



December 02, 2019

**Vista Work Order No. 1903653**

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. 1903653**

**Case Narrative**

**Sample Condition on Receipt:**

Four 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.

**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 limit. The OPR recoveries were within the method acceptance criteria.

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

As requested, a Duplicate was performed on sample "PDI-027SC-A-12-13-191011". The RPDs were within acceptance criteria.

## TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	16
Certifications.....	17
Sample Receipt.....	20
Extraction Information.....	24
Sample Data - EPA Method 1613.....	36
Continuing Calibration.....	215
Initial Calibration.....	348

# Sample Inventory Report

<b>Vista Sample ID</b>	<b>Client Sample ID</b>	<b>Sampled</b>	<b>Received</b>	<b>Components/Containers</b>
1903653-01	PDI-027SC-A-12-13-191011	DUP11-Oct-19 14:02	15-Oct-19 08:51	Amber Glass, 120 mL Amber Glass, 120 mL
1903653-02	PDI-027SC-A-13-13.5-191011	11-Oct-19 14:02	15-Oct-19 08:51	Amber Glass, 120 mL
1903653-03	PDI-066SC-A-15-16-191011	11-Oct-19 09:09	15-Oct-19 08:51	Amber Glass, 120 mL
1903653-04	PDI-066SC-A-16-17.1-191011	11-Oct-19 09:09	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 Sample Size: 10.0 g		QC Batch: B9J0312 Date Extracted: 29-Oct-2019 7:26		Lab Sample: B9J0312-BS1 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: B9K0068 Date Extracted: 07-Nov-2019 13:01		Lab Sample: B9K0068-BLK1 Date Analyzed: 20-Nov-19 18:47 Column: ZB-5MS					
Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
2,3,7,8-TCDD	ND	0.0881			IS 13C-2,3,7,8-TCDD	105	25 - 164		
1,2,3,7,8-PeCDD	ND	0.0715			13C-1,2,3,7,8-PeCDD	104	25 - 181		
1,2,3,4,7,8-HxCDD	ND	0.112			13C-1,2,3,4,7,8-HxCDD	103	32 - 141		
1,2,3,6,7,8-HxCDD	ND	0.117			13C-1,2,3,6,7,8-HxCDD	89.0	28 - 130		
1,2,3,7,8,9-HxCDD	ND	0.125			13C-1,2,3,7,8,9-HxCDD	91.6	32 - 141		
1,2,3,4,6,7,8-HpCDD	ND	0.130			13C-1,2,3,4,6,7,8-HpCDD	96.0	23 - 140		
OCDD	ND	0.164			13C-OCDD	91.3	17 - 157		
2,3,7,8-TCDF	ND	0.0699			13C-2,3,7,8-TCDF	99.8	24 - 169		
1,2,3,7,8-PeCDF	ND	0.0789			13C-1,2,3,7,8-PeCDF	104	24 - 185		
2,3,4,7,8-PeCDF	ND	0.0778			13C-2,3,4,7,8-PeCDF	100	21 - 178		
1,2,3,4,7,8-HxCDF	ND	0.0440			13C-1,2,3,4,7,8-HxCDF	108	26 - 152		
1,2,3,6,7,8-HxCDF	ND	0.0458			13C-1,2,3,6,7,8-HxCDF	94.8	26 - 123		
2,3,4,6,7,8-HxCDF	ND	0.0514			13C-2,3,4,6,7,8-HxCDF	94.7	28 - 136		
1,2,3,7,8,9-HxCDF	ND	0.0714			13C-1,2,3,7,8,9-HxCDF	95.3	29 - 147		
1,2,3,4,6,7,8-HpCDF	ND	0.0687			13C-1,2,3,4,6,7,8-HpCDF	92.4	28 - 143		
1,2,3,4,7,8,9-HpCDF	ND	0.0660			13C-1,2,3,4,7,8,9-HpCDF	101	26 - 138		
OCDF	0.662			J	13C-OCDF	97.9	17 - 157		
					CRS 37Cl-2,3,7,8-TCDD	105	35 - 197		
					<b>Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)</b>				
					TEQMinWHO2005Dioxin		0.000199		
<b>TOTALS</b>									
Total TCDD	ND	0.0881							
Total PeCDD	ND	0.0715							
Total HxCDD	ND	0.119							
Total HpCDD	ND	0.130							
Total TCDF	ND	0.0699							
Total PeCDF	ND	0.0783							
Total HxCDF	ND	0.0523							
Total HpCDF	ND	0.0676							

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 Sample Size: 10.0 g		QC Batch: B9K0068 Date Extracted: 07-Nov-2019 13:01		Lab Sample: B9K0068-BS1 Date Analyzed: 20-Nov-19 16:24 Column: ZB-5MS			
Analyte	Amt Found (pg/g)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	19.6	20.0	98.1	67 - 158	IS 13C-2,3,7,8-TCDD	97.8	20 - 175
1,2,3,7,8-PeCDD	96.3	100	96.3	70 - 142	13C-1,2,3,7,8-PeCDD	98.8	21 - 227
1,2,3,4,7,8-HxCDD	94.9	100	94.9	70 - 164	13C-1,2,3,4,7,8-HxCDD	103	21 - 193
1,2,3,6,7,8-HxCDD	103	100	103	76 - 134	13C-1,2,3,6,7,8-HxCDD	88.6	25 - 163
1,2,3,7,8,9-HxCDD	99.0	100	99.0	64 - 162	13C-1,2,3,7,8,9-HxCDD	94.2	21 - 193
1,2,3,4,6,7,8-HpCDD	97.5	100	97.5	70 - 140	13C-1,2,3,4,6,7,8-HpCDD	95.3	26 - 166
OCDD	203	200	101	78 - 144	13C-OCDD	92.5	13 - 199
2,3,7,8-TCDF	18.7	20.0	93.4	75 - 158	13C-2,3,7,8-TCDF	93.4	22 - 152
1,2,3,7,8-PeCDF	98.3	100	98.3	80 - 134	13C-1,2,3,7,8-PeCDF	99.0	21 - 192
2,3,4,7,8-PeCDF	99.7	100	99.7	68 - 160	13C-2,3,4,7,8-PeCDF	96.3	13 - 328
1,2,3,4,7,8-HxCDF	92.3	100	92.3	72 - 134	13C-1,2,3,4,7,8-HxCDF	107	19 - 202
1,2,3,6,7,8-HxCDF	94.6	100	94.6	84 - 130	13C-1,2,3,6,7,8-HxCDF	96.5	21 - 159
2,3,4,6,7,8-HxCDF	98.9	100	98.9	70 - 156	13C-2,3,4,6,7,8-HxCDF	94.7	22 - 176
1,2,3,7,8,9-HxCDF	95.4	100	95.4	78 - 130	13C-1,2,3,7,8,9-HxCDF	95.3	17 - 205
1,2,3,4,6,7,8-HpCDF	93.7	100	93.7	82 - 122	13C-1,2,3,4,6,7,8-HpCDF	89.1	21 - 158
1,2,3,4,7,8,9-HpCDF	92.8	100	92.8	78 - 138	13C-1,2,3,4,7,8,9-HpCDF	97.6	20 - 186
OCDF	191	200	95.3	63 - 170	13C-OCDF	99.4	13 - 199
					CRS 37Cl-2,3,7,8-TCDD	99.6	31 - 191

LCL-UCL - Lower control limit - upper control limit

**Sample ID: PDI-027SC-A-12-13-191011** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903653-01      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 3.05 g	QC Batch: B9K0068      Date Extracted: 07-Nov-2019 13:01
Date Collected: 11-Oct-2019 14:02	% Solids: 82.0	Date Analyzed : 21-Nov-19 07:45      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.792			IS 13C-2,3,7,8-TCDD	83.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.741			13C-1,2,3,7,8-PeCDD	82.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.28			13C-1,2,3,4,7,8-HxCDD	90.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.43			13C-1,2,3,6,7,8-HxCDD	75.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.40			13C-1,2,3,7,8,9-HxCDD	79.9	32 - 141	
1,2,3,4,6,7,8-HpCDD	60.1				13C-1,2,3,4,6,7,8-HpCDD	79.1	23 - 140	
OCDD	399				13C-OCDD	77.0	17 - 157	
2,3,7,8-TCDF	ND	0.674			13C-2,3,7,8-TCDF	82.0	24 - 169	
1,2,3,7,8-PeCDF	ND	0.455			13C-1,2,3,7,8-PeCDF	87.9	24 - 185	
2,3,4,7,8-PeCDF	ND	0.454			13C-2,3,4,7,8-PeCDF	82.3	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.477			13C-1,2,3,4,7,8-HxCDF	94.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.482			13C-1,2,3,6,7,8-HxCDF	82.6	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.571			13C-2,3,4,6,7,8-HxCDF	81.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.711			13C-1,2,3,7,8,9-HxCDF	86.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	3.34			J	13C-1,2,3,4,6,7,8-HpCDF	78.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.789			13C-1,2,3,4,7,8,9-HpCDF	80.8	26 - 138	
OCDF	23.1			B	13C-OCDF	78.8	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	80.5	35 - 197	

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

TEQMinWHO2005Dioxin      0.761

<b>TOTALS</b>				
Total TCDD	ND	0.792		
Total PeCDD	ND	0.741		
Total HxCDD	12.2			
Total HpCDD	145			
Total TCDF	ND	0.674		
Total PeCDF	ND		0.431	
Total HxCDF	2.40			
Total HpCDF	19.1			

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: Duplicate					EPA Method 1613B			
Source Client ID: PDI-027SC-A-12-13-191011		QC Batch: B9K0068		Lab Sample: B9K0068-DUP1				
Source LabNumber: 1903653-01		Date Extracted: 07-Nov-2019 13:01		Date Analyzed: 21-Nov-19 06:58 Column: ZB-5MS				
Matrix: Solid								
Sample Size: 3.13 g								
Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.603			IS 13C-2,3,7,8-TCDD	98.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.665			13C-1,2,3,7,8-PeCDD	96.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.895			13C-1,2,3,4,7,8-HxCDD	99.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.05			13C-1,2,3,6,7,8-HxCDD	84.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.975			13C-1,2,3,7,8,9-HxCDD	87.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	55.5				13C-1,2,3,4,6,7,8-HpCDD	96.7	23 - 140	
OCDD	365				13C-OCDD	92.3	17 - 157	
2,3,7,8-TCDF	ND	0.538			13C-2,3,7,8-TCDF	94.6	24 - 169	
1,2,3,7,8-PeCDF	ND	0.375			13C-1,2,3,7,8-PeCDF	102	24 - 185	
2,3,4,7,8-PeCDF	ND	0.356			13C-2,3,4,7,8-PeCDF	96.3	21 - 178	
1,2,3,4,7,8-HxCDF	ND		0.762		13C-1,2,3,4,7,8-HxCDF	105	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.452			13C-1,2,3,6,7,8-HxCDF	91.1	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.489			13C-2,3,4,6,7,8-HxCDF	90.5	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.616			13C-1,2,3,7,8,9-HxCDF	95.8	29 - 147	
1,2,3,4,6,7,8-HpCDF	3.54			J	13C-1,2,3,4,6,7,8-HpCDF	93.0	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.596			13C-1,2,3,4,7,8,9-HpCDF	101	26 - 138	
OCDF	23.3			B	13C-OCDF	97.5	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	99.4	35 - 197	
					<b>Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)</b>			
					TEQMinWHO2005Dioxin	0.707		
<b>TOTALS</b>								
Total TCDD	ND	0.603						
Total PeCDD	ND	0.665						
Total HxCDD	ND		10.1					
Total HpCDD	129							
Total TCDF	ND	0.538						
Total PeCDF	ND	0.375						
Total HxCDF	2.40		3.16					
Total HpCDF	18.3							

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.

Sample ID: Duplicate					EPA Method 1613B				
Source Client ID: PDI-027SC-A-12-13-191011					Duplicate Lab Sample: B9K0068-DUP1				
Source LabNumber: 1903653-01									
Matrix: Solid									
Analyte	Dup Conc. (pg/g )	Source Conc.	RPD	RPD Limits	Labeled Standard	Dup %R	Source %R	LCL-UCL	
2,3,7,8-TCDD	ND	ND	NA	25	IS 13C-2,3,7,8-TCDD	98.0	83.7	25 - 164	
1,2,3,7,8-PeCDD	ND	ND	NA	25	13C-1,2,3,7,8-PeCDD	96.8	82.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	ND	NA	25	13C-1,2,3,4,7,8-HxCDD	99.9	90.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	ND	NA	25	13C-1,2,3,6,7,8-HxCDD	84.0	75.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	ND	NA	25	13C-1,2,3,7,8,9-HxCDD	87.0	79.9	32 - 141	
1,2,3,4,6,7,8-HpCDD	55.5	60.1	7.88	25	13C-1,2,3,4,6,7,8-HpCDD	96.7	79.1	23 - 140	
OCDD	365	399	8.82	25	13C-OCDD	92.3	77.0	17 - 157	
2,3,7,8-TCDF	ND	ND	NA	25	13C-2,3,7,8-TCDF	94.6	82.0	24 - 169	
1,2,3,7,8-PeCDF	ND	ND	NA	25	13C-1,2,3,7,8-PeCDF	102	87.9	24 - 185	
2,3,4,7,8-PeCDF	ND	ND	NA	25	13C-2,3,4,7,8-PeCDF	96.3	82.3	21 - 178	
1,2,3,4,7,8-HxCDF	ND	ND	NA	25	13C-1,2,3,4,7,8-HxCDF	105	94.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND	ND	NA	25	13C-1,2,3,6,7,8-HxCDF	91.1	82.6	26 - 123	
2,3,4,6,7,8-HxCDF	ND	ND	NA	25	13C-2,3,4,6,7,8-HxCDF	90.5	81.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	ND	NA	25	13C-1,2,3,7,8,9-HxCDF	95.8	86.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	3.54	3.34	5.73	25	13C-1,2,3,4,6,7,8-HpCDF	93.0	78.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	ND	NA	25	13C-1,2,3,4,7,8,9-HpCDF	101	80.8	26 - 138	
OCDF	23.3	23.1	1.06	25	13C-OCDF	97.5	78.8	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	99.4	80.5	35 - 197	

LCL-UCL - Lower control limit - upper control limit  
The results are reported in dry weight.  
The sample size is reported in wet weight. Results reported to the MDL

**Sample ID: PDI-027SC-A-13-13.5-191011** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903653-02      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 13.5 g	QC Batch: B9K0068      Date Extracted: 07-Nov-2019 13:01
Date Collected: 11-Oct-2019 14:02	% Solids: 74.3	Date Analyzed : 21-Nov-19 08:33      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.172			IS 13C-2,3,7,8-TCDD	95.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.129			13C-1,2,3,7,8-PeCDD	102	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.301			13C-1,2,3,4,7,8-HxCDD	104	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.327			13C-1,2,3,6,7,8-HxCDD	87.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.330			13C-1,2,3,7,8,9-HxCDD	92.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	2.76				13C-1,2,3,4,6,7,8-HpCDD	103	23 - 140	
OCDD	24.1				13C-OCDD	101	17 - 157	
2,3,7,8-TCDF	ND	0.128			13C-2,3,7,8-TCDF	88.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0914			13C-1,2,3,7,8-PeCDF	98.4	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0910			13C-2,3,4,7,8-PeCDF	95.7	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0877			13C-1,2,3,4,7,8-HxCDF	112	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0943			13C-1,2,3,6,7,8-HxCDF	97.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.100			13C-2,3,4,6,7,8-HxCDF	94.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.137			13C-1,2,3,7,8,9-HxCDF	97.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.135			13C-1,2,3,4,6,7,8-HpCDF	97.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.117			13C-1,2,3,4,7,8,9-HpCDF	106	26 - 138	
OCDF	ND	0.191			13C-OCDF	106	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	93.7	35 - 197	

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

TEQMinWHO2005Dioxin      0.0348

<b>TOTALS</b>								
Total TCDD	ND	0.172						
Total PeCDD	ND		0.297					
Total HxCDD	1.38							
Total HpCDD	8.30							
Total TCDF	ND	0.128						
Total PeCDF	ND	0.0914						
Total HxCDF	ND	0.137						
Total HpCDF	ND	0.135						

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-066SC-A-15-16-191011** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903653-03      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 15.7 g	QC Batch: B9K0068      Date Extracted: 07-Nov-2019 13:01
Date Collected: 11-Oct-2019 9:09	% Solids: 63.9	Date Analyzed: 21-Nov-19 09:21      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.152			IS 13C-2,3,7,8-TCDD	104	25 - 164	
1,2,3,7,8-PeCDD	ND	0.123			13C-1,2,3,7,8-PeCDD	103	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.252			13C-1,2,3,4,7,8-HxCDD	105	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.283			13C-1,2,3,6,7,8-HxCDD	87.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.282			13C-1,2,3,7,8,9-HxCDD	90.8	32 - 141	
1,2,3,4,6,7,8-HpCDD	0.608			J	13C-1,2,3,4,6,7,8-HpCDD	103	23 - 140	
OCDD	2.64			J	13C-OCDD	107	17 - 157	
2,3,7,8-TCDF	ND	0.132			13C-2,3,7,8-TCDF	101	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0891			13C-1,2,3,7,8-PeCDF	105	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0851			13C-2,3,4,7,8-PeCDF	103	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0860			13C-1,2,3,4,7,8-HxCDF	114	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0887			13C-1,2,3,6,7,8-HxCDF	98.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.101			13C-2,3,4,6,7,8-HxCDF	96.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.129			13C-1,2,3,7,8,9-HxCDF	98.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.139			13C-1,2,3,4,6,7,8-HpCDF	99.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.117			13C-1,2,3,4,7,8,9-HpCDF	110	26 - 138	
OCDF	ND	0.196			13C-OCDF	112	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	102	35 - 197	

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

TEQMinWHO2005Dioxin      0.00687

<b>TOTALS</b>								
Total TCDD	ND	0.152						
Total PeCDD	ND	0.123						
Total HxCDD	ND		0.366					
Total HpCDD	1.21							
Total TCDF	ND	0.132						
Total PeCDF	ND	0.0891						
Total HxCDF	ND	0.129						
Total HpCDF	ND	0.139						

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-066SC-A-16-17.1-191011** **EPA Method 1613B**

<b>Client Data</b>	<b>Sample Data</b>	<b>Laboratory Data</b>
Name: Anchor QEA, LLC	Matrix: Sediment	Lab Sample: 1903653-04      Date Received: 15-Oct-2019 8:51
Project: Gasco PDI	Sample Size: 15.8 g	QC Batch: B9J0312      Date Extracted: 29-Oct-2019 7:26
Date Collected: 11-Oct-2019 9:09	% Solids: 63.8	Date Analyzed: 06-Nov-19 21:15      Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.225			IS 13C-2,3,7,8-TCDD	58.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.195			13C-1,2,3,7,8-PeCDD	62.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.313			13C-1,2,3,4,7,8-HxCDD	60.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.338			13C-1,2,3,6,7,8-HxCDD	50.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.345			13C-1,2,3,7,8,9-HxCDD	54.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.303			13C-1,2,3,4,6,7,8-HpCDD	57.9	23 - 140	
OCDD	ND	0.404			13C-OCDD	56.8	17 - 157	
2,3,7,8-TCDF	ND	0.172			13C-2,3,7,8-TCDF	56.6	24 - 169	
1,2,3,7,8-PeCDF	ND	0.152			13C-1,2,3,7,8-PeCDF	55.1	24 - 185	
2,3,4,7,8-PeCDF	ND	0.133			13C-2,3,4,7,8-PeCDF	56.6	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.147			13C-1,2,3,4,7,8-HxCDF	63.6	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.154			13C-1,2,3,6,7,8-HxCDF	56.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.175			13C-2,3,4,6,7,8-HxCDF	55.5	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.214			13C-1,2,3,7,8,9-HxCDF	58.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.235			13C-1,2,3,4,6,7,8-HpCDF	57.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.188			13C-1,2,3,4,7,8,9-HpCDF	64.1	26 - 138	
OCDF	ND	0.313			13C-OCDF	61.4	17 - 157	
					CRS 37Cl-2,3,7,8-TCDD	93.6	35 - 197	

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

TEQMinWHO2005Dioxin      0.00

<b>TOTALS</b>			
Total TCDD	ND		0.0587
Total PeCDD	ND		0.330
Total HxCDD	ND	0.345	
Total HpCDD	ND	0.303	
Total TCDF	ND	0.172	
Total PeCDF	ND	0.152	
Total HxCDF	ND	0.214	
Total HpCDF	ND	0.235	

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

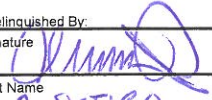
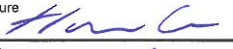
1903653 3.6°C, 1.3°C

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

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

**COC ID:** VISTA-20191011-174305  
**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-027SC-A-12-13-191011	N	SE	10/11/2019	14:02	2	<input checked="" type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
002	PDI-027SC-A-13-13.5-191011	N	SE	10/11/2019	14:02	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
003	PDI-066SC-A-15-16-191011	N	SE	10/11/2019	9:09	1	<input type="checkbox"/>	Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
004	PDI-066SC-A-16-17.1-191011	N	SE	10/11/2019	9:09	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. OREIRO	Print Name Hayden Canas	Print Name	Print Name	Print Name	Print Name
Company AQ	Company V/A L	Company	Company	Company	Company
Date/Time 10/14/19 07:55	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 #: 1903653 TAT std

Samples Arrival:	Date/Time <u>10/15/19 08:51</u>	Initials: <u>HDC</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 checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C: <u>1.3</u> (uncorrected)	Probe used: Y / <input checked="" type="checkbox"/> N		Thermometer ID: <u>IR-3</u>
Temp °C: <u>1.3</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>1 of 4</u> Trk # <u>7767 1463 7746</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"/> 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 1138</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"/>

Comments:

# Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 1903653 TAT STC

<b>Samples Arrival:</b>	<b>Date/Time:</b> 10/15/19 0851	<b>Initials:</b> WWS	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> N/A
<b>Delivered By:</b>	<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
<b>Preservation:</b>	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
<b>Temp °C:</b> 3.6 (uncorrected)	<b>Probe used:</b> Y / <input checked="" type="checkbox"/> N		<b>Thermometer ID:</b> IR-3
<b>Temp °C:</b> 3.6 (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>4 of 4</u> Trk # <u>7767 1463 8021</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? <u>COC present in other codes</u>	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Logged In:</b>	<b>Date/Time:</b> 10/16/19 1138	<b>Initials:</b> aym	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> A-1
COC Anomaly/Sample Acceptance Form completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

 WWS  
 10/17/19

Comments:

# CoC/Label Reconciliation Report WO# 1903653

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
1	1903653-01 A PDI-027SC-A-12-13-191011	<input checked="" type="checkbox"/>		001	11-Oct-19 14:02	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
1	1903653-01 B PDI-027SC-A-12-13-191011	<input checked="" type="checkbox"/>		001	11-Oct-19 14:02	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
4	1903653-02 A PDI-027SC-A-13-13.5-191011	<input checked="" type="checkbox"/>		002	11-Oct-19 14:02	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
1	1903653-03 A PDI-066SC-A-15-16-191011	<input checked="" type="checkbox"/>		003	11-Oct-19 09:09	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	
1	1903653-04 A PDI-066SC-A-16-17.1-191011	<input checked="" type="checkbox"/>		004	11-Oct-19 09:09	<input checked="" type="checkbox"/>		Amber Glass, 120 mL	<input checked="" type="checkbox"/>	Solid	

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

Comments:

"4" = cooler 4

"1" = cooler #1

Verified by/Date: \* \_\_\_\_\_

KE 10/17/19

\* apm signing for HDG 10/18/19

## **EXTRACTION INFORMATION**



Process Sheet

Workorder: 1903653

05-NOV-19

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

Workorder Due: 12-Nov-19 00:00

TAT: 28 21 @ 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
1903653-01 <del>TL</del> A	<input checked="" type="checkbox"/>	PDI-027SC-A-12-13-191011	15-Oct-19 08:51	WR-2 A-1	DUP
1903653-02 A	<input checked="" type="checkbox"/>	PDI-027SC-A-13-13.5-191011	15-Oct-19 08:51	WR-2 A-1	
1903653-03 A	<input checked="" type="checkbox"/>	PDI-066SC-A-15-16-191011	15-Oct-19 08:51	WR-2 A-1	
1903653-04 A	<input checked="" type="checkbox"/>	PDI-066SC-A-16-17.1-191011	15-Oct-19 08:51	WR-2 A-1	

\* TL 10/24/19

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

Pre-Prep Check Out: TL 10/24/19  
Pre-Prep Check In: TL 10/24/19

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

Prep Reconciled Initials/Date: TL 10/24/19  
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	MA	(10.00)	00 AZ 10/29/19	TL 10/30/19	N/A	TL 10/30/19	TL 10/30/19	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>19I1603, 10uL</u>	Start Date/Time <u>10/29/19</u> <u>13:57</u>	SOLV: <u>T01</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	TZ 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	15.76	↓	↓	↓	↓	↓	↓	↓

② 10/30/19

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>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 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 06:3</u>	Other <u>NA</u>	Balance ID: <u>HRMS 8</u>
PAH _____	PAH _____	PAH _____	PAH _____	Final Volume(s) <u>20ML</u>	<u>Clu</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






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 ✓	81.9868	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 



Process Sheet  
 Workorder: **1903653**

RX @ 11/07/19

Prep Expiration: 2020-10-10  
 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: B9K 0068

Prep Data Entered: \_\_\_\_\_  
 Date and Initials

Initial Sequence: S9K0033

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
* 1903653-01	<input checked="" type="checkbox"/>	PDI-027SC-A-12-13-191011	15-Oct-19 08:51	WR-2 A-1	DUP
1903653-02	<input checked="" type="checkbox"/>	PDI-027SC-A-13-13.5-191011	15-Oct-19 08:51	WR-2 A-1	
1903653-03	<input checked="" type="checkbox"/>	PDI-066SC-A-15-16-191011	15-Oct-19 08:51	WR-2 A-1	
<del>1903653-04</del>	<input type="checkbox"/>	<del>PDI-066SC-A-15-16-191011</del>	<del>15-Oct-19 08:51</del>	<del>WR-2 A-1</del>	

\* Extract 2.5g. @ 11/07/19

WO Comments: ~~2.5g extraction (dry weight)~~  
**Dioxin - 10g (dry weight)**  
~~2.5g extraction (dry weight)~~

Pre-Prep Check Out: NA  
 Pre-Prep Check In: NA

Prep Check Out: TL 11/07/19  
 Prep Check In: TL 11/07/19

Prep Reconciled Initials/Date: AO 11/07/19  
 Spike Reconciled Initials/Date: TL 11/07/19  
 VialBoxID: 42

PREPARATION BENCH SHEET

Matrix: Solid

B9K0068

Chemist: TL

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 07-Nov-19 13:01

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"/>	B9K0068-BLK1 (A)	NA	(10.00)	00 TL 11/07/19	GO 11/12/19	<del>11/12/19</del> *	11/12/19	11/12/19	TL 11/13/19	11/14/19
<input type="checkbox"/>	B9K0068-BS1 (A)	NA	(10.00)	T	T	T	T	T	T	T
<input type="checkbox"/>	B9K0068-DUP1 1903653-01RE1 (B)	3.05	3.13	T	T	T	T	T	T	T
<input type="checkbox"/>	1903651-01RE1 (B)	17.23	17.33	T	T	T	T	T	T	T
<input type="checkbox"/>	1903653-01RE1 (B)	3.05	3.05	T	T	T	T	T	T	T
<input type="checkbox"/>	1903653-02RE1 (B)	13.47	13.48	T	T	T	T	T	T	T
<input type="checkbox"/>	1903653-03RE1 (B)	15.66	15.67	T	T	T	T	T	T	T

(A) Condenser not on during extraction AZ 11/08/19

\* NO samples were acid partitioned 11/12/19

(B) ABSG column discolored. BL 11/12/19

IS Name <u>V3</u>	NS Name <u>V3</u>	CRS Name <u>V7</u>	RS Name <u>V6</u>	Cycle Time	APP: SEFUN SOX <u>DS</u>	Check Out: <u>TL 11/07/19</u>
PCDD/F <u>19C1902 10ul</u>	PCDD/F <u>18F1913 10ul</u>	PCDD/F <u>19I1602 10ul</u>	PCDD/F <u>19I1603 10ul</u>	Start Date/Time <u>11/07/19 1420</u>	SOLV: <u>Toluene</u>	Check In: <u>TL 11/07/19</u>
PCB	PCB	PCB	PCB	Stop Date/Time <u>11/08/19 0641</u>	Other <u>NA</u>	Balance ID: <u>HRMS-8</u>
PAH	PAH	PAH	PAH		Final Volume(s) <u>C14 20ul</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







Batch: B9K0068

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1903651-01RE1	17.33 /	58.04481 /	10.0592 /	20 /	07-Nov-19 13:01	AZK			Sediment	1613 Full List
1903653-01RE1	3.05 /	82.01582 /	2.5015 /	20 /	07-Nov-19 13:01	AZK			Sediment	1613 Full List
1903653-02RE1	13.48 /	74.26471 /	10.0109 /	20 /	07-Nov-19 13:01	AZK			Sediment	1613 Full List
1903653-03RE1	15.67 /	63.85041 /	10.0054 /	20 /	07-Nov-19 13:01	AZK			Sediment	1613 Full List
B9K0068-BLK1	10 /			20 /	07-Nov-19 13:01	TL				QC
B9K0068-BS1	10 /			20 /	07-Nov-19 13:01	TL	18F1913 /	10 /		QC
B9K0068-DUP1	3.13 /	<del>58.04481</del> <sup>C1</sup> 82.01582	<del>10.0592</del> 2.5015	20 /	07-Nov-19 13:01	TL				QC

58.04481<sup>C1</sup>  
82.01582  
10.0592  
2.5015

All bolded data on report verified against written benchsheet by (initial/date) TL 11/14/19

SAMPLE DATA – EPA METHOD 1613

Client ID: Me... Blank  
Lab ID: B9J0312 BLK1

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

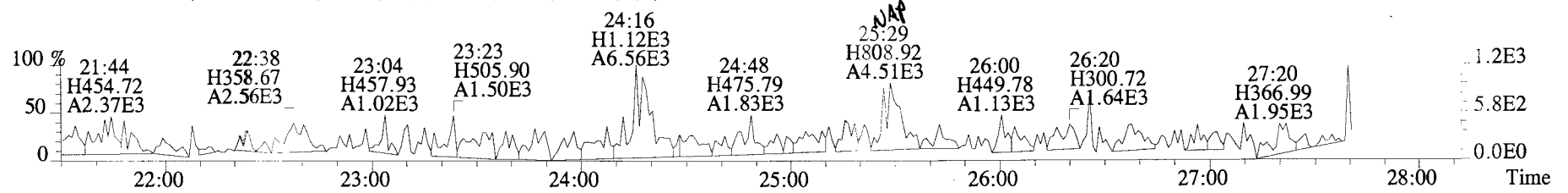
ConCal: ST191101D1-1  
EndCAL: NA

Page 3 of 3

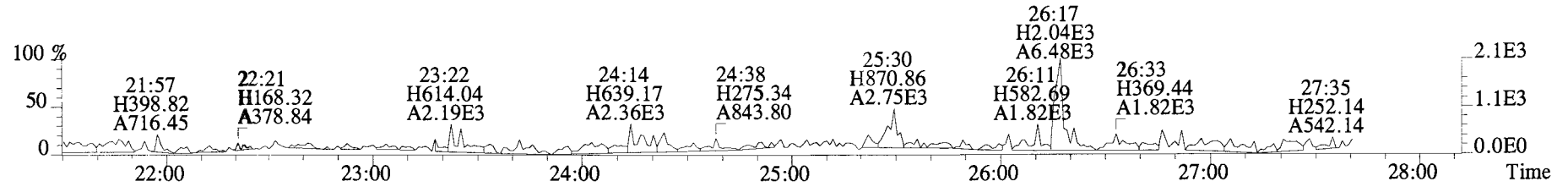
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	*	* n	0.91	Not F $\eta$	*		107	2.5	0.0535	Total Tetra-Dioxins	*	*		107	0.0535
1,2,3,7,8-PeCDD	*	* n	0.90	Not F $\eta$	*		231	2.5	0.101	Total Penta-Dioxins	*	*		231	0.101
1,2,3,4,7,8-HxCDD	*	* n	1.10	Not F $\eta$	*		130	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	*						
IS	13C-2,3,7,8-TCDD	6.94e+06	0.78 y	1.10	26:15	190.67				Rec	Qual				
IS	13C-1,2,3,7,8-PeCDD	5.80e+06	0.62 y	0.88	30:44	197.81				95.3					
IS	13C-1,2,3,4,7,8-HxCDD	4.55e+06	1.31 y	0.64	34:03	203.31				98.9					
IS	13C-1,2,3,6,7,8-HxCDD	5.27e+06	1.31 y	0.86	34:09	176.76				102					
IS	13C-1,2,3,7,8,9-HxCDD	5.16e+06	1.27 y	0.81	34:27	183.77				88.4					
IS	13C-1,2,3,4,6,7,8-HpCDD	4.25e+06	1.08 y	0.65	37:54	186.51				91.9					
IS	13C-OCDD	6.91e+06	0.91 y	0.58	41:12	342.23				93.3					
IS	13C-2,3,7,8-TCDF	1.03e+07	0.78 y	1.03	25:29	184.51				85.6					
IS	13C-1,2,3,7,8-PeCDF	9.82e+06	1.58 y	0.85	29:35	212.40				92.3					
IS	13C-2,3,4,7,8-PeCDF	9.22e+06	1.58 y	0.85	30:27	201.10				106					
IS	13C-1,2,3,4,7,8-HxCDF	6.58e+06	0.50 y	0.83	33:09	226.97				101					
IS	13C-1,2,3,6,7,8-HxCDF	7.05e+06	0.53 y	1.03	33:17	195.73				113					
IS	13C-2,3,4,6,7,8-HxCDF	6.28e+06	0.51 y	0.95	33:53	189.26				97.9					
IS	13C-1,2,3,7,8,9-HxCDF	5.89e+06	0.51 y	0.83	34:50	204.19				94.6					
IS	13C-1,2,3,4,6,7,8-HpCDF	4.43e+06	0.44 y	0.76	36:41	167.73				102					
IS	13C-1,2,3,4,7,8,9-HpCDF	3.94e+06	0.43 y	0.58	38:27	194.75				83.9					
IS	13C-OCDF	8.88e+06	0.89 y	0.69	41:25	370.13				97.4					
C/Up	37C1-2,3,7,8-TCDD	3.03e+06		1.20	26:17	76.047				92.5					
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 Reviewed  
by Analyst: DB by Analyst: C7  
Date: 11/4/19 Date: 11/06/19

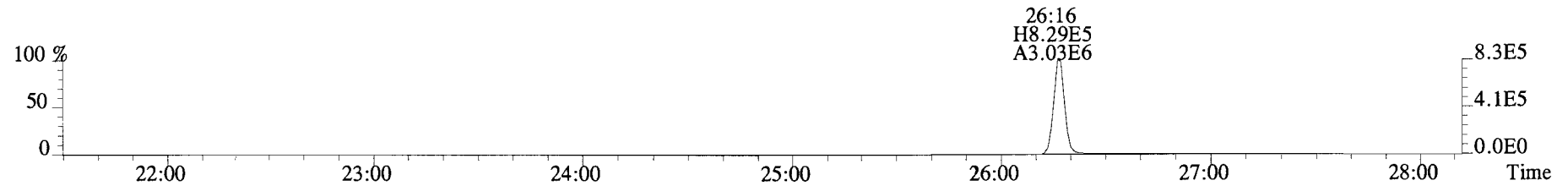
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



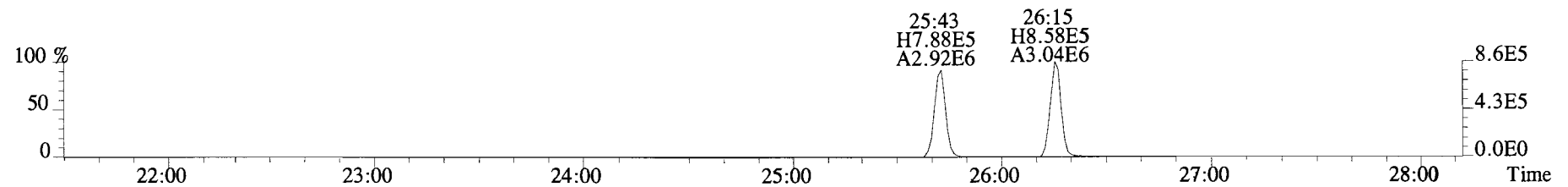
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



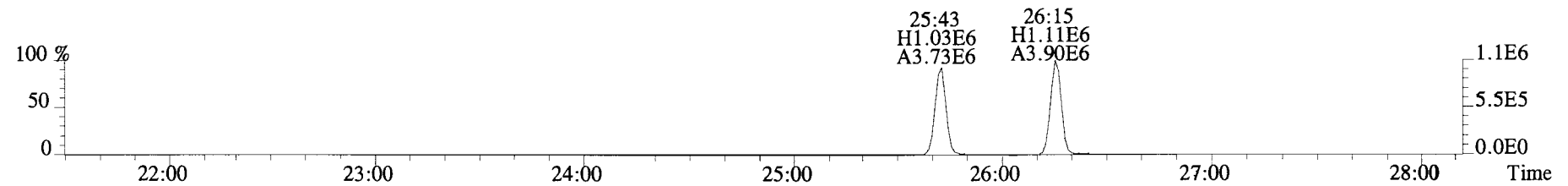
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



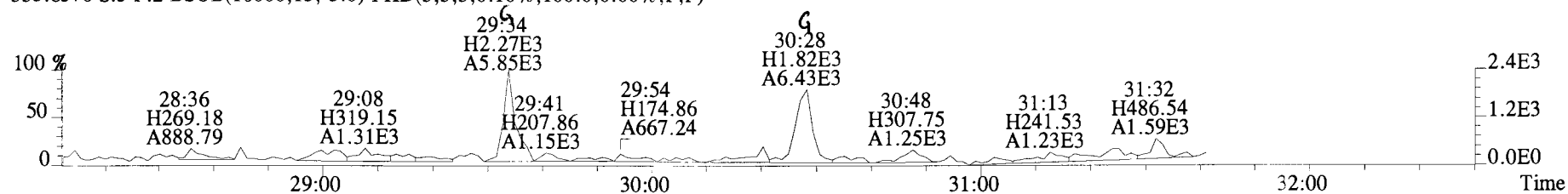
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



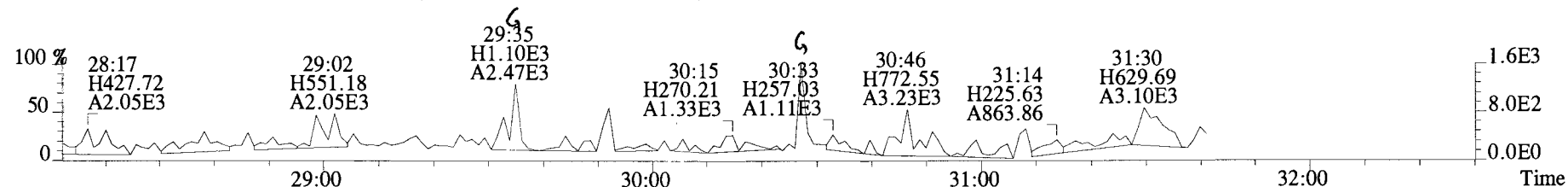
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



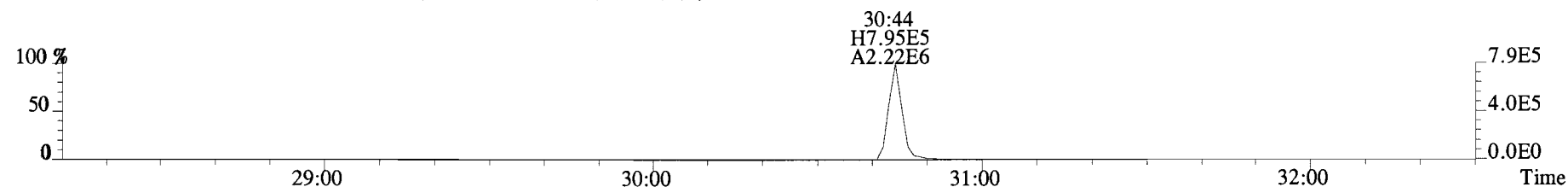
File:191101D1 #1-211 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



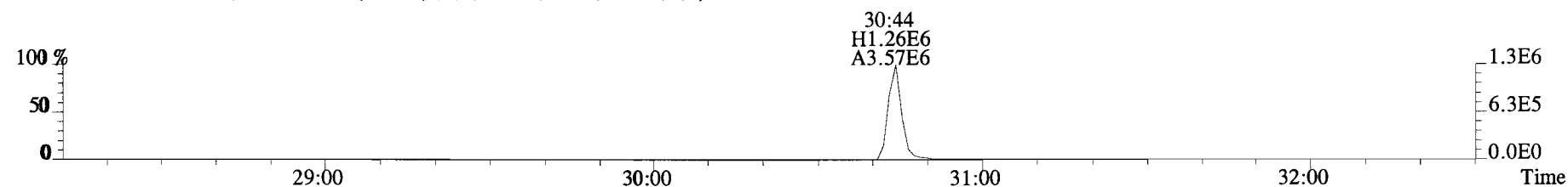
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



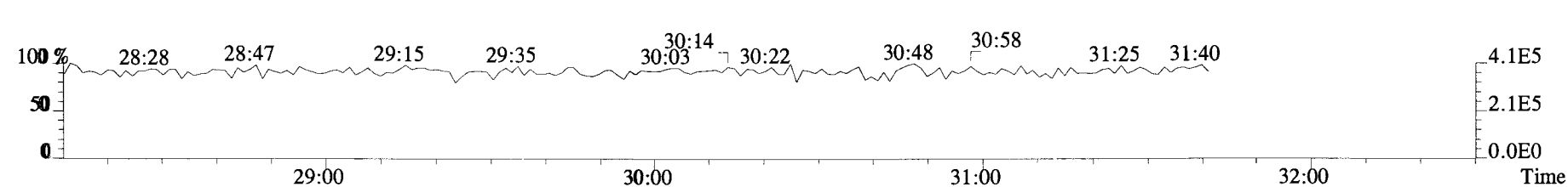
365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



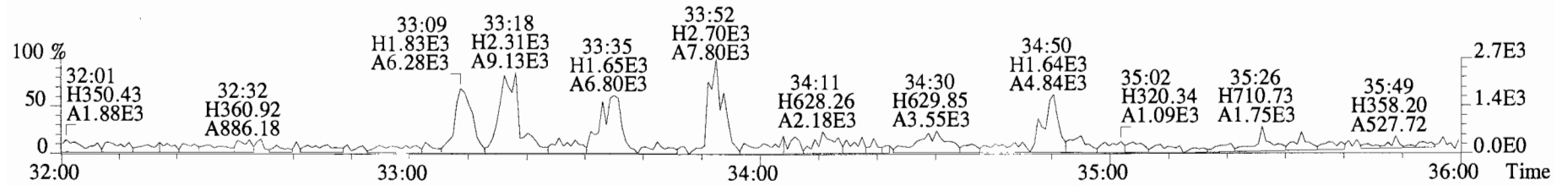
367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



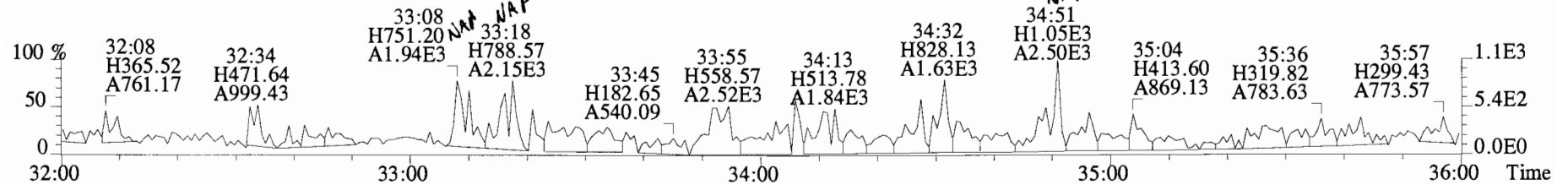
366.9792 S:5 F:2



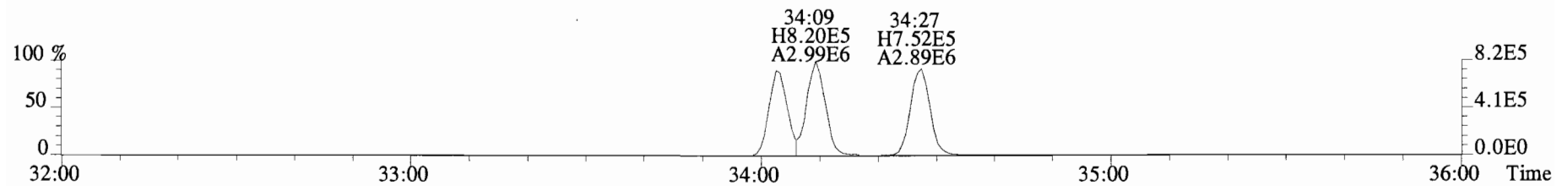
File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



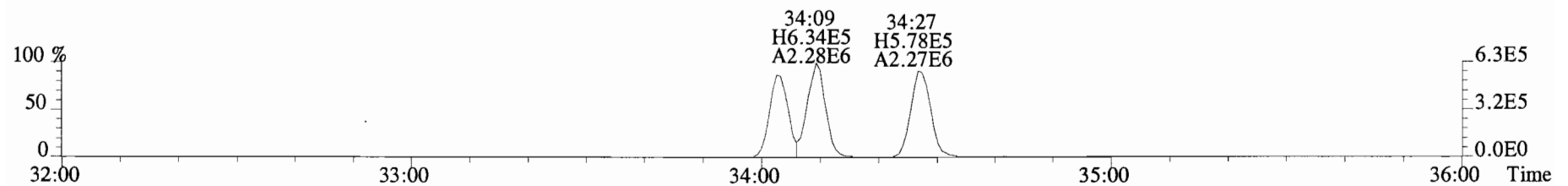
391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



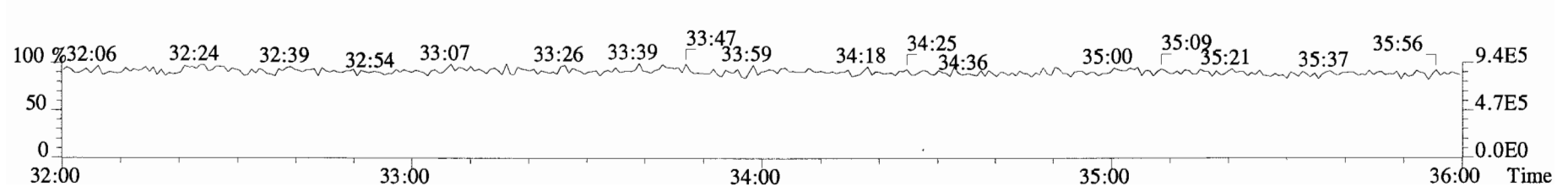
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

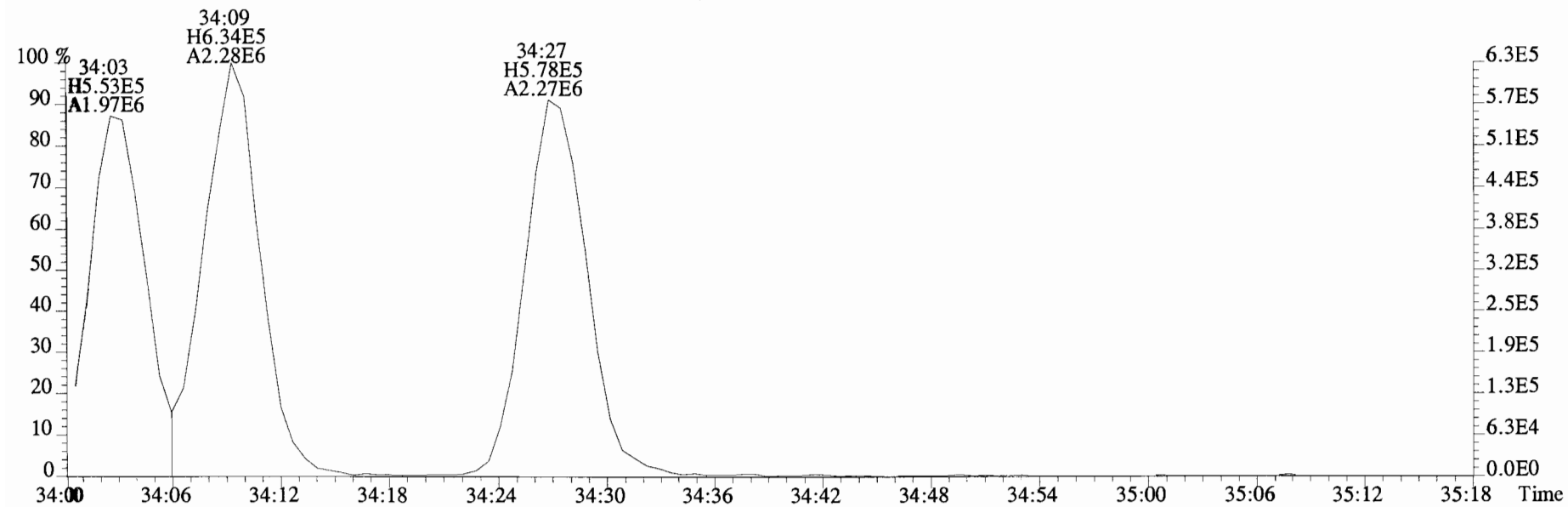
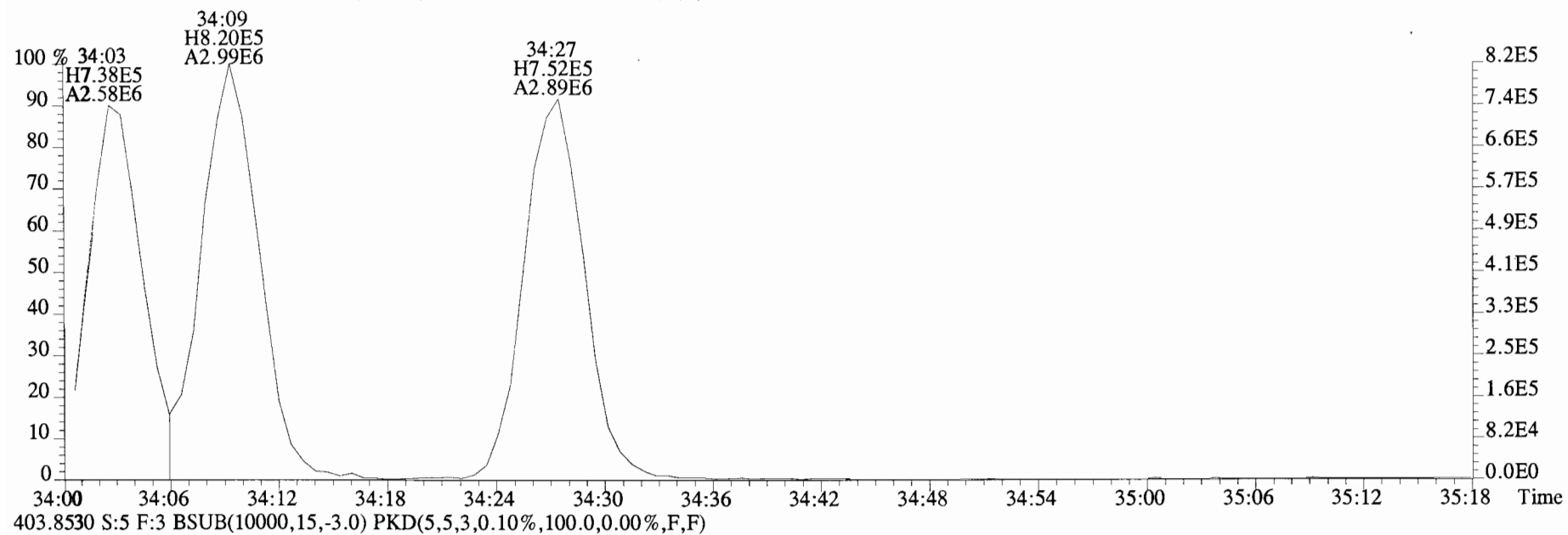


392.9760 S:5 F:3

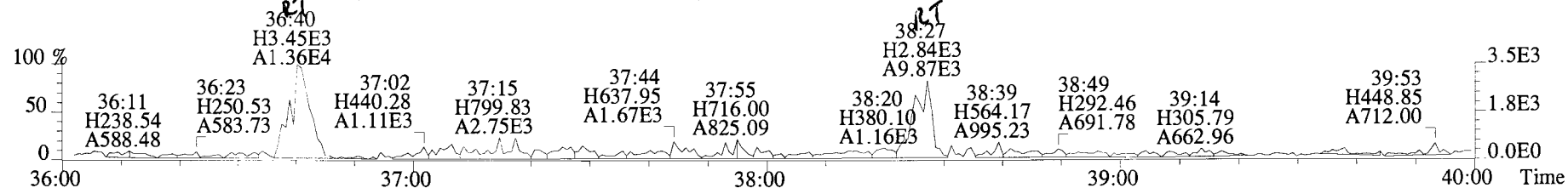




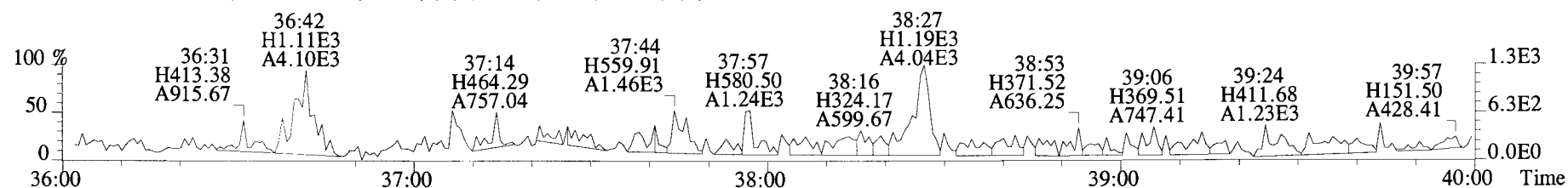
File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



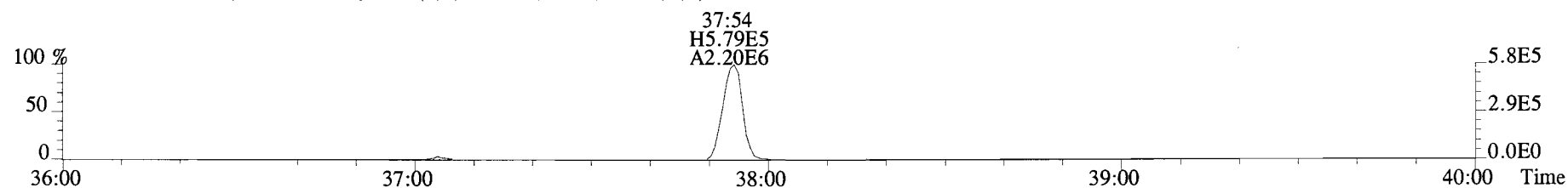
File:191101D1 #1-355 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



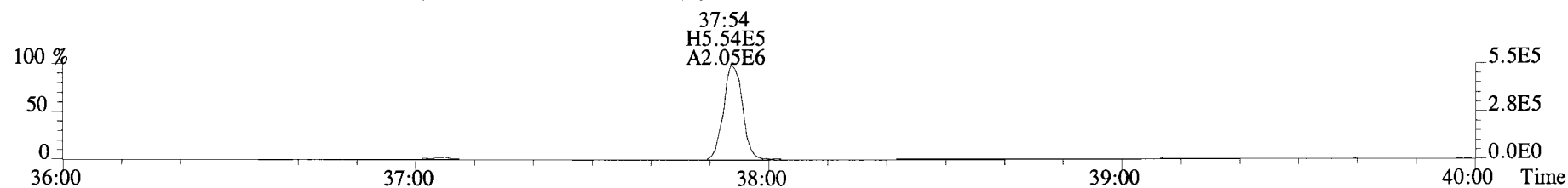
425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



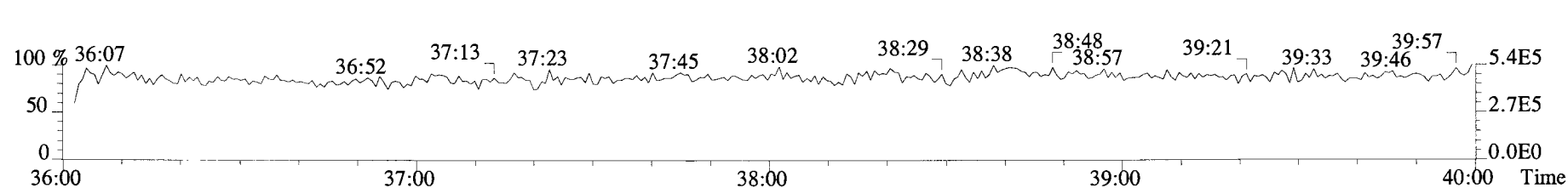
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



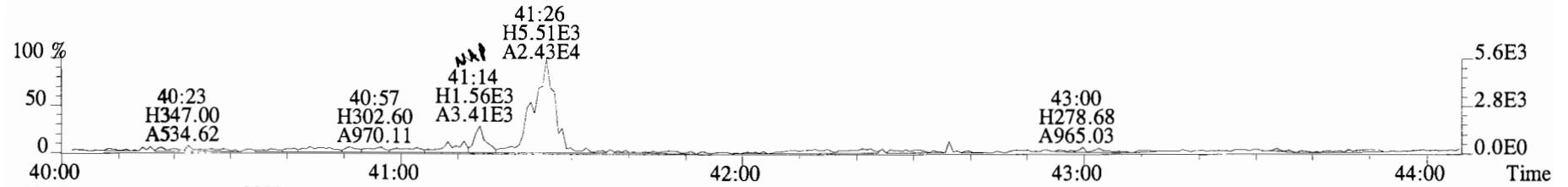
437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



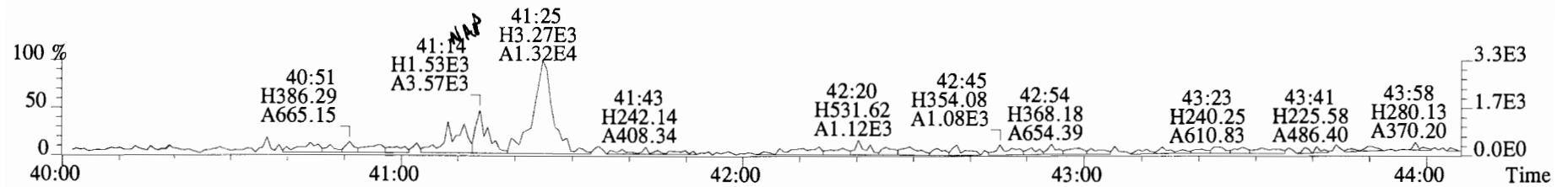
454.9728 S:5 F:4



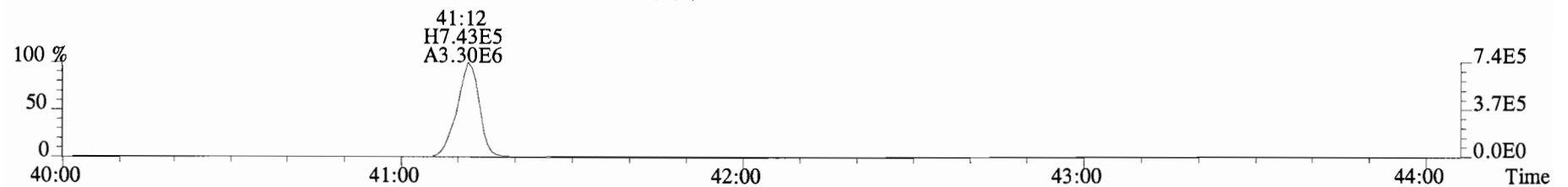
File:191101D1 #1-432 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



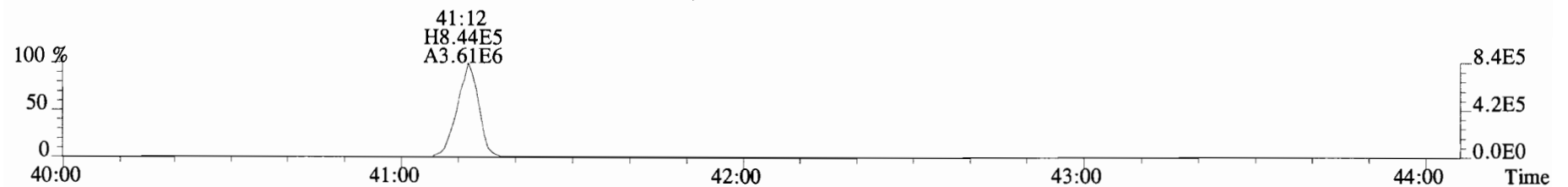
459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



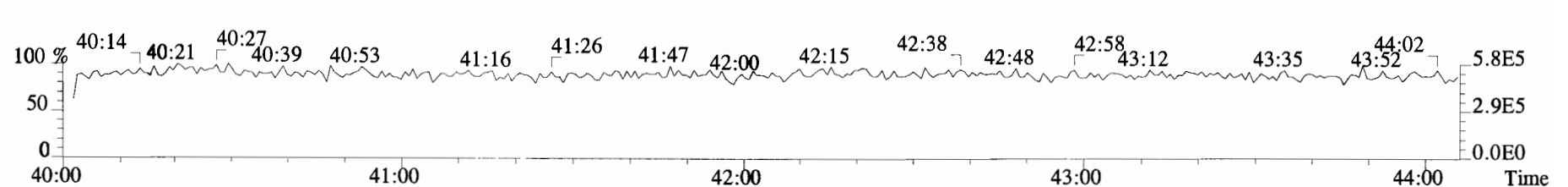
469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



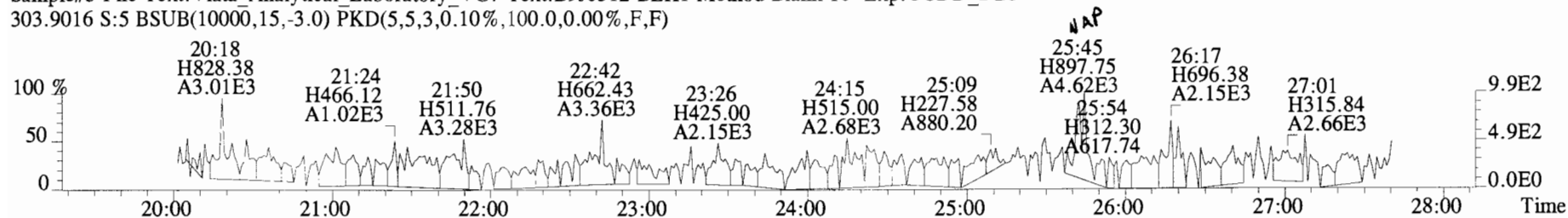
471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



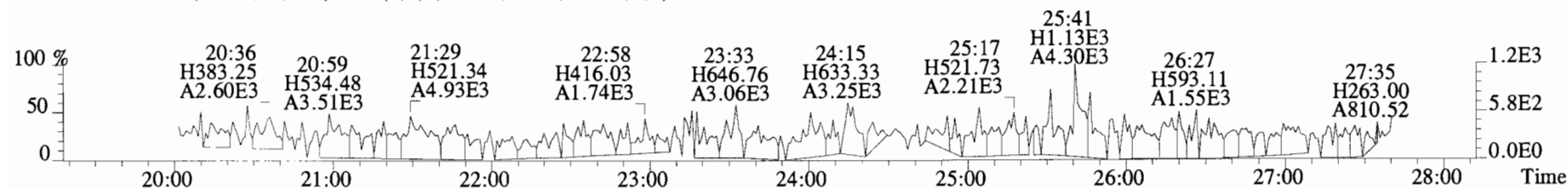
454.9728 S:5 F:5



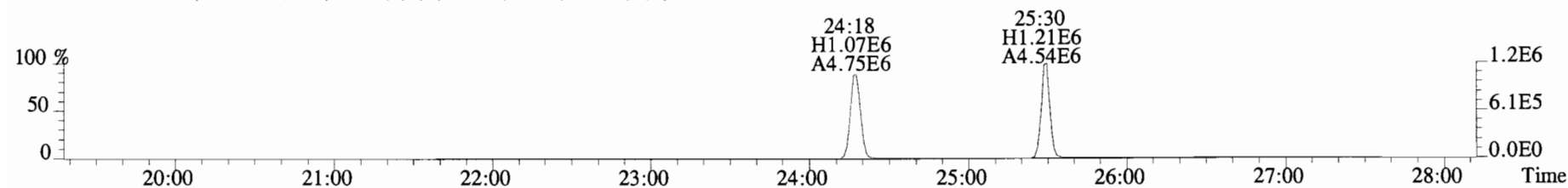
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



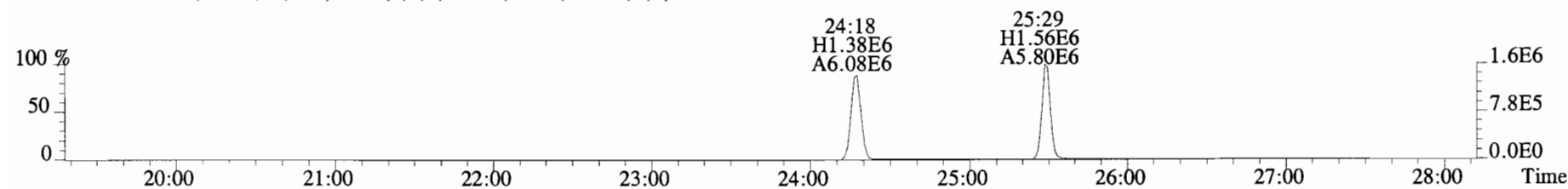
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



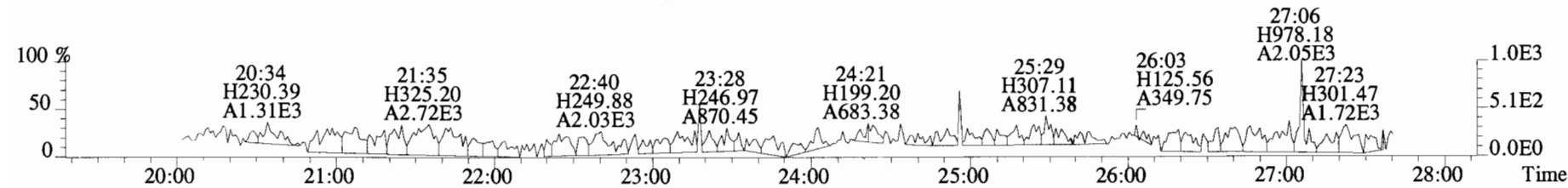
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



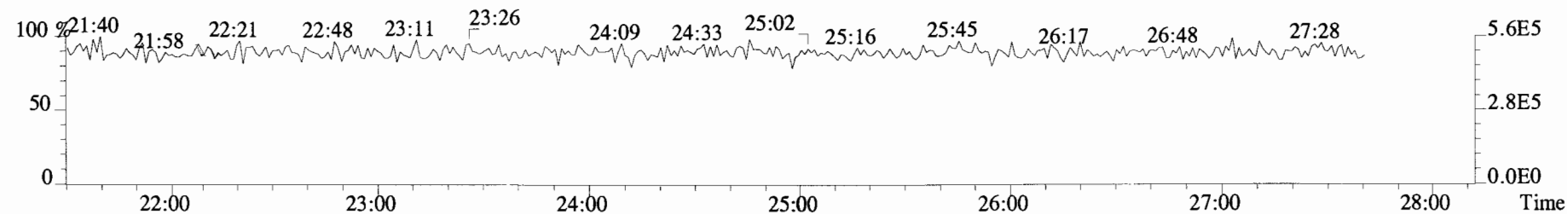
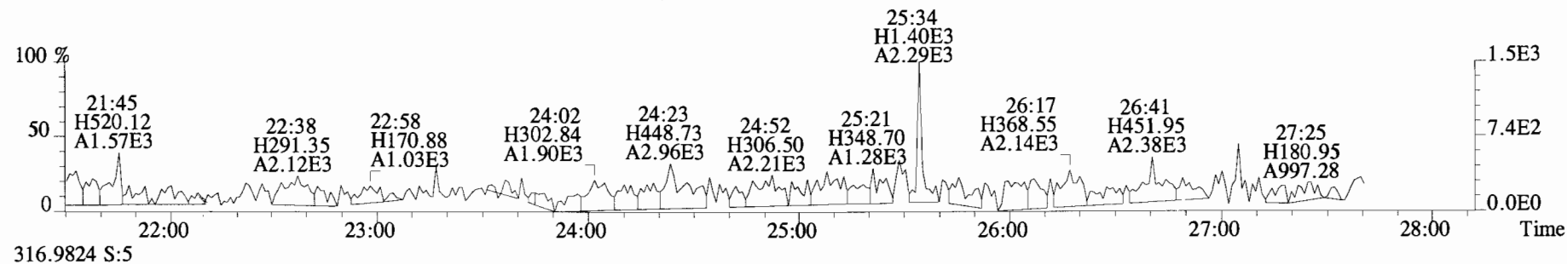
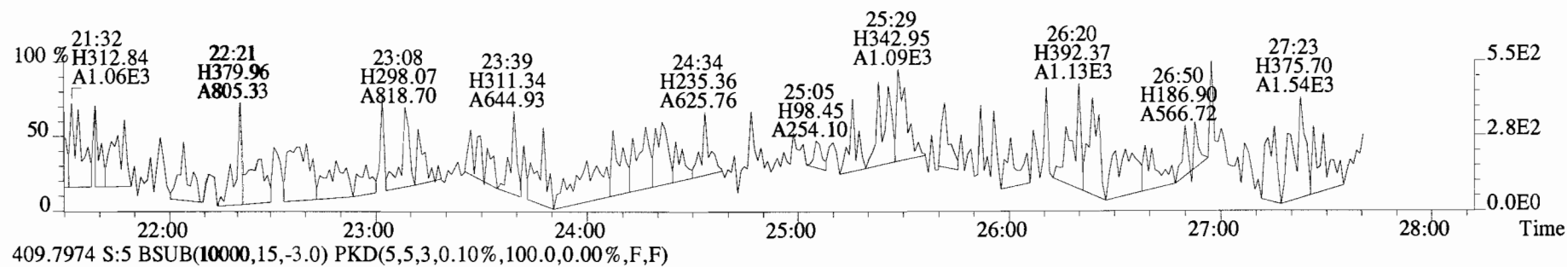
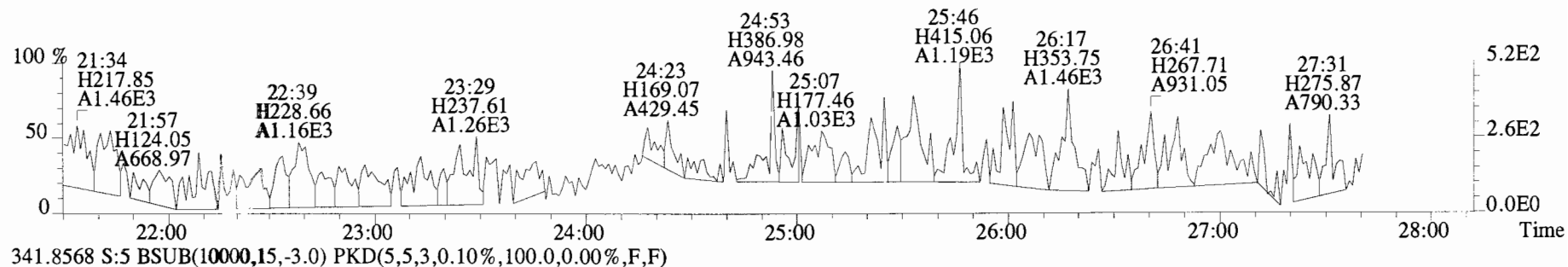
317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



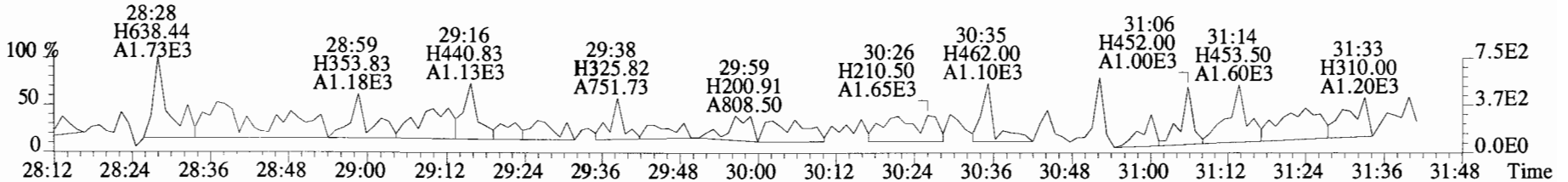
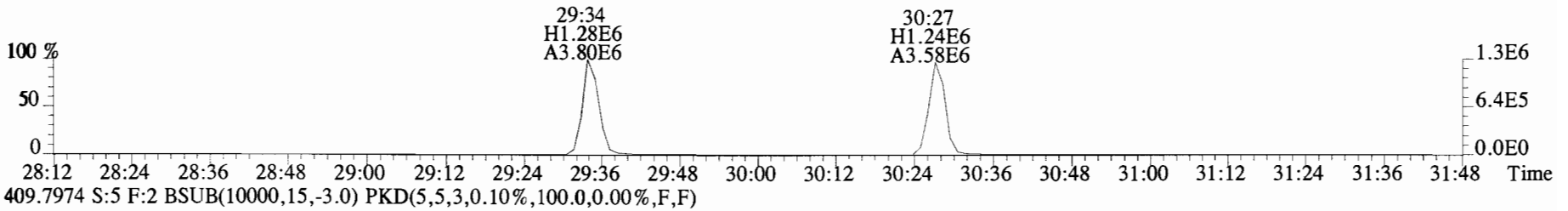
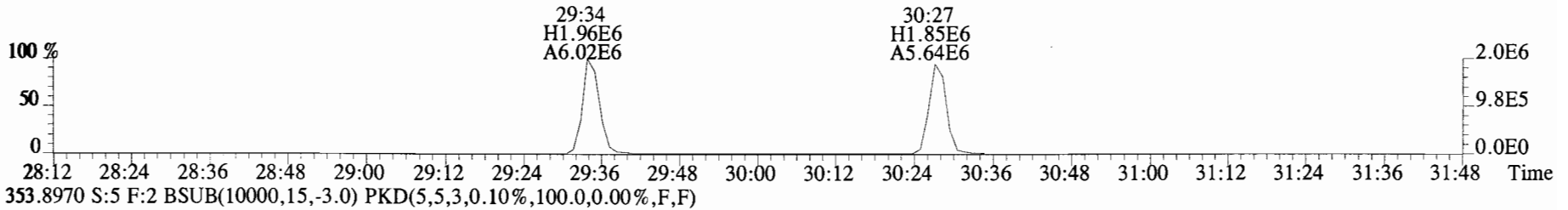
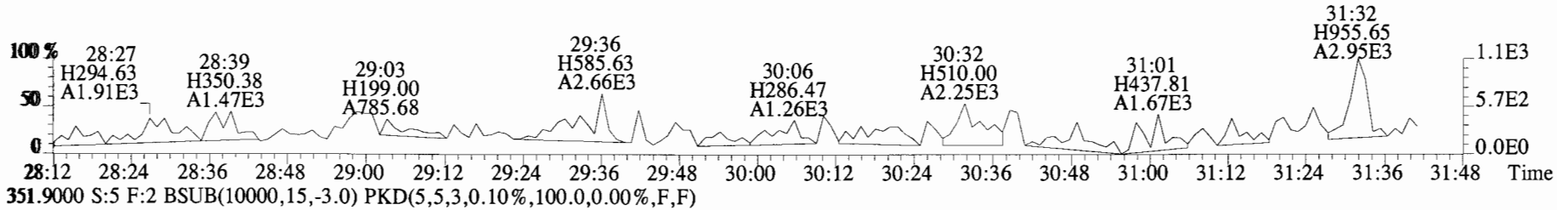
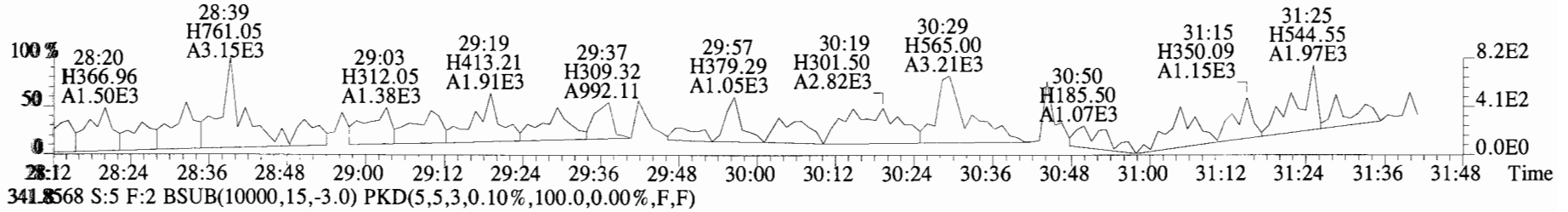
375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



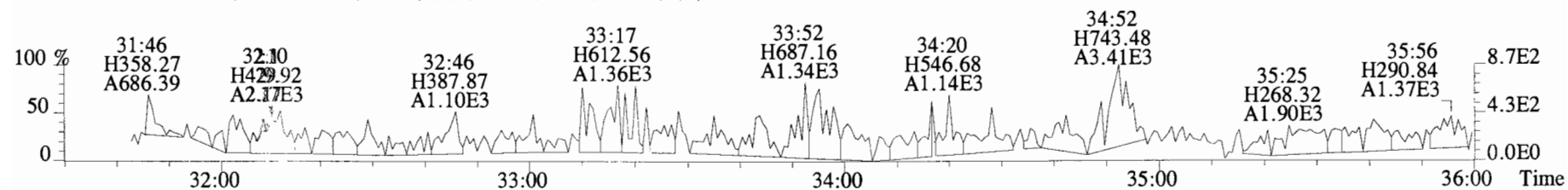
File:191101D1 #1-492 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



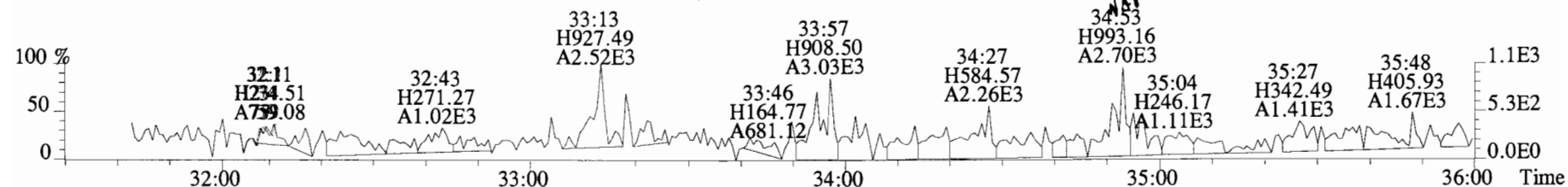
File: 191101D1 #1-211 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text: Viata Analytical\_Laboratory\_VG7 Text: B9J0312-BLK1 Method Blank 10 Exp: OCDD\_DB5  
 339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



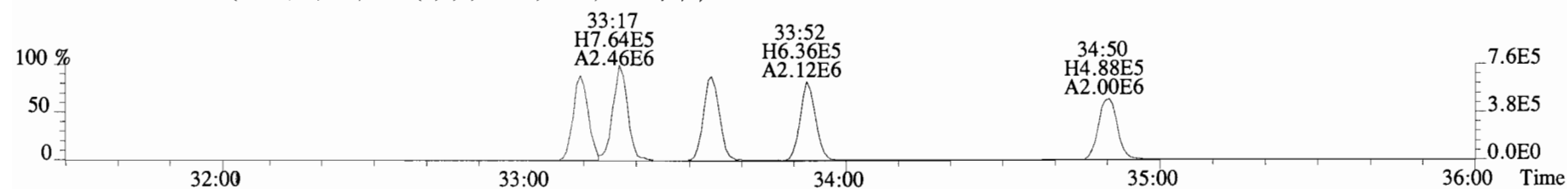
File:191101D1 #1-384 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



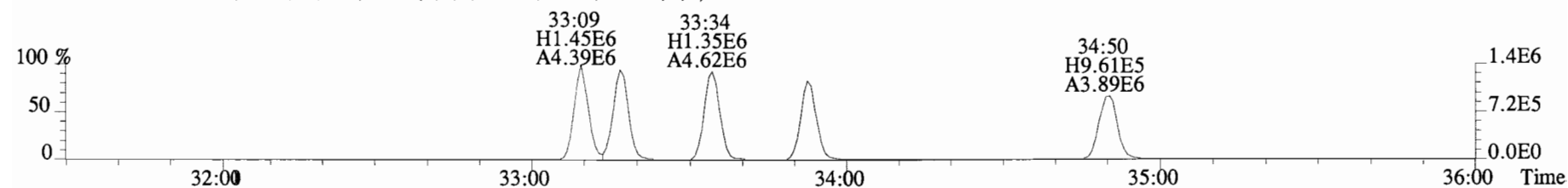
375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



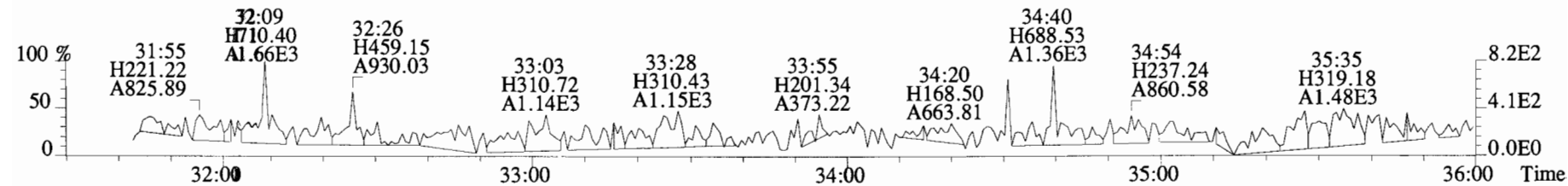
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



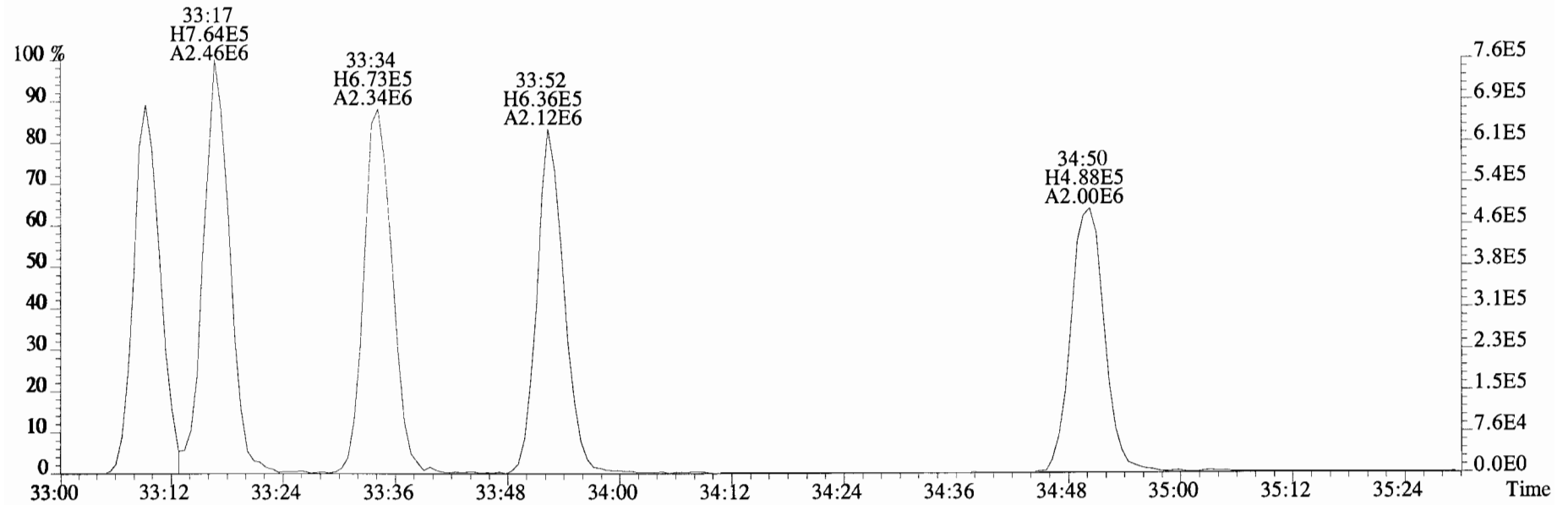
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



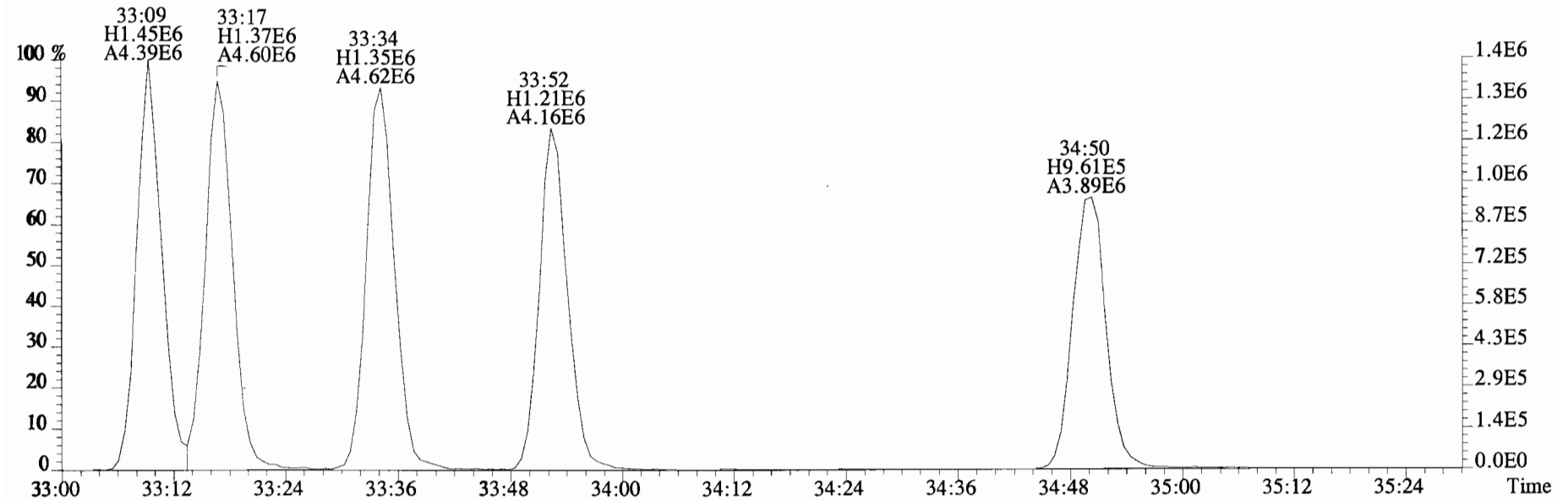
445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

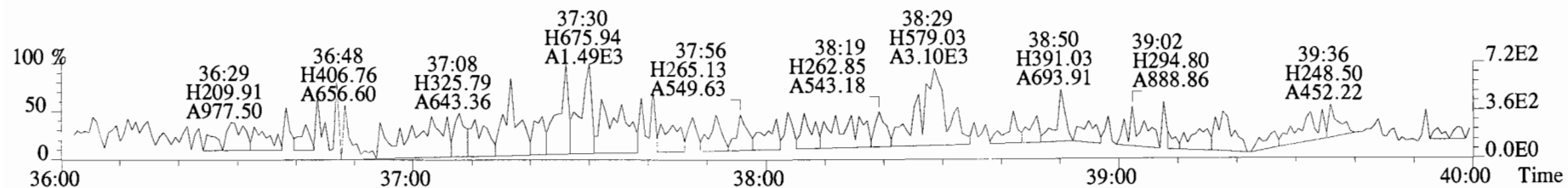


385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

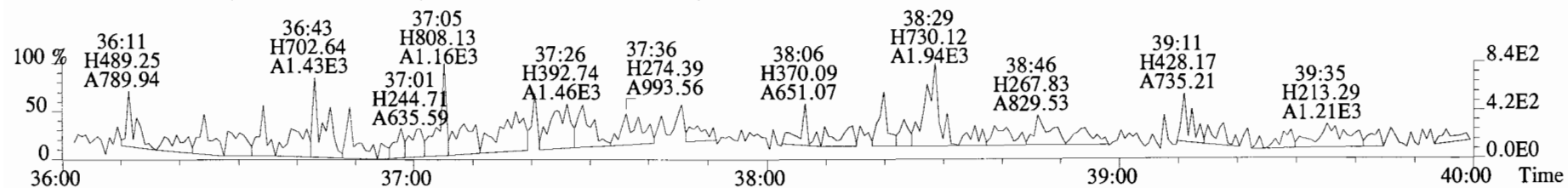




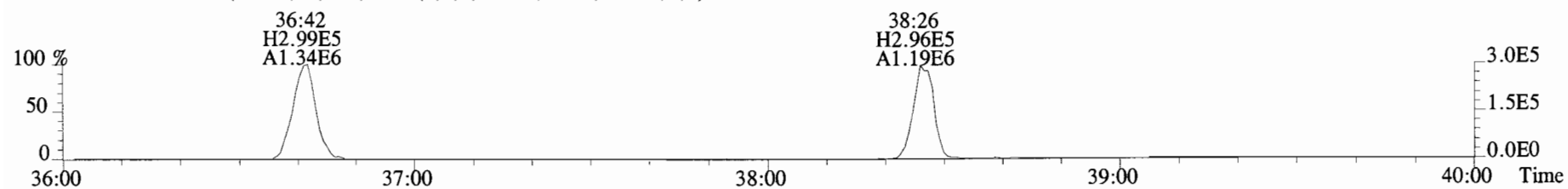
File:191101D1 #1-355 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 407.7818 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



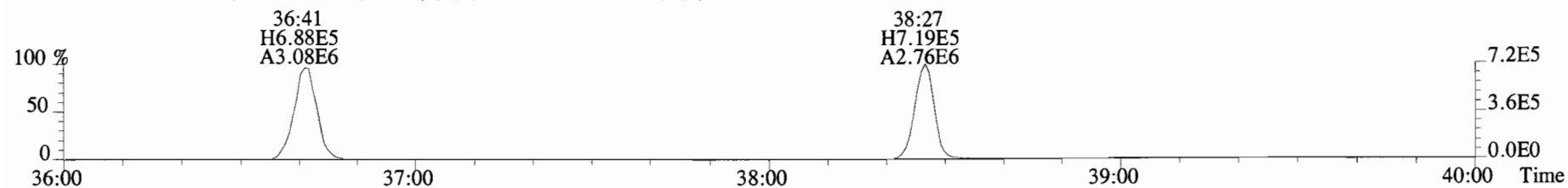
409.7788 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



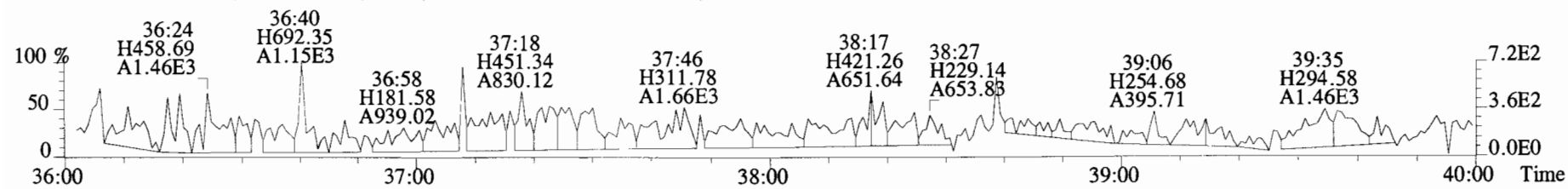
417.8253 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



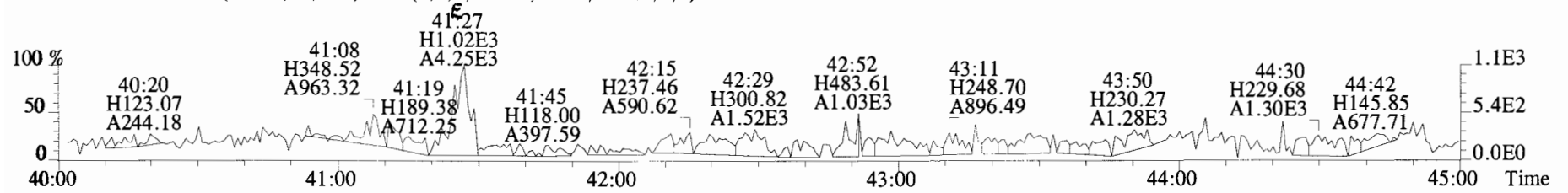
419.8220 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



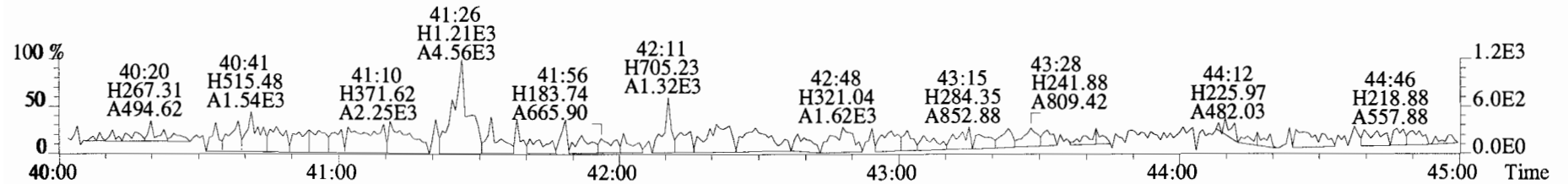
479.7165 S:5 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



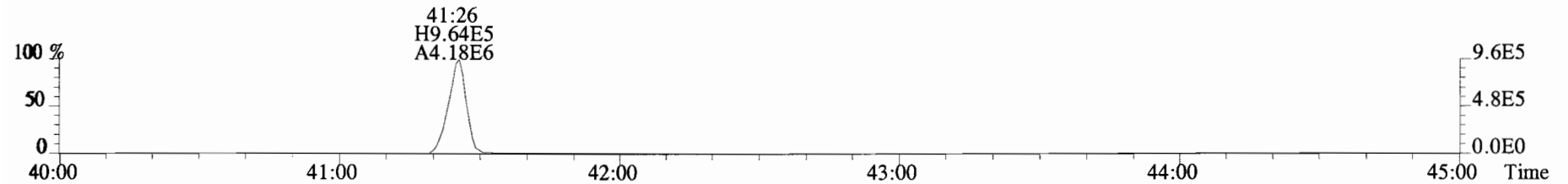
File:191101D1 #1-432 Acq: 1-NOV-2019 17:10:44 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



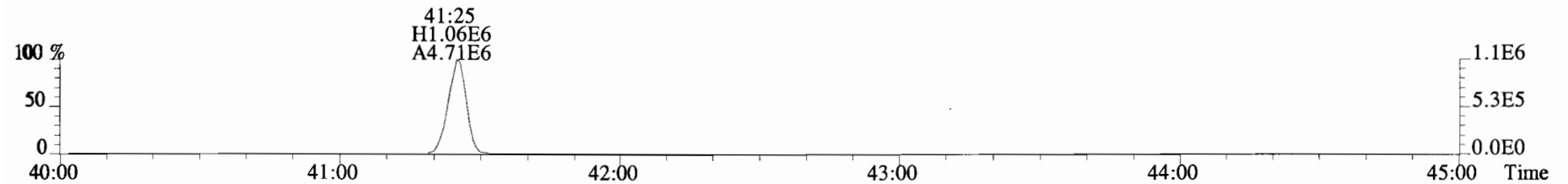
443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



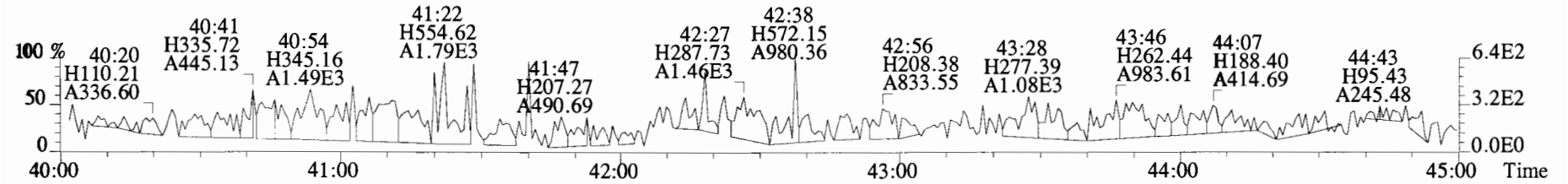
453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



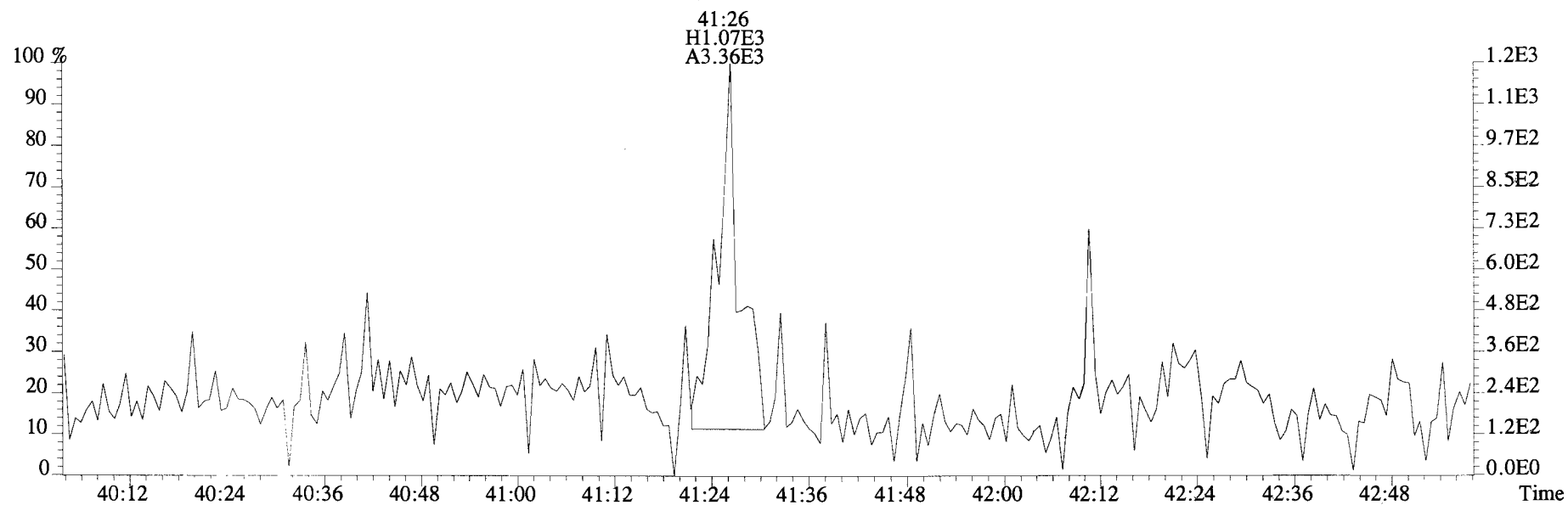
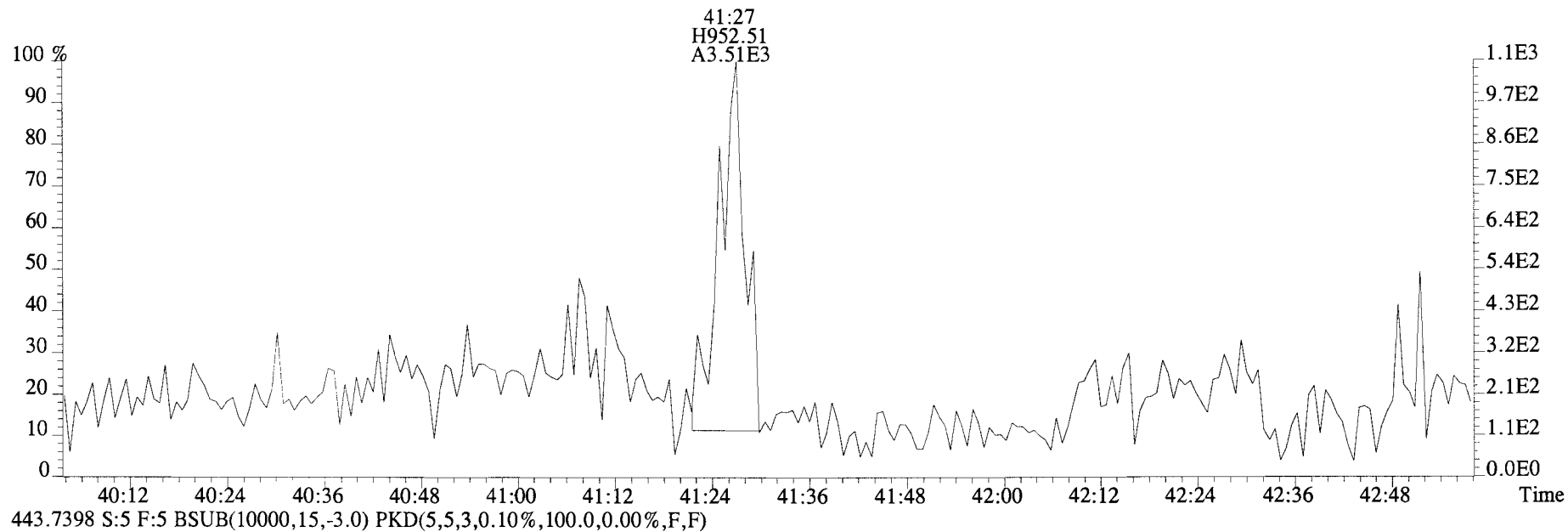
455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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 (AF)

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

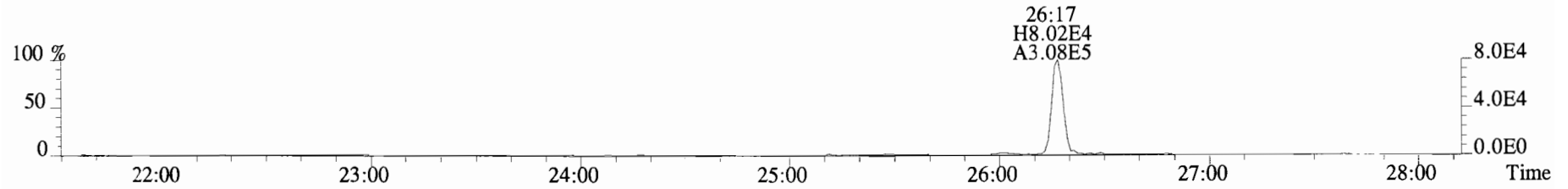
Analyst: DB

Date: 11/6/19

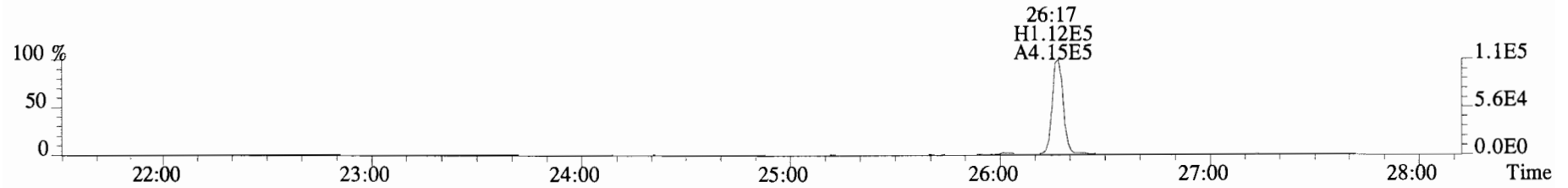
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	IS	Name	Conc	EMPC	Qual	noise	IS
2,3,7,8-TCDD	7.24e+05	0.74 y	0.91	26:17	11.596		* 2.5	*		Total Tetra-Dioxins	11.6	13.1	*	*	
1,2,3,7,8-PeCDD	2.75e+06	0.62 y	0.90	30:46	55.848		* 2.5	*		Total Penta-Dioxins	56.0	56.1	*	*	
1,2,3,4,7,8-HxCDD	2.60e+06	1.27 y	1.10	34:04	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

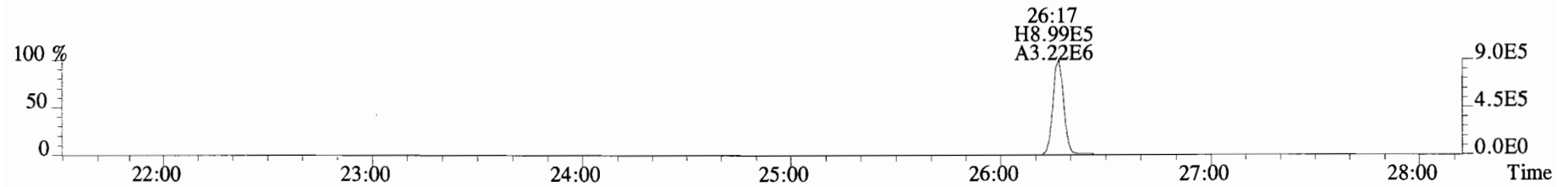
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Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



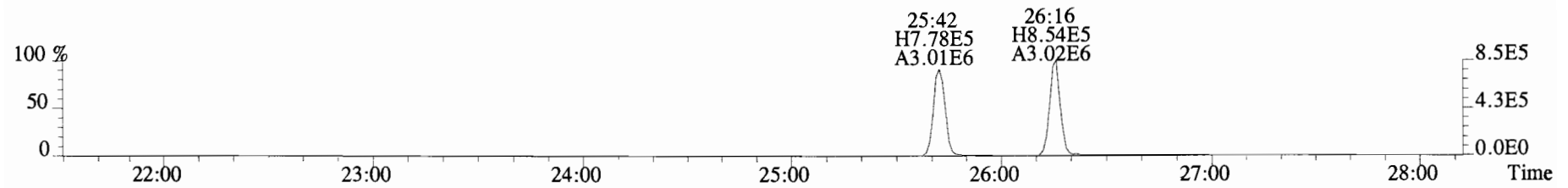
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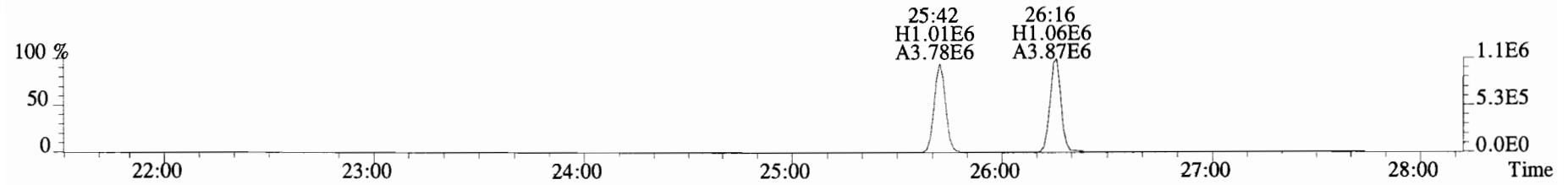
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



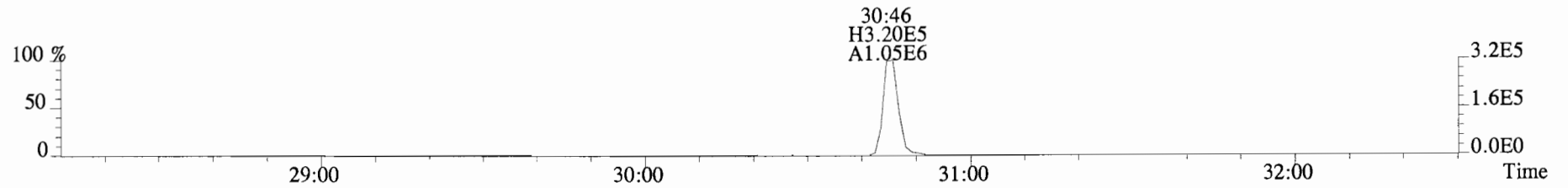
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



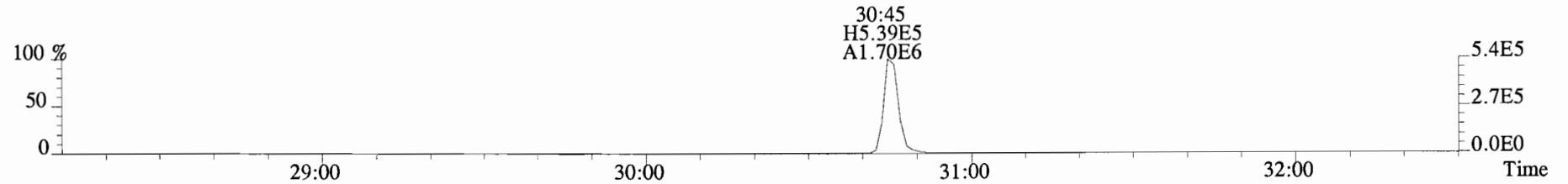
333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



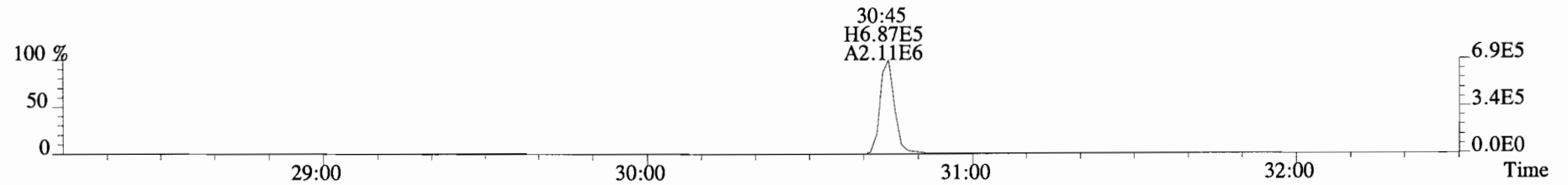
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Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



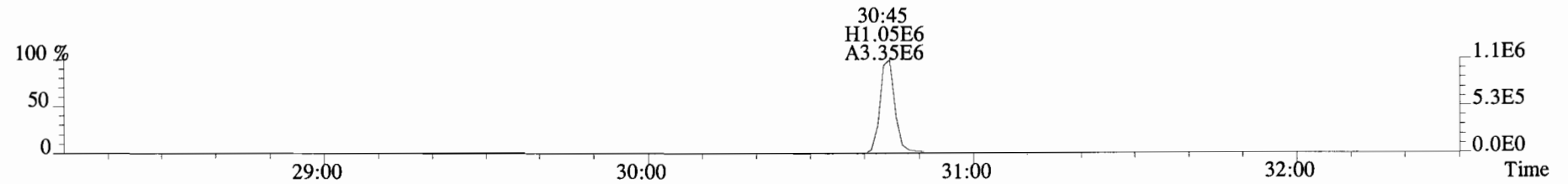
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



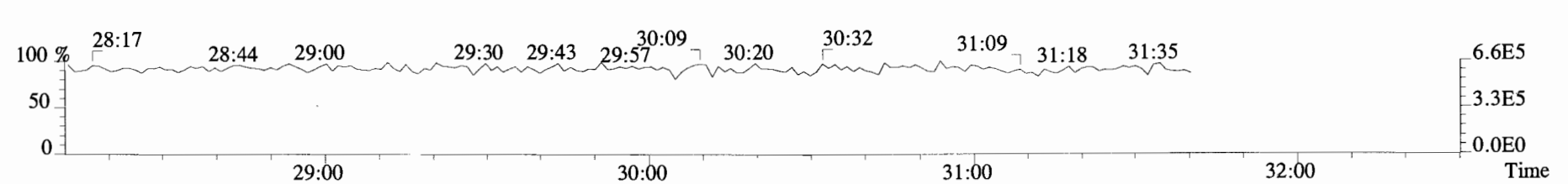
365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

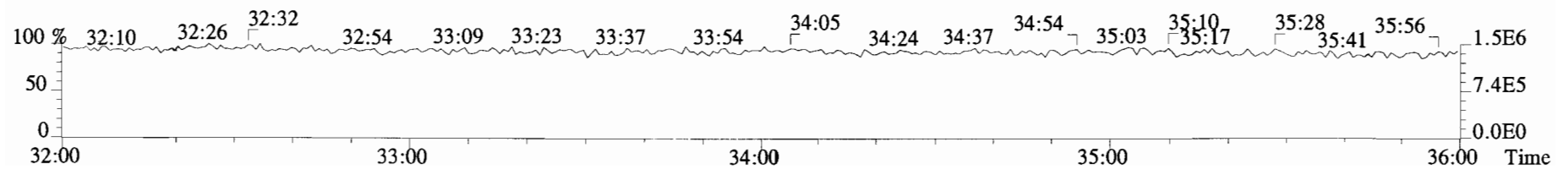
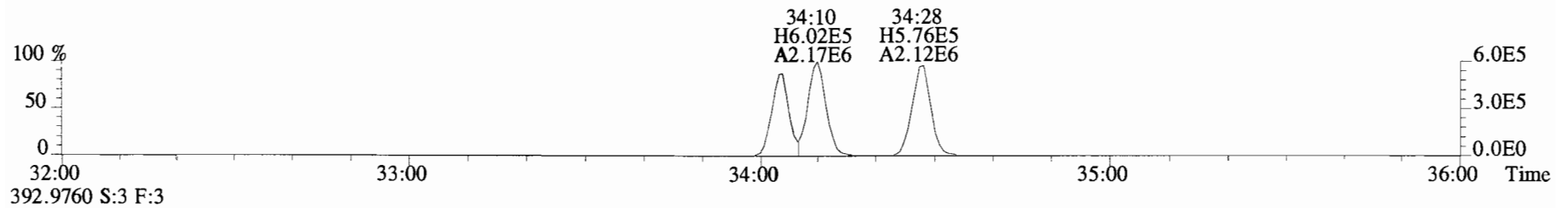
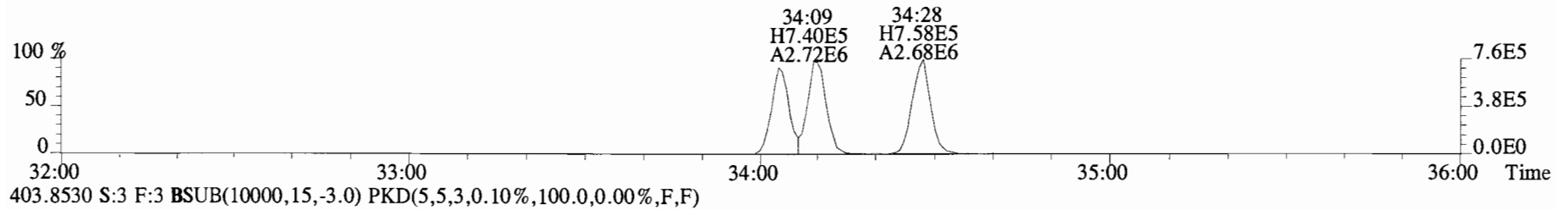
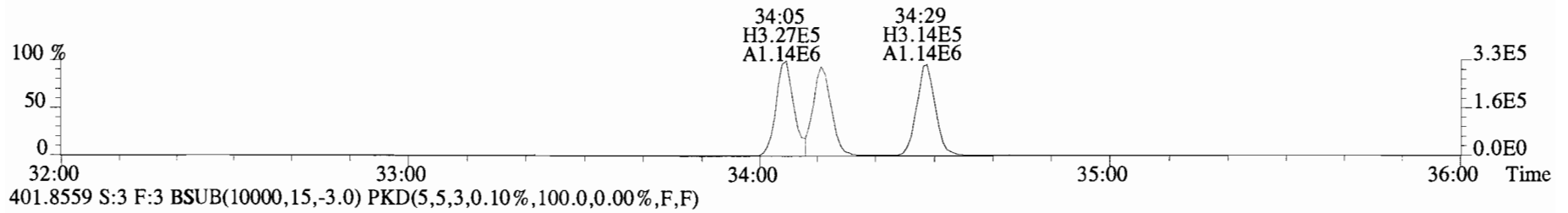
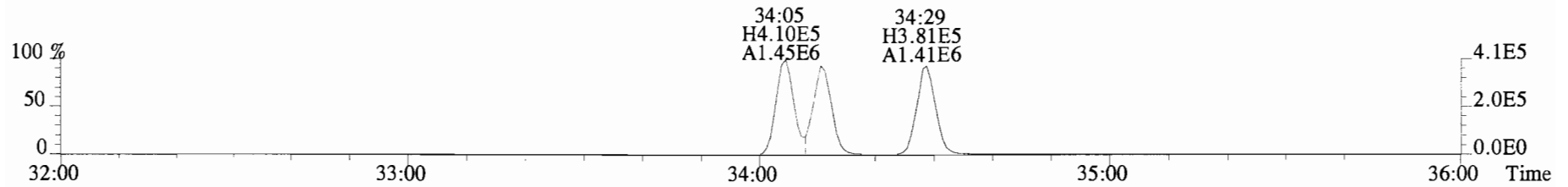


366.9792 S:3 F:2

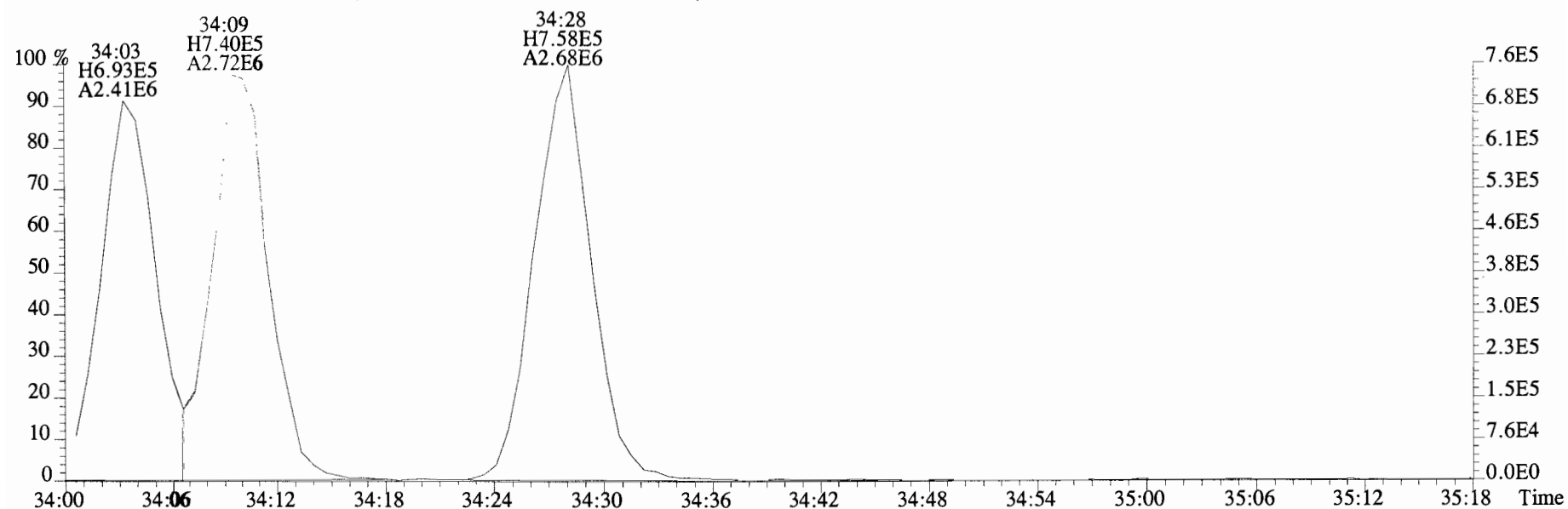




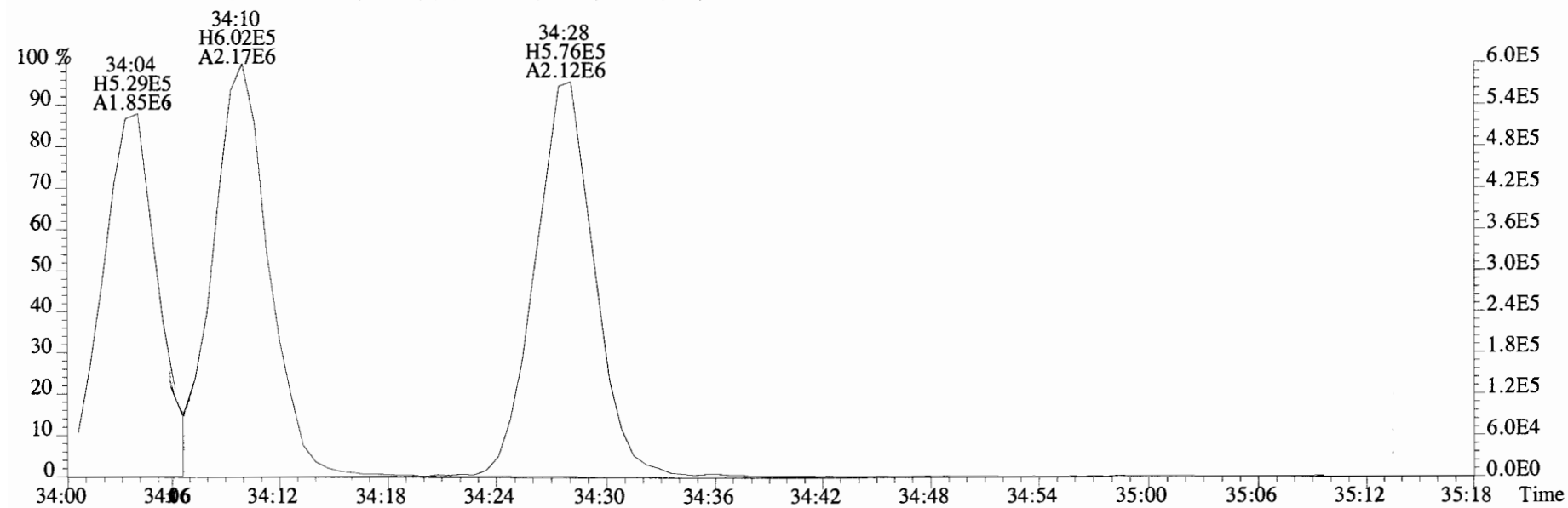
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Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



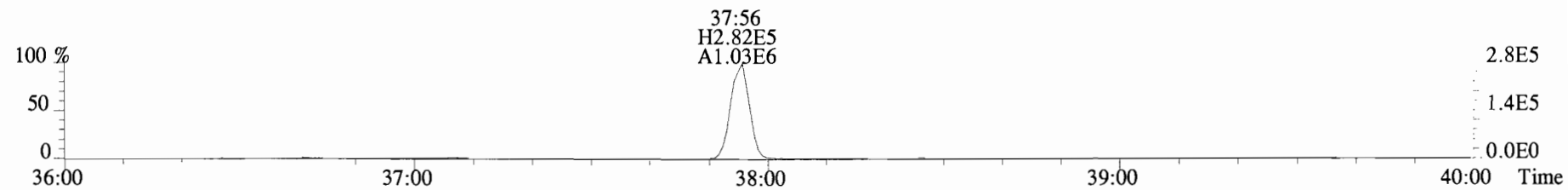
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Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



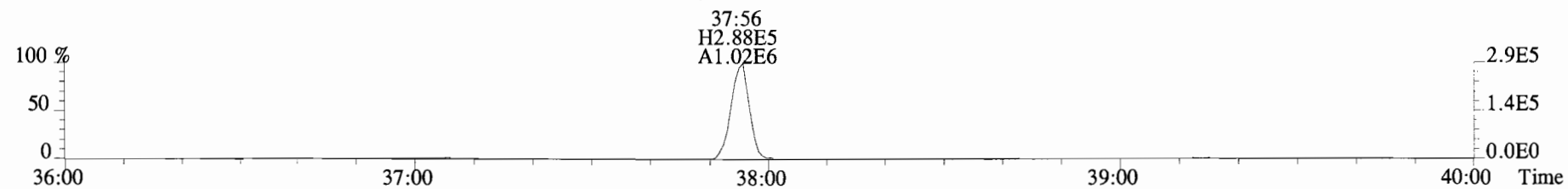
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



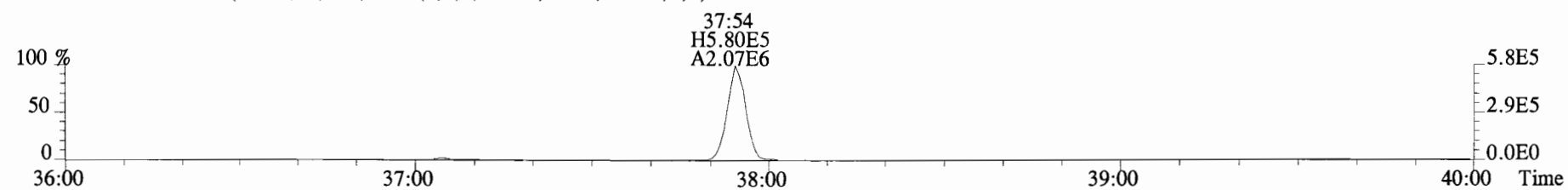
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Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



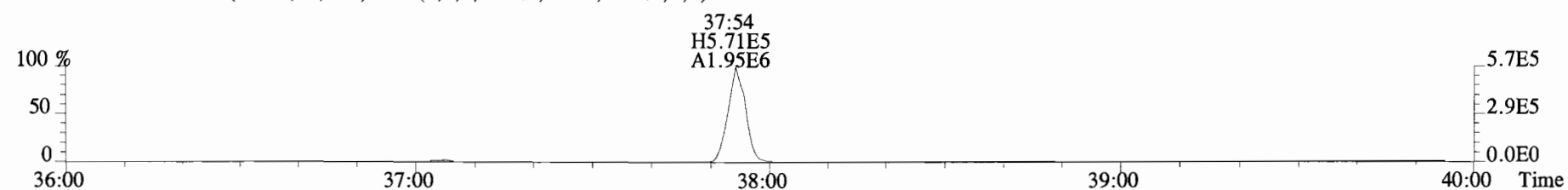
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



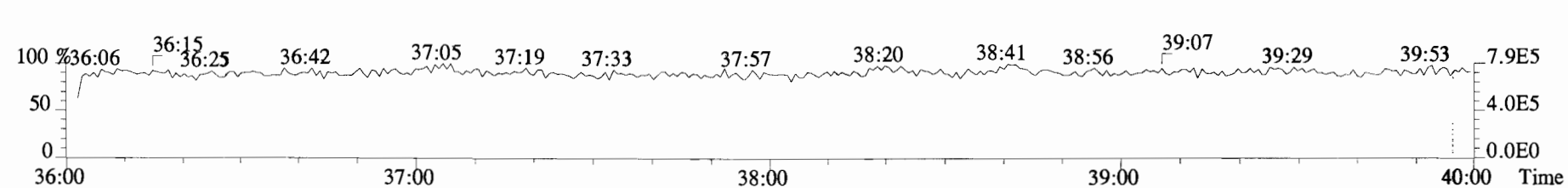
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



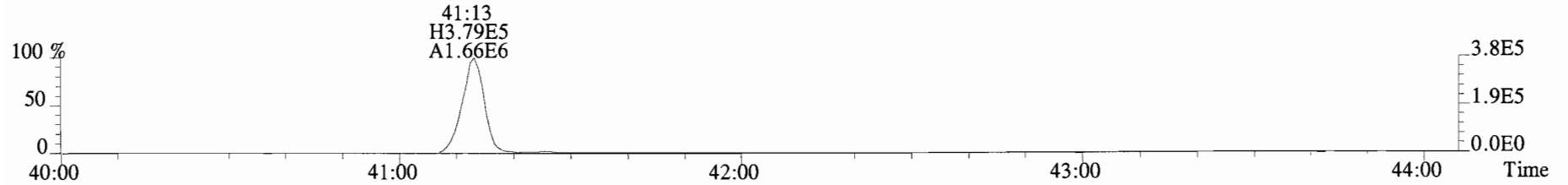
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



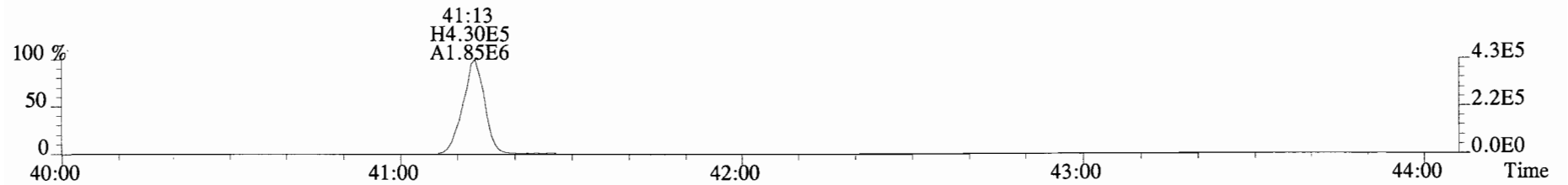
454.9728 S:3 F:4



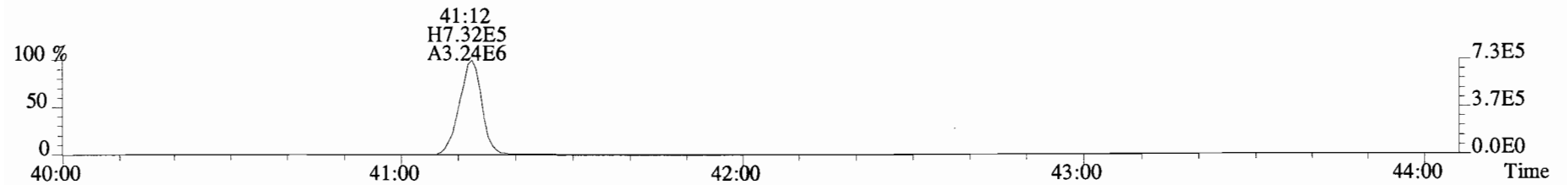
File:191101D1 #1-432 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



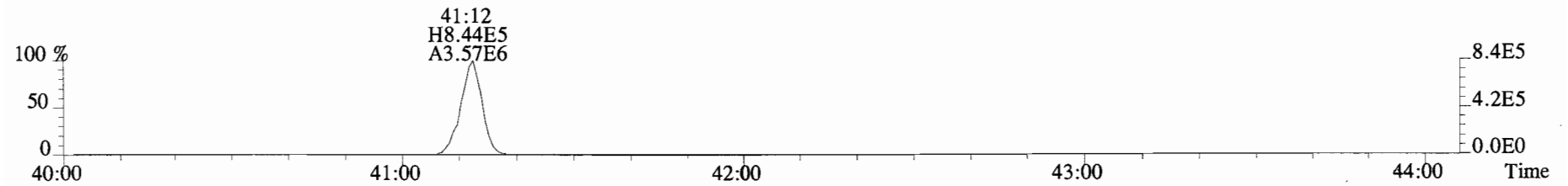
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



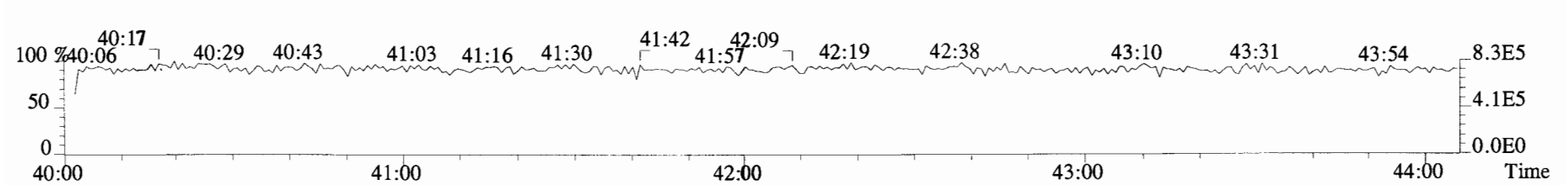
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



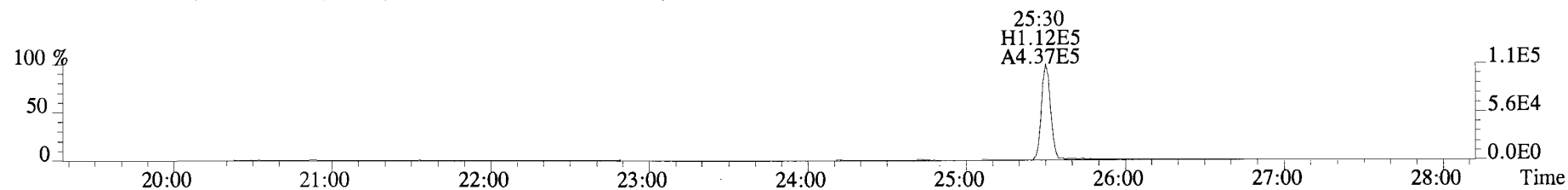
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



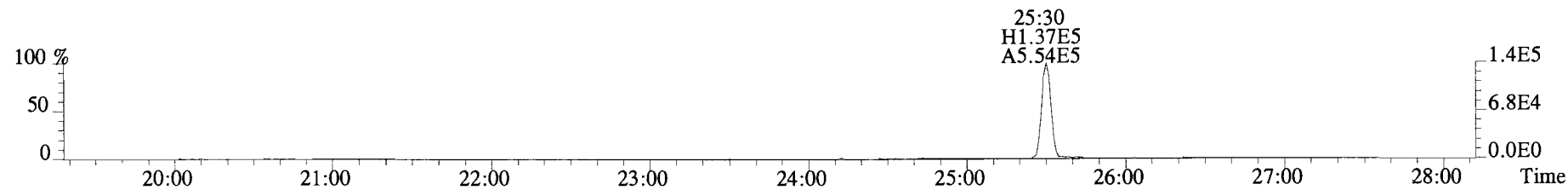
454.9728 S:3 F:5



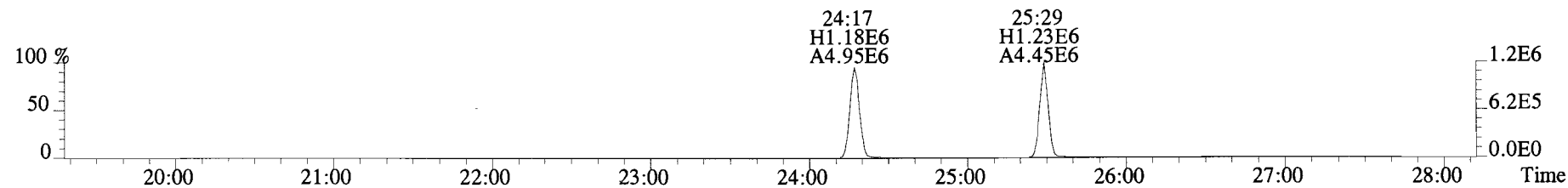
File:191101D1 #1-493 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



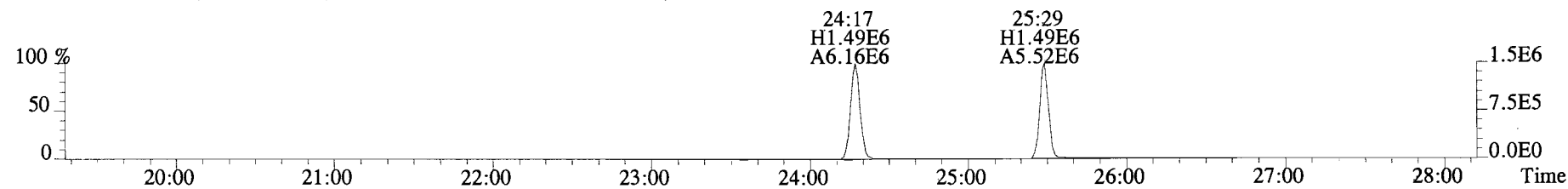
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



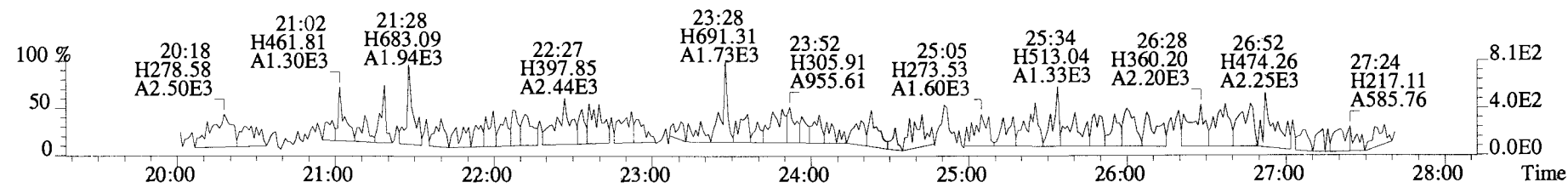
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



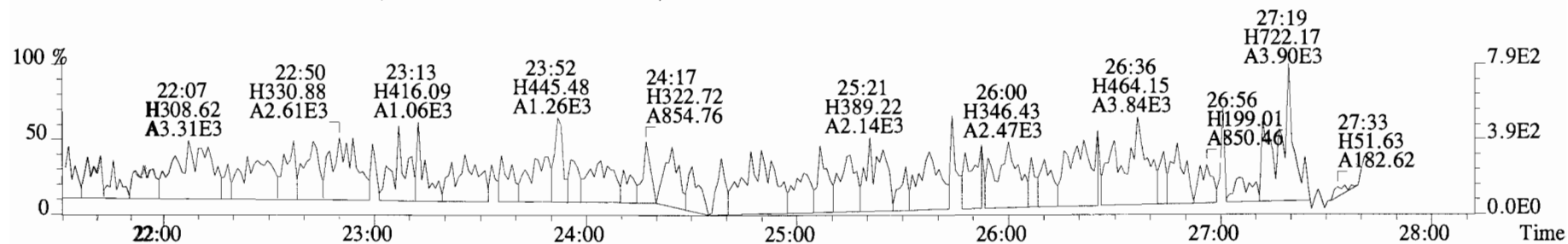
317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



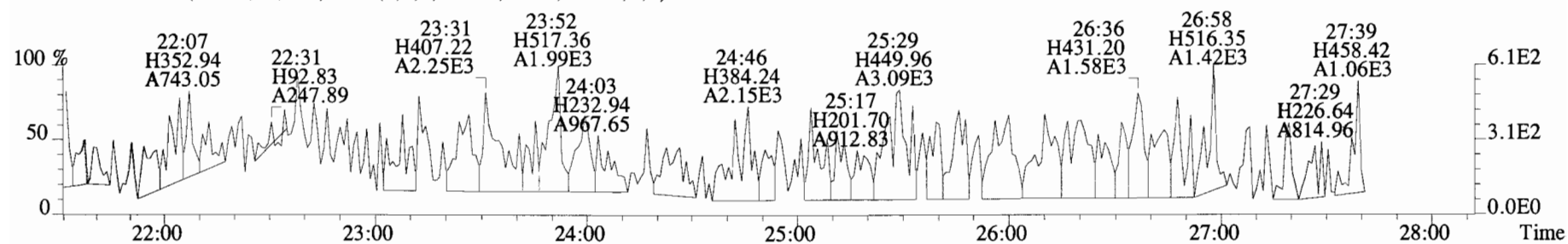
375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



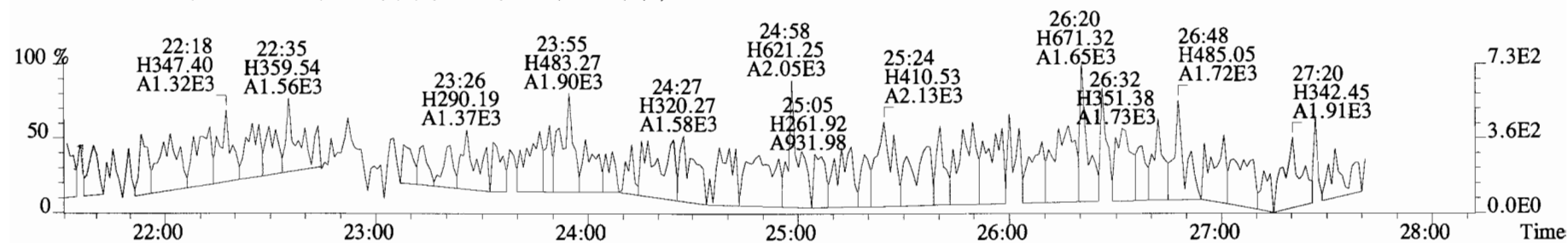
File:191101D1 #1-493 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
 339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



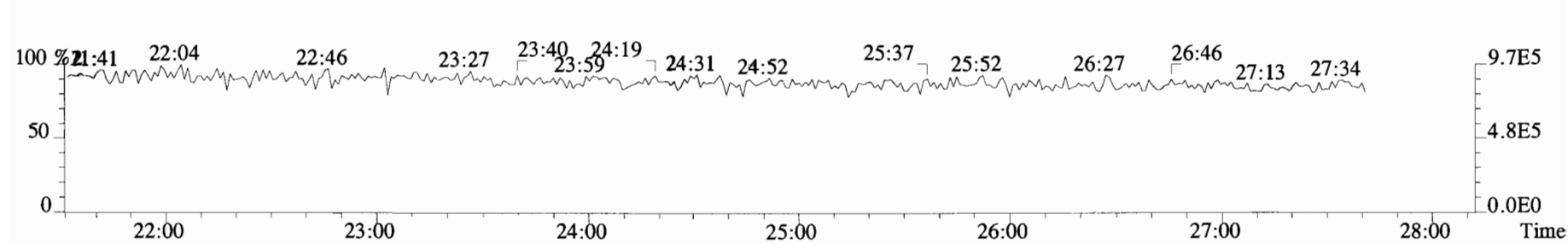
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



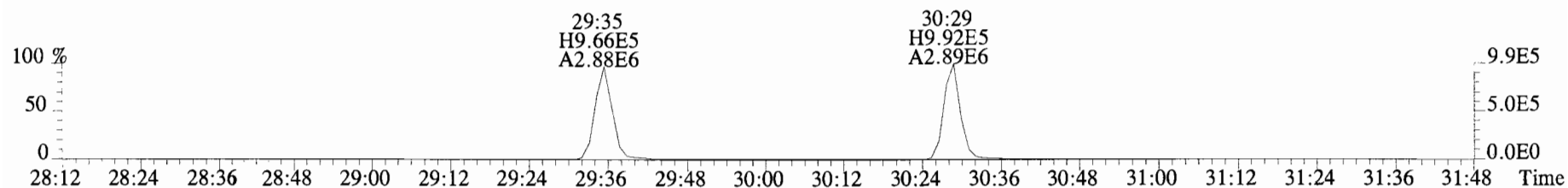
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



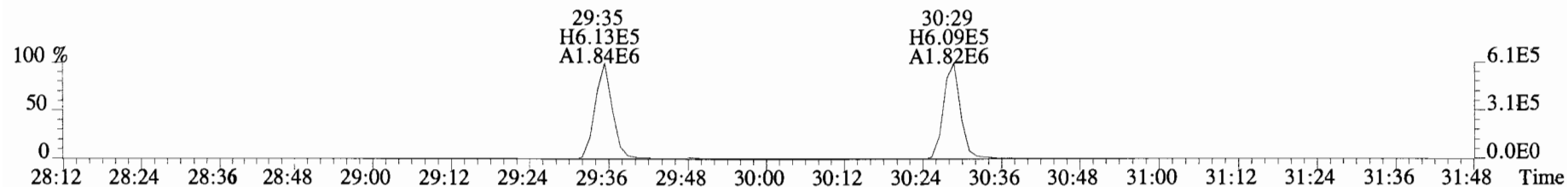
316.9824 S:3



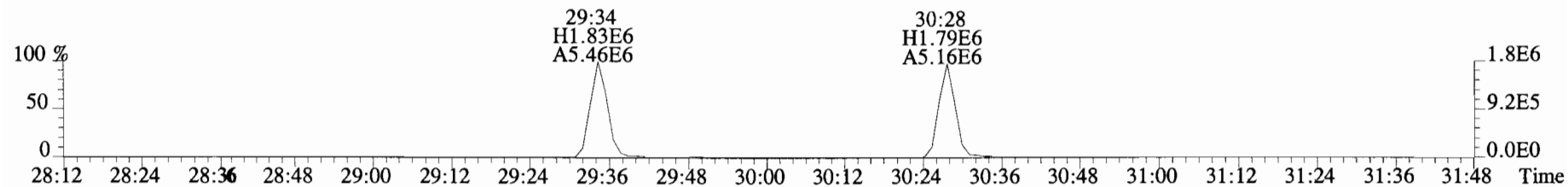
File:191101D1 #1-210 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



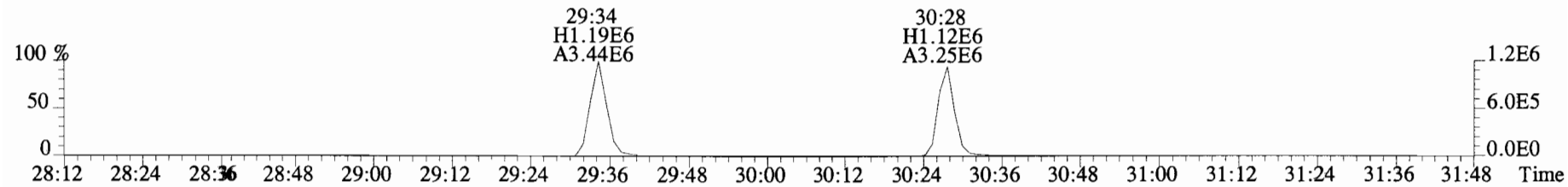
341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



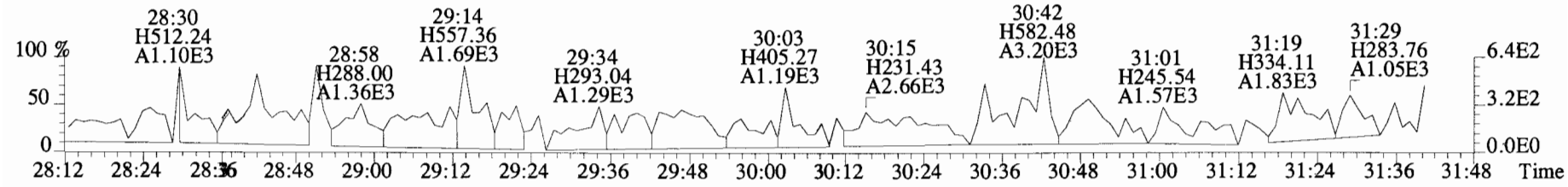
351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



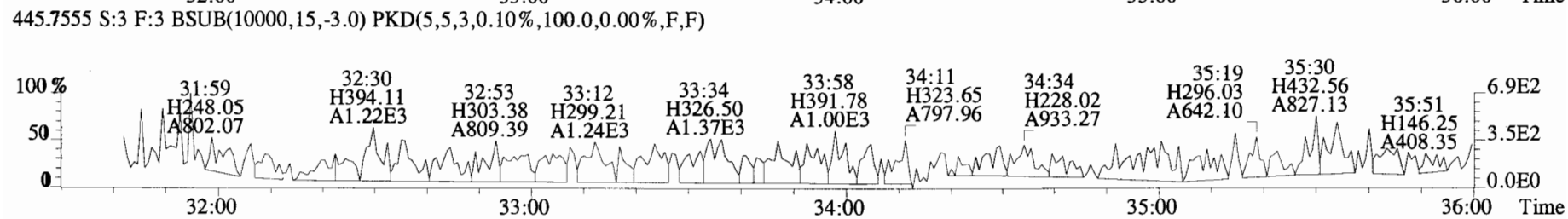
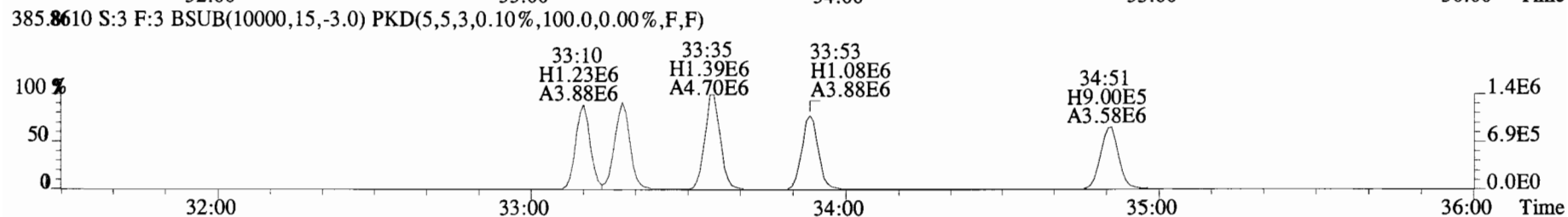
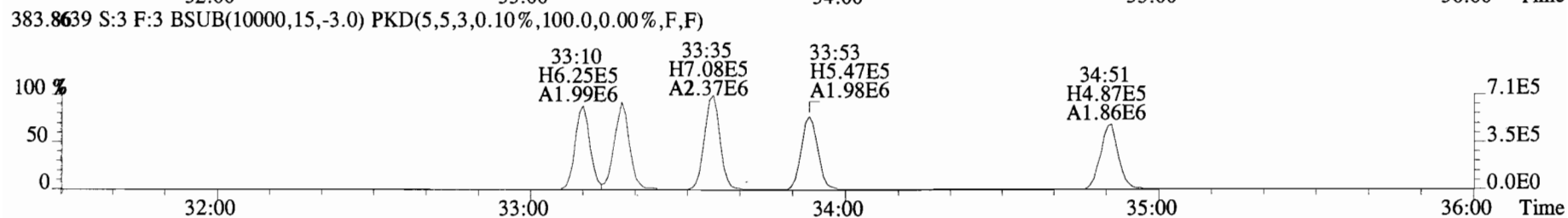
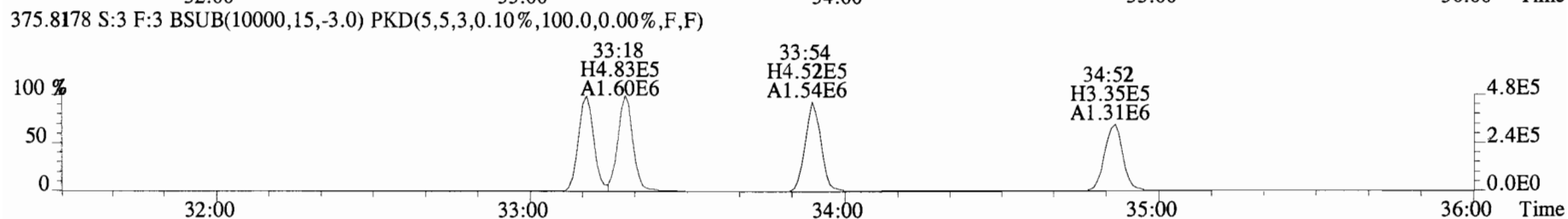
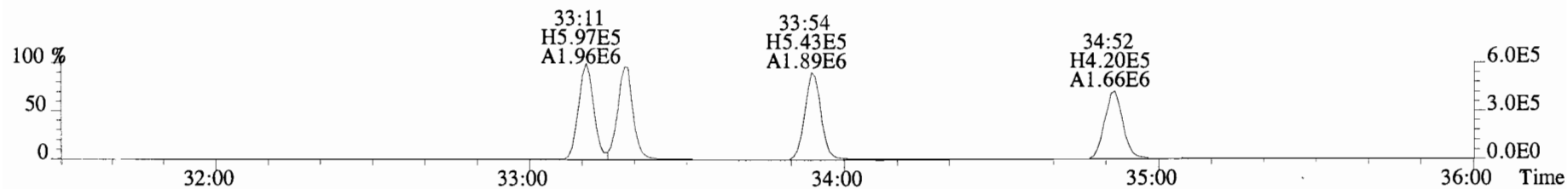
353.8970 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

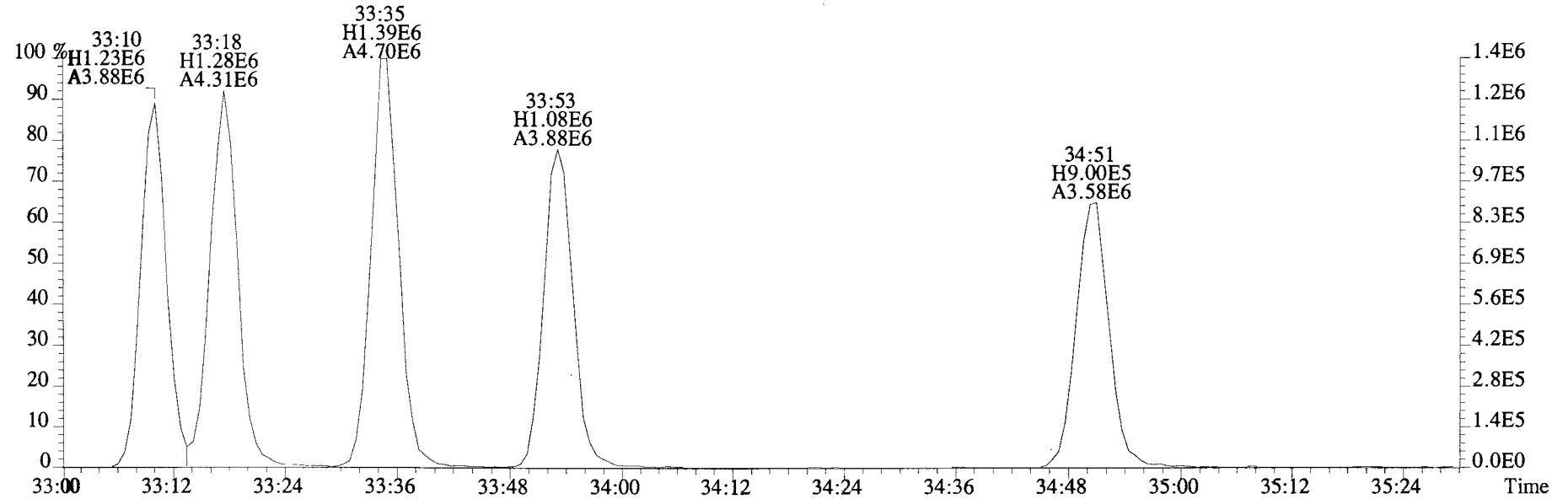
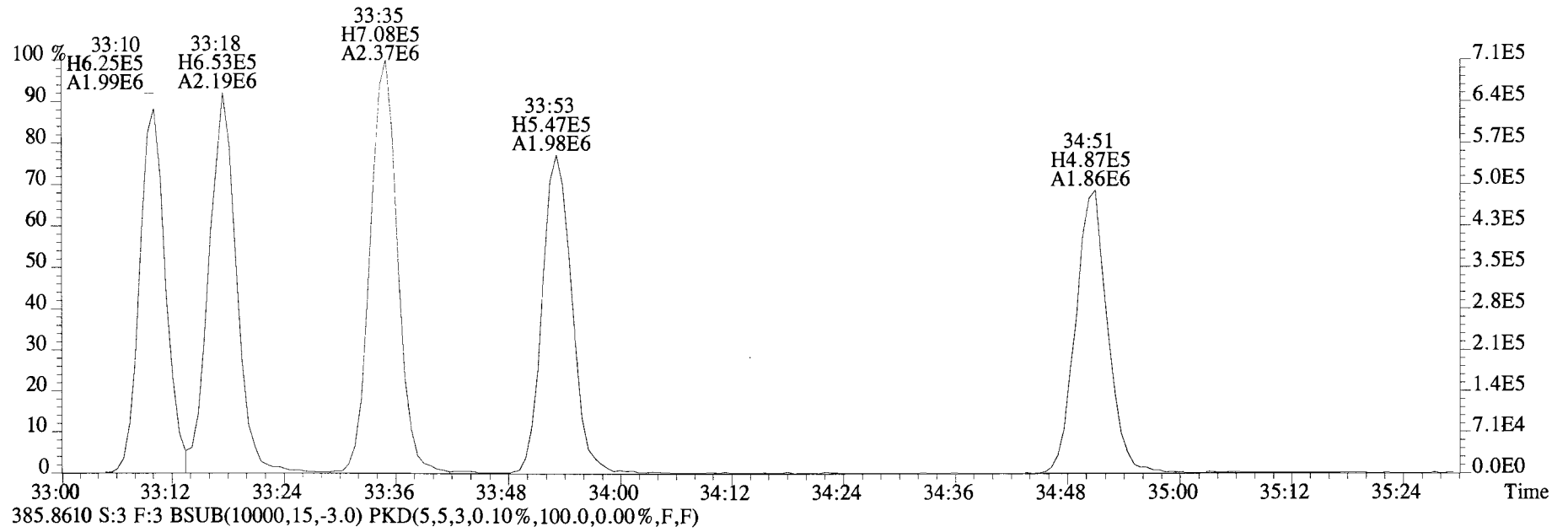


File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
 373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

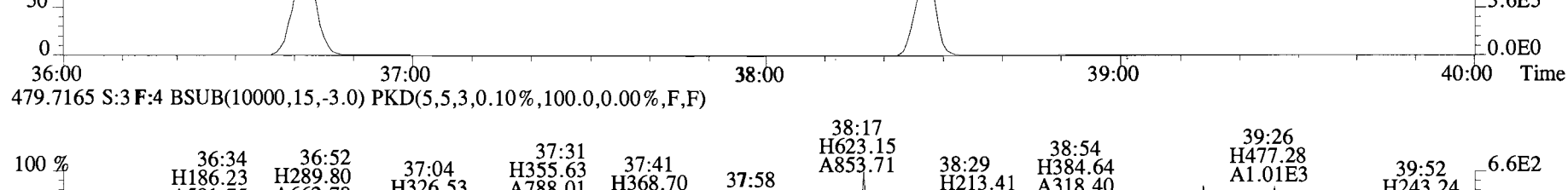
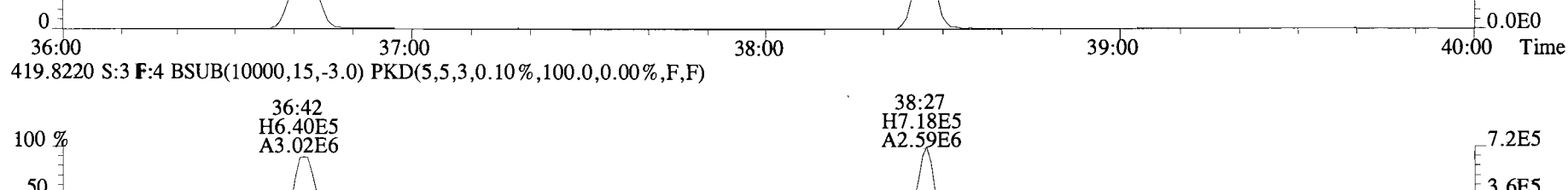
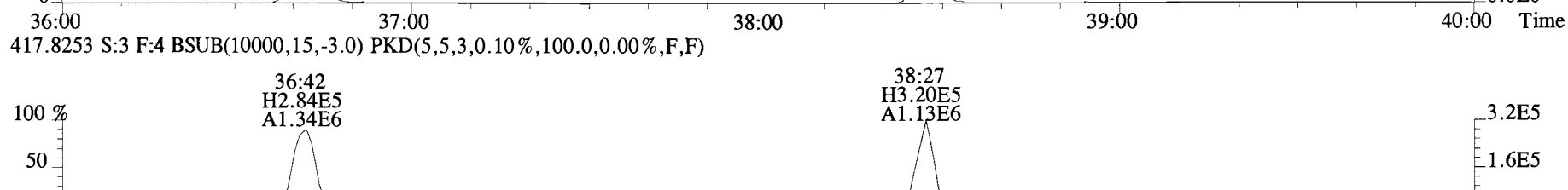
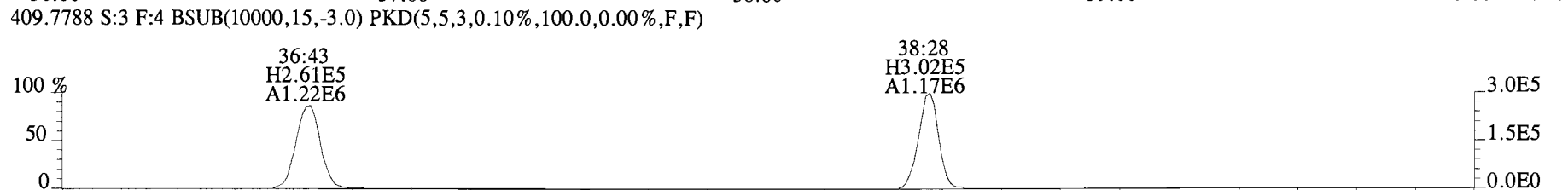
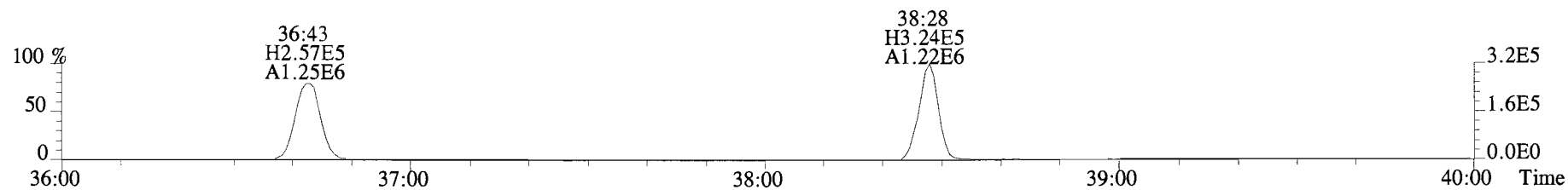




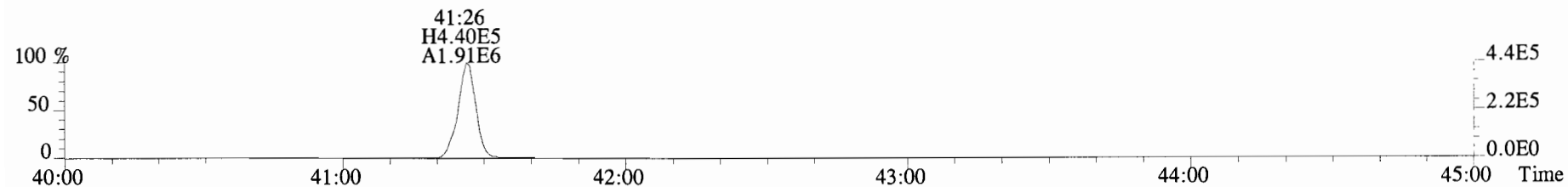
File:191101D1 #1-385 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



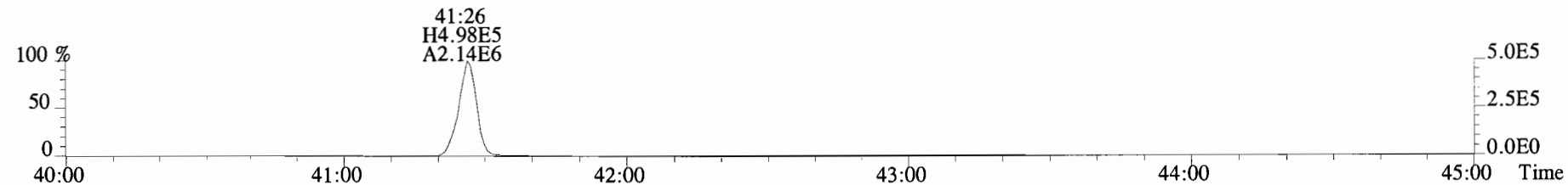
File:191101D1 #1-355 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Viata Analytical Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
 407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



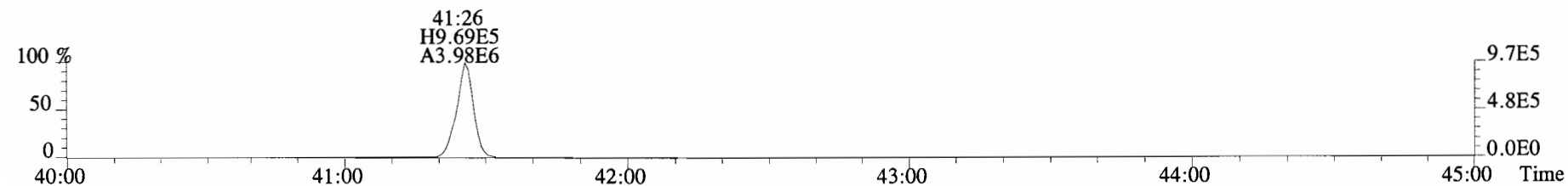
File:191101D1 #1-432 Acq: 1-NOV-2019 15:34:58 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9J0312-BS1 OPR 10 Exp:OCDD\_DB5  
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



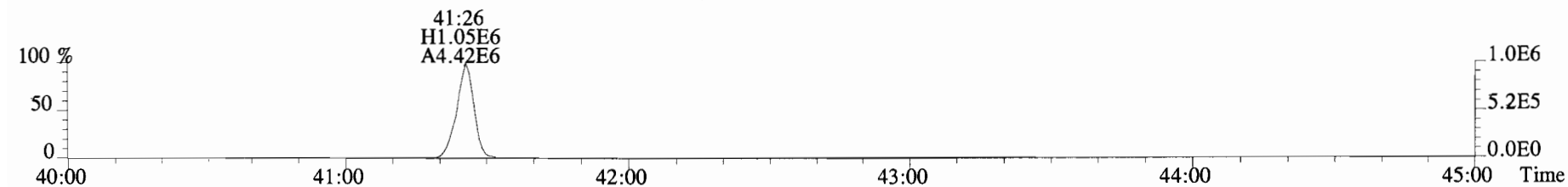
443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



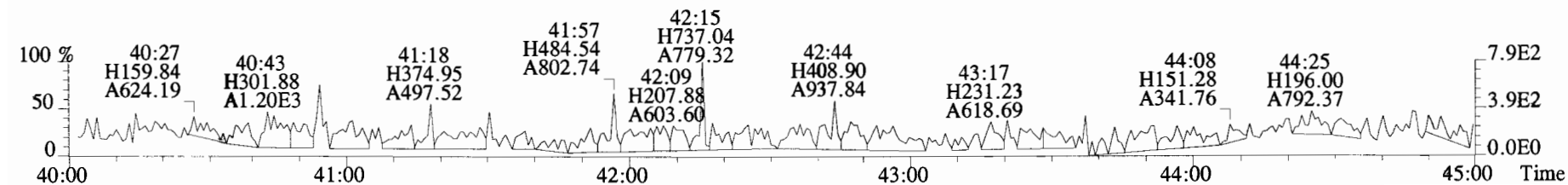
453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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: B9K0068-BLK1

Filename: 191120D1 S:7 Acq:20-NOV-19 18:47:28  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol:10.000

ConCal: ST191120D1-1  
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 $\eta$	*		212	2.5	0.0881	Total Tetra-Dioxins	*	*		212	0.0881
1,2,3,7,8-PeCDD	*	* n	0.90	Not F $\eta$	*		190	2.5	0.0715	Total Penta-Dioxins	*	*		190	0.0715
1,2,3,4,7,8-HxCDD	*	* n	1.10	Not F $\eta$	*		159	2.5	0.112	Total Hexa-Dioxins	*	*		159	0.119
1,2,3,6,7,8-HxCDD	*	* n	0.94	Not F $\eta$	*		159	2.5	0.117	Total Hepta-Dioxins	*	*		157	0.130
1,2,3,7,8,9-HxCDD	*	* n	0.96	Not F $\eta$	*		159	2.5	0.125	Total Tetra-Furans	*	*		233	0.0699
1,2,3,4,6,7,8-HpCDD	*	* n	0.98	Not F $\eta$	*		157	2.5	0.130	Total Penta-Furans	0.0000	0.0000		214	0.0783
OCDD	*	* n	0.96	Not F $\eta$	*		141	2.5	0.164	Total Hexa-Furans	*	*		150	0.0523
										Total Hepta-Furans	*	*		128	0.0676
2,3,7,8-TCDF	*	* n	0.95	Not F $\eta$	*		233	2.5	0.0699						
1,2,3,7,8-PeCDF	*	* n	0.96	Not F $\eta$	*		214	2.5	0.0789						
2,3,4,7,8-PeCDF	*	* n	1.01	Not F $\eta$	*		214	2.5	0.0778						
1,2,3,4,7,8-HxCDF	*	* n	1.18	Not F $\eta$	*		150	2.5	0.0440						
1,2,3,6,7,8-HxCDF	*	* n	1.07	Not F $\eta$	*		150	2.5	0.0458						
2,3,4,6,7,8-HxCDF	*	* n	1.11	Not F $\eta$	*		150	2.5	0.0514						
1,2,3,7,8,9-HxCDF	*	* n	1.06	Not F $\eta$	*		150	2.5	0.0714						
1,2,3,4,6,7,8-HpCDF	*	* n	1.13	Not F $\eta$	*		128	2.5	0.0687						
1,2,3,4,7,8,9-HpCDF	*	* n	1.28	Not F $\eta$	*		128	2.5	0.0660						
OCDF	1.71e+04	0.80 y	0.95	41:22	0.66237		*	2.5	*						

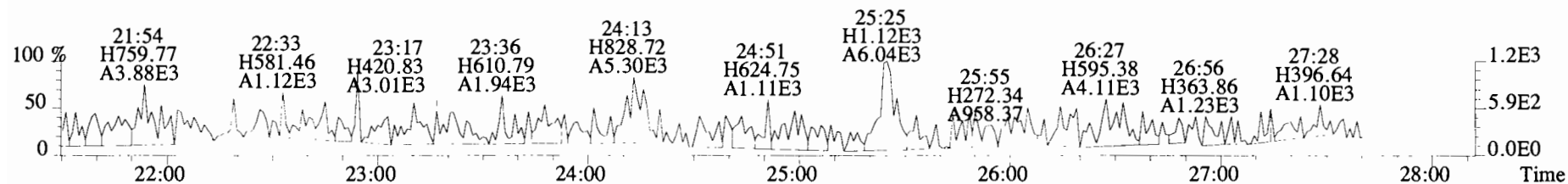
IS	Conc	Qual
13C-2,3,7,8-TCDD	8.76e+06	105
13C-1,2,3,7,8-PeCDD	7.00e+06	104
13C-1,2,3,4,7,8-HxCDD	5.37e+06	103
13C-1,2,3,6,7,8-HxCDD	6.16e+06	89.0
13C-1,2,3,7,8,9-HxCDD	5.97e+06	91.6
13C-1,2,3,4,6,7,8-HpCDD	5.08e+06	96.0
13C-OCDD	8.56e+06	91.3
13C-2,3,7,8-TCDF	1.24e+07	99.8
13C-1,2,3,7,8-PeCDF	1.08e+07	104
13C-2,3,4,7,8-PeCDF	1.02e+07	100
13C-1,2,3,4,7,8-HxCDF	7.26e+06	108
13C-1,2,3,6,7,8-HxCDF	7.94e+06	94.8
13C-2,3,4,6,7,8-HxCDF	7.30e+06	94.7
13C-1,2,3,7,8,9-HxCDF	6.38e+06	95.3
13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	92.4
13C-1,2,3,4,7,8,9-HpCDF	4.74e+06	101
13C-OCDF	1.09e+07	97.9

C/Up	Conc	Qual
37C1-2,3,7,8-TCDD	3.84e+06	105

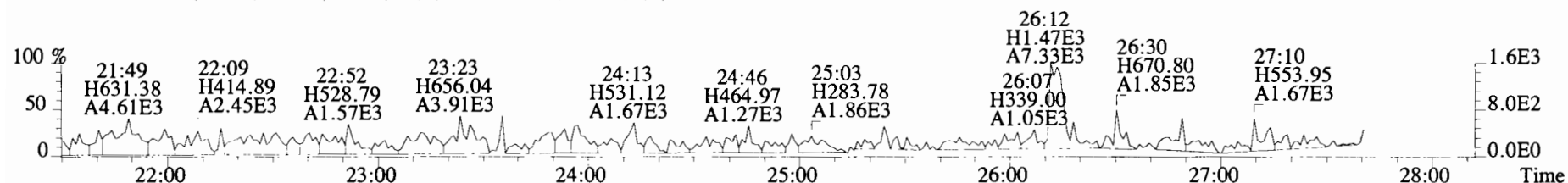
RS/RT	Conc	Qual
13C-1,2,3,4-TCDD	7.60e+06	200.00
13C-1,2,3,4-TCDF	1.20e+07	200.00
13C-1,2,3,4,6,9-HxCDF	8.09e+06	200.00

Integrations Reviewed  
by DB by CT  
Analyst: DB Analyst: CT  
Date: 11/26/19 Date: 12/02/19

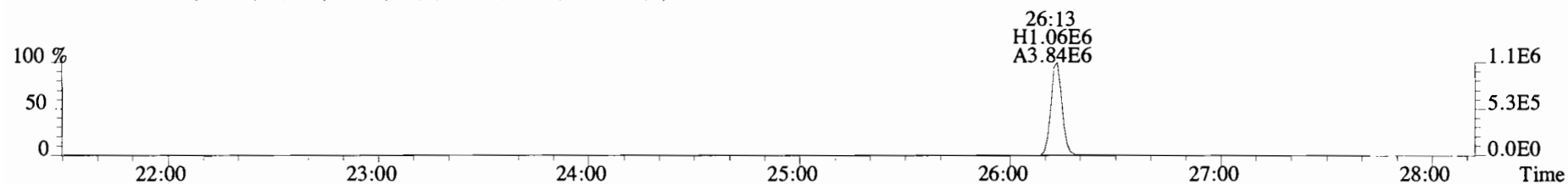
File:191120D1 #1-492 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



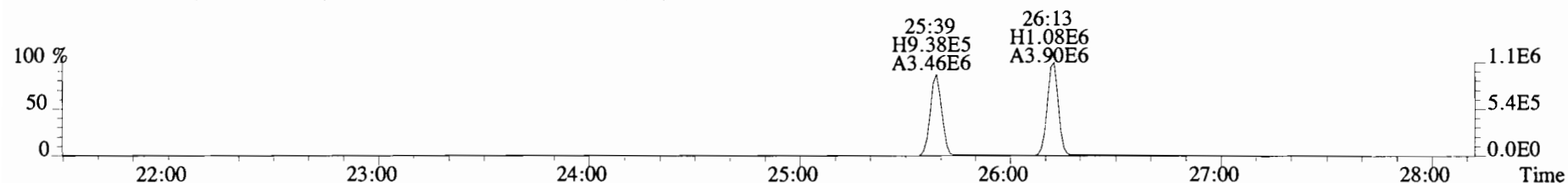
321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



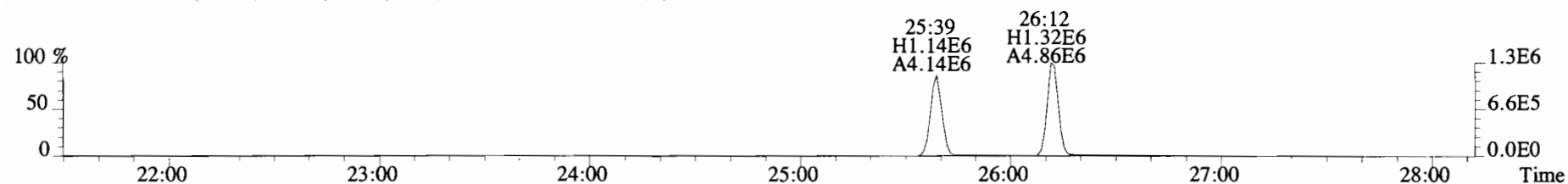
327.8847 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



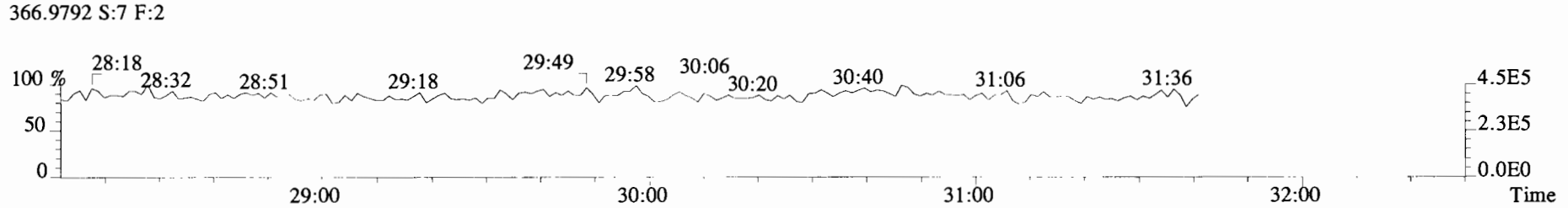
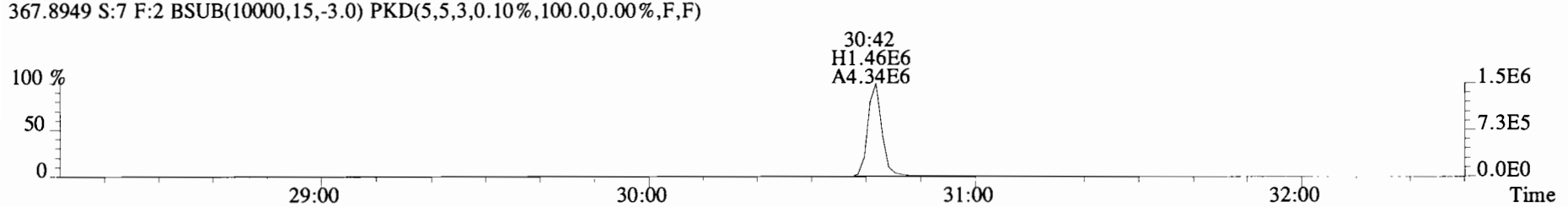
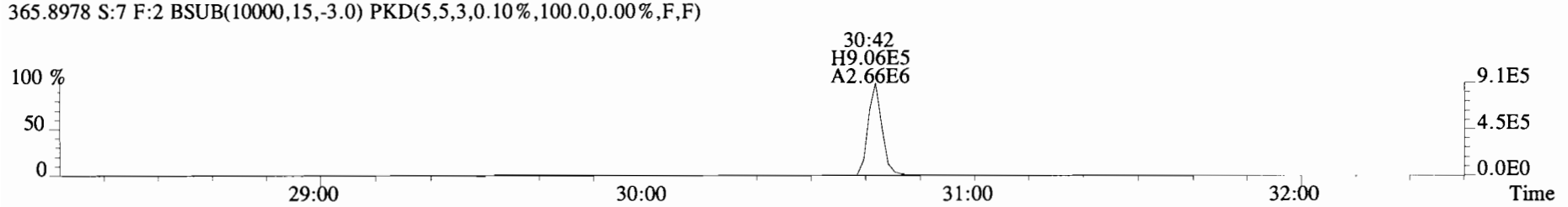
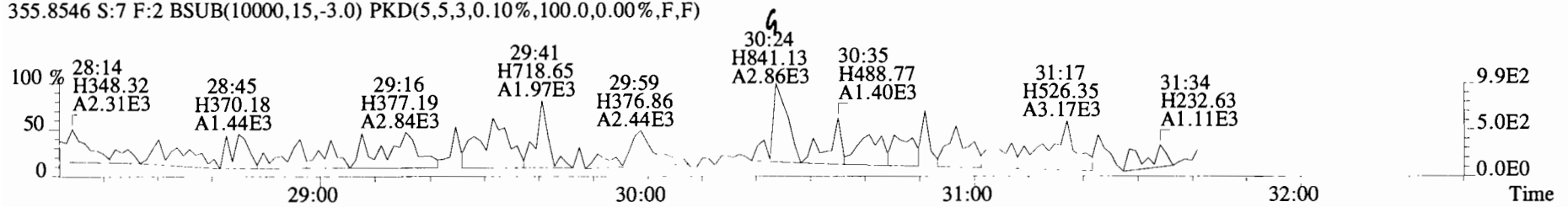
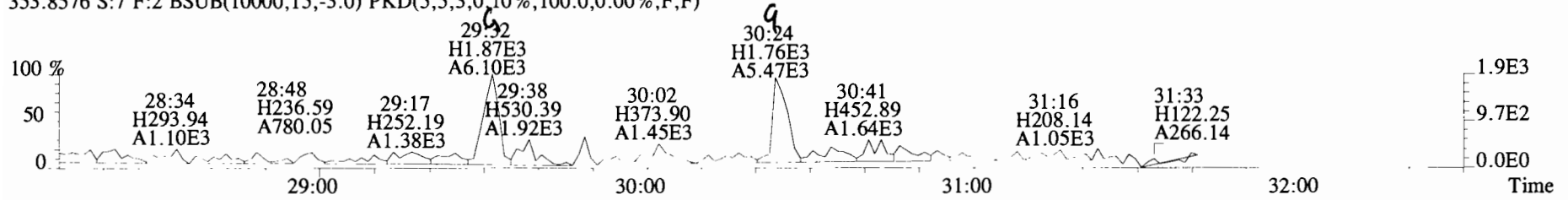
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



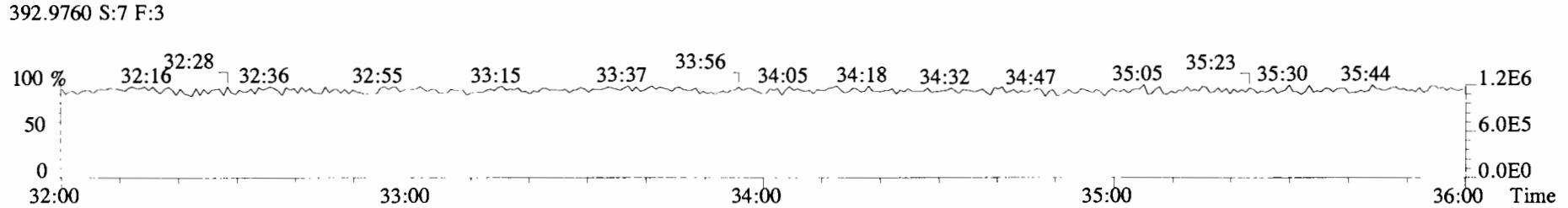
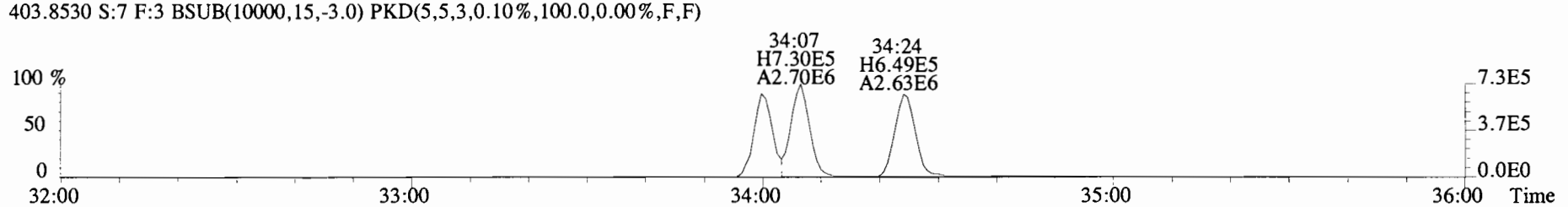
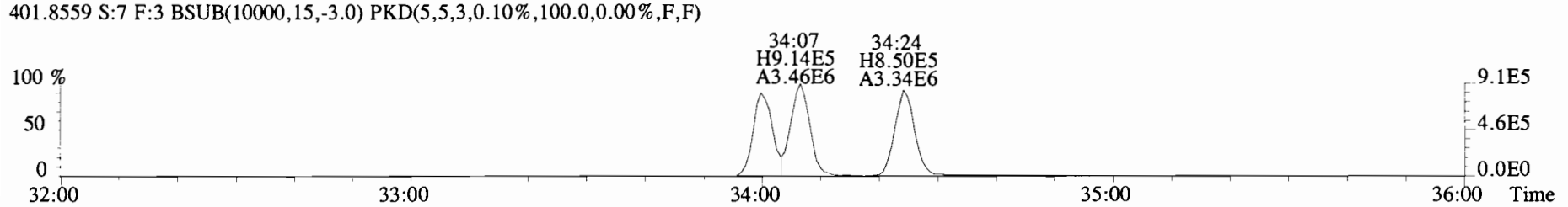
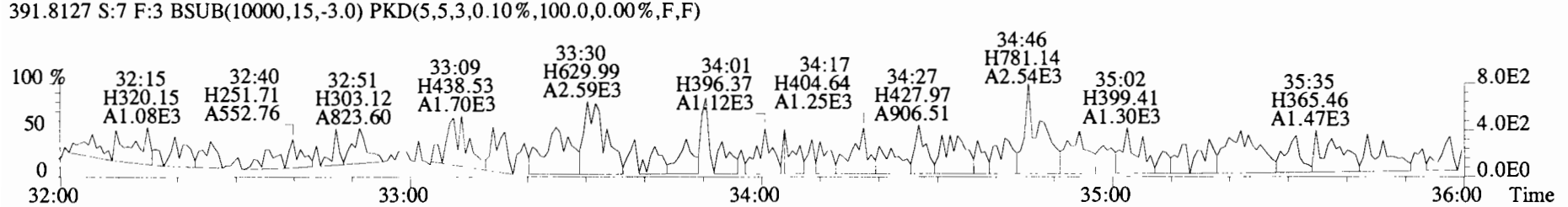
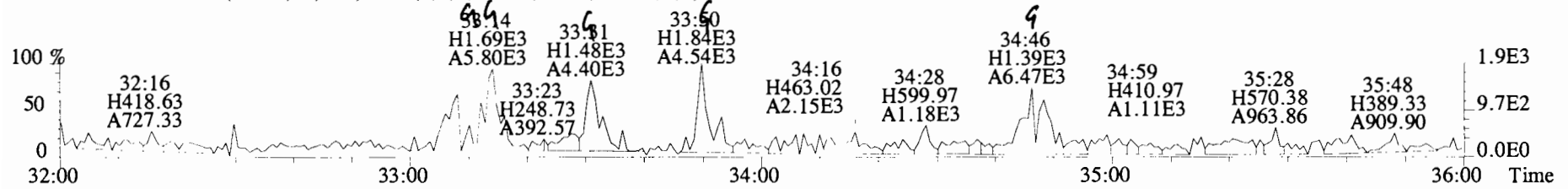
333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



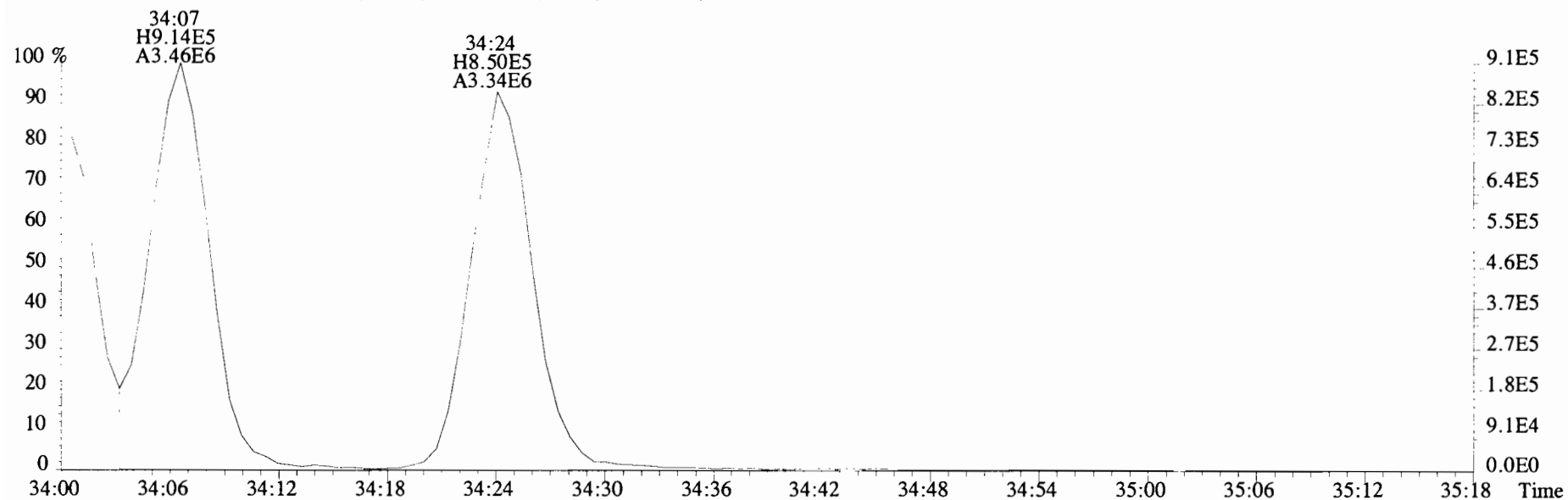
File:191120D1 #1-211 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#7 File Text:Viata Analytical Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F)



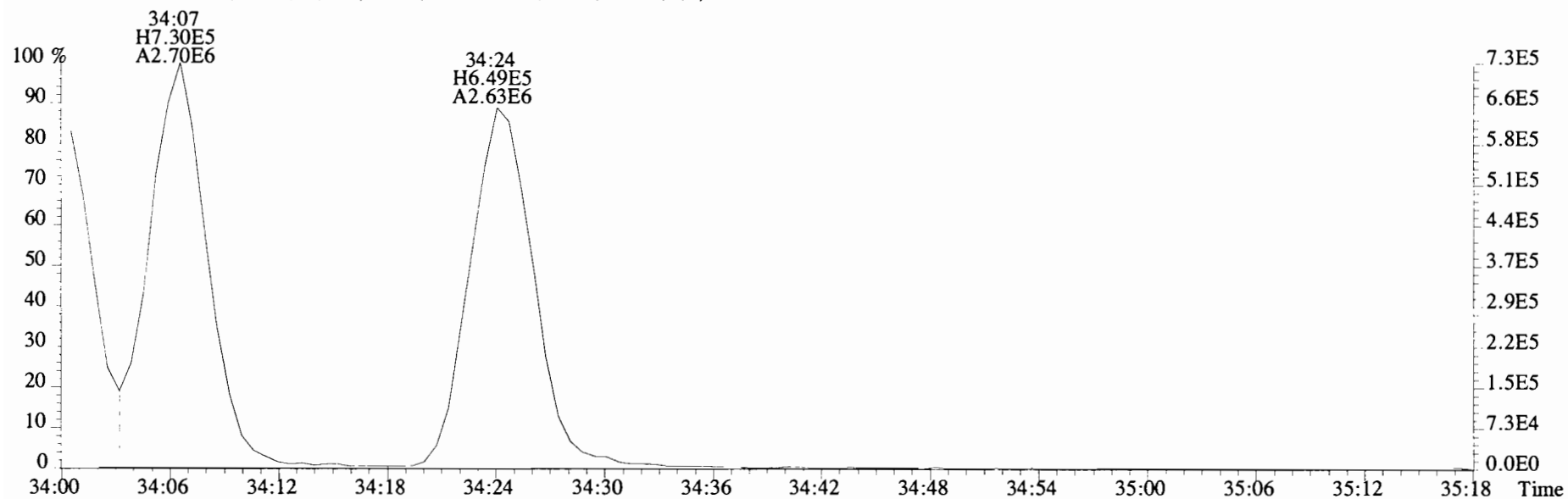
File:191120D1 #1-384 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D1 #1-384 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

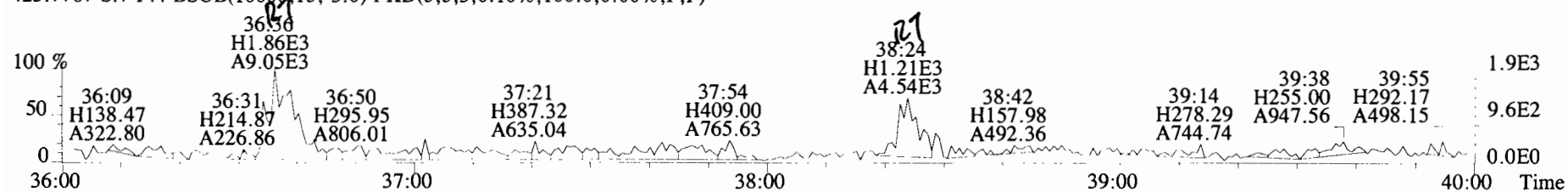


403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

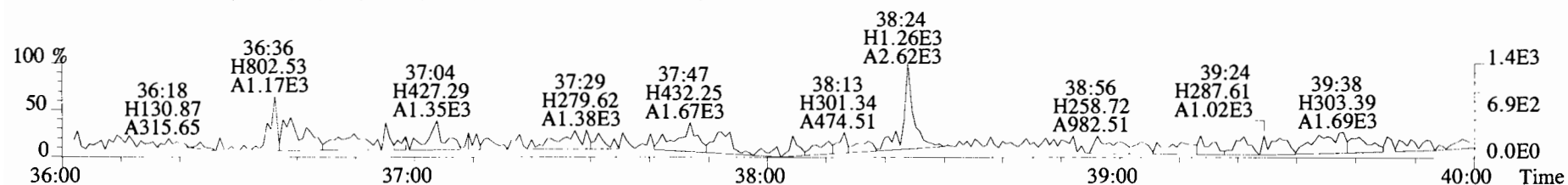




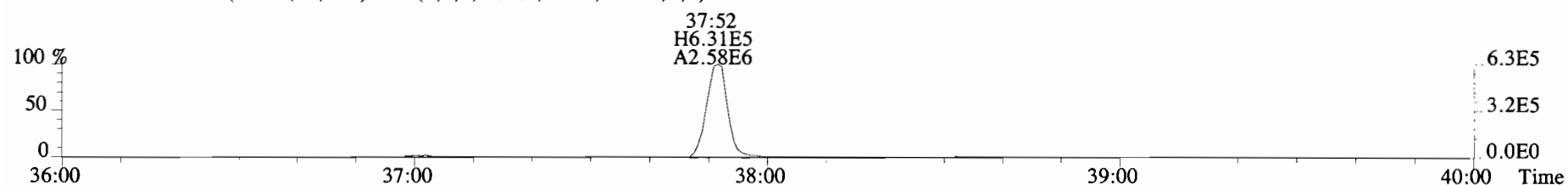
File:191120D1 #1-355 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



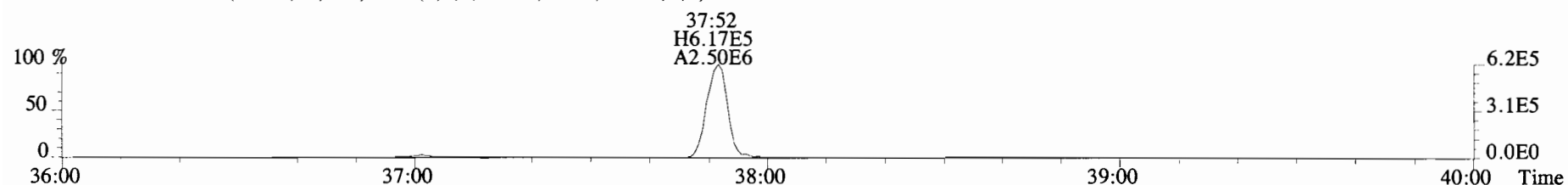
425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



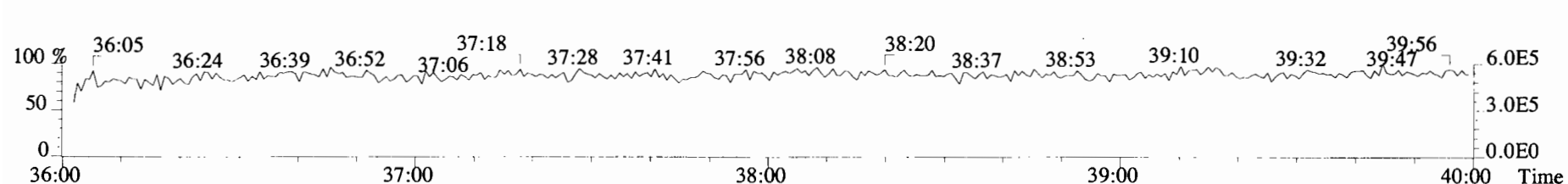
435.8169 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



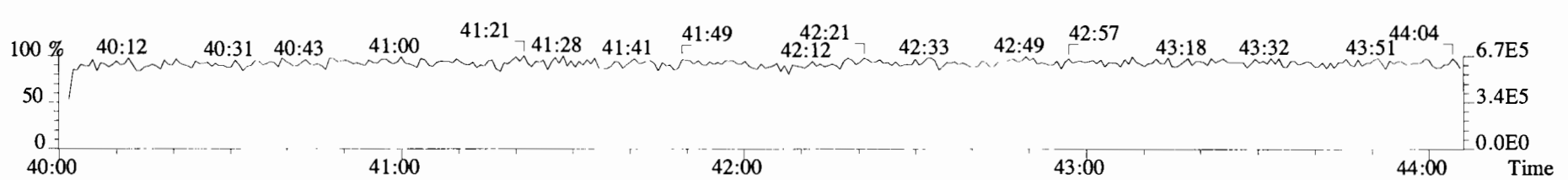
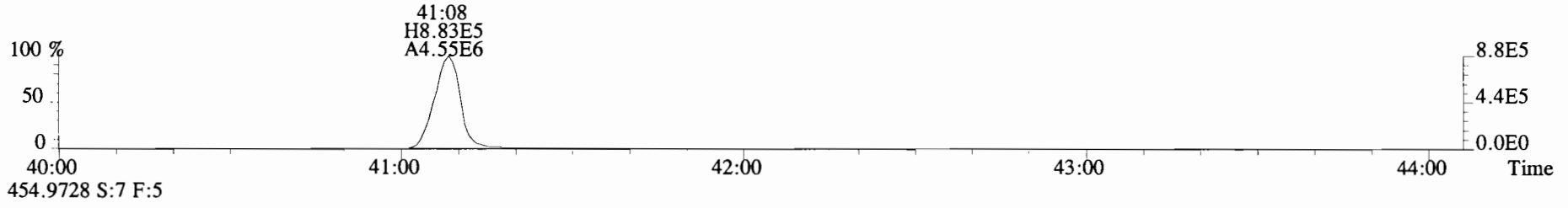
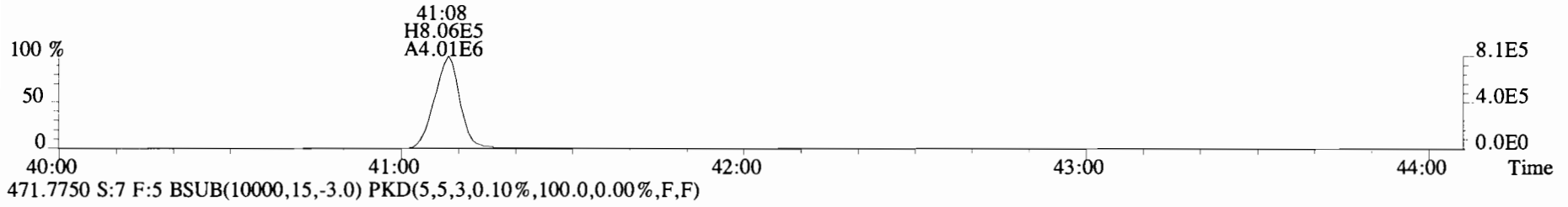
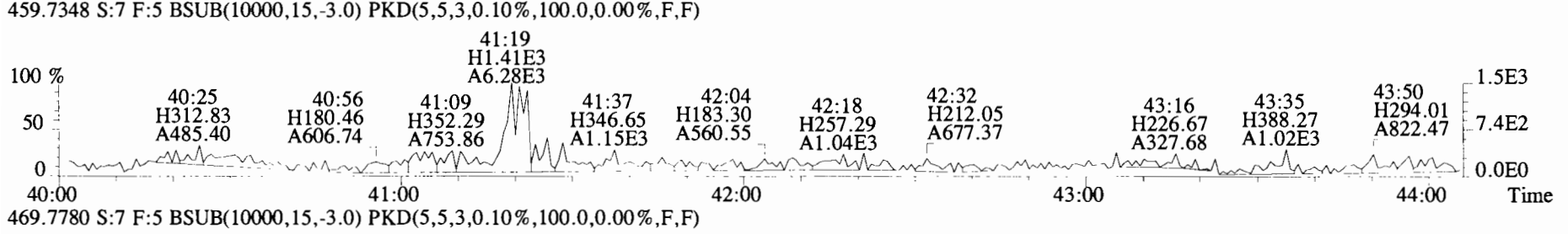
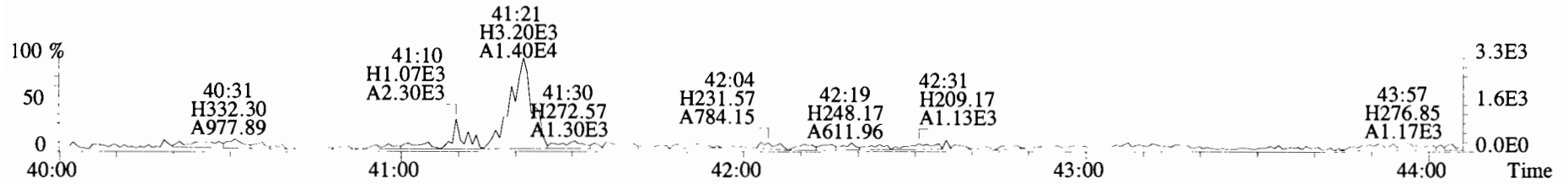
437.8140 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



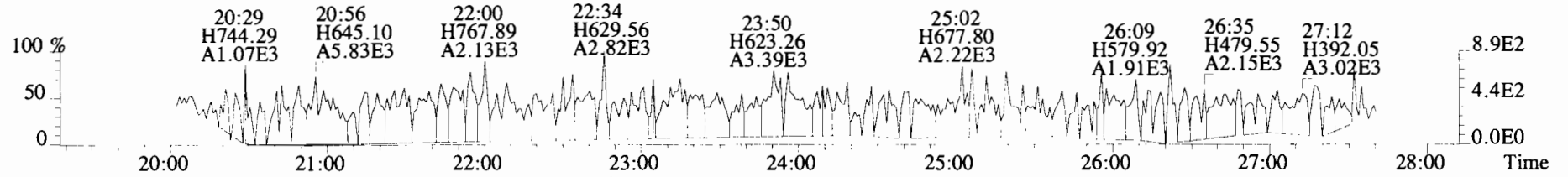
454.9728 S:7 F:4



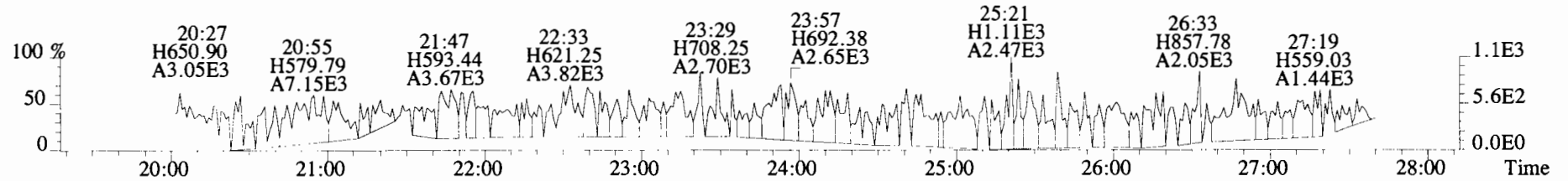
File:191120D1 #1-432 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



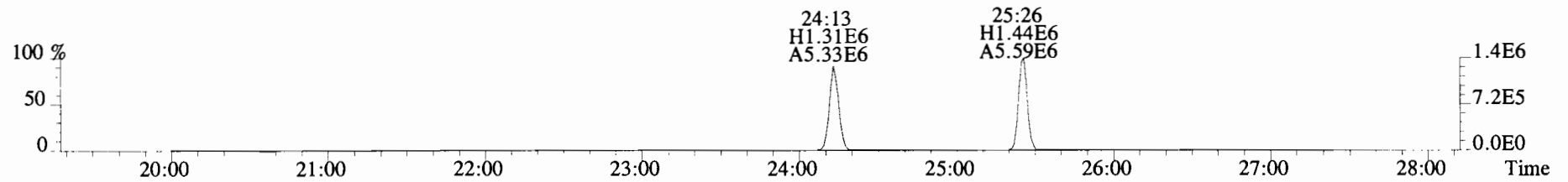
File:191120D1 #1-492 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



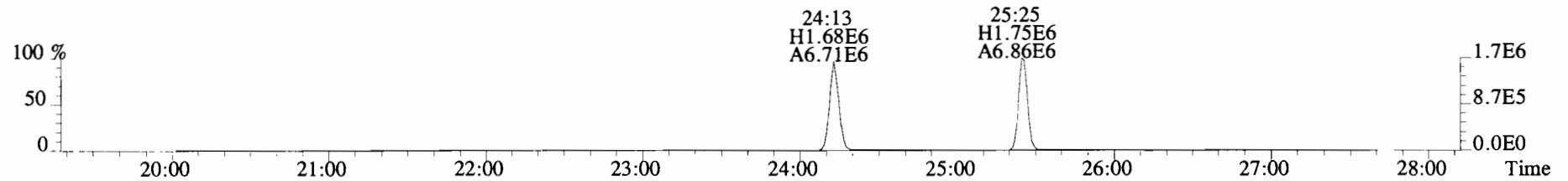
305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



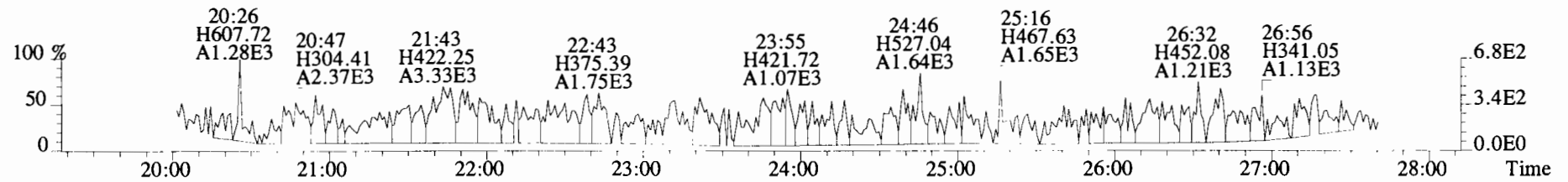
315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



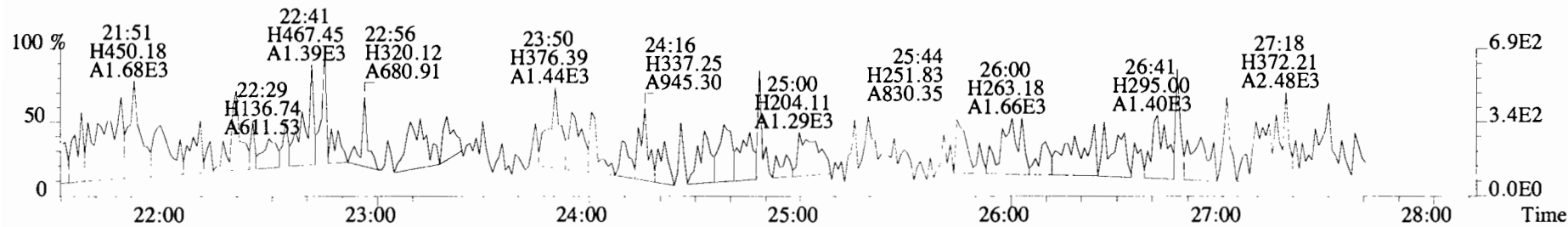
317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



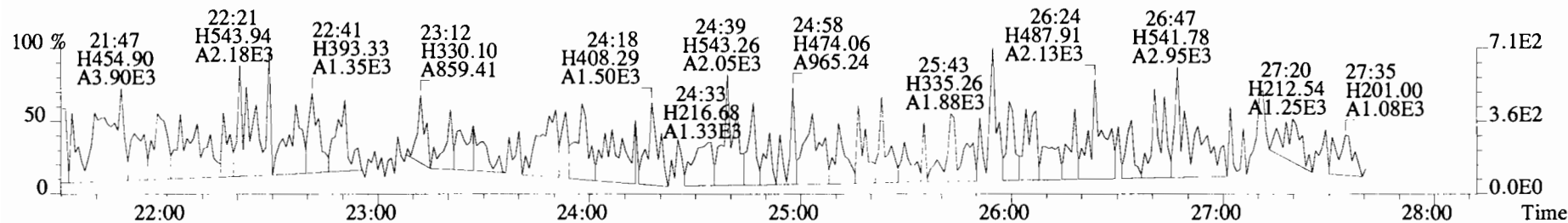
375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



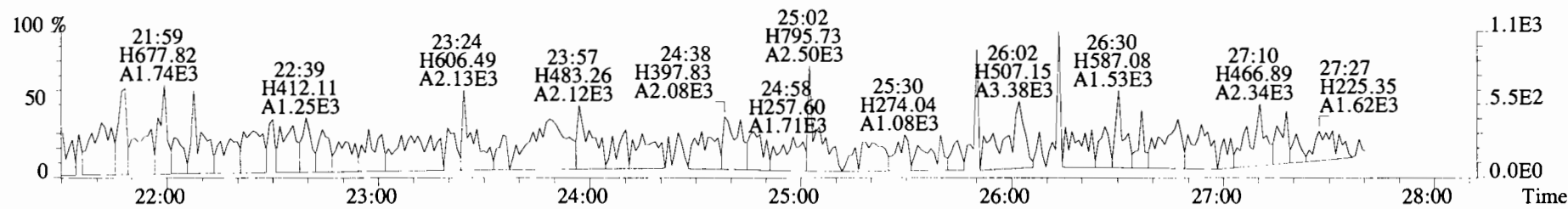
File:191120D1 #1-492 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



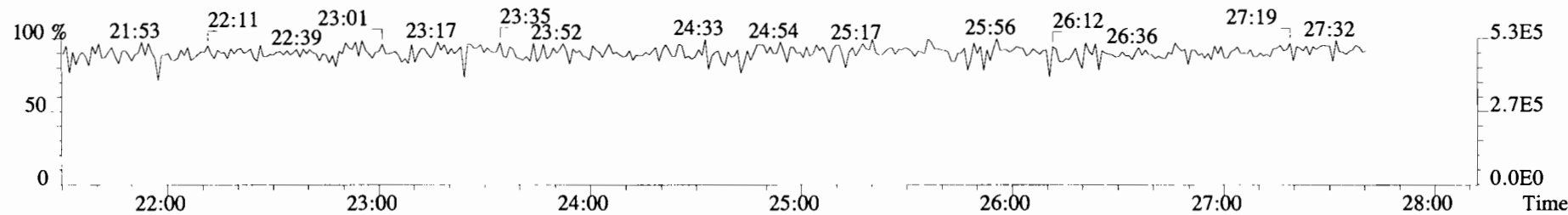
341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



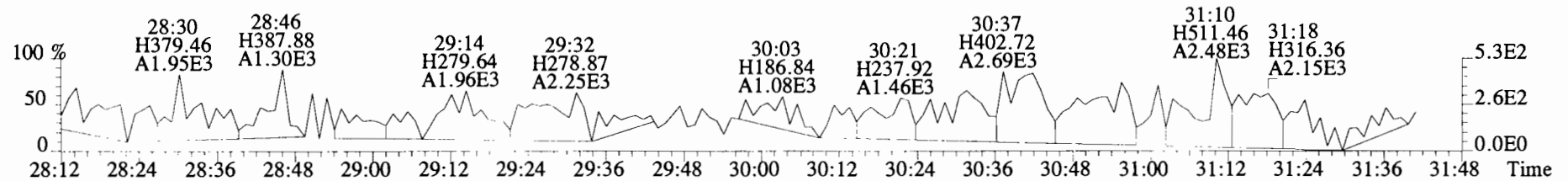
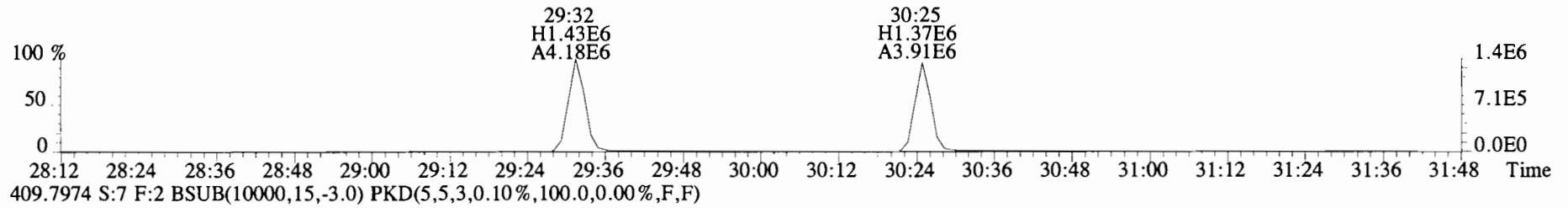
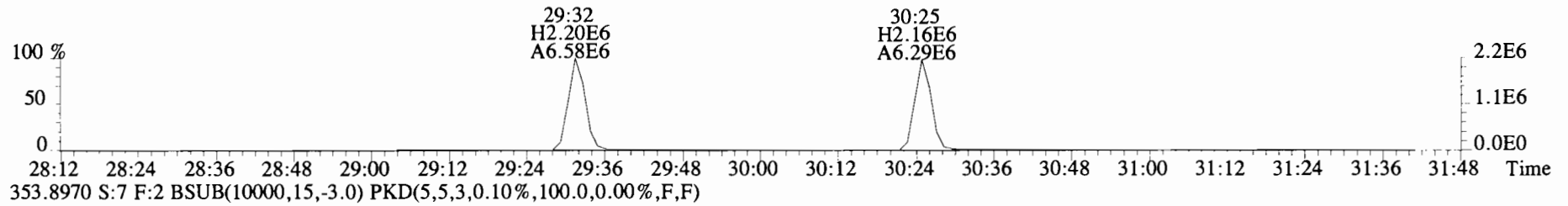
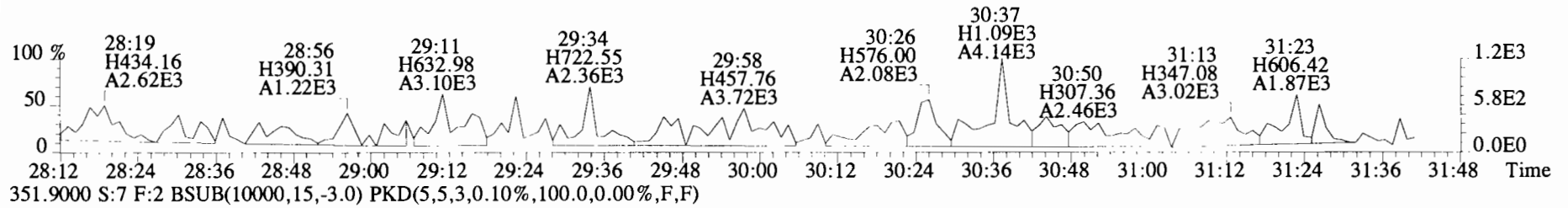
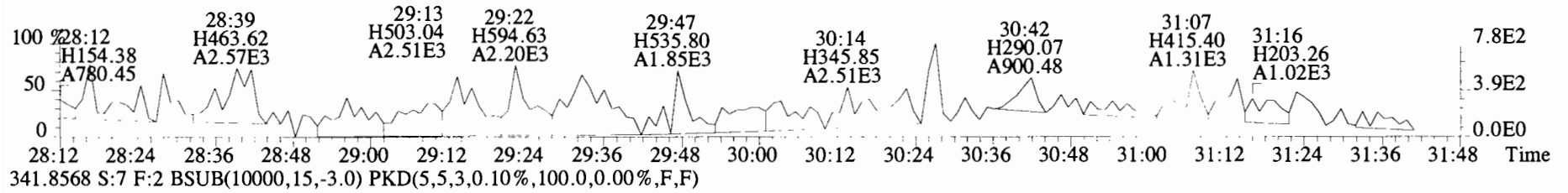
409.7974 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



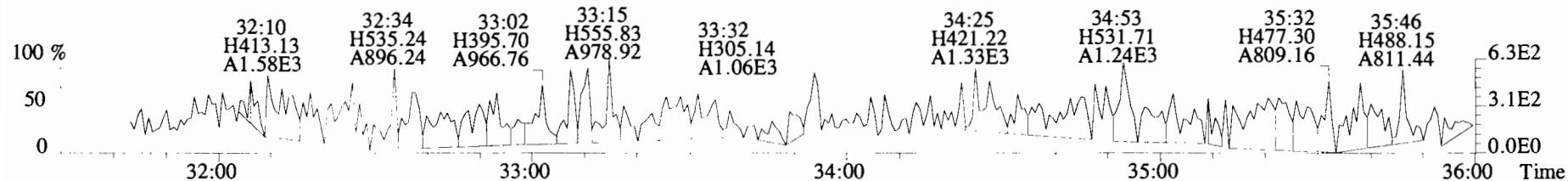
316.9824 S:7



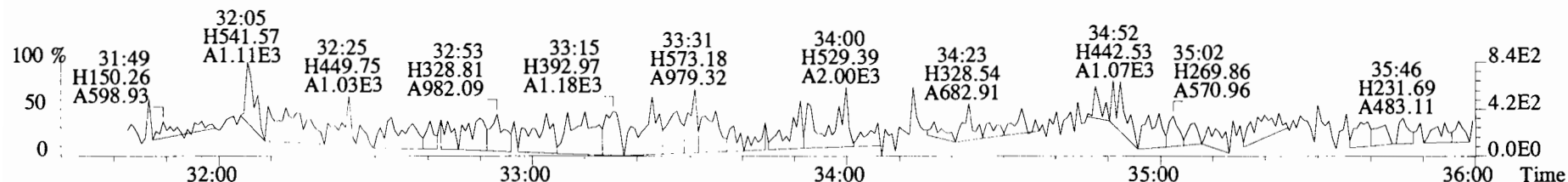
File:191120D1 #1-211 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



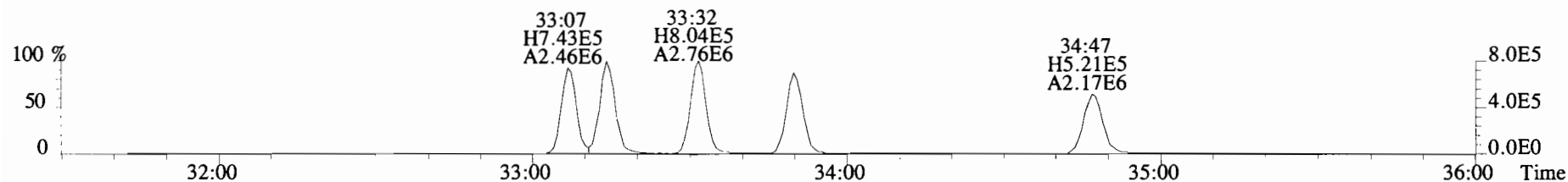
File:191120D1 #1-384 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



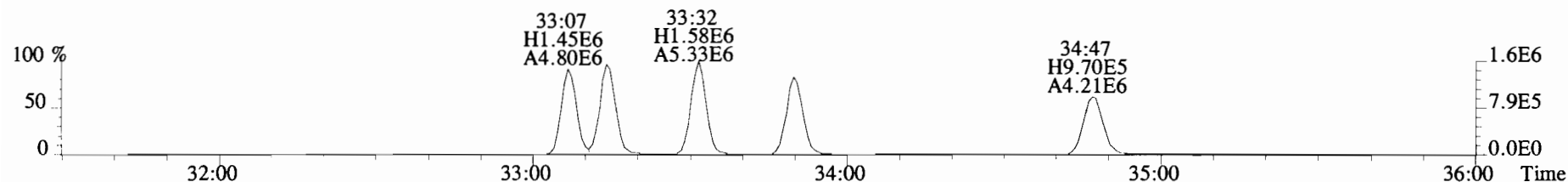
375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



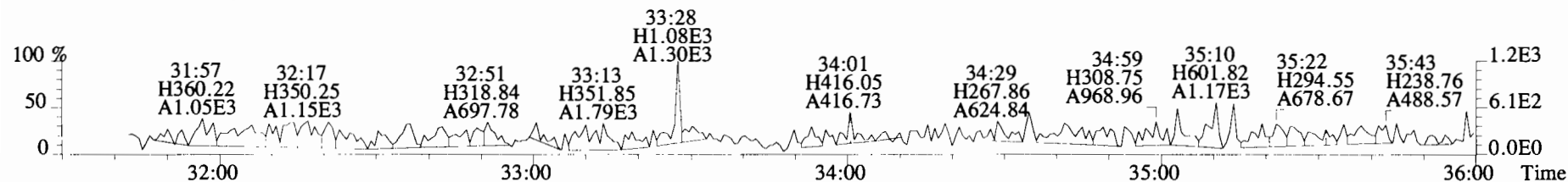
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



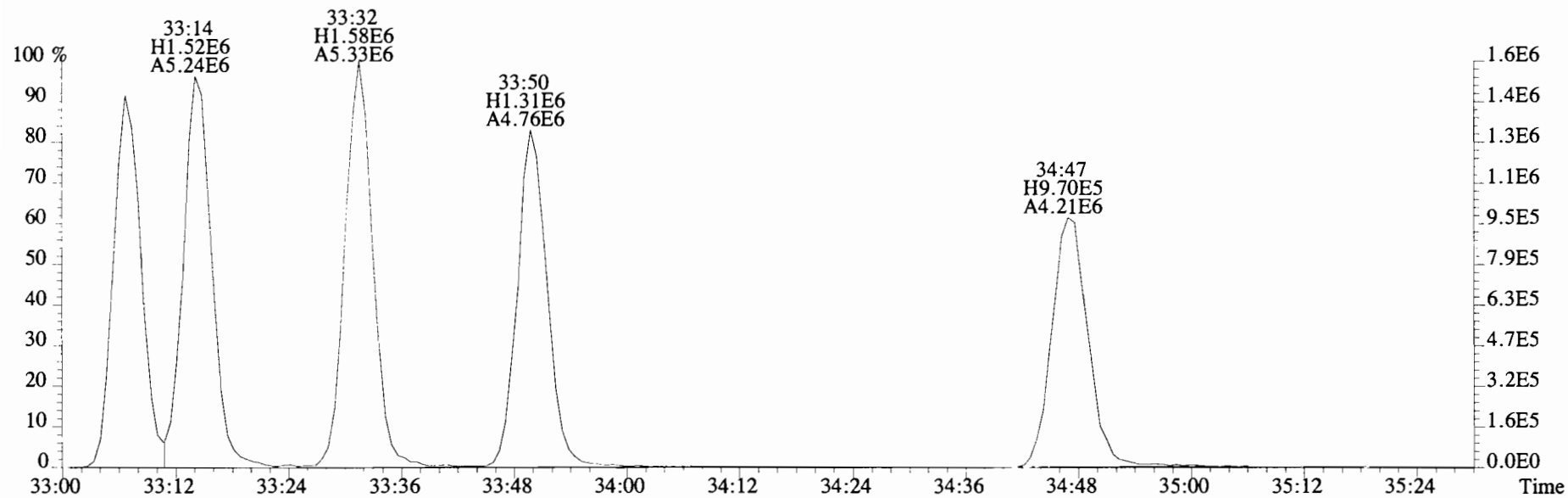
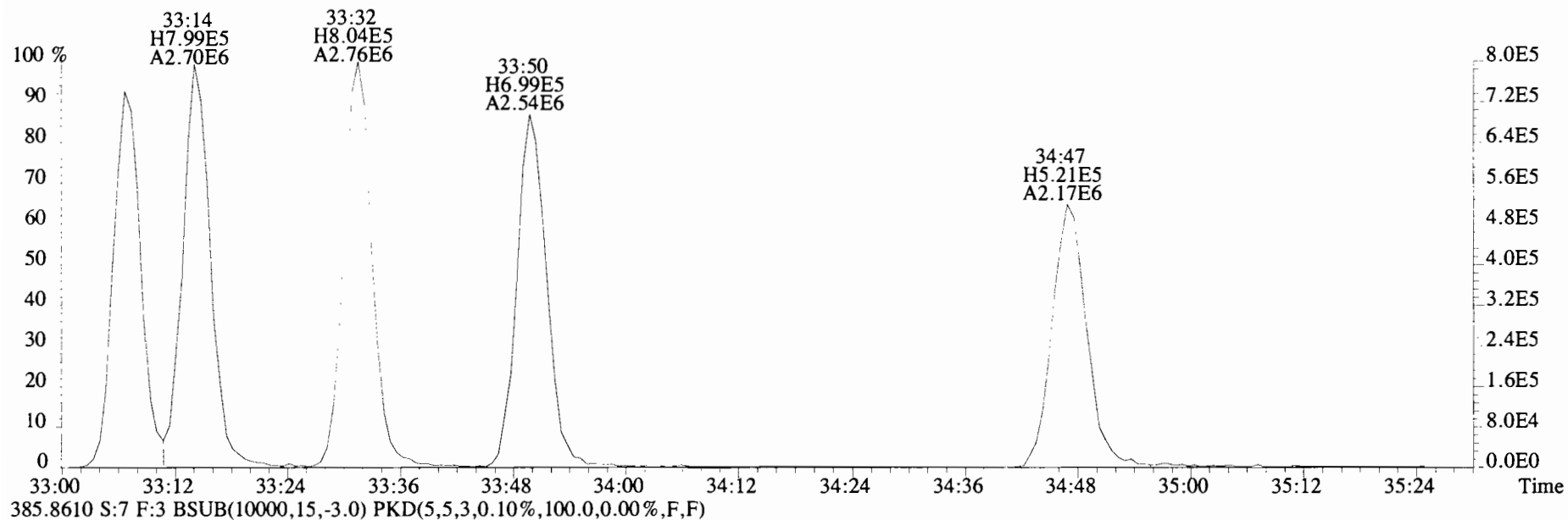
385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



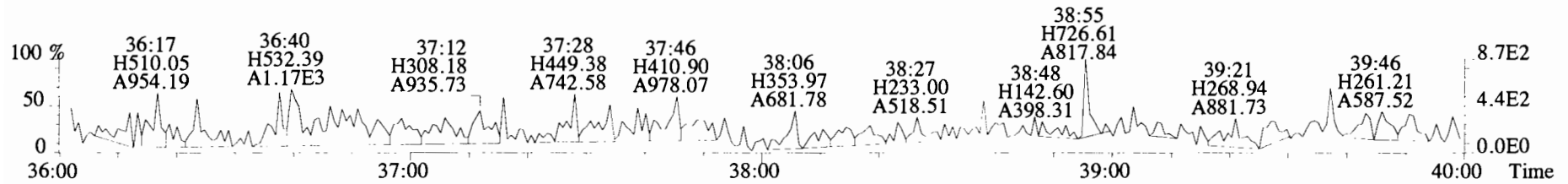
445.7555 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



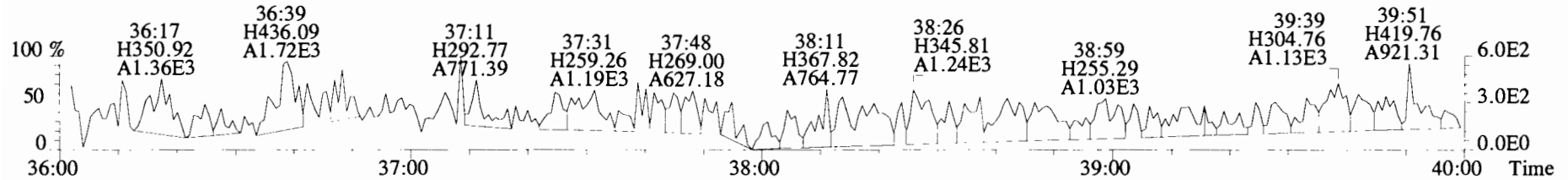
File:191120D1 #1-384 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



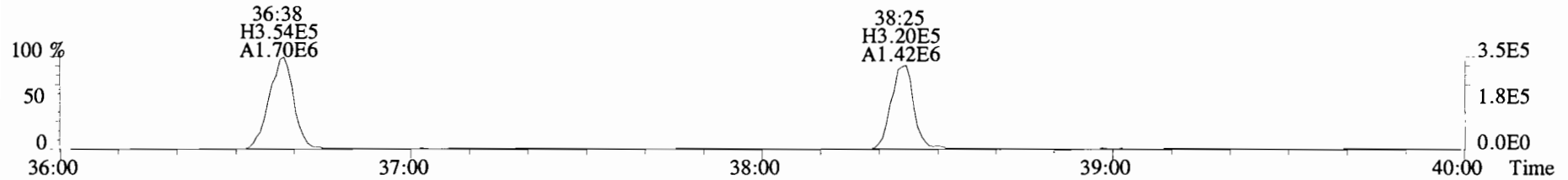
File:191120D1 #1-355 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#7 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
 407.7818 S:7 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



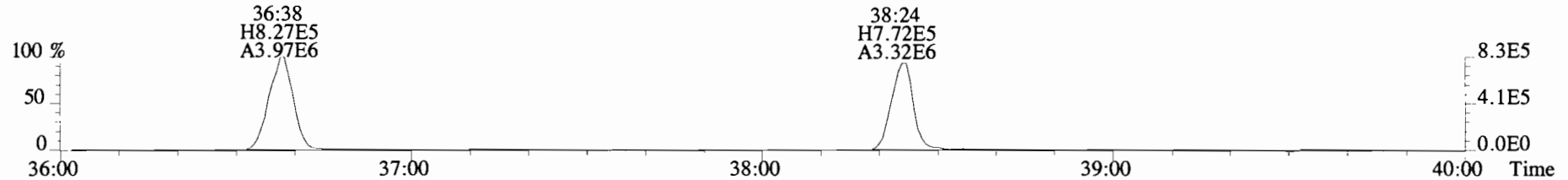
409.7788 S:7 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



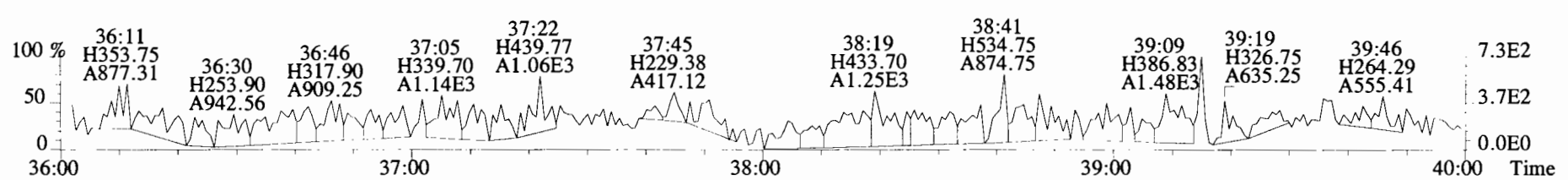
417.8253 S:7 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



419.8220 S:7 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

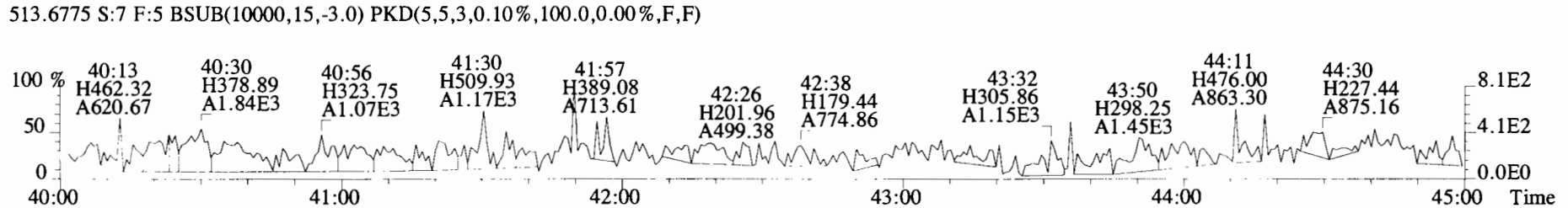
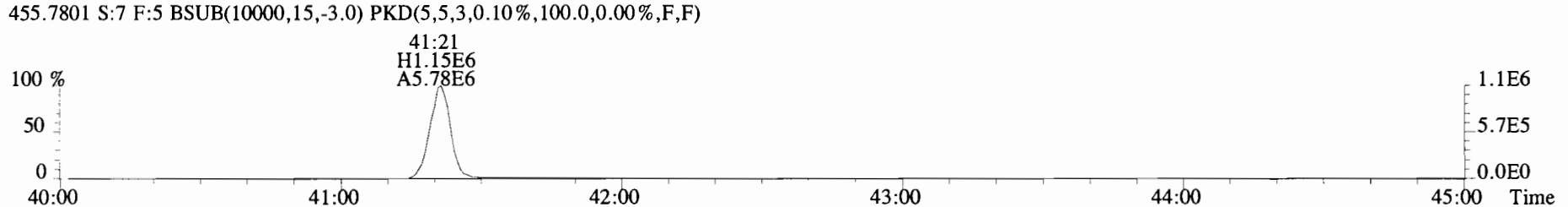
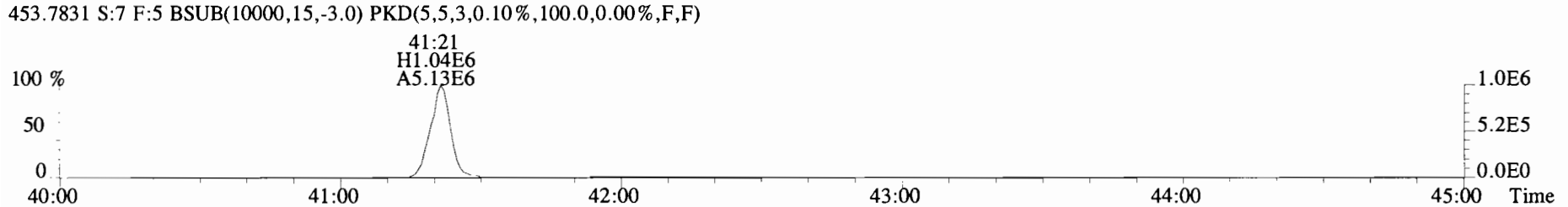
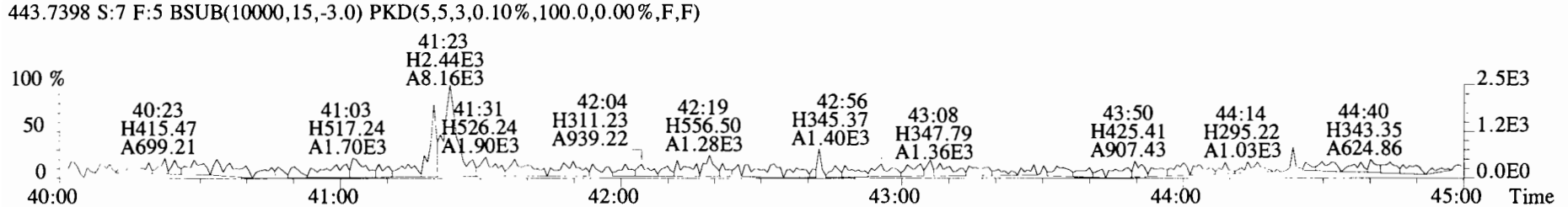
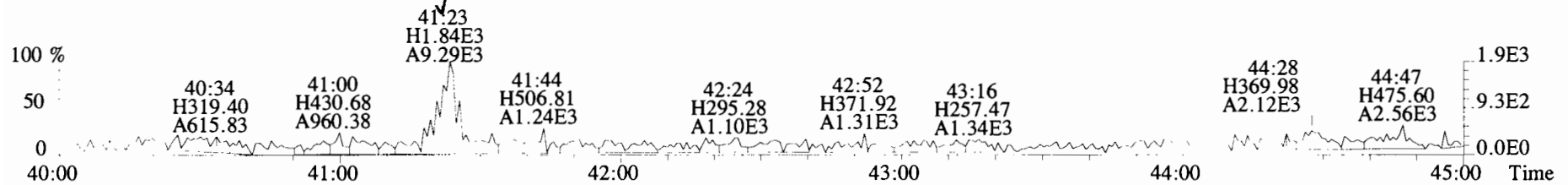


479.7165 S:7 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

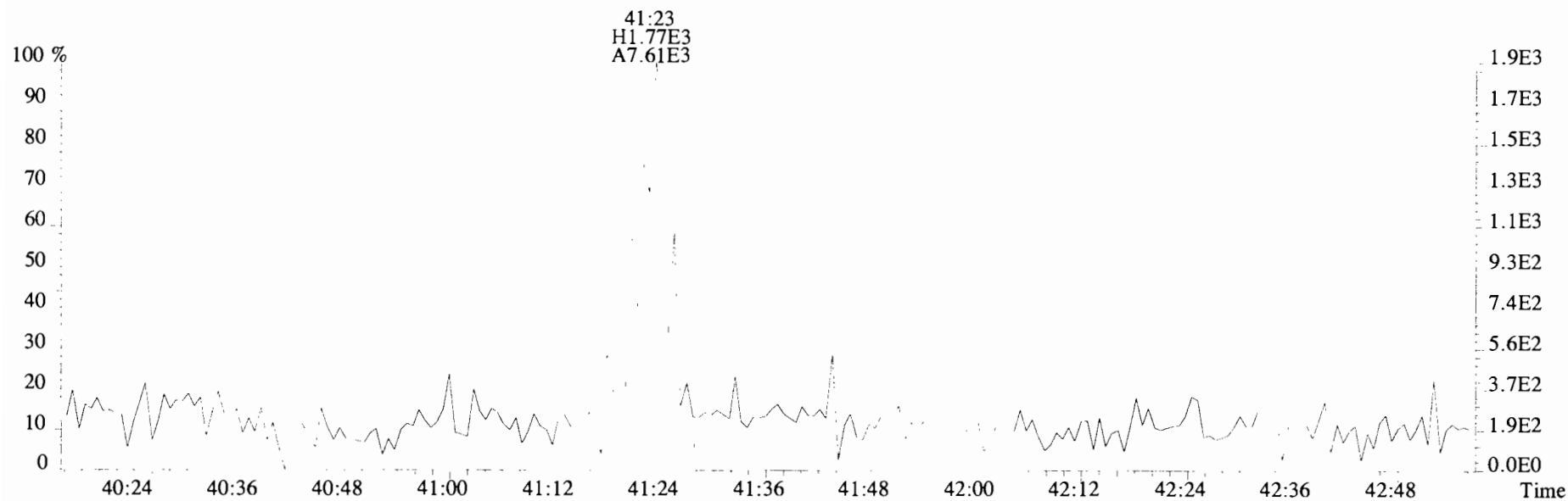




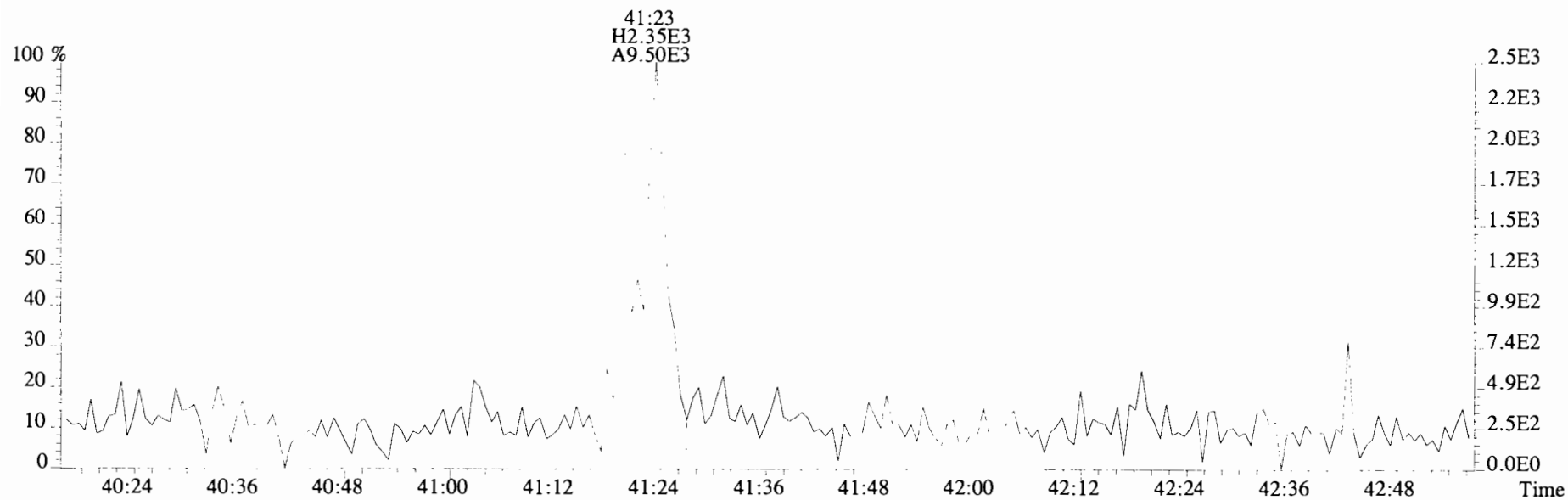
File:191120D1 #1-432 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D1 #1-432 Acq:20-NOV-2019 18:47:28 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#7 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BLK1 Method Blank 10 Exp:OCDD\_DB5  
441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



