November 14, 2019

Vista Work Order No. 1903743

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 18, 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.

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

Sincerely,

for

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. 1903743
Case Narrative

Sample Condition on Receipt:

Two 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 the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903743-01	PDI-031SC-A-11-12-191017	17-Oct-19 09:04	18-Oct-19 08:59	Amber Glass, 120 mL
1903743-02	PDI-031SC-A-12-12.5-191017	17-Oct-19 09:33	18-Oct-19 08:59	Amber Glass, 120 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Matrix: Solid
Sample Size: 10.0 g

QC Batch: B9J0332
Date Extracted: 31-Oct-2019 8:05

Lab Sample: B9J0332-BLK1
Date Analyzed : 11-Nov-19 12:43 Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.0406		
1,2,3,7,8-PeCDD	ND	0.0703		
1,2,3,4,7,8-HxCDD	ND	0.0602		
1,2,3,6,7,8-HxCDD	ND	0.0691		
1,2,3,7,8,9-HxCDD	ND	0.0682		
1,2,3,4,6,7,8-HpCDD	ND	0.0903		
OCDD	ND	0.121		
2,3,7,8-TCDF	ND	0.0315		
1,2,3,7,8-PeCDF	ND	0.0708		
2,3,4,7,8-PeCDF	ND	0.0659		
1,2,3,4,7,8-HxCDF	ND	0.0335		
1,2,3,6,7,8-HxCDF	ND	0.0369		
2,3,4,6,7,8-HxCDF	ND	0.0379		
1,2,3,7,8,9-HxCDF	ND	0.0500		
1,2,3,4,6,7,8-HpCDF	ND	0.0416		
1,2,3,4,7,8,9-HpCDF	ND	0.0354		
OCDF	ND	0.0954		

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	93.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	95.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	96.3	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	83.0	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	86.6	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	98.2	23 - 140	
	13C-OCDD	91.2	17 - 157	
	13C-2,3,7,8-TCDF	91.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	93.2	24 - 185	
	13C-2,3,4,7,8-PeCDF	91.7	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	99.5	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	89.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	92.2	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	96.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	95.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	109	26 - 138	
	13C-OCDF	101	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	93.0	35 - 197	

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

TEQMinWHO2005Dioxin	0.00

TOTALS

Total TCDD	ND	0.0406
Total PeCDD	ND	0.0703
Total HxCDD	ND	0.0661
Total HpCDD	ND	0.0903
Total TCDF	ND	0.0315
Total PeCDF	ND	0.0683
Total HxCDF	ND	0.0393
Total HpCDF	ND	0.0387

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

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

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

Sample ID: OPR **EPA Method 1613B**

Matrix:	Solid	QC Batch:	B9J0332	Lab Sample:	B9J0332-BS1
Sample Size:	10.0 g	Date Extracted:	31-Oct-2019 8:05	Date Analyzed:	11-Nov-19 11:07 Column: ZB-5MS

Analyte	Amt Found (pg/g)	Spike Amt	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	22.2	20.0	111	67 - 158	IS	13C-2,3,7,8-TCDD	95.7	20 - 175
1,2,3,7,8-PeCDD	106	100	106	70 - 142		13C-1,2,3,7,8-PeCDD	97.4	21 - 227
1,2,3,4,7,8-HxCDD	105	100	105	70 - 164		13C-1,2,3,4,7,8-HxCDD	94.8	21 - 193
1,2,3,6,7,8-HxCDD	105	100	105	76 - 134		13C-1,2,3,6,7,8-HxCDD	85.8	25 - 163
1,2,3,7,8,9-HxCDD	107	100	107	64 - 162		13C-1,2,3,7,8,9-HxCDD	87.4	21 - 193
1,2,3,4,6,7,8-HpCDD	103	100	103	70 - 140		13C-1,2,3,4,6,7,8-HpCDD	102	26 - 166
OCDD	210	200	105	78 - 144		13C-OCDD	93.8	13 - 199
2,3,7,8-TCDF	20.4	20.0	102	75 - 158		13C-2,3,7,8-TCDF	94.1	22 - 152
1,2,3,7,8-PeCDF	104	100	104	80 - 134		13C-1,2,3,7,8-PeCDF	93.7	21 - 192
2,3,4,7,8-PeCDF	105	100	105	68 - 160		13C-2,3,4,7,8-PeCDF	93.1	13 - 328
1,2,3,4,7,8-HxCDF	101	100	101	72 - 134		13C-1,2,3,4,7,8-HxCDF	99.2	19 - 202
1,2,3,6,7,8-HxCDF	101	100	101	84 - 130		13C-1,2,3,6,7,8-HxCDF	92.5	21 - 159
2,3,4,6,7,8-HxCDF	103	100	103	70 - 156		13C-2,3,4,6,7,8-HxCDF	92.5	22 - 176
1,2,3,7,8,9-HxCDF	102	100	102	78 - 130		13C-1,2,3,7,8,9-HxCDF	97.1	17 - 205
1,2,3,4,6,7,8-HpCDF	100	100	100	82 - 122		13C-1,2,3,4,6,7,8-HpCDF	98.1	21 - 158
1,2,3,4,7,8,9-HpCDF	99.7	100	99.7	78 - 138		13C-1,2,3,4,7,8,9-HpCDF	109	20 - 186
OCDF	201	200	101	63 - 170		13C-OCDF	103	13 - 199
					CRS	37Cl-2,3,7,8-TCDD	96.2	31 - 191

LCL-UCL - Lower control limit - upper control limit

Sample ID: PDI-031SC-A-11-12-191017

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Gasco PDI
Date Collected: 17-Oct-2019 9:04

Sample Data
Matrix: Sediment
Sample Size: 12.1 g
% Solids: 83.1

Laboratory Data
Lab Sample: 1903743-01 Date Received: 18-Oct-2019 8:59
QC Batch: B9J0332 Date Extracted: 31-Oct-2019 8:05
Date Analyzed : 11-Nov-19 15:07 Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.0591		
1,2,3,7,8-PeCDD	ND	0.0959		
1,2,3,4,7,8-HxCDD	ND	0.0830		
1,2,3,6,7,8-HxCDD	ND	0.0835		
1,2,3,7,8,9-HxCDD	ND	0.0866		
1,2,3,4,6,7,8-HpCDD	0.423			J
OCDD	3.40			J
2,3,7,8-TCDF	ND	0.0272		
1,2,3,7,8-PeCDF	ND	0.0433		
2,3,4,7,8-PeCDF	ND	0.0403		
1,2,3,4,7,8-HxCDF	ND	0.0247		
1,2,3,6,7,8-HxCDF	ND	0.0246		
2,3,4,6,7,8-HxCDF	ND	0.0283		
1,2,3,7,8,9-HxCDF	ND	0.0352		
1,2,3,4,6,7,8-HpCDF	ND	0.0340		
1,2,3,4,7,8,9-HpCDF	ND	0.0298		
OCDF	ND	0.0796		
TOTALS				
Total TCDD	ND	0.0591		
Total PeCDD	ND	0.0959		
Total HxCDD	ND		0.339	
Total HpCDD	1.12			
Total TCDF	ND	0.0272		
Total PeCDF	ND		0.0286	
Total HxCDF	ND	0.0280		
Total HpCDF	ND	0.0320		

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	92.5	25 - 164	
	13C-1,2,3,7,8-PeCDD	93.3	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	97.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	82.8	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	87.5	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	98.7	23 - 140	
	13C-OCDD	98.2	17 - 157	
	13C-2,3,7,8-TCDF	91.6	24 - 169	
	13C-1,2,3,7,8-PeCDF	90.4	24 - 185	
	13C-2,3,4,7,8-PeCDF	92.4	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	98.5	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	88.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	89.7	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	96.3	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	95.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	107	26 - 138	
	13C-OCDF	106	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	98.6	35 - 197	

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

TEQMinWHO2005Dioxin	0.00525

DL - Sample specifc 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-031SC-A-12-12.5-191017

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Gasco PDI
Date Collected: 17-Oct-2019 9:33

Sample Data
Matrix: Sediment
Sample Size: 13.4 g
% Solids: 75.3

Laboratory Data
Lab Sample: 1903743-02 Date Received: 18-Oct-2019 8:59
QC Batch: B9J0332 Date Extracted: 31-Oct-2019 8:05
Date Analyzed : 11-Nov-19 15:55 Column: ZB-5MS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.0536		
1,2,3,7,8-PeCDD	ND	0.124		
1,2,3,4,7,8-HxCDD	ND	0.0597		
1,2,3,6,7,8-HxCDD	ND		0.0838	
1,2,3,7,8,9-HxCDD	0.0996			J
1,2,3,4,6,7,8-HpCDD	1.27			J
OCDD	6.03			
2,3,7,8-TCDF	ND	0.0544		
1,2,3,7,8-PeCDF	ND	0.0686		
2,3,4,7,8-PeCDF	ND	0.0597		
1,2,3,4,7,8-HxCDF	ND		0.0775	
1,2,3,6,7,8-HxCDF	ND	0.0317		
2,3,4,6,7,8-HxCDF	ND	0.0352		
1,2,3,7,8,9-HxCDF	ND	0.0443		
1,2,3,4,6,7,8-HpCDF	ND	0.0352		
1,2,3,4,7,8,9-HpCDF	ND	0.0319		
OCDF	0.254			J
TOTALS				
Total TCDD	ND	0.0536		
Total PeCDD	ND	0.124		
Total HxCDD	0.750		0.834	
Total HpCDD	2.70			
Total TCDF	ND	0.0544		
Total PeCDF	ND	0.0641		
Total HxCDF	ND		0.0775	
Total HpCDF	ND		0.124	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	96.0	25 - 164	
	13C-1,2,3,7,8-PeCDD	97.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	96.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	84.4	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	86.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	95.7	23 - 140	
	13C-OCDD	90.4	17 - 157	
	13C-2,3,7,8-TCDF	93.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	96.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	96.2	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	103	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	90.2	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	92.0	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	95.3	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	94.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	105	26 - 138	
	13C-OCDF	97.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	96.5	35 - 197	

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

TEQMinWHO2005Dioxin	0.0245

DL - Sample specifc 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

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: VISTA-20191017-123936

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

Project: Gasco PDI
Client: NW Natural

1903743 3.6°C

Sample Custodian: SN
Lab: VISTA

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-031SC-A-11-12-191017	N	SE	10/17/2019	9:04	1	☐				
								Dioxin/Furans	E1613B	30	4°C
								Total solids (VISTA)	SM2540G	30	4°C
002	PDI-031SC-A-12-12.5-191017	N	SE	10/17/2019	9:33	1	☐				
								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 Ashley Mason	Print Name	Print Name	Print Name	Print Name
Company AQ	Company VAL	Company	Company	Company	Company
Date/Time 10/17/19 1355	Date/Time 10/18/19 0859	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

Date Printed: 10/17/2019

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903743 TAT Std

Samples Arrival:	Date/Time 10/18/19 0859	Initials: WS	Location: WR-2 Shelf/Rack: N/a

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Dry Ice		None

Temp °C: 3.6 (uncorrected)	Probe used: Y / (N)	Thermometer ID: IR-3
Temp °C: 3.6 (corrected)		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill 1 of 2 Trk # 7767 5105 6110	✓		
Shipping Documentation Present?	✓		

Shipping Container	Vista	(Client)	Retain	(Return)	Dispose

Chain of Custody / Sample Documentation Present?		✓	✓
Chain of Custody / Sample Documentation Complete?		✓	✓
Holding Time Acceptable?	✓		

Logged In:	Date/Time 10/21/19 1545	Initials: WS	Location: WR-2 Shelf/Rack: J-1

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 1903743

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	Sample BaseMatrix	Comments
1903743-01	A PDI-031SC-A-11-12-191017	☑		001	17-Oct-19 09:04	☑		Amber Glass, 120 mL	☑	Solid	
1903743-02	A PDI-031SC-A-12-12.5-191017	☑		002	17-Oct-19 09:33	☑		Amber Glass, 120 mL	☑	Solid	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma (None) Other			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: Cooler #1

Verifed by/Date: SC 10/21/19

EXTRACTION INFORMATION

Process Sheet

Workorder: 1903743

8-Nov-19

Prep Expiration: 2020-10-16
Client: Anchor QEA, LLC

Workorder Due: ~~15-Nov-19 00:00~~
TAT: ~~28~~ 21 (d) 10/22/19

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

Prep Batch: BJ10332

Prep Data Entered: AO 11/~~05~~ 4/19
Date and Initials

Initial Sequence: S9K0019

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1903743-01	X	PDI-031SC-A-11-12-191017	18-Oct-19 08:59	WR-2 A-1	
1903743-02	X	PDI-031SC-A-12-12.5-191017	18-Oct-19 08:59	WR-2 A-1	

WO Comments: ~~Pest - 1g extraction (dry weight)~~
Dioxin - 10g (dry weight)
~~**PCB - 5g extraction (dry weight)**~~

Pre-Prep Check Out: AO 10/29/19
Pre-Prep Check In: AO 10/29/19

Prep Check Out: TL 10/31/19
Prep Check In: TL 10/31/19

Prep Reconciled Initals/Date: AO 10/29/19
Spike Reconciled Initals/Date: TL 10/31/19
VialBoxID: Test

Page 1 of 1

Batch: B9J0332

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1903420-11RE1	17.69	56.76126	10.0411	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-01	12.02	83.60958	10.0499	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-02	12.78	79.41176	10.1488	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-03	13.74	73.18953	10.0562	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-04	15.19	66.76798	10.1421	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-05	11.69	86.43327	10.1040	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-06	13.63	73.5849	10.0296	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-07	11.93	84.89426	10.1279	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903645-08	13.16	76.72327	10.0968	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903743-01	12.09	83.06879	10.0430	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
1903743-02	13.36	75.34668	10.0663	20	31-Oct-19 08:05	TL			Sediment	1613 Full List
B9J0332-BLK1	10			20	31-Oct-19 08:05	TL				QC
B9J0332-BS1	10			20	31-Oct-19 08:05	TL	18F1913	10		QC

All bolded data on report verified against written benchsheet by (initial/date) JL 11/08/19

Printed: 11/8/2019 2:51:22PM
Page 1 of 1

PREPARATION BENCH SHEET

Matrix: Solid

B9J0332

Chemist: TL

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 31-Oct-19 08:05

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
☐	B9J0332-BLK1 (A)	NA	(10.00)	AOTL 10/31/19	11/01/19	N/A	TL 11/01/19	TL 11/01/19	11/01/19	AE 11/04/19
☐	B9J0332-BS1	NA	(10.00)							
☐	1903420-11	17.68	17.69							
☐	1903645-01	11.96	12.02							
☐	1903645-02	12.59	12.78							
☐	1903645-03	13.66	13.74							
☐	1903645-04	14.98	15.19							
☐	1903645-05	11.57	11.69							
☐	1903645-06	13.59	13.63							
☐	1903645-07	11.78	11.93							
☐	1903645-08	13.03	13.16							
☐	1903743-01	12.04	12.09							
☐	1903743-02	13.27	13.36							

(A) 11/01/19 NO Boiling chips

IS Name (V2)	NS Name (V2)	CRS Name (V7)	RS Name (V7)	Cycle Time	APP: SEFUN SOX SDS	Check Out: Chemist/Date: TL 10/31/19
PCDD/F 19C1902 10uL	PCDD/F 18F1913 10uL	PCDD/F 19I1602, 10uL	PCDD/F 19I1603, 10uL	Start Date/Time 10/31/19 1330	SOLV: Toluene	Check In: Chemist/Date: TL 10/31/19
PCB	PCB	PCB	PCB	Other NA		
PAH	PAH	PAH	PAH	Stop Date/Time 11/01/19 0542	Final Volume(s) 20 uL C14	Balance ID: HRMS-8

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 extaction; pipetted and used Nitrogen to assist

Percent Moisture/ Percent Solids

D2216-90 BATCH ID B9J0296

Analyst: AO **Test Code:** %Moist/%Solids

Analyte: **Units:** %

Dried at 110°C+/-5°C

Oven ID: *01* 02

Data Entry Verified by: (Initial and Date) 10/30/19

Inst HRMS-10

Date/Time IN:	Date/Time OUT
10/29/19 1015	10/30/19 1035

	B	C	D	E	F	G	H	I	K	L	M	N	O	P
				Intial and Date:	AO 10/29/19	JC 10/30/19			AO10/29/19			NA		AO 10/29/19
Particle Size	SamplD		SampType	Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl-	pH Before	pH After	Acid Added	Sample Homogenized*
	1903743-01	A	Sample	1.2700	8.8300	7.5500	6.2800	83.07	SAND	NA	NA	NA	NA	Y
	1903743-02	A	Sample	1.2700	7.7600	6.1600	4.8900	75.35	SAND	NA	NA	NA	NA	Y

*Sample homogenized in sample container unless otherwise noted.

Percent Moisture/ Percent Solids

D2216-90 BATCH ID B9J0296

Analyst: QO
Test Code: %Moist/%Solids
Analyte:
Units: %
Oven ID: Dried at 110°C+/-5°C (01) 02

Data Entry Verified by: (Initial and Date) NA

Inst HRMS-10

Date/Time IN: 10/29/19 10:16
Date/Time OUT: 10/30/19 10:35

	B	C	D	E	F	G	H	I	K	L	M	N	O	P
				Intial and Date:	QO 10/29/19	TL 10/30/19			QO 10/29/19			NA		QO 10/29/19
Particle Size	SampID		SampType	Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl!	pH Before	pH After	Acid Added	Sample Homogenized*
	1903743-01	A	Sample	1.27	8.83	7.55	NA		Sand			NA		X
	1903743-02	↓	Sample	1.27	7.76	6.16			↓					X

*Sample homogenized in sample container unless otherwise noted.

SAMPLE DATA – EPA METHOD 1613

Client ID: Method Blank Filename: 191111D1 S:4 Acq:11-NOV-19 12:43:25 ConCal: ST191111D1-1
Lab ID: B9J0332-BLK1 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol:10.000 EndCAL: NA

Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL
2,3,7,8-TCDD	*	*	n	0.91	NotF	*		155	2.5	0.0406
1,2,3,7,8-PeCDD	*	*	n	0.90	NotF	*		269	2.5	0.0703
1,2,3,4,7,8-HxCDD	*	*	n	1.10	NotF	*		159	2.5	0.0602
1,2,3,6,7,8-HxCDD	*	*	n	0.94	NotF	*		159	2.5	0.0691
1,2,3,7,8,9-HxCDD	*	*	n	0.96	NotF	*		159	2.5	0.0682
1,2,3,4,6,7,8-HpCDD	*	*	n	0.98	NotF	*		202	2.5	0.0903
OCDD	*	*	n	0.96	NotF	*		182	2.5	0.121
2,3,7,8-TCDF	*	*	n	0.95	NotF	*		171	2.5	0.0315
1,2,3,7,8-PeCDF	*	*	n	0.96	NotF	*		285	2.5	0.0708
2,3,4,7,8-PeCDF	*	*	n	1.01	NotF	*		285	2.5	0.0659
1,2,3,4,7,8-HxCDF	*	*	n	1.18	NotF	*		208	2.5	0.0335
1,2,3,6,7,8-HxCDF	*	*	n	1.07	NotF	*		208	2.5	0.0369
2,3,4,6,7,8-HxCDF	*	*	n	1.11	NotF	*		208	2.5	0.0379
1,2,3,7,8,9-HxCDF	*	*	n	1.06	NotF	*		208	2.5	0.0500
1,2,3,4,6,7,8-HpCDF	*	*	n	1.13	NotF	*		151	2.5	0.0416
1,2,3,4,7,8,9-HpCDF	*	*	n	1.28	NotF	*		151	2.5	0.0354
OCDF	*	*	n	0.95	NotF	*		181	2.5	0.0954

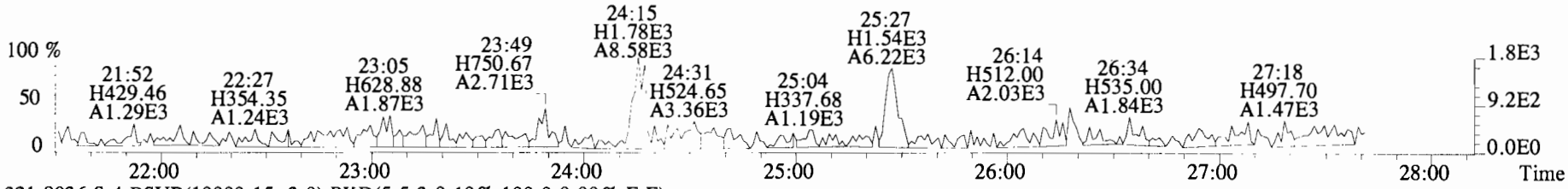
Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		155	0.0406
Total Penta-Dioxins	*	*		269	0.0703
Total Hexa-Dioxins	*	*		159	0.0661
Total Hepta-Dioxins	*	*		202	0.0903
Total Tetra-Furans	*	*		171	0.0315
Total Penta-Furans	0.0000	0.0000		285	0.0683
Total Hexa-Furans	*	*		208	0.0393
Total Hepta-Furans	*	*		151	0.0387

							Rec	Qual
IS	13C-2,3,7,8-TCDD	1.29e+07	0.81 y	1.10	26:14	187.70	93.8	
IS	13C-1,2,3,7,8-PeCDD	1.06e+07	0.64 y	0.88	30:43	191.21	95.6	
IS	13C-1,2,3,4,7,8-HxCDD	9.44e+06	1.25 y	0.64	34:01	192.64	96.3	
IS	13C-1,2,3,6,7,8-HxCDD	1.08e+07	1.29 y	0.86	34:08	166.06	83.0	
IS	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.25 y	0.81	34:26	173.19	86.6	
IS	13C-1,2,3,4,6,7,8-HpCDD	9.80e+06	1.03 y	0.65	37:52	196.47	98.2	
IS	13C-OCDD	1.61e+07	0.90 y	0.58	41:09	364.63	91.2	
IS	13C-2,3,7,8-TCDF	1.93e+07	0.80 y	1.03	25:27	182.74	91.4	
IS	13C-1,2,3,7,8-PeCDF	1.63e+07	1.61 y	0.85	29:33	186.34	93.2	
IS	13C-2,3,4,7,8-PeCDF	1.59e+07	1.61 y	0.85	30:26	183.48	91.7	
IS	13C-1,2,3,4,7,8-HxCDF	1.26e+07	0.52 y	0.83	33:08	198.98	99.5	
IS	13C-1,2,3,6,7,8-HxCDF	1.42e+07	0.51 y	1.03	33:16	179.34	89.7	
IS	13C-2,3,4,6,7,8-HxCDF	1.34e+07	0.51 y	0.95	33:51	184.42	92.2	
IS	13C-1,2,3,7,8,9-HxCDF	1.22e+07	0.51 y	0.83	34:48	193.02	96.5	
IS	13C-1,2,3,4,6,7,8-HpCDF	1.10e+07	0.44 y	0.76	36:39	191.12	95.6	
IS	13C-1,2,3,4,7,8,9-HpCDF	9.67e+06	0.44 y	0.58	38:24	218.08	109	
IS	13C-OCDF	2.12e+07	0.89 y	0.69	41:22	404.24	101	
C/Up	37Cl-2,3,7,8-TCDD	5.60e+06		1.20	26:15	74.400	93.0	
RS/RT	13C-1,2,3,4-TCDD	1.26e+07	0.82 y	1.00	25:40	200.00		
RS	13C-1,2,3,4-TCDF	2.04e+07	0.81 y	1.00	24:15	200.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.53e+07	0.52 y	1.00	33:33	200.00		

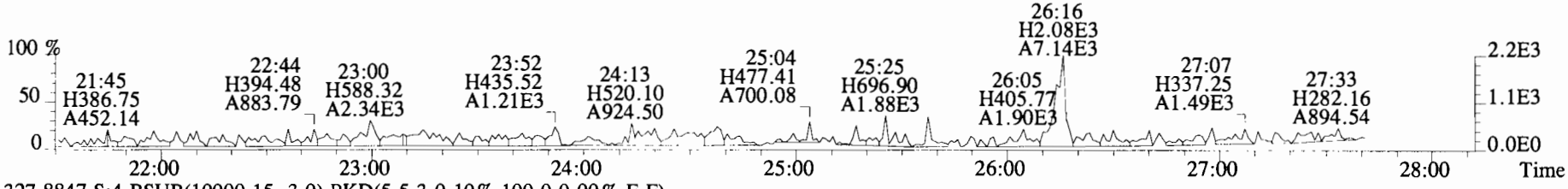
Integrations by Analyst: DB Date: 11/12/19

Reviewed by Analyst: CT Date: 11/14/19

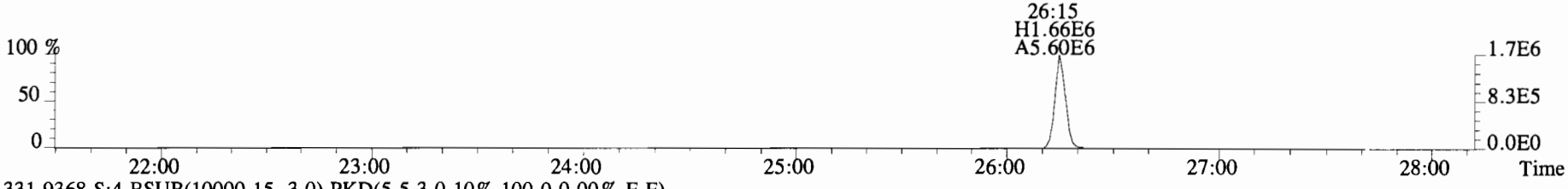
File:191111D1 #1-493 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



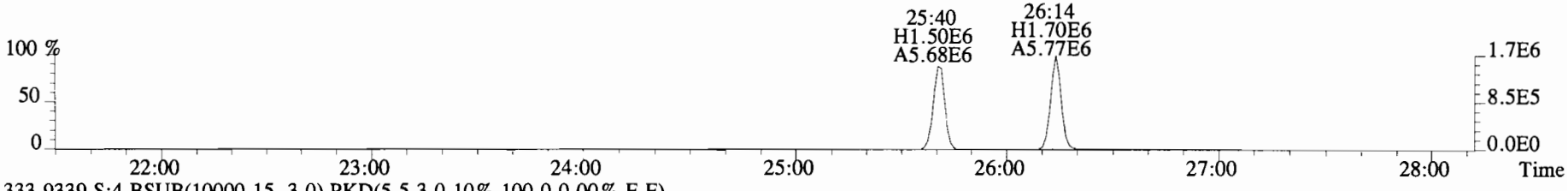
321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



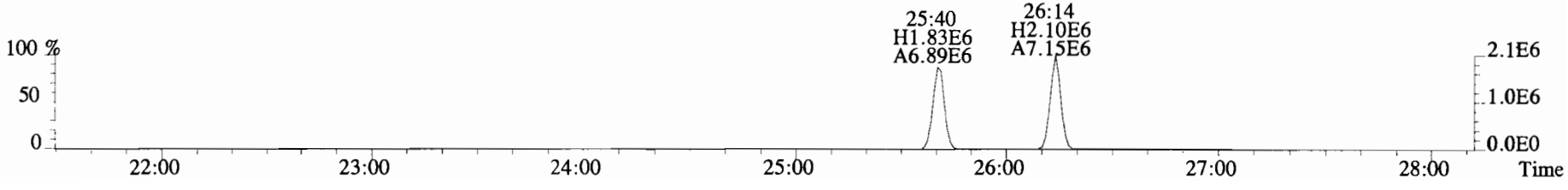
327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

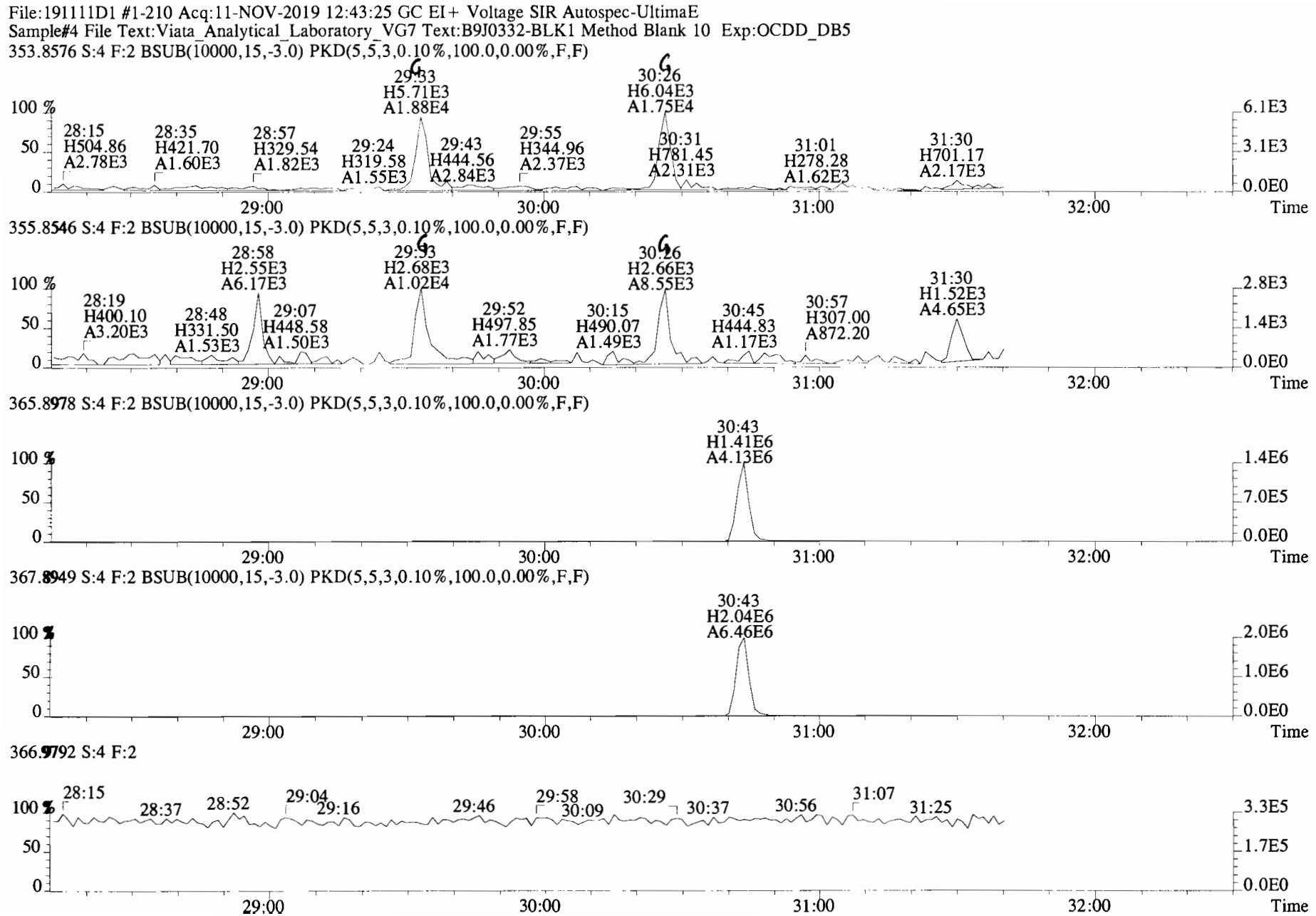


331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



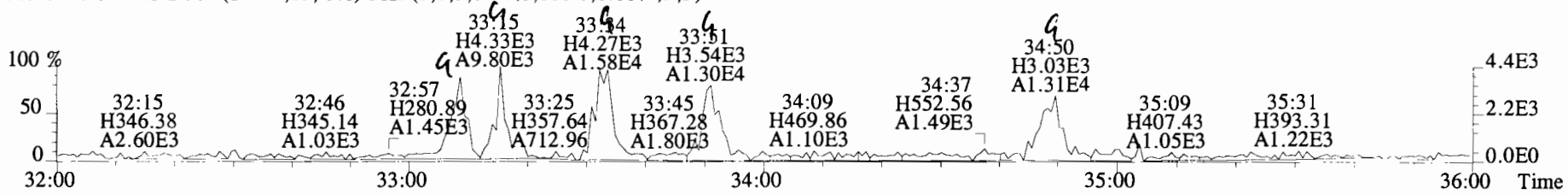
333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



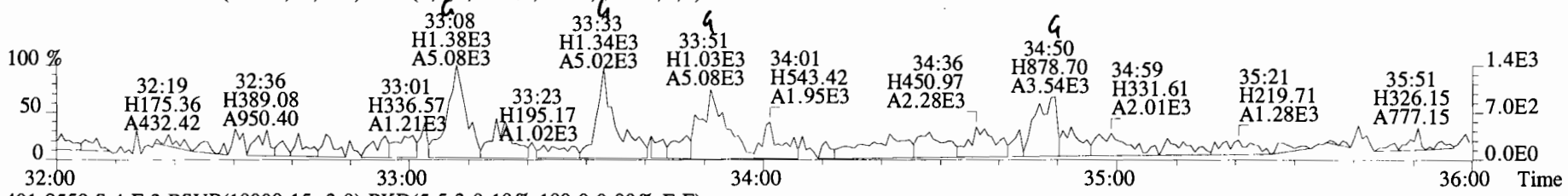

File:191111D1 #1-210 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:33 H5.71E3 A1.88E4
30:26 H6.04E3 A1.75E4
28:15 H504.86 A2.78E3
28:35 H421.70 A1.60E3
28:57 H329.54 A1.82E3
29:24 H319.58 A1.55E3
29:43 H444.56 A2.84E3
29:55 H344.96 A2.37E3
30:31 H781.45 A2.31E3
31:01 H278.28 A1.62E3
31:30 H701.17 A2.17E3
355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:58 H2.55E3 A6.17E3
29:33 H2.68E3 A1.02E4
30:26 H2.66E3 A8.55E3
28:19 H400.10 A3.20E3
28:48 H331.50 A1.53E3
29:07 H448.58 A1.50E3
29:52 H497.85 A1.77E3
30:15 H490.07 A1.49E3
30:45 H444.83 A1.17E3
30:57 H307.00 A872.20
31:30 H1.52E3 A4.65E3
365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
30:43 H1.41E6 A4.13E6
367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
30:43 H2.04E6 A6.46E6
366.9792 S:4 F:2
28:15
28:37
28:52
29:04
29:16
29:46
29:58
30:09
30:29
30:37
30:56
31:07
31:25
100 %
50
0
29:00
30:00
31:00
32:00
Time
6.1E3
3.1E3
0.0E0
2.8E3
1.4E3
1.4E6
7.0E5
2.0E6
1.0E6
3.3E5
1.7E5

File:191111D1 #1-385 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5

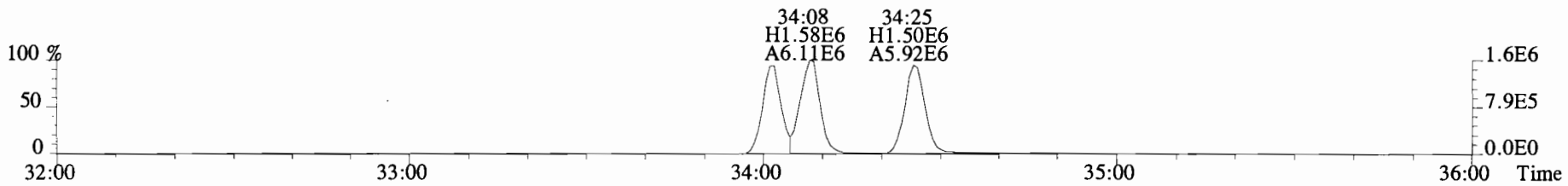
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



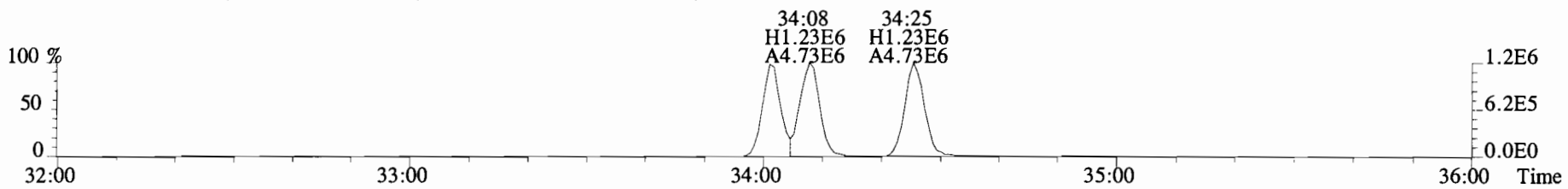
391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



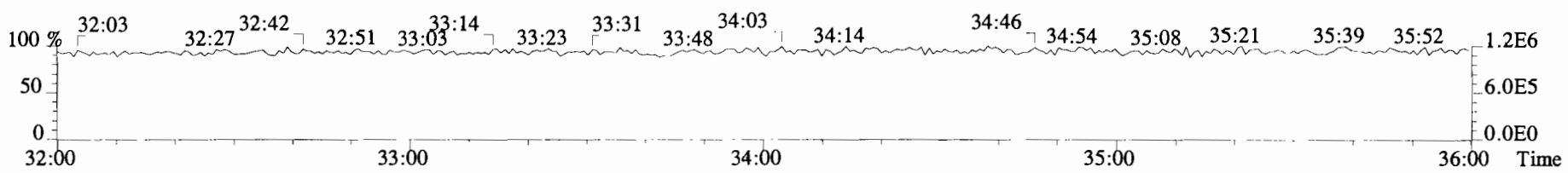
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



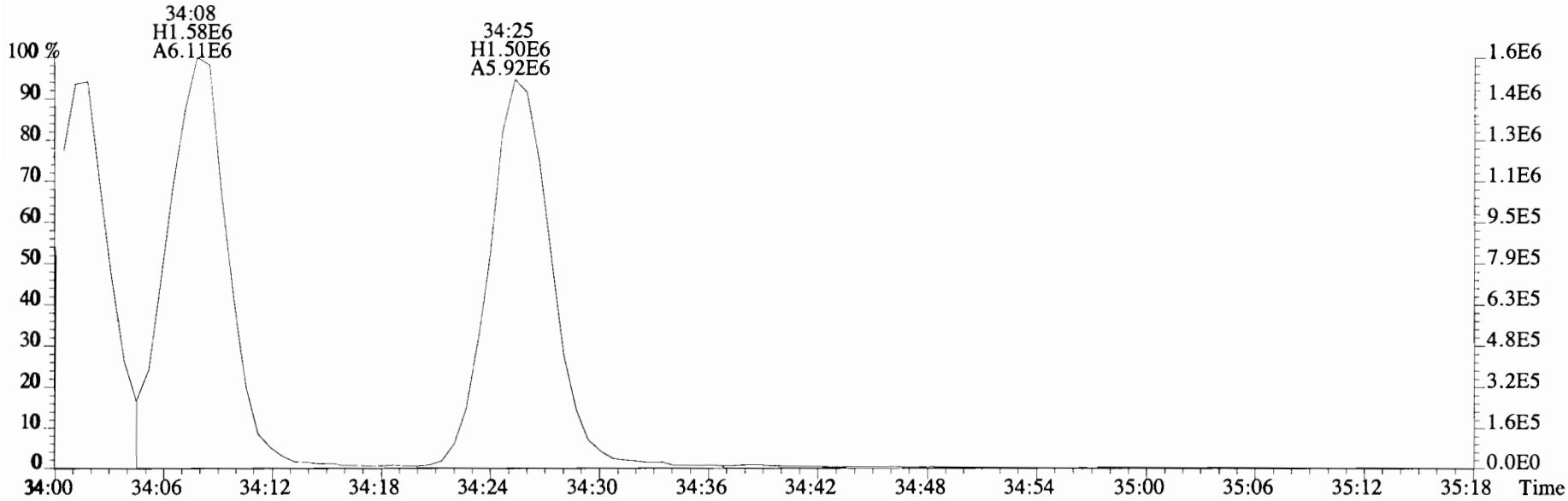
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



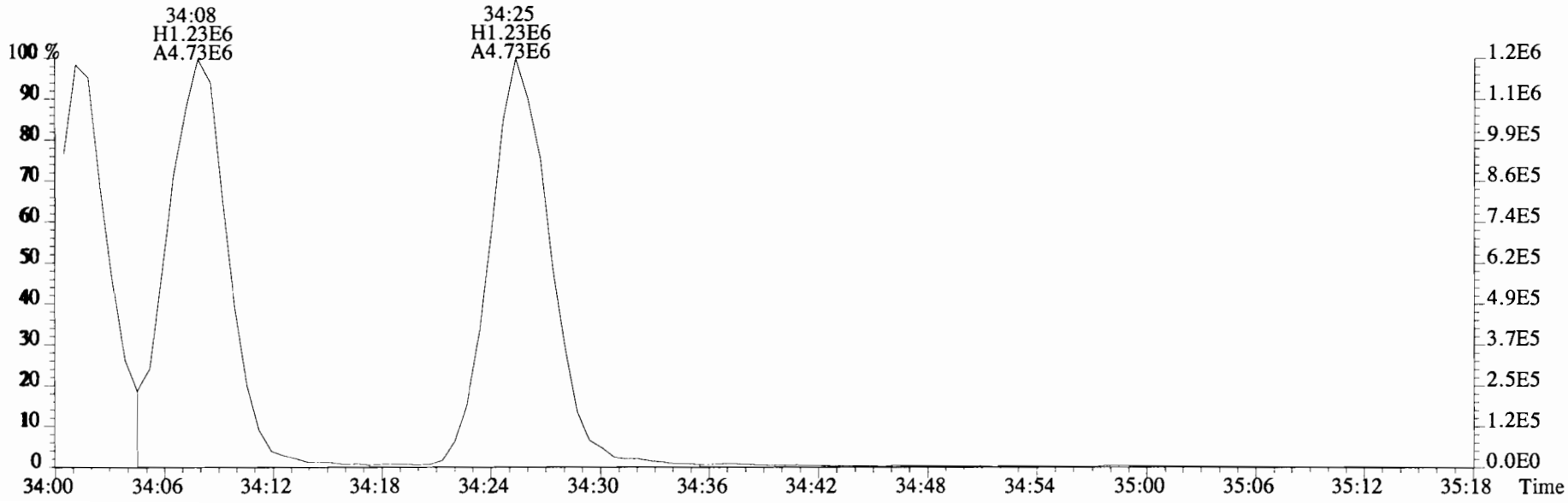
392.9760 S:4 F:3

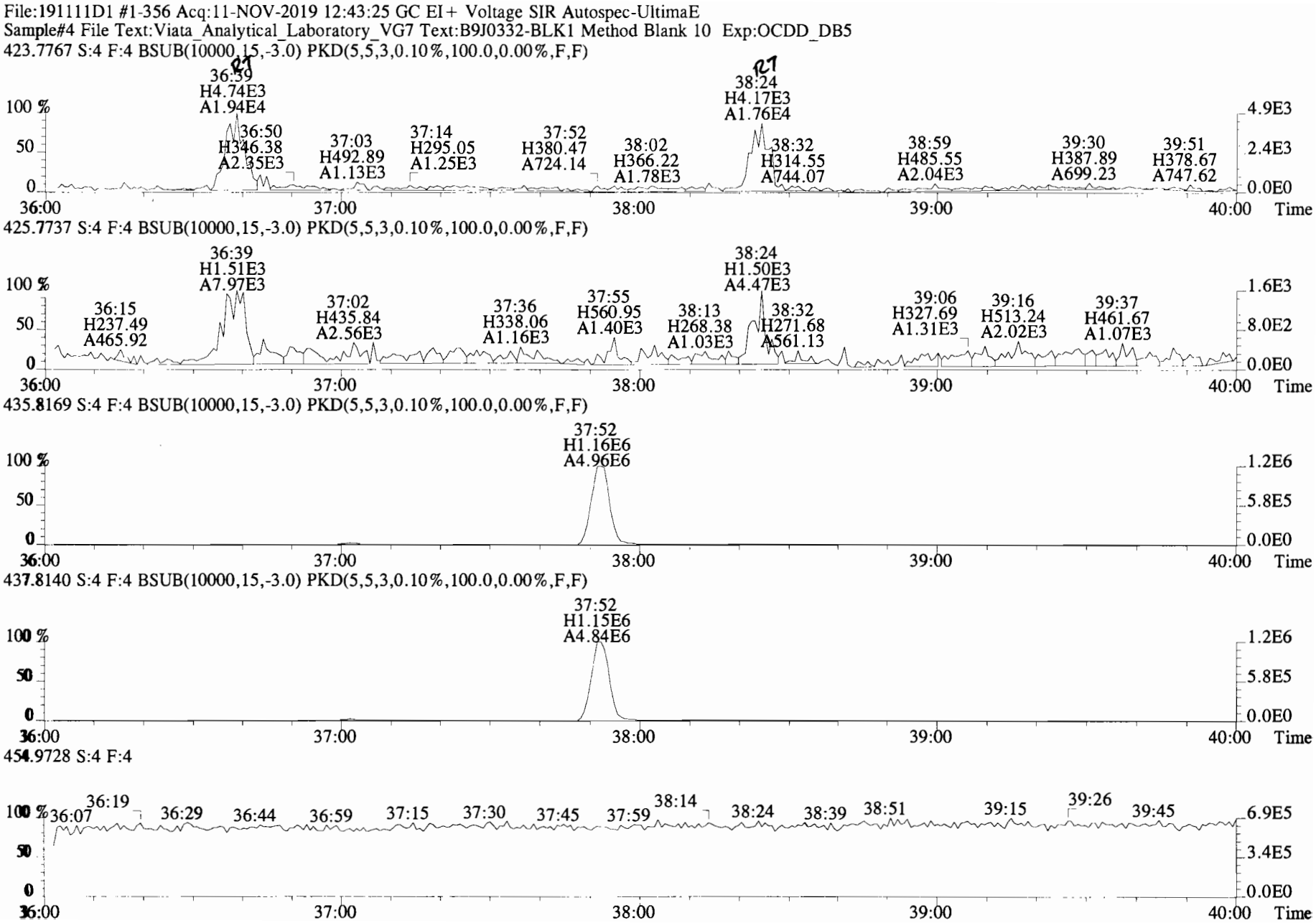


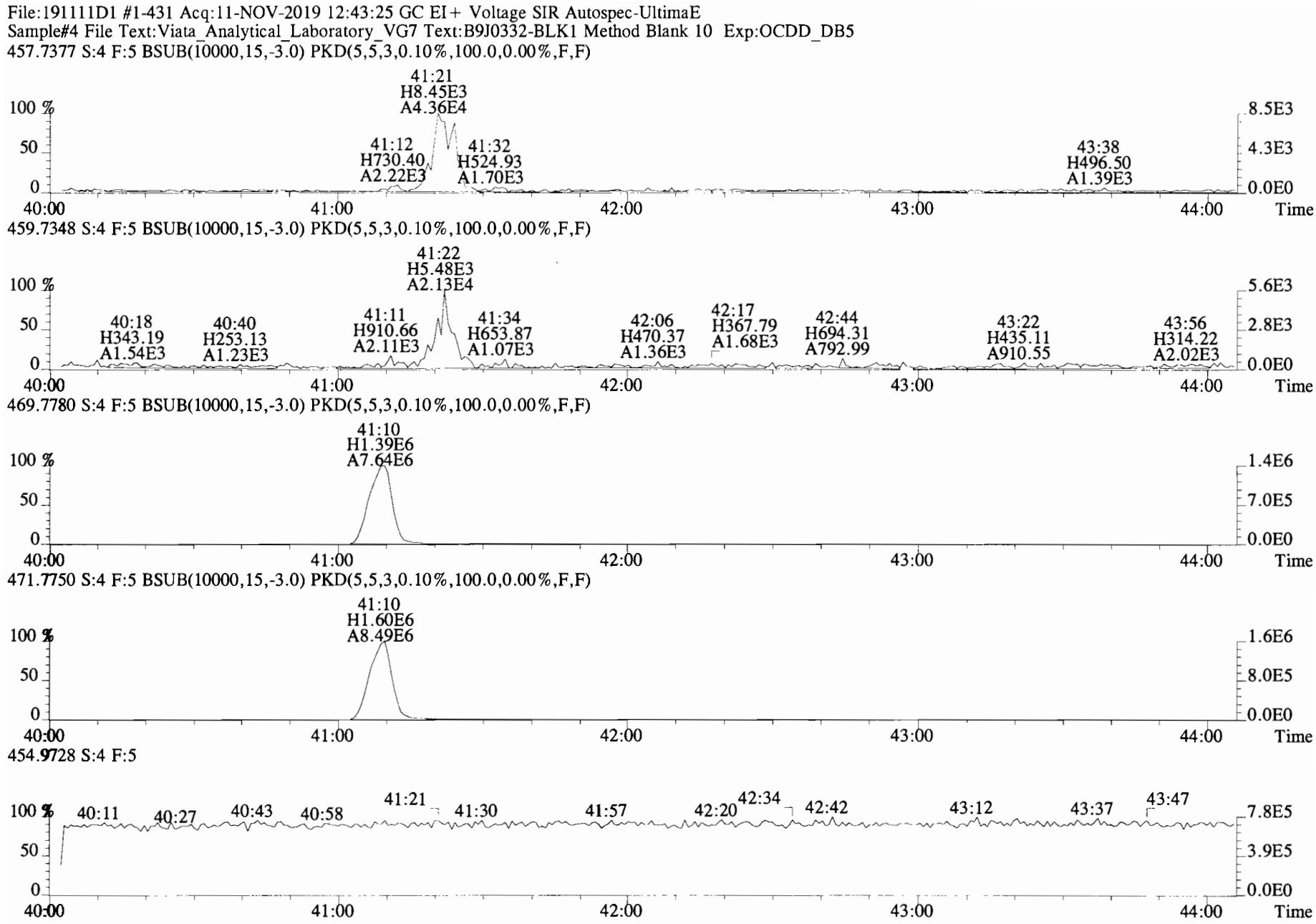
File:191111D1 #1-385 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

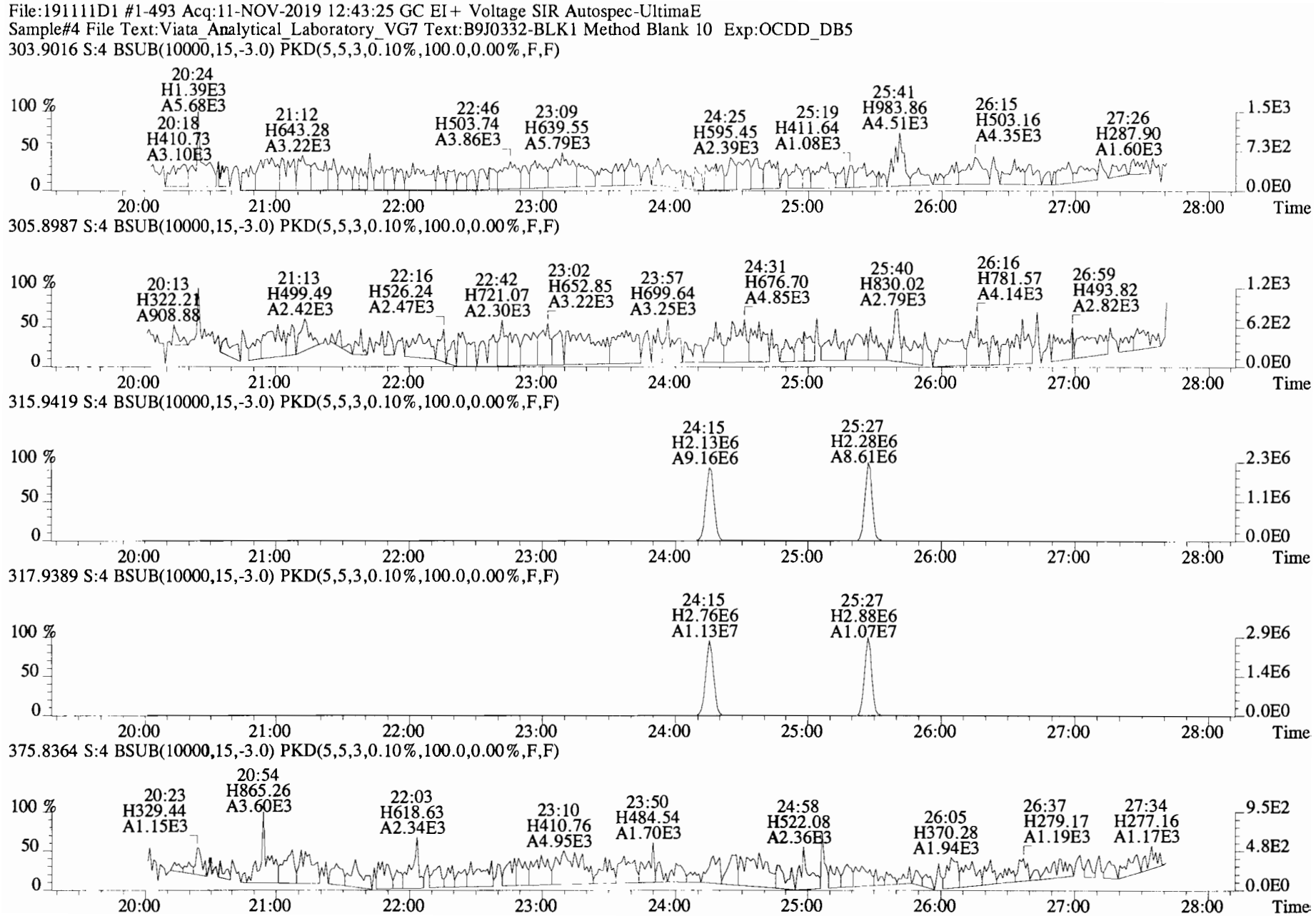


403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

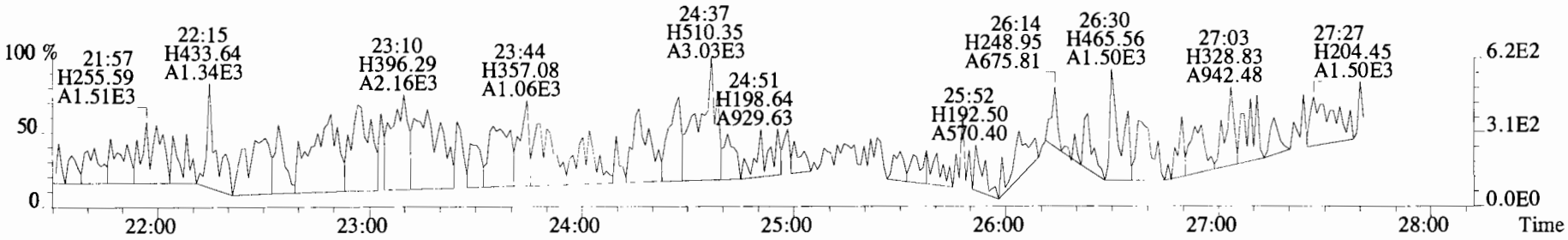



File:191111D1 #1-356 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H4.74E3 A1.94E4
38:24 H4.17E3 A1.76E4
36:50 H346.38 A2.35E3
37:03 H492.89 A1.13E3
37:14 H295.05 A1.25E3
37:52 H380.47 A724.14
38:02 H366.22 A1.78E3
38:32 H314.55 A744.07
38:59 H485.55 A2.04E3
39:30 H387.89 A699.23
39:51 H378.67 A747.62
425.7737 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H1.51E3 A7.97E3
38:24 H1.50E3 A4.47E3
36:15 H237.49 A465.92
37:02 H435.84 A2.56E3
37:36 H338.06 A1.16E3
37:55 H560.95 A1.40E3
38:13 H268.38 A1.03E3
38:32 H271.68 A561.13
39:06 H327.69 A1.31E3
39:16 H513.24 A2.02E3
39:37 H461.67 A1.07E3
435.8169 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52 H1.16E6 A4.96E6
437.8140 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52 H1.15E6 A4.84E6
454.9728 S:4 F:4
36:07 36:19 36:29 36:44 36:59 37:15 37:30 37:45 37:59 38:14 38:24 38:39 38:51 39:15 39:26 39:45
100 %
50
0
4.9E3
2.4E3
0.0E0
1.6E3
8.0E2
1.2E6
5.8E5
6.9E5
3.4E5
36:00
37:00
38:00
39:00
40:00
Time

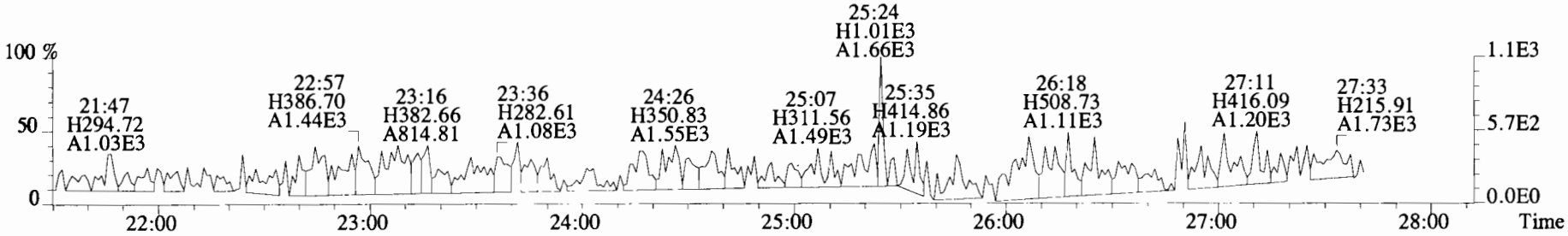

File:191111D1 #1-431 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:21 H8.45E3 A4.36E4
41:12 H730.40 A2.22E3
41:32 H524.93 A1.70E3
43:38 H496.50 A1.39E3
459.7348 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:22 H5.48E3 A2.13E4
40:18 H343.19 A1.54E3
40:40 H253.13 A1.23E3
41:11 H910.66 A2.11E3
41:34 H653.87 A1.07E3
42:06 H470.37 A1.36E3
42:17 H367.79 A1.68E3
42:44 H694.31 A792.99
43:22 H435.11 A910.55
43:56 H314.22 A2.02E3
469.7780 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:10 H1.39E6 A7.64E6
471.7750 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:10 H1.60E6 A8.49E6
454.9728 S:4 F:5
40:11
40:27
40:43
40:58
41:21
41:30
41:57
42:20
42:34
42:42
43:12
43:37
43:47
100 %
50
0
40:00
41:00
42:00
43:00
44:00
Time
8.5E3
4.3E3
0.0E0
5.6E3
2.8E3
1.4E6
7.0E5
1.6E6
8.0E5
7.8E5
3.9E5


File:191111D1 #1-493 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 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)
20:24 H1.39E3 A5.68E3
20:18 H410.73 A3.10E3
21:12 H643.28 A3.22E3
22:46 H503.74 A3.86E3
23:09 H639.55 A5.79E3
24:25 H595.45 A2.39E3
25:19 H411.64 A1.08E3
25:41 H983.86 A4.51E3
26:15 H503.16 A4.35E3
27:26 H287.90 A1.60E3
305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:13 H322.21 A908.88
21:13 H499.49 A2.42E3
22:16 H526.24 A2.47E3
22:42 H721.07 A2.30E3
23:02 H652.85 A3.22E3
23:57 H699.64 A3.25E3
24:31 H676.70 A4.85E3
25:40 H830.02 A2.79E3
26:16 H781.57 A4.14E3
26:59 H493.82 A2.82E3
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:15 H2.13E6 A9.16E6
25:27 H2.28E6 A8.61E6
317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:15 H2.76E6 A1.13E7
25:27 H2.88E6 A1.07E7
375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:23 H329.44 A1.15E3
20:54 H865.26 A3.60E3
22:03 H618.63 A2.34E3
23:10 H410.76 A4.95E3
23:50 H484.54 A1.70E3
24:58 H522.08 A2.36E3
26:05 H370.28 A1.94E3
26:37 H279.17 A1.19E3
27:34 H277.16 A1.17E3
100 %
50
0
20:00
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
Time
1.5E3
7.3E2
0.0E0
1.2E3
6.2E2
2.3E6
1.1E6
2.9E6
1.4E6
9.5E2
4.8E2

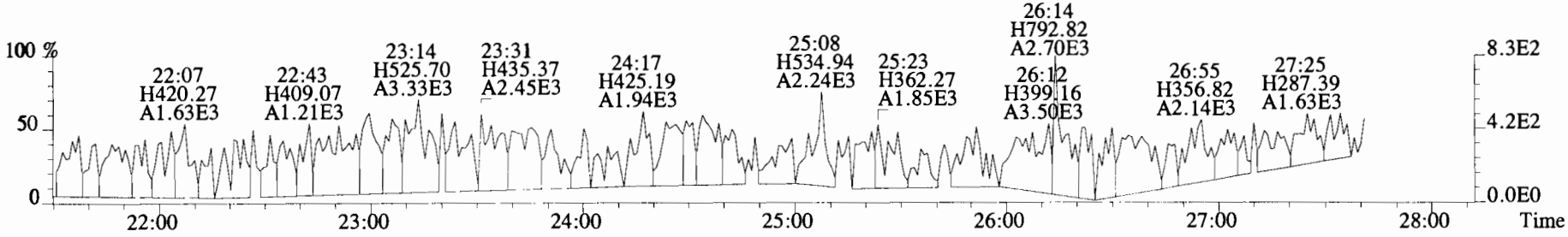
File:191111D1 #1-493 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



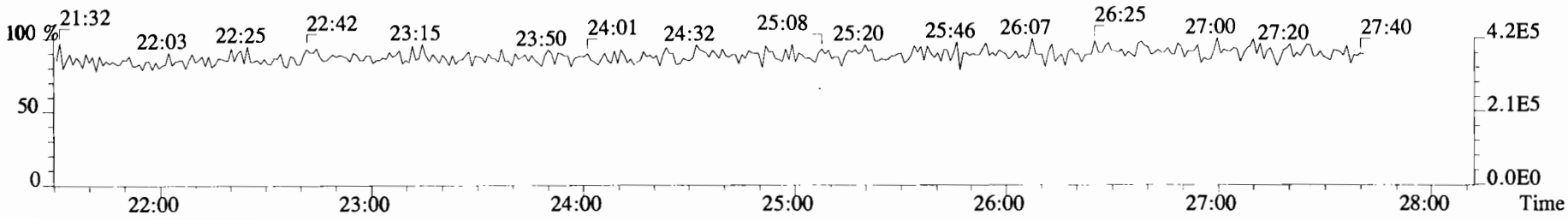
341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



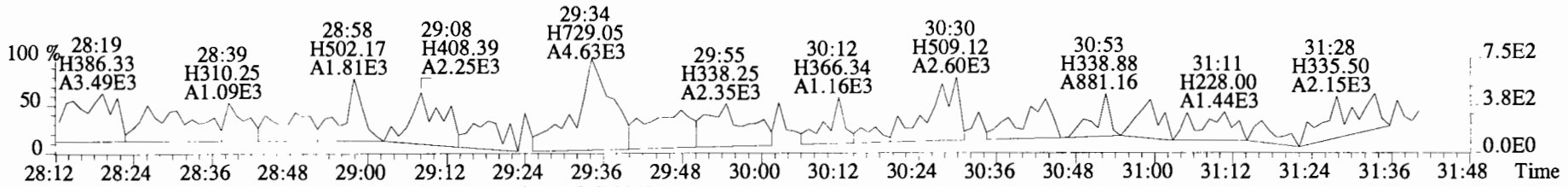
409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



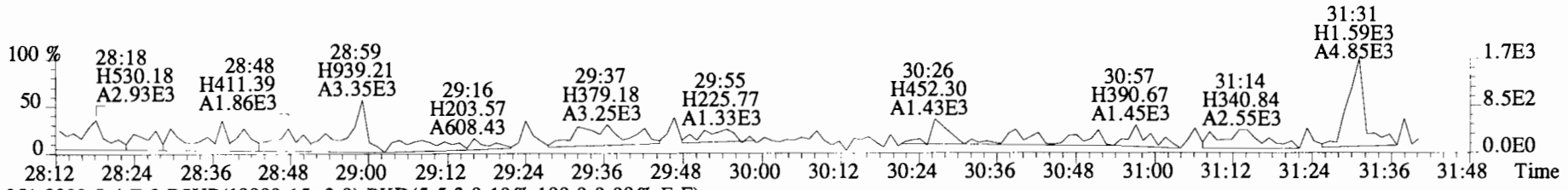
316.9824 S:4



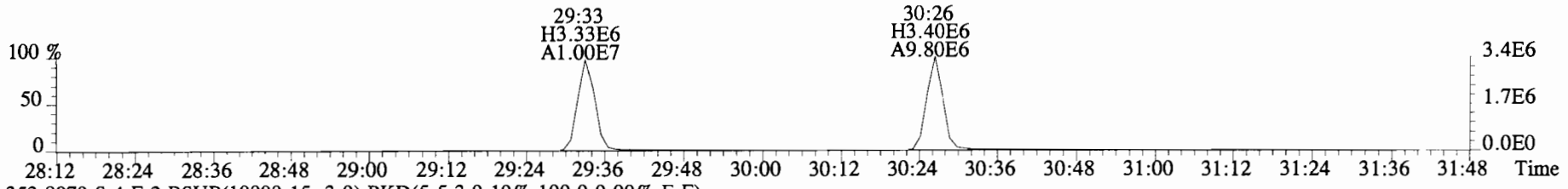
File:191111D1 #1-210 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



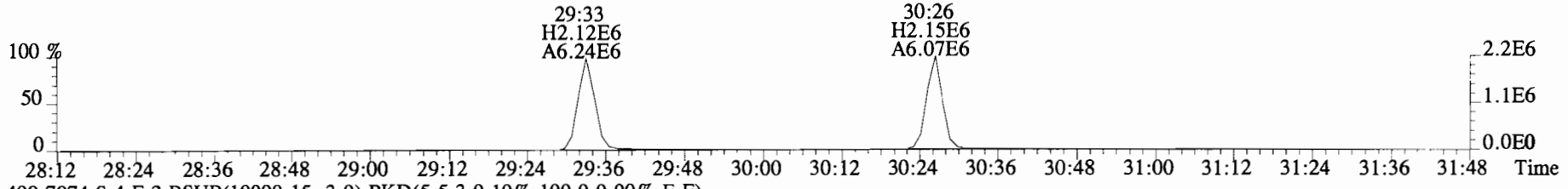
341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



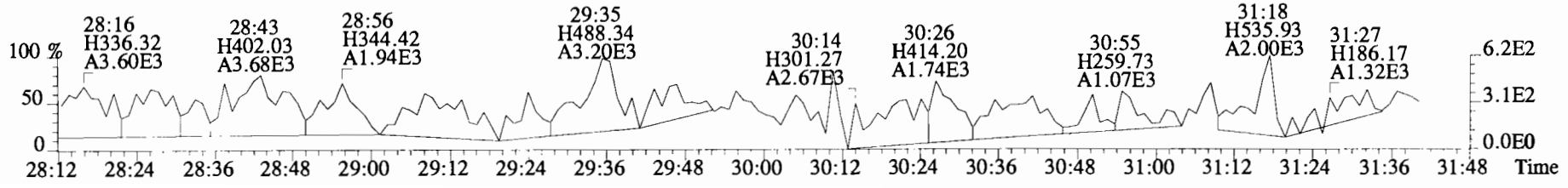
351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



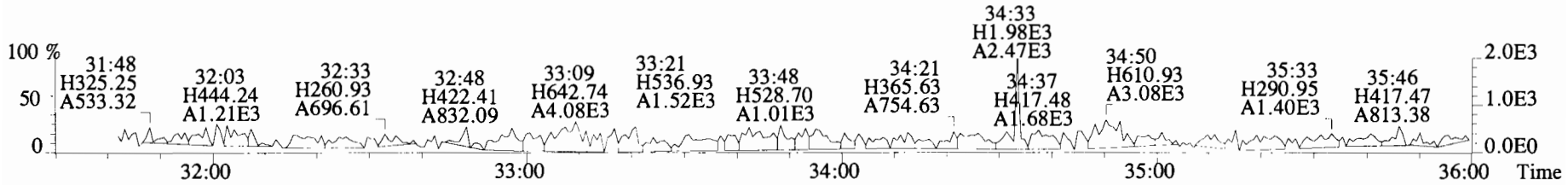
353.8970 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



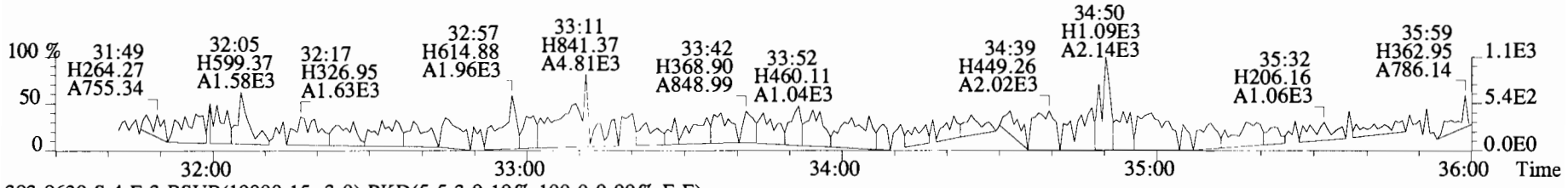
409.7974 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



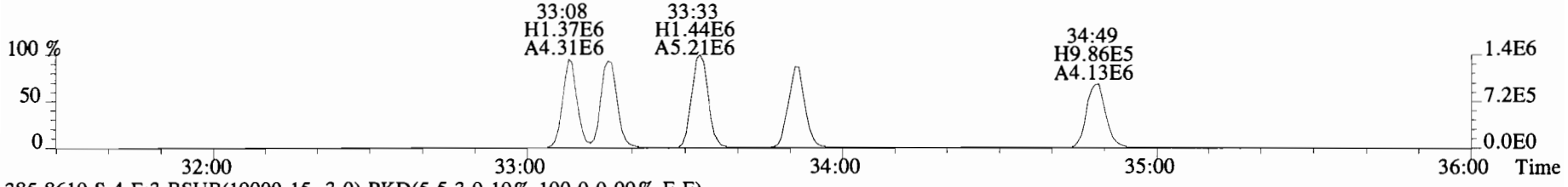
File:191111D1 #1-385 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



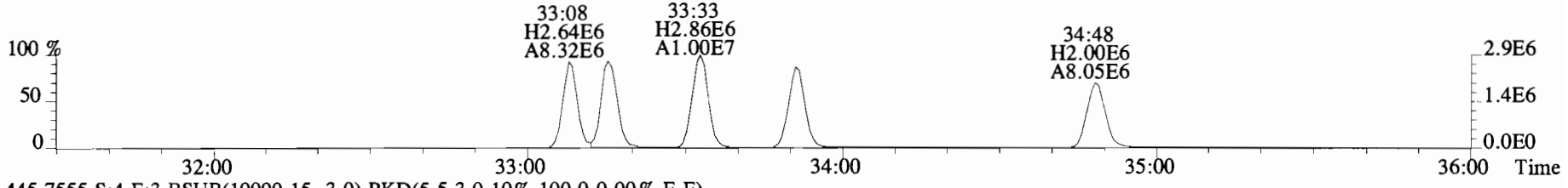
375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



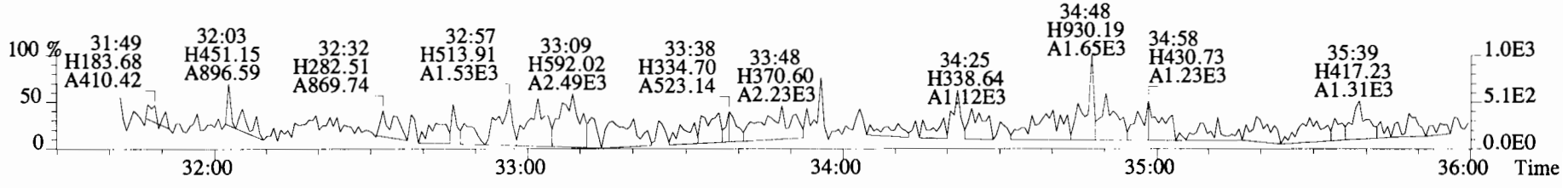
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

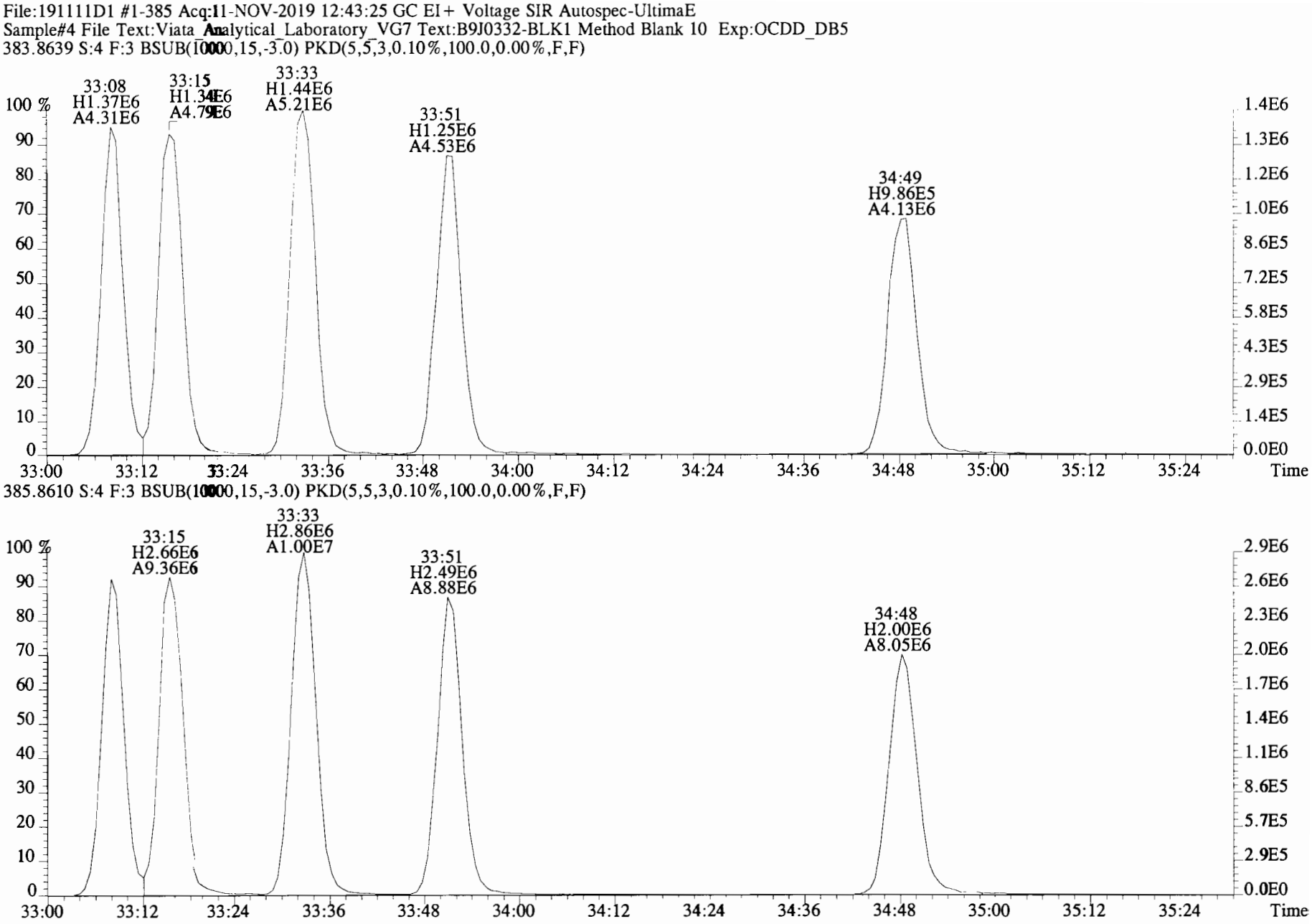


385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

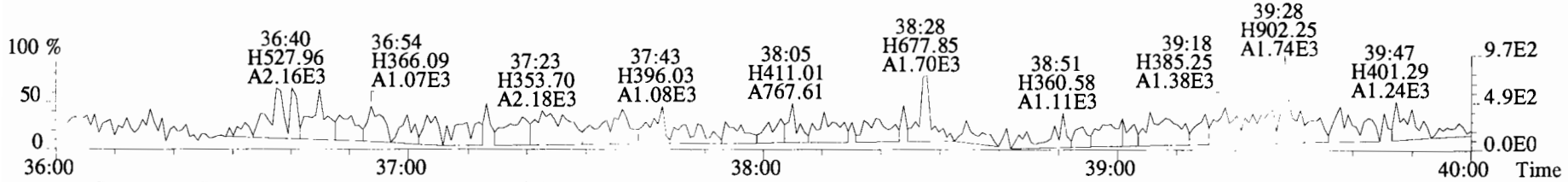


445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

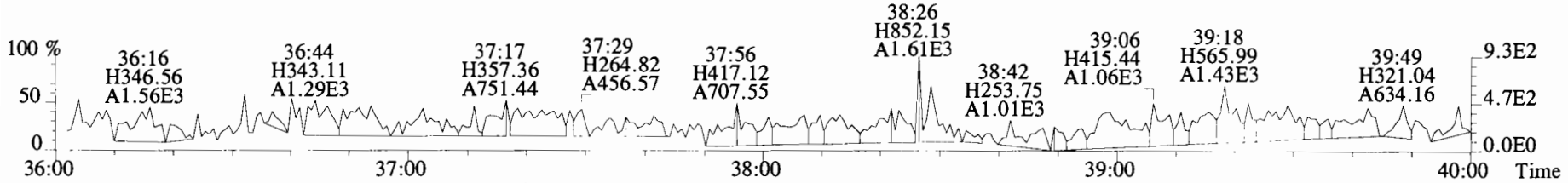



File:191111D1 #1-385 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
383.8639 S:4 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:08 H1.37E6 A4.31E6
33:15 H1.34E6 A4.79E6
33:33 H1.44E6 A5.21E6
33:51 H1.25E6 A4.53E6
34:49 H9.86E5 A4.13E6
385.8610 S:4 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:15 H2.66E6 A9.36E6
33:33 H2.86E6 A1.00E7
33:51 H2.49E6 A8.88E6
34:48 H2.00E6 A8.05E6
100 %
Time

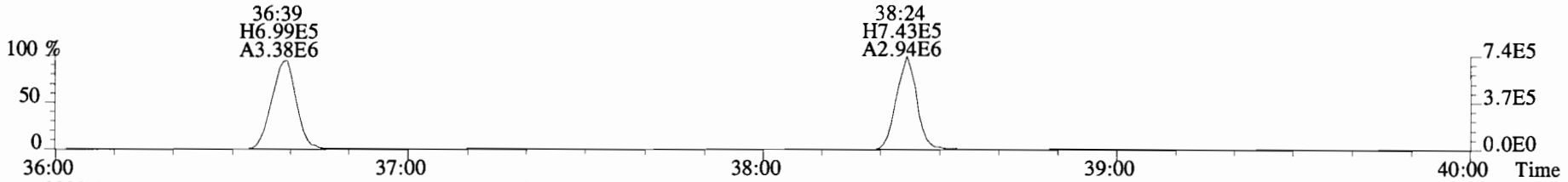
File:191111D1 #1-356 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 10 Exp:OCDD_DB5
407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



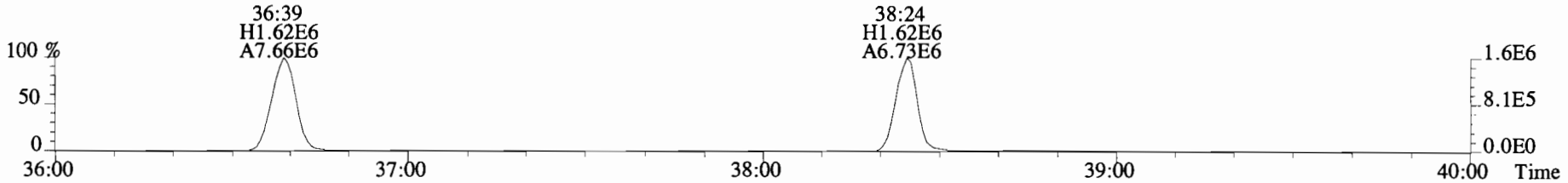
409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



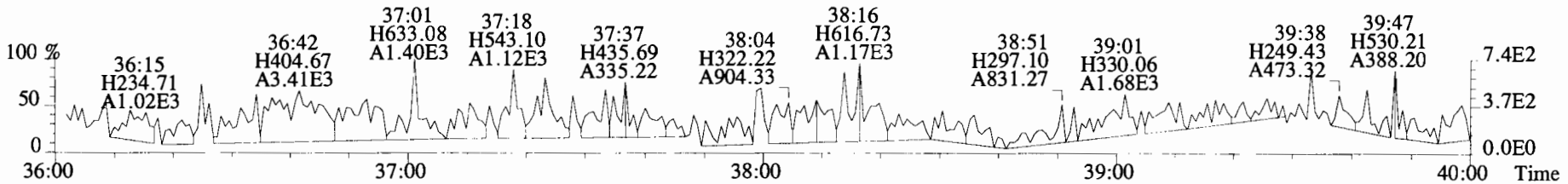
417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

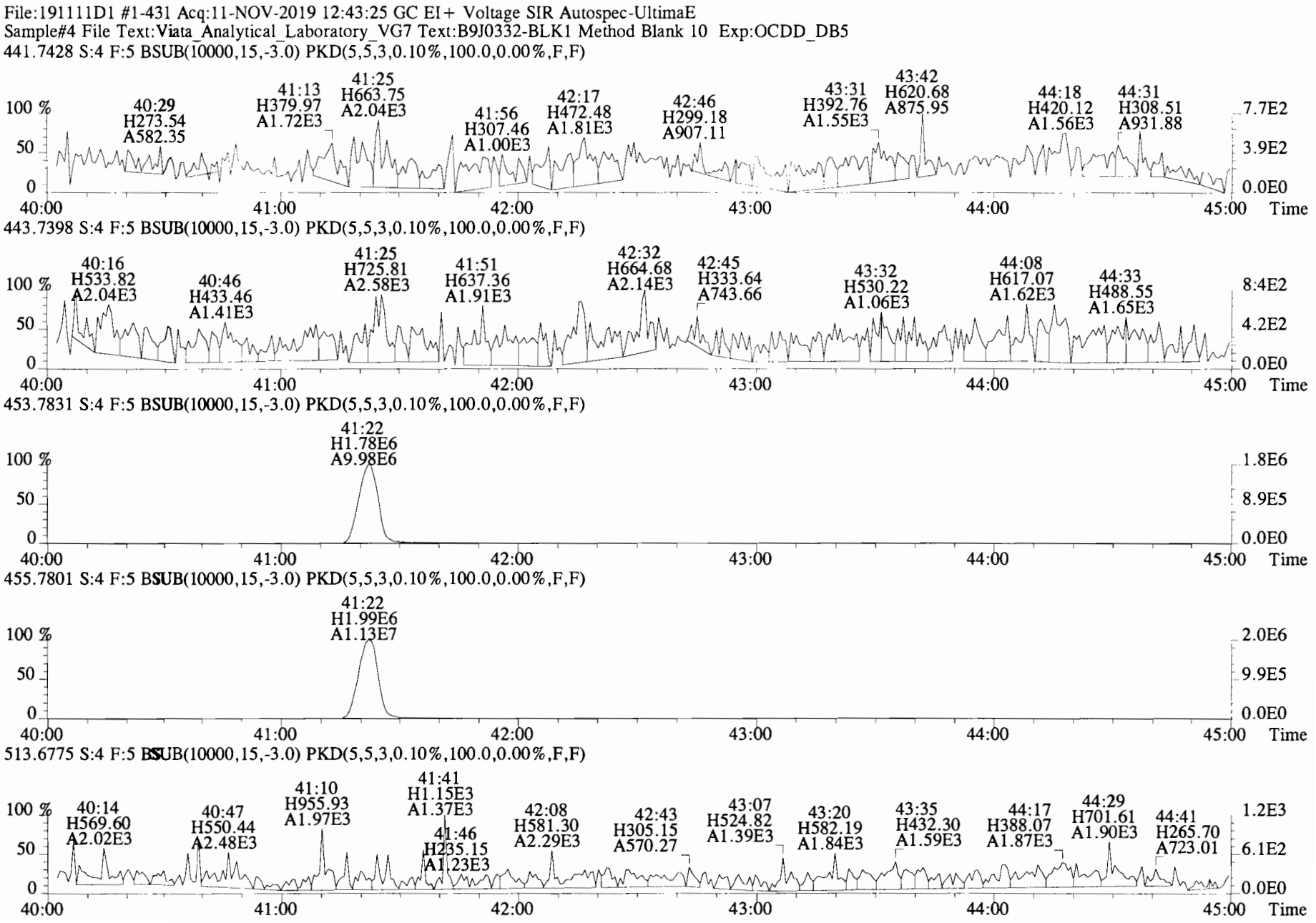


419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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




File:191111D1 #1-431 Acq:11-NOV-2019 12:43:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BLK1 Method Blank 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)
40:29 H273.54 A582.35
41:13 H379.97 A1.72E3
41:25 H663.75 A2.04E3
41:56 H307.46 A1.00E3
42:17 H472.48 A1.81E3
42:46 H299.18 A907.11
43:31 H392.76 A1.55E3
43:42 H620.68 A875.95
44:18 H420.12 A1.56E3
44:31 H308.51 A931.88
443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
40:16 H533.82 A2.04E3
40:46 H433.46 A1.41E3
41:25 H725.81 A2.58E3
41:51 H637.36 A1.91E3
42:32 H664.68 A2.14E3
42:45 H333.64 A743.66
43:32 H530.22 A1.06E3
44:08 H617.07 A1.62E3
44:33 H488.55 A1.65E3
453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:22 H1.78E6 A9.98E6
455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:22 H1.99E6 A1.13E7
513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
40:14 H569.60 A2.02E3
40:47 H550.44 A2.48E3
41:10 H955.93 A1.97E3
41:41 H1.15E3 A1.37E3
41:46 H235.15 A1.23E3
42:08 H581.30 A2.29E3
42:43 H305.15 A570.27
43:07 H524.82 A1.39E3
43:20 H582.19 A1.84E3
43:35 H432.30 A1.59E3
44:17 H388.07 A1.87E3
44:29 H701.61 A1.90E3
44:41 H265.70 A723.01
100 %
50
0
40:00
41:00
42:00
43:00
44:00
45:00
Time
7.7E2
3.9E2
0.0E0
8:4E2
4.2E2
1.8E6
8.9E5
2.0E6
9.9E5
1.2E3
6.1E2

FORM 8A

PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9J0332-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 191111D1-2

Ext. Date: Shift: Day Analysis Date: 11-NOV-19 Time: 11:07:28

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	11.1	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	53.1	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	52.5	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	52.5	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	53.6	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	51.4	35.0 - 70.0
OCDD	100	105	78.0 - 144.0
2,3,7,8-TCDF	10	10.2	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	51.9	40.0 - 67.0
2,3,4,7,8-PeCDF	50	52.3	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	50.3	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	50.4	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	51.5	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	50.8	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	49.8	39.0 - 69.0
OCDF	100	101	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: 11/12/19

FORM 8B

PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9J0332-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 191111D1-2

Ext. Date: Shift: Day Analysis Date: 11-NOV-19 Time: 11:07:28

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	95.7	20.0 - 175.0
			25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	97.4	21.0 - 227.0
13C-1,2,3,4,7,8-HxCDD	100	94.8	21.0 - 193.0
13C-1,2,3,6,7,8-HxCDD	100	85.8	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	87.4	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	102	26.0 - 166.0
13C-OCDD	200	188	26.0 - 397.0
13C-2,3,7,8-TCDF	100	94.1	22.0 - 152.0
			26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	93.7	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	93.1	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	99.2	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	92.5	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	92.5	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	97.1	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	98.1	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	109	20.0 - 186.0
13C-OCDF	200	206	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	38.5	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: 11/12/19

Client ID: OPR Filename: 191111D1 S:2 Acq:11-NOV-19 11:07:28 ConCal: ST191111D1-1
Lab ID: B9J0332-BS1 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.29e+06	0.75 y	0.91	26:15	11.080			* 2.5	*
	1,2,3,7,8-PeCDD	5.07e+06	0.63 y	0.90	30:44	53.127			* 2.5	*
	1,2,3,4,7,8-HxCDD	5.33e+06	1.24 y	1.10	34:03	52.542			* 2.5	*
	1,2,3,6,7,8-HxCDD	5.48e+06	1.23 y	0.94	34:09	52.483			* 2.5	*
	1,2,3,7,8,9-HxCDD	5.50e+06	1.25 y	0.96	34:27	53.615			* 2.5	*
	1,2,3,4,6,7,8-HpCDD	5.06e+06	1.04 y	0.98	37:53	51.374			* 2.5	*
	OCDD	8.28e+06	0.92 y	0.96	41:10	104.86			* 2.5	*
	2,3,7,8-TCDF	1.89e+06	0.80 y	0.95	25:29	10.222			* 2.5	*
	1,2,3,7,8-PeCDF	7.99e+06	1.64 y	0.96	29:34	51.943			* 2.5	*
	2,3,4,7,8-PeCDF	8.38e+06	1.62 y	1.01	30:27	52.309			* 2.5	*
	1,2,3,4,7,8-HxCDF	7.39e+06	1.20 y	1.18	33:09	50.307			* 2.5	*
	1,2,3,6,7,8-HxCDF	7.81e+06	1.23 y	1.07	33:17	50.409			* 2.5	*
	2,3,4,6,7,8-HxCDF	7.65e+06	1.20 y	1.11	33:53	51.495			* 2.5	*
	1,2,3,7,8,9-HxCDF	6.57e+06	1.24 y	1.06	34:50	50.827			* 2.5	*
	1,2,3,4,6,7,8-HpCDF	6.36e+06	1.02 y	1.13	36:40	50.127			* 2.5	*
	1,2,3,4,7,8,9-HpCDF	6.14e+06	1.02 y	1.28	38:26	49.828			* 2.5	*
	OCDF	1.02e+07	0.89 y	0.95	41:23	100.61			* 2.5	*

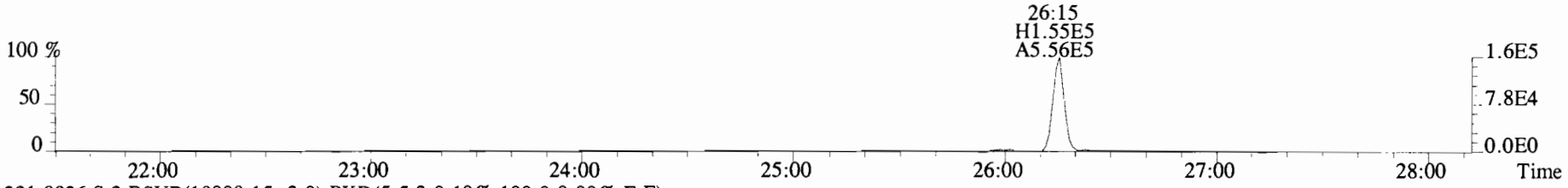
	Name	Resp	RA	RRF	RT	Conc	Qual	Rec	Qual
IS	13C-2,3,7,8-TCDD	1.29e+07	0.81 y	1.10	26:14	95.676		95.7	
IS	13C-1,2,3,7,8-PeCDD	1.06e+07	0.63 y	0.88	30:44	97.394		97.4	
IS	13C-1,2,3,4,7,8-HxCDD	9.21e+06	1.28 y	0.64	34:02	94.763		94.8	
IS	13C-1,2,3,6,7,8-HxCDD	1.11e+07	1.28 y	0.86	34:08	85.806		85.8	
IS	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.25 y	0.81	34:26	87.420		87.4	
IS	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	1.03 y	0.65	37:53	101.65		102	
IS	13C-OCDD	1.65e+07	0.90 y	0.58	41:09	187.63		93.8	
IS	13C-2,3,7,8-TCDF	1.95e+07	0.81 y	1.03	25:28	94.104		94.1	
IS	13C-1,2,3,7,8-PeCDF	1.60e+07	1.62 y	0.85	29:34	93.743		93.7	
IS	13C-2,3,4,7,8-PeCDF	1.58e+07	1.60 y	0.85	30:27	93.079		93.1	
IS	13C-1,2,3,4,7,8-HxCDF	1.25e+07	0.51 y	0.83	33:09	99.167		99.2	
IS	13C-1,2,3,6,7,8-HxCDF	1.45e+07	0.52 y	1.03	33:16	92.488		92.5	
IS	13C-2,3,4,6,7,8-HxCDF	1.33e+07	0.51 y	0.95	33:52	92.463		92.5	
IS	13C-1,2,3,7,8,9-HxCDF	1.22e+07	0.52 y	0.83	34:49	97.136		97.1	
IS	13C-1,2,3,4,6,7,8-HpCDF	1.12e+07	0.44 y	0.76	36:39	98.071		98.1	
IS	13C-1,2,3,4,7,8,9-HpCDF	9.63e+06	0.44 y	0.58	38:25	109.47		109	
IS	13C-OCDF	2.14e+07	0.89 y	0.69	41:23	205.53		103	
C/Up	37Cl-2,3,7,8-TCDD	5.67e+06		1.20	26:15	38.493		96.2	
RS/RT	13C-1,2,3,4-TCDD	1.23e+07	0.81 y	1.00	25:41	100.00			
RS	13C-1,2,3,4-TCDF	2.00e+07	0.81 y	1.00	24:16	100.00			
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.51e+07	0.51 y	1.00	33:33	100.00			

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	11.5	12.3		*	*
Total Penta-Dioxins	53.1	53.3		*	*
Total Hexa-Dioxins	159	159		*	*
Total Hepta-Dioxins	51.7	53.0		*	*
Total Tetra-Furans	10.4	10.8		*	*
Total Penta-Furans	105.49	106.11		*	*
Total Hexa-Furans	203	204		*	*
Total Hepta-Furans	100	101		*	*

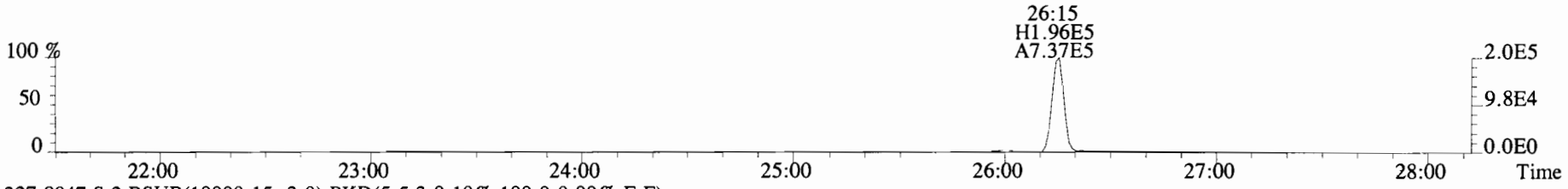
Integrations by Analyst: DB Date: 11/12/19

Reviewed by Analyst: CT Date: 11/14/19

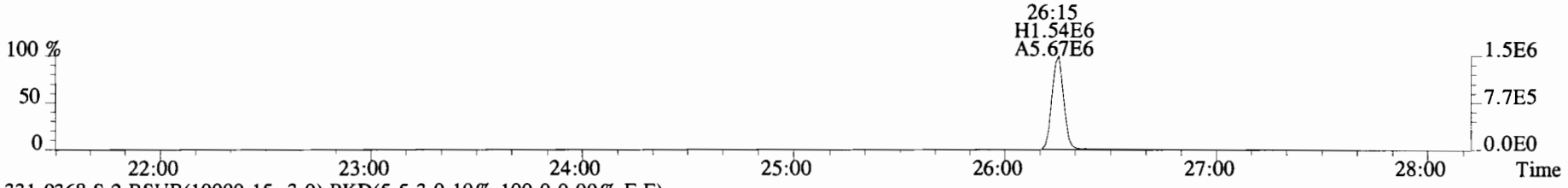
File:191111D1 #1-492 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



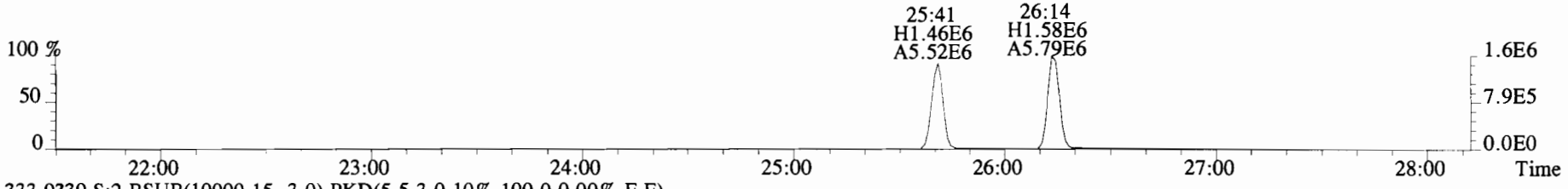
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



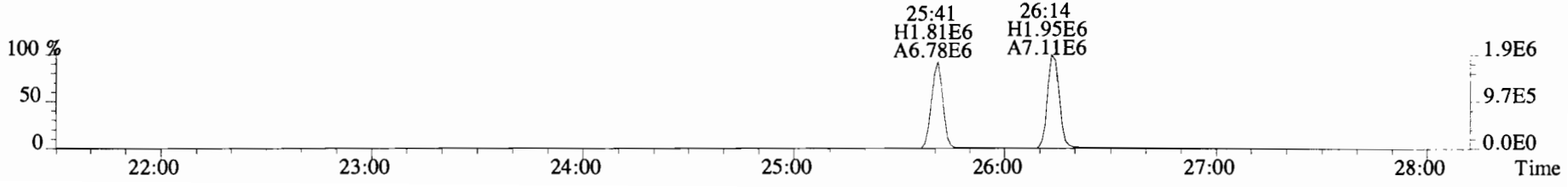
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



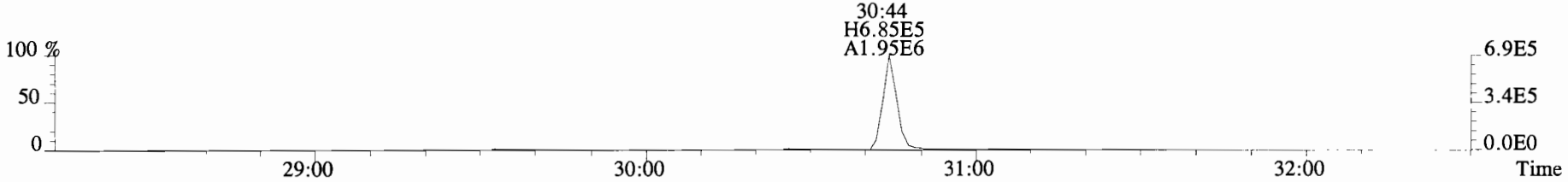
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



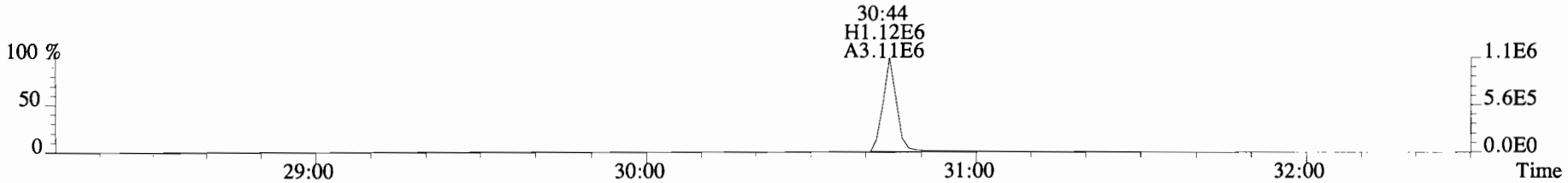
333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



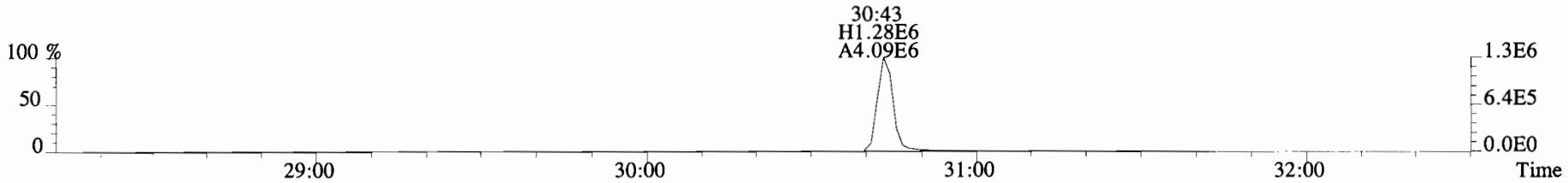
File:191111D1 #1-211 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



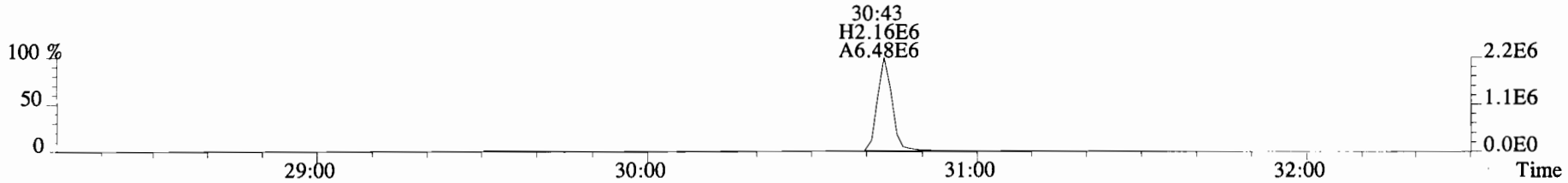
355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



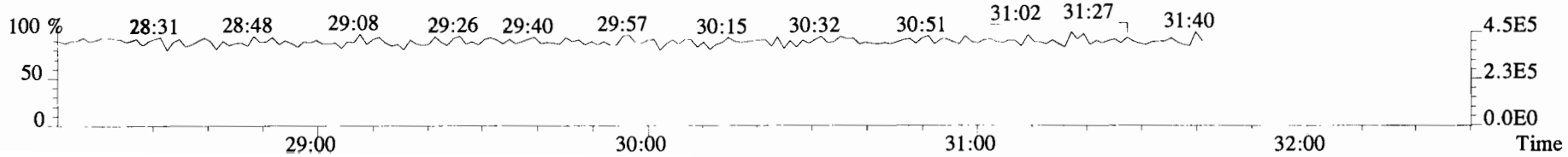
365.8978 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



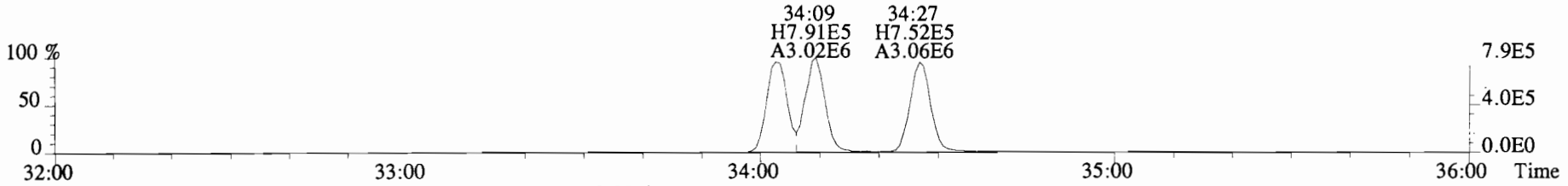
367.8949 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



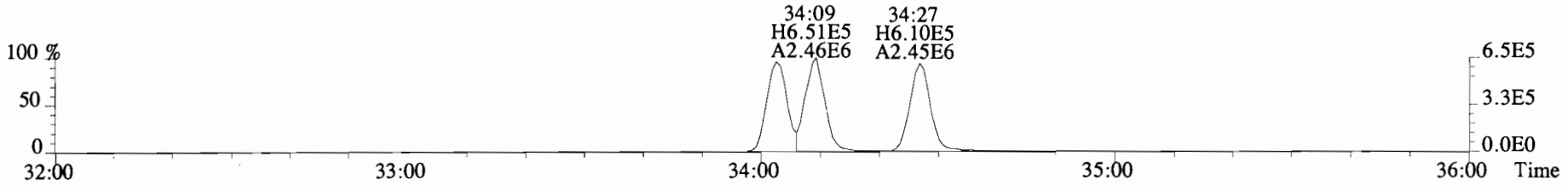
366.9792 S:2 F:2



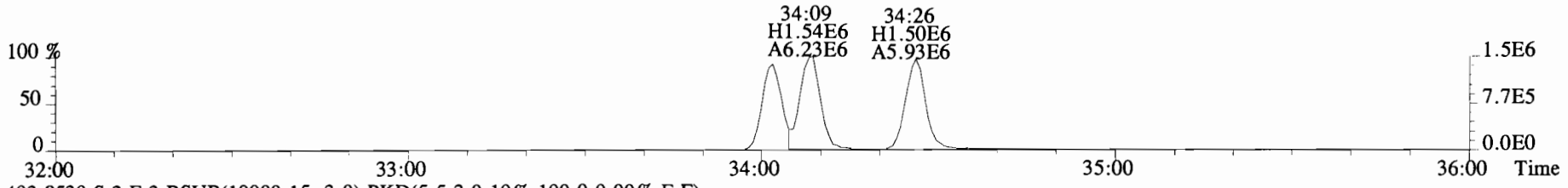
File:191111D1 #1-384 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



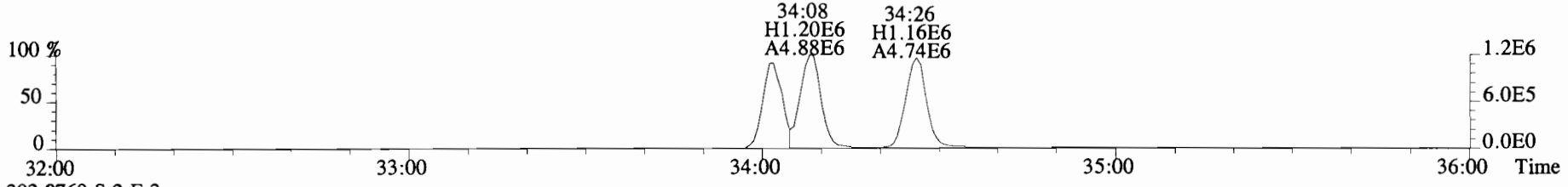
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



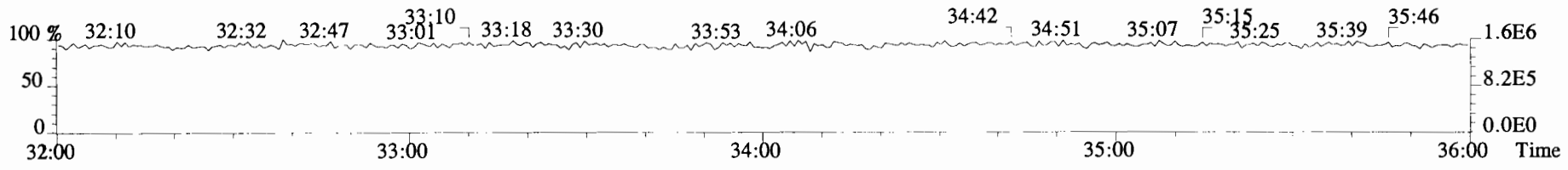
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



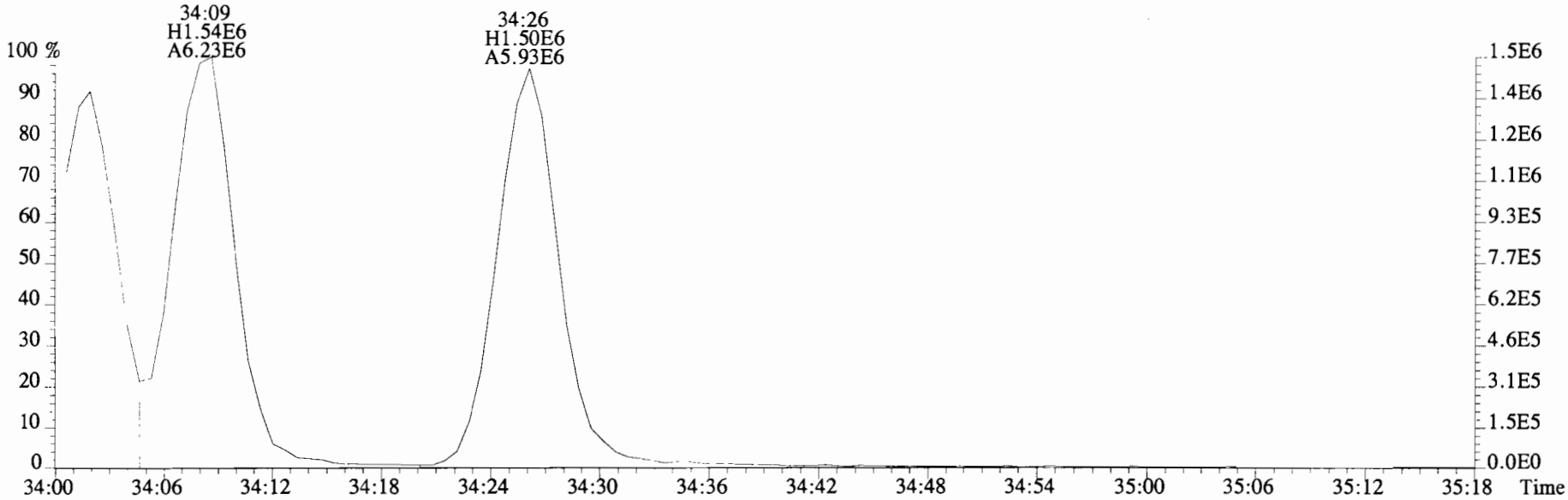
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



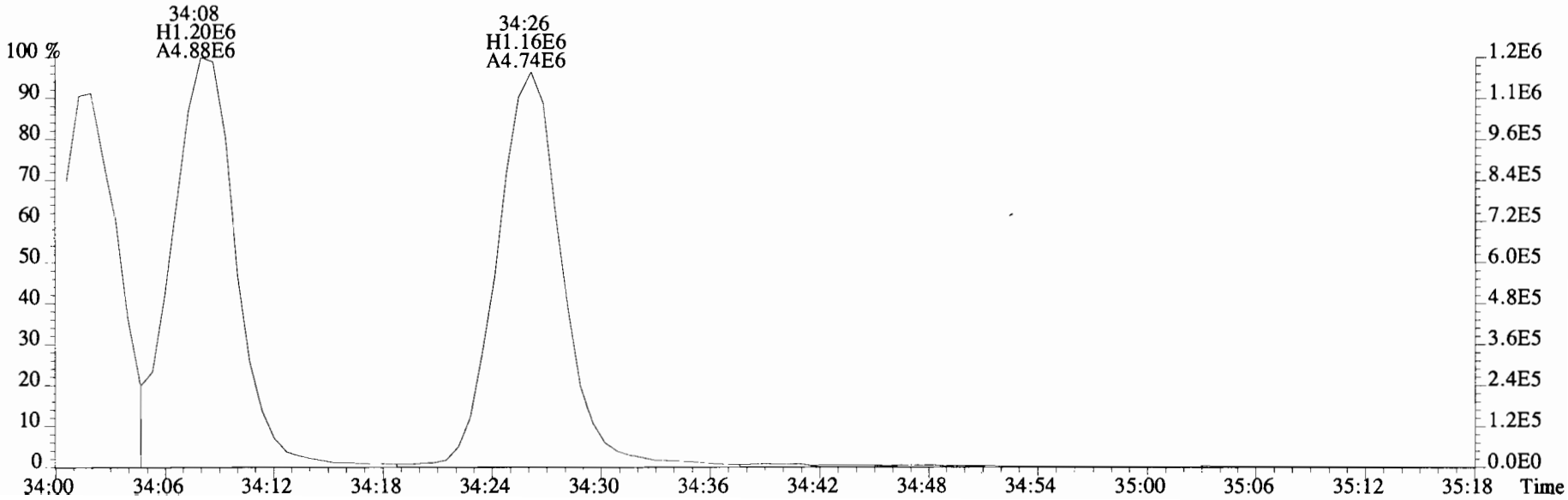
392.9760 S:2 F:3

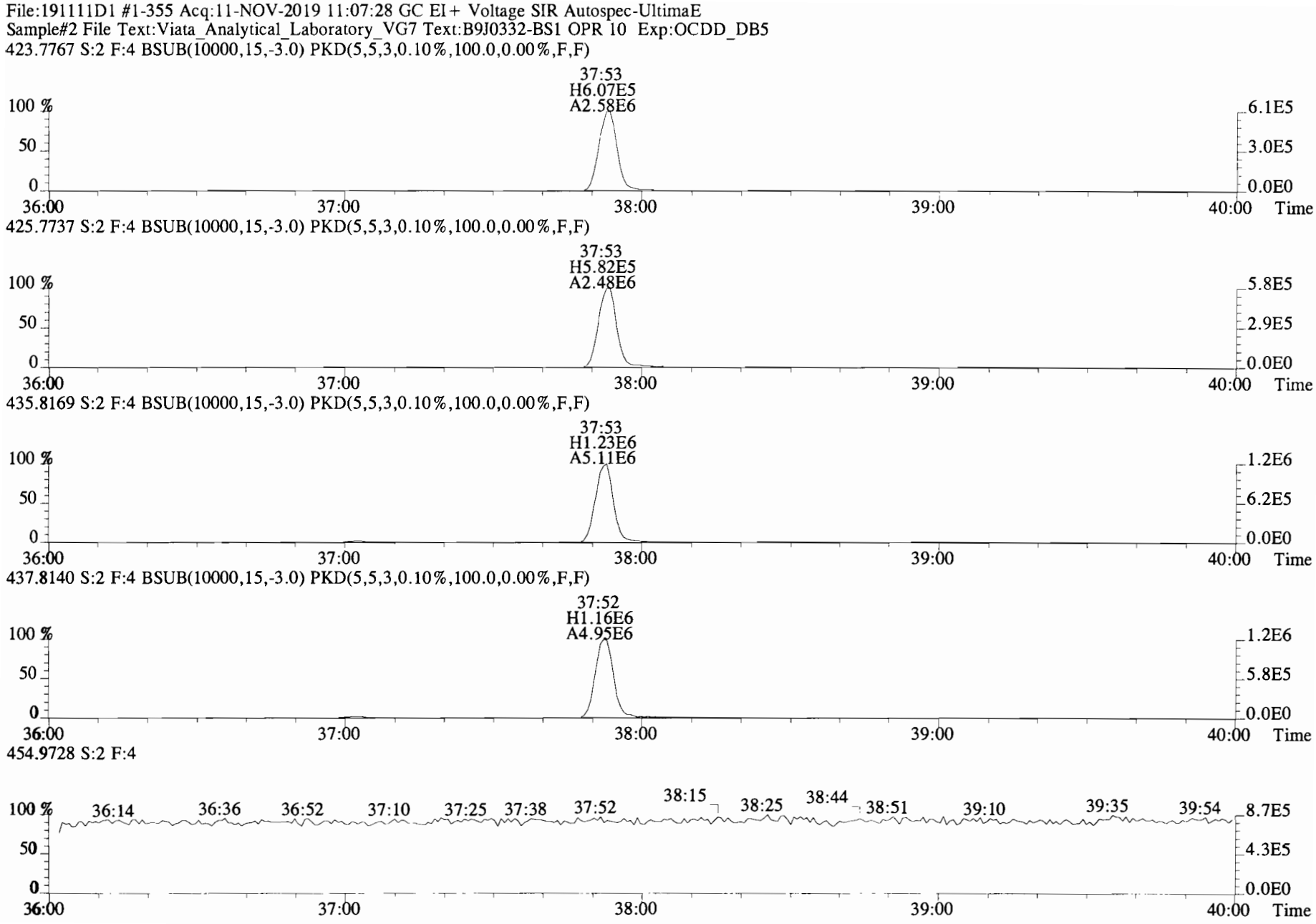


File:191111D1 #1-384 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

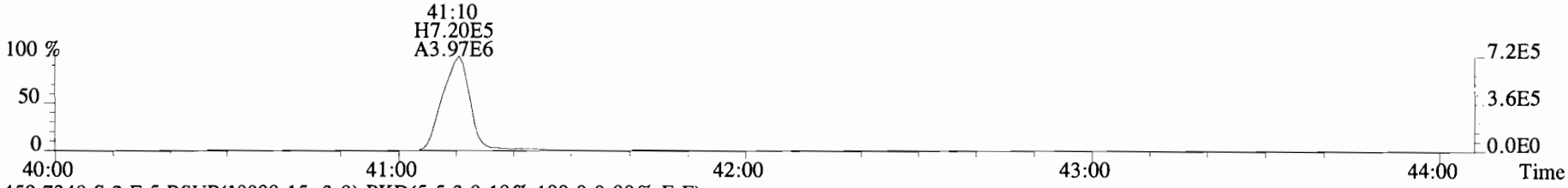


403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

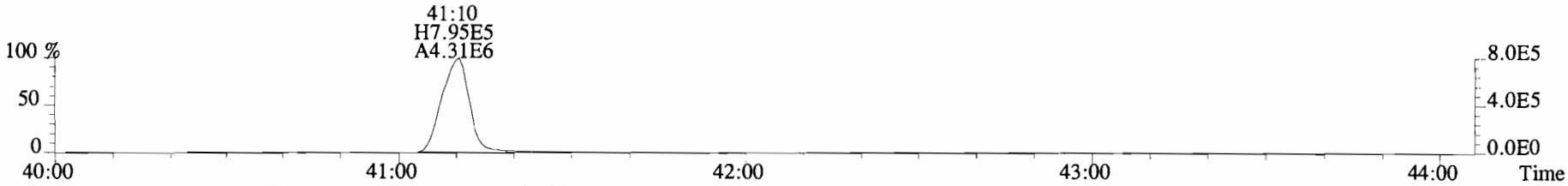



File:191111D1 #1-355 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:53
H6.07E5
A2.58E6
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:53
H5.82E5
A2.48E6
435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:53
H1.23E6
A5.11E6
437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52
H1.16E6
A4.95E6
454.9728 S:2 F:4
36:14
36:36
36:52
37:10
37:25
37:38
37:52
38:15
38:25
38:44
38:51
39:10
39:35
39:54
100 %
50
0
36:00
37:00
38:00
39:00
40:00
Time
6.1E5
3.0E5
0.0E0
5.8E5
2.9E5
1.2E6
6.2E5
5.8E5
8.7E5
4.3E5

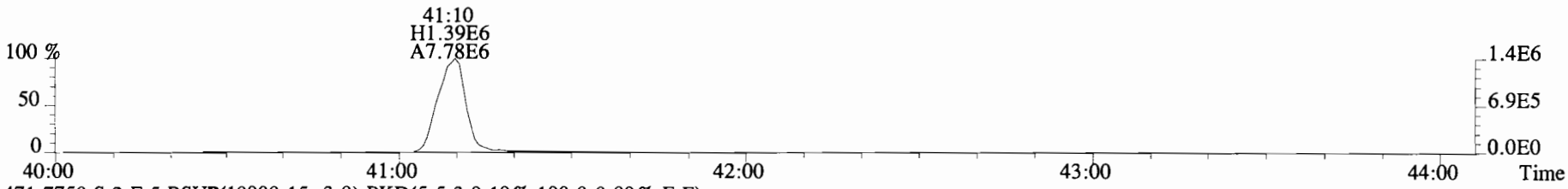
File:191111D1 #1-432 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



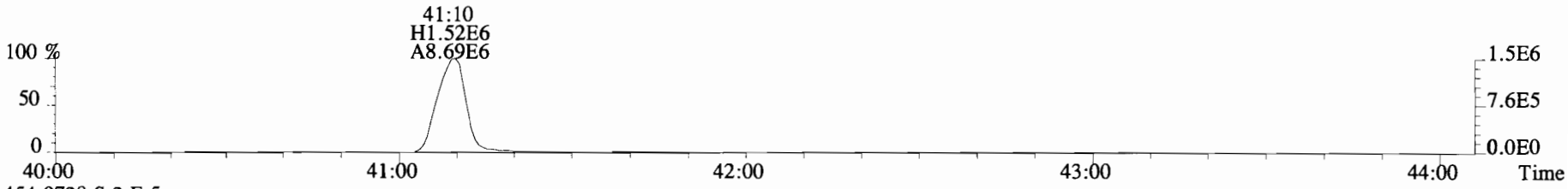
459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



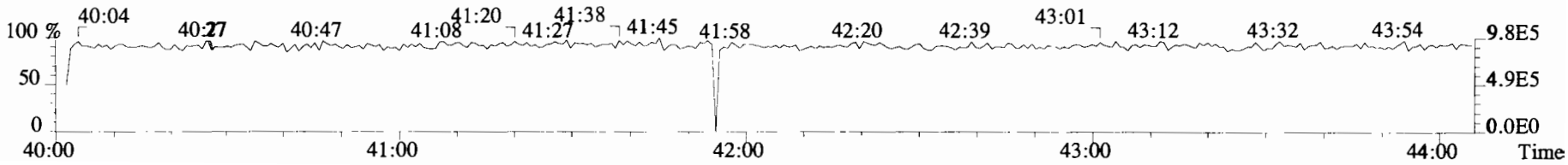
469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



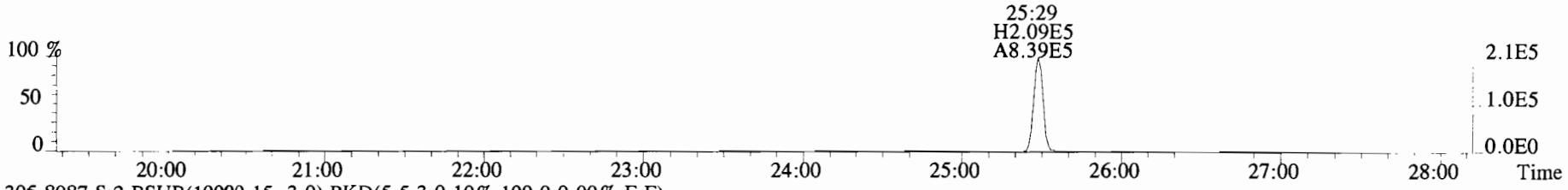
471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



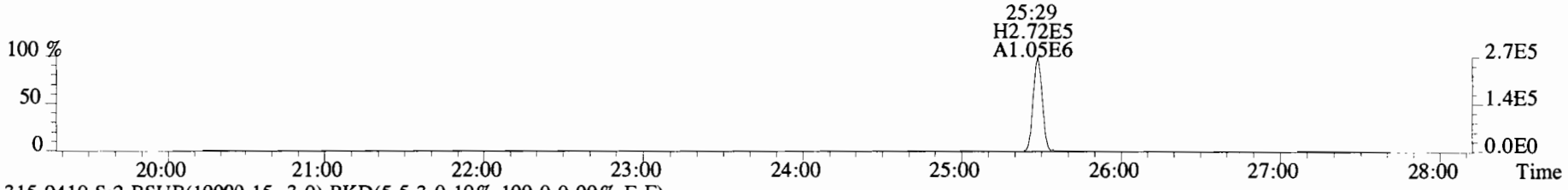
454.9728 S:2 F:5



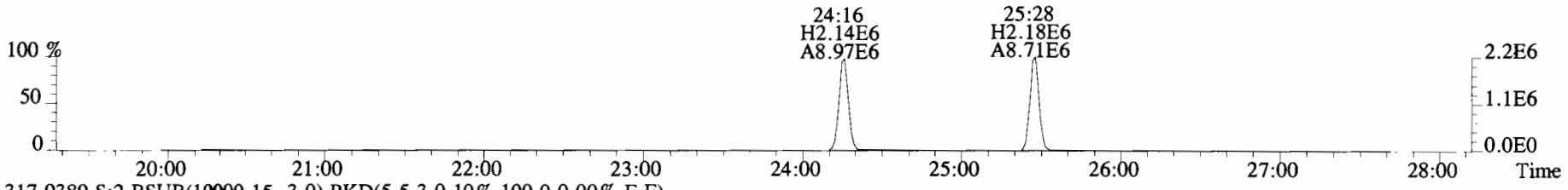
File:191111D1 #1-492 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



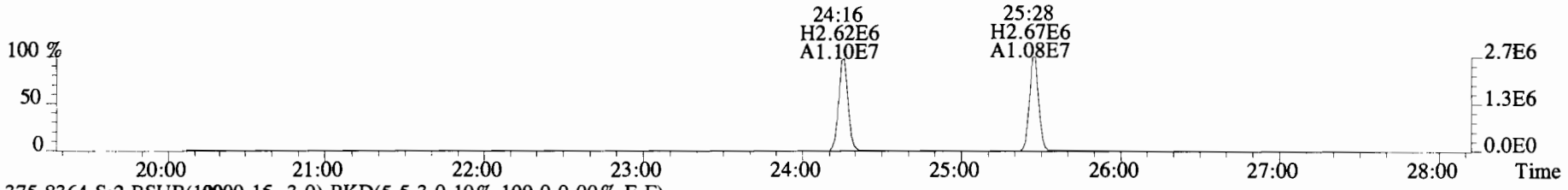
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



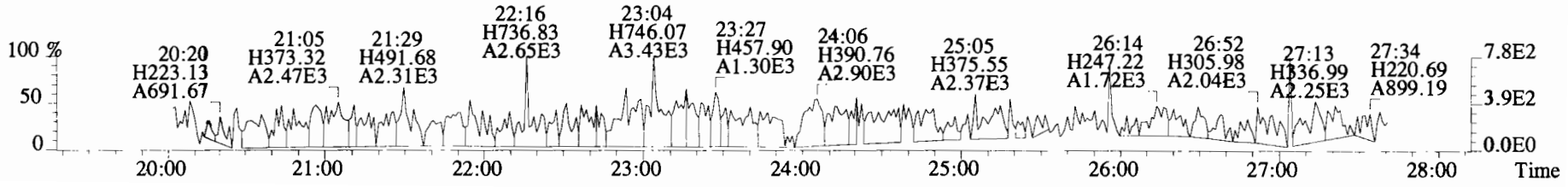
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



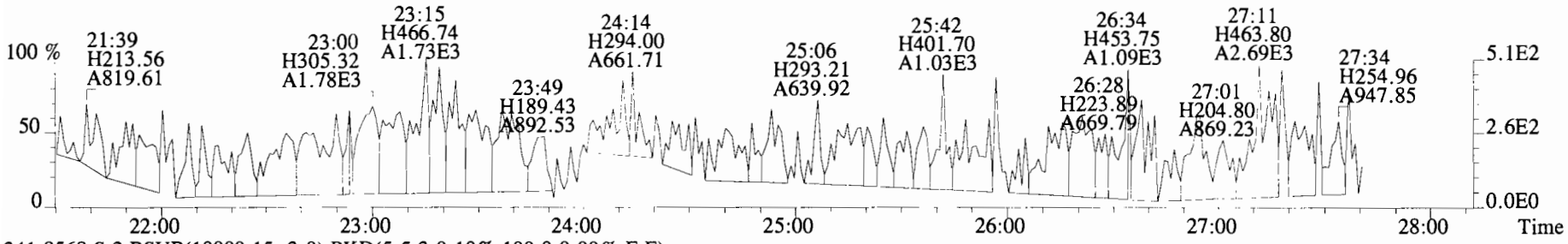
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



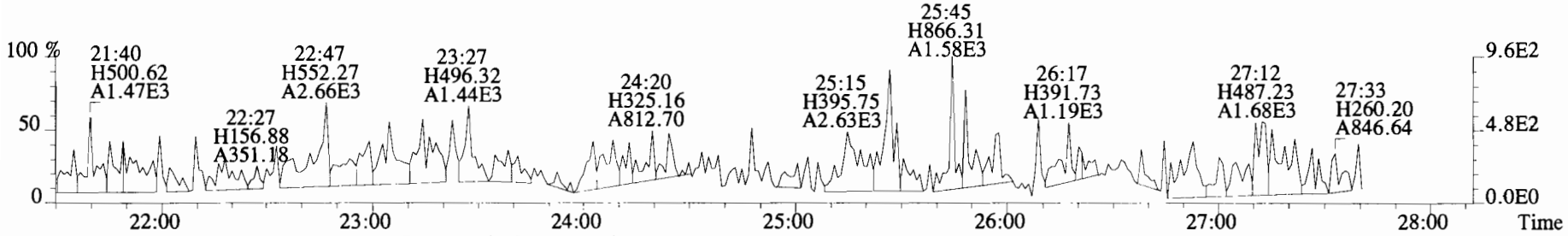
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



