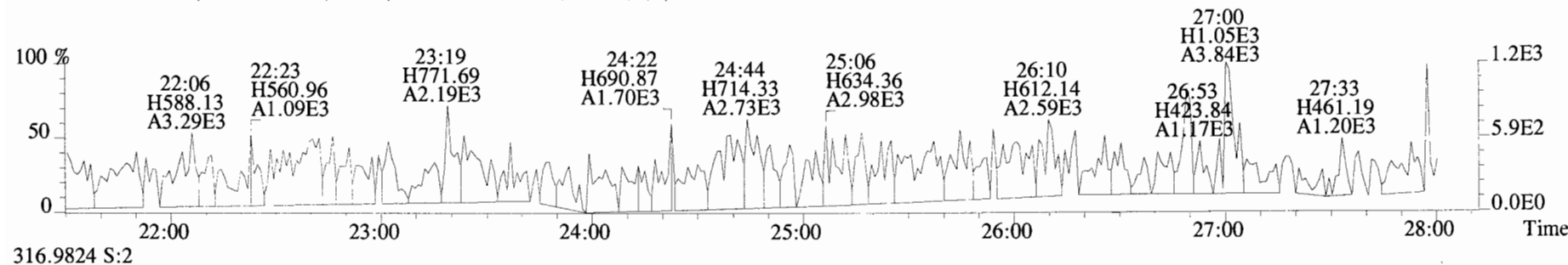
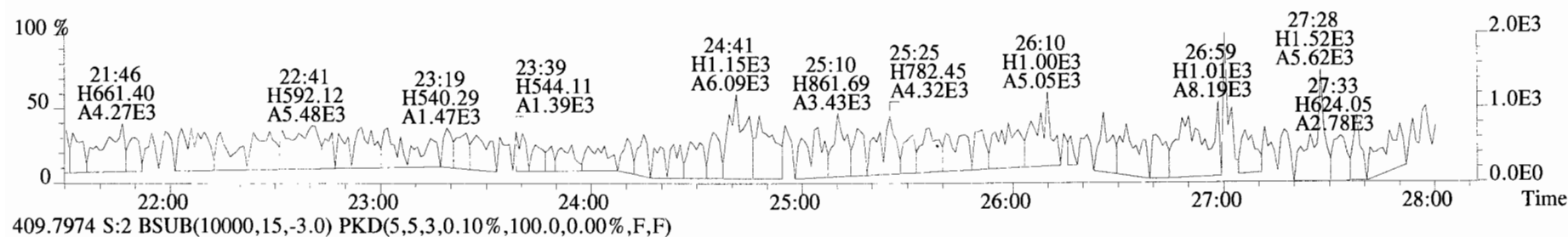
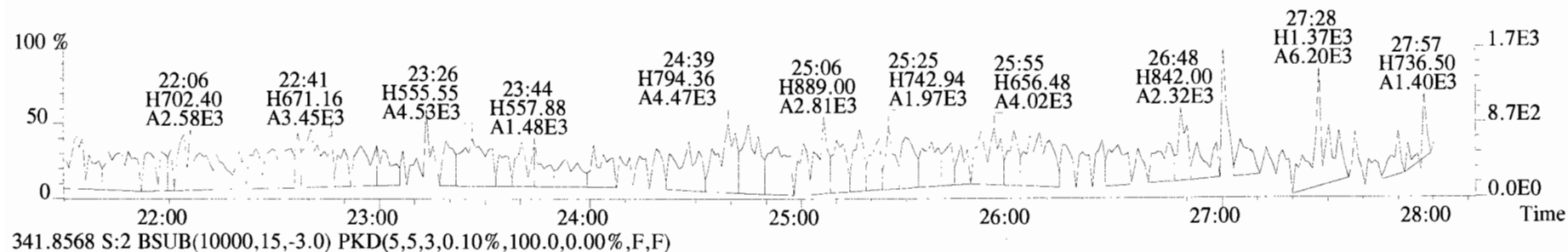
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



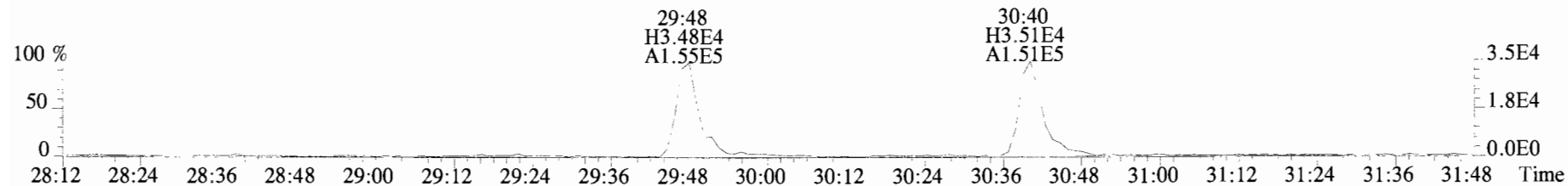
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



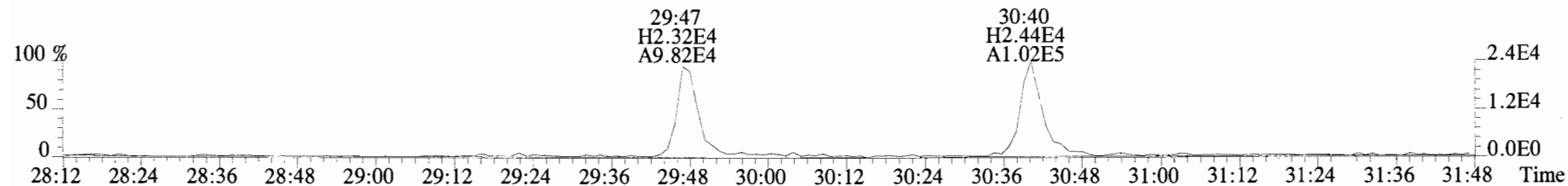
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



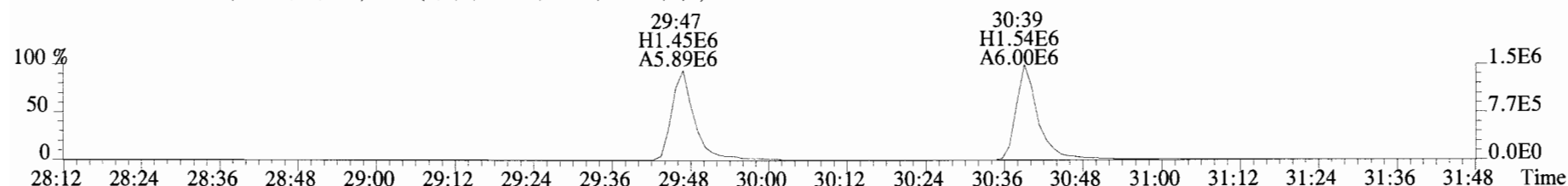
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



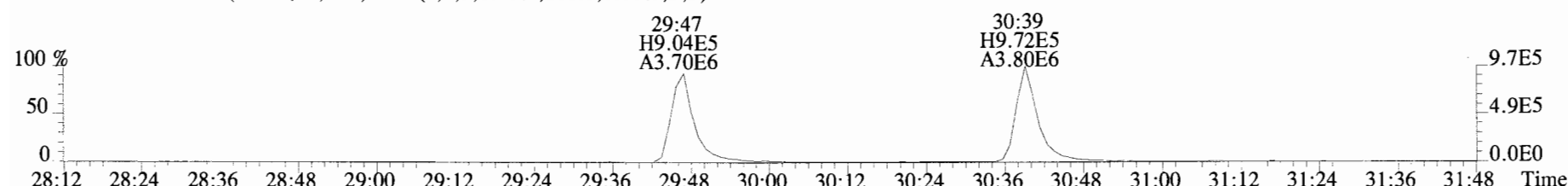
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



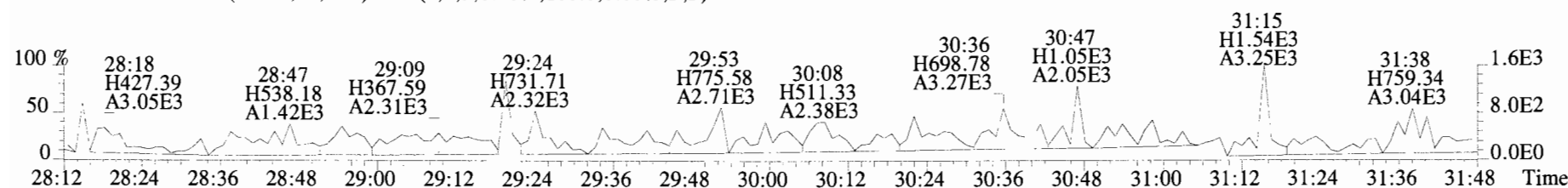
351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

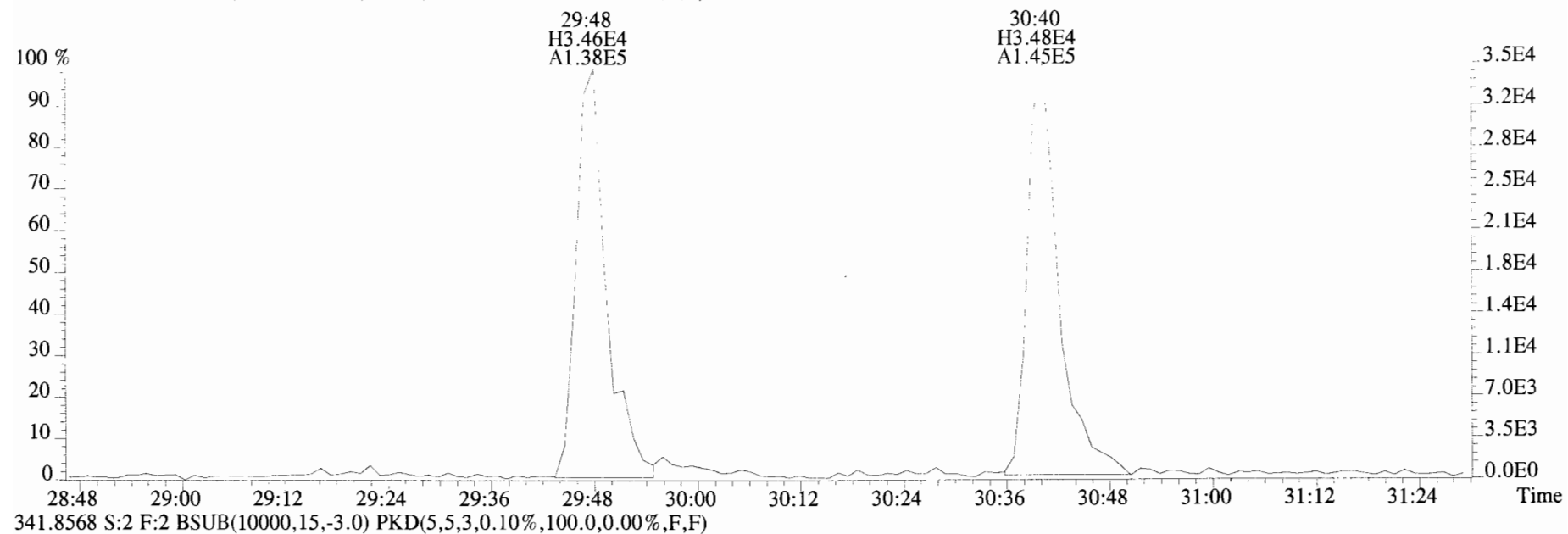


409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

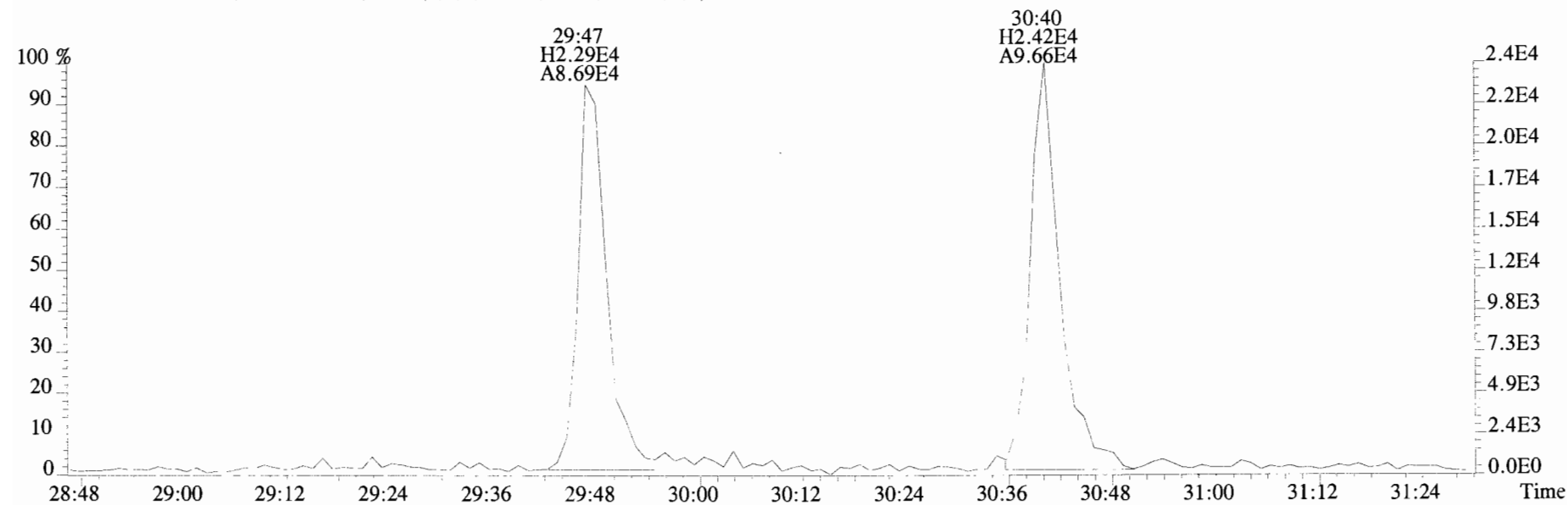




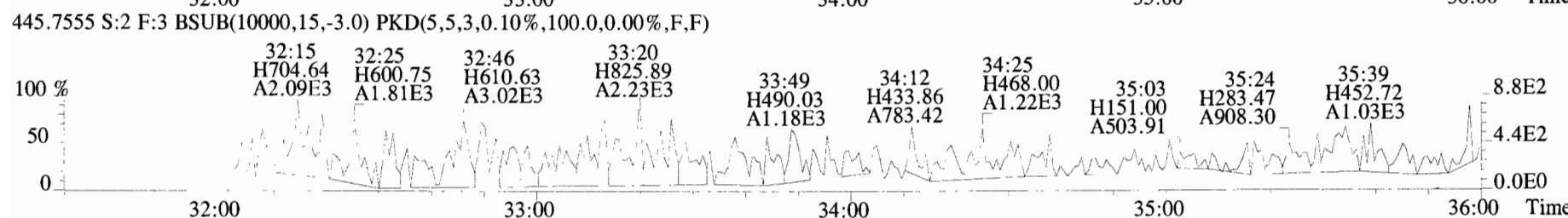
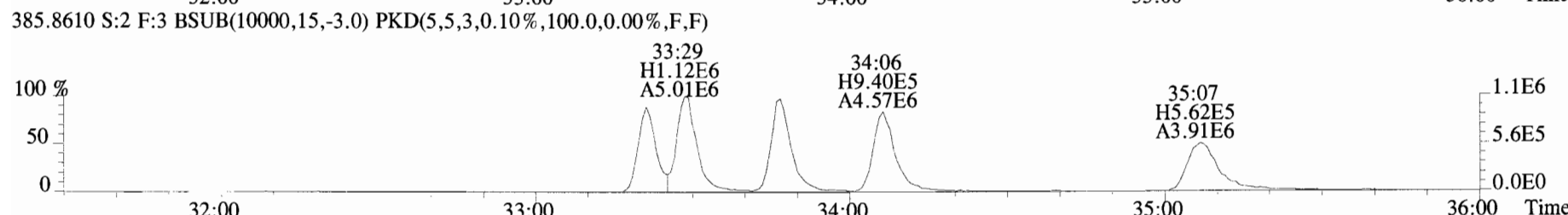
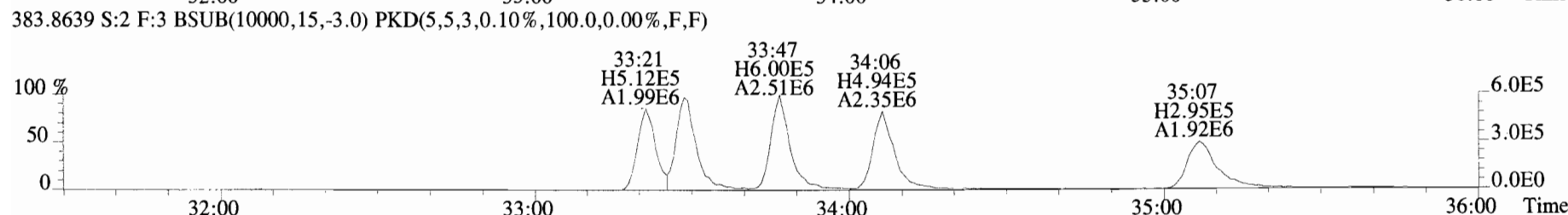
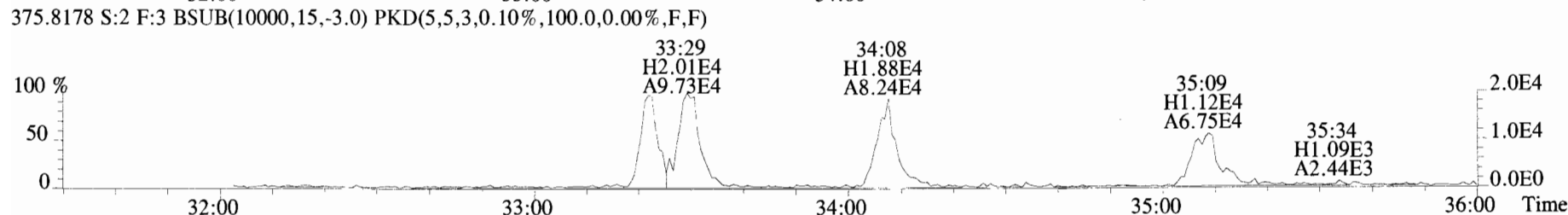
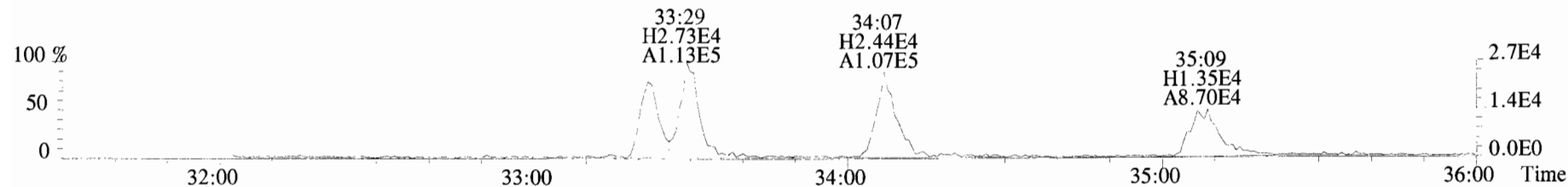
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



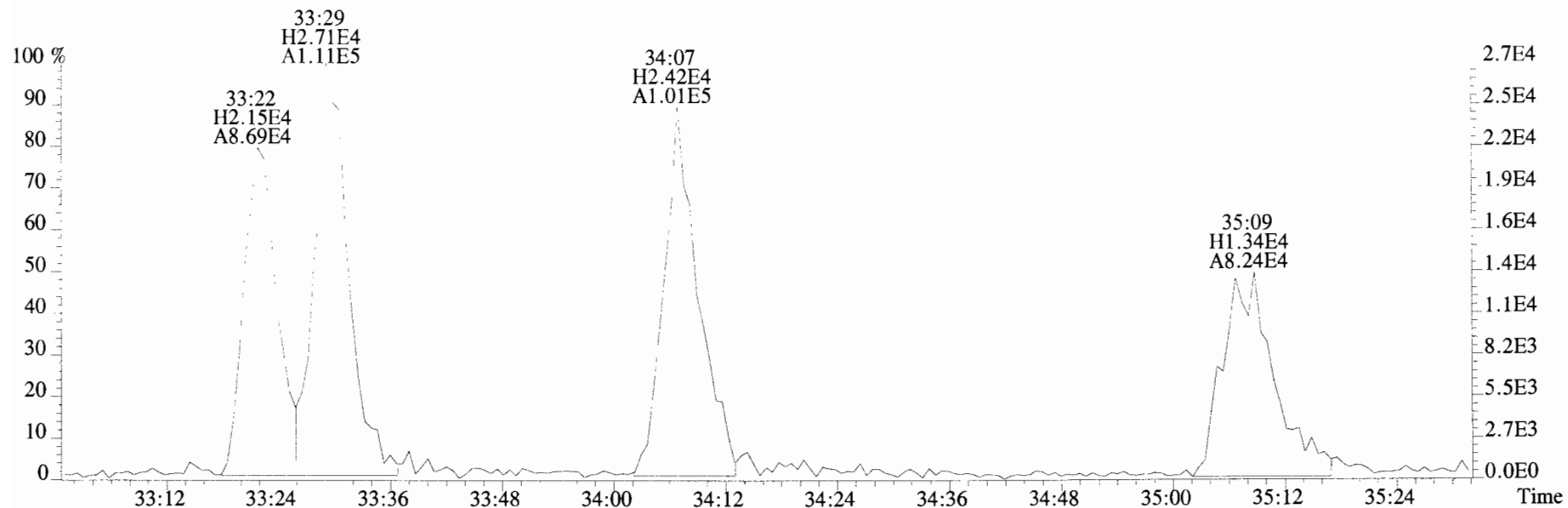
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



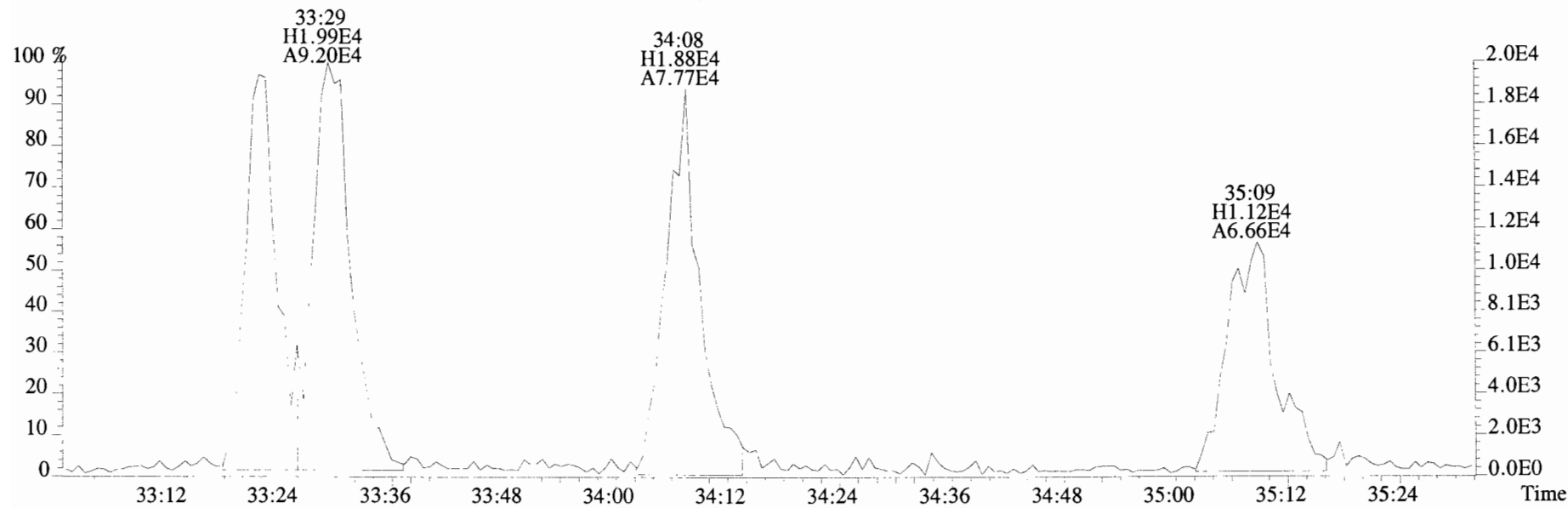
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



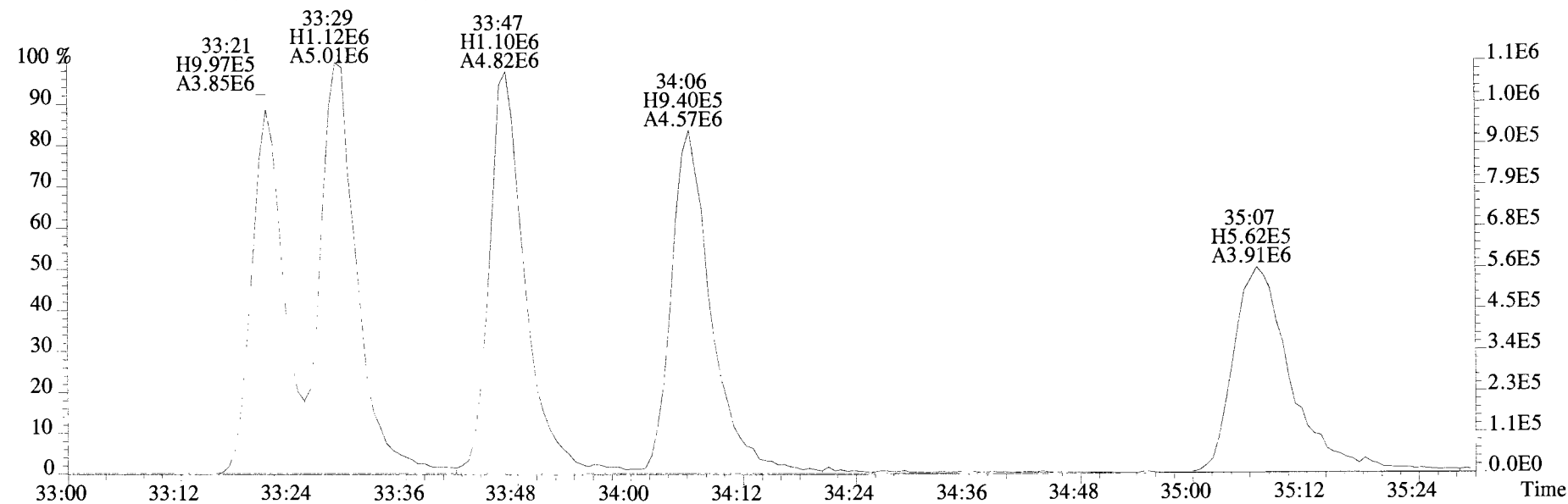
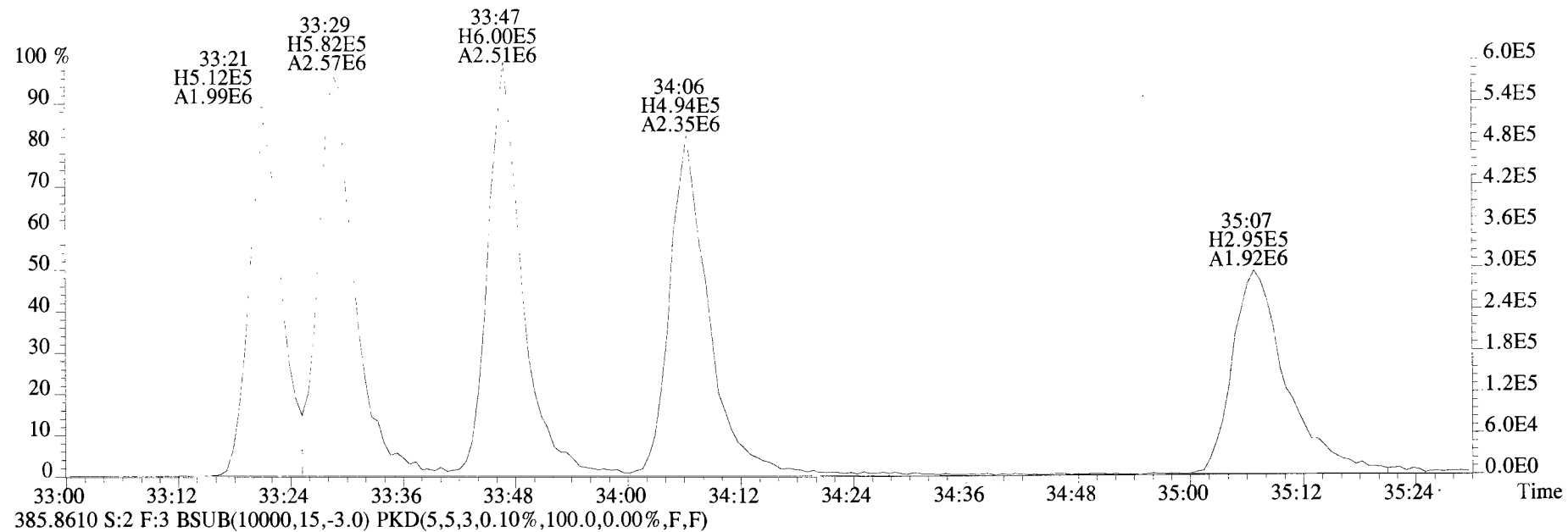
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



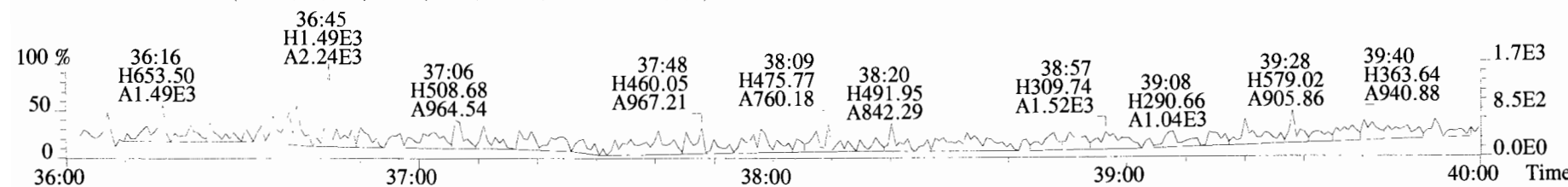
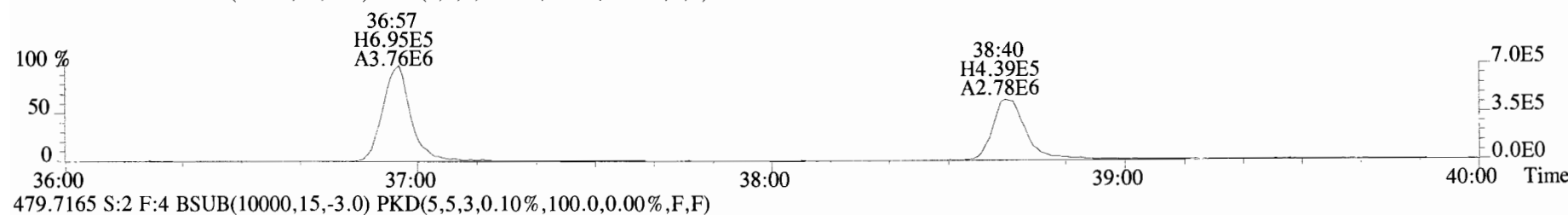
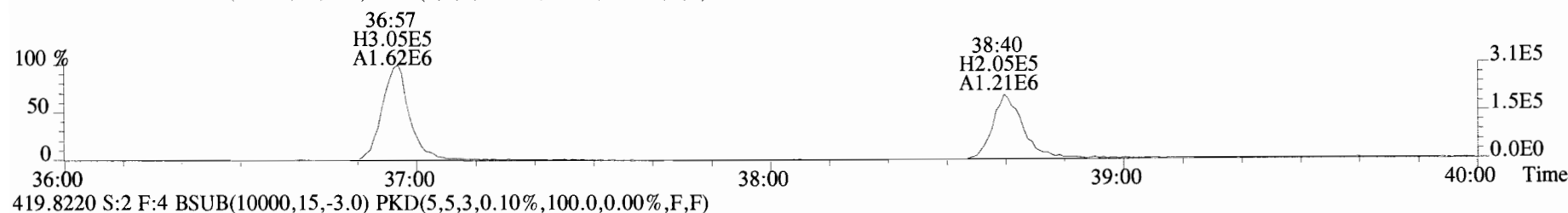
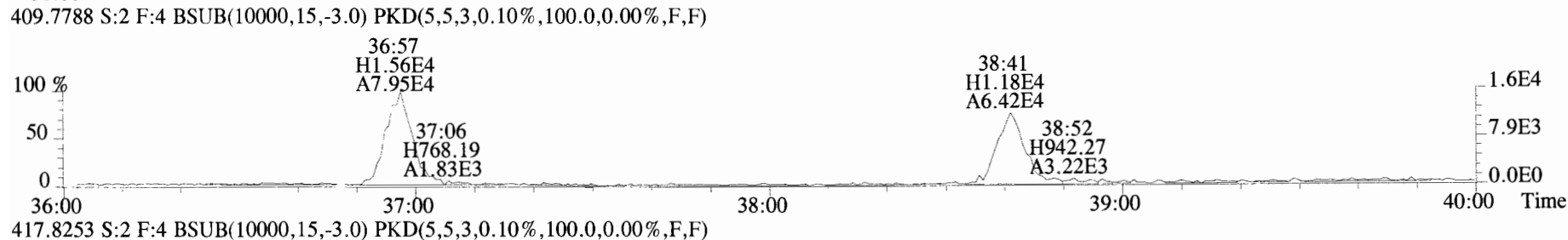
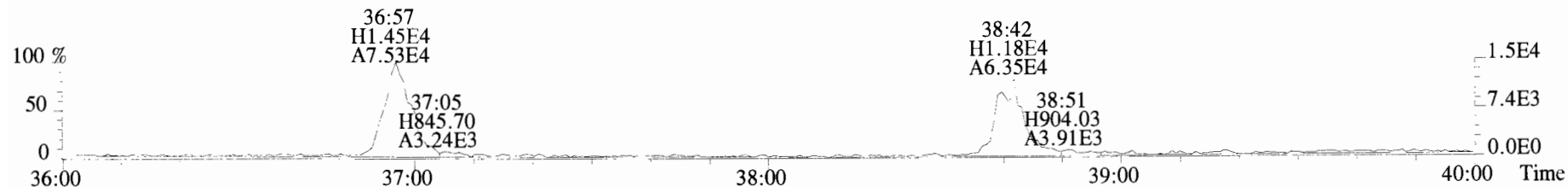
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



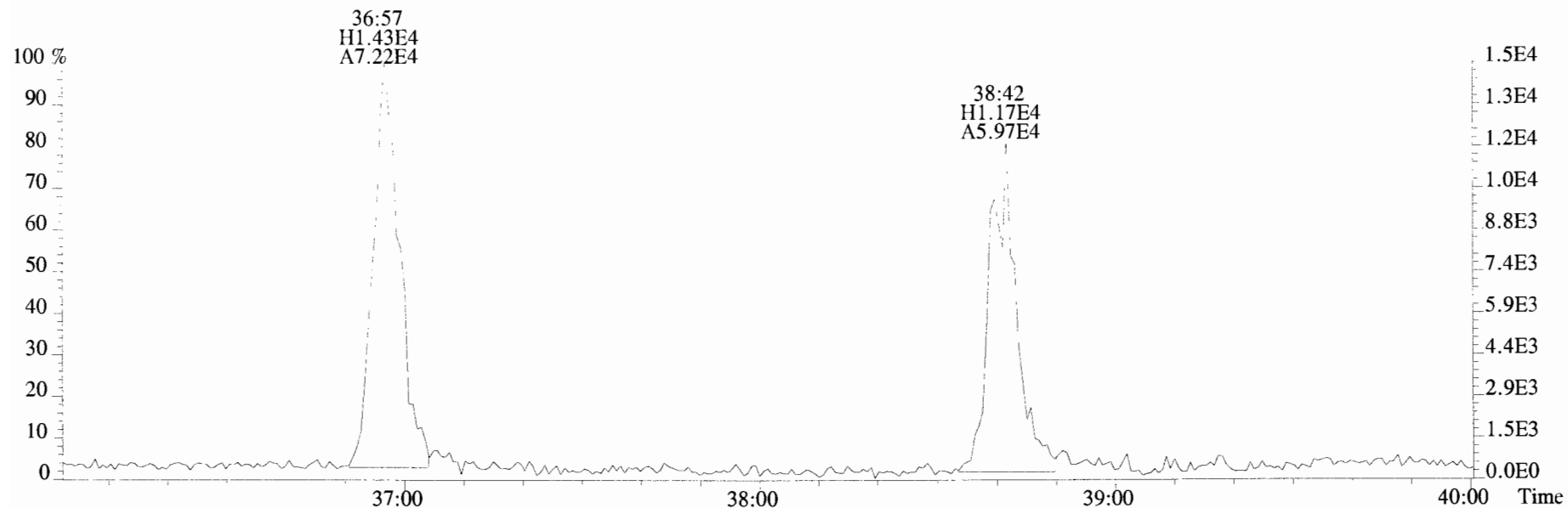
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



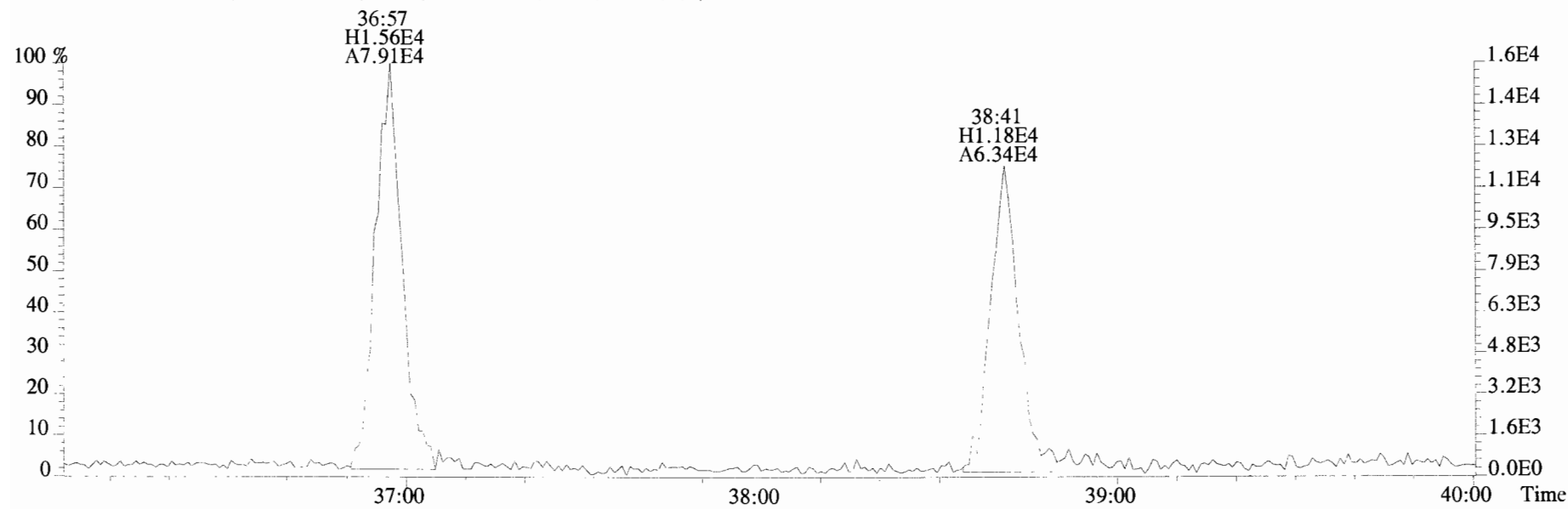
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



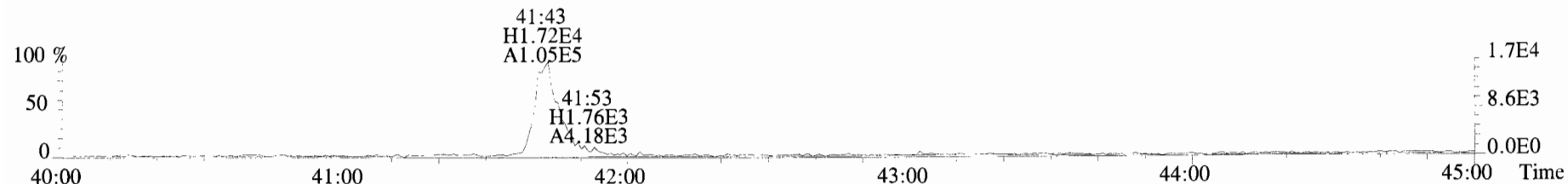
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



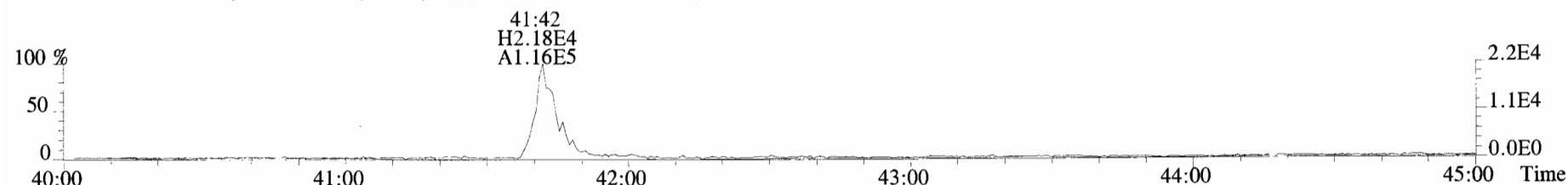
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



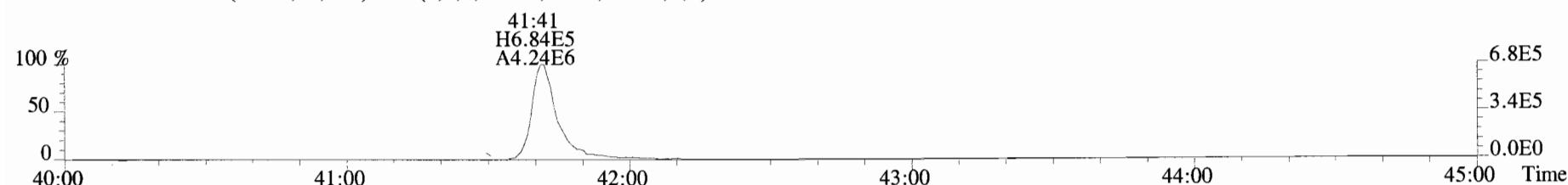
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



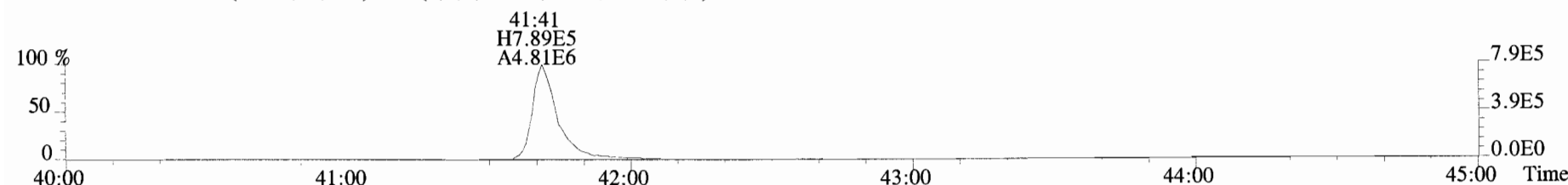
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



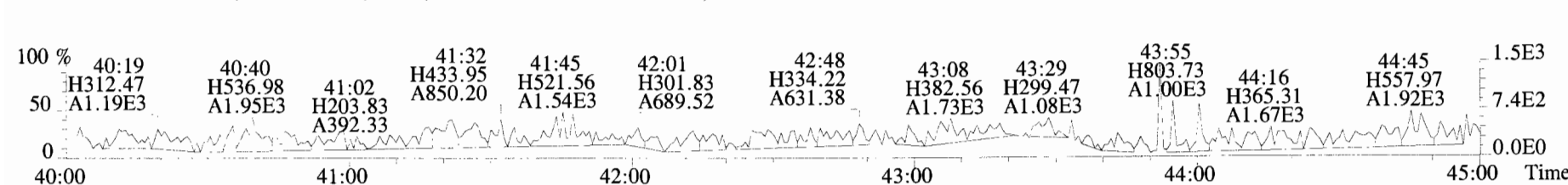
453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



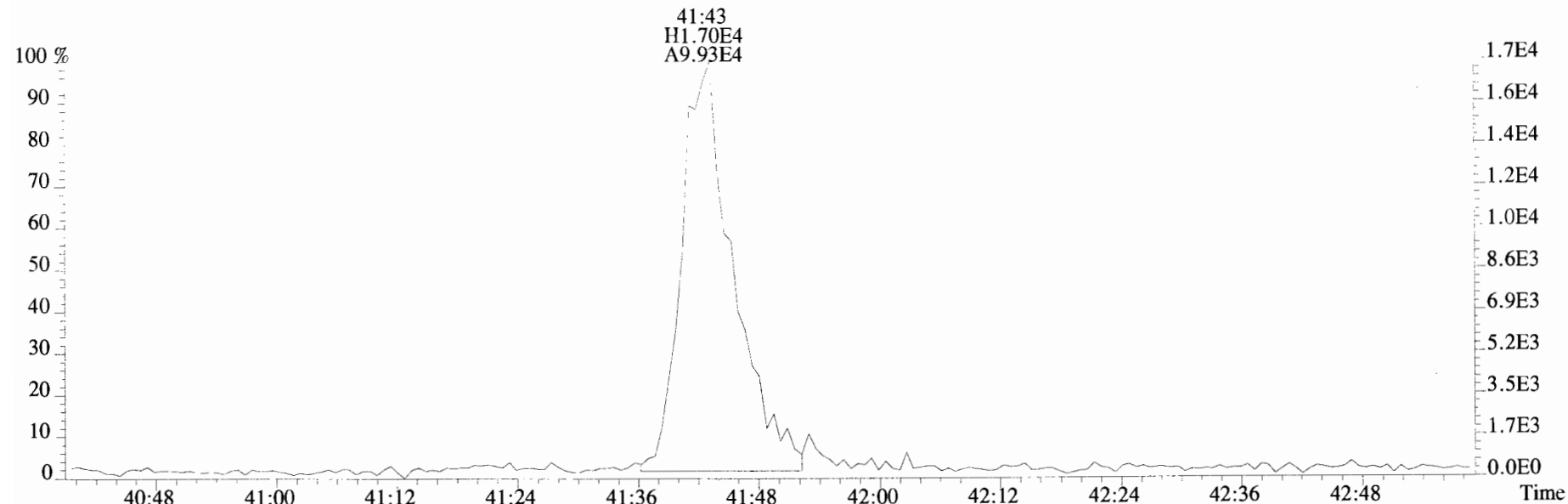
455.7801 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



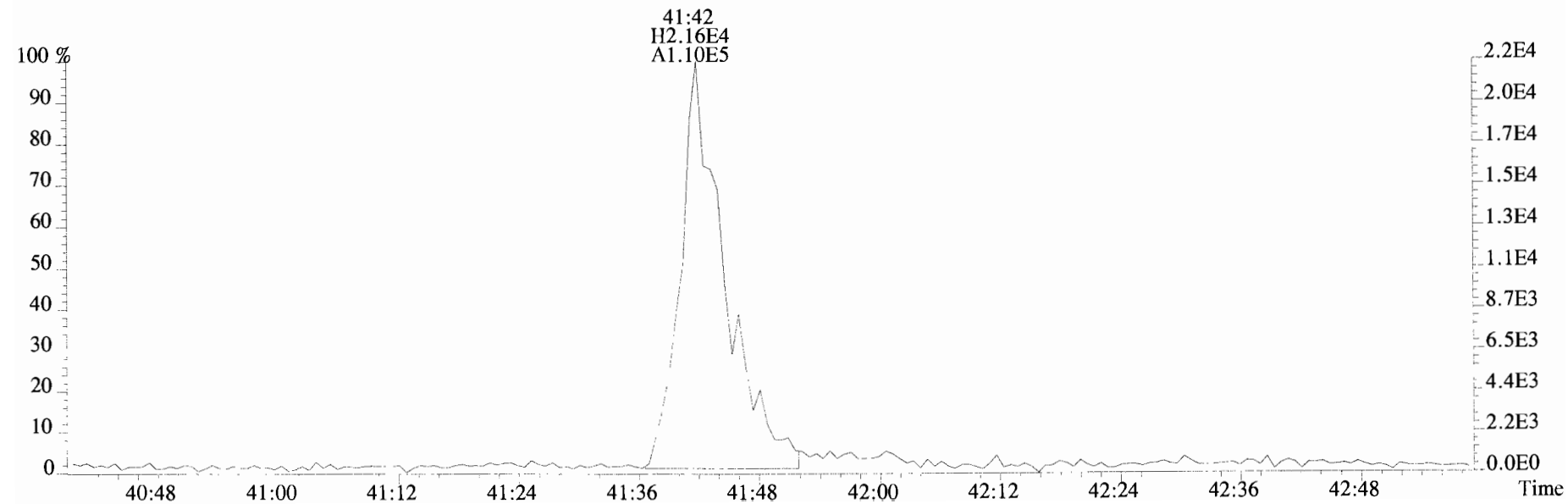
513.6775 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

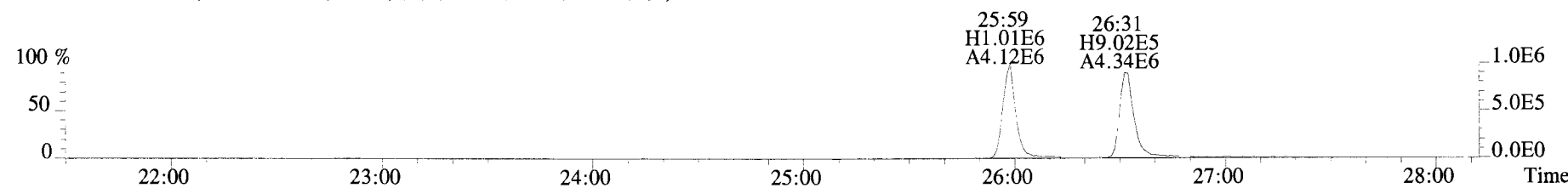
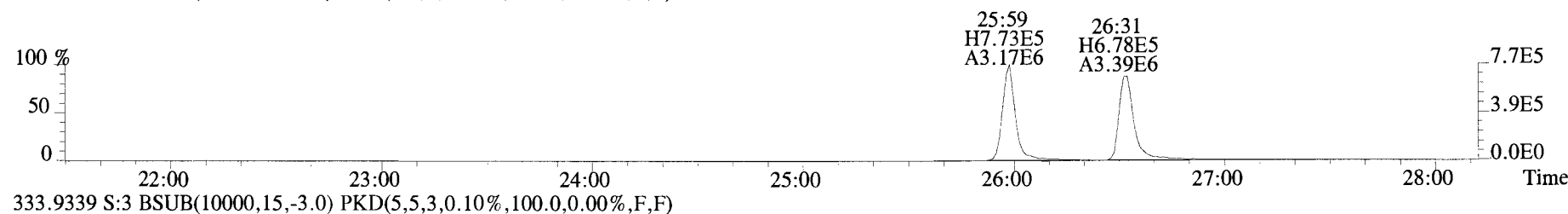
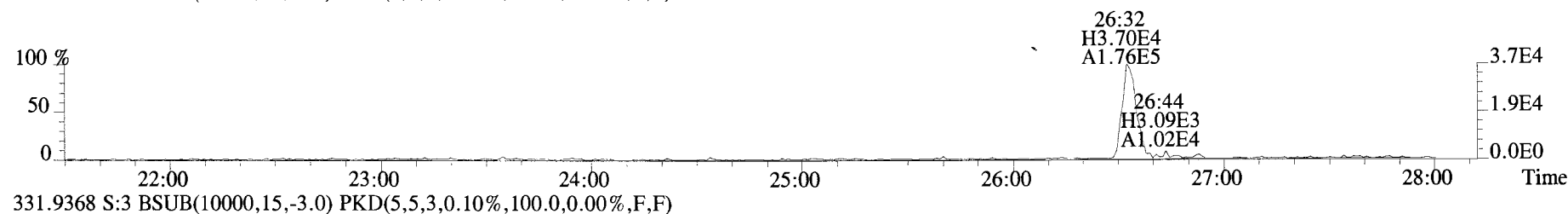
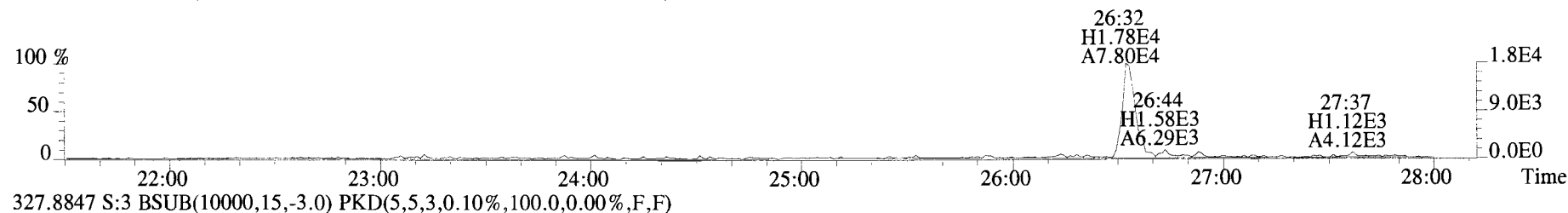
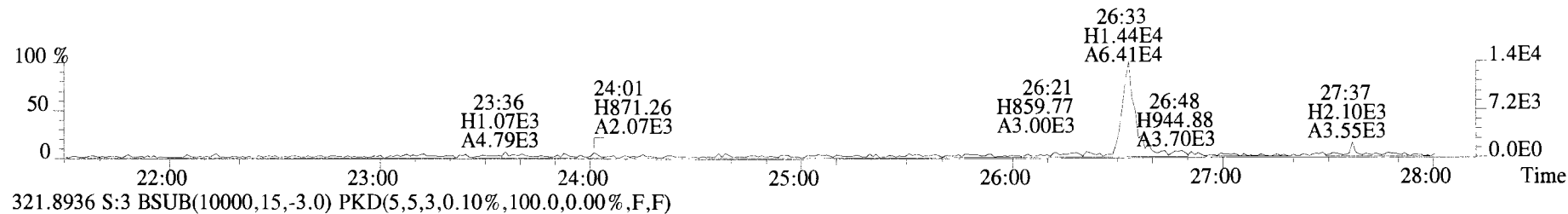


443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

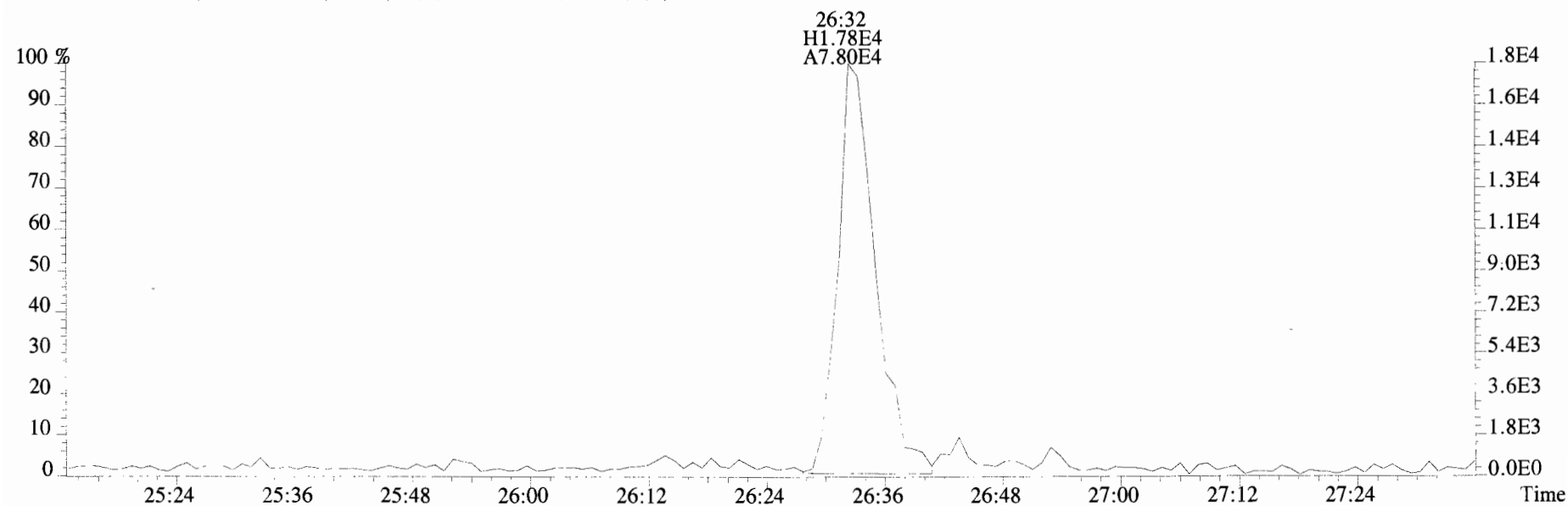
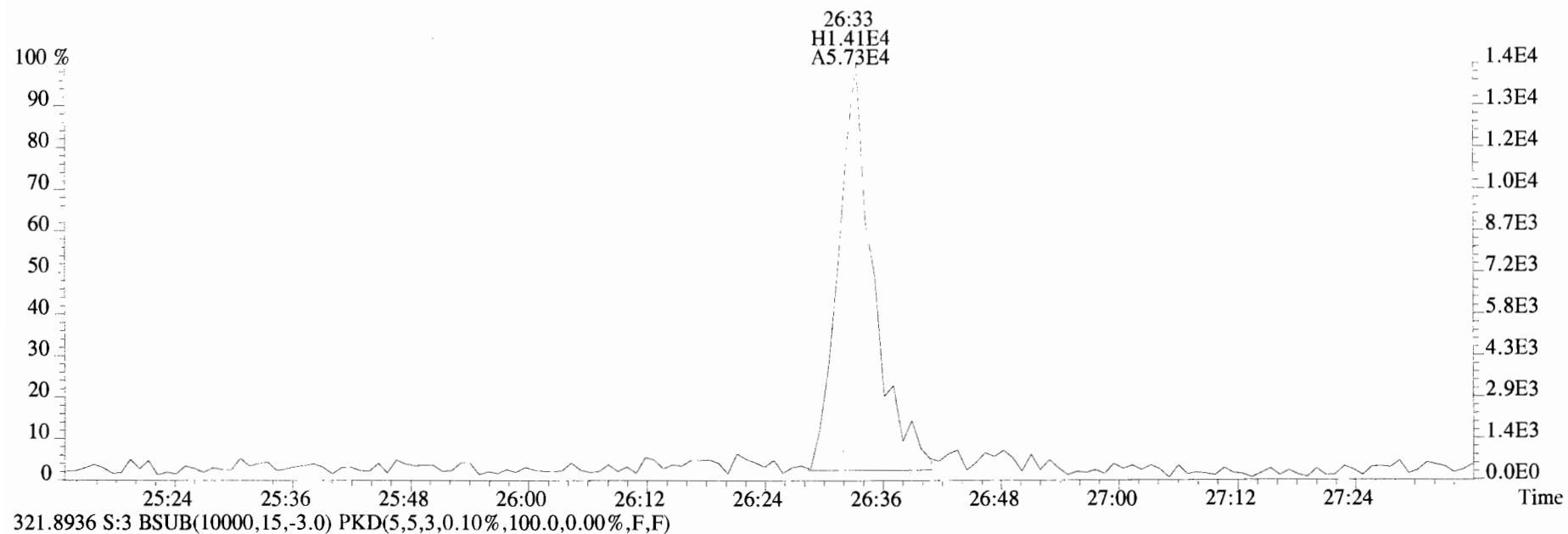




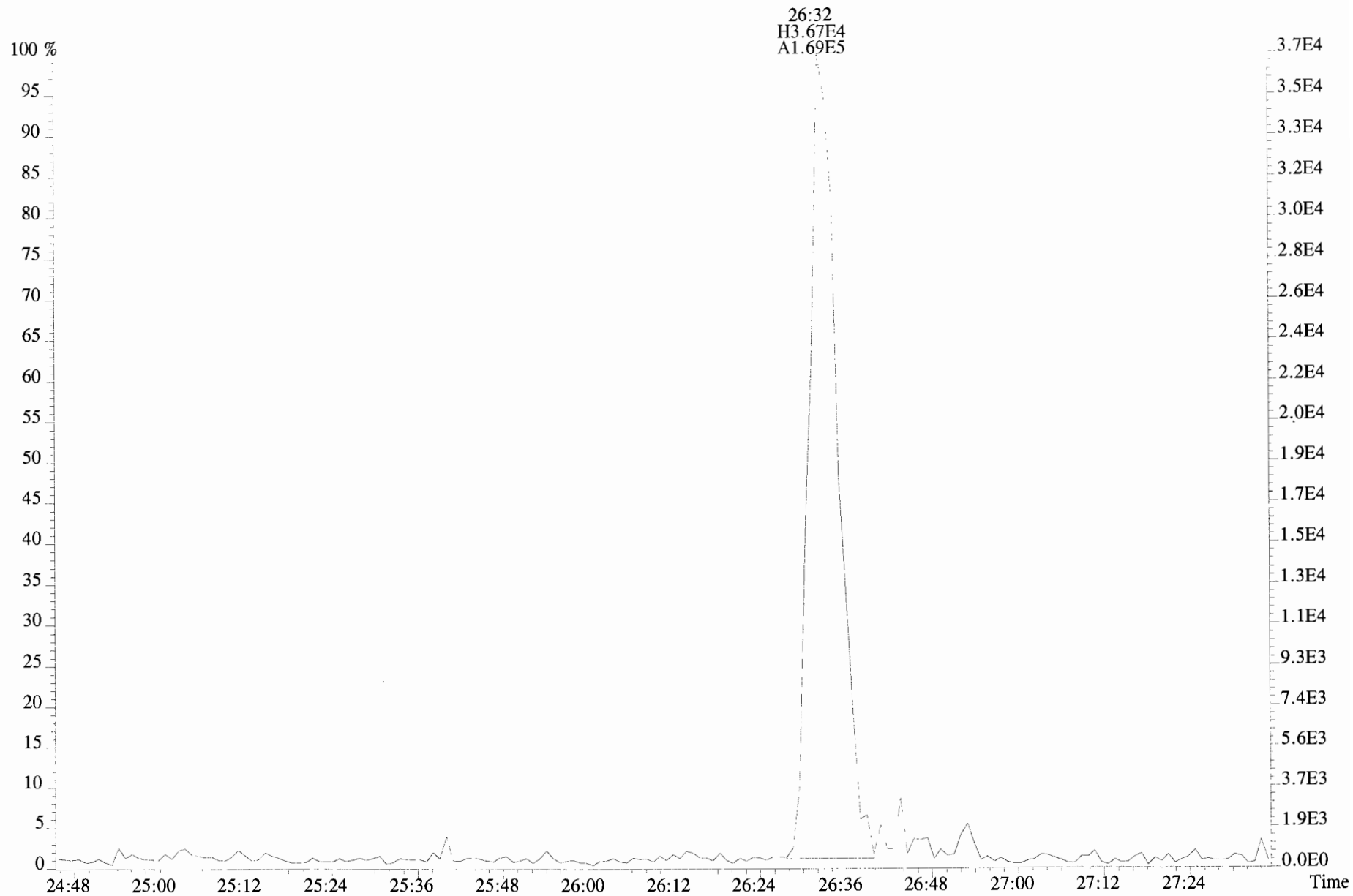
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



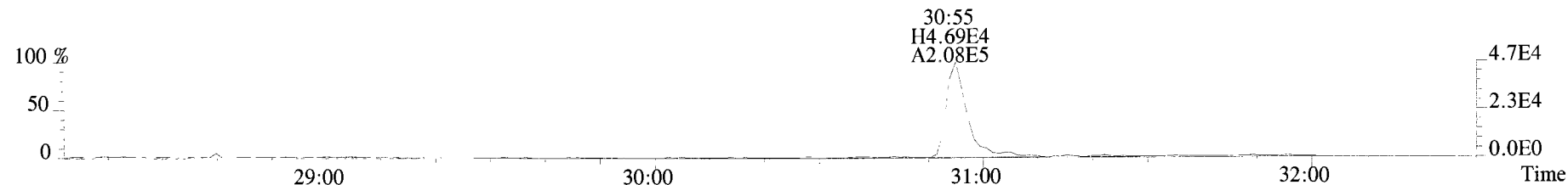
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



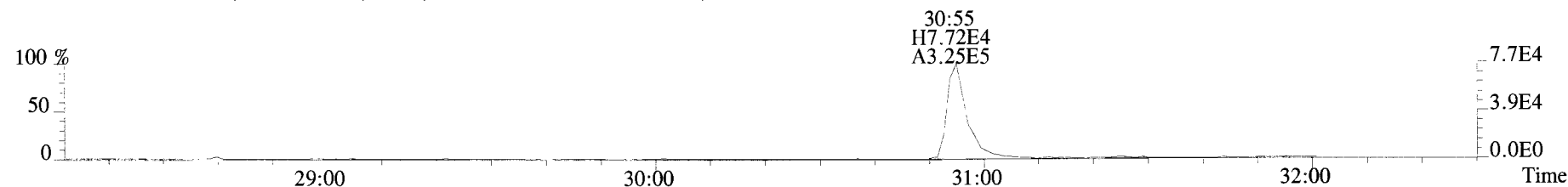
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



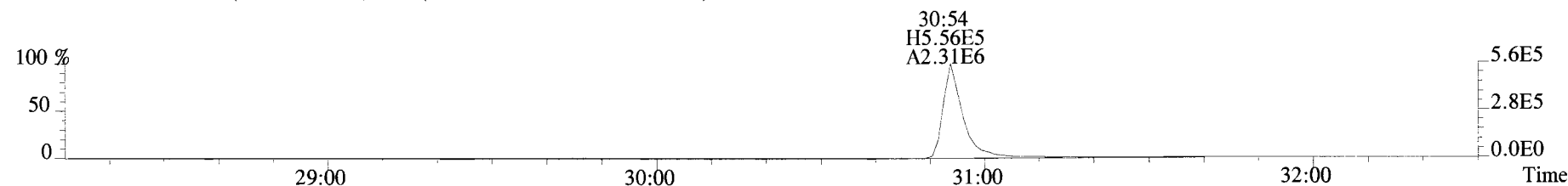
File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



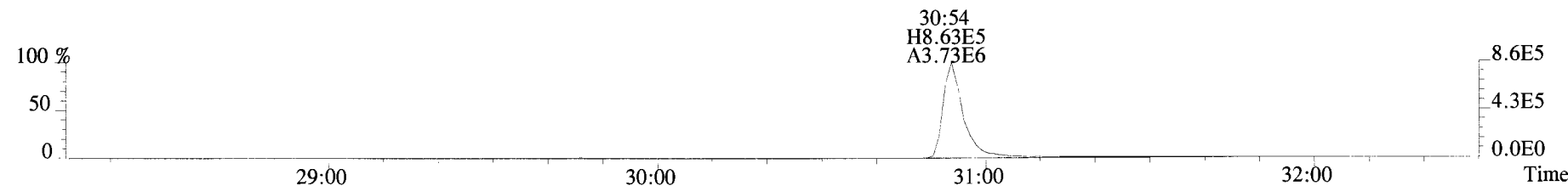
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