443.7398 S:7 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: B9K0068-BS1

Contract No.:                      SAS No.:

Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191120D1-4

Ext. Date:                      Shift: Day      Analysis Date: 20-NOV-19      Time: 16:24:12

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	9.81	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	48.2	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	47.4	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	51.7	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	49.5	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	48.8	35.0 - 70.0
OCDD	100	101	78.0 - 144.0
2,3,7,8-TCDF	10	9.34	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	49.1	40.0 - 67.0
2,3,4,7,8-PeCDF	50	49.9	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	46.1	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	47.3	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	49.4	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	47.7	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	46.8	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	46.4	39.0 - 69.0
OCDF	100	95.3	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: 11/20/19

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

Lab Name: Vista Analytical Laboratory      Extraction Batch: B9K0068-BS1  
 Contract No.:                                      SAS No.:  
 Matrix (aqueous/solid/leachate): SOLID      OPR Data Filename: 191120D1-4  
 Ext. Date:                                      Shift: Day      Analysis Date: 20-NOV-19      Time: 16:24:12

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	97.8	20.0 - 175.0 25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	98.8	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	88.6	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	94.2	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	95.3	26.0 - 166.0
13C-OCDD	200	185	26.0 - 397.0
13C-2,3,7,8-TCDF	100	93.4	22.0 - 152.0 26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	99.0	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	96.3	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	107	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	96.5	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	94.7	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	95.3	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	89.1	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	97.6	20.0 - 186.0
13C-OCDF	200	199	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	39.8	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: 11/20/19

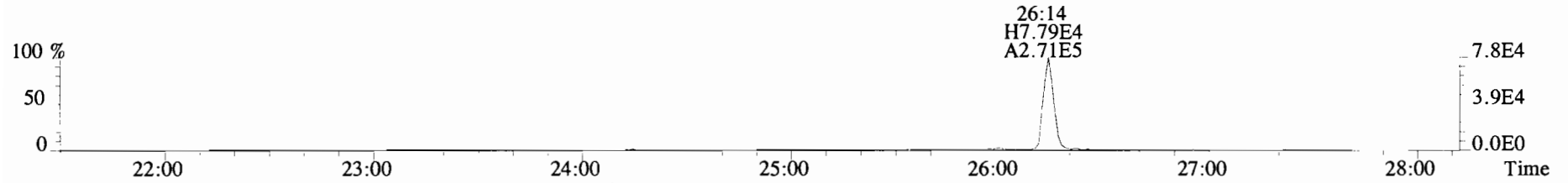
Client ID: OPR  
 Lab ID: B9K0068-BS1

Filename: 191120D1 S:4 Acq:20-NOV-19 16:24:12  
 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

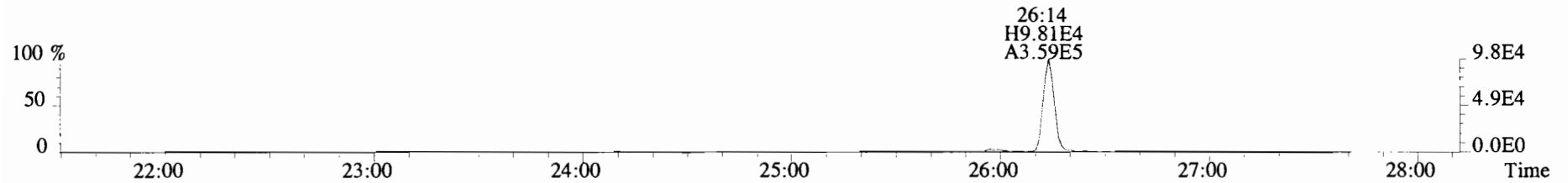
ConCal: ST191120D1-1  
 EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	6.31e+05	0.76 y	0.91	26:14	9.8108		*	2.5	*	Total Tetra-Dioxins	10.4	11.6		*	*
1,2,3,7,8-PeCDD	2.51e+06	0.63 y	0.90	30:44	48.161		*	2.5	*	Total Penta-Dioxins	48.2	48.4		*	*
1,2,3,4,7,8-HxCDD	2.29e+06	1.23 y	1.10	34:02	47.435		*	2.5	*	Total Hexa-Dioxins	149	149		*	*
1,2,3,6,7,8-HxCDD	2.44e+06	1.24 y	0.94	34:08	51.672		*	2.5	*	Total Hepta-Dioxins	49.6	51.0		*	*
1,2,3,7,8,9-HxCDD	2.40e+06	1.24 y	0.96	34:26	49.489		*	2.5	*	Total Tetra-Furans	9.54	10.5		*	*
1,2,3,4,6,7,8-HpCDD	1.97e+06	1.04 y	0.98	37:53	48.754		*	2.5	*	Total Penta-Furans	100.03	100.92		*	*
OCDD	3.46e+06	0.89 y	0.96	41:10	101.40		*	2.5	*	Total Hexa-Furans	191	192		*	*
										Total Hepta-Furans	93.9	95.8		*	*
2,3,7,8-TCDF	8.64e+05	0.74 y	0.95	25:27	9.3399		*	2.5	*						
1,2,3,7,8-PeCDF	4.02e+06	1.69 y	0.96	29:33	49.141		*	2.5	*						
2,3,4,7,8-PeCDF	4.16e+06	1.62 y	1.01	30:26	49.853		*	2.5	*						
1,2,3,4,7,8-HxCDF	3.20e+06	1.21 y	1.18	33:08	46.125		*	2.5	*						
1,2,3,6,7,8-HxCDF	3.35e+06	1.22 y	1.07	33:16	47.315		*	2.5	*						
2,3,4,6,7,8-HxCDF	3.30e+06	1.20 y	1.11	33:52	49.446		*	2.5	*						
1,2,3,7,8,9-HxCDF	2.65e+06	1.22 y	1.06	34:49	47.690		*	2.5	*						
1,2,3,4,6,7,8-HpCDF	2.36e+06	0.99 y	1.13	36:39	46.834		*	2.5	*						
1,2,3,4,7,8,9-HpCDF	2.23e+06	1.00 y	1.28	38:25	46.424		*	2.5	*						
OCDF	4.10e+06	0.89 y	0.95	41:23	95.287		*	2.5	*						
										Rec	Qual				
IS 13C-2,3,7,8-TCDD	7.10e+06	0.81 y	1.10	26:13	97.823					97.8					
IS 13C-1,2,3,7,8-PeCDD	5.77e+06	0.61 y	0.88	30:42	98.845					98.8					
IS 13C-1,2,3,4,7,8-HxCDD	4.39e+06	1.29 y	0.64	34:01	103.04					103					
IS 13C-1,2,3,6,7,8-HxCDD	5.03e+06	1.25 y	0.86	34:07	88.614					88.6					
IS 13C-1,2,3,7,8,9-HxCDD	5.04e+06	1.25 y	0.81	34:25	94.167					94.2					
IS 13C-1,2,3,4,6,7,8-HpCDD	4.13e+06	1.05 y	0.65	37:52	95.328					95.3					
IS 13C-OCDD	7.11e+06	0.87 y	0.58	41:09	185.09					92.5					
IS 13C-2,3,7,8-TCDF	9.73e+06	0.79 y	1.03	25:26	93.388					93.4					
IS 13C-1,2,3,7,8-PeCDF	8.51e+06	1.56 y	0.85	29:33	98.981					99.0					
IS 13C-2,3,4,7,8-PeCDF	8.22e+06	1.56 y	0.85	30:26	96.345					96.3					
IS 13C-1,2,3,4,7,8-HxCDF	5.90e+06	0.49 y	0.83	33:07	107.03					107					
IS 13C-1,2,3,6,7,8-HxCDF	6.62e+06	0.51 y	1.03	33:15	96.491					96.5					
IS 13C-2,3,4,6,7,8-HxCDF	5.99e+06	0.51 y	0.95	33:50	94.705					94.7					
IS 13C-1,2,3,7,8,9-HxCDF	5.23e+06	0.50 y	0.83	34:48	95.282					95.3					
IS 13C-1,2,3,4,6,7,8-HpCDF	4.47e+06	0.43 y	0.76	36:38	89.054					89.1					
IS 13C-1,2,3,4,7,8,9-HpCDF	3.76e+06	0.43 y	0.58	38:25	97.577					97.6					
IS 13C-OCDF	9.09e+06	0.89 y	0.69	41:22	198.87					99.4					
C/Up 37C1-2,3,7,8-TCDD	3.16e+06		1.20	26:14	39.821					99.6					
											Integrations	Reviewed			
											by	by			
RS/RT 13C-1,2,3,4-TCDD	6.63e+06	0.79 y	1.00	25:39	100.00						Analyst: <u>DB</u>	Analyst: <u>CT</u>			
RS 13C-1,2,3,4-TCDF	1.01e+07	0.77 y	1.00	24:14	100.00										
RS/RT 13C-1,2,3,4,6,9-HxCDF	6.63e+06	0.51 y	1.00	33:32	100.00										
											Date: <u>11/20/19</u>	Date: <u>12/02/19</u>			

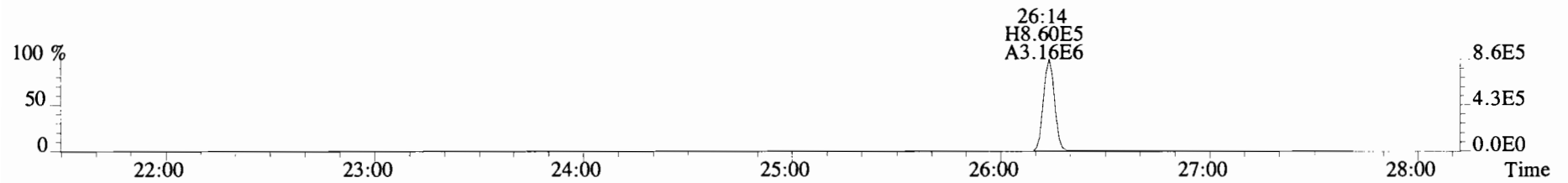
File:191120D1 #1-493 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



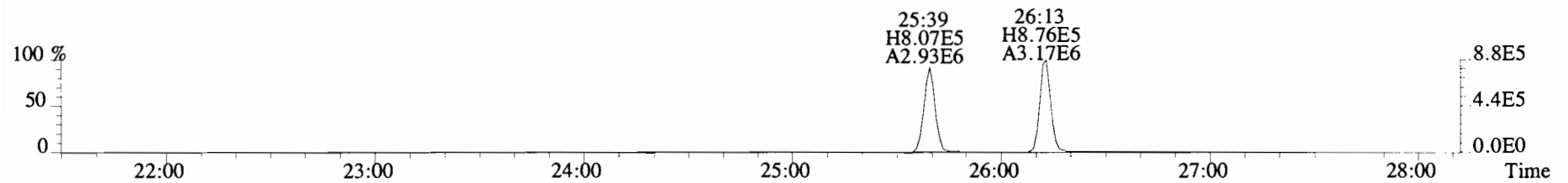
321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



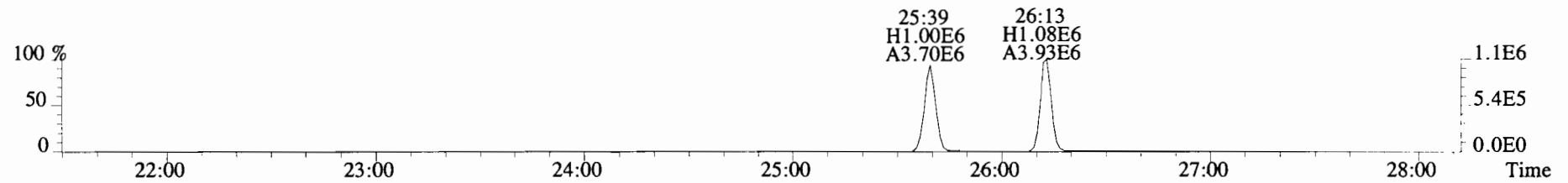
327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



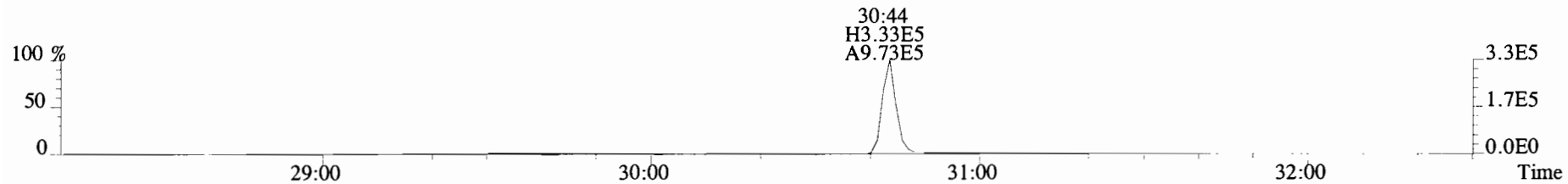
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



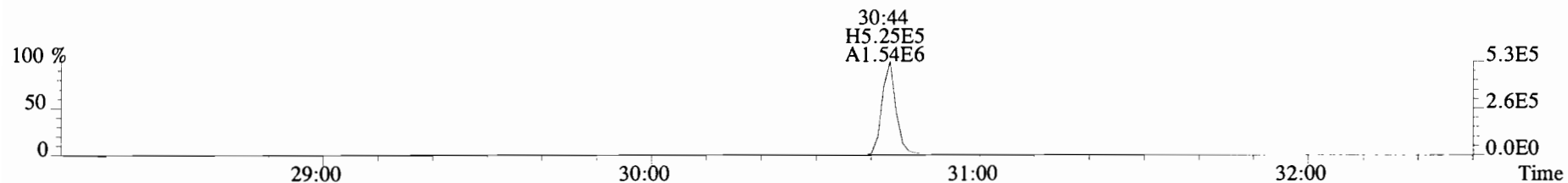
333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



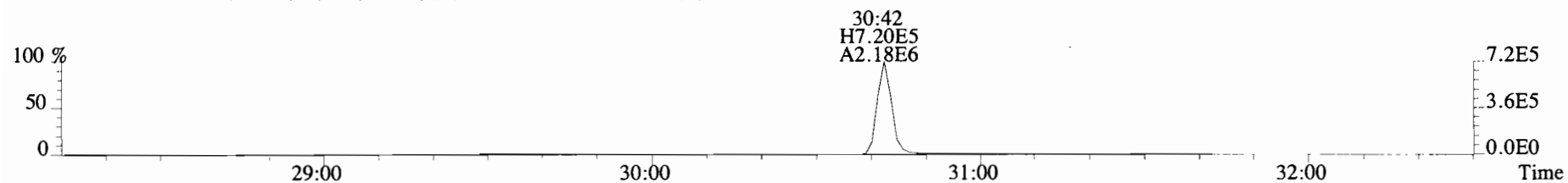
File:191120D1 #1-210 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



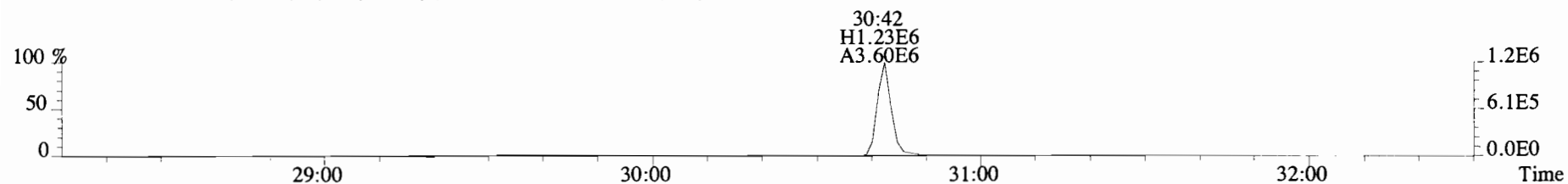
355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



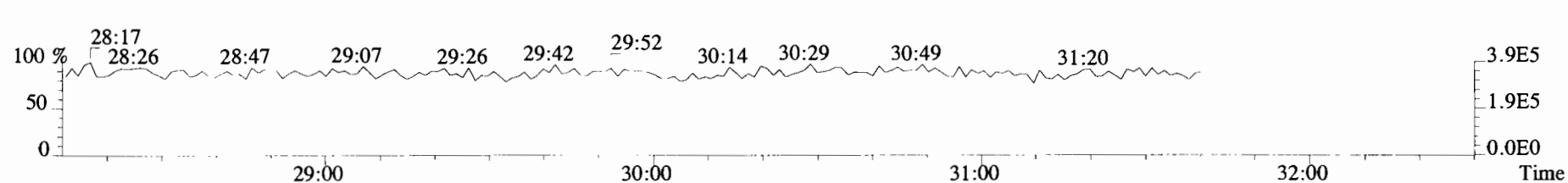
365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



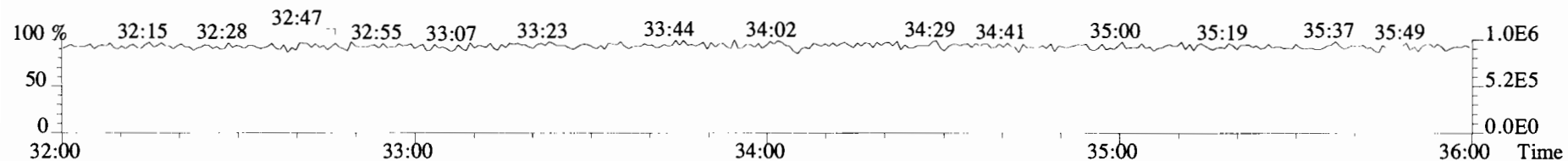
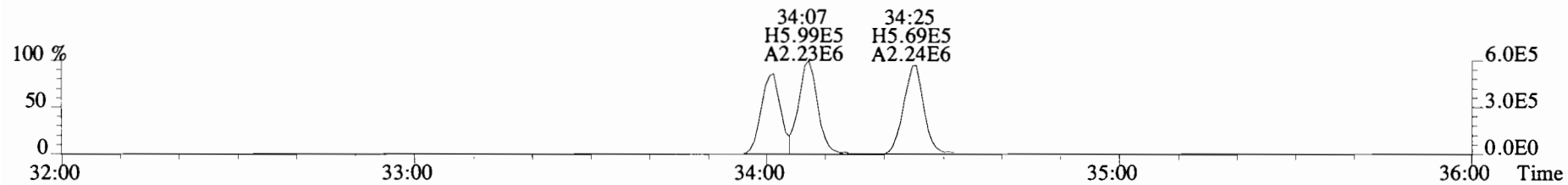
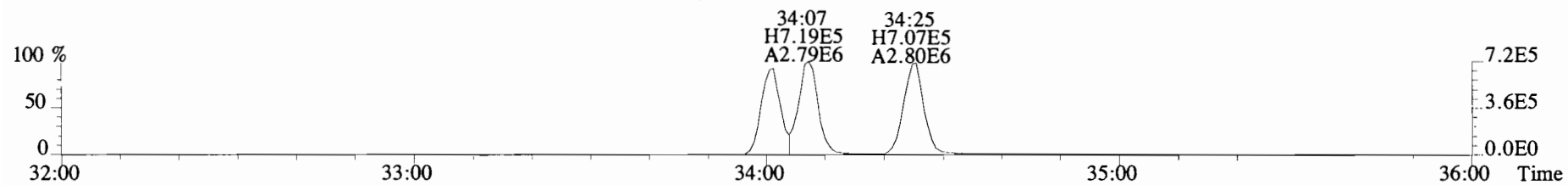
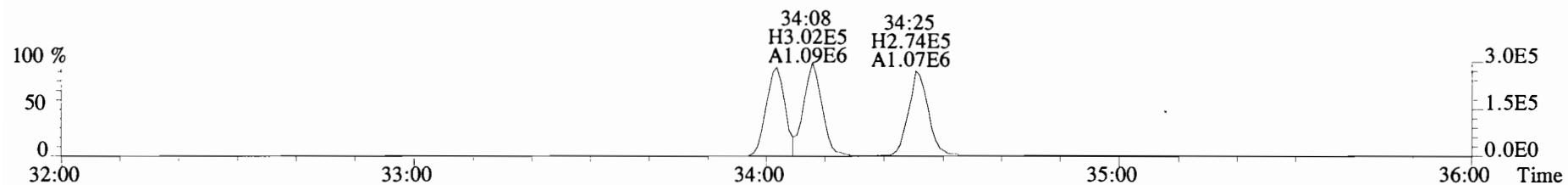
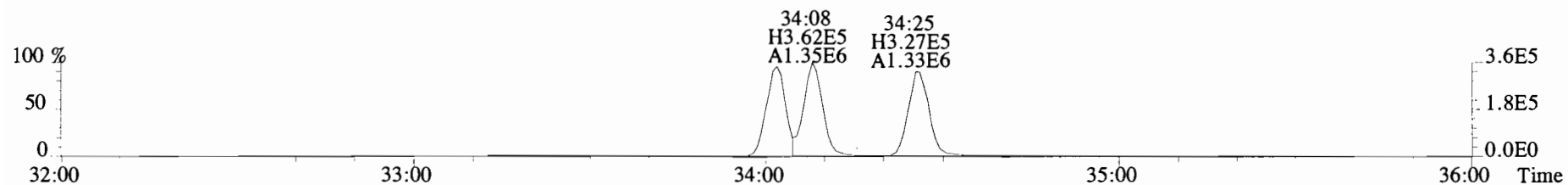
367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



366.9792 S:4 F:2

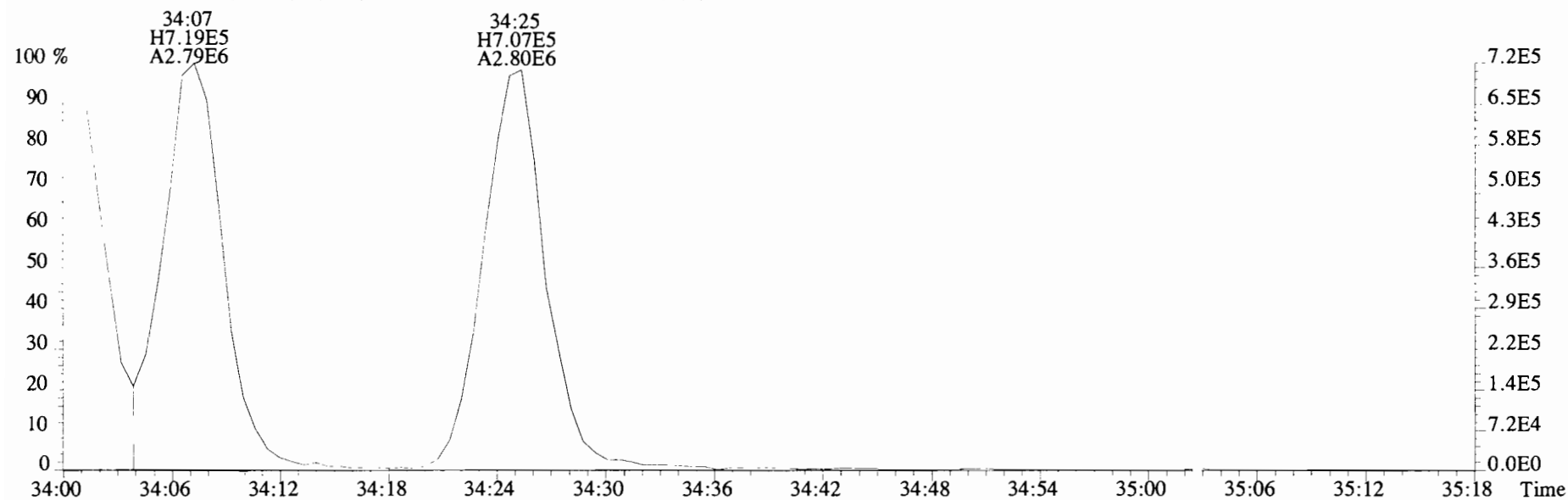


File:191120D1 #1-385 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

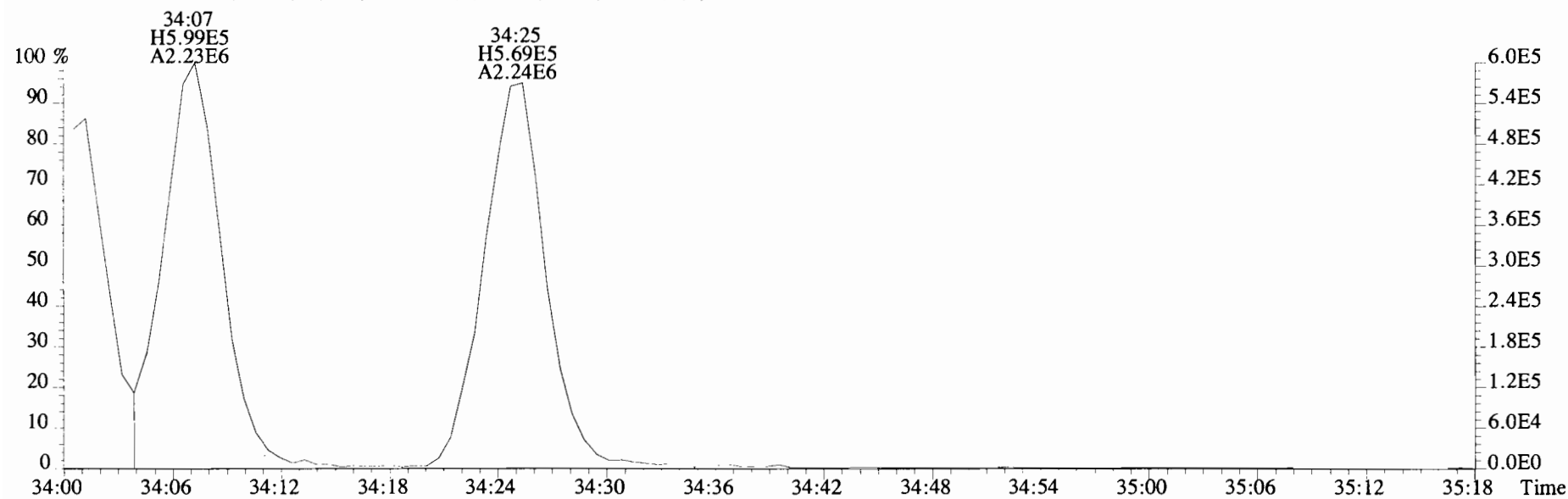




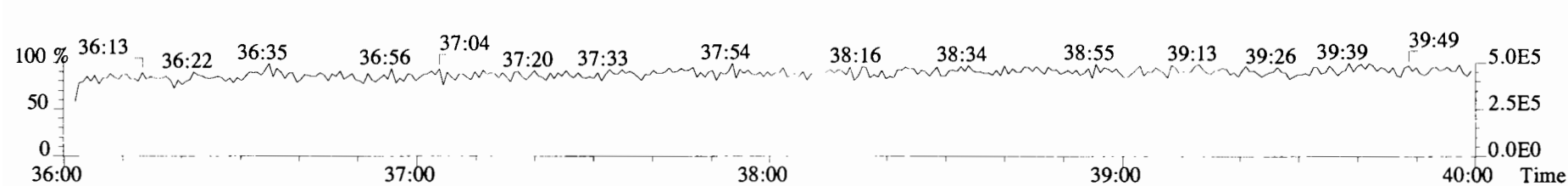
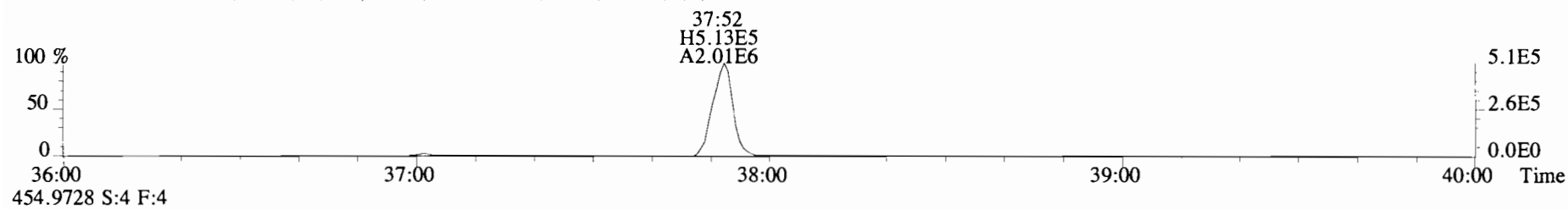
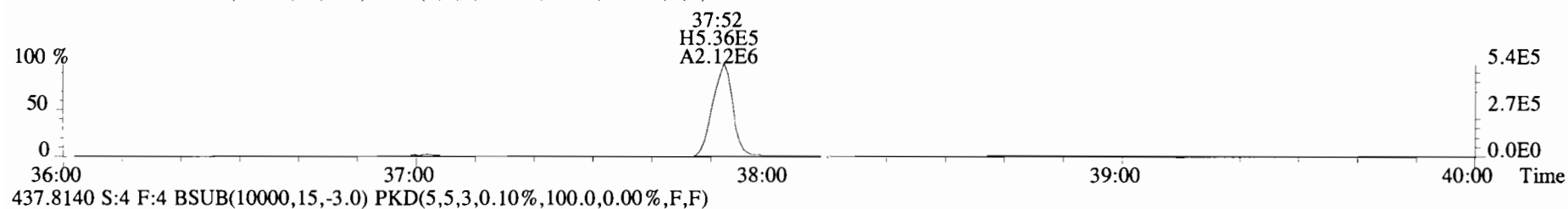
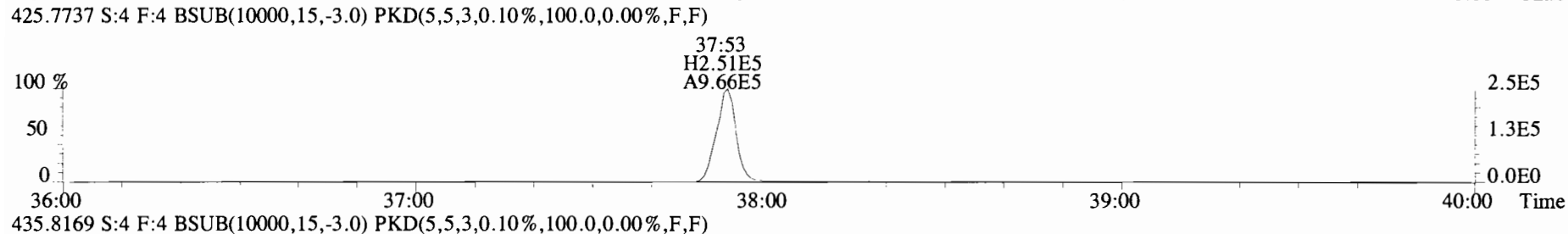
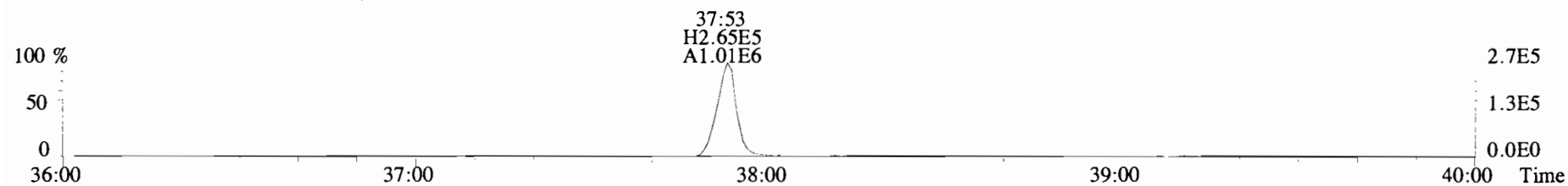
File:191120D1 #1-385 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



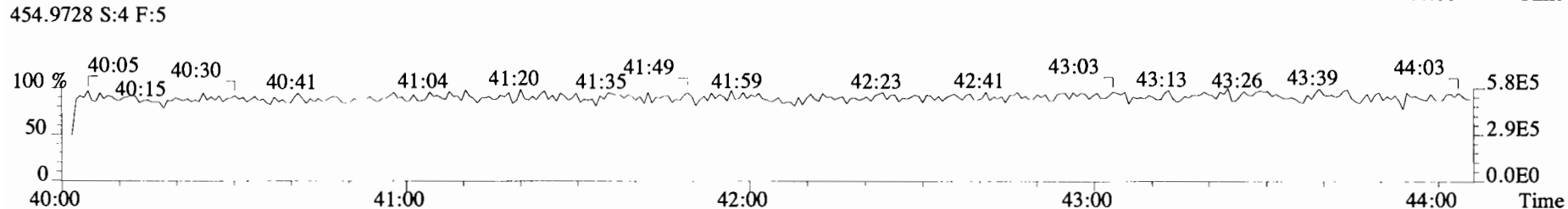
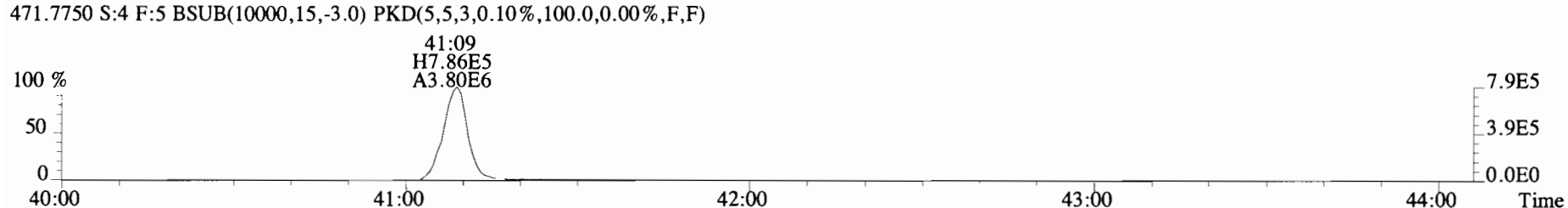
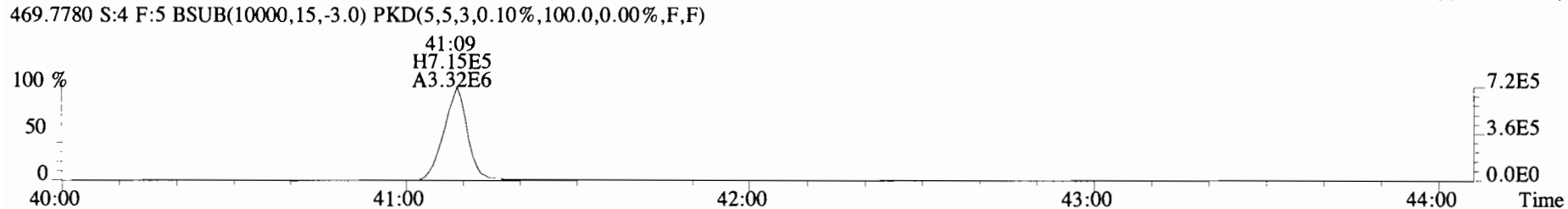
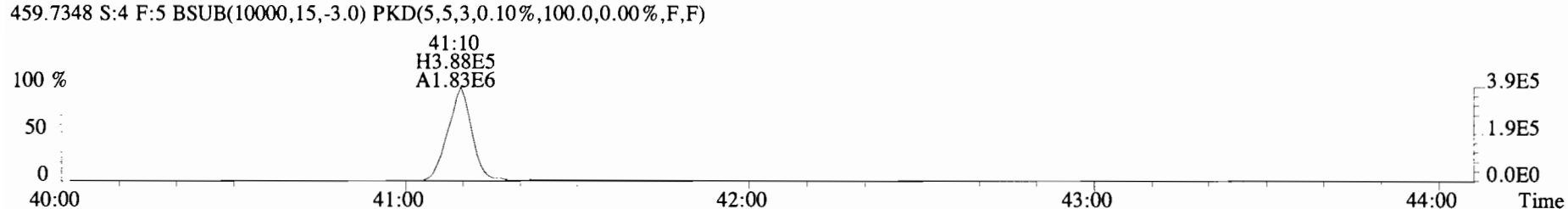
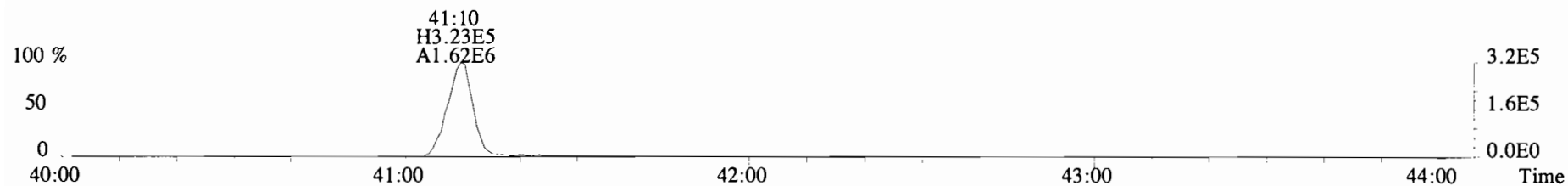
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



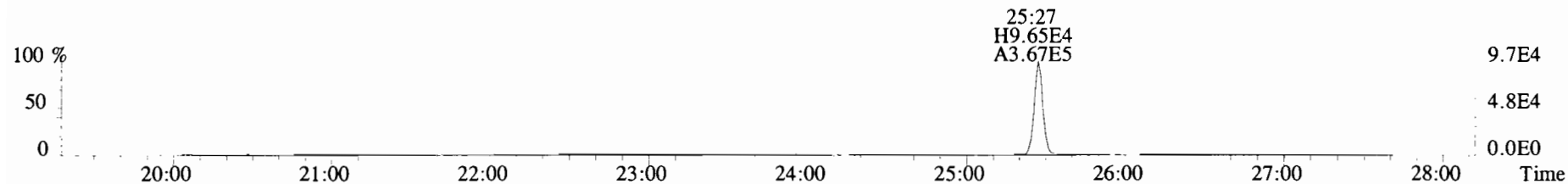
File:191120D1 #1-355 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



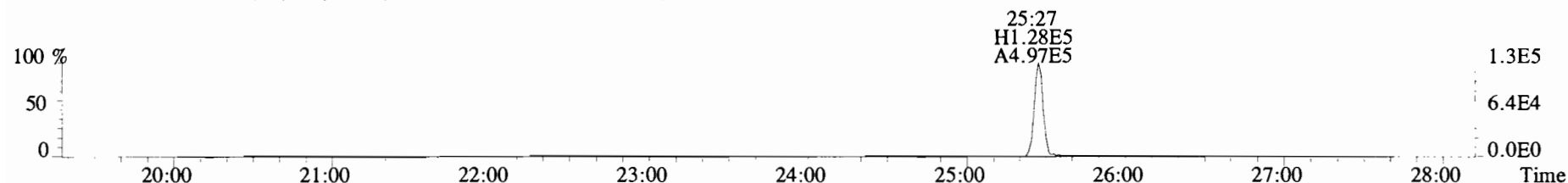
File:191120D1 #1-432 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



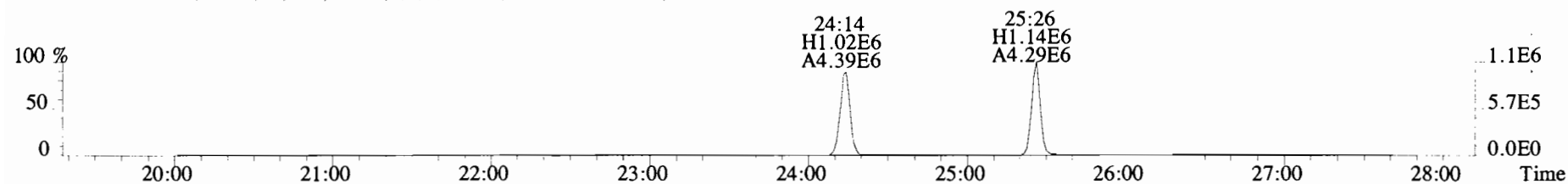
File:191120D1 #1-493 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
 303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



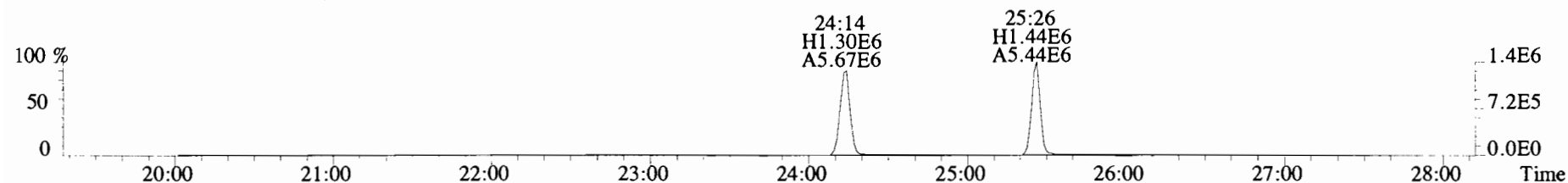
305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



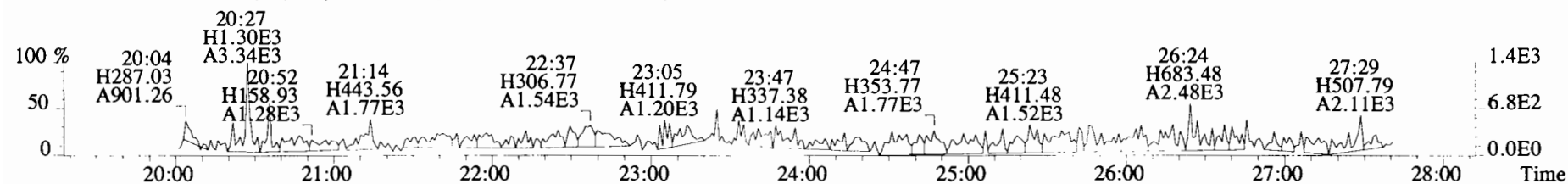
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



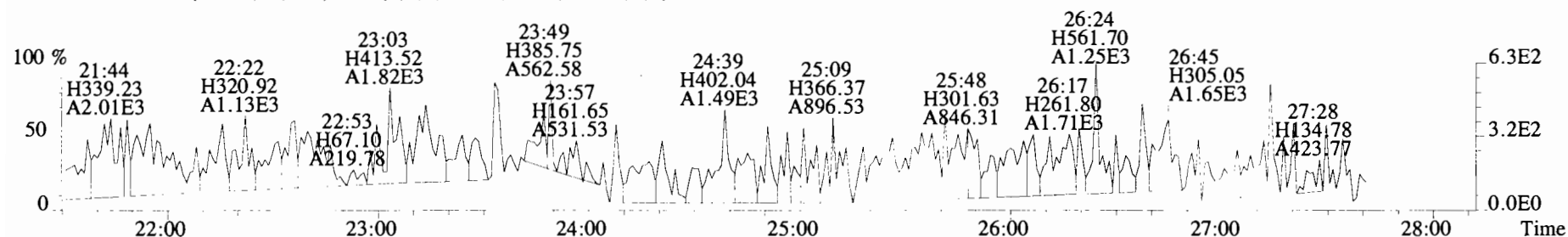
317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



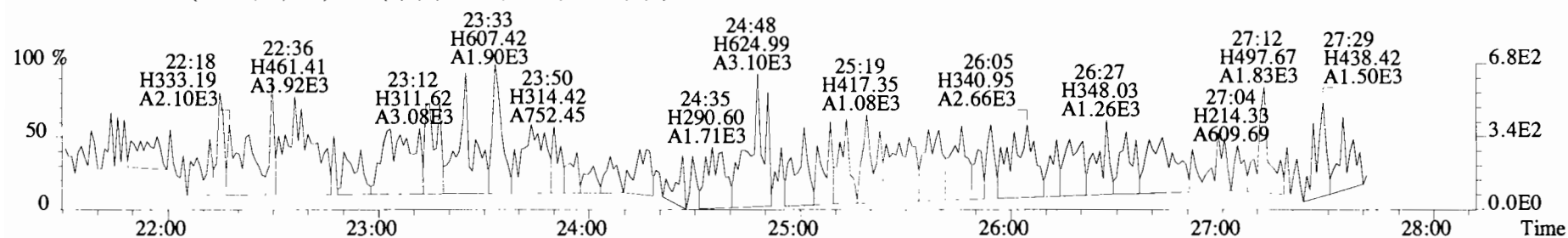
375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



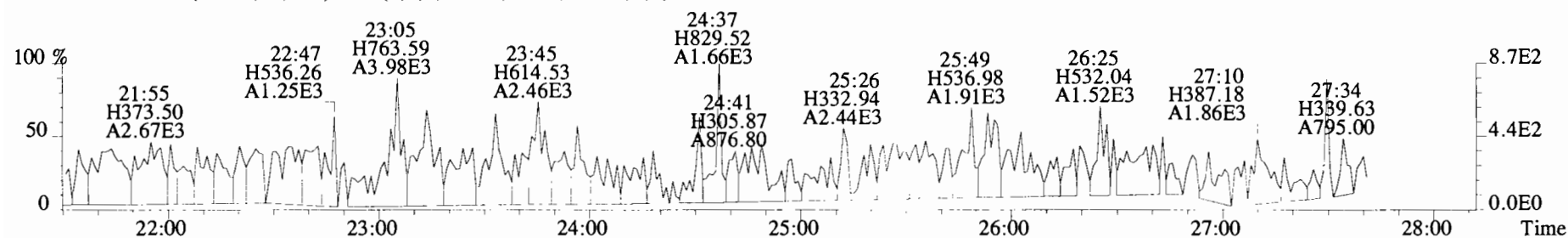
File:191120D1 #1-493 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
 339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



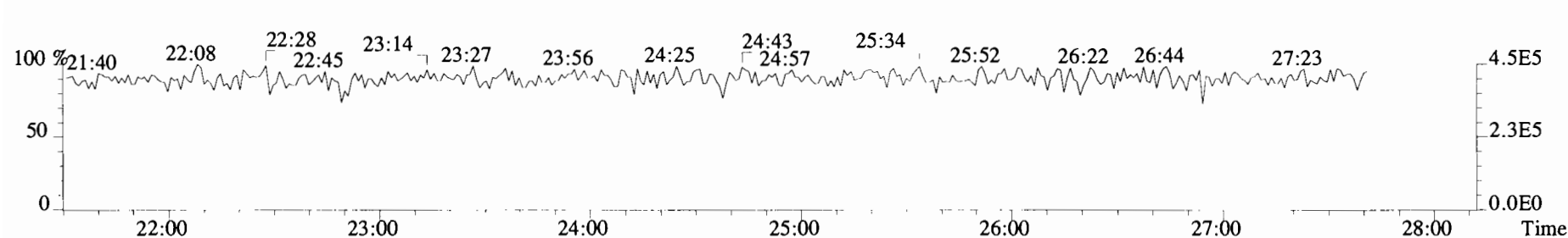
341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



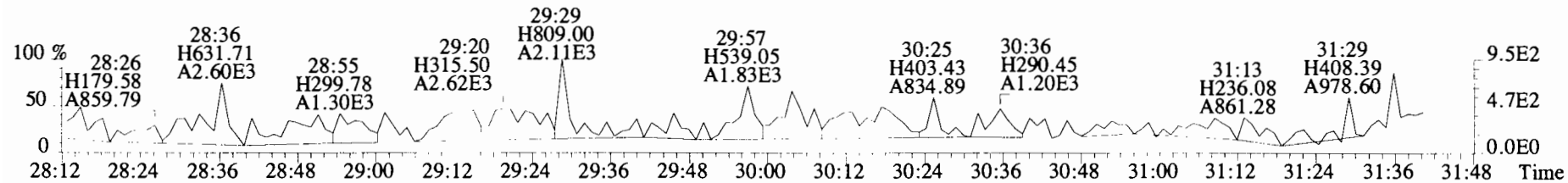
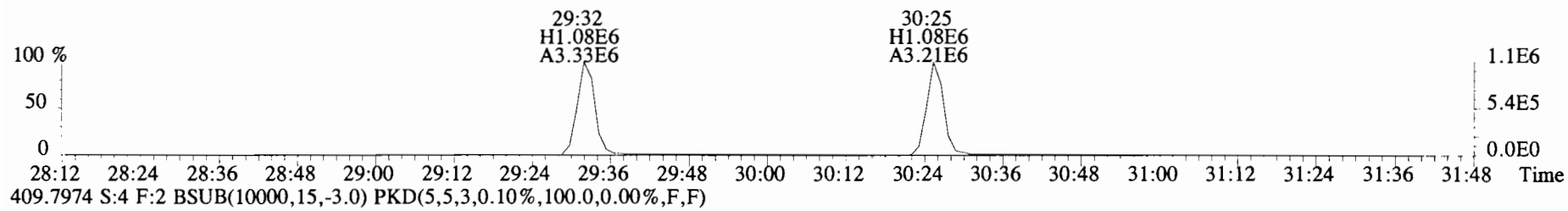
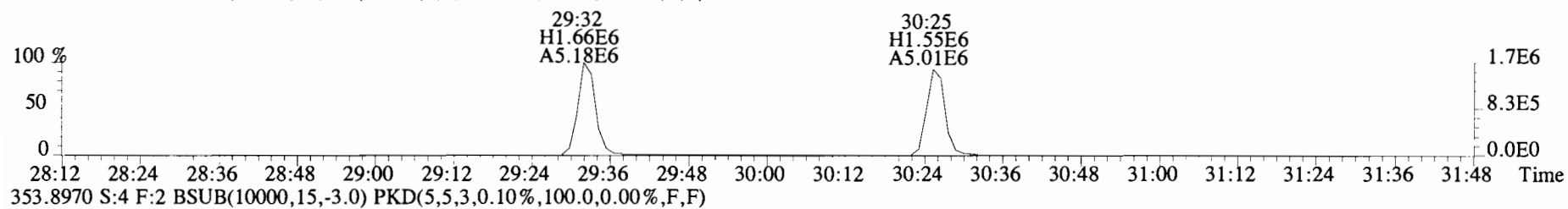
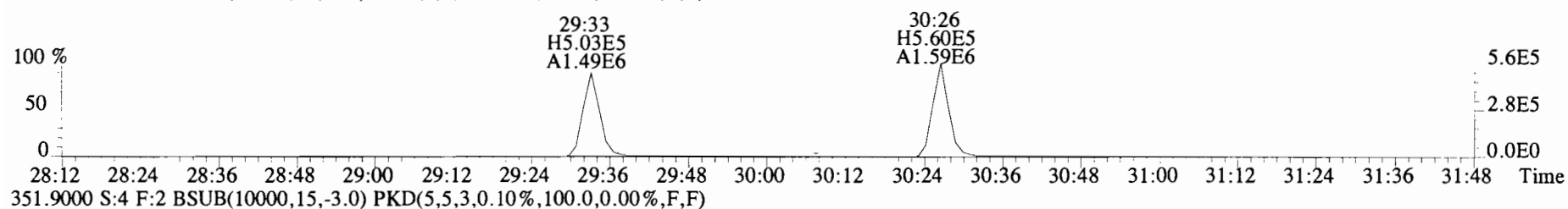
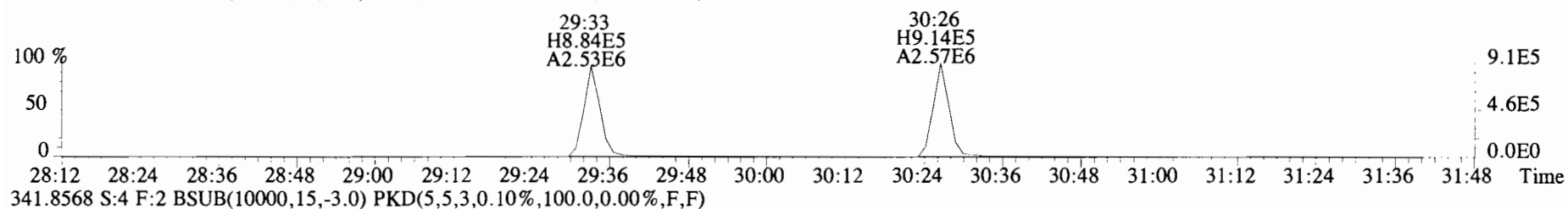
409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



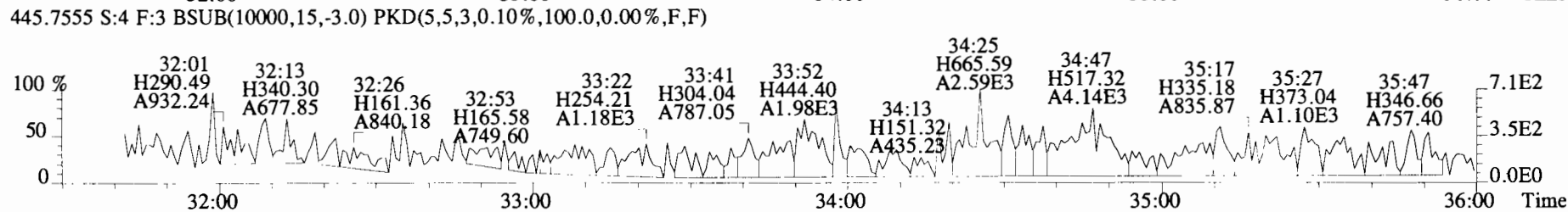
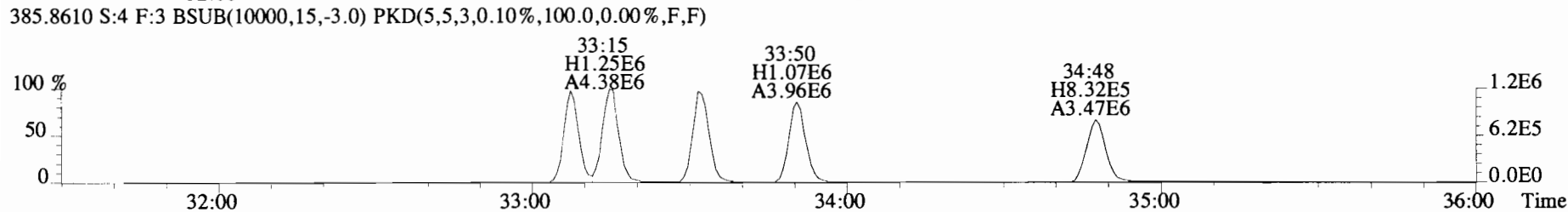
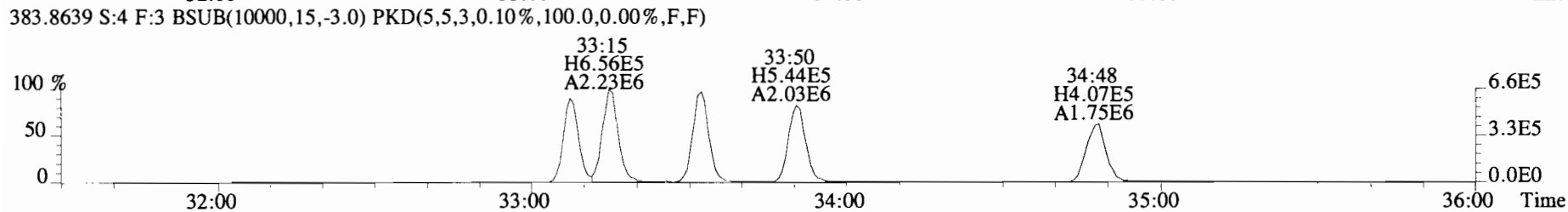
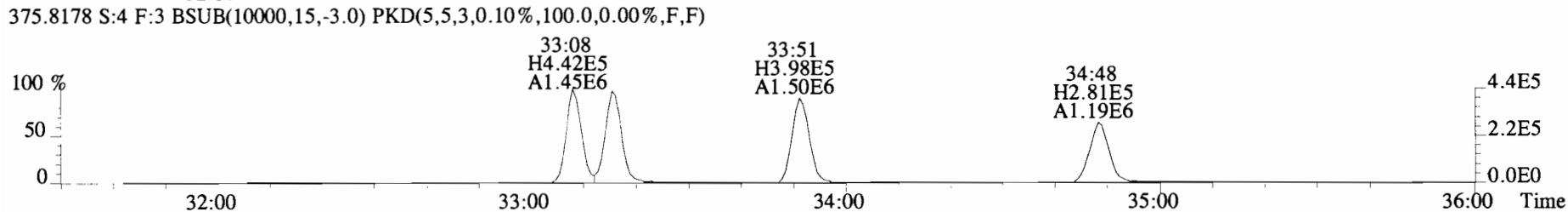
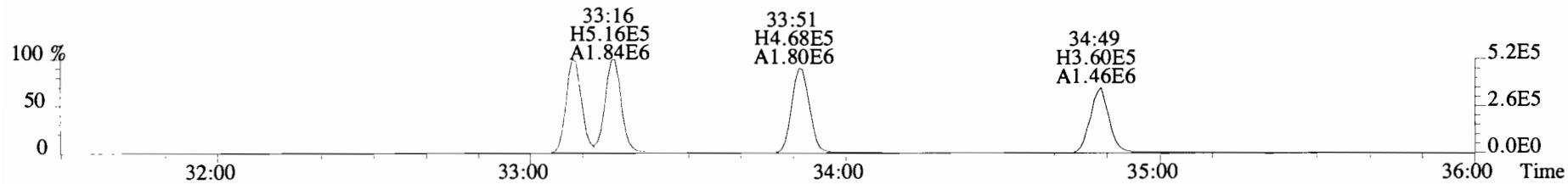
316.9824 S:4



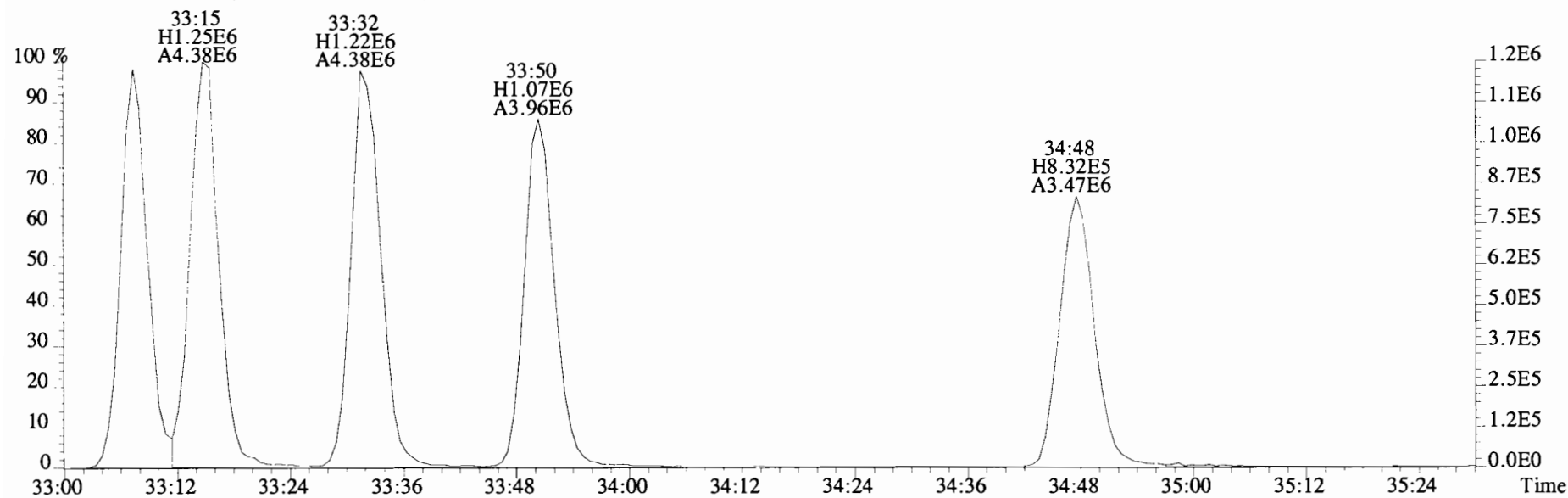
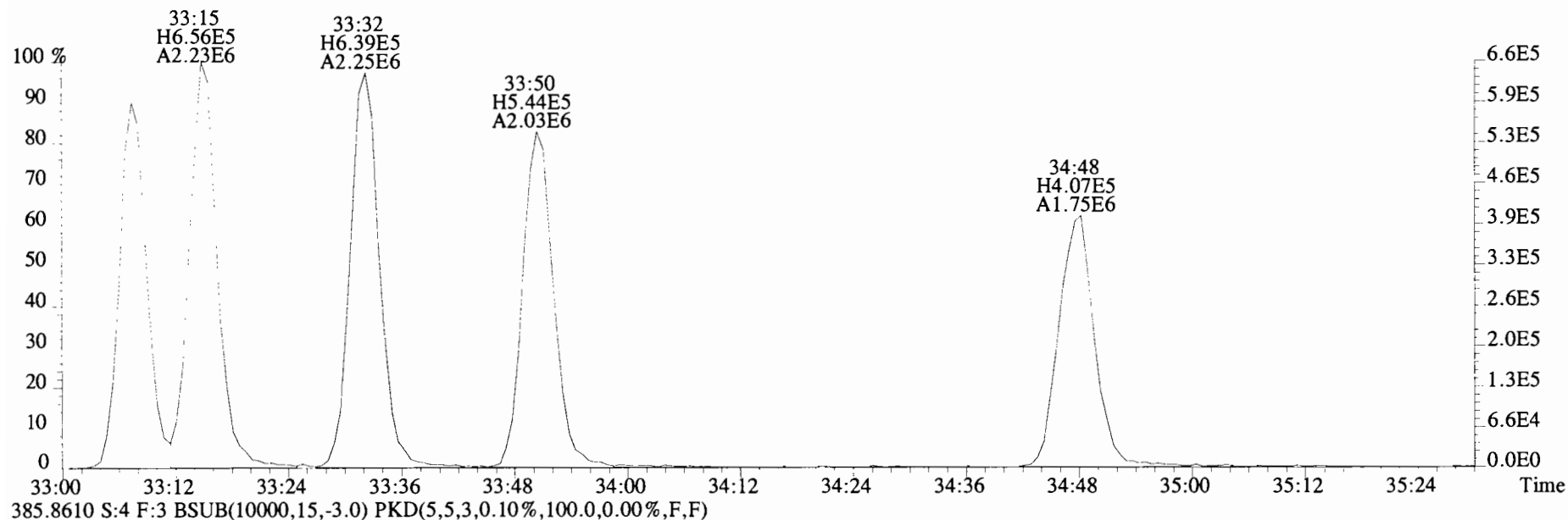
File:191120D1 #1-210 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata Analytical Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
 339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D1 #1-385 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 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)

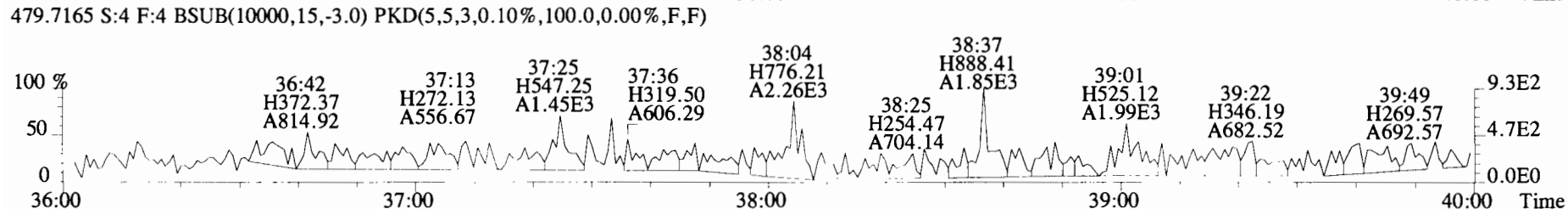
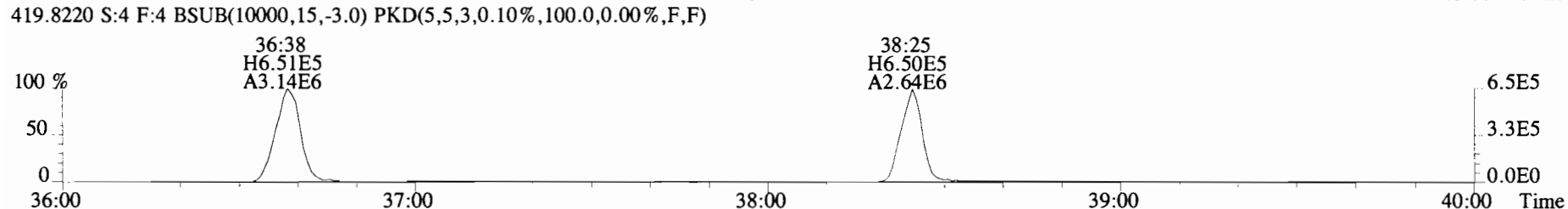
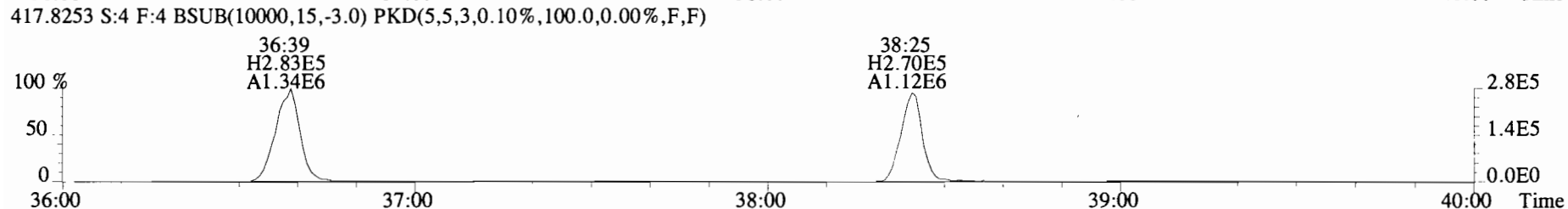
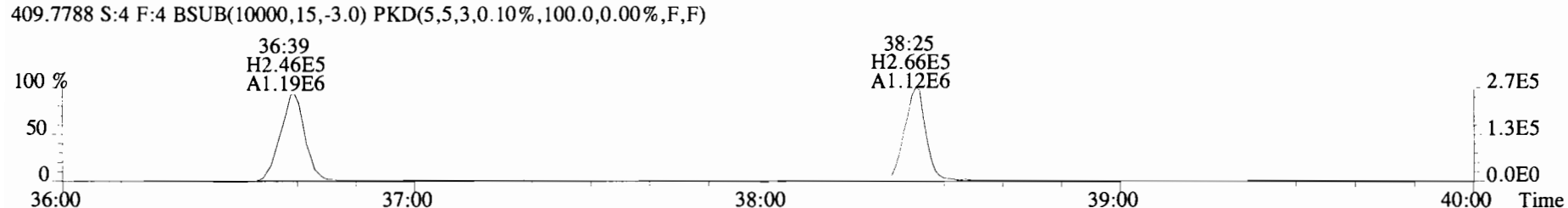
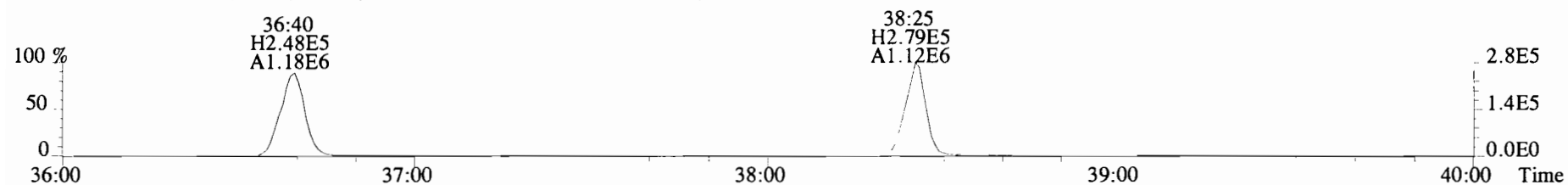


File:191120D1 #1-385 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
383.8639 S:4 F:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

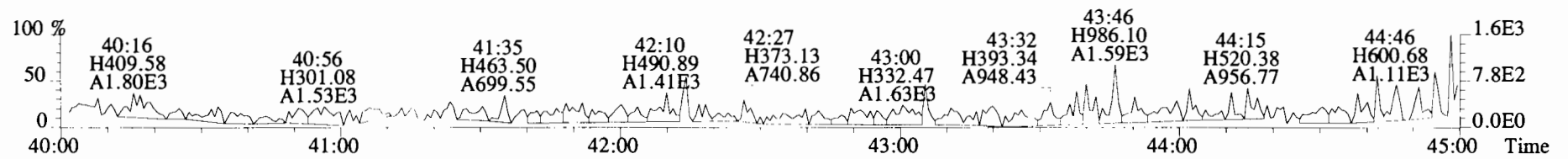
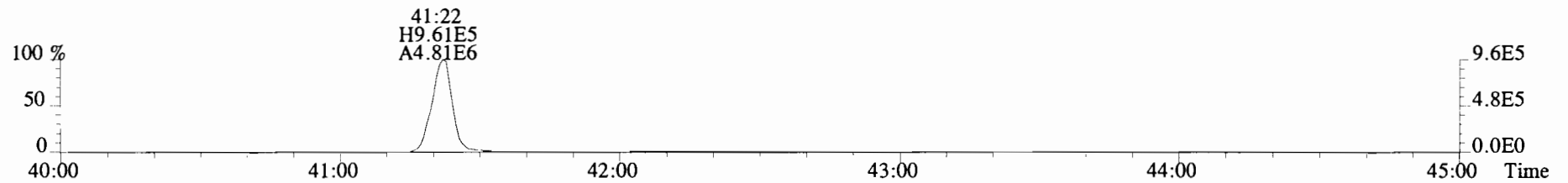
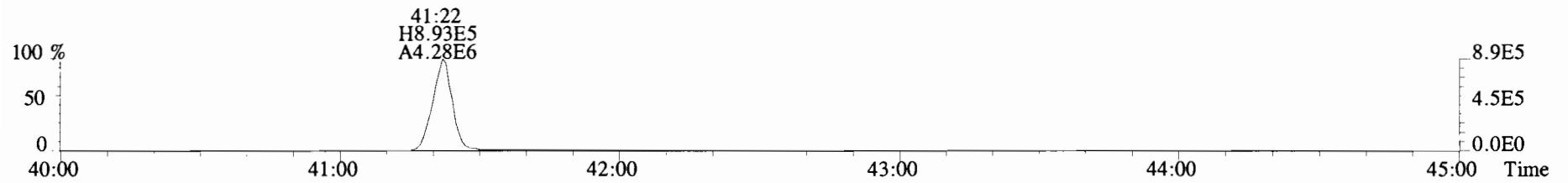
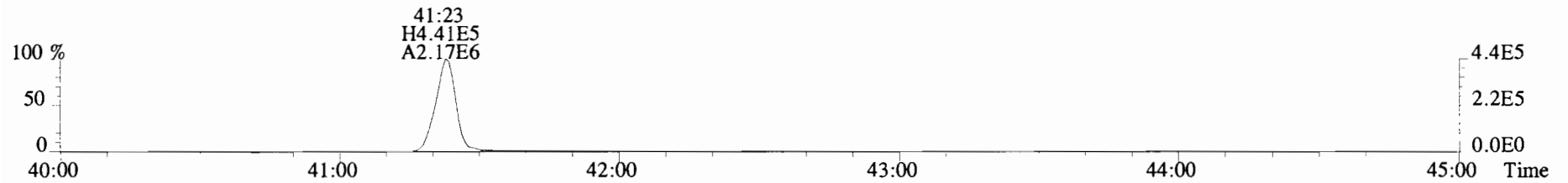
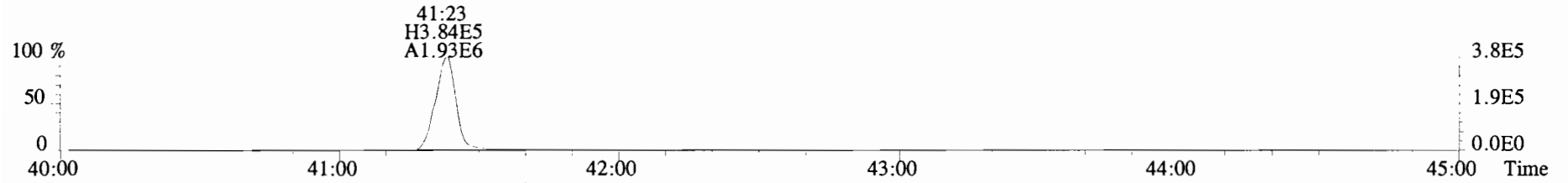




File:191120D1 #1-355 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Viata Analytical Laboratory VG7 Text:B9K0068-BS1 OPR 10 Exp:OCDD\_DB5  
 407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D1 #1-432 Acq:20-NOV-2019 16:24:12 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Viata Analytical Laboratory\_VG7 Text:B9K0068-BS1 OPR 10 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)



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_8.qld

Last Altered: Monday, December 02, 2019 10:02:51 Pacific Standard Time

Printed: Monday, December 02, 2019 10:03:55 Pacific Standard Time

EL 12/2/19

C- 12/02/19

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

Calibration: 27 Nov 2019 13:08:58

Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,

Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 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		1.19e5	2.5015	0.905			1.001		26.19					0.792
2	1,2,3,7,8-PeCDD		9.47e4	2.5015	0.903			1.001		30.70					0.741
3	1,2,3,4,7,8-HxCDD		7.87e4	2.5015	1.101			1.000		34.00					1.28
4	1,2,3,6,7,8-HxCDD		8.74e4	2.5015	0.939			1.000		34.09					1.43
5	1,2,3,7,8,9-HxCDD		8.77e4	2.5015	0.961			1.001		34.43					1.40
6	1,2,3,4,6,7,8-HpCDD	5.18e3	7.04e4	2.5015	0.979	1.107	NO	1.000	1.000	37.85	37.85	60.096		60.1	1.72
7	OCDD	2.90e4	1.21e5	2.5015	0.959	0.885	NO	1.000	1.000	41.12	41.13	398.70		399	1.74
8	2,3,7,8-TCDF		1.66e5	2.5015	0.950			1.001		25.41					0.674
9	1,2,3,7,8-PeCDF		1.46e5	2.5015	0.960			1.001		29.53					0.455
10	2,3,4,7,8-PeCDF		1.36e5	2.5015	1.015			1.001		30.43					0.454
11	1,2,3,4,7,8-HxCDF		1.07e5	2.5015	1.177			1.000		33.10					0.477
12	1,2,3,6,7,8-HxCDF		1.16e5	2.5015	1.069			1.000		33.22					0.482
13	2,3,4,6,7,8-HxCDF		1.05e5	2.5015	1.114			1.001		33.84					0.571
14	1,2,3,7,8,9-HxCDF		9.73e4	2.5015	1.062			1.000		34.77					0.711
15	1,2,3,4,6,7,8-HpCDF	3.83e2	8.13e4	2.5015	1.128	0.973	NO	1.001	1.001	36.64	36.63	3.3388		3.34	0.868
16	1,2,3,4,7,8,9-HpCDF		6.39e4	2.5015	1.280			1.000		38.38					0.789
17	OCDF	2.02e3	1.48e5	2.5015	0.947	0.849	NO	1.000	1.000	41.35	41.36	23.102		23.1	1.04
18	13C-2,3,7,8-TCDD	1.19e5	1.30e5	2.5015	1.095	0.761	NO	1.021	1.021	26.16	26.16	669.39	83.7		2.32
19	13C-1,2,3,7,8-PeCDD	9.47e4	1.30e5	2.5015	0.881	0.641	NO	1.187	1.198	30.40	30.68	661.06	82.7		1.70
20	13C-1,2,3,4,7,8-Hx...	7.87e4	1.36e5	2.5015	0.642	1.280	NO	1.014	1.014	33.97	33.99	720.22	90.1		2.71
21	13C-1,2,3,6,7,8-Hx...	8.74e4	1.36e5	2.5015	0.856	1.252	NO	1.017	1.017	34.09	34.09	600.27	75.1		2.04
22	13C-1,2,3,7,8,9-Hx...	8.77e4	1.36e5	2.5015	0.807	1.225	NO	1.026	1.026	34.39	34.39	638.67	79.9		2.16
23	13C-1,2,3,4,6,7,8-H...	7.04e4	1.36e5	2.5015	0.654	1.074	NO	1.126	1.129	37.73	37.84	632.33	79.1		2.87
24	13C-OCDD	1.21e5	1.36e5	2.5015	0.580	0.909	NO	1.226	1.227	41.08	41.12	1231.0	77.0		2.70
25	13C-2,3,7,8-TCDF	1.66e5	1.95e5	2.5015	1.035	0.793	NO	0.993	0.991	25.45	25.38	655.72	82.0		2.50
26	13C-1,2,3,7,8-PeCDF	1.46e5	1.95e5	2.5015	0.854	1.541	NO	1.143	1.152	29.28	29.51	702.40	87.9		2.51
27	13C-2,3,4,7,8-PeCDF	1.36e5	1.95e5	2.5015	0.847	1.605	NO	1.176	1.187	30.13	30.40	658.07	82.3		2.53
28	13C-1,2,3,4,7,8-Hx...	1.07e5	1.36e5	2.5015	0.832	0.529	NO	0.987	0.988	33.08	33.10	753.72	94.3		3.19
29	13C-1,2,3,6,7,8-Hx...	1.16e5	1.36e5	2.5015	1.034	0.510	NO	0.991	0.991	33.20	33.21	660.55	82.6		2.57
30	13C-2,3,4,6,7,8-Hx...	1.05e5	1.36e5	2.5015	0.953	0.530	NO	1.009	1.009	33.81	33.81	649.25	81.2		2.78
31	13C-1,2,3,7,8,9-Hx...	9.73e4	1.36e5	2.5015	0.828	0.510	NO	1.039	1.038	34.80	34.77	690.43	86.4		3.21

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_8.qld

Last Altered: Monday, December 02, 2019 10:02:51 Pacific Standard Time

Printed: Monday, December 02, 2019 10:03:55 Pacific Standard Time

Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,  
 Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 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...	8.13e4	1.36e5	2.5015	0.757	0.456	NO	1.093	1.093	36.61	36.60	630.82	78.9		3.18
33	33 13C-1,2,3,4,7,8,9-H...	6.39e4	1.36e5	2.5015	0.581	0.438	NO	1.143	1.145	38.30	38.38	646.00	80.8		4.14
34	34 13C-OCDF	1.48e5	1.36e5	2.5015	0.689	0.894	NO	1.233	1.234	41.32	41.35	1259.6	78.8		1.84
35	35 37Cl-2,3,7,8-TCDD	5.01e4	1.30e5	2.5015	1.198			1.022	1.022	26.18	26.19	257.45	80.5		0.779
36	36 13C-1,2,3,4-TCDD	1.30e5	1.30e5	2.5015	1.000	0.809	NO	1.000	1.000	25.70	25.62	799.53	100.0		2.54
37	37 13C-1,2,3,4-TCDF	1.95e5	1.95e5	2.5015	1.000	0.793	NO	1.000	1.000	24.28	24.18	799.53	100.0		2.59
38	38 13C-1,2,3,4,6,9-Hx...	1.36e5	1.36e5	2.5015	1.000	0.509	NO	1.000	1.000	33.55	33.51	799.53	100.0		2.65
39	39 Total Tetra-Dioxins		1.19e5	2.5015	0.901			0.000		25.50					0.510
40	40 Total Penta-Dioxins		9.47e4	2.5015	0.872			0.000		30.00					0.327
41	41 Total Hexa-Dioxins		0.00e0	2.5015	0.976			0.000		33.80		12.238		12.2	1.40
42	42 Total Hepta-Dioxins		7.04e4	2.5015	0.989			0.000		37.75		144.57		145	1.71
43	43 Total Tetra-Furans		1.66e5	2.5015	0.943			0.000		24.00					0.338
44	44 1st Func. Penta-Fur...		0.00e0	2.5015	0.940			0.000		27.63					0.134
45	45 Total Penta-Furans		0.00e0	2.5015	0.940			0.000		30.00		0.00000		0.431	0.171
46	46 Total Hexa-Furans		0.00e0	2.5015	1.078			0.000		33.00		2.4043		2.40	0.567
47	47 Total Hepta-Furans		0.00e0	2.5015	1.135			0.000		37.75		19.063		19.1	0.874

Quantify Totals Report MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_8.qld

Last Altered: Monday, December 02, 2019 10:02:51 Pacific Standard Time

Printed: Monday, December 02, 2019 10:03:55 Pacific Standard Time

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

Calibration: 27 Nov 2019 13:08:58

Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011, Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 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	NO	33.29	335.696	47017.848	14.090	MM	5.7719	5.77
41	Total Hexa-Dioxins	NO	32.46	386.622	47017.848	15.784	bb	6.4656	6.47

Hepta-Dioxins

#	Name	NY	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
6	1,2,3,4,6,7,8-HpCDD	NO	37.85	2721.533	36445.922	147.231	MM	60.0957	60.10
42	Total Hepta-Dioxins	NO	37.02	3689.292	36445.922	208.921	bb	84.4732	84.47

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\191120D2\191120D2\_8.qld

Last Altered: Monday, December 02, 2019 10:02:51 Pacific Standard Time

Printed: Monday, December 02, 2019 10:03:55 Pacific Standard Time

Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,  
 Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

**Penta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
45	Total Penta-Furans	YES	28.62	43.427	86271.800	0.000	MM	0.0000	0.43

**Hexa-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
46	Total Hexa-Furans	NO	32.63	191.048	36376.211	6.481	bb	2.4043	2.40

**Hepta-Furans**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
47	Total Hepta-Furans	NO	37.20	834.938	22456.069	44.632	MM	15.7240	15.72
15	1,2,3,4,6,7,8-HpCDF	NO	36.63	188.874	25450.625	9.418	MM	3.3388	3.34

Vista Analytical Laboratory

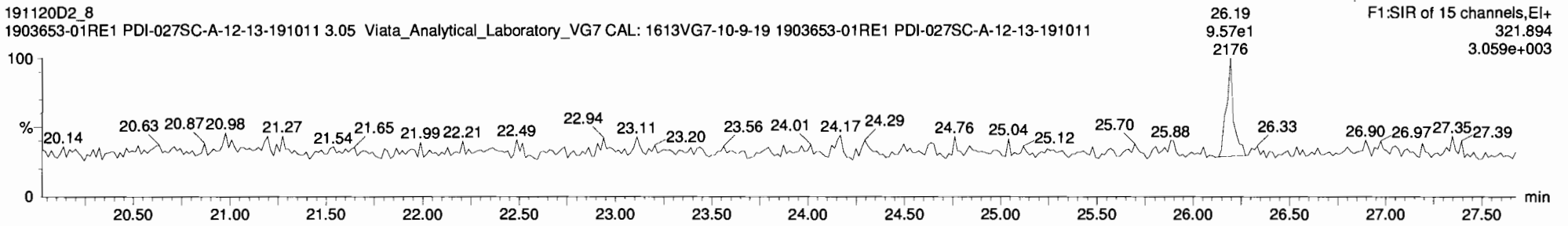
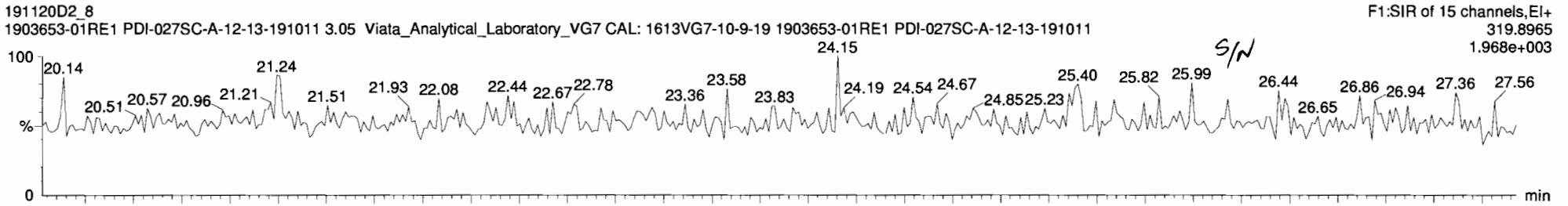
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Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

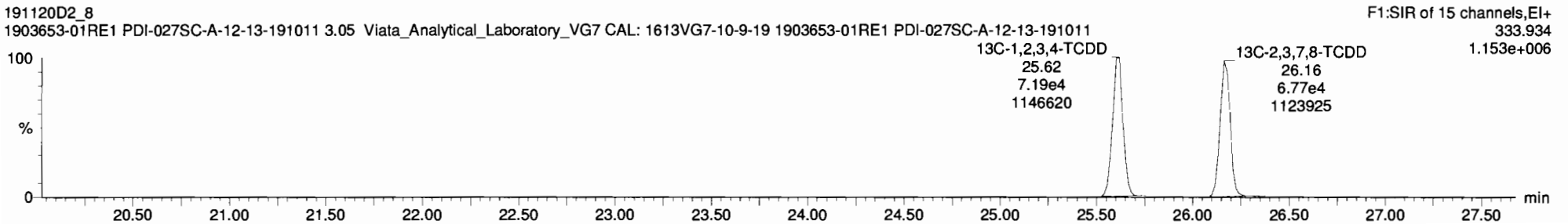
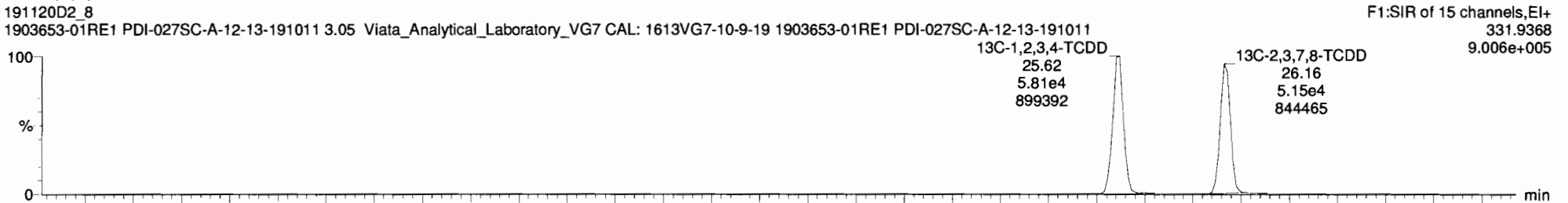
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Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011, Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Tetra-Dioxins



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



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

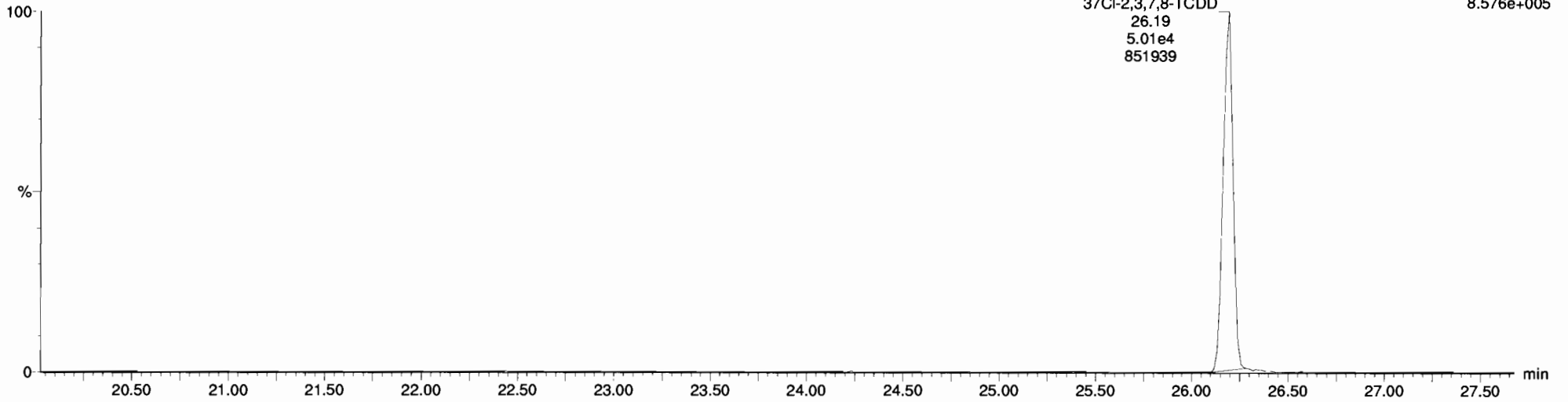
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Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,  
Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

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

191120D2\_8  
1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-01RE1 PDI-027SC-A-12-13-191011

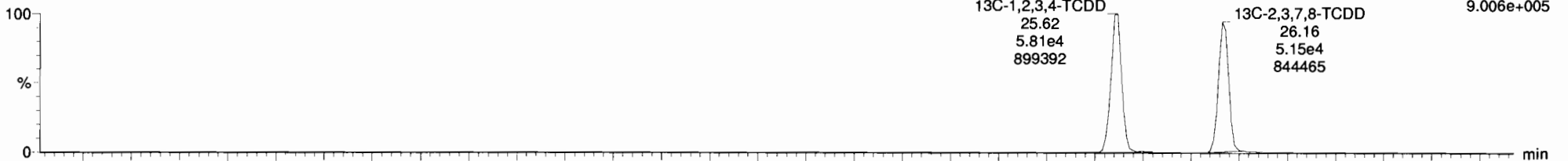
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8.576e+005



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

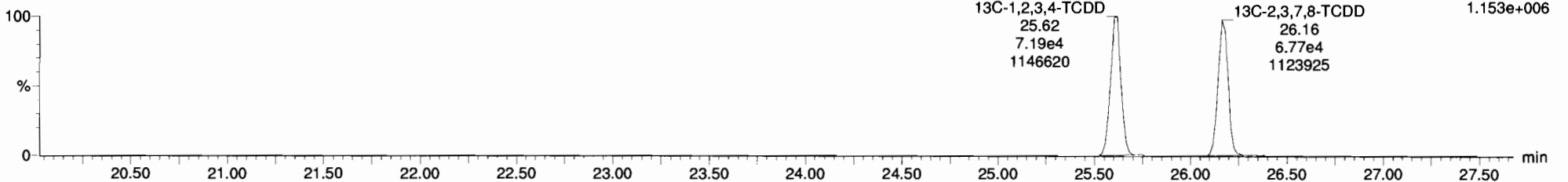
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1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-01RE1 PDI-027SC-A-12-13-191011

F1:SIR of 15 channels,EI+  
331.9368  
9.006e+005



191120D2\_8  
1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-01RE1 PDI-027SC-A-12-13-191011

F1:SIR of 15 channels,EI+  
333.934  
1.153e+006





Vista Analytical Laboratory

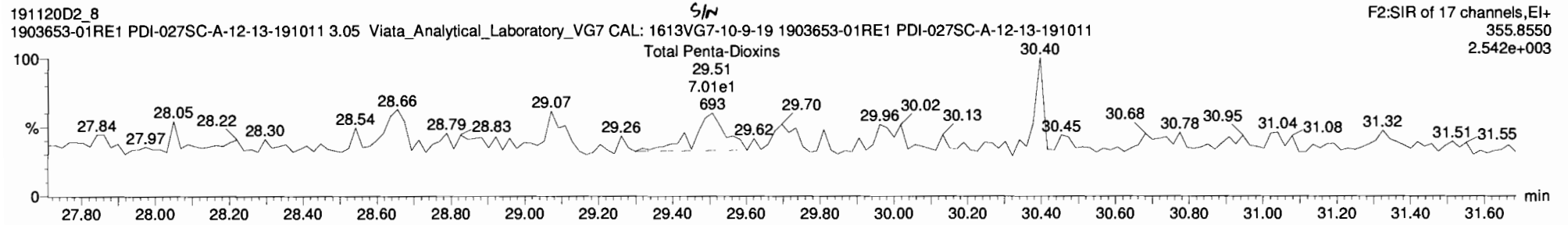
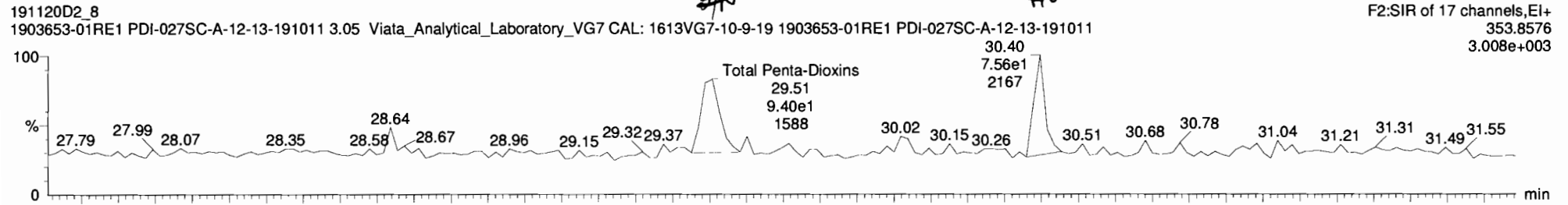
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Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

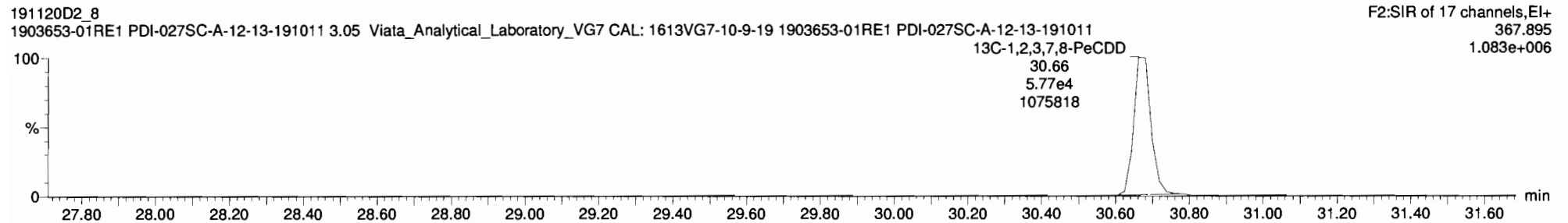
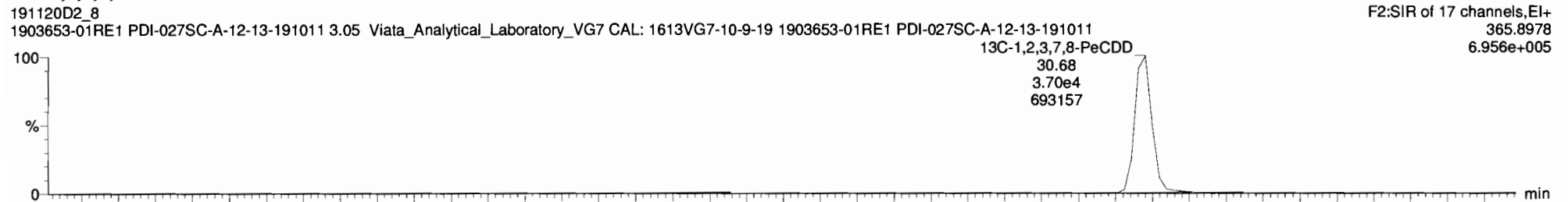
Printed: Wednesday, November 27, 2019 13:18:48 Pacific Standard Time

Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,  
Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Penta-Dioxins



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



Vista Analytical Laboratory

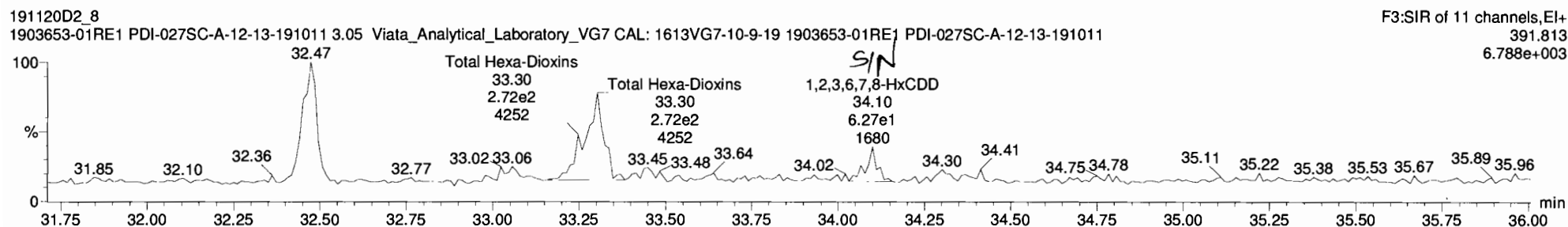
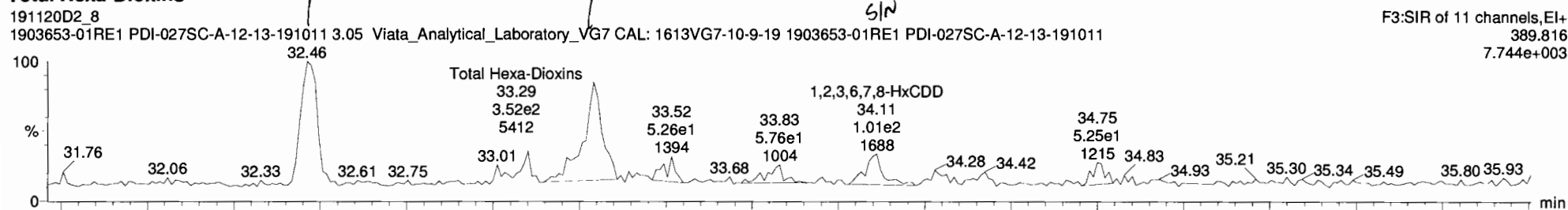
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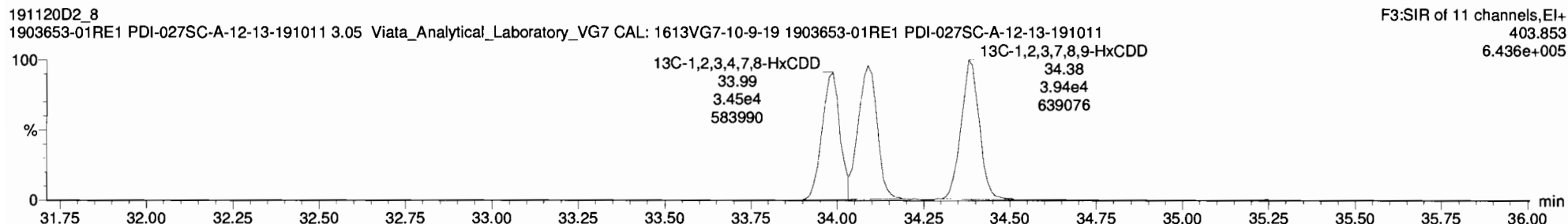
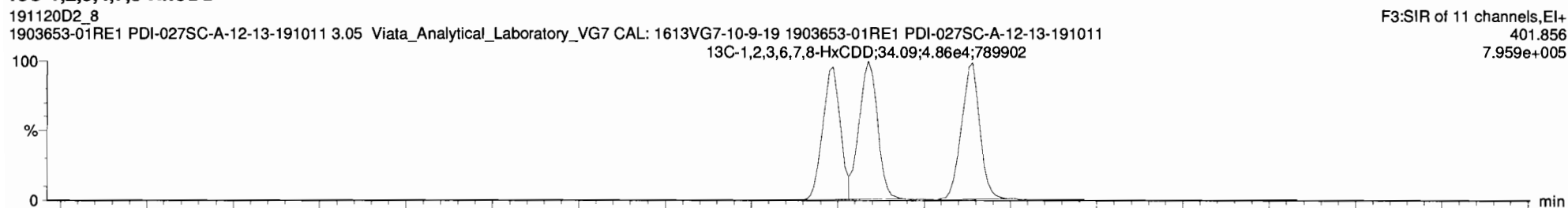
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Total Hexa-Dioxins



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

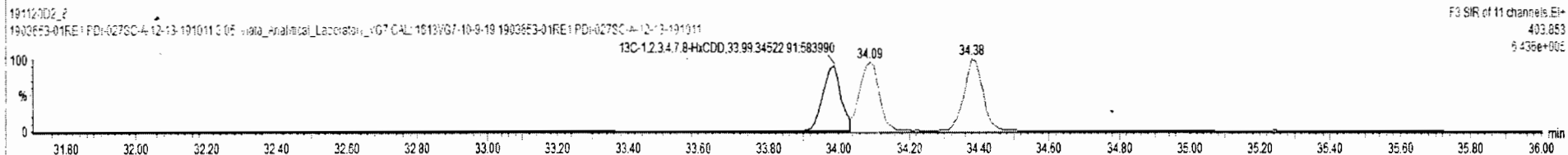
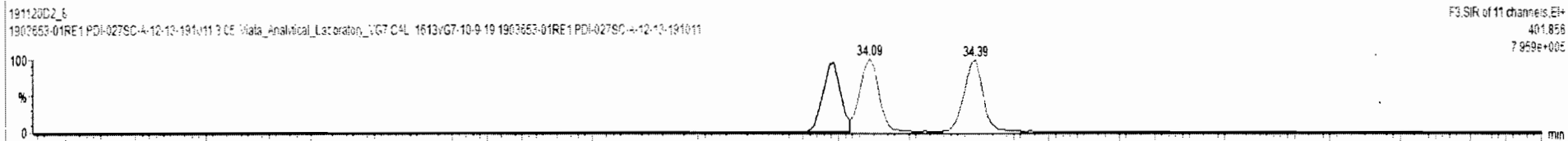
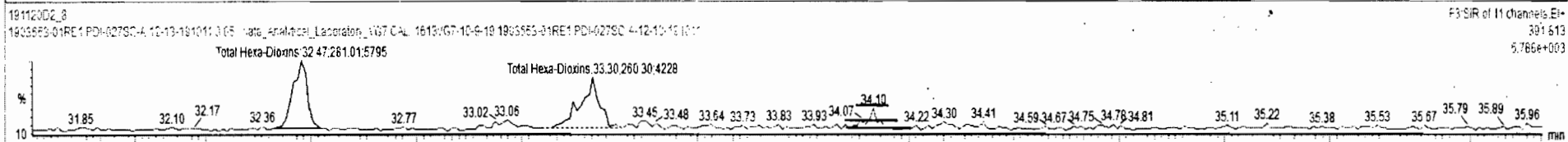
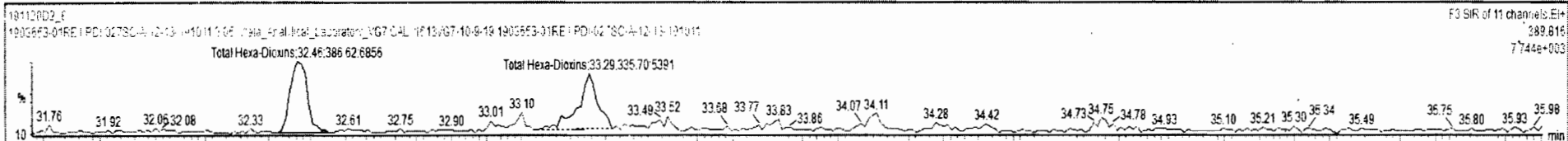




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#	Name	Resp	IS Resp	ES	RA	n/y	RRF	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
37	13C-1,2,3,4-TCDF	1.95e5	1.95e5	37	0.79	NO	1.000	2.501	24.28	24.16	1.000	1.000	NO	799.5	100	2.59	
38	13C-1,2,3,4,6,8-HxCDF	1.36e5	1.36e5	38	0.51	NO	1.000	2.501	33.55	33.51	1.000	1.000	NO	799.5	100	2.85	
39	Total Tetra-Dioxins		1.19e5				0.601	2.501	25.50			0.000	NO			0.510	
40	Total Penta-Dioxins		9.47e4				0.672	2.501	30.00			0.000	NO	0.0000		0.327	0.6568
41	Total Hexa-Dioxins		0.00e0				0.976	2.501	33.80			0.000	NO	12.24		1.40	12.24
42	Total Hepta-Dioxins		7.04e4				0.589	2.501	37.75			0.000	NO	144.6		1.71	144.6
43	Total Tetra-Furans		1.66e5				0.943	2.501	24.00			0.000	NO			0.338	
44	1st Func. Penta-Furans		0.00e0				0.940	2.501	27.63			0.000	NO			0.134	
45	Total Penta-Furans		0.00e0				0.940	2.501	30.00			0.000	NO	0.0000		0.171	0.6450
46	Total Hexa-Furans		0.00e0				1.078	2.501	33.00			0.000	NO	2.450		0.567	2.450

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc
1	41 Total Hexa-Dioxins	33.60	33.48	3.865e2	2.810e2	1.240	1.38	NO	6.465E	6.465E
2	41 Total Hexa-Dioxins	33.60	33.26	3.357e2	2.603e2	1.240	1.29	NO	5.7719	5.7719



Vista Analytical Laboratory

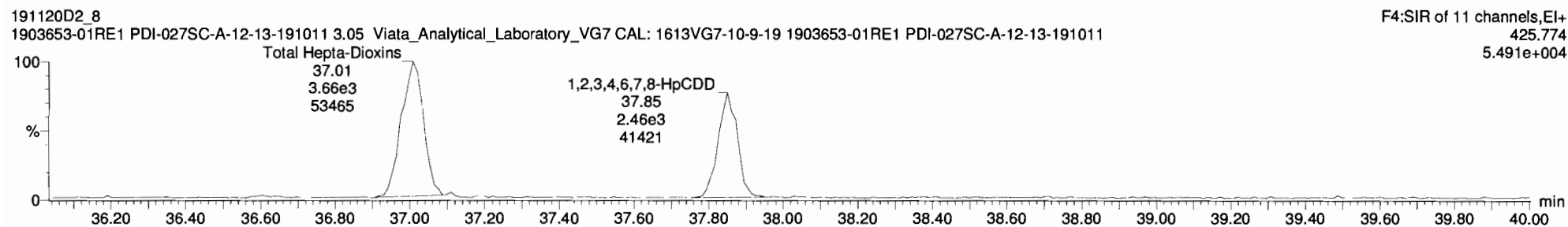
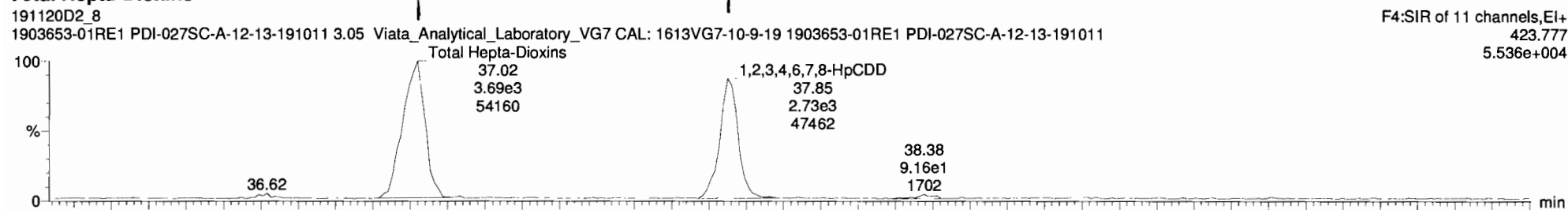
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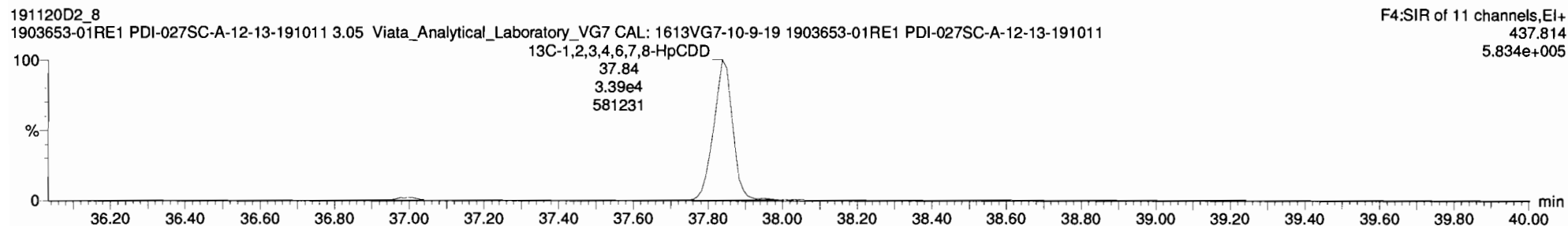
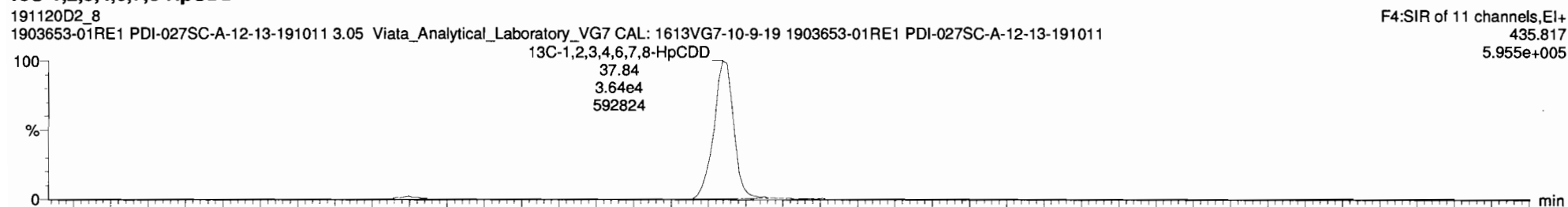
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 Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

**Total Hepta-Dioxins**



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

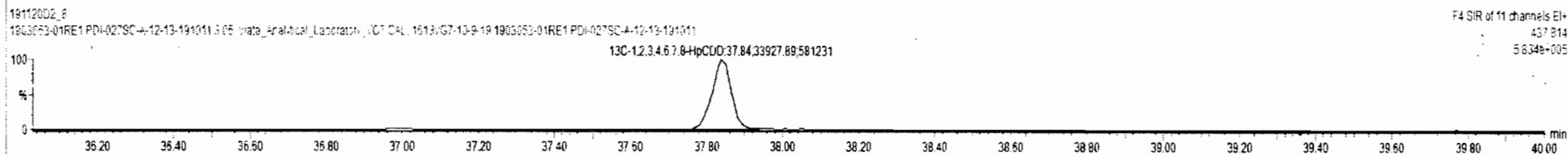
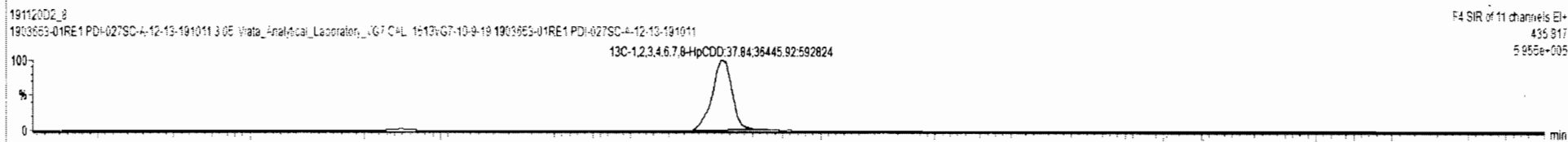
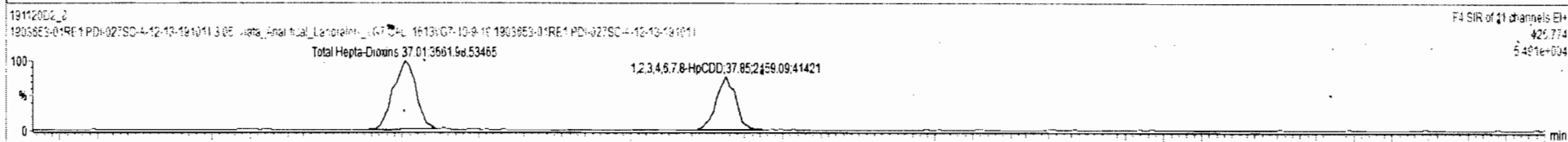
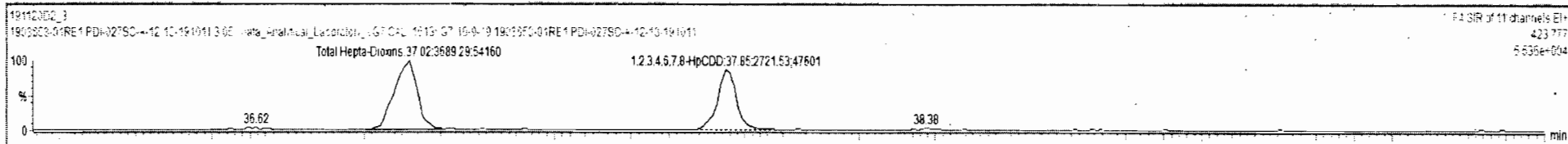




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#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/wt	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
37	13C-1,2,3,4-TCDF	1.95e5	1.95e5	37	0.79	NO	1.000	2.501	24.28	24.18	1.000	1.000	NO	759.5	100	2.55	
38	13C-1,2,3,4,6,9-HxCDF	1.36e5	1.36e5	38	0.51	NO	1.000	2.501	33.55	33.51	1.000	1.000	NO	759.5	100	2.65	
39	Total Tetra-Dioxins		1.19e5				0.901	2.501	25.50			0.000	NO			0.510	
40	Total Penta-Dioxins		9.47e4				0.872	2.501	30.00			0.000	NO	0.0000		0.327	0.6668
41	Total Hexa-Dioxins		0.00e0				0.976	2.501	33.80			0.000	NO	12.24		1.40	12.24
42	Total Hepta-Dioxins		7.04e4				0.989	2.501	37.75			0.000	NO	144.6		1.71	144.6
43	Total Tetra-Furans		1.96e5				0.942	2.501	24.00			0.000	NO			0.738	
44	1st Func. Penta-Furans		0.00e0				0.940	2.501	27.63			0.000	NO			0.134	
45	Total Penta-Furans		0.00e0				0.940	2.501	30.00			0.000	NO	0.0000		0.171	0.6450
46	Total Hexa-Furans		0.00e0				1.078	2.501	33.00			0.000	NO	2.460		0.567	2.450

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.02	0.669e2	0.662e2	1.040	1.01	NO	84.473	84.473
2	6 1,2,3,4,6,7,8-HpCDD	37.65	37.65	2.722e2	2.459e2	1.040	1.11	NO	60.096	60.096



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CAP NUM

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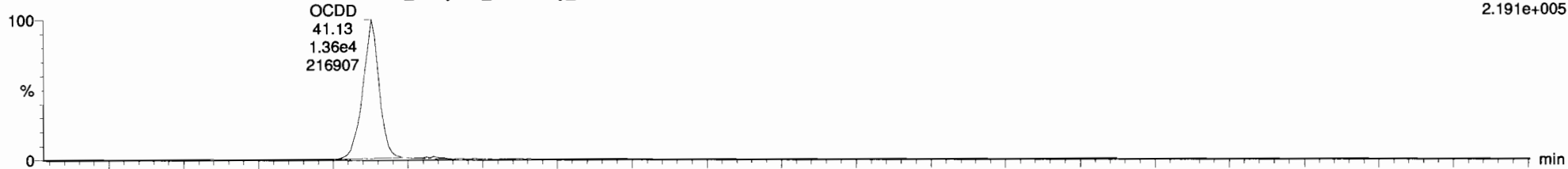
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OCDD

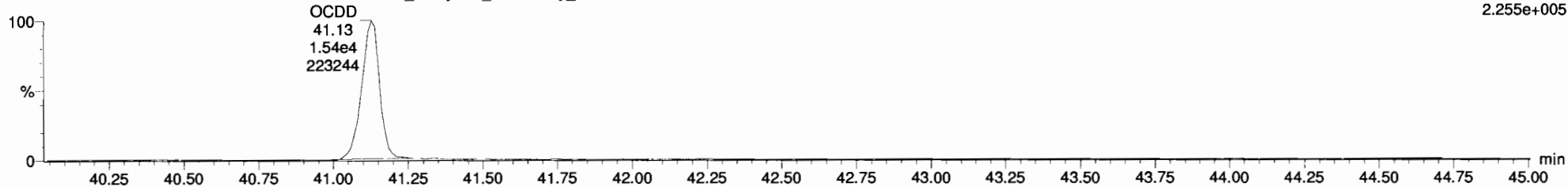
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F5:SIR of 11 channels,EI+  
457.738  
2.191e+005



191120D2\_8  
1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-01RE1 PDI-027SC-A-12-13-191011

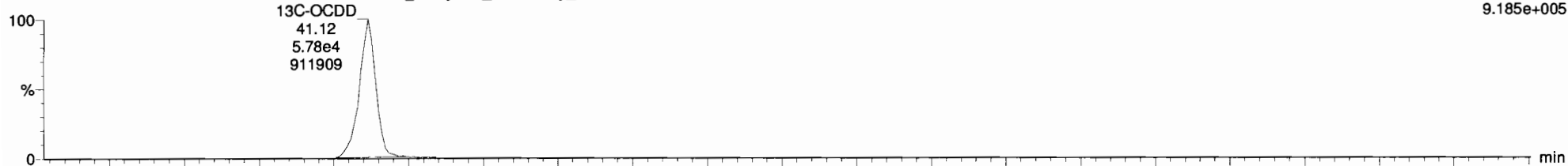
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13C-OCDD

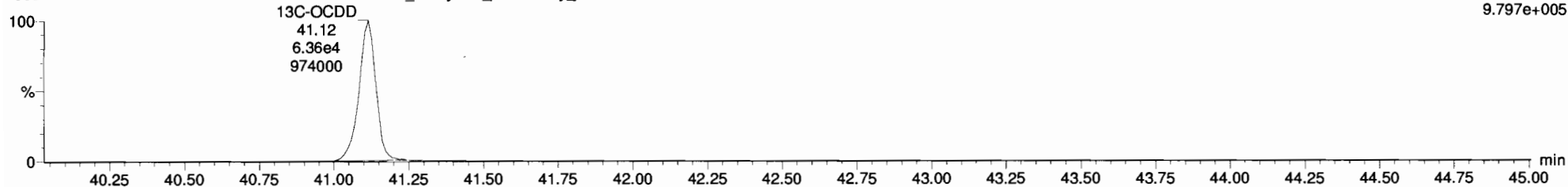
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F5:SIR of 11 channels,EI+  
469.778  
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191120D2\_8  
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Vista Analytical Laboratory

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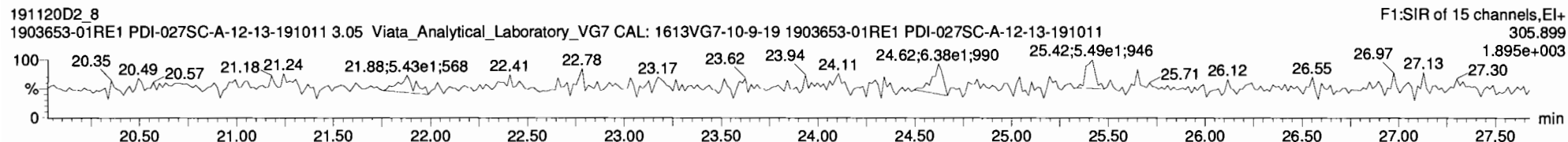
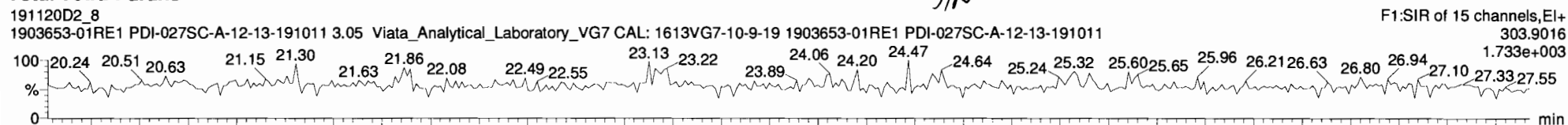
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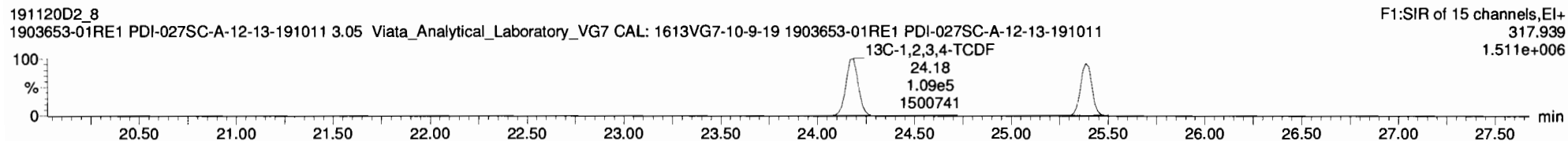
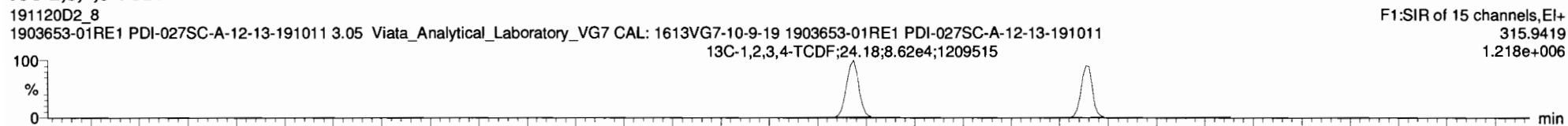
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Total Tetra-Furans

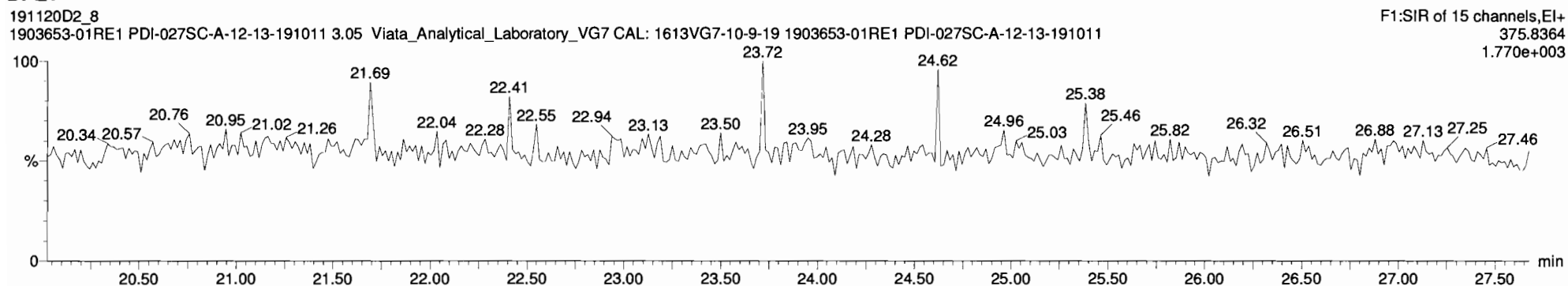
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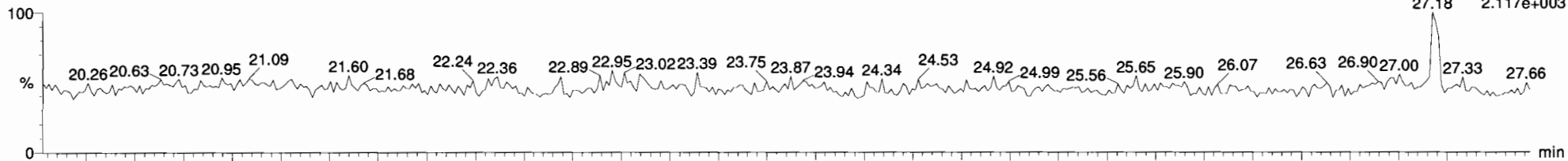
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1st Func. Penta-Furans

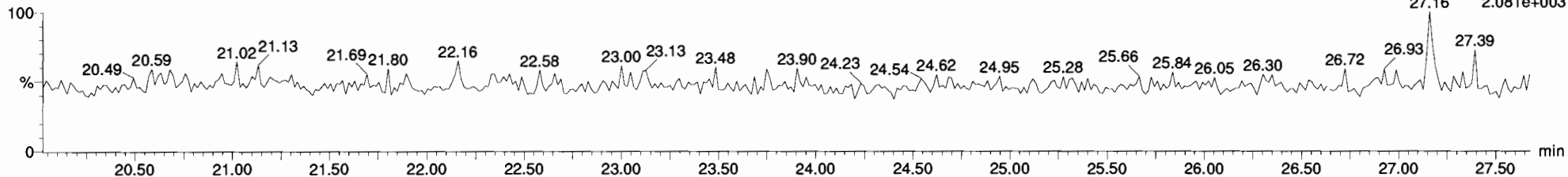
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F1:SIR of 15 channels,EI+  
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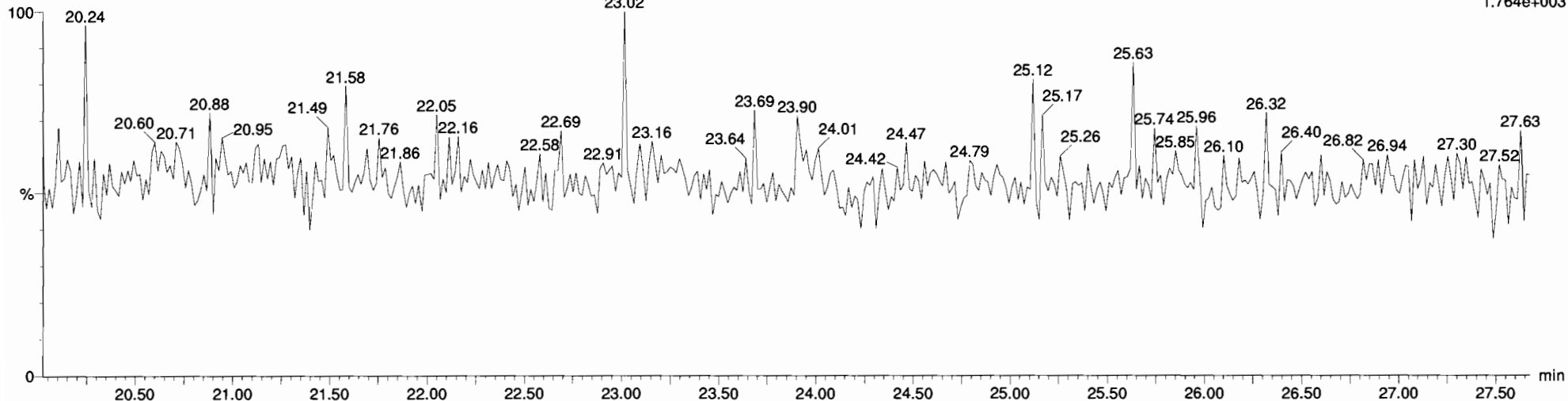
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2.081e+003



DPE6

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F1:SIR of 15 channels,EI+  
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Vista Analytical Laboratory

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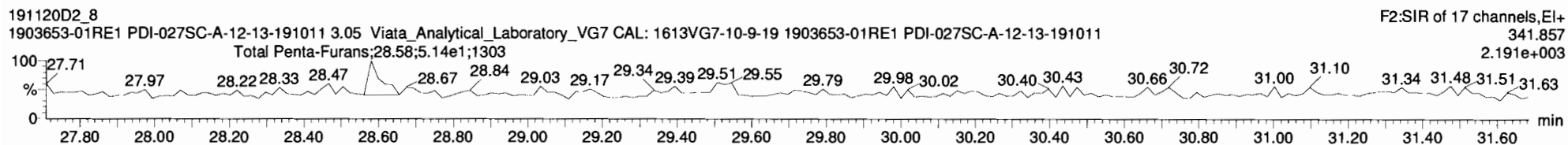
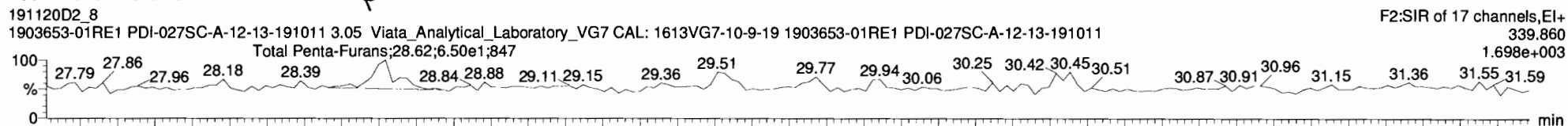
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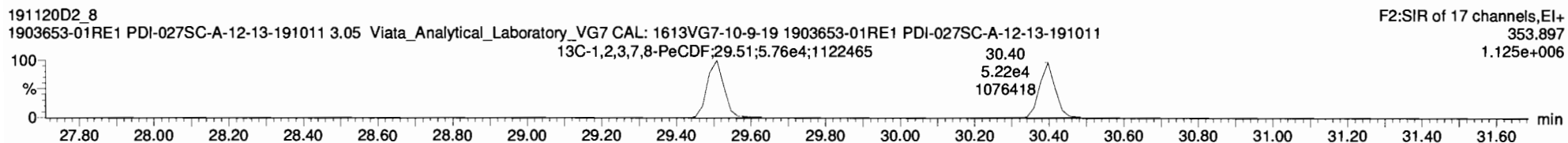
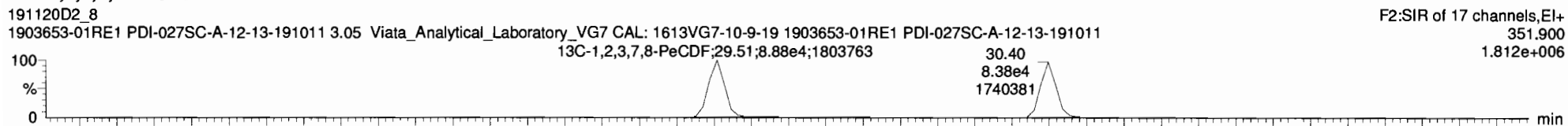
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Total Penta-Furans

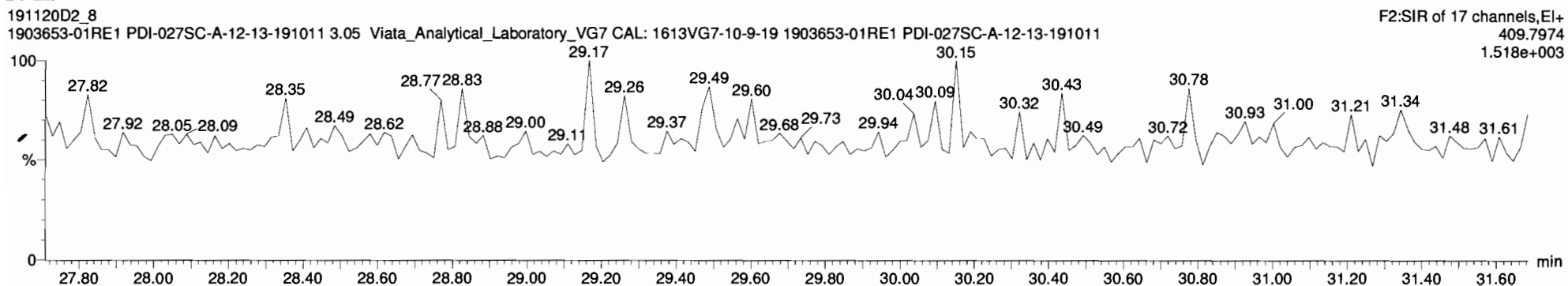
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13C-1,2,3,7,8-PeCDF



DPE2

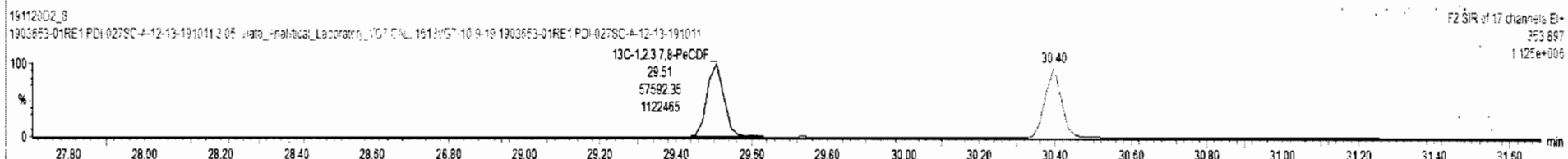
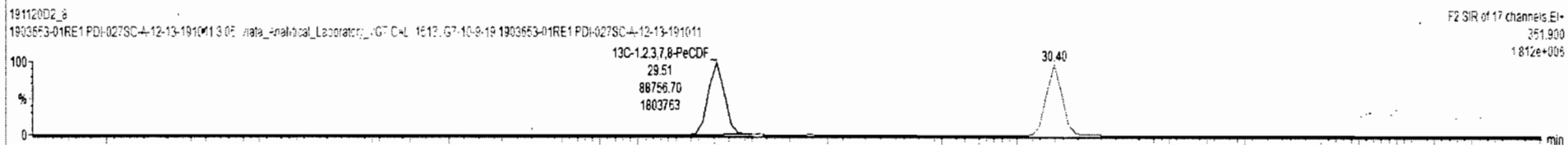
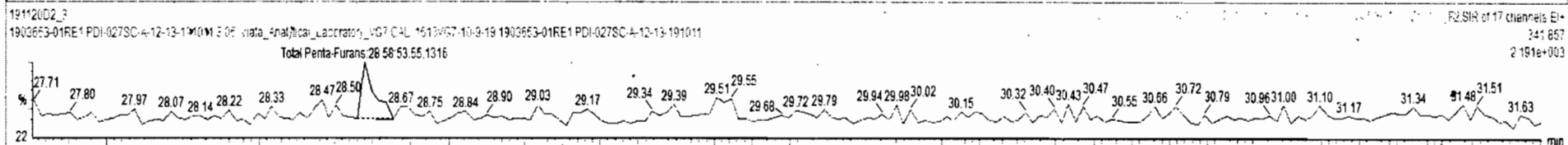
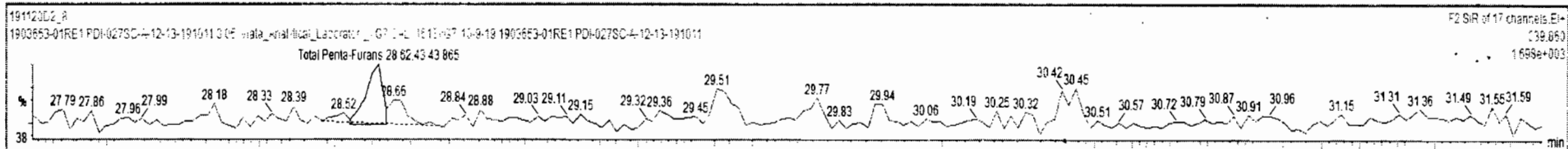




19112002\_8 - 1903653-01RE1 PDI-027SC-A-12-13-191011 - 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_V07 CAL 1613V07-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RFF	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
37	13C-1,2,3,4-TCDF	1.95e5	1.95e5	37	0.75	NO	1.000	2.501	24.28	24.18	1.000	1.000	NO	799.5	100	2.59	
38	13C-1,2,3,4,6,8-HxCDF	1.36e5	1.36e5	38	0.51	NO	1.000	2.501	23.55	33.51	1.000	1.000	NO	799.5	100	2.85	
39	Total Tetra-Dioxins		1.15e5				0.901	2.501	25.50			0.000	NO			0.510	
40	Total Penta-Dioxins		9.47e4				0.872	2.501	30.00			0.000	NO	0.0000		0.327	0.6688
41	Total Hexa-Dioxins		0.06e0				0.976	2.501	33.80			0.000	NO	12.24		1.40	12.24
42	Total Hepta-Dioxins		7.94e4				0.989	2.501	37.75			0.000	NO	144.6		1.71	144.6
43	Total Tetra-Furans		1.86e5				0.943	2.501	24.00			0.000	NO			0.338	
44	1st Func. Penta-Furans		0.06e0				0.940	2.501	27.62			0.000	NO			0.134	
45	Total Penta-Furans		0.06e0				0.940	2.501	30.00			0.000	NO	0.0000		0.171	0.4307
46	Total Hexa-Furans		0.06e0				1.078	2.501	33.00			0.000	NO	2.450		0.567	2.450

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
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Vista Analytical Laboratory

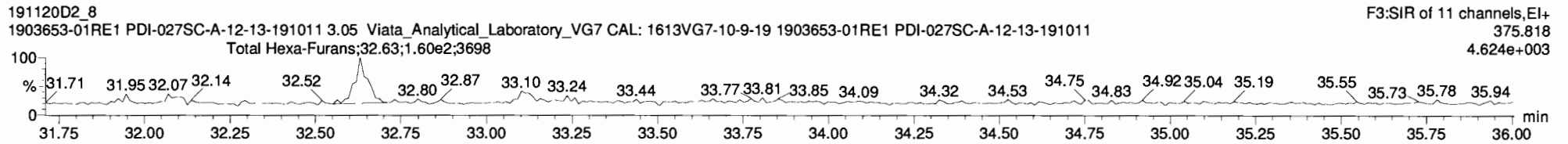
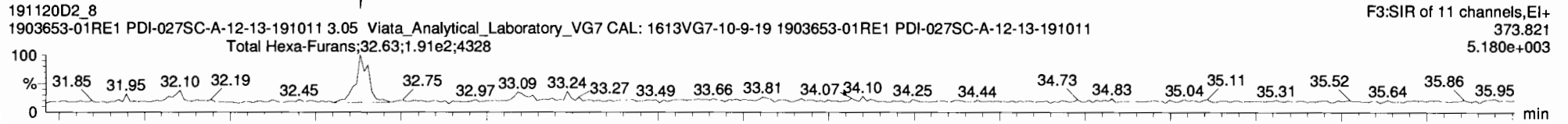
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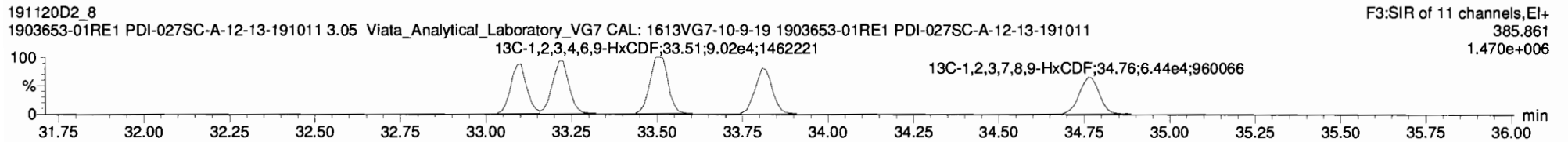
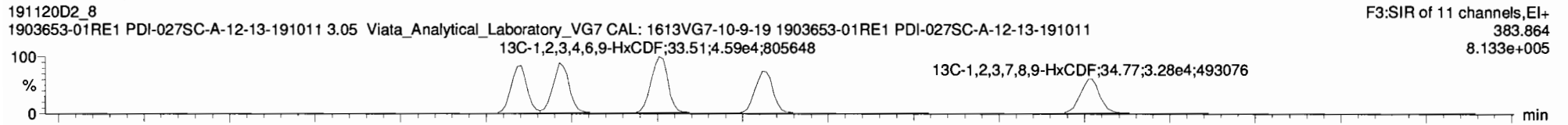
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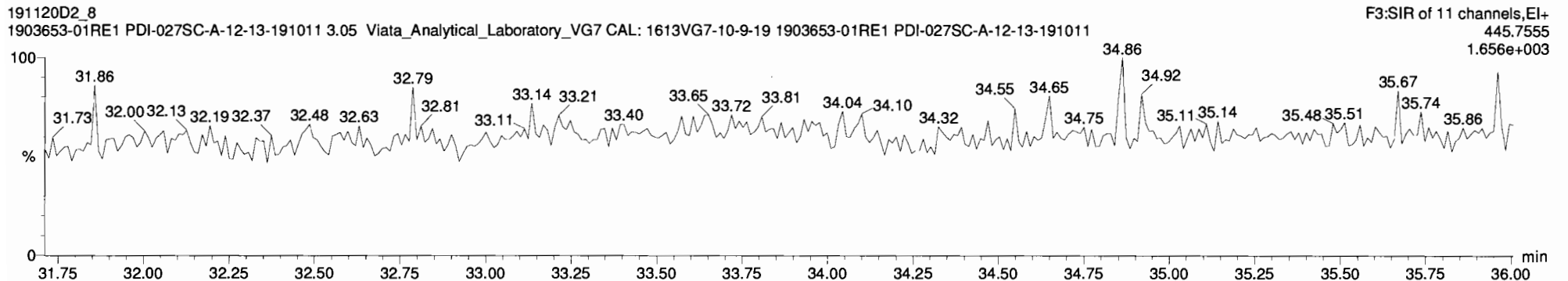
Total Hexa-Furans



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



DPE3

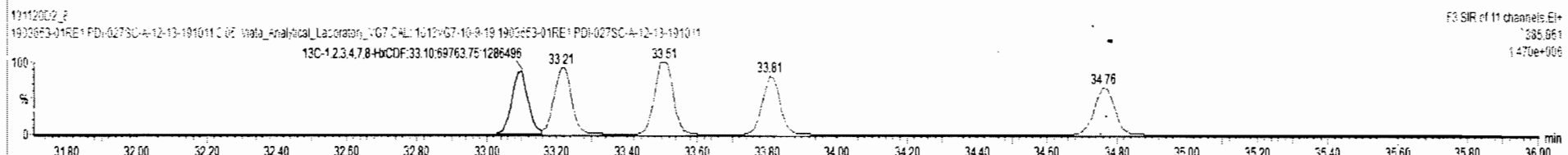
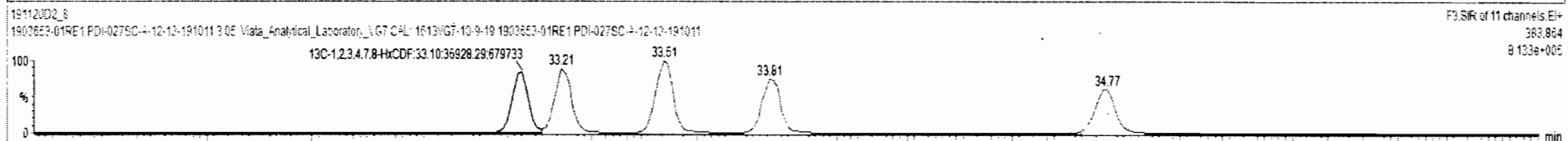
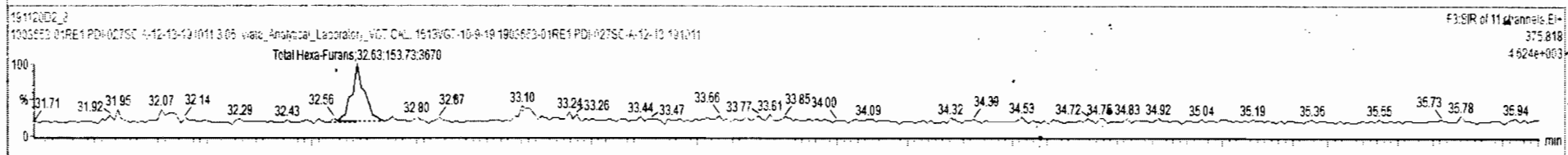
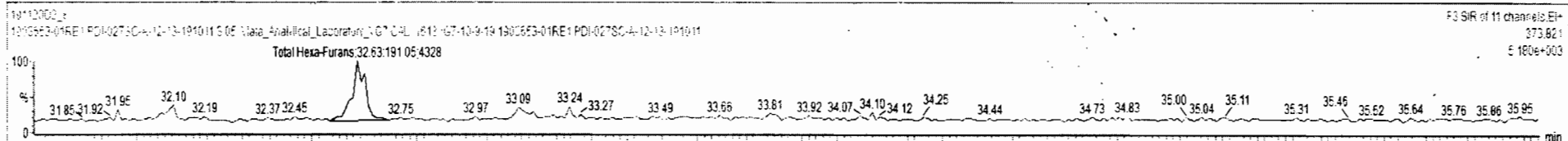




191120D2\_8 - 1903653-01RE1 PDI-027SC-A-12-13-191011 - 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viaja\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	IS Resp	ES	RA	n/y	R/R	w/col	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
37	13C-1,2,3,4-TCDF	1.95e5	1.95e5	37	0.79	NO	1.000	2.501	24.28	24.10	1.000	1.000	NO	799.5	100	2.59	
38	13C-1,2,3,4,6,8-HxCDF	1.36e5	1.36e5	38	0.51	NO	1.000	2.501	33.55	33.51	1.000	1.000	NO	799.5	100	2.85	
39	Total Tetra-Dioxins	1.19e5					0.501	2.501	25.50			0.000	NO			0.510	
40	Total Penta-Dioxins	9.47e4					0.872	2.501	20.00			0.000	NO	0.0000		0.327	0.6586
41	Total Hexa-Dioxins	0.00e0					0.976	2.501	23.60			0.000	NO	12.24		1.40	12.24
42	Total Hepta-Dioxins	7.04e4					0.589	2.501	37.75			0.000	NO	144.6		1.71	144.6
43	Total Tetra-Furans	1.66e5					0.943	2.501	24.00			0.000	NO			0.336	
44	1st Func. Penta-Furans	0.00e0					0.940	2.501	27.83			0.000	NO			0.134	
45	Total Penta-Furans	0.00e0					0.940	2.501	20.00			0.000	NO	0.0000		0.171	0.4307
46	Total Hexa-Furans	0.00e0					1.076	2.501	33.00			0.000	NO	2.404		0.587	2.404

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	46 Total Hexa-Furans	33.00	32.83	1.910e2	1.537e2	1.240	1.24	NO	2.4043	2.4043



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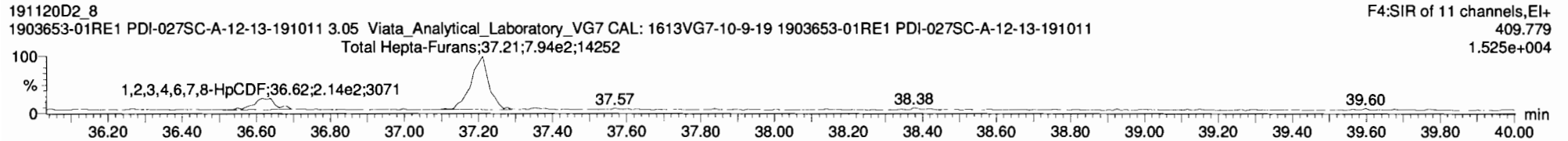
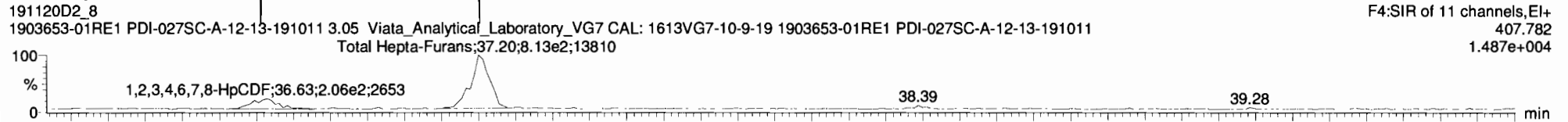
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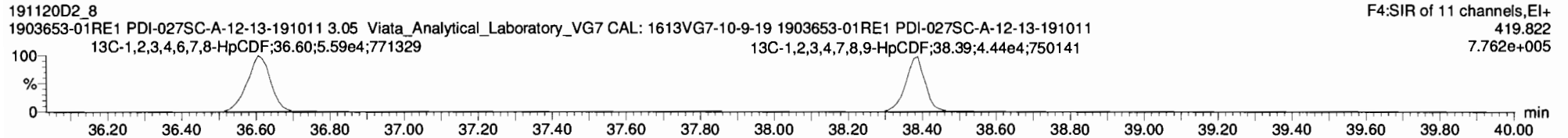
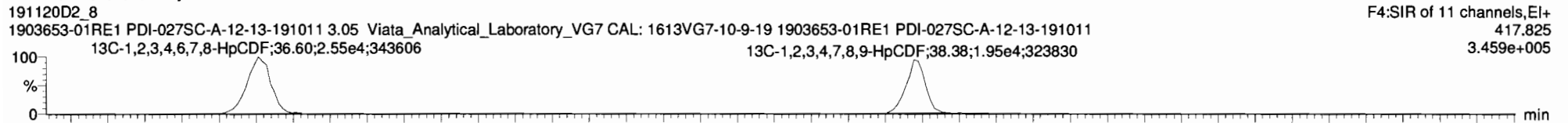
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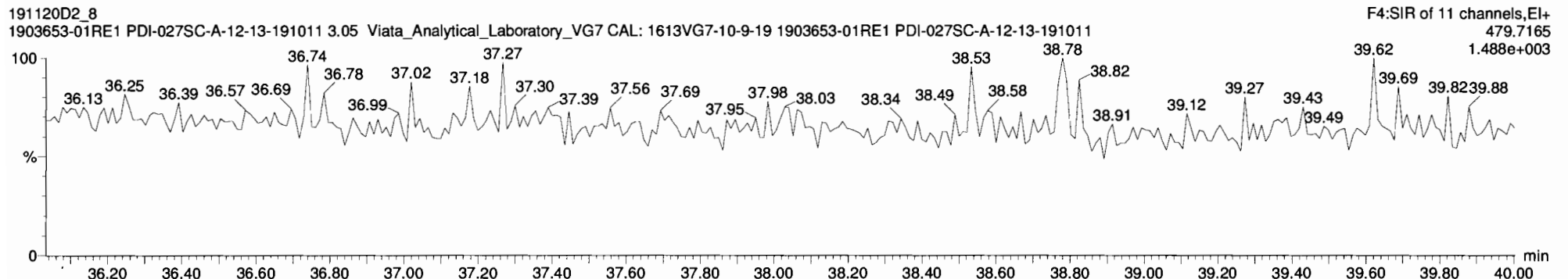
Total Hepta-Furans



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

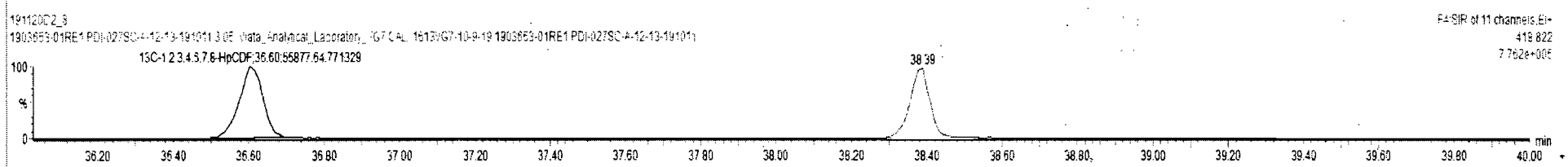
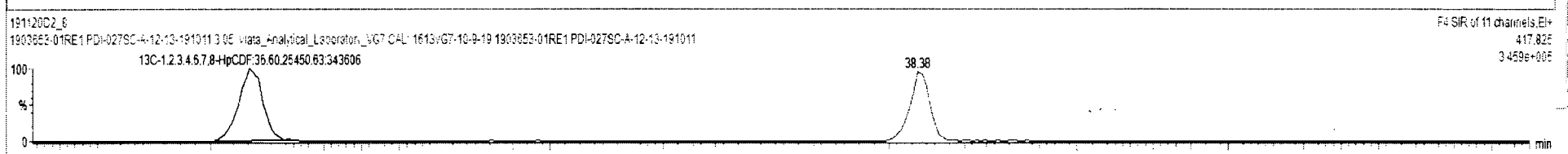
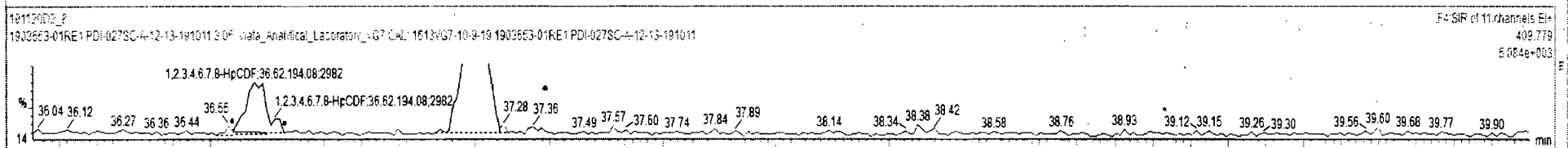
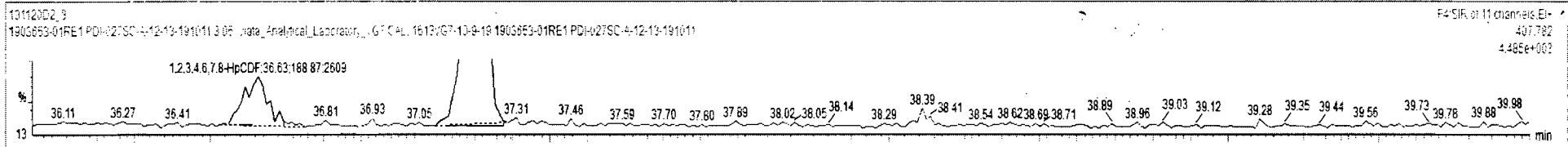


DPE4



#	Name	Resp	IS Resp	IS#	RA	n/y	RF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
37	13C-1,2,3,4-TCDF	1.95e5	1.95e5	37	0.79	NO	1.000	2.501	24.28	24.18	1.000	1.000	NO	799.5	100	2.59	
38	13C-1,2,3,4,6,9-HxCDF	1.36e5	1.36e5	38	0.51	NO	1.000	2.501	33.55	33.51	1.000	1.000	NO	799.5	100	2.65	
39	Total Tetra-Dioxins		1.19e5					0.901	2.501	25.50		0.000	NO			0.510	
40	Total Penta-Dioxins		9.47e4					0.872	2.501	30.00		0.000	NO	0.0000		0.327	0.6568
41	Total Hexa-Dioxins		0.00e0					0.976	2.501	33.60		0.000	NO	12.24		1.40	12.24
42	Total Hepta-Dioxins		7.04e4					0.989	2.501	37.75		0.000	NO	144.6		1.71	144.6
43	Total Tetra-Furans		1.66e5					0.943	2.501	24.00		0.000	NO			0.338	
44	1st Func. Penta-Furans		0.00e0					0.940	2.501	27.63		0.000	NO			0.134	
45	Total Penta-Furans		0.00e0					0.940	2.501	30.00		0.000	NO	0.0000		0.171	0.4367
46	Total Hexa-Furans		0.00e0					1.076	2.501	33.00		0.000	NO	2.404		0.567	2.404

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDF	36.64	36.63	1.889e2	1.941e2	1.040	0.97	NO	3.3388	3.3388
2	Total Hepta-Furans	37.75	37.20	8.349e2	7.855e2	1.040	1.06	NO	15.724	15.724



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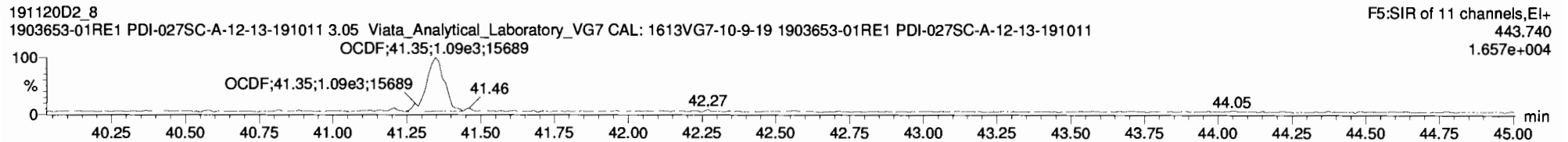
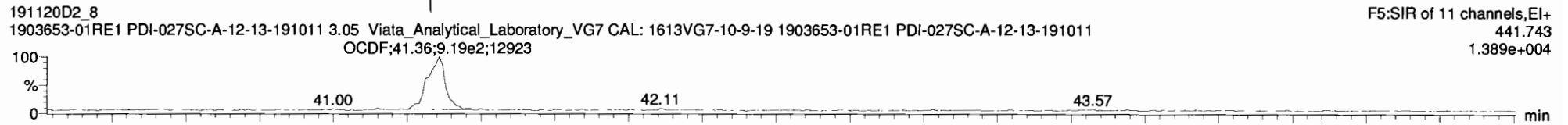
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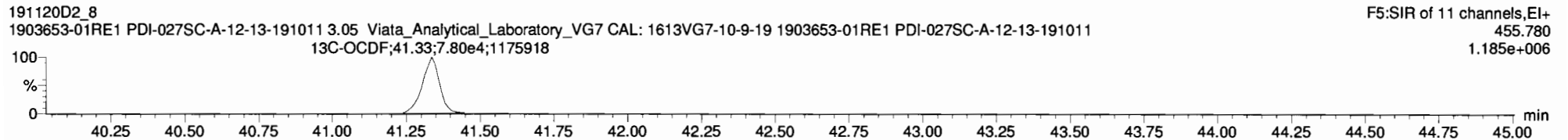
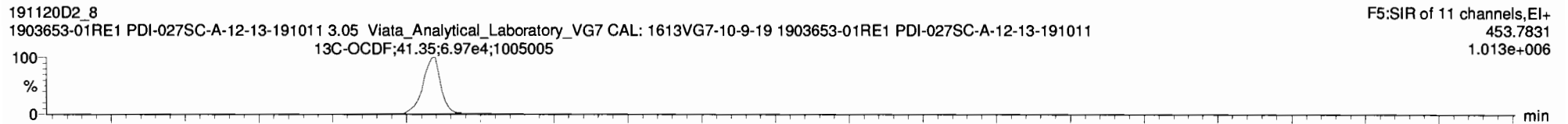
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Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

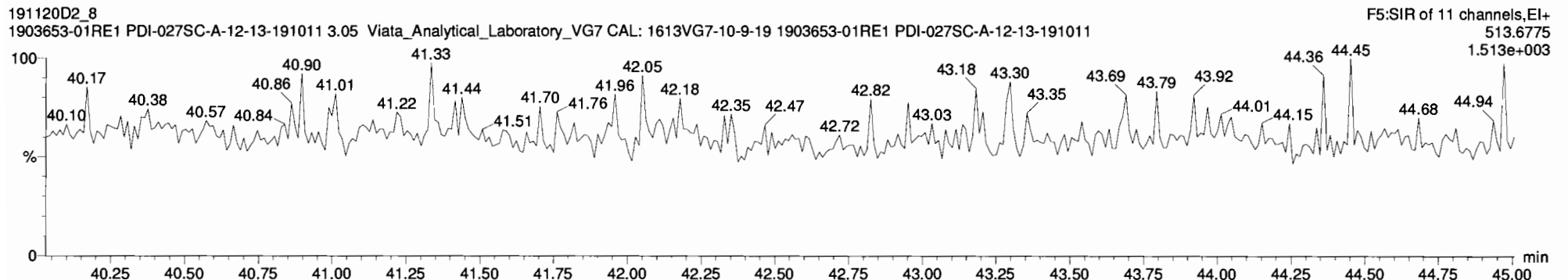
OCDF



13C-OCDF

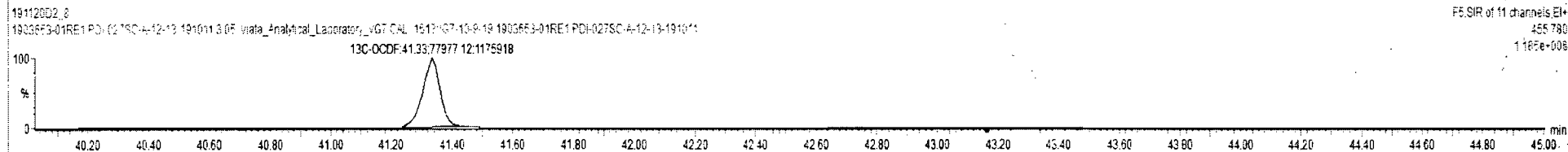
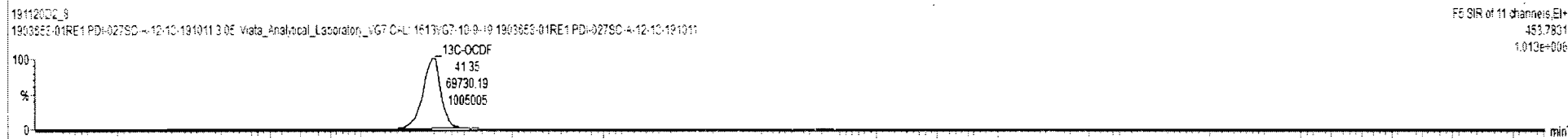
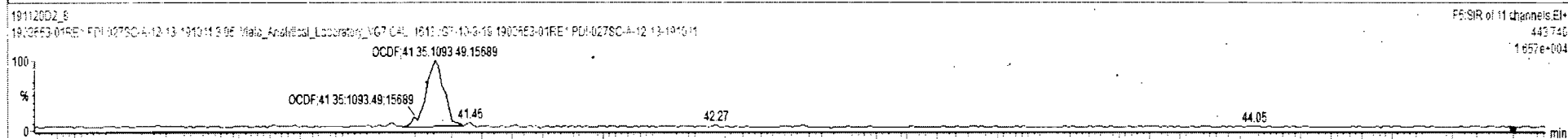
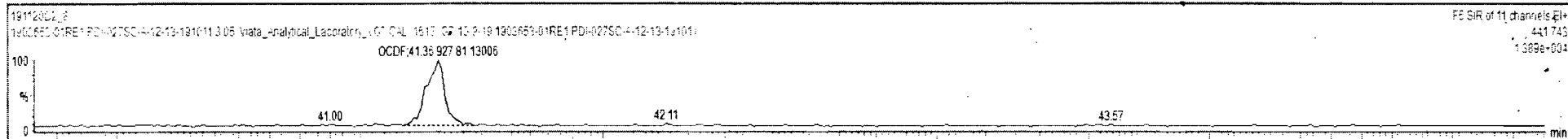


DPE5



#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtVol	Pred.RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
10	10 2,3,4,7,8-PeCDF		1.36e5	27			1.015	2.501	30.43			1.901	NO			0.454	
11	11 1,2,3,4,7,8-HxCDF		1.07e5	28			1.177	2.501	23.10			1.000	NO			0.477	
12	12 1,2,3,6,7,8-HxCDF		1.16e5	29			1.089	2.501	33.22			1.000	NO			0.482	
13	13 2,3,4,6,7,8-HxCDF		1.05e5	30			1.114	2.501	33.84			1.001	NO			0.571	
14	14 1,2,3,7,8,9-HxCDF		9.73e4	31			1.052	2.501	34.77			1.000	NO			0.711	
15	15 1,2,3,4,6,7,8-HpCDF	3.83e2	8.13e4	32	0.97	NO	1.128	2.501	36.64	36.63	1.001	1.901	NO	3.339		0.868	3.339
16	16 1,2,3,4,7,8,9-HpCDF		6.39e4	33			1.280	2.501	36.36			1.000	NO			0.789	
17	17 OCDF	2.02e3	1.48e5	34	0.85	NO	0.947	2.501	41.35	41.36	1.000	1.000	NO	23.10		1.04	23.10
18	18 1,3C-2,3,7,8-TCDD	1.19e5	1.30e5	36	0.76	NO	1.095	2.501	26.16	26.16	1.021	1.021	NO	669.4	63.7	2.32	
19	19 1,3C-1,2,3,7,8-PeCDD	9.47e4	1.30e5	36	0.64	NO	0.681	2.501	30.40	30.68	1.198	1.187	NO	661.1	62.7	1.70	

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





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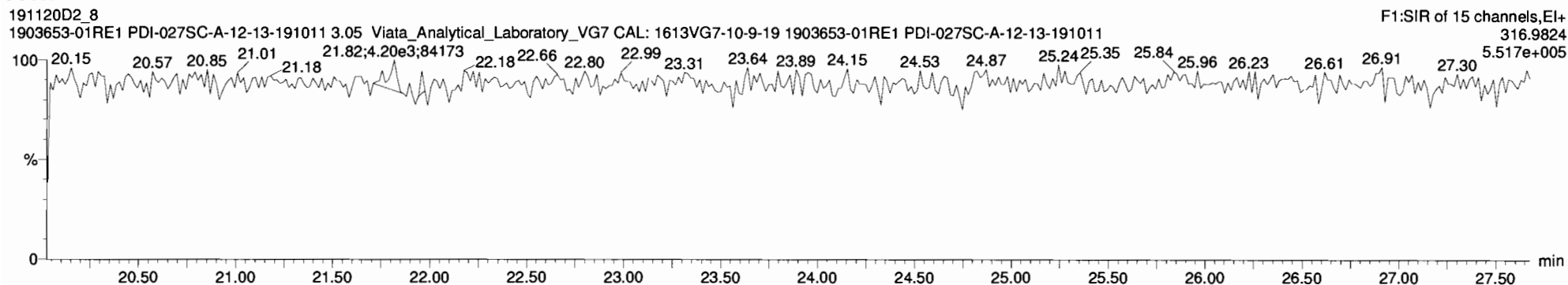
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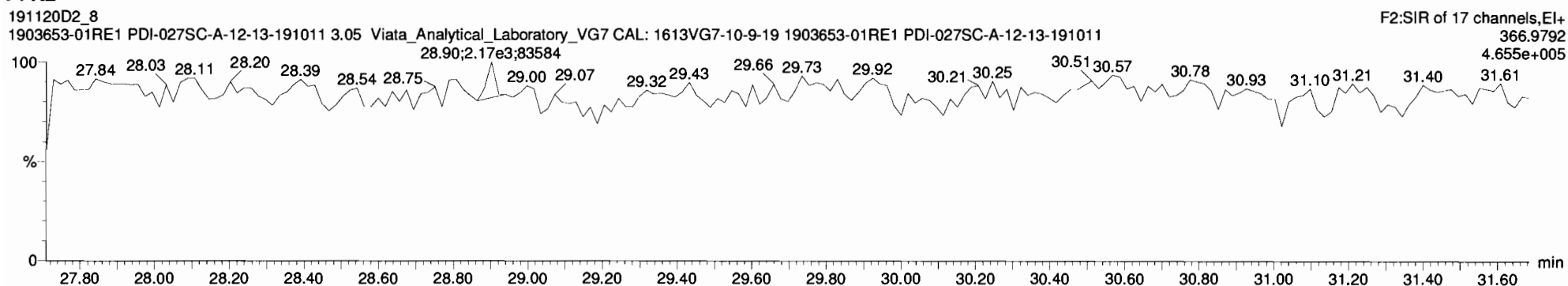
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Name: 191120D2\_8, Date: 21-NOV-2019, Time: 07:45:49, ID: 1903653-01RE1 PDI-027SC-A-12-13-191011,  
Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

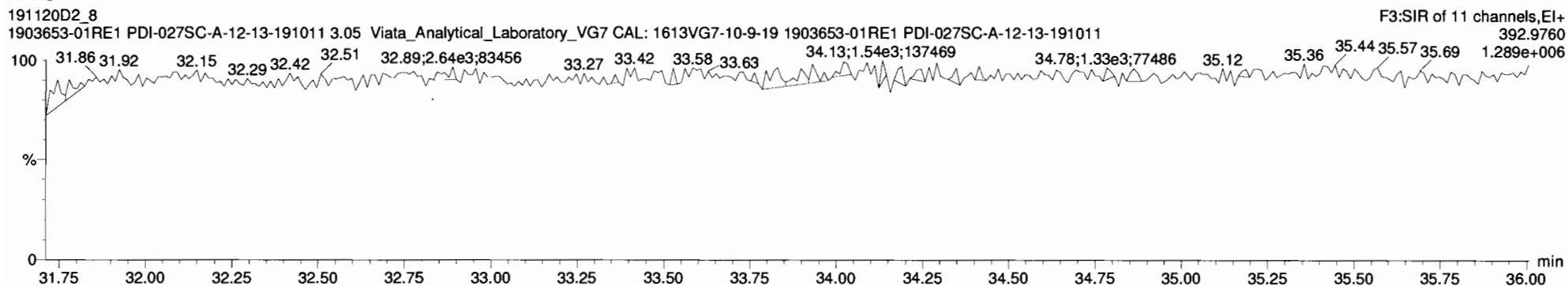
PFK1



PFK2



PFK3



Vista Analytical Laboratory

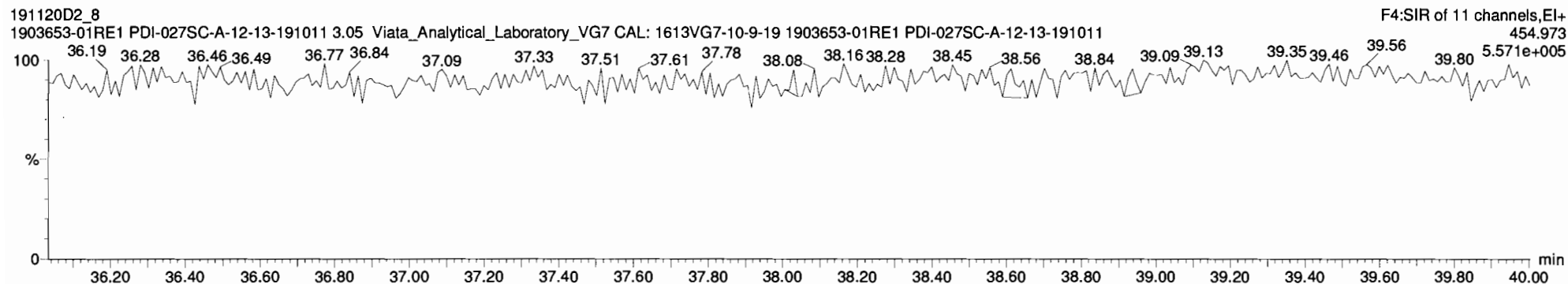
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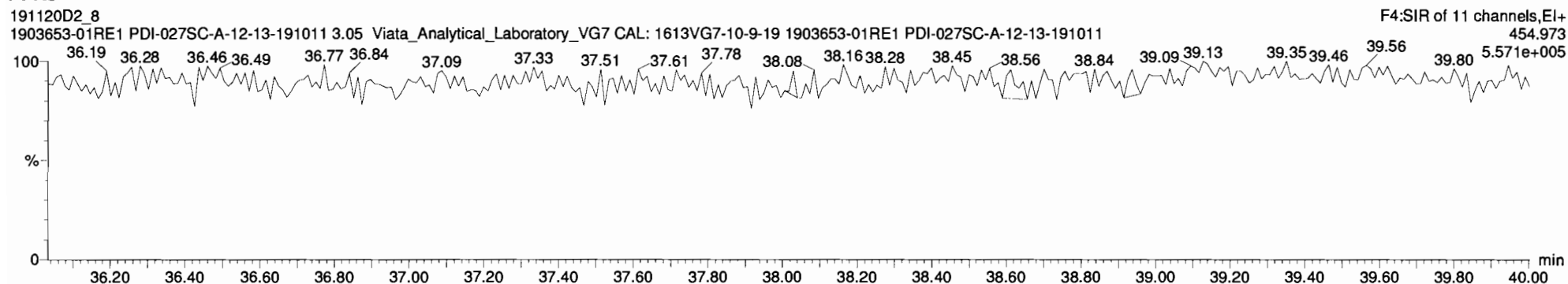
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Description: 1903653-01RE1 PDI-027SC-A-12-13-191011 3.05 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

**PFK4**



**PFK5**



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Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_7.qld

Last Altered: Monday, December 02, 2019 09:59:23 Pacific Standard Time

Printed: Monday, December 02, 2019 10:09:43 Pacific Standard Time

EL 12/2/19

CL 12/02/19

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

Calibration: 02 Dec 2019 09:29:30

Name: 191120D2\_7, Date: 21-NOV-2019, Time: 06:58:02, ID: B9K0068-DUP1 Duplicate,

Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 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		1.40e5	2.5672	0.905			1.001		26.21					0.603
2	2 1,2,3,7,8-PeCDD		1.11e5	2.5672	0.903			1.001		30.70					0.665
3	3 1,2,3,4,7,8-HxCDD		8.94e4	2.5672	1.101			1.000		34.00					0.895
4	4 1,2,3,6,7,8-HxCDD		1.00e5	2.5672	0.939			1.000		34.11					1.05
5	5 1,2,3,7,8,9-HxCDD		9.78e4	2.5672	0.961			1.001		34.43					0.975
6	6 1,2,3,4,6,7,8-HpCDD	6.15e3	8.81e4	2.5672	0.979	1.070	NO	1.000	1.000	37.87	37.86	55.542		55.5	1.20
7	7 OCDD	3.35e4	1.49e5	2.5672	0.959	0.885	NO	1.000	1.000	41.12	41.13	365.01		365	1.38
8	8 2,3,7,8-TCDF		1.99e5	2.5672	0.950			1.001		25.43					0.538
9	9 1,2,3,7,8-PeCDF		1.77e5	2.5672	0.960			1.001		29.53					0.375
10	10 2,3,4,7,8-PeCDF		1.66e5	2.5672	1.015			1.001		30.43					0.356
11	11 1,2,3,4,7,8-HxCDF	1.57e2	1.22e5	2.5672	1.177	1.493	YES	1.000	1.001	33.11	33.13	0.84781		0.762	0.416
12	12 1,2,3,6,7,8-HxCDF		1.31e5	2.5672	1.069			1.000		33.24					0.452
13	13 2,3,4,6,7,8-HxCDF		1.20e5	2.5672	1.114			1.001		33.86					0.489
14	14 1,2,3,7,8,9-HxCDF		1.10e5	2.5672	1.062			1.000		34.78					0.616
15	15 1,2,3,4,6,7,8-HpCDF	5.03e2	9.82e4	2.5672	1.128	1.153	NO	1.001	1.000	36.66	36.62	3.5356		3.54	0.671
16	16 1,2,3,4,7,8,9-HpCDF		8.18e4	2.5672	1.280			1.000		38.38					0.596
17	17 OCDF	2.66e3	1.87e5	2.5672	0.947	0.930	NO	1.000	1.001	41.34	41.36	23.348		23.3	0.820
18	18 13C-2,3,7,8-TCDD	1.40e5	1.30e5	2.5672	1.095	0.805	NO	1.021	1.022	26.16	26.18	763.34	98.0		1.99
19	19 13C-1,2,3,7,8-PeCDD	1.11e5	1.30e5	2.5672	0.881	0.639	NO	1.187	1.198	30.40	30.68	754.02	96.8		1.52
20	20 13C-1,2,3,4,7,8-Hx...	8.94e4	1.39e5	2.5672	0.642	1.315	NO	1.014	1.014	33.98	33.99	777.90	99.9		2.36
21	21 13C-1,2,3,6,7,8-Hx...	1.00e5	1.39e5	2.5672	0.856	1.232	NO	1.017	1.018	34.09	34.11	654.76	84.0		1.77
22	22 13C-1,2,3,7,8,9-Hx...	9.78e4	1.39e5	2.5672	0.807	1.260	NO	1.026	1.026	34.39	34.40	677.47	87.0		1.88
23	23 13C-1,2,3,4,6,7,8-H...	8.81e4	1.39e5	2.5672	0.654	1.047	NO	1.126	1.130	37.74	37.86	753.24	96.7		3.01
24	24 13C-OCDD	1.49e5	1.39e5	2.5672	0.580	0.885	NO	1.226	1.227	41.09	41.12	1437.8	92.3		3.67
25	25 13C-2,3,7,8-TCDF	1.99e5	2.03e5	2.5672	1.035	0.789	NO	0.993	0.992	25.45	25.40	737.06	94.6		2.27
26	26 13C-1,2,3,7,8-PeCDF	1.77e5	2.03e5	2.5672	0.854	1.604	NO	1.143	1.152	29.28	29.51	792.91	101.8		3.88
27	27 13C-2,3,4,7,8-PeCDF	1.66e5	2.03e5	2.5672	0.847	1.600	NO	1.176	1.186	30.14	30.40	750.20	96.3		3.92
28	28 13C-1,2,3,4,7,8-Hx...	1.22e5	1.39e5	2.5672	0.832	0.518	NO	0.987	0.988	33.09	33.11	821.24	105.4		3.57
29	29 13C-1,2,3,6,7,8-Hx...	1.31e5	1.39e5	2.5672	1.034	0.522	NO	0.991	0.992	33.20	33.23	709.55	91.1		2.87
30	30 13C-2,3,4,6,7,8-Hx...	1.20e5	1.39e5	2.5672	0.953	0.527	NO	1.009	1.009	33.82	33.83	704.66	90.5		3.12
31	31 13C-1,2,3,7,8,9-Hx...	1.10e5	1.39e5	2.5672	0.828	0.535	NO	1.039	1.038	34.81	34.78	746.03	95.8		3.59

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Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_7.qld

Last Altered: Monday, December 02, 2019 09:59:23 Pacific Standard Time

Printed: Monday, December 02, 2019 10:09:43 Pacific Standard Time

Name: 191120D2\_7, Date: 21-NOV-2019, Time: 06:58:02, ID: B9K0068-DUP1 Duplicate,  
 Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

#	Name	Area	IS Area	Wt/Vol	RRF	RA	YN	Pred...	RRT	Pred.RT	RT	Conc.	%Rec	EMPC	DL
32	32 13C-1,2,3,4,6,7,8-H...	9.82e4	1.39e5	2.5672	0.757	0.441	NO	1.093	1.093	36.62	36.62	724.49	93.0		2.96
33	33 13C-1,2,3,4,7,8,9-H...	8.18e4	1.39e5	2.5672	0.581	0.442	NO	1.143	1.145	38.31	38.38	786.58	101.0		3.86
34	34 13C-OCDF	1.87e5	1.39e5	2.5672	0.689	0.903	NO	1.233	1.234	41.33	41.34	1519.2	97.5		2.45
35	35 37Cl-2,3,7,8-TCDD	6.21e4	1.30e5	2.5672	1.198			1.022	1.023	26.18	26.20	309.88	99.4		0.708
36	36 13C-1,2,3,4-TCDD	1.30e5	1.30e5	2.5672	1.000	0.801	NO	1.000	1.000	25.70	25.62	779.05	100.0		2.18
37	37 13C-1,2,3,4-TCDF	2.03e5	2.03e5	2.5672	1.000	0.803	NO	1.000	1.000	24.28	24.19	779.05	100.0		2.35
38	38 13C-1,2,3,4,6,9-Hx...	1.39e5	1.39e5	2.5672	1.000	0.513	NO	1.000	1.000	33.55	33.51	779.05	100.0		2.97
39	39 Total Tetra-Dioxins		1.40e5	2.5672	0.901			0.000		25.50					0.346
40	40 Total Penta-Dioxins		1.11e5	2.5672	0.872			0.000		30.00					0.258
41	41 Total Hexa-Dioxins		0.00e0	2.5672	0.976			0.000		33.80		0.00000		10.1	0.510
42	42 Total Hepta-Dioxins		8.81e4	2.5672	0.989			0.000		37.75		129.48		129	1.19
43	43 Total Tetra-Furans		1.99e5	2.5672	0.943			0.000		24.00					0.253
44	44 1st Func. Penta-Fur...		0.00e0	2.5672	0.940			0.000		27.63					0.108
45	45 Total Penta-Furans		0.00e0	2.5672	0.940			0.000		30.00					0.184
46	46 Total Hexa-Furans		0.00e0	2.5672	1.078			0.000		33.00		2.3985		3.16	0.500
47	47 Total Hepta-Furans		0.00e0	2.5672	1.135			0.000		37.75		18.331		18.3	0.669

Quantify Totals Report MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_7.qld
Last Altered: Monday, December 02, 2019 09:59:23 Pacific Standard Time
Printed: Monday, December 02, 2019 10:09:43 Pacific Standard Time

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57
Calibration: 02 Dec 2019 09:29:30

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Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Tetra-Dioxins

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains one row of data.

Penta-Dioxins

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains one row of data.

Hexa-Dioxins

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains two rows of data for Hexa-Dioxins.

Hepta-Dioxins

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains two rows of data for Hepta-Dioxins.

Tetra-Furans

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains one row of data.

Penta-Furans function 1

Table with 10 columns: #, Name, N/Y, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Contains one row of data.

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_7.qld  
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Name: 191120D2\_7, Date: 21-NOV-2019, Time: 06:58:02, ID: B9K0068-DUP1 Duplicate,  
 Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 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	YES	33.13	93.751	41684.914	0.000	MM	0.0000	0.76
46	Total Hexa-Furans	NO	32.64	223.389	41680.886	6.635	MM	2.3985	2.40

Hepta-Furans

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
47	Total Hepta-Furans	NO	37.22	967.685	27567.990	43.099	MM	14.7953	14.80
15	1,2,3,4,6,7,8-HpCDF	NO	36.62	269.181	30056.889	10.235	MM	3.5356	3.54

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

Printed: Wednesday, November 27, 2019 13:18:48 Pacific Standard Time

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

Calibration: U:\vg8.PRO\CurveDB\db5\_1613vg11-9-16-15.cdb 17 Sep 2015 13:55:07

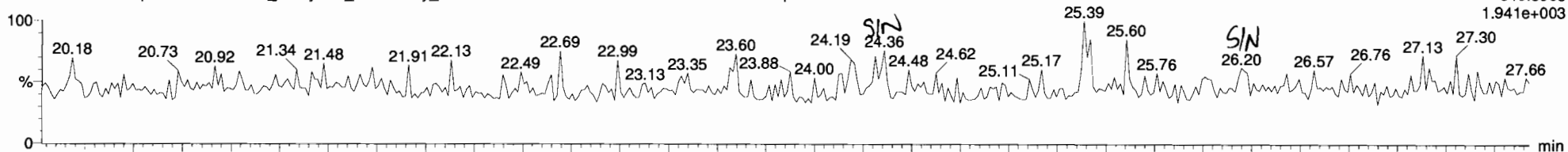
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Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Tetra-Dioxins

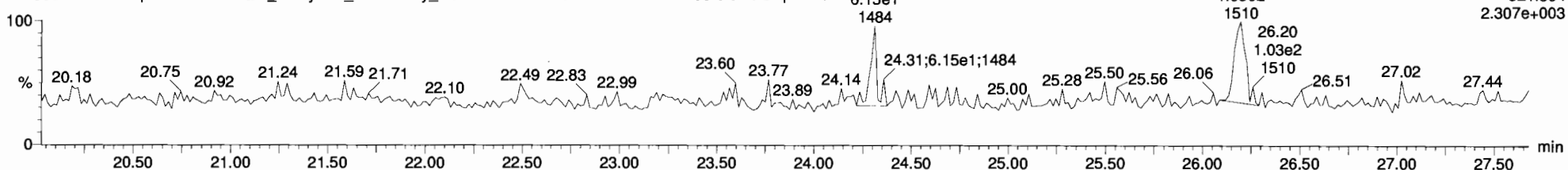
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F1:SIR of 15 channels,EI+  
319.8965  
1.941e+003



191120D2\_7  
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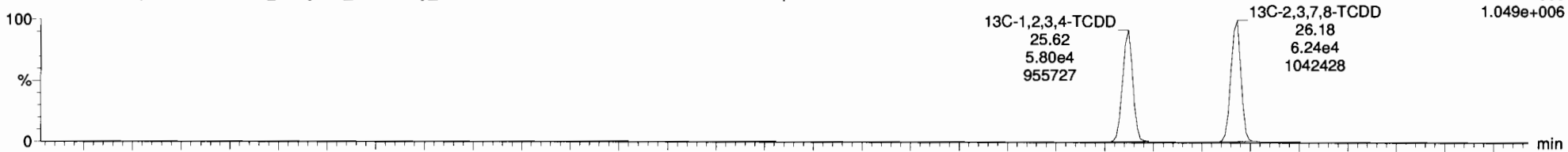
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321.894  
2.307e+003



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

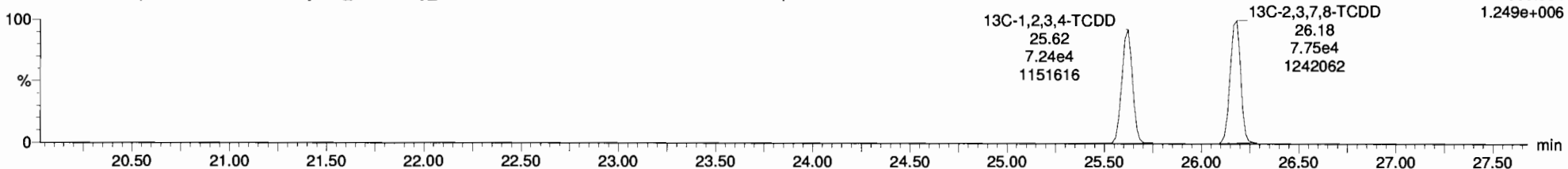
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F1:SIR of 15 channels,EI+  
331.9368  
1.049e+006



191120D2\_7  
B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F1:SIR of 15 channels,EI+  
333.934  
1.249e+006



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

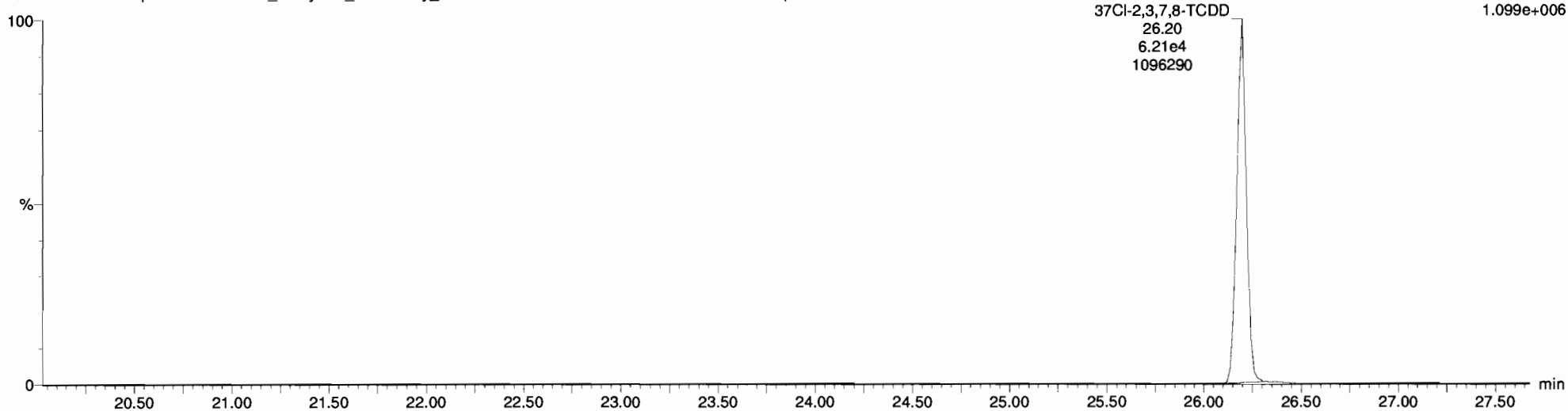
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**37Cl-2,3,7,8-TCDD**

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B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

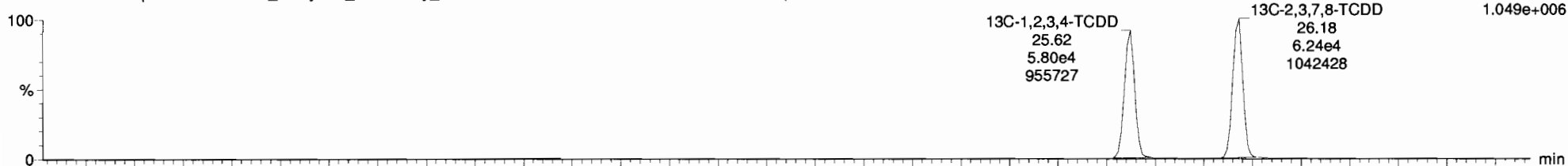
F1:SIR of 15 channels,EI+  
327.884  
1.099e+006



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

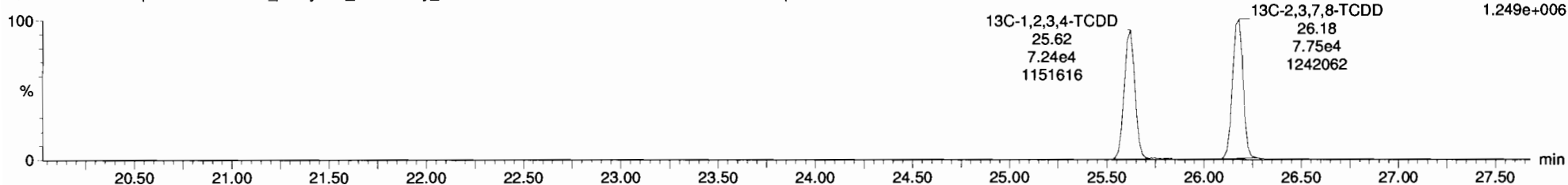
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F1:SIR of 15 channels,EI+  
331.9368  
1.049e+006



191120D2\_7  
B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F1:SIR of 15 channels,EI+  
333.934  
1.249e+006





Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

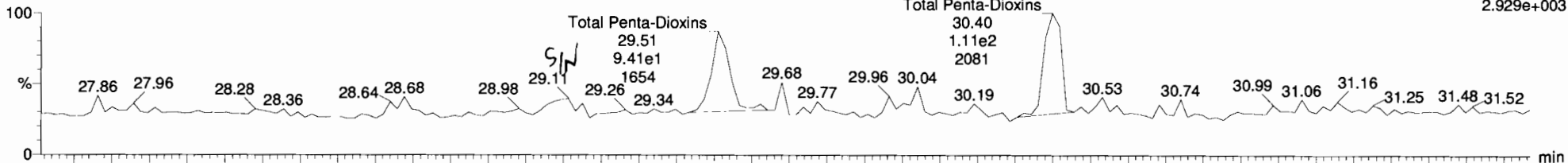
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Total Penta-Dioxins

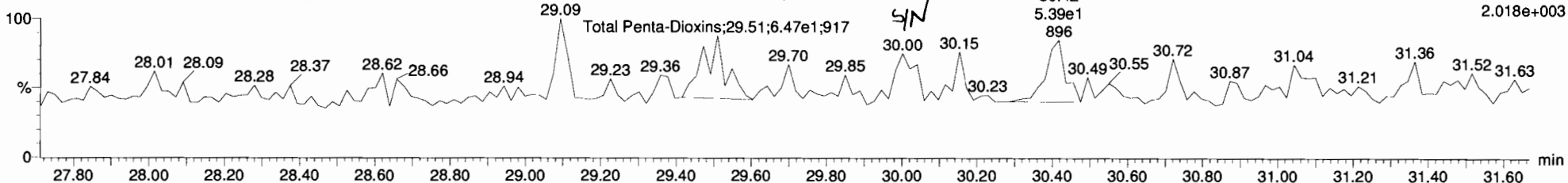
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F2:SIR of 17 channels,EI+ 353.8576 2.929e+003



191120D2\_7 B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

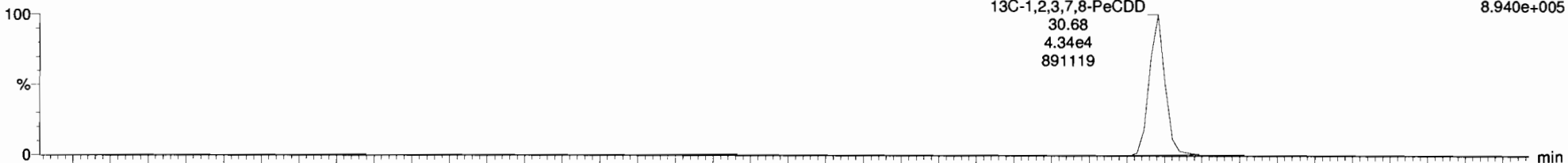
F2:SIR of 17 channels,EI+ 355.8550 2.018e+003



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

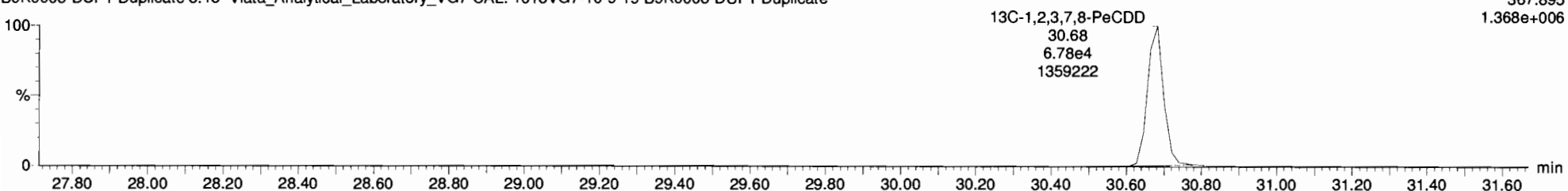
191120D2\_7 B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F2:SIR of 17 channels,EI+ 365.8978 8.940e+005



191120D2\_7 B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F2:SIR of 17 channels,EI+ 367.895 1.368e+006



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

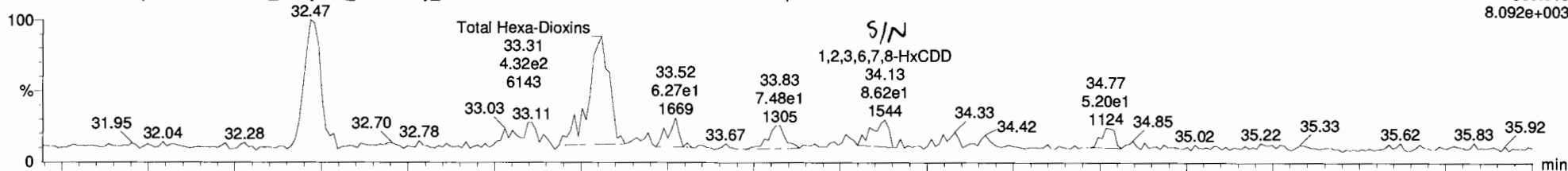
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Total Hexa-Dioxins

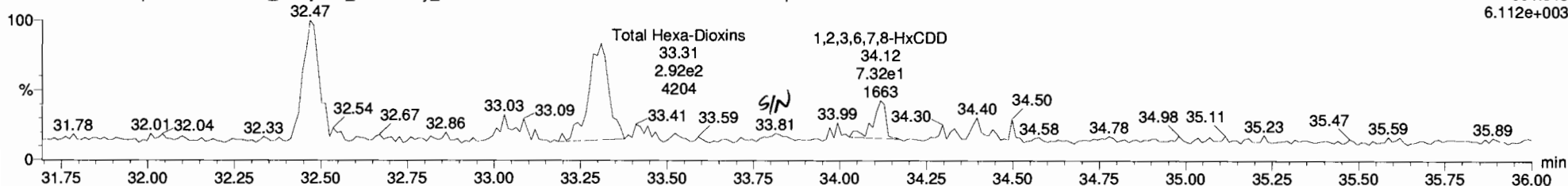
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F3:SIR of 11 channels, EI+ 389.816 8.092e+003



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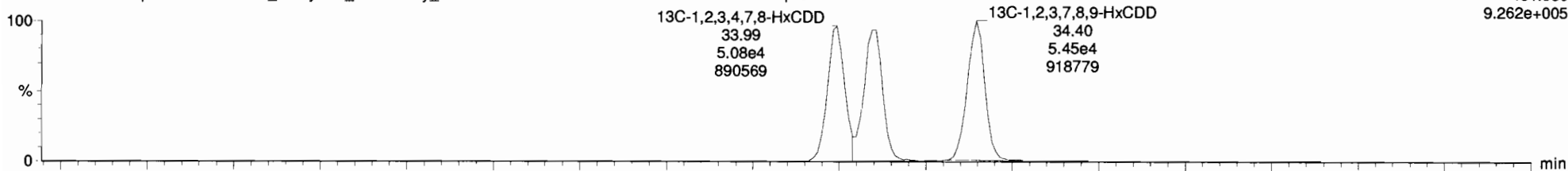
F3:SIR of 11 channels, EI+ 391.813 6.112e+003



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

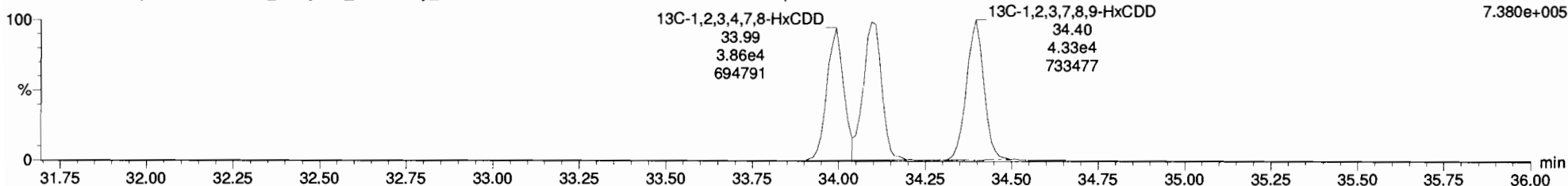
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F3:SIR of 11 channels, EI+ 401.856 9.262e+005



191120D2\_7 B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

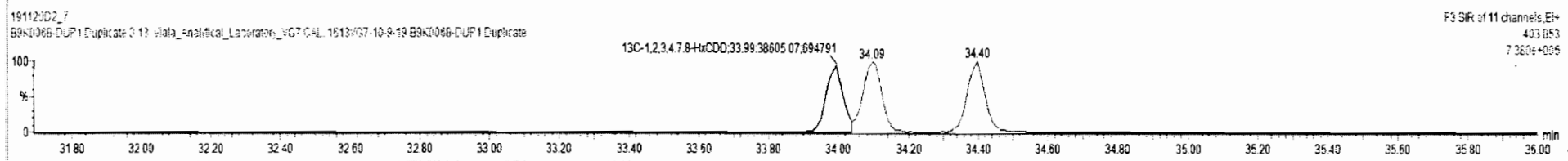
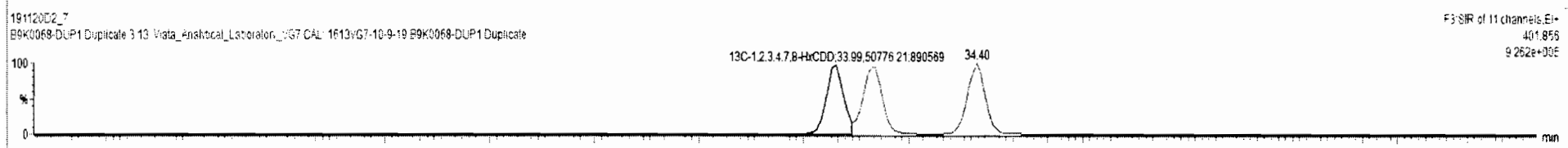
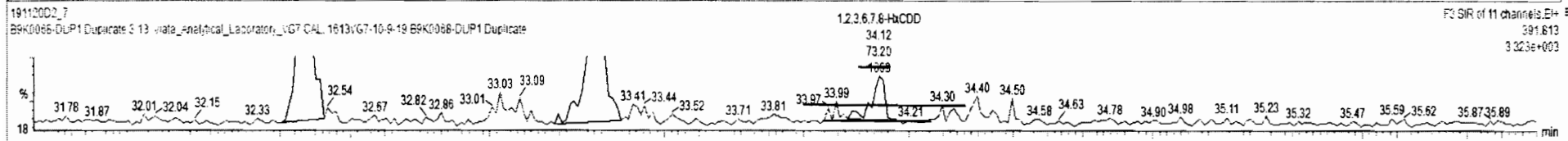
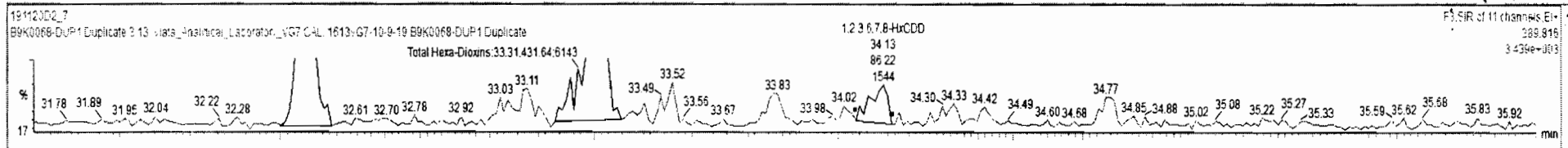
F3:SIR of 11 channels, EI+ 403.853 7.380e+005



191120D2\_7 - B9K0068-DUP1 Duplicate - B9K0068-DUP1 Duplicate 3 13 - Viala\_Analytical\_Laborator\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtvol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
41	Total Hexa-Dioxins		0.00e0				6.976	3.130	33.80			0.000	NO				
42	Total Hepta-Dioxins		8.81e4				0.569	3.130	27.75			0.000	NO				

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.60	32.47	4.233e2	2.637e2	1.240	1.49	YES		
2	41 Total Hexa-Dioxins	33.60	33.31	4.316e2	2.917e2	1.240	1.48	YES		
3	4 1,2,3,6,7,8-HxCDD	34.11	34.12	8.622e1	7.320e1	1.240	1.16	NO		

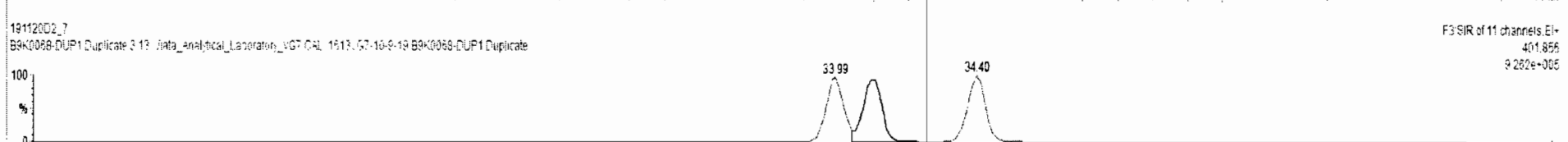
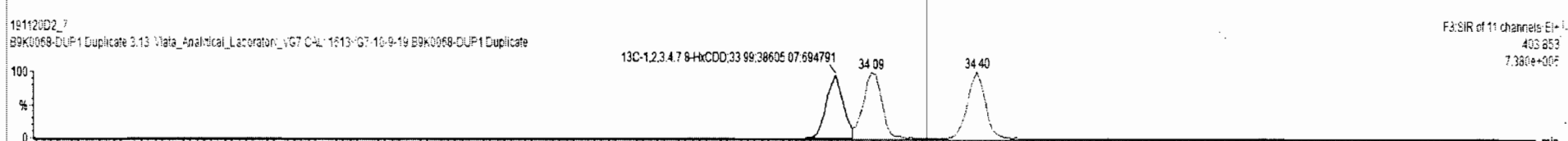
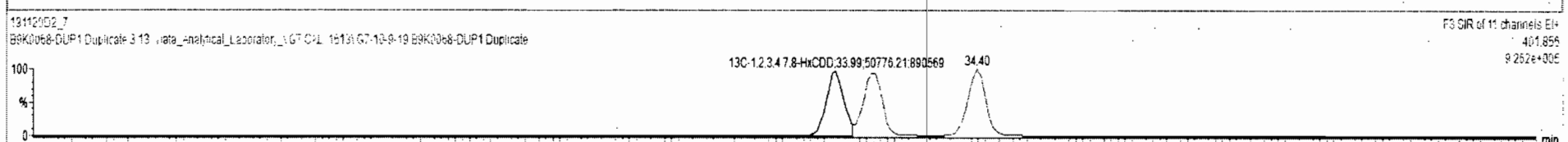
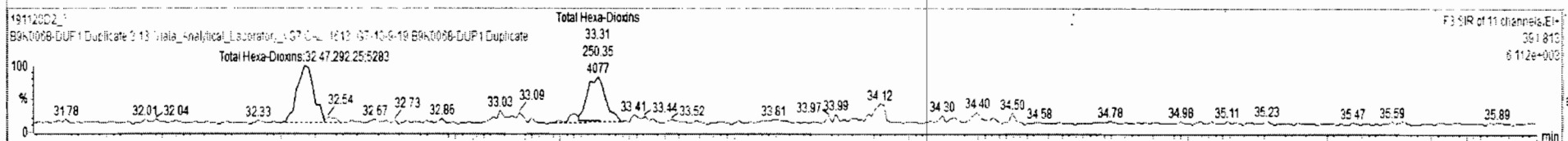
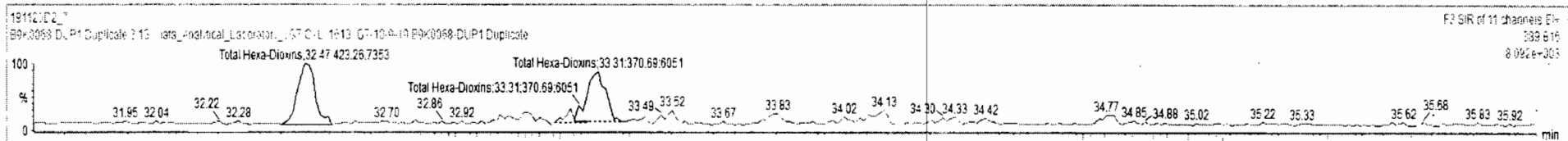


Custom Reporting: Select reports to generate

191120D2\_7 - B9K0068-DUP1 Duplicate - B9K0068-DUP1 Duplicate 3 13 Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	RA	n/y	RRF	wtVol	Pred RT	RT	Pred.R	RRT	RRT Fail	Conc.	%Rec	DL	EMPC
36	13C-1,2,3,4-TCDD	1.30e5	0.80	NO		2.567	25.70	25.62	1.000	1.000	NO	779.1	100	2.16	
37	13C-1,2,3,4-TCDF	2.03e5	0.50	NO		2.567	24.28	24.19	1.000	1.000	NO	779.1	100	2.35	
38	13C-1,2,3,4,6,8-HxCDF	1.39e5	0.51	NO		2.567	33.55	33.51	1.000	1.000	NO	779.1	100	2.97	
39	Total Tetra-Dioxins					2.567	25.50		0.000		NO			0.346	
40	Total Penta-Dioxins					2.567	30.00		0.000		NO			0.258	
41	Total Hexa-Dioxins					2.567	33.80		0.000		NO	0.0000		0.510	10.13
42	Total Hepta-Dioxins					2.567	37.75		0.000		NO	128.5		1.19	128.5
43	Total Tetra-Furans					2.567	24.00		0.000		NO			0.253	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	1 <sup>st</sup> Ratio (Pred)	RA	n/y	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.80	32.47	4.233e2	2.922e2	1.240	1.45	YES	5.4550	0.00000
2	41 Total Hexa-Dioxins	33.80	33.31	3.707e2	2.504e2	1.240	1.48	YES	4.6730	0.00000



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

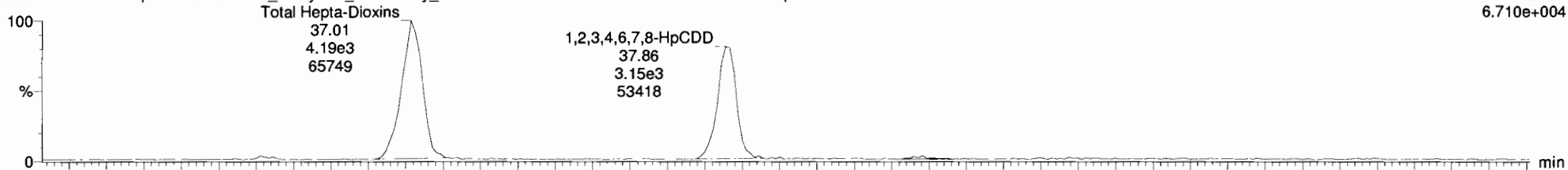
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Total Hepta-Dioxins

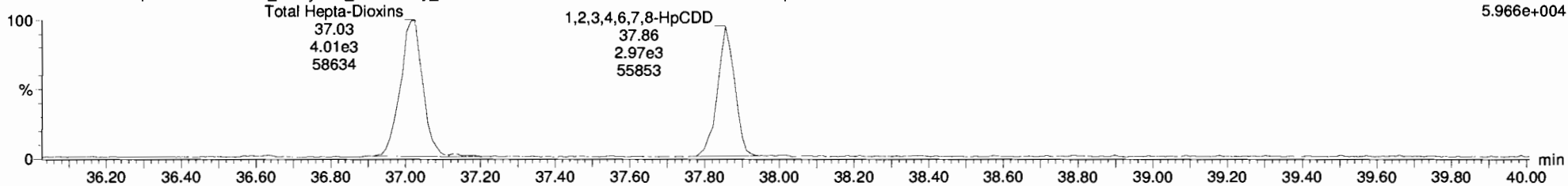
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B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F4:SIR of 11 channels, EI+  
423.777  
6.710e+004



191120D2\_7  
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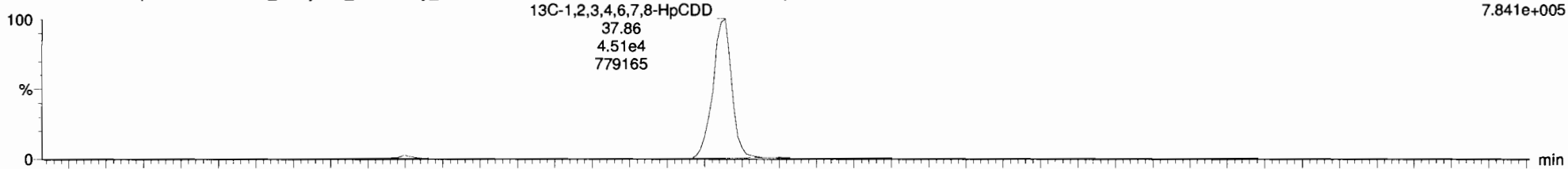
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13C-1,2,3,4,6,7,8-HpCDD

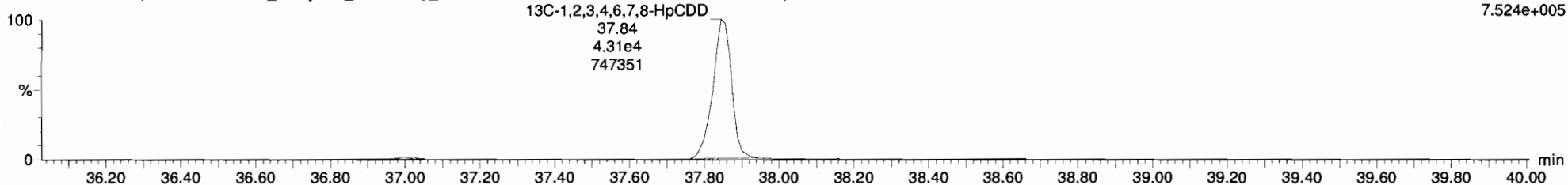
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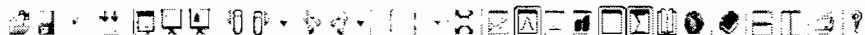
F4:SIR of 11 channels, EI+  
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7.841e+005



191120D2\_7  
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F4:SIR of 11 channels, EI+  
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7.524e+005

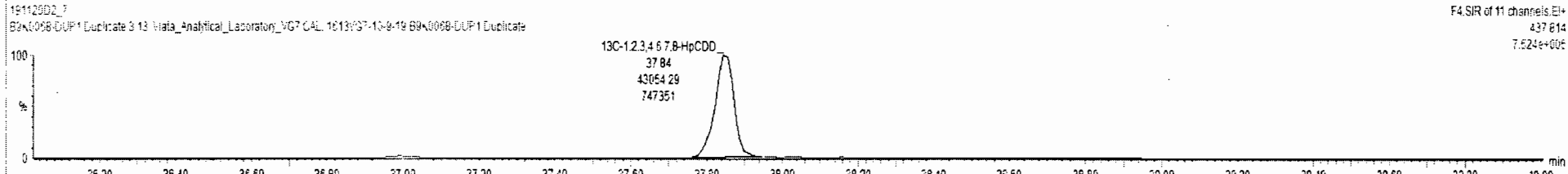
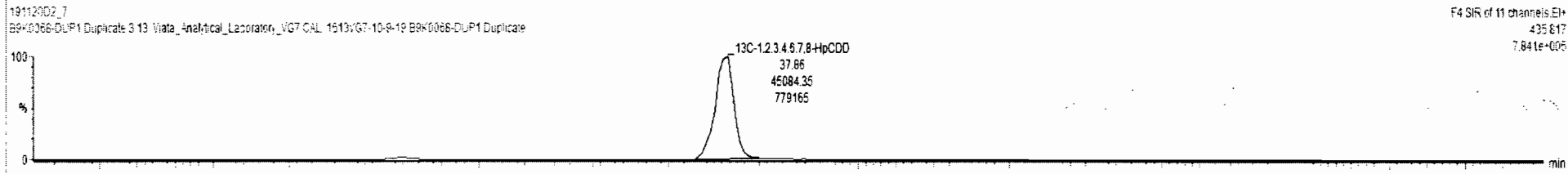
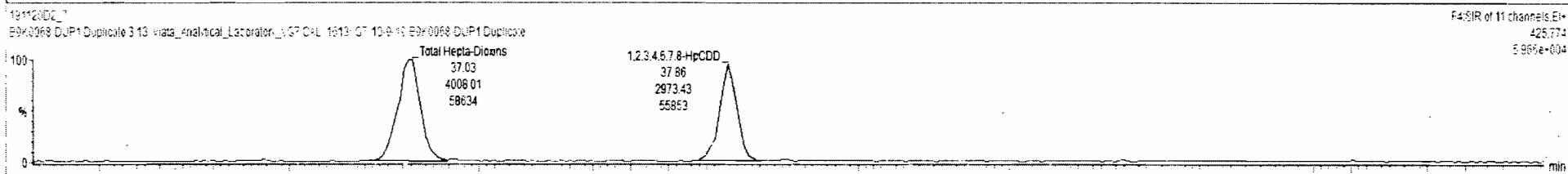
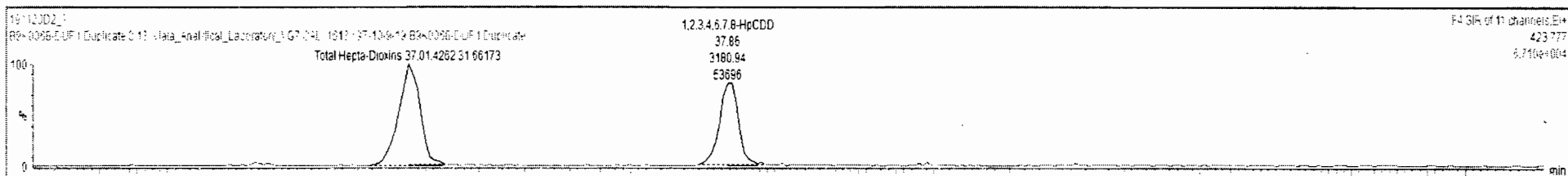




191120D2\_7 - B9K0068-DUP1 Duplicate - B9K0068-DUP1 Duplicate 3 13 Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	RA	n/y	RRF	wt/vol	Pred RT	RT	Pred R.	RRT	RRT Fail	Conc.	%Rec	DL	EMPC
36	13C-1,2,3,4-TCDF	1.30e5	0.80	NO			2.567	25.70	25.62	1.000	1.000	NO	779.1	100	2.18
37	13C-1,2,3,4-TCDF	2.03e5	0.80	NO			2.567	24.26	24.19	1.000	1.000	NO	779.1	100	2.35
38	13C-1,2,3,4,6,9-HxCDF	1.39e5	0.51	NO			2.567	23.55	23.51	1.000	1.000	NO	779.1	100	2.97
39	Total Tetra-Dioxins						2.567	25.50		0.000		NO			0.246
40	Total Penta-Dioxins						2.567	29.00		0.000		NO			0.258
41	Total Hexa-Dioxins						2.567	33.80		0.000		NO	0.0600	0.510	16.13
42	Total Hepta-Dioxins						2.567	37.75		0.000		NO	129.5	1.19	129.5
43	Total Tetra-Furans						2.567	24.00		0.000		NO			0.253

#	Name	Pred RT	RT	m1 Resp	m2 Resp	1* Ratio (Pred)	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDD	37.87	37.86	3.181e2	2.973e3	1.040	1.07	NO	55.542	55.542
2	Total Hepta-Dioxins	37.75	37.01	4.262e3	4.008e3	1.040	1.06	NO	73.936	73.936



Ready

191120D2\_7

CAP NUM

Vista Analytical Laboratory

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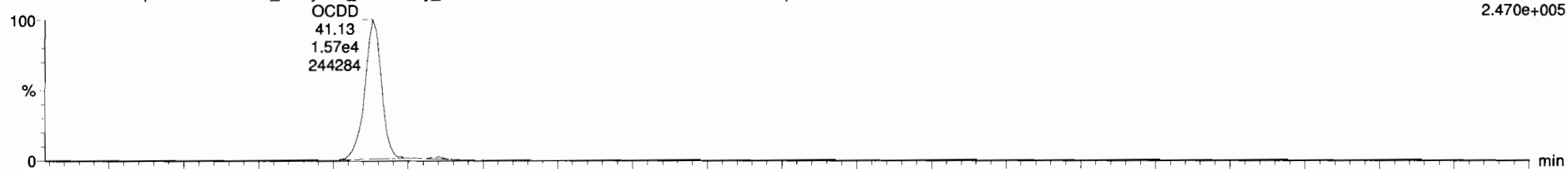
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**OCDD**

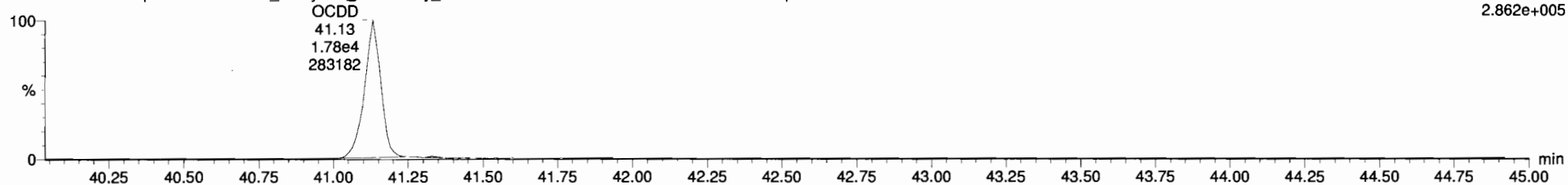
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F5:SIR of 11 channels, EI+  
457.738  
2.470e+005



191120D2\_7  
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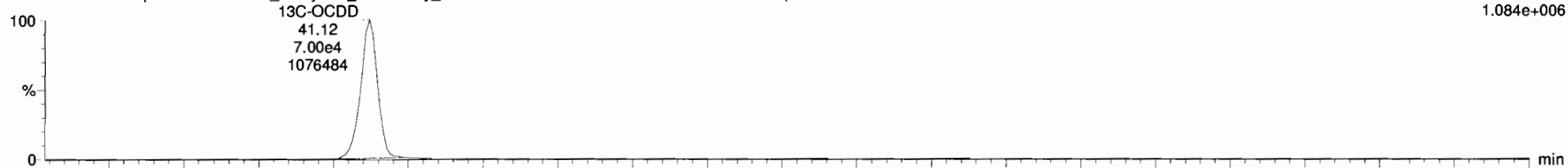
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**13C-OCDD**

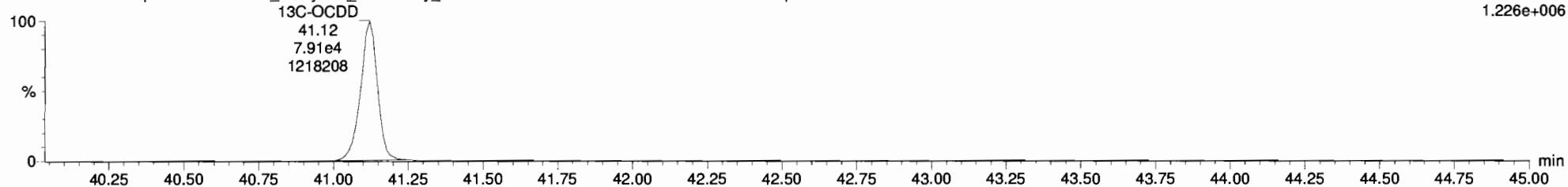
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F5:SIR of 11 channels, EI+  
469.778  
1.084e+006



191120D2\_7  
B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F5:SIR of 11 channels, EI+  
471.775  
1.226e+006



Vista Analytical Laboratory

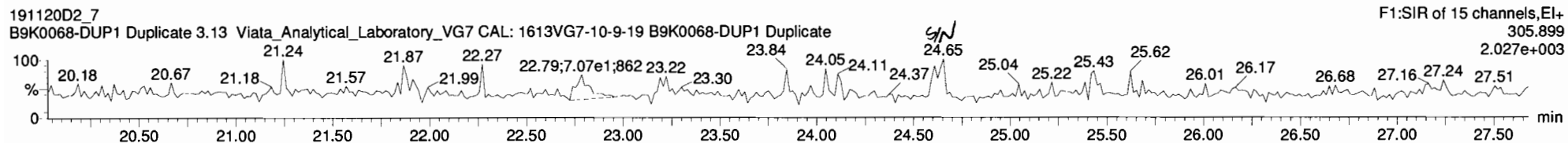
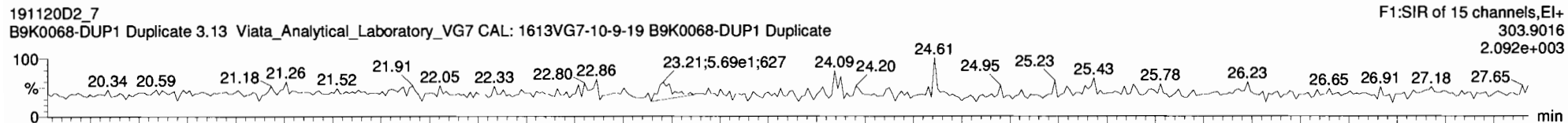
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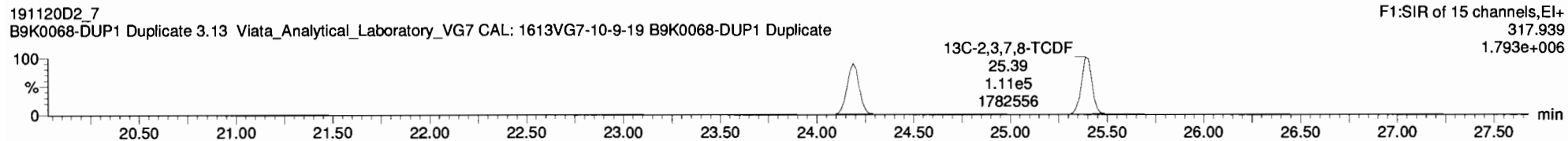
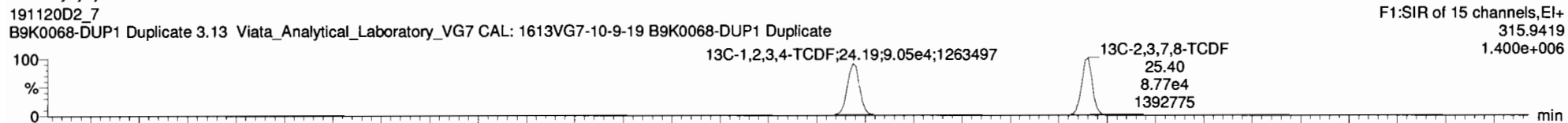
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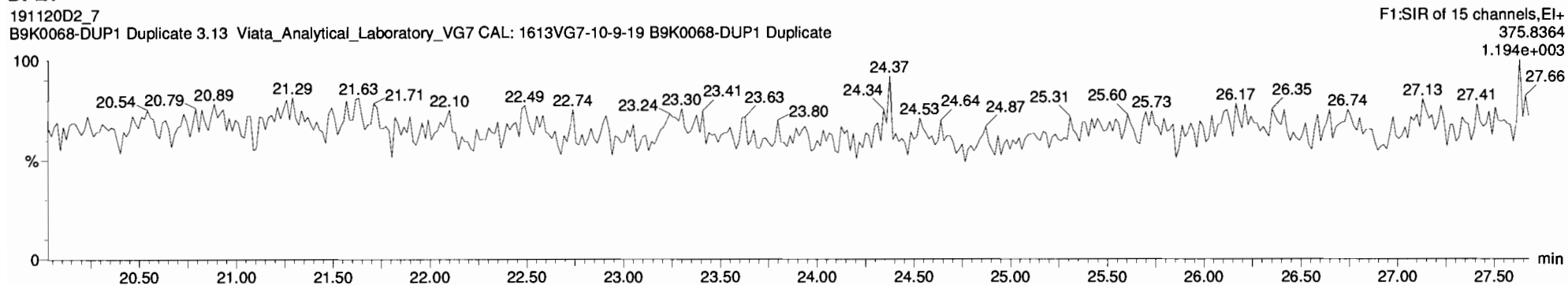
Total Tetra-Furans



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



DPE1





Vista Analytical Laboratory

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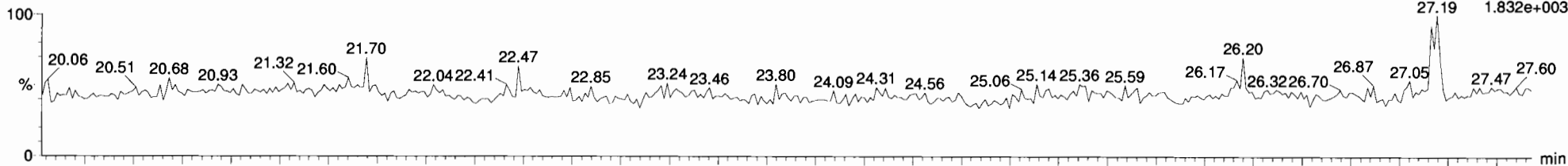
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1st Func. Penta-Furans

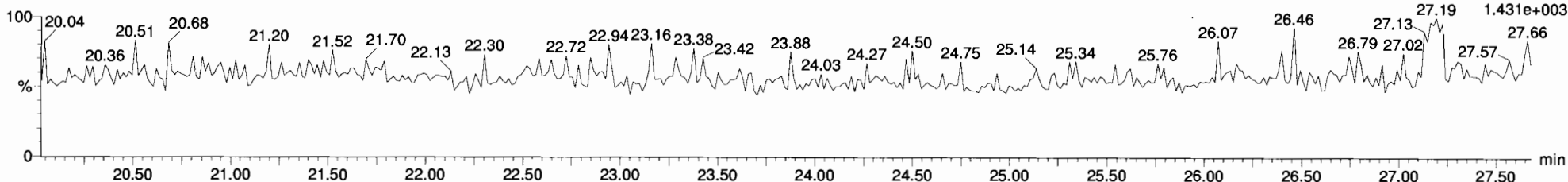
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B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F1:SIR of 15 channels, EI+  
339.860  
1.832e+003



191120D2\_7  
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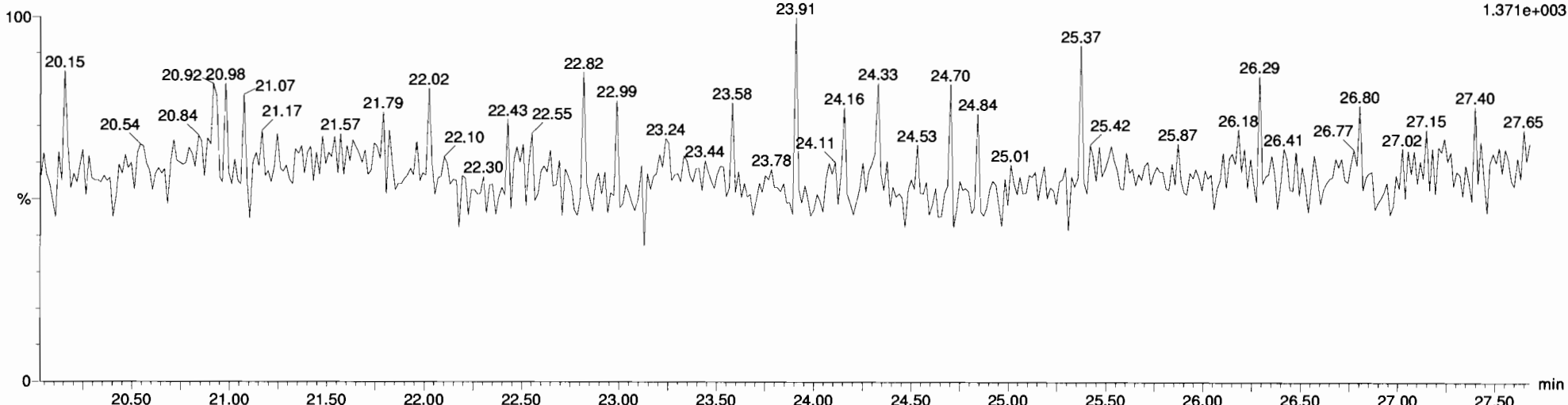
F1:SIR of 15 channels, EI+  
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1.431e+003



DPE6

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F1:SIR of 15 channels, EI+  
409.7974  
1.371e+003



Vista Analytical Laboratory

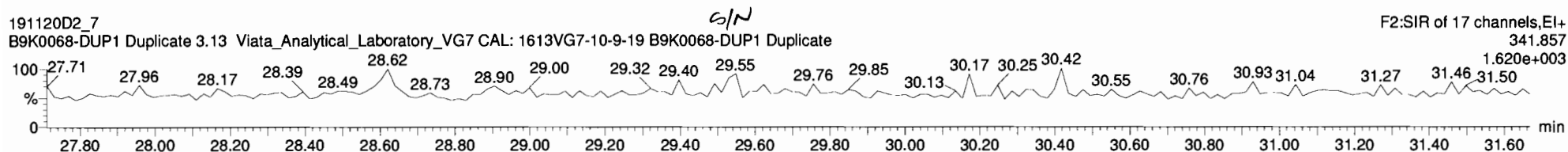
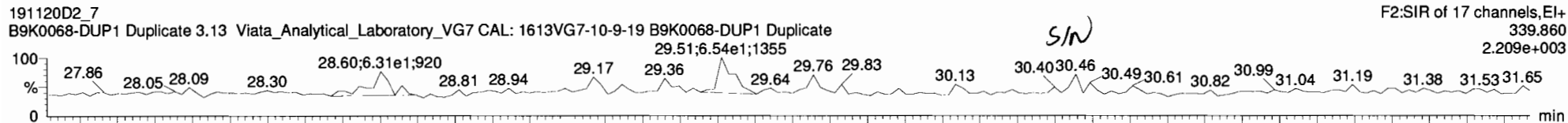
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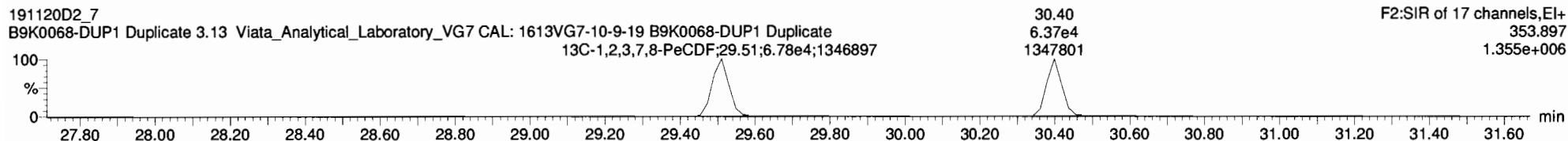
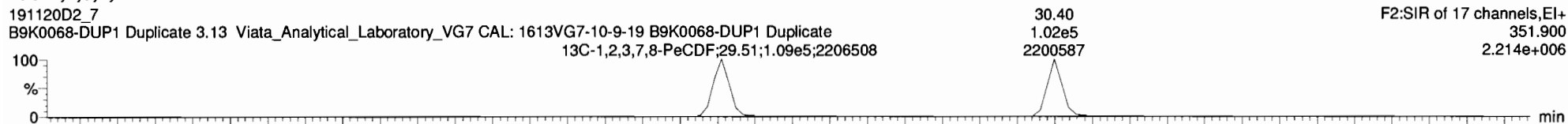
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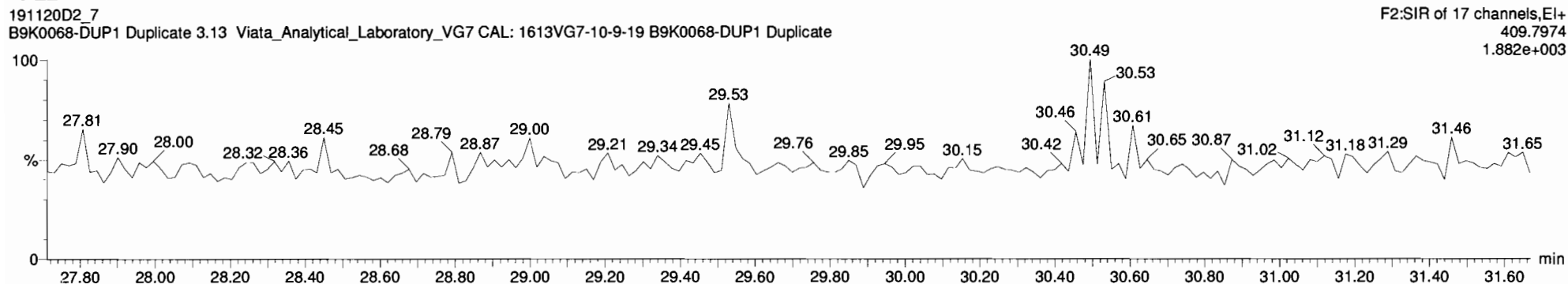
Total Penta-Furans



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



DPE2

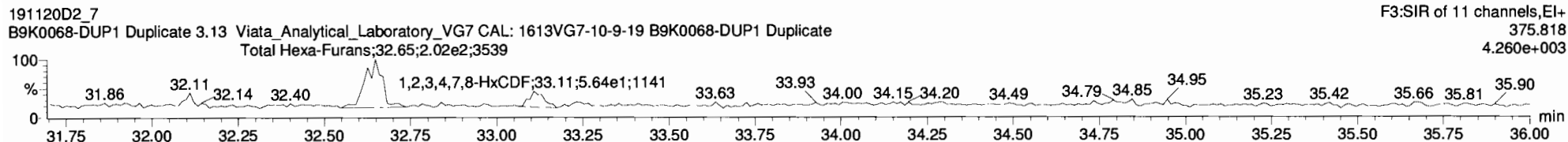
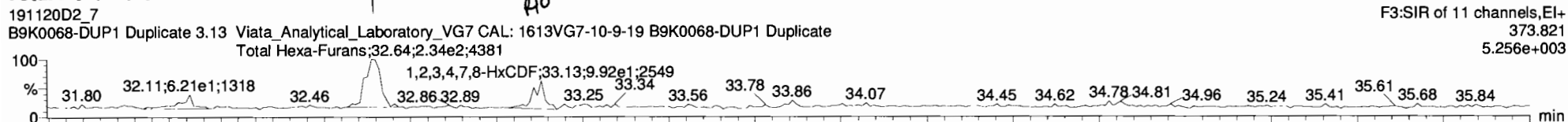


Vista Analytical Laboratory

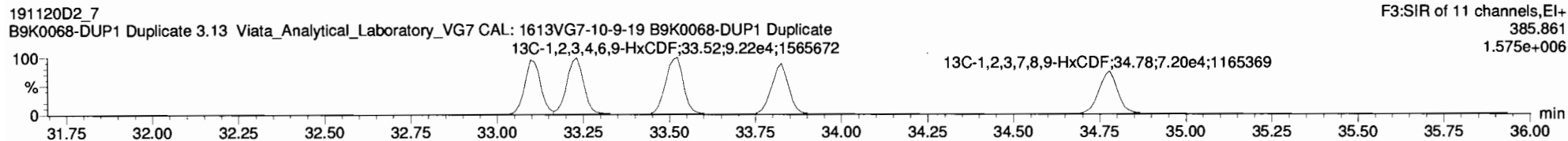
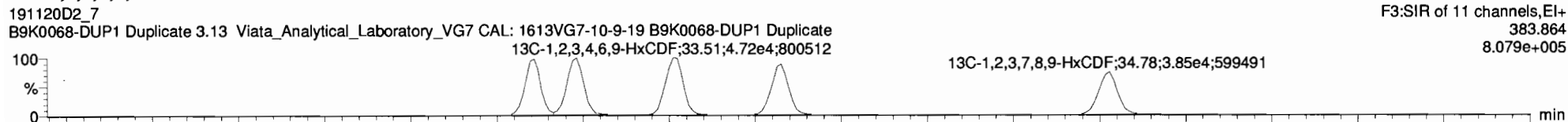
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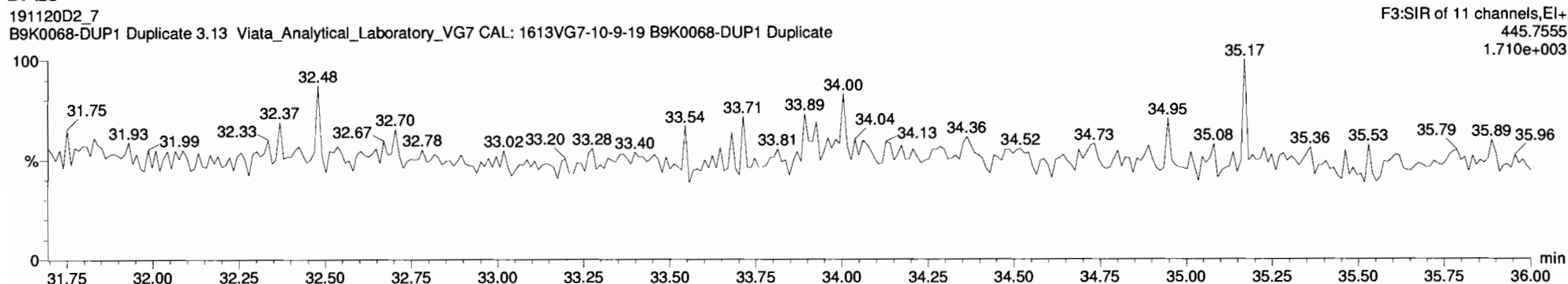
Total Hexa-Furans