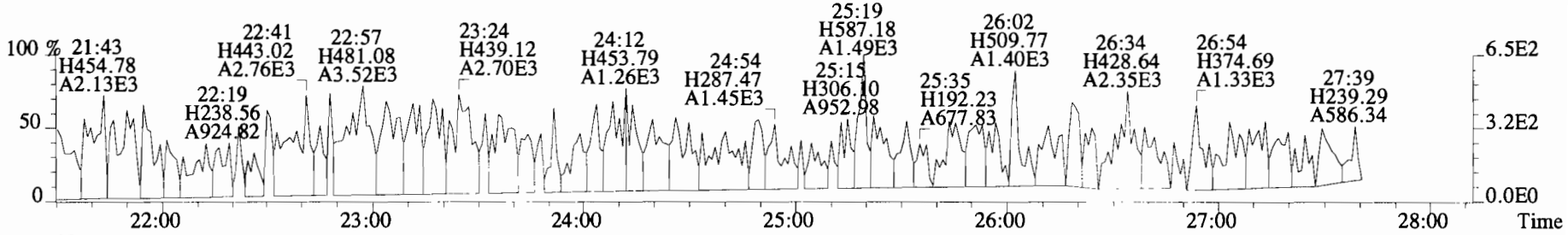
File:191111D1 #1-492 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



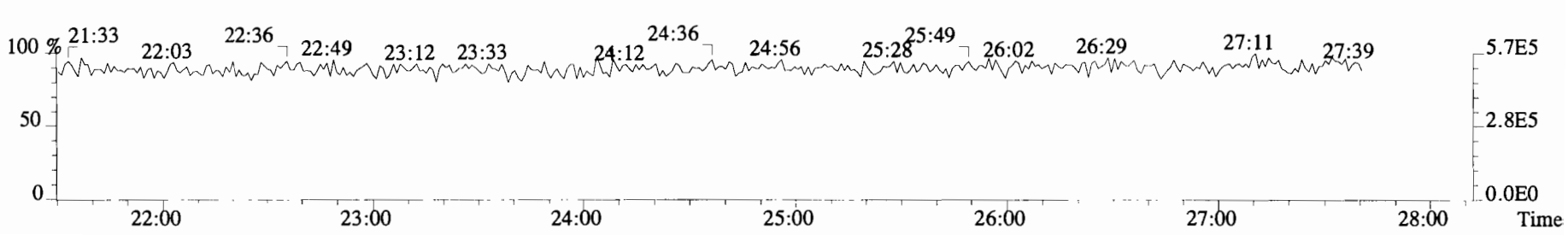
341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

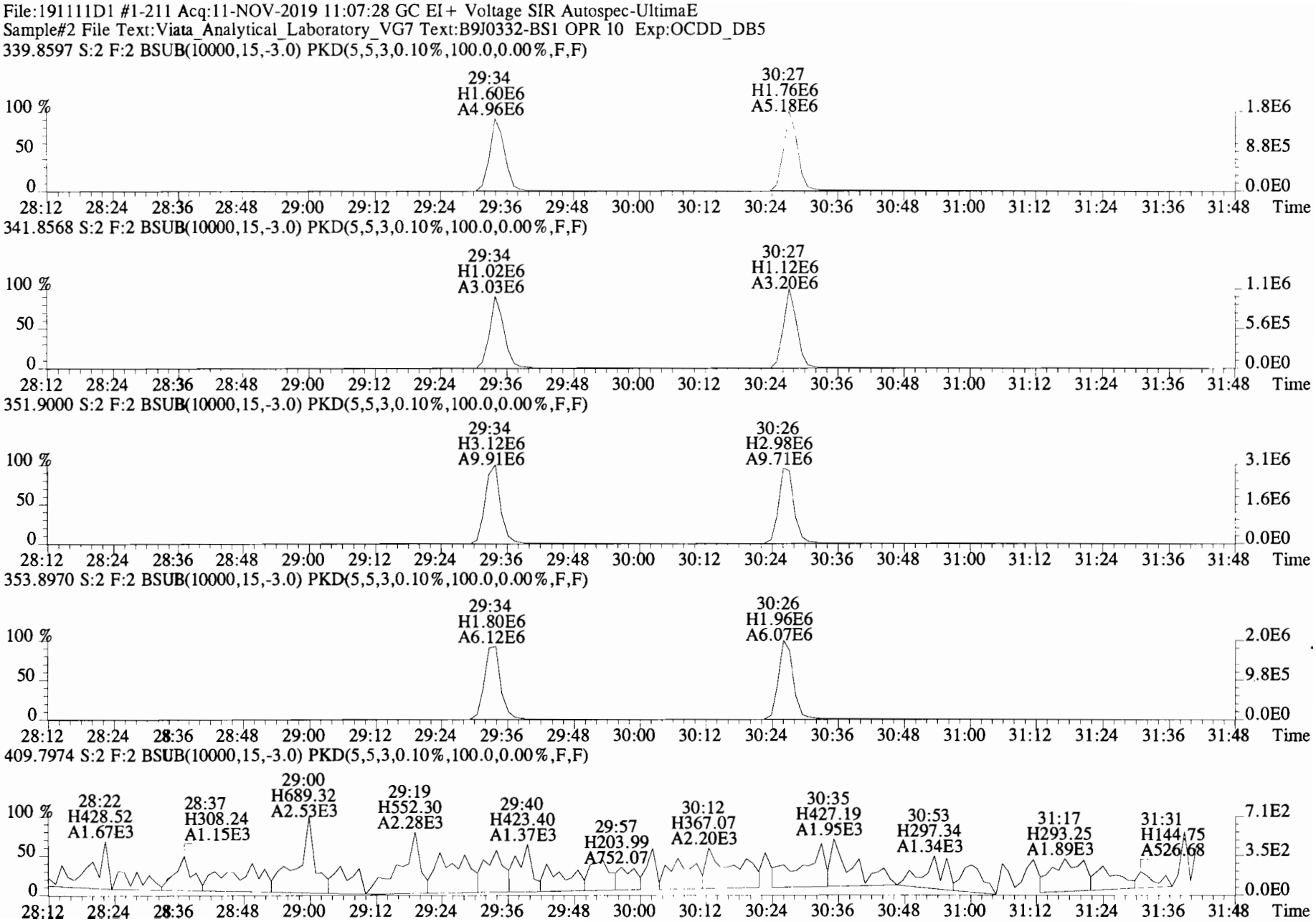


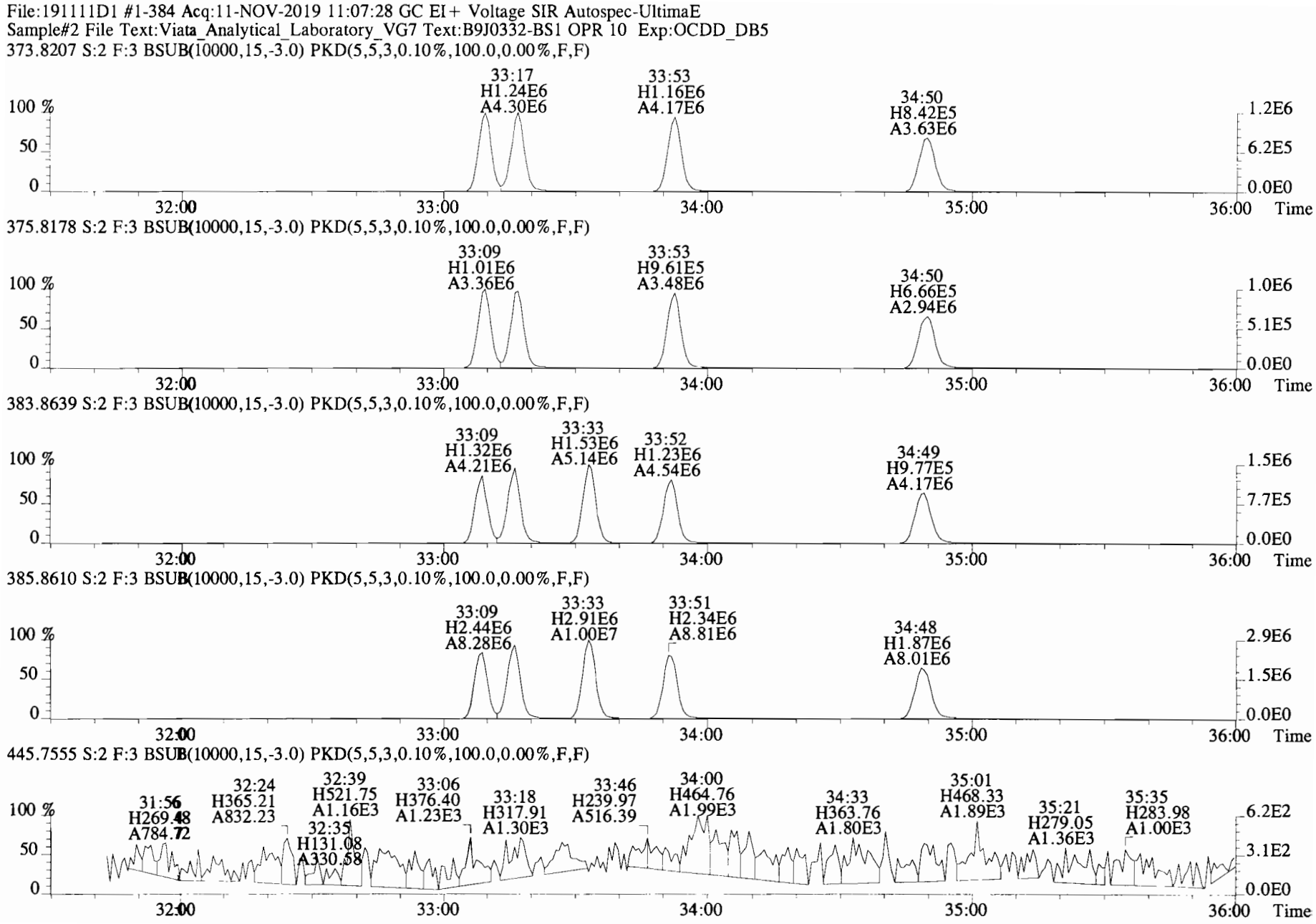
409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



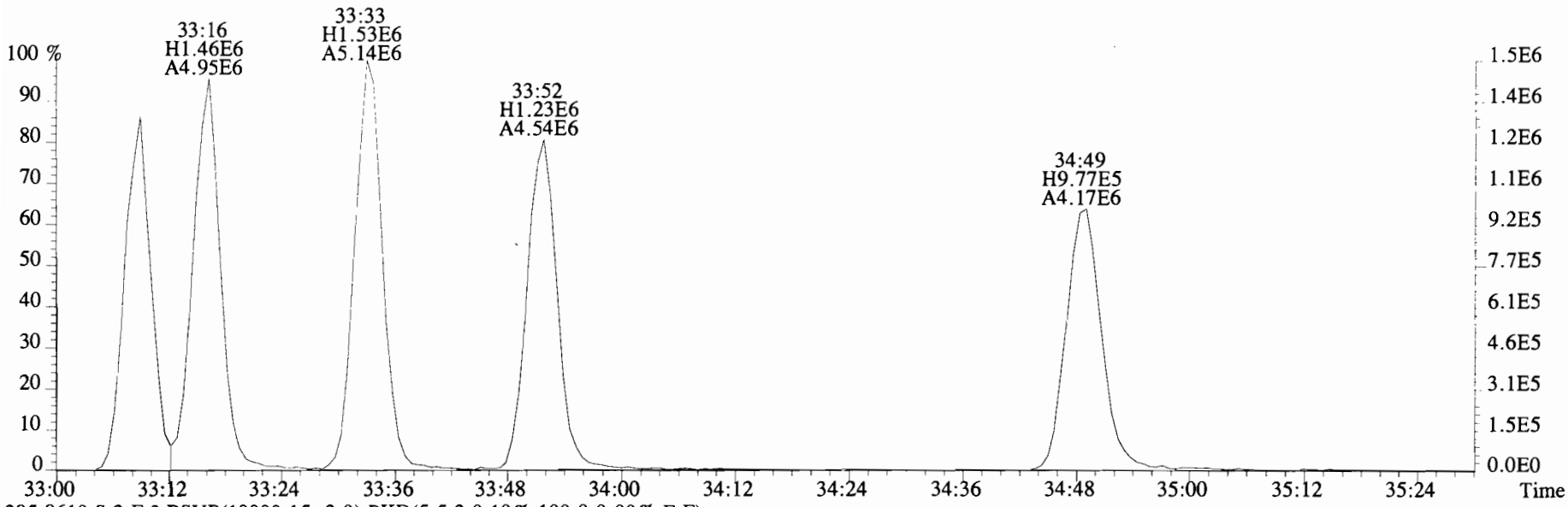
316.9824 S:2



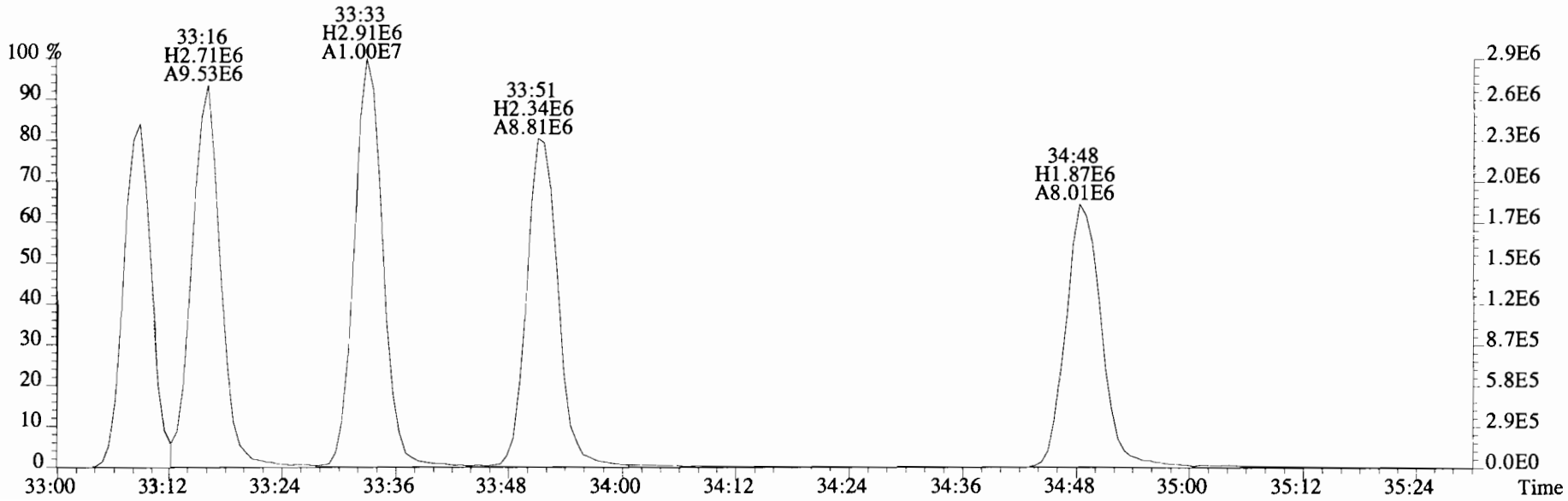

File:191111D1 #1-211 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:34 H1.60E6 A4.96E6
30:27 H1.76E6 A5.18E6
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:34 H1.02E6 A3.03E6
30:27 H1.12E6 A3.20E6
351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:34 H3.12E6 A9.91E6
30:26 H2.98E6 A9.71E6
353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:34 H1.80E6 A6.12E6
30:26 H1.96E6 A6.07E6
409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:22 H428.52 A1.67E3
28:37 H308.24 A1.15E3
29:00 H689.32 A2.53E3
29:19 H552.30 A2.28E3
29:40 H423.40 A1.37E3
29:57 H203.99 A752.07
30:12 H367.07 A2.20E3
30:35 H427.19 A1.95E3
30:53 H297.34 A1.34E3
31:17 H293.25 A1.89E3
31:31 H144.75 A526.68
100 %
50
0
28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 30:24 30:36 30:48 31:00 31:12 31:24 31:36 31:48 Time
1.8E6
8.8E5
0.0E0
1.1E6
5.6E5
3.1E6
1.6E6
2.0E6
9.8E5
7.1E2
3.5E2

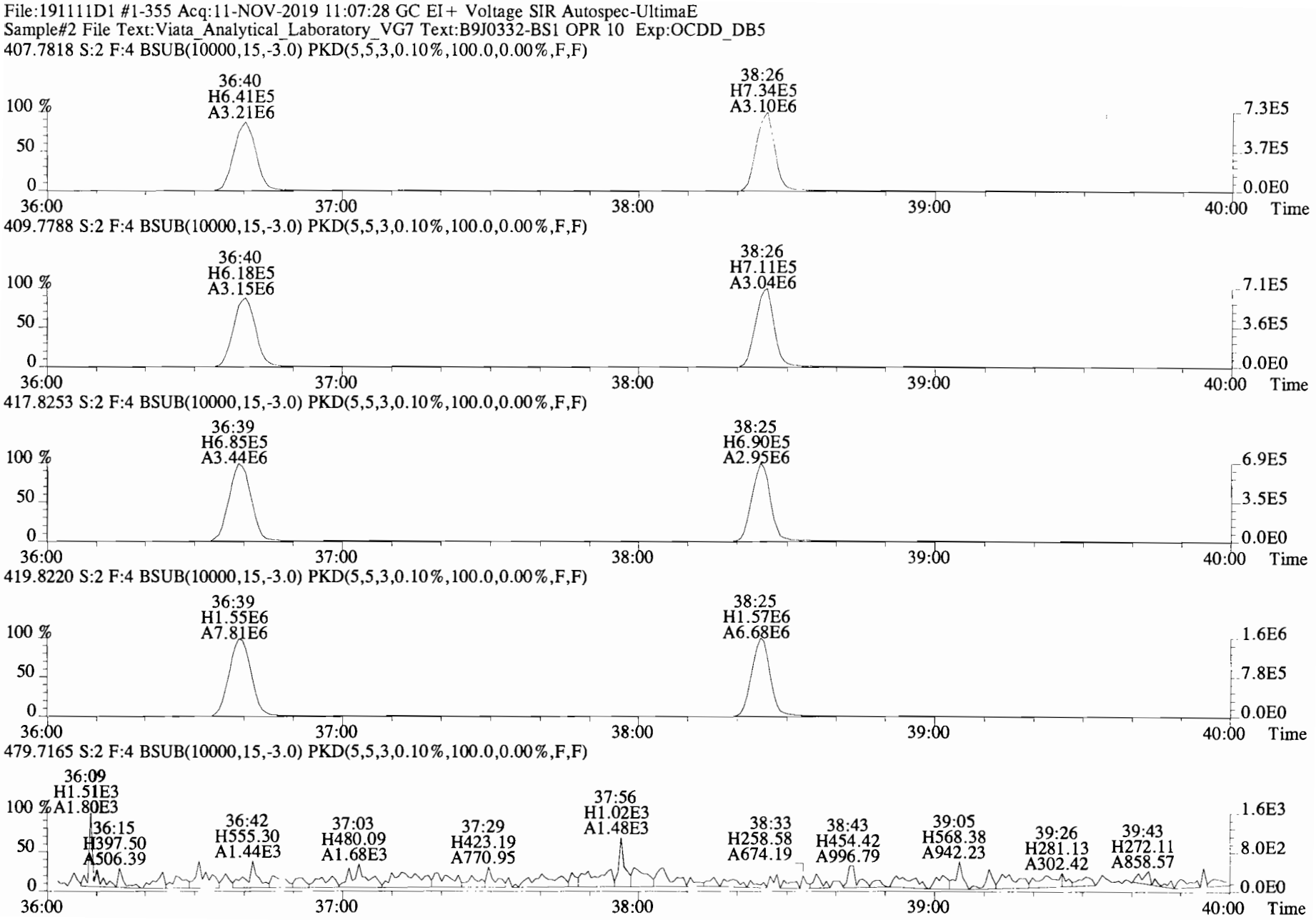

File:191111D1 #1-384 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:17 H1.24E6 A4.30E6
33:53 H1.16E6 A4.17E6
34:50 H8.42E5 A3.63E6
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:09 H1.01E6 A3.36E6
33:53 H9.61E5 A3.48E6
34:50 H6.66E5 A2.94E6
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:09 H1.32E6 A4.21E6
33:33 H1.53E6 A5.14E6
33:52 H1.23E6 A4.54E6
34:49 H9.77E5 A4.17E6
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
33:09 H2.44E6 A8.28E6
33:33 H2.91E6 A1.00E7
33:51 H2.34E6 A8.81E6
34:48 H1.87E6 A8.01E6
445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
31:56 H269.48 A784.72
32:24 H365.21 A832.23
32:35 H131.08 A330.58
32:39 H521.75 A1.16E3
33:06 H376.40 A1.23E3
33:18 H317.91 A1.30E3
33:46 H239.97 A516.39
34:00 H464.76 A1.99E3
34:33 H363.76 A1.80E3
35:01 H468.33 A1.89E3
35:21 H279.05 A1.36E3
35:35 H283.98 A1.00E3
100 %
50
0
32:00
33:00
34:00
35:00
36:00
Time
1.2E6
6.2E5
0.0E0
1.0E6
5.1E5
1.5E6
7.7E5
2.9E6
1.5E6
6.2E2
3.1E2

File:191111D1 #1-384 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 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)

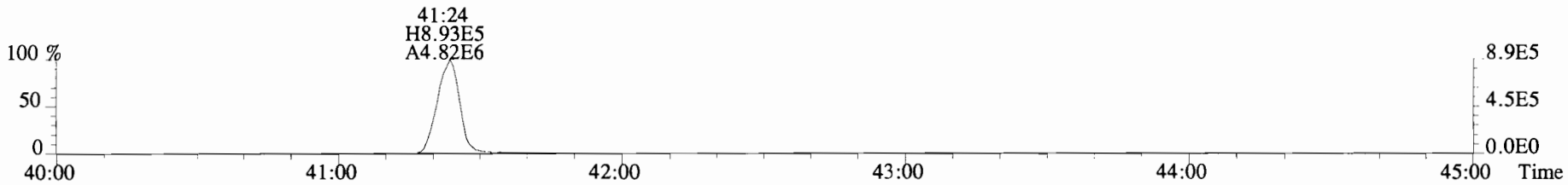


385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

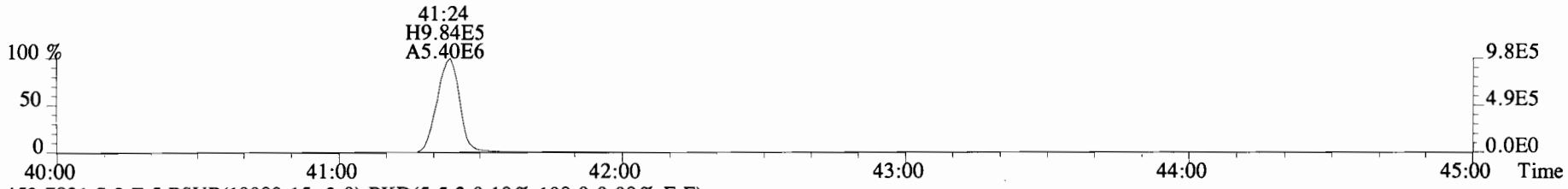



File:191111D1 #1-355 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:40 H6.41E5 A3.21E6
38:26 H7.34E5 A3.10E6
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:40 H6.18E5 A3.15E6
38:26 H7.11E5 A3.04E6
417.8253 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H6.85E5 A3.44E6
38:25 H6.90E5 A2.95E6
419.8220 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H1.55E6 A7.81E6
38:25 H1.57E6 A6.68E6
479.7165 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:09 H1.51E3 A1.80E3
36:15 H397.50 A506.39
36:42 H555.30 A1.44E3
37:03 H480.09 A1.68E3
37:29 H423.19 A770.95
37:56 H1.02E3 A1.48E3
38:33 H258.58 A674.19
38:43 H454.42 A996.79
39:05 H568.38 A942.23
39:26 H281.13 A302.42
39:43 H272.11 A858.57
100 %
50
0
36:00
37:00
38:00
39:00
40:00
Time
7.3E5
3.7E5
0.0E0
7.1E5
3.6E5
6.9E5
3.5E5
1.6E6
7.8E5
1.6E3
8.0E2

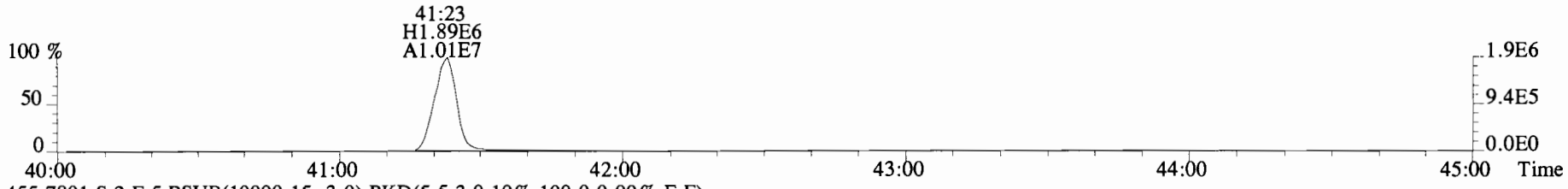
File:191111D1 #1-432 Acq:11-NOV-2019 11:07:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Viata_Analytical_Laboratory_VG7 Text:B9J0332-BS1 OPR 10 Exp:OCDD_DB5
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



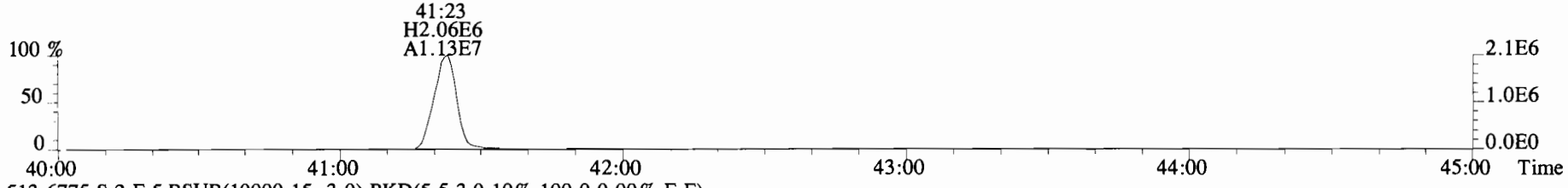
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



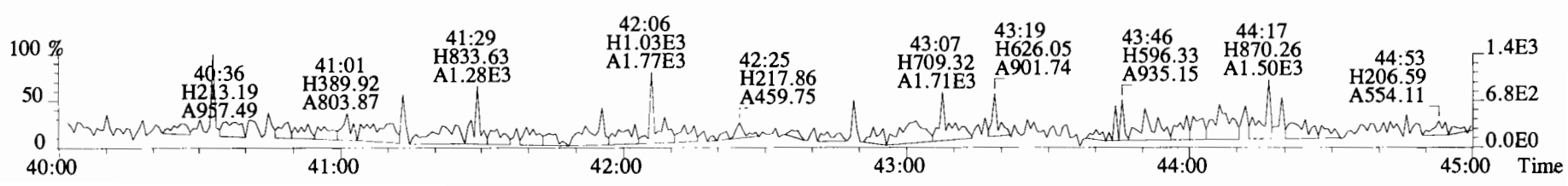
453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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



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



	Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	*	*	n	0.91	NotF	*		231	2.5	0.0591
	1,2,3,7,8-PeCDD	*	*	n	0.90	NotF	*		393	2.5	0.0959
	1,2,3,4,7,8-HxCDD	*	*	n	1.10	NotF	*		208	2.5	0.0830
	1,2,3,6,7,8-HxCDD	*	*	n	0.94	NotF	*		208	2.5	0.0835
	1,2,3,7,8,9-HxCDD	*	*	n	0.96	NotF	*		208	2.5	0.0866
	1,2,3,4,6,7,8-HpCDD	2.10e+04	0.99	y	0.98	37:53	0.42288		*	2.5	*
	OCDD	1.46e+05	0.86	y	0.96	41:09	3.4003		*	2.5	*
	2,3,7,8-TCDF	*	*	n	0.95	NotF	*		157	2.5	0.0272
	1,2,3,7,8-PeCDF	*	*	n	0.96	NotF	*		165	2.5	0.0433
	2,3,4,7,8-PeCDF	*	*	n	1.01	NotF	*		165	2.5	0.0403
	1,2,3,4,7,8-HxCDF	*	*	n	1.18	NotF	*		151	2.5	0.0247
	1,2,3,6,7,8-HxCDF	*	*	n	1.07	NotF	*		151	2.5	0.0246
	2,3,4,6,7,8-HxCDF	*	*	n	1.11	NotF	*		151	2.5	0.0283
	1,2,3,7,8,9-HxCDF	*	*	n	1.06	NotF	*		151	2.5	0.0352
	1,2,3,4,6,7,8-HpCDF	*	*	n	1.13	NotF	*		127	2.5	0.0340
	1,2,3,4,7,8,9-HpCDF	*	*	n	1.28	NotF	*		127	2.5	0.0298
	OCDF	*	*	n	0.95	NotF	*		169	2.5	0.0796
IS	13C-2,3,7,8-TCDD	1.32e+07	0.79	y	1.10	26:12	184.23				
IS	13C-1,2,3,7,8-PeCDD	1.07e+07	0.64	y	0.88	30:42	185.71				
IS	13C-1,2,3,4,7,8-HxCDD	9.81e+06	1.33	y	0.64	34:01	194.74				
IS	13C-1,2,3,6,7,8-HxCDD	1.11e+07	1.23	y	0.86	34:07	164.82				
IS	13C-1,2,3,7,8,9-HxCDD	1.10e+07	1.27	y	0.81	34:25	174.34				
IS	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	1.02	y	0.65	37:52	196.57				
IS	13C-OCDD	1.78e+07	0.91	y	0.58	41:08	391.27				
IS	13C-2,3,7,8-TCDF	2.00e+07	0.79	y	1.03	25:26	182.42				
IS	13C-1,2,3,7,8-PeCDF	1.63e+07	1.57	y	0.85	29:32	180.02				
IS	13C-2,3,4,7,8-PeCDF	1.65e+07	1.57	y	0.85	30:25	183.99				
IS	13C-1,2,3,4,7,8-HxCDF	1.28e+07	0.51	y	0.83	33:07	196.25				
IS	13C-1,2,3,6,7,8-HxCDF	1.42e+07	0.52	y	1.03	33:15	175.41				
IS	13C-2,3,4,6,7,8-HxCDF	1.34e+07	0.51	y	0.95	33:51	178.59				
IS	13C-1,2,3,7,8,9-HxCDF	1.25e+07	0.51	y	0.83	34:48	191.81				
IS	13C-1,2,3,4,6,7,8-HpCDF	1.13e+07	0.44	y	0.76	36:38	190.50				
IS	13C-1,2,3,4,7,8,9-HpCDF	9.76e+06	0.43	y	0.58	38:24	213.90				
IS	13C-OCDF	2.29e+07	0.90	y	0.69	41:22	424.17				
C/Up	37Cl-2,3,7,8-TCDD	6.17e+06			1.20	26:13	78.517				
RS/RT	13C-1,2,3,4-TCDD	1.31e+07	0.79	y	1.00	25:39	199.14				
RS	13C-1,2,3,4-TCDF	2.11e+07	0.80	y	1.00	24:14	199.14				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.56e+07	0.51	y	1.00	33:32	199.14				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		231	0.0591
Total Penta-Dioxins	*	*		393	0.0959
Total Hexa-Dioxins	*	0.339		*	*
Total Hepta-Dioxins	1.12	1.12		*	*
Total Tetra-Furans	*	*		157	0.0272
Total Penta-Furans	0.0000	0.028591		*	*
Total Hexa-Furans	*	*		151	0.0280
Total Hepta-Furans	*	*		127	0.0320

	Rec	Qual
IS	92.5	
IS	93.3	
IS	97.8	
IS	82.8	
IS	87.5	
IS	98.7	
IS	98.2	
IS	91.6	
IS	90.4	
IS	92.4	
IS	98.5	
IS	88.1	
IS	89.7	
IS	96.3	
IS	95.7	
IS	107	
IS	106	
C/Up	98.6	

Integrations by Analyst: DB Date: 11/12/19

Reviewed by Analyst: CT Date: 11/14/19

Totals class: HxCDD EMPC Entry #: 23

Run: 12 File: 191111D1 S: 7 I: 1 F: 3
Acquired: 11-NOV-19 15:07:15 Processed: 12-NOV-19 09:23:30

Total Concentration: 0.33890 Unnamed Concentration: 0.339

RT	m1 Resp	m2 Resp	RA		Resp Concentration	Name
32:29	1.263e+04	8.016e+03	1.57	n	1.796e+04	0.33890

Totals class: HpCDD EMPC Entry #: 25

Run: 12 File: 191111D1 S: 7 I: 1 F: 4
Acquired: 11-NOV-19 15:07:15 Processed: 12-NOV-19 09:23:30

Total Concentration: 1.1178 Unnamed Concentration: 0.695

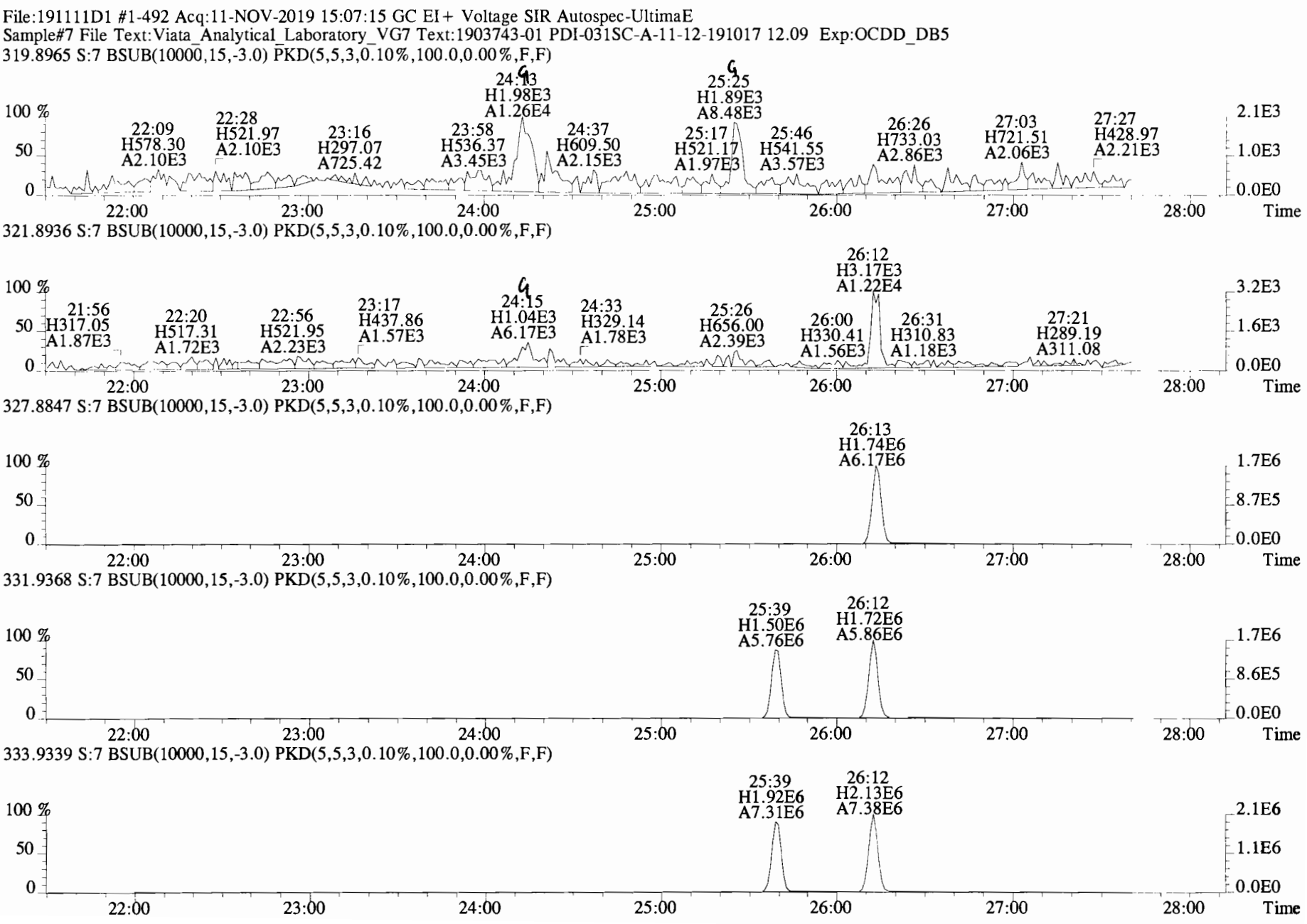
RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:01	1.711e+04	1.737e+04	0.98 y	3.448e+04	0.69493	
37:53	1.046e+04	1.053e+04	0.99 y	2.098e+04	0.42288	1,2,3,4,6,7,8-HpCDD

Totals class: PeCDF EMPC Entry #: 31

Run: 12 File: 191111D1 S: 7 I: 1 F: 2
Acquired: 11-NOV-19 15:07:15 Processed: 12-NOV-19 09:23:30

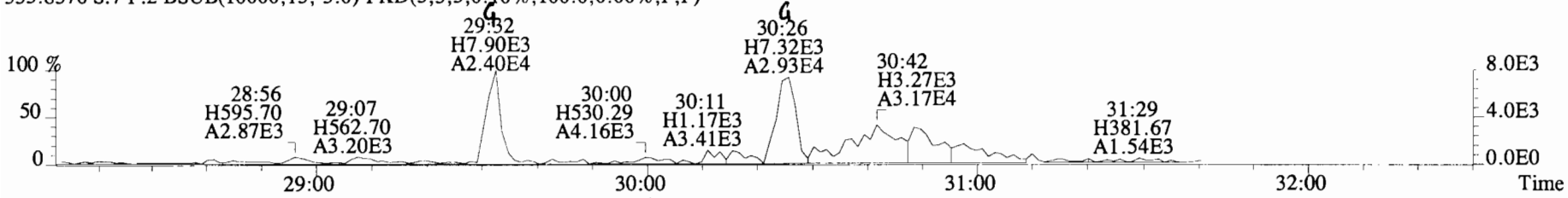
Total Concentration: 0.028591 Unnamed Concentration: 0.029

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:56	1.413e+03	2.065e+03	0.68	n	2.324e+03	0.028591	

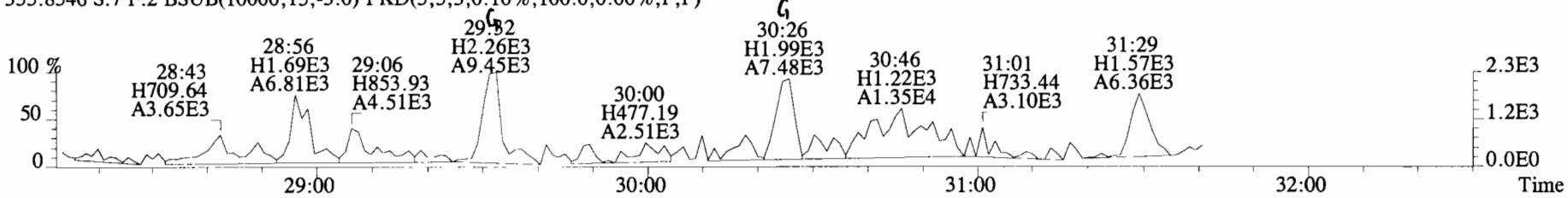

File:191111D1 #1-492 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
22:09 H578.30 A2.10E3
22:28 H521.97 A2.10E3
23:16 H297.07 A725.42
23:58 H536.37 A3.45E3
24:13 H1.98E3 A1.26E4
24:37 H609.50 A2.15E3
25:17 H521.17 A1.97E3
25:25 H1.89E3 A8.48E3
25:46 H541.55 A3.57E3
26:26 H733.03 A2.86E3
27:03 H721.51 A2.06E3
27:27 H428.97 A2.21E3
321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
21:56 H317.05 A1.87E3
22:20 H517.31 A1.72E3
22:56 H521.95 A2.23E3
23:17 H437.86 A1.57E3
24:15 H1.04E3 A6.17E3
24:33 H329.14 A1.78E3
25:26 H656.00 A2.39E3
26:00 H330.41 A1.56E3
26:12 H3.17E3 A1.22E4
26:31 H310.83 A1.18E3
27:21 H289.19 A311.08
327.8847 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
26:13 H1.74E6 A6.17E6
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
25:39 H1.50E6 A5.76E6
26:12 H1.72E6 A5.86E6
333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
25:39 H1.92E6 A7.31E6
26:12 H2.13E6 A7.38E6
100 %
50
0
22:00
23:00
24:00
25:00
26:00
27:00
28:00
Time
2.1E3
1.0E3
0.0E0
3.2E3
1.6E3
1.7E6
8.7E5
8.6E5
2.1E6
1.1E6

File:191111D1 #1-211 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5

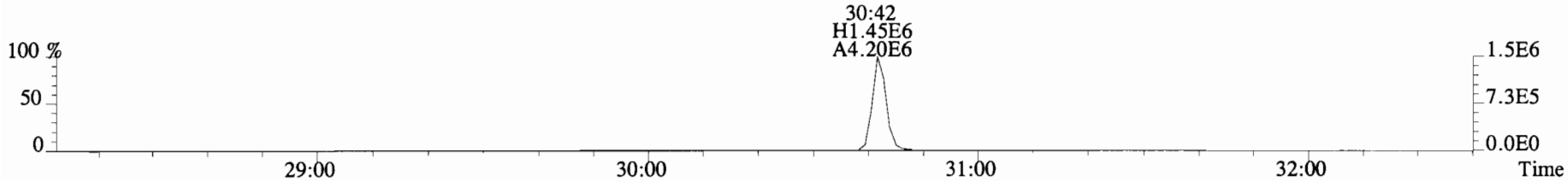
353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



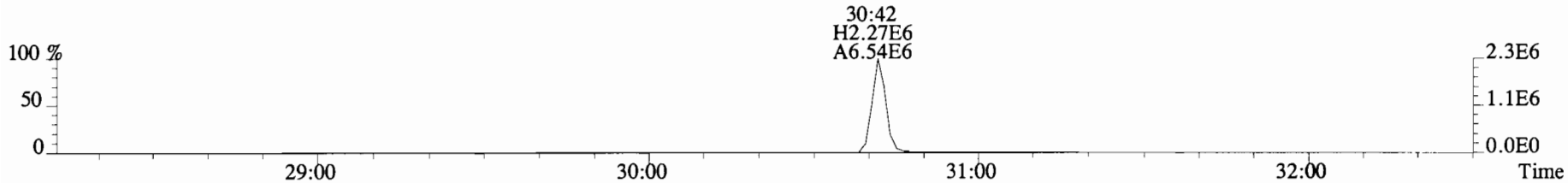
355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



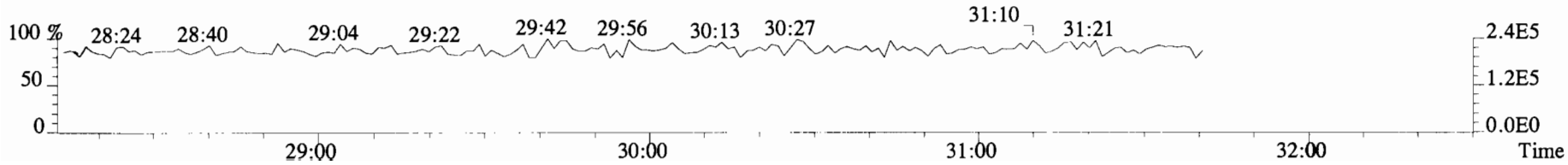
365.8978 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

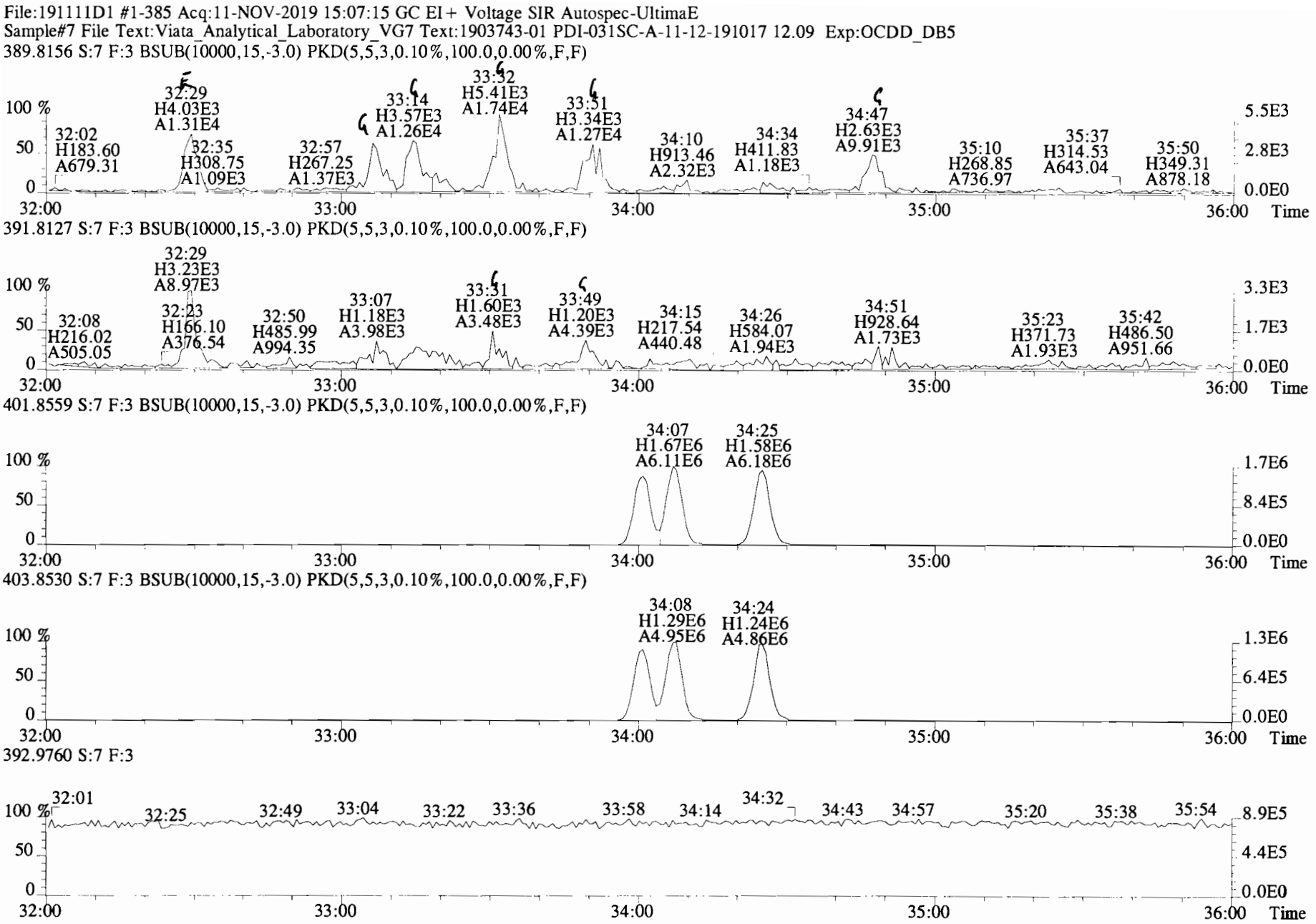


367.8949 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

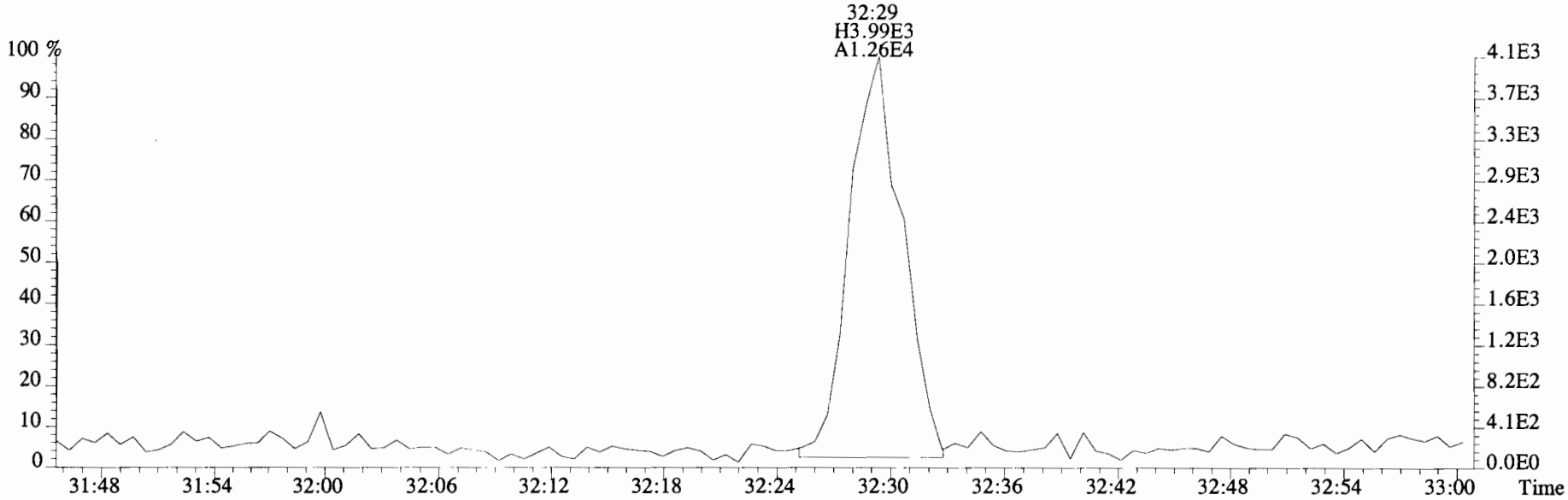


366.9792 S:7 F:2

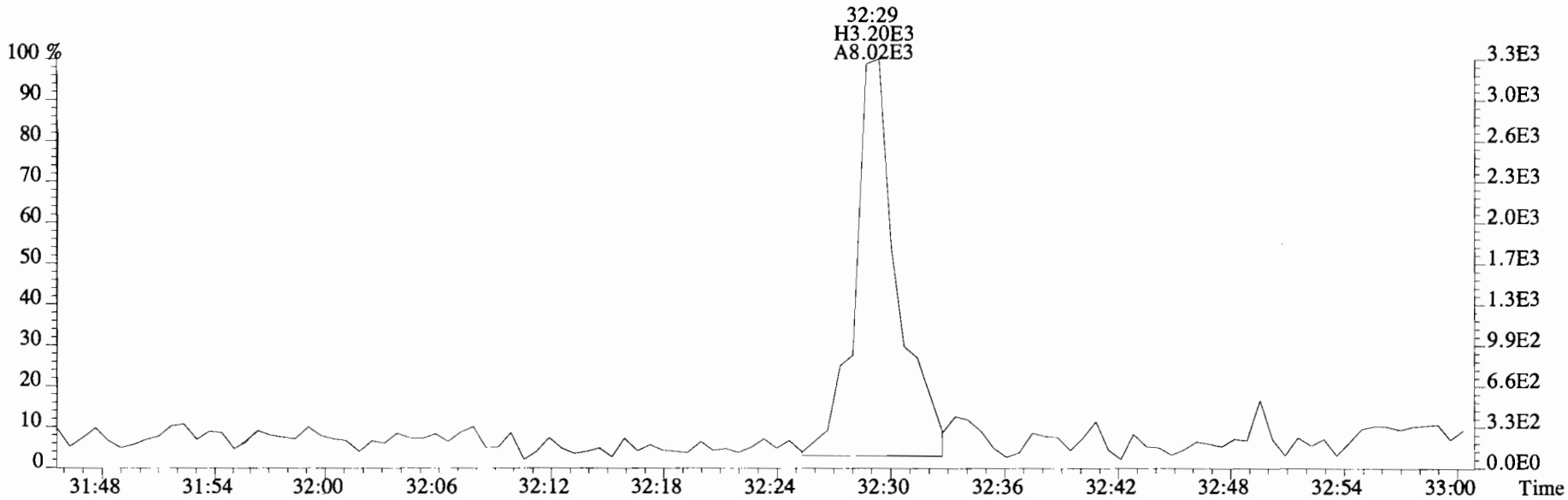



File:191111D1 #1-385 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
32:29 H4.03E3 A1.31E4
32:02 H183.60 A679.31
32:35 H308.75 A1.09E3
32:57 H267.25 A1.37E3
33:14 H3.57E3 A1.26E4
33:32 H5.41E3 A1.74E4
33:51 H3.34E3 A1.27E4
34:10 H913.46 A2.32E3
34:34 H411.83 A1.18E3
34:47 H2.63E3 A9.91E3
35:10 H268.85 A736.97
35:37 H314.53 A643.04
35:50 H349.31 A878.18
391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
32:29 H3.23E3 A8.97E3
32:08 H216.02 A505.05
32:23 H166.10 A376.54
32:50 H485.99 A994.35
33:07 H1.18E3 A3.98E3
33:31 H1.60E3 A3.48E3
33:49 H1.20E3 A4.39E3
34:15 H217.54 A440.48
34:26 H584.07 A1.94E3
34:51 H928.64 A1.73E3
35:23 H371.73 A1.93E3
35:42 H486.50 A951.66
401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07 H1.67E6 A6.11E6
34:25 H1.58E6 A6.18E6
403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:08 H1.29E6 A4.95E6
34:24 H1.24E6 A4.86E6
392.9760 S:7 F:3
32:01
32:25
32:49
33:04
33:22
33:36
33:58
34:14
34:32
34:43
34:57
35:20
35:38
35:54
100 %
50
0
32:00
33:00
34:00
35:00
36:00
Time
5.5E3
2.8E3
0.0E0
3.3E3
1.7E3
1.7E6
8.4E5
1.3E6
6.4E5
8.9E5
4.4E5

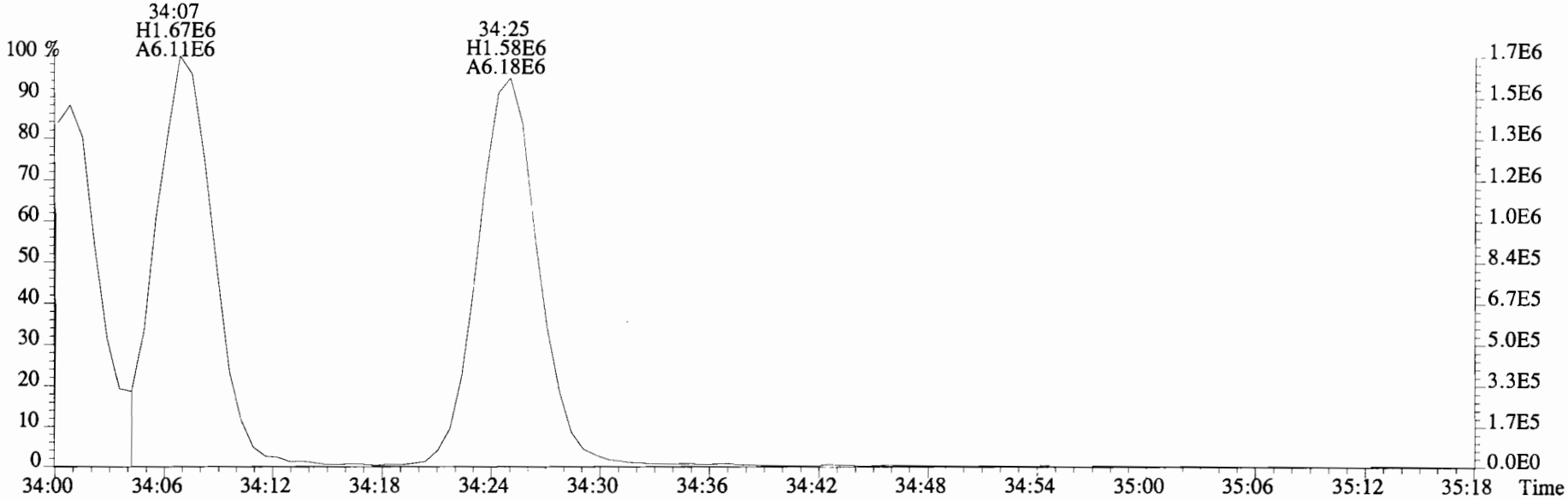
File:191111D1 #1-385 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



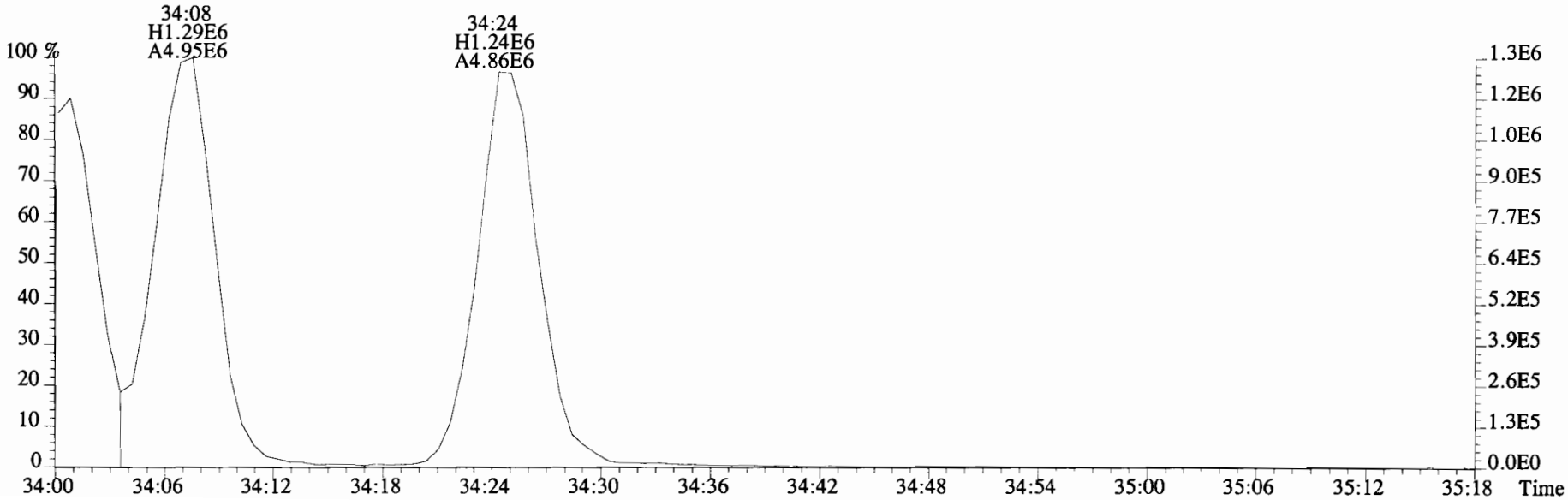
391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191111D1 #1-385 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 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)

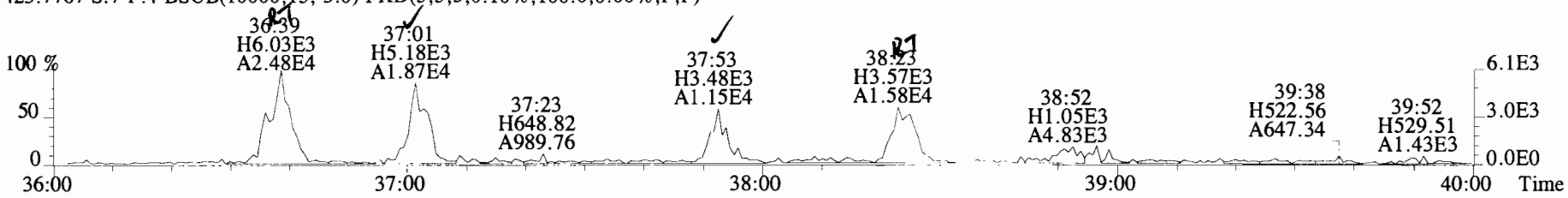


403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

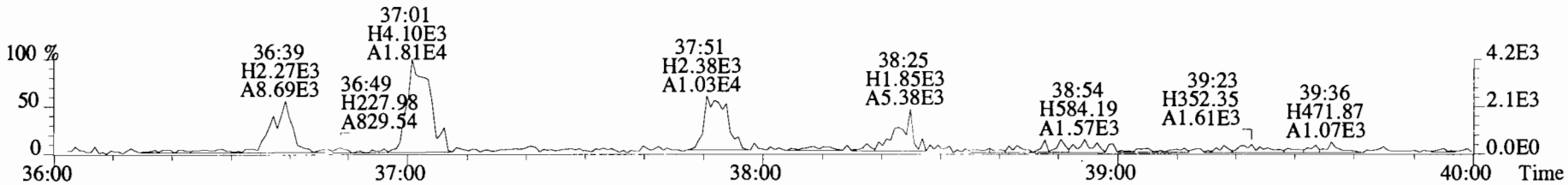


File:191111D1 #1-355 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5

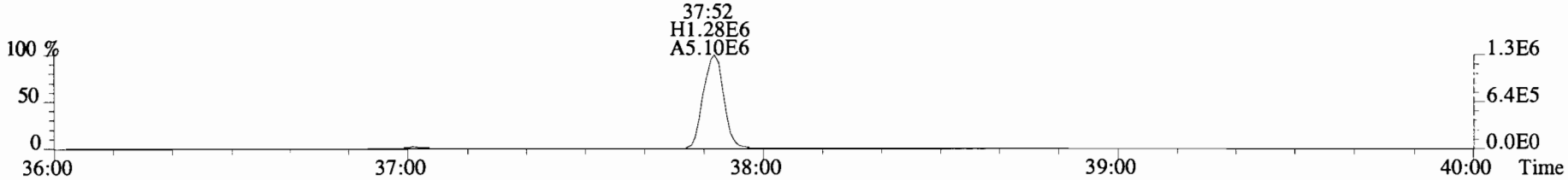
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



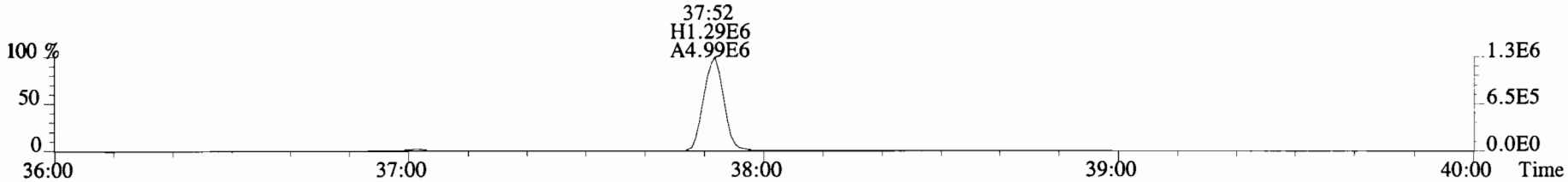
425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



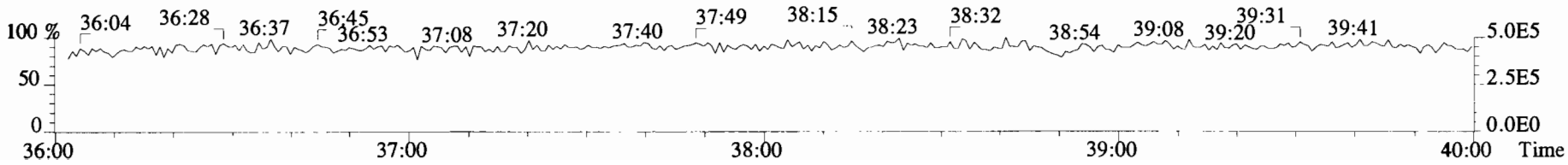
435.8169 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



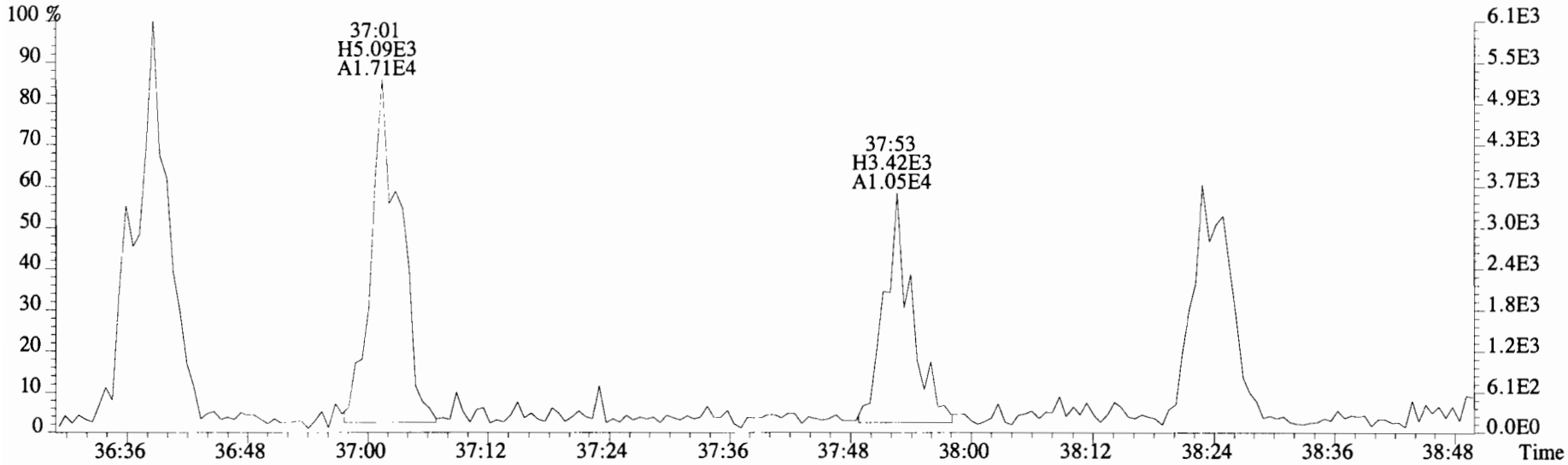
437.8140 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



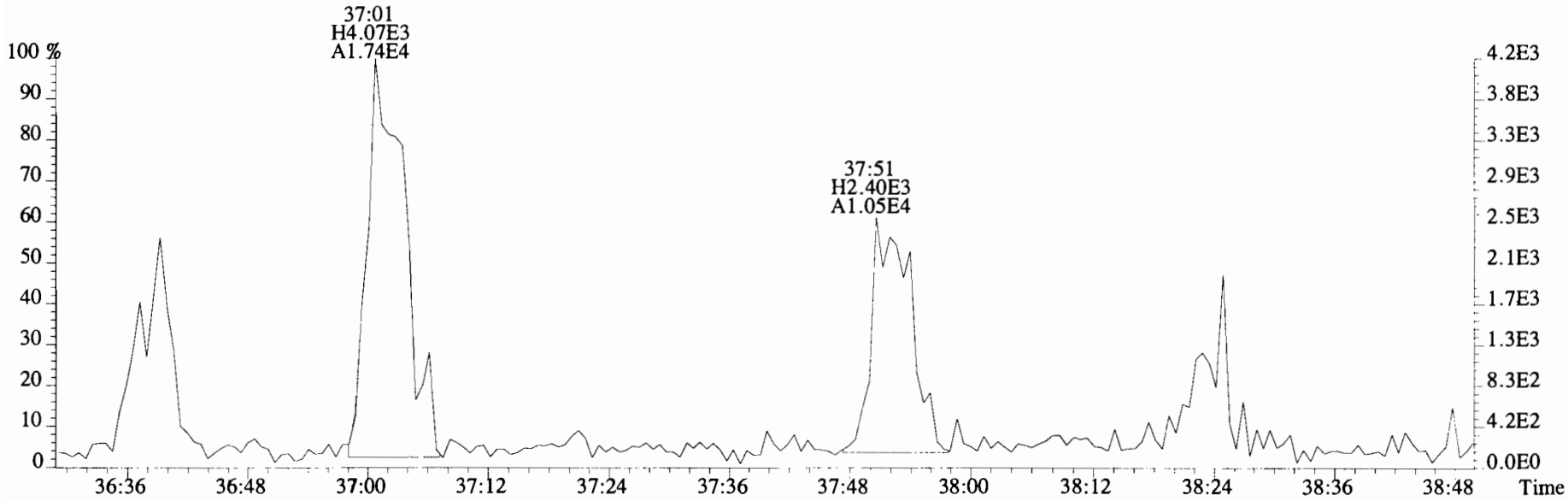
454.9728 S:7 F:4

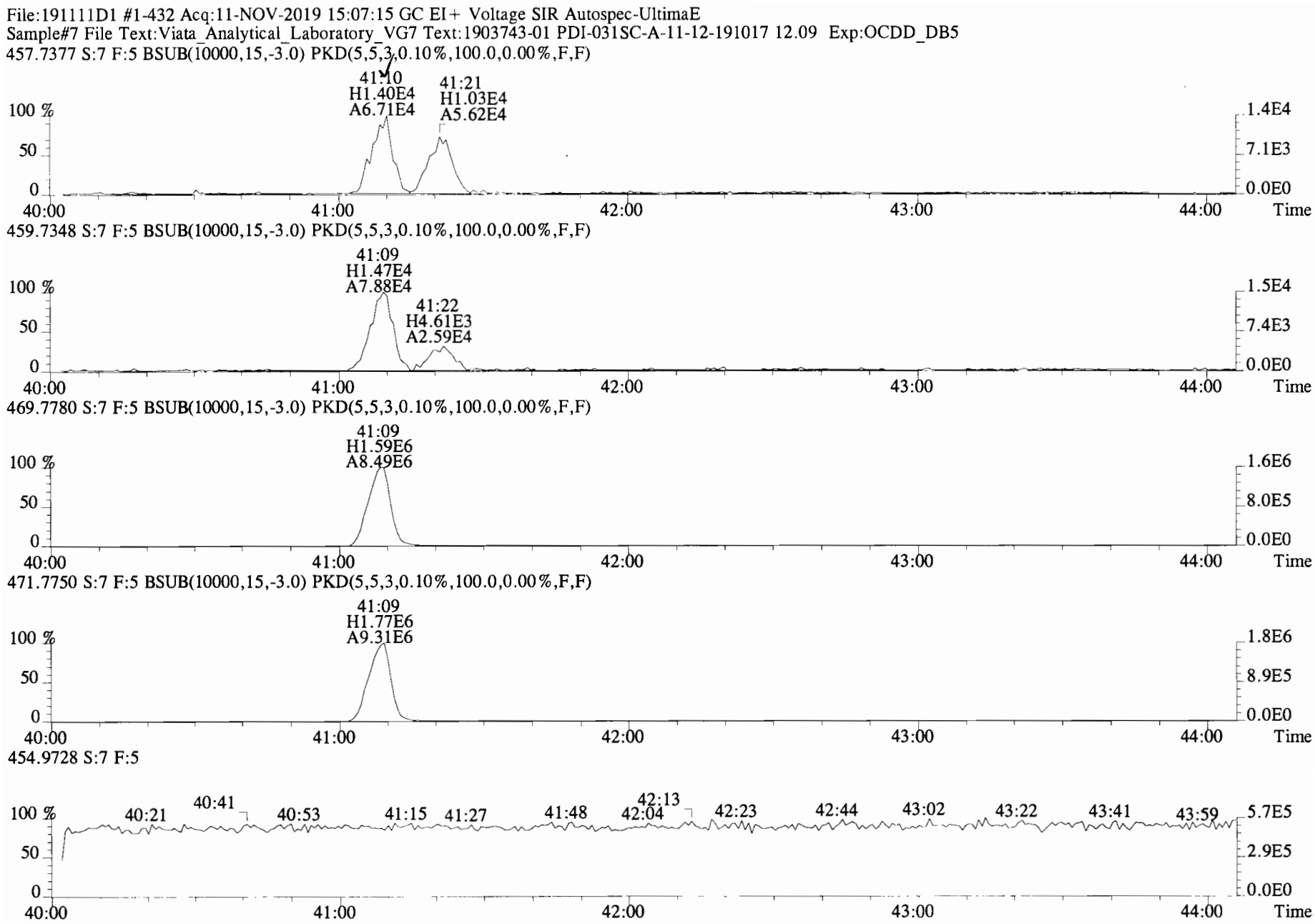


File:191111D1 #1-355 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

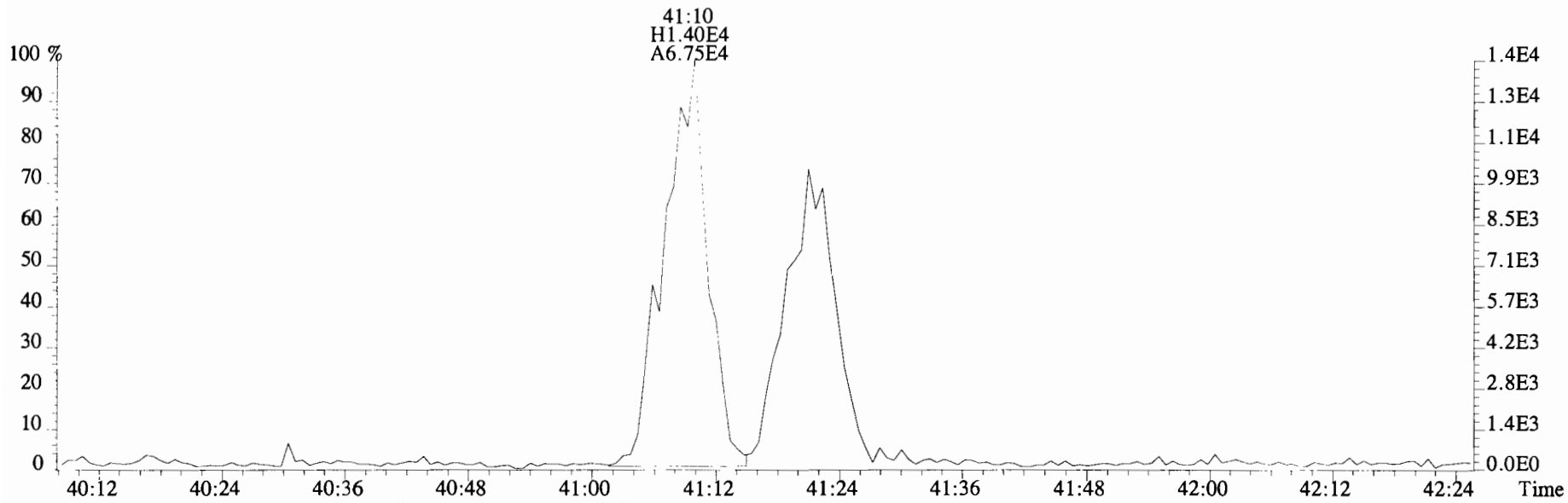


425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

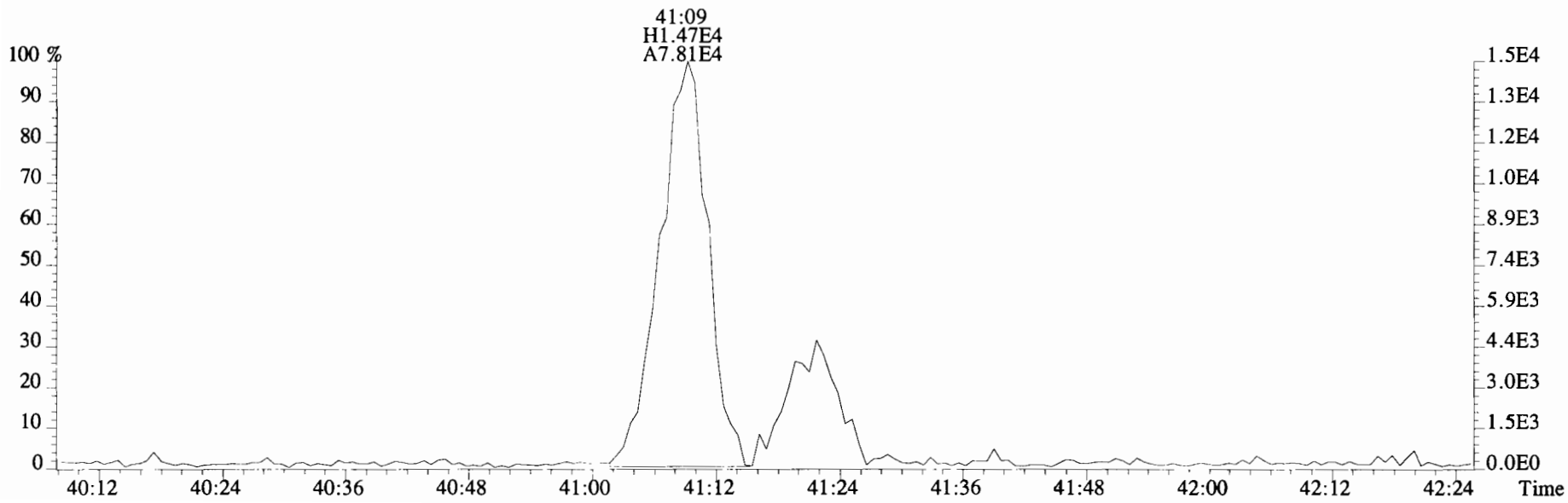


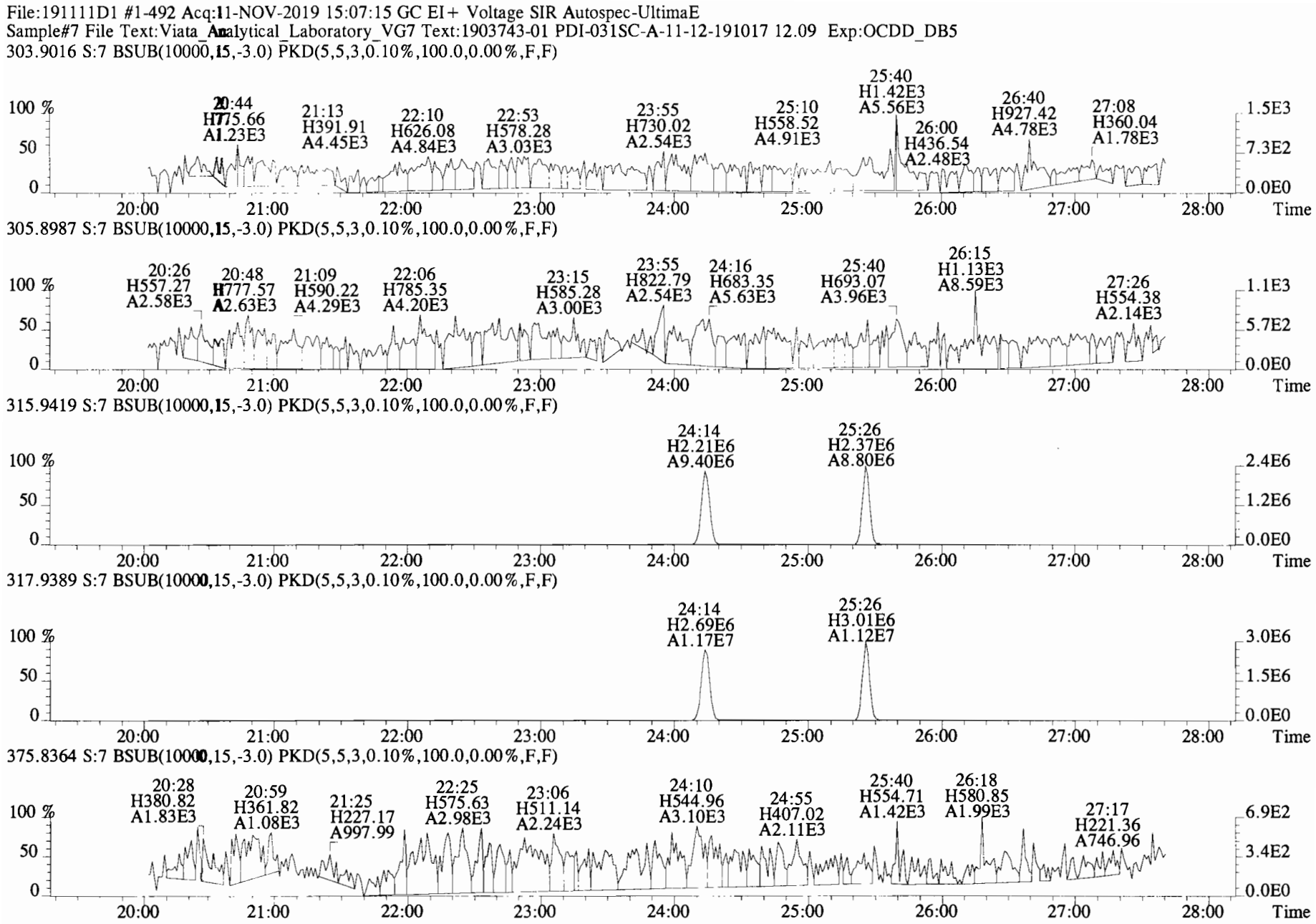

File:191111D1 #1-432 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:10
H1.40E4
A6.71E4
41:21
H1.03E4
A5.62E4
459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:09
H1.47E4
A7.88E4
41:22
H4.61E3
A2.59E4
469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:09
H1.59E6
A8.49E6
471.7750 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
41:09
H1.77E6
A9.31E6
454.9728 S:7 F:5
40:21
40:41
40:53
41:15
41:27
41:48
42:04
42:13
42:23
42:44
43:02
43:22
43:41
43:59
100 %
50
0
40:00
41:00
42:00
43:00
44:00
Time
1.4E4
7.1E3
0.0E0
1.5E4
7.4E3
1.6E6
8.0E5
1.8E6
8.9E5
5.7E5
2.9E5

File:191111D1 #1-432 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 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)

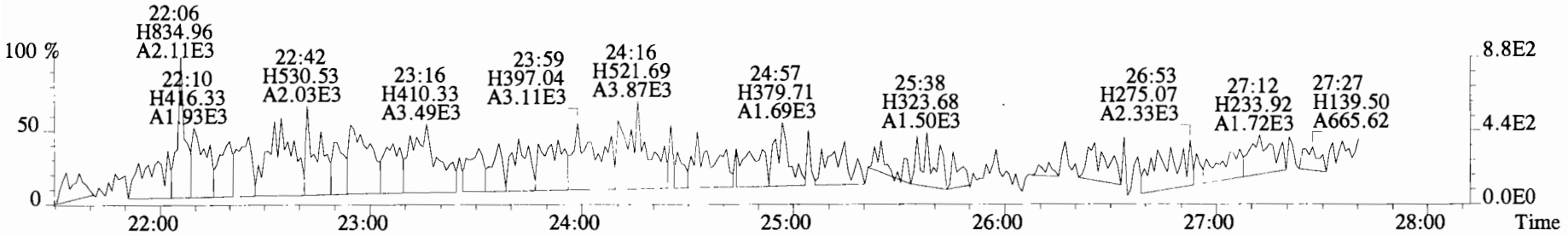


459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

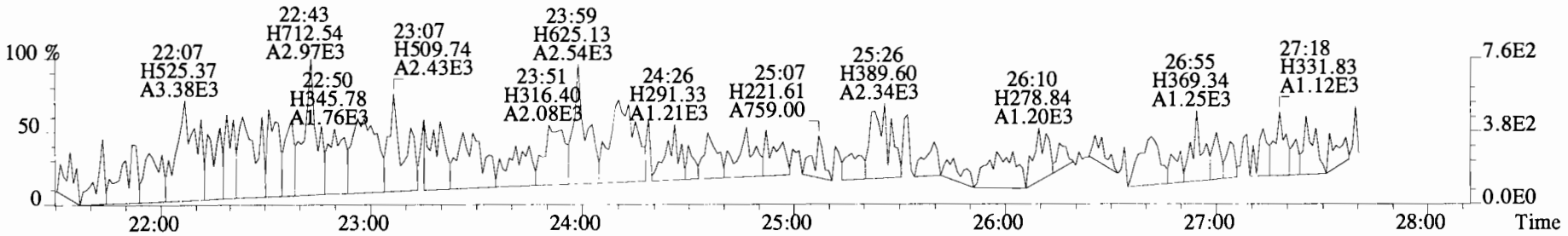



File:191111D1 #1-492 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:44 H775.66 A1.23E3
21:13 H391.91 A4.45E3
22:10 H626.08 A4.84E3
22:53 H578.28 A3.03E3
23:55 H730.02 A2.54E3
25:10 H558.52 A4.91E3
25:40 H1.42E3 A5.56E3
26:00 H436.54 A2.48E3
26:40 H927.42 A4.78E3
27:08 H360.04 A1.78E3
305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:26 H557.27 A2.58E3
20:48 H777.57 A2.63E3
21:09 H590.22 A4.29E3
22:06 H785.35 A4.20E3
23:15 H585.28 A3.00E3
23:55 H822.79 A2.54E3
24:16 H683.35 A5.63E3
25:40 H693.07 A3.96E3
26:15 H1.13E3 A8.59E3
27:26 H554.38 A2.14E3
315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:14 H2.21E6 A9.40E6
25:26 H2.37E6 A8.80E6
317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:14 H2.69E6 A1.17E7
25:26 H3.01E6 A1.12E7
375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:28 H380.82 A1.83E3
20:59 H361.82 A1.08E3
21:25 H227.17 A997.99
22:25 H575.63 A2.98E3
23:06 H511.14 A2.24E3
24:10 H544.96 A3.10E3
24:55 H407.02 A2.11E3
25:40 H554.71 A1.42E3
26:18 H580.85 A1.99E3
27:17 H221.36 A746.96
100 %
50
0
20:00
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
Time
1.5E3
7.3E2
0.0E0
1.1E3
5.7E2
2.4E6
1.2E6
3.0E6
1.5E6
6.9E2
3.4E2

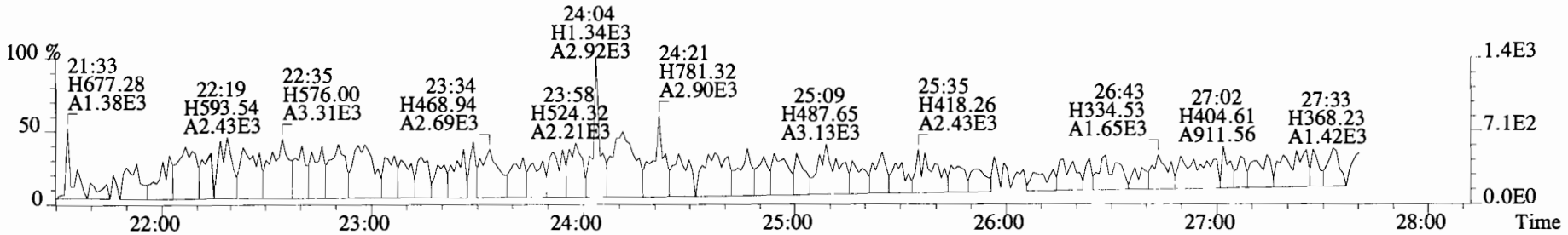
File:191111D1 #1-492 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



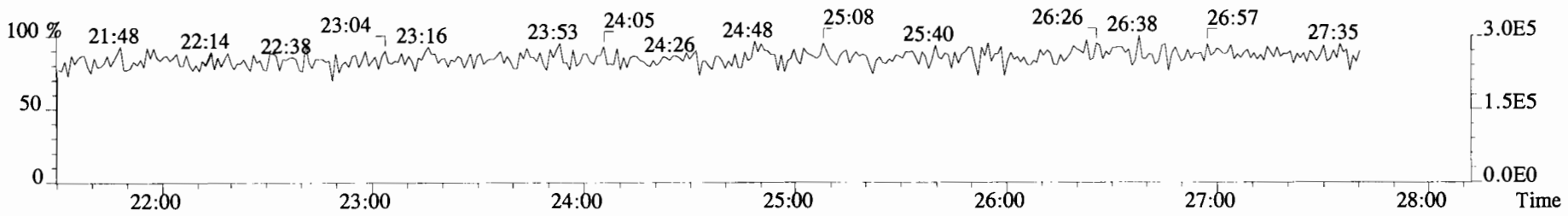
341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

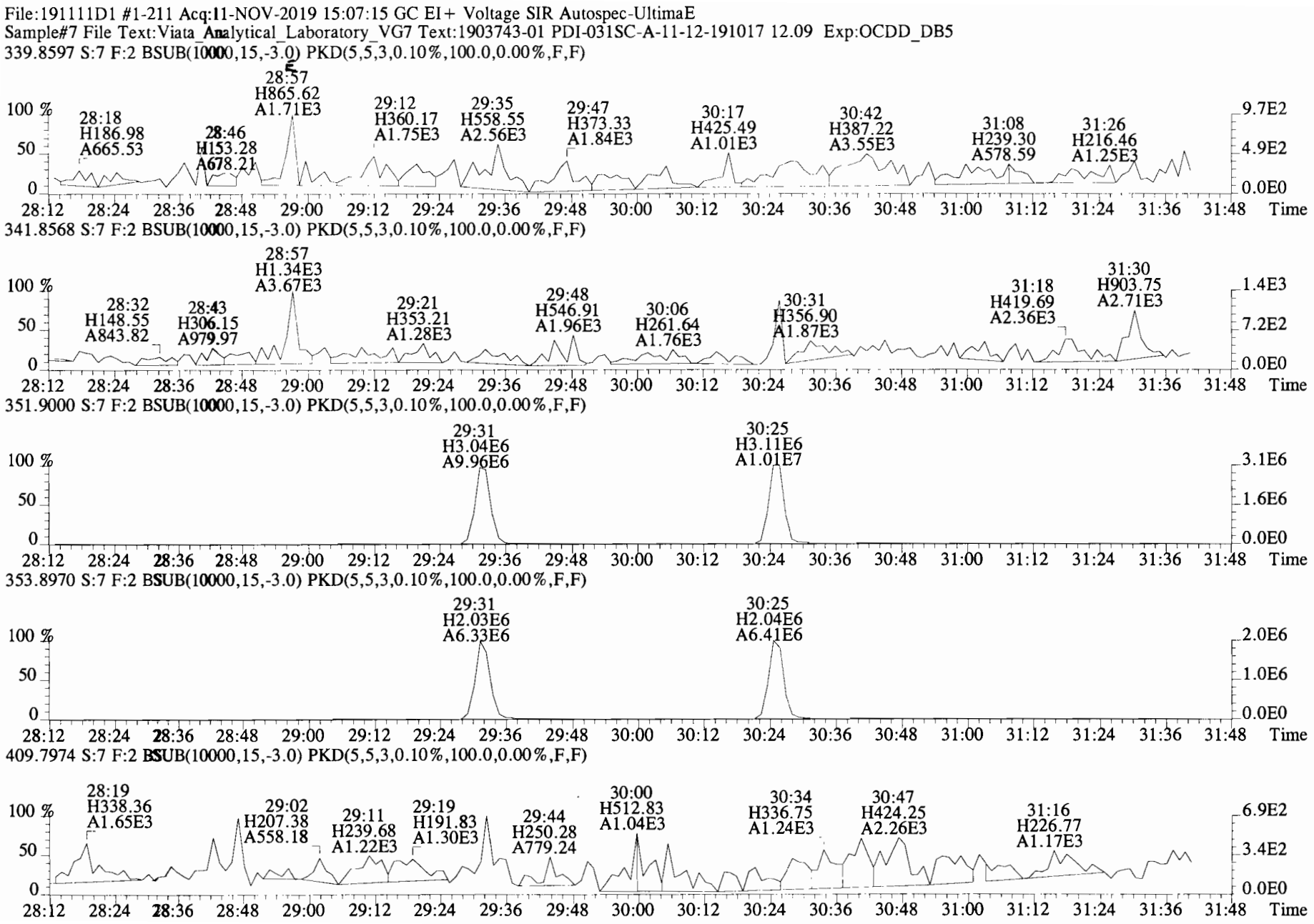


409.7974 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

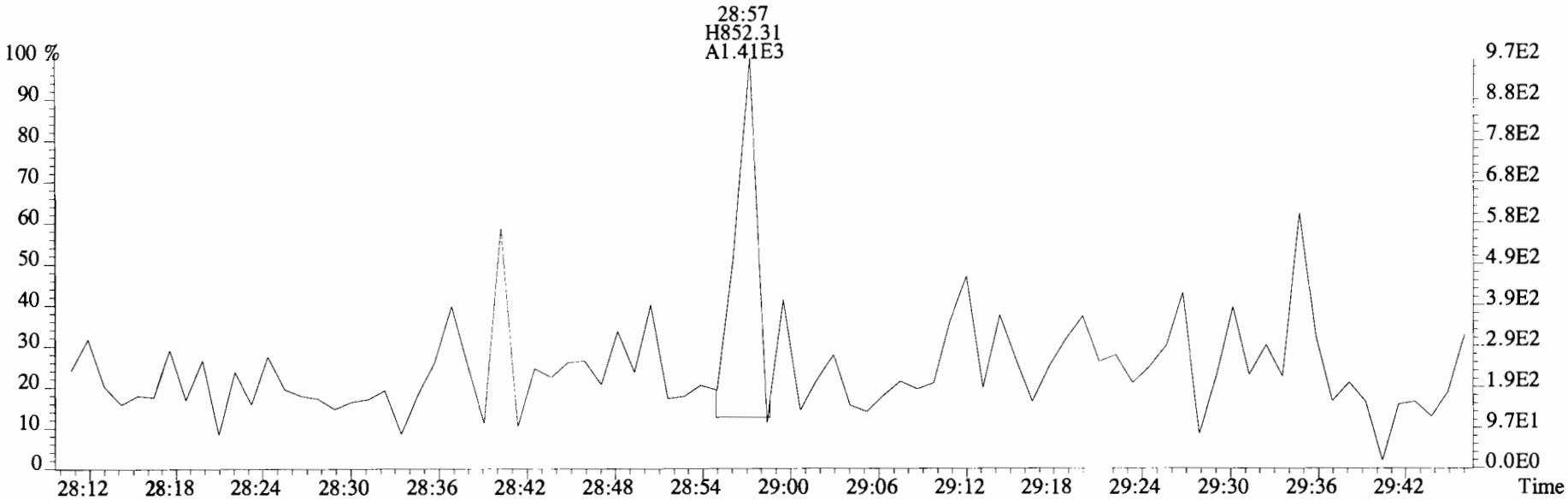


316.9824 S:7

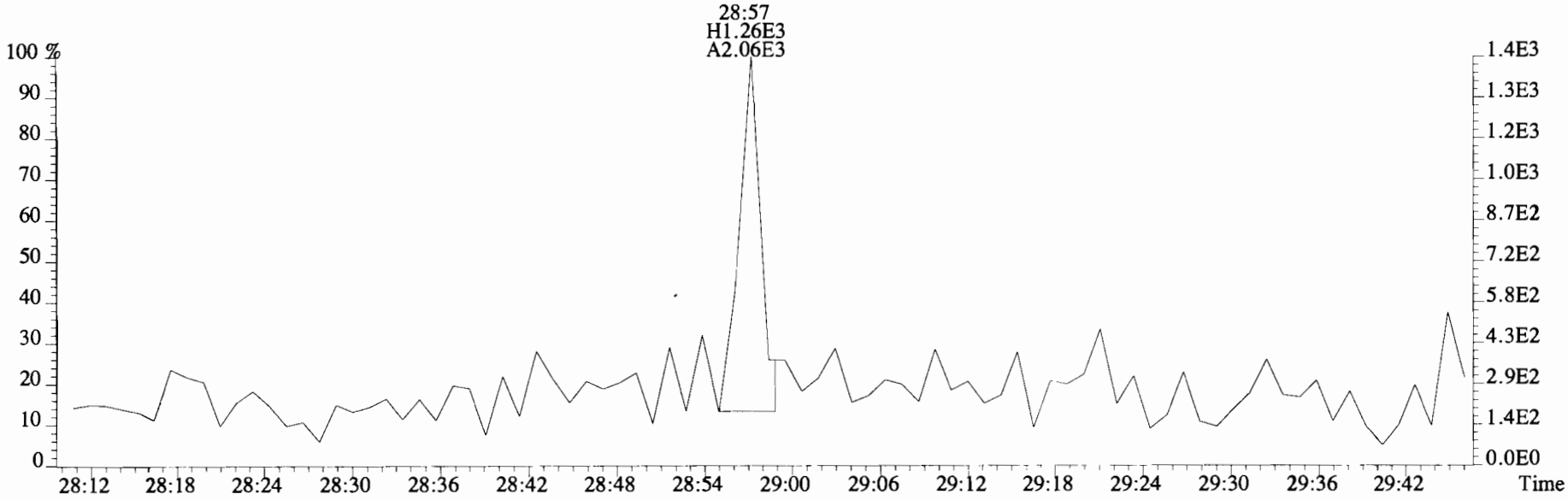



File:191111D1 #1-211 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:57 H865.62 A1.71E3
28:18 H186.98 A665.53
28:46 H153.28 A678.21
29:12 H360.17 A1.75E3
29:35 H558.55 A2.56E3
29:47 H373.33 A1.84E3
30:17 H425.49 A1.01E3
30:42 H387.22 A3.55E3
31:08 H239.30 A578.59
31:26 H216.46 A1.25E3
9.7E2
4.9E2
0.0E0
341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:57 H1.34E3 A3.67E3
28:32 H148.55 A843.82
28:43 H306.15 A979.97
29:21 H353.21 A1.28E3
29:48 H546.91 A1.96E3
30:06 H261.64 A1.76E3
30:31 H356.90 A1.87E3
31:18 H419.69 A2.36E3
31:30 H903.75 A2.71E3
1.4E3
7.2E2
0.0E0
351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:31 H3.04E6 A9.96E6
30:25 H3.11E6 A1.01E7
3.1E6
1.6E6
0.0E0
353.8970 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:31 H2.03E6 A6.33E6
30:25 H2.04E6 A6.41E6
2.0E6
1.0E6
0.0E0
409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:19 H338.36 A1.65E3
29:02 H207.38 A558.18
29:11 H239.68 A1.22E3
29:19 H191.83 A1.30E3
29:44 H250.28 A779.24
30:00 H512.83 A1.04E3
30:34 H336.75 A1.24E3
30:47 H424.25 A2.26E3
31:16 H226.77 A1.17E3
6.9E2
3.4E2
0.0E0
100 %
50
0
28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 30:24 30:36 30:48 31:00 31:12 31:24 31:36 31:48 Time

File:191111D1 #1-211 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 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)

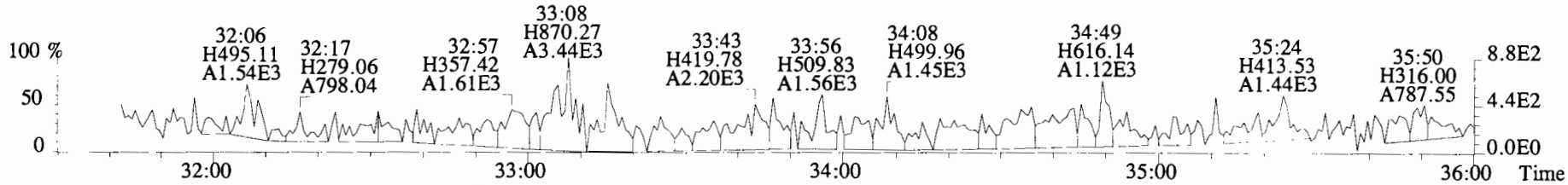


341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

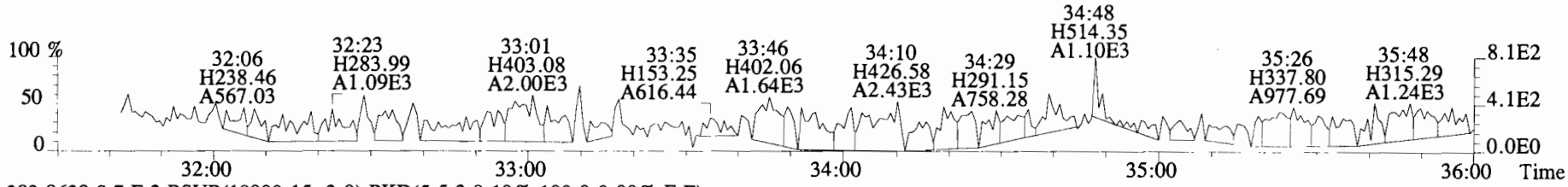


File:191111D1 #1-385 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5

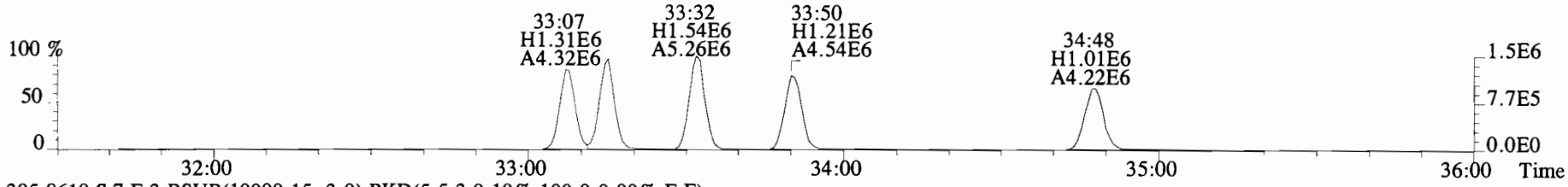
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



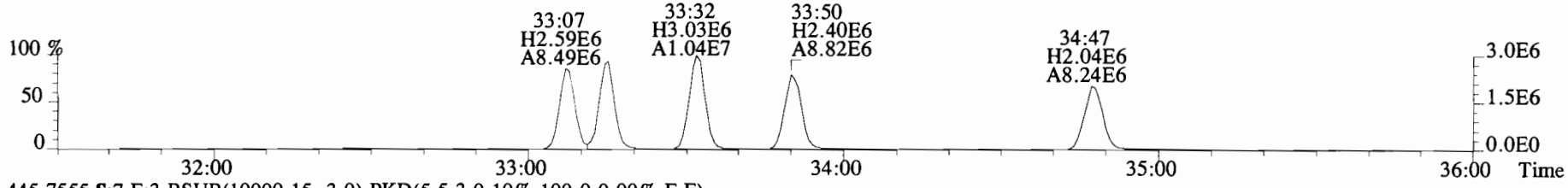
375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



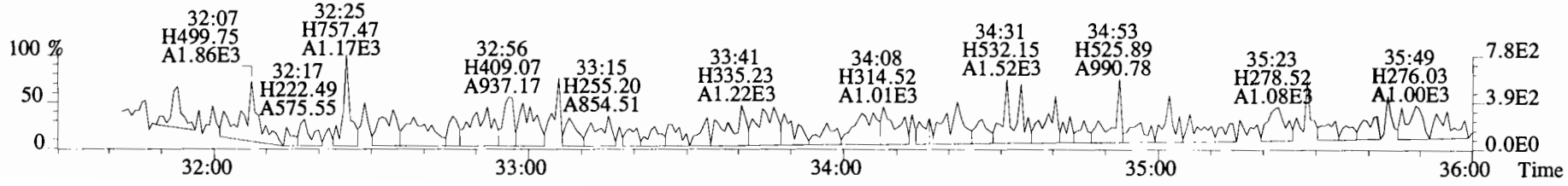
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



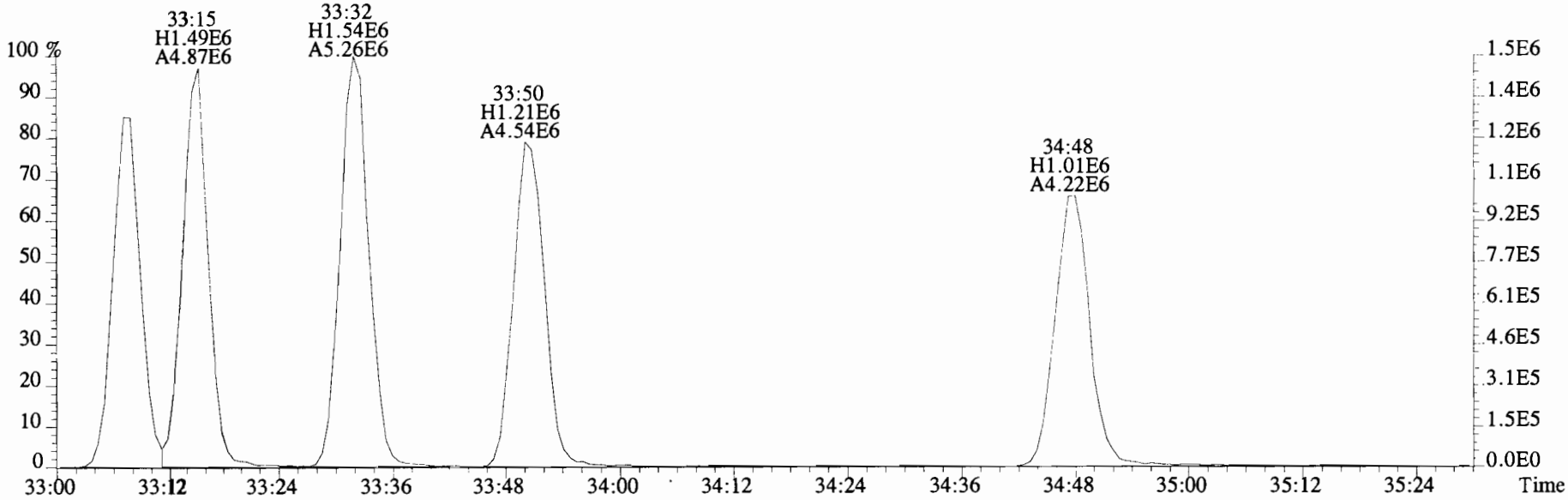
385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



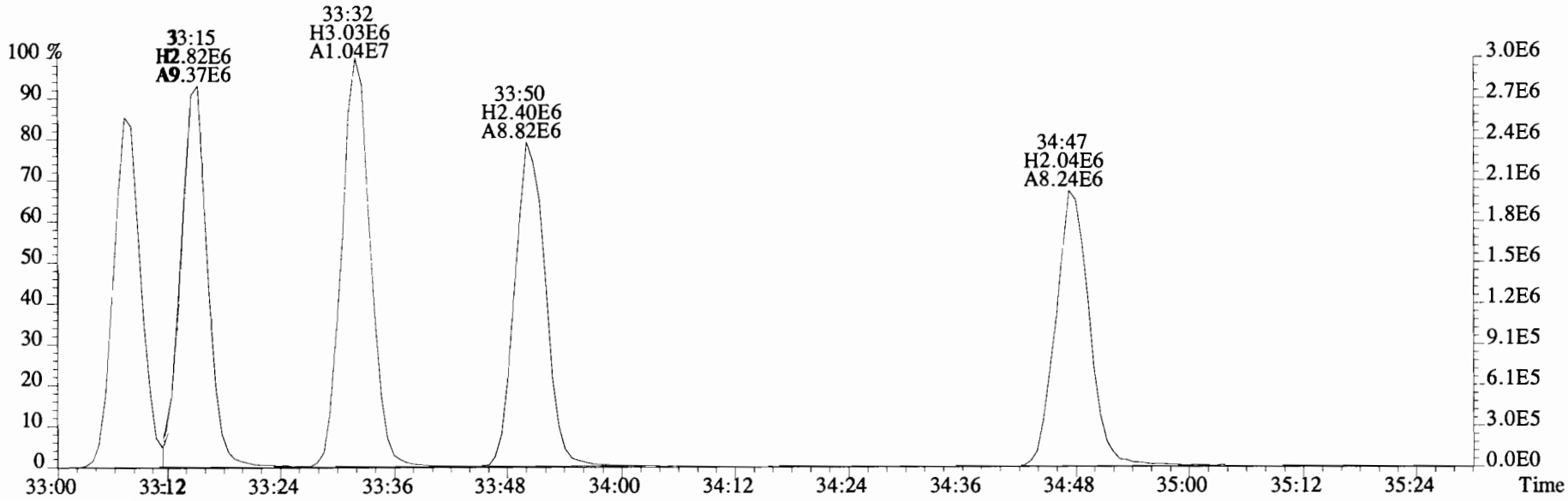
445.7555 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

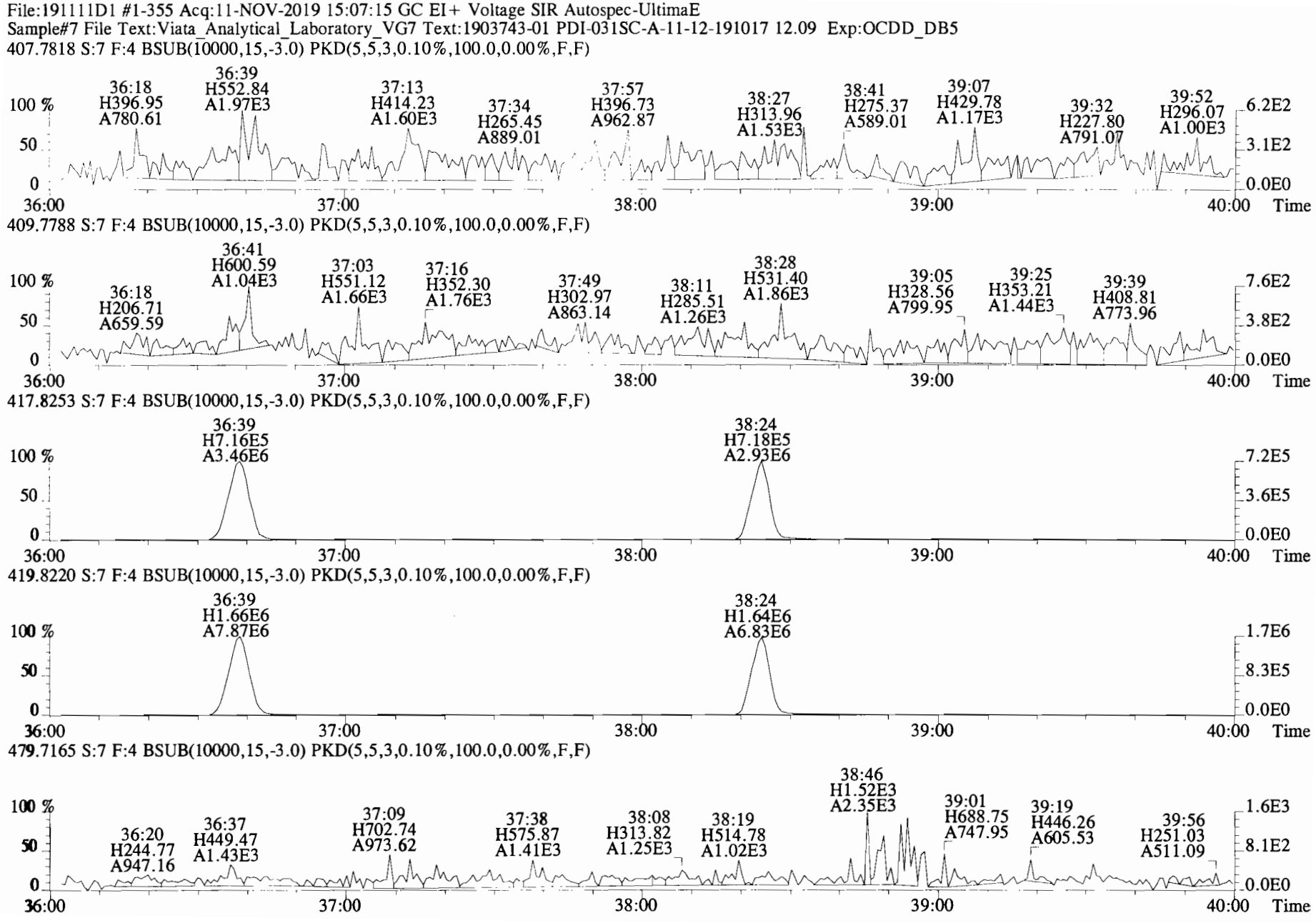


File:191111D1 #1-385 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

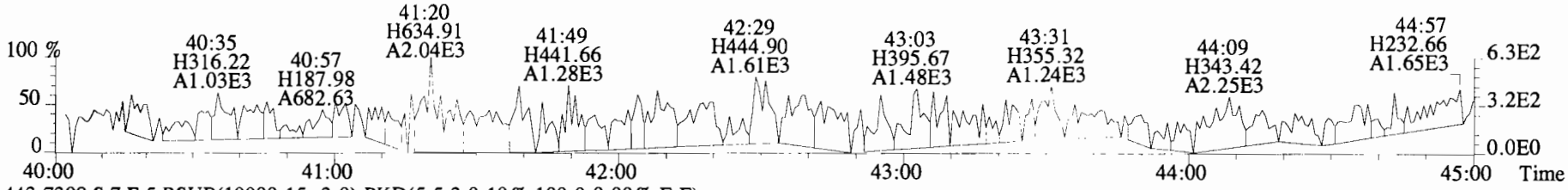


385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

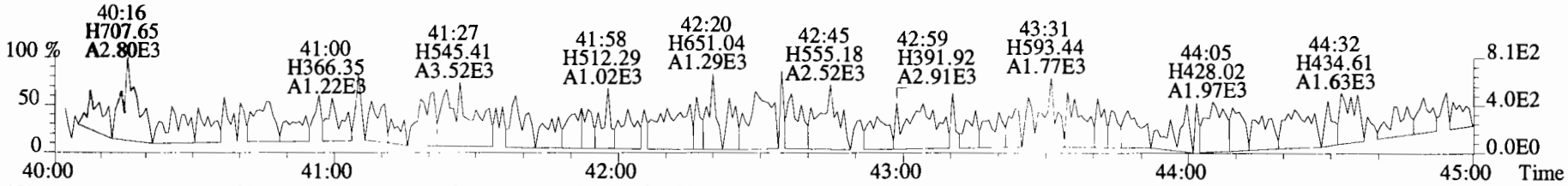



File:191111D1 #1-355 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:18 H396.95 A780.61
36:39 H552.84 A1.97E3
37:13 H414.23 A1.60E3
37:34 H265.45 A889.01
37:57 H396.73 A962.87
38:27 H313.96 A1.53E3
38:41 H275.37 A589.01
39:07 H429.78 A1.17E3
39:32 H227.80 A791.07
39:52 H296.07 A1.00E3
100 %
50
0
6.2E2
3.1E2
0.0E0
36:00
37:00
38:00
39:00
40:00
Time
409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:18 H206.71 A659.59
36:41 H600.59 A1.04E3
37:03 H551.12 A1.66E3
37:16 H352.30 A1.76E3
37:49 H302.97 A863.14
38:11 H285.51 A1.26E3
38:28 H531.40 A1.86E3
39:05 H328.56 A799.95
39:25 H353.21 A1.44E3
39:39 H408.81 A773.96
100 %
50
0
7.6E2
3.8E2
0.0E0
36:00
37:00
38:00
39:00
40:00
Time
417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H7.16E5 A3.46E6
38:24 H7.18E5 A2.93E6
100 %
50
0
7.2E5
3.6E5
0.0E0
36:00
37:00
38:00
39:00
40:00
Time
419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H1.66E6 A7.87E6
38:24 H1.64E6 A6.83E6
100 %
50
0
1.7E6
8.3E5
0.0E0
36:00
37:00
38:00
39:00
40:00
Time
479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:20 H244.77 A947.16
36:37 H449.47 A1.43E3
37:09 H702.74 A973.62
37:38 H575.87 A1.41E3
38:08 H313.82 A1.25E3
38:19 H514.78 A1.02E3
38:46 H1.52E3 A2.35E3
39:01 H688.75 A747.95
39:19 H446.26 A605.53
39:56 H251.03 A511.09
100 %
50
0
1.6E3
8.1E2
0.0E0
36:00
37:00
38:00
39:00
40:00
Time

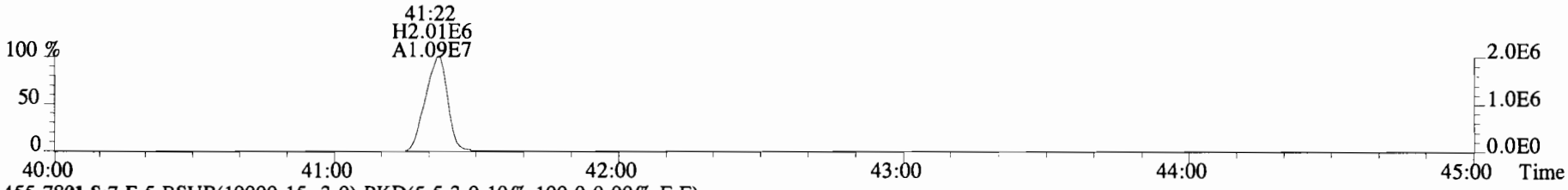
File:191111D1 #1-432 Acq:11-NOV-2019 15:07:15 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-01 PDI-031SC-A-11-12-191017 12.09 Exp:OCDD_DB5
441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



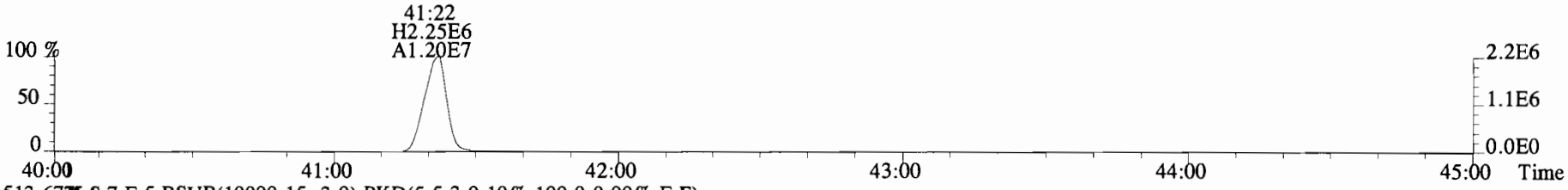
443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



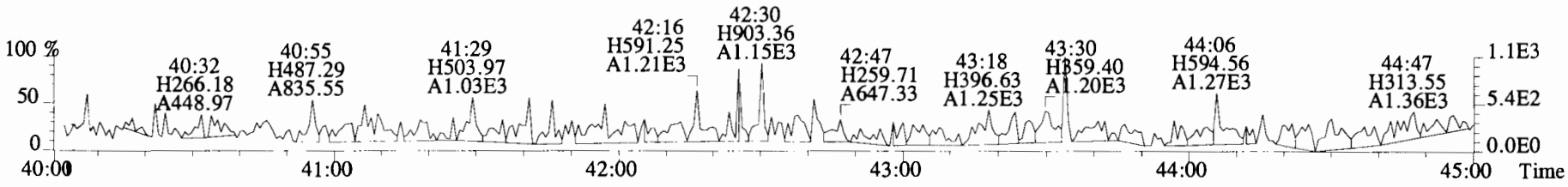
453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



455.7801 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



Client ID: PDI-031SC-A-12-12.5-19 Filename: 191111D1 S:8 Acq:11-NOV-19 15:55:12 ConCal: ST191111D1-1

Lab ID: 1903743-02 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol:10.066 EndCAL: NA

	Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	*	*	n	0.91	NotF	*		157	2.5	0.0536
	1,2,3,7,8-PeCDD	*	*	n	0.90	NotF	*		397	2.5	0.124
	1,2,3,4,7,8-HxCDD	*	*	n	1.10	NotF	*		135	2.5	0.0597
	1,2,3,6,7,8-HxCDD	3.54e+03	0.59	n	0.94	34:08	0.083765		*	2.5	*
	1,2,3,7,8,9-HxCDD	4.18e+03	1.15	y	0.96	34:26	0.099574		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	4.86e+04	0.94	y	0.98	37:52	1.2704		*	2.5	*
	OCDD	1.89e+05	0.98	y	0.96	41:09	6.0339		*	2.5	*
	2,3,7,8-TCDF	*	*	n	0.95	NotF	*		245	2.5	0.0544
	1,2,3,7,8-PeCDF	*	*	n	0.96	NotF	*		227	2.5	0.0686
	2,3,4,7,8-PeCDF	*	*	n	1.01	NotF	*		227	2.5	0.0597
	1,2,3,4,7,8-HxCDF	4.85e+03	0.87	n	1.18	33:08	0.077456		*	2.5	*
	1,2,3,6,7,8-HxCDF	*	*	n	1.07	NotF	*		161	2.5	0.0317
	2,3,4,6,7,8-HxCDF	*	*	n	1.11	NotF	*		161	2.5	0.0352
	1,2,3,7,8,9-HxCDF	*	*	n	1.06	NotF	*		161	2.5	0.0443
	1,2,3,4,6,7,8-HpCDF	*	*	n	1.13	NotF	*		114	2.5	0.0352
	1,2,3,4,7,8,9-HpCDF	*	*	n	1.28	NotF	*		114	2.5	0.0319
	OCDF	1.00e+04	1.02	y	0.95	41:22	0.25380		*	2.5	*
IS	13C-2,3,7,8-TCDD	1.06e+07	0.79	y	1.10	26:13	190.71				
IS	13C-1,2,3,7,8-PeCDD	8.73e+06	0.64	y	0.88	30:43	194.48				
IS	13C-1,2,3,4,7,8-HxCDD	7.67e+06	1.26	y	0.64	34:01	191.44				
IS	13C-1,2,3,6,7,8-HxCDD	8.95e+06	1.27	y	0.86	34:07	167.74				
IS	13C-1,2,3,7,8,9-HxCDD	8.68e+06	1.28	y	0.81	34:26	172.43				
IS	13C-1,2,3,4,6,7,8-HpCDD	7.76e+06	1.05	y	0.65	37:52	190.09				
IS	13C-OCDD	1.30e+07	0.92	y	0.58	41:09	359.37				
IS	13C-2,3,7,8-TCDF	1.60e+07	0.77	y	1.03	25:26	185.64				
IS	13C-1,2,3,7,8-PeCDF	1.36e+07	1.63	y	0.85	29:32	191.89				
IS	13C-2,3,4,7,8-PeCDF	1.35e+07	1.61	y	0.85	30:26	191.23				
IS	13C-1,2,3,4,7,8-HxCDF	1.06e+07	0.52	y	0.83	33:08	203.79				
IS	13C-1,2,3,6,7,8-HxCDF	1.16e+07	0.51	y	1.03	33:15	179.15				
IS	13C-2,3,4,6,7,8-HxCDF	1.09e+07	0.51	y	0.95	33:51	182.71				
IS	13C-1,2,3,7,8,9-HxCDF	9.78e+06	0.51	y	0.83	34:48	189.31				
IS	13C-1,2,3,4,6,7,8-HpCDF	8.87e+06	0.43	y	0.76	36:39	187.70				
IS	13C-1,2,3,4,7,8,9-HpCDF	7.53e+06	0.43	y	0.58	38:25	207.68				
IS	13C-OCDF	1.66e+07	0.90	y	0.69	41:22	386.44				
C/Up	37Cl-2,3,7,8-TCDD	4.68e+06			1.20	26:14	76.731				
RS/RT	13C-1,2,3,4-TCDD	1.01e+07	0.83	y	1.00	25:39	198.68				
RS	13C-1,2,3,4-TCDF	1.65e+07	0.80	y	1.00	24:14	198.68				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.24e+07	0.51	y	1.00	33:32	198.68				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		157	0.0536
Total Penta-Dioxins	*	*		397	0.124
Total Hexa-Dioxins	0.750	0.834		*	*
Total Hepta-Dioxins	2.70	2.70		*	*
Total Tetra-Furans	*	*		245	0.0544
Total Penta-Furans	0.0000	0.0000		227	0.0641
Total Hexa-Furans	*	0.0775		*	*
Total Hepta-Furans	*	0.124		*	*

	Rec	Qual
IS	96.0	
IS	97.9	
IS	96.4	
IS	84.4	
IS	86.8	
IS	95.7	
IS	90.4	
IS	93.4	
IS	96.6	
IS	96.2	
IS	103	
IS	90.2	
IS	92.0	
IS	95.3	
IS	94.5	
IS	105	
IS	97.3	
C/Up	96.5	

Integrations by Analyst: DB Date: 11/12/19

Reviewed by Analyst: CT Date: 11/14/19

Totals class: HxCDD EMPC Entry #: 23

Run: 13 File: 191111D1 S: 8 I: 1 F: 3
Acquired: 11-NOV-19 15:55:12 Processed: 12-NOV-19 09:23:31

Total Concentration: 0.83409 Unnamed Concentration: 0.651

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:30	8.266e+03	7.505e+03	1.10	y	1.577e+04	0.37465	
33:20	6.686e+03	4.936e+03	1.35	y	1.162e+04	0.27609	
34:08	1.961e+03	3.342e+03	0.59	n	3.543e+03	0.083765	1,2,3,6,7,8-HxCDD
34:26	2.234e+03	1.946e+03	1.15	y	4.181e+03	0.099574	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 13 File: 191111D1 S: 8 I: 1 F: 4
Acquired: 11-NOV-19 15:55:12 Processed: 12-NOV-19 09:23:31

Total Concentration: 2.7046 Unnamed Concentration: 1.434

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:02	2.797e+04	2.686e+04	1.04	y	5.483e+04	1.4342	
37:52	2.359e+04	2.497e+04	0.94	y	4.856e+04	1.2704	1,2,3,4,6,7,8-HpCDD

Totals class: HxCDF EMPC Entry #: 33

Run: 13 File: 191111D1 S: 8 I: 1 F: 3
Acquired: 11-NOV-19 15:55:12 Processed: 12-NOV-19 09:23:31

Total Concentration: 0.077456 Unnamed Concentration: *

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
33:08	2.685e+03	3.088e+03	0.87	n	4.851e+03	0.077456	1,2,3,4,7,8-HxCDF

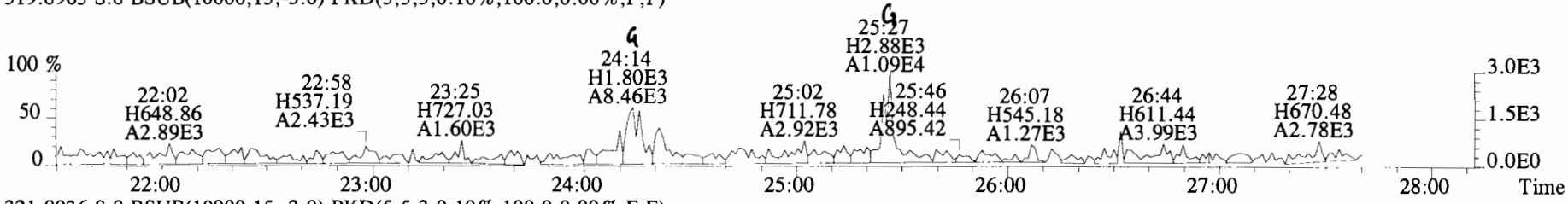
Totals class: HpCDF EMPC Entry #: 35

Run: 13 File: 191111D1 S: 8 I: 1 F: 4
Acquired: 11-NOV-19 15:55:12 Processed: 12-NOV-19 09:23:31

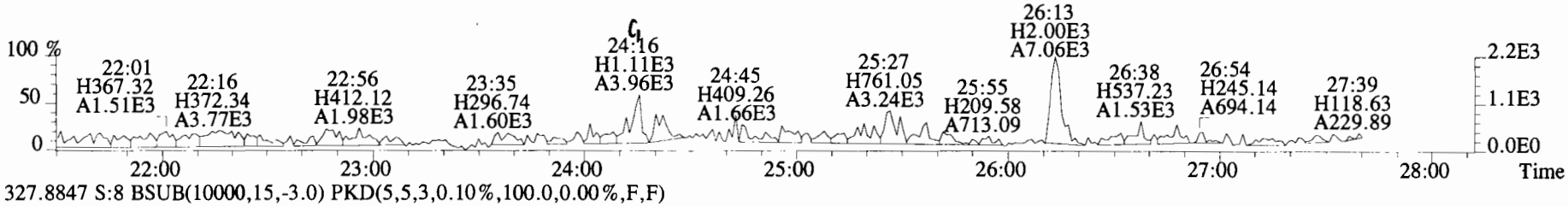
Total Concentration: 0.12449 Unnamed Concentration: 0.124

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:14	3.127e+03	3.893e+03	0.80	n	6.133e+03	0.12449	

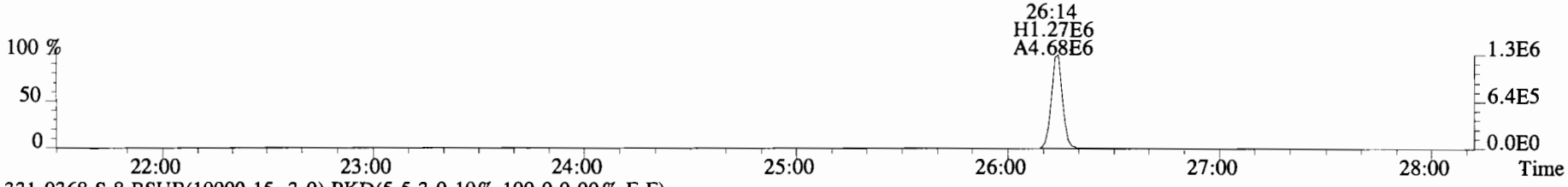
File:191111D1 #1-492 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