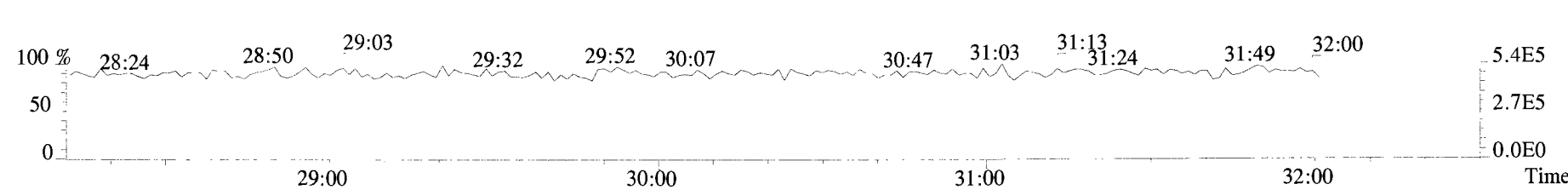
365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



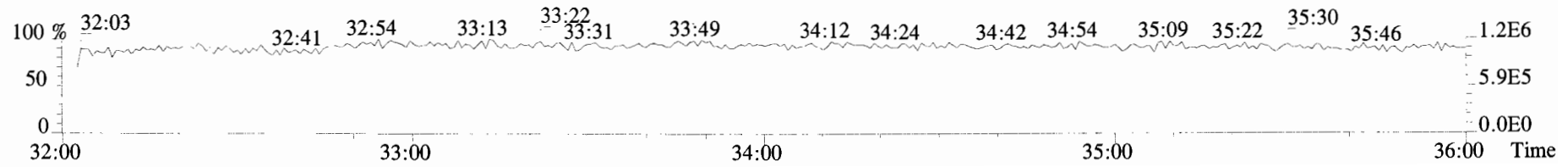
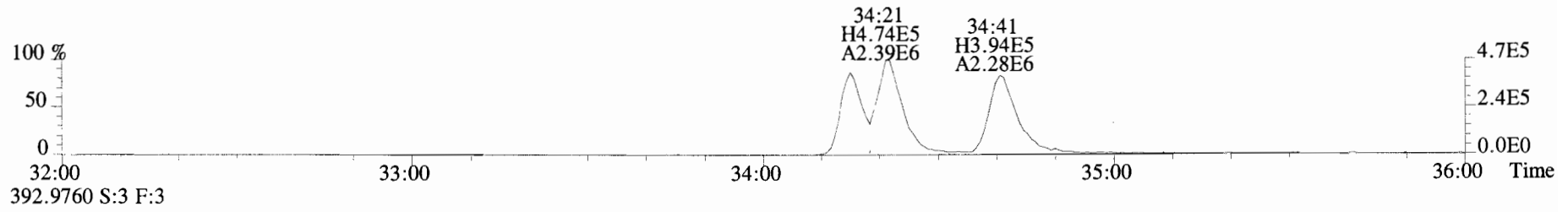
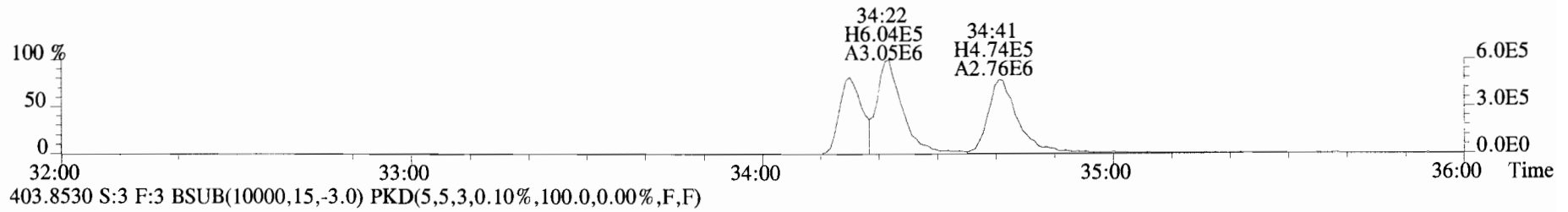
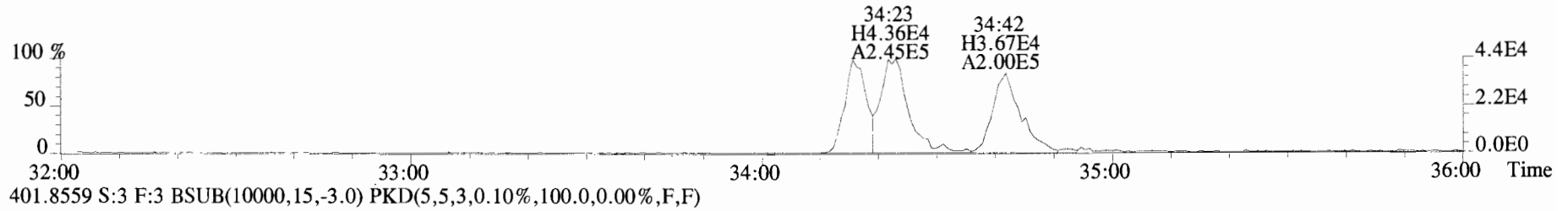
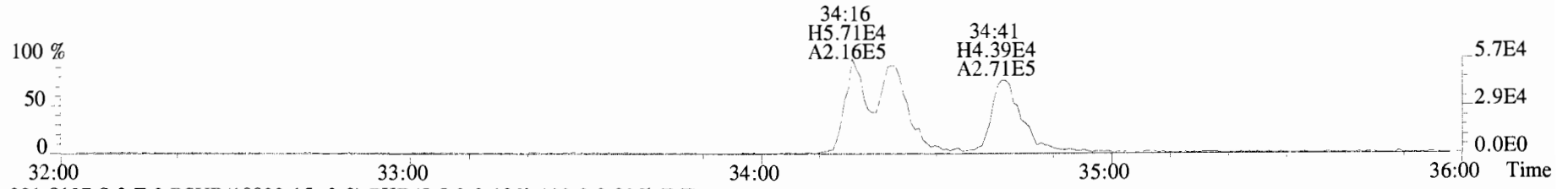
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



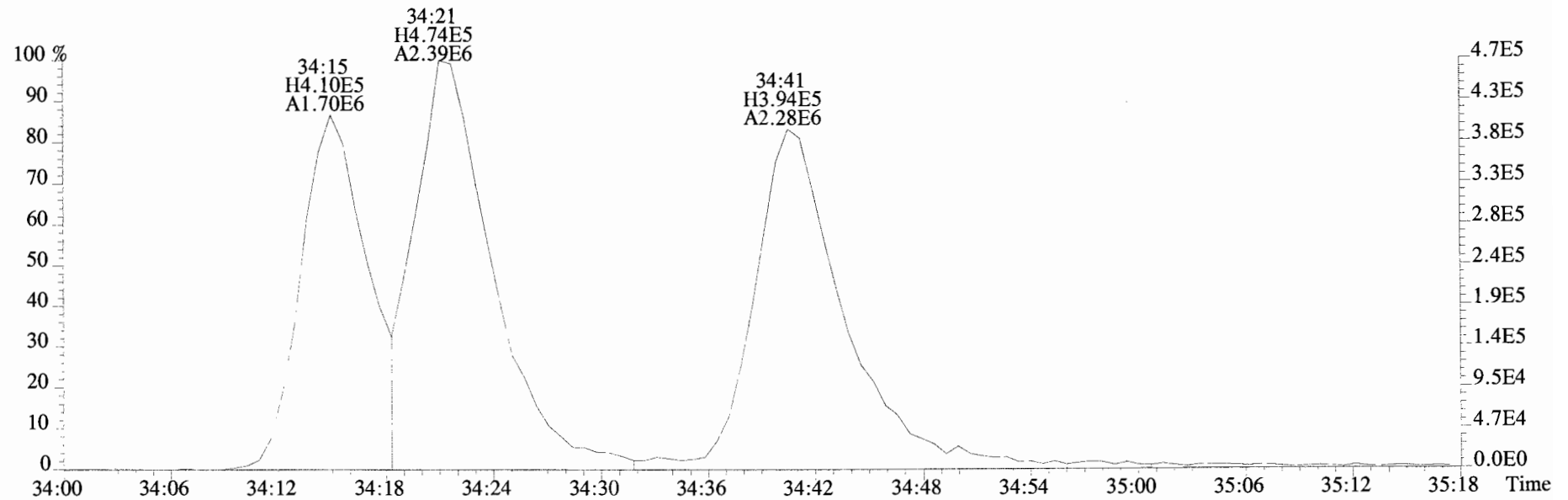
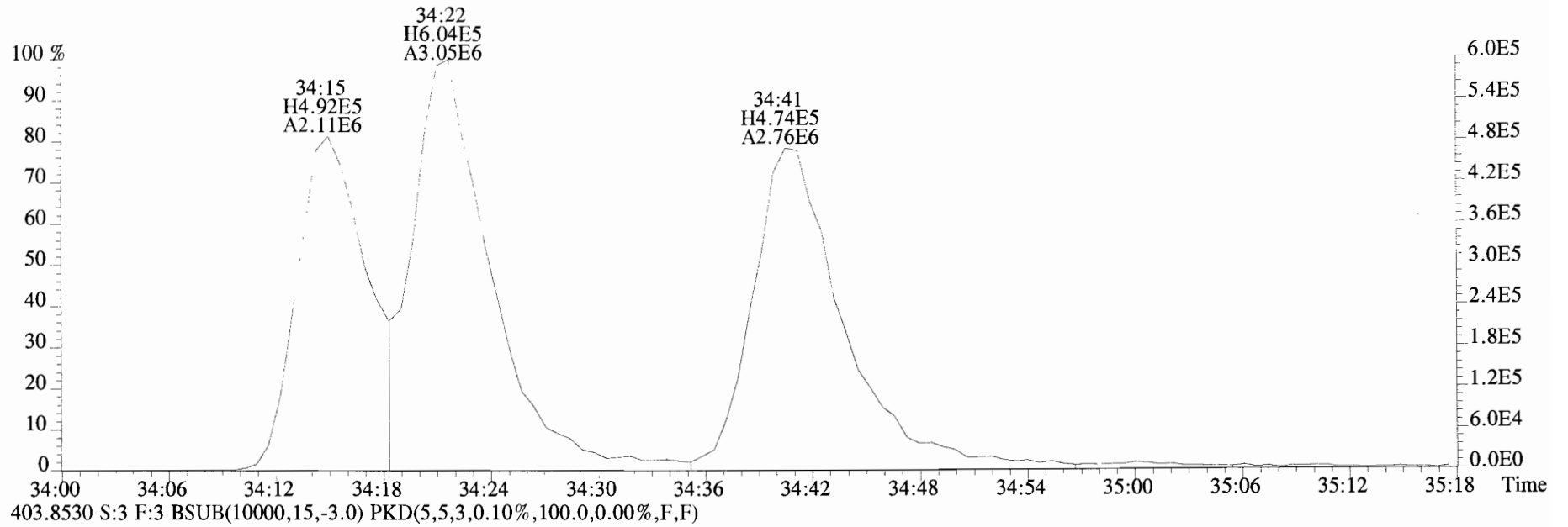
366.9792 S:3 F:2



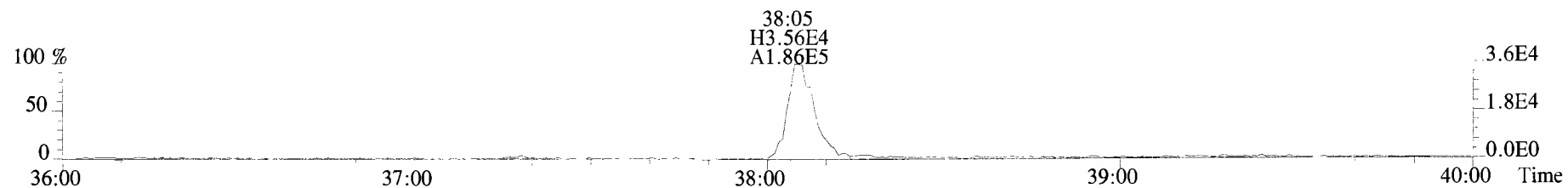
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



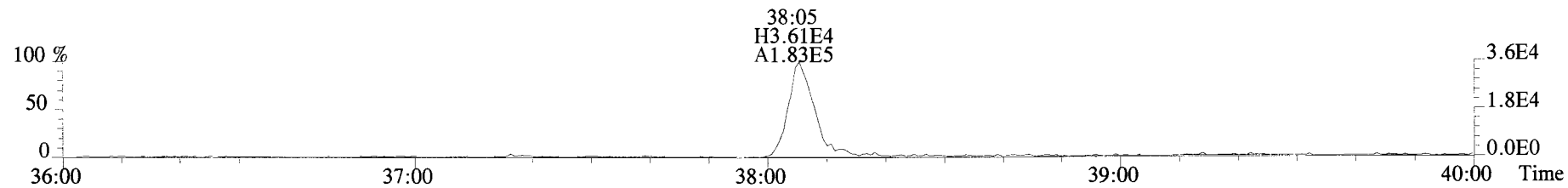
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text: Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



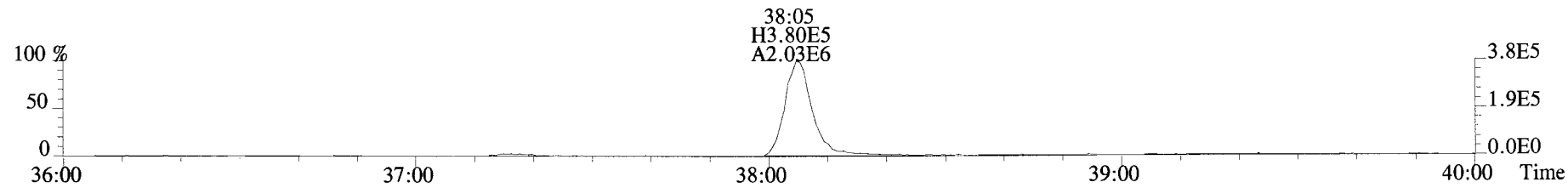
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



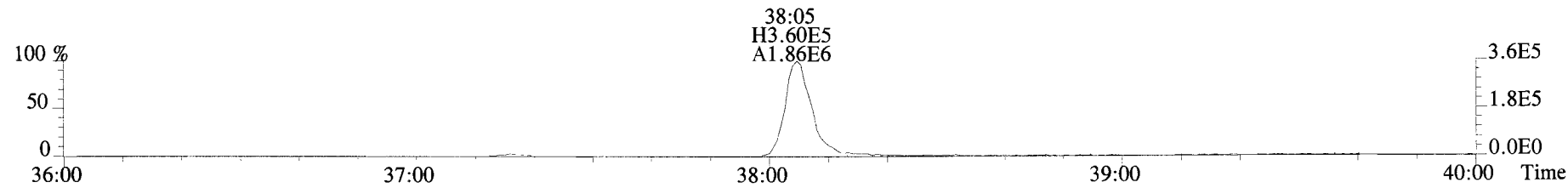
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



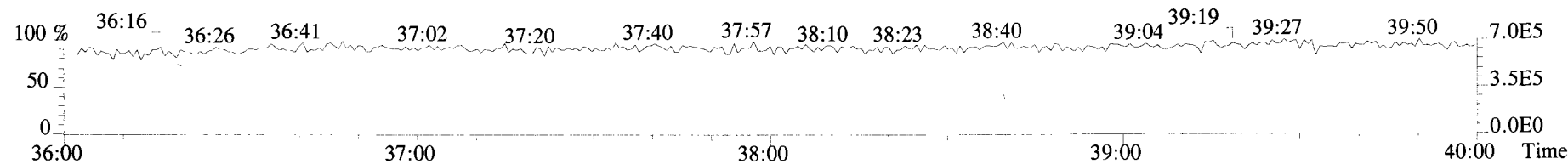
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



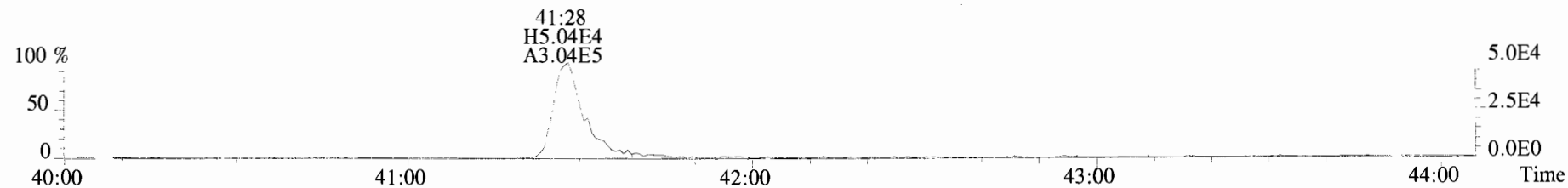
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



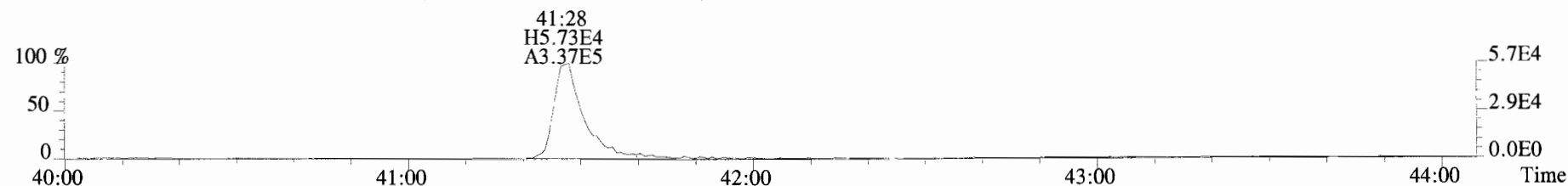
454.9728 S:3 F:4



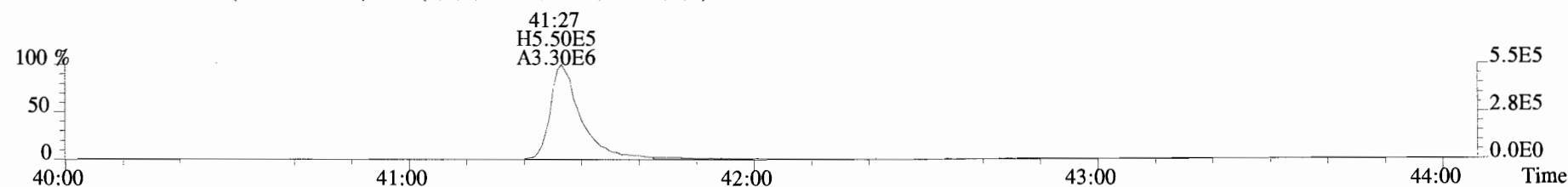
File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



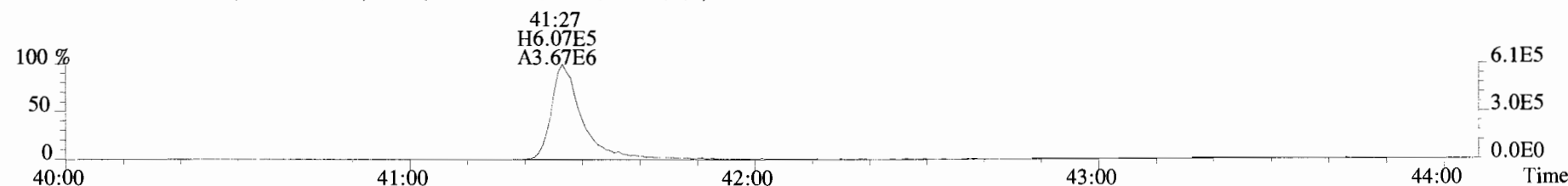
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



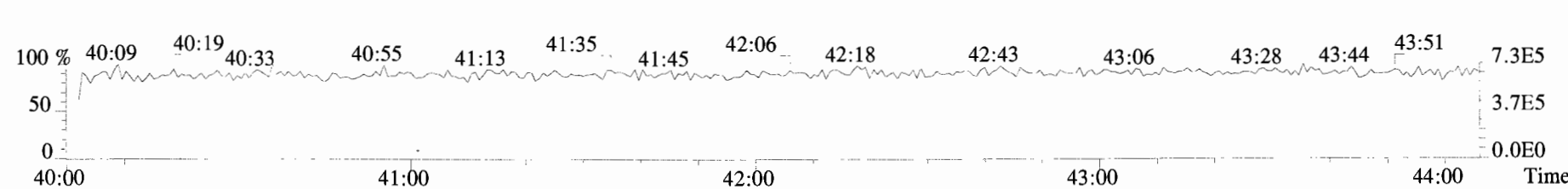
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

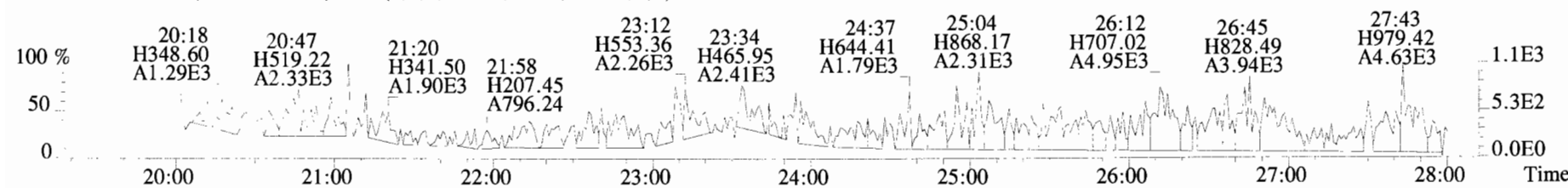
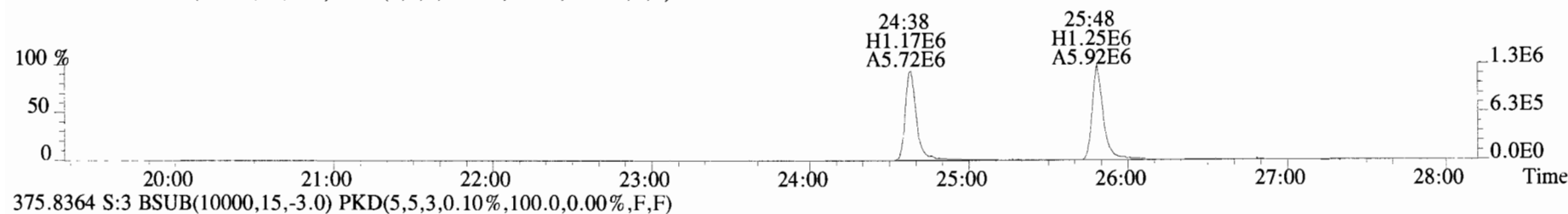
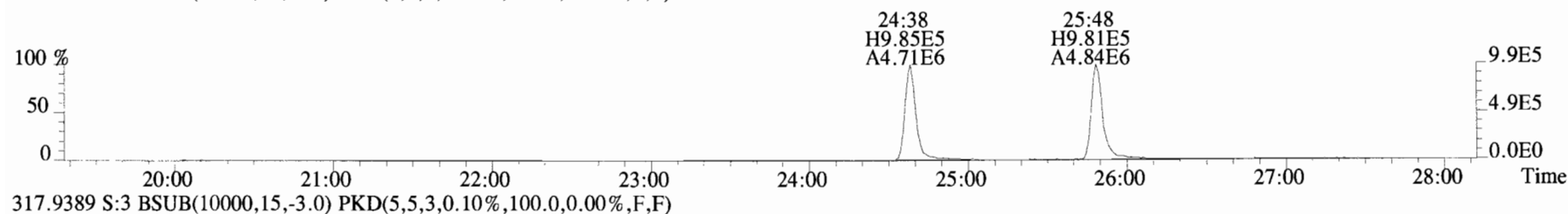
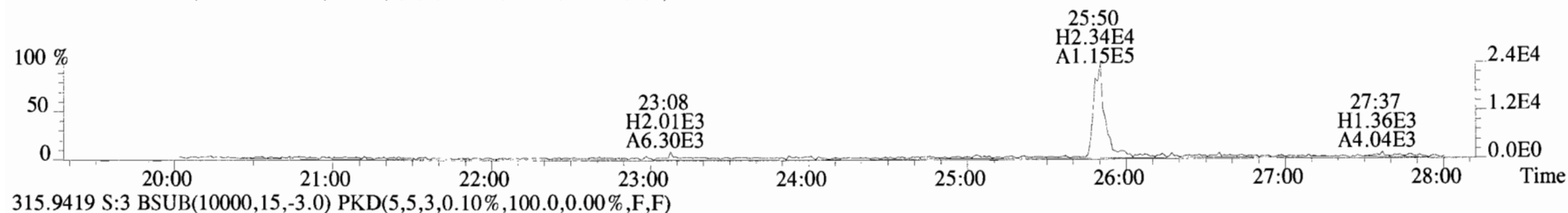
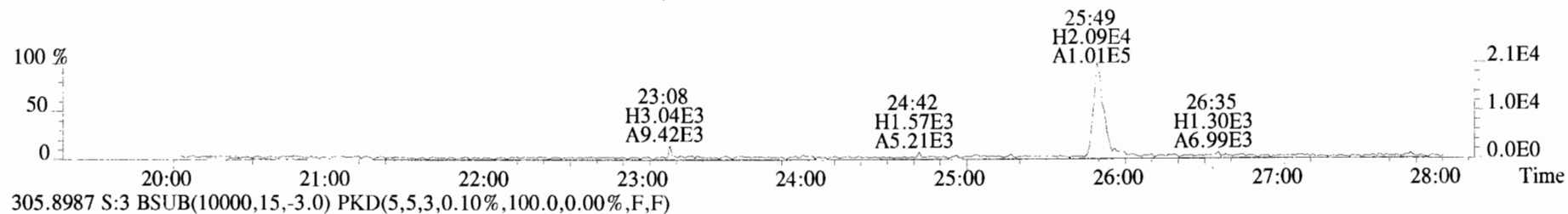


454.9728 S:3 F:5

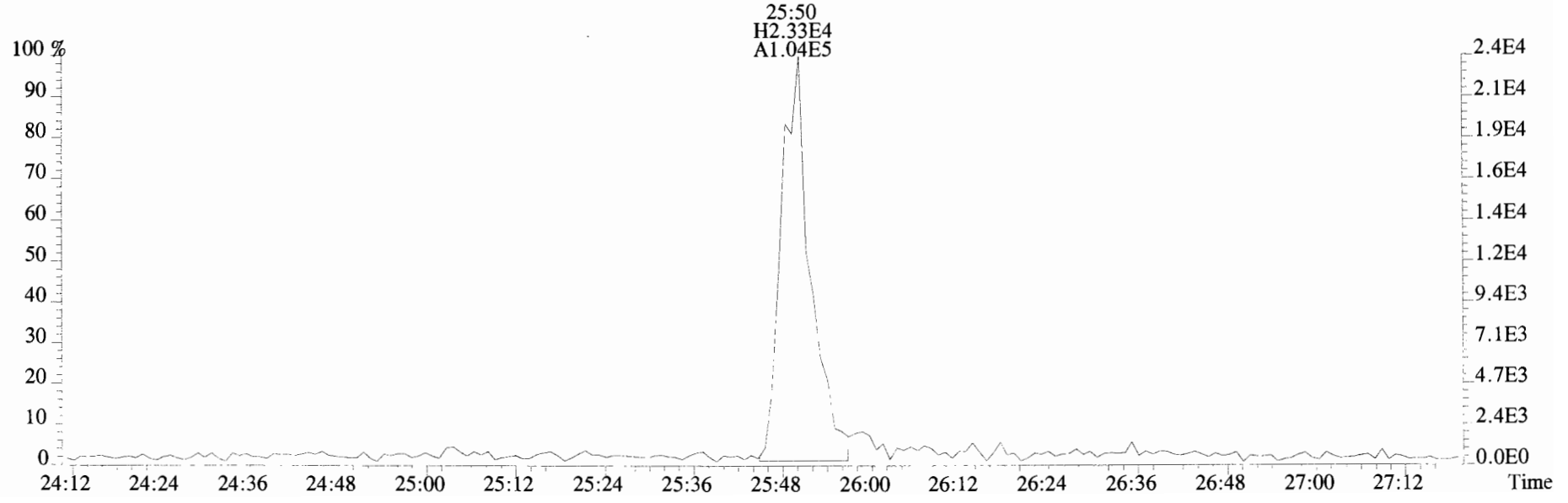
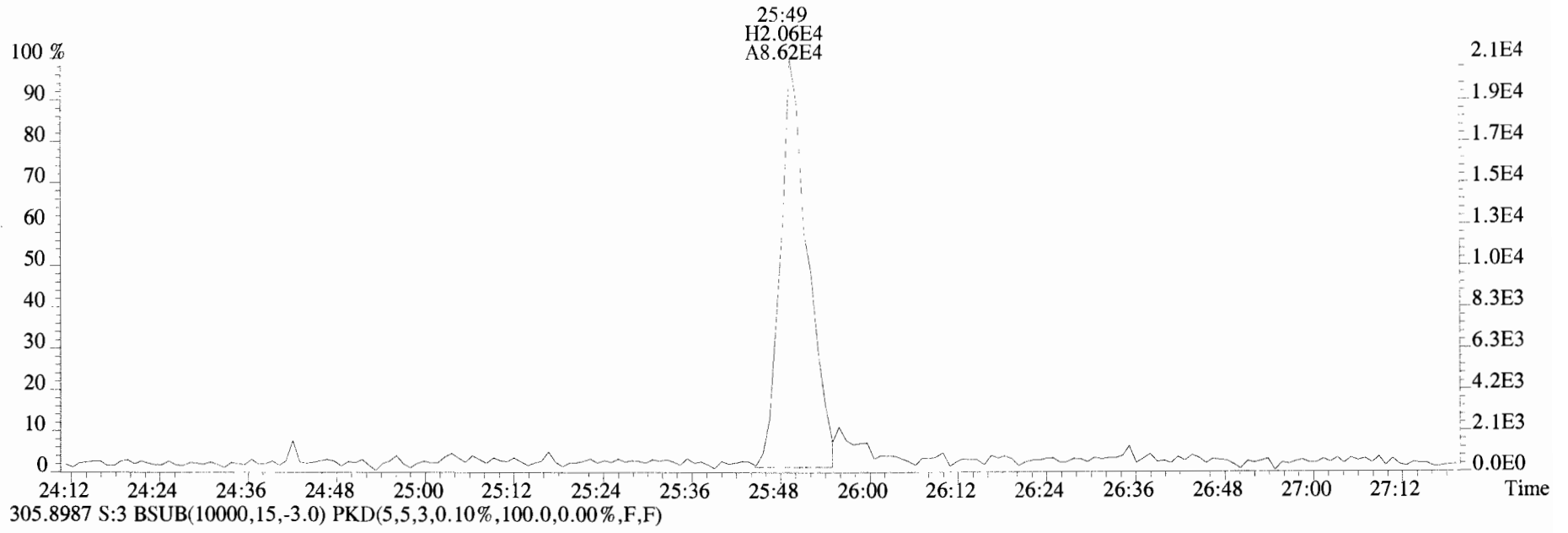




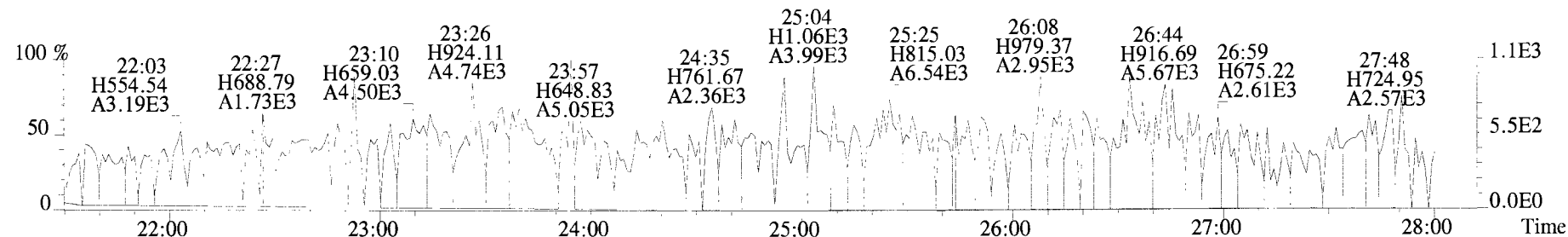
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



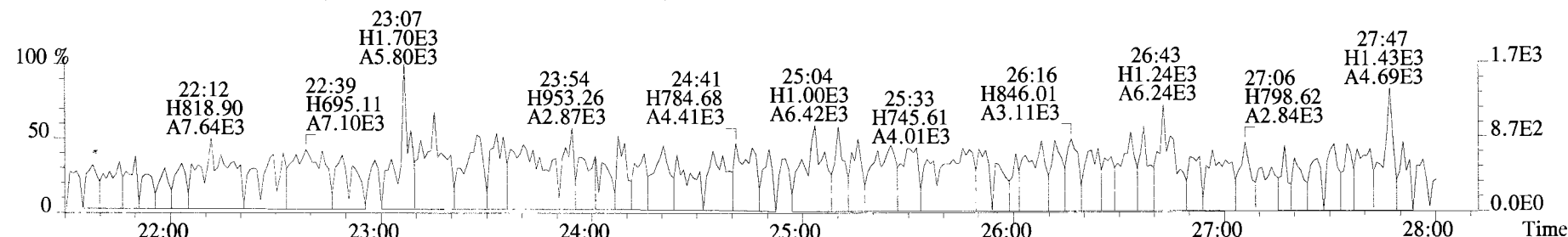
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



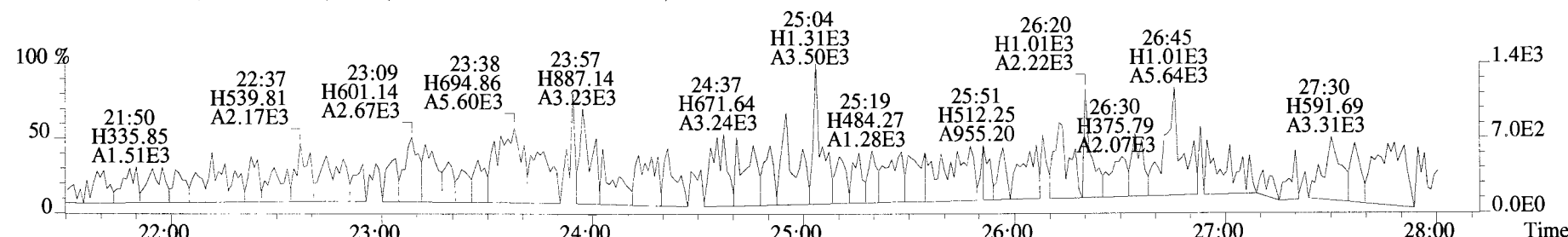
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
 339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



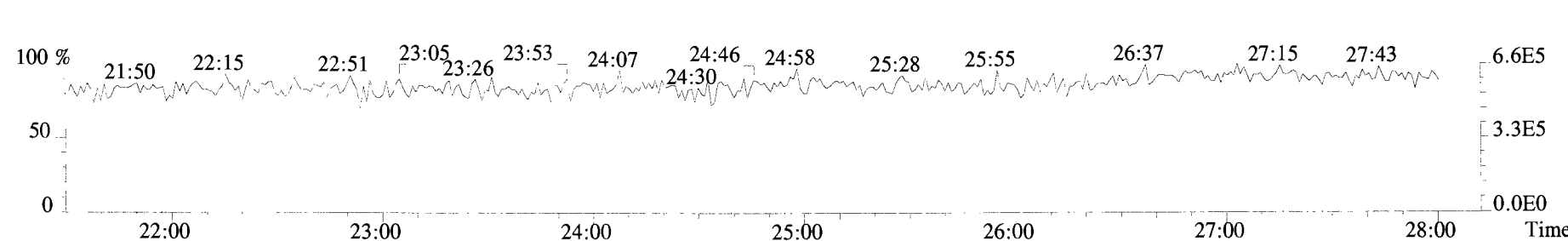
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



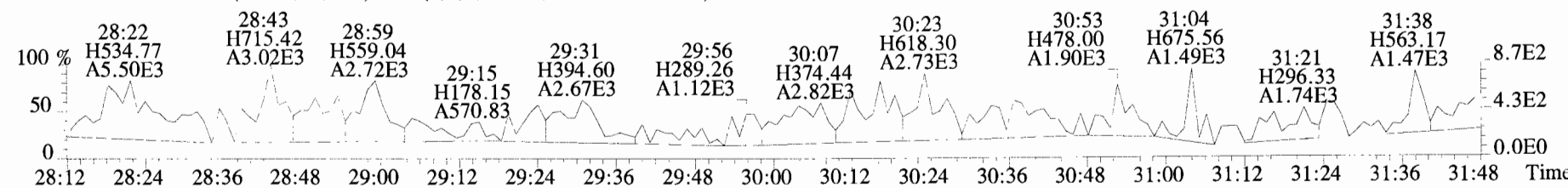
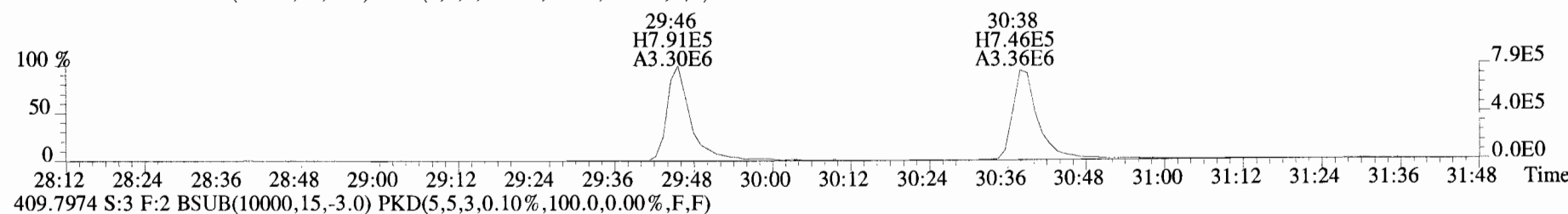
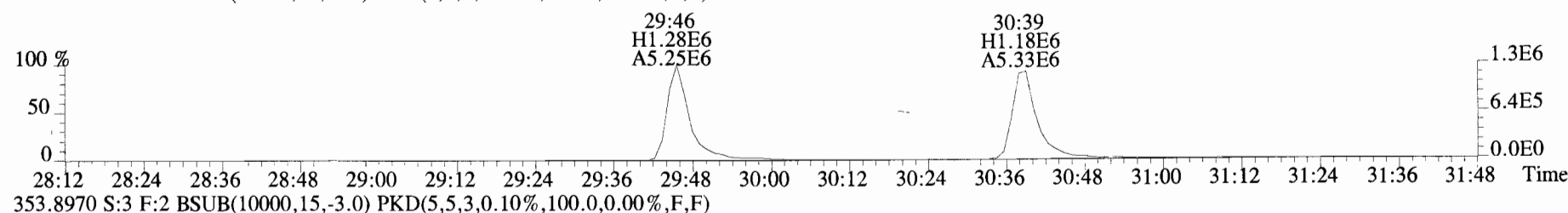
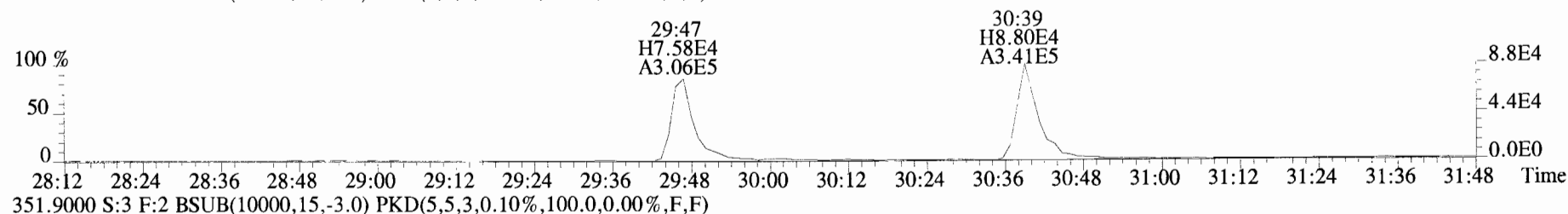
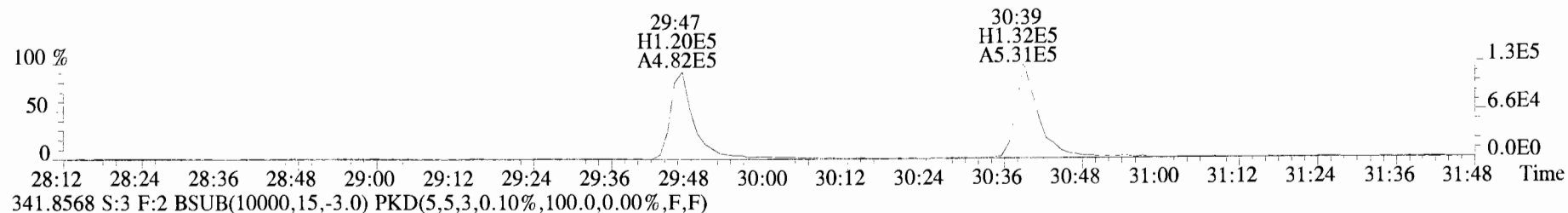
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



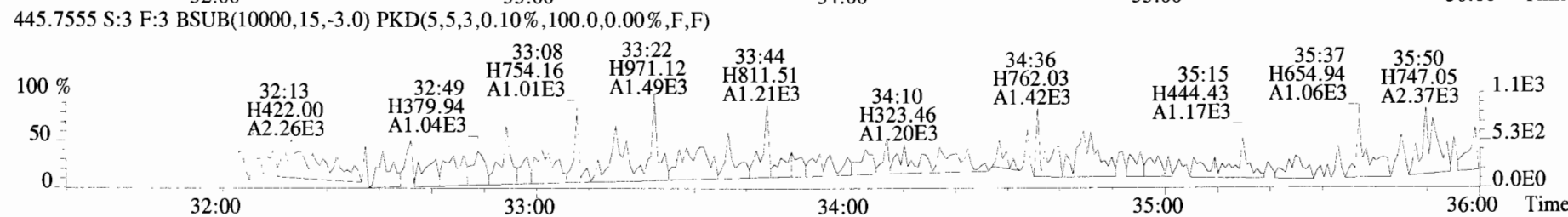
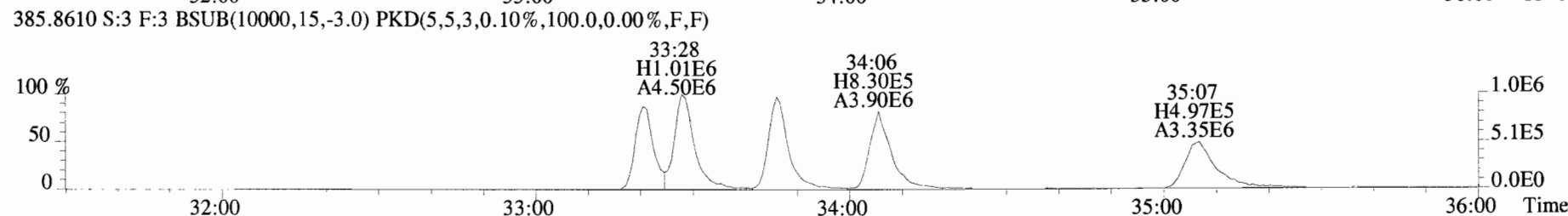
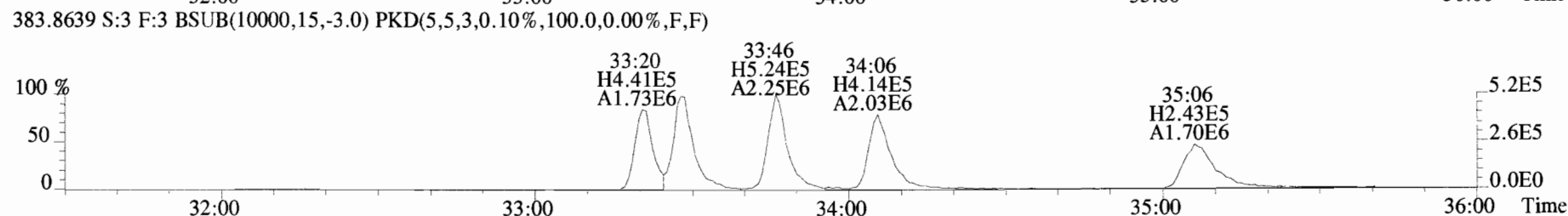
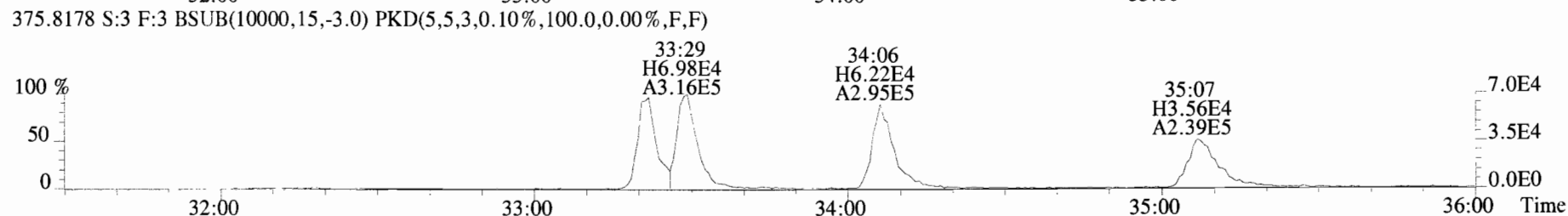
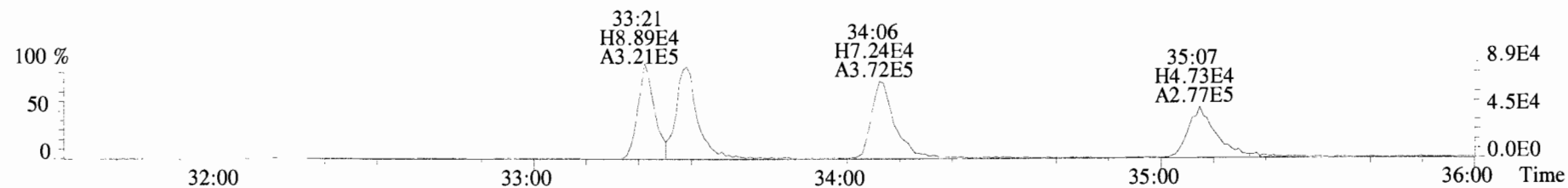
316.9824 S:3



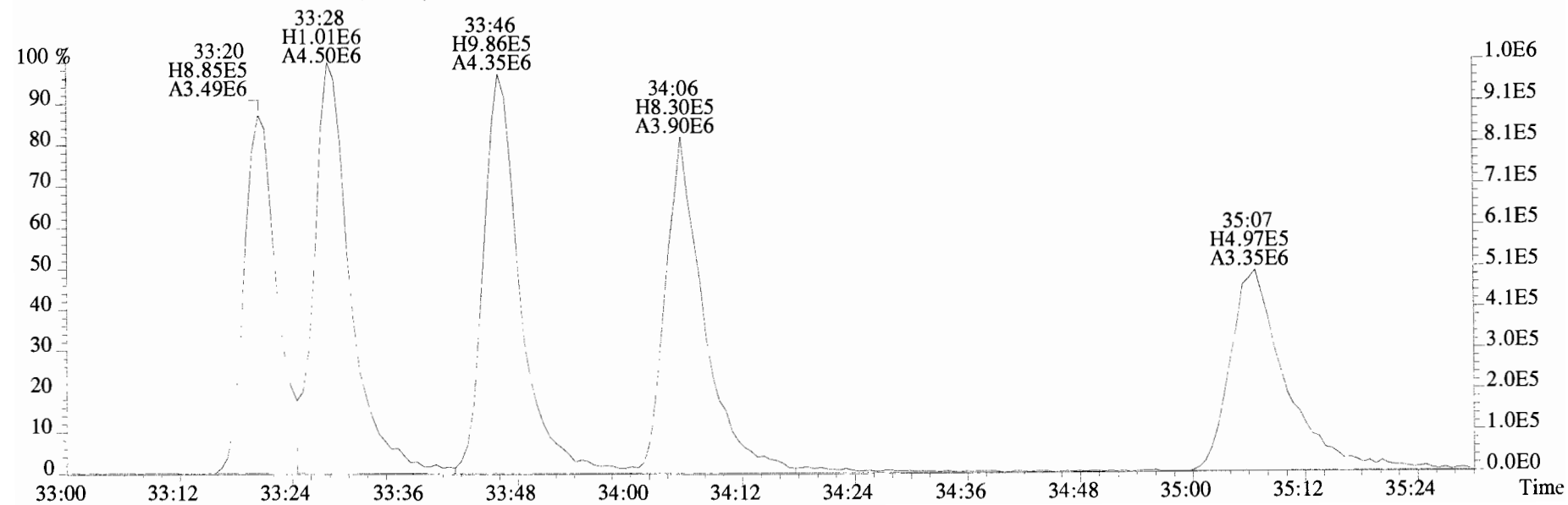
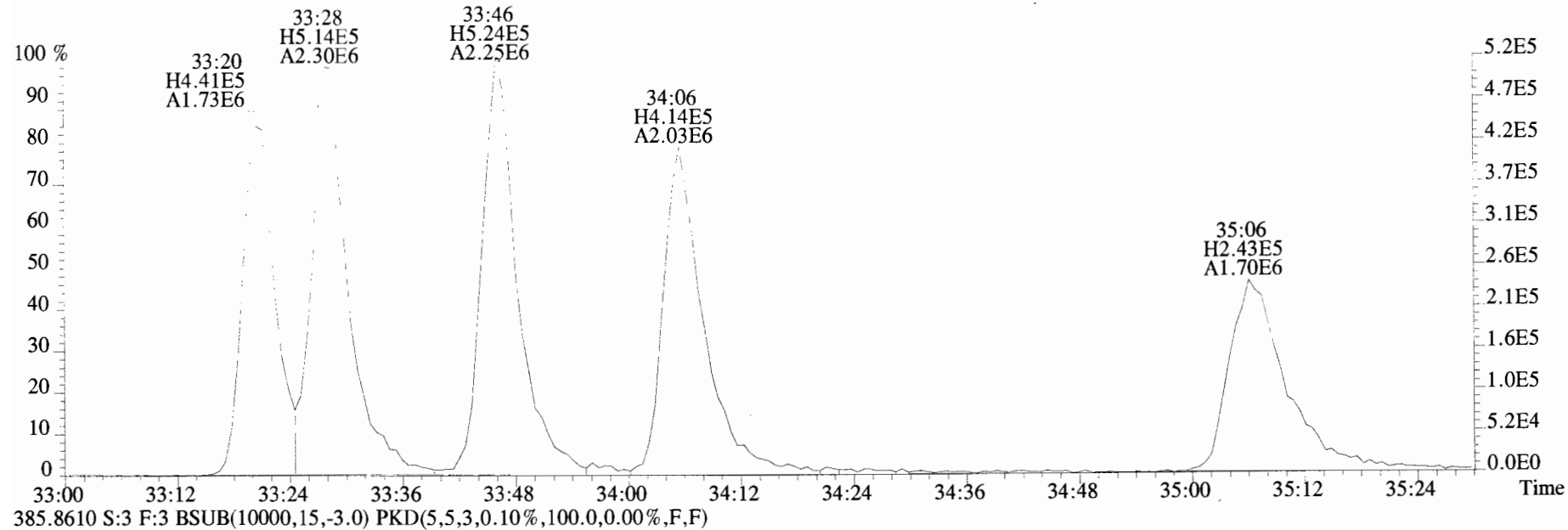
File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



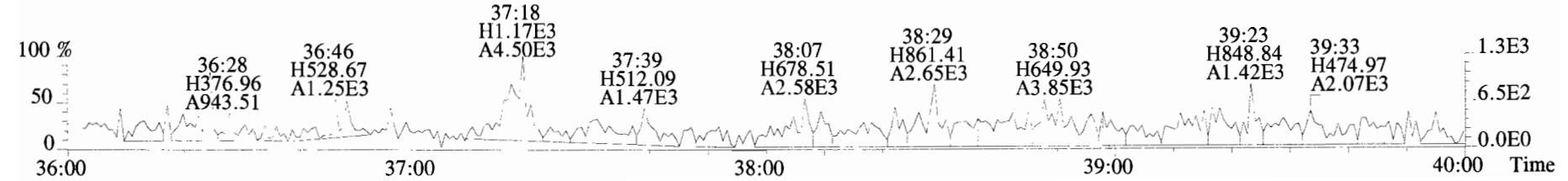
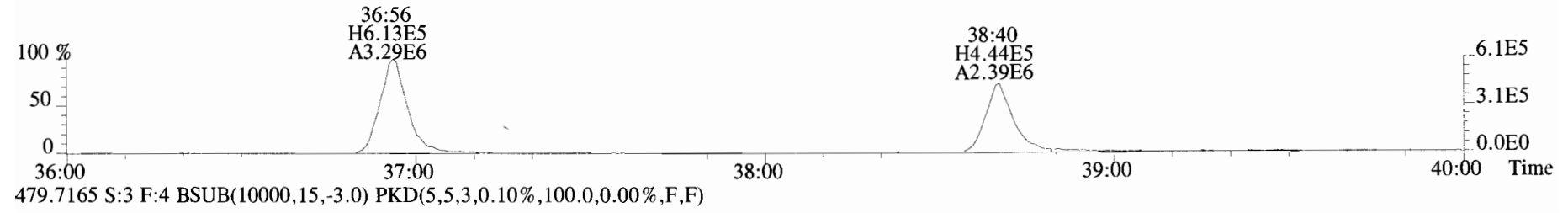
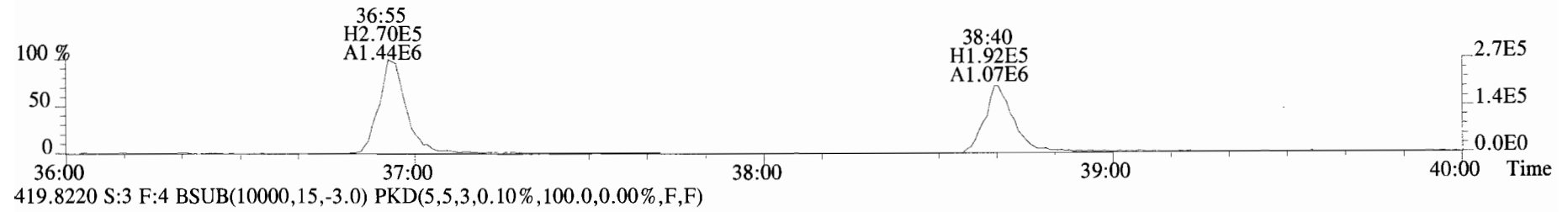
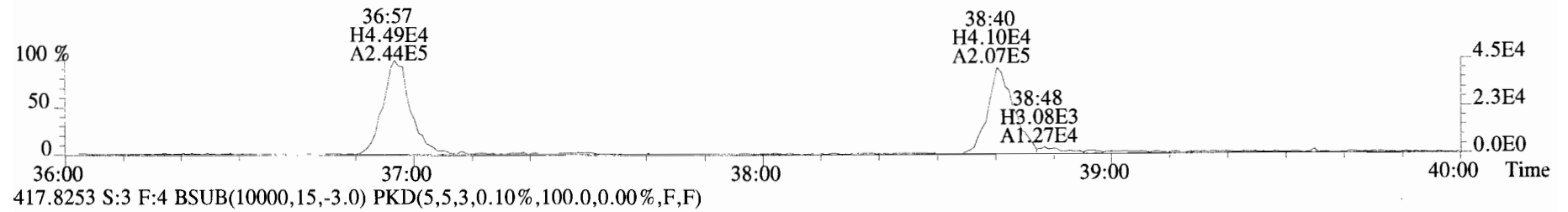
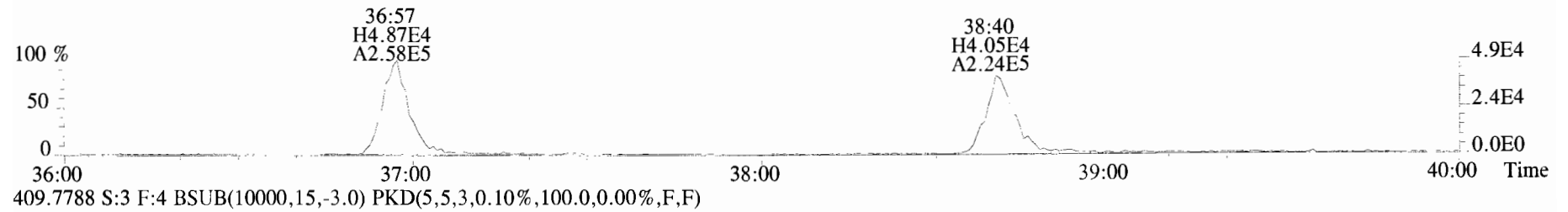
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
 373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



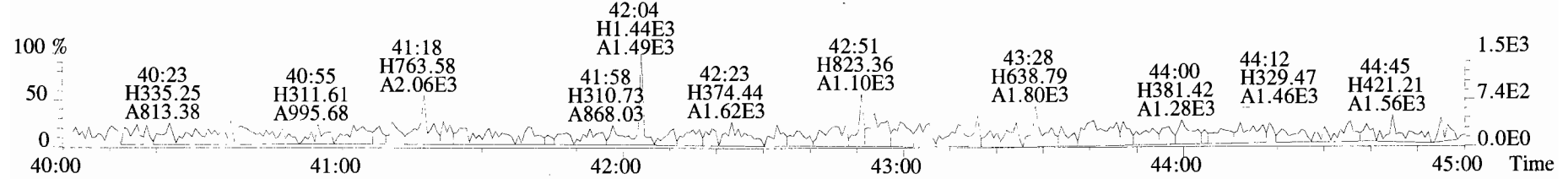
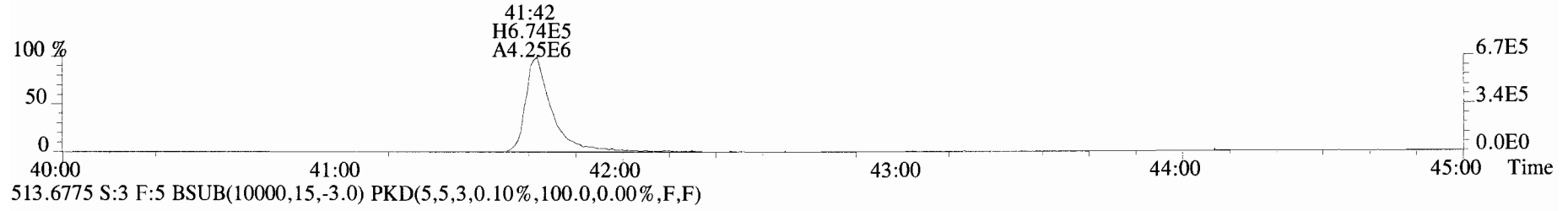
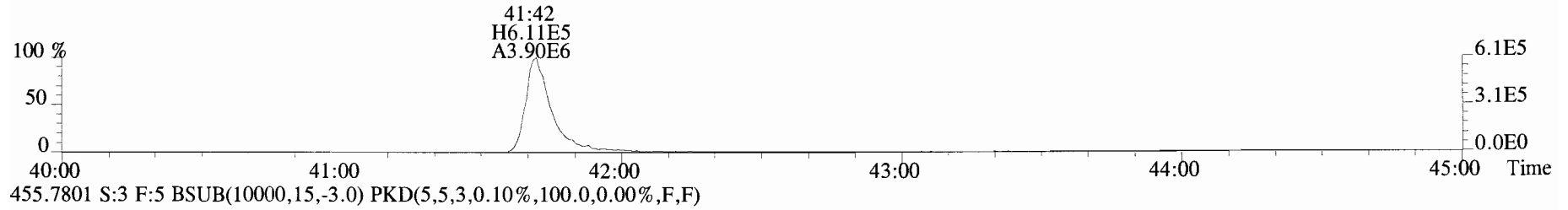
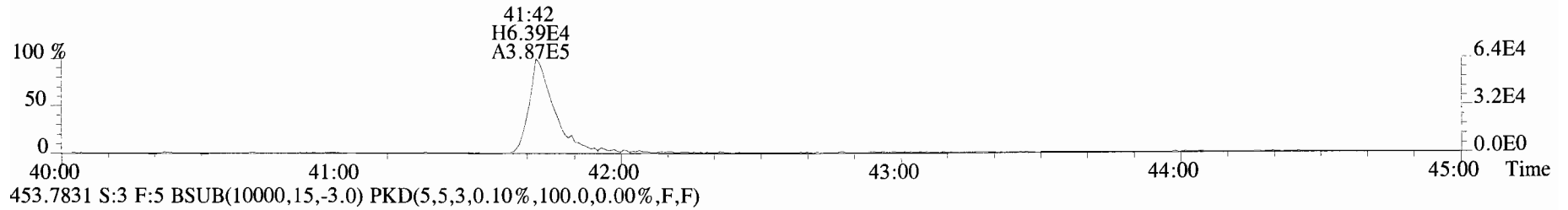
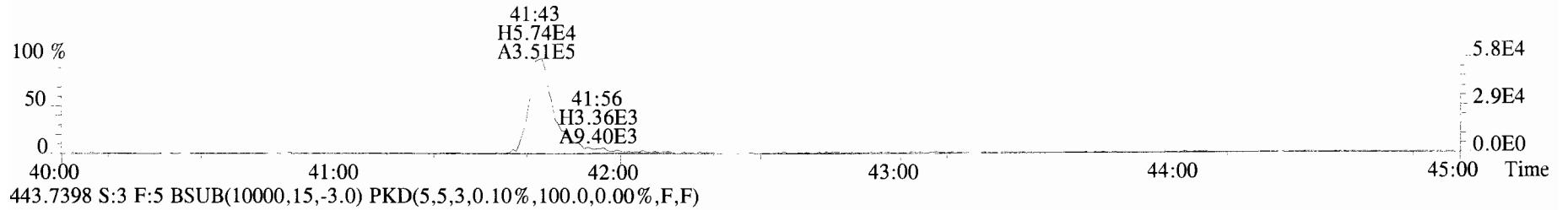
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

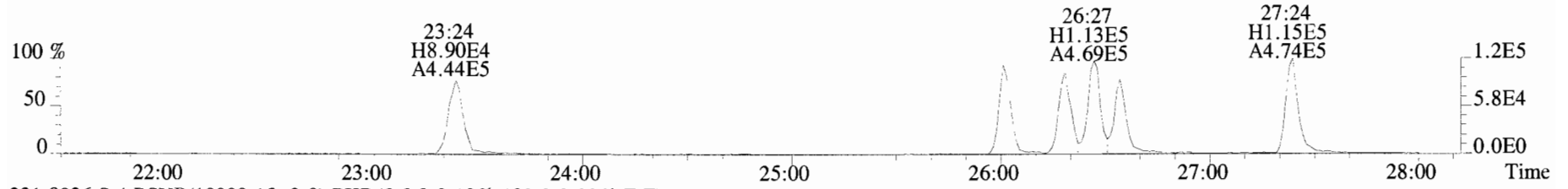


File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

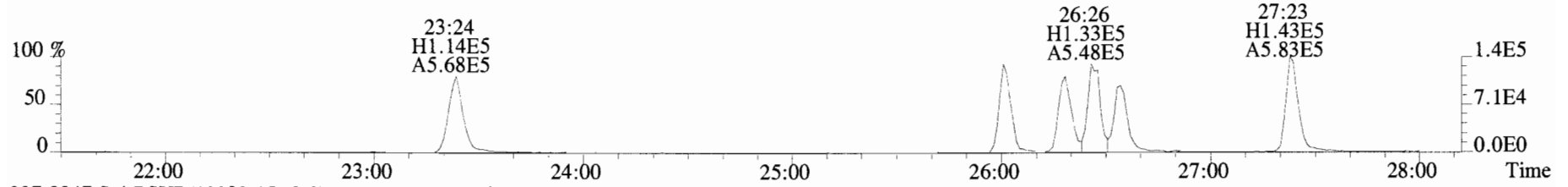




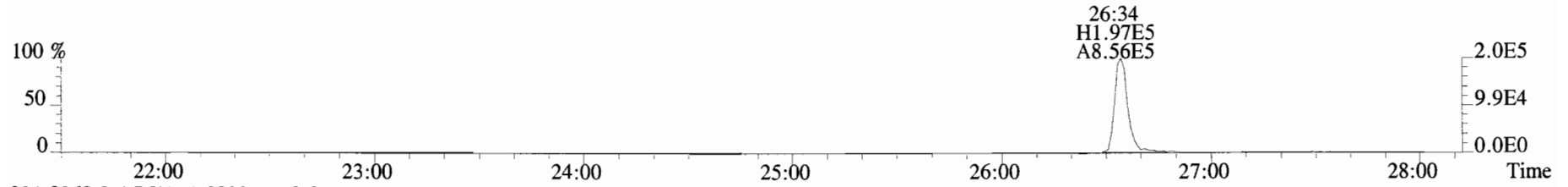
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



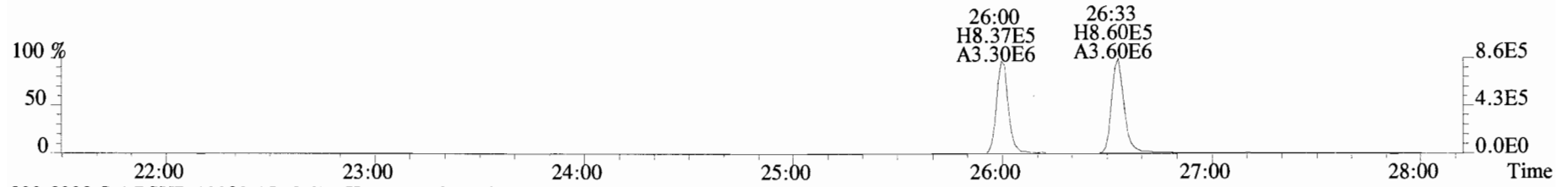
321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



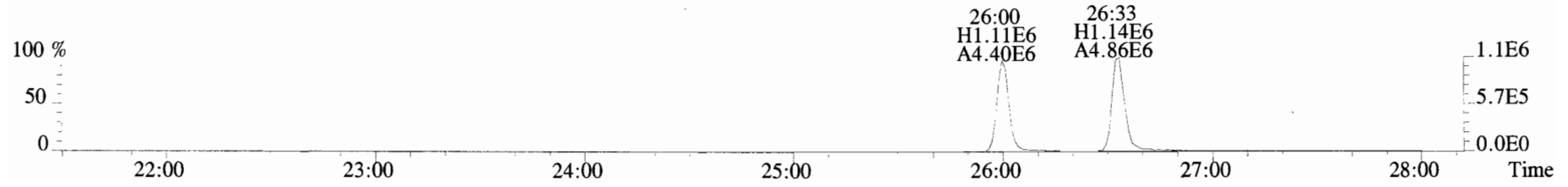
327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



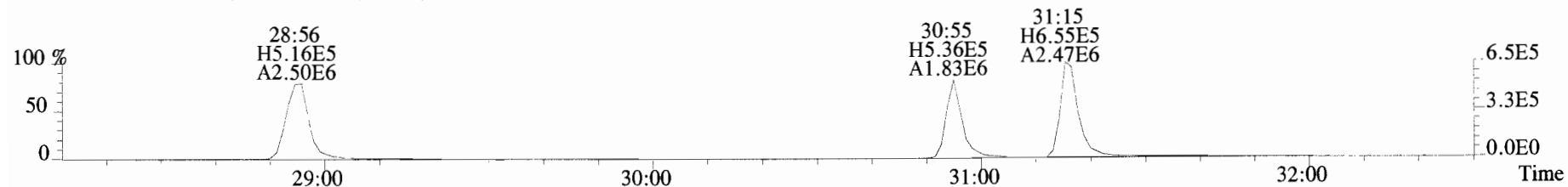
333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