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



DPE3

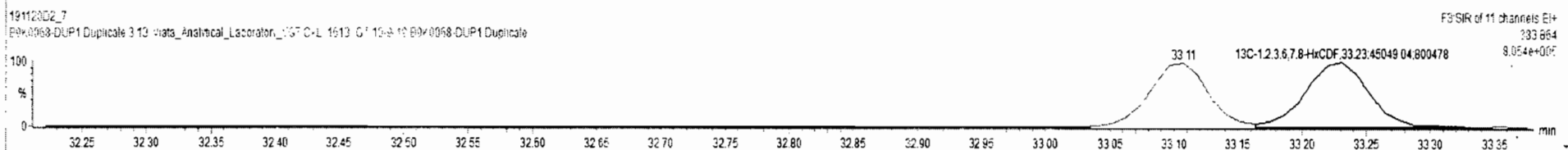
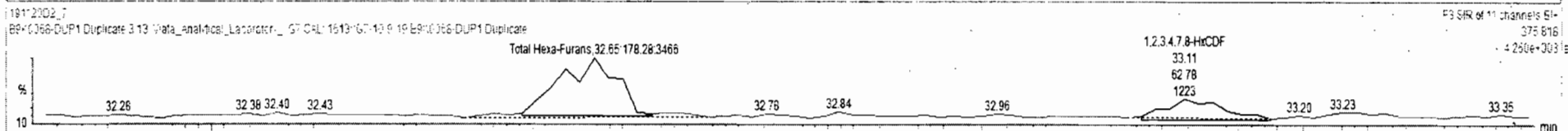
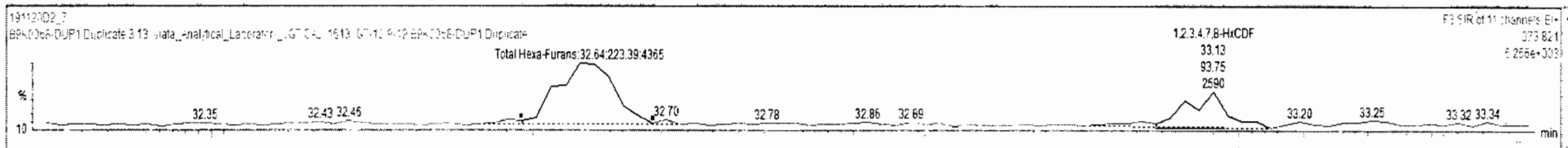




191120D2\_7 - B9K0068-DUP1 Duplicate - B9K0068-DUP1 Duplicate 3 13 Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	RA	nly	RRF	wt/vol	Pred RT	RT	Pred.R...	RRT	RRT Fail	Conc.	%Rec	DL	EMPC
45	Total Penta-Furans						2.567	30.00	0.000		NO			0.184	
46	Total Hexa-Furans						2.567	33.00	0.000		NO	2.300		0.580	3.160
47	Total Hepta-Furans						2.567	37.75	0.000		NO	18.75		0.669	18.75
48	PFK1														
49	PFK2														
50	PFK3														
51	PFK4														
52	PFK5														

#	Name	Pred RT	RT	m1 Resp	m2 Resp	1° Ratio (Pred)	RA	nly	EMPC	Conc.
1	46 Total Hexa-Furans	33.00	32.64	2.234e2	1.783e2	1.240	1.25	NO	2.3965	2.3985
2	11 1,2,3,4,7,8-HxCDF	33.11	33.13	9.375e1	6.278e1	1.240	1.49	YES	0.76165	0.00000



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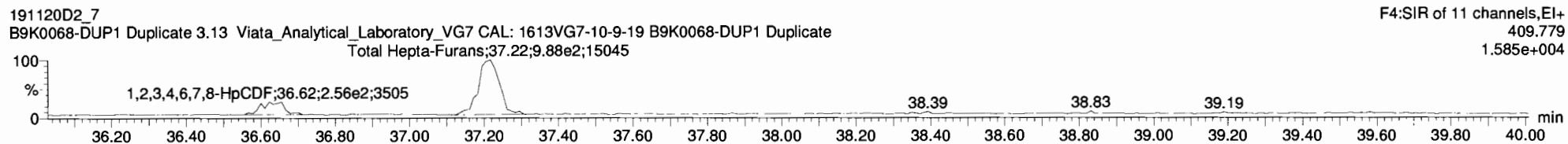
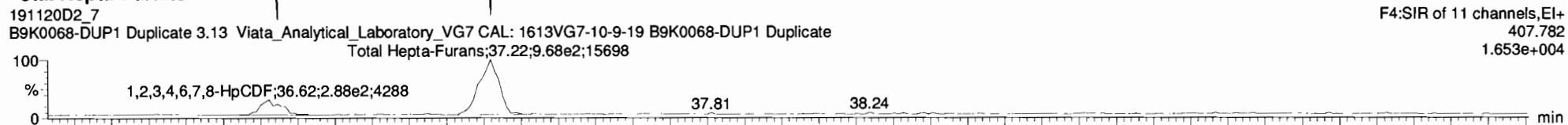
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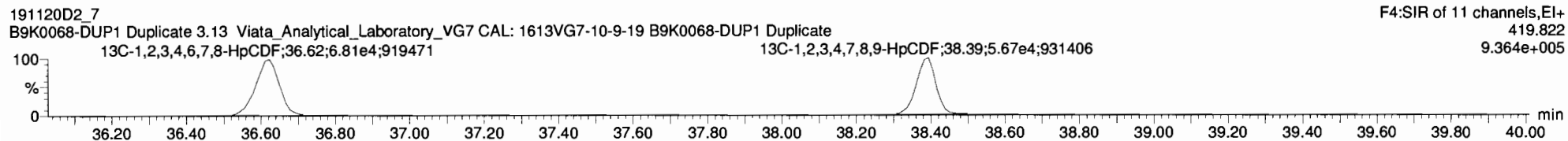
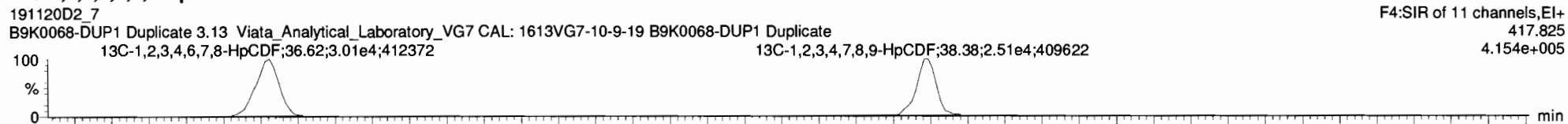
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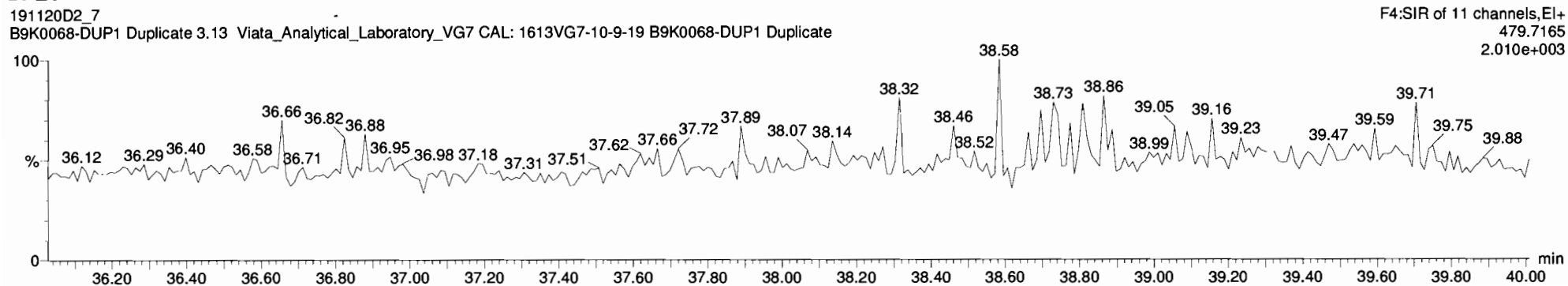
**Total Hepta-Furans**



**<sup>13</sup>C-1,2,3,4,6,7,8-HpCDF**



**DPE4**

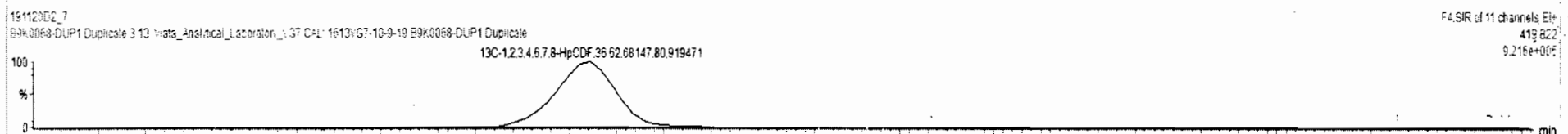
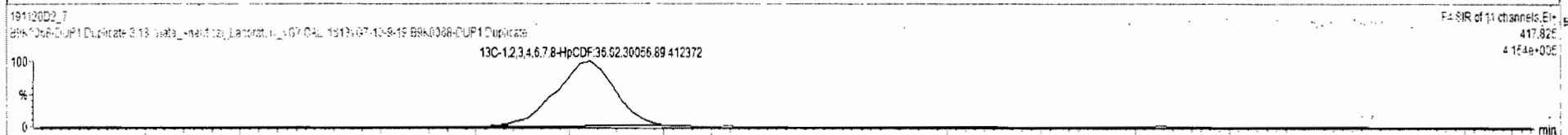
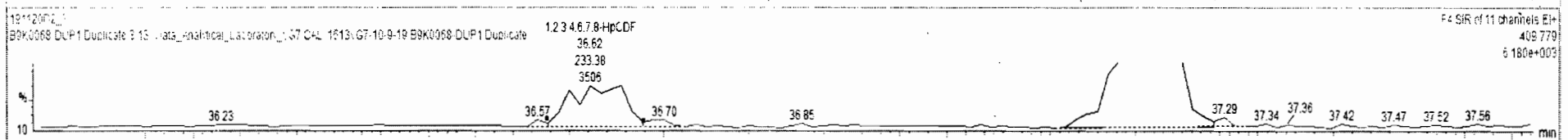
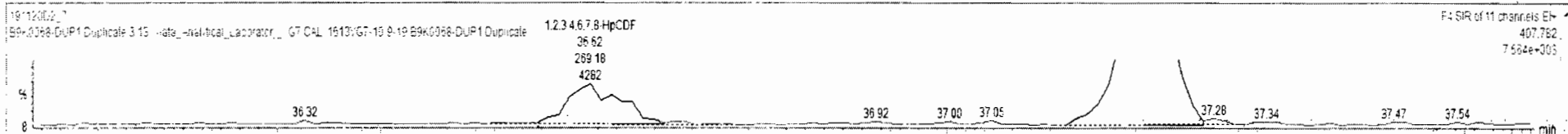




191120D2\_7 - B9K0068-DUP1 Duplicate - B9K0068-DUP1 Duplicate 3 13 - Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	RA	n/y	RRF	w/Vol	Pred RT	RT	Pred R...	RRT	RRT Fal	Conc.	%Rec	DL	ELPC
45	Total Penta-Furans					2.567	39.06		0.000		NO			0.184	
46	Total Hexa-Furans					2.567	33.06		0.000		NO	2.399		0.500	3.160
47	Total Hepta-Furans					2.567	37.75		0.000		NO	18.33		0.669	18.33
48	PFK1														
49	PFK2														
50	PFK3														
51	PFK4														
52	PFK5														

#	Name	Pred RT	RT	m1 Resp	m2 Resp	1 <sup>o</sup> Ratio (Pred)	RA	n/y	EMPC	Conc.
1	1,2,3,4,6,7,8-HpCDF	36.66	36.62	2.692e2	2.334e2	1.040	1.15	NO	3.5356	3.5356
2	Total Hepta-Furans	37.75	37.22	9.677e2	9.719e2	1.040	1.00	NO	14.795	14.795



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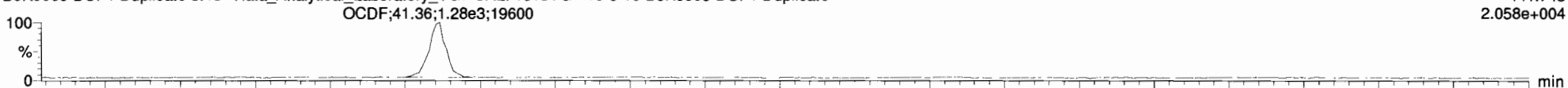
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Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

OCDF

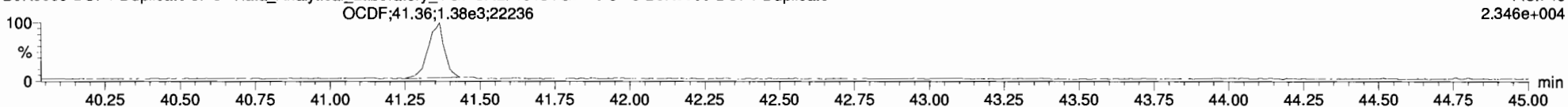
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F5:SIR of 11 channels, EI+  
441.743  
2.058e+004



191120D2\_7  
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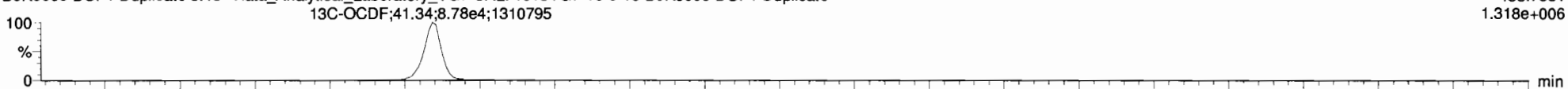
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443.740  
2.346e+004



13C-OCDF

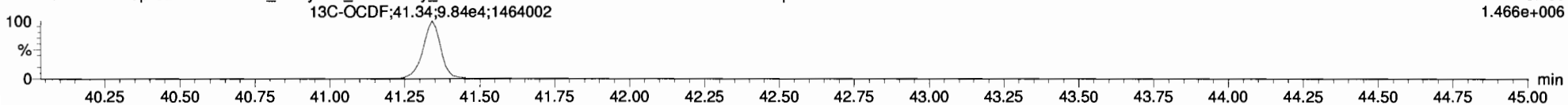
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F5:SIR of 11 channels, EI+  
453.7831  
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191120D2\_7  
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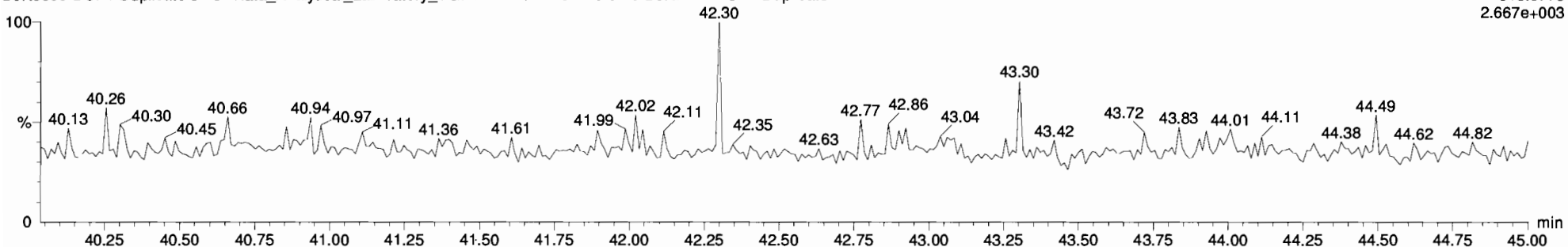
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455.780  
1.466e+006



DPE5

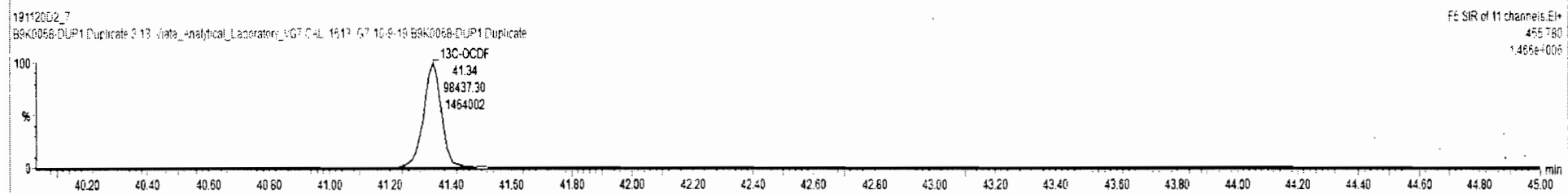
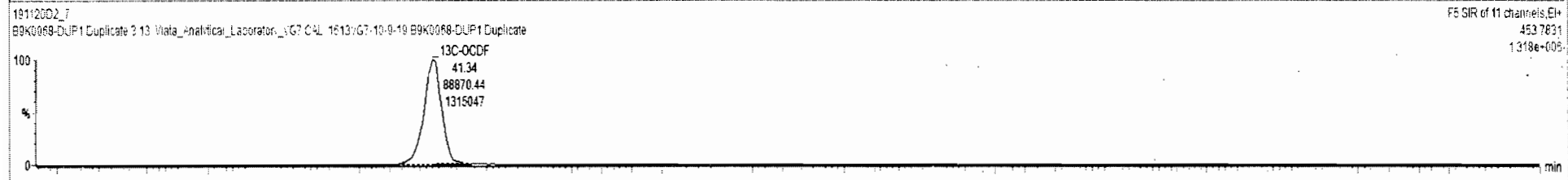
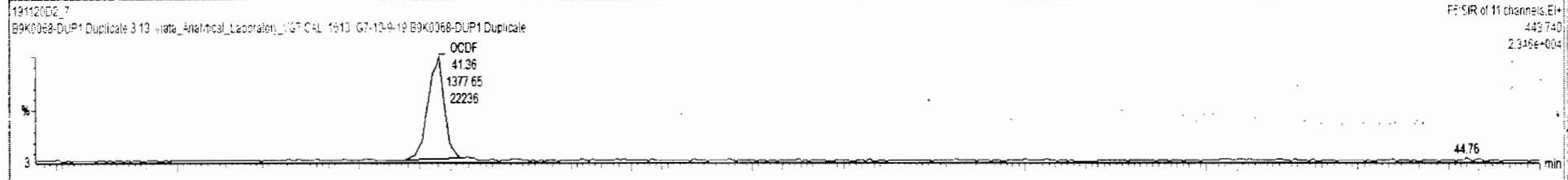
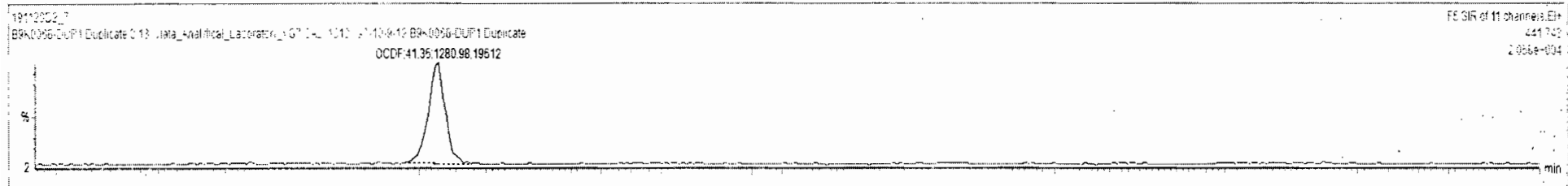
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B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 B9K0068-DUP1 Duplicate

F5:SIR of 11 channels, EI+  
513.6775  
2.667e+003



#	Name	Resp	RA	n/y	RPF	wt/vol	Pred RT	RT	Pred.R.	RRT	RRT Fal	Conc.	%Rec	DL	EMPC	
12	1,2,3,6,7,8-HxCDF						2.567	33.24	1.000		NO			0.452		
13	2,3,4,6,7,8-HxCDF						2.567	33.66	1.001		NO			0.469		
14	1,2,3,7,8,9-HxCDF						2.567	34.78	1.000		NO			0.616		
15	1,2,3,4,6,7,8-HpCDF	5.03e2	1.15	NO			2.567	36.66	36.62	1.001	1.000	NO	3.636		2.638	
16	1,2,3,4,7,8,9-HpCDF						2.567	36.36	1.000		NO			0.596		
17	OCDF	2.66e3	0.93	NO			2.567	41.34	41.36	1.000	1.001	NO	23.35		0.820	23.35
18	13C-2,3,7,8-TCDD	1.40e5	0.81	NO			2.567	26.16	26.18	1.021	1.022	NO	763.3	98.6	1.99	
19	13C-1,2,3,7,8-PeCDD	1.11e5	0.64	NO			2.567	30.40	30.68	1.187	1.198	NO	754.0	96.8	1.52	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	1 <sup>st</sup> Ratio (Pred)	RA	n/y	EMPC	Conc.
1										





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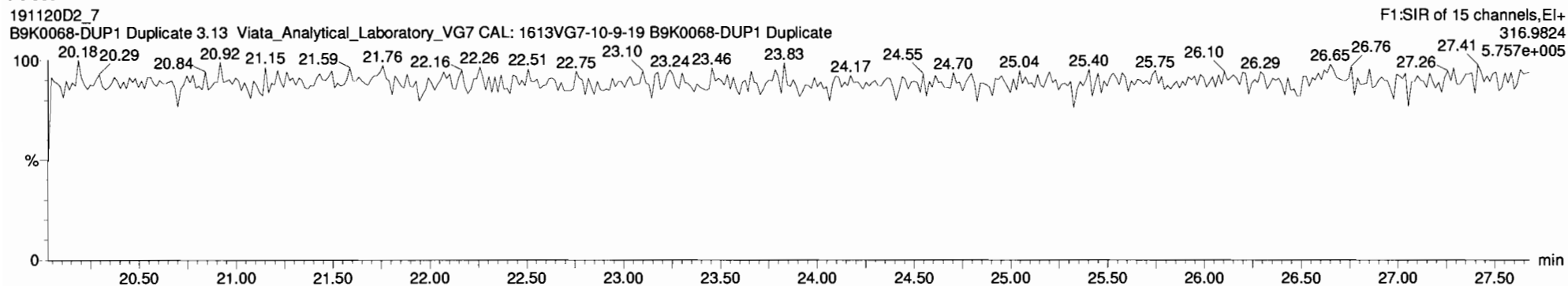
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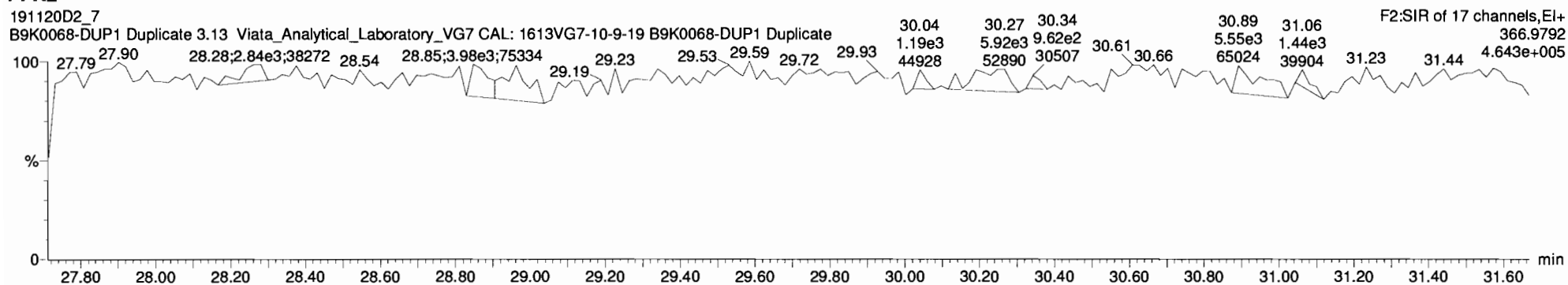
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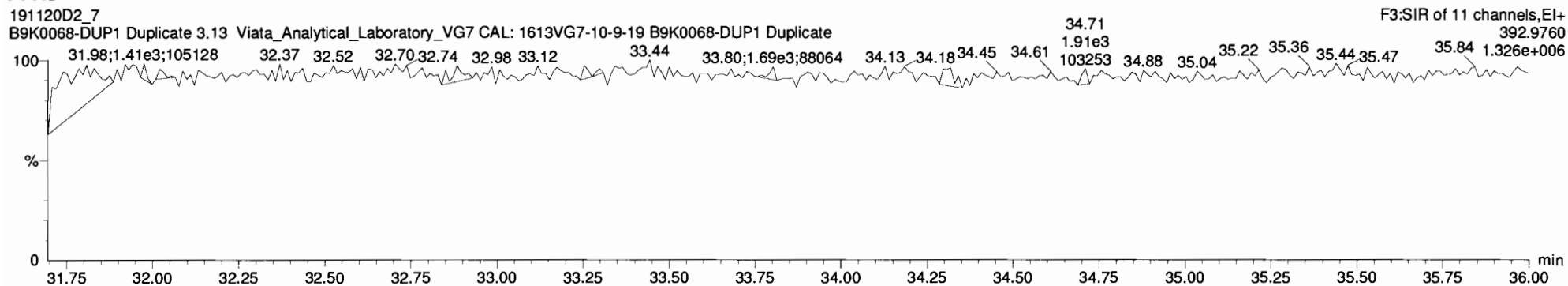
PFK1



PFK2



PFK3



Vista Analytical Laboratory

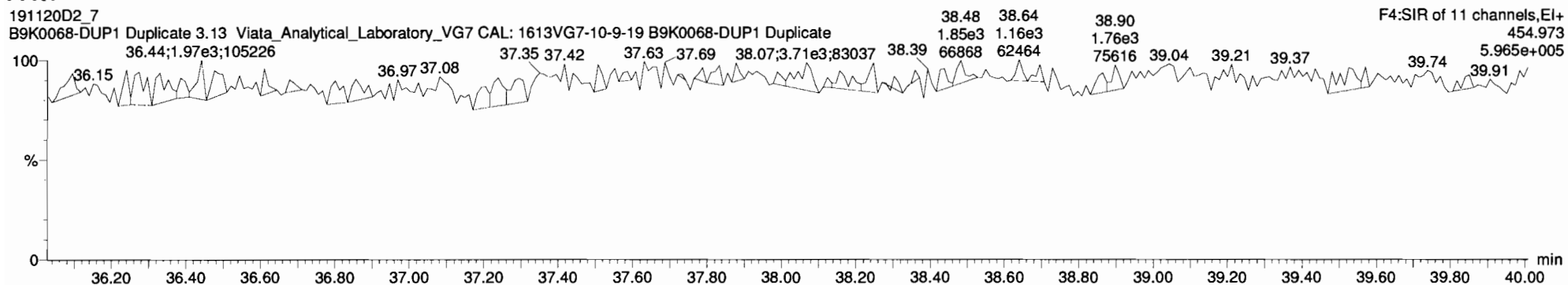
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Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

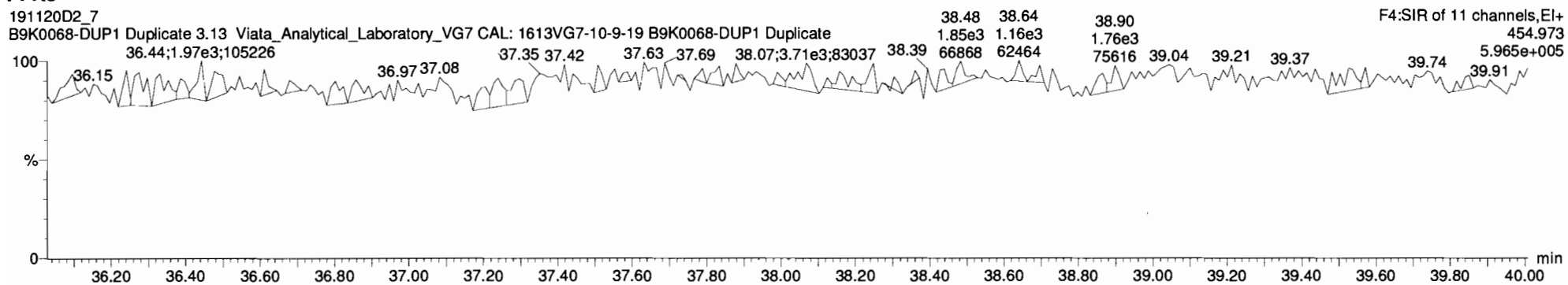
Printed: Wednesday, November 27, 2019 13:18:48 Pacific Standard Time

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Description: B9K0068-DUP1 Duplicate 3.13 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

PFK4



PFK5



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_9.qld  
 Last Altered: Monday, December 02, 2019 10:13:41 Pacific Standard Time  
 Printed: Monday, December 02, 2019 10:15:50 Pacific Standard Time

EL 12/2/19

C7 12/02/19

Method: U:\VG7.pro\MethDB\1613VG7-10- 21-19.mdb 04 Nov 2019 13:27:57  
 Calibration: 27 Nov 2019 13:09:17

Name: 191120D2\_9, Date: 21-NOV-2019, Time: 08:33:35, ID: 1903653-02RE1 PDI-027SC-A-13-13.5-191011,  
 Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 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	1.31e5	10.0109	0.905	1.001					26.19					0.172
2	1,2,3,7,8-PeCDD	1.13e5	10.0109	0.903	1.001					30.69					0.129
3	1,2,3,4,7,8-HxCDD	9.19e4	10.0109	1.101	1.000					34.00					0.301
4	1,2,3,6,7,8-HxCDD	1.02e5	10.0109	0.939	1.000					34.09					0.327
5	1,2,3,7,8,9-HxCDD	1.02e5	10.0109	0.961	1.001					34.42					0.330
6	1,2,3,4,6,7,8-HpCDD	1.26e3	9.28e4	10.0109	0.979	1.033	NO	1.000	1.001	37.85	37.86	2.7642		2.76	0.211
7	OCDD	9.27e3	1.60e5	10.0109	0.959	0.894	NO	1.000	1.000	41.11	41.13	24.084		24.1	0.248
8	2,3,7,8-TCDF	1.86e5	10.0109	0.950	1.001					25.40					0.128
9	1,2,3,7,8-PeCDF	1.70e5	10.0109	0.960	1.001					29.52					0.0914
10	2,3,4,7,8-PeCDF	1.64e5	10.0109	1.015	1.001					30.42					0.0910
11	1,2,3,4,7,8-HxCDF	1.27e5	10.0109	1.177	1.000					33.10					0.0877
12	1,2,3,6,7,8-HxCDF	1.38e5	10.0109	1.069	1.000					33.22					0.0943
13	2,3,4,6,7,8-HxCDF	1.23e5	10.0109	1.114	1.001					33.84					0.100
14	1,2,3,7,8,9-HxCDF	1.10e5	10.0109	1.062	1.000					34.77					0.137
15	1,2,3,4,6,7,8-HpCDF	1.01e5	10.0109	1.128	1.001					36.65					0.135
16	1,2,3,4,7,8,9-HpCDF	8.45e4	10.0109	1.280	1.000					38.38					0.117
17	OCDF	2.00e5	10.0109	0.947	1.000					41.33					0.191
18	13C-2,3,7,8-TCDD	1.31e5	1.26e5	10.0109	1.095	0.779	NO	1.021	1.021	26.15	26.15	190.40	95.3		0.529
19	13C-1,2,3,7,8-PeCDD	1.13e5	1.26e5	10.0109	0.881	0.611	NO	1.187	1.198	30.39	30.67	204.25	102.2		0.288
20	13C-1,2,3,4,7,8-Hx...	9.19e4	1.37e5	10.0109	0.642	1.293	NO	1.014	1.014	33.97	33.99	208.37	104.3		0.736
21	13C-1,2,3,6,7,8-Hx...	1.02e5	1.37e5	10.0109	0.856	1.277	NO	1.017	1.017	34.09	34.09	173.77	87.0		0.552
22	13C-1,2,3,7,8,9-Hx...	1.02e5	1.37e5	10.0109	0.807	1.281	NO	1.026	1.026	34.39	34.39	184.29	92.2		0.586
23	13C-1,2,3,4,6,7,8-H...	9.28e4	1.37e5	10.0109	0.654	1.025	NO	1.126	1.129	37.73	37.84	206.55	103.4		0.840
24	13C-OCDD	1.60e5	1.37e5	10.0109	0.580	0.897	NO	1.226	1.227	41.08	41.11	403.10	100.9		0.613
25	13C-2,3,7,8-TCDF	1.86e5	2.03e5	10.0109	1.035	0.771	NO	0.993	0.991	25.44	25.38	177.21	88.7		0.577
26	13C-1,2,3,7,8-PeCDF	1.70e5	2.03e5	10.0109	0.854	1.576	NO	1.143	1.152	29.27	29.50	196.51	98.4		0.691
27	13C-2,3,4,7,8-PeCDF	1.64e5	2.03e5	10.0109	0.847	1.559	NO	1.176	1.186	30.12	30.38	191.23	95.7		0.697
28	13C-1,2,3,4,7,8-Hx...	1.27e5	1.37e5	10.0109	0.832	0.520	NO	0.987	0.988	33.08	33.10	222.85	111.5		1.10
29	13C-1,2,3,6,7,8-Hx...	1.38e5	1.37e5	10.0109	1.034	0.506	NO	0.991	0.991	33.20	33.21	194.77	97.5		0.888
30	13C-2,3,4,6,7,8-Hx...	1.23e5	1.37e5	10.0109	0.953	0.522	NO	1.009	1.009	33.81	33.81	187.80	94.0		0.964
31	13C-1,2,3,7,8,9-Hx...	1.10e5	1.37e5	10.0109	0.828	0.535	NO	1.039	1.038	34.80	34.77	194.06	97.1		1.11

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_9.qld

Last Altered: Monday, December 02, 2019 10:13:41 Pacific Standard Time

Printed: Monday, December 02, 2019 10:15:50 Pacific Standard Time

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#	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...	1.01e5	1.37e5	10.0109	0.757	0.444	NO	1.093	1.093	36.61	36.62	194.62	97.4		0.783
33	13C-1,2,3,4,7,8,9-H...	8.45e4	1.37e5	10.0109	0.581	0.456	NO	1.143	1.145	38.30	38.38	211.56	105.9		1.02
34	13C-OCDF	2.00e5	1.37e5	10.0109	0.689	0.884	NO	1.233	1.234	41.32	41.33	423.60	106.0		0.634
35	37Cl-2,3,7,8-TCDD	5.64e4	1.26e5	10.0109	1.198			1.022	1.023	26.17	26.19	74.900	93.7		0.132
36	13C-1,2,3,4-TCDD	1.26e5	1.26e5	10.0109	1.000	0.841	NO	1.000	1.000	25.70	25.61	199.78	100.0		0.580
37	13C-1,2,3,4-TCDF	2.03e5	2.03e5	10.0109	1.000	0.785	NO	1.000	1.000	24.28	24.18	199.78	100.0		0.597
38	13C-1,2,3,4,6,9-Hx...	1.37e5	1.37e5	10.0109	1.000	0.523	NO	1.000	1.000	33.55	33.50	199.78	100.0		0.919
39	Total Tetra-Dioxins		1.31e5	10.0109	0.901			0.000		25.50					0.0923
40	Total Penta-Dioxins		1.13e5	10.0109	0.872			0.000		30.00		0.00000		0.297	0.134
41	Total Hexa-Dioxins		0.00e0	10.0109	0.976			0.000		33.80		1.3774		1.38	0.326
42	Total Hepta-Dioxins		9.28e4	10.0109	0.989			0.000		37.75		8.3045		8.30	0.209
43	Total Tetra-Furans		1.86e5	10.0109	0.943			0.000		24.00					0.0562
44	1st Func. Penta-Fur...		0.00e0	10.0109	0.940			0.000		27.63					0.0271
45	Total Penta-Furans		0.00e0	10.0109	0.940			0.000		30.00					0.0347
46	Total Hexa-Furans		0.00e0	10.0109	1.078			0.000		33.00					0.0549
47	Total Hepta-Furans		0.00e0	10.0109	1.135			0.000		37.75					0.0721

Vista Analytical Laboratory

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 Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 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	40 Total Penta-Dioxins	NO	28.66	30.249	42946.809	0.000	MM	0.0000	0.15
2	40 Total Penta-Dioxins	YES	29.08	32.678	42946.809	0.000	MM	0.0000	0.15

**Hexa-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
41	Total Hexa-Dioxins	NO	32.47	357.483	55474.056	13.456	MM	1.3774	1.38

**Hepta-Dioxins**

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
6	1,2,3,4,6,7,8-HpCDD	NO	37.86	638.605	46953.184	27.102	MM	2.7642	2.76
42	Total Hepta-Dioxins	NO	37.01	1270.654	46953.184	54.836	MM	5.5402	5.54

**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

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

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_9.qld  
Last Altered: Monday, December 02, 2019 10:13:41 Pacific Standard Time  
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Name: 191120D2\_9, Date: 21-NOV-2019, Time: 08:33:35, ID: 1903653-02RE1 PDI-027SC-A-13-13.5-191011,  
Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 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
1										

Vista Analytical Laboratory

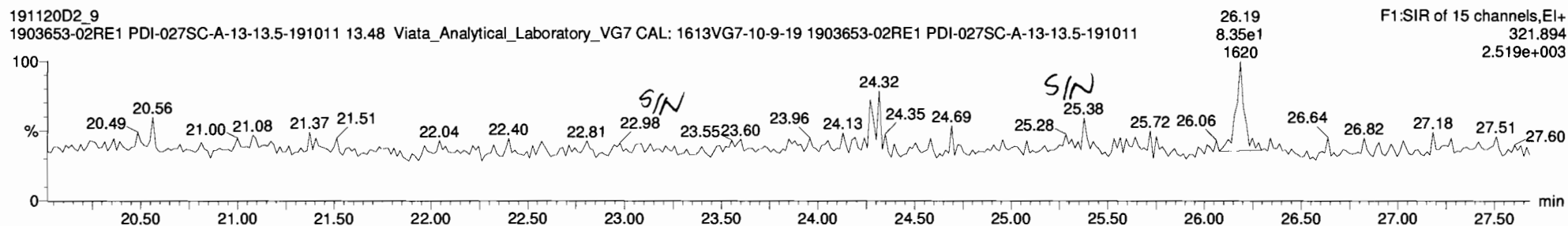
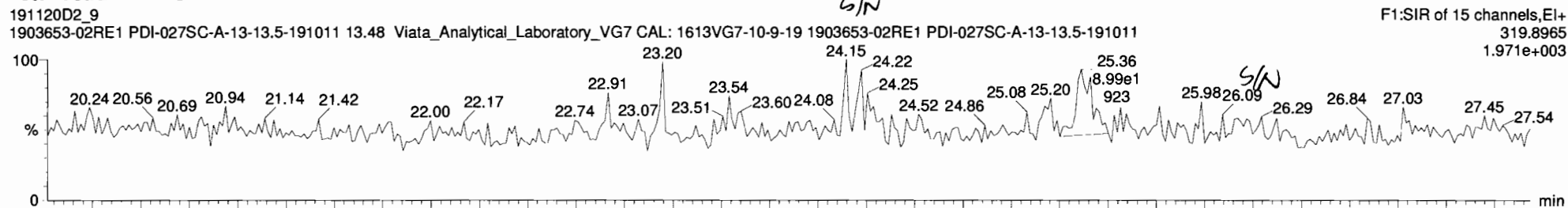
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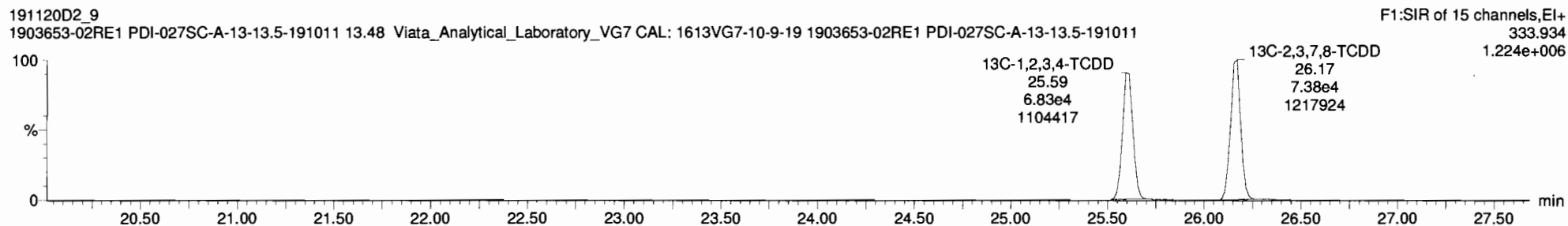
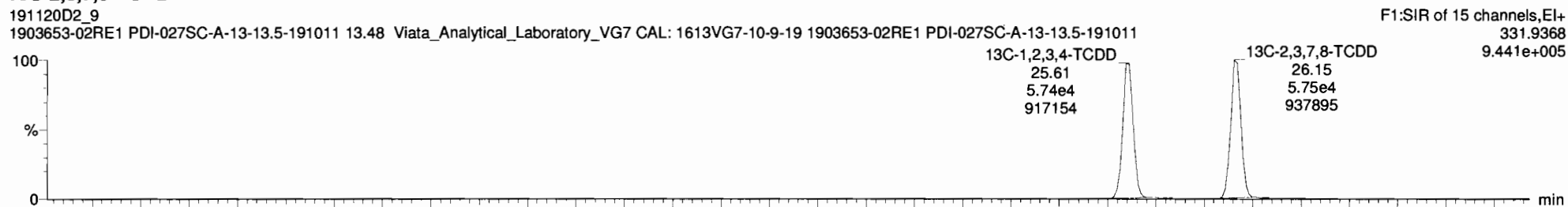
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Total Tetra-Dioxins



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



Vista Analytical Laboratory

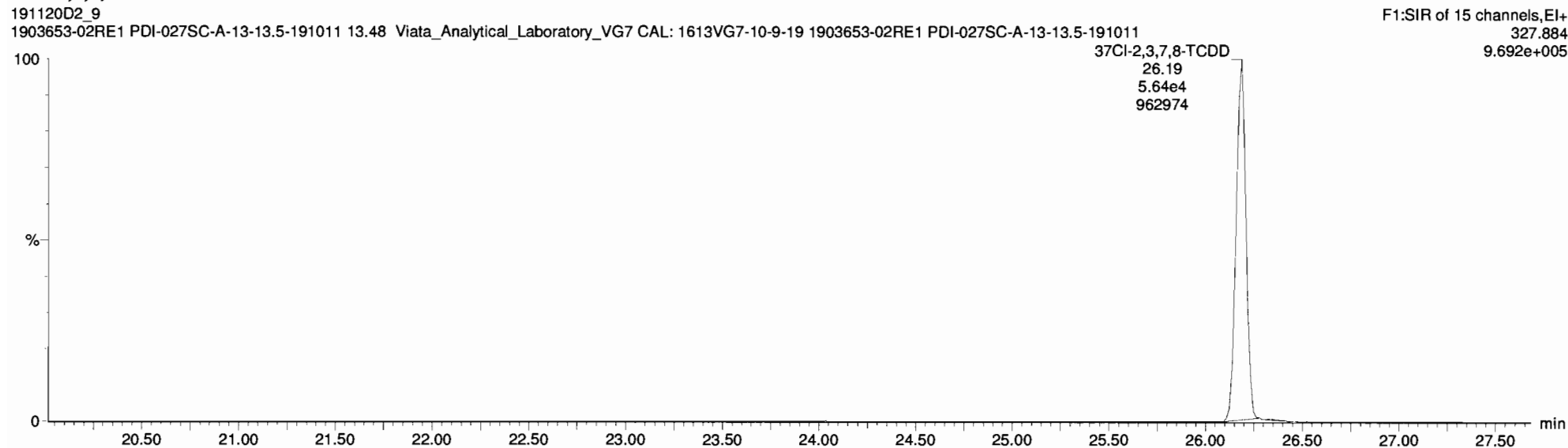
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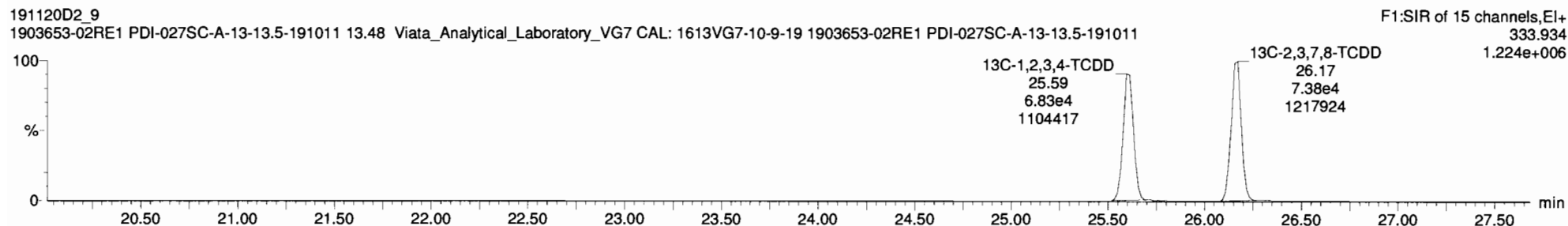
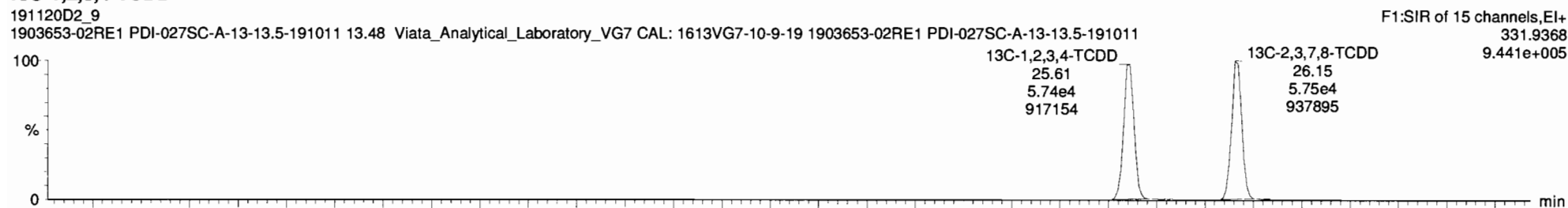
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**37Cl-2,3,7,8-TCDD**



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





Vista Analytical Laboratory

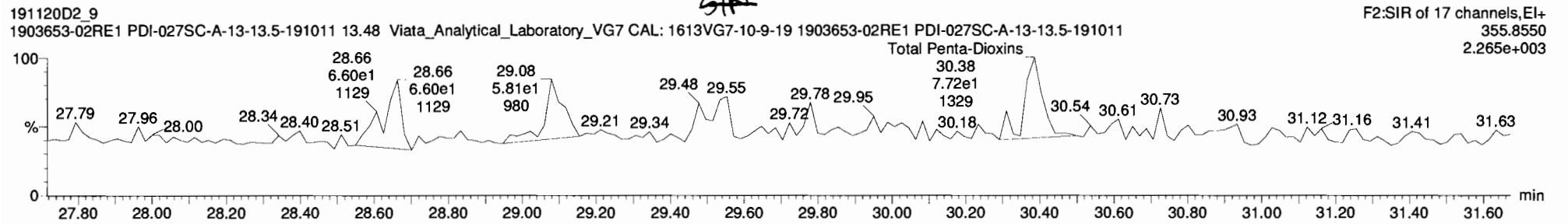
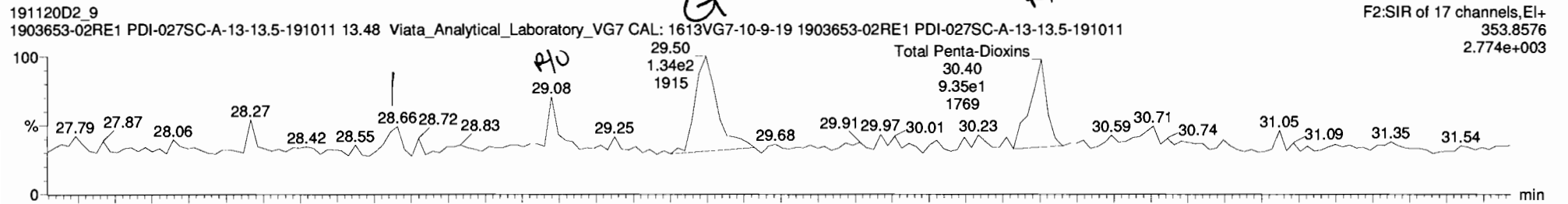
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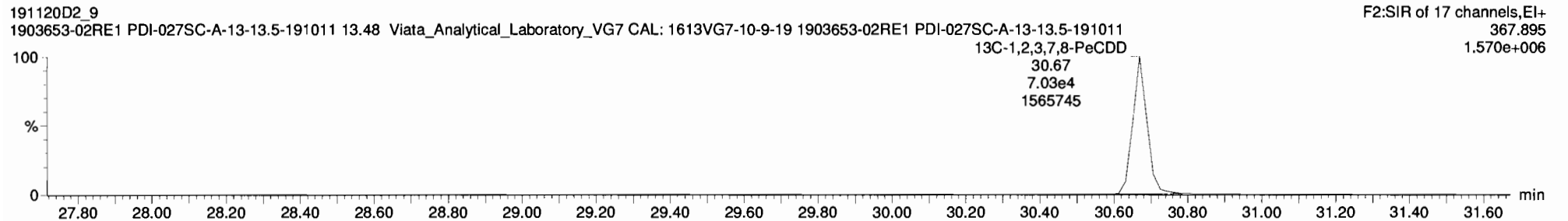
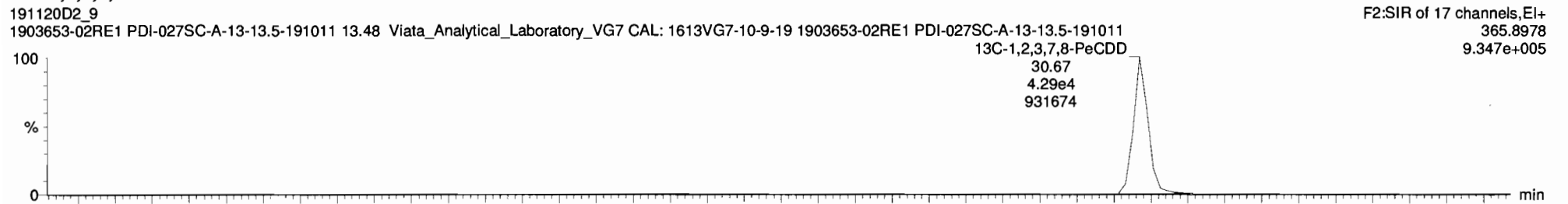
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Total Penta-Dioxins

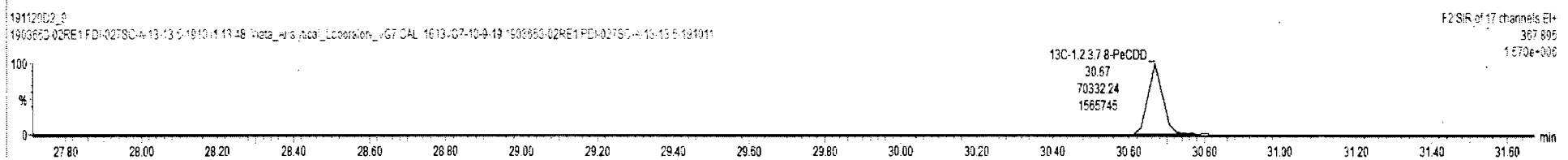
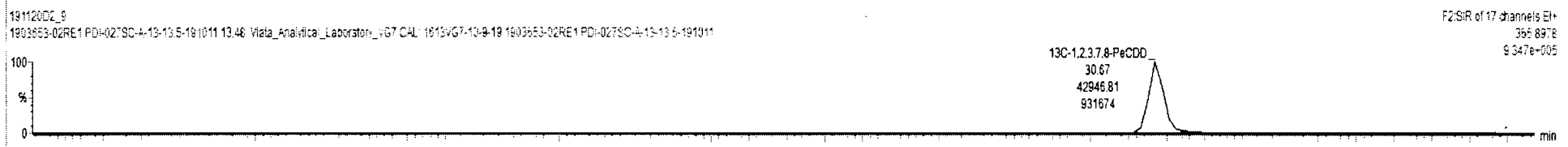
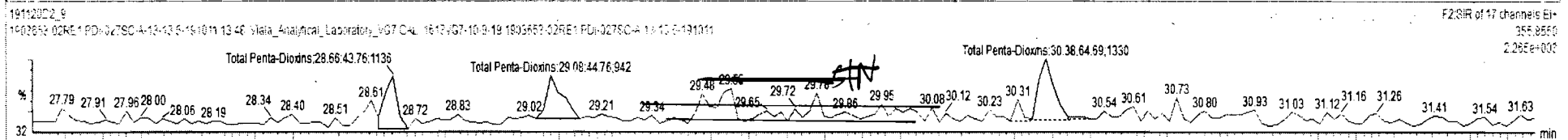
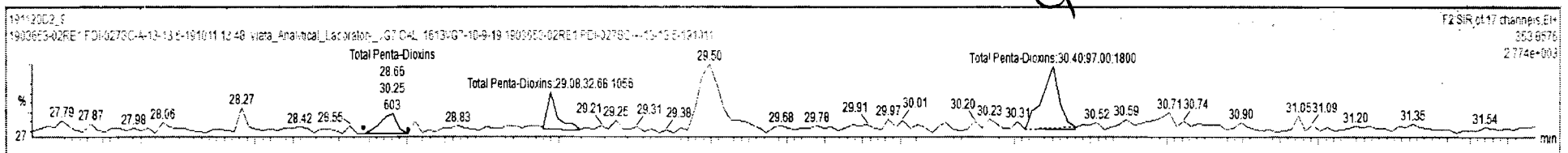


13C-1,2,3,7,8-PeCDD



#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
35	37C12.3.7.8-TCDD	5.64e4	1.26e5	36			1.198	19.911	26.17	26.19	1.023	1.022	NO	74.90	93.7	0.132	
36	13C-1,2,3,4-TCDF	1.26e5	1.26e5	36	0.84	NO	1.000	19.911	25.70	25.61	1.036	1.030	NO	199.8	100	0.580	
37	13C-1,2,3,4-TCDF	2.03e5	2.03e5	37	0.73	NO	1.000	19.911	24.28	24.18	1.006	1.000	NO	199.8	103	0.597	
38	13C-1,2,3,4,6,8-HxCDF	1.37e5	1.37e5	38	0.52	NO	1.000	19.911	33.55	33.50	1.006	1.000	NO	199.8	100	0.919	
39	Total Tetra-Dioxins		1.31e5				0.961	19.911	25.50			0.003	NO			0.0923	
40	Total Penta-Dioxins		1.13e5				0.822	19.911	30.00			0.000	NO	0.0000		0.134	0.5104
41	Total Hexa-Dioxins		9.00e0				0.976	19.911	33.60			0.000	NO	0.0000		0.190	0.2167
42	Total Hepta-Dioxins		9.28e4				0.989	19.911	37.75			0.000	NO	6.410		0.209	6.410
43	Total Tetra-Furans		1.86e5				0.943	19.911	24.00			0.000	NO			0.0562	
44	1st Func. Penta-Furans		0.00e0				0.940	19.911	27.63			0.000	NO			0.0271	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	40 Total Penta-Dioxins	30.00	28.66	3.025e1	4.375e1	0.630	0.66	NO	0.14964	0.00000
2	40 Total Penta-Dioxins	30.00	29.08	3.268e1	4.476e1	0.630	0.73	YES	0.14752	0.00000
3	40 Total Penta-Dioxins	30.00	30.40	9.709e1	6.459e1	0.630	1.56	YES	0.21323	0.00000



Vista Analytical Laboratory

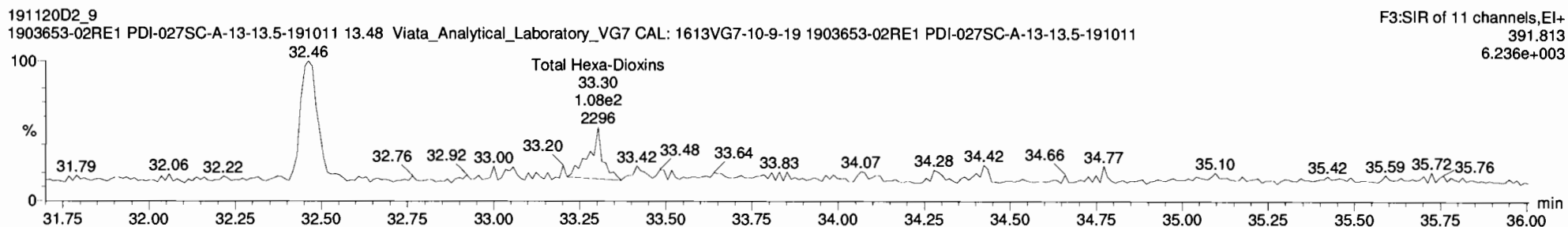
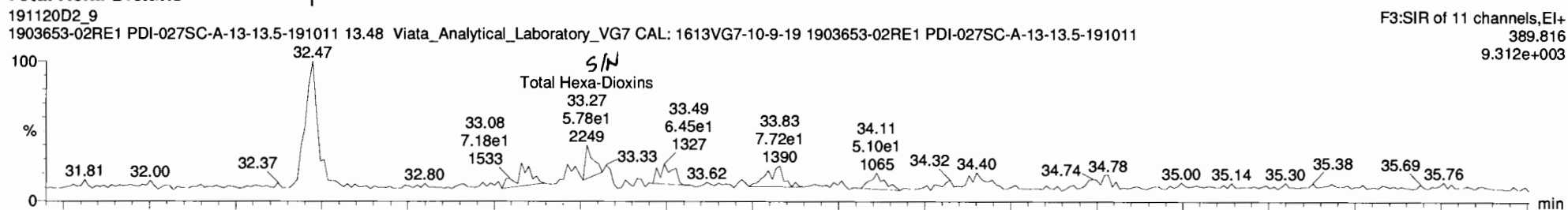
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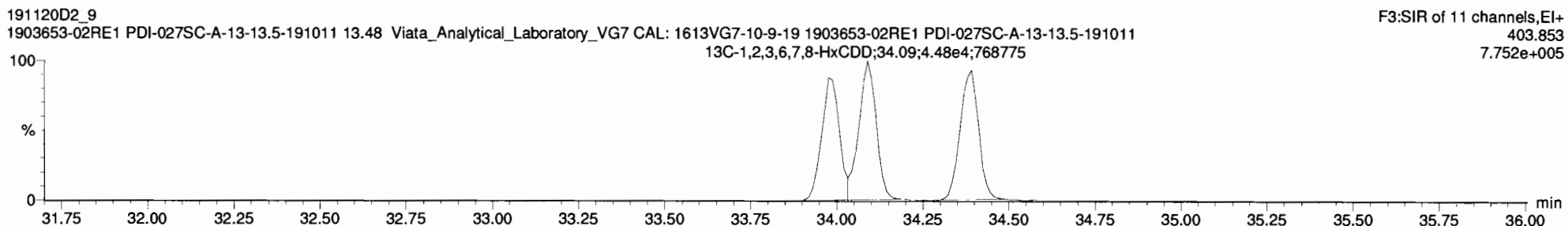
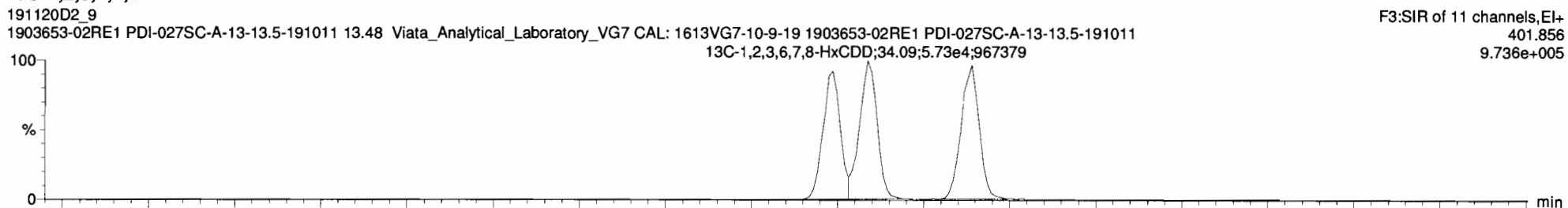
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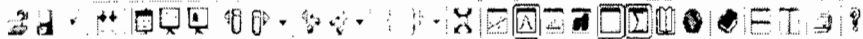
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Total Hexa-Dioxins



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

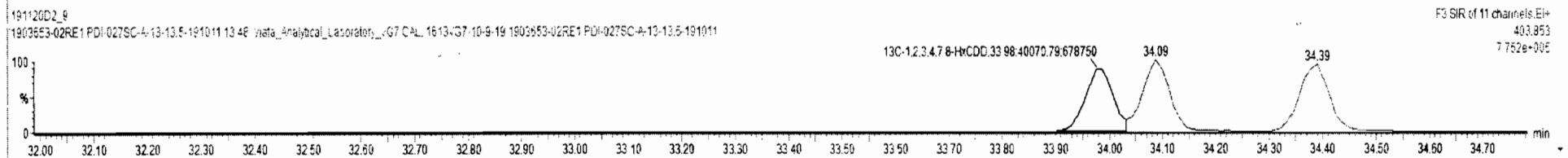
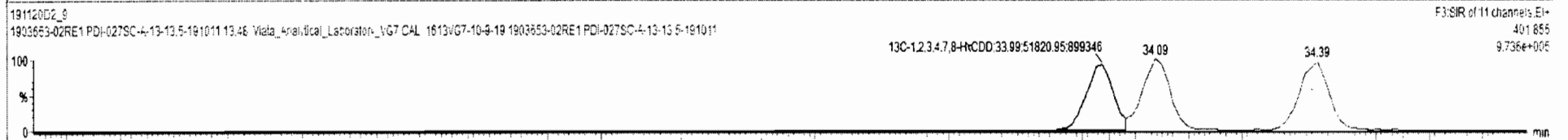
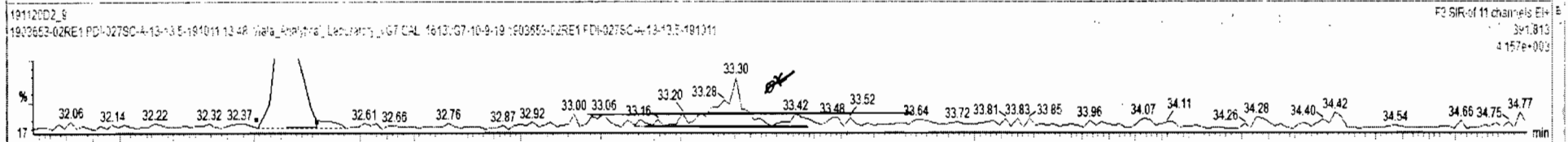
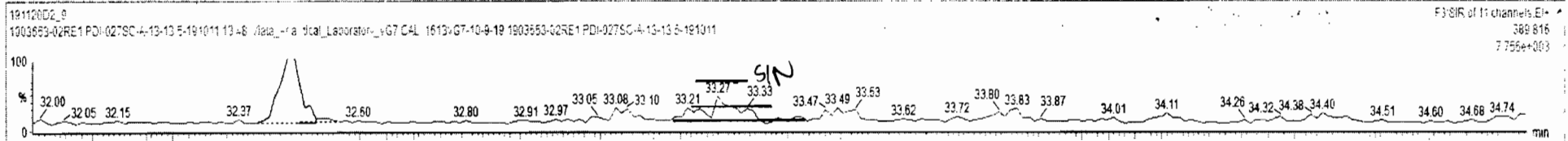




191120D2\_9 - 1903653-02RE1 PDI-027SC-A-13-13-5-191011 - 1903653-02RE1 PDI-027SC-A-13-13-5-191011 13 48 Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	w/w%	Pred.RT	RT	RRT	Pred.RRT	Check.RRT	Conc.	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HpCDF	8.45e4	1.37e5	38	0.46	NG	0.581	10.311	38.30	38.38	1.145	1.143	NO	211.6	106	1.02	
34	13C-OCDF	2.00e5	1.37e5	38	0.65	NG	0.689	10.311	41.32	41.33	1.234	1.233	NO	423.6	106	0.634	
35	37C-2,3,7,8-TCDD	5.64e4	1.26e5	36			1.198	10.311	26.17	26.19	1.022	1.022	NO	74.60	93.7	0.132	
36	13C-1,2,3,4-TCDD	1.26e5	1.26e5	36	0.84	NG	1.000	10.311	25.70	25.61	1.000	1.000	NO	195.8	100	0.560	
37	13C-1,2,3,4-TCDF	2.03e5	2.03e5	37	0.78	NG	1.000	10.311	24.28	24.18	1.000	1.000	NO	199.8	100	0.557	
38	13C-1,2,3,4,6,9-HxCDF	1.37e5	1.37e5	38	0.52	NG	1.000	10.311	33.55	33.50	1.000	1.000	NO	199.8	100	0.919	
39	Total Tetra-Dioxins		1.31e5				0.901	10.311	25.50			0.000	NO			0.0923	
40	Total Penta-Dioxins		1.13e5				0.872	10.311	30.00			0.000	NO	0.0000		0.134	0.5104
41	Total Hexa-Dioxins		0.00e0				0.976	10.311	33.80			0.000	NO	1.377		0.326	1.377
42	Total Hepta-Dioxins		5.28e4				0.989	10.311	37.75			0.000	NO	8.410		0.209	8.410

#	Name	Pred.RT	RT	m1 Resp	m2 Resp	Pred.RA	RA	n/y	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.80	32.47	3.575e2	3.066e2	1.240	1.17	NO	1.3774	1.3774



Vista Analytical Laboratory

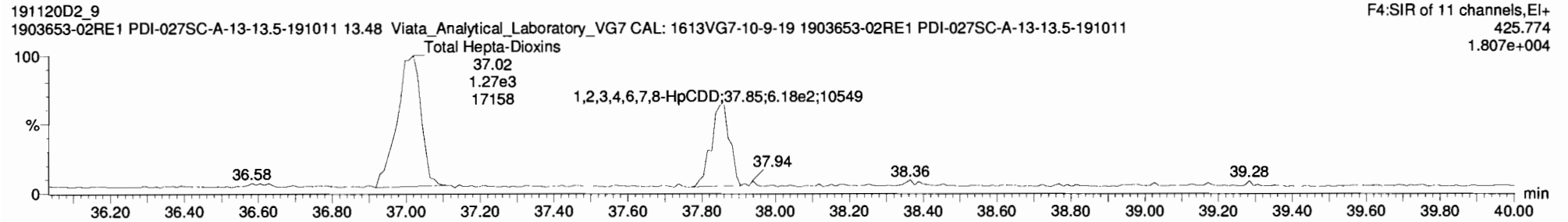
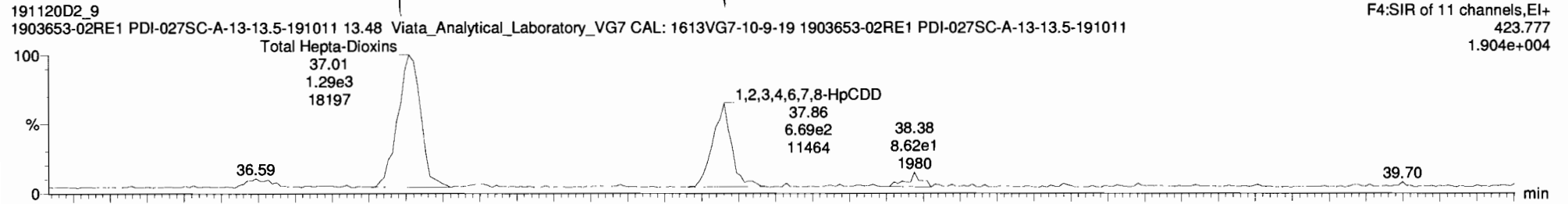
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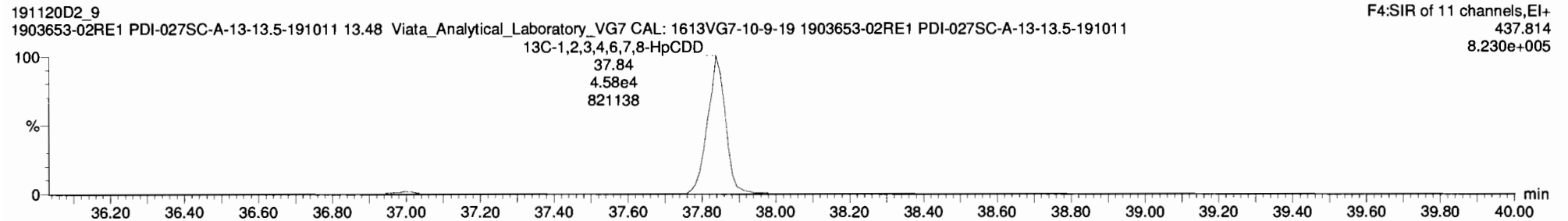
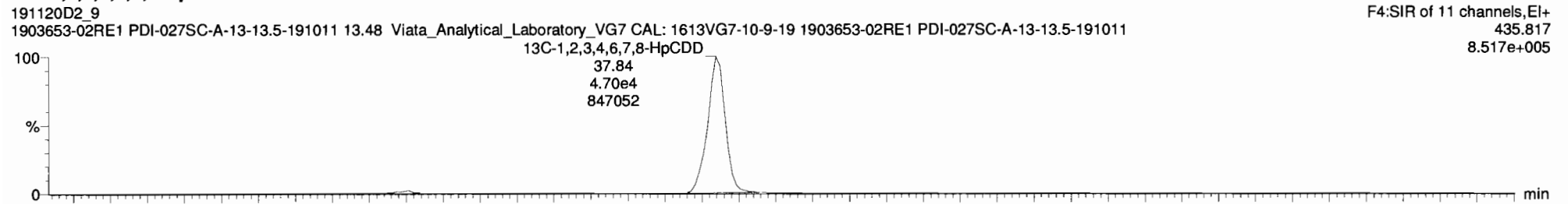
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Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Hepta-Dioxins



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

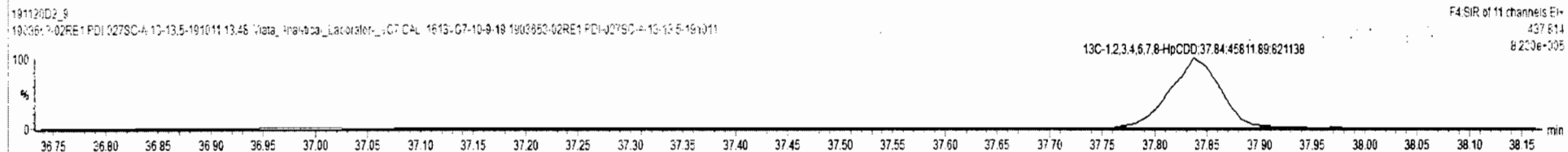
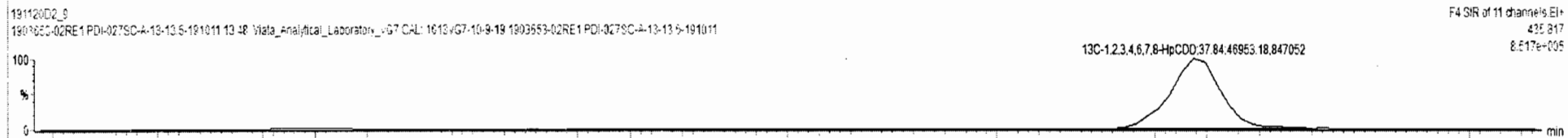
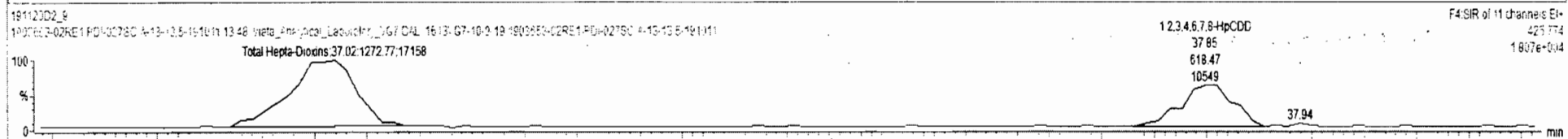
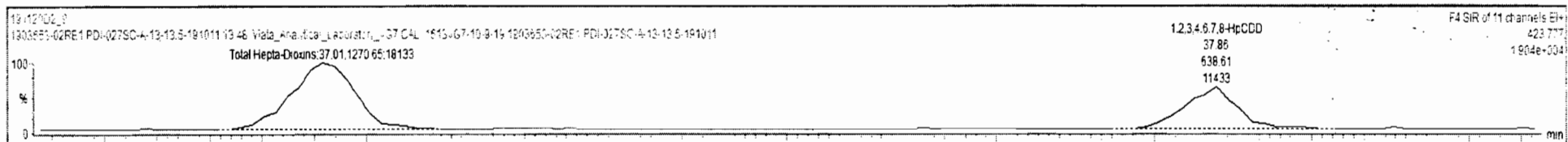




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#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc.	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HpCDF	8.45e4	1.37e5	38	0.46	NO	0.561	10.011	36.30	36.38	1.145	1.143	NO	211.6	100	1.02	
34	13C-OCDF	2.00e5	1.27e5	38	0.68	NO	0.689	10.011	41.32	41.33	1.234	1.233	NO	422.6	100	0.634	
35	37C-2,3,7,8-TCDD	5.64e4	1.26e5	36			1.198	10.011	26.17	26.19	1.023	1.022	NO	74.90	93.7	0.132	
36	13C-1,2,3,4-TCDD	1.26e5	1.26e5	36	0.84	NO	1.000	10.011	25.70	25.61	1.006	1.000	NO	199.8	100	0.580	
37	13C-1,2,3,4-TCDF	2.03e5	2.03e5	37	0.78	NO	1.000	10.011	24.28	24.18	1.000	1.000	NO	199.8	100	0.597	
38	13C-1,2,3,4,6,9-HpCDF	1.37e5	1.37e5	38	0.52	NO	1.000	10.011	33.55	33.50	1.000	1.000	NO	199.8	100	0.919	
39	Total Tetra-Dioxins		1.31e5				0.901	10.011	25.50			0.000	NO			0.0923	
40	Total Penta-Dioxins		1.13e5				0.872	10.011	36.00			0.000	NO	0.0000		0.134	0.5104
41	Total Hexa-Dioxins		0.06e0				0.976	10.011	33.80			0.000	NO	1.377		0.326	1.377
42	Total Hepta-Dioxins		9.26e4				0.989	10.011	37.75			0.000	NO	8.304		0.209	8.304

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.01	1.271e3	1.273e3	1.040	1.00	NO	5.5402	5.5402
2	6 1,2,3,4,6,7,8-HpCDD	37.85	37.86	6.386e2	6.185e2	1.040	1.00	NO	2.7642	2.7642



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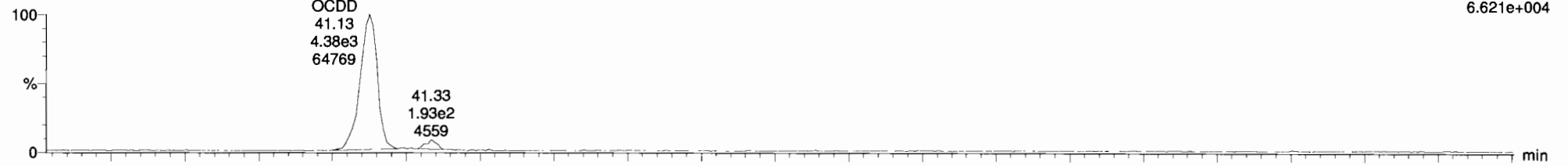
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Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

**OCDD**

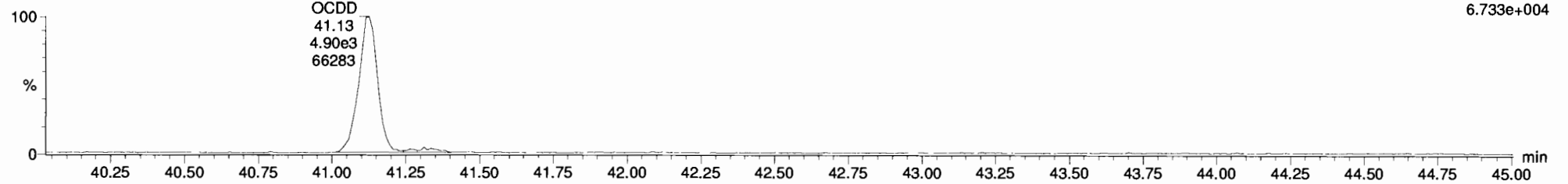
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F5:SIR of 11 channels, EI+  
457.738  
6.621e+004



191120D2\_9  
1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-02RE1 PDI-027SC-A-13-13.5-191011

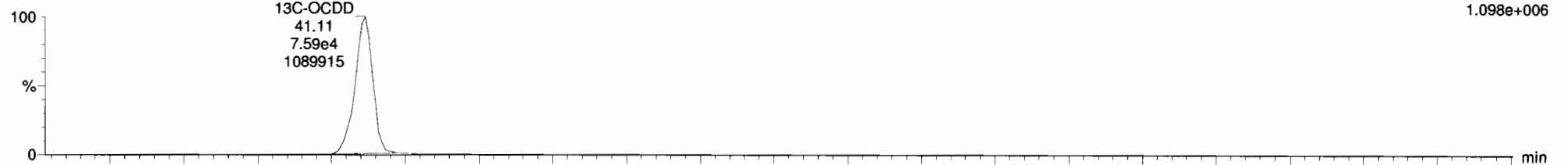
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**13C-OCDD**

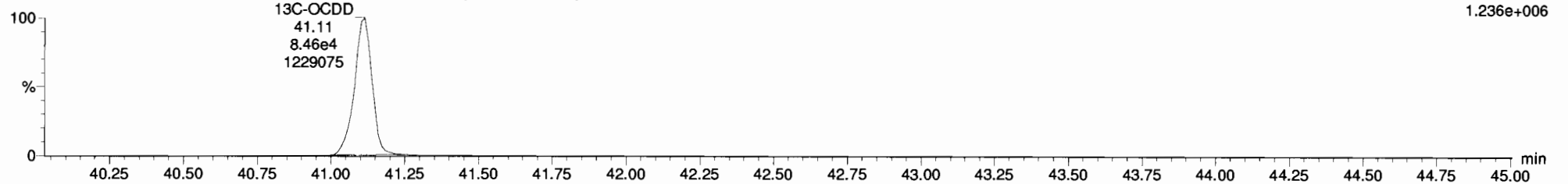
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F5:SIR of 11 channels, EI+  
469.778  
1.098e+006



191120D2\_9  
1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-02RE1 PDI-027SC-A-13-13.5-191011

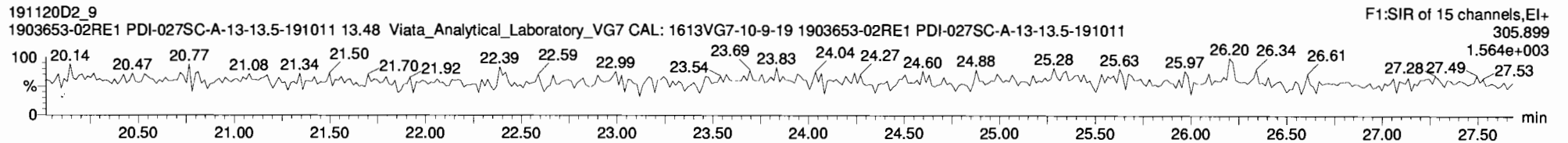
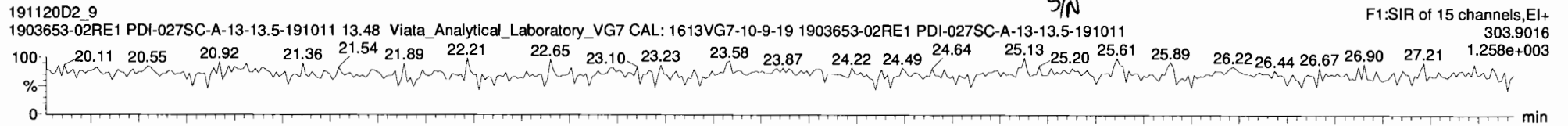
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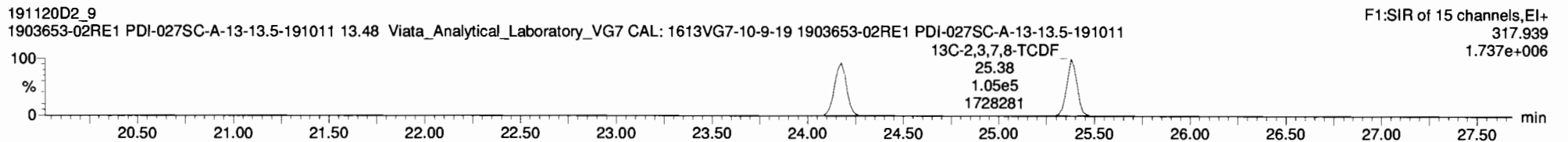
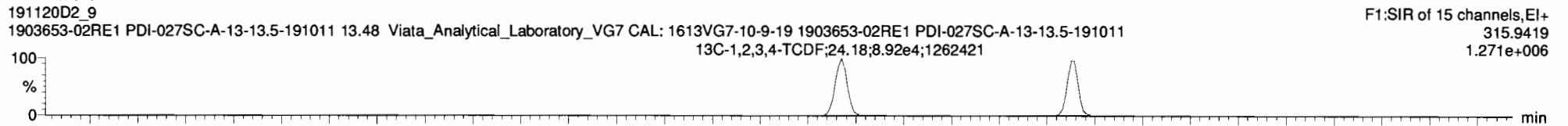
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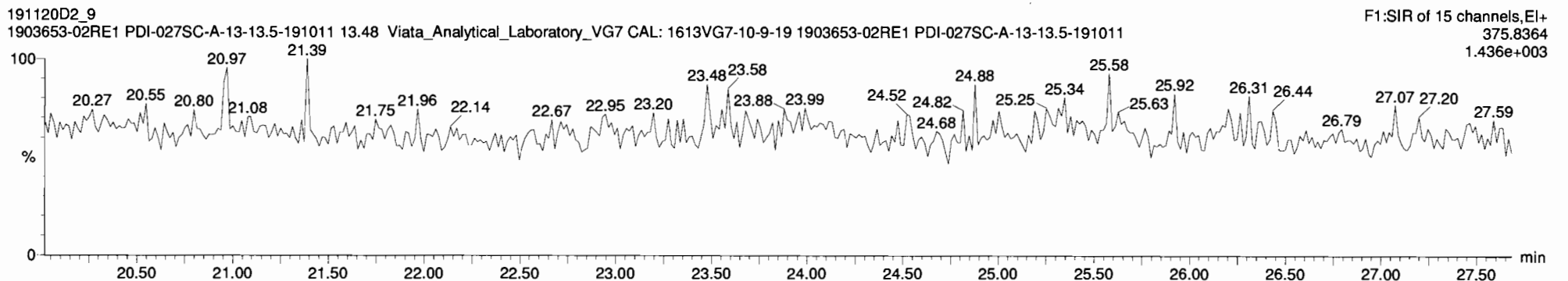
**Total Tetra-Furans**



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



**DPE1**





Vista Analytical Laboratory

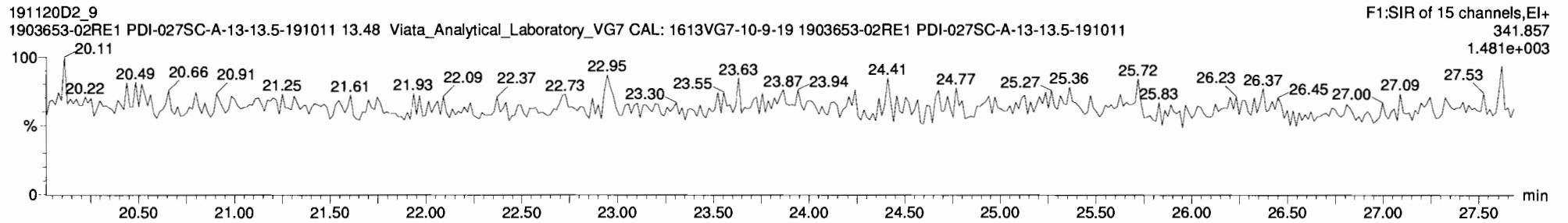
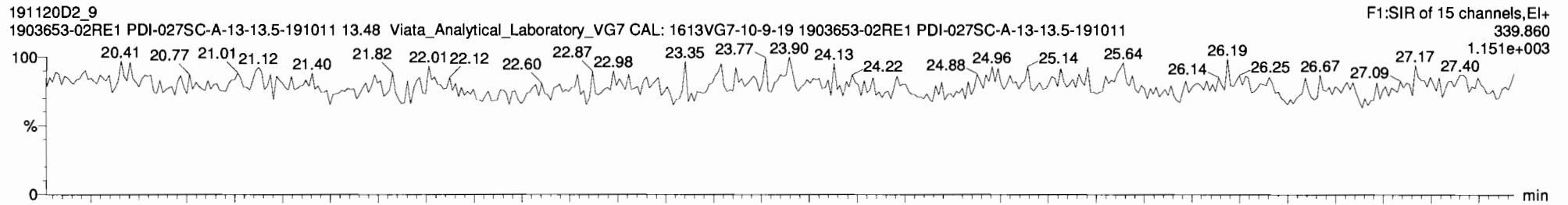
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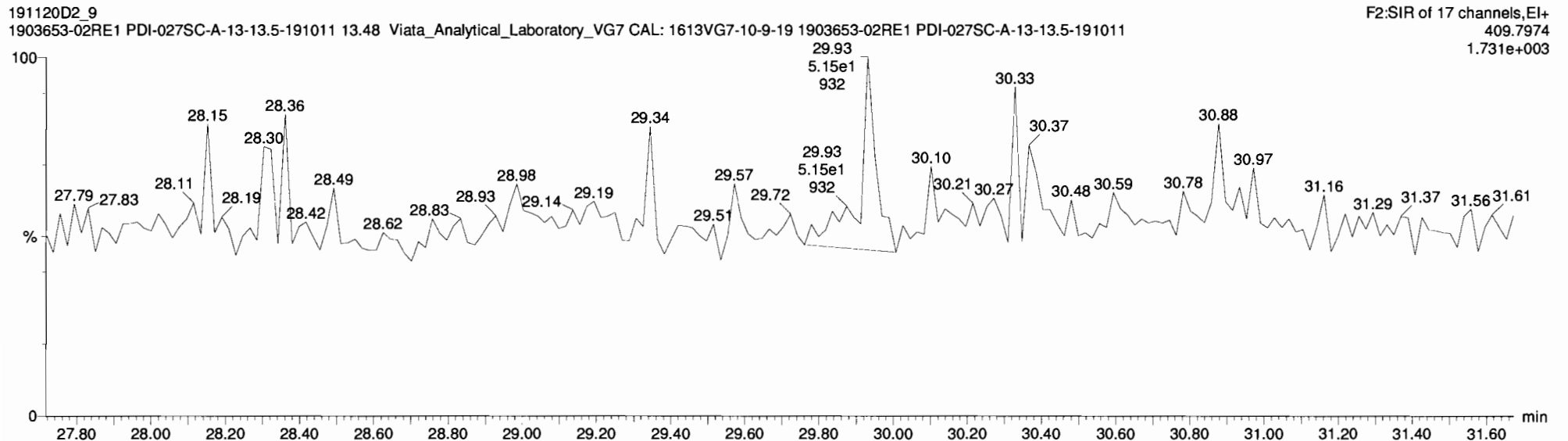
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Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

1st Func. Penta-Furans



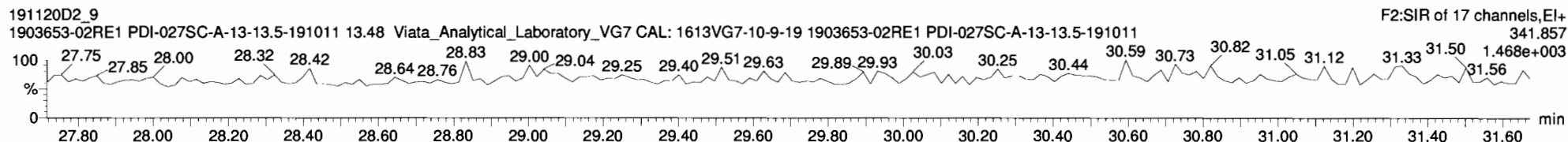
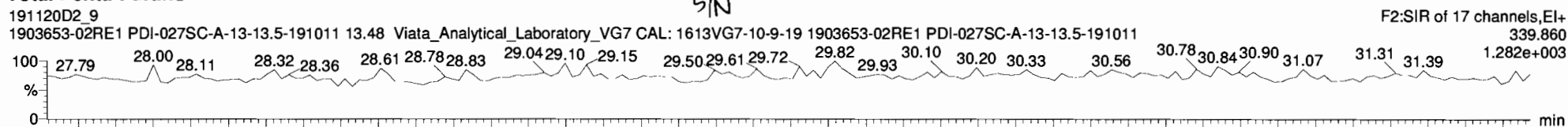
DPE6



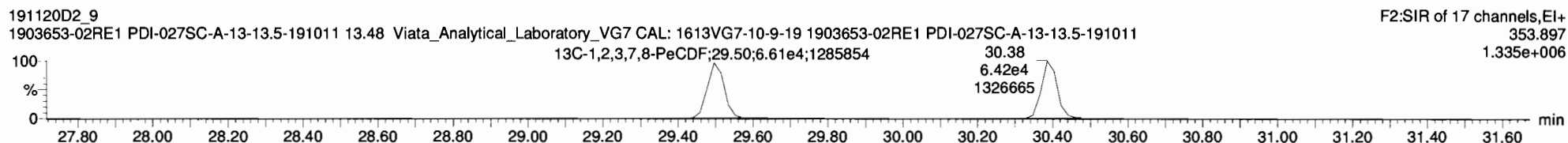
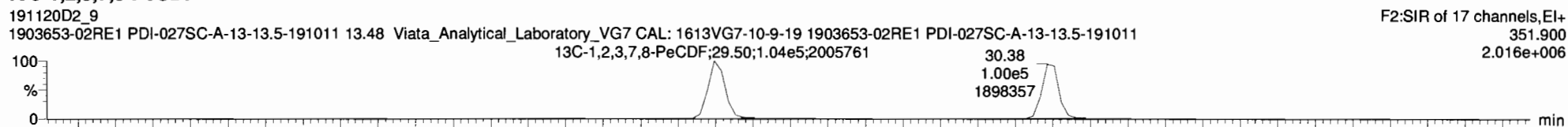
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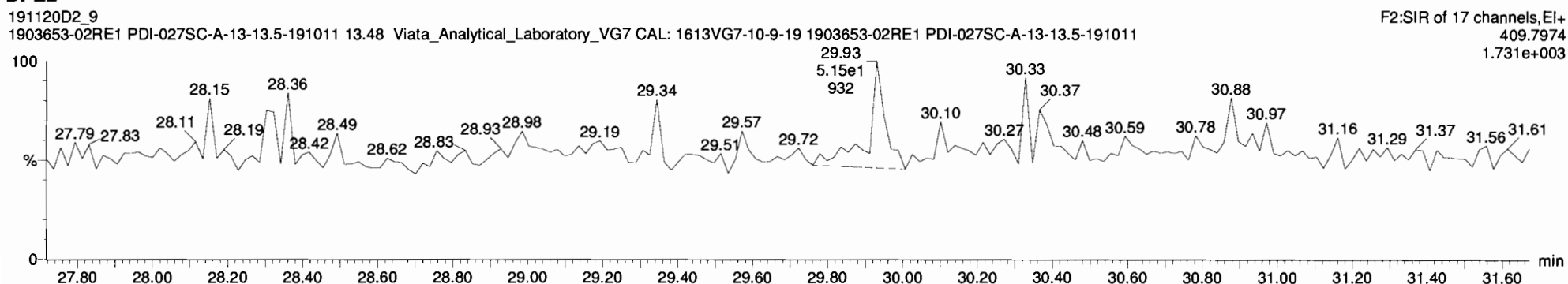
**Total Penta-Furans**



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



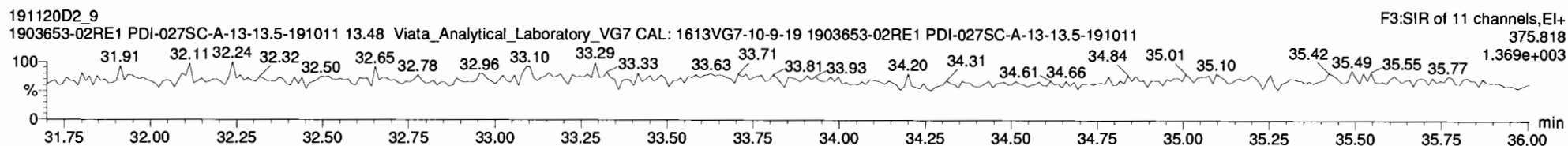
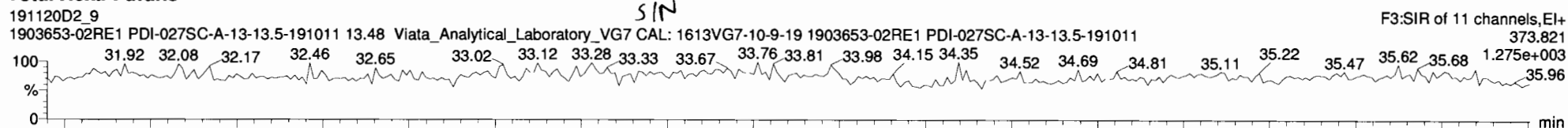
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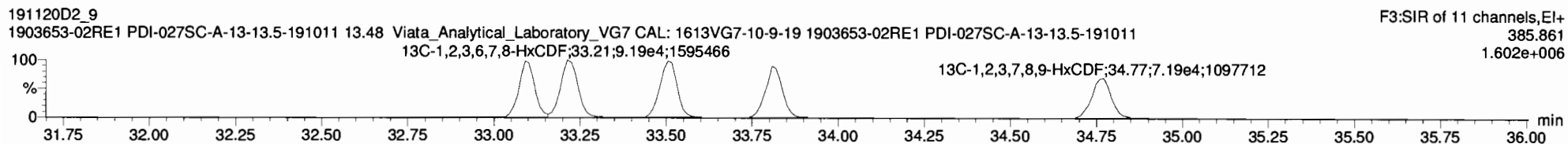
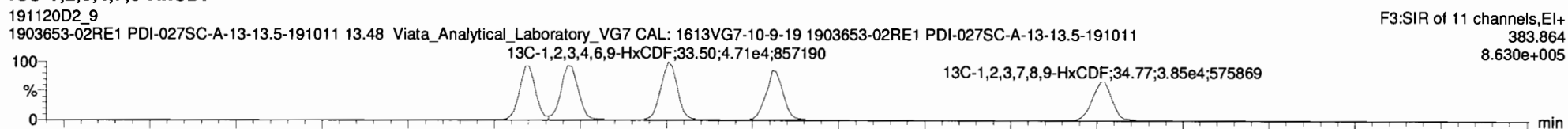
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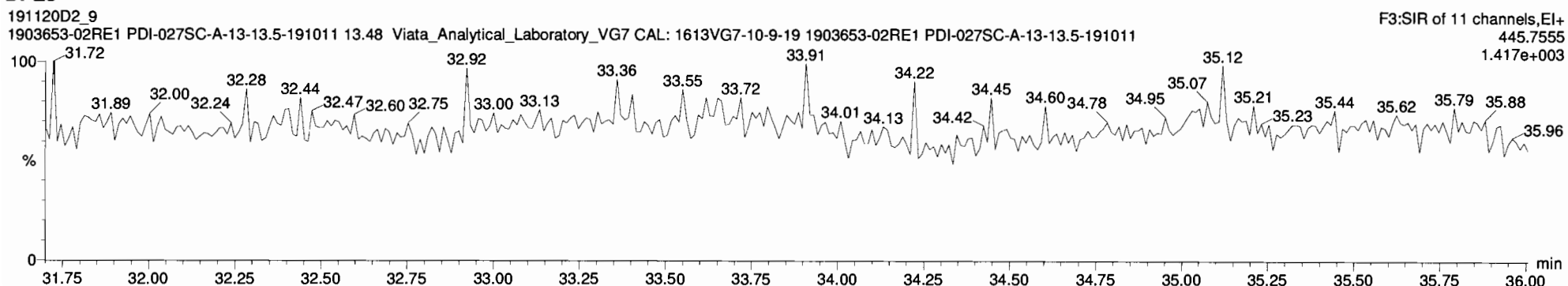
**Total Hexa-Furans**



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



**DPE3**



Vista Analytical Laboratory

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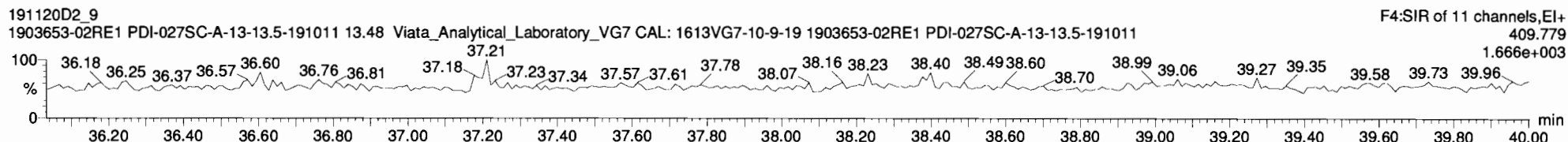
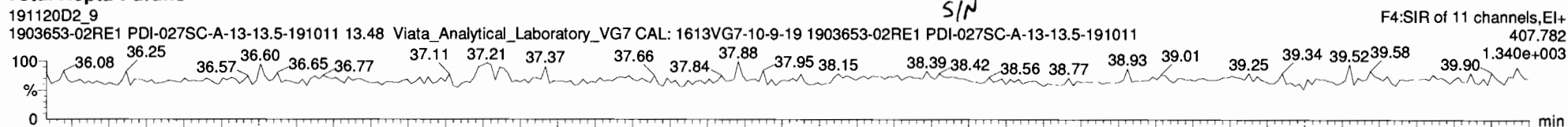
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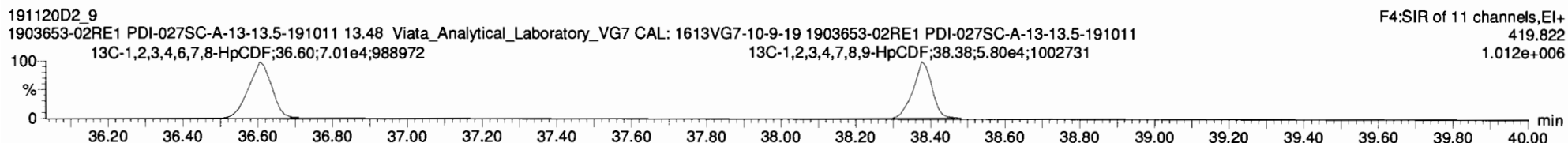
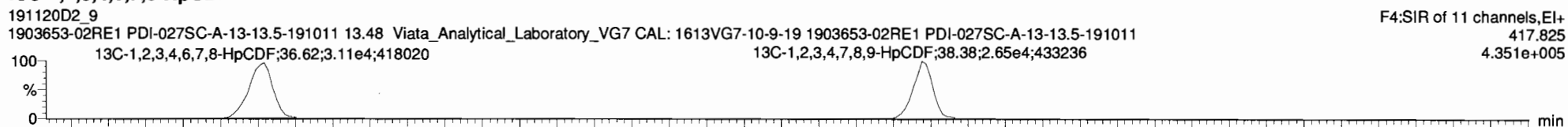
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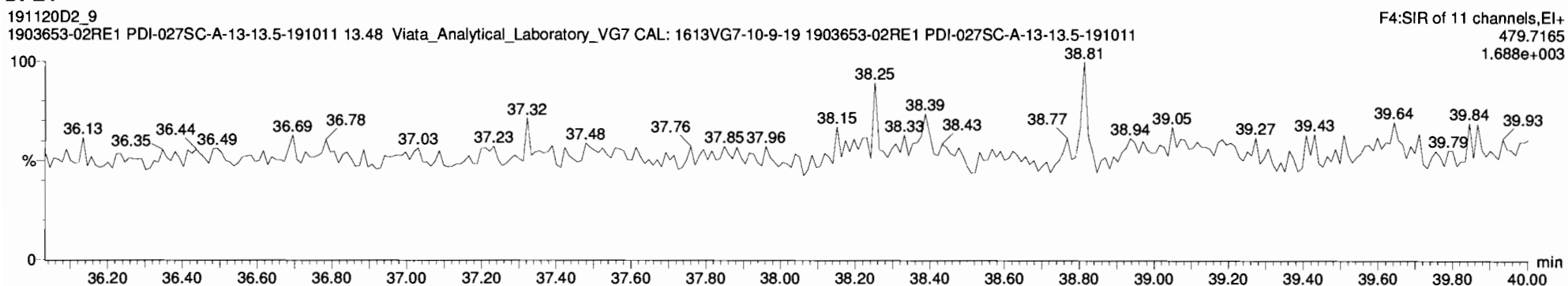
Total Hepta-Furans



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



DPE4



Vista Analytical Laboratory

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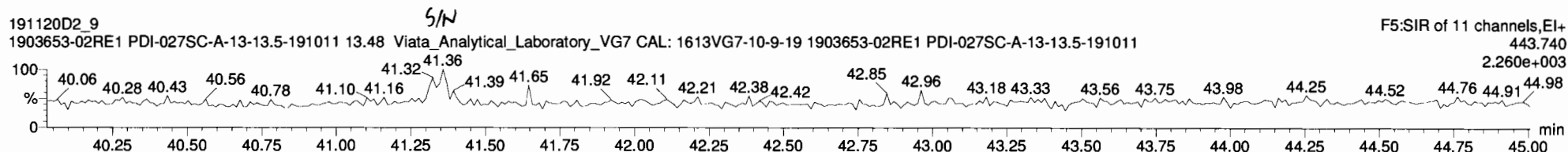
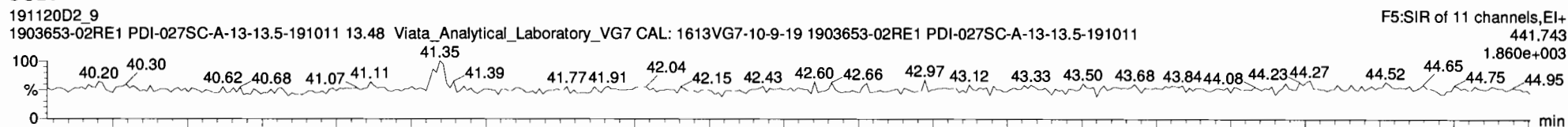
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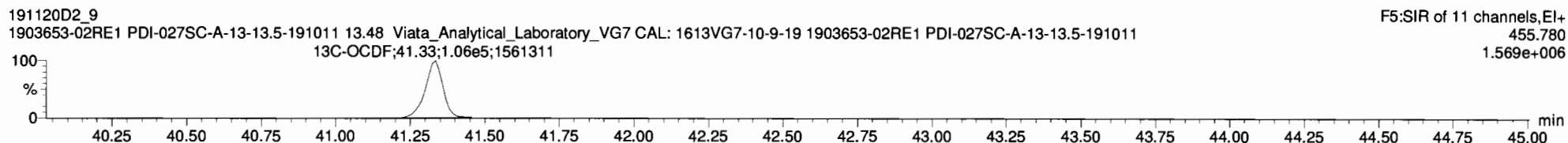
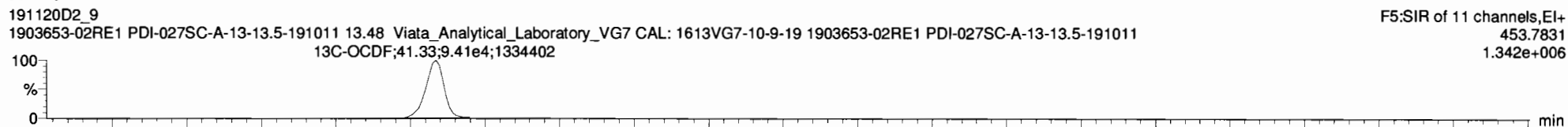
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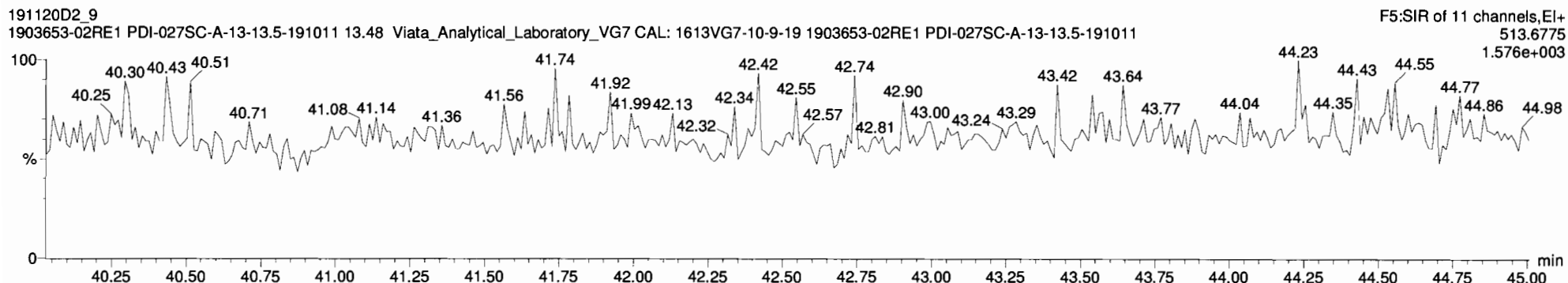
OCDF



13C-OCDF

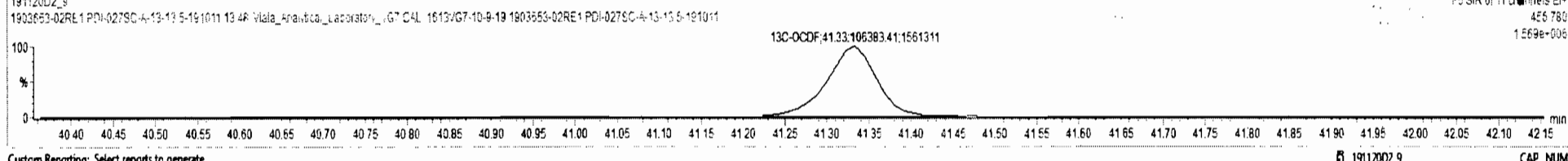
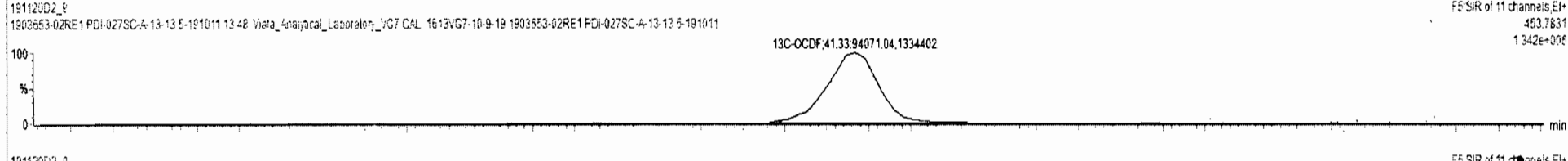
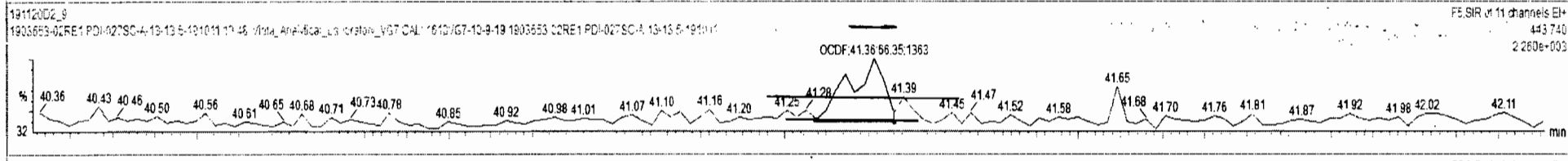
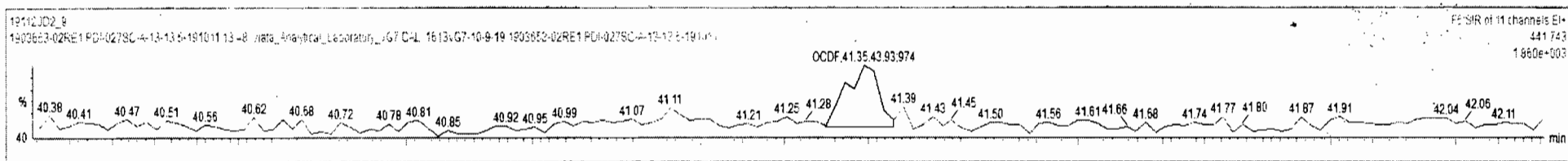


DPE5



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13	13 2,3,4,6,7,8-HxCDF		1.23e5	30			1.114	10.011	33.64			1.001	NO			0.100	
14	14 1,2,3,7,8,9-HxCDF		1.10e5	31			1.062	10.011	34.77			1.002	NO			0.137	
15	15 1,2,3,4,6,7,8-HpCDF		1.01e5	32			1.128	10.011	36.65			1.001	NO			0.135	
16	16 1,2,3,4,7,8,9-HpCDF		8.45e4	33			1.260	19.011	36.38			1.000	NO			0.117	
17	17 OCDF	1.10e2	2.00e5	34	0.66	YES	0.947	10.011	41.33	41.35	1.000	1.000	NO	0.2321		0.191	0.1963
18	18 13C-2,3,7,8-TCDD	1.31e5	1.26e5	36	0.78	NO	1.095	10.011	26.15	26.15	1.021	1.021	NO	190.4	95.3	0.529	
19	19 13C-1,2,3,7,8-PeCDD	1.13e5	1.26e5	36	0.61	NO	0.881	10.011	30.39	30.67	1.196	1.187	NO	204.3	102	0.288	
20	20 13C-1,2,3,4,7,8-HxCDD	9.19e4	1.37e5	38	1.29	NO	0.642	10.011	33.97	33.99	1.014	1.014	NO	208.4	104	0.736	
21	21 13C-1,2,3,6,7,8-HxCDD	1.02e5	1.37e5	38	1.28	NO	0.656	10.011	34.09	34.09	1.017	1.017	NO	173.8	87.0	0.552	

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



Vista Analytical Laboratory

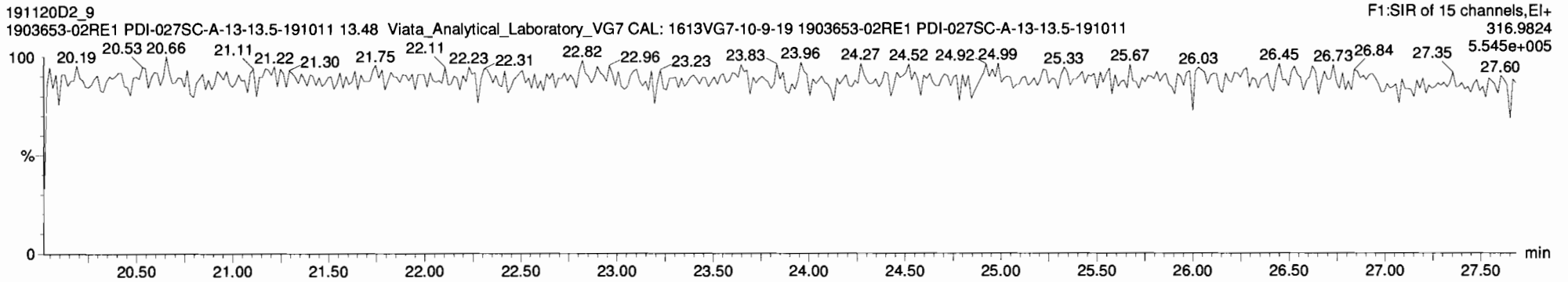
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Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

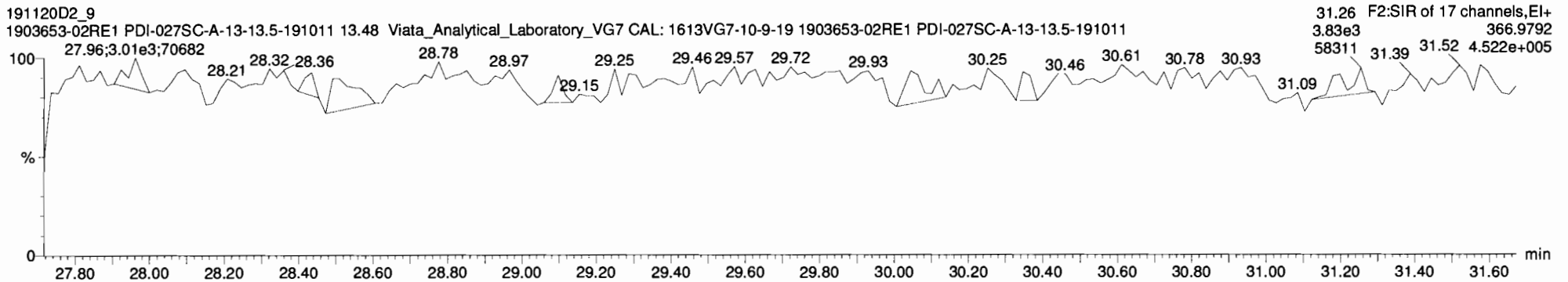
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Name: 191120D2\_9, Date: 21-NOV-2019, Time: 08:33:35, ID: 1903653-02RE1 PDI-027SC-A-13-13.5-191011,  
Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

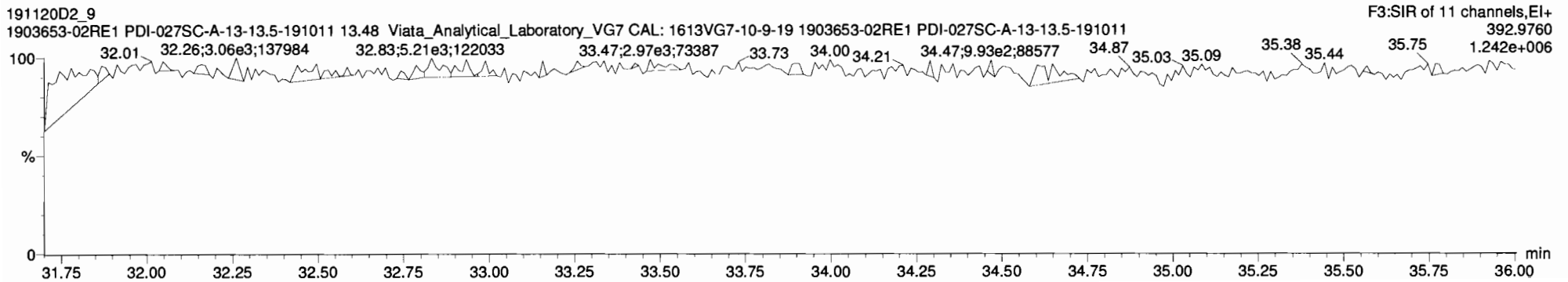
PFK1



PFK2



PFK3



Vista Analytical Laboratory

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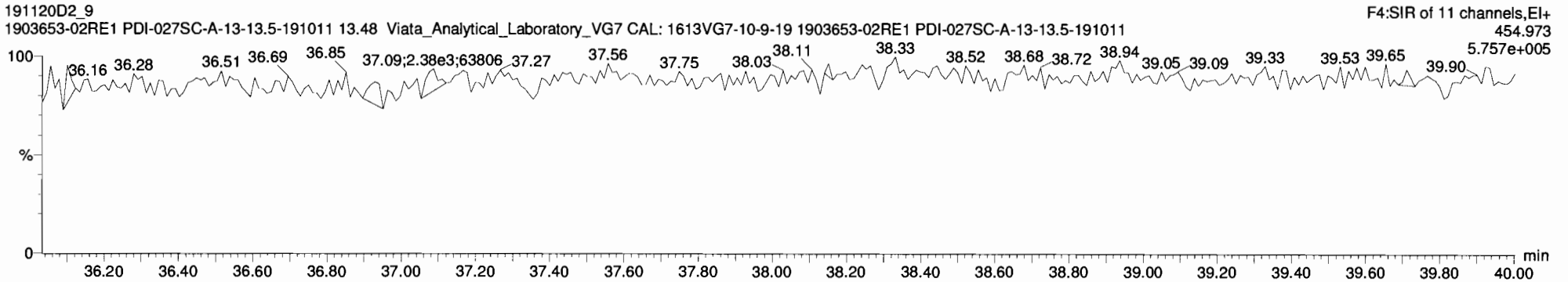
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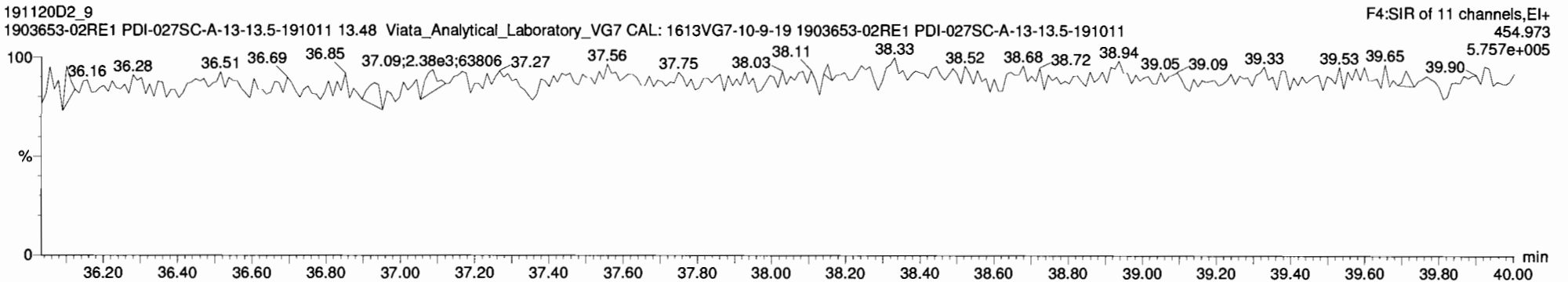
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Description: 1903653-02RE1 PDI-027SC-A-13-13.5-191011 13.48 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

PFK4



PFK5





Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_10.qld  
 Last Altered: Wednesday, November 27, 2019 16:02:30 Pacific Standard Time  
 Printed: Wednesday, November 27, 2019 16:03:00 Pacific Standard Time

EL 11/27/19

CT 12/02/19

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

Calibration: 27 Nov 2019 13:10:08

Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,

Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

#	Name	Area	IS Area	WL/Vol	RRF	RA	Y/N	Pred	RRT	Pred.RT	RT	Conc	%Rec	EMPC	DL
1	2,3,7,8-TCDD	1.52e5	10.0054	0.905	1.001			1.001		26.19					0.152
2	1,2,3,7,8-PeCDD	1.20e5	10.0054	0.903	1.001			1.001		30.69					0.123
3	1,2,3,4,7,8-HxCDD	9.75e4	10.0054	1.101	1.000			1.000		34.00					0.252
4	1,2,3,6,7,8-HxCDD	1.08e5	10.0054	0.939	1.000			1.000		34.09					0.283
5	1,2,3,7,8,9-HxCDD	1.06e5	10.0054	0.961	1.001			1.001		34.42					0.282
6	1,2,3,4,6,7,8-HpCDD	2.91e2	9.75e4	10.0054	0.979	1.009	NO	1.000	1.000	37.85	37.84	0.60806		0.608	0.212
7	OCDD	1.13e3	1.79e5	10.0054	0.959	0.918	NO	1.000	1.001	41.11	41.14	2.6394		2.64	0.206
8	2,3,7,8-TCDF	2.21e5	10.0054	0.950	1.001			1.001		25.40					0.132
9	1,2,3,7,8-PeCDF	1.89e5	10.0054	0.960	1.001			1.001		29.52					0.0891
10	2,3,4,7,8-PeCDF	1.84e5	10.0054	1.015	1.001			1.001		30.42					0.0851
11	1,2,3,4,7,8-HxCDF	1.37e5	10.0054	1.177	1.000			1.000		33.10					0.0860
12	1,2,3,6,7,8-HxCDF	1.47e5	10.0054	1.069	1.000			1.000		33.23					0.0887
13	2,3,4,6,7,8-HxCDF	1.32e5	10.0054	1.114	1.001			1.001		33.85					0.101
14	1,2,3,7,8,9-HxCDF	1.17e5	10.0054	1.062	1.000			1.000		34.76					0.129
15	1,2,3,4,6,7,8-HpCDF	1.09e5	10.0054	1.128	1.001			1.001		36.65					0.139
16	1,2,3,4,7,8,9-HpCDF	9.21e4	10.0054	1.280	1.000			1.000		38.38					0.117
17	OCDF	2.24e5	10.0054	0.947	1.000			1.000		41.33					0.196
18	13C-2,3,7,8-TCDD	1.52e5	1.33e5	10.0054	1.095	0.796	NO	1.021	1.021	26.15	26.15	208.34	104.2		0.543
19	13C-1,2,3,7,8-PeCDD	1.20e5	1.33e5	10.0054	0.881	0.650	NO	1.187	1.198	30.39	30.67	205.33	102.7		0.326
20	13C-1,2,3,4,7,8-Hx...	9.75e4	1.44e5	10.0054	0.642	1.245	NO	1.014	1.014	33.97	33.99	210.41	105.3		0.668
21	13C-1,2,3,6,7,8-Hx...	1.08e5	1.44e5	10.0054	0.856	1.260	NO	1.017	1.017	34.09	34.09	174.31	87.2		0.501
22	13C-1,2,3,7,8,9-Hx...	1.06e5	1.44e5	10.0054	0.807	1.236	NO	1.026	1.026	34.39	34.39	181.51	90.8		0.532
23	13C-1,2,3,4,6,7,8-H...	9.75e4	1.44e5	10.0054	0.654	1.038	NO	1.126	1.129	37.73	37.84	206.63	103.4		0.818
24	13C-OCDD	1.79e5	1.44e5	10.0054	0.580	0.885	NO	1.226	1.227	41.08	41.11	427.57	107.0		0.656
25	13C-2,3,7,8-TCDF	2.21e5	2.10e5	10.0054	1.035	0.789	NO	0.993	0.991	25.44	25.38	202.58	101.3		0.485
26	13C-1,2,3,7,8-PeCDF	1.89e5	2.10e5	10.0054	0.854	1.567	NO	1.143	1.152	29.27	29.50	210.02	105.1		0.678
27	13C-2,3,4,7,8-PeCDF	1.84e5	2.10e5	10.0054	0.847	1.572	NO	1.176	1.186	30.12	30.38	206.19	103.2		0.683
28	13C-1,2,3,4,7,8-Hx...	1.37e5	1.44e5	10.0054	0.832	0.514	NO	0.987	0.988	33.08	33.10	227.95	114.0		0.883
29	13C-1,2,3,6,7,8-Hx...	1.47e5	1.44e5	10.0054	1.034	0.524	NO	0.991	0.992	33.20	33.22	196.33	98.2		0.710
30	13C-2,3,4,6,7,8-Hx...	1.32e5	1.44e5	10.0054	0.953	0.521	NO	1.009	1.009	33.81	33.82	192.25	96.2		0.770
31	13C-1,2,3,7,8,9-Hx...	1.17e5	1.44e5	10.0054	0.828	0.548	NO	1.039	1.037	34.80	34.76	196.01	98.1		0.887

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_10.qld

Last Altered: Wednesday, November 27, 2019 16:02:30 Pacific Standard Time

Printed: Wednesday, November 27, 2019 16:03:00 Pacific Standard Time

Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,

Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 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...	1.09e5	1.44e5	10.0054	0.757	0.449	NO	1.093	1.093	36.61	36.62	198.52	99.3		0.859
33	33 13C-1,2,3,4,7,8,9-H...	9.21e4	1.44e5	10.0054	0.581	0.439	NO	1.143	1.145	38.30	38.38	219.46	109.8		1.12
34	34 13C-OCDF	2.24e5	1.44e5	10.0054	0.689	0.862	NO	1.233	1.234	41.32	41.33	449.62	112.5		0.597
35	35 37Cl-2,3,7,8-TCDD	6.53e4	1.33e5	10.0054	1.198			1.022	1.023	26.17	26.19	81.868	102.4		0.199
36	36 13C-1,2,3,4-TCDD	1.33e5	1.33e5	10.0054	1.000	0.833	NO	1.000	1.000	25.70	25.61	199.89	100.0		0.595
37	37 13C-1,2,3,4-TCDF	2.10e5	2.10e5	10.0054	1.000	0.824	NO	1.000	1.000	24.28	24.16	199.89	100.0		0.502
38	38 13C-1,2,3,4,6,9-Hx...	1.44e5	1.44e5	10.0054	1.000	0.517	NO	1.000	1.000	33.55	33.50	199.89	100.0		0.734
39	39 Total Tetra-Dioxins		1.52e5	10.0054	0.901			0.000		25.50					0.0821
40	40 Total Penta-Dioxins		1.20e5	10.0054	0.872			0.000		30.00					0.0601
41	41 Total Hexa-Dioxins		0.00e0	10.0054	0.976			0.000		33.80		0.00000		0.366	0.152
42	42 Total Hepta-Dioxins		9.75e4	10.0054	0.989			0.000		37.75		1.2067		1.21	0.210
43	43 Total Tetra-Furans		2.21e5	10.0054	0.943			0.000		24.00					0.0658
44	44 1st Func. Penta-Fur...		0.00e0	10.0054	0.940			0.000		27.63					0.0293
45	45 Total Penta-Furans		0.00e0	10.0054	0.940			0.000		30.00					0.0429
46	46 Total Hexa-Furans		0.00e0	10.0054	1.078			0.000		33.00					0.0533
47	47 Total Hepta-Furans		0.00e0	10.0054	1.135			0.000		37.75					0.0702

Quantify Totals Report MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_10.qld
Last Altered: Wednesday, November 27, 2019 16:02:30 Pacific Standard Time
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Calibration: 27 Nov 2019 13:10:08

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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Tetra-Dioxins

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 1 is mostly obscured.

Penta-Dioxins

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 1 is mostly obscured.

Hexa-Dioxins

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 41: Total Hexa-Dioxins, NO, 32.47, 104.147, 57506.473, 0.000, MM, 0.0000, 0.37

Hepta-Dioxins

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 6: 1,2,3,4,6,7,8-HpCDD, NO, 37.84, 145.949, 49672.926, 5.959, MM, 0.6081, 0.61. Row 42: Total Hepta-Dioxins, NO, 37.01, 145.288, 49672.926, 5.922, MM, 0.5986, 0.60

Tetra-Furans

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 1 is mostly obscured.

Penta-Furans function 1

Table with 10 columns: #, Name, NY, RT, Area, IS Area, Response, Primary Flags, Conc, EMPC. Row 1 is mostly obscured.

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191120D2\191120D2\_10.qld  
Last Altered: Wednesday, November 27, 2019 16:02:30 Pacific Standard Time  
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Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,  
Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Penta-Furans

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

Hexa-Furans

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

Hepta-Furans

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

Vista Analytical Laboratory

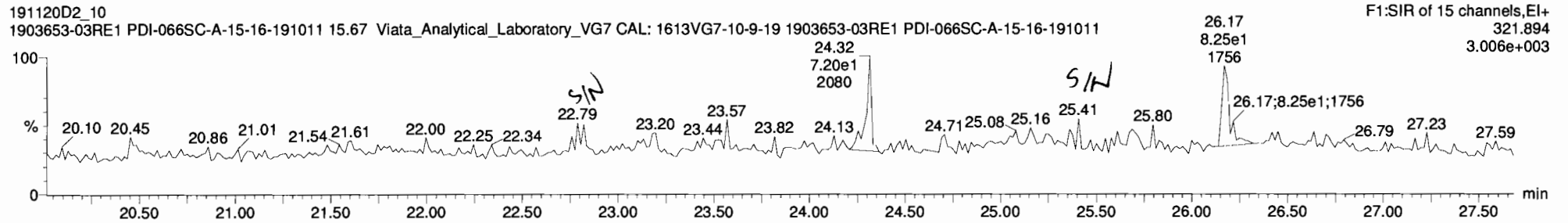
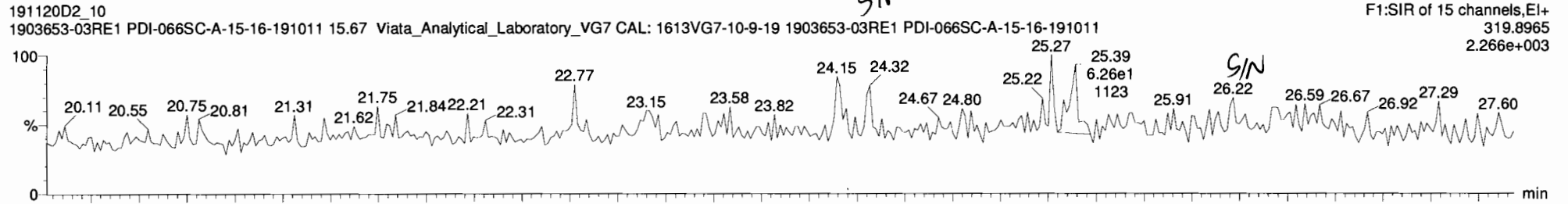
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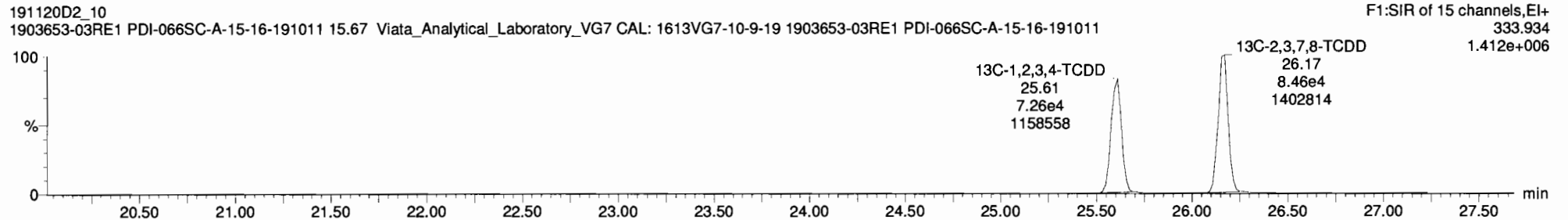
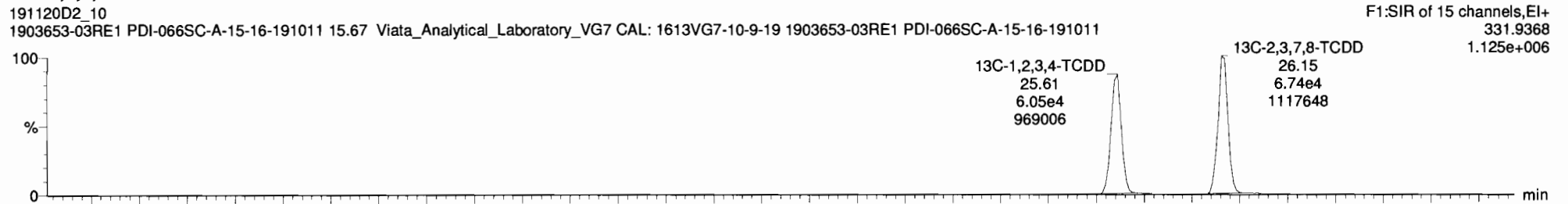
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Total Tetra-Dioxins

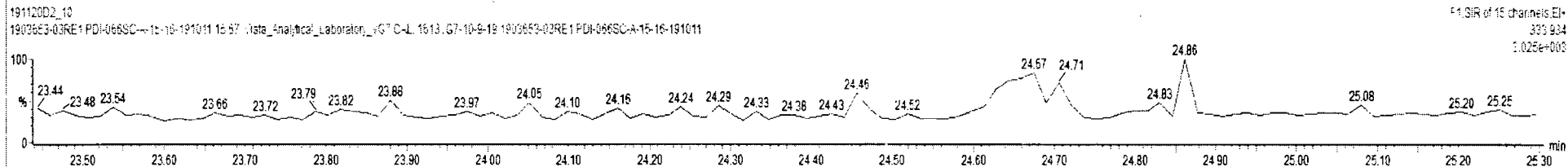
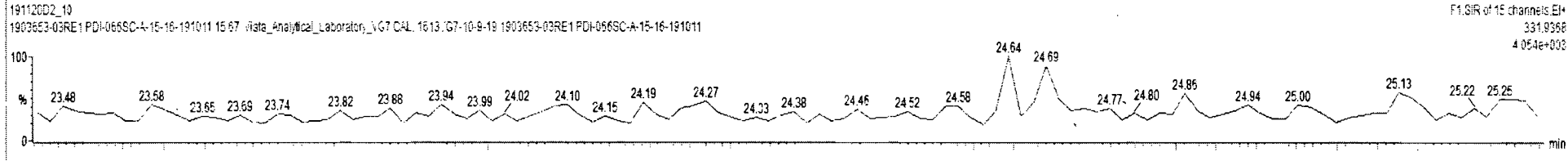
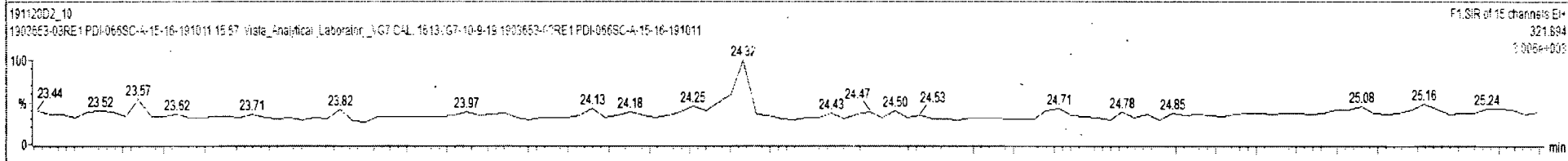
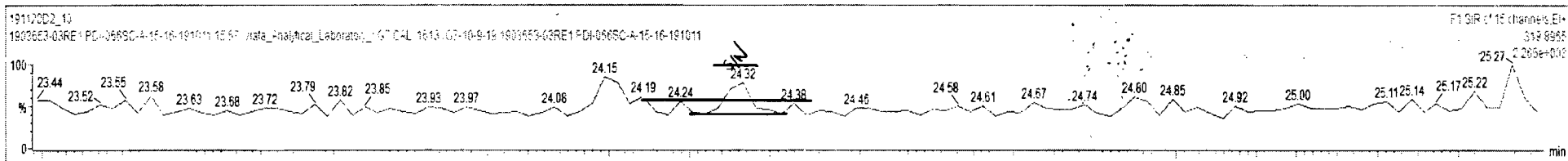


13C-2,3,7,8-TCDD



#	Name	Resp	IS Resp	IS#	RA	nly	RPF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
24	24 13C-OCDD	1.75e5	1.44e5	38	0.89	NO	0.580	10.005	41.08	41.11	1.227	1.226	NO	427.6	107	0.556	
25	25 13C-2,3,7,8-TCDF	2.31e5	2.10e5	37	0.79	NO	1.035	10.005	25.44	25.38	0.991	0.993	NO	202.6	101	0.485	
26	26 13C-1,2,3,7,8-PeCDF	1.69e5	2.10e5	37	1.57	NO	0.654	10.005	29.27	29.50	1.152	1.143	NO	210.0	105	0.678	
27	27 13C-2,3,4,7,8-PeCDF	1.84e5	2.10e5	37	1.57	NO	0.847	10.005	20.12	20.38	1.186	1.176	NO	206.2	103	0.683	
28	28 13C-1,2,3,4,7,8-HxCDF	1.37e5	1.44e5	38	0.51	NO	0.822	10.005	33.08	33.10	0.988	0.987	NO	227.9	114	0.883	
29	29 13C-1,2,3,6,7,8-HxCDF	1.47e5	1.44e5	38	0.52	NO	1.034	10.005	33.20	33.22	0.992	0.991	NO	196.3	98.2	0.710	
30	30 13C-2,3,4,6,7,8-HxCDF	1.32e5	1.44e5	38	0.52	NO	0.953	10.005	33.01	33.82	1.069	1.069	NO	192.2	96.2	0.770	
31	31 13C-1,2,3,7,8,9-HxCDF	1.17e5	1.44e5	38	0.55	NO	0.628	10.005	34.80	34.76	1.037	1.039	NO	196.0	98.1	0.887	

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



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Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:12:13 Pacific Standard Time

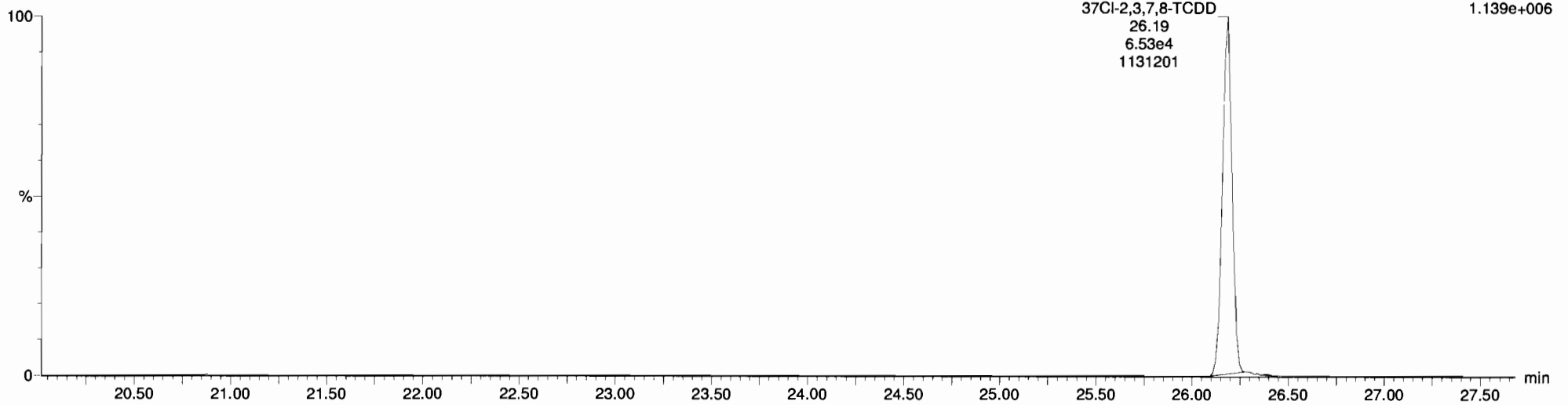
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Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,  
 Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

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

191120D2\_10  
 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-03RE1 PDI-066SC-A-15-16-191011

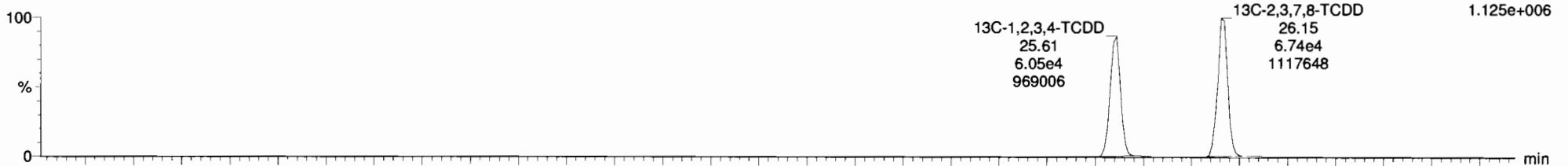
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 1.139e+006



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

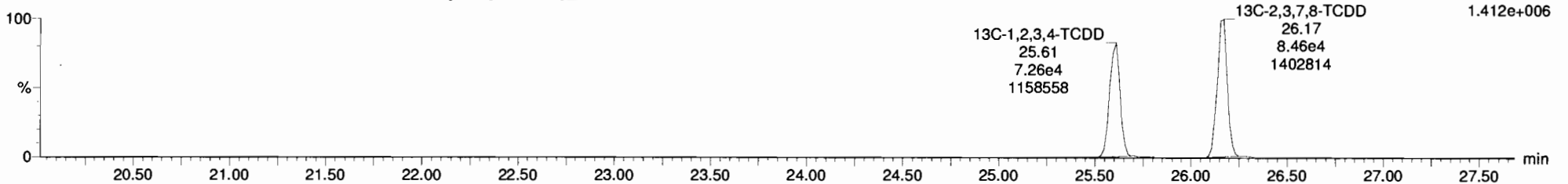
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F1:SIR of 15 channels, EI+  
 331.9368  
 1.125e+006



191120D2\_10  
 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19 1903653-03RE1 PDI-066SC-A-15-16-191011

F1:SIR of 15 channels, EI+  
 333.934  
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Vista Analytical Laboratory

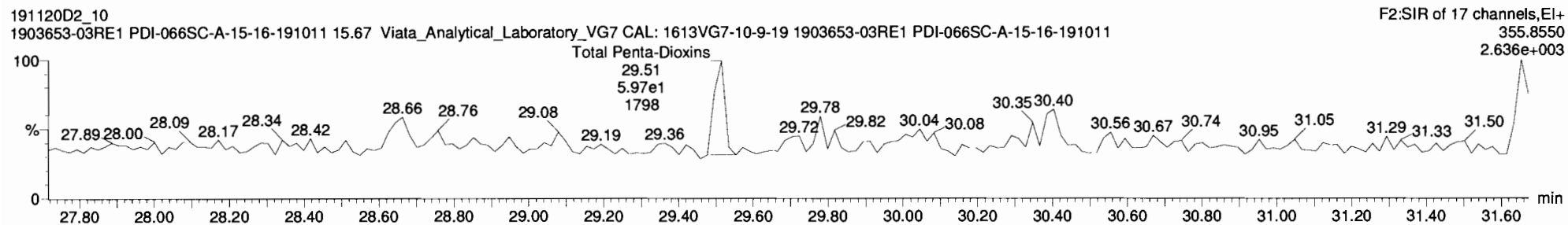
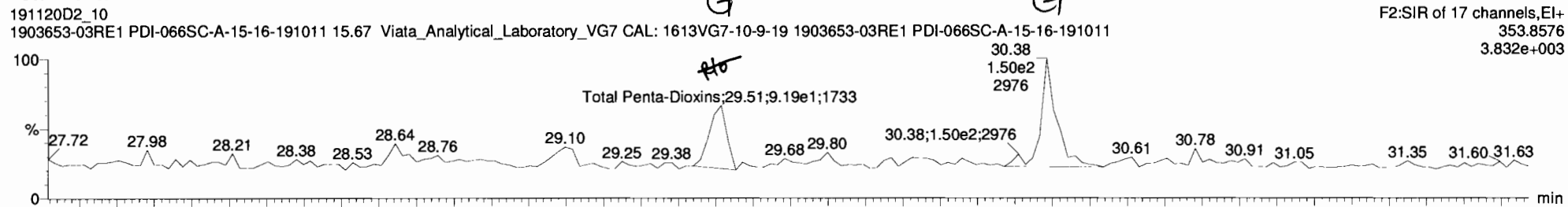
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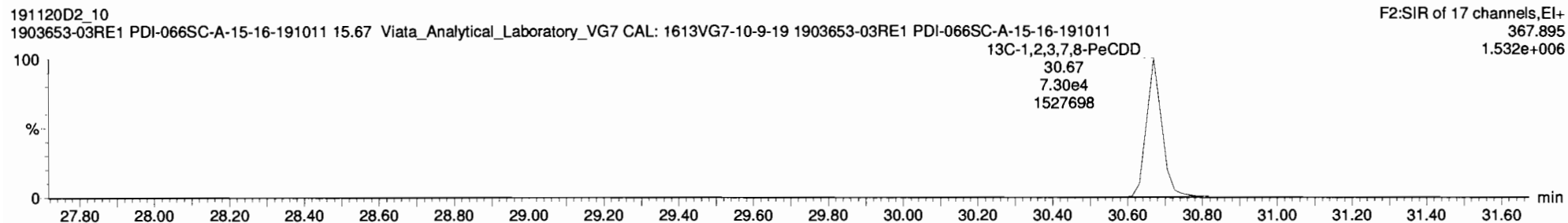
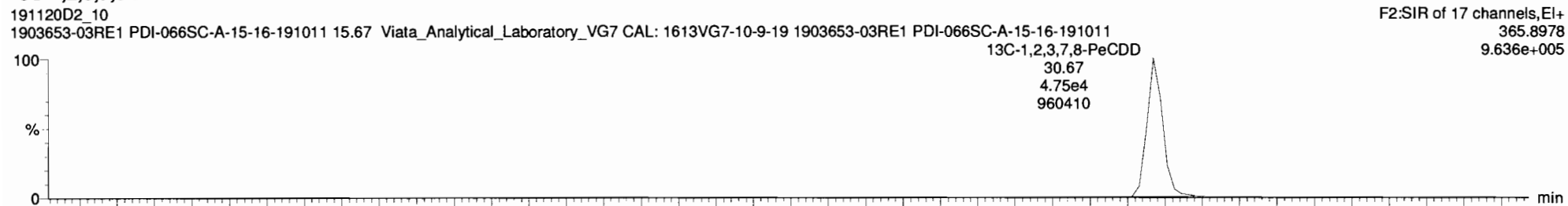
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Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011, Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Penta-Dioxins



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





Vista Analytical Laboratory

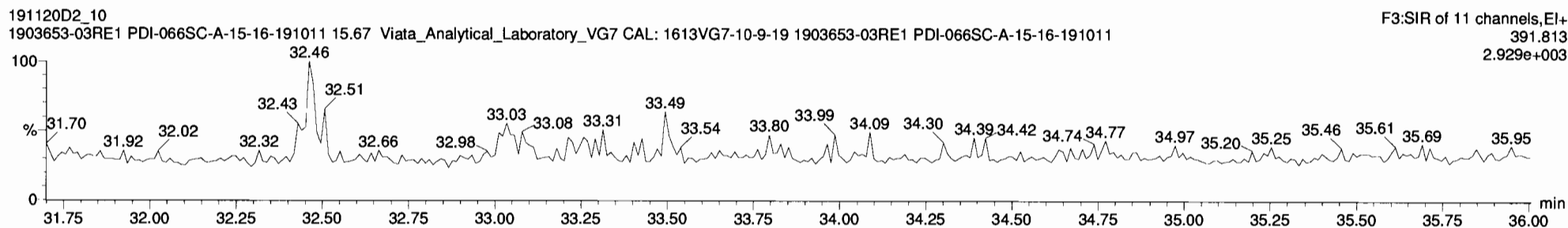
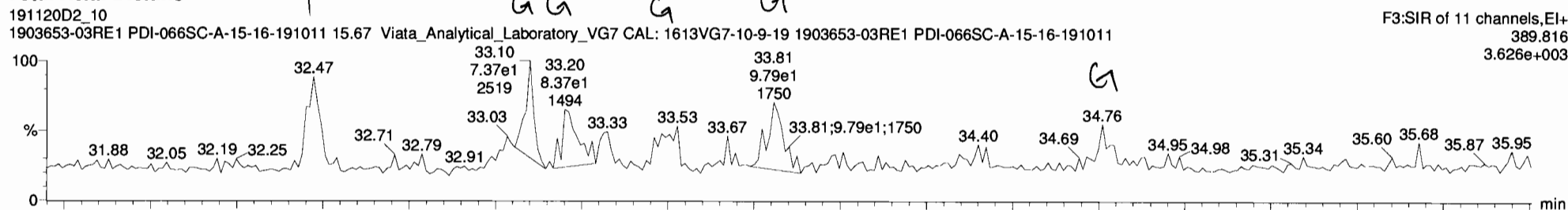
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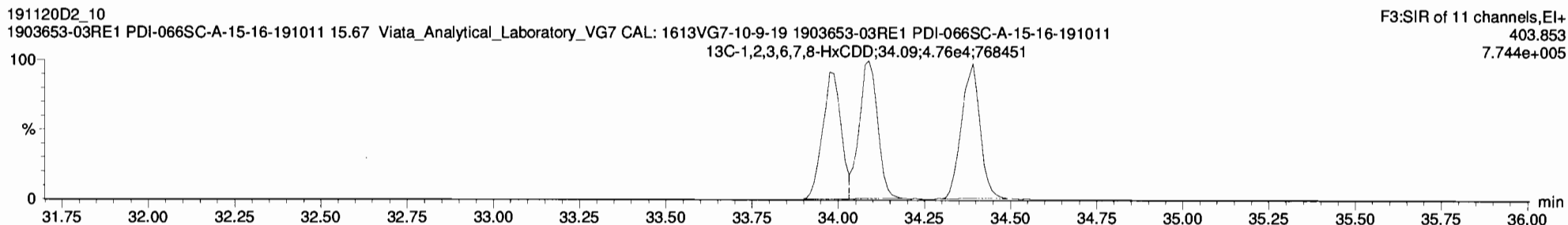
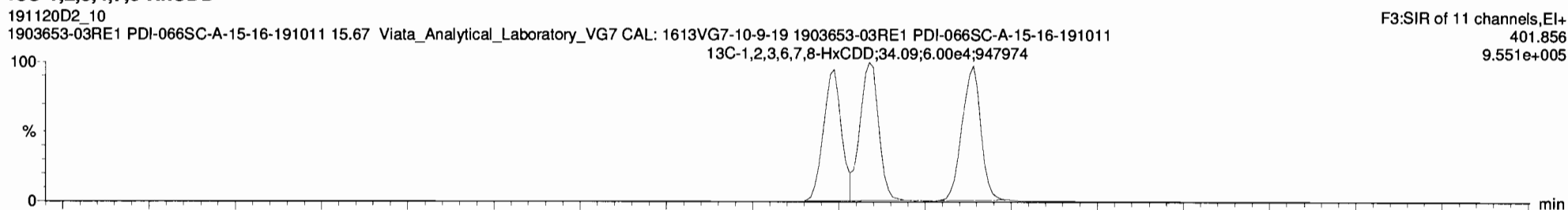
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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Hexa-Dioxins



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

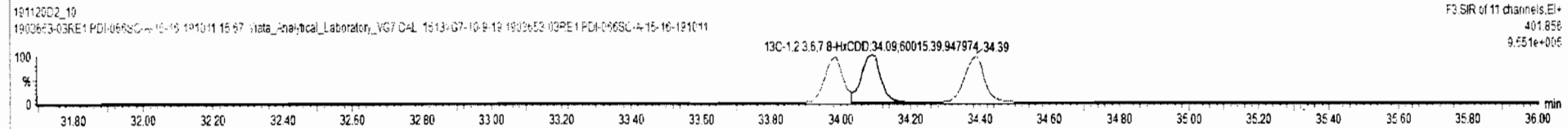
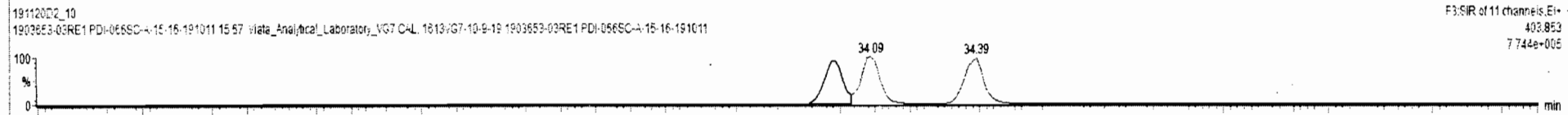
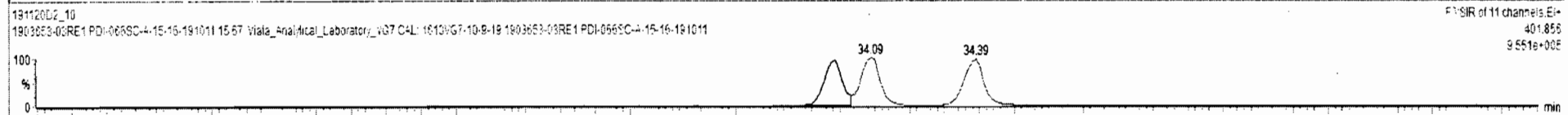
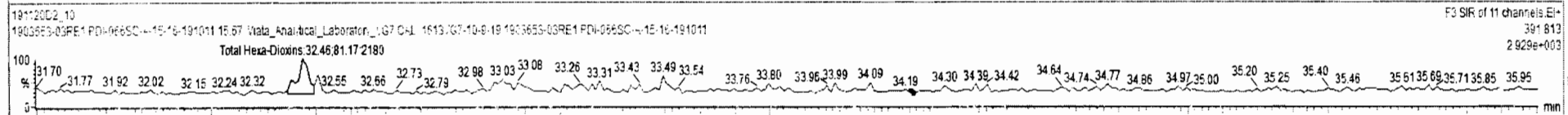
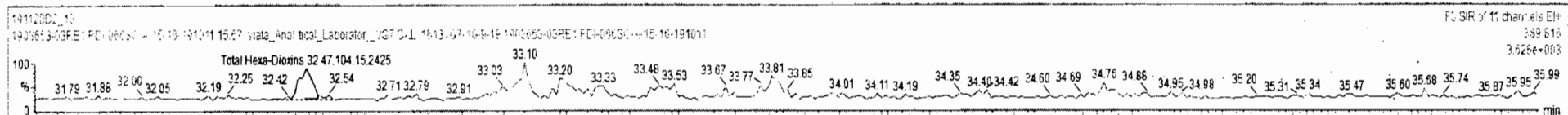




19112002\_10 - 1903653-03RE1 PDI-066SC-A-15-16-191011 - 1903653-03RE1 PDI-066SC-A-15-16-191011 15:57 Viata\_Analytical\_Laboratory\_VG7 CAL 1613VG7-10-9-19

#	Name	Resp	IS Resp	IS	RA	nly	RUF	w/vol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
39	39 Total Tetra-Dioxins		1.52e5				0.901	10.005	25.50			0.000	NO			0.0821	
40	40 Total Penta-Dioxins		1.20e5				0.872	10.005	30.00			0.000	NO			0.0601	
41	41 Total Hexa-Dioxins		0.00e0				0.976	10.005	33.80			0.000	NO	0.0000		0.152	0.3663
42	42 Total Hepta-Dioxins		9.75e4				0.989	10.005	37.75			0.000	NO	1.164		0.210	1.164
43	43 Total Tetra-Furans		2.21e5				0.943	10.005	24.00			0.000	NO	0.0000		0.0658	0.1655
44	44 1st Func. Penta-Furans		0.00e0				0.940	10.005	27.62			0.000	NO			0.0293	
45	45 Total Penta-Furans		0.00e0				0.940	10.005	30.00			0.000	NO			0.0429	
46	46 Total Hexa-Furans		0.00e0				1.078	10.005	32.00			0.000	NO			0.0533	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	nly	EMPC	Conc.
1	41 Total Hexa-Dioxins	33.80	32.47	1.041e2	6.117e1	1.240	1.28	NO	0.36634	0.00000

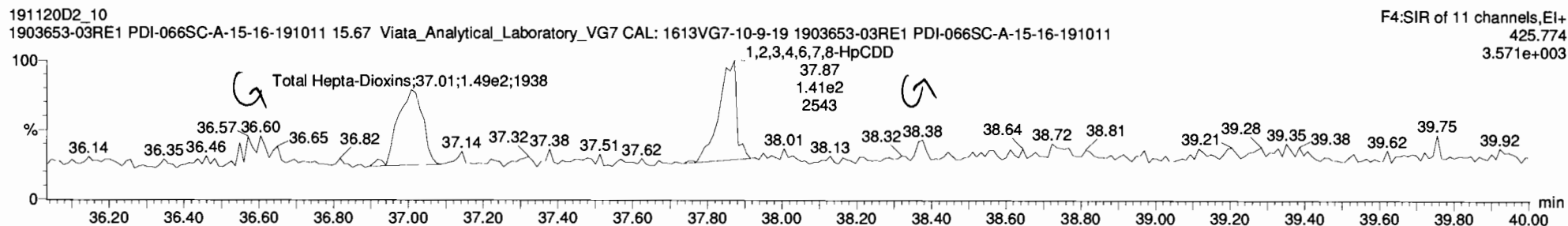
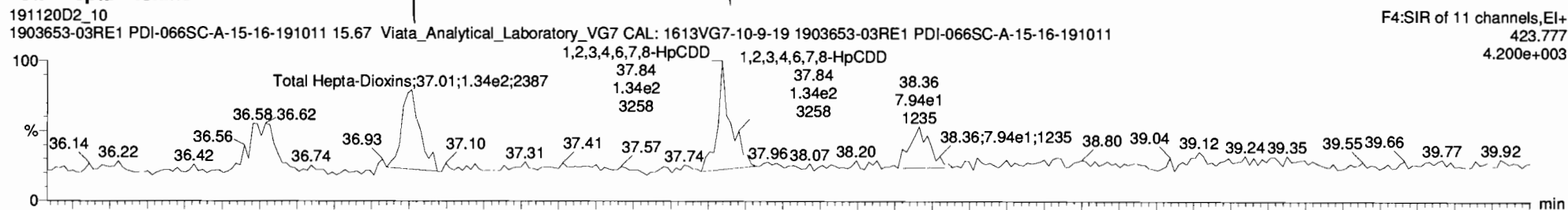


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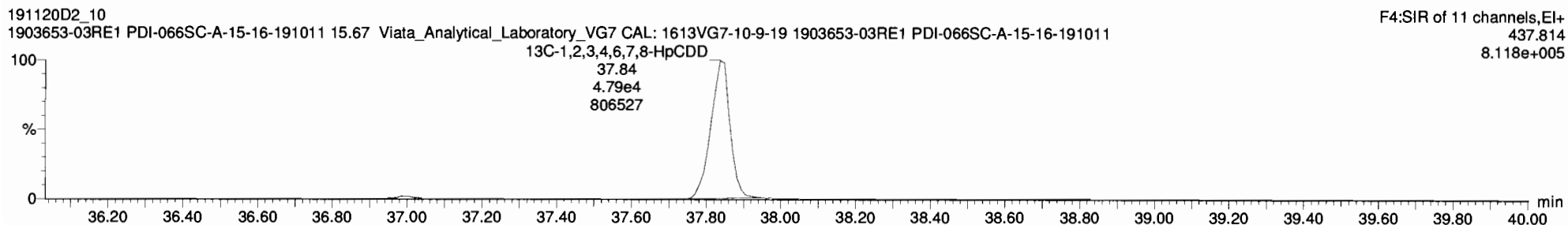
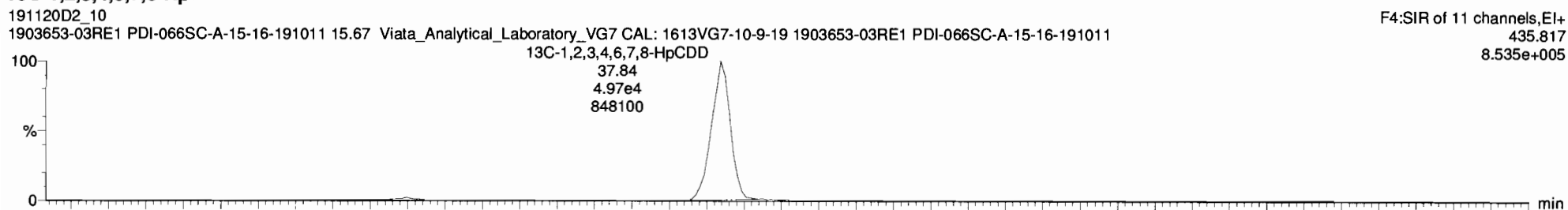
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Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,  
Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

Total Hepta-Dioxins

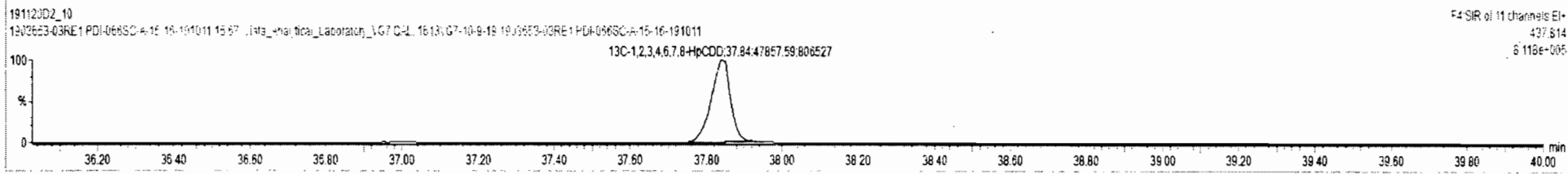
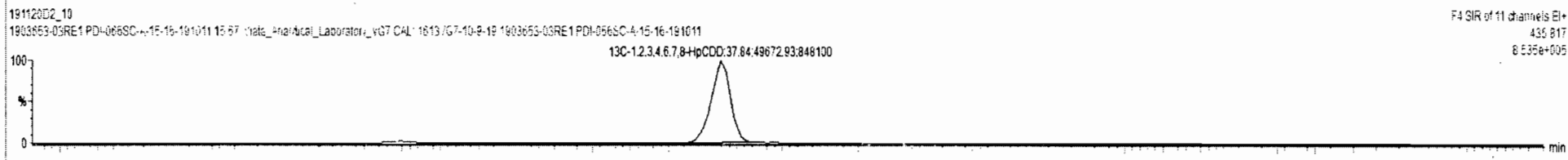
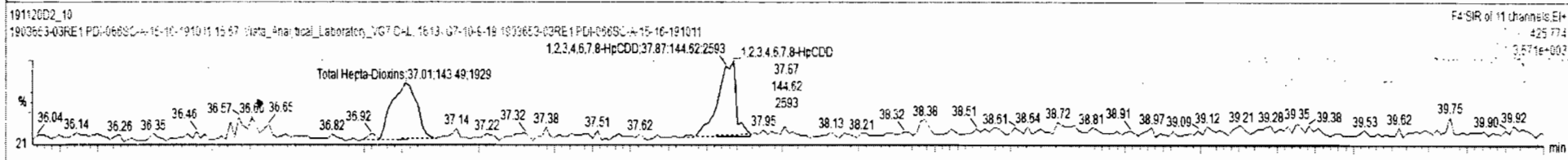
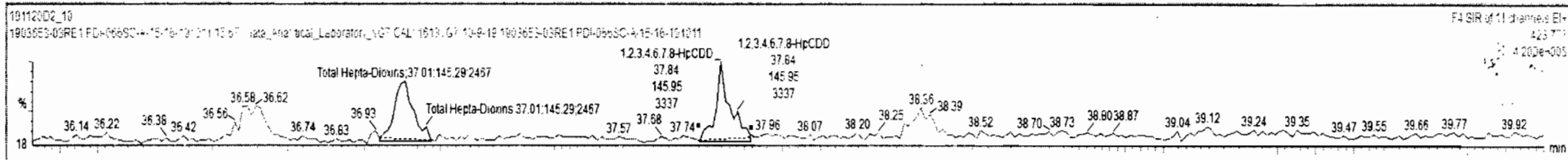


13C-1,2,3,4,6,7,8-HpCDD



#	Name	Resp	IS Resp	IS#	RA	n/y	RRF	wt/vol	Pred RT	RT	RRT	Pred.RRT	Check RRT	Conc.	%Rec	DL	EMPC
39	Total Tetra-Dioxins		1.52e5				0.901	10.005	25.50			0.000	NO			0.0821	
40	Total Penta-Dioxins		1.26e5				0.872	10.005	30.00			0.000	NO			0.0661	
41	Total Hexa-Dioxins		0.00e0				0.976	10.005	33.80			0.000	NO	0.0000		0.152	0.3663
42	Total Hepta-Dioxins		9.75e4				0.989	10.005	37.75			0.000	NO	1.207		0.210	1.207
43	Total Tetra-Furans		2.21e5				0.943	10.005	24.00			0.000	NO	0.0000		0.0658	0.1655
44	1st Func. Penta-Furans		0.06e0				0.940	10.005	27.63			0.000	NO			0.0293	
45	Total Penta-Furans		0.00e0				0.940	10.005	30.90			0.000	NO			0.0429	
46	Total Hexa-Furans		0.00e0				1.076	10.005	33.00			0.000	NO			0.0533	

#	Name	Pred RT	RT	m1 Resp	m2 Resp	Pred RA	RA	n/y	EMPC	Conc.
1	42 Total Hepta-Dioxins	37.75	37.01	1.45362	1.43562	1.040	1.01	NO	0.59664	0.59864
2	E-1,2,3,4,6,7,8-HpCDD	37.85	37.84	1.45962	1.44662	1.040	1.01	NO	0.60806	0.60806



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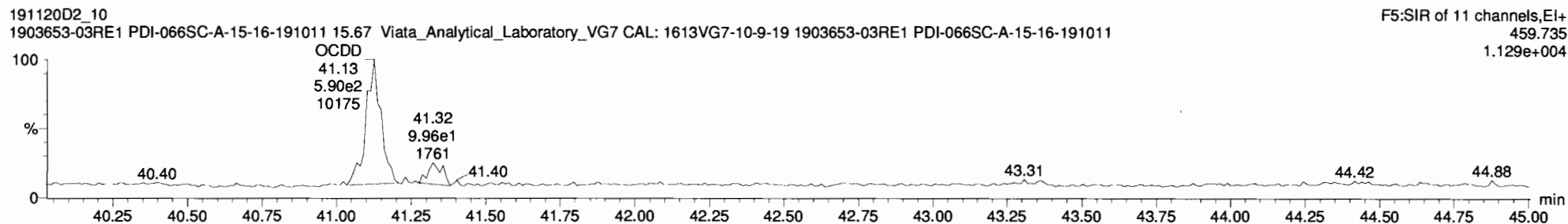
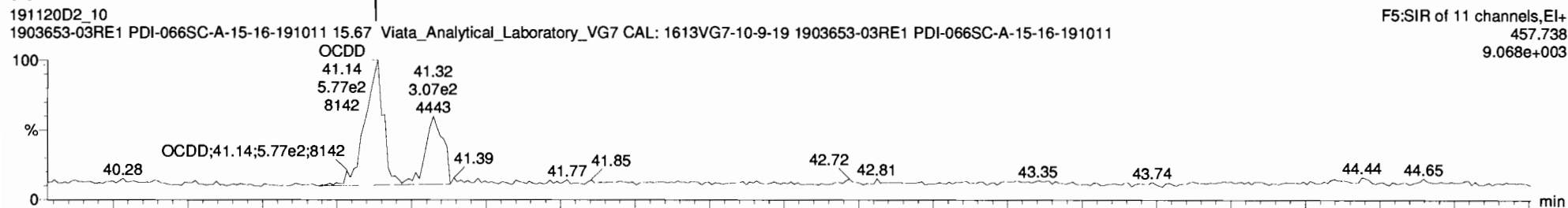
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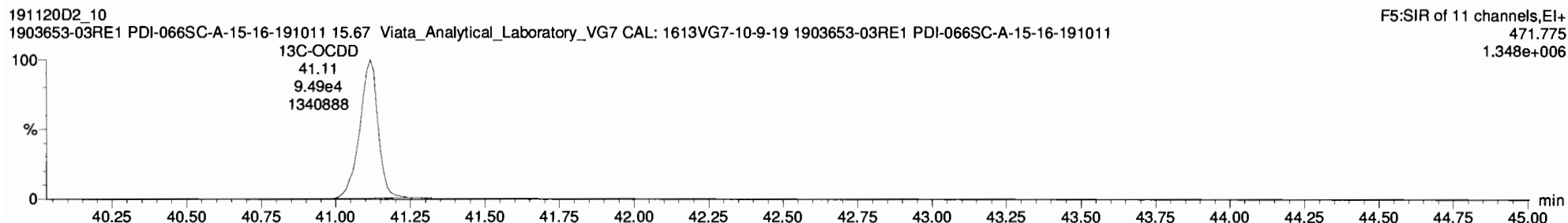
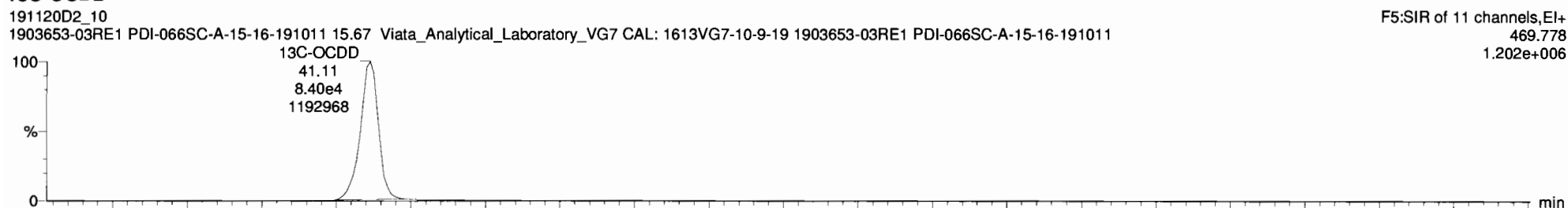
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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

OCDD

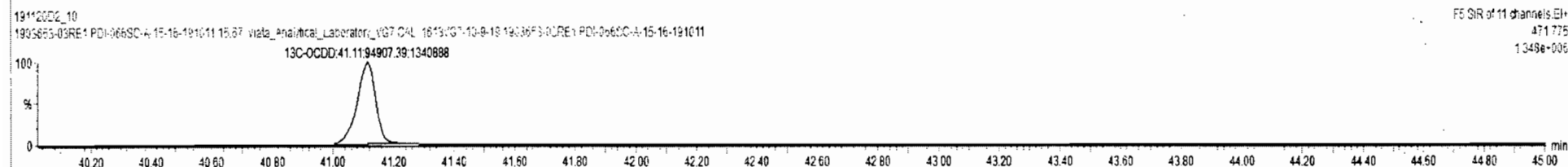
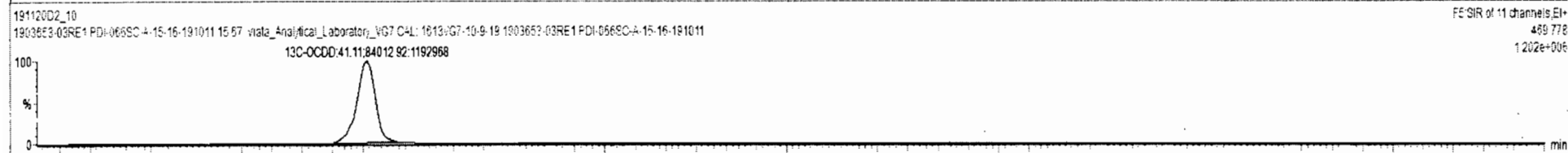
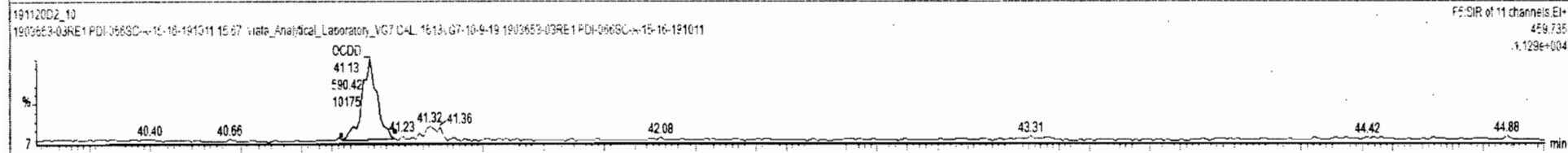
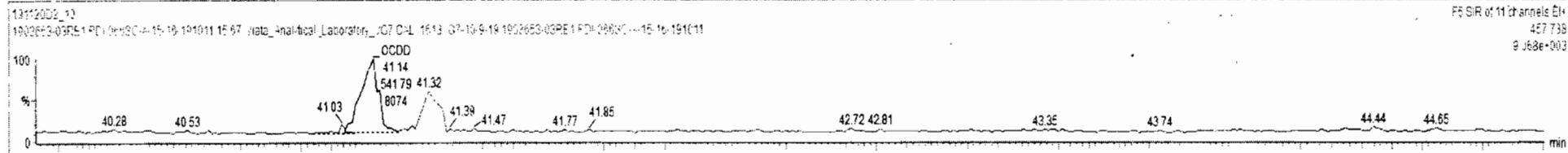


13C-OCDD



#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtVol	Pred RT	RT	RRT	Pred RRT	Check RRT	Conc	%Rec	DL	EMPC
6	1,2,3,4,6,7,8-HpCDD	2.51e2	5.75e4	23	1.01	NO	0.979	10.00E	37.85	37.84	1.000	1.000	NO	0.6081		0.212	0.6081
7	OCDD	1.13e3	1.70e5	24	0.92	NO	0.959	10.00E	41.11	41.14	1.001	1.000	NO	2.636		0.206	2.639
8	2,3,7,8-TCDF		2.21e5	25			0.950	10.00E	25.40			1.001	NO				0.132
9	1,2,3,7,8-PeCDF		1.05e5	26			0.960	10.00E	29.52			1.001	NO				0.0881
10	2,3,4,7,8-PeCDF		1.84e5	27			1.015	10.00E	30.42			1.001	NO				0.0851
11	1,2,3,4,7,8-HxCDF		1.37e5	28			1.177	10.00E	33.10			1.000	NO				0.0860
12	1,2,3,6,7,8-HxCDF		1.47e5	29			1.069	10.00E	33.23			1.000	NO				0.0887
13	2,3,4,6,7,8-HxCDF		1.32e5	30			1.114	10.00E	33.85			1.001	NO				0.101

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



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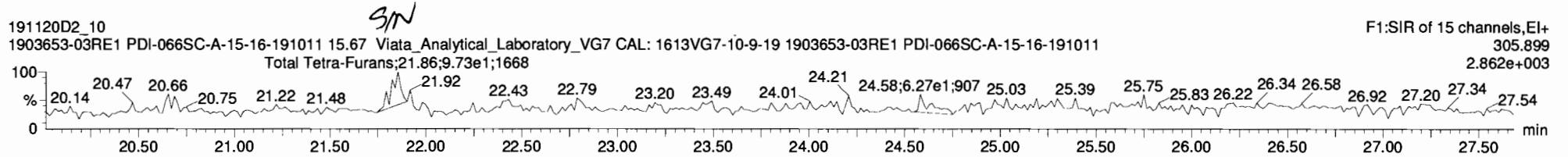
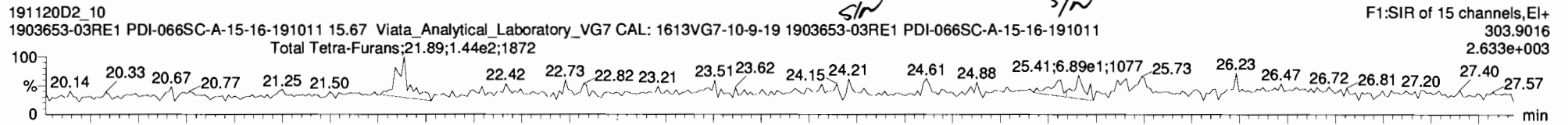
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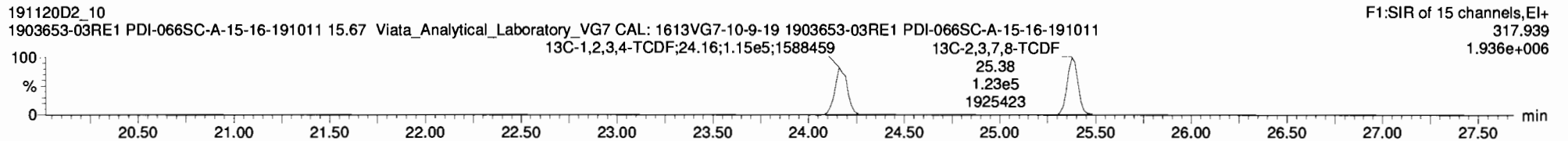
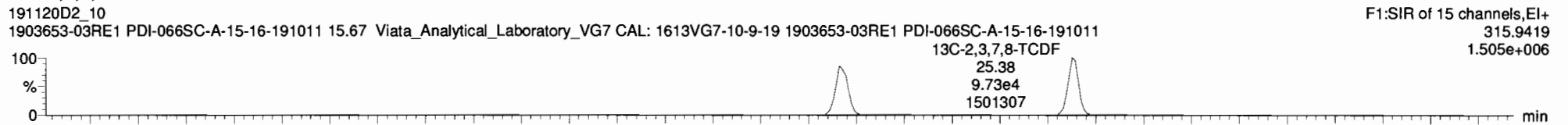
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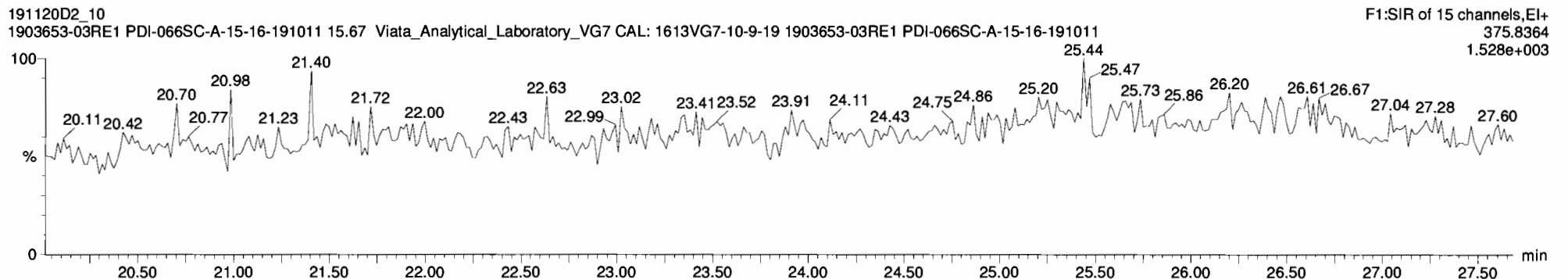
Total Tetra-Furans



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



DPE1

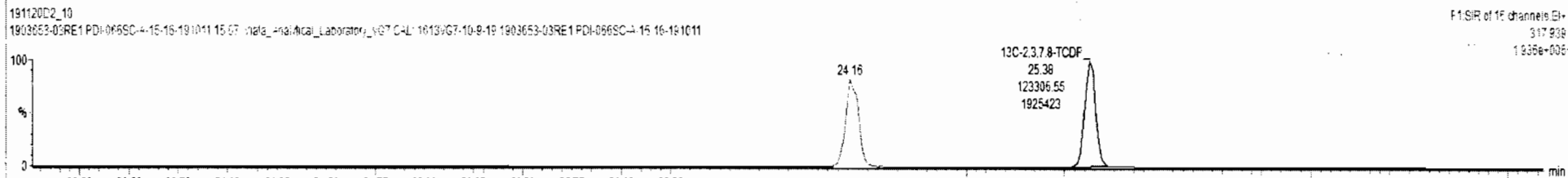
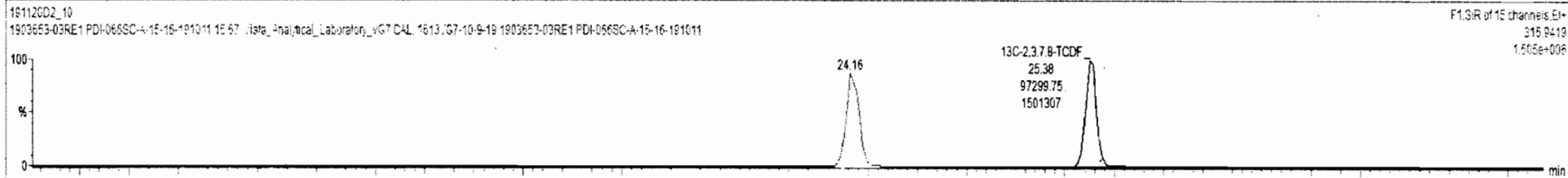
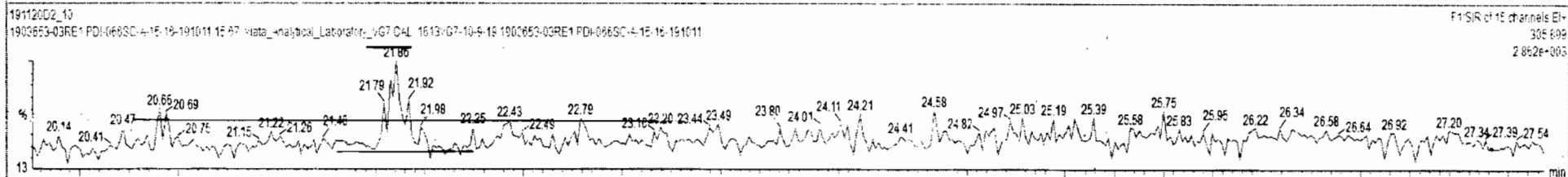
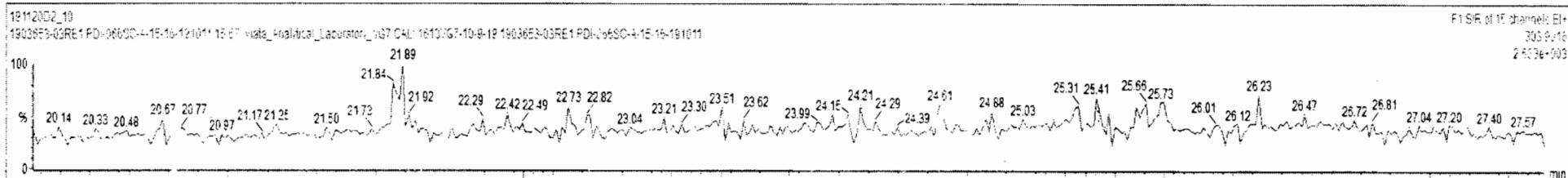




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#	Name	Resp	IS Resp	IS#	RA	nly	RRF	wtdvol	Pred.RT	RT	RRT	Pred.RRT	Check.RRT	Conc.	%Rec	OL	EMPC
6	1,2,3,4,6,7,8-HpCDD	2.91e2	9.75e4	23	1.01	NO	0.979	10.005	37.85	37.84	1.000	1.000	NO	0.6081		0.212	0.2061
7	OCDD	1.13e2	1.79e5	24	0.92	NO	0.959	10.005	41.11	41.14	1.001	1.000	NO	2.639		0.296	2.639
8	<b>2,3,7,8-TCDF</b>		<b>2.21e5</b>	<b>25</b>			<b>0.950</b>	<b>10.005</b>	<b>25.40</b>			<b>1.001</b>	<b>NO</b>			<b>0.132</b>	
9	1,2,3,7,8-PeCDF		1.65e5	26			0.960	10.005	29.52			1.001	NO			0.0891	
10	2,3,4,7,8-PeCDF		1.84e5	27			1.015	10.005	30.42			1.001	NO			0.0851	
11	1,2,3,4,7,8-HxCDF		1.37e5	28			1.177	10.005	33.10			1.000	NO			0.0860	
12	1,2,3,6,7,8-HxCDF		1.47e5	29			1.069	10.005	33.23			1.000	NO			0.0887	
13	2,3,4,6,7,8-HxCDF		1.32e5	30			1.114	10.005	33.85			1.001	NO			0.101	

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





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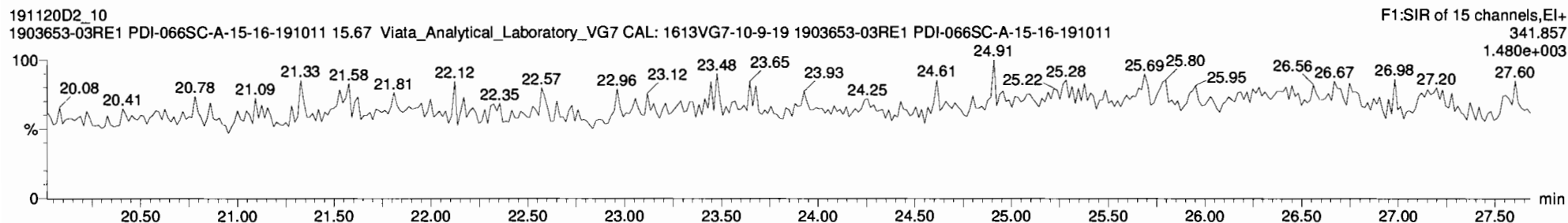
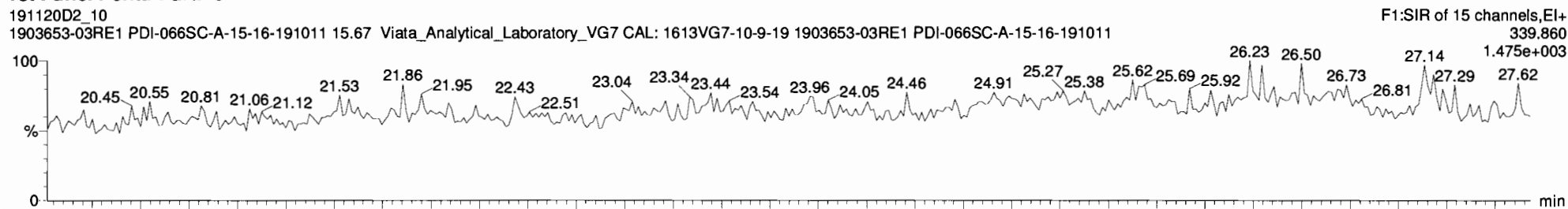
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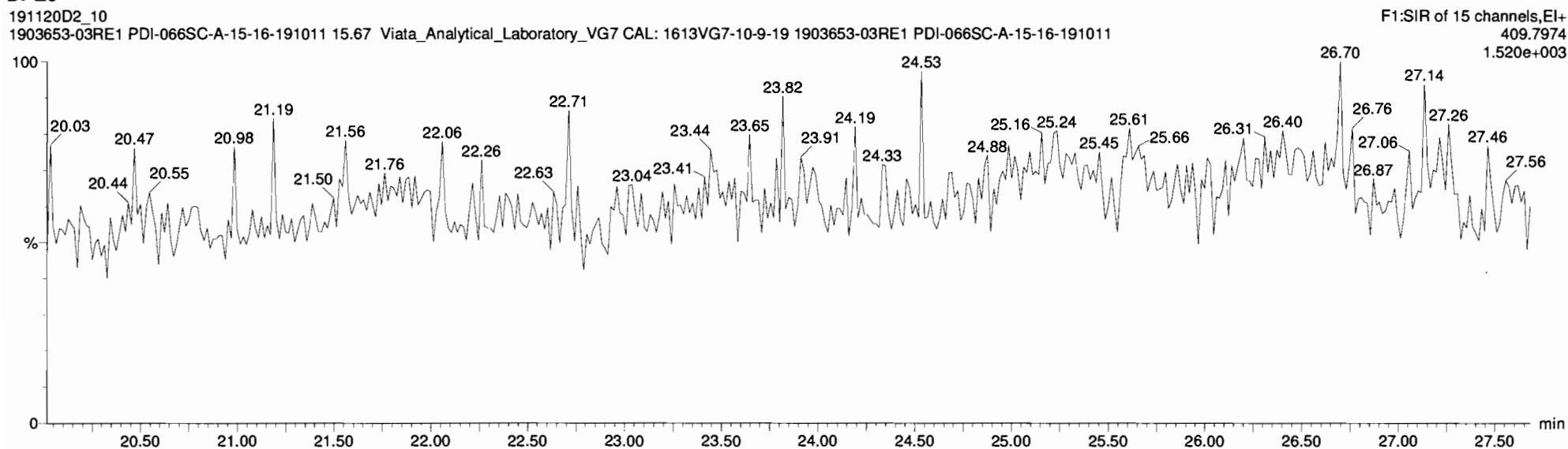
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Name: 191120D2\_10, Date: 21-NOV-2019, Time: 09:21:31, ID: 1903653-03RE1 PDI-066SC-A-15-16-191011,  
Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

1st Func. Penta-Furans



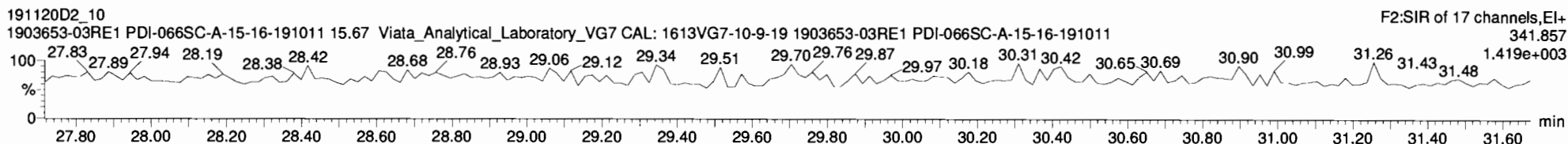
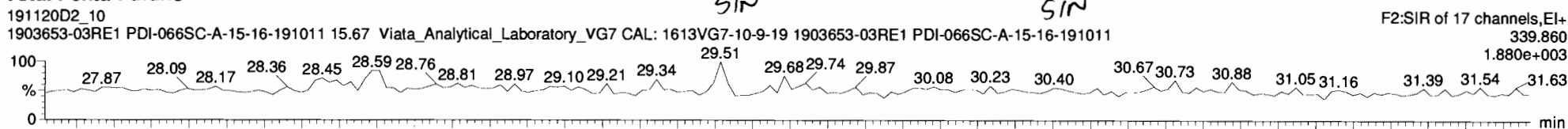
DPE6



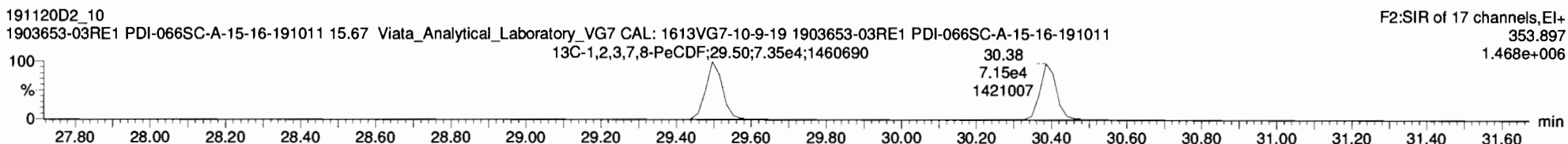
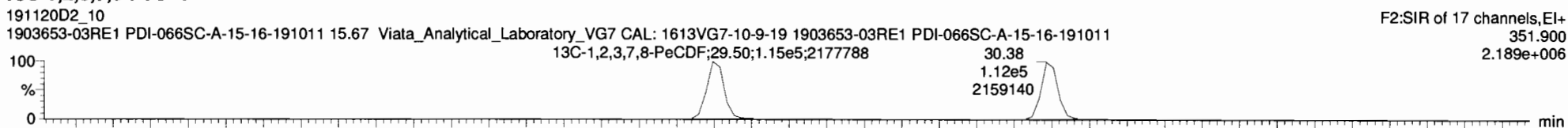
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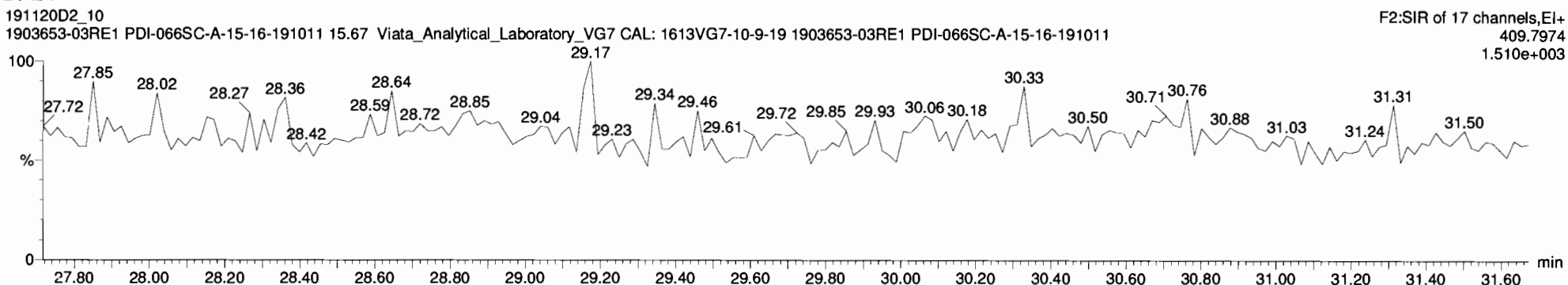
**Total Penta-Furans**



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



**DPE2**



Vista Analytical Laboratory

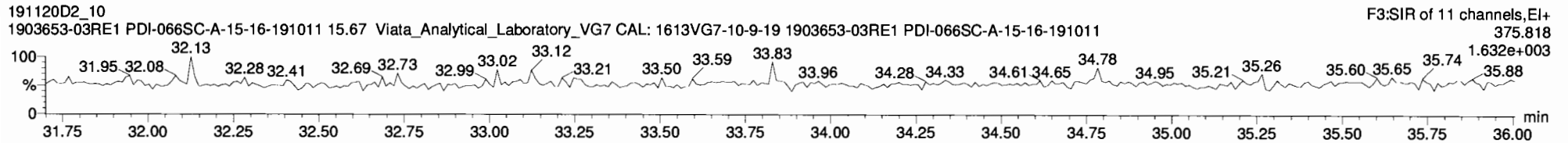
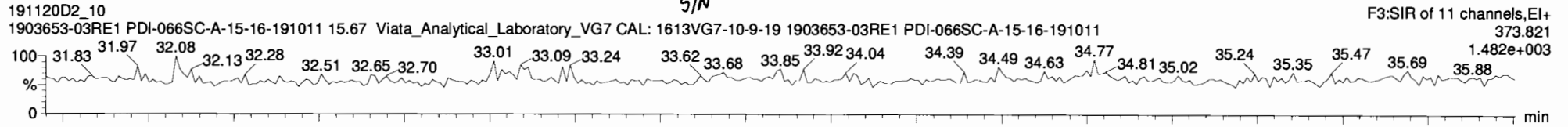
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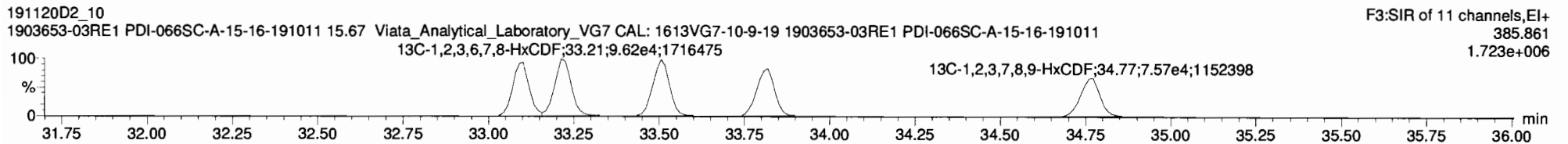
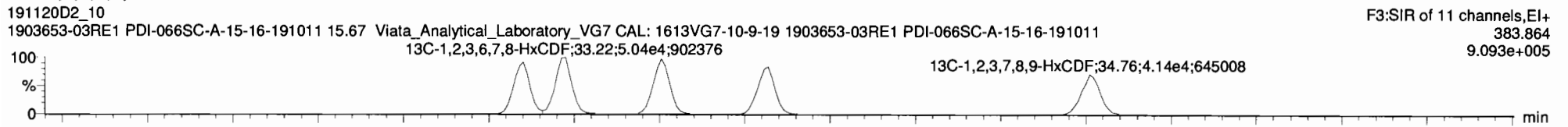
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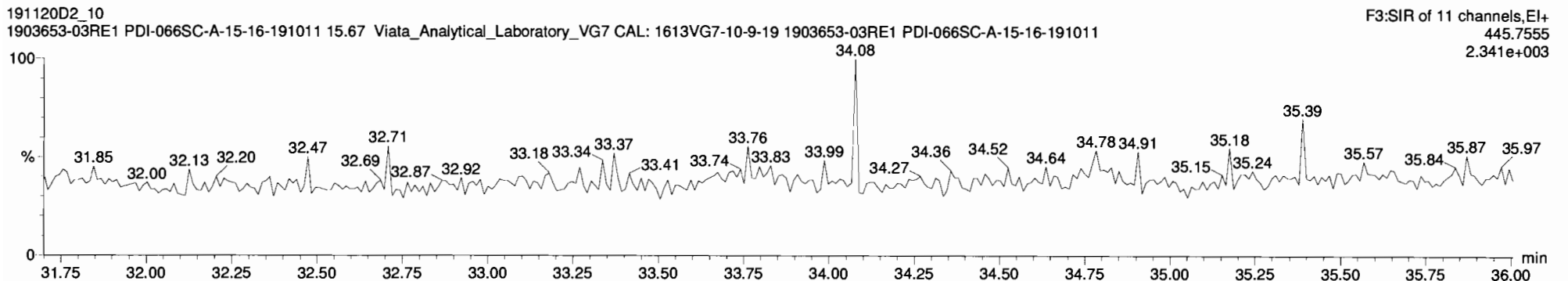
Total Hexa-Furans



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



DPE3



Vista Analytical Laboratory

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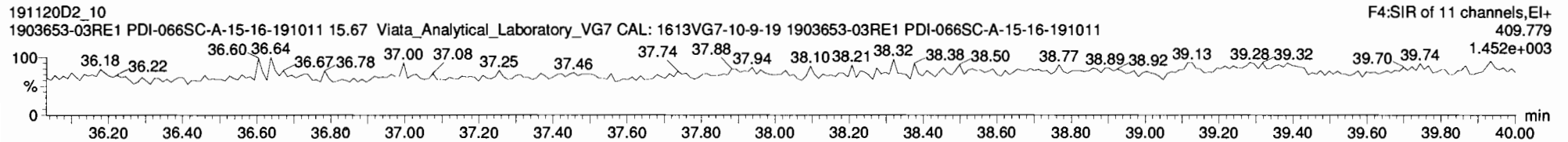
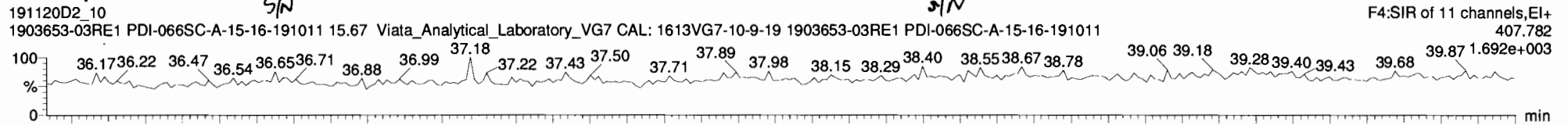
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Printed: Wednesday, November 27, 2019 13:18:48 Pacific Standard Time

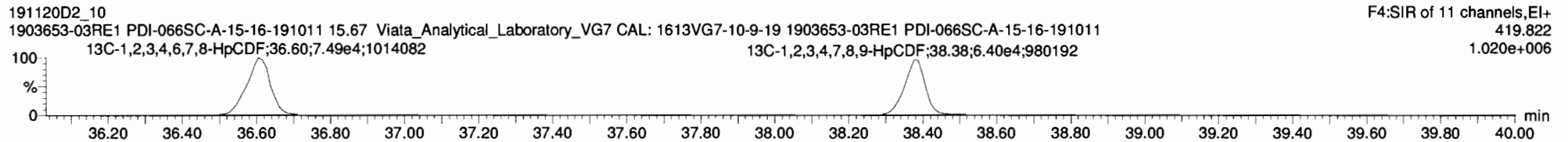
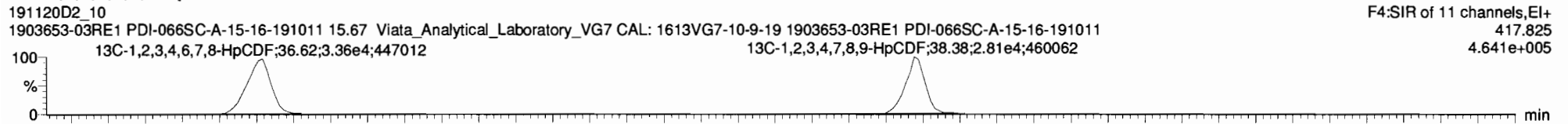
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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

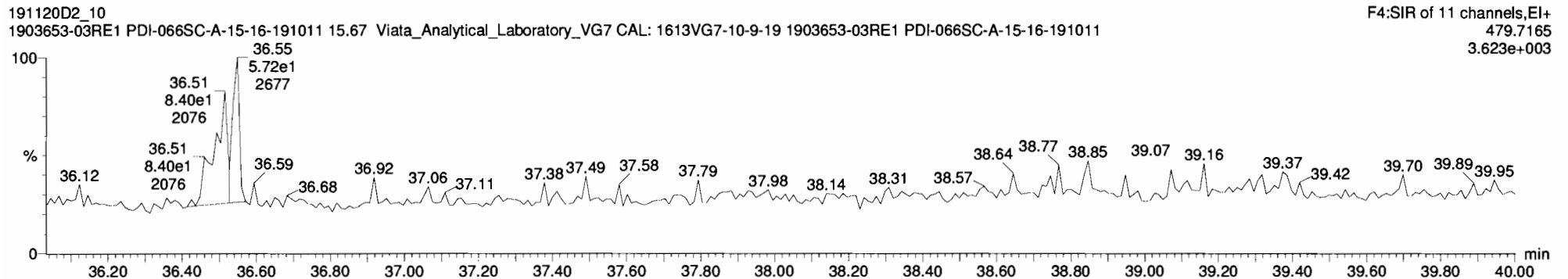
Total Hepta-Furans



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



DPE4



Vista Analytical Laboratory

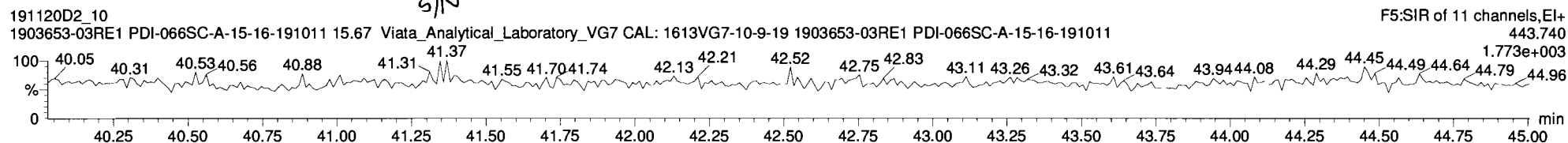
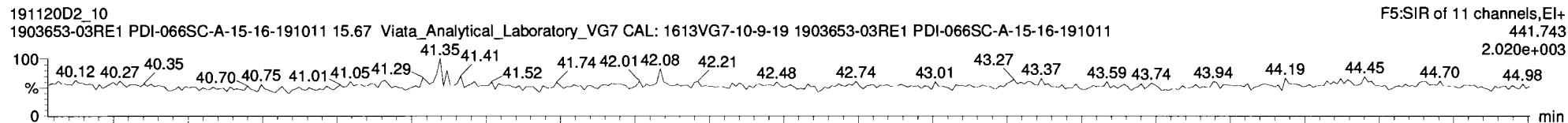
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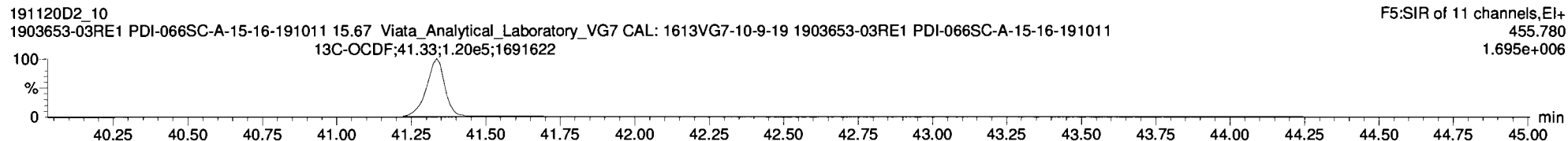
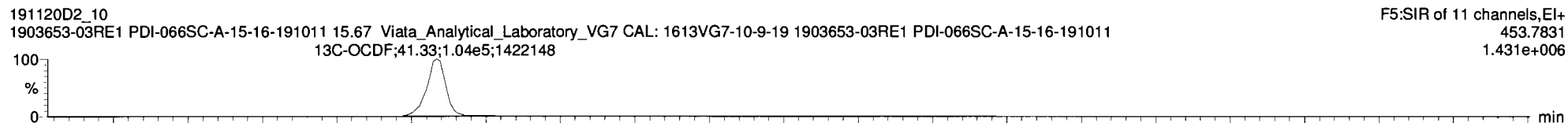
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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

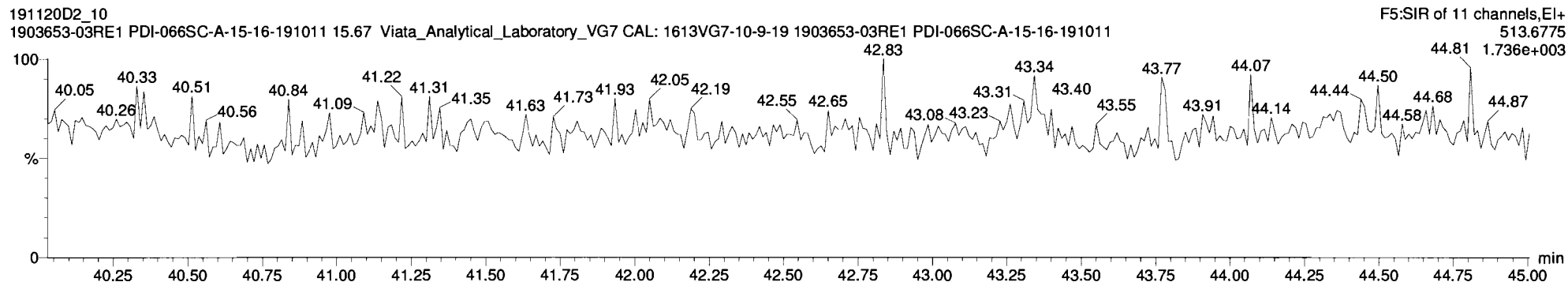
OCDF



13C-OCDF



DPE5



Vista Analytical Laboratory

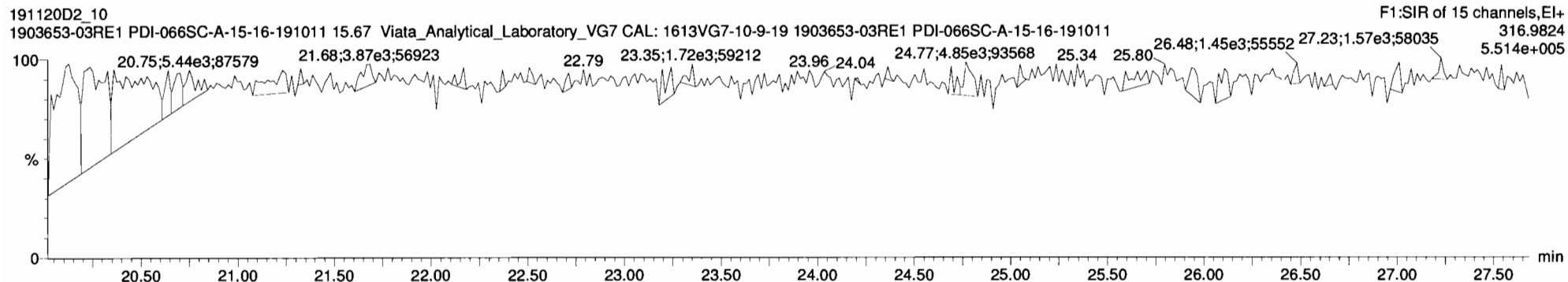
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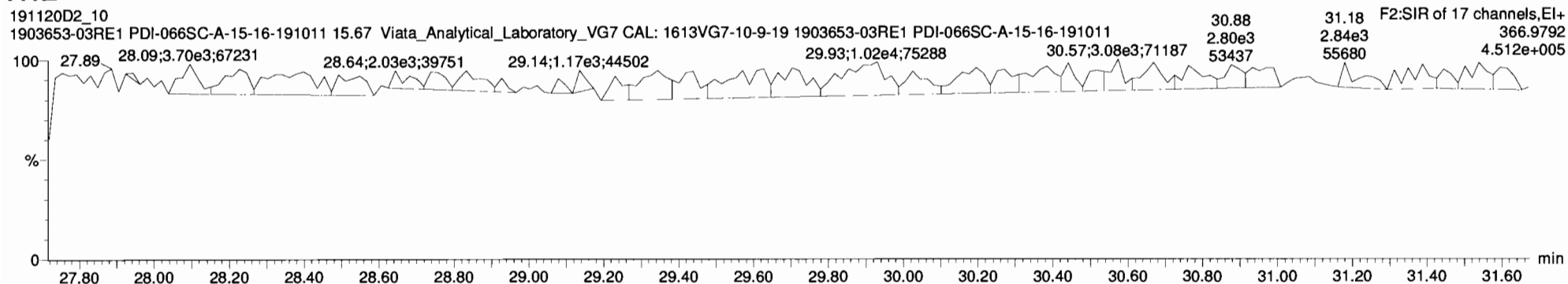
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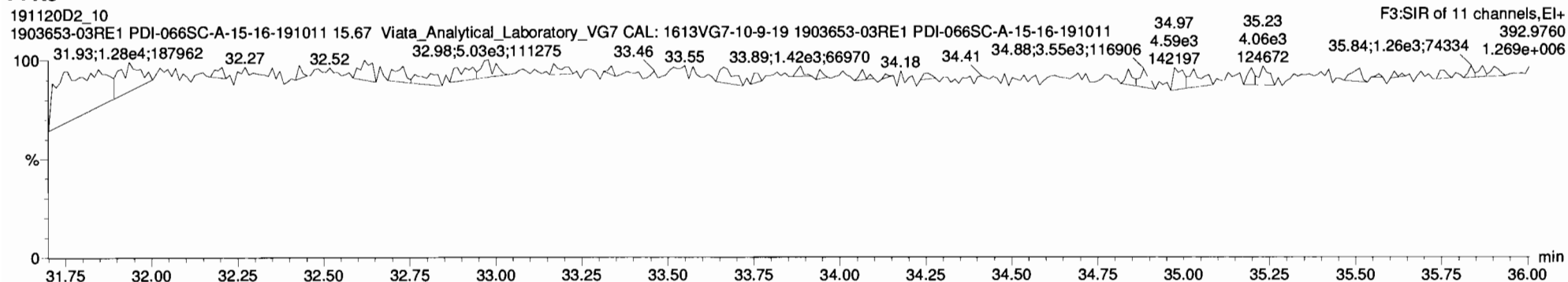
PFK1



PFK2



PFK3



Vista Analytical Laboratory

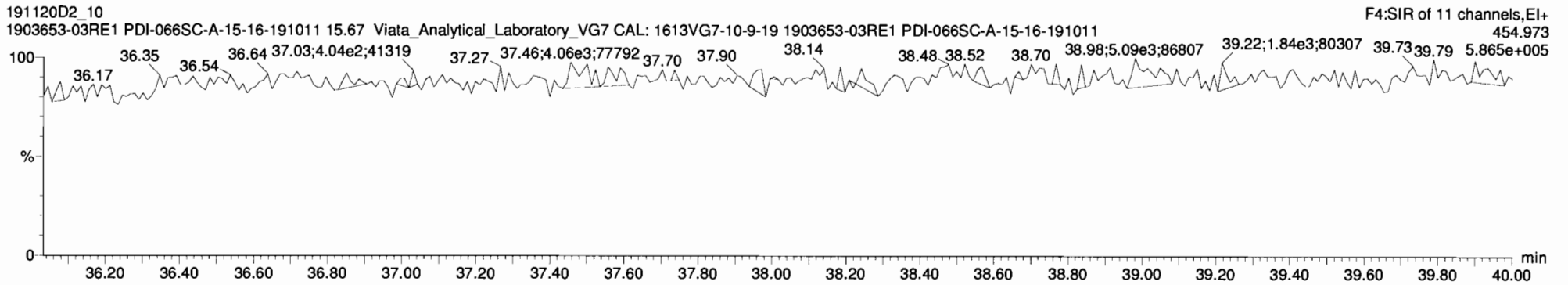
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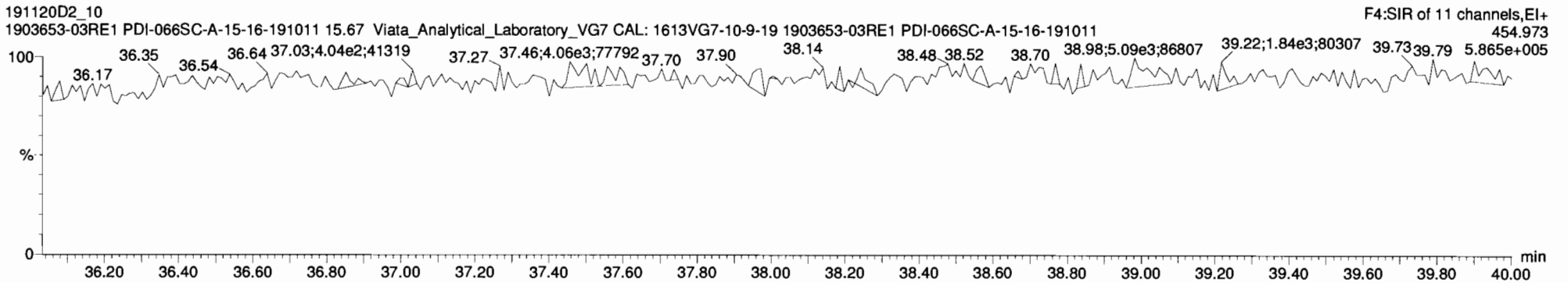
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Description: 1903653-03RE1 PDI-066SC-A-15-16-191011 15.67 Viata\_Analytical\_Laboratory\_VG7 CAL: 1613VG7-10-9-19

PFK4



PFK5



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-13.qld  
 Last Altered: Wednesday, November 27, 2019 13:54:28 Pacific Standard Time  
 Printed: Wednesday, November 27, 2019 14:05:32 Pacific Standard Time

EL 11/27/19

CT 12/02/19

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

Calibration: 27 Nov 2019 12:57:36

Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011,  
 Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 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
1	2,3,7,8-TCDD	6.75e4	10.0617	0.905	1.001			26.30							0.225
2	1,2,3,7,8-PeCDD	5.80e4	10.0617	0.903	1.001			30.77							0.195
3	1,2,3,4,7,8-HxCDD	4.58e4	10.0617	1.101	1.000			34.09							0.313
4	1,2,3,6,7,8-HxCDD	5.09e4	10.0617	0.939	1.000			34.18							0.338
5	1,2,3,7,8,9-HxCDD	5.15e4	10.0617	0.961	1.001			34.52							0.345
6	1,2,3,4,6,7,8-HpCDD	4.47e4	10.0617	0.979	1.000			37.94							0.303
7	OCDD	7.77e4	10.0617	0.959	1.000			41.22							0.404
8	2,3,7,8-TCDF	1.00e5	10.0617	0.950	1.001			25.51							0.172
9	1,2,3,7,8-PeCDF	8.04e4	10.0617	0.960	1.001			29.62							0.152
10	2,3,4,7,8-PeCDF	8.20e4	10.0617	1.015	1.001			30.51							0.133
11	1,2,3,4,7,8-HxCDF	6.24e4	10.0617	1.177	1.000			33.18							0.147
12	1,2,3,6,7,8-HxCDF	6.86e4	10.0617	1.069	1.000			33.32							0.154
13	2,3,4,6,7,8-HxCDF	6.24e4	10.0617	1.114	1.001			33.94							0.175
14	1,2,3,7,8,9-HxCDF	5.72e4	10.0617	1.062	1.000			34.86							0.214
15	1,2,3,4,6,7,8-HpCDF	5.13e4	10.0617	1.128	1.001			36.76							0.235
16	1,2,3,4,7,8,9-HpCDF	4.40e4	10.0617	1.280	1.000			38.47							0.188
17	OCDF	9.98e4	10.0617	0.947	1.000			41.45							0.313
18	13C-2,3,7,8-TCDD	6.75e4	1.06e5	10.0617	1.095	0.781	NO	1.021	1.021	26.27	26.27	115.55	58.1		0.444
19	13C-1,2,3,7,8-PeCDD	5.80e4	1.06e5	10.0617	0.881	0.622	NO	1.187	1.195	30.53	30.75	123.41	62.1		0.344
20	13C-1,2,3,4,7,8-Hx...	4.58e4	1.18e5	10.0617	0.642	1.278	NO	1.014	1.014	34.06	34.08	120.16	60.5		0.492
21	13C-1,2,3,6,7,8-Hx...	5.09e4	1.18e5	10.0617	0.856	1.250	NO	1.017	1.017	34.18	34.18	100.21	50.4		0.369
22	13C-1,2,3,7,8,9-Hx...	5.15e4	1.18e5	10.0617	0.807	1.234	NO	1.026	1.026	34.48	34.48	107.49	54.1		0.392
23	13C-1,2,3,4,6,7,8-H...	4.47e4	1.18e5	10.0617	0.654	1.067	NO	1.126	1.129	37.84	37.93	115.03	57.9		0.655
24	13C-OCDD	7.77e4	1.18e5	10.0617	0.580	0.874	NO	1.226	1.227	41.19	41.22	225.73	56.8		0.568
25	13C-2,3,7,8-TCDF	1.00e5	1.71e5	10.0617	1.035	0.815	NO	0.993	0.991	25.56	25.49	112.46	56.6		0.401
26	13C-1,2,3,7,8-PeCDF	8.04e4	1.71e5	10.0617	0.854	1.636	NO	1.143	1.151	29.40	29.59	109.56	55.1		0.482
27	13C-2,3,4,7,8-PeCDF	8.20e4	1.71e5	10.0617	0.847	1.602	NO	1.176	1.185	30.26	30.48	112.57	56.6		0.486
28	13C-1,2,3,4,7,8-Hx...	6.24e4	1.18e5	10.0617	0.832	0.517	NO	0.987	0.988	33.17	33.18	126.40	63.6		0.666
29	13C-1,2,3,6,7,8-Hx...	6.86e4	1.18e5	10.0617	1.034	0.505	NO	0.991	0.991	33.29	33.31	111.72	56.2		0.536
30	13C-2,3,4,6,7,8-Hx...	6.24e4	1.18e5	10.0617	0.953	0.518	NO	1.009	1.009	33.91	33.91	110.26	55.5		0.581
31	13C-1,2,3,7,8,9-Hx...	5.72e4	1.18e5	10.0617	0.828	0.524	NO	1.039	1.038	34.90	34.86	116.46	58.6		0.669



Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-13.qld
Last Altered: Wednesday, November 27, 2019 13:54:28 Pacific Standard Time
Printed: Wednesday, November 27, 2019 14:05:32 Pacific Standard Time

Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011,
Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Table with 16 columns: #, Name, Area, IS Area, WL/Vol, RRF, RA, Y/N, Pred..., RRT, Pred RT, RT, Conc, %Rec, EMPC, DL. Rows 32-47 list various chemical compounds and their detection parameters.