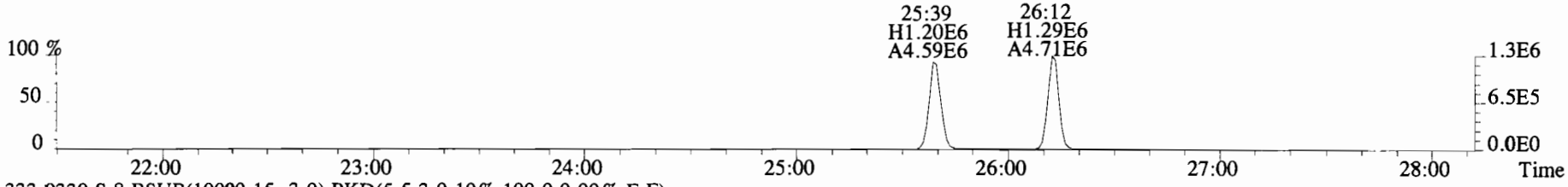
321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



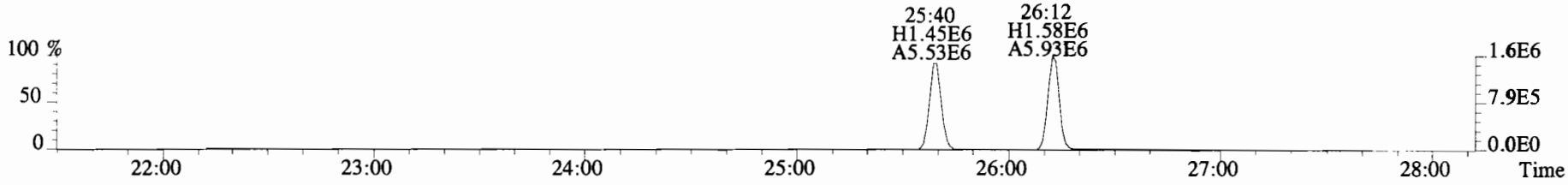
327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

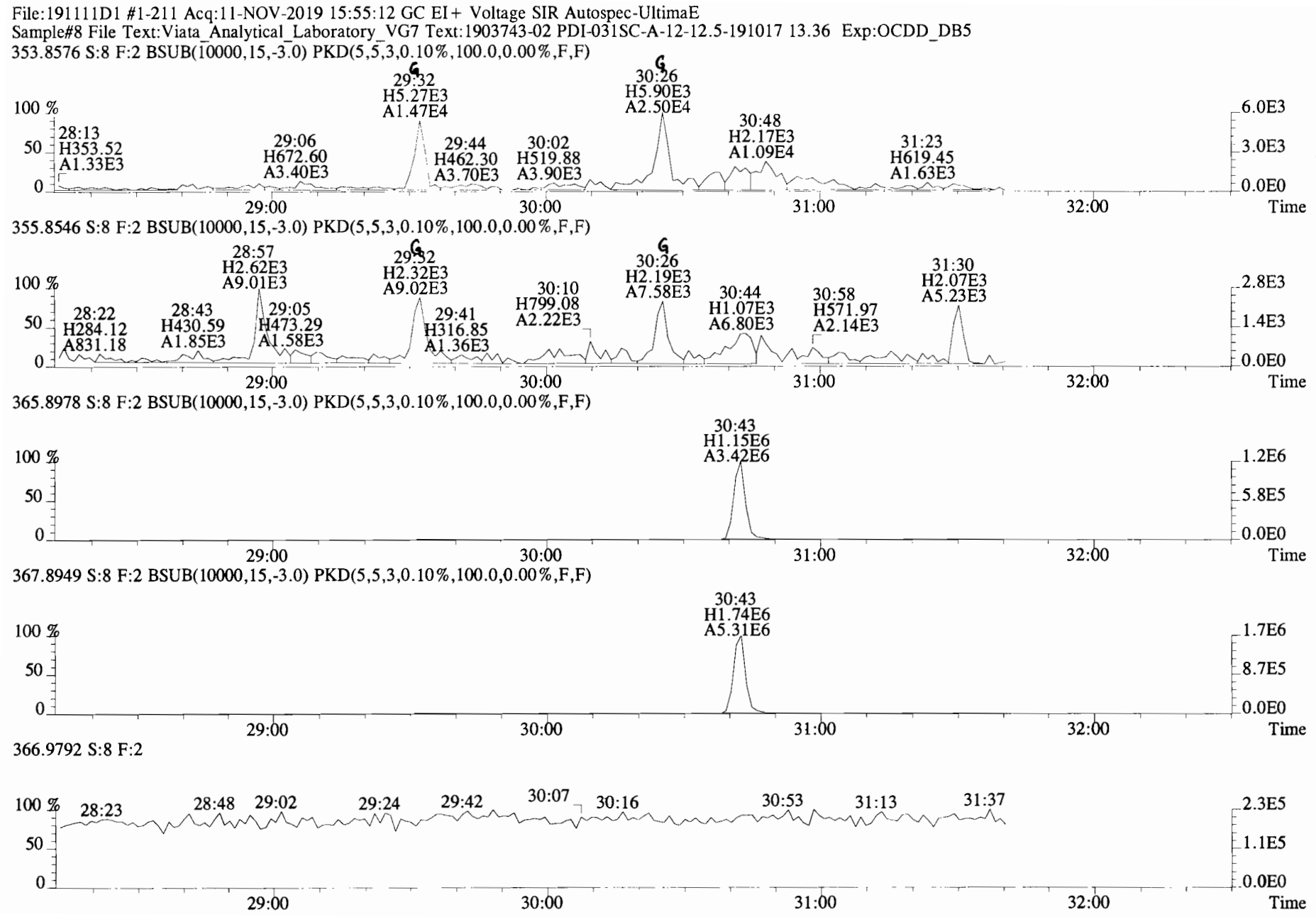


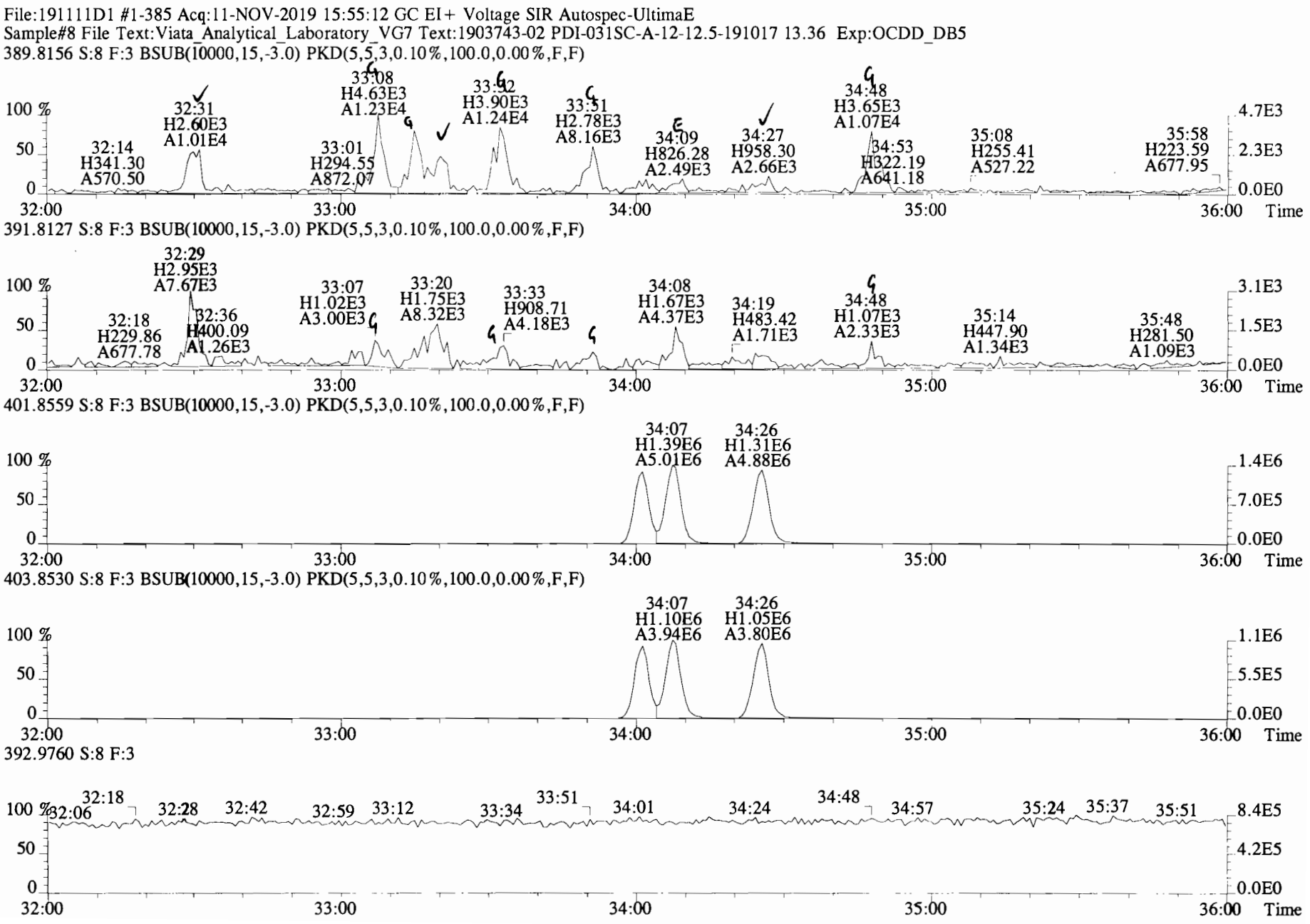
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



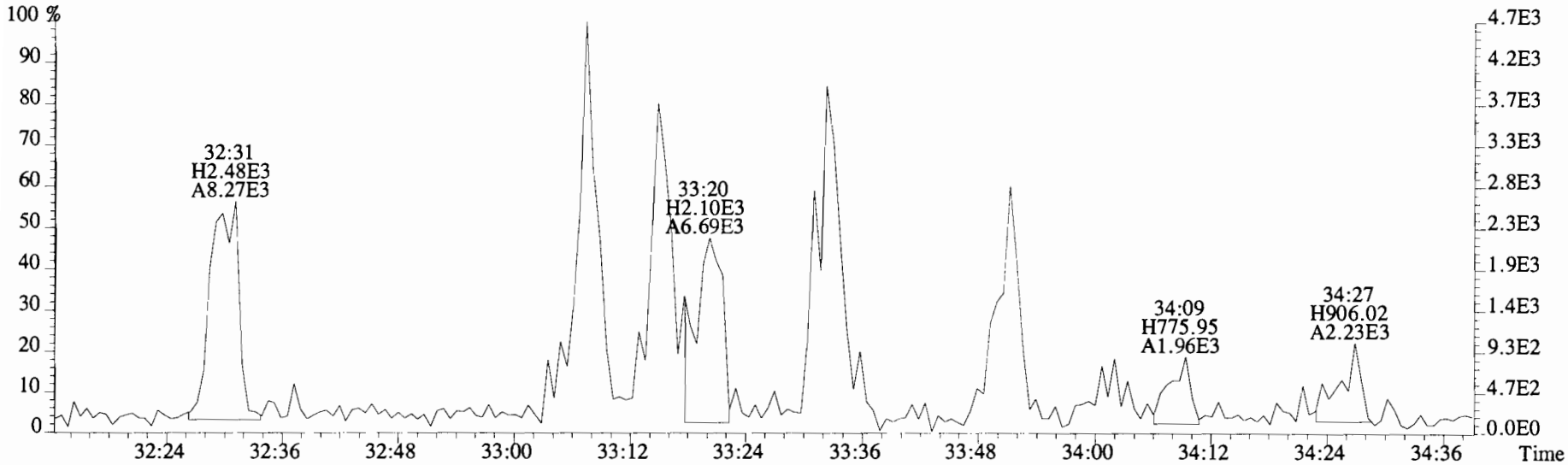
333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



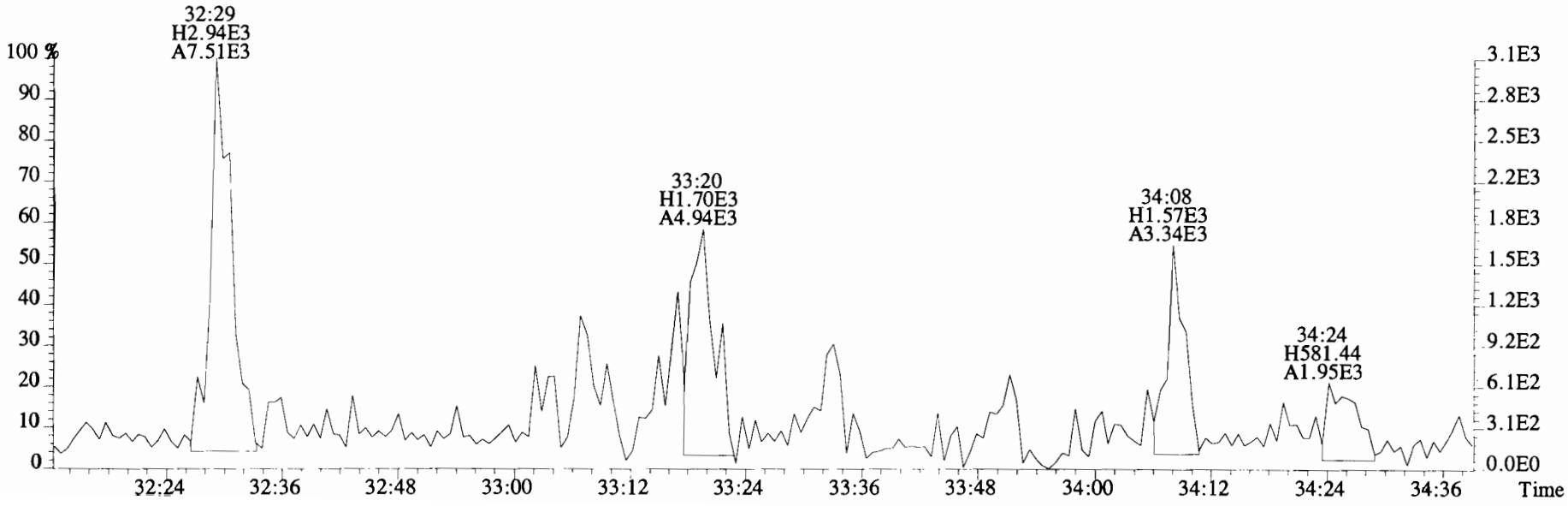

File:191111D1 #1-211 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:32 H5.27E3 A1.47E4
30:26 H5.90E3 A2.50E4
28:13 H353.52 A1.33E3
29:06 H672.60 A3.40E3
29:44 H462.30 A3.70E3
30:02 H519.88 A3.90E3
30:48 H2.17E3 A1.09E4
31:23 H619.45 A1.63E3
355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:57 H2.62E3 A9.01E3
29:32 H2.32E3 A9.02E3
30:26 H2.19E3 A7.58E3
31:30 H2.07E3 A5.23E3
28:22 H284.12 A831.18
28:43 H430.59 A1.85E3
29:05 H473.29 A1.58E3
29:41 H316.85 A1.36E3
30:10 H799.08 A2.22E3
30:44 H1.07E3 A6.80E3
30:58 H571.97 A2.14E3
365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
30:43 H1.15E6 A3.42E6
367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
30:43 H1.74E6 A5.31E6
366.9792 S:8 F:2
28:23
28:48
29:02
29:24
29:42
30:07
30:16
30:53
31:13
31:37
100 %
50
0
29:00
30:00
31:00
32:00
Time
6.0E3
3.0E3
0.0E0
2.8E3
1.4E3
1.2E6
5.8E5
1.7E6
8.7E5
2.3E5
1.1E5


File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 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)
32:14 H341.30 A570.50
32:31 H2.60E3 A1.01E4
33:01 H294.55 A872.07
33:08 H4.63E3 A1.23E4
33:32 H3.90E3 A1.24E4
33:51 H2.78E3 A8.16E3
34:09 H826.28 A2.49E3
34:27 H958.30 A2.66E3
34:48 H3.65E3 A1.07E4
34:53 H322.19 A641.18
35:08 H255.41 A527.22
35:58 H223.59 A677.95
391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
32:18 H229.86 A677.78
32:29 H2.95E3 A7.67E3
32:36 H400.09 A1.26E3
33:07 H1.02E3 A3.00E3
33:20 H1.75E3 A8.32E3
33:33 H908.71 A4.18E3
34:08 H1.67E3 A4.37E3
34:19 H483.42 A1.71E3
34:48 H1.07E3 A2.33E3
35:14 H447.90 A1.34E3
35:48 H281.50 A1.09E3
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07 H1.39E6 A5.01E6
34:26 H1.31E6 A4.88E6
403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07 H1.10E6 A3.94E6
34:26 H1.05E6 A3.80E6
392.9760 S:8 F:3
32:06
32:18
32:28
32:42
32:59
33:12
33:34
33:51
34:01
34:24
34:48
34:57
35:24
35:37
35:51
100 %
50
0
32:00
33:00
34:00
35:00
36:00
Time
4.7E3
2.3E3
0.0E0
3.1E3
1.5E3
1.4E6
7.0E5
1.1E6
5.5E5
8.4E5
4.2E5

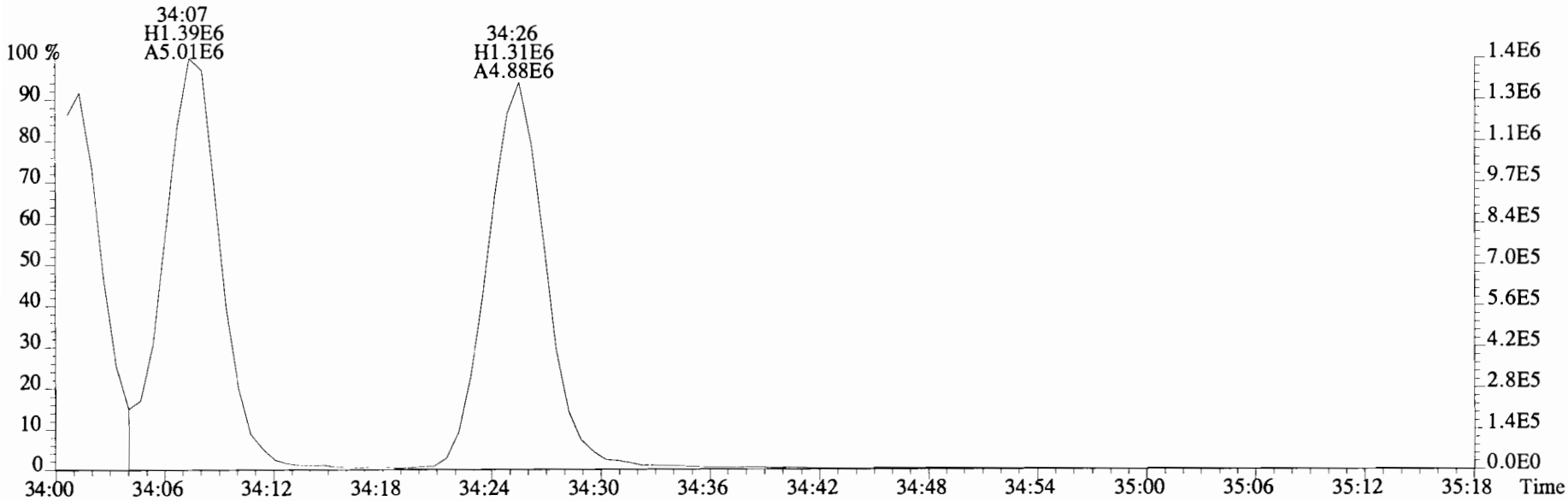
File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



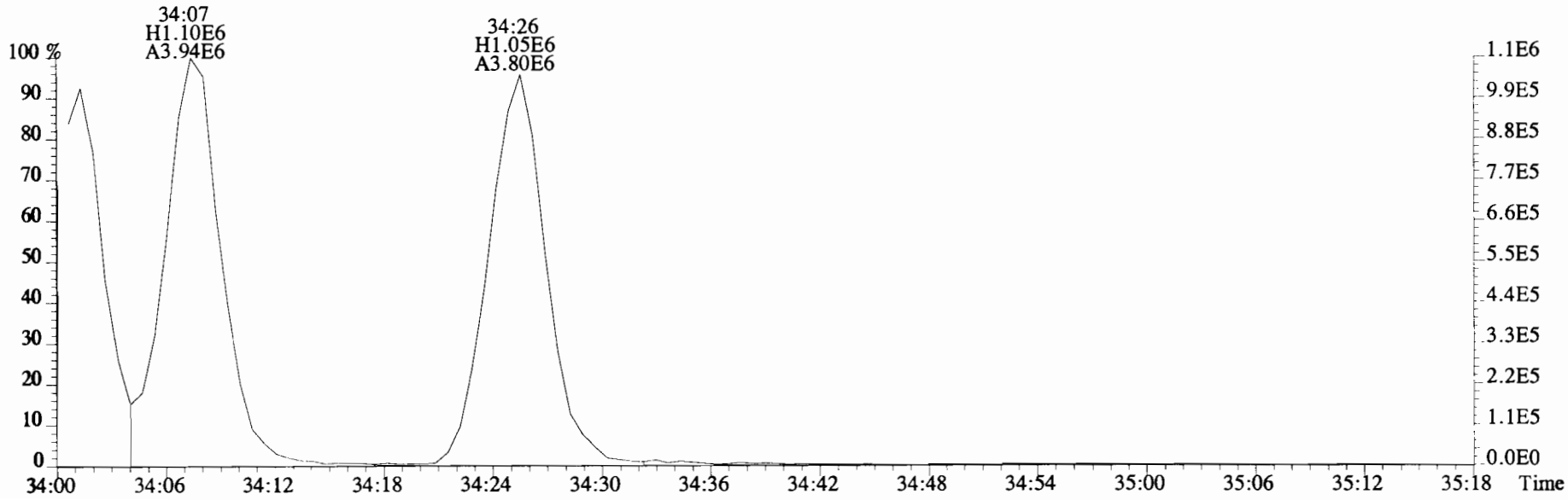
391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

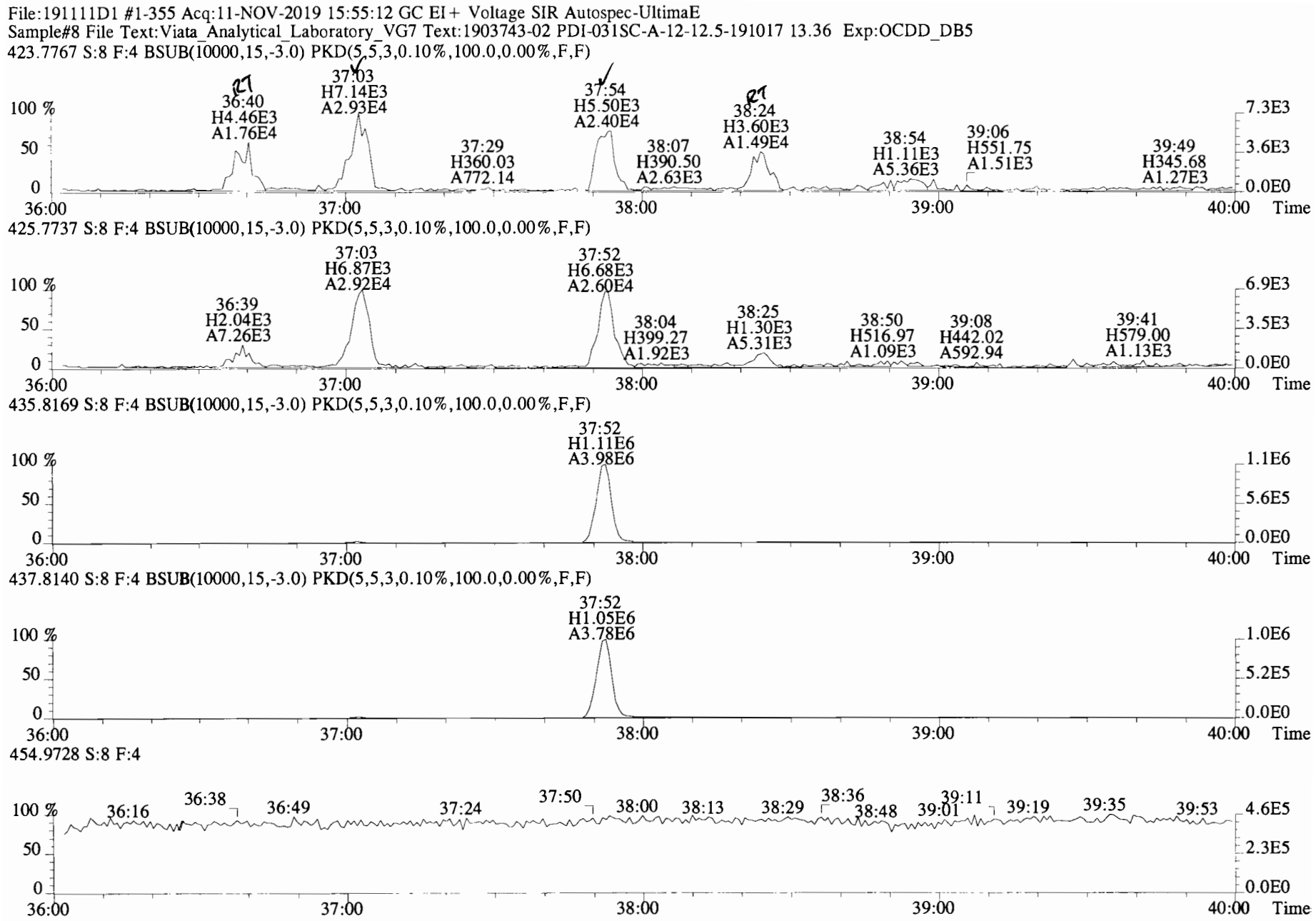


File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

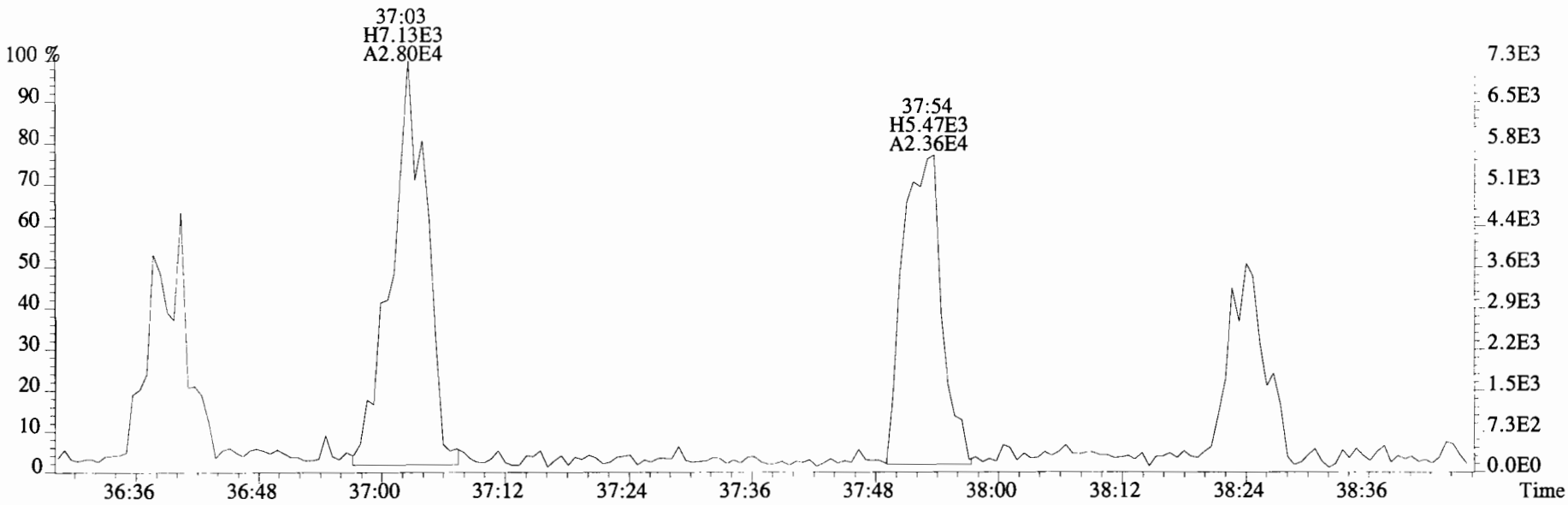


403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

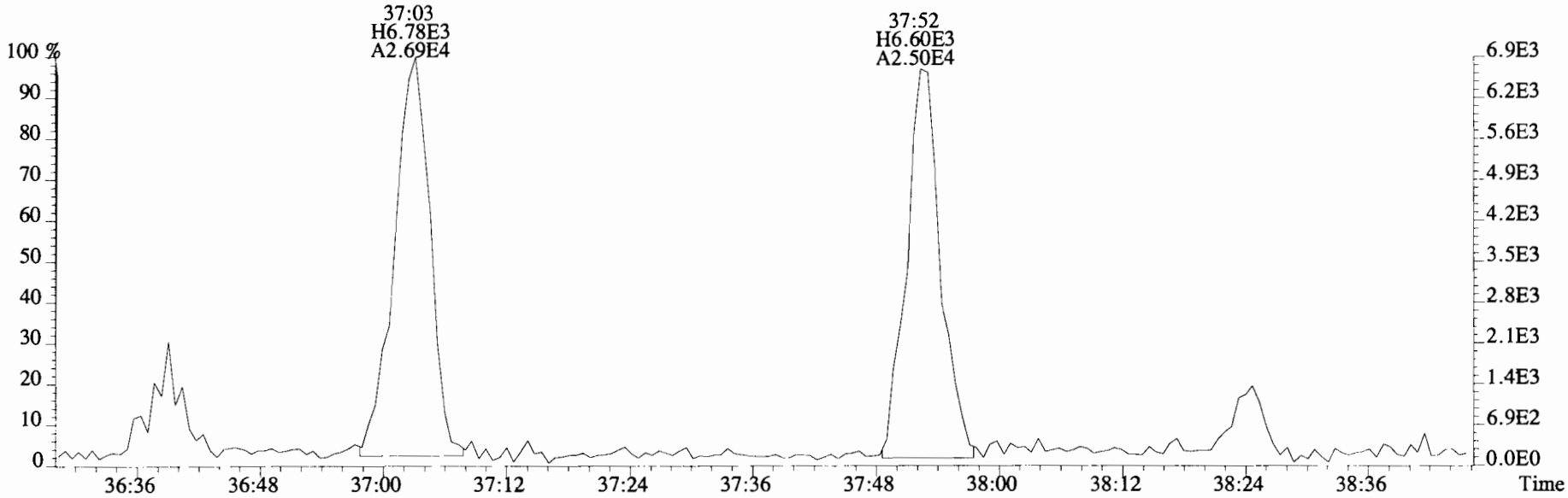



File:191111D1 #1-355 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:40 H4.46E3 A1.76E4
37:03 H7.14E3 A2.93E4
37:29 H360.03 A772.14
37:54 H5.50E3 A2.40E4
38:07 H390.50 A2.63E3
38:24 H3.60E3 A1.49E4
38:54 H1.11E3 A5.36E3
39:06 H551.75 A1.51E3
39:49 H345.68 A1.27E3
425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H2.04E3 A7.26E3
37:03 H6.87E3 A2.92E4
37:52 H6.68E3 A2.60E4
38:04 H399.27 A1.92E3
38:25 H1.30E3 A5.31E3
38:50 H516.97 A1.09E3
39:08 H442.02 A592.94
39:41 H579.00 A1.13E3
435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52 H1.11E6 A3.98E6
437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52 H1.05E6 A3.78E6
454.9728 S:8 F:4
36:16
36:38
36:49
37:24
37:50
38:00
38:13
38:29
38:36
38:48
39:01
39:11
39:19
39:35
39:53
100 %
50
0
36:00
37:00
38:00
39:00
40:00
Time
7.3E3
3.6E3
0.0E0
6.9E3
3.5E3
1.1E6
5.6E5
1.0E6
5.2E5
4.6E5
2.3E5

File:191111D1 #1-355 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 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)

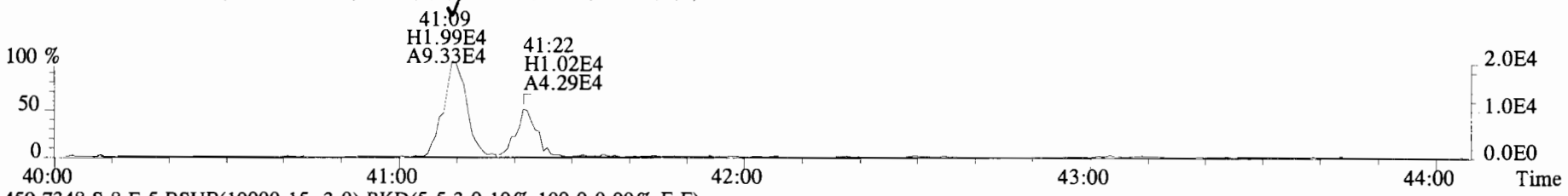


425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

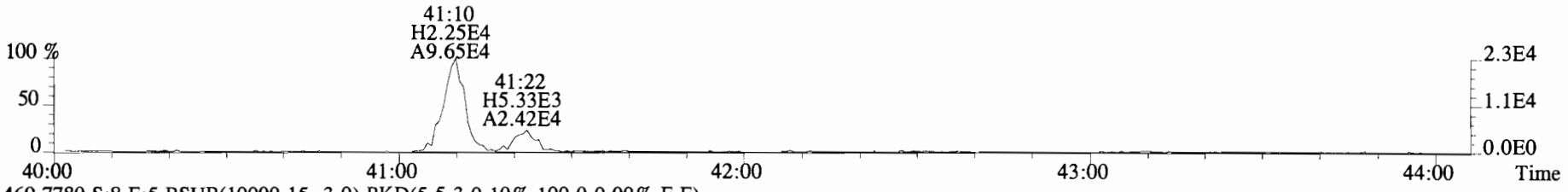


File:191111D1 #1-432 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5

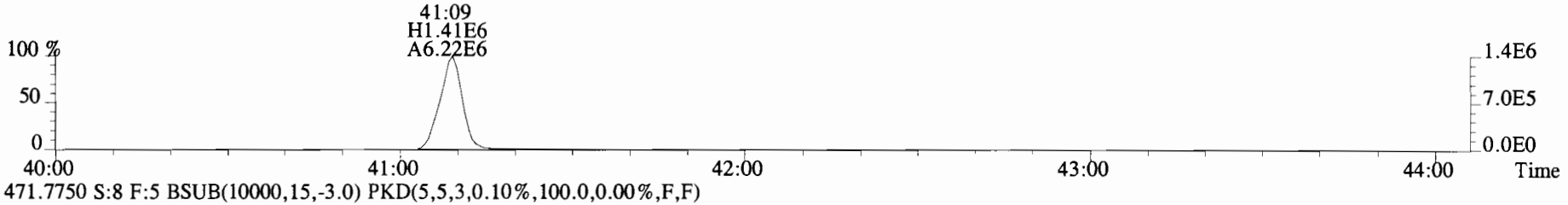
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



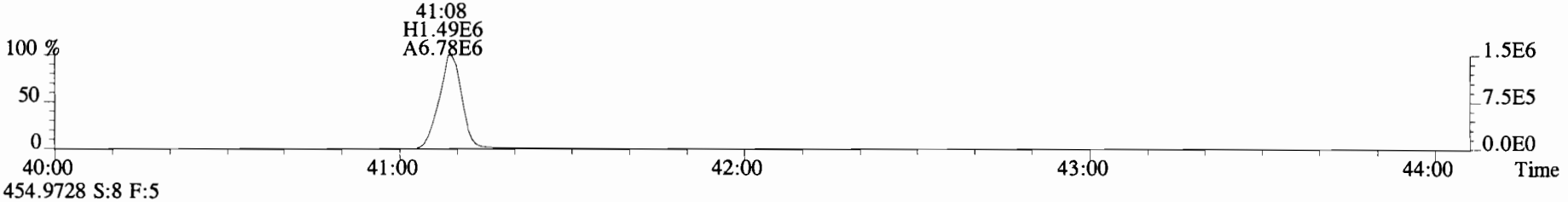
459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



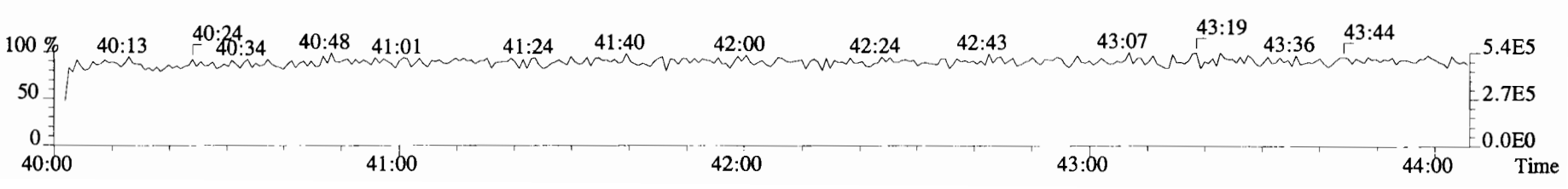
469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



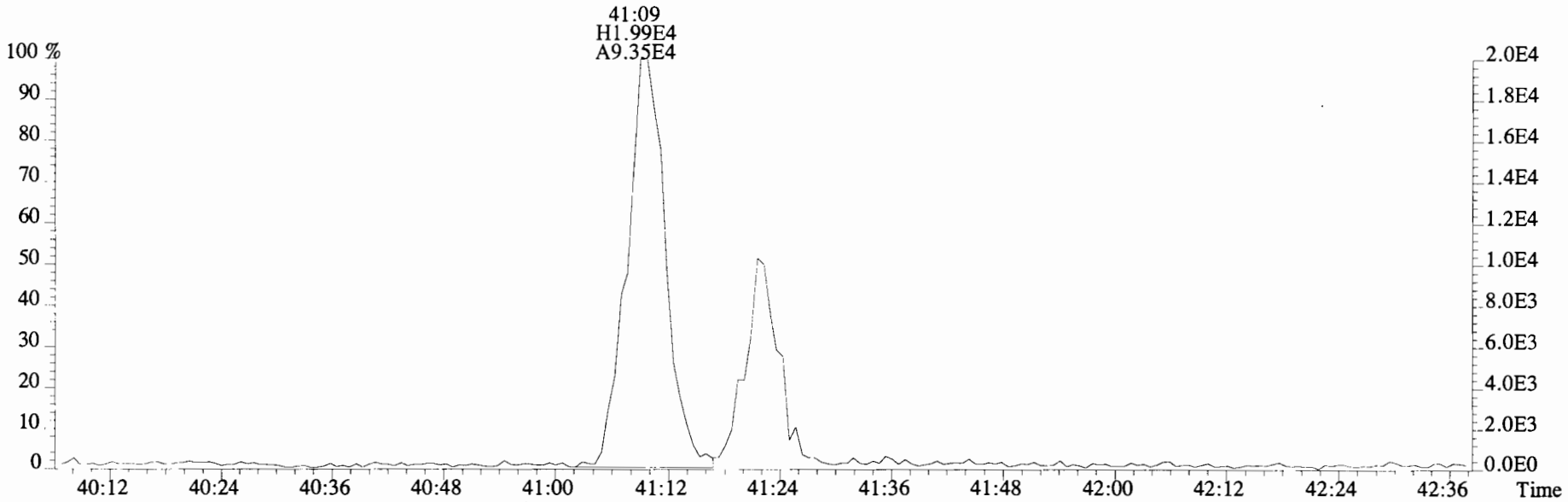
471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



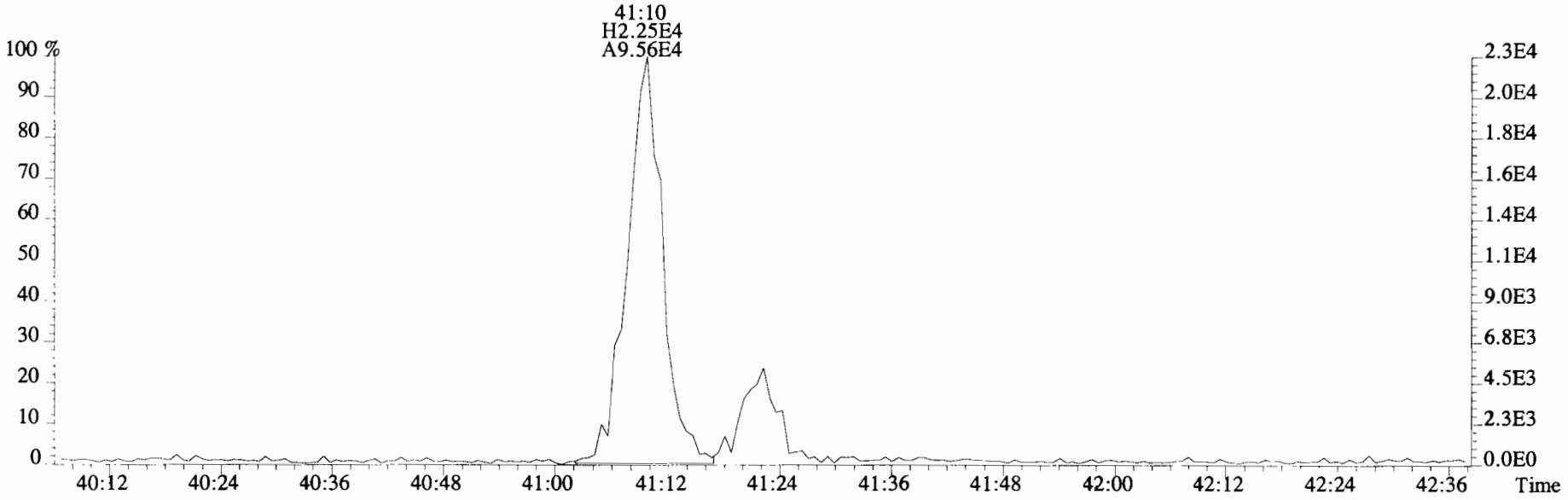
454.9728 S:8 F:5



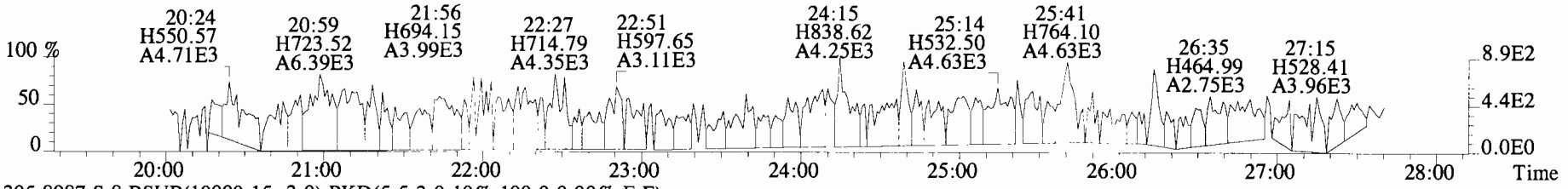
File:191111D1 #1-432 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



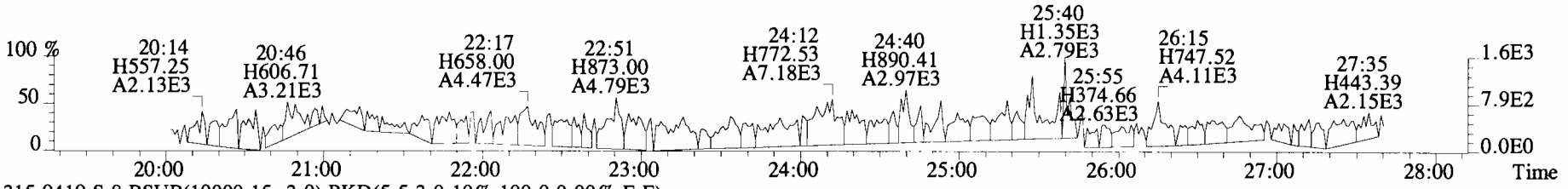
459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



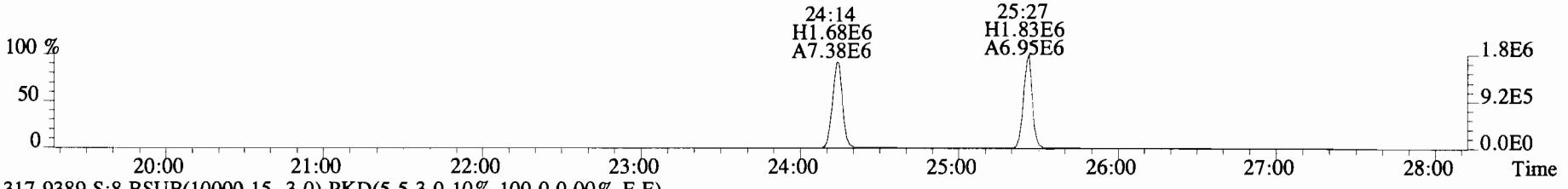
File:191111D1 #1-492 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



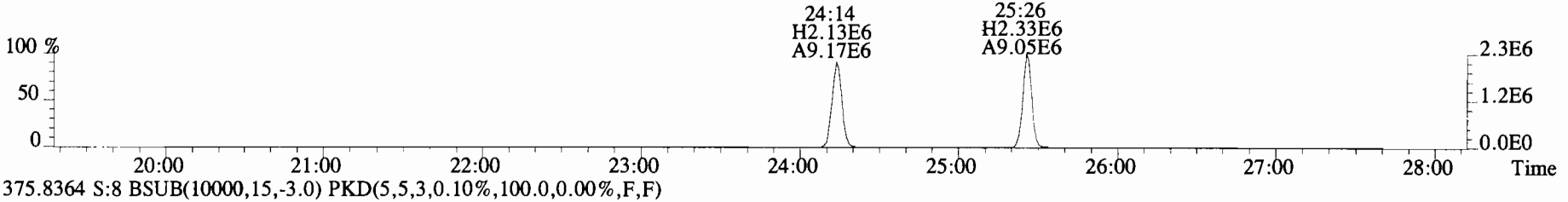
305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



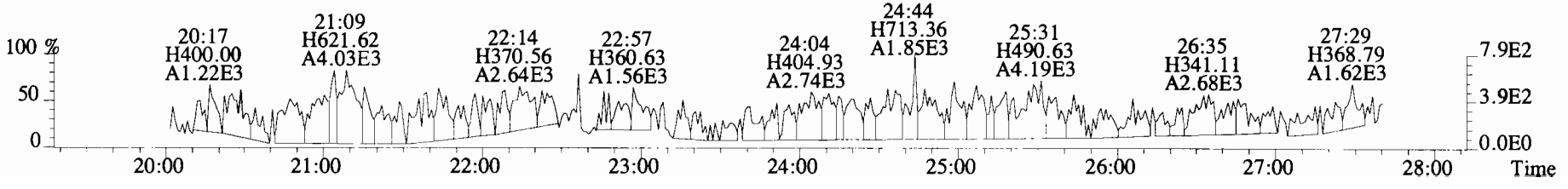
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



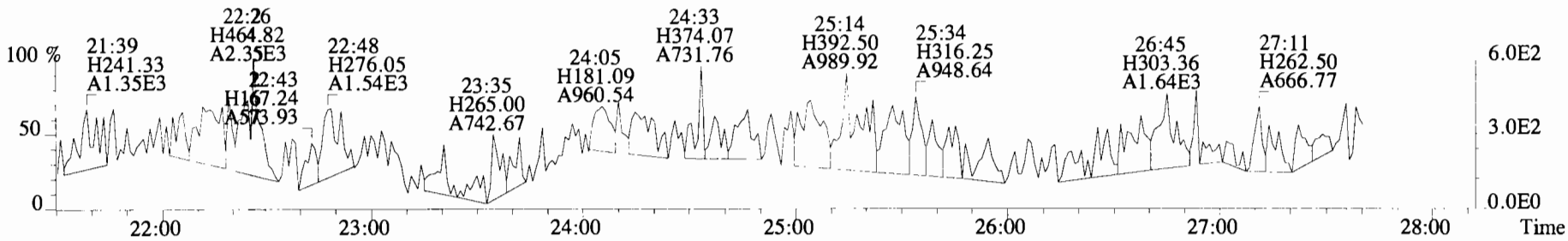
317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



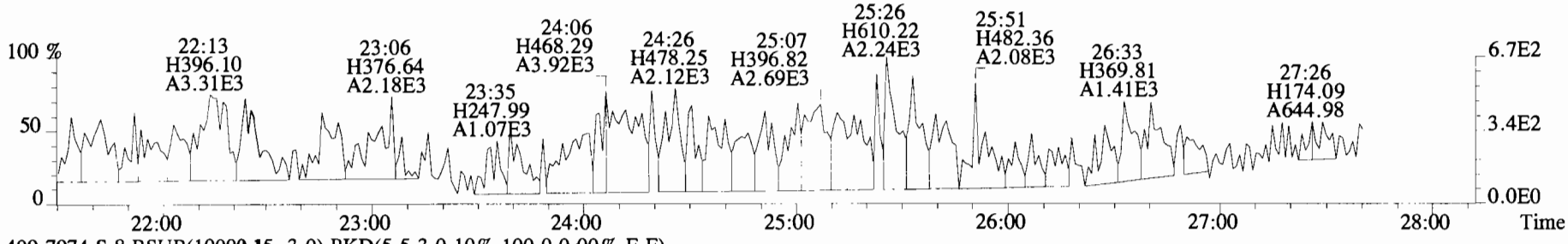
375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



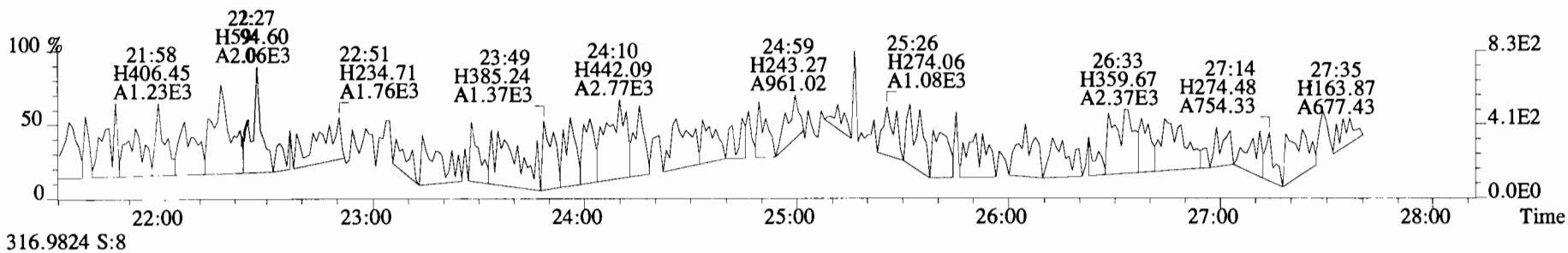
File:191111D1 #1-492 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



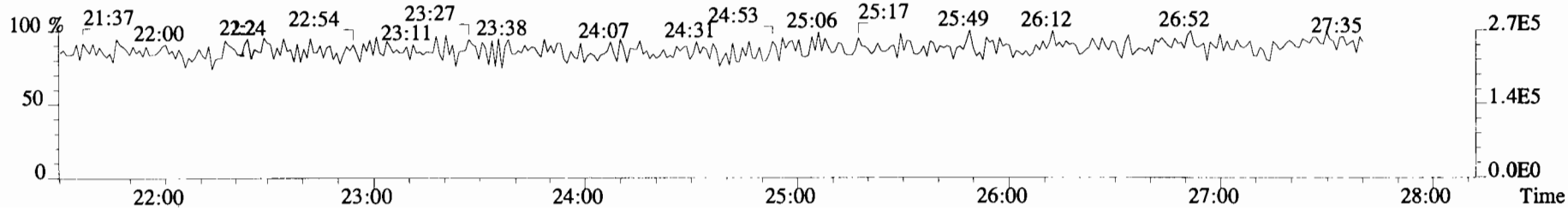
341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



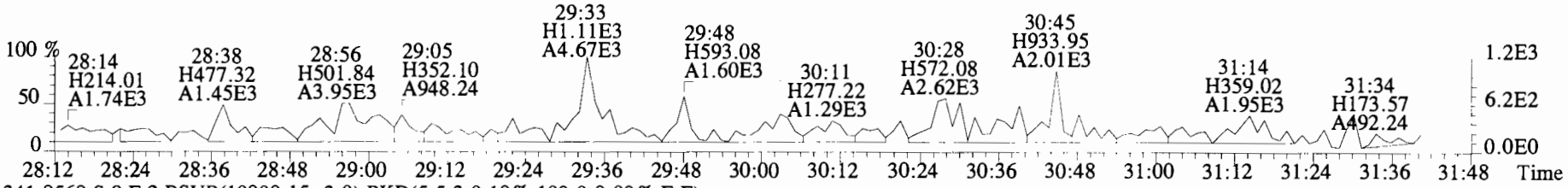
409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



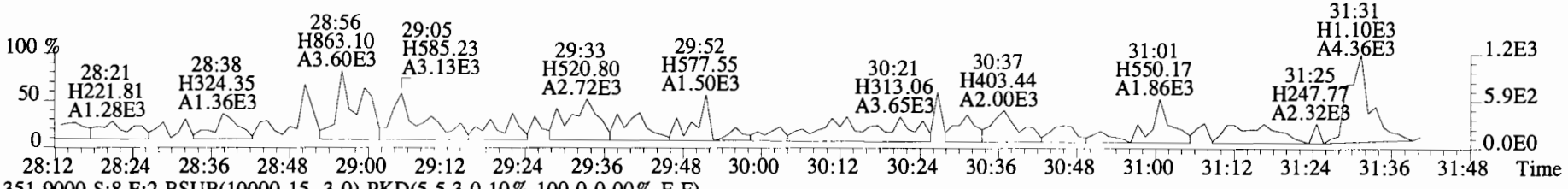
316.9824 S:8



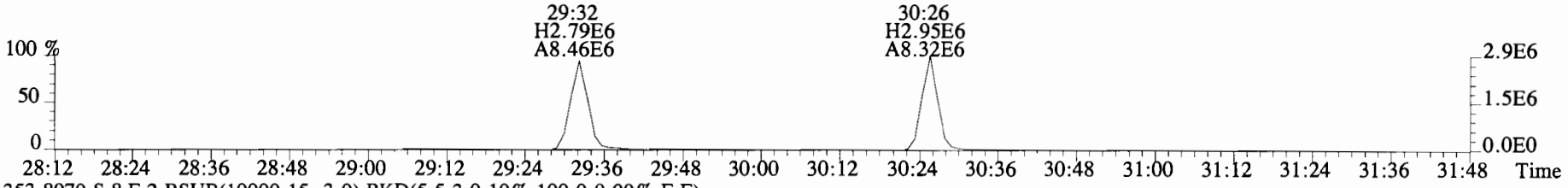
File:191111D1 #1-211 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



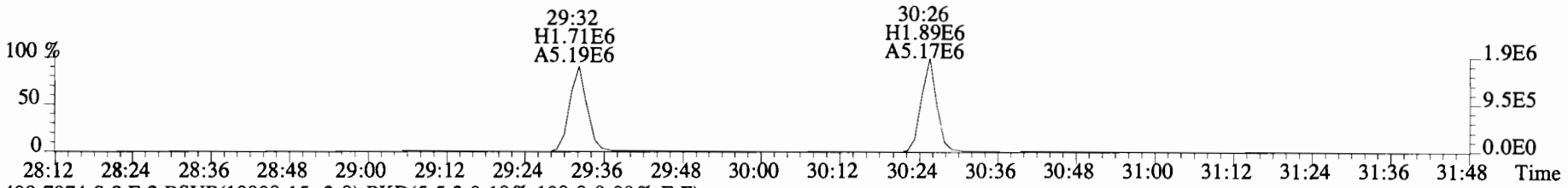
341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



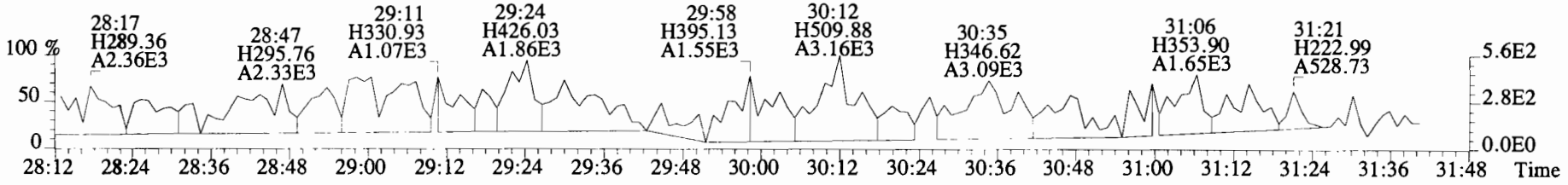
351.9000 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



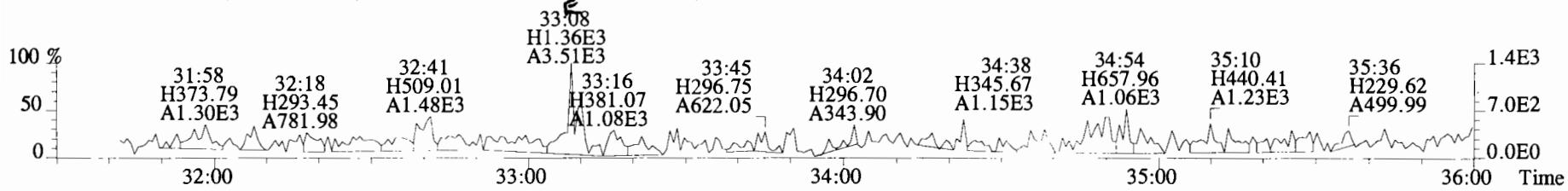
353.8970 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



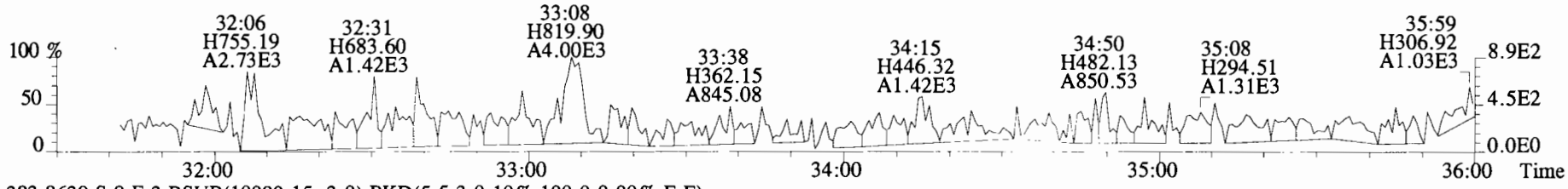
409.7974 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



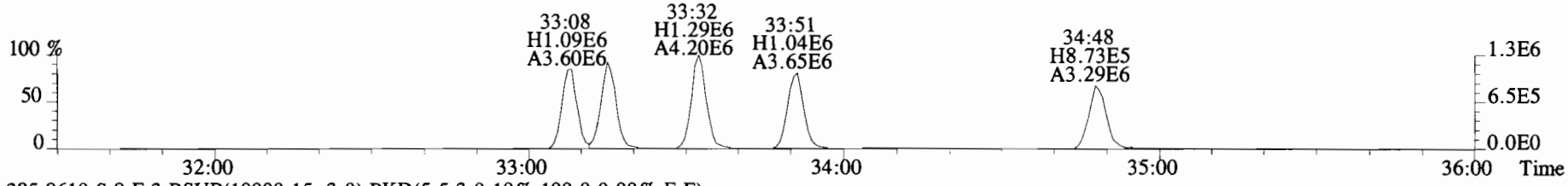
File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



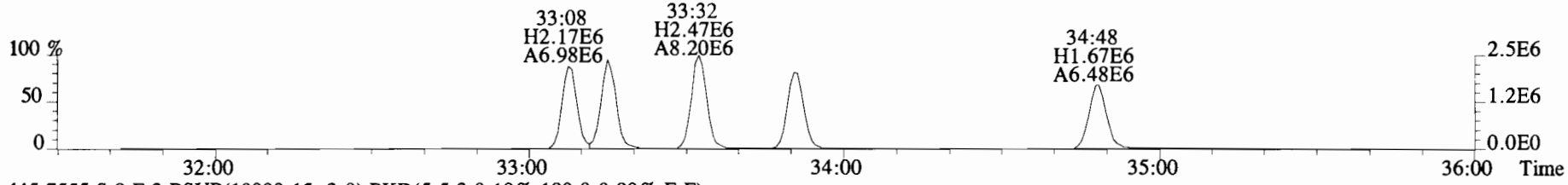
375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



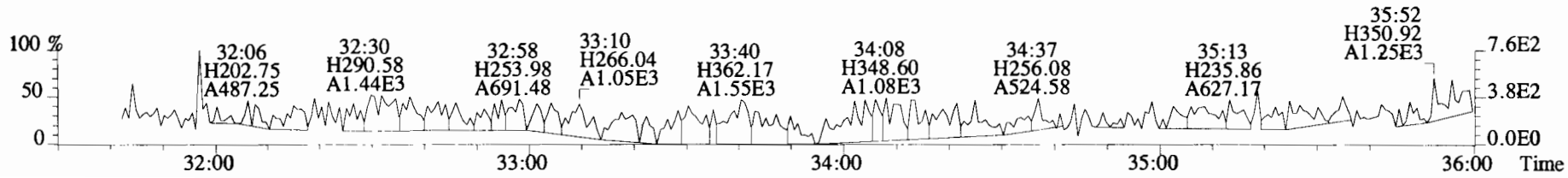
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



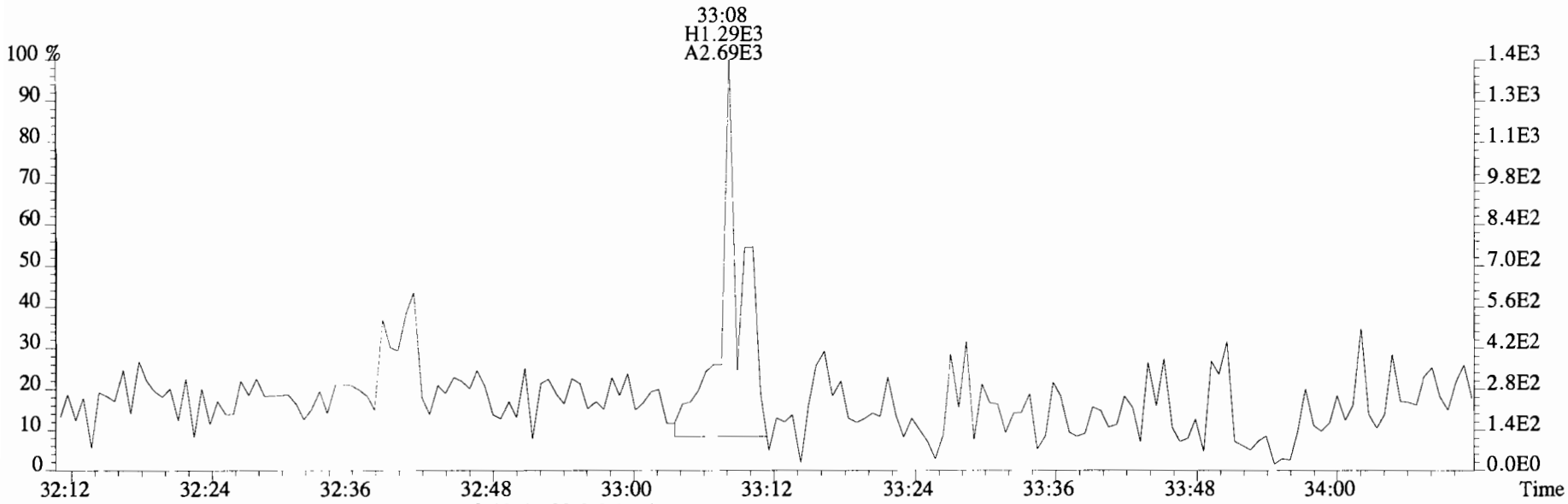
385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



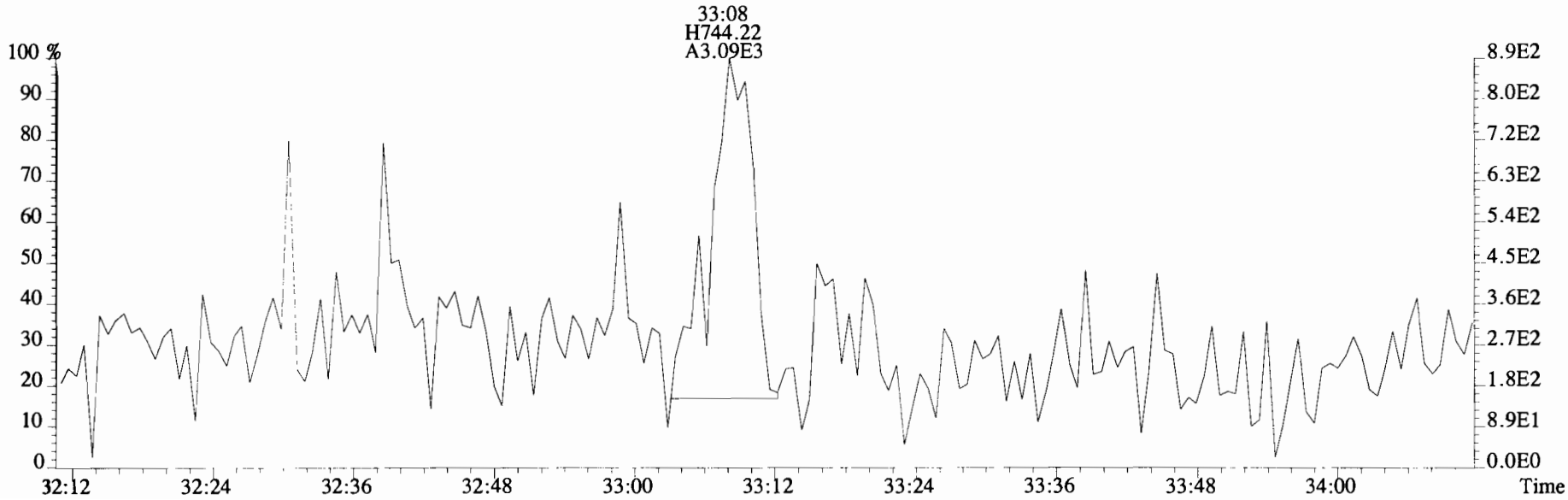
445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



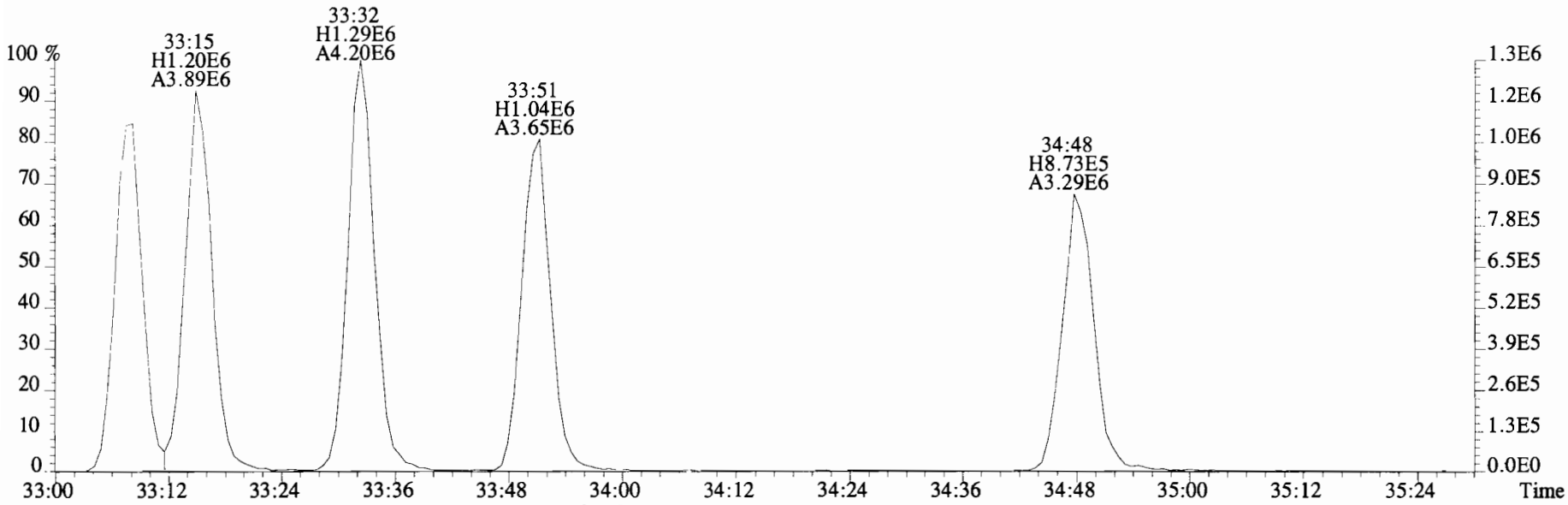
File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



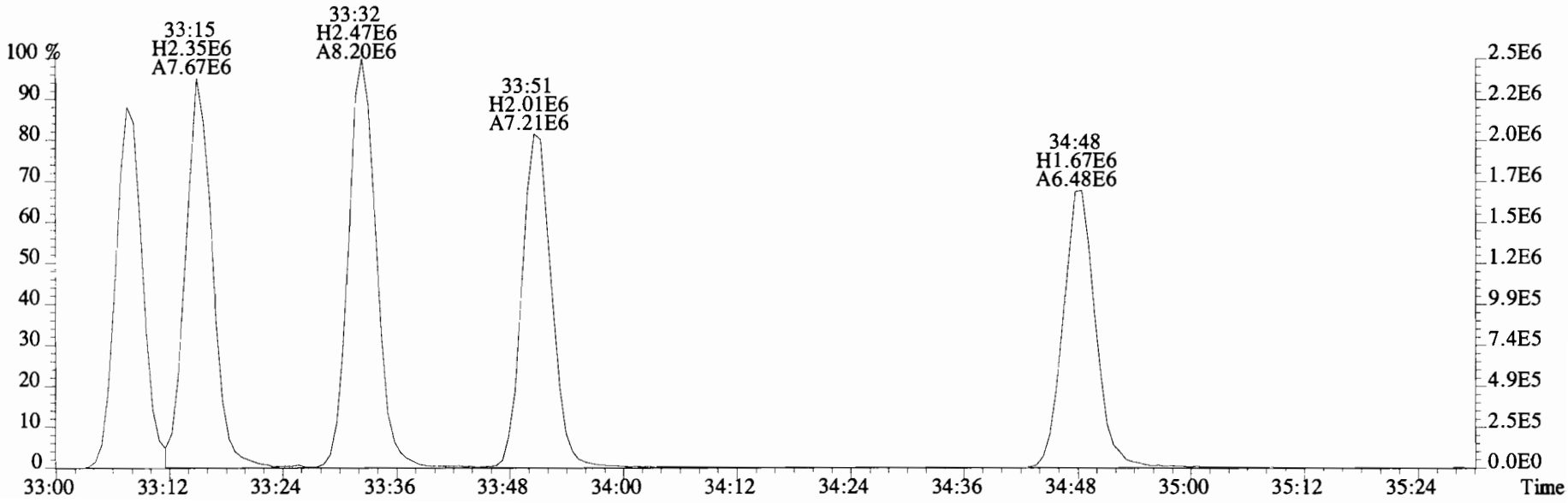
375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

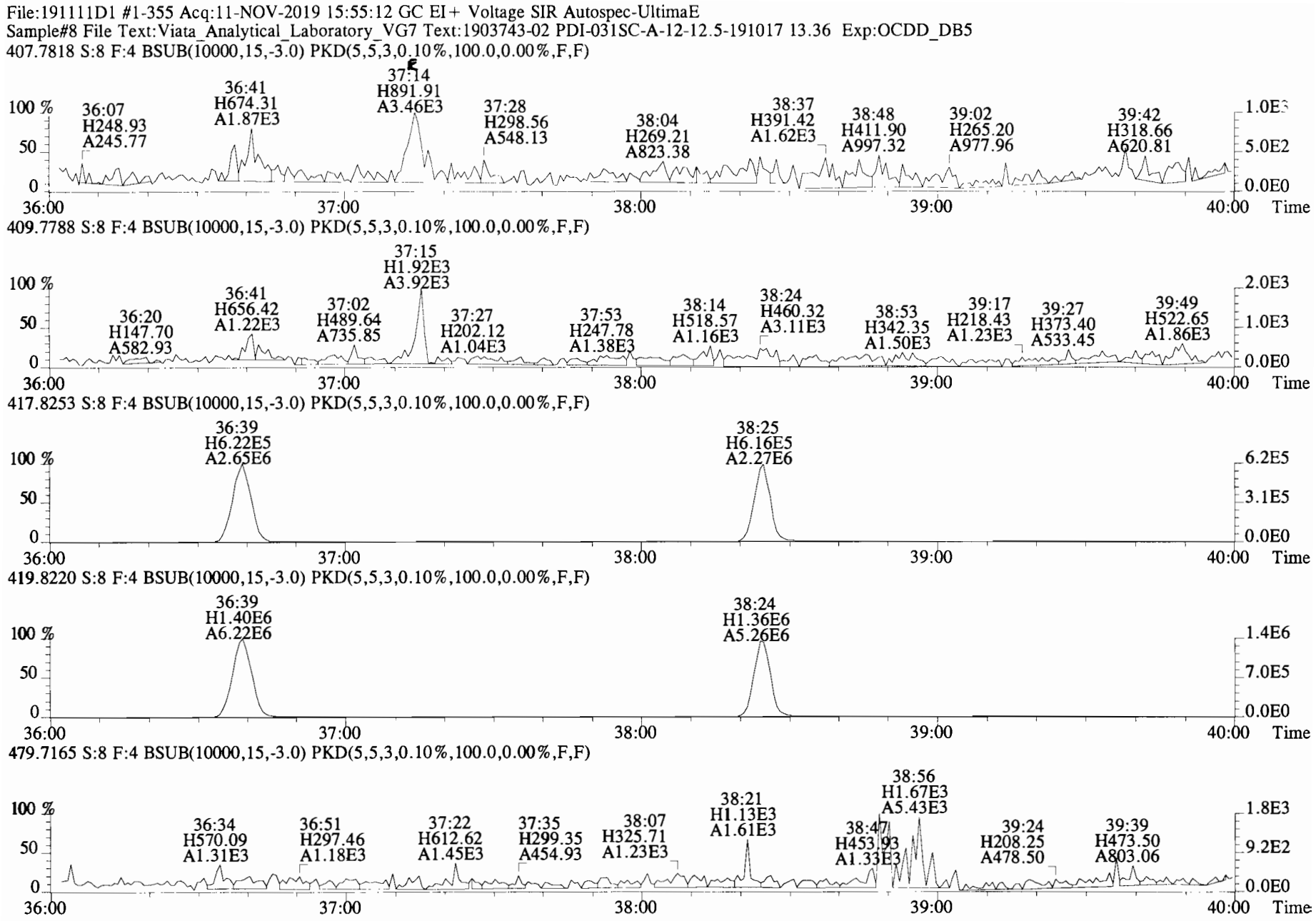


File:191111D1 #1-385 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

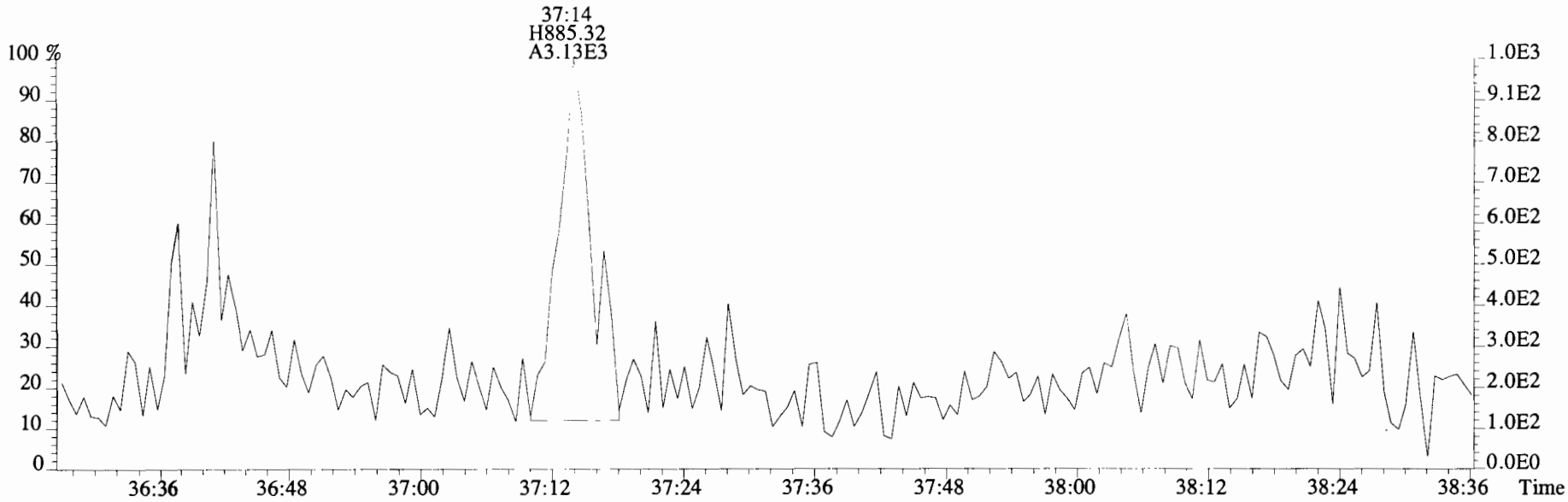


385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

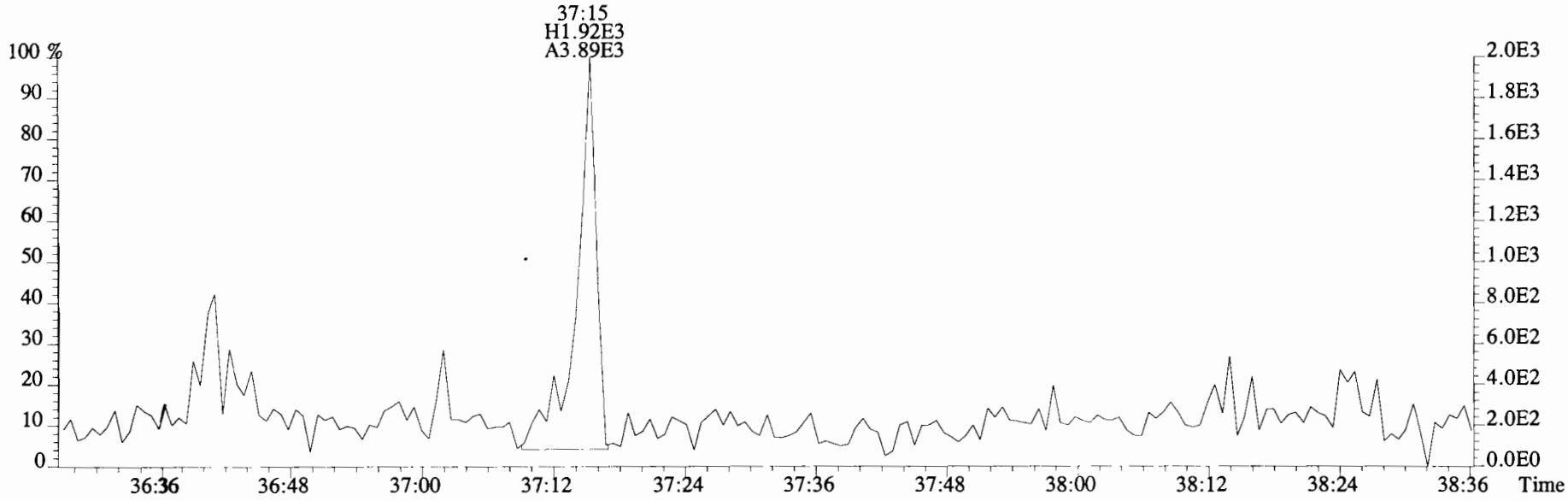



File:191111D1 #1-355 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5
407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:07 H248.93 A245.77
36:41 H674.31 A1.87E3
37:14 H891.91 A3.46E3
37:28 H298.56 A548.13
38:04 H269.21 A823.38
38:37 H391.42 A1.62E3
38:48 H411.90 A997.32
39:02 H265.20 A977.96
39:42 H318.66 A620.81
409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:20 H147.70 A582.93
36:41 H656.42 A1.22E3
37:02 H489.64 A735.85
37:15 H1.92E3 A3.92E3
37:27 H202.12 A1.04E3
37:53 H247.78 A1.38E3
38:14 H518.57 A1.16E3
38:24 H460.32 A3.11E3
38:53 H342.35 A1.50E3
39:17 H218.43 A1.23E3
39:27 H373.40 A533.45
39:49 H522.65 A1.86E3
417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H6.22E5 A2.65E6
38:25 H6.16E5 A2.27E6
419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:39 H1.40E6 A6.22E6
38:24 H1.36E6 A5.26E6
479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
36:34 H570.09 A1.31E3
36:51 H297.46 A1.18E3
37:22 H612.62 A1.45E3
37:35 H299.35 A454.93
38:07 H325.71 A1.23E3
38:21 H1.13E3 A1.61E3
38:47 H453.93 A1.33E3
38:56 H1.67E3 A5.43E3
39:24 H208.25 A478.50
39:39 H473.50 A803.06
100 %
50
0
36:00
37:00
38:00
39:00
40:00
Time

File:191111D1 #1-355 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 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)

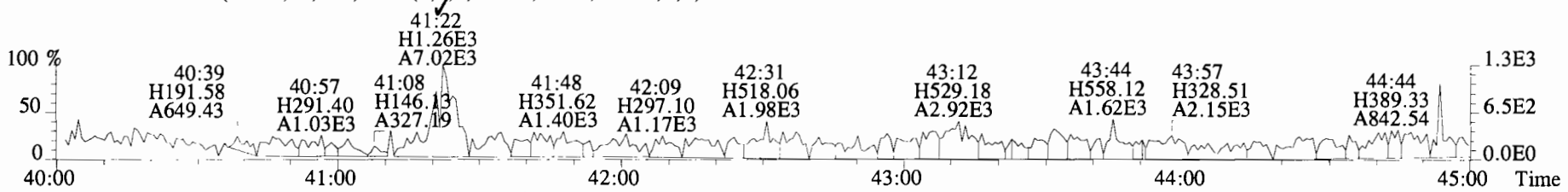


409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

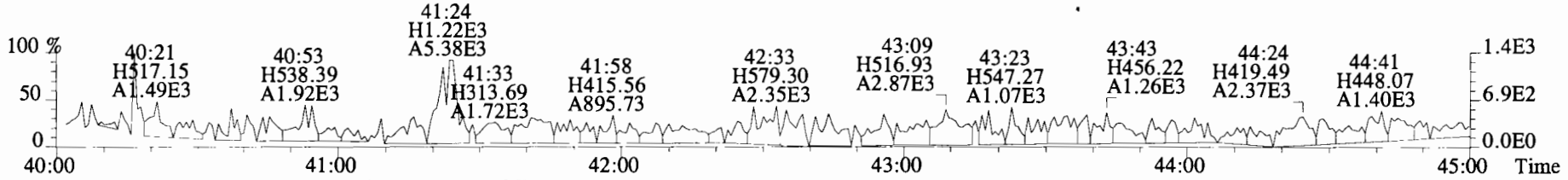


File:191111D1 #1-432 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 Exp:OCDD_DB5

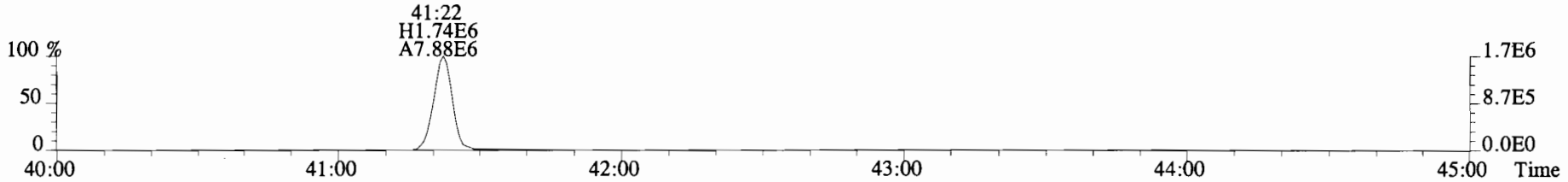
441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



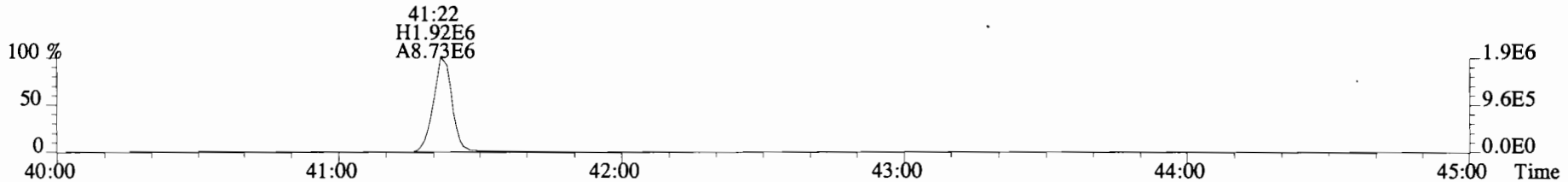
443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



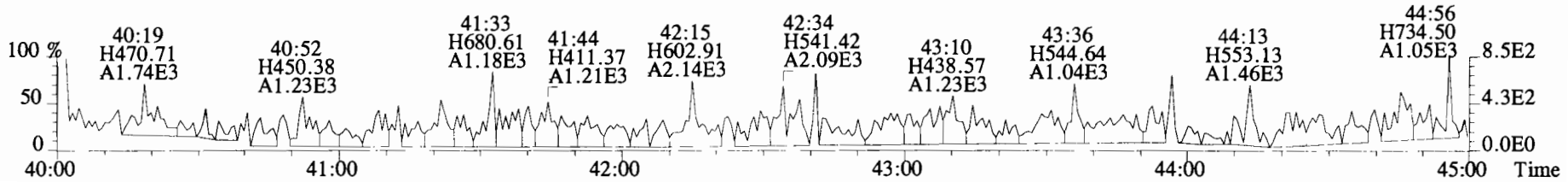
453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



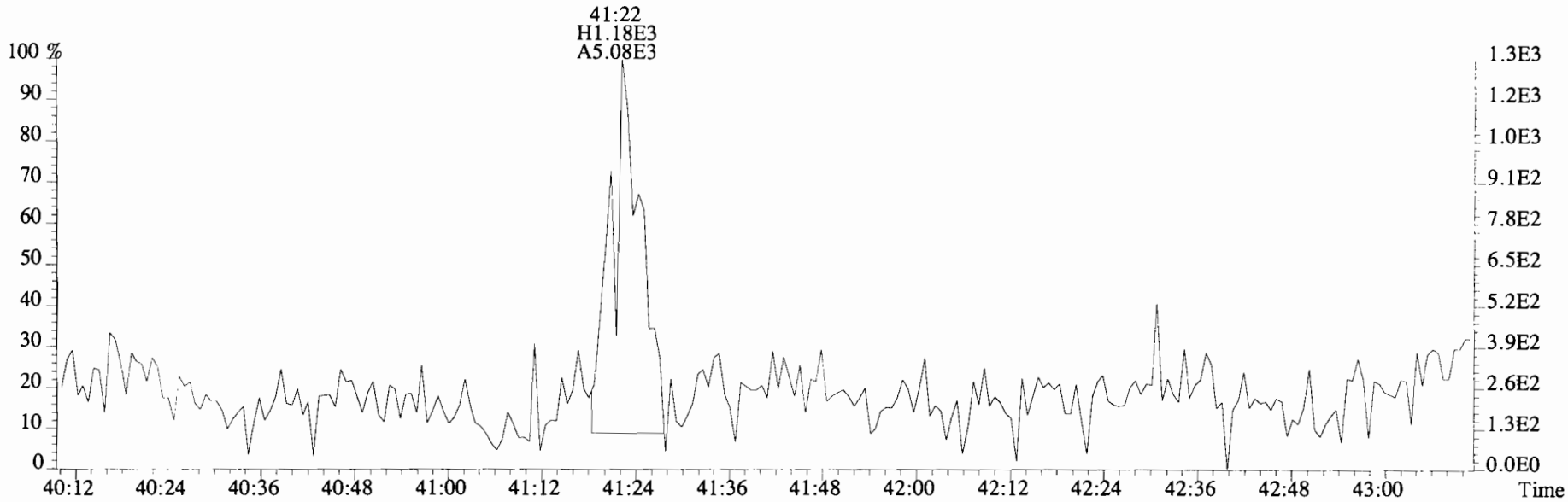
455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



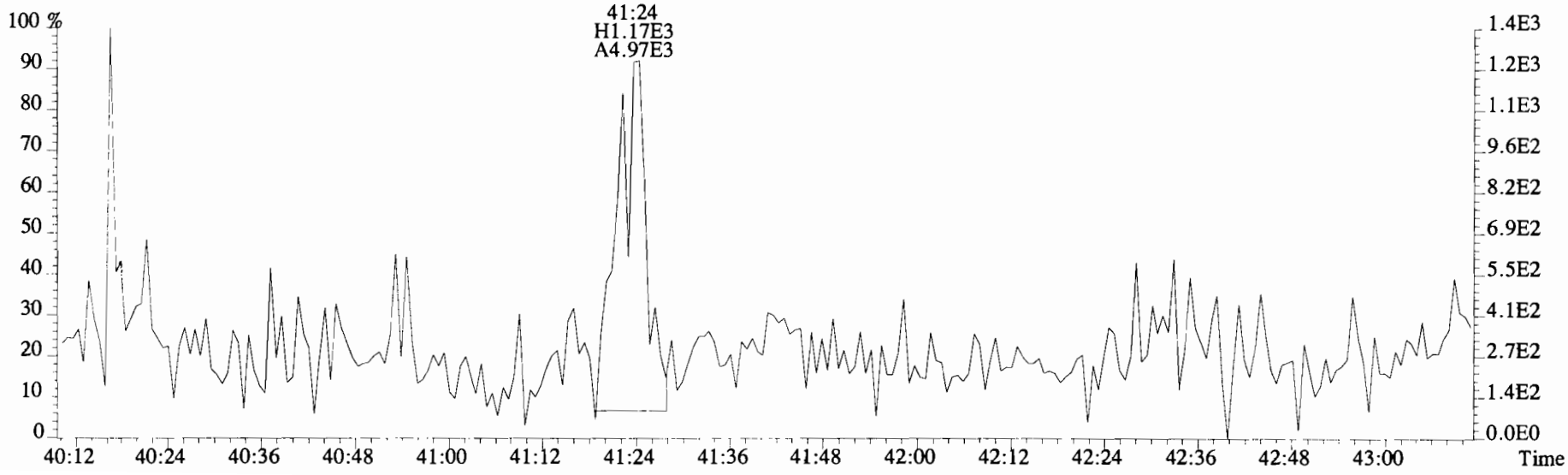
513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191111D1 #1-432 Acq:11-NOV-2019 15:55:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Viata_Analytical_Laboratory_VG7 Text:1903743-02 PDI-031SC-A-12-12.5-191017 13.36 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)



443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



CONTINUING CALIBRATION

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST191111D1-1 **Reviewed By:** CT 11/13/19

Initials & Date

End Calibration ID: NA

	Beg.	End
Ion abundance within QC limits?	☑	NA
Concentrations within criteria?	☑	☐
TCDD/TCDF Valleys <25%	☑	☐
First and last eluters present?	☑	☐
Retention Times within criteria?	☑	☐
Verification Std. named correctly?	☑	☐
(ST-Year-Month-Day-VG ID)		
Forms signed and dated?	☑	☐
Correct ICAL referenced?	DB	

	Beg.	End
Mass resolution ≥	☑	☑
☐ 5k ☐ 6-8K ☐ 8K ☑ 10K 1614 1699 429 1613/1668/8280		
Intergrated peaks display correctly?	☑	NA
GC Break <20%	NA	

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours — NA

Run Log:

	Beg.	End
- Correct instrument listed?	☑	☑
- Samples within 12 hour clock?	(Y)	N
- Bottle position verfied?	DB	

Comments:

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST191111D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	11.5	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	53.6	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	52.1	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	52.4	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	y	53.3	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	50.2	43.0 - 58.0
OCDD	M+2/M+4	0.89	0.76-1.02	y	104	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	y	9.82	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	y	51.8	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	50.8	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	49.6	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	50.1	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	50.5	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	y	49.3	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	y	50.1	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	y	49.6	43.0 - 58.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	101	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: 11/11/19

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: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

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	101	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	103	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	98.9	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	92.3	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	y	93.5	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	107	72.0 - 138.0
13C-OCDD	M/M+2	0.90	0.76-1.02	y	211	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.80	0.65-0.89	y	101	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	103	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	102	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	0.52	0.43-0.59	y	99.3	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	101	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	y	103	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	105	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	112	77.0 - 129.0
13C-OCDF	M+2/M+4	0.89	0.76-1.02	y	226	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.59	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: 11/11/19

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: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

ZB-5MS IS Data Filename: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

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)	22:50	1,3,6,8-TCDF (F)	20:43
1,2,8,9-TCDD (L)	27:05	1,2,8,9-TCDF (L)	27:13
1,2,4,7,9-PeCDD (F)	28:40	1,3,4,6,8-PeCDF (F)	27:11
1,2,3,8,9-PeCDD (L)	31:04	1,2,3,8,9-PeCDF (L)	31:19
1,2,4,6,7,9-HxCDD (F)	32:30	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)	34:49
1,2,3,4,6,7,9-HpCDD (F)	37:03	1,2,3,4,6,7,8-HpCDF (F)	36:40
1,2,3,4,6,7,8-HpCDD (L)	37:53	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

COMPARED PEAKS (1)	% VALLEY HEIGHT BETWEEN
	<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: 11/11/19

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: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

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

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	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	1.000	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	1.197	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.992	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	1.186	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: 11/11/19

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: 191111D1 S#1 Analysis Date: 11-NOV-19 Time: 10:19:32

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	1.001	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.992	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.038	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	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	1.129	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: 11/11/19

Client ID: 1613 CS3 19C2204 Filename: 191111D1 S:1 Acq:11-NOV-19 10:19:32 ConCal: ST191111D1-1

Lab ID: ST191111D1-1 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.35e+06	0.79 y	0.91	26:13	11.525			* 2.5	*
	1,2,3,7,8-PeCDD	5.14e+06	0.63 y	0.90	30:43	53.581			* 2.5	*
	1,2,3,4,7,8-HxCDD	5.45e+06	1.27 y	1.10	34:02	52.131			* 2.5	*
	1,2,3,6,7,8-HxCDD	5.81e+06	1.26 y	0.94	34:08	52.425			* 2.5	*
	1,2,3,7,8,9-HxCDD	5.77e+06	1.27 y	0.96	34:26	53.282			* 2.5	*
	1,2,3,4,6,7,8-HpCDD	5.14e+06	1.04 y	0.98	37:53	50.182			* 2.5	*
	OCDD	9.10e+06	0.89 y	0.96	41:09	103.97			* 2.5	*
	2,3,7,8-TCDF	1.81e+06	0.74 y	0.95	25:26	9.8187			* 2.5	*
	1,2,3,7,8-PeCDF	8.12e+06	1.57 y	0.96	29:32	51.845			* 2.5	*
	2,3,4,7,8-PeCDF	8.24e+06	1.61 y	1.01	30:26	50.767			* 2.5	*
	1,2,3,4,7,8-HxCDF	7.41e+06	1.22 y	1.18	33:08	49.598			* 2.5	*
	1,2,3,6,7,8-HxCDF	8.21e+06	1.22 y	1.07	33:16	50.088			* 2.5	*
	2,3,4,6,7,8-HxCDF	8.07e+06	1.22 y	1.11	33:52	50.498			* 2.5	*
	1,2,3,7,8,9-HxCDF	6.64e+06	1.23 y	1.06	34:49	49.257			* 2.5	*
	1,2,3,4,6,7,8-HpCDF	6.68e+06	1.03 y	1.13	36:39	50.069			* 2.5	*
	1,2,3,4,7,8,9-HpCDF	6.19e+06	1.03 y	1.28	38:25	49.567			* 2.5	*
	OCDF	1.12e+07	0.91 y	0.95	41:23	101.21			* 2.5	*
IS	13C-2,3,7,8-TCDD	1.30e+07	0.79 y	1.10	26:12	101.03				
IS	13C-1,2,3,7,8-PeCDD	1.06e+07	0.62 y	0.88	30:42	102.93				
IS	13C-1,2,3,4,7,8-HxCDD	9.49e+06	1.28 y	0.64	34:01	98.947				
IS	13C-1,2,3,6,7,8-HxCDD	1.18e+07	1.27 y	0.86	34:08	92.311				
IS	13C-1,2,3,7,8,9-HxCDD	1.13e+07	1.27 y	0.81	34:26	93.524				
IS	13C-1,2,3,4,6,7,8-HpCDD	1.05e+07	1.04 y	0.65	37:52	107.02				
IS	13C-OCDD	1.83e+07	0.90 y	0.58	41:09	210.85				
IS	13C-2,3,7,8-TCDF	1.94e+07	0.80 y	1.03	25:26	100.99				
IS	13C-1,2,3,7,8-PeCDF	1.63e+07	1.58 y	0.85	29:32	102.91				
IS	13C-2,3,4,7,8-PeCDF	1.60e+07	1.61 y	0.85	30:25	101.78				
IS	13C-1,2,3,4,7,8-HxCDF	1.27e+07	0.51 y	0.83	33:07	102.14				
IS	13C-1,2,3,6,7,8-HxCDF	1.53e+07	0.52 y	1.03	33:15	99.266				
IS	13C-2,3,4,6,7,8-HxCDF	1.43e+07	0.52 y	0.95	33:51	100.71				
IS	13C-1,2,3,7,8,9-HxCDF	1.27e+07	0.52 y	0.83	34:48	102.70				
IS	13C-1,2,3,4,6,7,8-HpCDF	1.18e+07	0.43 y	0.76	36:39	104.60				
IS	13C-1,2,3,4,7,8,9-HpCDF	9.76e+06	0.44 y	0.58	38:24	112.46				
IS	13C-OCDF	2.33e+07	0.89 y	0.69	41:22	226.13				
C/Up	37Cl-2,3,7,8-TCDD	1.34e+06		1.20	26:13	9.5950				
RS/RT	13C-1,2,3,4-TCDD	1.17e+07	0.80 y	1.00	25:39	100.00				
RS	13C-1,2,3,4-TCDF	1.85e+07	0.81 y	1.00	24:13	100.00				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.49e+07	0.51 y	1.00	33:32	100.00				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	79.2	79.7		*	*
Total Penta-Dioxins	201	201		*	*
Total Hexa-Dioxins	232	234		*	*
Total Hepta-Dioxins	116	117		*	*
Total Tetra-Furans	38.6	39.3		*	*
Total Penta-Furans	224.39	224.88		*	*
Total Hexa-Furans	266	267		*	*
Total Hepta-Furans	100	101		*	*

		Rec	Qual
IS	13C-2,3,7,8-TCDD	101	
IS	13C-1,2,3,7,8-PeCDD	103	
IS	13C-1,2,3,4,7,8-HxCDD	98.9	
IS	13C-1,2,3,6,7,8-HxCDD	92.3	
IS	13C-1,2,3,7,8,9-HxCDD	93.5	
IS	13C-1,2,3,4,6,7,8-HpCDD	107	
IS	13C-OCDD	105	
IS	13C-2,3,7,8-TCDF	101	
IS	13C-1,2,3,7,8-PeCDF	103	
IS	13C-2,3,4,7,8-PeCDF	102	
IS	13C-1,2,3,4,7,8-HxCDF	102	
IS	13C-1,2,3,6,7,8-HxCDF	99.3	
IS	13C-2,3,4,6,7,8-HxCDF	101	
IS	13C-1,2,3,7,8,9-HxCDF	103	
IS	13C-1,2,3,4,6,7,8-HpCDF	105	
IS	13C-1,2,3,4,7,8,9-HpCDF	112	
IS	13C-OCDF	113	
C/Up	37Cl-2,3,7,8-TCDD	95.9	

Integrations by Analyst: DB Date: 11/11/19

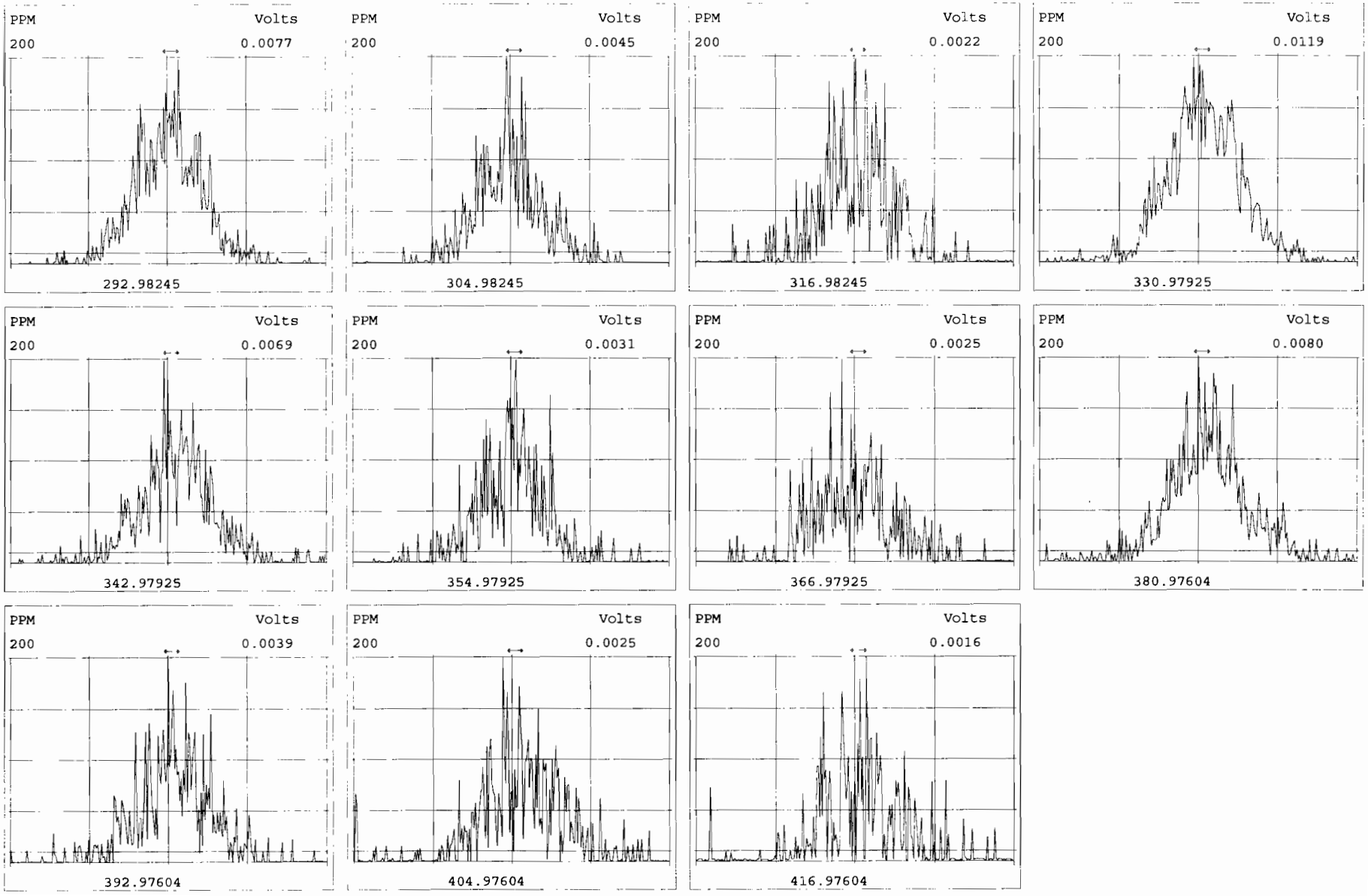
Reviewed by Analyst: CT Date: 11/13/19

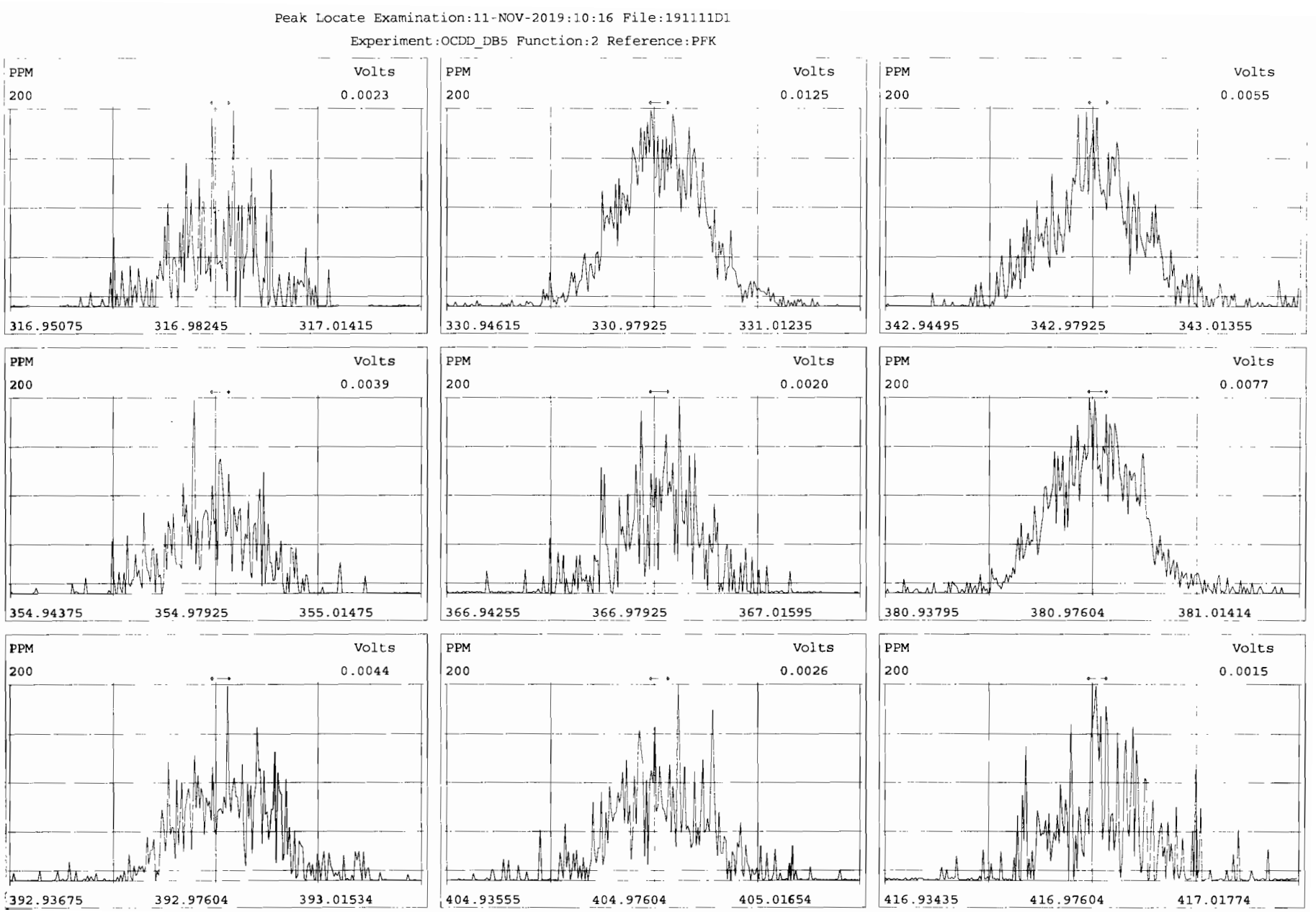
Vista Analytical Laboratory - Injection Log Run file: 191111D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

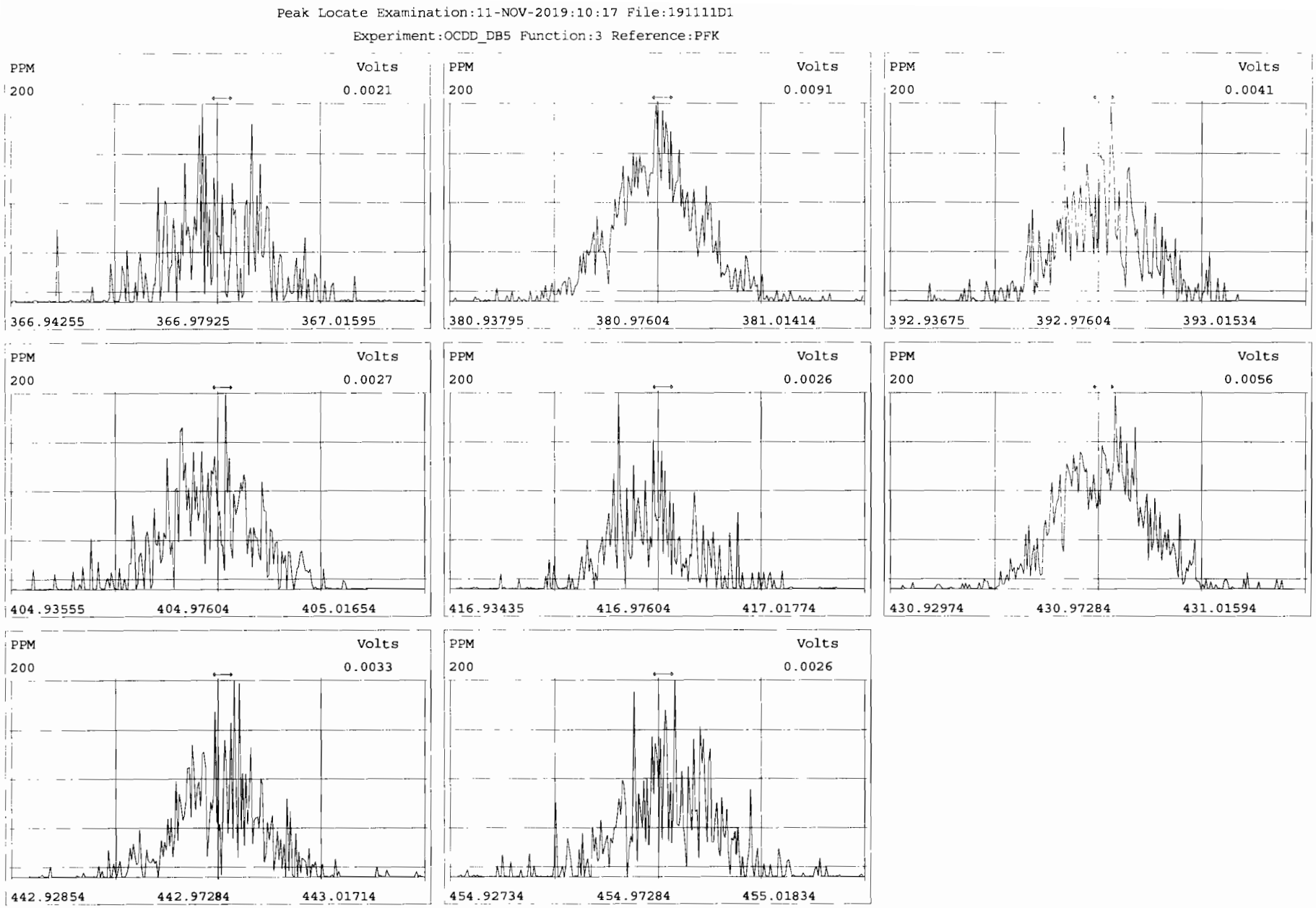
Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191111D1	1	ST191111D1-1	DB	11-NOV-19	10:19:32	ST191111D1-1	NA
191111D1	2	B9J0332-BS1	DB	11-NOV-19	11:07:28	ST191111D1-1	NA
191111D1	3	SOLVENT BLANK	DB	11-NOV-19	11:55:24	ST191111D1-1	NA
191111D1	4	B9J0332-BLK1	DB	11-NOV-19	12:43:25	ST191111D1-1	NA
191111D1	5	B9J0144-DUP1	DB	11-NOV-19	13:31:22	ST191111D1-1	NA
191111D1	6	1903431-09	DB	11-NOV-19	14:19:19	ST191111D1-1	NA
191111D1	7	1903743-01	DB	11-NOV-19	15:07:15	ST191111D1-1	NA
191111D1	8	1903743-02	DB	11-NOV-19	15:55:12	ST191111D1-1	NA
191111D1	9	1903645-01	DB	11-NOV-19	16:43:10	ST191111D1-1	NA
191111D1	10	1903645-03	DB	11-NOV-19	17:30:56	ST191111D1-1	NA
191111D1	11	1903645-02	DB	11-NOV-19	18:18:51	ST191111D1-1	NA
191111D1	12	1903645-04	DB	11-NOV-19	19:06:37	ST191111D1-1	NA
191111D1	13	1903645-05	DB	11-NOV-19	19:54:22	ST191111D1-1	NA
191111D1	14	1903645-06	DB	11-NOV-19	20:42:07	ST191111D1-1	NA
191111D1	15	1903645-07	DB	11-NOV-19	21:29:52	ST191111D1-1	NA

Peak Locate Examination:11-NOV-2019:10:16 File:191111D1

Experiment:OCDD_DB5 Function:1 Reference:PFK

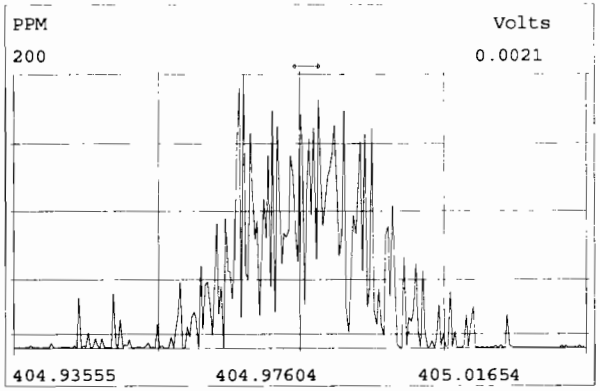


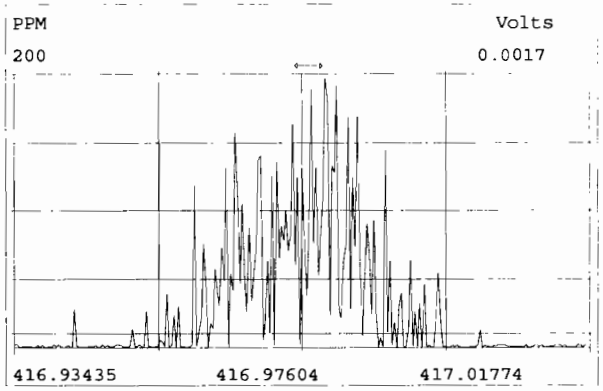

Peak Locate Examination:11-NOV-2019:10:16 File:191111D1
Experiment:OCDD_DB5 Function:2 Reference:PFK
PPM
Volts
200
0.0023
316.95075
316.98245
317.01415
PPM
Volts
200
0.0125
330.94615
330.97925
331.01235
PPM
Volts
200
0.0055
342.94495
342.97925
343.01355
PPM
Volts
200
0.0039
354.94375
354.97925
355.01475
PPM
Volts
200
0.0020
366.94255
366.97925
367.01595
PPM
Volts
200
0.0077
380.93795
380.97604
381.01414
PPM
Volts
200
0.0044
392.93675
392.97604
393.01534
PPM
Volts
200
0.0026
404.93555
404.97604
405.01654
PPM
Volts
200
0.0015
416.93435
416.97604
417.01774

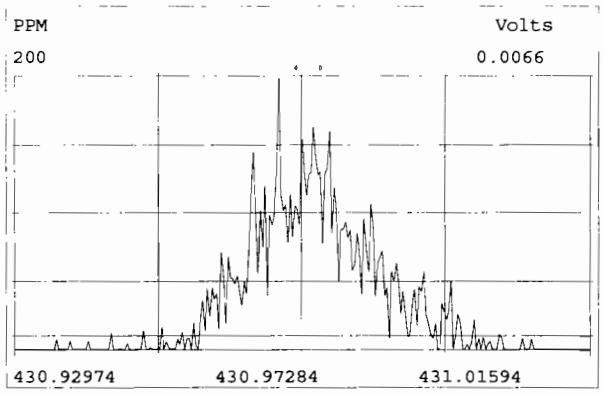

Peak Locate Examination:11-NOV-2019:10:17 File:191111D1
Experiment:OCDD_DB5 Function:3 Reference:PFK
PPM
Volts
200
0.0021
366.94255
366.97925
367.01595
PPM
Volts
200
0.0091
380.93795
380.97604
381.01414
PPM
Volts
200
0.0041
392.93675
392.97604
393.01534
PPM
Volts
200
0.0027
404.93555
404.97604
405.01654
PPM
Volts
200
0.0026
416.93435
416.97604
417.01774
PPM
Volts
200
0.0056
430.92974
430.97284
431.01594
PPM
Volts
200
0.0033
442.92854
442.97284
443.01714
PPM
Volts
200
0.0026
454.92734
454.97284
455.01834

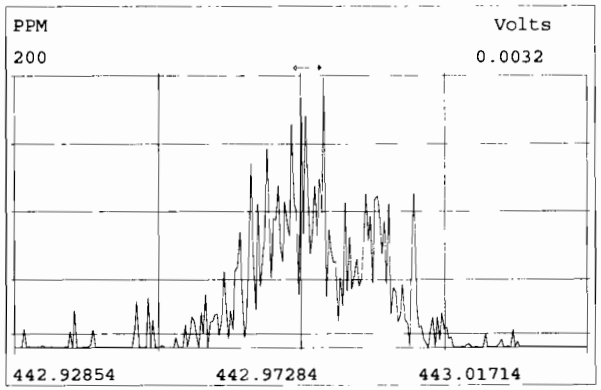
Peak Locate Examination:11-NOV-2019:10:18 File:191111D1

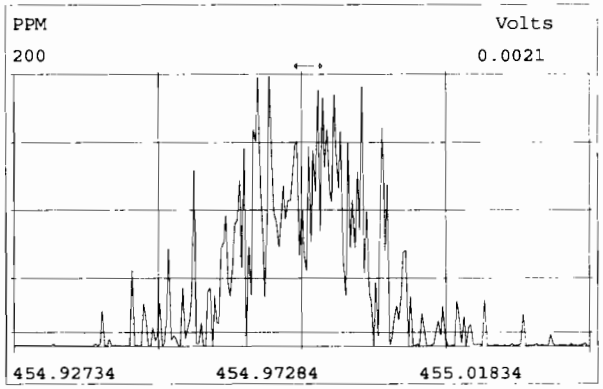
Experiment:OCDD_DB5 Function:4 Reference:PFK

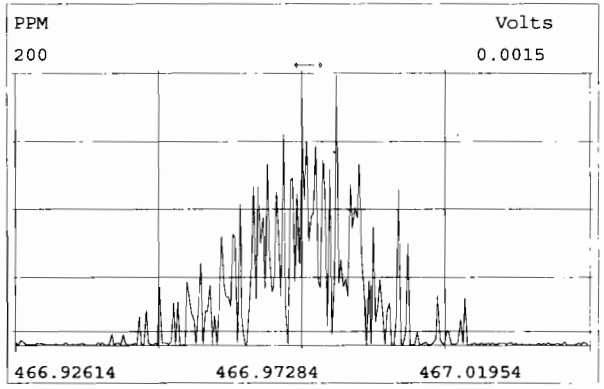


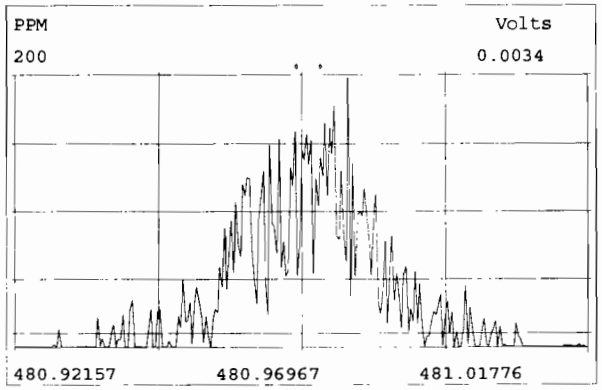


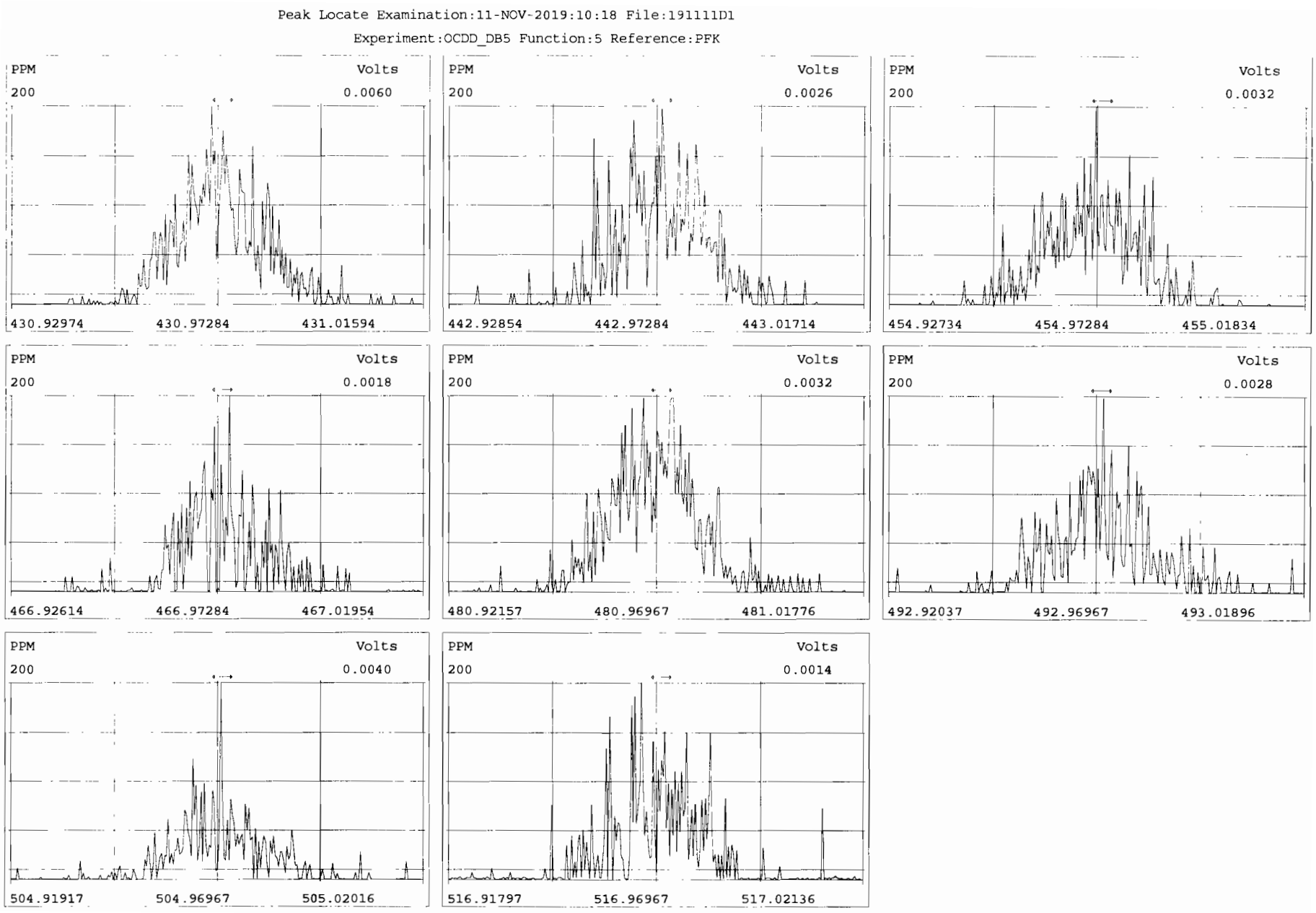




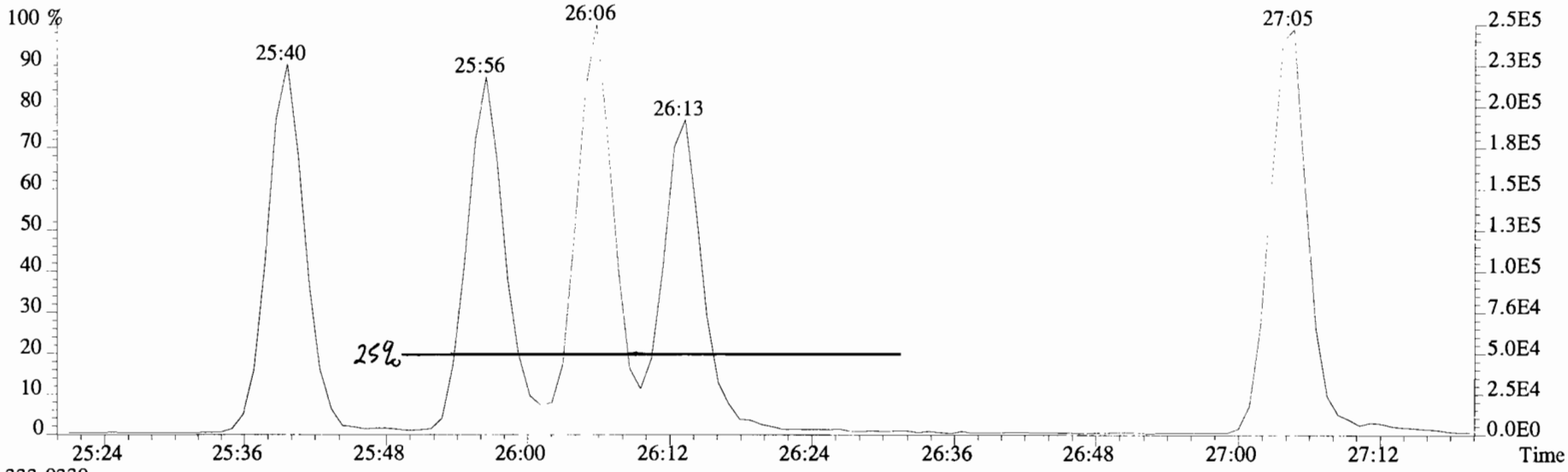




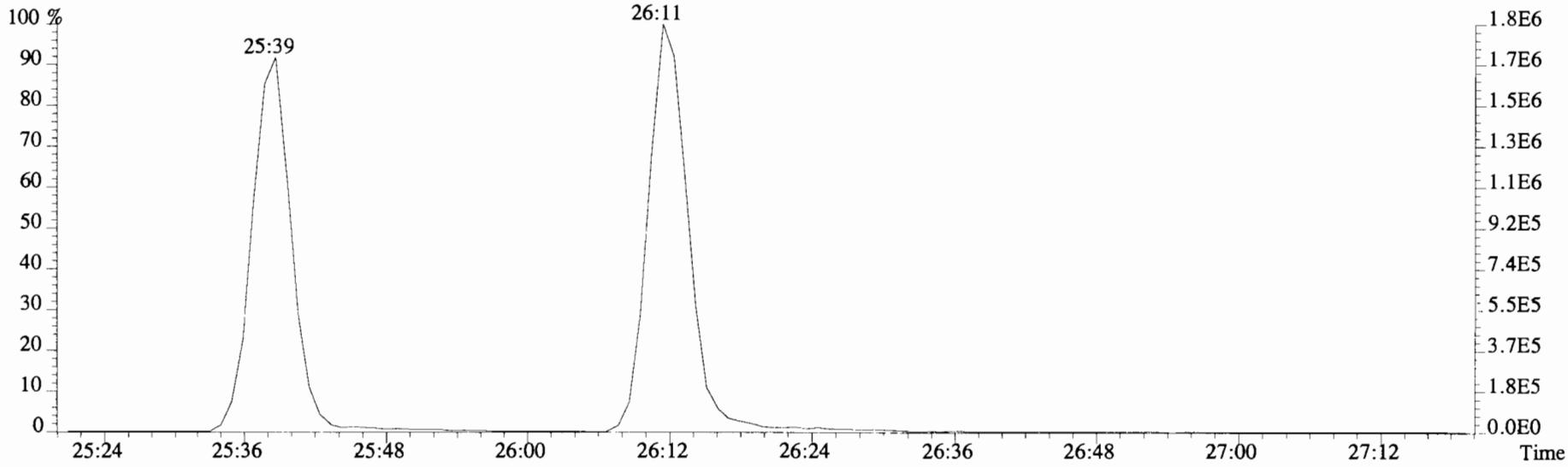



Peak Locate Examination:11-NOV-2019:10:18 File:191111D1
Experiment:OCDD_DB5 Function:5 Reference:PFK
PPM
Volts
200
0.0060
430.92974
430.97284
431.01594
PPM
Volts
200
0.0026
442.92854
442.97284
443.01714
PPM
Volts
200
0.0032
454.92734
454.97284
455.01834
PPM
Volts
200
0.0018
466.92614
466.97284
467.01954
PPM
Volts
200
0.0032
480.92157
480.96967
481.01776
PPM
Volts
200
0.0028
492.92037
492.96967
493.01896
PPM
Volts
200
0.0040
504.91917
504.96967
505.02016
PPM
Volts
200
0.0014
516.91797
516.96967
517.02136