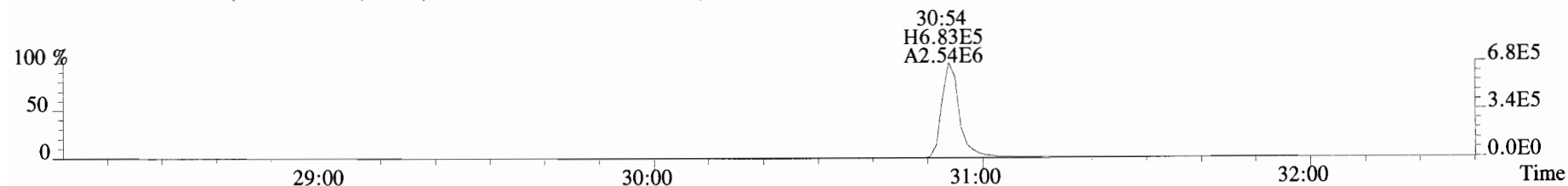
File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



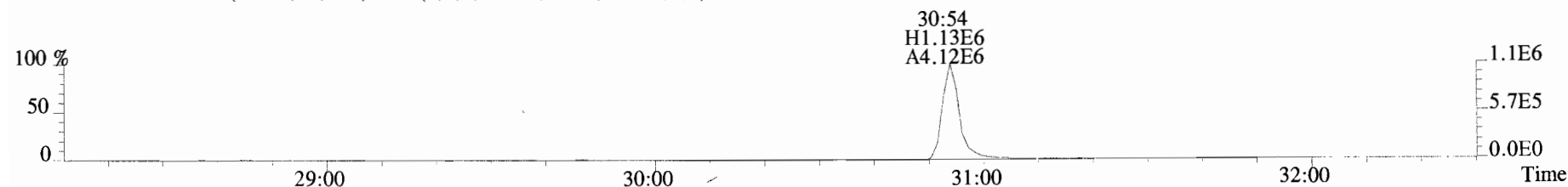
355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



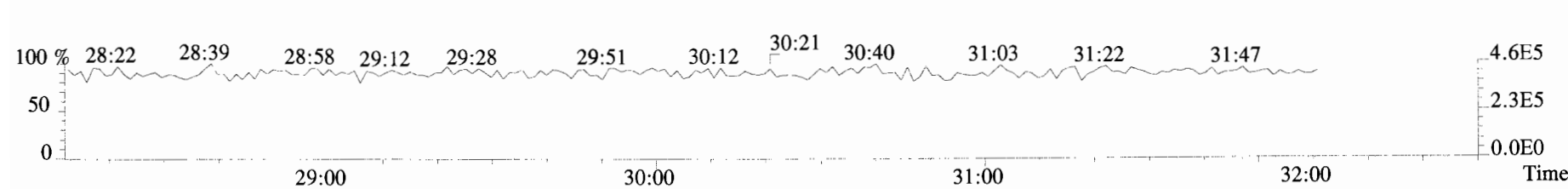
365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



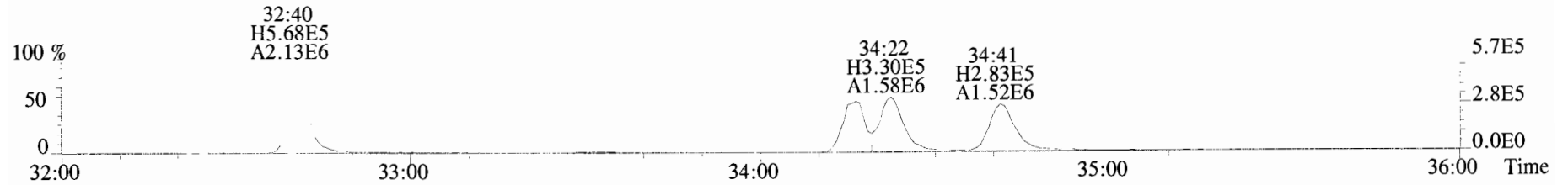
367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



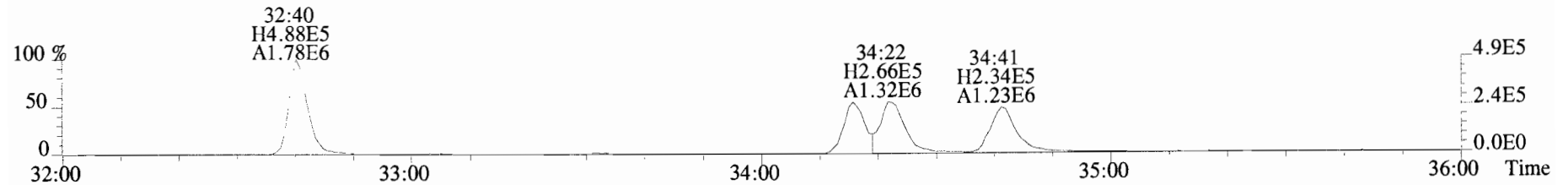
366.9792 S:4 F:2



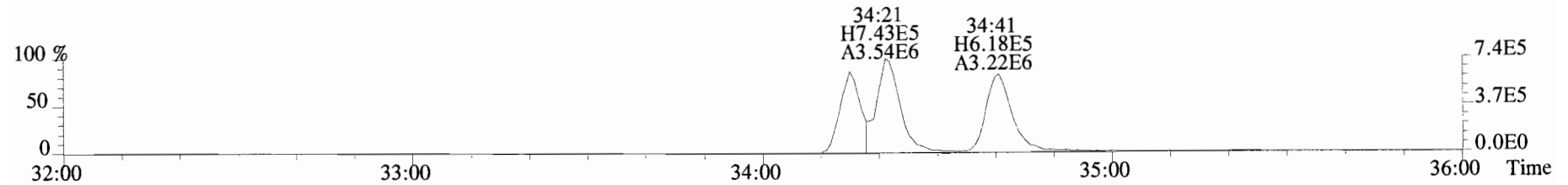
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



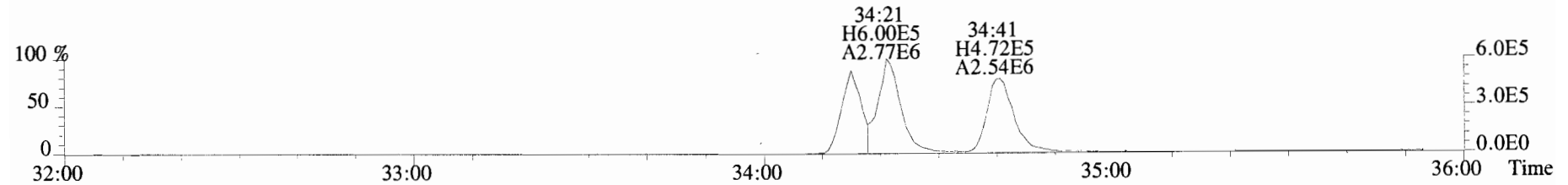
391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



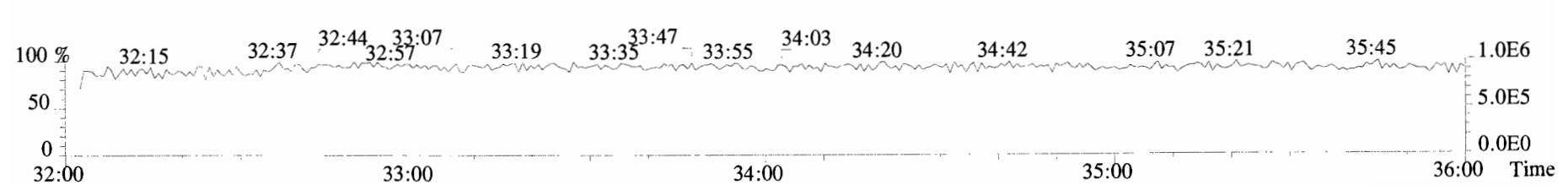
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



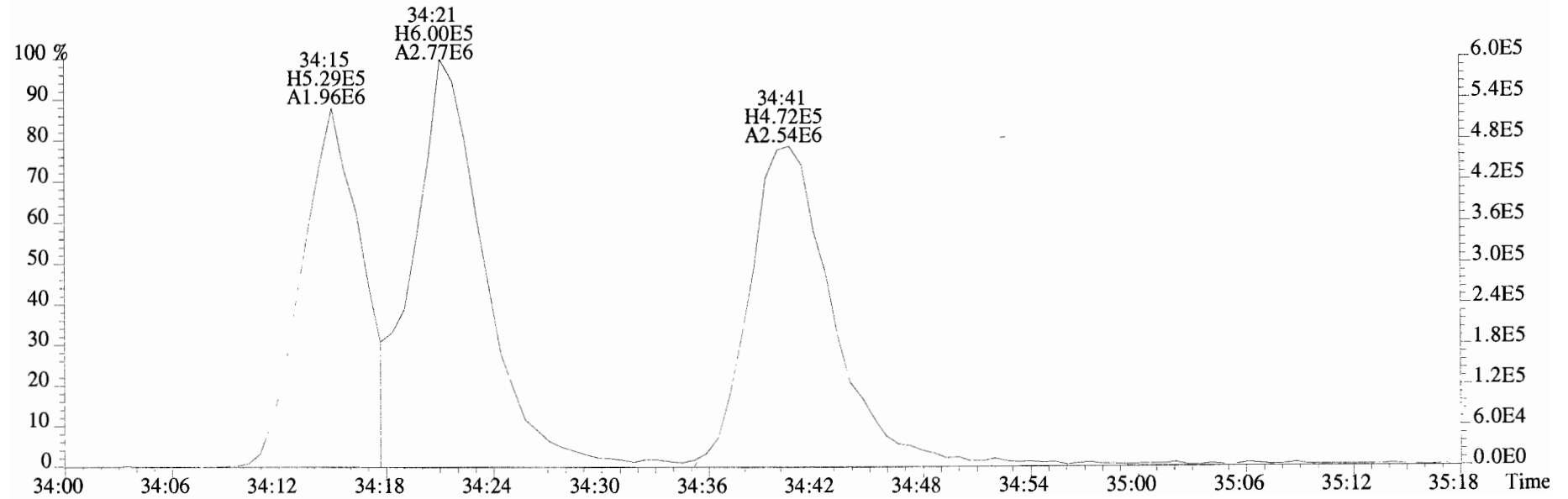
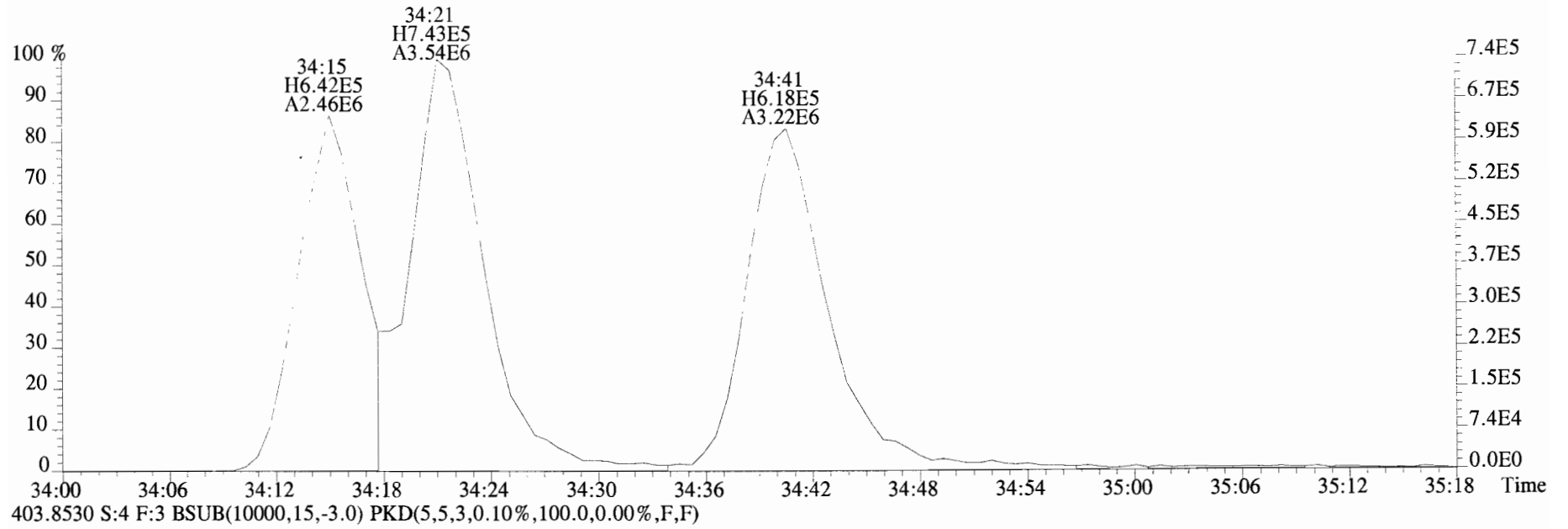
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



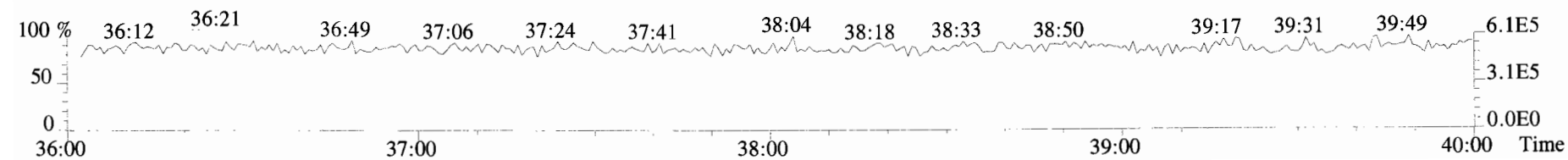
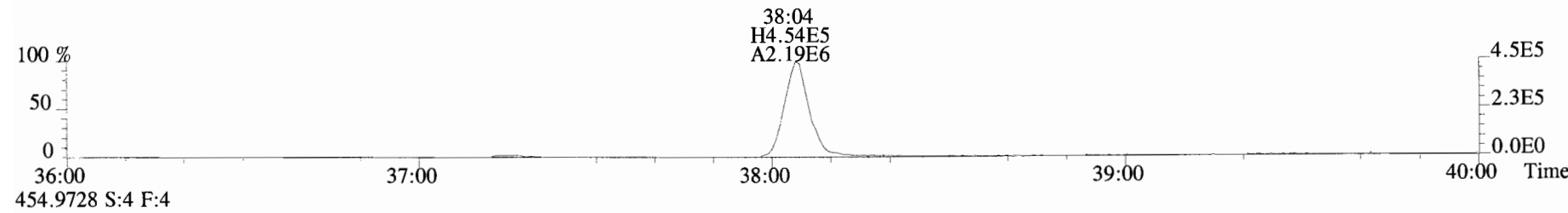
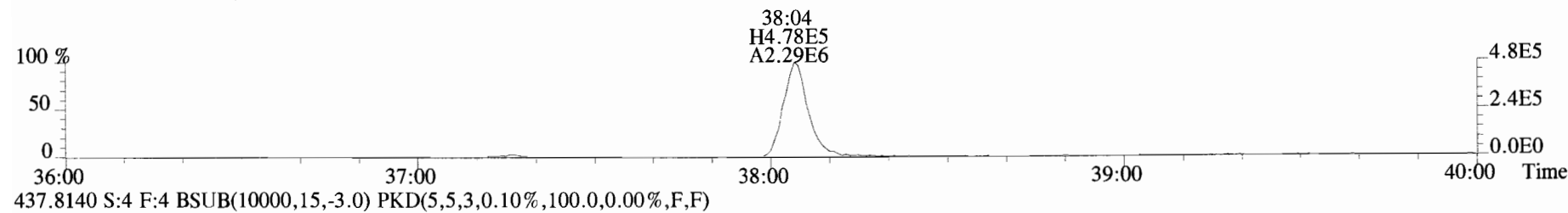
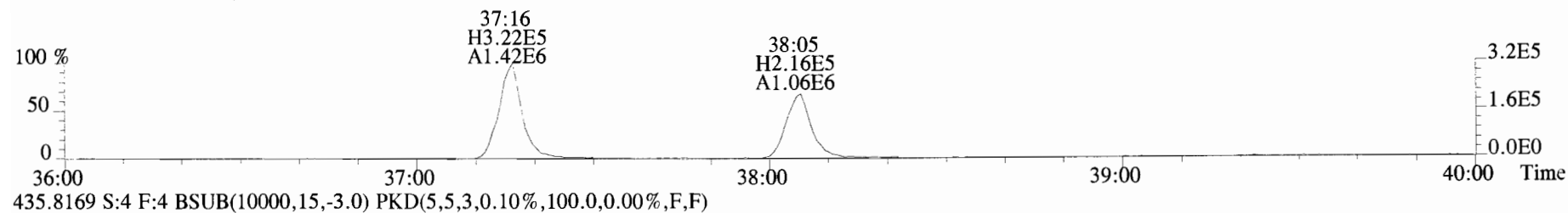
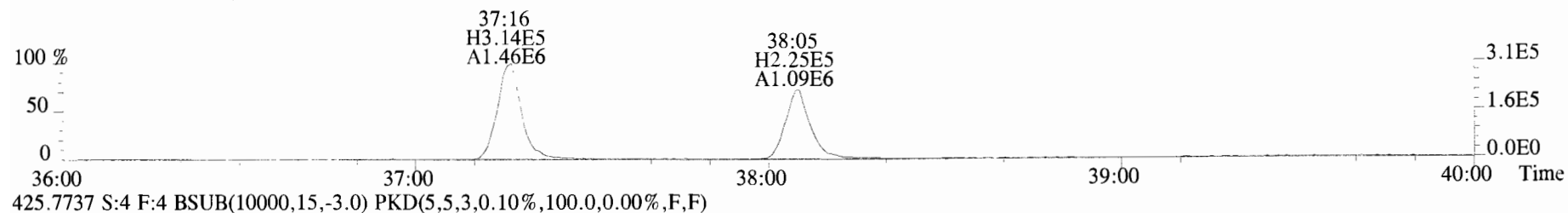
392.9760 S:4 F:3



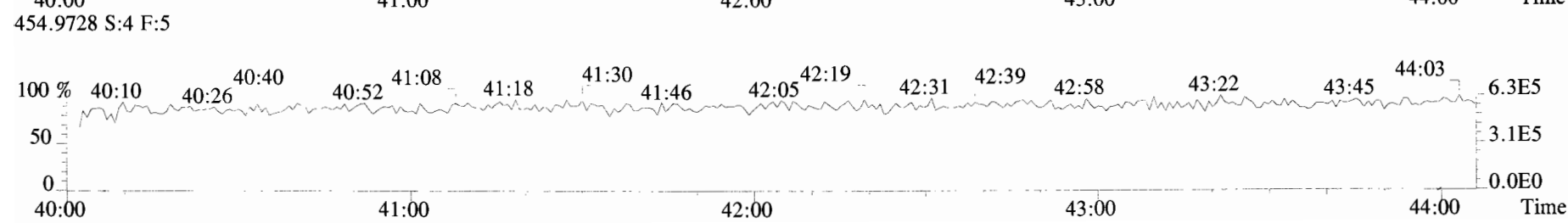
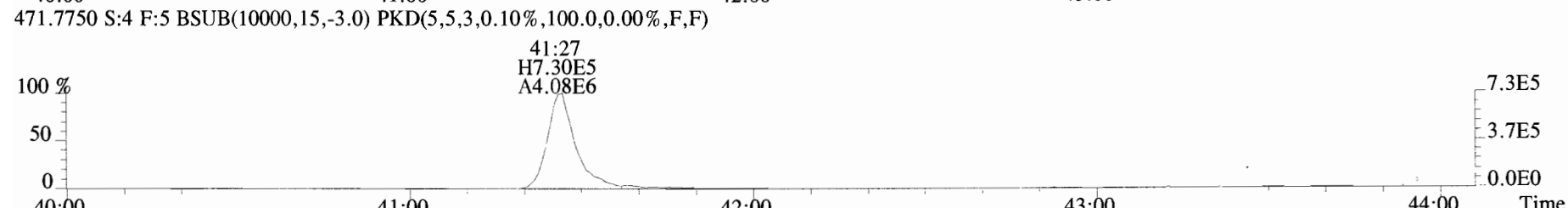
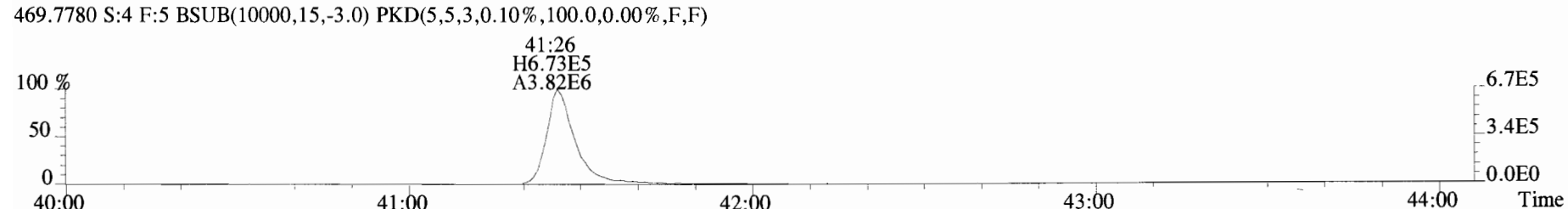
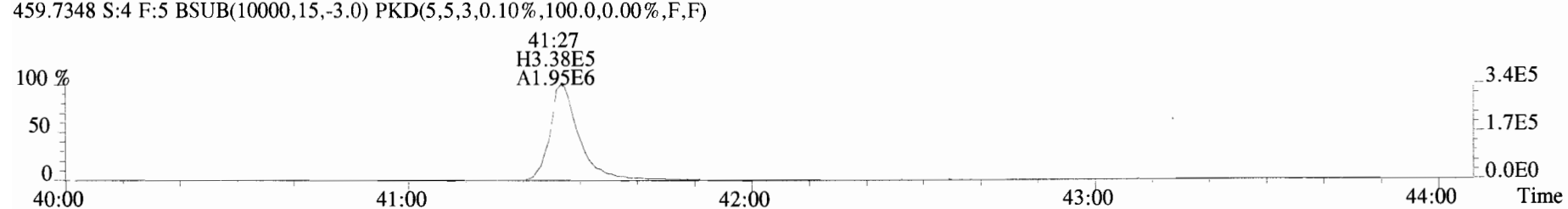
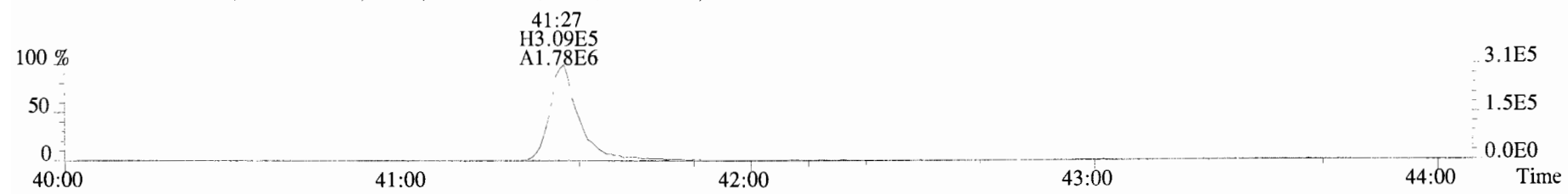
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



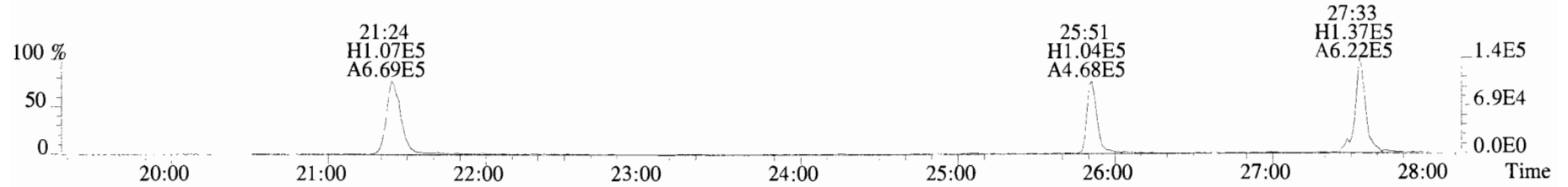
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



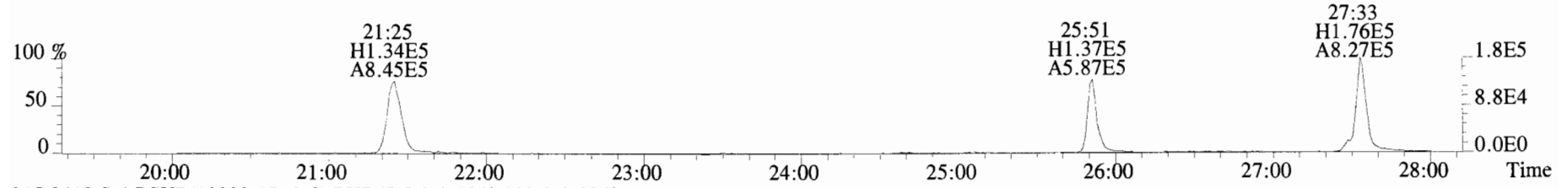
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



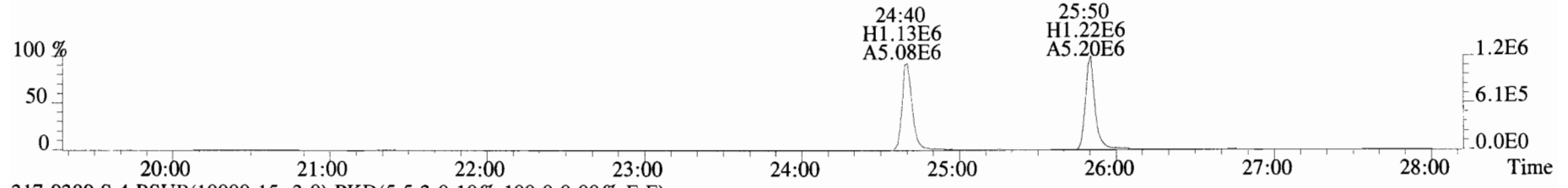
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



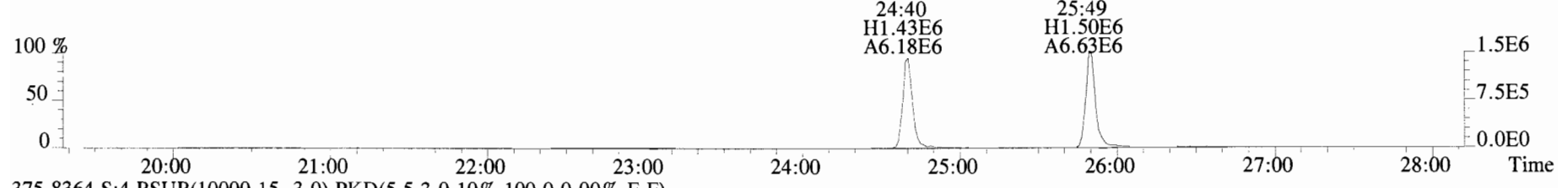
305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



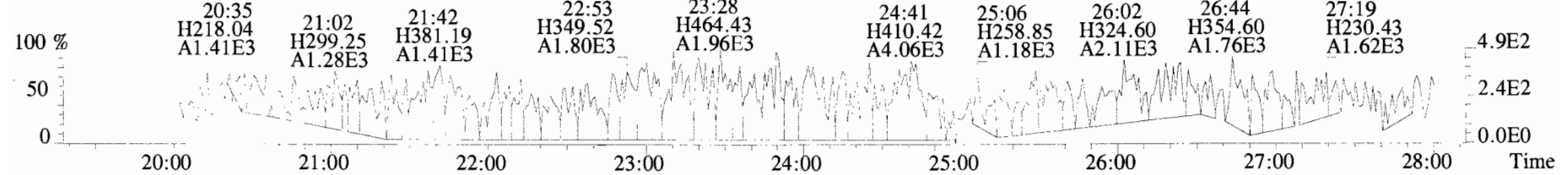
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



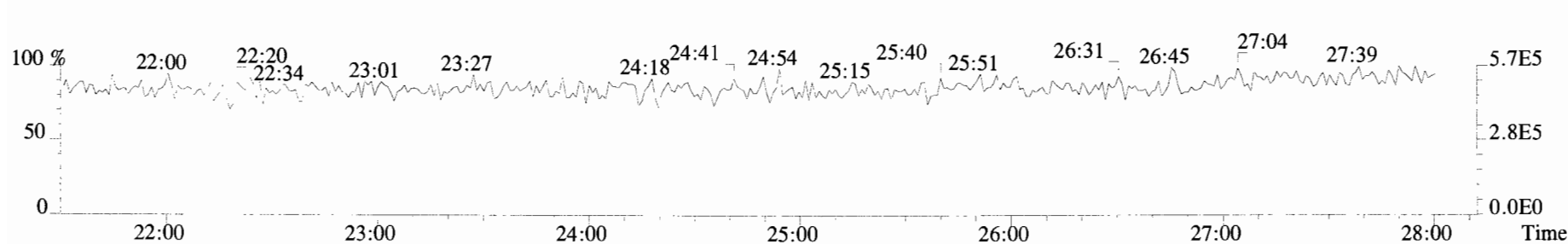
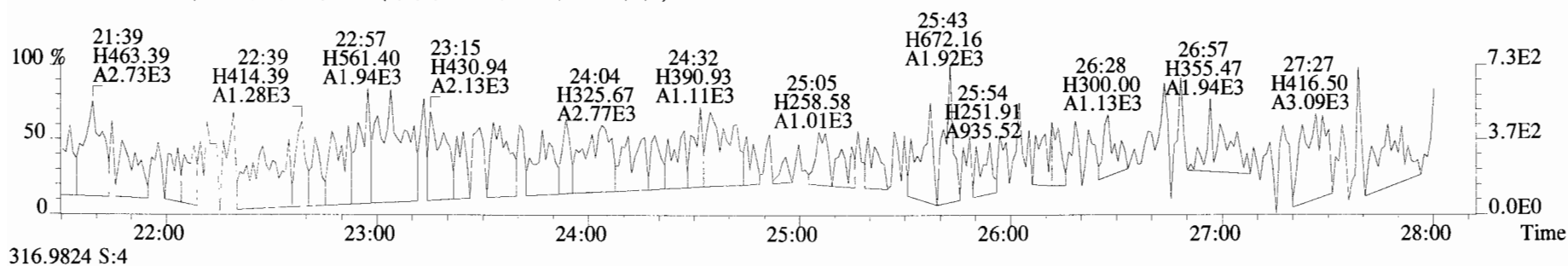
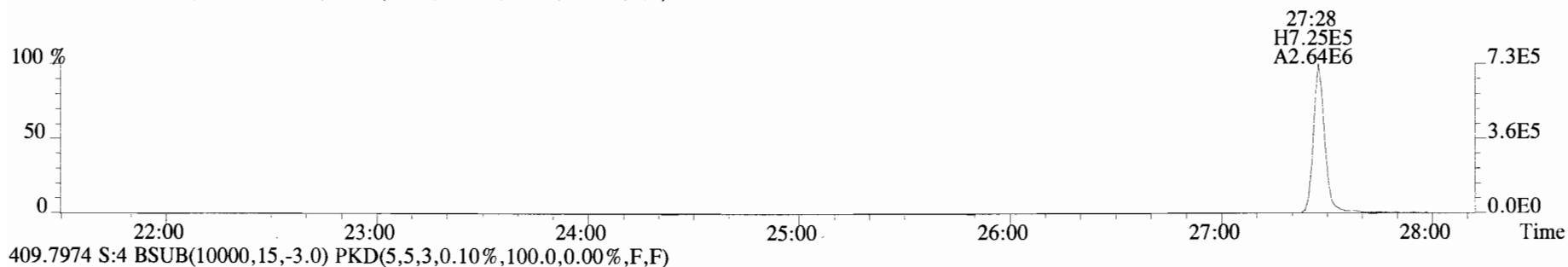
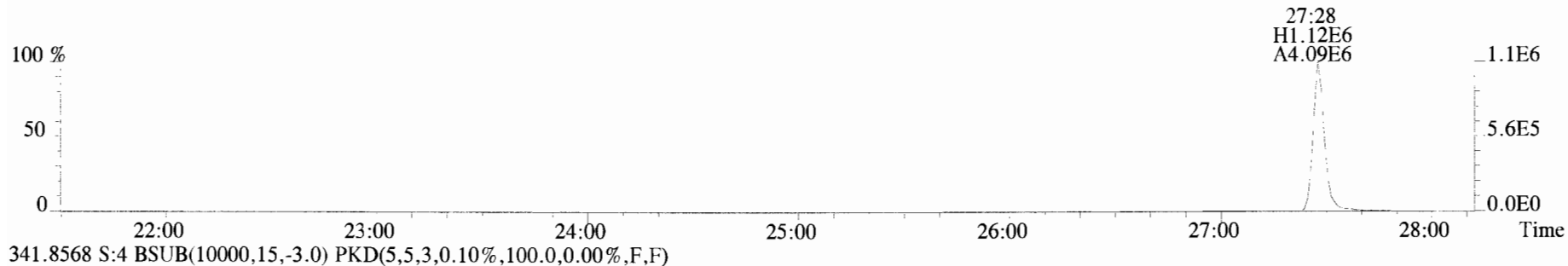
317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

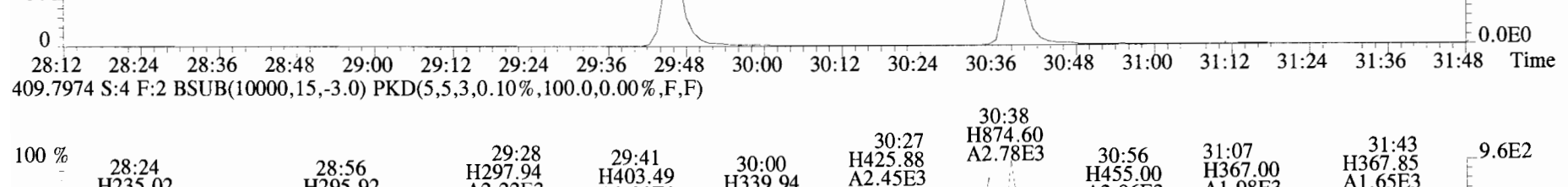
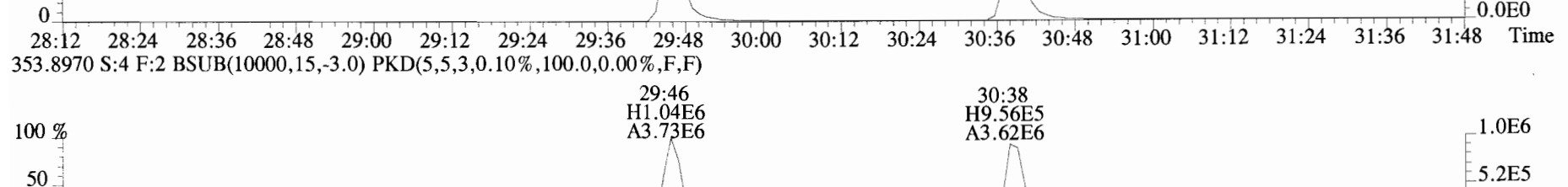
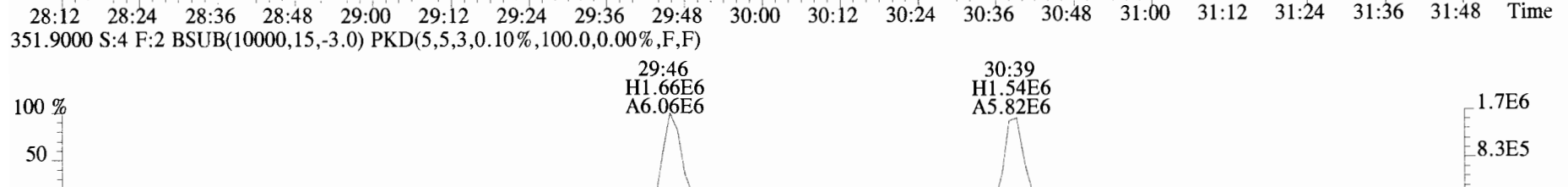
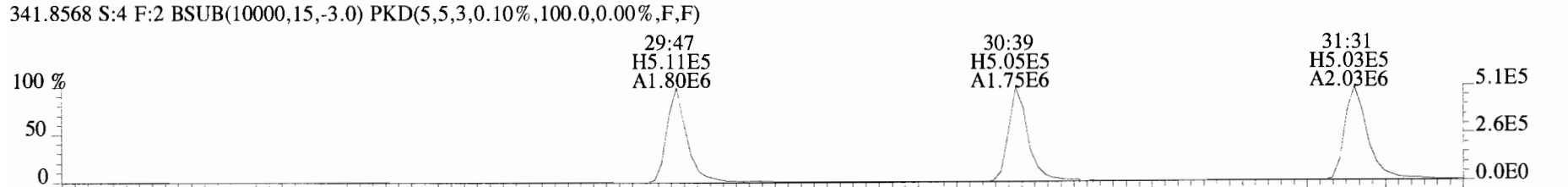
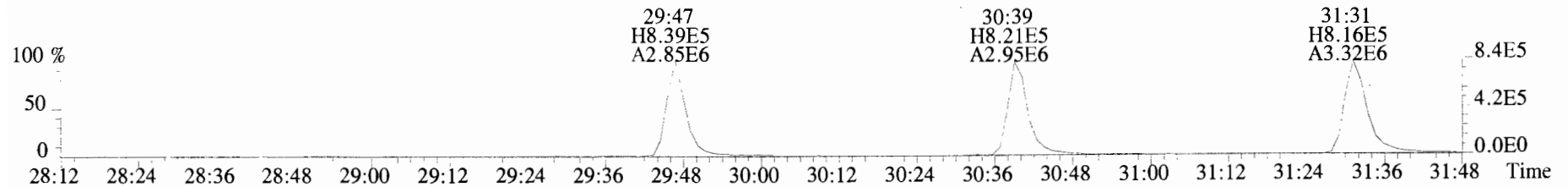


File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

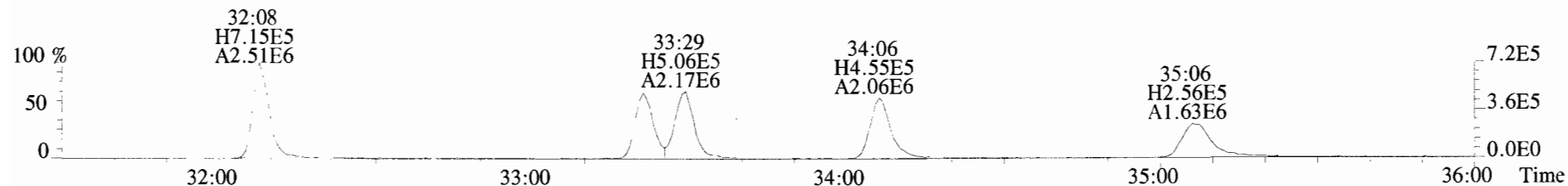




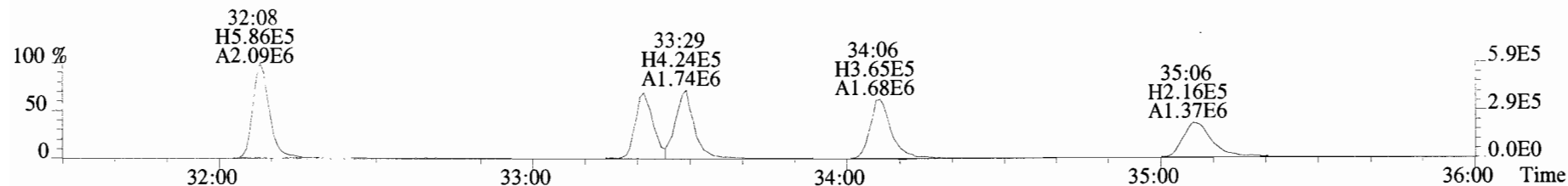
File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



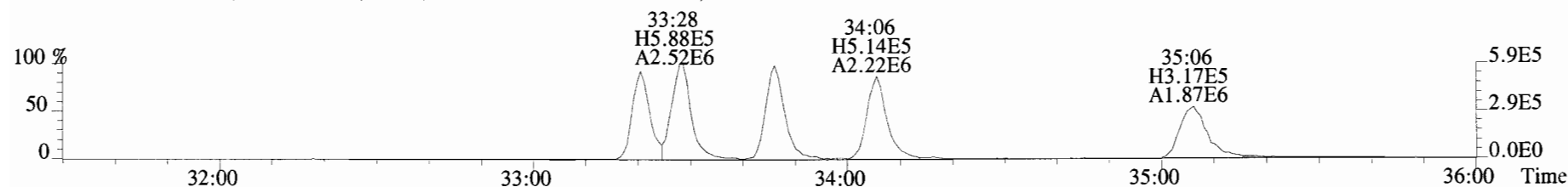
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



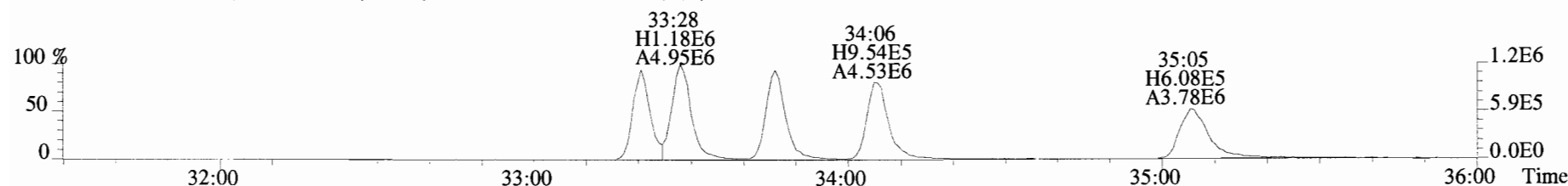
375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



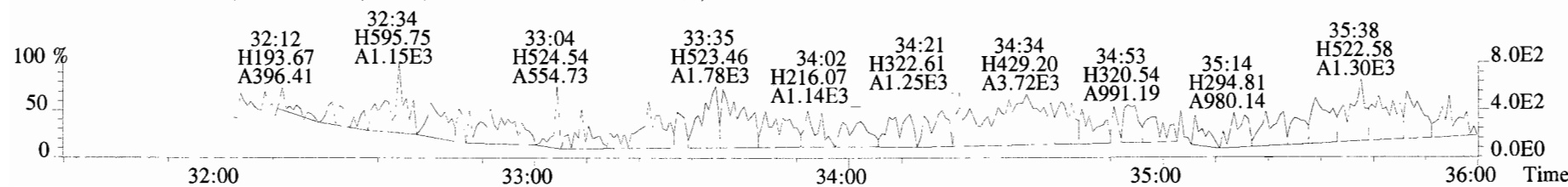
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



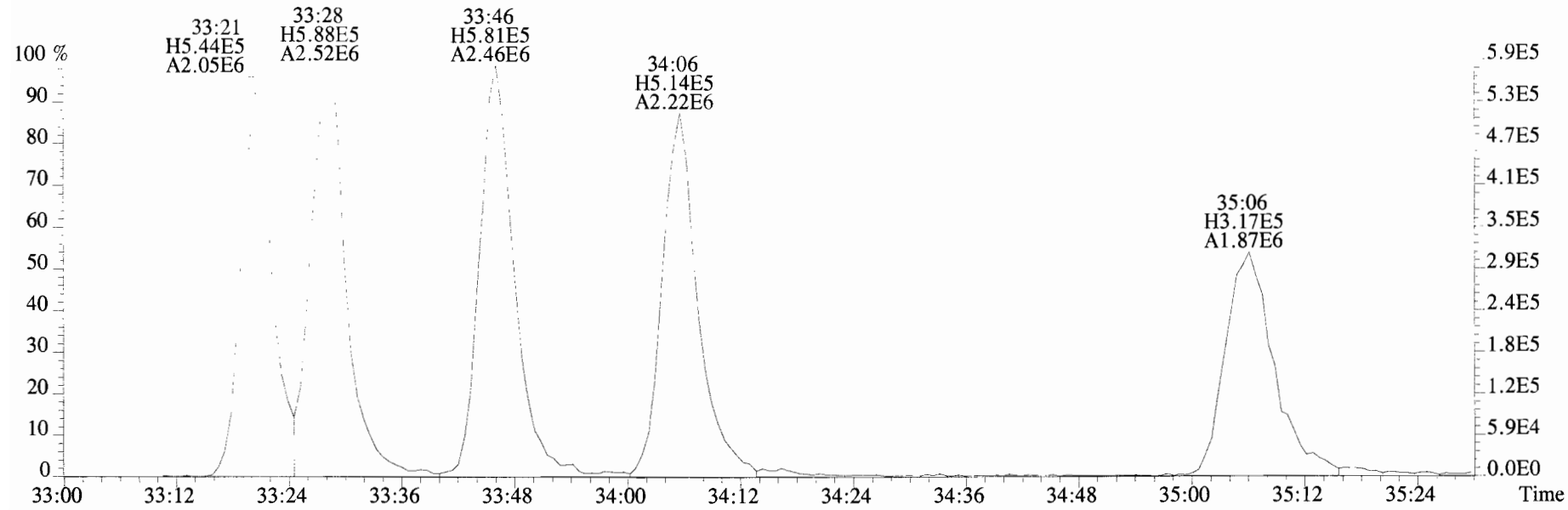
385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



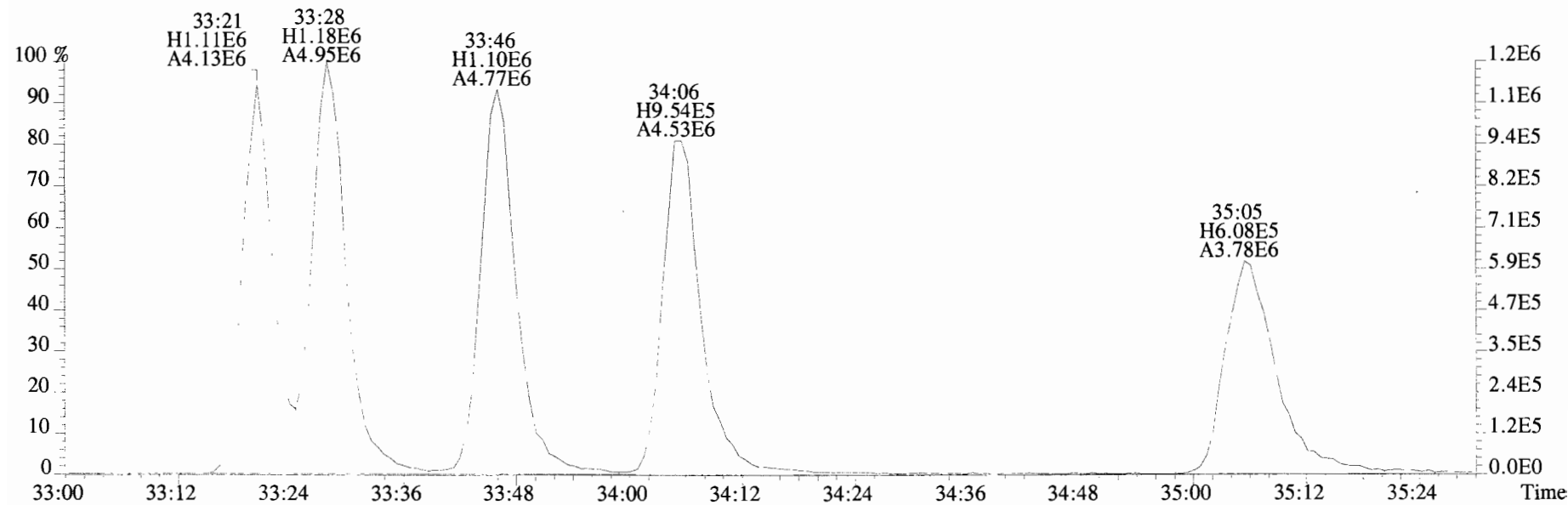
445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



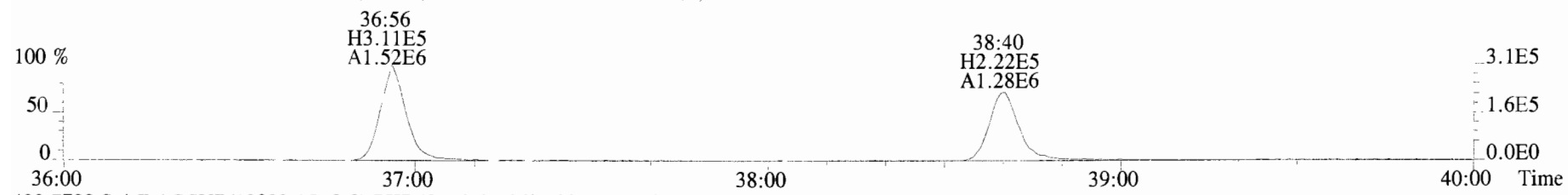
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
 383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



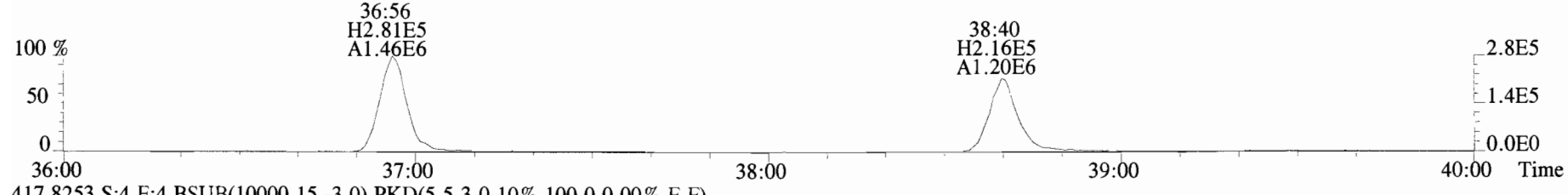
385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



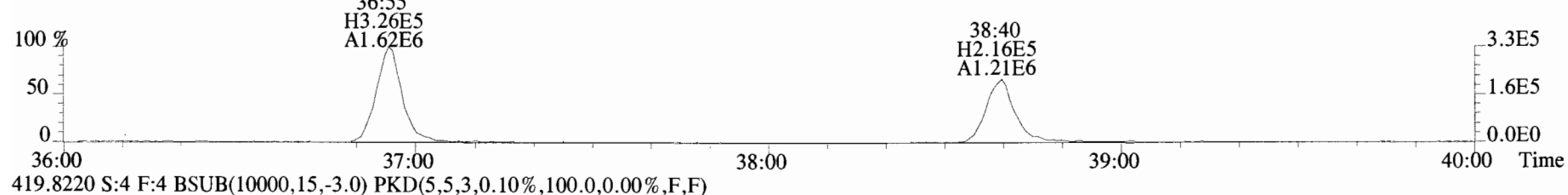
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



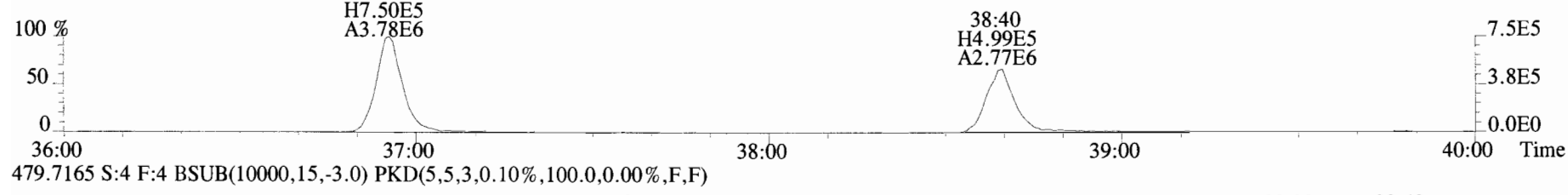
409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



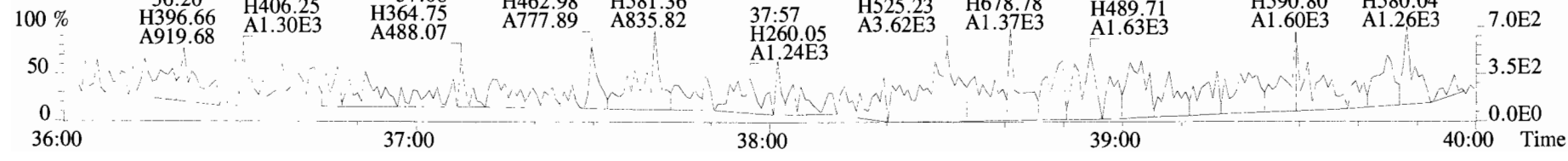
417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



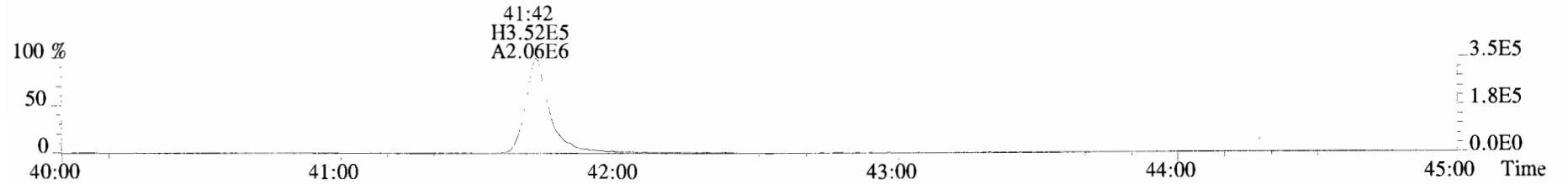
419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



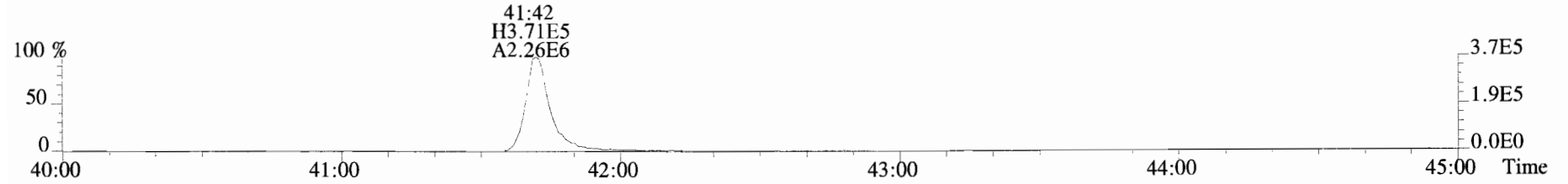
479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



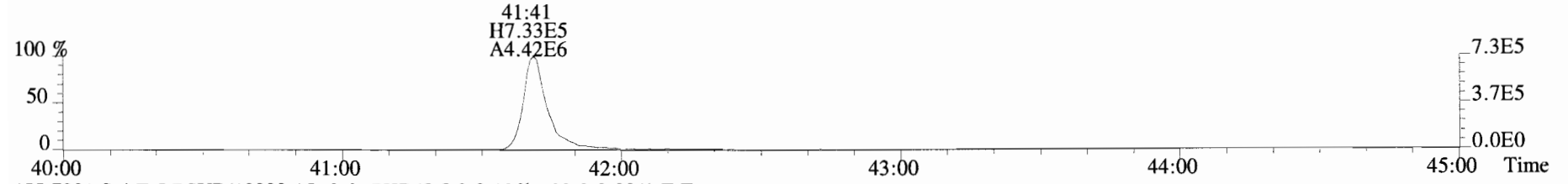
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



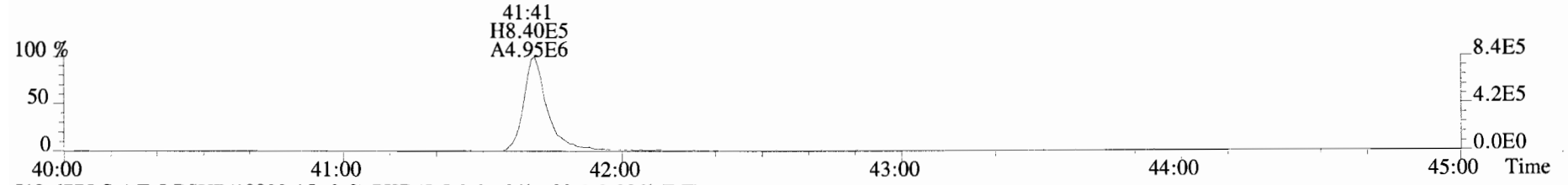
443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



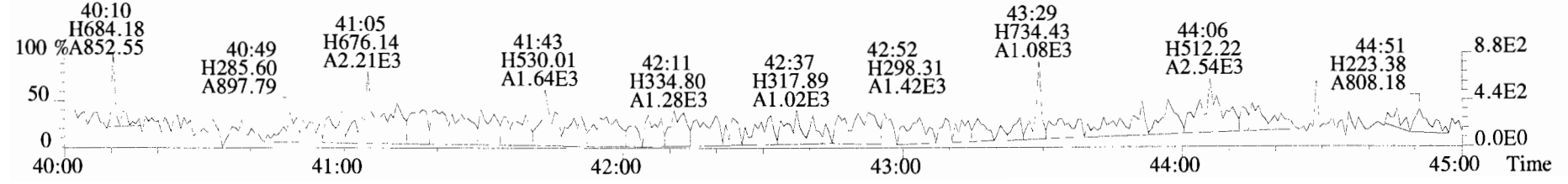
453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



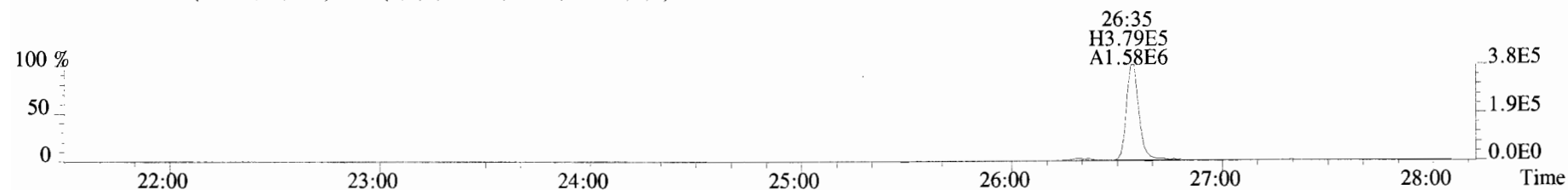
455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



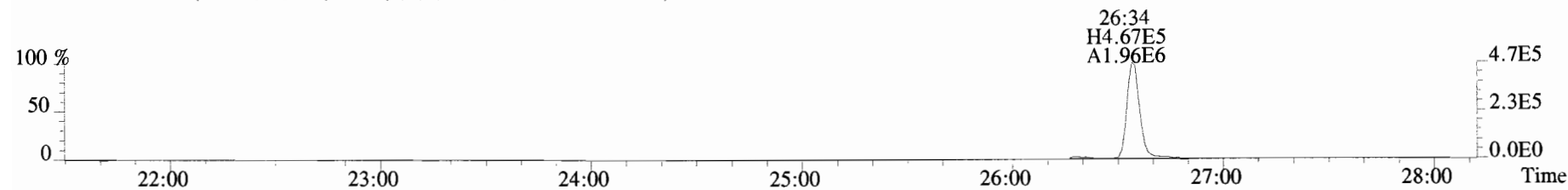
513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



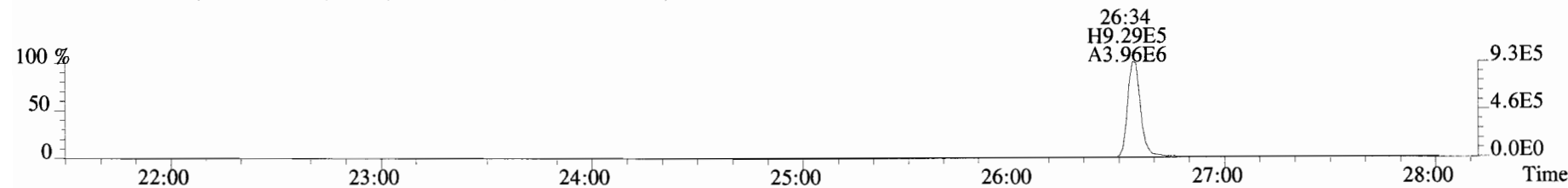
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



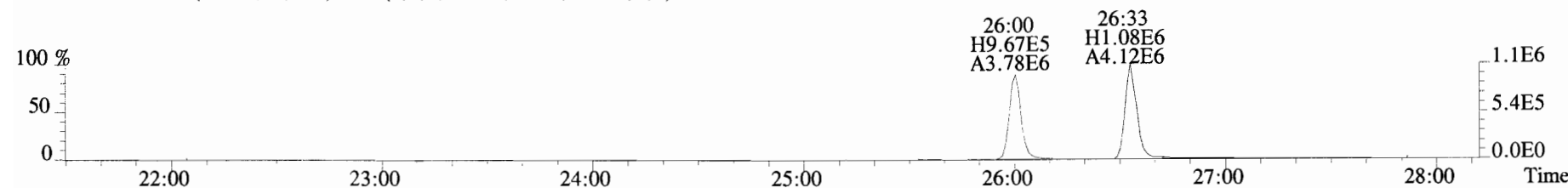
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



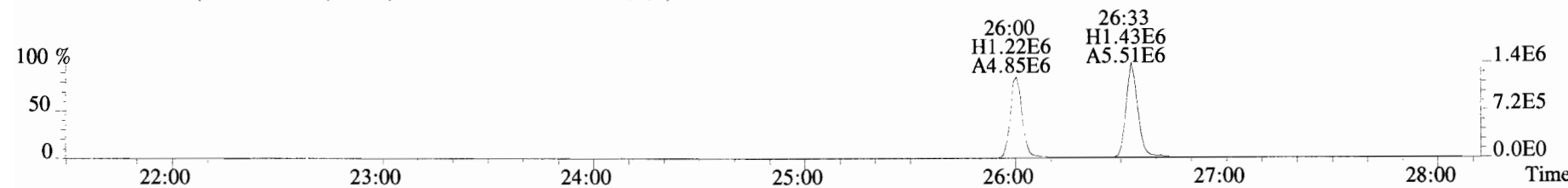
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



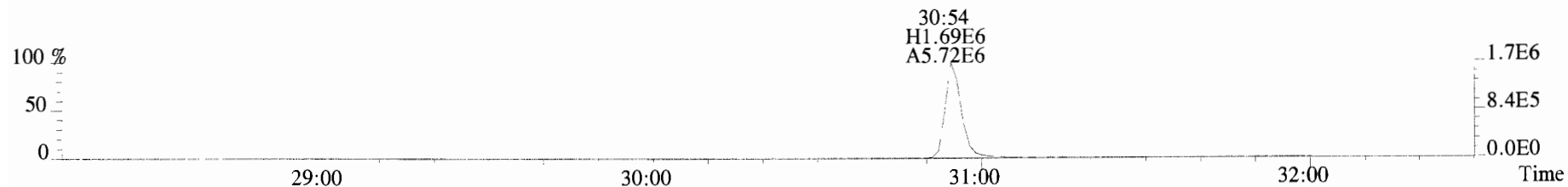
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



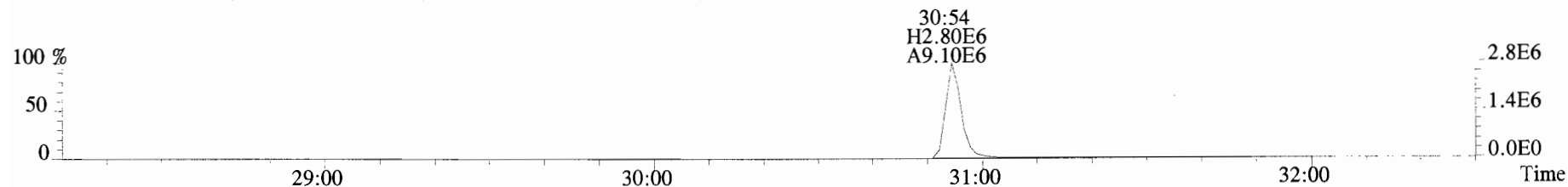
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



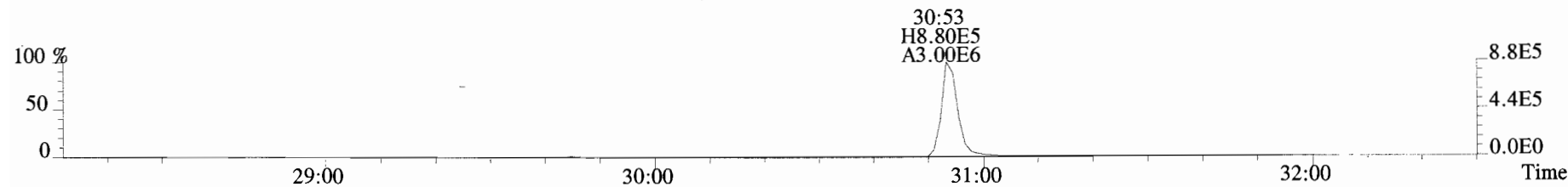
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



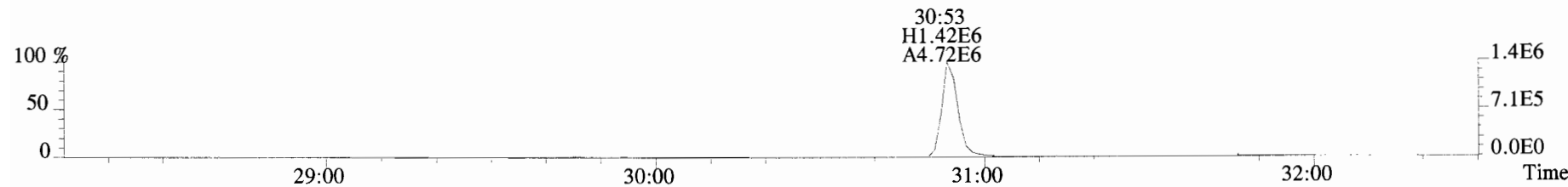
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



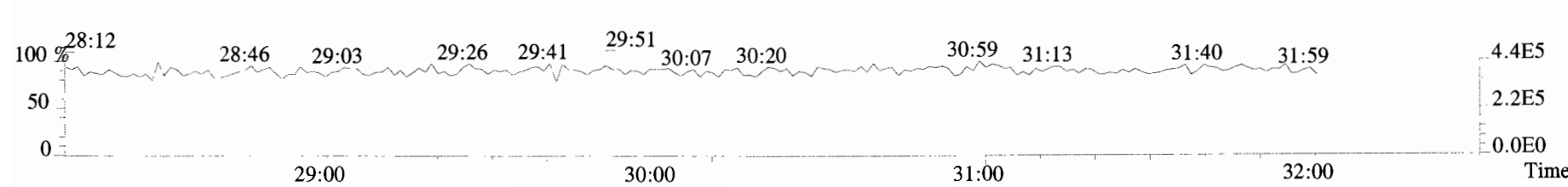
365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