Quantify Totals Report MassLynx MassLynx V4.1 SCN 945

Vista Analytical Laboratory

Dataset: U:\VG7.PRO\Results\191106D1\191106D1-13.qld

Last Altered: Wednesday, November 27, 2019 13:54:28 Pacific Standard Time

Printed: Wednesday, November 27, 2019 14:05:32 Pacific Standard Time

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

Calibration: 27 Nov 2019 12:57:36

Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011,

Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Tetra-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	39 Total Tetra-Dioxins	YES	25.49	22.167	29623.486	0.000	MM	0.0000	0.06

Penta-Dioxins

#	Name	N/Y	RT	Area	IS Area	Response	Primary Flags	Conc.	EMPC
1	40 Total Penta-Dioxins	YES	29.59	80.660	22262.754	0.000	MM	0.0000	0.33

Hexa-Dioxins

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

Hepta-Dioxins

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

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

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Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Hexa-Furans

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

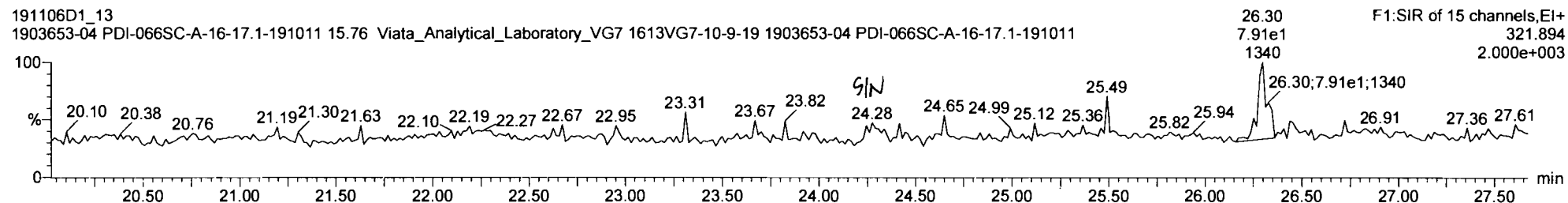
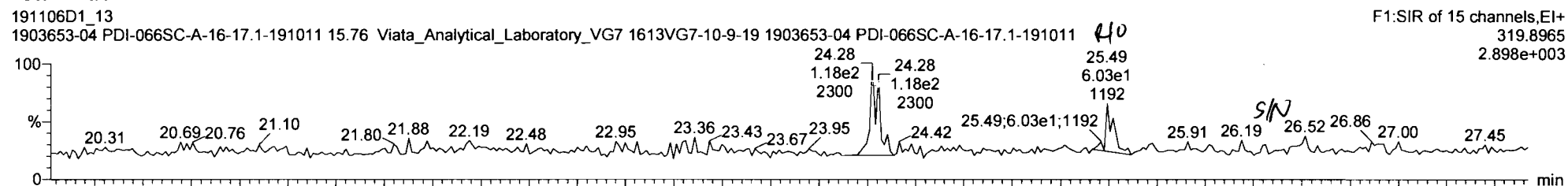
Hepta-Furans

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

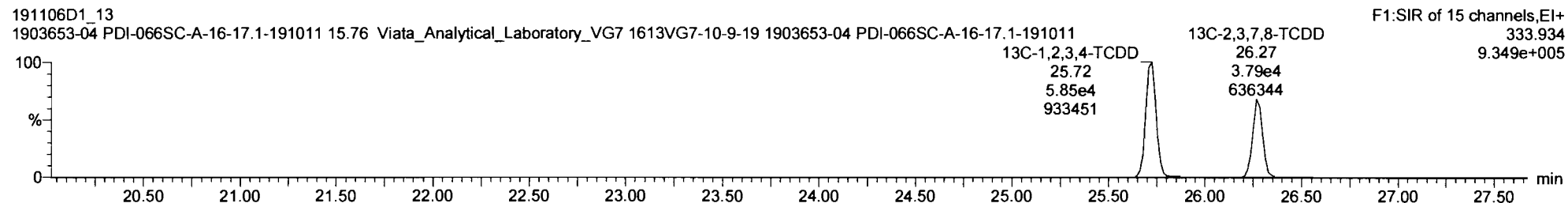
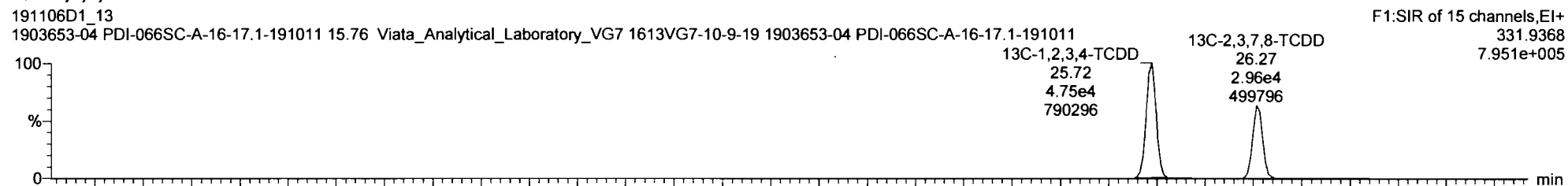
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Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Total Tetra-Dioxins

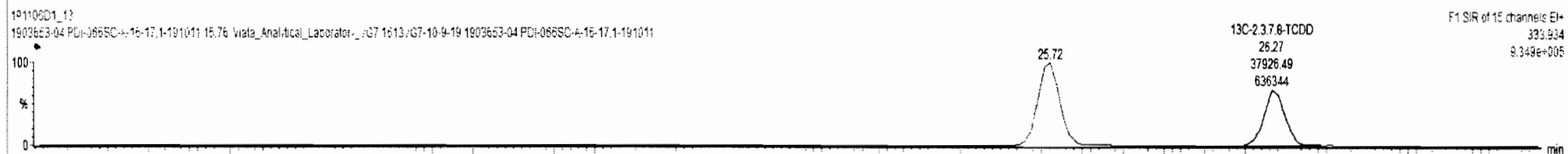
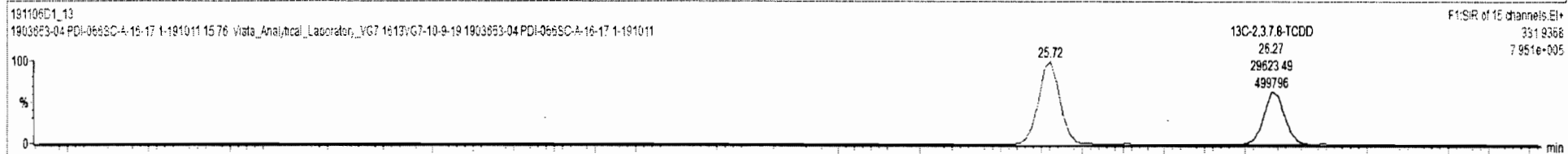
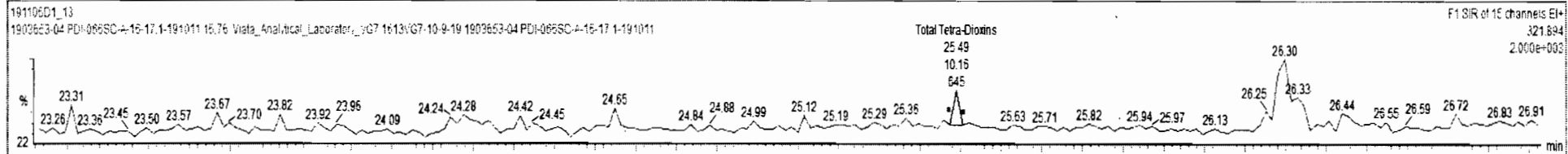
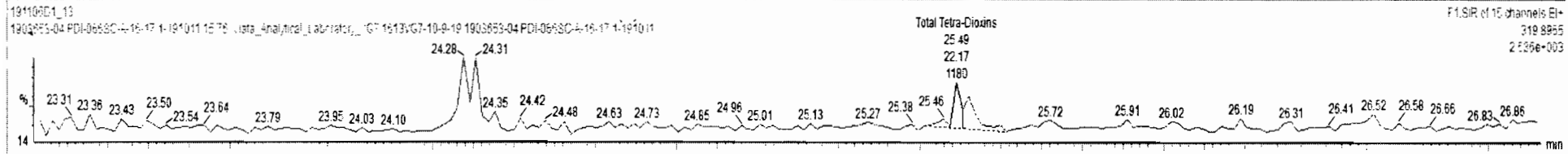


13C-2,3,7,8-TCDD



Name	Resp	RA	n/y	RRF	id/val	RT	RRT	Conc	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HpCDF	4.40e4	0.42	NO		10.062	36.47	1.145	127	64.1	0.940
34	13C-OCDF	9.98e4	0.90	NO		10.062	41.45	1.234	244	61.4	0.473
35	37Cl-2,3,7,8-TCDD	4.75e4				10.062	26.30	1.022	74.4	93.6	0.107
36	13C-1,2,3,4-TCDD	1.06e5	0.81	NO		10.062	25.72	1.000	199	100	0.486
37	13C-1,2,3,4-TCDF	1.71e5	0.76	NO		10.062	24.31	1.000	199	100	0.415
38	13C-1,2,3,4,6,9-HxCDF	1.18e5	0.48	NO		10.062	33.60	1.000	199	100	0.554
39	Total Tetra-Dioxins					10.062			0.000	0.132	0.0567
40	Total Penta-Dioxins					10.062					0.0895
41	Total Hexa-Dioxins					10.062					0.189

Name	RT	m1 Resp	m2 Resp	RA	n/y	EMPC	Conc.
1	Total Tetra-Dioxins	25.49	2.217e1	1.016e1	2.18	YES	0.056722



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:29:33 Pacific Standard Time

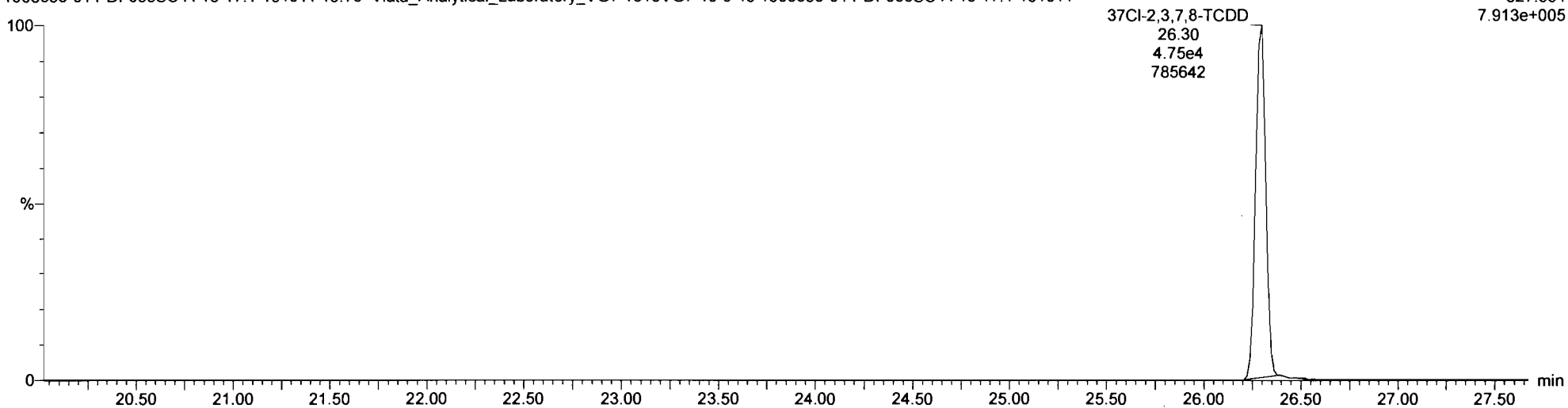
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 Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

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

191106D1\_13  
 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903653-04 PDI-066SC-A-16-17.1-191011

F1:SIR of 15 channels,EI+  
 327.884  
 7.913e+005



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

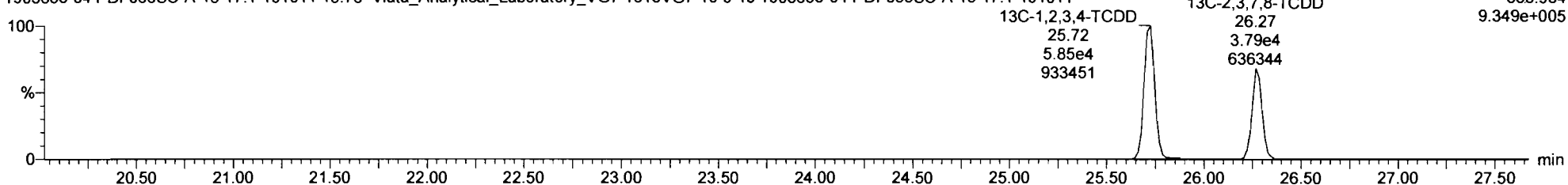
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F1:SIR of 15 channels,EI+  
 331.9368  
 7.951e+005



191106D1\_13  
 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19 1903653-04 PDI-066SC-A-16-17.1-191011

F1:SIR of 15 channels,EI+  
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 9.349e+005



Vista Analytical Laboratory

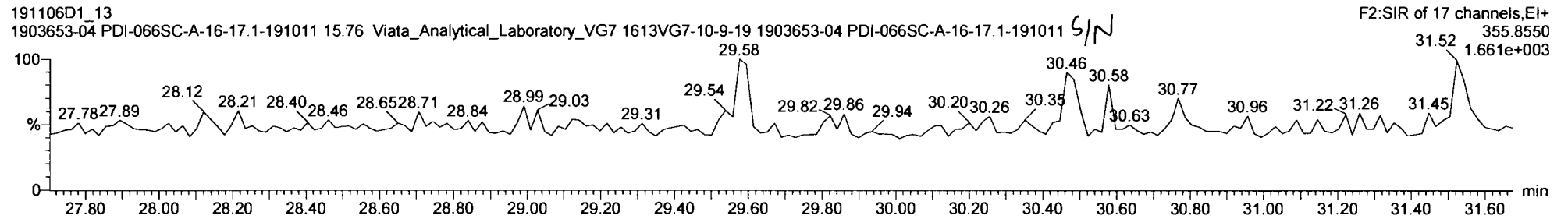
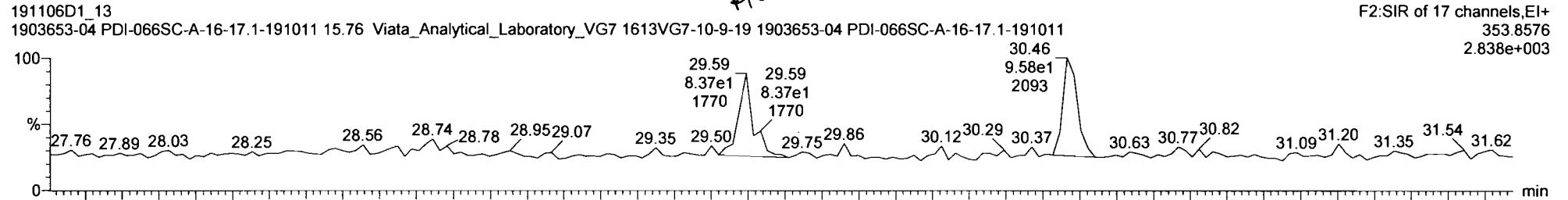
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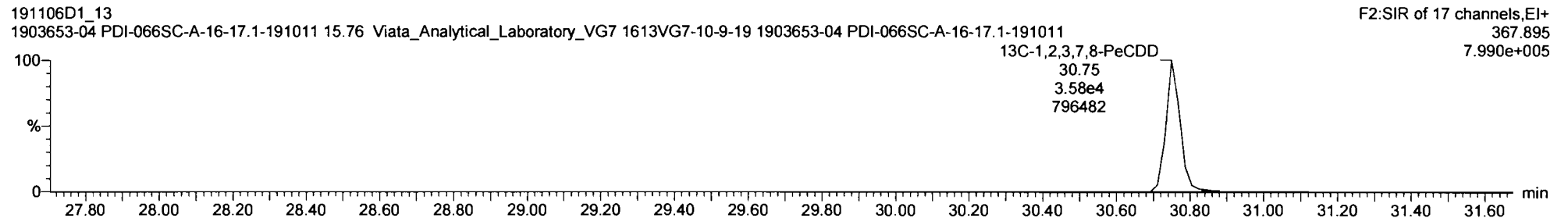
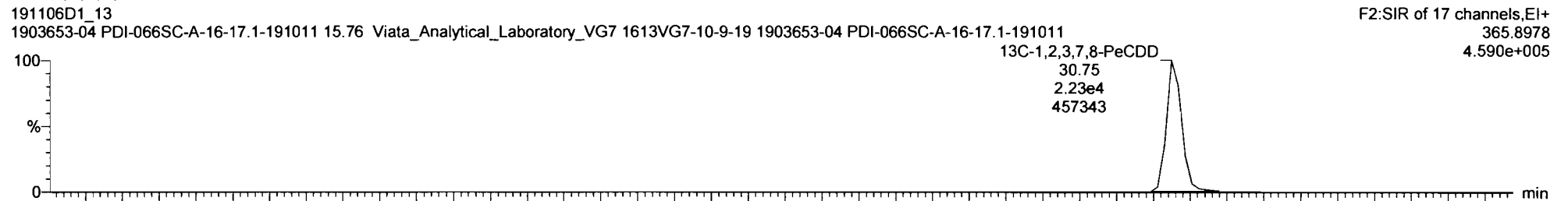
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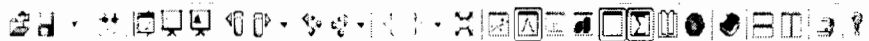
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Total Penta-Dioxins



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

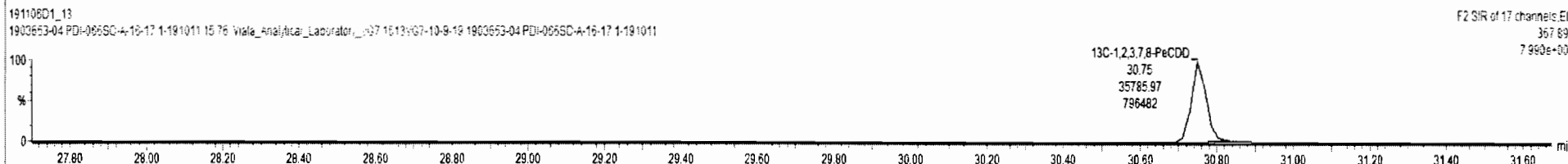
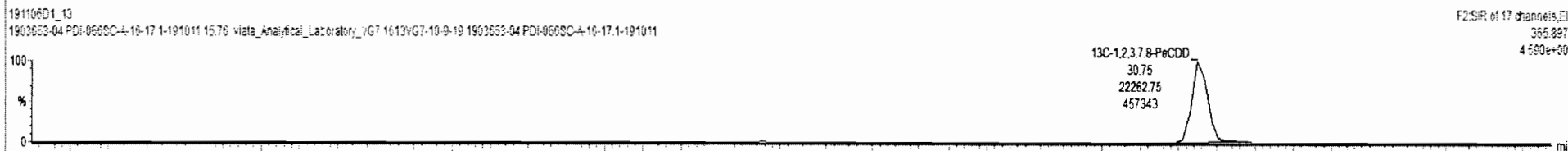
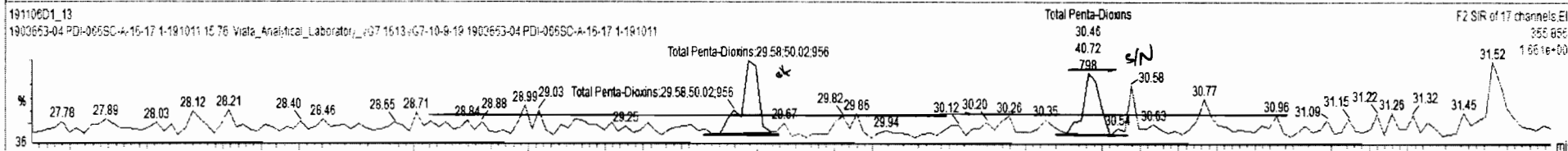
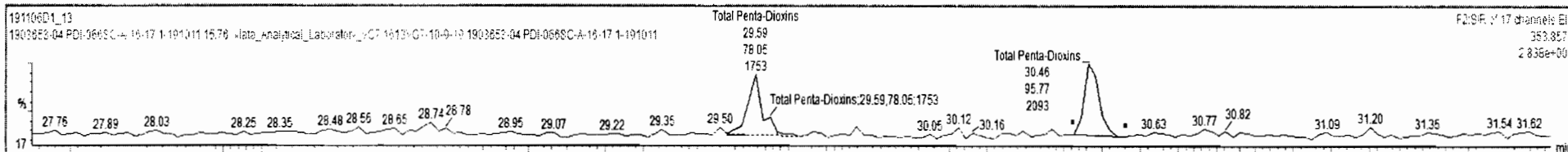




191106D1\_13 - 1903653-04 PDI-066SC-A-16-17 1-191011 - 1903653-04 PDI-066SC-A-16-17 1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

Name	Resp	RA	nly	RF	wVol	RT	RRT	Conc.	%Rec	DL	EMPC
37 13C-1,2,3,4-TCDF	1.71e5	0.76	NO		10.062	24.21	1.000	199	100	0.415	
38 13C-1,2,3,4,6,9-HxCDF	1.18e5	0.49	NO		10.062	33.60	1.000	199	100	0.554	
39 Total Tetra-Dioxins					10.062			0.090		0.132	0.0574
40 Total Penta-Dioxins					10.062			0.000		0.0895	0.581
41 Total Hexa-Dioxins					10.062					0.189	
42 Total Hepta-Dioxins					10.062					0.120	
43 Total Tetra-Furans					10.062					0.0764	
44 1st Func. Penta-Furans					10.062					0.0542	
45 Total Penta-Furans					10.062					0.0772	

Name	RT	m1 Resp	m2 Resp	RA	nly	EMPC	Conc.
1 Total Penta-Dioxins	30.46	9.577e1	4.072e1	2.35	YES	0.26056	0.00000
2 Total Penta-Dioxins	29.59	7.605e1	5.002e1	1.56	YES	0.32012	0.00000



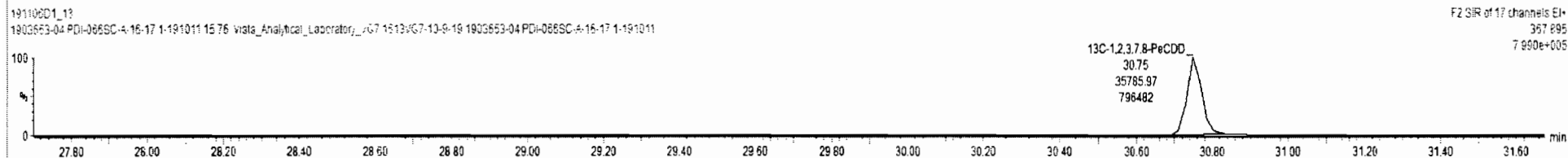
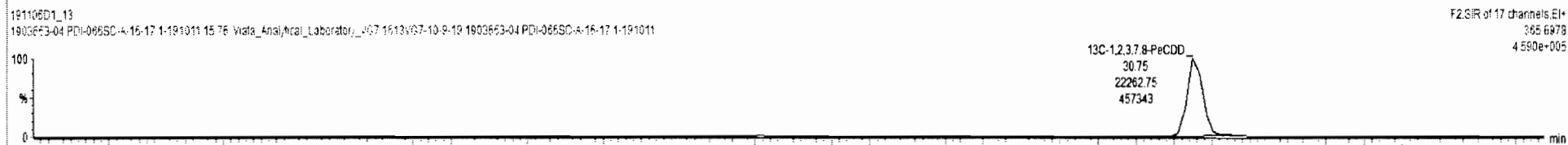
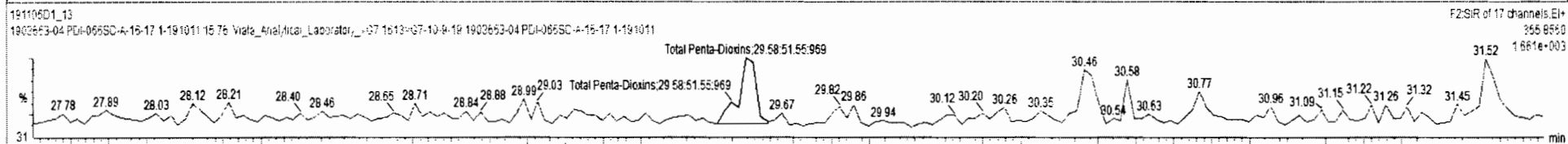
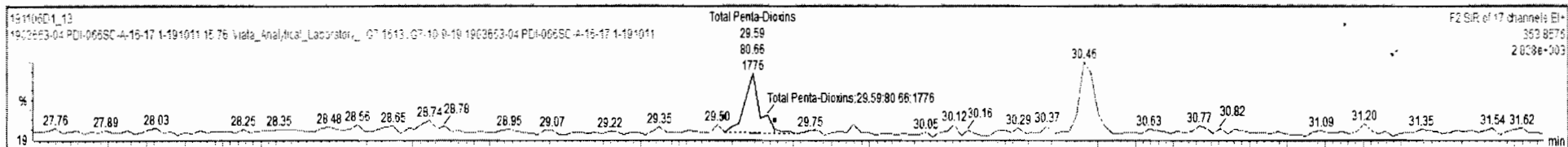




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#	Name	Resp	RA	n/y	RDF	wtVol	RT	RRT	Conc.	%Rec	DL	EMPC
33	13C-1,2,3,4,7,8,9-HpCDF	4.40e4	0.42	NO		10.062	38.47	1.145	127	64.1	0.940	
34	13C-OCDF	9.96e4	0.90	NO		10.062	41.45	1.234	244	61.4	0.473	
35	27Cl-2,3,7,8-TCDD	4.75e4				10.062	26.30	1.022	74.4	93.6	0.107	
36	13C-1,2,3,4-TCDD	1.96e5	0.81	NO		10.062	25.72	1.000	199	100	0.486	
37	13C-1,2,3,4-TCDF	1.71e5	0.76	NO		10.062	24.31	1.000	199	100	0.415	
38	13C-1,2,3,4,6,9-HxCDF	1.18e5	0.49	NO		10.062	33.60	1.000	199	100	0.554	
39	Total Tetra-Dioxins					10.062			0.000		0.132	0.0567
40	Total Penta-Dioxins					10.062			0.900		0.0895	0.336
41	Total Hexa-Dioxins					10.062					0.189	

#	Name	RT	m1 Resp	m2 Resp	RA	n/y	EMPC	Conc.
1	Total Penta-Dioxins	29.59	8.066e1	5.155e1	1.56	YES	0.32968	0.00000



Vista Analytical Laboratory

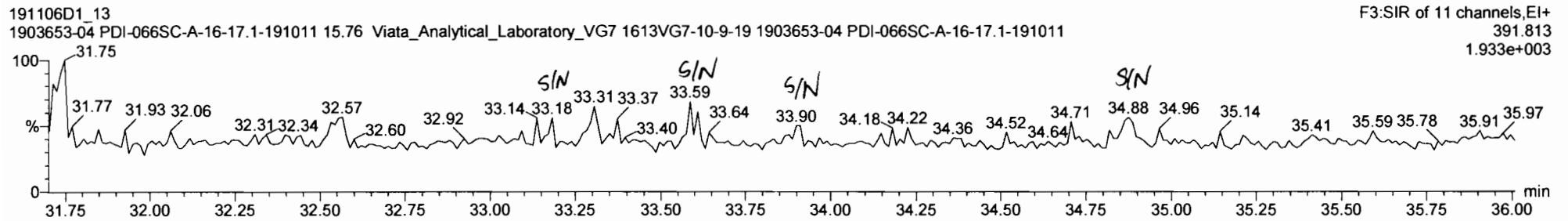
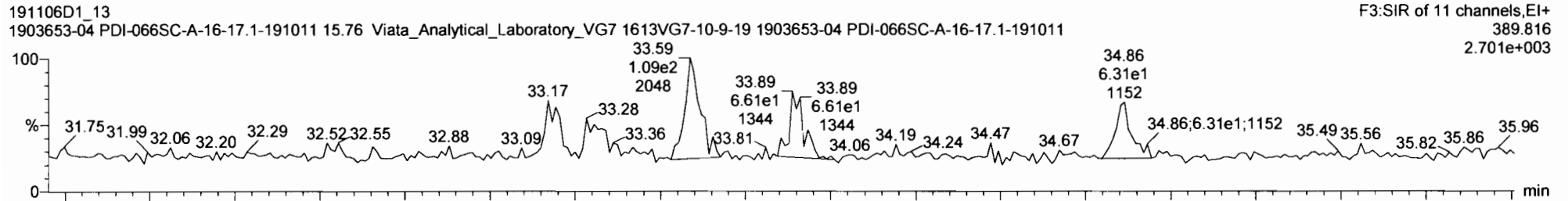
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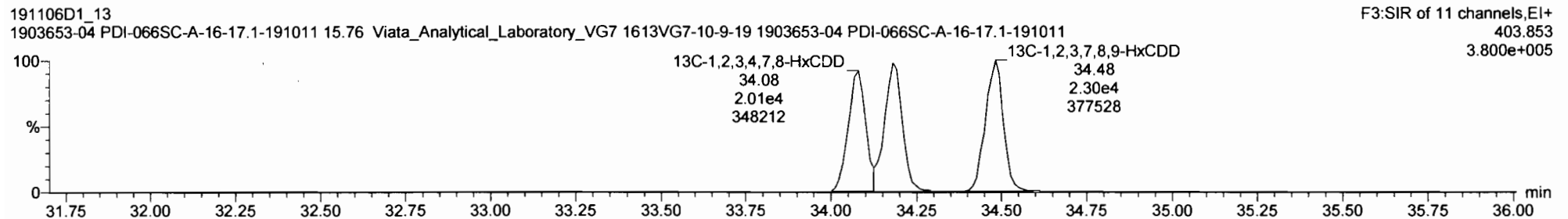
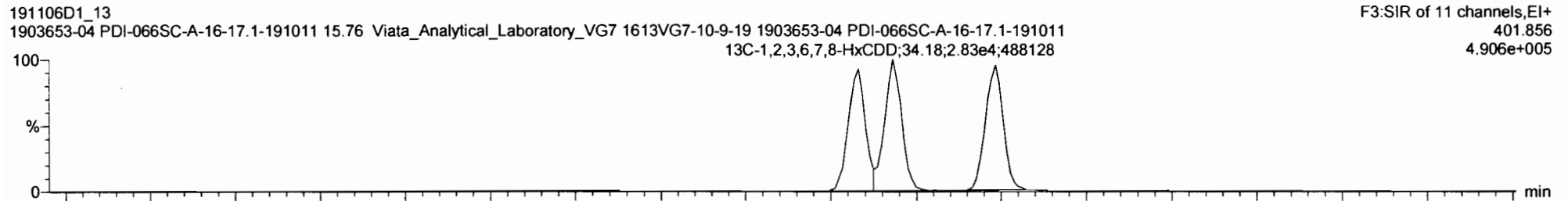
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Total Hexa-Dioxins



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



Vista Analytical Laboratory

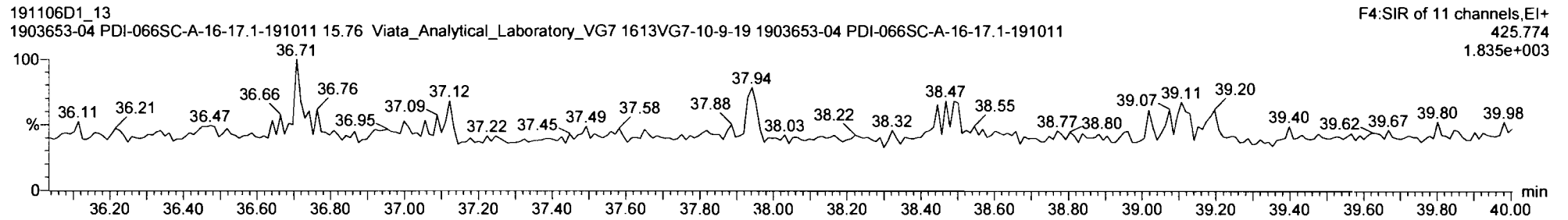
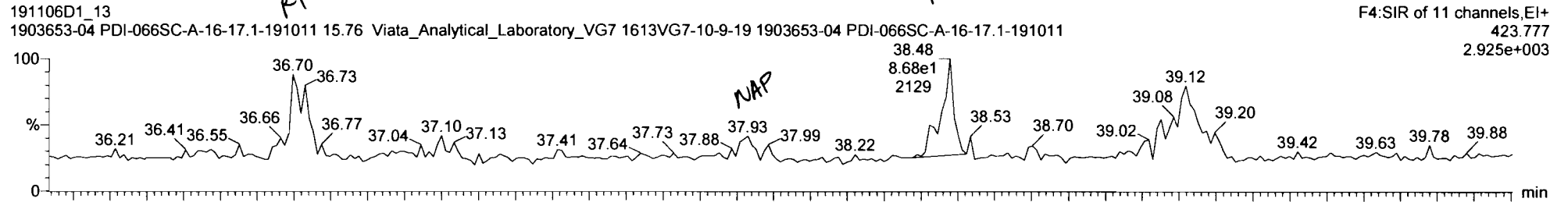
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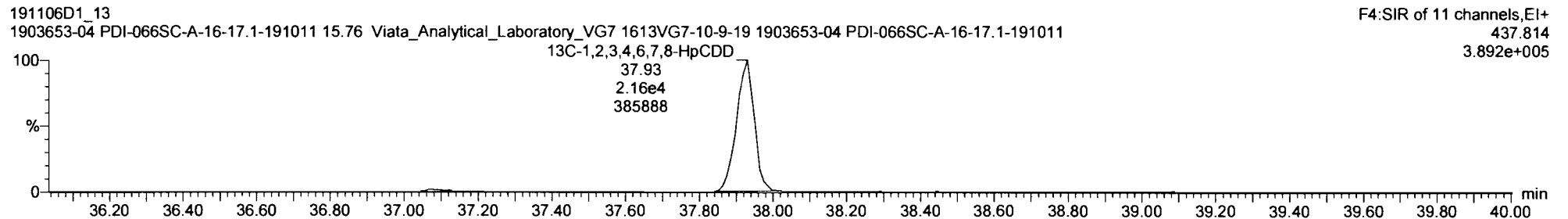
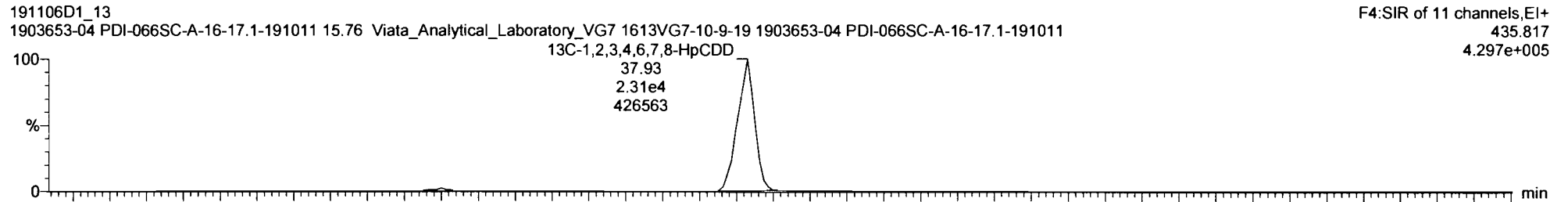
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 Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

**Total Hepta-Dioxins**



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



Vista Analytical Laboratory

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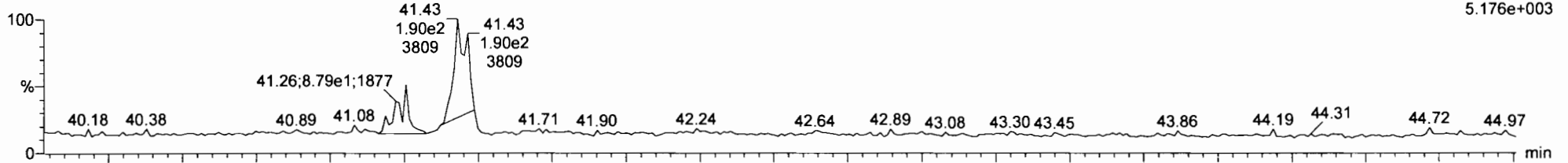
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OCDD

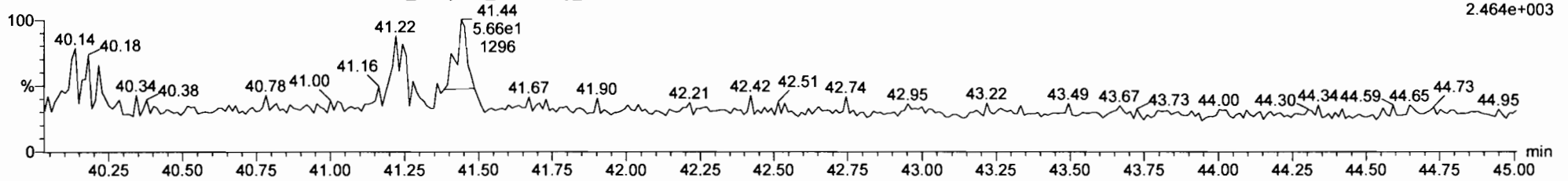
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F5:SIR of 11 channels,EI+  
457.738  
5.176e+003



191106D1\_13  
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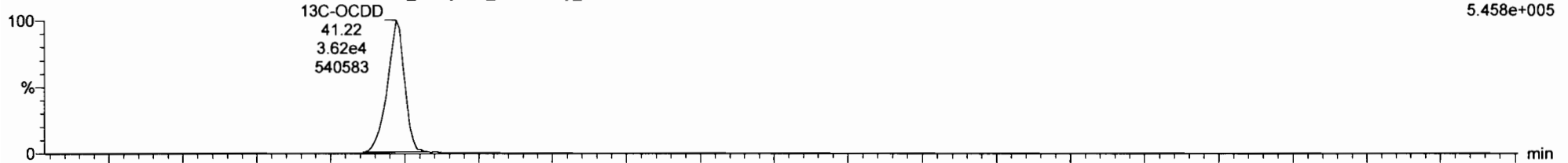
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13C-OCDD

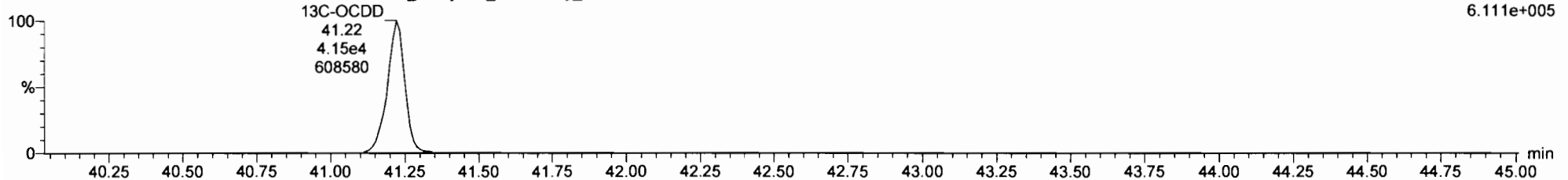
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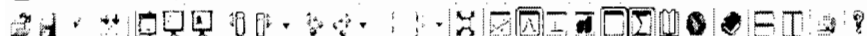
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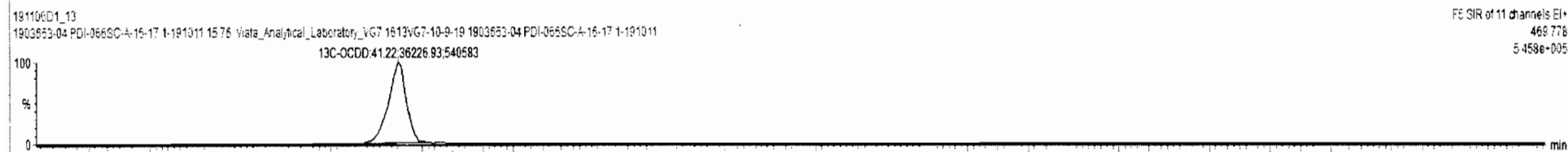
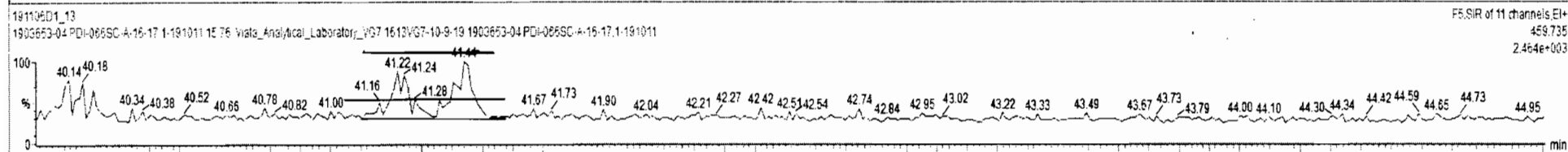
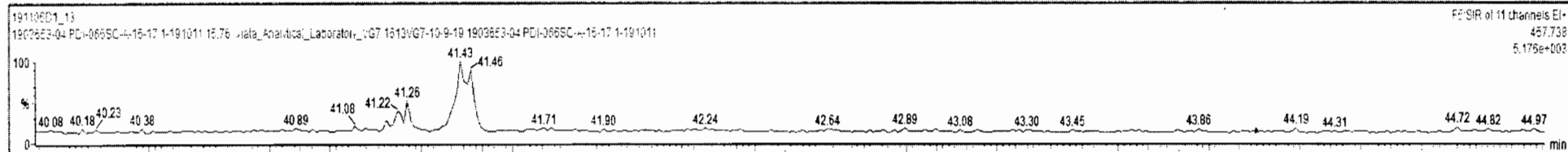




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Name	Resp	RA	nly	RRF	wtVol	RT	RRT	Conc.	%Rec	DL	EMPC
4 1,2,3,6,7,8-HxCDD					10.062					0.338	
5 1,2,3,7,8-HxCDD					10.062					0.345	
6 1,2,3,4,6,7,8-HpCDD					10.062					0.303	
7 OCDD					10.062					0.404	
8 2,3,7,8-TCDF					10.062					0.172	
9 1,2,3,7,8-PeCDF					10.062					0.152	
10 2,3,4,7,8-PeCDF					10.062					0.133	
11 1,2,3,4,7,8-HxCDF					10.062					0.147	
12 1,2,3,6,7,8-HxCDF					10.062					0.154	

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



Vista Analytical Laboratory

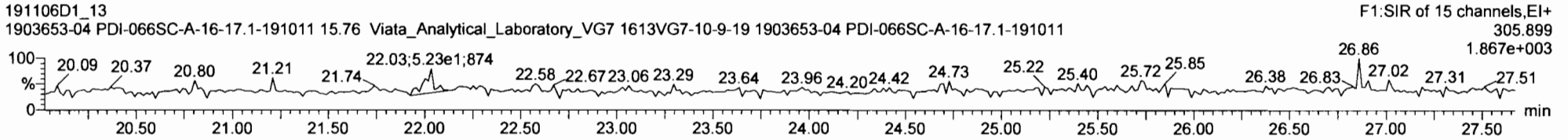
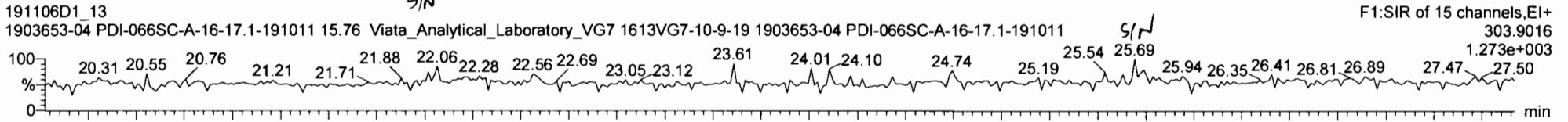
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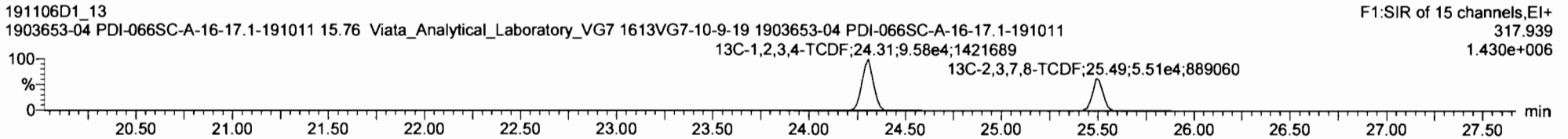
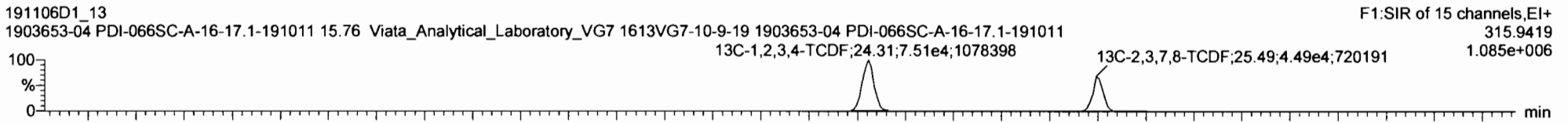
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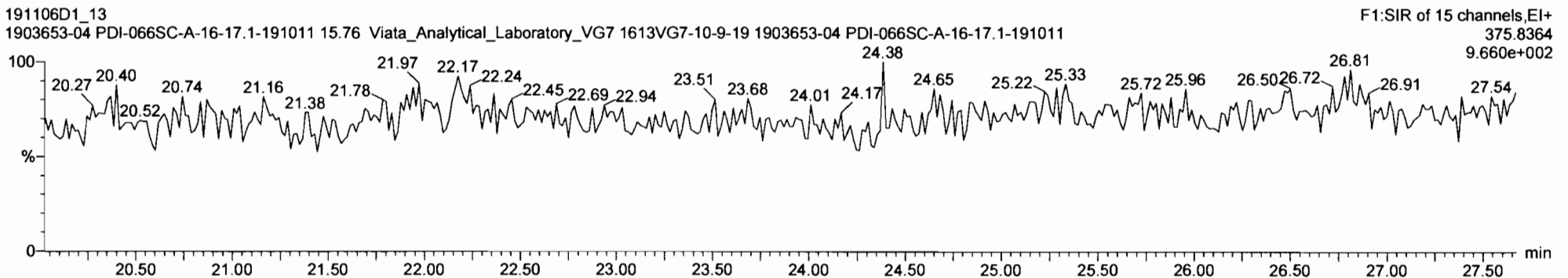
Total Tetra-Furans



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



DPE1



Vista Analytical Laboratory

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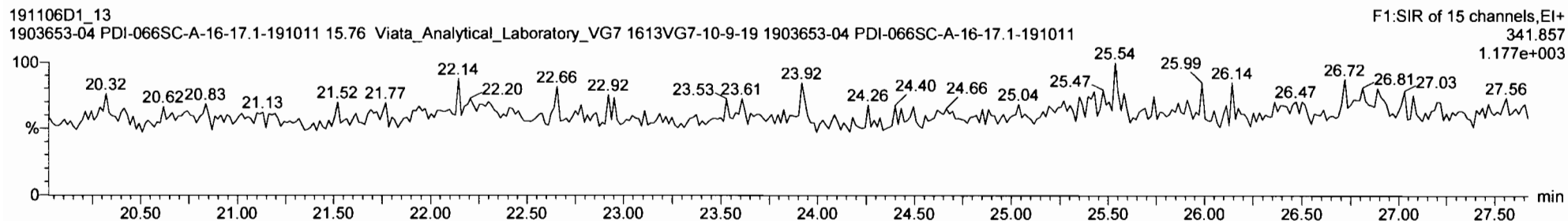
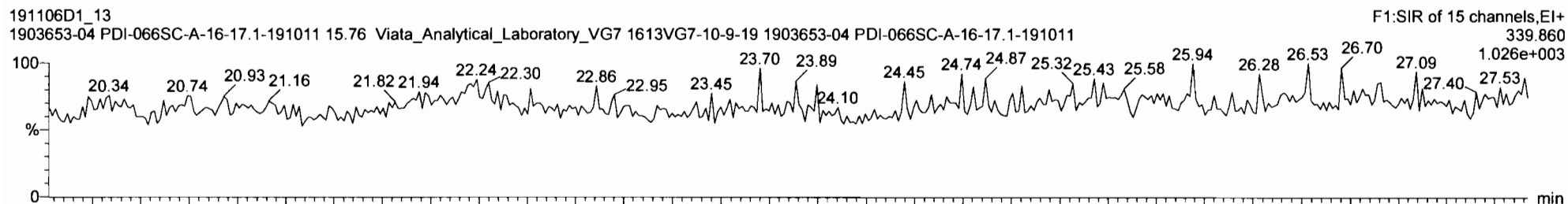
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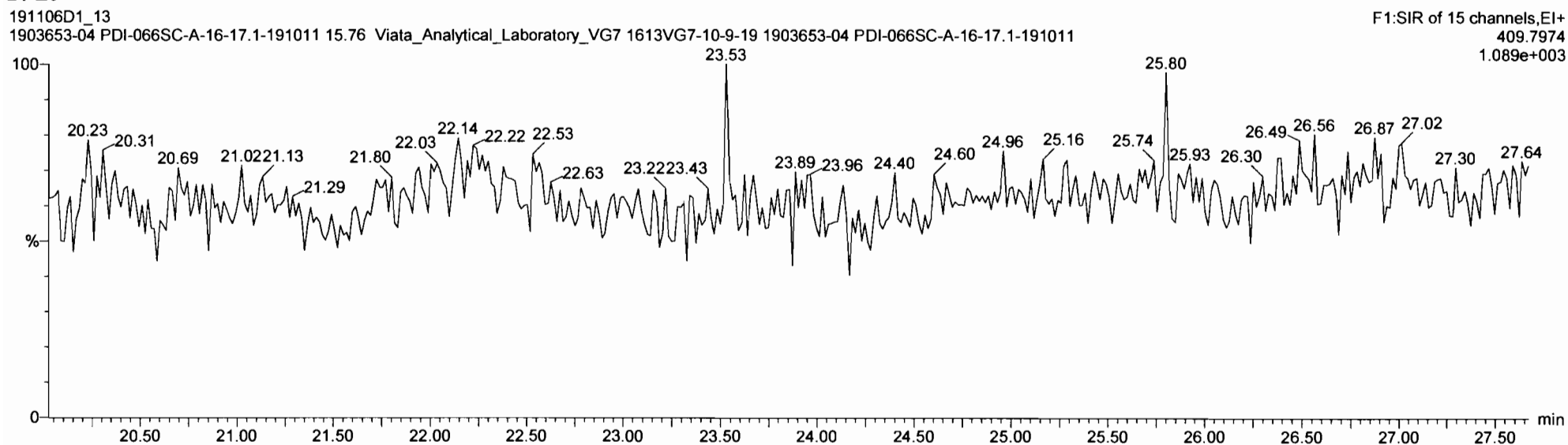
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SIN

1st Func. Penta-Furans



DPE6



Vista Analytical Laboratory

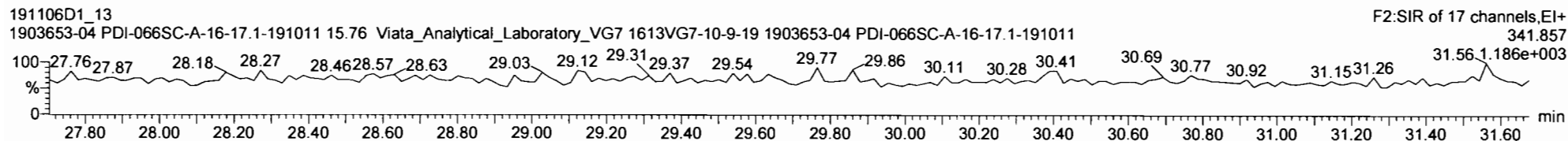
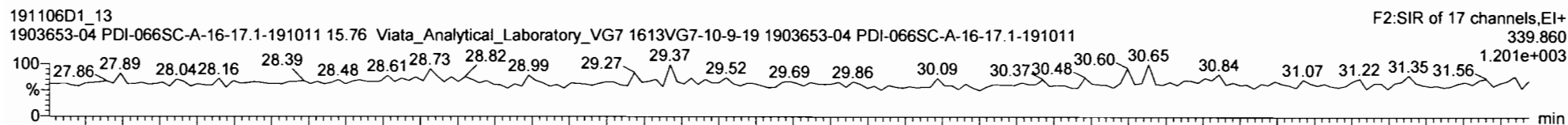
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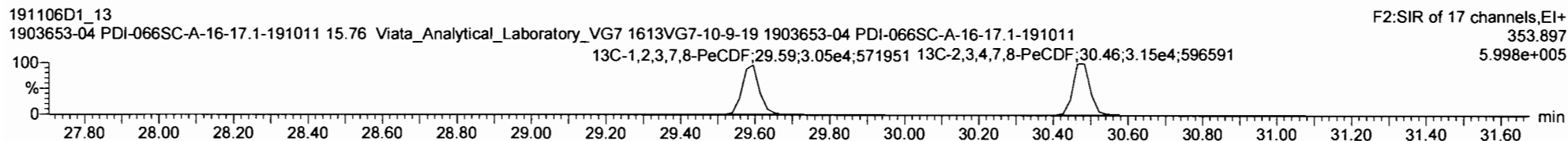
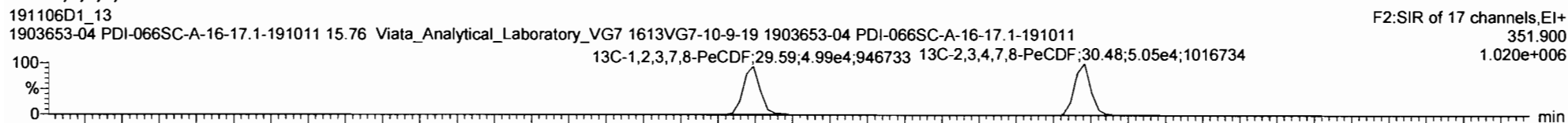
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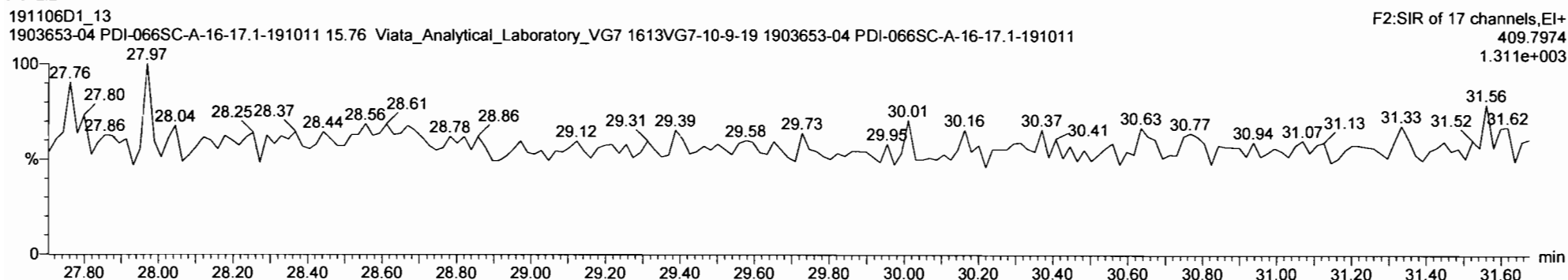
**Total Penta-Furans**



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



**DPE2**





Vista Analytical Laboratory

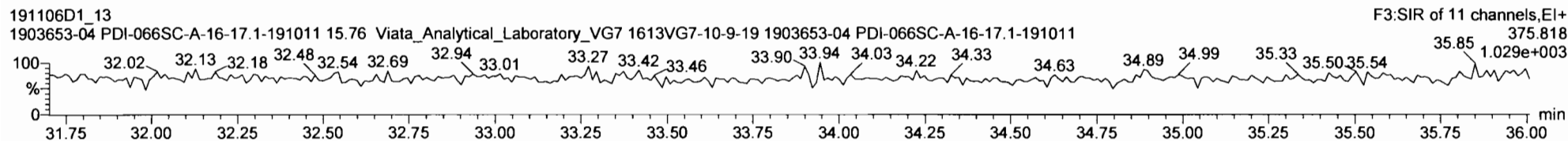
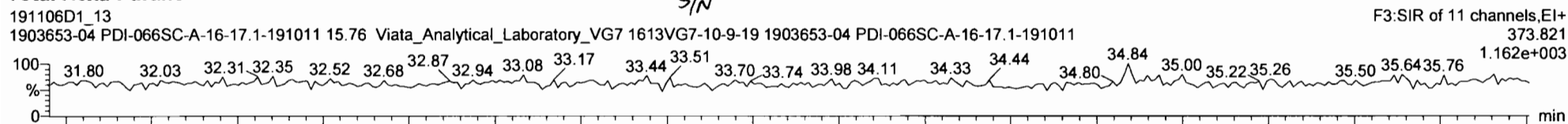
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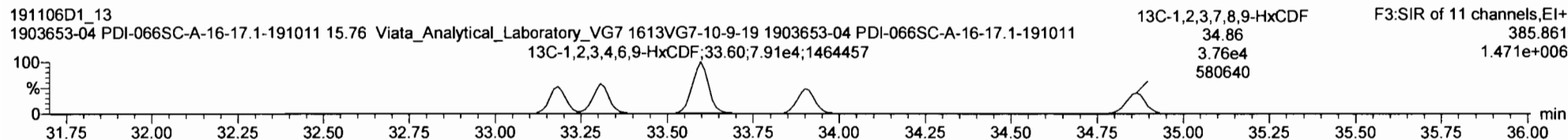
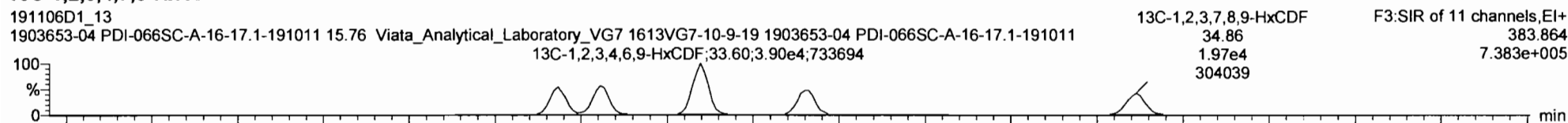
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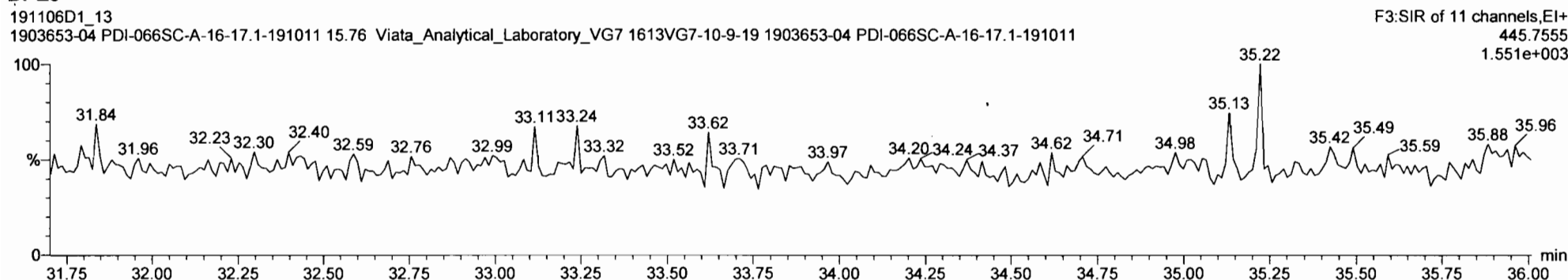
Total Hexa-Furans



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



DPE3



Vista Analytical Laboratory

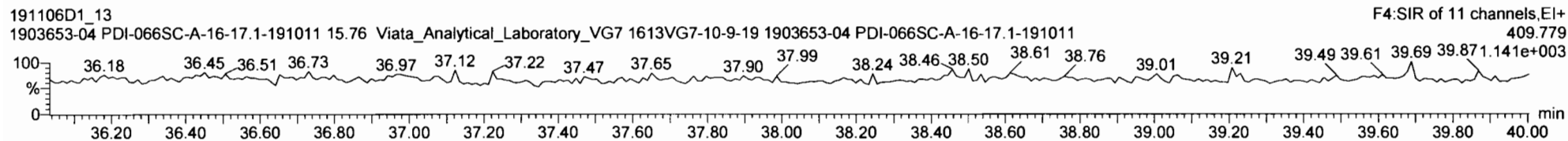
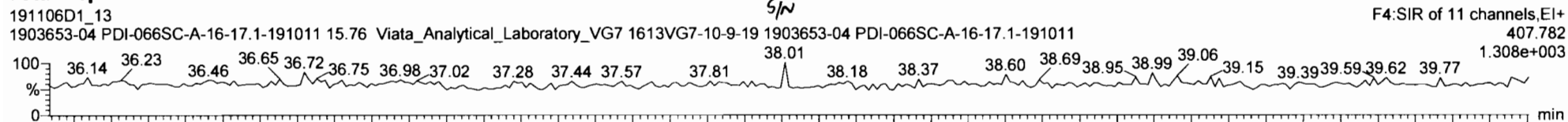
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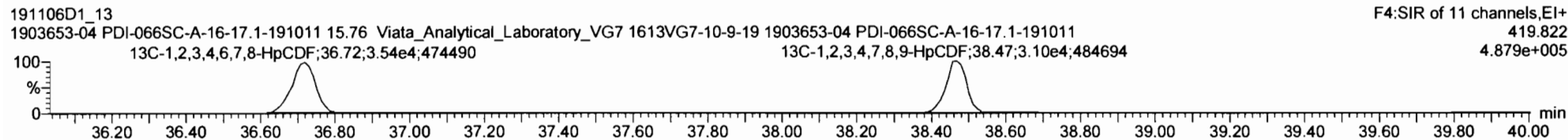
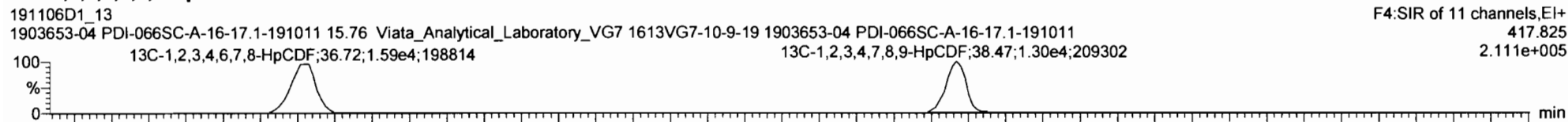
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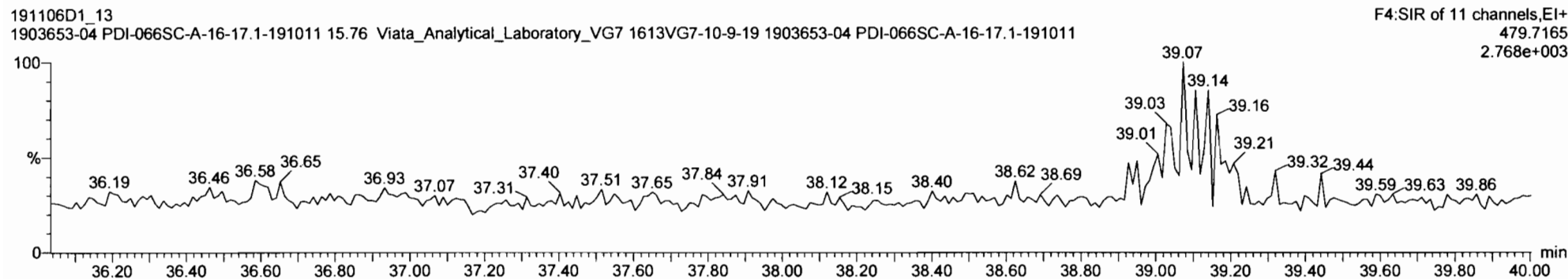
Total Hepta-Furans



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



DPE4



Vista Analytical Laboratory

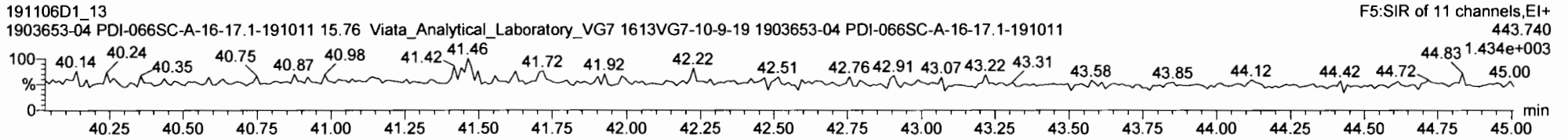
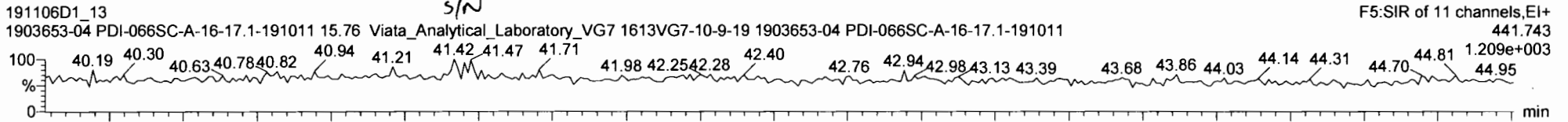
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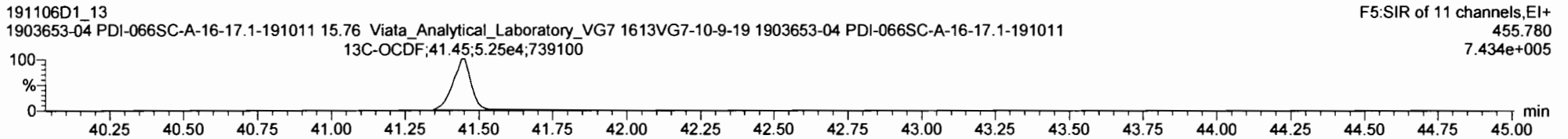
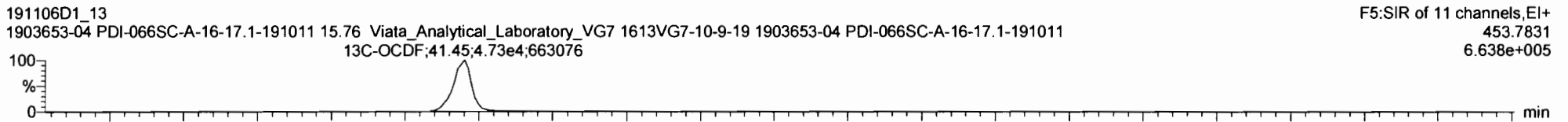
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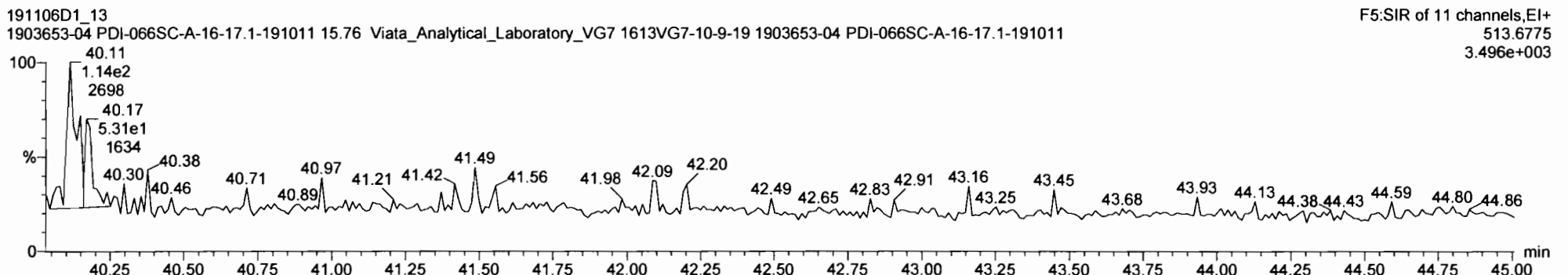
OCDF



13C-OCDF



DPE5



Vista Analytical Laboratory

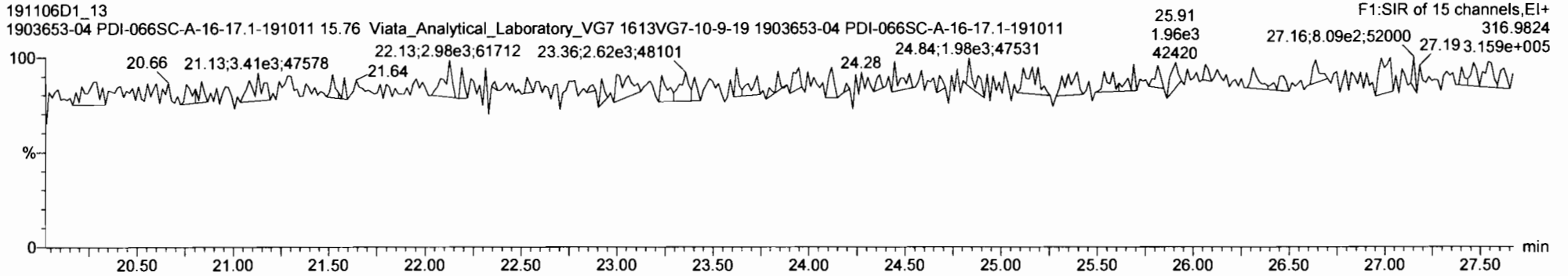
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Last Altered: Wednesday, November 27, 2019 13:29:33 Pacific Standard Time

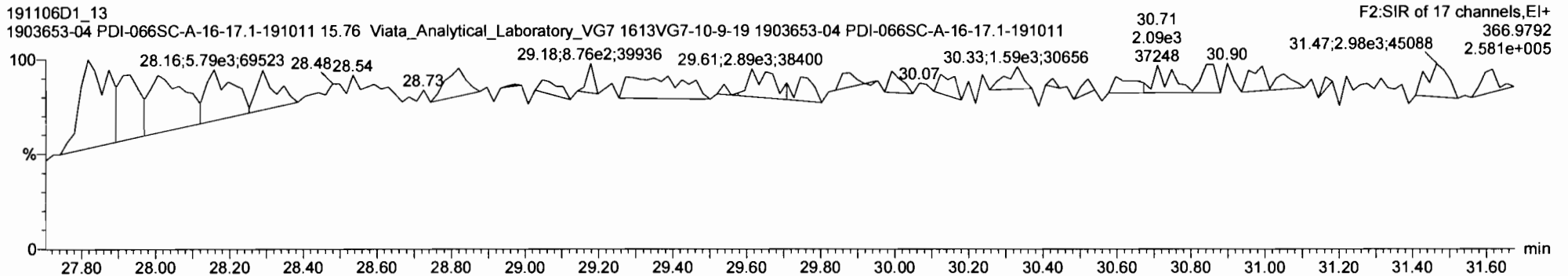
Printed: Wednesday, November 27, 2019 13:29:55 Pacific Standard Time

Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011, Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

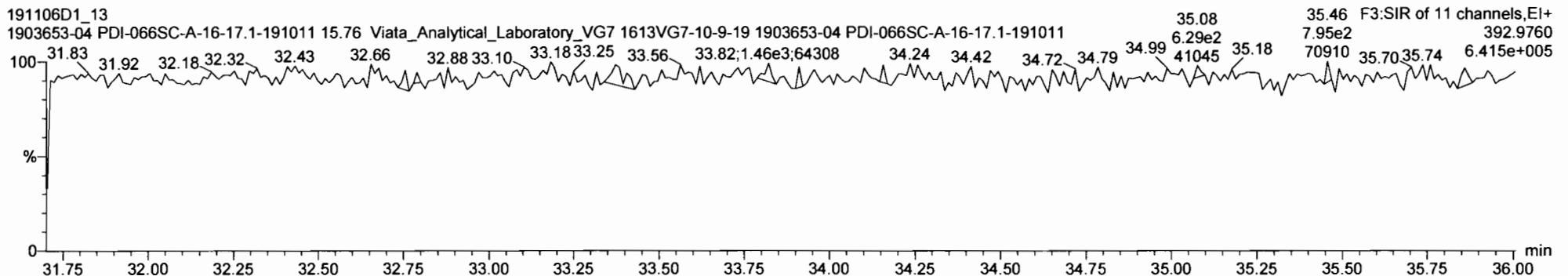
PFK1



PFK2



PFK3



Vista Analytical Laboratory

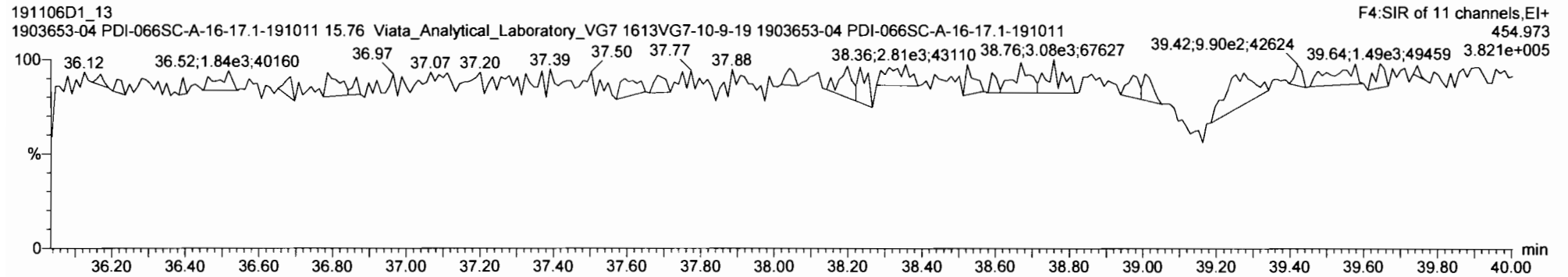
Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:29:33 Pacific Standard Time

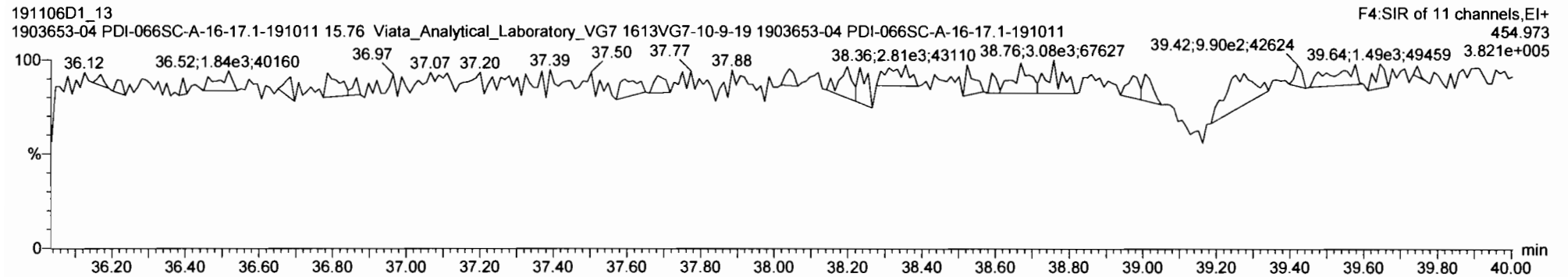
Printed: Wednesday, November 27, 2019 13:29:55 Pacific Standard Time

Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011,  
Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19

PFK4



PFK5



Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, November 27, 2019 13:29:33 Pacific Standard Time

Printed: Wednesday, November 27, 2019 13:29:55 Pacific Standard Time

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**Name: VG7 191106D1\_13, Date: 6-NOV-2019, Time: 21:15:43, ID: 1903653-04 PDI-066SC-A-16-17.1-191011,**

**Description: 1903653-04 PDI-066SC-A-16-17.1-191011 15.76 Viata\_Analytical\_Laboratory\_VG7 1613VG7-10-9-19**

**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>	<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	<input type="checkbox"/> N
- Bottle position verified?	<u>DB</u>	

**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 C7  
Analyst: C7  
Date: 11/04/19

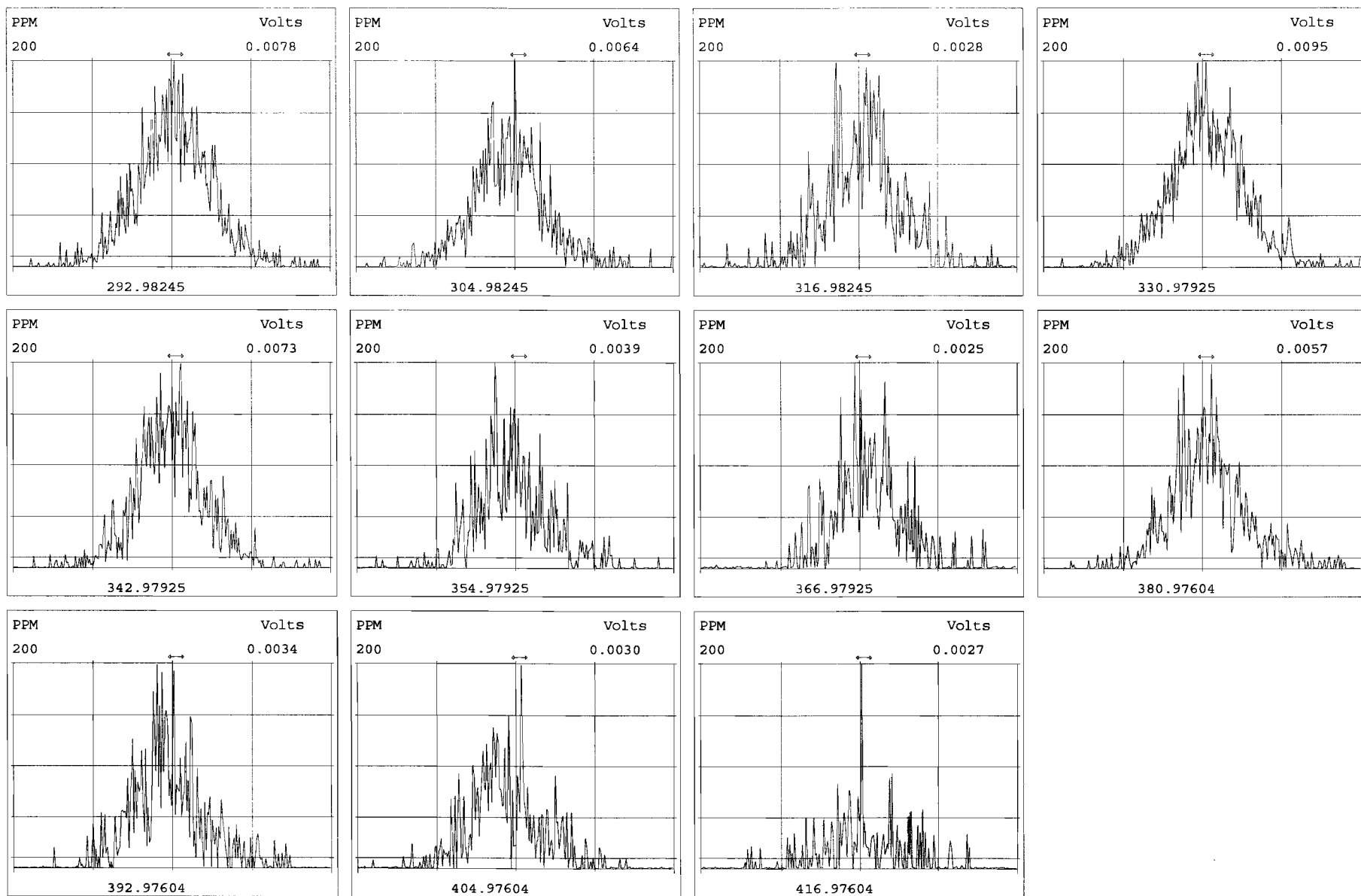
Vista Analytical Laboratory - Injection Log Run file: 191101D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

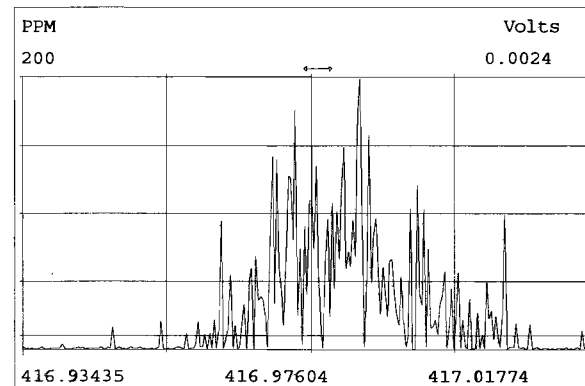
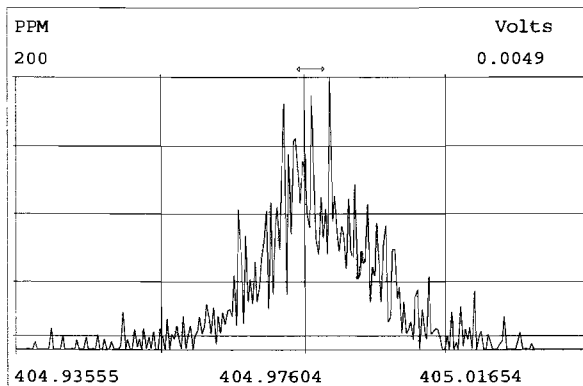
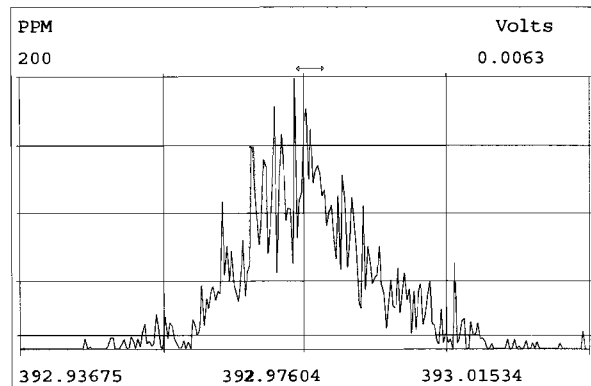
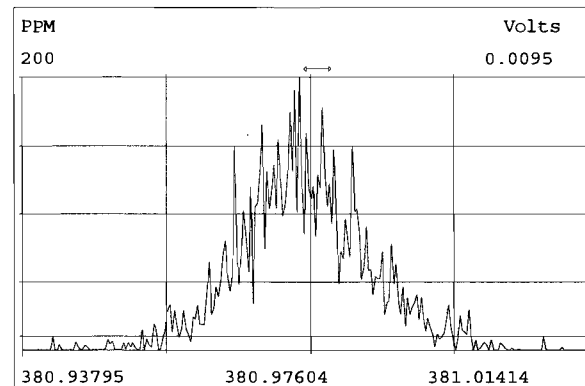
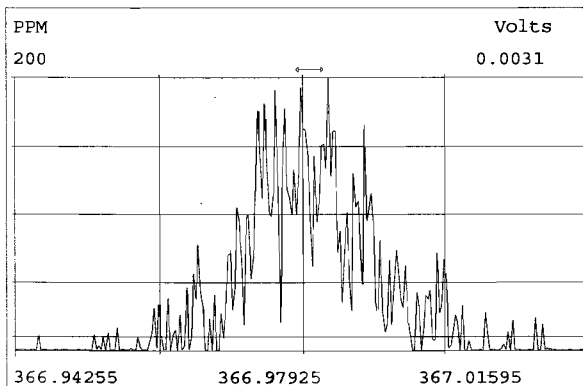
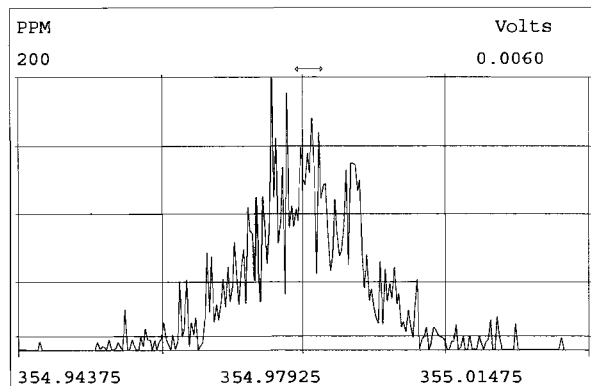
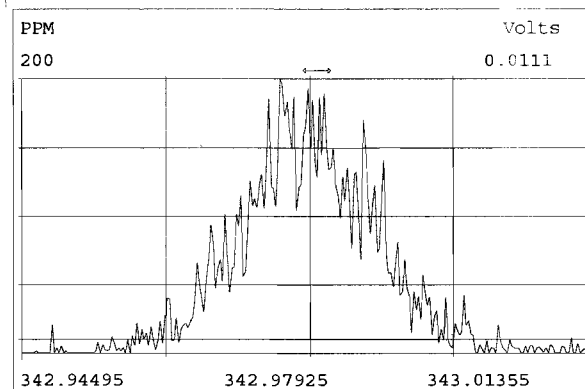
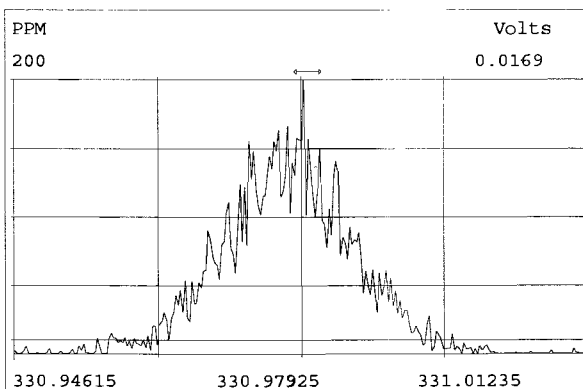
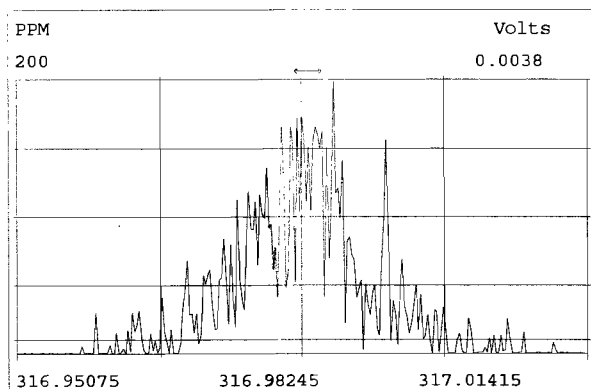
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191101D1	2	ST191101D1-2	DB	1-NOV-19	14:47:02	ST191101D1-2	ST191101D1-3
191101D1	3	B9J0312-BS1	DB	1-NOV-19	15:34:58	ST191101D1-1	NA
191101D1	4	SOLVENT BLANK	DB	1-NOV-19	16:22:53	NA	NA
191101D1	5	B9J0312-BLK1	DB	1-NOV-19	17:10:44	ST191101D1-1	NA
191101D1	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
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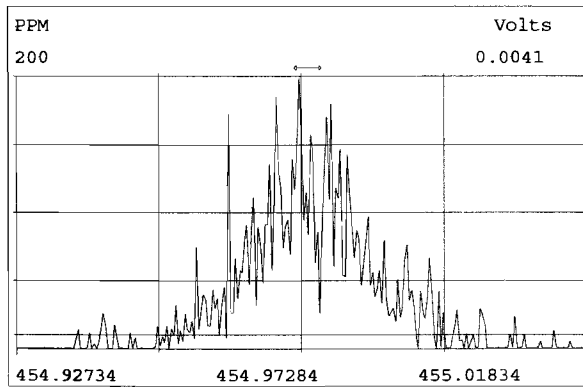
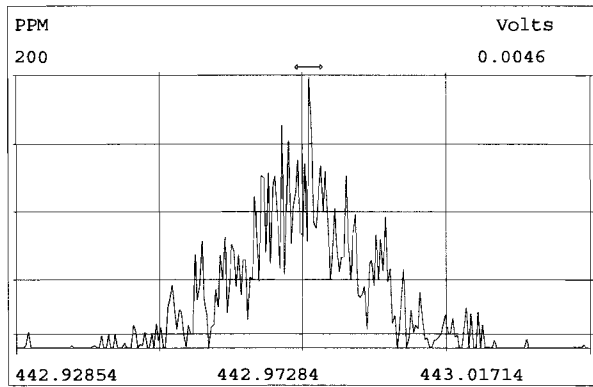
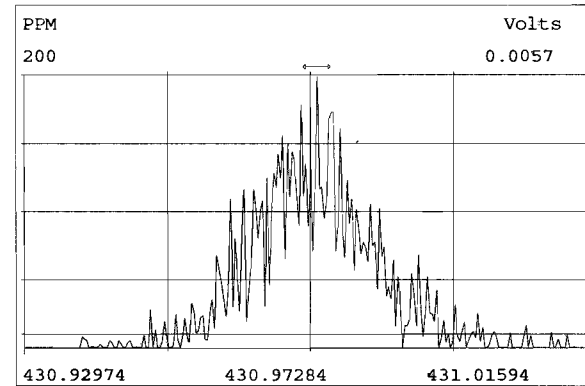
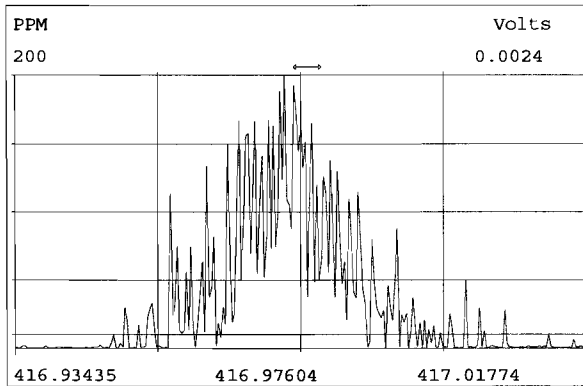
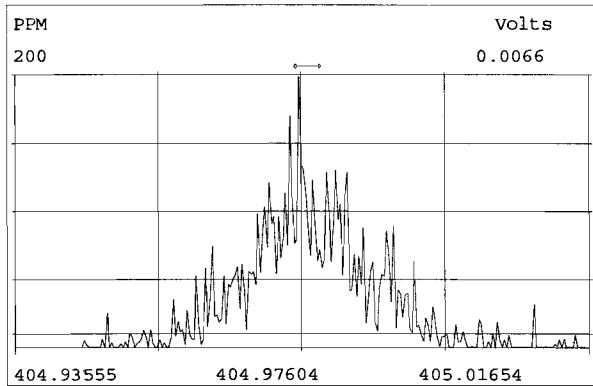
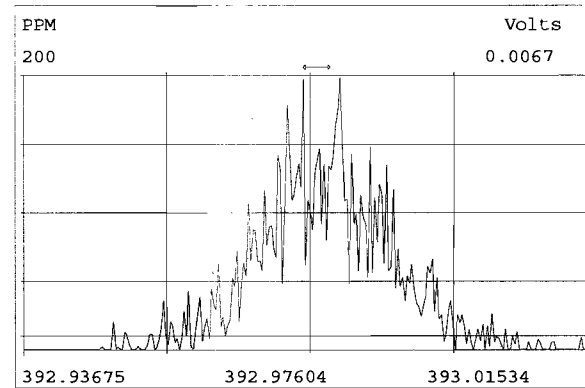
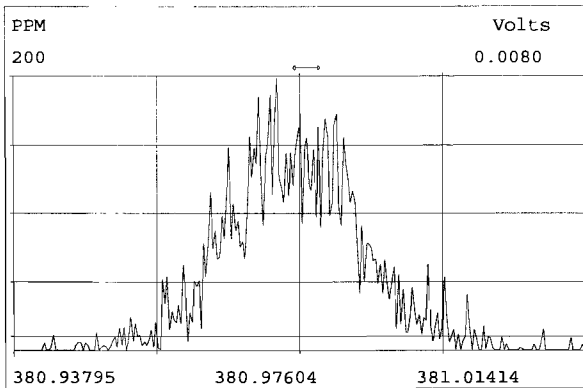
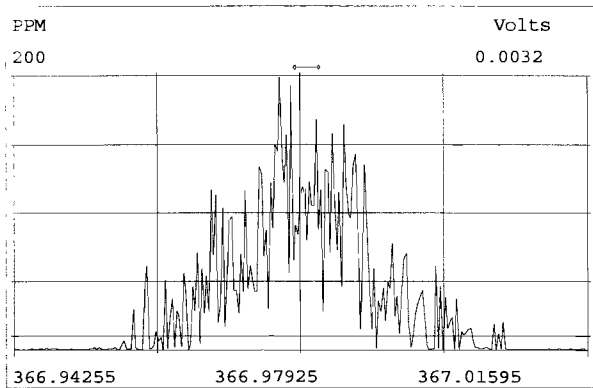


Peak Locate Examination: 1-NOV-2019:13:54 File:191101D1

Experiment:OCDD\_DB5 Function:1 Reference:PFK

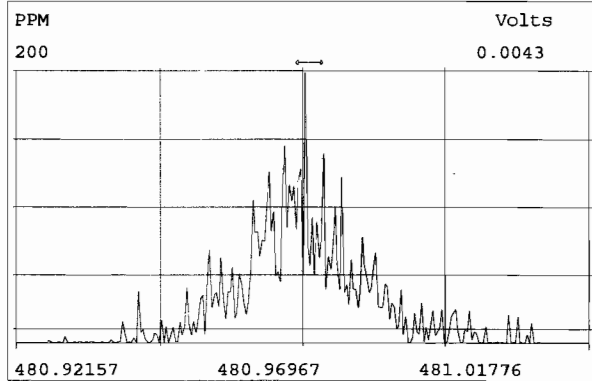
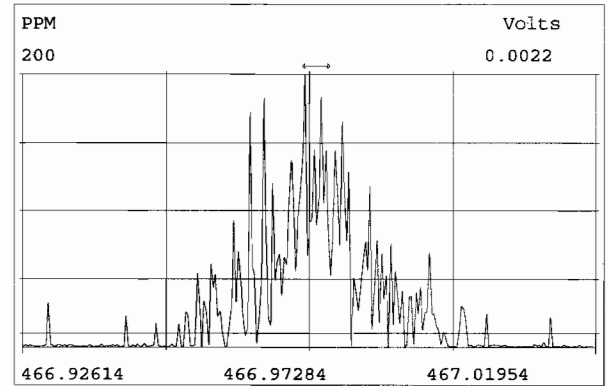
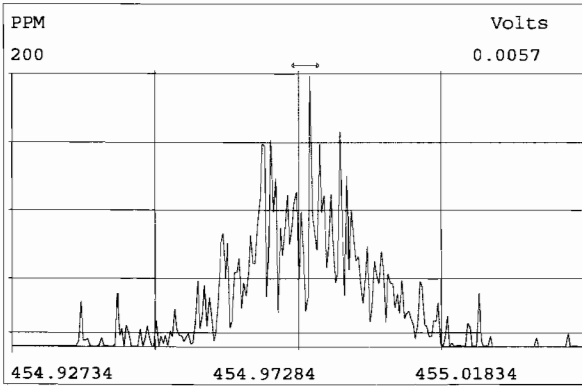
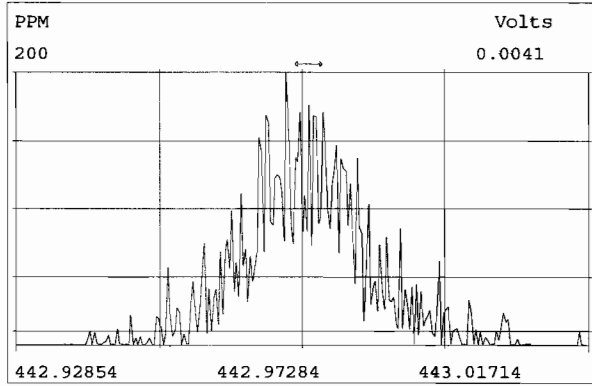
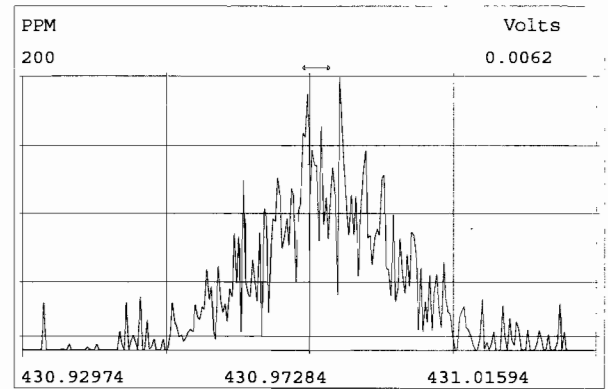
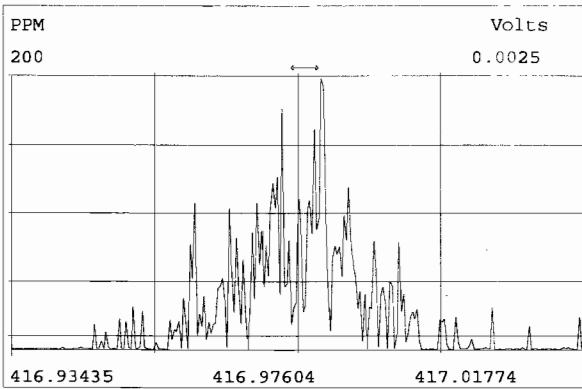
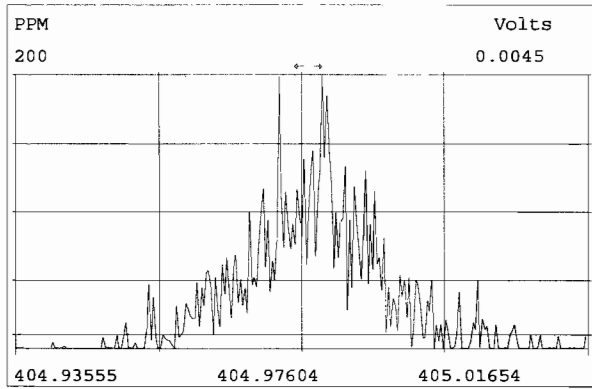






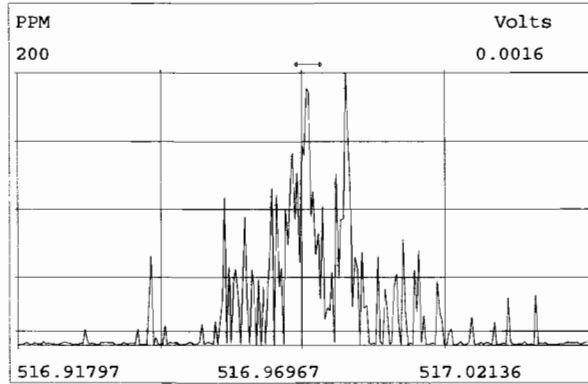
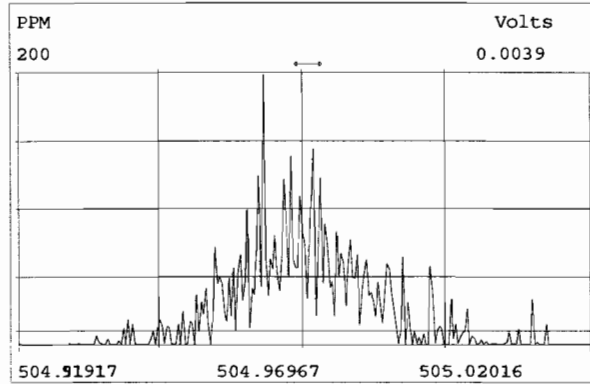
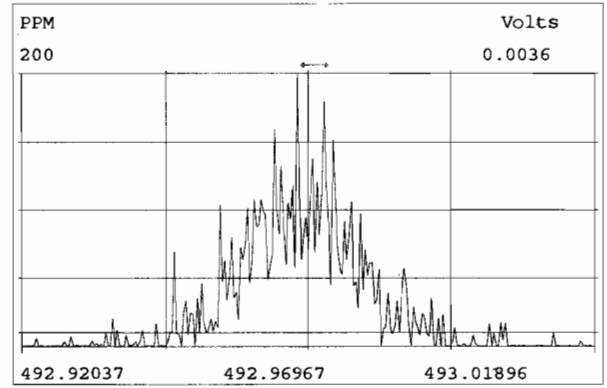
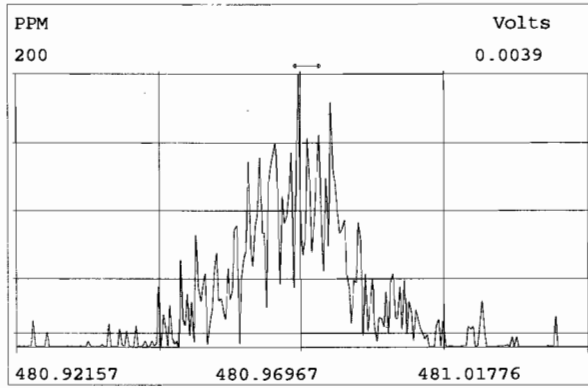
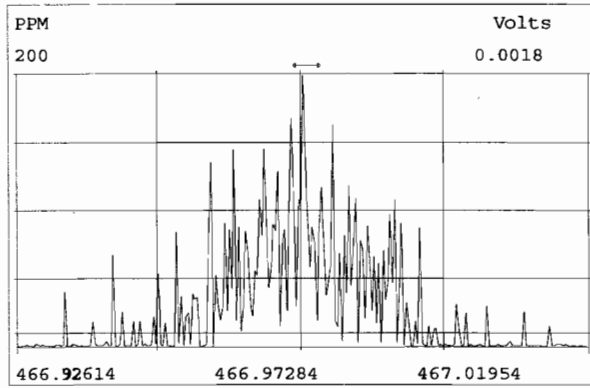
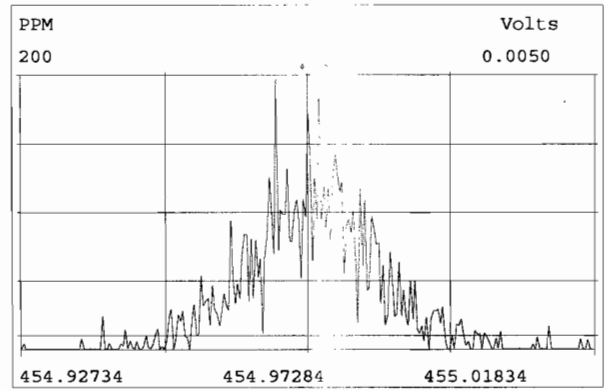
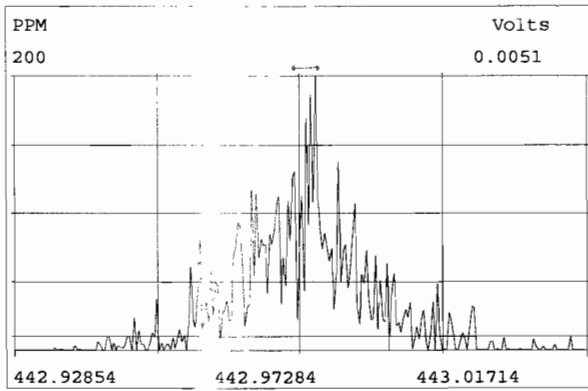
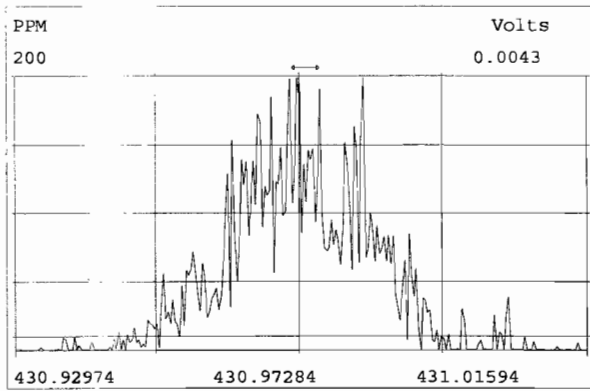
Peak Locate Examination: 1-NOV-2019:13:57 File:191101D1

Experiment:OCDD\_DB5 Function:4 Reference:PFK

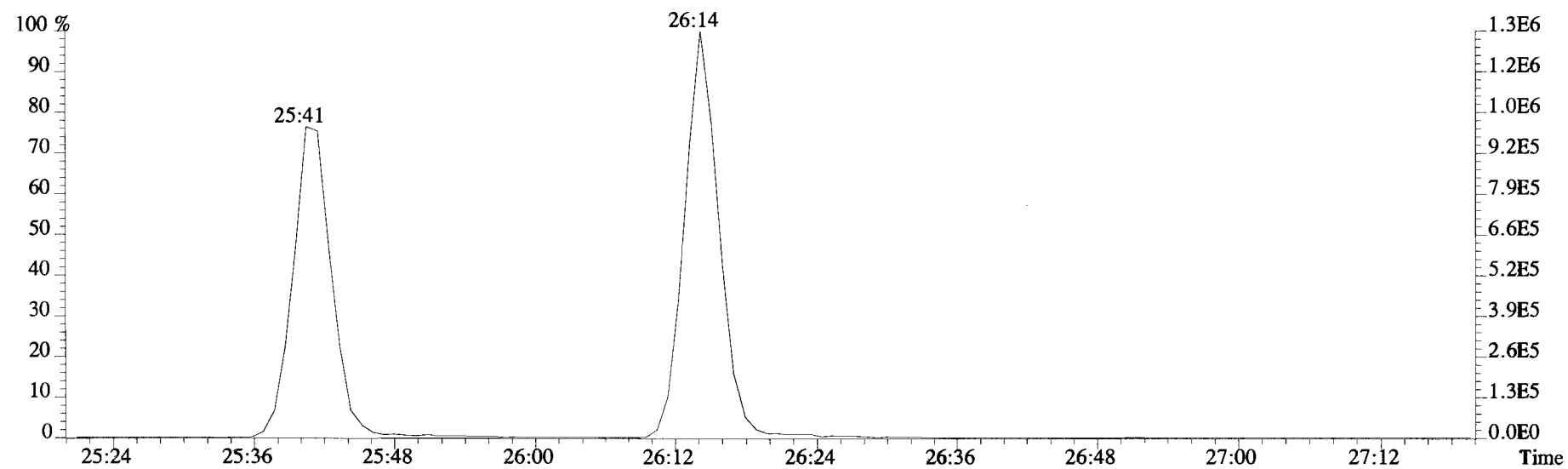
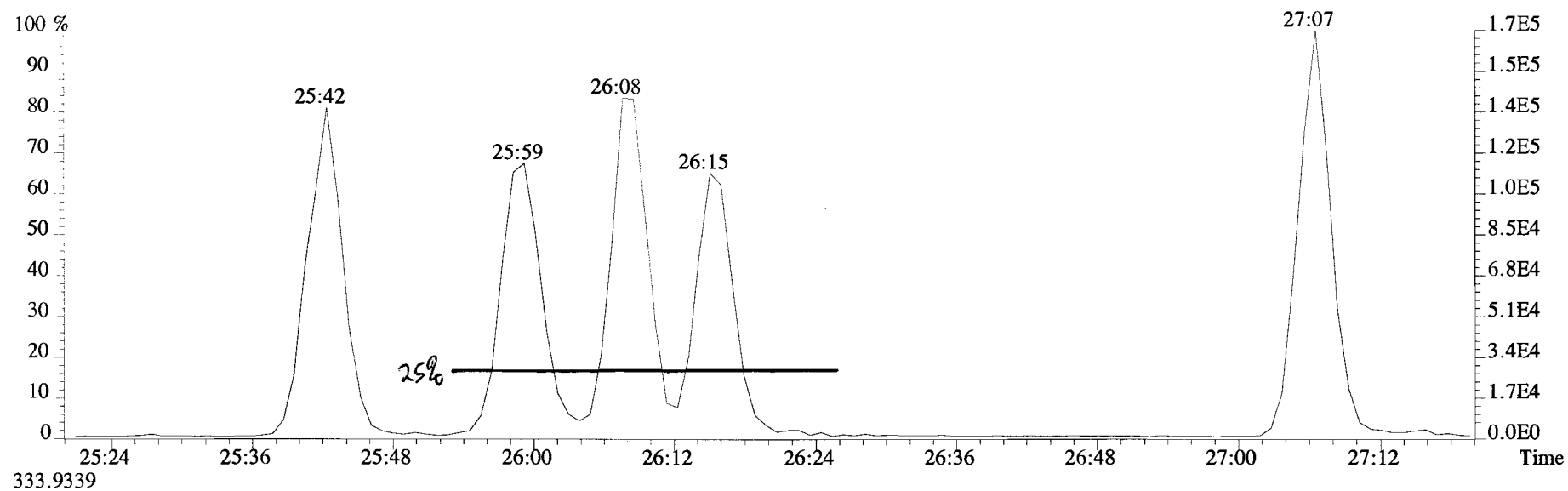


Peak Locate Examination: 1-NOV-2019:13:58 File:191101D1

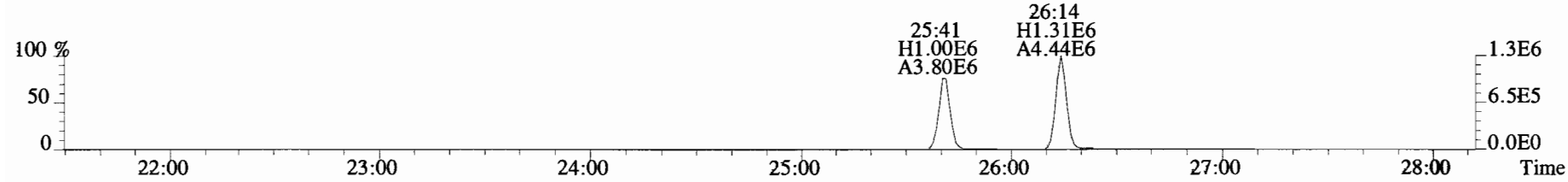
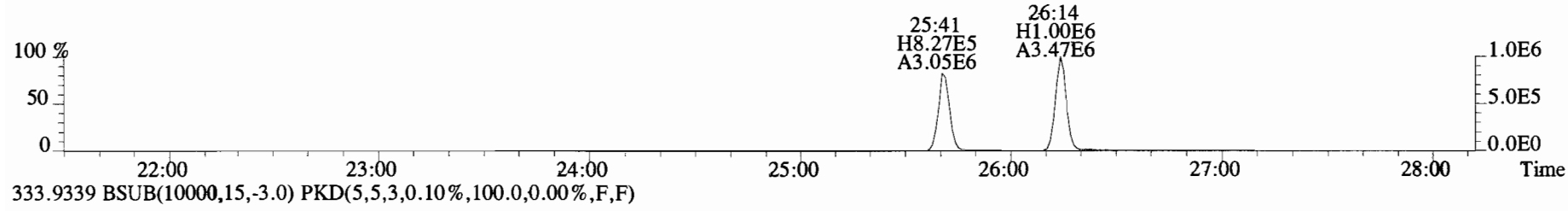
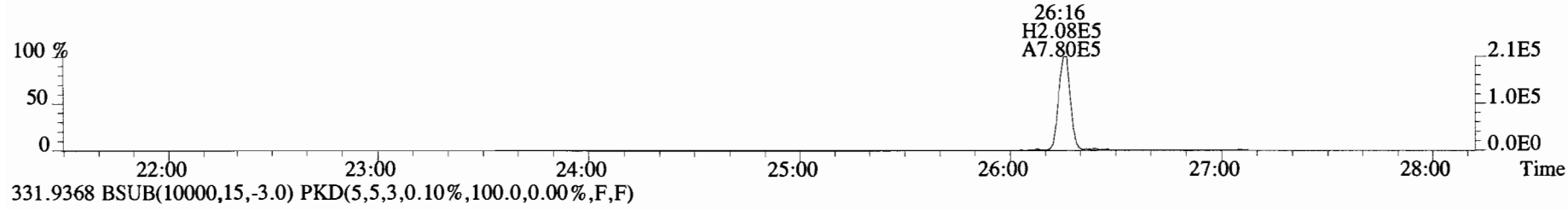
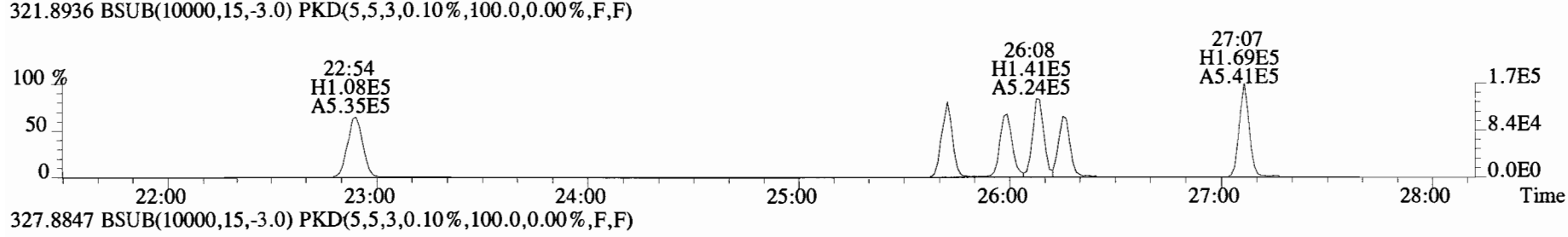
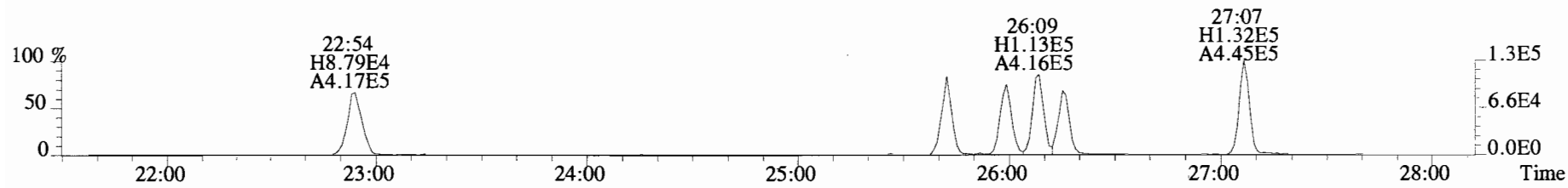
Experiment:OCDD\_DB5 Function:5 Reference:PFK



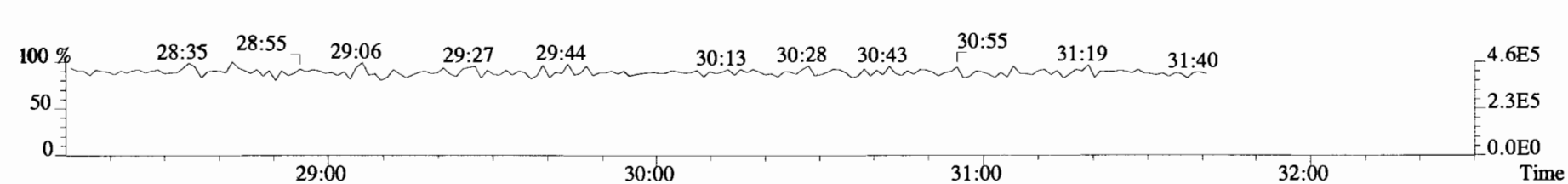
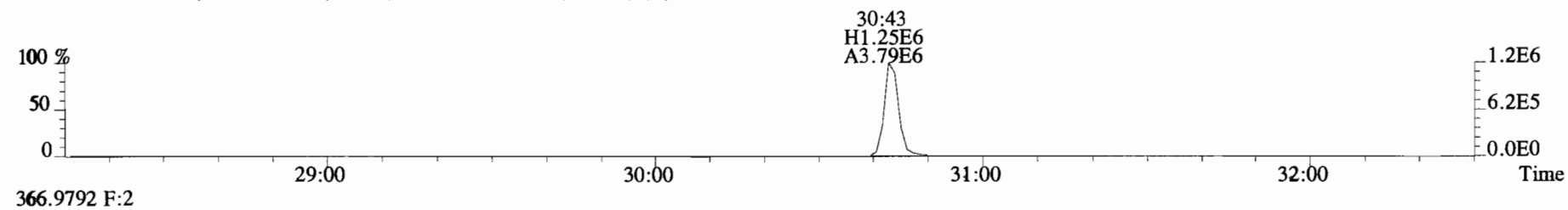
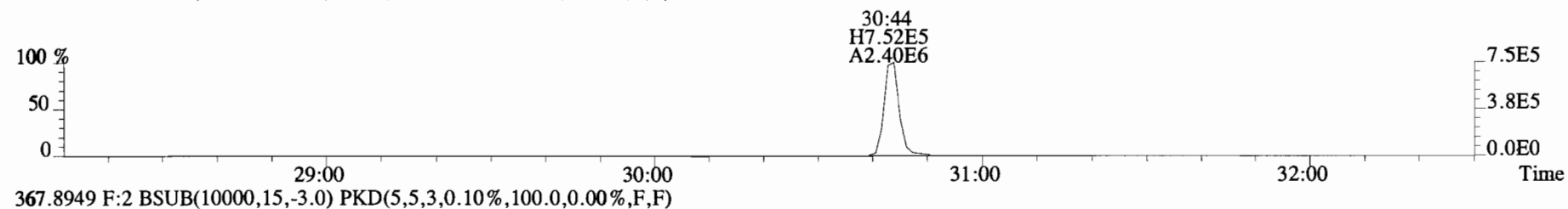
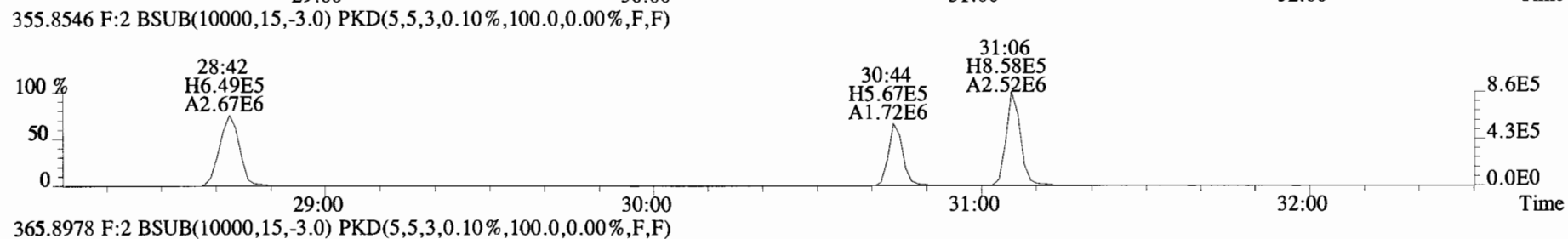
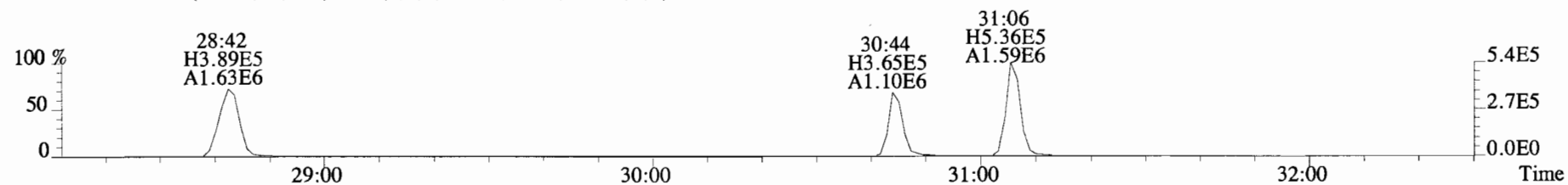
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936



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  
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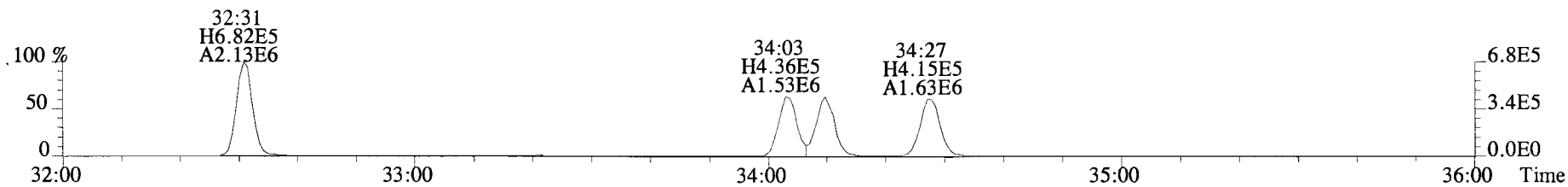


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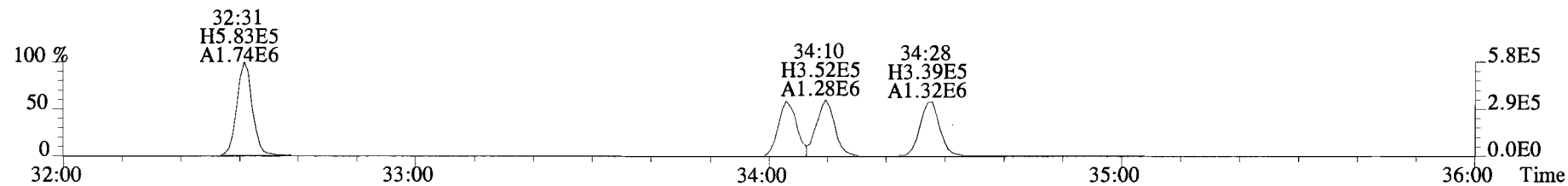




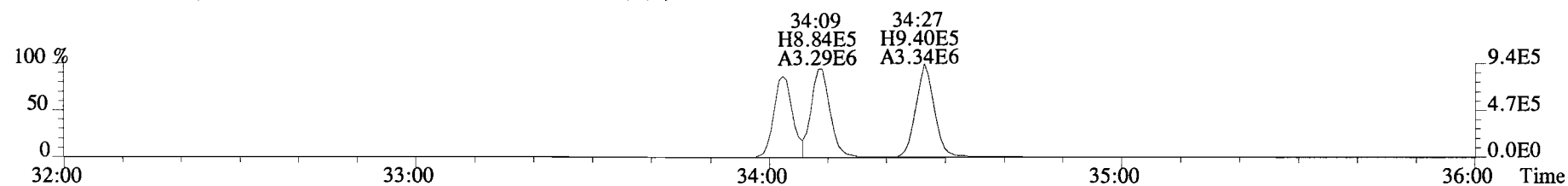
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389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



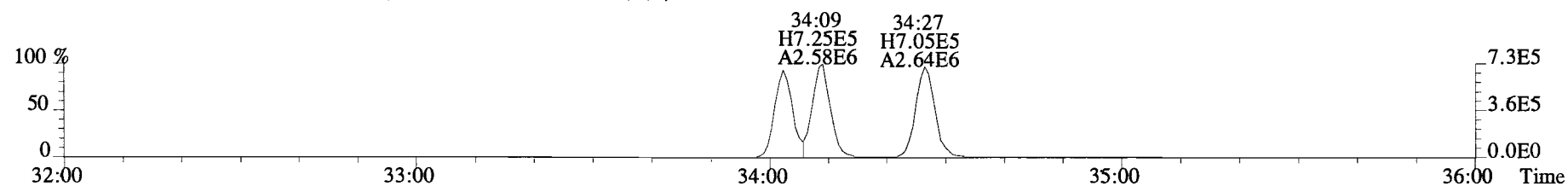
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



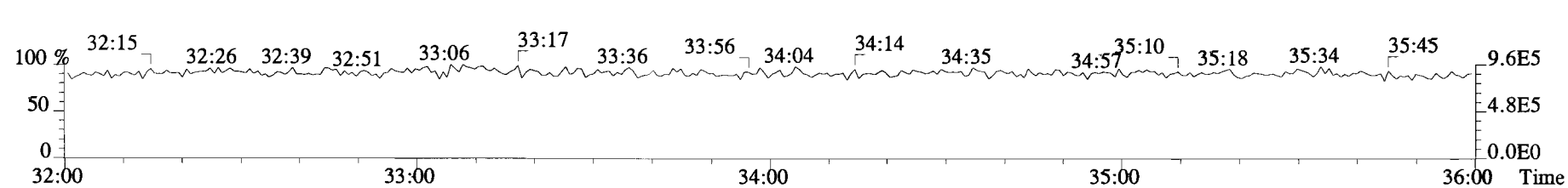
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



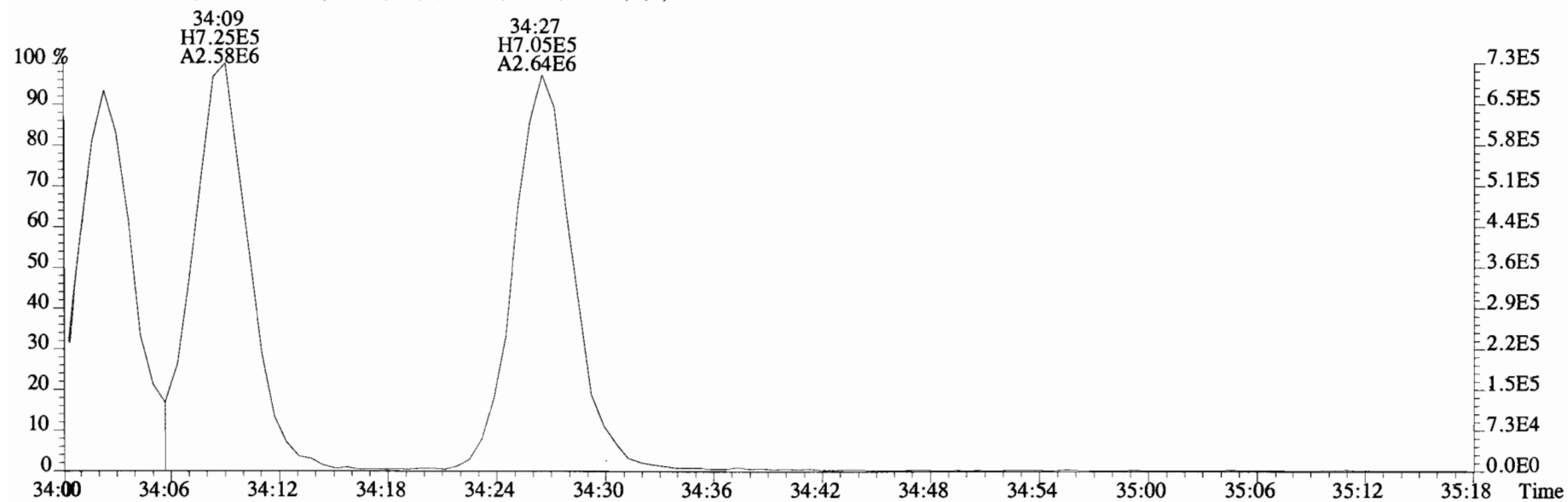
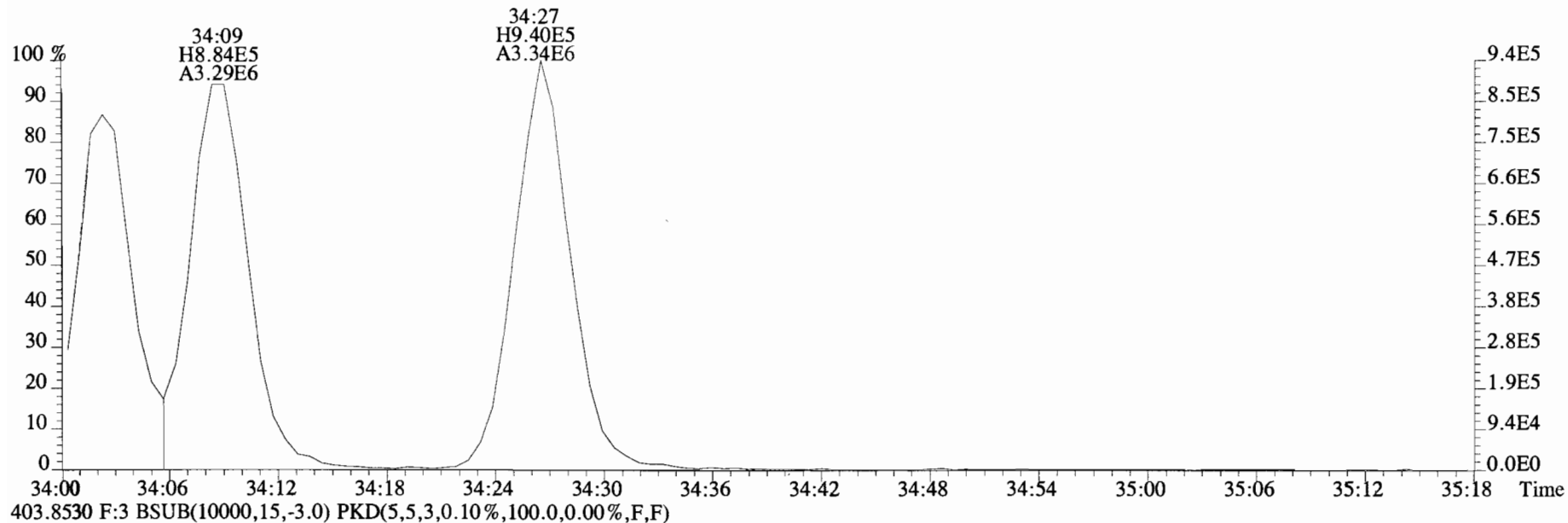
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



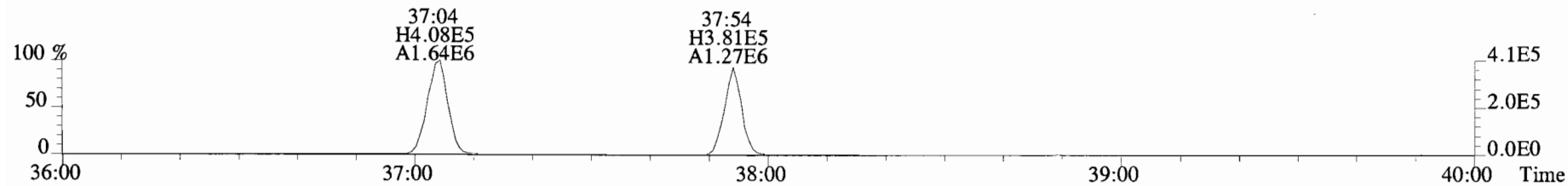
392.9760 F:3



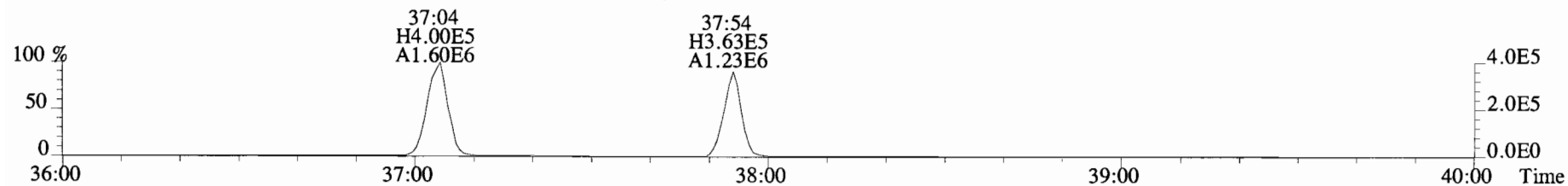
File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
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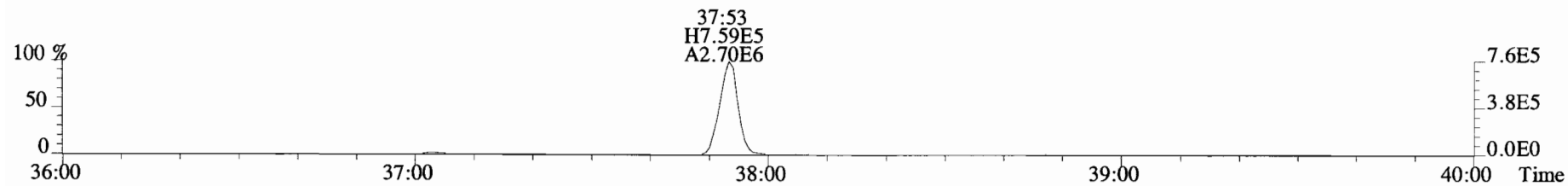
File:191101D1 #1-356 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



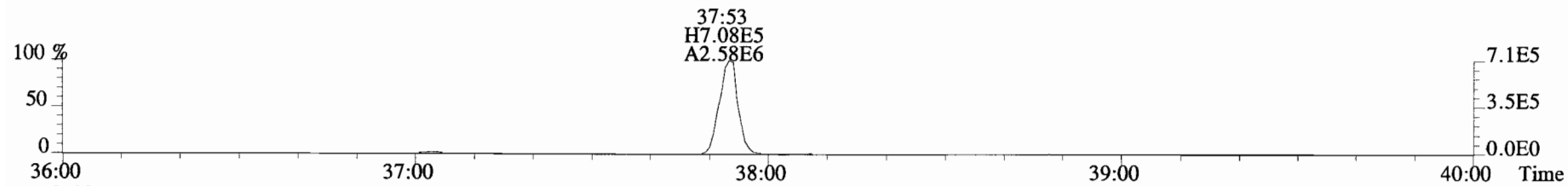
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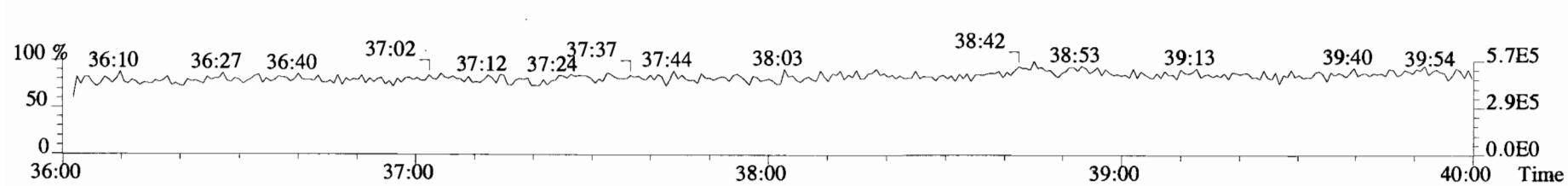
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



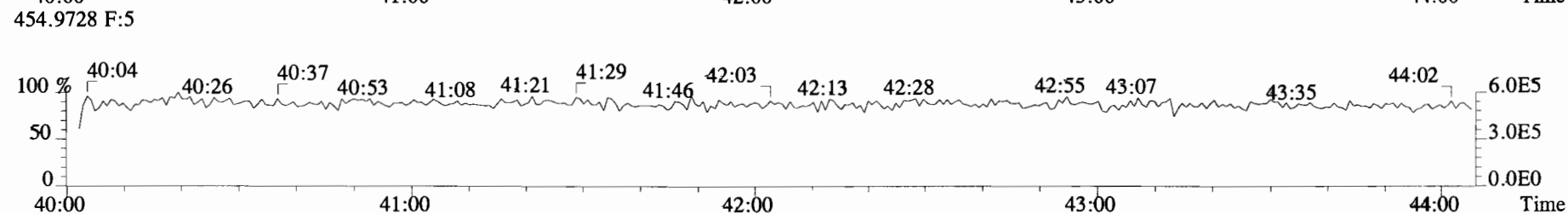
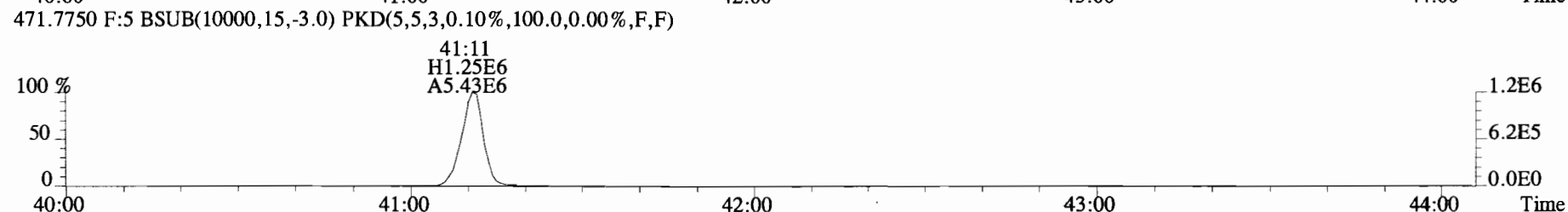
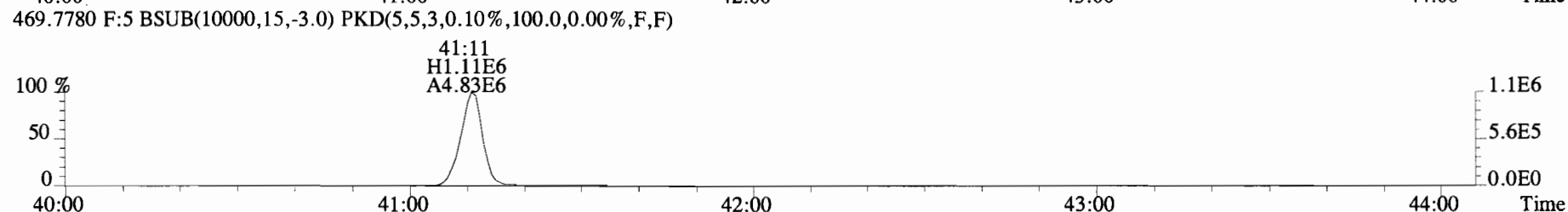
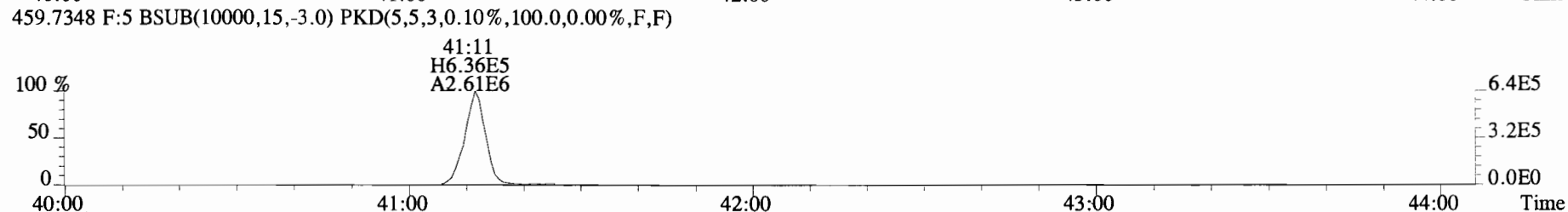
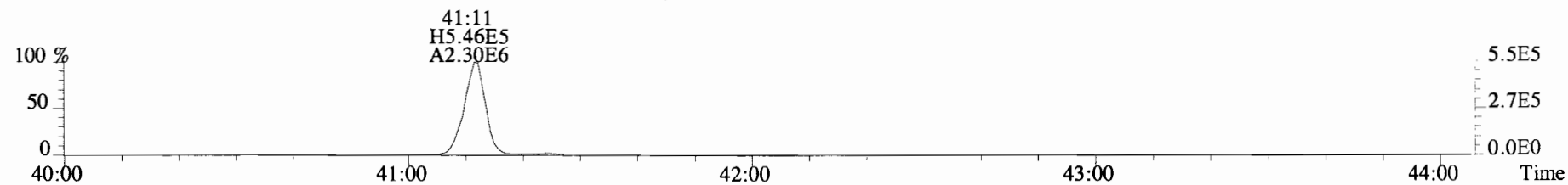
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



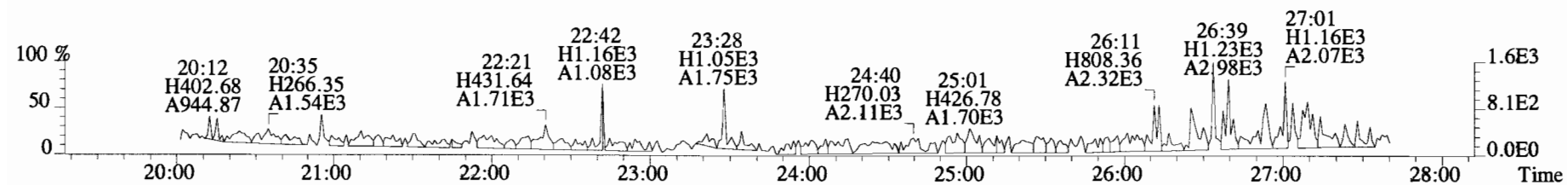
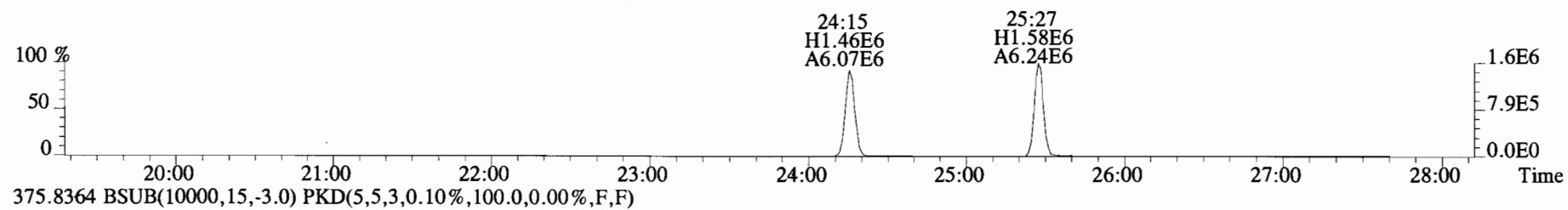
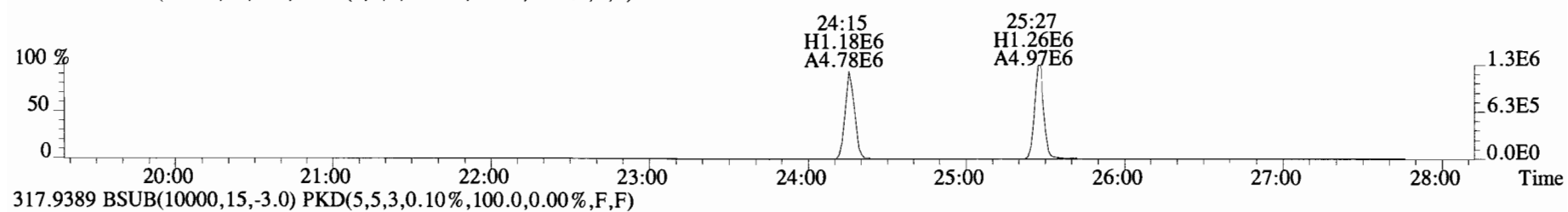
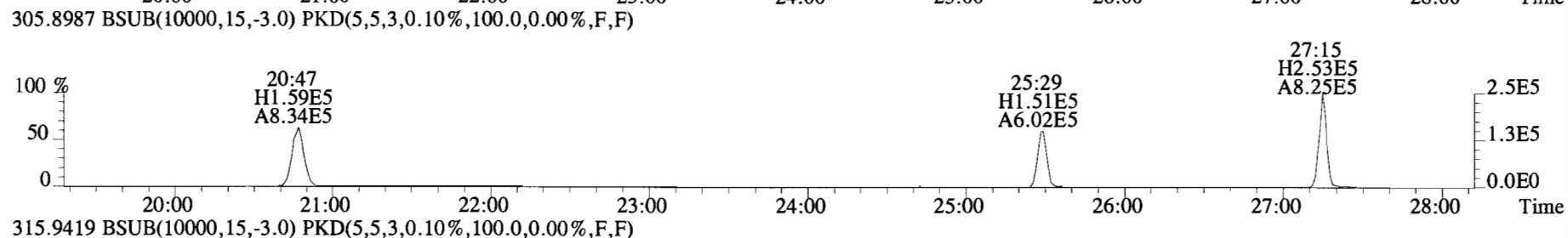
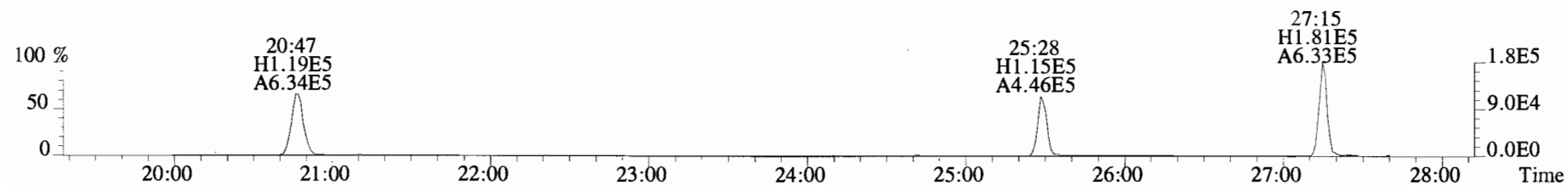
454.9728 F:4



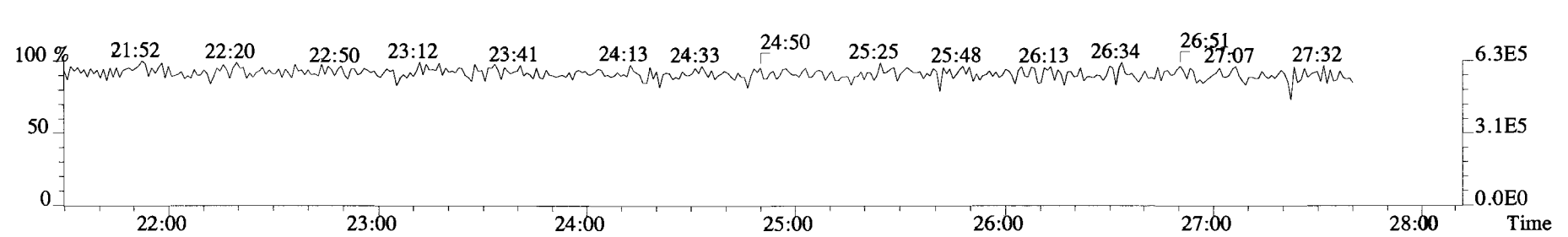
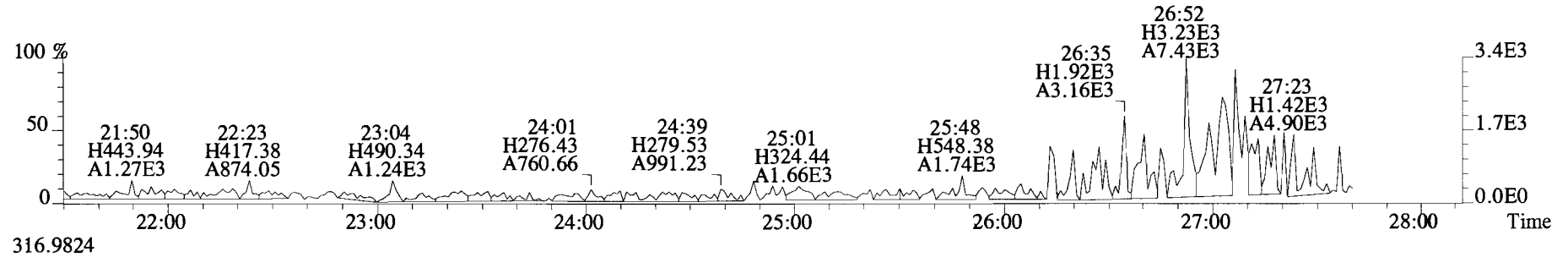
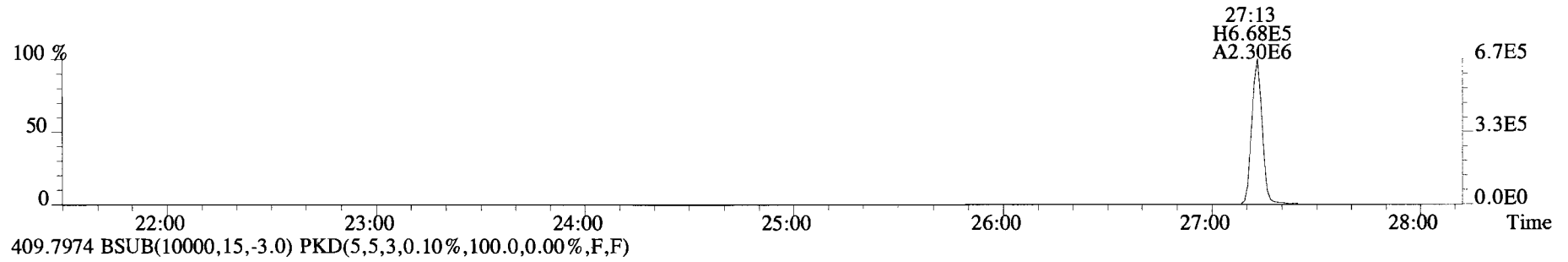
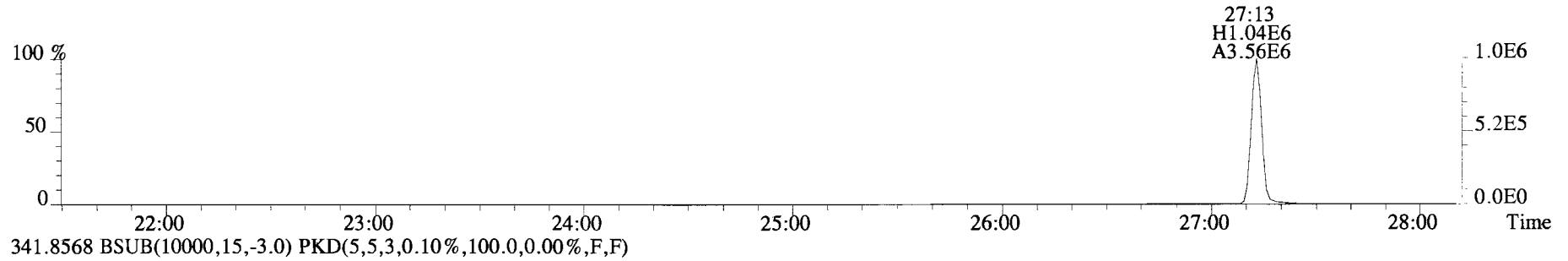
File:191101D1 #1-431 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



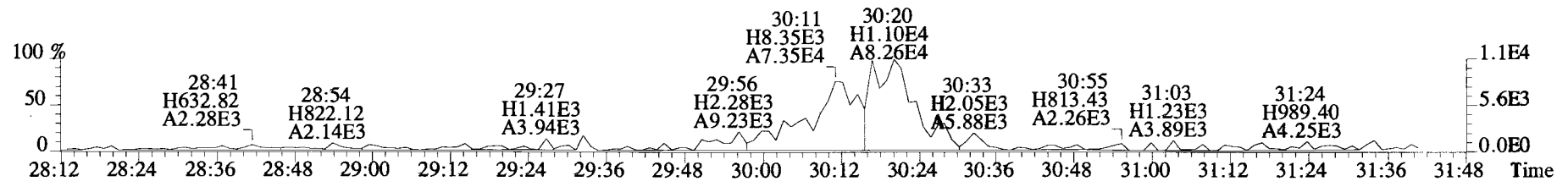
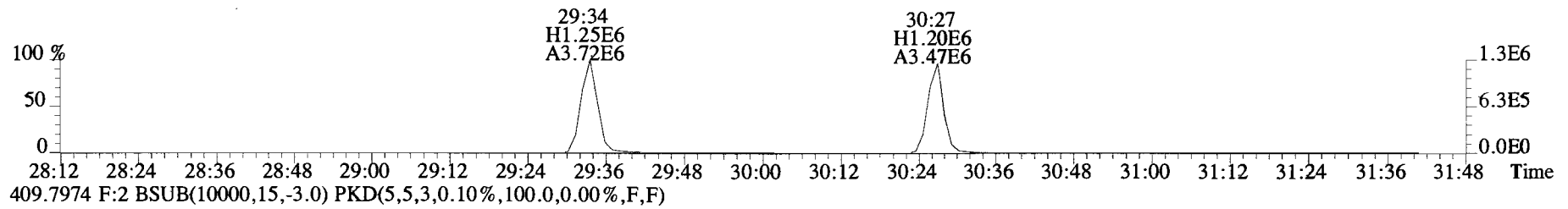
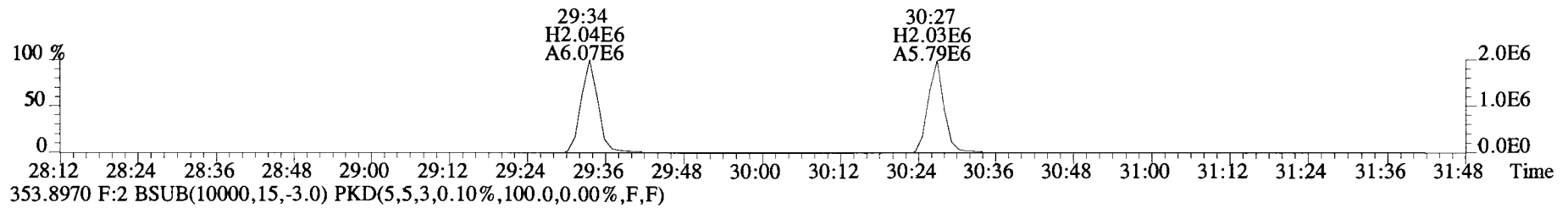
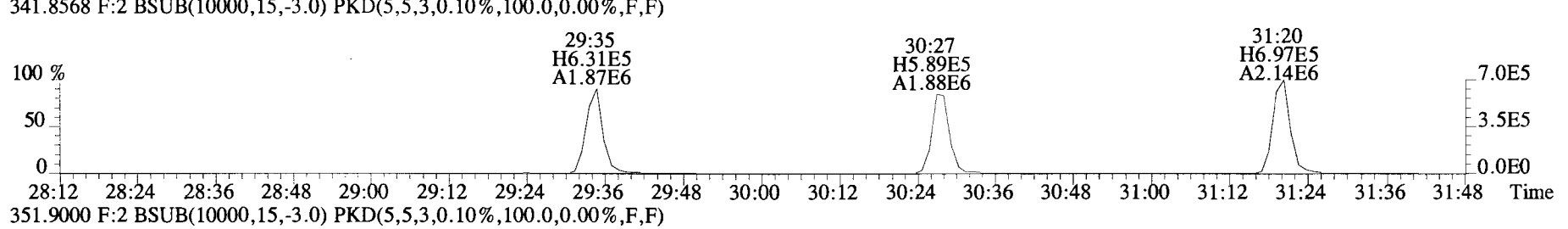
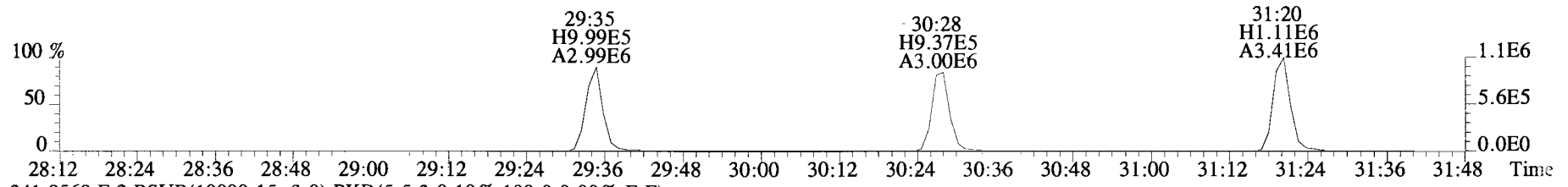
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



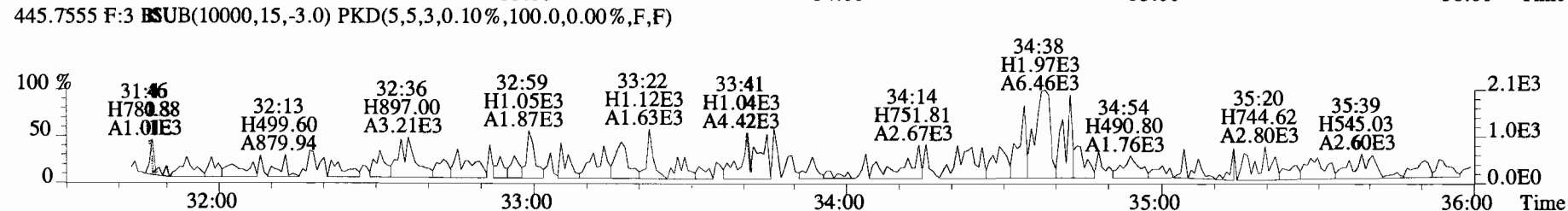
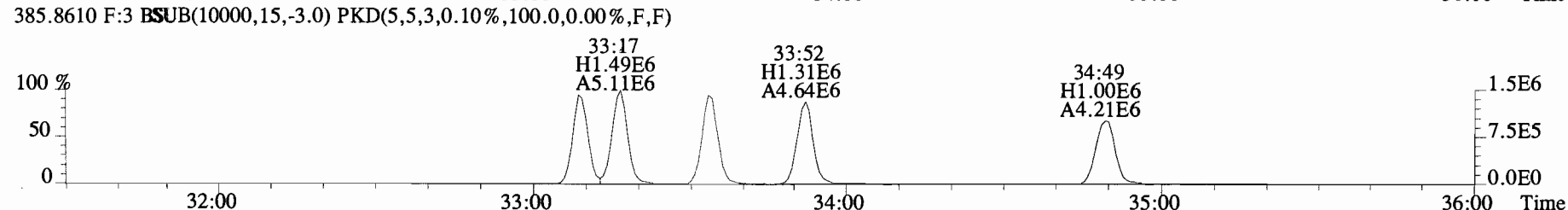
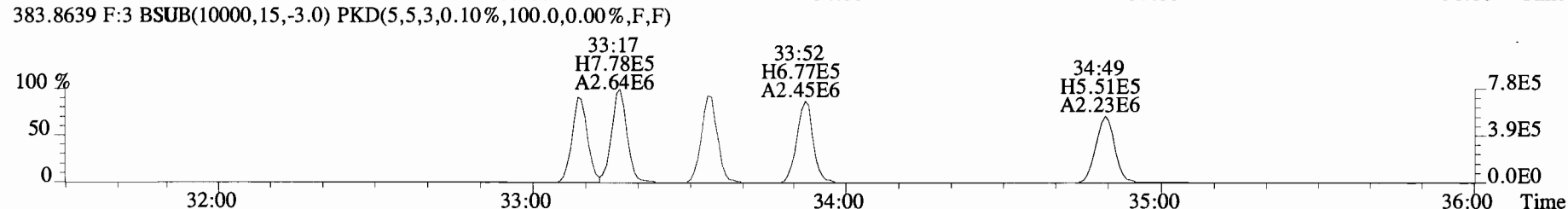
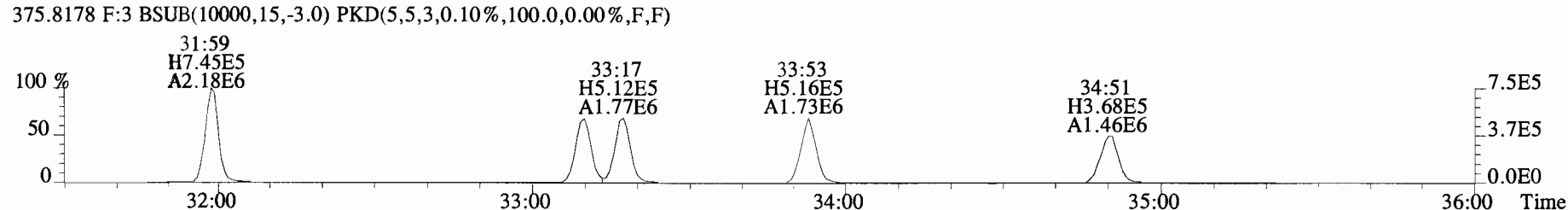
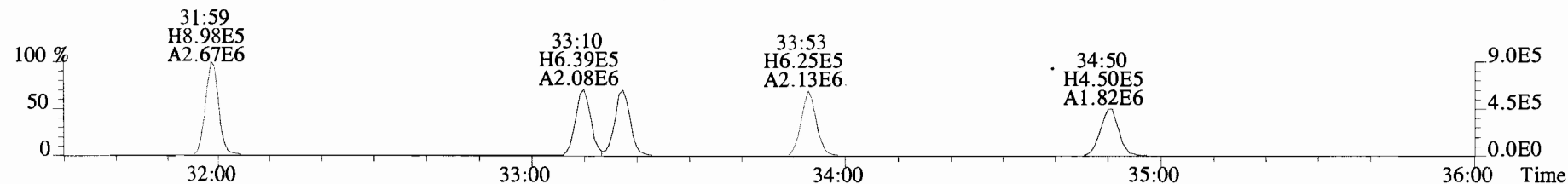
File:191101D1 #1-492 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

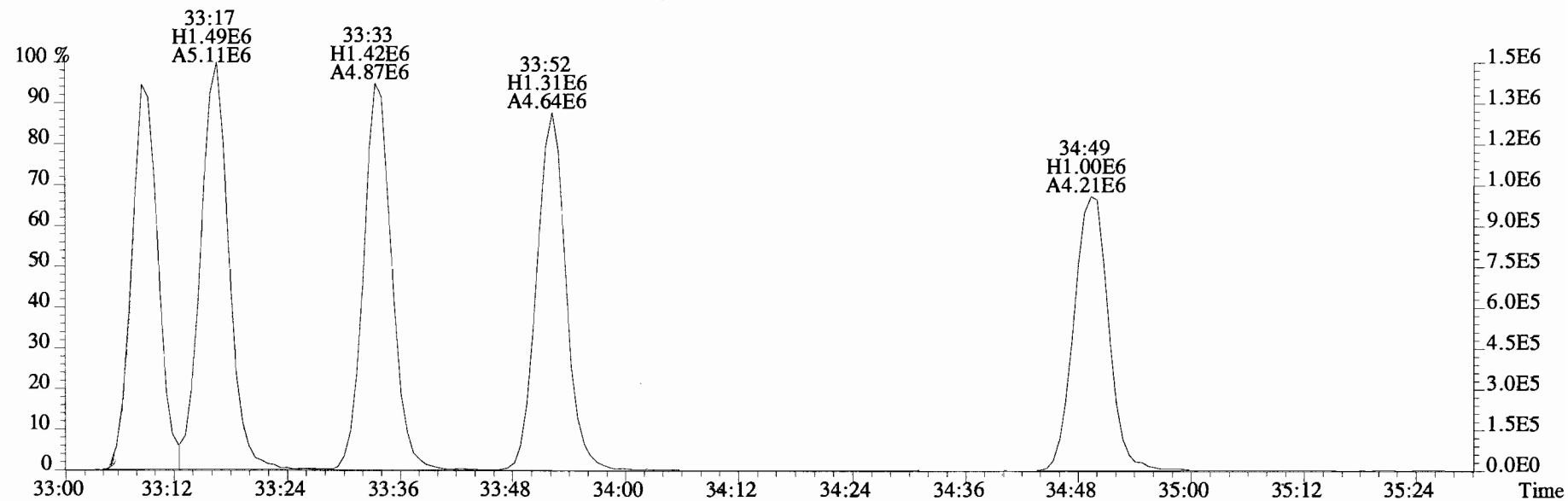
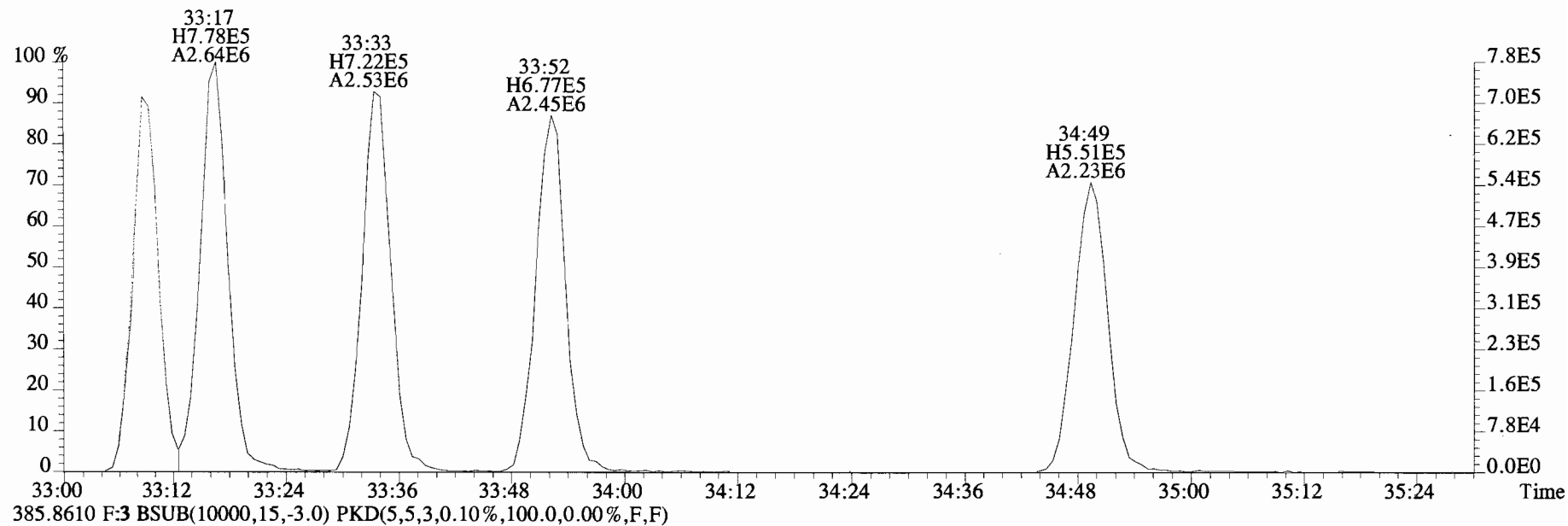


File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

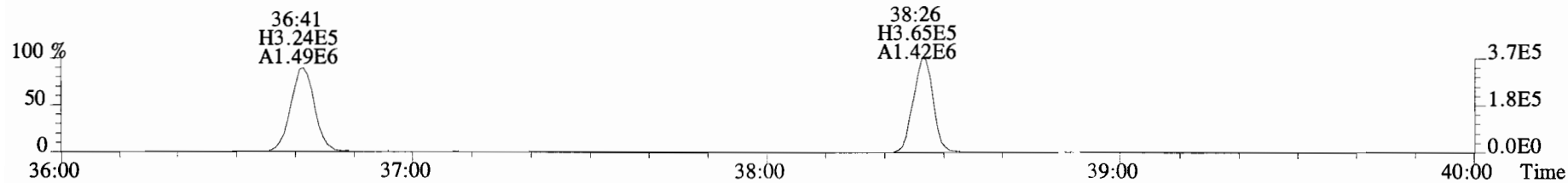




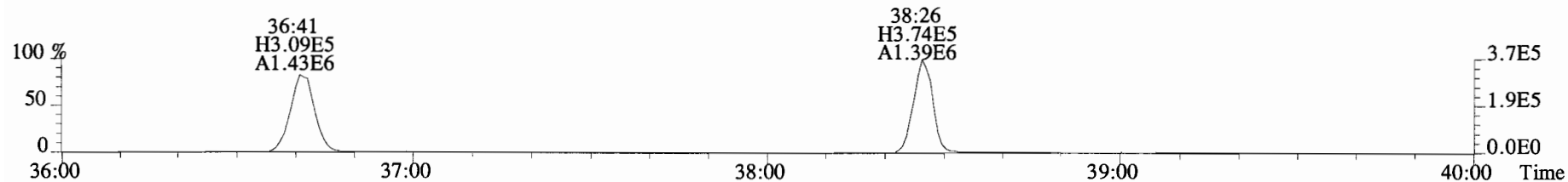
File:191101D1 #1-384 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



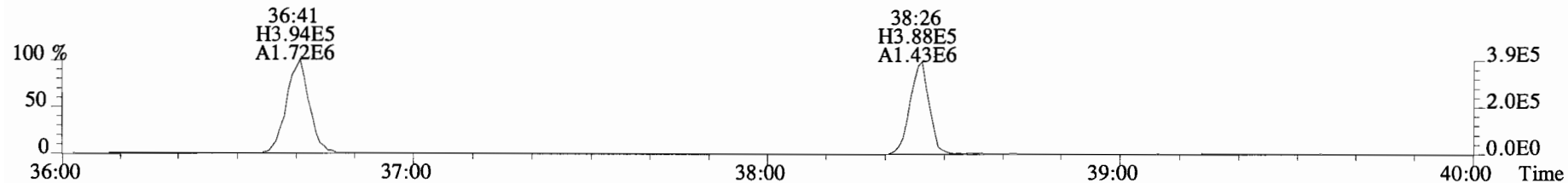
File:191101D1 #1-356 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



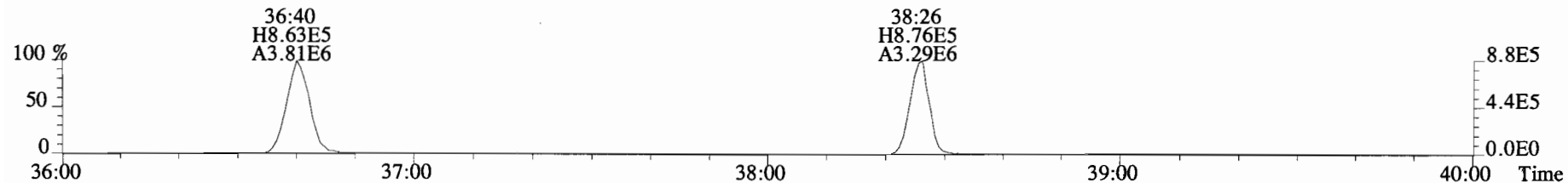
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



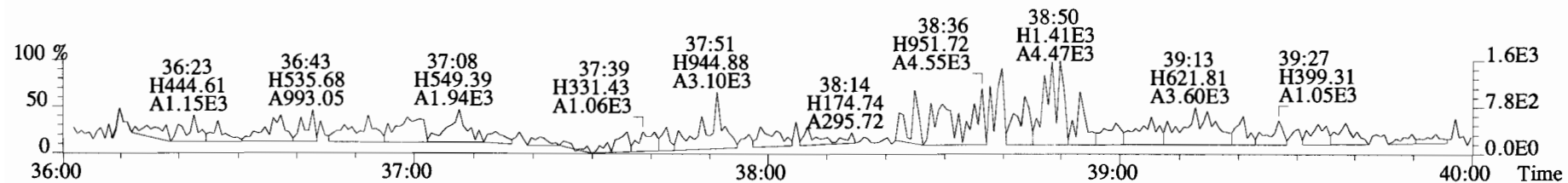
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



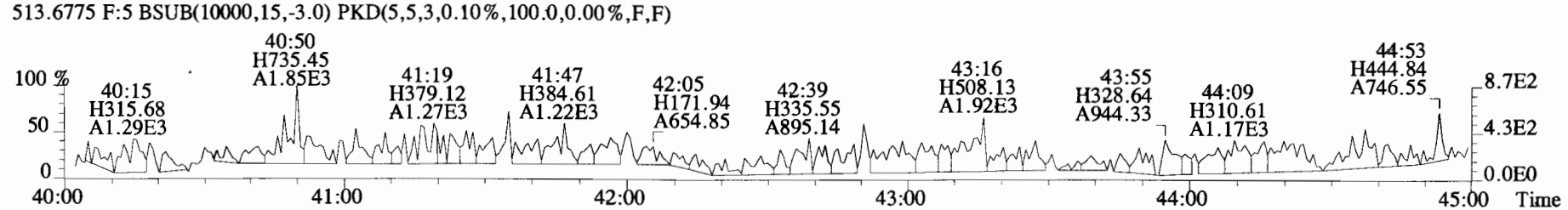
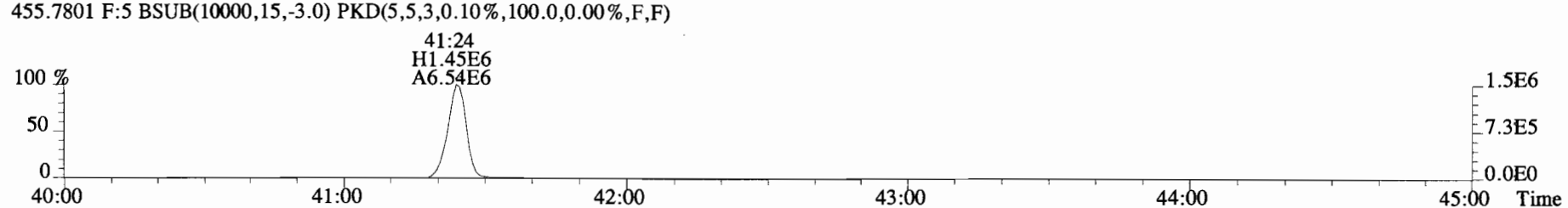
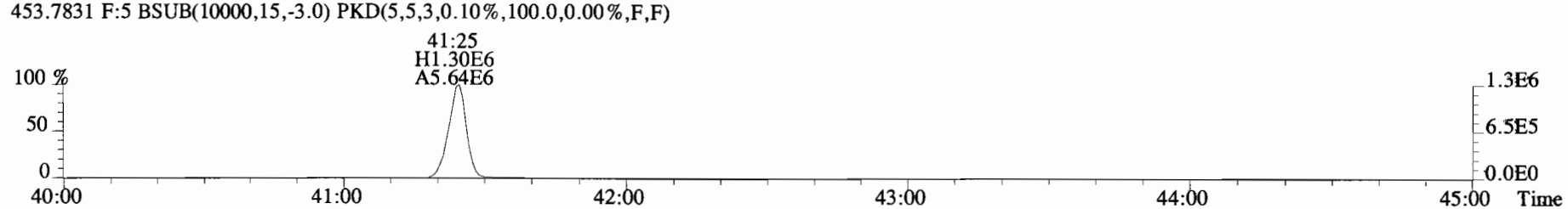
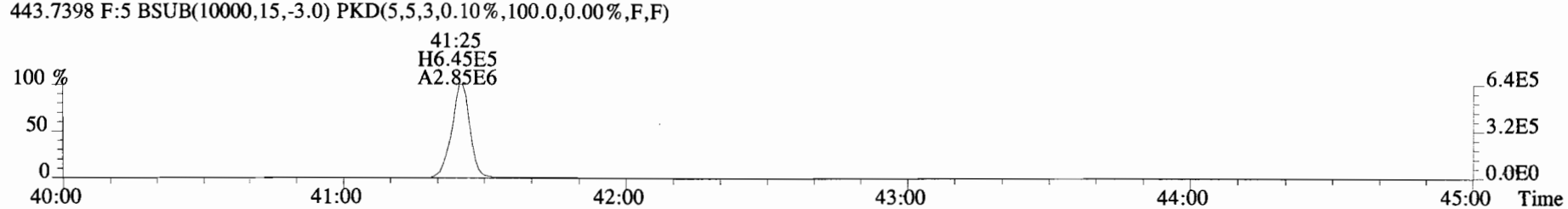
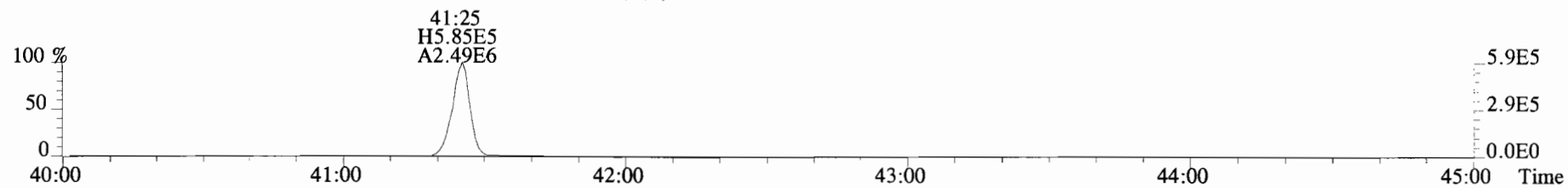
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

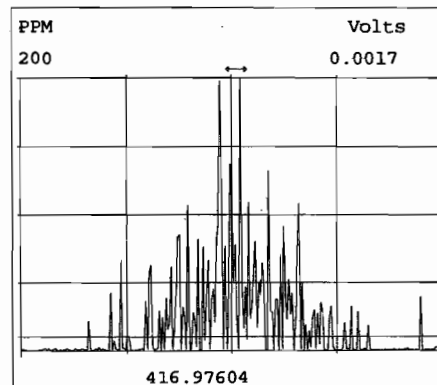
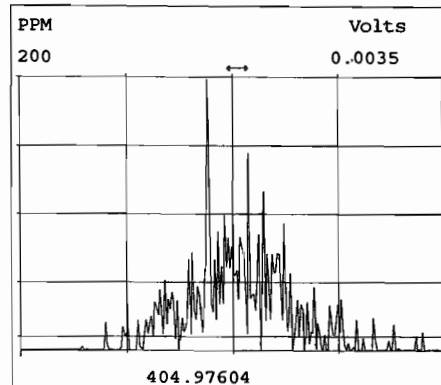
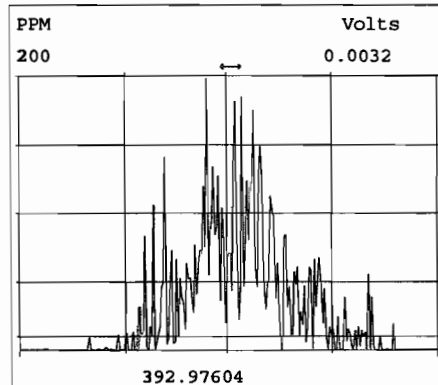
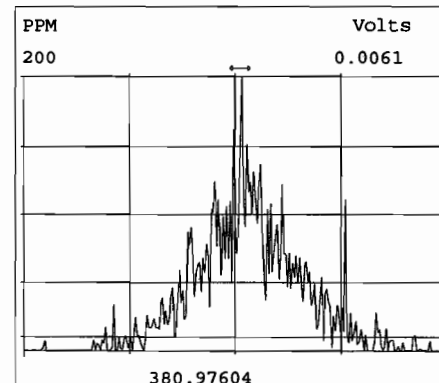
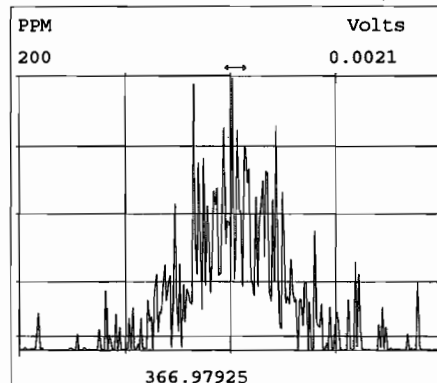
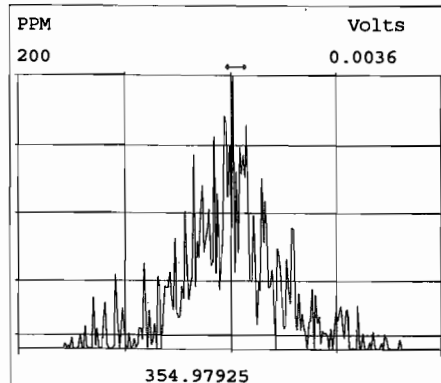
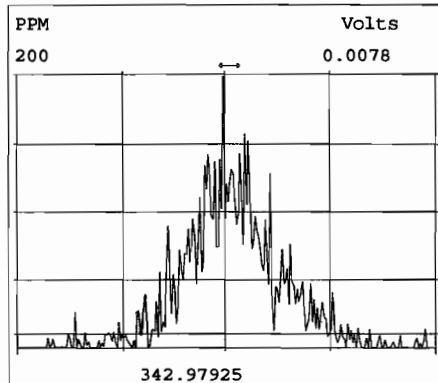
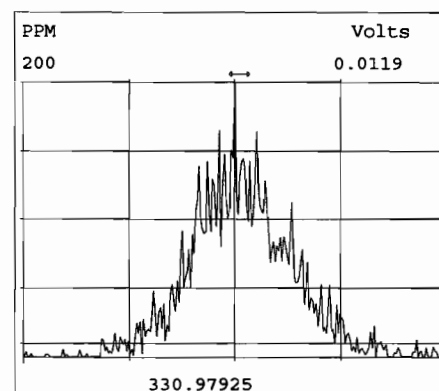
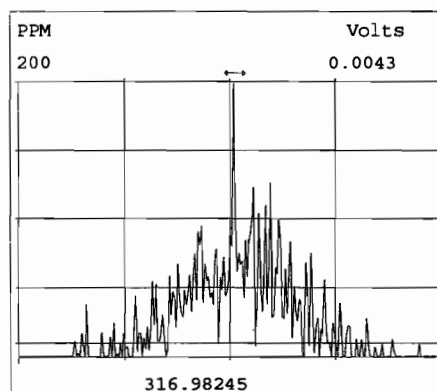
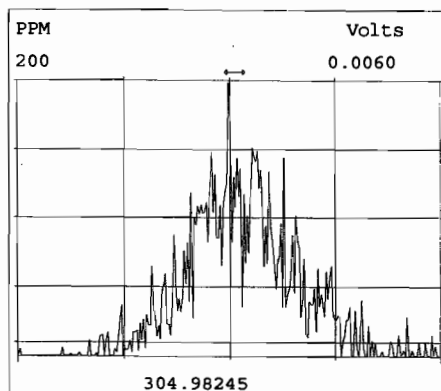
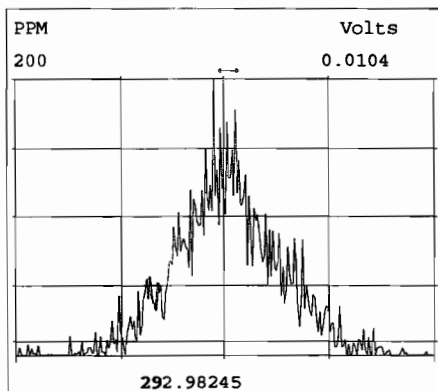


File:191101D1 #1-431 Acq: 1-NOV-2019 13:59:13 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191101D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



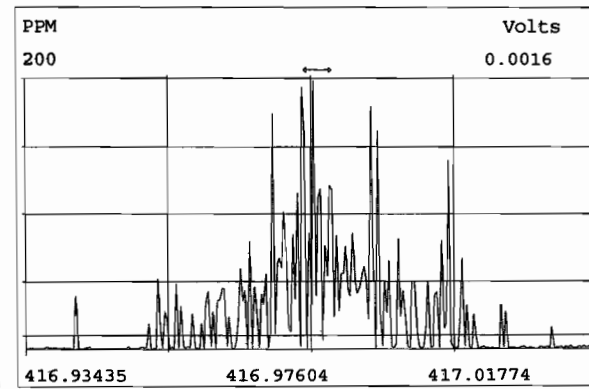
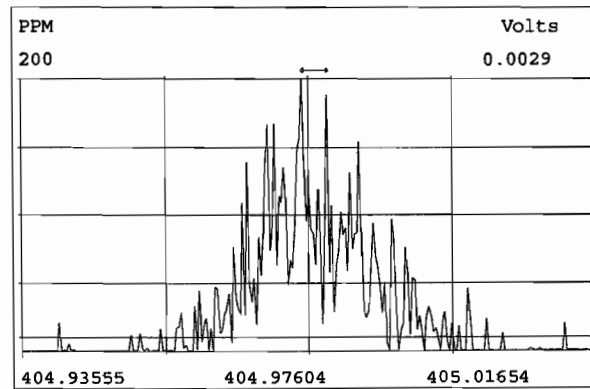
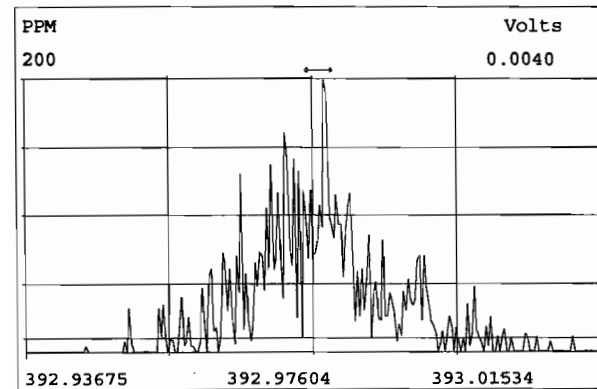
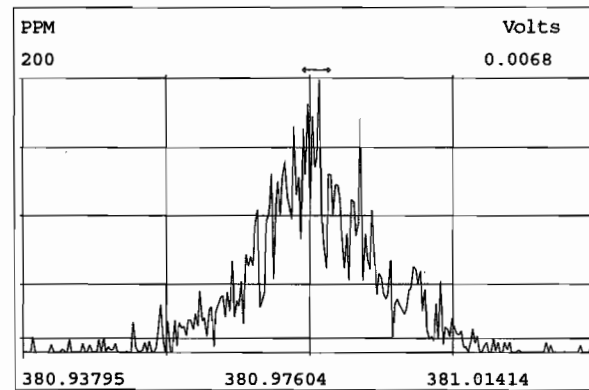
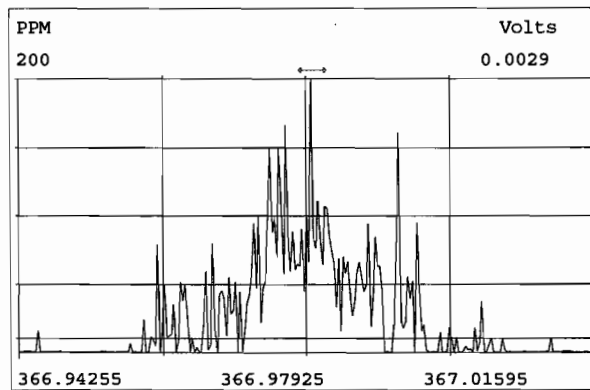
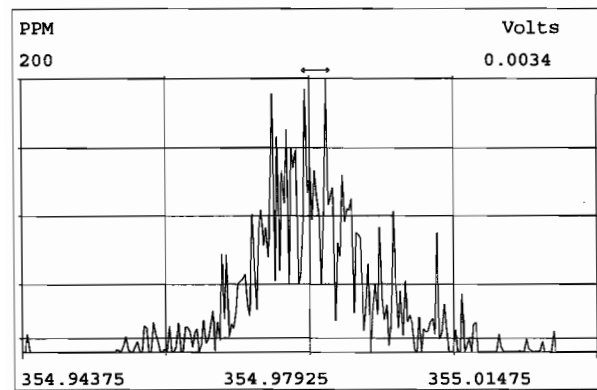
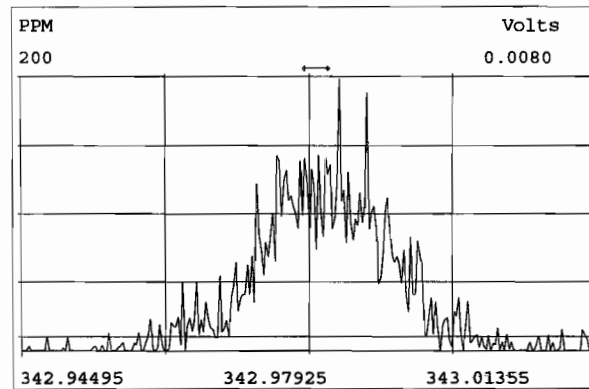
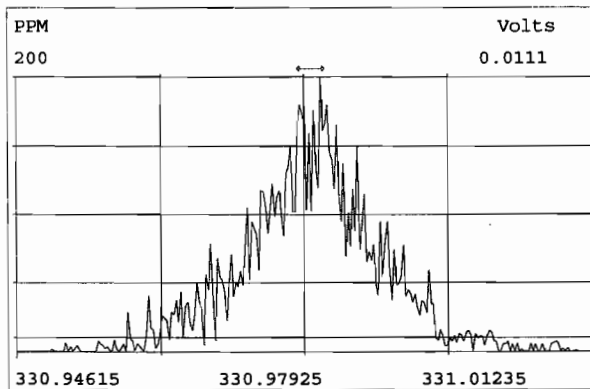
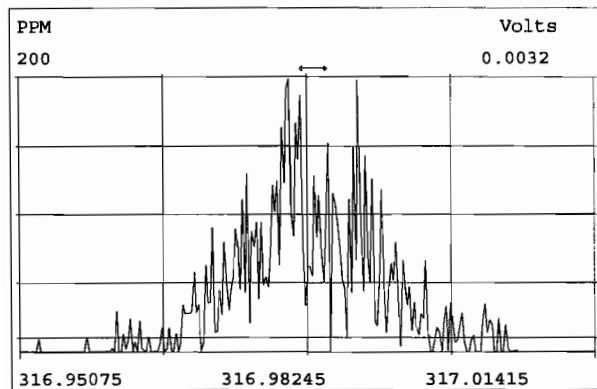
Peak Locate Examination: 2-NOV-2019:02:53 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:1 Reference:PFK



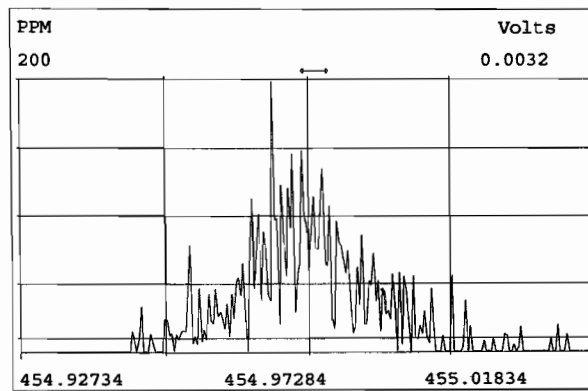
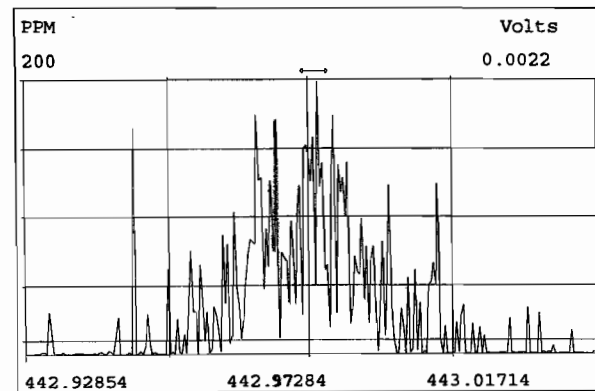
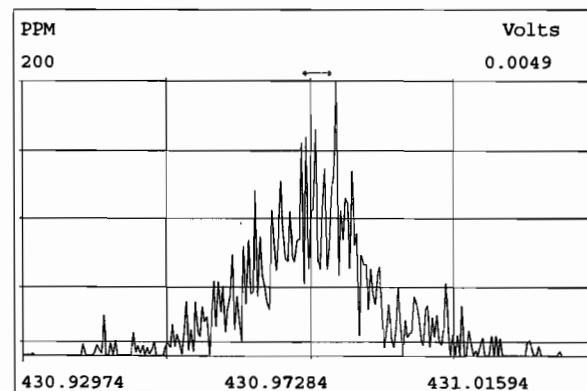
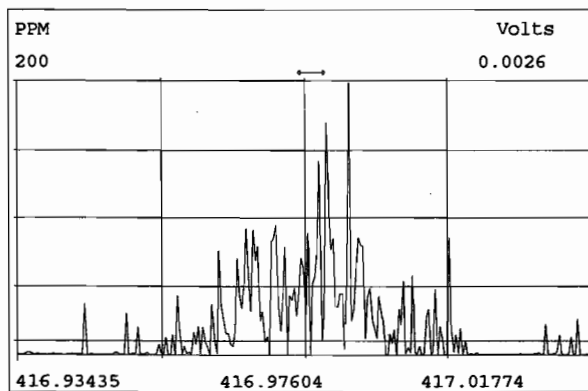
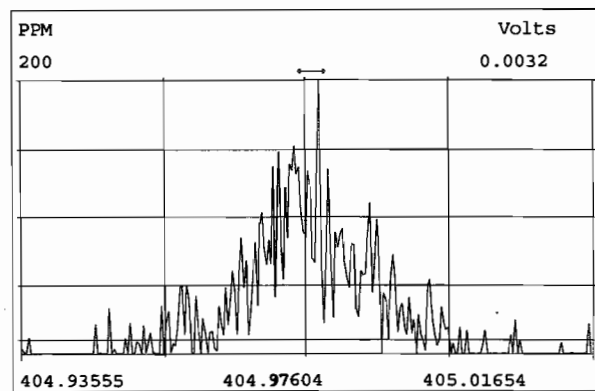
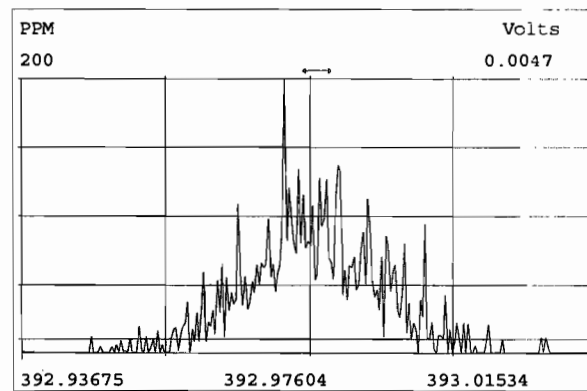
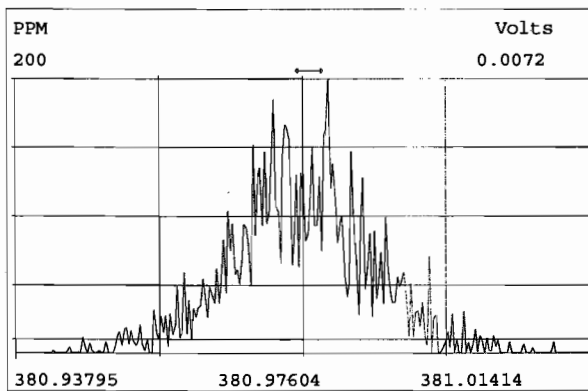
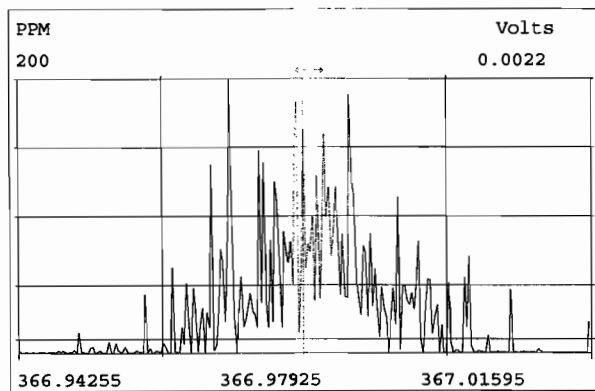
Peak Locate Examination: 2-NOV-2019:02:54 File:RES\_CHECK

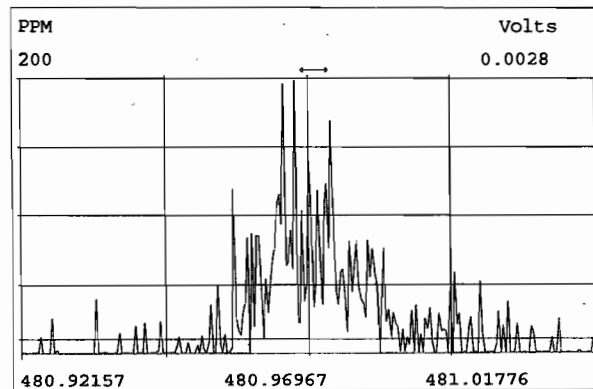
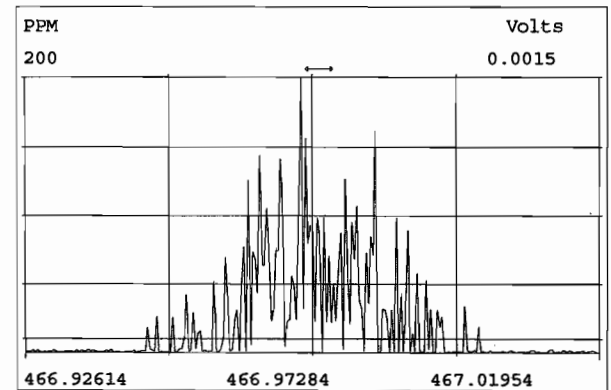
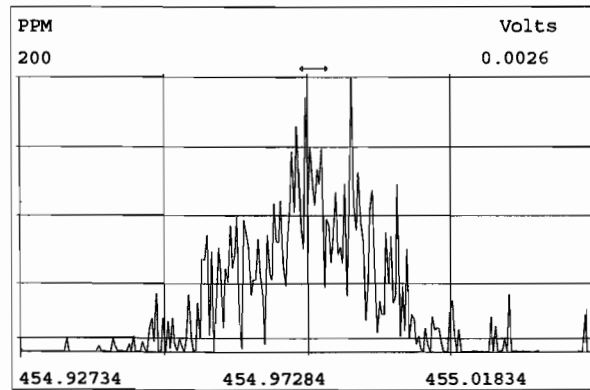
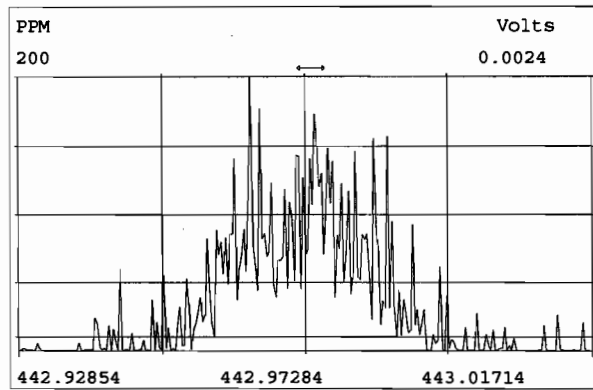
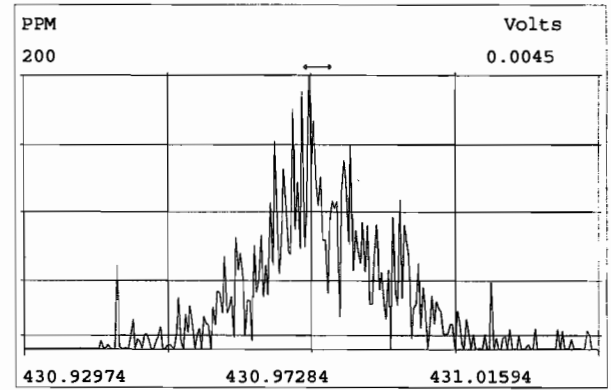
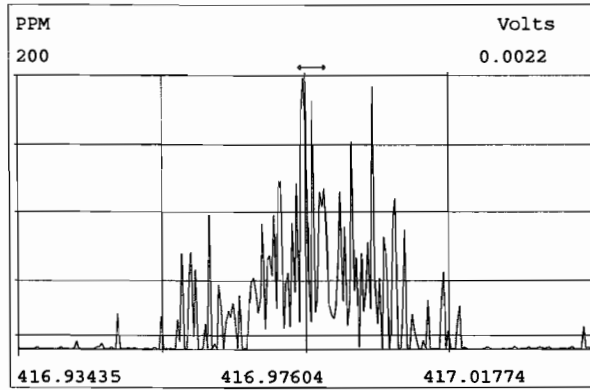
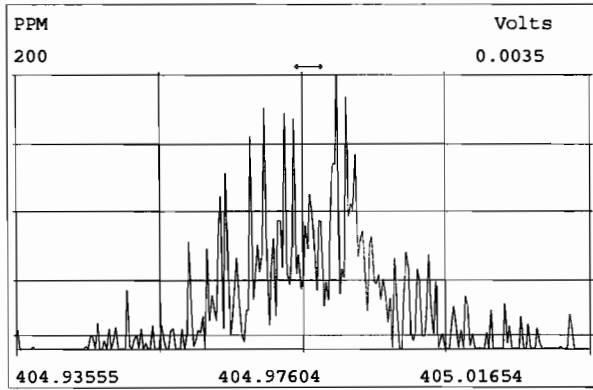
Experiment:OCDD\_DB5 Function:2 Reference:PFK



Peak Locate Examination: 2-NOV-2019:02:55 File:RES\_CHECK

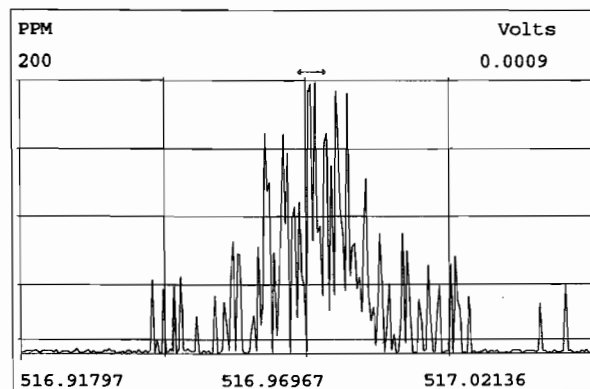
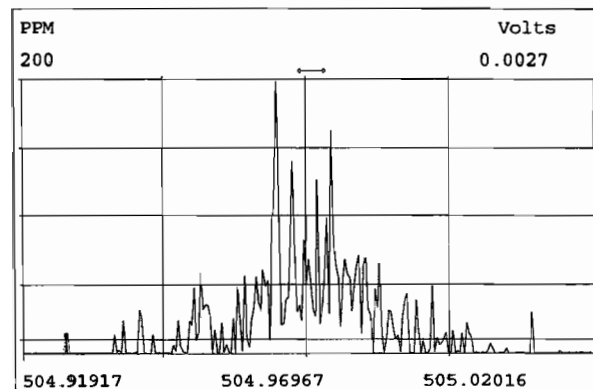
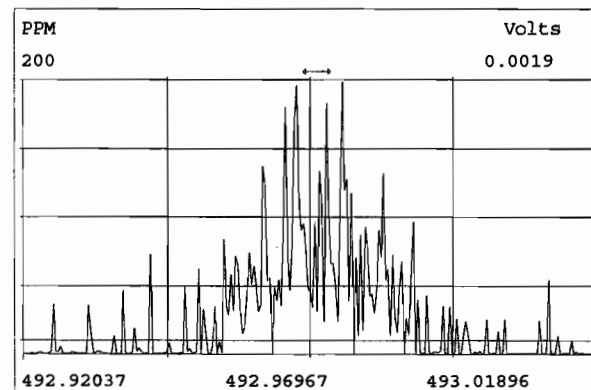
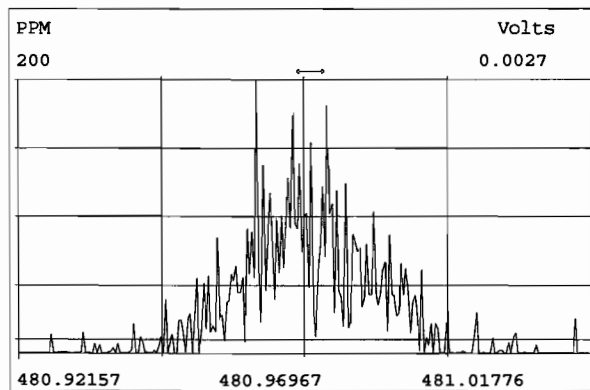
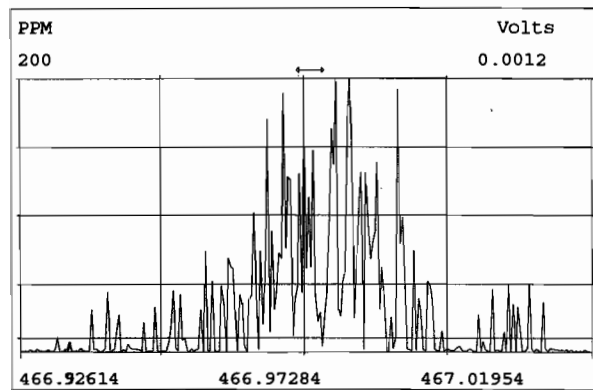
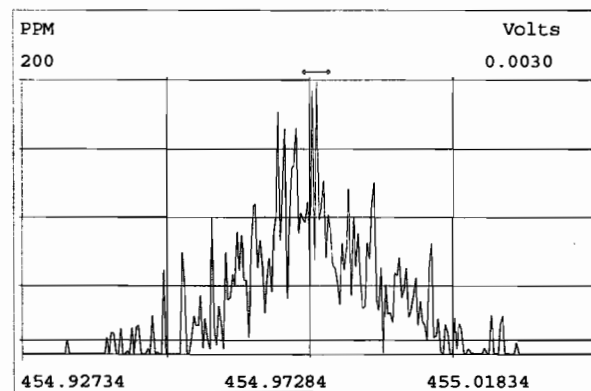
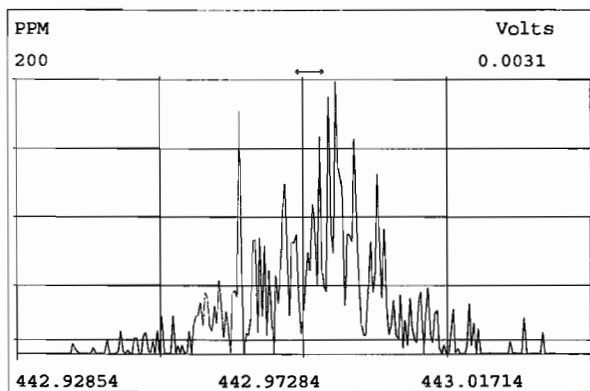
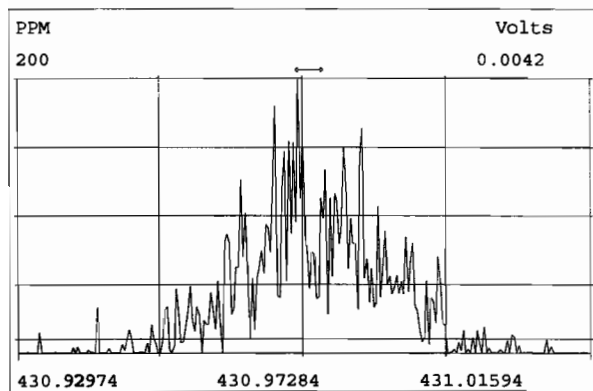
Experiment:OCDD\_DB5 Function:3 Reference:PFK





Peak Locate Examination: 2-NOV-2019:02:57 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" value="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" value="NA"/>
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>GC Break &lt;20%</b>	<input type="checkbox" value="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" value="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>	<div style="height: 200px;"></div>	
<b>Correct ICAL referenced?</b>	<input type="checkbox" value="DB"/>	<input type="checkbox"/>			
<b><u>Run Log:</u></b>					
<b>- Correct instrument listed?</b>	<input checked="" type="checkbox"/>	<input type="checkbox" value="V"/>			
<b>- Samples within 12 hour clock?</b>	<input type="checkbox" value="Y"/>	<input type="checkbox" value="N"/>			
<b>- Bottle position verified?</b>	<input type="checkbox" value="DB"/>				

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-5MS

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: DBDate: 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

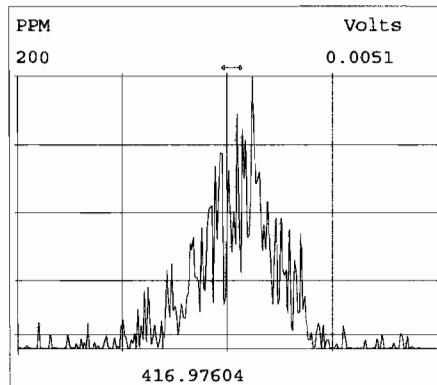
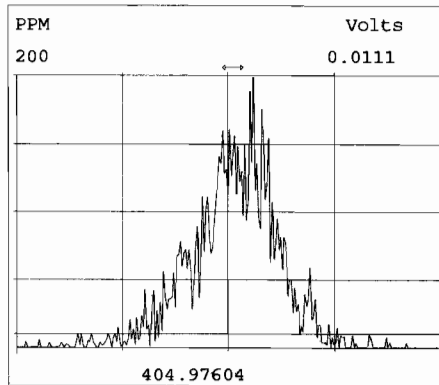
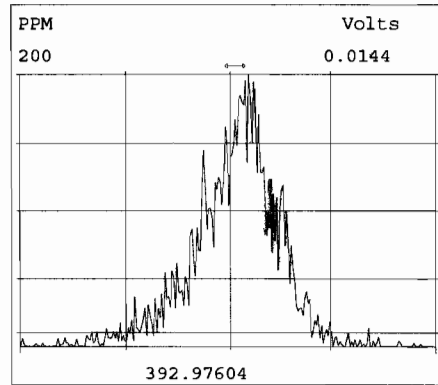
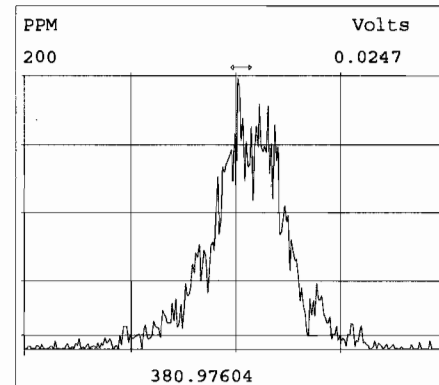
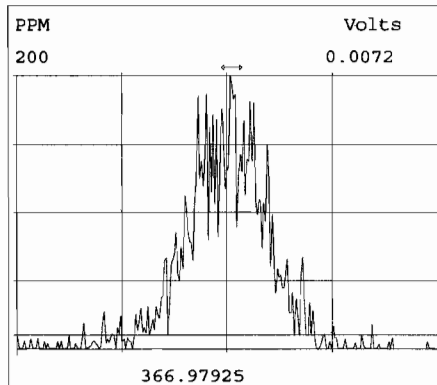
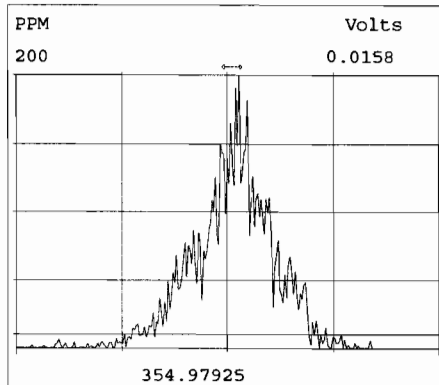
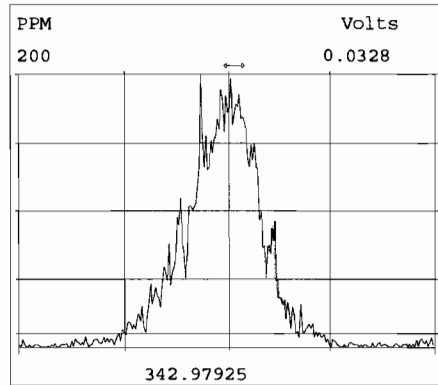
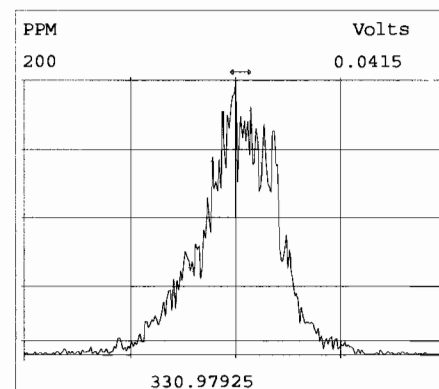
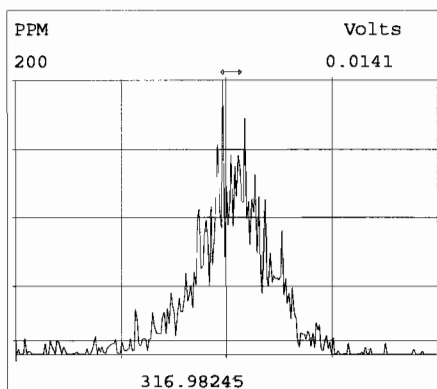
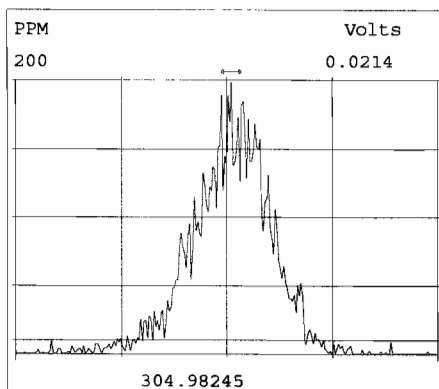
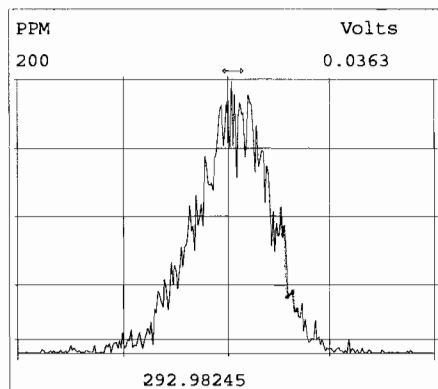
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	6.82e+05	0.77 y	0.91	26:16	11.450		* 2.5		*	Total Tetra-Dioxins	86.8	87.8	*	*	
1,2,3,7,8-PeCDD	2.51e+06	0.63 y	0.90	30:45	50.469		* 2.5		*	Total Penta-Dioxins	198	198	*	*	
1,2,3,4,7,8-HxCDD	2.74e+06	1.25 y	1.10	34:04	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										

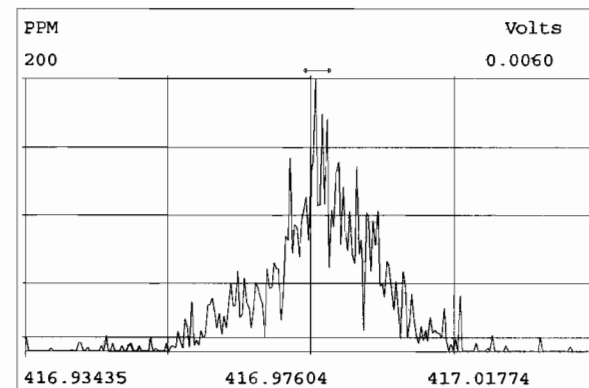
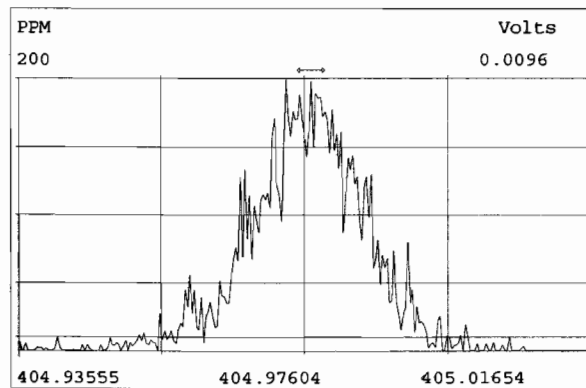
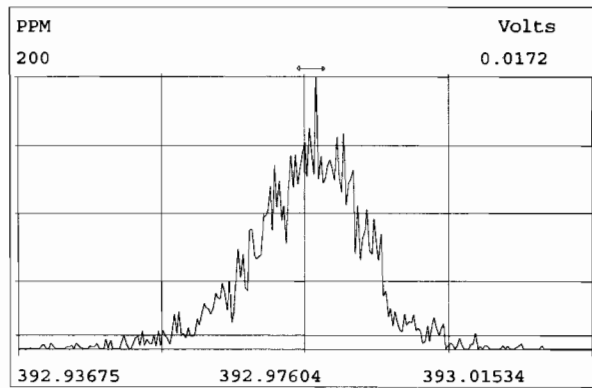
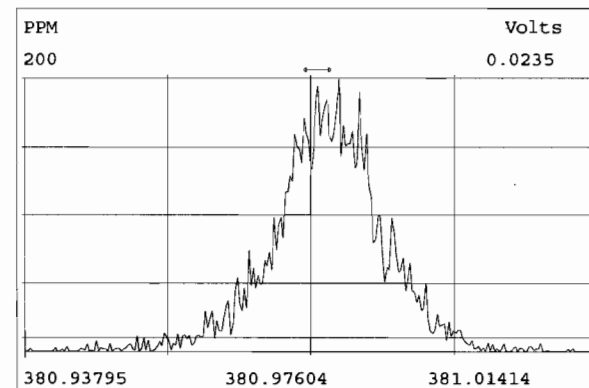
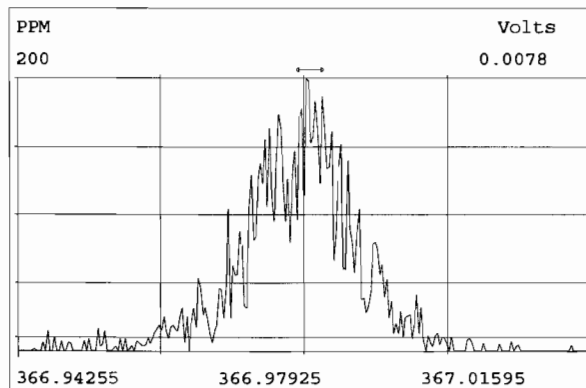
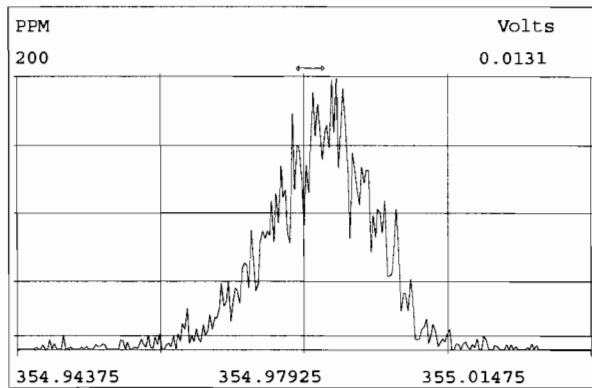
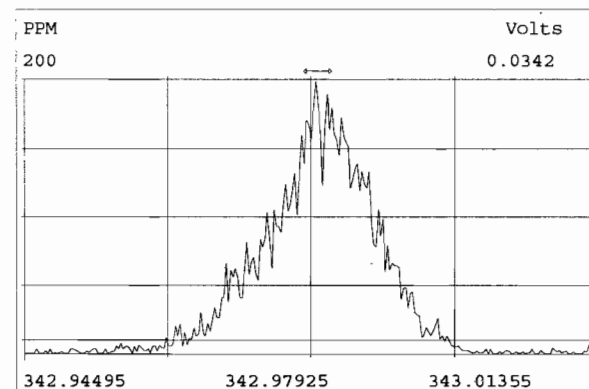
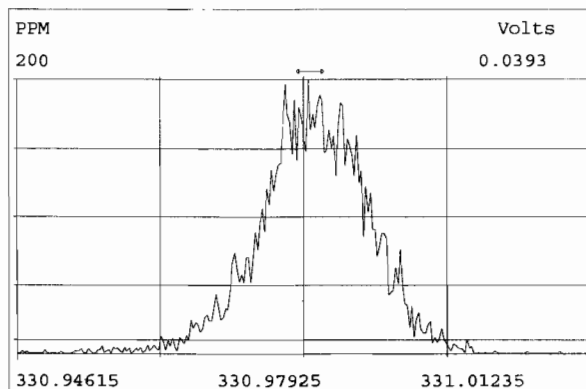
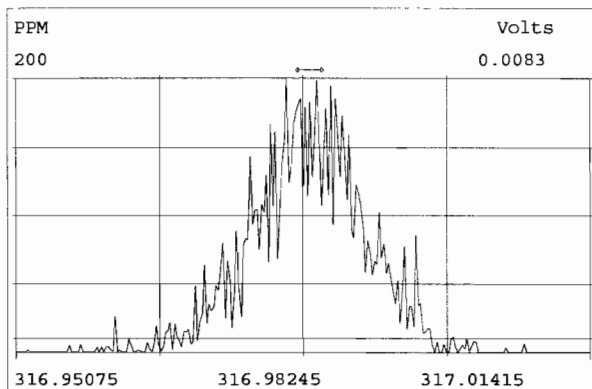
Integrations  
by DB  
Analyst: DB  
Date: 11/6/19  
Reviewed  
by CT  
Analyst: CT  
Date: 11/07/19



Vista Analytical Laboratory - Injection Log Run file: 191106D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

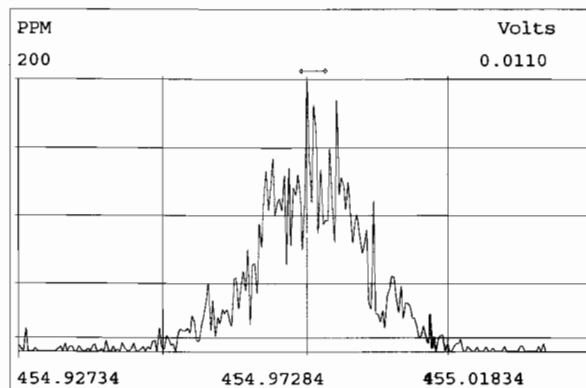
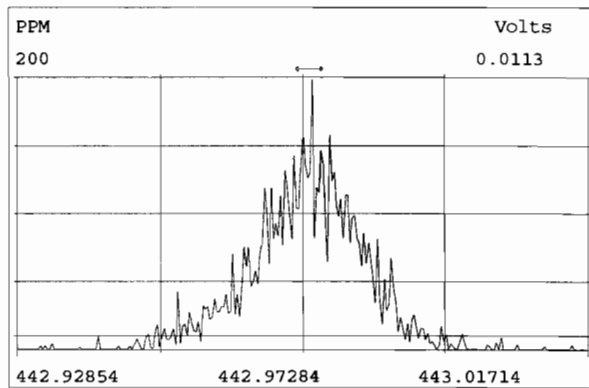
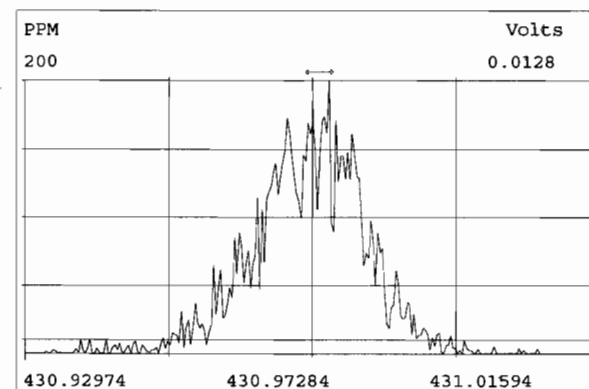
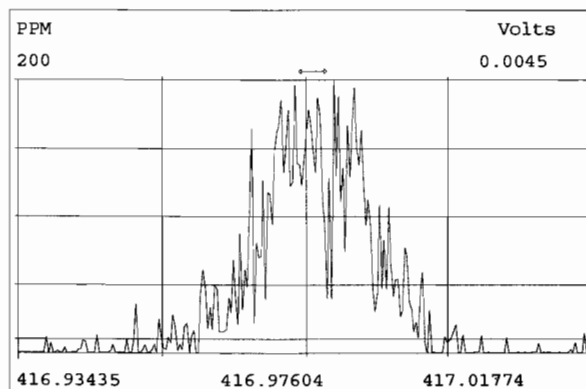
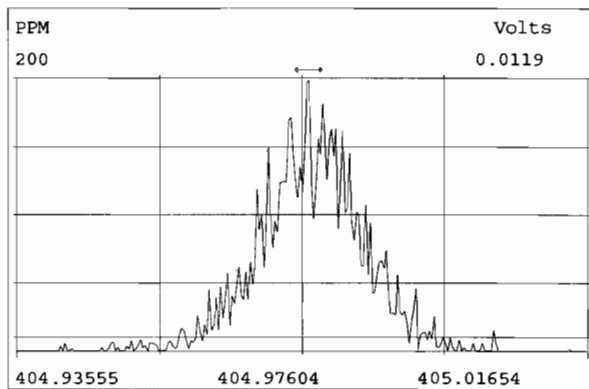
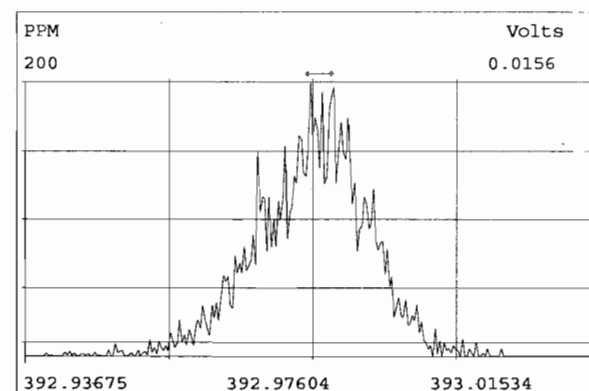
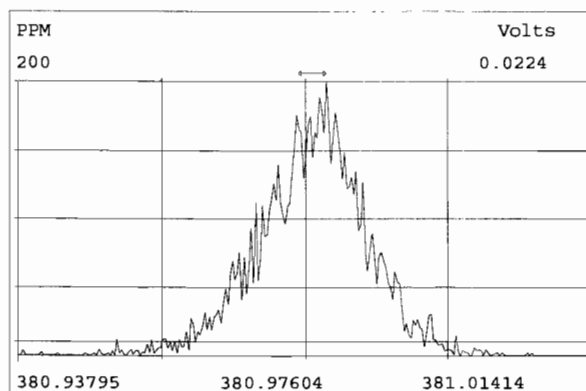
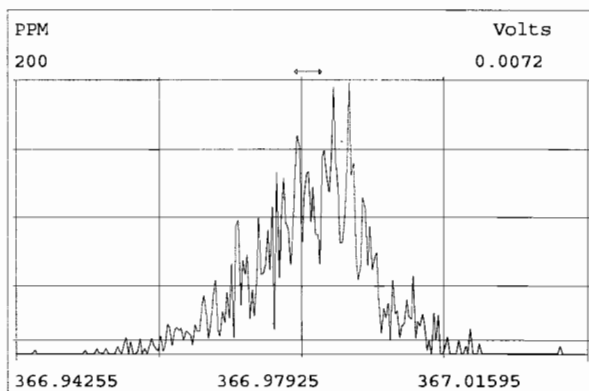
Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
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191106D1	2	SOLVENT BLANK	DB	6-NOV-19	12:29:34	ST191106D1-1	NA
191106D1	3	1903565-05RE1@5X	DB	6-NOV-19	13:17:30	ST191106D1-1	NA
191106D1	4	1903565-16RE1	DB	6-NOV-19	14:05:25	ST191106D1-1	NA
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





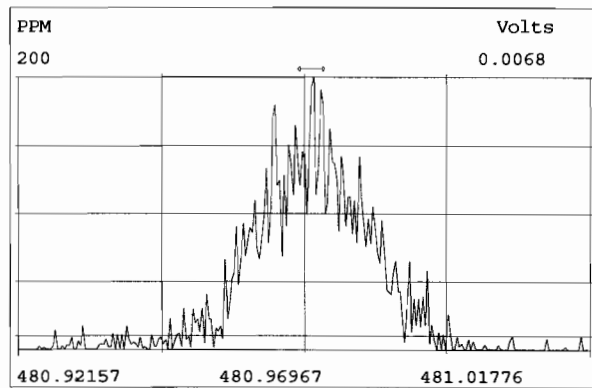
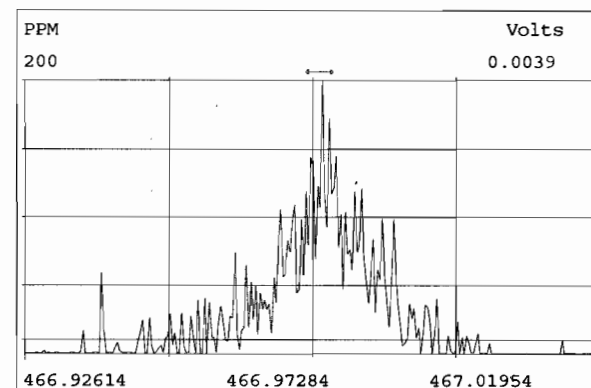
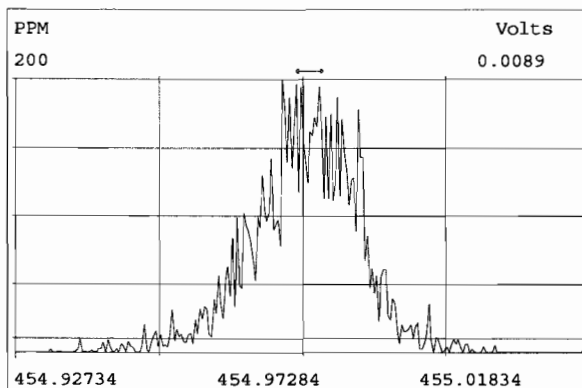
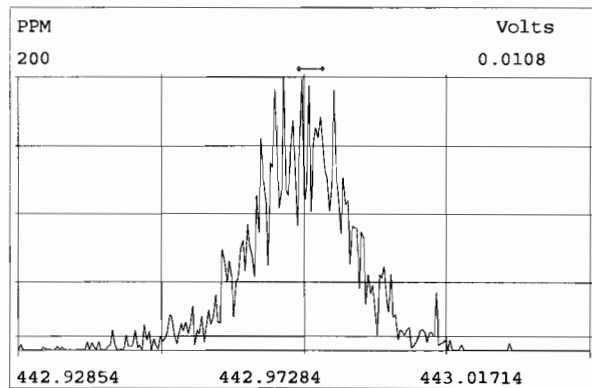
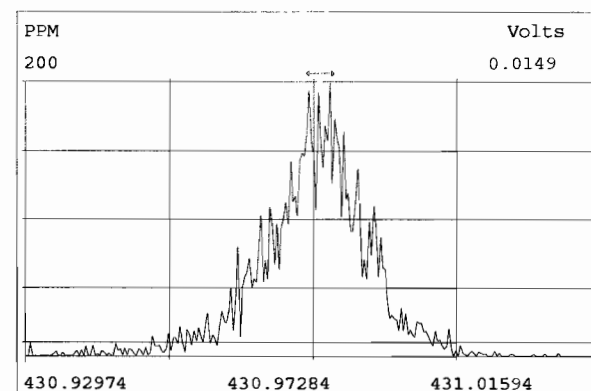
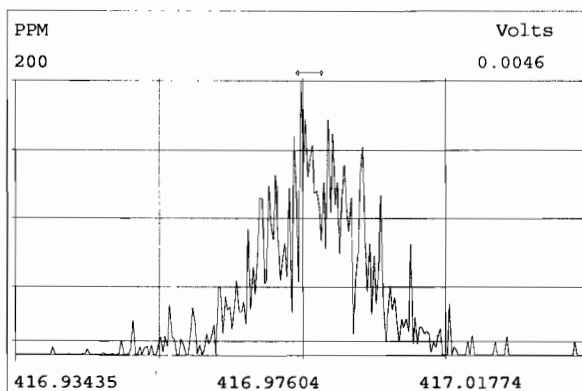
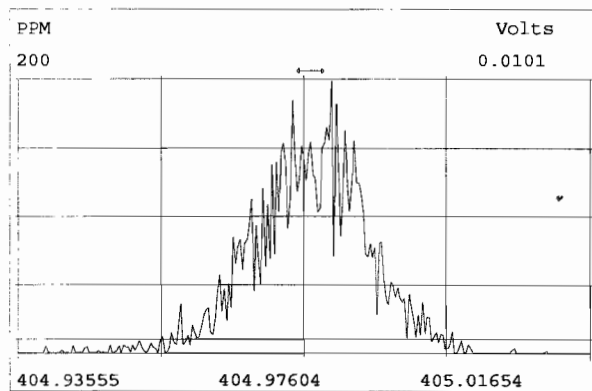
Peak Locate Examination: 6-NOV-2019:11:39 File:191106D1

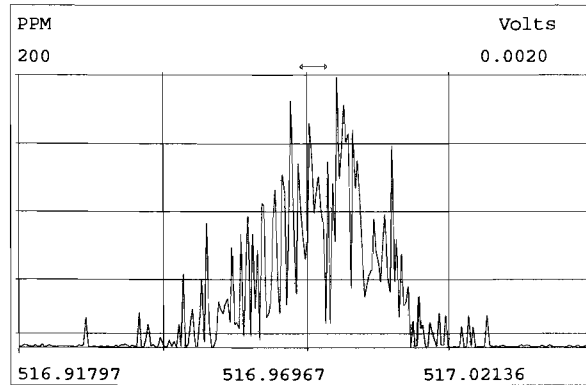
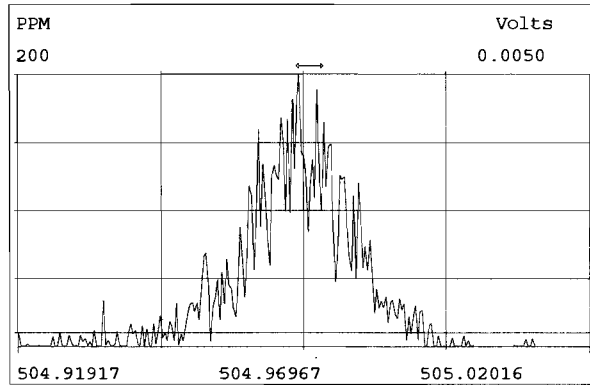
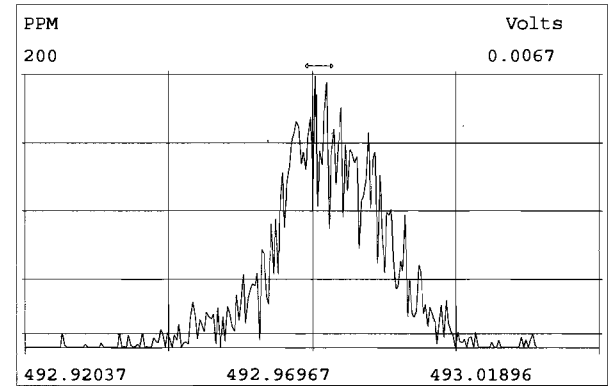
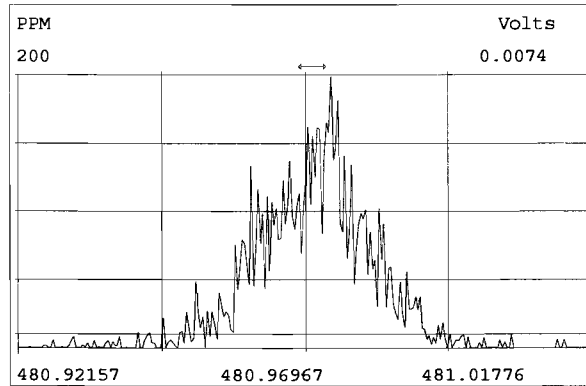
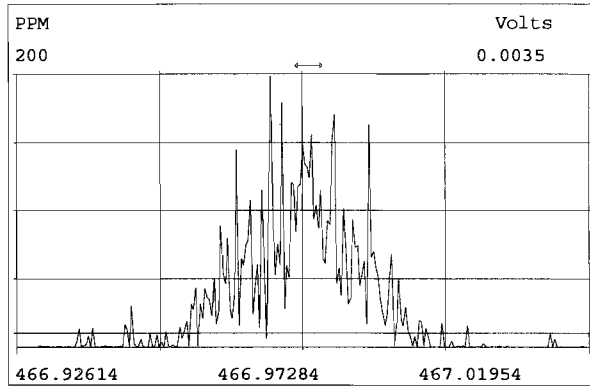
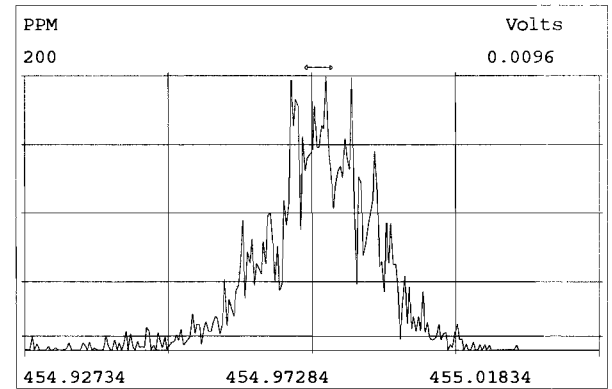
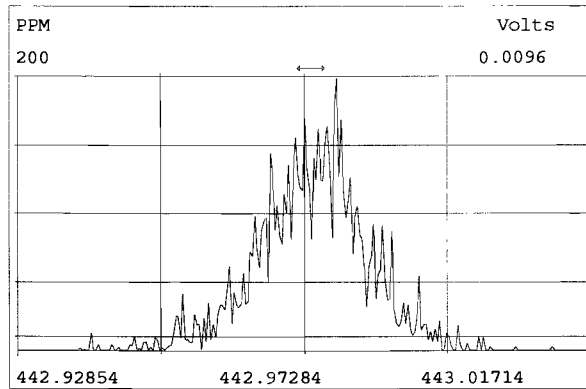
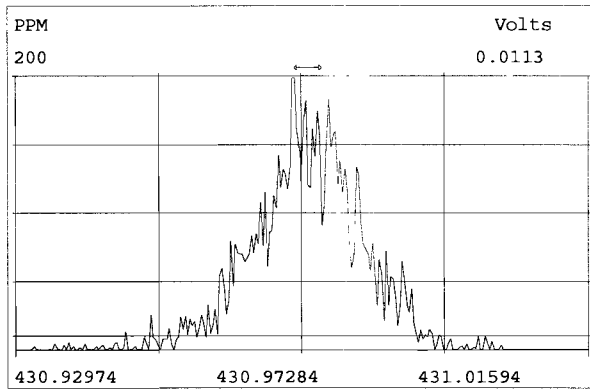
Experiment:OCDD\_DB5 Function:3 Reference:PFK



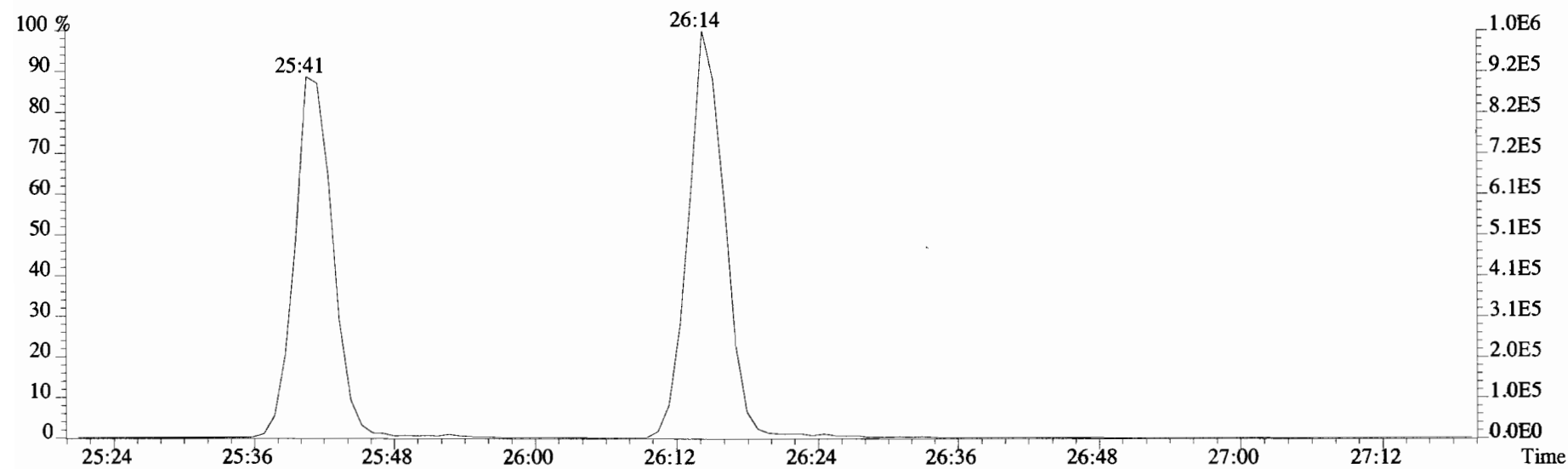
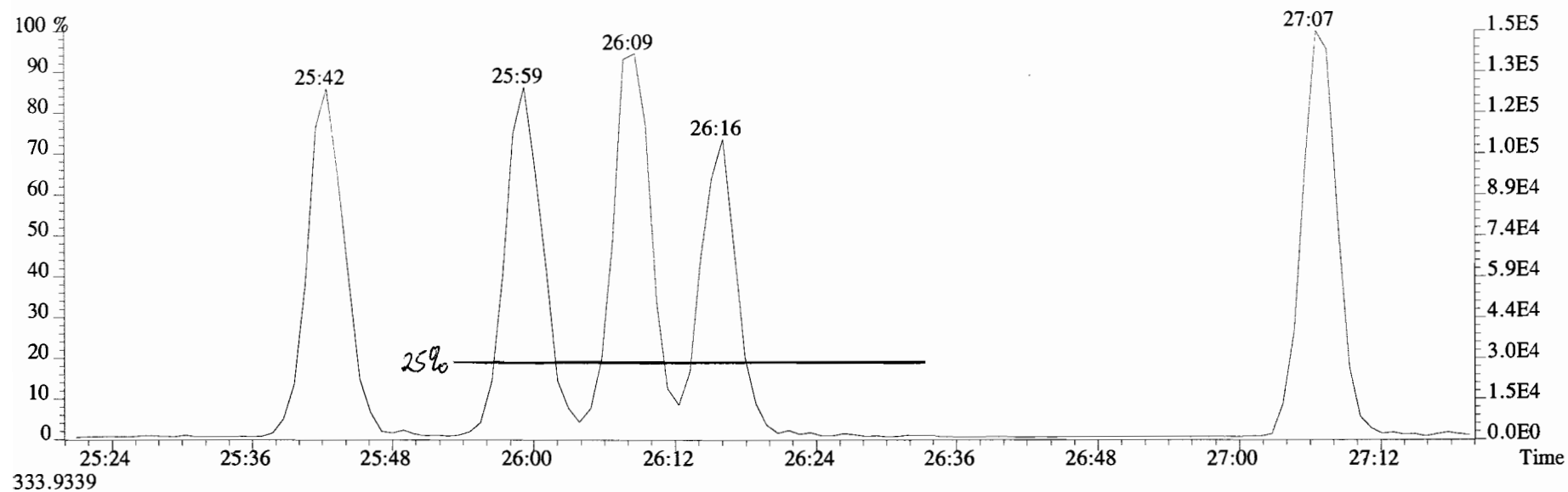
Peak Locate Examination: 6-NOV-2019:11:40 File:191106D1

Experiment:OCDD\_DB5 Function:4 Reference:PFK

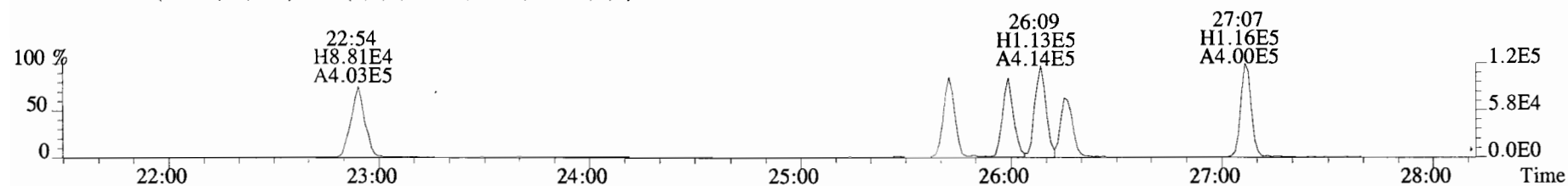




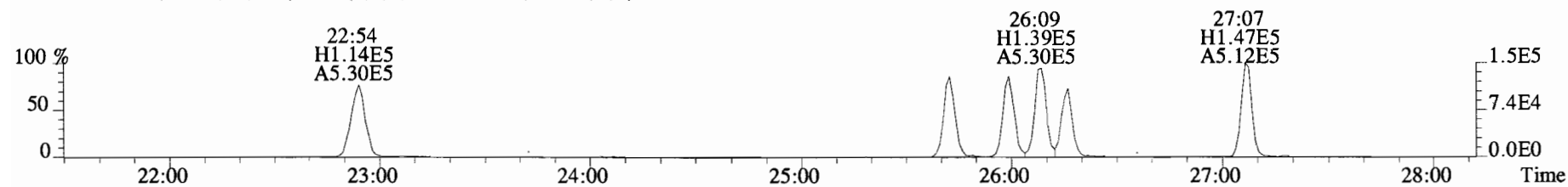
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936



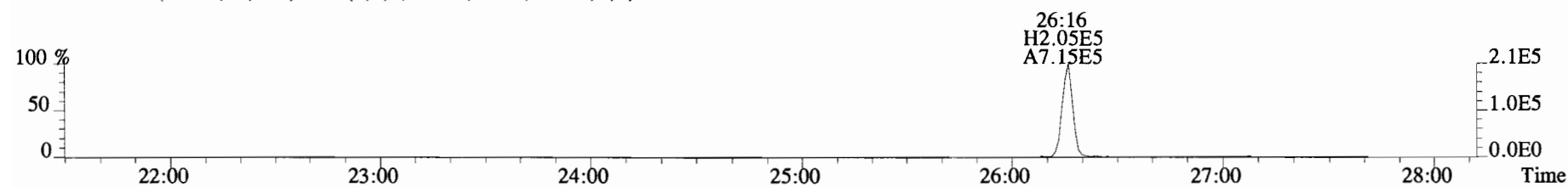
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



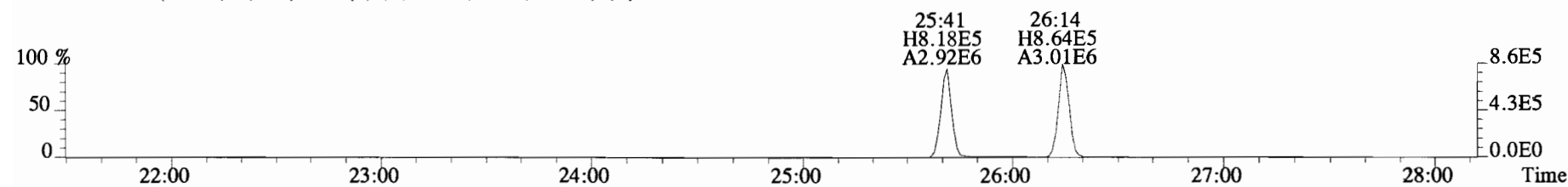
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



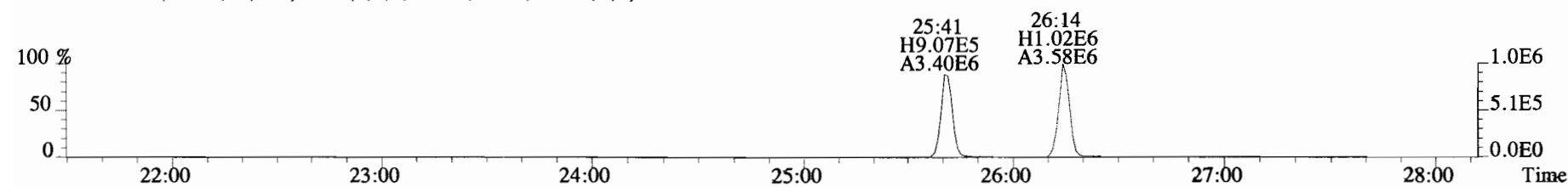
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

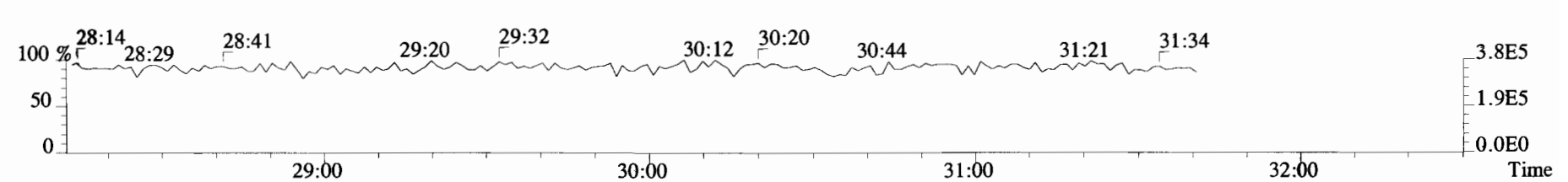
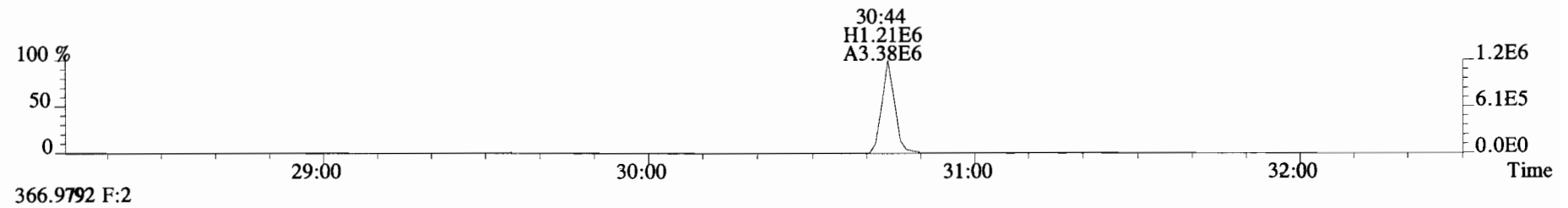
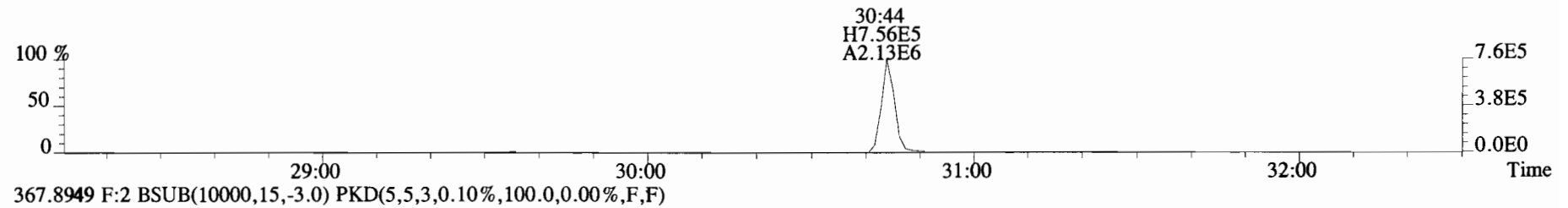
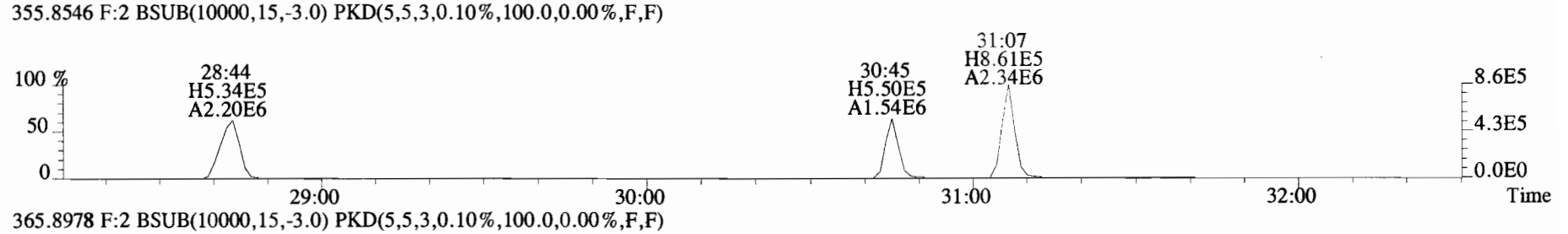
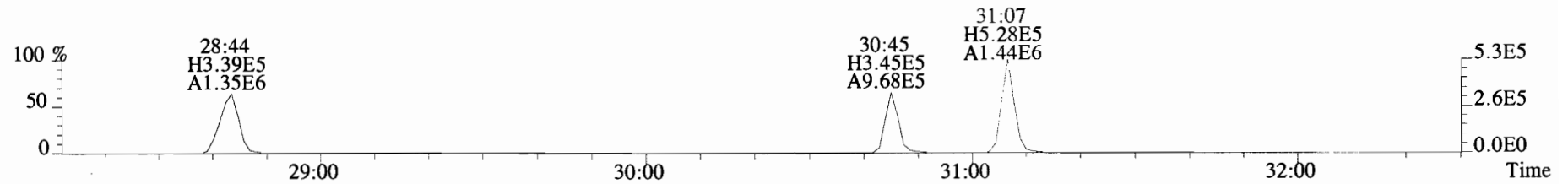


333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

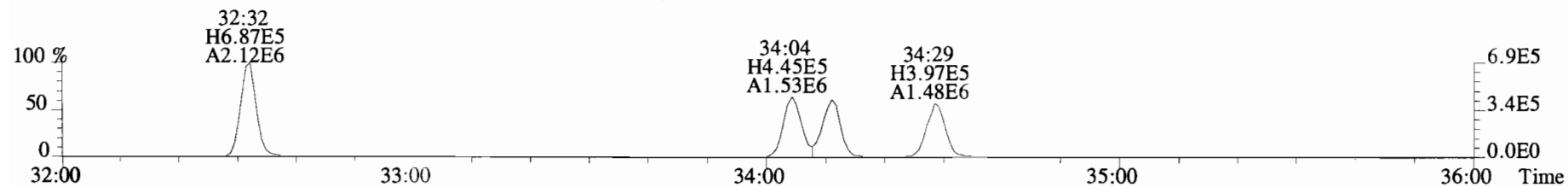




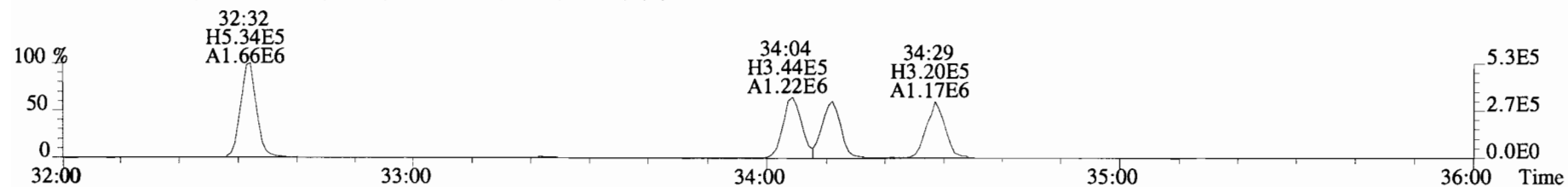
File:191106D1 #1-211 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



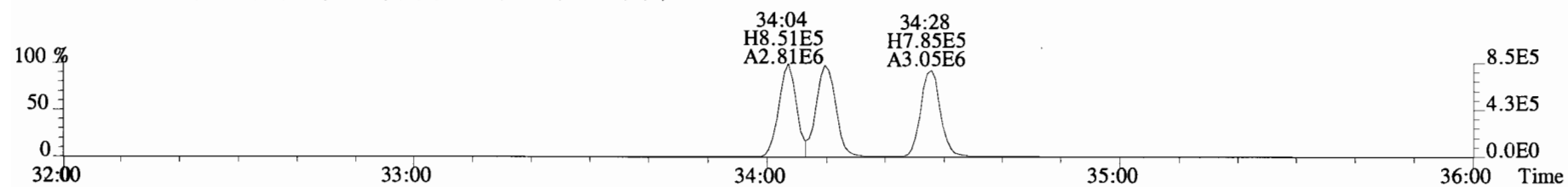
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



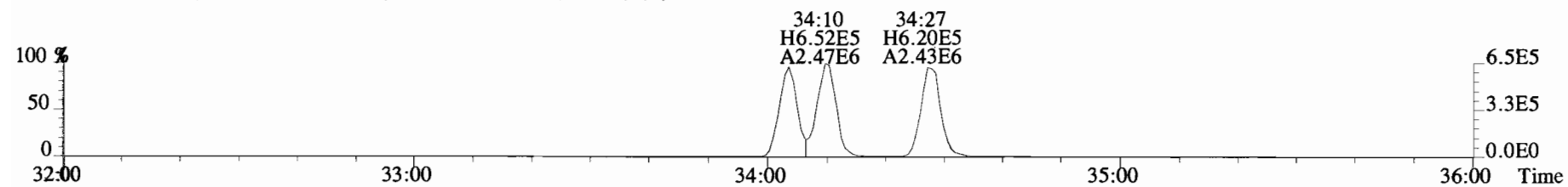
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



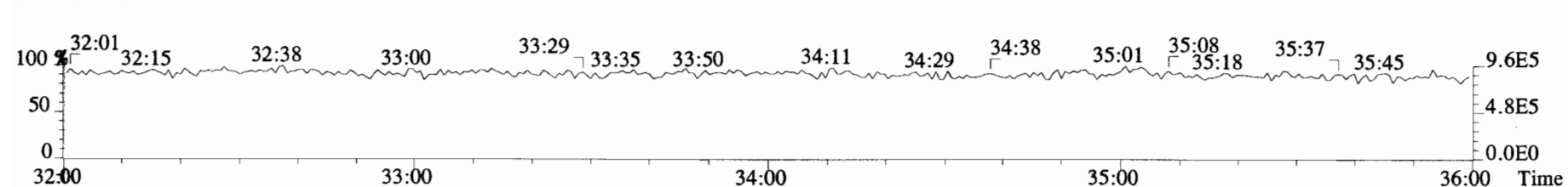
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



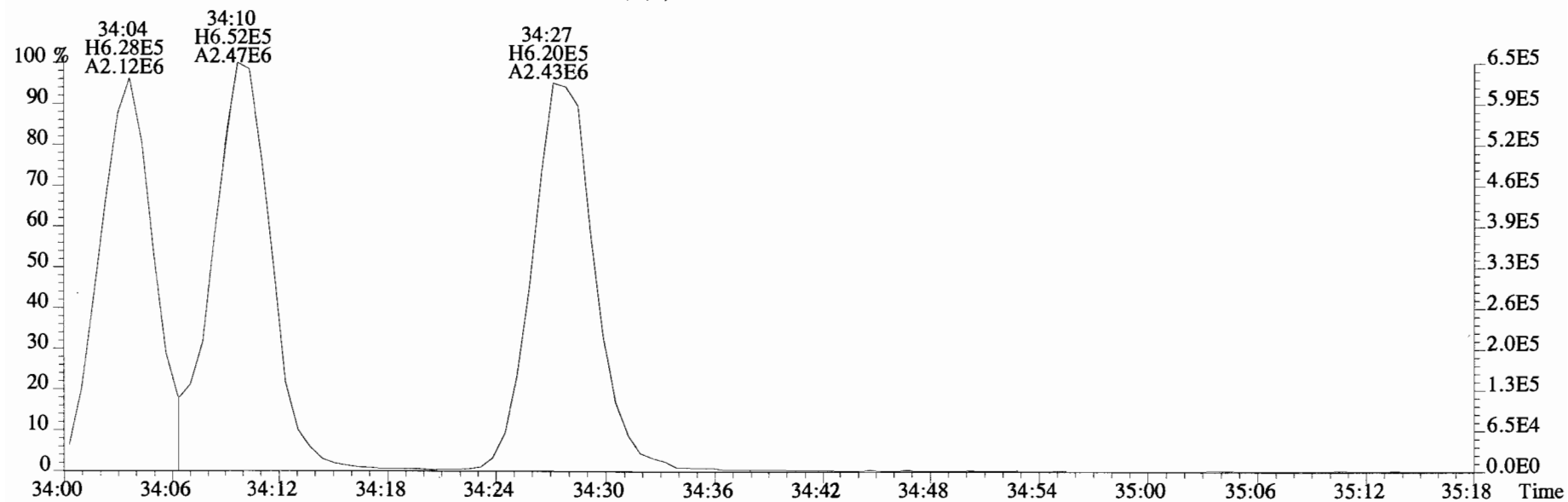
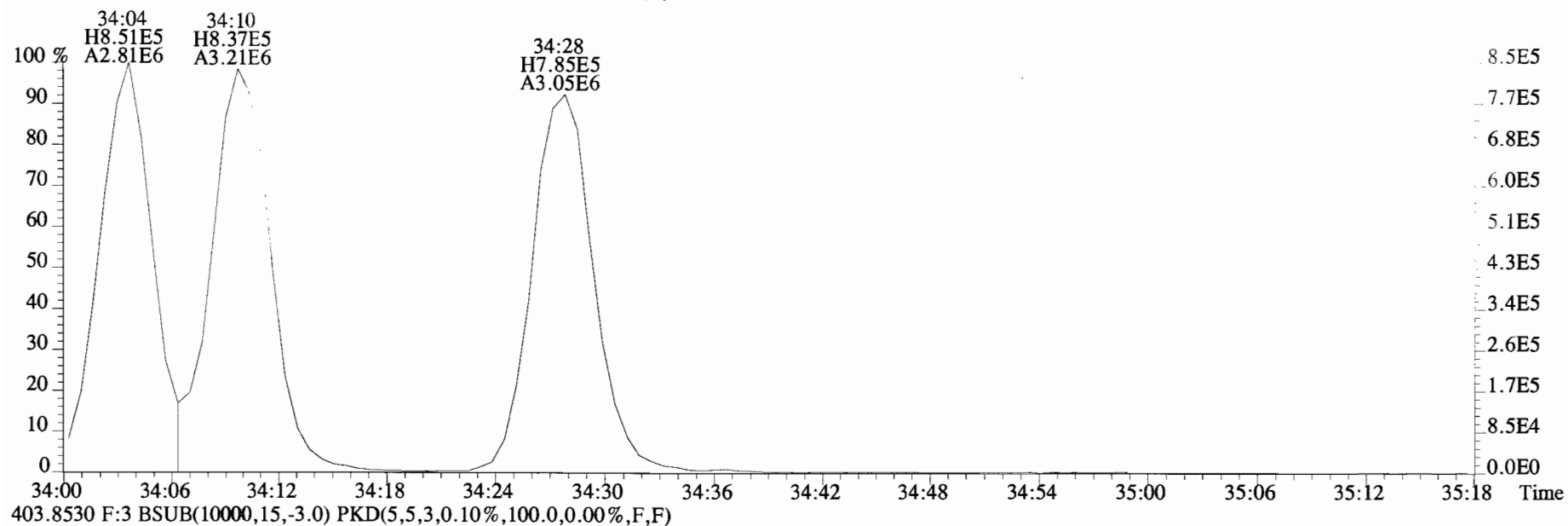
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