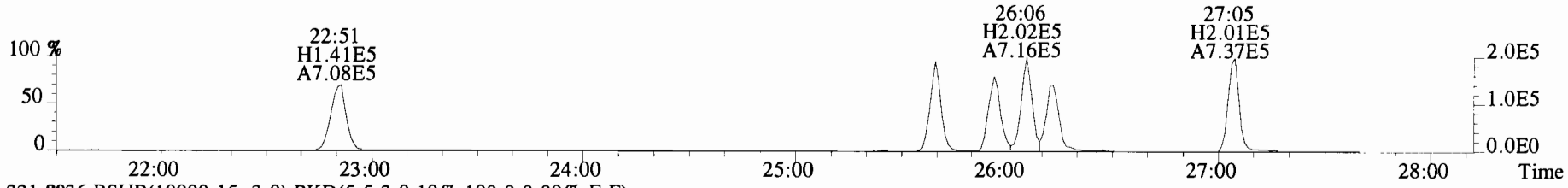
File:191111D1 #1-492 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936



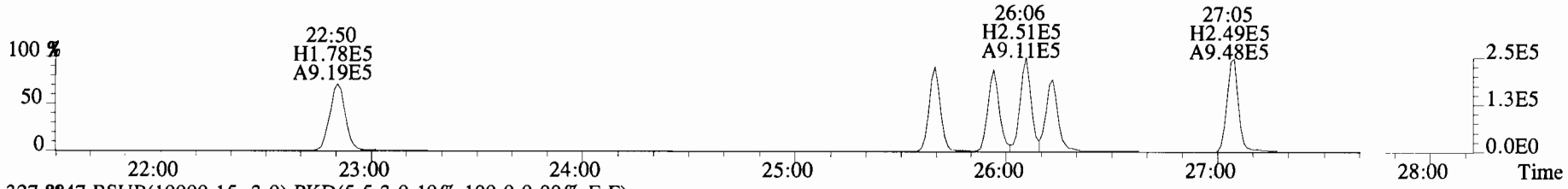
333.9339



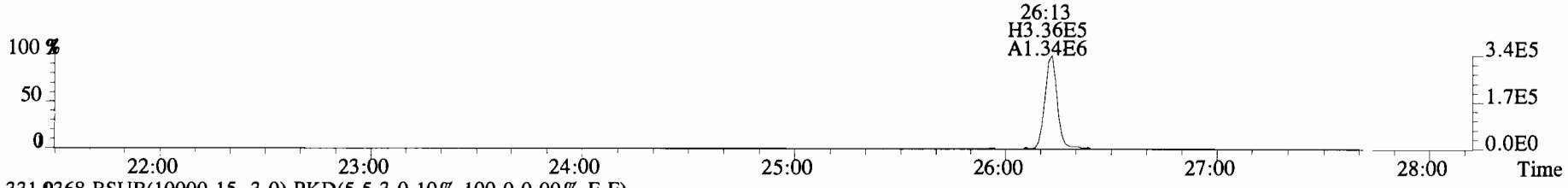
File:191111D1 #1-492 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



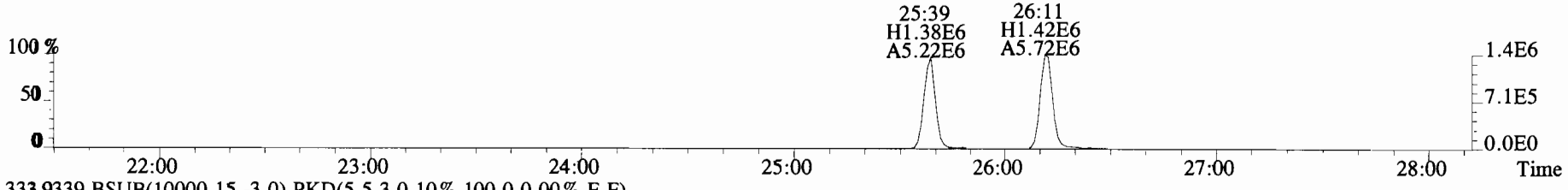
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



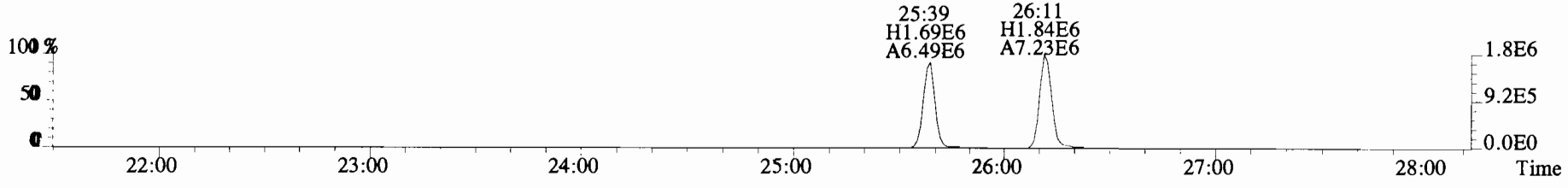
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



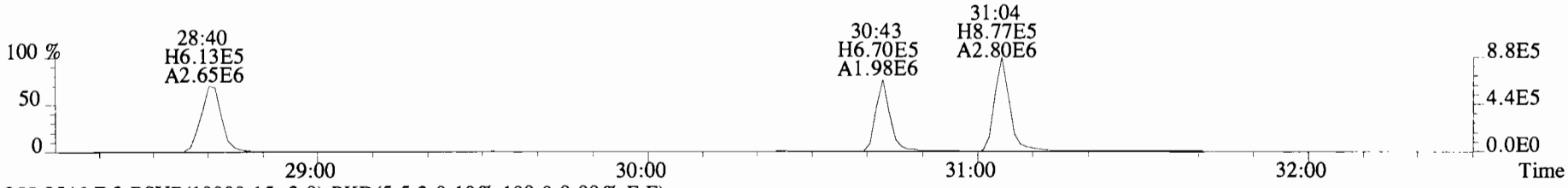
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



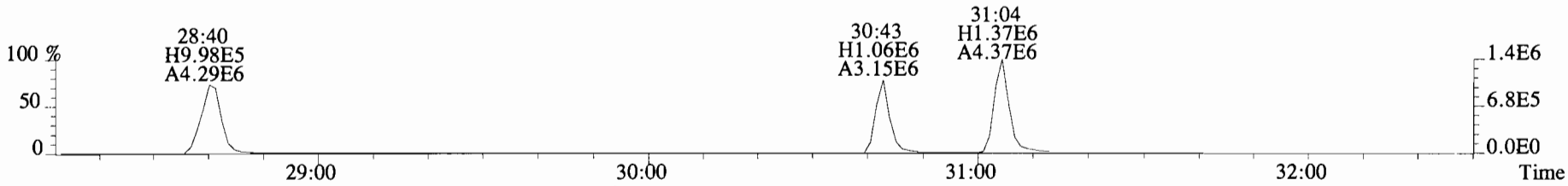
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



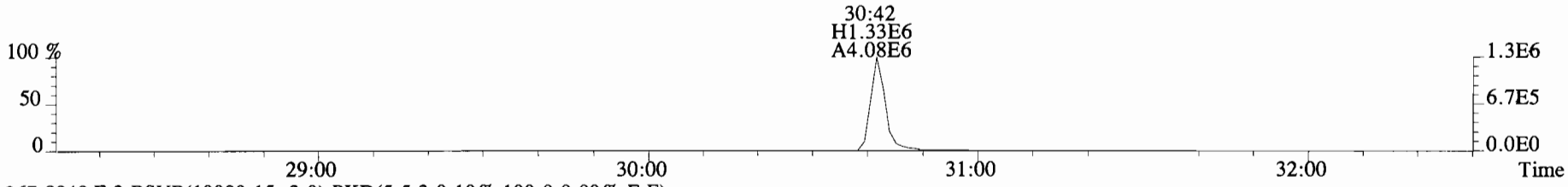
File:191111D1 #1-211 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



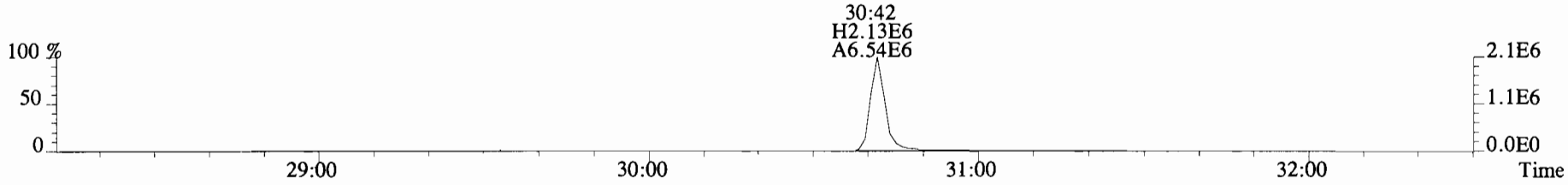
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



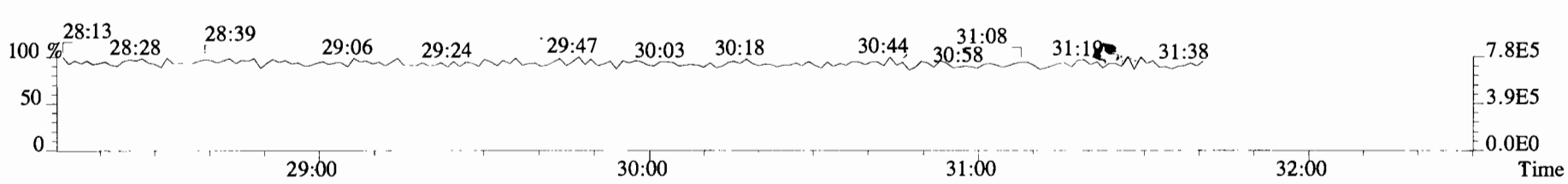
365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

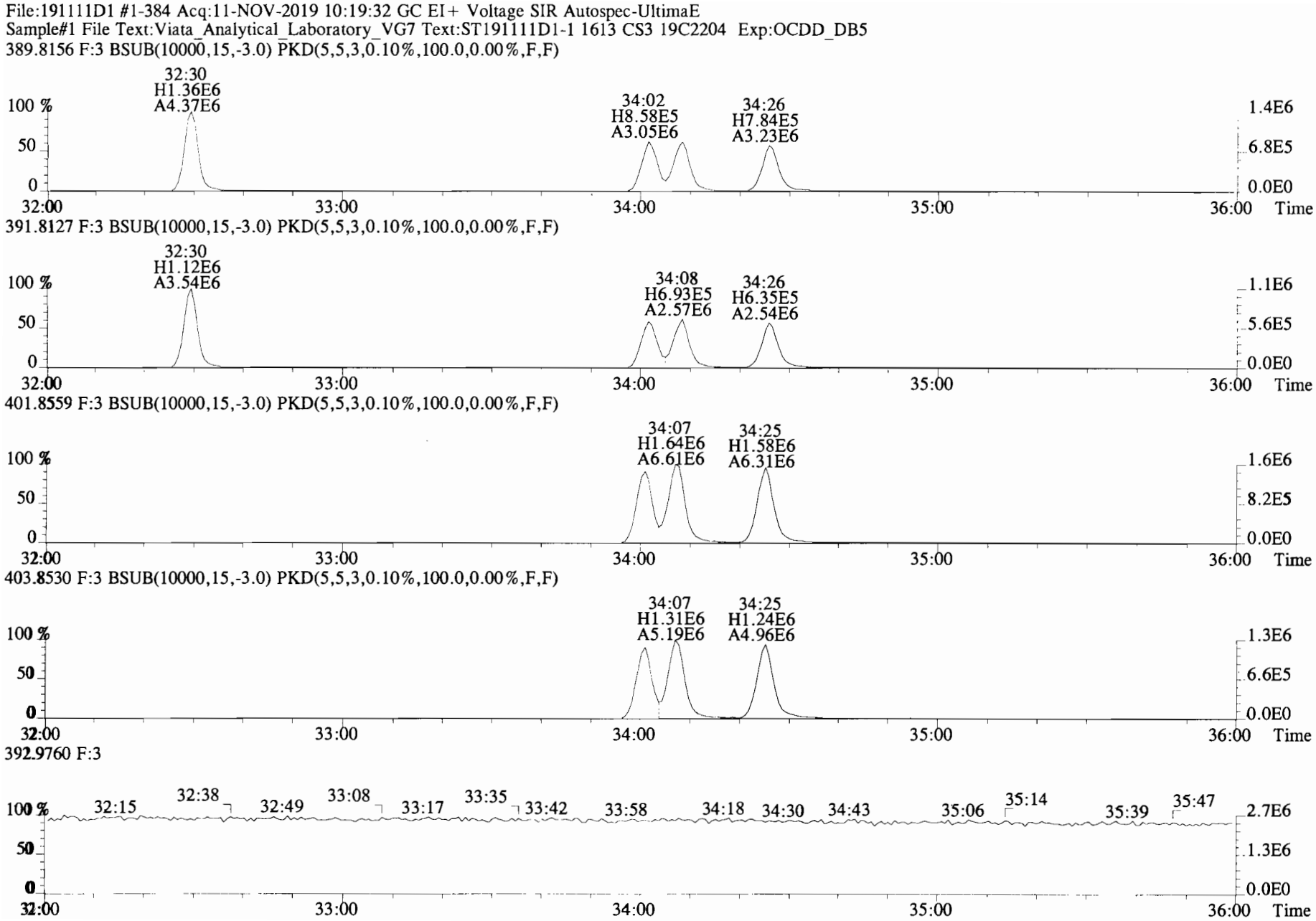


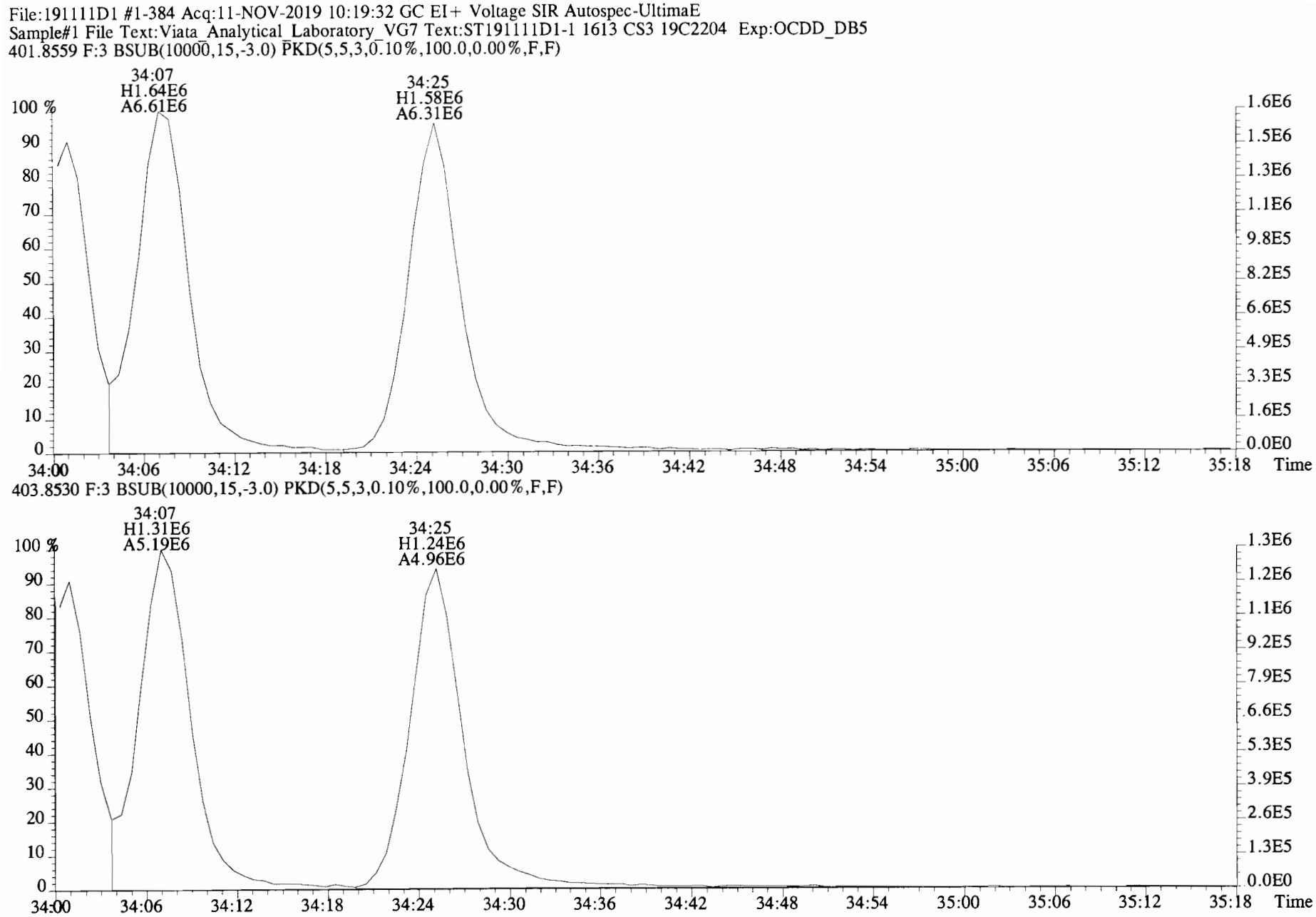
367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

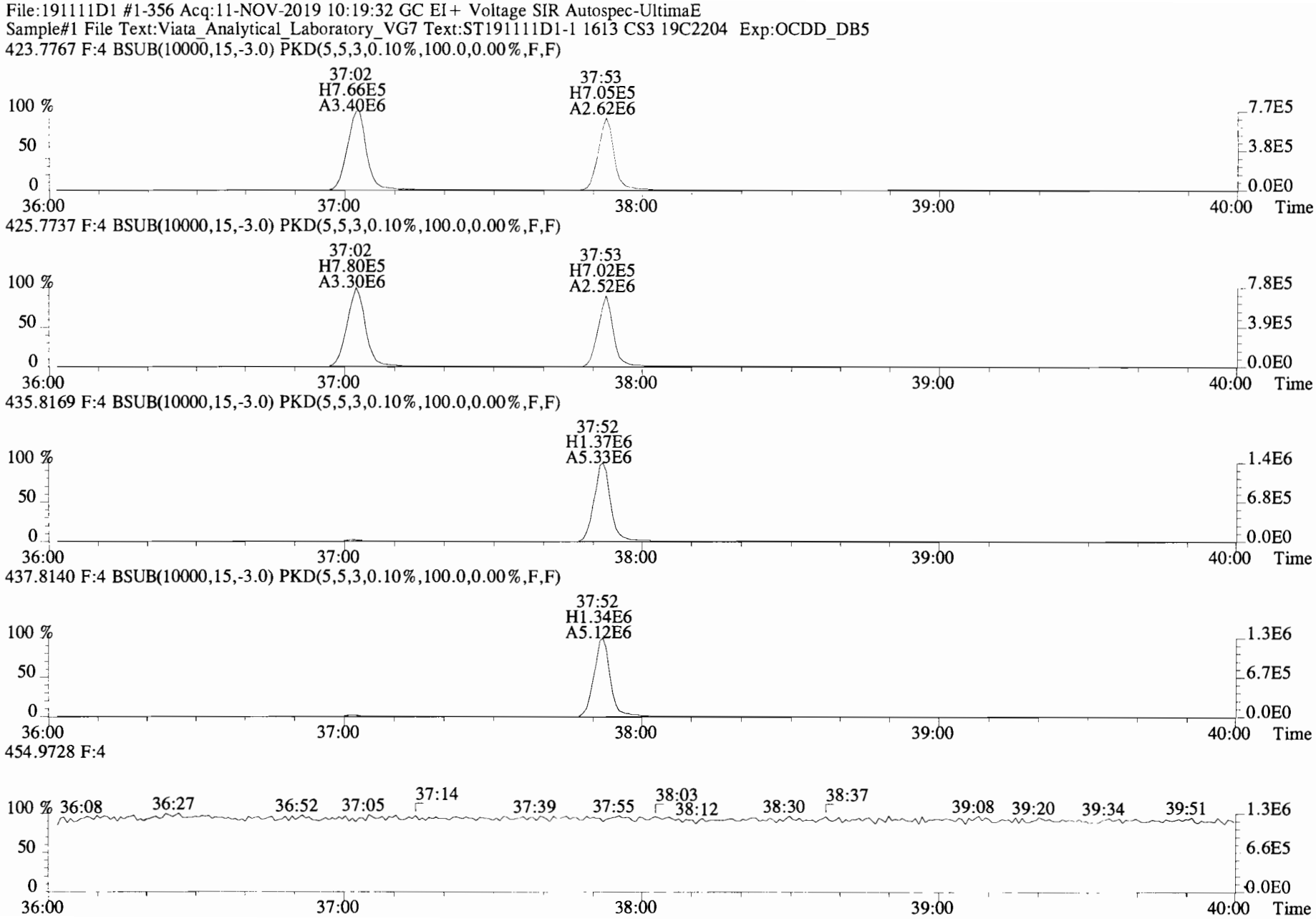


366.9792 F:2

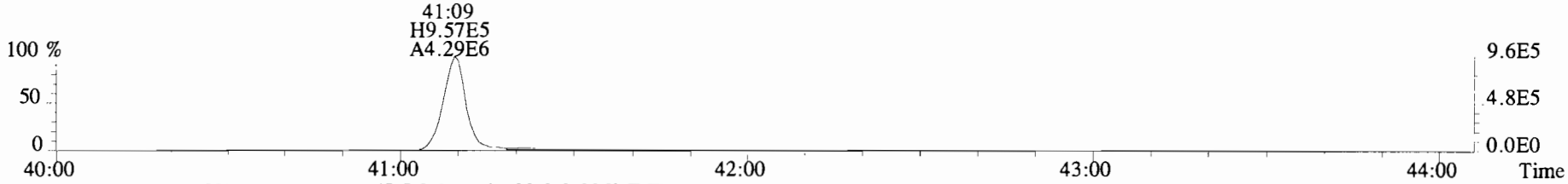



File:191111D1 #1-384 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
32:30 H1.36E6 A4.37E6
34:02 H8.58E5 A3.05E6
34:26 H7.84E5 A3.23E6
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
32:30 H1.12E6 A3.54E6
34:08 H6.93E5 A2.57E6
34:26 H6.35E5 A2.54E6
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07 H1.64E6 A6.61E6
34:25 H1.58E6 A6.31E6
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07 H1.31E6 A5.19E6
34:25 H1.24E6 A4.96E6
392.9760 F:3
32:15 32:38 32:49 33:08 33:17 33:35 33:42 33:58 34:18 34:30 34:43 35:06 35:14 35:39 35:47
100 %
50
0
32:00 33:00 34:00 35:00 36:00 Time
1.4E6 6.8E5 0.0E0
1.1E6 5.6E5 0.0E0
1.6E6 8.2E5 0.0E0
1.3E6 6.6E5 0.0E0
2.7E6 1.3E6 0.0E0

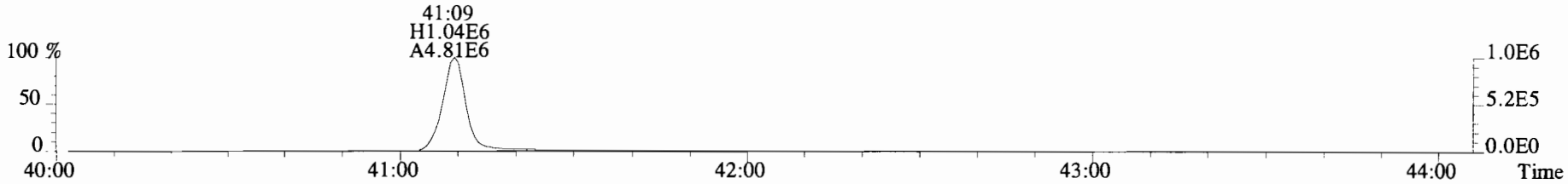

File:191111D1 #1-384 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07
H1.64E6
A6.61E6
34:25
H1.58E6
A6.31E6
100 %
90
80
70
60
50
40
30
20
10
0
1.6E6
1.5E6
1.3E6
1.1E6
9.8E5
8.2E5
6.6E5
4.9E5
3.3E5
1.6E5
0.0E0
34:00
34:06
34:12
34:18
34:24
34:30
34:36
34:42
34:48
34:54
35:00
35:06
35:12
35:18
Time
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:07
H1.31E6
A5.19E6
34:25
H1.24E6
A4.96E6
100 %
90
80
70
60
50
40
30
20
10
0
1.3E6
1.2E6
1.1E6
9.2E5
7.9E5
6.6E5
5.3E5
3.9E5
2.6E5
1.3E5
0.0E0
34:00
34:06
34:12
34:18
34:24
34:30
34:36
34:42
34:48
34:54
35:00
35:06
35:12
35:18
Time


File:191111D1 #1-356 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 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)
37:02
H7.66E5
A3.40E6
37:53
H7.05E5
A2.62E6
100 %
50
0
7.7E5
3.8E5
0.0E0
36:00
37:00
38:00
39:00
40:00
Time
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:02
H7.80E5
A3.30E6
37:53
H7.02E5
A2.52E6
7.8E5
3.9E5
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52
H1.37E6
A5.33E6
1.4E6
6.8E5
437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
37:52
H1.34E6
A5.12E6
1.3E6
6.7E5
454.9728 F:4
36:08
36:27
36:52
37:05
37:14
37:39
37:55
38:03
38:12
38:30
38:37
39:08
39:20
39:34
39:51
6.6E5

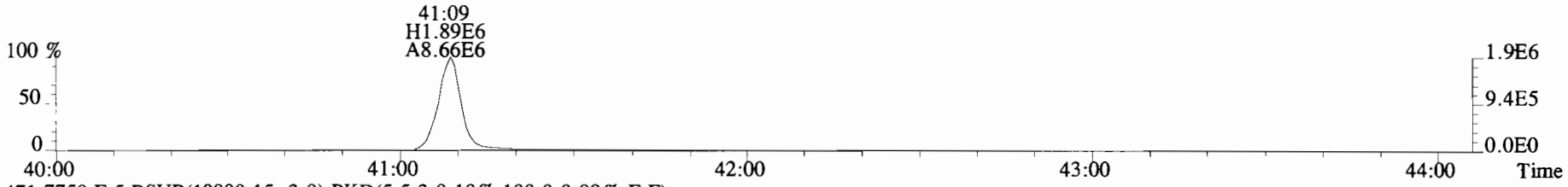
File:191111D1 #1-431 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



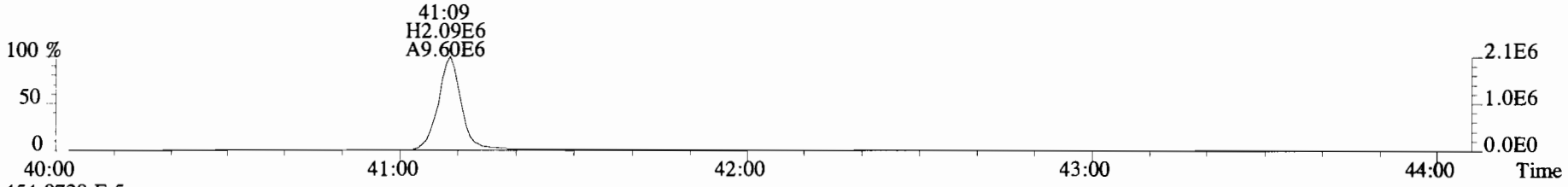
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



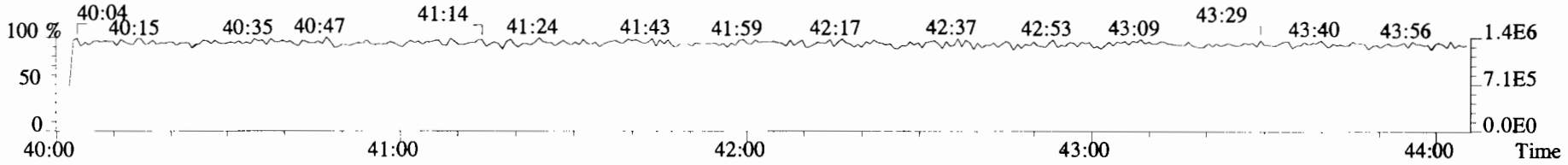
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



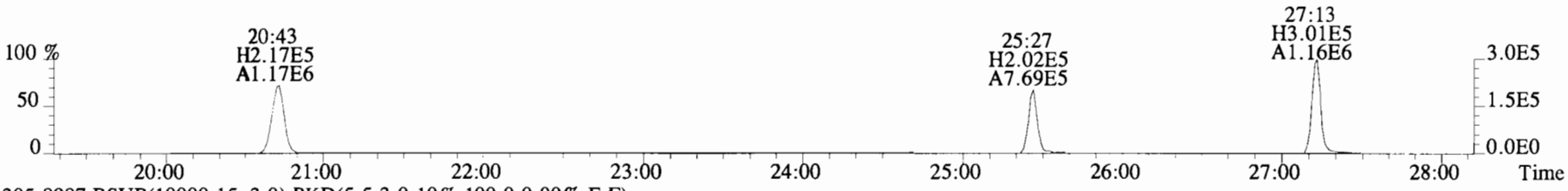
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



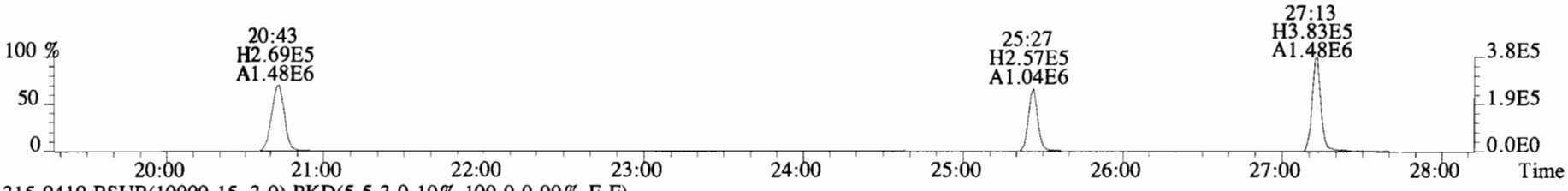
454.9728 F:5



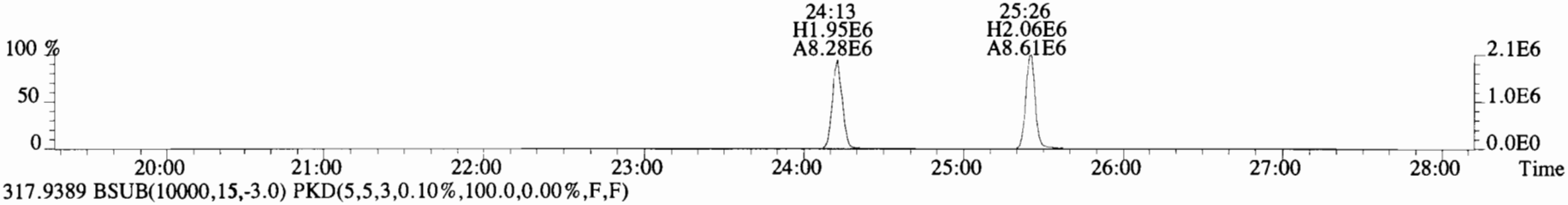
File:191111D1 #1-492 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



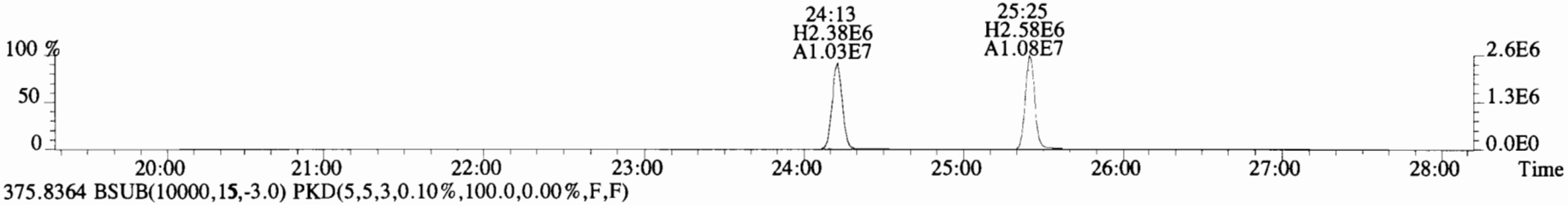
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



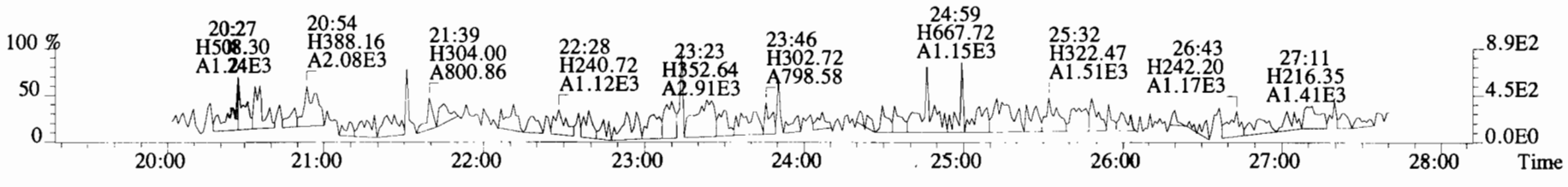
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



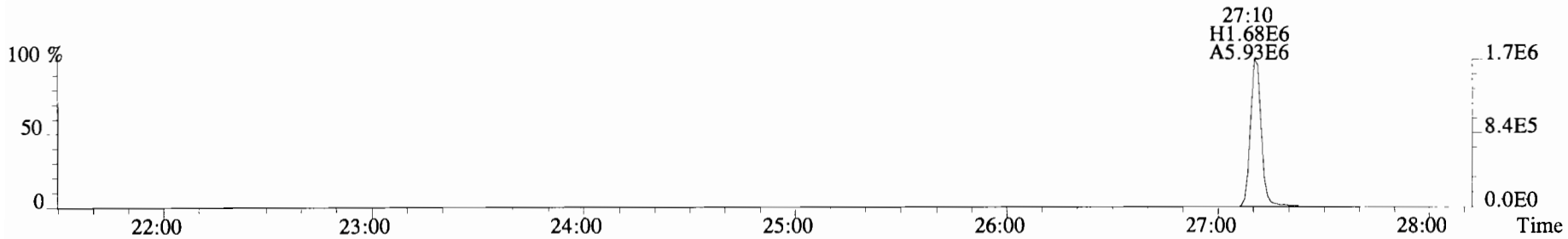
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



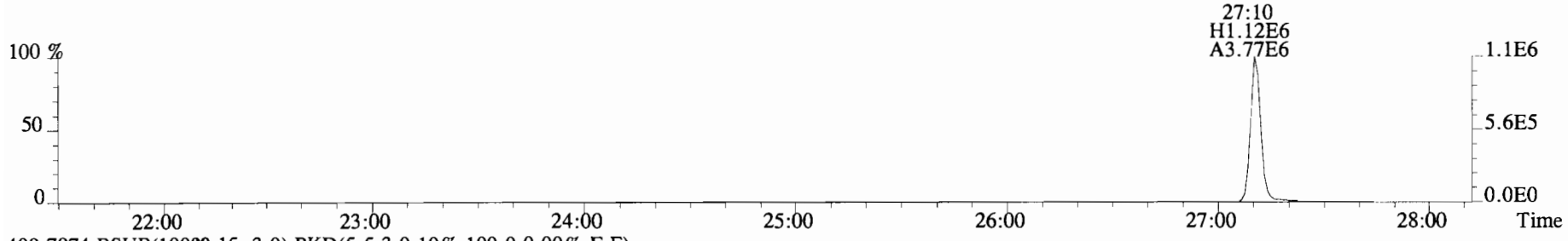
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



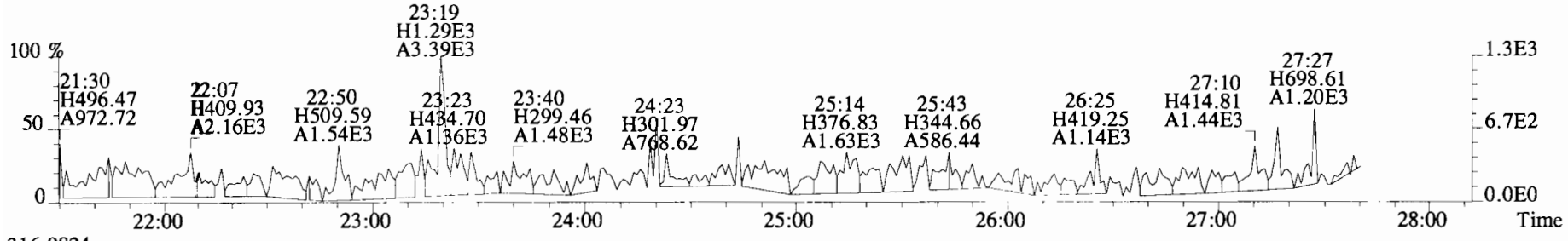
File:191111D1 #1-492 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



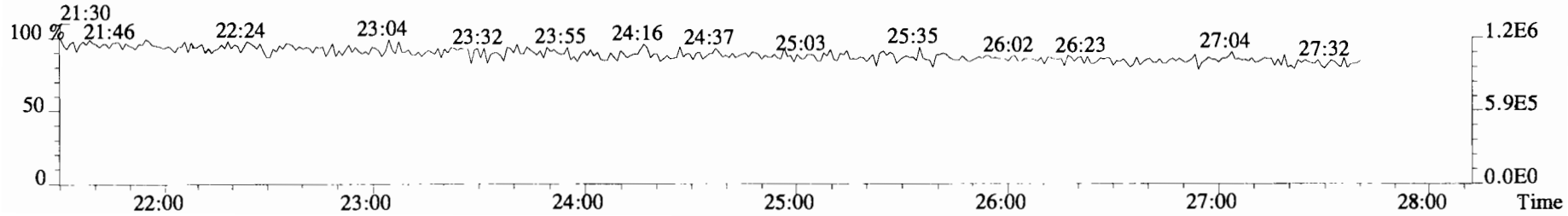
341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



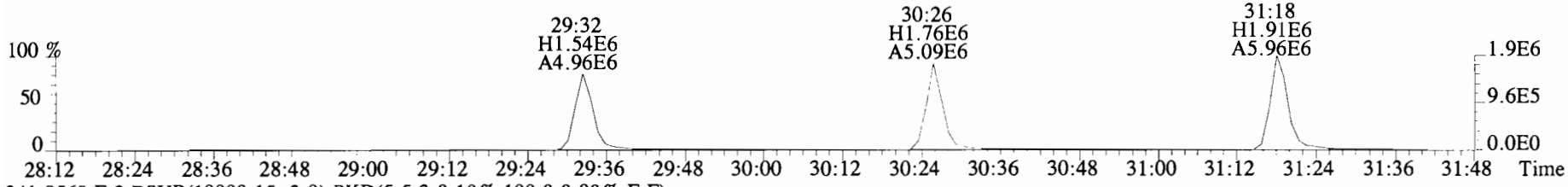
409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



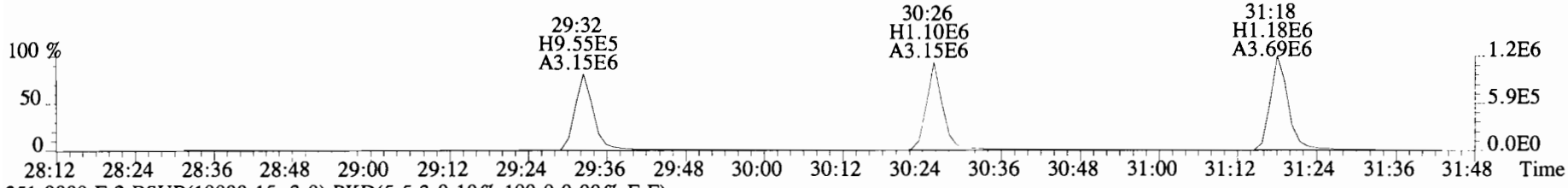
316.9824



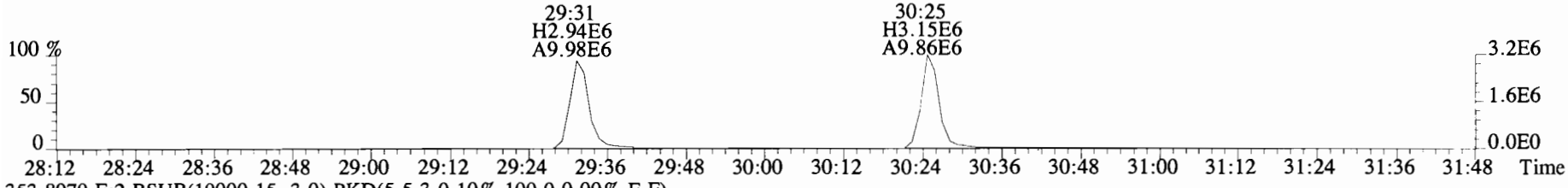
File:191111D1 #1-211 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



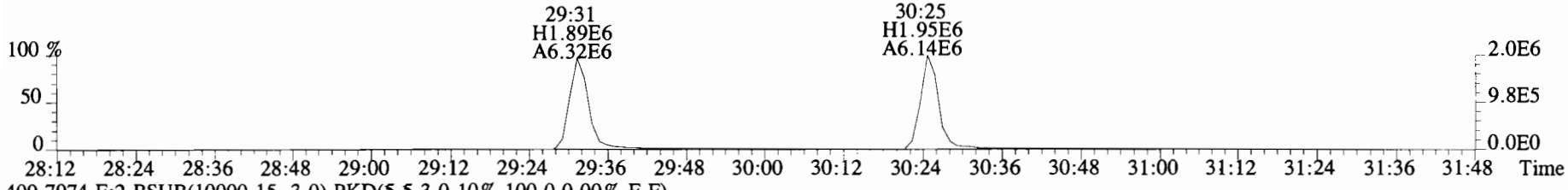
341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



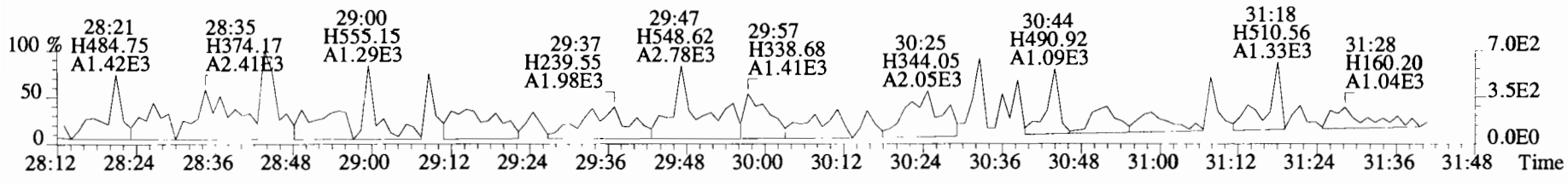
351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



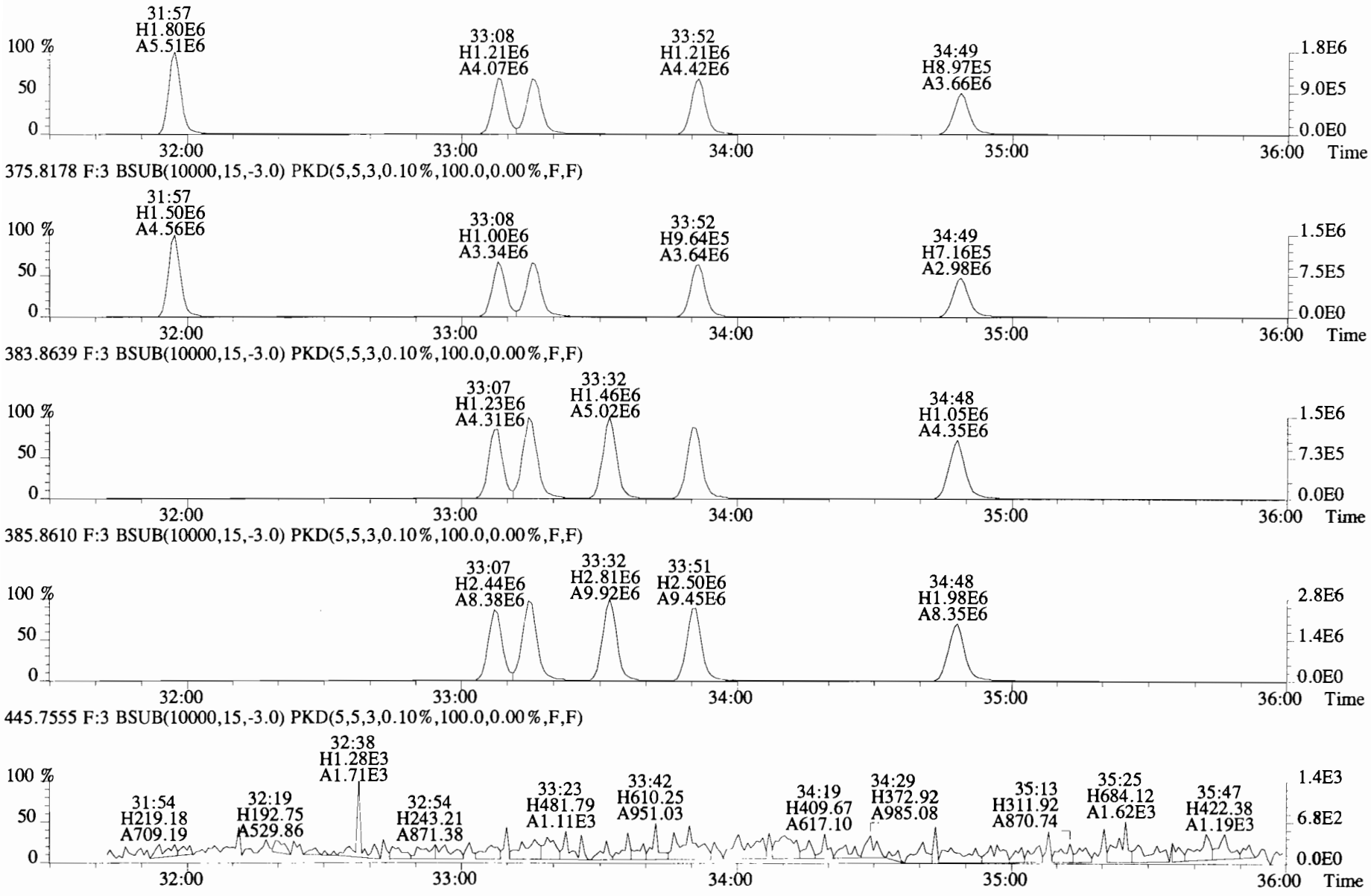
353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



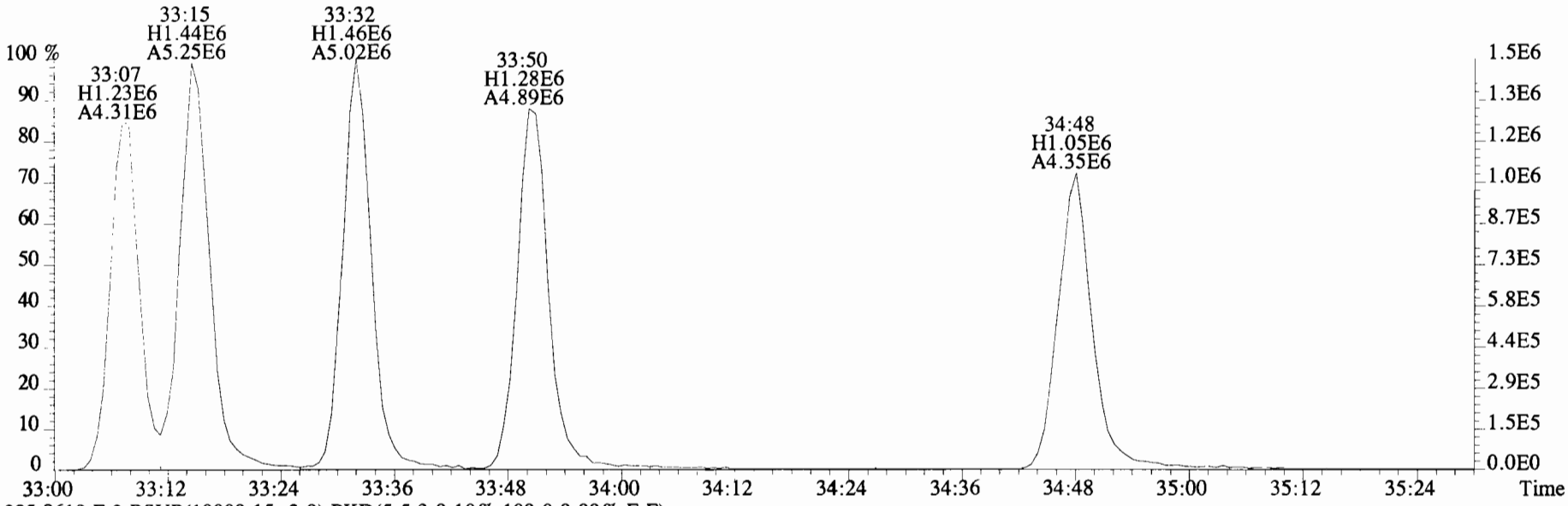
409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



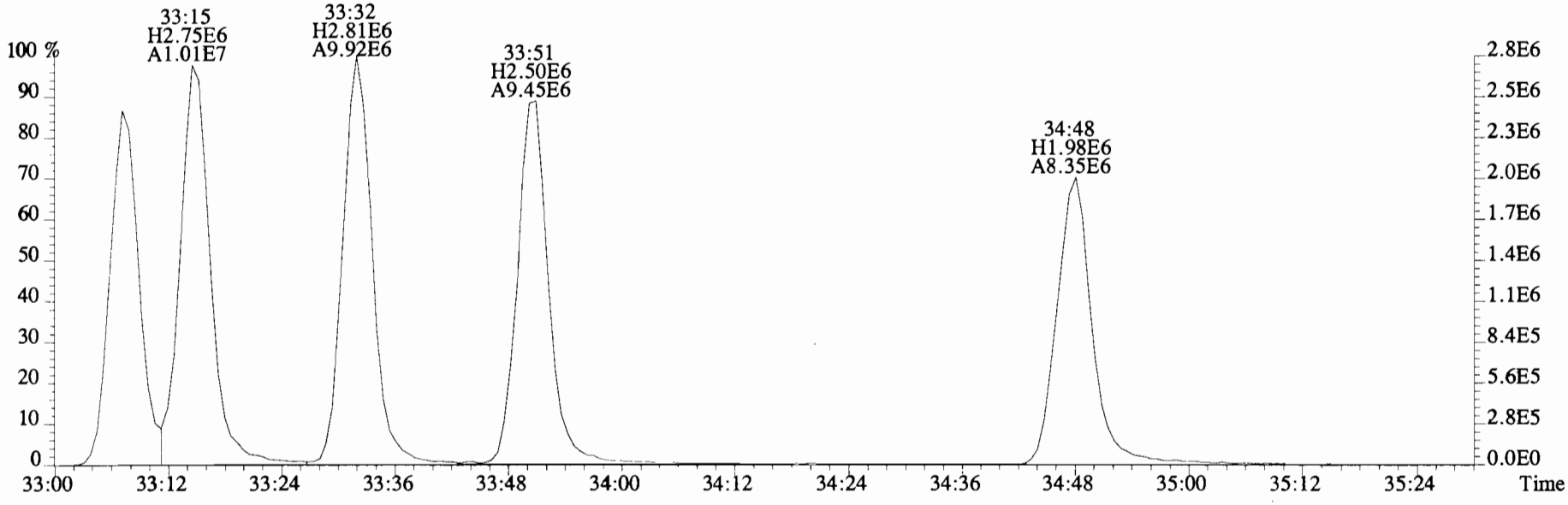
File:191111D1 #1-384 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5



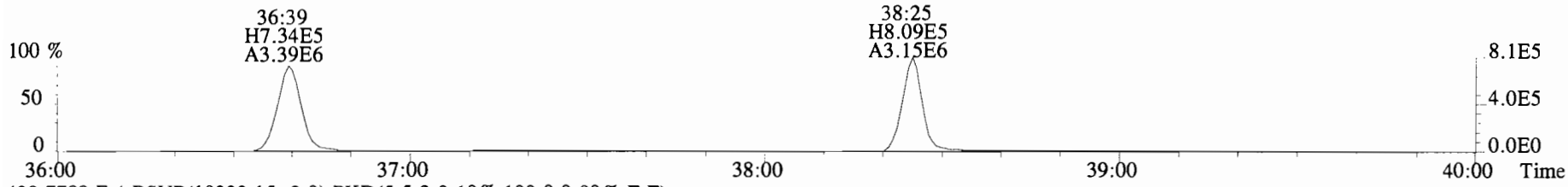
File:191111D1 #1-384 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



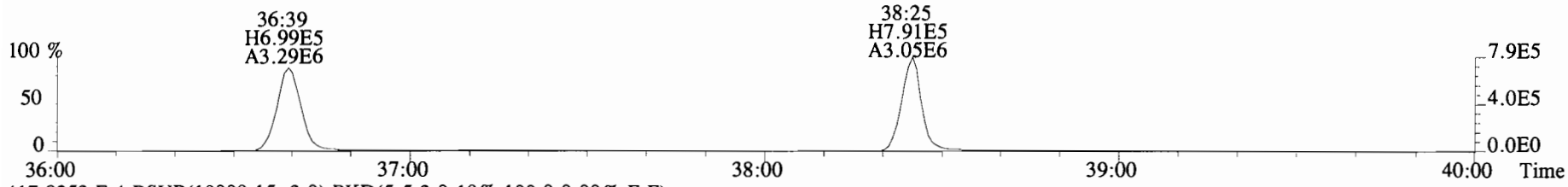
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



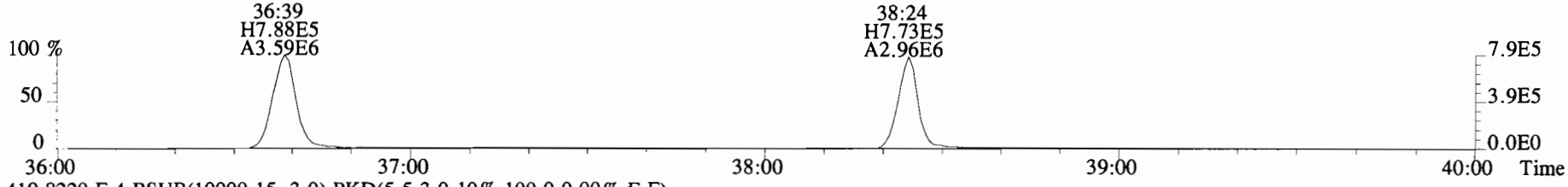
File:191111D1 #1-356 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



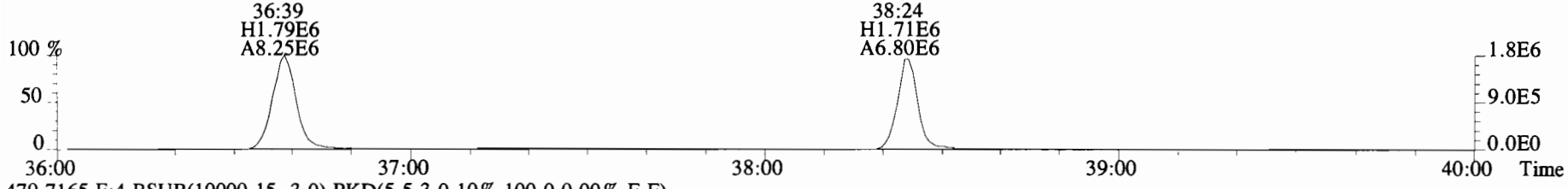
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



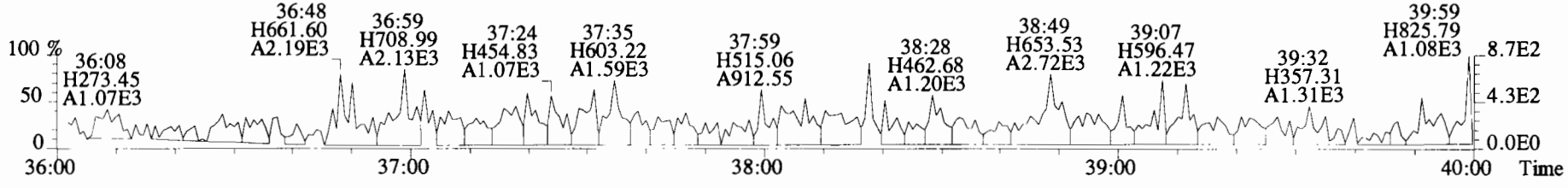
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



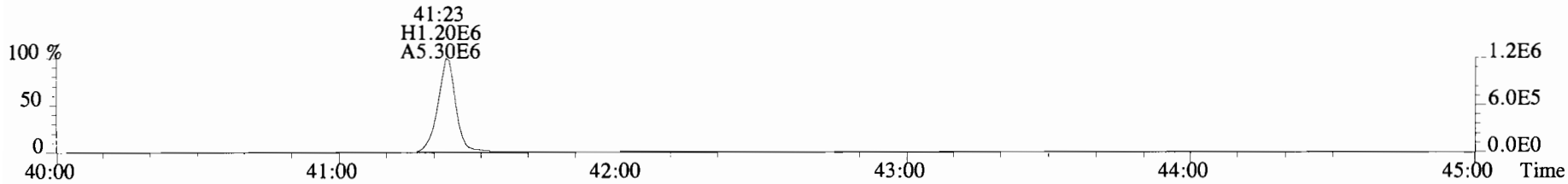
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



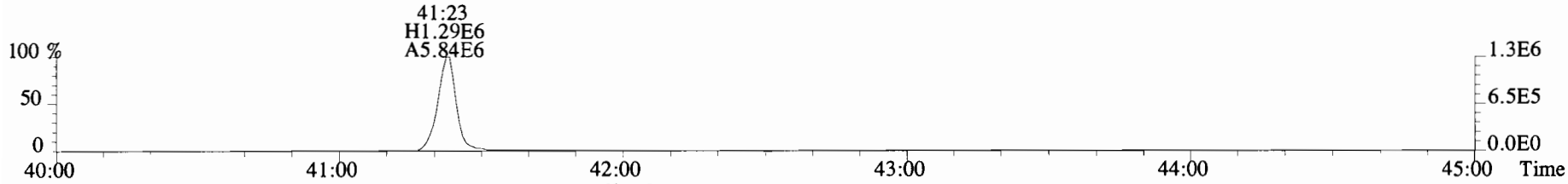
479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



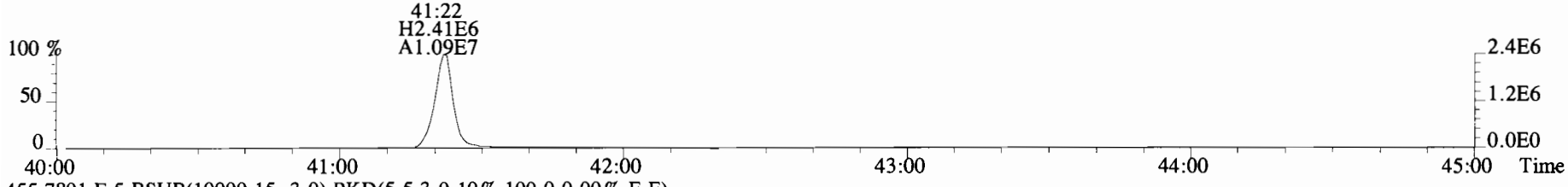
File:191111D1 #1-431 Acq:11-NOV-2019 10:19:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Viata_Analytical_Laboratory_VG7 Text:ST191111D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



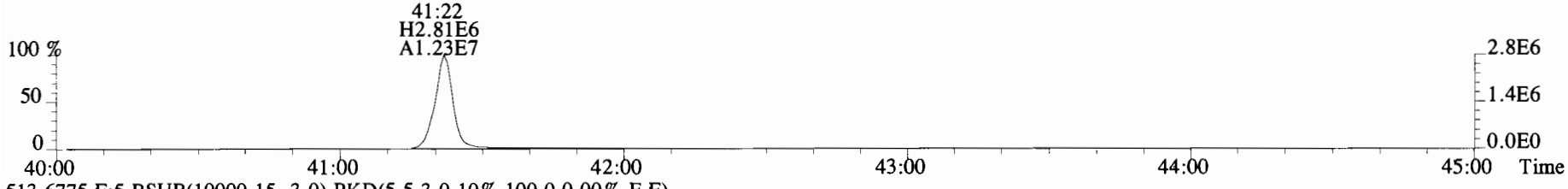
443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



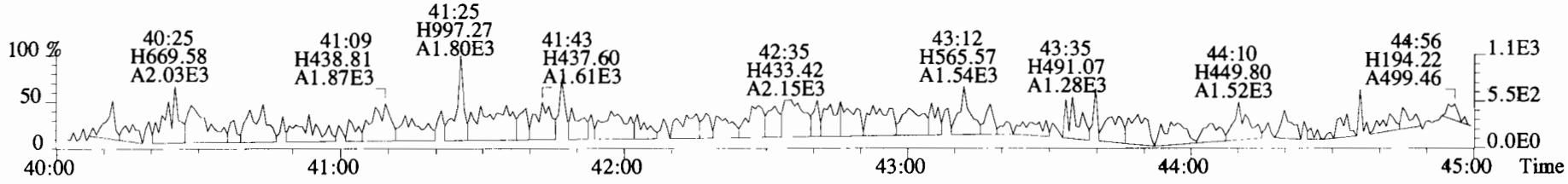
453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

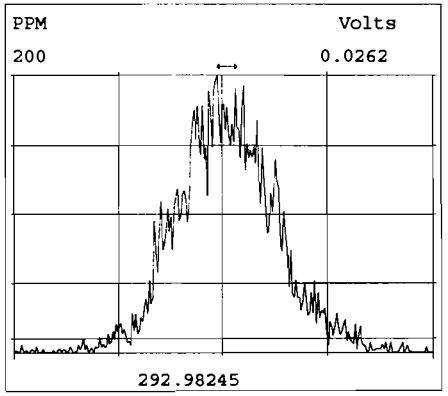


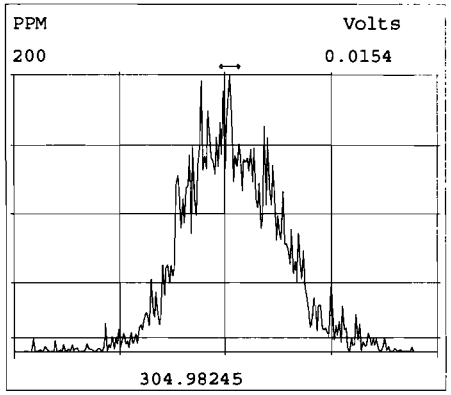
513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

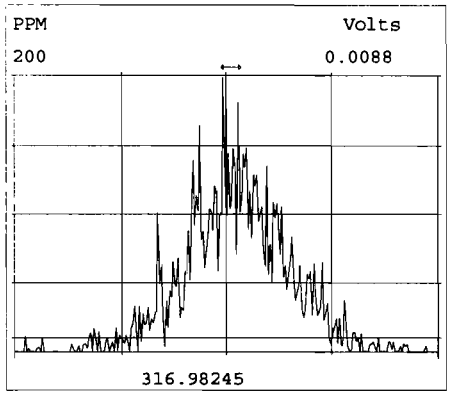


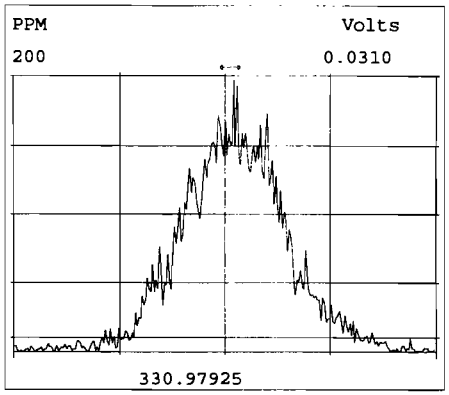
Peak Locate Examination:11-NOV-2019:22:27 File:RES_CHECK

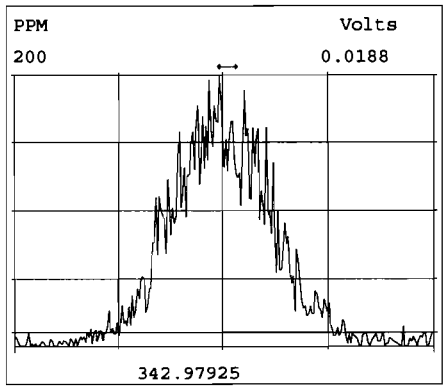
Experiment:OCDD_DB5 Function:1 Reference:PFK

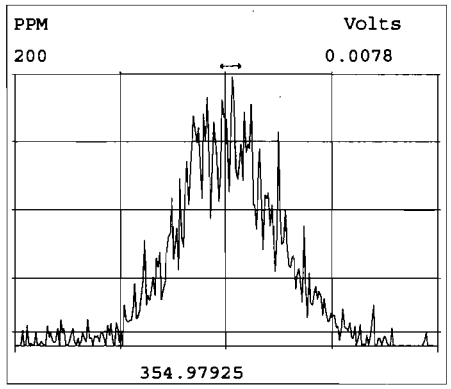


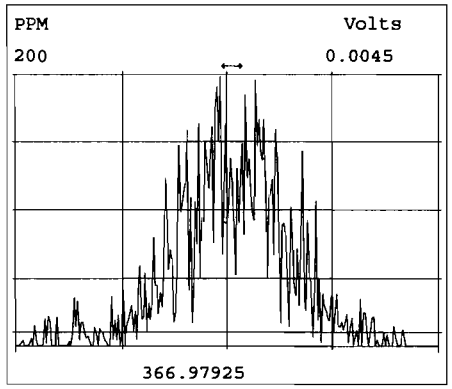


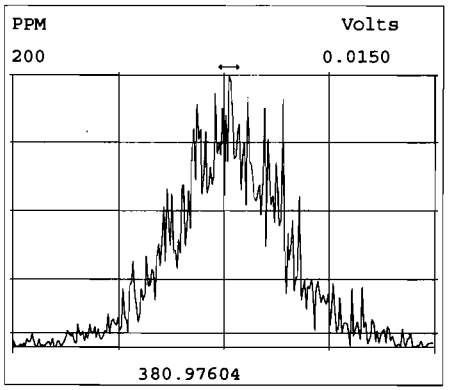


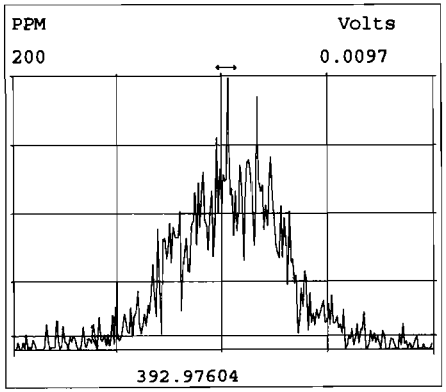


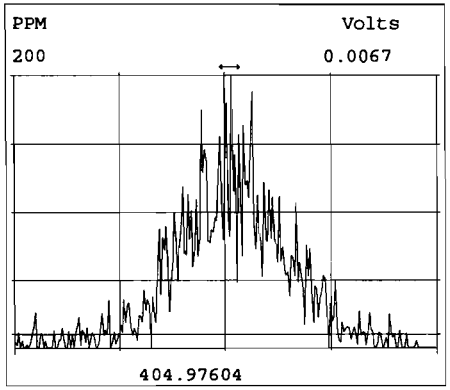


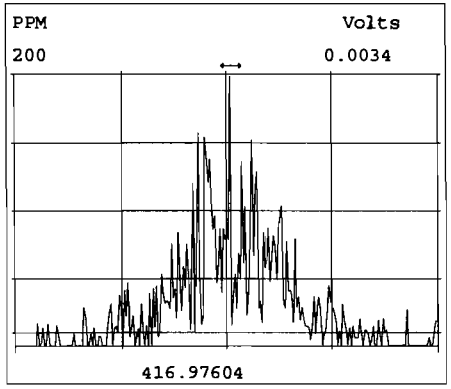


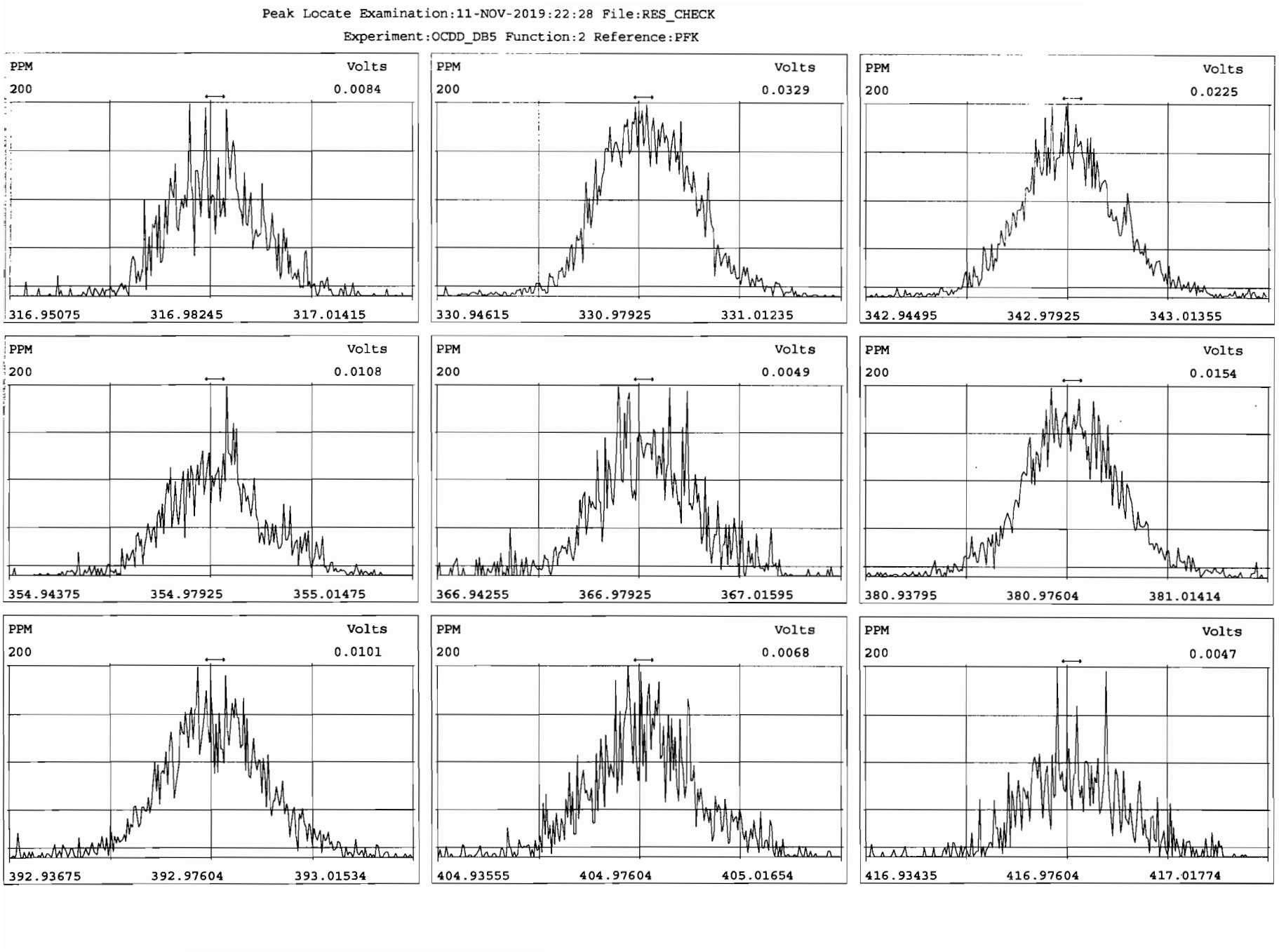






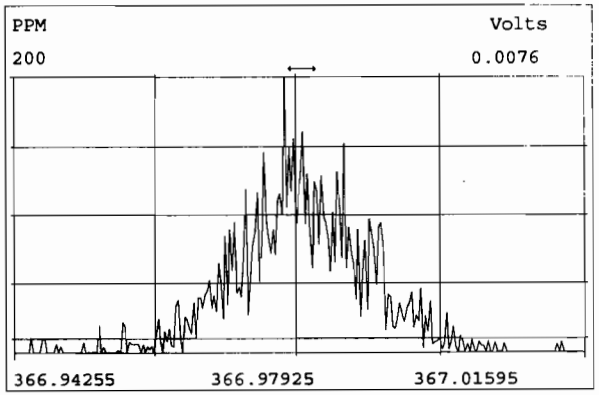


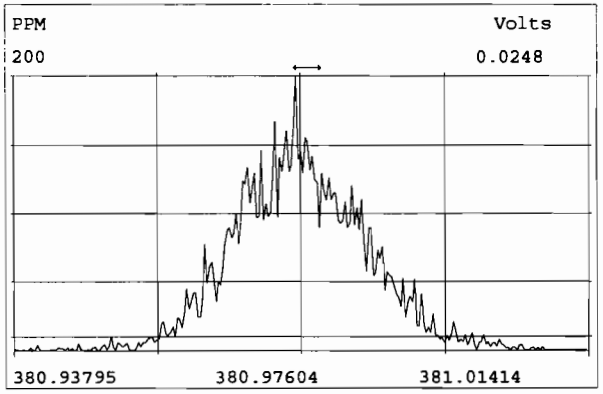


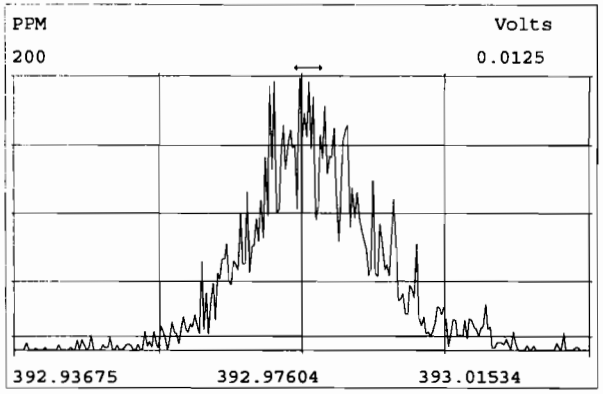

Peak Locate Examination:11-NOV-2019:22:28 File:RES_CHECK
Experiment:OCDD_DB5 Function:2 Reference:PFK
PPM
Volts
200
0.0084
316.95075
316.98245
317.01415
PPM
Volts
200
0.0329
330.94615
330.97925
331.01235
PPM
Volts
200
0.0225
342.94495
342.97925
343.01355
PPM
Volts
200
0.0108
354.94375
354.97925
355.01475
PPM
Volts
200
0.0049
366.94255
366.97925
367.01595
PPM
Volts
200
0.0154
380.93795
380.97604
381.01414
PPM
Volts
200
0.0101
392.93675
392.97604
393.01534
PPM
Volts
200
0.0068
404.93555
404.97604
405.01654
PPM
Volts
200
0.0047
416.93435
416.97604
417.01774

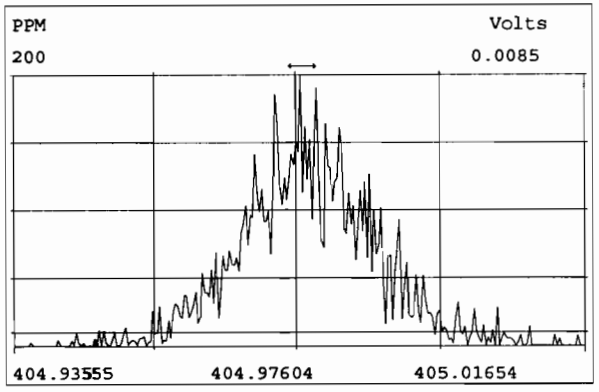
Peak Locate Examination:11-NOV-2019:22:29 File:RES_CHECK

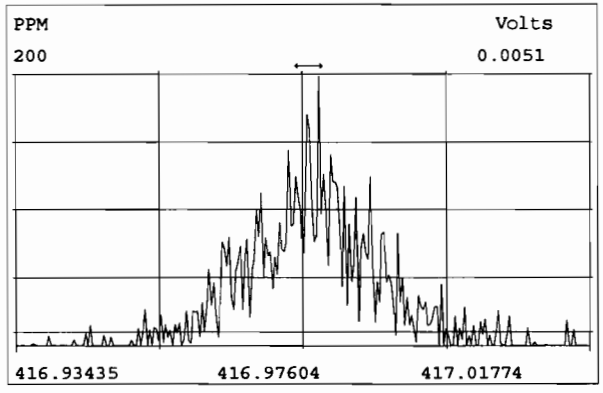
Experiment:OCDD_DB5 Function:3 Reference:PFK

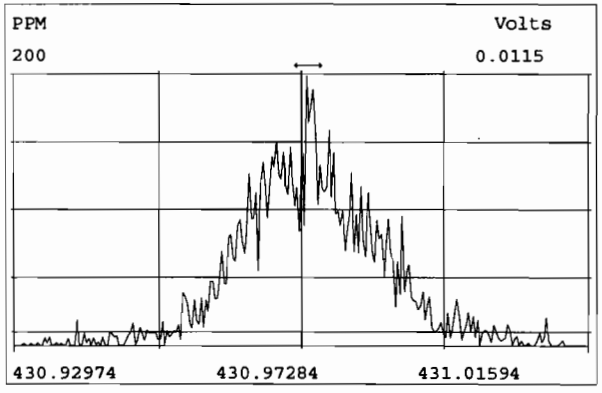


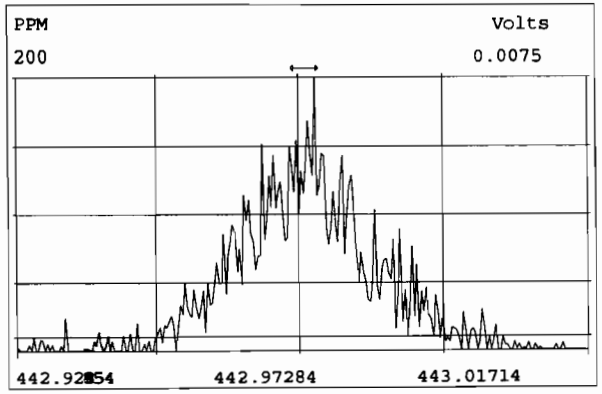


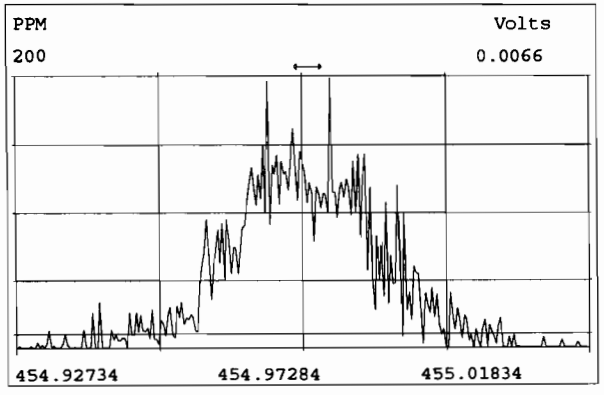






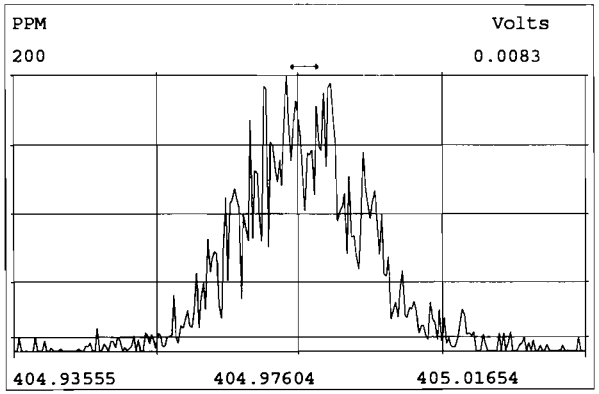


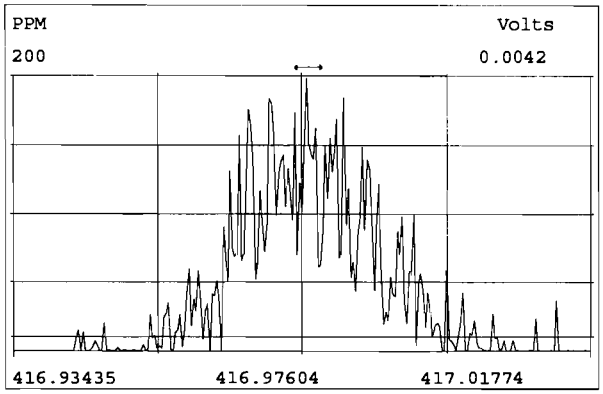


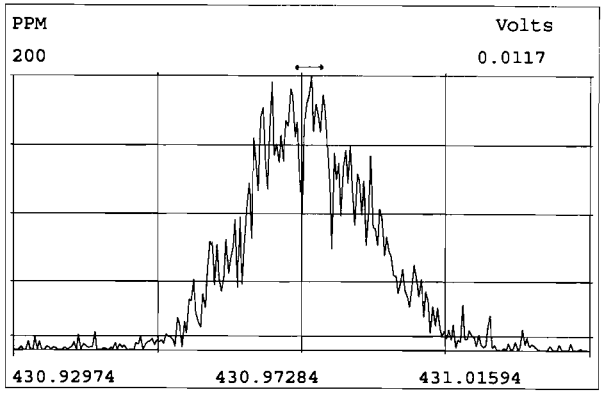


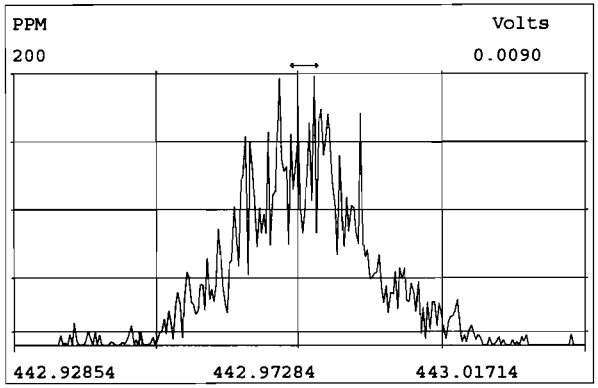
Peak Locate Examination:11-NOV-2019:22:30 File:RES_CHECK

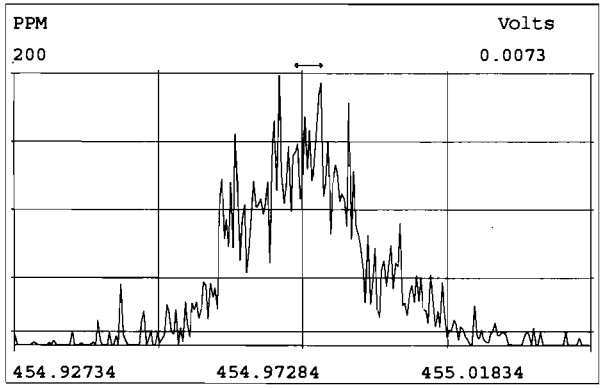
Experiment:OCDD_DB5 Function:4 Reference:PFK

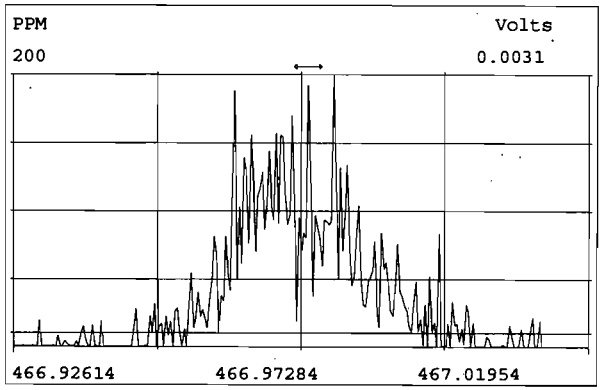


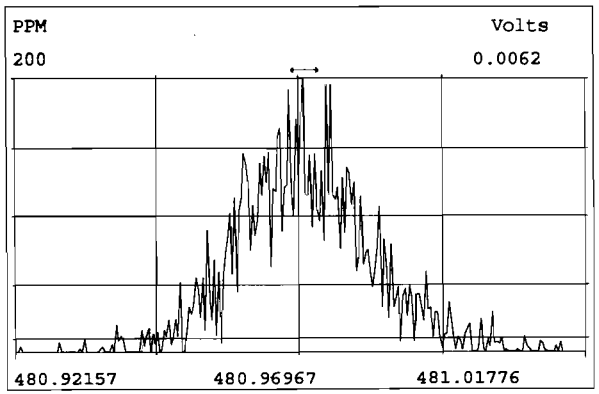






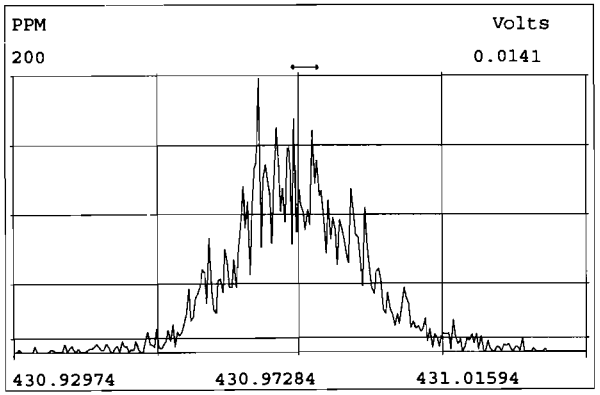


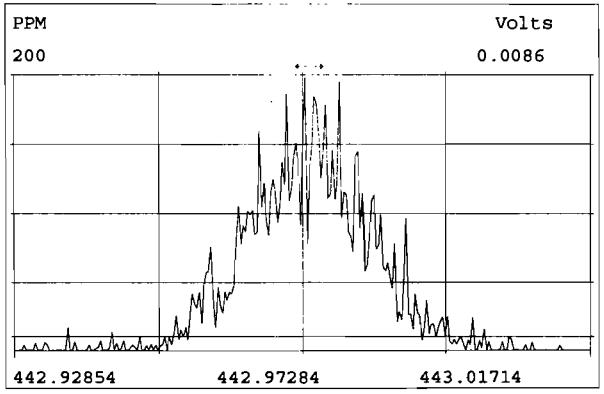


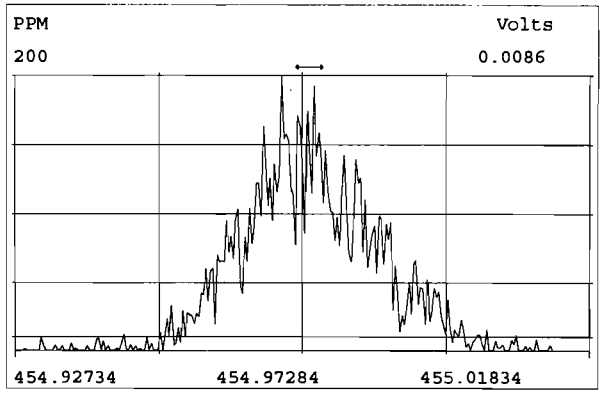


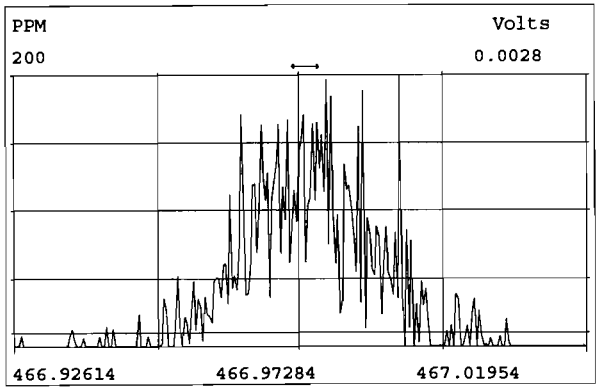
Peak Locate Examination:11-NOV-2019:22:31 File:RES_CHECK

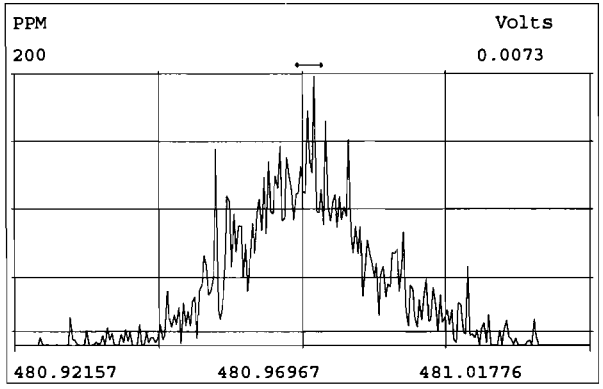
Experiment:OCDD_DB5 Function:5 Reference:PFK

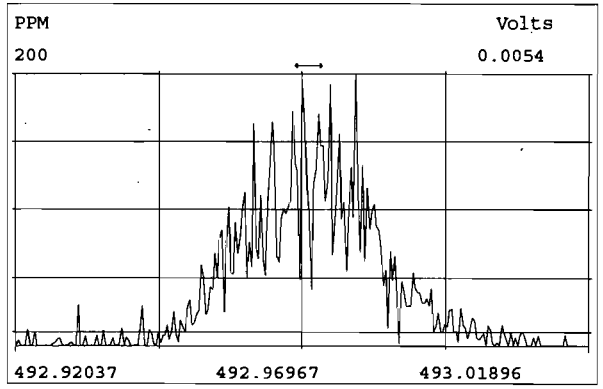


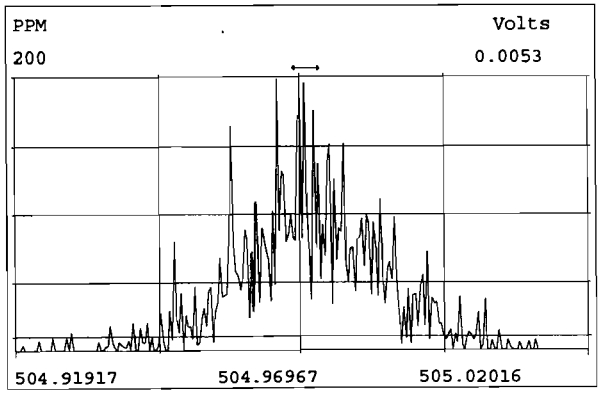


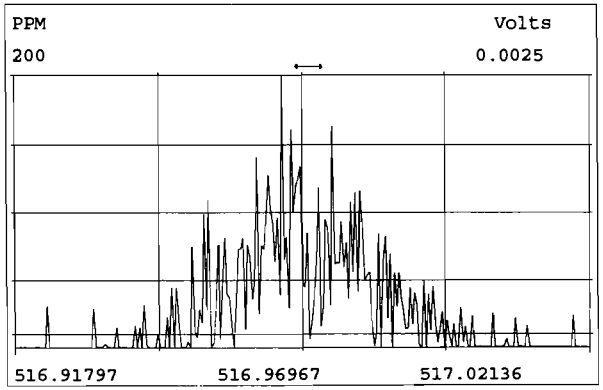












INITIAL CALIBRATION

Initial Calibration RRF Summary (ICAL) Vista Analytical Laboratory

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
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 10/10/19 CT 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

JB
10/16/19

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

Name	Mean RRF	%RSD	Samp# 1 RRF#1 (0.25)	Samp# 2 RRF#2 (0.50)	Samp# 3 RRF#3 (2.0)	Samp# 4 RRF#4 (10)	Samp# 5 RRF#5 (40)	Samp# 6 RRF#6 (300)
Total Tetra-Dioxins	0.9053	7.55 %	0.84	0.83	0.87	0.99	0.92	0.98
TCDD EMPC	0.9053	7.55 %	0.84	0.83	0.87	0.99	0.92	0.98
Total Penta-Dioxins	0.9027	4.95 %	0.86	0.87	0.88	0.88	0.96	0.96
PeCDD EMPC	0.9027	4.95 %	0.86	0.87	0.88	0.88	0.96	0.96
Total Hexa-Dioxins	0.9918	4.02 %	0.95	0.96	0.99	0.97	1.02	1.06
HxCDD EMPC	0.9918	4.02 %	0.95	0.96	0.99	0.97	1.02	1.06
Total Hepta-Dioxins	0.9794	5.84 %	0.90	0.97	0.95	0.96	1.03	1.06
HpCDD EMPC	0.9794	5.84 %	0.90	0.97	0.95	0.96	1.03	1.06
Total Tetra-Furans	0.9501	8.27 %	1.09	0.90	0.89	0.89	0.95	0.99
TCDF EMPC	0.9501	8.27 %	1.09	0.90	0.89	0.89	0.95	0.99
1st Func. Penta-Furans	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
1st Func. PeCDF EMPC	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
Total Penta-Furans	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
PeCDF EMPC	0.9875	3.40 %	0.97	0.96	0.96	0.97	1.02	1.04
Total Hexa-Furans	1.1033	3.70 %	1.08	1.06	1.09	1.09	1.14	1.17
HxCDF EMPC	1.1033	3.70 %	1.08	1.06	1.09	1.09	1.14	1.17
Total Hepta-Furans	1.1937	3.56 %	1.21	1.17	1.14	1.16	1.23	1.25
HpCDF EMPC	1.1937	3.56 %	1.21	1.17	1.14	1.16	1.23	1.25

DB
10/10/19

Run: 191009D1 Analyte: Cal: 1613VG7-10-9-19 Inst. ID. VG-7

Data filename: 191009D1			Samp# 1	Samp# 2	Samp# 3	Samp# 4	Samp# 5	Samp# 6
			0.25	0.50	2.0	10	40	300
	RRT Limits							
Name	Lower	Upper	RRT#1	RRT#2	RRT#3	RRT#4	RRT#5	RRT#6
2,3,7,8-TCDD	0.999	-1.002	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,7,8-PeCDD	0.999	-1.002	0.999	1.000	1.001	1.001	1.001	1.001
1,2,3,4,7,8-HxCDD	0.999	-1.001	1.000	1.000	1.001	1.000	1.000	1.000
1,2,3,6,7,8-HxCDD	0.998	-1.004	1.000	1.000	1.000	1.001	1.001	1.000
1,2,3,7,8,9-HxCDD	0.998	-1.004	1.001	1.000	1.000	1.000	1.001	1.001
1,2,3,4,6,7,8-HpCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
OCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
2,3,7,8-TCDF	0.999	-1.003	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.000	1.000	1.001
2,3,4,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,4,7,8-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
1,2,3,6,7,8-HxCDF	0.997	-1.005	1.000	1.000	1.001	1.000	1.000	1.000
2,3,4,6,7,8-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.001	1.001	1.000
1,2,3,7,8,9-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
1,2,3,4,6,7,8-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.001	1.000	1.000
1,2,3,4,7,8,9-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
OCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
13C-2,3,7,8-TCDD	0.976	-1.043	1.022	1.022	1.022	1.021	1.021	1.021
13C-1,2,3,7,8-PeCDD	1.000	-1.567	1.190	1.189	1.190	1.189	1.188	1.188
13C-1,2,3,4,7,8-HxCDD	1.002	-1.026	1.014	1.014	1.014	1.014	1.014	1.014
13C-1,2,3,6,7,8-HxCDD	1.007	-1.029	1.017	1.018	1.018	1.017	1.017	1.018
13C-1,2,3,7,8,9-HxCDD	1.014	-1.038	1.027	1.027	1.027	1.027	1.027	1.027
13C-1,2,3,4,6,7,8-HpCDD	1.117	-1.141	1.127	1.127	1.128	1.127	1.127	1.127
13C-OCDD	1.085	-1.365	1.227	1.227	1.228	1.227	1.227	1.227
13C-2,3,7,8-TCDF	0.923	-1.103	0.994	0.994	0.994	0.994	0.994	0.994
13C-1,2,3,7,8-PeCDF	1.000	-1.425	1.146	1.146	1.146	1.145	1.145	1.144
13C-2,3,4,7,8-PeCDF	1.011	-1.526	1.180	1.179	1.180	1.179	1.178	1.178
13C-1,2,3,4,7,8-HxCDF	0.975	-1.001	0.987	0.987	0.987	0.987	0.987	0.987
13C-1,2,3,6,7,8-HxCDF	0.979	-1.005	0.991	0.991	0.991	0.991	0.991	0.991
13C-2,3,4,6,7,8-HxCDF	1.001	-1.020	1.010	1.010	1.010	1.009	1.009	1.010
13C-1,2,3,7,8,9-HxCDF	1.002	-1.072	1.040	1.040	1.040	1.039	1.039	1.039
13C-1,2,3,4,6,7,8-HpCDF	1.069	-1.111	1.093	1.093	1.094	1.093	1.093	1.093
13C-1,2,3,4,7,8,9-HpCDF	1.098	-1.192	1.145	1.145	1.145	1.145	1.144	1.144
13C-OCDF	1.091	-1.371	1.235	1.234	1.235	1.235	1.234	1.234
37Cl-2,3,7,8-TCDD	0.989	-1.052	1.022	1.021	1.022	1.022	1.022	1.022
13C-1,2,3,4-TCDD	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4-TCDF	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4,6,9-HxCDF	0.000	-0.000	*	*	*	*	*	*

DB
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).

==========

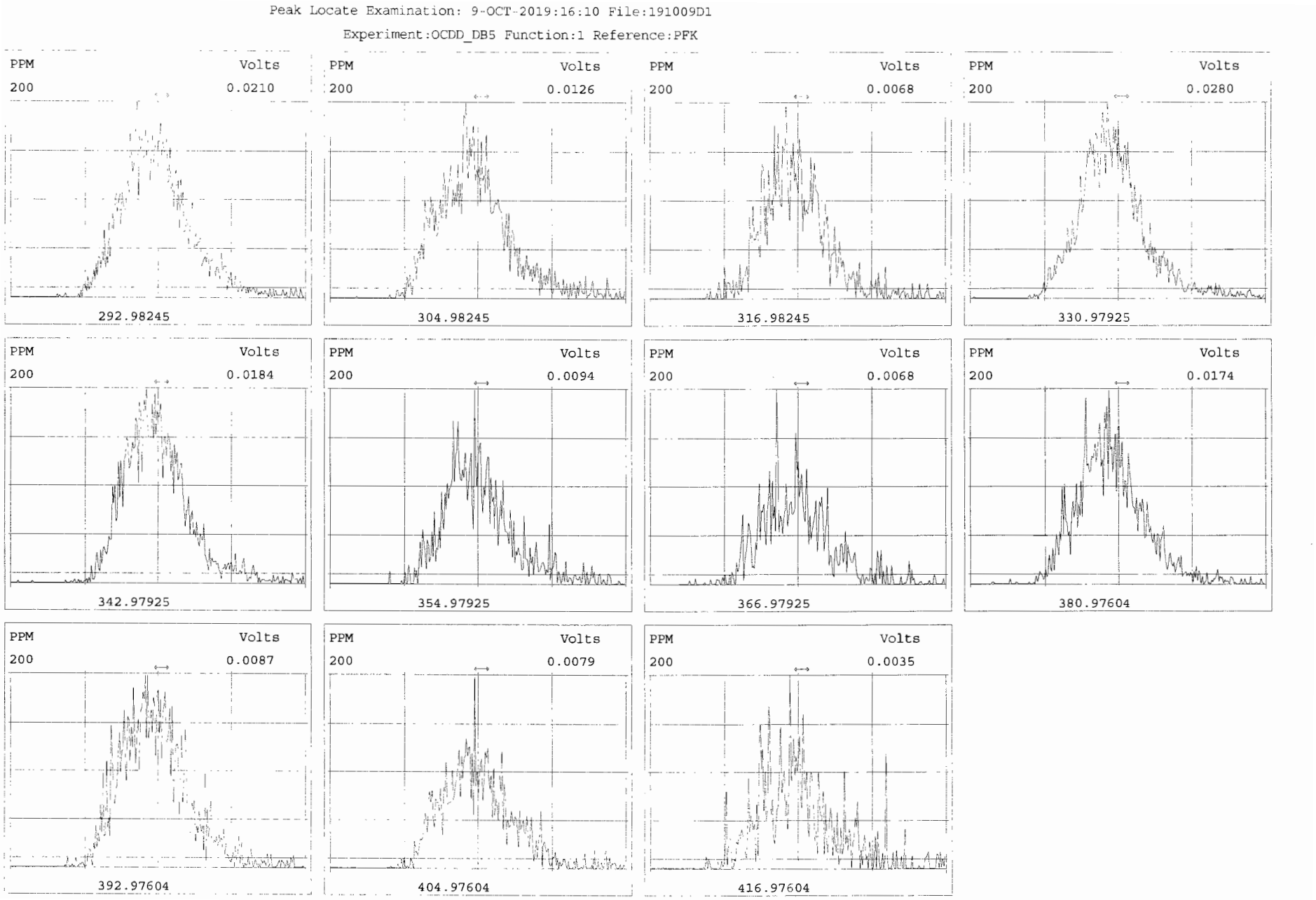
ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

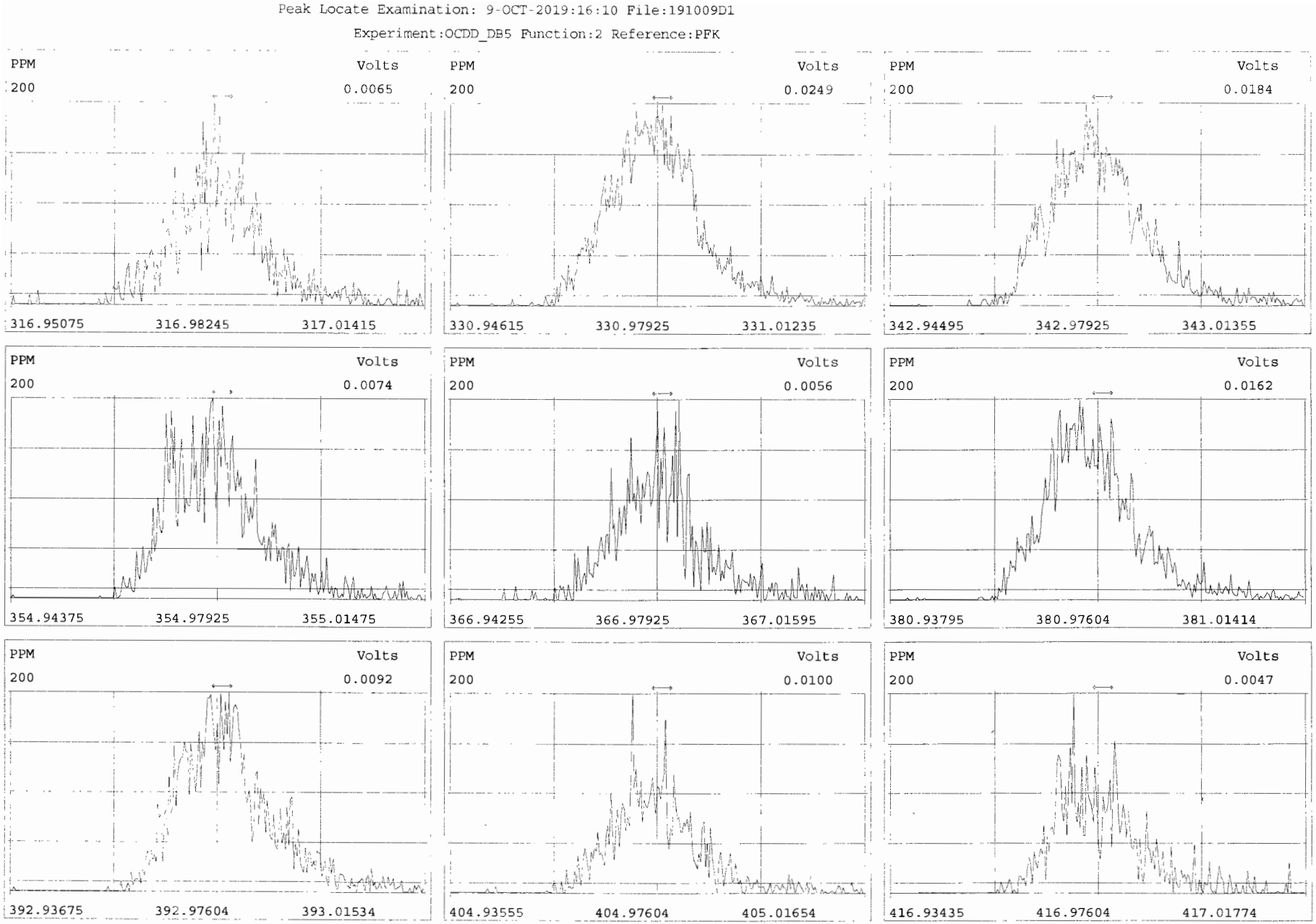
COMPARED PEAKS (1)	% VALLEY HEIGHT BETWEEN
	<25%

(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:1 Reference:PFK
PPM
Volts
200
0.0210
292.98245
PPM
Volts
200
0.0126
304.98245
PPM
Volts
200
0.0068
316.98245
PPM
Volts
200
0.0280
330.97925
PPM
Volts
200
0.0184
342.97925
PPM
Volts
200
0.0094
354.97925
PPM
Volts
200
0.0068
366.97925
PPM
Volts
200
0.0174
380.97604
PPM
Volts
200
0.0087
392.97604
PPM
Volts
200
0.0079
404.97604
PPM
Volts
200
0.0035
416.97604


Peak Locate Examination: 9-OCT-2019:16:10 File:191009D1
Experiment:OCDD_DB5 Function:2 Reference:PFK
PPM
Volts
200
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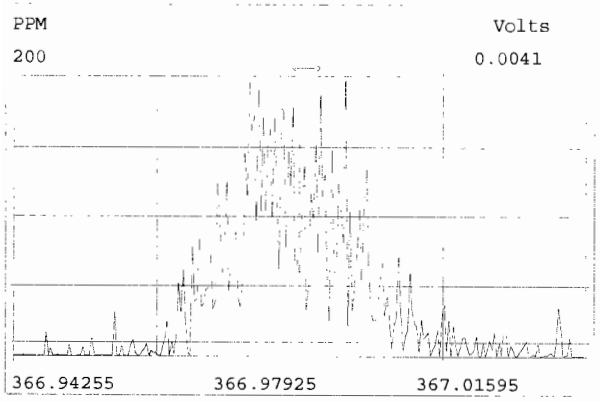
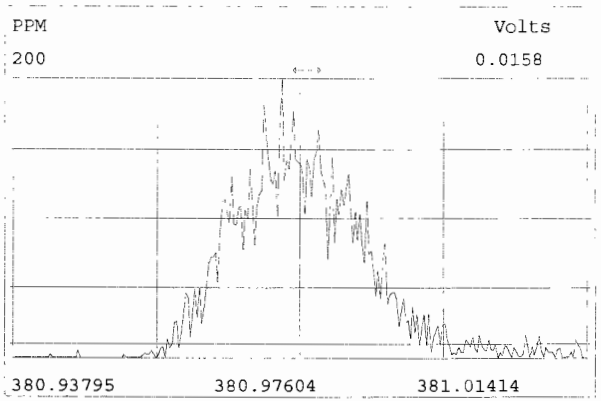
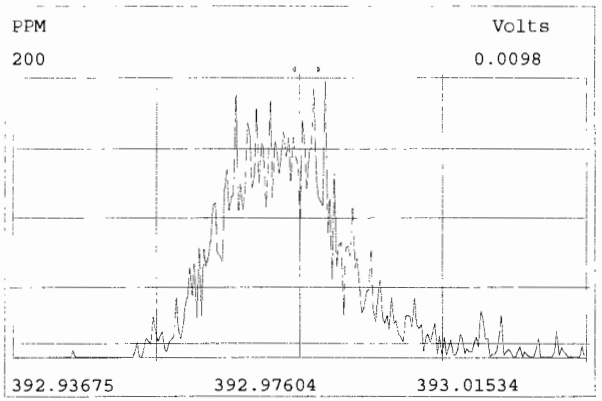
316.98245
317.01415
PPM
Volts
200
0.0249
330.94615
330.97925
331.01235
PPM
Volts
200
0.0184
342.94495
342.97925
343.01355
PPM
Volts
200
0.0074
354.94375
354.97925
355.01475
PPM
Volts
200
0.0056
366.94255
366.97925
367.01595
PPM
Volts
200
0.0162
380.93795
380.97604
381.01414
PPM
Volts
200
0.0092
392.93675
392.97604
393.01534
PPM
Volts
200
0.0100
404.93555
404.97604
405.01654
PPM
Volts
200
0.0047
416.93435
416.97604
417.01774

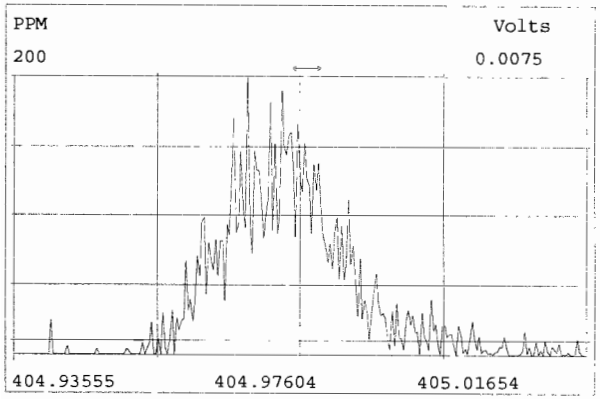
Peak Locate Examination: 9-OCT-2019:16:11 File:191009D1

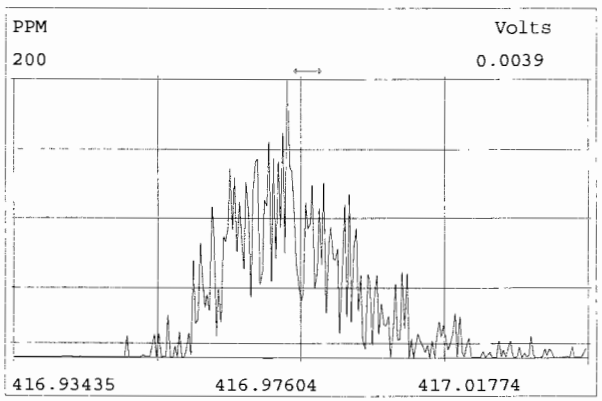
Experiment:OCDD_DB5 Function:3 Reference:PFK

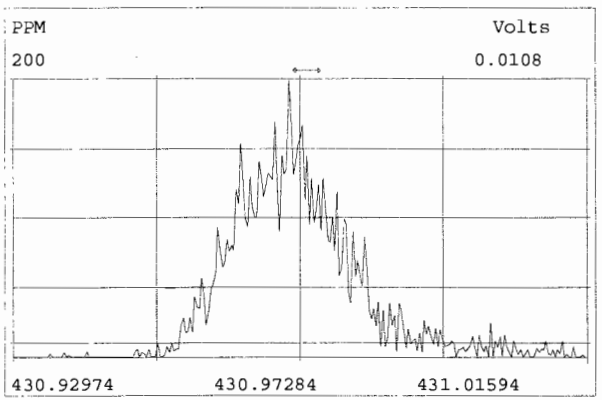


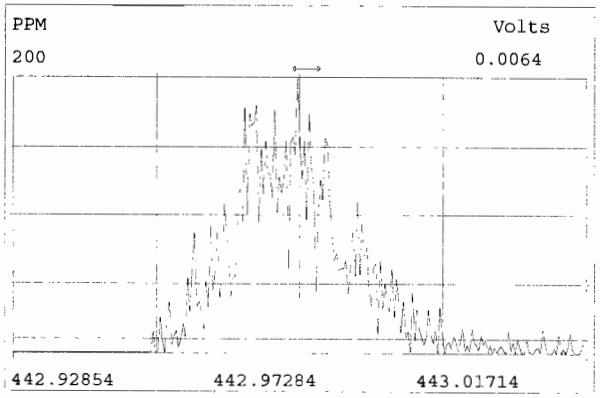


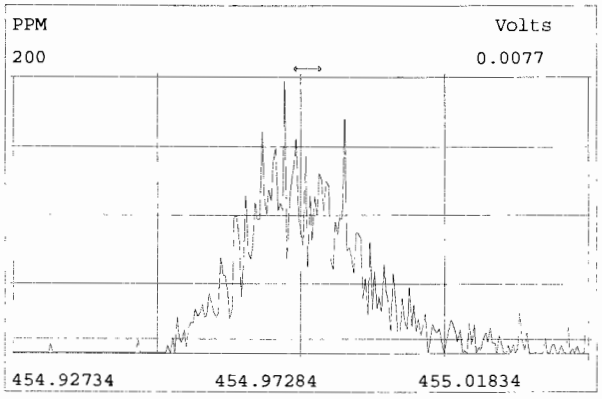


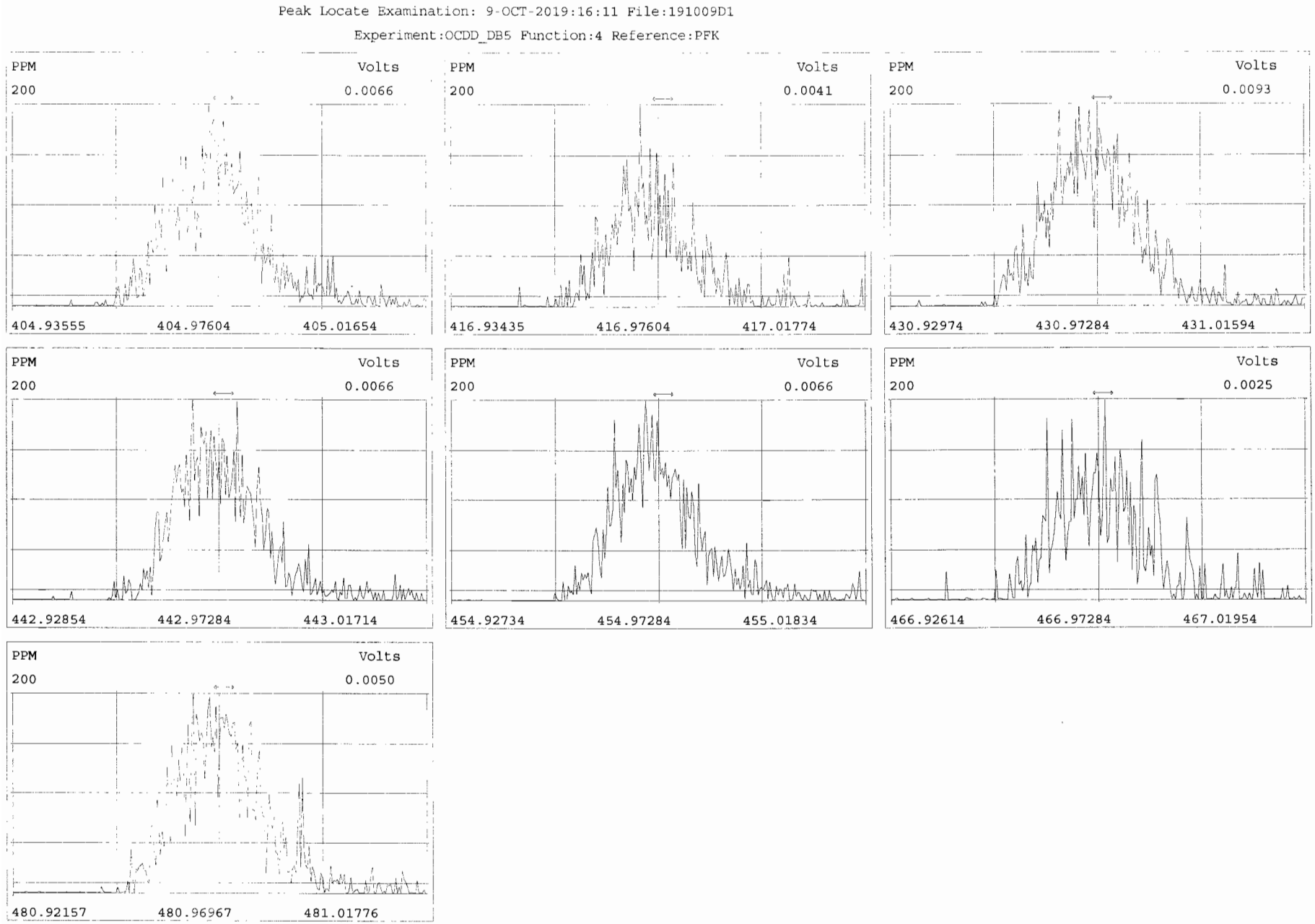






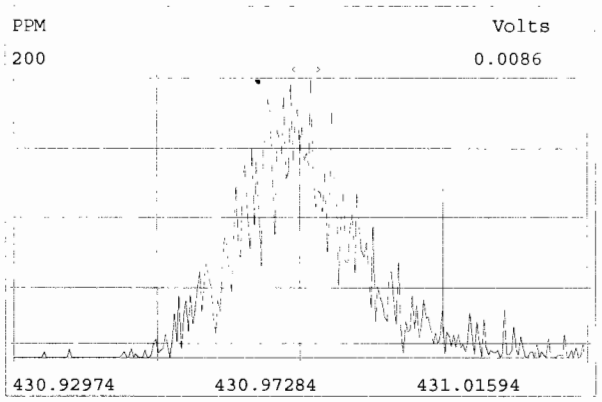


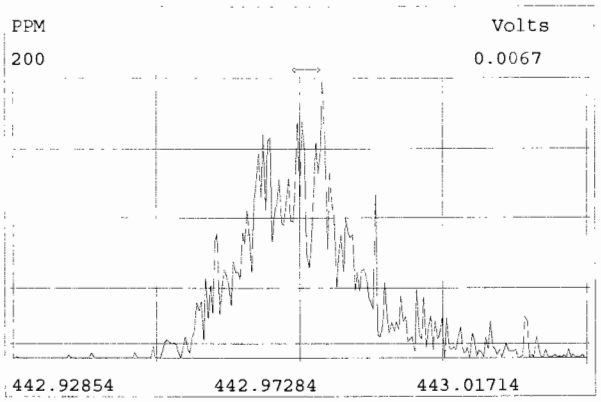


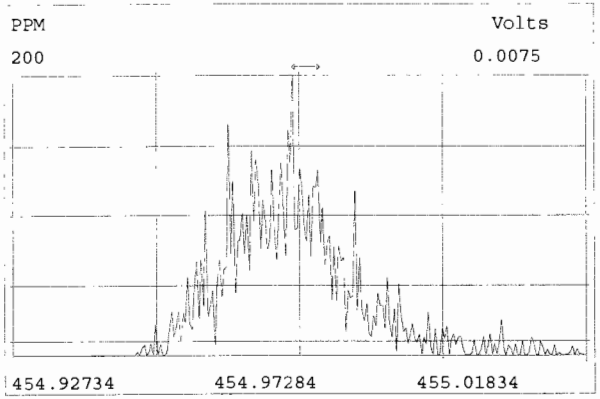

Peak Locate Examination: 9-OCT-2019:16:11 File:191009D1
Experiment:OCDD_DB5 Function:4 Reference:PFK
PPM
Volts
200
0.0066
404.93555
404.97604
405.01654
PPM
Volts
200
0.0041
416.93435
416.97604
417.01774
PPM
Volts
200
0.0093
430.92974
430.97284
431.01594
PPM
Volts
200
0.0066
442.92854
442.97284
443.01714
PPM
Volts
200
0.0066
454.92734
454.97284
455.01834
PPM
Volts
200
0.0025
466.92614
466.97284
467.01954
PPM
Volts
200
0.0050
480.92157
480.96967
481.01776

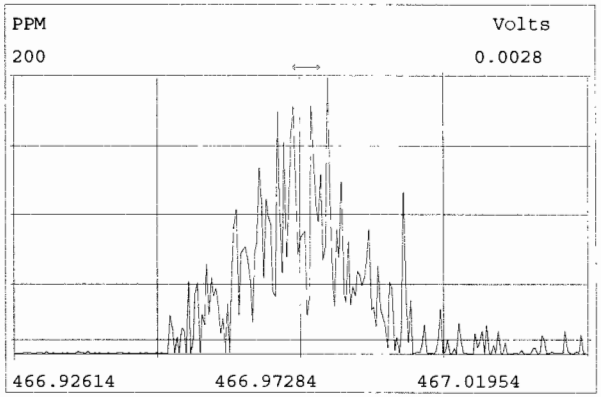
Peak Locate Examination: 9-OCT-2019:16:12 File:191009D1

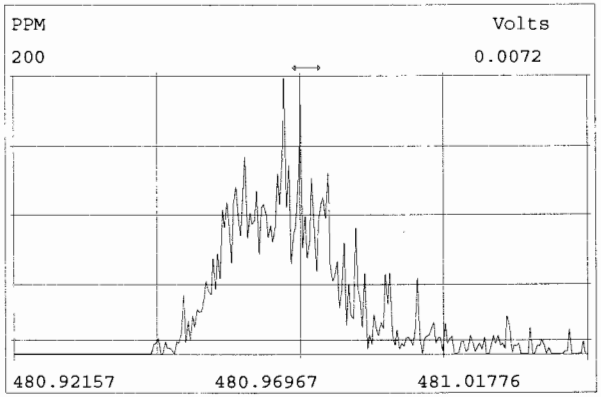
Experiment:OCDD_DB5 Function:5 Reference:PFK

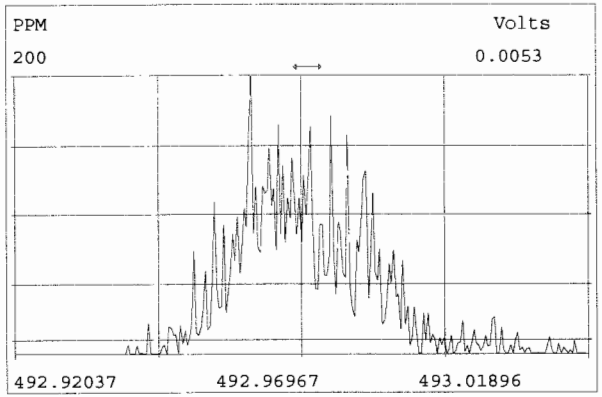


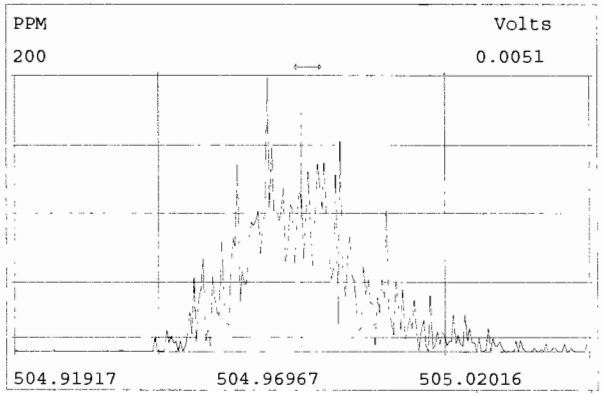


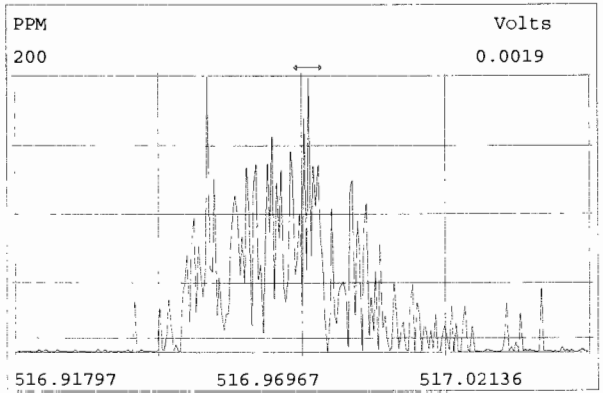








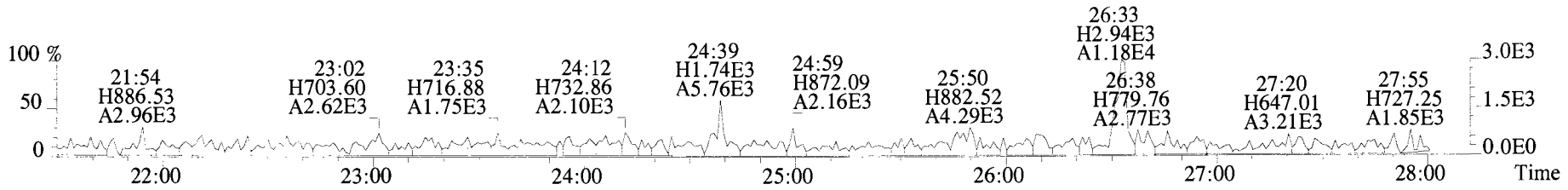




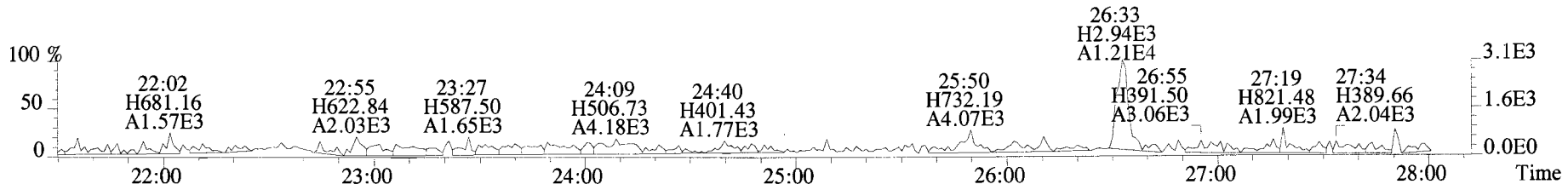
Vista Analytical Laboratory - Injection Log Run file: 191009D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
191009D1	1	ST191009D1-1	DB	9-OCT-19	16:13:04	ST191009D1-4	NA
191009D1	2	ST191009D1-2	DB	9-OCT-19	17:00:45	ST191009D1-4	NA
191009D1	3	ST191009D1-3	DB	9-OCT-19	17:48:27	ST191009D1-4	NA
191009D1	4	ST191009D1-4	DB	9-OCT-19	18:36:09	ST191009D1-4	NA
191009D1	5	ST191009D1-5	DB	9-OCT-19	19:23:46	ST191009D1-4	NA
191009D1	6	ST191009D1-6	DB	9-OCT-19	20:11:17	ST191009D1-4	NA
191009D1	7	SOLVENT BLANK	DB	9-OCT-19	20:58:57	ST191009D1-4	NA
191009D1	8	SS191009D1-1	DB	9-OCT-19	21:46:34	ST191009D1-4	NA
191009D1	9	B9J0001-BS1	DB	9-OCT-19	22:34:09	ST191009D1-4	NA
191009D1	10	SOLVENT BLANK	DB	9-OCT-19	23:21:45	ST191009D1-4	NA
191009D1	11	B9J0001-BLK1	DB	10-OCT-19	00:09:30	ST191009D1-4	NA
191009D1	12	QC191007D1-1	DB	10-OCT-19	00:57:00	ST191009D1-4	NA
191009D1	13	1903285-08	DB	10-OCT-19	01:44:36	ST191009D1-4	NA
191009D1	14	1903285-09	DB	10-OCT-19	02:32:11	ST191009D1-4	NA
191009D1	15	1903285-10	DB	10-OCT-19	03:19:47	ST191009D1-4	NA
191009D1	16	1903103-02@5X	DB	10-OCT-19	04:07:23	ST191009D1-4	NA
191009D1	17	1903103-01@5X	DB	10-OCT-19	04:54:54	ST191009D1-4	NA
191009D1	18	B9I0240-DUP1@5X	DB	10-OCT-19	05:42:38	ST191009D1-4	NA