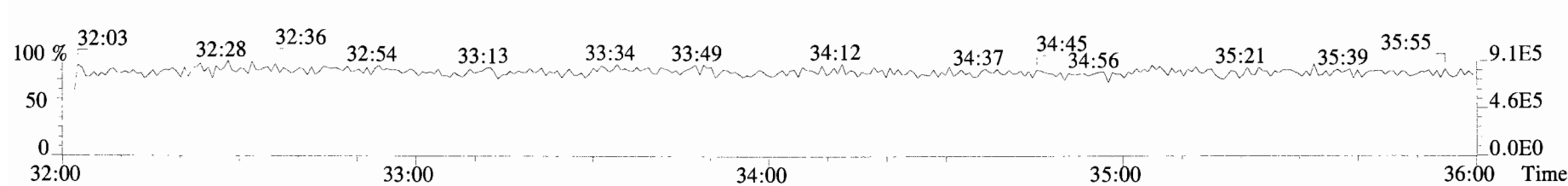
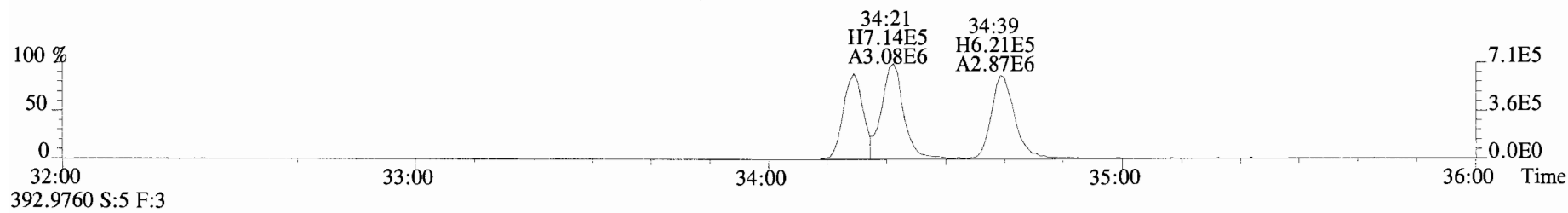
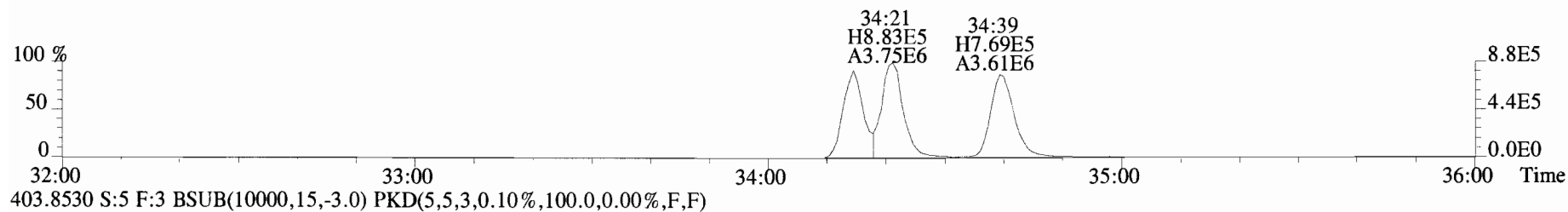
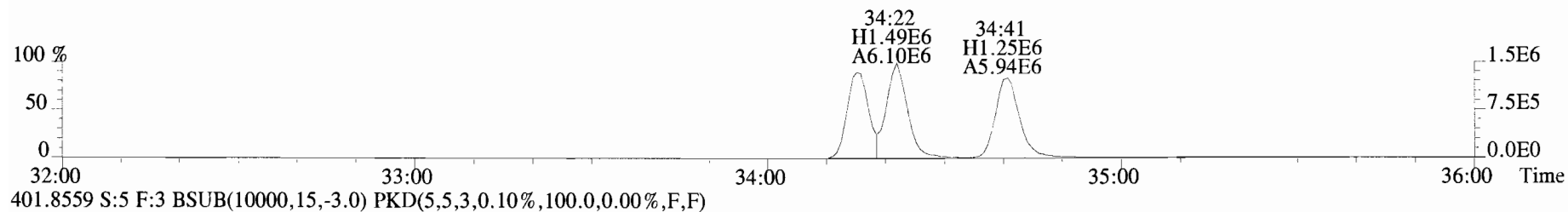
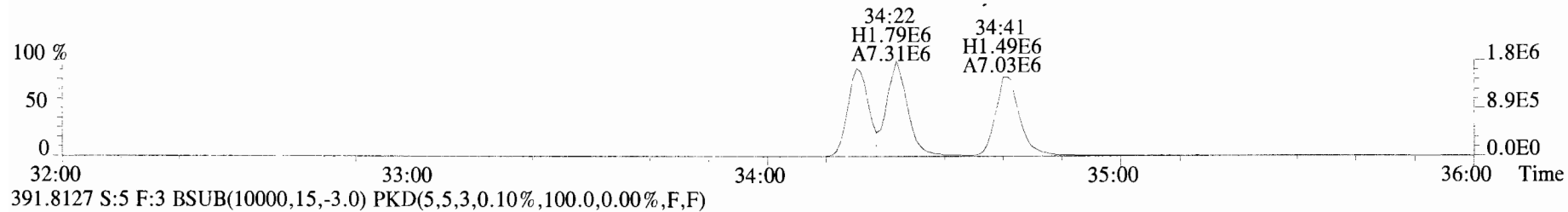
367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



366.9792 S:5 F:2

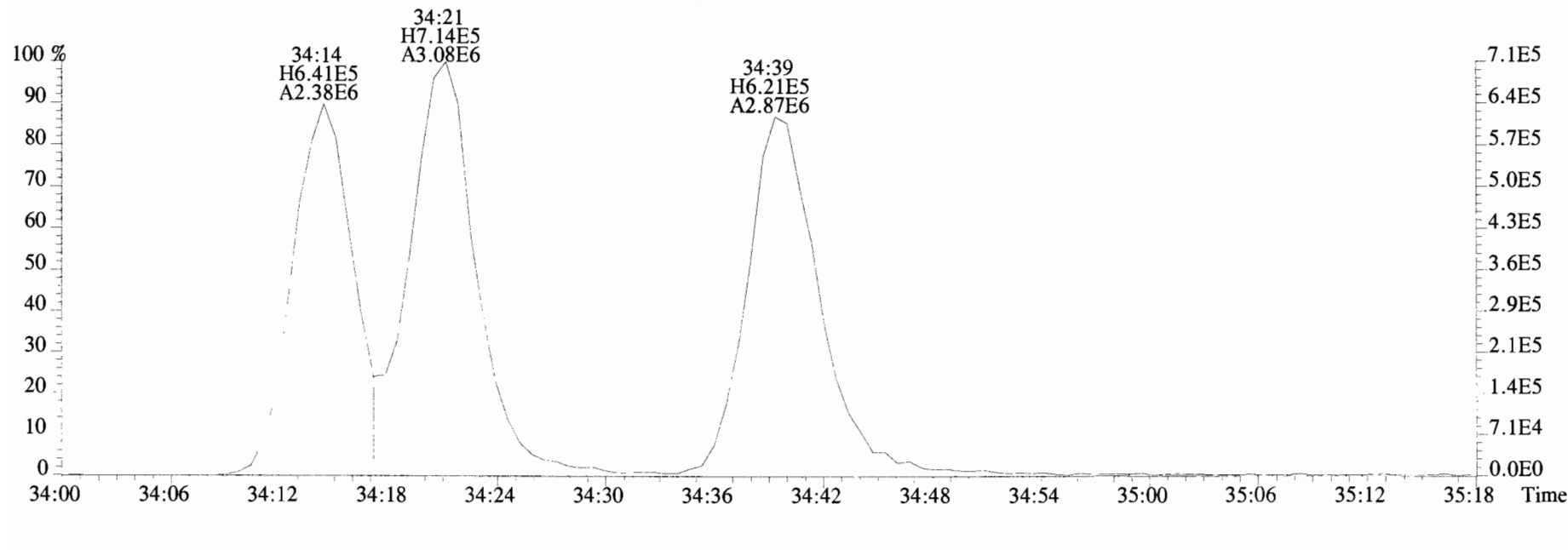
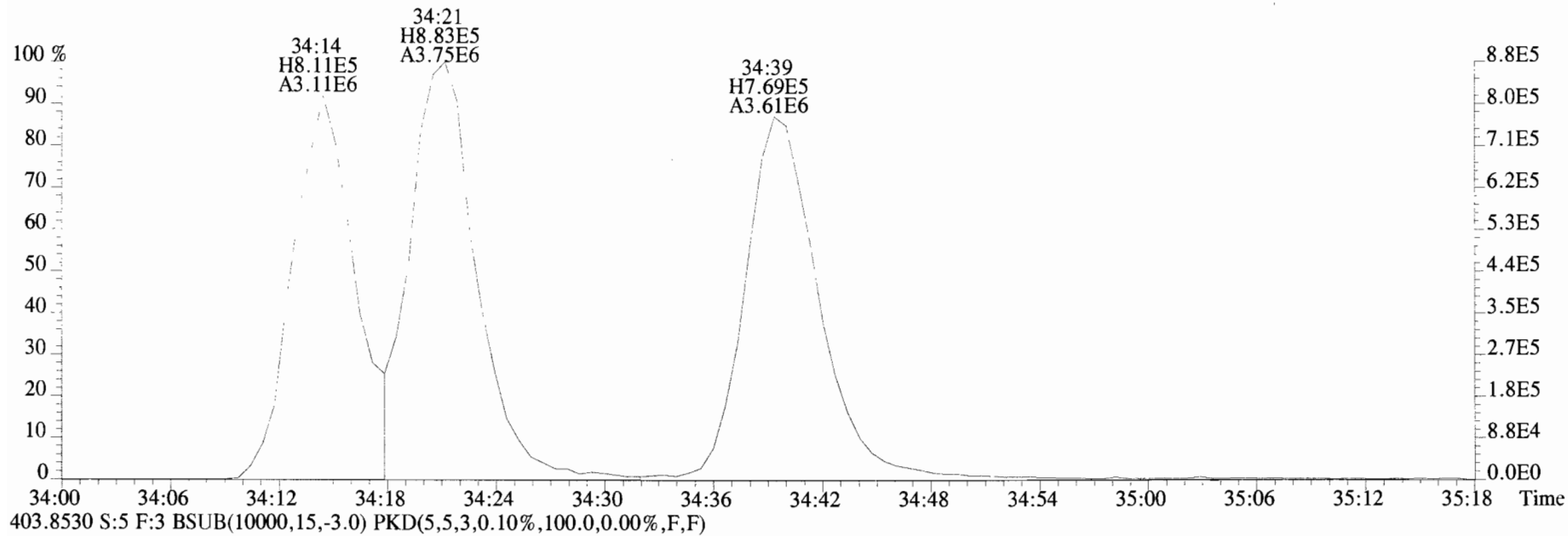


File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

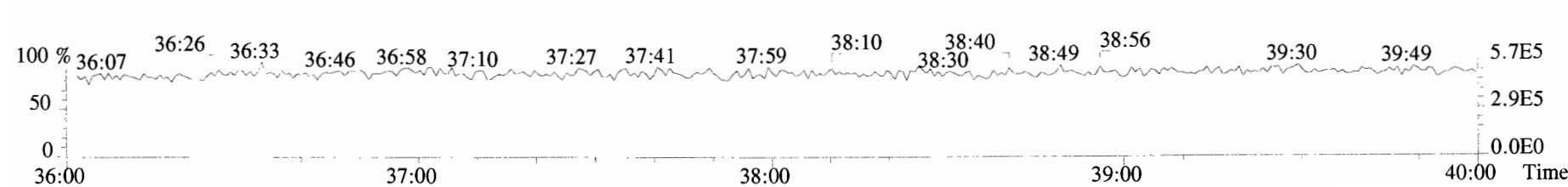
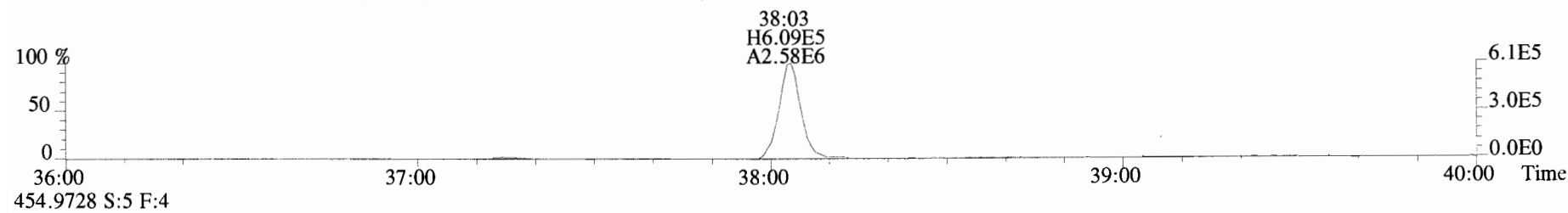
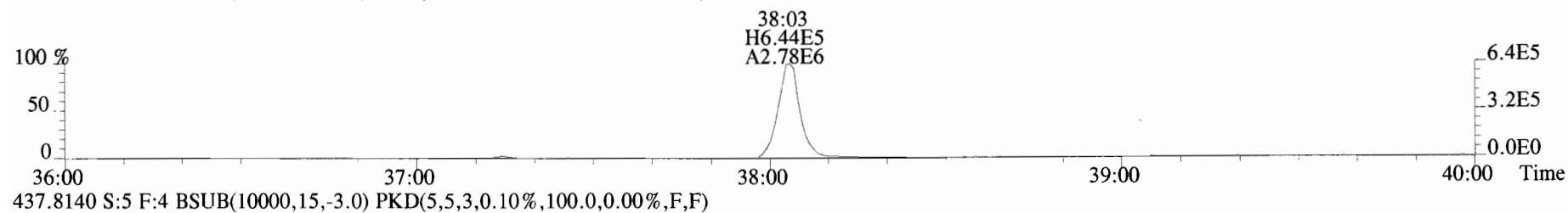
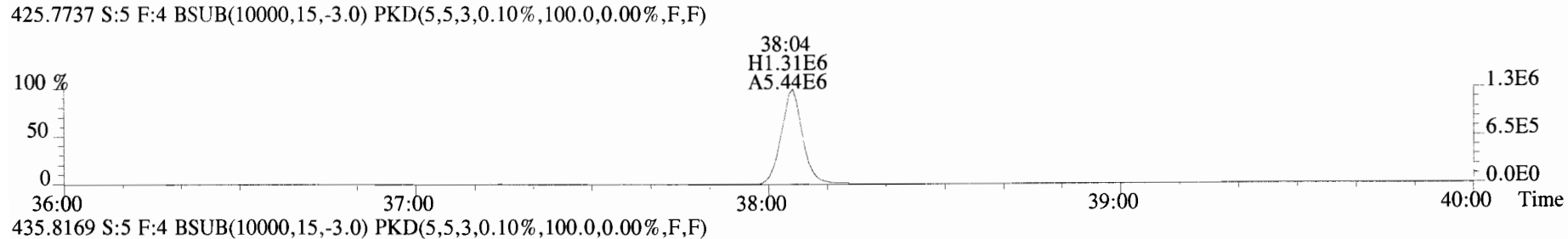
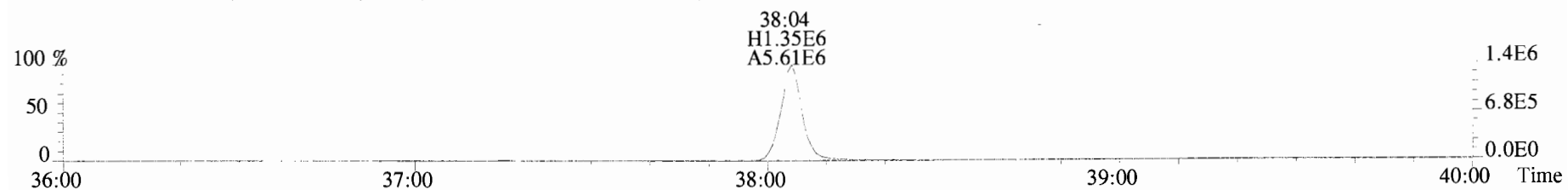




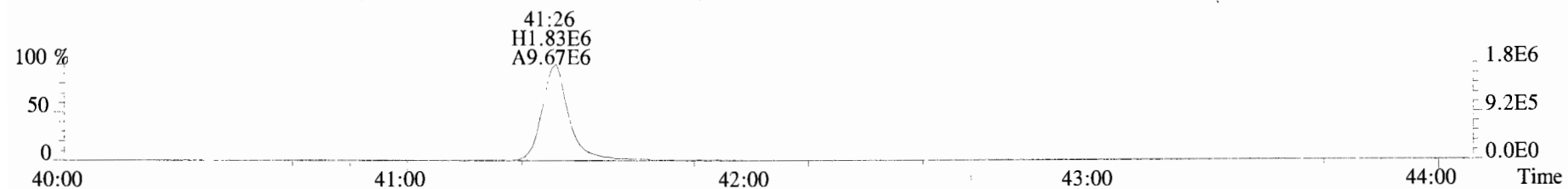
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



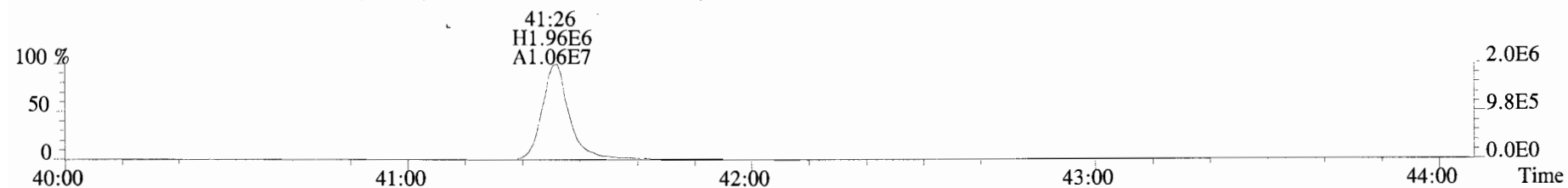
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



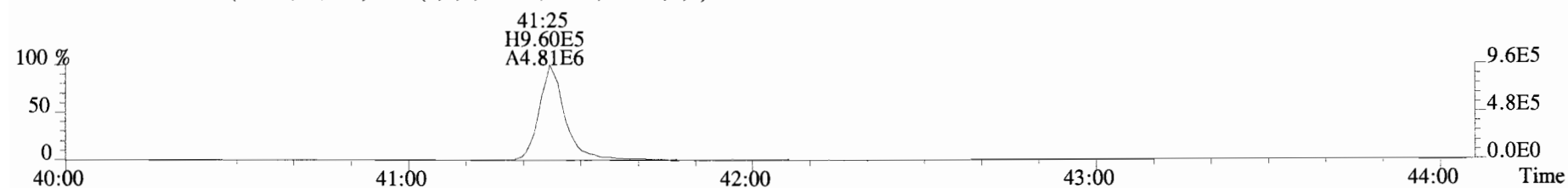
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



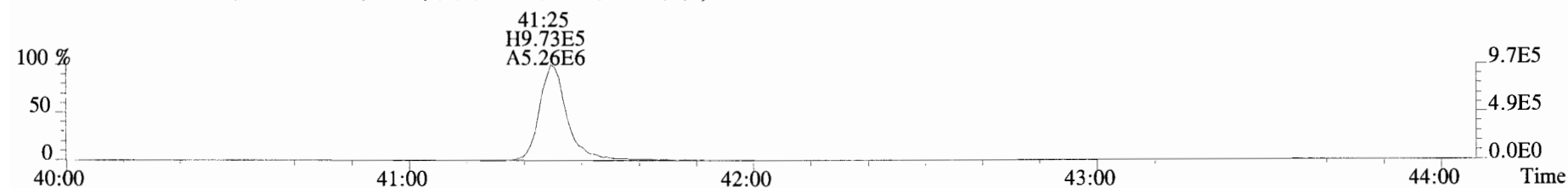
459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



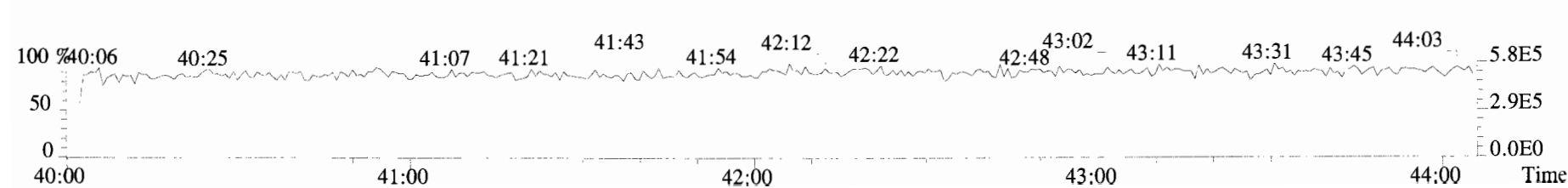
469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



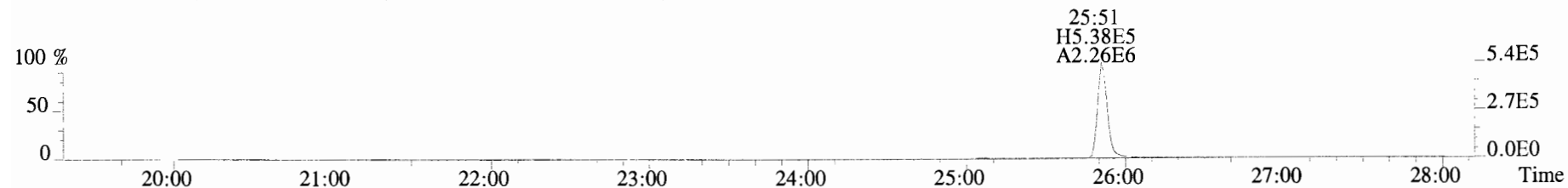
471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



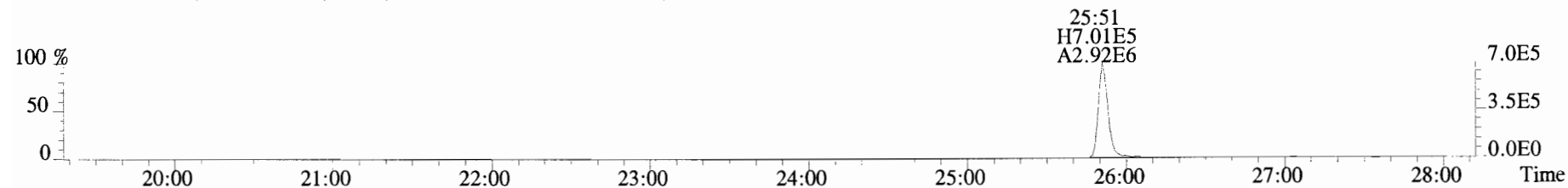
454.9728 S:5 F:5



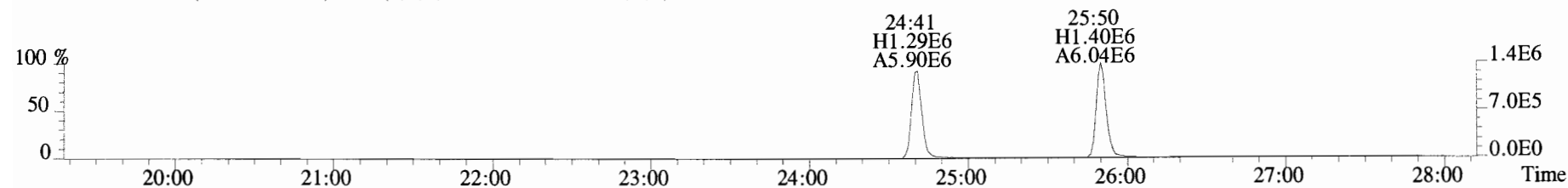
File: 191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text: Vista\_Analytical\_Laboratory\_VG7 Text: ST191009D1-5 1613 CS4 19C2205 Exp: OCDD\_DB5  
 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



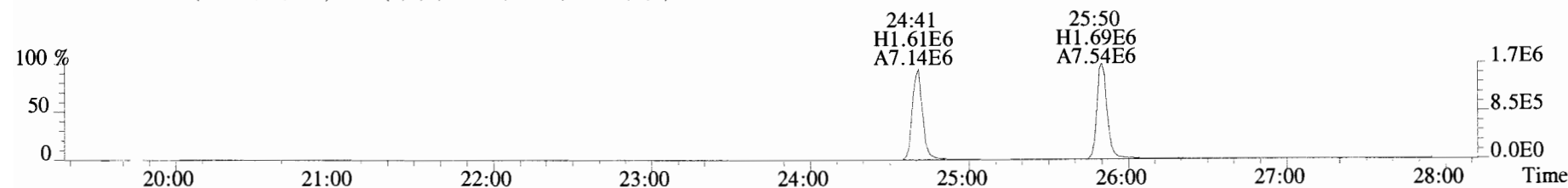
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



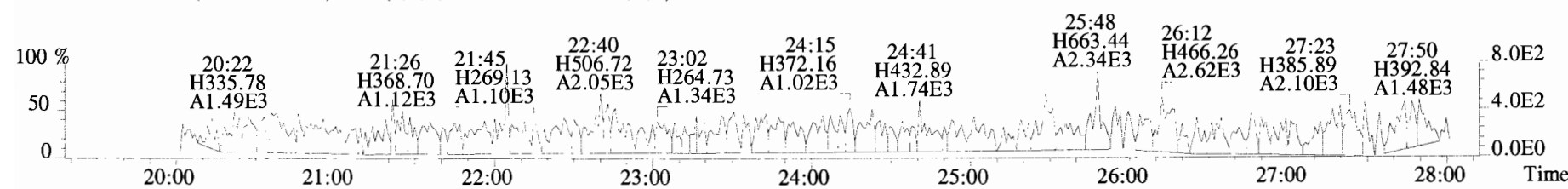
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



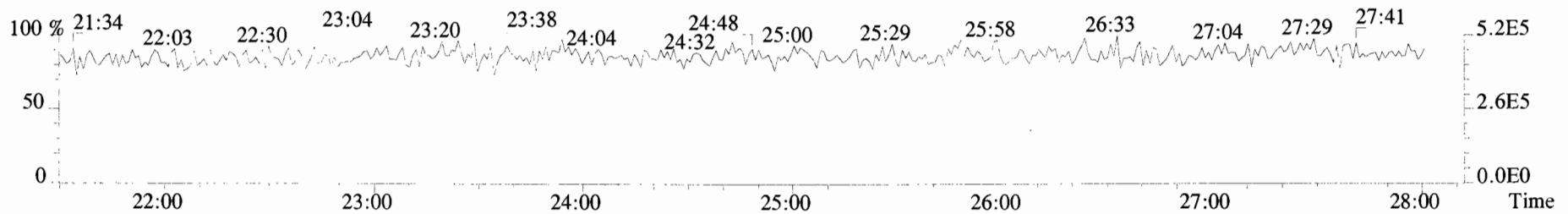
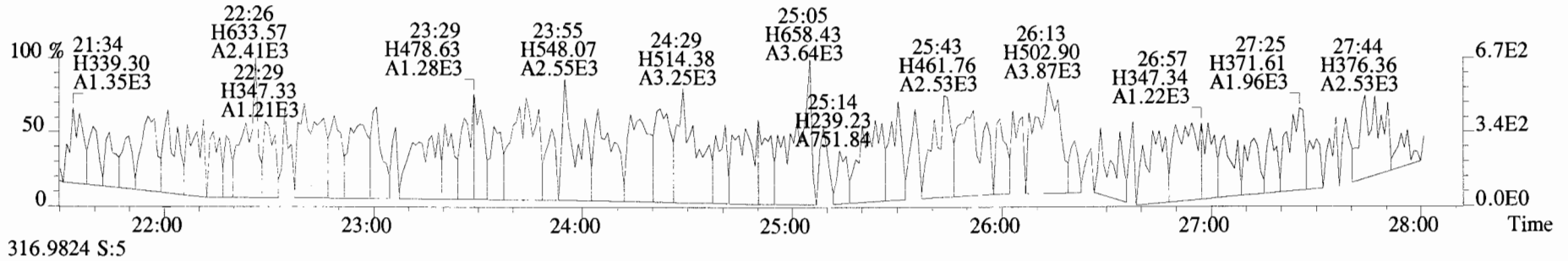
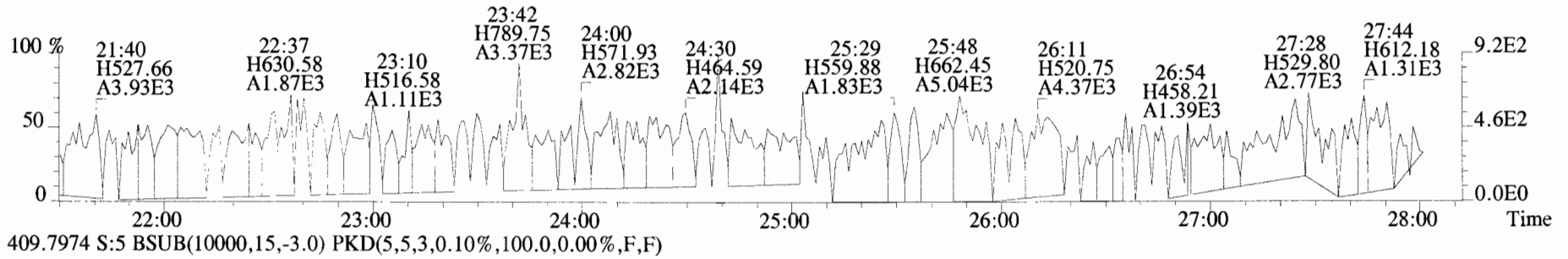
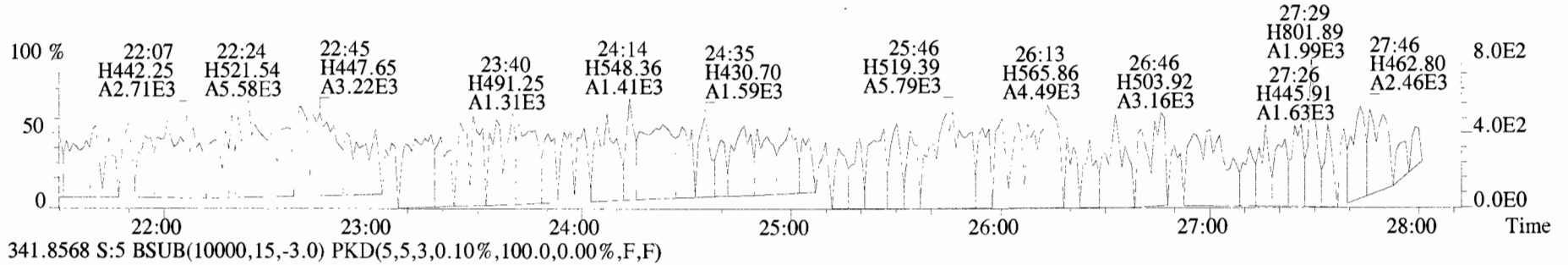
317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



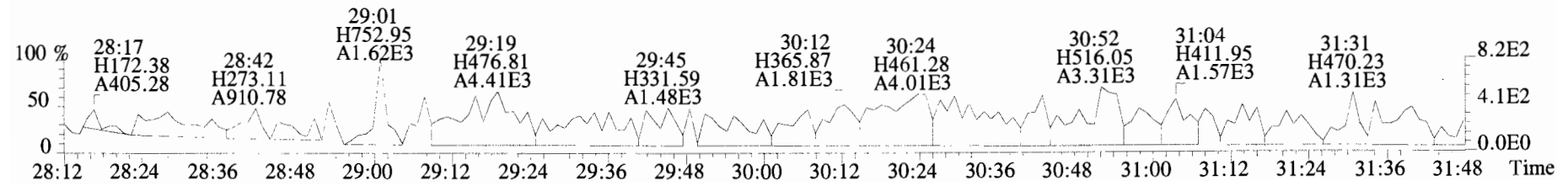
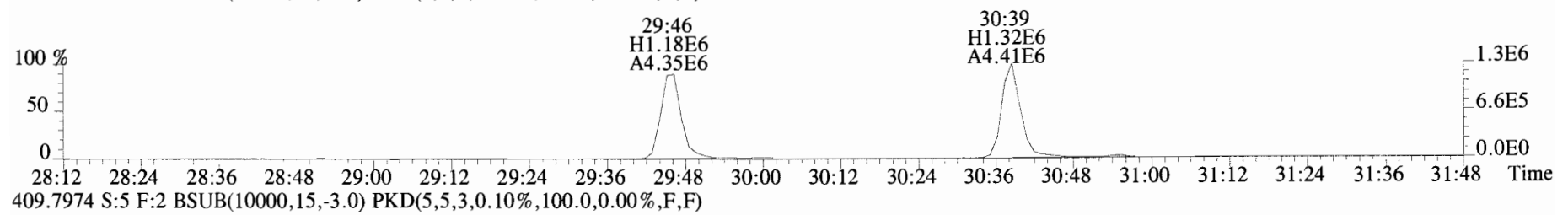
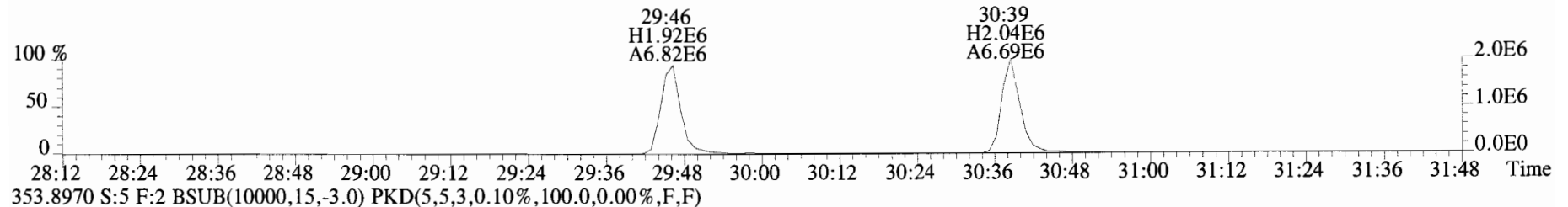
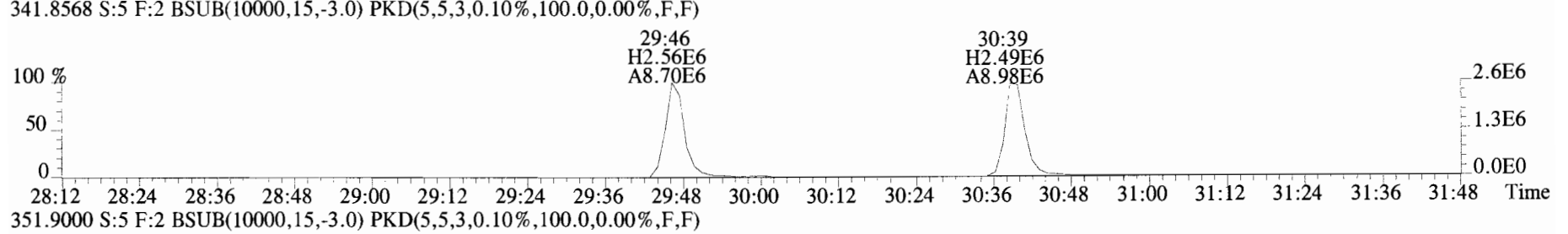
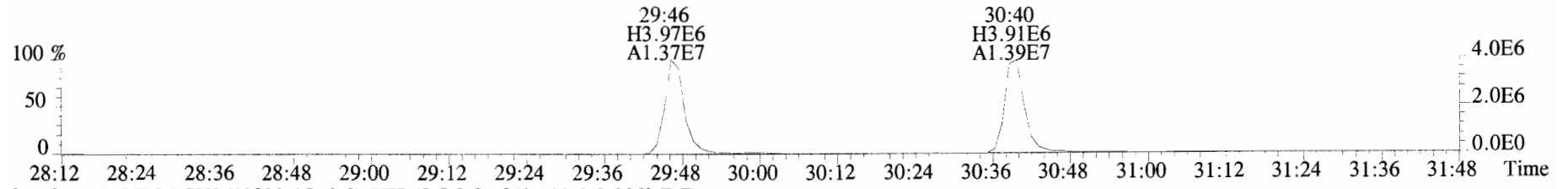
375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



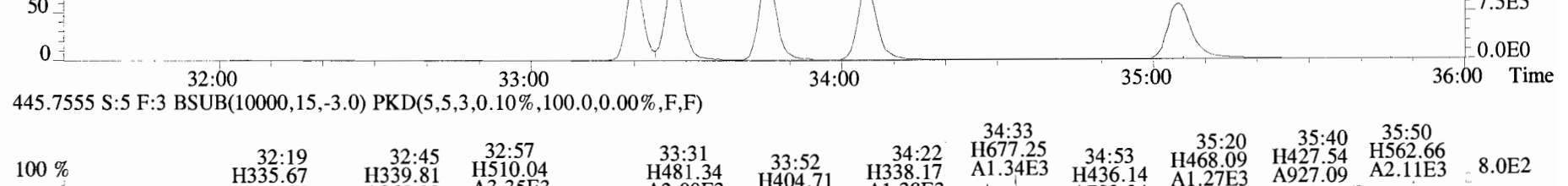
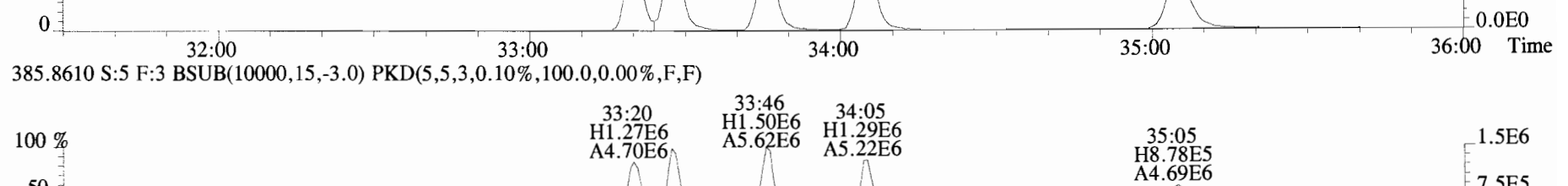
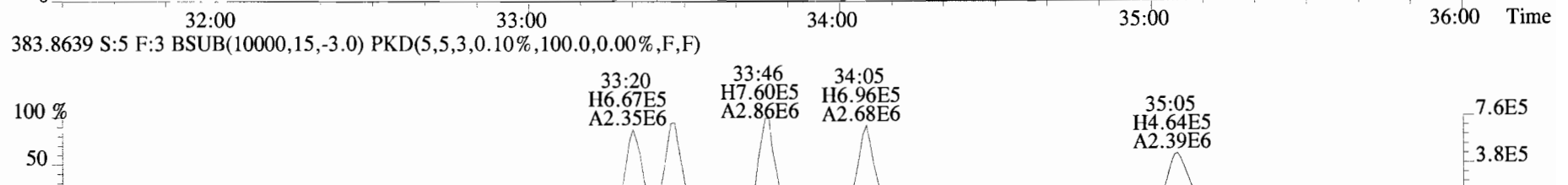
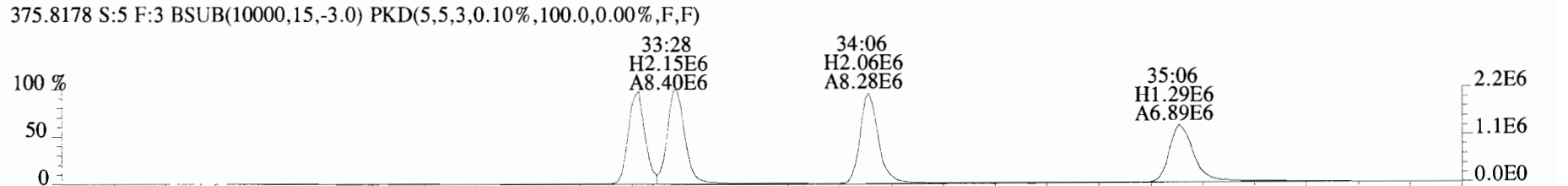
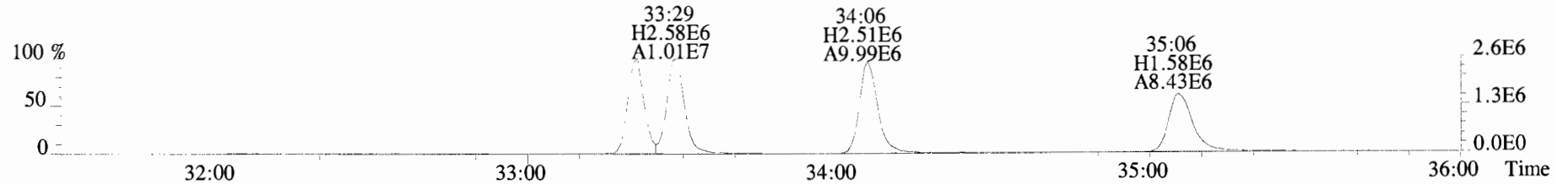
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



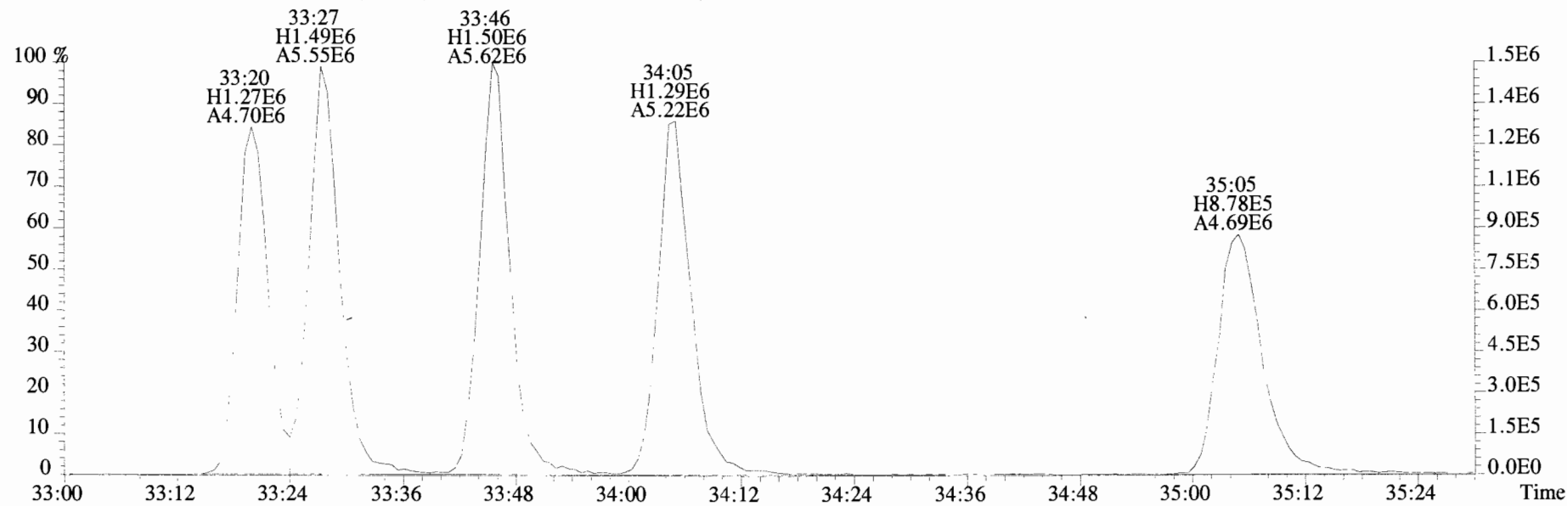
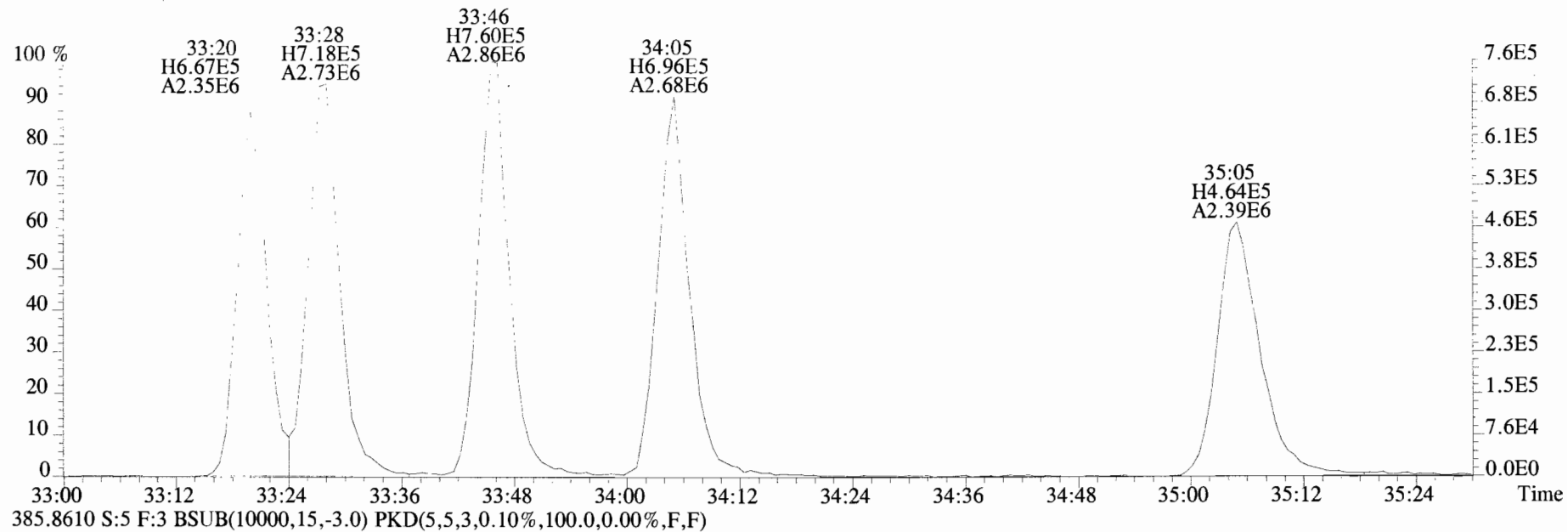
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
 373.8207 S:5 F:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

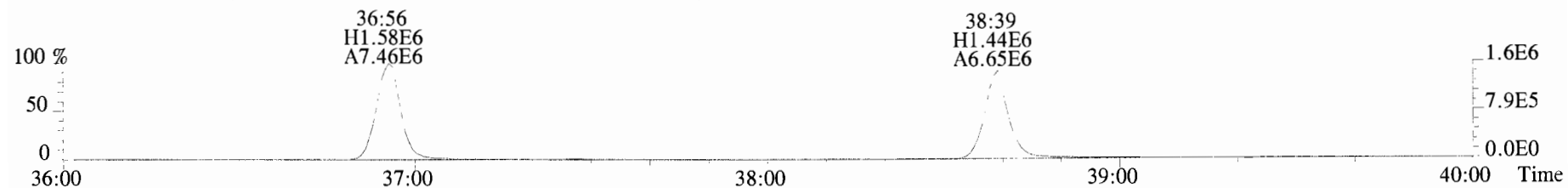


File: 191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory VG7 Text: ST191009D1-5 1613 CS4 19C2205 Exp: OCDD\_DB5  
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

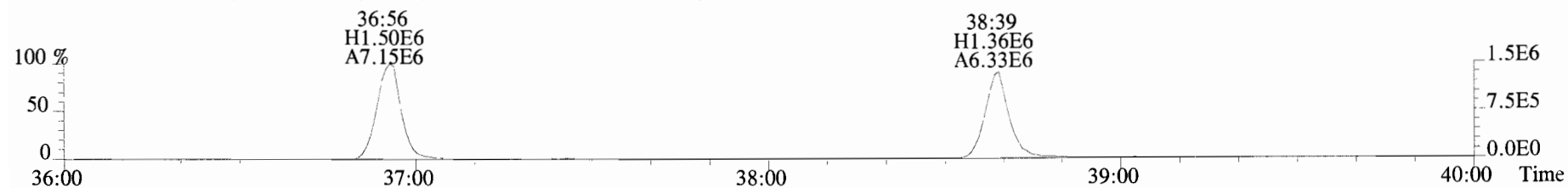




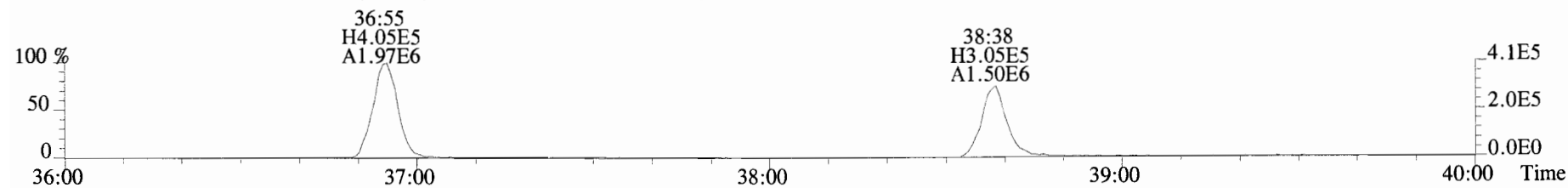
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
 407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



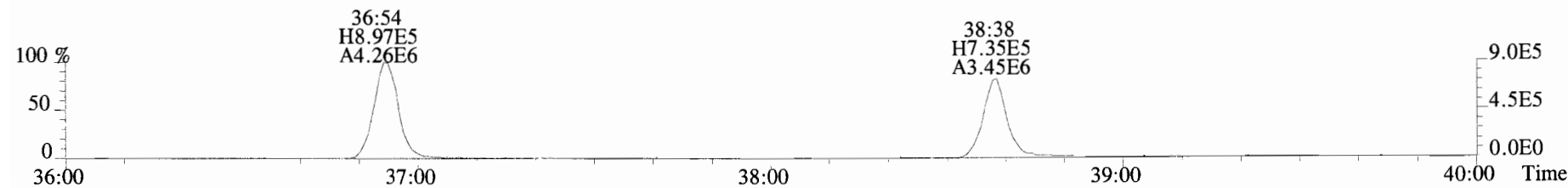
409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



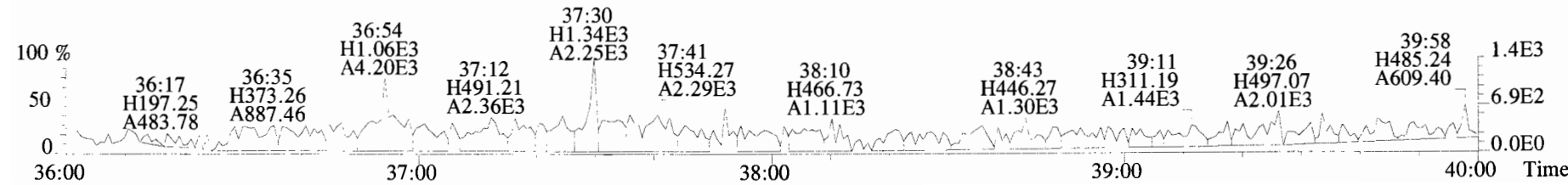
417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



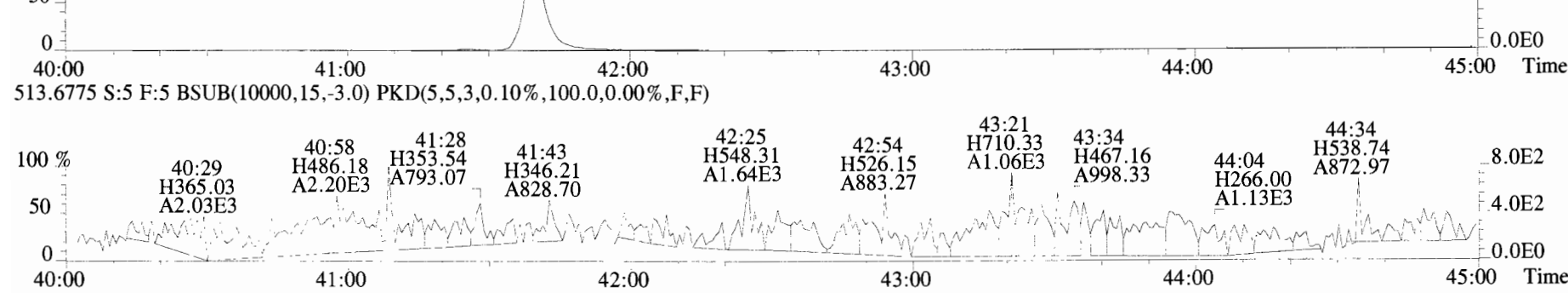
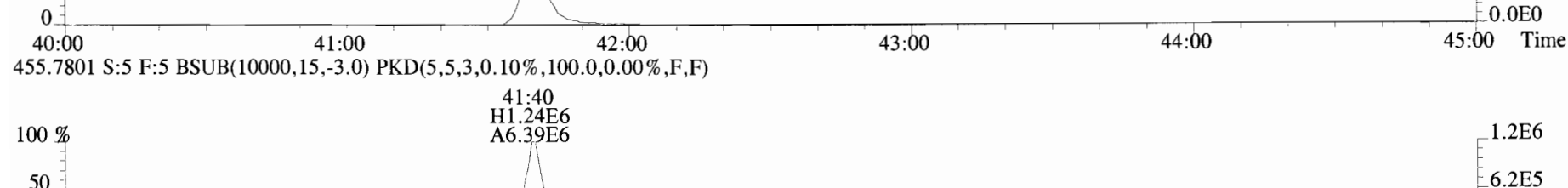
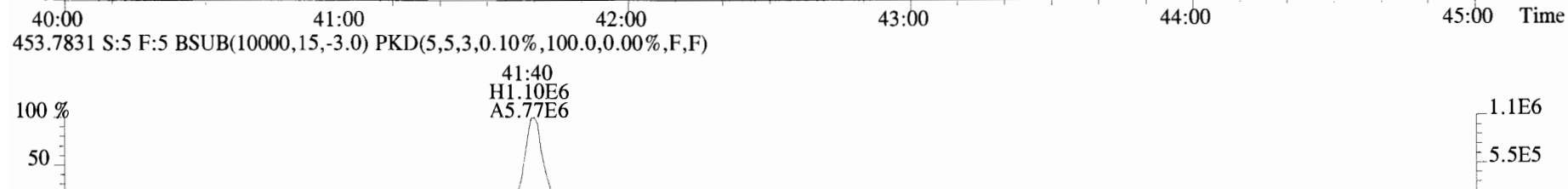
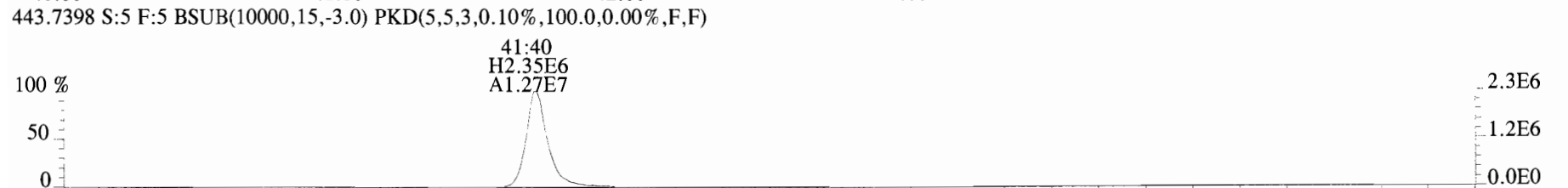
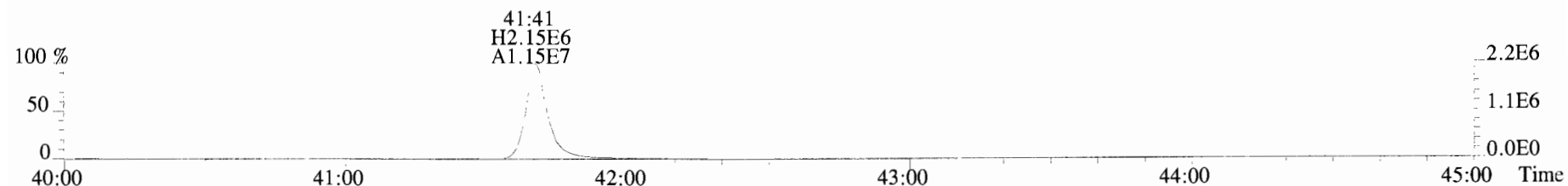
419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



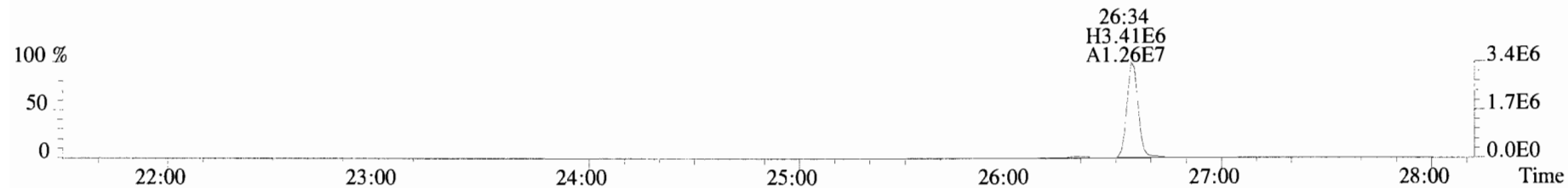
479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



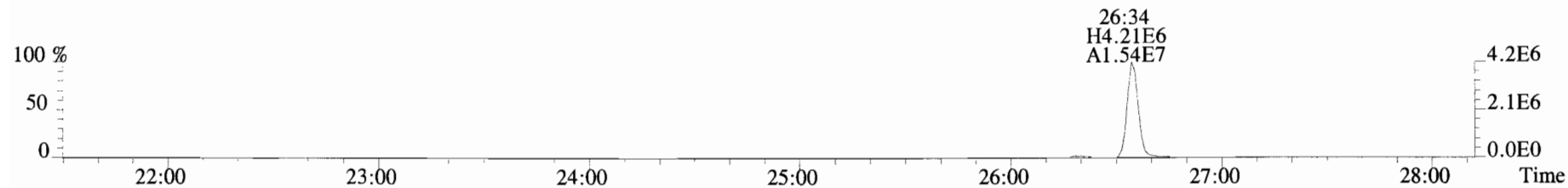
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



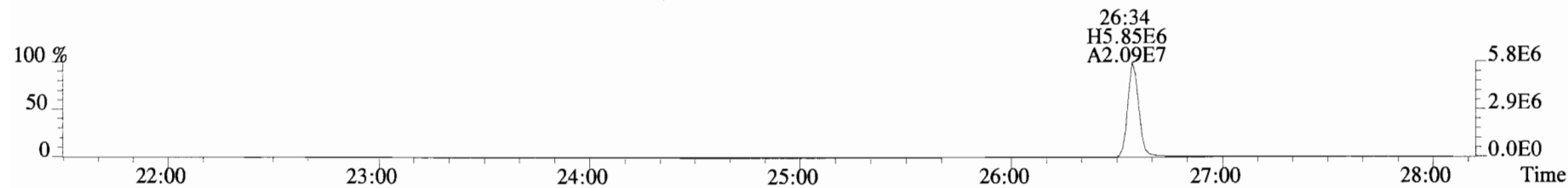
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



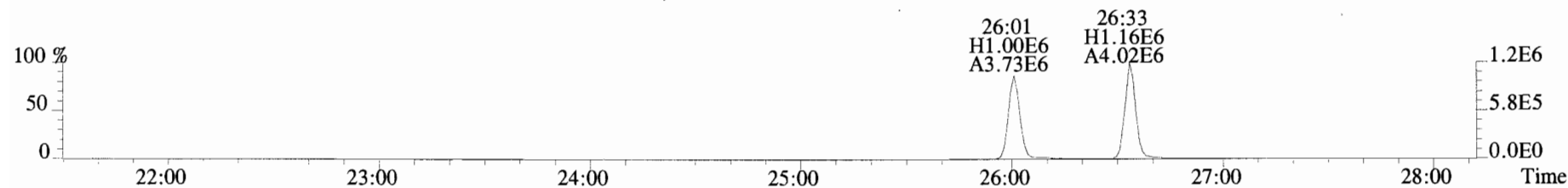
321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



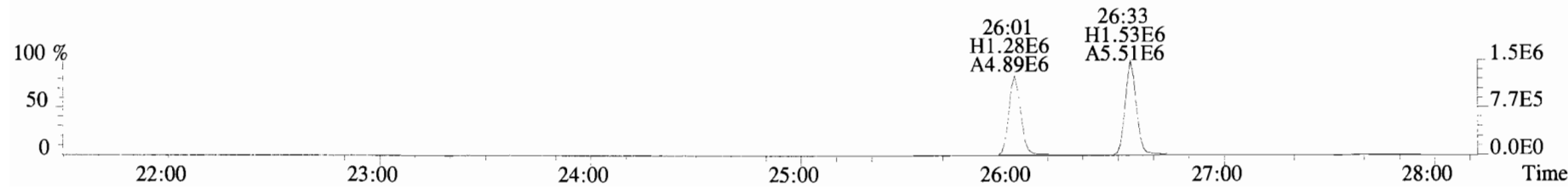
327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



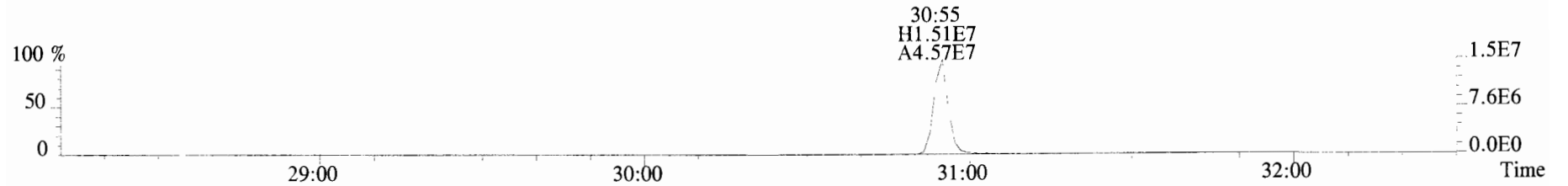
331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



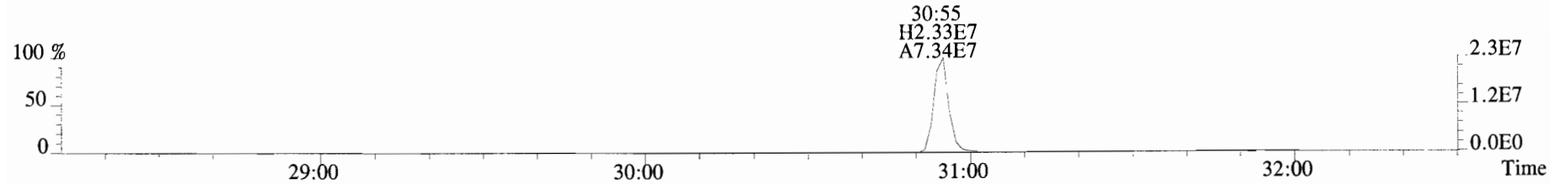
333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



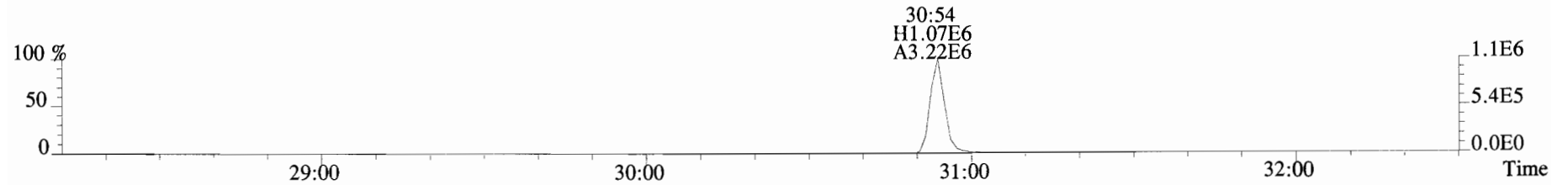
File:191009D1 #1-211 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



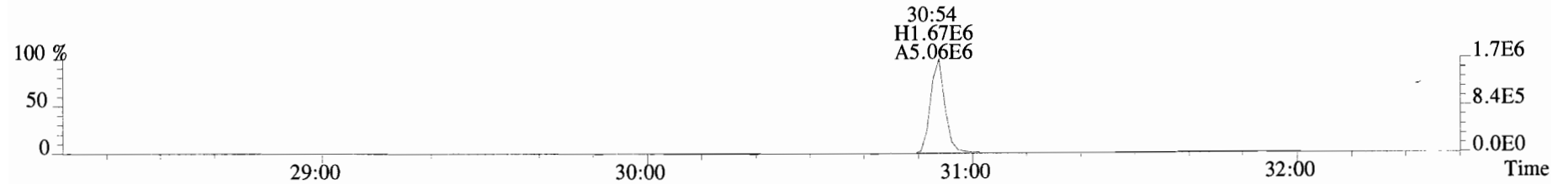
355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



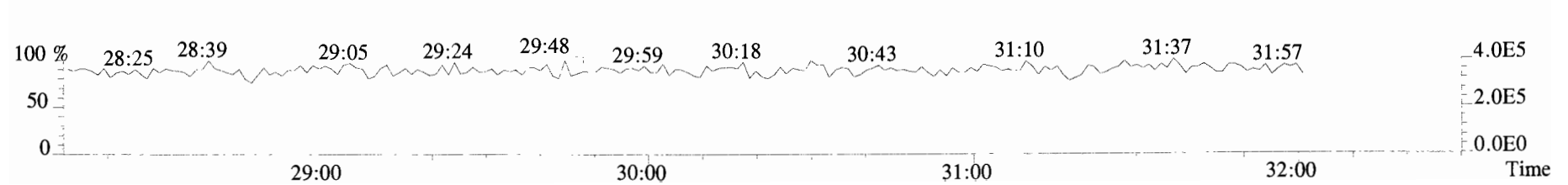
365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



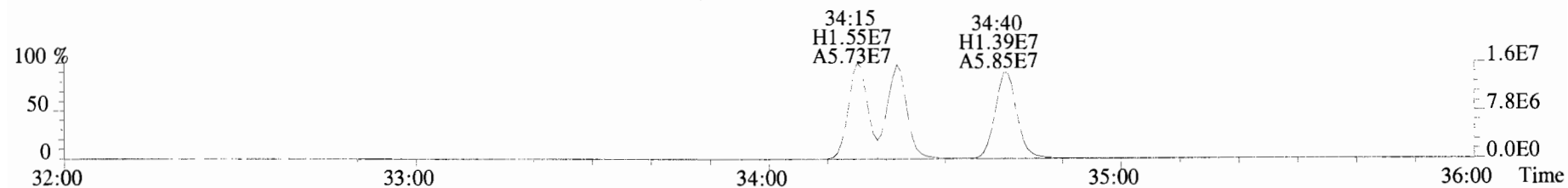
367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



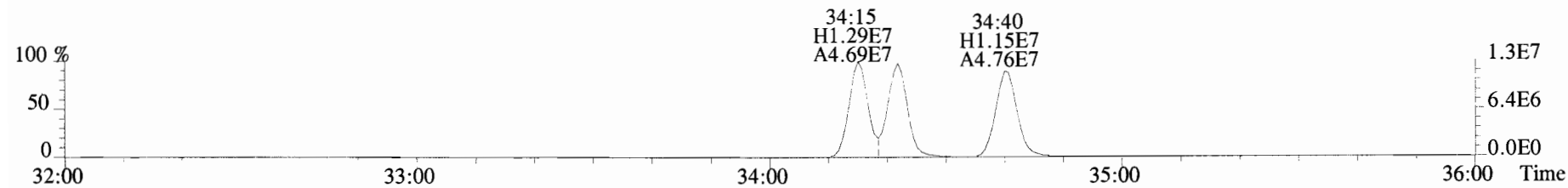
366.9792 S:6 F:2



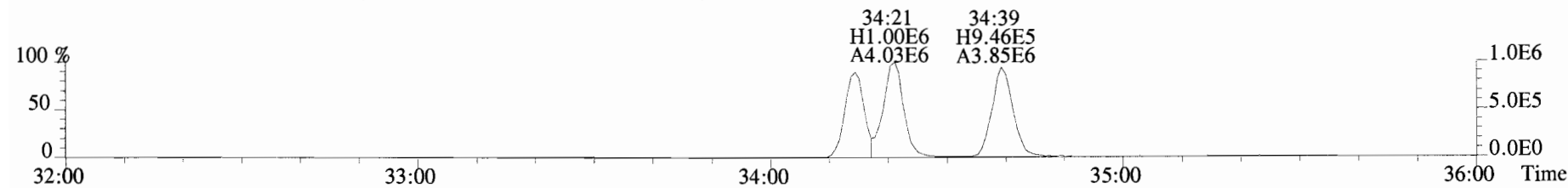
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