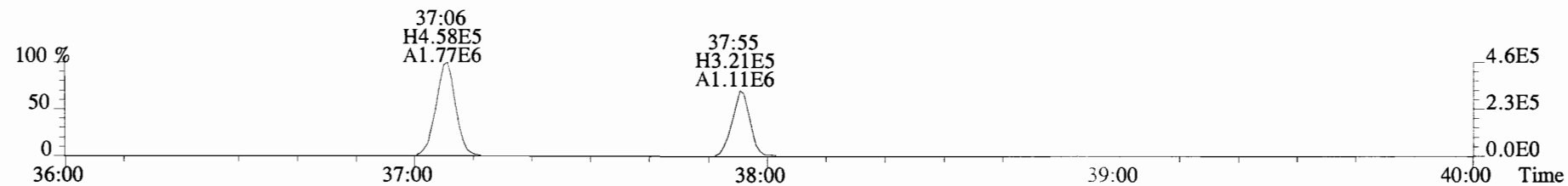
392.9760 F:3



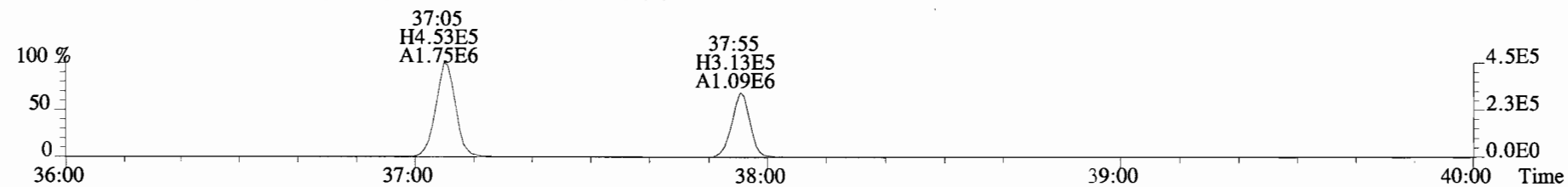
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



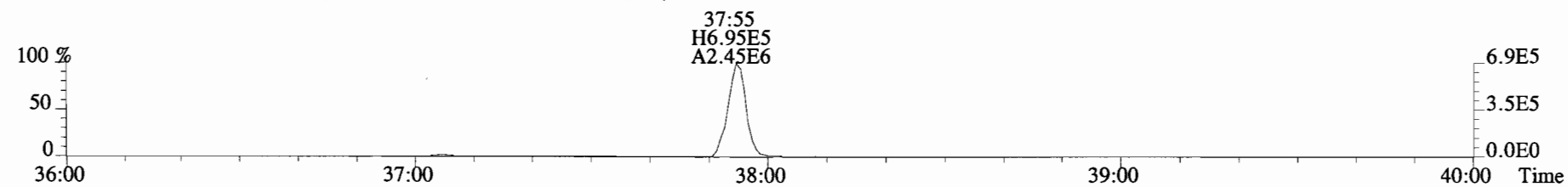
File:191106D1 #1-356 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



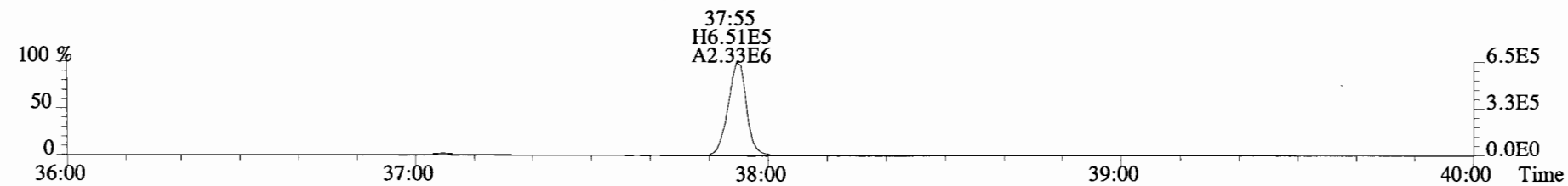
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



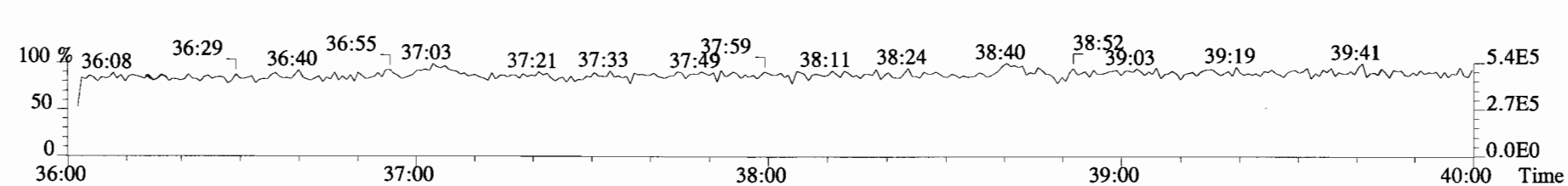
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



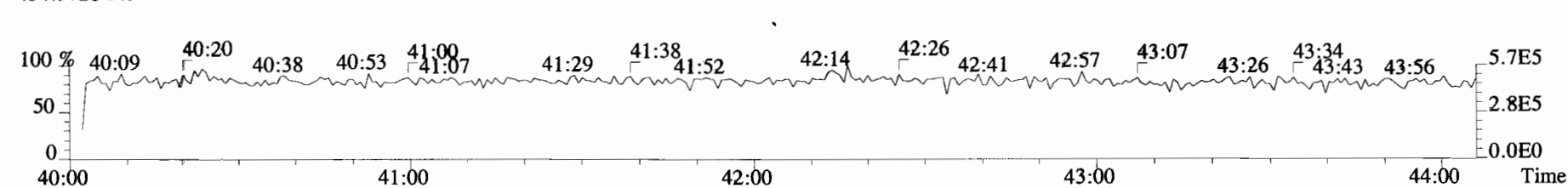
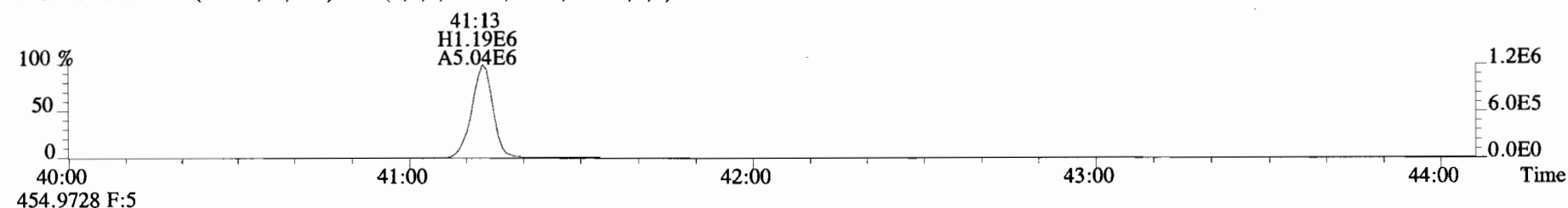
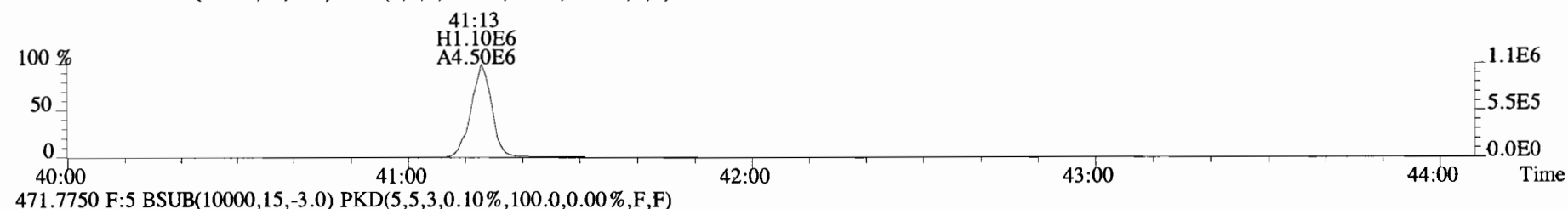
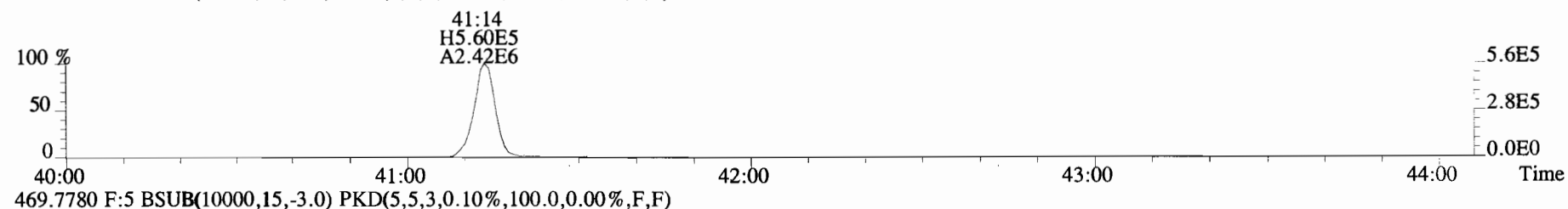
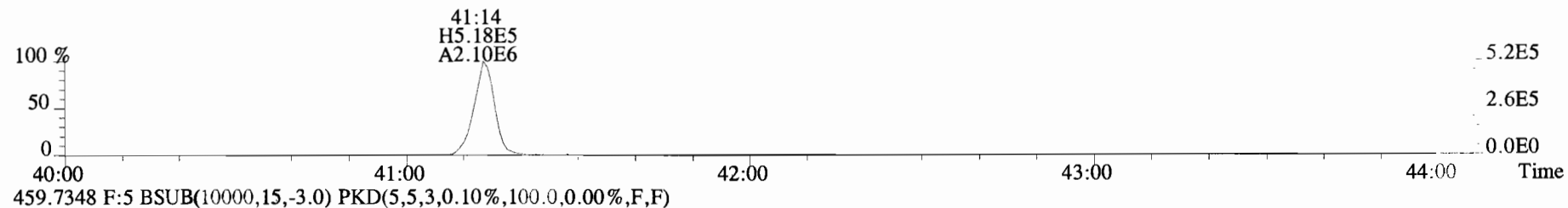
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



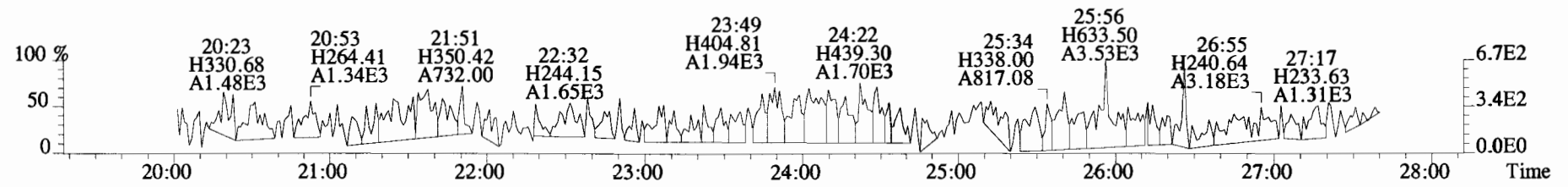
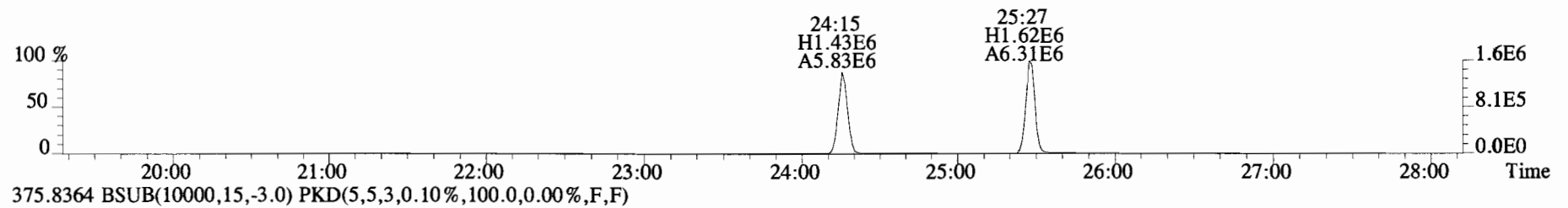
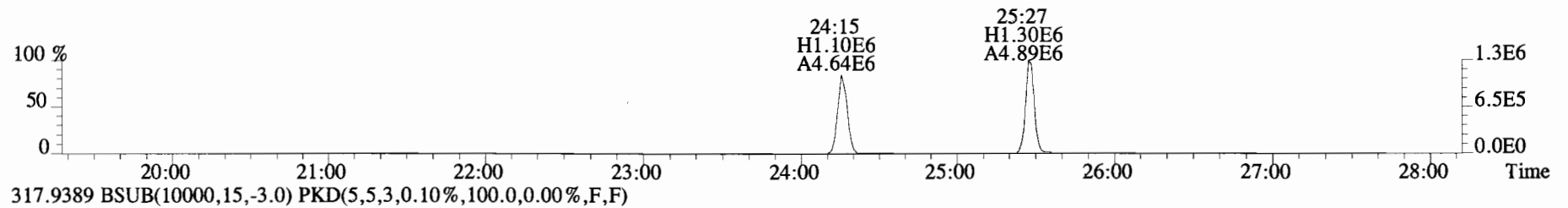
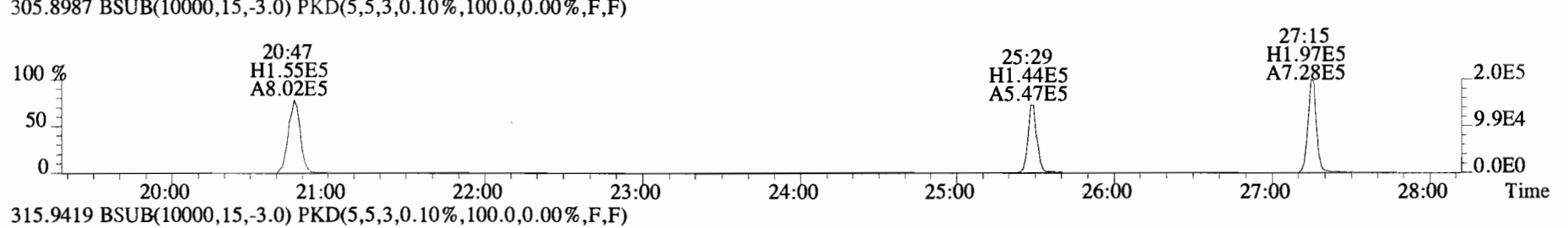
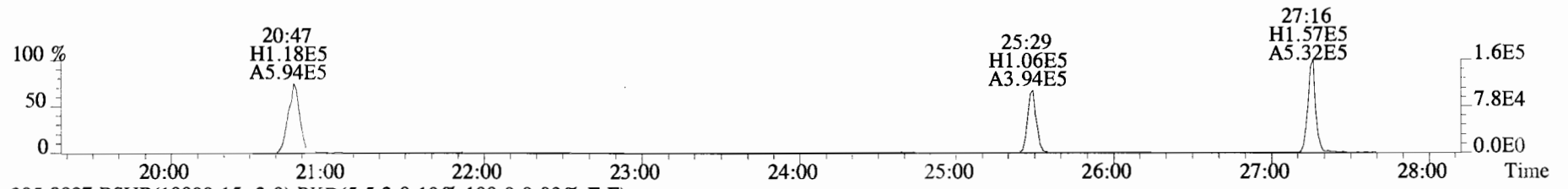
454.9728 F:4



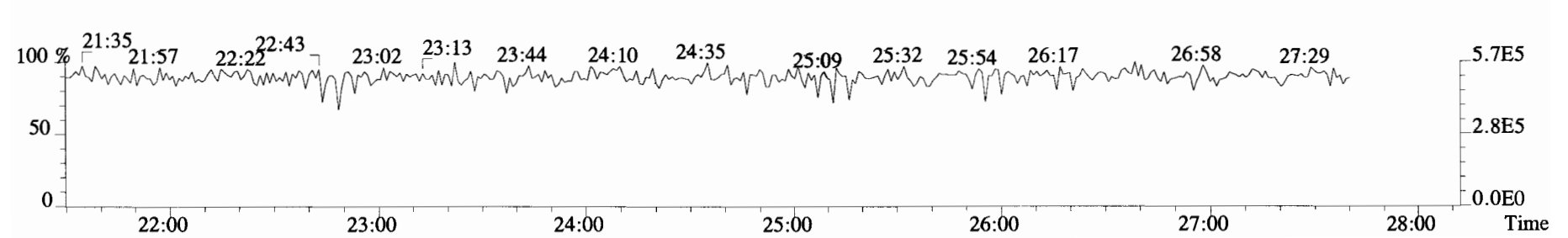
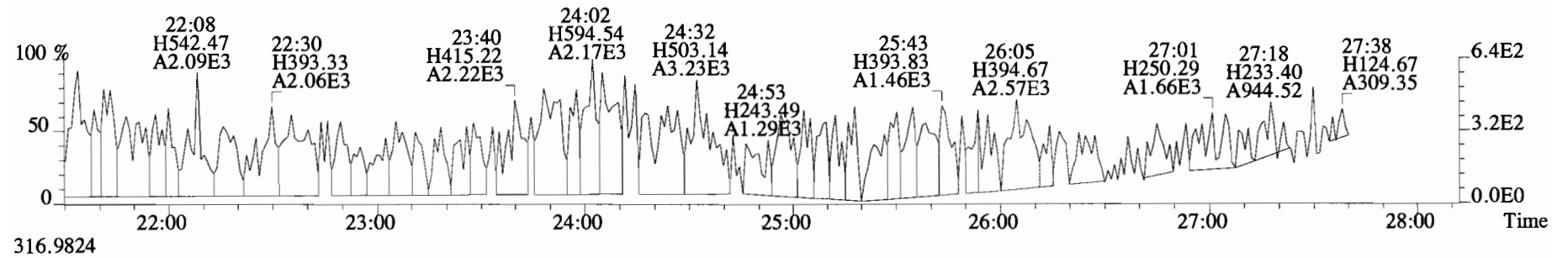
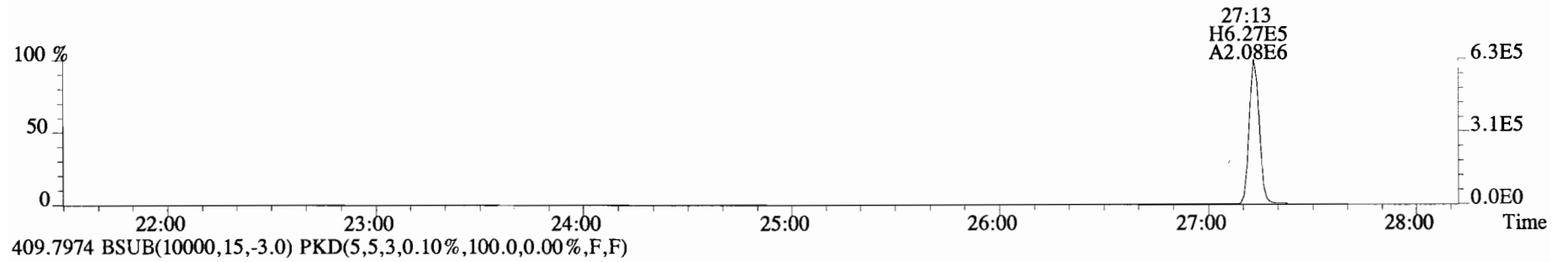
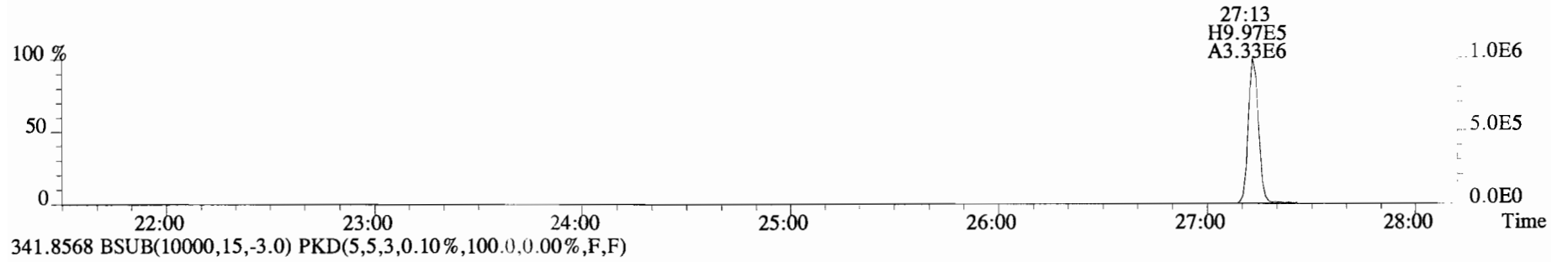
File:191106D1 #1-431 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



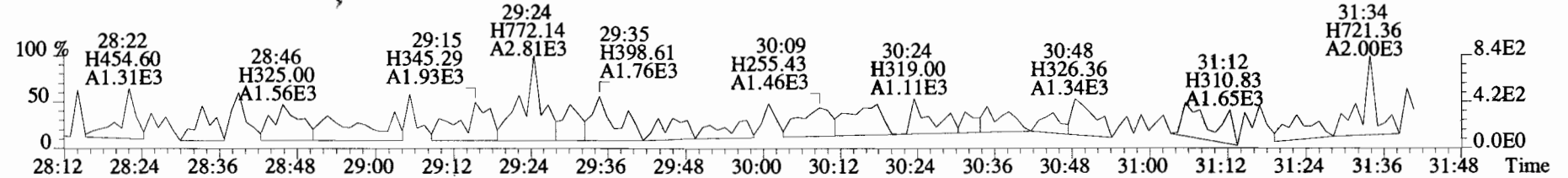
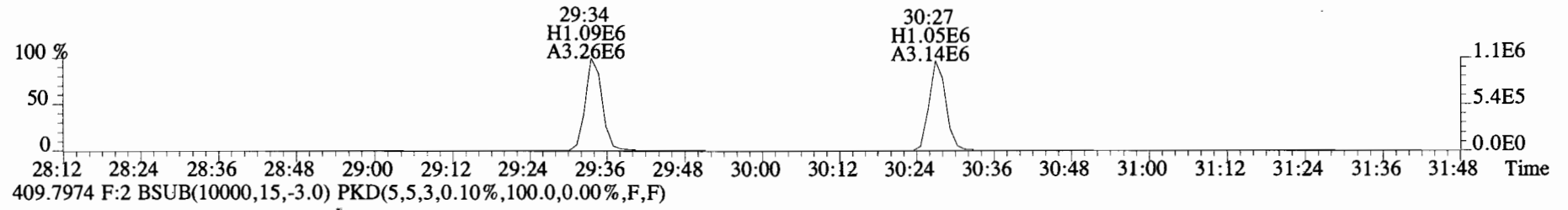
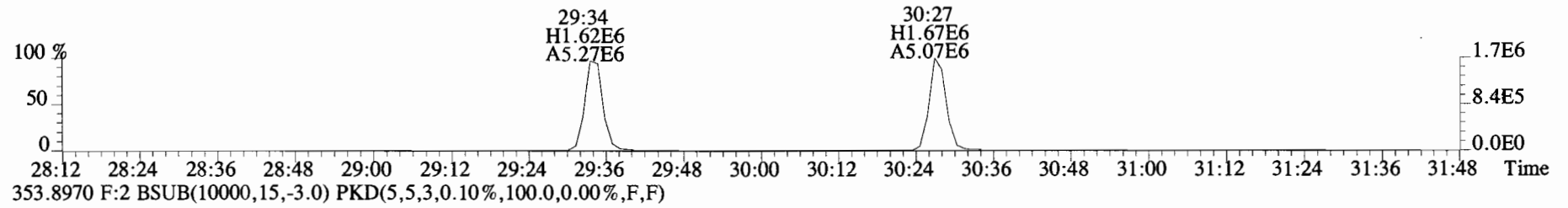
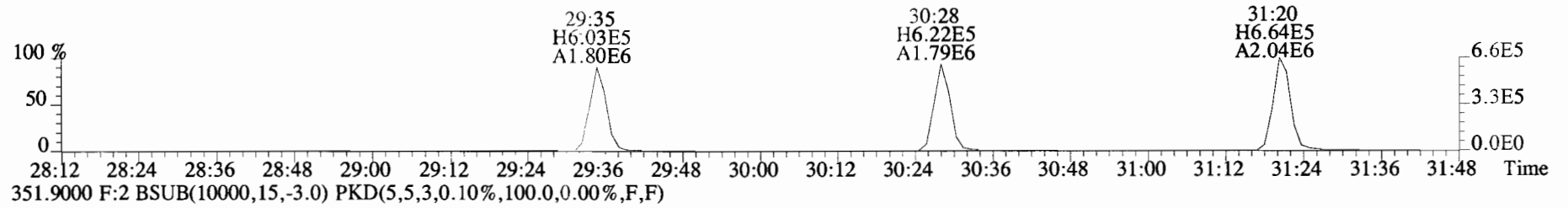
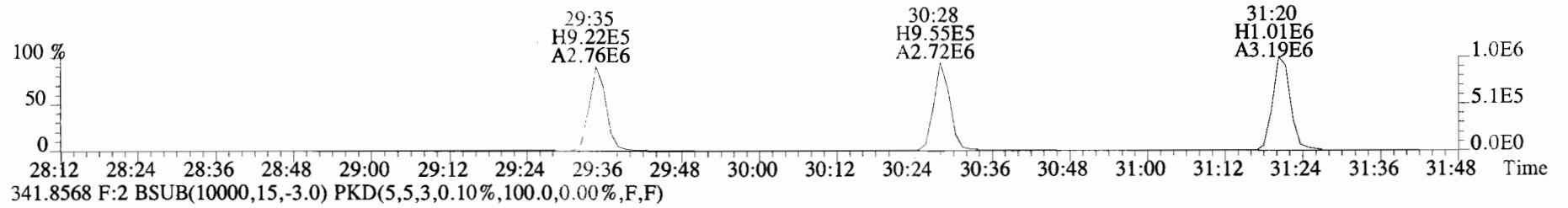
File:191106D1 #1-492 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

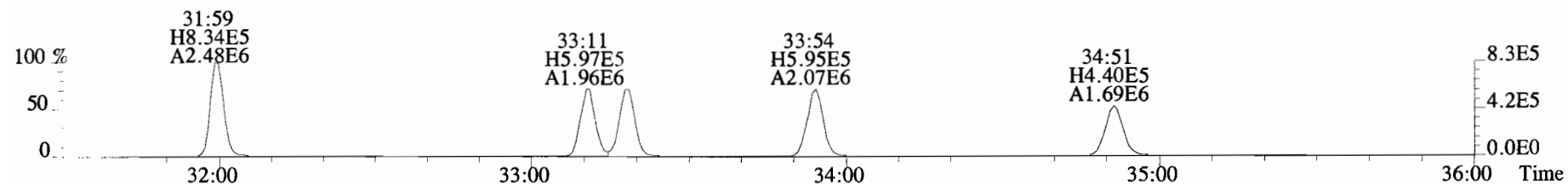


File:191106D1 #1-211 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

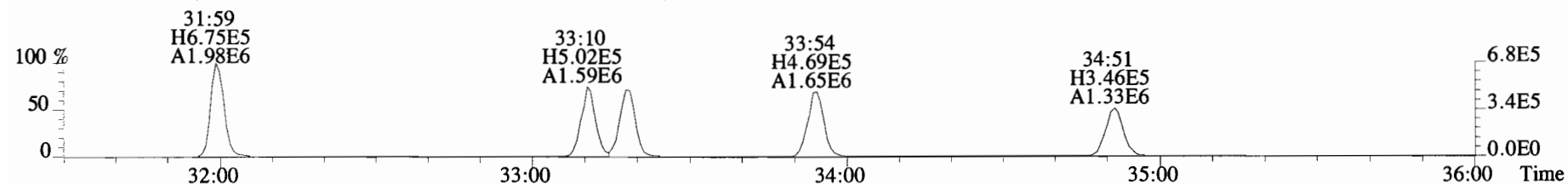




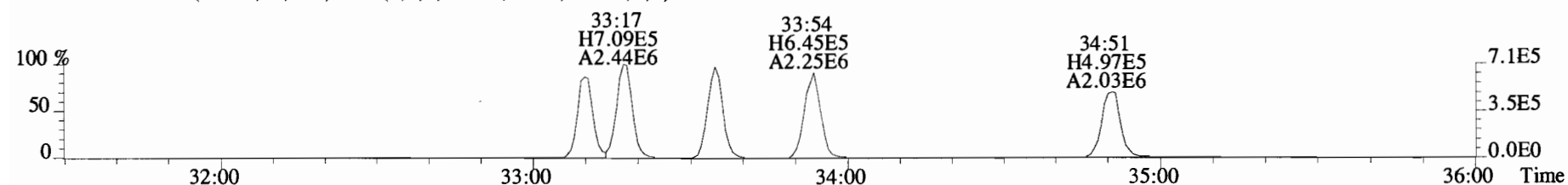
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



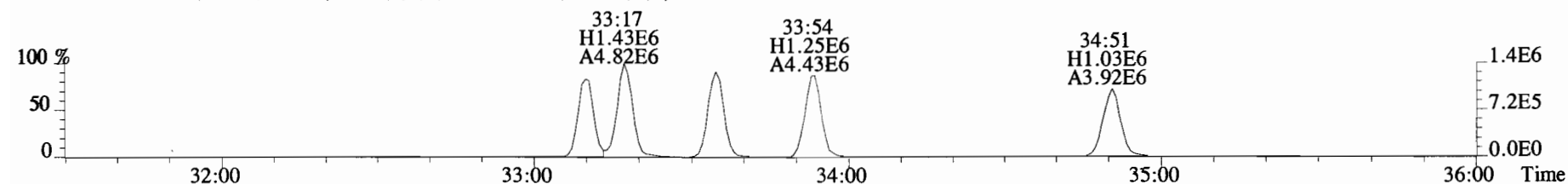
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



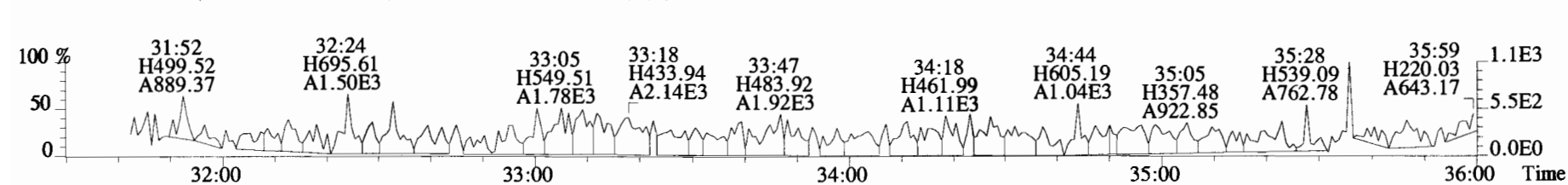
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



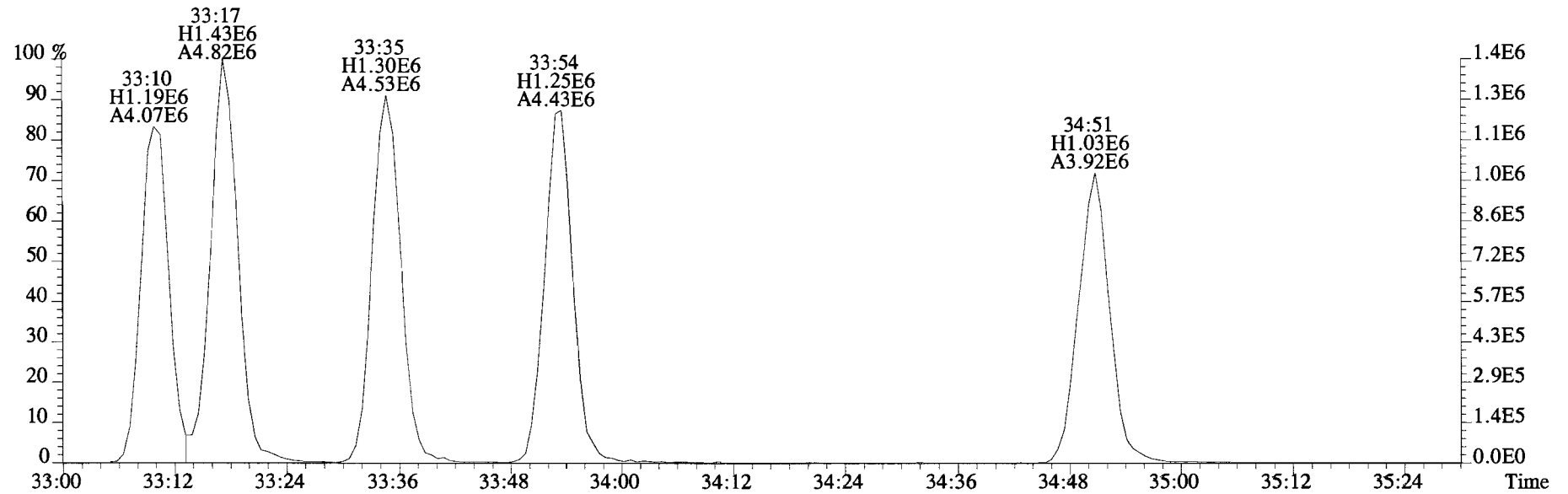
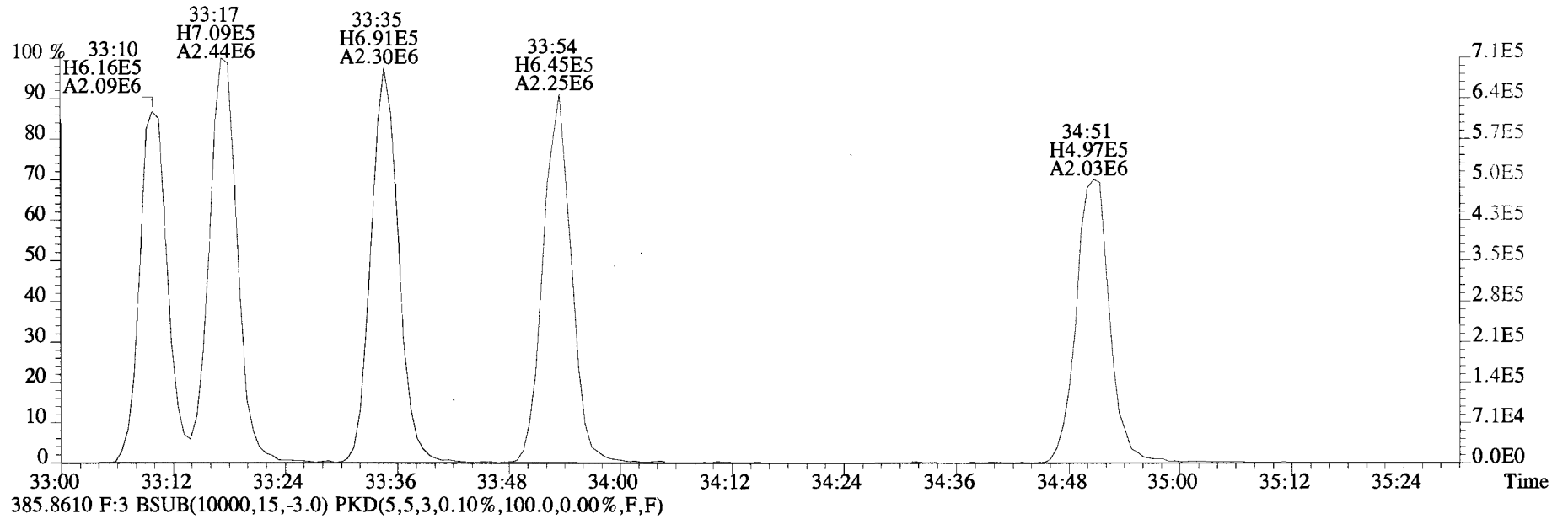
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



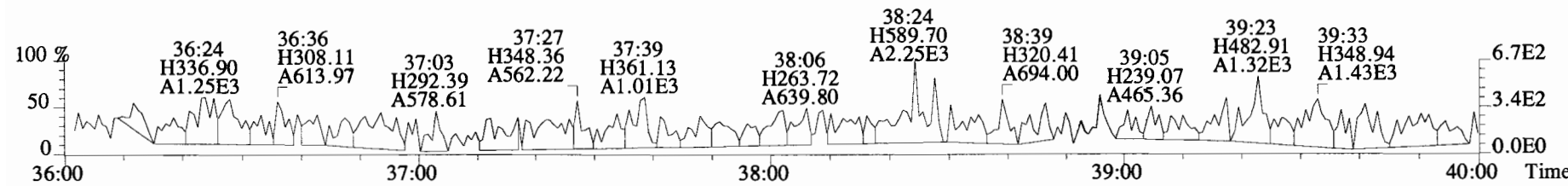
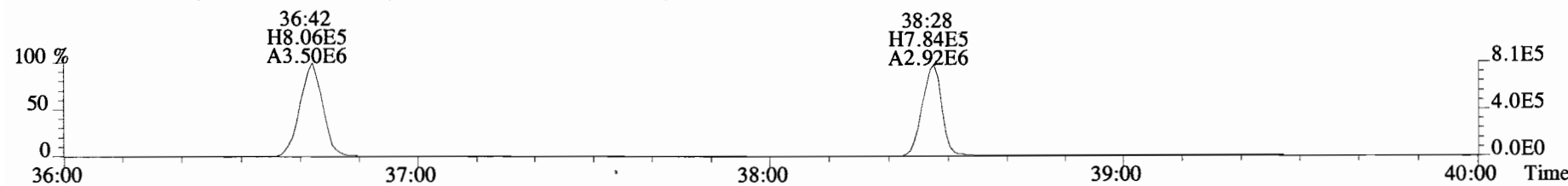
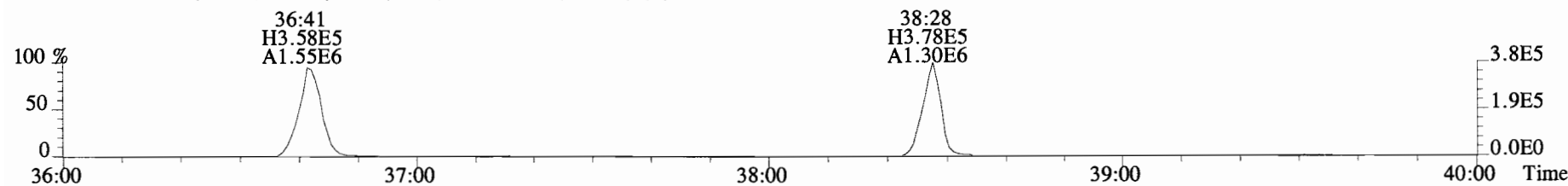
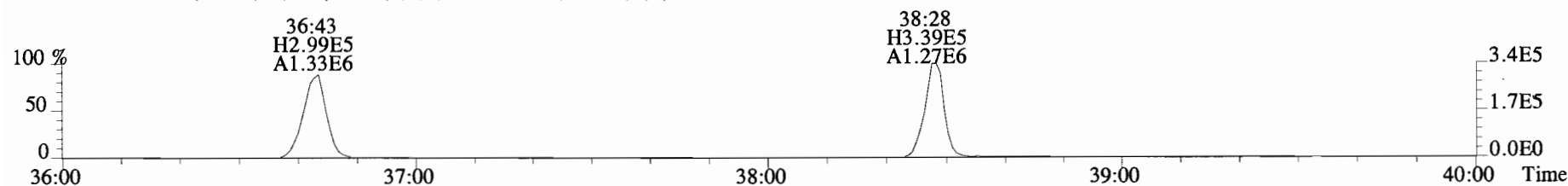
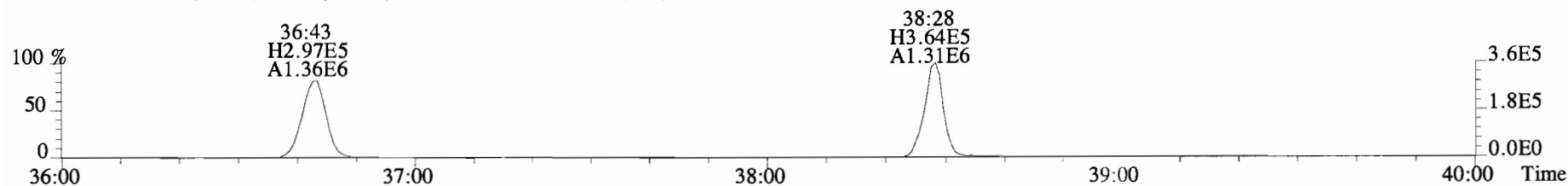
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



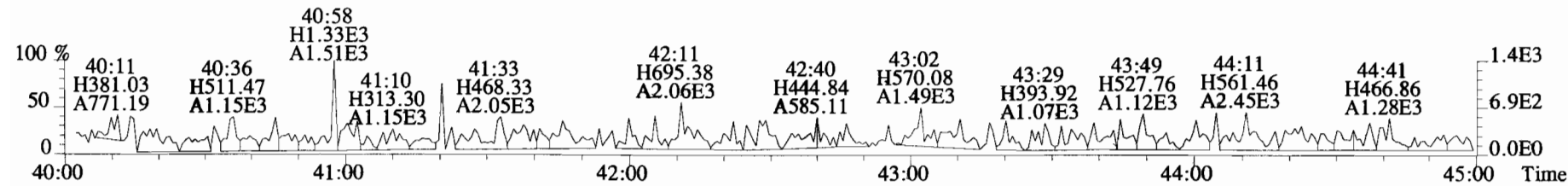
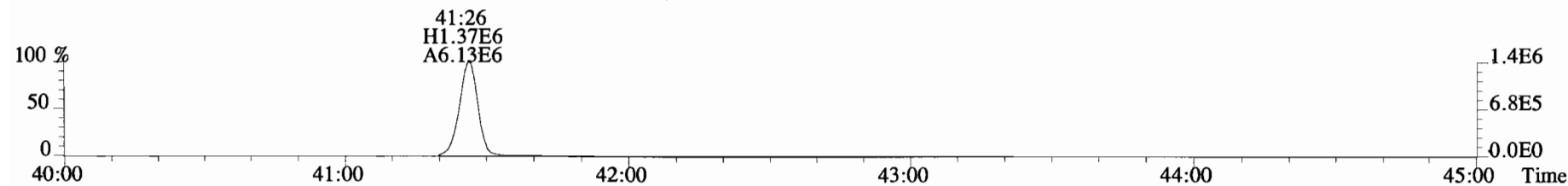
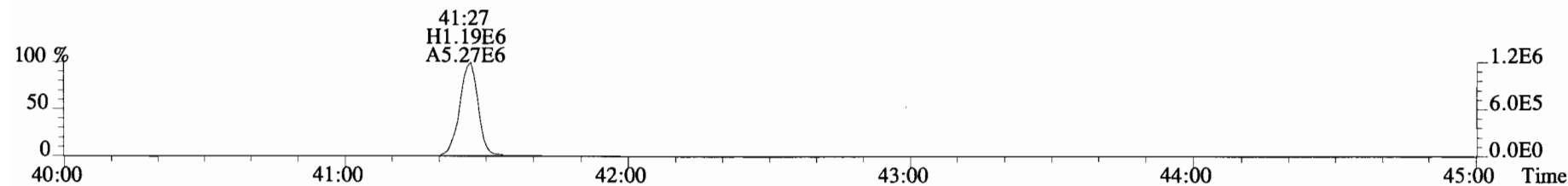
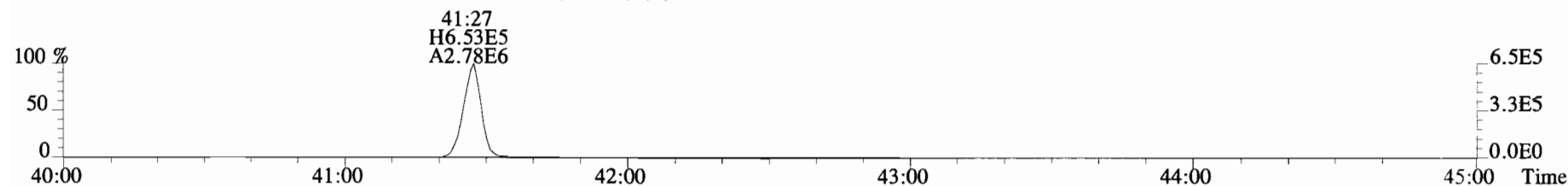
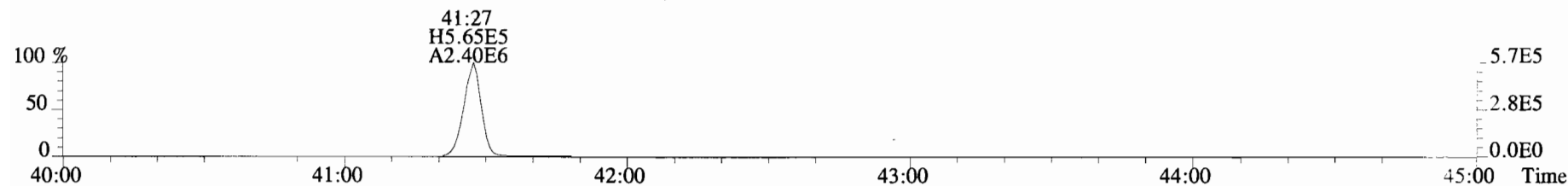
File:191106D1 #1-384 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

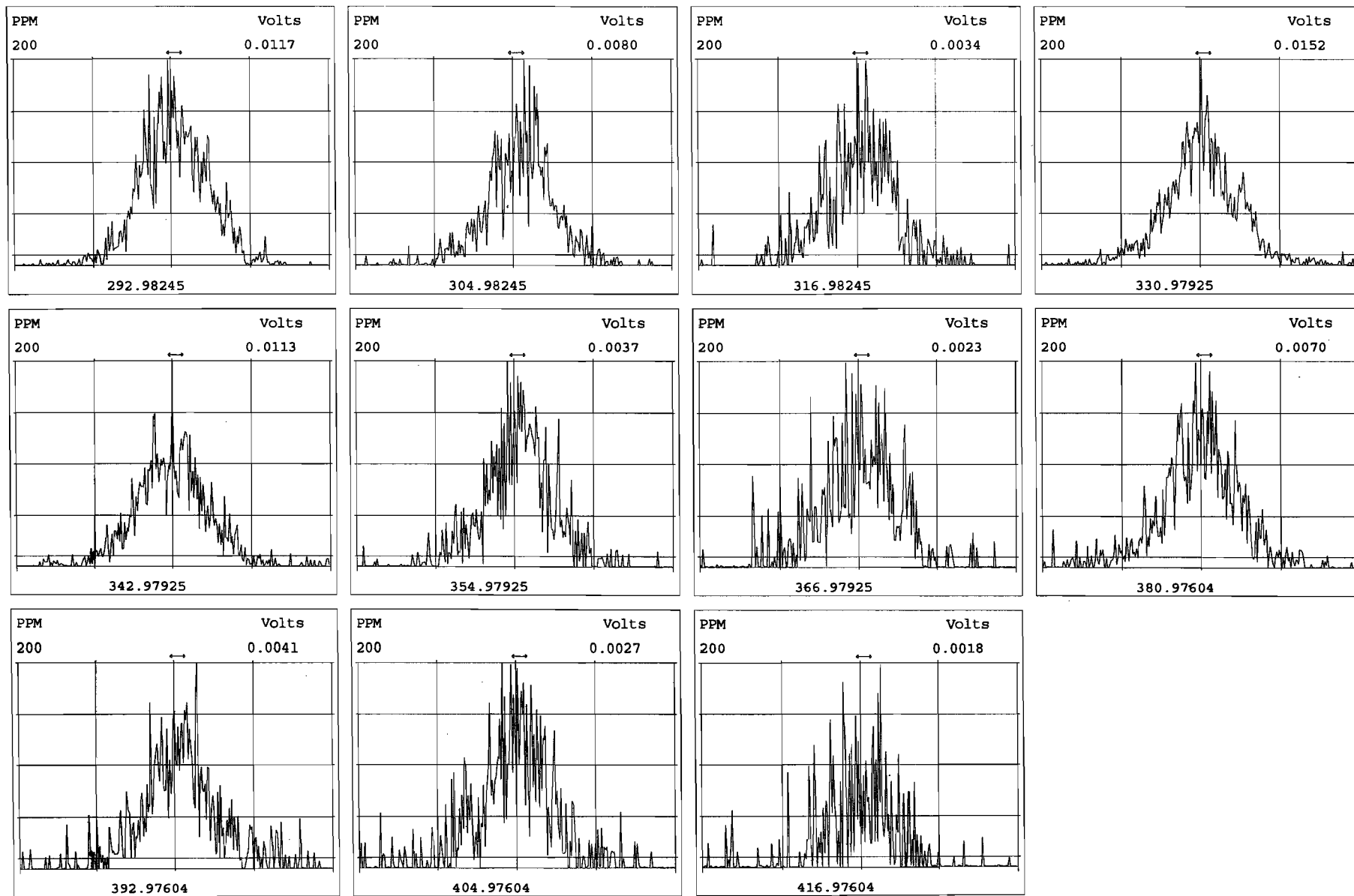


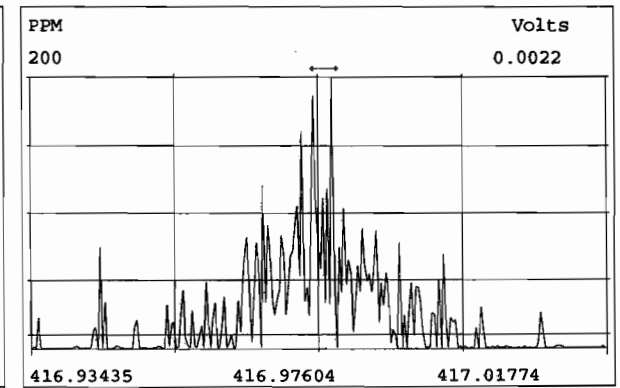
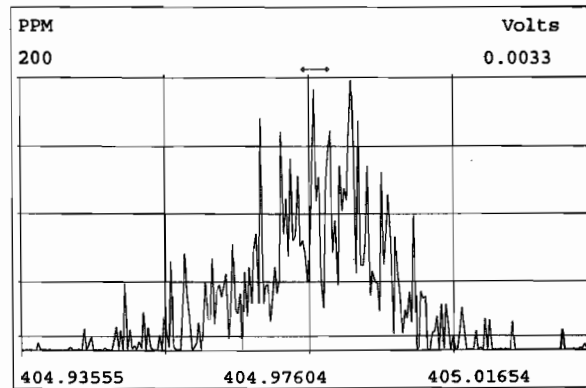
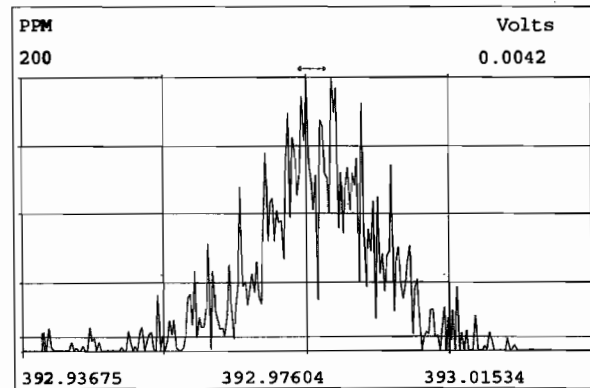
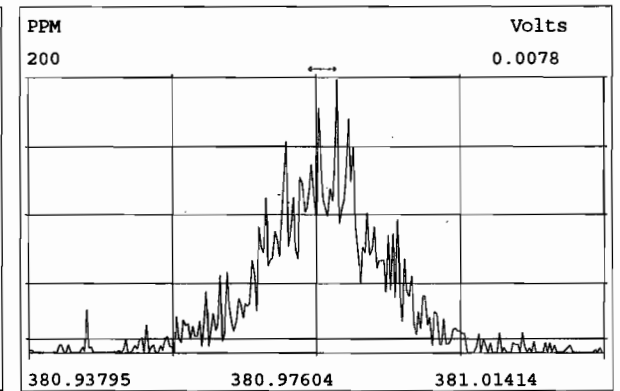
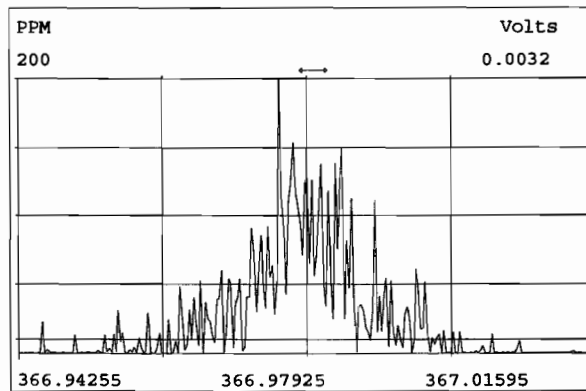
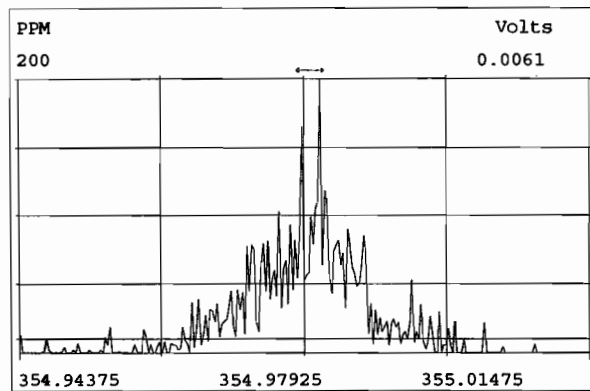
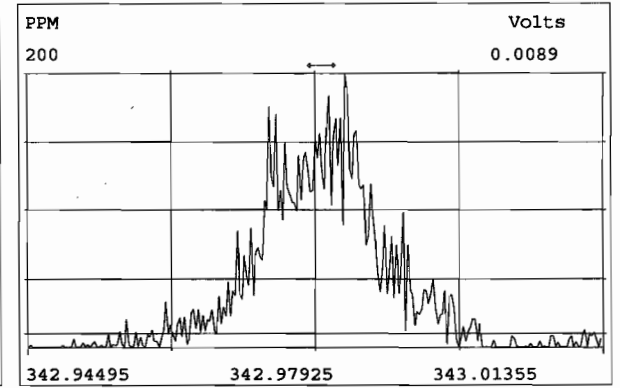
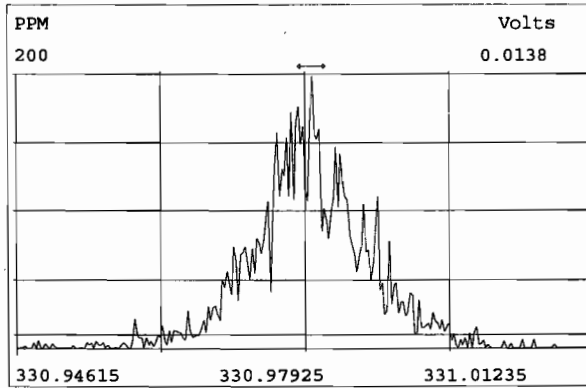
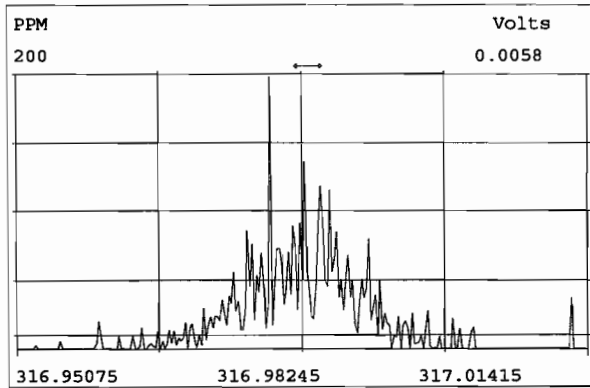
File:191106D1 #1-356 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%.100.0,0.00%,F,F)

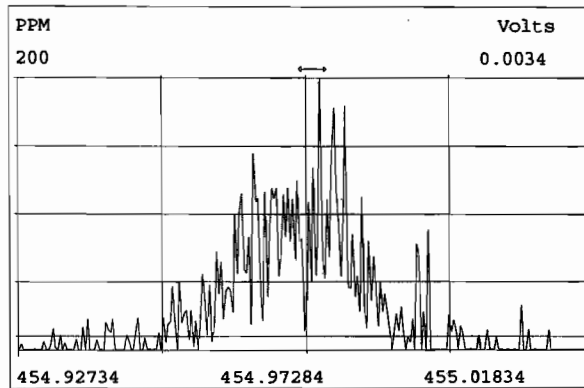
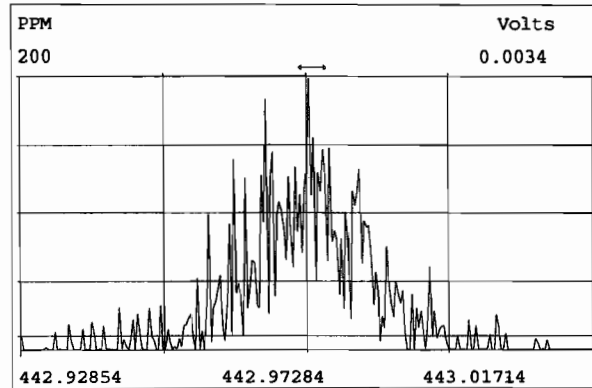
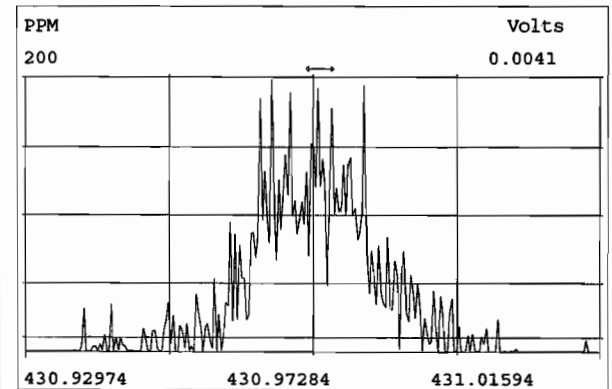
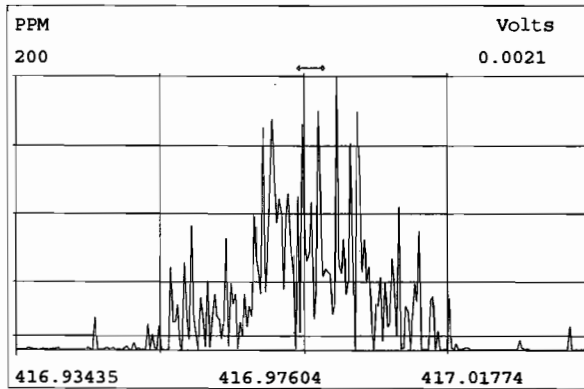
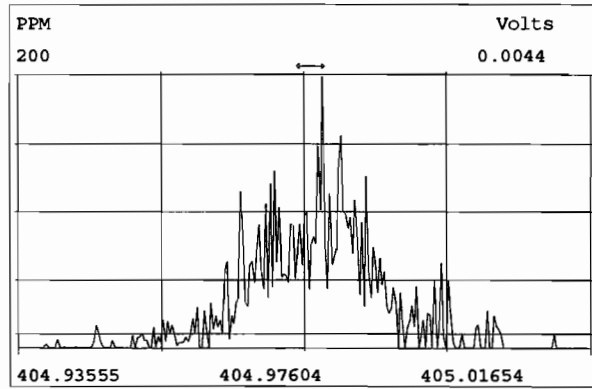
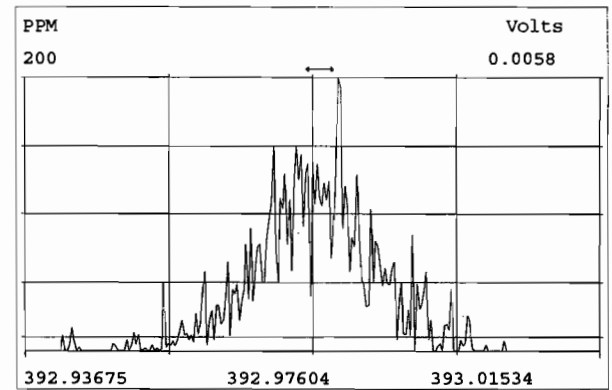
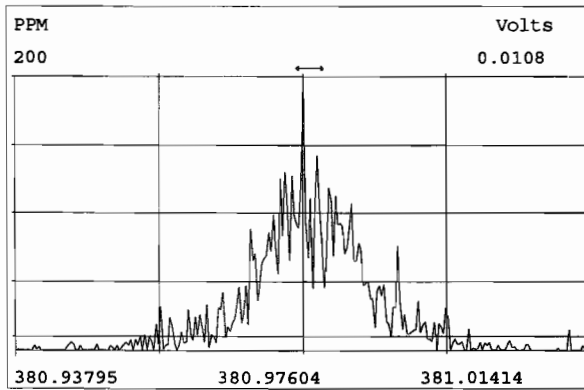
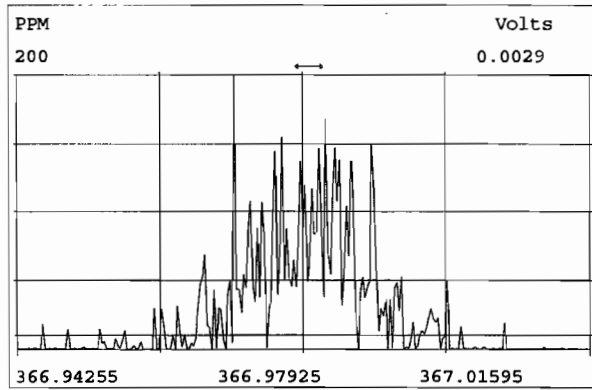


File:191106D1 #1-431 Acq: 6-NOV-2019 11:41:40 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191106D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



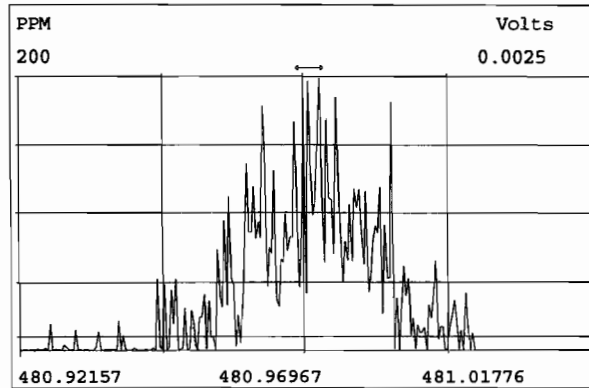
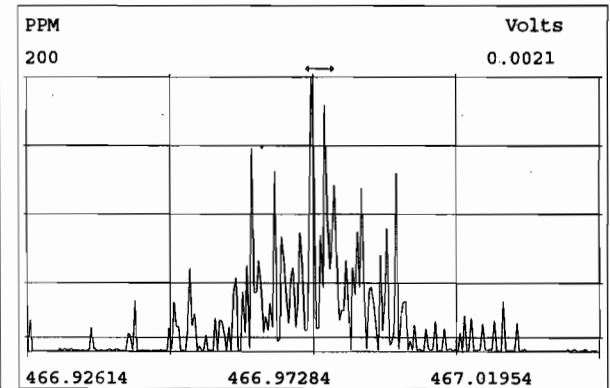
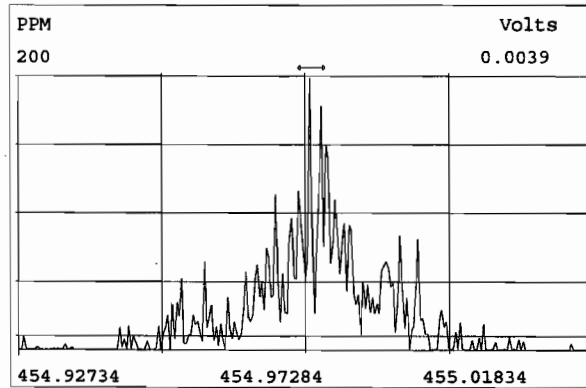
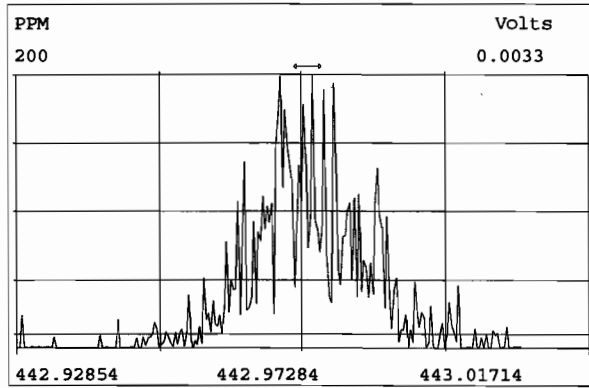
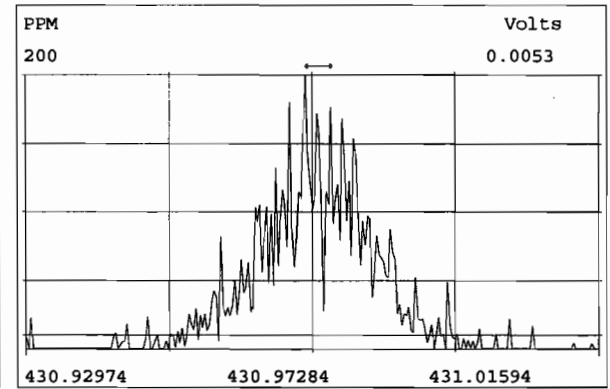
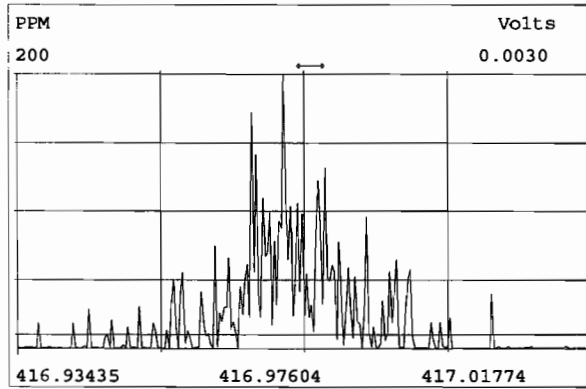
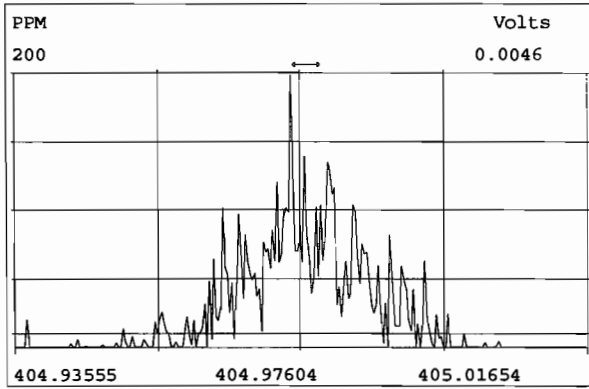






Peak Locate Examination: 6-NOV-2019:23:51 File:RES\_CHECK

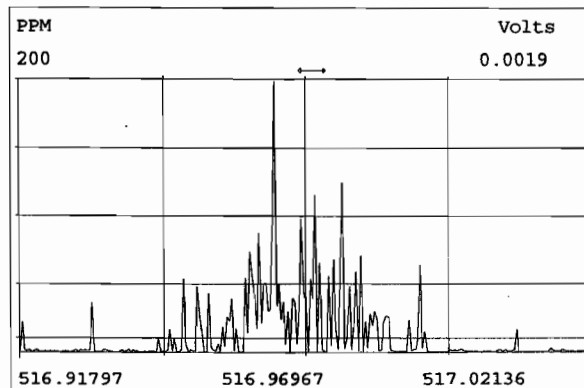
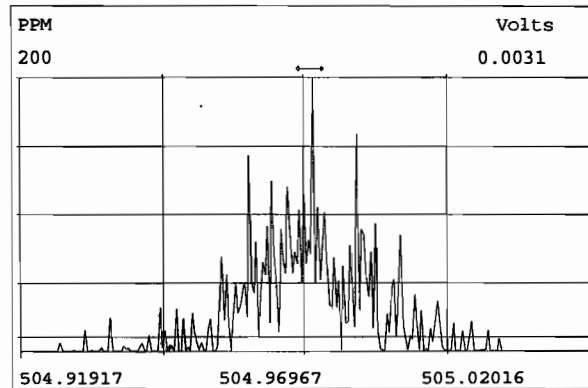
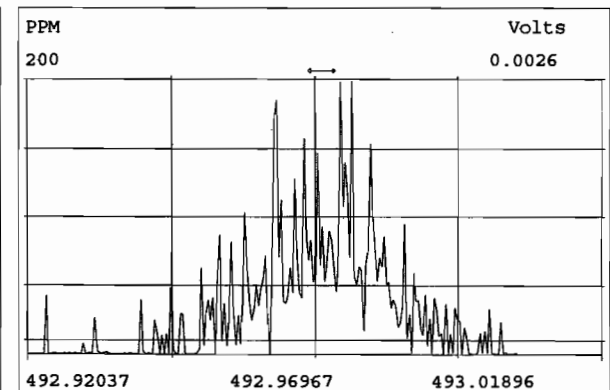
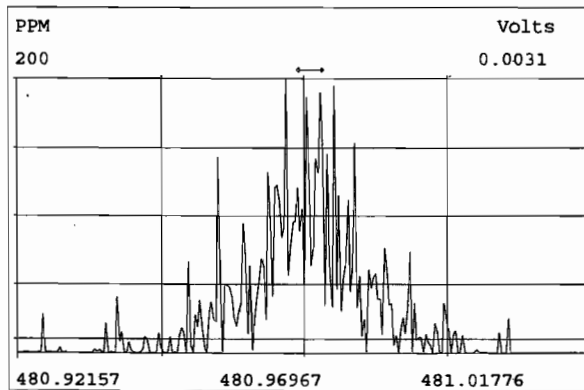
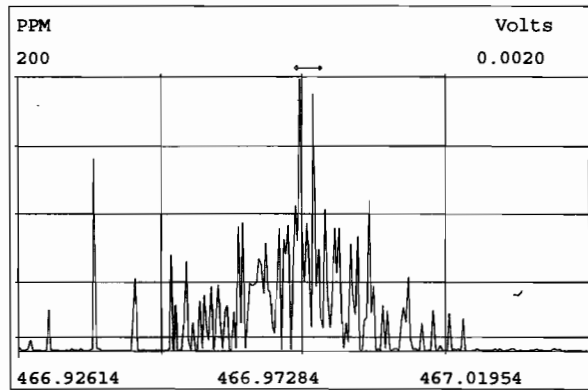
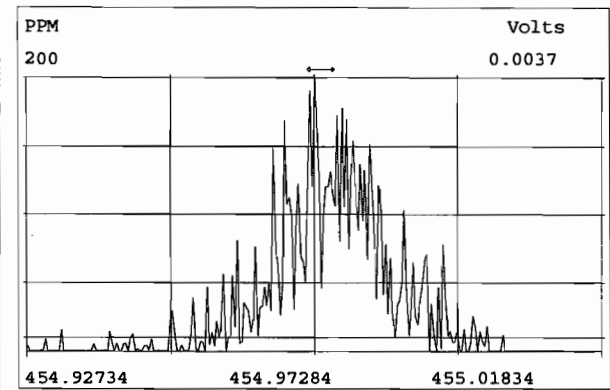
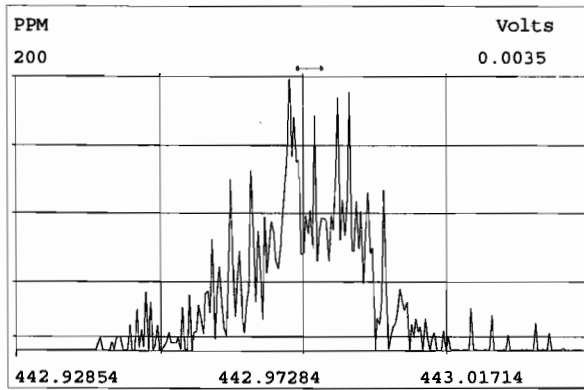
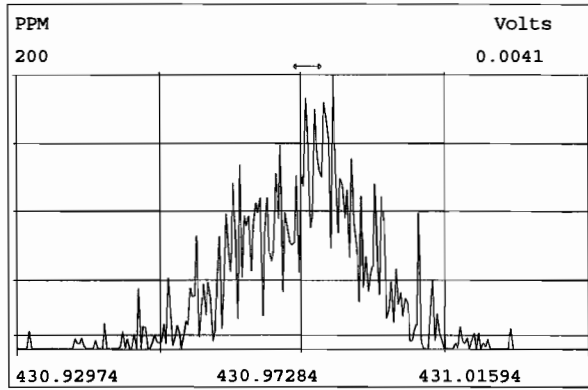
Experiment:OCDD\_DB5 Function:4 Reference:PFK





Peak Locate Examination: 6-NOV-2019:23:52 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 Reference:PFK



**HKMS CALIBRATION STANDARDS REVIEW CHECKLIST**

**Beg. Calibration ID:** ST191120D1-1

**Reviewed By:** CT 11/20/19  
*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		
<b>TCDD/TCDF Valleys &lt;25%</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1614   1699   429   1613/1668/8280		
<b>First and last eluters present?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Intergrated peaks display correctly?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>Retention Times within criteria?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>GC Break &lt;20%</b>		<input type="checkbox"/> NA
<b>Verification Std. named correctly?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b><u>8280 CS1 End Standard:</u></b>		
<b>(ST-Year-Month-Day-VG ID)</b>			<b>- Ratios within limits, S/N &lt;2.5:1, CS1 within 12 hours</b>		<input type="checkbox"/> NA
<b>Forms signed and dated?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Comments:</b>		
<b>Correct ICAL referenced?</b>	<u>DB</u>	<u>DB</u>			
<b><u>Run Log:</u></b>					
<b>- Correct Instrument listed?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y			
<b>- Samples within 12 hour clock?</b>	<input type="checkbox"/> (Y)	<input type="checkbox"/> N			
<b>- Bottle position verified?</b>	<input type="checkbox"/>	<u>DB</u>			

Vista Analytical Laboratory - Injection Log Run file: 191120D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191120D1	1	ST191120D1-1	DB	20-NOV-19	14:00:50	ST191120D1-1	NA
191120D1	2	ST191120D1-2	DB	20-NOV-19	14:48:37	ST191120D1-2	NA
191120D1	3	B9J0334-BS1	DB	20-NOV-19	15:36:27	ST191120D1-1	NA
191120D1	4	B9K0068-BS1	DB	20-NOV-19	16:24:12	ST191120D1-1	NA
191120D1	5	SOLVENT BLANK	DB	20-NOV-19	17:11:58	NA	NA
191120D1	6	B9J0334-BLK1	DB	20-NOV-19	17:59:44	ST191120D1-1	NA
191120D1	7	B9K0068-BLK1	DB	20-NOV-19	18:47:28	ST191120D1-1	NA
191120D1	8	QC191120D1-1	DB	20-NOV-19	19:35:16	ST191120D1-2	NA
191120D1	9	QC191120D1-2	DB	20-NOV-19	20:22:58	ST191120D1-2	NA
191120D1	10	QC191120D1-3	DB	20-NOV-19	21:10:49	ST191120D1-2	NA
191120D1	11	1903565-18RE2	DB	20-NOV-19	21:58:32	ST191120D1-1	NA
191120D1	12	1903565-17RE2	DB	20-NOV-19	22:46:18	ST191120D1-1	NA
191120D1	13	1903565-15RE2	DB	20-NOV-19	23:34:02	ST191120D1-1	NA
191120D1	14	1903779-02	DB	21-NOV-19	00:21:47	ST191120D1-1	NA
191120D1	15	QC191120D1-4	DB	21-NOV-19	01:09:32	ST191120D1-2	NA

FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191120D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

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	0.79	0.65-0.89	y	10.4	7.8 - 12.9
						8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	51.3	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	50.3	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.19	1.05-1.43	y	52.3	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	y	50.9	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	y	50.2	43.0 - 58.0
OCDD	M+2/M+4	0.90	0.76-1.02	y	100	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	y	9.54	8.4 - 12.0
						8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.64	1.32-1.78	y	50.0	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	50.0	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	47.6	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	48.8	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	49.2	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	y	49.4	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	y	46.9	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	y	46.0	43.0 - 58.0
OCDF	M+2/M+4	0.88	0.76-1.02	y	98.0	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: 11/20/19

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: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

Labeled Compounds	M/Z'S	ION	QC	Pass	Conc. Found	Conc. Range (ng/mL)
	Forming Ratio (1)	Abund. Ratio	Limits (2)			
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	103	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	105	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	107	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	93.8	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	105	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	113	72.0 - 138.0
13C-OCDD	M/M+2	0.89	0.76-1.02	y	238	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	104	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	112	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	111	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	106	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	y	97.3	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	103	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	0.44	0.37-0.51	y	108	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	121	77.0 - 129.0
13C-OCDF	M+2/M+4	0.88	0.76-1.02	y	239	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.71	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: 11/20/19

## 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: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

ZB-5MS IS Data Filename: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

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)	22:49	1,3,6,8-TCDF (F)	20:41
1,2,8,9-TCDD (L)	27:03	1,2,8,9-TCDF (L)	27:12
1,2,4,7,9-PeCDD (F)	28:40	1,3,4,6,8-PeCDF (F)	27:10
1,2,3,8,9-PeCDD (L)	31:04	1,2,3,8,9-PeCDF (L)	31:18
1,2,4,6,7,9-HxCDD (F)	32:29	1,2,3,4,6,8-HxCDF (F)	31:57
1,2,3,7,8,9-HxCDD (L)	34:26	1,2,3,7,8,9-HxCDF (L)	34:48
1,2,3,4,6,7,9-HpCDD (F)	37:01	1,2,3,4,6,7,8-HpCDF (F)	36:39
1,2,3,4,6,7,8-HpCDD (L)	37:52	1,2,3,4,7,8,9-HpCDF (L)	38:25

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

## =====

## ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

&lt;25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DBDate: 11/20/19

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: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	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	1.001	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	1.198	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	1.153	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.187	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: 11/20/19

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: 191120D1 S#1 Analysis Date: 20-NOV-19 Time: 14:00:50

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	1.001	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	1.001	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	1.001	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	1.017	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: 11/20/19



Client ID: 1613 CS3 19C2204  
Lab ID: ST191120D1-1

Filename: 191120D1 S:1 Acq:20-NOV-19 14:00:50  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

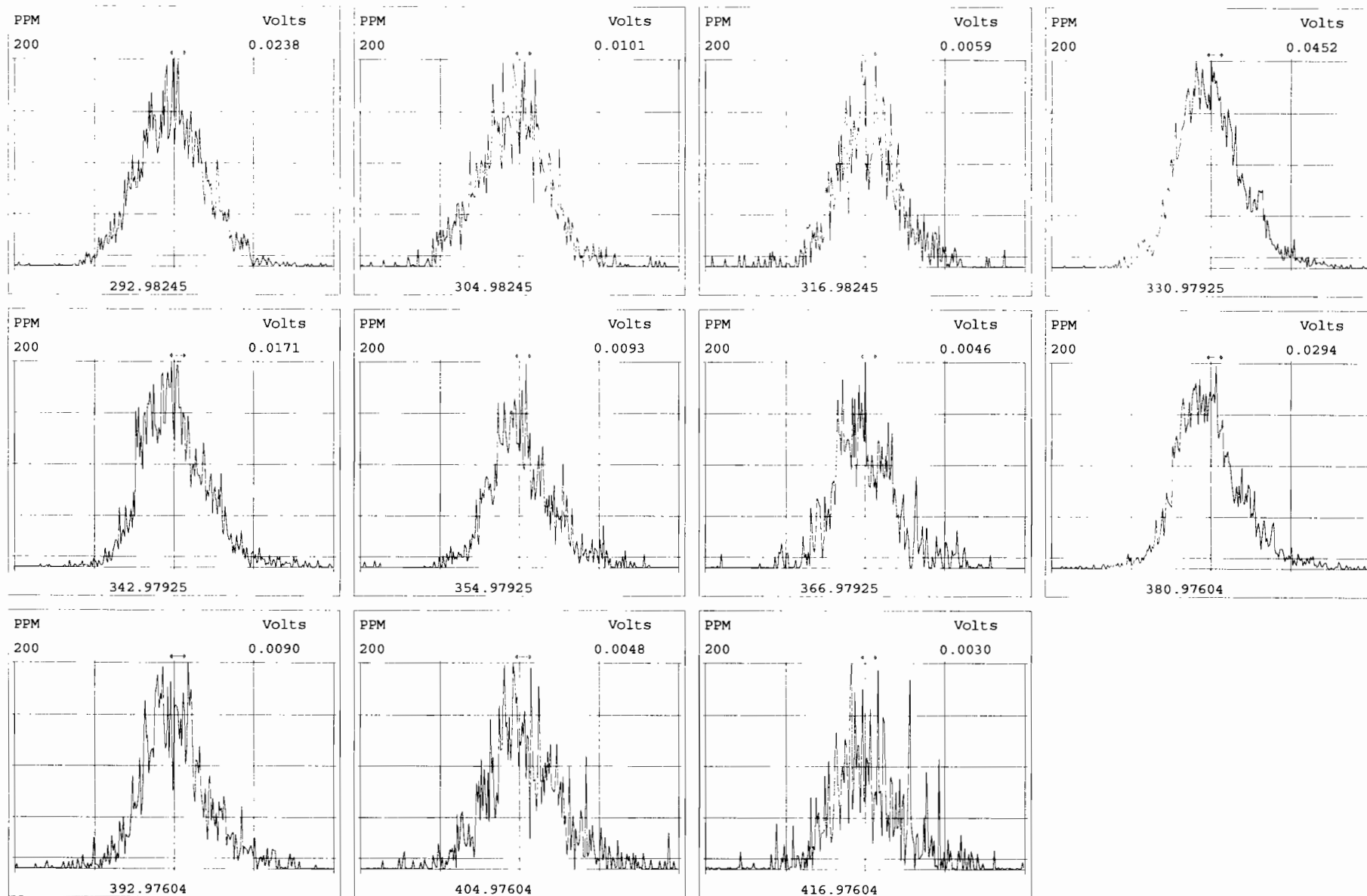
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EndCAL: NA

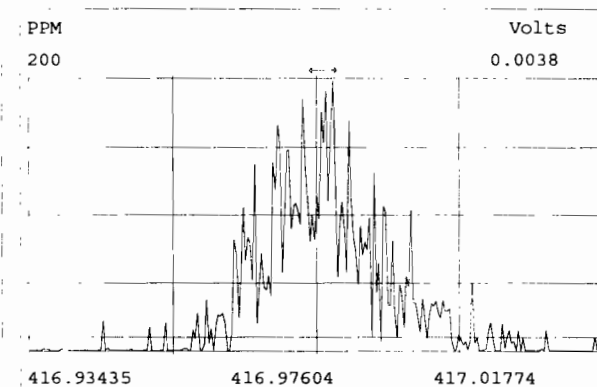
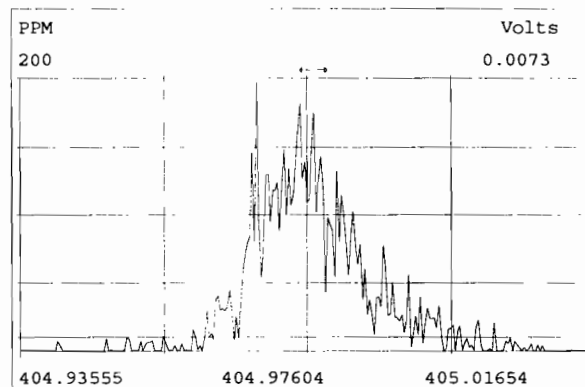
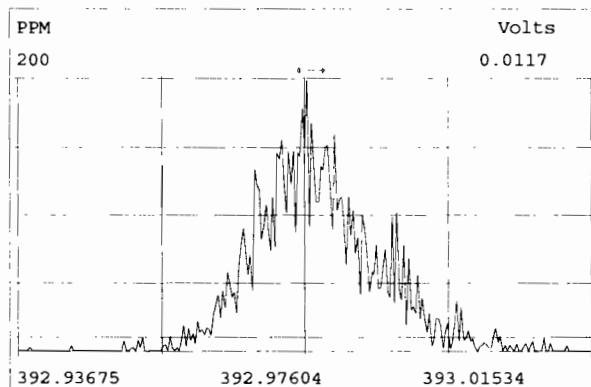
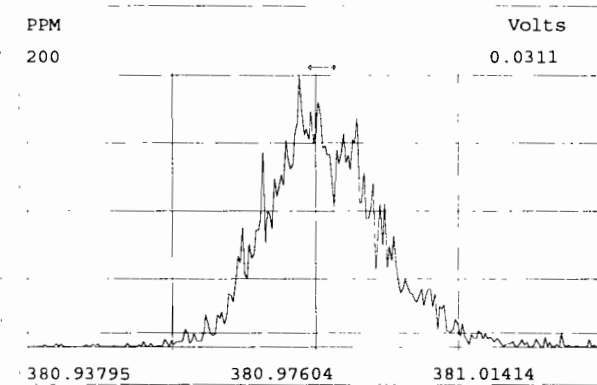
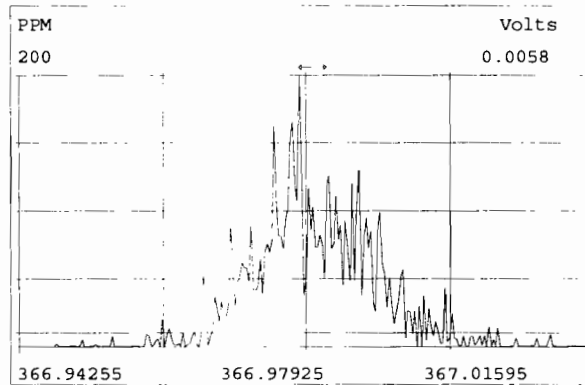
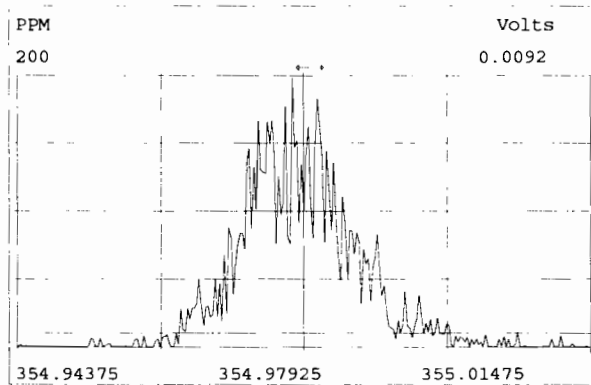
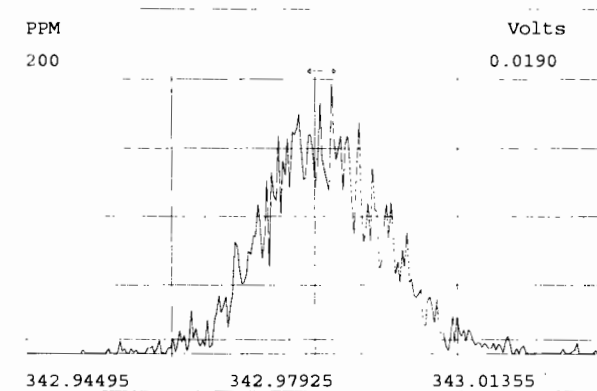
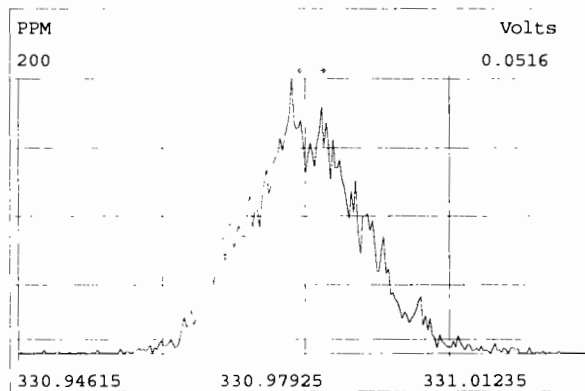
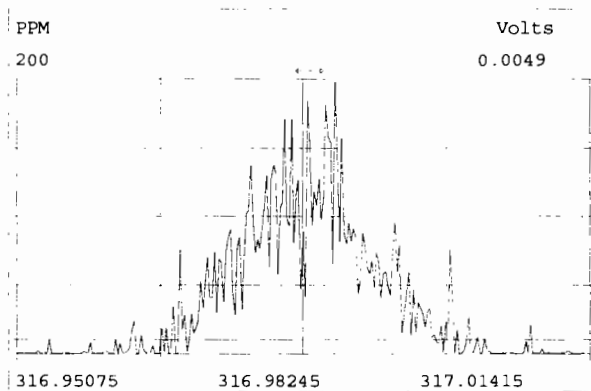
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	6.96e+05	0.79 y	0.91	26:12	10.401		*	2.5	*	Total Tetra-Dioxins	75.0	75.9		*	*
1,2,3,7,8-PeCDD	2.80e+06	0.62 y	0.90	30:43	51.337		*	2.5	*	Total Penta-Dioxins	188	188		*	*
1,2,3,4,7,8-HxCDD	2.70e+06	1.29 y	1.10	34:01	50.316		*	2.5	*	Total Hexa-Dioxins	225	226		*	*
1,2,3,6,7,8-HxCDD	2.80e+06	1.19 y	0.94	34:08	52.341		*	2.5	*	Total Hepta-Dioxins	116	117		*	*
1,2,3,7,8,9-HxCDD	2.94e+06	1.25 y	0.96	34:26	50.892		*	2.5	*	Total Tetra-Furans	35.8	37.5		*	*
1,2,3,4,6,7,8-HpCDD	2.58e+06	1.01 y	0.98	37:52	50.231		*	2.5	*	Total Penta-Furans	226.33	226.98		*	*
OCDD	4.72e+06	0.90 y	0.96	41:09	100.44		*	2.5	*	Total Hexa-Furans	258	259		*	*
										Total Hepta-Furans	94.0	95.5		*	*
2,3,7,8-TCDF	8.93e+05	0.77 y	0.95	25:25	9.5409		*	2.5	*						
1,2,3,7,8-PeCDF	4.19e+06	1.64 y	0.96	29:32	50.031		*	2.5	*						
2,3,4,7,8-PeCDF	4.34e+06	1.59 y	1.01	30:26	50.040		*	2.5	*						
1,2,3,4,7,8-HxCDF	3.49e+06	1.21 y	1.18	33:08	47.593		*	2.5	*						
1,2,3,6,7,8-HxCDF	3.73e+06	1.23 y	1.07	33:15	48.817		*	2.5	*						
2,3,4,6,7,8-HxCDF	3.83e+06	1.22 y	1.11	33:51	49.152		*	2.5	*						
1,2,3,7,8,9-HxCDF	3.24e+06	1.25 y	1.06	34:48	49.365		*	2.5	*						
1,2,3,4,6,7,8-HpCDF	3.08e+06	1.02 y	1.13	36:39	46.934		*	2.5	*						
1,2,3,4,7,8,9-HpCDF	2.94e+06	1.00 y	1.28	38:25	46.042		*	2.5	*						
OCDF	5.41e+06	0.88 y	0.95	41:22	97.962		*	2.5	*						
										Rec	Qual				
IS 13C-2,3,7,8-TCDD	7.39e+06	0.79 y	1.10	26:11	103.17					103					
IS 13C-1,2,3,7,8-PeCDD	6.05e+06	0.63 y	0.88	30:42	104.99					105					
IS 13C-1,2,3,4,7,8-HxCDD	4.87e+06	1.28 y	0.64	33:60	107.03					107					
IS 13C-1,2,3,6,7,8-HxCDD	5.69e+06	1.23 y	0.86	34:06	93.847					93.8					
IS 13C-1,2,3,7,8,9-HxCDD	6.01e+06	1.26 y	0.81	34:24	105.01					105					
IS 13C-1,2,3,4,6,7,8-HpCDD	5.25e+06	1.06 y	0.65	37:51	113.27					113					
IS 13C-OCDD	9.80e+06	0.89 y	0.58	41:08	238.40					119					
IS 13C-2,3,7,8-TCDF	9.85e+06	0.79 y	1.03	25:24	104.48					104					
IS 13C-1,2,3,7,8-PeCDF	8.72e+06	1.62 y	0.85	29:31	112.02					112					
IS 13C-2,3,4,7,8-PeCDF	8.55e+06	1.59 y	0.85	30:25	110.74					111					
IS 13C-1,2,3,4,7,8-HxCDF	6.22e+06	0.52 y	0.83	33:06	105.53					106					
IS 13C-1,2,3,6,7,8-HxCDF	7.14e+06	0.53 y	1.03	33:14	97.296					97.3					
IS 13C-2,3,4,6,7,8-HxCDF	6.99e+06	0.51 y	0.95	33:50	103.36					103					
IS 13C-1,2,3,7,8,9-HxCDF	6.18e+06	0.53 y	0.83	34:47	105.35					105					
IS 13C-1,2,3,4,6,7,8-HpCDF	5.81e+06	0.44 y	0.76	36:38	108.20					108					
IS 13C-1,2,3,4,7,8,9-HpCDF	4.99e+06	0.44 y	0.58	38:24	121.17					121					
IS 13C-OCDF	1.17e+07	0.88 y	0.69	41:21	238.80					119					
C/Up 37Cl-2,3,7,8-TCDD	7.60e+05		1.20	26:12	9.7058					97.1					
RS/RT 13C-1,2,3,4-TCDD	6.54e+06	0.76 y	1.00	25:37	100.00						Integrations	Reviewed			
RS 13C-1,2,3,4-TCDF	9.11e+06	0.80 y	1.00	24:12	100.00						by	by			
RS/RT 13C-1,2,3,4,6,9-HxCDF	7.09e+06	0.51 y	1.00	33:31	100.00						Analyst: <u>DB</u>	Analyst: <u>CT</u>			

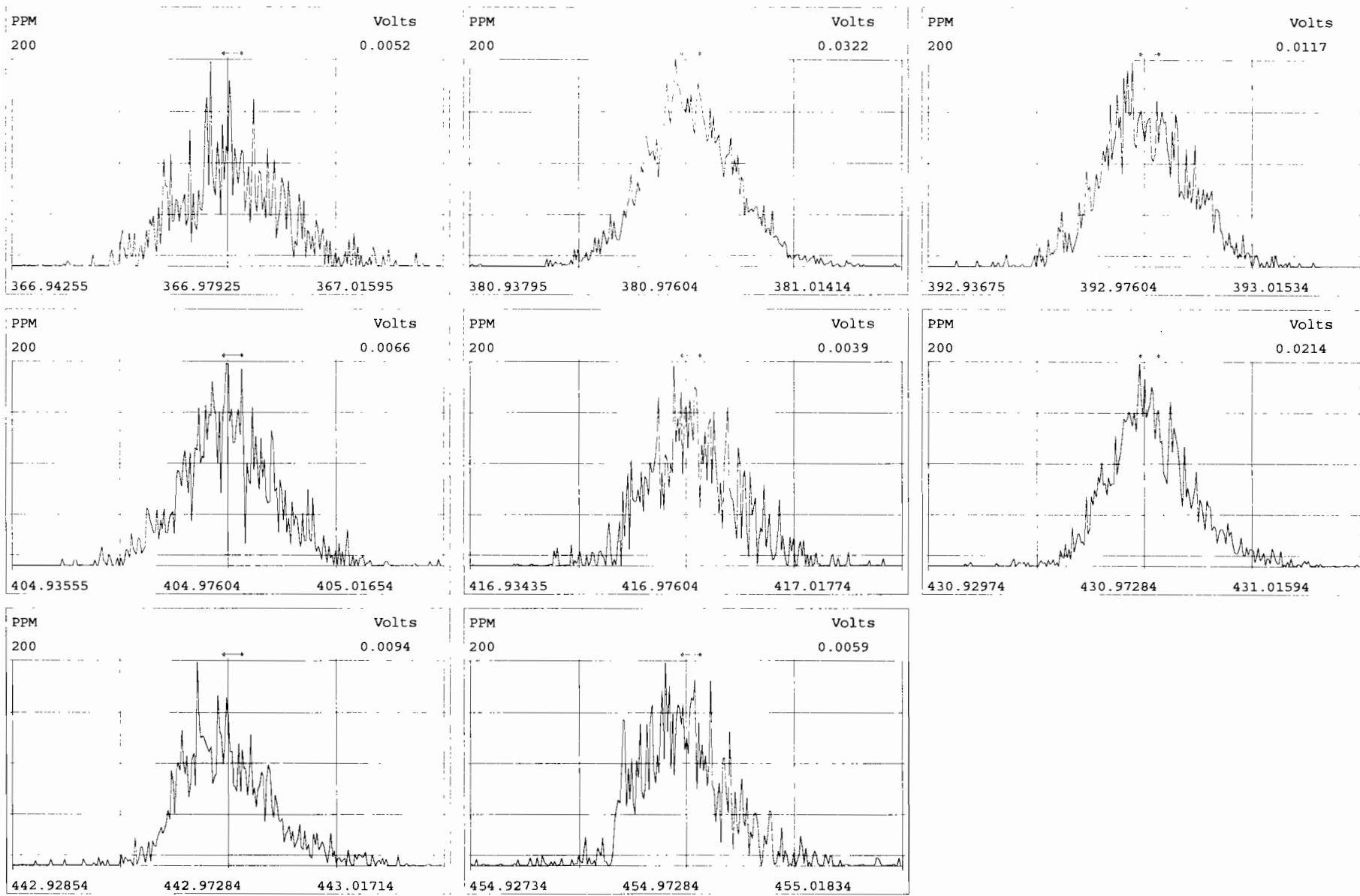
Date: 11/20/19 Date: 11/26/19

Vista Analytical Laboratory - Injection Log Run file: 191120D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191120D1	1	ST191120D1-1	DB	20-NOV-19	14:00:50	ST191120D1-1	NA
191120D1	2	ST191120D1-2	DB	20-NOV-19	14:48:37	ST191120D1-2	NA
191120D1	3	B9J0334-BS1	DB	20-NOV-19	15:36:27	ST191120D1-1	NA
191120D1	4	B9K0068-BS1	DB	20-NOV-19	16:24:12	ST191120D1-1	NA
191120D1	5	SOLVENT BLANK	DB	20-NOV-19	17:11:58	NA	NA
191120D1	6	B9J0334-BLK1	DB	20-NOV-19	17:59:44	ST191120D1-1	NA
191120D1	7	B9K0068-BLK1	DB	20-NOV-19	18:47:28	ST191120D1-1	NA
191120D1	8	QC191120D1-1	DB	20-NOV-19	19:35:16	ST191120D1-2	NA
191120D1	9	QC191120D1-2	DB	20-NOV-19	20:22:58	ST191120D1-2	NA
191120D1	10	QC191120D1-3	DB	20-NOV-19	21:10:49	ST191120D1-2	NA
191120D1	11	1903565-18RE2	DB	20-NOV-19	21:58:32	ST191120D1-1	NA
191120D1	12	1903565-17RE2	DB	20-NOV-19	22:46:18	ST191120D1-1	NA
191120D1	13	1903565-15RE2	DB	20-NOV-19	23:34:02	ST191120D1-1	NA
191120D1	14	1903779-02	DB	21-NOV-19	00:21:47	ST191120D1-1	NA
191120D1	15	QC191120D1-4	DB	21-NOV-19	01:09:32	ST191120D1-2	NA

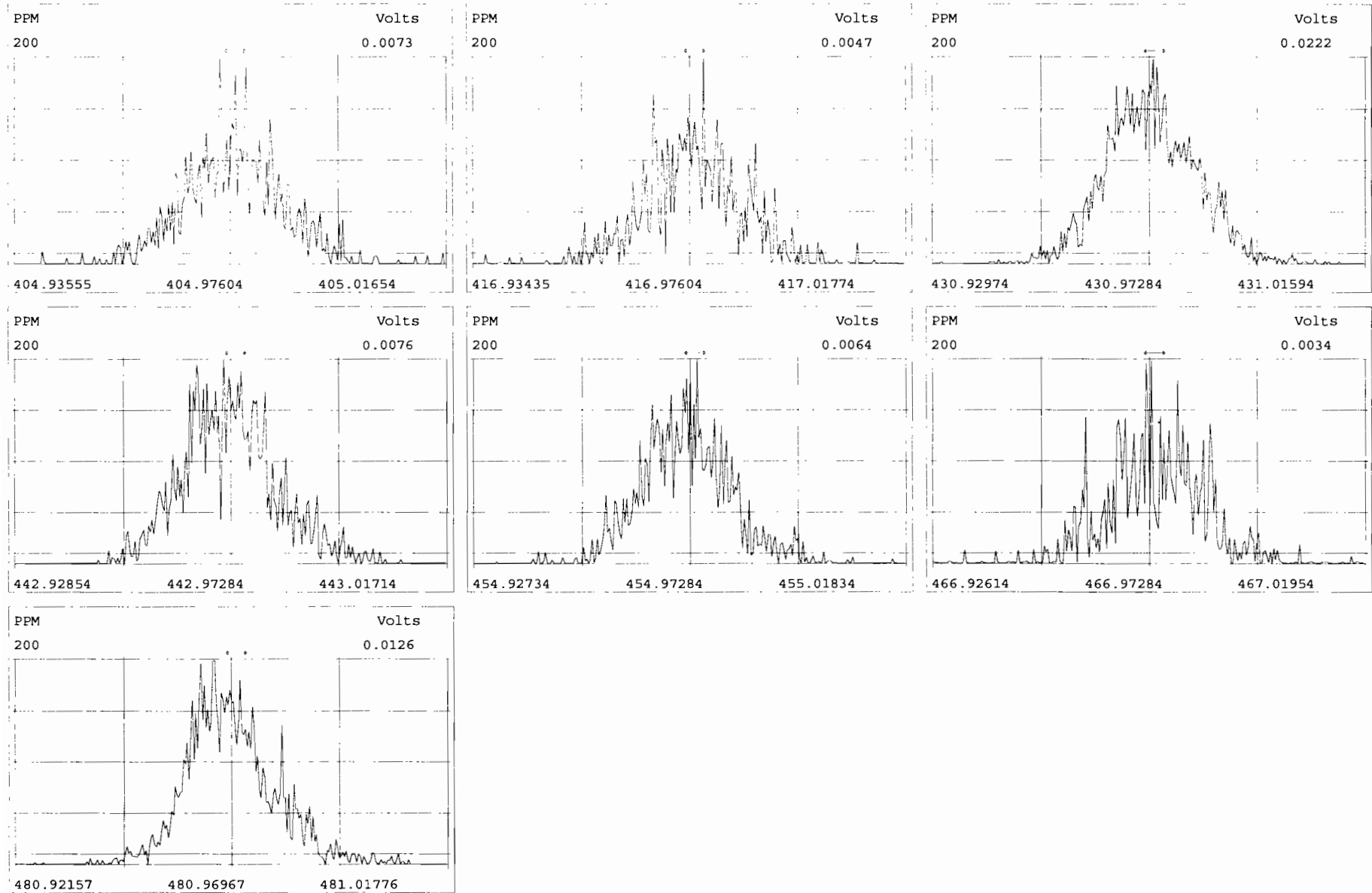


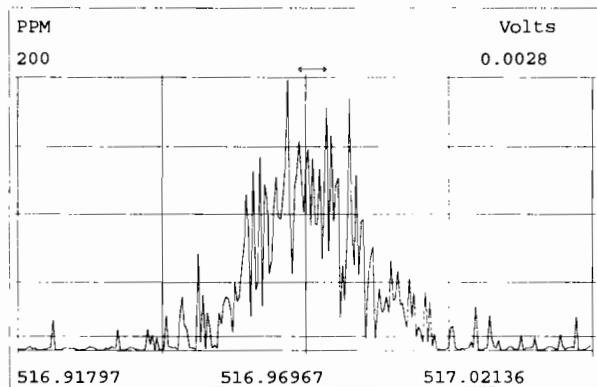
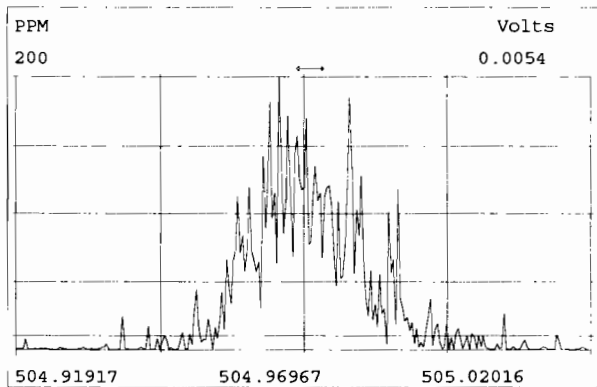
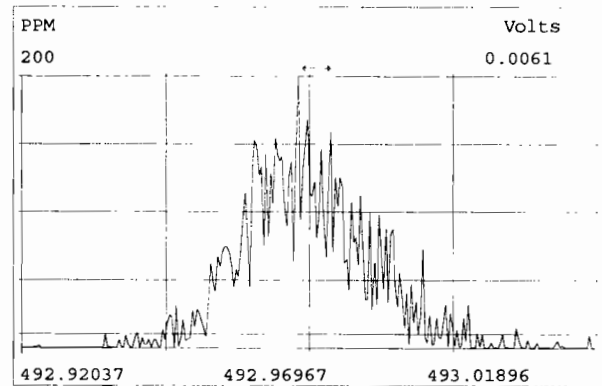
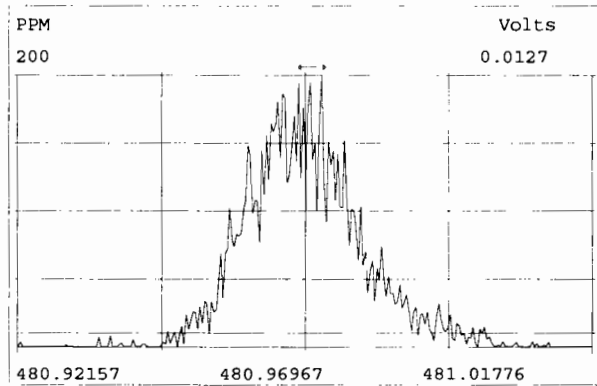
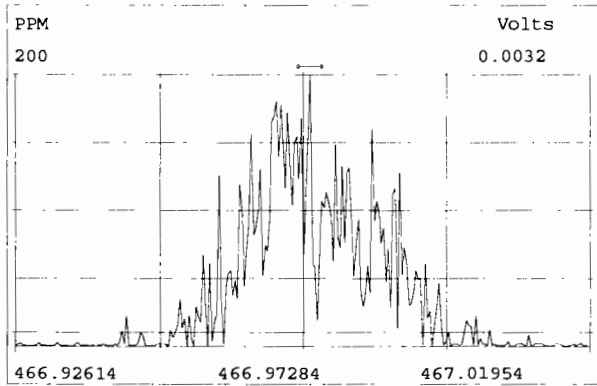
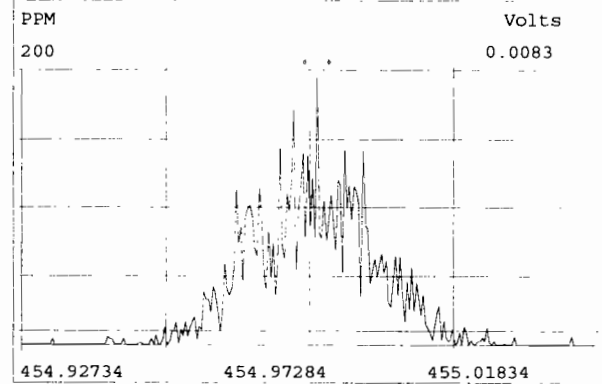
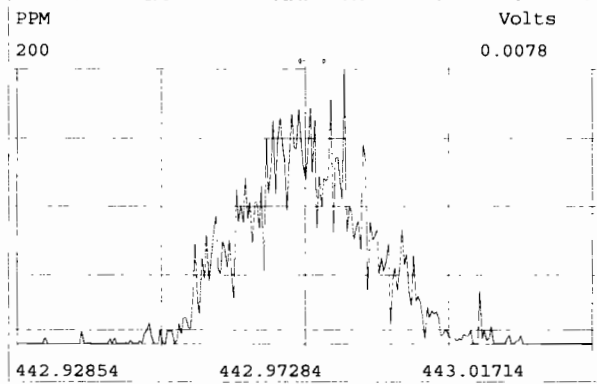
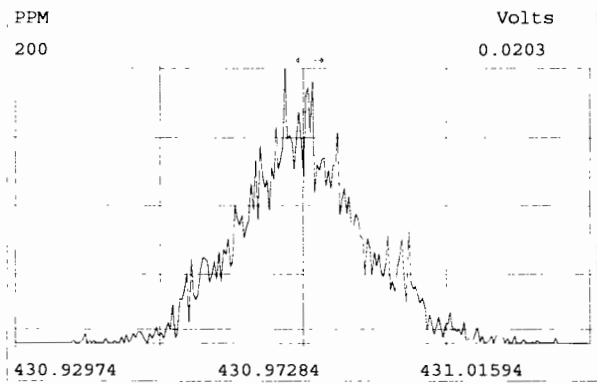




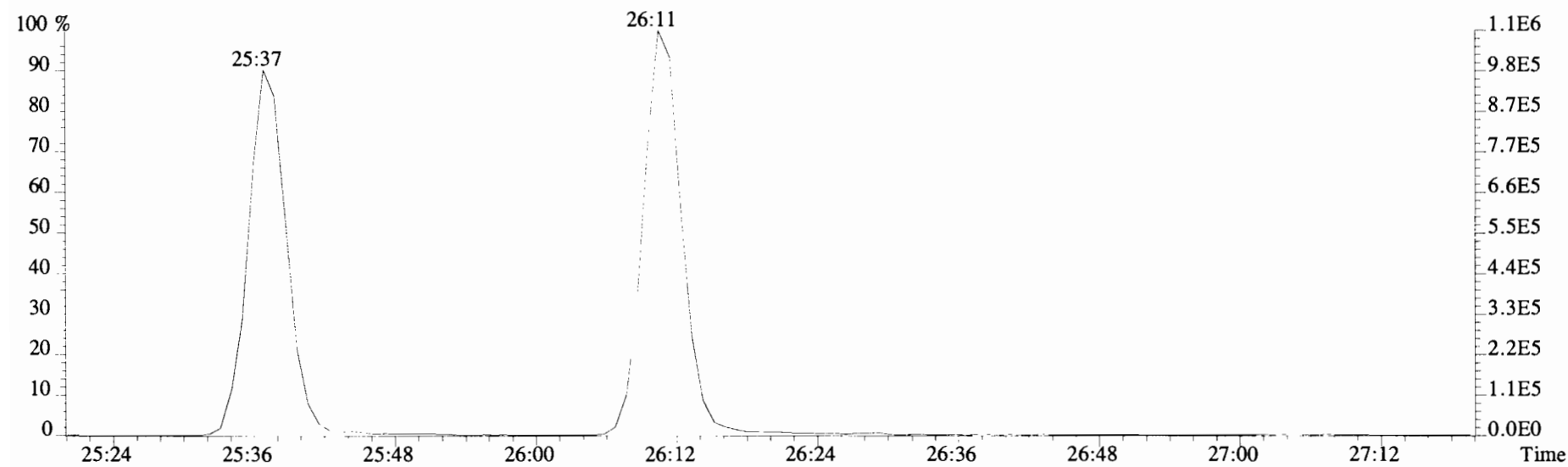
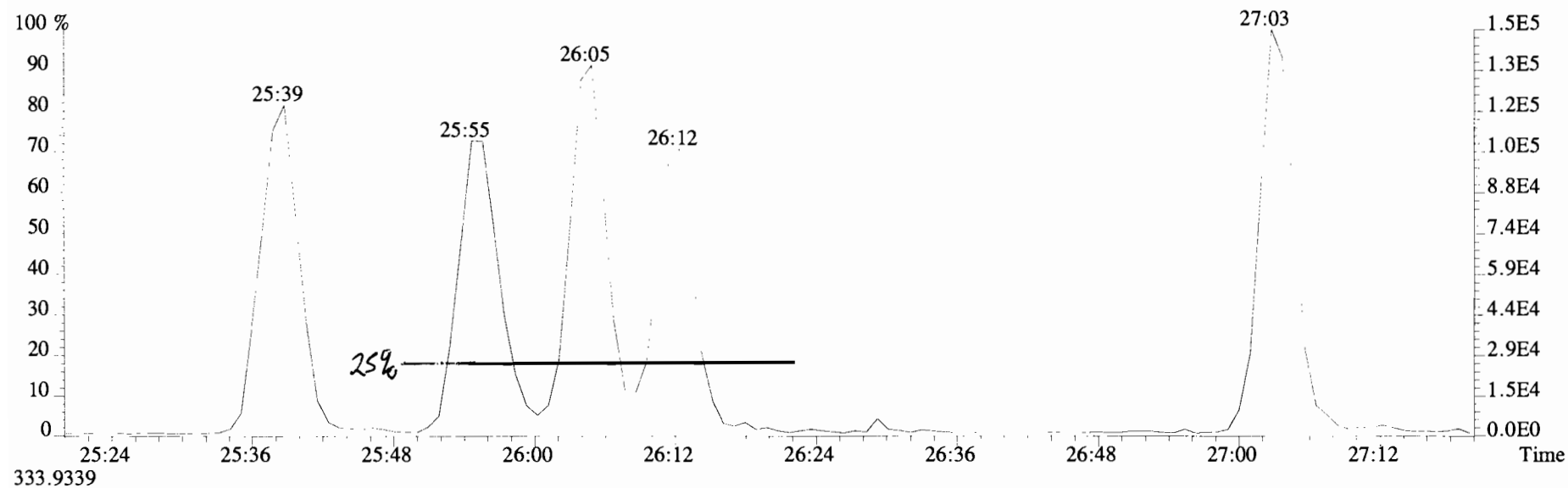
Peak Locate Examination:20-NOV-2019:13:59 File:191120D1

Experiment:OCDD\_DB5 Function:4 Reference:PFK



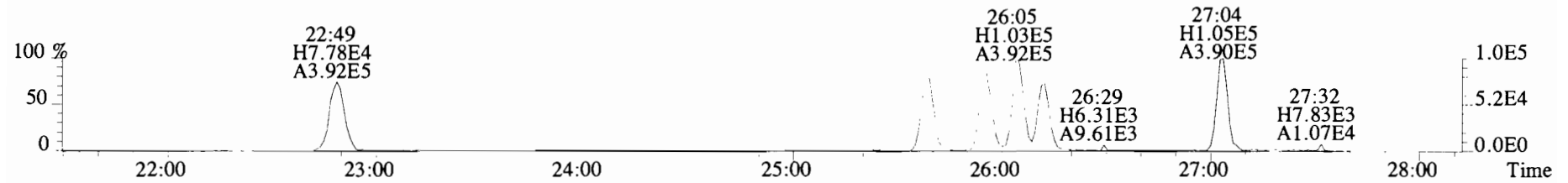


File:191120D1 #1-492 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
321.8936

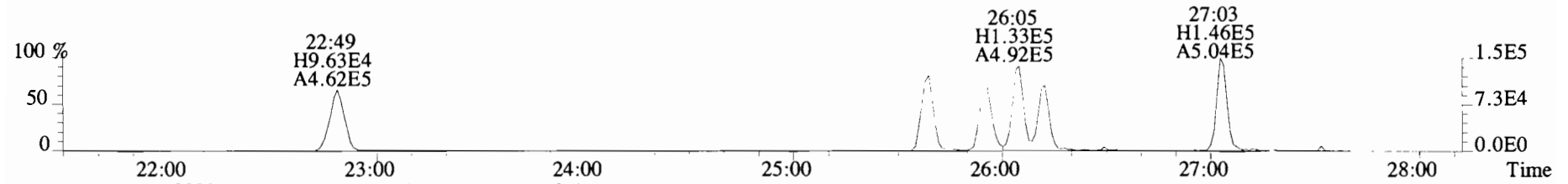




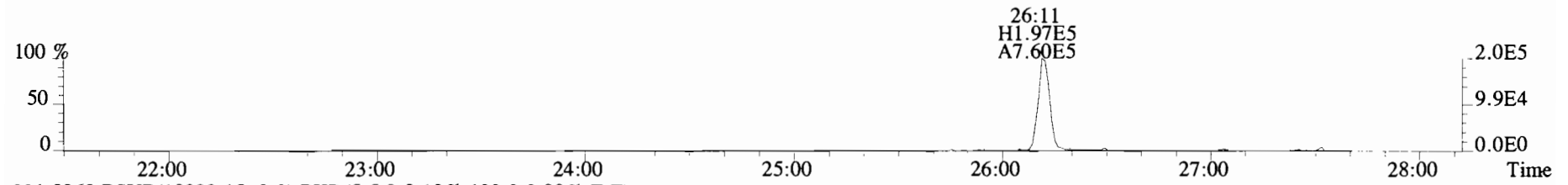
File:191120D1 #1-492 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



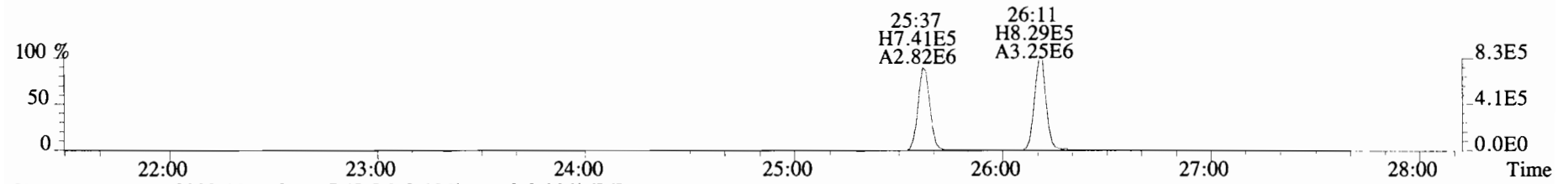
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



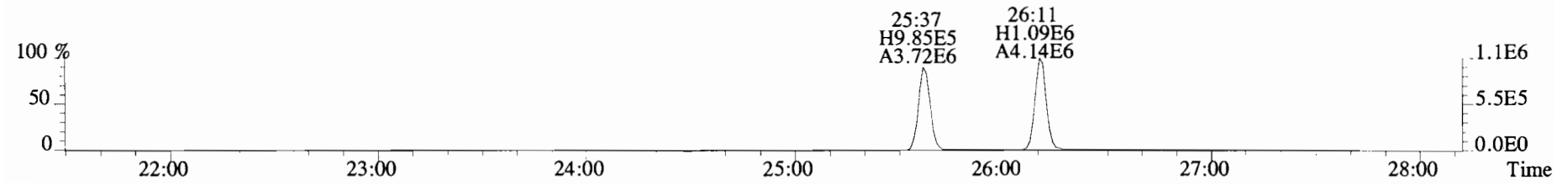
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



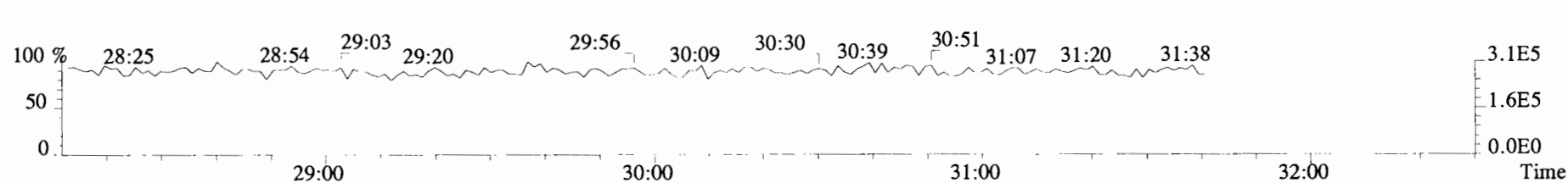
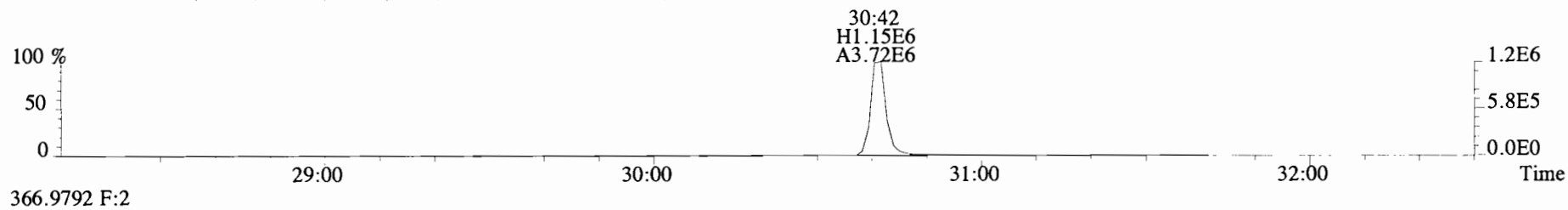
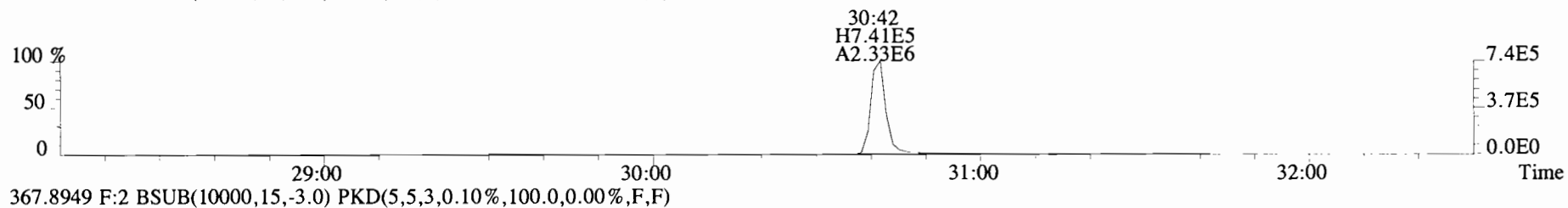
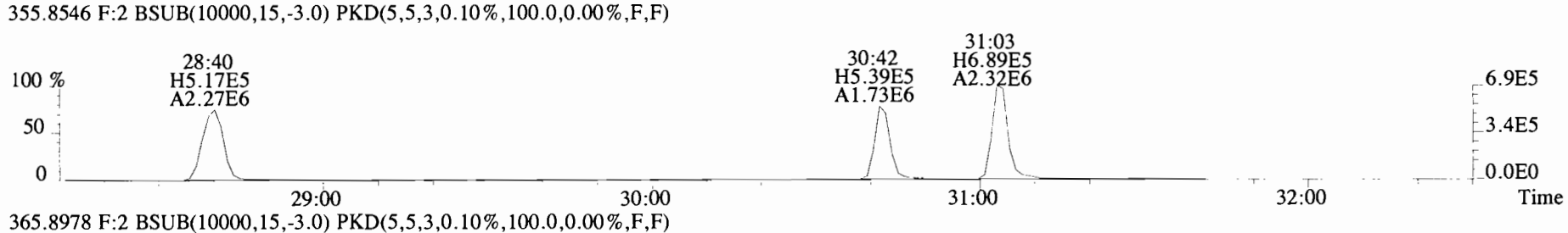
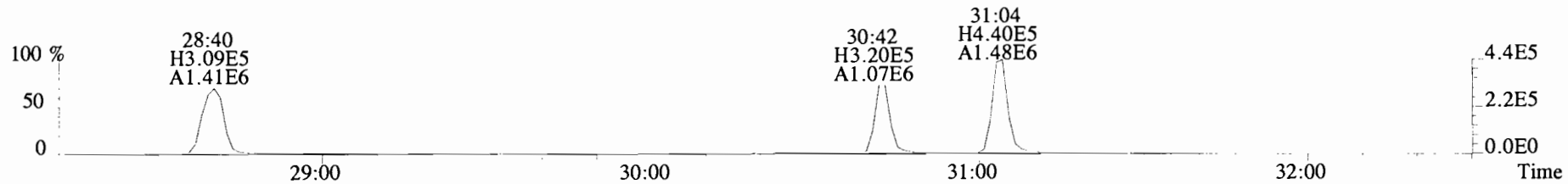
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



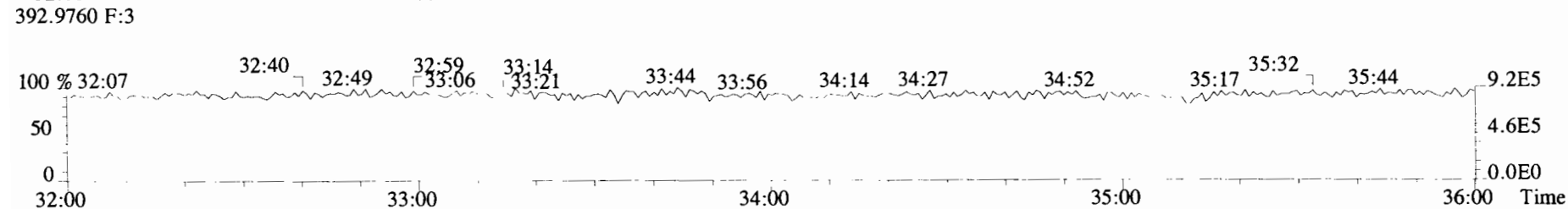
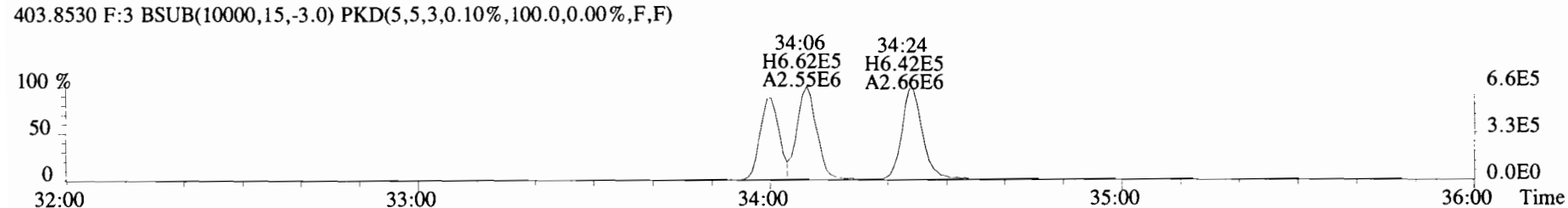
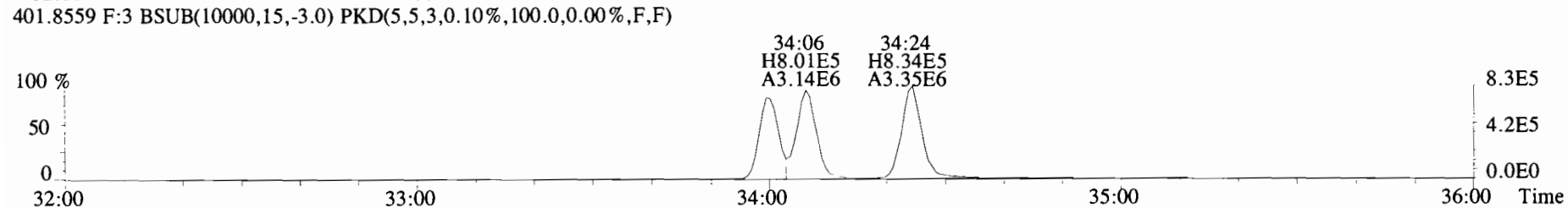
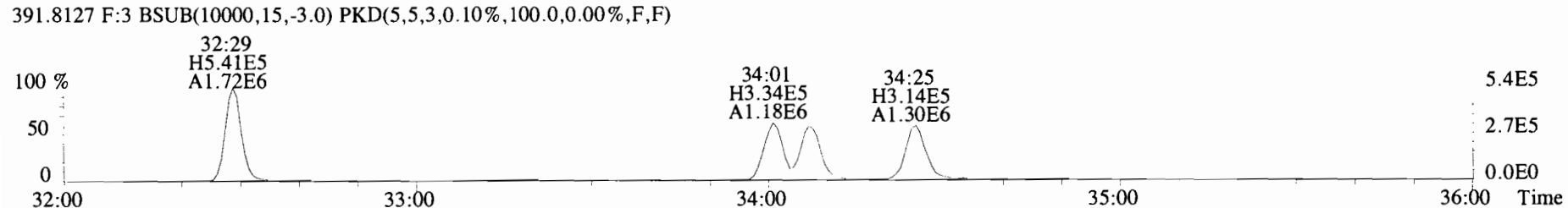
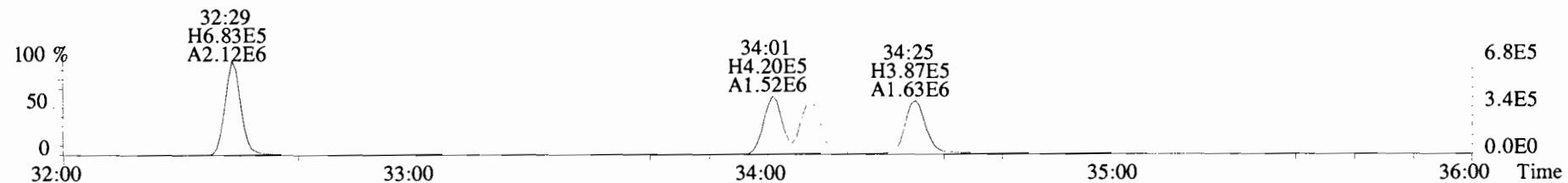
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



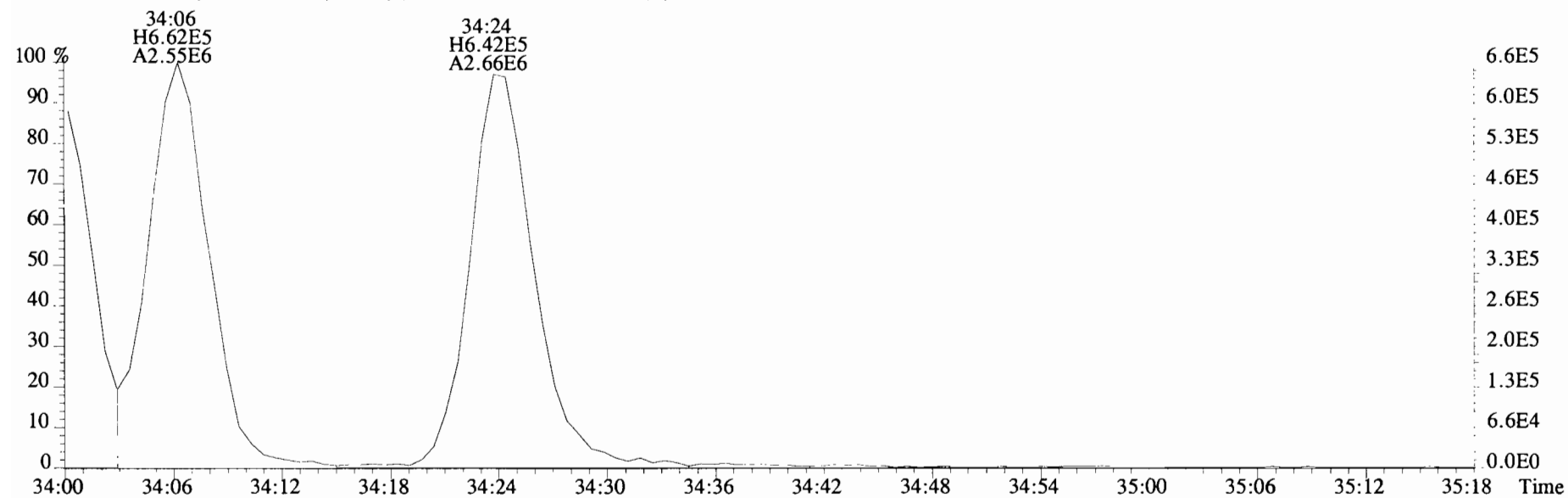
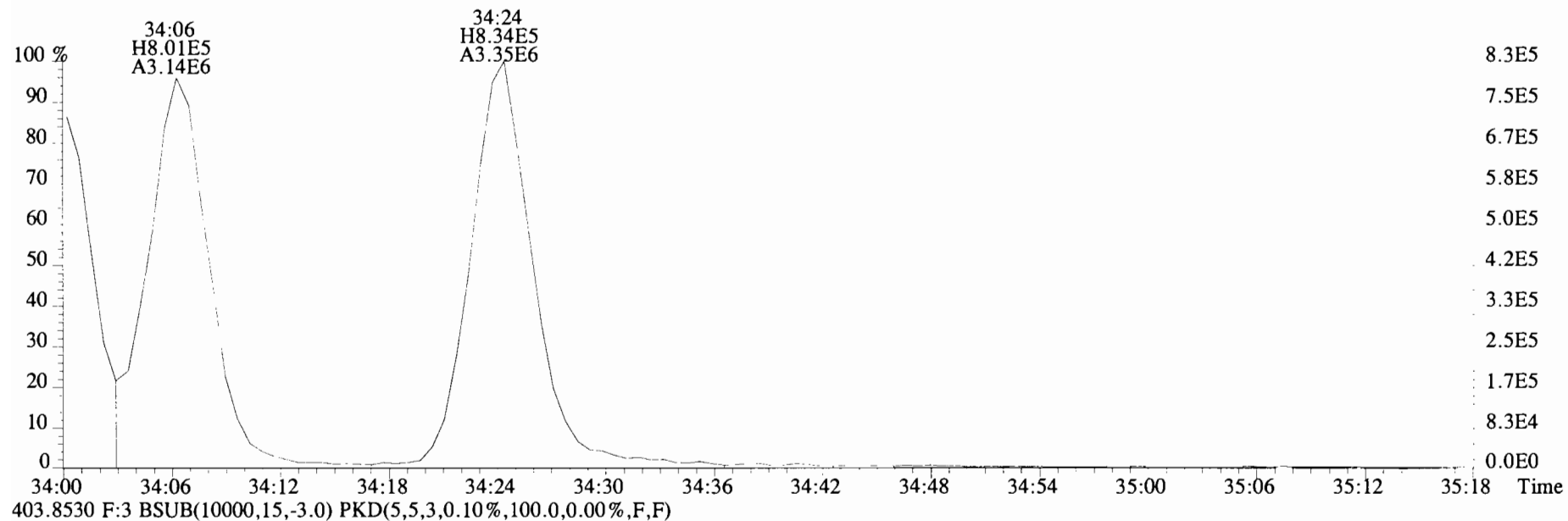
File:191120D1 #1-211 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



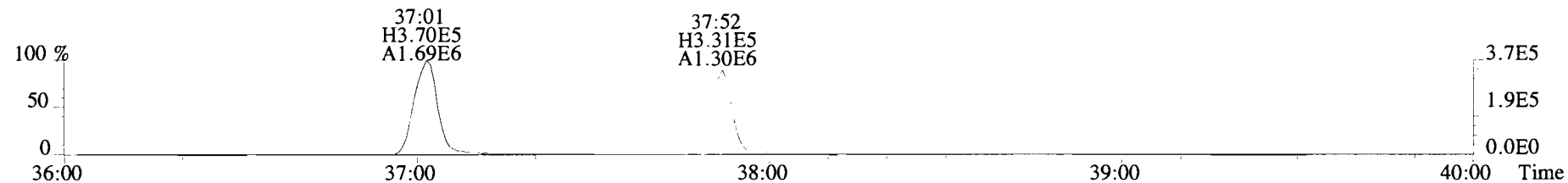
File:191120D1 #1-385 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



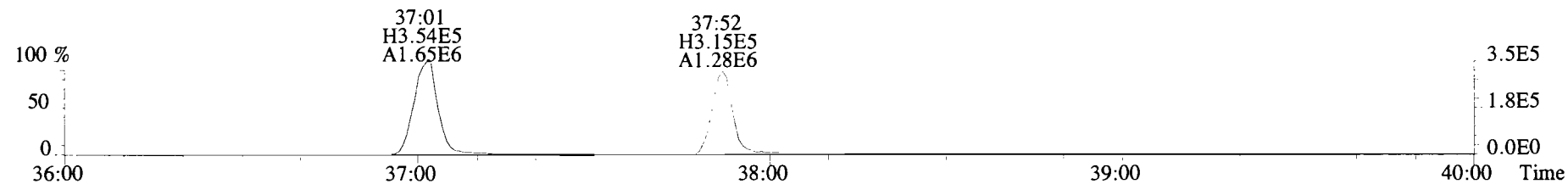
File:191120D1 #1-385 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



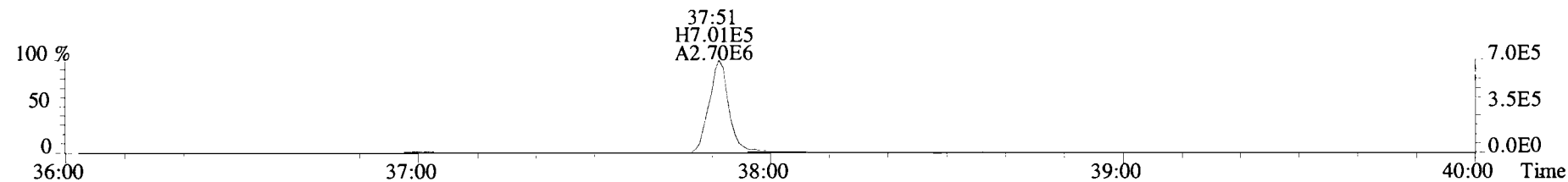
File:191120D1 #1-355 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



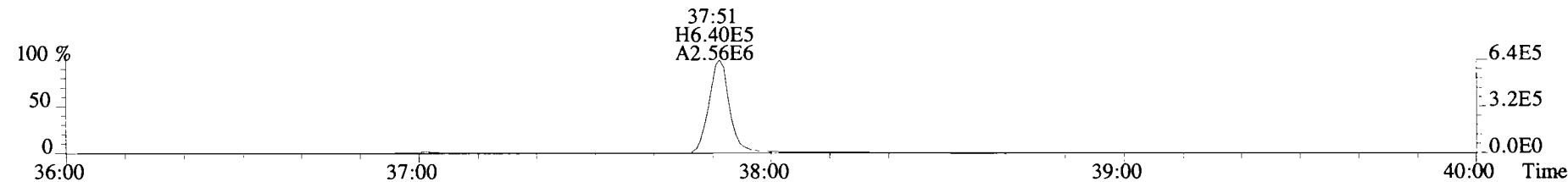
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



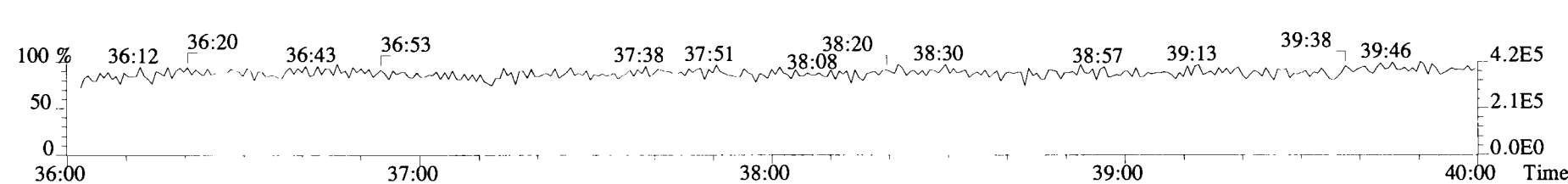
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



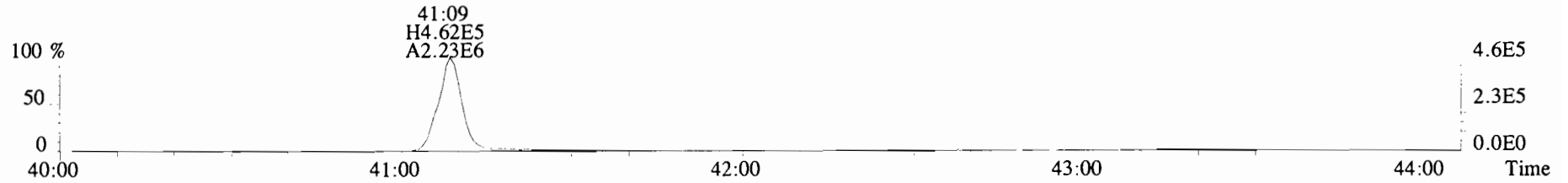
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



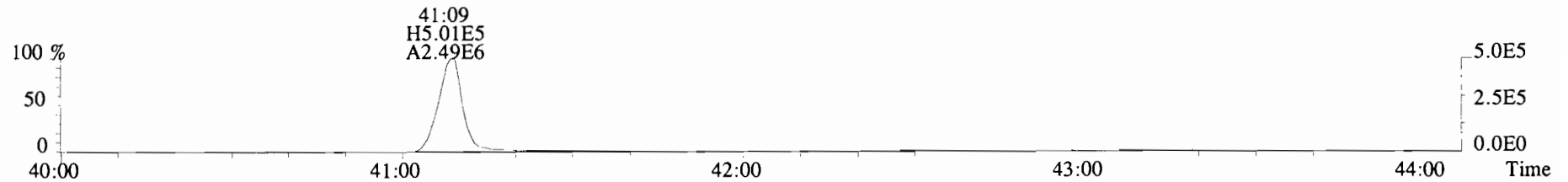
454.9728 F:4



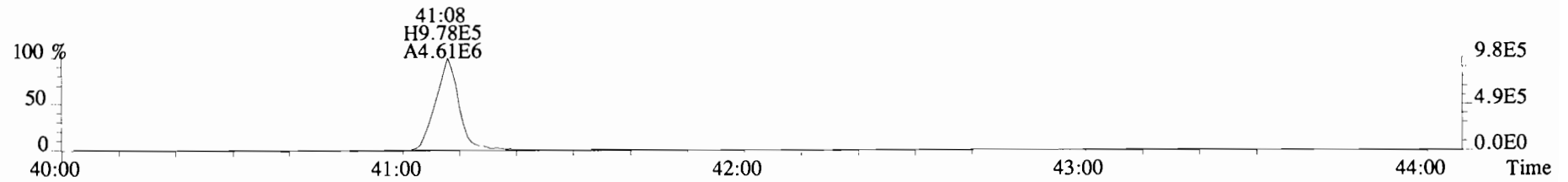
File:191120D1 #1-432 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



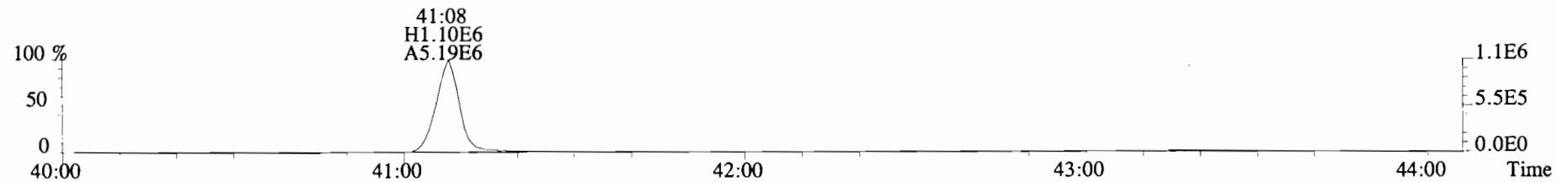
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



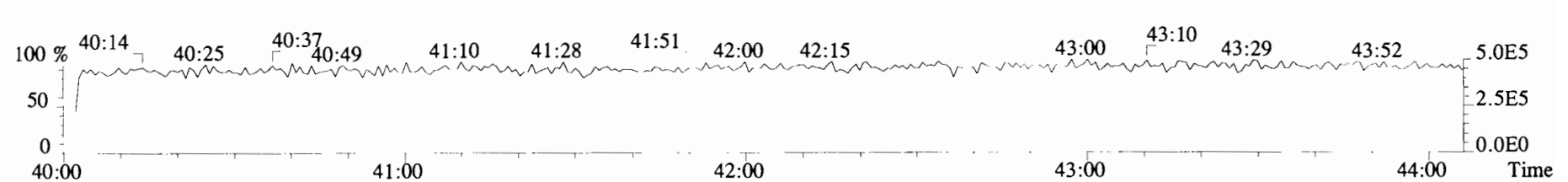
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



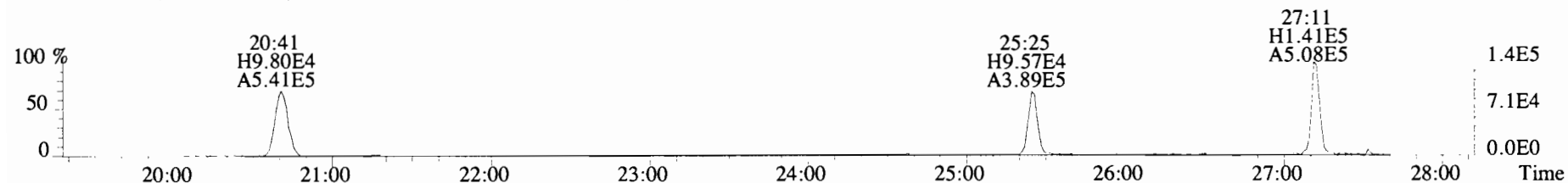
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



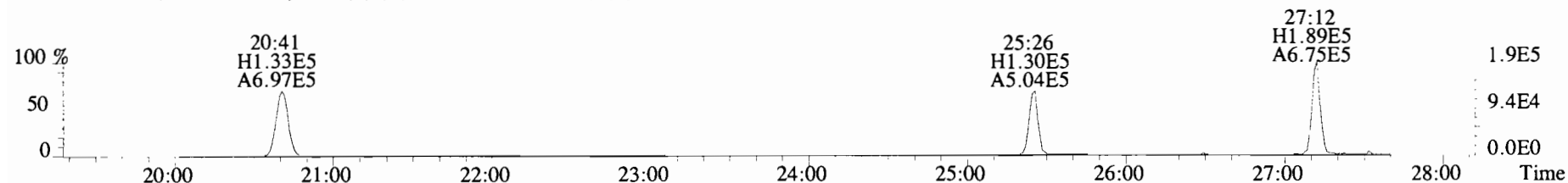
454.9728 F:5



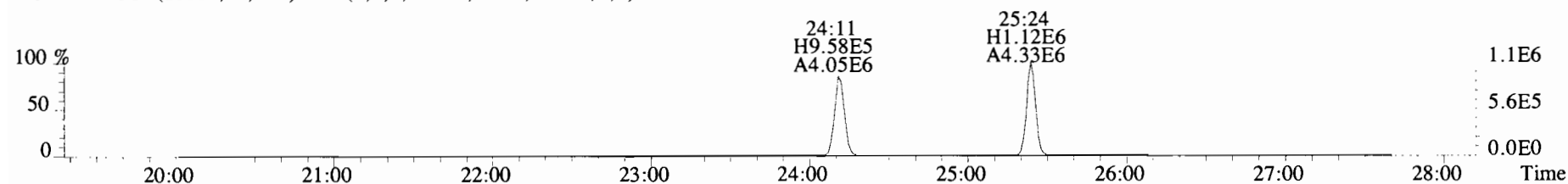
File:191120D1 #1-492 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



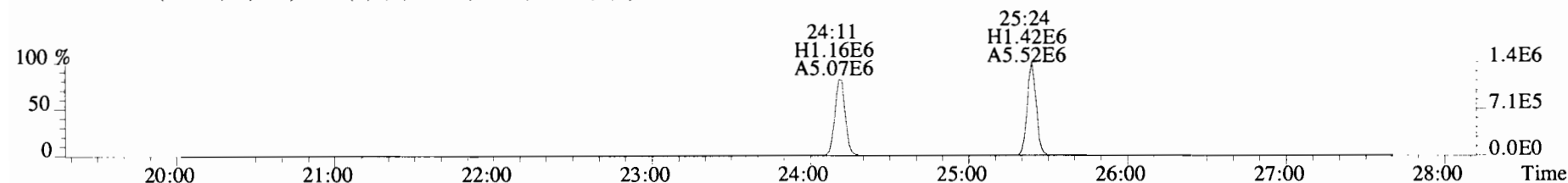
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



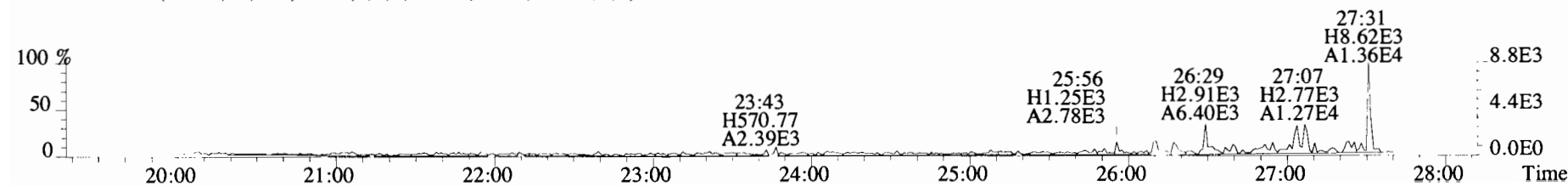
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

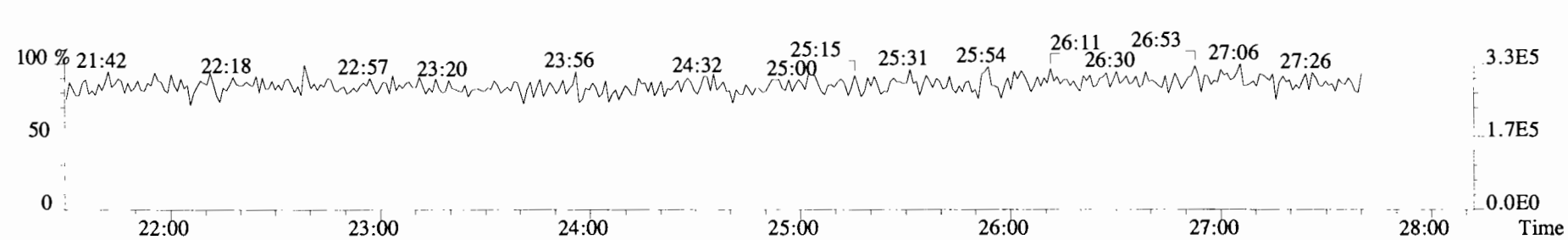
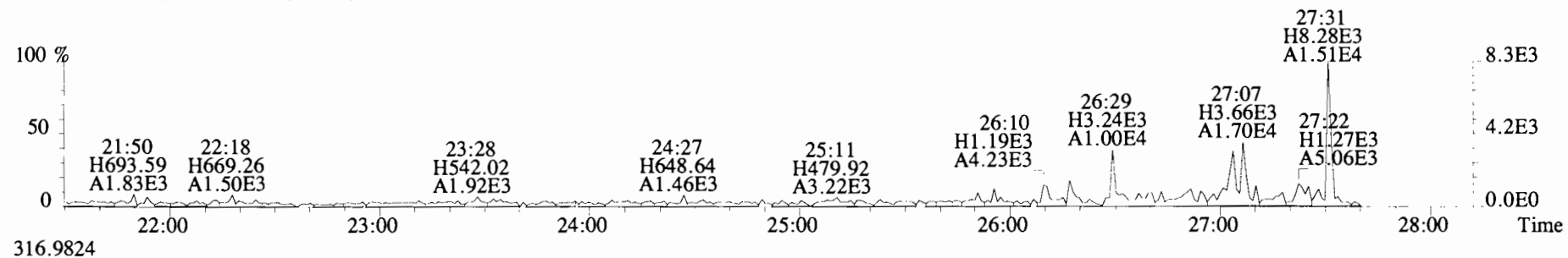
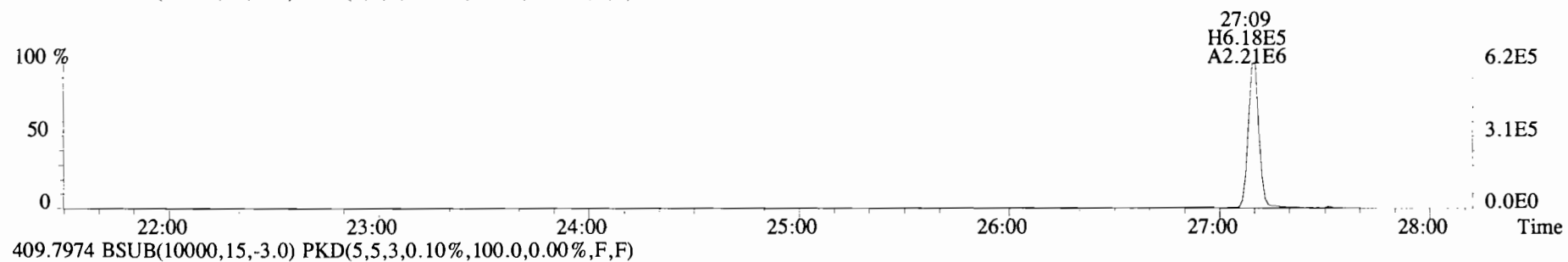
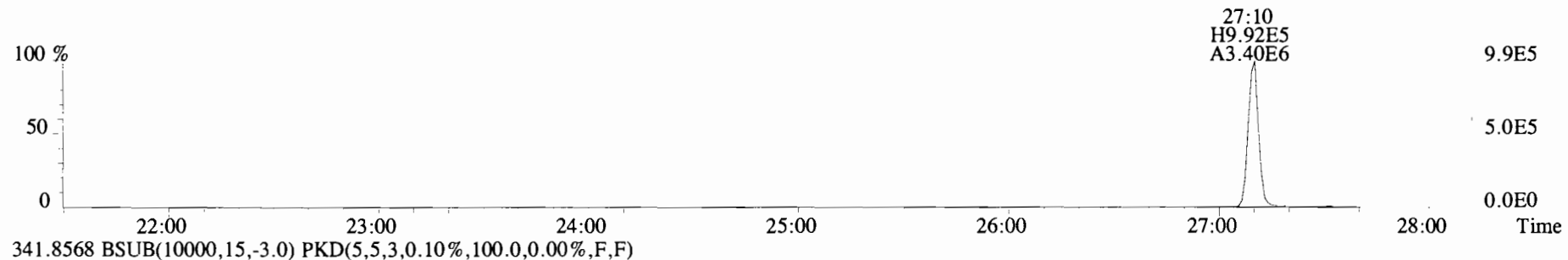


375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



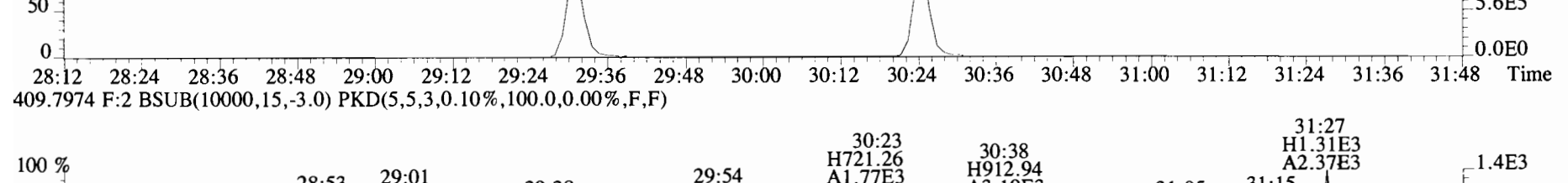
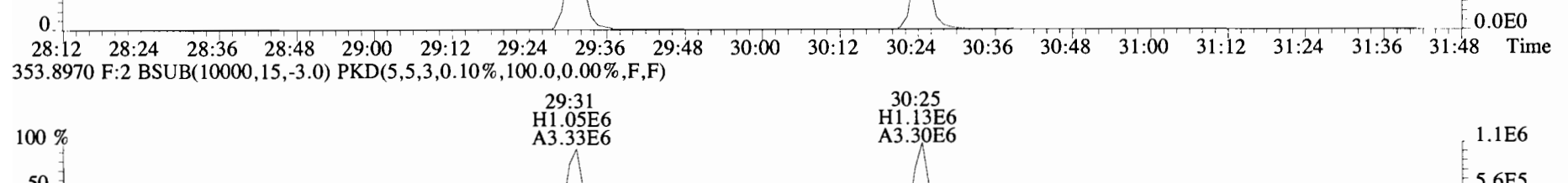
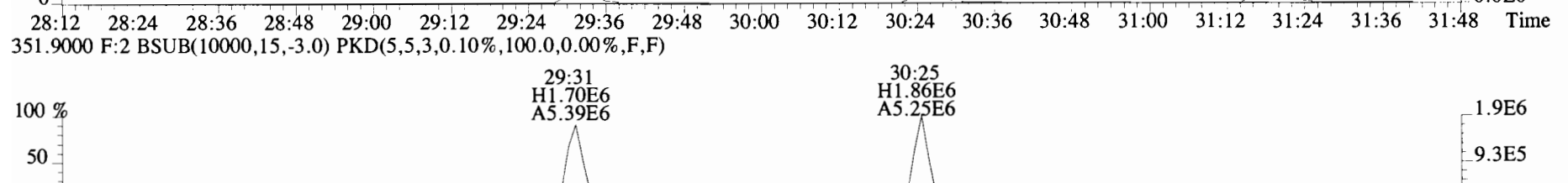
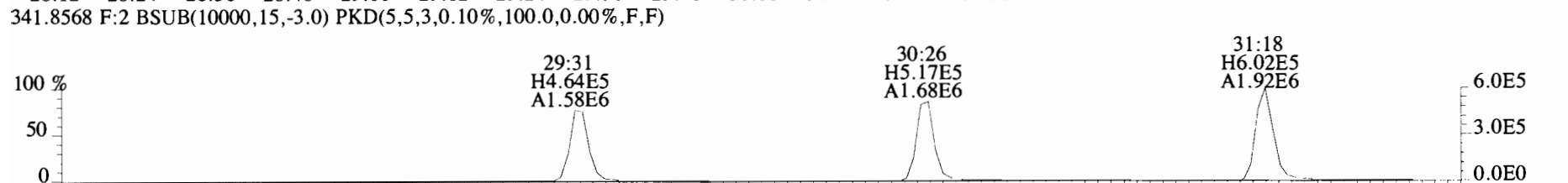
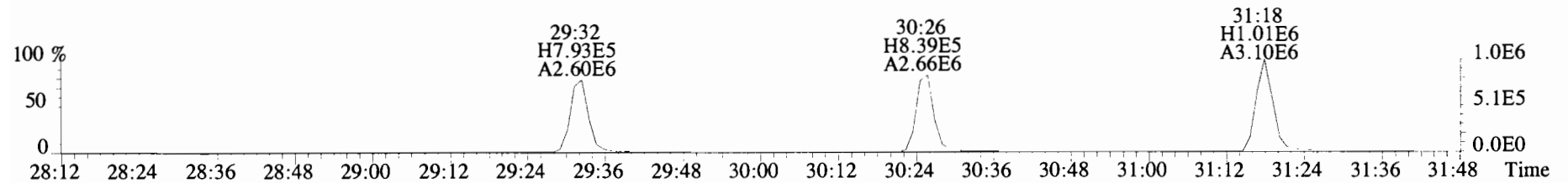
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:191120D1 #1-492 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191120D1-1 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)

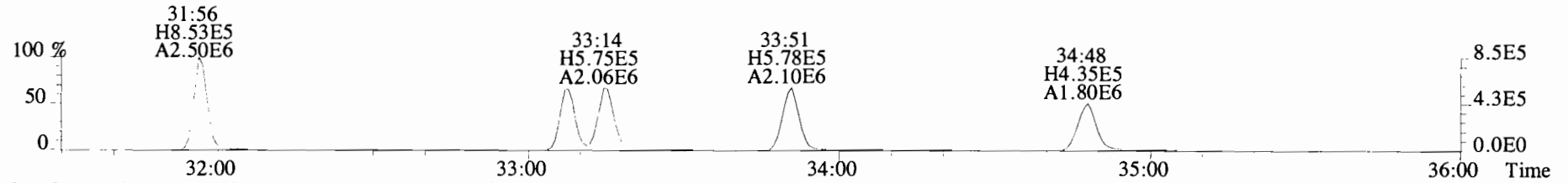




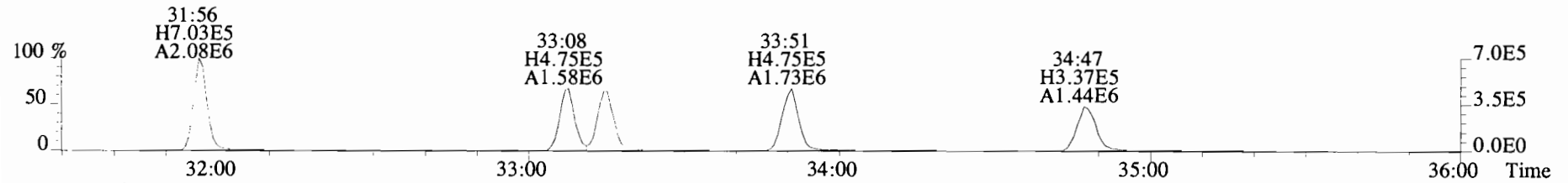
File:191120D1 #1-211 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



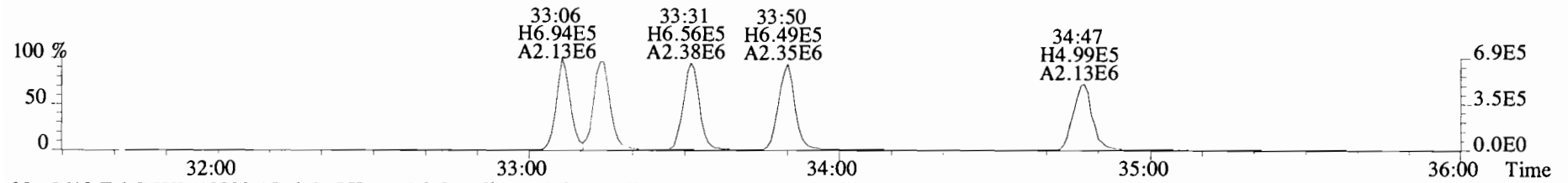
File:191120D1 #1-385 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



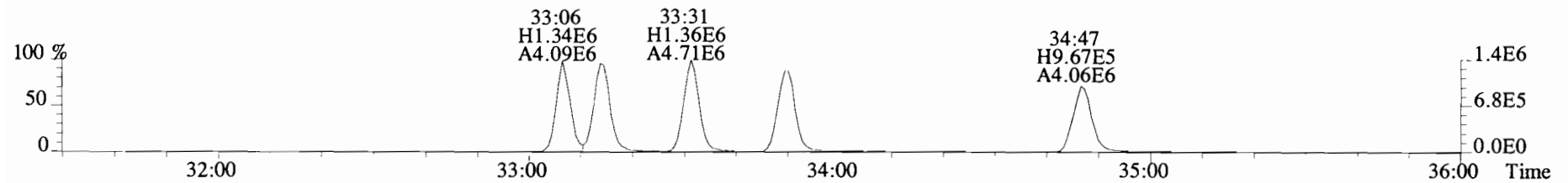
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



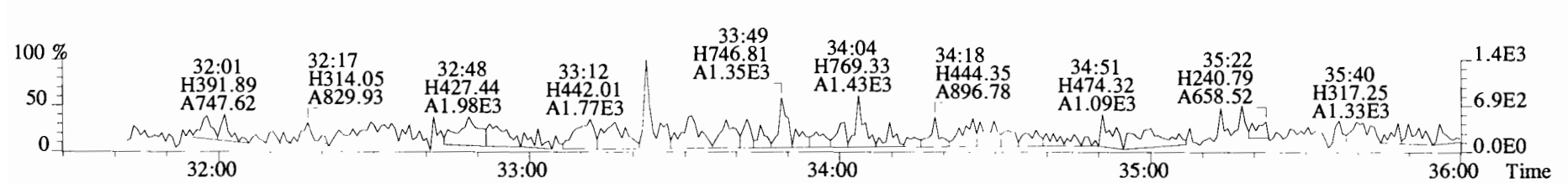
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



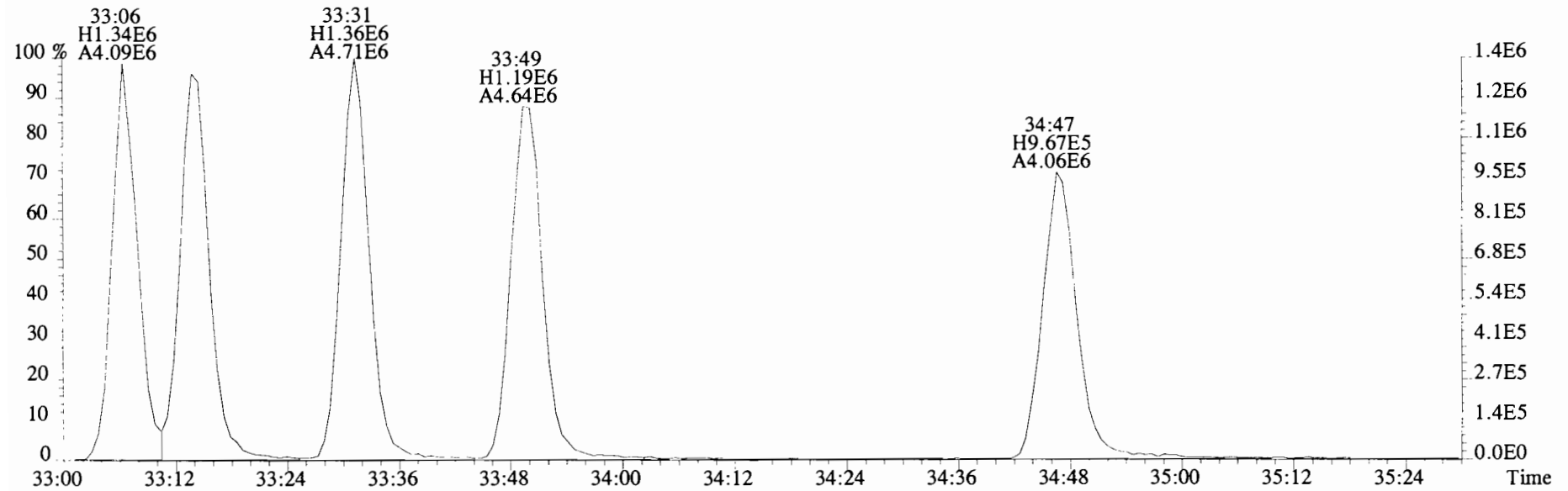
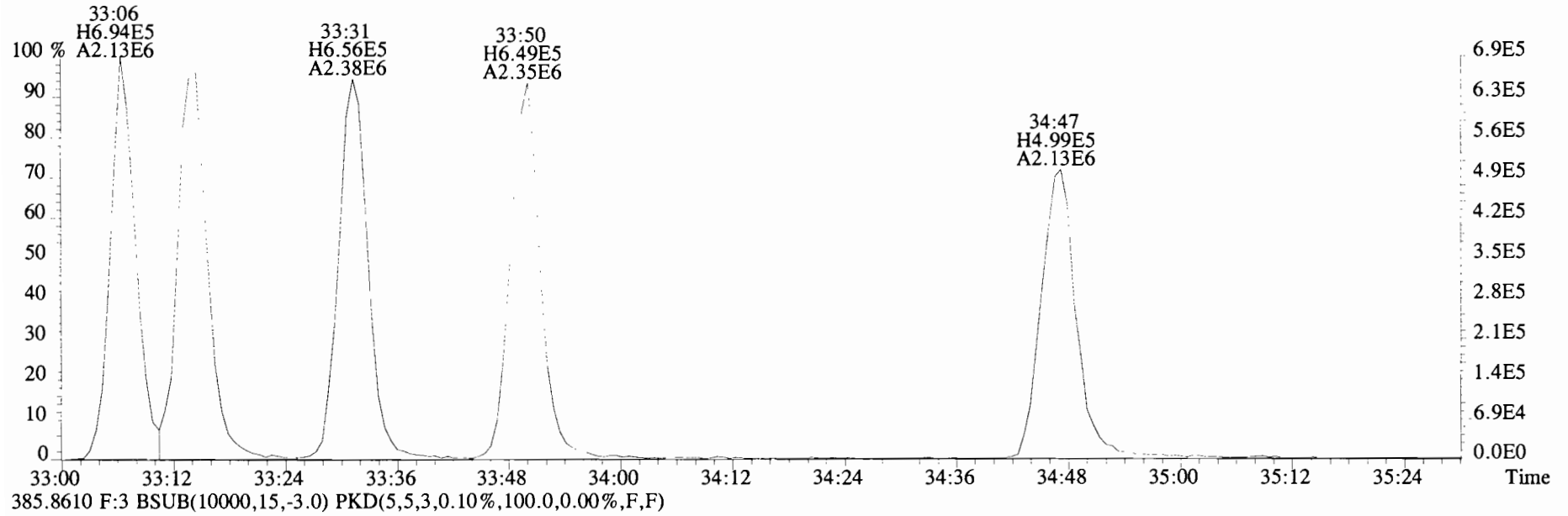
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



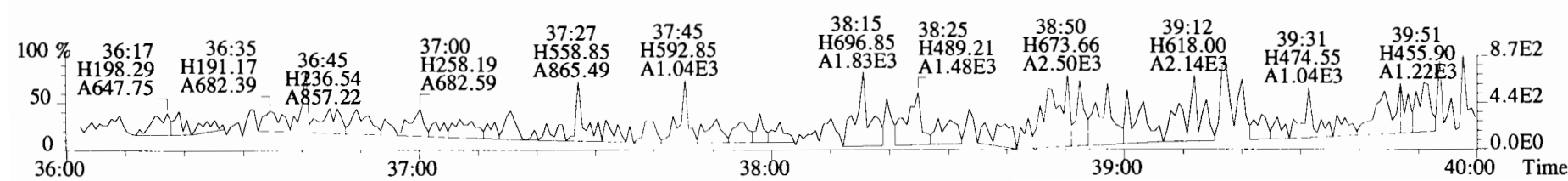
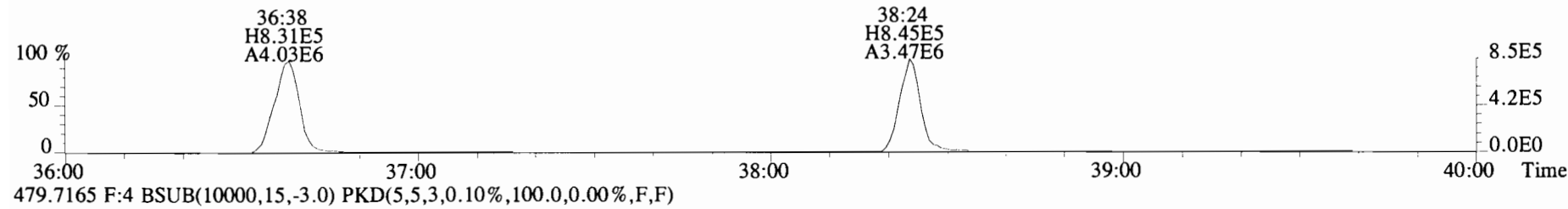
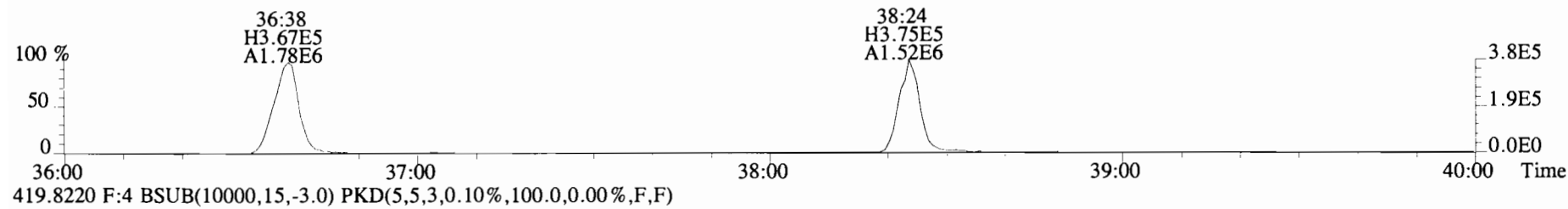
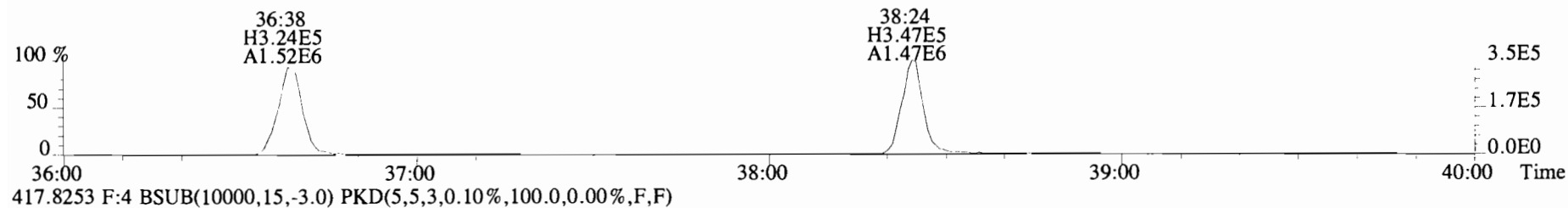
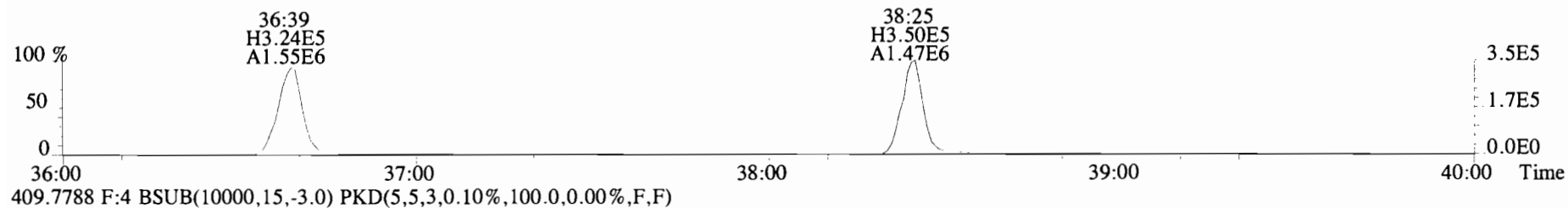
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



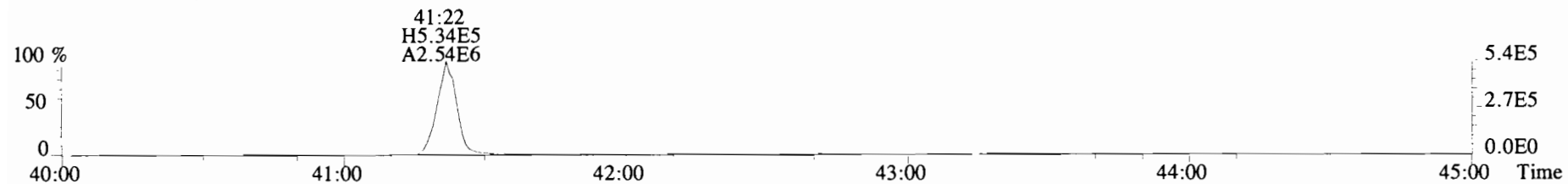
File:191120D1 #1-385 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



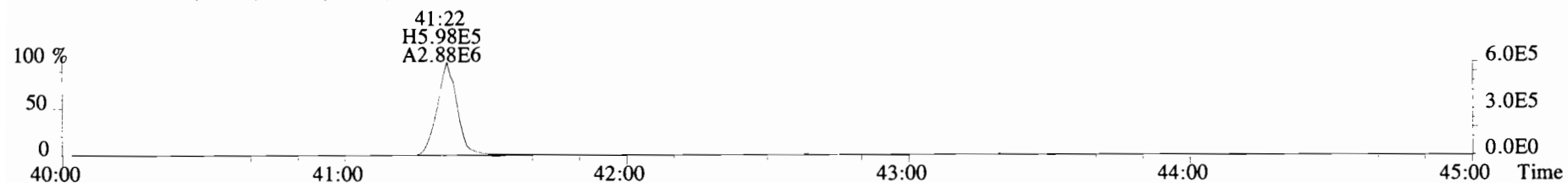
File:191120D1 #1-355 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D1-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D1 #1-432 Acq:20-NOV-2019 14:00:50 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D1-1 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)



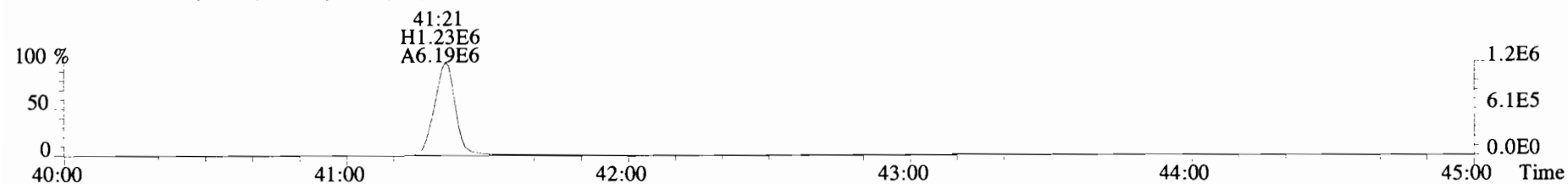
443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



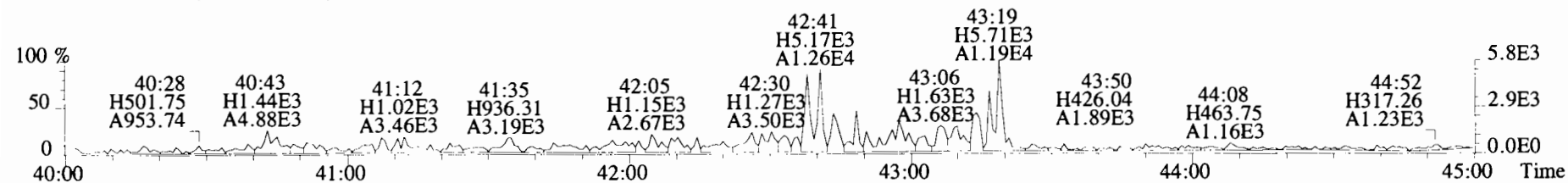
453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

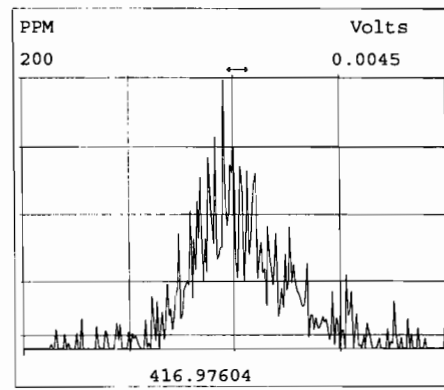
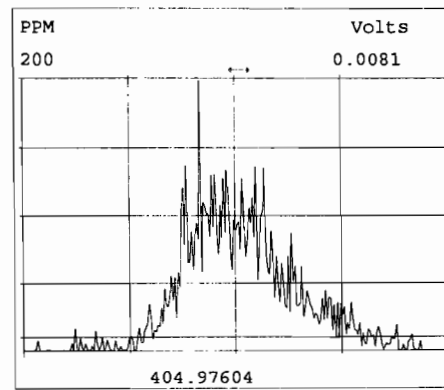
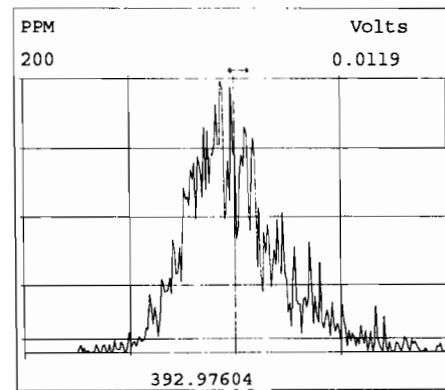
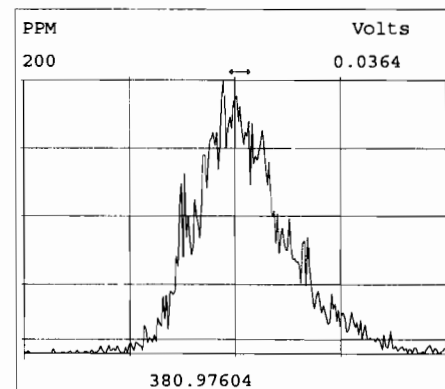
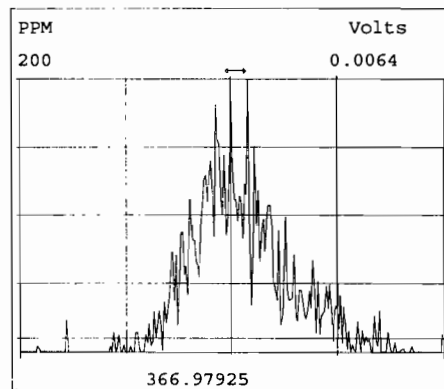
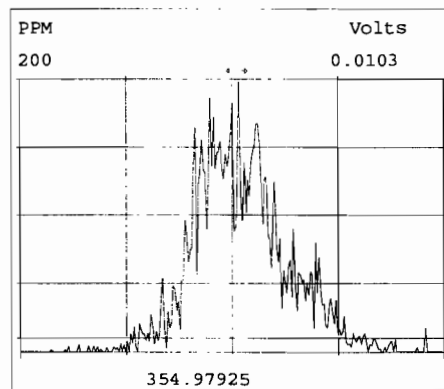
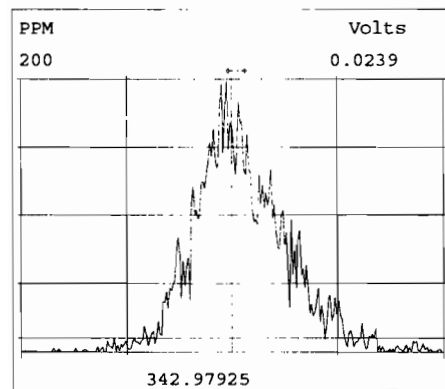
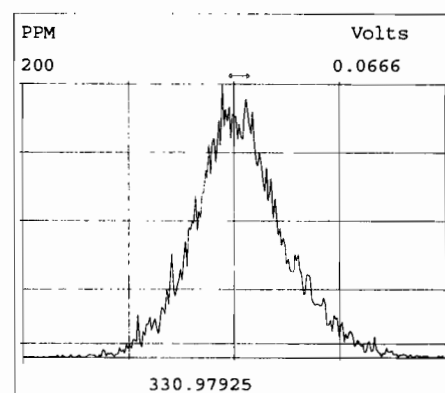
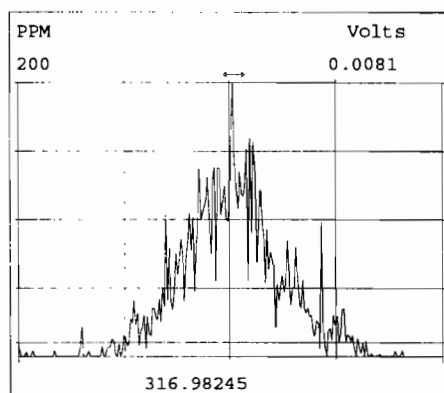
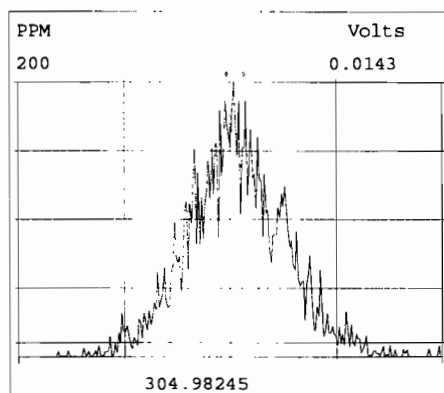
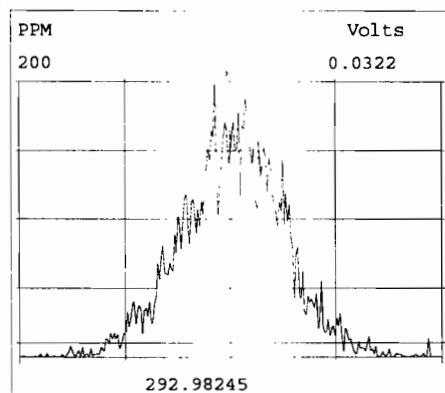


513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



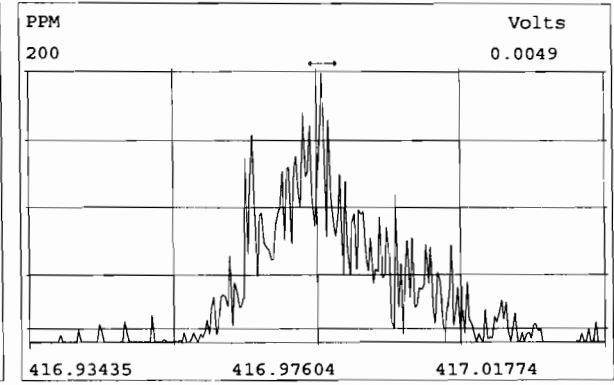
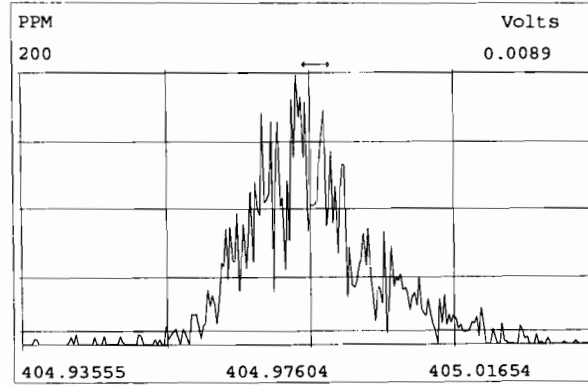
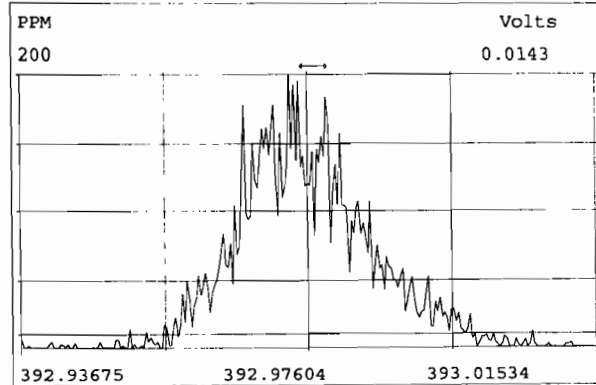
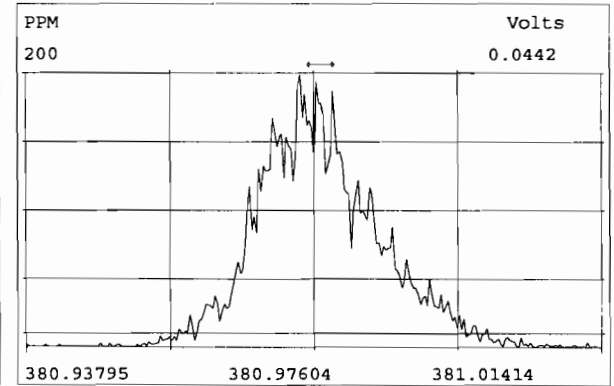
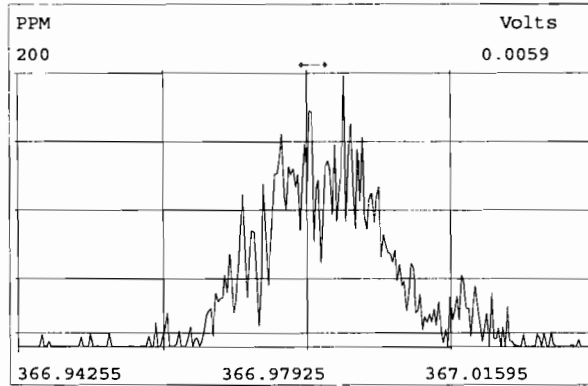
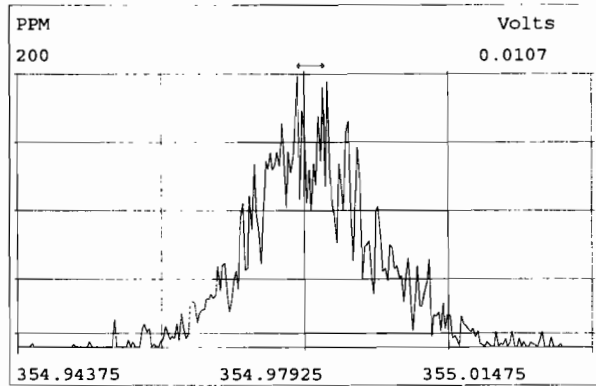
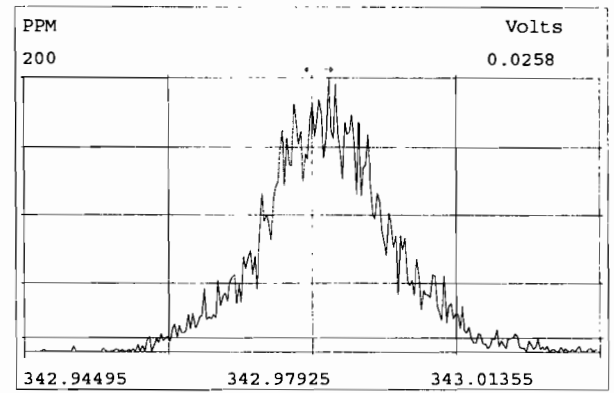
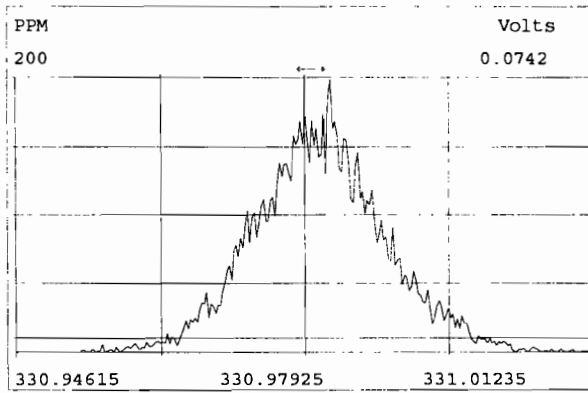
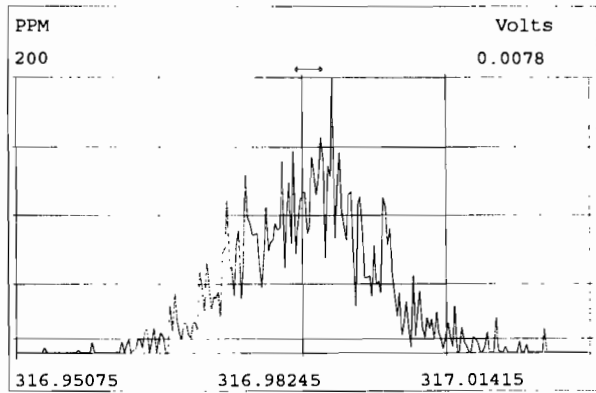
Peak Locate Examination:21-NOV-2019:02:07 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:1 Reference:PFK



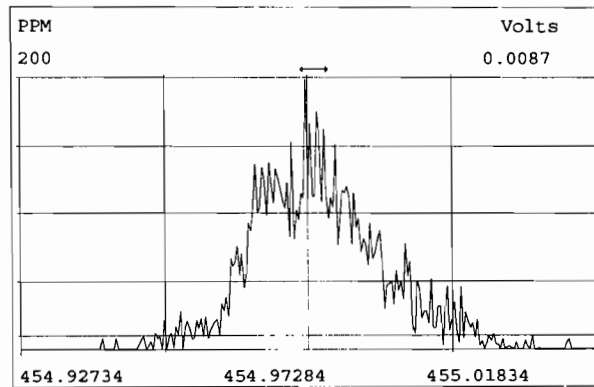
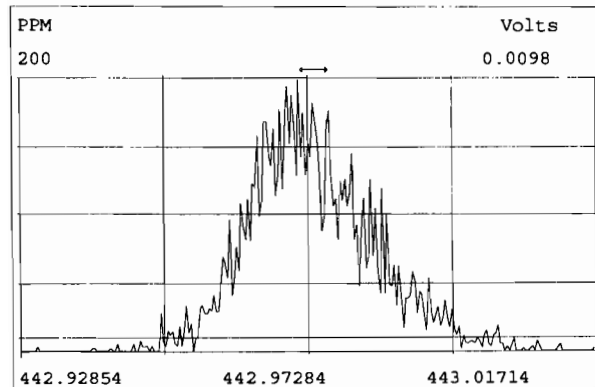
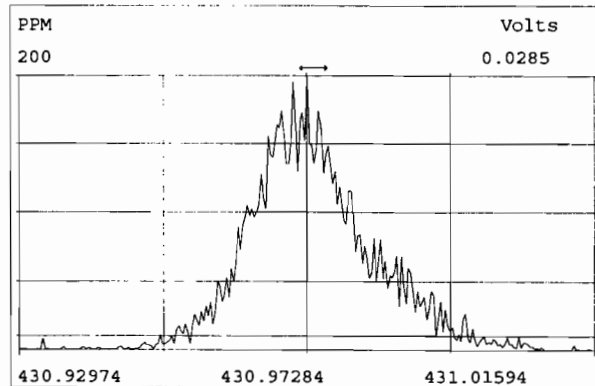
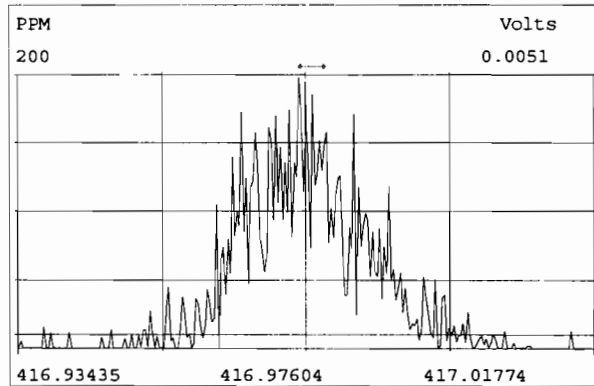
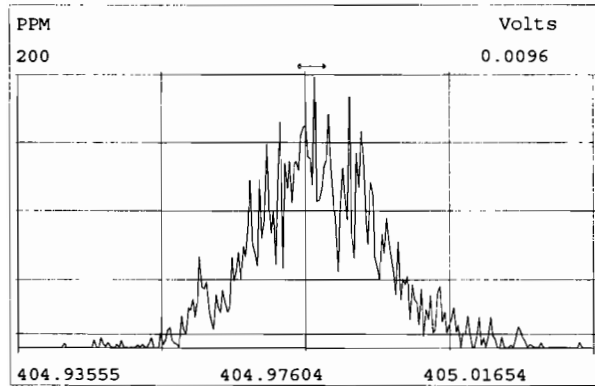
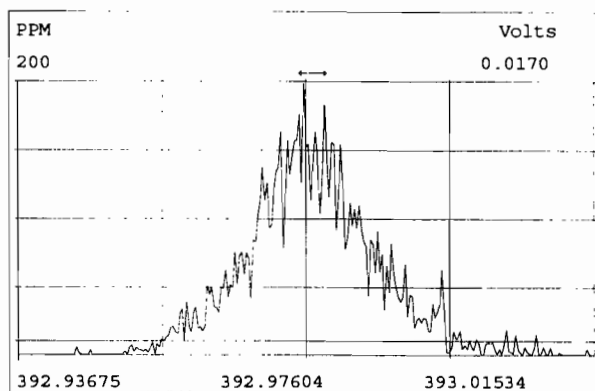
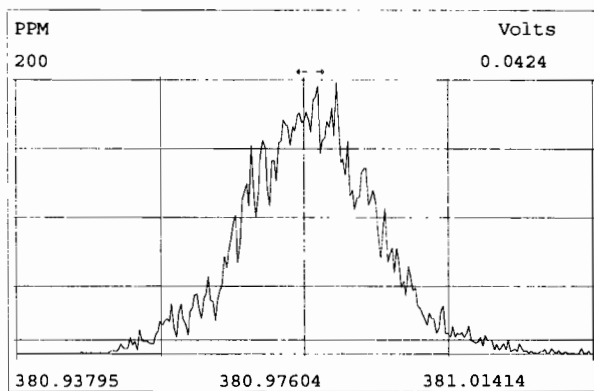
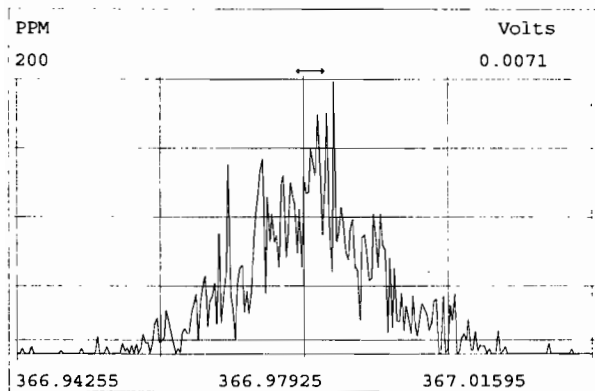
Peak Locate Examination:21-NOV-2019:02:08 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:2 Reference:PFK



Peak Locate Examination:21-NOV-2019:02:09 File:RES\_CHECK

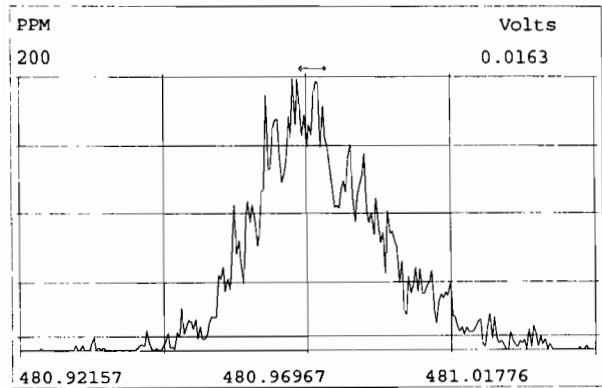
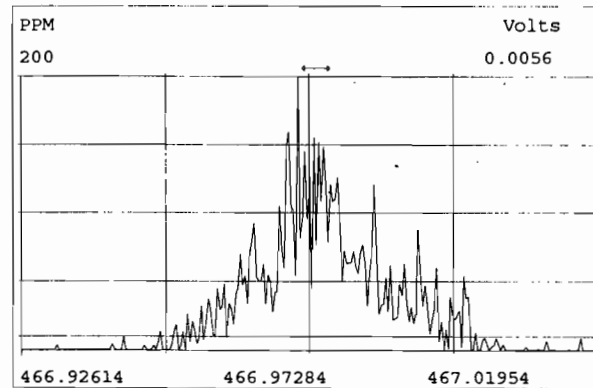
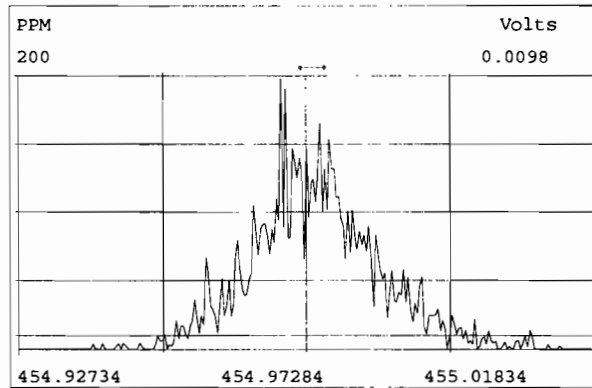
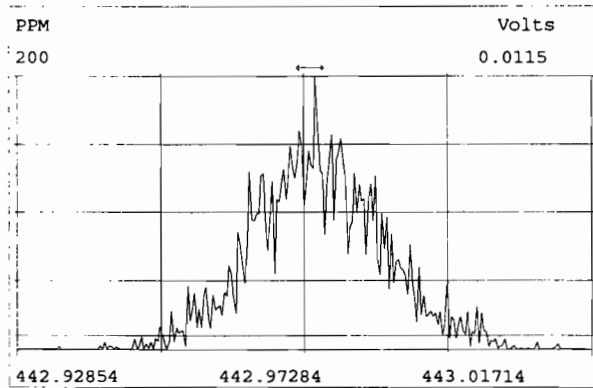
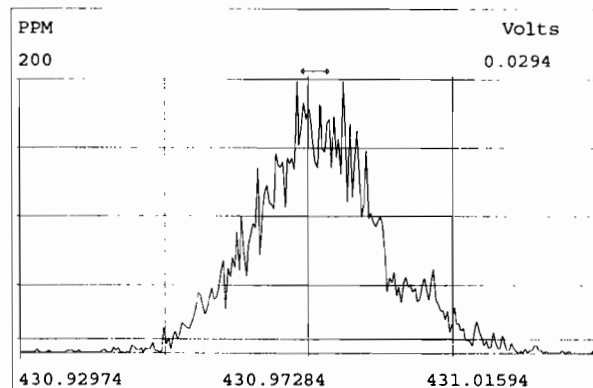
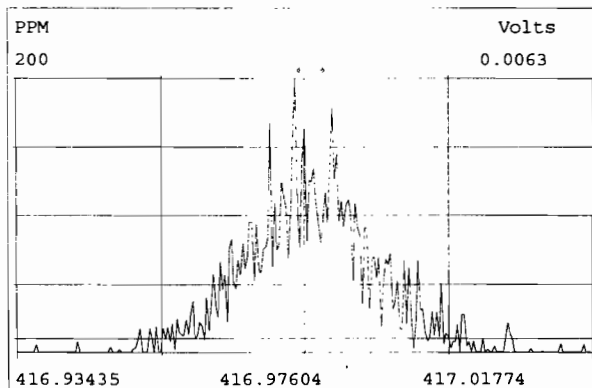
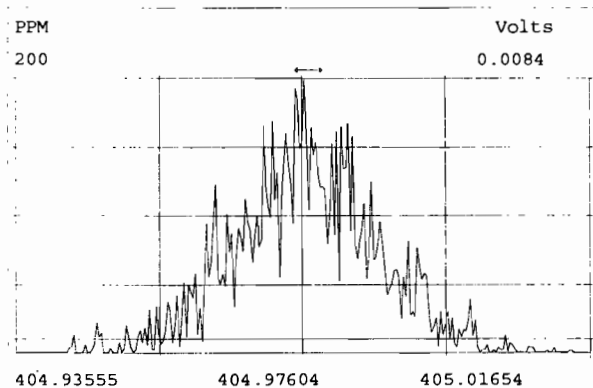
Experiment:OCDD\_DB5 Function:3 Reference:PFK





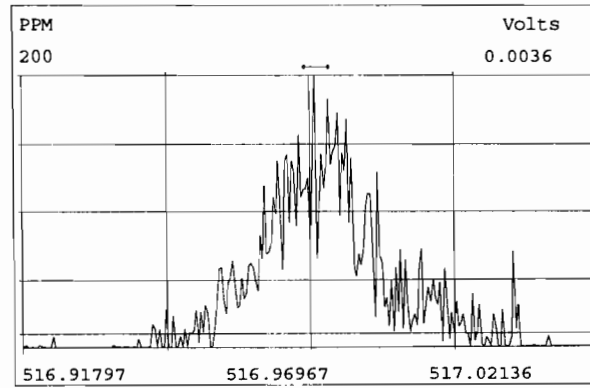
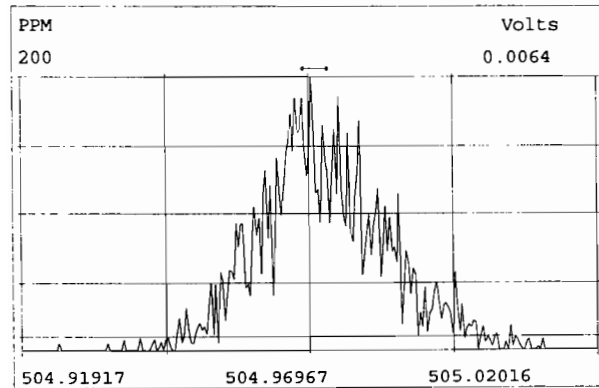
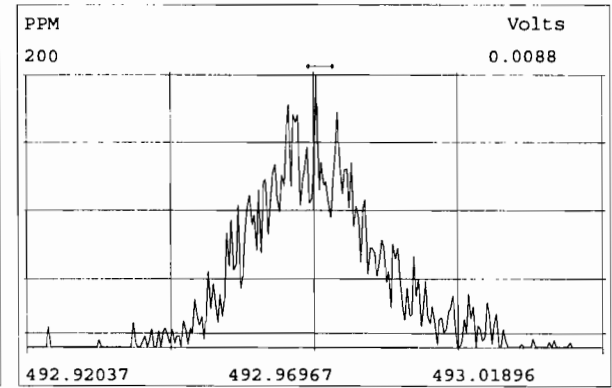
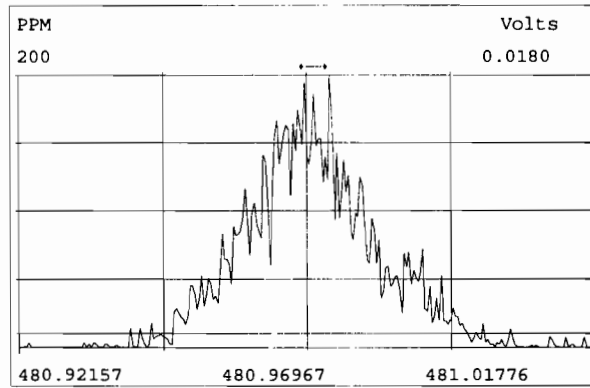
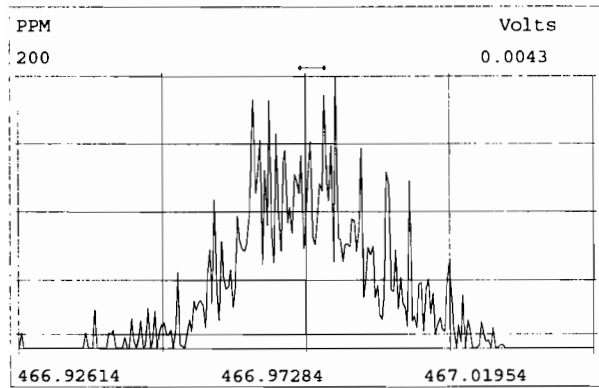
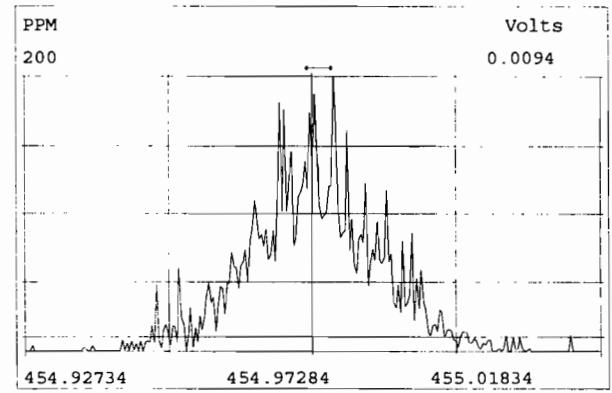
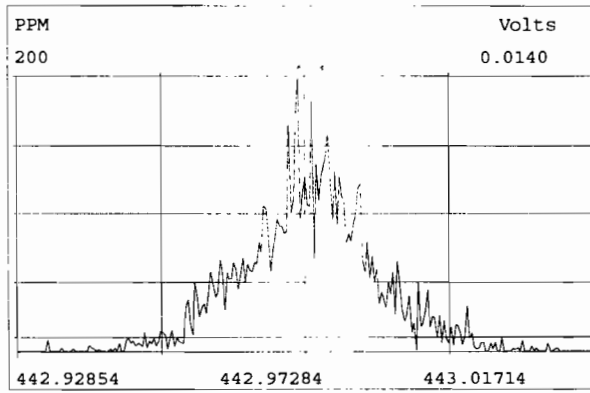
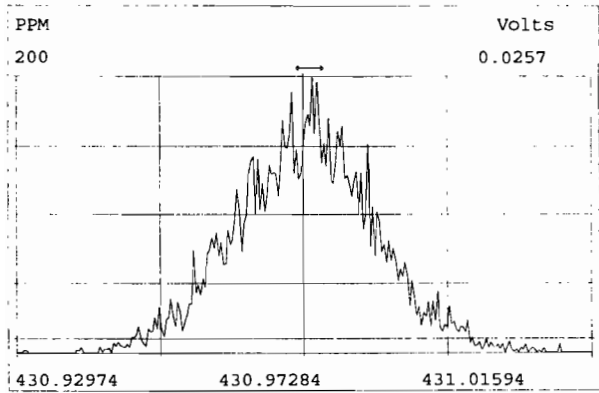
Peak Locate Examination:21-NOV-2019:02:10 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:4 Reference:PFK



Peak Locate Examination:21-NOV-2019:02:10 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 Reference:PFK



**PKMS CALIBRATION STANDARDS REVIEW CHECKLIST**

**Beg. Calibration ID:** ST191120D2-1

**Reviewed By:** CT 11/26/19  
*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 type="checkbox"/> V
- Samples within 12 hour clock?	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
- Bottle position verified?	<u>DB</u>	<input type="checkbox"/>

	<u>Beg.</u>	<u>End</u>
<b>Mass resolution <math>\geq</math></b>	<input checked="" type="checkbox"/>	<input checked="" 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>Intergrated peaks display correctly?</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NA
<b>GC Break &lt;20%</b>		<input type="checkbox"/> NA
<b><u>8280 CS1 End Standard:</u></b>		
- Ratios within limits, S/N <2.5:1, CS1 within 12 hours		<input type="checkbox"/> NA

**Comments:**

Vista Analytical Laboratory - Injection Log Run file: 191120D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191120D2	1	ST191120D2-1	DB	21-NOV-19	02:11:41	ST191120D2-1	NA
191120D2	2	SOLVENT BLANK	DB	21-NOV-19	02:59:21	ST191120D2-1	NA
191120D2	3	1903829-01	DB	21-NOV-19	03:47:07	ST191120D2-1	NA
191120D2	4	1903829-02	DB	21-NOV-19	04:34:51	ST191120D2-1	NA
191120D2	5	1903829-03	DB	21-NOV-19	05:22:35	ST191120D2-1	NA
191120D2	6	1903829-04	DB	21-NOV-19	06:10:19	ST191120D2-1	NA
191120D2	7	B9K0068-DUP1	DB	21-NOV-19	06:58:02	ST191120D2-1	NA
191120D2	8	1903653-01RE1	DB	21-NOV-19	07:45:49	ST191120D2-1	NA
191120D2	9	1903653-02RE1	DB	21-NOV-19	08:33:35	ST191120D2-1	NA
191120D2	10	1903653-03RE1	DB	21-NOV-19	09:21:31	ST191120D2-1	NA
191120D2	11	1903651-01RE1	DB	21-NOV-19	10:09:23	ST191120D2-1	NA

FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

CCAL ID: ST191120D2-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7

GC Column ID: ZB-5MS

VER Data Filename: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

NATIVE ANALYTES	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC.
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	10.3	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	50.5	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	48.4	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	51.3	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	y	51.8	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	50.4	43.0 - 58.0
OCDD	M+2/M+4	0.88	0.76-1.02	y	101	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	y	9.51	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	50.7	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	50.2	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	49.6	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	50.5	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	51.1	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	y	49.7	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	y	47.5	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	y	47.0	43.0 - 58.0
OCDF	M+2/M+4	0.88	0.76-1.02	y	98.1	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: 11/26/19

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: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

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	0.79	0.65-0.89	y	102	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	104	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	111	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	91.8	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	101	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	y	102	72.0 - 138.0
13C-OCDD	M/M+2	0.89	0.76-1.02	y	247	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	1.59	1.32-1.78	y	106	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	106	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	y	110	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	y	99.4	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	0.51	0.43-0.59	y	103	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.45	0.37-0.51	y	106	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.45	0.37-0.51	y	119	77.0 - 129.0
13C-OCDF	M+2/M+4	0.87	0.76-1.02	y	239	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.37	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: 11/26/19

## 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: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

ZB-5MS IS Data Filename: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

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)	22:49	1,3,6,8-TCDF (F)	20:42
1,2,8,9-TCDD (L)	27:03	1,2,8,9-TCDF (L)	27:12
1,2,4,7,9-PeCDD (F)	28:39	1,3,4,6,8-PeCDF (F)	27:10
1,2,3,8,9-PeCDD (L)	31:03	1,2,3,8,9-PeCDF (L)	31:17
1,2,4,6,7,9-HxCDD (F)	32:29	1,2,3,4,6,8-HxCDF (F)	31:56
1,2,3,7,8,9-HxCDD (L)	34:25	1,2,3,7,8,9-HxCDF (L)	34:48
1,2,3,4,6,7,9-HpCDD (F)	37:01	1,2,3,4,6,7,8-HpCDF (F)	36:38
1,2,3,4,6,7,8-HpCDD (L)	37:52	1,2,3,4,7,8,9-HpCDF (L)	38:24

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

## =====

## ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

&lt;25%

(1) To meet contract requirements, %Valley Height Between Compared  
Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DBDate: 11/26/19

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: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME		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	1.001	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	1.198	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	1.152	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.187	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: 11/26/19



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: 191120D2 S#1 Analysis Date: 21-NOV-19 Time: 02:11:41

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	1.000	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	1.001	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	0.991	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: 11/26/19

Client ID: 1613 CS3 19C2204  
Lab ID: ST191120D2-1

Filename: 191120D2 S:1 Acq:21-NOV-19 02:11:41  
GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000

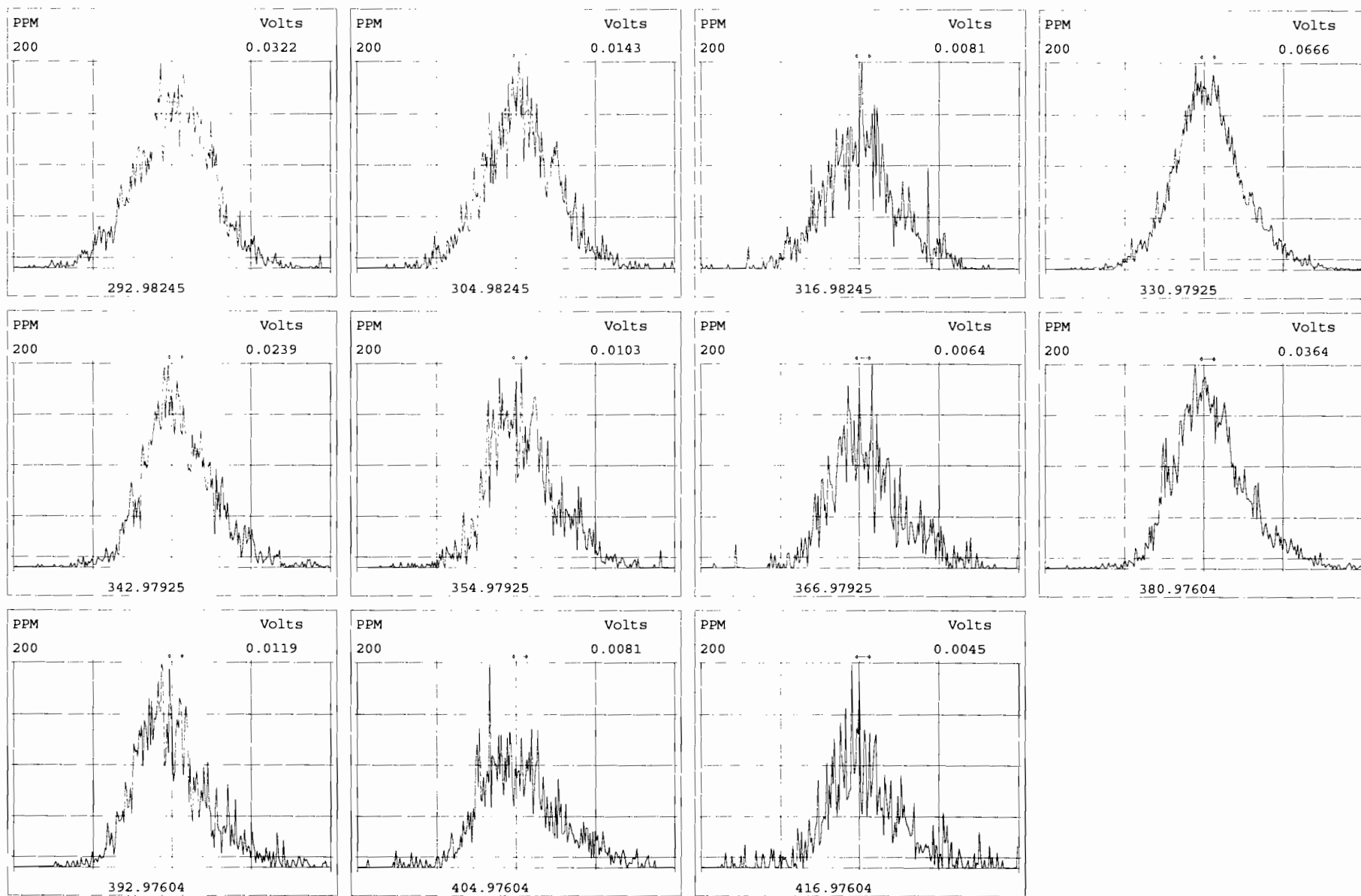
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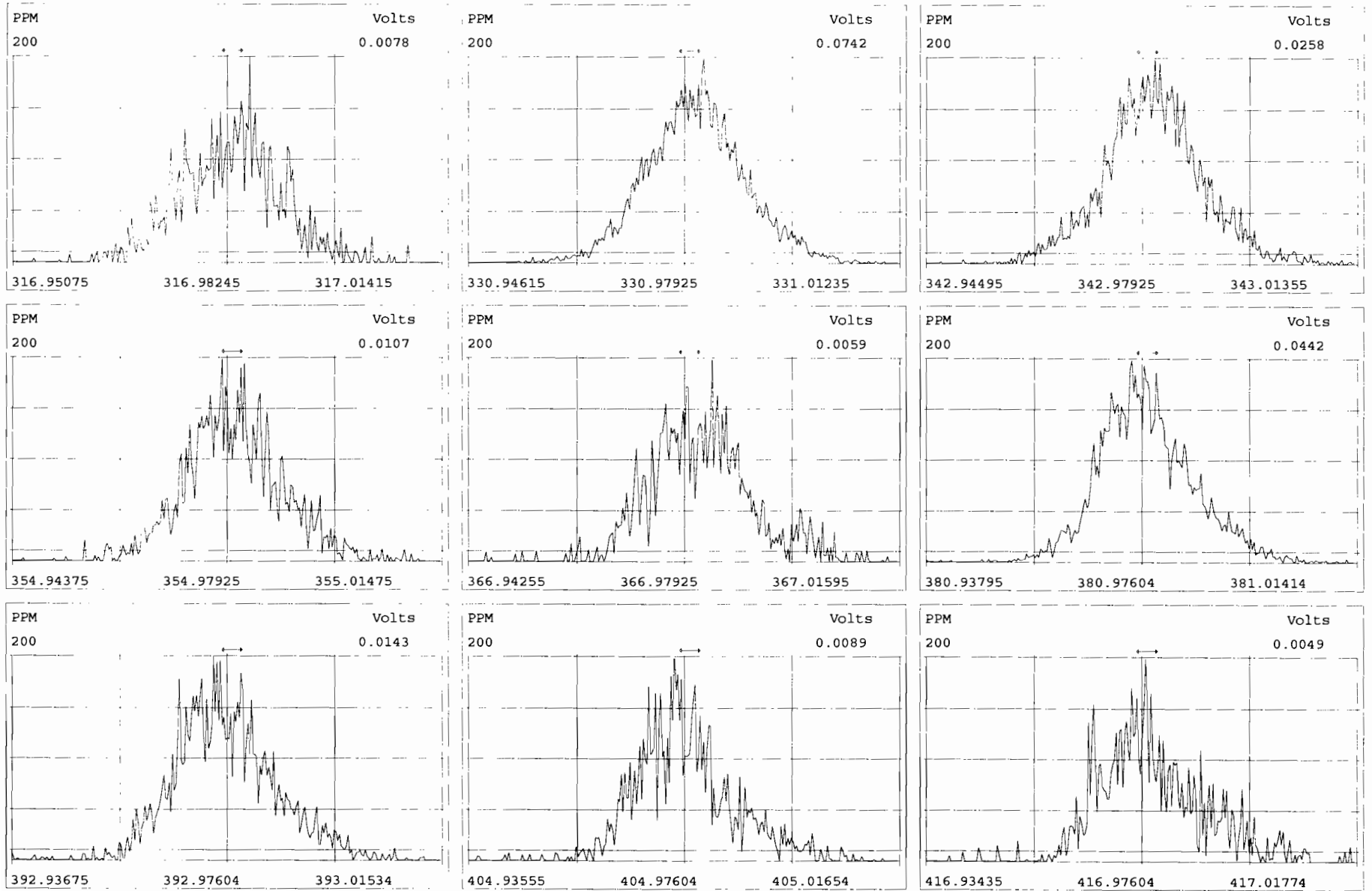
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	9.87e+05	0.79 y	0.91	26:12	10.263		* 2.5		*	Total Tetra-Dioxins	75.3	75.6		*	*
1,2,3,7,8-PeCDD	3.99e+06	0.62 y	0.90	30:42	50.454		* 2.5		*	Total Penta-Dioxins	187	188		*	*
1,2,3,4,7,8-HxCDD	3.93e+06	1.27 y	1.10	34:01	48.376		* 2.5		*	Total Hexa-Dioxins	224	225		*	*
1,2,3,6,7,8-HxCDD	3.92e+06	1.25 y	0.94	34:07	51.315		* 2.5		*	Total Hepta-Dioxins	120	121		*	*
1,2,3,7,8,9-HxCDD	4.19e+06	1.27 y	0.96	34:25	51.789		* 2.5		*	Total Tetra-Furans	37.0	37.8		*	*
1,2,3,4,6,7,8-HpCDD	3.42e+06	1.03 y	0.98	37:52	50.393		* 2.5		*	Total Penta-Furans	223.85	223.93		*	*
OCDD	7.22e+06	0.88 y	0.96	41:09	101.22		* 2.5		*	Total Hexa-Furans	267	268		*	*
										Total Hepta-Furans	95.3	95.9		*	*
2,3,7,8-TCDF	1.35e+06	0.73 y	0.95	25:25	9.5064		* 2.5		*						
1,2,3,7,8-PeCDF	6.19e+06	1.58 y	0.96	29:32	50.681		* 2.5		*						
2,3,4,7,8-PeCDF	6.37e+06	1.59 y	1.01	30:25	50.188		* 2.5		*						
1,2,3,4,7,8-HxCDF	5.52e+06	1.23 y	1.18	33:07	49.632		* 2.5		*						
1,2,3,6,7,8-HxCDF	5.76e+06	1.23 y	1.07	33:14	50.510		* 2.5		*						
2,3,4,6,7,8-HxCDF	5.69e+06	1.25 y	1.11	33:50	51.125		* 2.5		*						
1,2,3,7,8,9-HxCDF	4.69e+06	1.24 y	1.06	34:48	49.678		* 2.5		*						
1,2,3,4,6,7,8-HpCDF	4.45e+06	1.03 y	1.13	36:38	47.481		* 2.5		*						
1,2,3,4,7,8,9-HpCDF	4.31e+06	1.02 y	1.28	38:24	47.029		* 2.5		*						
OCDF	7.93e+06	0.88 y	0.95	41:22	98.114		* 2.5		*						
IS	13C-2,3,7,8-TCDD	1.06e+07	0.79 y	1.10	26:11	101.97				Rec	102				
IS	13C-1,2,3,7,8-PeCDD	8.76e+06	0.62 y	0.88	30:41	104.46				Qual	104				
IS	13C-1,2,3,4,7,8-HxCDD	7.39e+06	1.29 y	0.64	33:60	110.88					111				
IS	13C-1,2,3,6,7,8-HxCDD	8.15e+06	1.29 y	0.86	34:06	91.783					91.8				
IS	13C-1,2,3,7,8,9-HxCDD	8.42e+06	1.26 y	0.81	34:24	100.67					101				
IS	13C-1,2,3,4,6,7,8-HpCDD	6.93e+06	1.08 y	0.65	37:51	102.18					102				
IS	13C-OCDD	1.49e+07	0.89 y	0.58	41:08	247.46					124				
IS	13C-2,3,7,8-TCDF	1.49e+07	0.77 y	1.03	25:24	103.06					103				
IS	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59 y	0.85	29:31	106.38					106				
IS	13C-2,3,4,7,8-PeCDF	1.25e+07	1.59 y	0.85	30:24	105.51					106				
IS	13C-1,2,3,4,7,8-HxCDF	9.45e+06	0.53 y	0.83	33:06	109.54					110				
IS	13C-1,2,3,6,7,8-HxCDF	1.07e+07	0.53 y	1.03	33:14	99.374					99.4				
IS	13C-2,3,4,6,7,8-HxCDF	1.00e+07	0.52 y	0.95	33:49	101.08					101				
IS	13C-1,2,3,7,8,9-HxCDF	8.89e+06	0.51 y	0.83	34:47	103.50					103				
IS	13C-1,2,3,4,6,7,8-HpCDF	8.31e+06	0.45 y	0.76	36:37	105.71					106				
IS	13C-1,2,3,4,7,8,9-HpCDF	7.17e+06	0.45 y	0.58	38:24	118.88					119				
IS	13C-OCDF	1.71e+07	0.87 y	0.69	41:21	238.91					119				
C/Up	37C1-2,3,7,8-TCDD	1.07e+06		1.20	26:12	9.3673					93.7				
RS/RT	13C-1,2,3,4-TCDD	9.51e+06	0.81 y	1.00	25:37	100.00									
RS	13C-1,2,3,4-TCDF	1.40e+07	0.78 y	1.00	24:12	100.00									
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.04e+07	0.52 y	1.00	33:31	100.00									

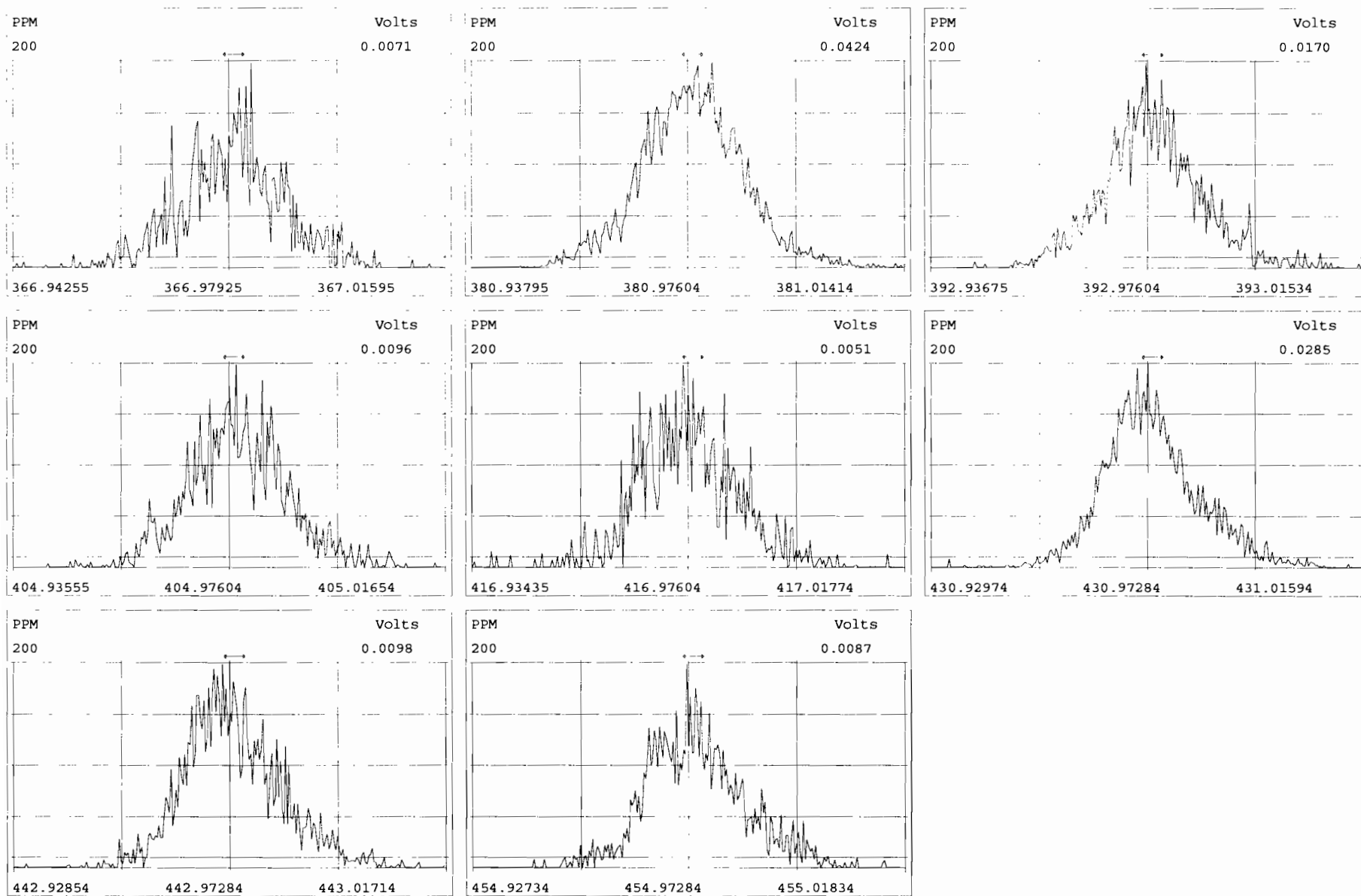
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by DB  
Analyst: DB  
Date: 11/26/19  
Reviewed  
by CT  
Analyst: CT  
Date: 11/26/19

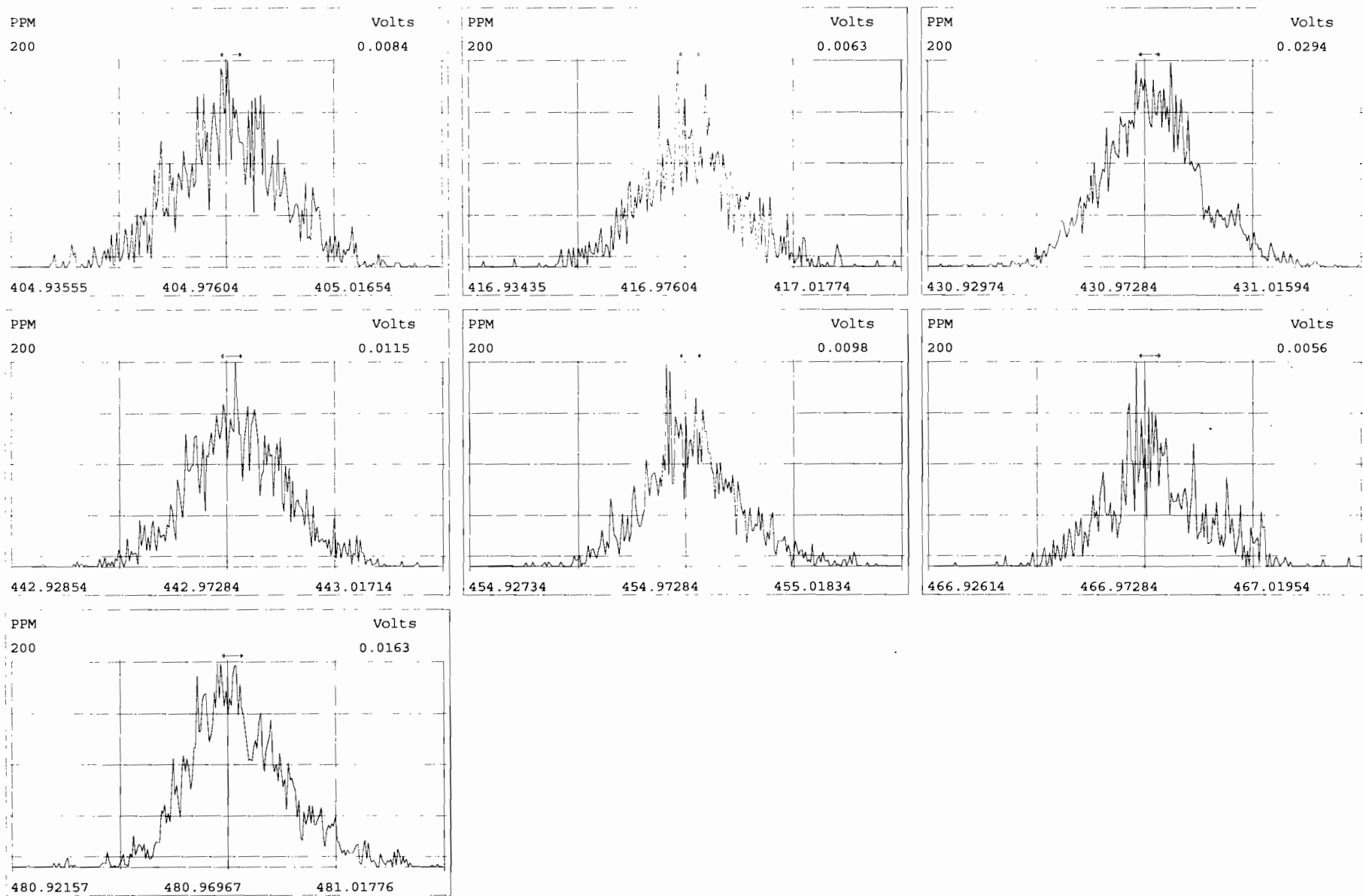
Vista Analytical Laboratory - Injection Log Run file: 191120D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

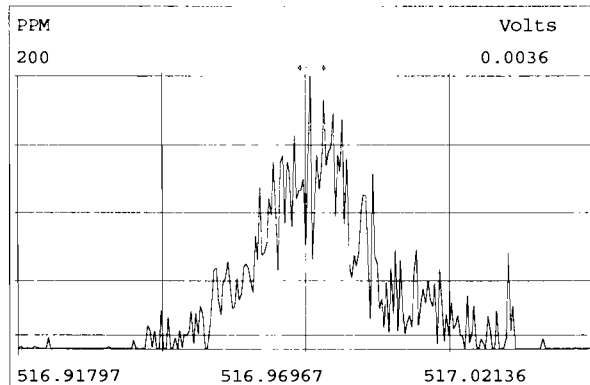
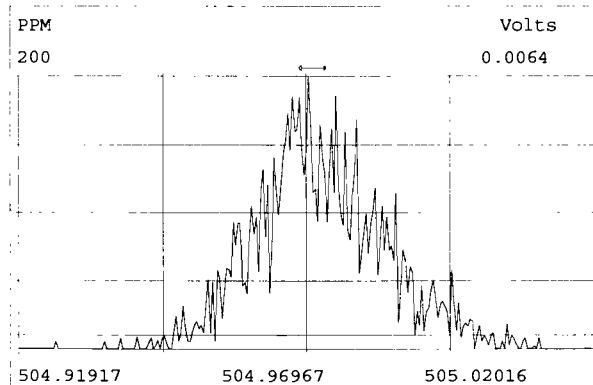
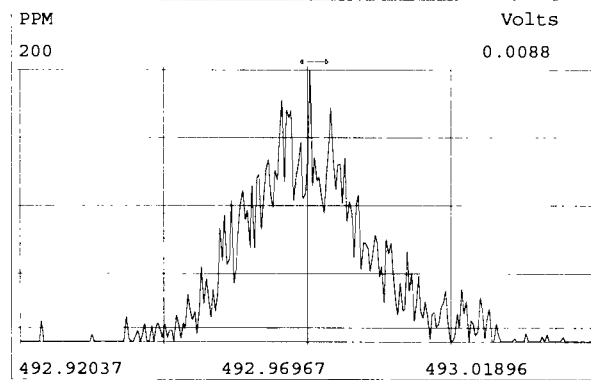
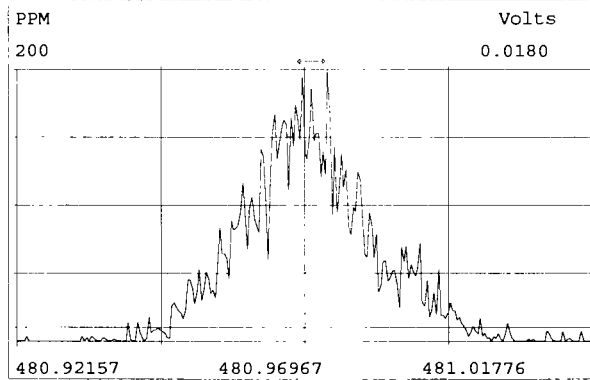
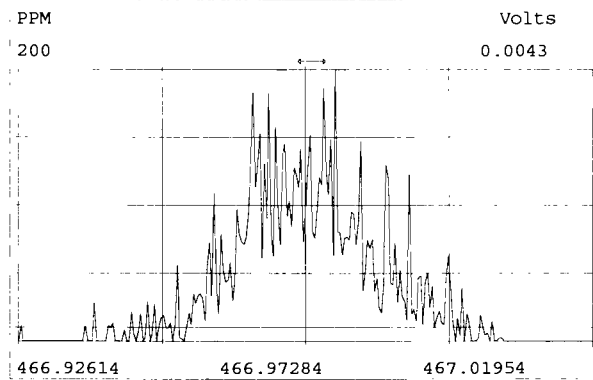
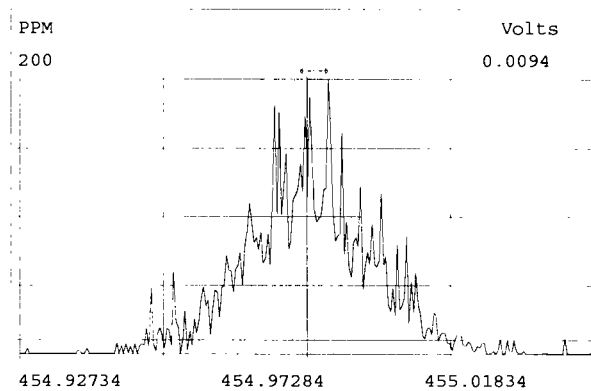
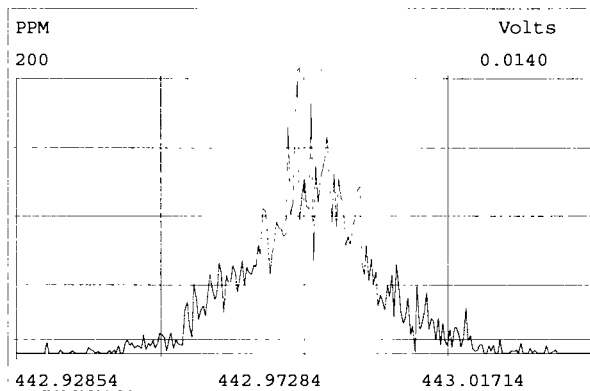
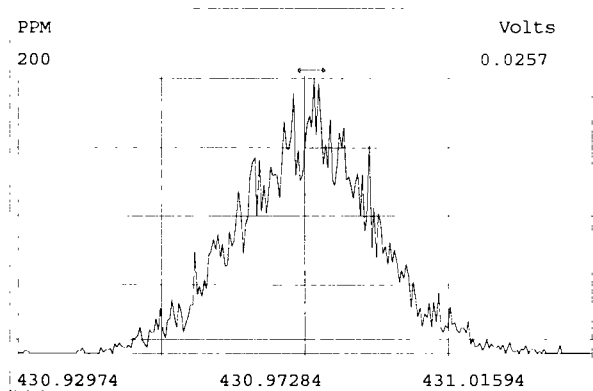
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191120D2	3	1903829-01	DB	21-NOV-19	03:47:07	ST191120D2-1	NA
191120D2	4	1903829-02	DB	21-NOV-19	04:34:51	ST191120D2-1	NA
191120D2	5	1903829-03	DB	21-NOV-19	05:22:35	ST191120D2-1	NA
191120D2	6	1903829-04	DB	21-NOV-19	06:10:19	ST191120D2-1	NA
191120D2	7	B9K0068-DUP1	DB	21-NOV-19	06:58:02	ST191120D2-1	NA
191120D2	8	1903653-01RE1	DB	21-NOV-19	07:45:49	ST191120D2-1	NA
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191120D2	10	1903653-03RE1	DB	21-NOV-19	09:21:31	ST191120D2-1	NA
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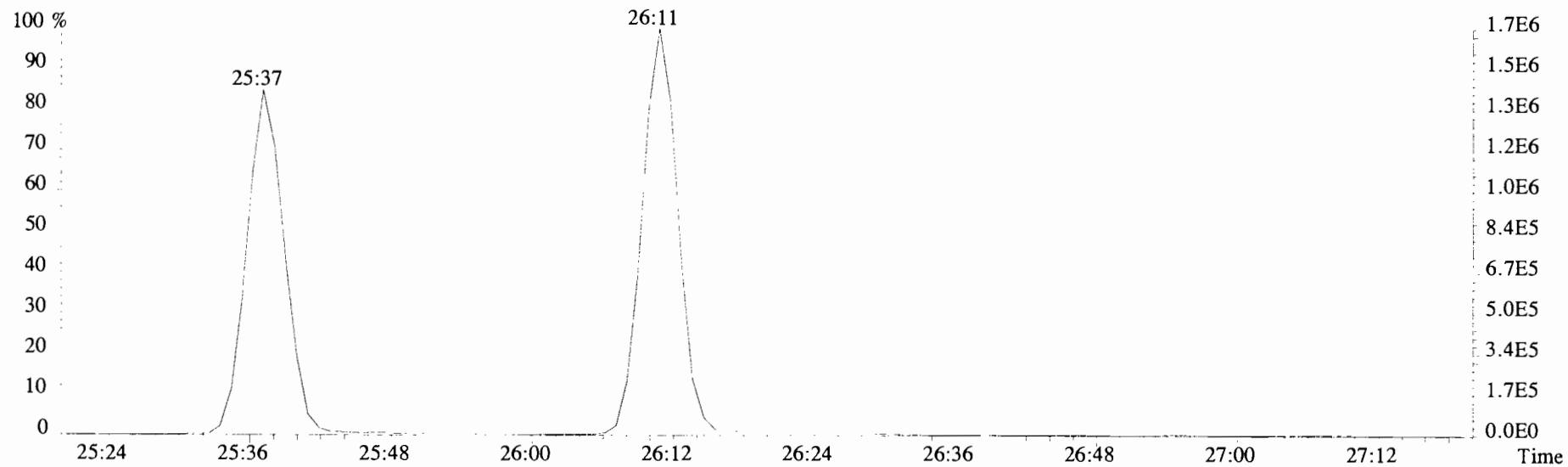
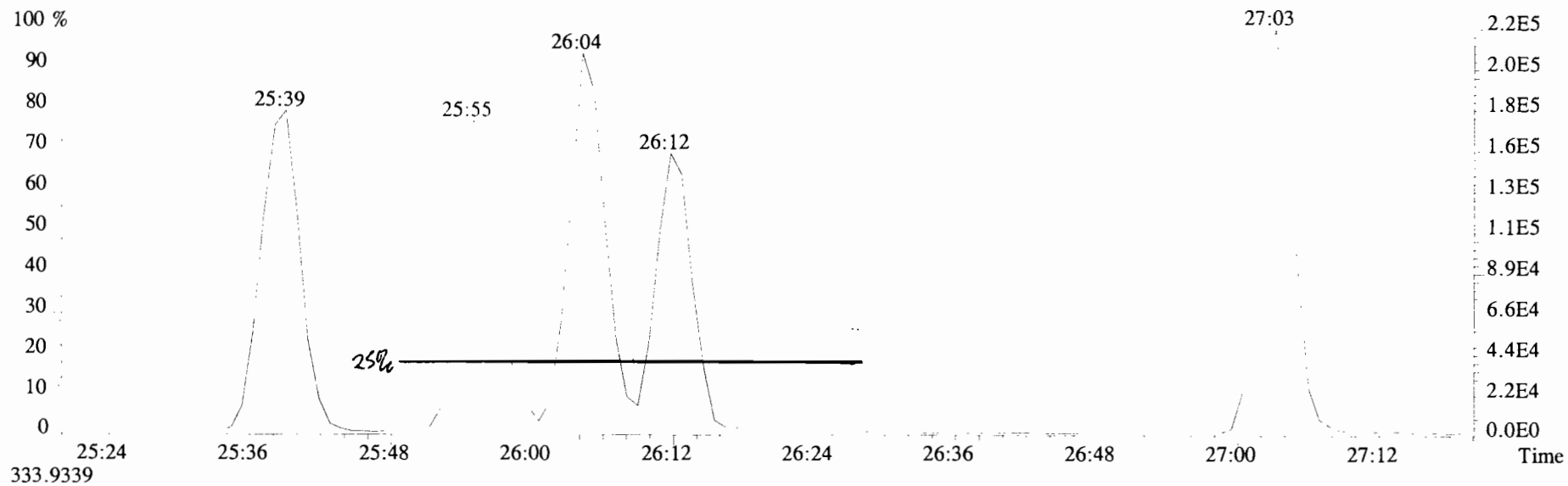