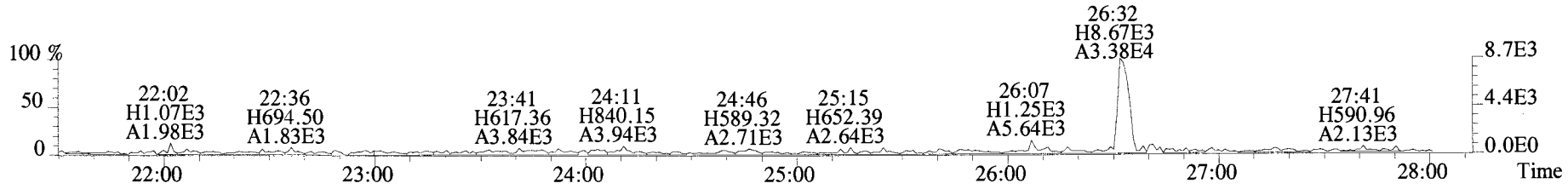
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



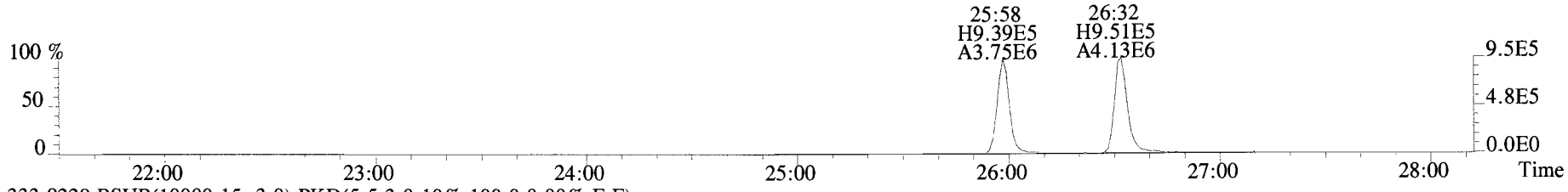
321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



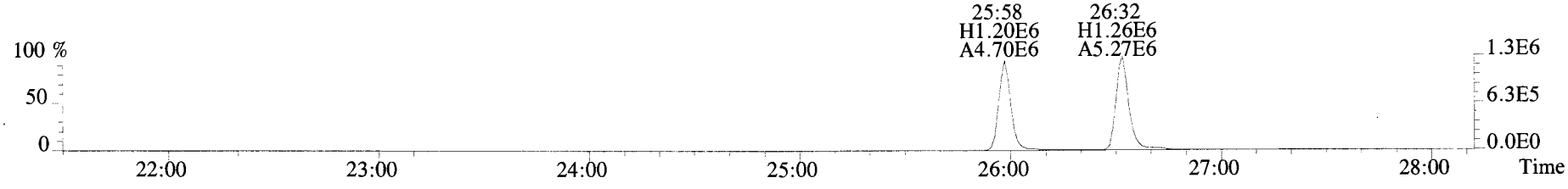
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



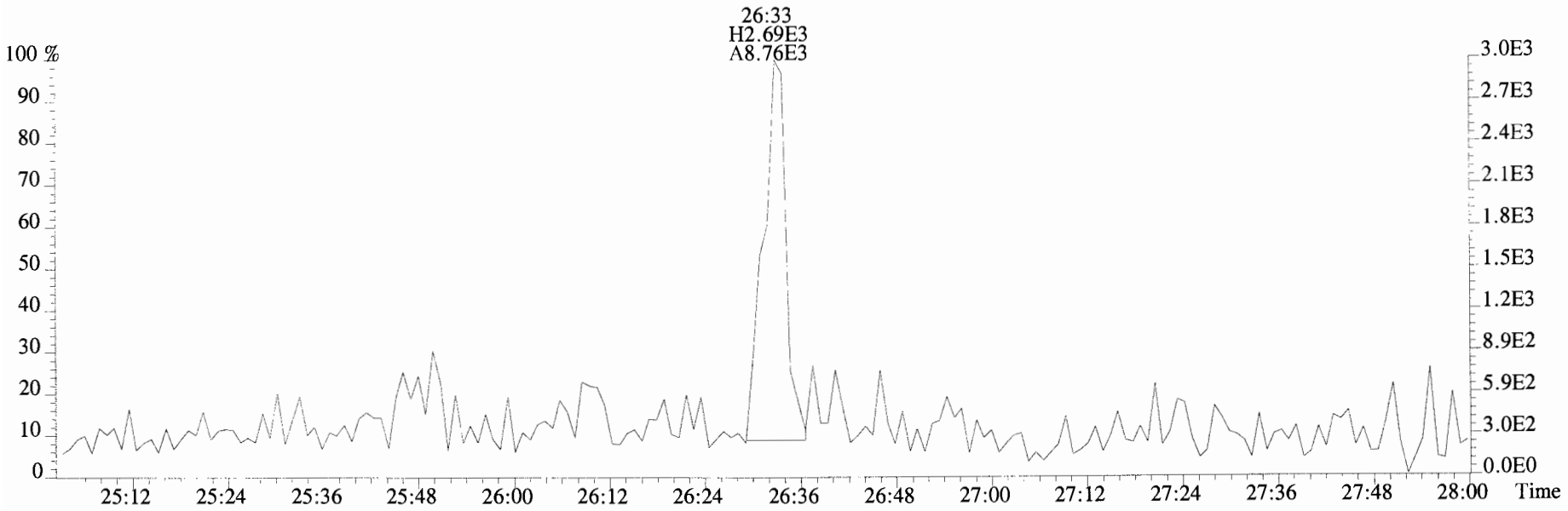
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



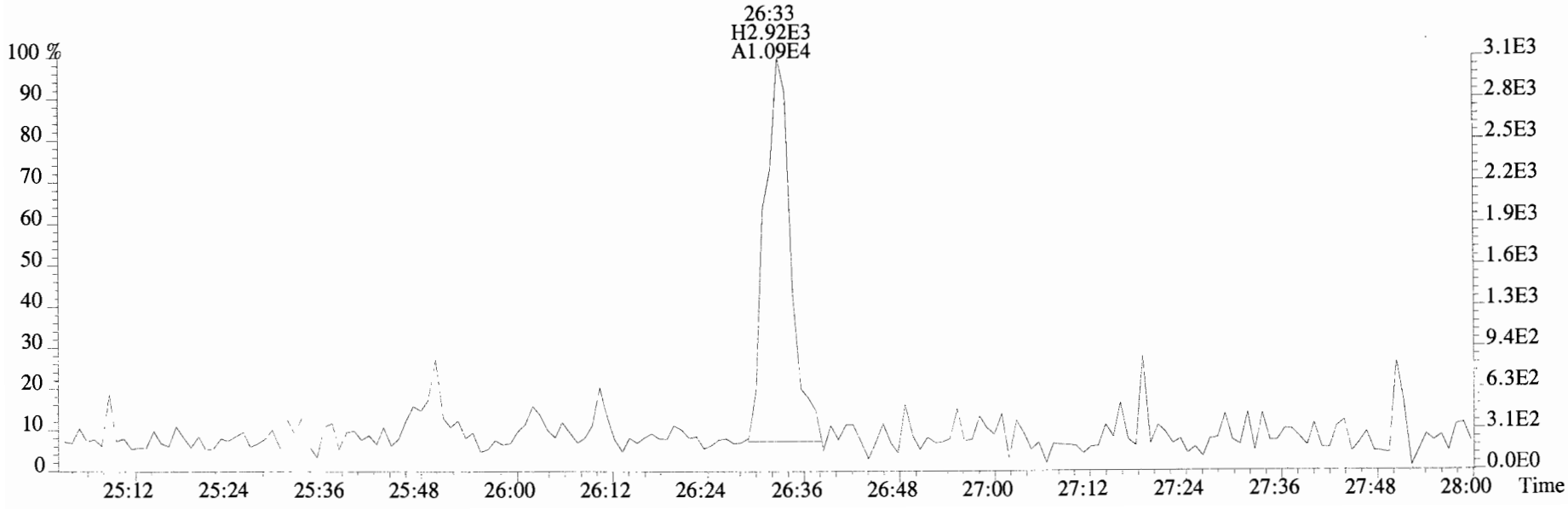
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



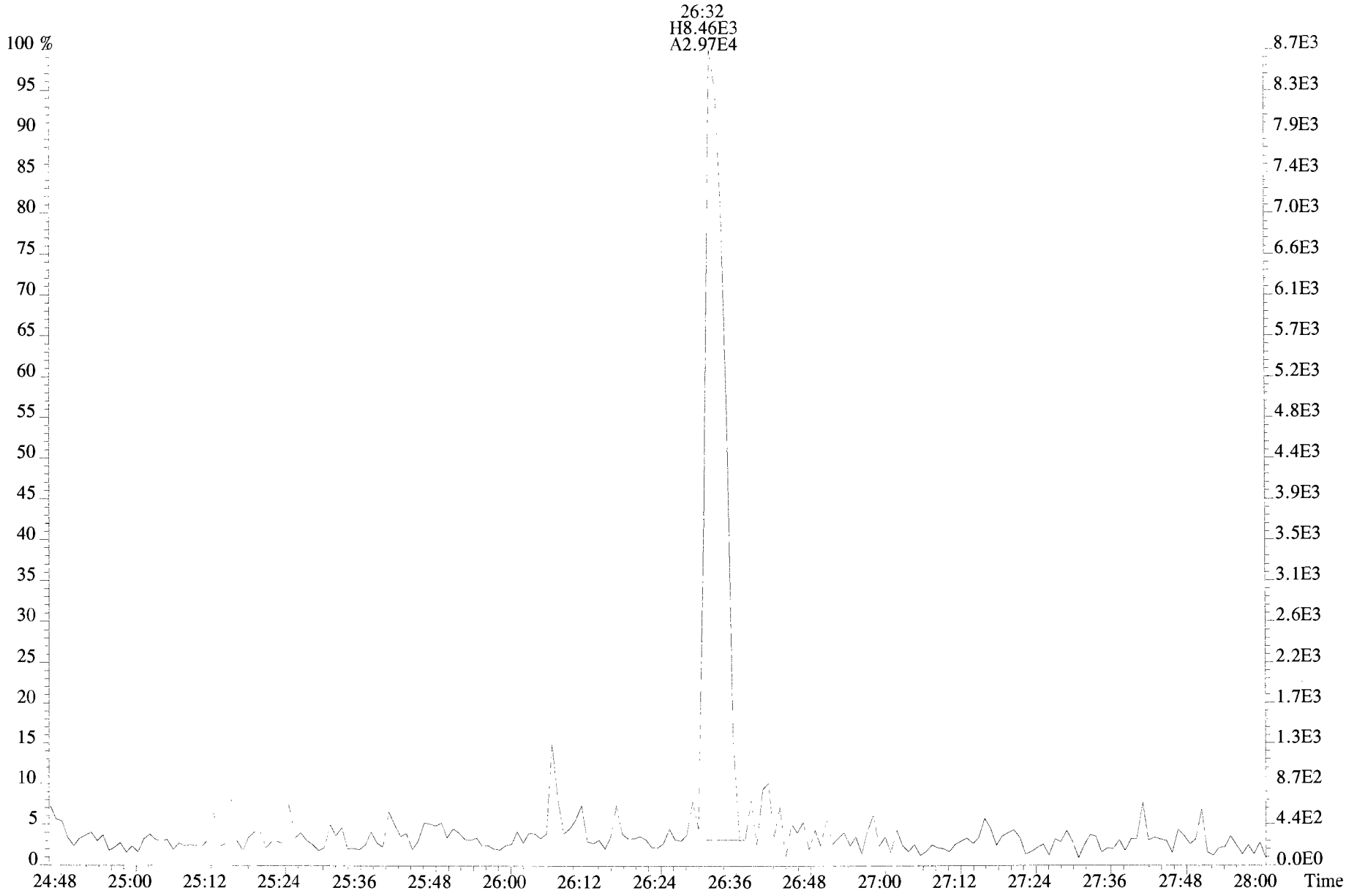
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

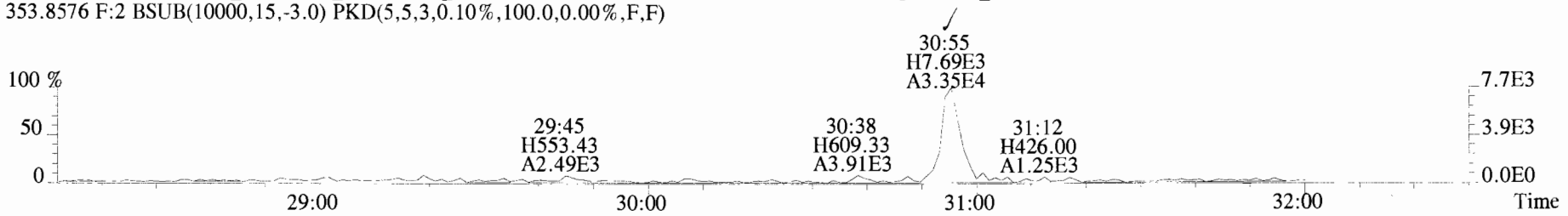


File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
327.8847 BSUB(10000,15,-3.0)

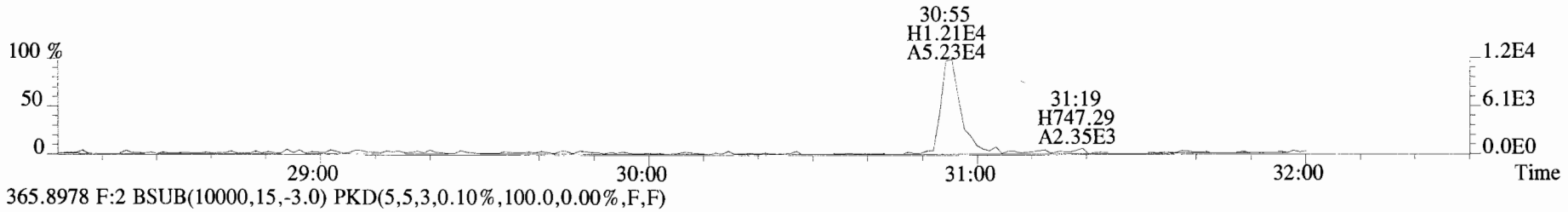


File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5

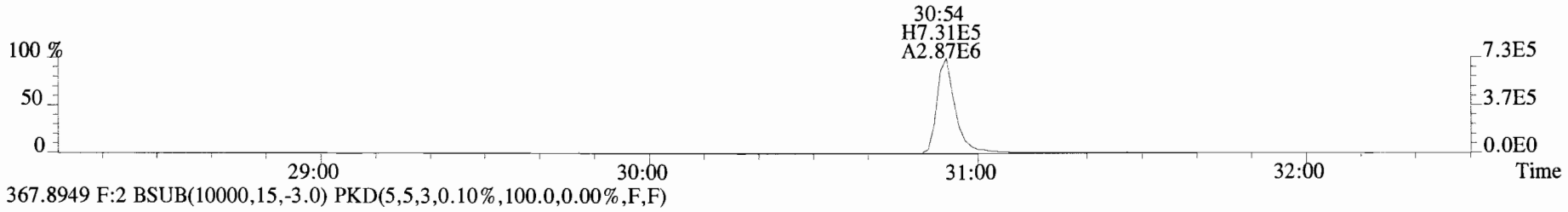
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



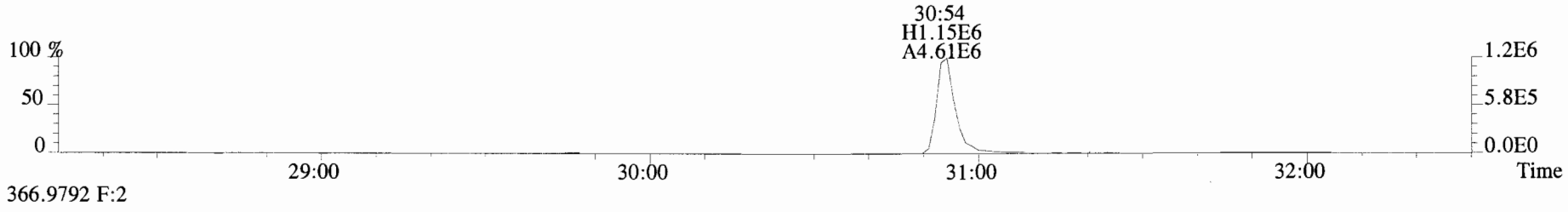
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



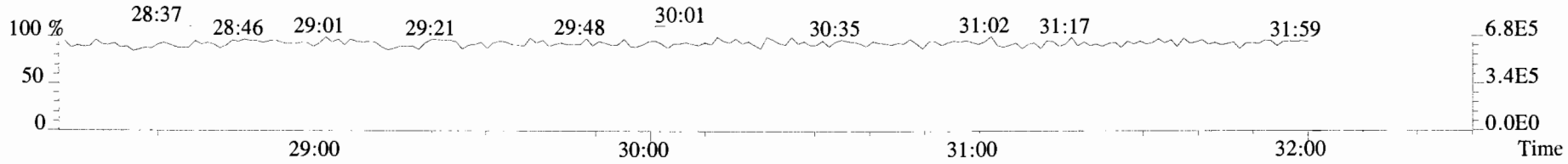
365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



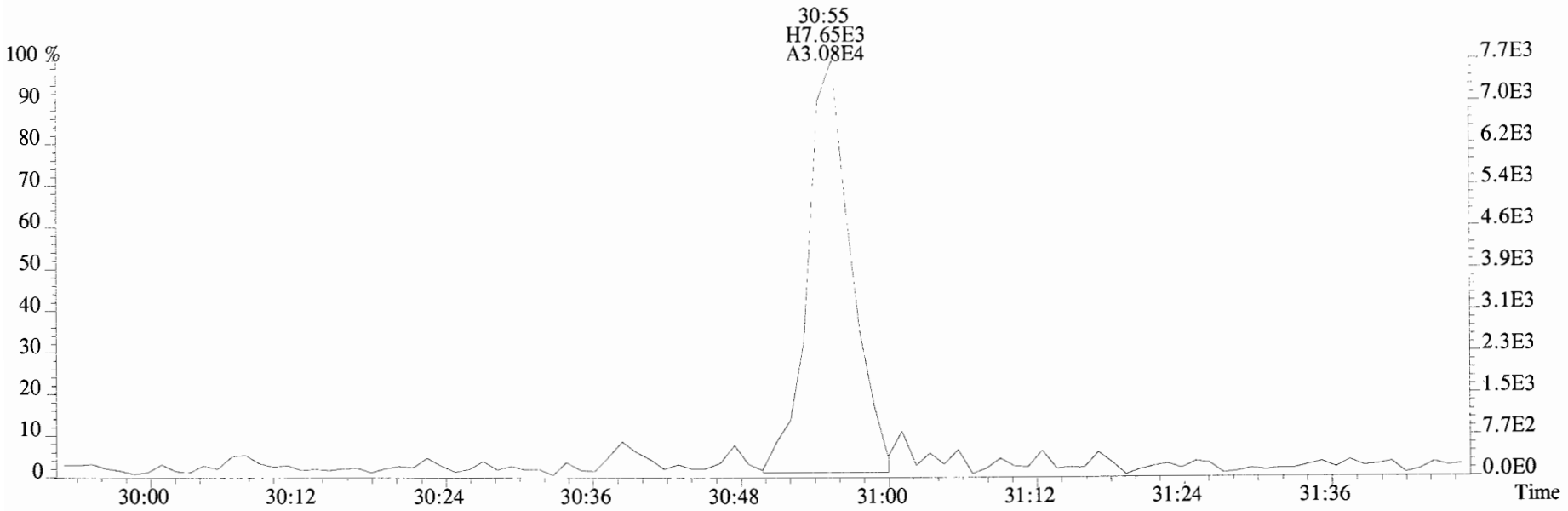
367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



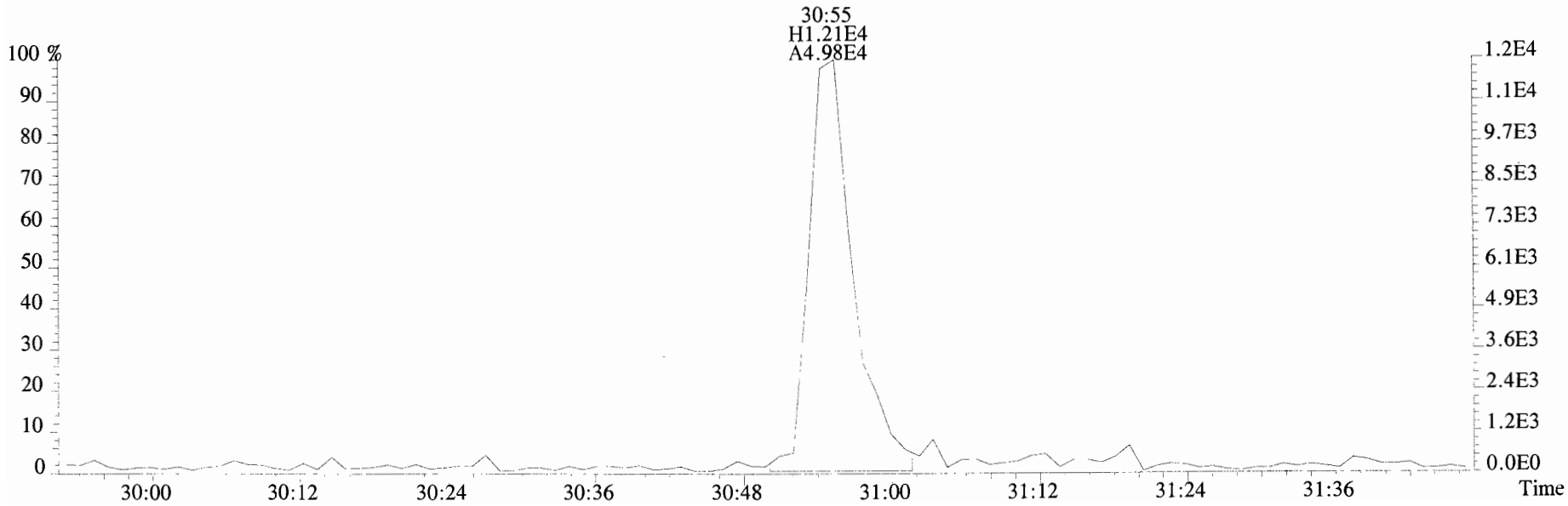
366.9792 F:2

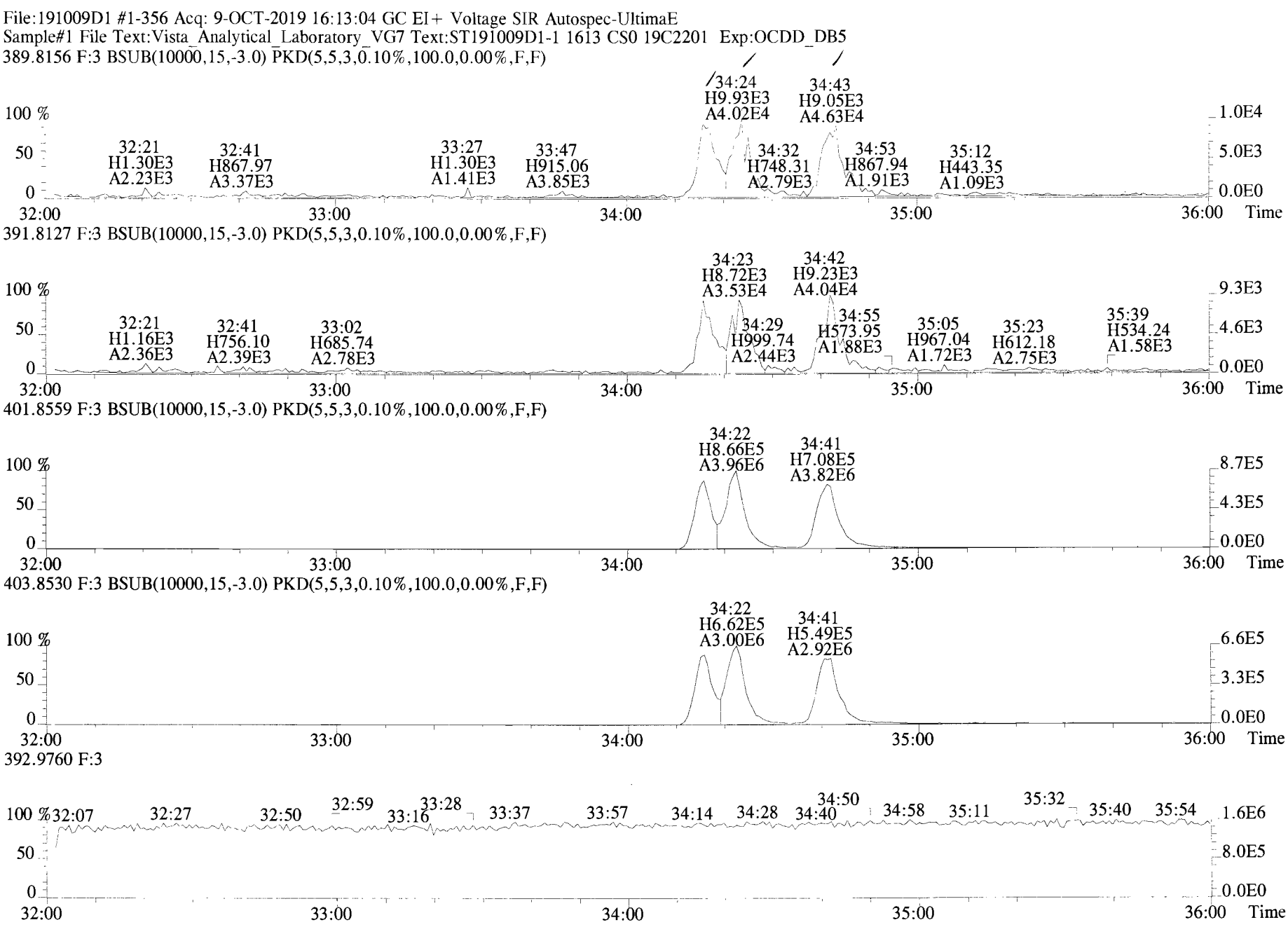


File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

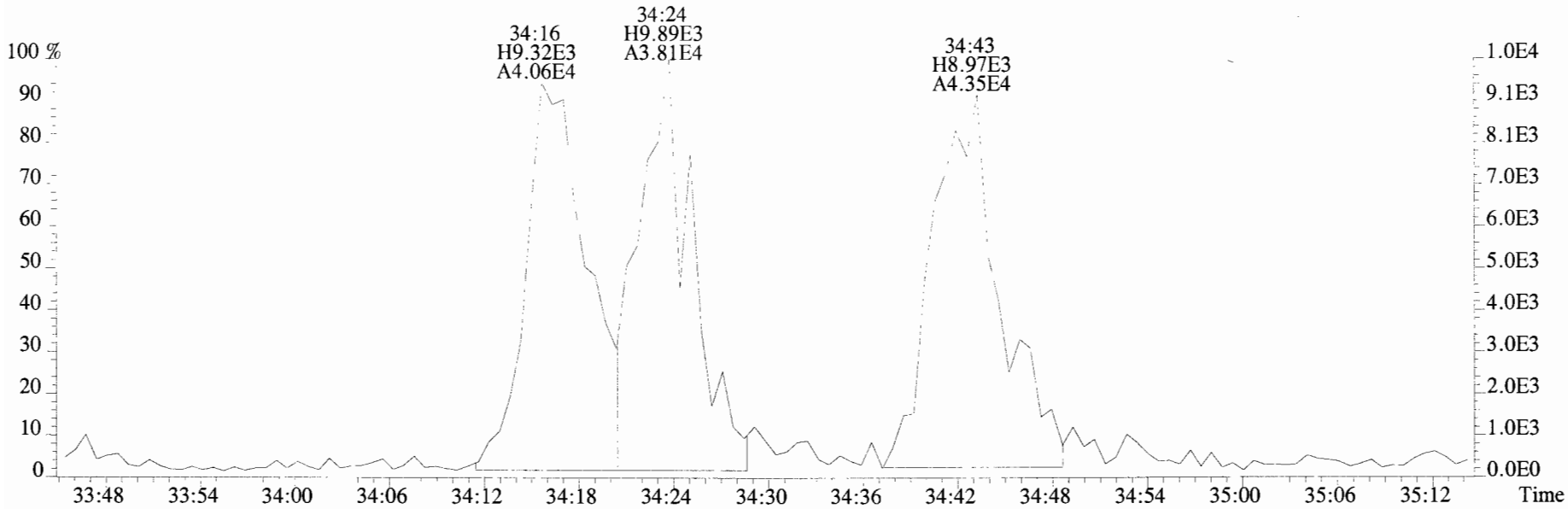


355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

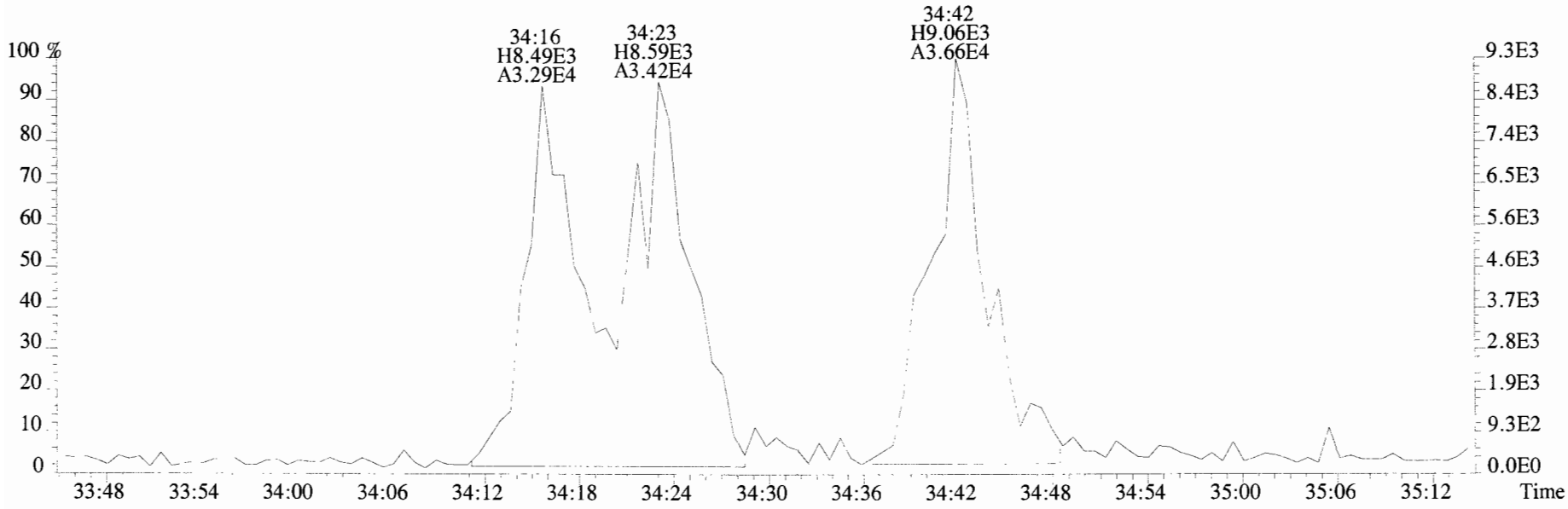



File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:24 H9.93E3 A4.02E4
34:43 H9.05E3 A4.63E4
32:21 H1.30E3 A2.23E3
32:41 H867.97 A3.37E3
33:27 H1.30E3 A1.41E3
33:47 H915.06 A3.85E3
34:32 H748.31 A2.79E3
34:53 H867.94 A1.91E3
35:12 H443.35 A1.09E3
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:23 H8.72E3 A3.53E4
34:42 H9.23E3 A4.04E4
32:21 H1.16E3 A2.36E3
32:41 H756.10 A2.39E3
33:02 H685.74 A2.78E3
34:29 H999.74 A2.44E3
34:55 H573.95 A1.88E3
35:05 H967.04 A1.72E3
35:23 H612.18 A2.75E3
35:39 H534.24 A1.58E3
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:22 H8.66E5 A3.96E6
34:41 H7.08E5 A3.82E6
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
34:22 H6.62E5 A3.00E6
34:41 H5.49E5 A2.92E6
392.9760 F:3
32:07
32:27
32:50
32:59
33:16
33:28
33:37
33:57
34:14
34:28
34:40
34:50
34:58
35:11
35:32
35:40
35:54
100 %
50
0
32:00
33:00
34:00
35:00
36:00
Time
1.0E4
5.0E3
0.0E0
9.3E3
4.6E3
8.7E5
4.3E5
6.6E5
3.3E5
1.6E6
8.0E5

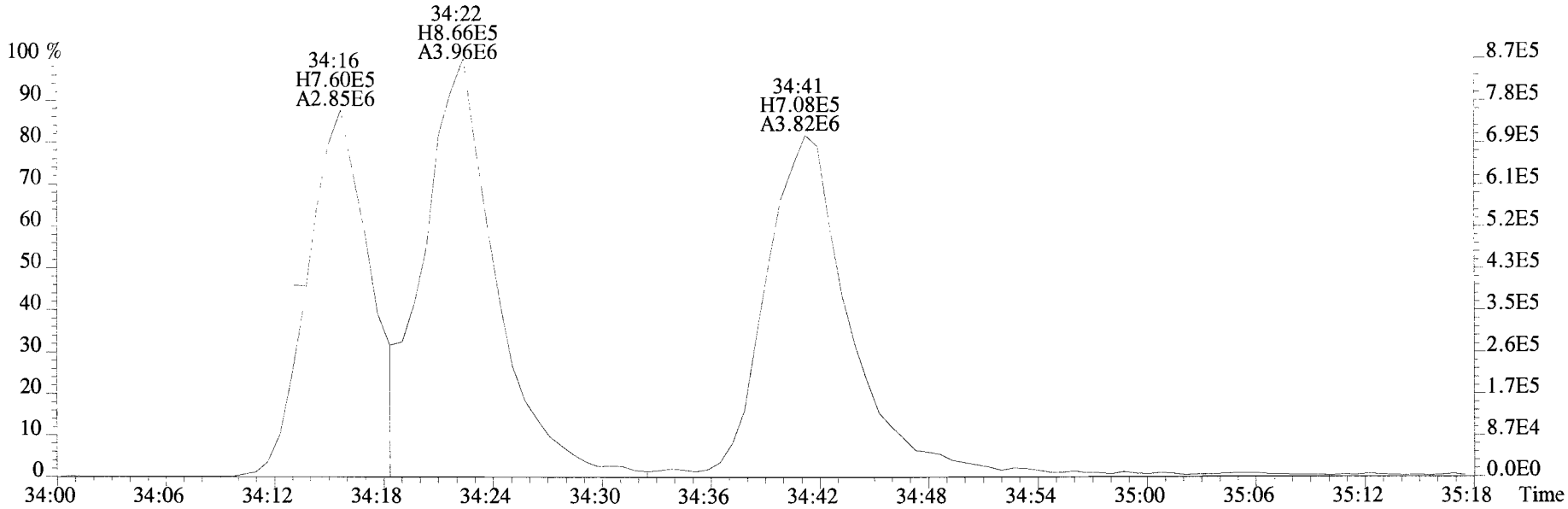
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



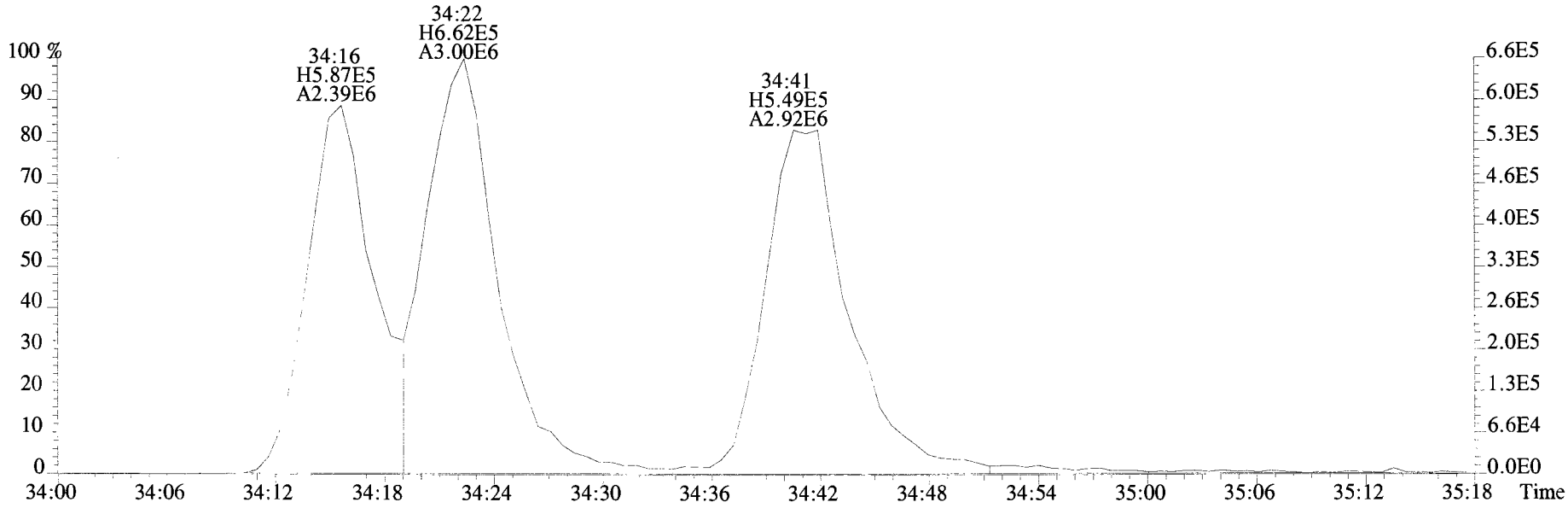
391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



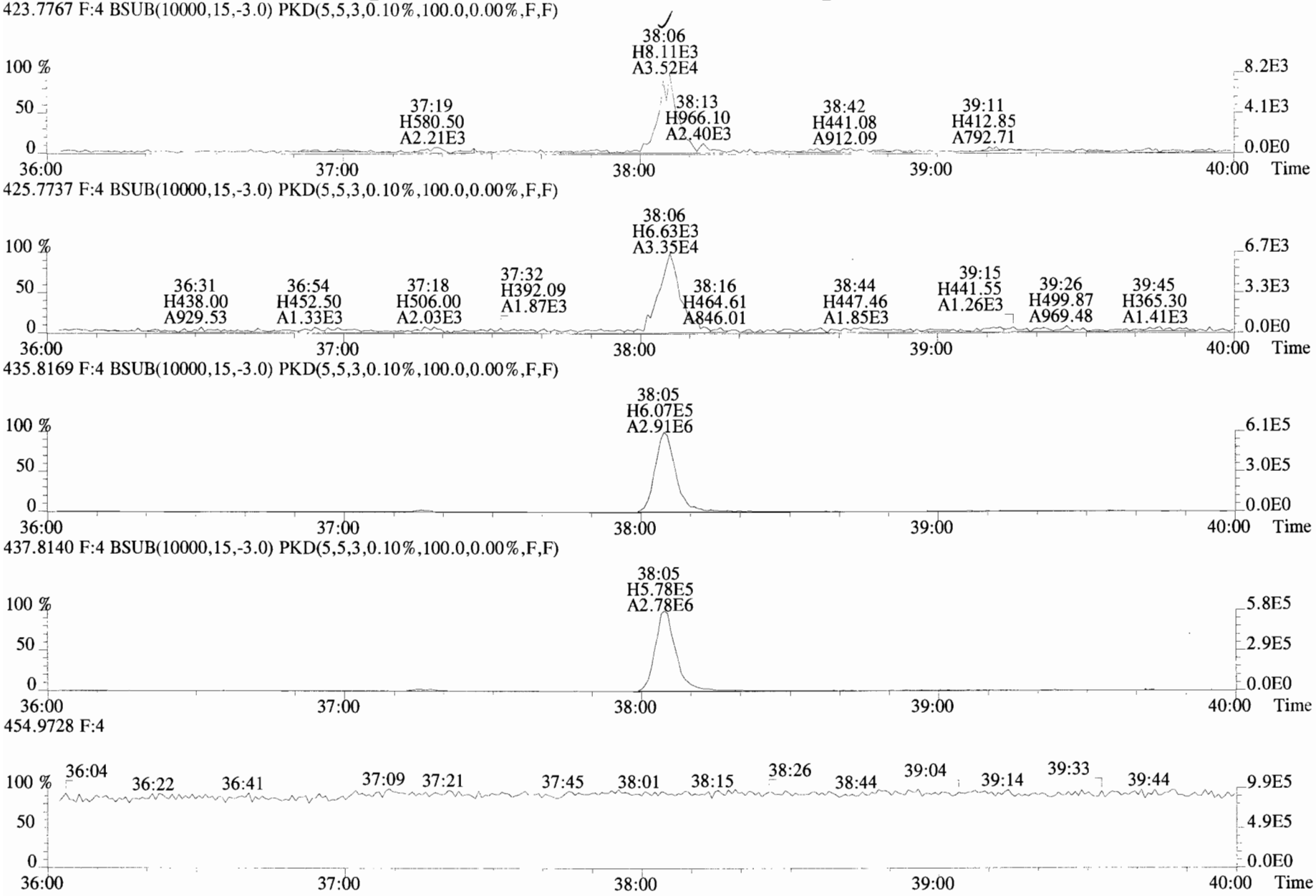
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



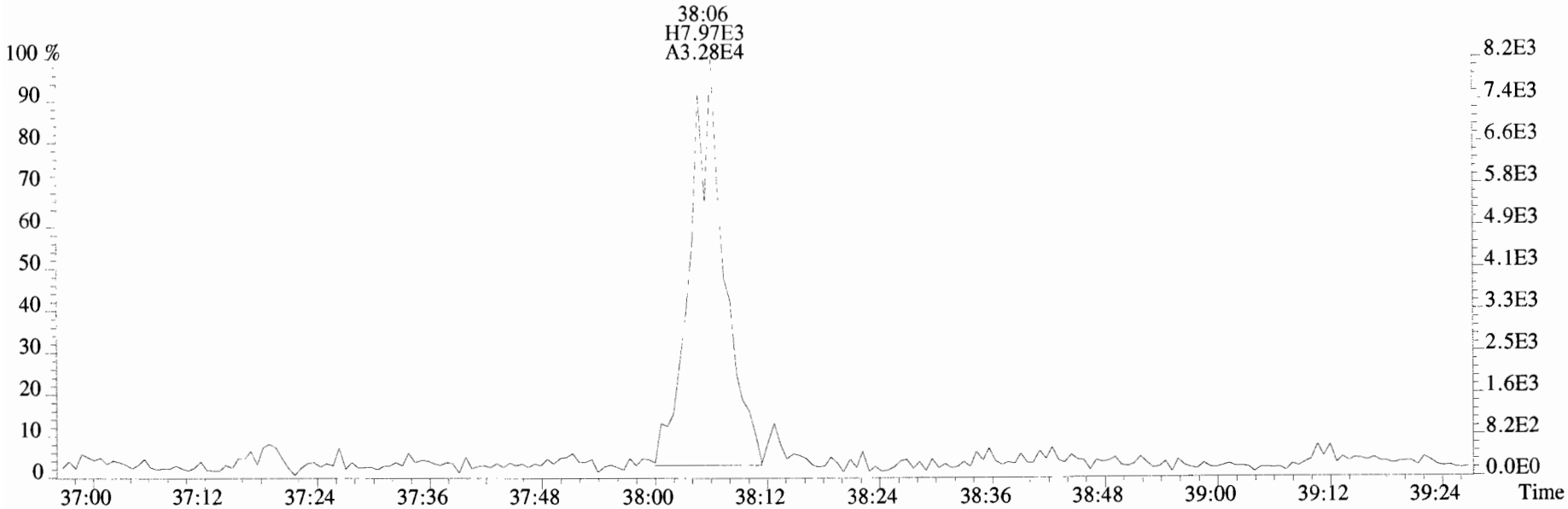
403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



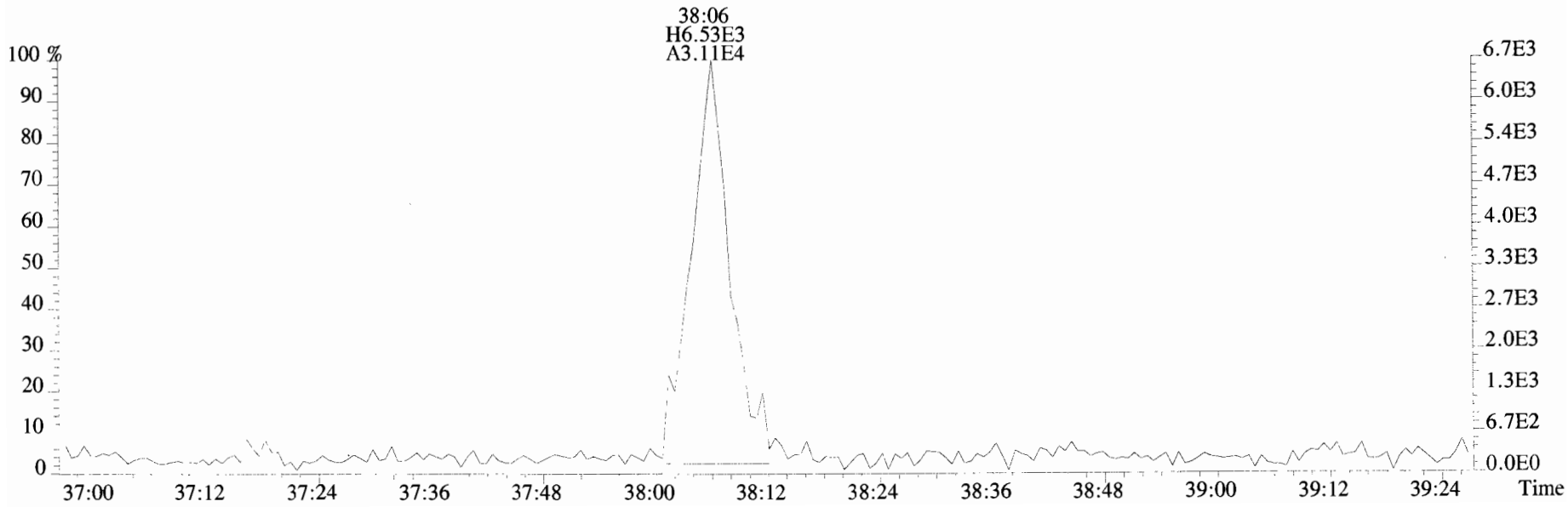
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5



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)

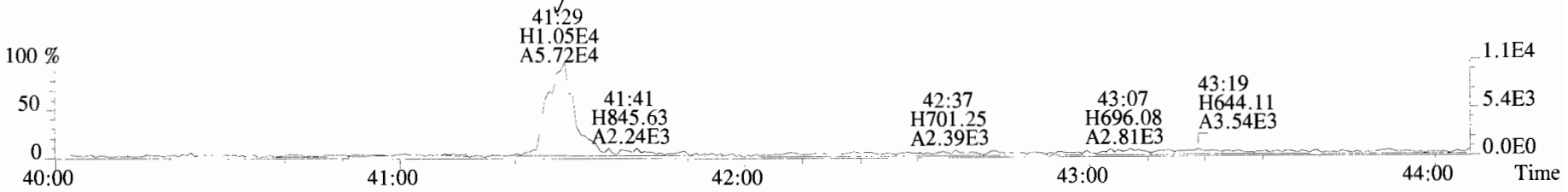


425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

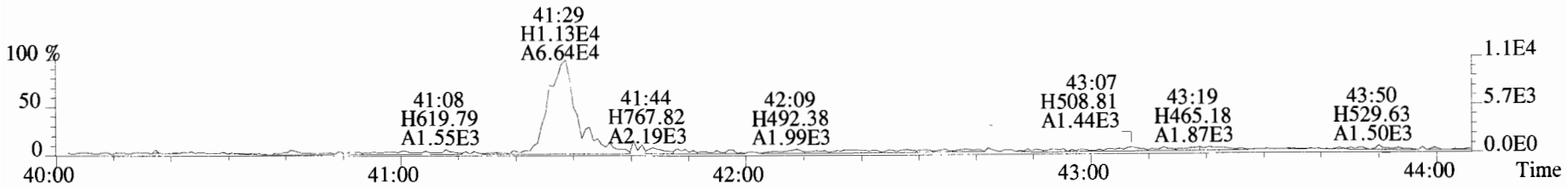


File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5

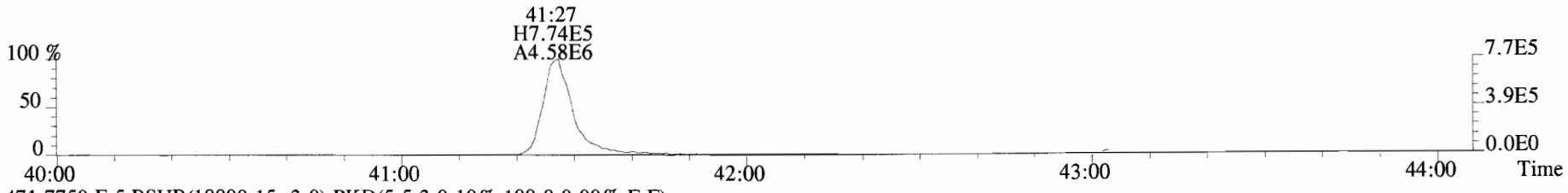
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



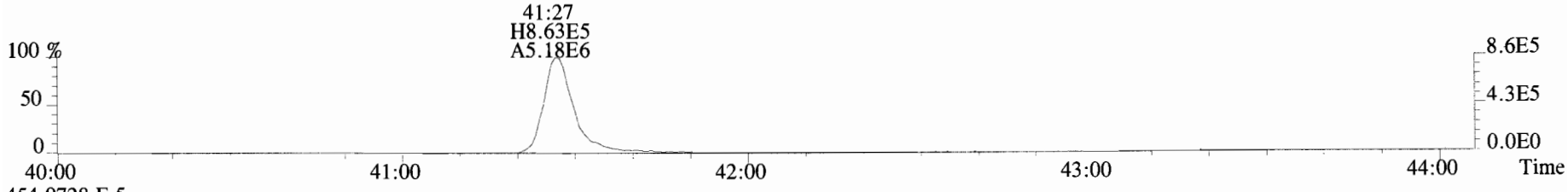
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



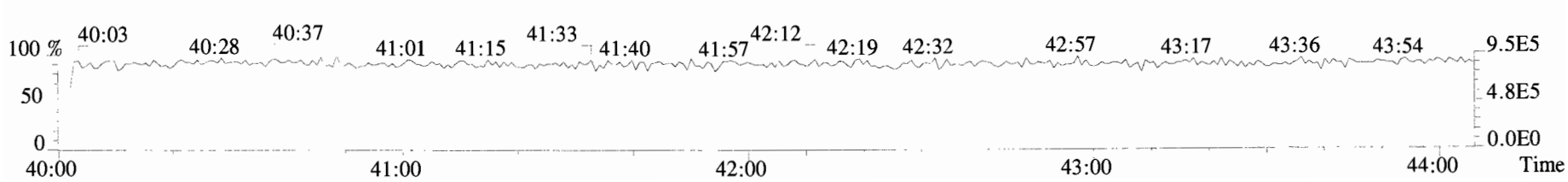
469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



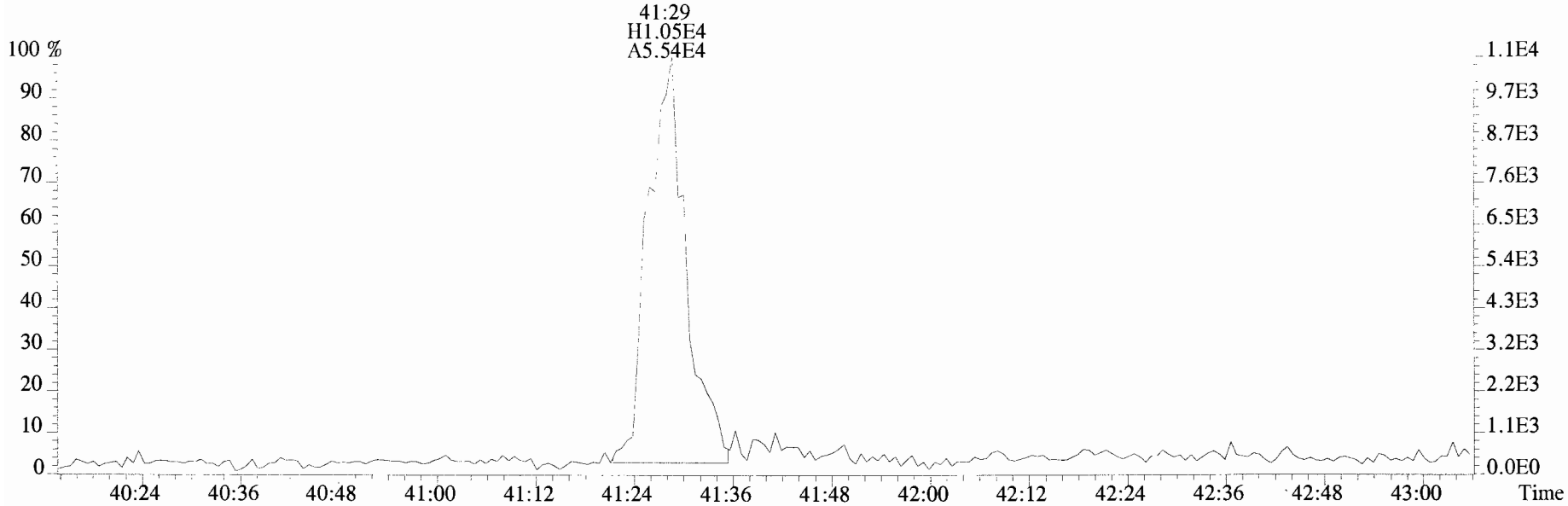
471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



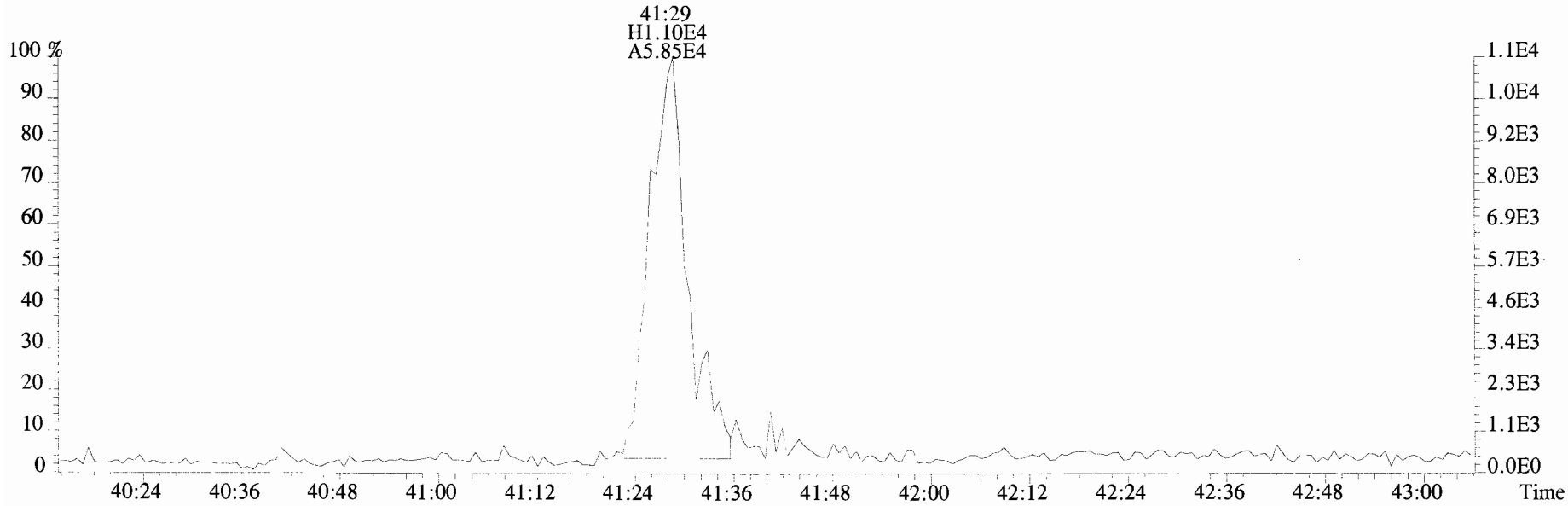
454.9728 F:5



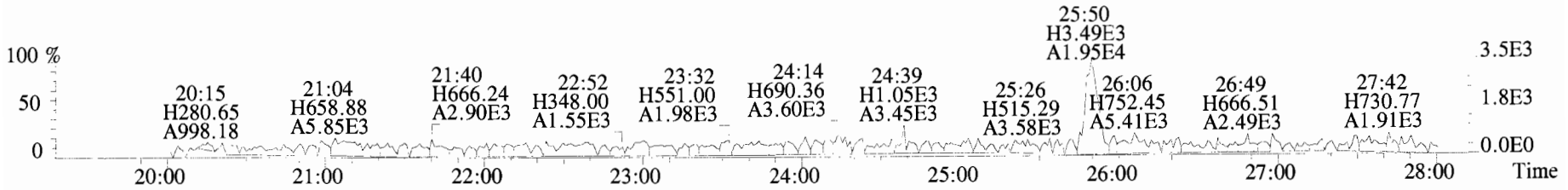
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



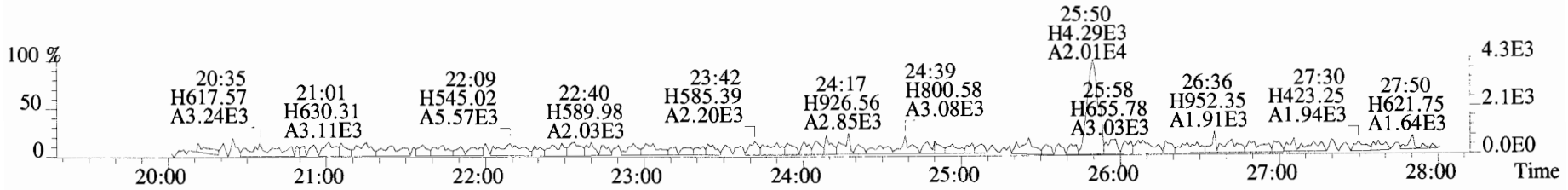
459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



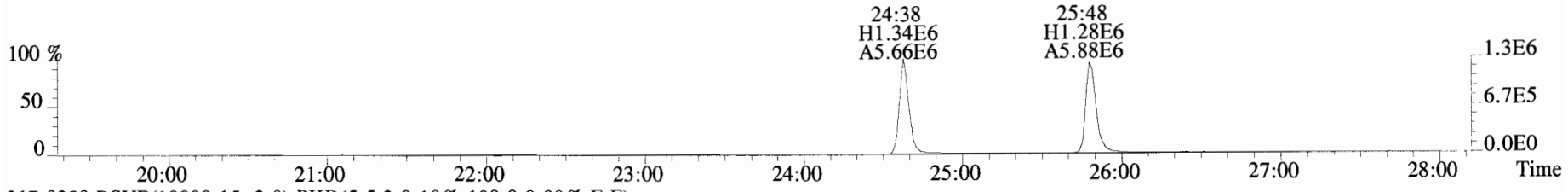
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



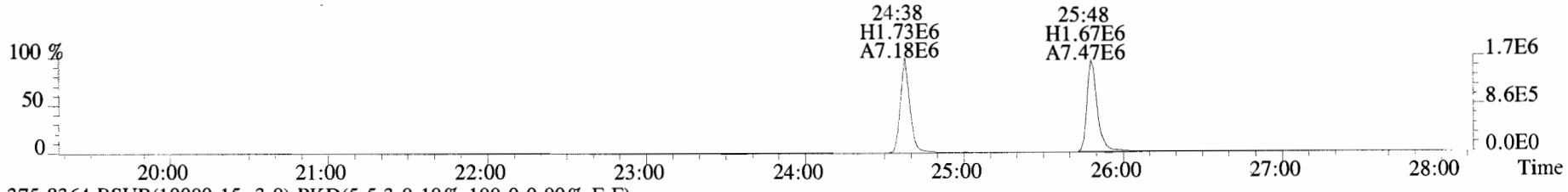
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



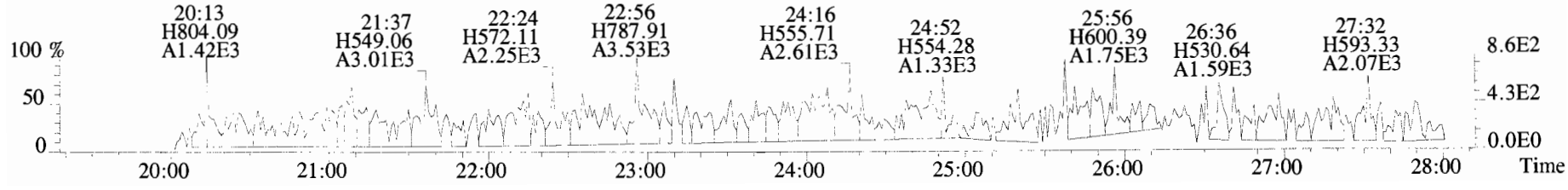
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



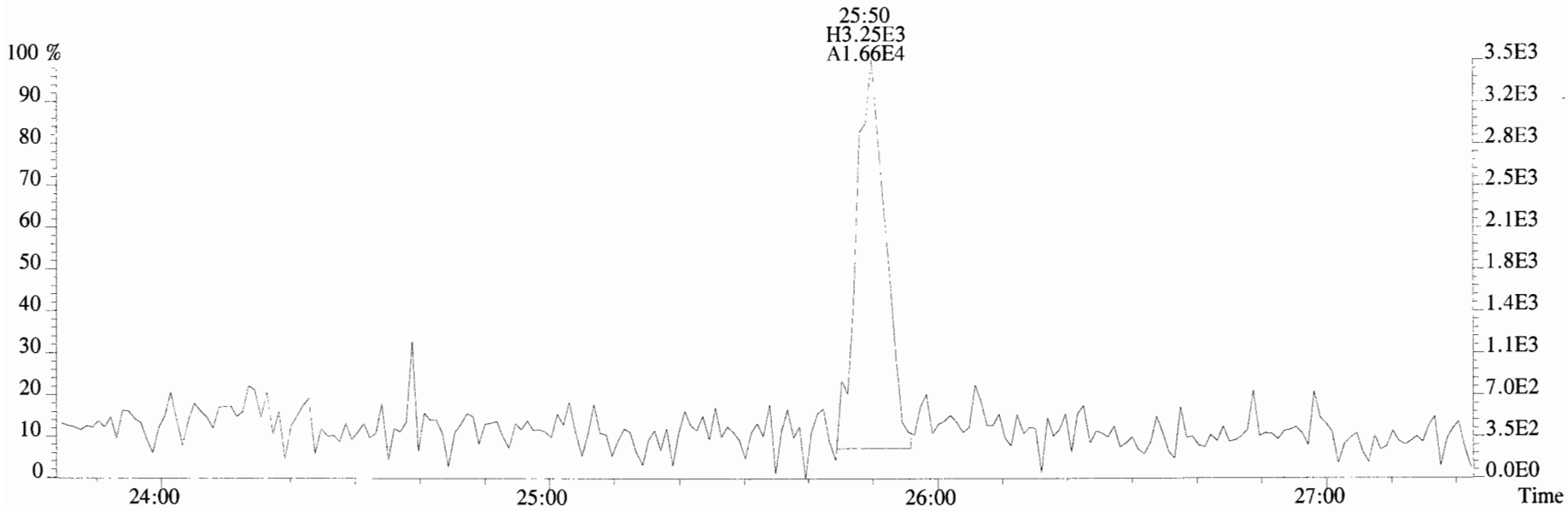
317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



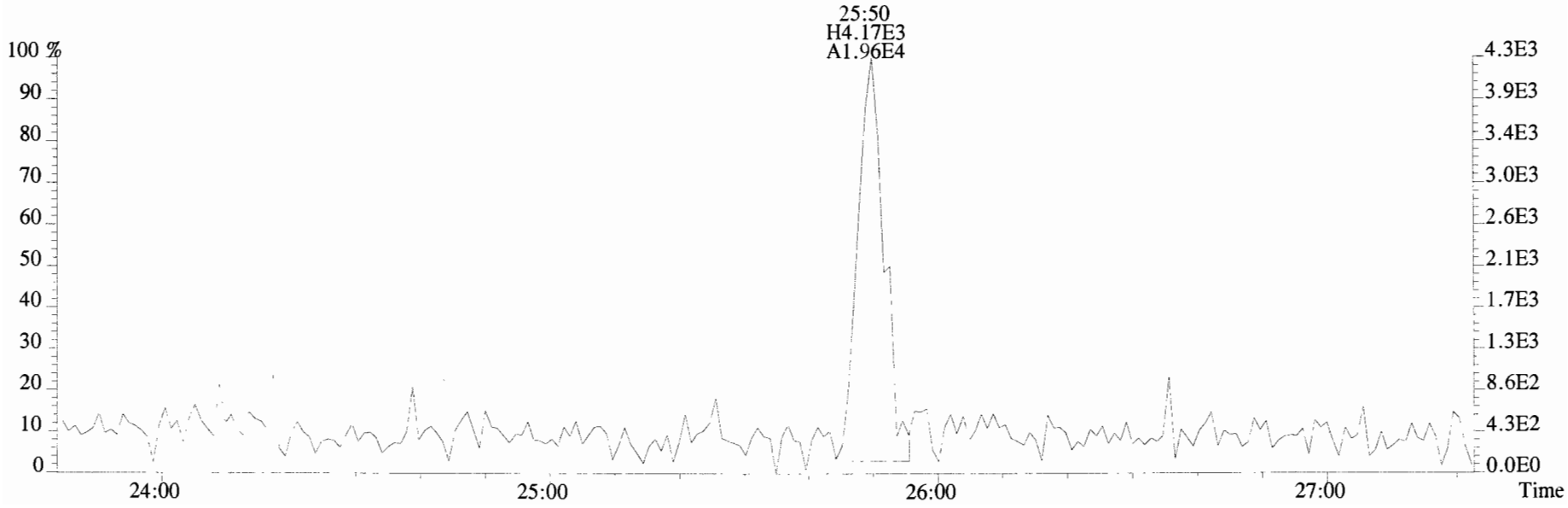
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



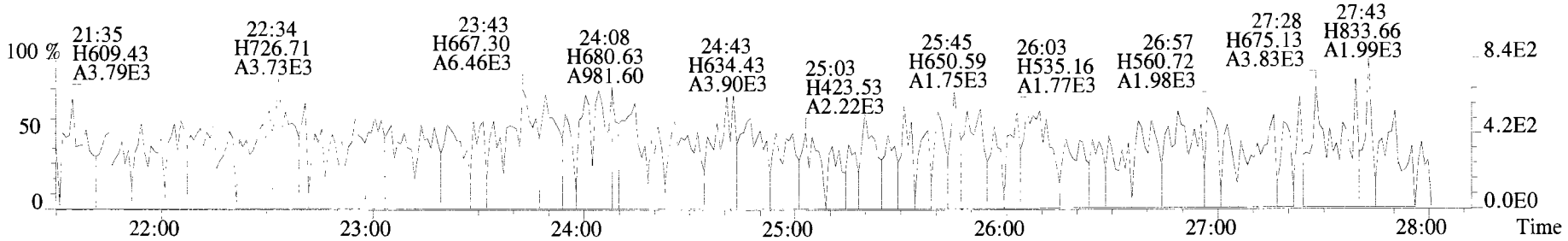
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



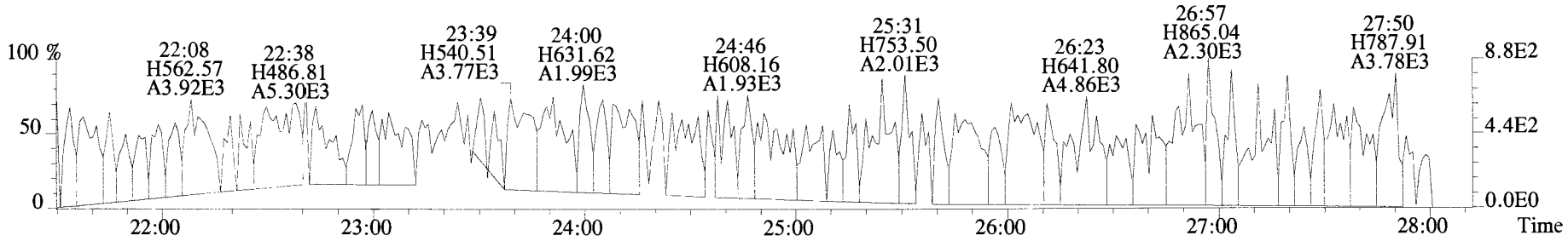
305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



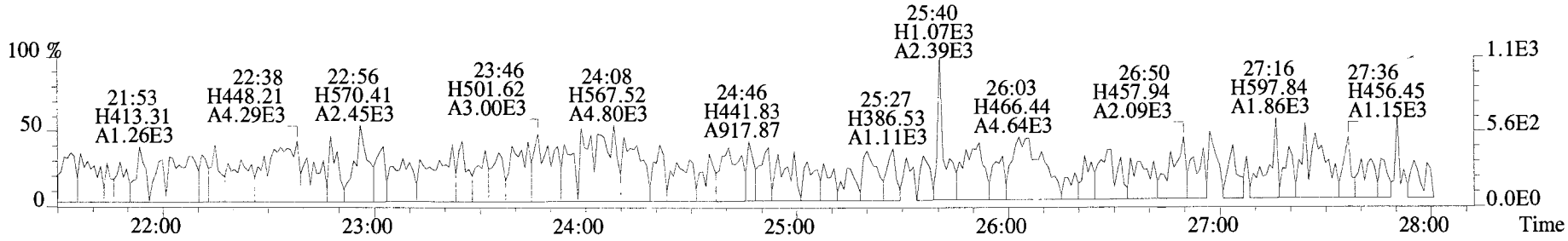
File:191009D1 #1-514 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



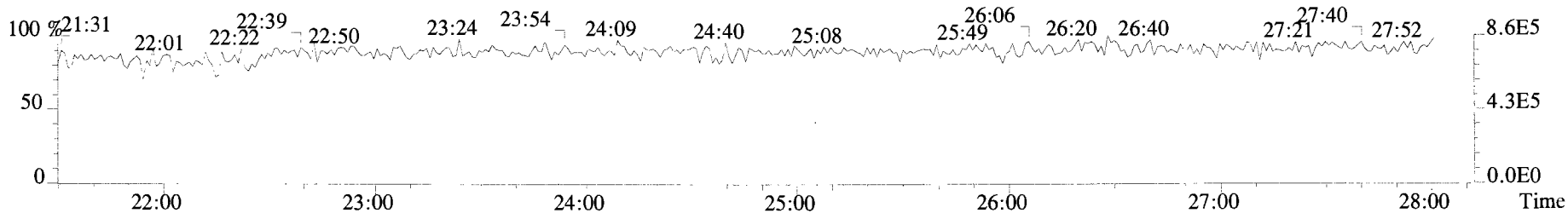
341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

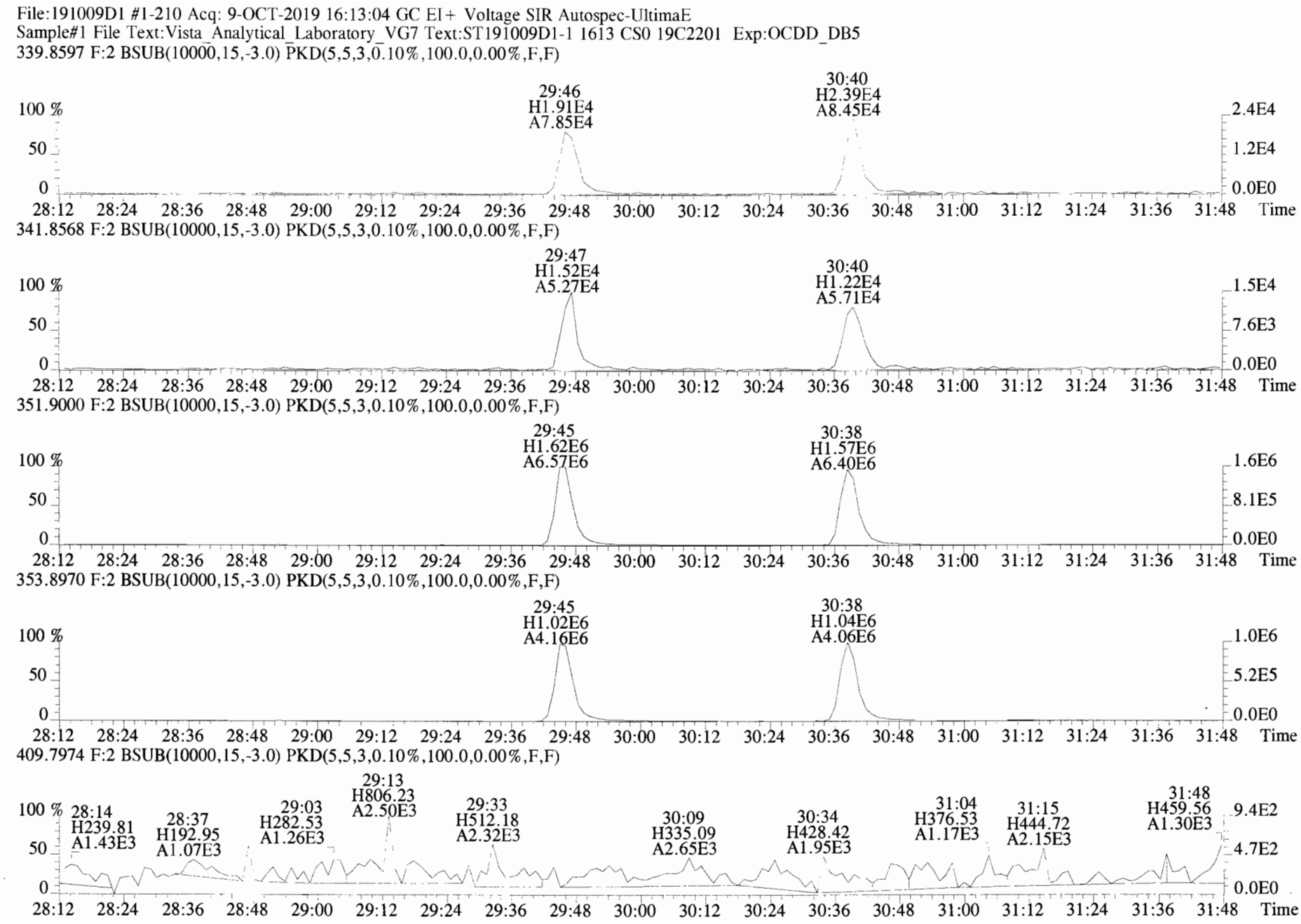


409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

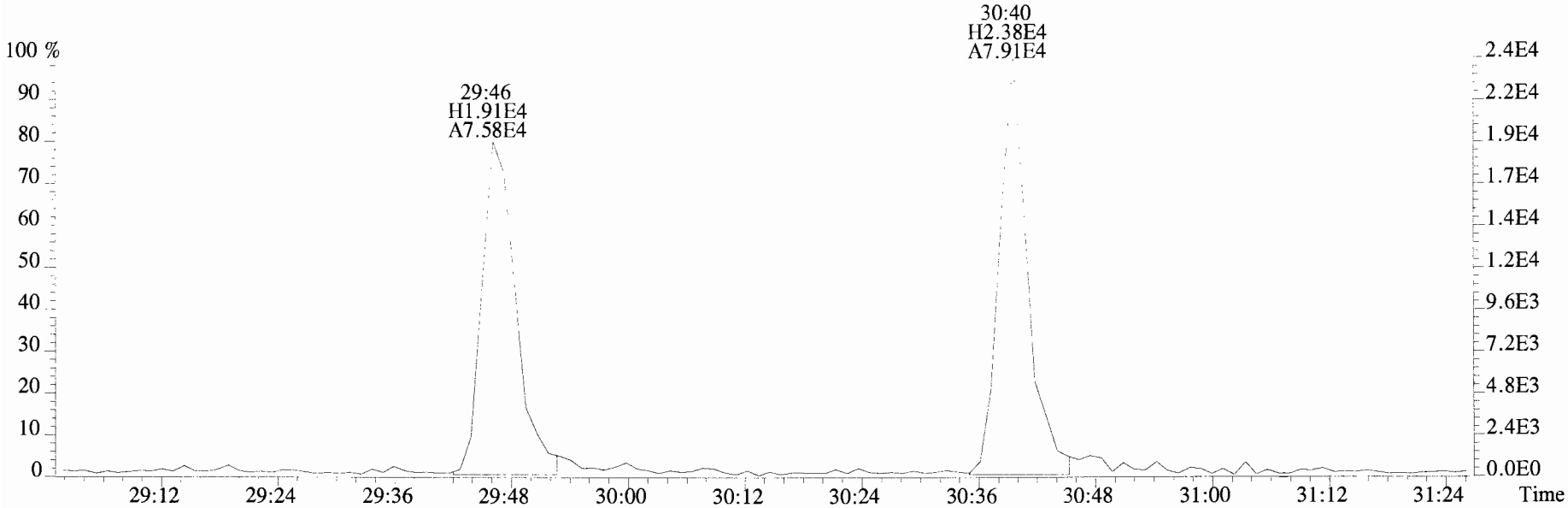


316.9824

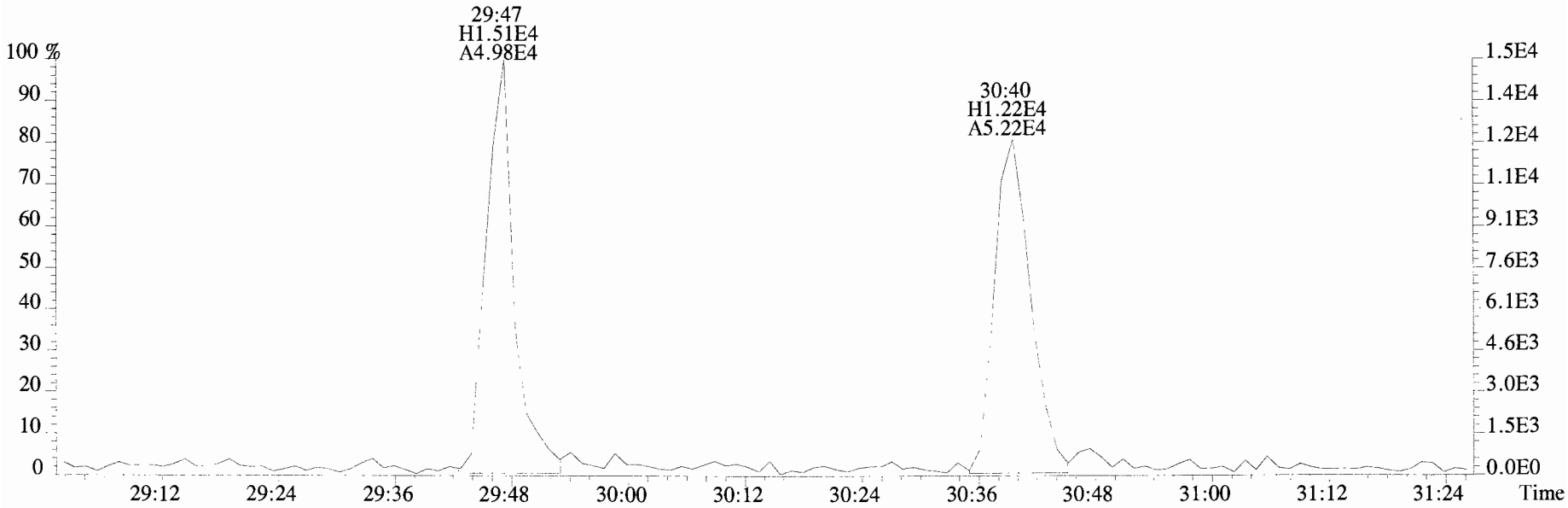



File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:46 H1.91E4 A7.85E4
30:40 H2.39E4 A8.45E4
341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:47 H1.52E4 A5.27E4
30:40 H1.22E4 A5.71E4
351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:45 H1.62E6 A6.57E6
30:38 H1.57E6 A6.40E6
353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
29:45 H1.02E6 A4.16E6
30:38 H1.04E6 A4.06E6
409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
28:14 H239.81 A1.43E3
28:37 H192.95 A1.07E3
29:03 H282.53 A1.26E3
29:13 H806.23 A2.50E3
29:33 H512.18 A2.32E3
30:09 H335.09 A2.65E3
30:34 H428.42 A1.95E3
31:04 H376.53 A1.17E3
31:15 H444.72 A2.15E3
31:48 H459.56 A1.30E3
100 %
50
0
28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 30:24 30:36 30:48 31:00 31:12 31:24 31:36 31:48 Time
2.4E4
1.2E4
0.0E0
1.5E4
7.6E3
1.6E6
8.1E5
1.0E6
5.2E5
9.4E2
4.7E2

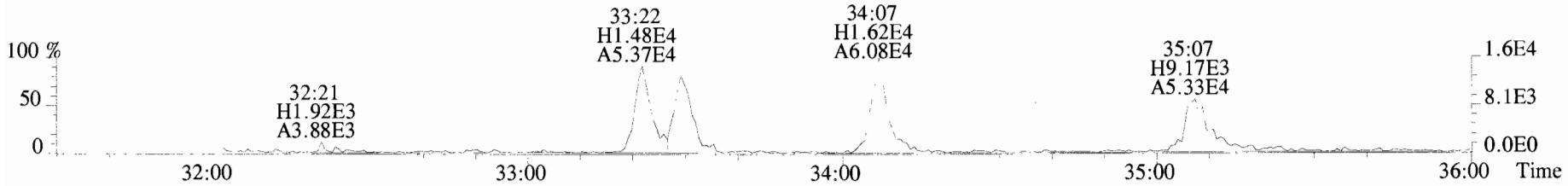
File:191009D1 #1-210 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



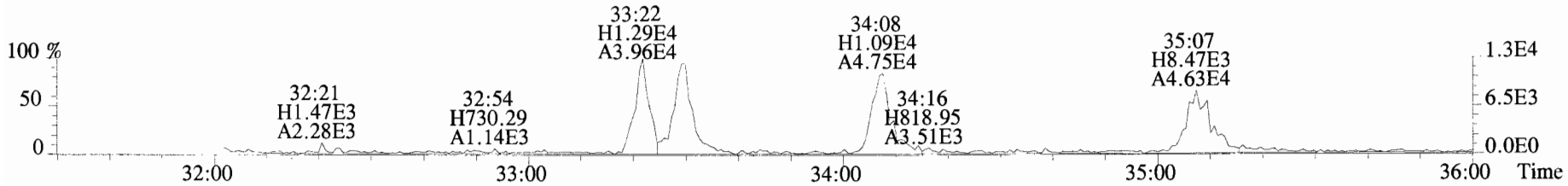
341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



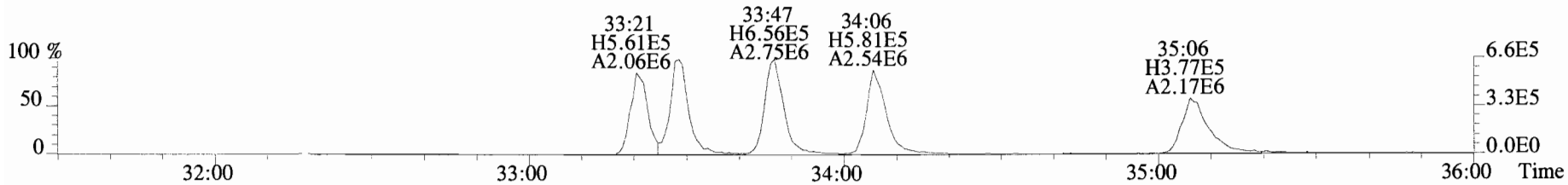
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



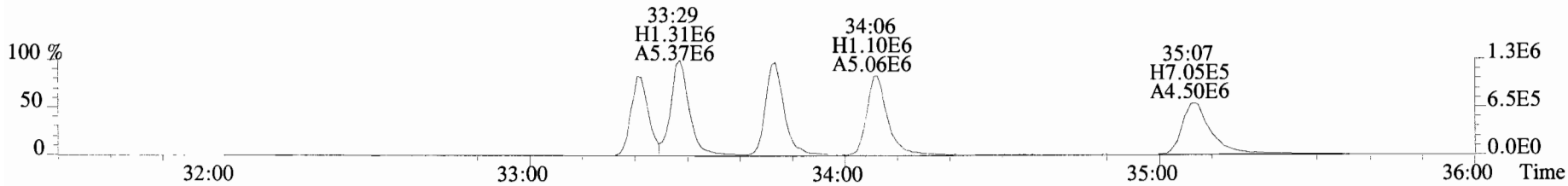
375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



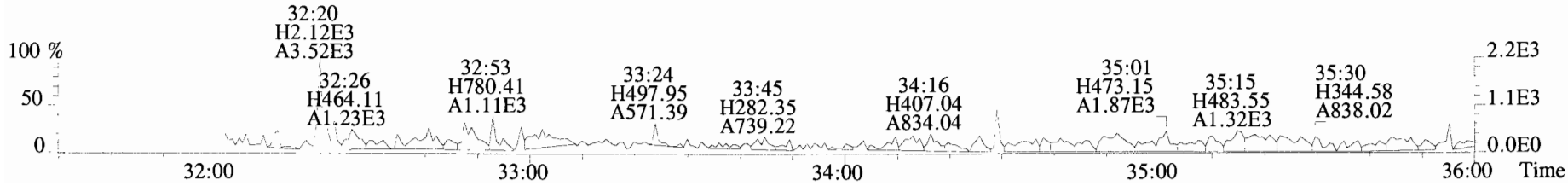
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



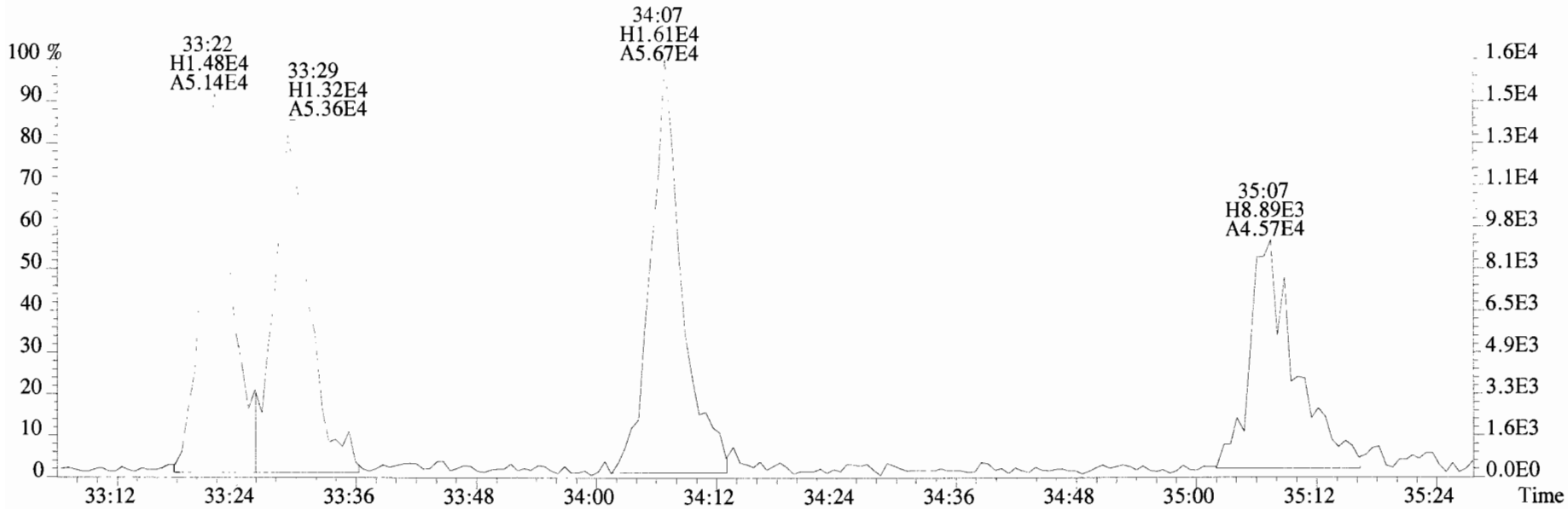
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



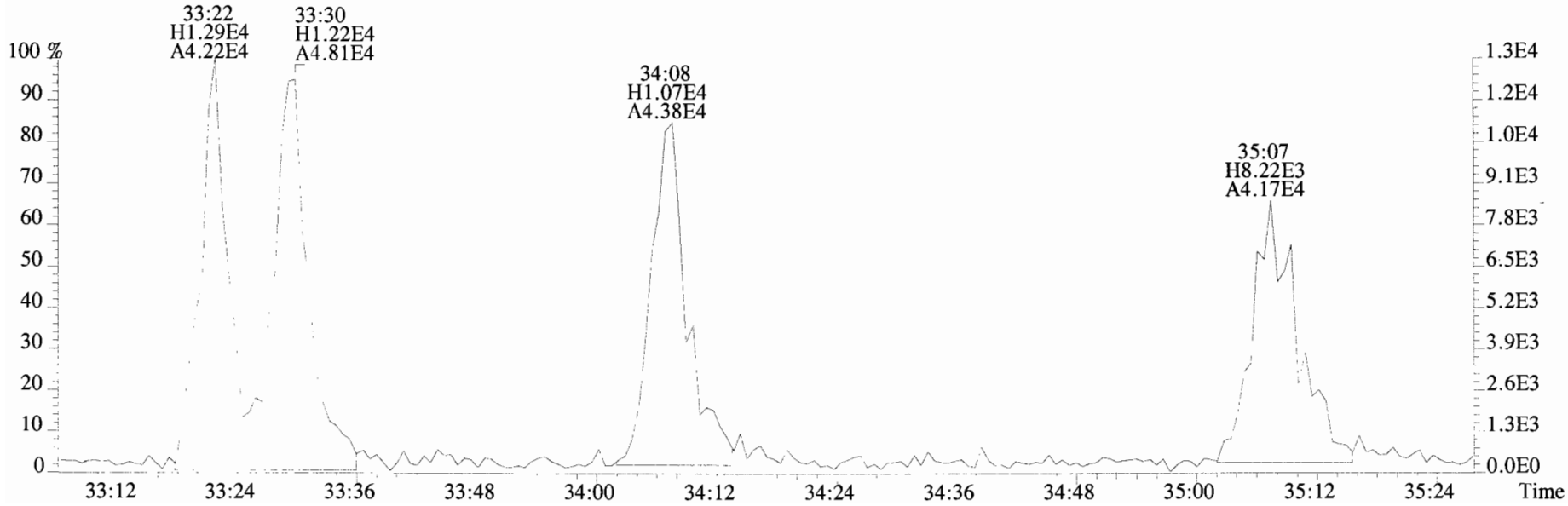
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



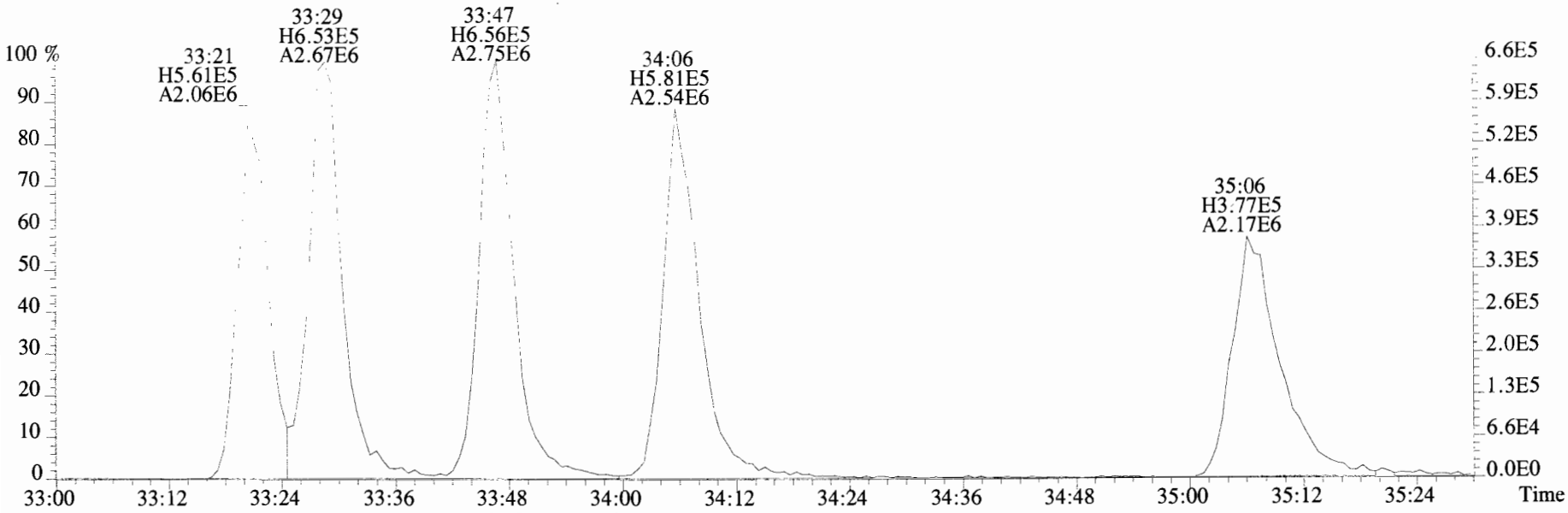
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0)



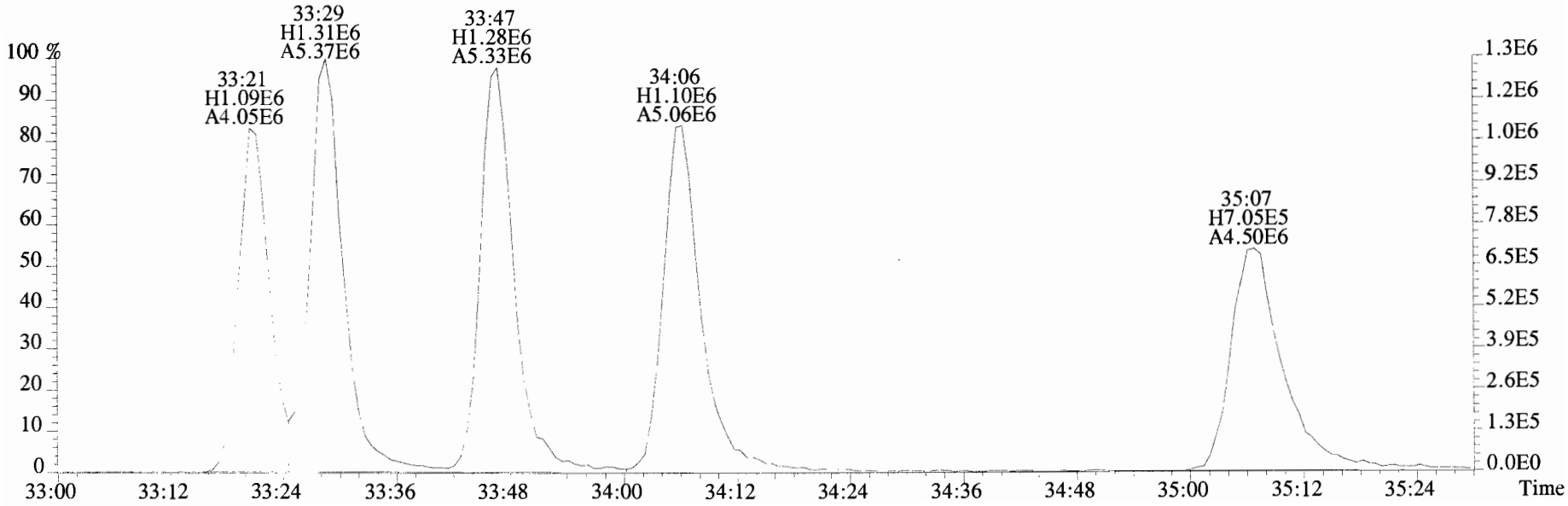
375.8178 F:3 BSUB(10000,15,-3.0)



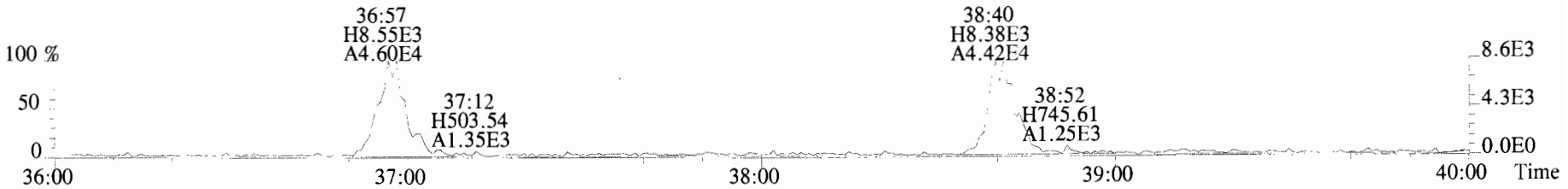
File:191009D1 #1-356 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



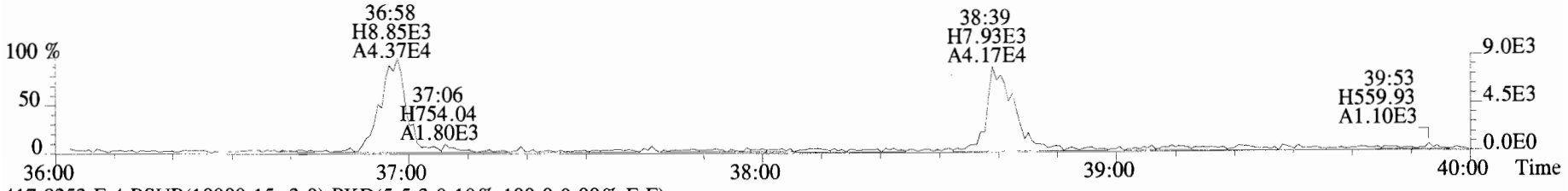
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



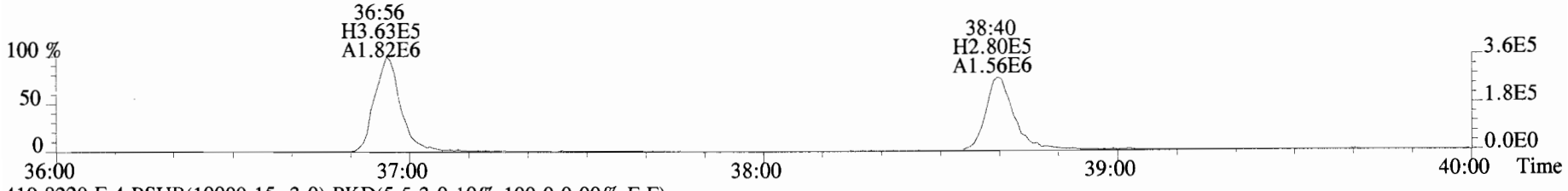
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



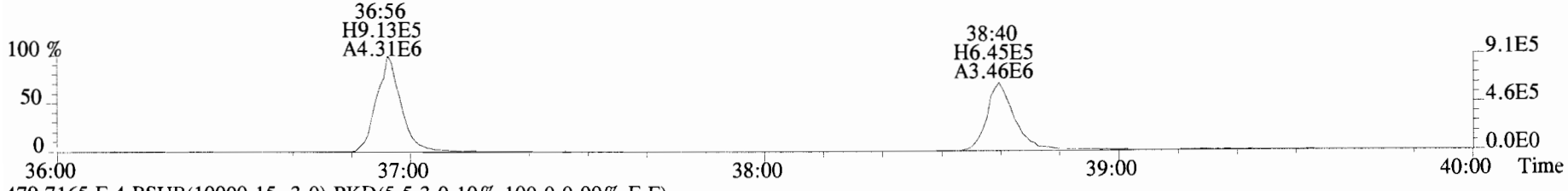
409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



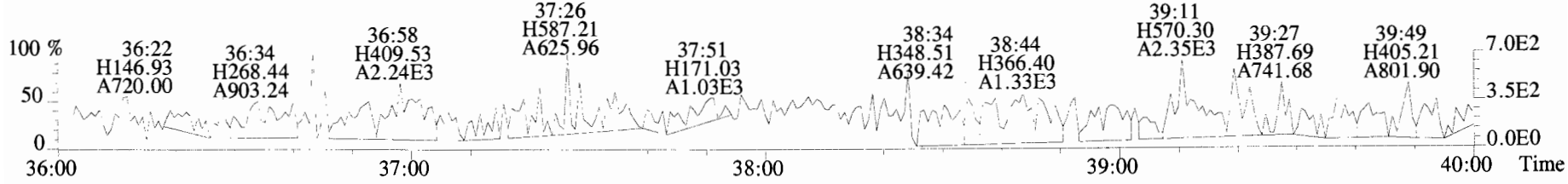
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



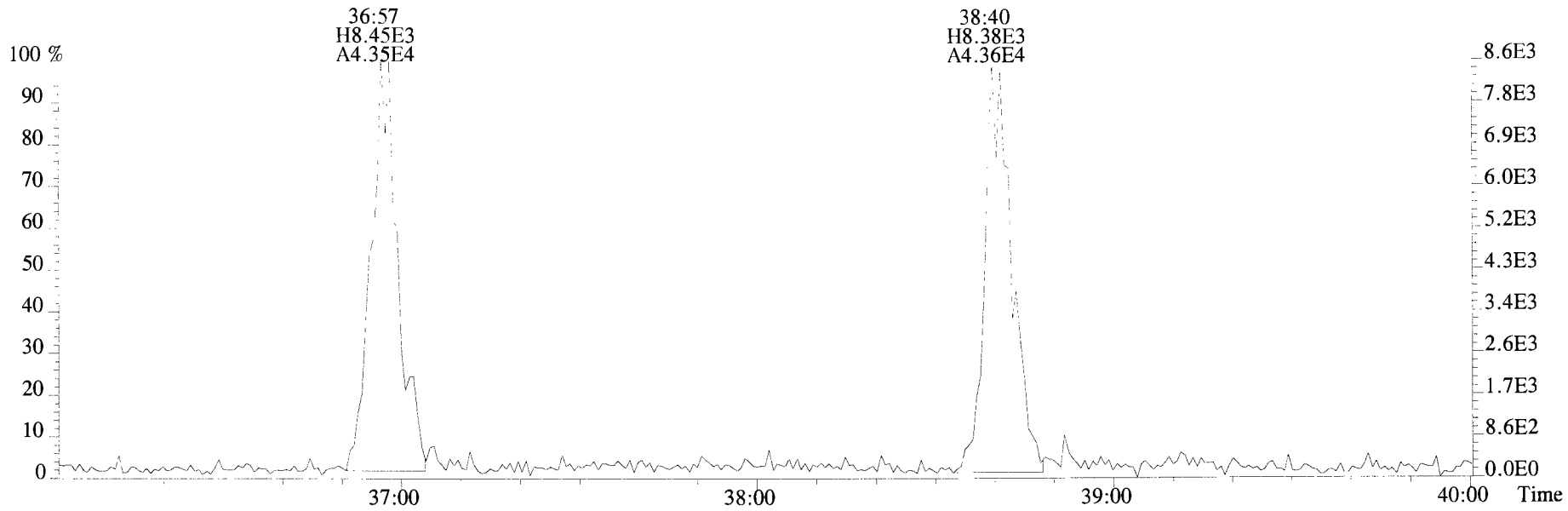
419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



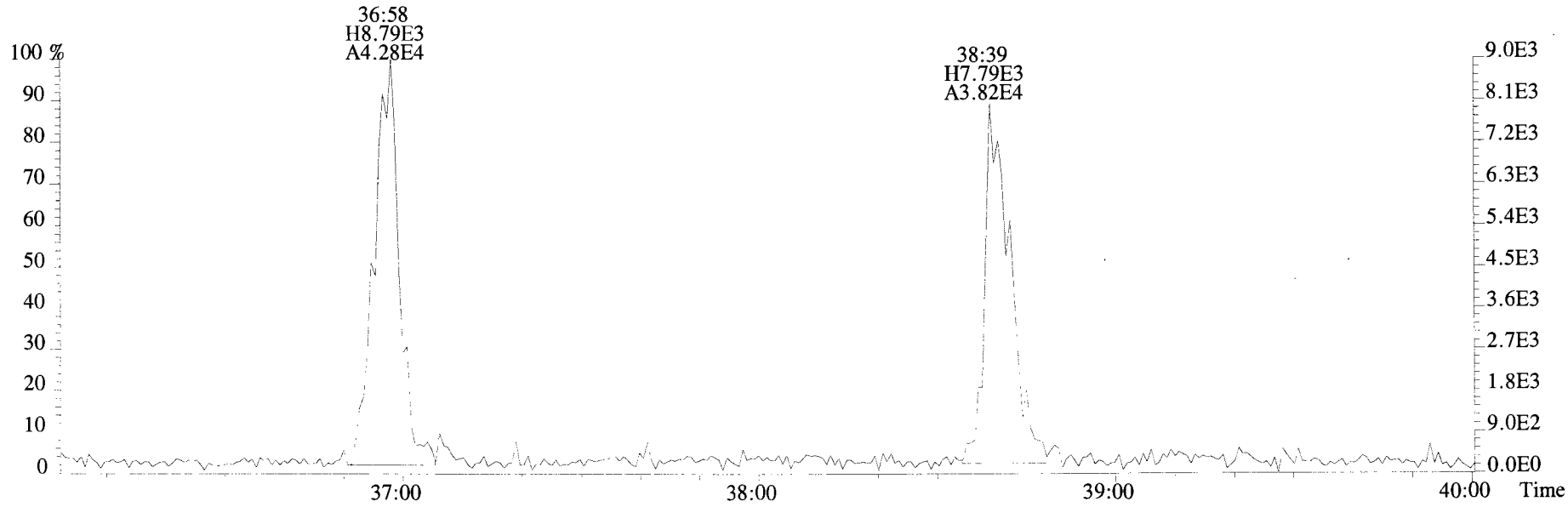
479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



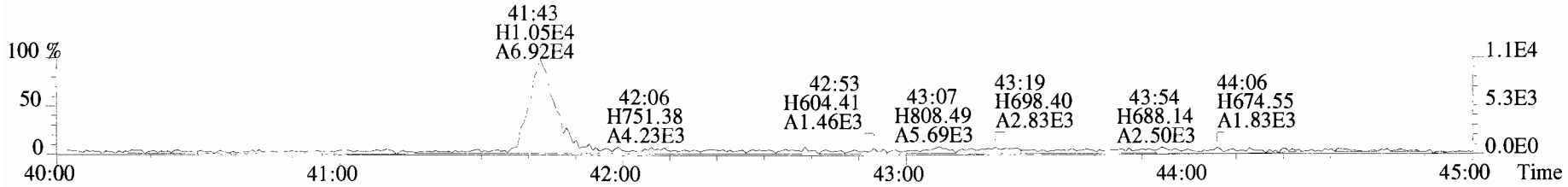
File:191009D1 #1-355 Acq: 9-OCT-2019 16:13:04 GC El+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

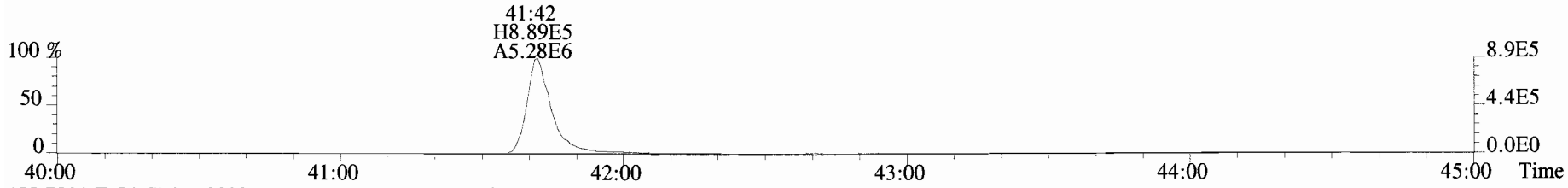


File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

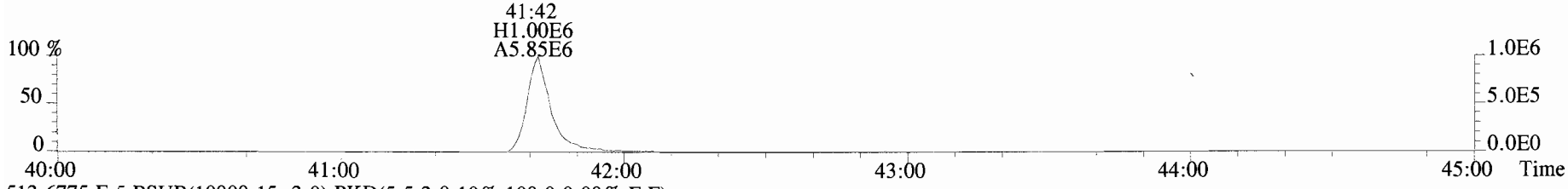


443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

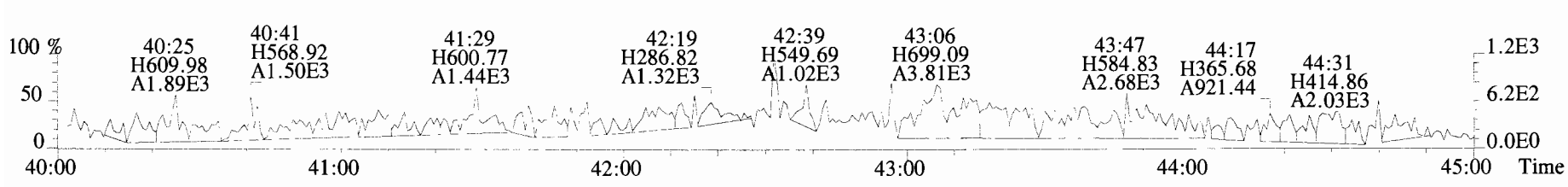
453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



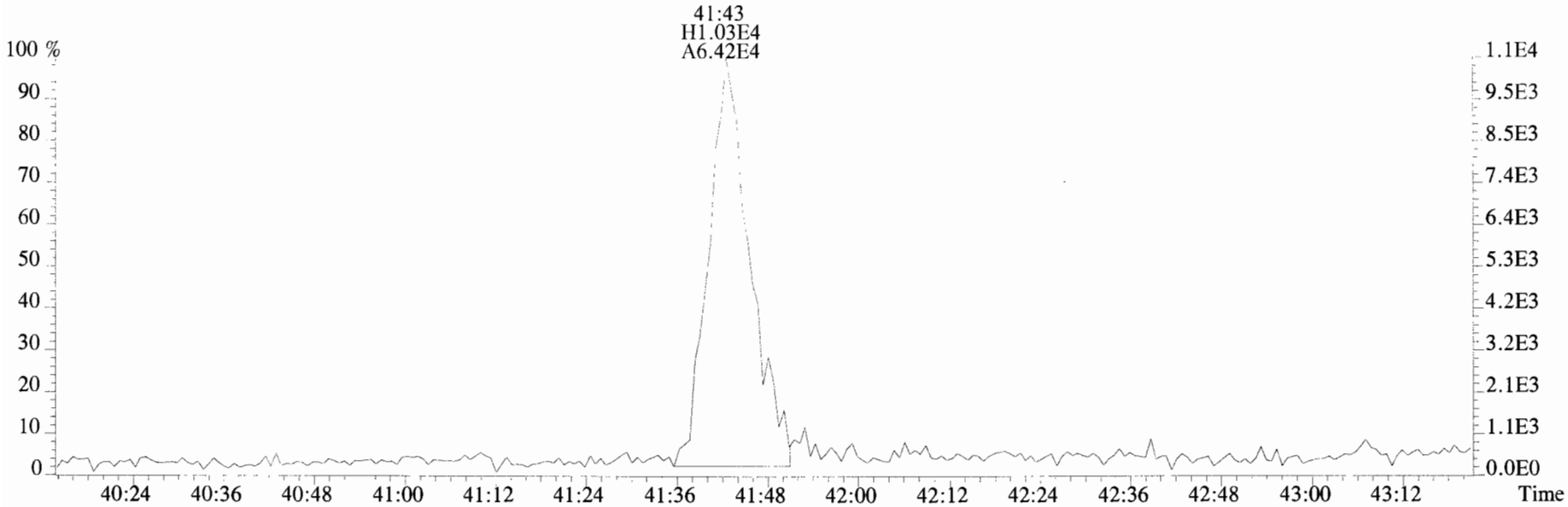
455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



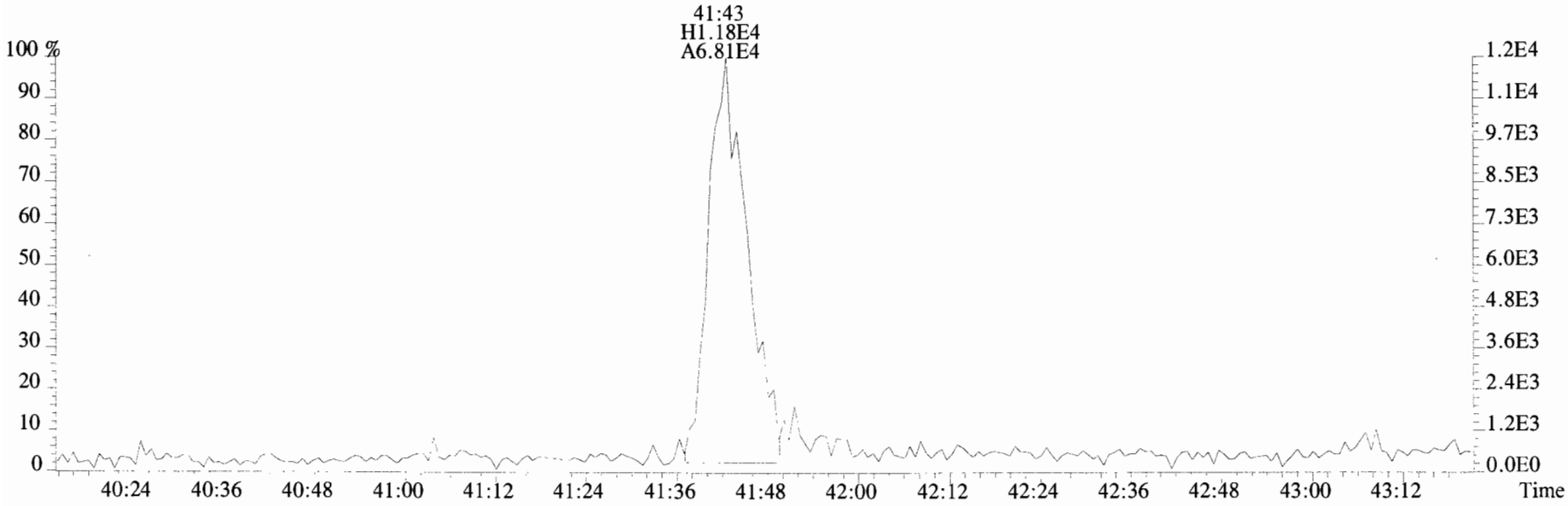
513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



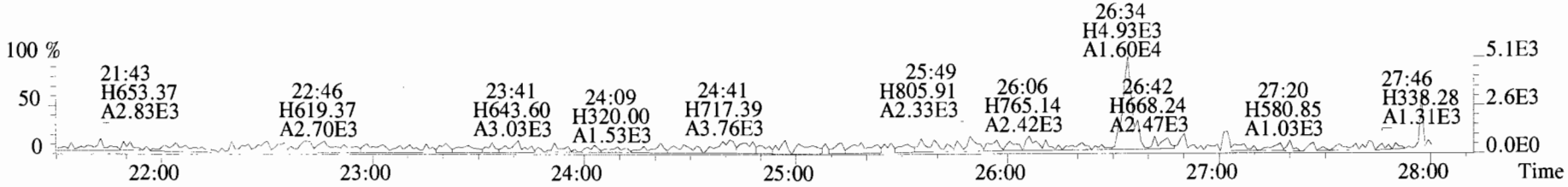
File:191009D1 #1-432 Acq: 9-OCT-2019 16:13:04 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-1 1613 CS0 19C2201 Exp:OCDD_DB5
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



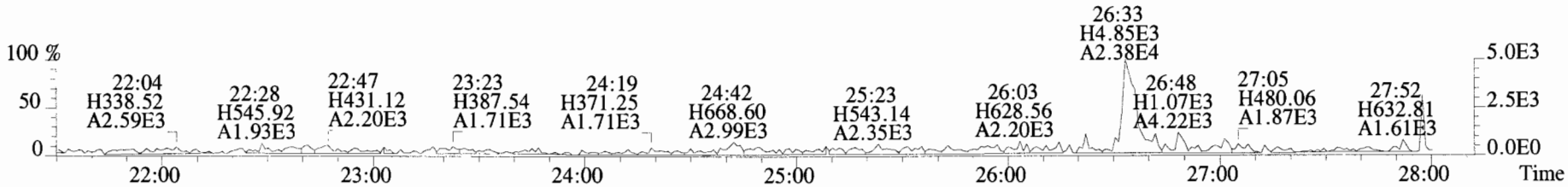
443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



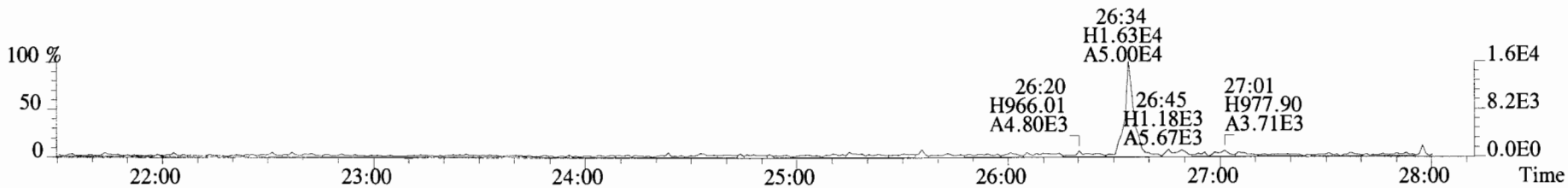
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



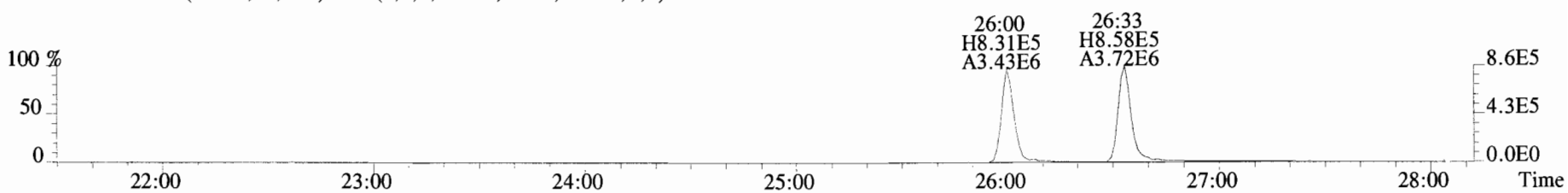
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



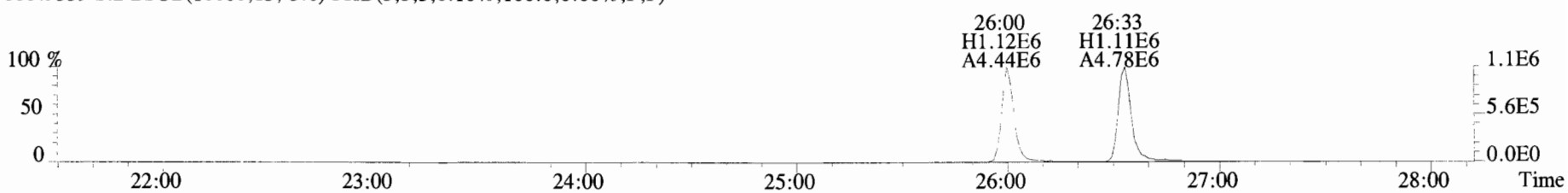
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



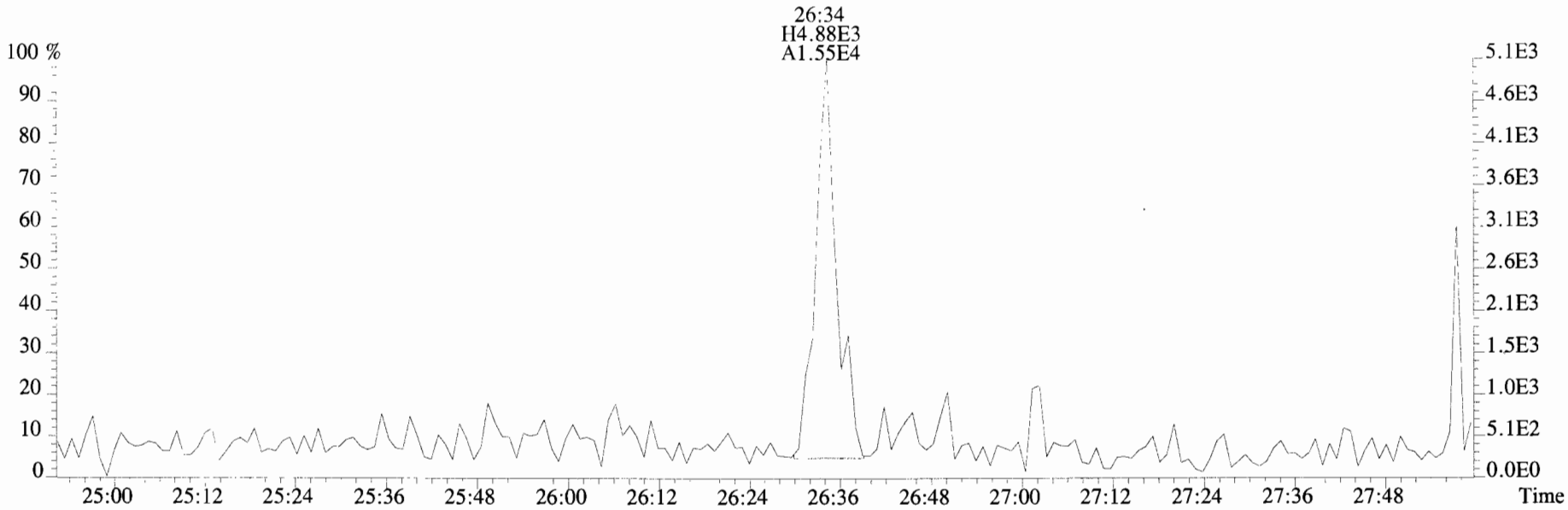
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



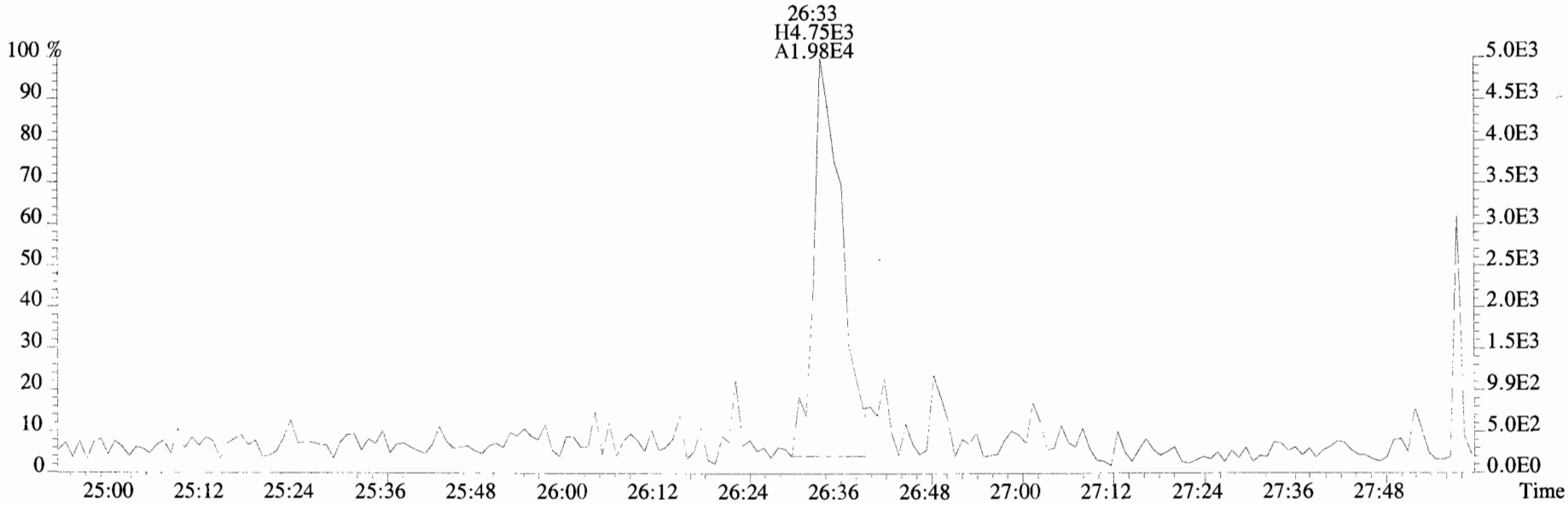
333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



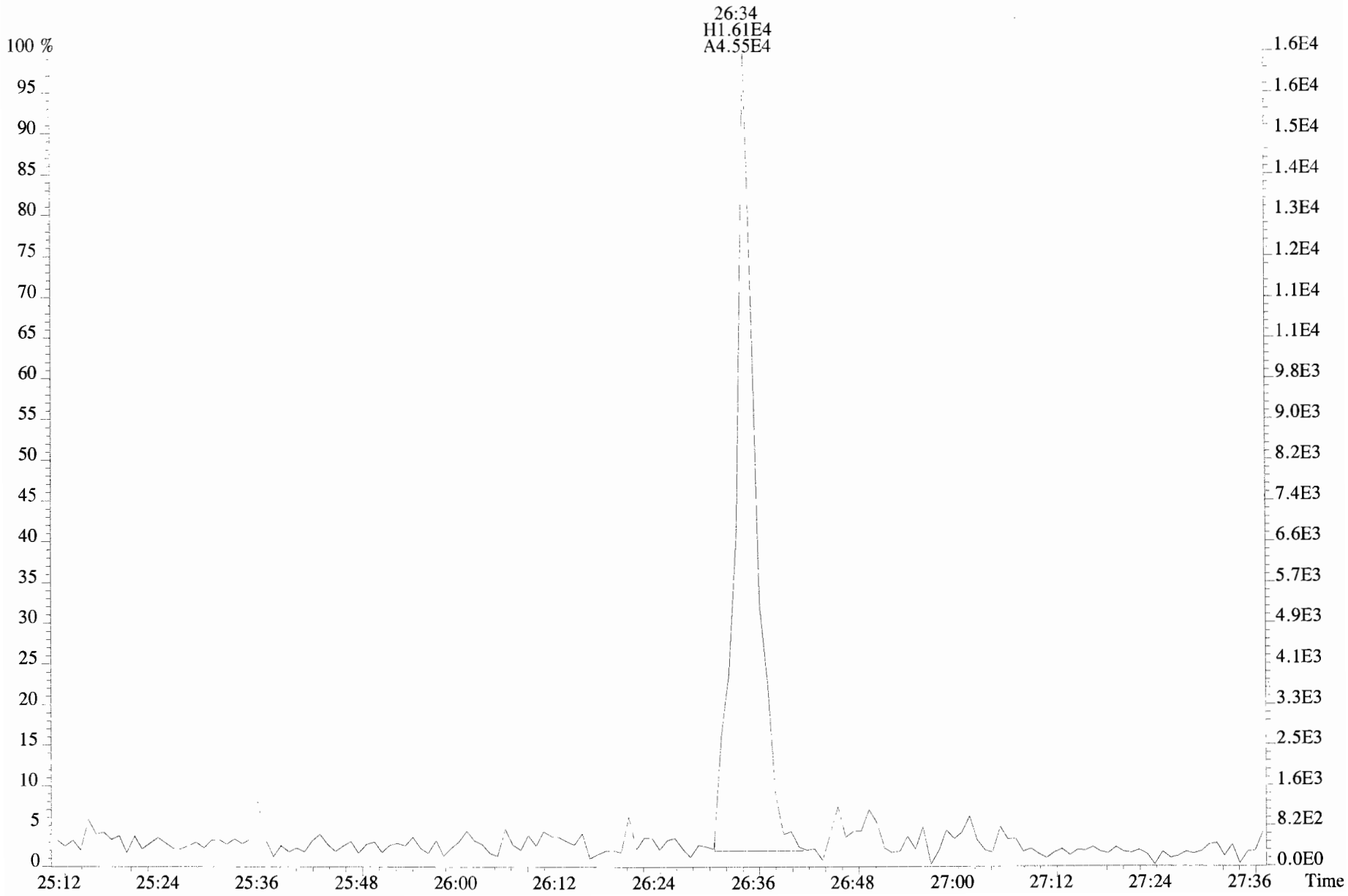
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