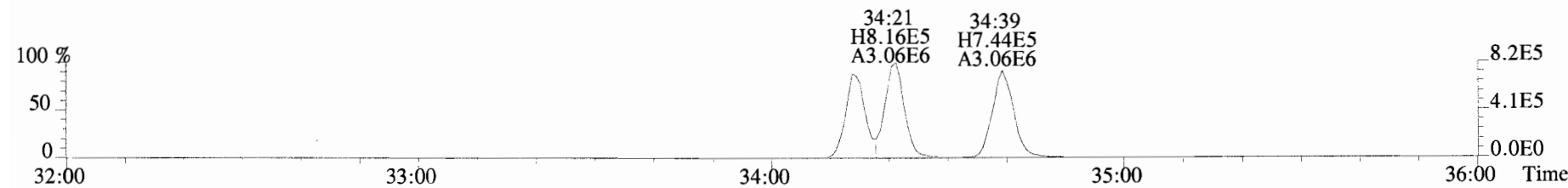
391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



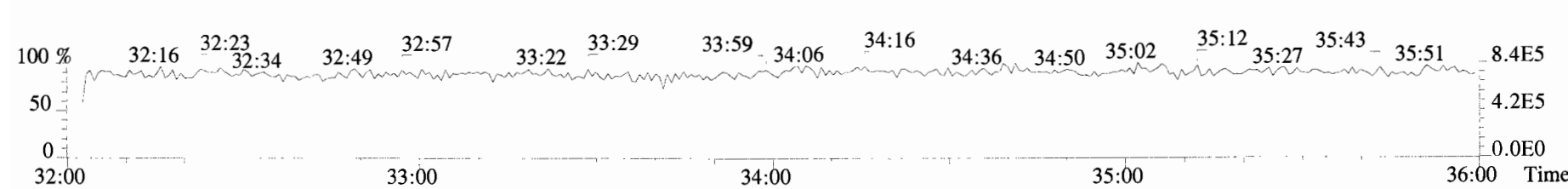
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



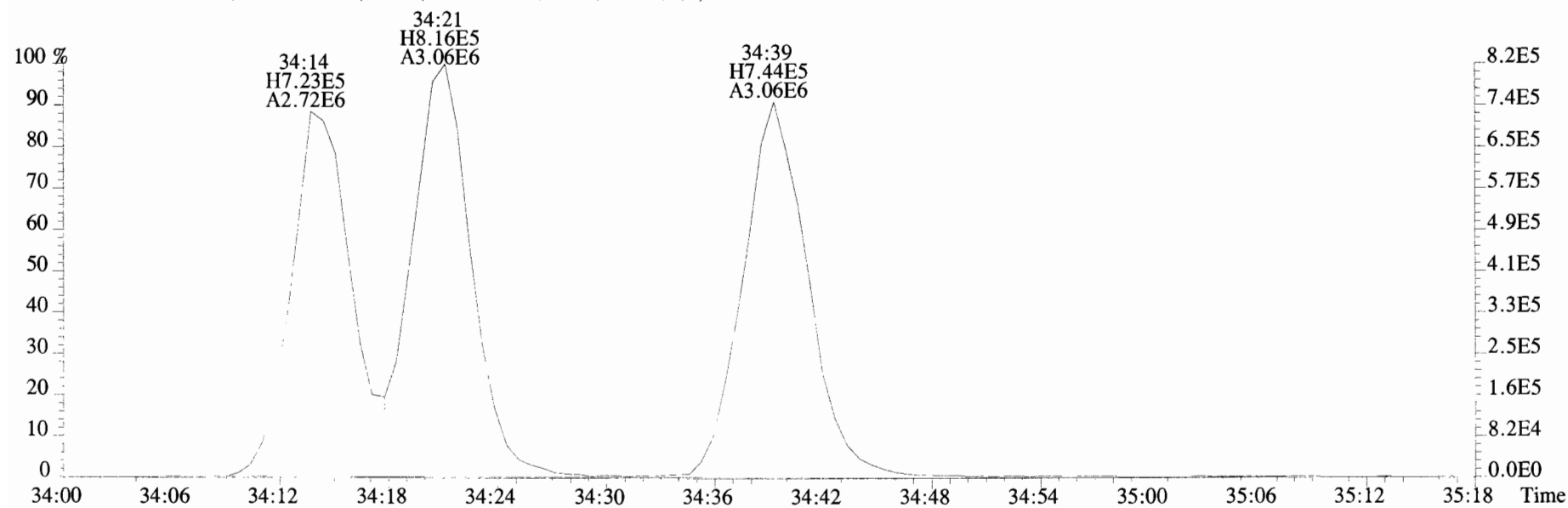
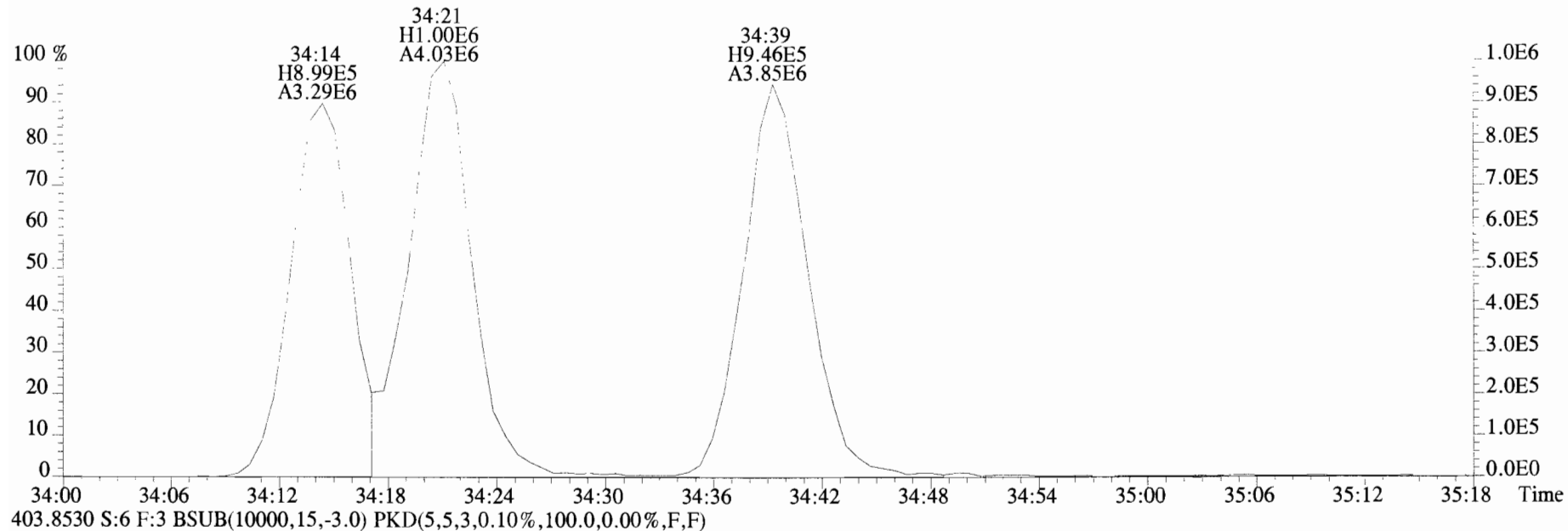
403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



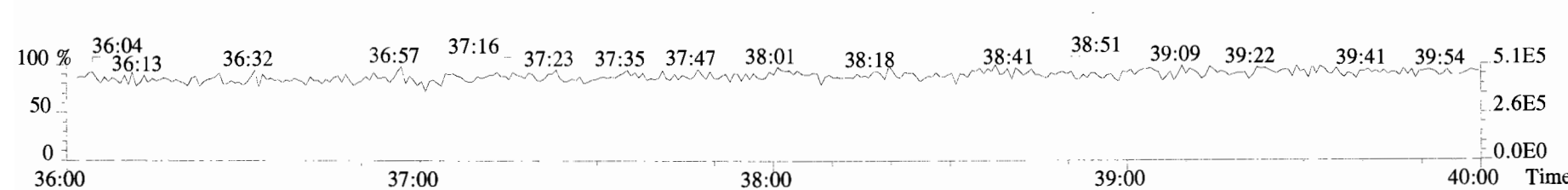
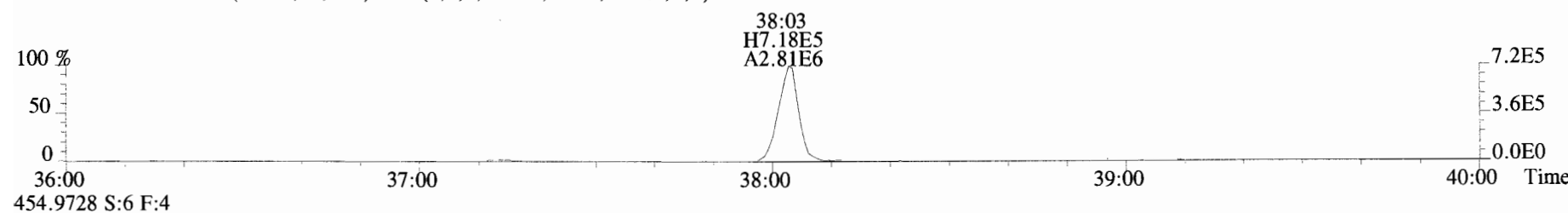
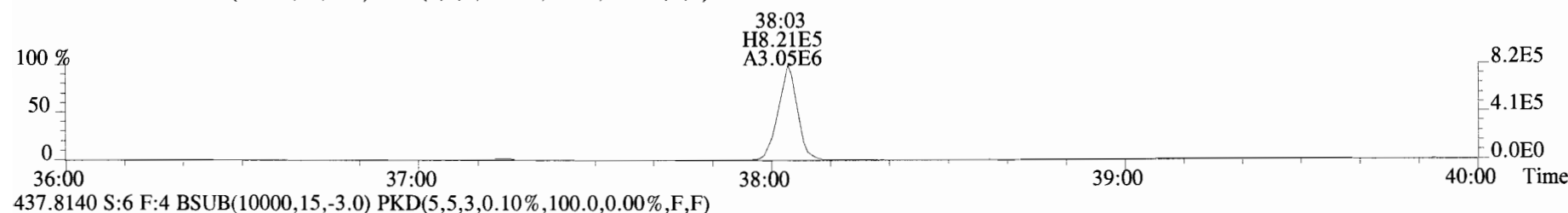
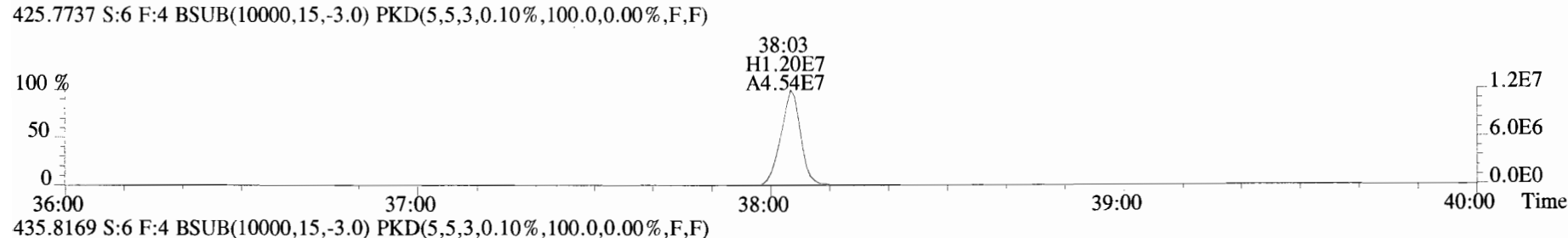
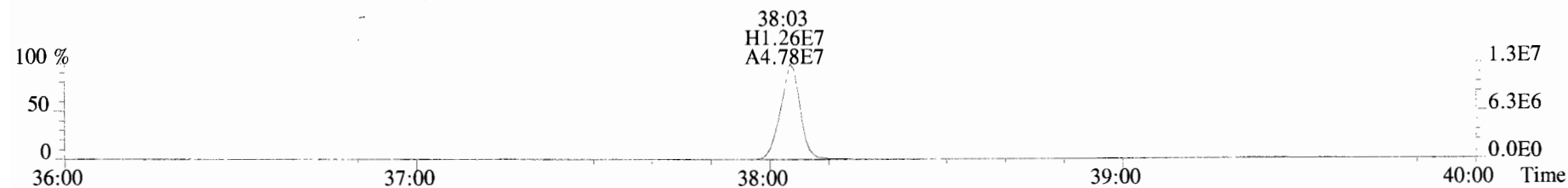
392.9760 S:6 F:3



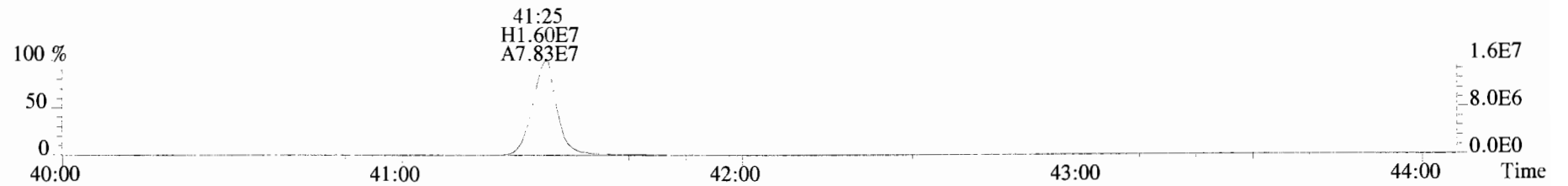
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



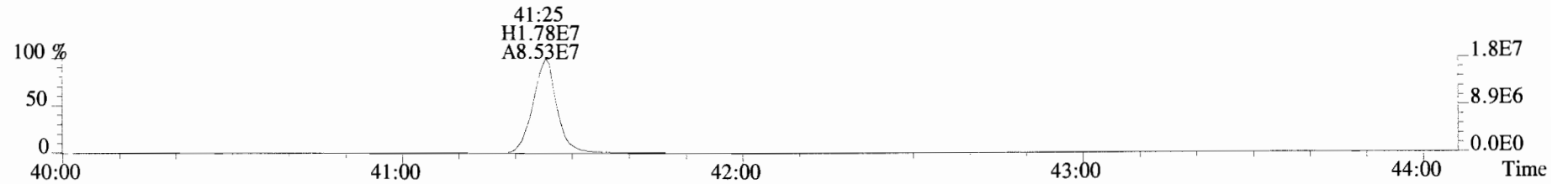
File:191009D1 #1-356 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



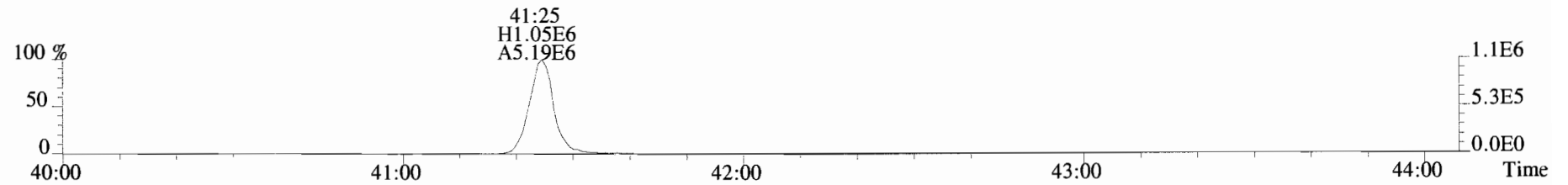
File:191009D1 #1-431 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



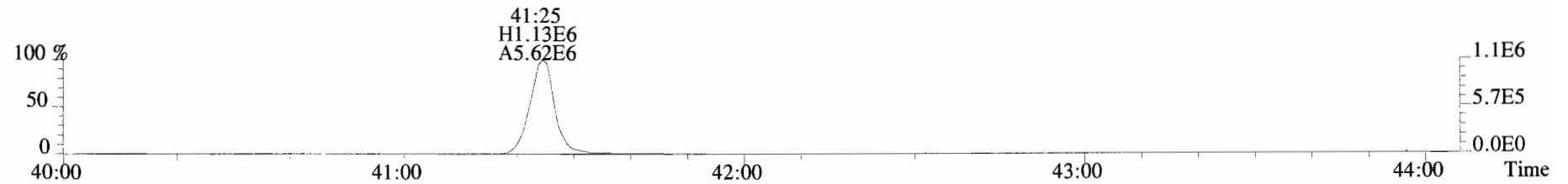
459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



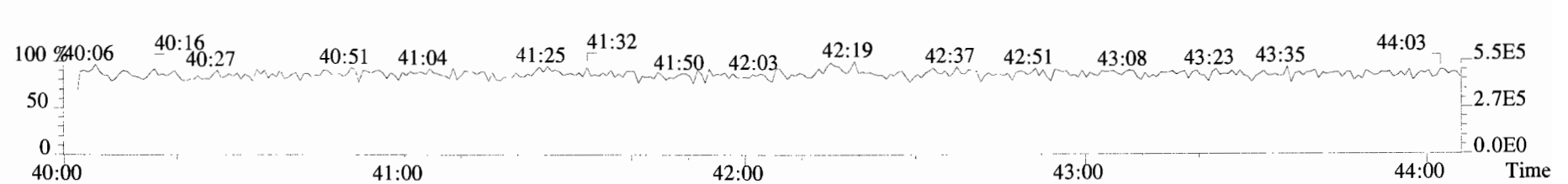
469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

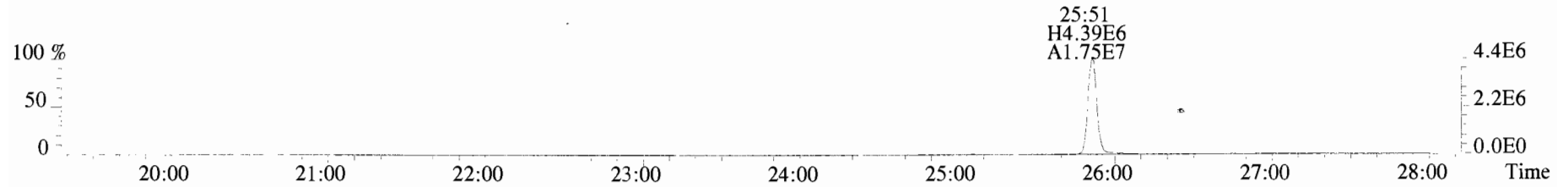


454.9728 S:6 F:5

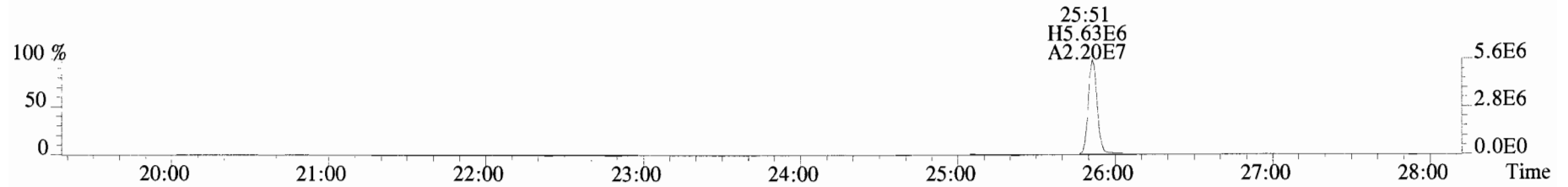




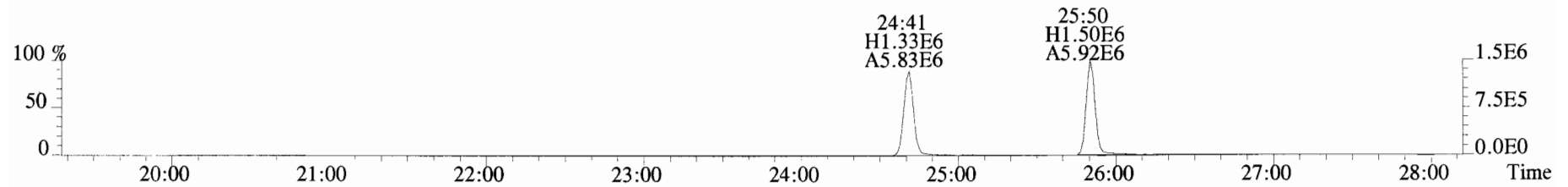
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



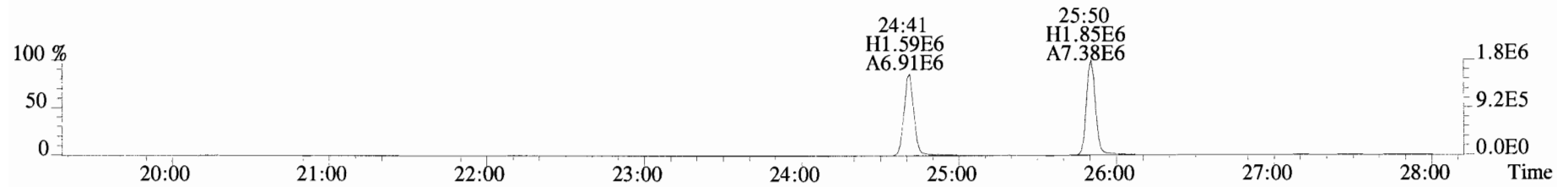
305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



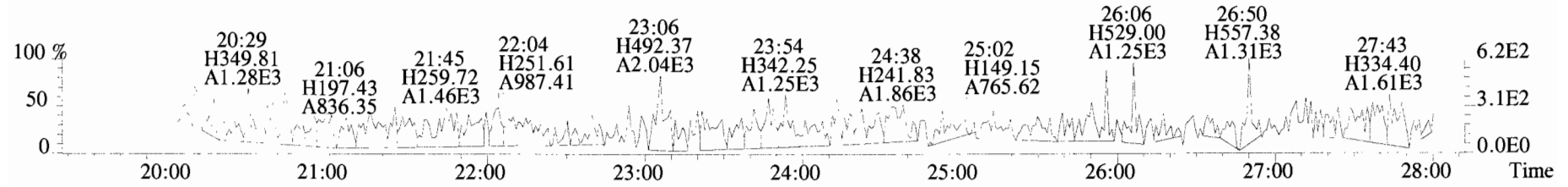
315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



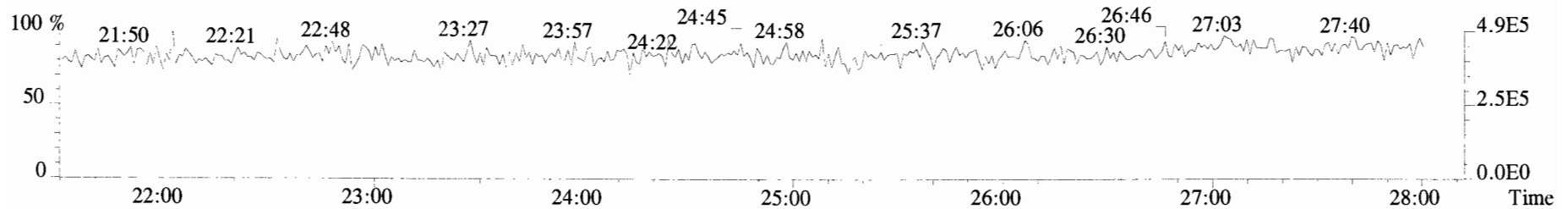
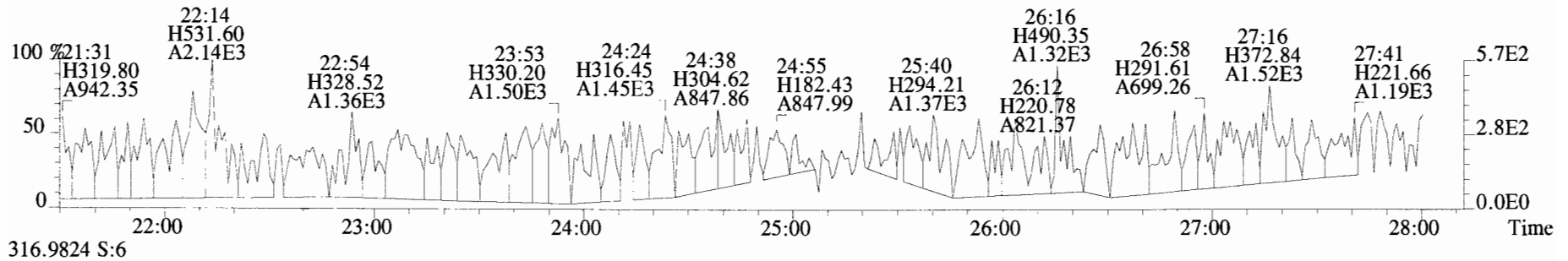
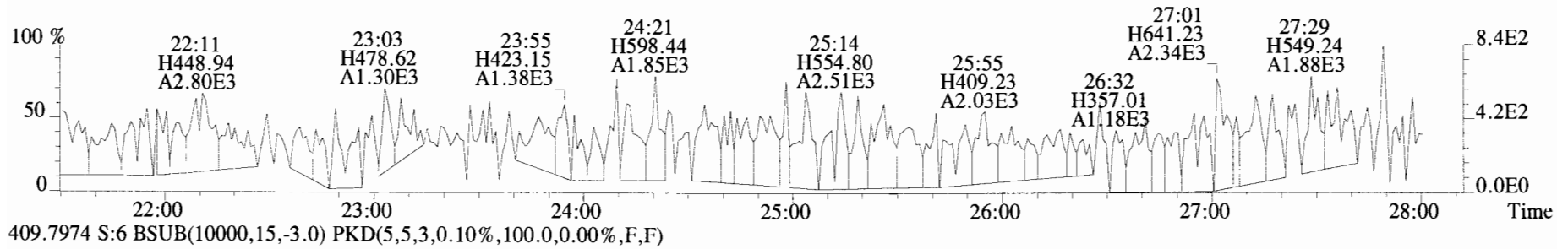
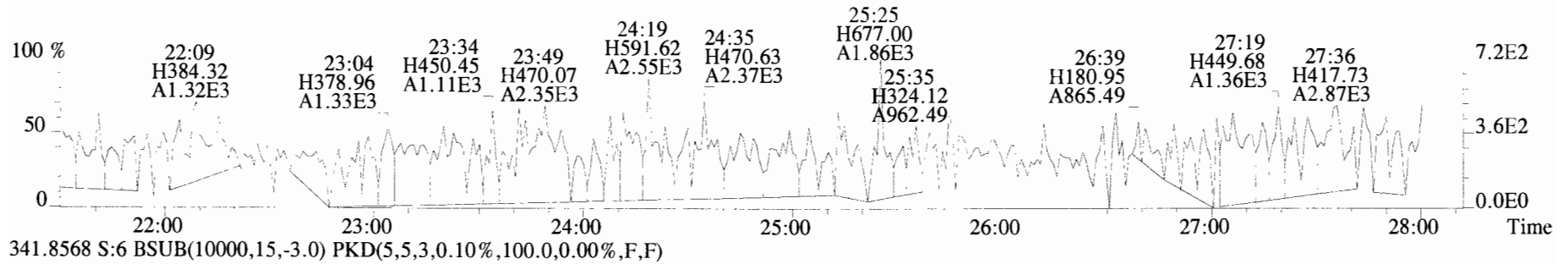
317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



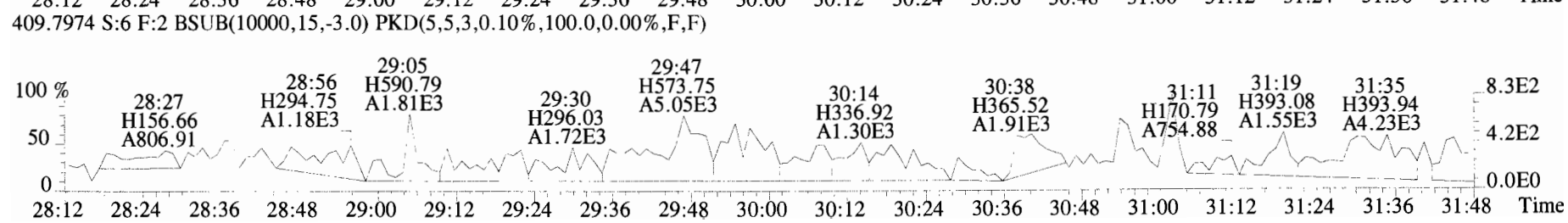
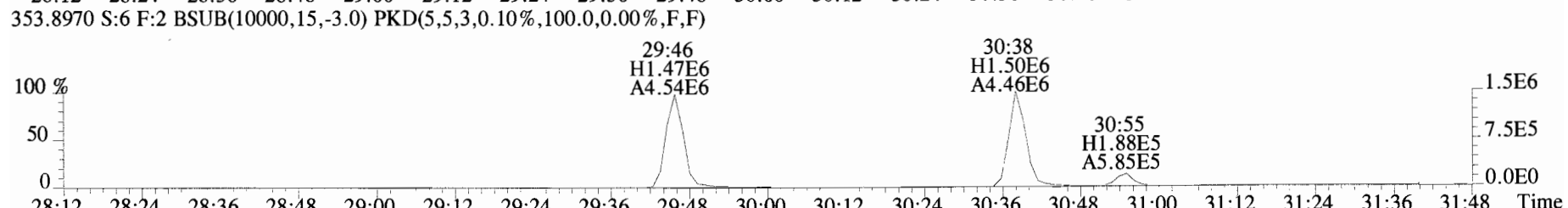
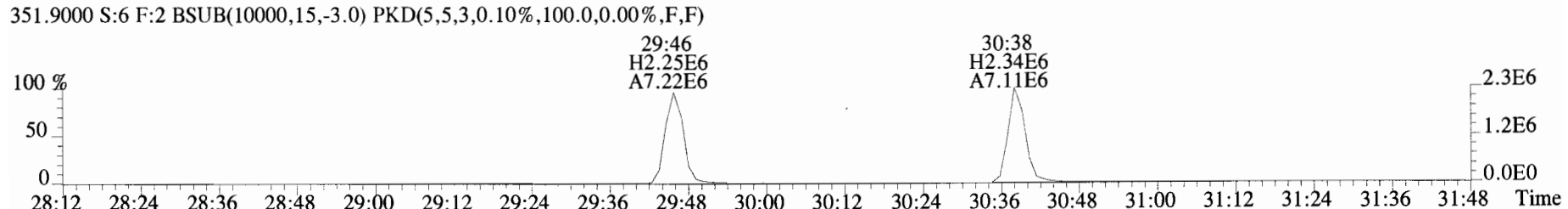
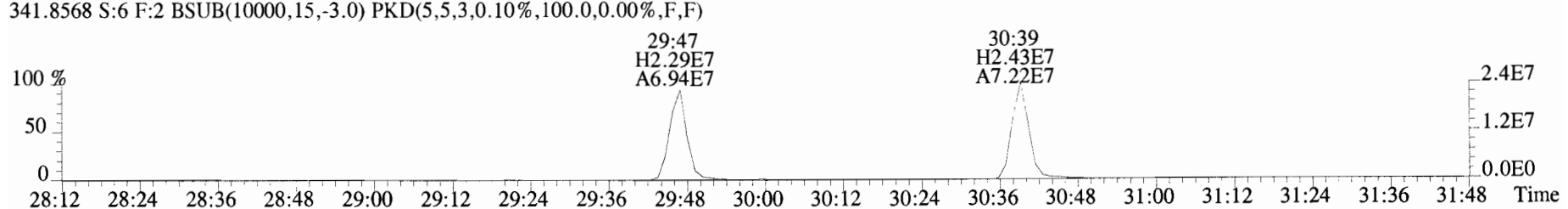
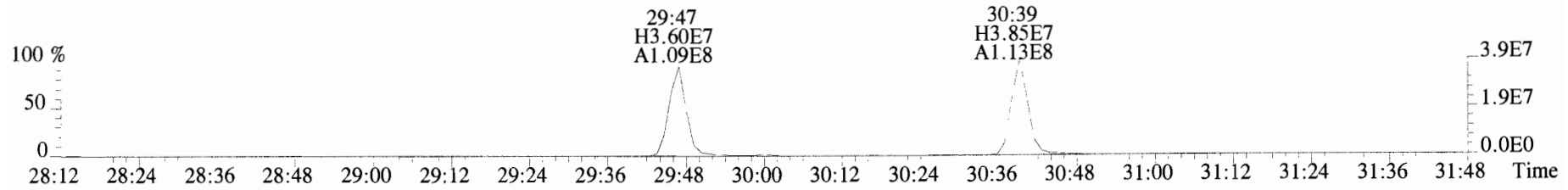
375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



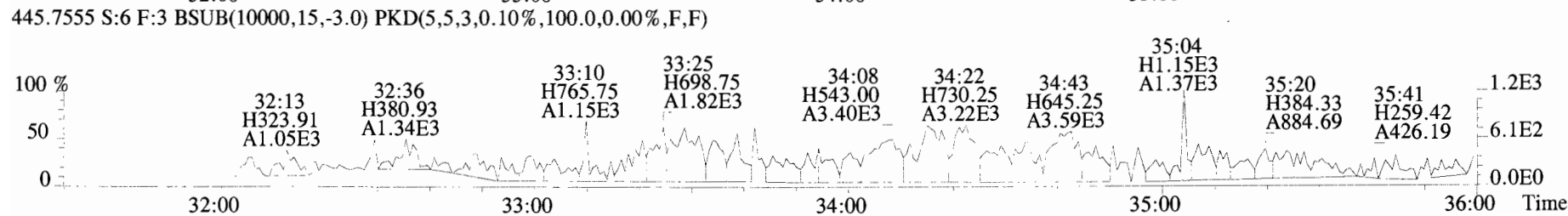
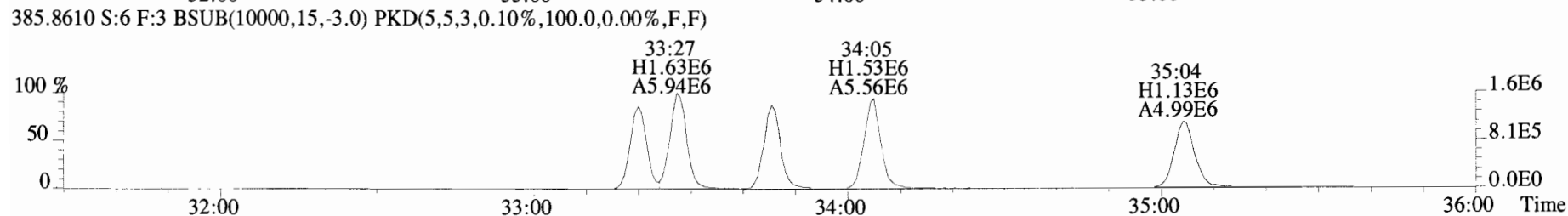
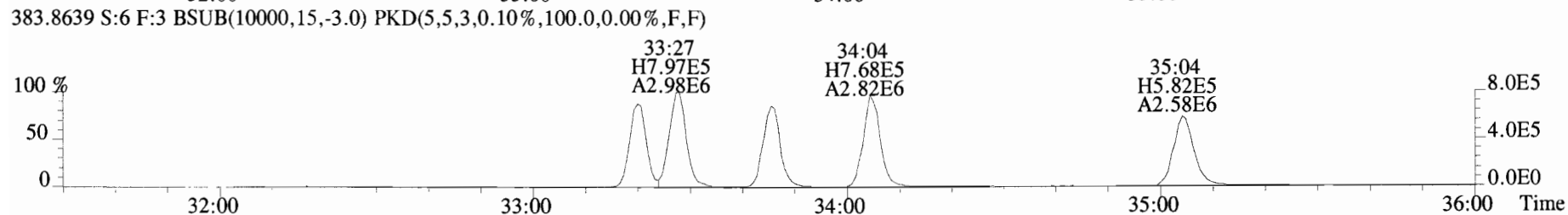
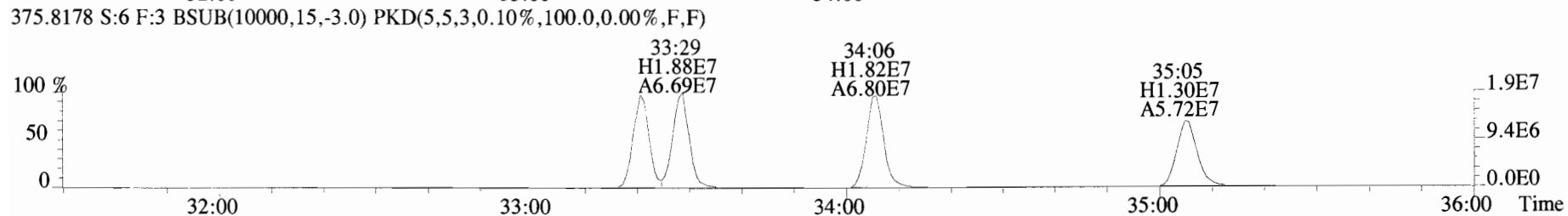
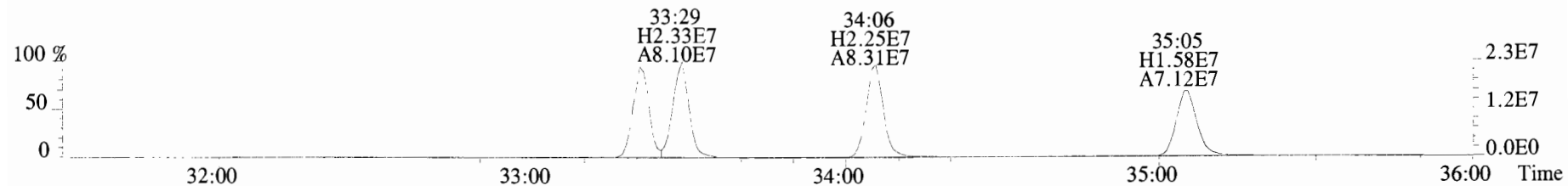
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



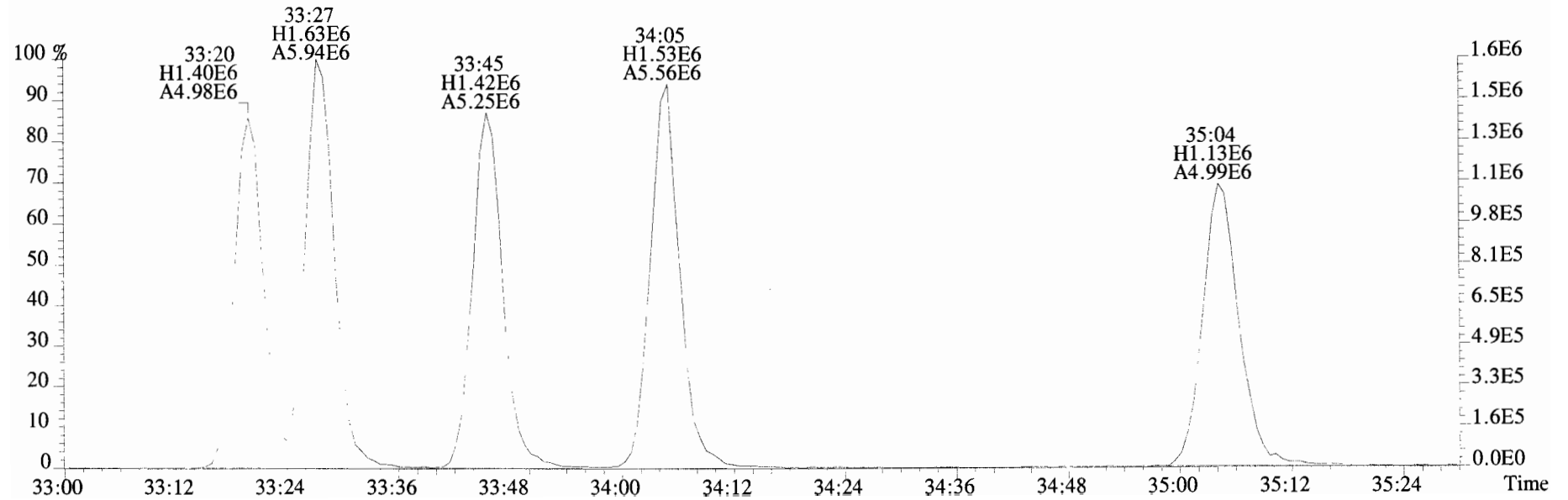
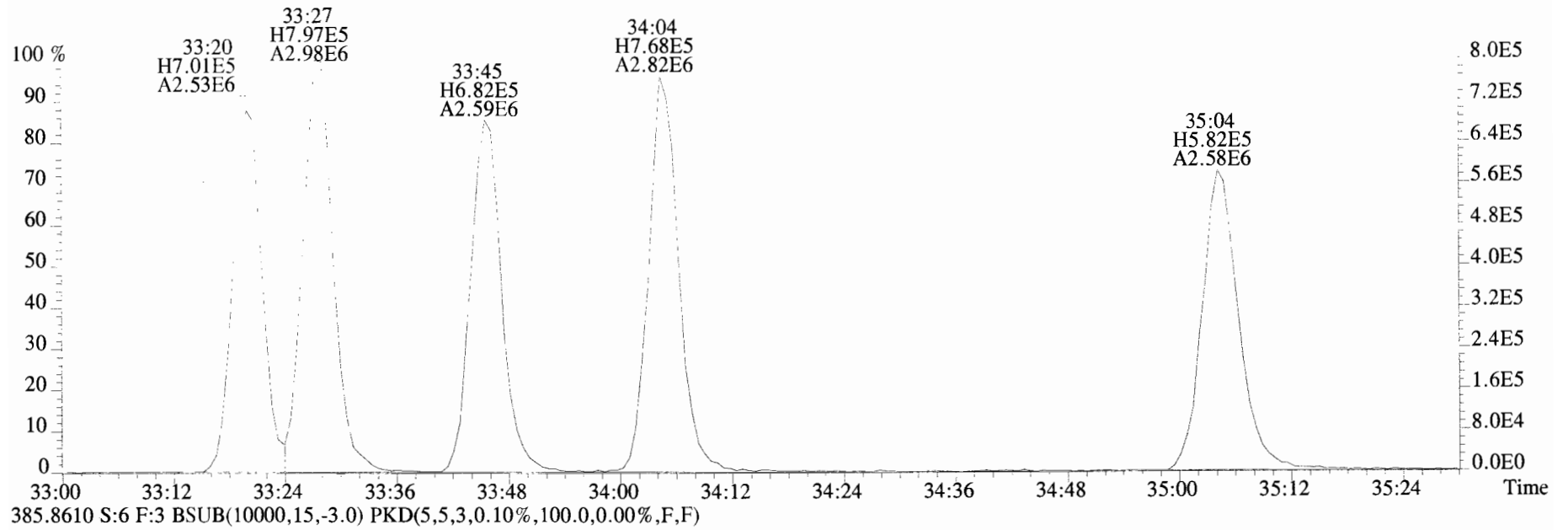
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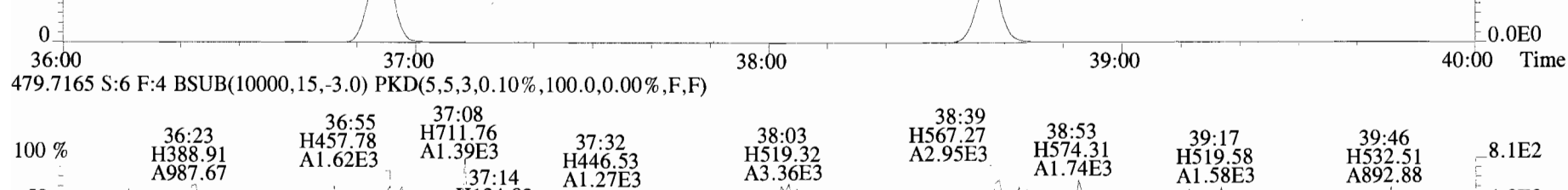
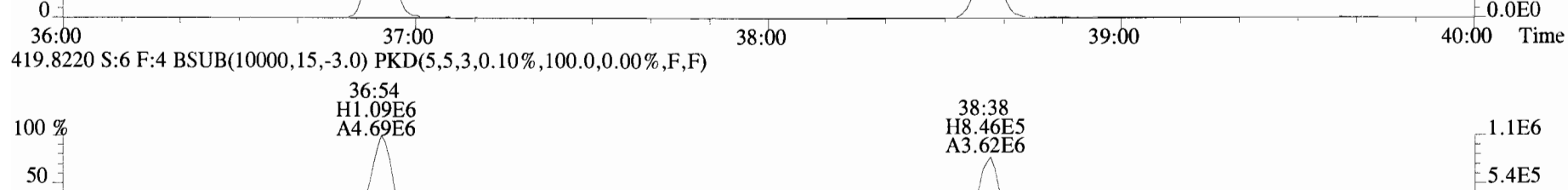
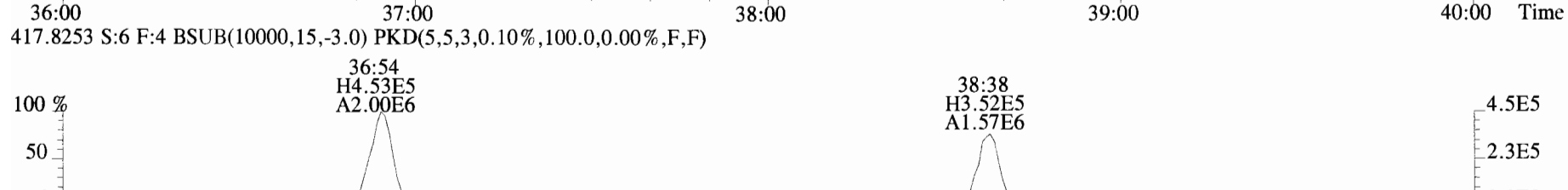
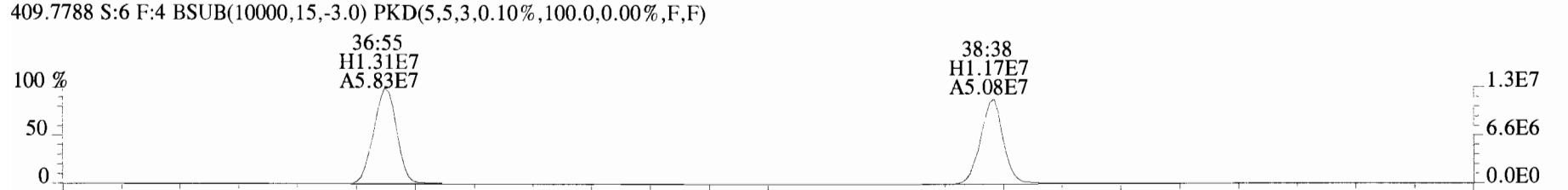
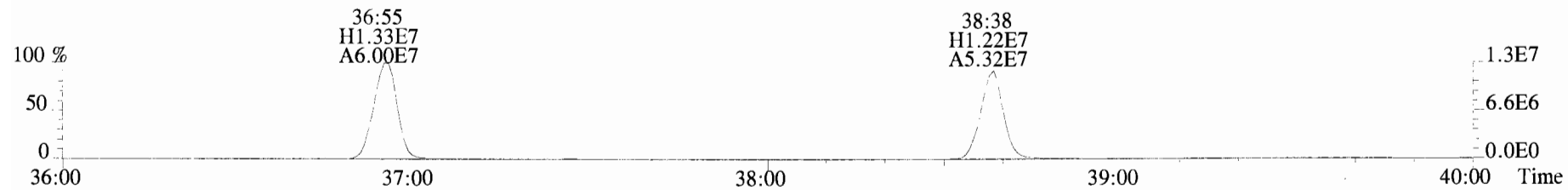
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



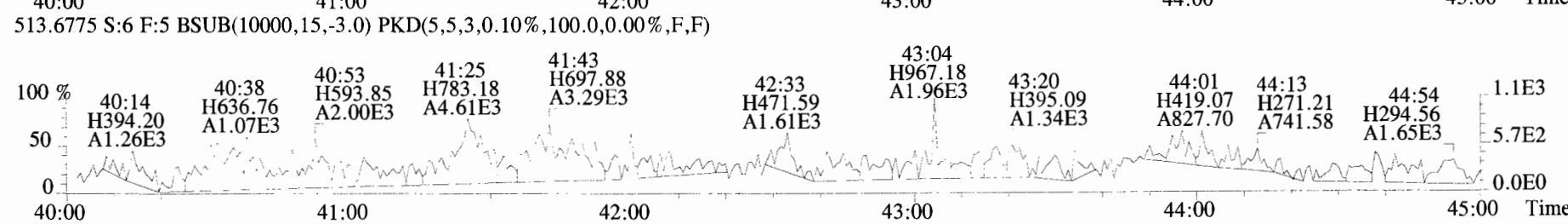
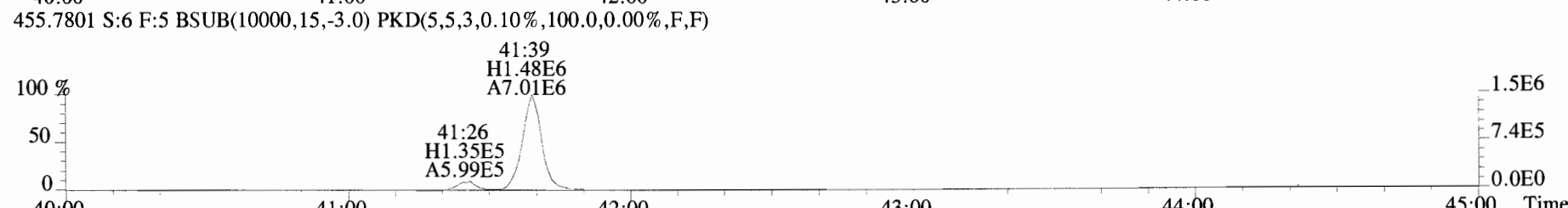
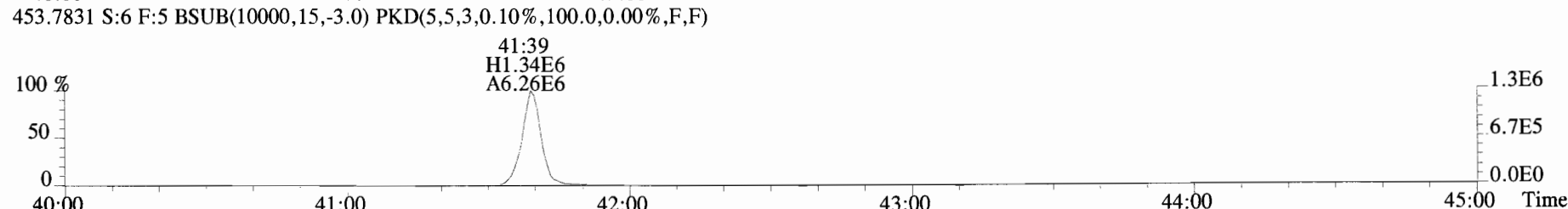
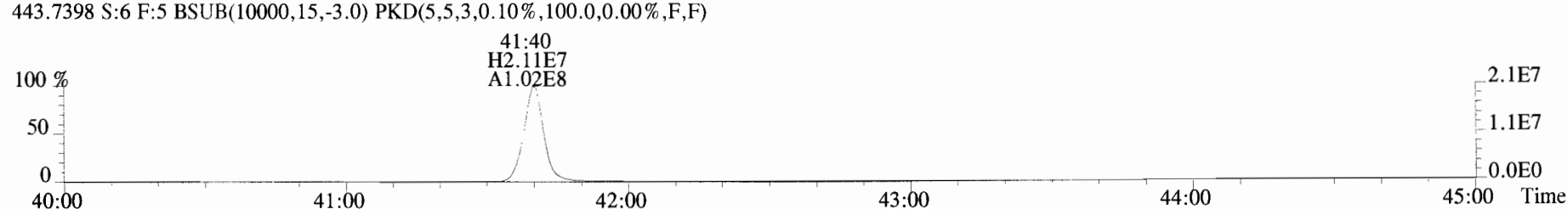
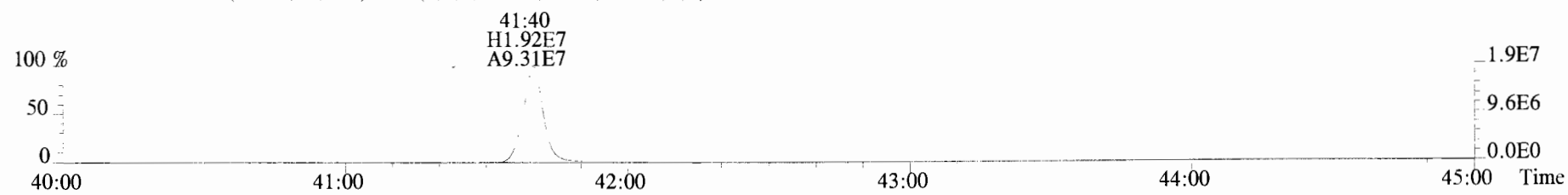
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383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-356 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

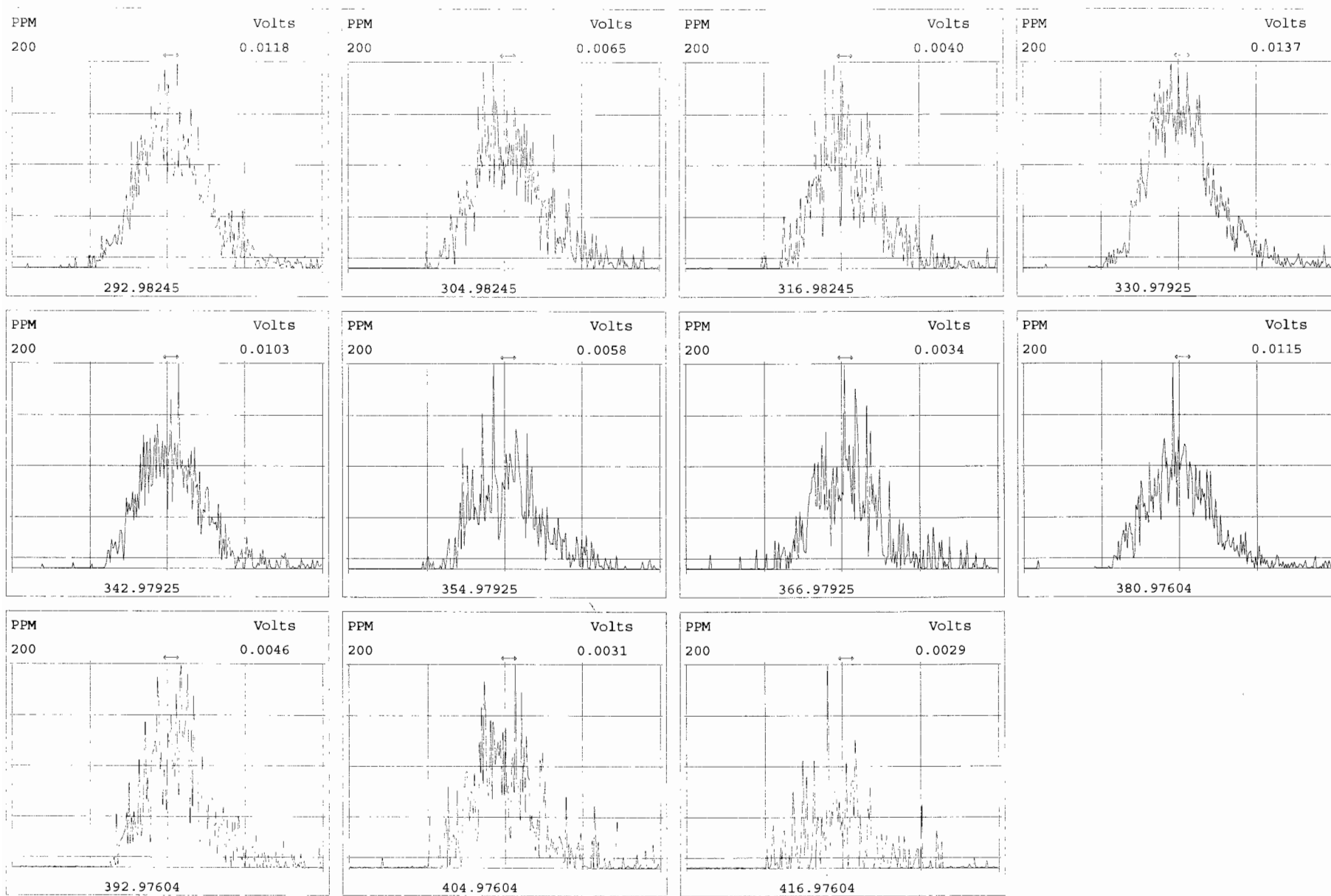


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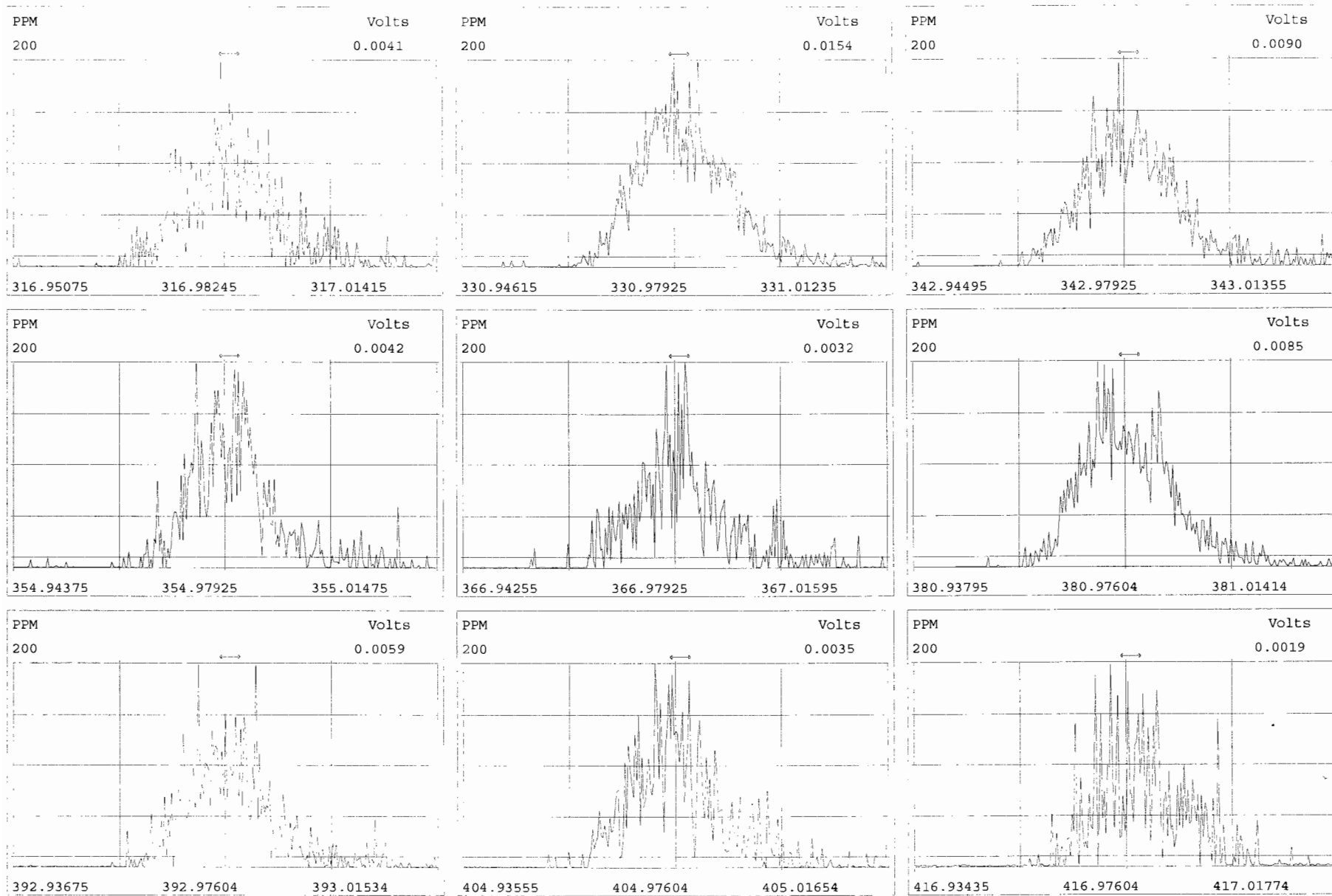


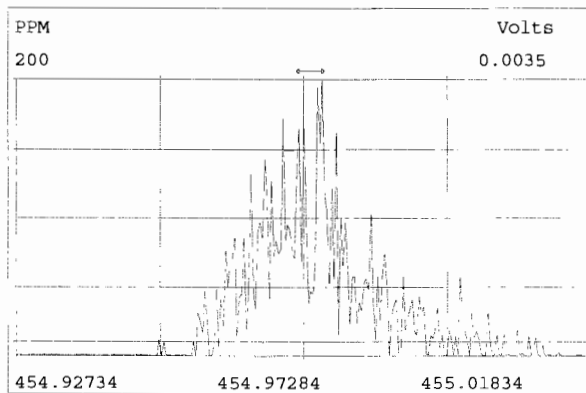
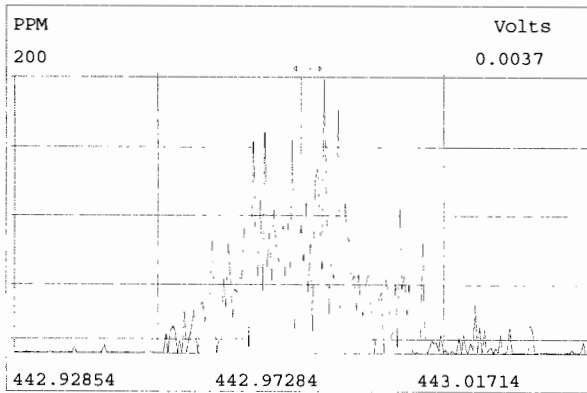
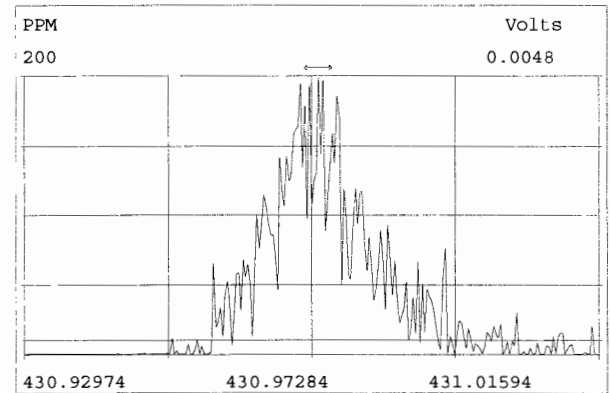
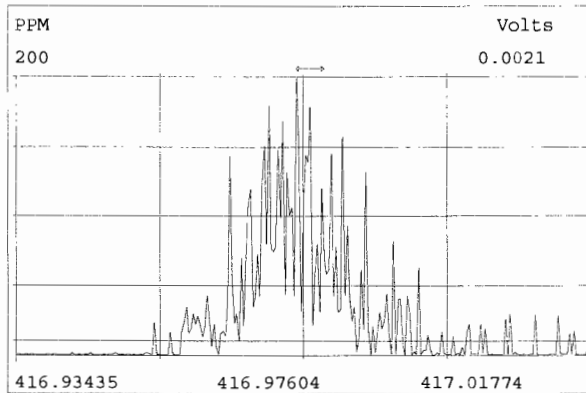
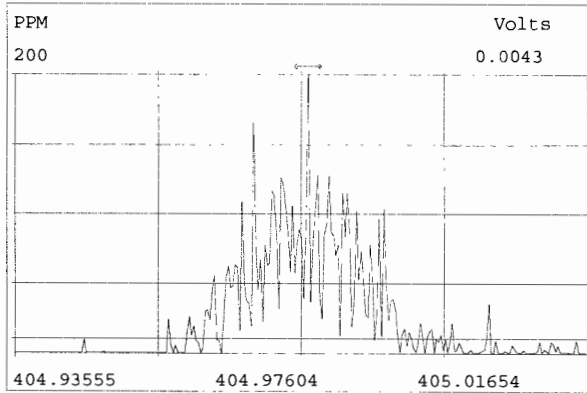
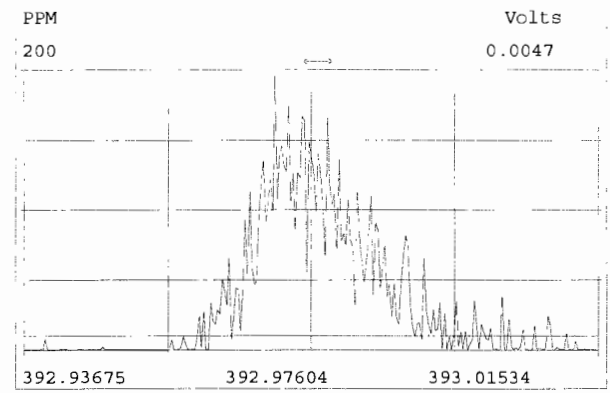
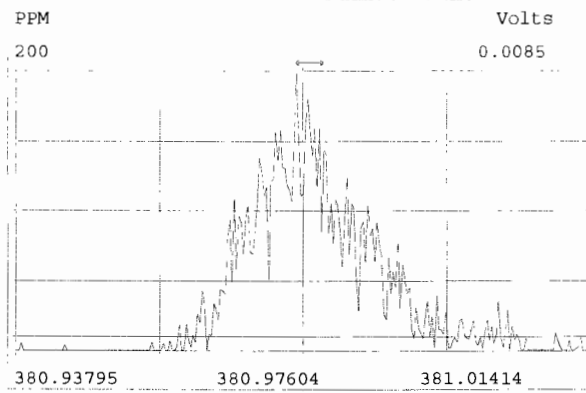
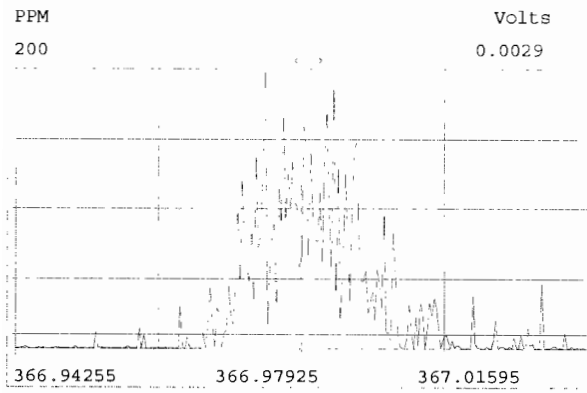
Peak Locate Examination:10-OCT-2019:06:40 File:RES\_CHECK