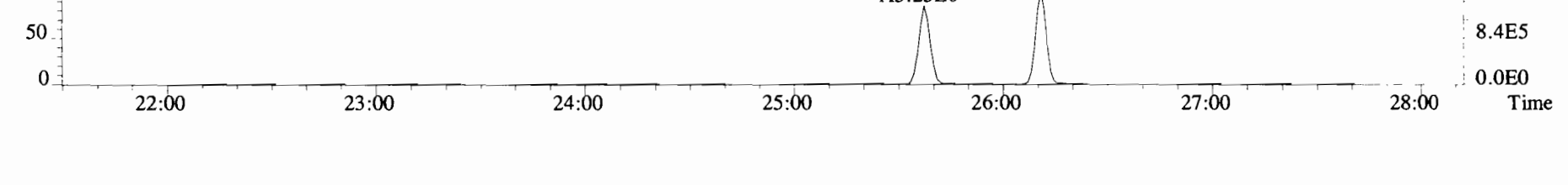
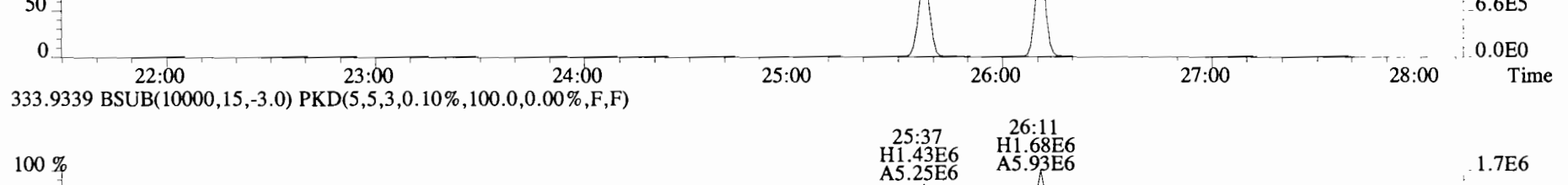
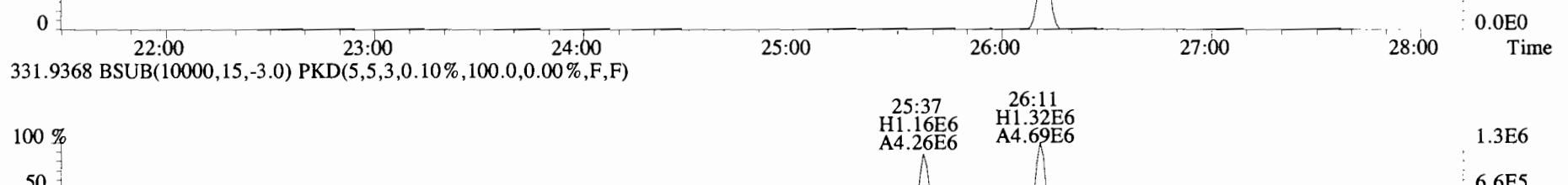
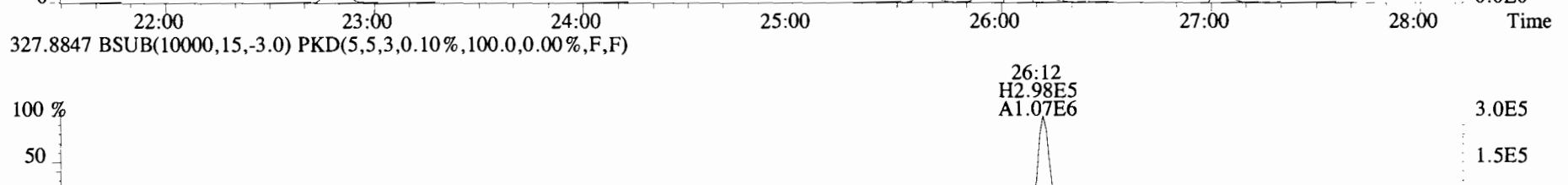
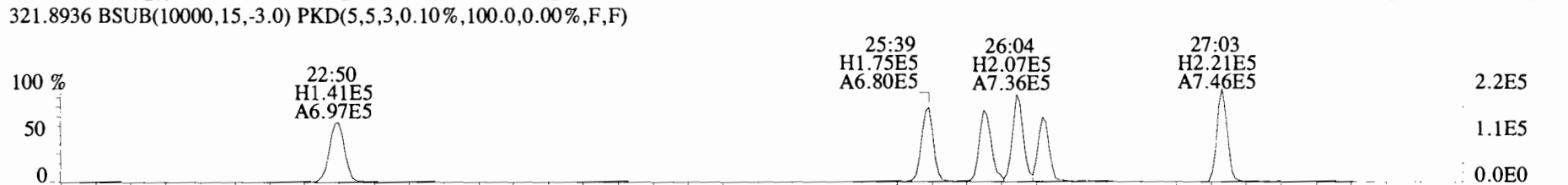
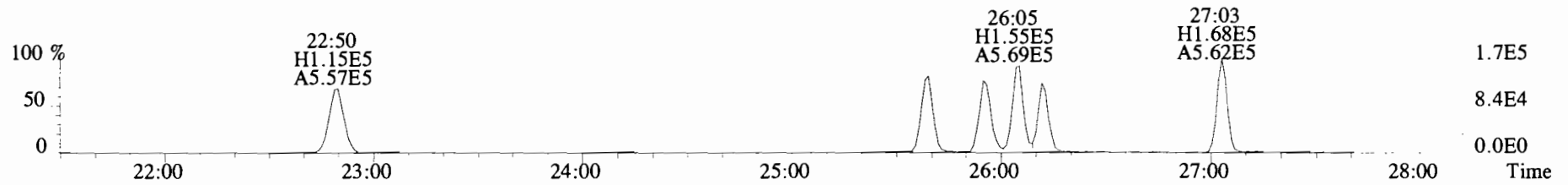




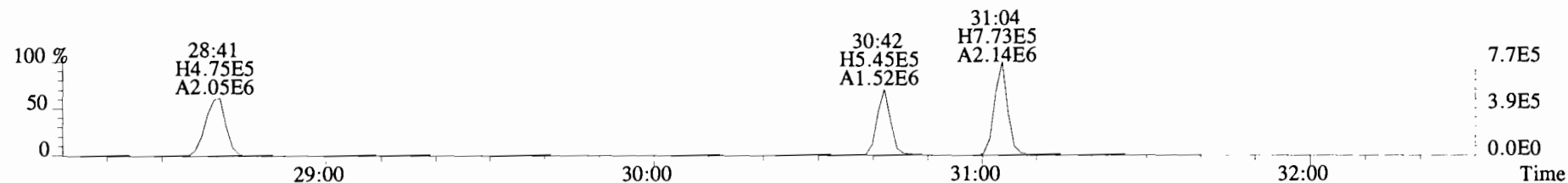
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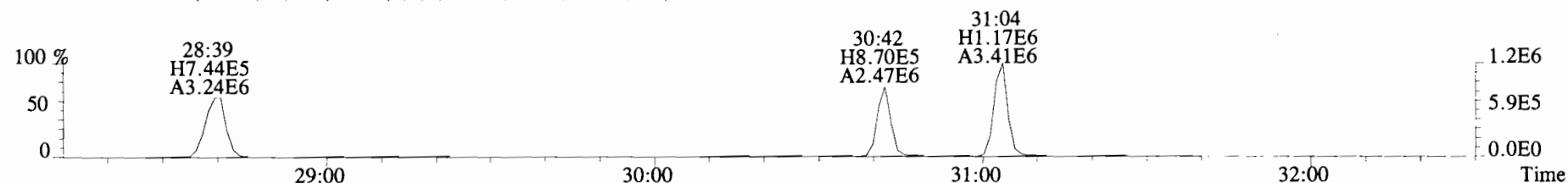
File:191120D2 #1-492 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



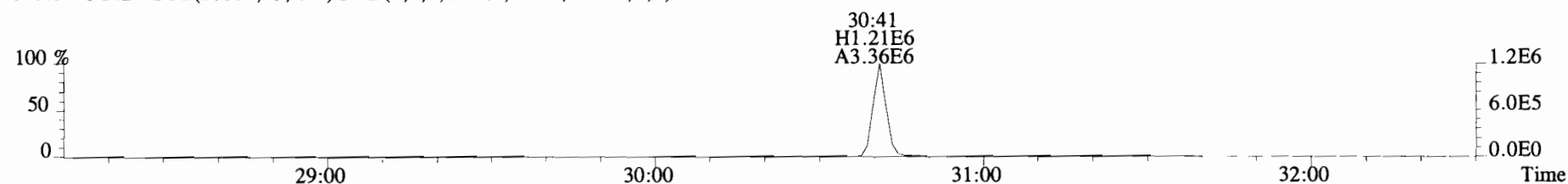
File:191120D2 #1-210 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



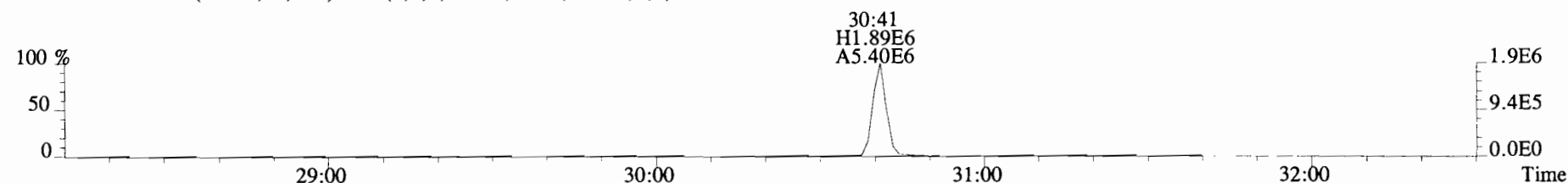
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



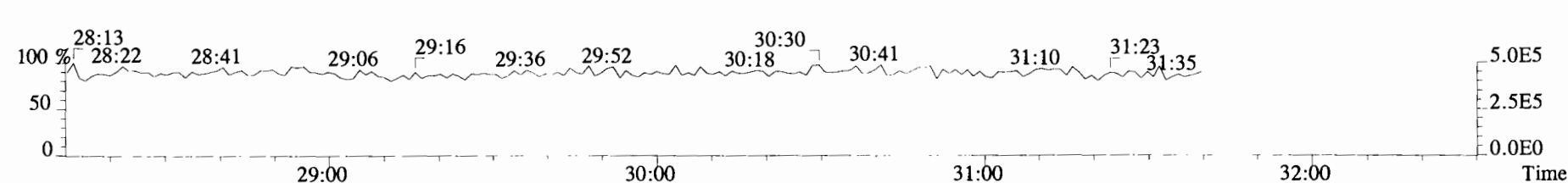
365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



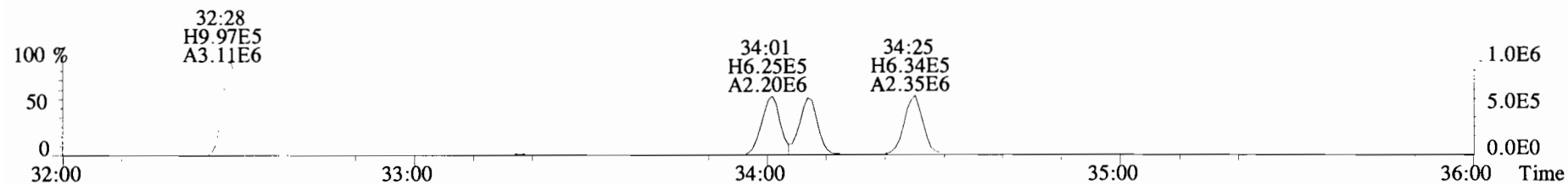
367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



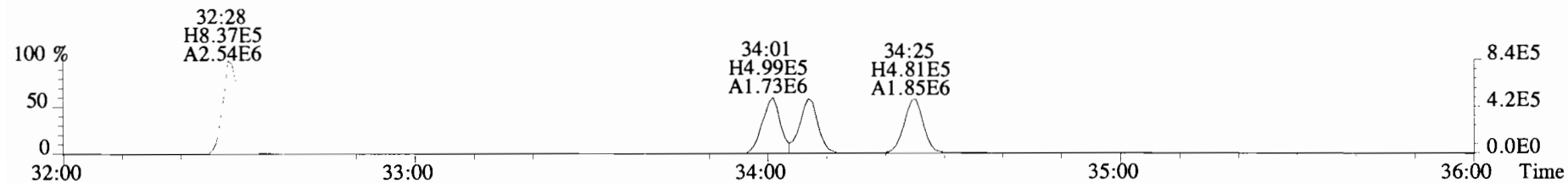
366.9792 F:2



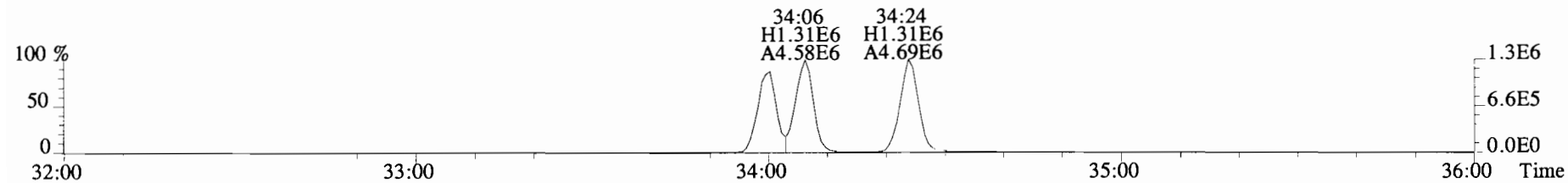
File:191120D2 #1-386 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



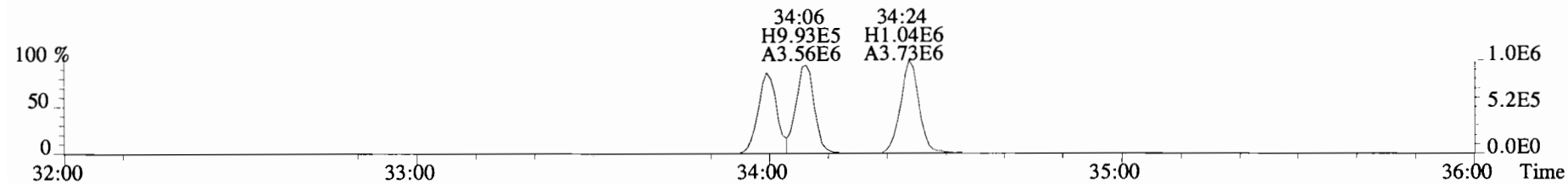
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



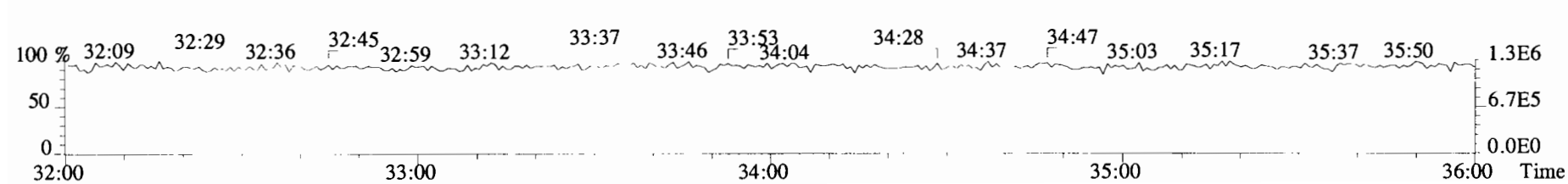
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



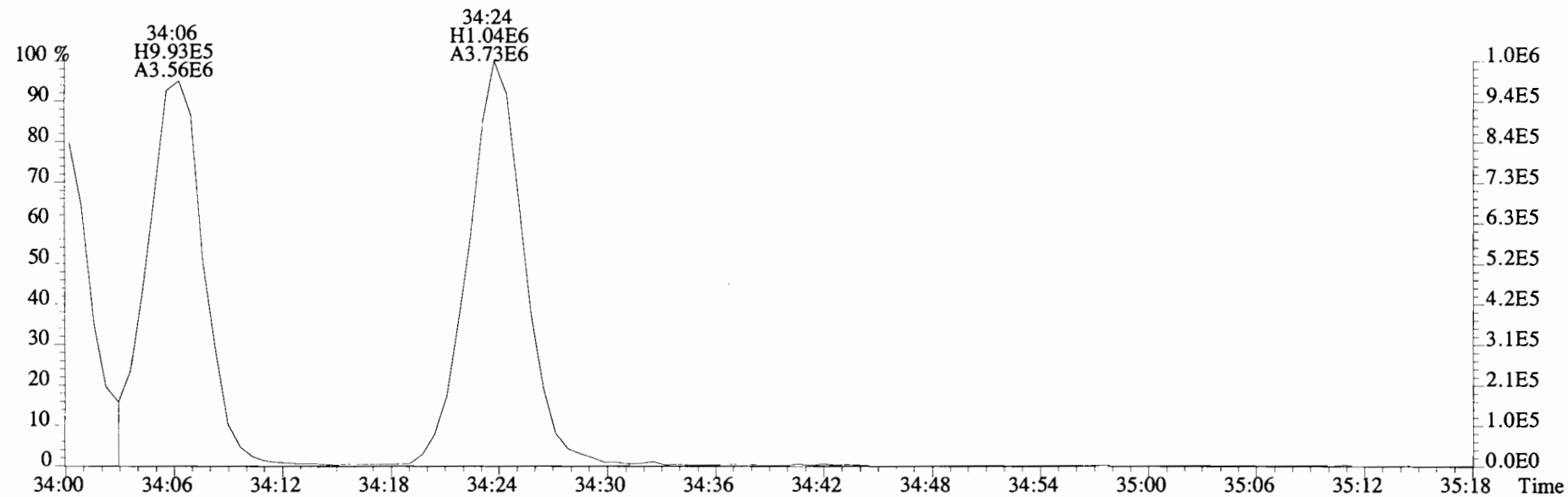
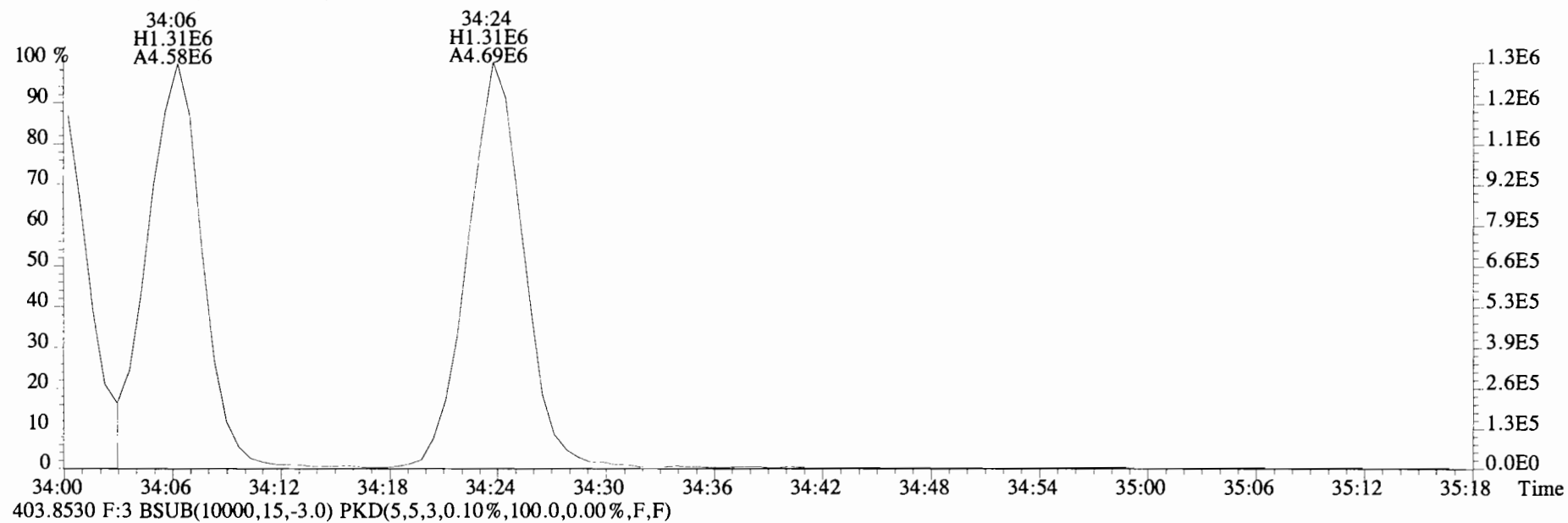
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



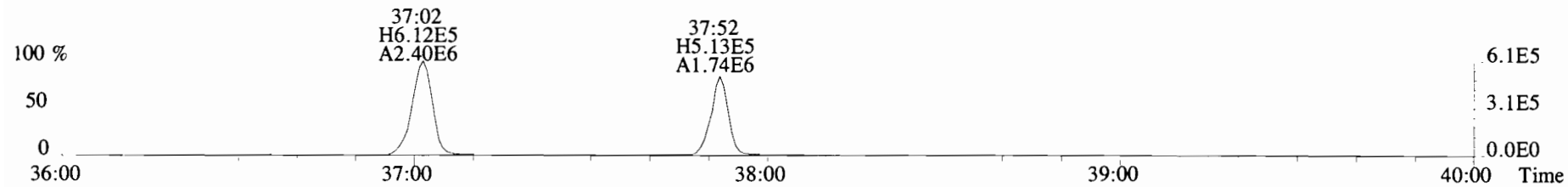
392.9760 F:3



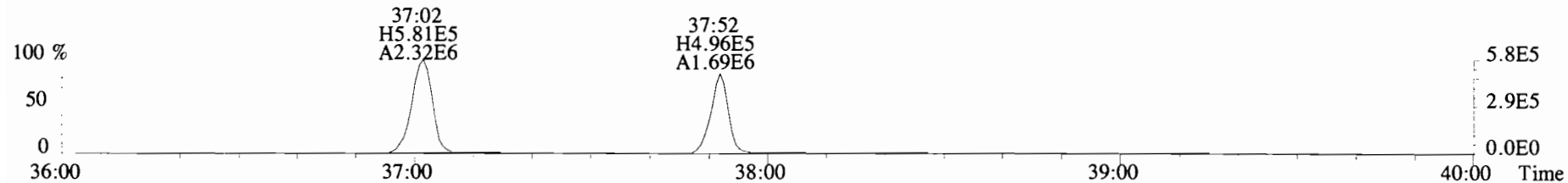
File:191120D2 #1-386 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



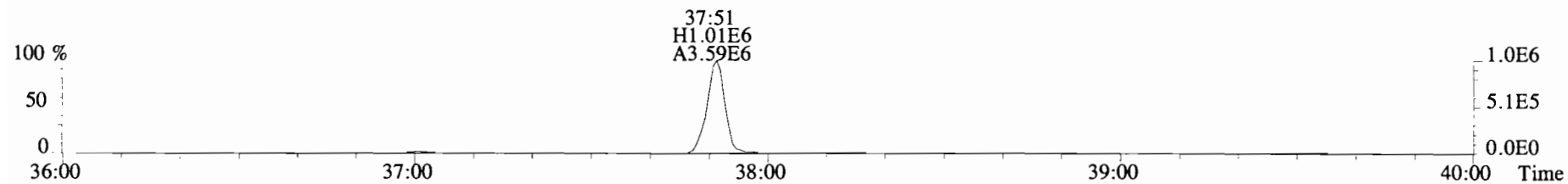
File:191120D2 #1-355 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



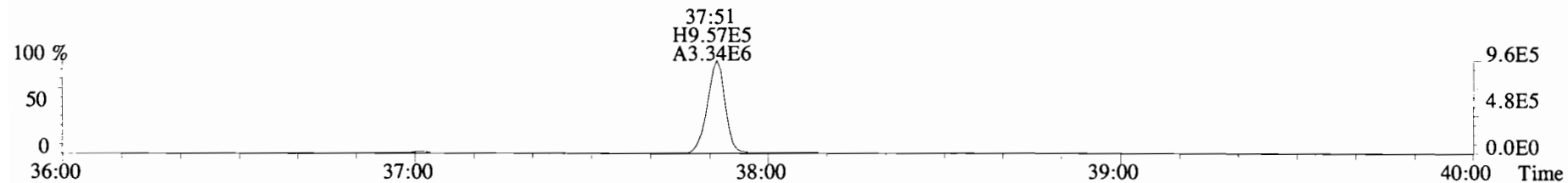
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



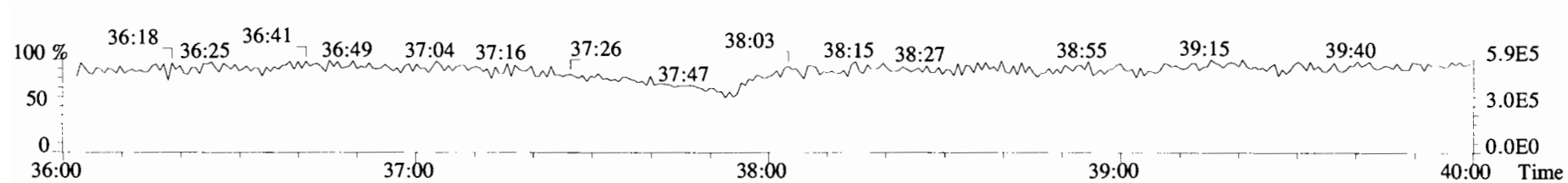
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



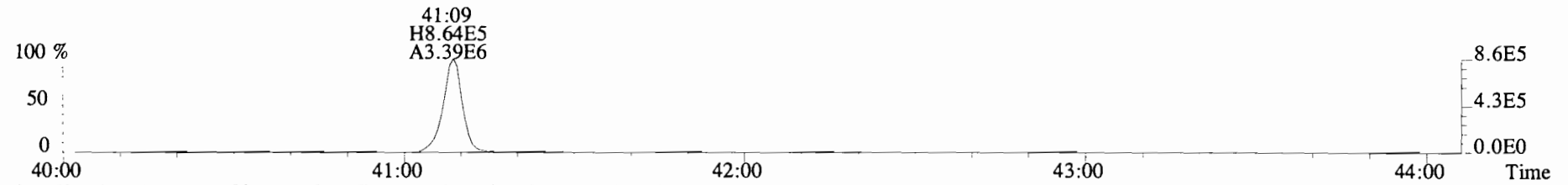
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



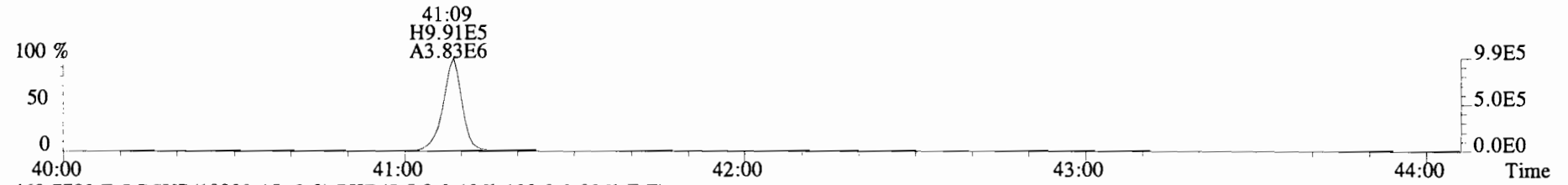
454.9728 F:4



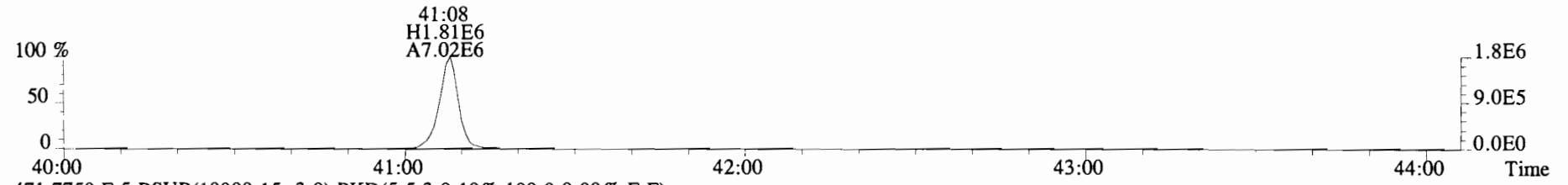
File:191120D2 #1-432 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



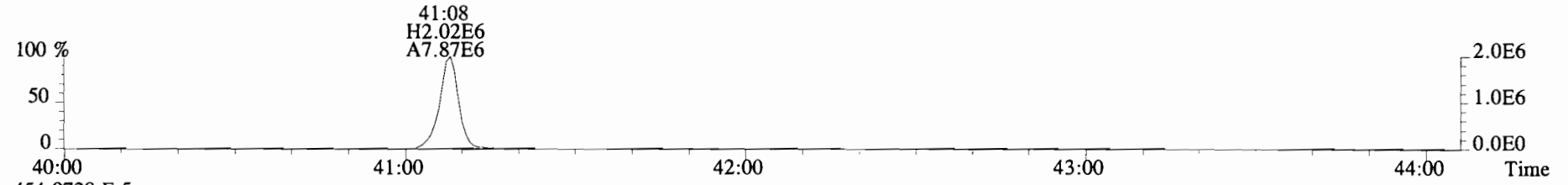
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



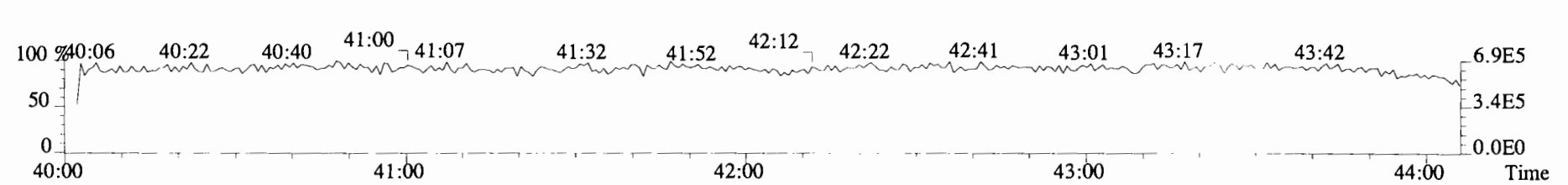
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



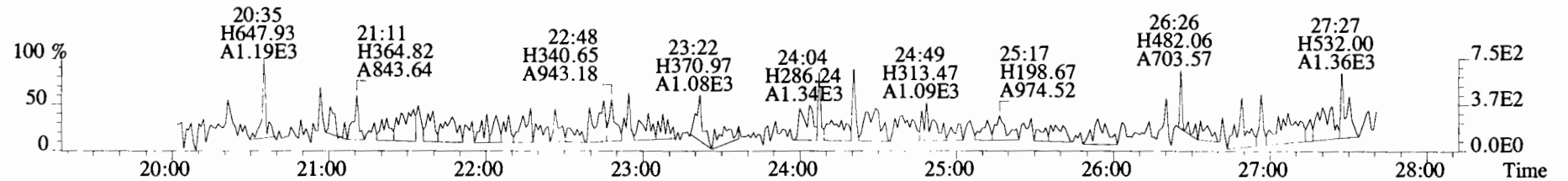
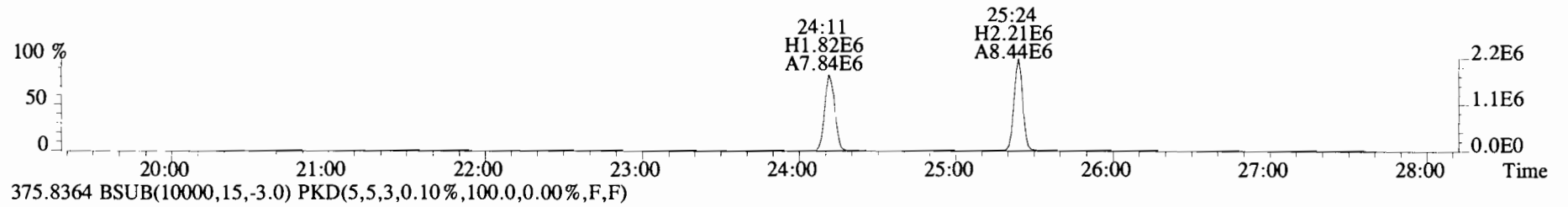
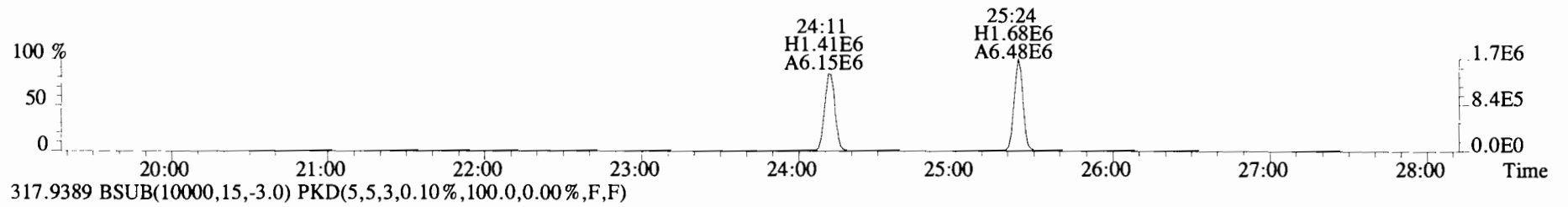
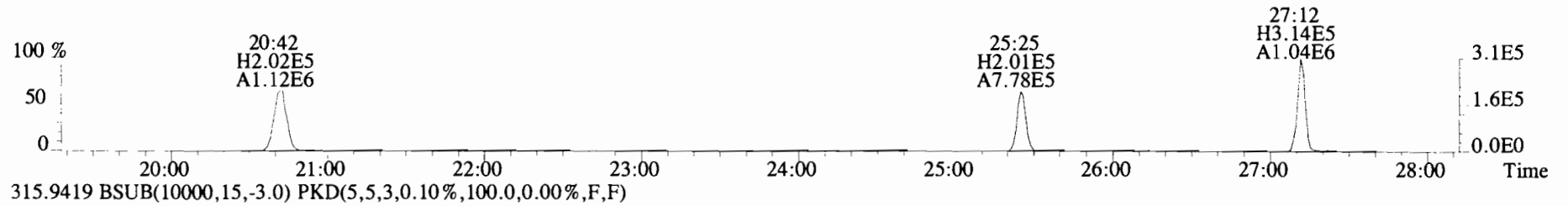
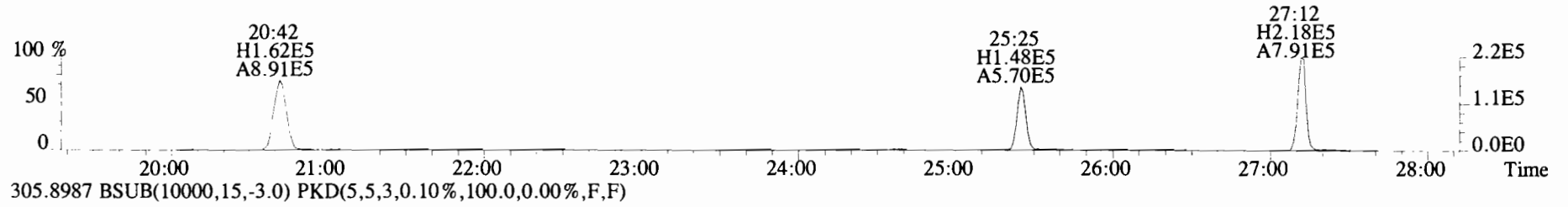
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



454.9728 F:5

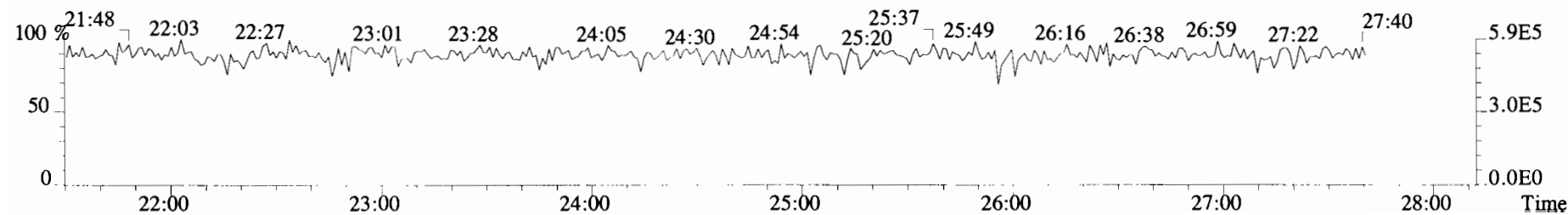
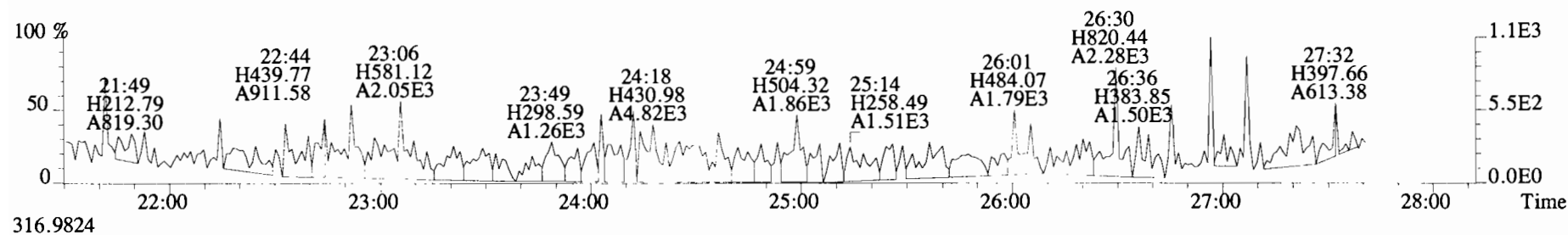
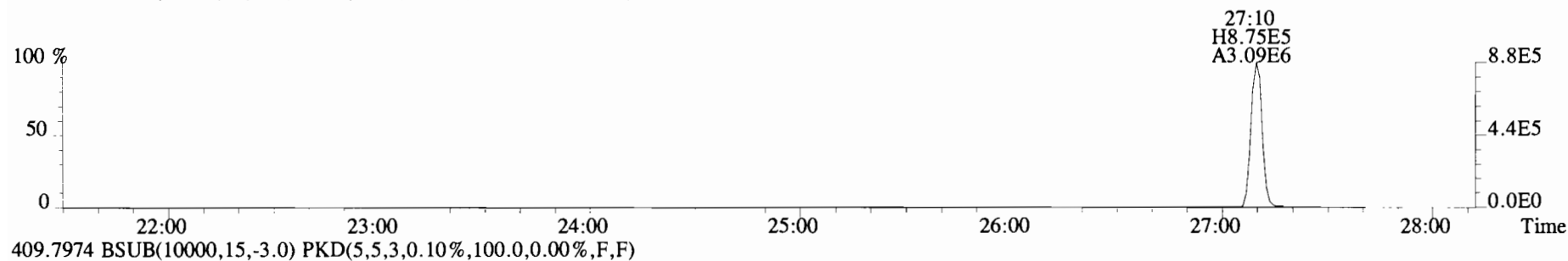
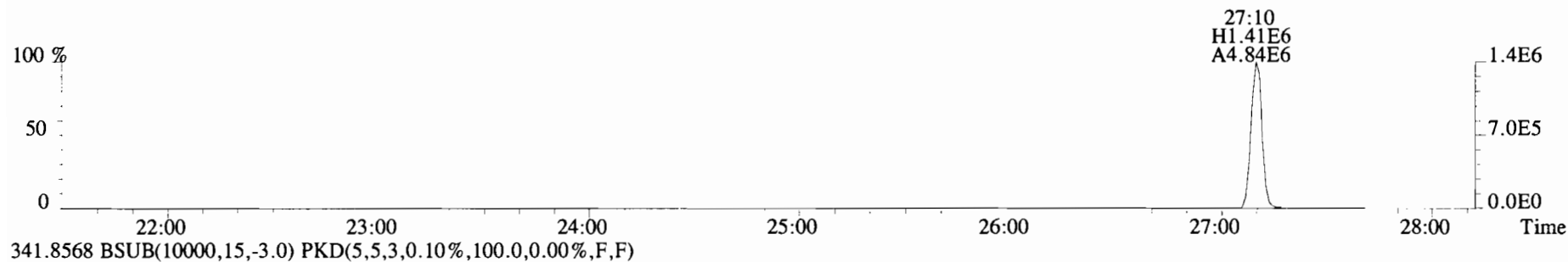


File:191120D2 #1-492 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

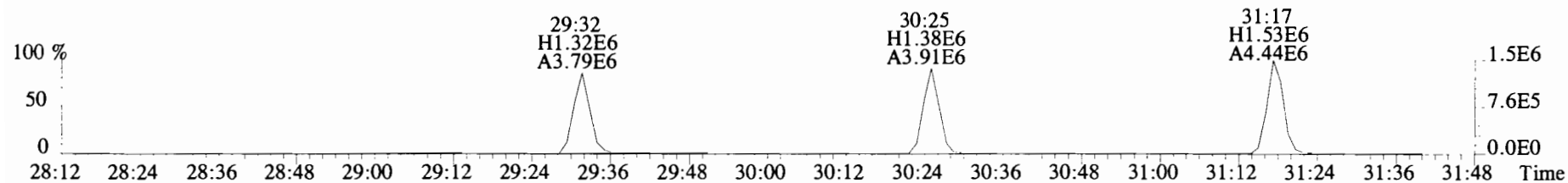




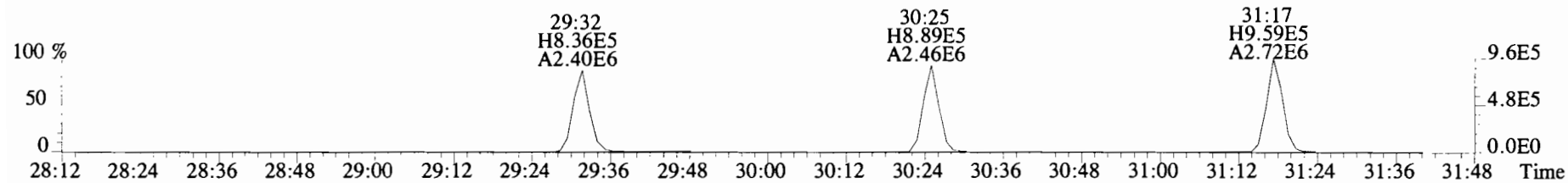
File:191120D2 #1-492 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



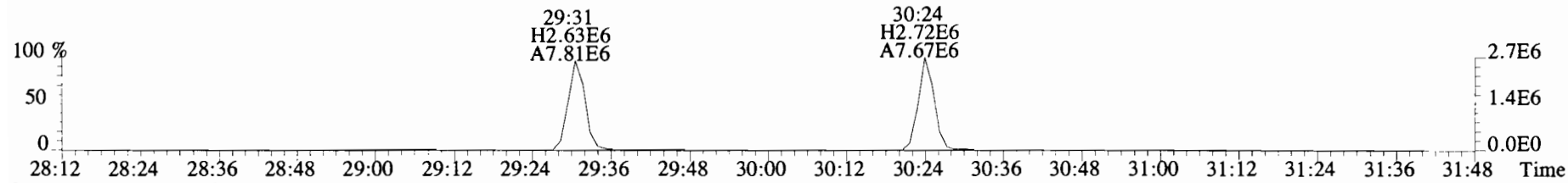
File:191120D2 #1-210 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



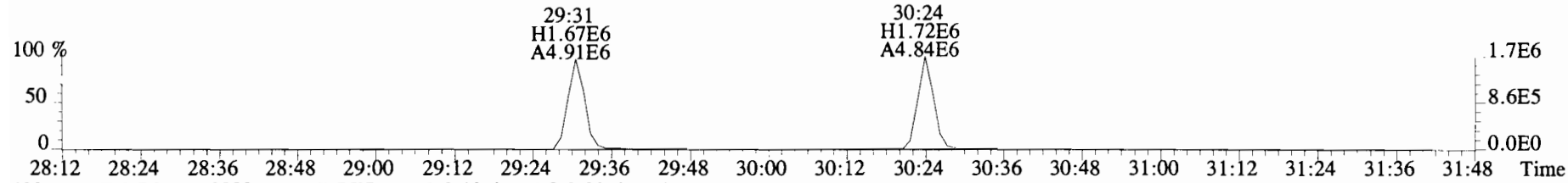
341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



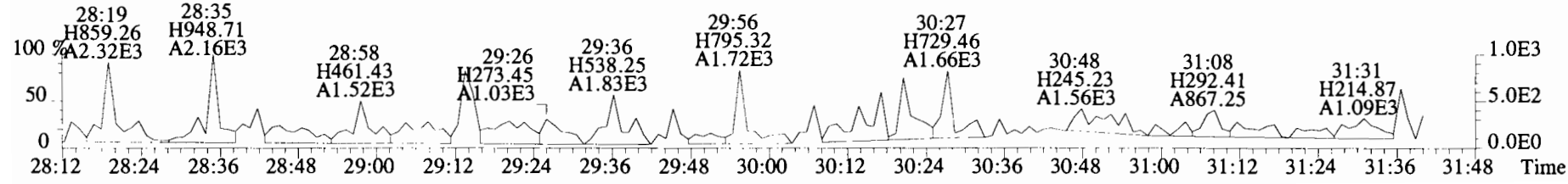
351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



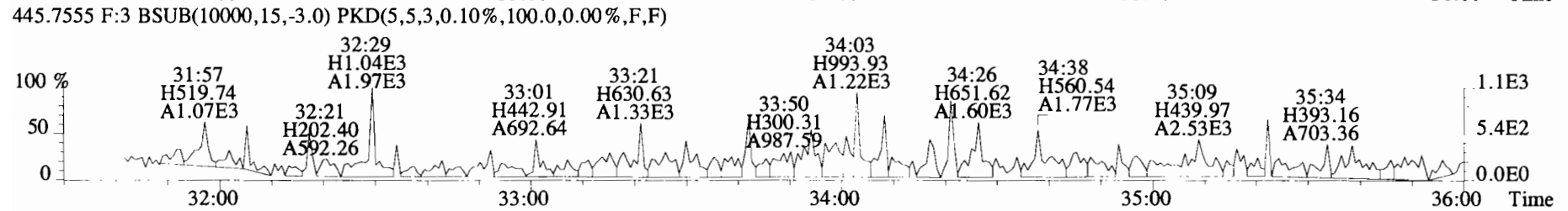
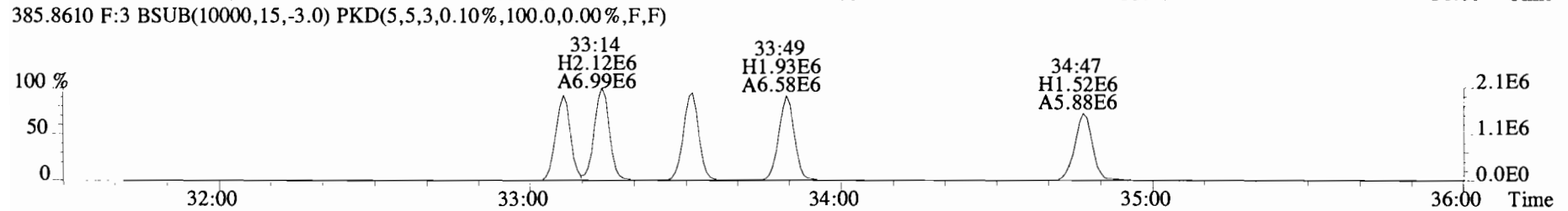
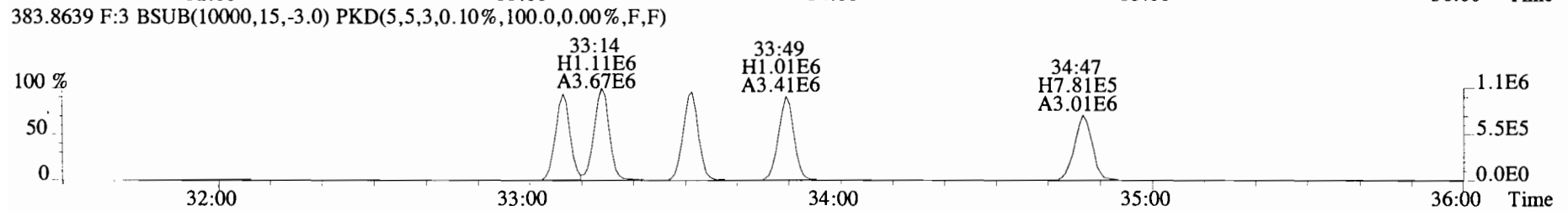
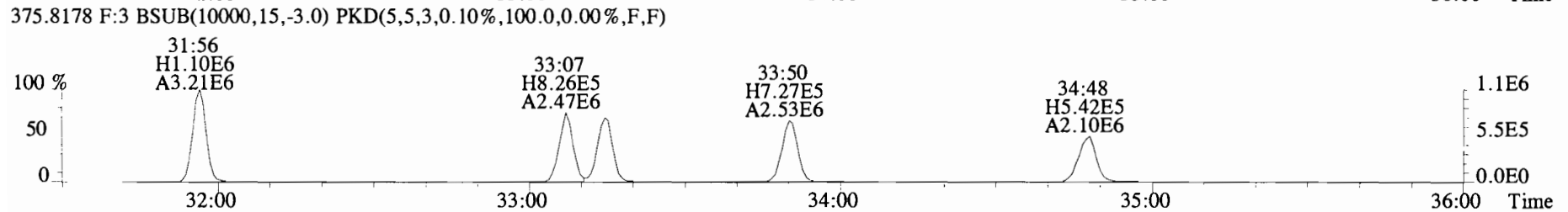
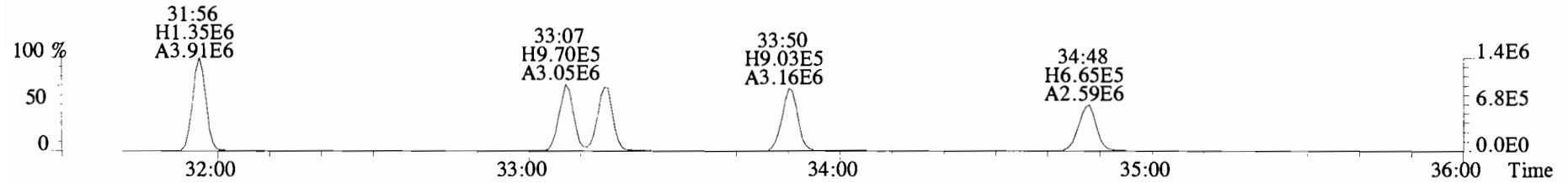
353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



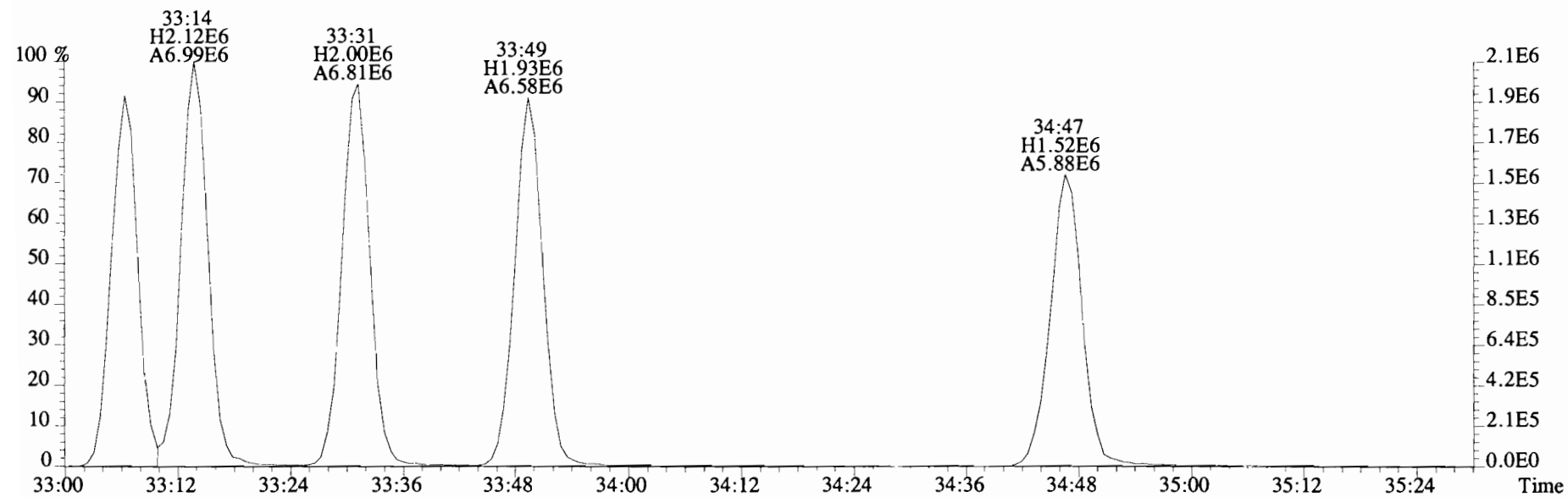
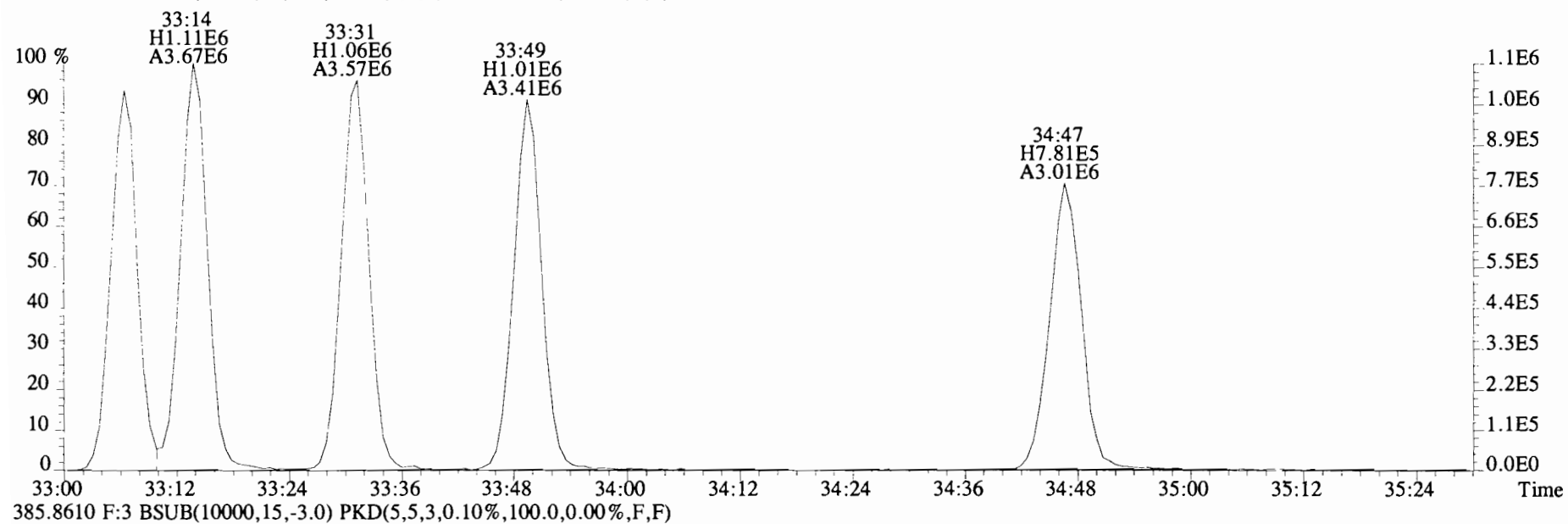
409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



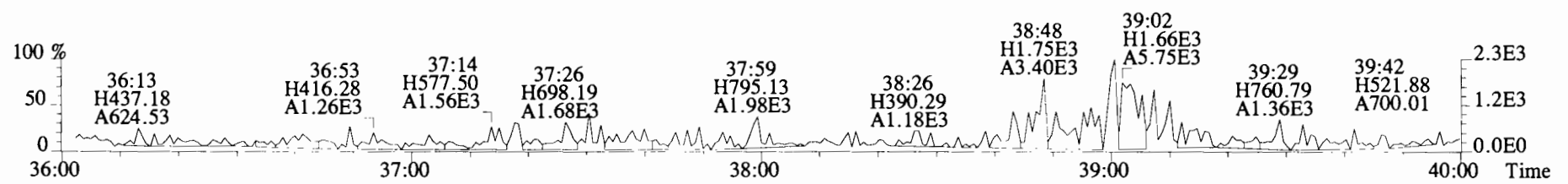
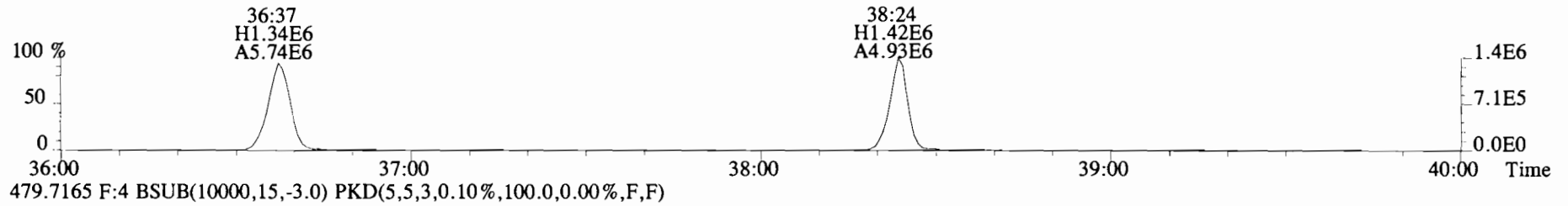
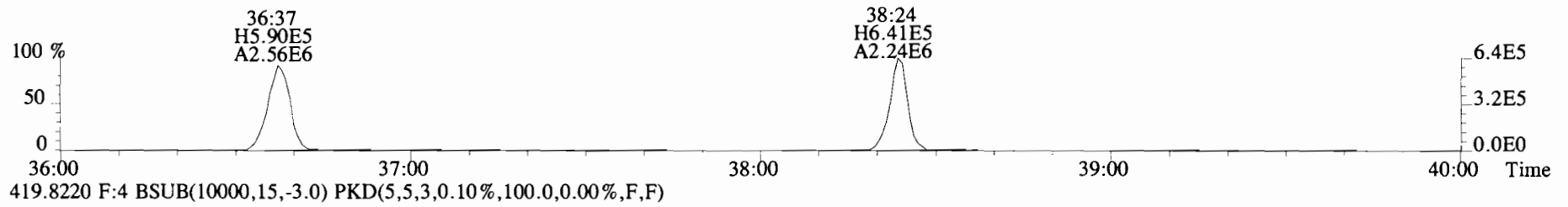
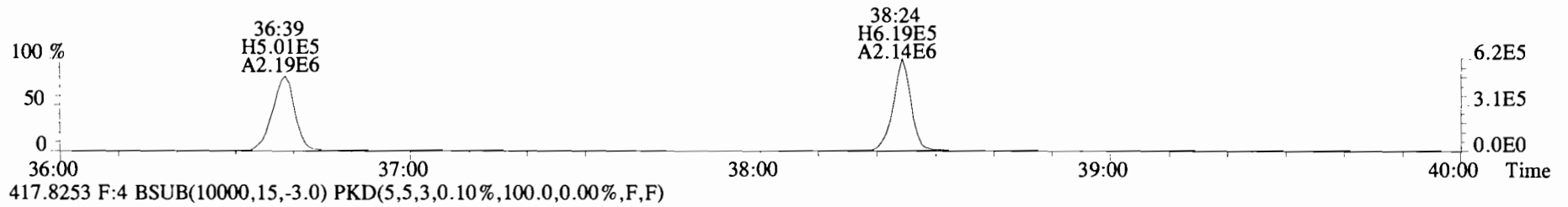
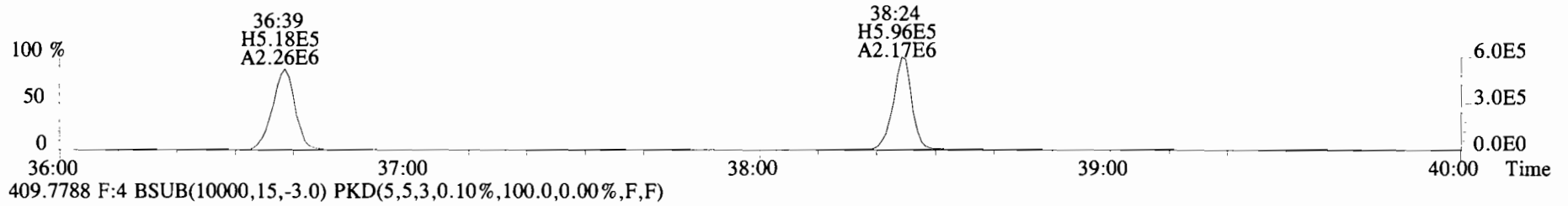
File:191120D2 #1-386 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



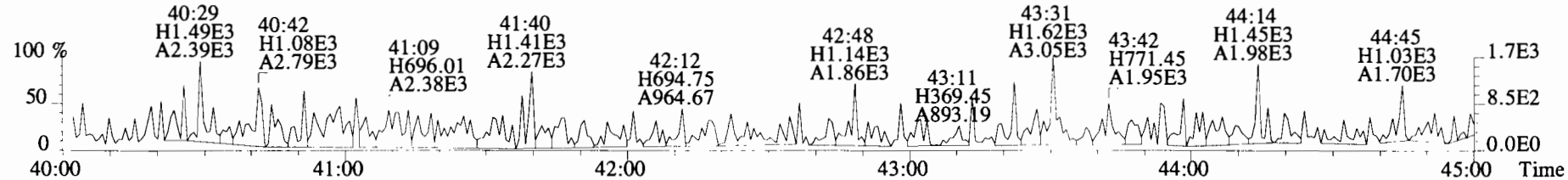
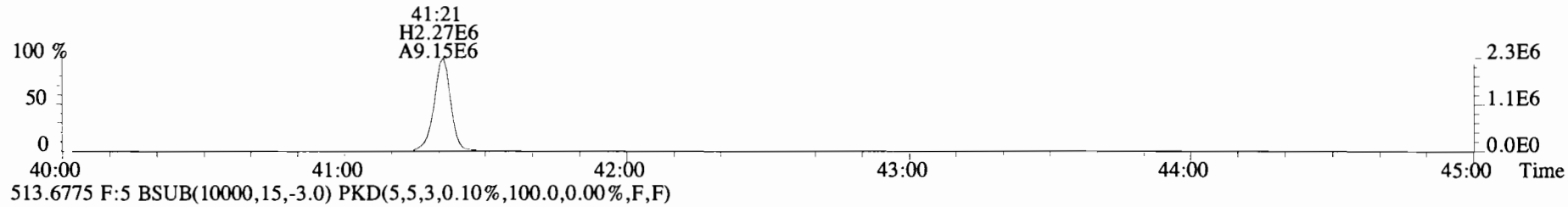
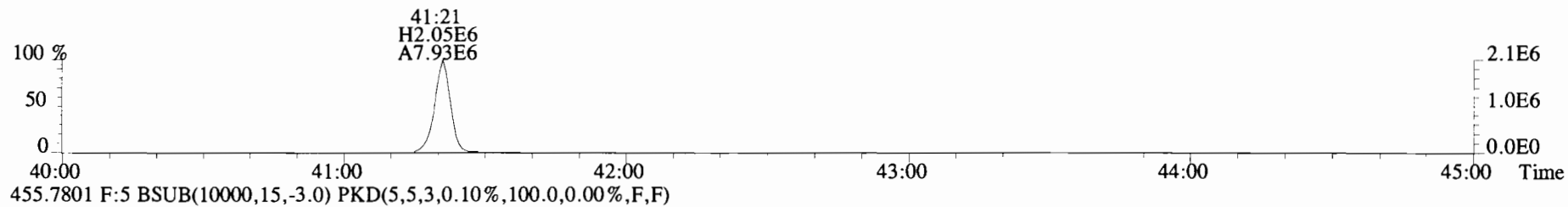
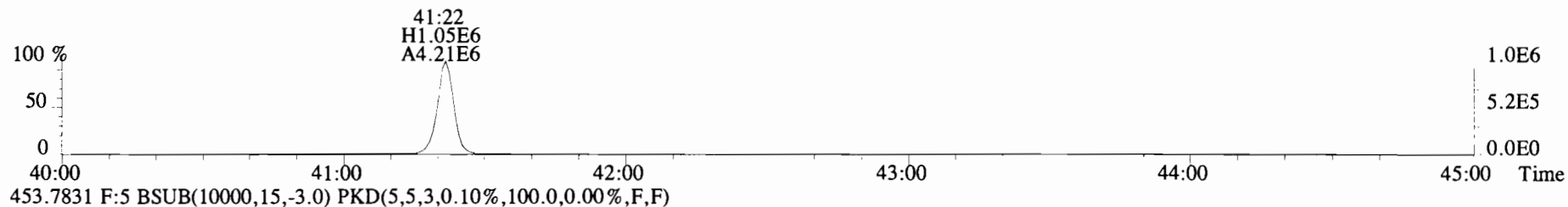
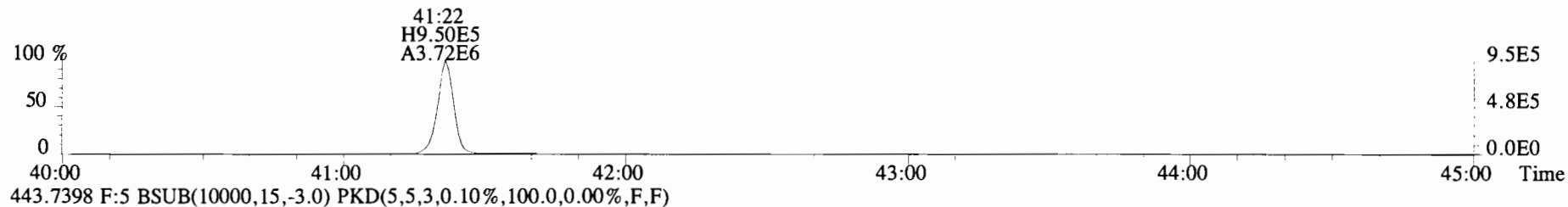
File:191120D2 #1-386 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata Analytical Laboratory VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191120D2 #1-355 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 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)

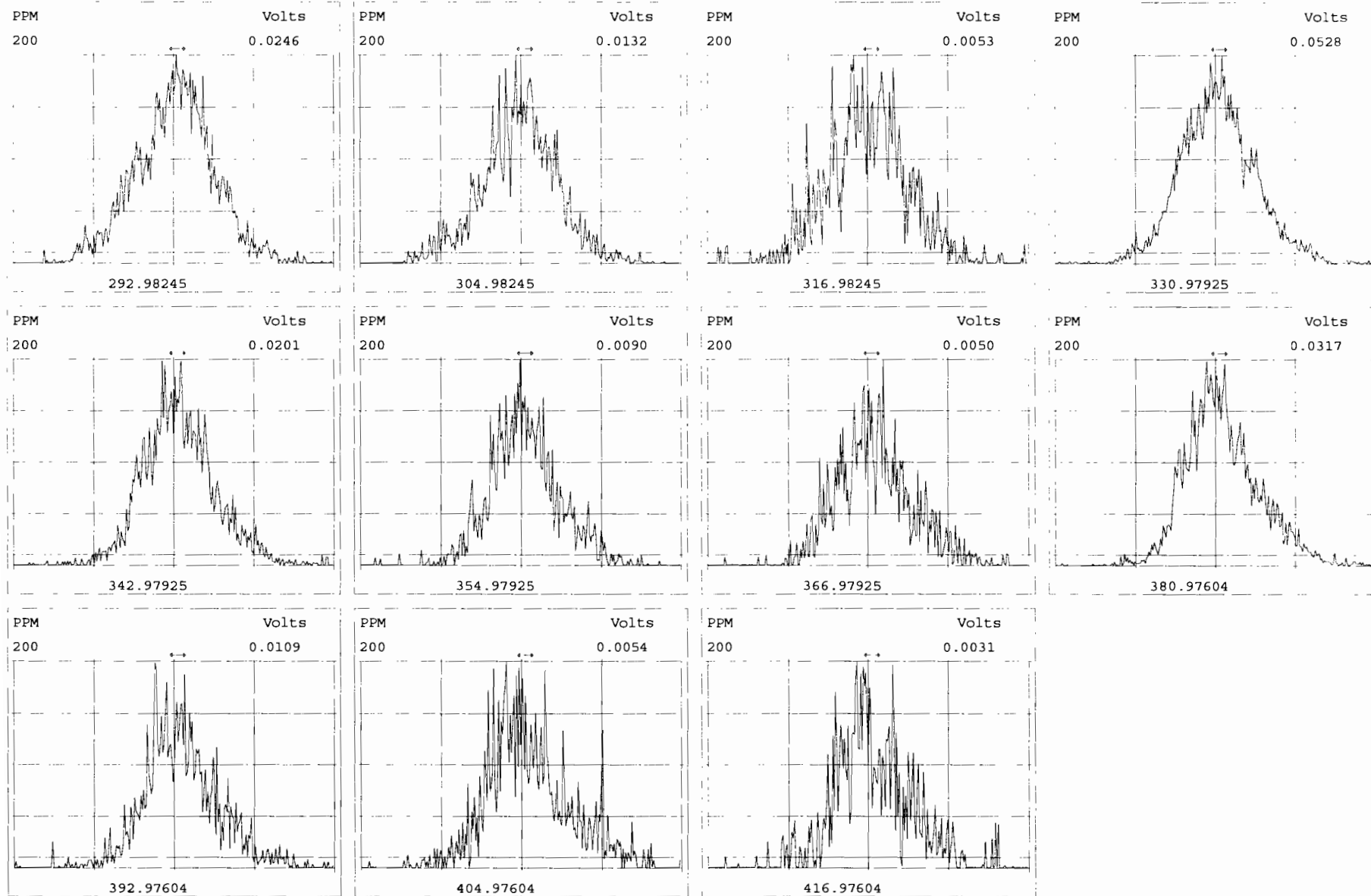


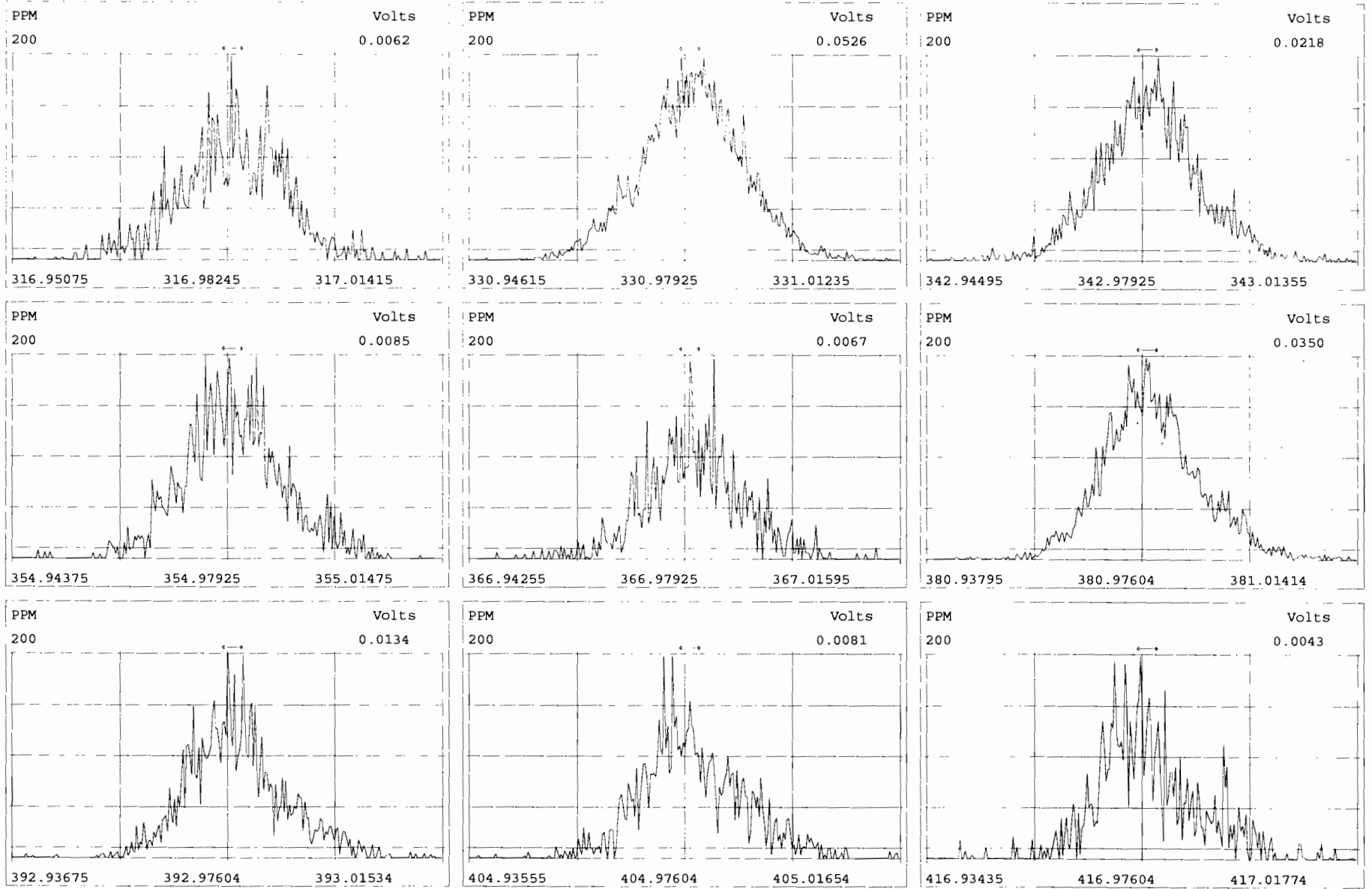
File:191120D2 #1-432 Acq:21-NOV-2019 02:11:41 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Viata\_Analytical\_Laboratory\_VG7 Text:ST191120D2-1 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



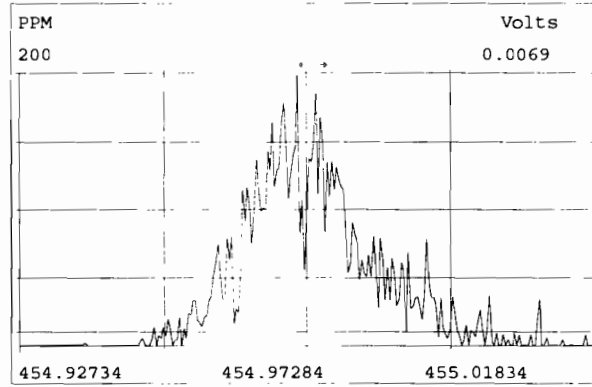
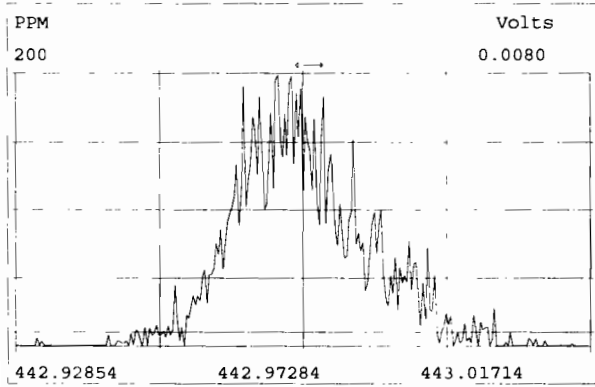
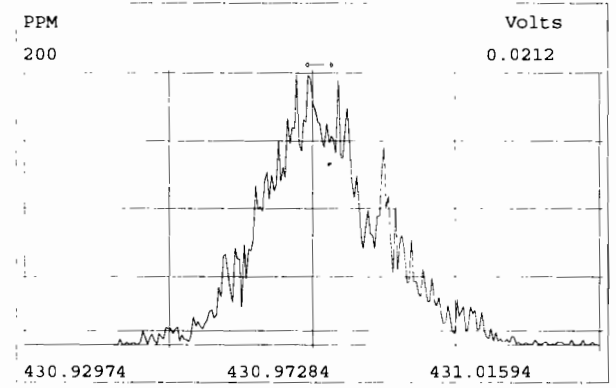
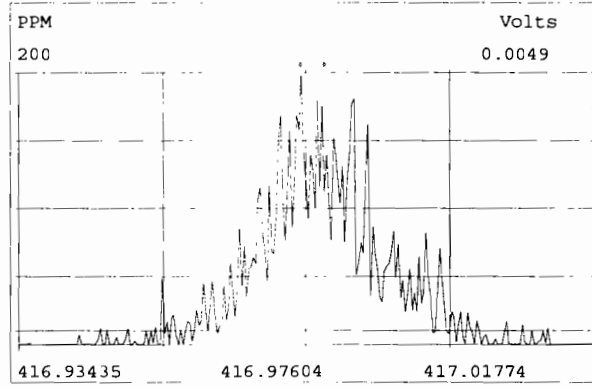
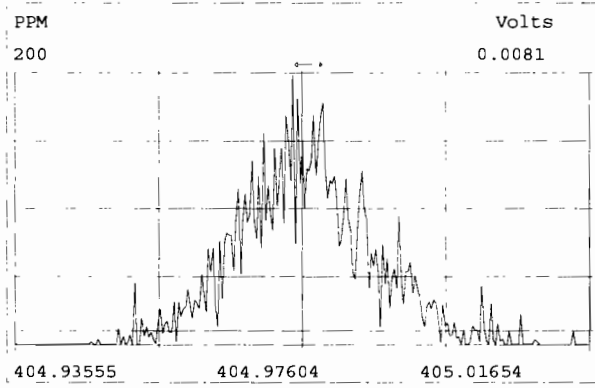
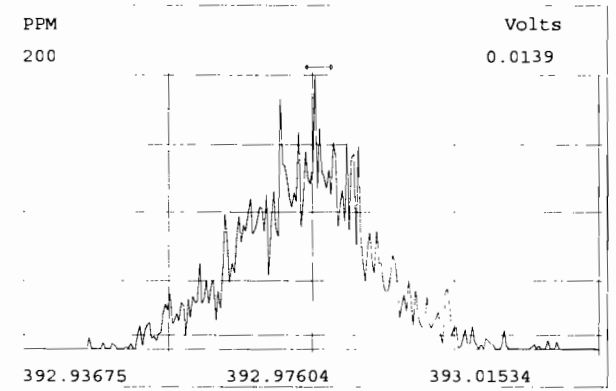
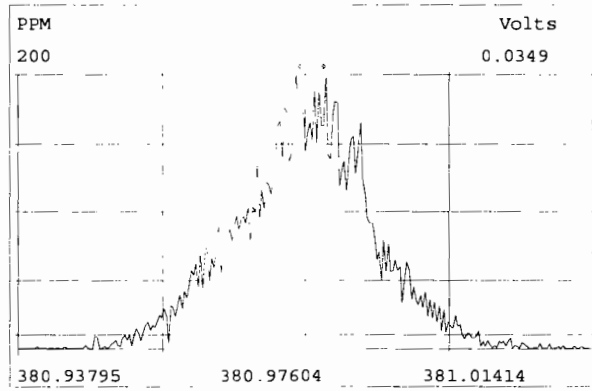
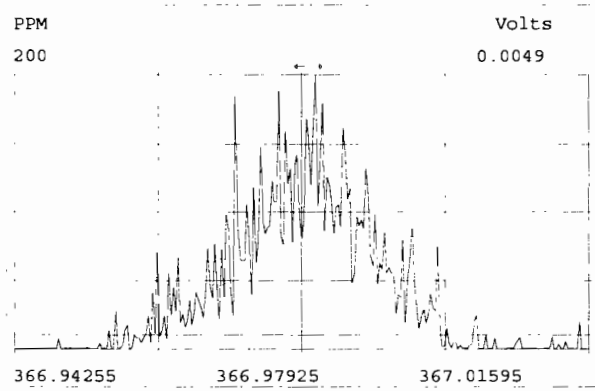
Peak Locate Examination:21-NOV-2019:11:06 File:RES\_CHECK

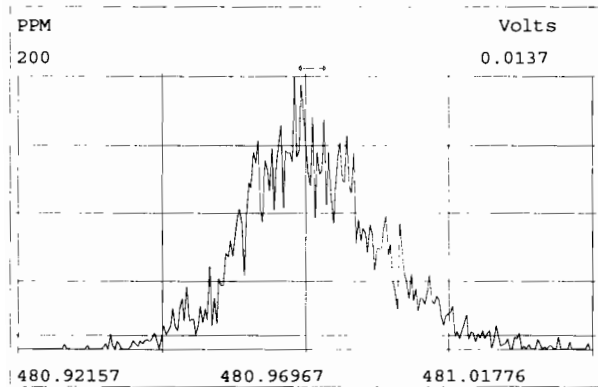
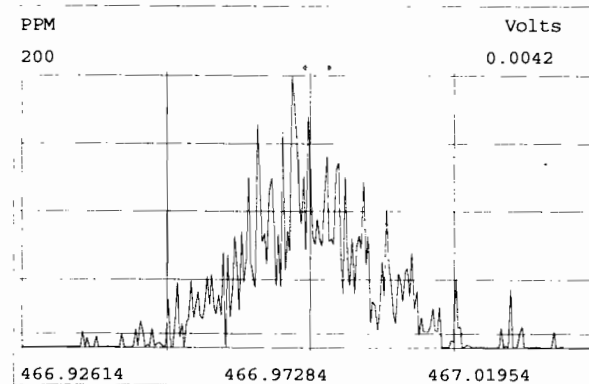
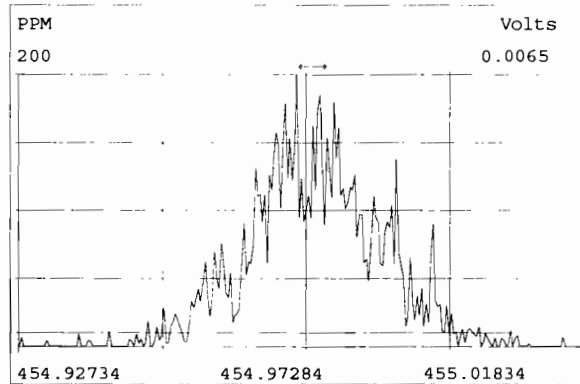
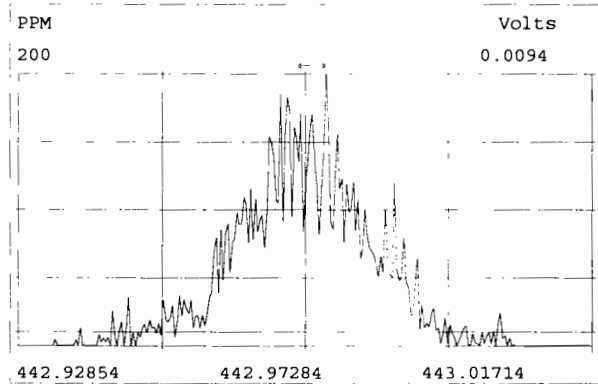
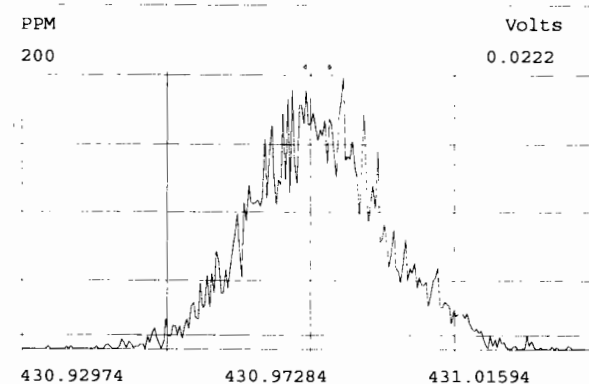
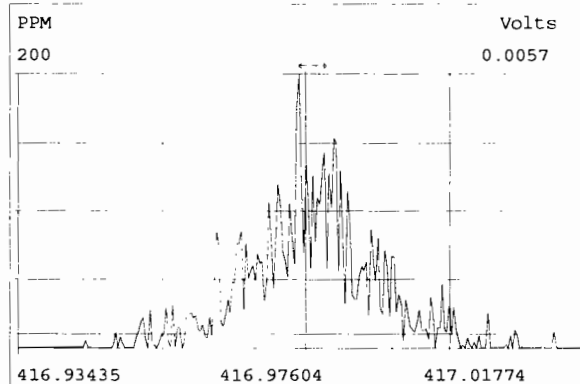
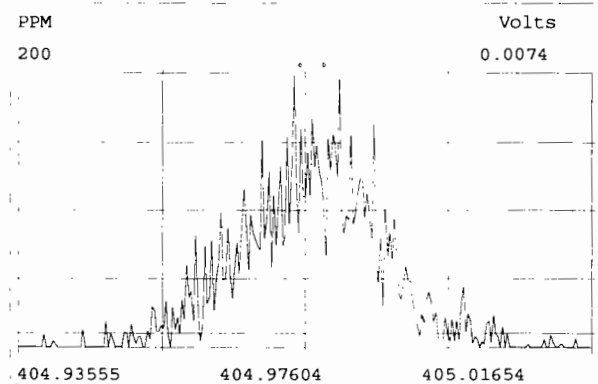
Experiment:OCDD\_DB5 Function:1 Reference:PPK





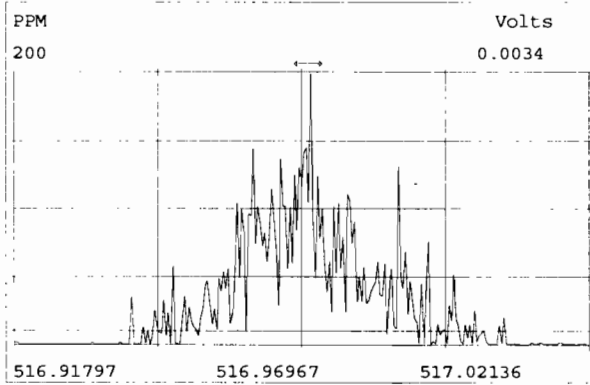
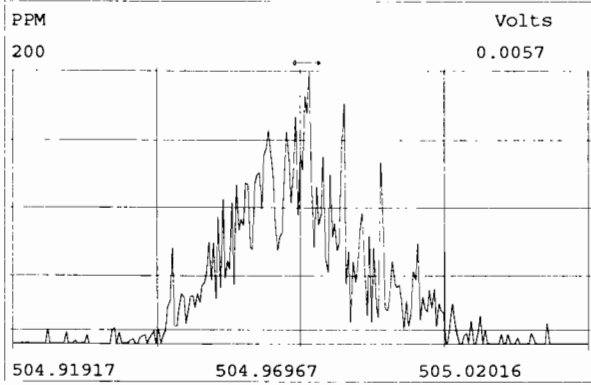
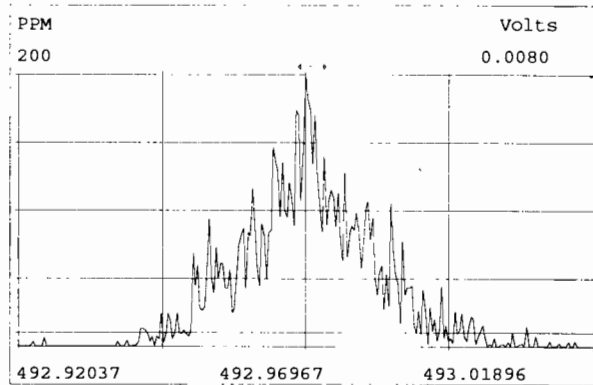
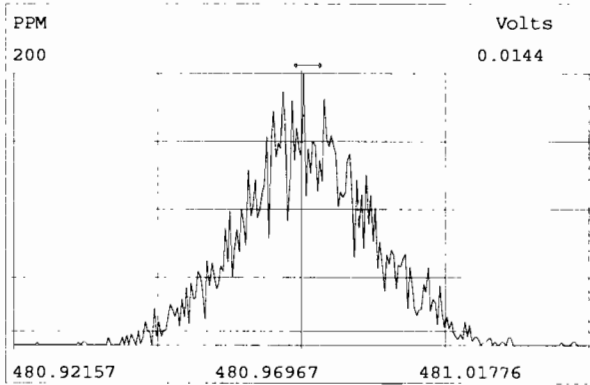
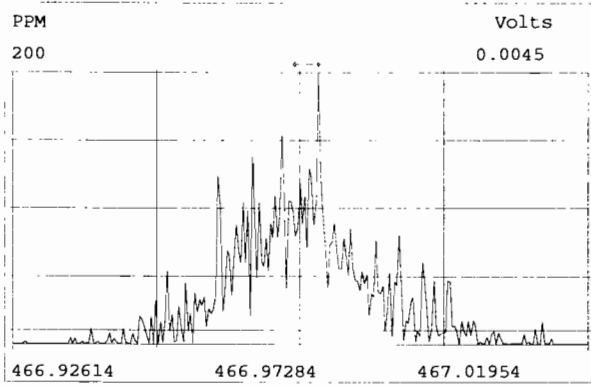
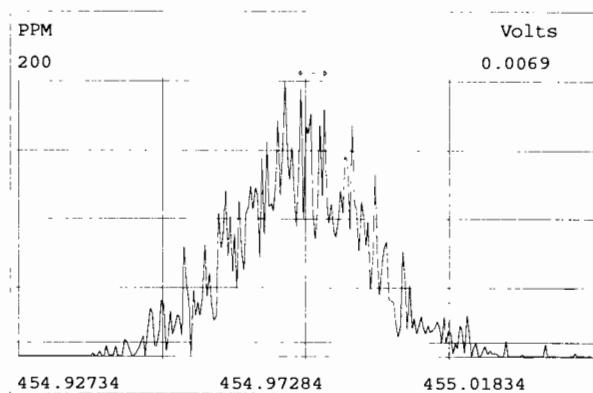
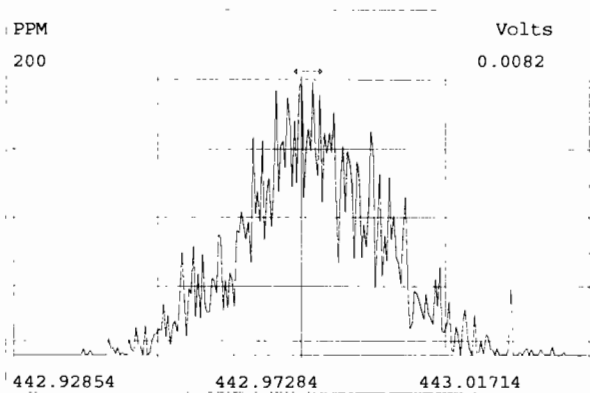
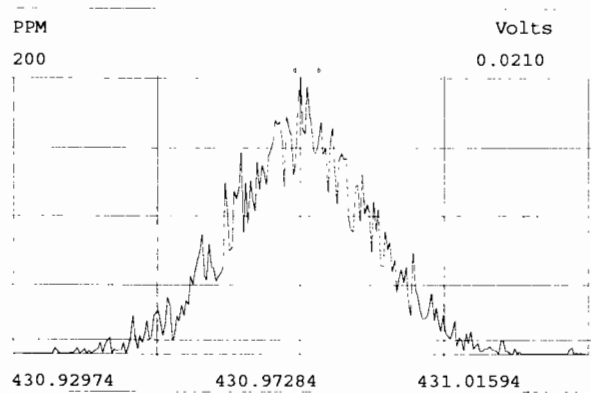






Peak Locate Examination:21-NOV-2019:11:10 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:5 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

Name	RRT Limits		RRT#1	RRT#2	RRT#3	RRT#4	RRT#5	RRT#6
	Lower	Upper						
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

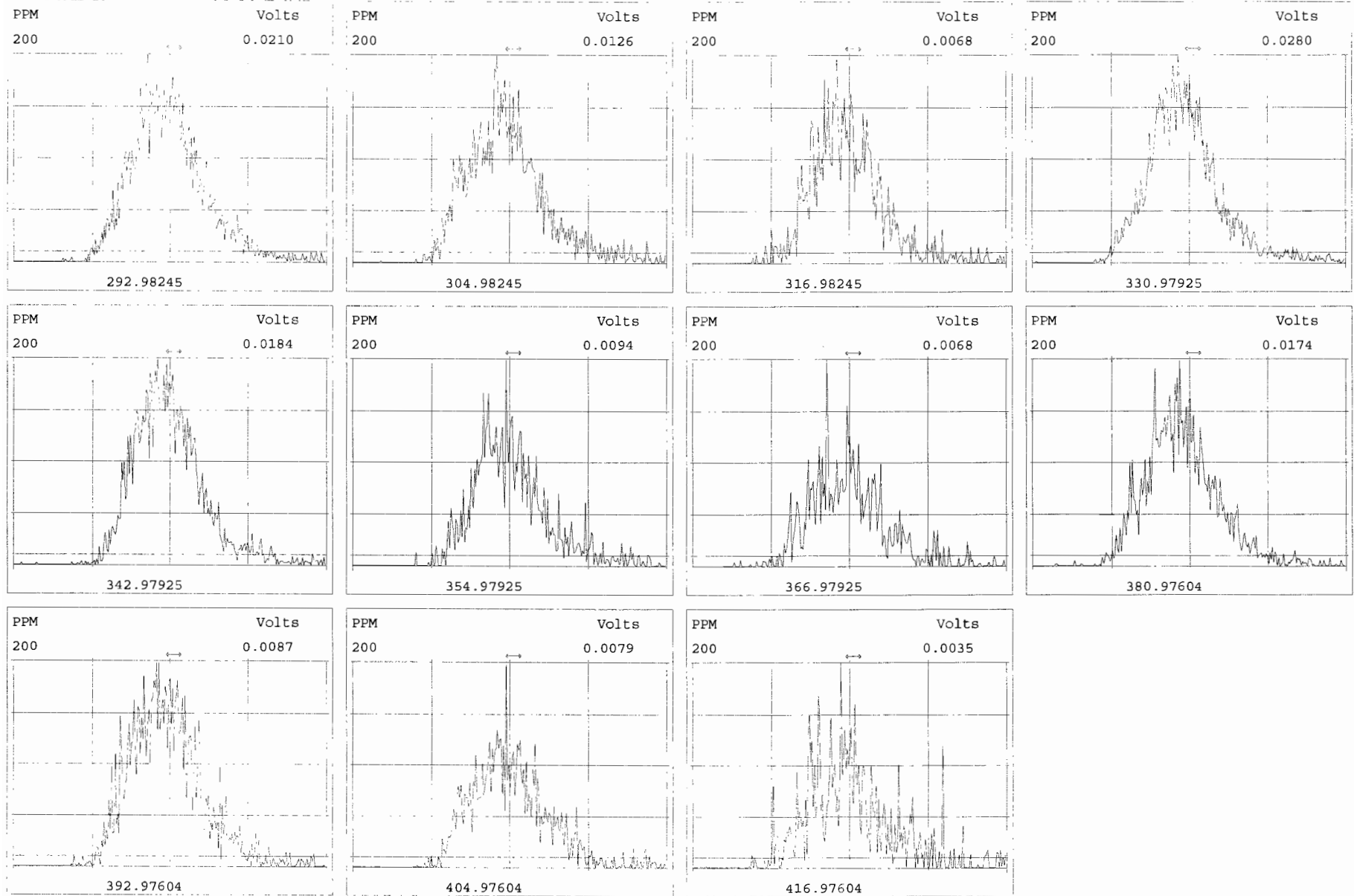
% VALLEY HEIGHT  
BETWEEN  
COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

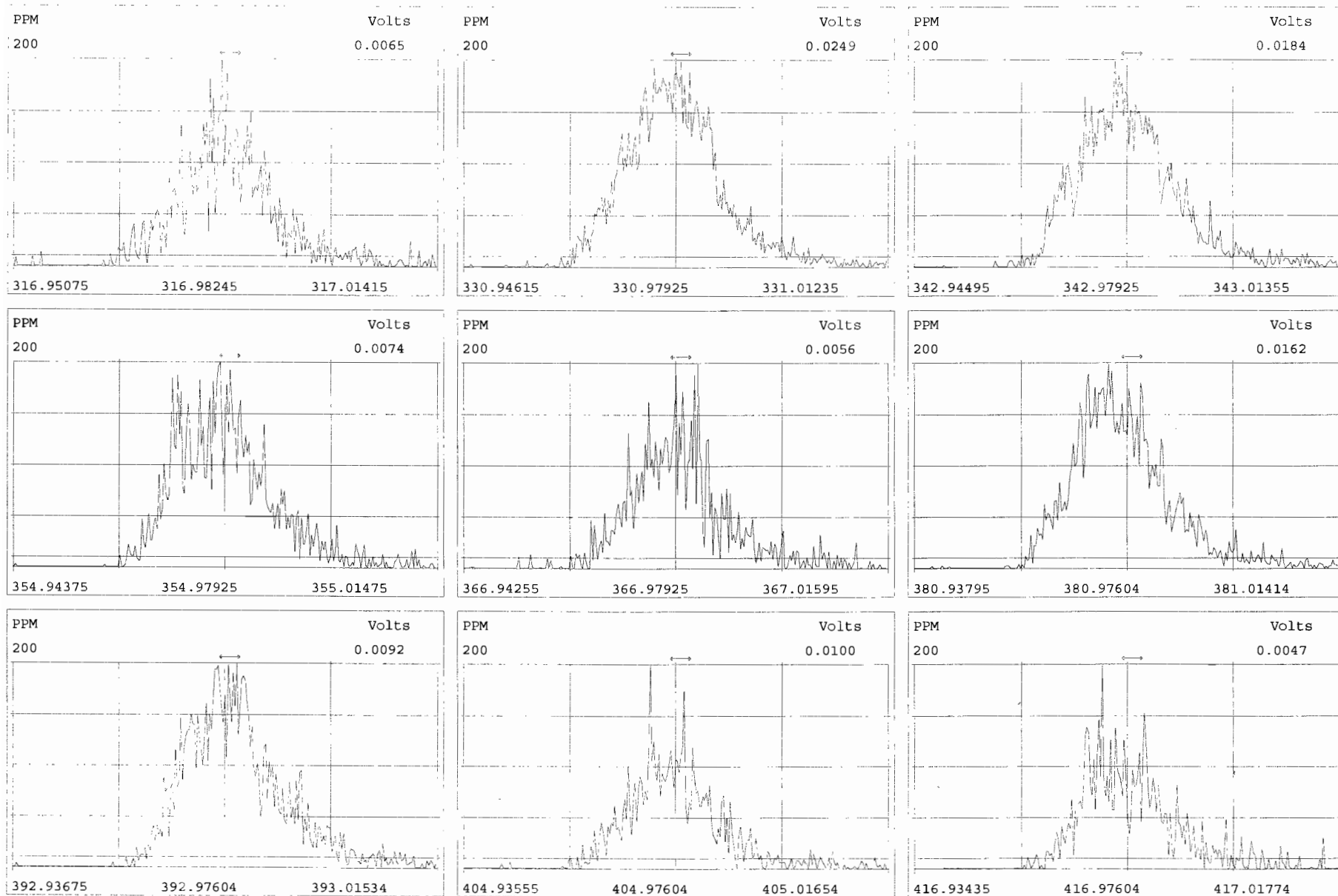
Analyst: DB

Date: 10/10/19



Peak Locate Examination: 9-OCT-2019:16:10 File:191009D1

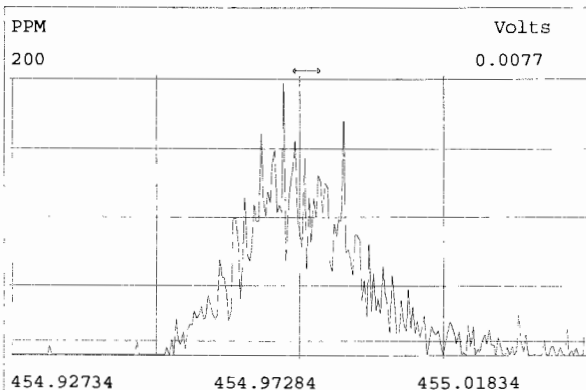
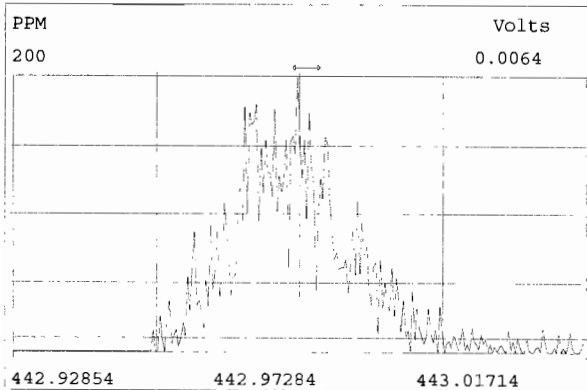
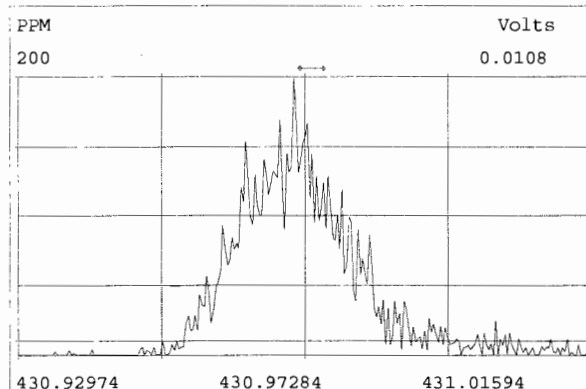
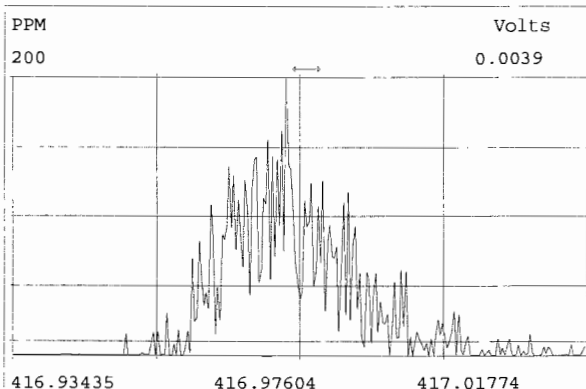
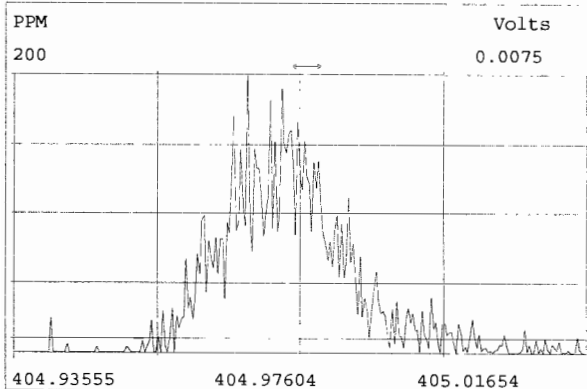
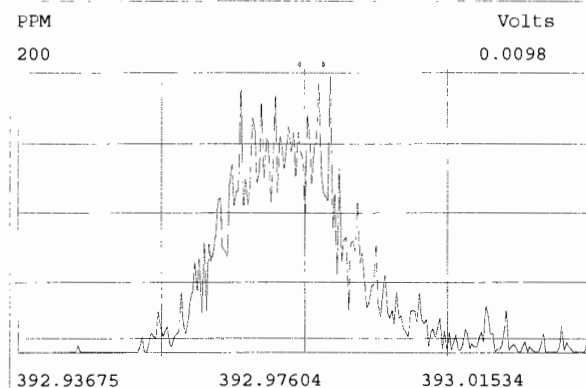
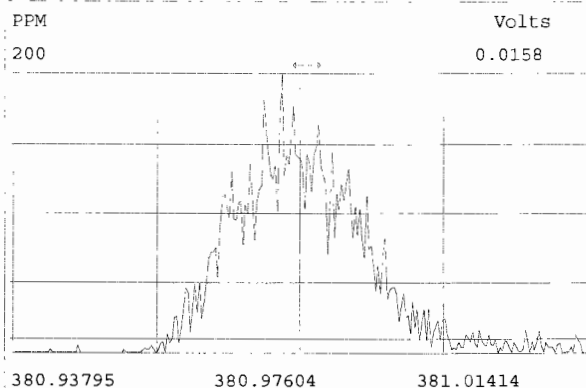
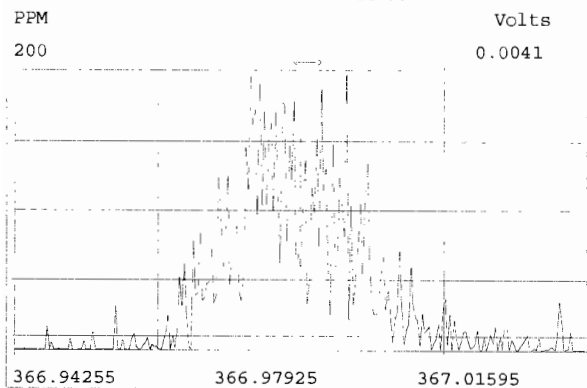
Experiment:OCDD\_DB5 Function:2 Reference:PFK

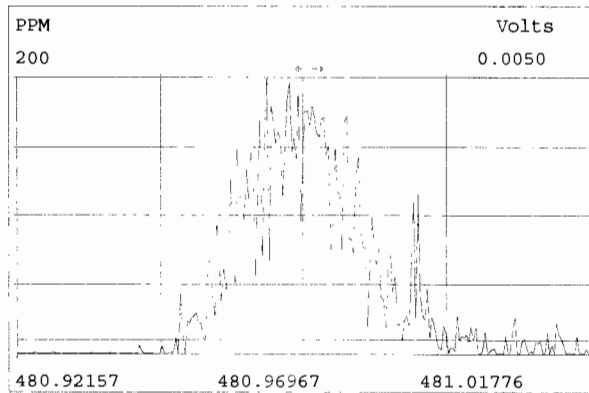
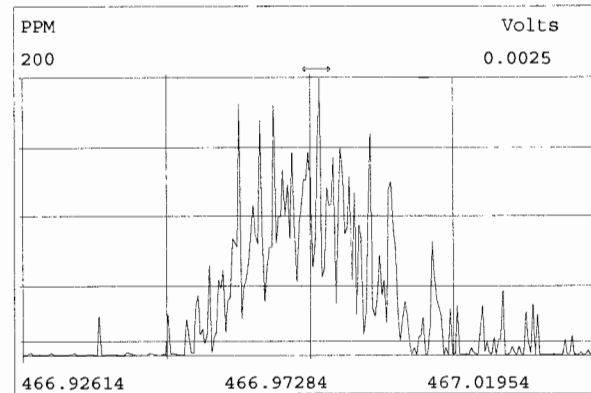
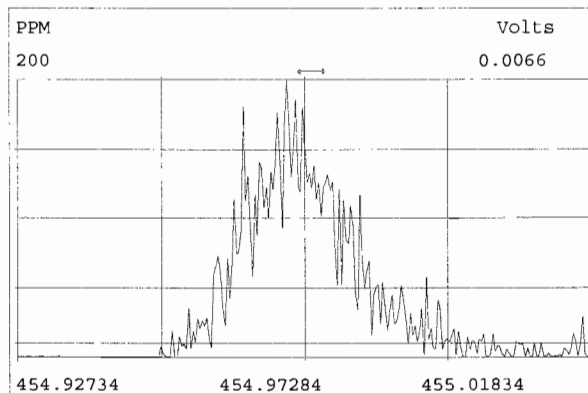
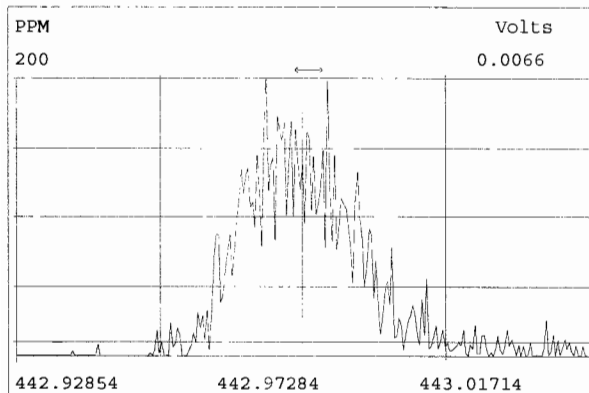
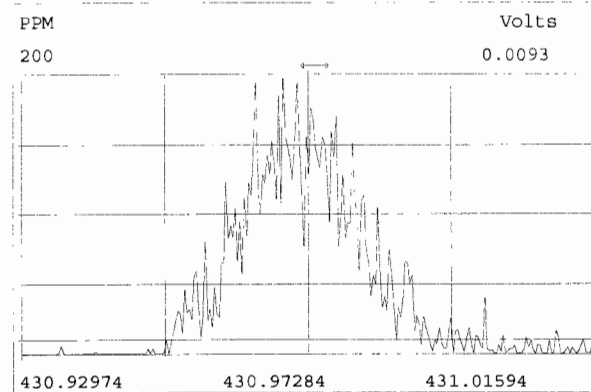
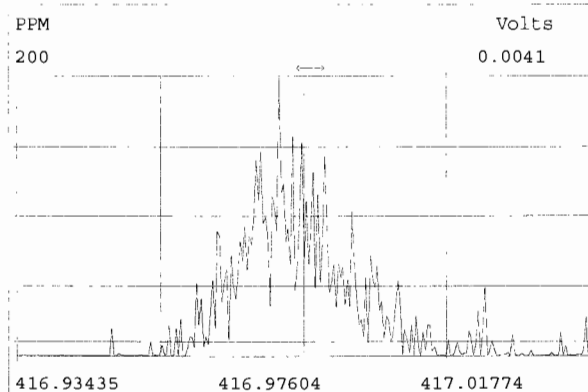
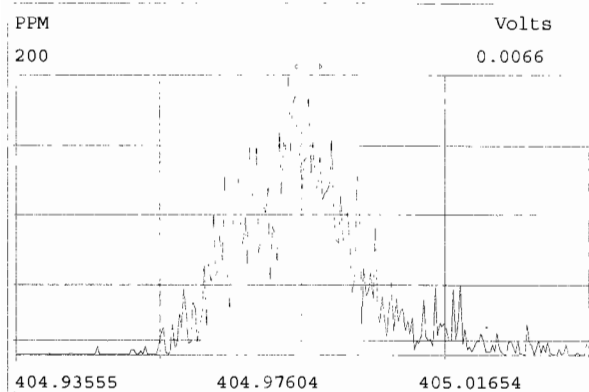


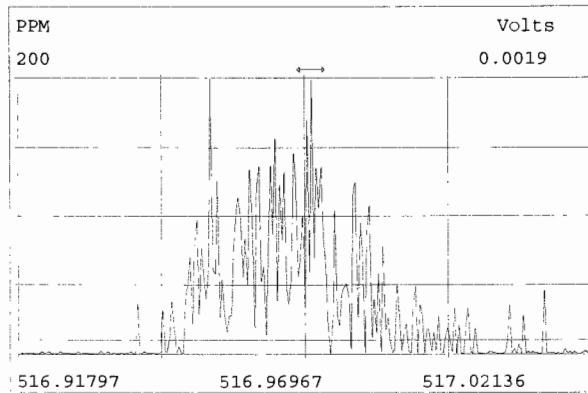
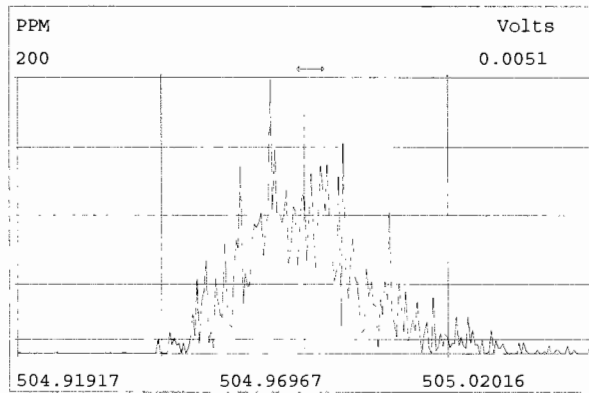
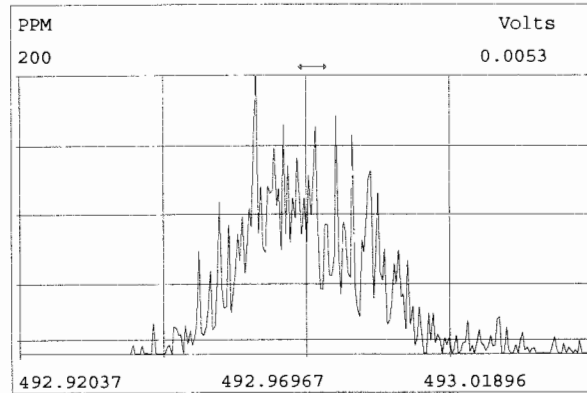
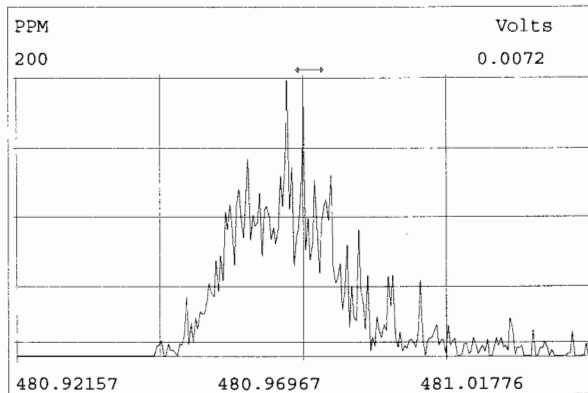
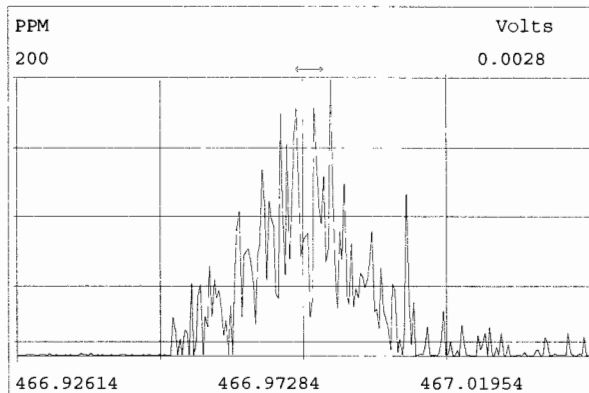
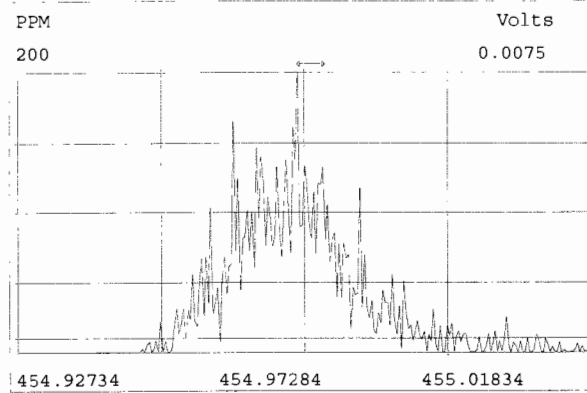
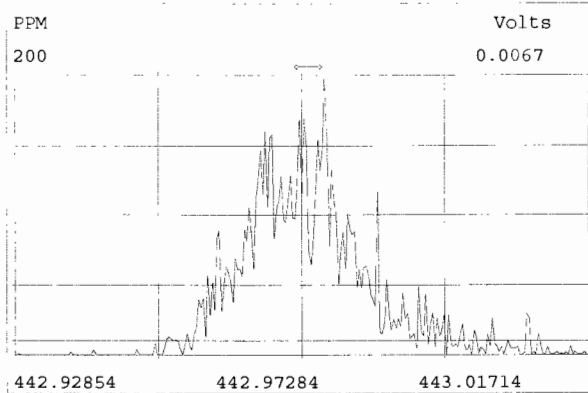
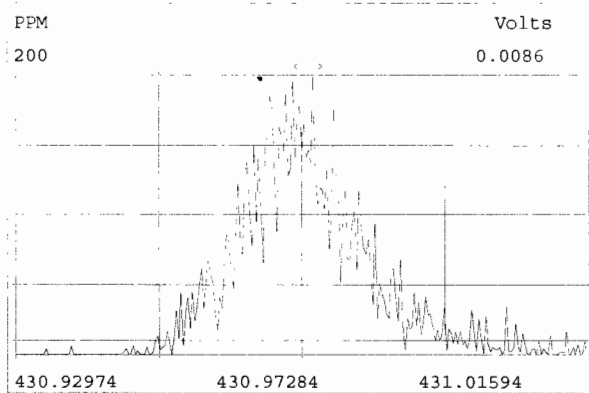


Peak Locate Examination: 9-OCT-2019:16:11 File:191009D1

Experiment:OCDD\_DB5 Function:3 Reference:PFK



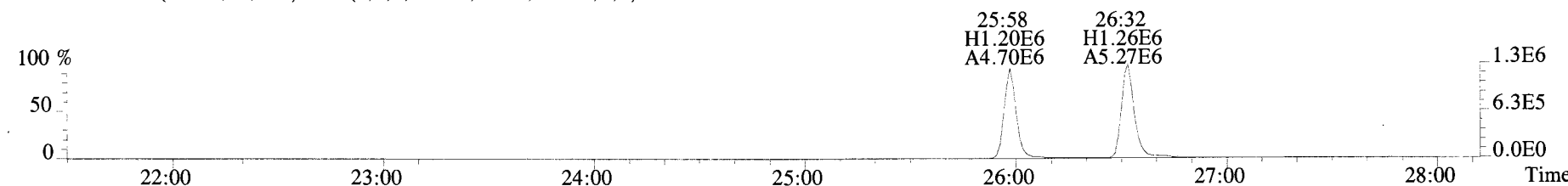
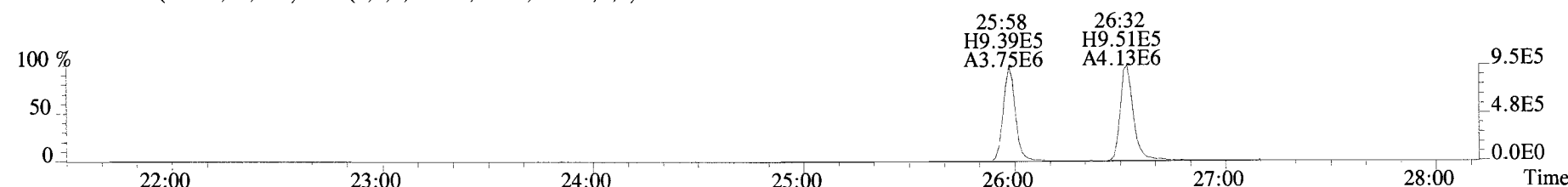
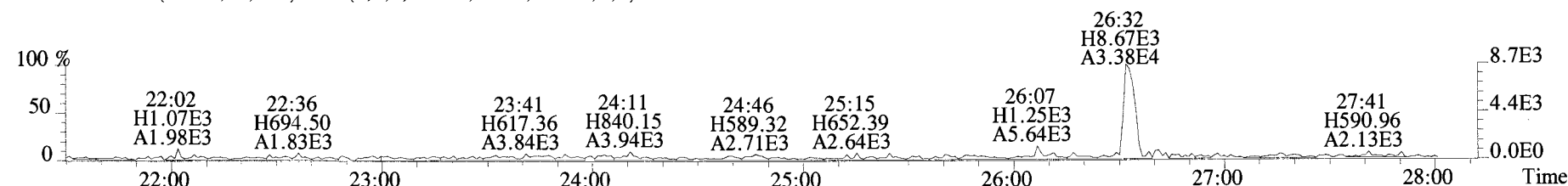
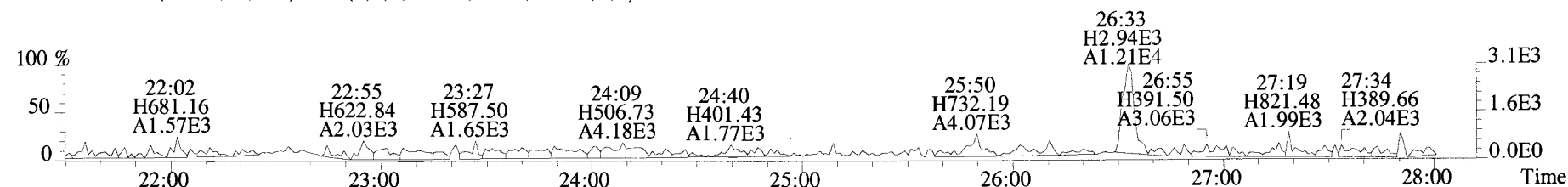
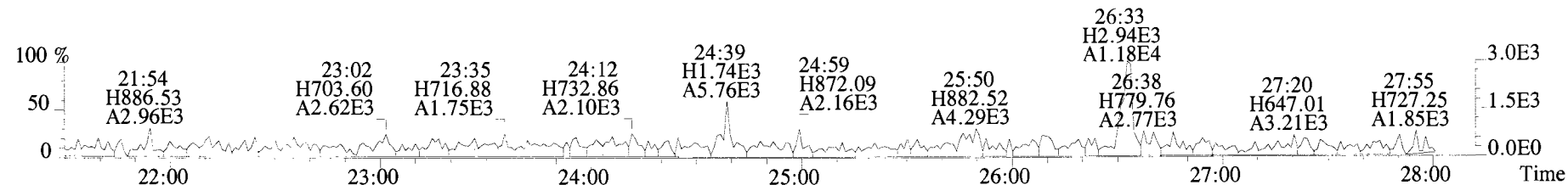




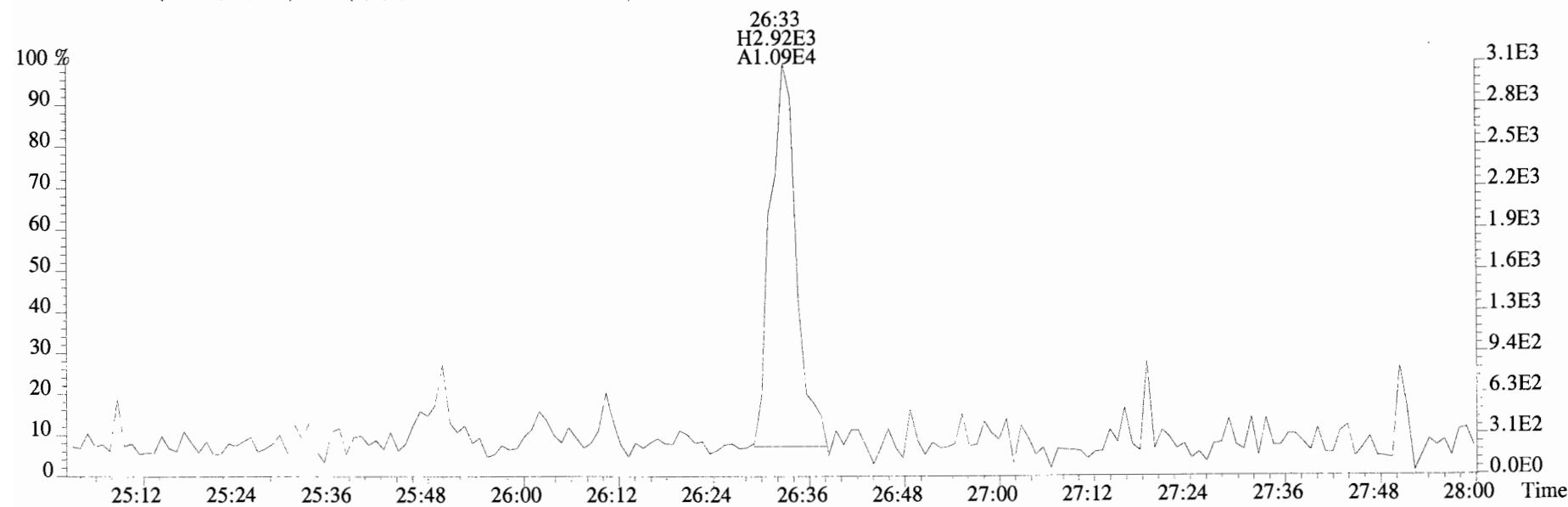
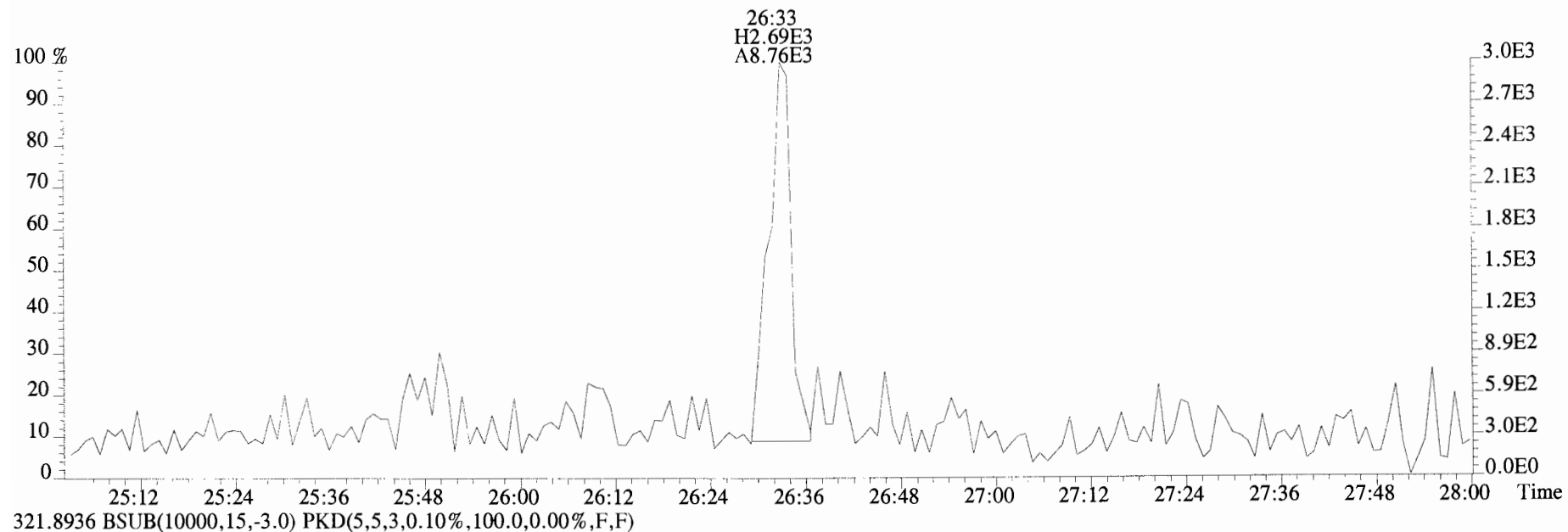
Vista Analytical Laboratory - Injection Log Run file: 191009D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

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
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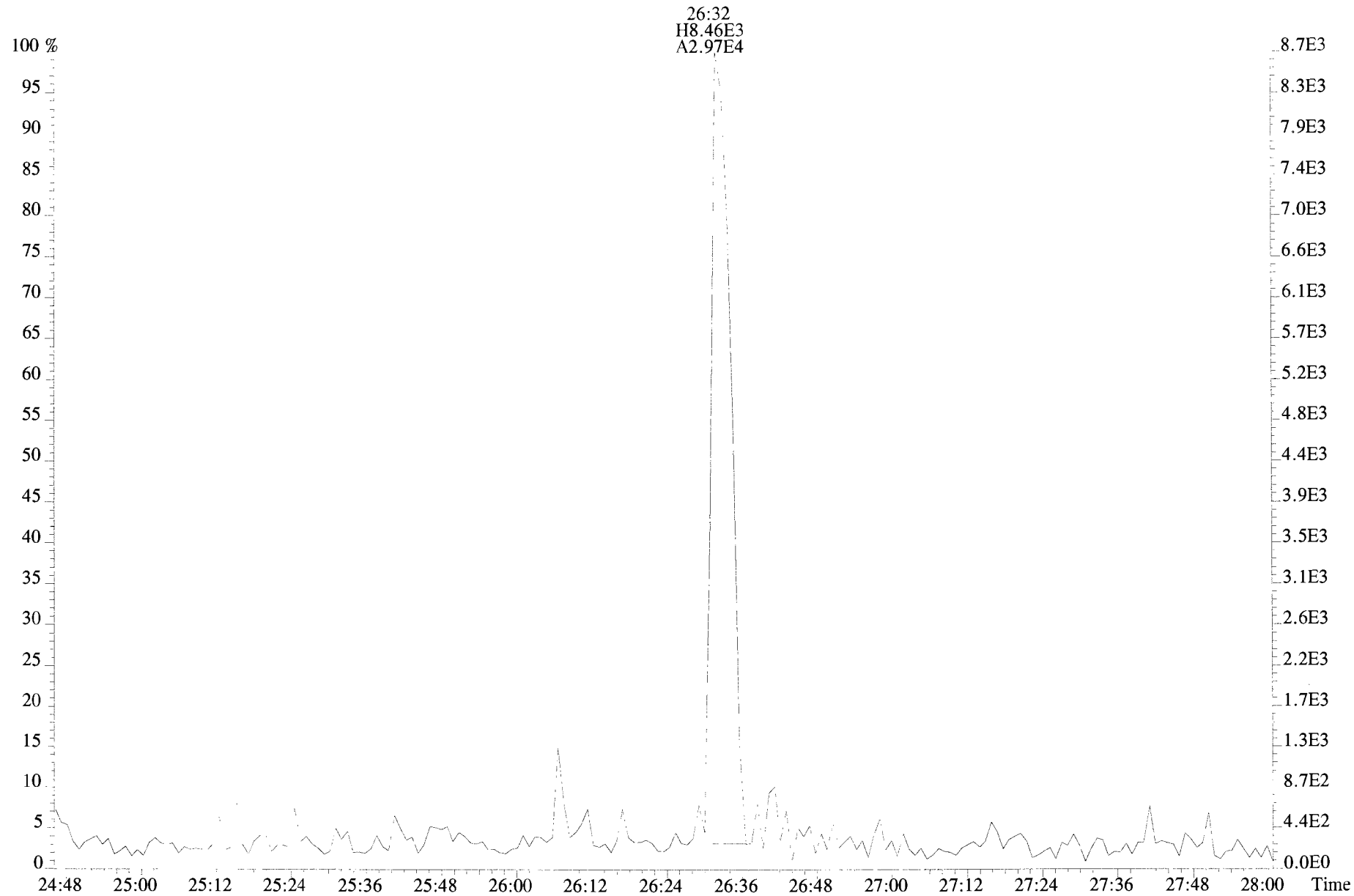
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



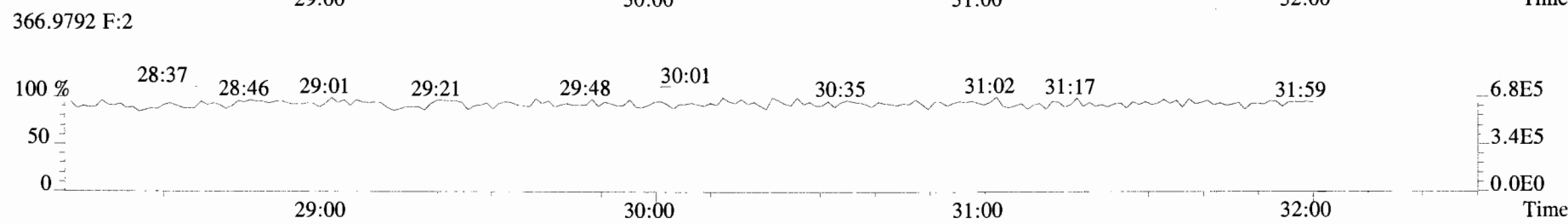
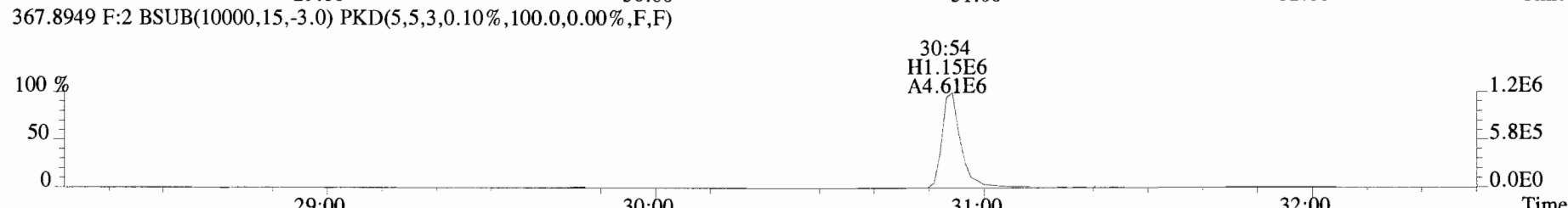
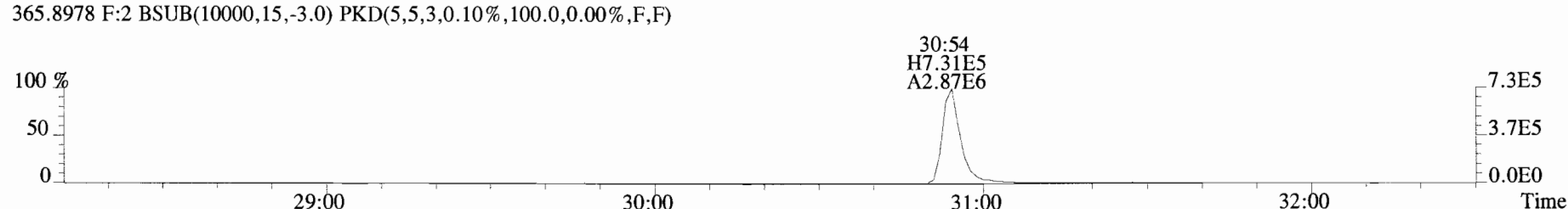
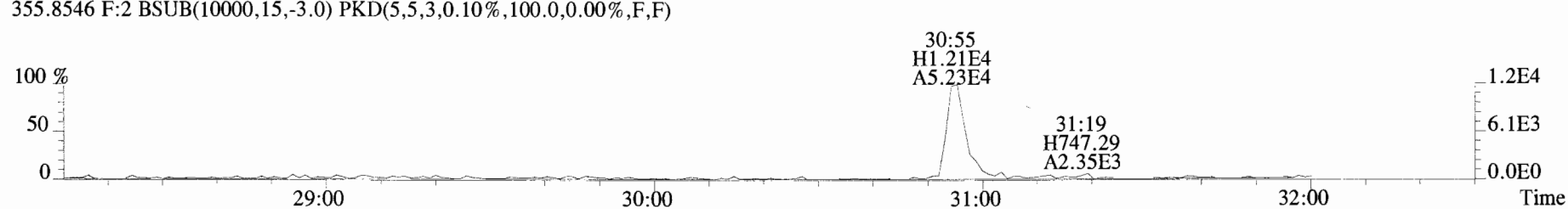
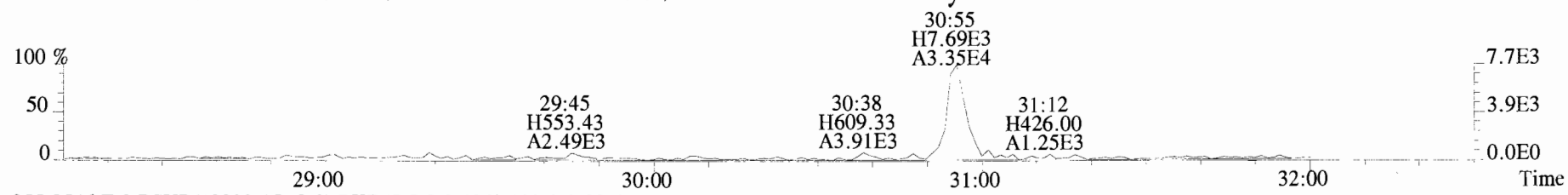
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319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

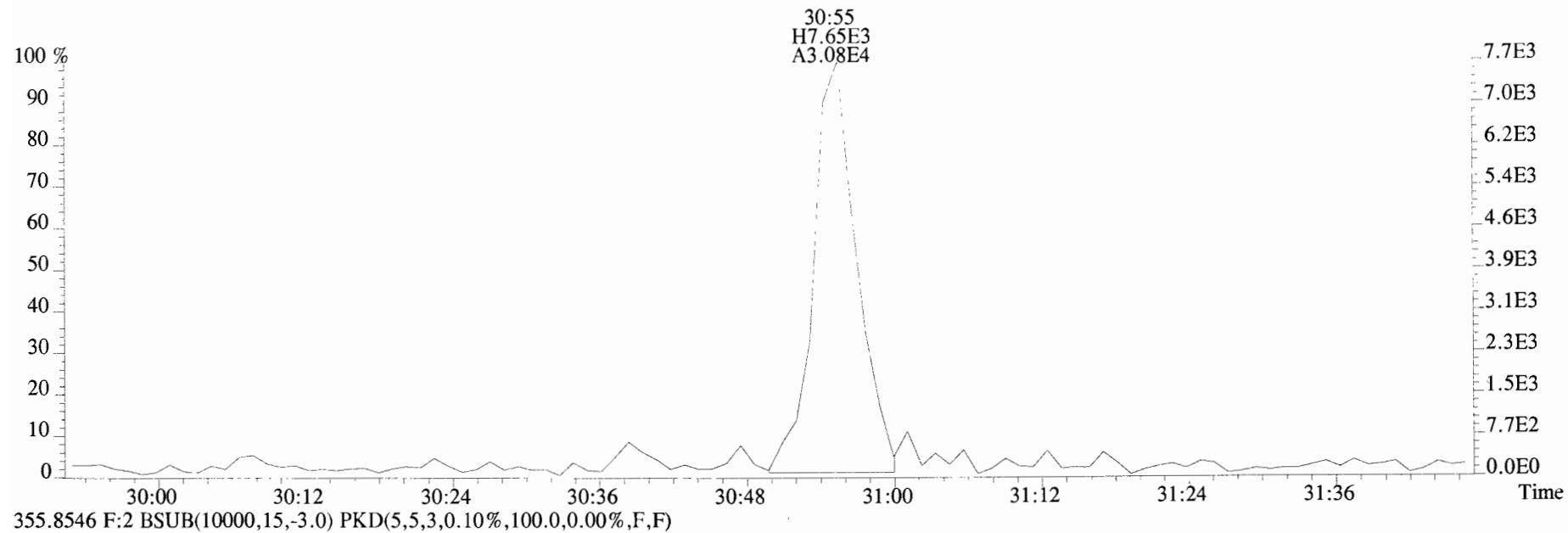


File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

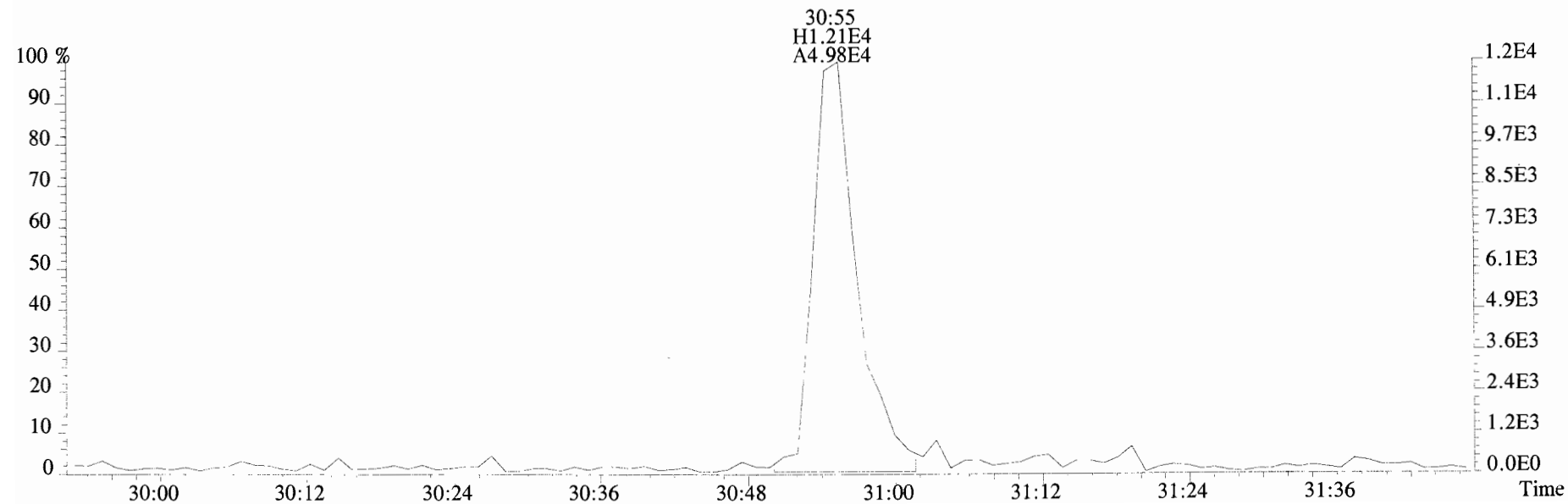




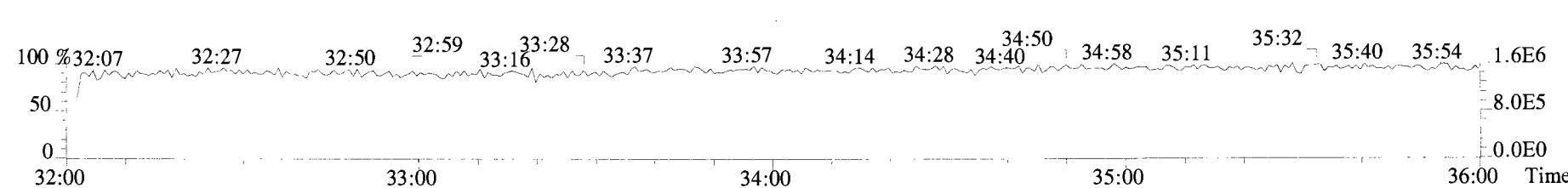
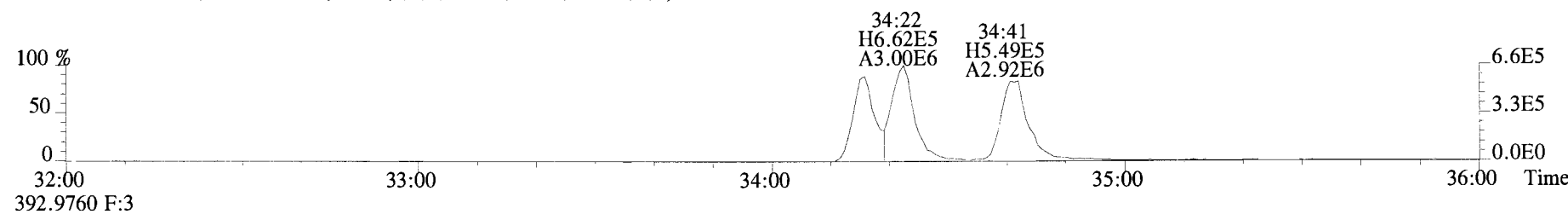
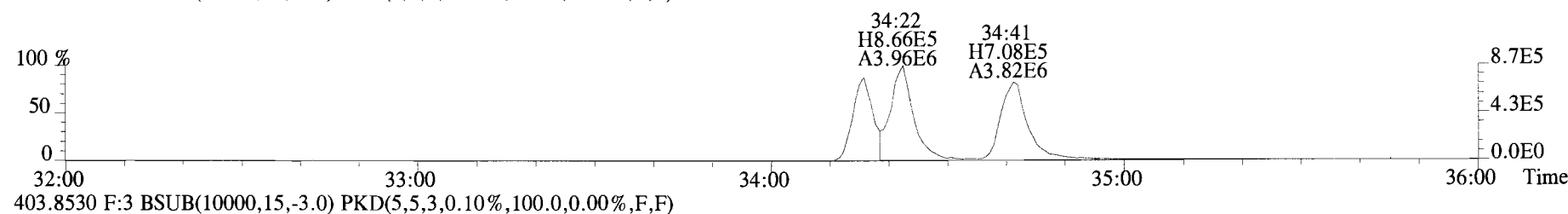
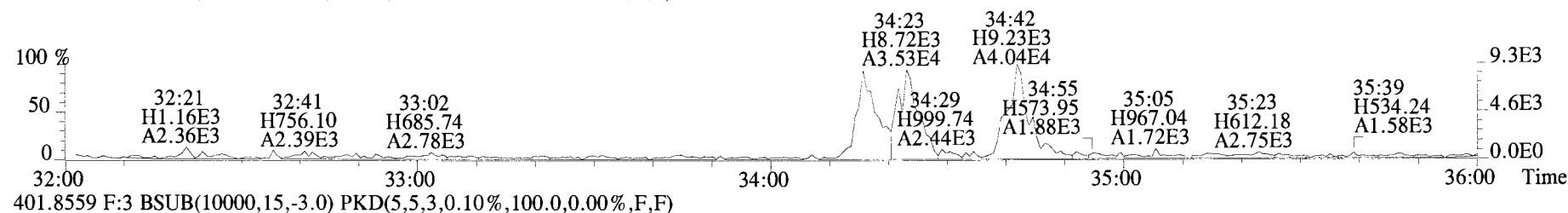
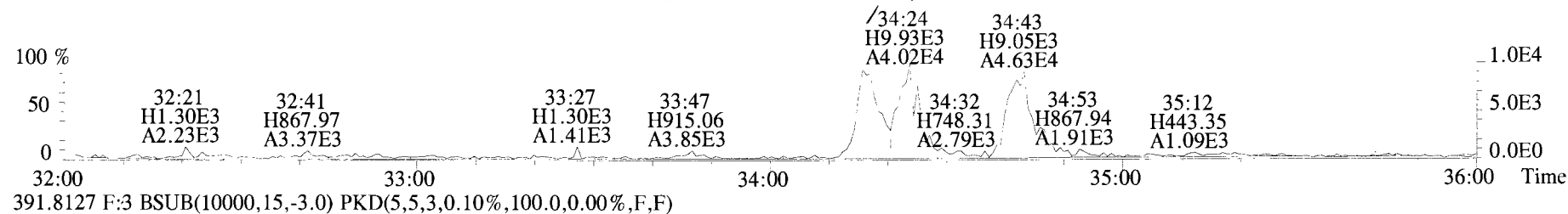
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



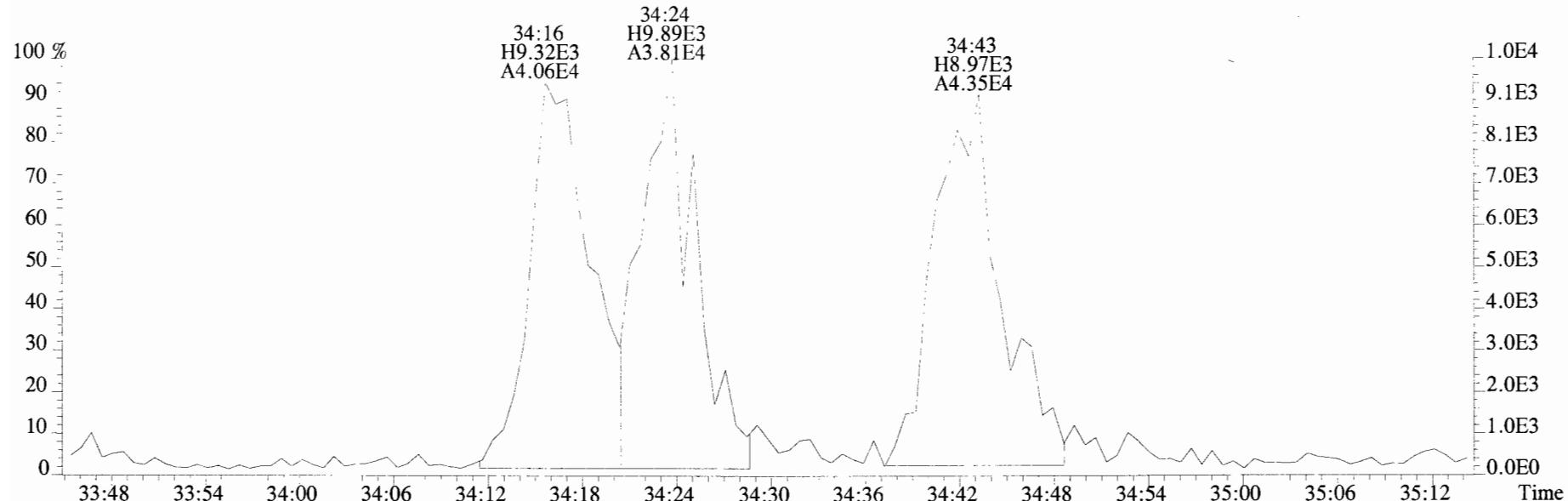
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



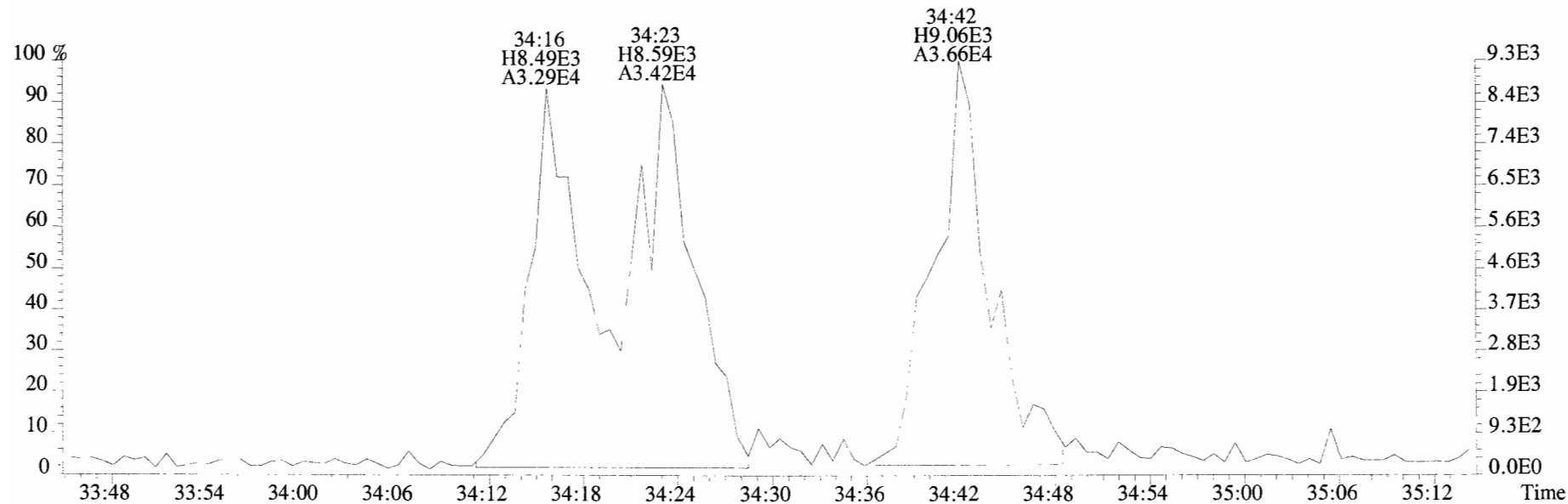
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



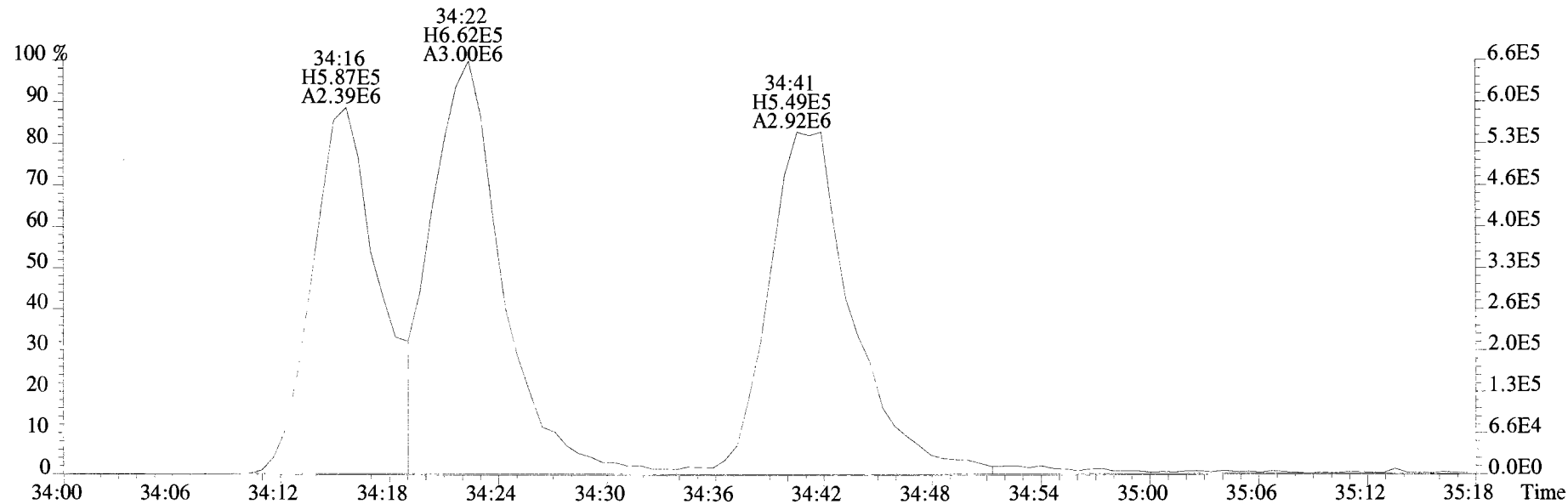
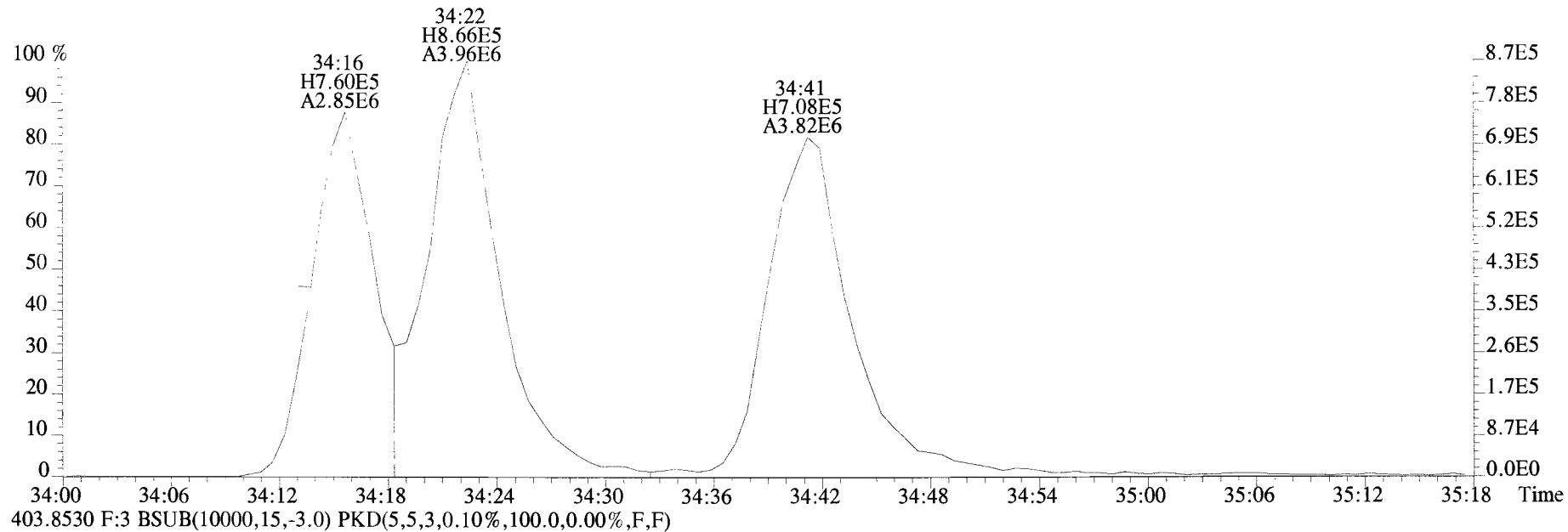
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



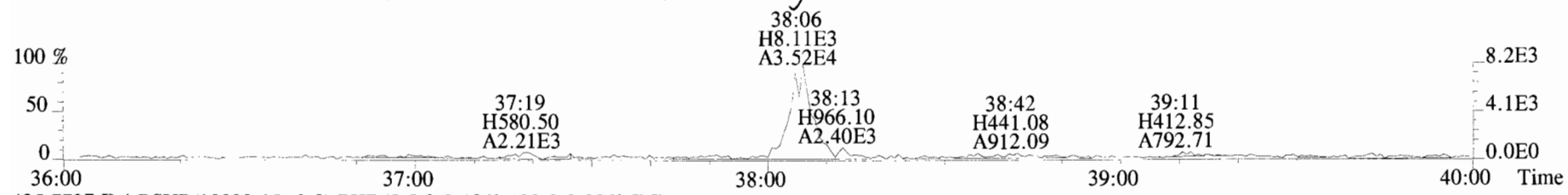
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



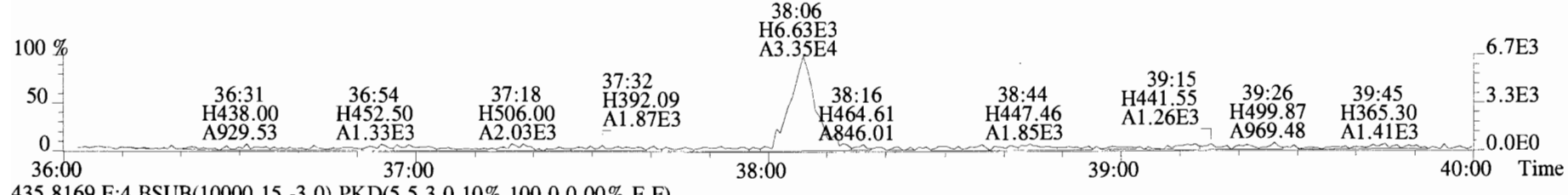
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



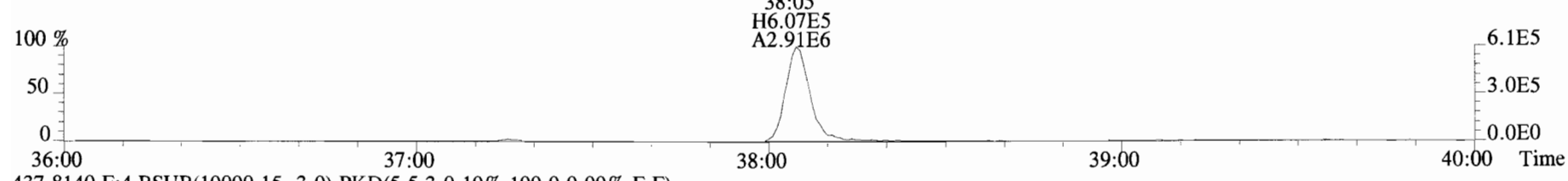
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



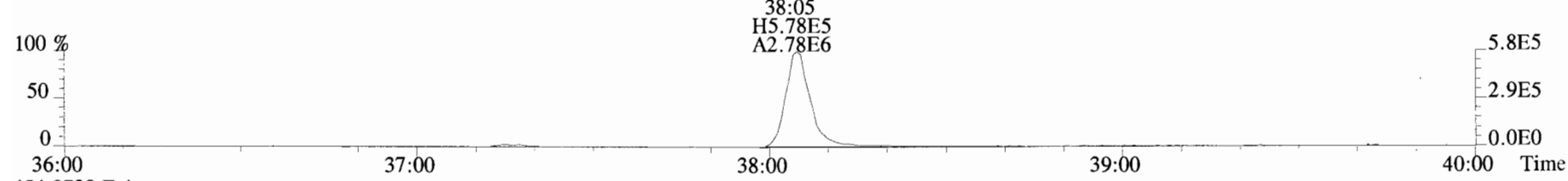
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



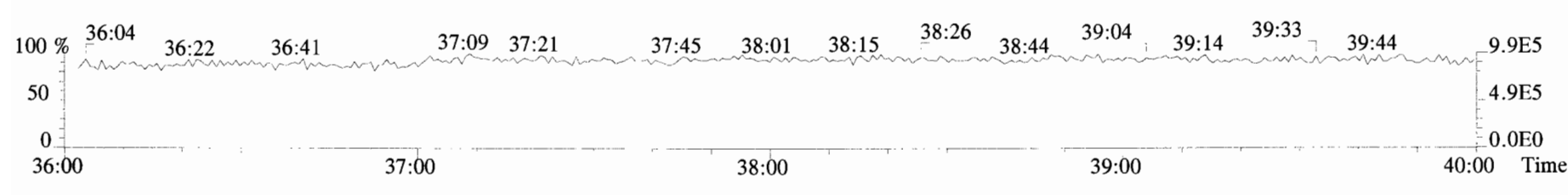
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



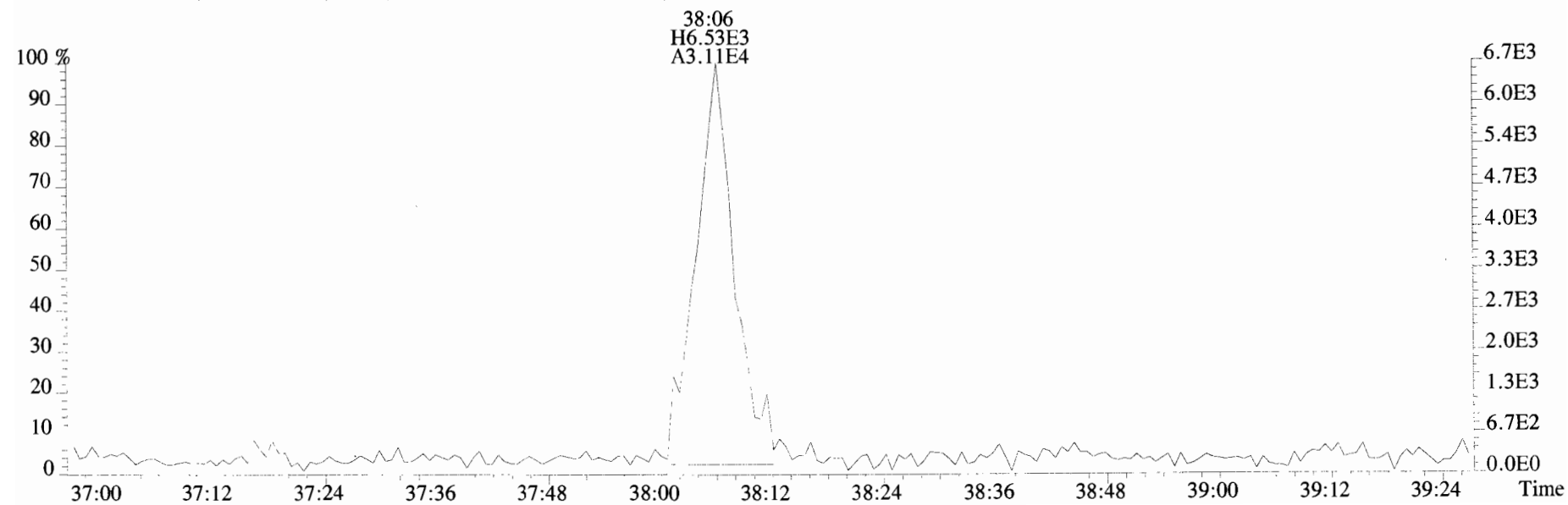
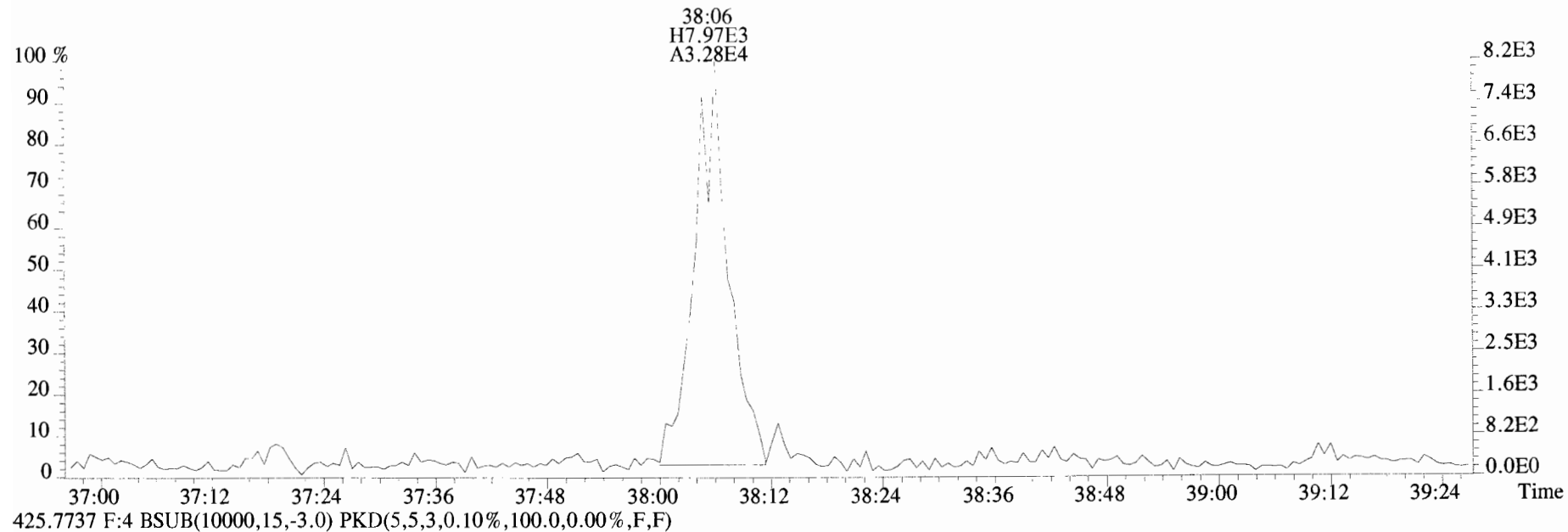
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



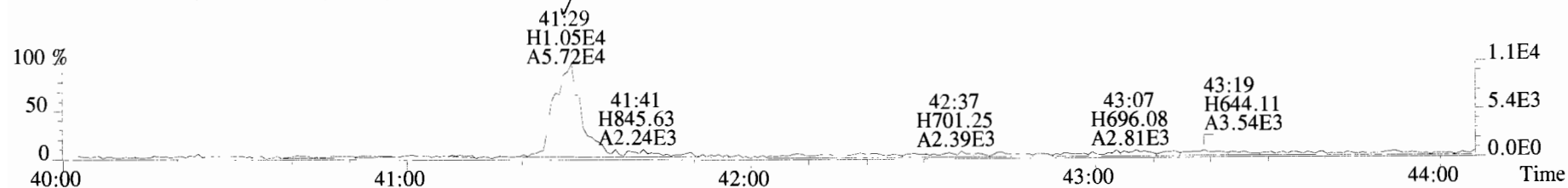
454.9728 F:4



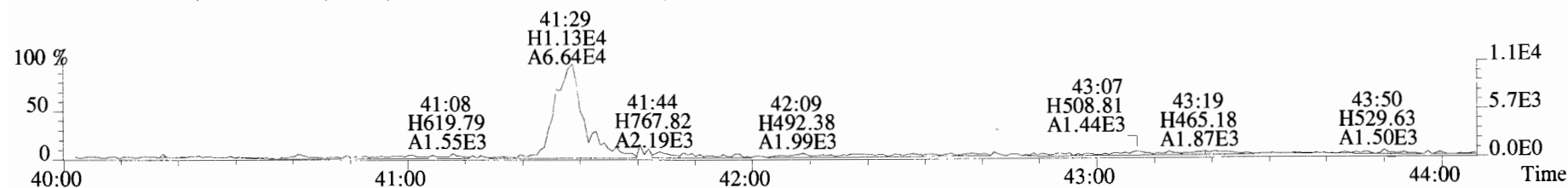
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



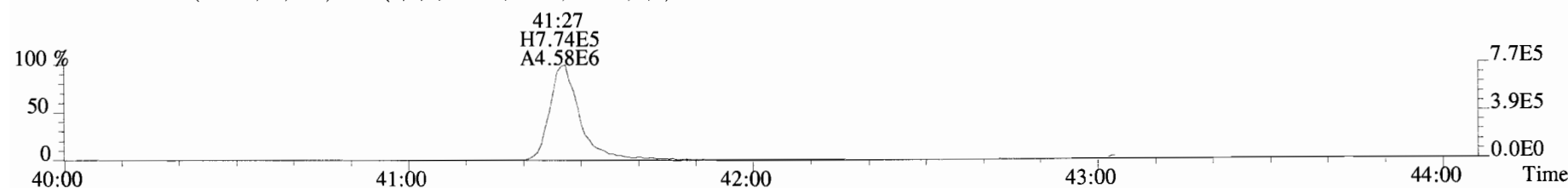
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



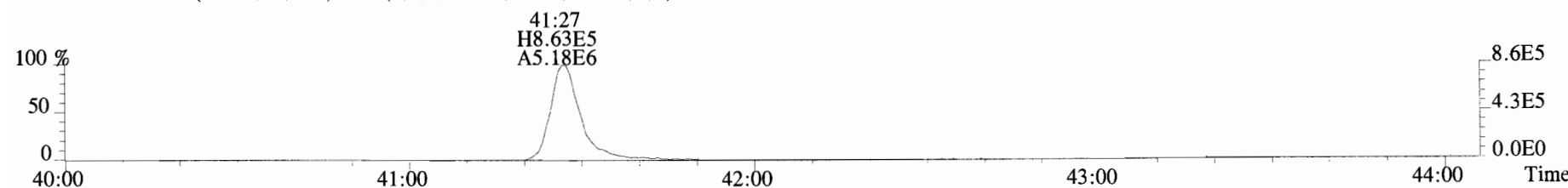
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



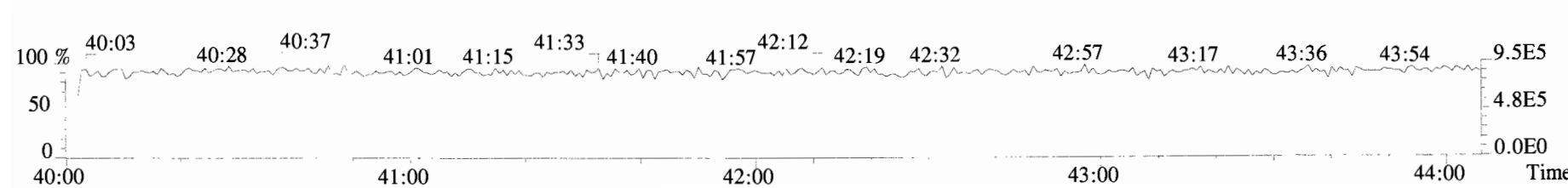
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



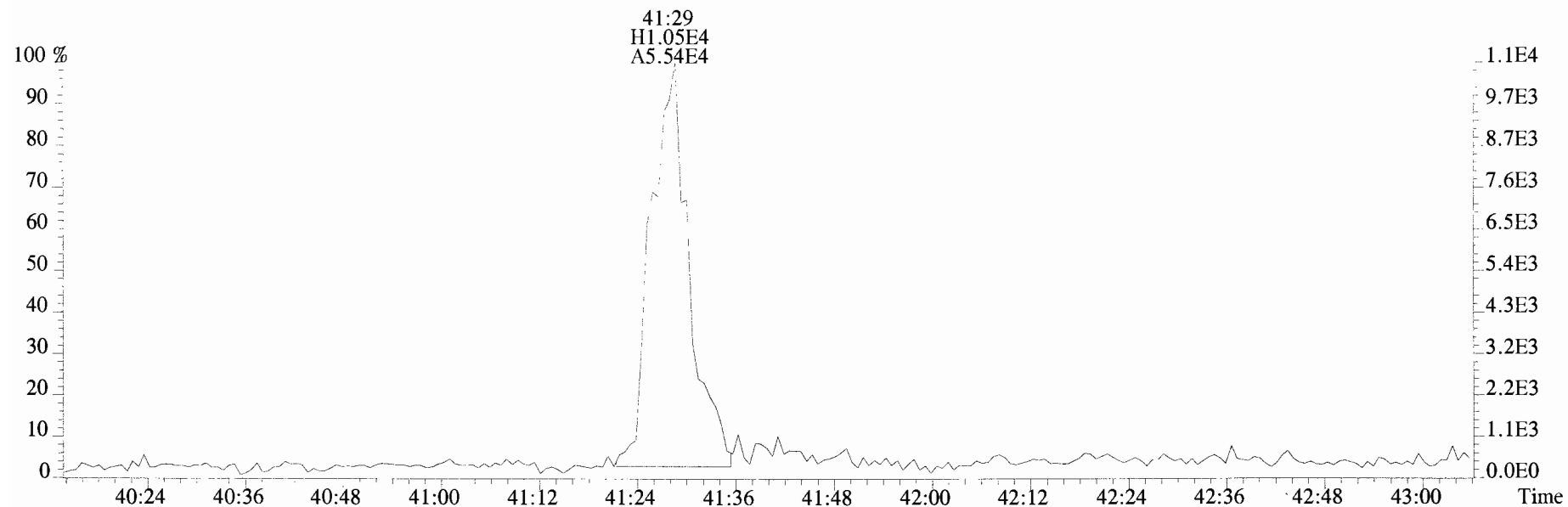
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



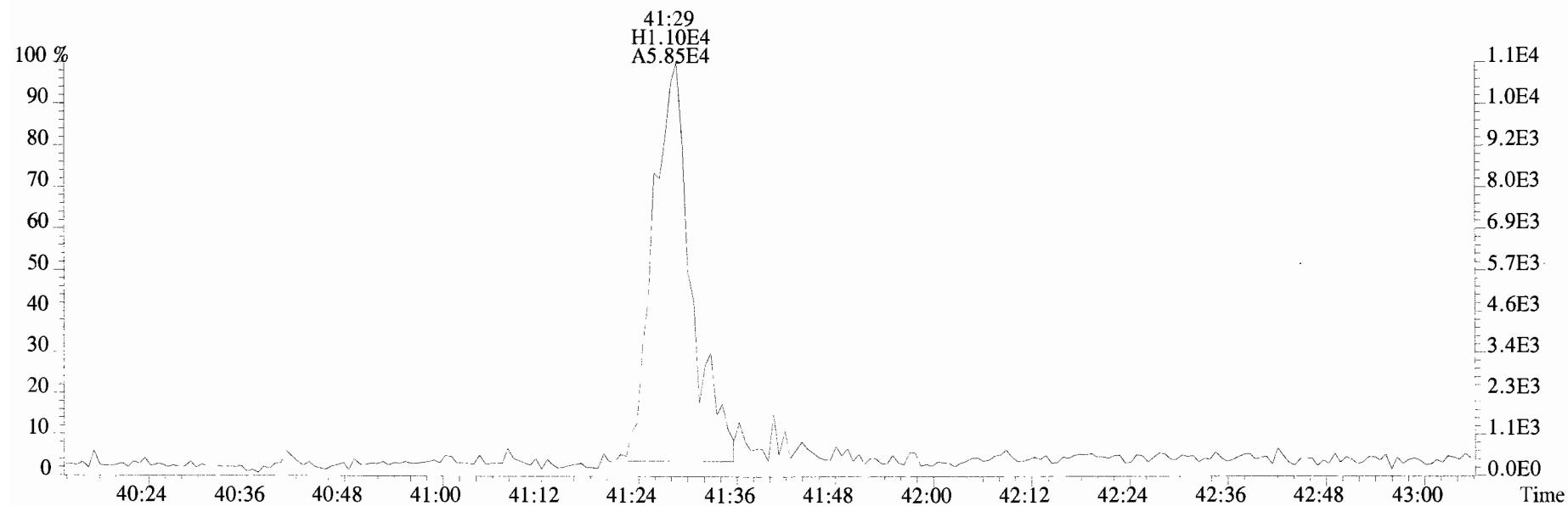
454.9728 F:5



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)

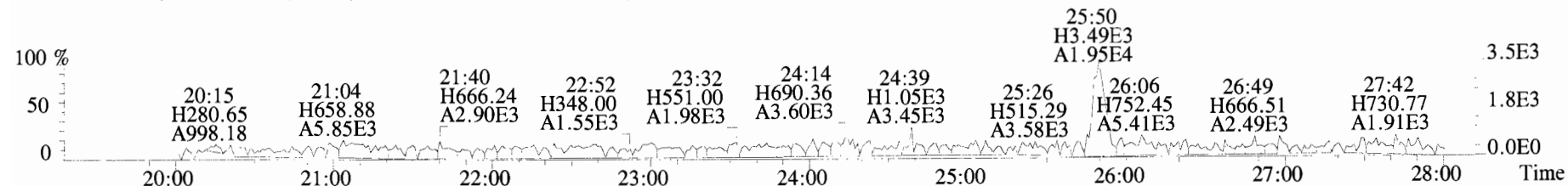


459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

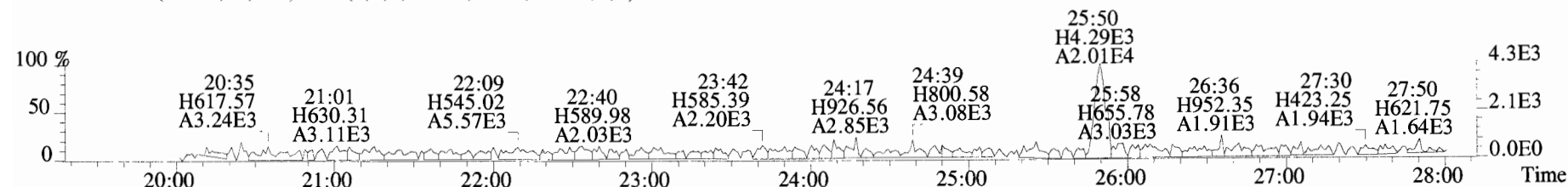




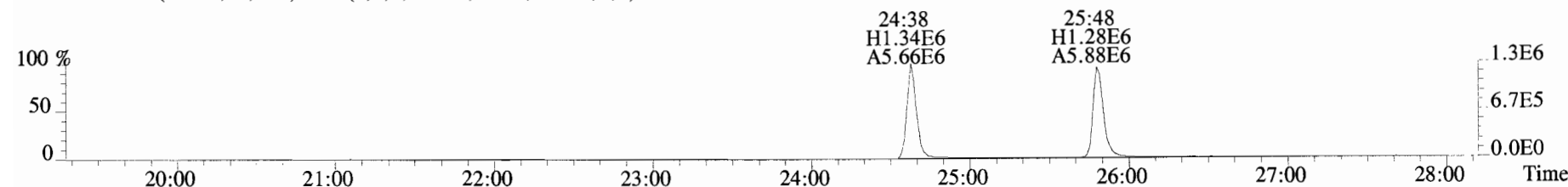
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



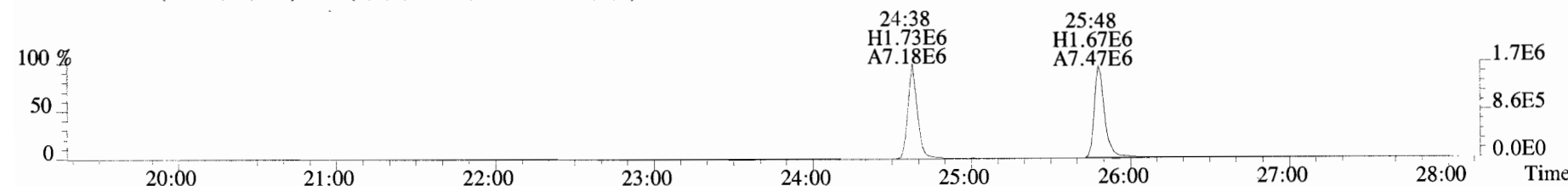
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



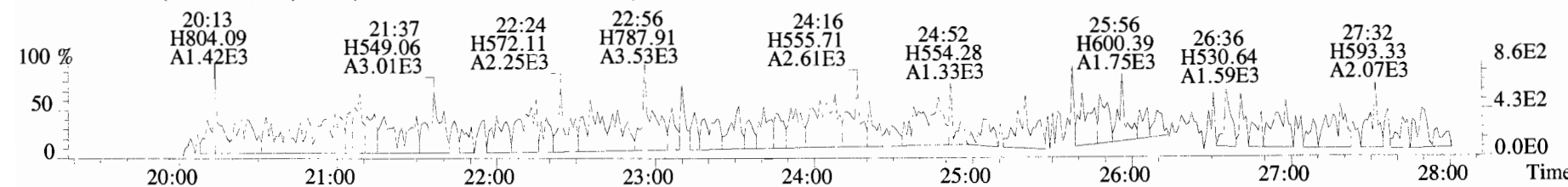
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



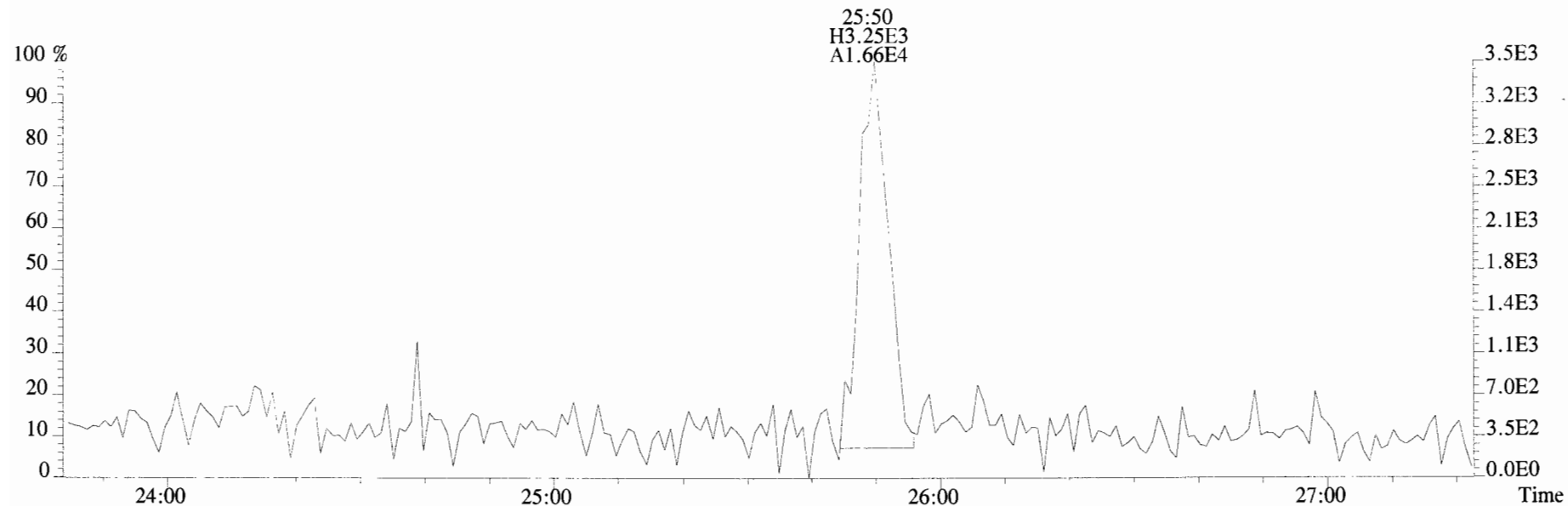
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



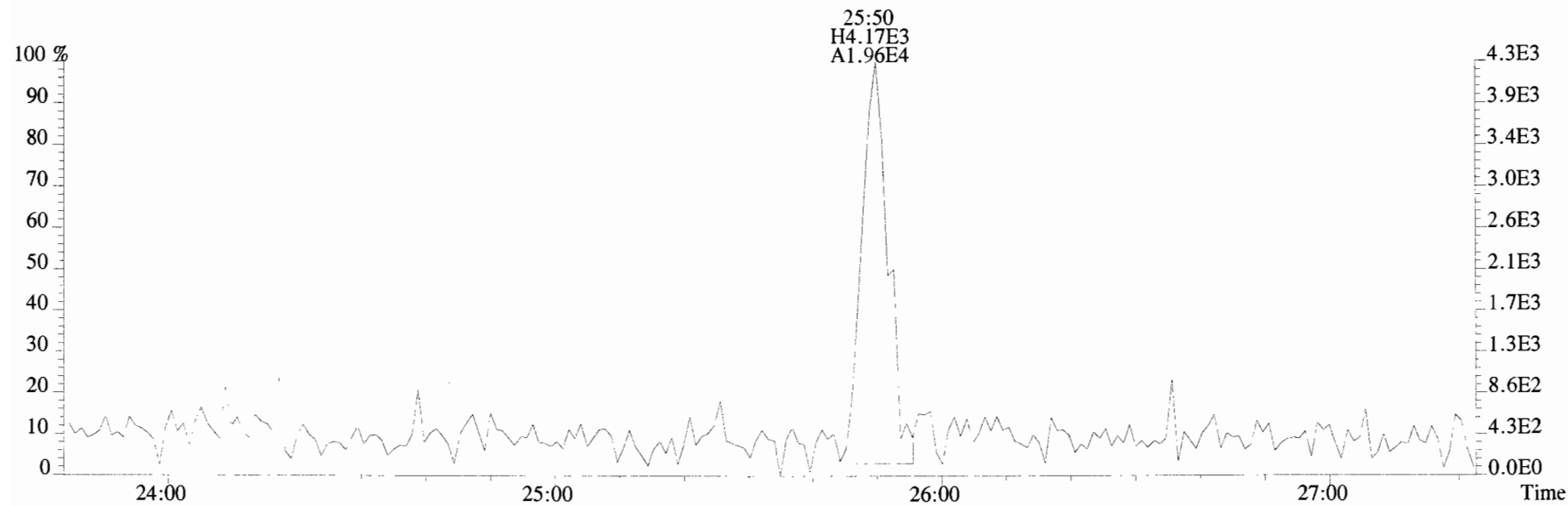
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



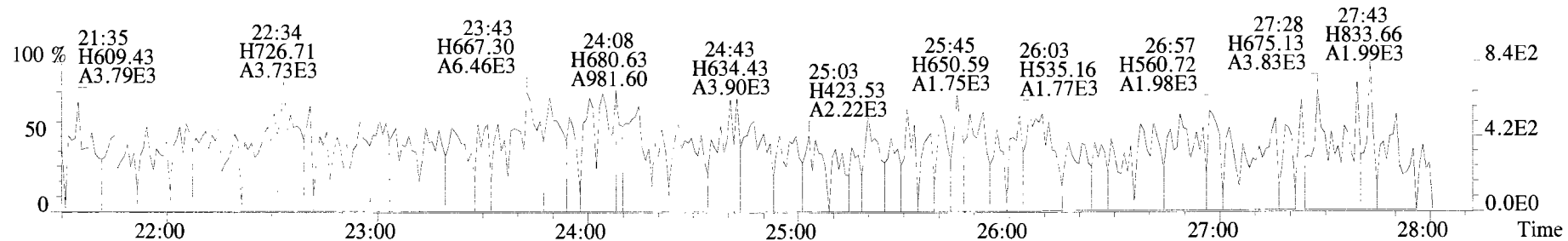
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



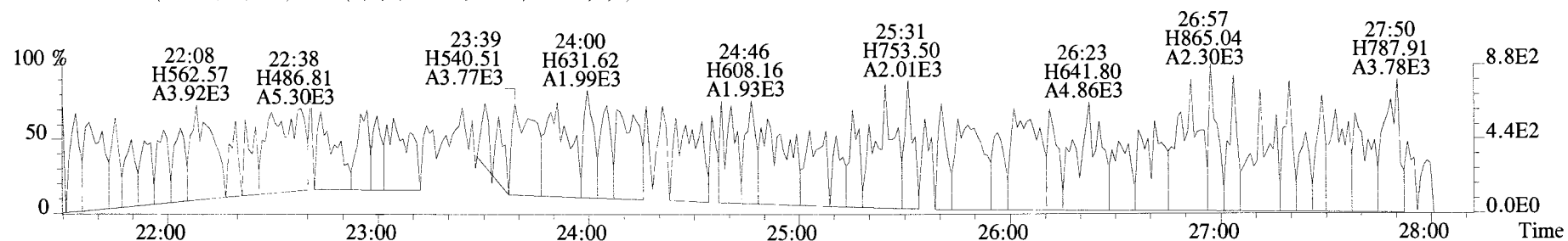
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



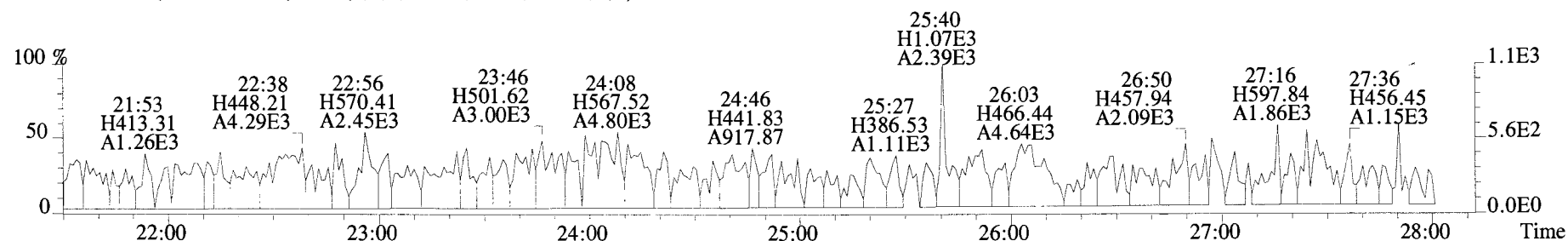
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



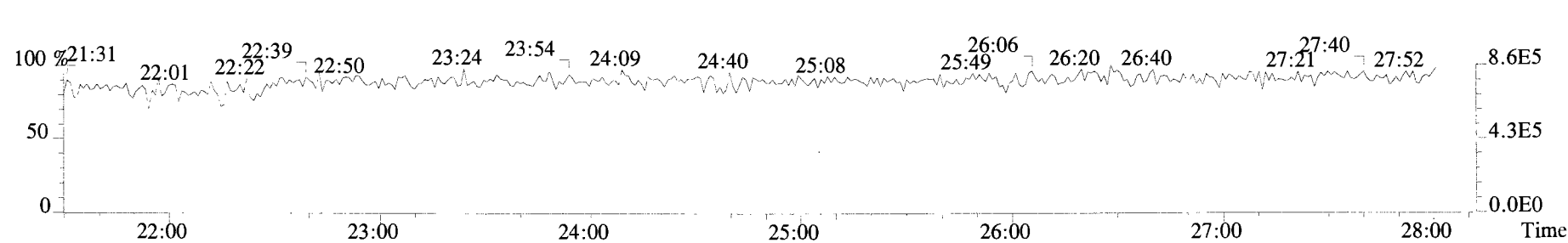
341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



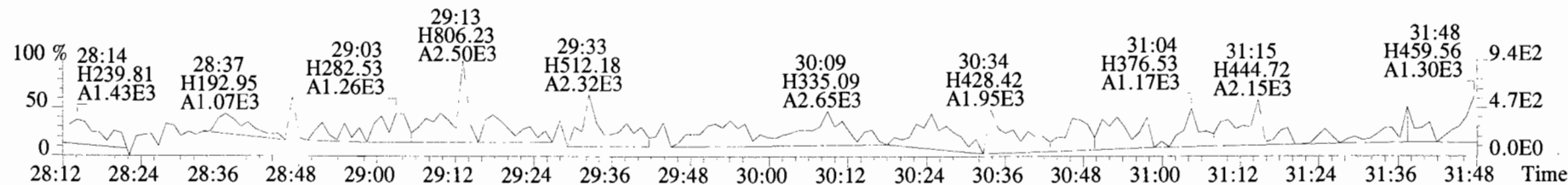
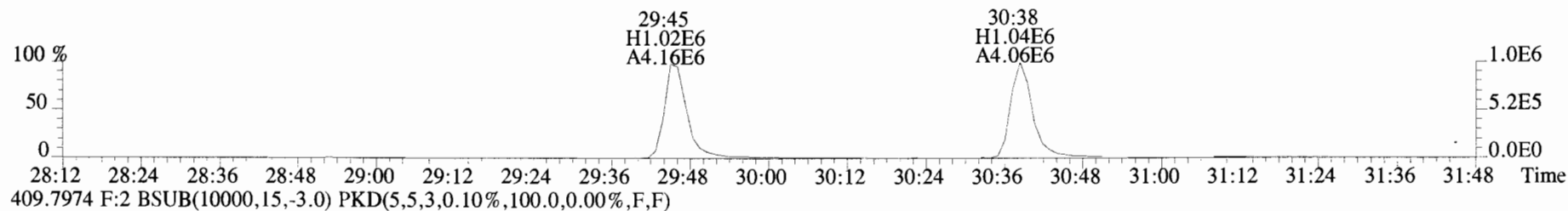
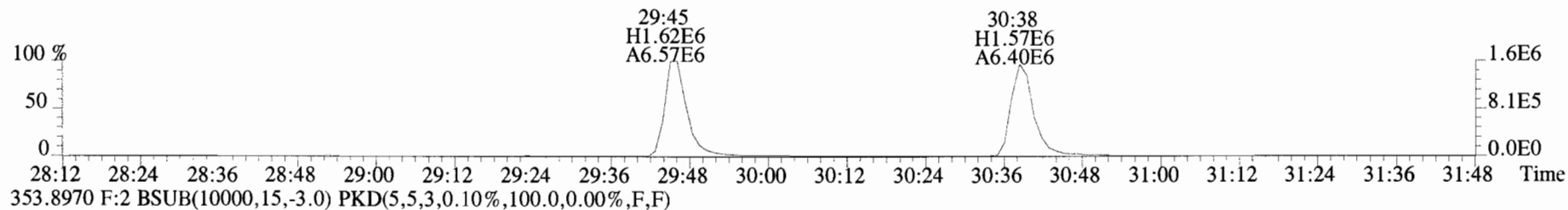
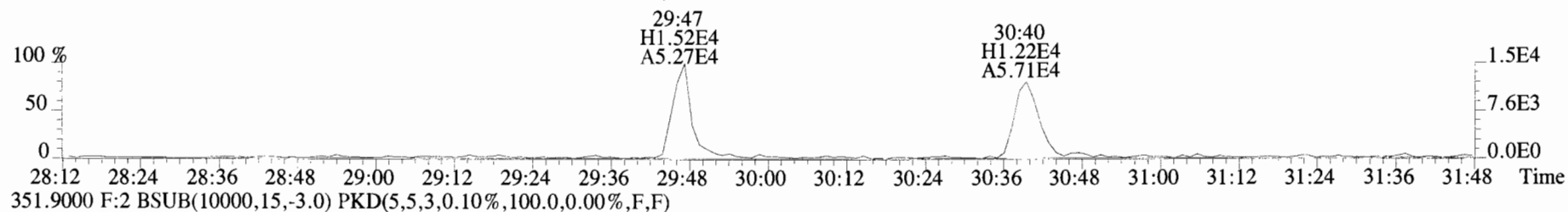
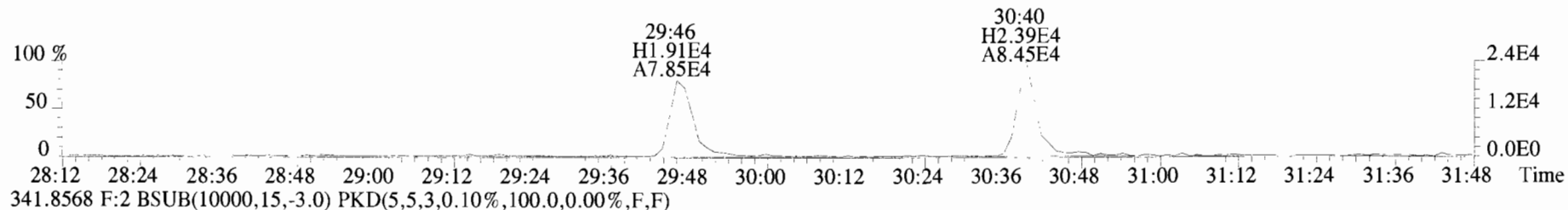
409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



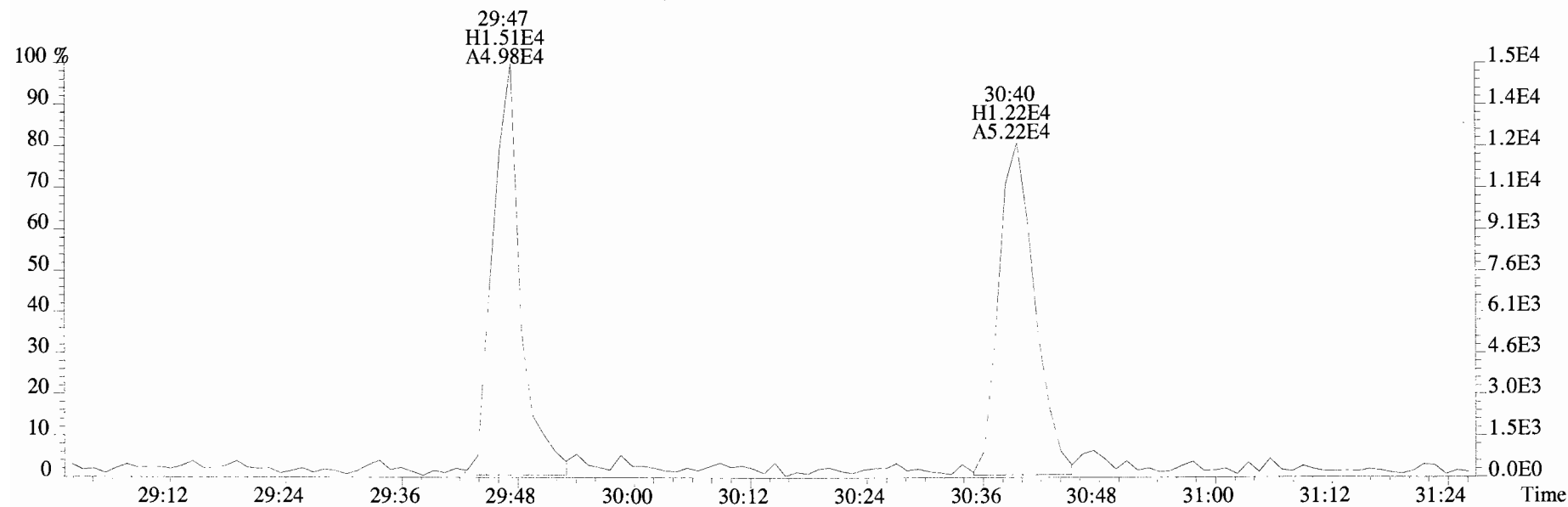
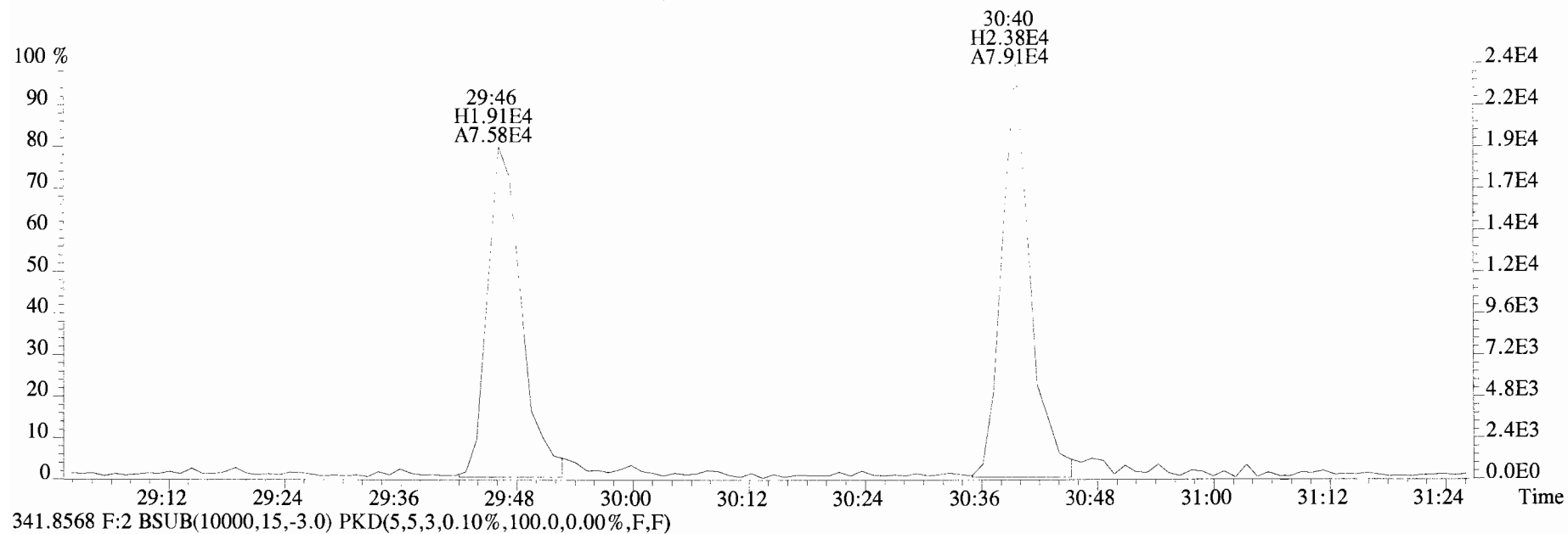
316.9824



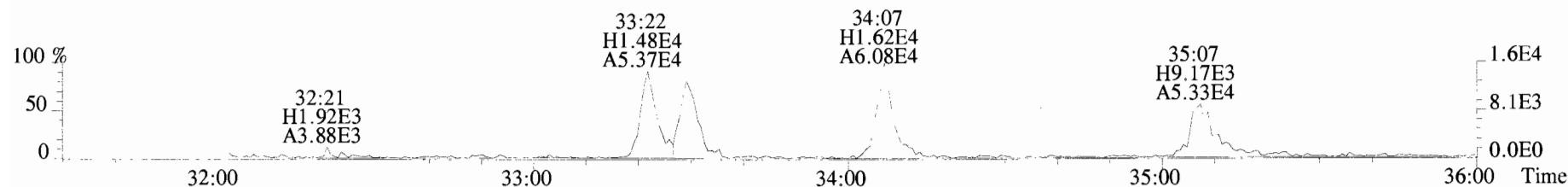
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



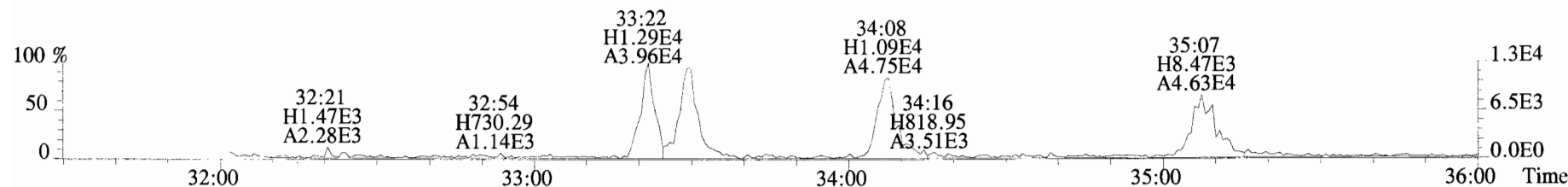
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



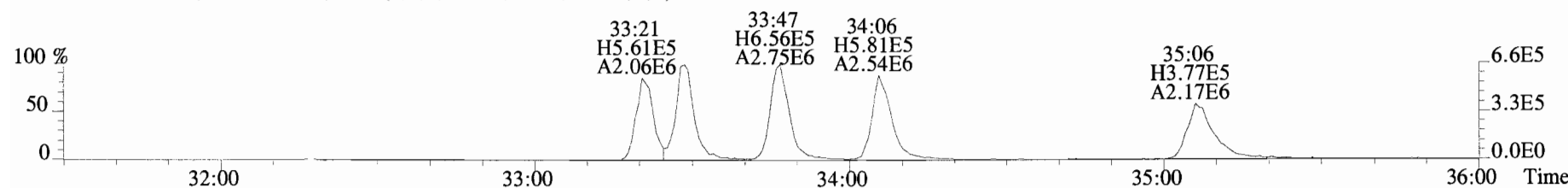
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



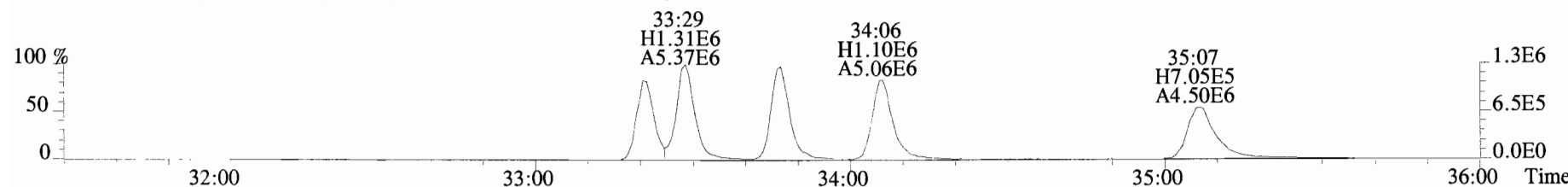
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



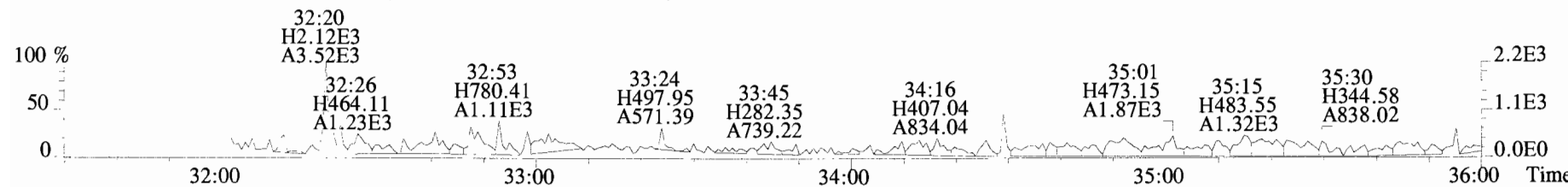
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



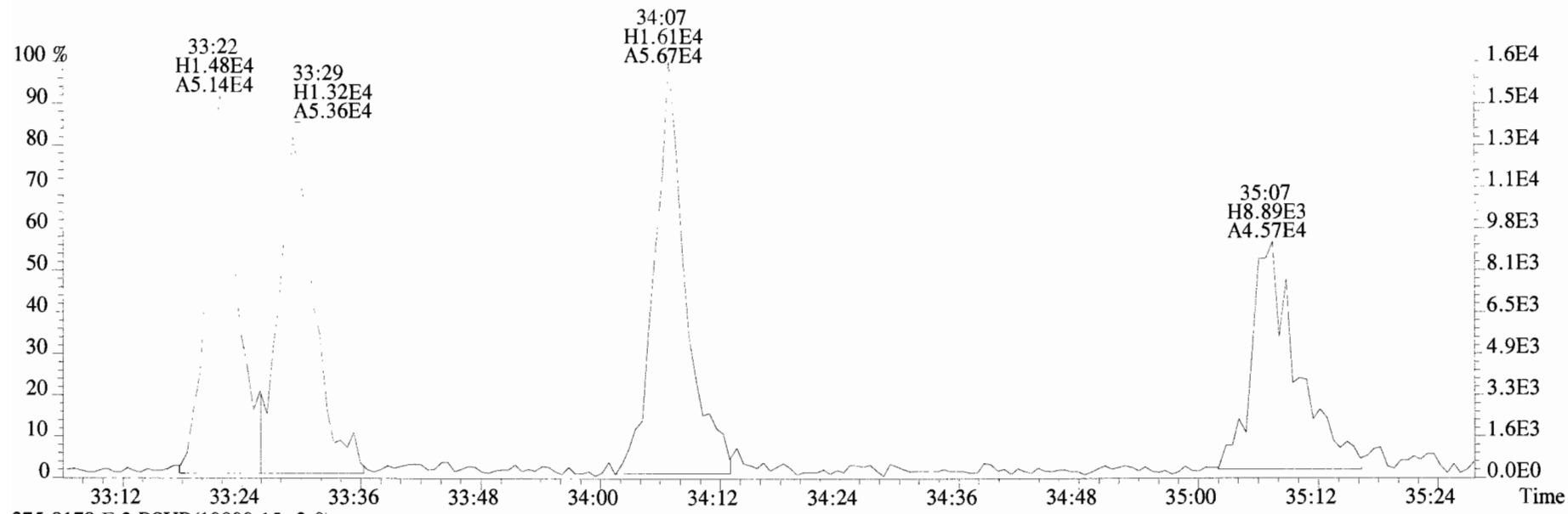
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



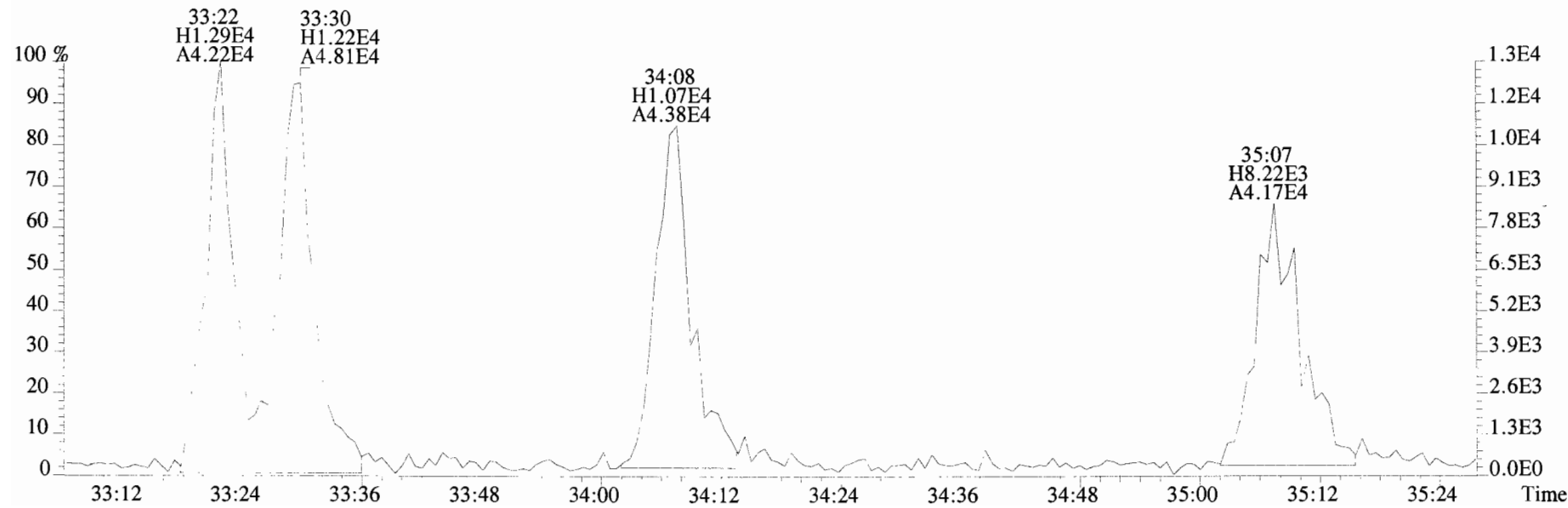
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



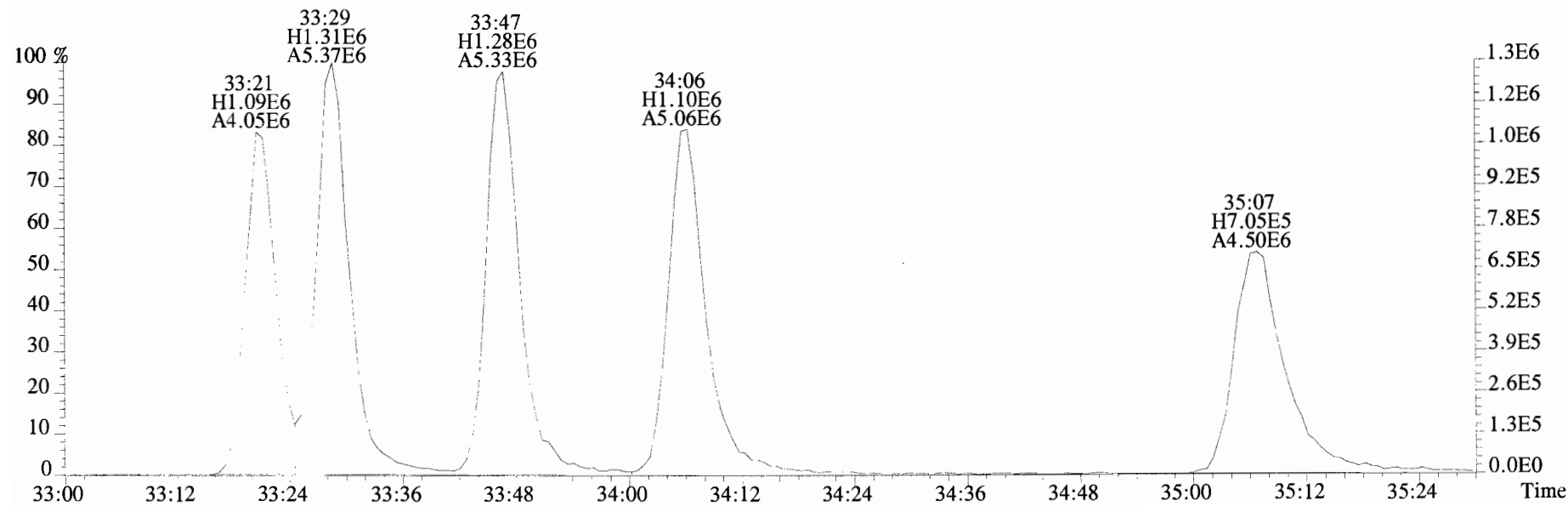
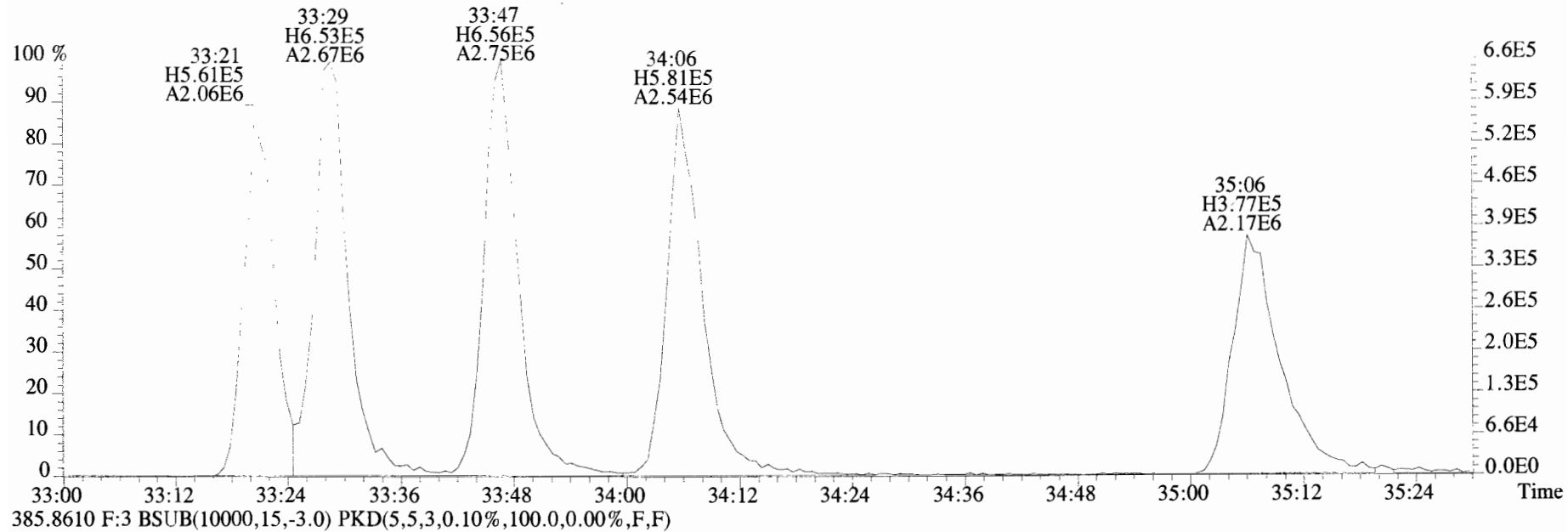
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
373.8207 F:3 BSUB(10000,15,-3.0)



375.8178 F:3 BSUB(10000,15,-3.0)

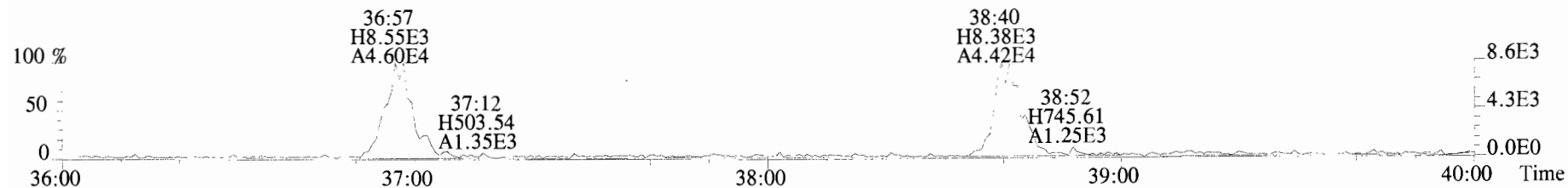


File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

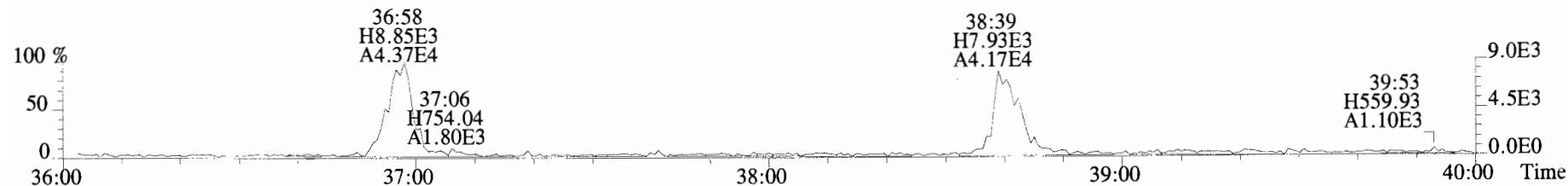




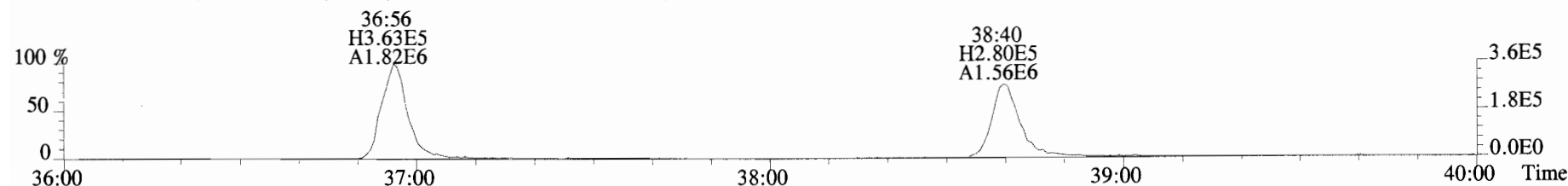
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



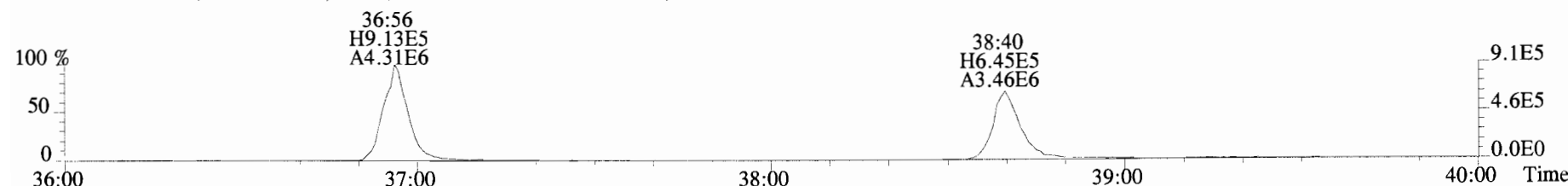
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



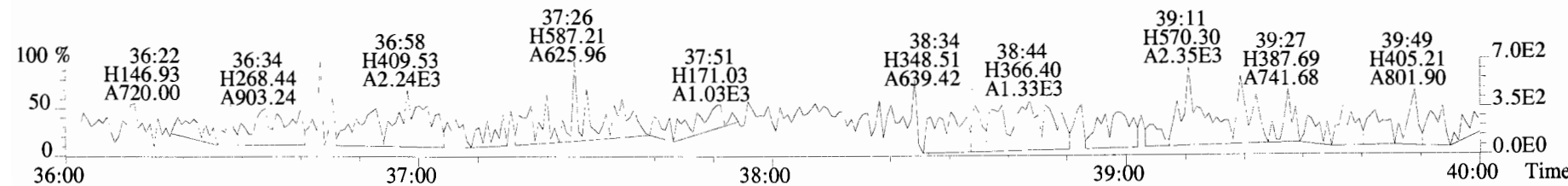
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



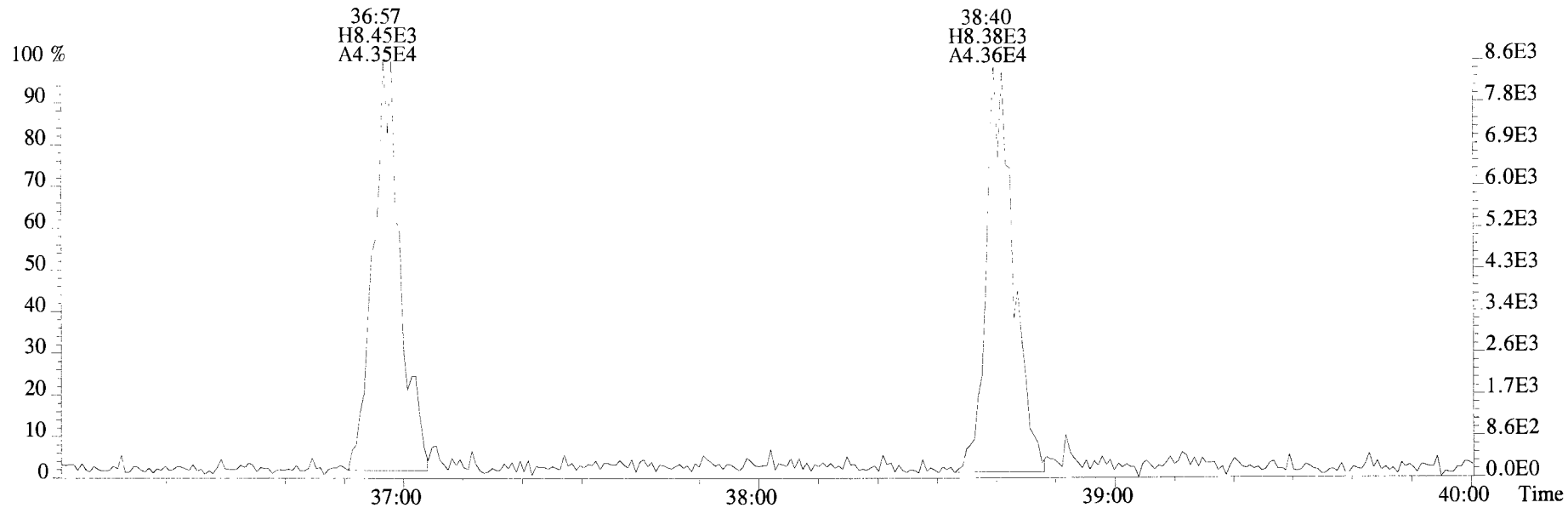
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



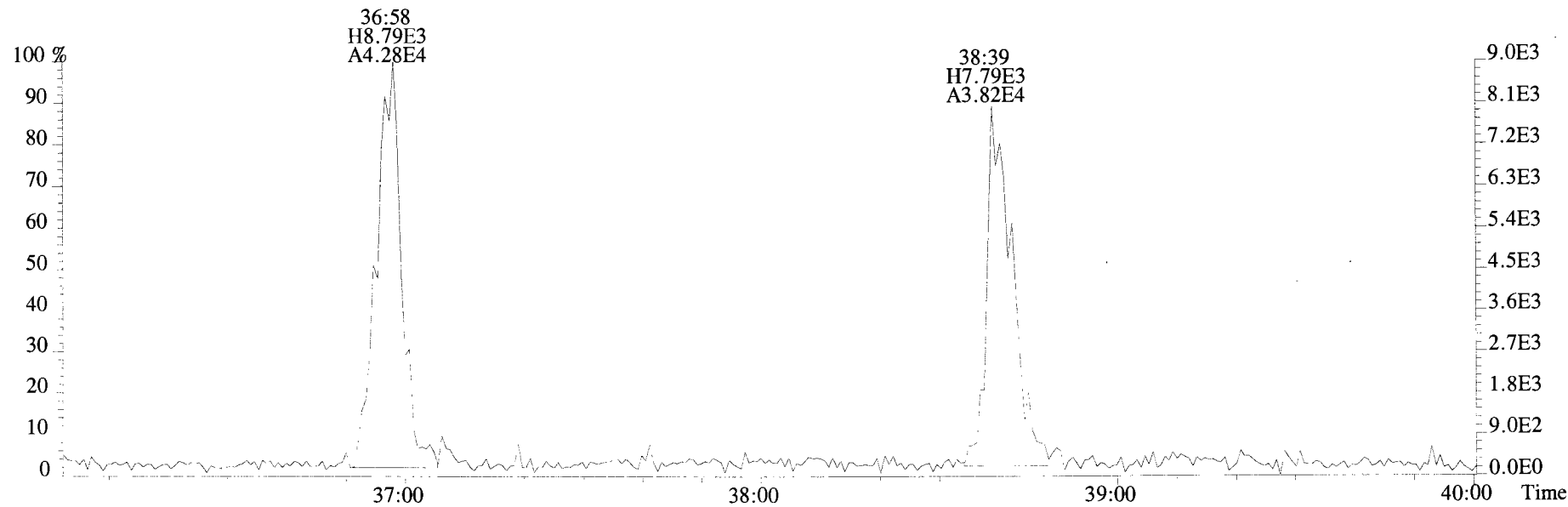
479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



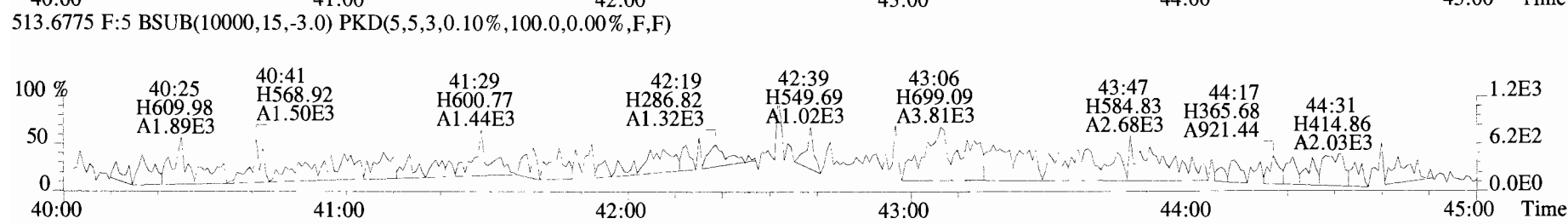
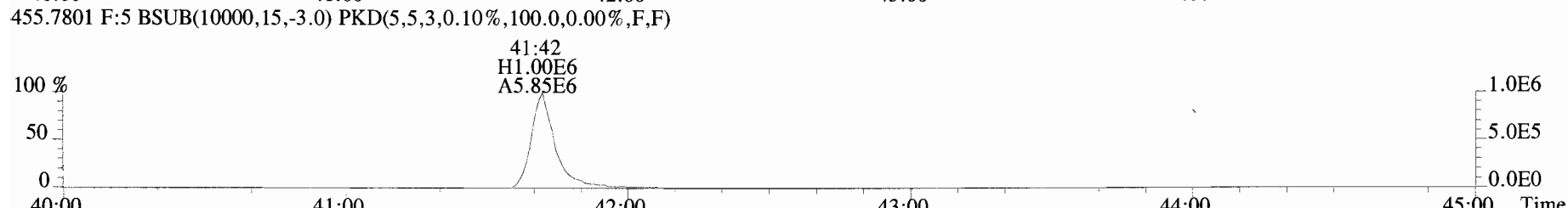
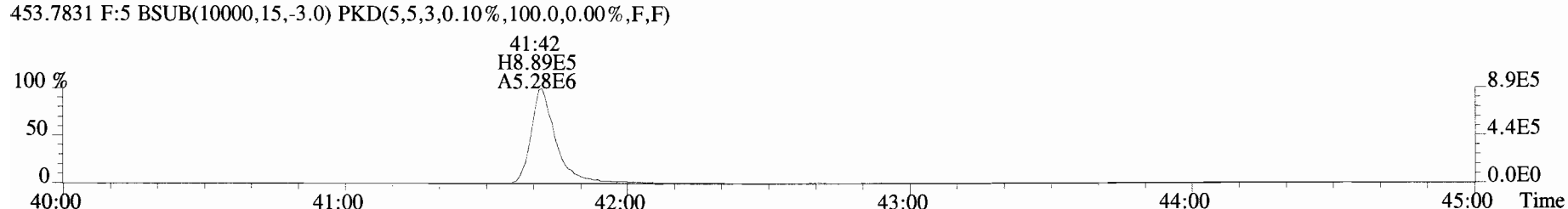
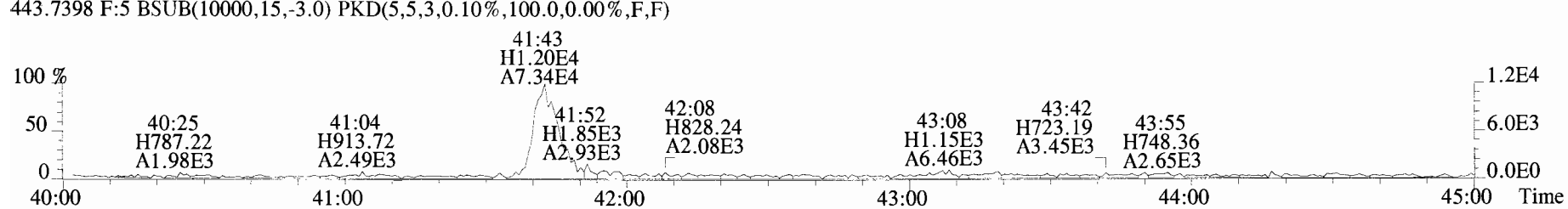
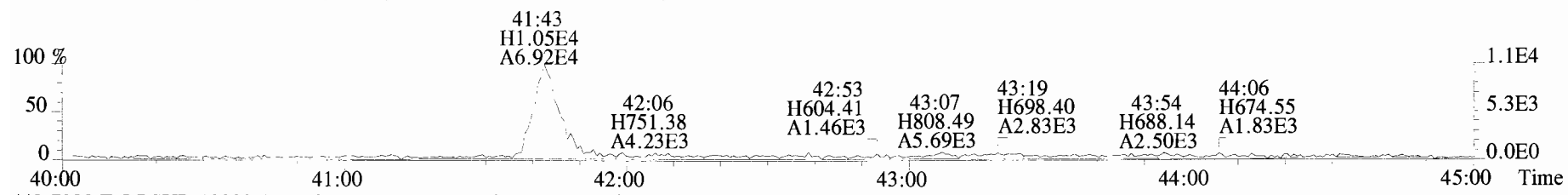
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