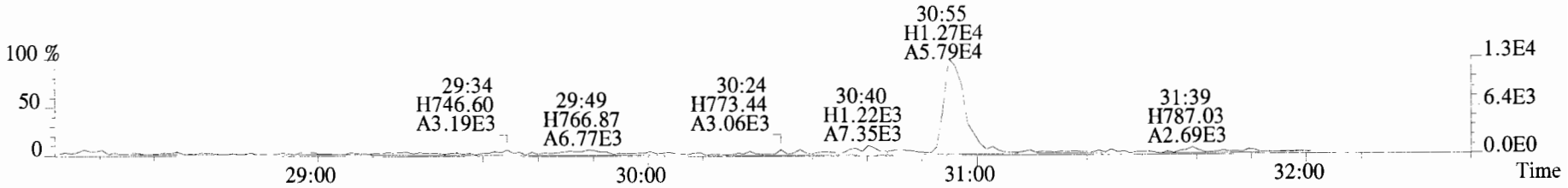
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



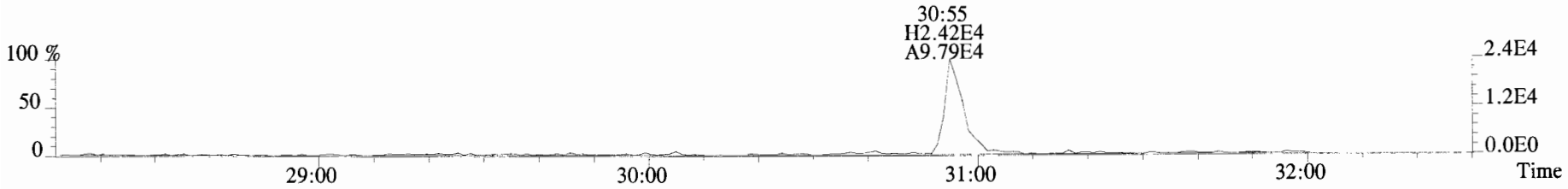
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



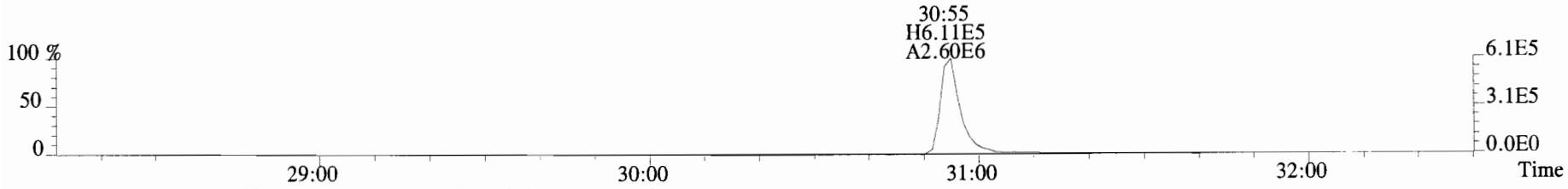
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



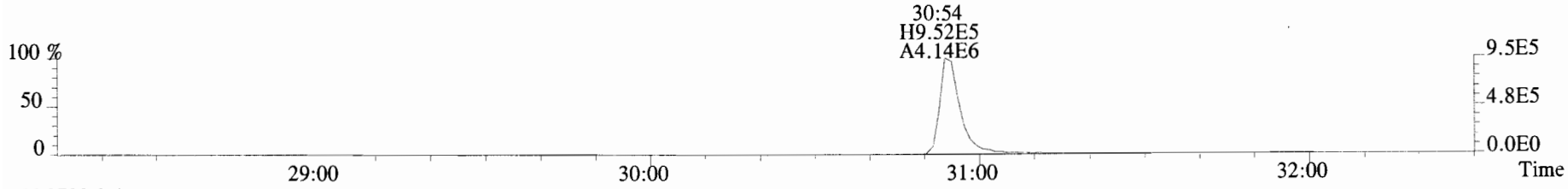
355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



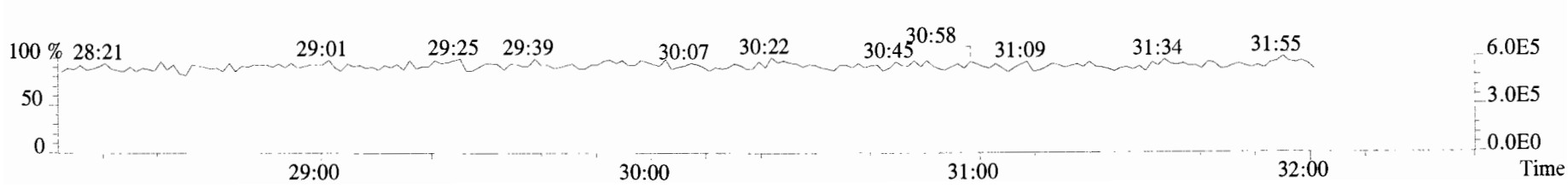
365.8978 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



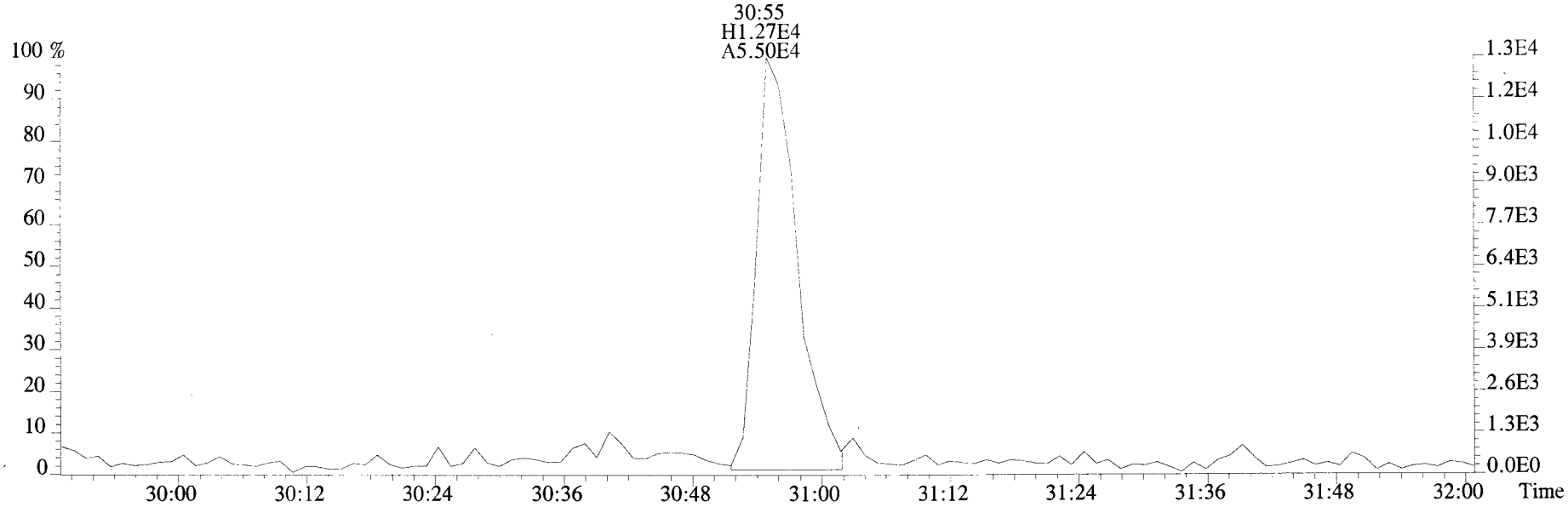
367.8949 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



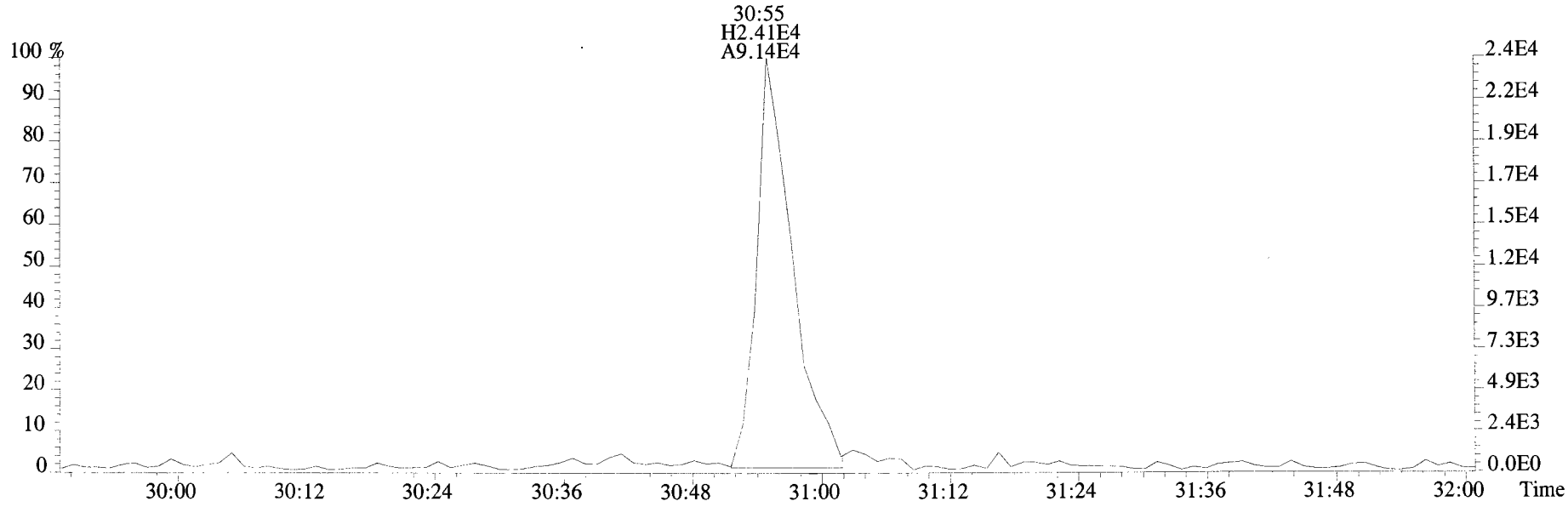
366.9792 S:2 F:2



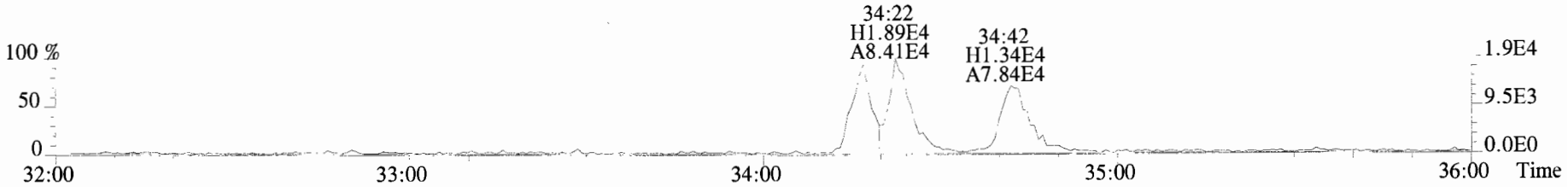
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



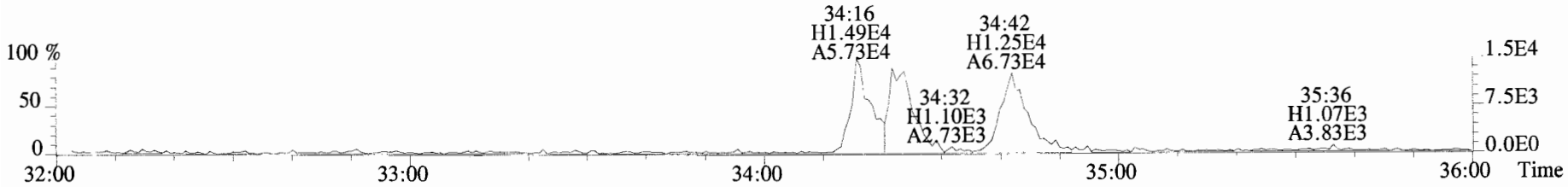
355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



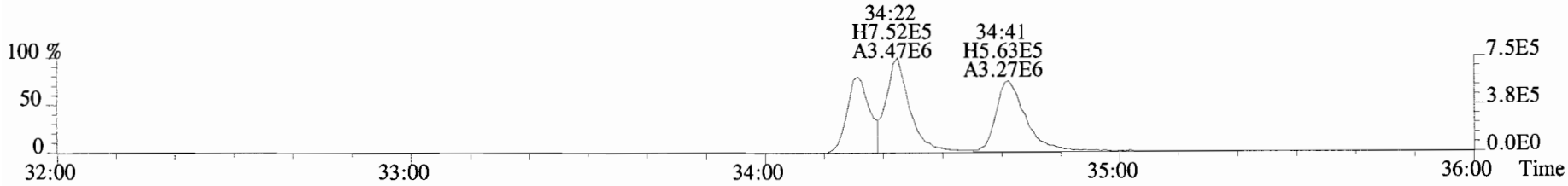
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



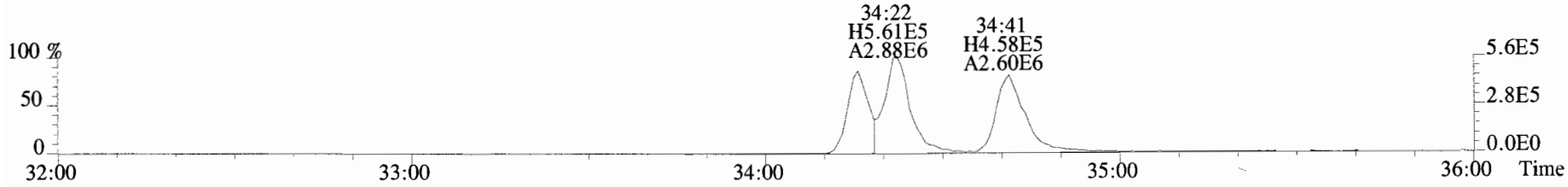
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



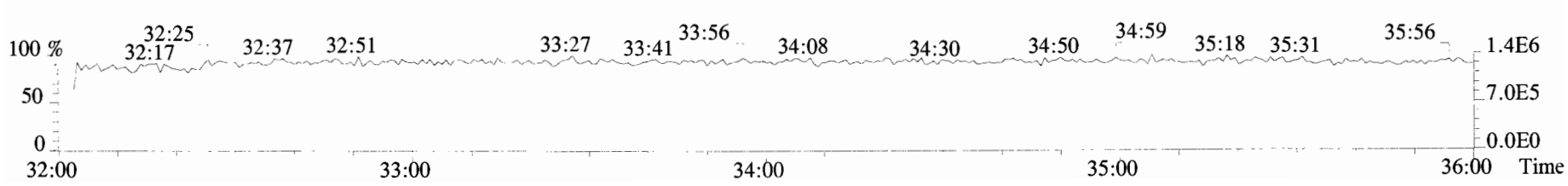
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



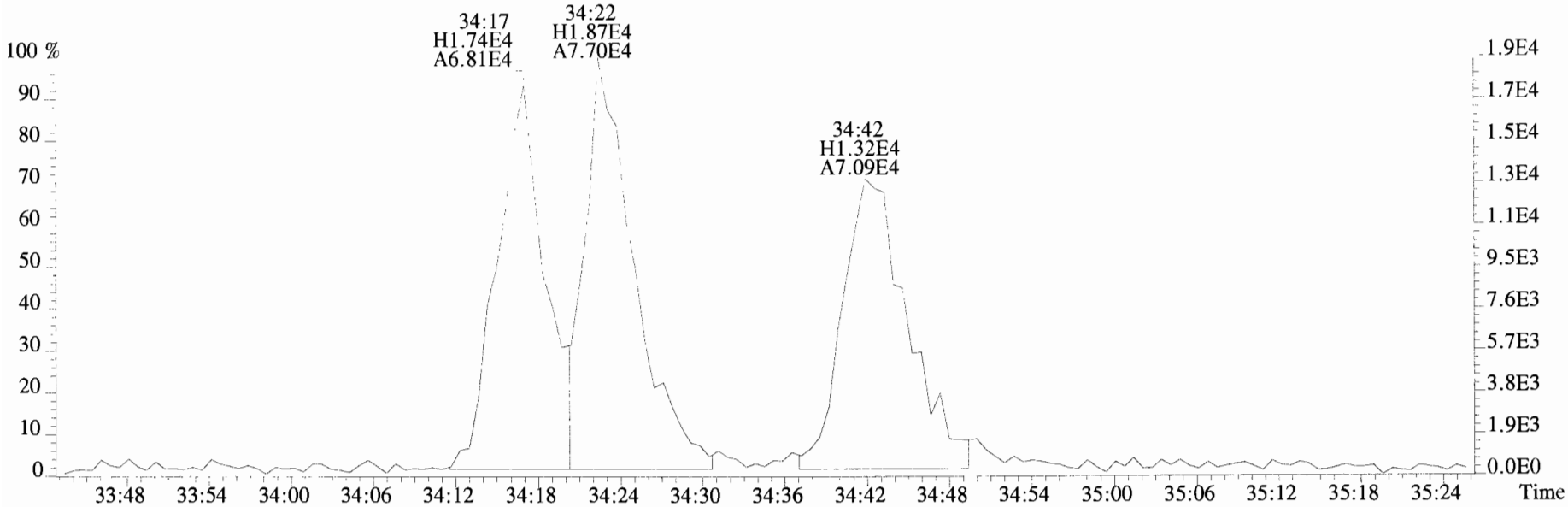
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



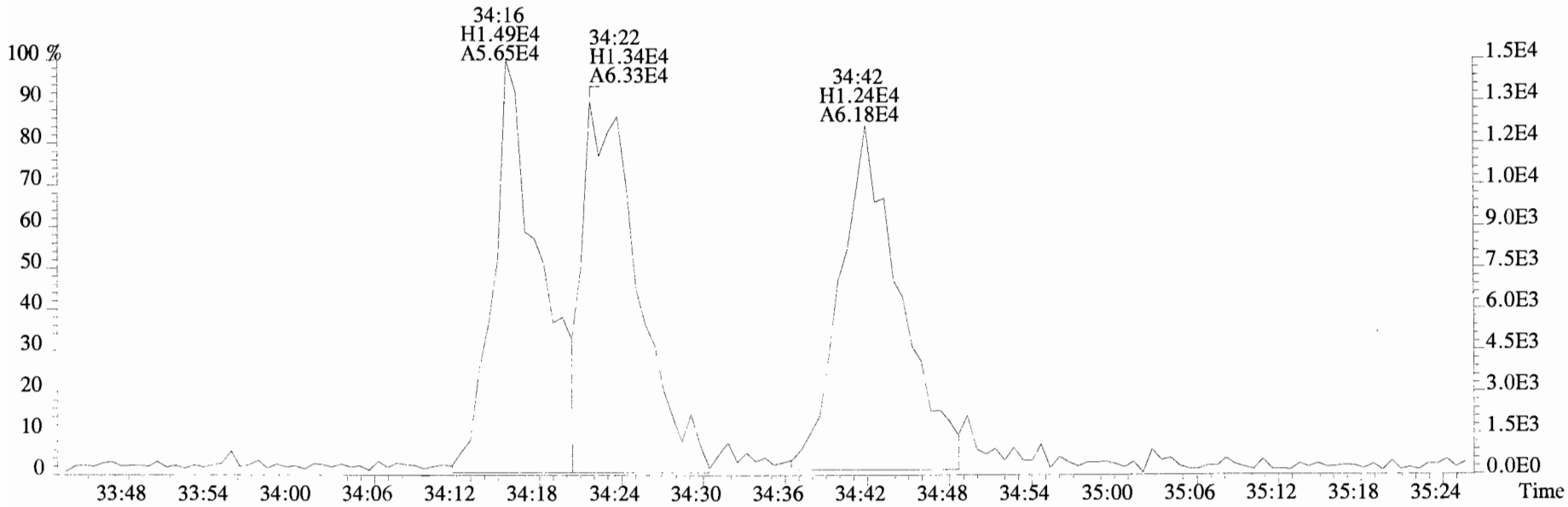
392.9760 S:2 F:3



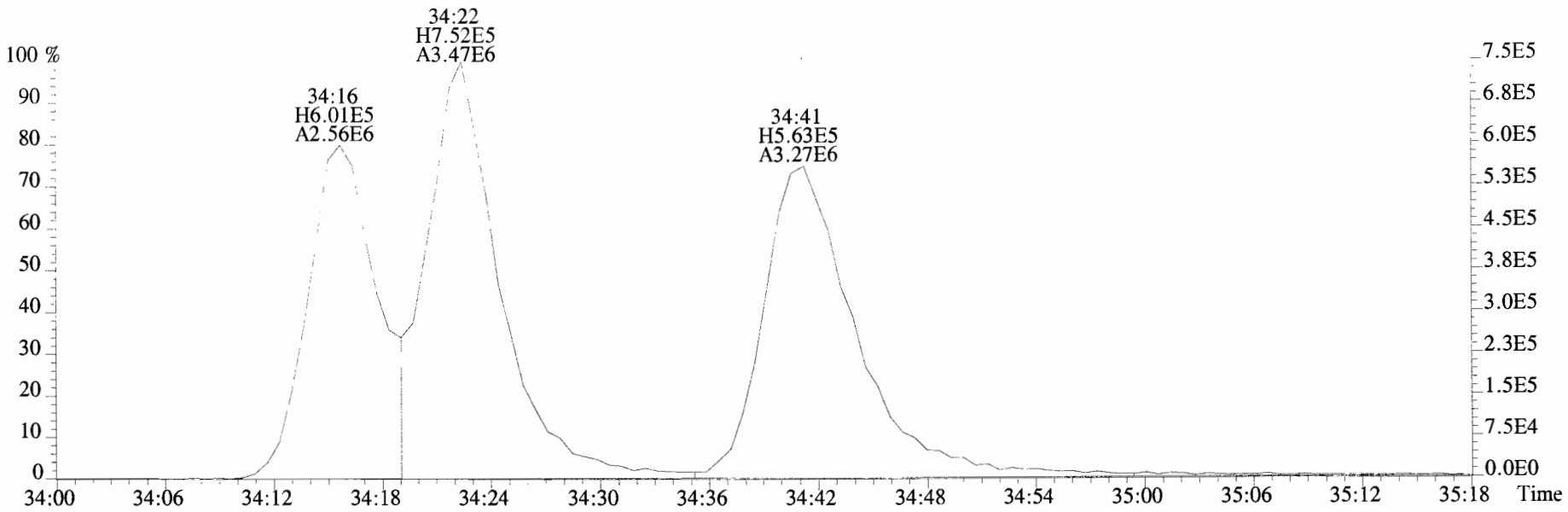
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



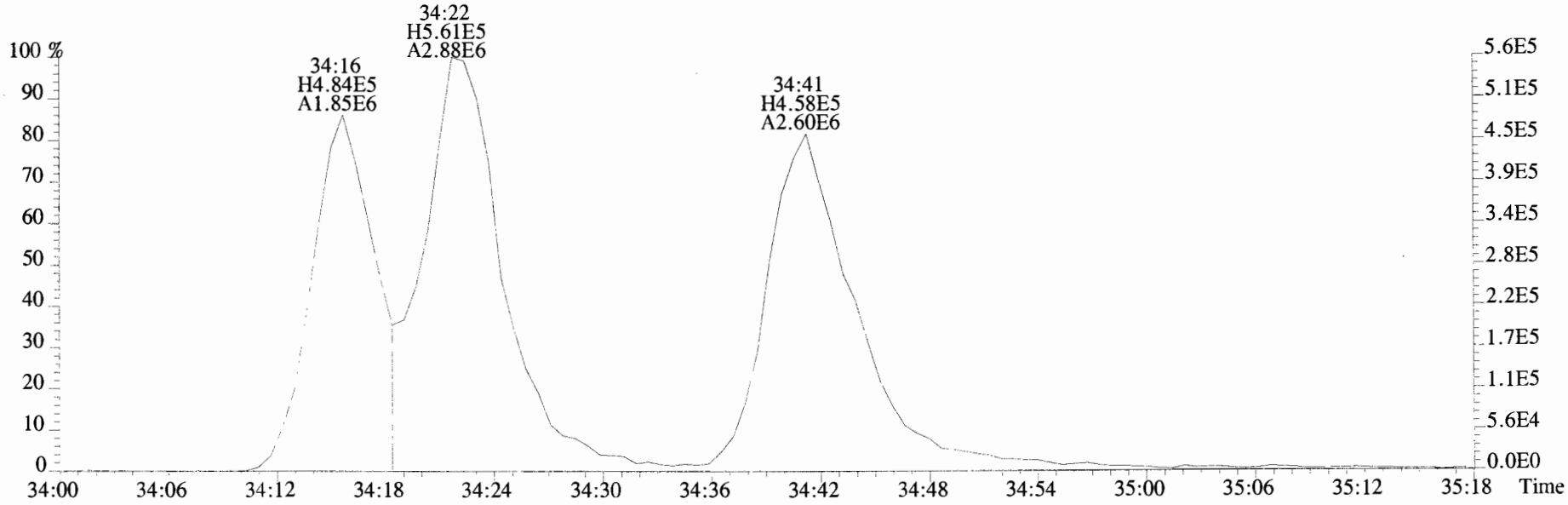
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



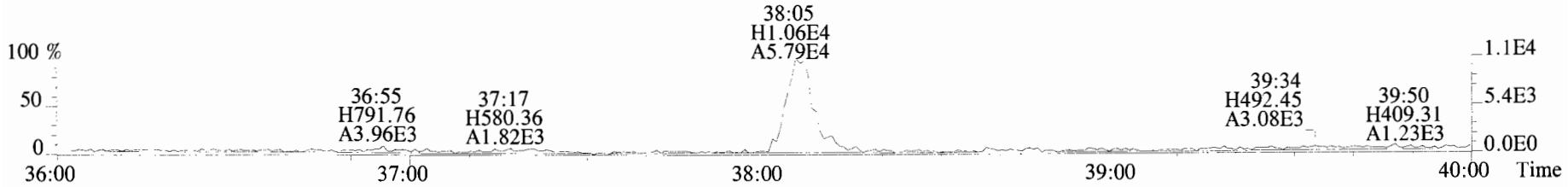
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



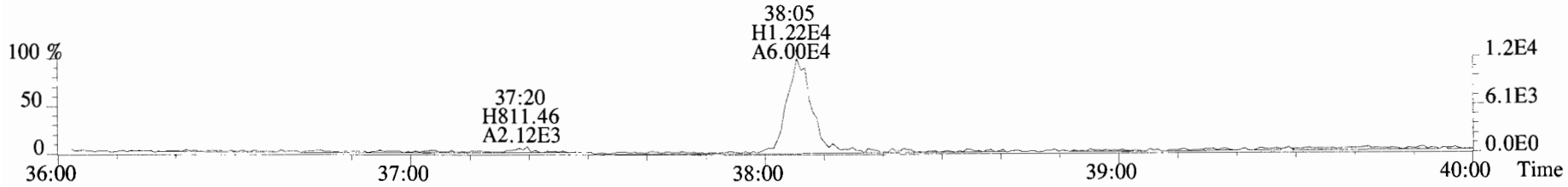
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



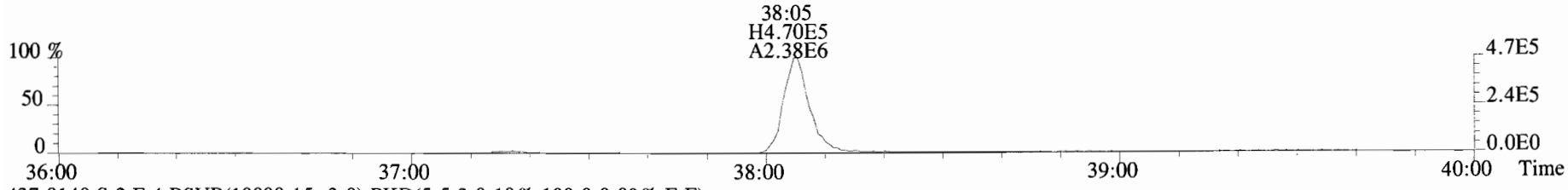
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



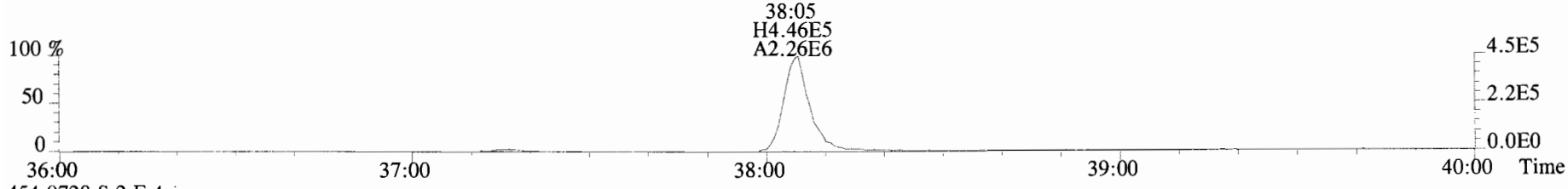
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



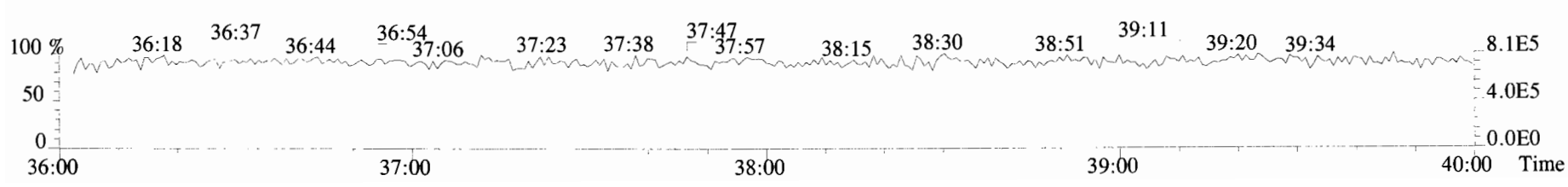
435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



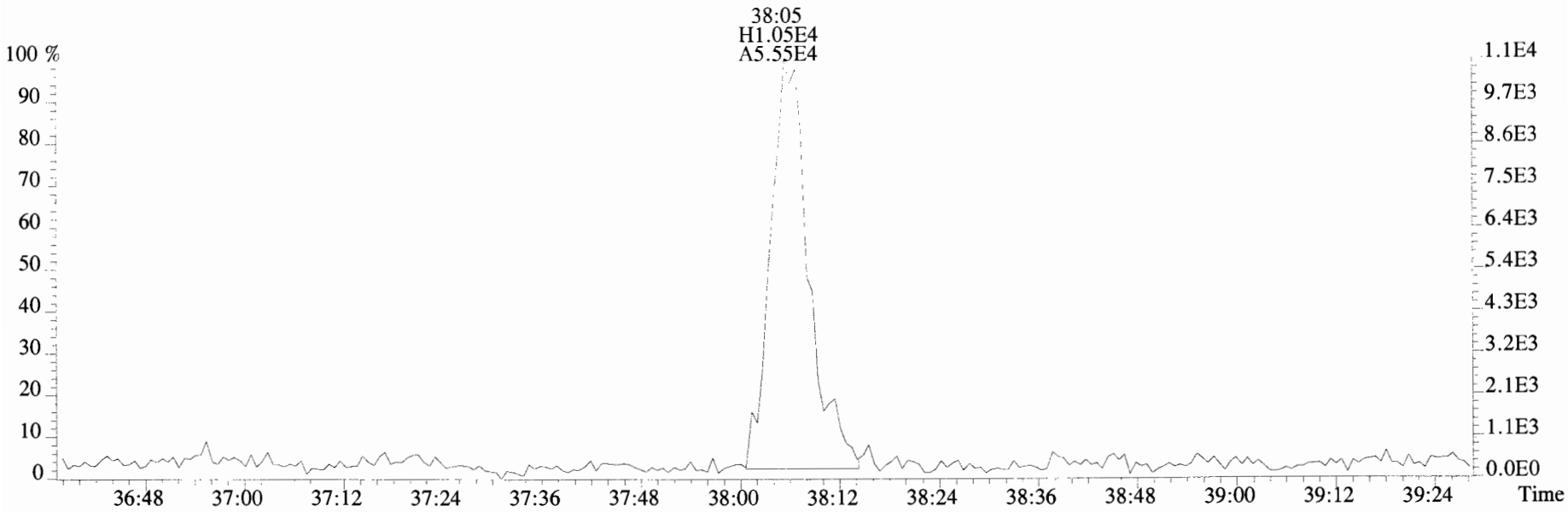
437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



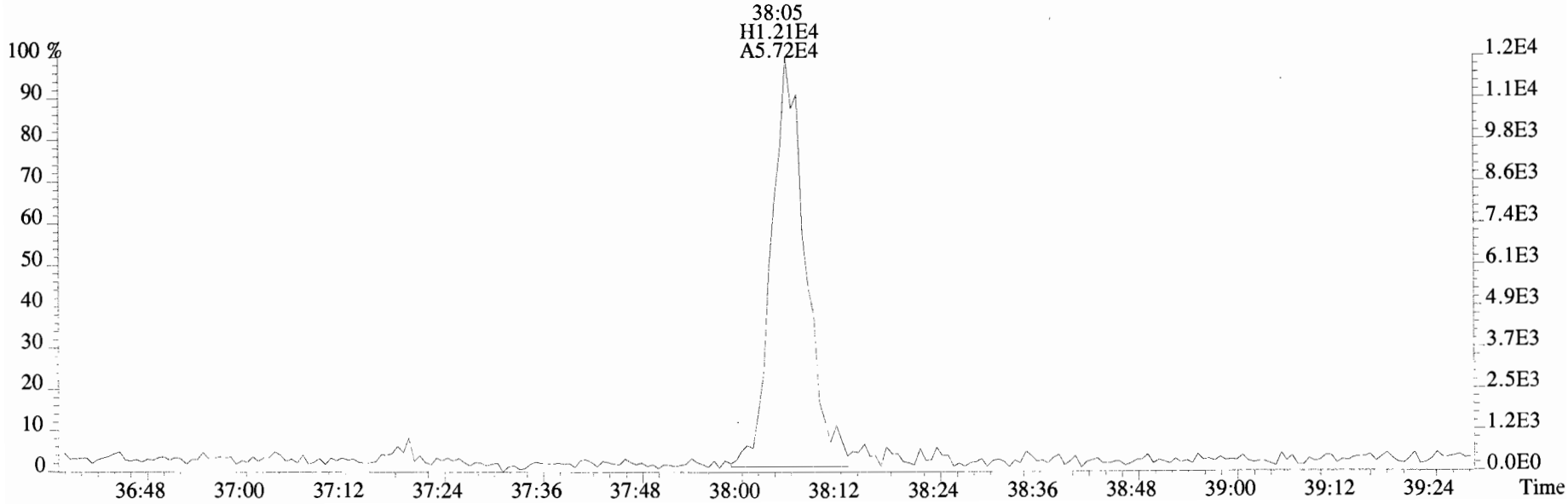
454.9728 S:2 F:4



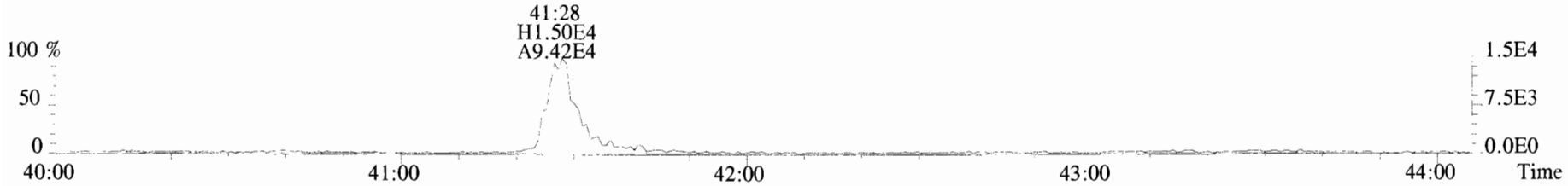
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



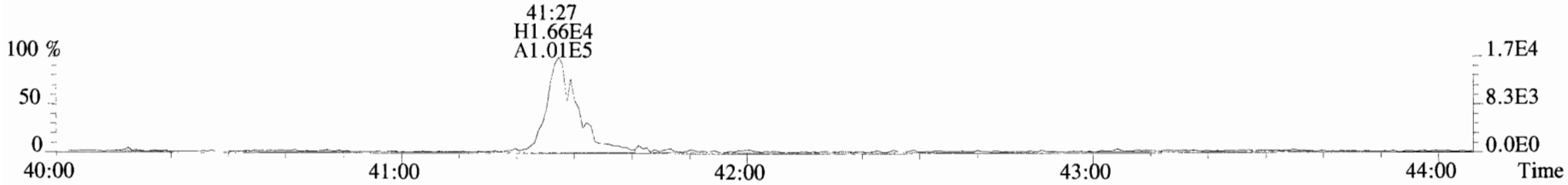
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



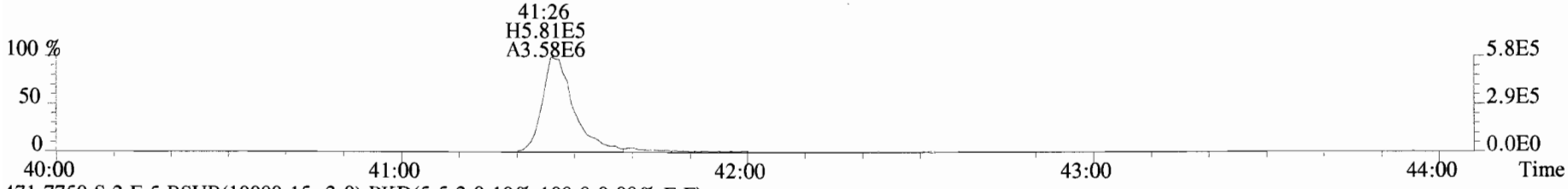
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



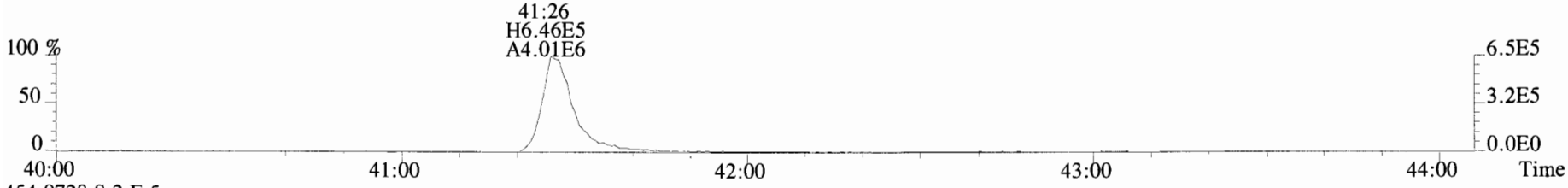
459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



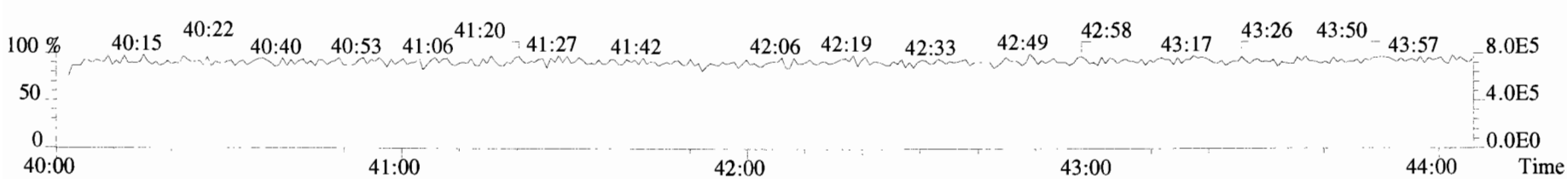
469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



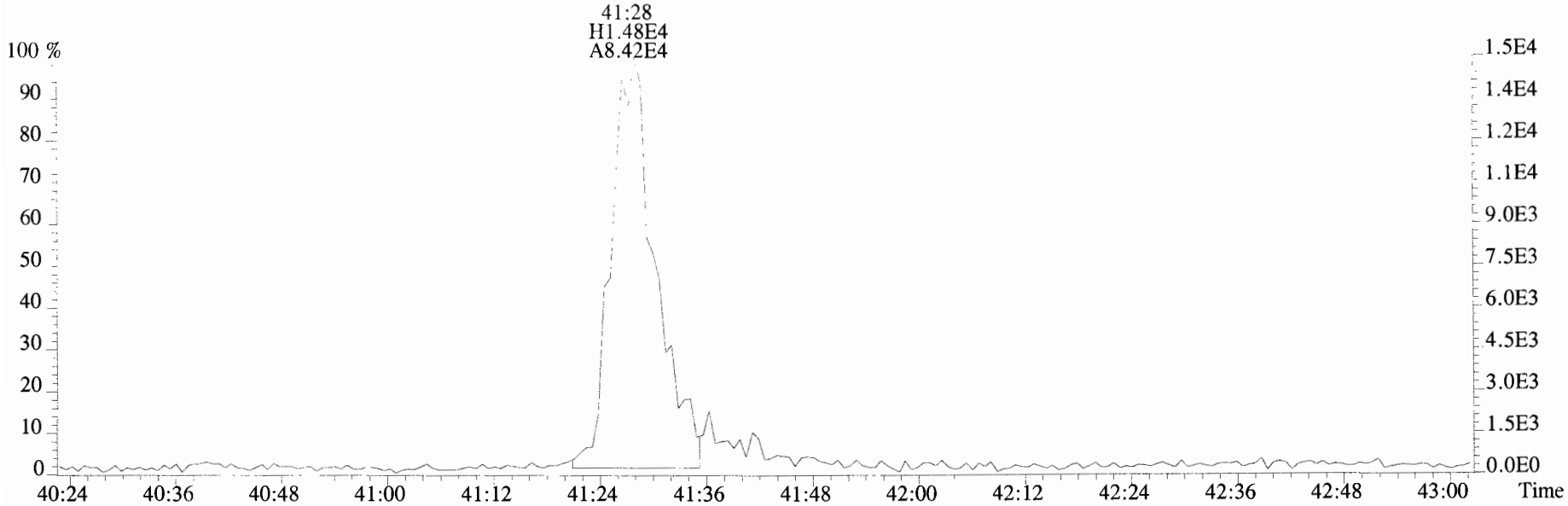
471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



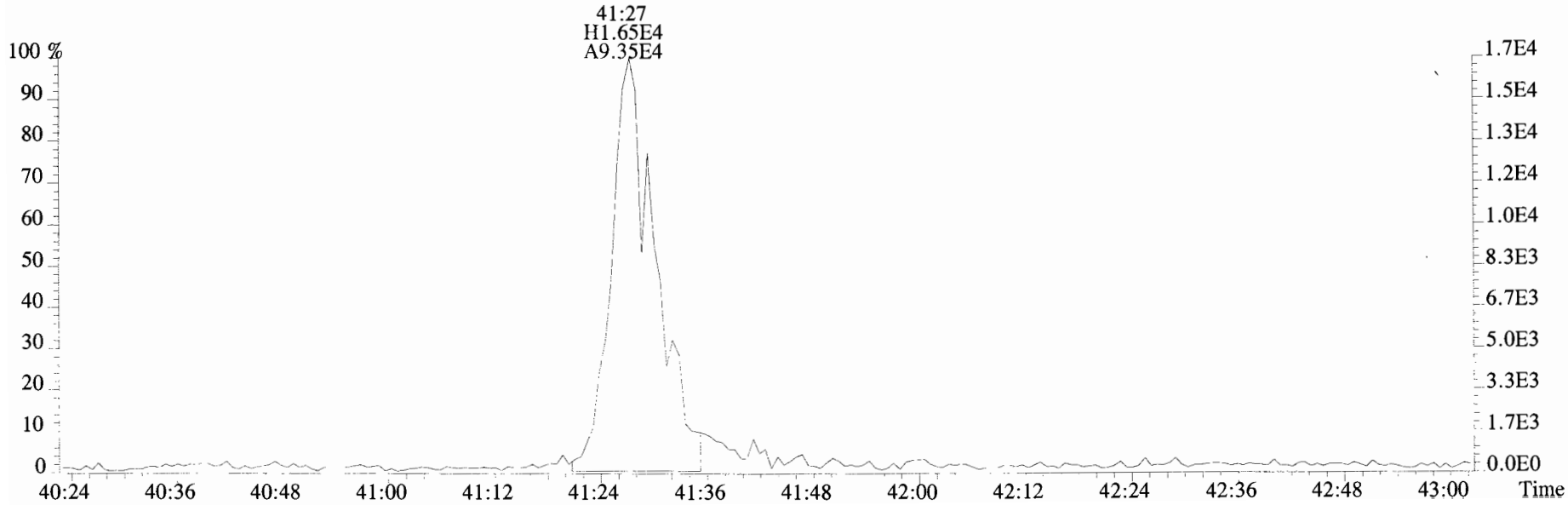
454.9728 S:2 F:5



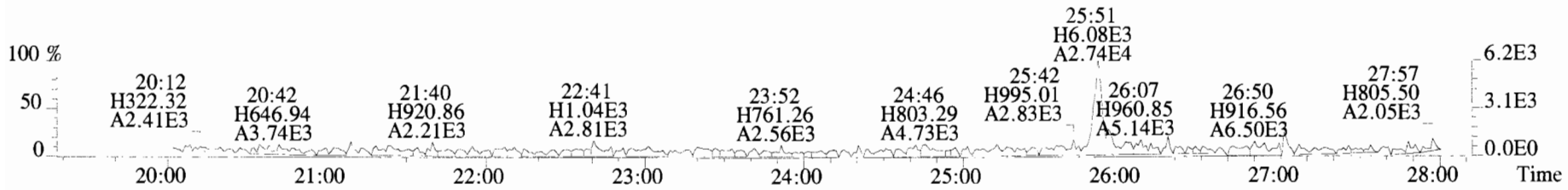
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



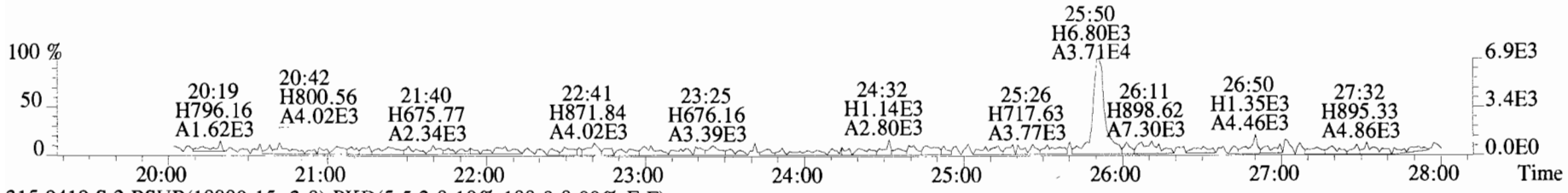
459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



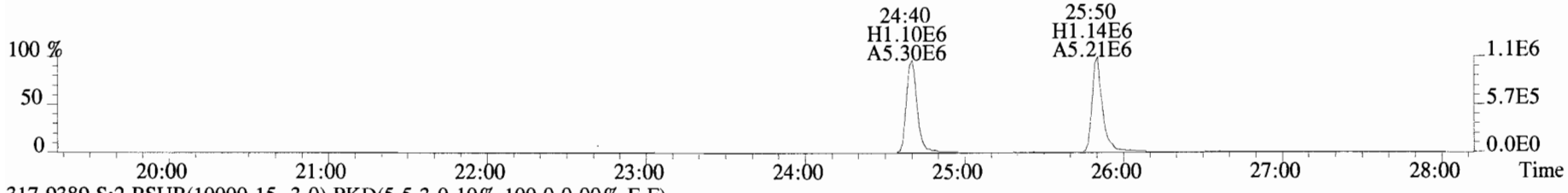
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



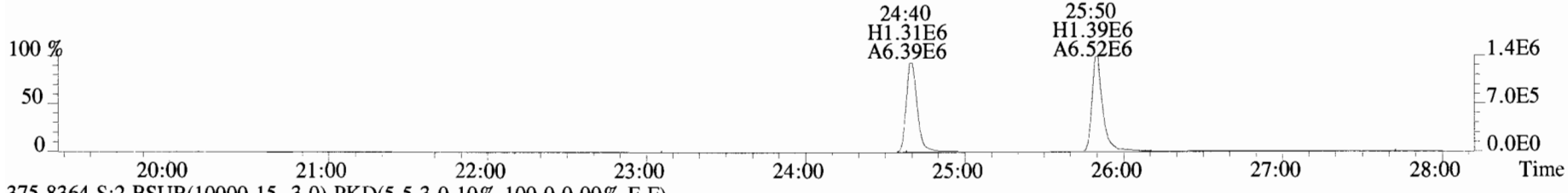
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



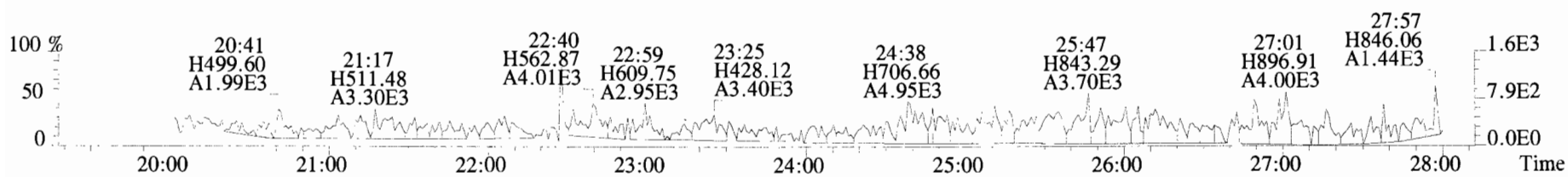
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



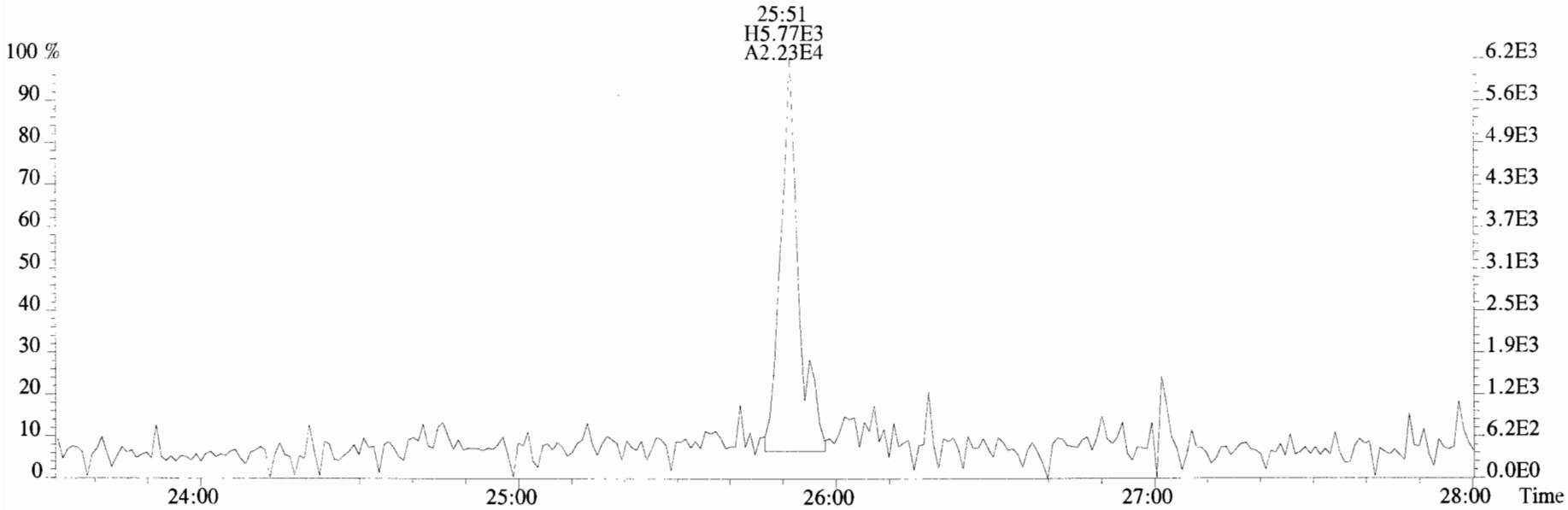
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



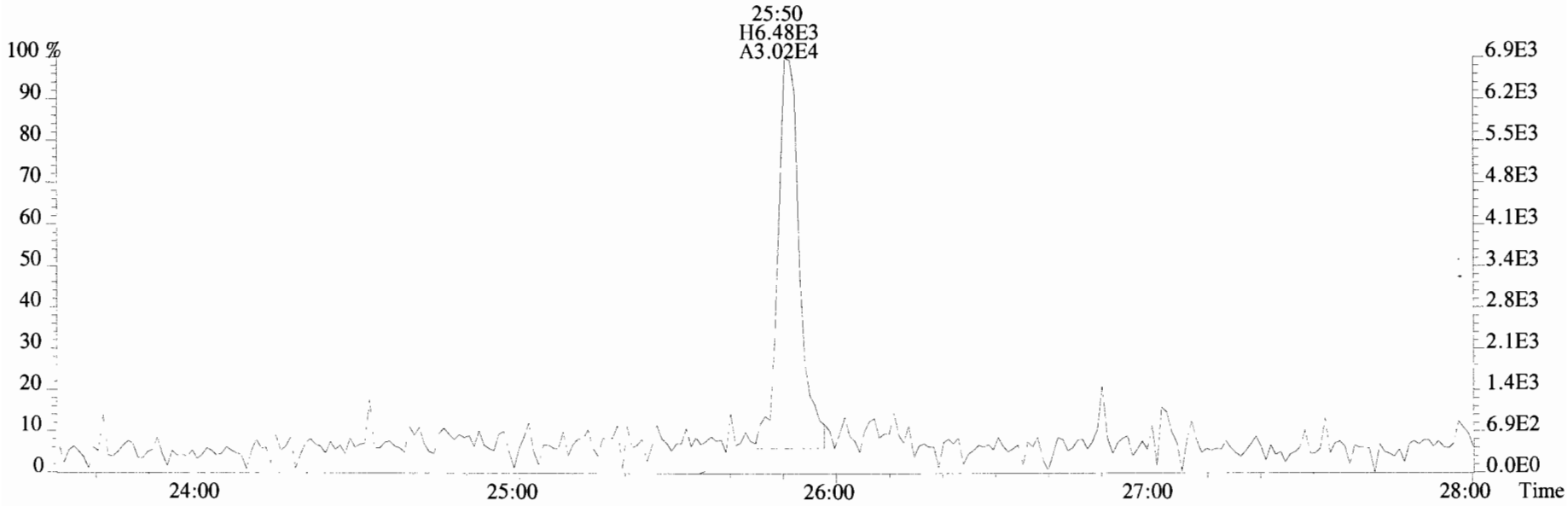
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



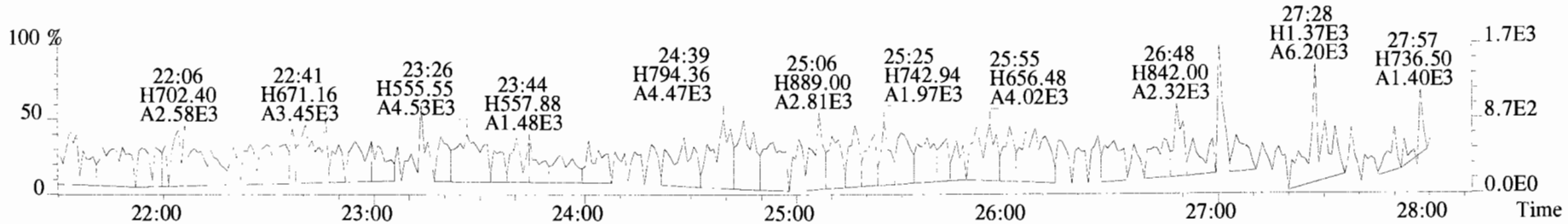
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



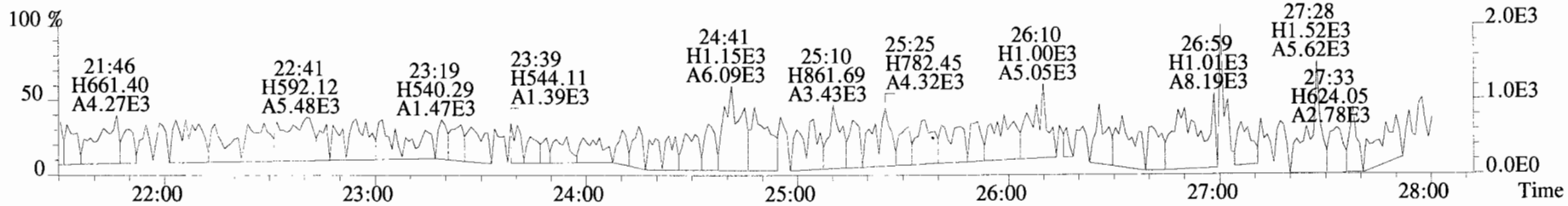
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



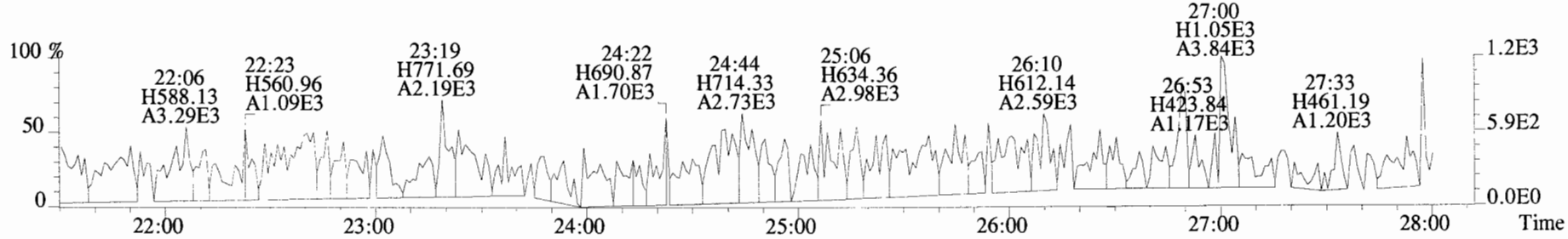
File:191009D1 #1-513 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



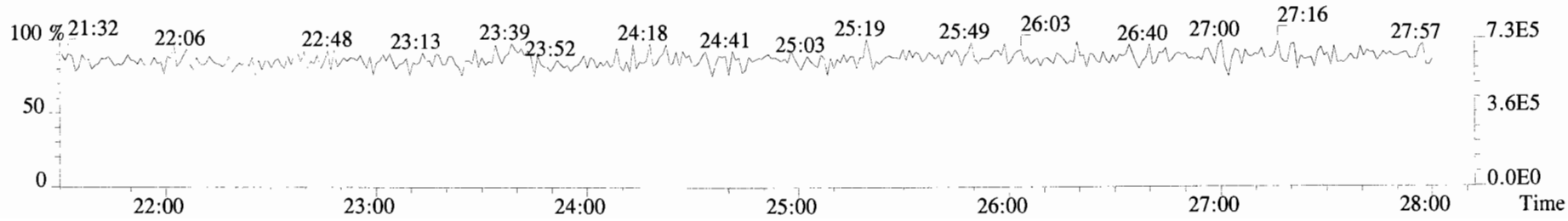
341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



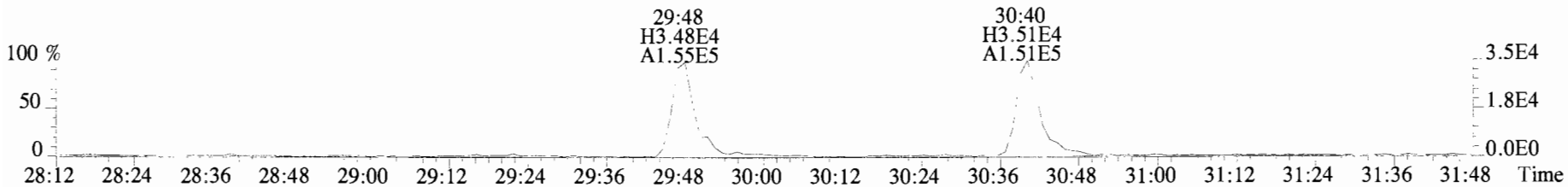
409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



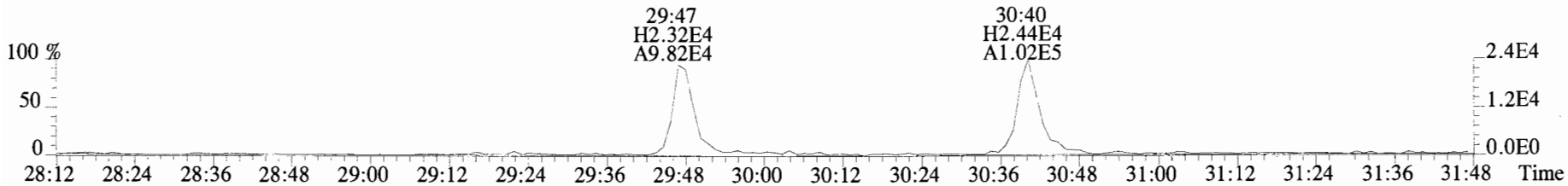
316.9824 S:2



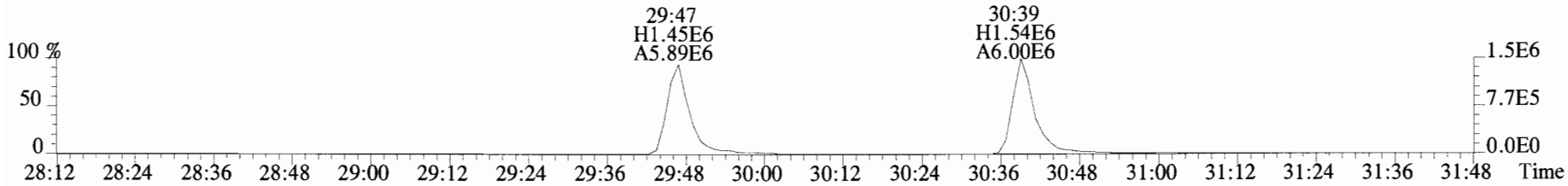
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



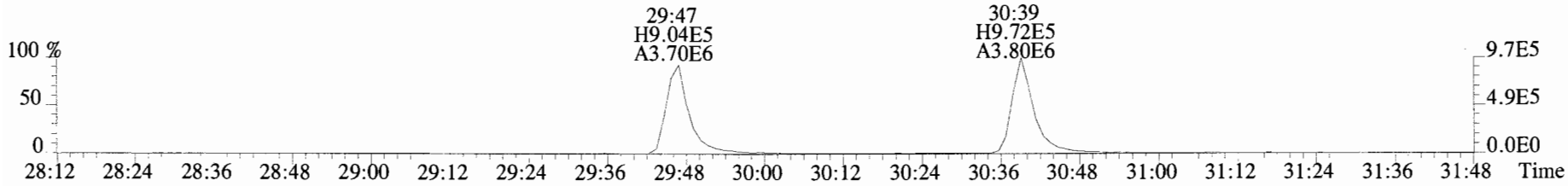
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



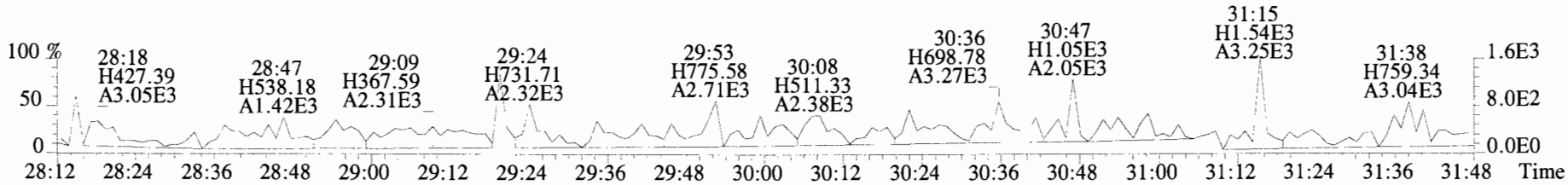
351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



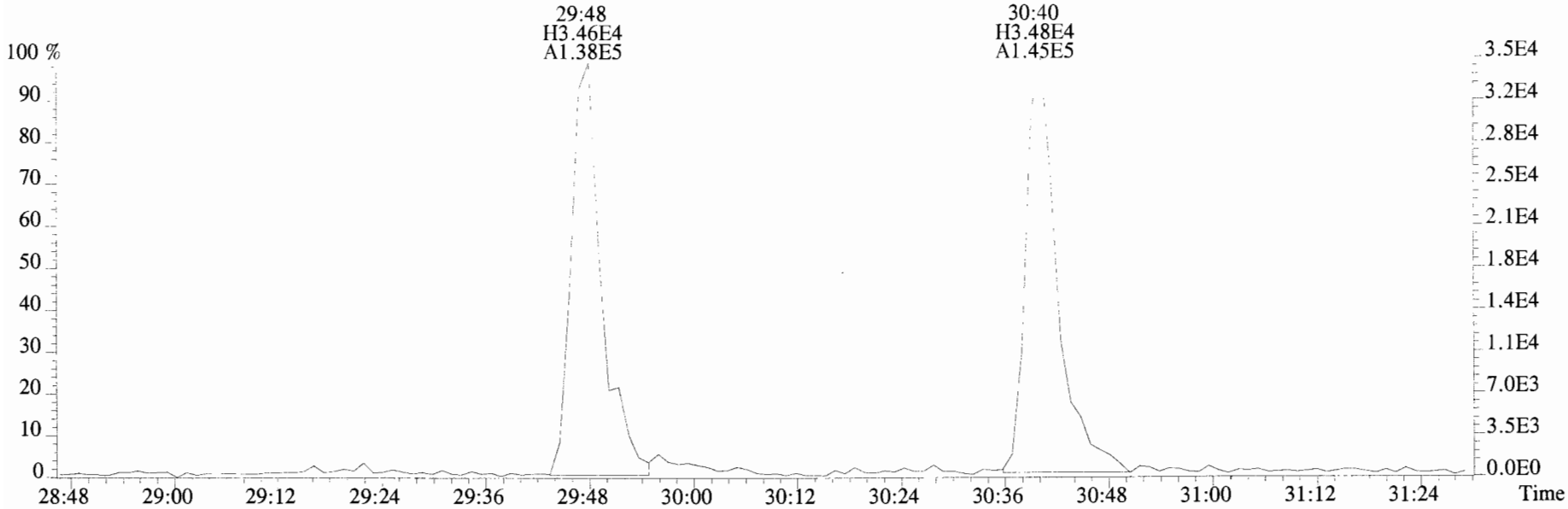
353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



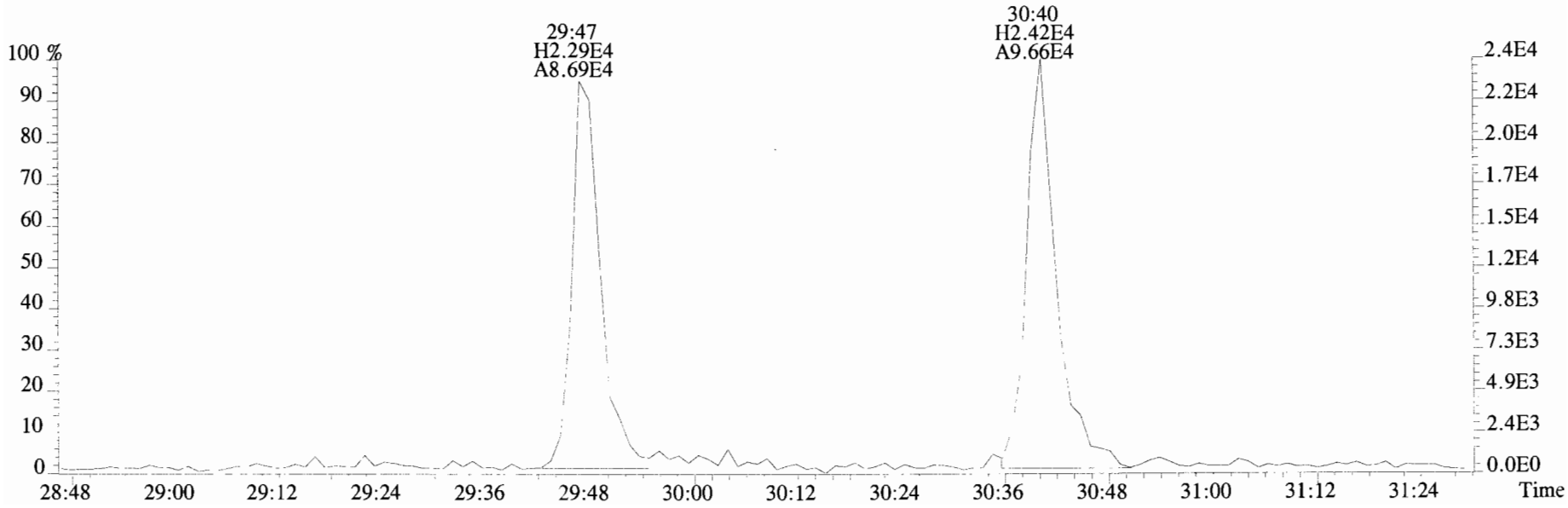
409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



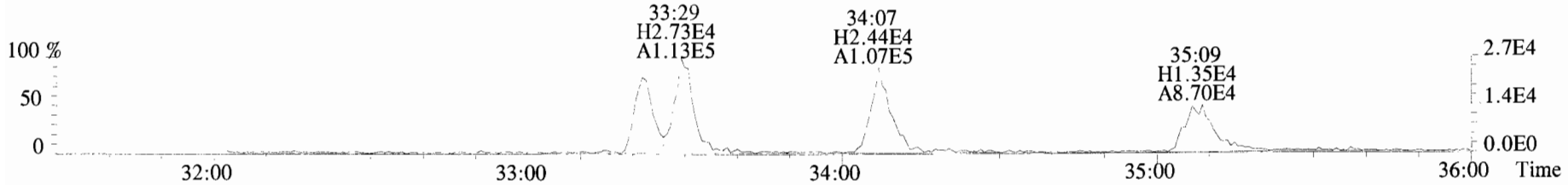
File:191009D1 #1-211 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



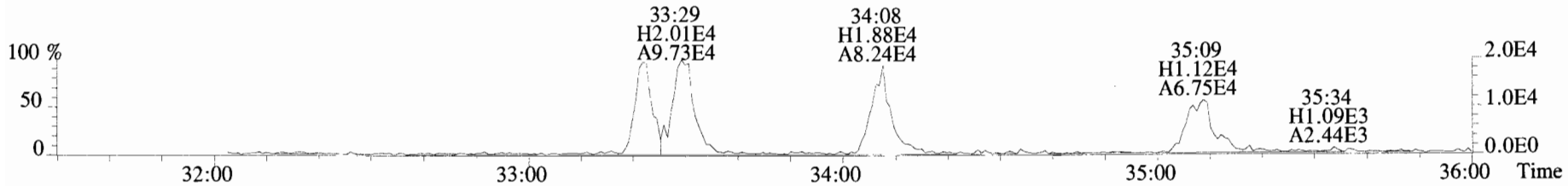
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



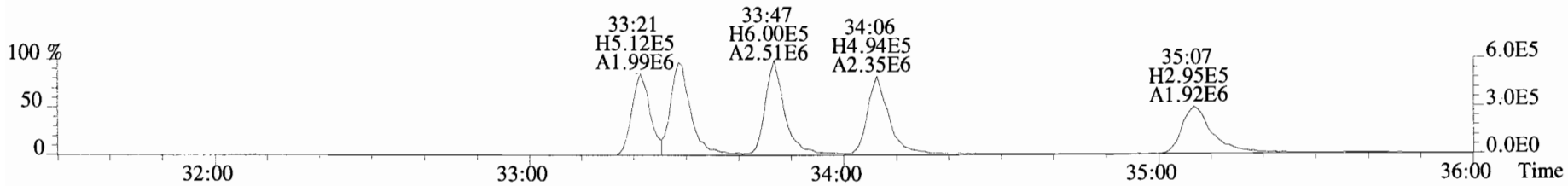
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



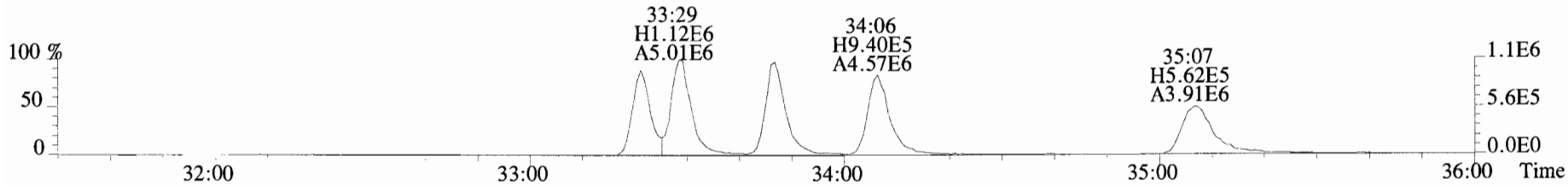
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



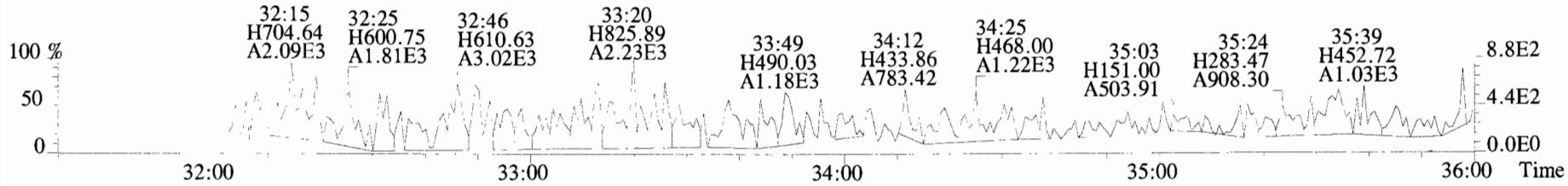
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



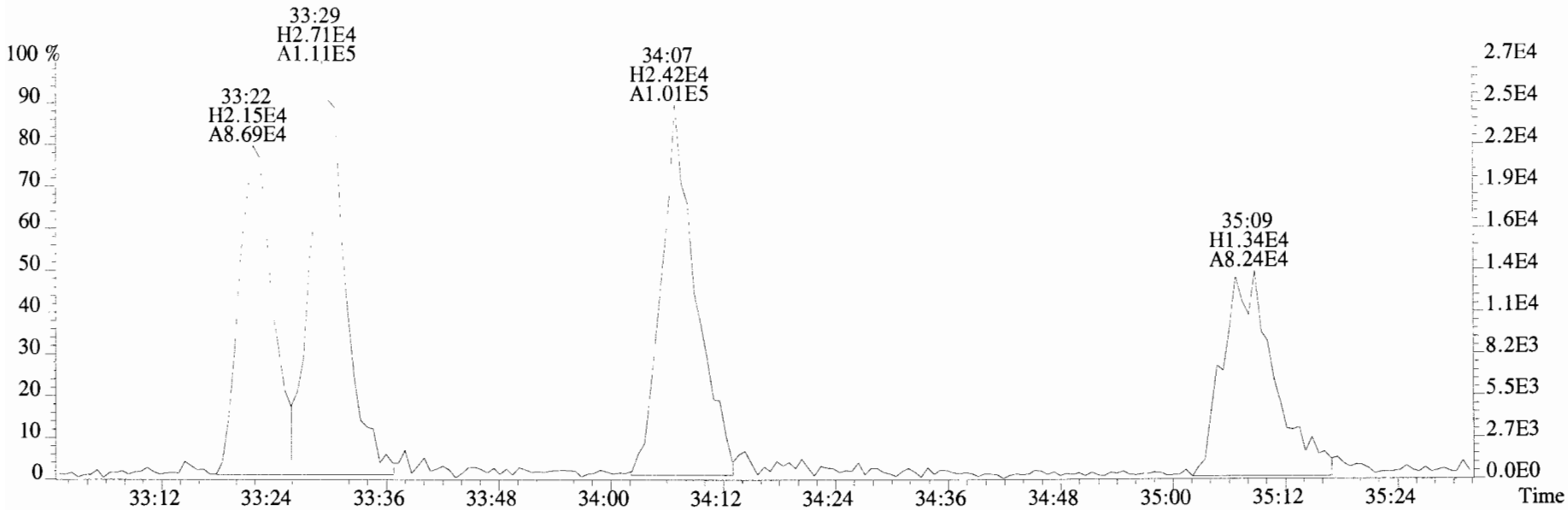
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



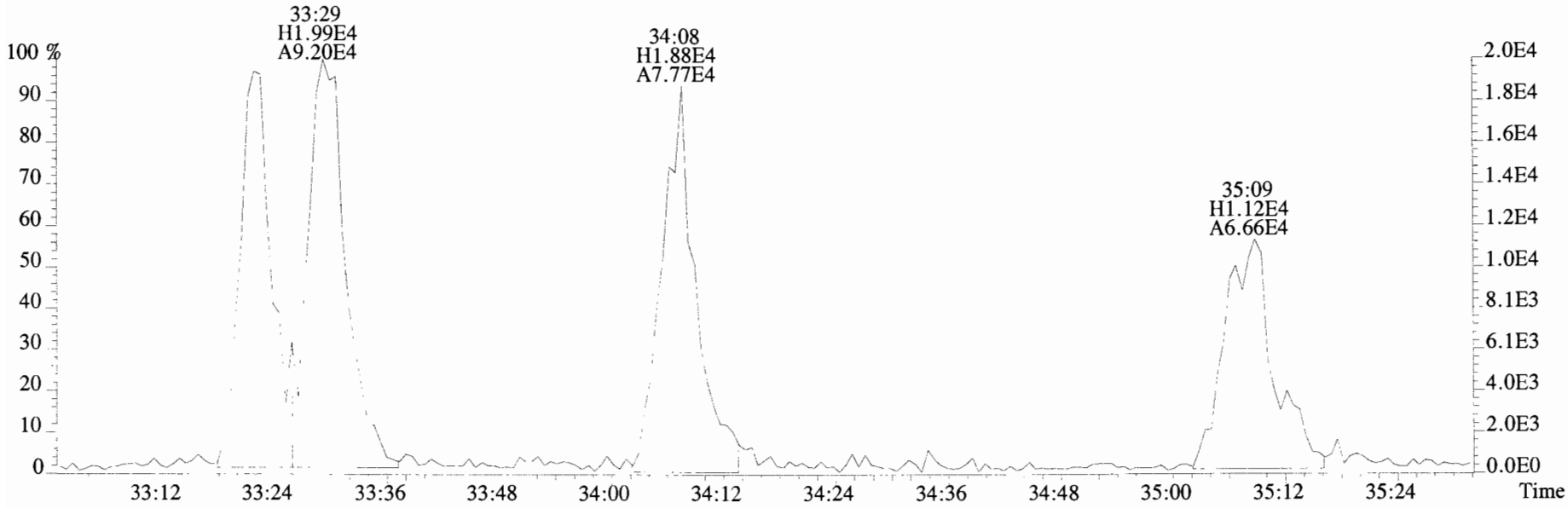
445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



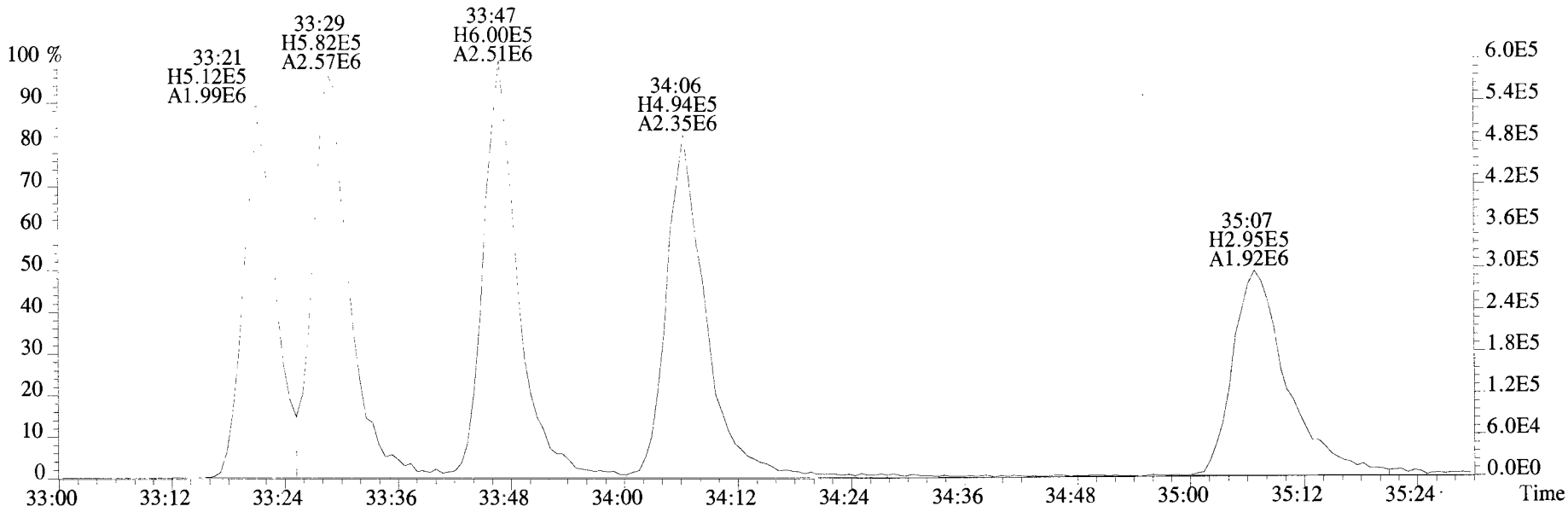
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



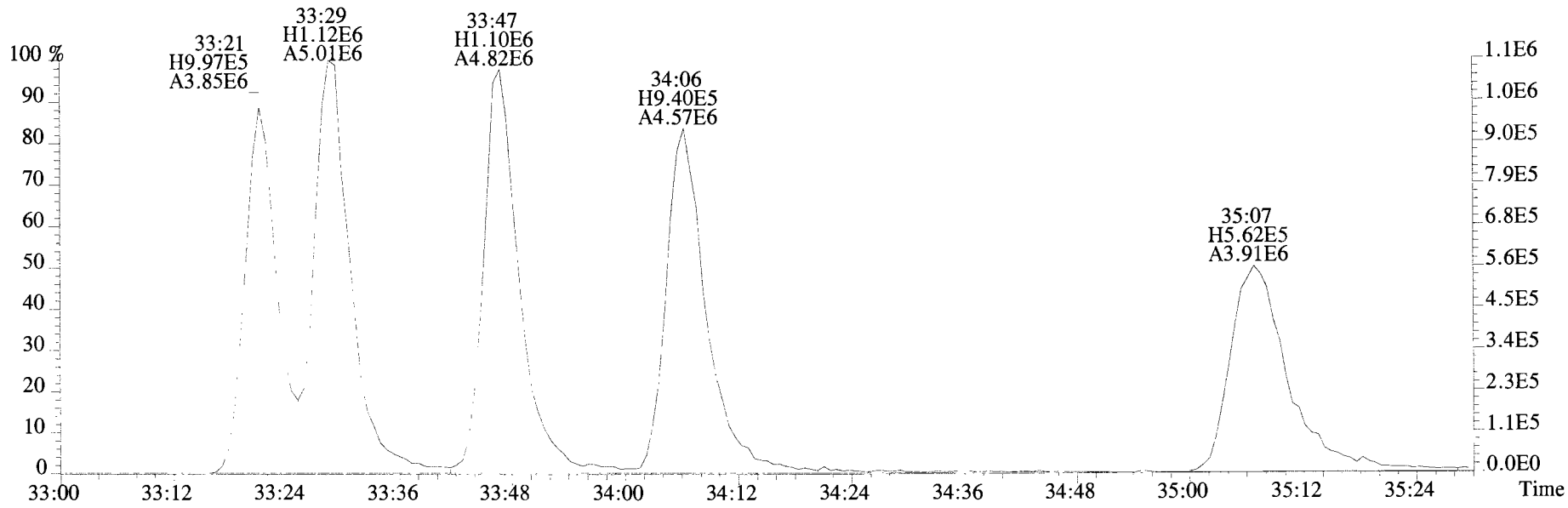
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



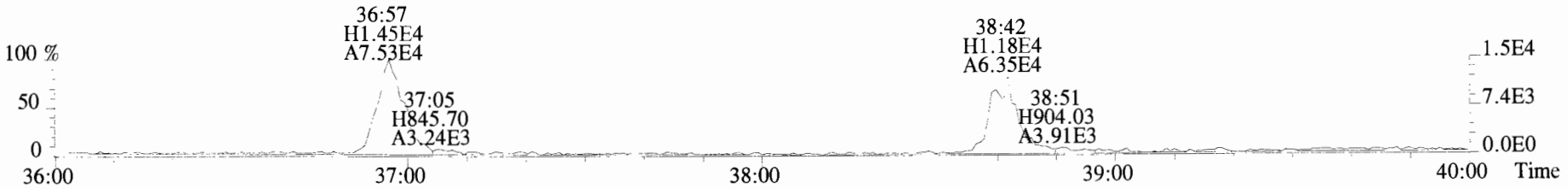
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



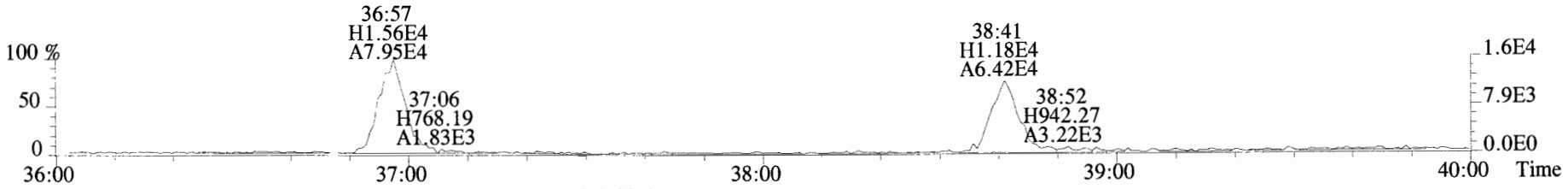
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



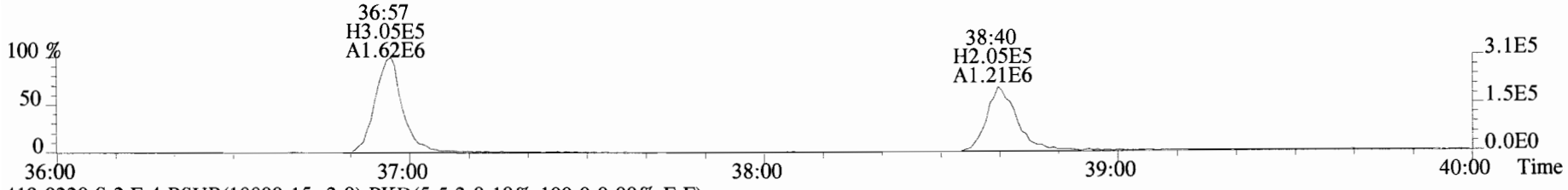
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



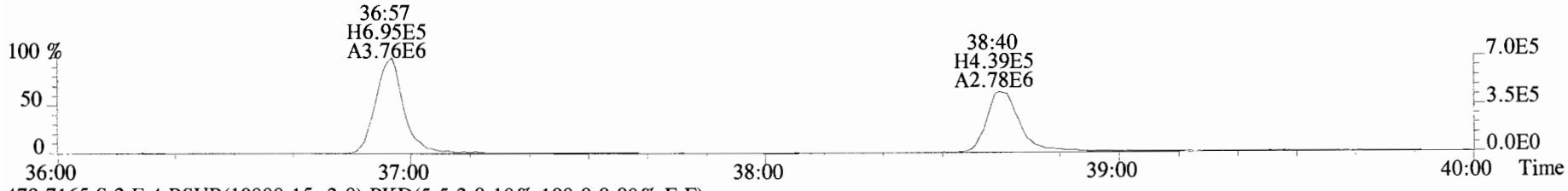
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



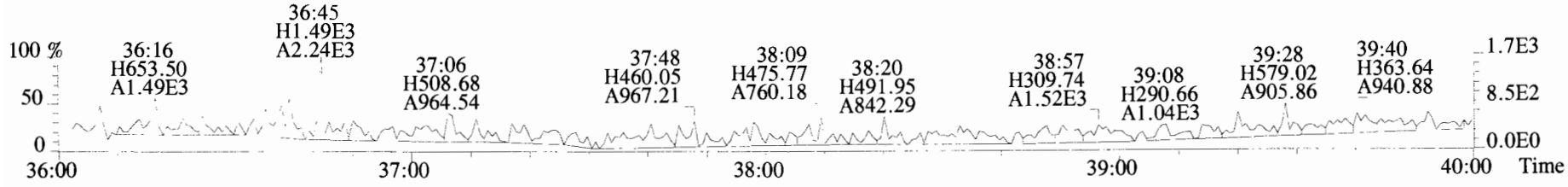
417.8253 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



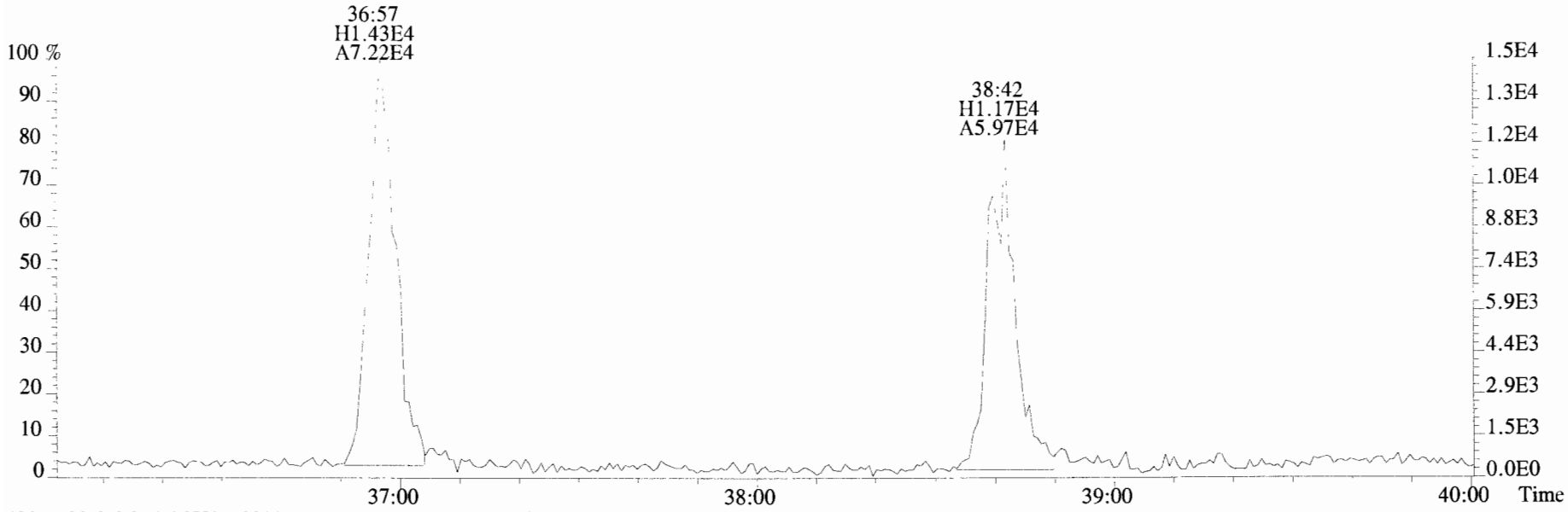
419.8220 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



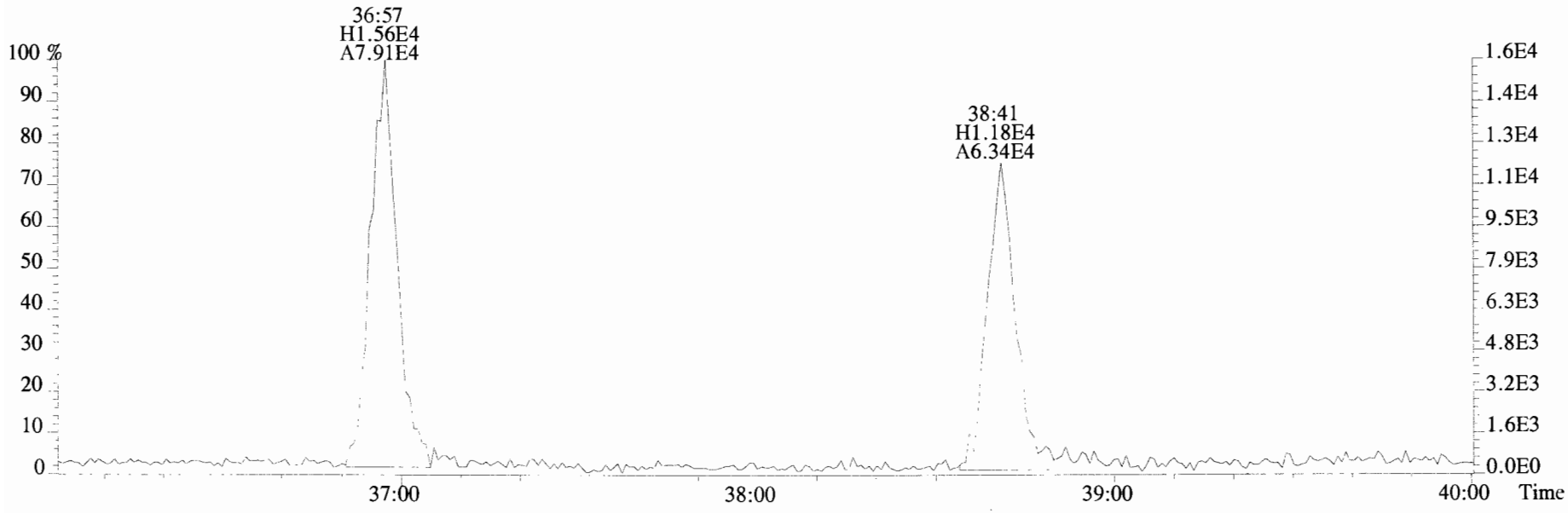
479.7165 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



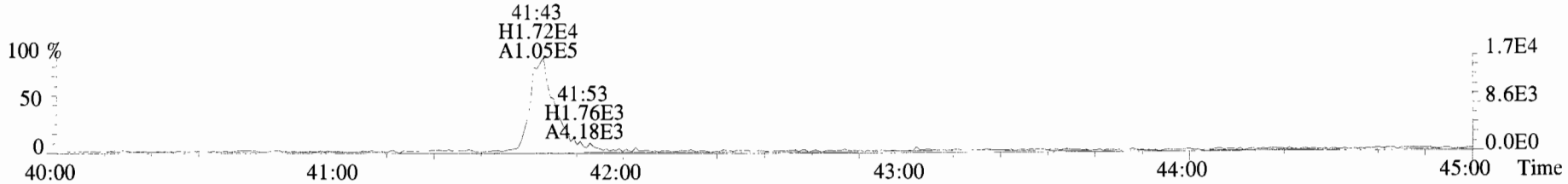
File:191009D1 #1-355 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



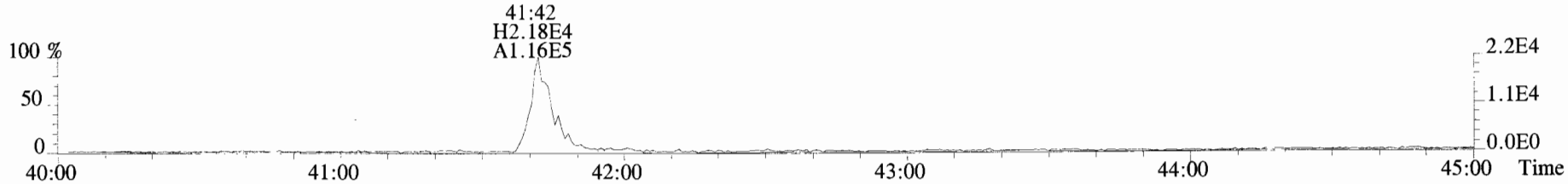
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



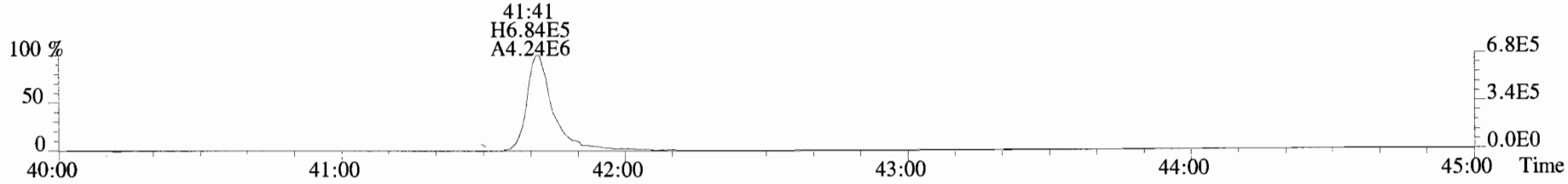
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



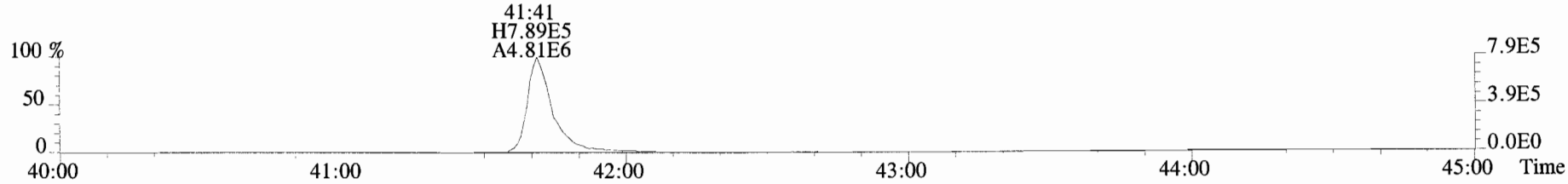
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



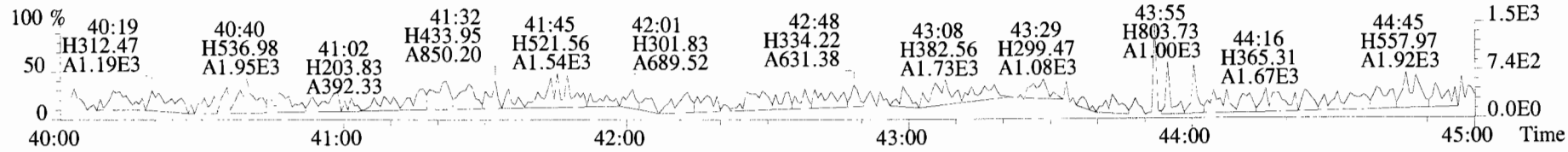
453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



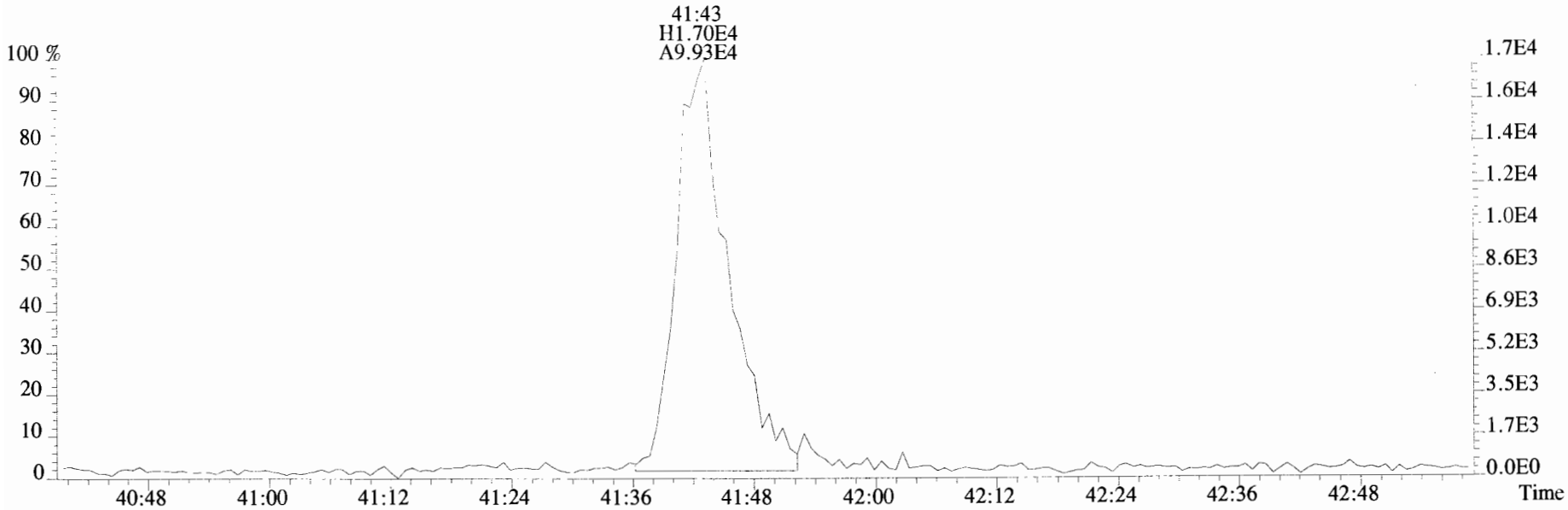
455.7801 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



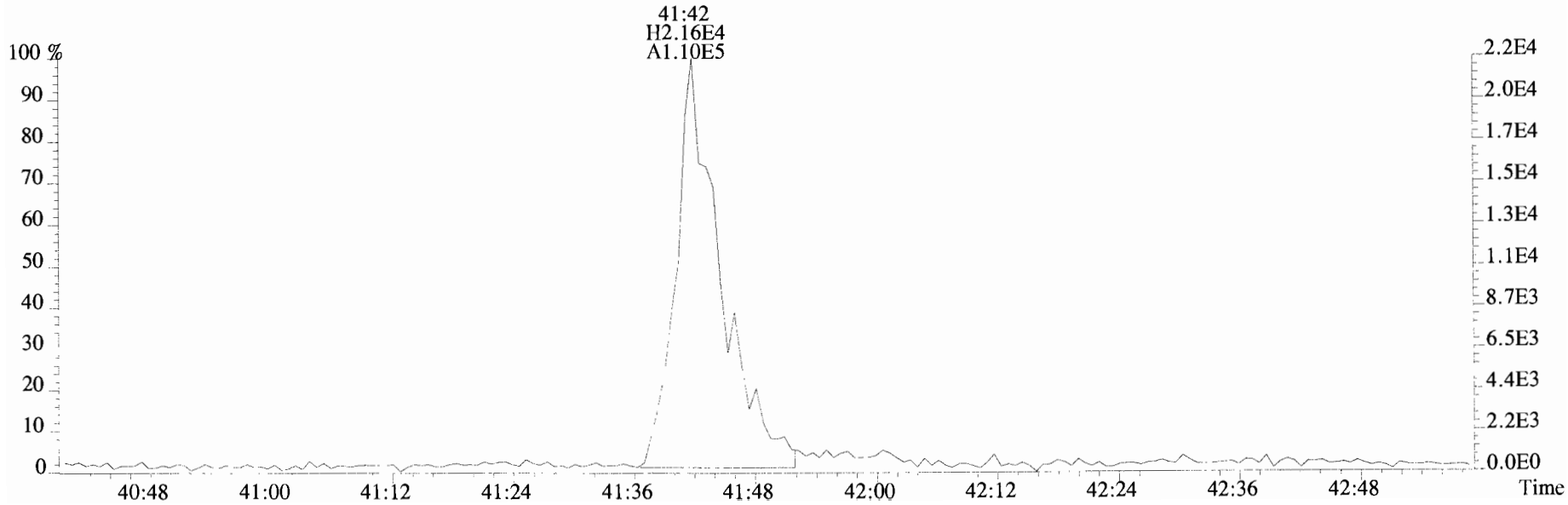
513.6775 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



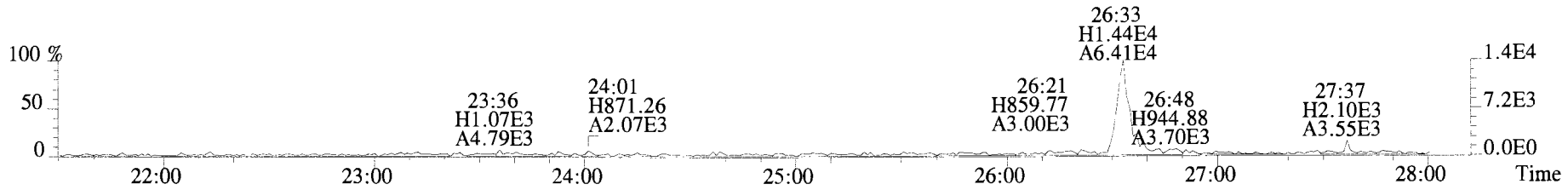
File:191009D1 #1-432 Acq: 9-OCT-2019 17:00:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-2 1613 CS1 19C2202 Exp:OCDD_DB5
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



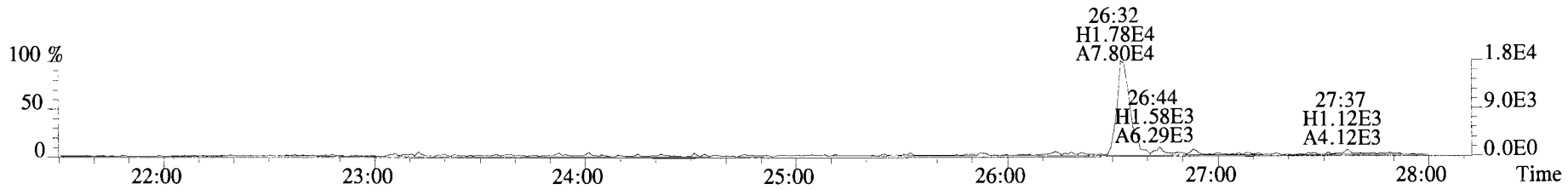
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

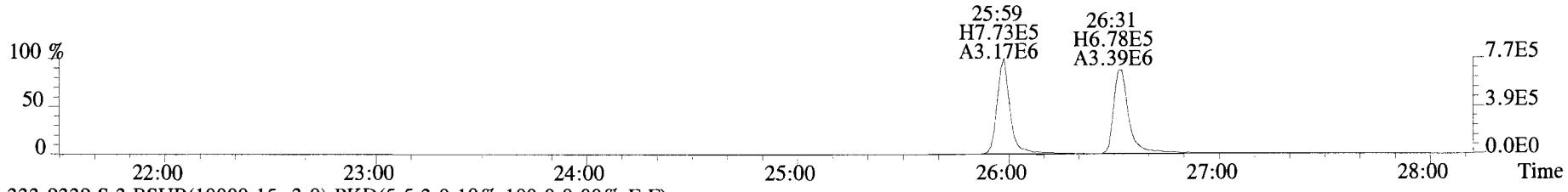


321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

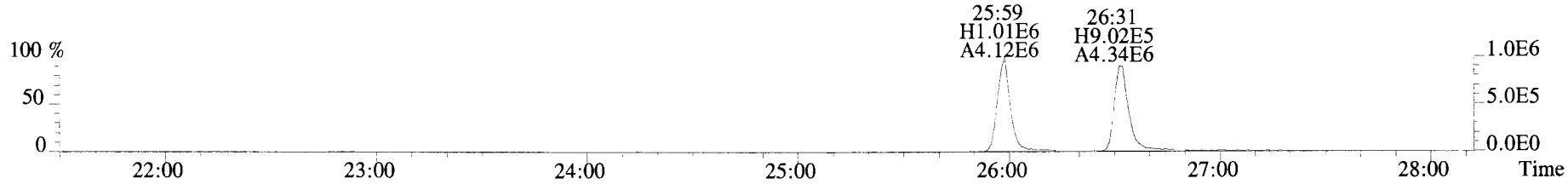


327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

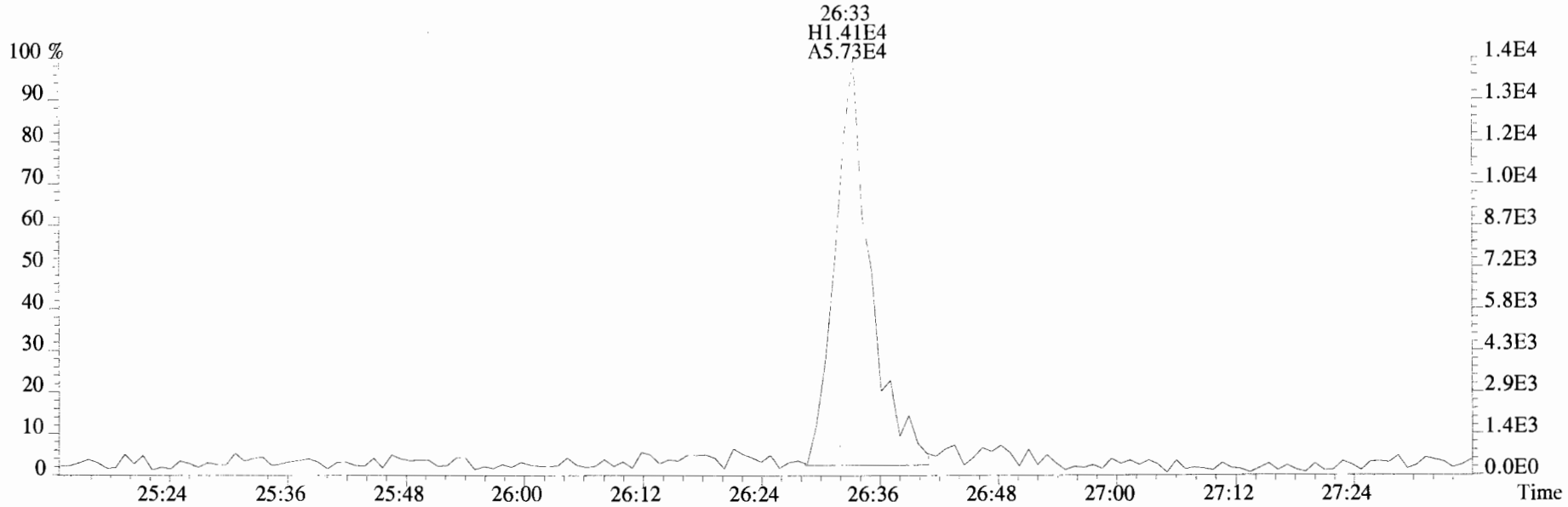
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



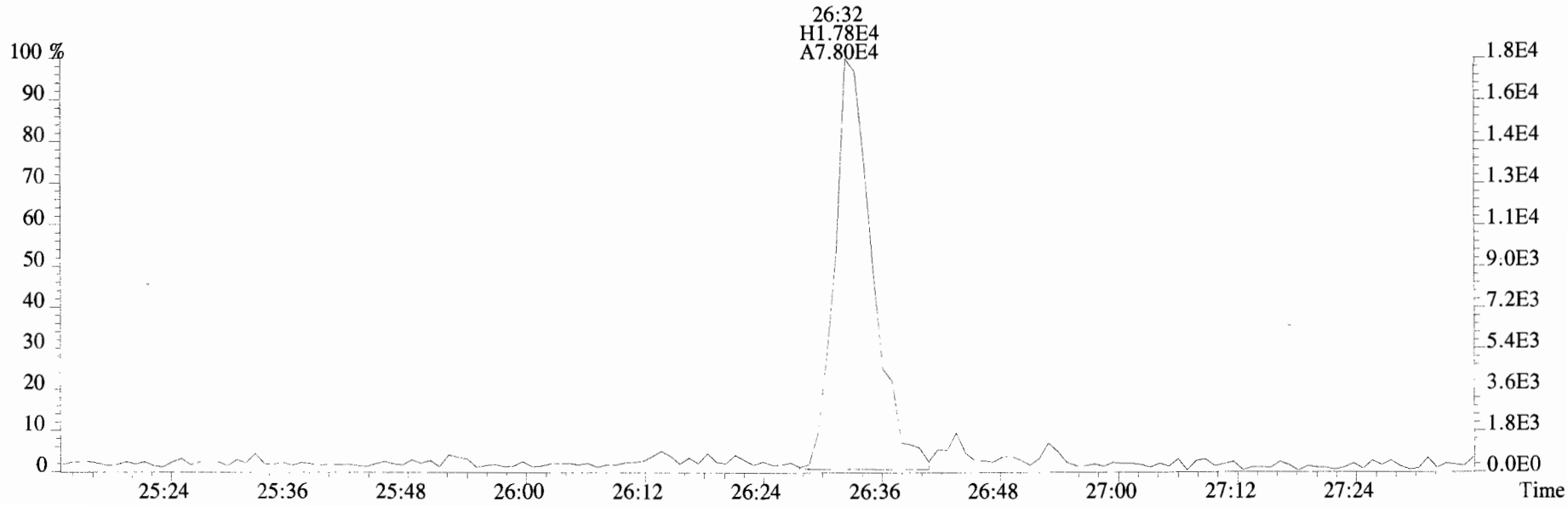
333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



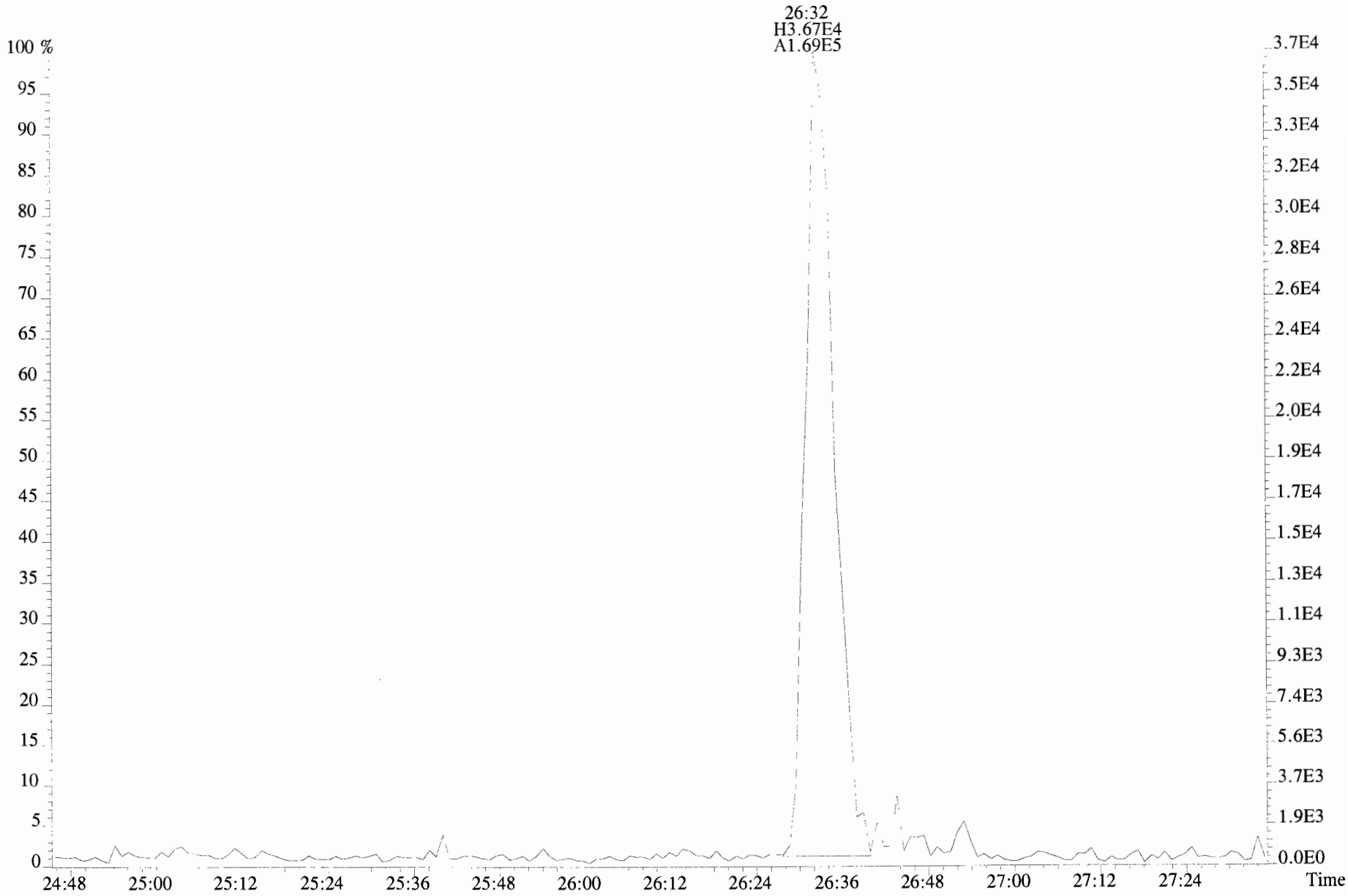
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



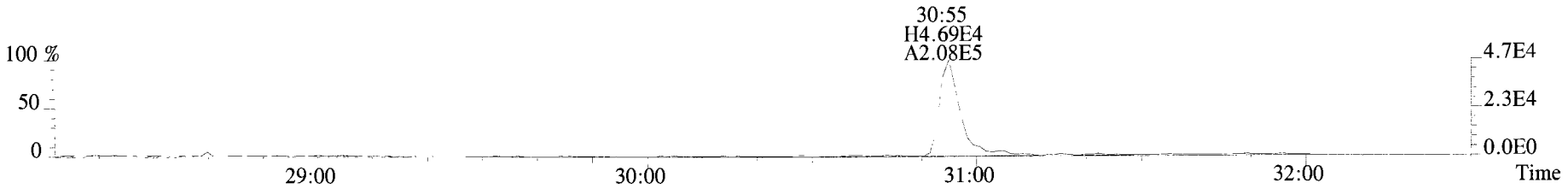
321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



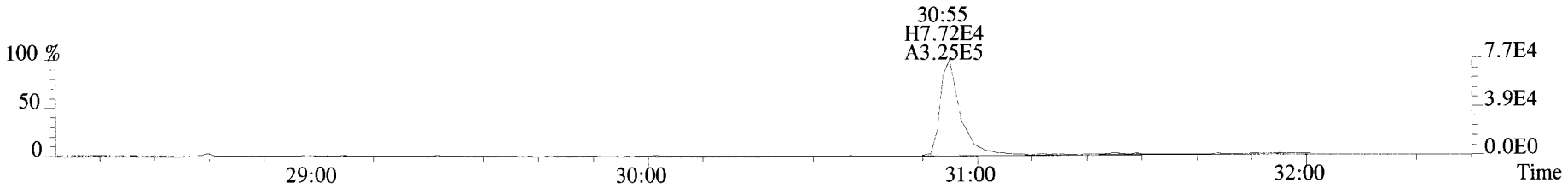
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



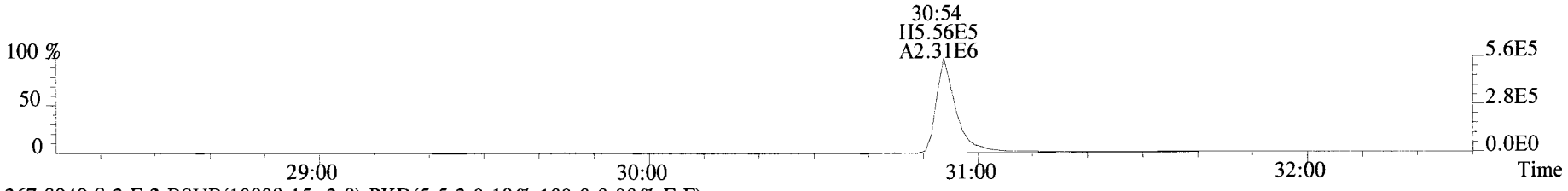
File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



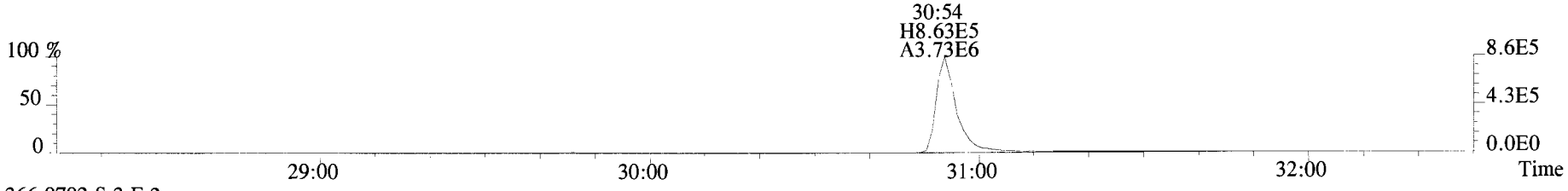
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



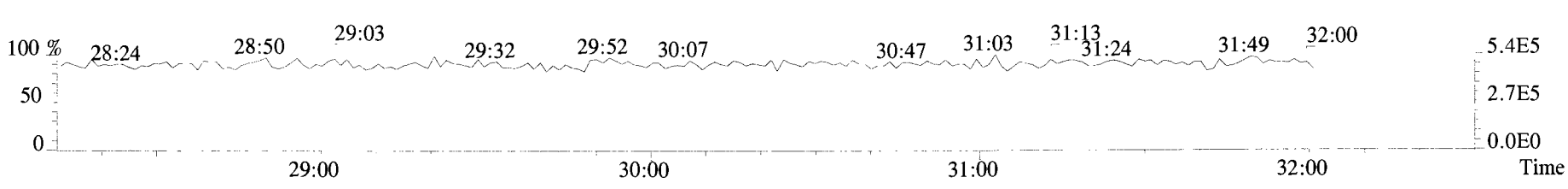
365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



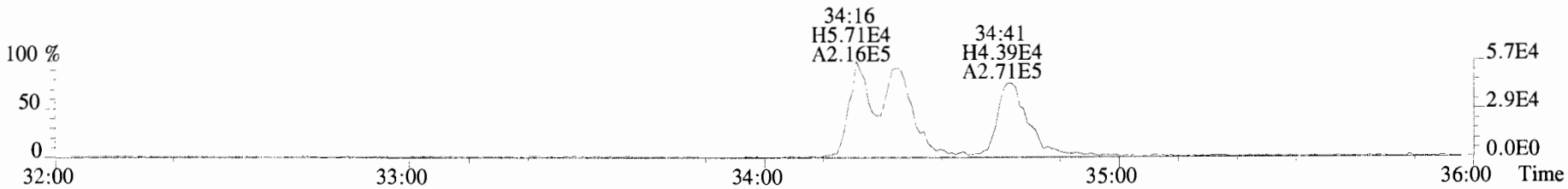
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



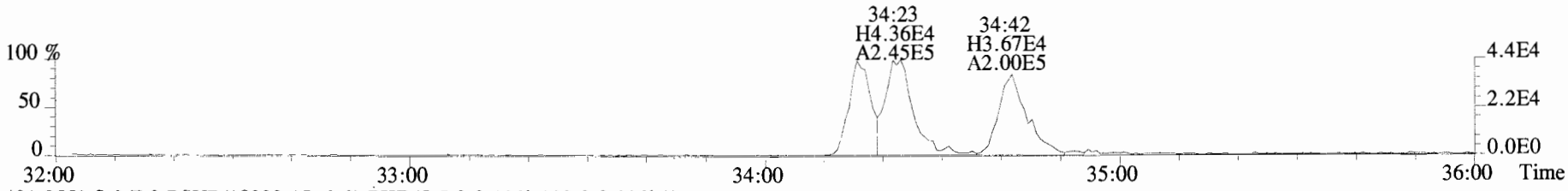
366.9792 S:3 F:2



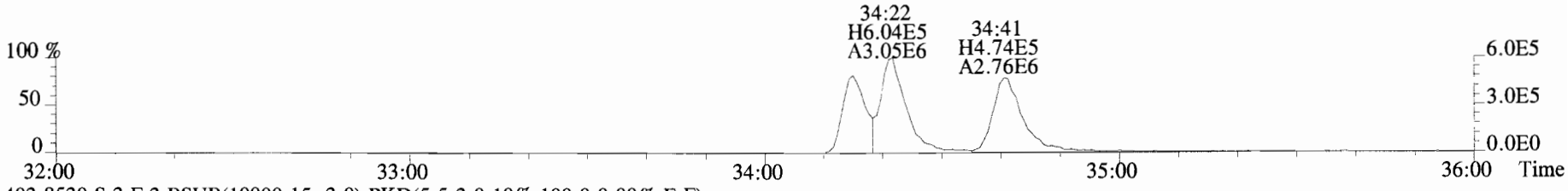
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



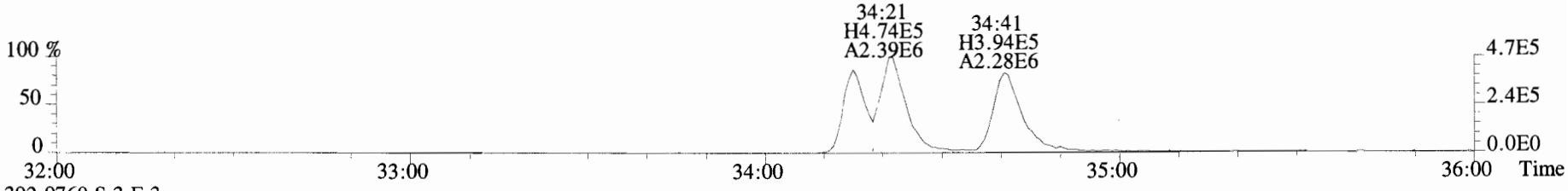
391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



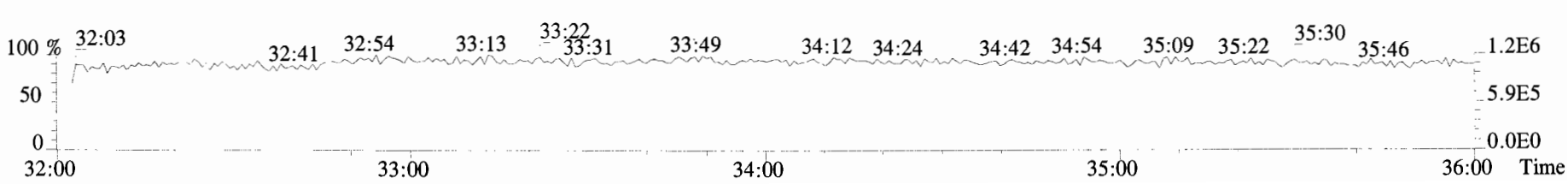
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



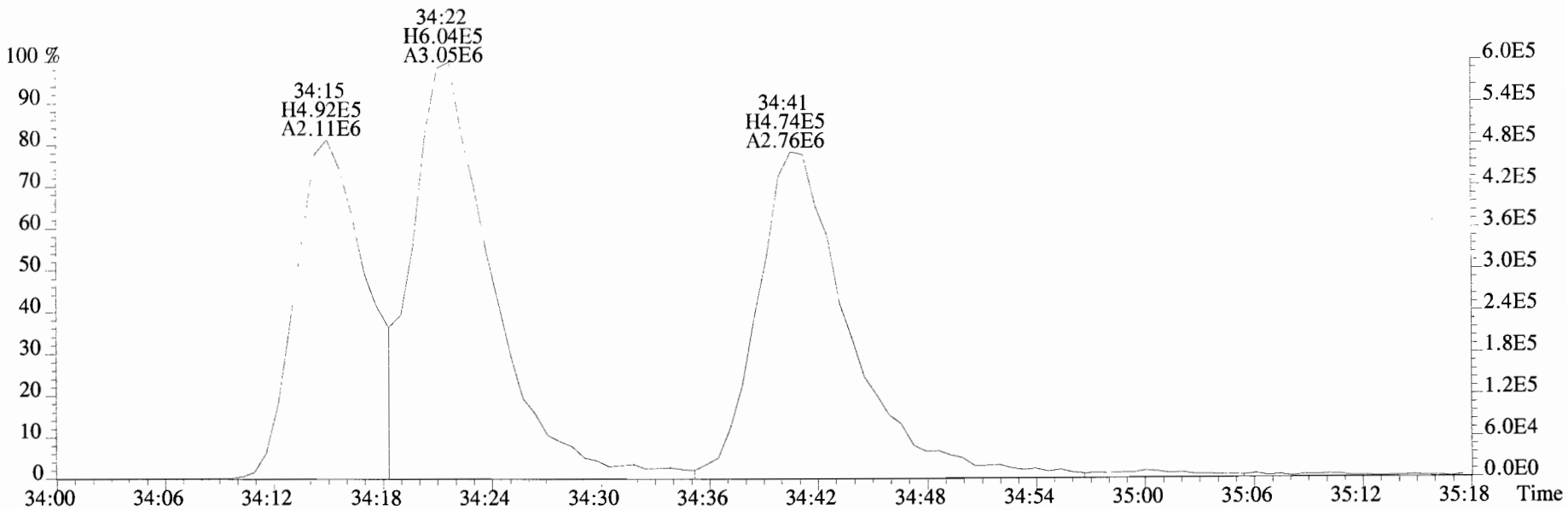
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