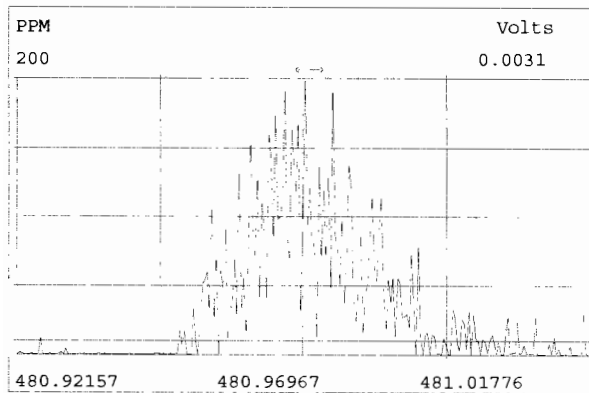
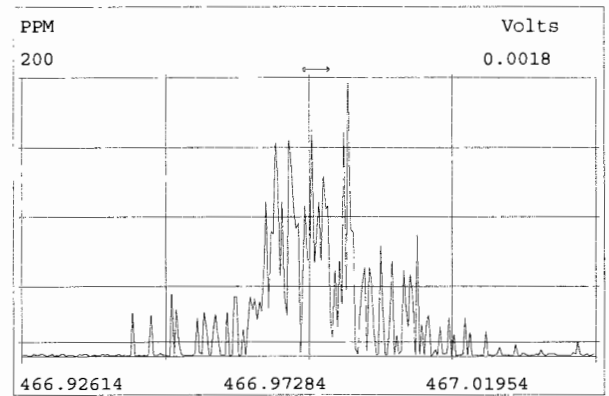
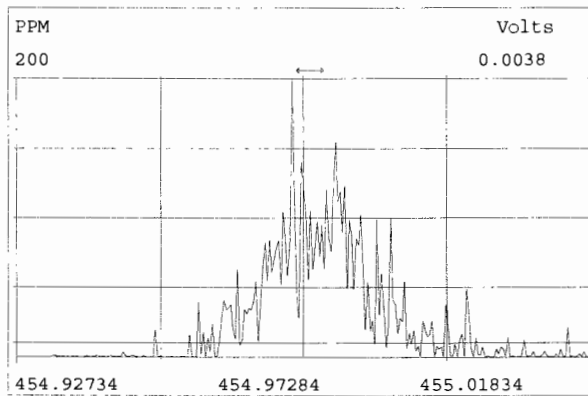
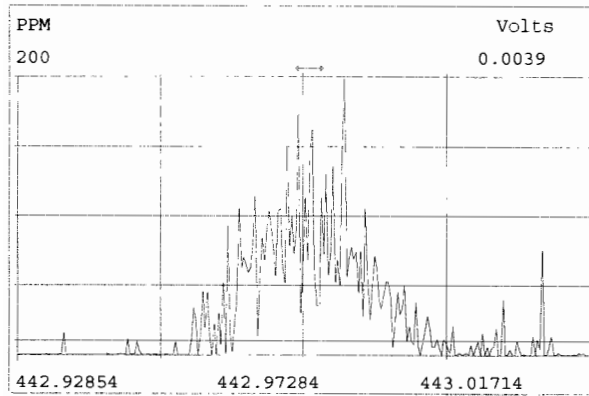
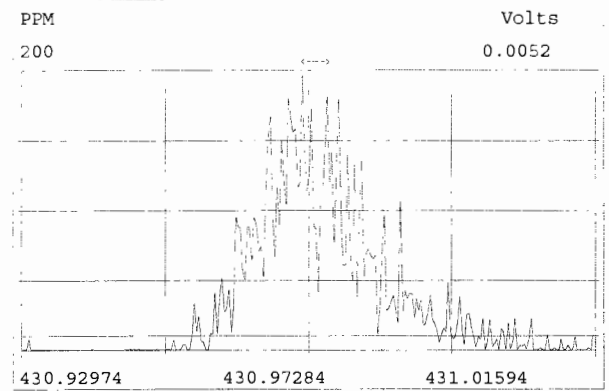
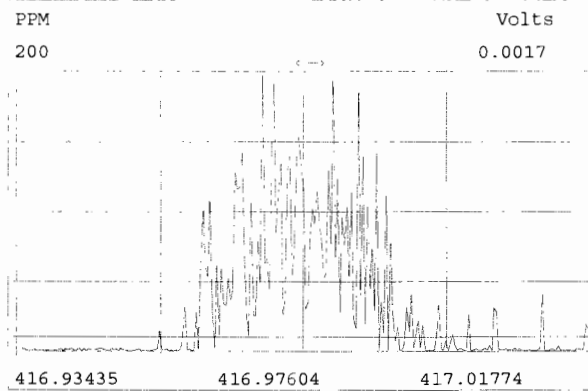
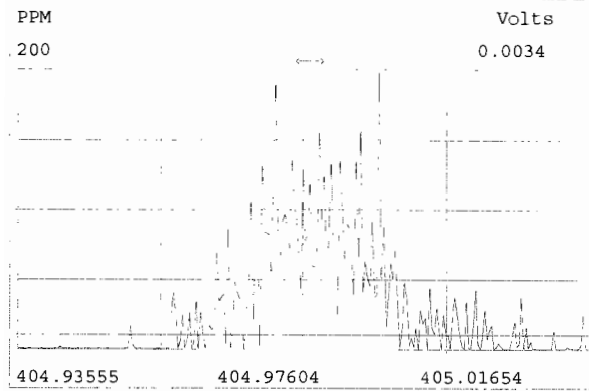
Experiment:OCDD\_DB5 Function:1 Reference:PFK



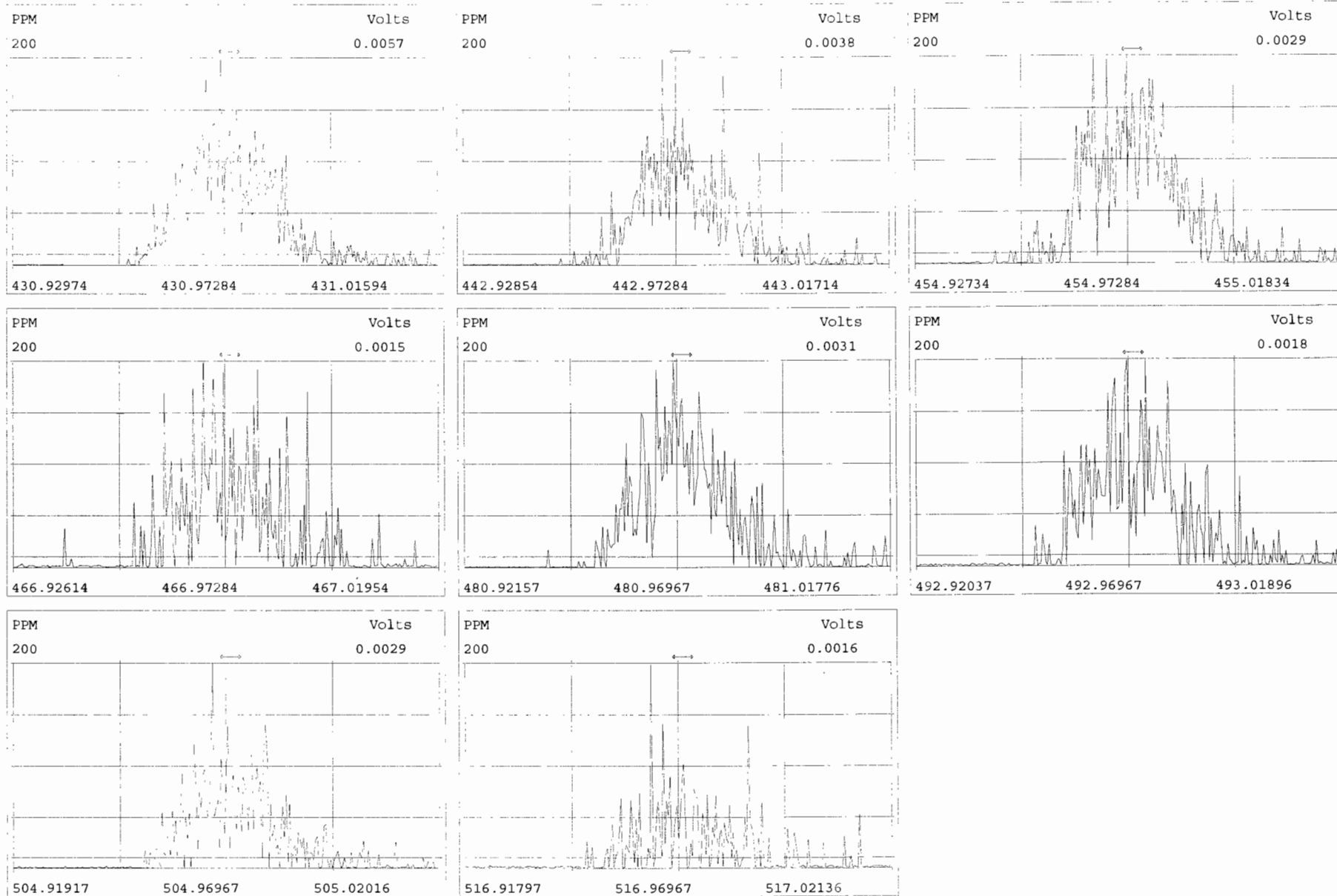








Experiment:OCDD\_DB5 Function:5 Reference:PFK



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: SS191009D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC.	CONC.
	FORMING	ABUND.	LIMITS		FOUND	RANGE (3)
	RATIO (1)	RATIO	(2)		FOUND	(ng/mL)
2,3,7,8-TCDD	M/M+2	0.83	0.65-0.89	y	10.2	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	51.3	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	y	48.9	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	y	52.4	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.17	1.05-1.43	y	50.4	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	y	51.9	43.0 - 58.0
OCDD	M+2/M+4	0.92	0.76-1.02	y	105	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	y	10.3	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	y	50.2	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	56.7	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	51.1	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	51.5	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	y	51.5	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	y	50.9	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	y	53.0	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	y	50.2	43.0 - 58.0
OCDF	M+2/M+4	0.92	0.76-1.02	y	102	63.0 - 159.0

(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 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 10/10/19

FORM 4B  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

LABELLED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.72	0.65-0.89	y	100	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.64	0.54-0.72	y	101	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	95.9	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	95.6	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	94.3	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	91.7	72.0 - 138.0
13C-OCDD	M/M+2	0.92	0.76-1.02	y	190	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.78	0.65-0.89	y	97.2	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	97.4	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	96.6	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	101	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	97.1	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	99.0	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	96.6	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	102	77.0 - 129.0
13C-OCDF	M+2/M+4	0.88	0.76-1.02	y	197	96.0 - 415.0
CLEANUP STANDARD (3) 37Cl-2,3,7,8-TCDD					9.08	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 10/10/19

FORM 6A  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME	RRT	RRT
	REFERENCE		QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.000	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.189	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.994	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.145	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.179	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052

Analyst: DB

Date: 10/10/19

FORM 6B  
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

NATIVE ANALYTES	RETENTION TIME	RRT	RRT
	REFERENCE		QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.001	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.001	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001

LABELED COMPOUNDS

13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.987	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.010	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.040	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.145	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.127	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.227	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 10/10/19



Client ID: 1613 SSS 19C2207  
Lab ID: SS191009D1-1

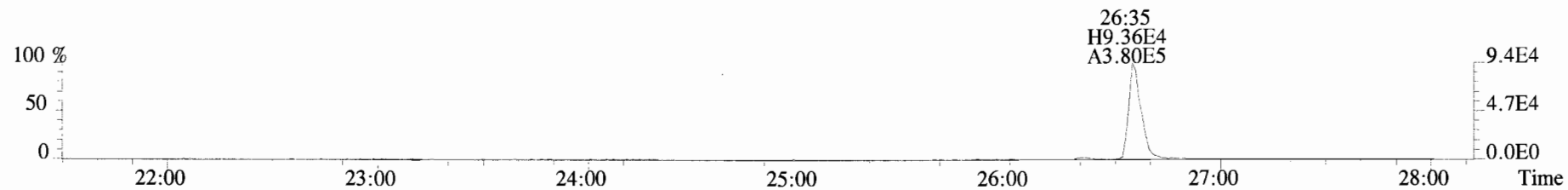
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GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

ConCal: ST191009D1-4  
EndCAL: NA

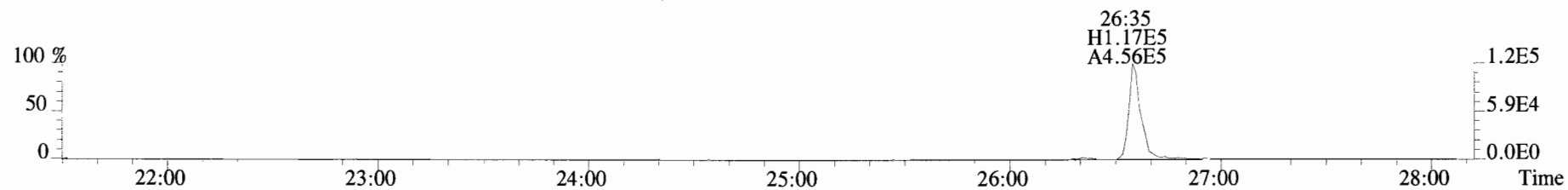
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	8.36e+05	0.83 y	0.91	26:36	10.234		* 2.5		*	Total Tetra-Dioxins	10.4	11.4		*	*
1,2,3,7,8-PeCDD	3.38e+06	0.63 y	0.90	30:57	51.323		* 2.5		*	Total Penta-Dioxins	51.4	51.7		*	*
1,2,3,4,7,8-HxCDD	2.55e+06	1.31 y	1.10	34:18	48.909		* 2.5		*	Total Hexa-Dioxins	153	153		*	*
1,2,3,6,7,8-HxCDD	3.09e+06	1.18 y	0.94	34:24	52.378		* 2.5		*	Total Hepta-Dioxins	53.5	54.4		*	*
1,2,3,7,8,9-HxCDD	2.83e+06	1.17 y	0.96	34:44	50.434		* 2.5		*	Total Tetra-Furans	10.7	11.4		*	*
1,2,3,4,6,7,8-HpCDD	2.34e+06	1.02 y	0.98	38:07	51.915		* 2.5		*	Total Penta-Furans	110.38	111.73		*	*
OCDD	4.27e+06	0.92 y	0.96	41:30	105.37		* 2.5		*	Total Hexa-Furans	205	207		*	*
										Total Hepta-Furans	104	106		*	*
2,3,7,8-TCDF	1.24e+06	0.78 y	0.95	25:53	10.342		* 2.5		*						
1,2,3,7,8-PeCDF	5.03e+06	1.54 y	0.96	29:48	50.200		* 2.5		*						
2,3,4,7,8-PeCDF	5.90e+06	1.60 y	1.01	30:42	56.719		* 2.5		*						
1,2,3,4,7,8-HxCDF	3.94e+06	1.22 y	1.18	33:23	51.086		* 2.5		*						
1,2,3,6,7,8-HxCDF	4.44e+06	1.23 y	1.07	33:31	51.491		* 2.5		*						
2,3,4,6,7,8-HxCDF	4.08e+06	1.20 y	1.11	34:08	51.474		* 2.5		*						
1,2,3,7,8,9-HxCDF	3.40e+06	1.24 y	1.06	35:10	50.903		* 2.5		*						
1,2,3,4,6,7,8-HpCDF	3.36e+06	1.05 y	1.13	36:58	53.010		* 2.5		*						
1,2,3,4,7,8,9-HpCDF	2.94e+06	1.05 y	1.28	38:42	50.216		* 2.5		*						
OCDF	5.04e+06	0.92 y	0.95	41:45	102.23		* 2.5		*						
IS	13C-2,3,7,8-TCDD	9.02e+06	0.72 y	1.10	26:35	100.49				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	7.29e+06	0.64 y	0.88	30:56	100.87				100					
IS	13C-1,2,3,4,7,8-HxCDD	4.73e+06	1.23 y	0.64	34:16	95.948				101					
IS	13C-1,2,3,6,7,8-HxCDD	6.28e+06	1.25 y	0.86	34:24	95.558				95.9					
IS	13C-1,2,3,7,8,9-HxCDD	5.85e+06	1.26 y	0.81	34:43	94.306				95.6					
IS	13C-1,2,3,4,6,7,8-HpCDD	4.61e+06	1.06 y	0.65	38:06	91.680				94.3					
IS	13C-OCDD	8.45e+06	0.92 y	0.58	41:29	189.68				91.7					
IS	13C-2,3,7,8-TCDF	1.26e+07	0.78 y	1.03	25:52	97.199				94.8					
IS	13C-1,2,3,7,8-PeCDF	1.04e+07	1.62 y	0.85	29:48	97.425				97.2					
IS	13C-2,3,4,7,8-PeCDF	1.03e+07	1.59 y	0.85	30:41	96.649				97.4					
IS	13C-1,2,3,4,7,8-HxCDF	6.55e+06	0.51 y	0.83	33:22	102.43				96.6					
IS	13C-1,2,3,6,7,8-HxCDF	8.06e+06	0.51 y	1.03	33:30	101.42				102					
IS	13C-2,3,4,6,7,8-HxCDF	7.11e+06	0.51 y	0.95	34:08	97.073				101					
IS	13C-1,2,3,7,8,9-HxCDF	6.30e+06	0.51 y	0.83	35:09	98.999				97.1					
IS	13C-1,2,3,4,6,7,8-HpCDF	5.62e+06	0.43 y	0.76	36:57	96.588				99.0					
IS	13C-1,2,3,4,7,8,9-HpCDF	4.58e+06	0.44 y	0.58	38:42	102.46				96.6					
IS	13C-OCDF	1.04e+07	0.88 y	0.69	41:44	196.65				102					
C/Up	37Cl-2,3,7,8-TCDD	8.91e+05		1.20	26:36	9.0817				98.3					
RS/RT	13C-1,2,3,4-TCDD	8.20e+06	0.76 y	1.00	26:01	100.00									
RS	13C-1,2,3,4-TCDF	1.25e+07	0.82 y	1.00	24:42	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	7.68e+06	0.50 y	1.00	33:48	100.00									

Integrations  
by DB  
Analyst: DB  
Reviewed  
by CT  
Analyst: CT  
Date: 10/10/19  
Date: 10/10/19

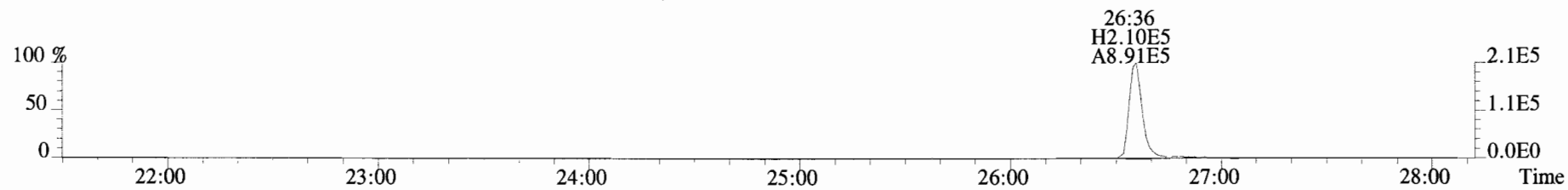
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



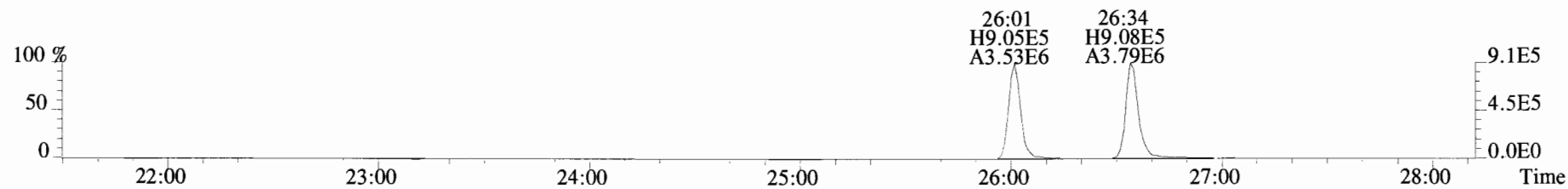
321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



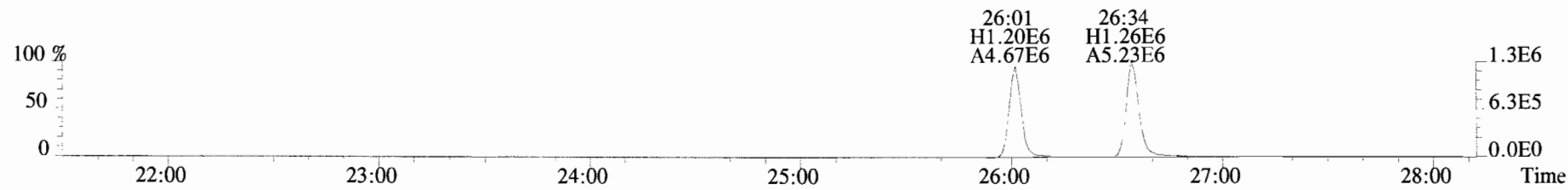
327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



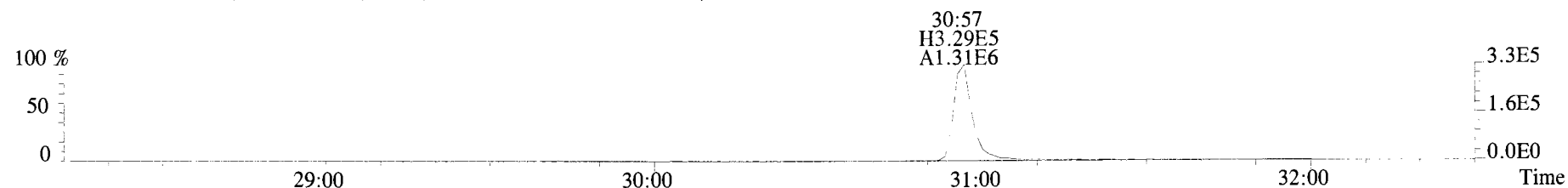
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



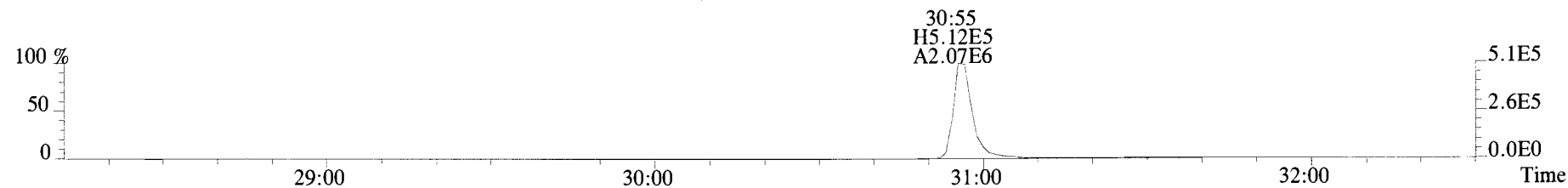
333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



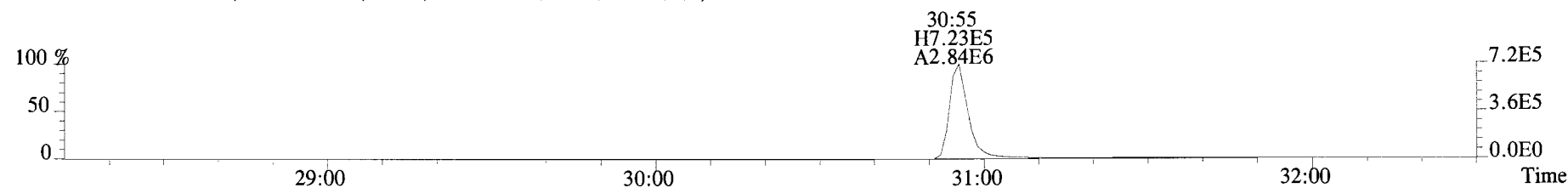
File:191009D1 #1-210 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text: Vista Analytical Laboratory VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



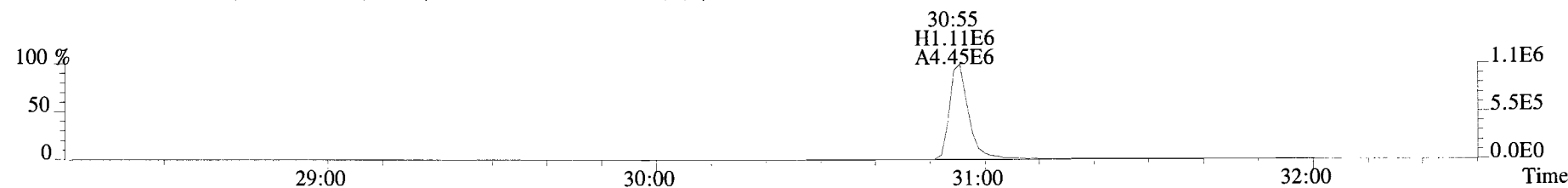
355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



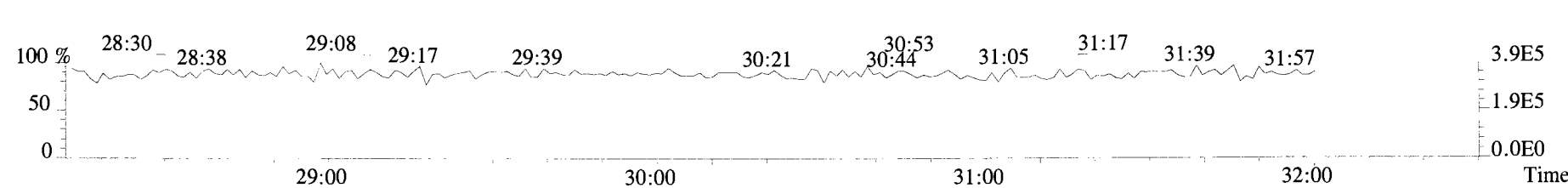
365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



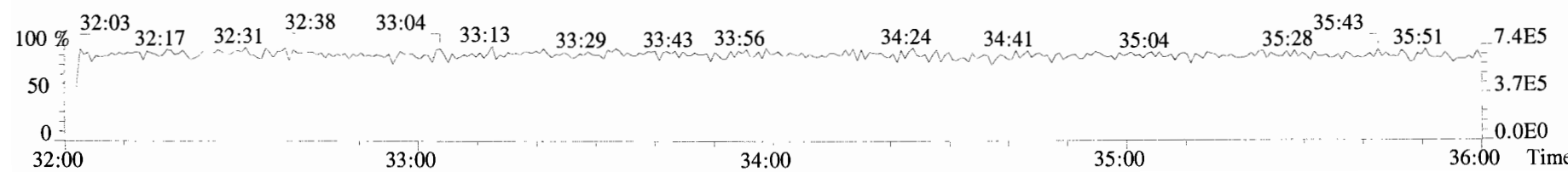
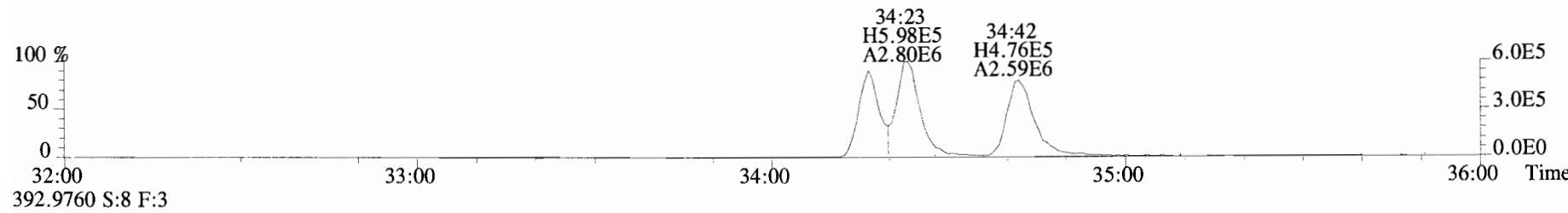
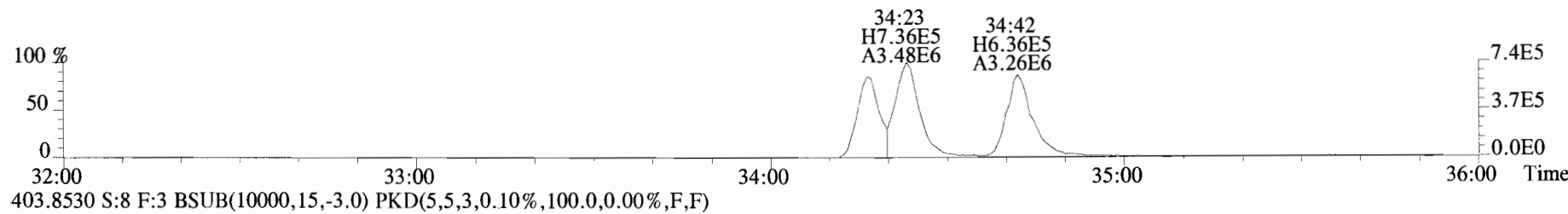
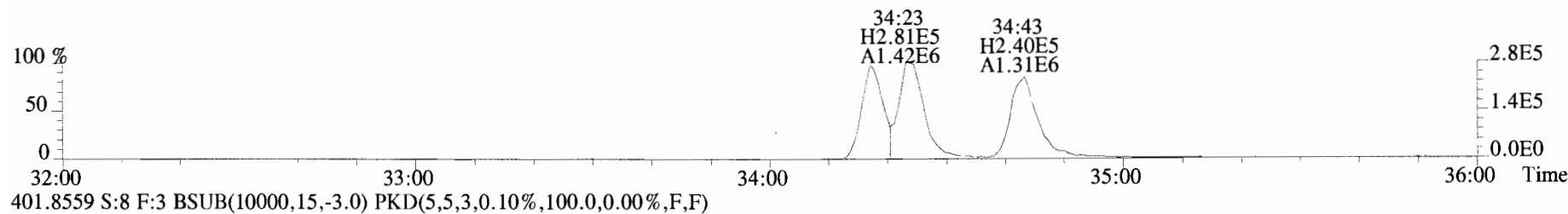
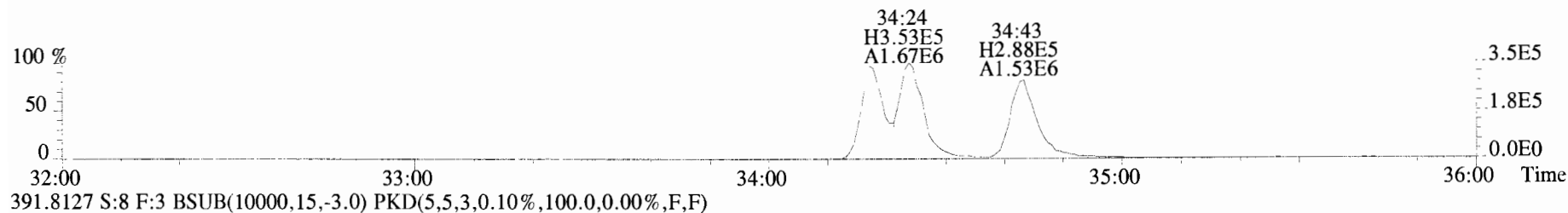
367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



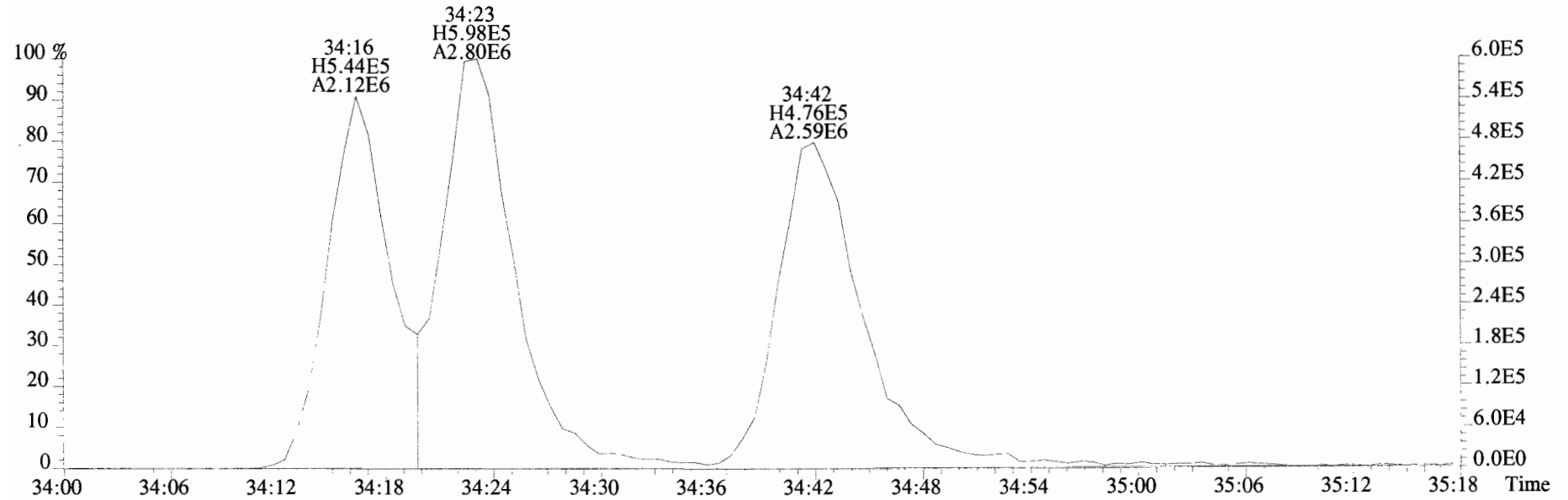
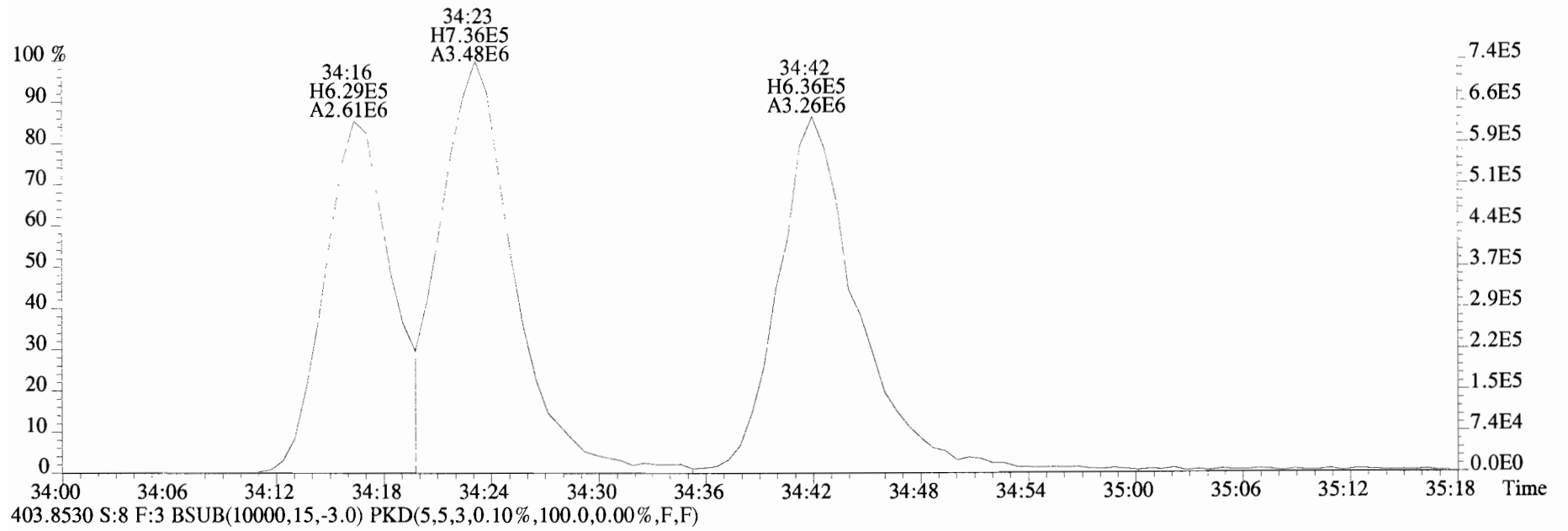
366.9792 S:8 F:2



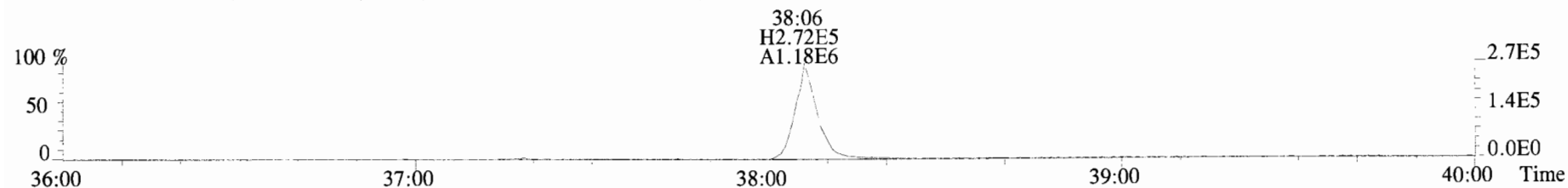
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



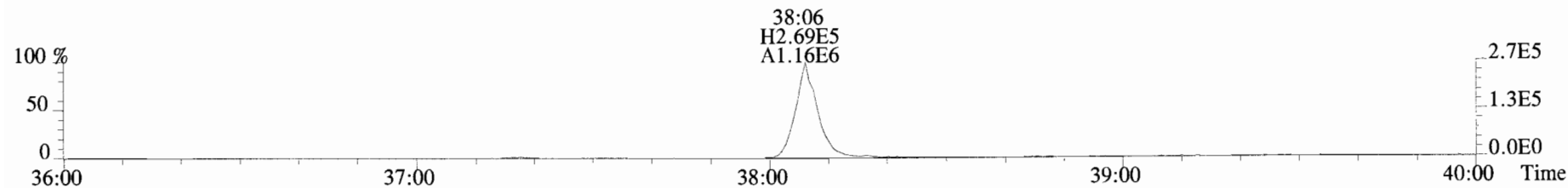
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Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



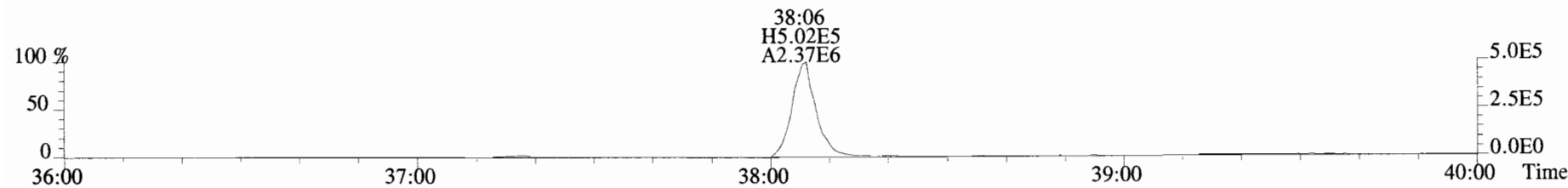
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



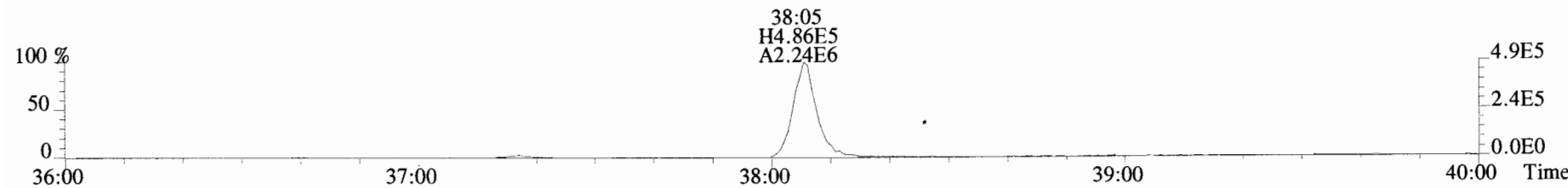
425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



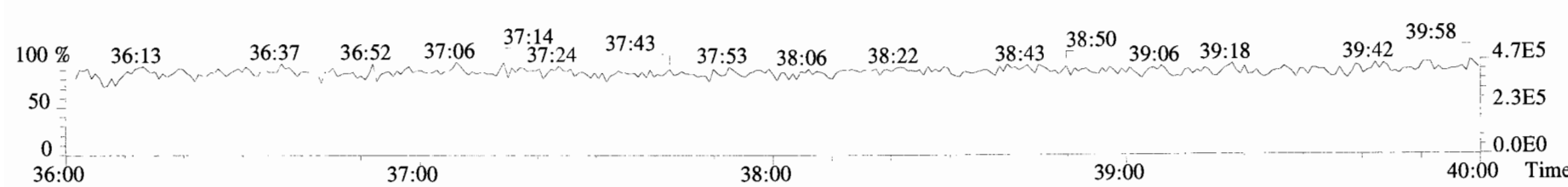
435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



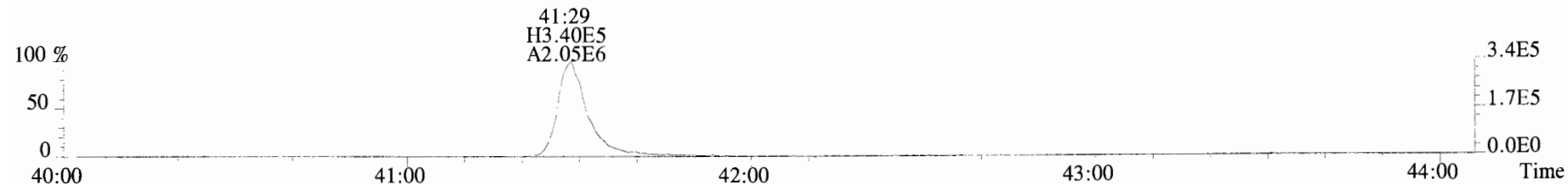
437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



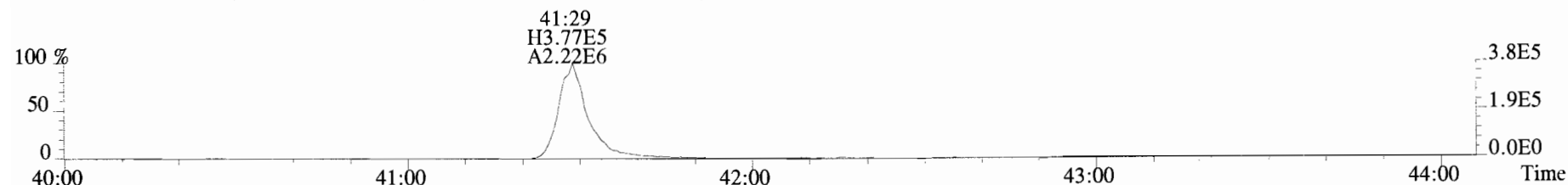
454.9728 S:8 F:4



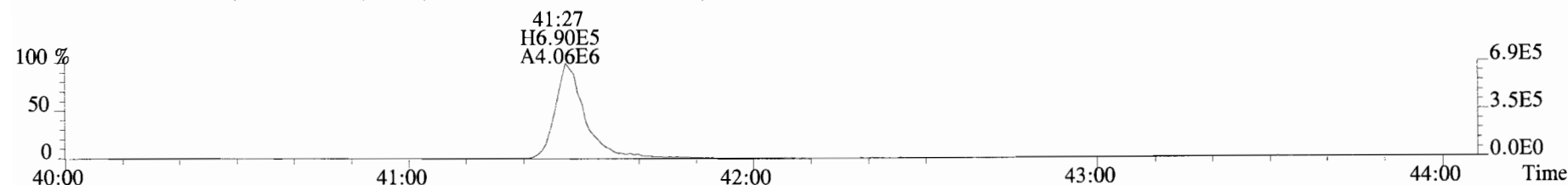
File:191009D1 #1-431 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



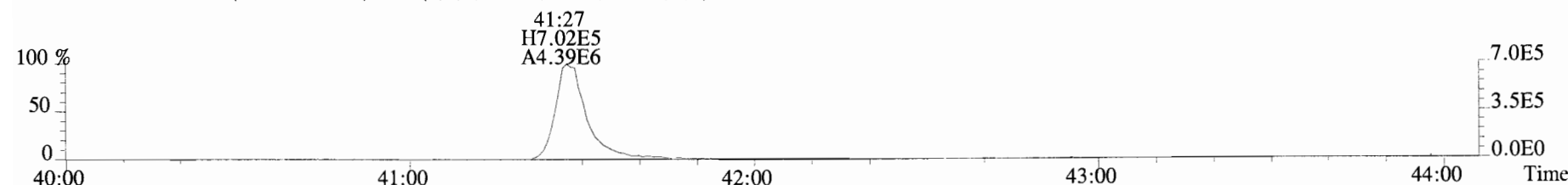
459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



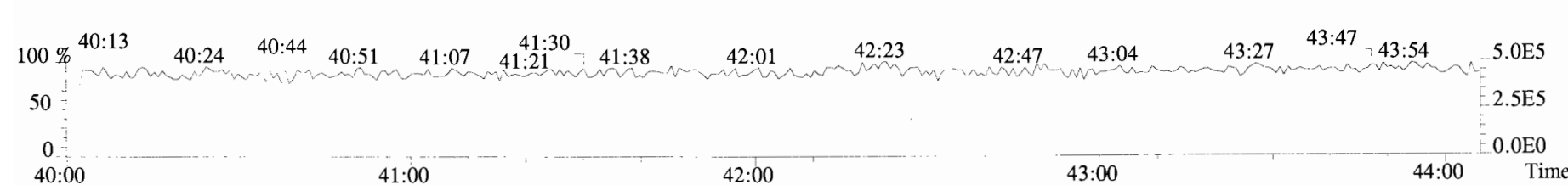
469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



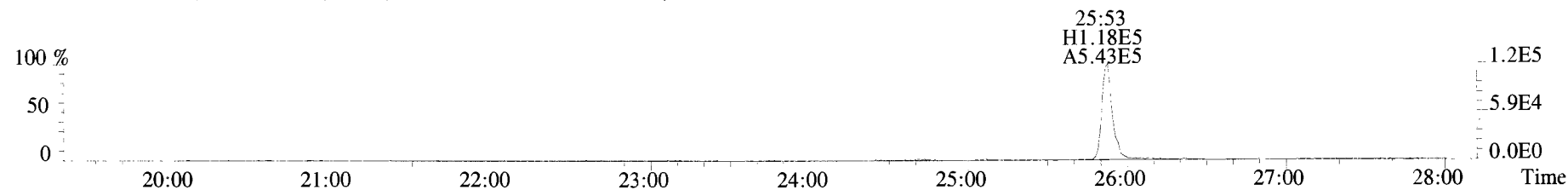
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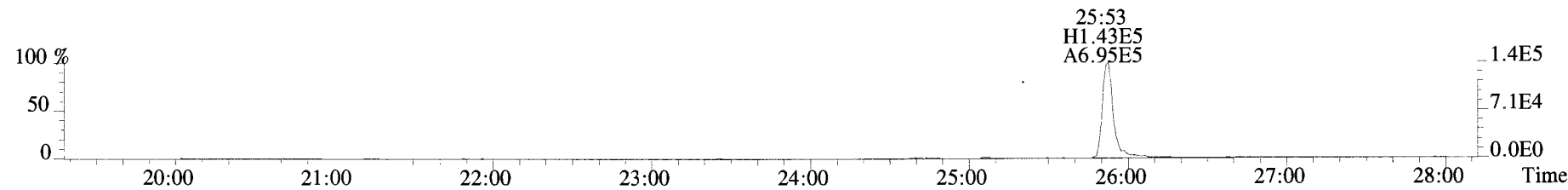
454.9728 S:8 F:5



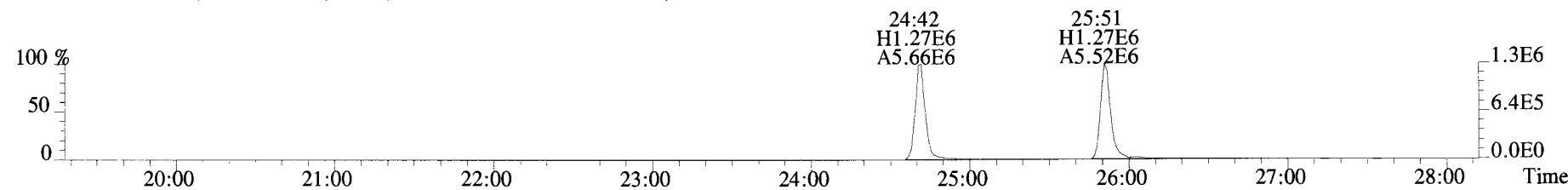
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



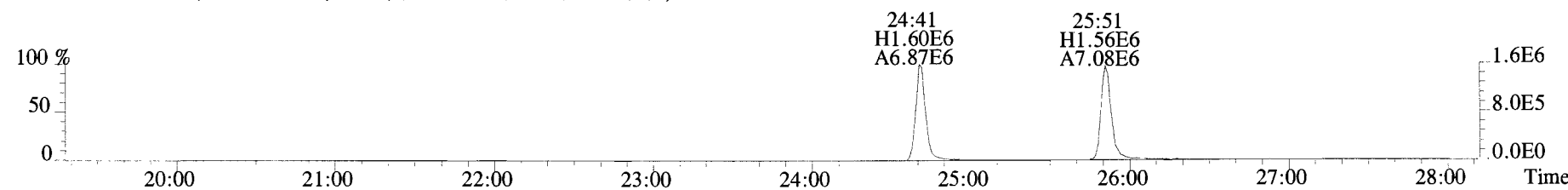
305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



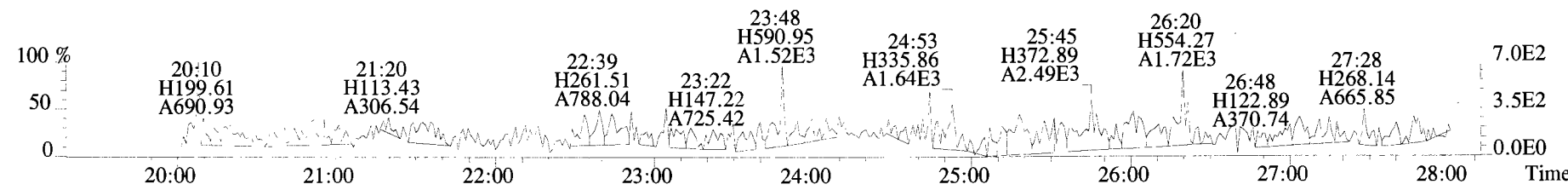
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

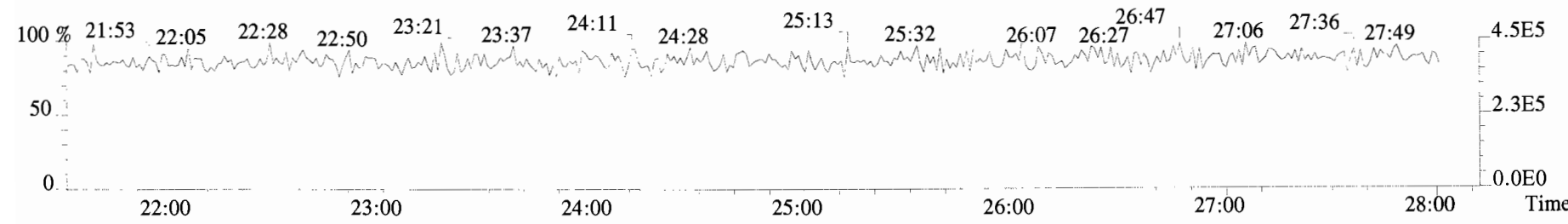
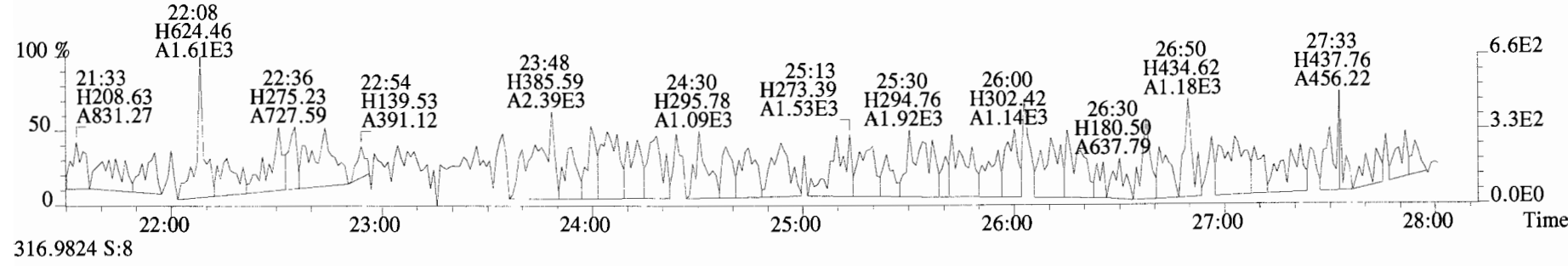
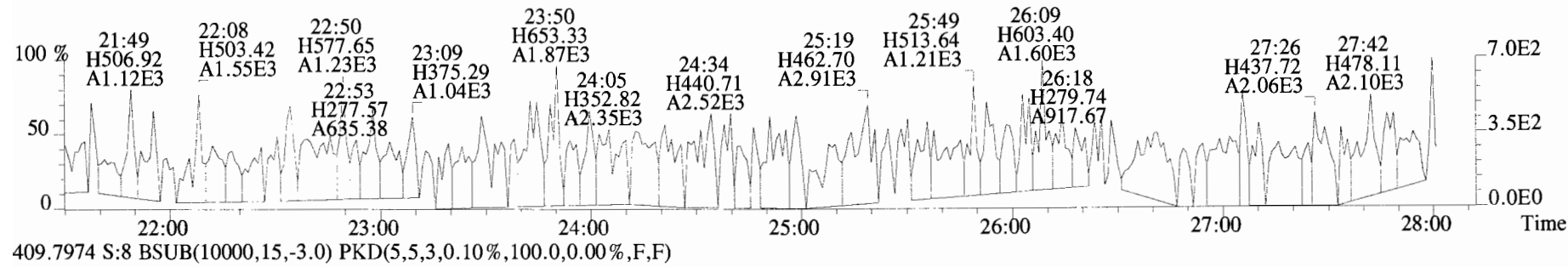
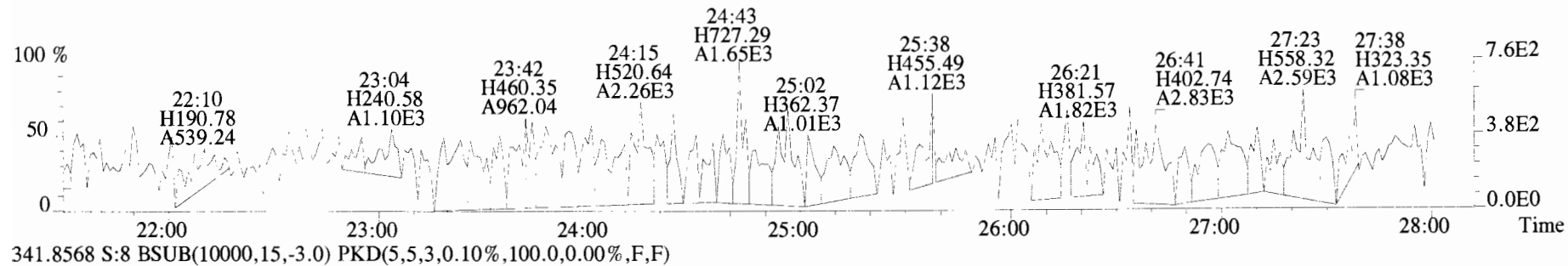


375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

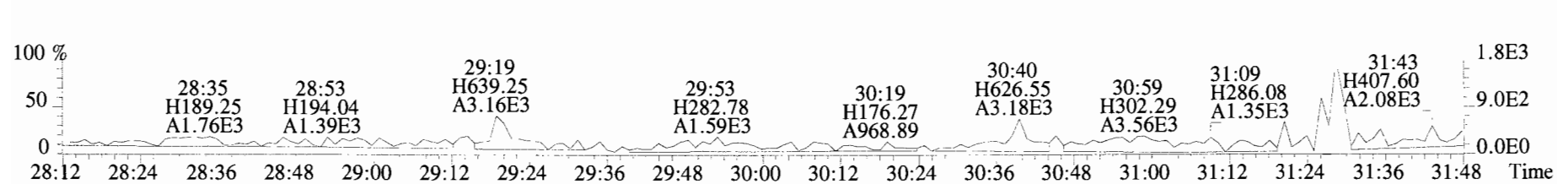
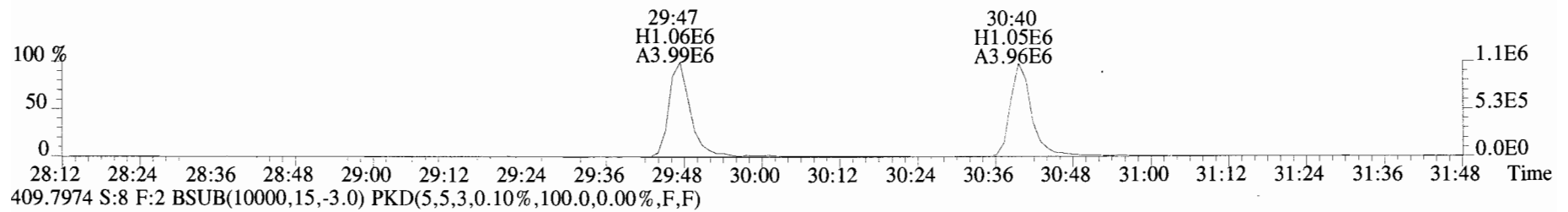
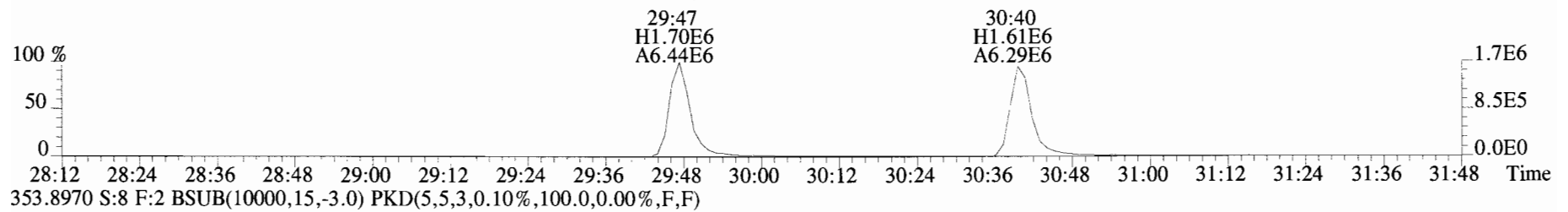
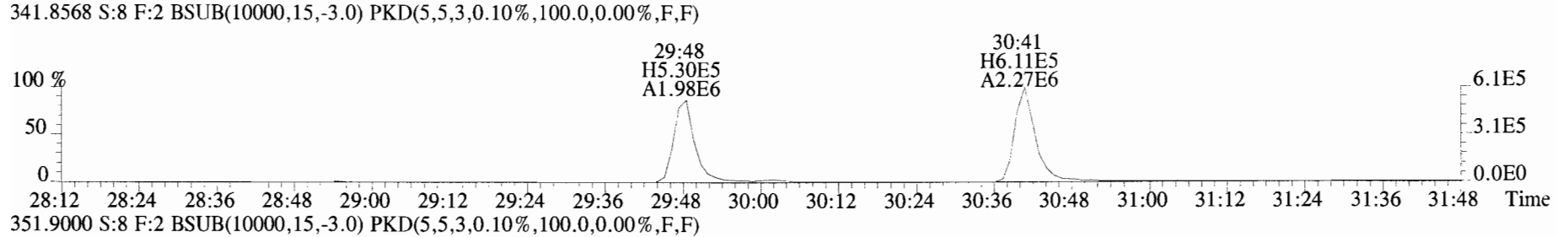
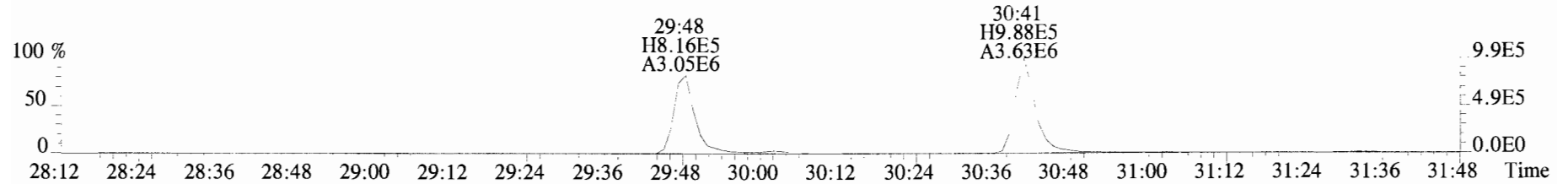




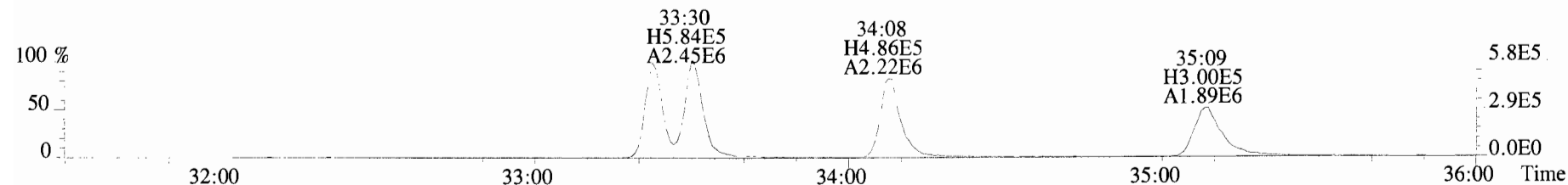
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 339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



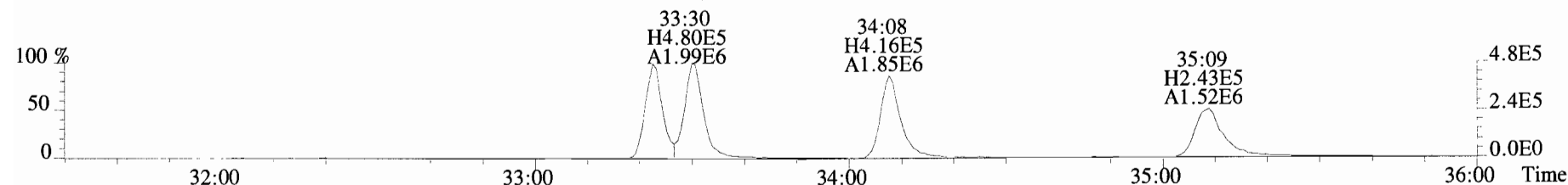
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Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



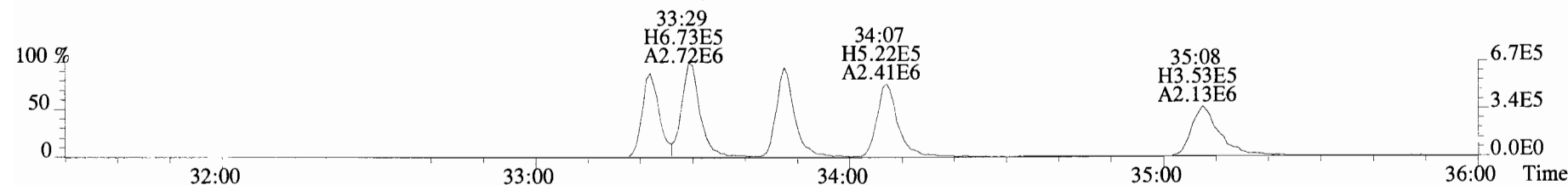
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 Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
 373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



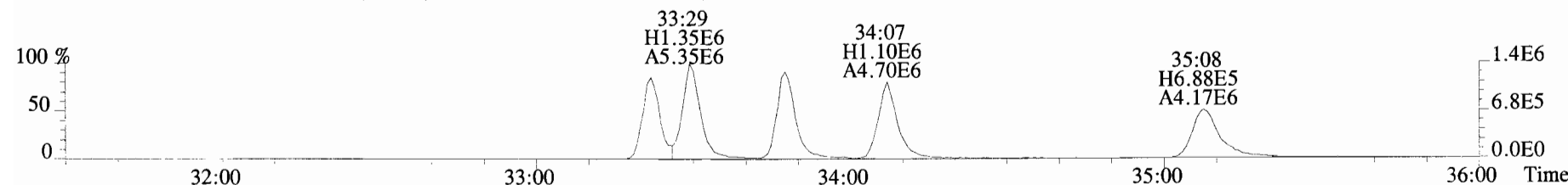
375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



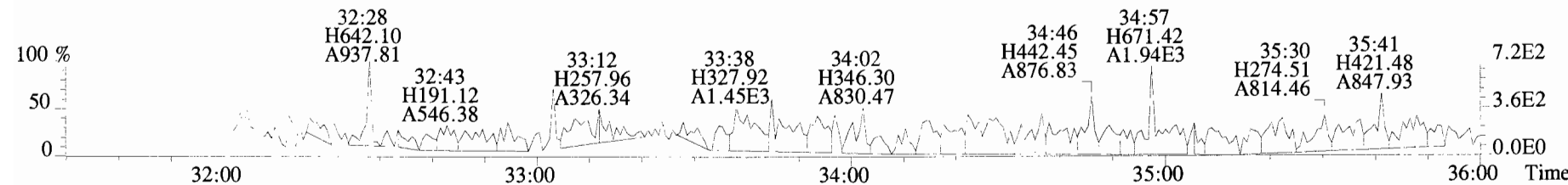
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



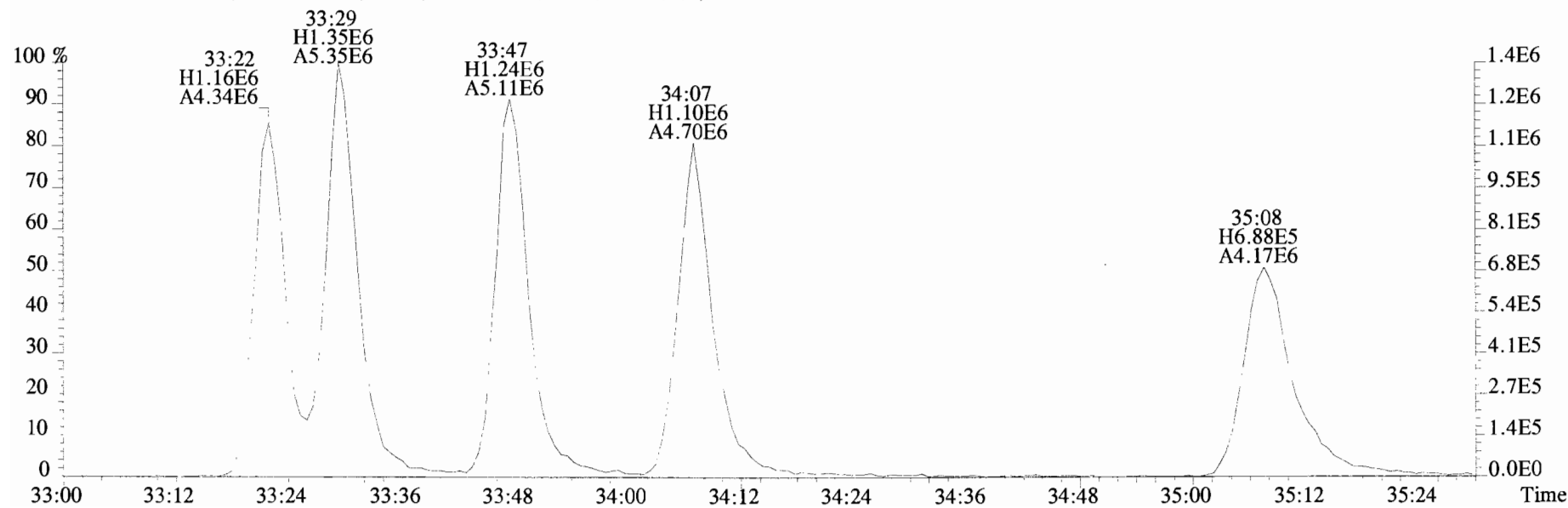
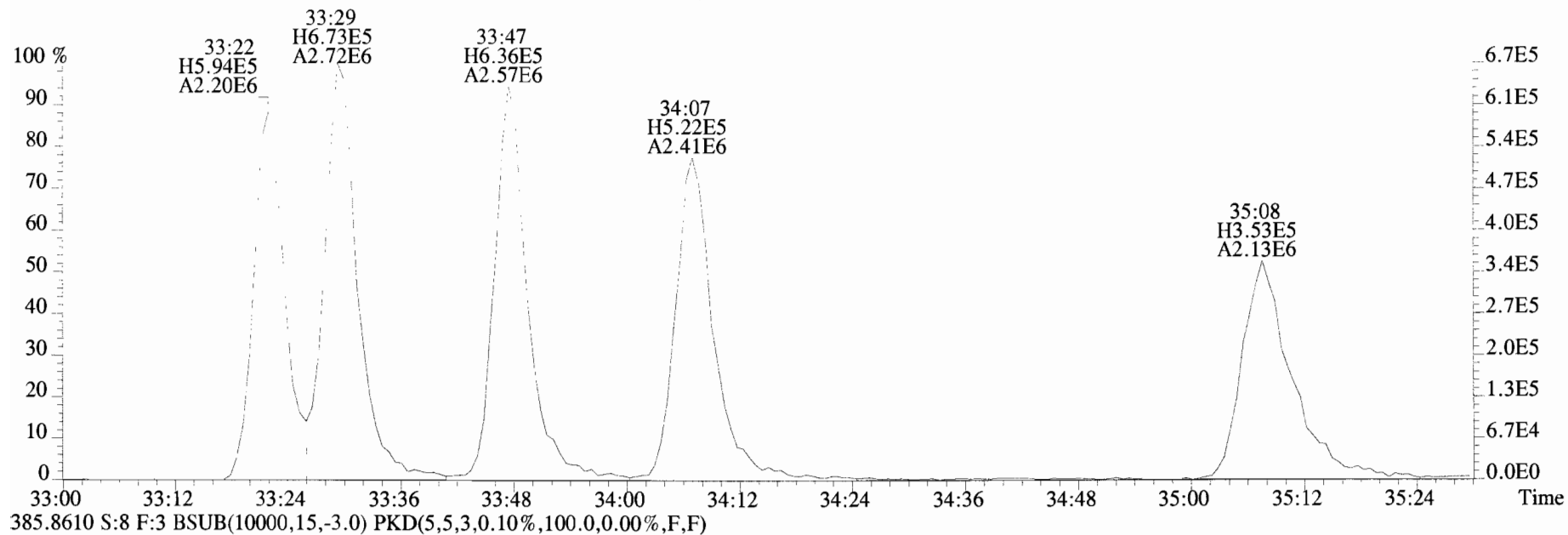
385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