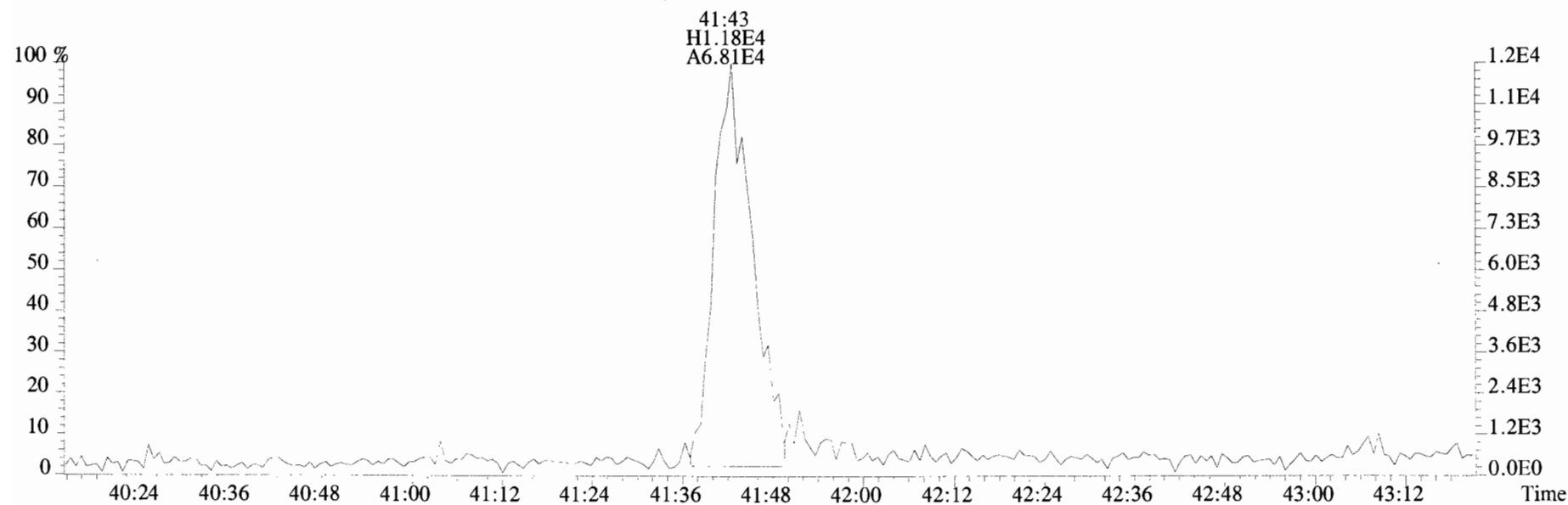
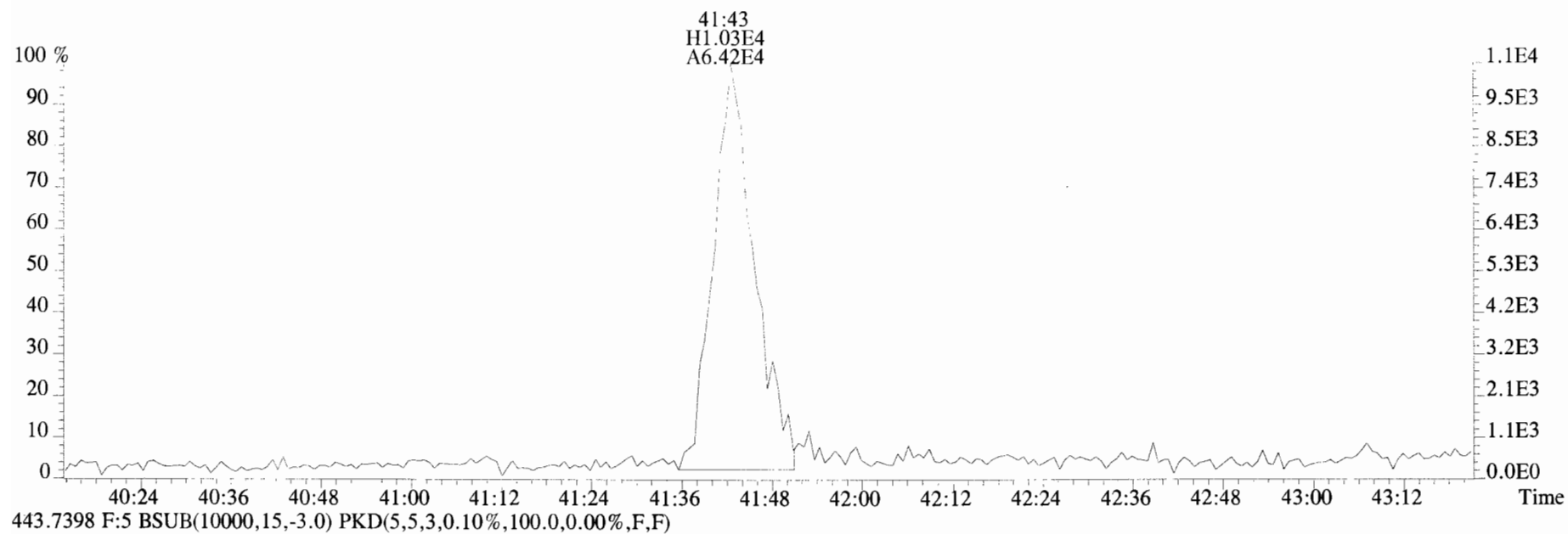
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



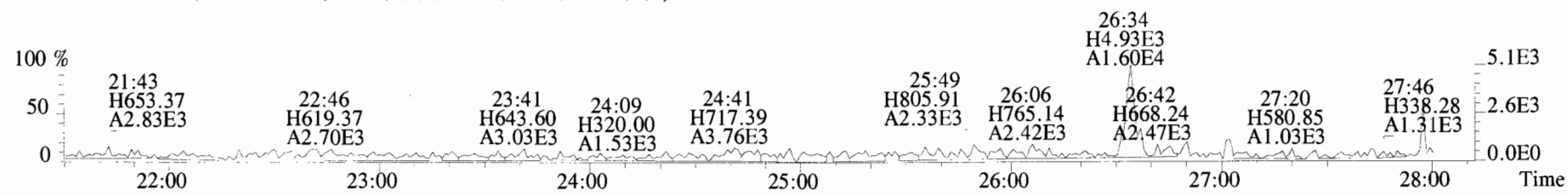
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



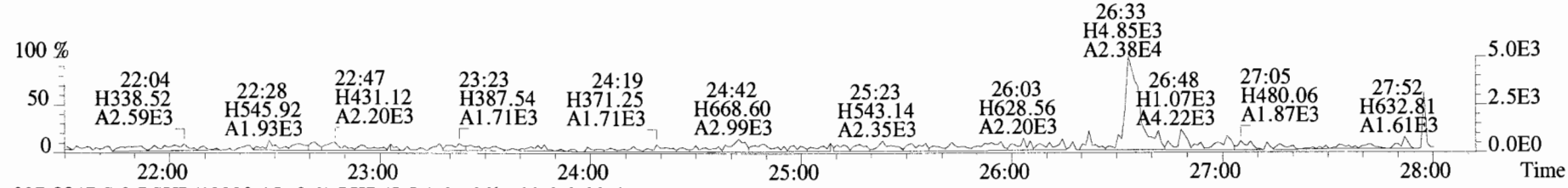
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#1 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD\_DB5  
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



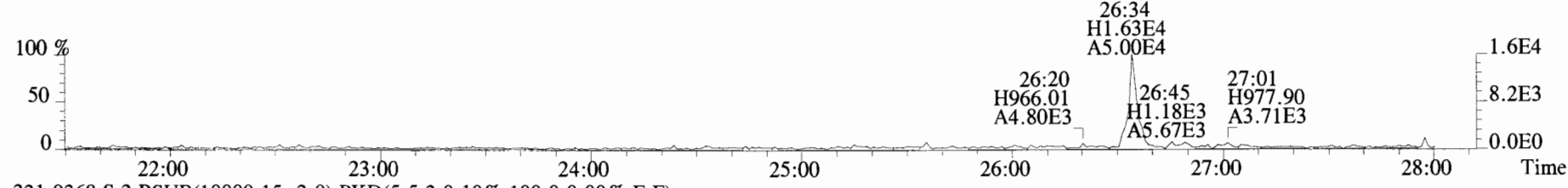
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



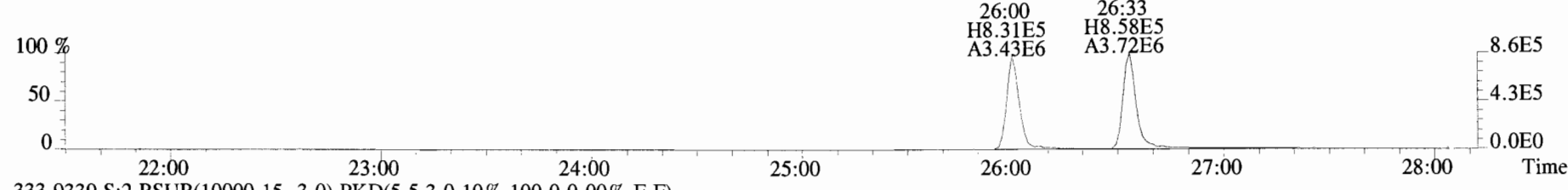
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



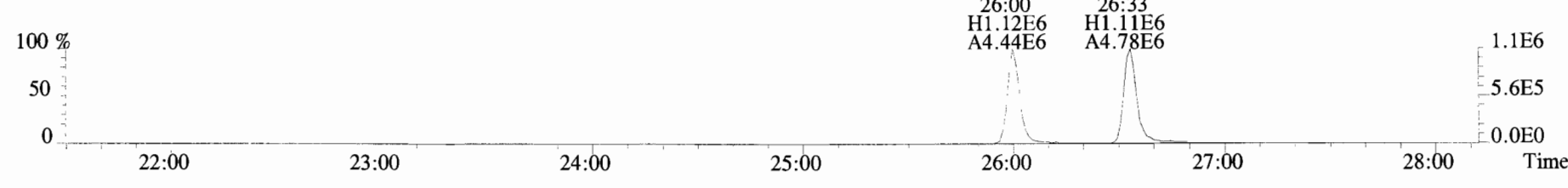
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



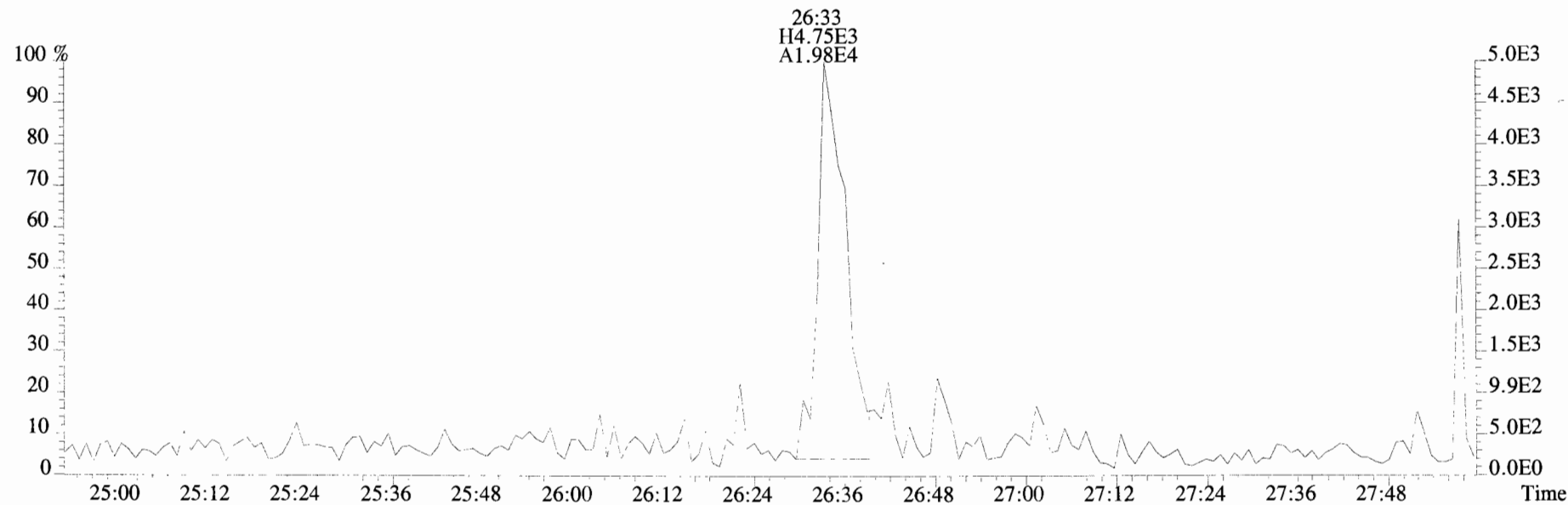
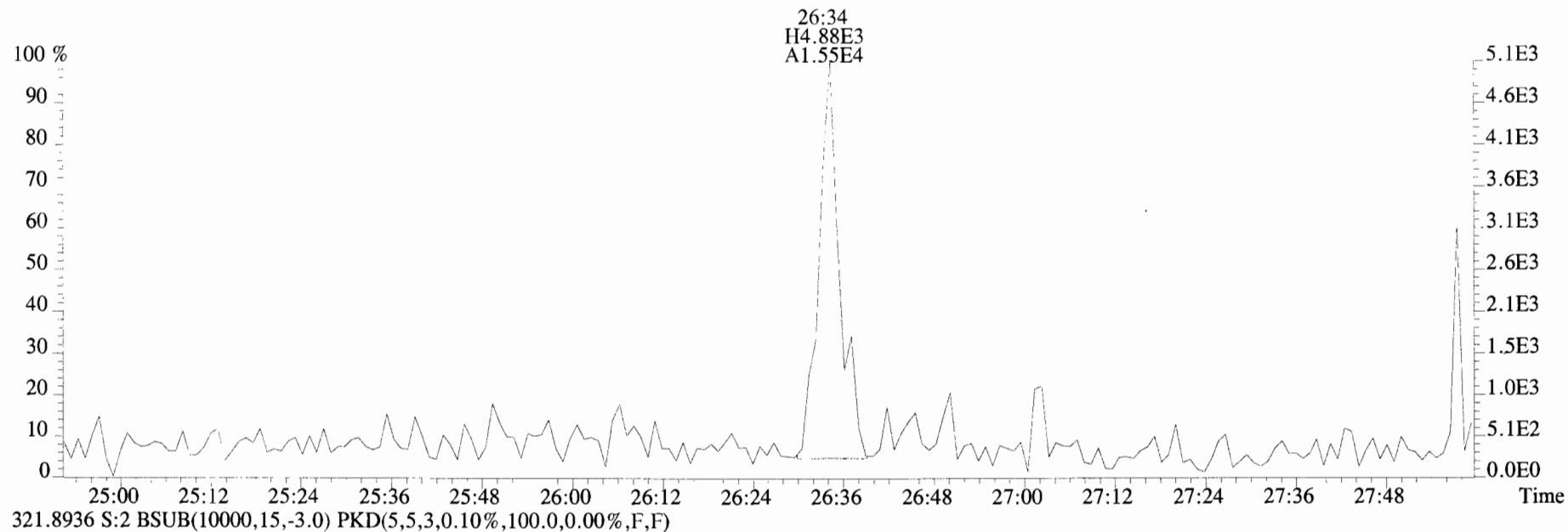
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



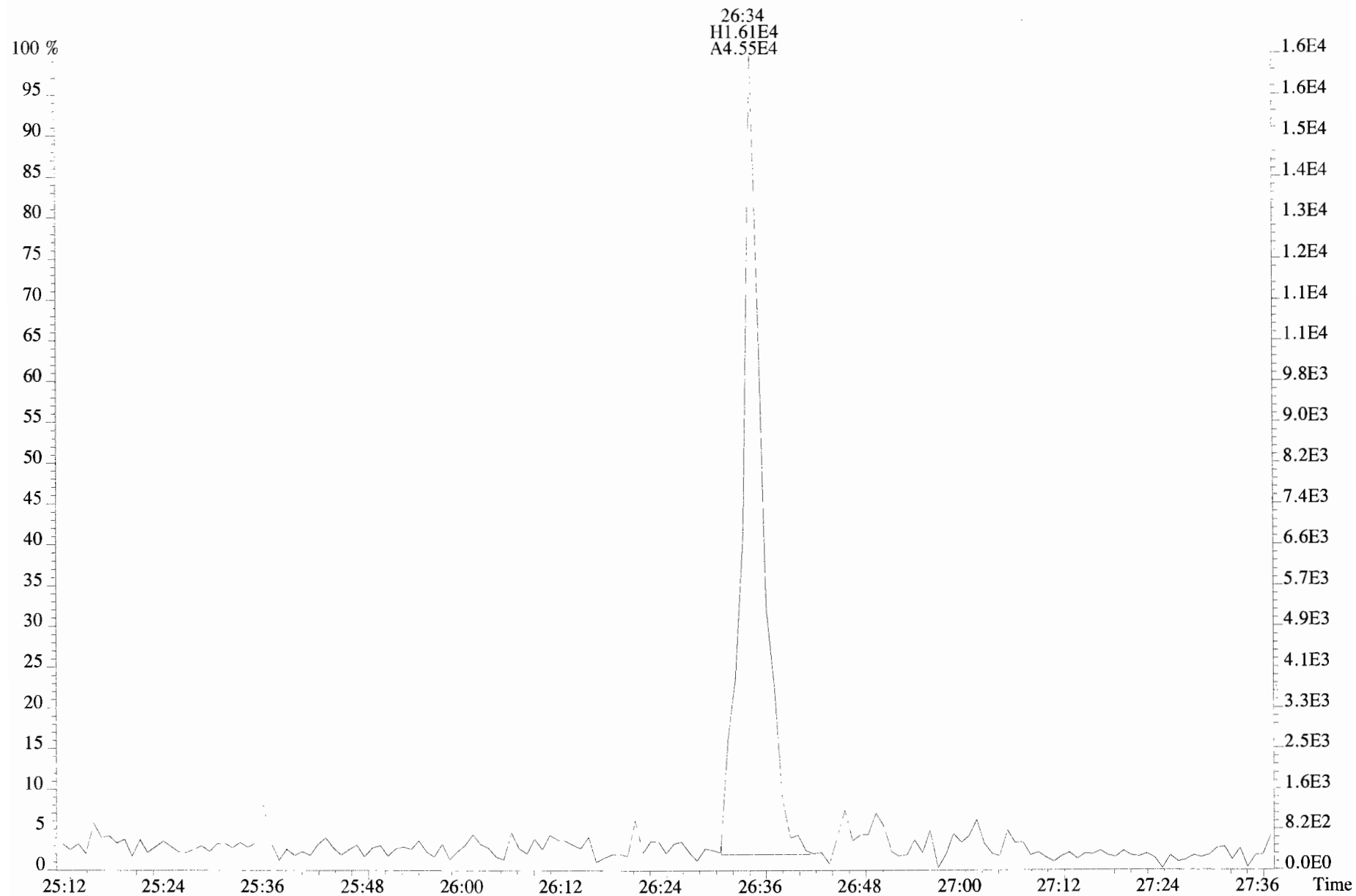
333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



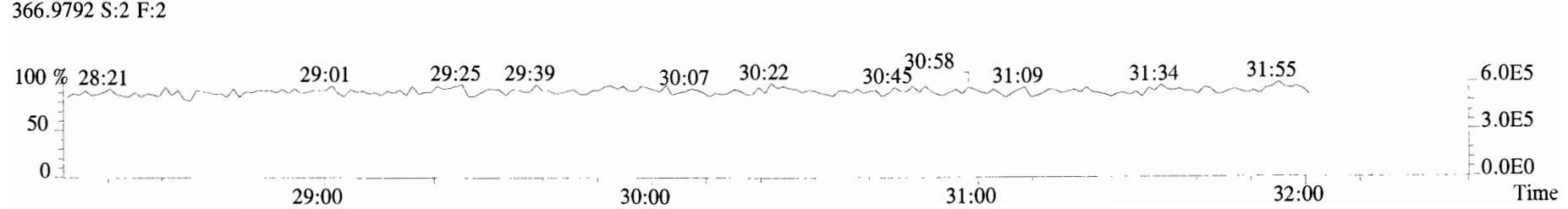
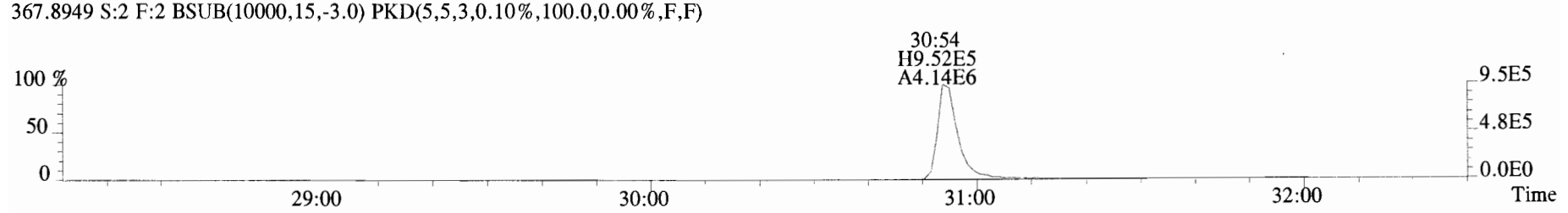
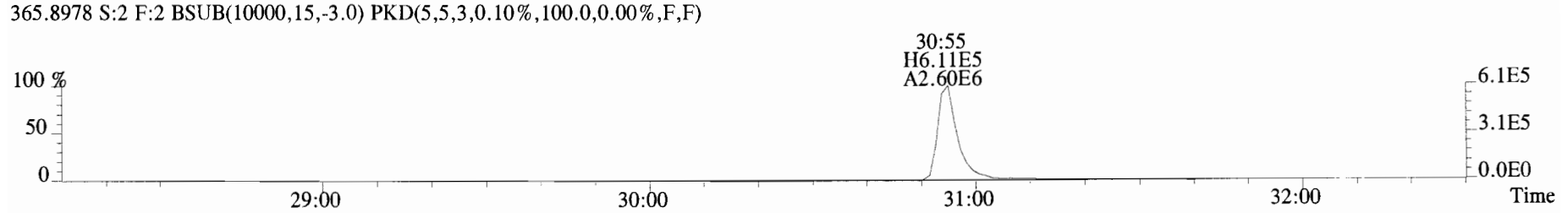
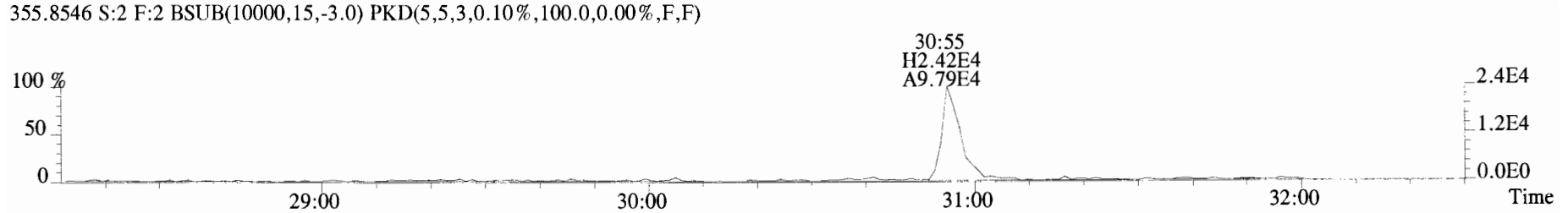
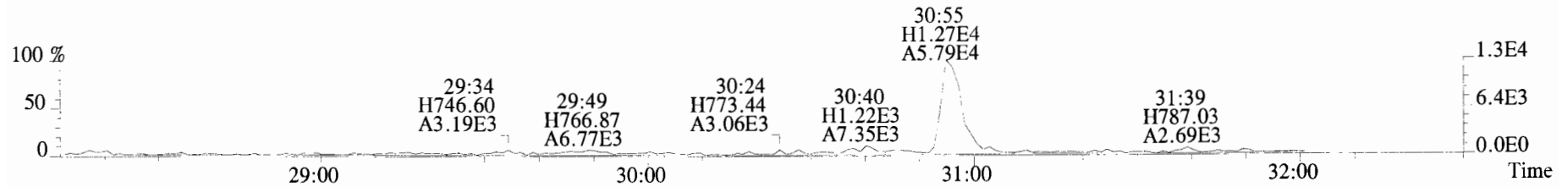
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

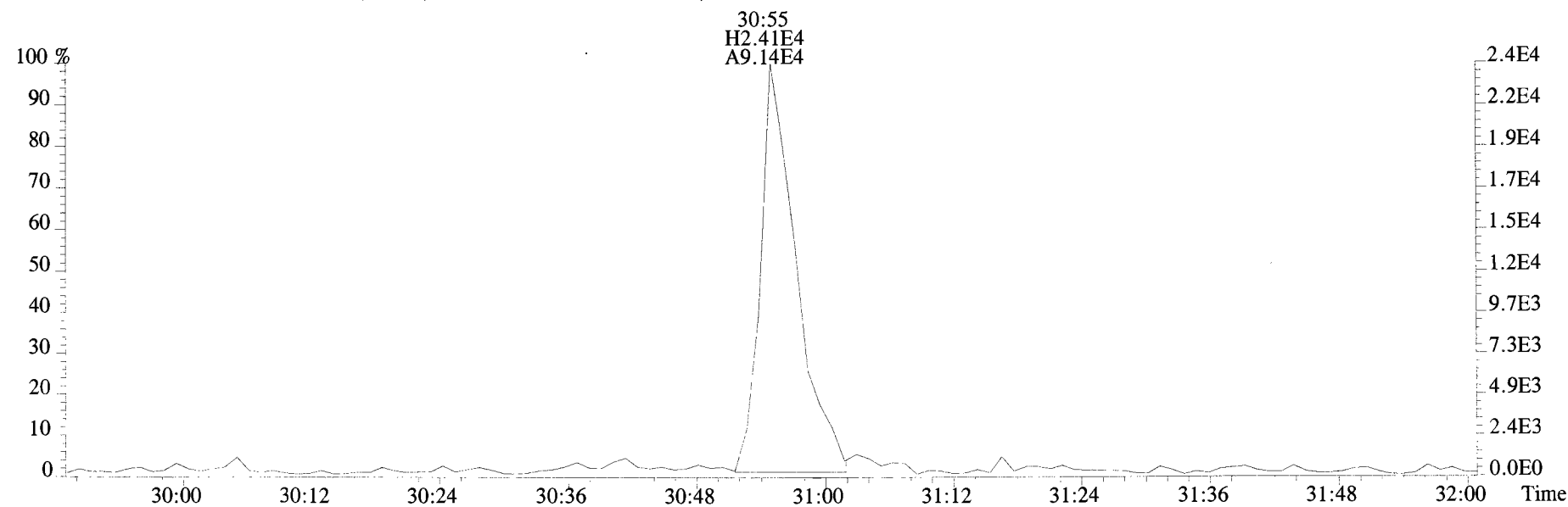
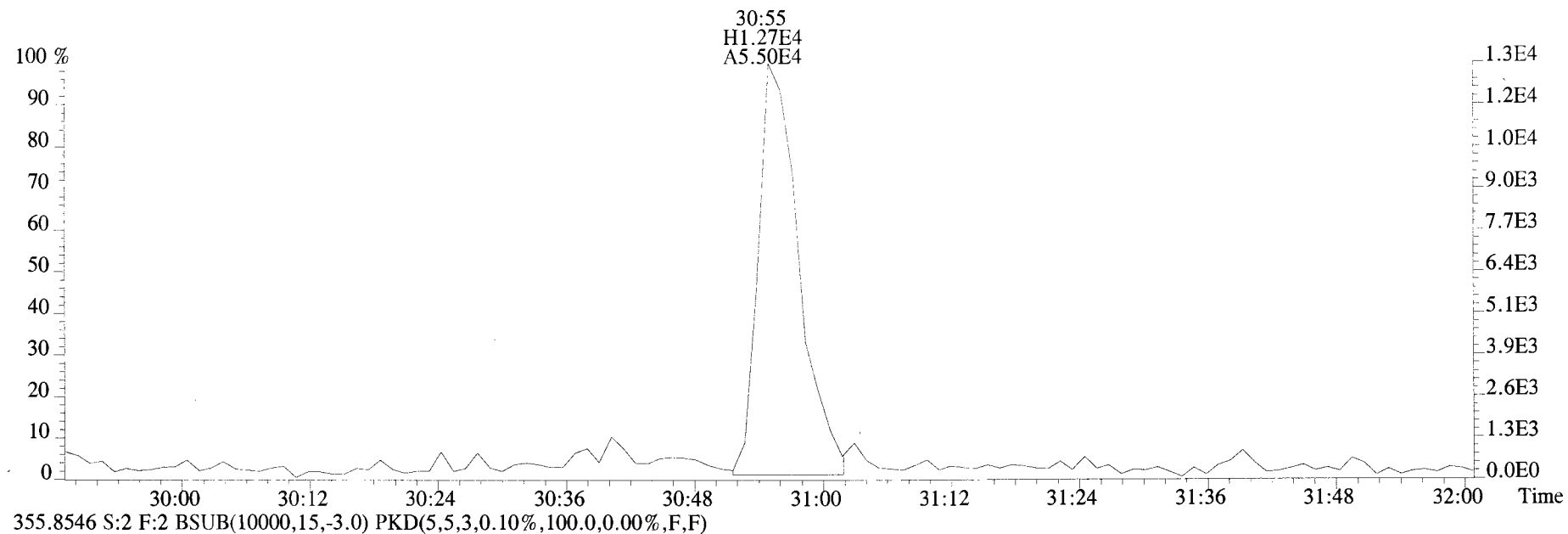


File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

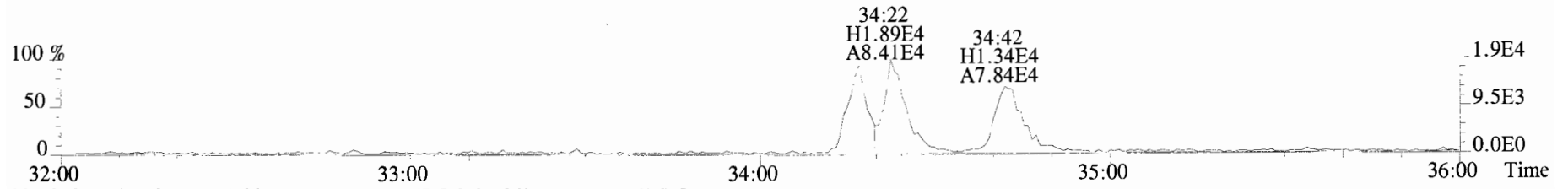




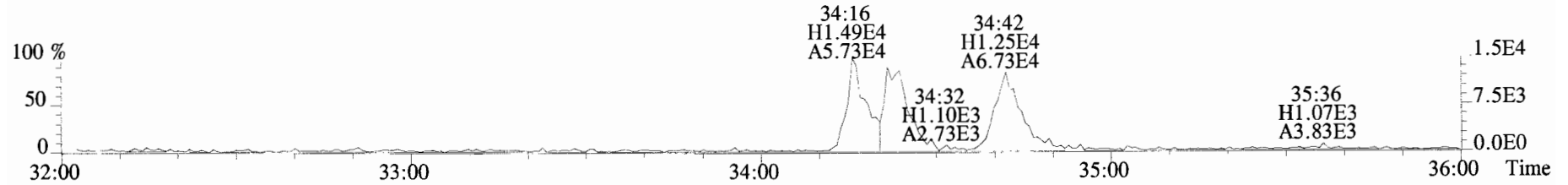
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



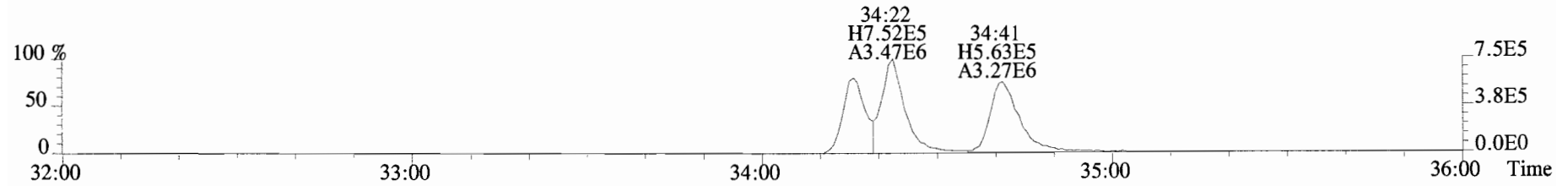
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



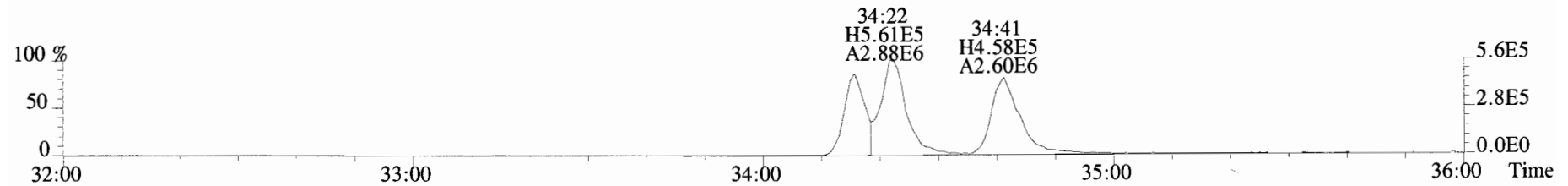
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



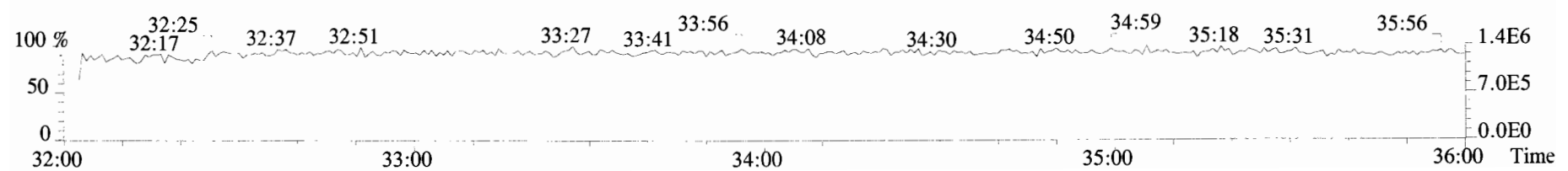
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



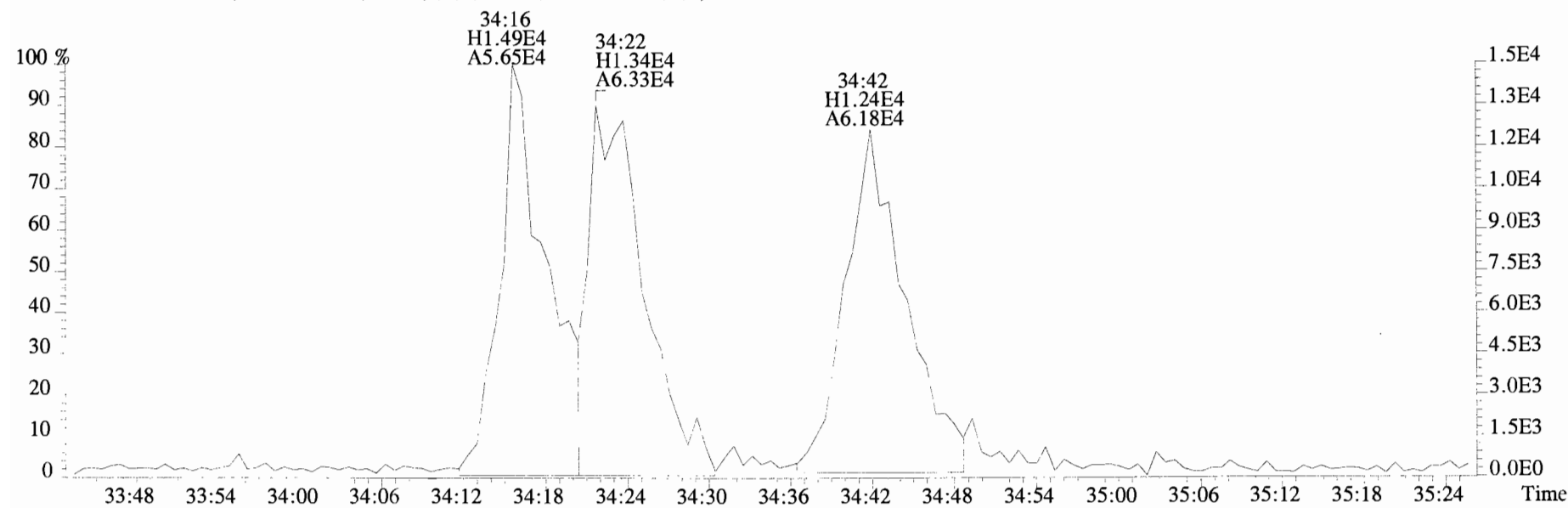
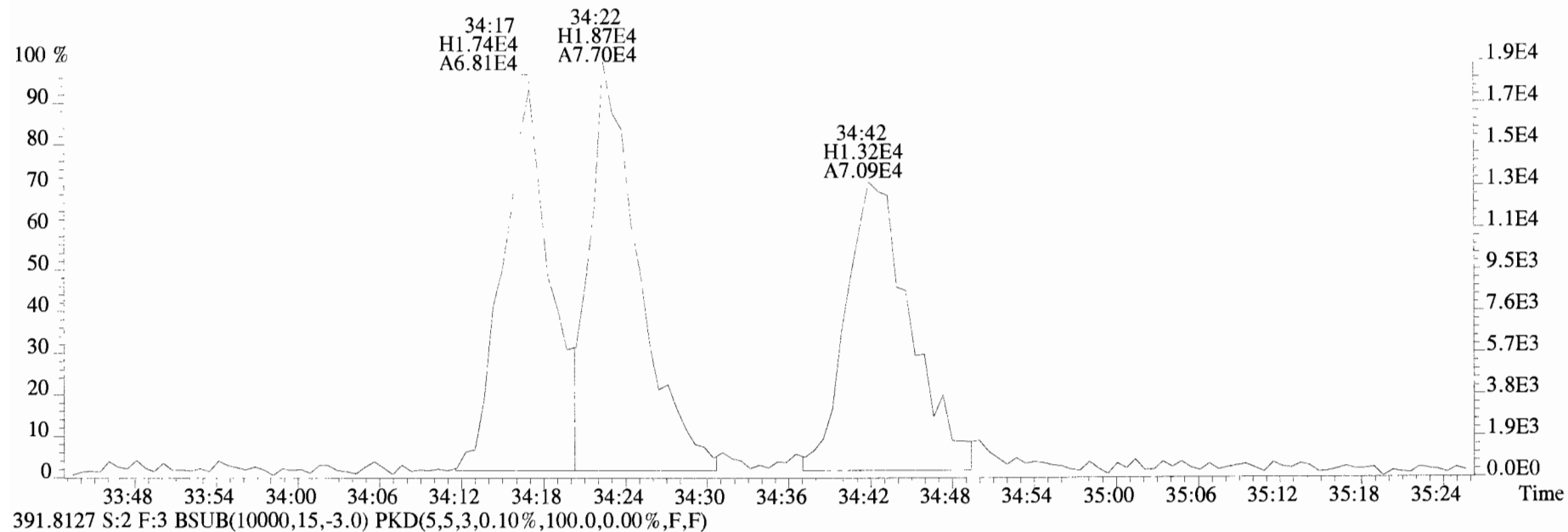
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



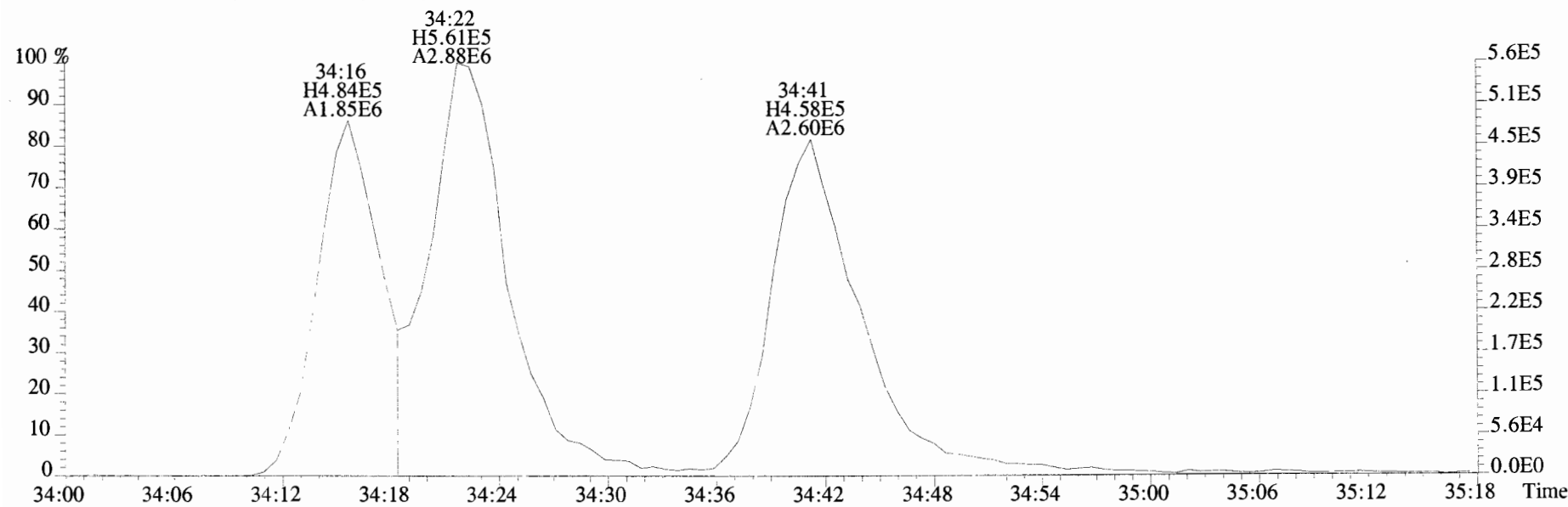
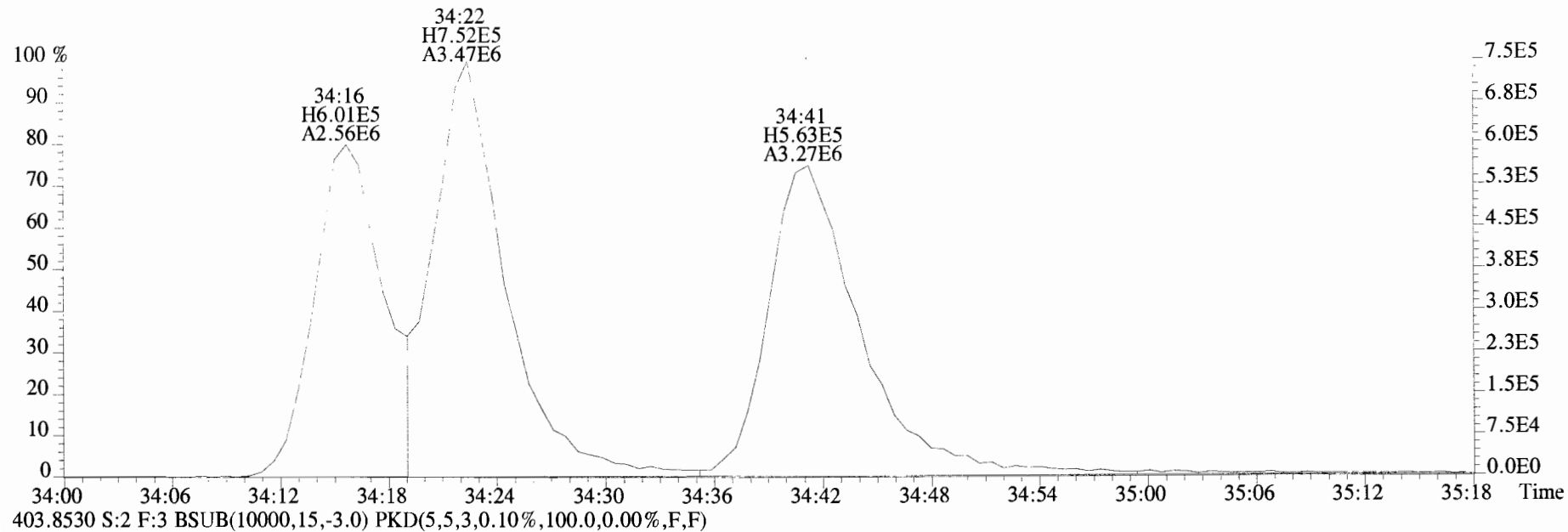
392.9760 S:2 F:3



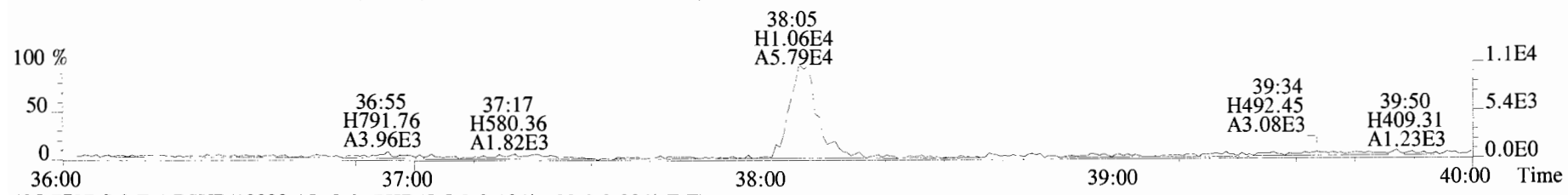
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



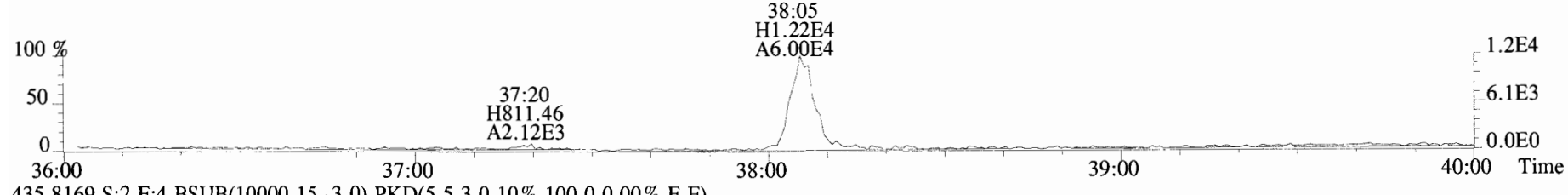
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



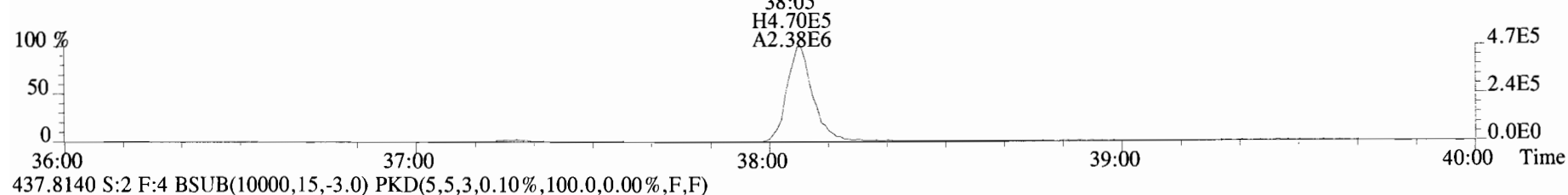
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



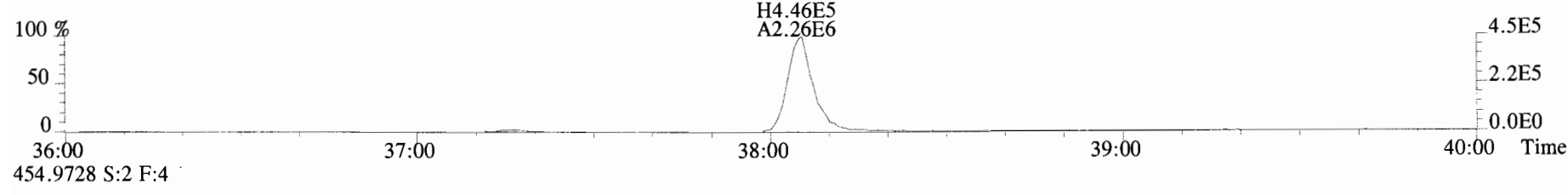
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



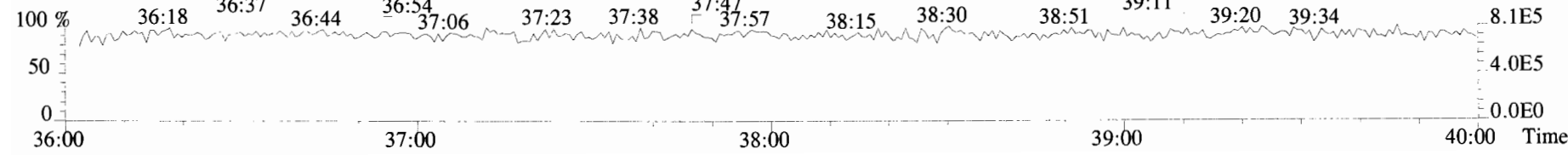
435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



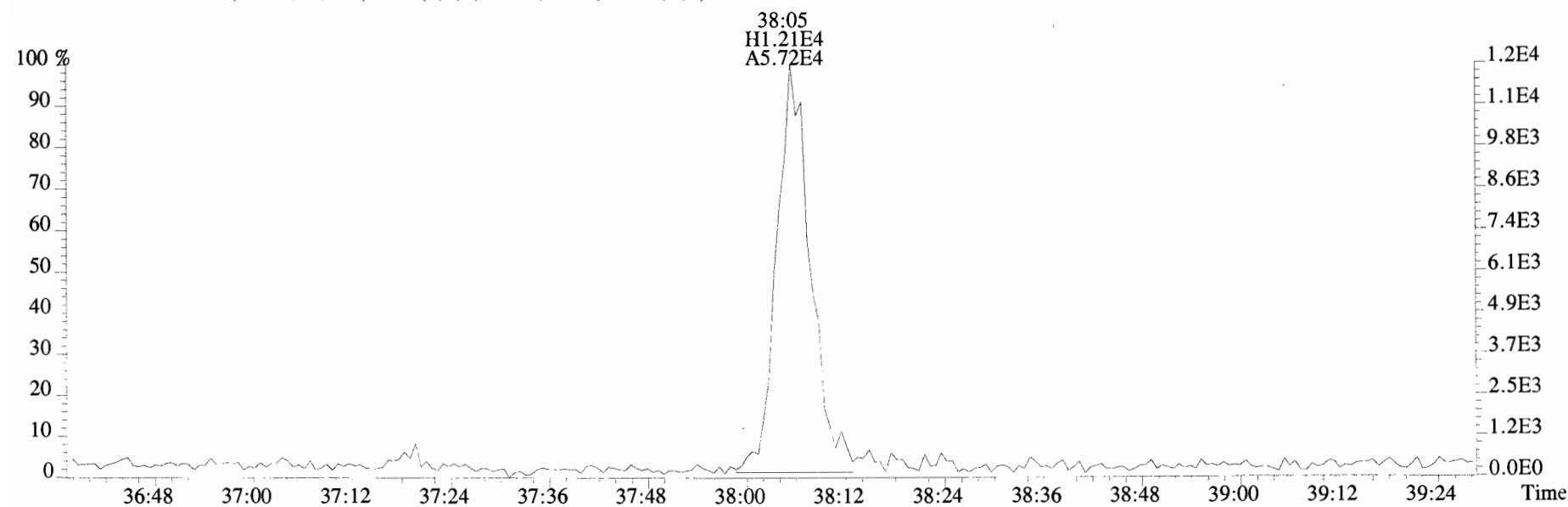
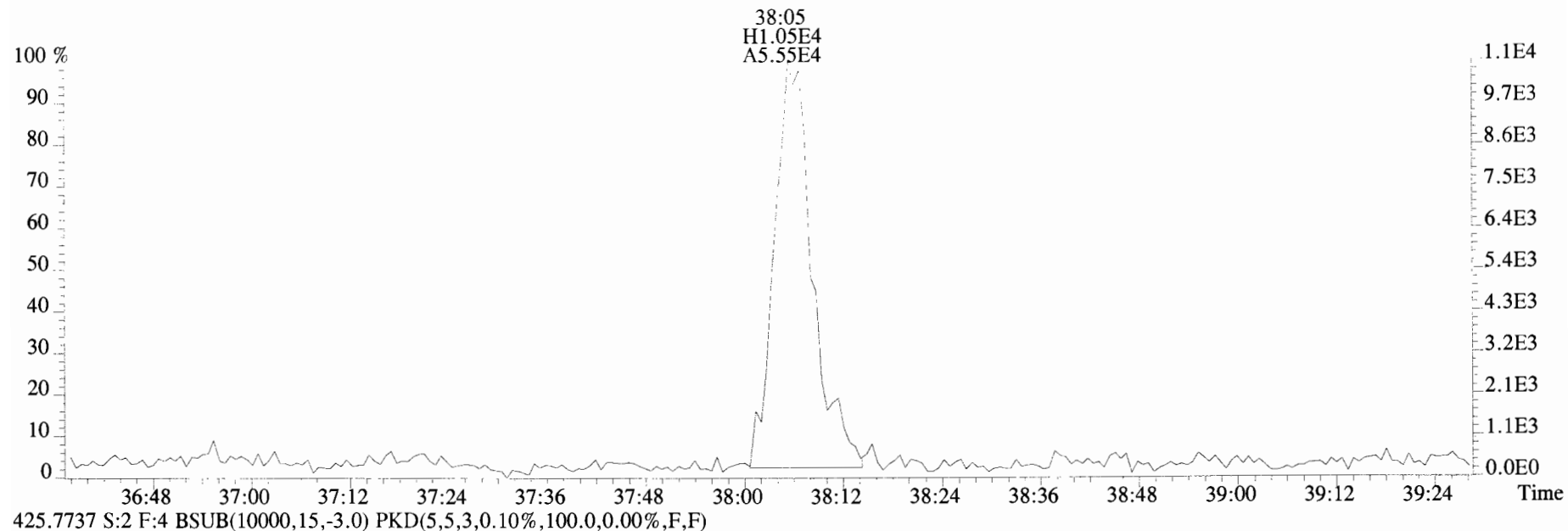
437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



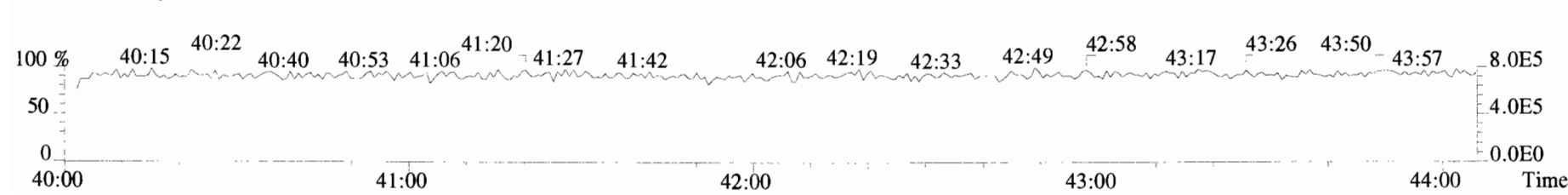
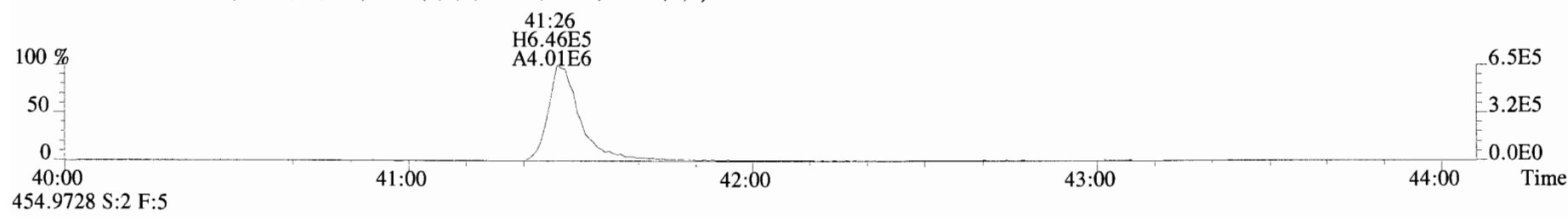
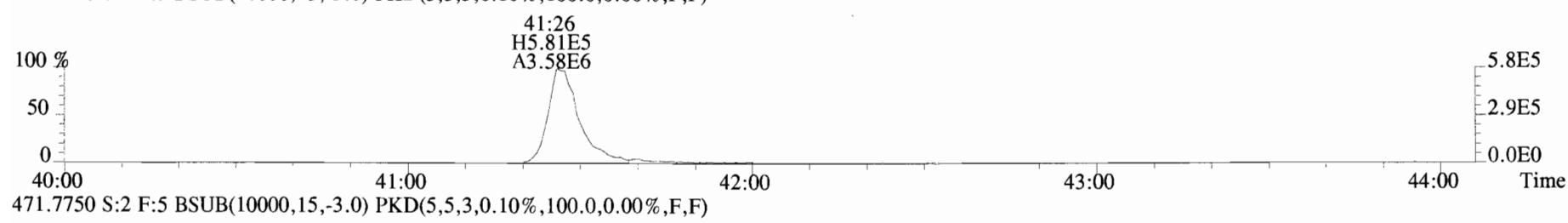
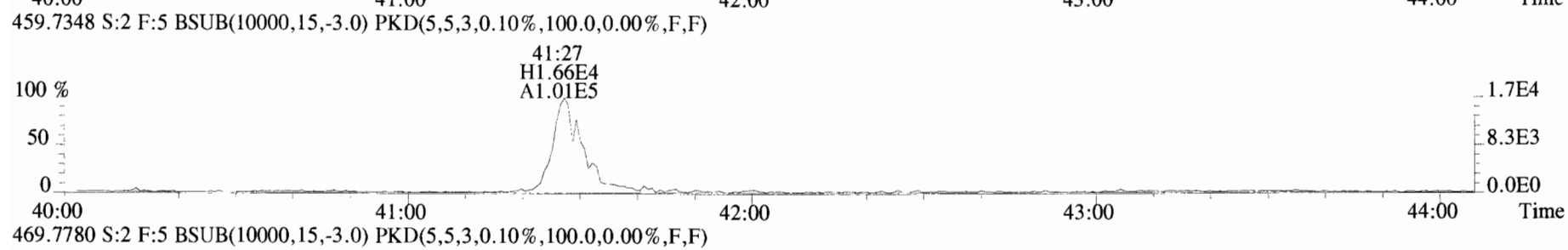
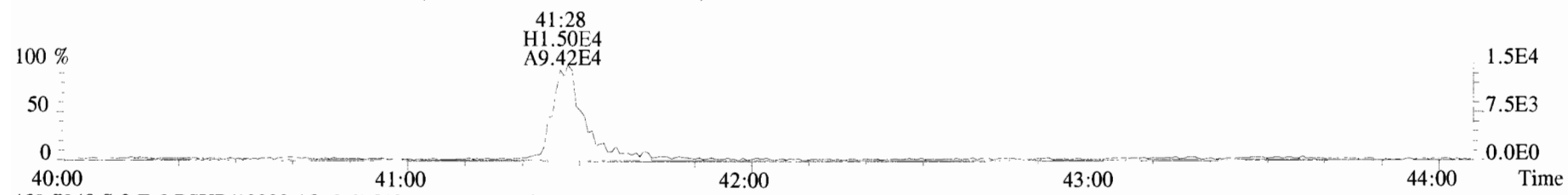
454.9728 S:2 F:4



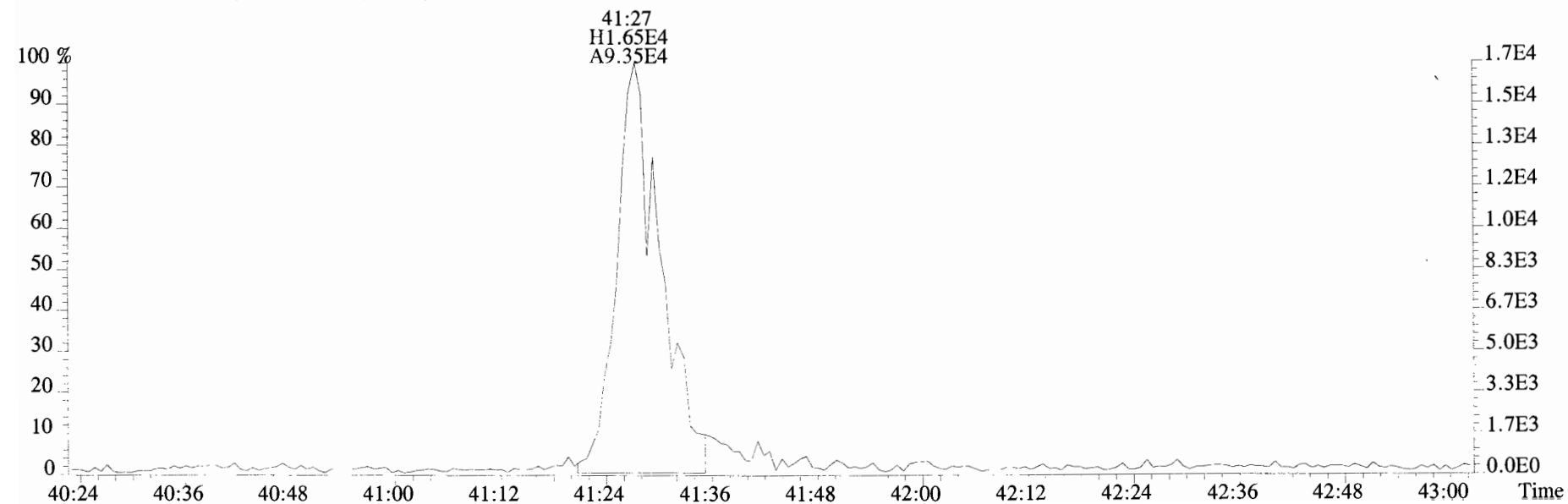
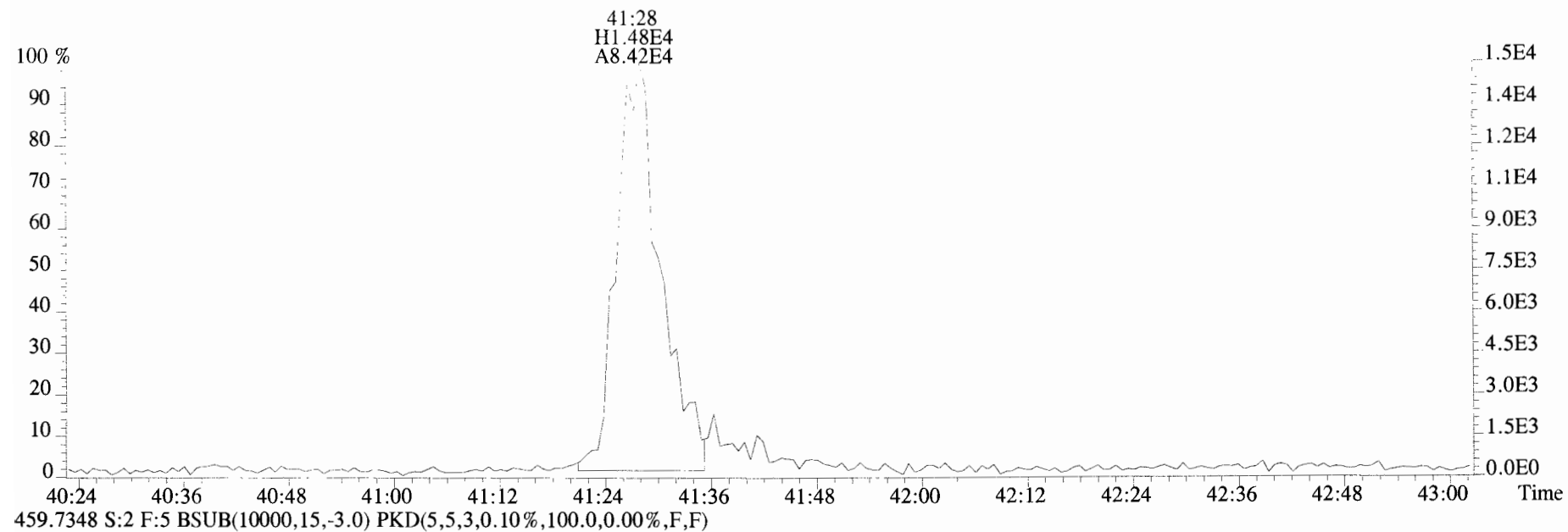
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
423.7767 S:2 F:4 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-432 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)

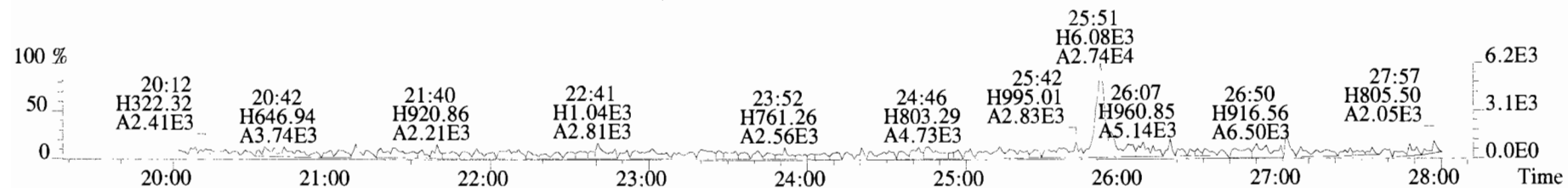


File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

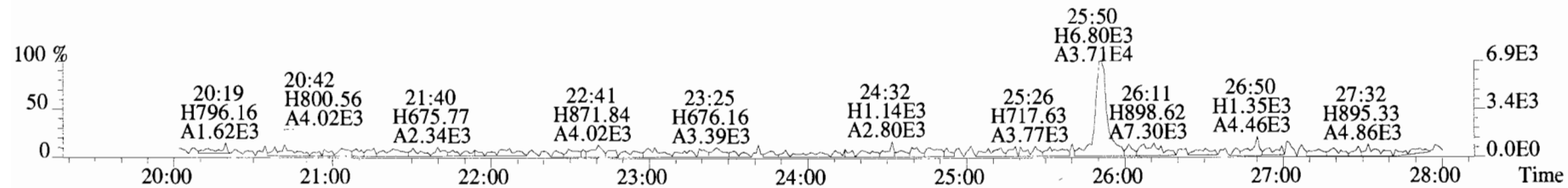




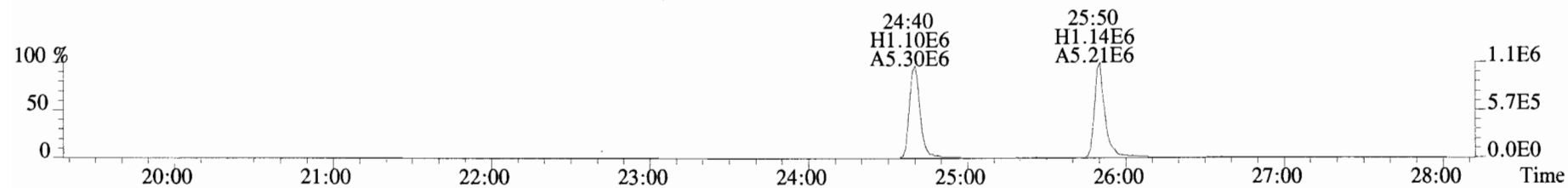
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



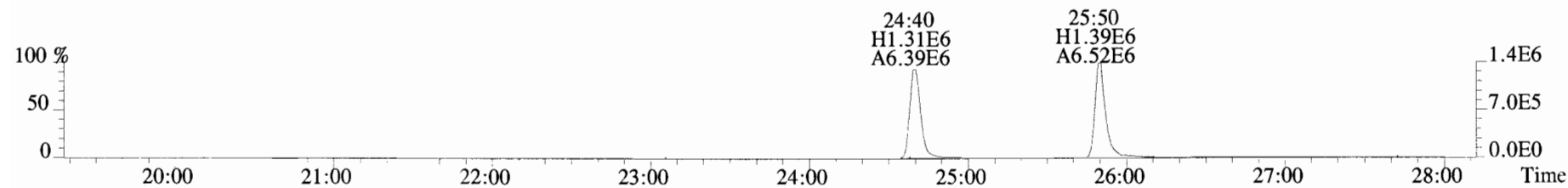
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



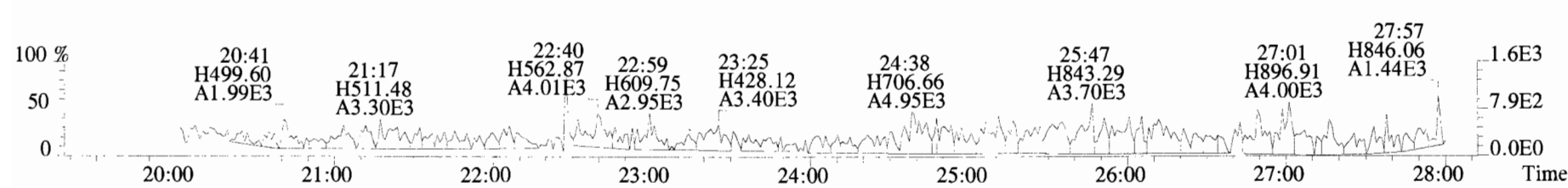
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



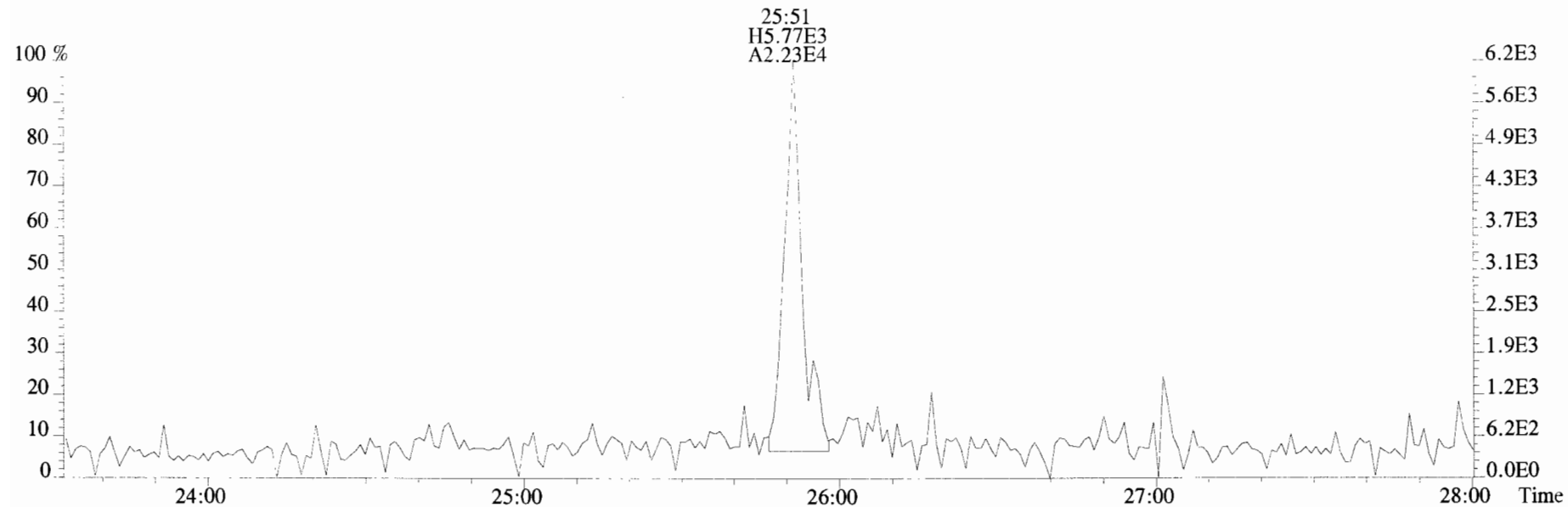
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



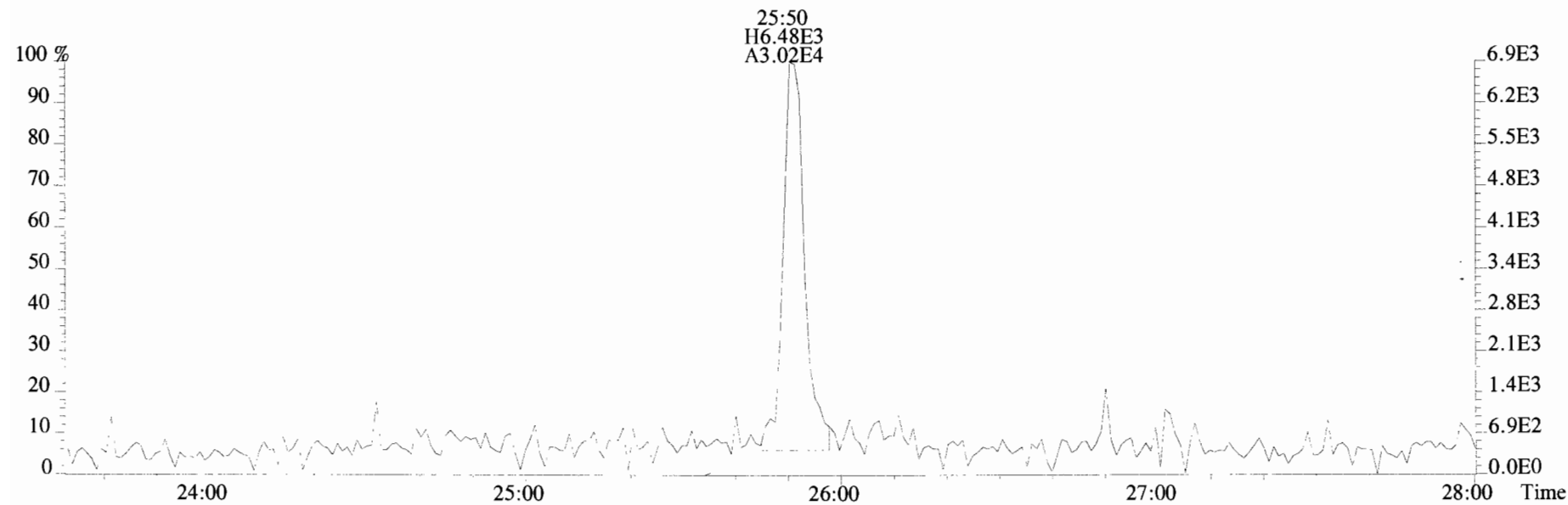
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



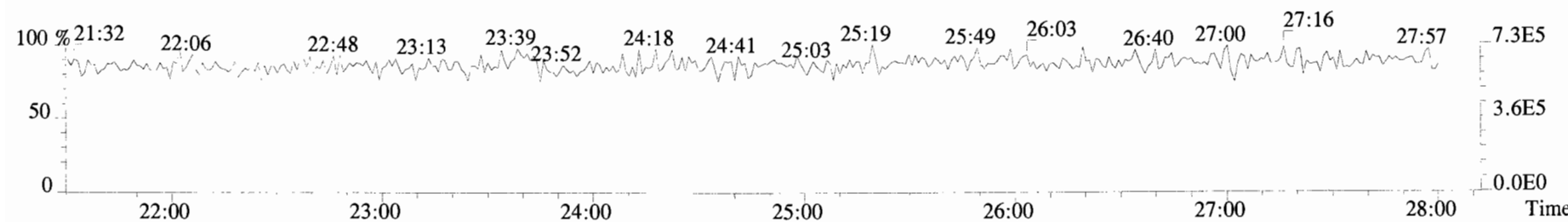
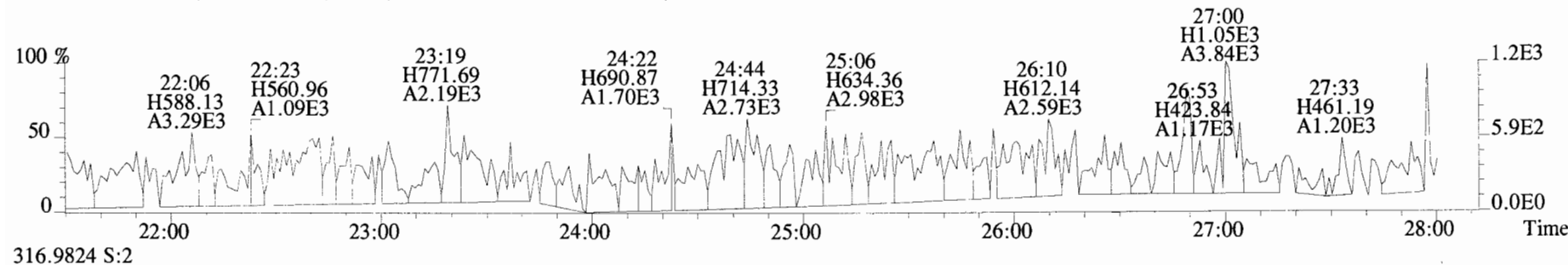
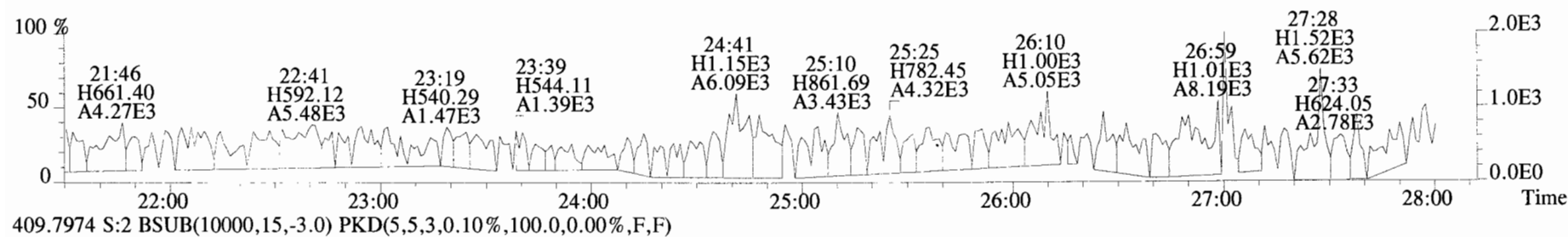
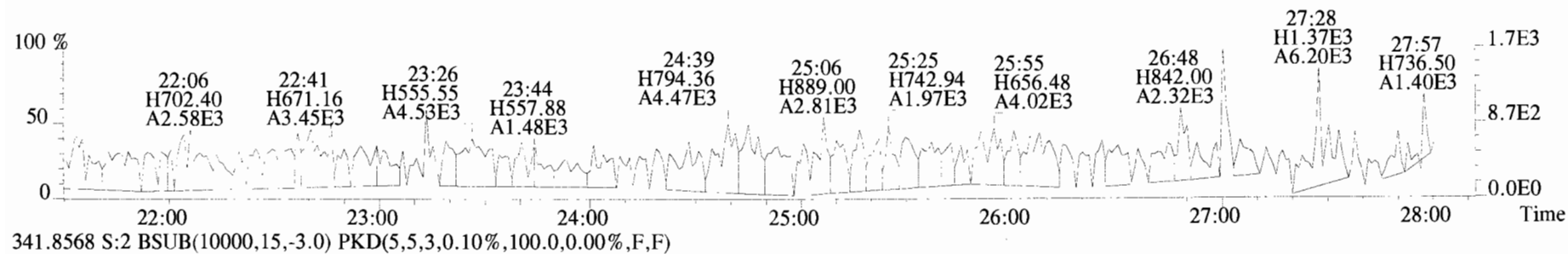
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



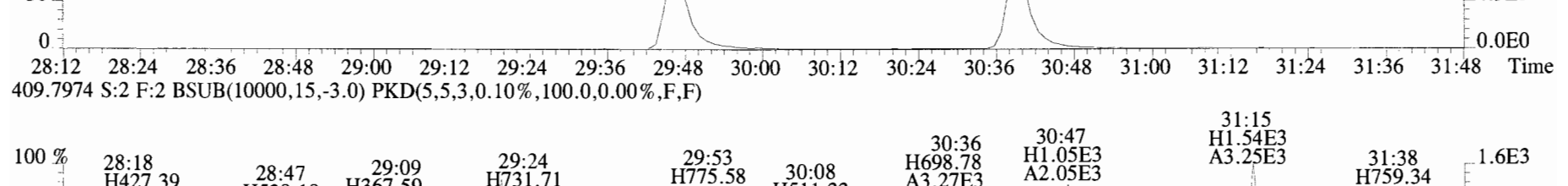
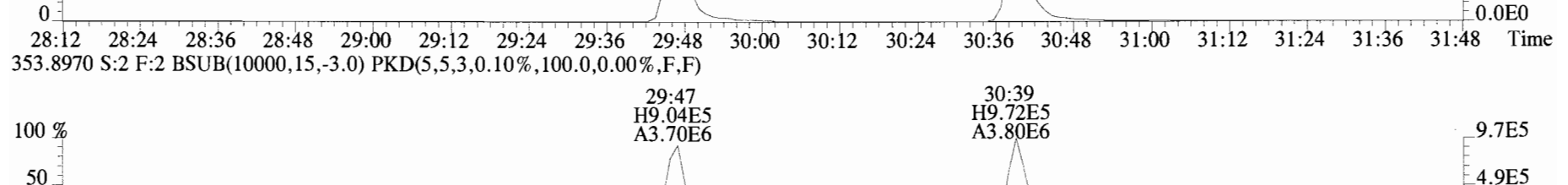
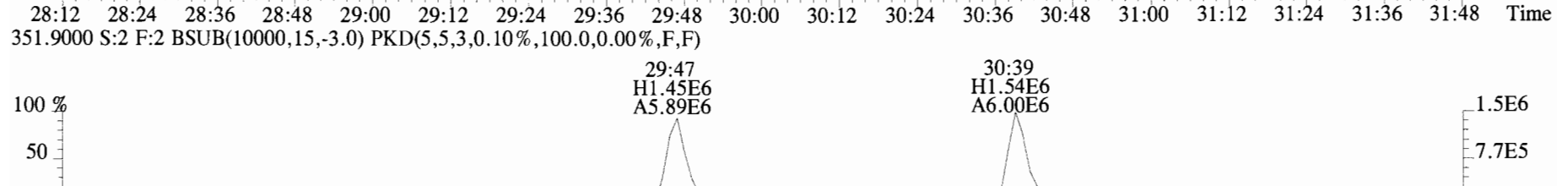
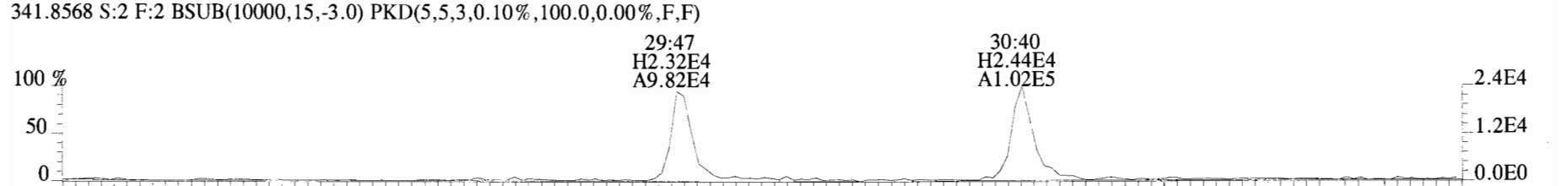
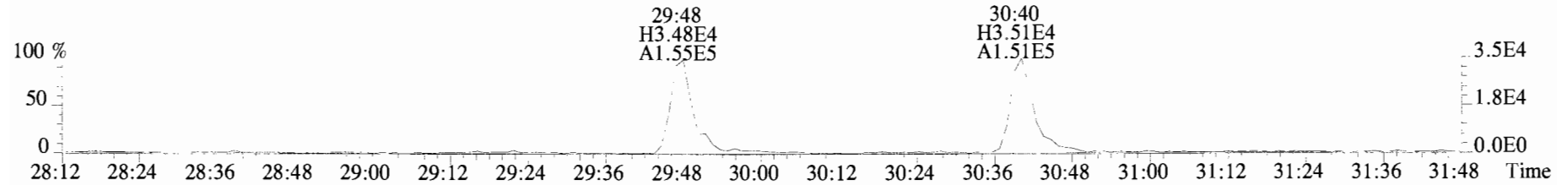
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



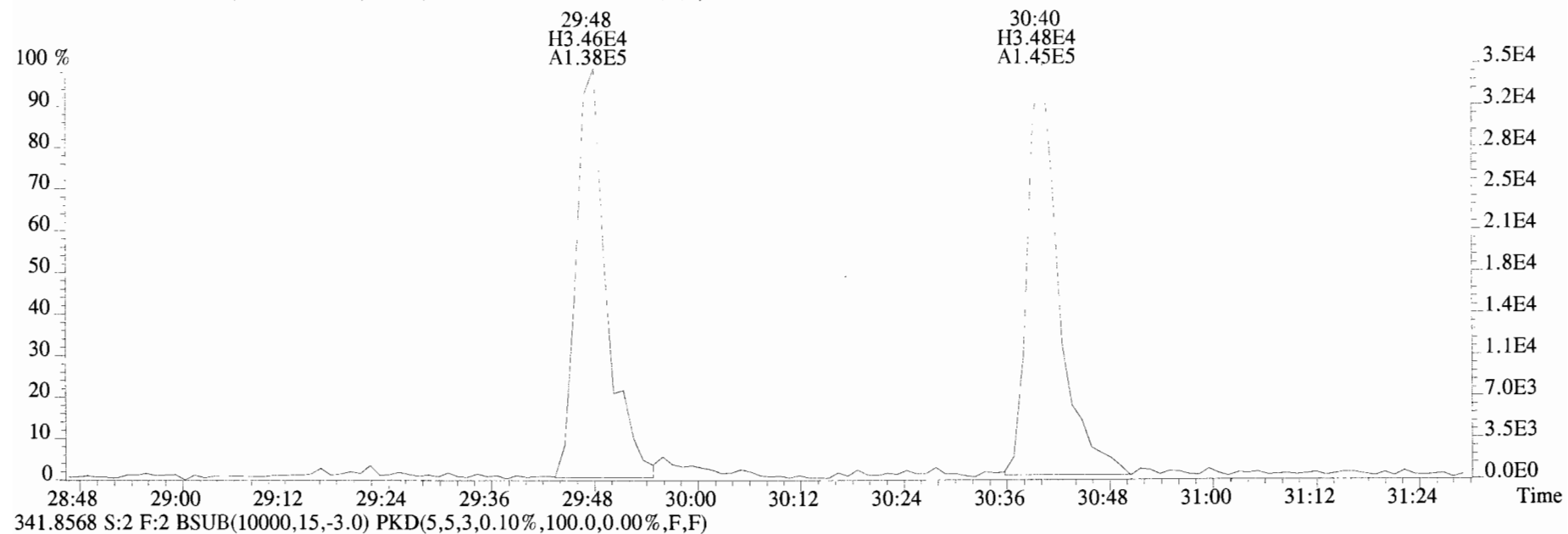
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



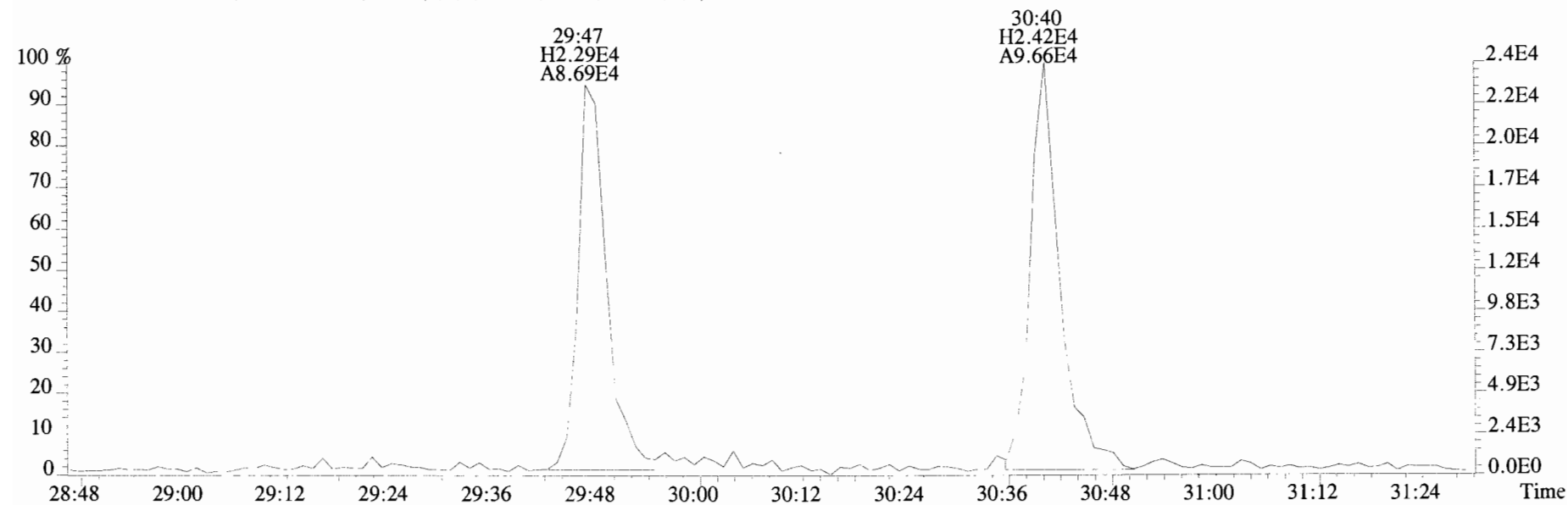
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



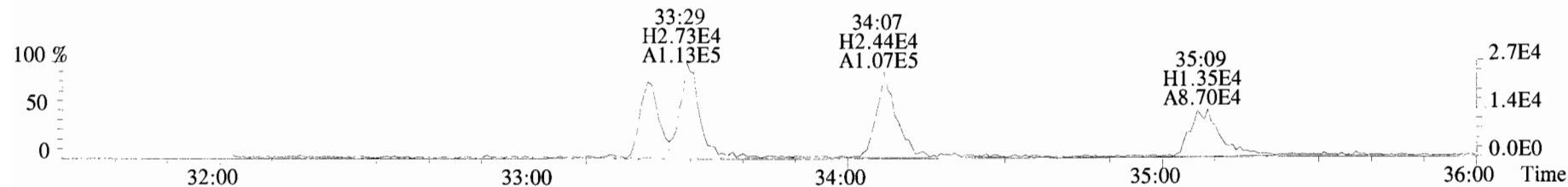
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



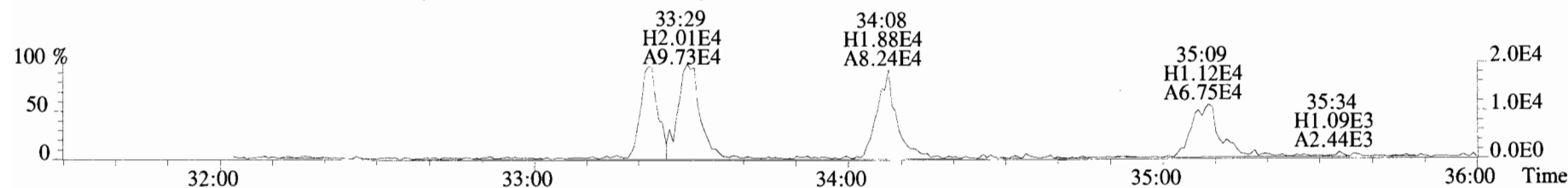
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



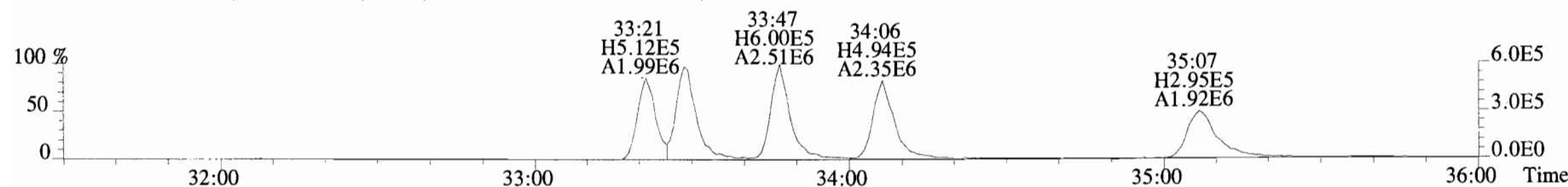
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
 373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



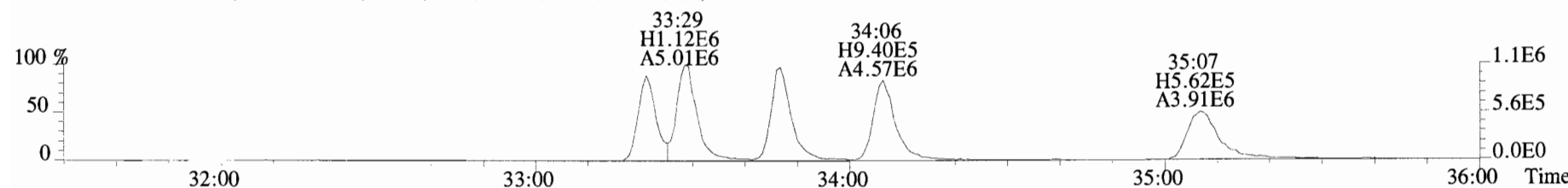
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



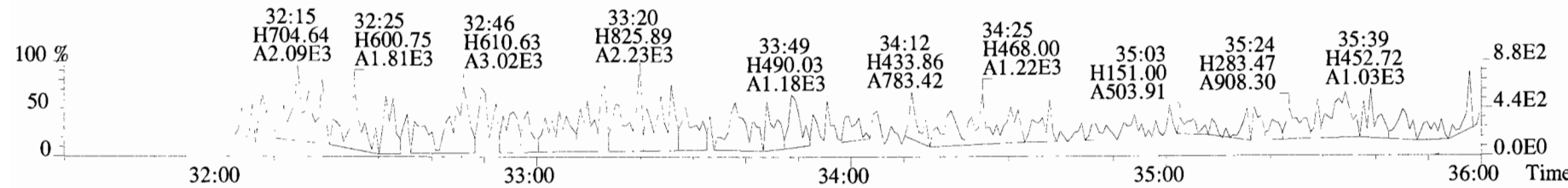
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



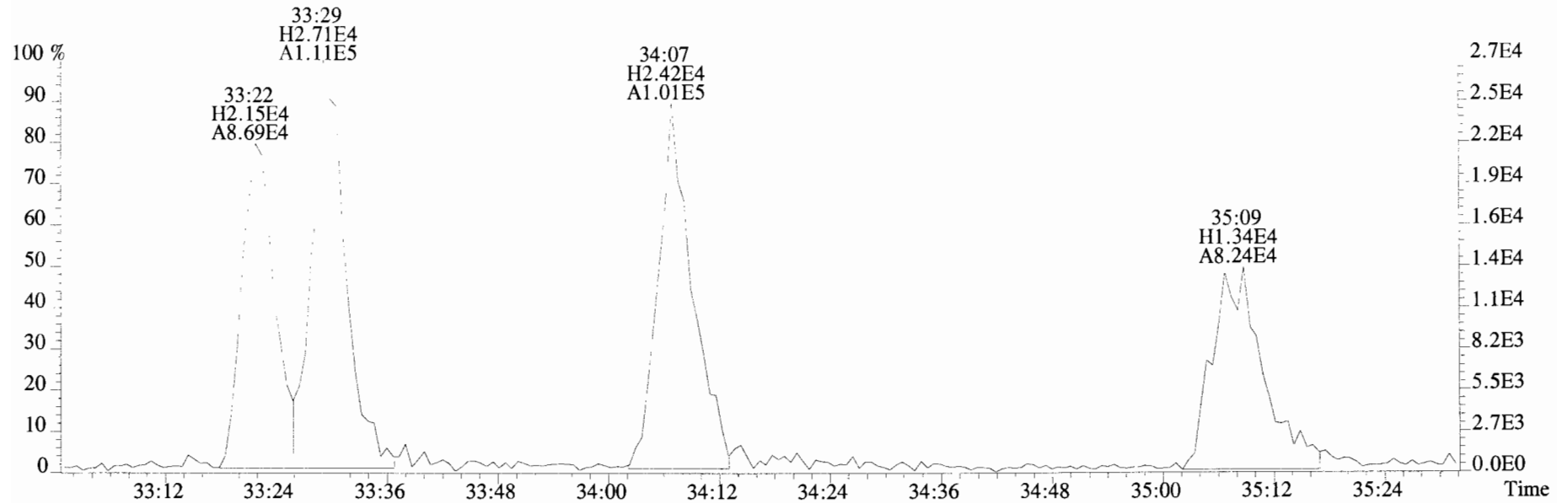
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



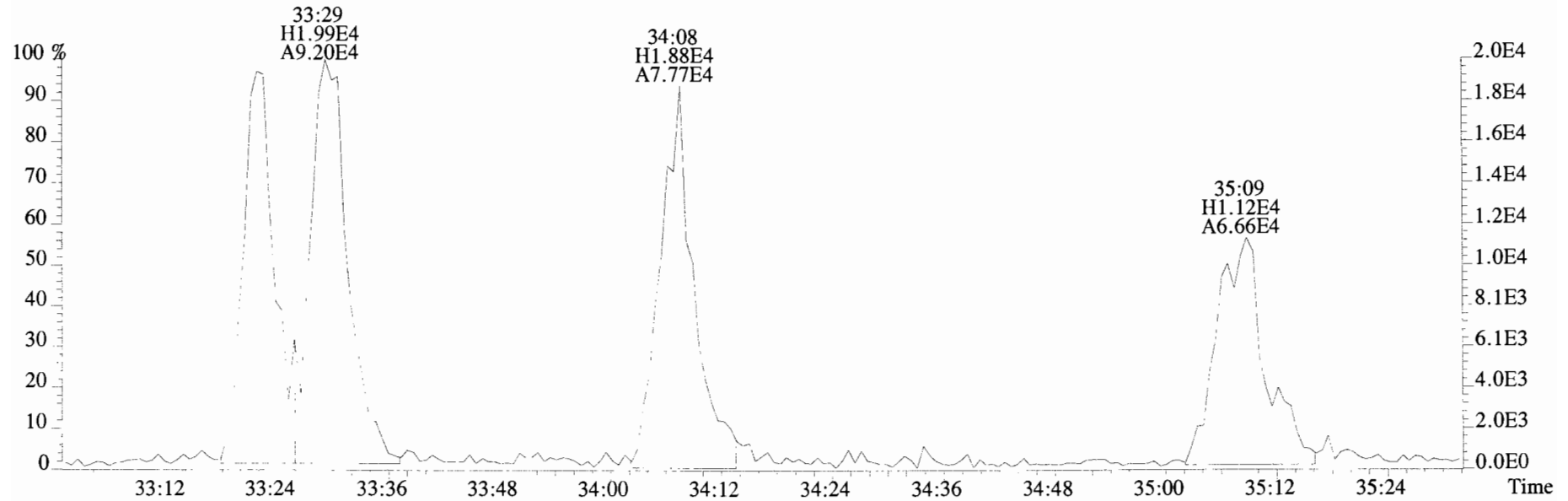
445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



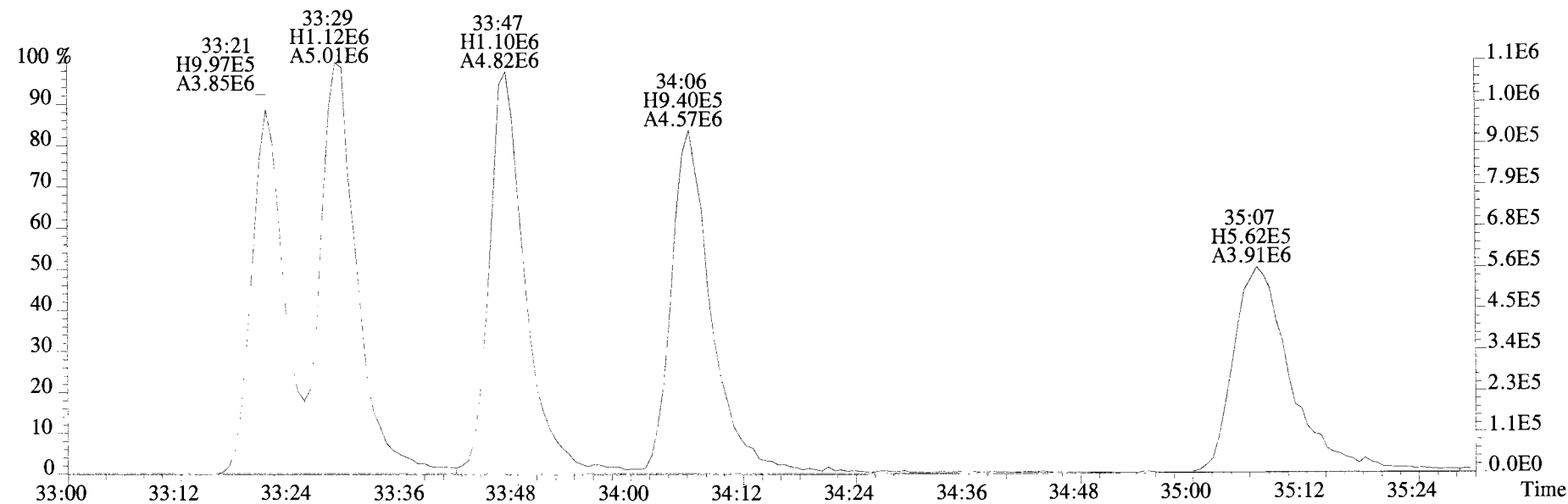
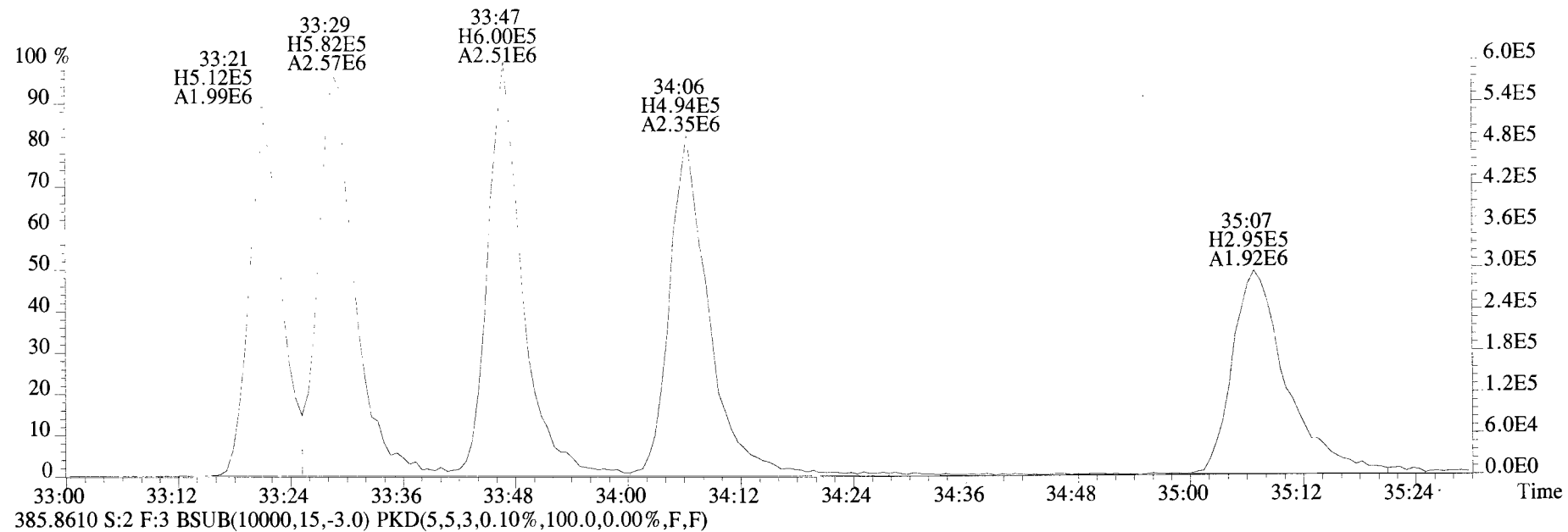
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

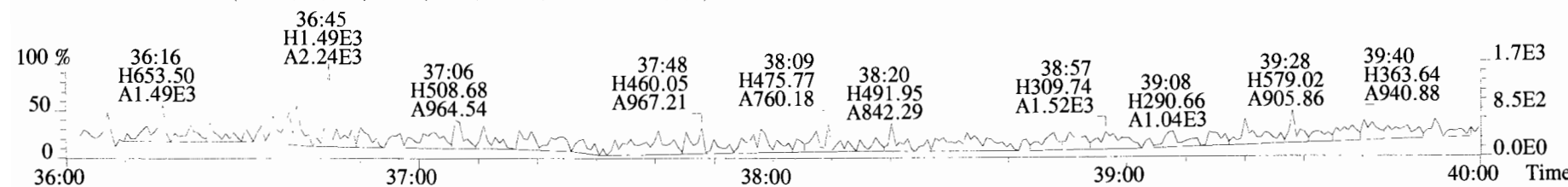
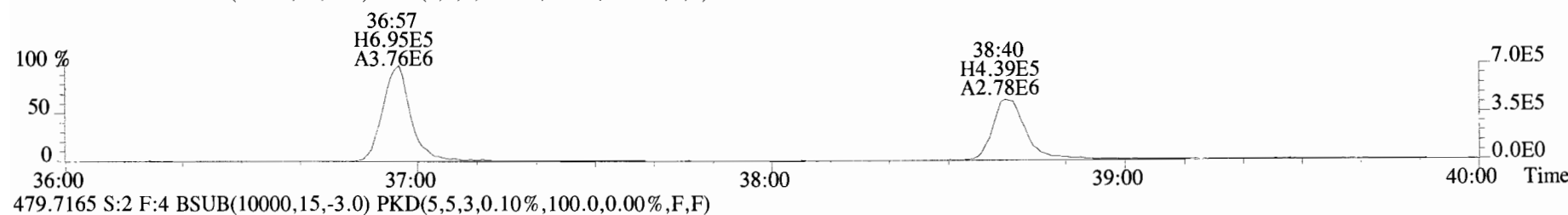
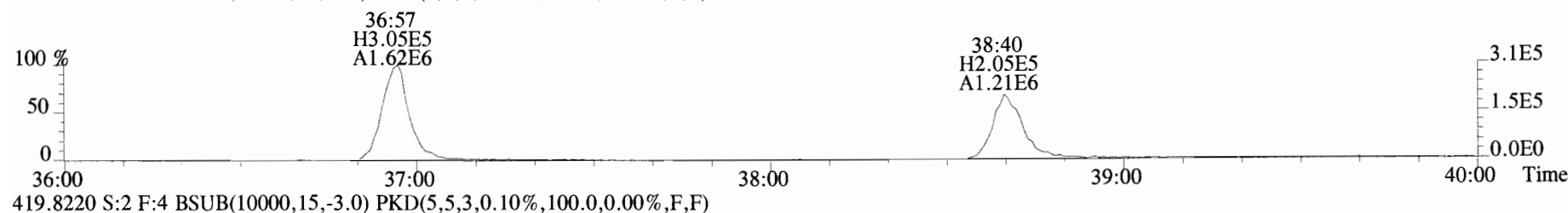
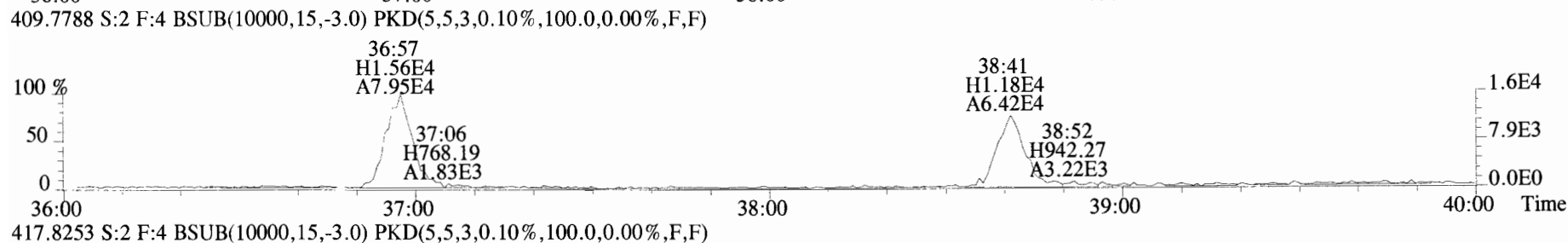
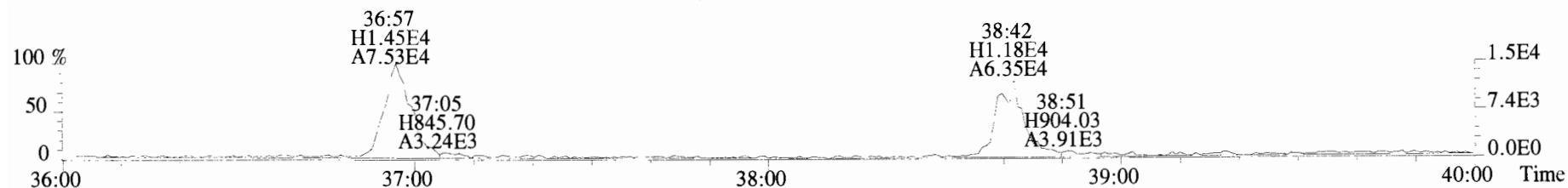


File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

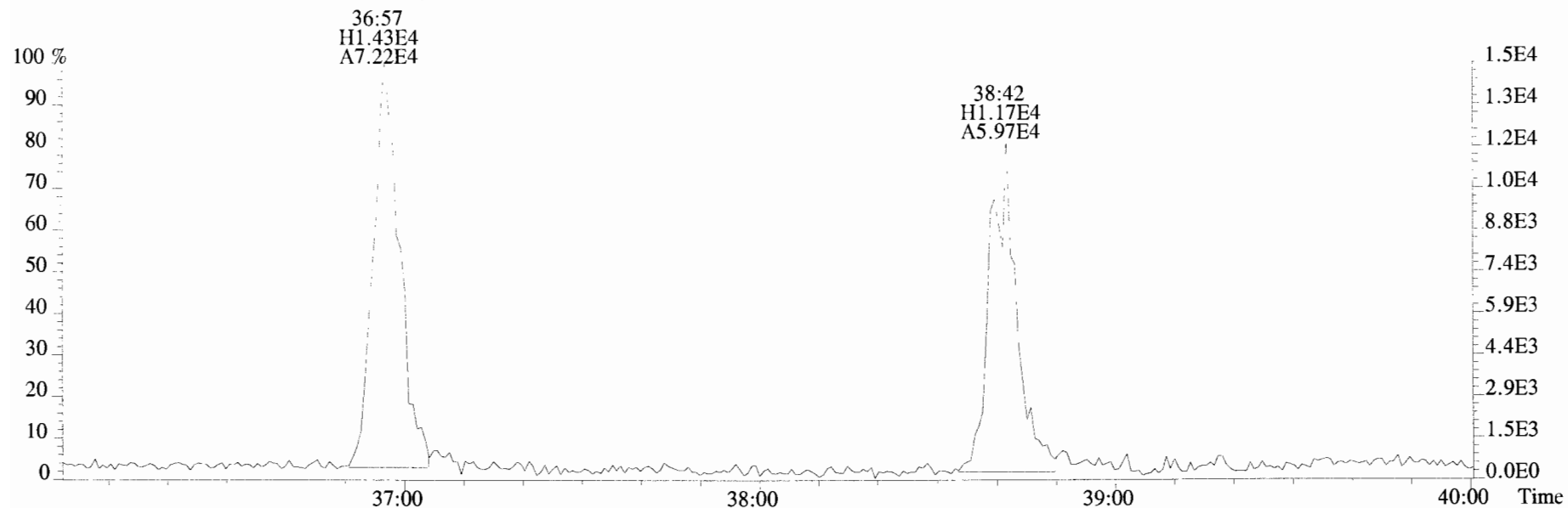




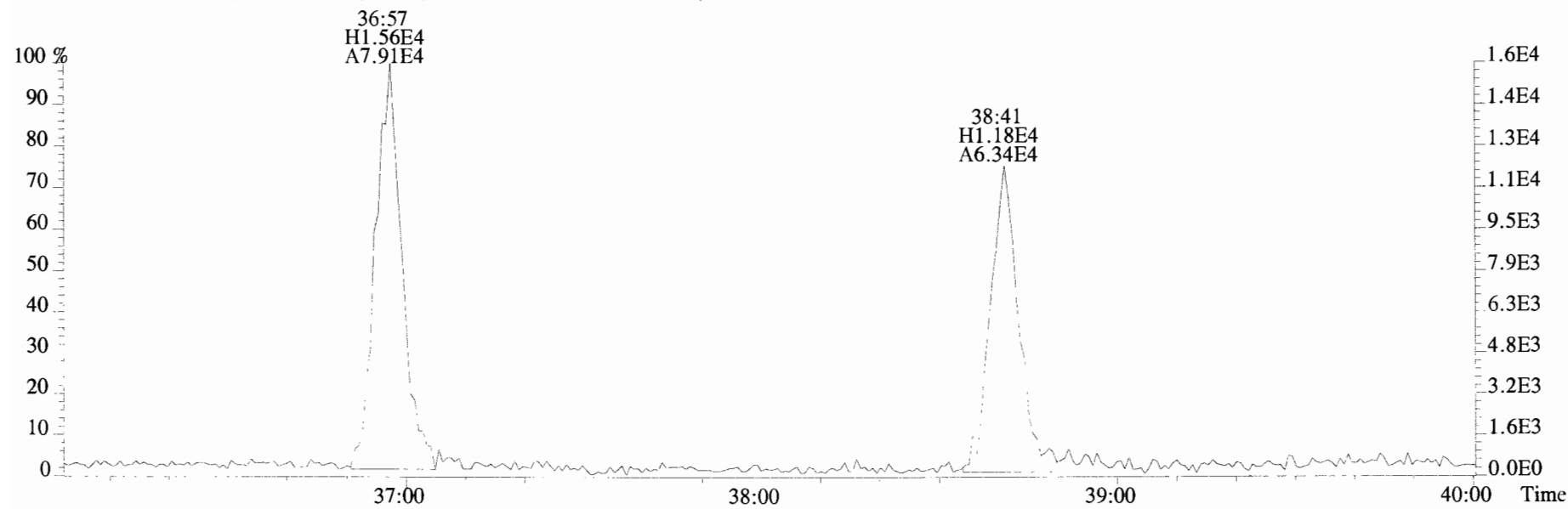
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



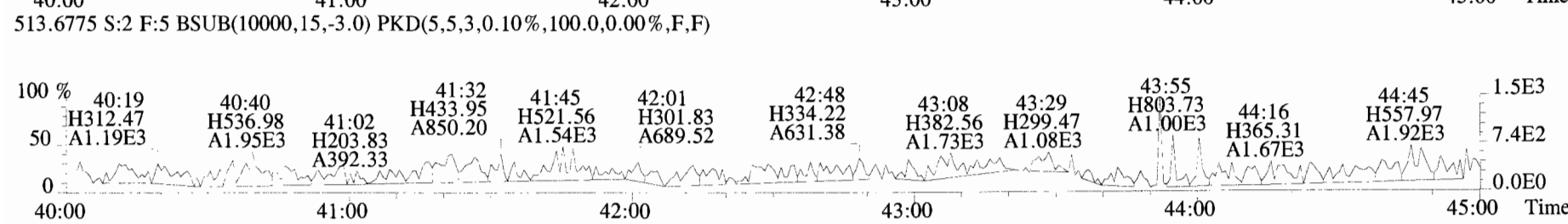
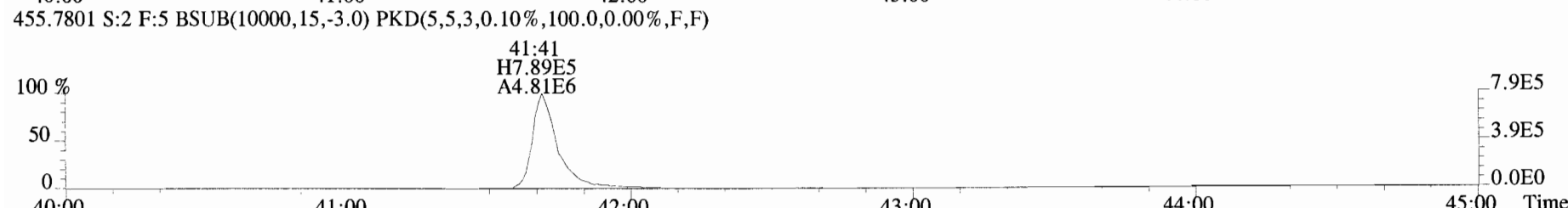
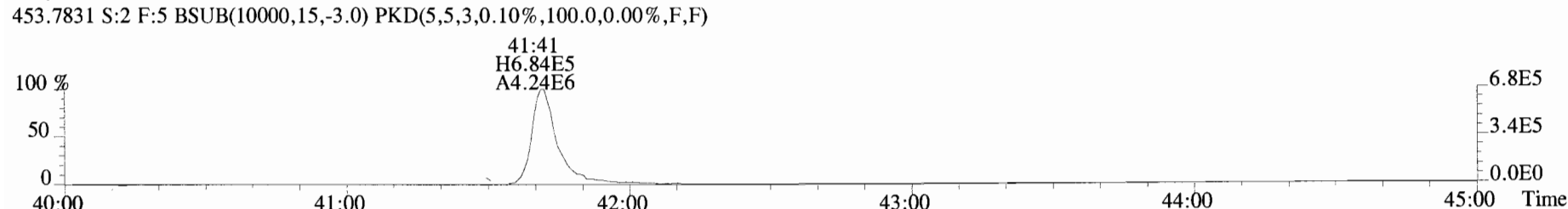
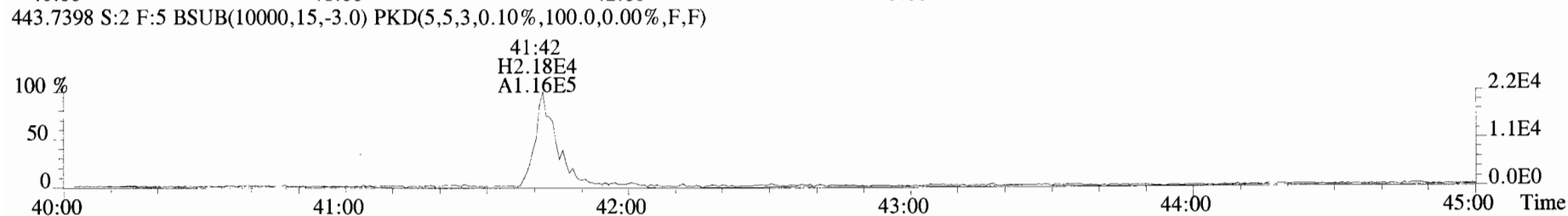
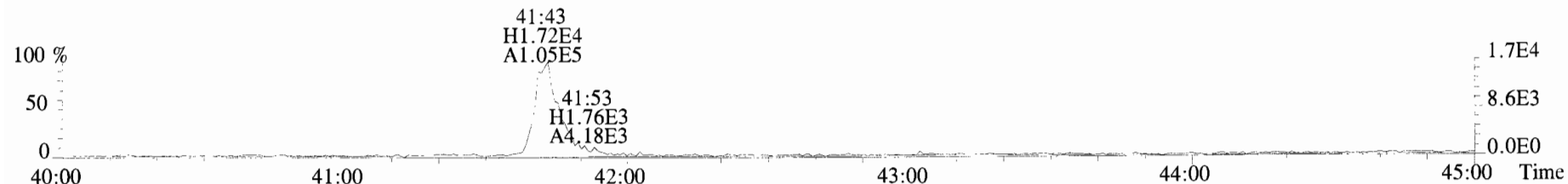
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



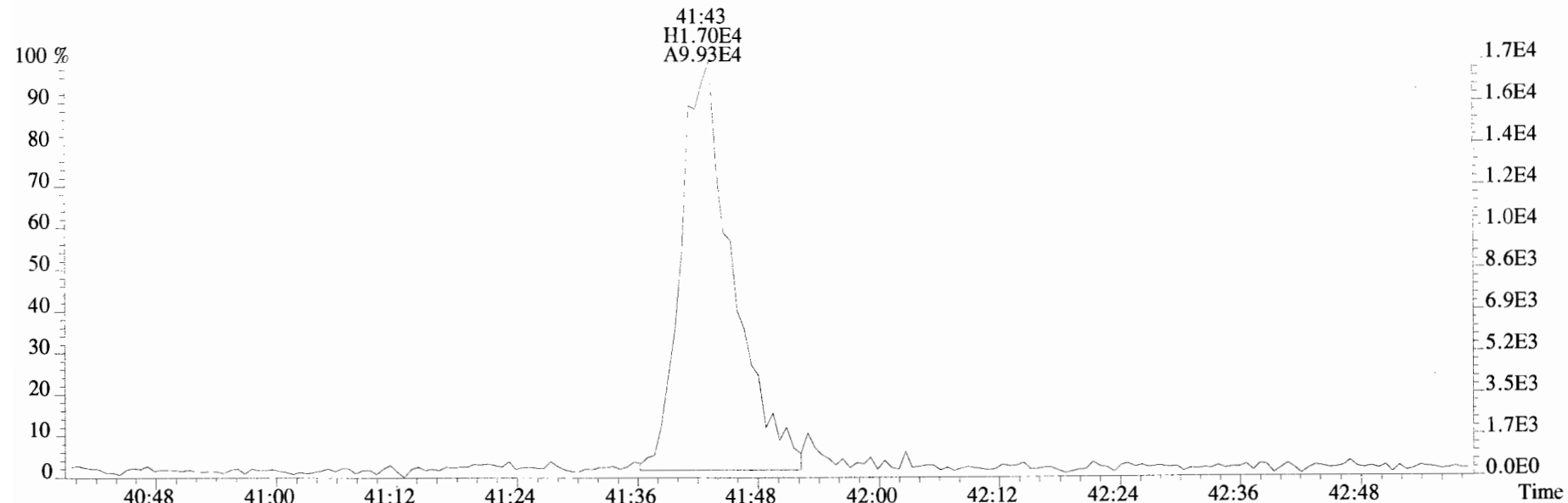
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



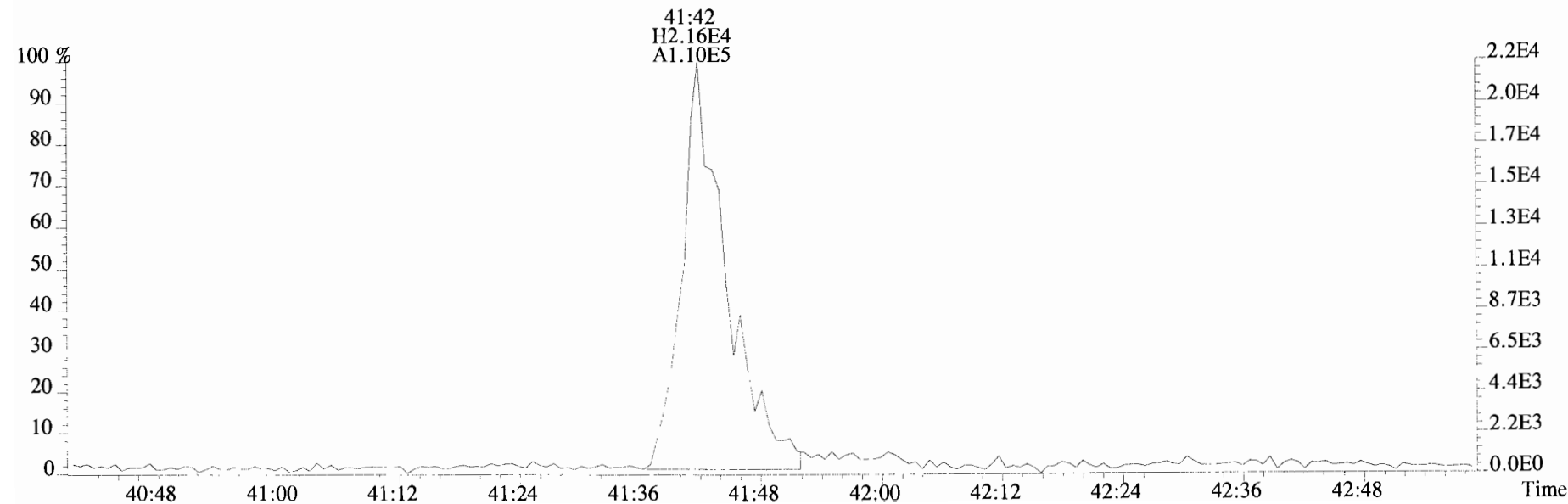
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



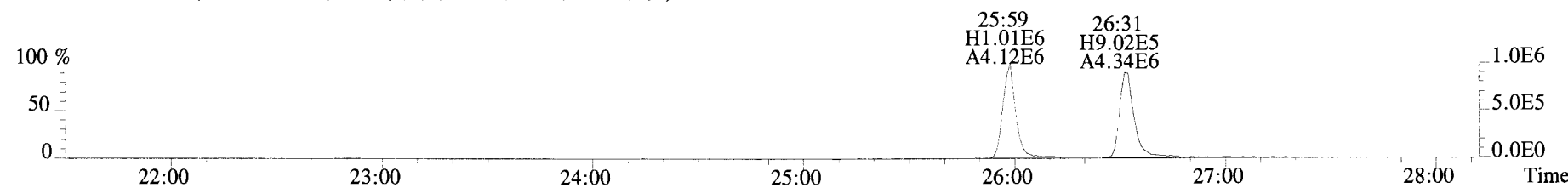
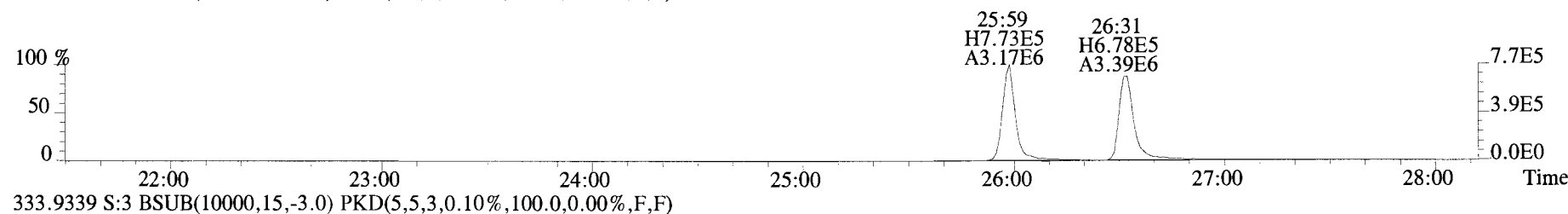
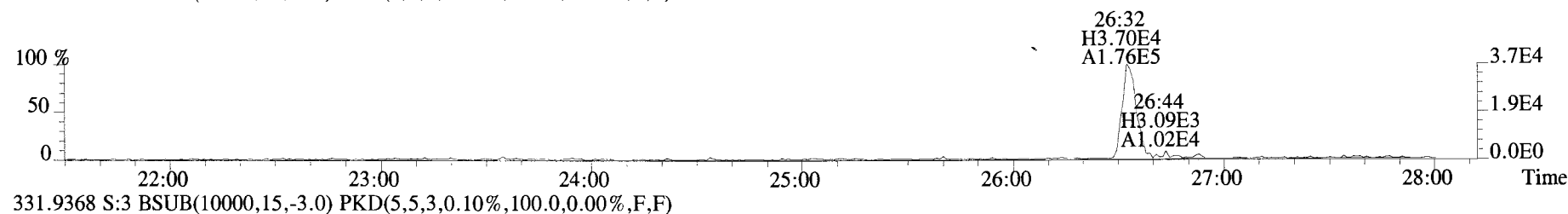
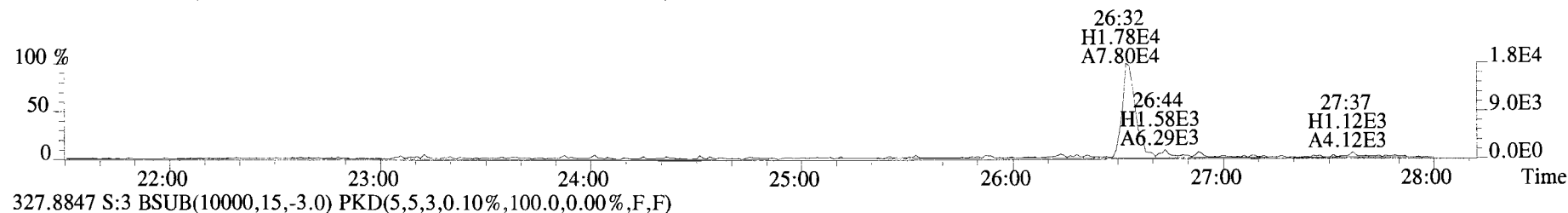
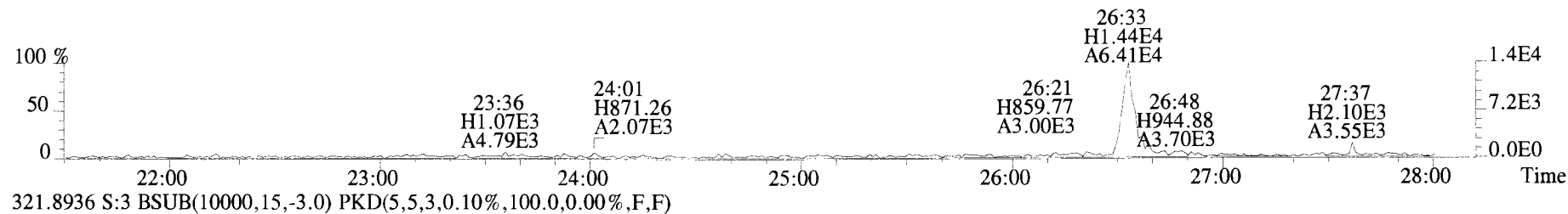
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#2 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD\_DB5  
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



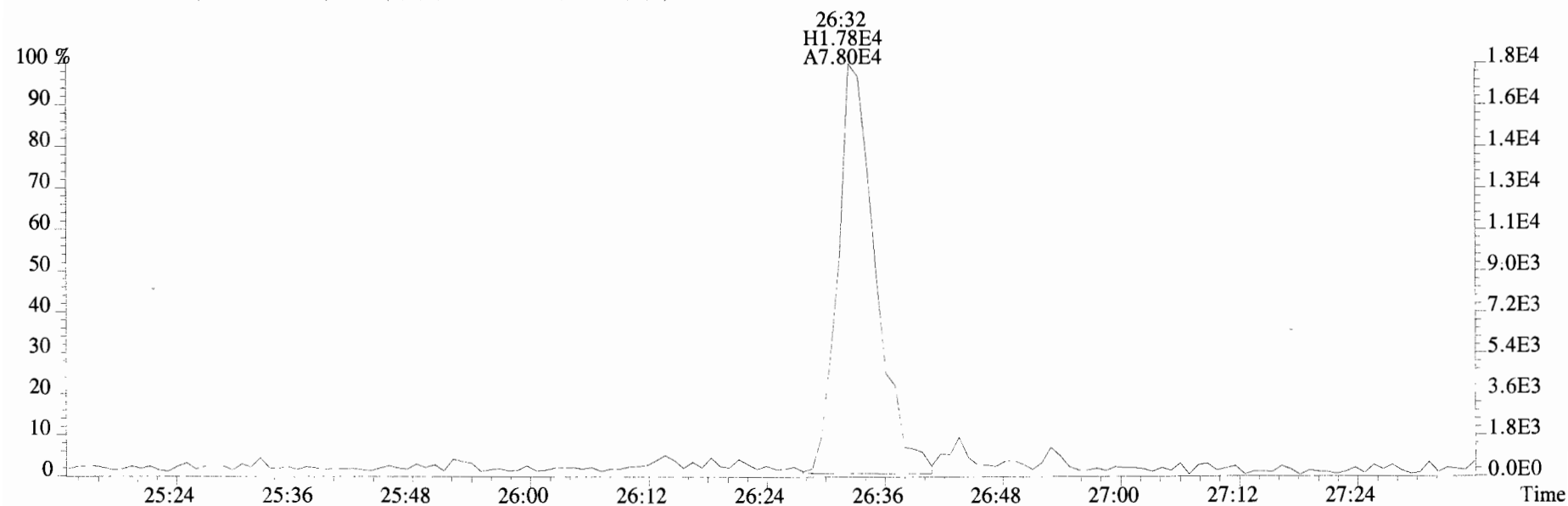
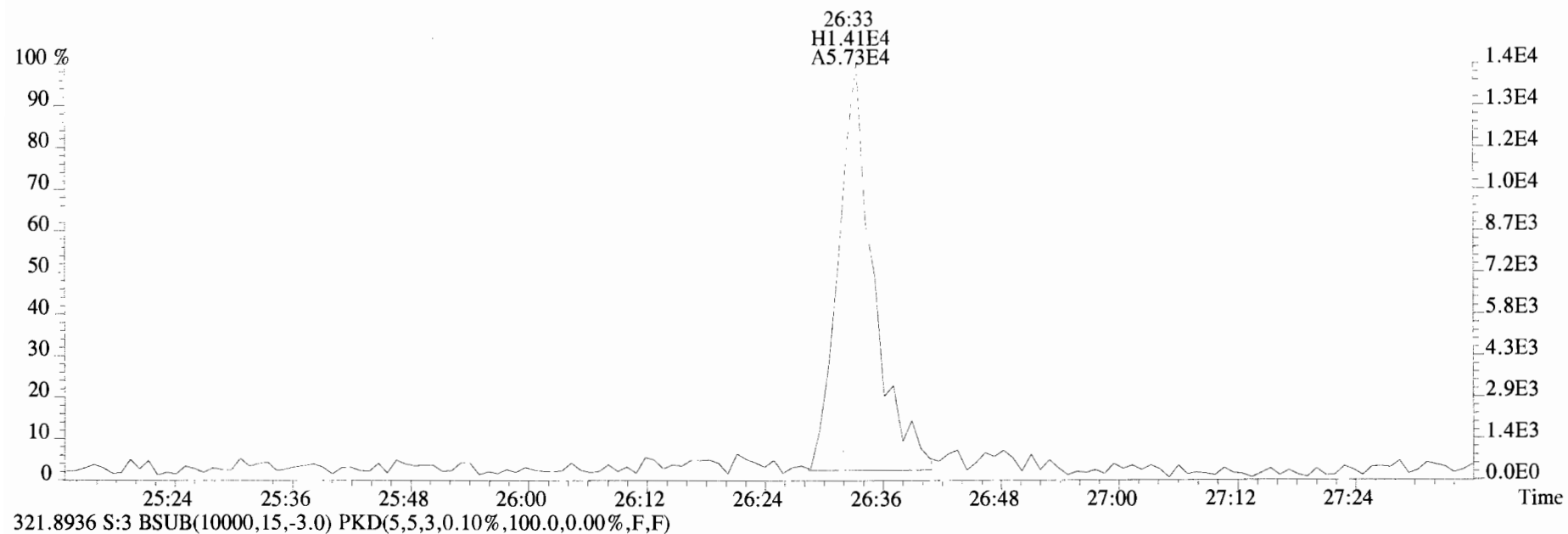
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



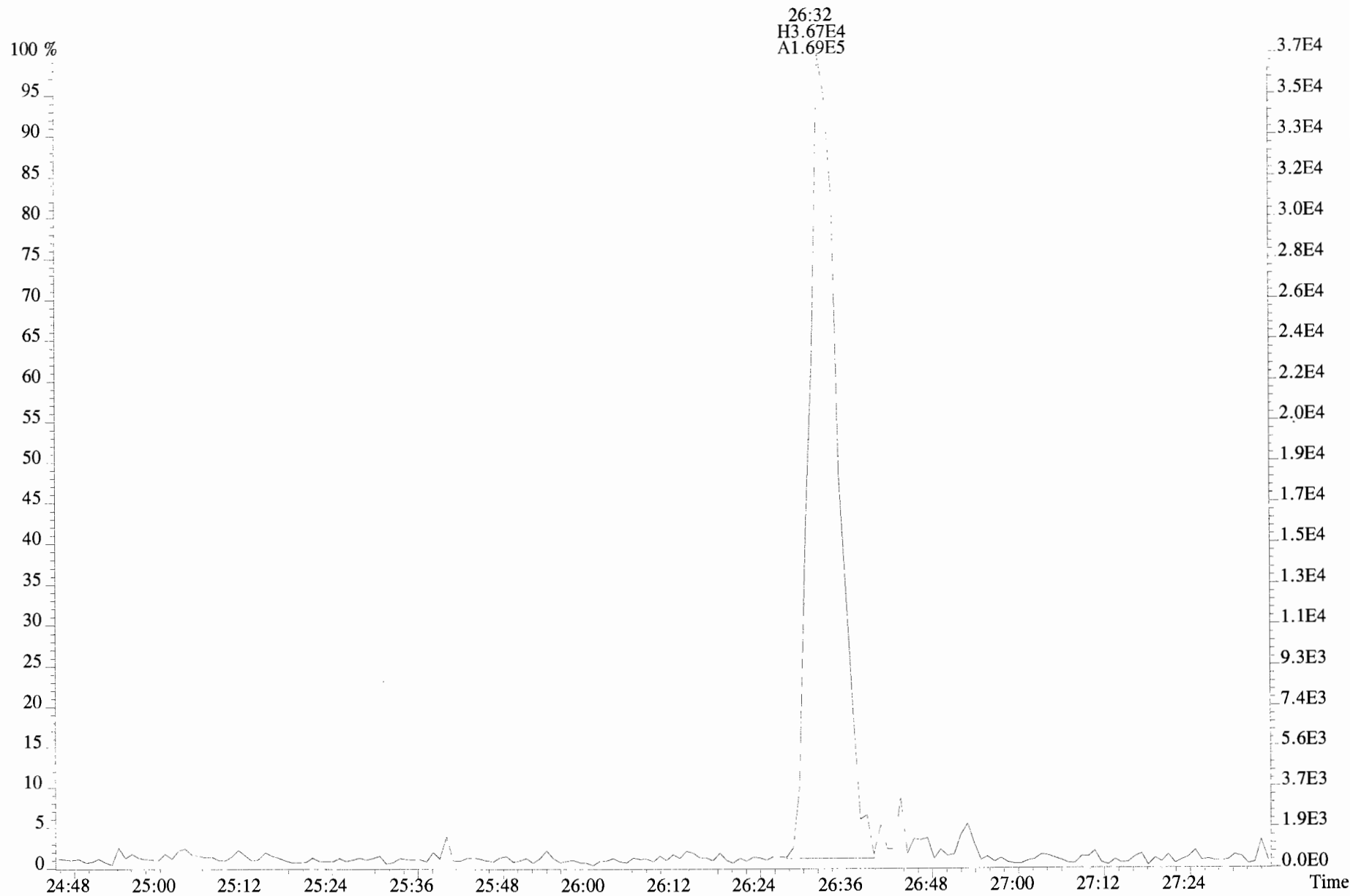
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



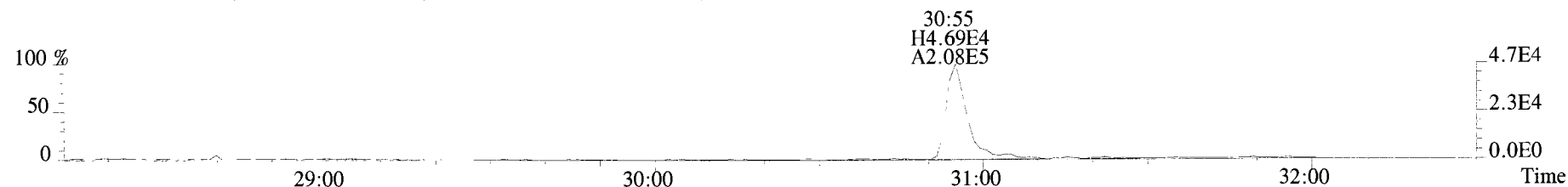
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



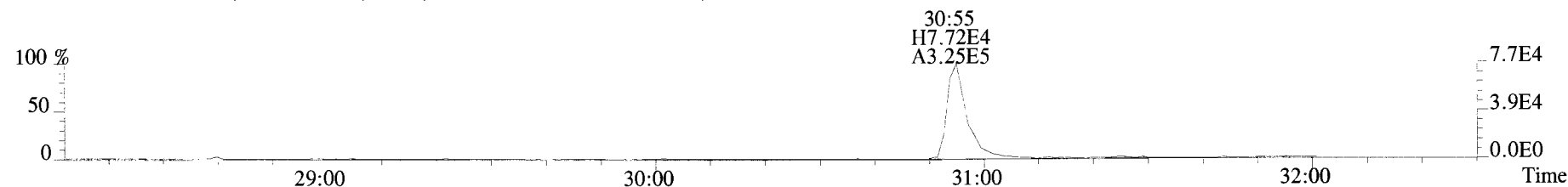
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



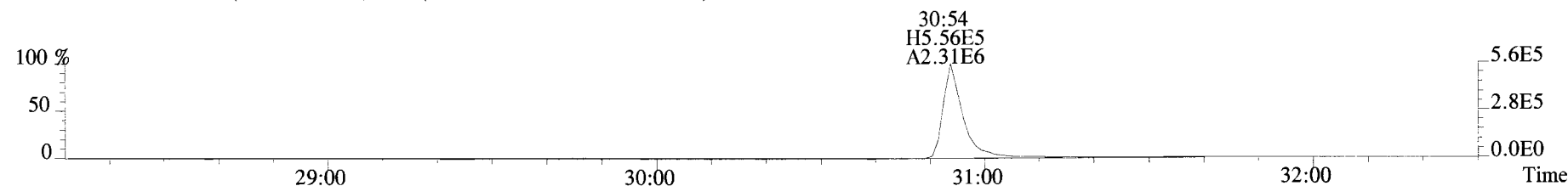
File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



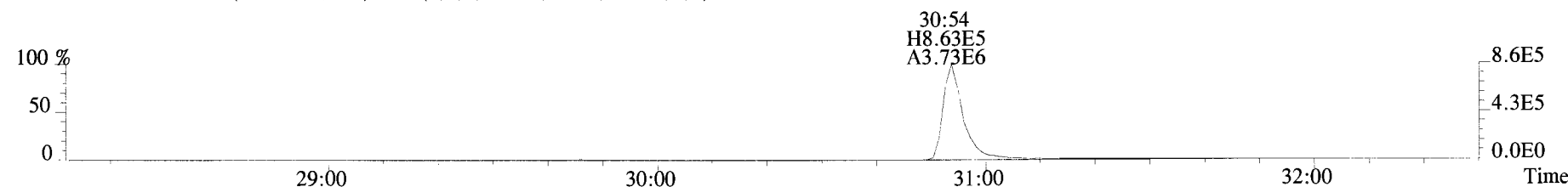
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



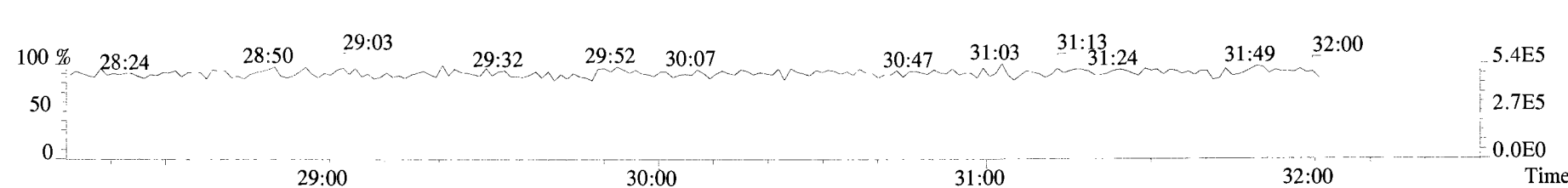
365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

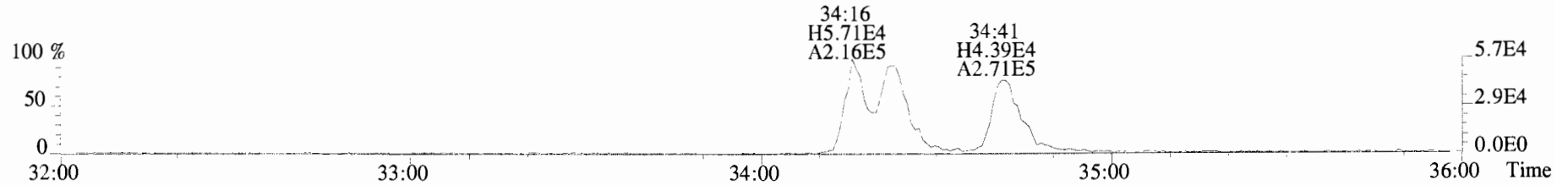


366.9792 S:3 F:2

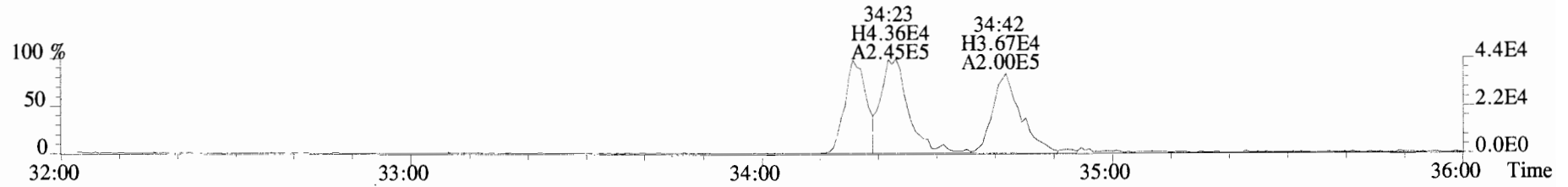




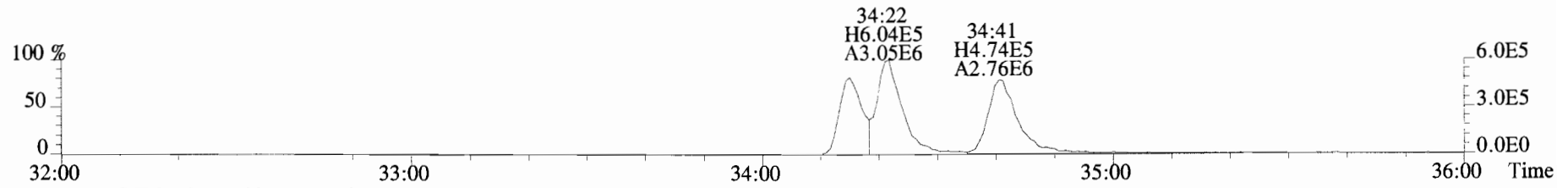
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



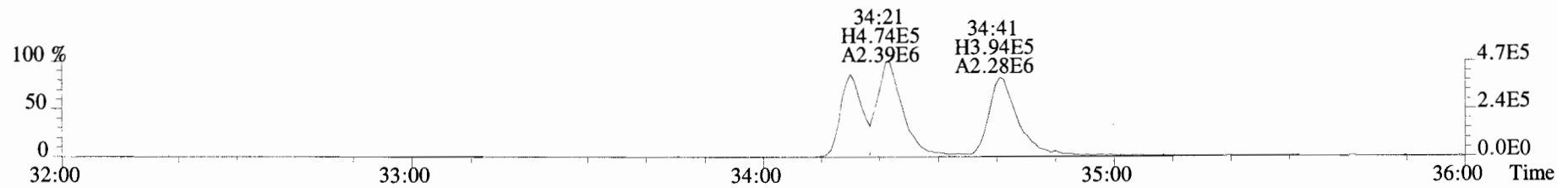
391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



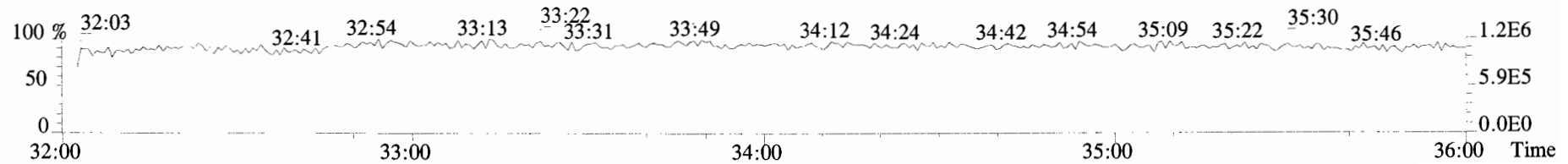
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



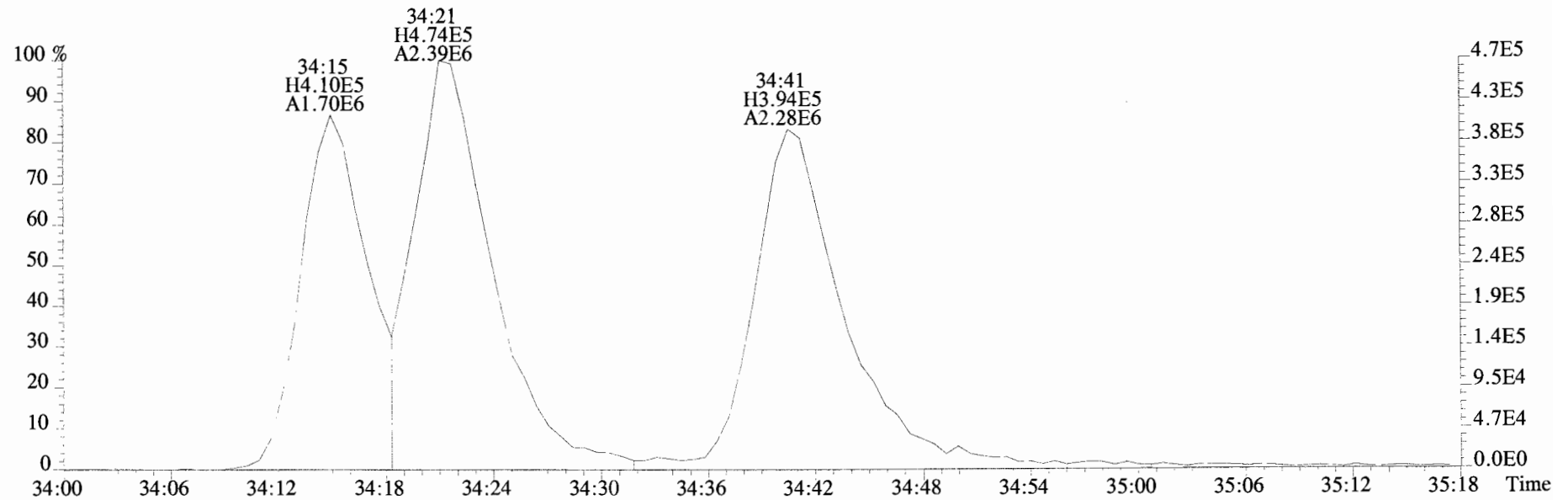
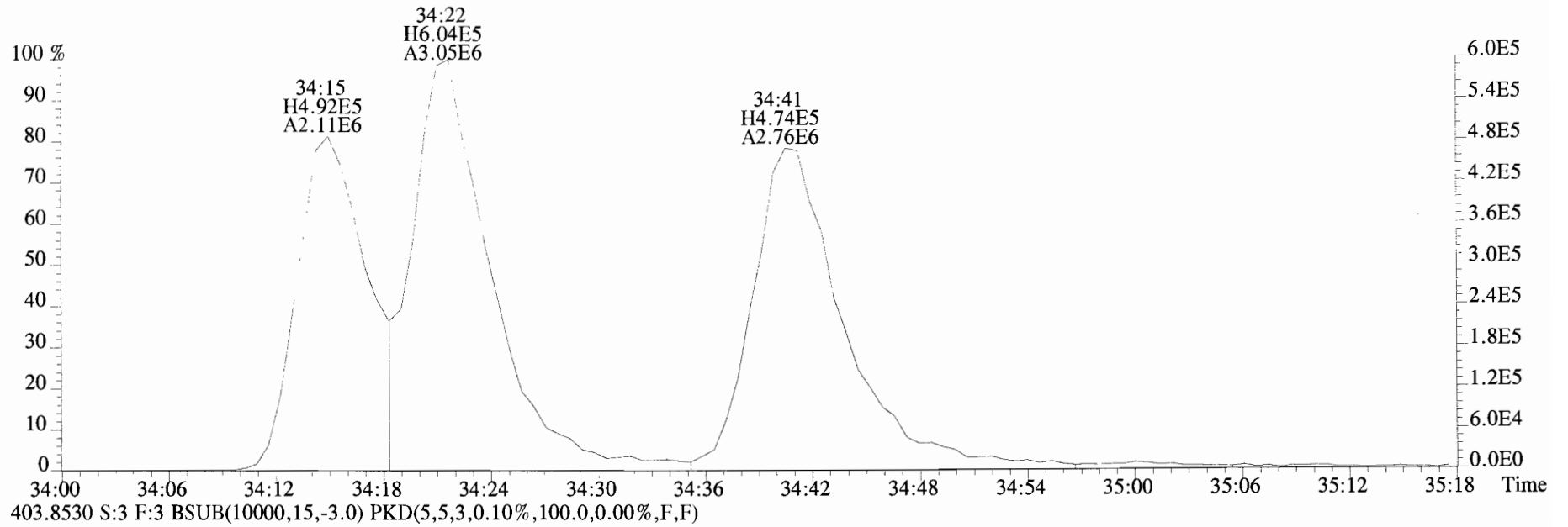
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



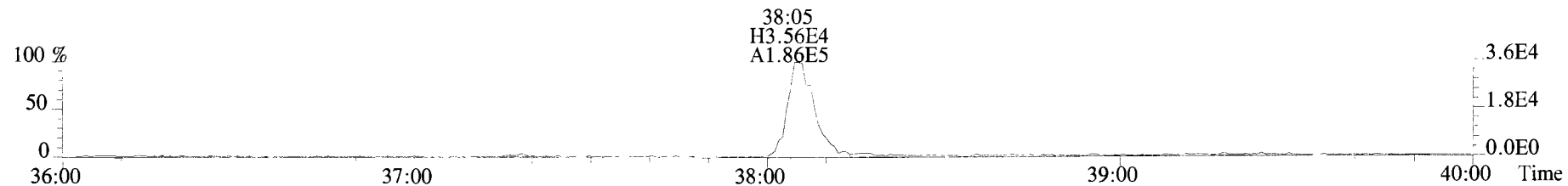
392.9760 S:3 F:3



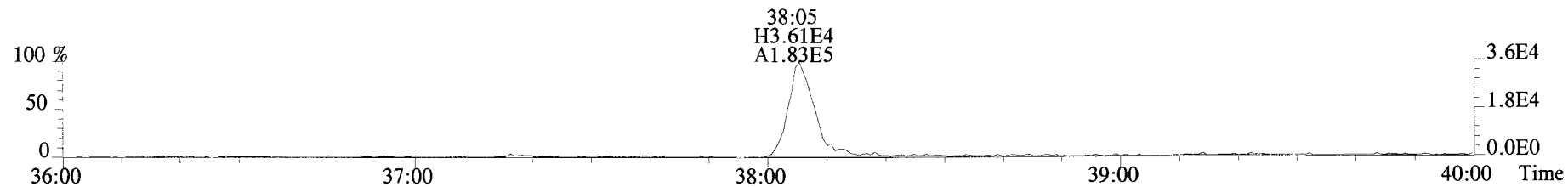
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text: Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



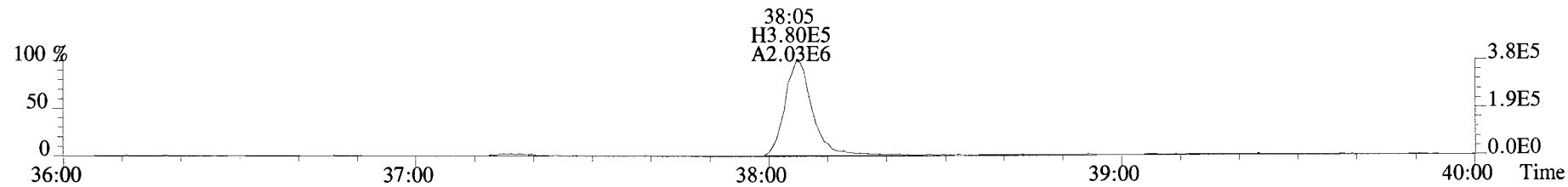
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



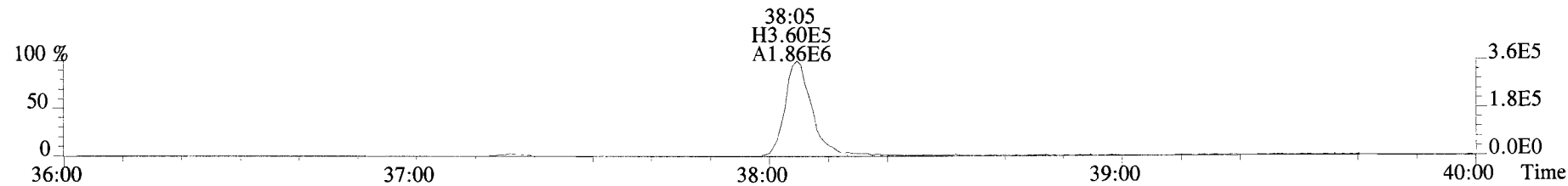
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



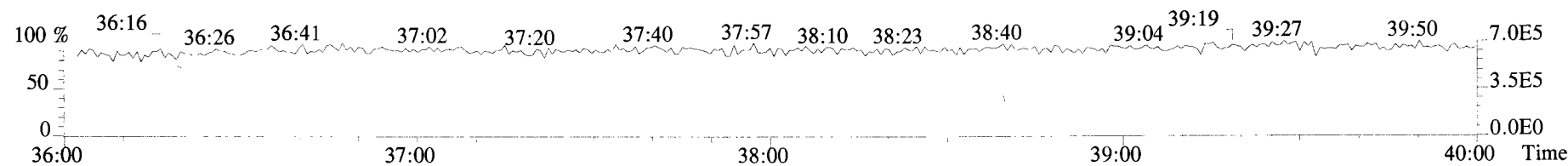
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



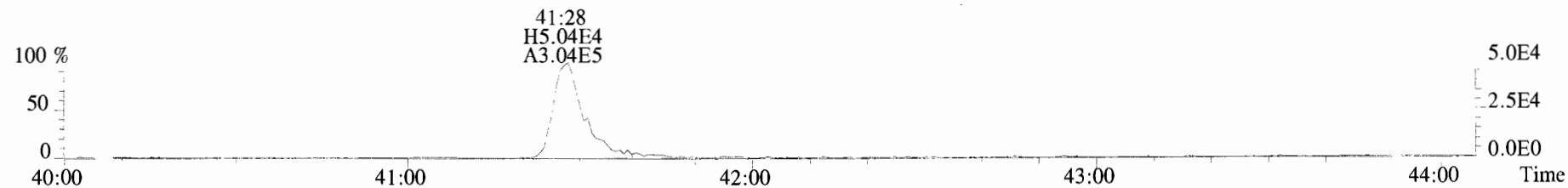
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



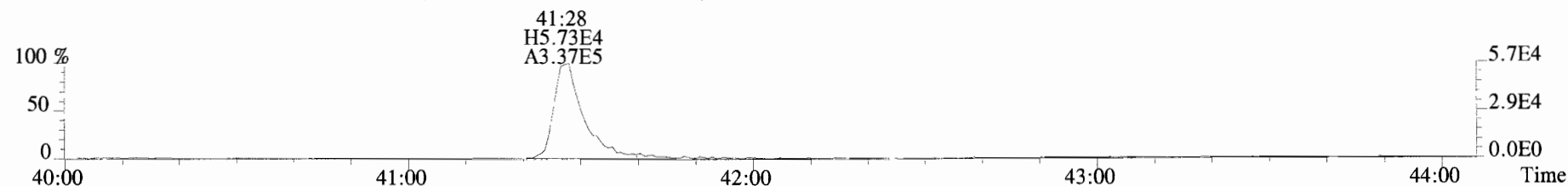
454.9728 S:3 F:4



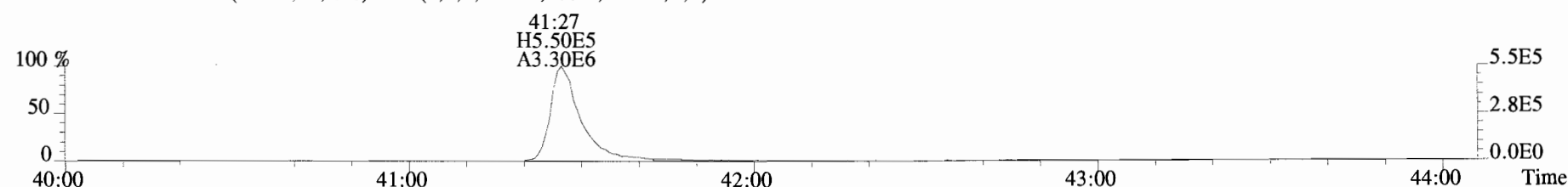
File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



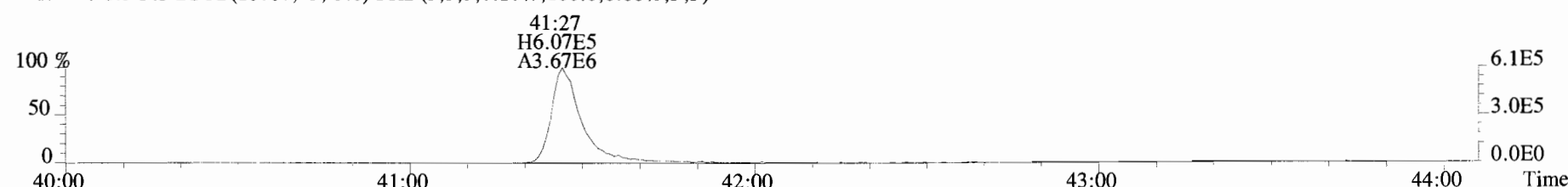
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



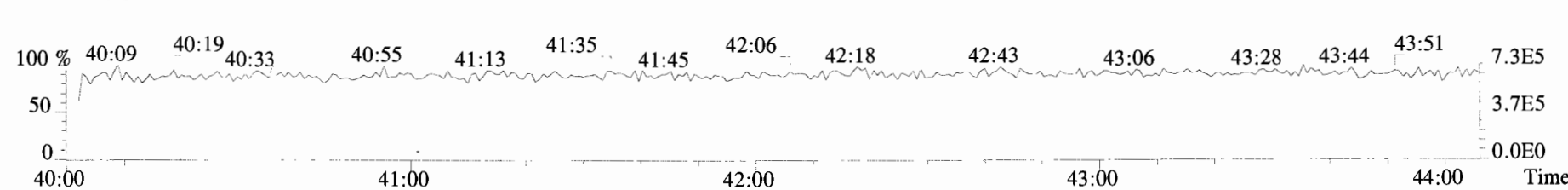
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



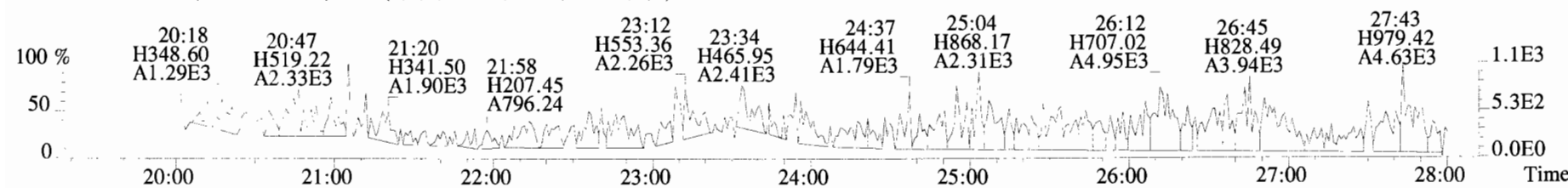
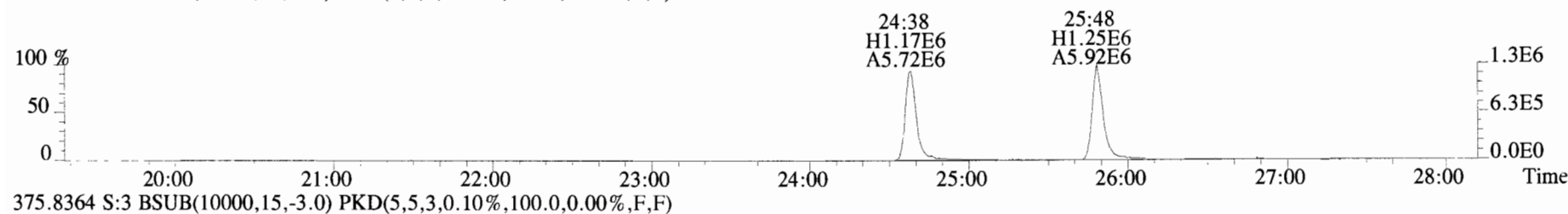
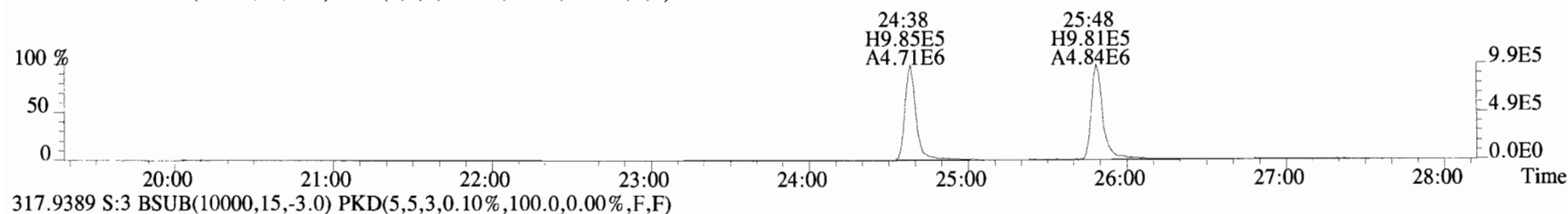
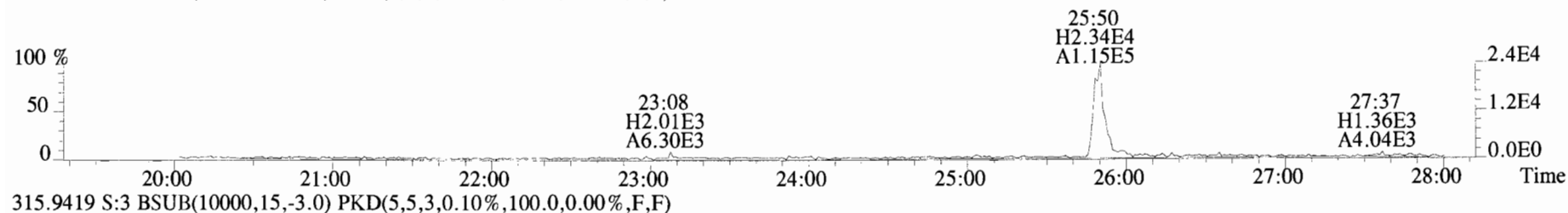
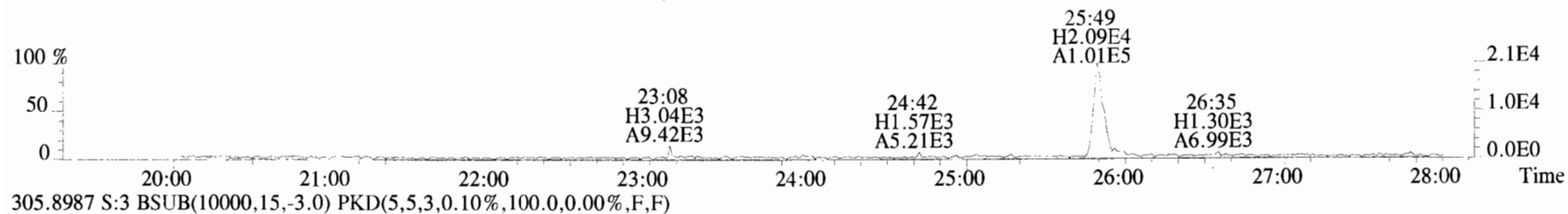
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



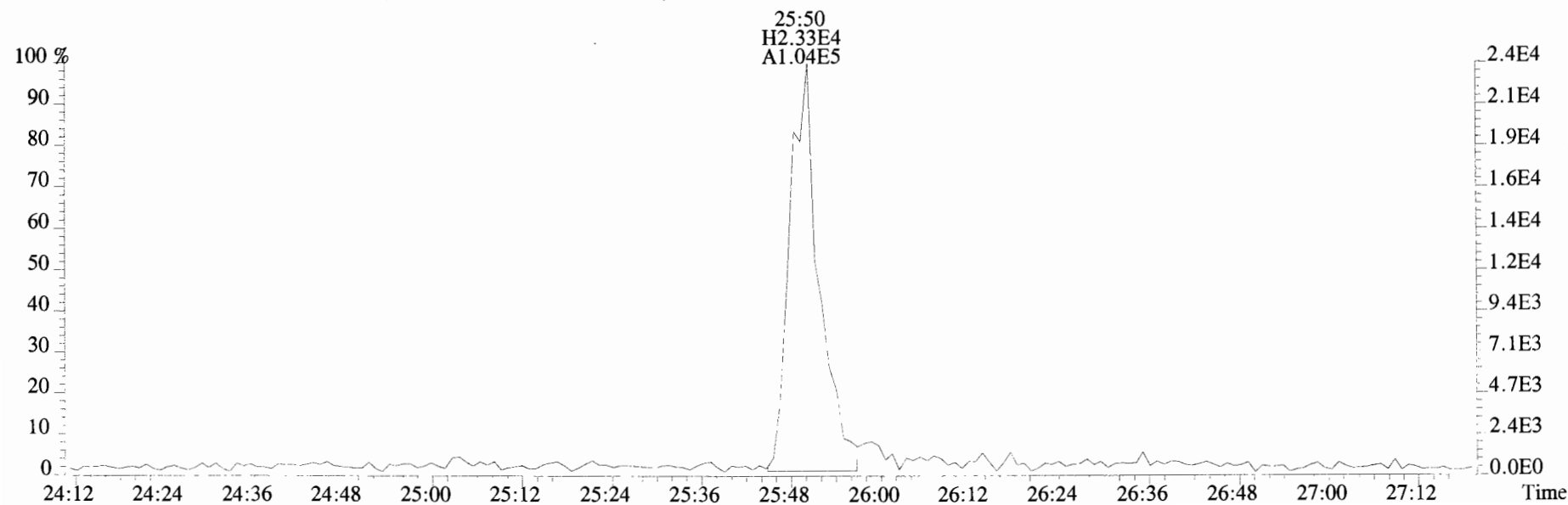
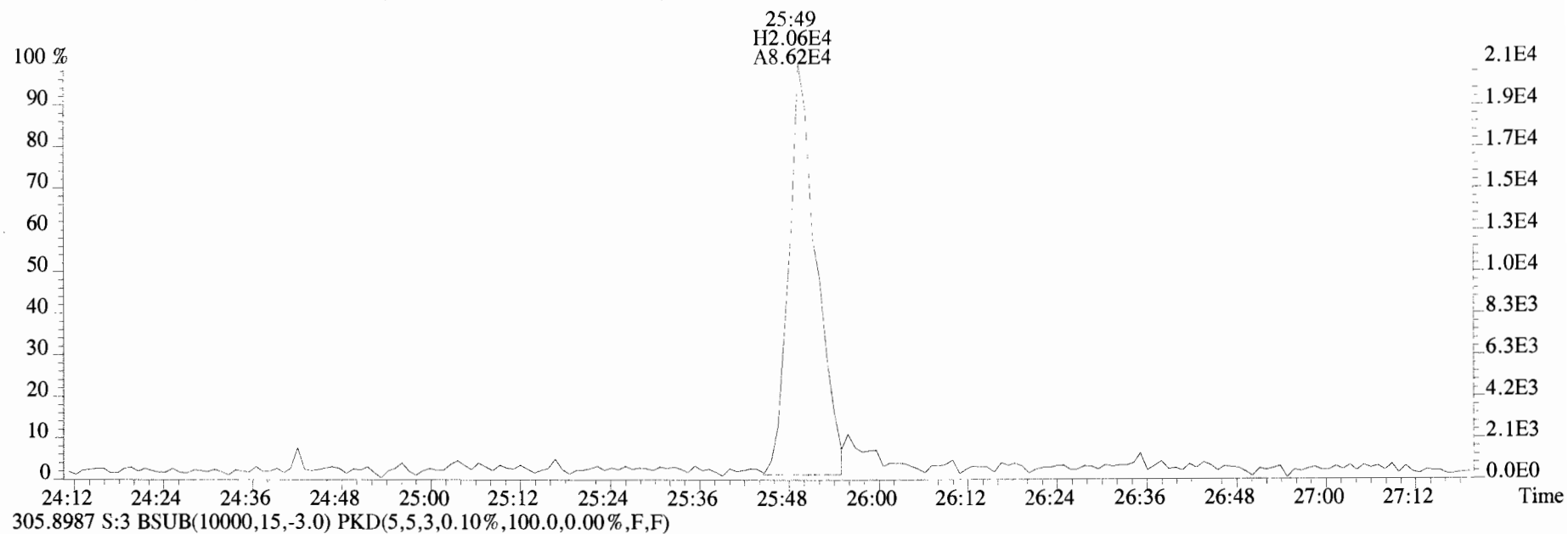
454.9728 S:3 F:5



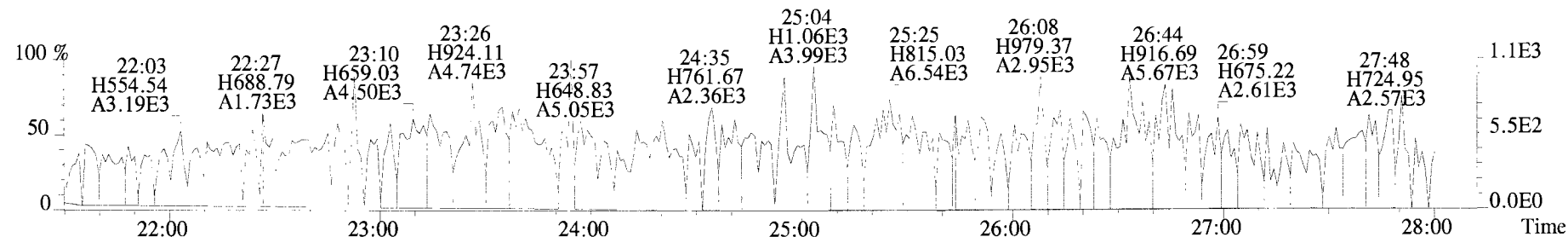
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



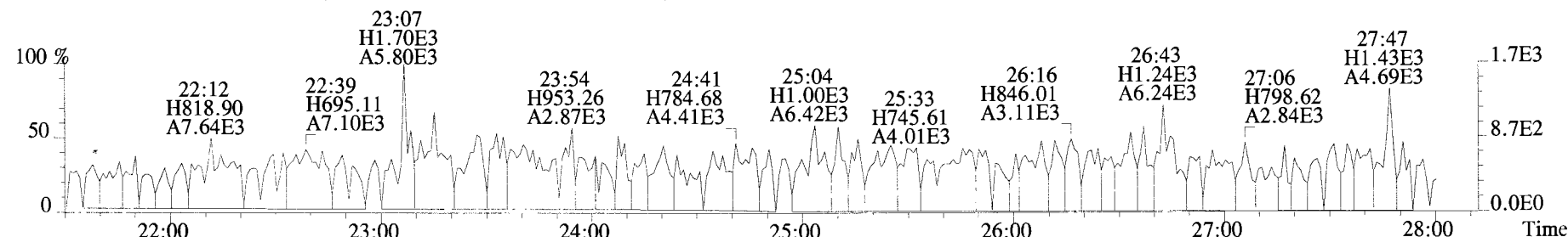
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



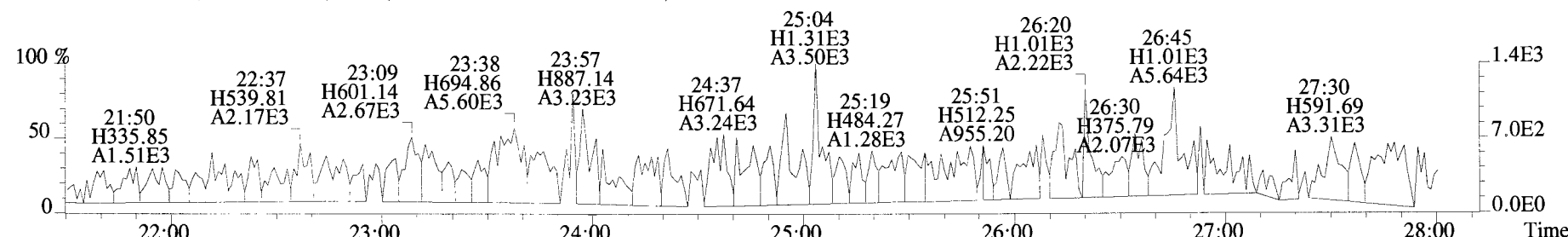
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
 339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



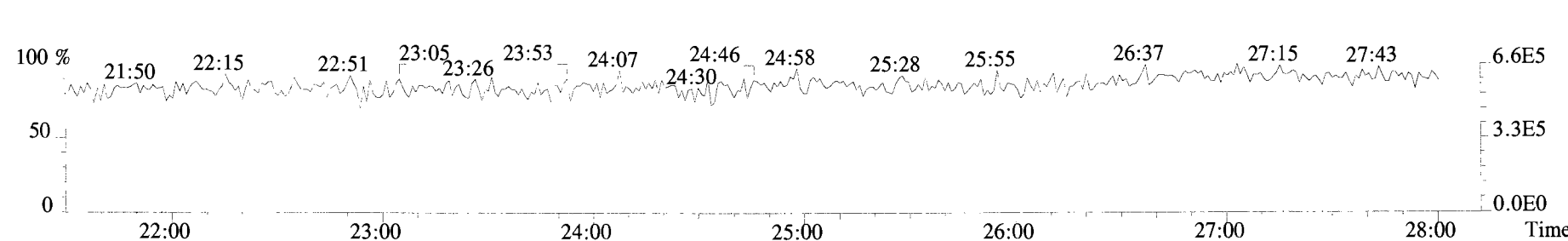
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



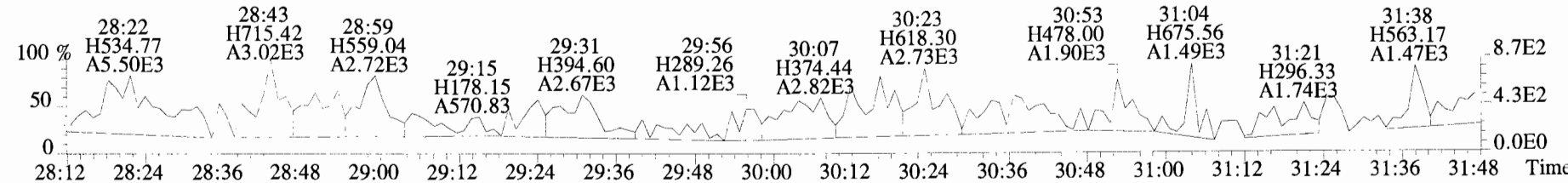
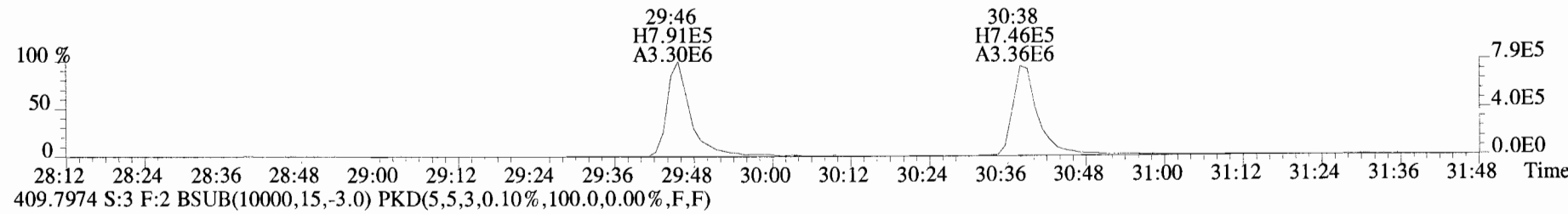
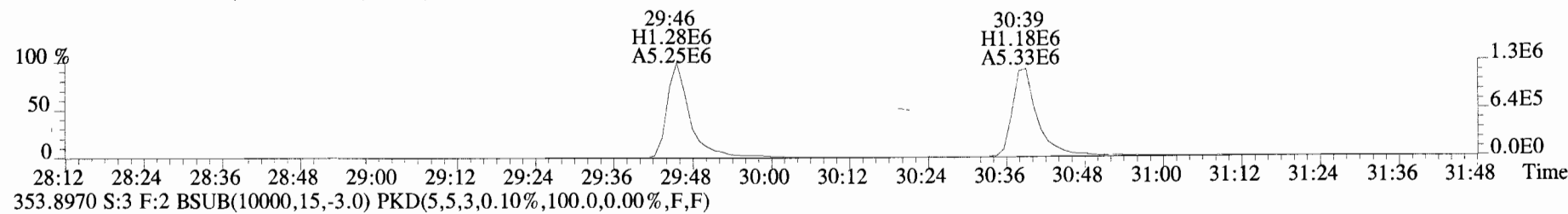
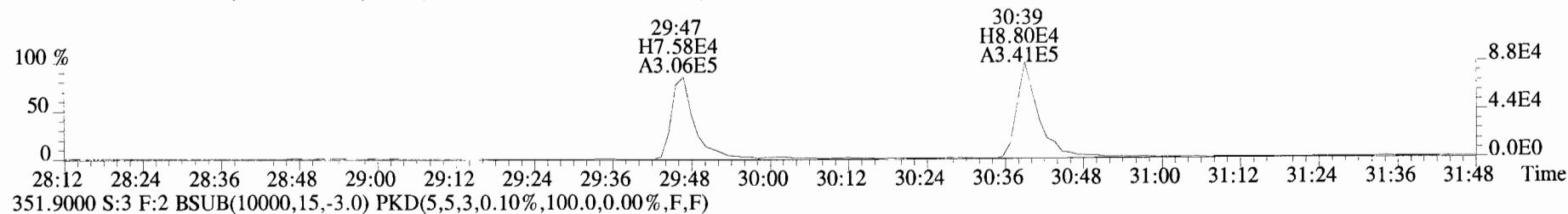
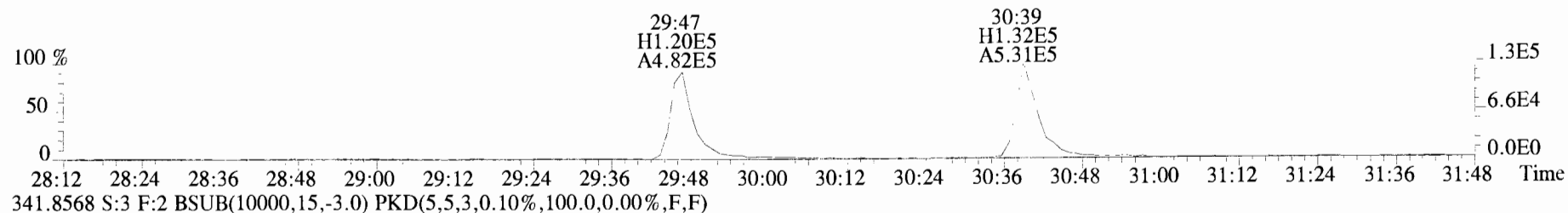
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



316.9824 S:3

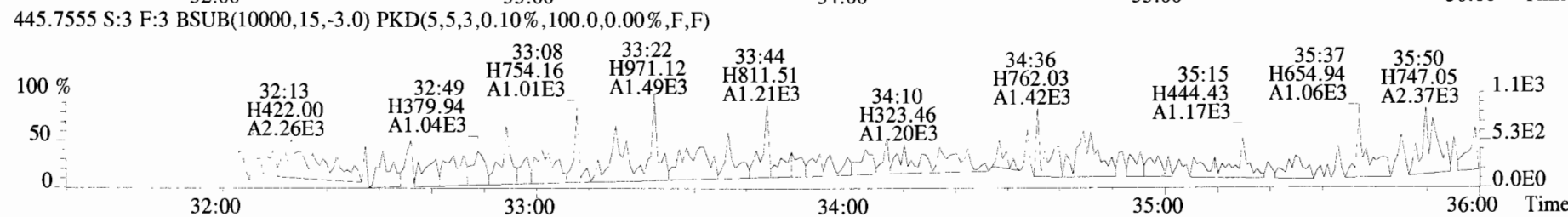
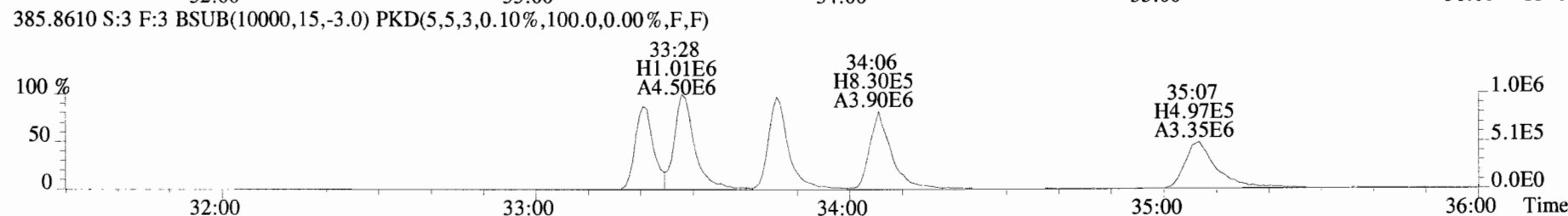
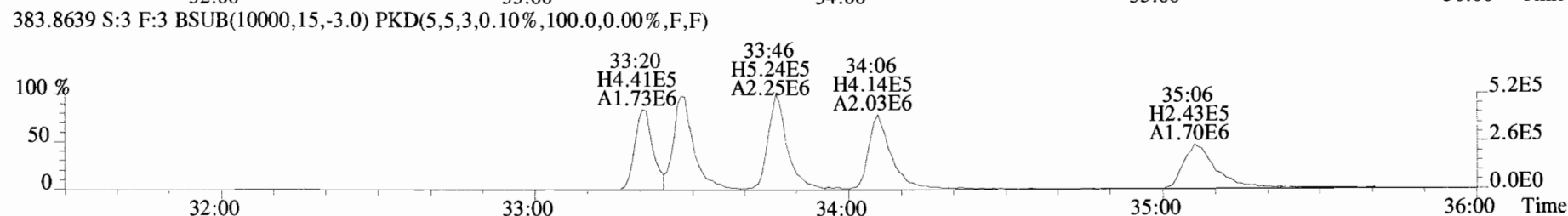
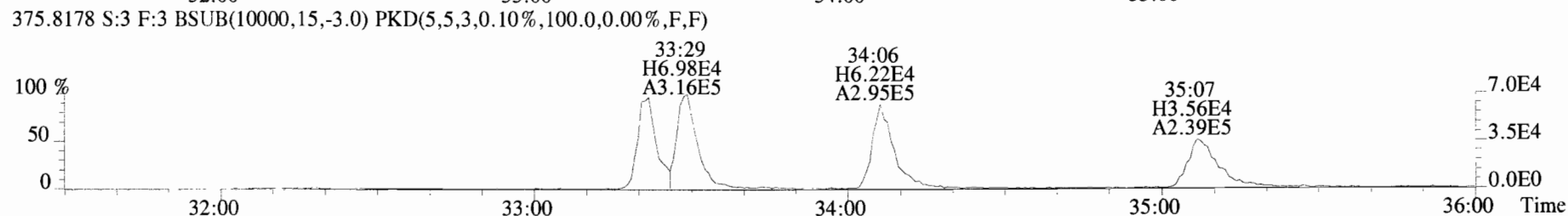
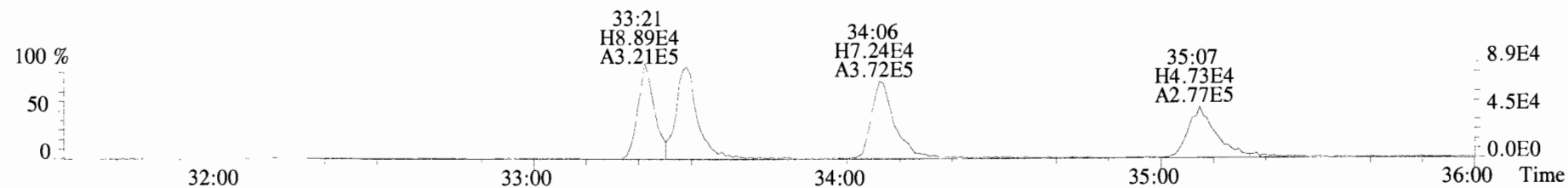


File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
 339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

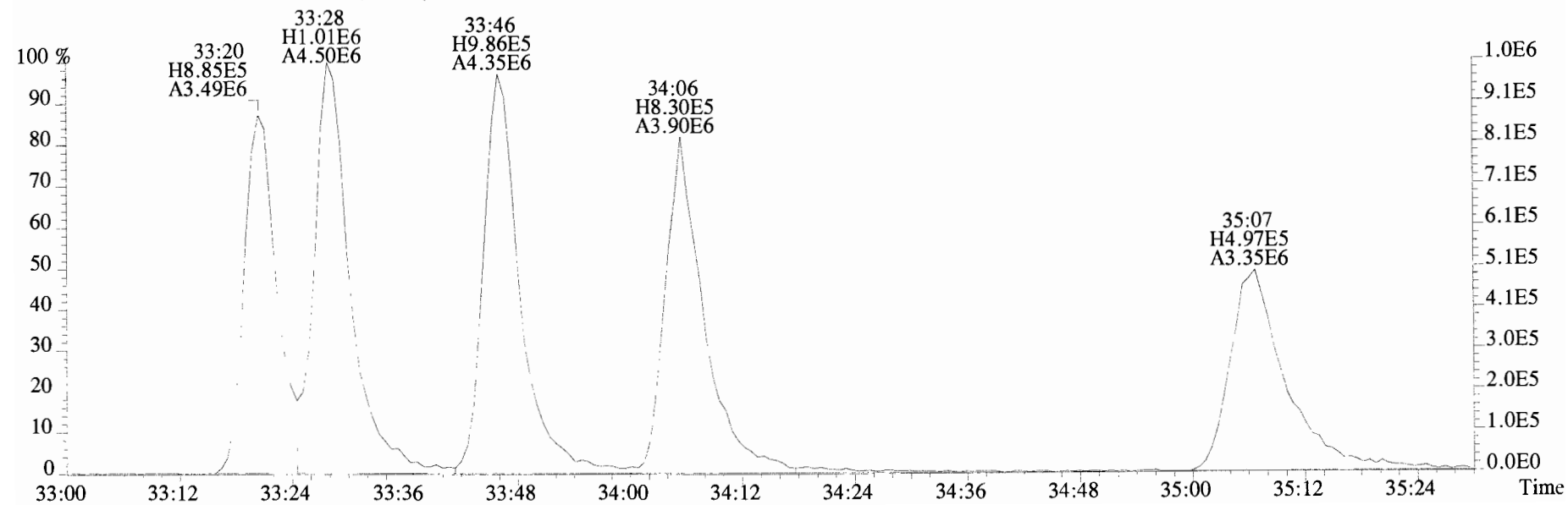
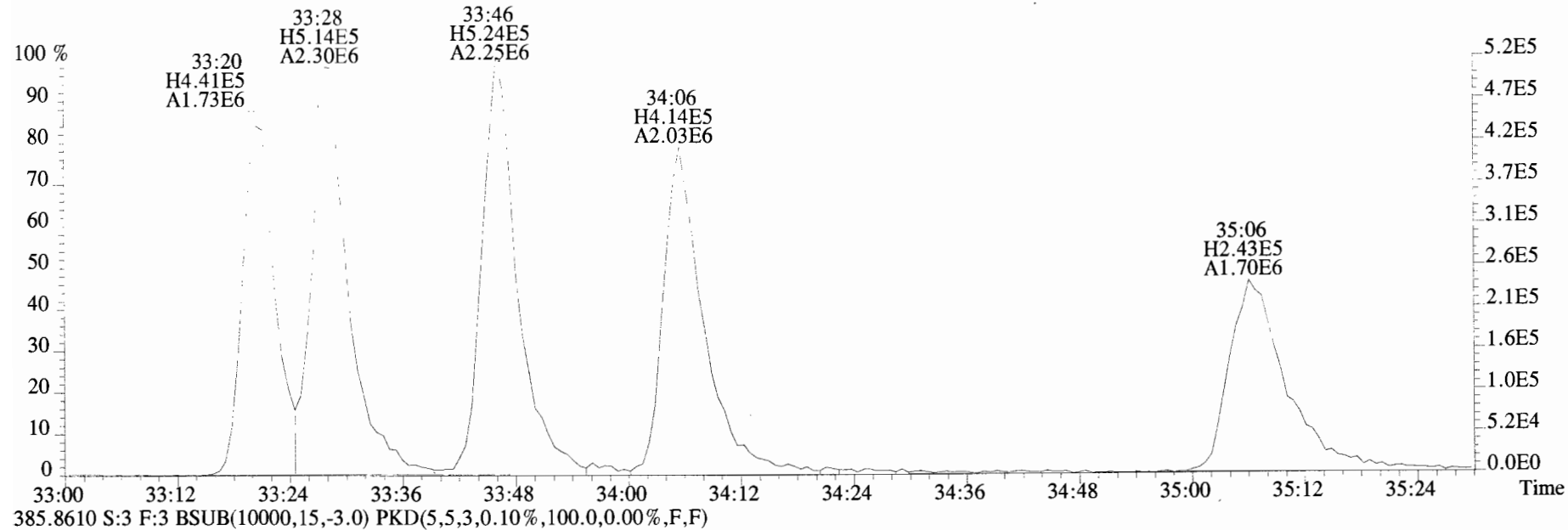




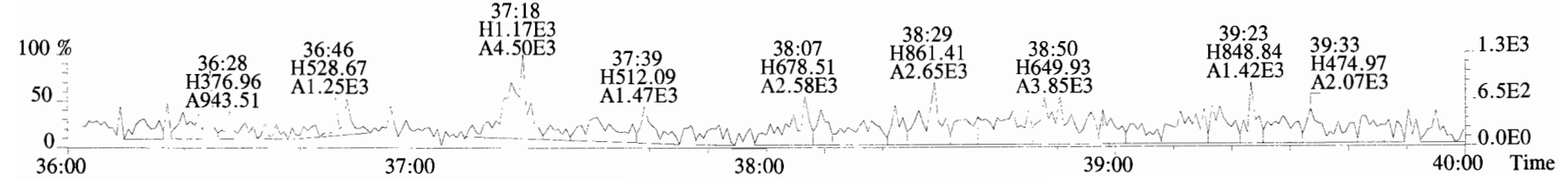
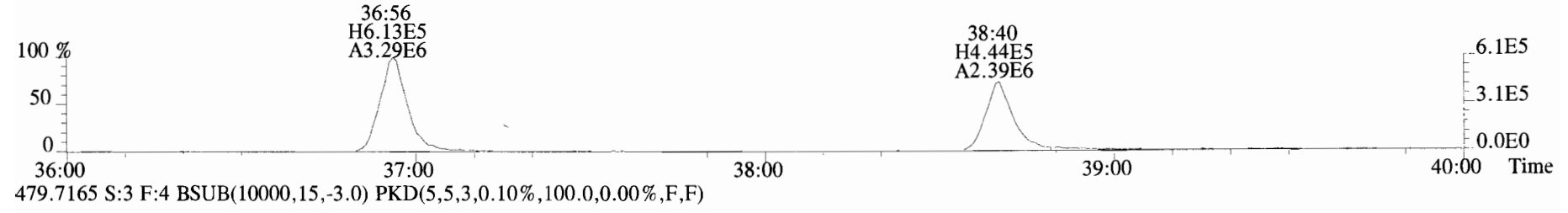
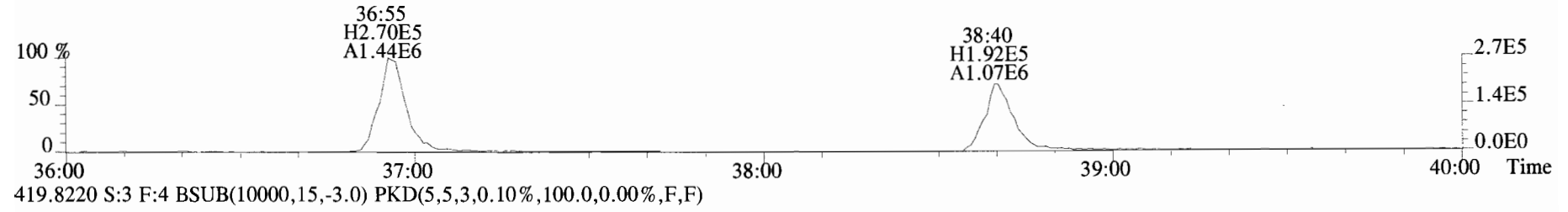
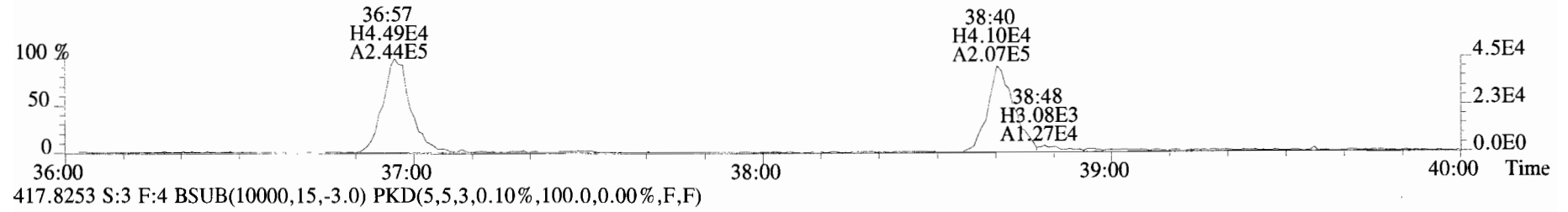
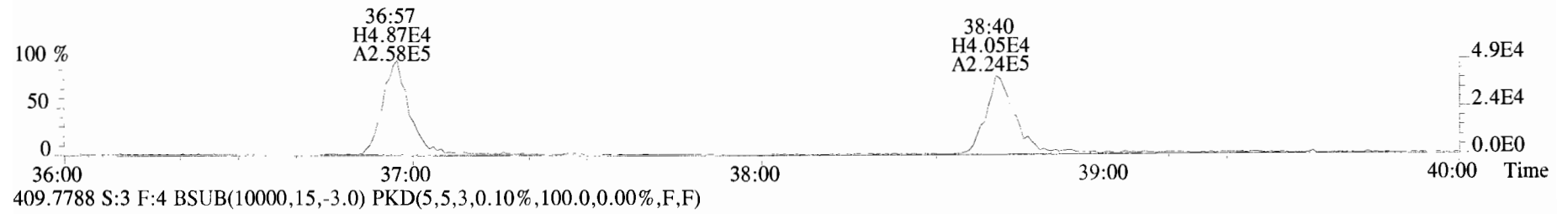
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
 373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



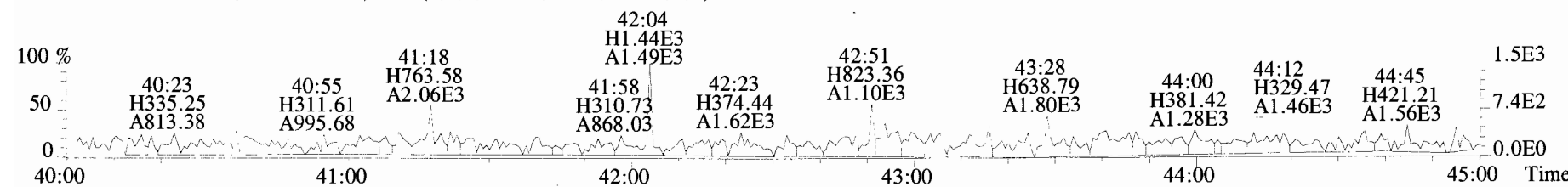
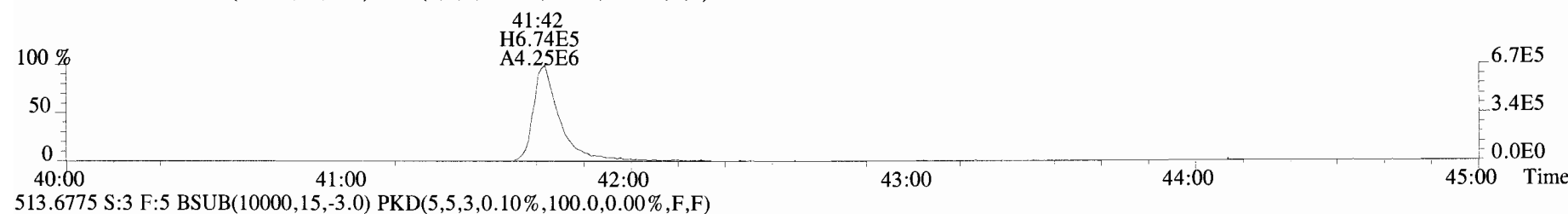
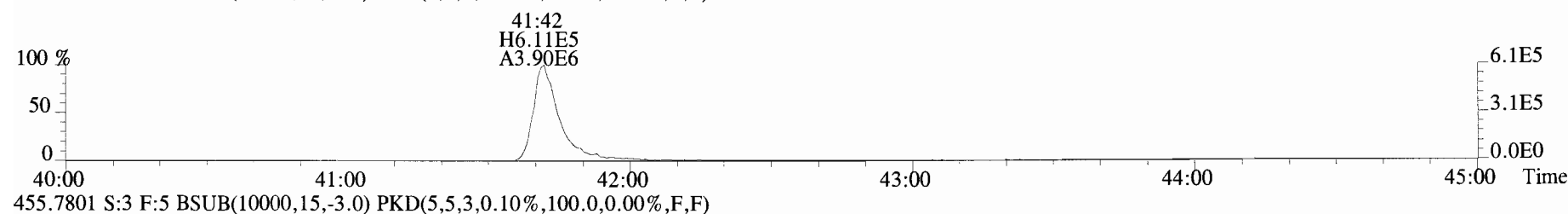
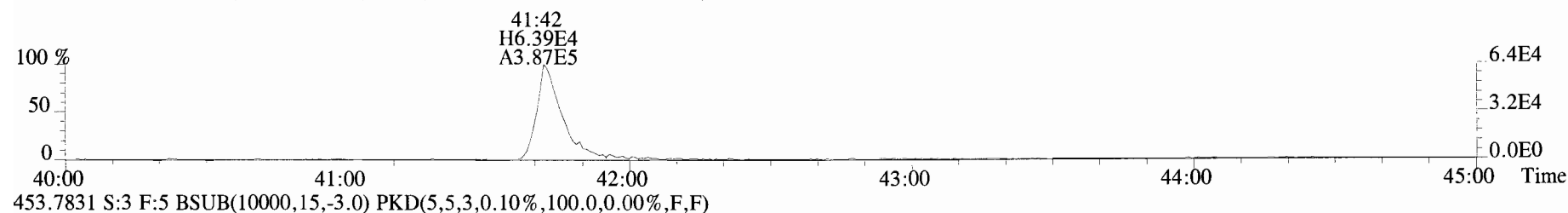
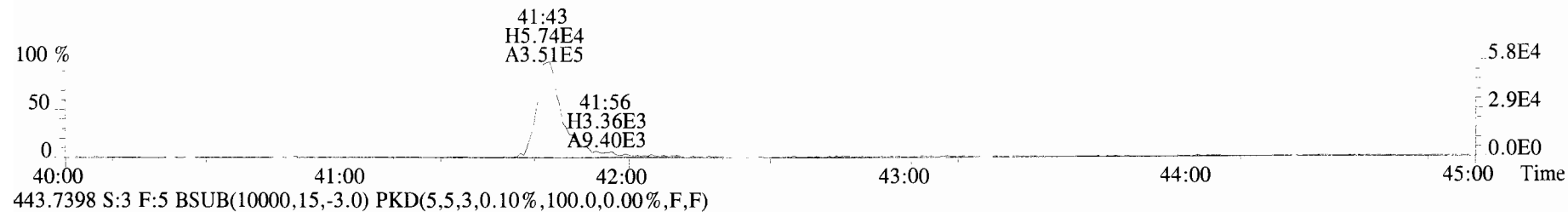
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



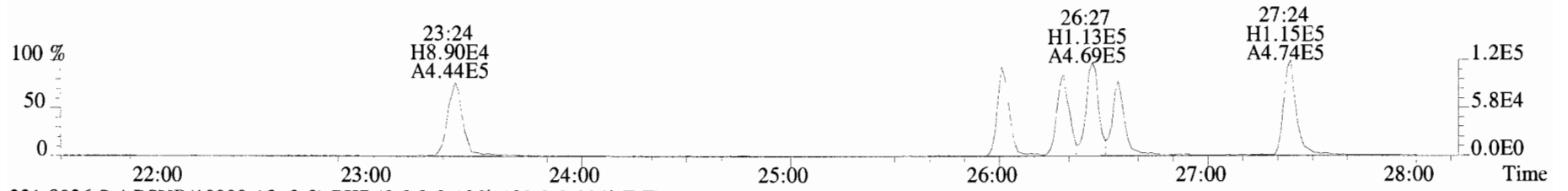
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



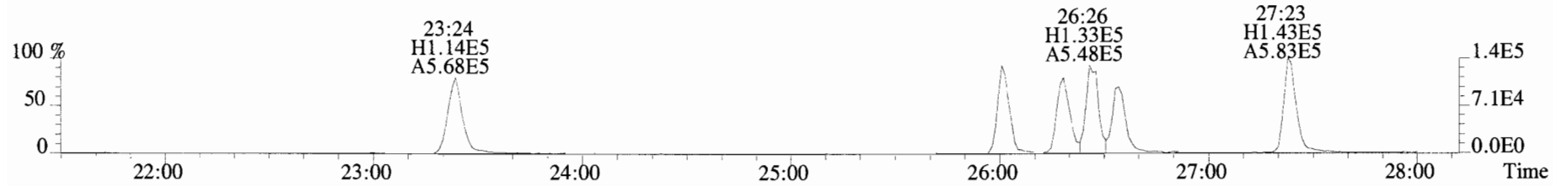
File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#3 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD\_DB5  
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



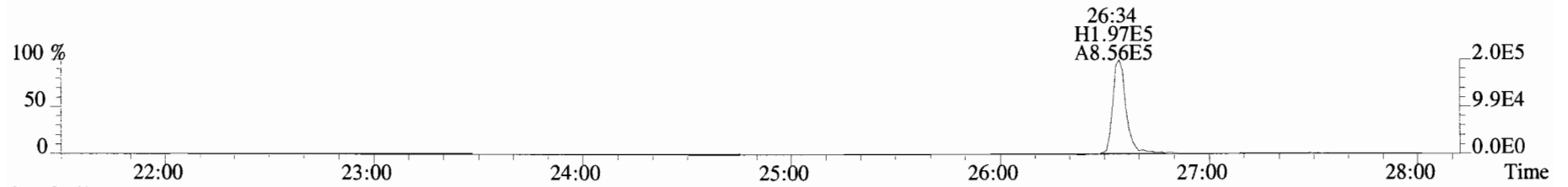
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



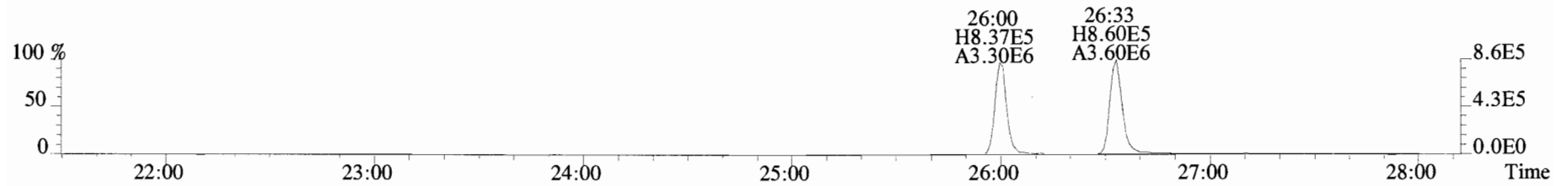
321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



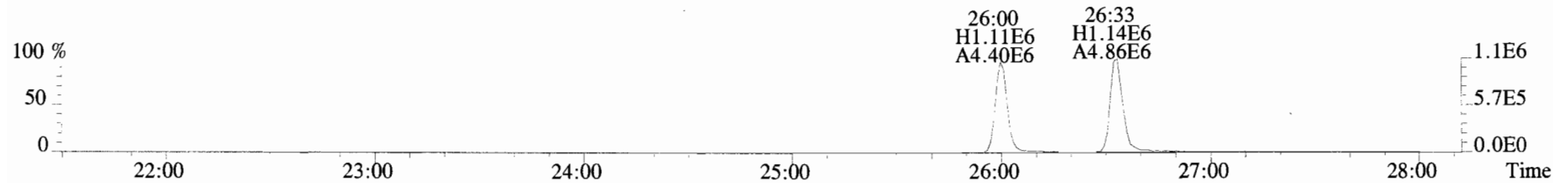
327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



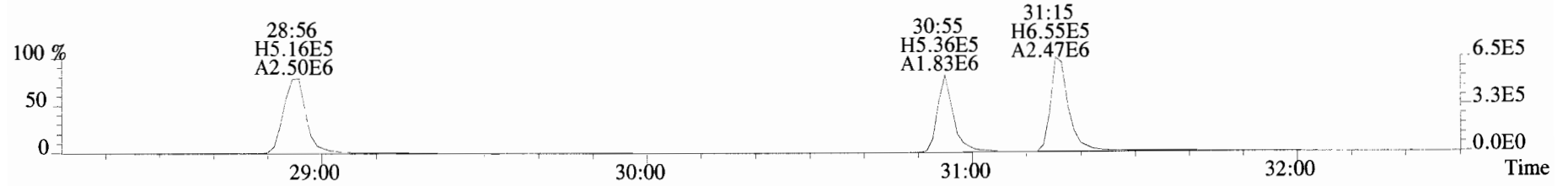
333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



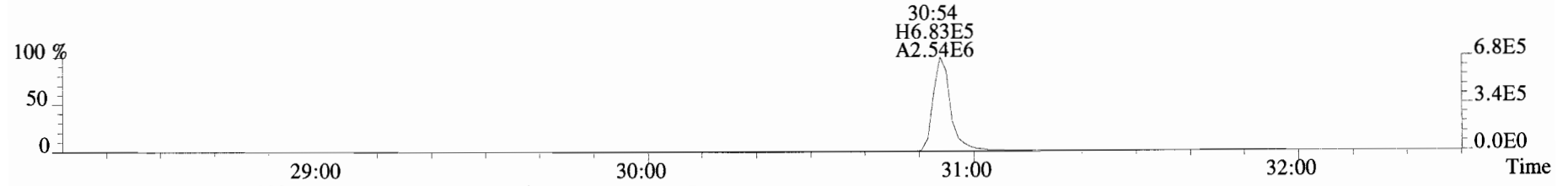
File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



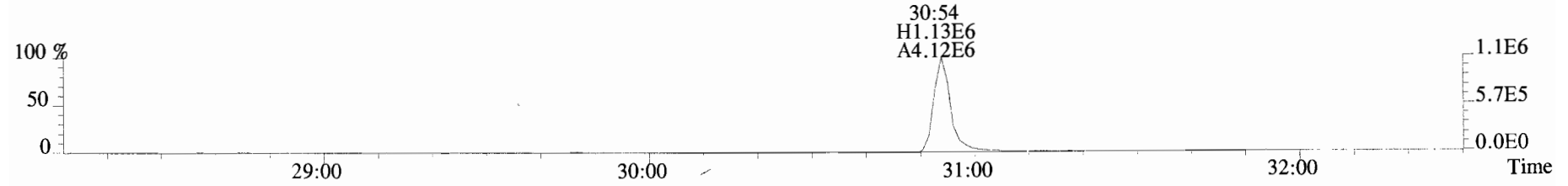
355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



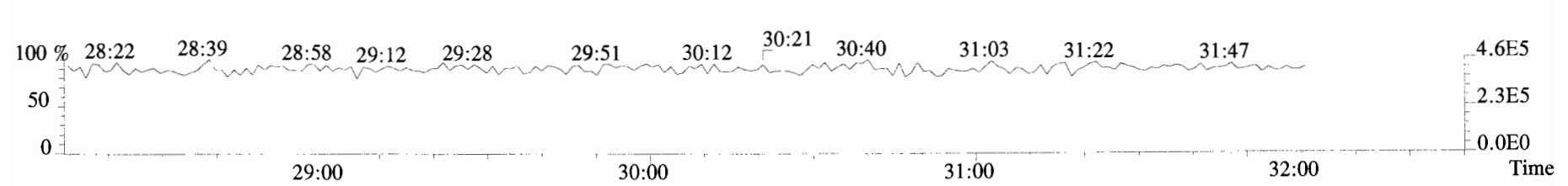
365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



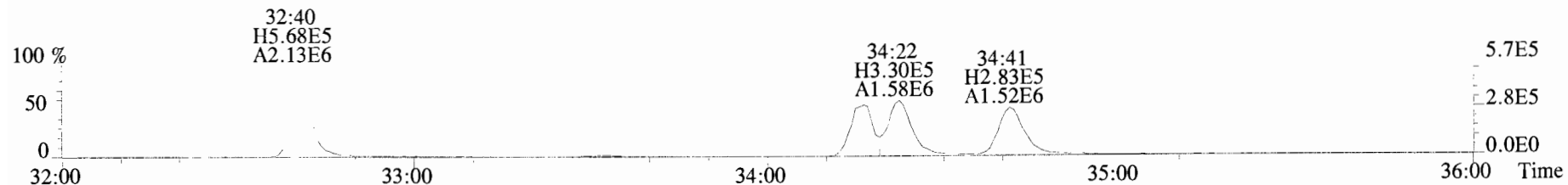
367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



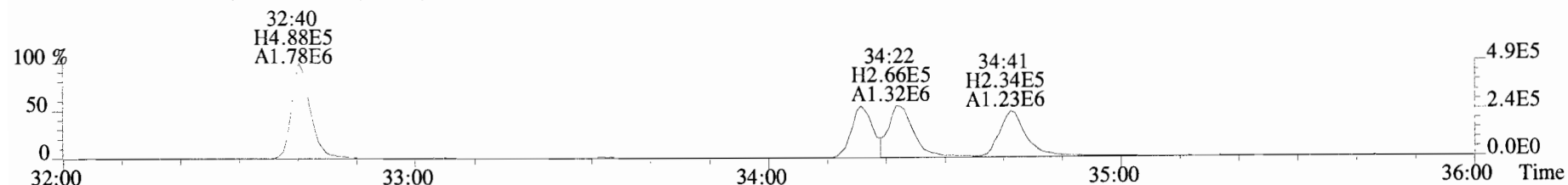
366.9792 S:4 F:2



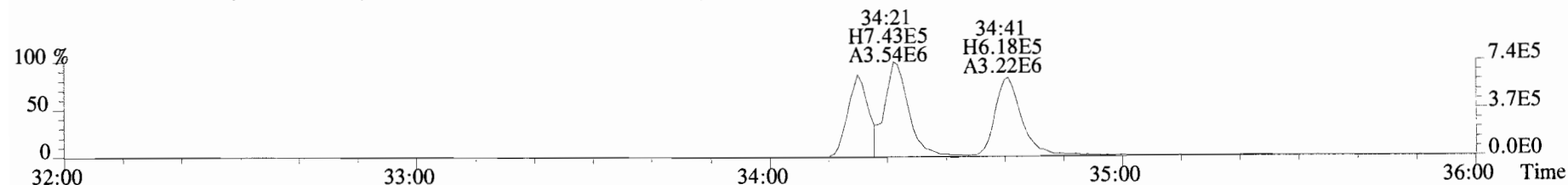
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



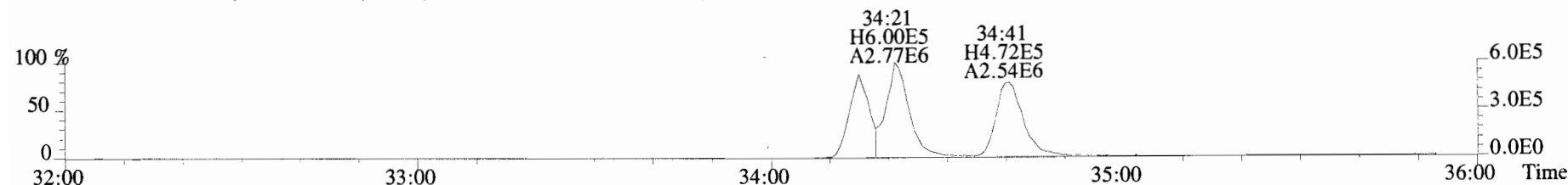
391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



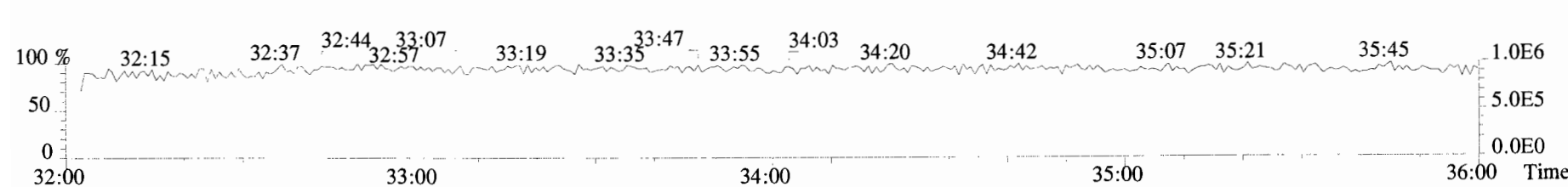
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



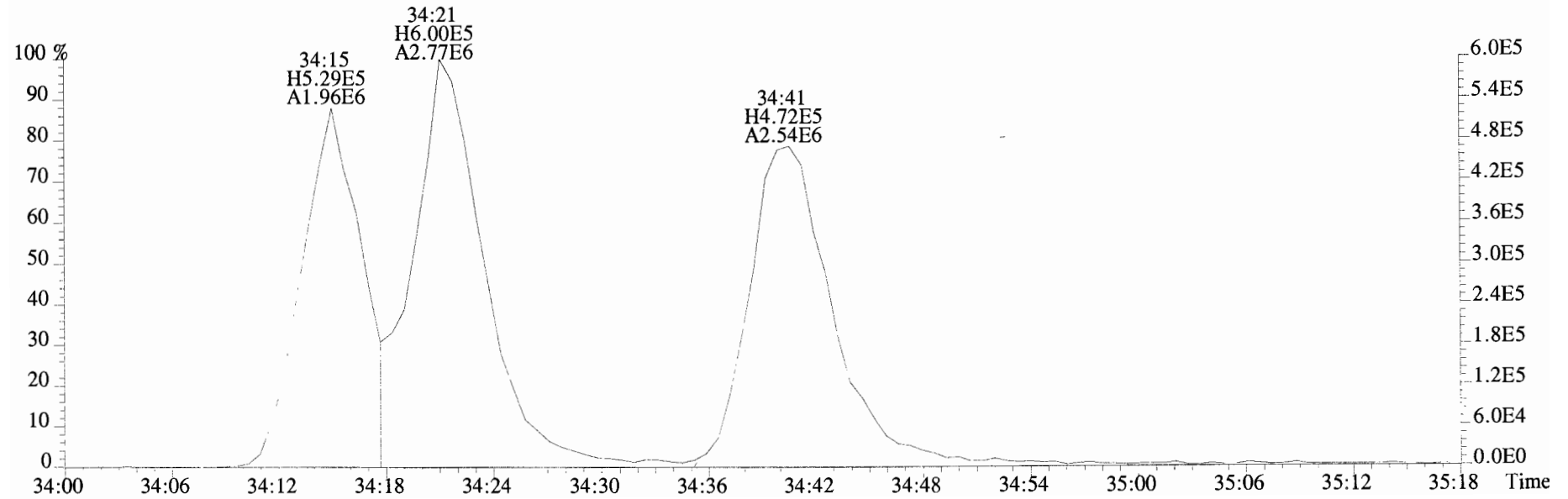
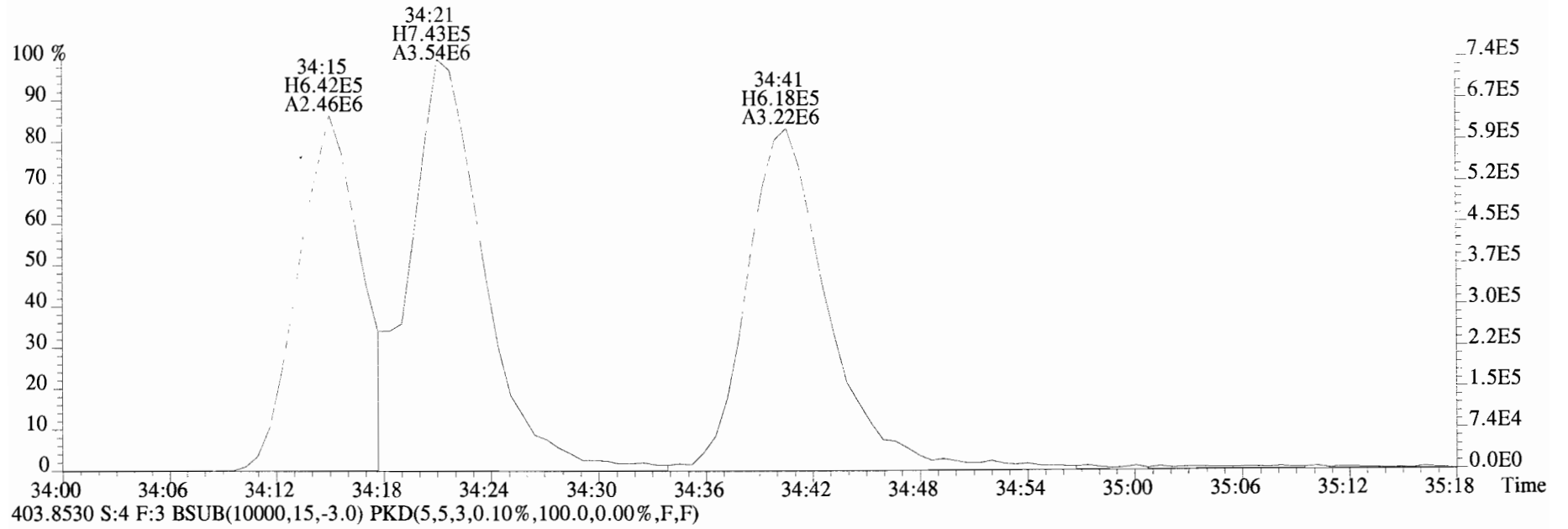
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



392.9760 S:4 F:3

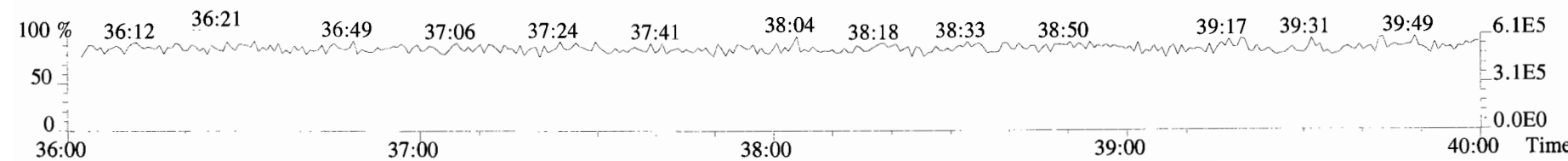
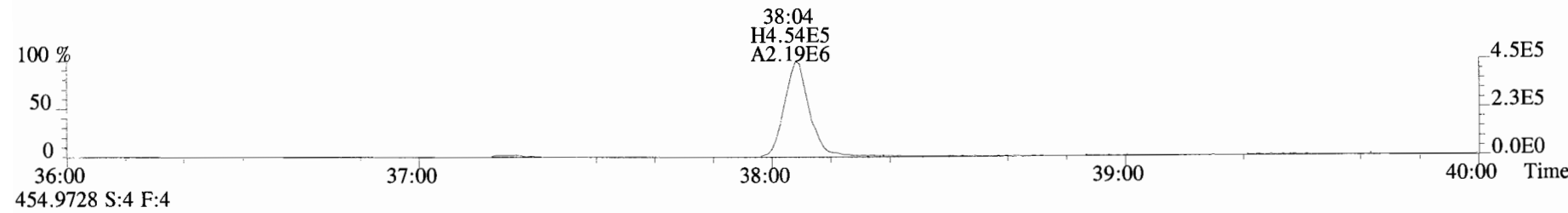
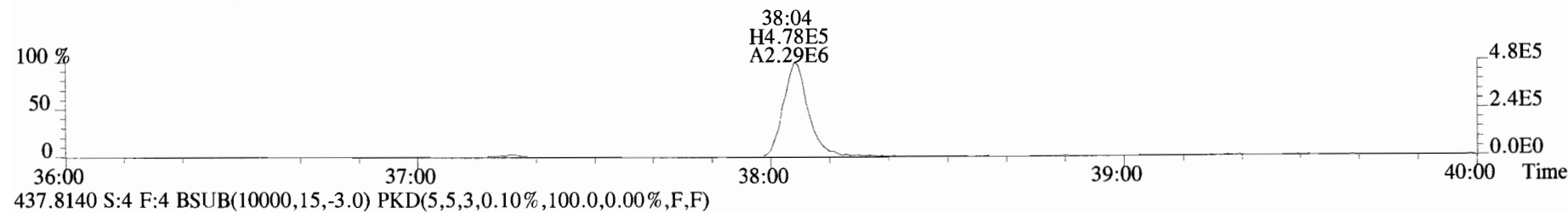
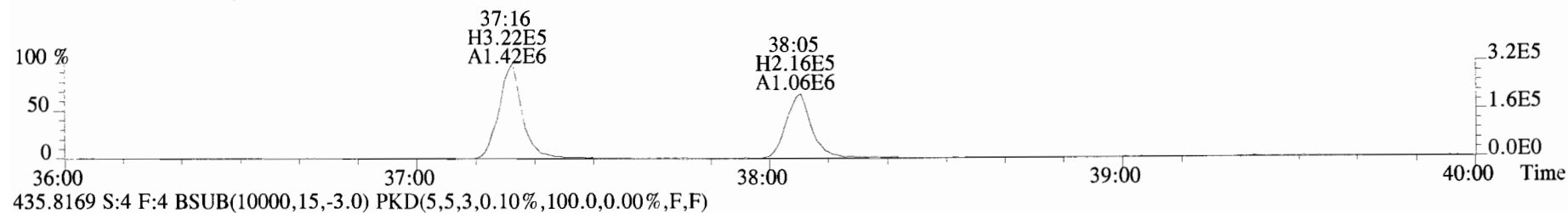
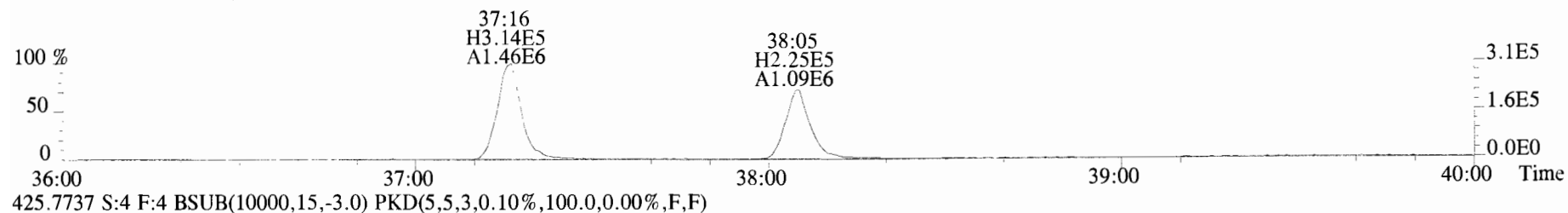


File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

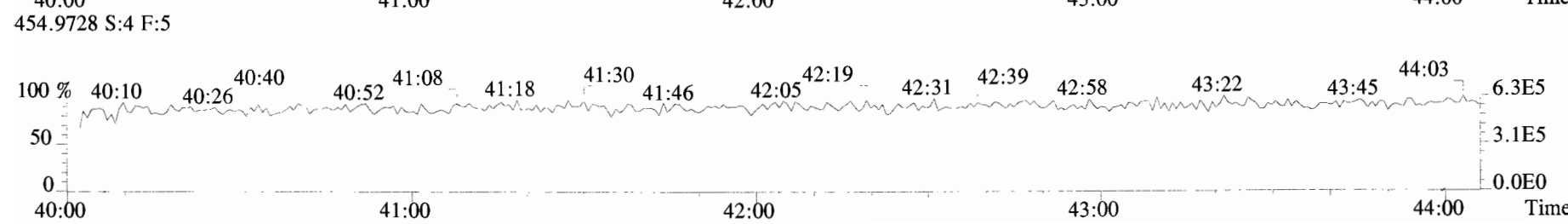
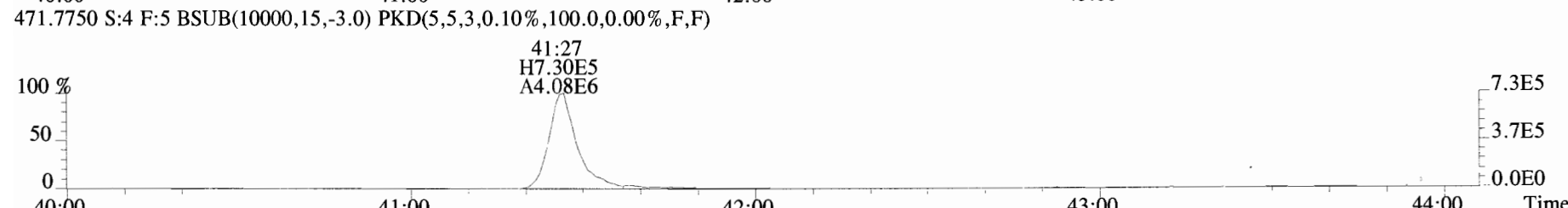
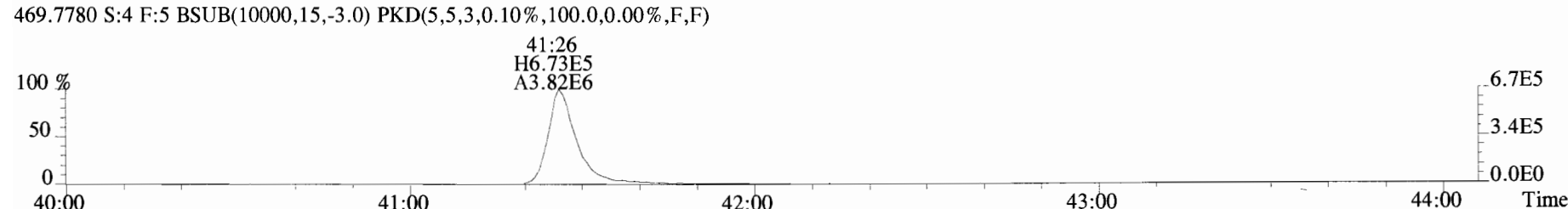
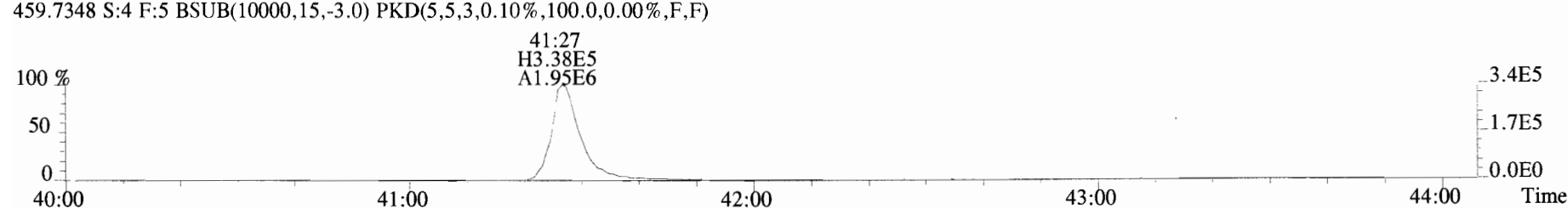
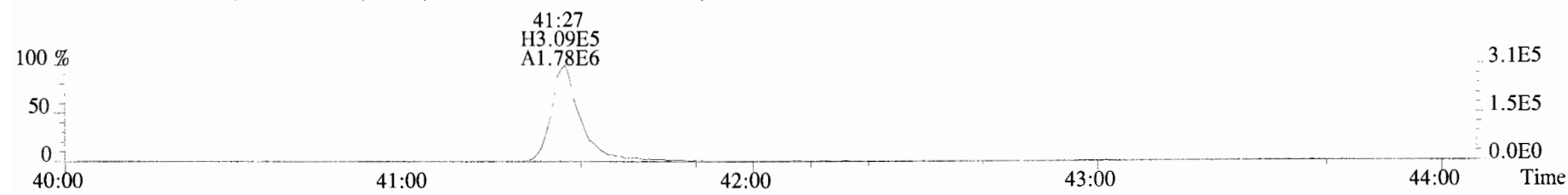




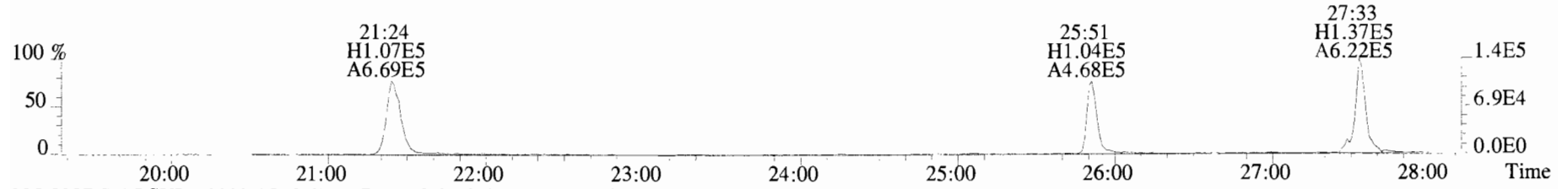
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



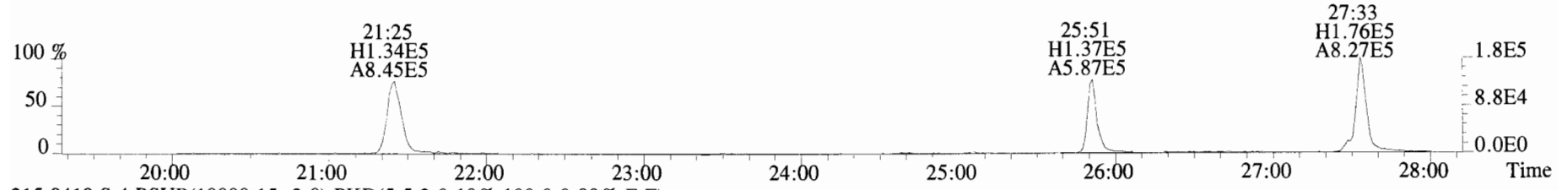
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



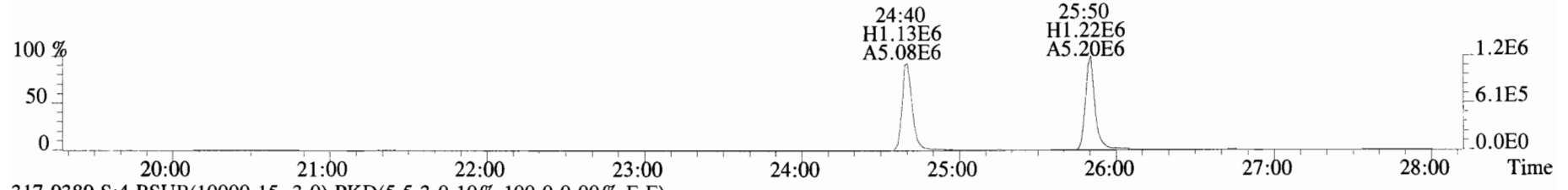
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



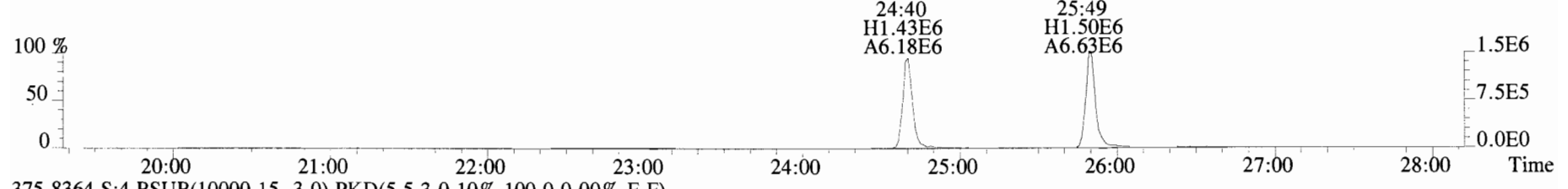
305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



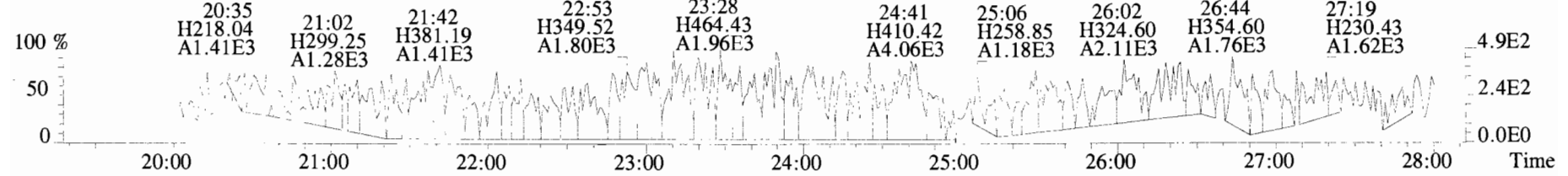
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



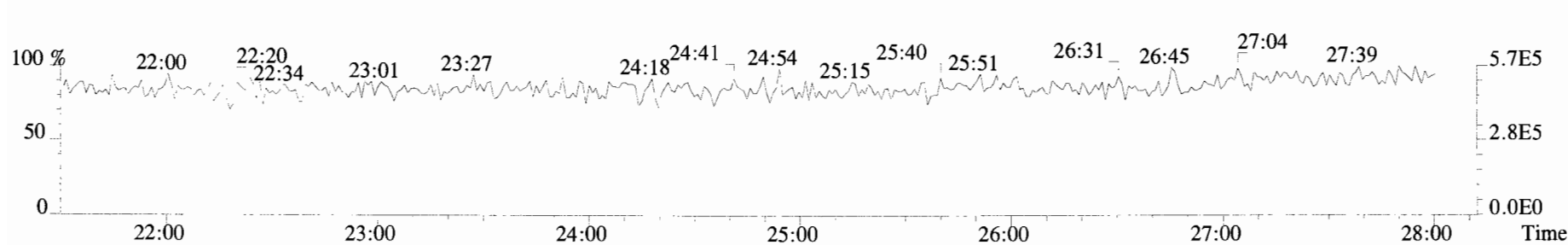
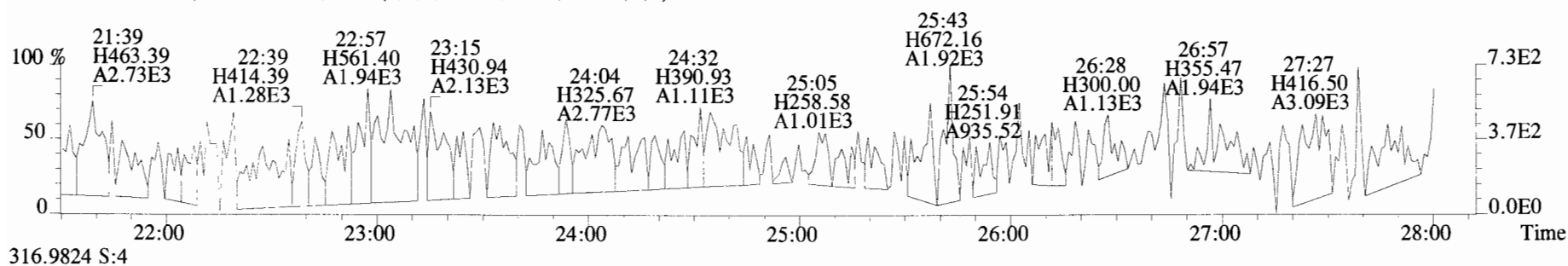
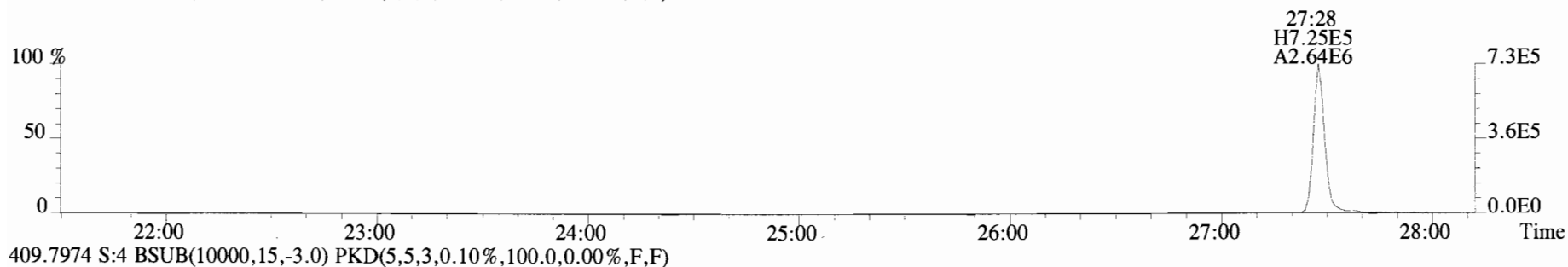
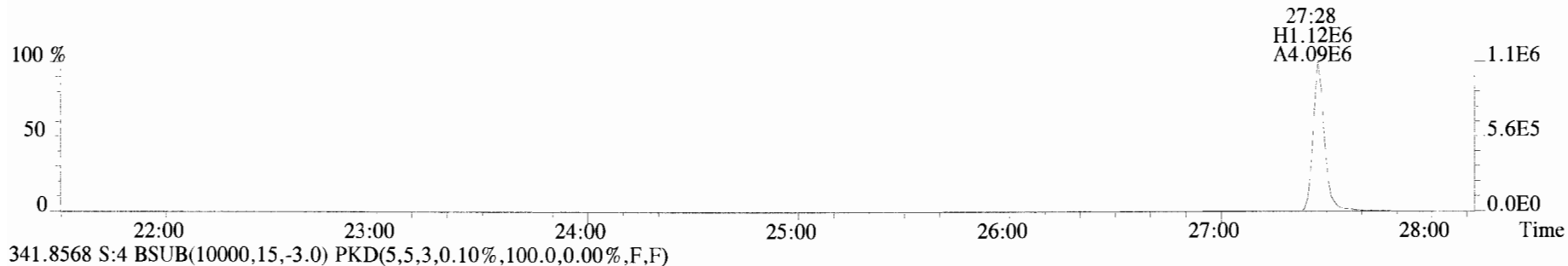
317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