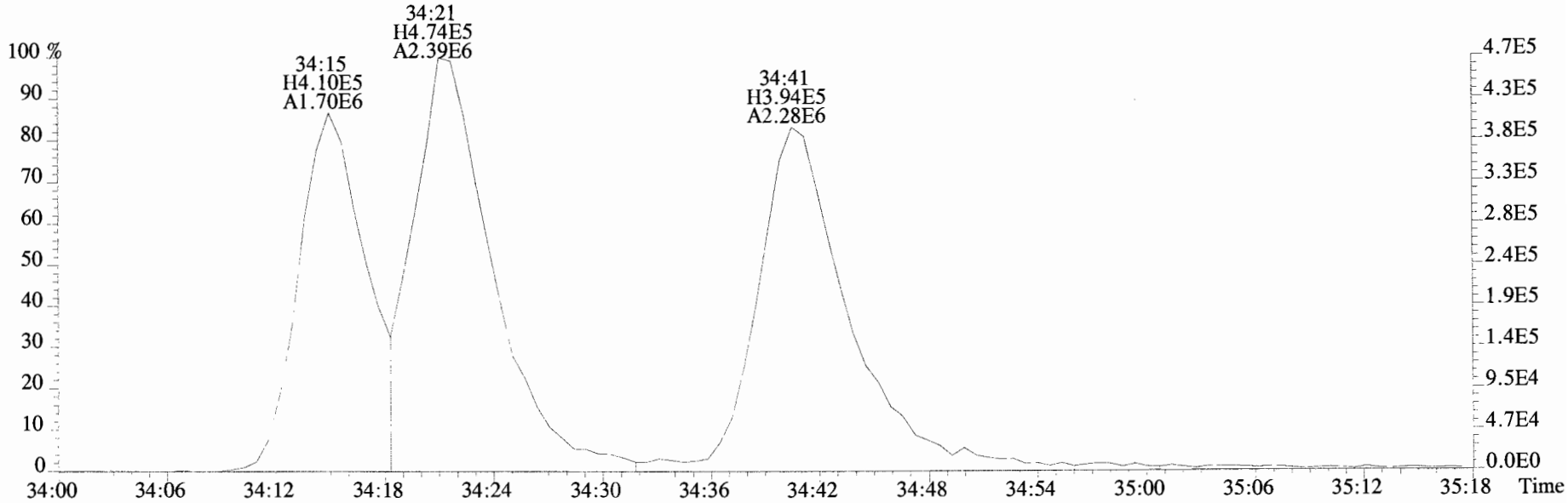
392.9760 S:3 F:3



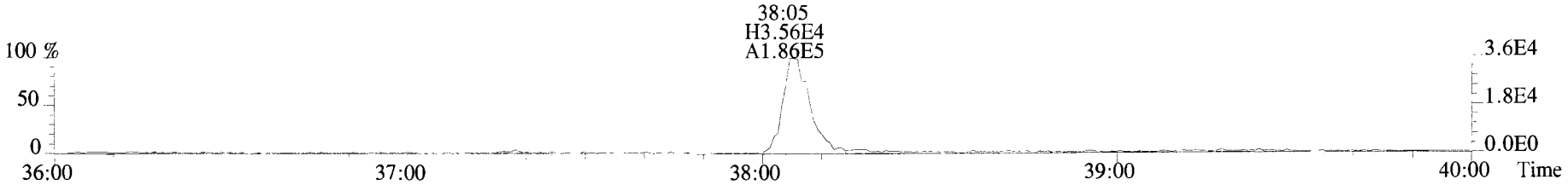
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



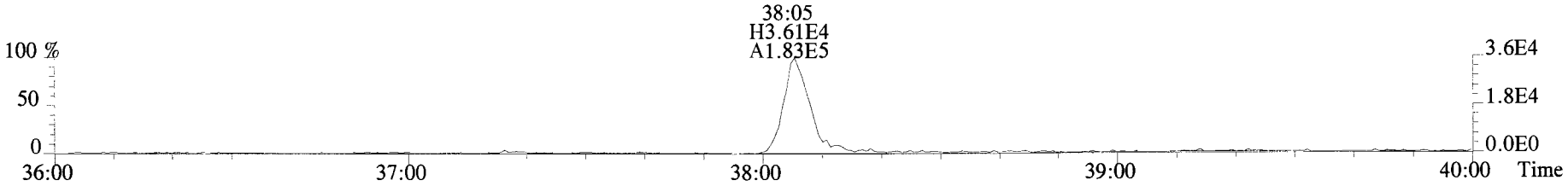
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



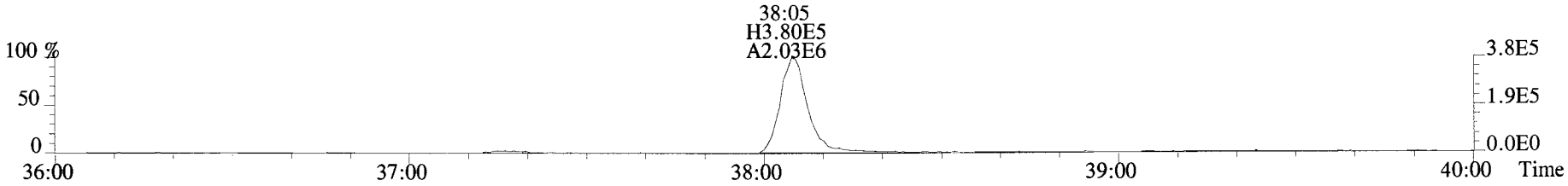
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



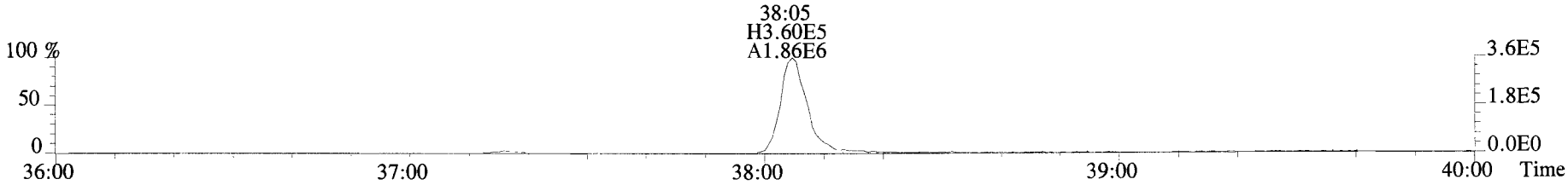
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



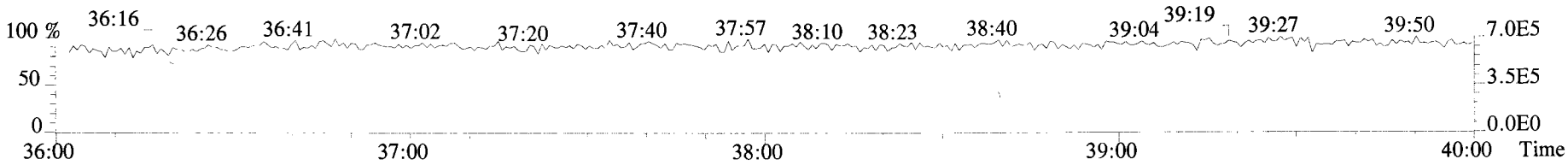
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



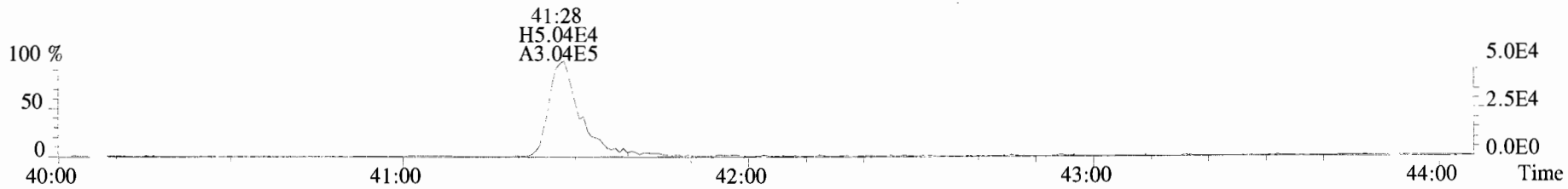
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



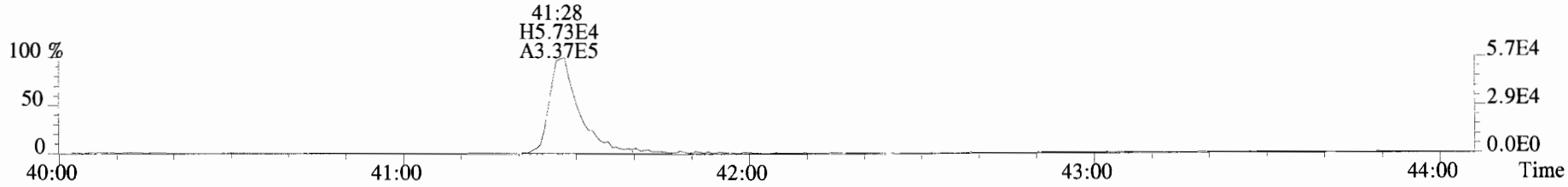
454.9728 S:3 F:4



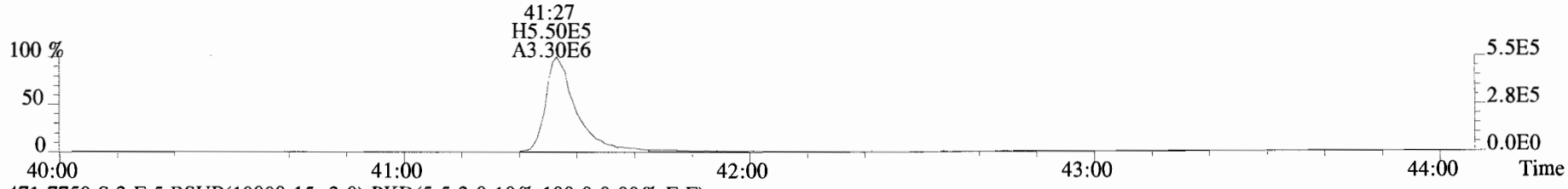
File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



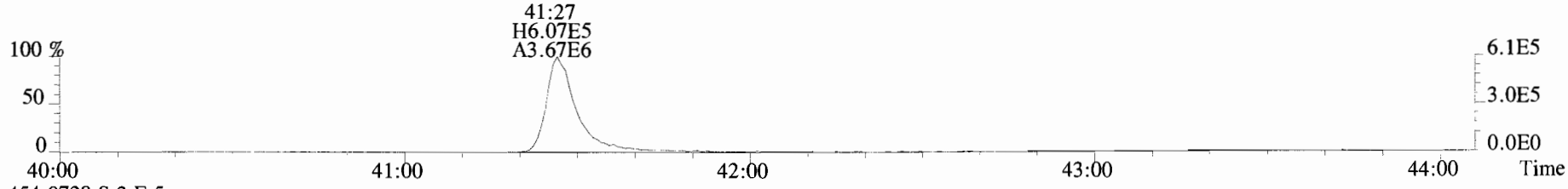
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



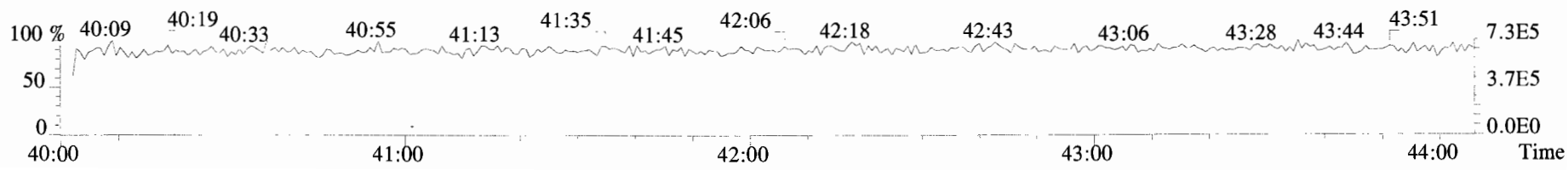
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



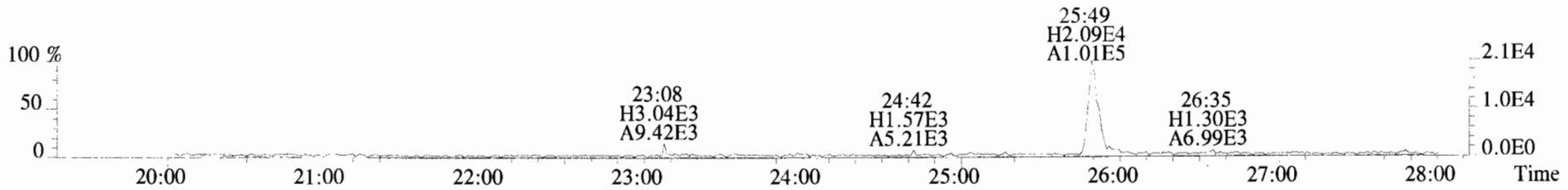
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



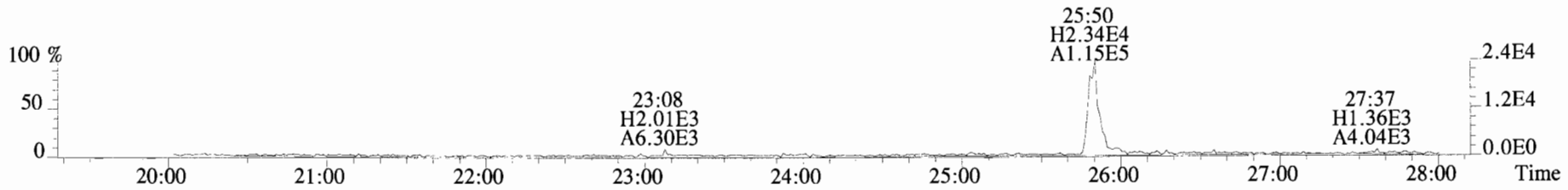
454.9728 S:3 F:5



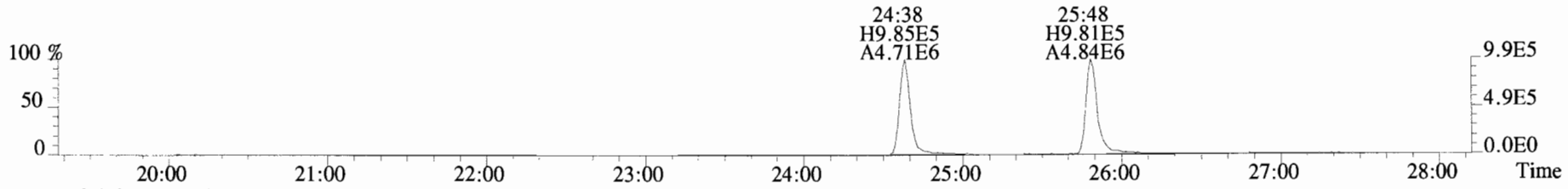
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



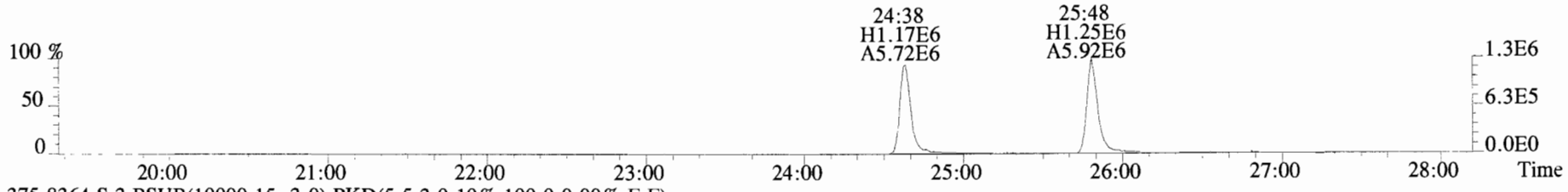
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



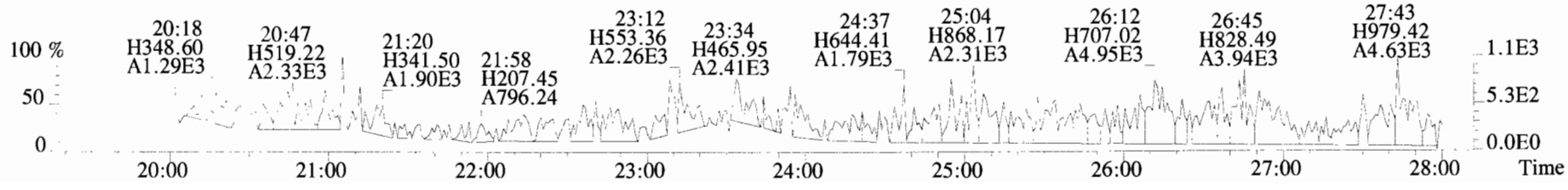
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



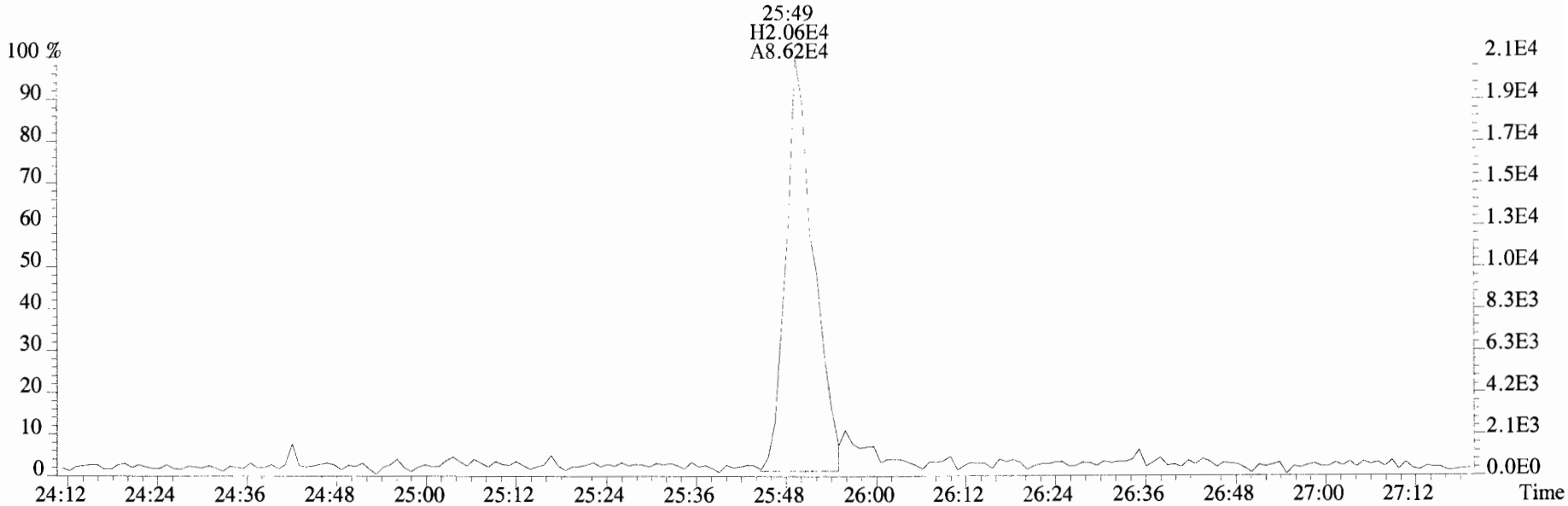
317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



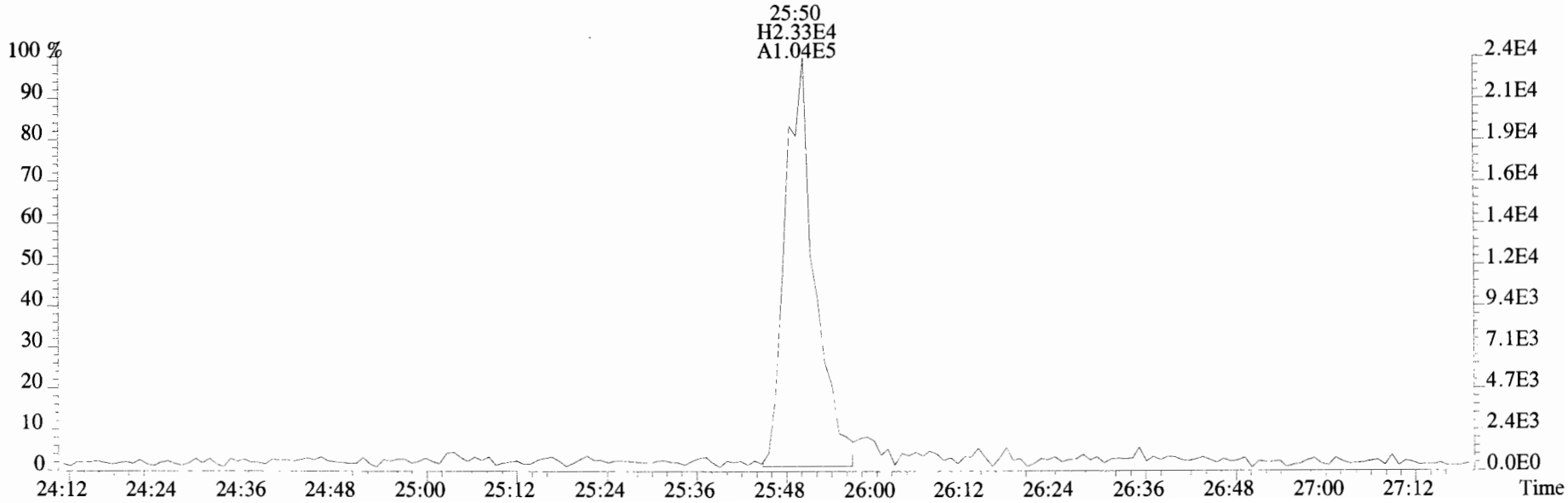
375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



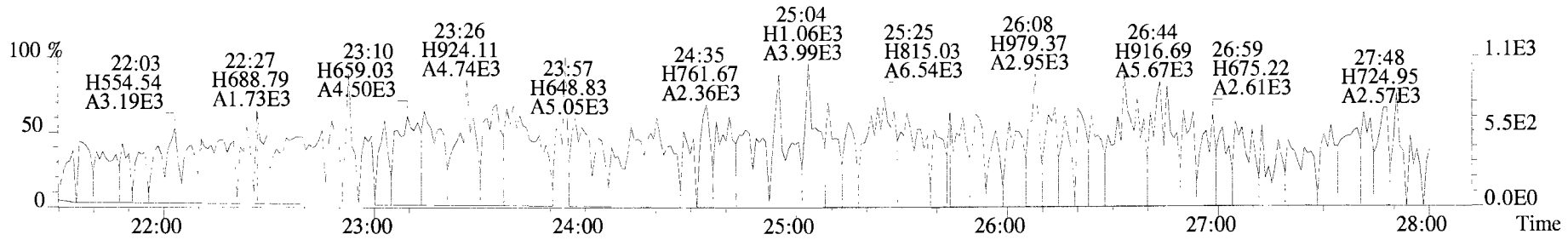
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



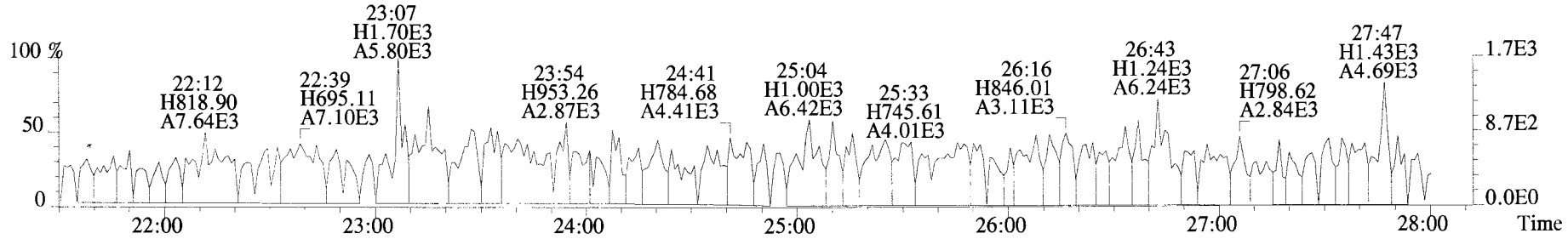
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



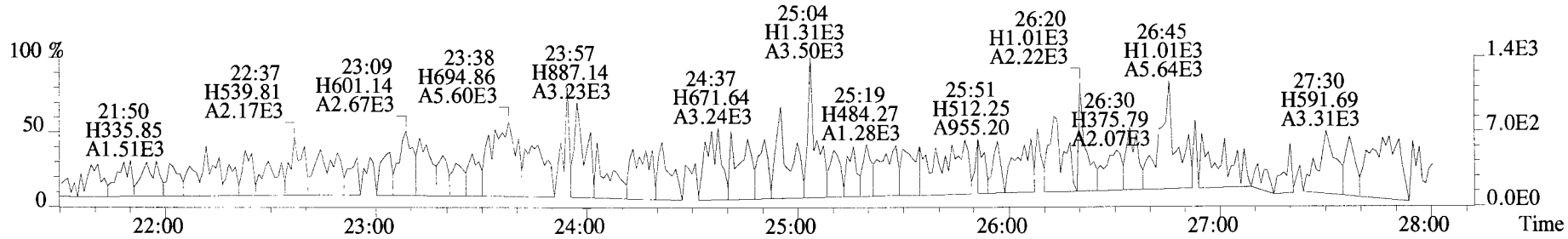
File:191009D1 #1-513 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



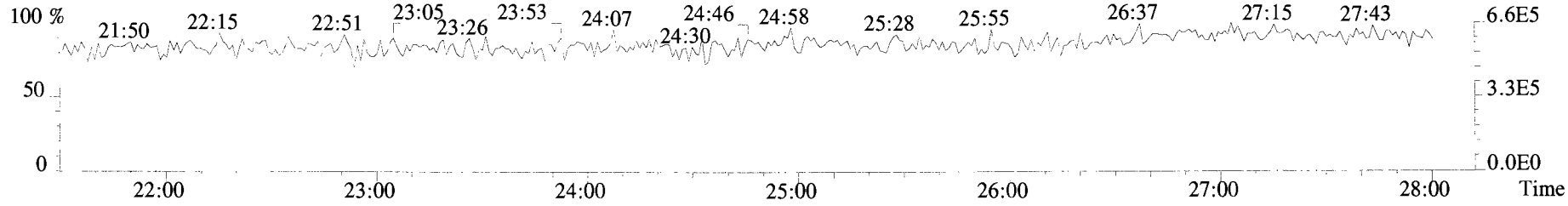
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



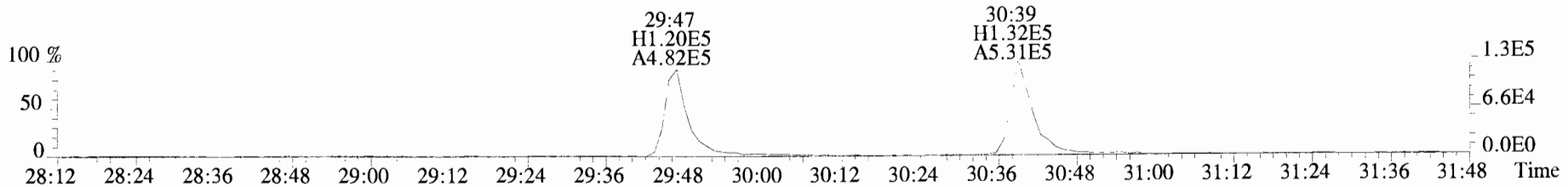
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



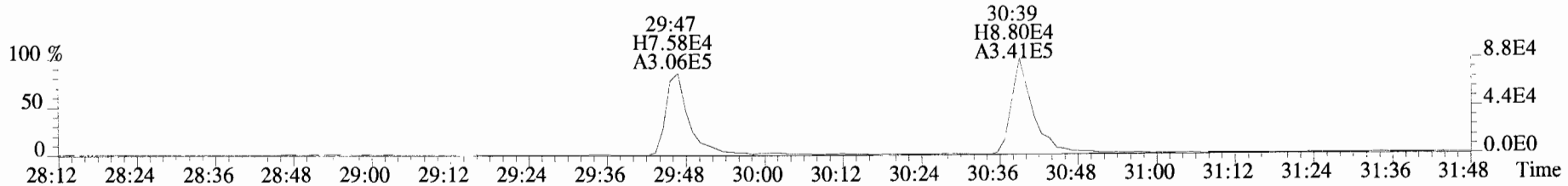
316.9824 S:3



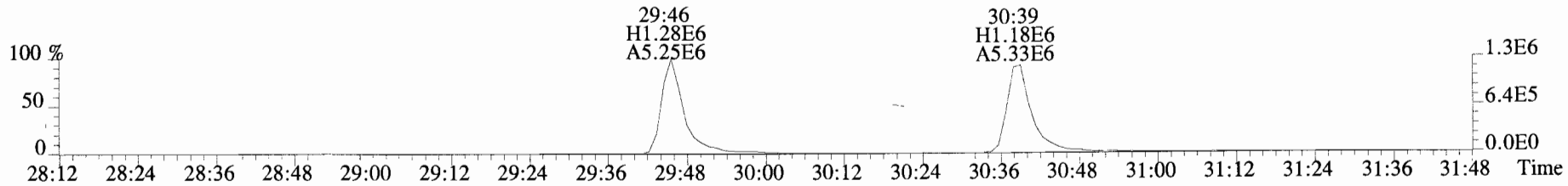
File:191009D1 #1-211 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



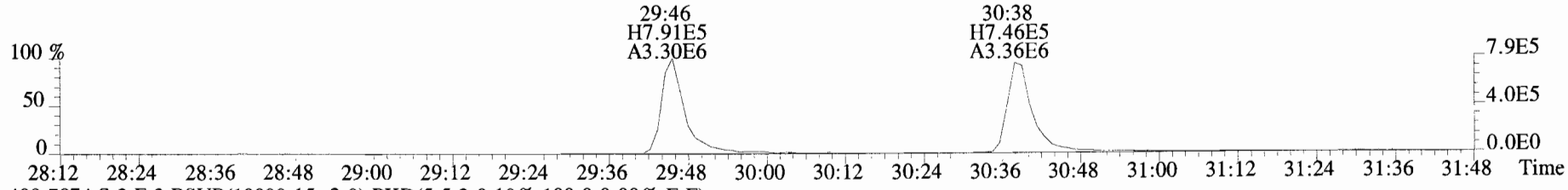
341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



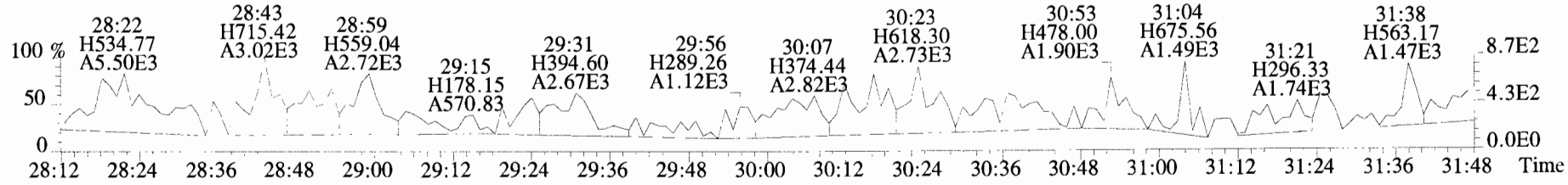
351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

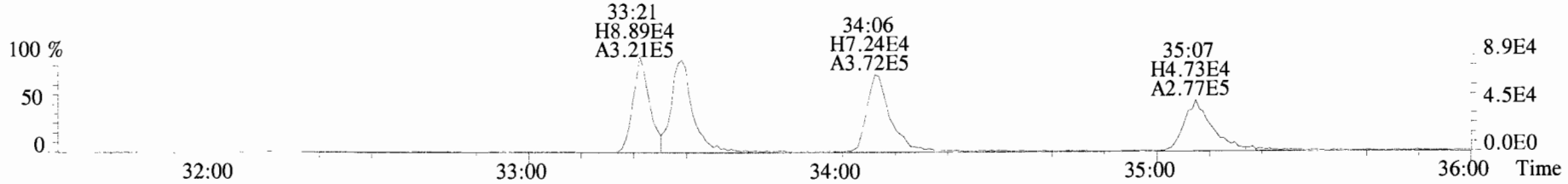


409.7974 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

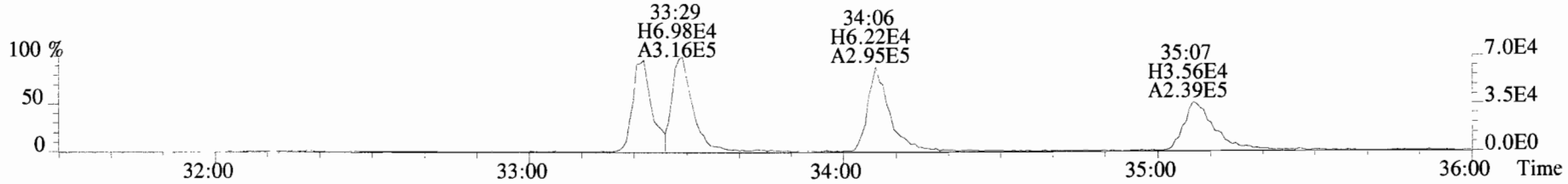


File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5

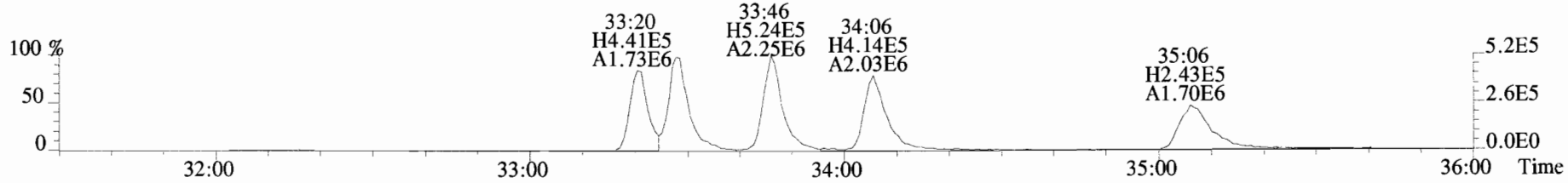
373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



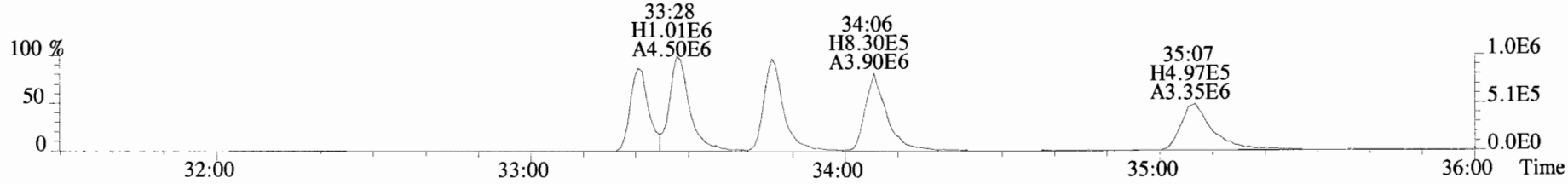
375.8178 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



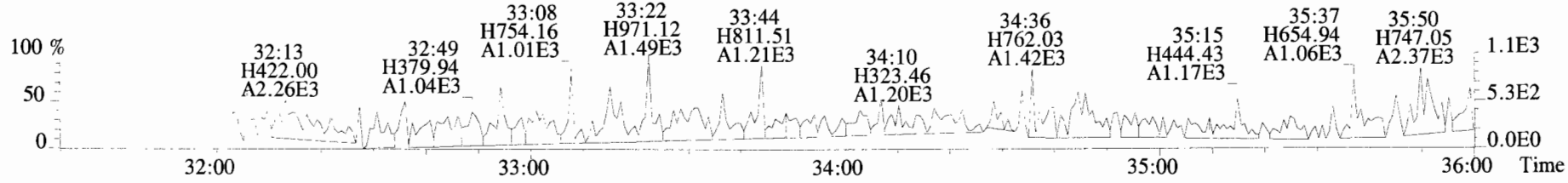
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



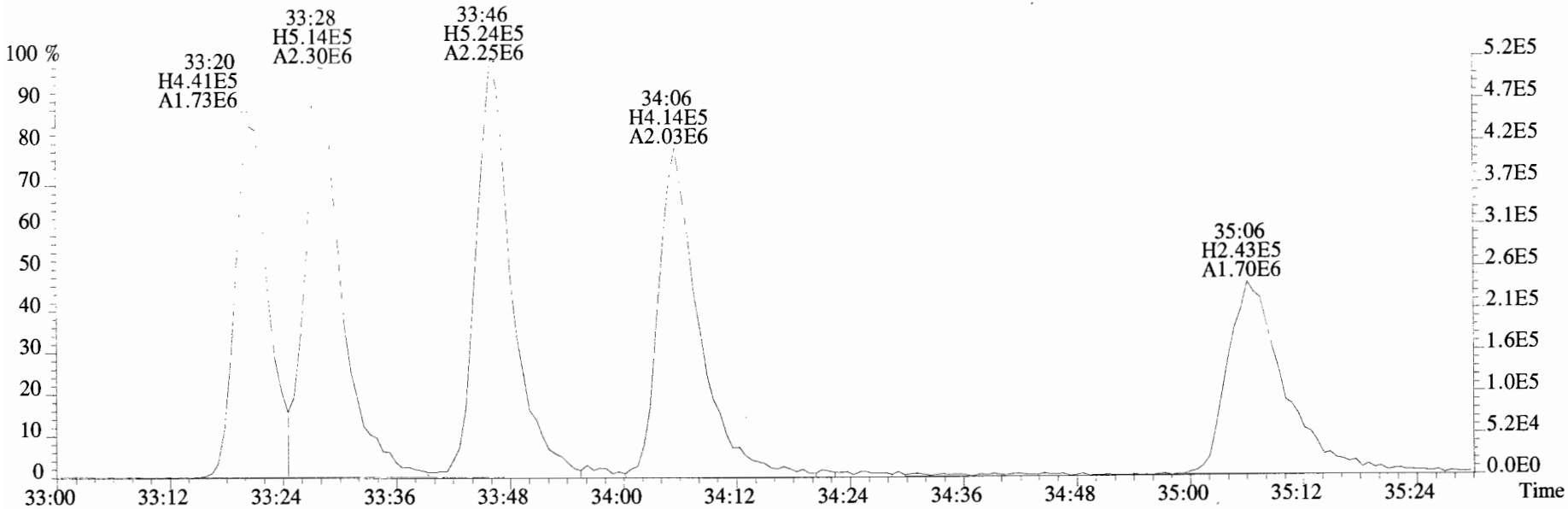
385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



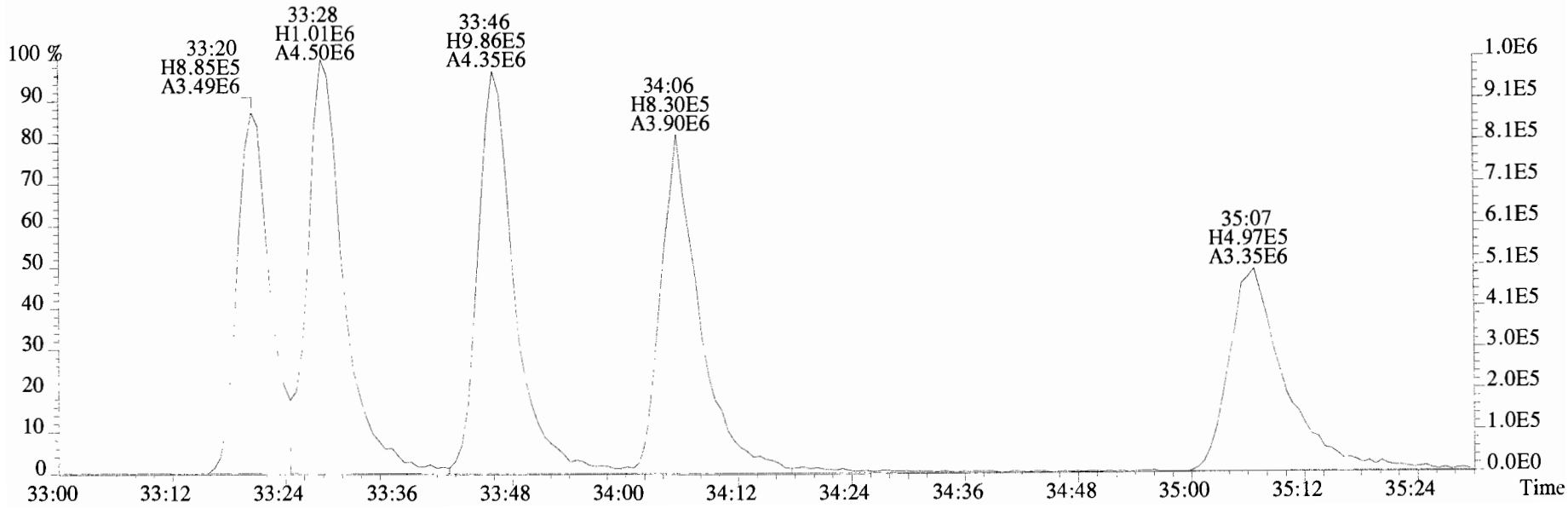
445.7555 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



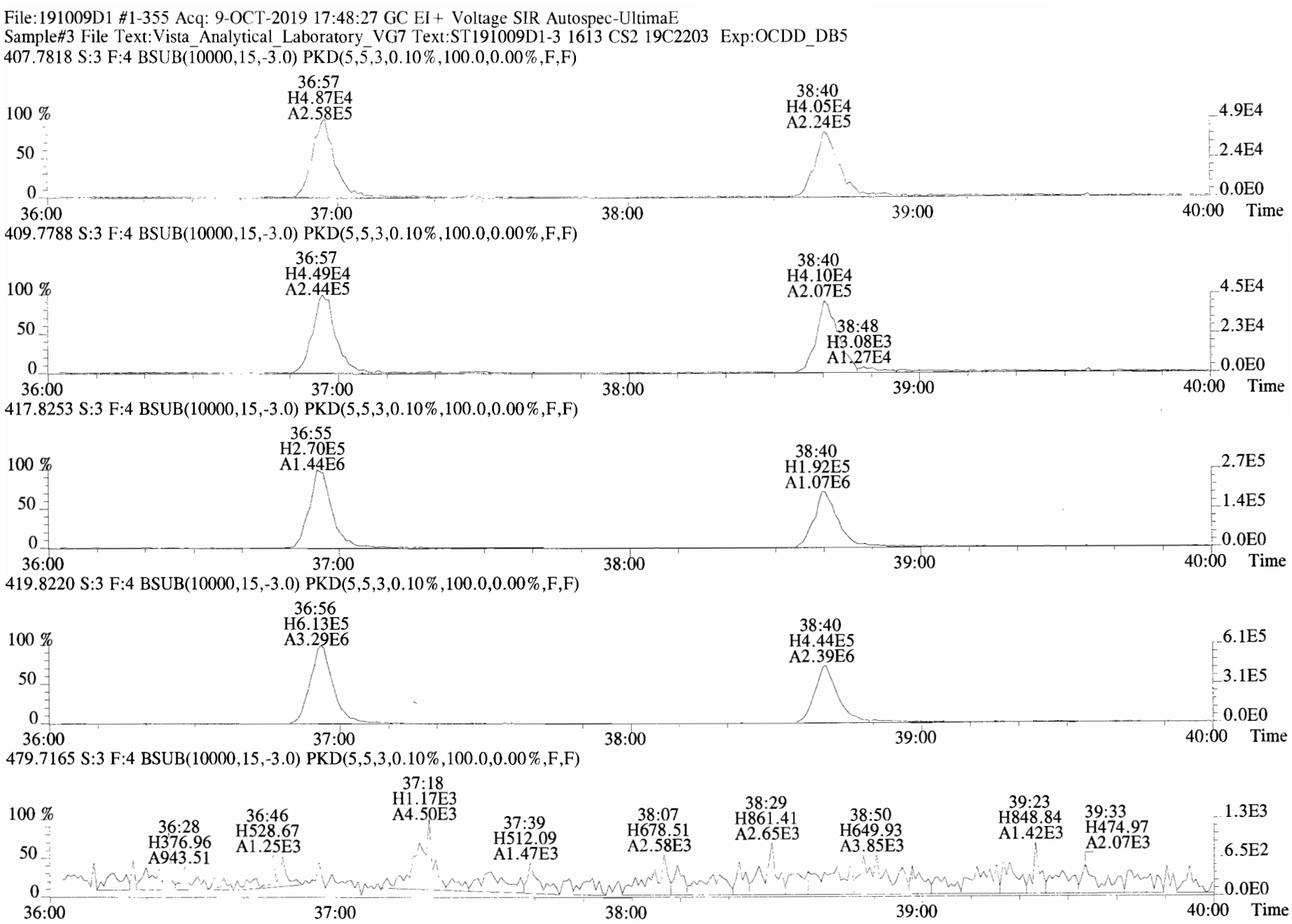
File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

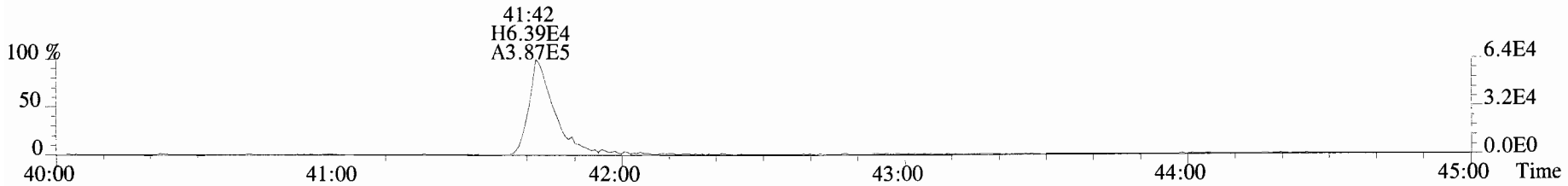


File:191009D1 #1-355 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5

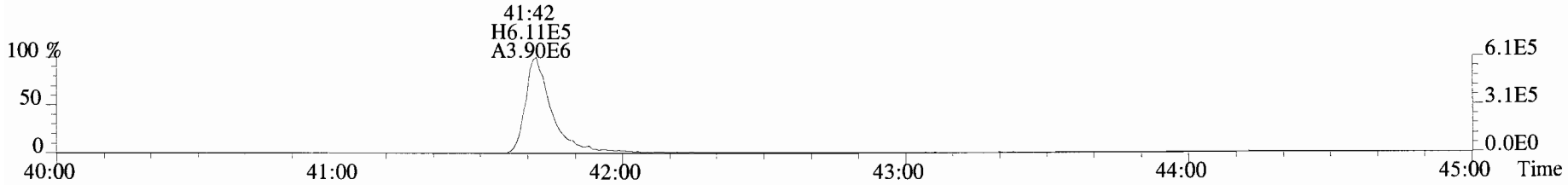


File:191009D1 #1-432 Acq: 9-OCT-2019 17:48:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-3 1613 CS2 19C2203 Exp:OCDD_DB5
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

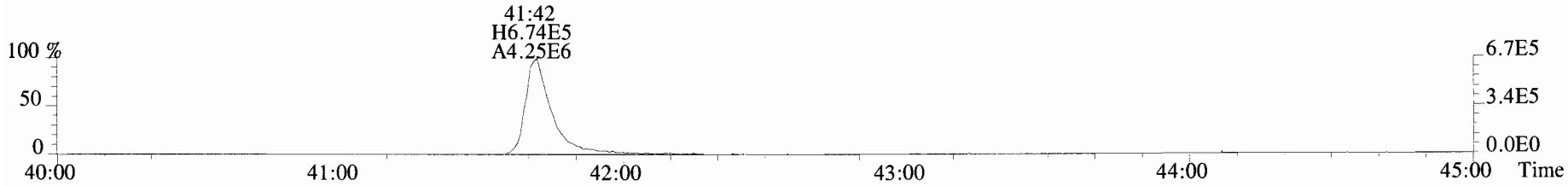
443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



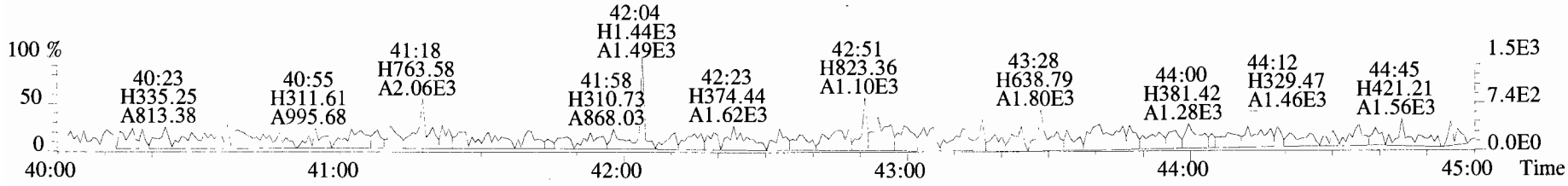
453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



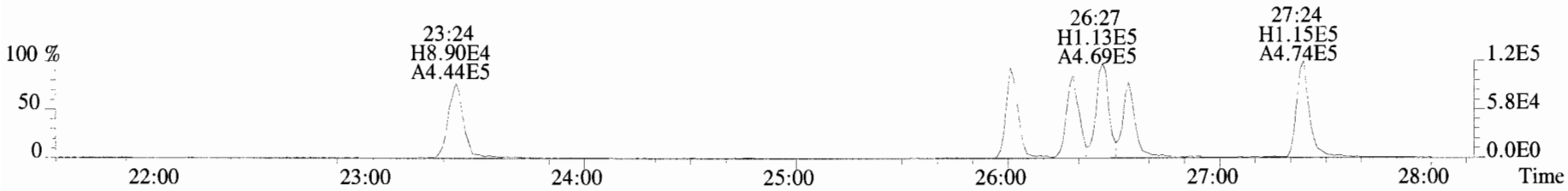
455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



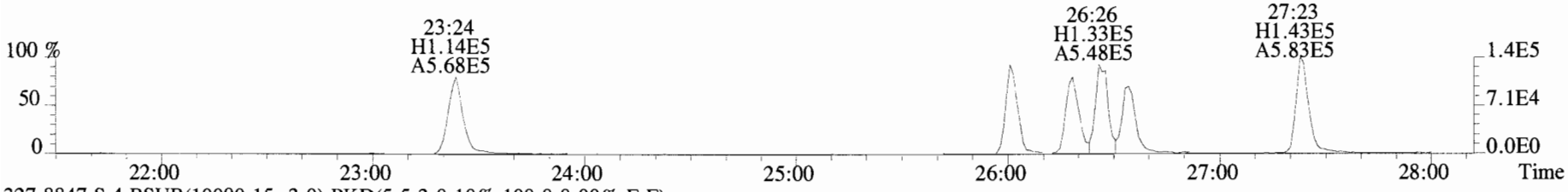
513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



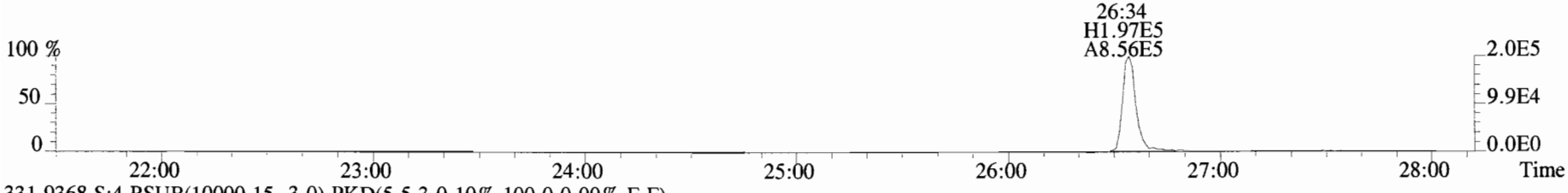
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



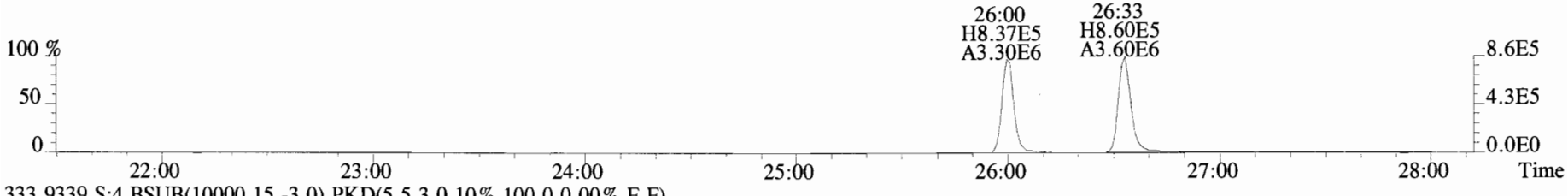
321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



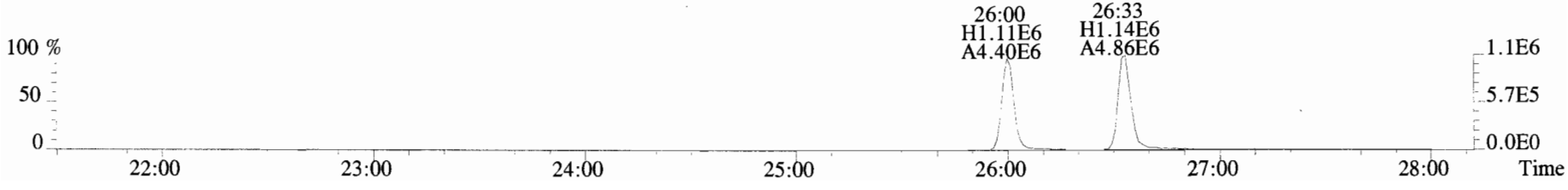
327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



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

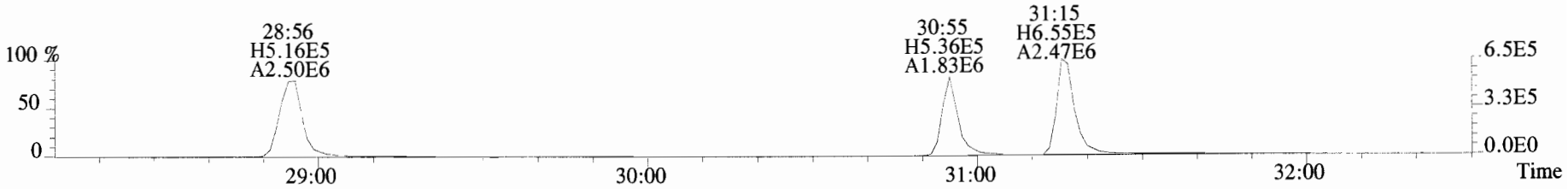


333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

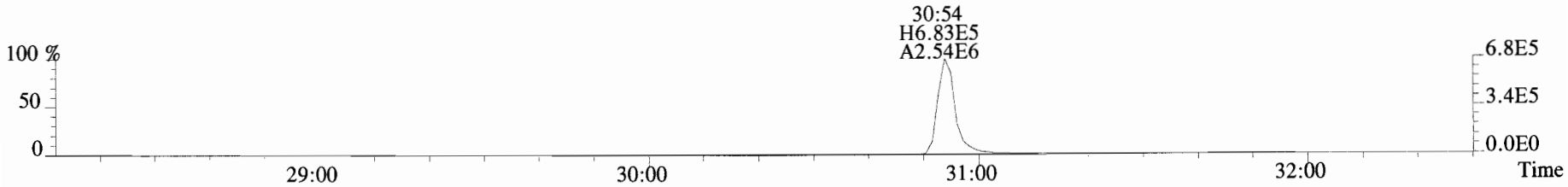


File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

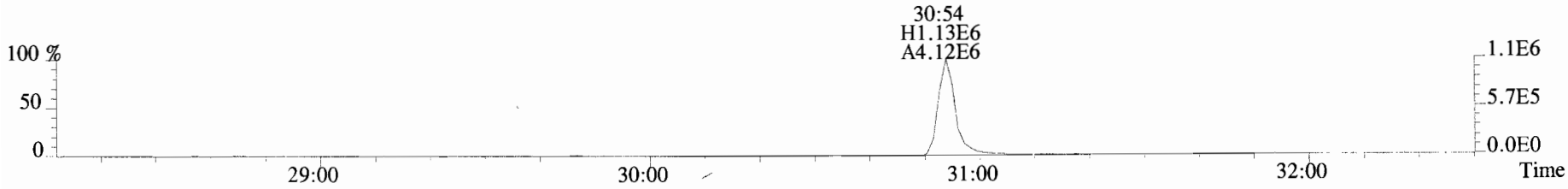
355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



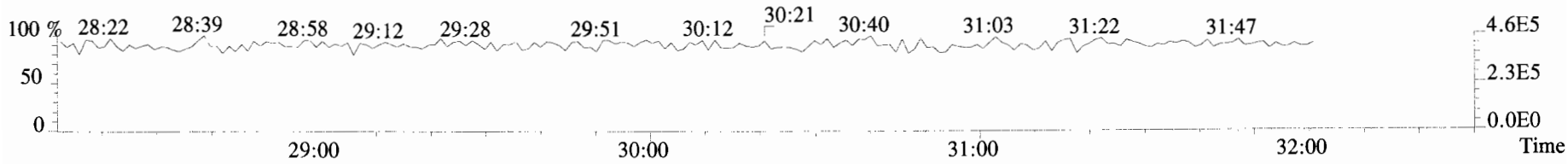
365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



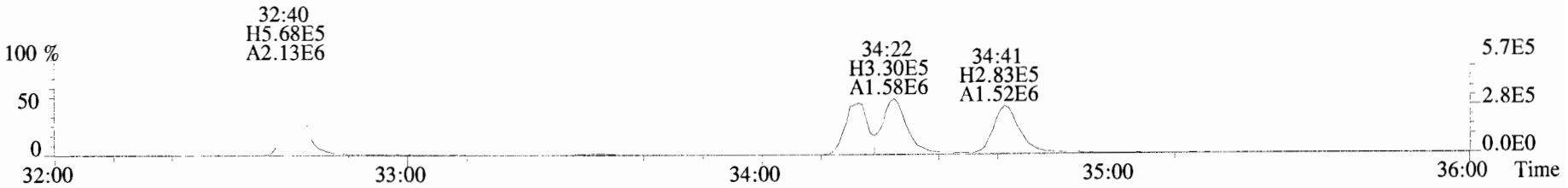
367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



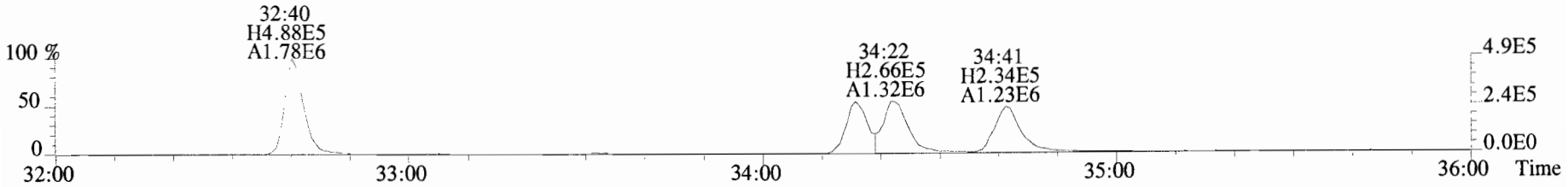
366.9792 S:4 F:2



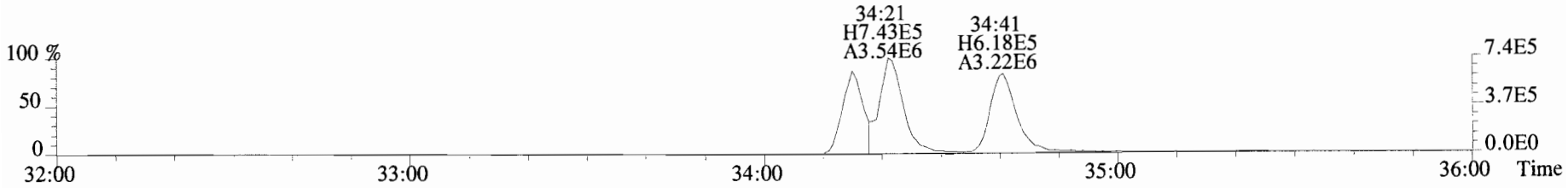
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



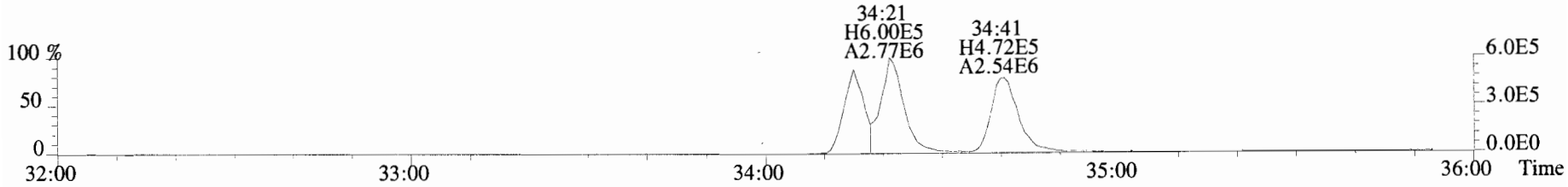
391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



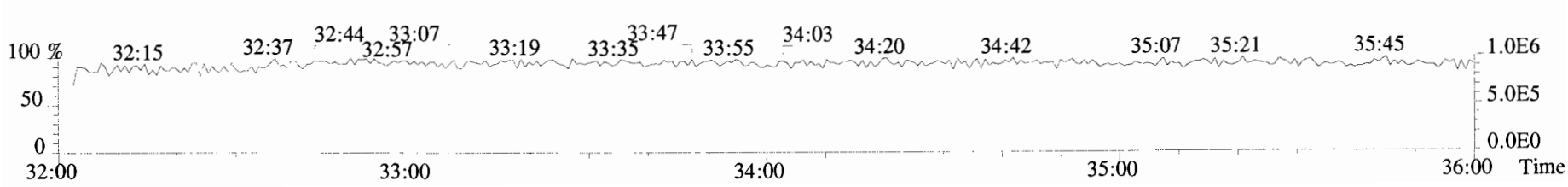
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



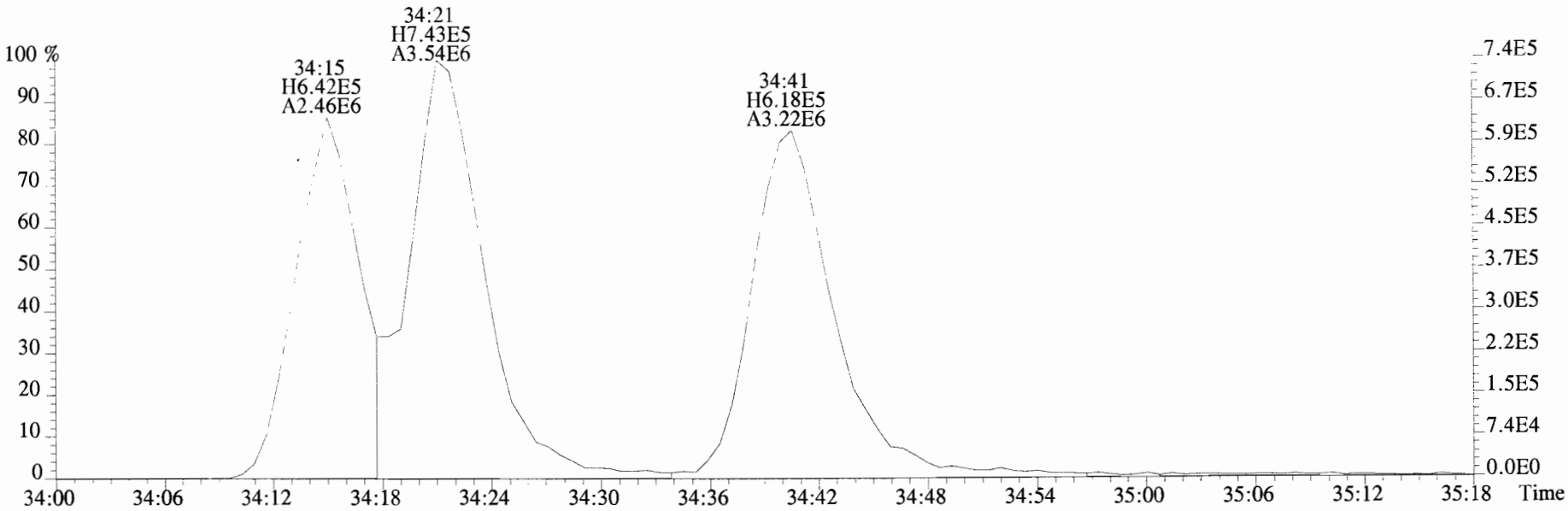
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



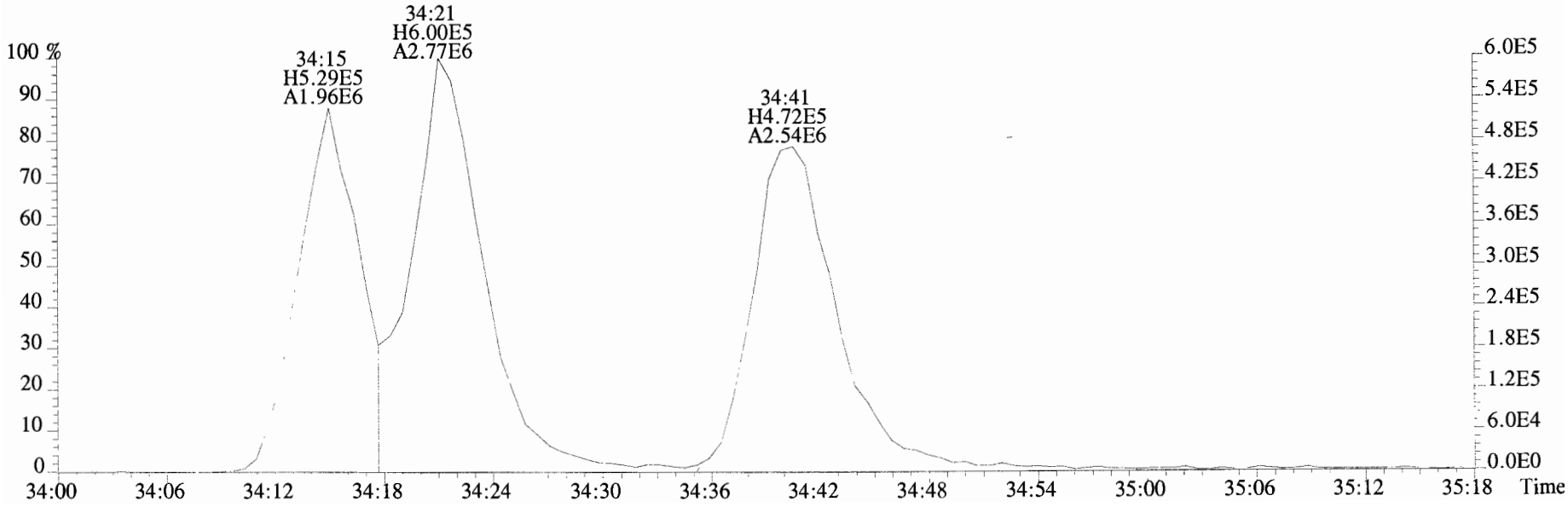
392.9760 S:4 F:3



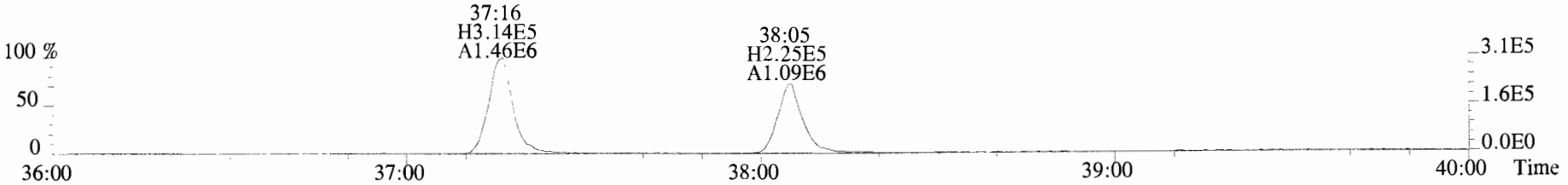
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



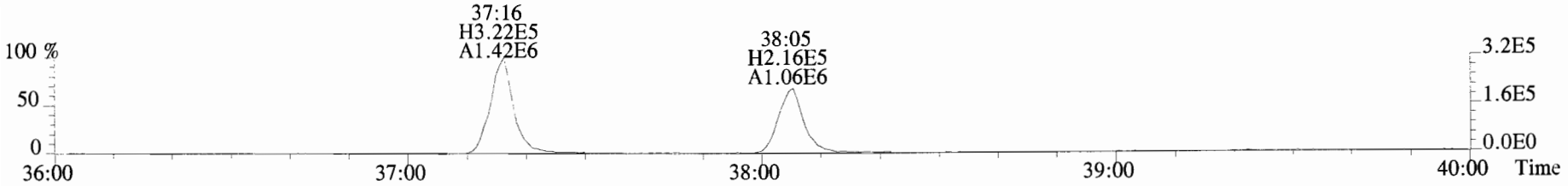
403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



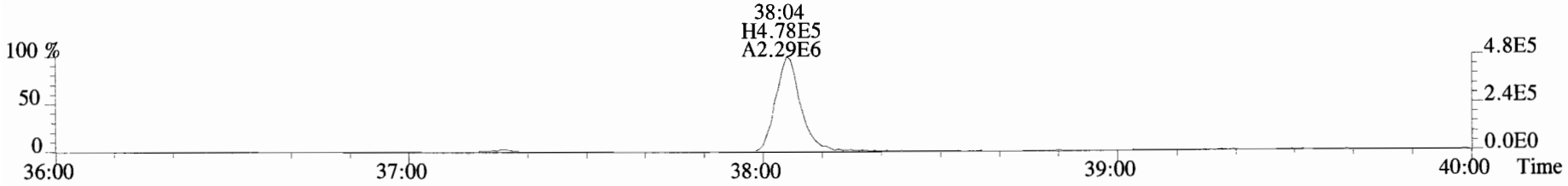
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



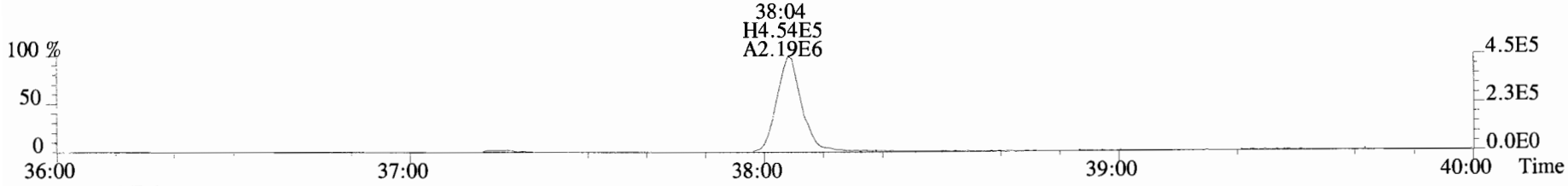
425.7737 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



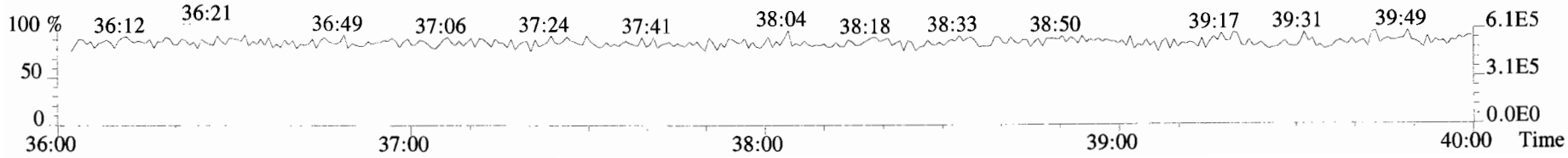
435.8169 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



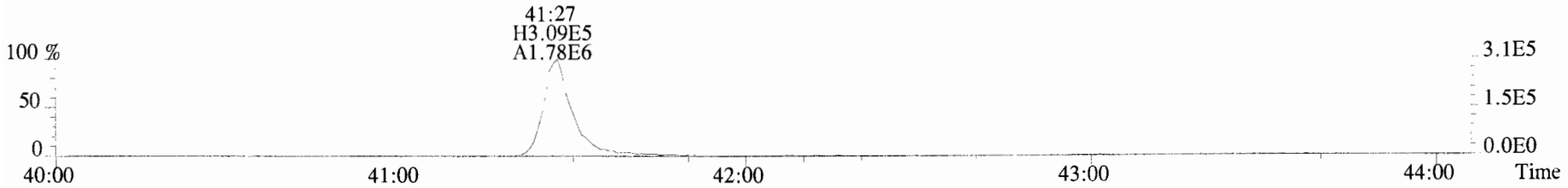
437.8140 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



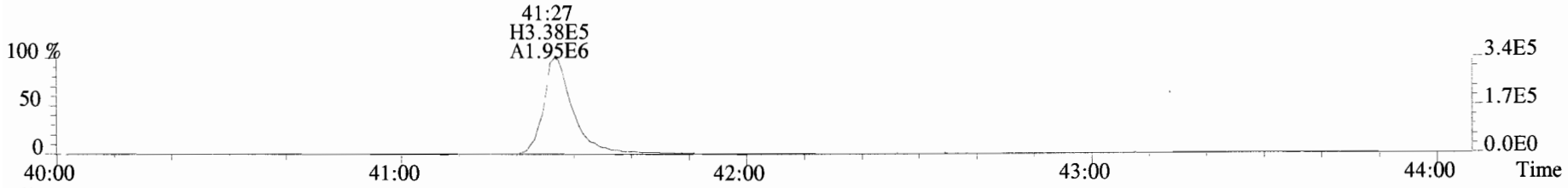
454.9728 S:4 F:4



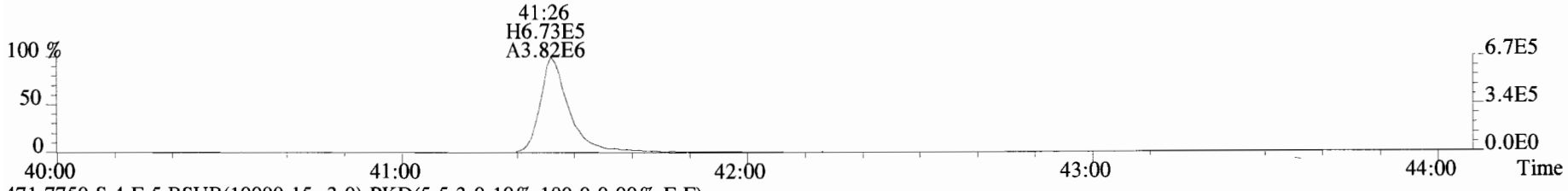
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



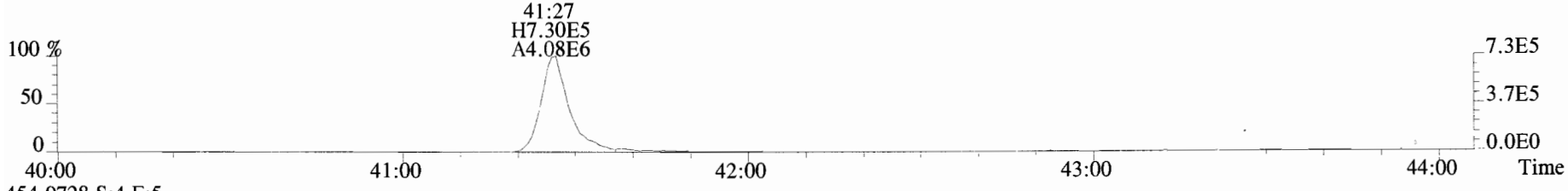
459.7348 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



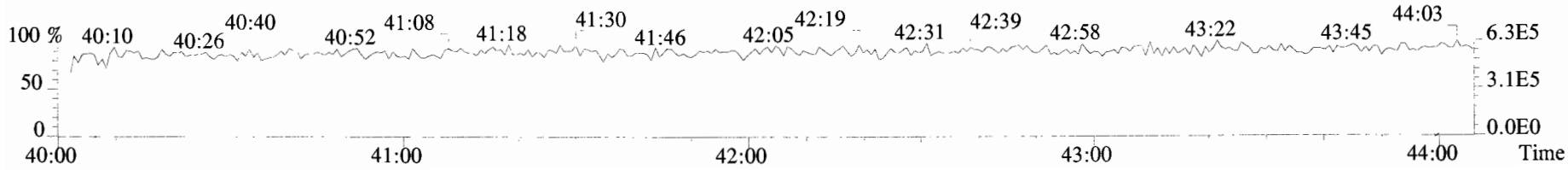
469.7780 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



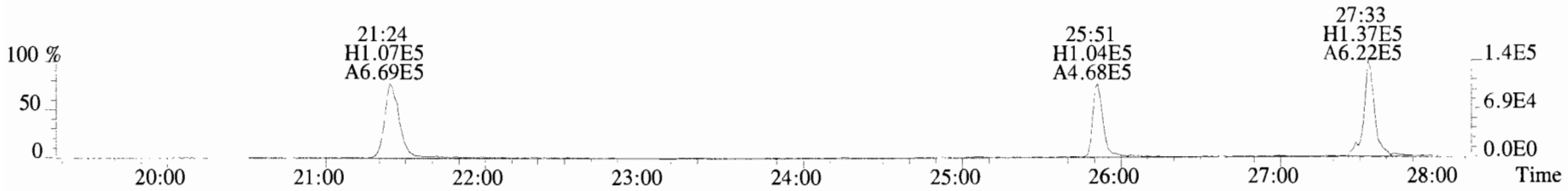
471.7750 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



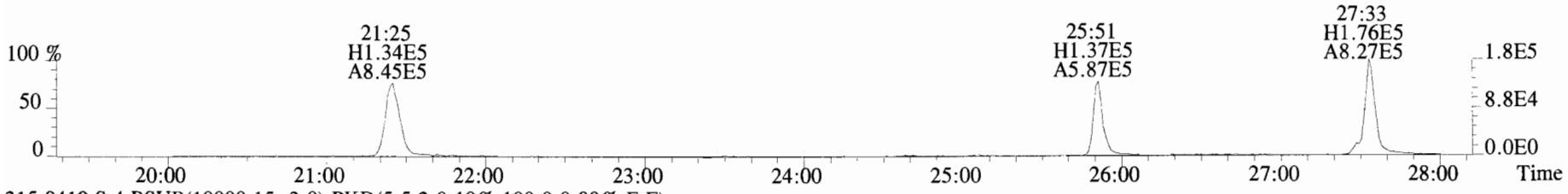
454.9728 S:4 F:5



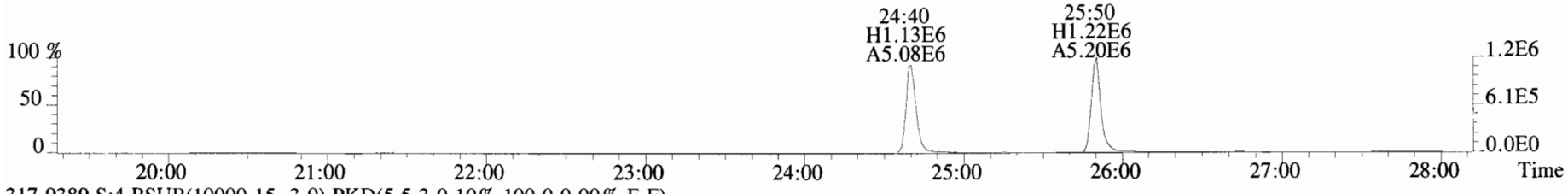
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



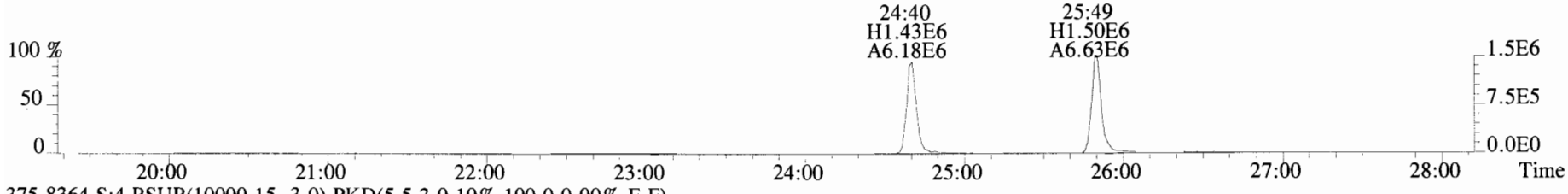
305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



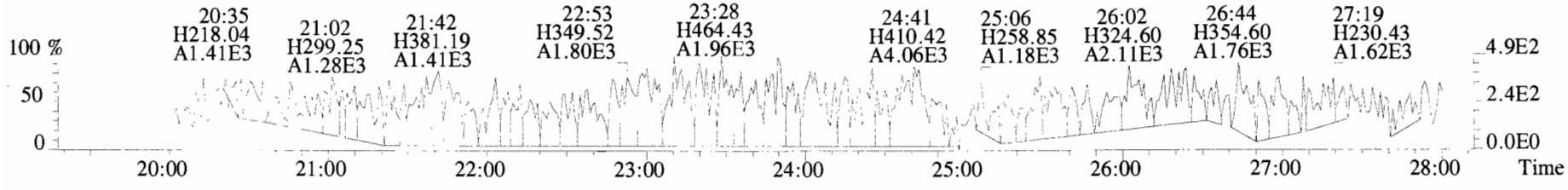
315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



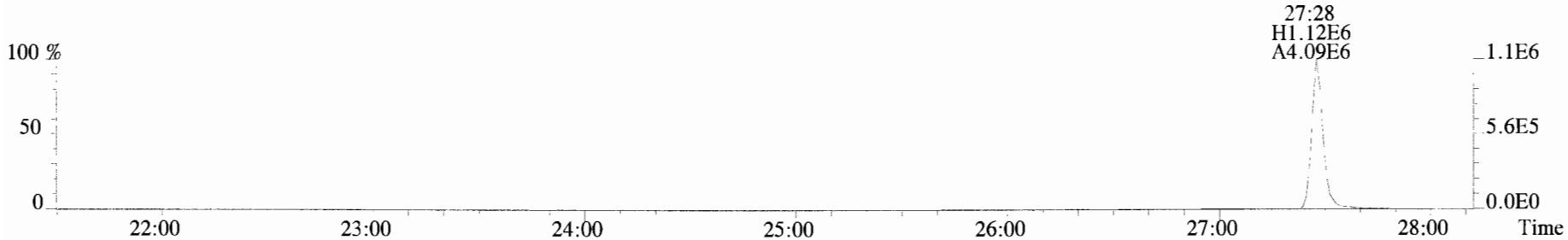
317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



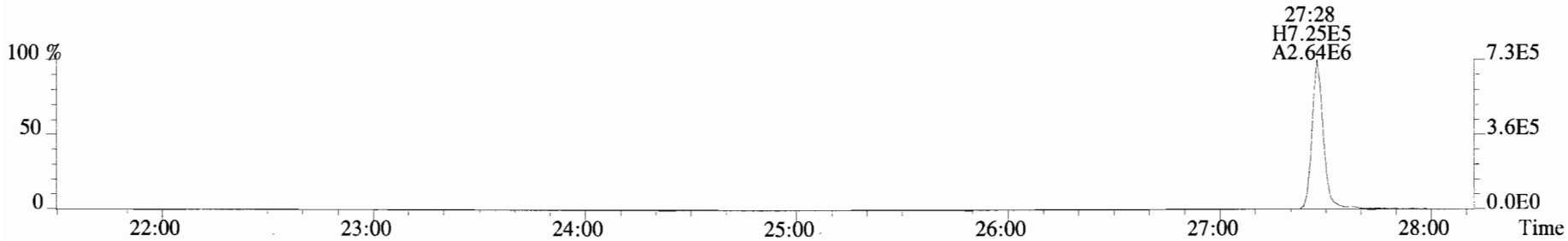
375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



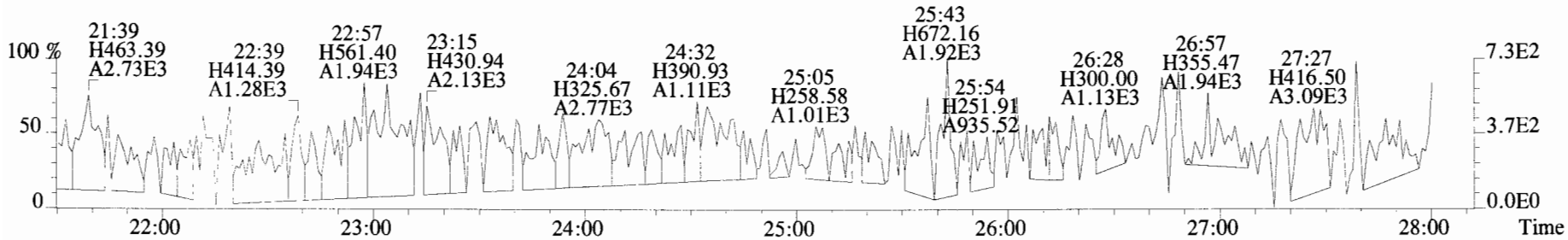
File:191009D1 #1-513 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



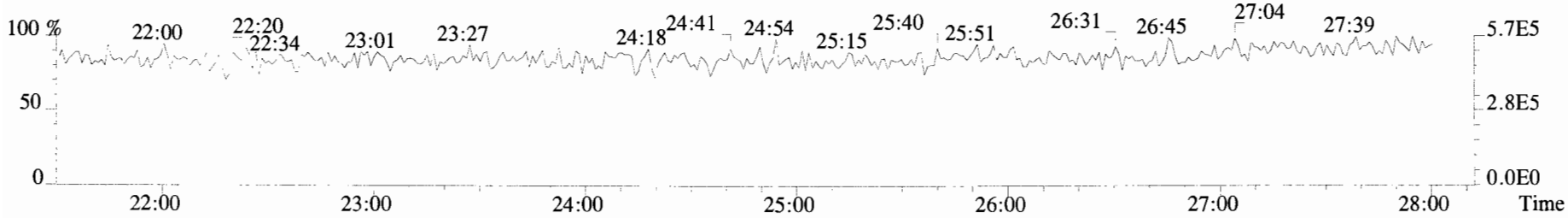
341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



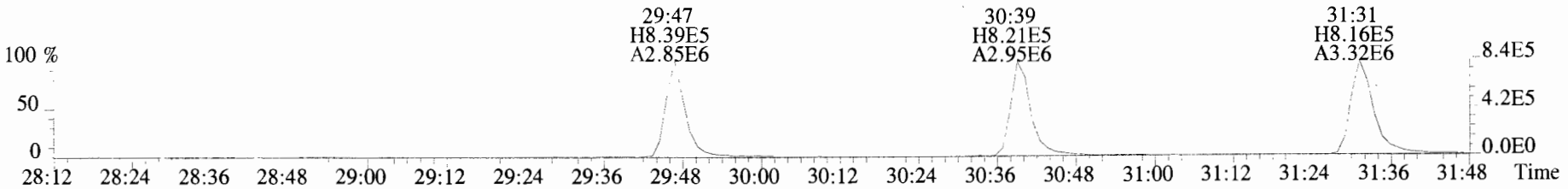
409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



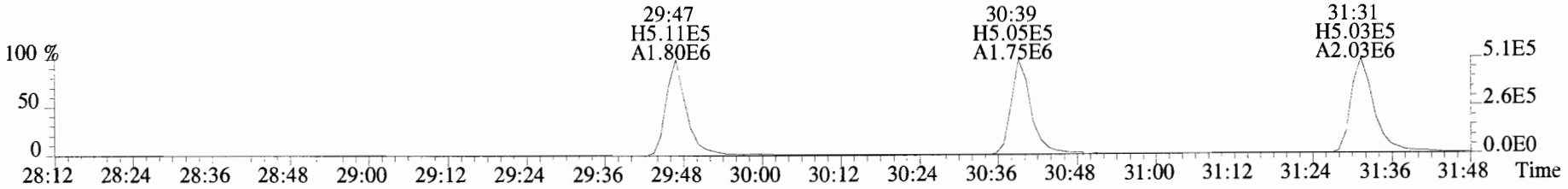
316.9824 S:4



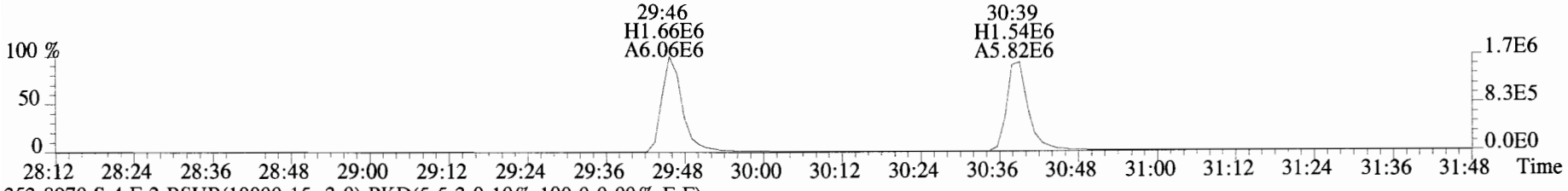
File:191009D1 #1-211 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



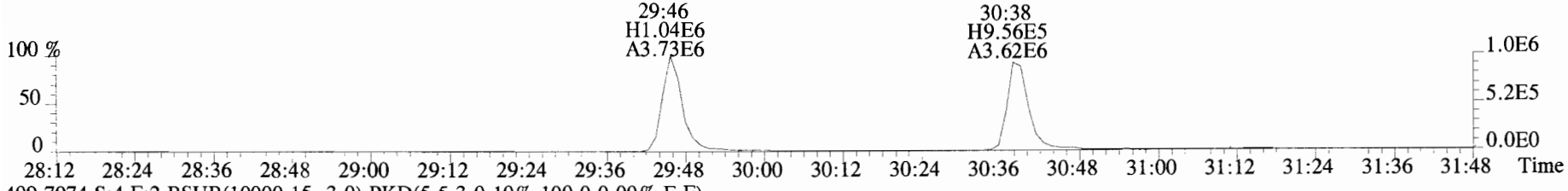
341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



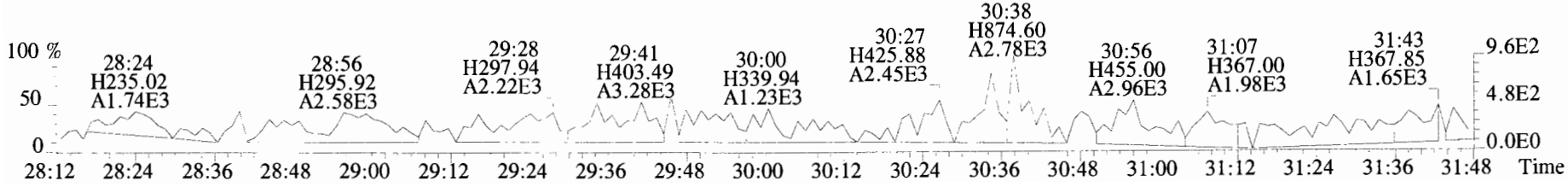
351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



353.8970 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

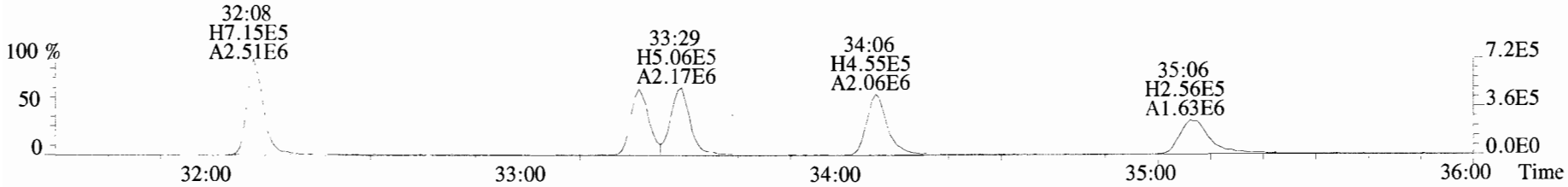


409.7974 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

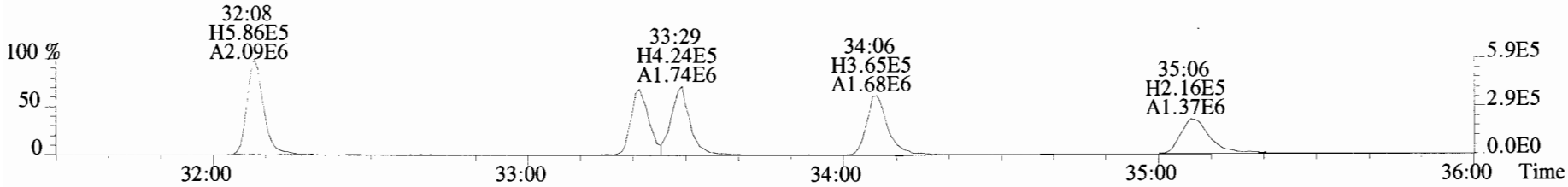


File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5

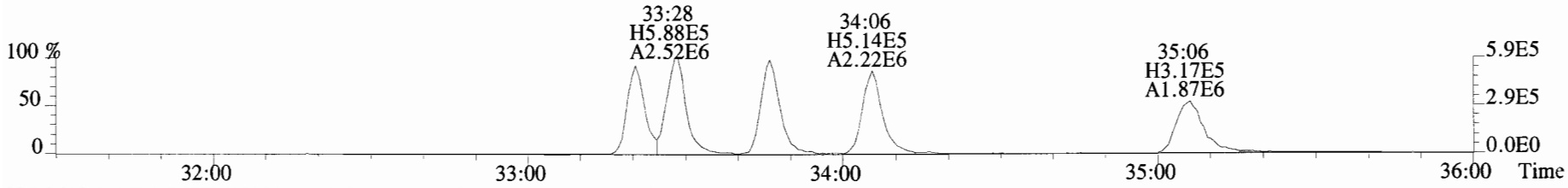
373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



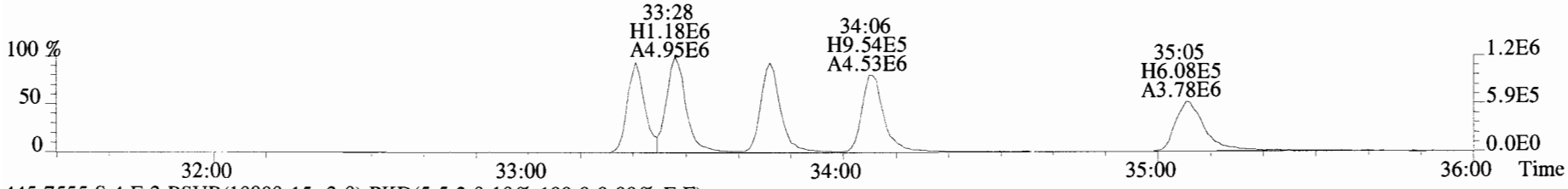
375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



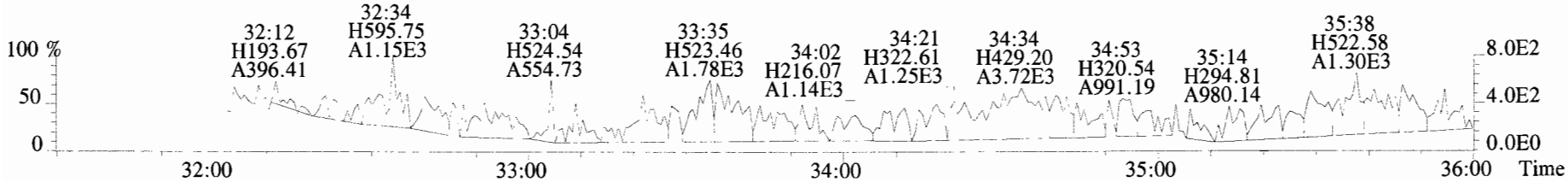
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



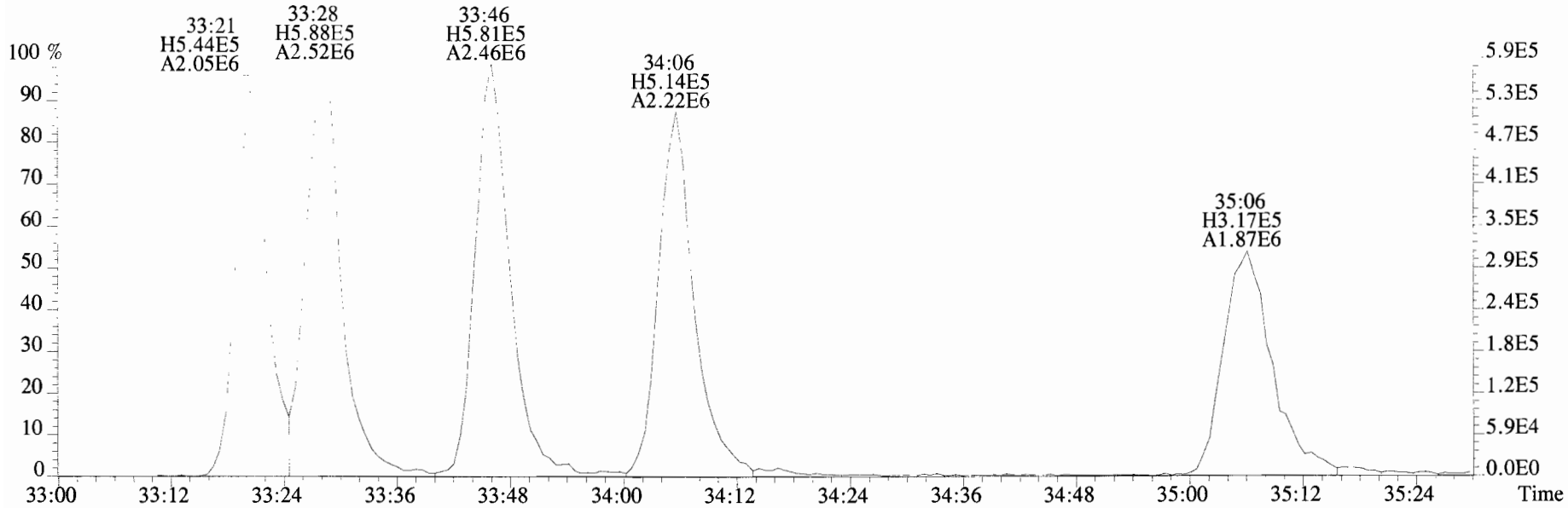
385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



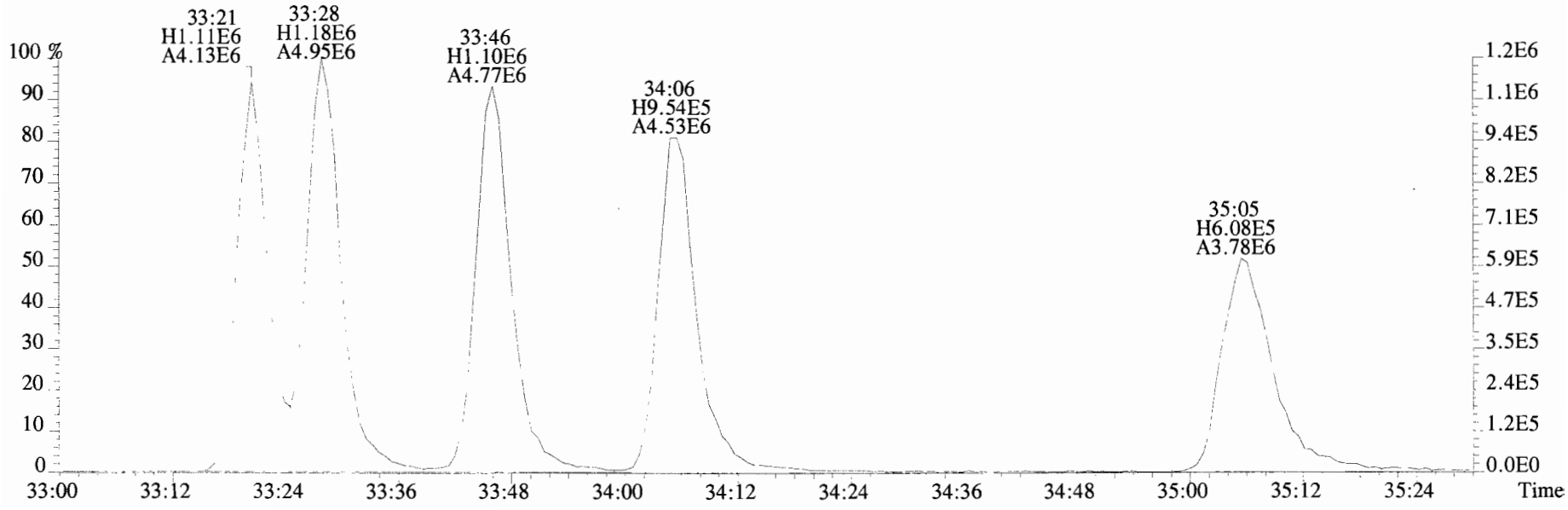
445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



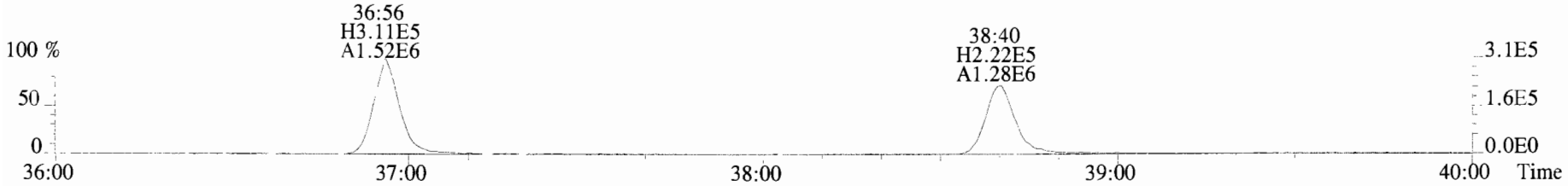
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



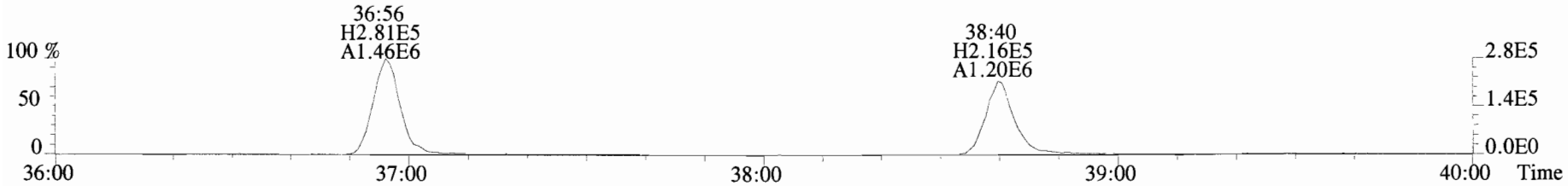
385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



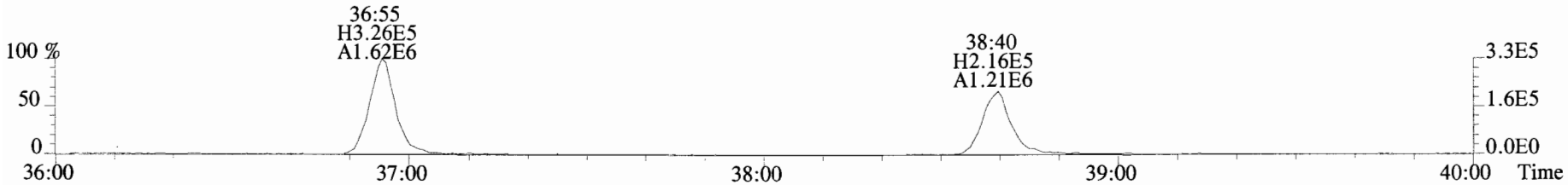
File:191009D1 #1-355 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



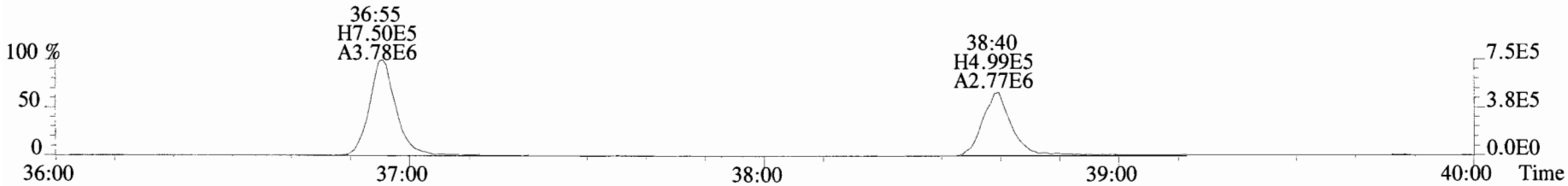
409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



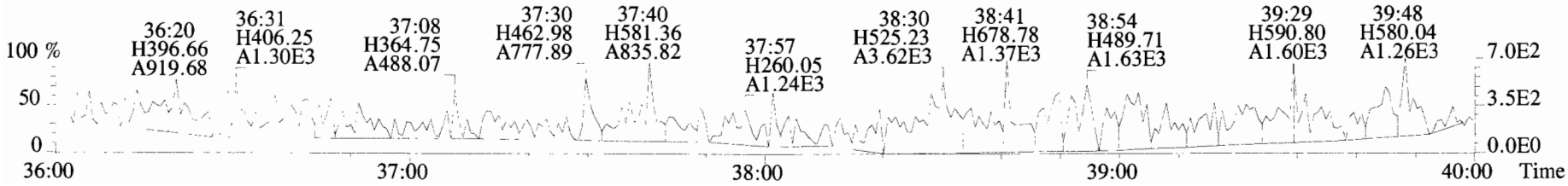
417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



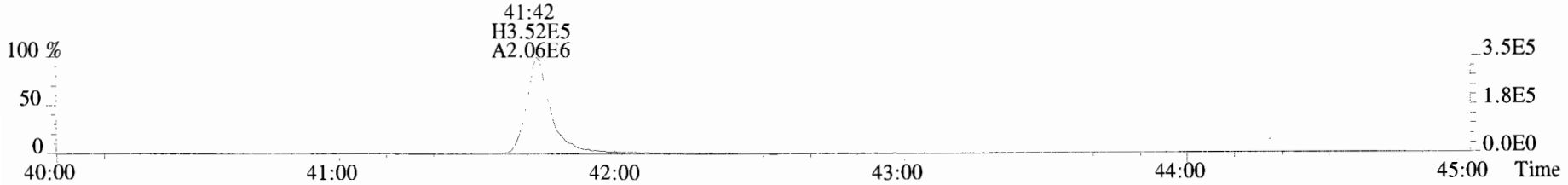
419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



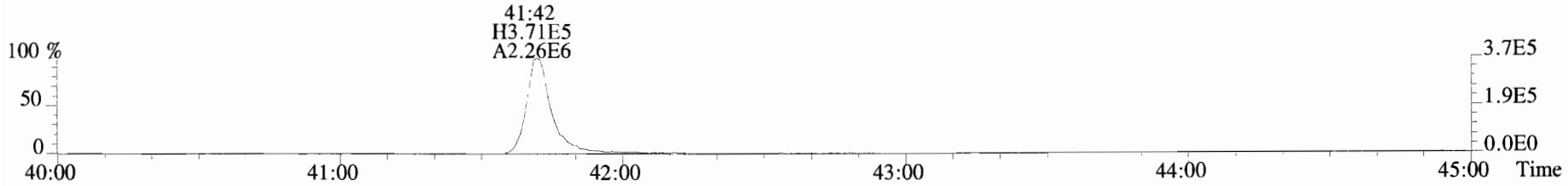
479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



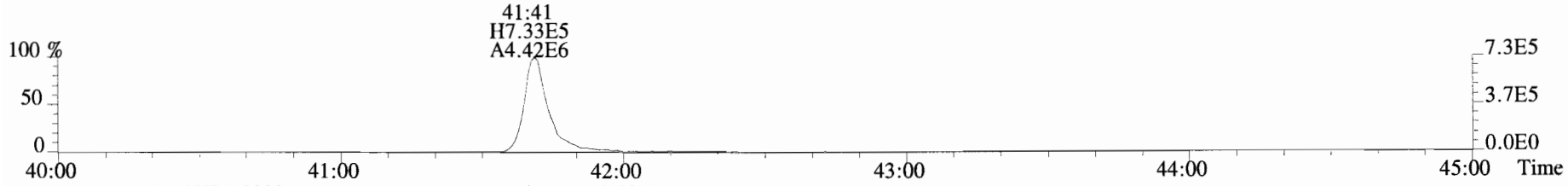
File:191009D1 #1-432 Acq: 9-OCT-2019 18:36:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-4 1613 CS3 19C2204 Exp:OCDD_DB5
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



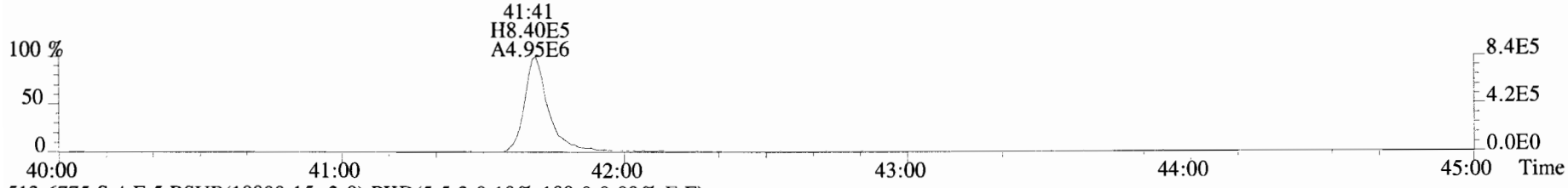
443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



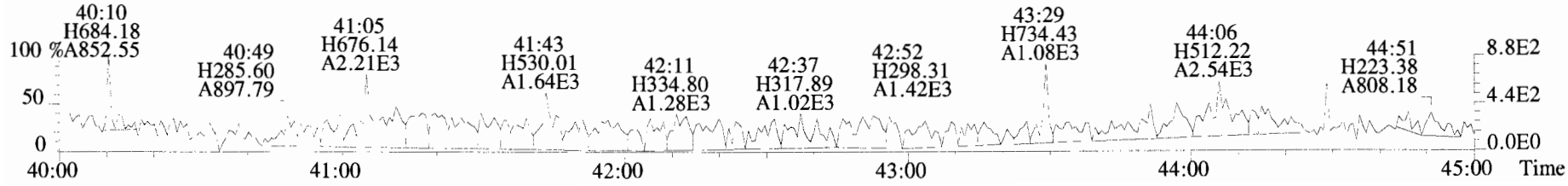
453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



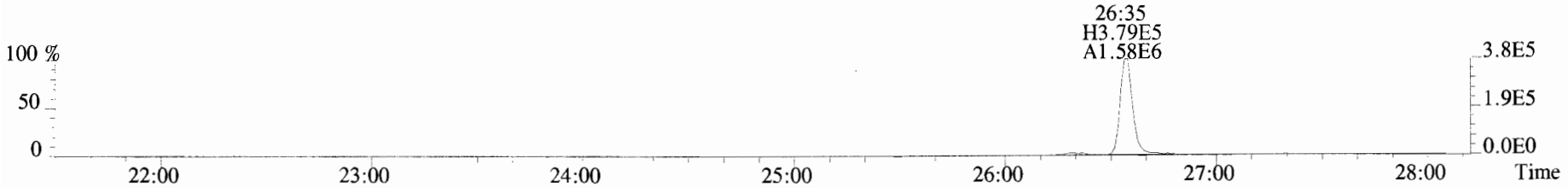
455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



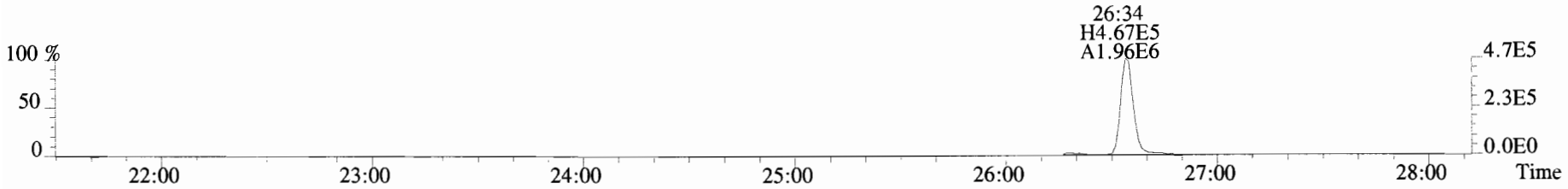
513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



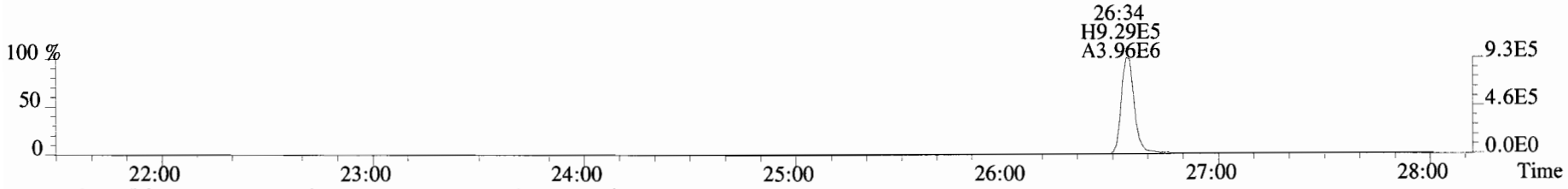
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



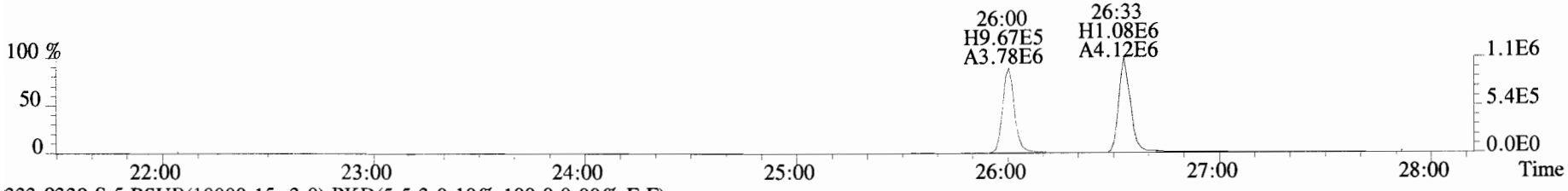
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



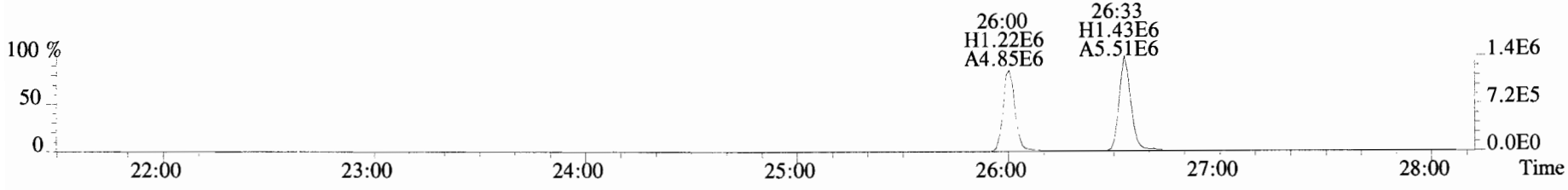
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



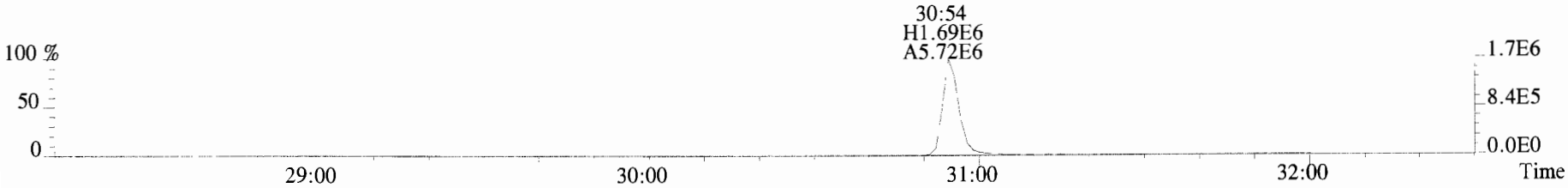
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



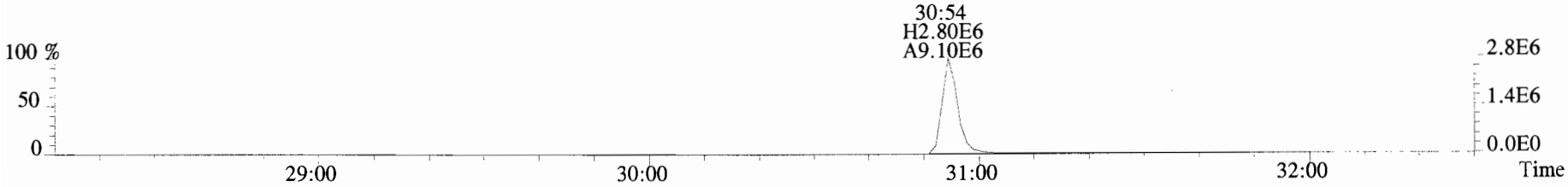
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



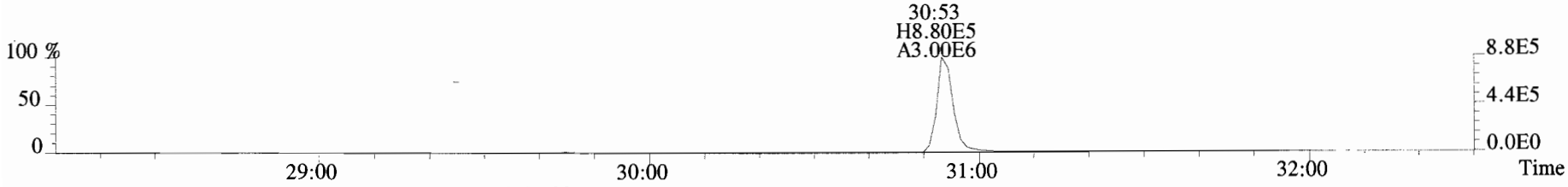
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



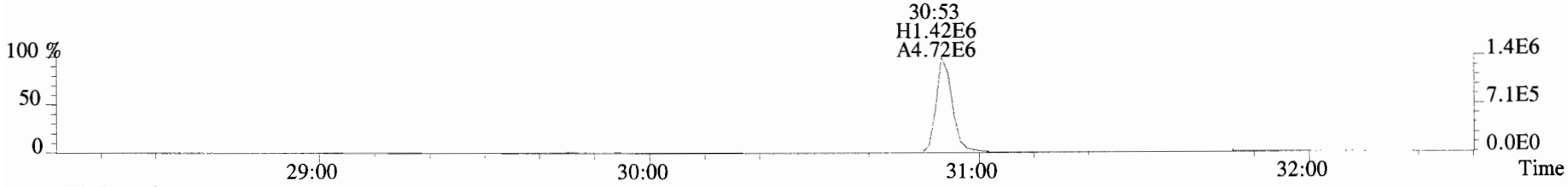
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



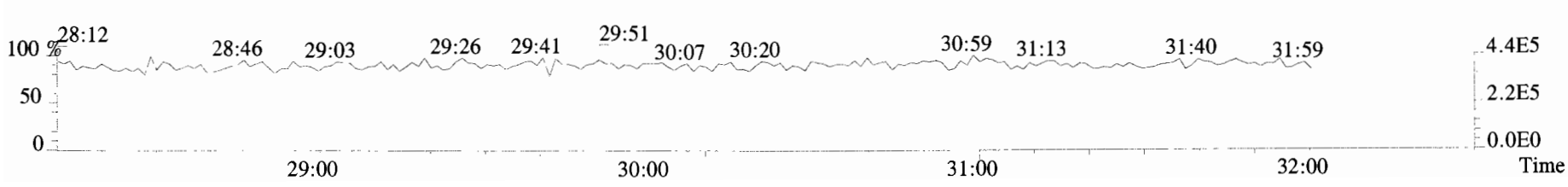
365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



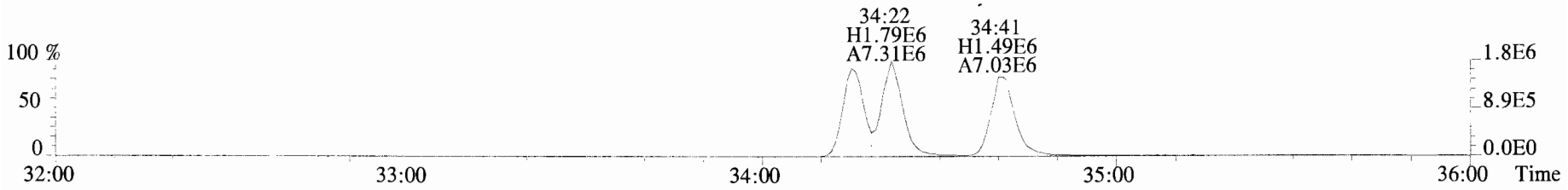
367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



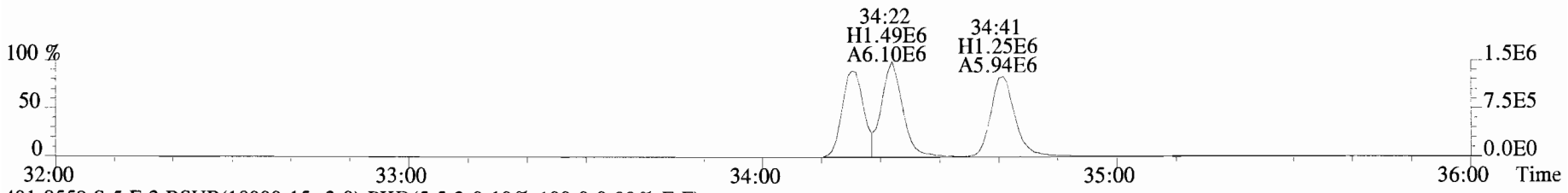
366.9792 S:5 F:2



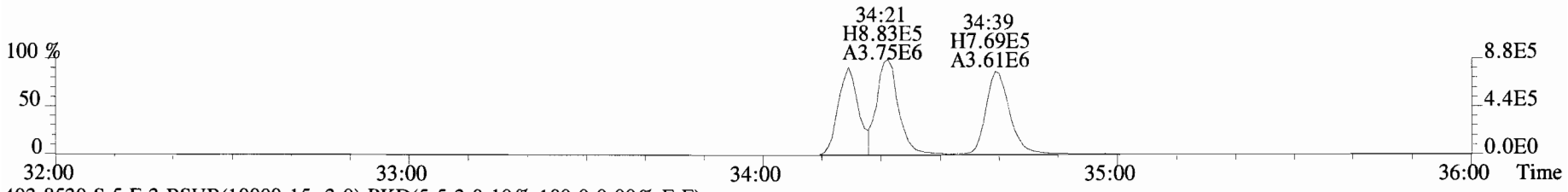
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



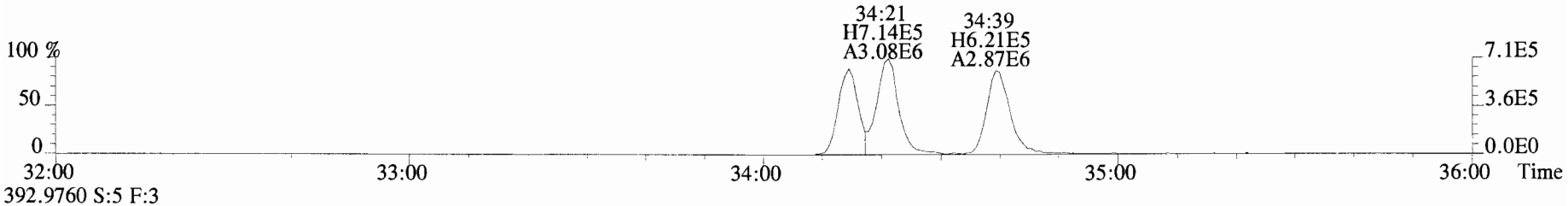
391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



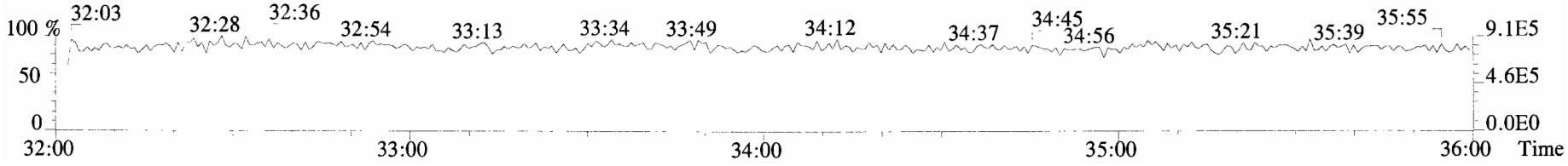
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



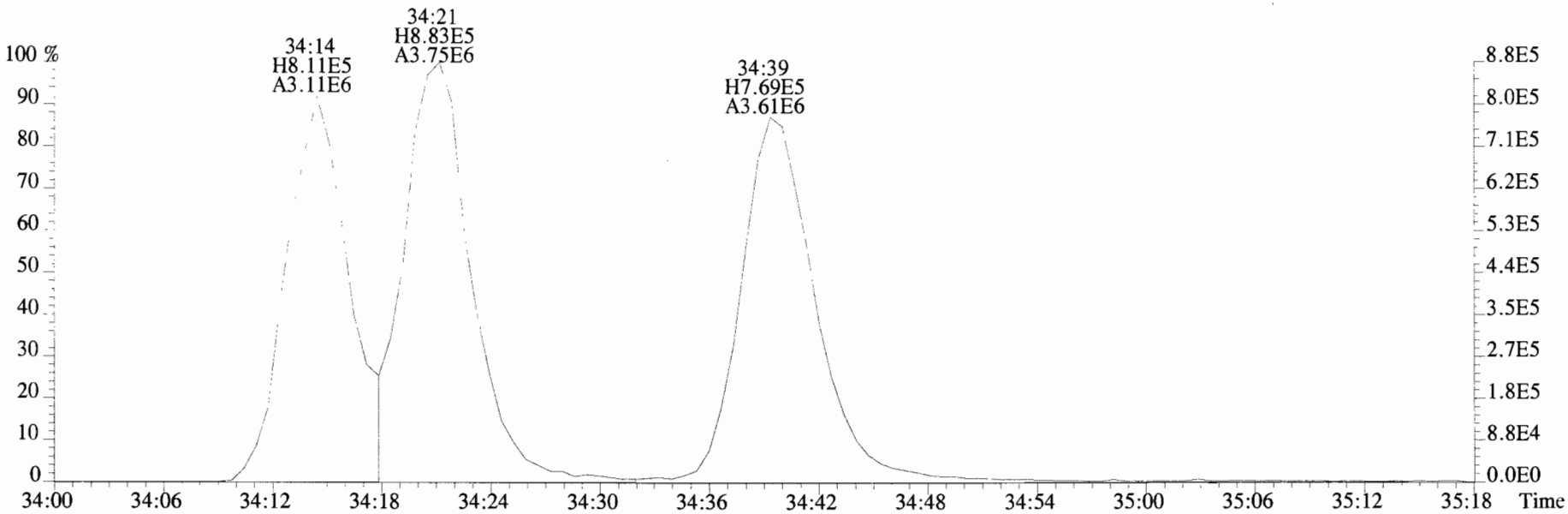
403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