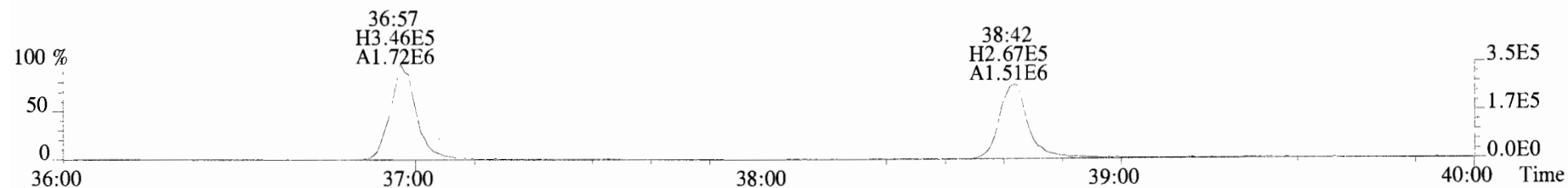
445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



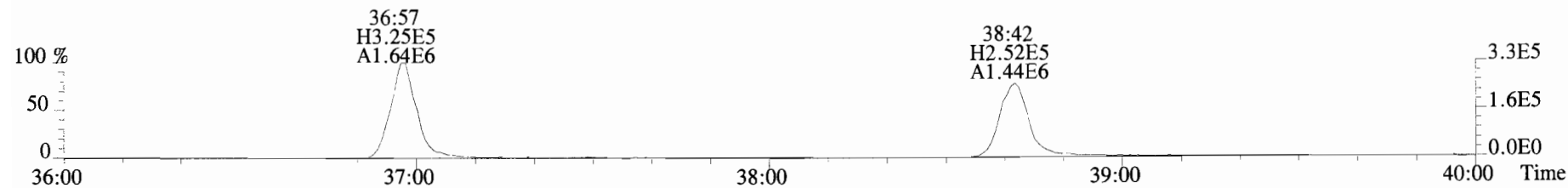
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



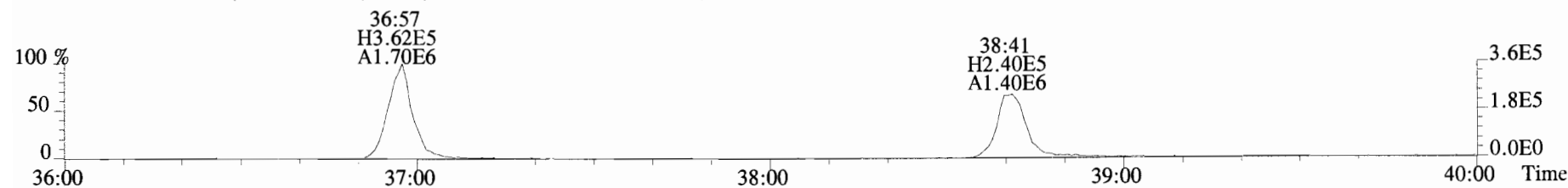
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
 407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



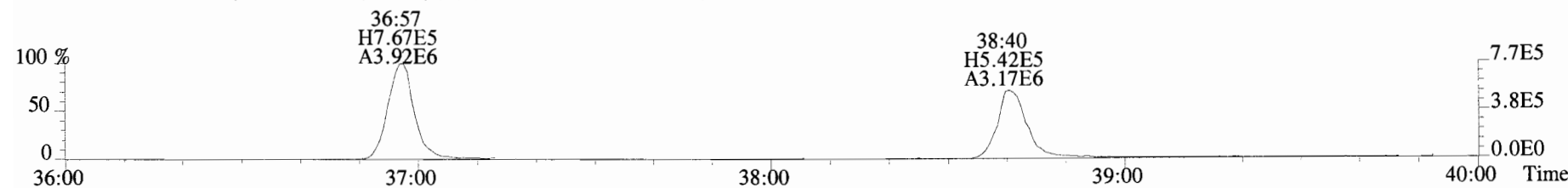
409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



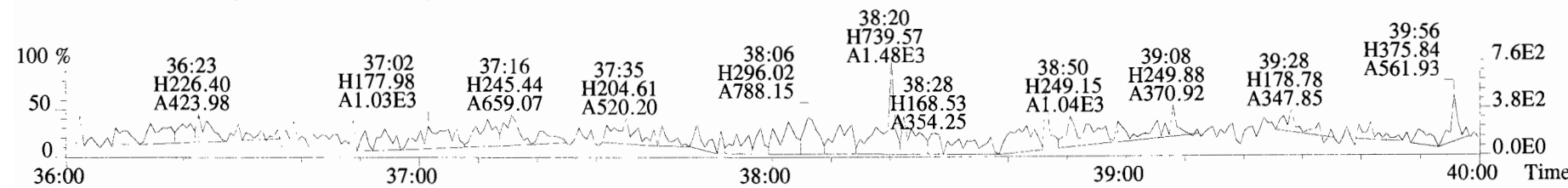
417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



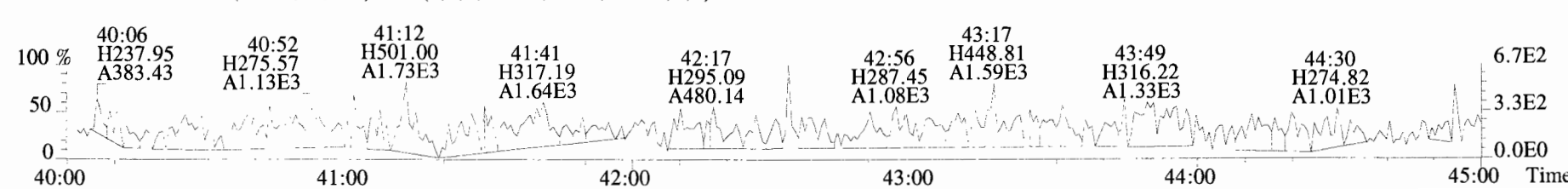
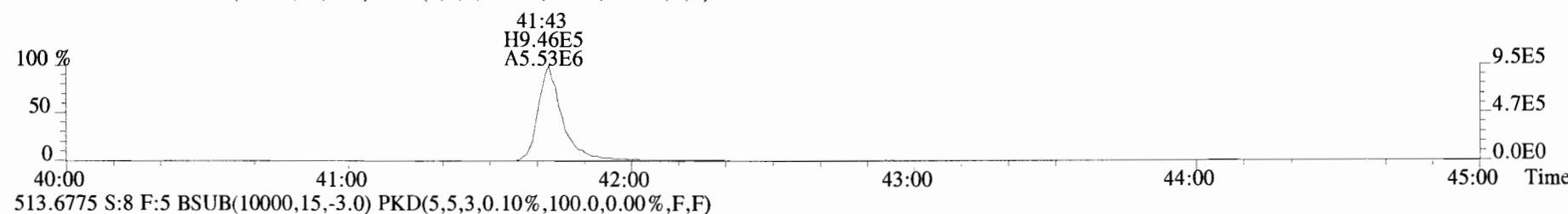
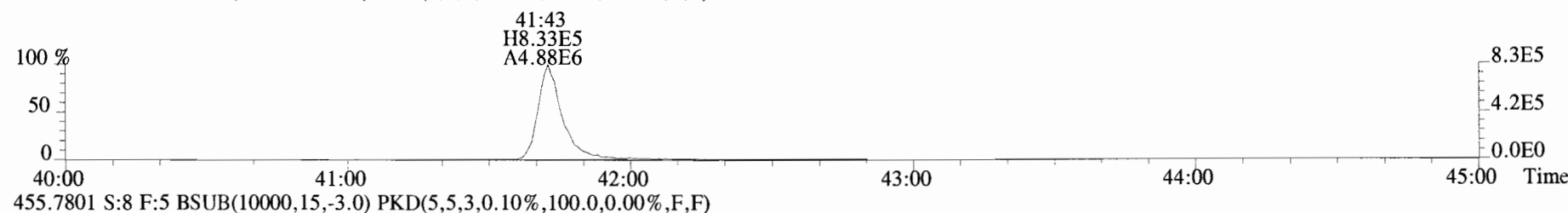
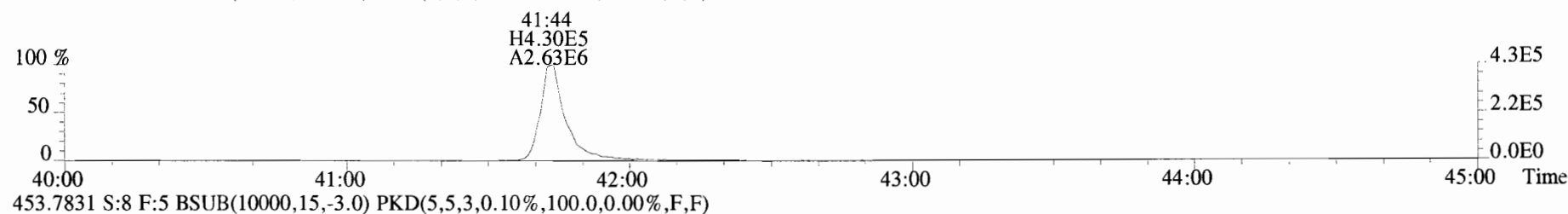
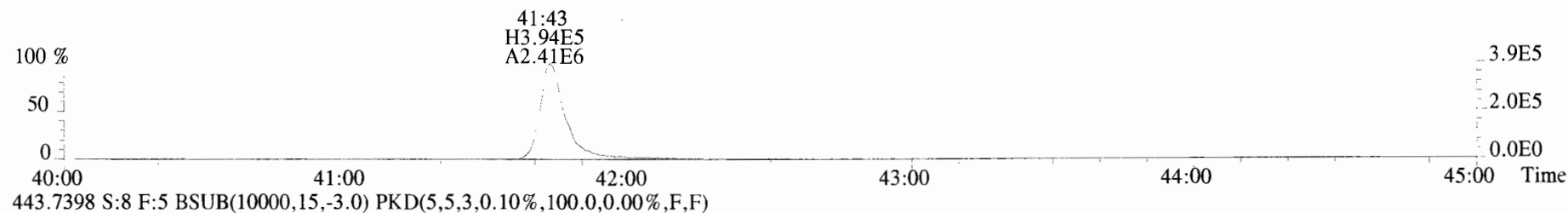
419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-431 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Initial Calibration RRF Summary (ICAL)

Vista Analytical Laboratory

Run: Analyte: TCDF

Cal: 1613TCDFVG7-5-30-19

Inst. ID. VG-7

Data filename: 190530D1

Samp# 3	Samp# 4	Samp# 5	Samp# 6	Samp# 7	Samp# 8
100	100	100	100	100	100

Name	Mean RRF	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6
13C-1,2,3,4-TCDF	1.0000	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-2,3,7,8-TCDF	1.0212	4.27 %	1.07	1.04	1.03	1.05	0.98	0.96
2,3,7,8-TCDF	0.9476	9.58 %	1.12	0.93	0.88	0.87	0.97	0.92

DB  
5/30/19  
OT  
05/31/19

Filename: 190530D1 S: 3      Acquired: 30-MAY-19 12:05:38  
Run:                      Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-1 1613 CS0 19C2201

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.38e+07	0.80 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.47e+07	0.81 y	18:05	-	1.07
2,3,7,8-TCDF	0.250	4.11e+04	0.87 y	18:06	-	1.12

DB  
5/30/19



Filename: 190530D1 S: 4      Acquired: 30-MAY-19 12:37:29  
Run:                      Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-2 1613 CS1 19C2202

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.24e+07	0.82 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.30e+07	0.78 y	18:05	-	1.04
2,3,7,8-TCDF	0.500	6.06e+04	0.67 y	18:05	-	0.93

DB  
5/30/19

Filename: 190530D1 S: 5      Acquired: 30-MAY-19 13:09:20  
Run:                      Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-3 1613 CS2 19C2203

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.21e+07	0.82 y	15:48	-	1.00
13C-2,3,7,8-TCDF	100	1.24e+07	0.80 y	18:04	-	1.03
2,3,7,8-TCDF	2.00	2.18e+05	0.74 y	18:05	-	0.88

DB  
5/30/19

Filename: 190530D1 S: 6      Acquired: 30-MAY-19 13:41:11  
Run:                      Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-4 1613 CS3 19C2204

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.28e+07	0.81 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.34e+07	0.80 y	18:05	-	1.05
2,3,7,8-TCDF	10.0	1.17e+06	0.73 y	18:06	-	0.87

DB  
5/30/19

Filename: 190530D1 S: 7      Acquired: 30-MAY-19 14:13:01  
Run:                      Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-5 1613 CS4 19C2205

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.30e+07	0.81 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.28e+07	0.80 y	18:05	-	0.98
2,3,7,8-TCDF	40.0	4.95e+06	0.77 y	18:06	-	0.97

DB  
5/30/19

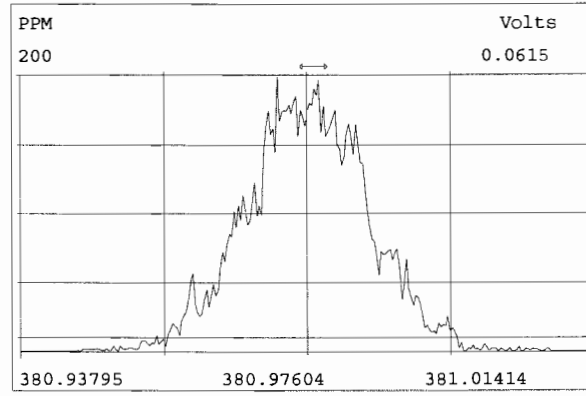
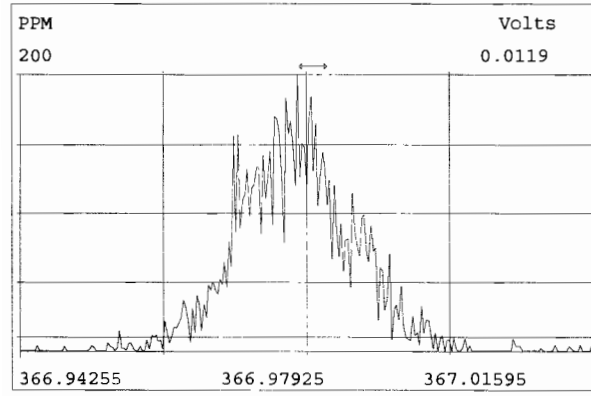
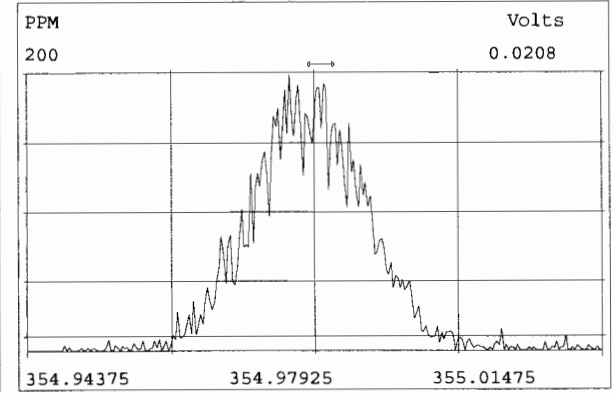
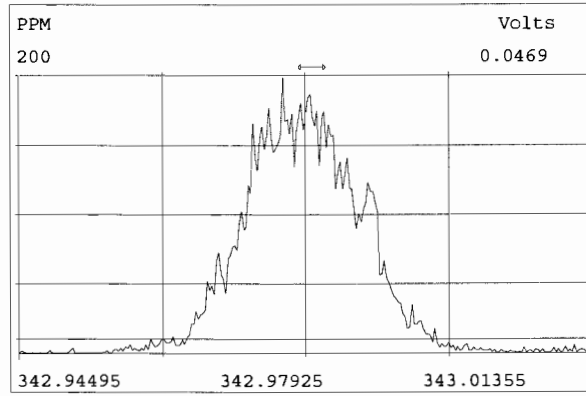
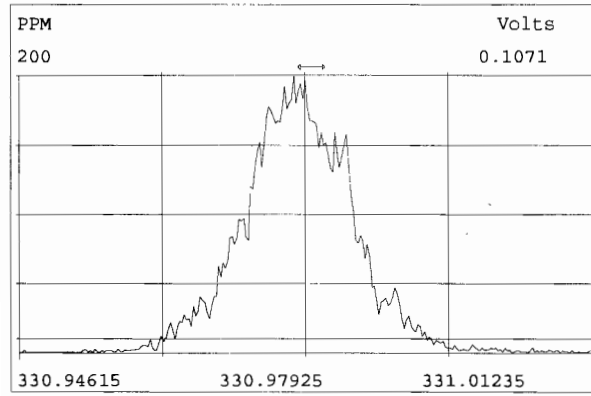
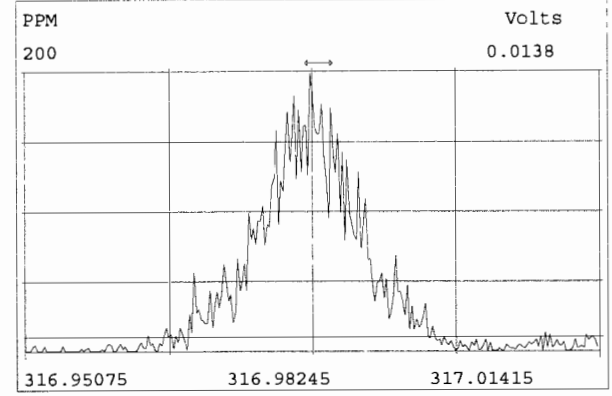
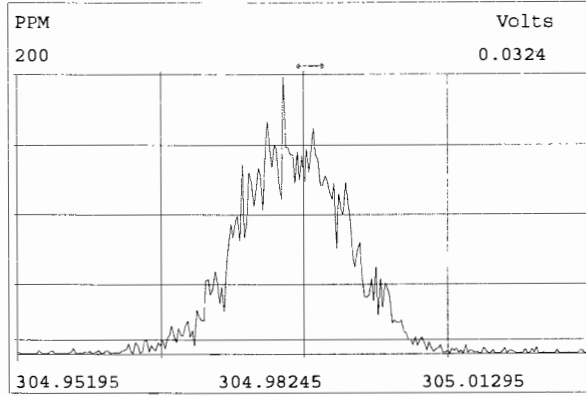
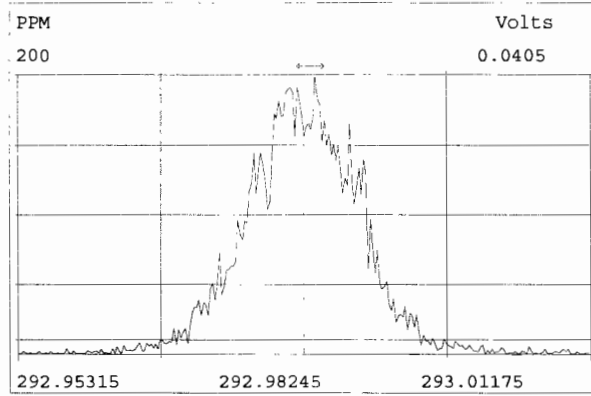
Filename: 190530D1 S: 8      Acquired: 30-MAY-19 14:44:52  
Run:                    Analyte: TCDF    Cal: 1613TCDFVG7-5-30-19Results:  
Sample text: ST190530D1-6 1613 CS5 19C2206

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.29e+07	0.80 y	15:48	-	1.00
13C-2,3,7,8-TCDF	100	1.24e+07	0.80 y	18:05	-	0.96
2,3,7,8-TCDF	300	3.42e+07	0.74 y	18:06	-	0.92

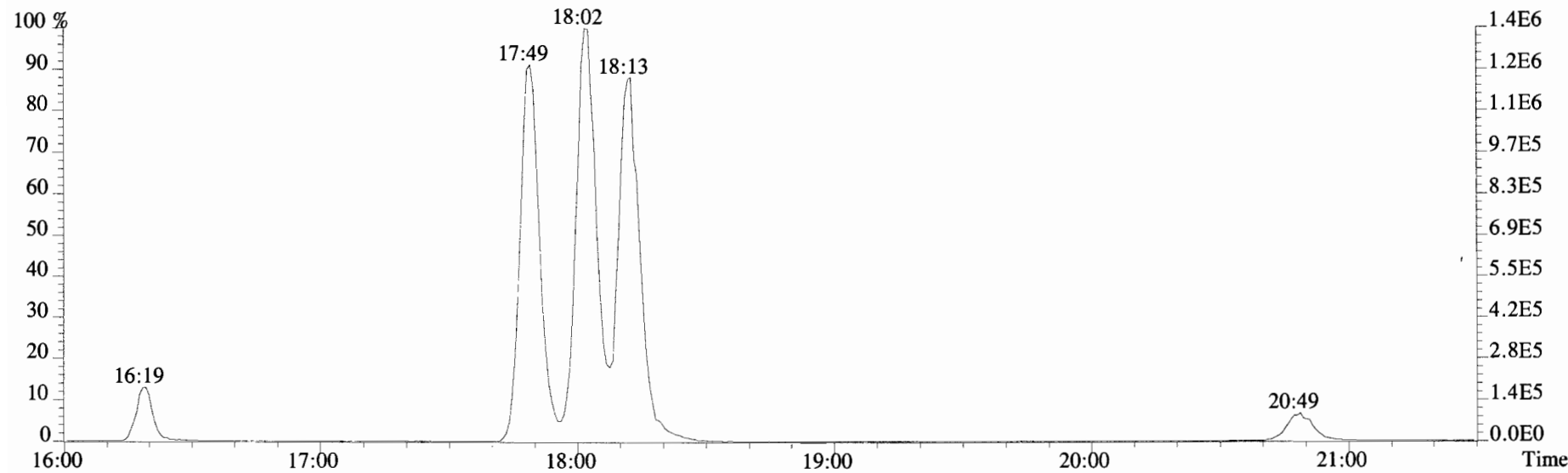
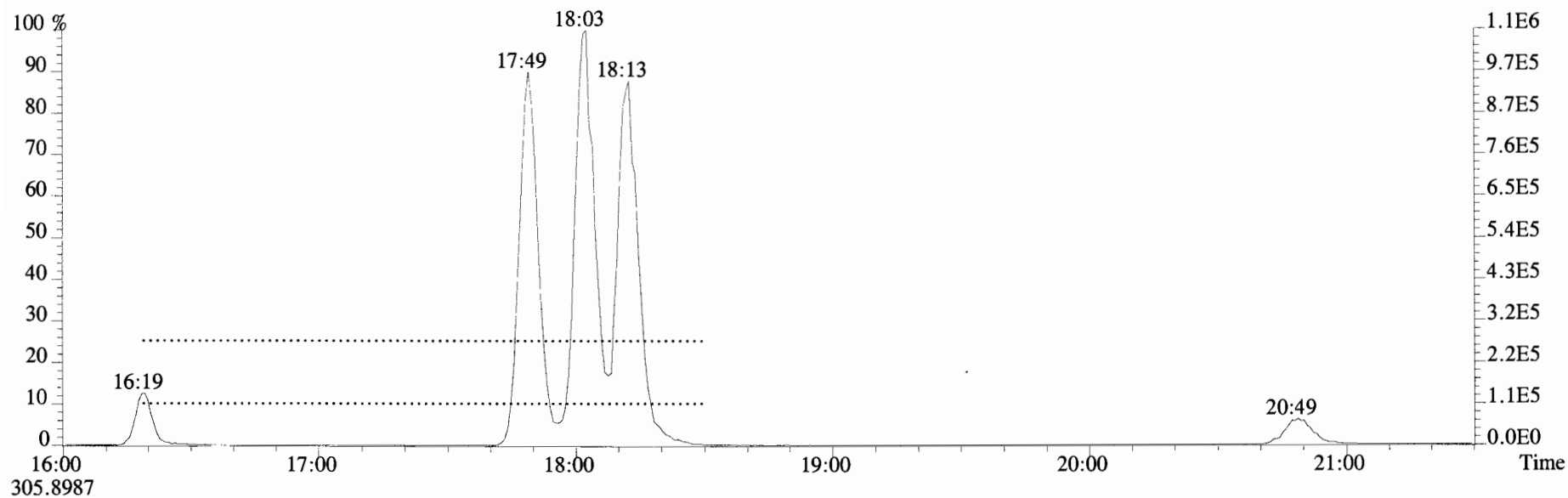
DB  
5/30/19

Vista Analytical Laboratory - Injection Log Run file: 190530D1 Instrument ID: VG-7 GC Column ID: DB-225

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190530D1	1	CP190530D1-1	DB	30-MAY-19	11:02:08	ST190530D1-4	NA
190530D1	2	SOLVENT BLANK	DB	30-MAY-19	11:33:52	ST190530D1-4	NA
190530D1	3	ST190530D1-1	DB	30-MAY-19	12:05:38	ST190530D1-4	NA
190530D1	4	ST190530D1-2	DB	30-MAY-19	12:37:29	ST190530D1-4	NA
190530D1	5	ST190530D1-3	DB	30-MAY-19	13:09:20	ST190530D1-4	NA
190530D1	6	ST190530D1-4	DB	30-MAY-19	13:41:11	ST190530D1-4	NA
190530D1	7	ST190530D1-5	DB	30-MAY-19	14:13:01	ST190530D1-4	NA
190530D1	8	ST190530D1-6	DB	30-MAY-19	14:44:52	ST190530D1-4	NA
190530D1	9	SOLVENT BLANK	DB	30-MAY-19	15:16:42	ST190530D1-4	NA
190530D1	10	SS190528D1-1	DB	30-MAY-19	15:48:32	ST190530D1-4	NA
190530D1	11	SOLVENT BLANK	DB	30-MAY-19	16:20:23	ST190530D1-4	NA
190530D1	12	1901028-05RE1	DB	30-MAY-19	16:52:12	ST190530D1-4	NA
190530D1	13	1901028-07RE1	DB	30-MAY-19	17:24:02	ST190530D1-4	NA
190530D1	14	1901028-08RE1	DB	30-MAY-19	17:55:52	ST190530D1-4	NA
190530D1	15	1901028-09RE1	DB	30-MAY-19	18:27:41	ST190530D1-4	NA

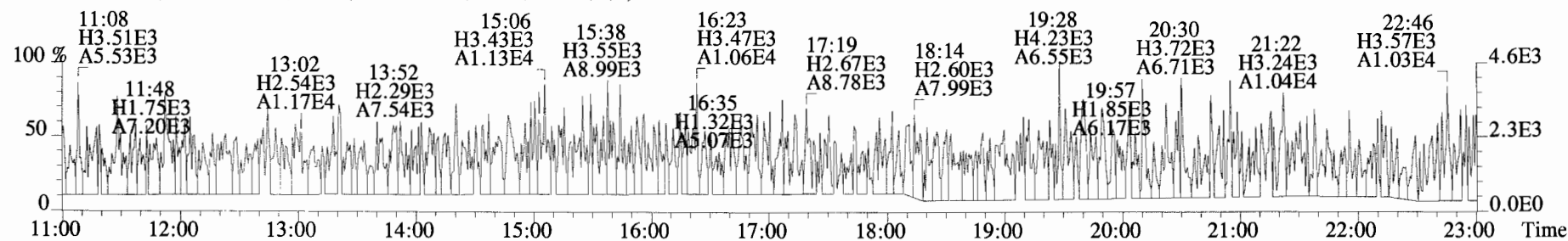
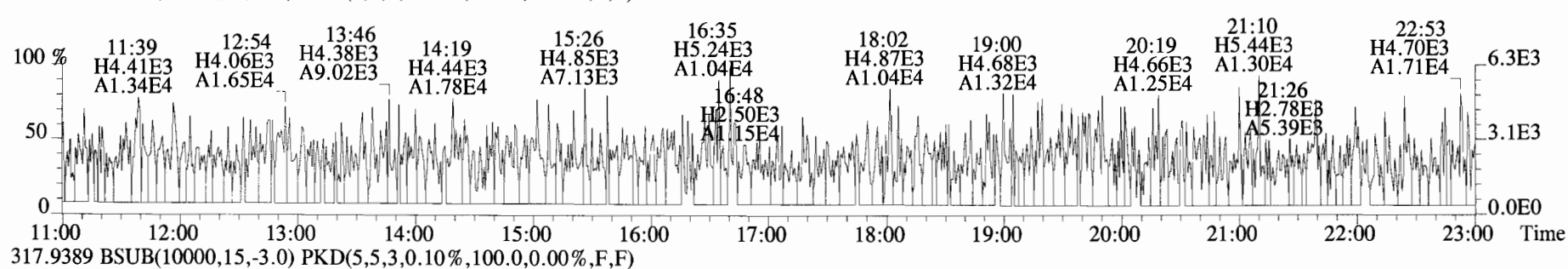
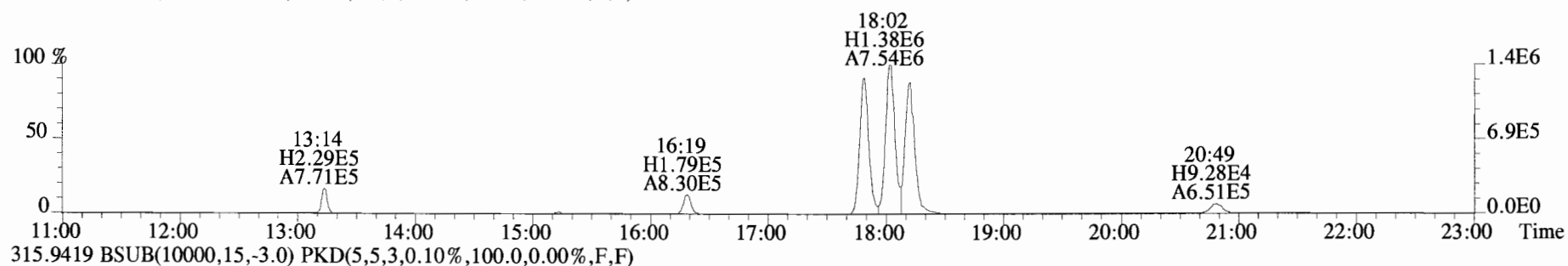
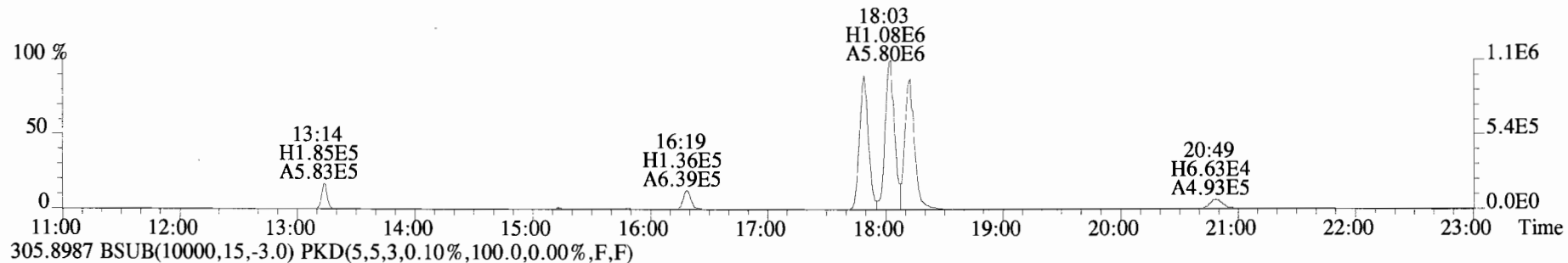


File:190530D1 #1-1559 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF\_DB225  
303.9016

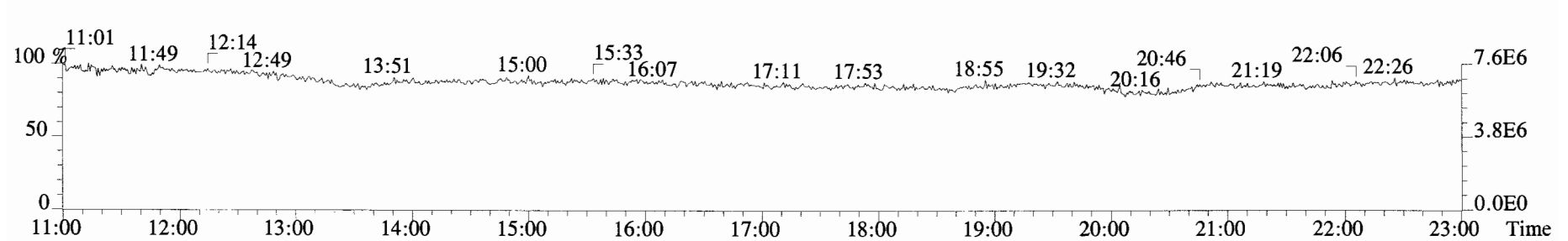
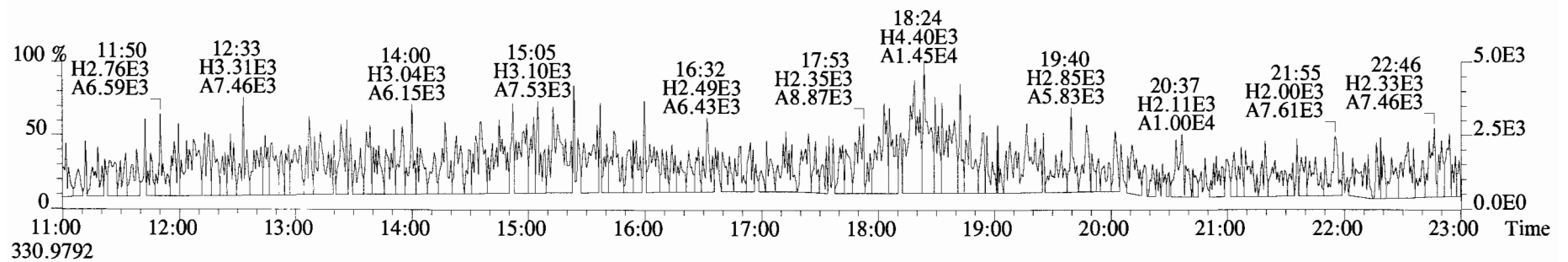
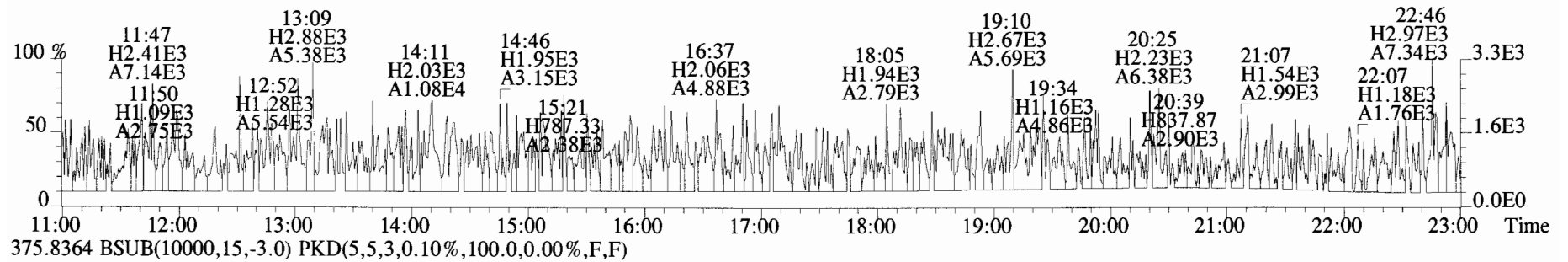
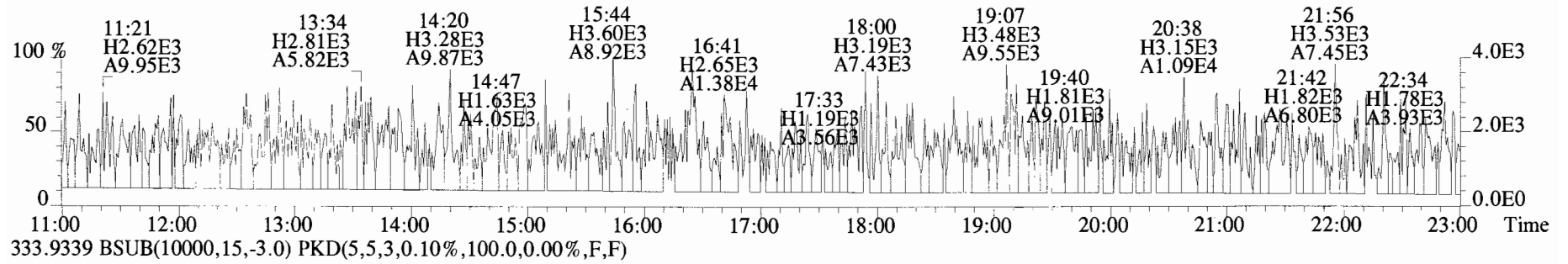




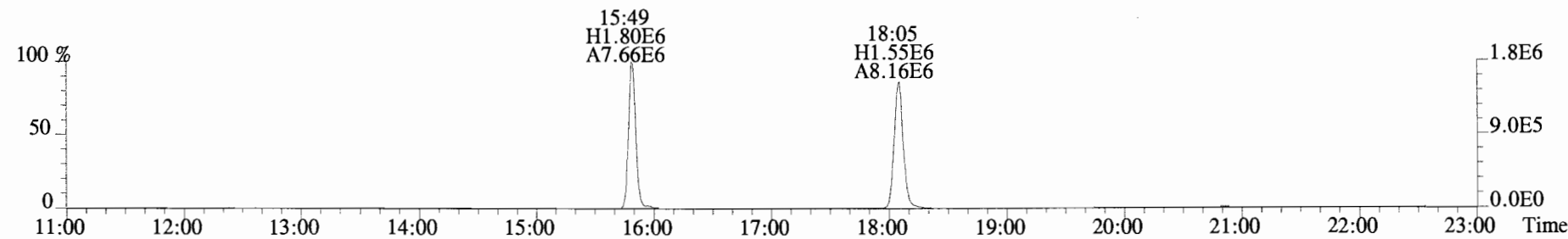
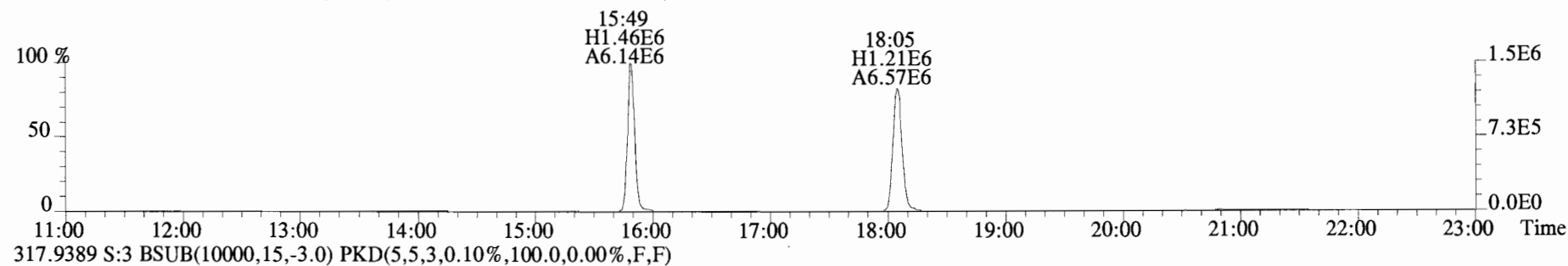
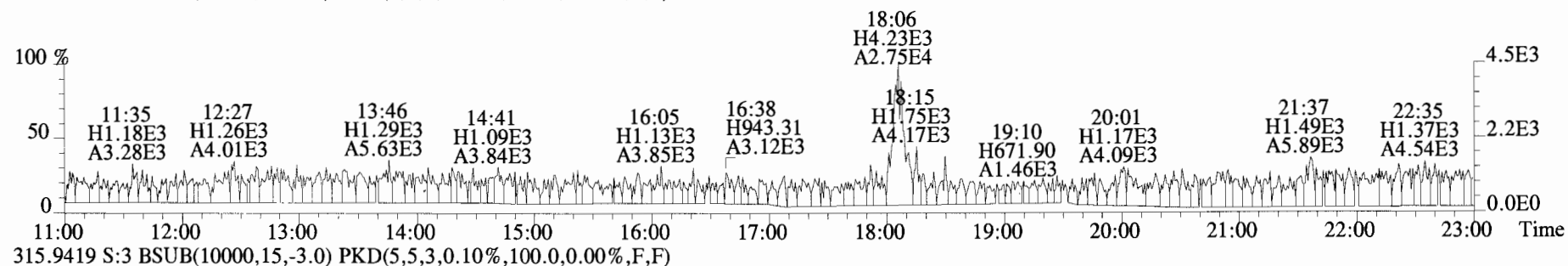
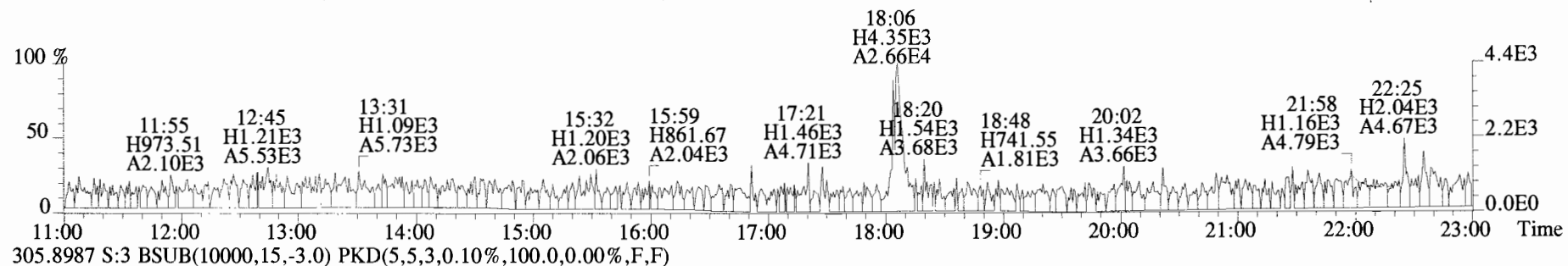
File:190530D1 #1-1682 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF\_DB225  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



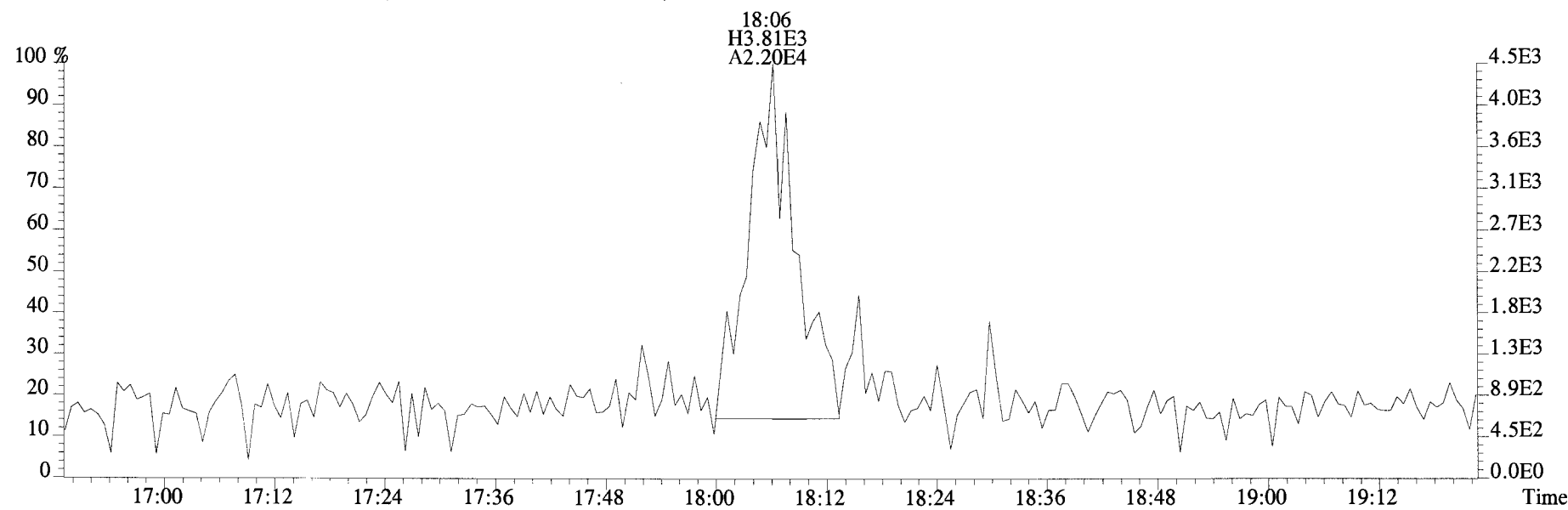
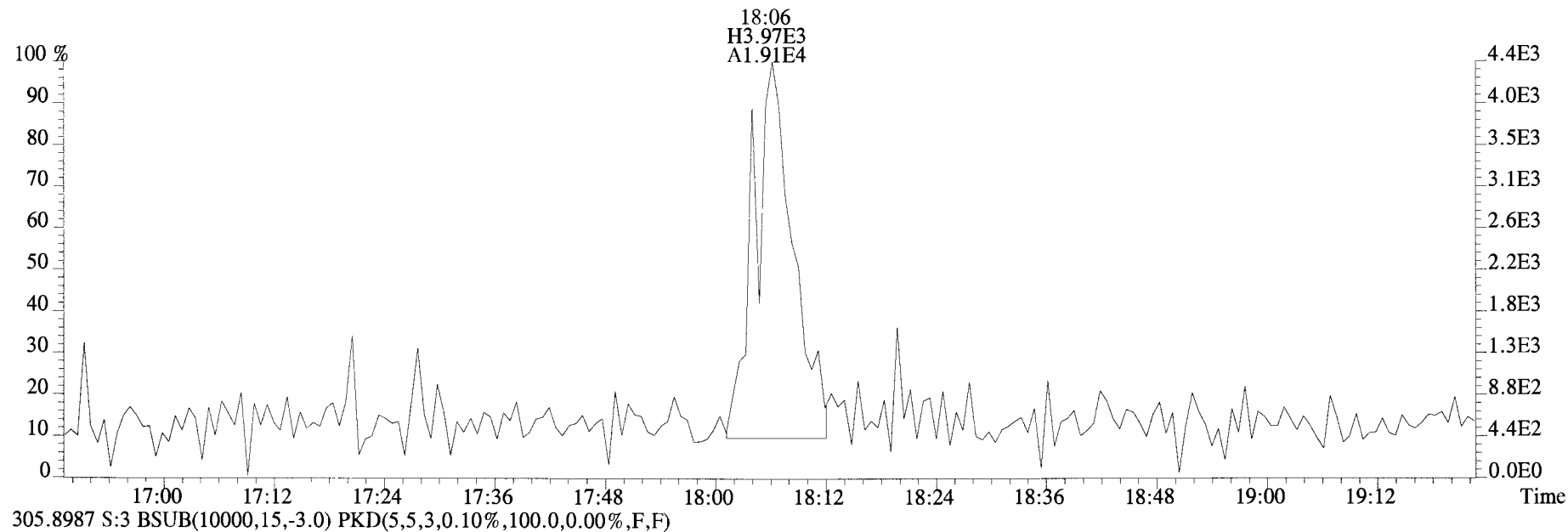
File:190530D1 #1-1682 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF\_DB225  
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



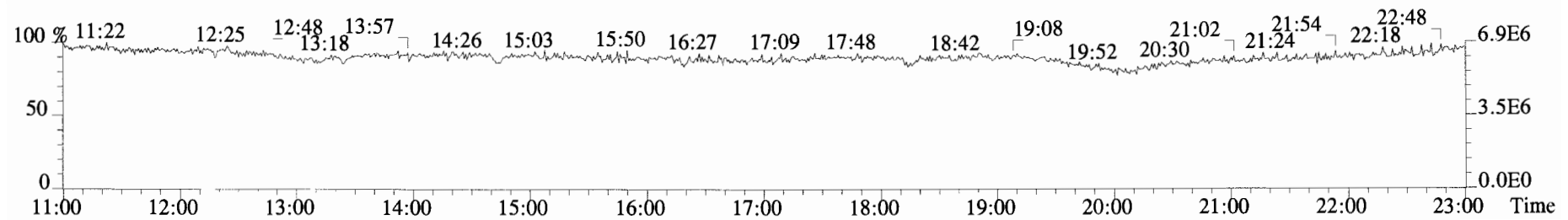
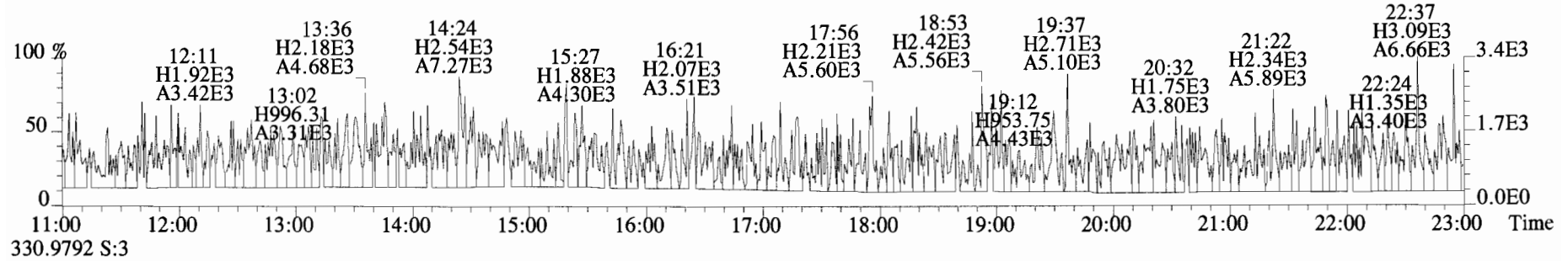
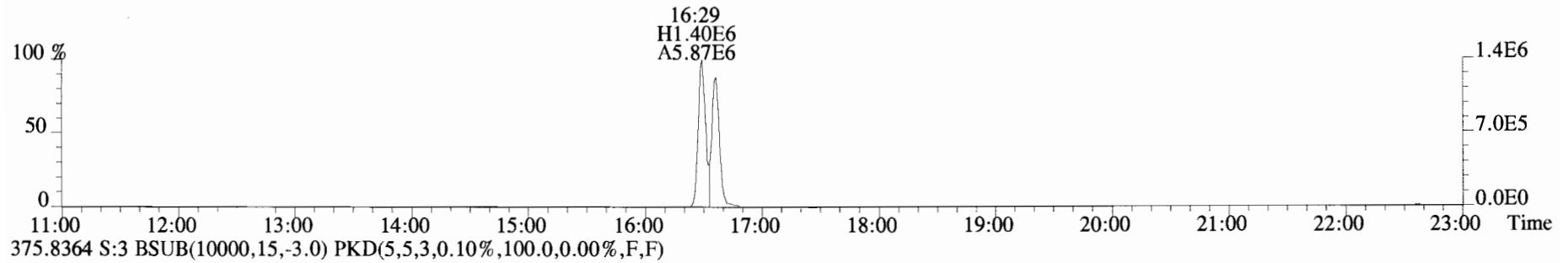
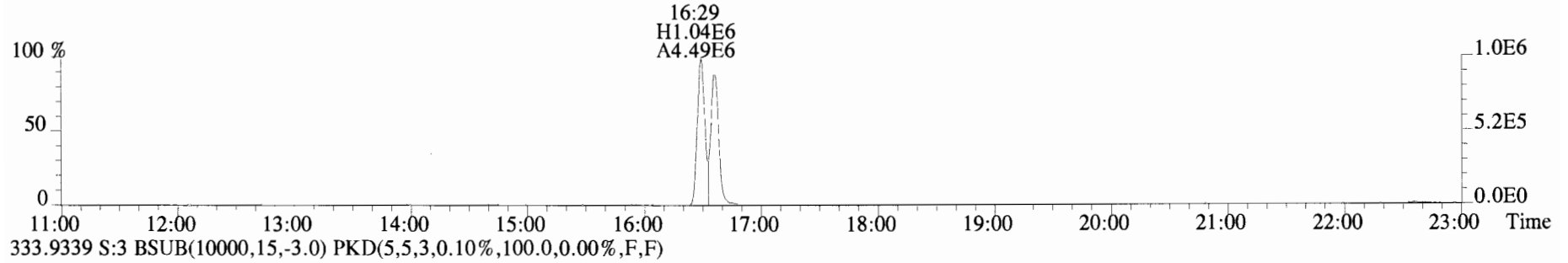
File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF\_DB225  
 303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



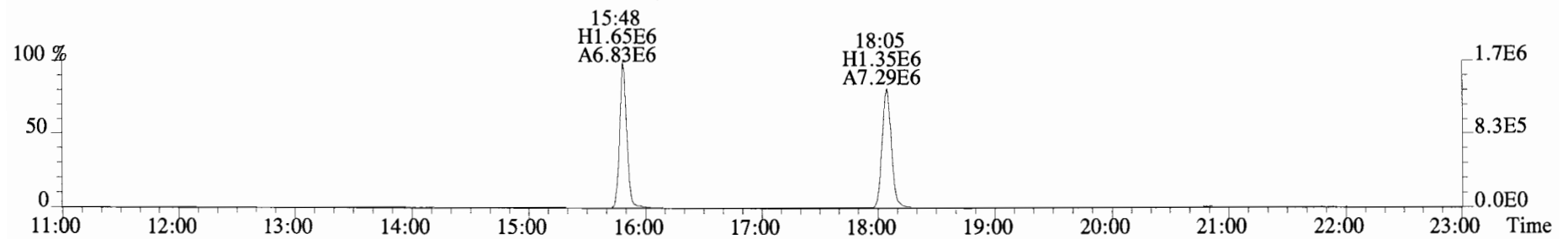
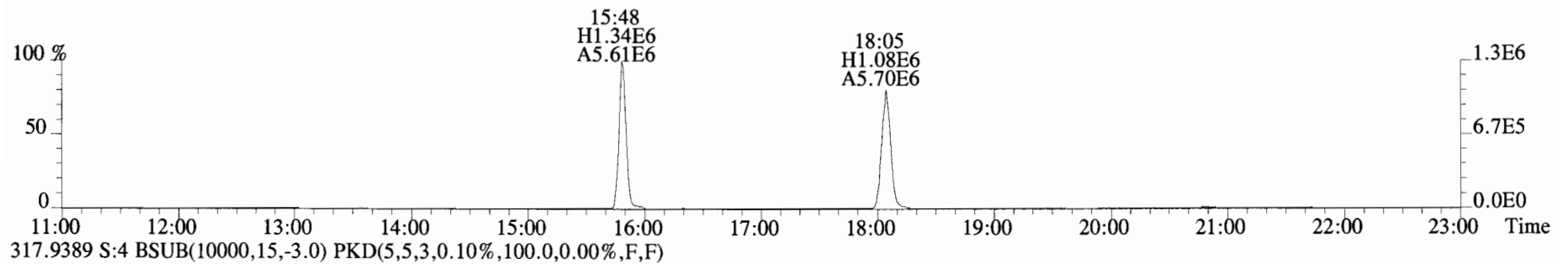
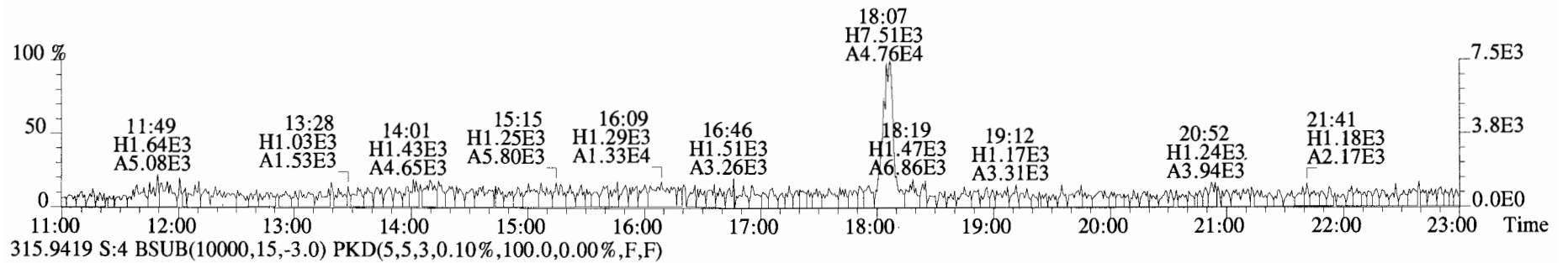
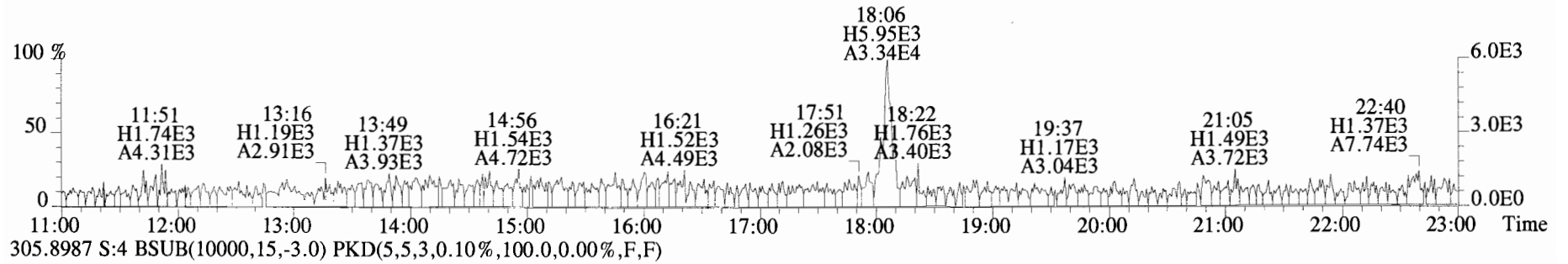
File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF\_DB225  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



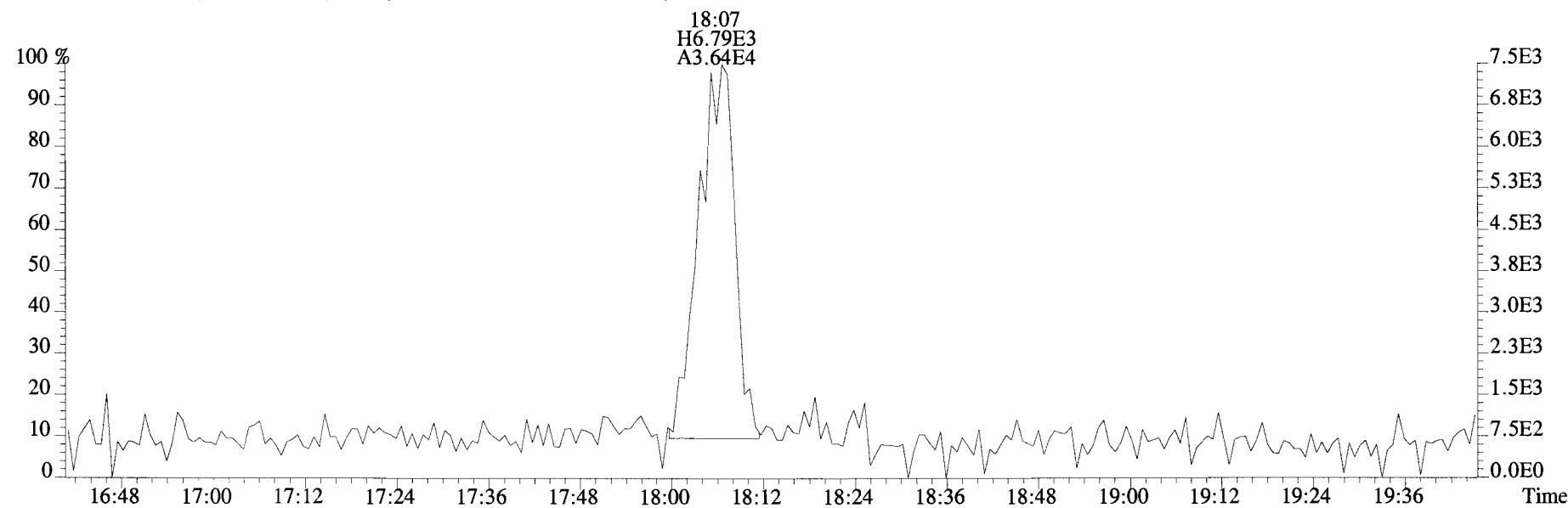
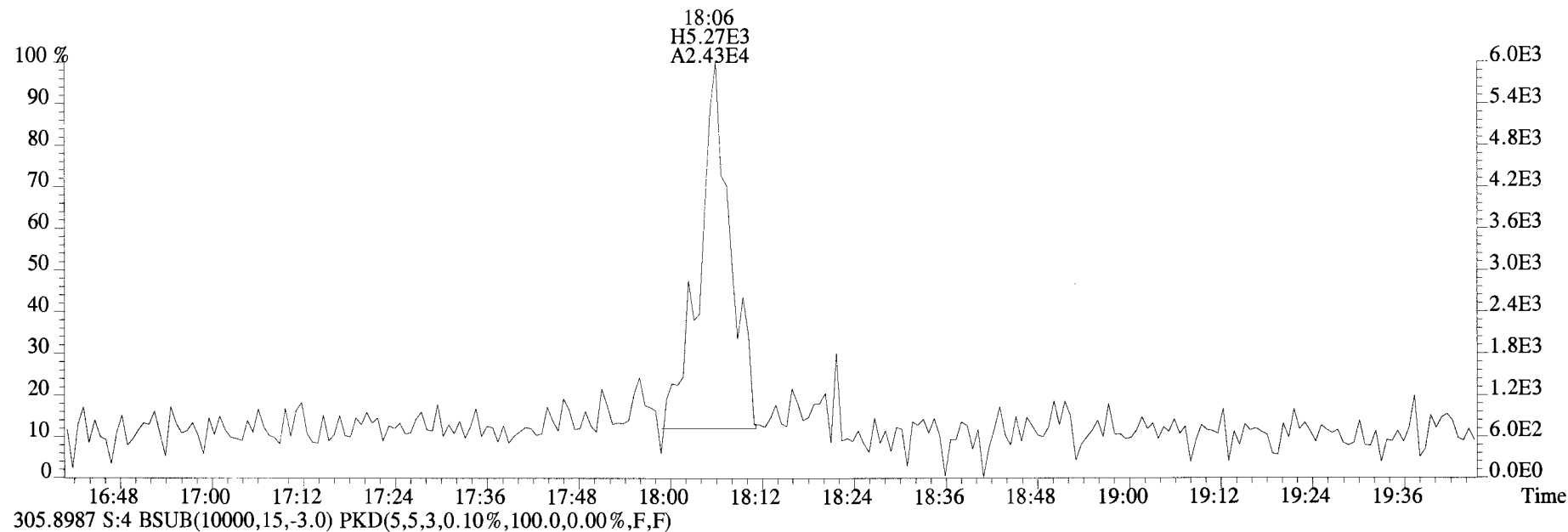
File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF\_DB225  
 331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



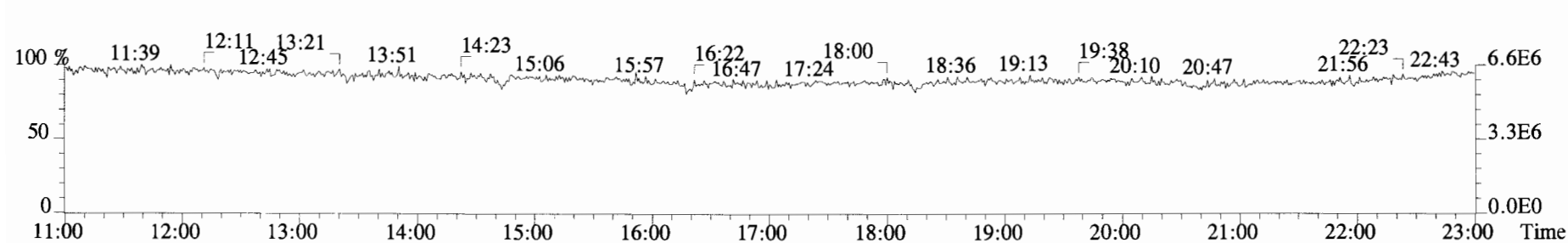
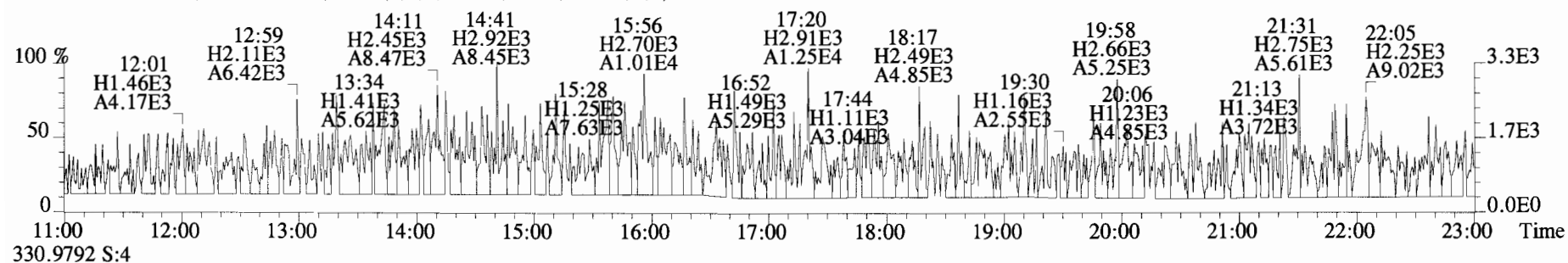
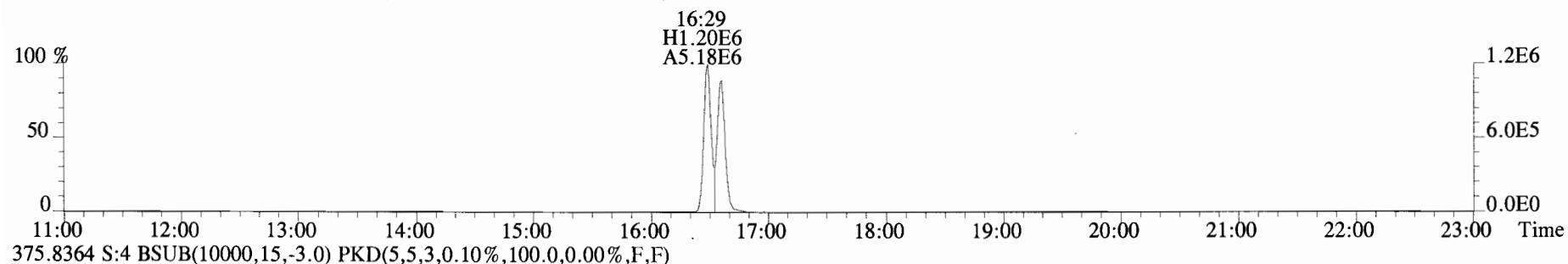
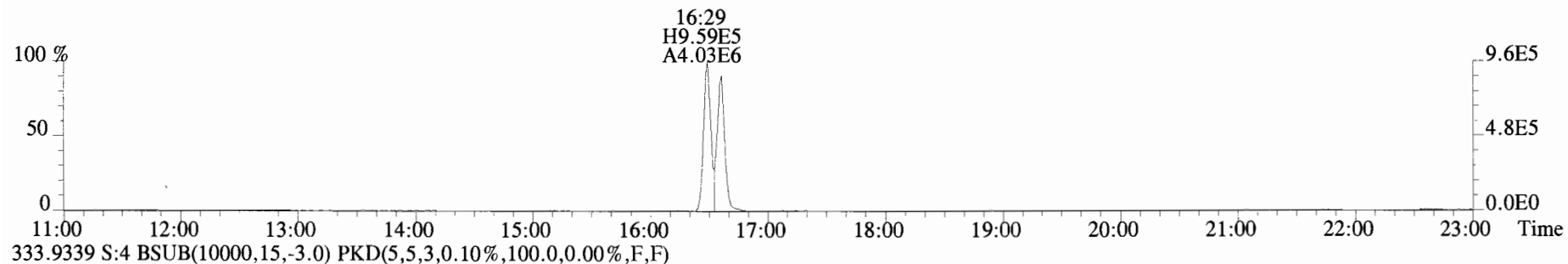
File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF\_DB225  
 303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF\_DB225  
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