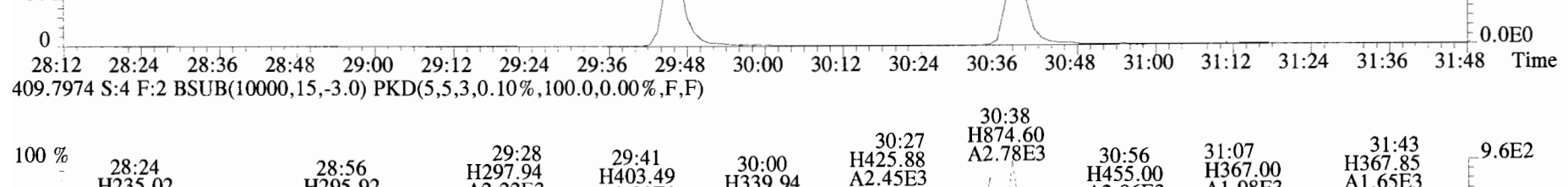
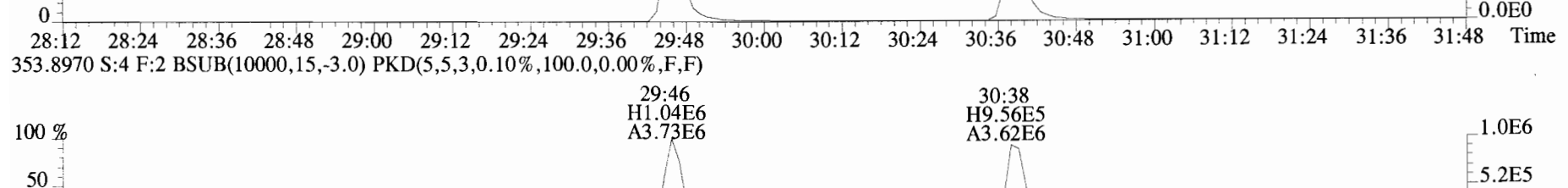
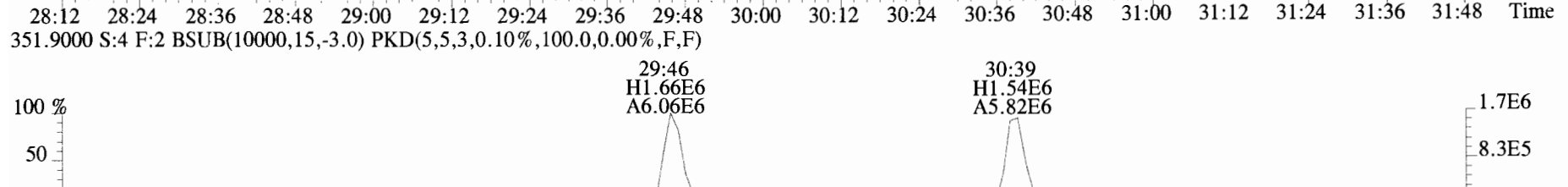
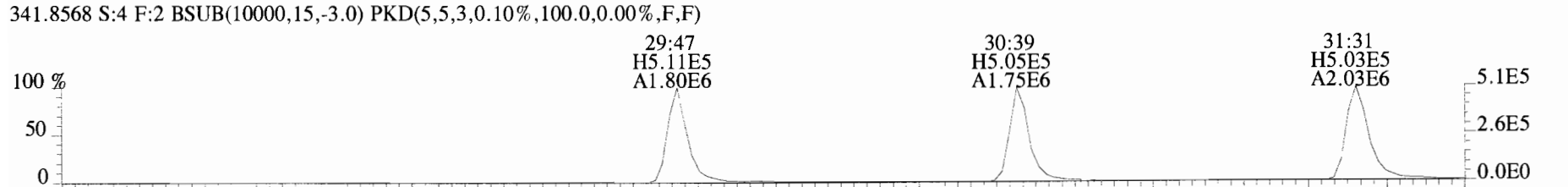
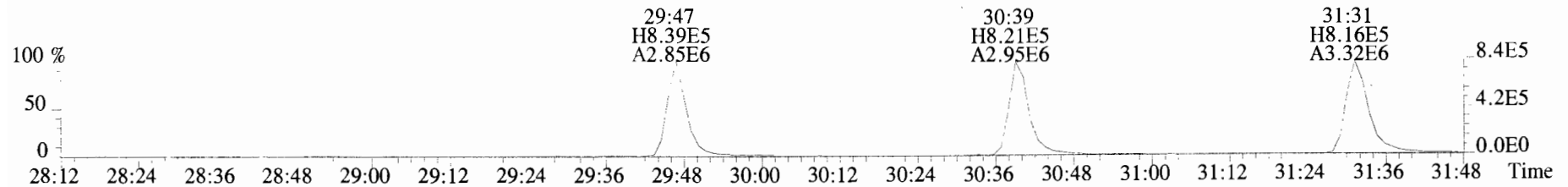
375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



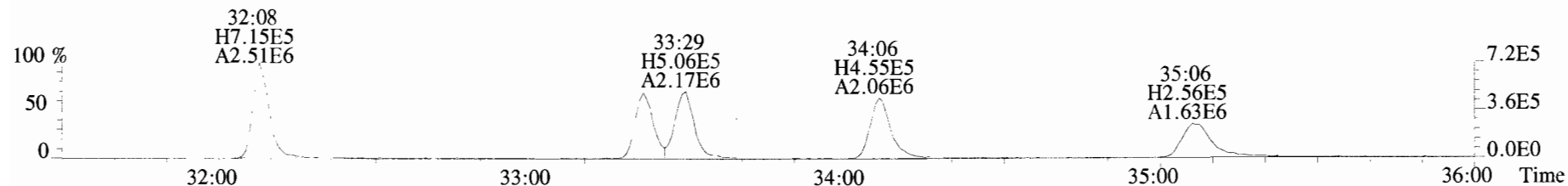
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
 339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



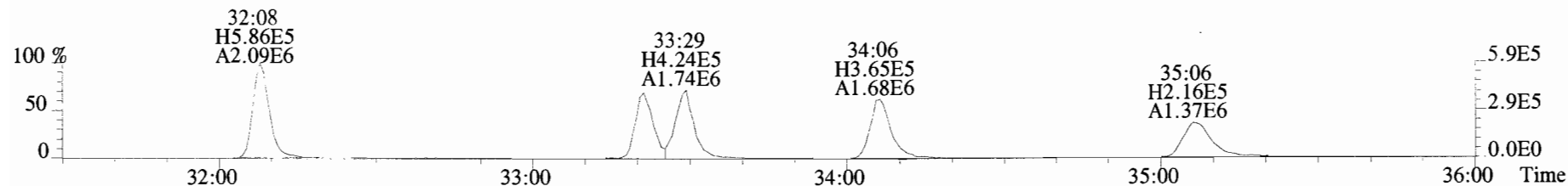
File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



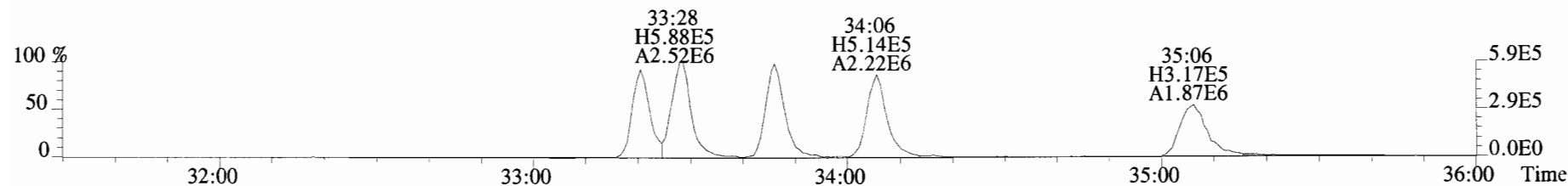
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



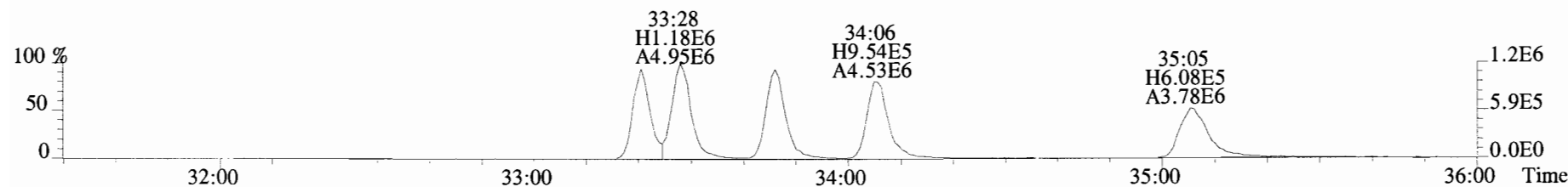
375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



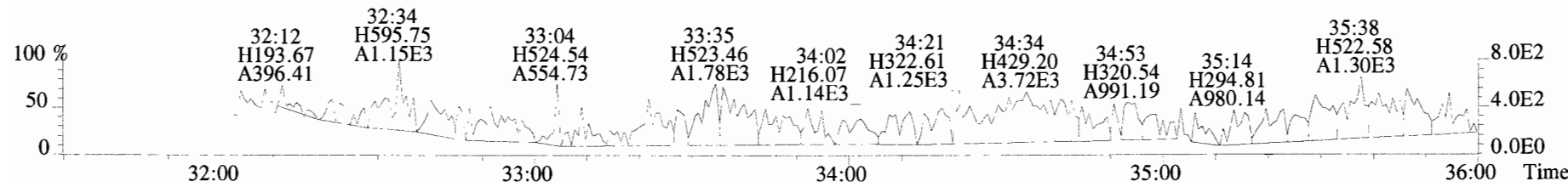
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



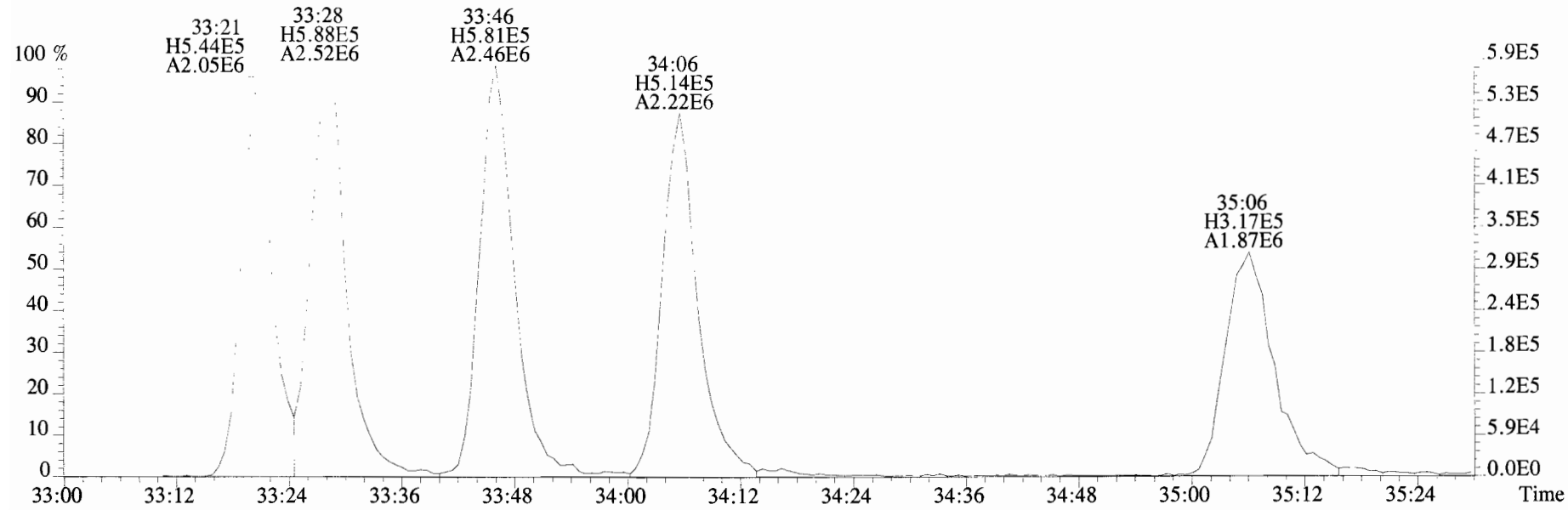
385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



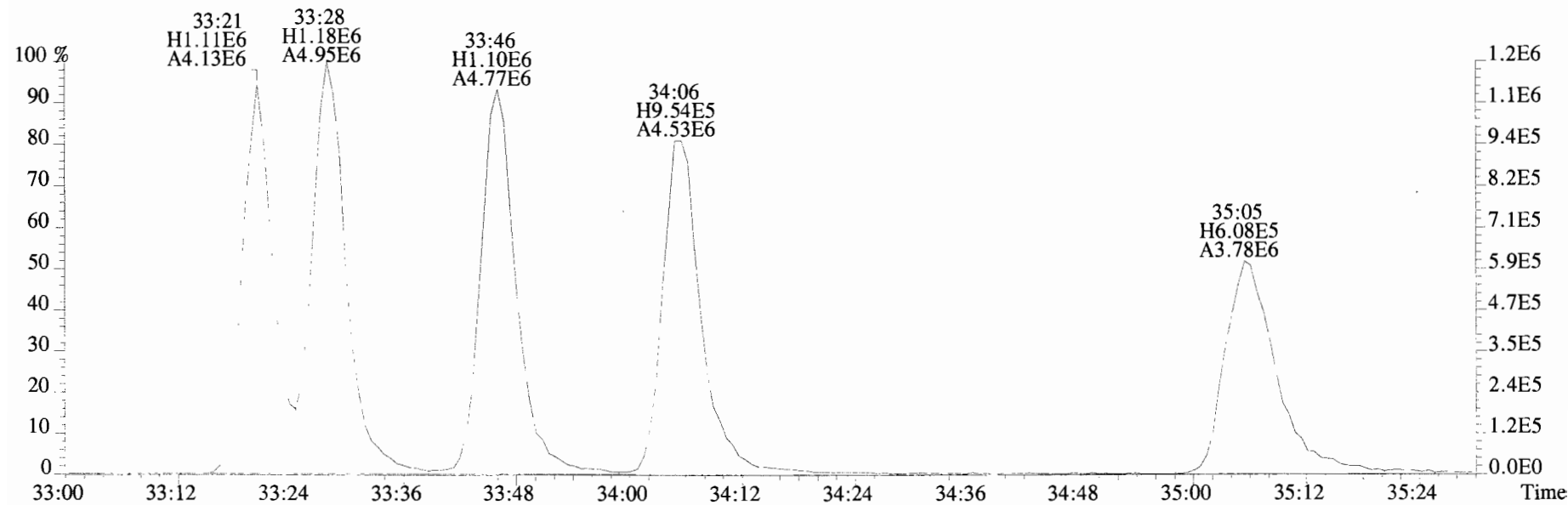
445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



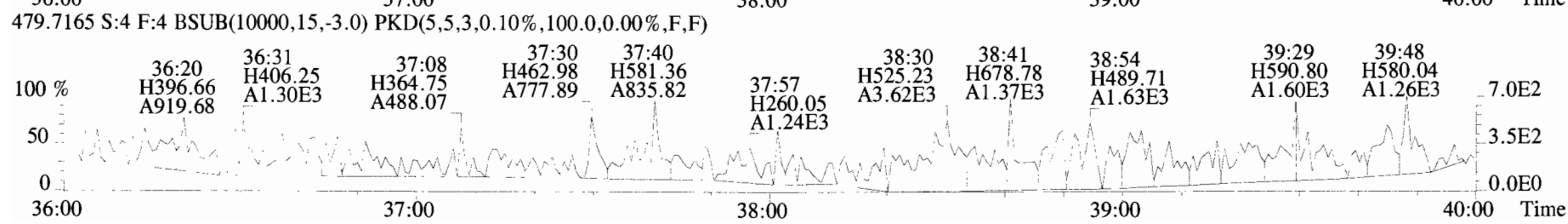
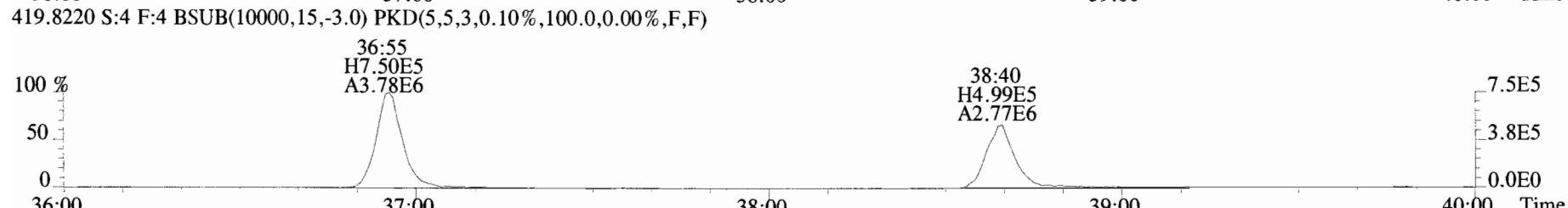
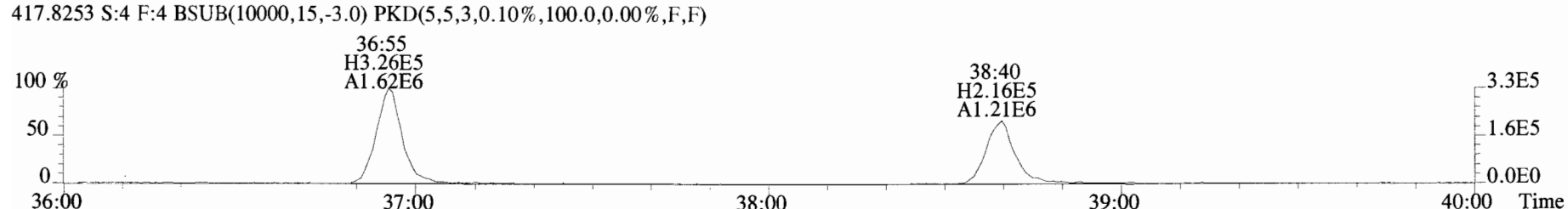
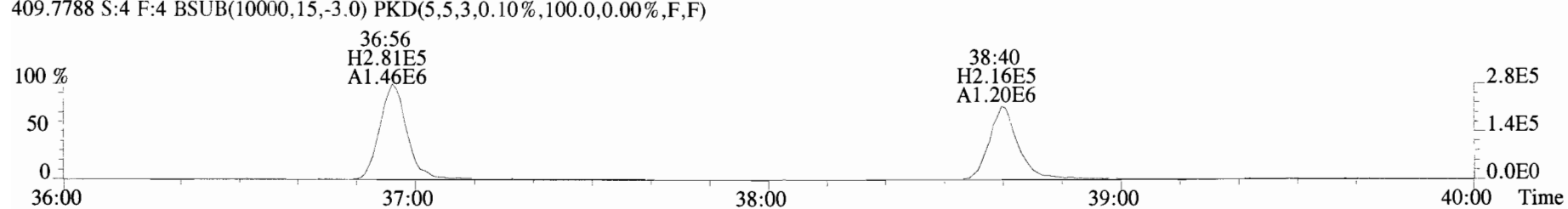
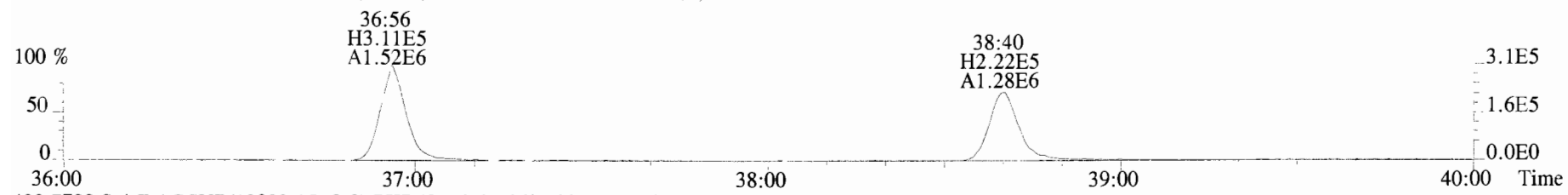
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

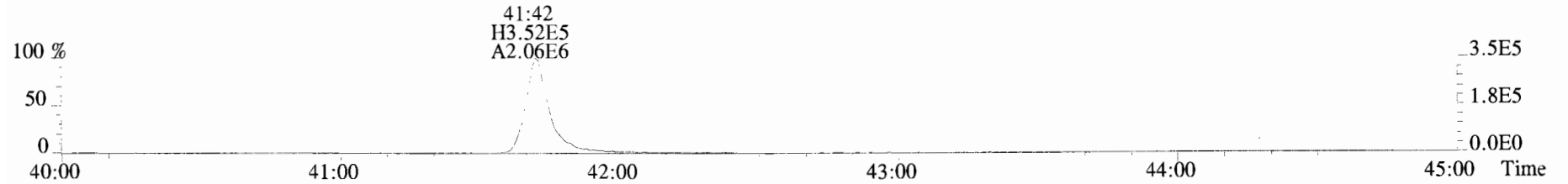


File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#4 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
 407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

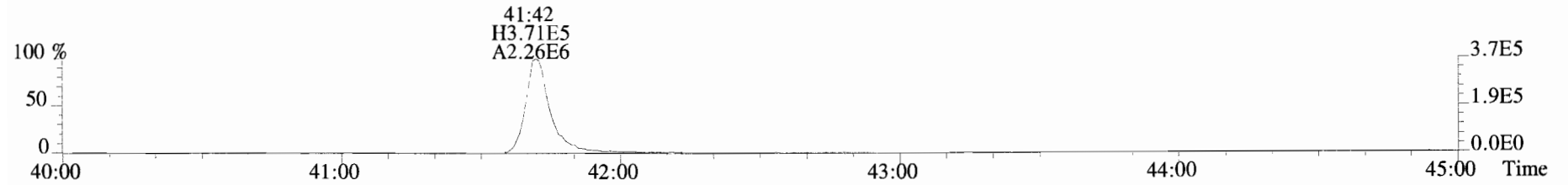




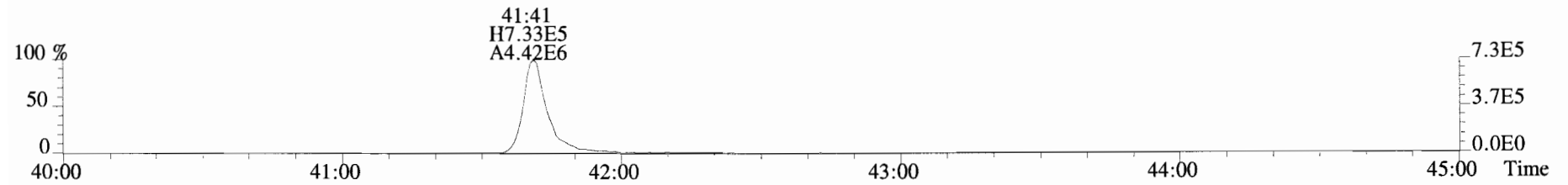
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#4 File Text:Vista Analytical\_Laboratory\_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD\_DB5  
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



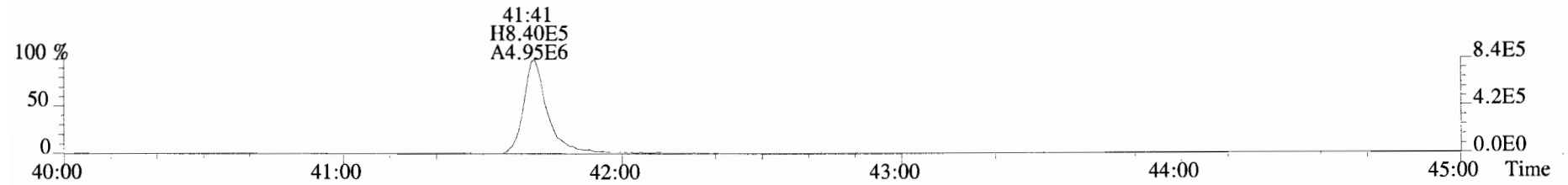
443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



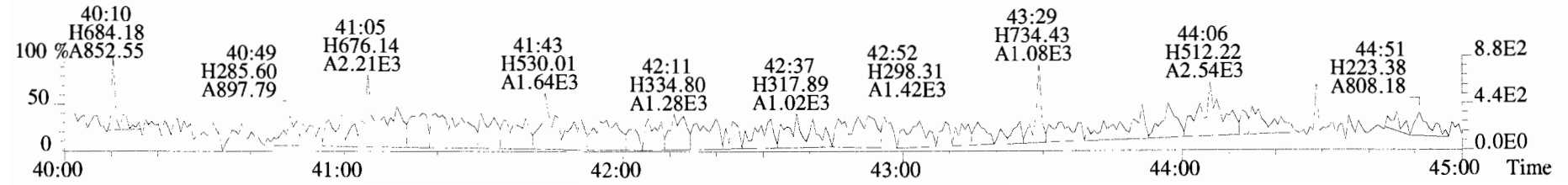
453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



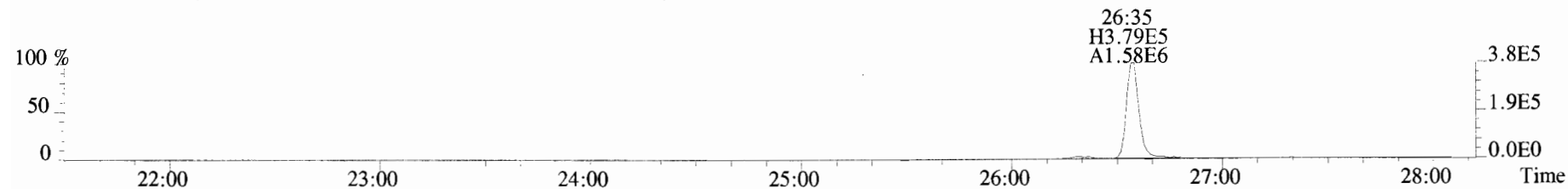
455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



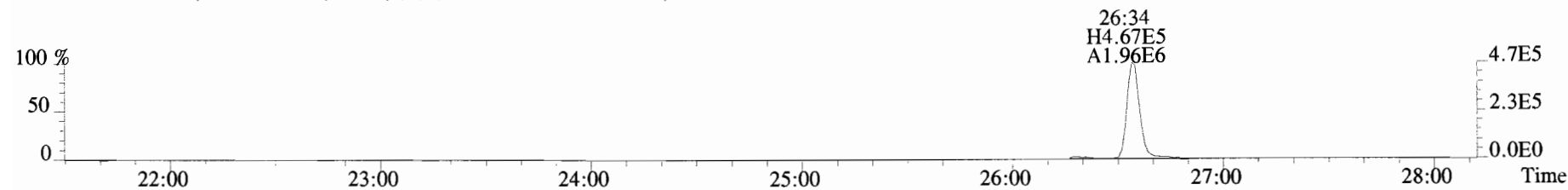
513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



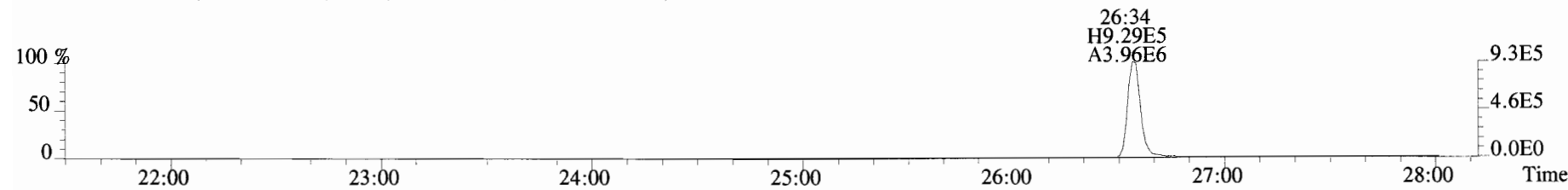
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



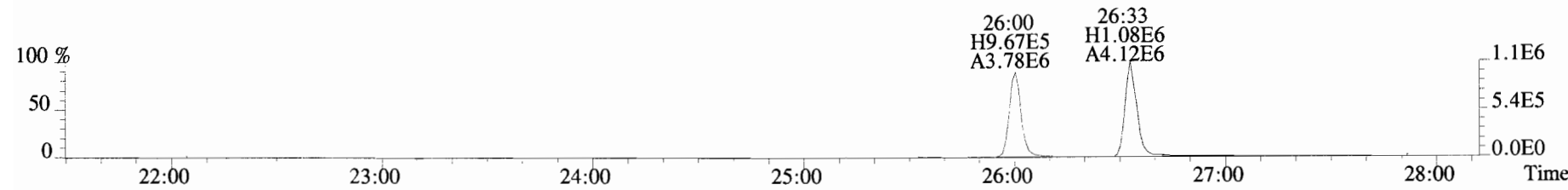
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



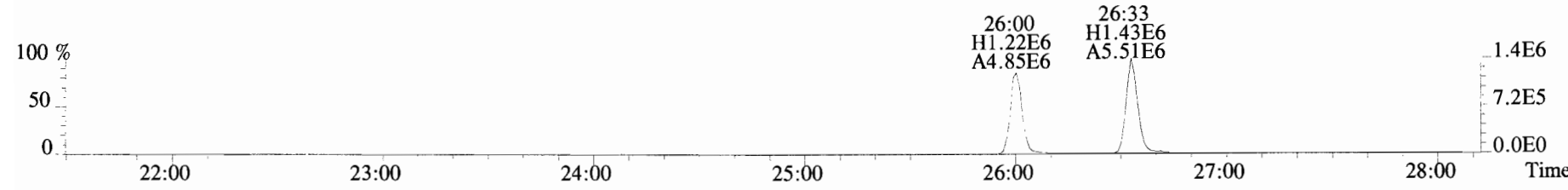
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



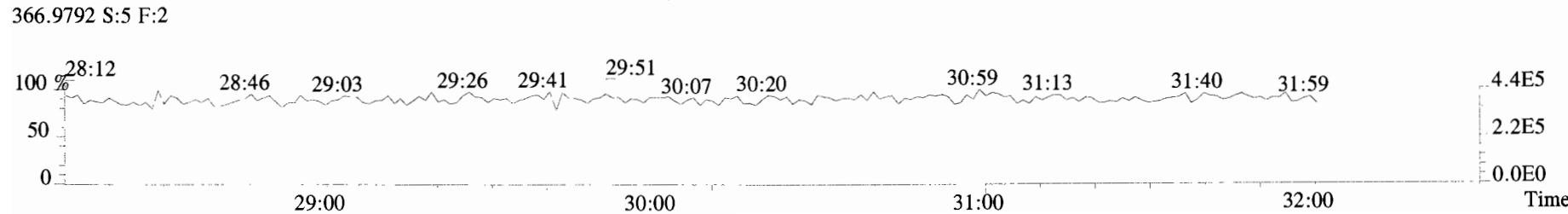
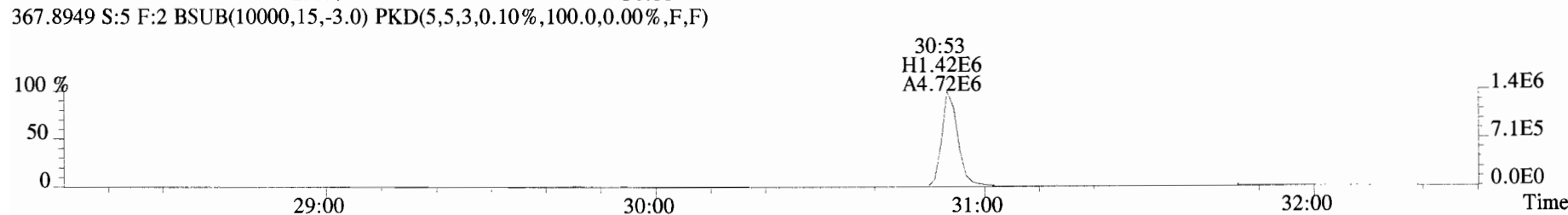
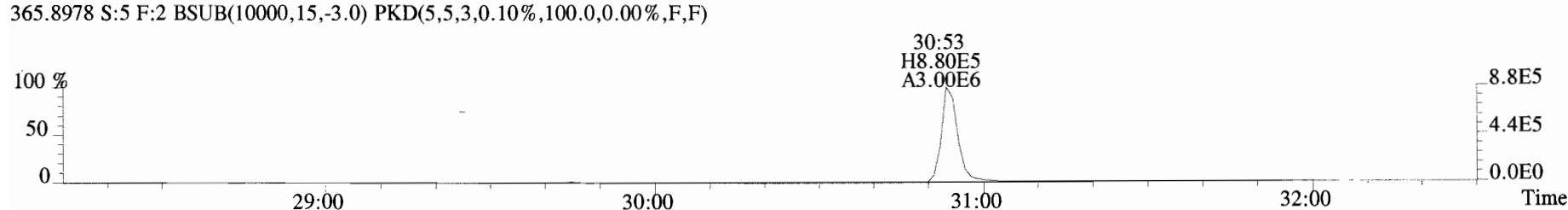
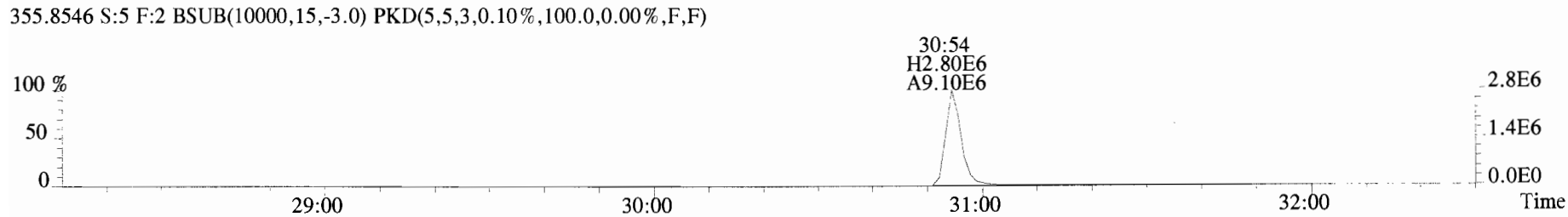
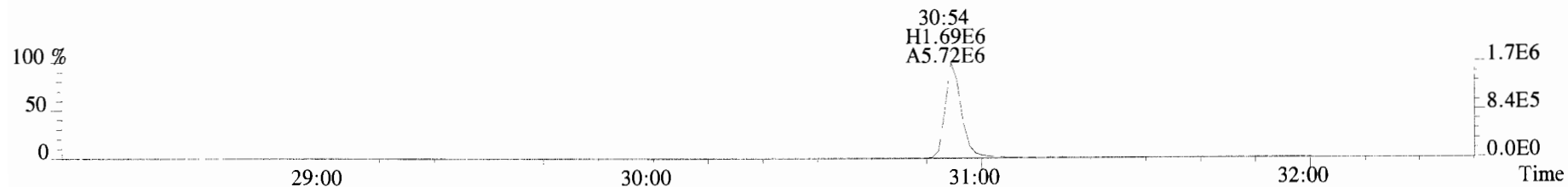
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



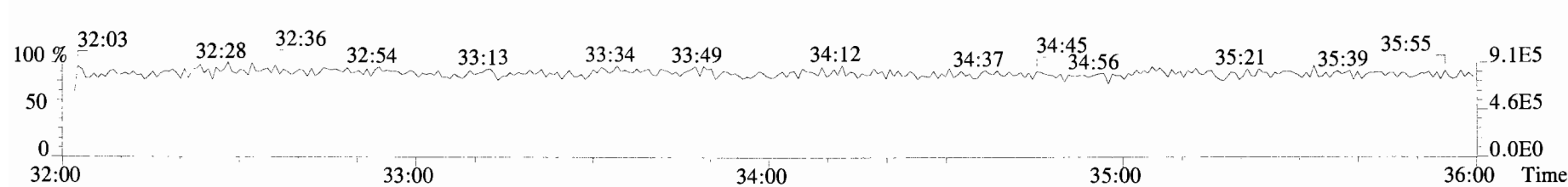
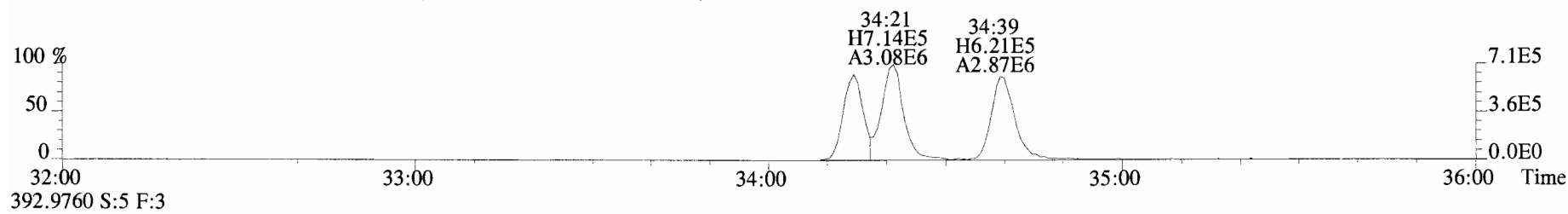
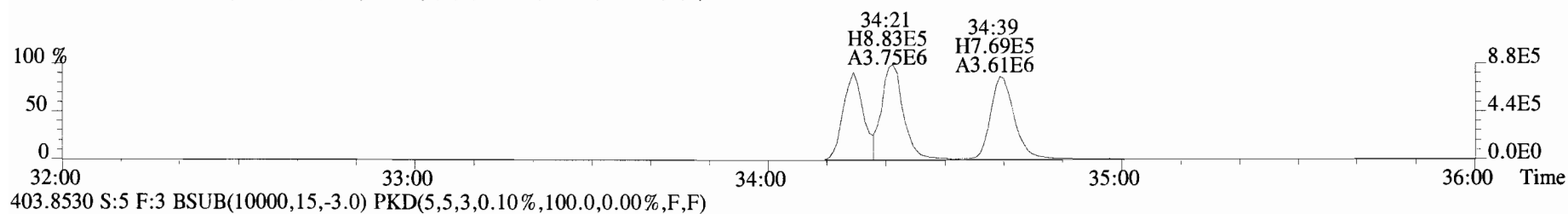
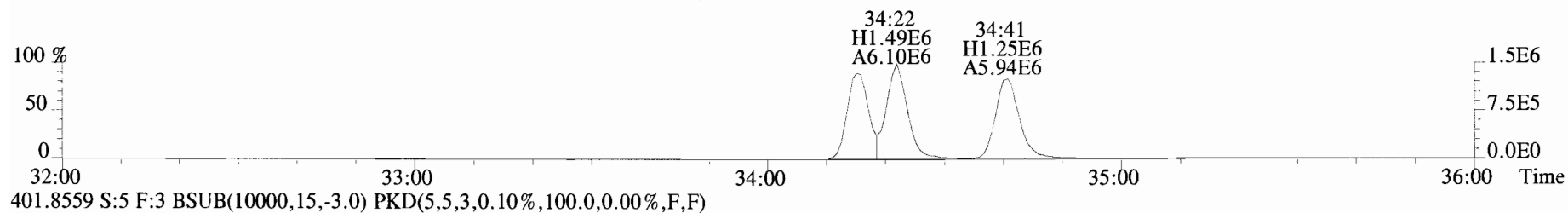
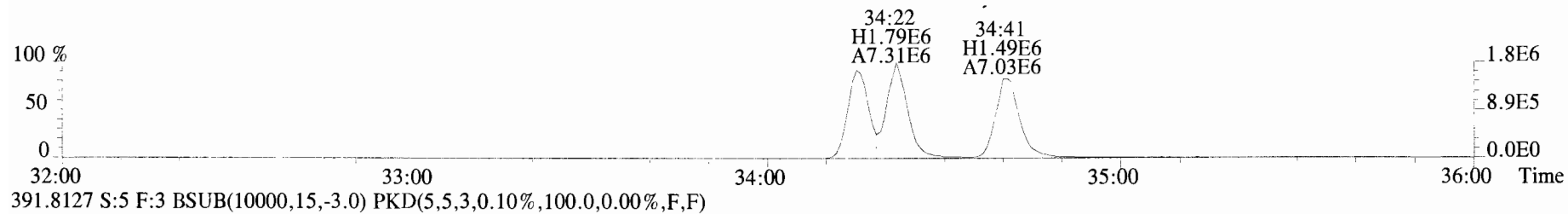
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



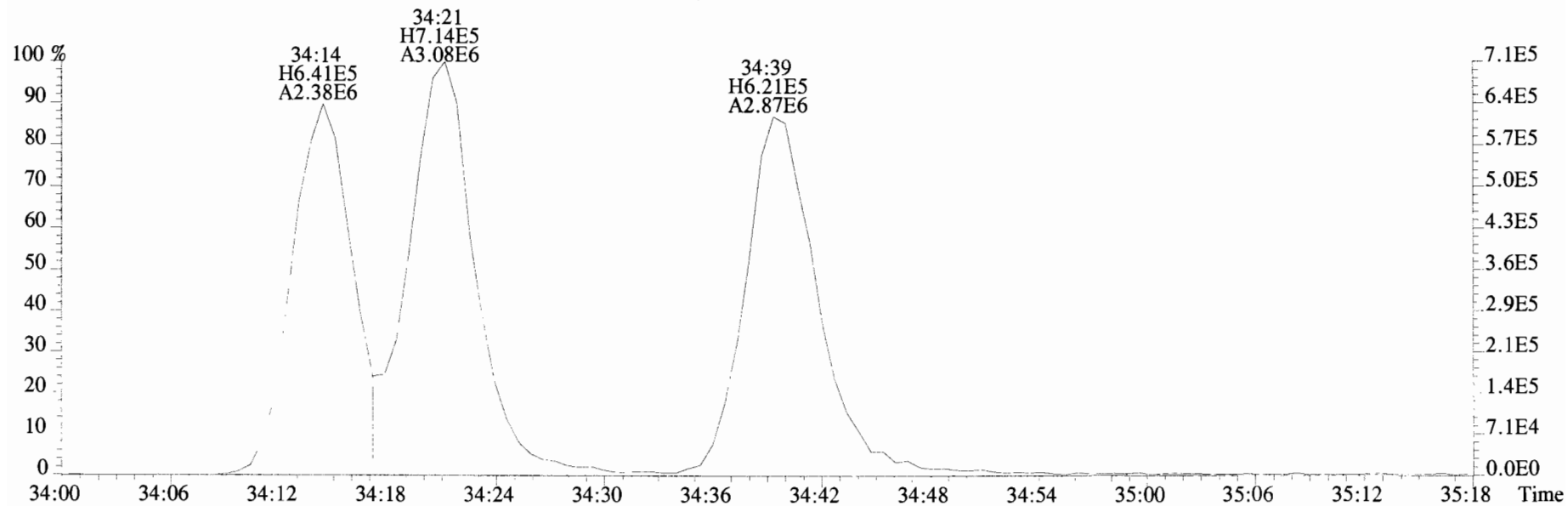
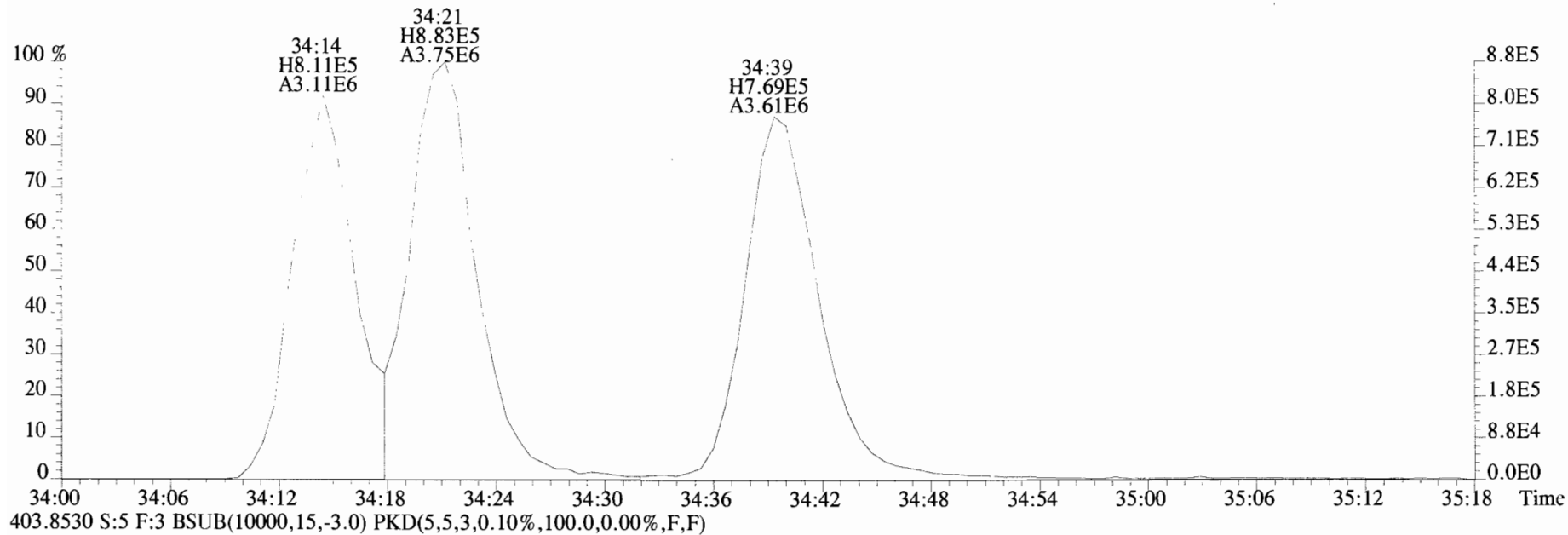
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



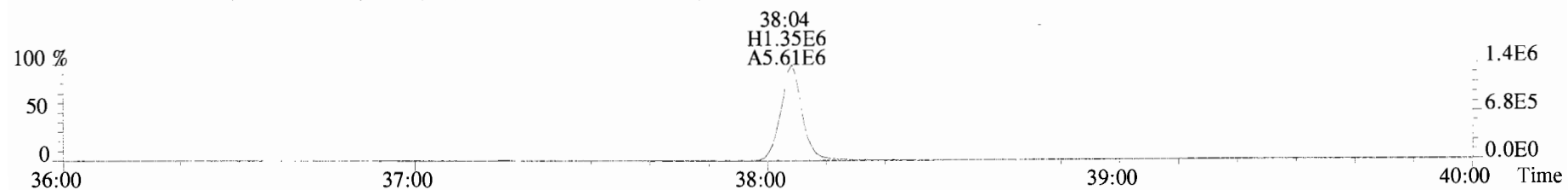
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



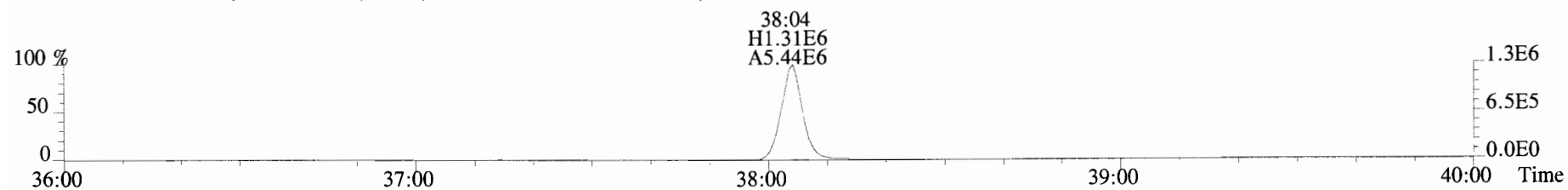
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



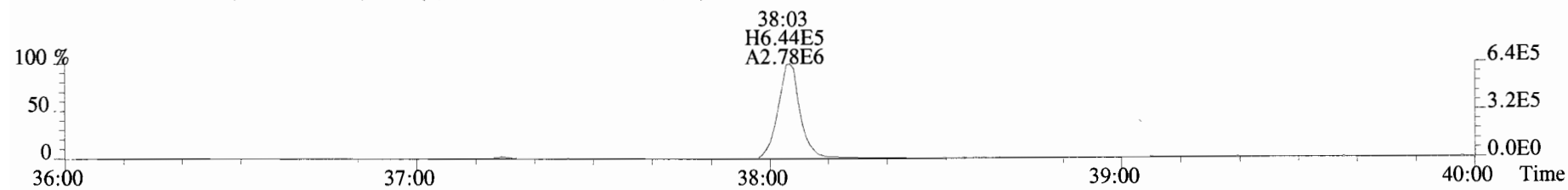
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



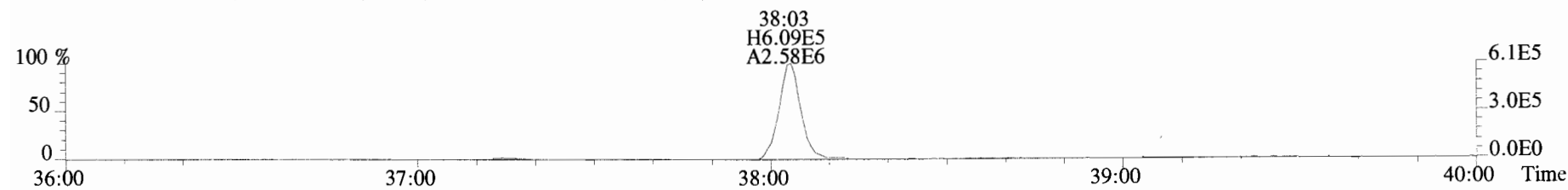
425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



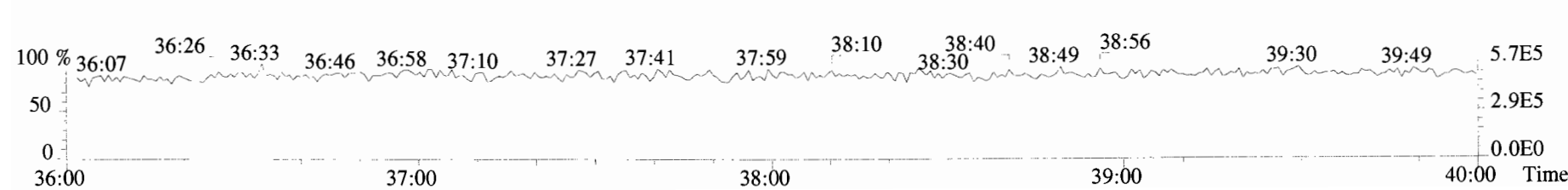
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



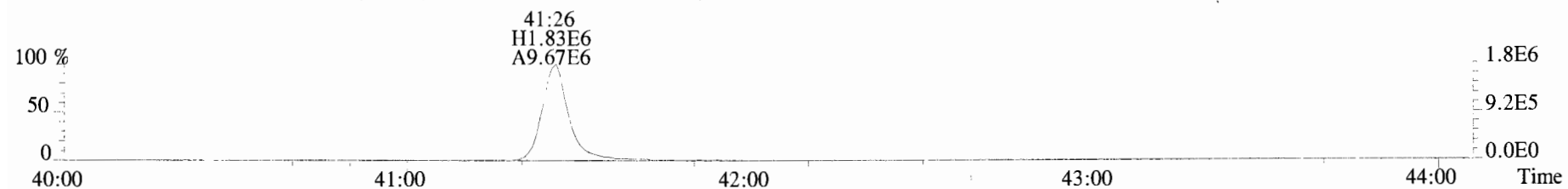
437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



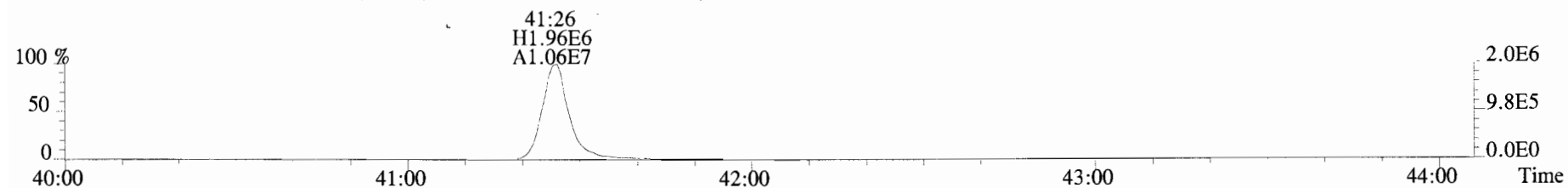
454.9728 S:5 F:4



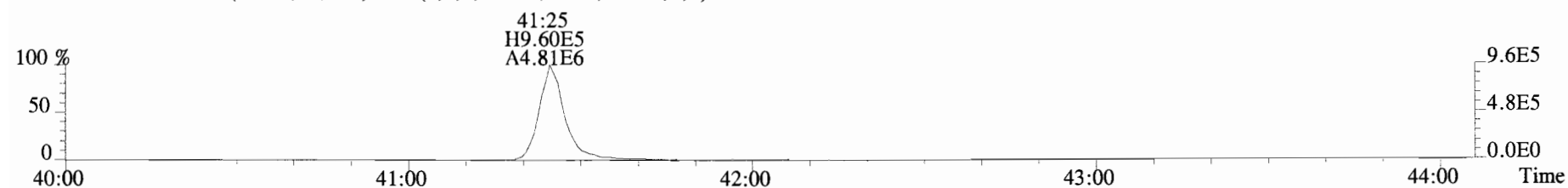
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



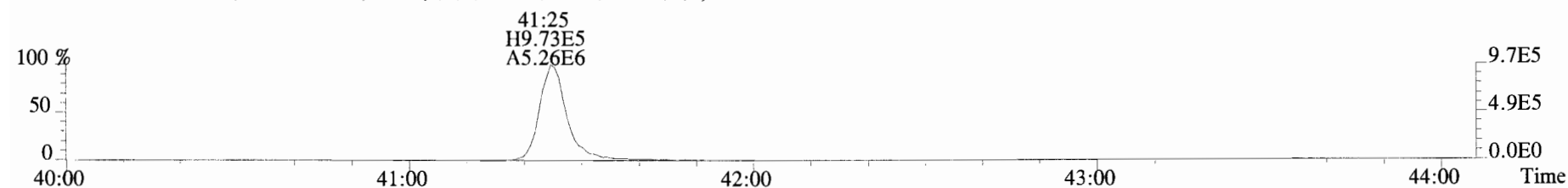
459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



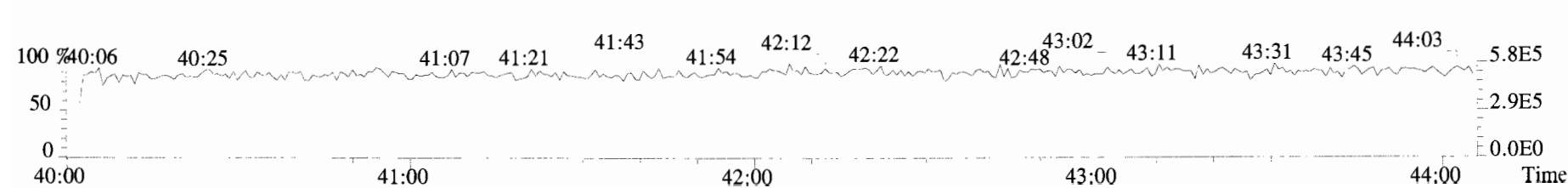
469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



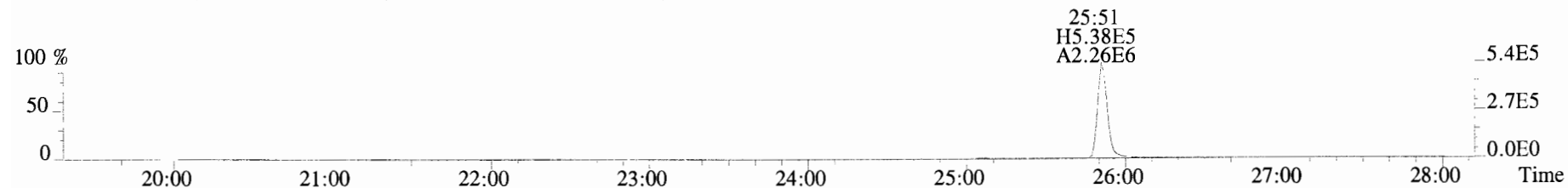
471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



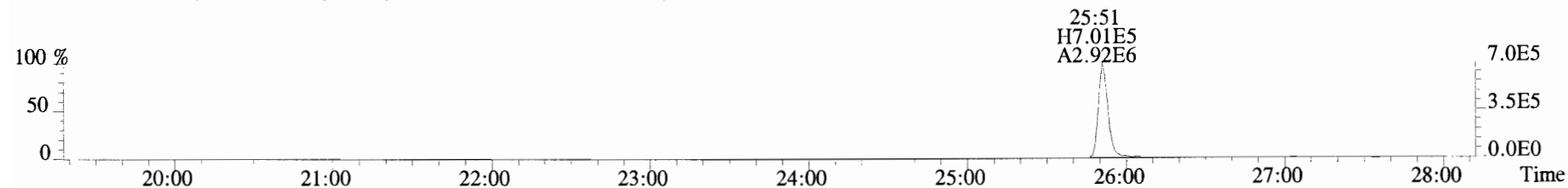
454.9728 S:5 F:5



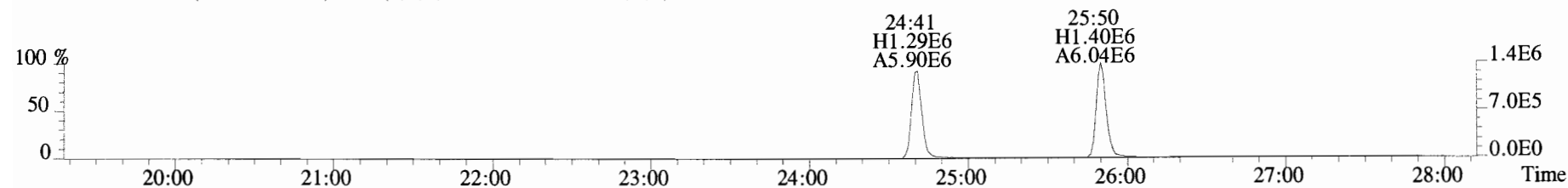
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



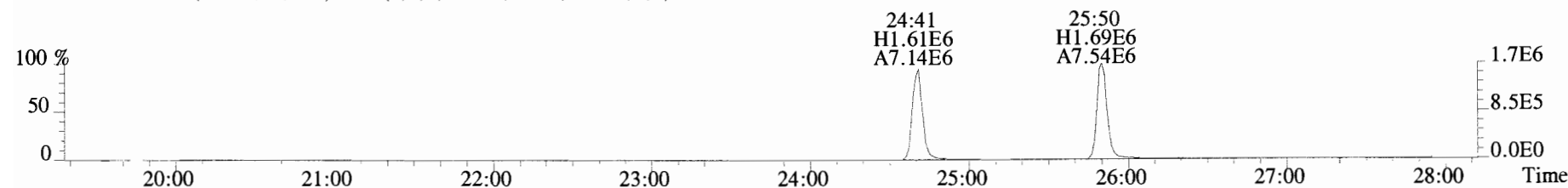
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



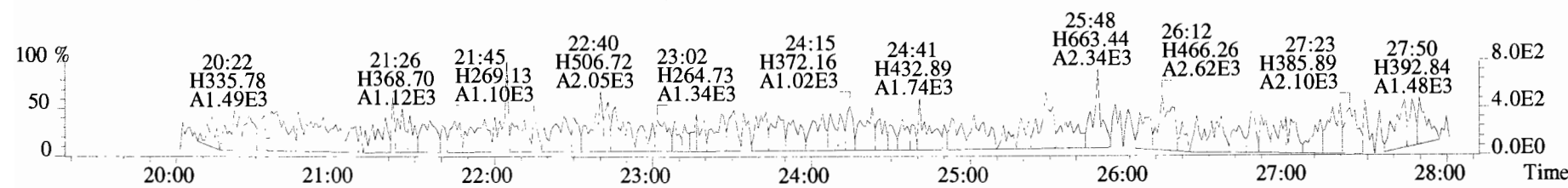
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

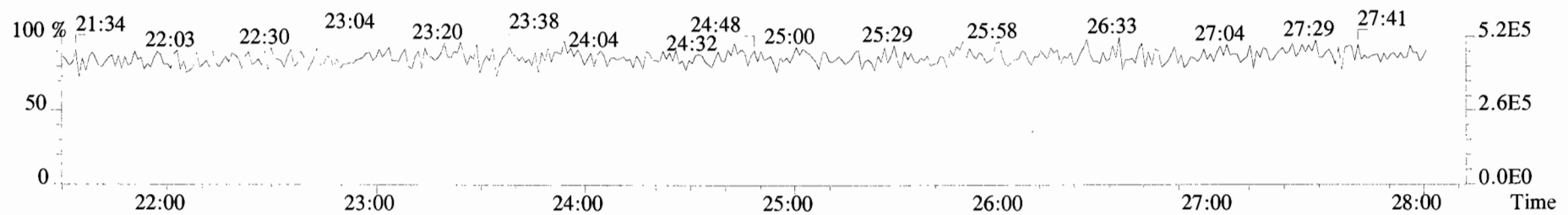
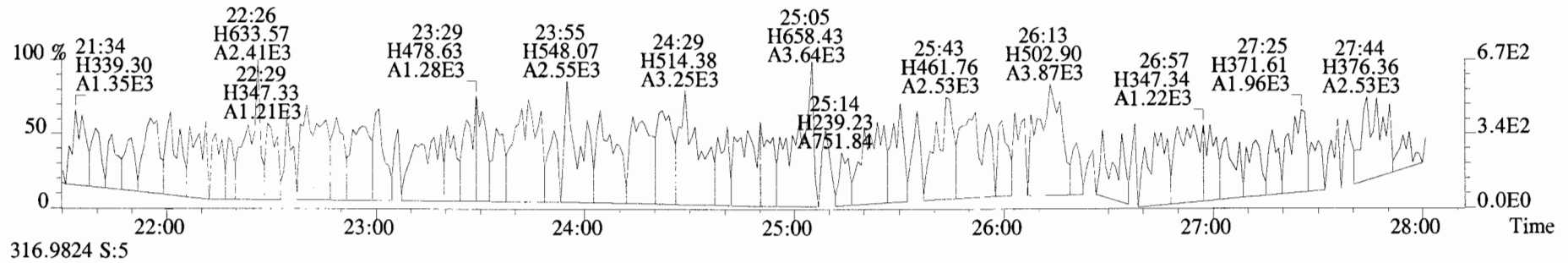
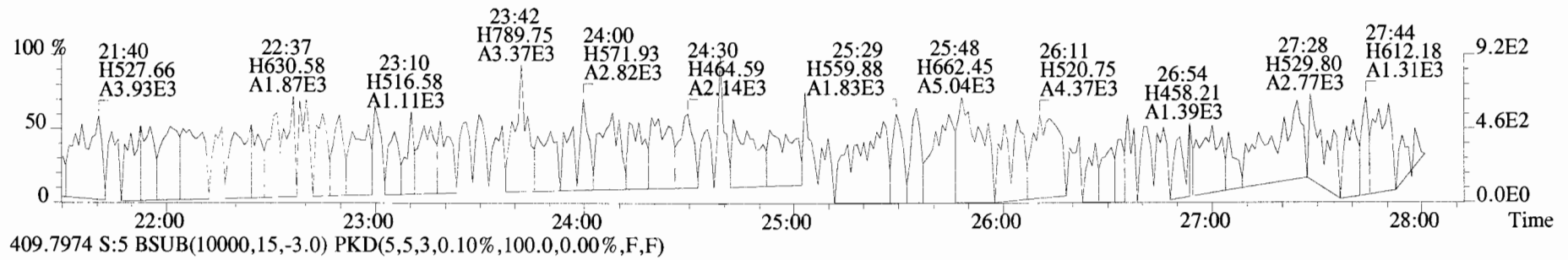
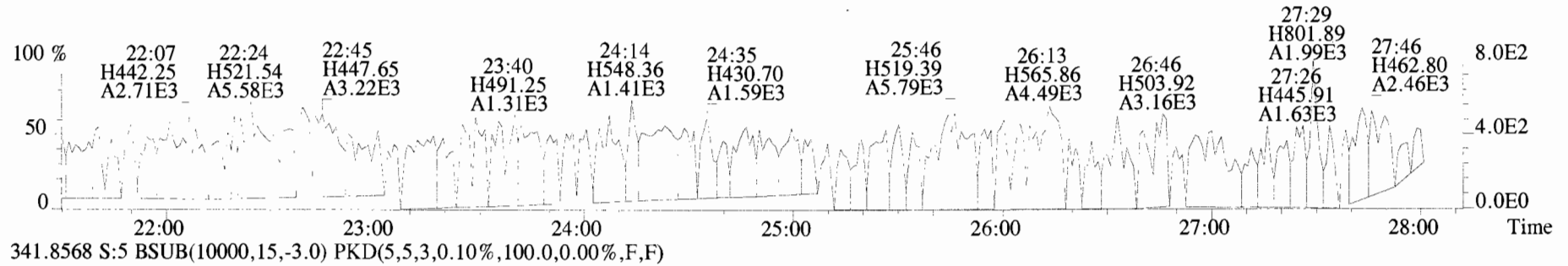


375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

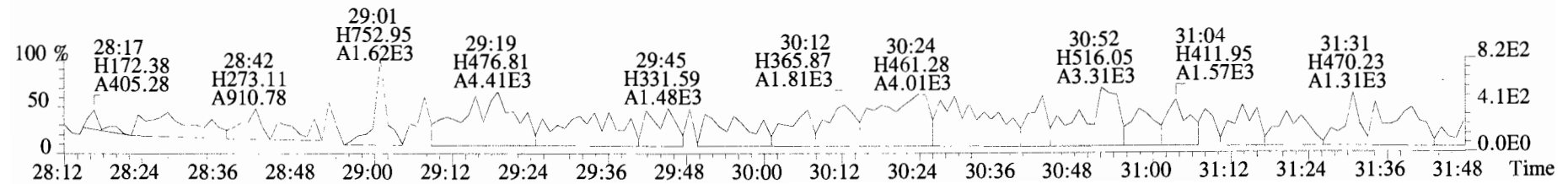
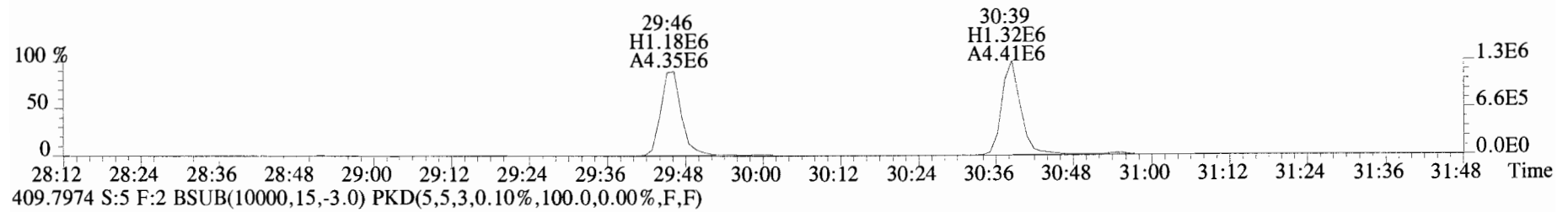
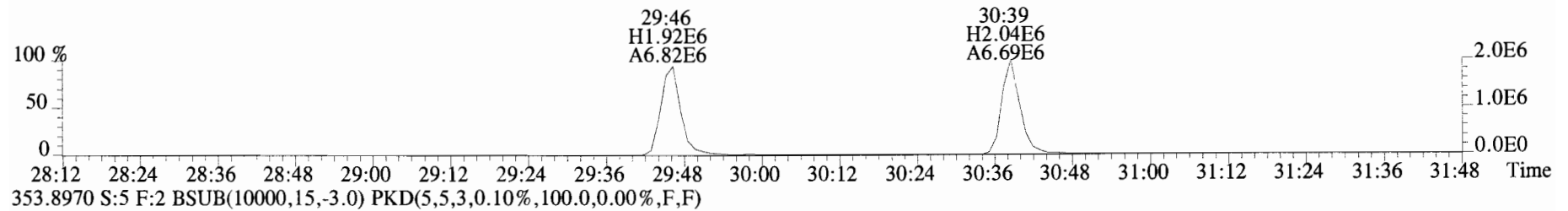
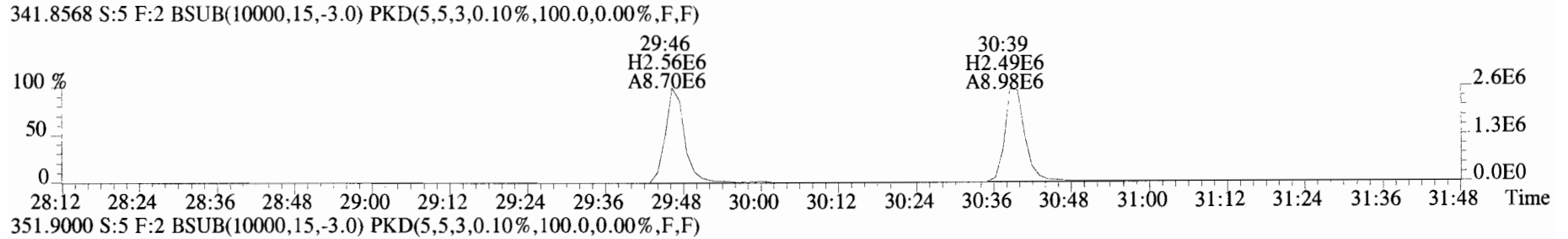
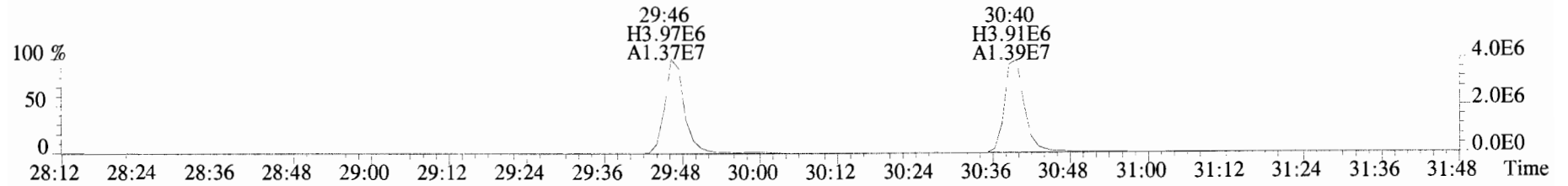




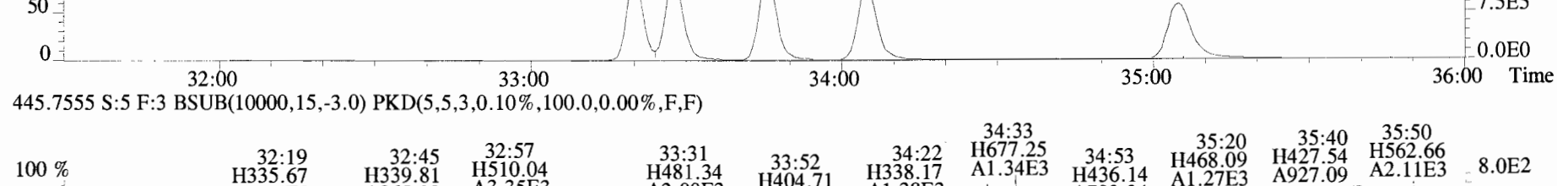
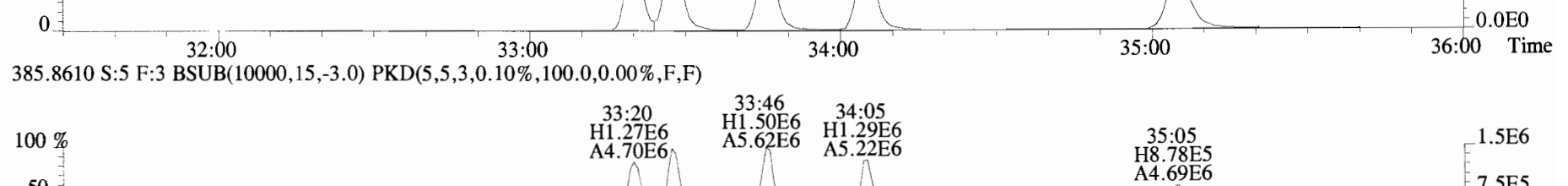
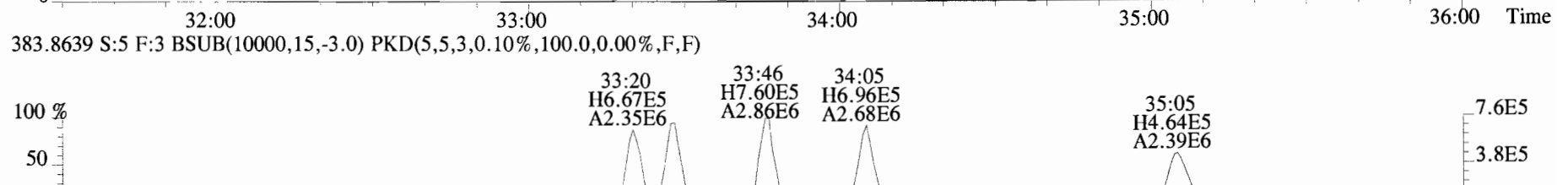
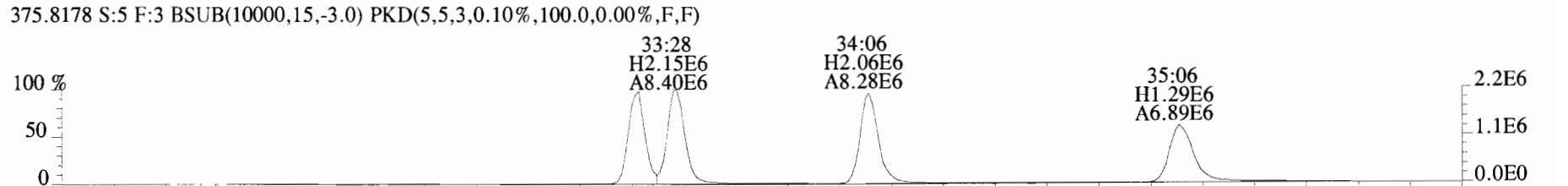
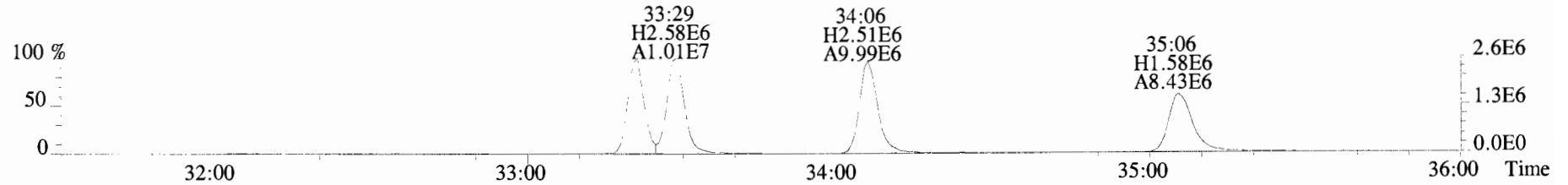
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



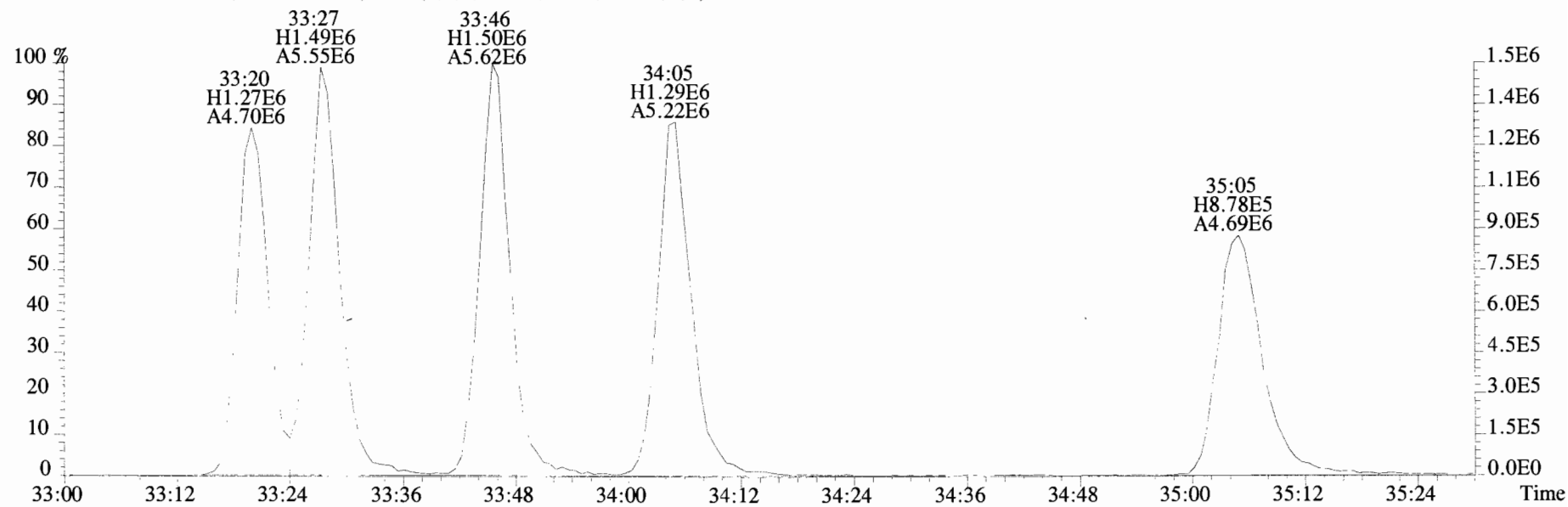
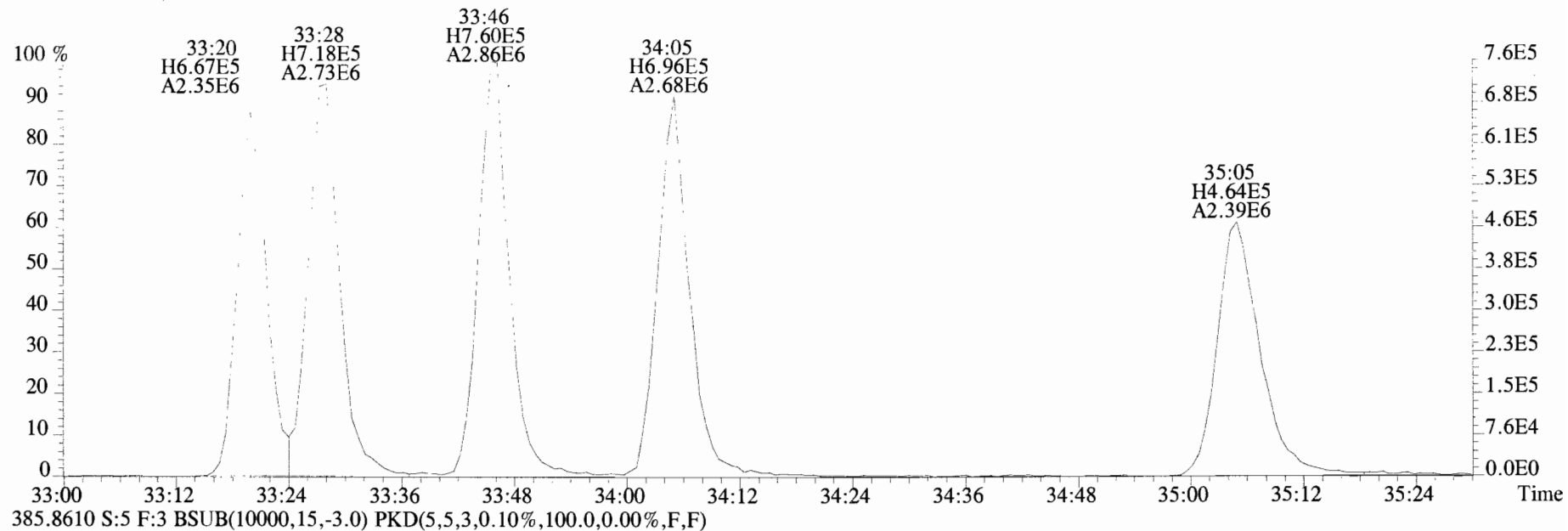
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
339.8597 S:5 F:2 BSub(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



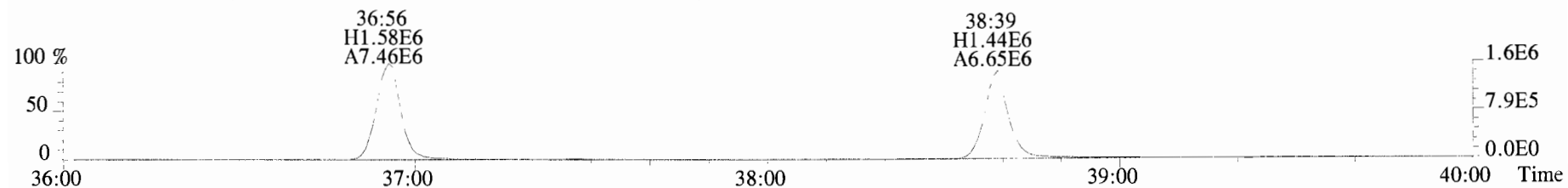
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



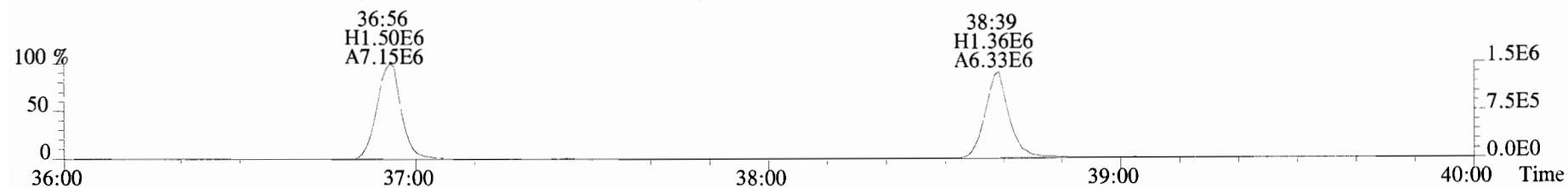
File: 191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory VG7 Text: ST191009D1-5 1613 CS4 19C2205 Exp: OCDD\_DB5  
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



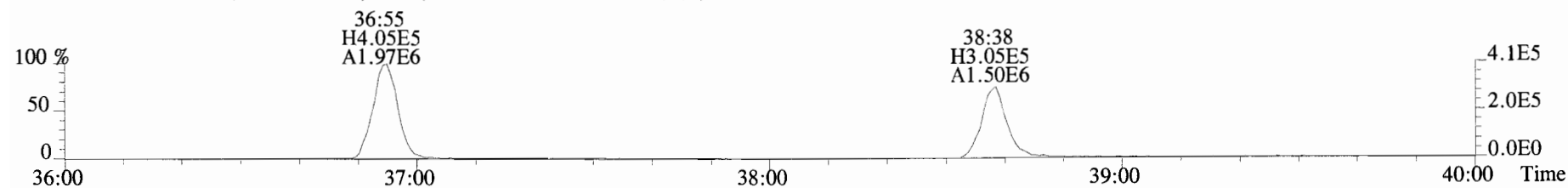
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text: Vista Analytical Laboratory\_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



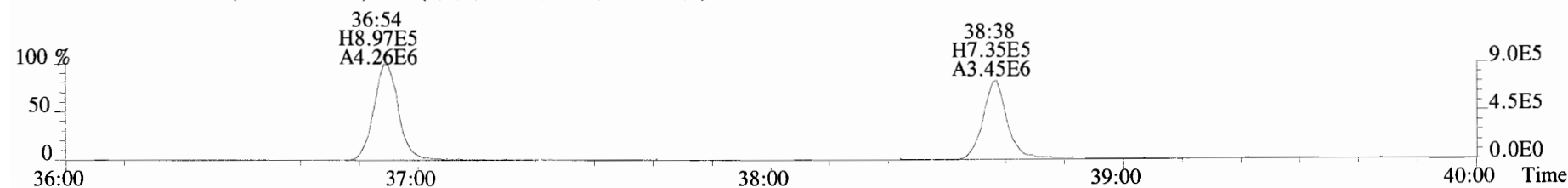
409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



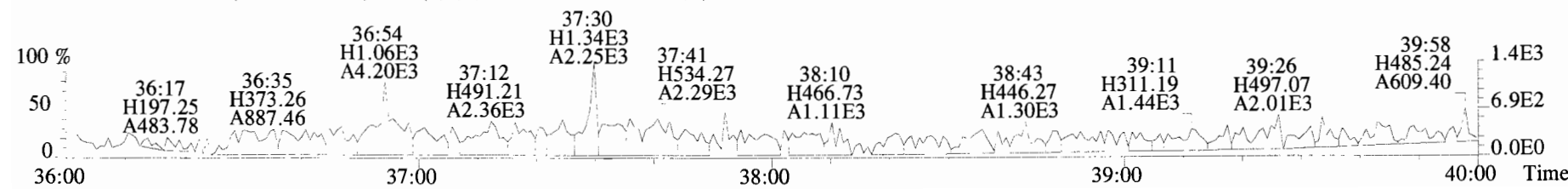
417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



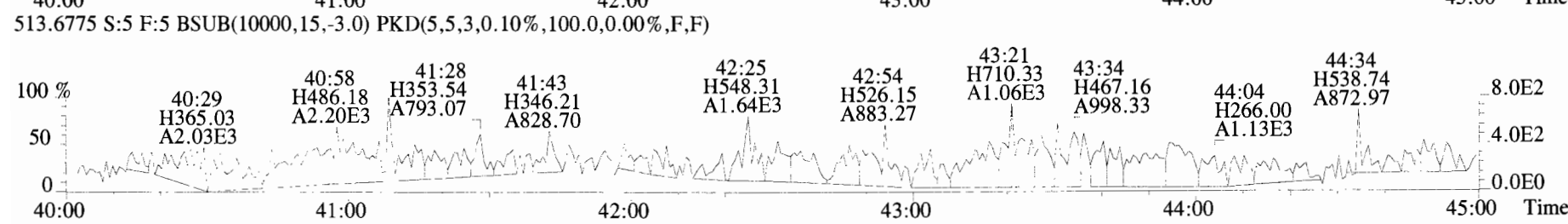
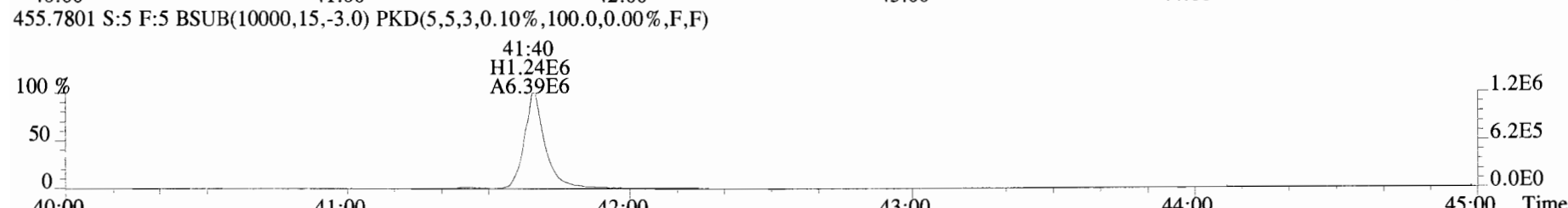
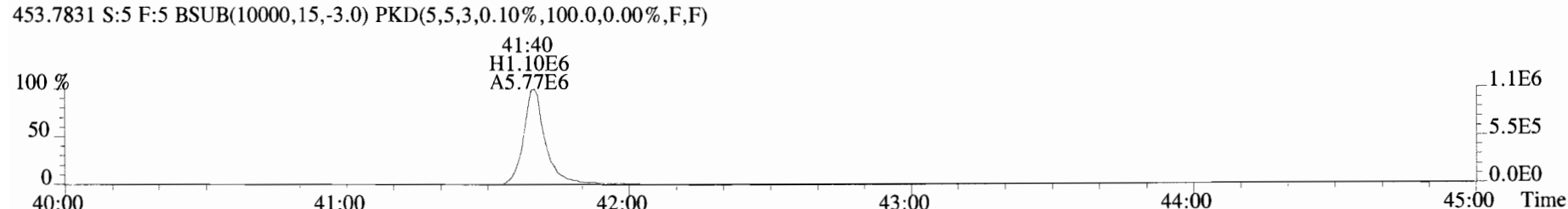
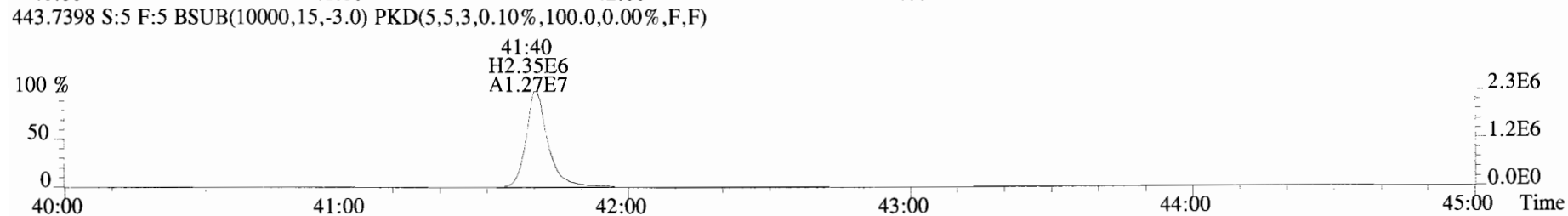
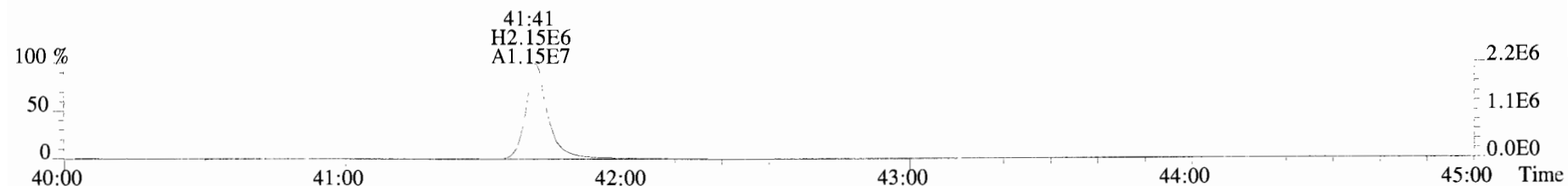
419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



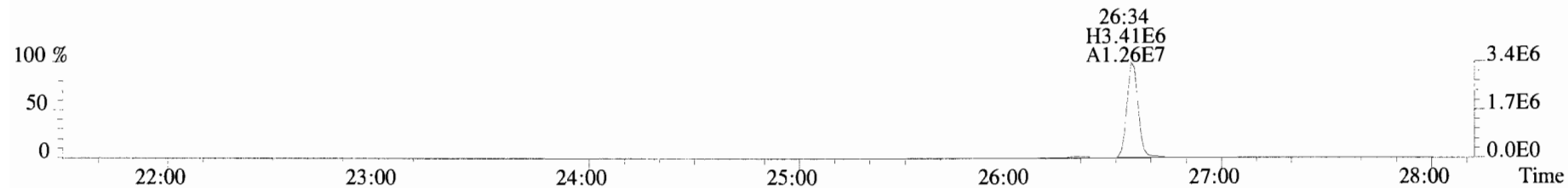
479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



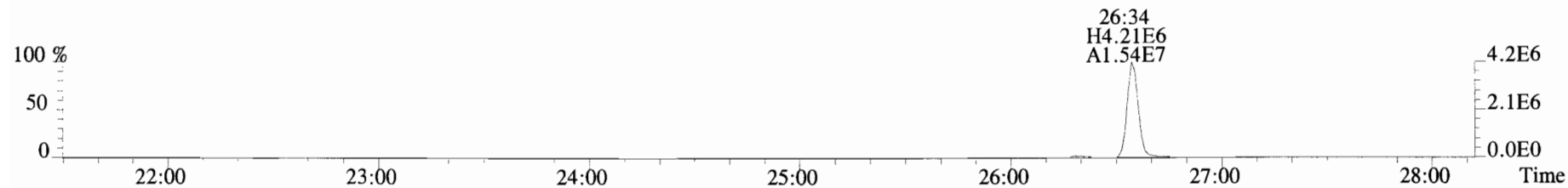
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#5 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD\_DB5  
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



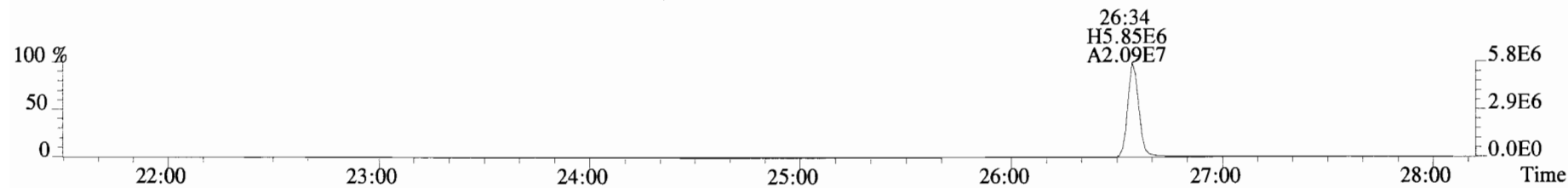
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



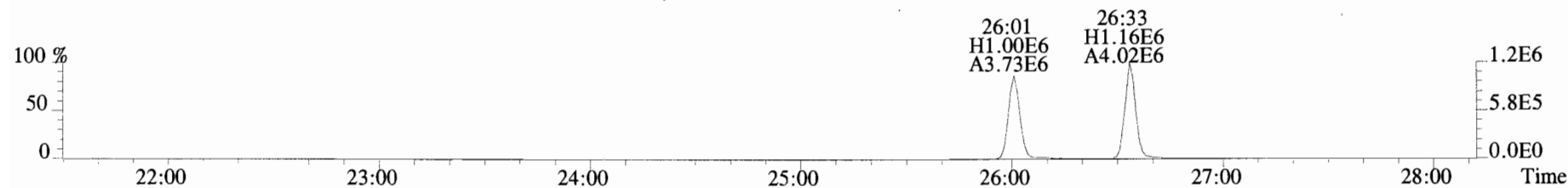
321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



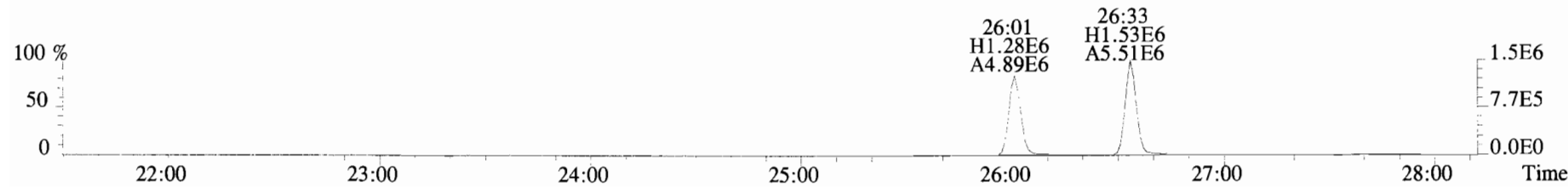
327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



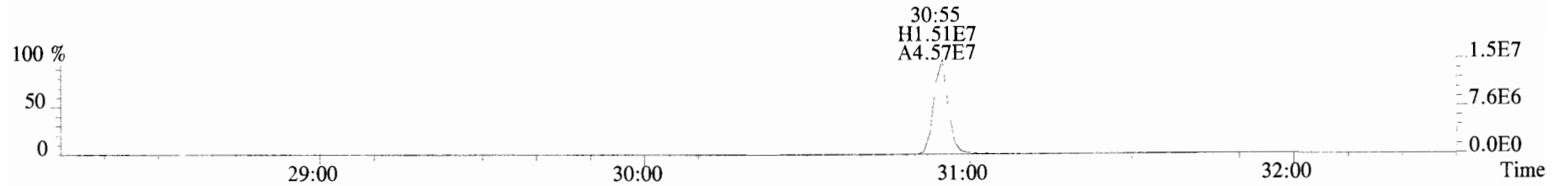
331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



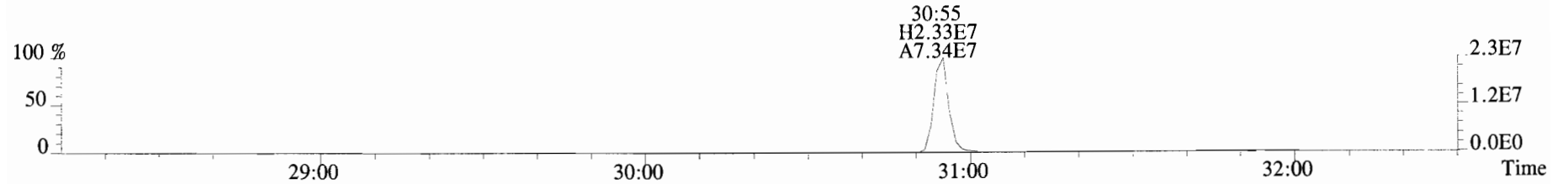
333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



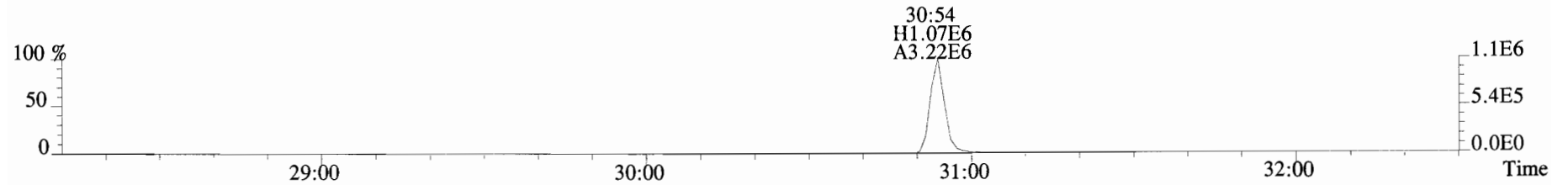
File:191009D1 #1-211 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



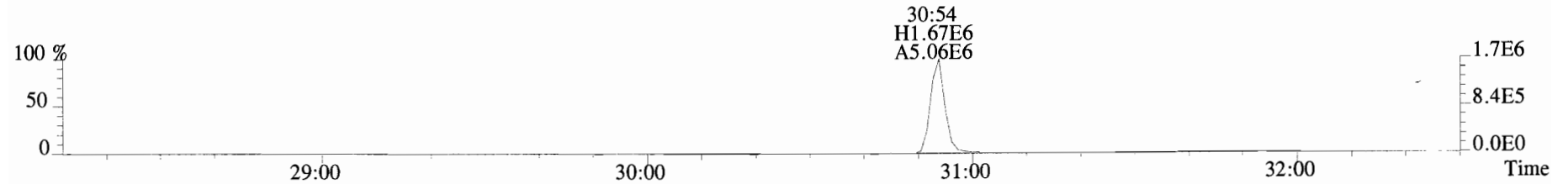
355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



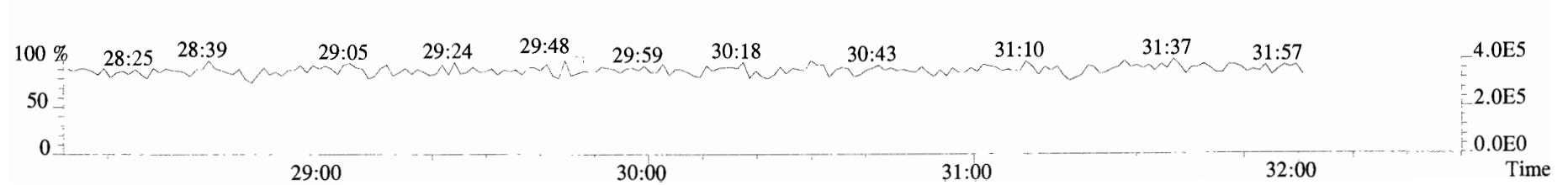
365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

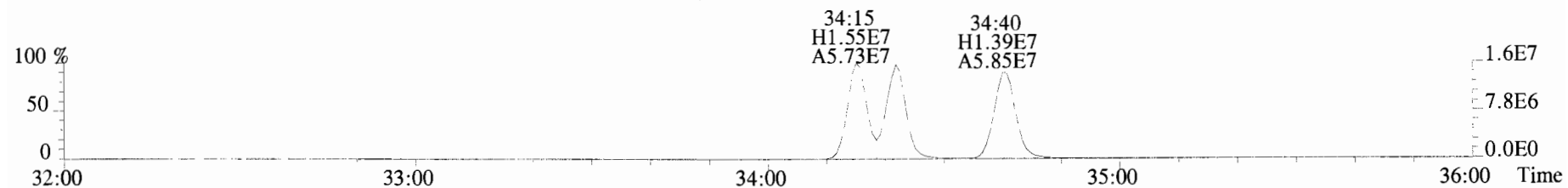


366.9792 S:6 F:2

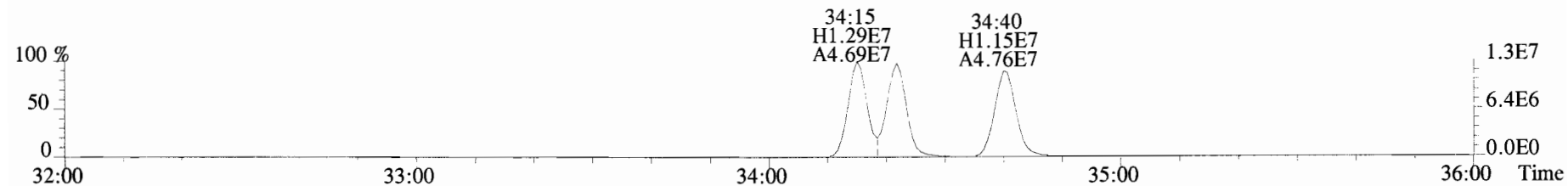




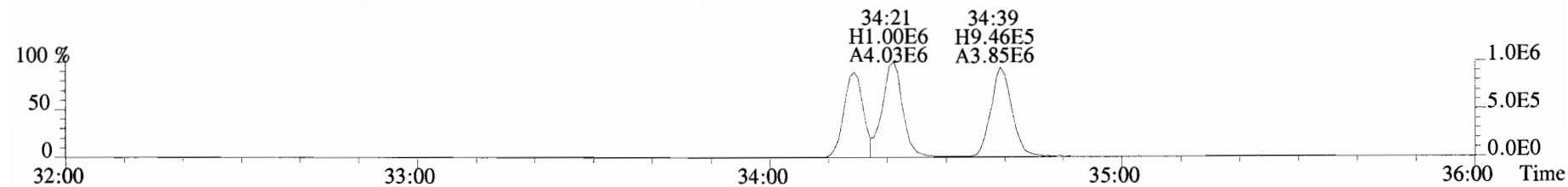
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



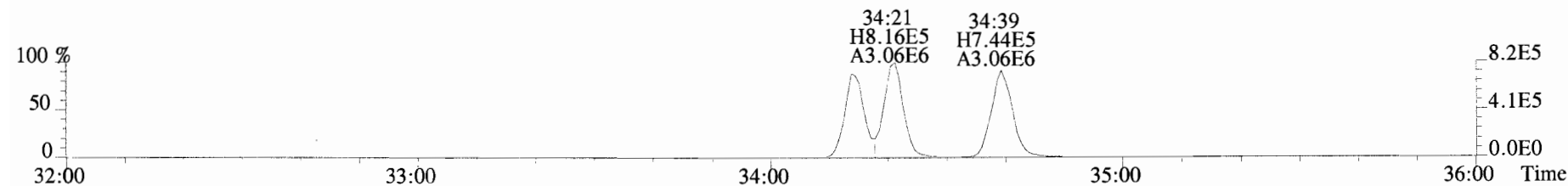
391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



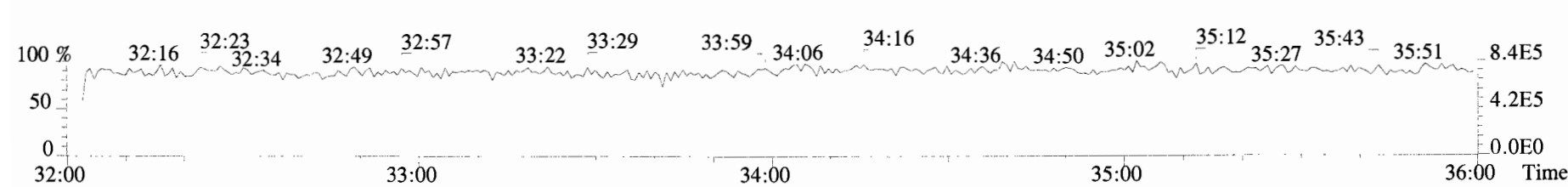
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



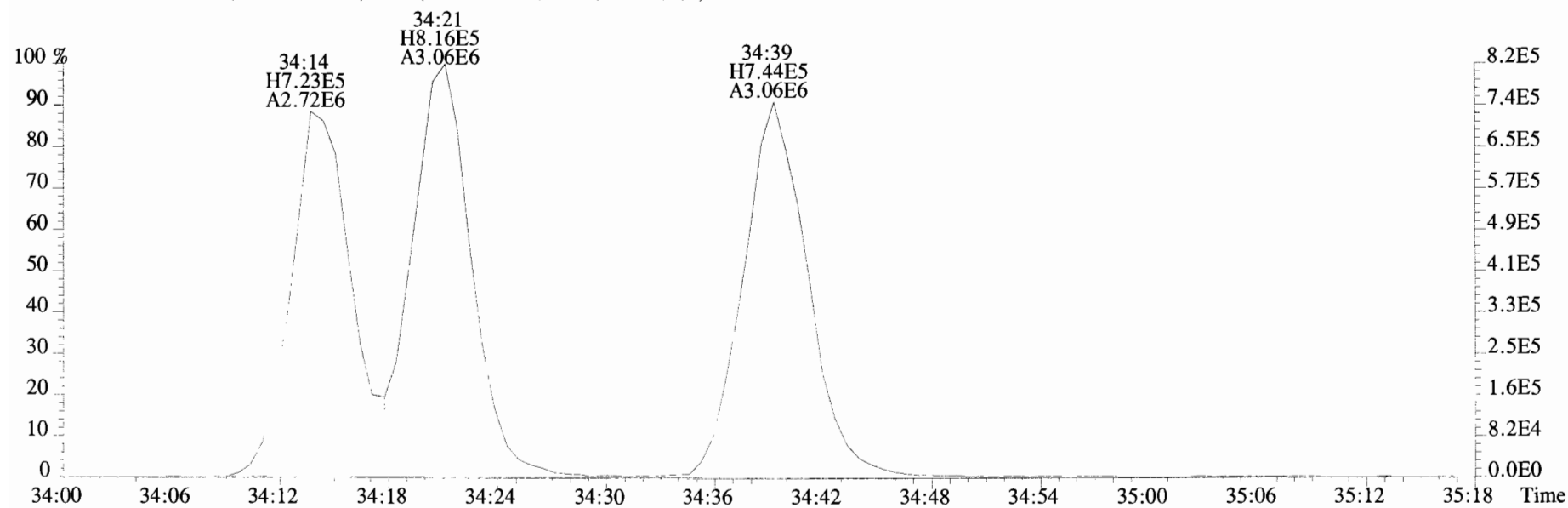
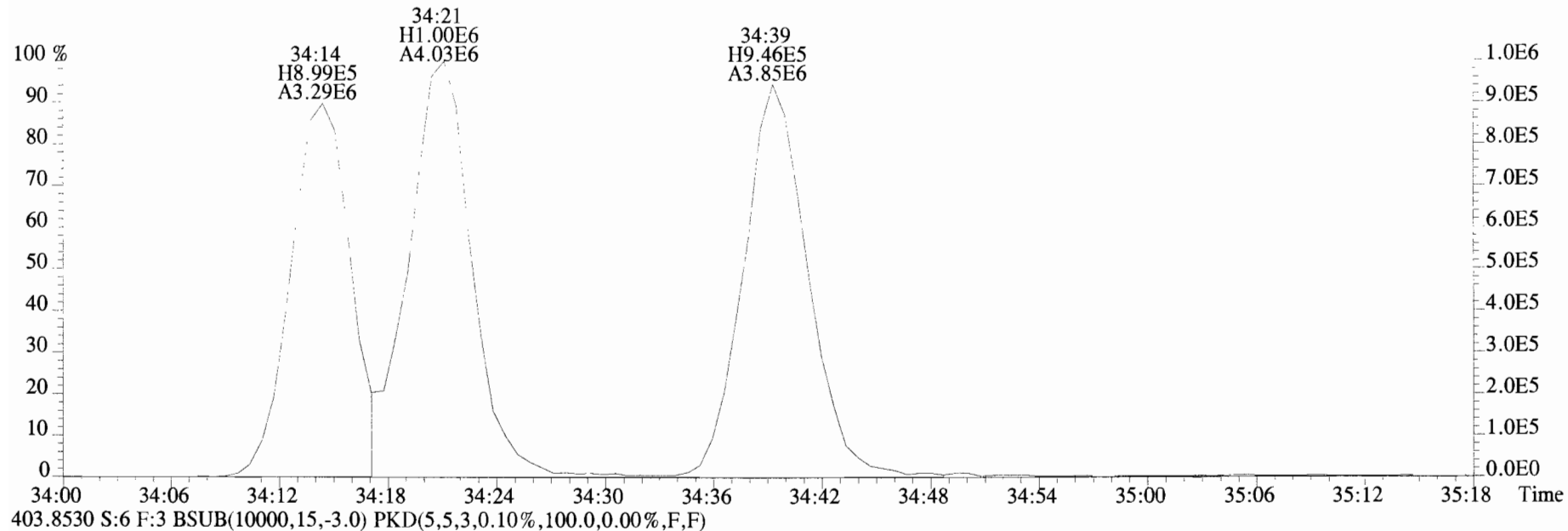
403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



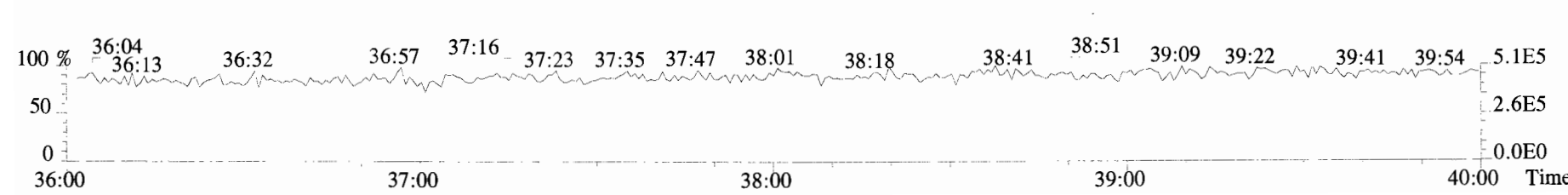
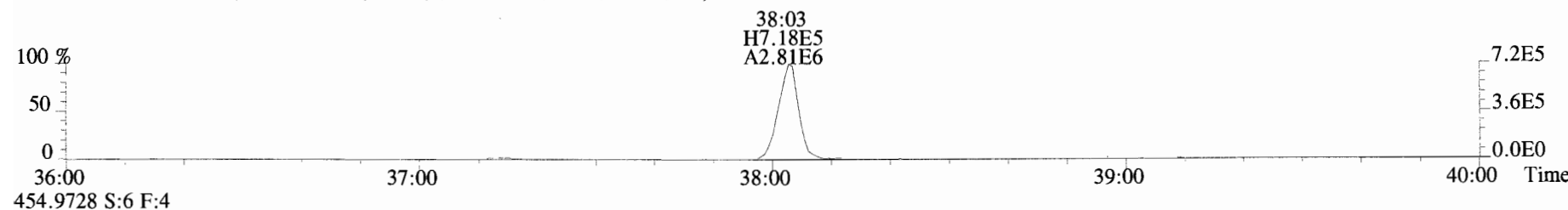
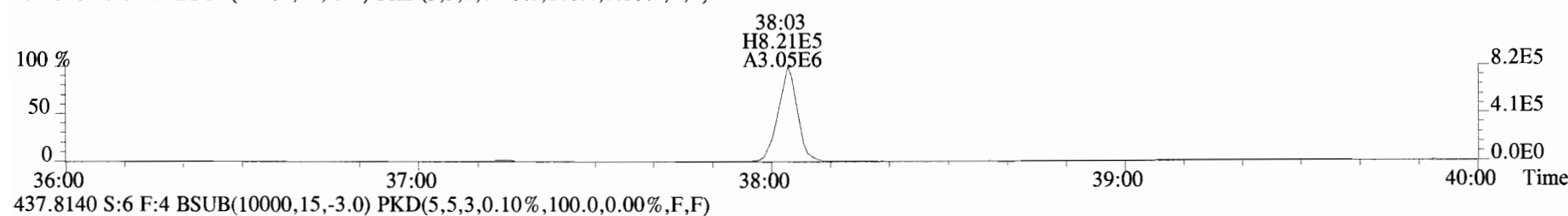
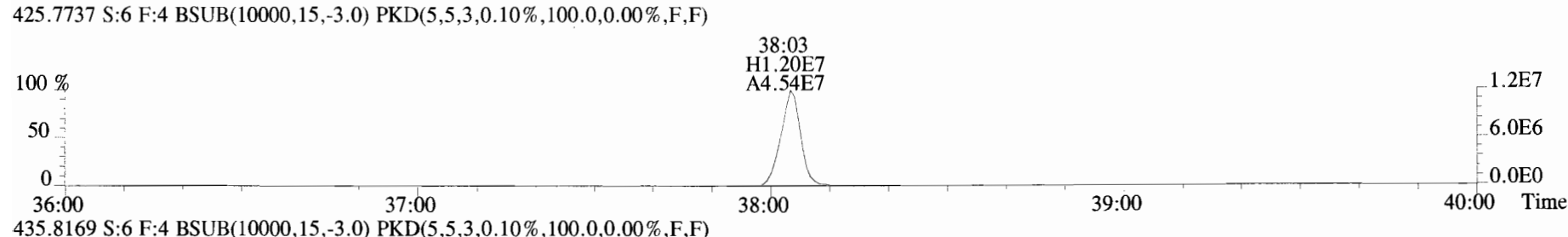
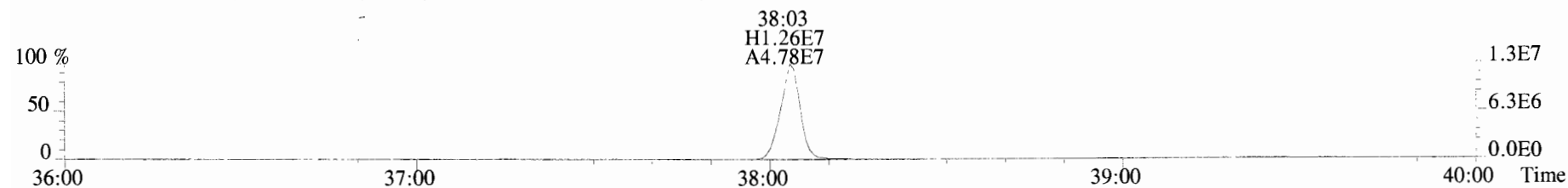
392.9760 S:6 F:3



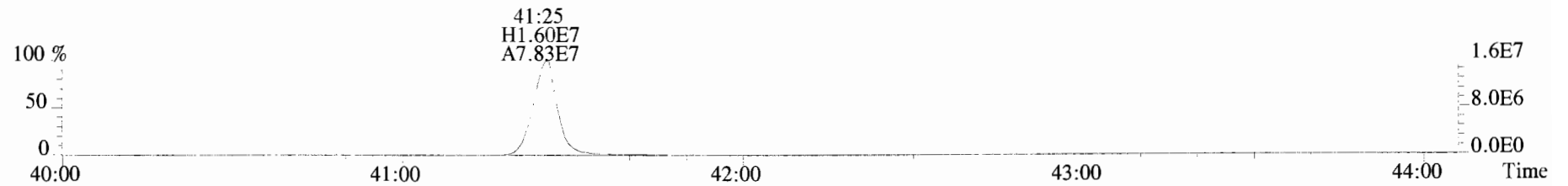
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



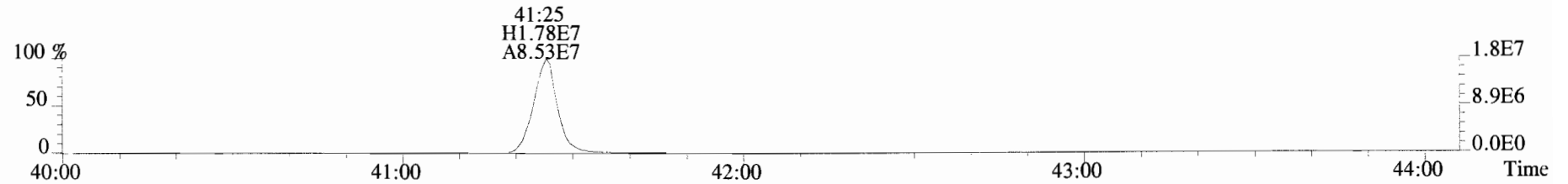
File:191009D1 #1-356 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



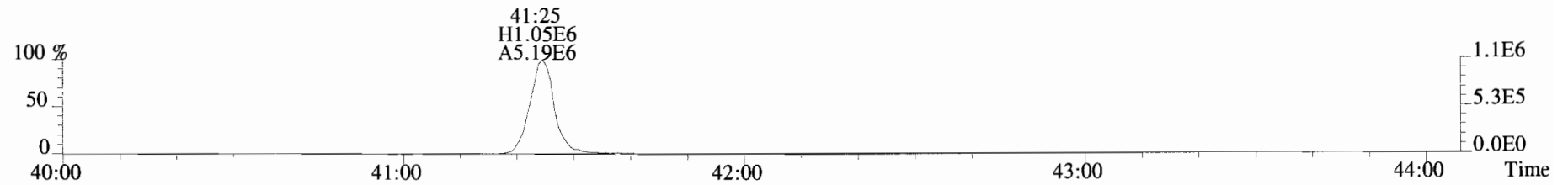
File:191009D1 #1-431 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



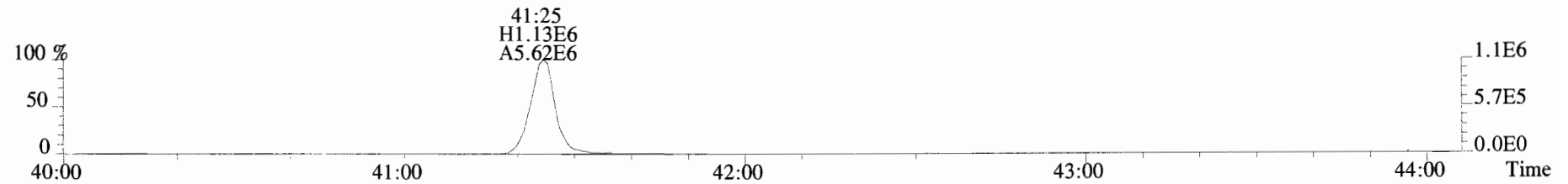
459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



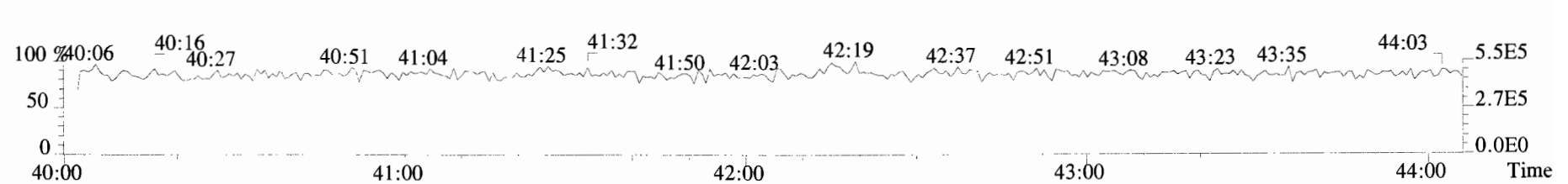
469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



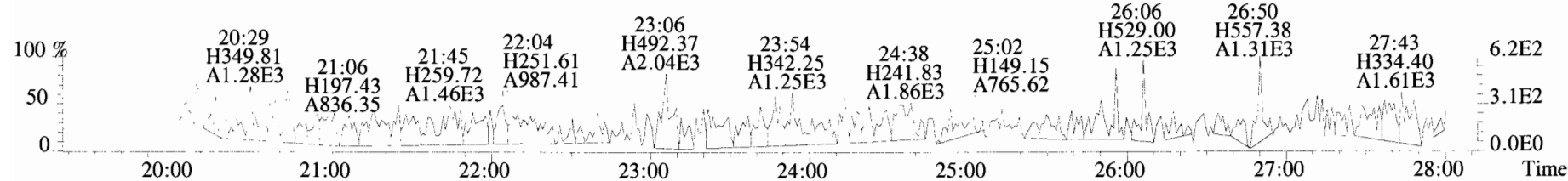
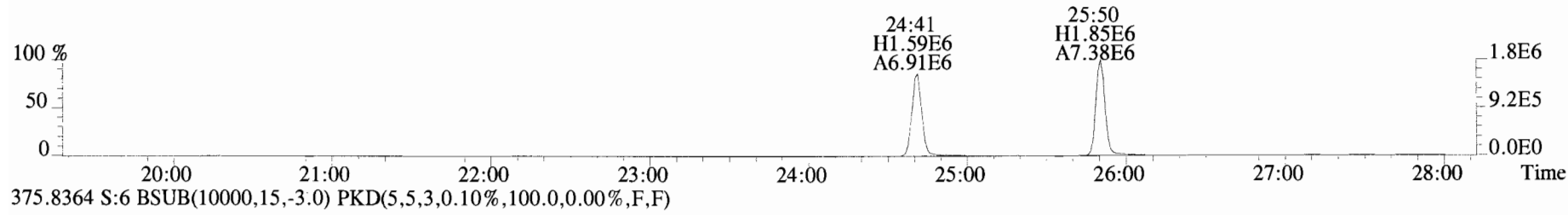
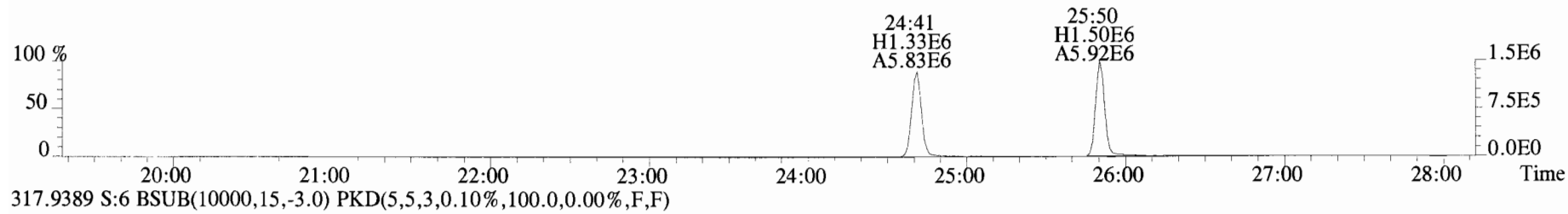
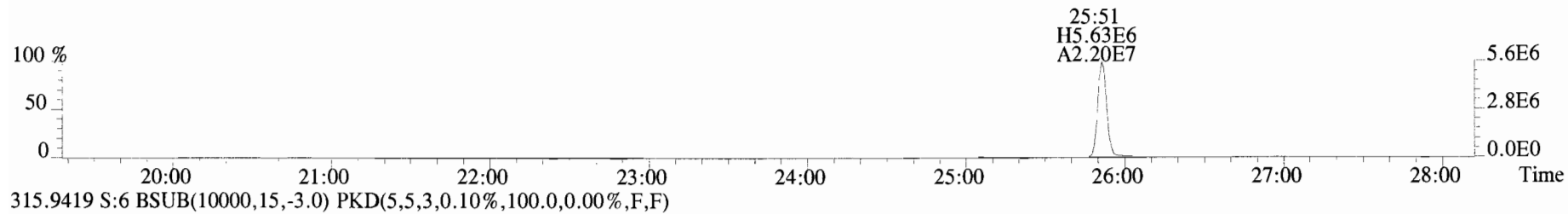
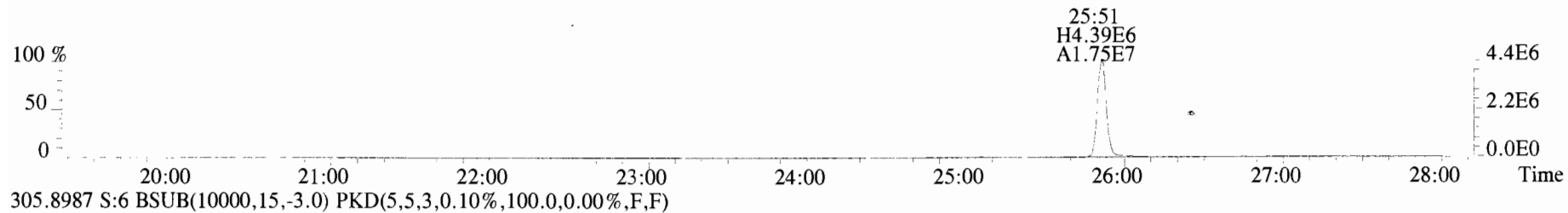
471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



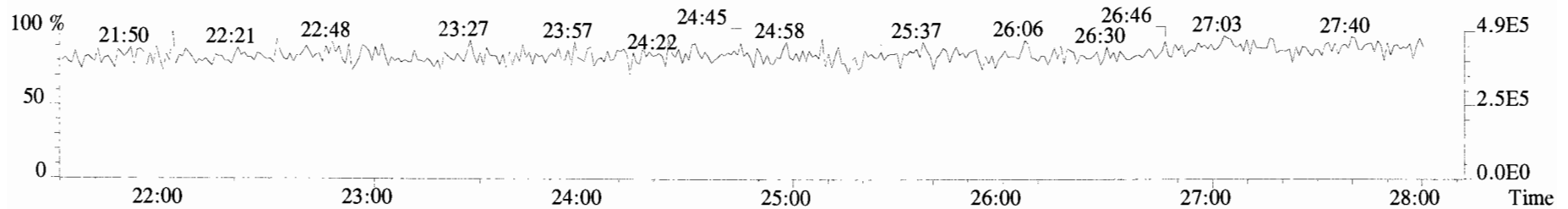
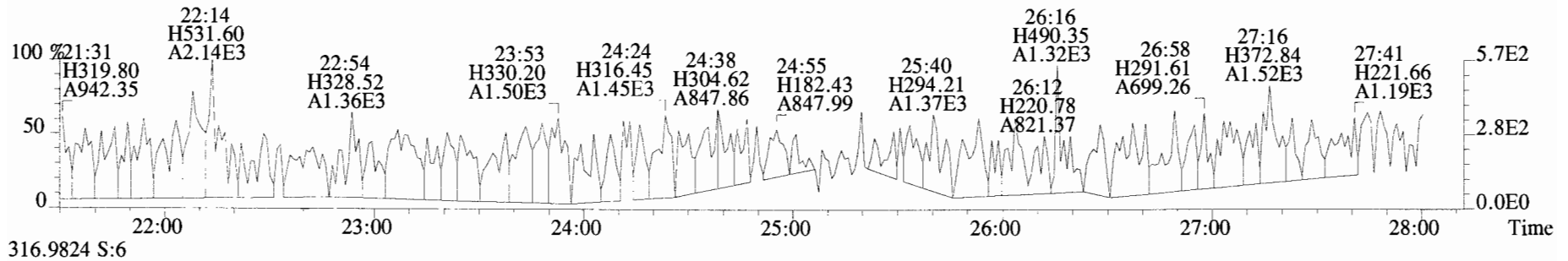
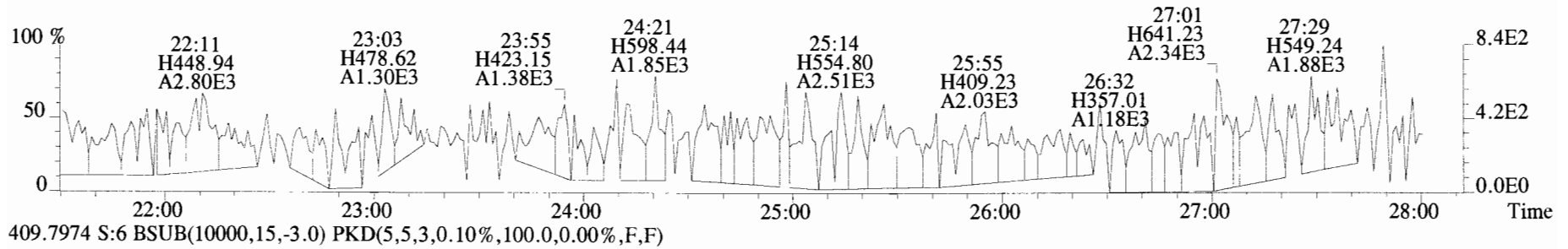
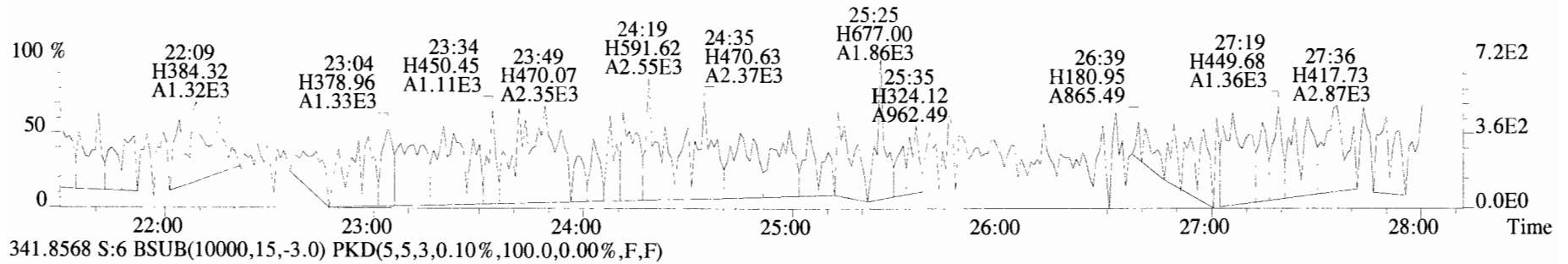
454.9728 S:6 F:5



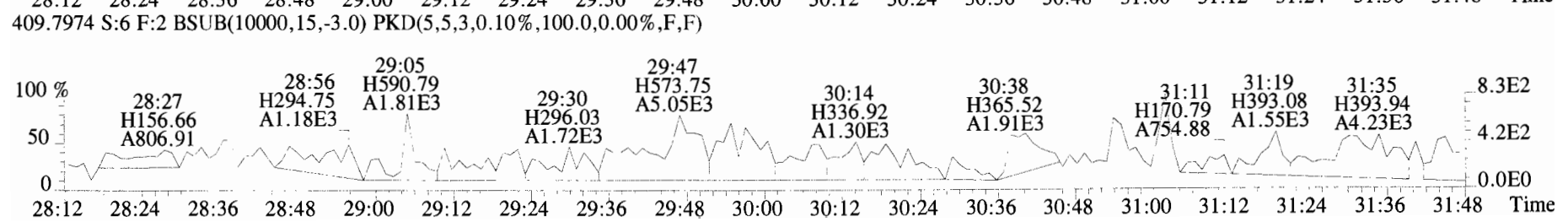
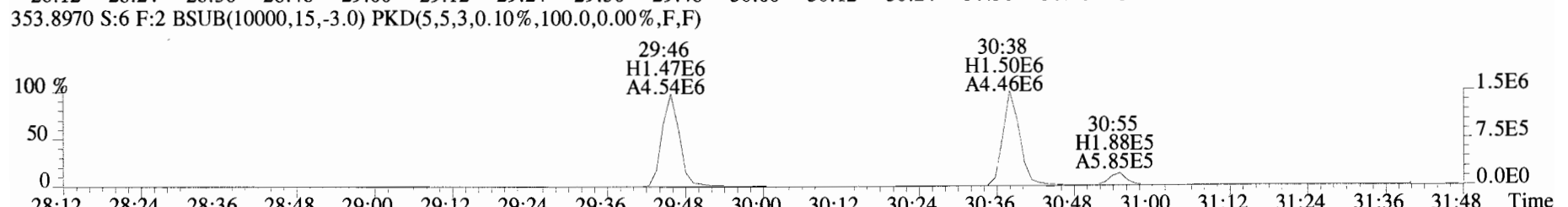
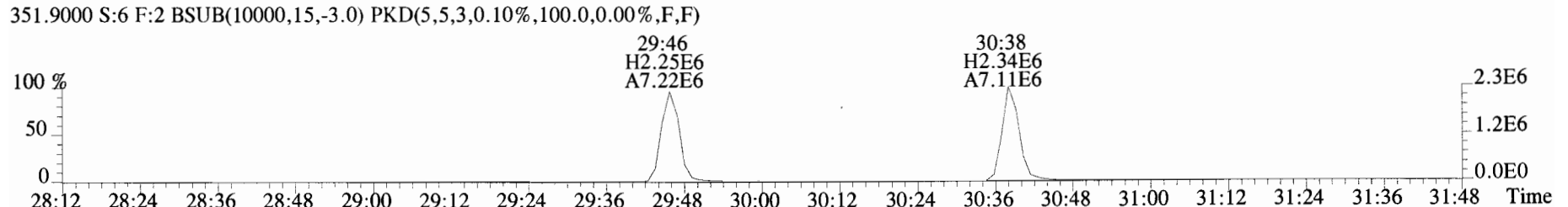
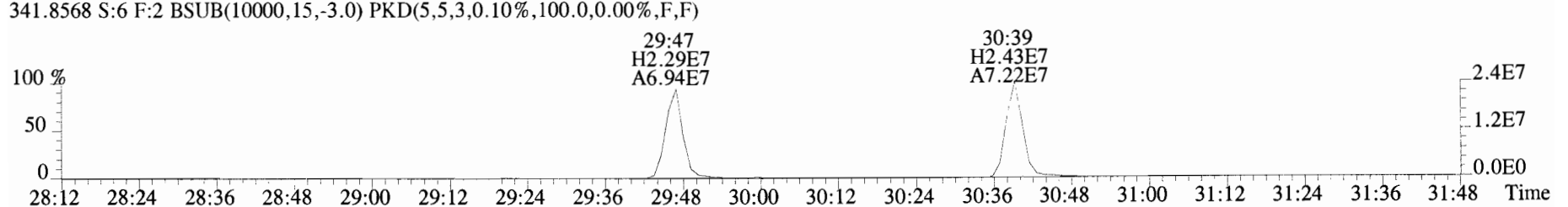
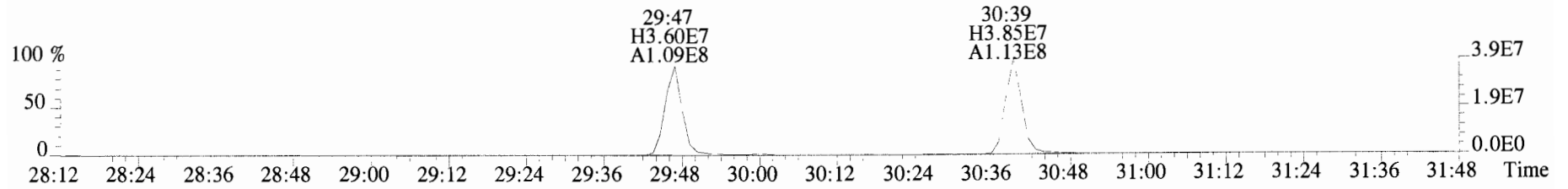
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



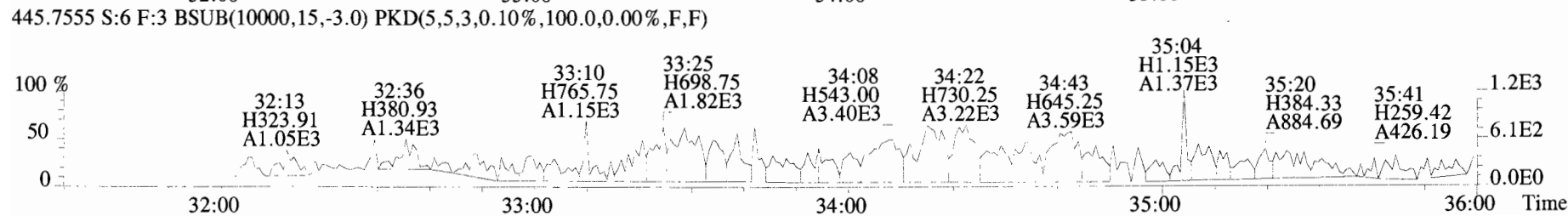
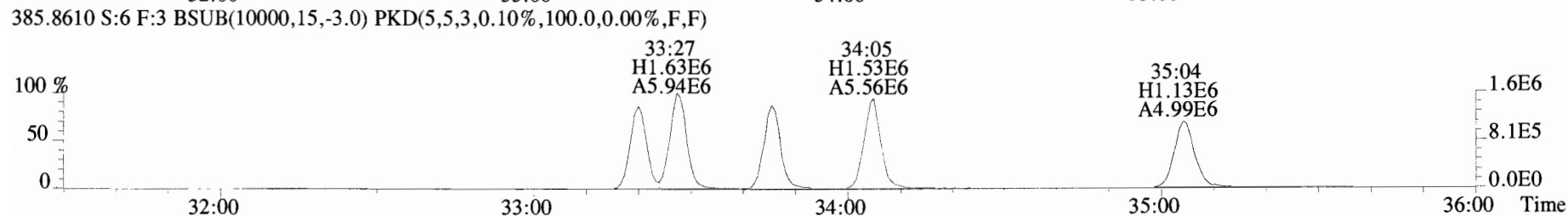
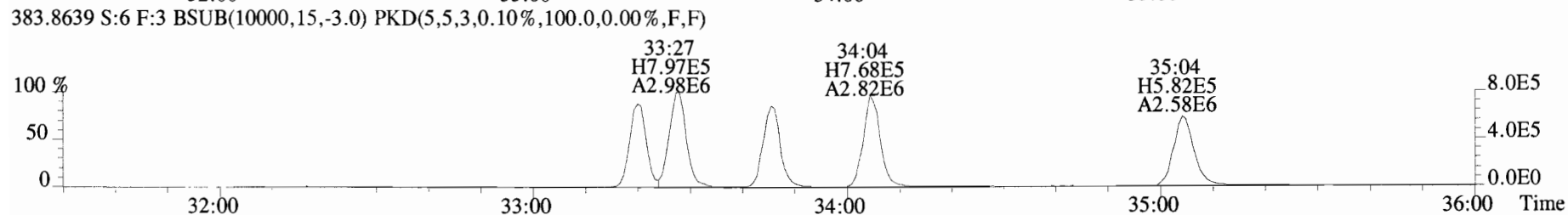
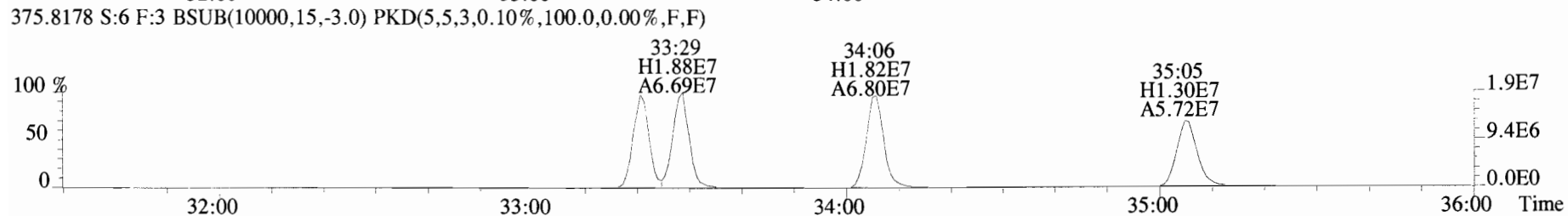
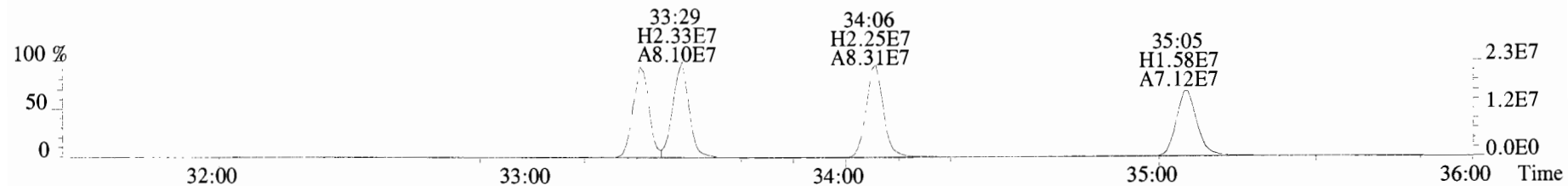
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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  
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

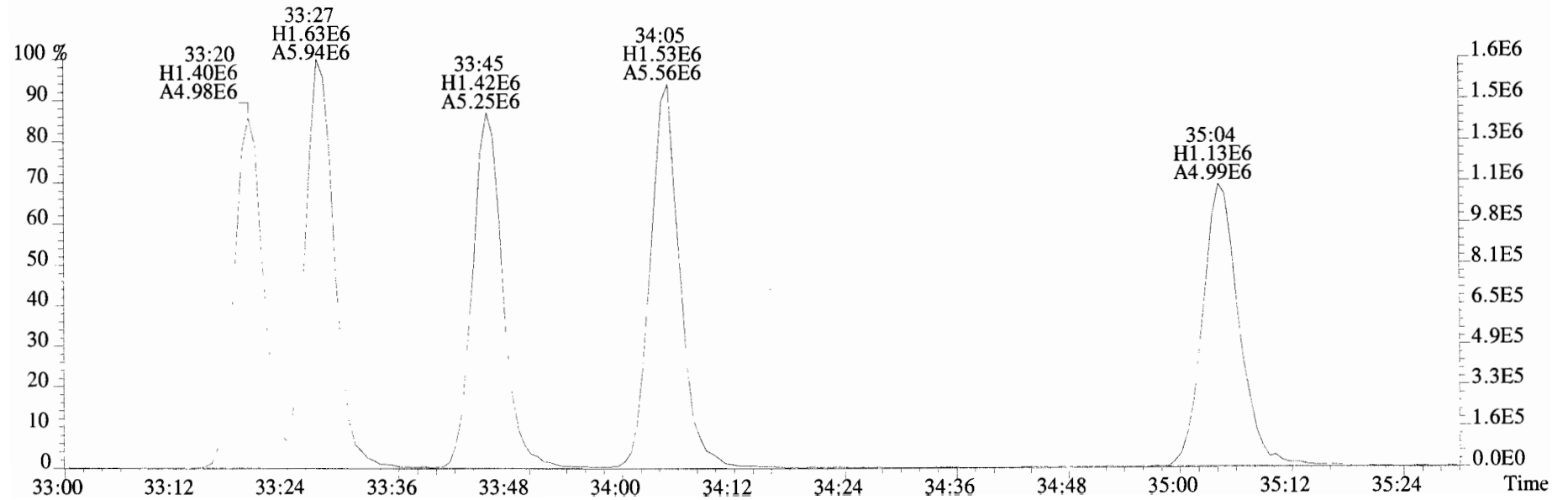
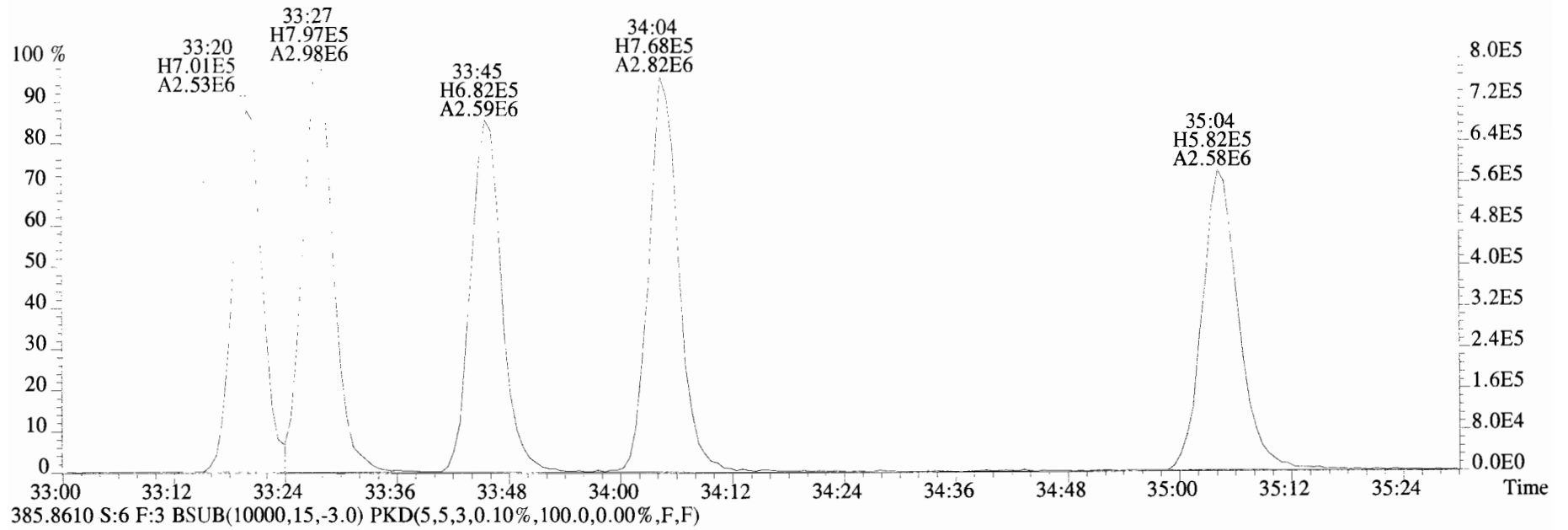


File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
 373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

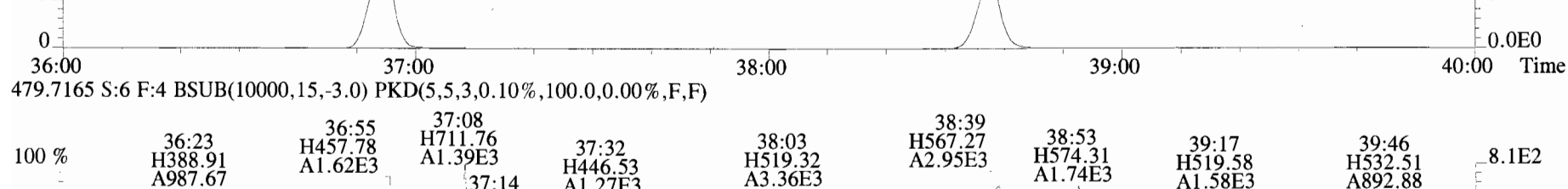
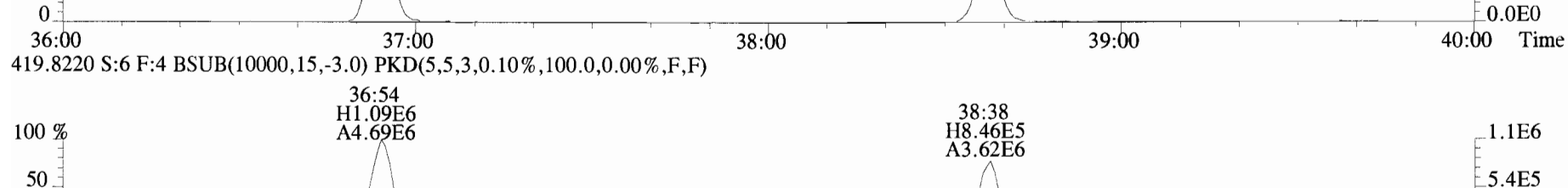
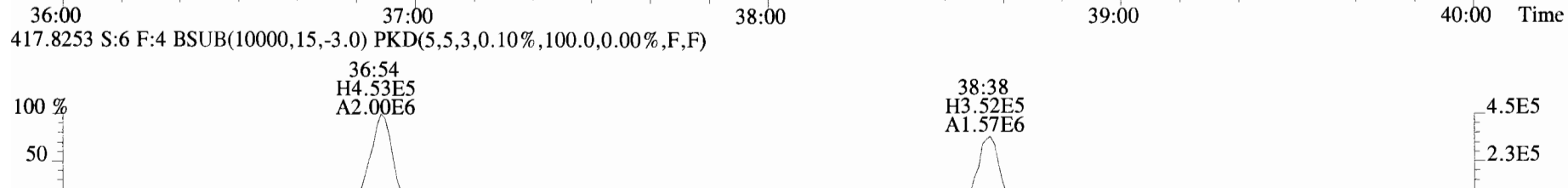
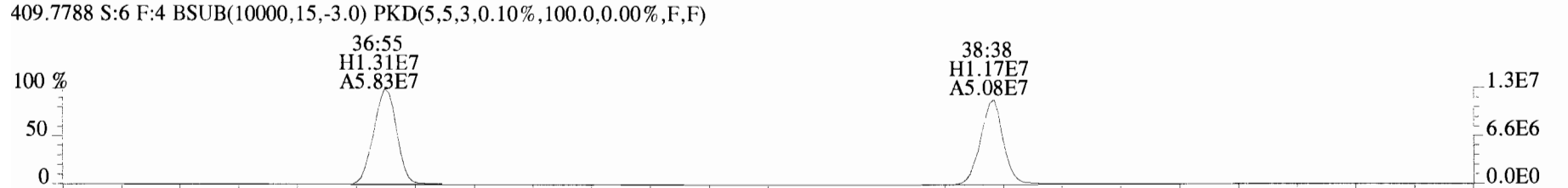
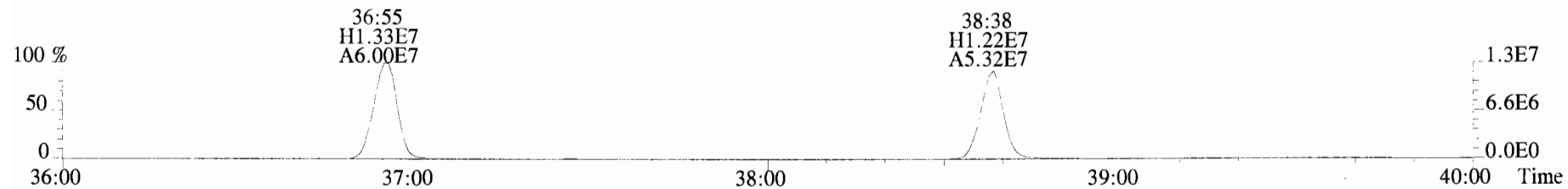




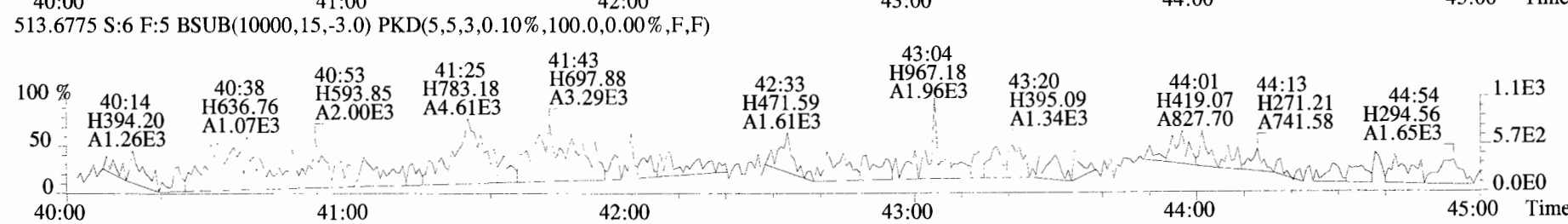
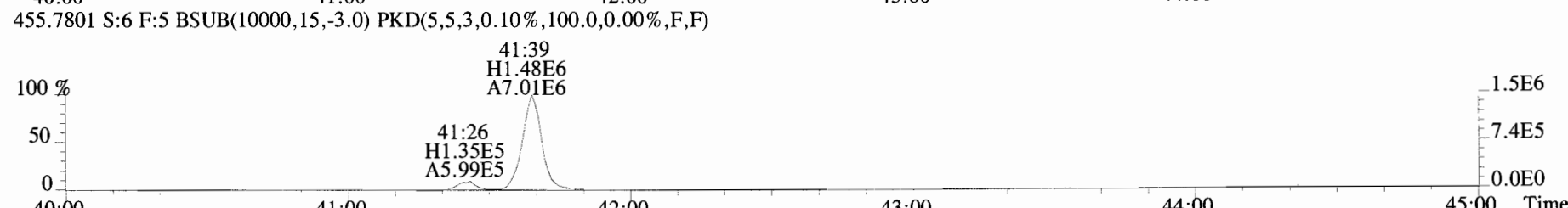
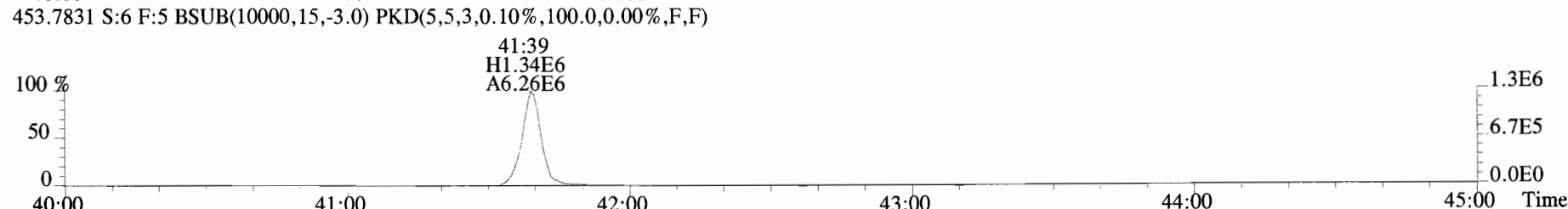
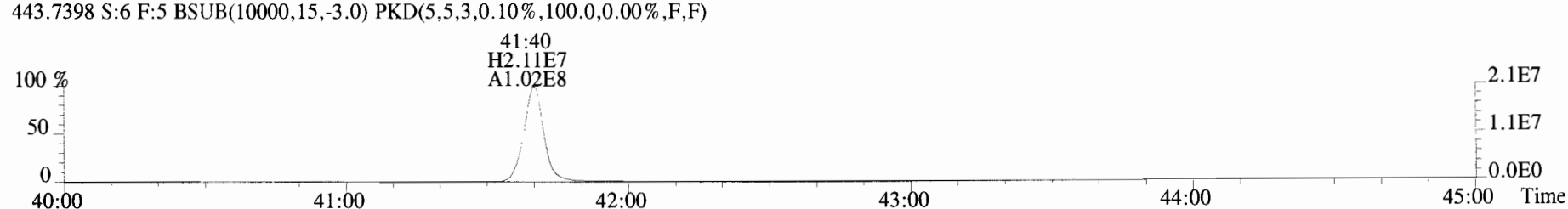
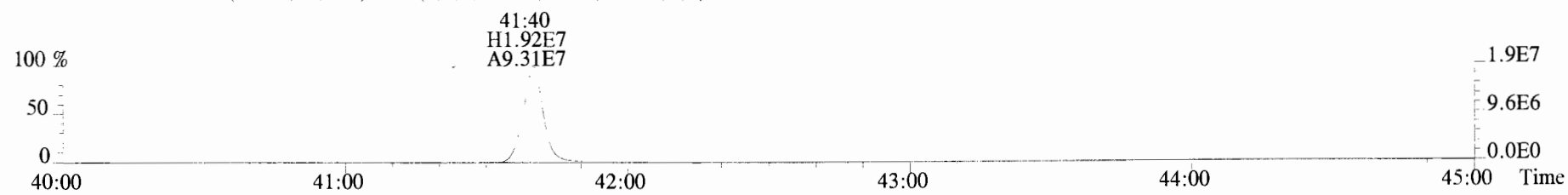
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

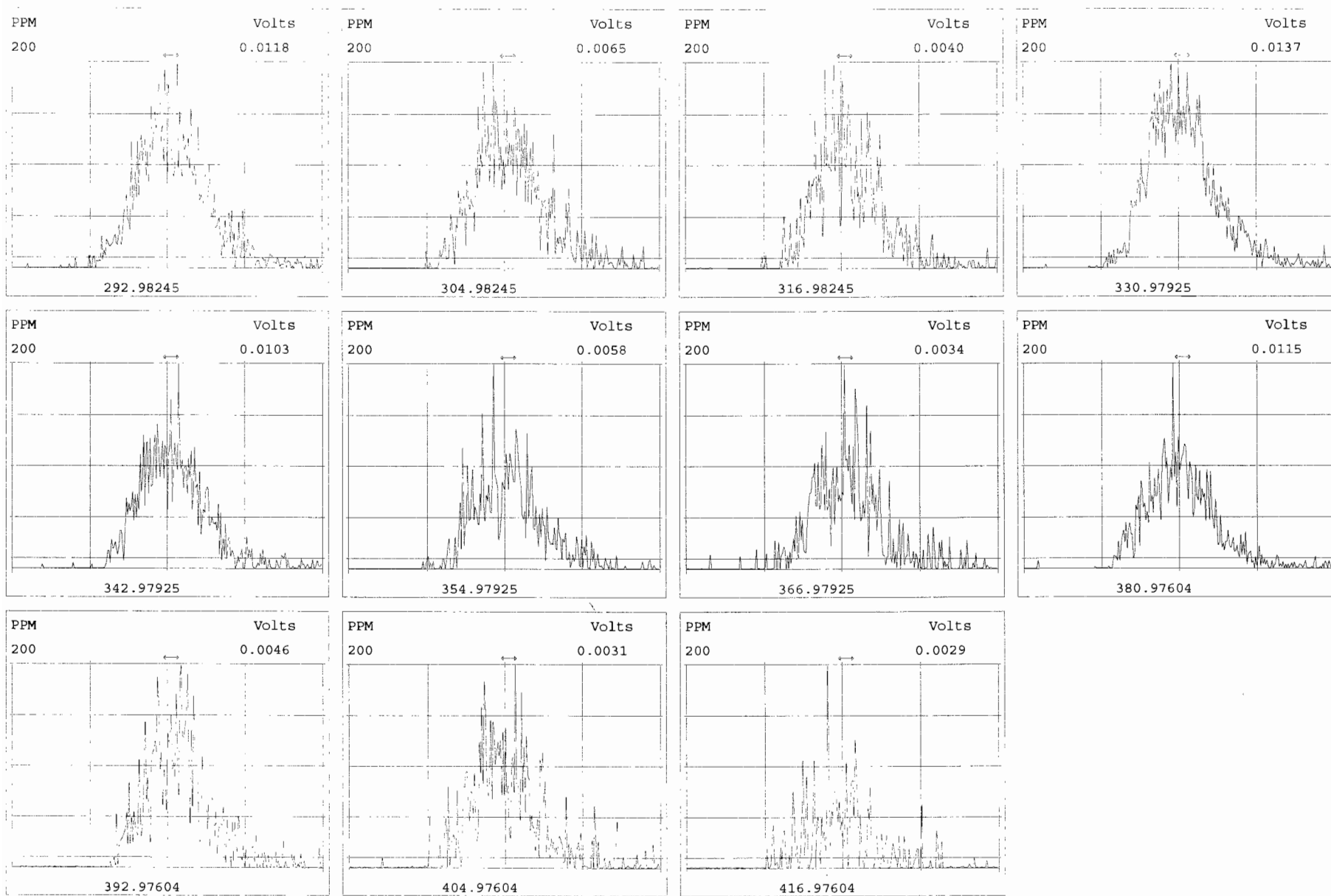


File:191009D1 #1-431 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#6 File Text:Vista Analytical Laboratory\_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD\_DB5  
441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



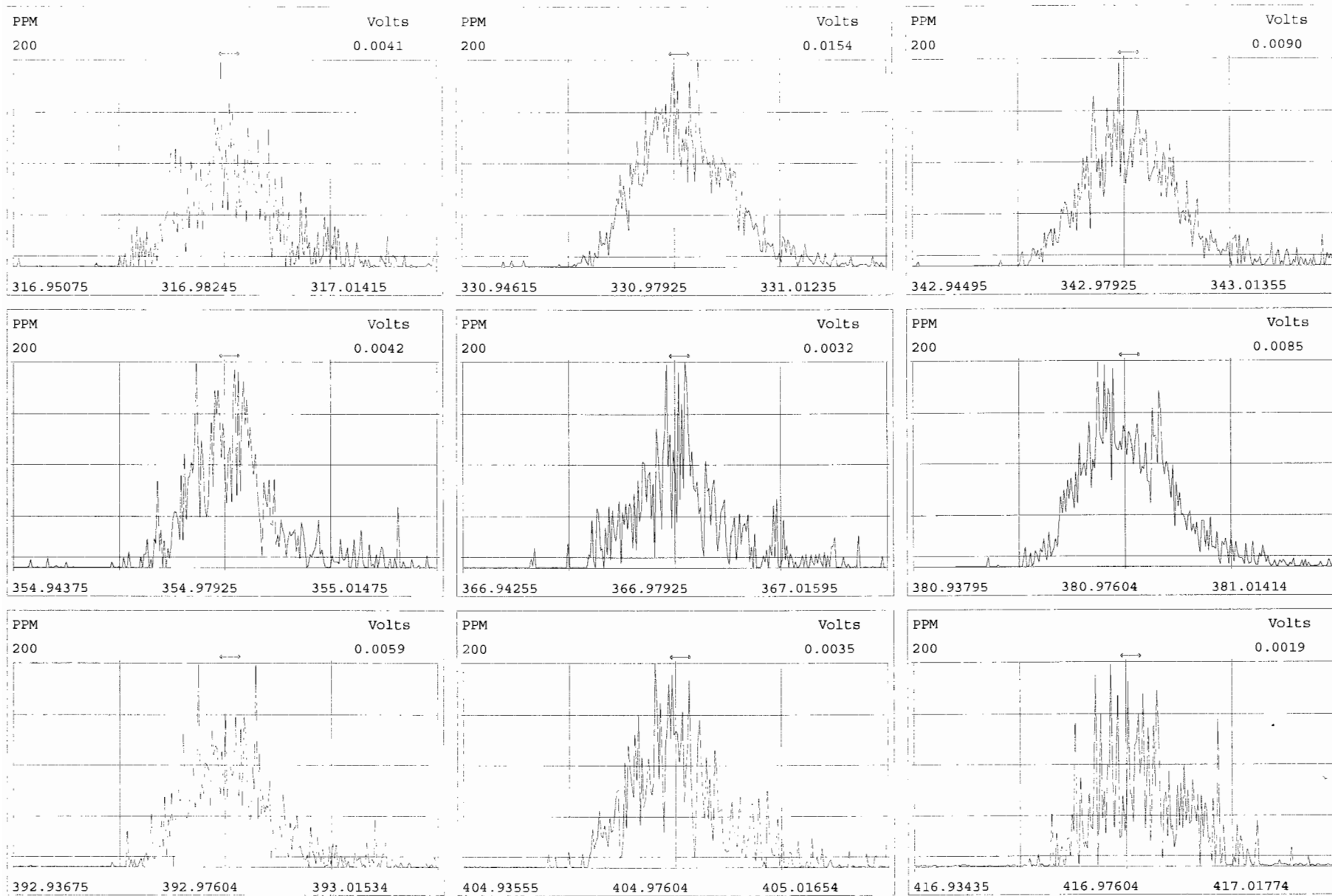
Peak Locate Examination:10-OCT-2019:06:40 File:RES\_CHECK

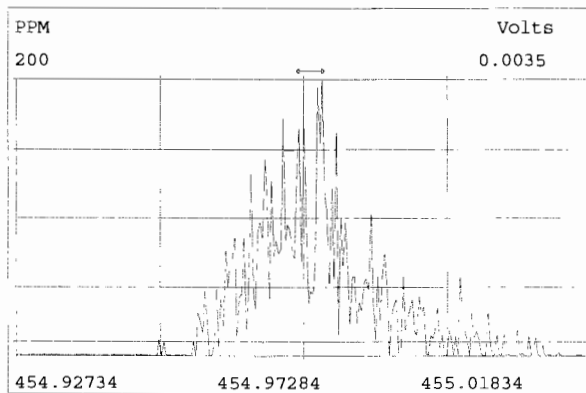
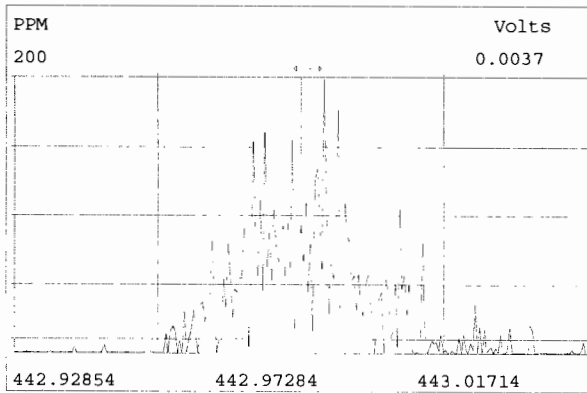
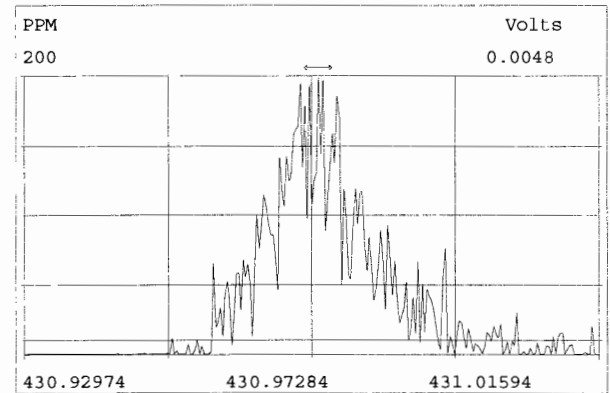
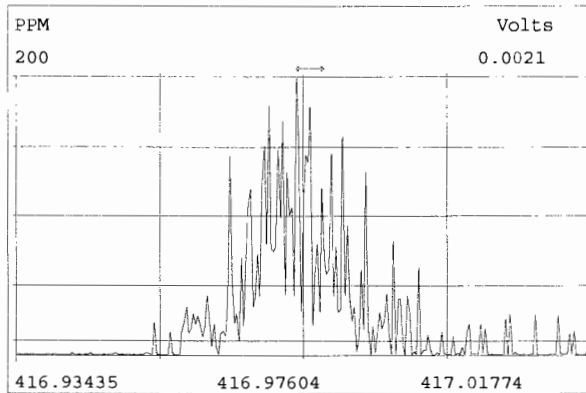
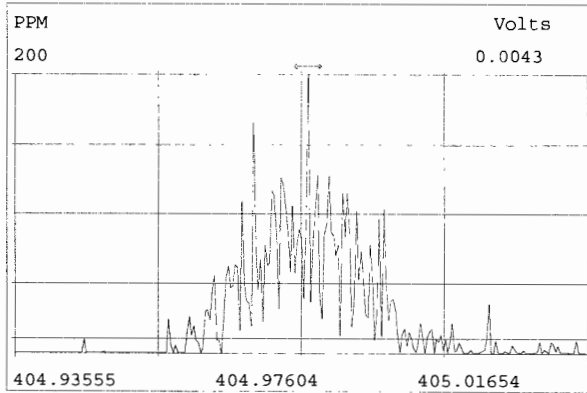
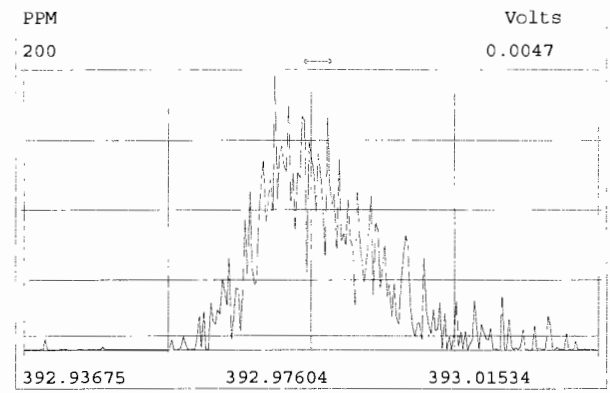
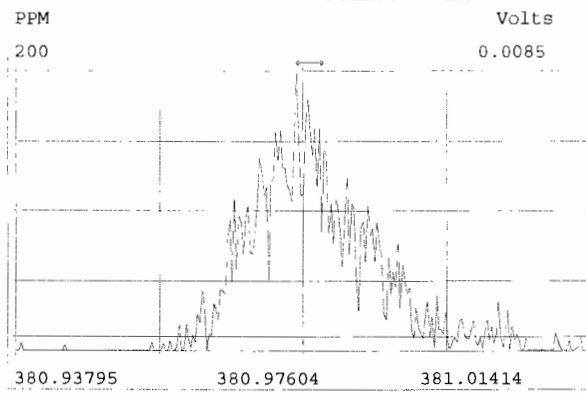
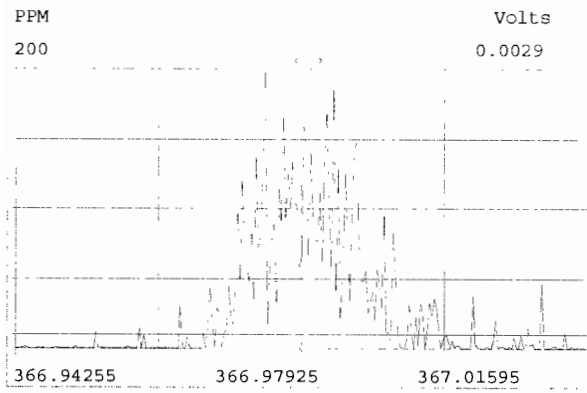
Experiment:OCDD\_DB5 Function:1 Reference:PFK

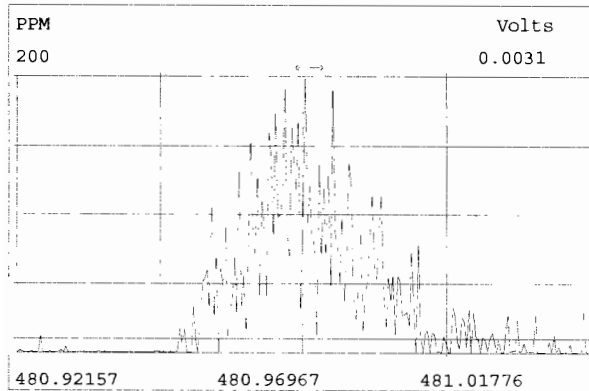
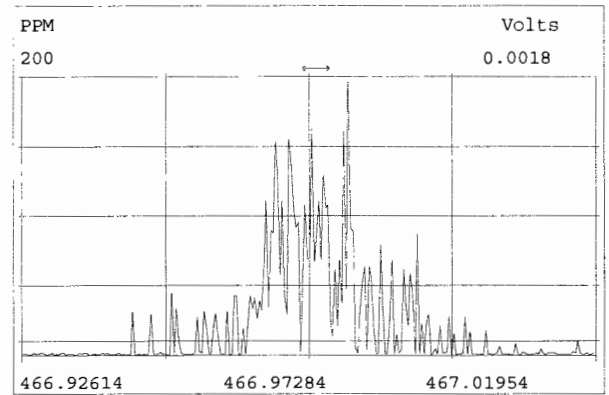
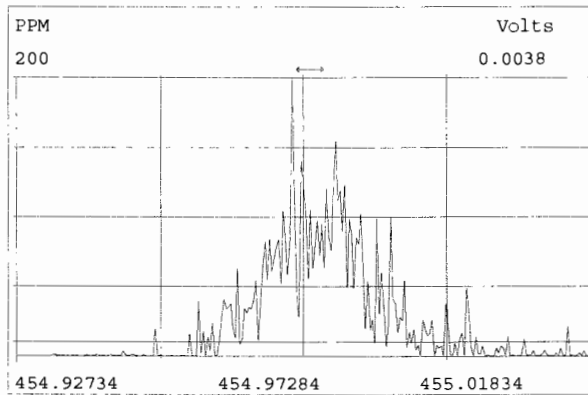
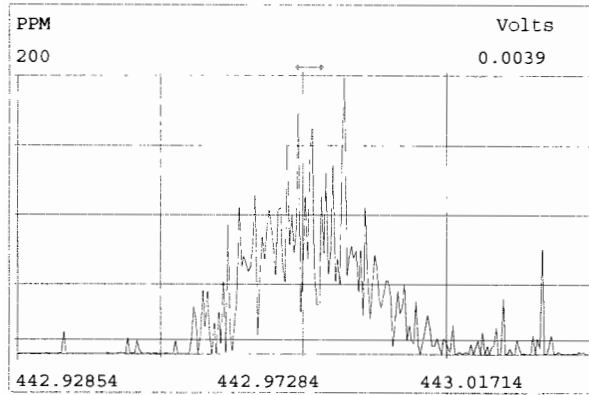
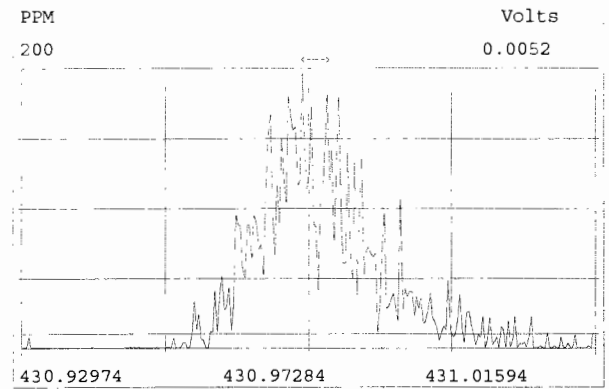
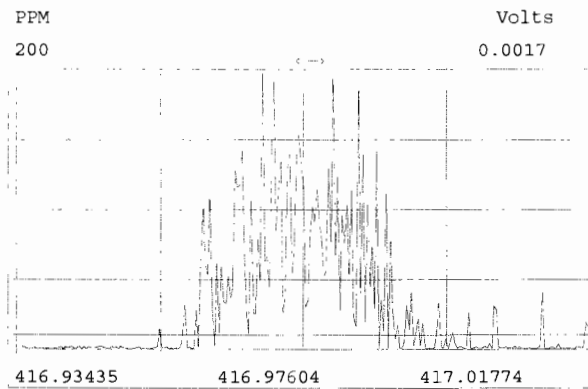
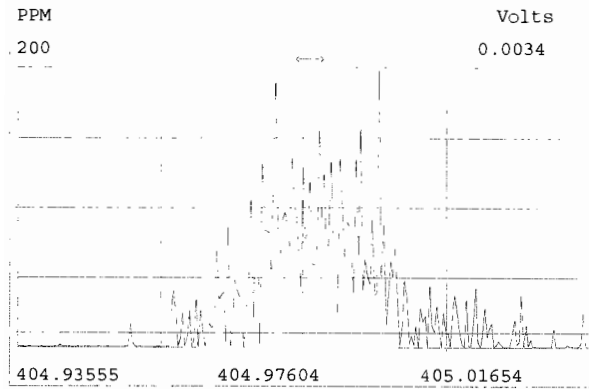


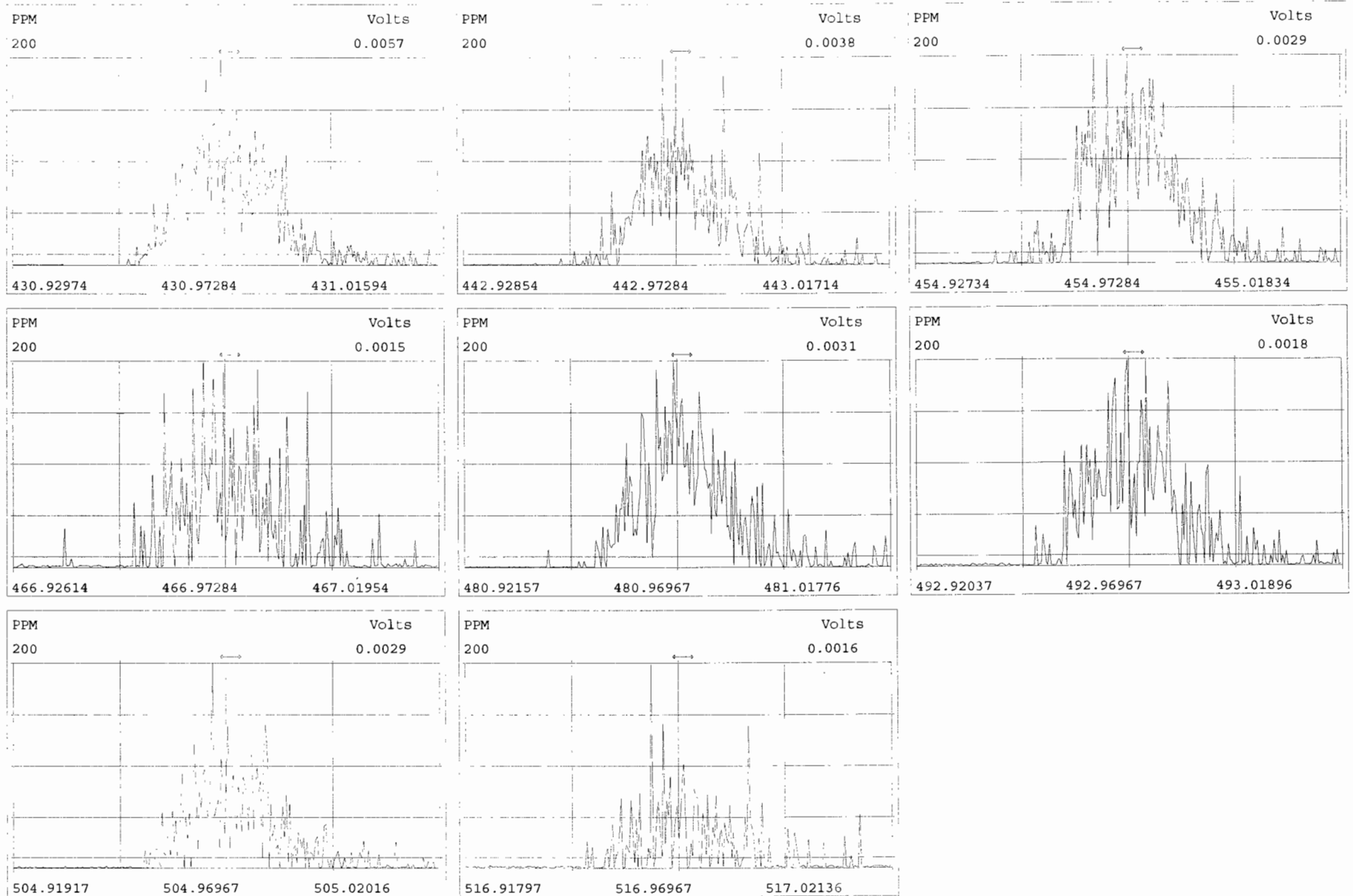
Peak Locate Examination:10-OCT-2019:06:41 File:RES\_CHECK

Experiment:OCDD\_DB5 Function:2 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

LABELED COMPOUNDS	M/Z'S	ION	QC	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			
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

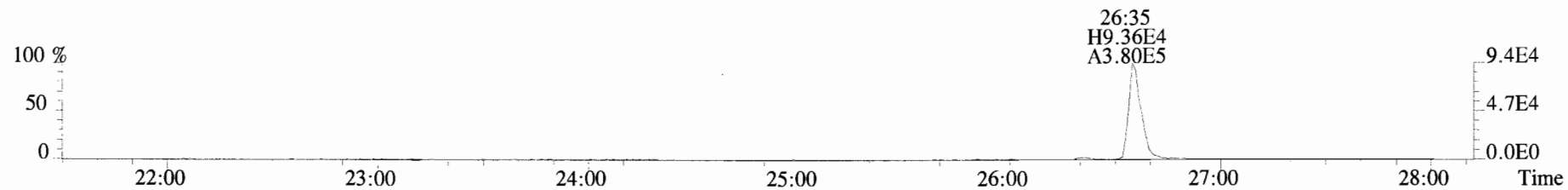
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ConCal: ST191009D1-4  
EndCAL: NA

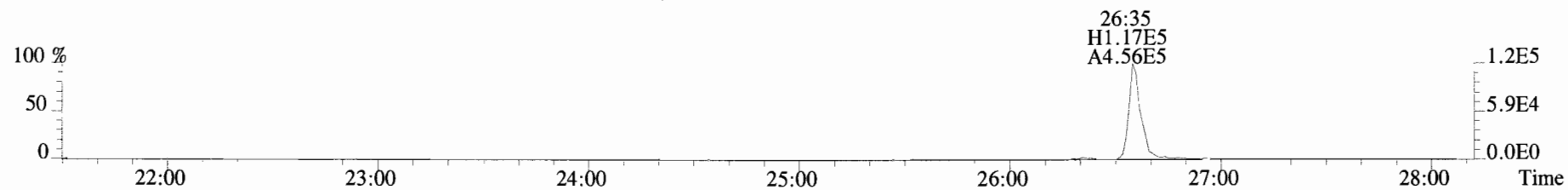
Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL	Name	Conc	EMPC	Qual	noise	DL
2,3,7,8-TCDD	8.36e+05	0.83 y	0.91	26:36	10.234		* 2.5		*	Total Tetra-Dioxins	10.4	11.4		*	*
1,2,3,7,8-PeCDD	3.38e+06	0.63 y	0.90	30:57	51.323		* 2.5		*	Total Penta-Dioxins	51.4	51.7		*	*
1,2,3,4,7,8-HxCDD	2.55e+06	1.31 y	1.10	34:18	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

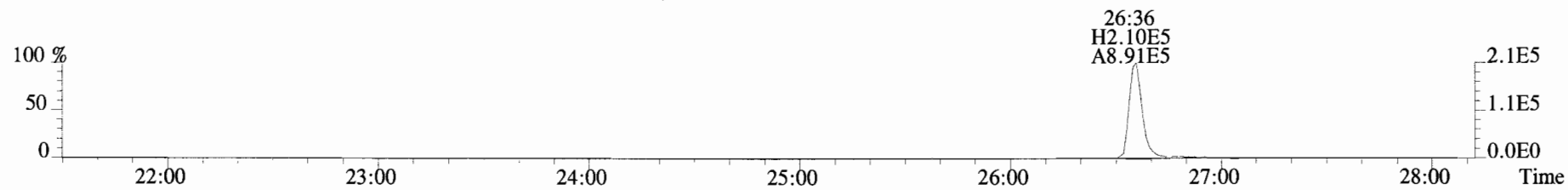
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



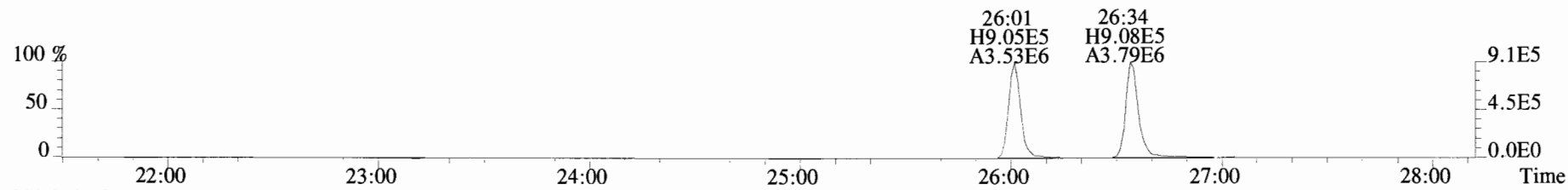
321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



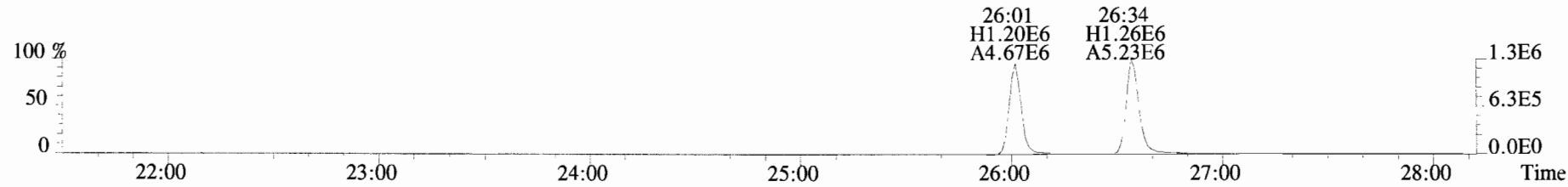
327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



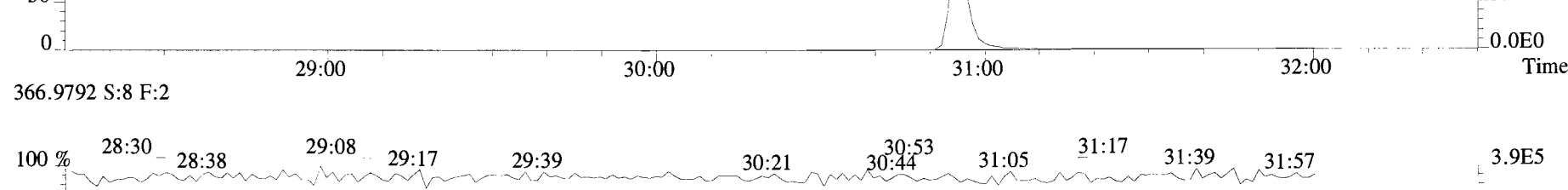
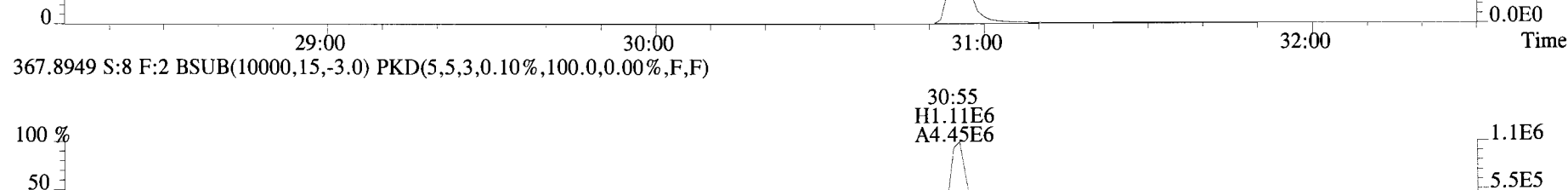
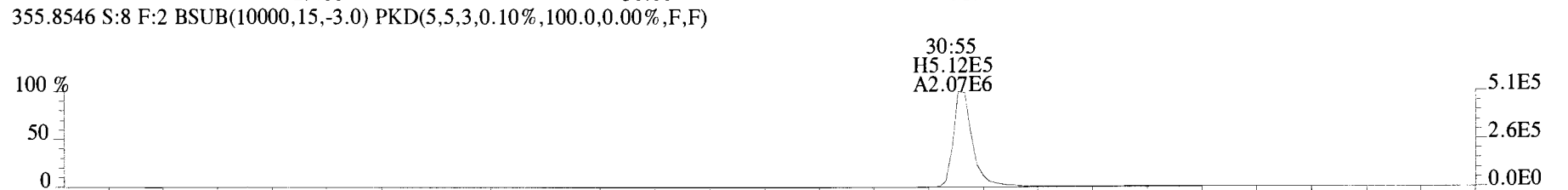
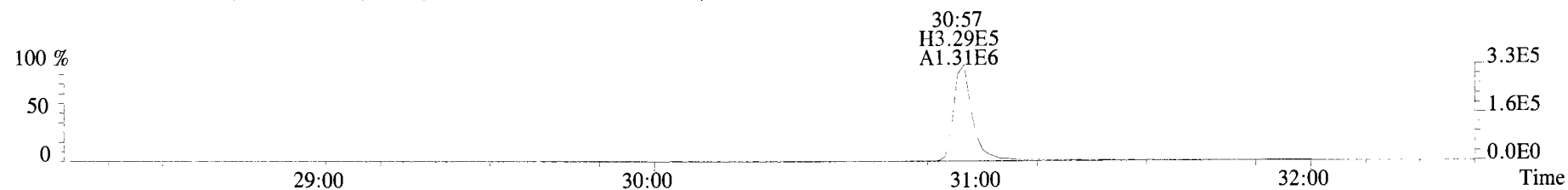
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



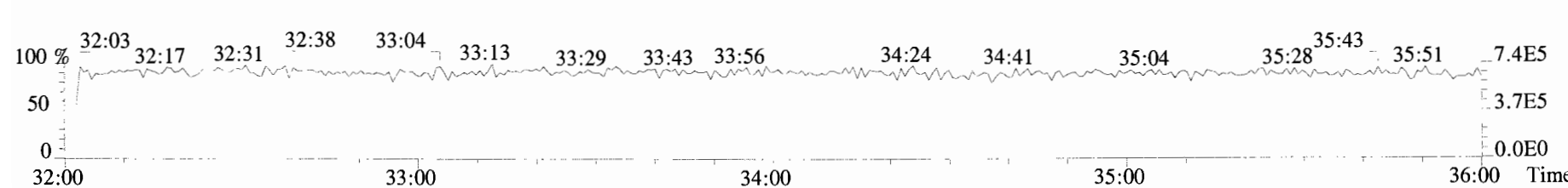
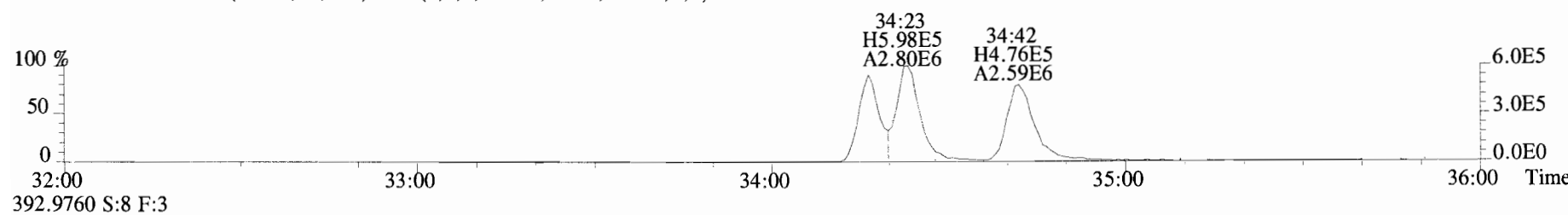
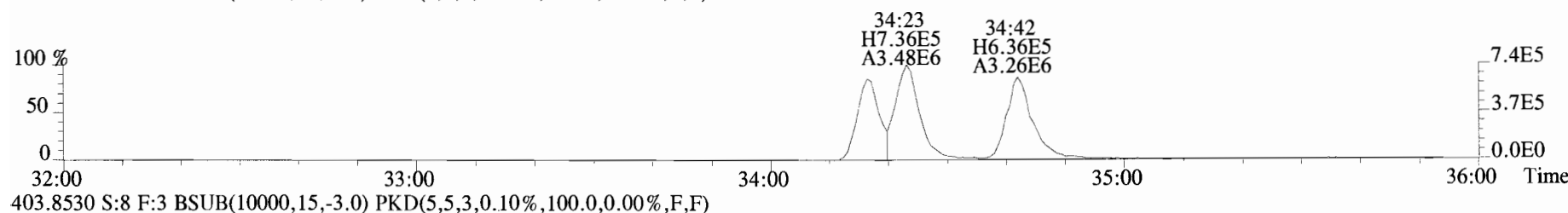
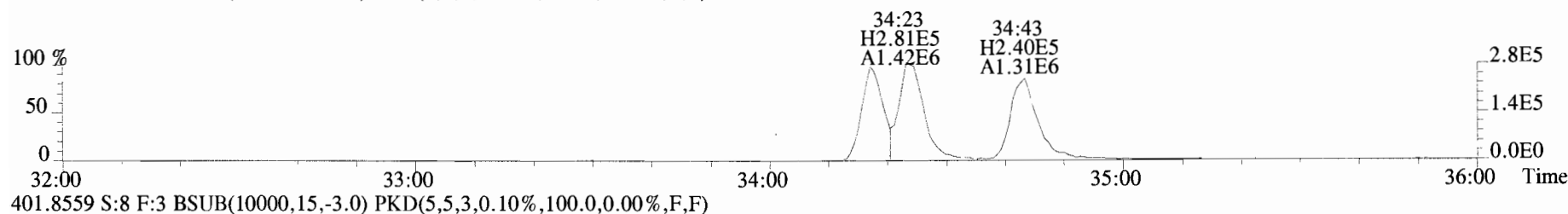
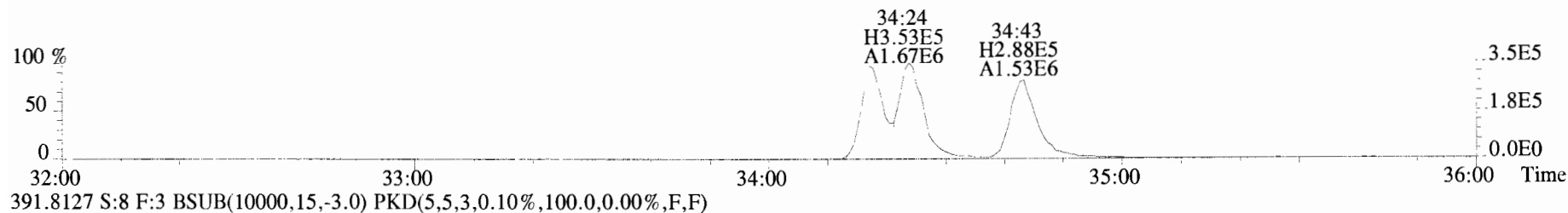
333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

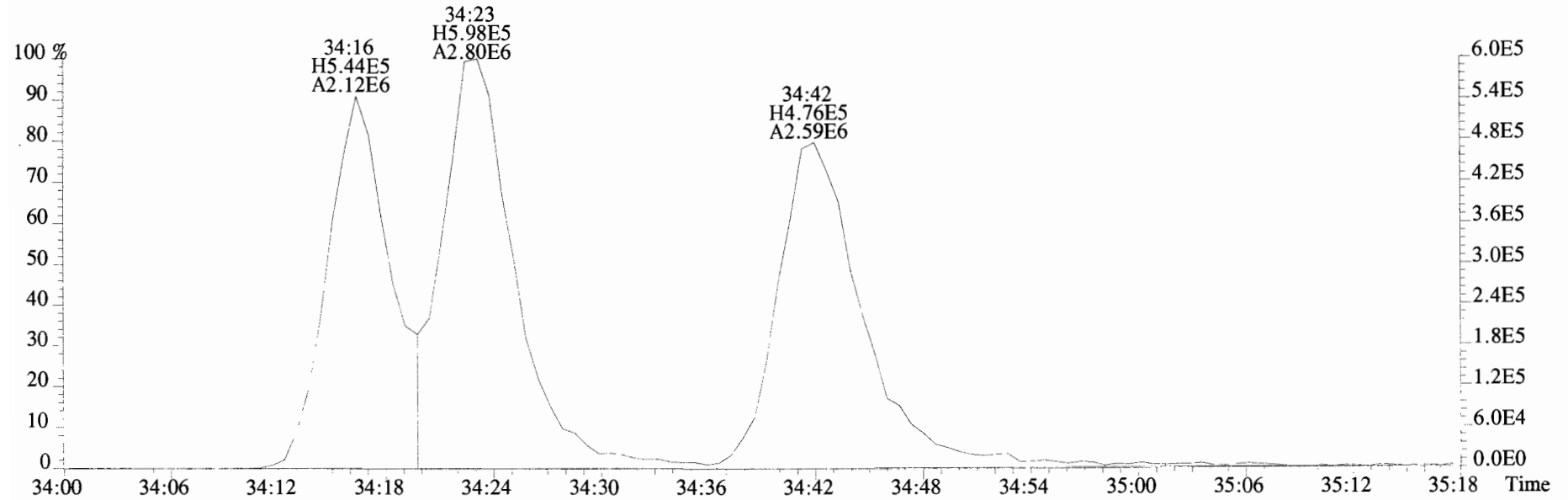
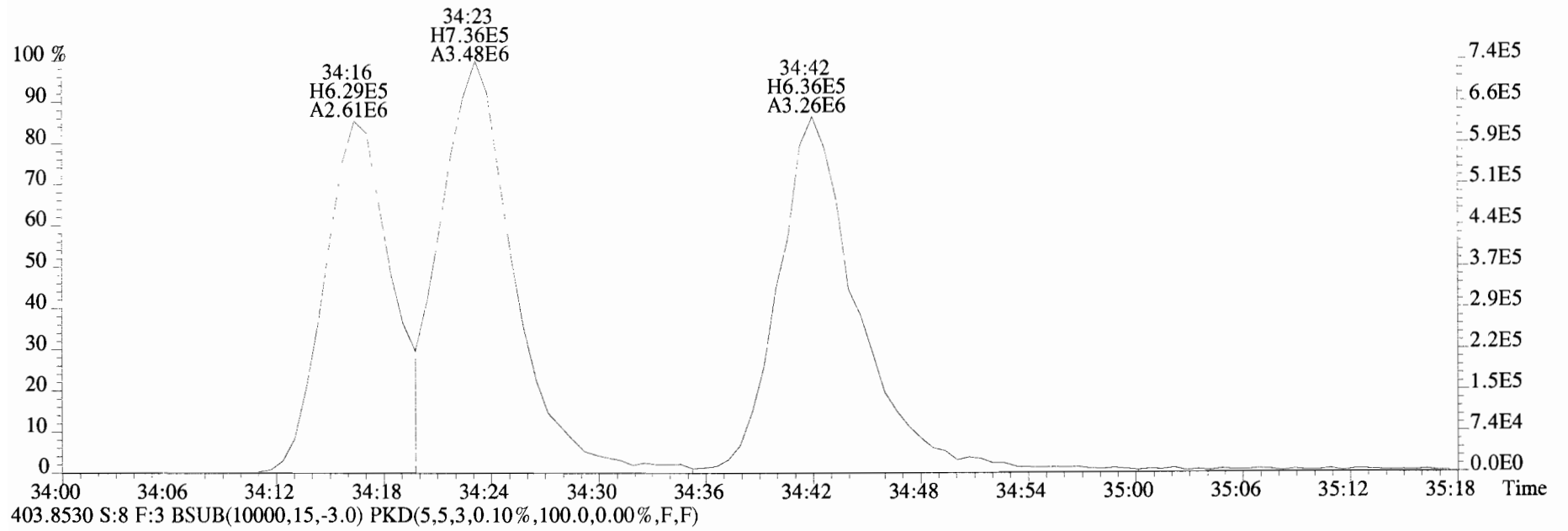


File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

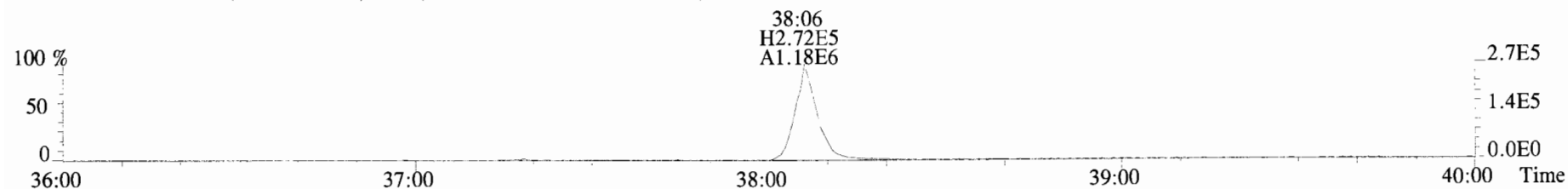




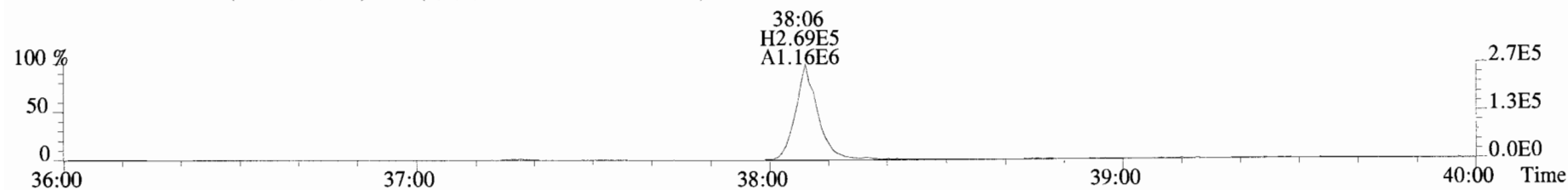
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



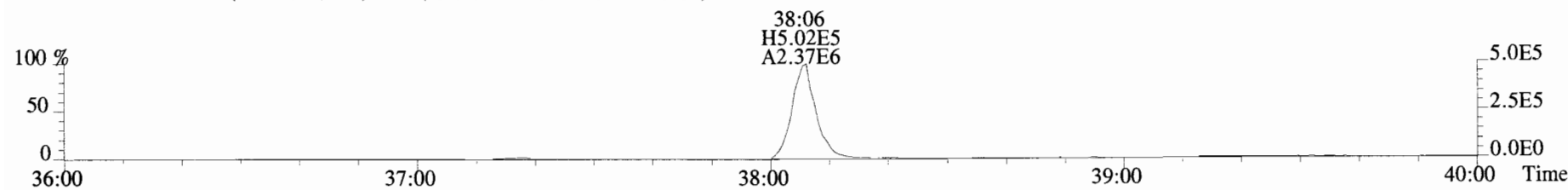
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



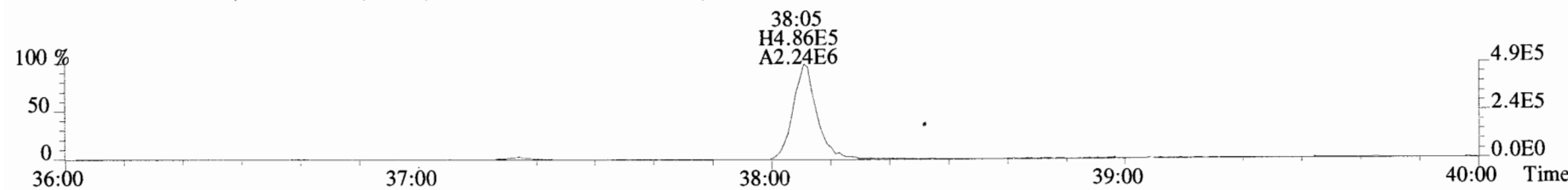
425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



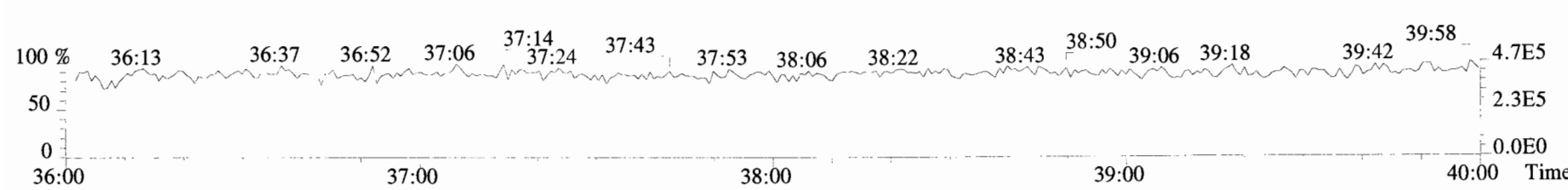
435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



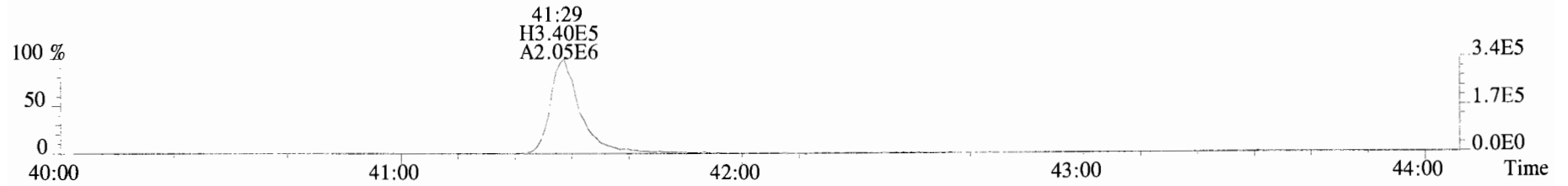
437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



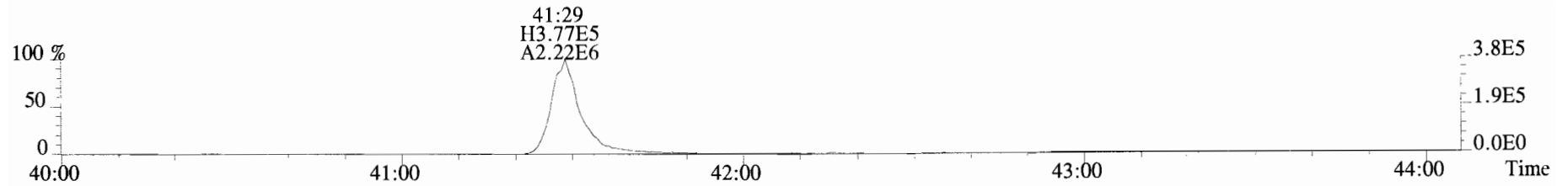
454.9728 S:8 F:4



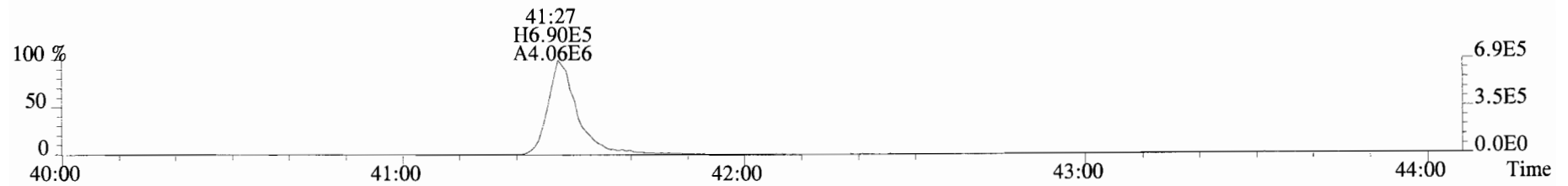
File:191009D1 #1-431 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



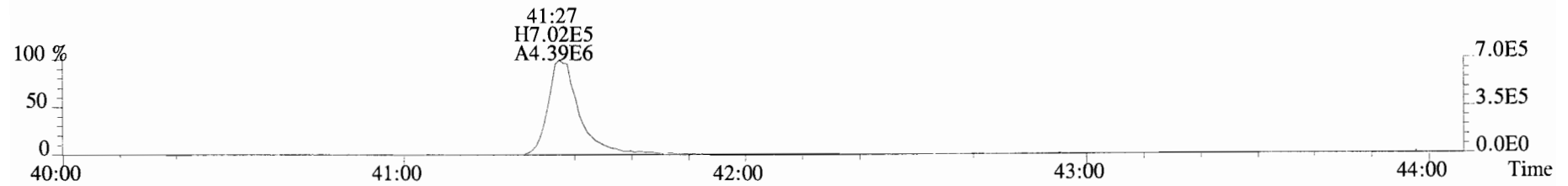
459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



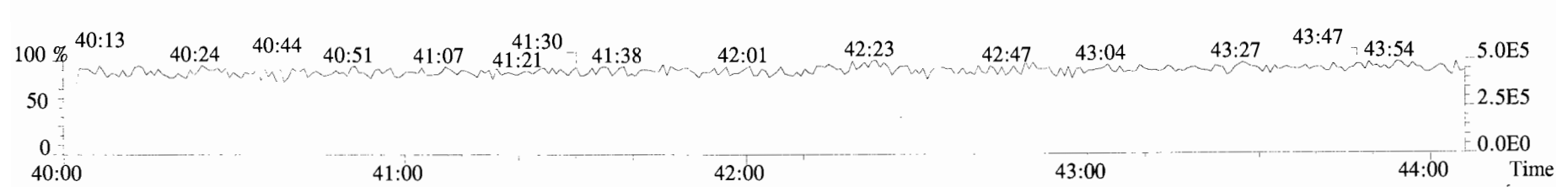
469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



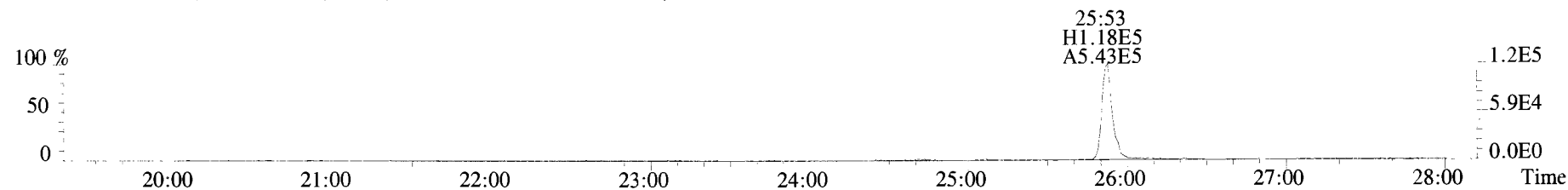
471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



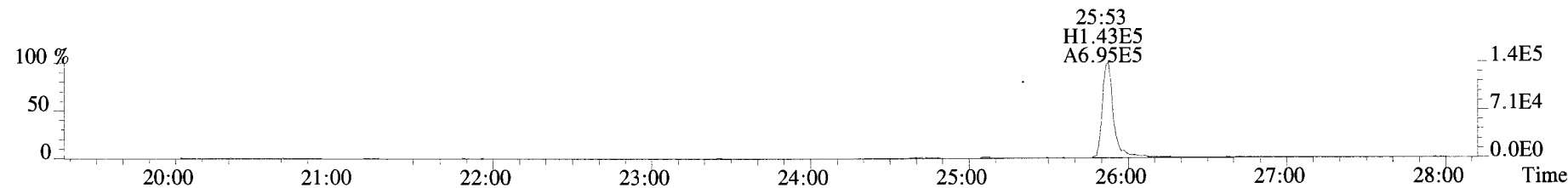
454.9728 S:8 F:5



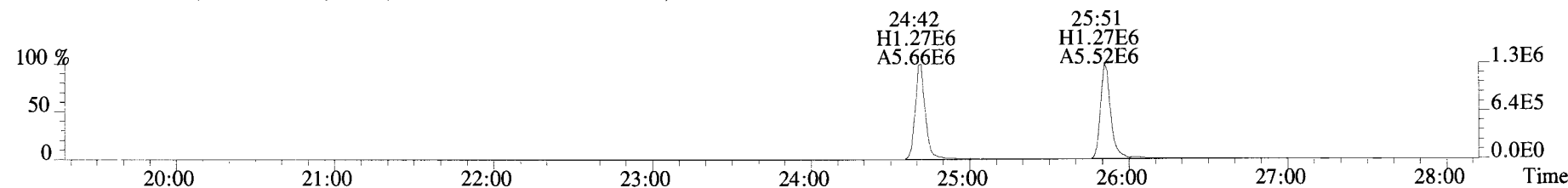
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text: Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



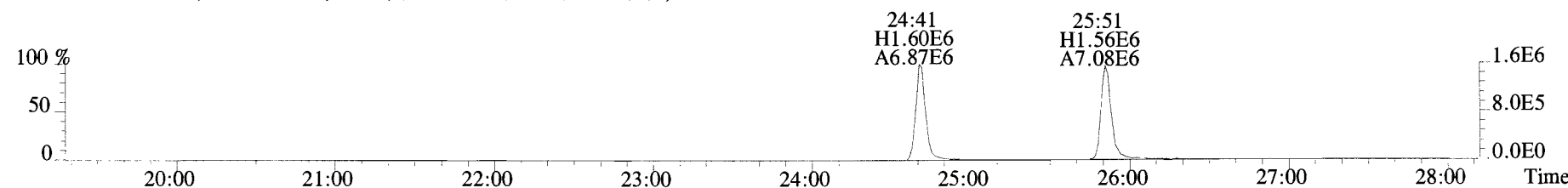
305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



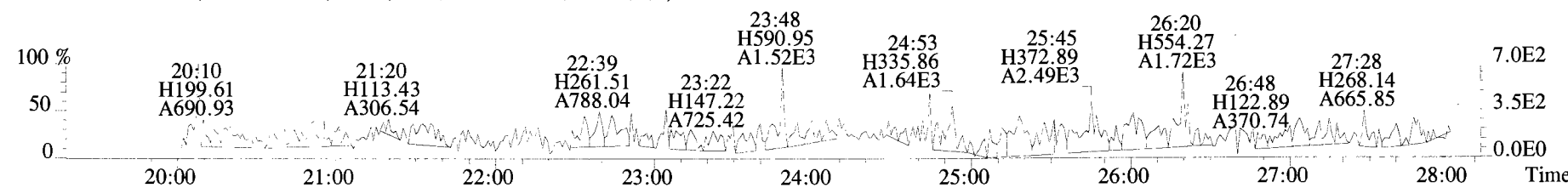
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



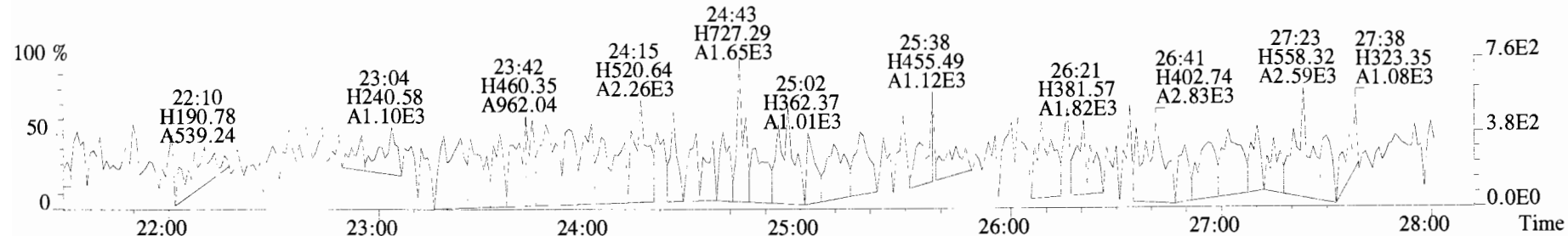
317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



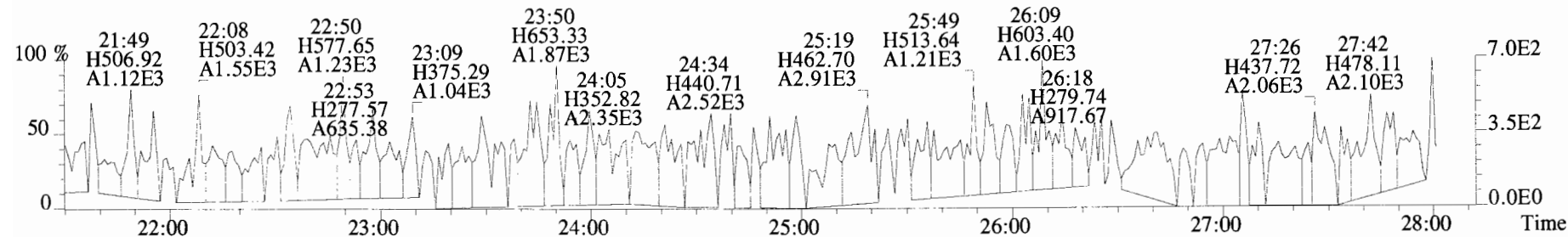
375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



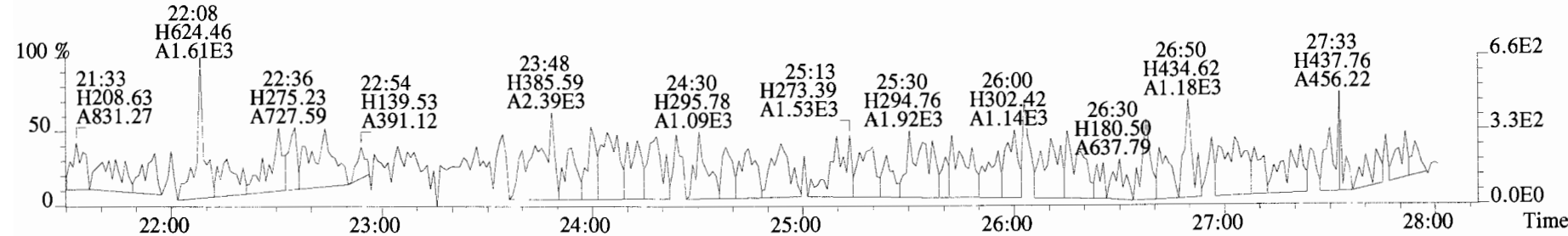
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
 339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



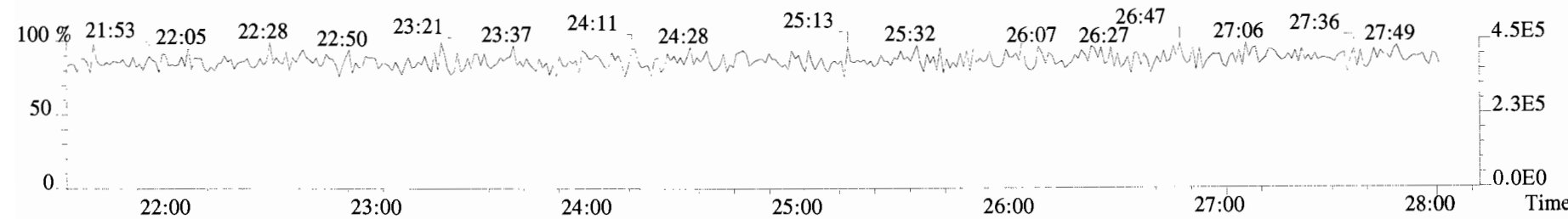
341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



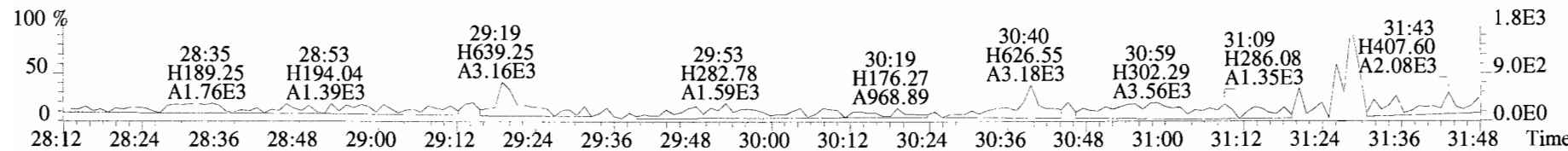
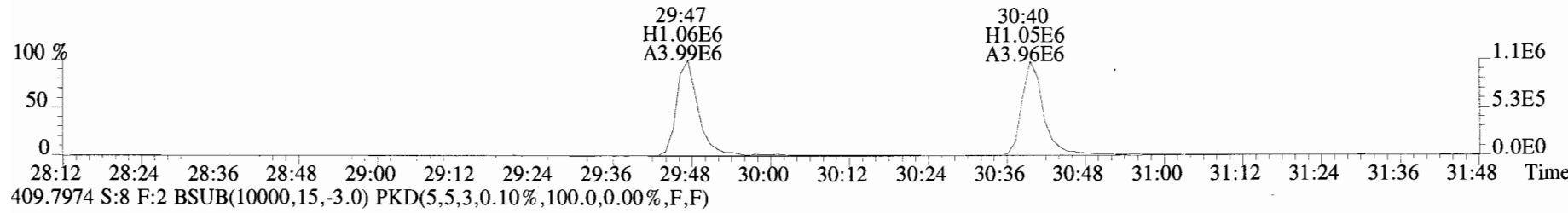
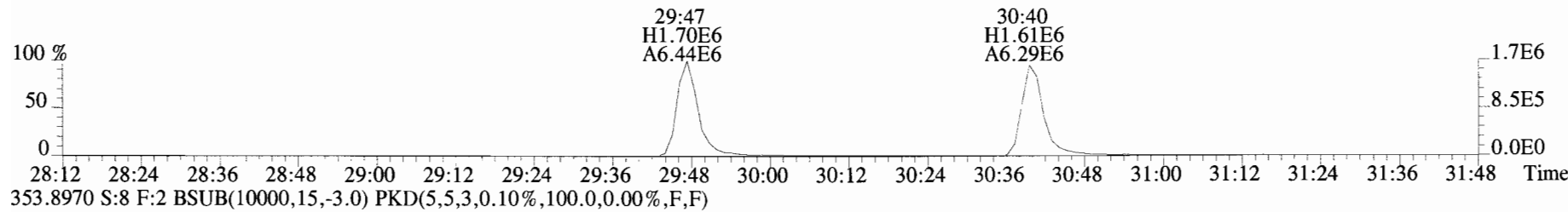
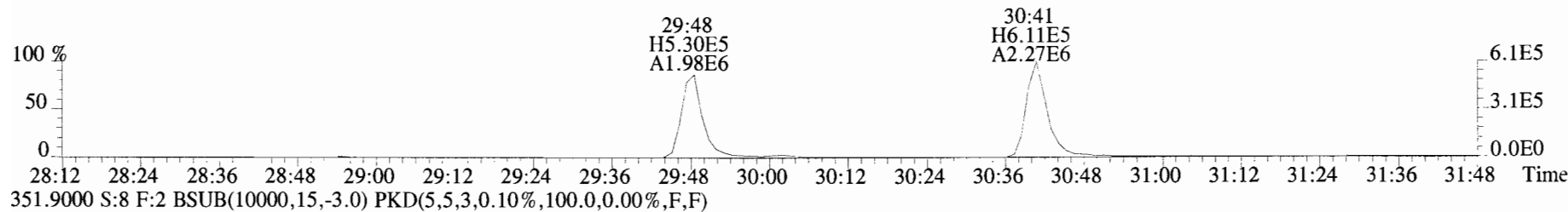
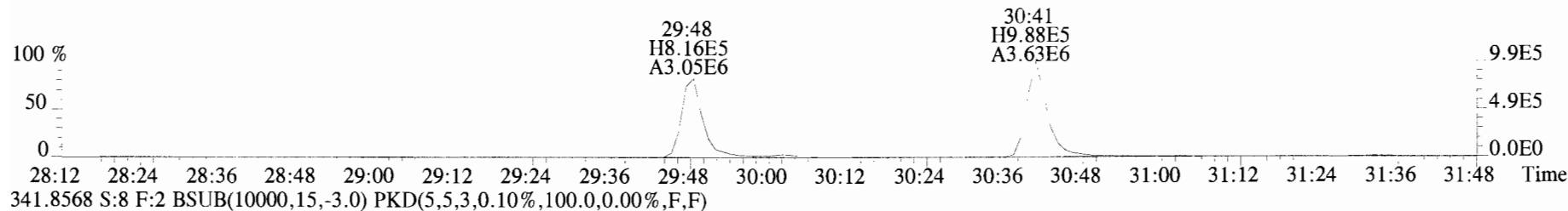
409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



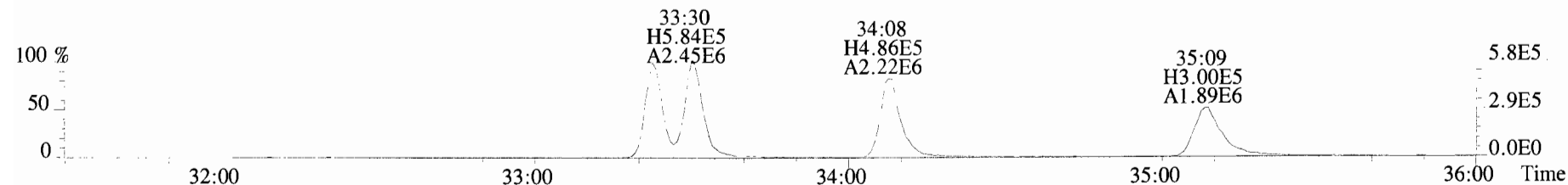
316.9824 S:8



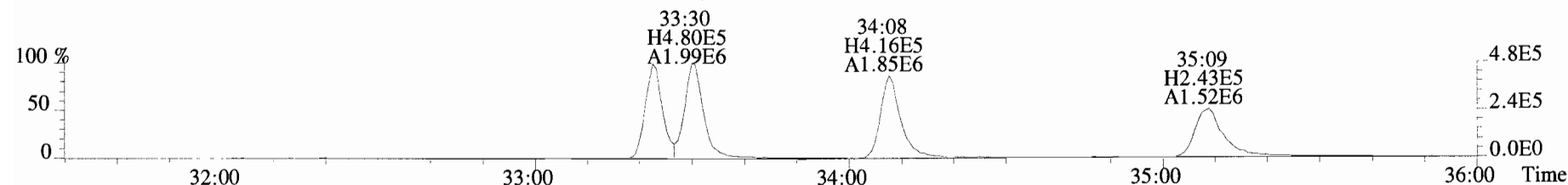
File:191009D1 #1-210 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
 339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



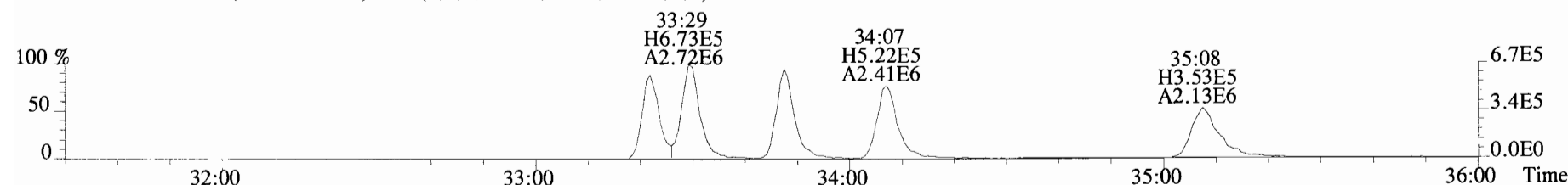
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista\_Analytical\_Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



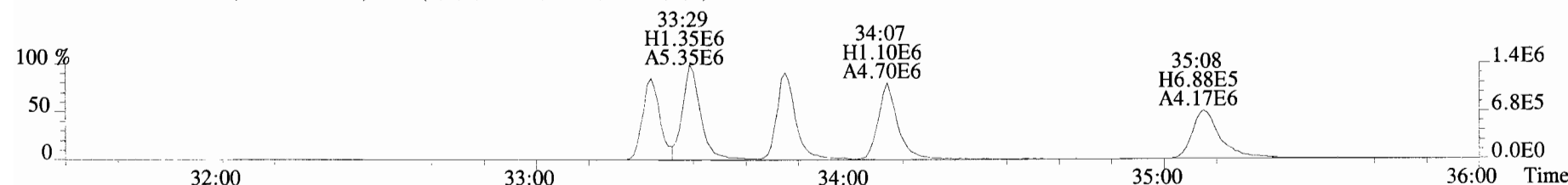
375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



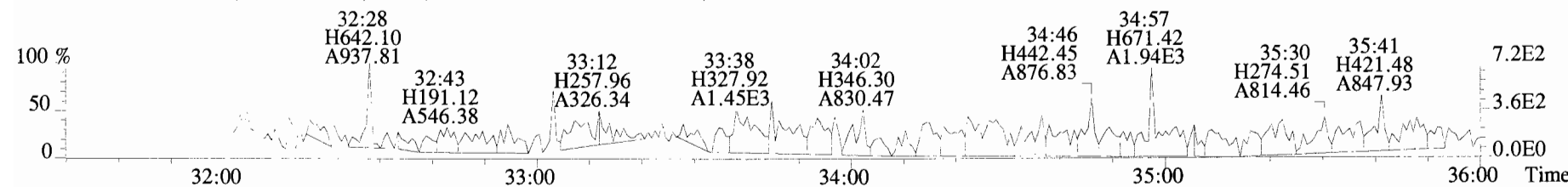
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



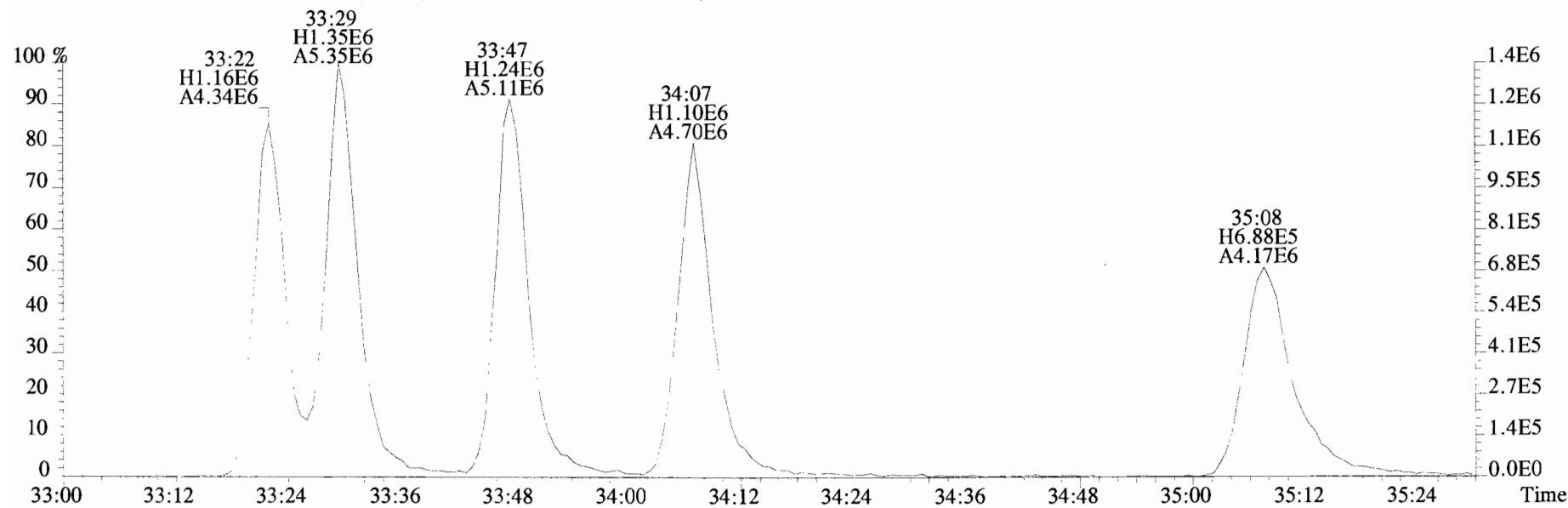
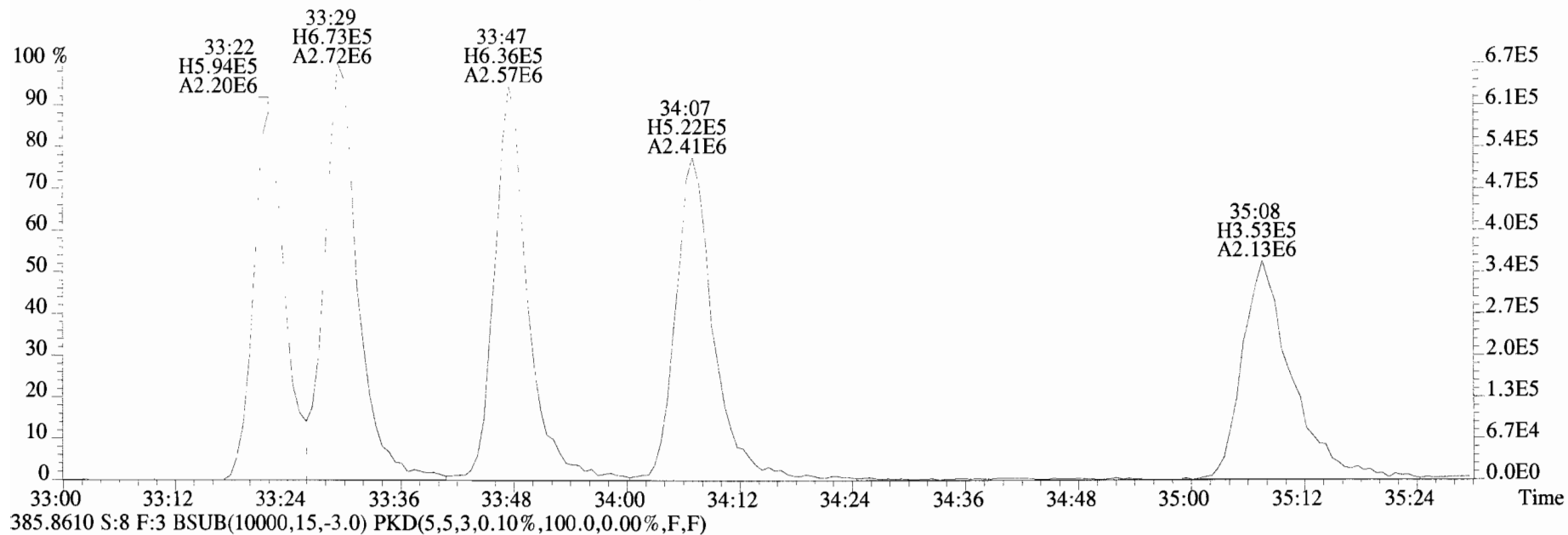
385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

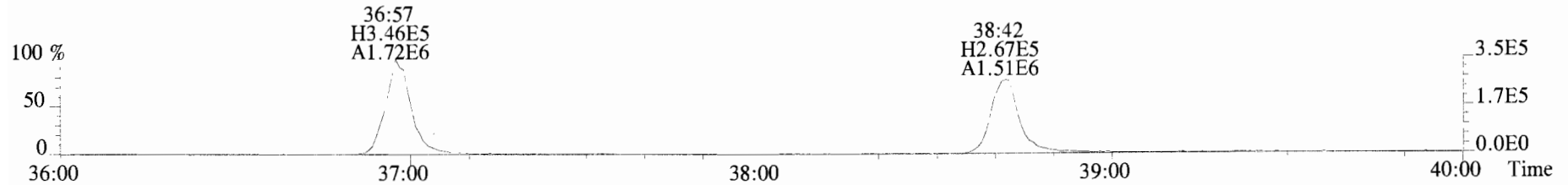


File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

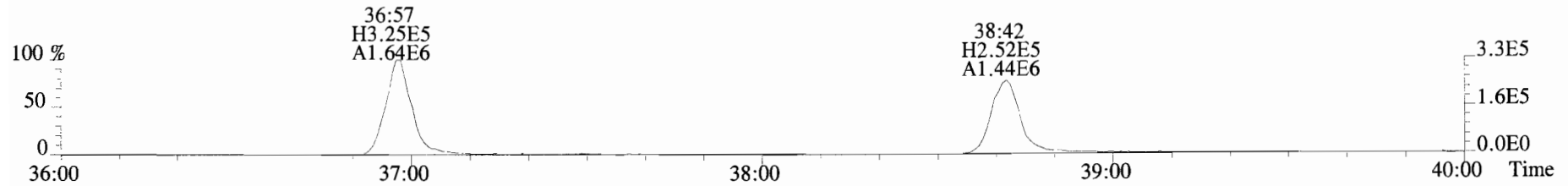




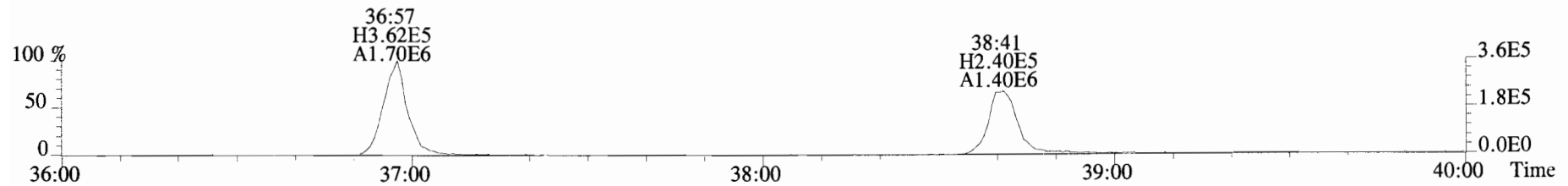
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE  
 Sample#8 File Text:Vista Analytical Laboratory\_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD\_DB5  
 407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



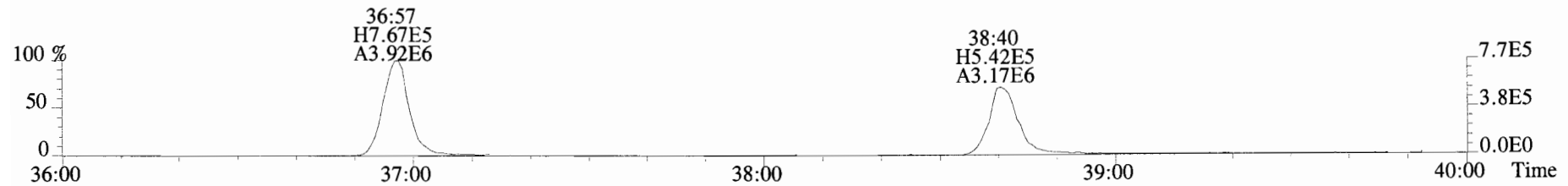
409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



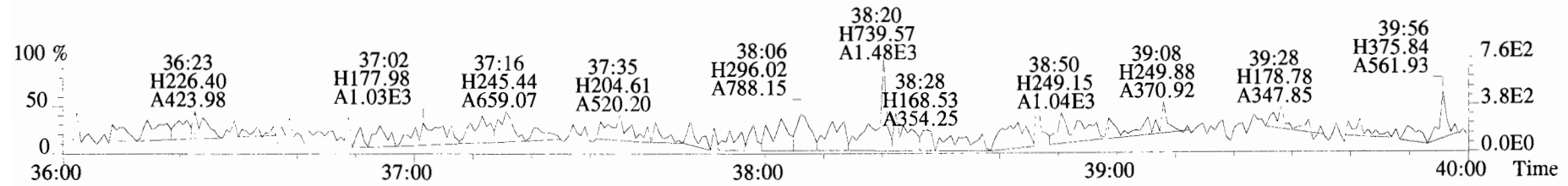
417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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)