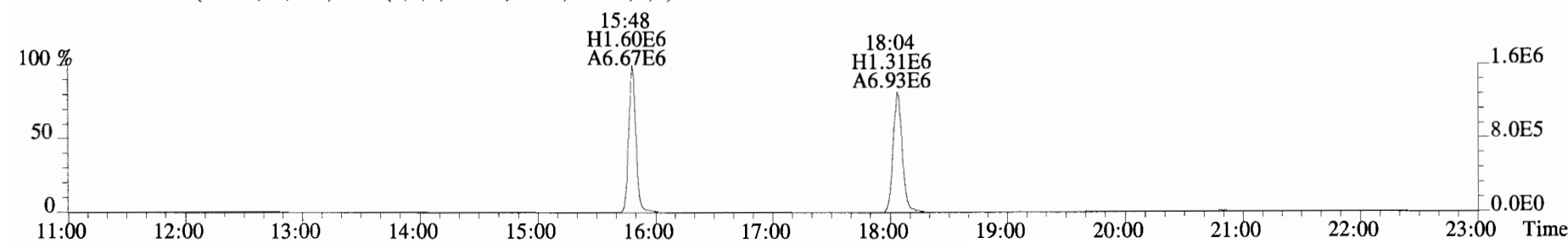
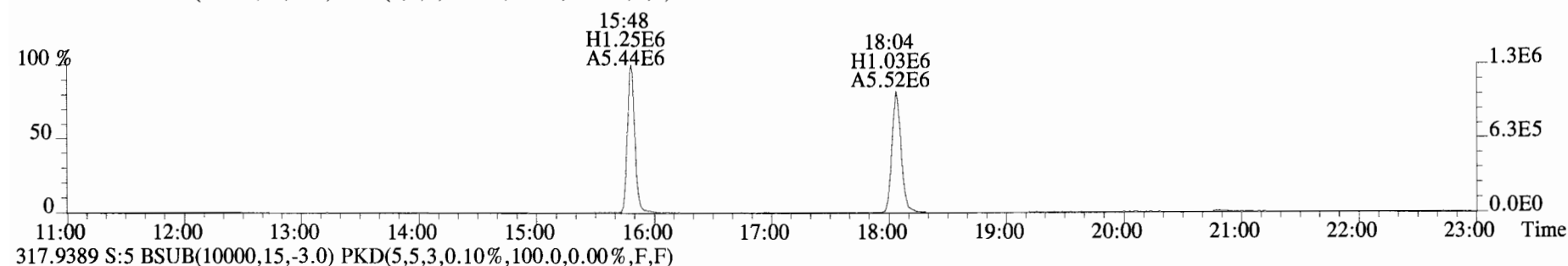
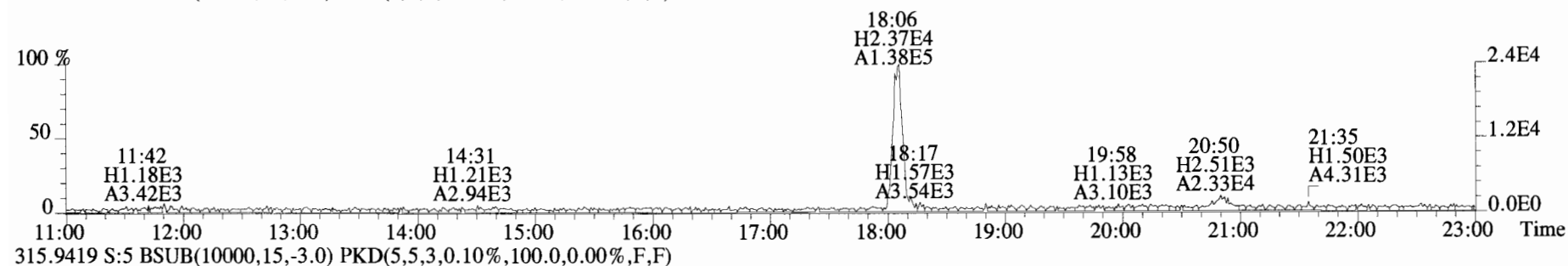
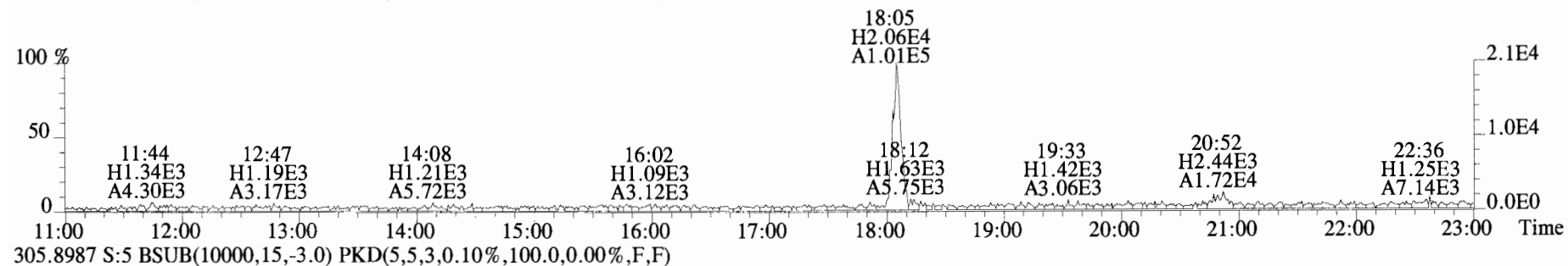


File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF\_DB225  
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

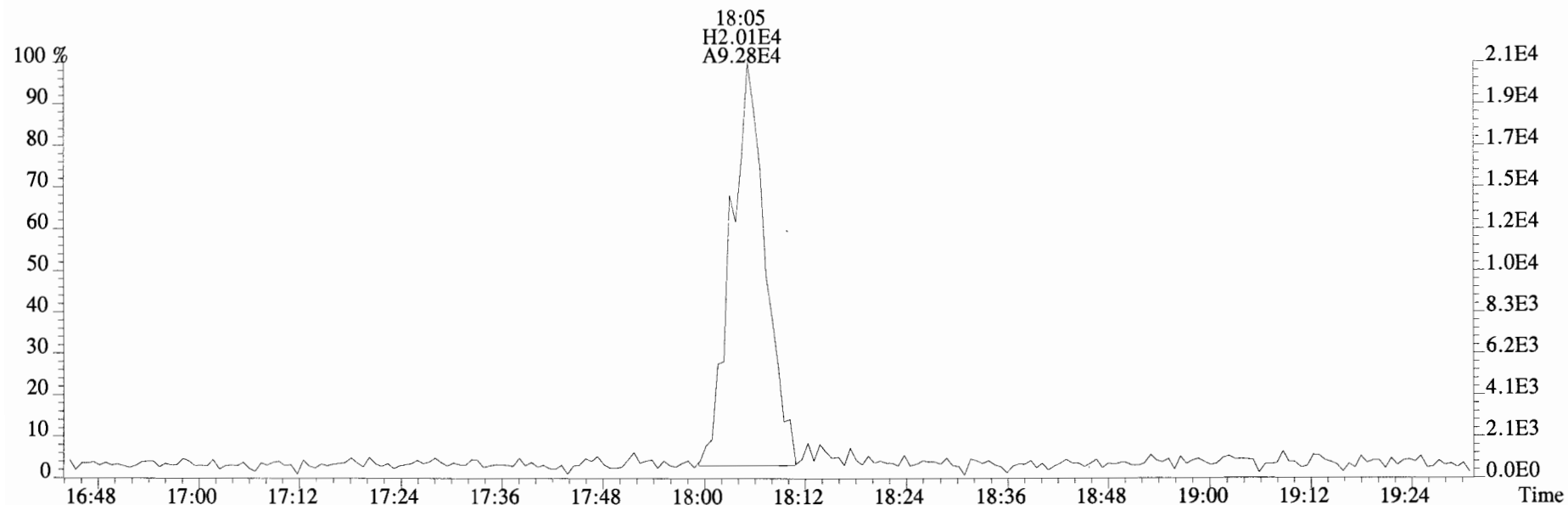




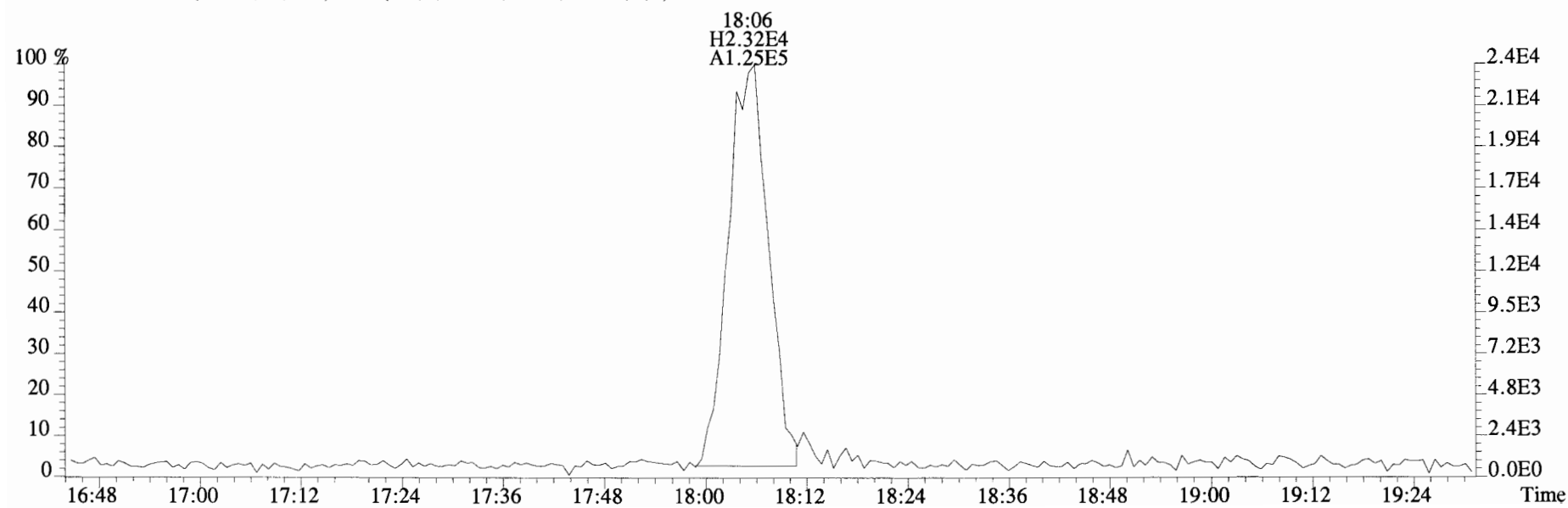
File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF\_DB225  
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



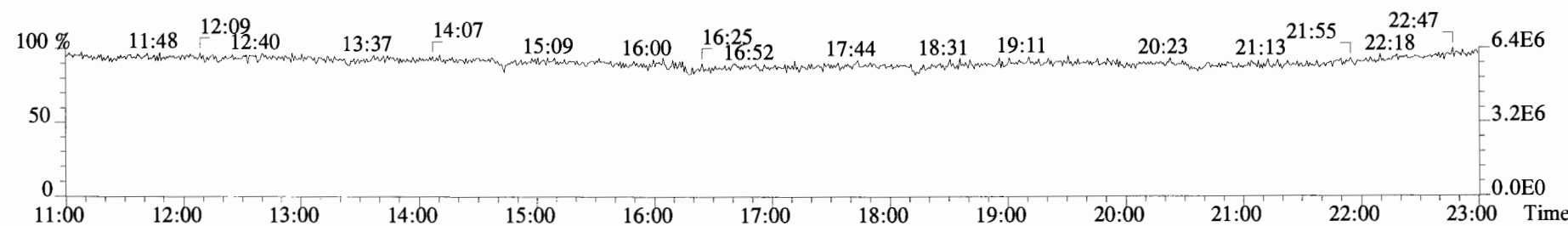
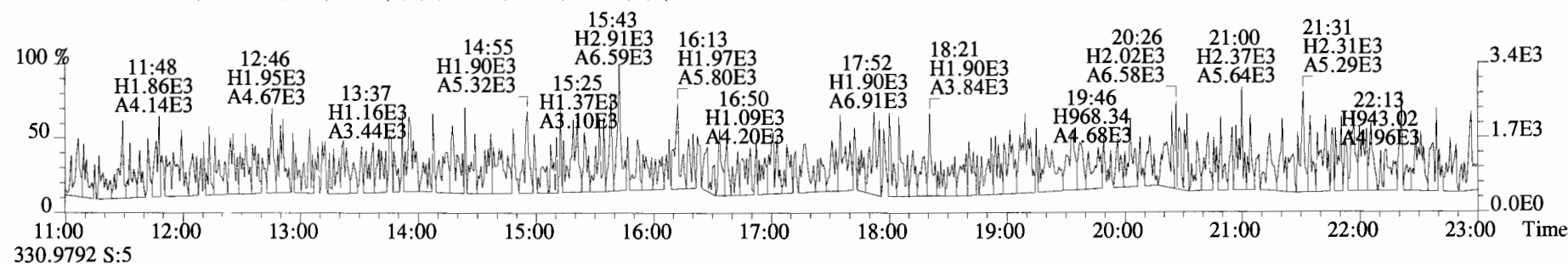
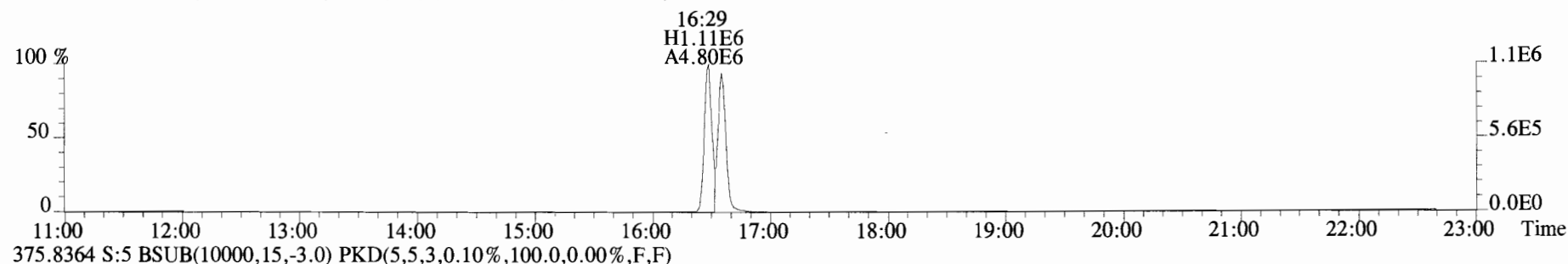
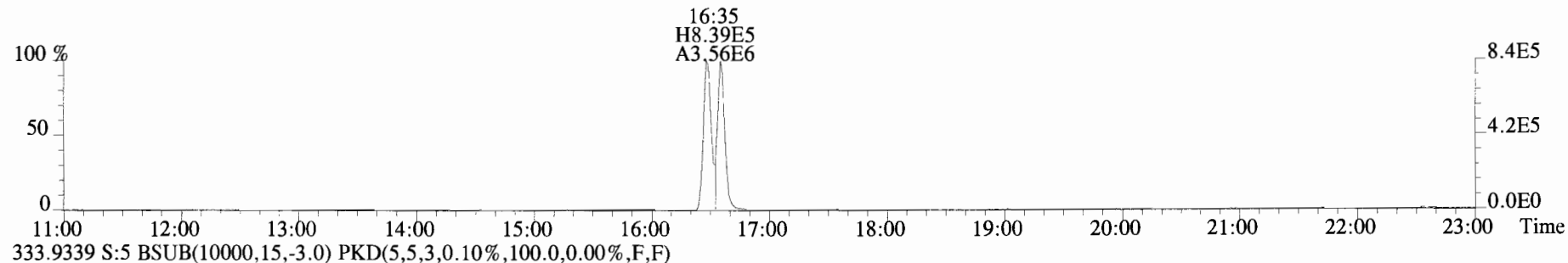
File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF\_DB225  
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



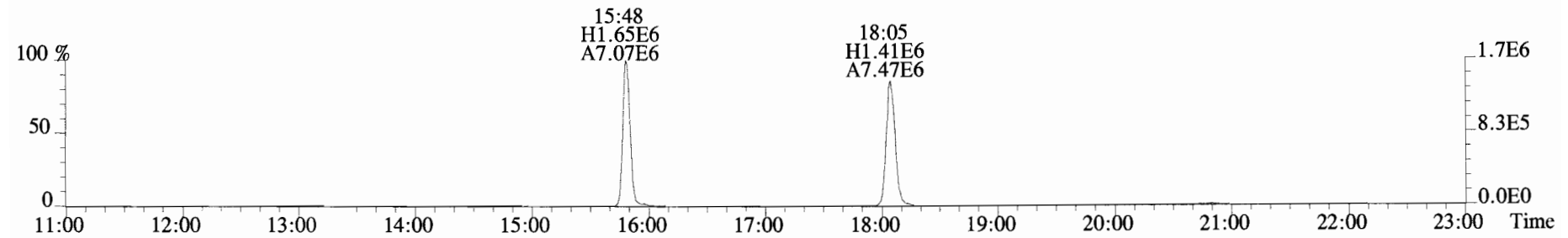
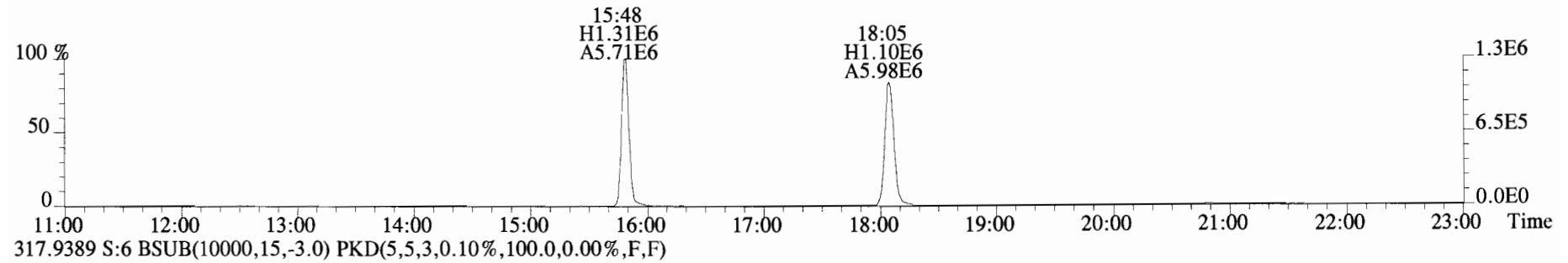
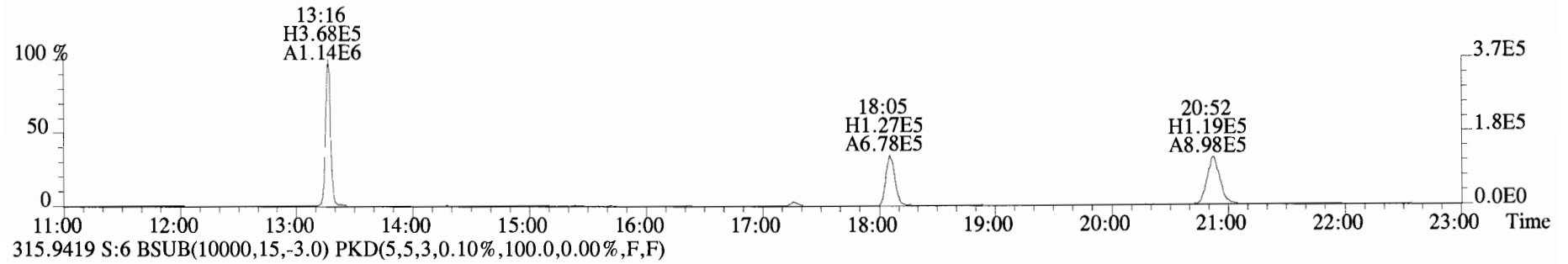
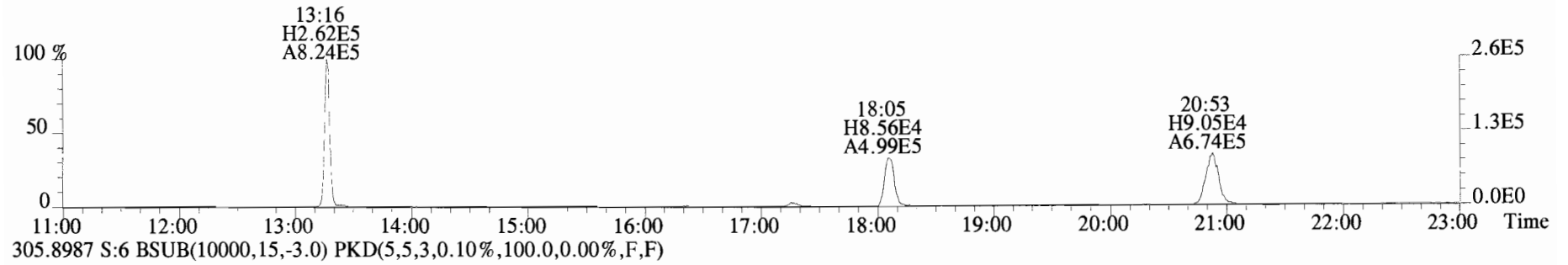
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



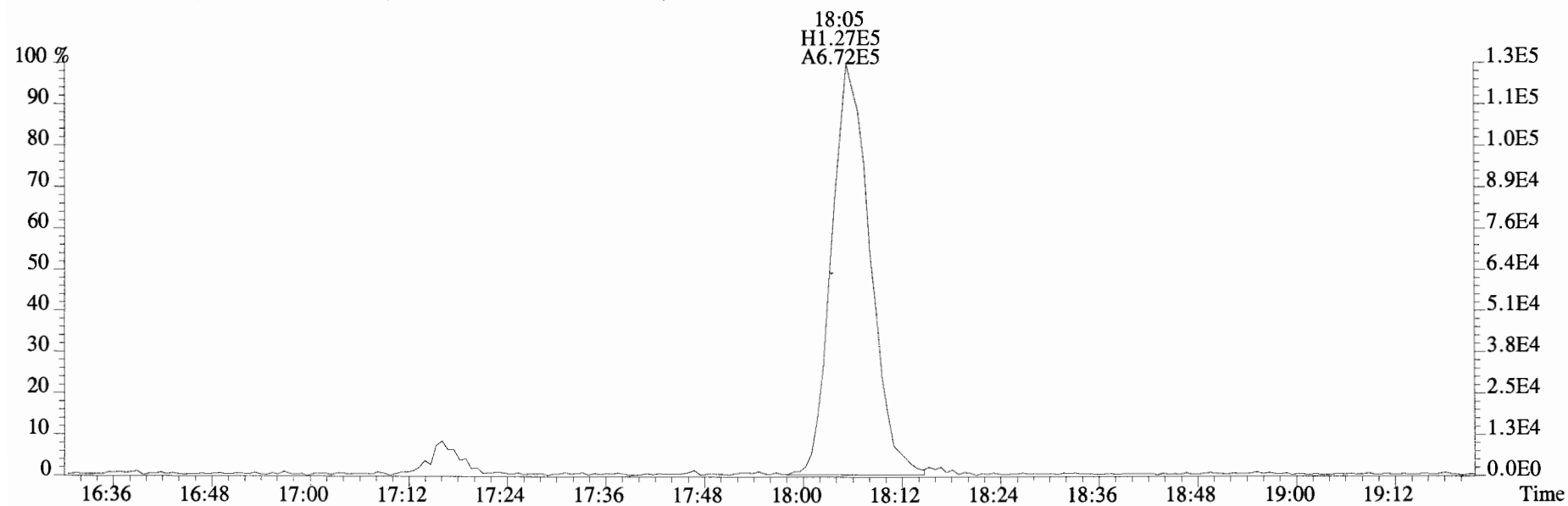
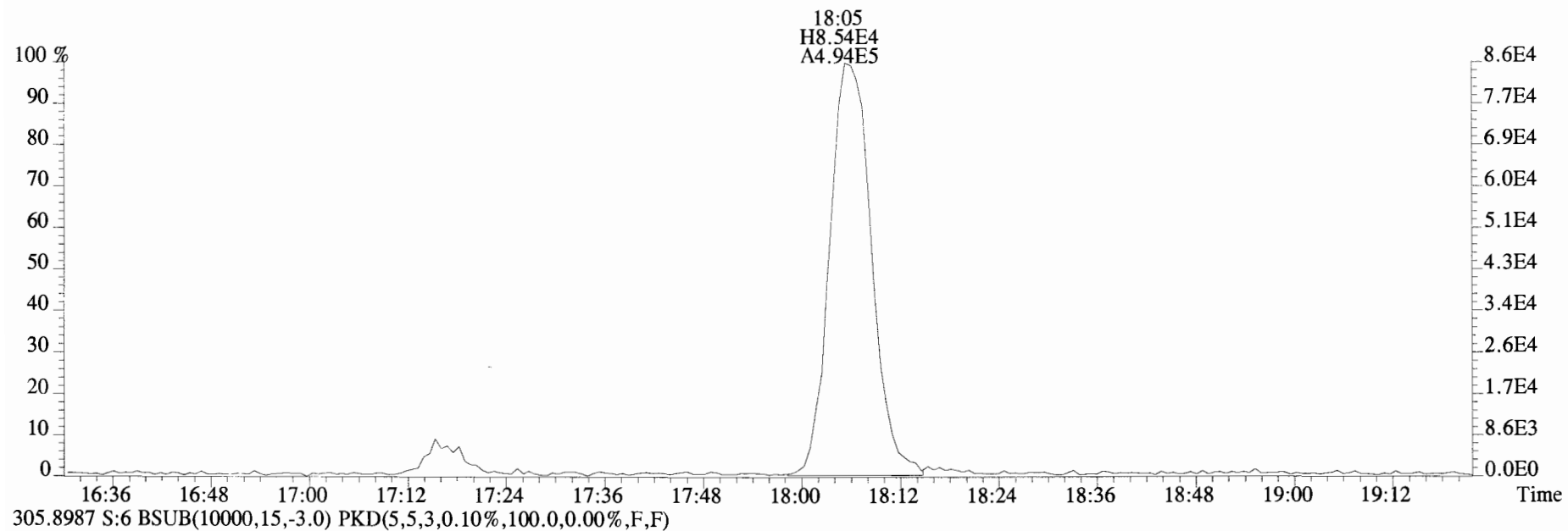
File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF\_DB225  
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



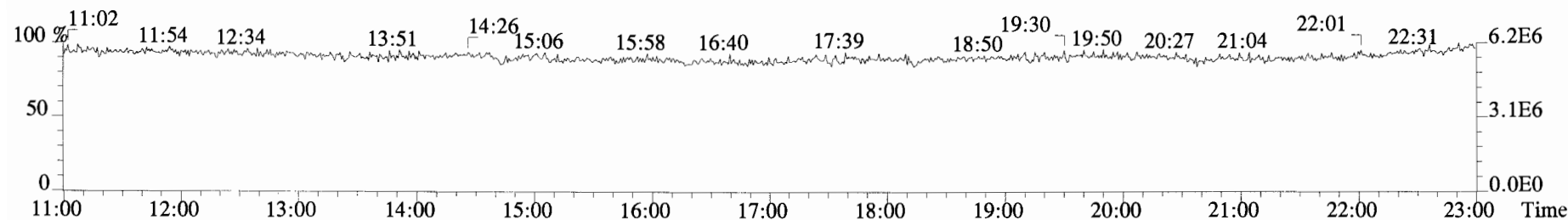
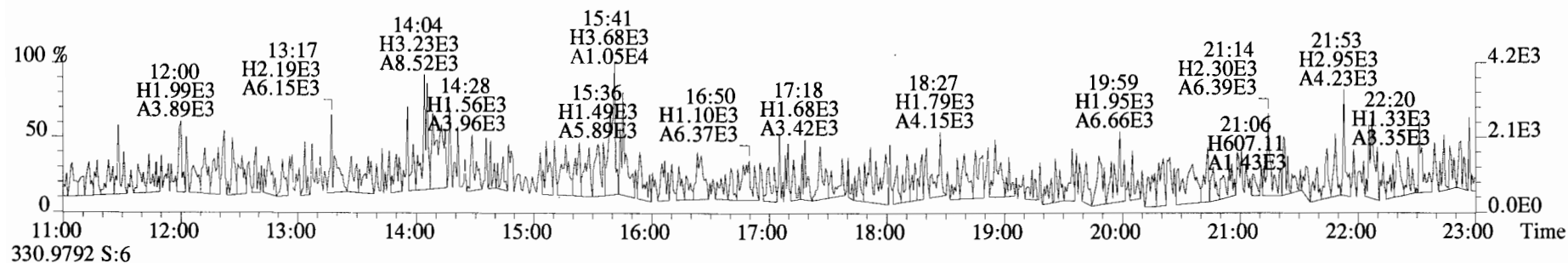
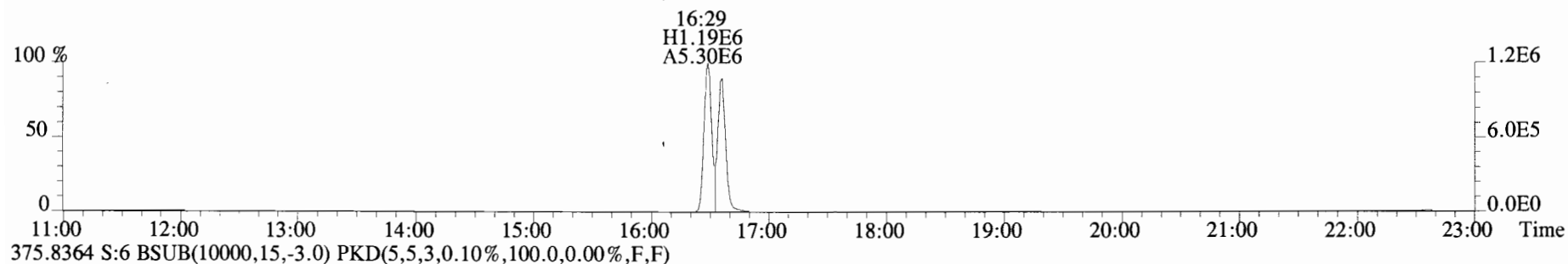
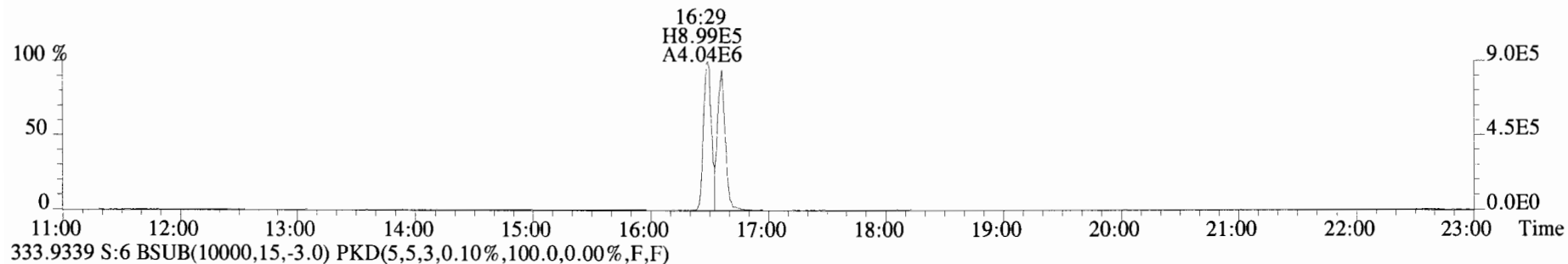
File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF\_DB225  
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



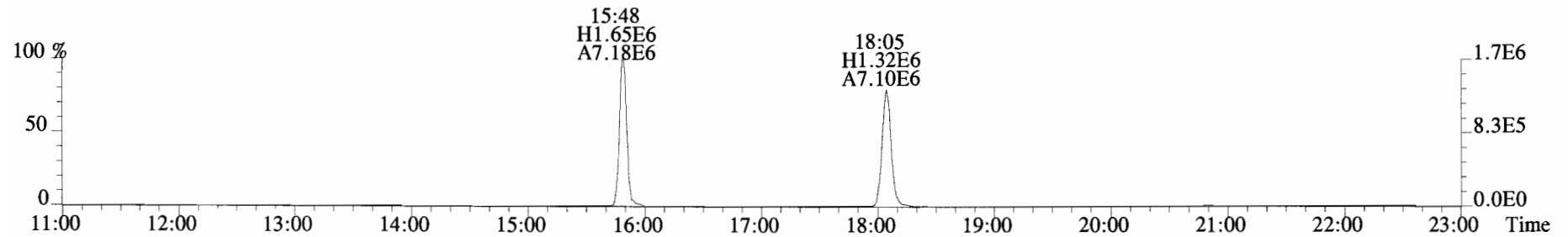
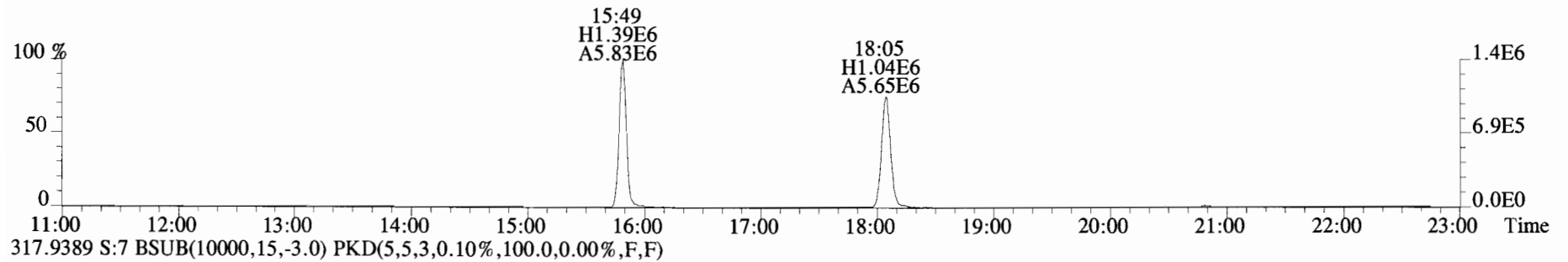
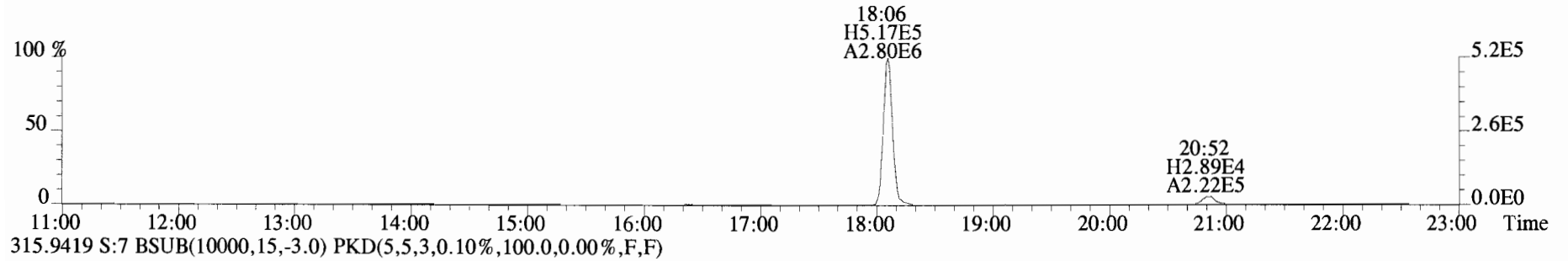
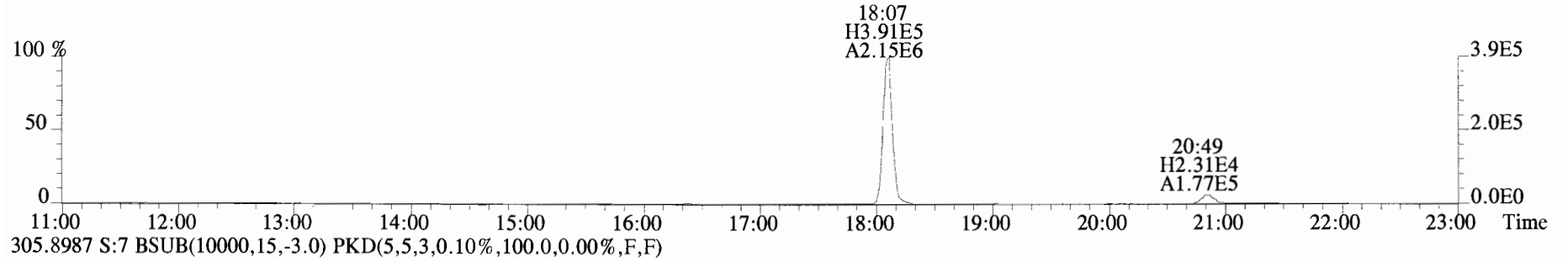
File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF\_DB225  
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



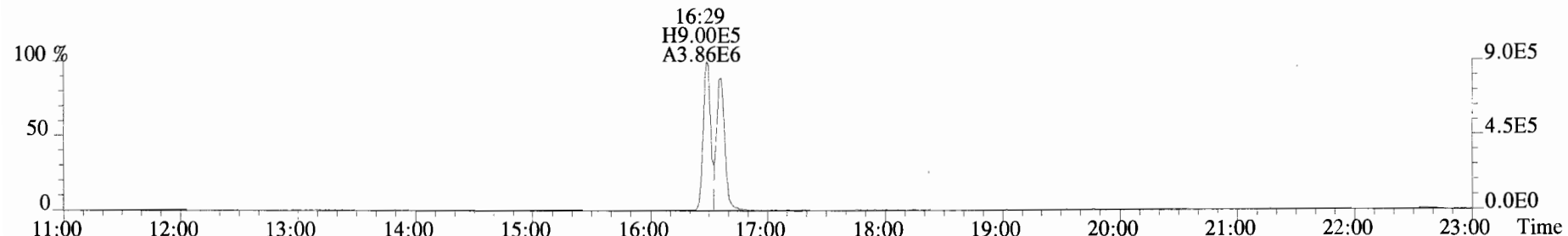
File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF\_DB225  
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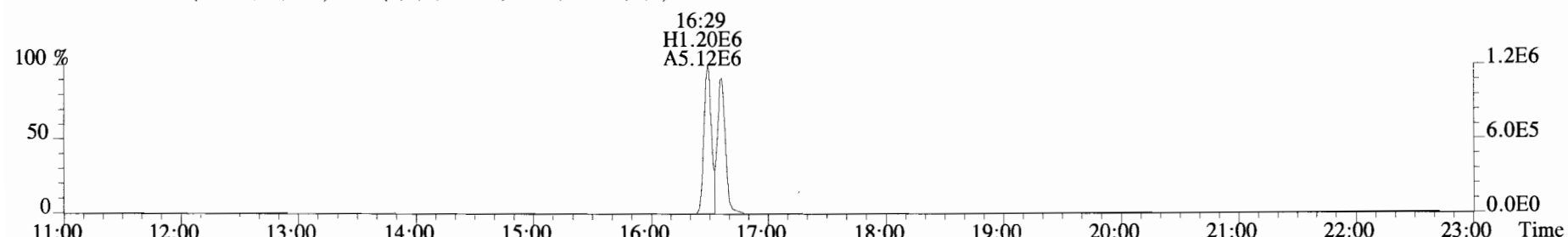
File:190530D1 #1-1682 Acq:30-MAY-2019 14:13:01 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-5 1613 CS4 19C2205 Exp:TCDF\_DB225  
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



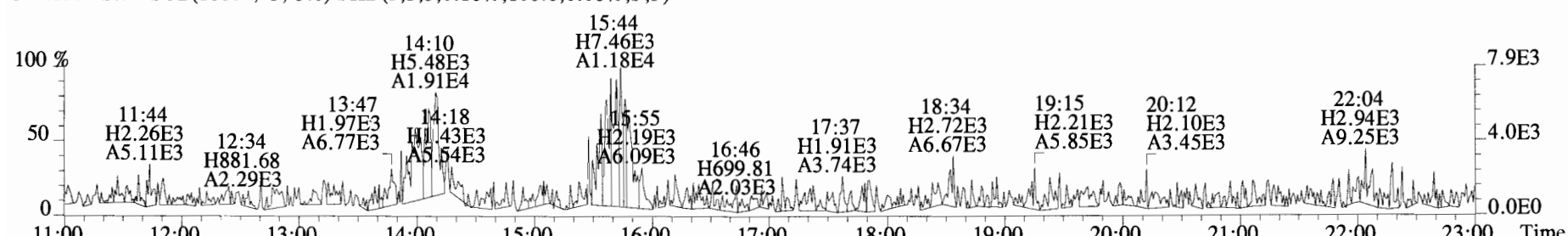
File:190530D1 #1-1682 Acq:30-MAY-2019 14:13:01 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-5 1613 CS4 19C2205 Exp:TCDF\_DB225  
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



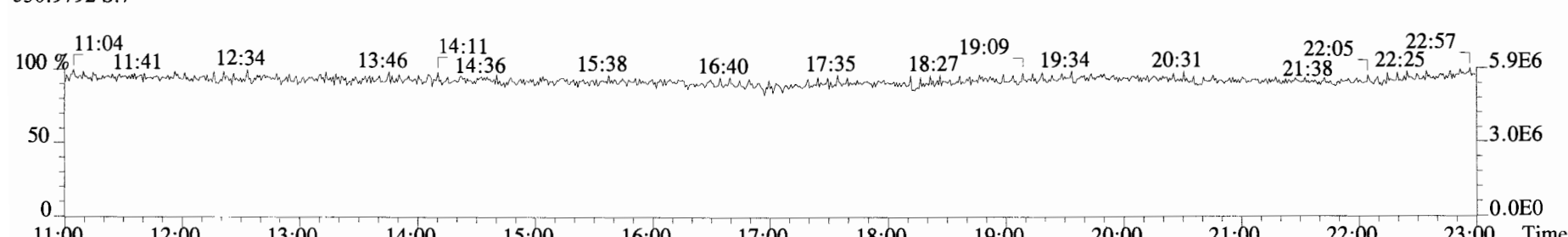
333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

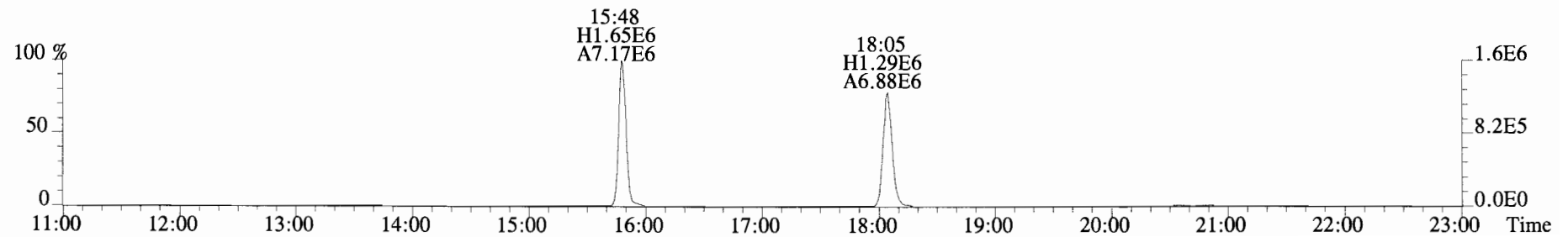
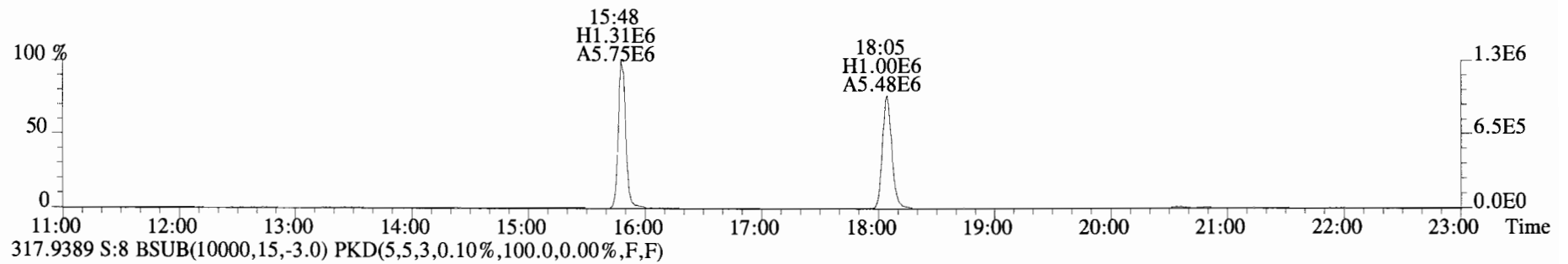
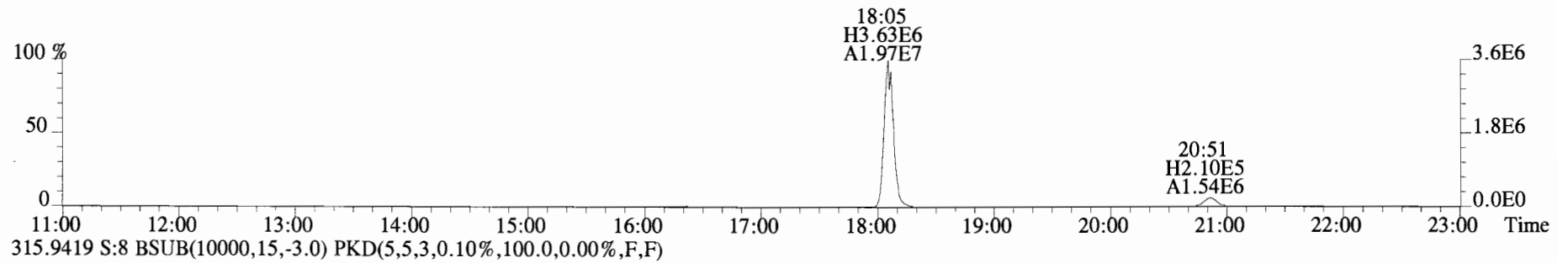
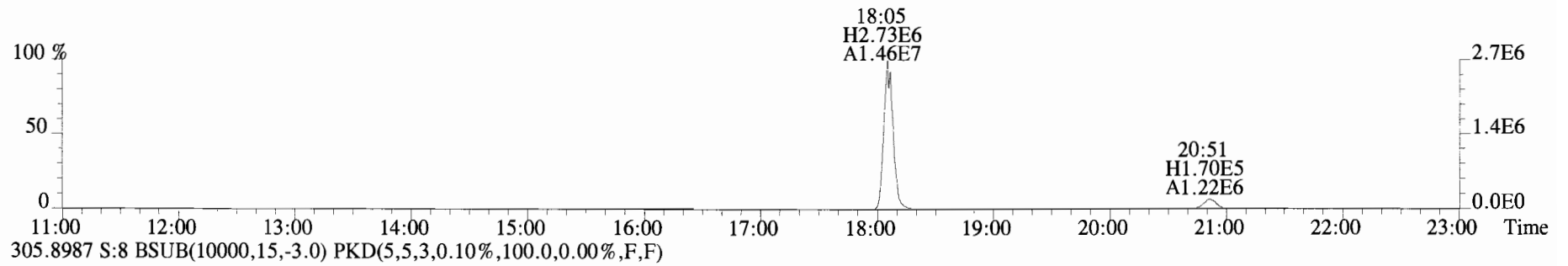


330.9792 S:7

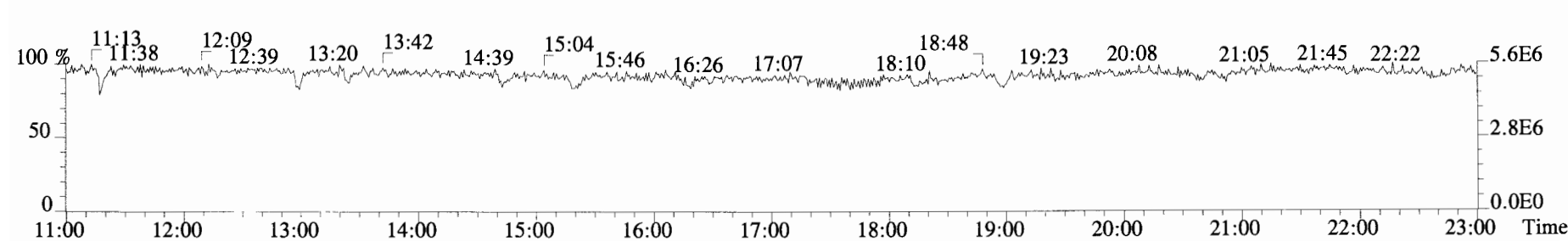
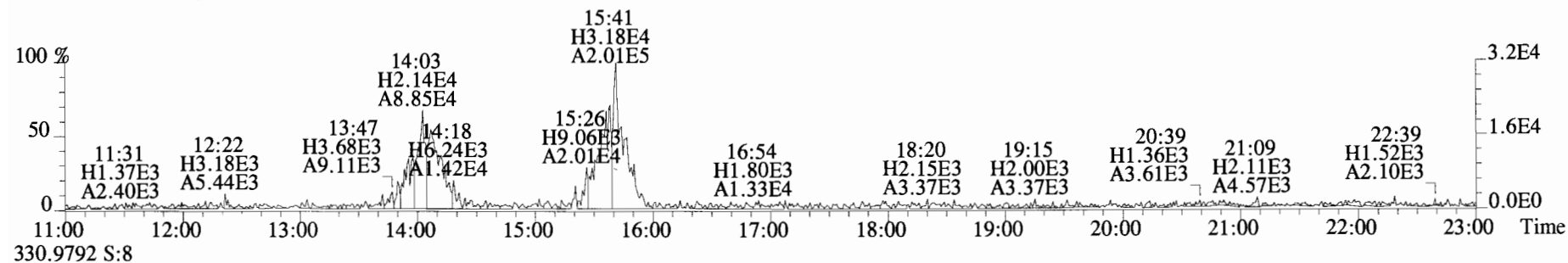
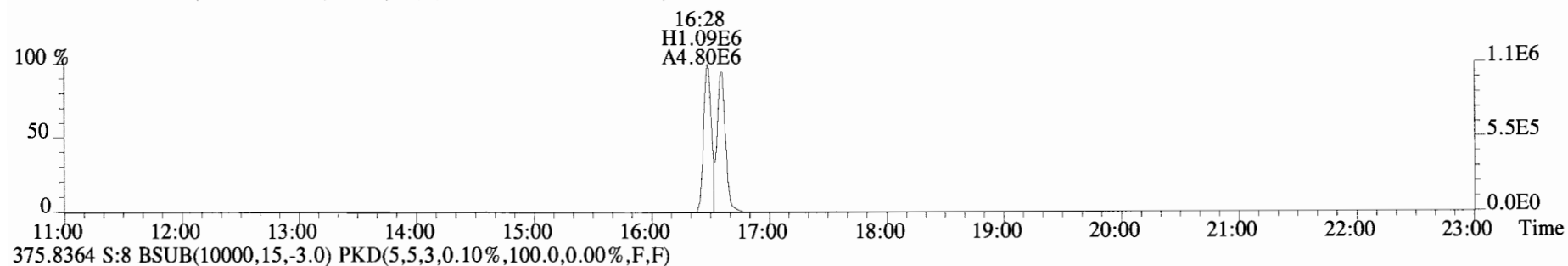
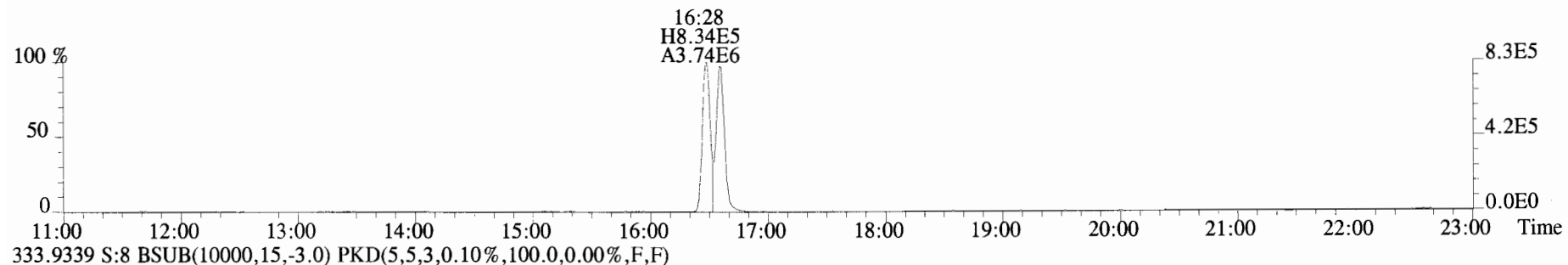


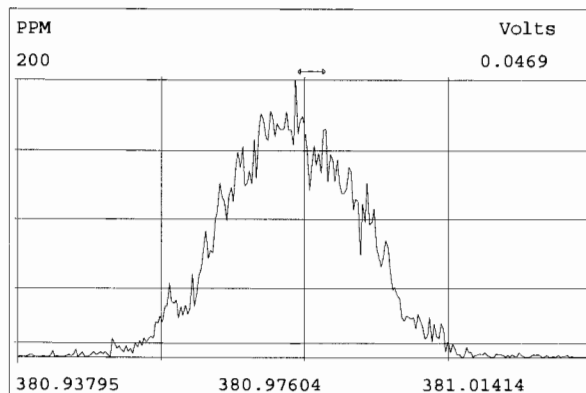
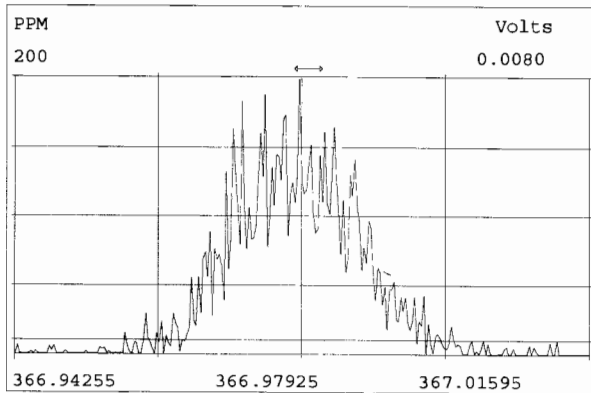
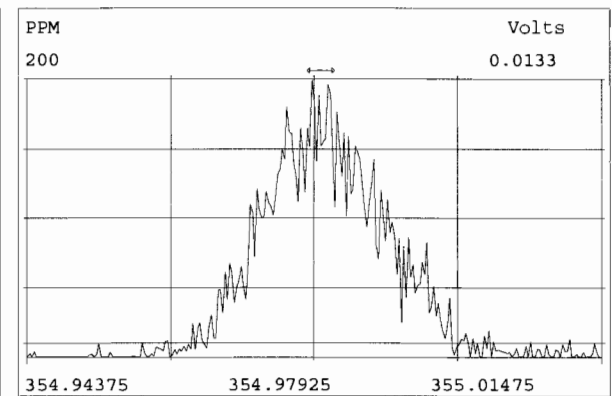
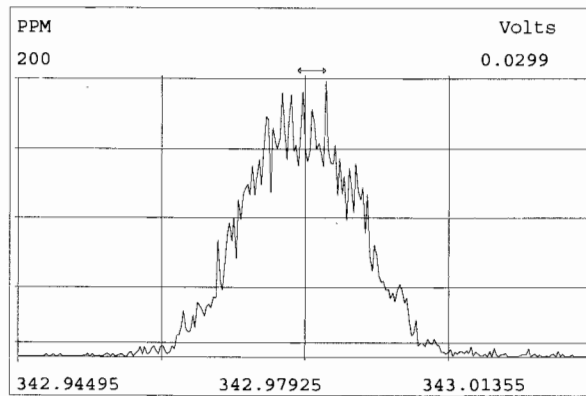
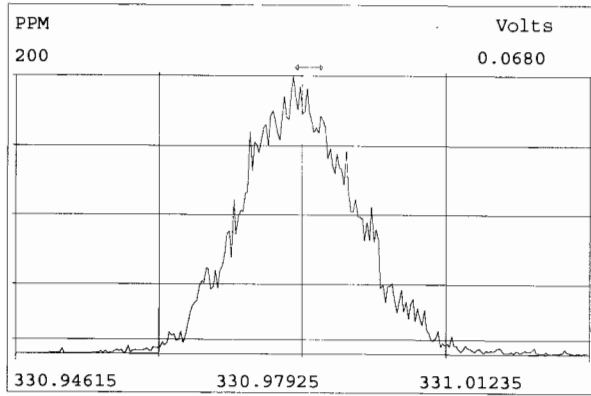
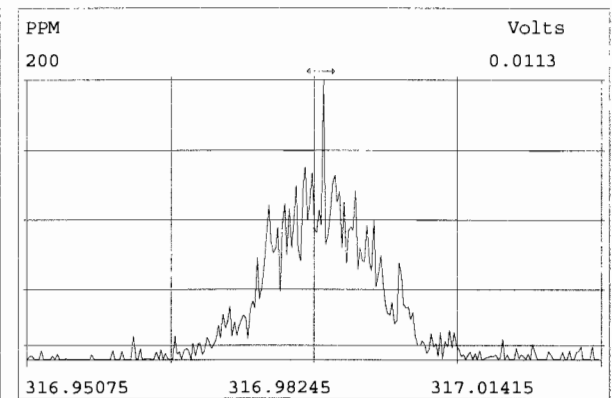
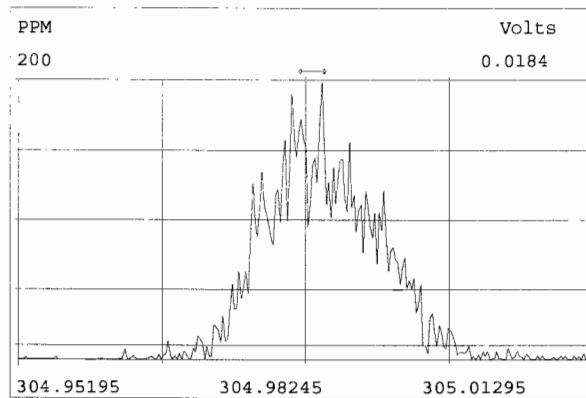
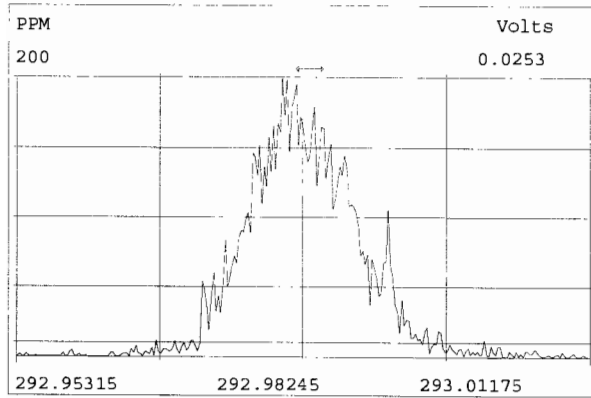


File:190530D1 #1-1682 Acq:30-MAY-2019 14:44:52 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-6 1613 CS5 19C2206 Exp:TCDF\_DB225  
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:190530D1 #1-1682 Acq:30-MAY-2019 14:44:52 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory VG7 Text:ST190530D1-6 1613 CS5 19C2206 Exp:TCDF\_DB225  
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)





Client ID: 1613 SSS 19C2207  
Lab ID: SS190528D1-1

Filename: 190530D1 S:10 Acq:30-MAY-19 15:48:32  
GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 1.000

ConCal: ST190530D1-4  
EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	1.15e+07	0.82 y	15:48	1.00	100.0	-
13C-2,3,7,8-TCDF	1.18e+07	0.80 y	18:04	1.02	100.0	100.0
2,3,7,8-TCDF	1.08e+06	0.74 y	18:05	0.95	9.628	

Integrations

by  
Analyst: DB

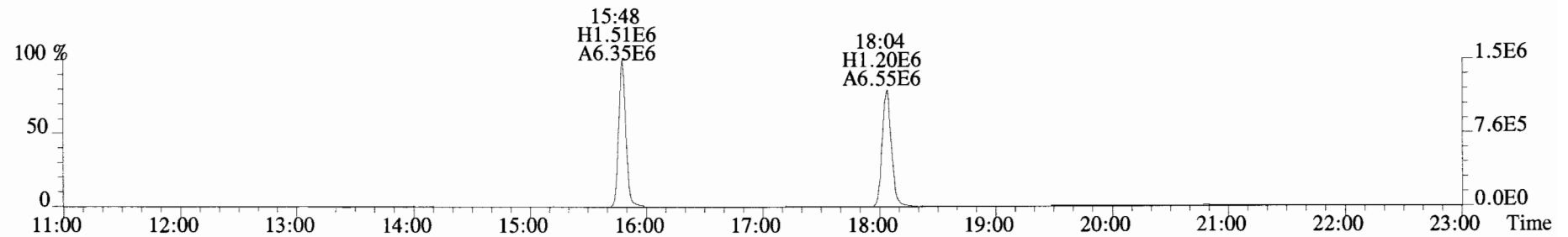
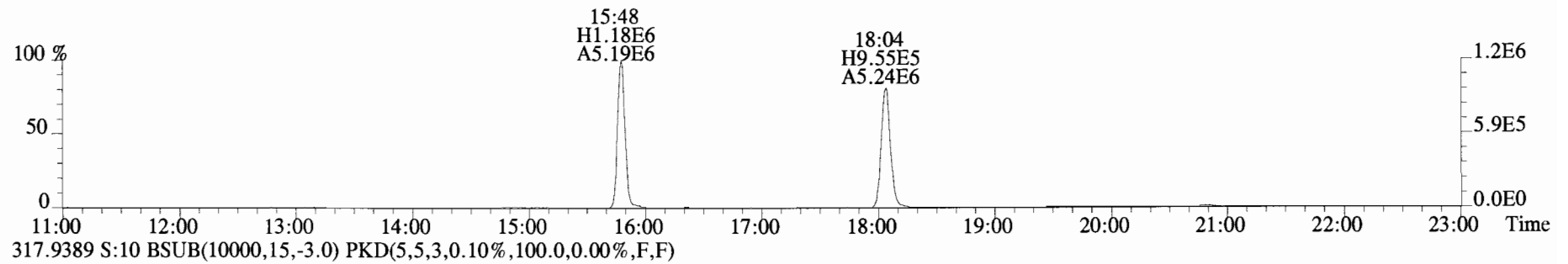
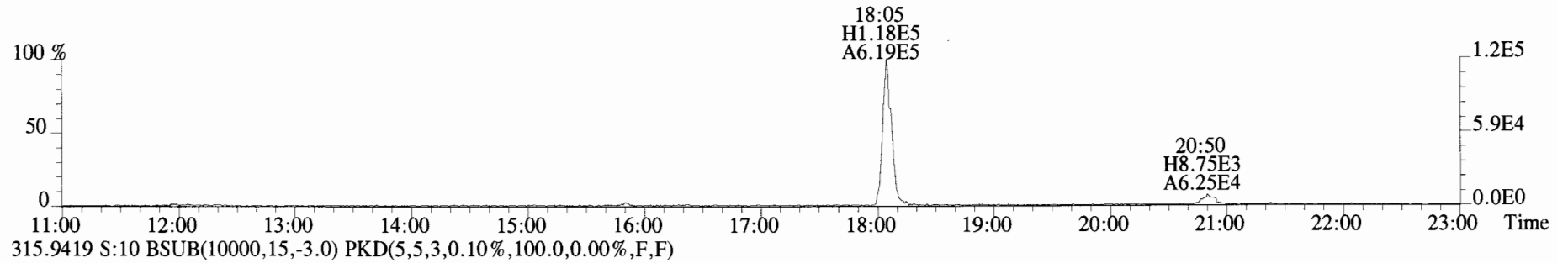
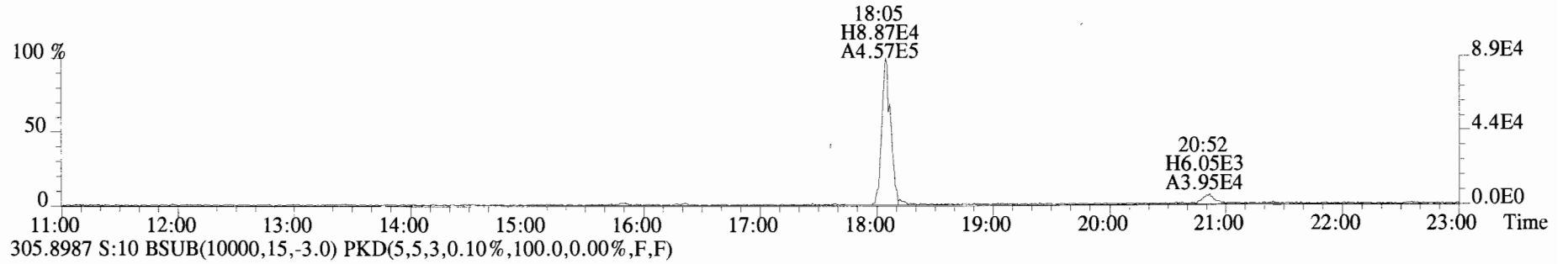
Date: 5/31/19

Reviewed

by  
Analyst: CT

Date: 05/31/19

File:190530D1 #1-1682 Acq:30-MAY-2019 15:48:32 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#10 File Text:Vista Analytical Laboratory\_VG7 Text:SS190528D1-1 1613 SSS 19C2207 Exp:TCDF\_DB225  
303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:190530D1 #1-1682 Acq:30-MAY-2019 15:48:32 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#10 File Text: Vista Analytical Laboratory VG7 Text:SS190528D1-1 1613 SSS 19C2207 Exp:TCDF\_DB225  
 331.9368 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