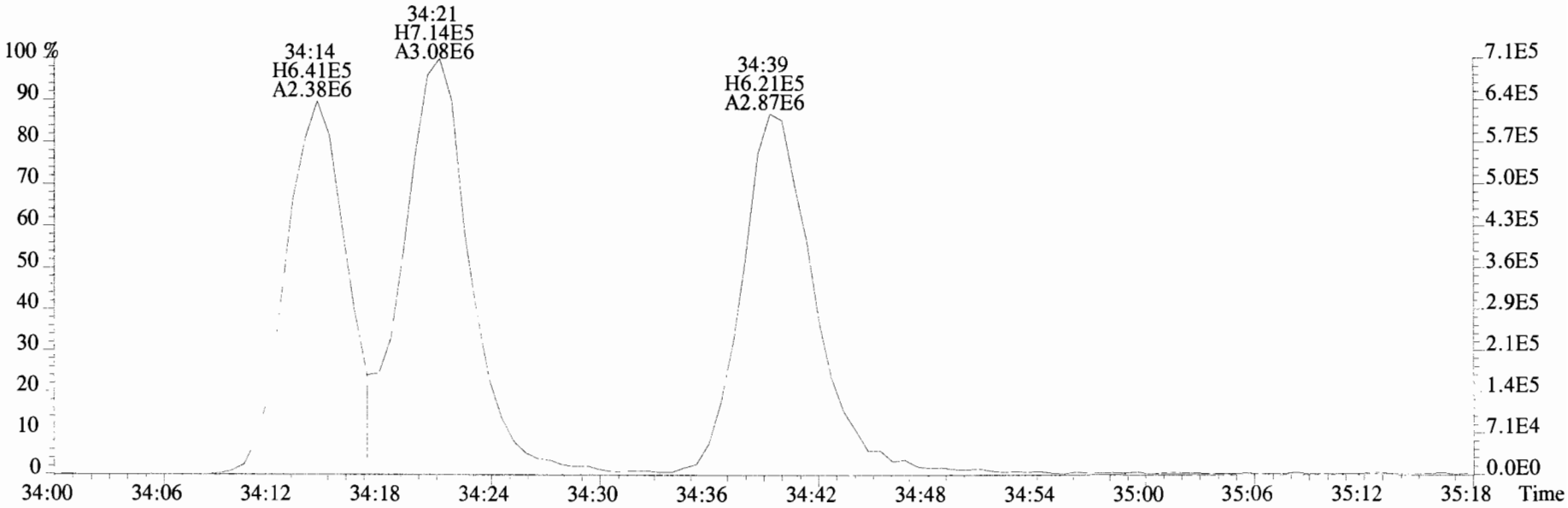
392.9760 S:5 F:3



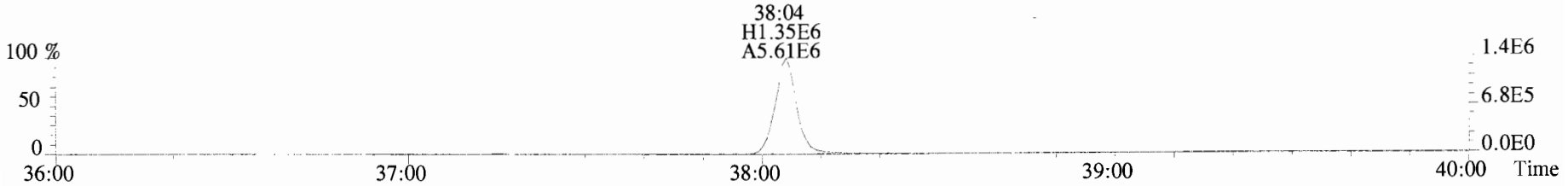
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



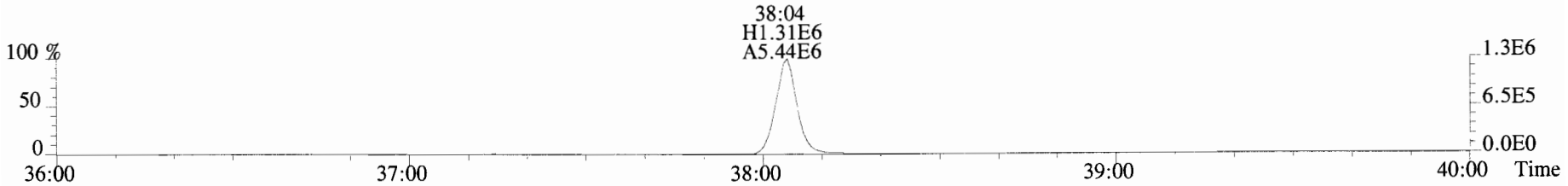
403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



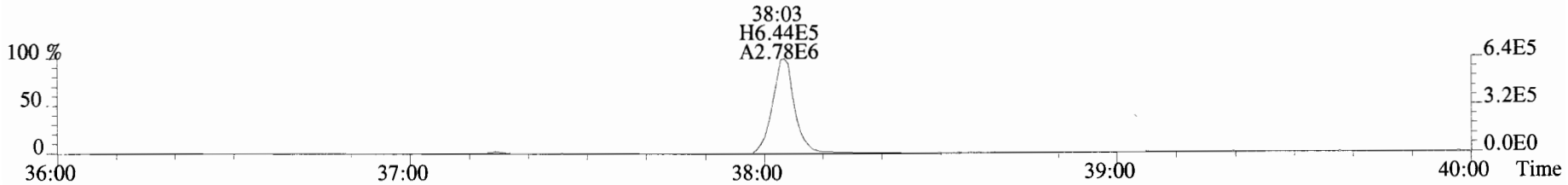
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



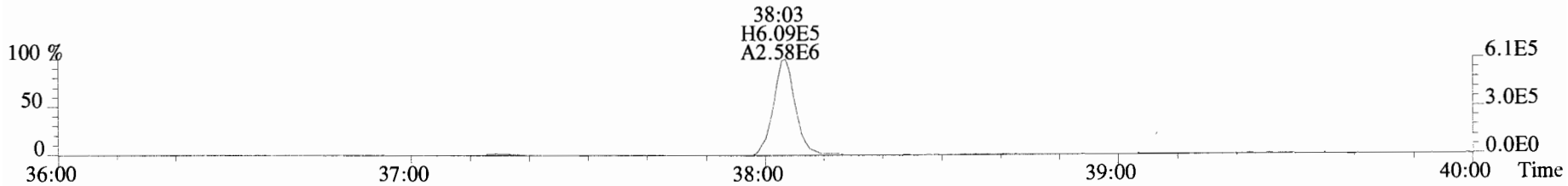
425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



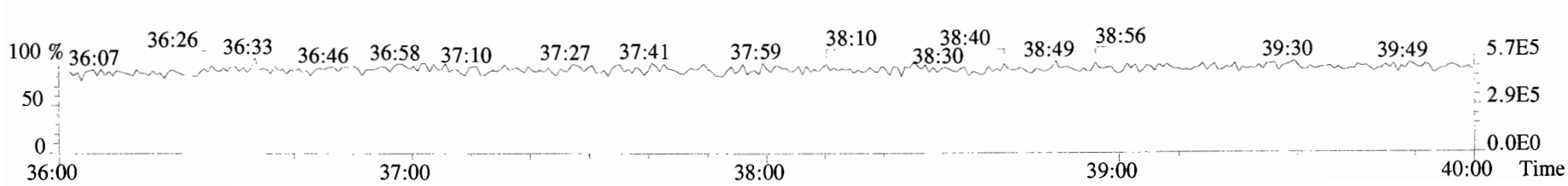
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



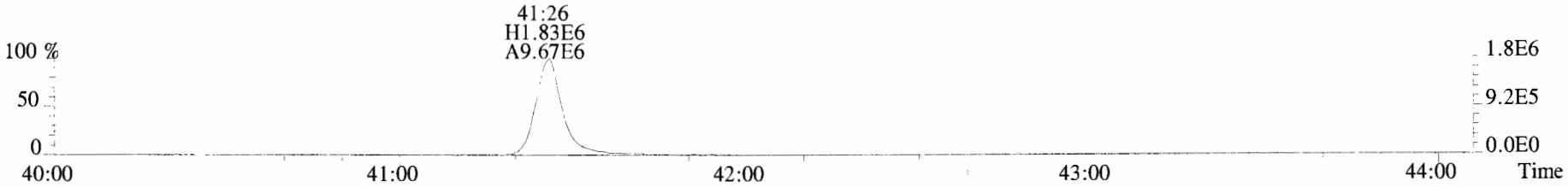
437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



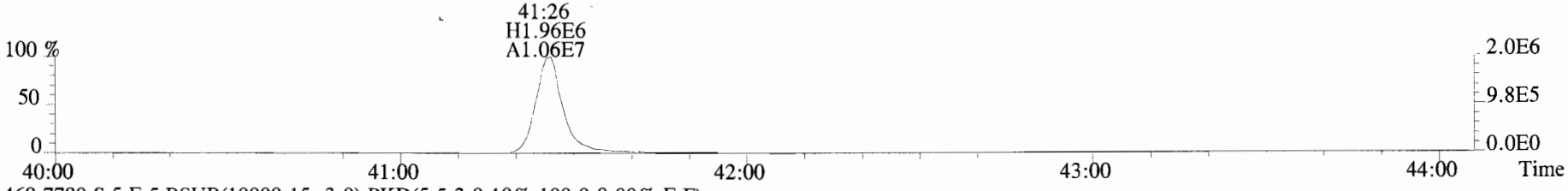
454.9728 S:5 F:4



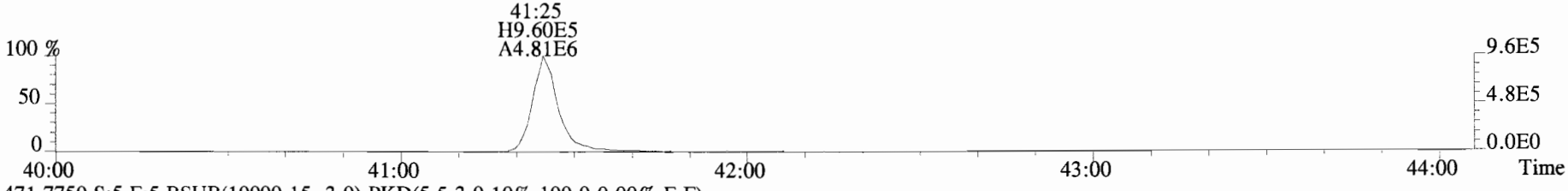
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



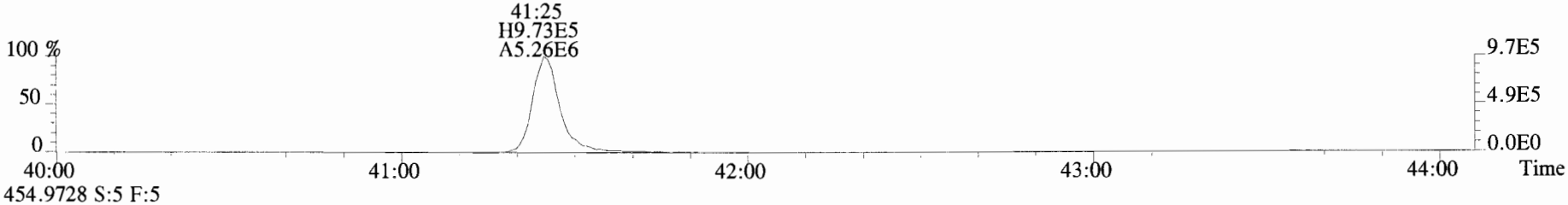
459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



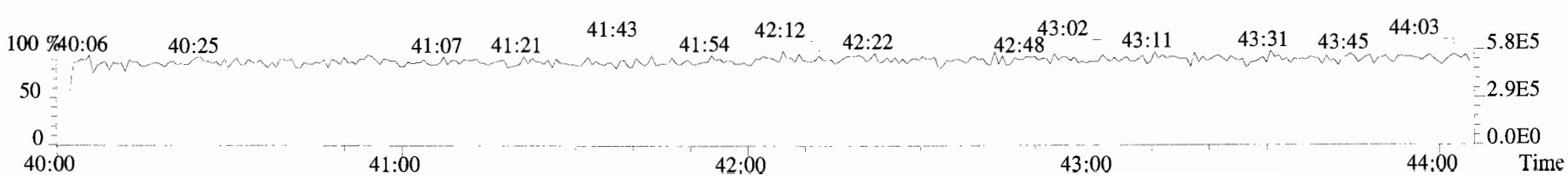
469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

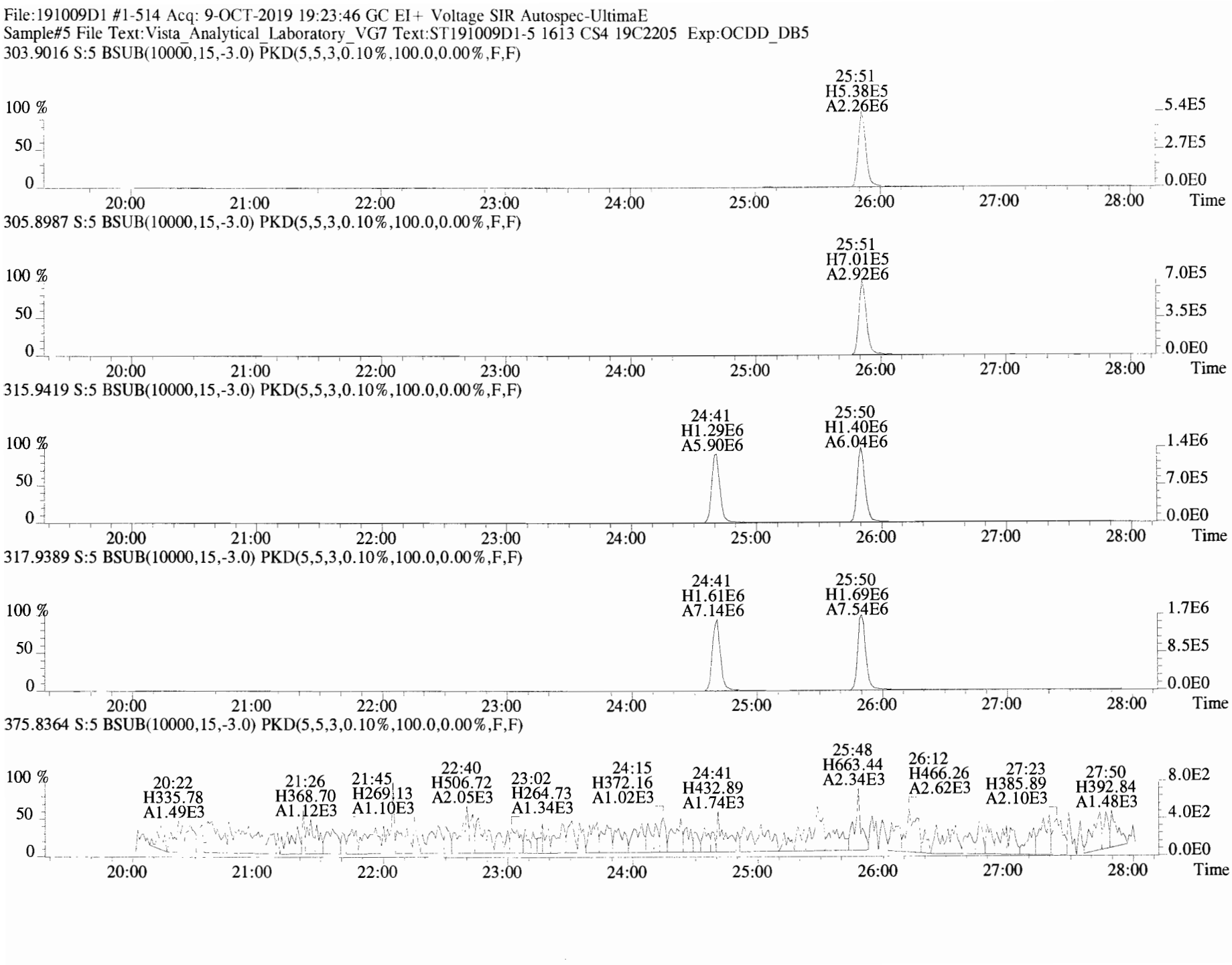


471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

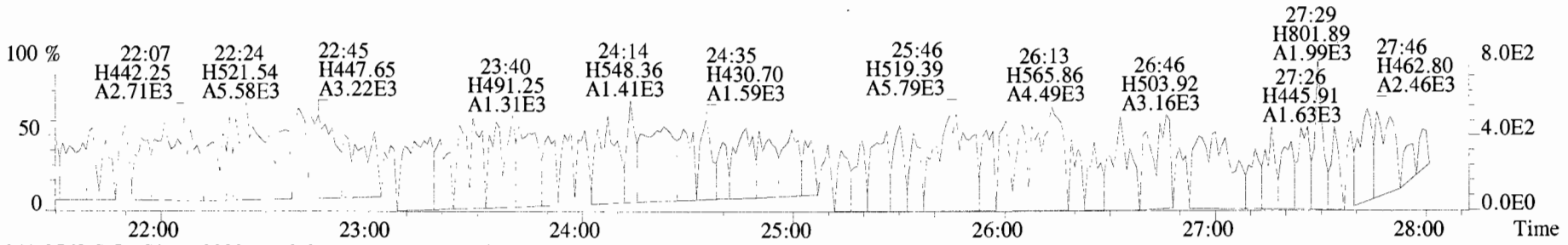


454.9728 S:5 F:5

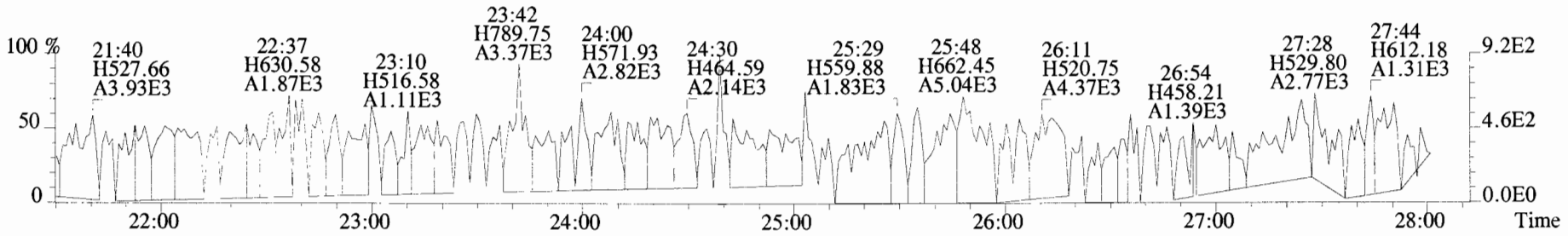



File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
25:51
H5.38E5
A2.26E6
305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
25:51
H7.01E5
A2.92E6
315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:41
H1.29E6
A5.90E6
25:50
H1.40E6
A6.04E6
317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
24:41
H1.61E6
A7.14E6
25:50
H1.69E6
A7.54E6
375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
20:22
H335.78
A1.49E3
21:26
H368.70
A1.12E3
21:45
H269.13
A1.10E3
22:40
H506.72
A2.05E3
23:02
H264.73
A1.34E3
24:15
H372.16
A1.02E3
24:41
H432.89
A1.74E3
25:48
H663.44
A2.34E3
26:12
H466.26
A2.62E3
27:23
H385.89
A2.10E3
27:50
H392.84
A1.48E3
100 %
50
0
20:00
21:00
22:00
23:00
24:00
25:00
26:00
27:00
28:00
Time
5.4E5
2.7E5
0.0E0
7.0E5
3.5E5
1.4E6
7.0E5
1.7E6
8.5E5
8.0E2
4.0E2

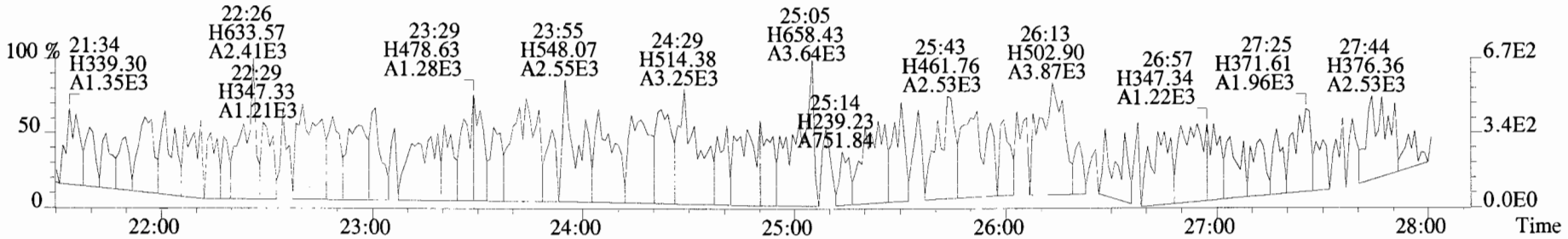
File:191009D1 #1-514 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



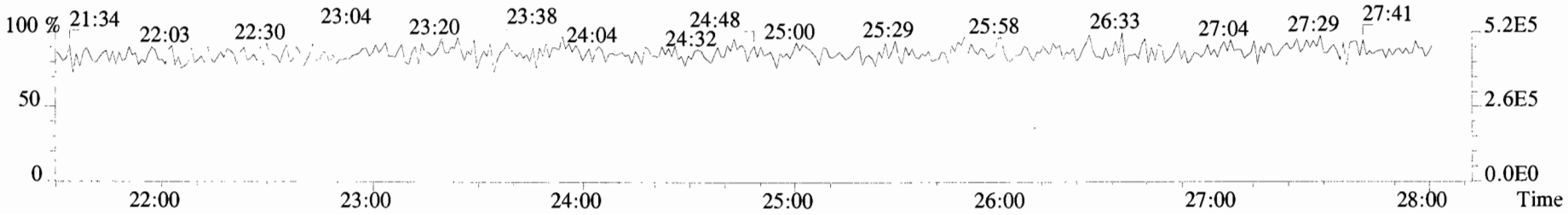
341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



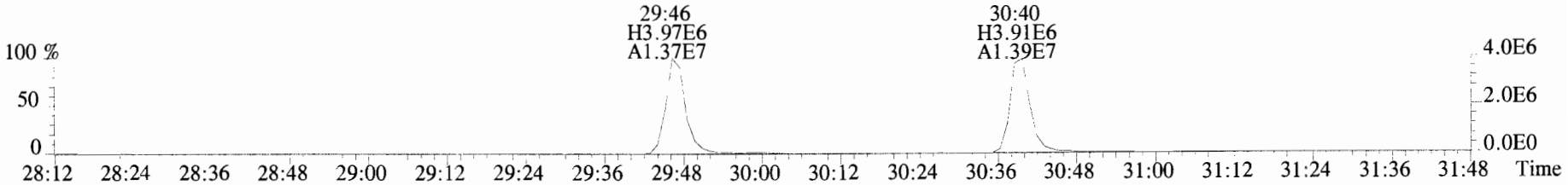
409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



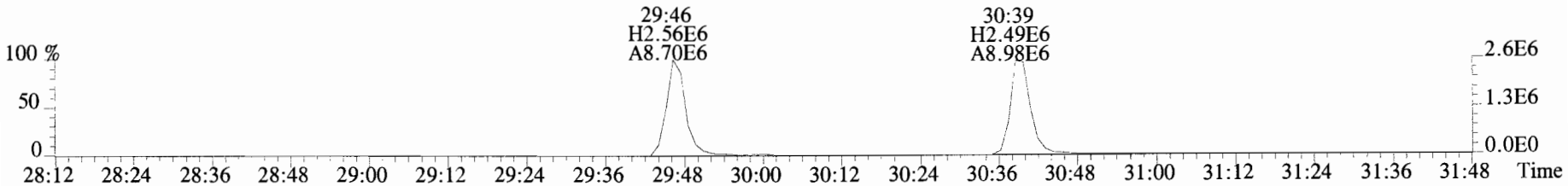
316.9824 S:5



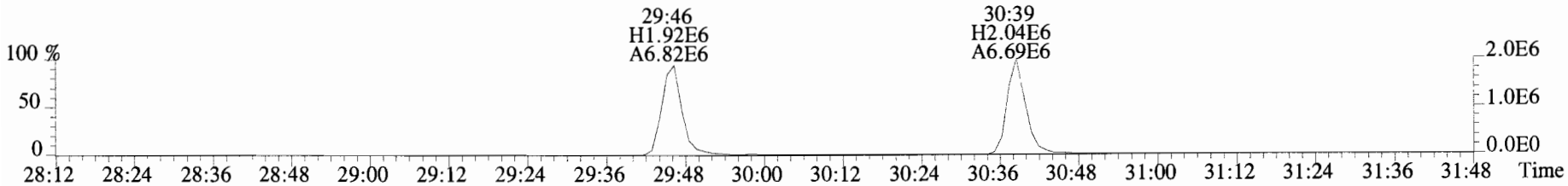
File:191009D1 #1-210 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



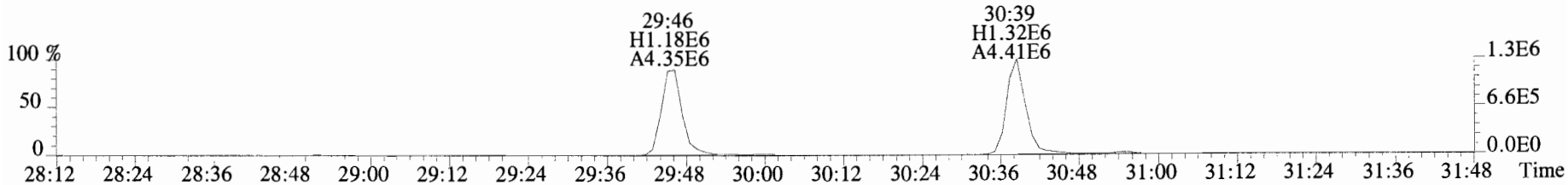
341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



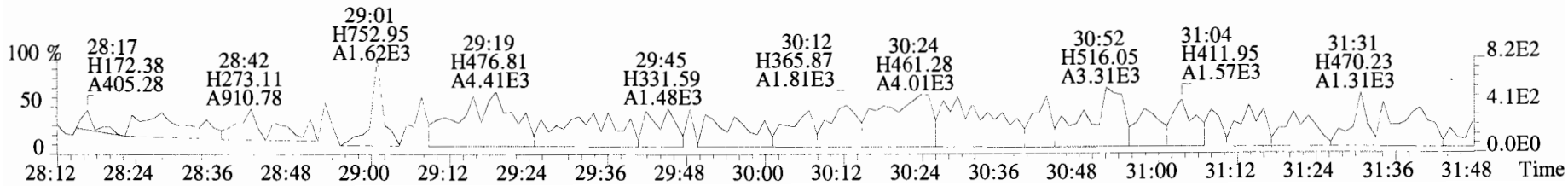
351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



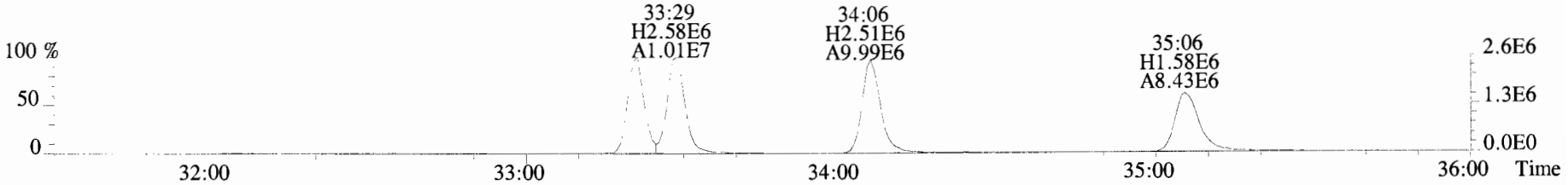
353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



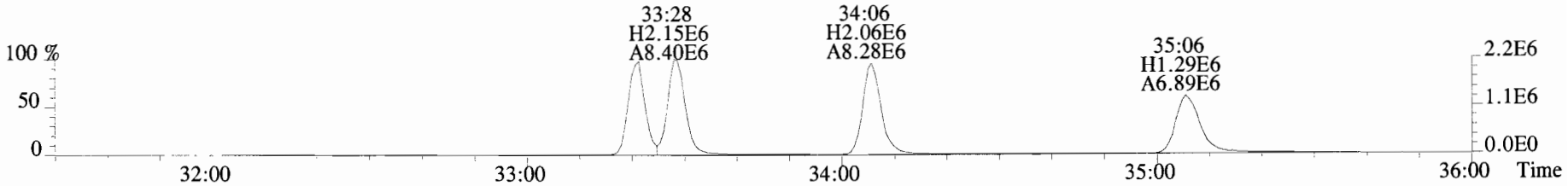
409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



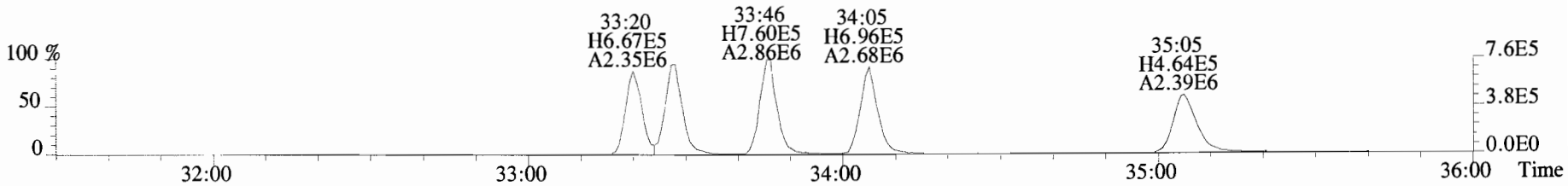
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



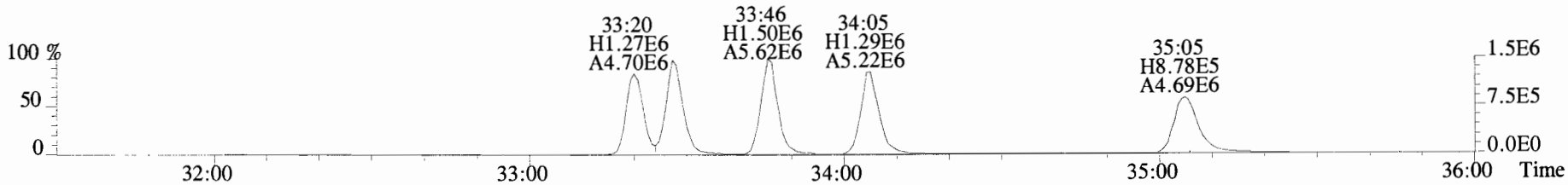
375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



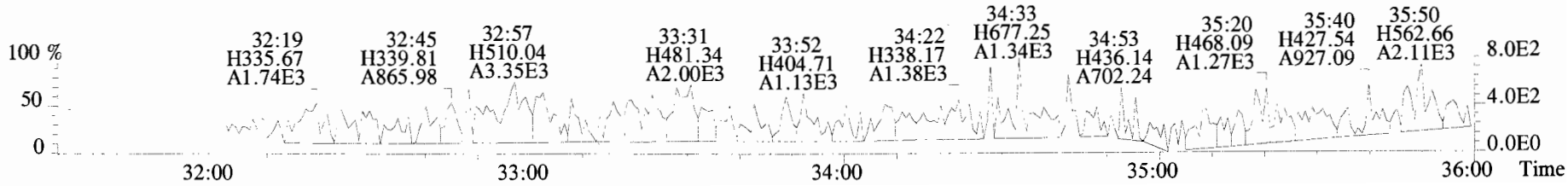
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



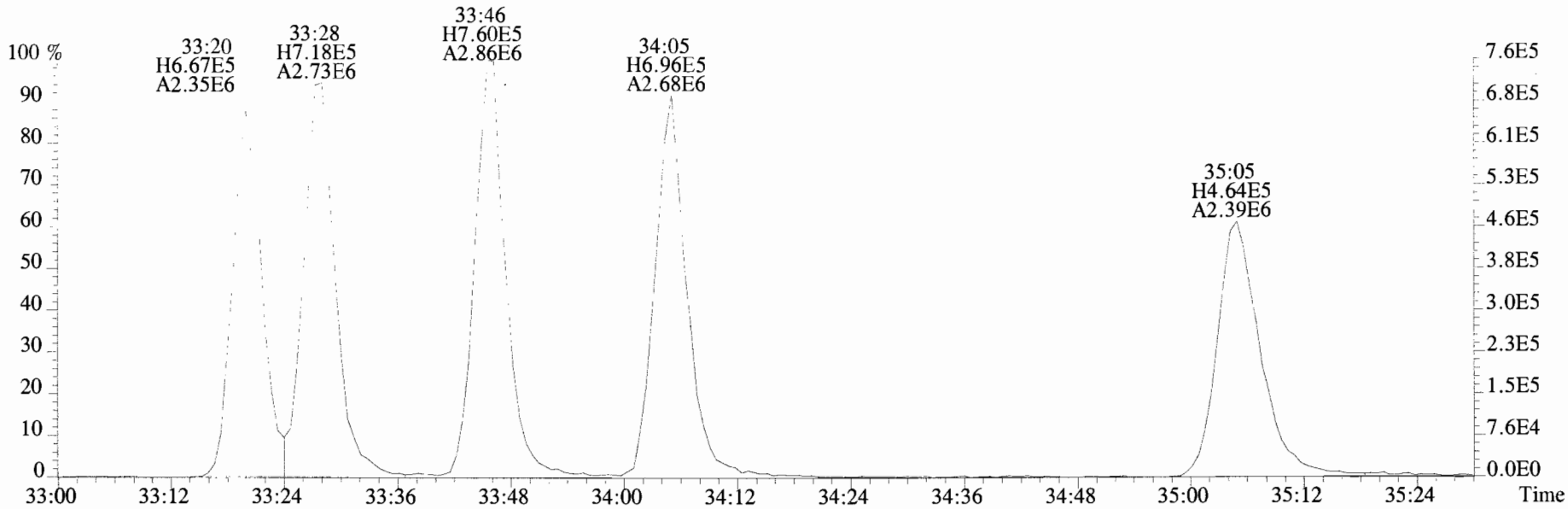
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



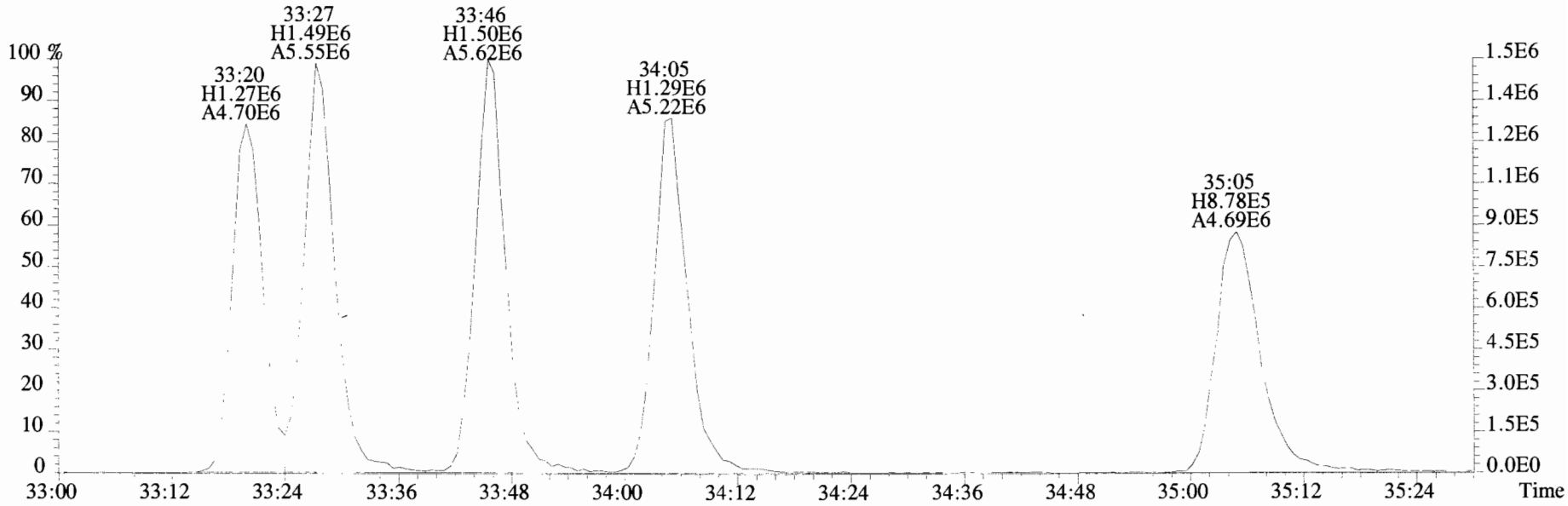
445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



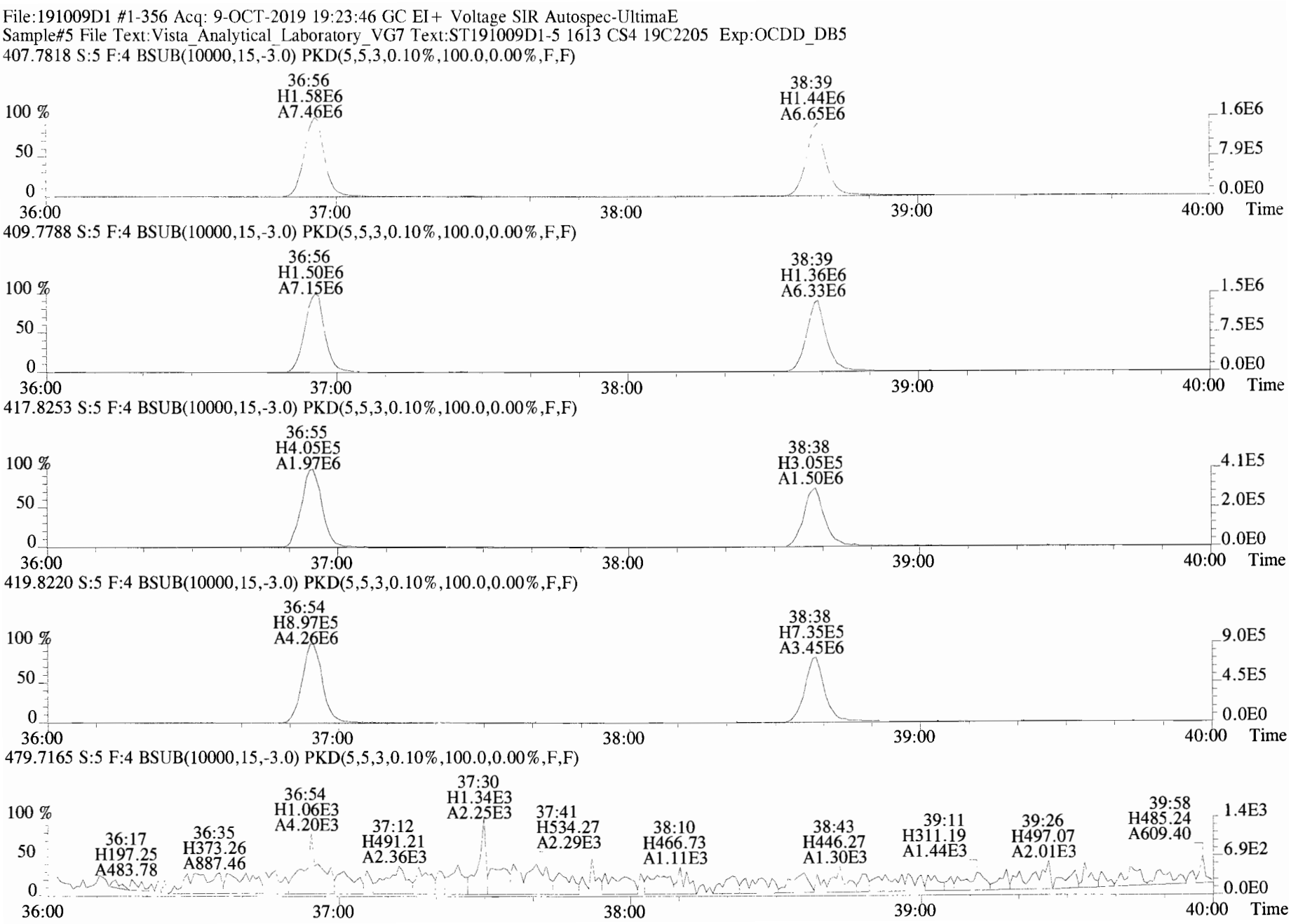
File:191009D1 #1-355 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



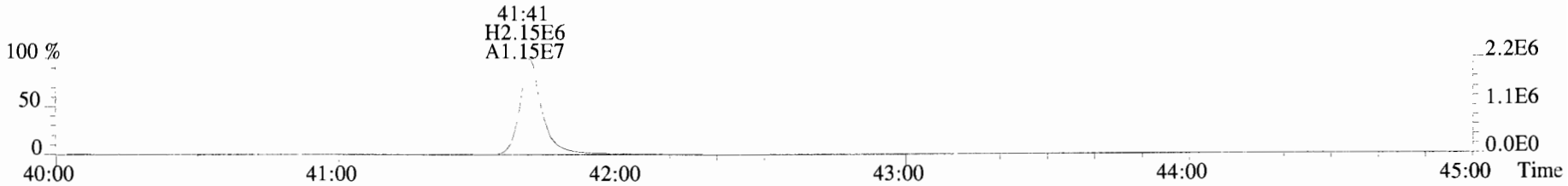
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



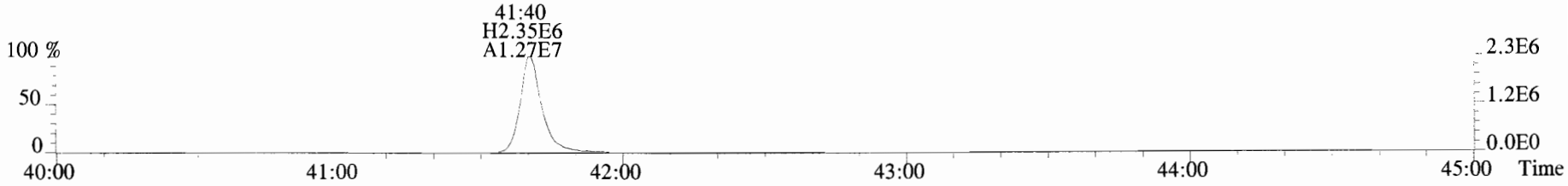
File:191009D1 #1-356 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5



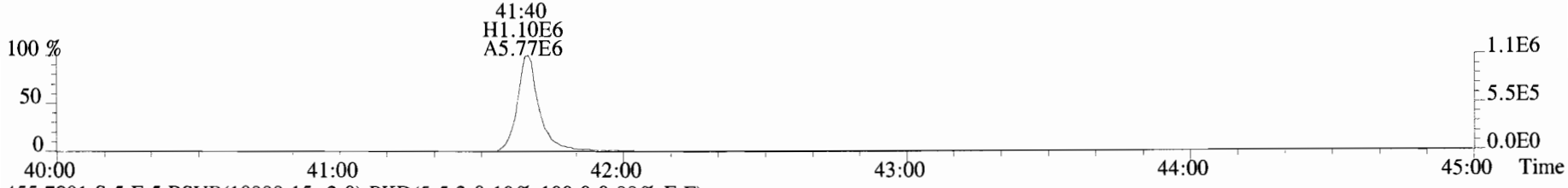
File:191009D1 #1-431 Acq: 9-OCT-2019 19:23:46 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-5 1613 CS4 19C2205 Exp:OCDD_DB5
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



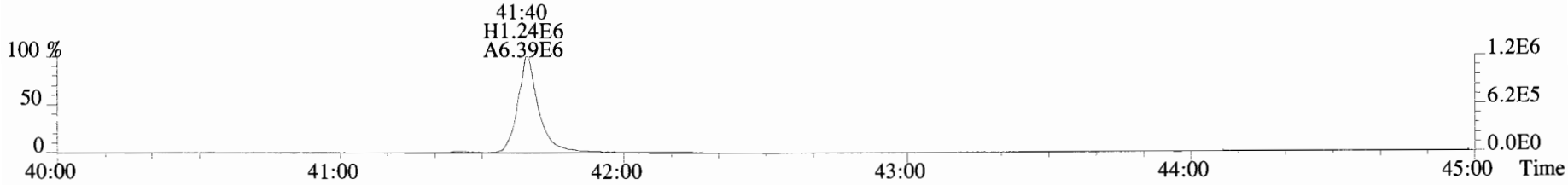
443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



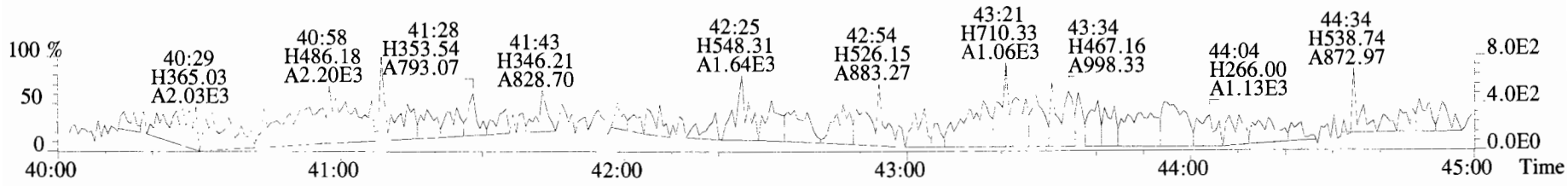
453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



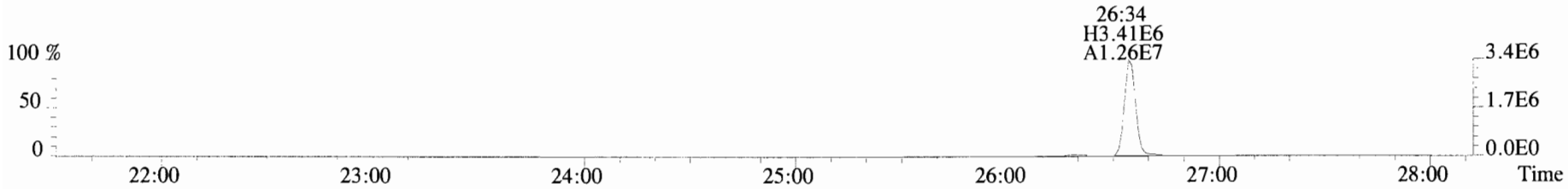
455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



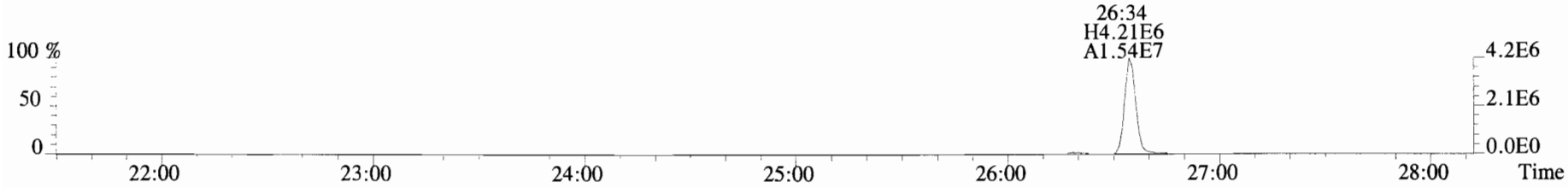
513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



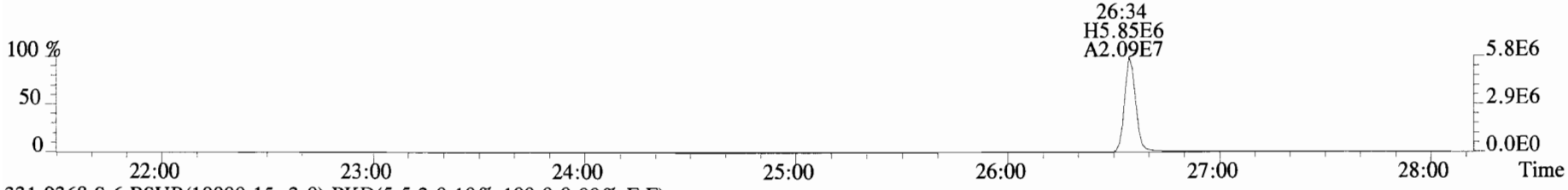
File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



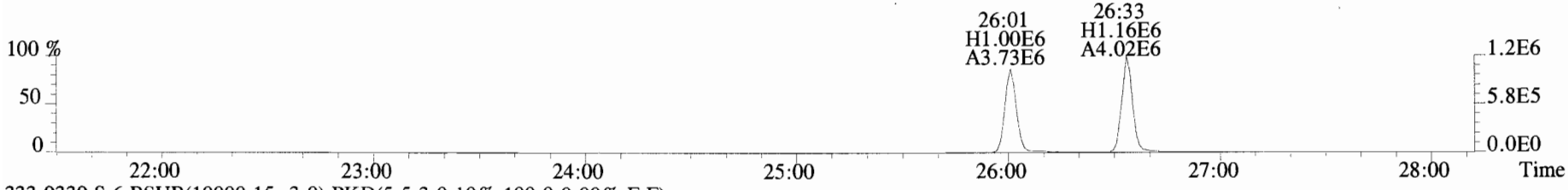
321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



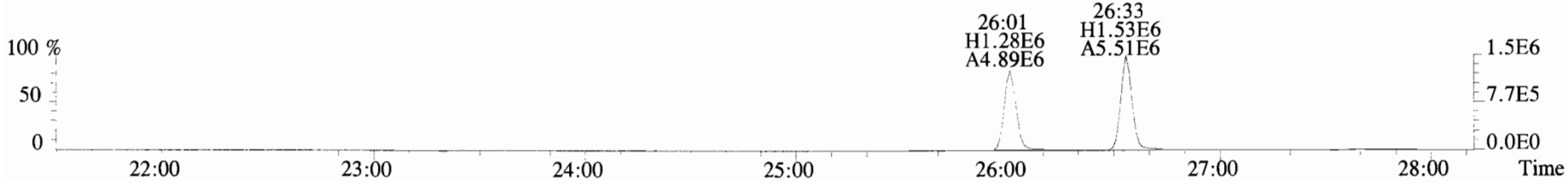
327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



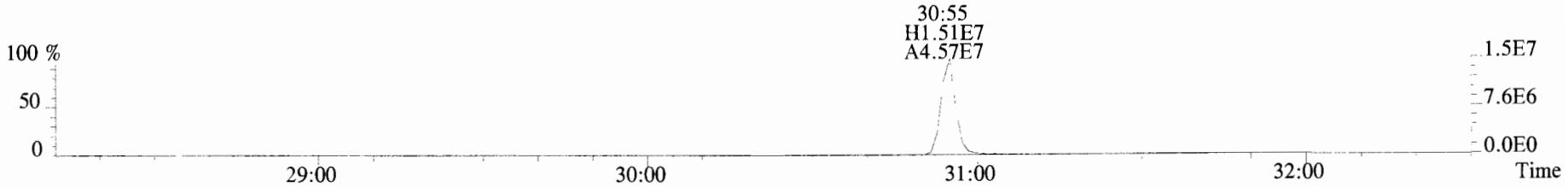
331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



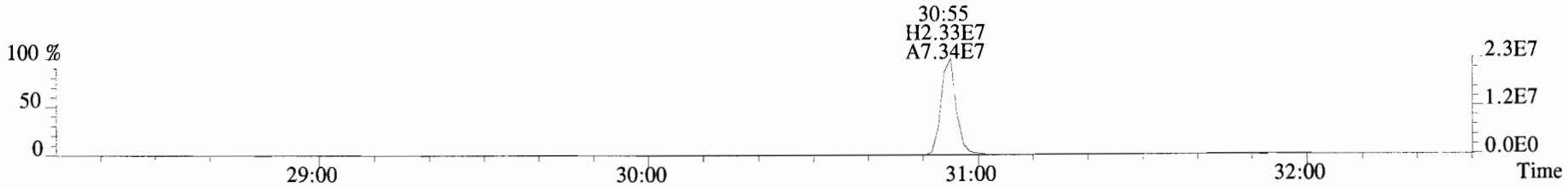
333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



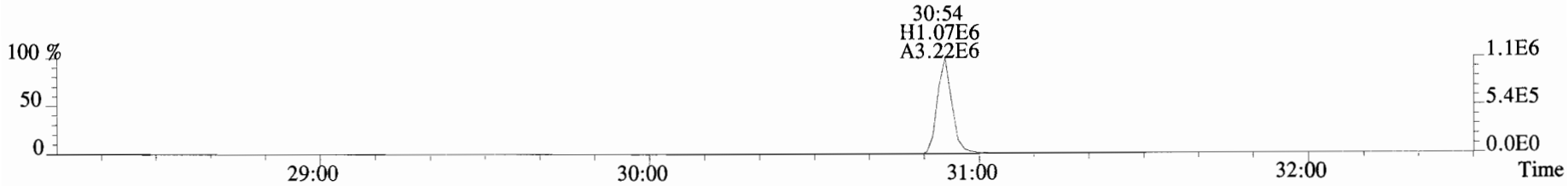
File:191009D1 #1-211 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



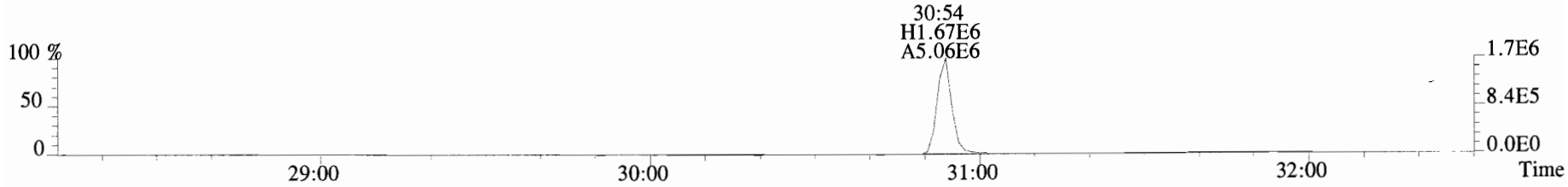
355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



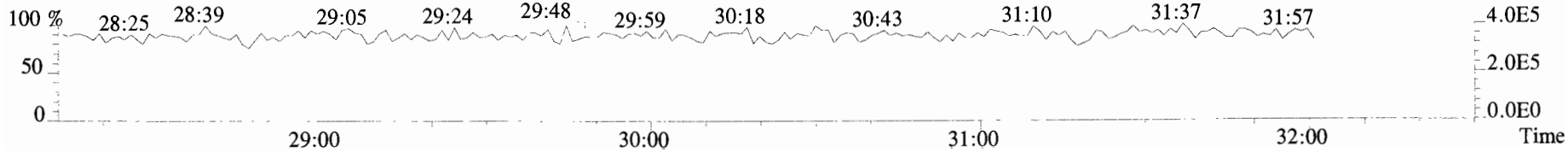
365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



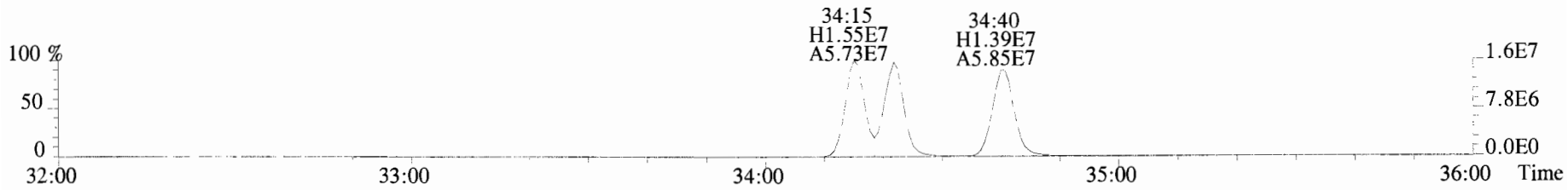
367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



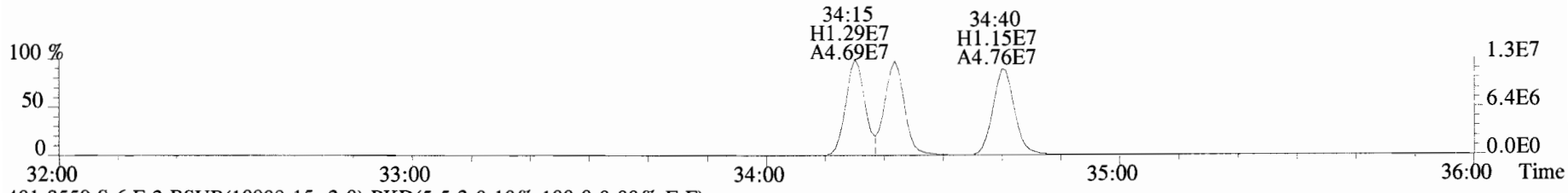
366.9792 S:6 F:2



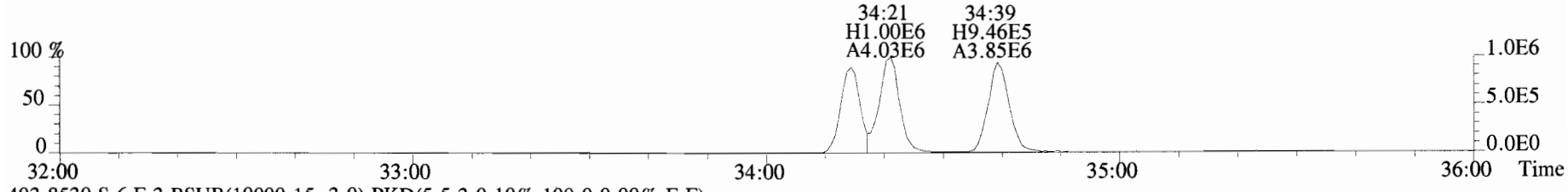
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



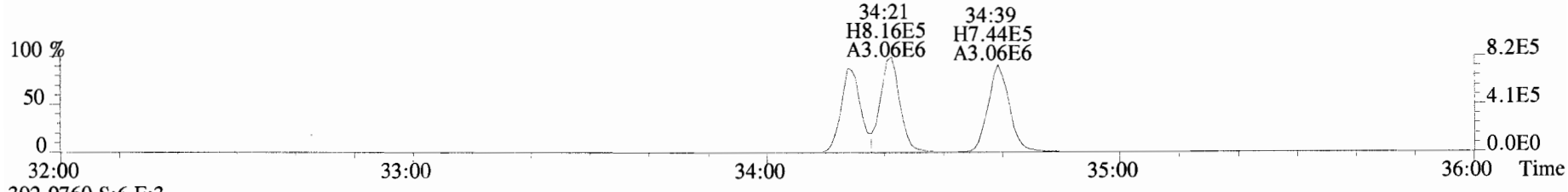
391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



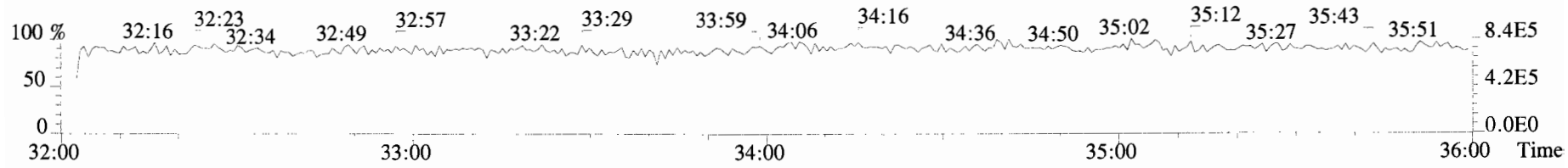
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



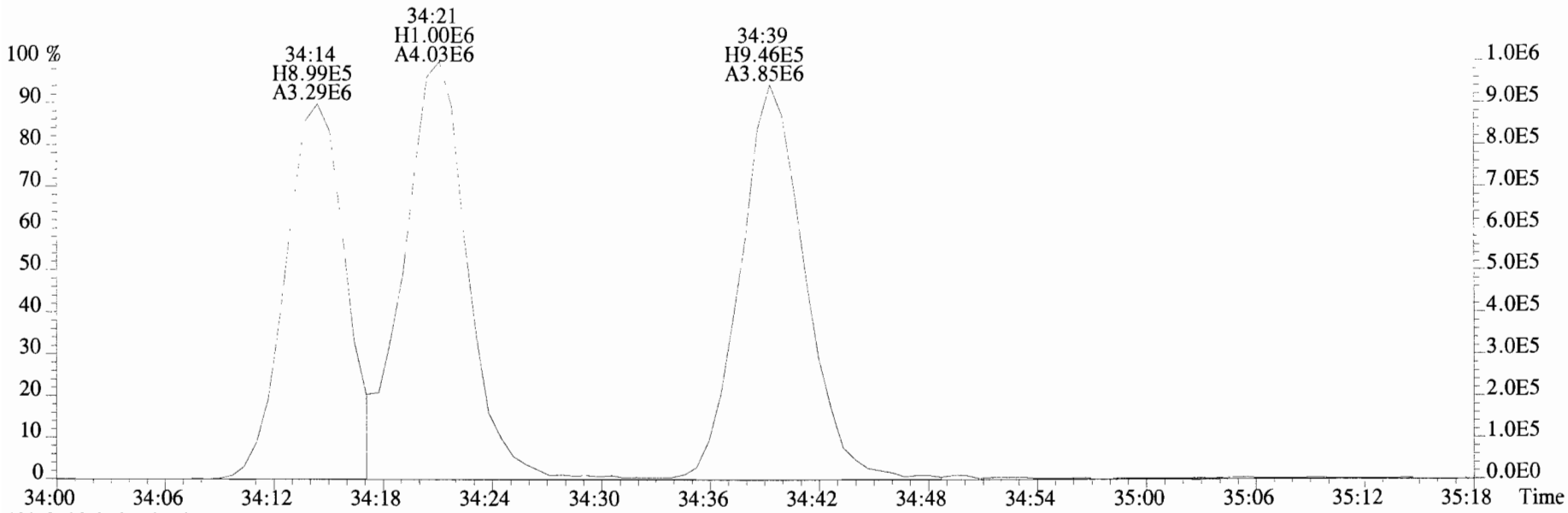
403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



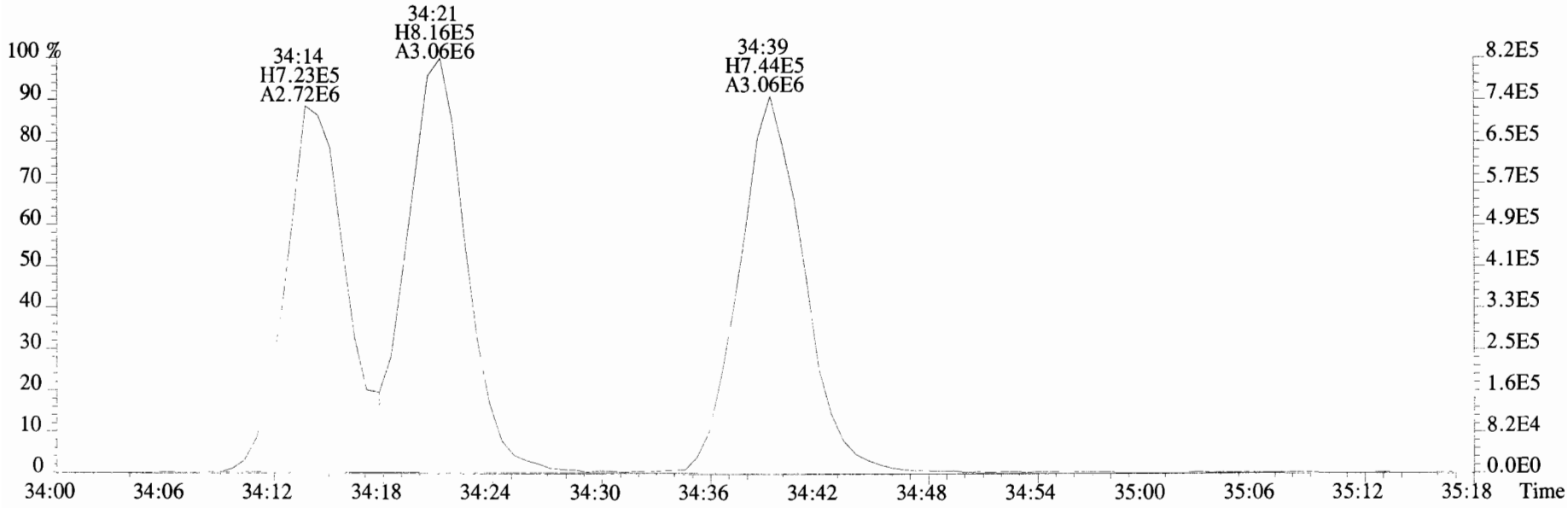
392.9760 S:6 F:3



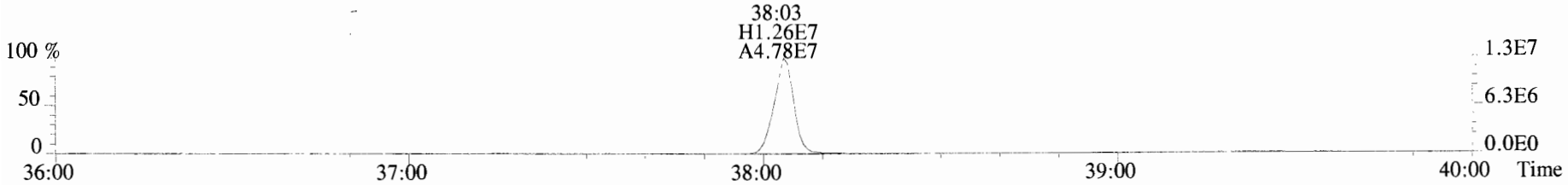
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



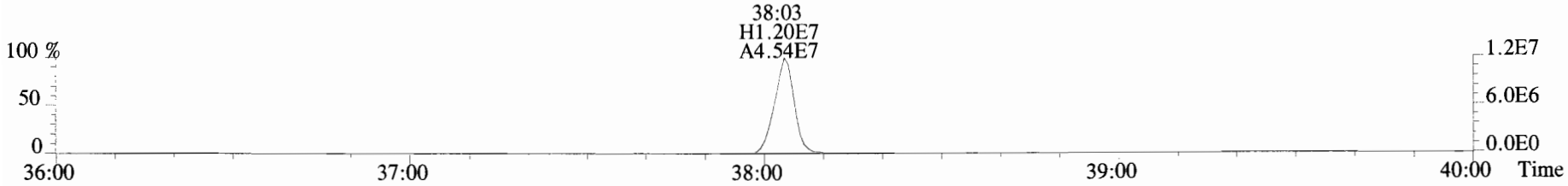
403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



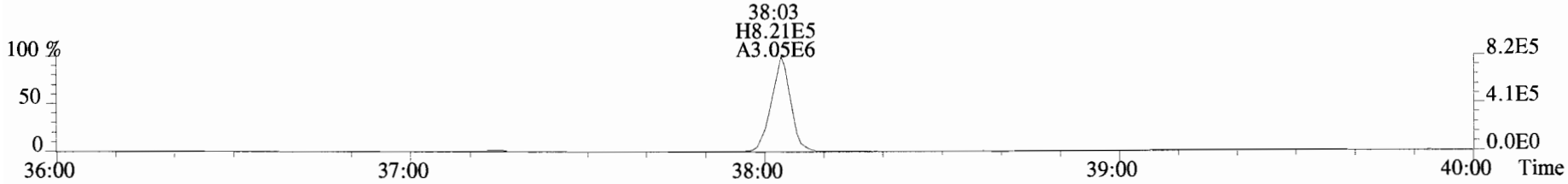
File:191009D1 #1-356 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



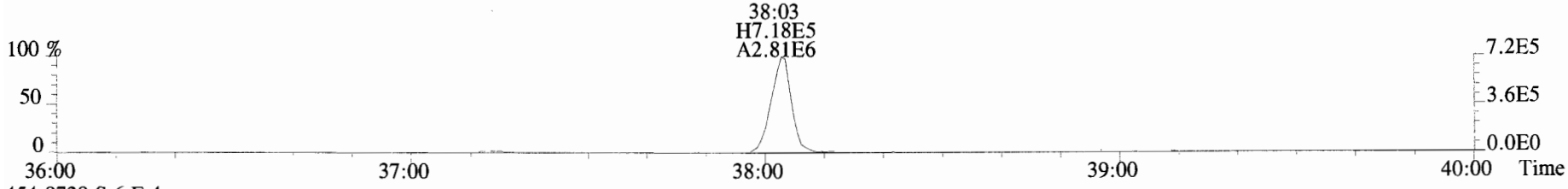
425.7737 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



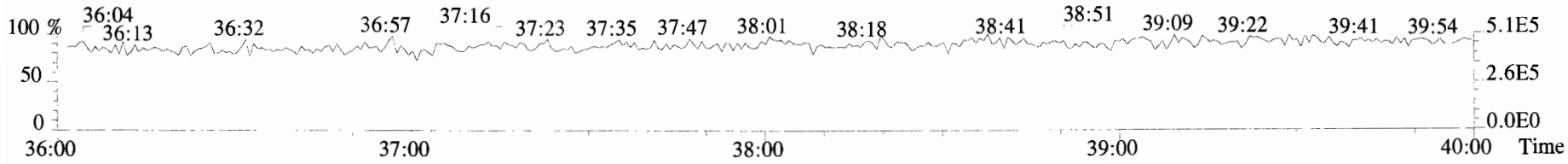
435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



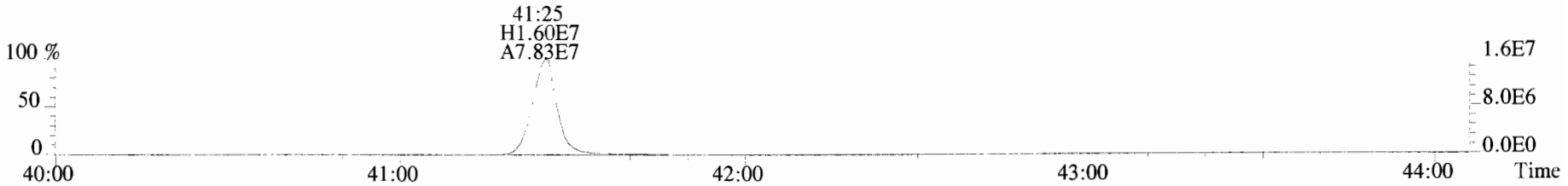
437.8140 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



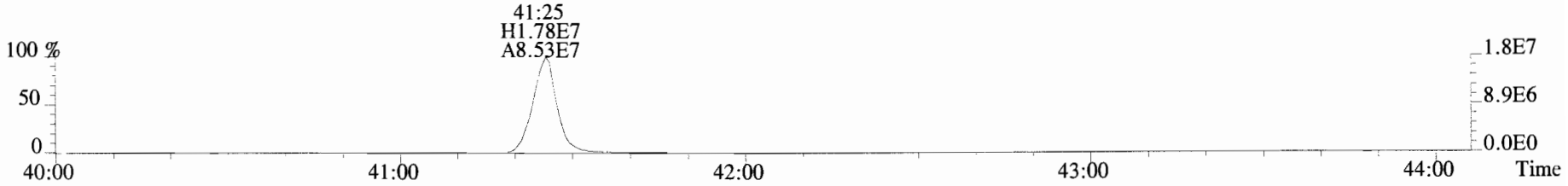
454.9728 S:6 F:4



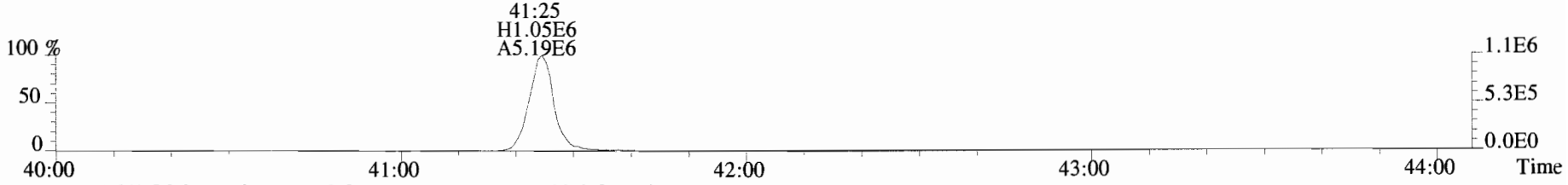
File:191009D1 #1-431 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



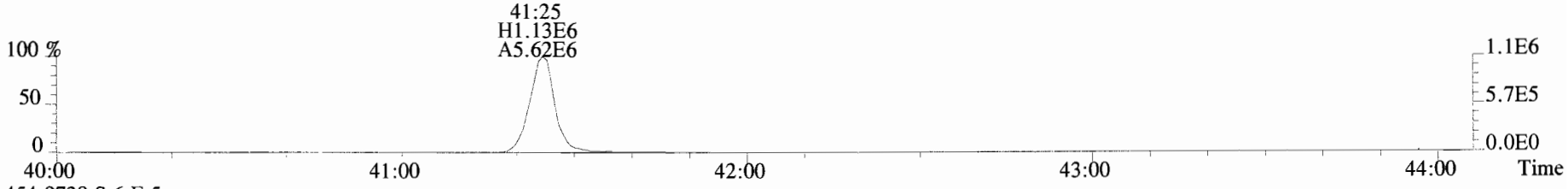
459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



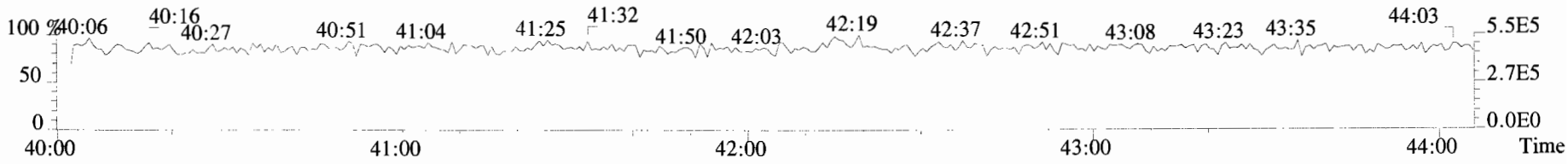
469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



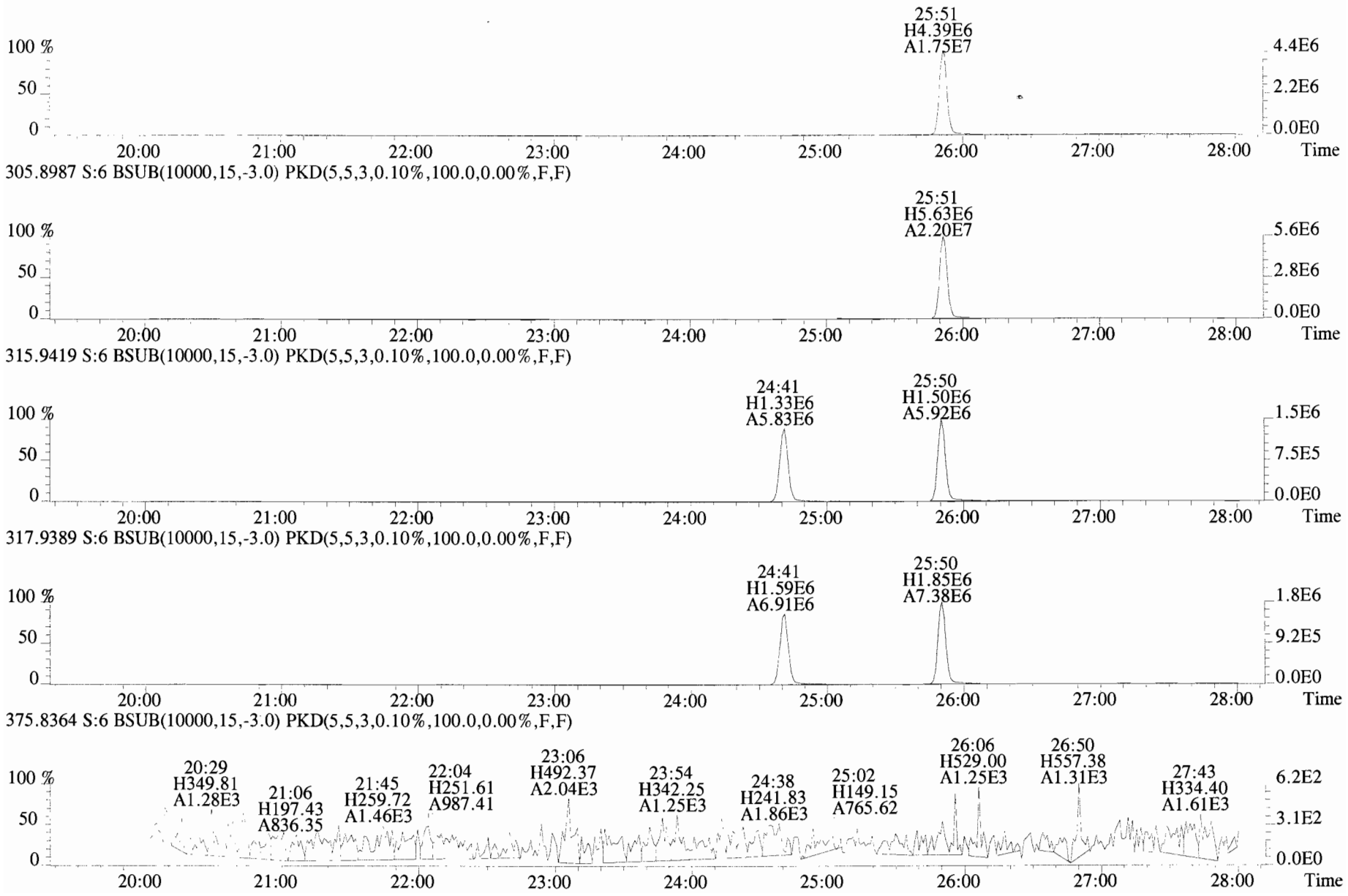
471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

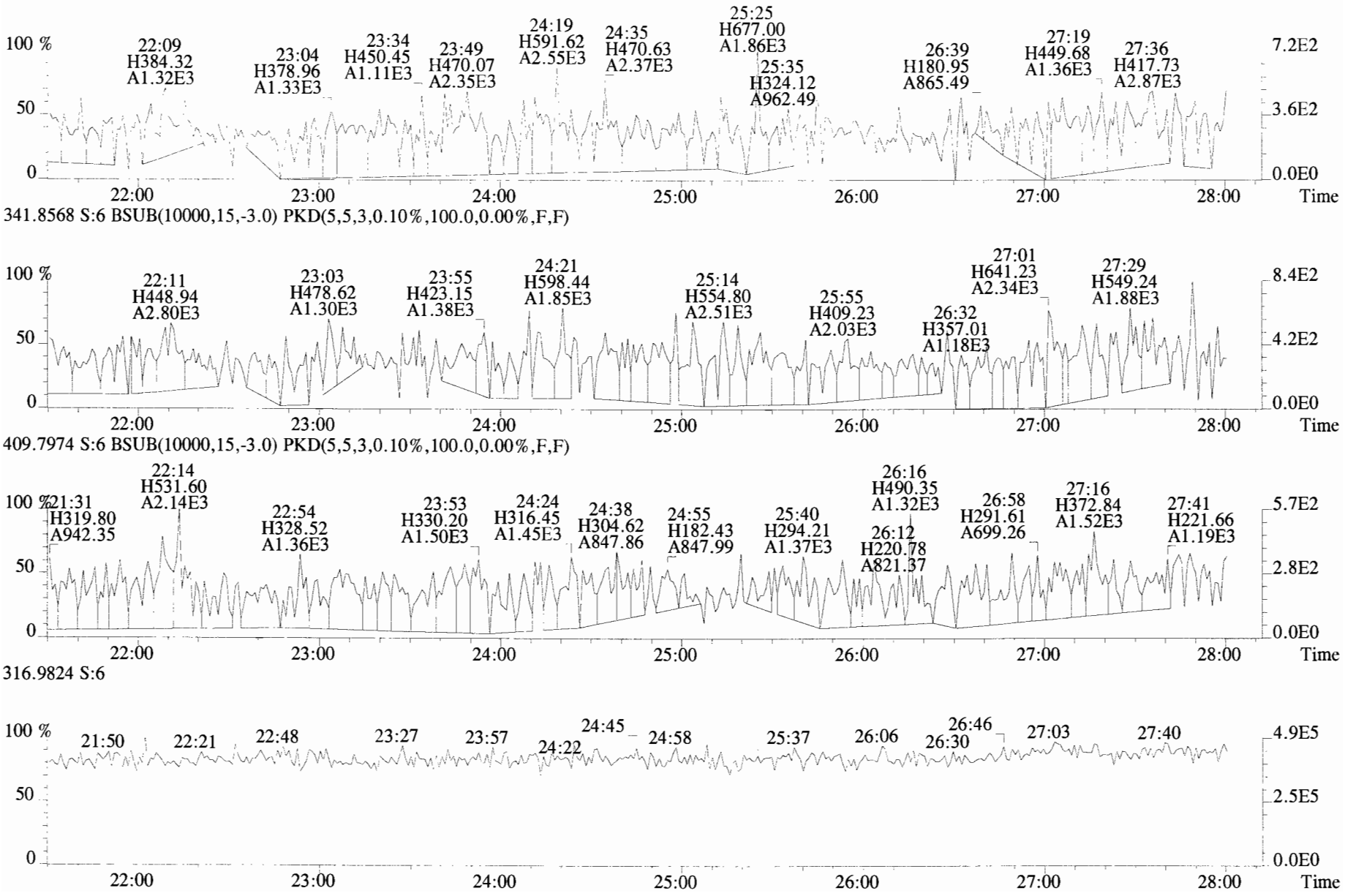


454.9728 S:6 F:5

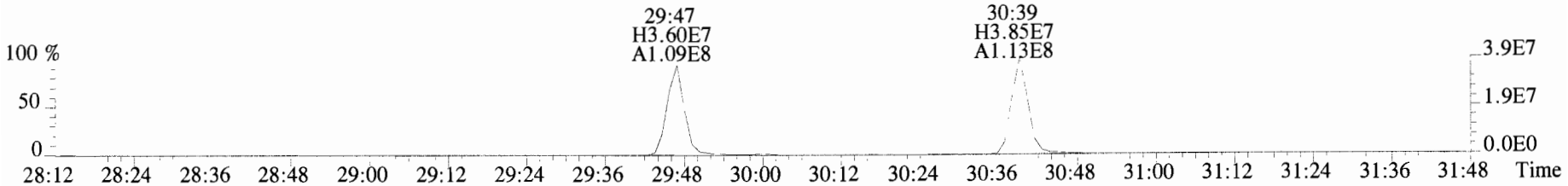


File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5

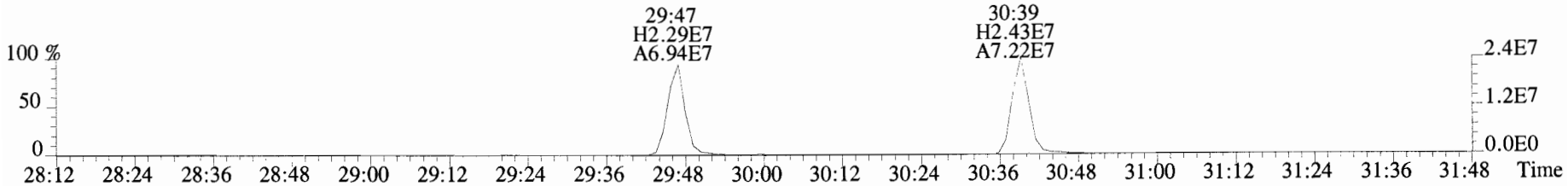



File:191009D1 #1-513 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
22:09 H384.32 A1.32E3
23:04 H378.96 A1.33E3
23:34 H450.45 A1.11E3
23:49 H470.07 A2.35E3
24:19 H591.62 A2.55E3
24:35 H470.63 A2.37E3
25:25 H677.00 A1.86E3
25:35 H324.12 A962.49
26:39 H180.95 A865.49
27:19 H449.68 A1.36E3
27:36 H417.73 A2.87E3
341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
22:11 H448.94 A2.80E3
23:03 H478.62 A1.30E3
23:55 H423.15 A1.38E3
24:21 H598.44 A1.85E3
25:14 H554.80 A2.51E3
25:55 H409.23 A2.03E3
26:32 H357.01 A1.18E3
27:01 H641.23 A2.34E3
27:29 H549.24 A1.88E3
409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)
21:31 H319.80 A942.35
22:14 H531.60 A2.14E3
22:54 H328.52 A1.36E3
23:53 H330.20 A1.50E3
24:24 H316.45 A1.45E3
24:38 H304.62 A847.86
24:55 H182.43 A847.99
25:40 H294.21 A1.37E3
26:12 H220.78 A821.37
26:16 H490.35 A1.32E3
26:58 H291.61 A699.26
27:16 H372.84 A1.52E3
27:41 H221.66 A1.19E3
316.9824 S:6
21:50
22:21
22:48
23:27
23:57
24:22
24:45
24:58
25:37
26:06
26:30
26:46
27:03
27:40
100 %
50
0
7.2E2
3.6E2
0.0E0
4.2E2
8.4E2
5.7E2
2.8E2
4.9E5
2.5E5
22:00
23:00
24:00
25:00
26:00
27:00
28:00
Time

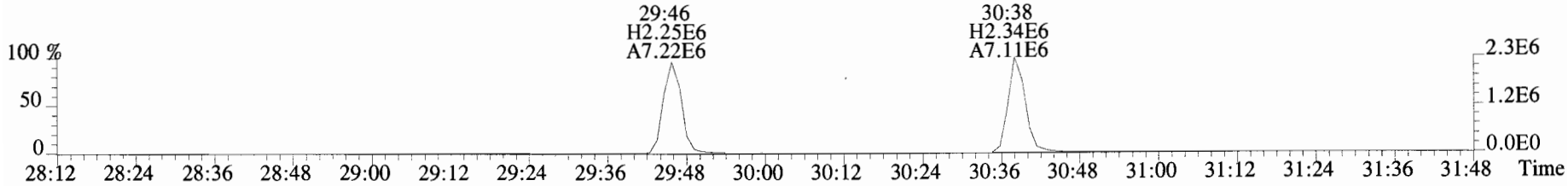
File:191009D1 #1-211 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



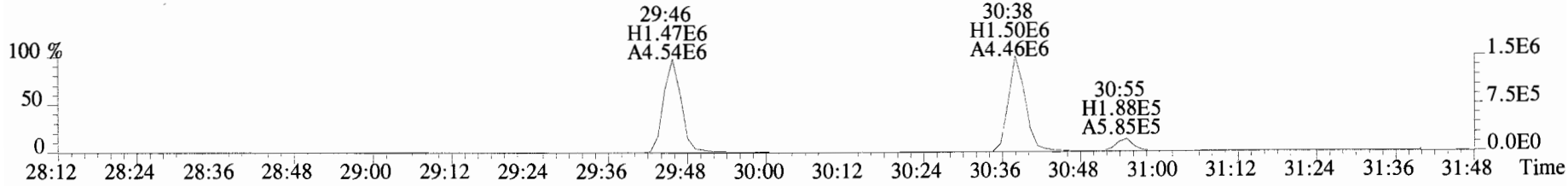
341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



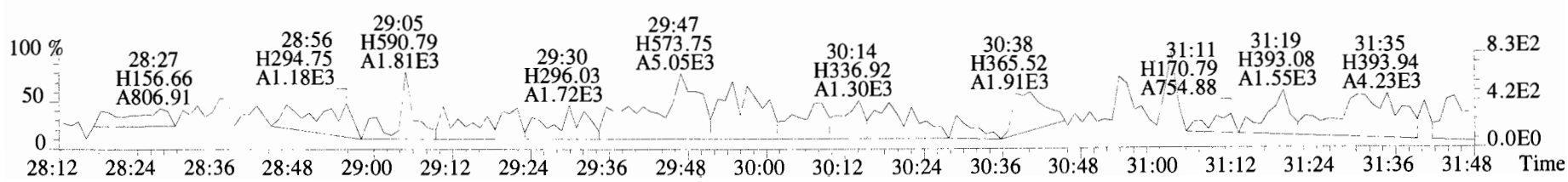
351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

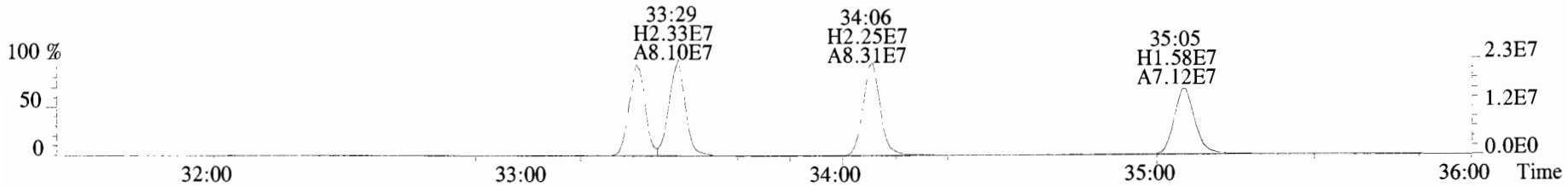


409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

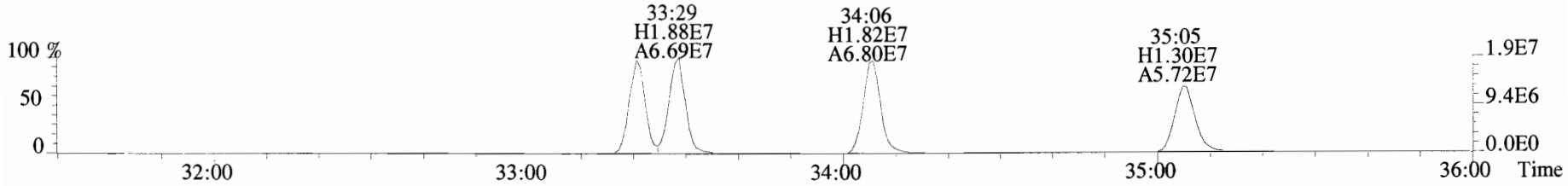


File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5

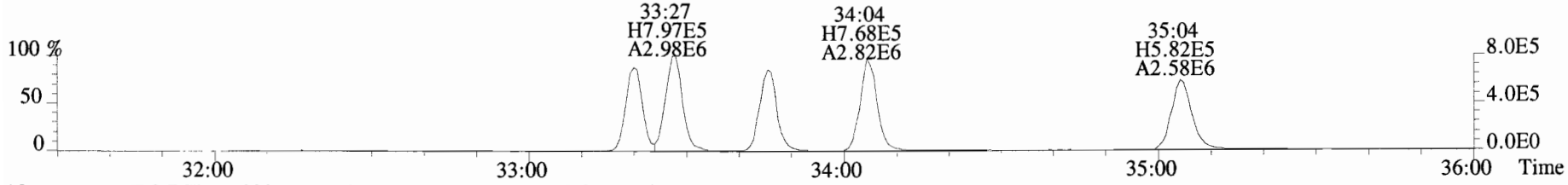
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



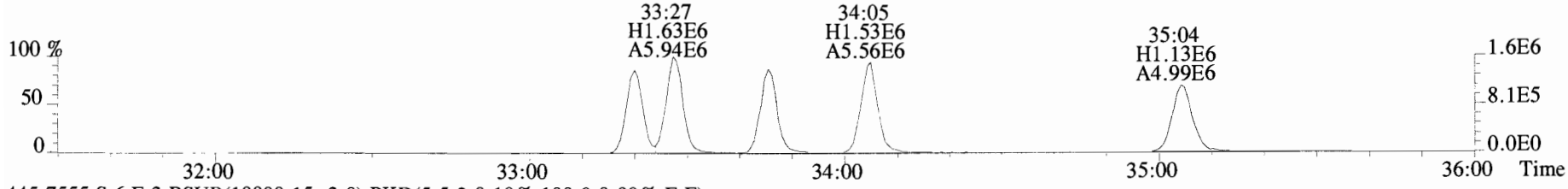
375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



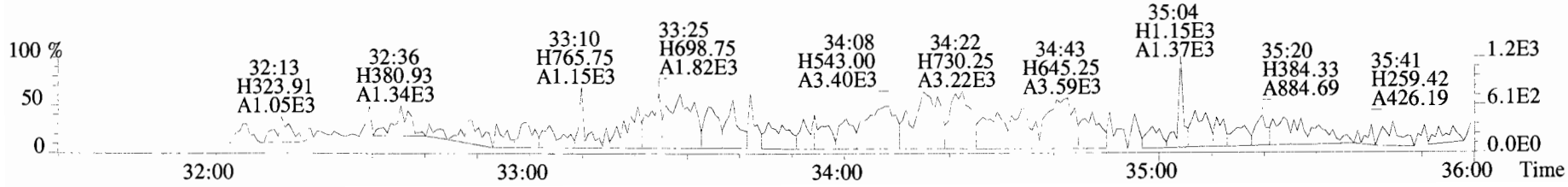
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



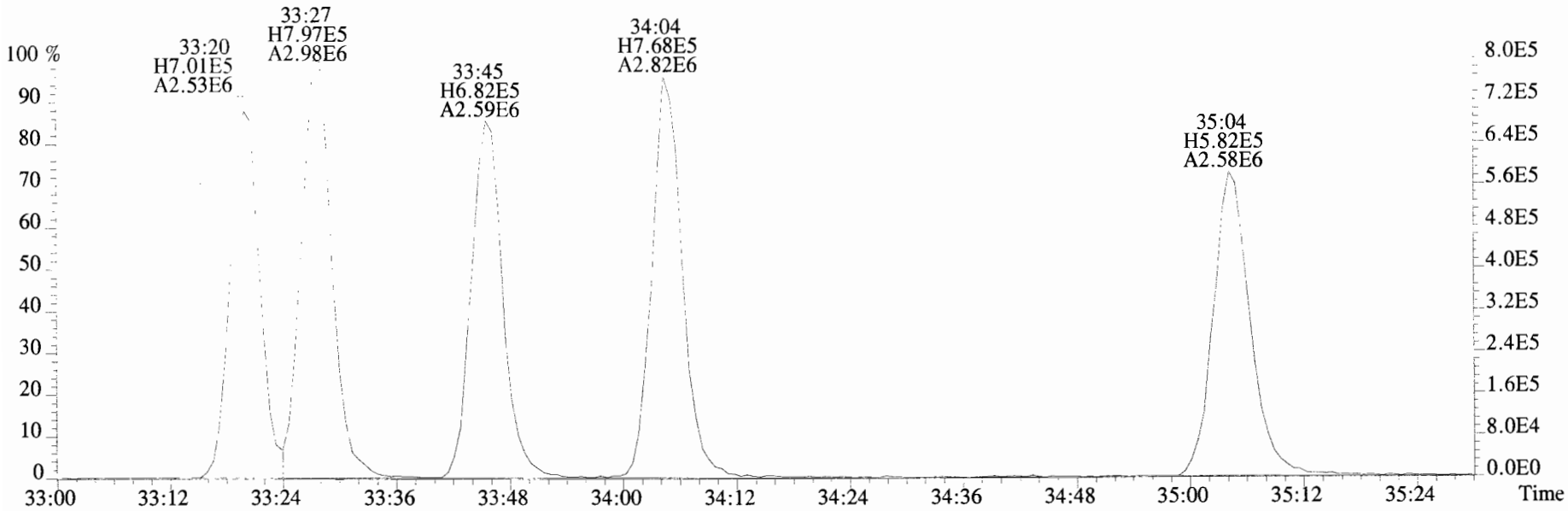
385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



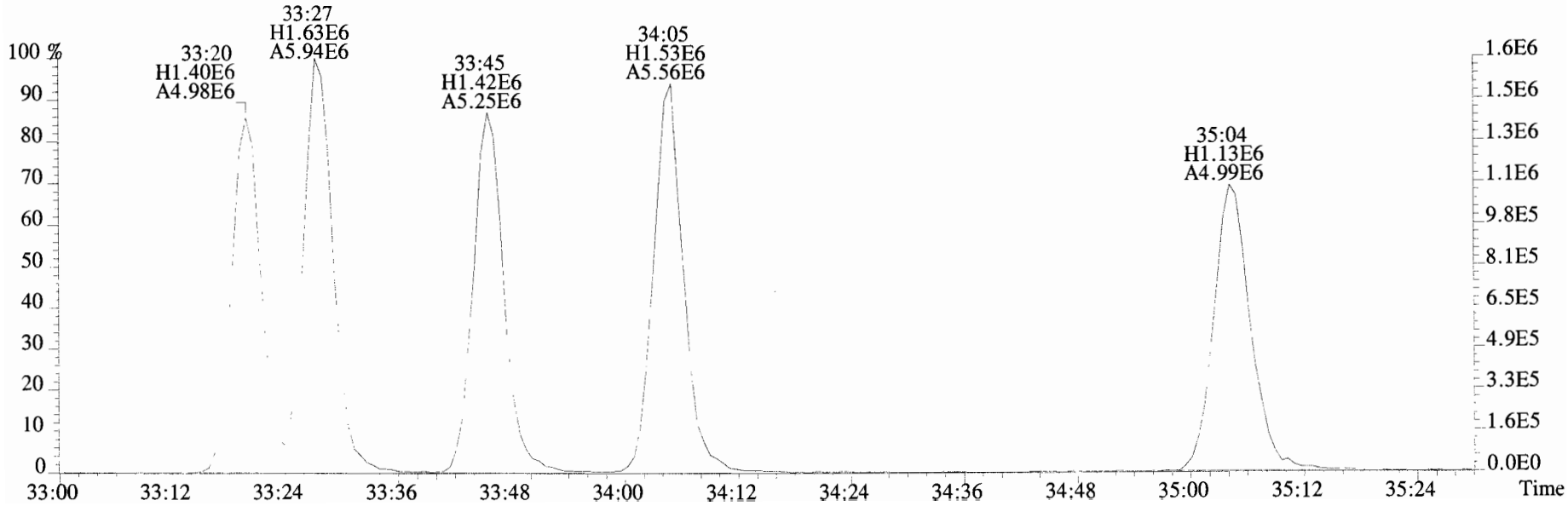
445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



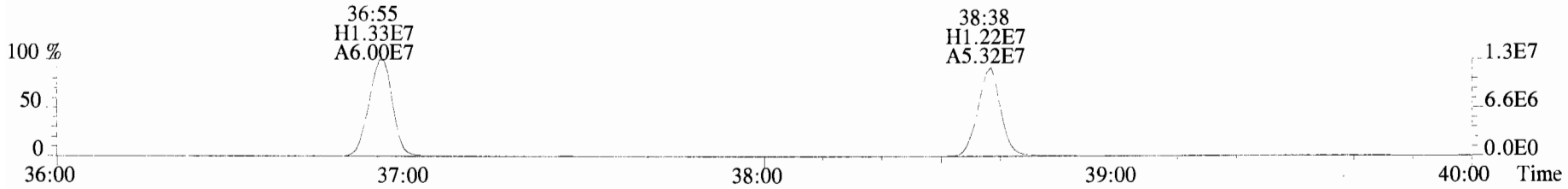
File:191009D1 #1-354 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



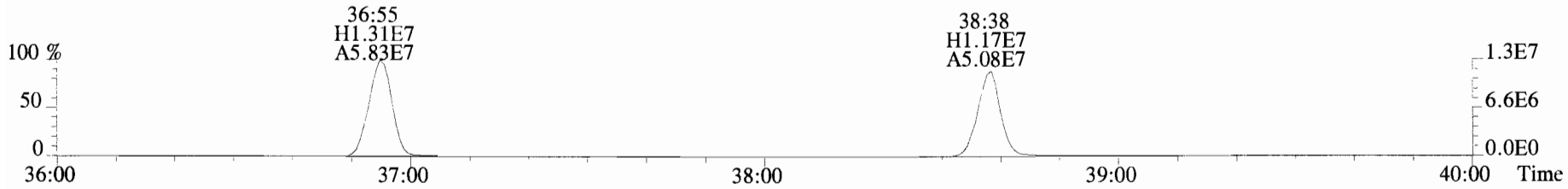
385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



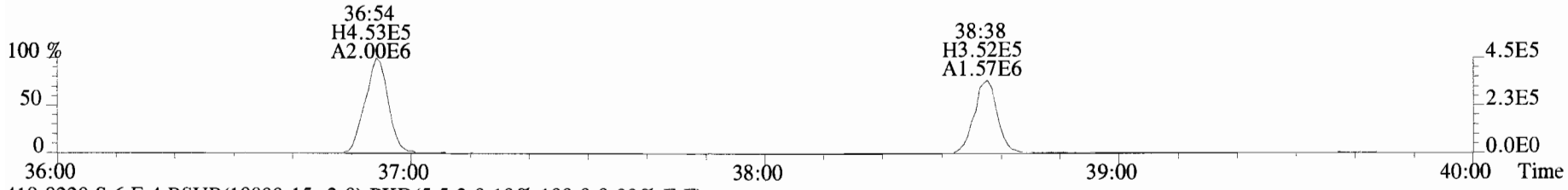
File:191009D1 #1-356 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



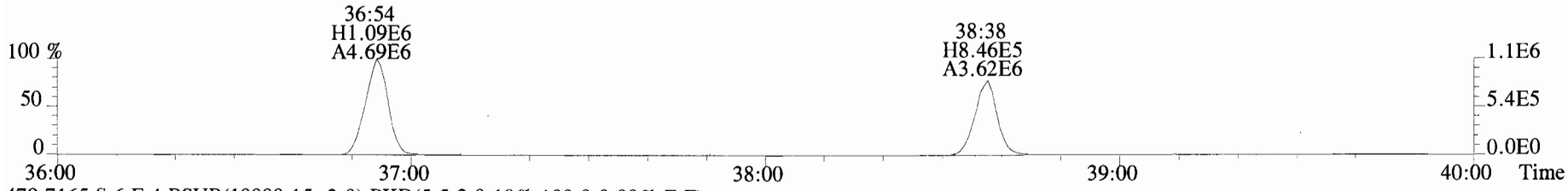
409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



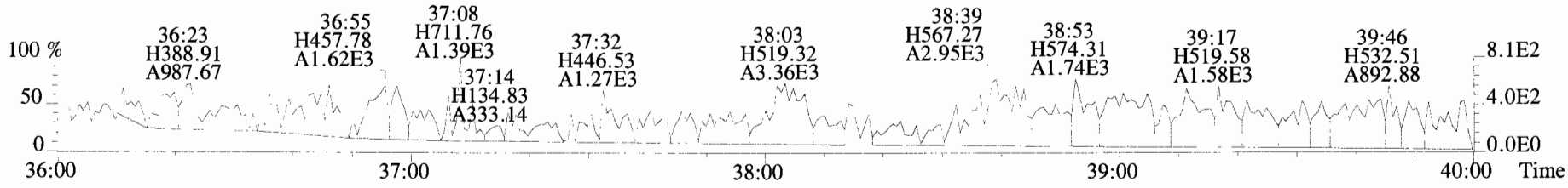
417.8253 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



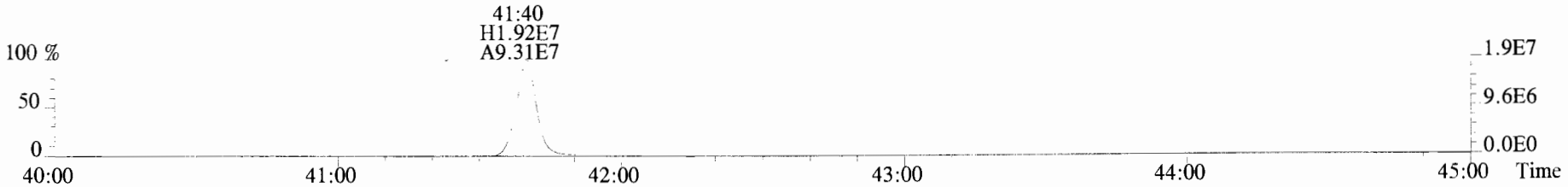
419.8220 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



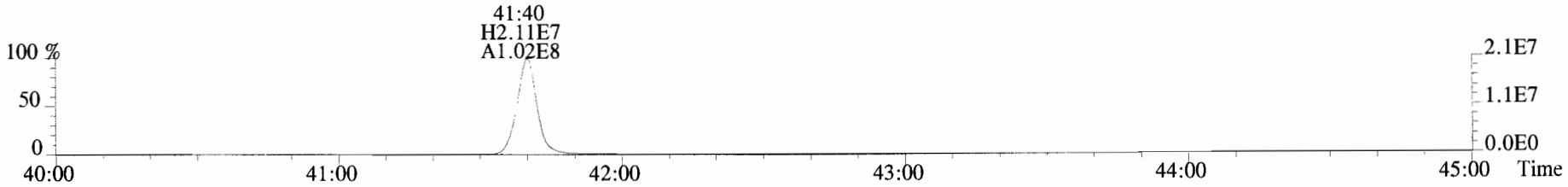
479.7165 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



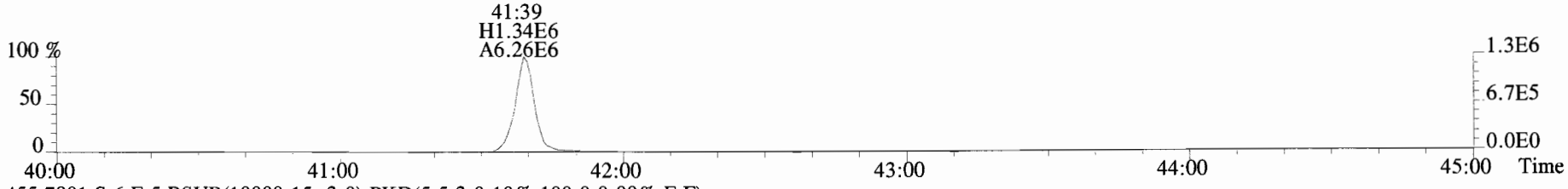
File:191009D1 #1-431 Acq: 9-OCT-2019 20:11:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST191009D1-6 1613 CS5 19C2206 Exp:OCDD_DB5
441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



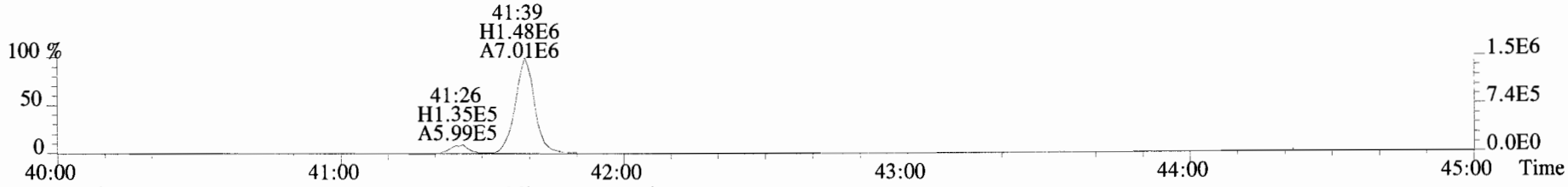
443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



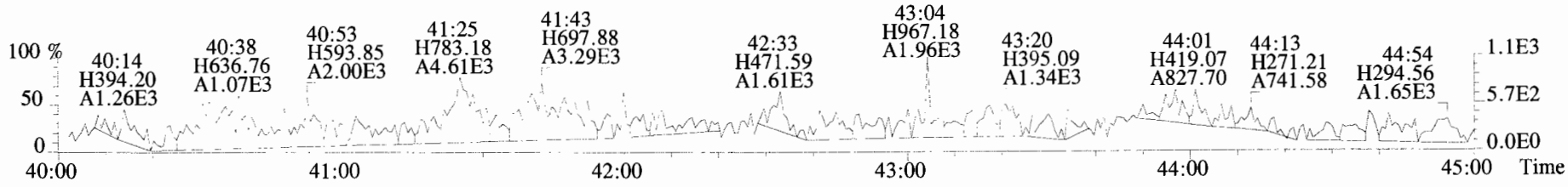
453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

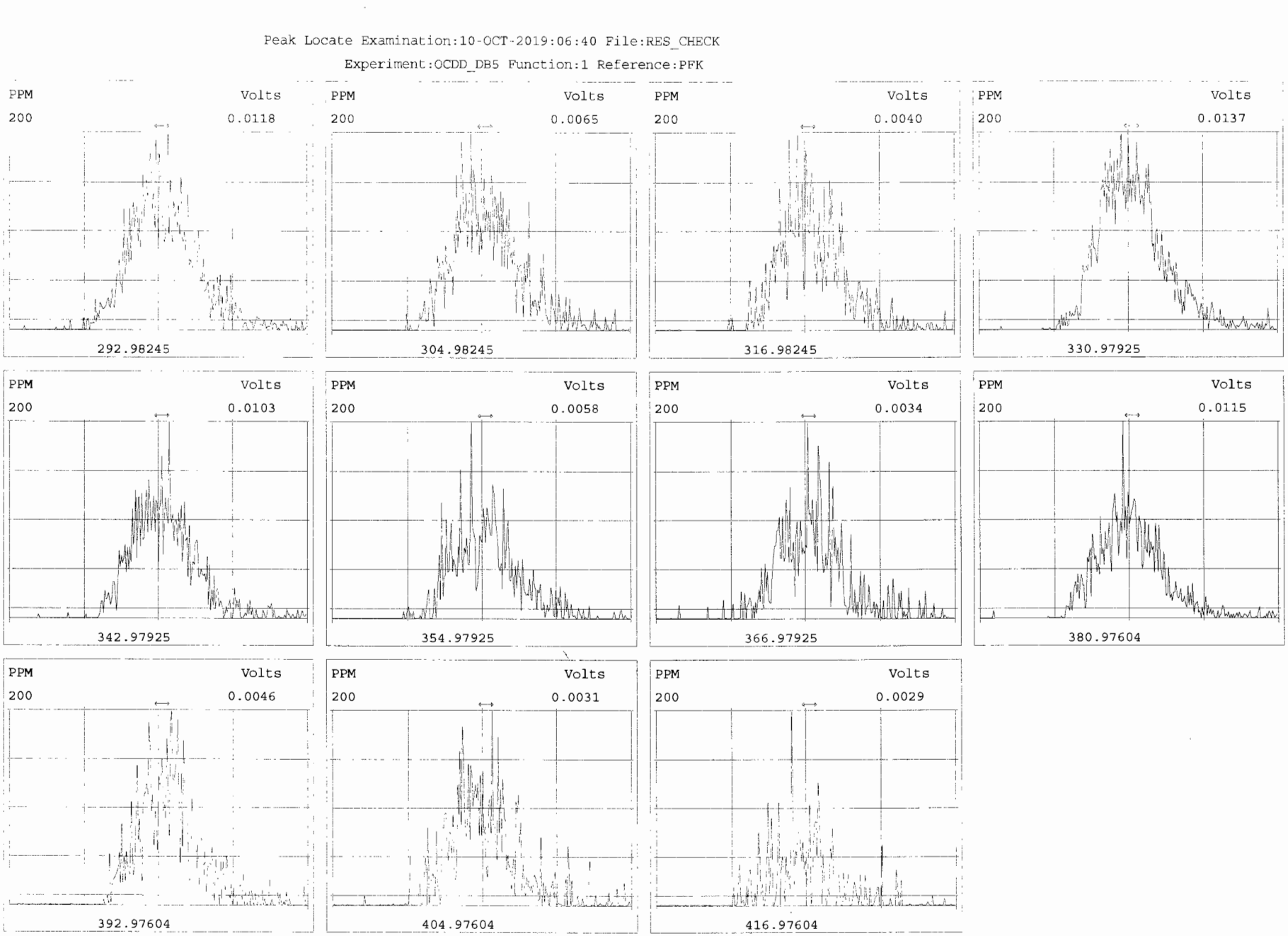


455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 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
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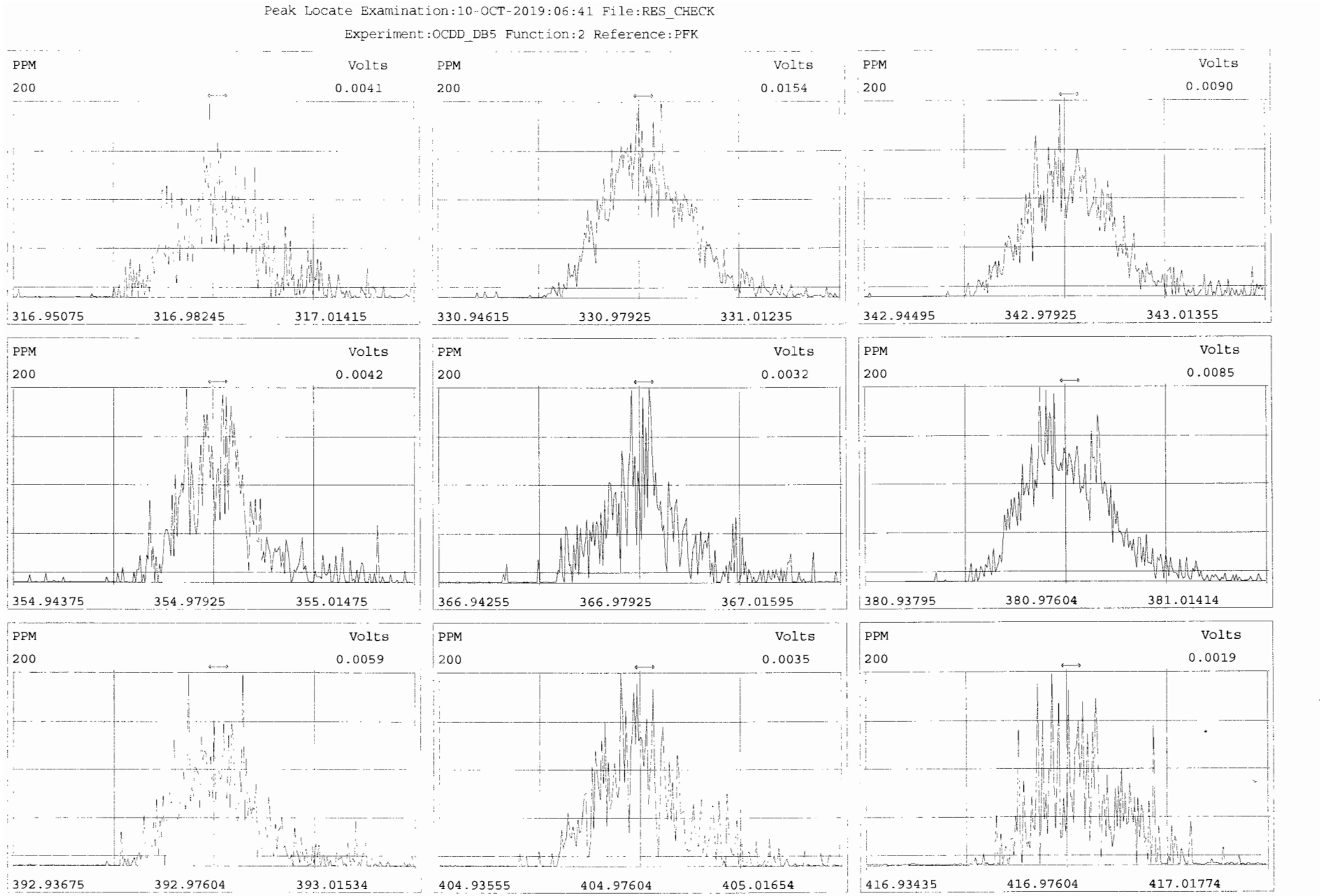
Volts
200
0.0118
292.98245
PPM
Volts
200
0.0065
304.98245
PPM
Volts
200
0.0040
316.98245
PPM
Volts
200
0.0137
330.97925
PPM
Volts
200
0.0103
342.97925
PPM
Volts
200
0.0058
354.97925
PPM
Volts
200
0.0034
366.97925
PPM
Volts
200
0.0115
380.97604
PPM
Volts
200
0.0046
392.97604
PPM
Volts
200
0.0031
404.97604
PPM
Volts
200
0.0029
416.97604


Peak Locate Examination:10-OCT-2019:06:41 File:RES_CHECK
Experiment:OCDD_DB5 Function:2 Reference:PFK
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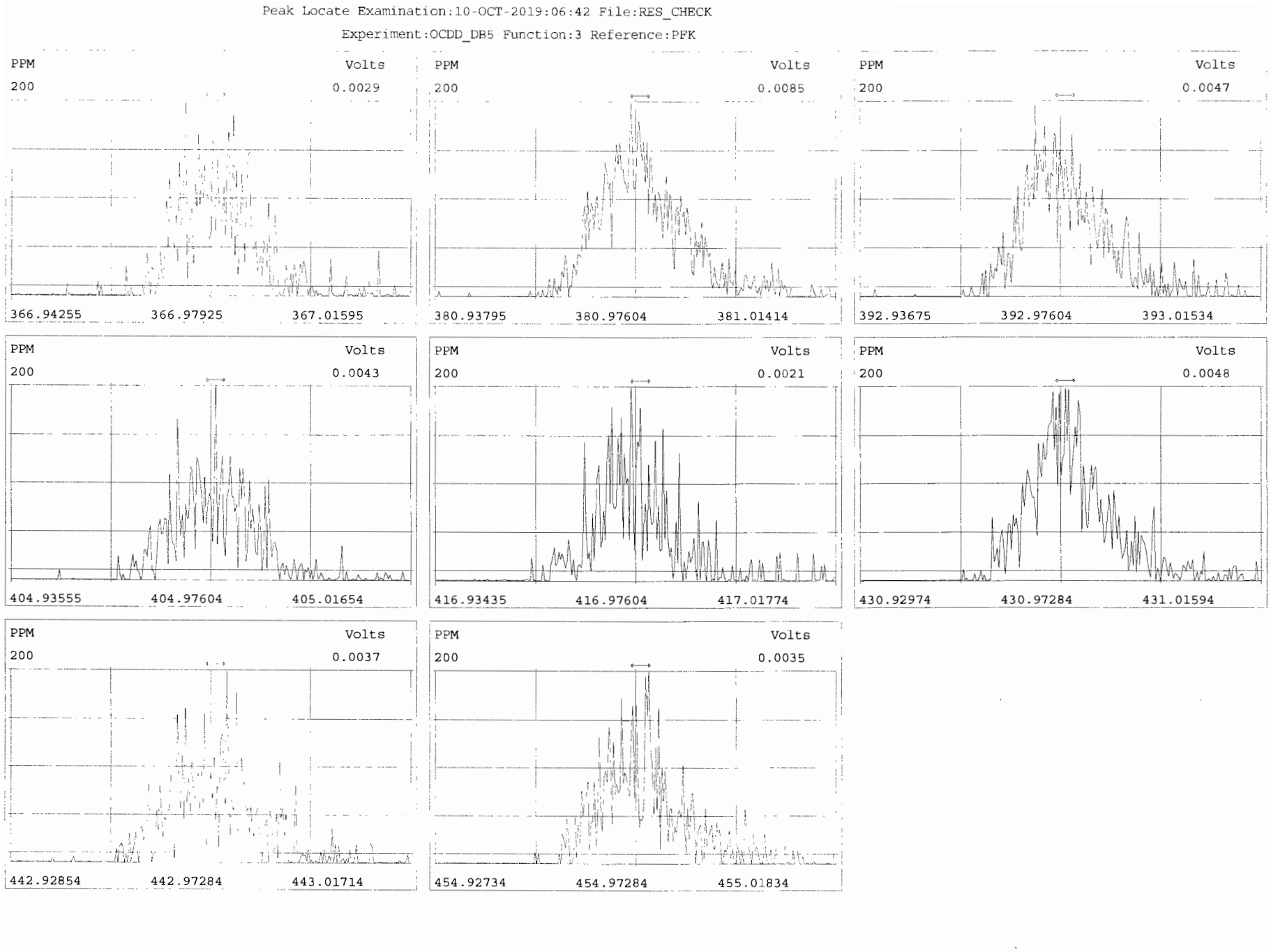
Volts
200
0.0041
316.95075
316.98245
317.01415
PPM
Volts
200
0.0154
330.94615
330.97925
331.01235
PPM
Volts
200
0.0090
342.94495
342.97925
343.01355
PPM
Volts
200
0.0042
354.94375
354.97925
355.01475
PPM
Volts
200
0.0032
366.94255
366.97925
367.01595
PPM
Volts
200
0.0085
380.93795
380.97604
381.01414
PPM
Volts
200
0.0059
392.93675
392.97604
393.01534
PPM
Volts
200
0.0035
404.93555
404.97604
405.01654
PPM
Volts
200
0.0019
416.93435
416.97604
417.01774


Peak Locate Examination:10-OCT-2019:06:42 File:RES_CHECK
Experiment:OCDD_DB5 Function:3 Reference:PFK
PPM
Volts
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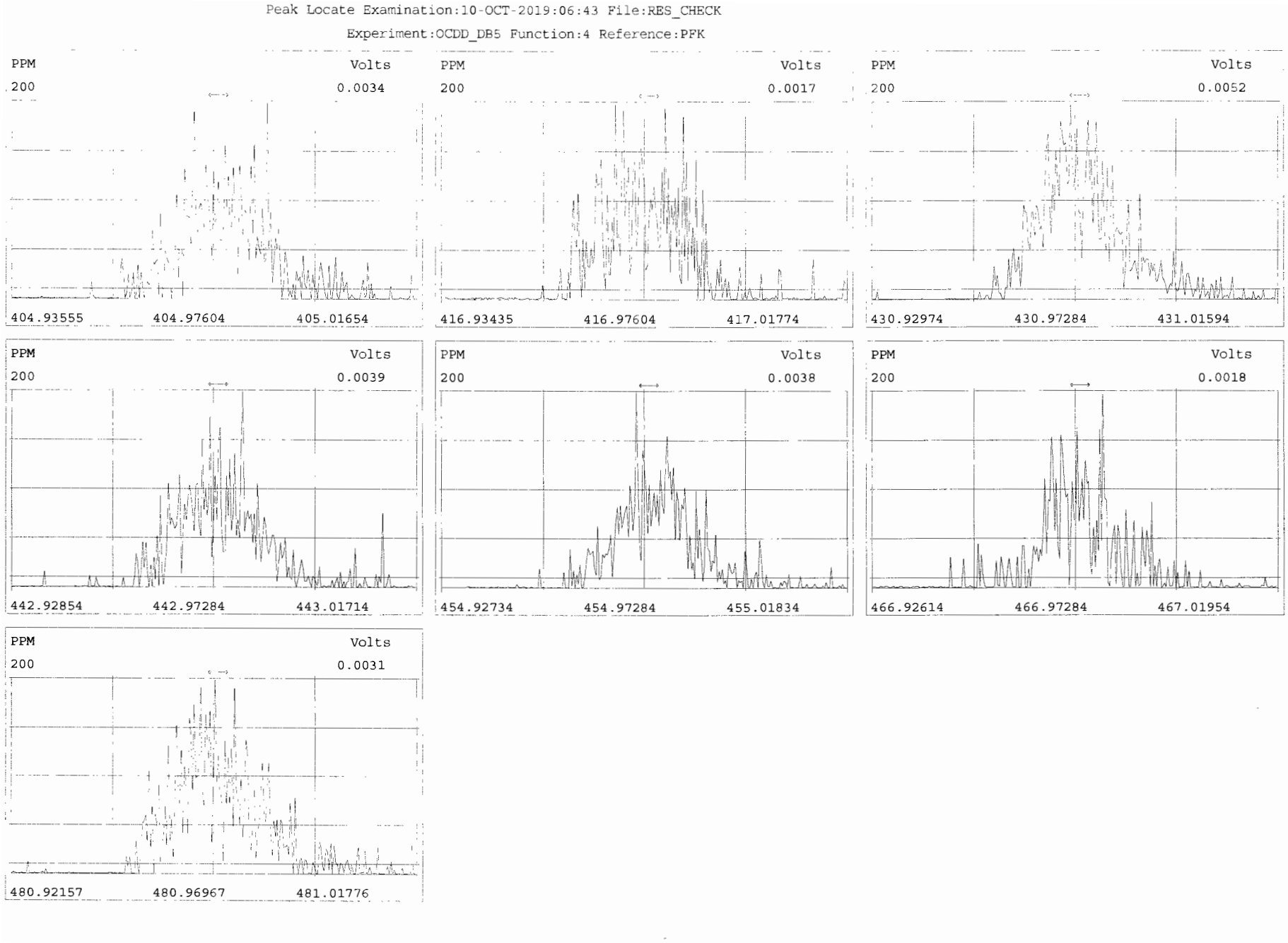
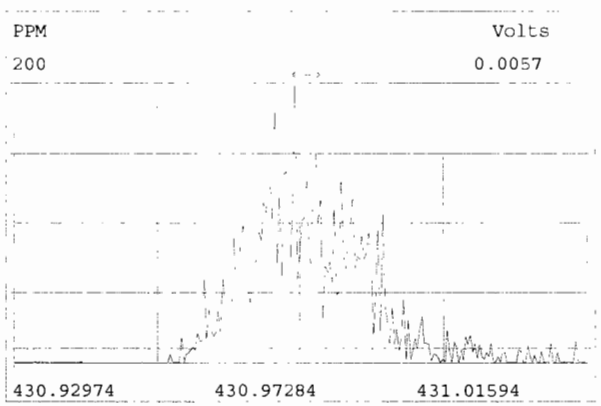
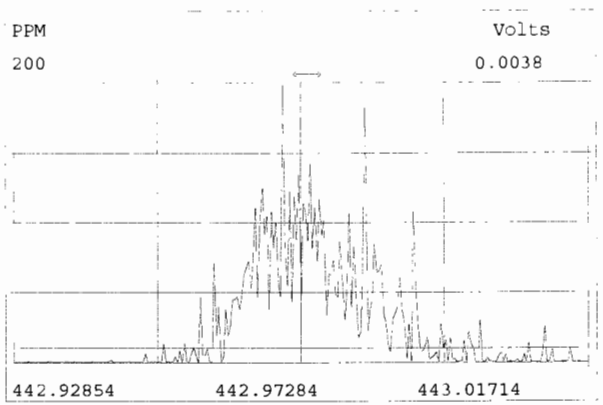
0.0029
366.94255
366.97925
367.01595
PPM
Volts
200
0.0085
380.93795
380.97604
381.01414
PPM
Volts
200
0.0047
392.93675
392.97604
393.01534
PPM
Volts
200
0.0043
404.93555
404.97604
405.01654
PPM
Volts
200
0.0021
416.93435
416.97604
417.01774
PPM
Volts
200
0.0048
430.92974
430.97284
431.01594
PPM
Volts
200
0.0037
442.92854
442.97284
443.01714
PPM
Volts
200
0.0035
454.92734
454.97284
455.01834

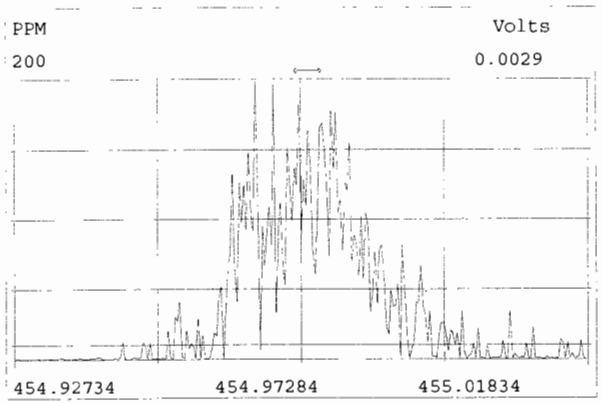

Peak Locate Examination:10-OCT-2019:06:43 File:RES_CHECK
Experiment:OCDD_DB5 Function:4 Reference:PFK
PPM
Volts
200
0.0034
404.93555
404.97604
405.01654
PPM
Volts
200
0.0017
416.93435
416.97604
417.01774
PPM
Volts
200
0.0052
430.92974
430.97284
431.01594
PPM
Volts
200
0.0039
442.92854
442.97284
443.01714
PPM
Volts
200
0.0038
454.92734
454.97284
455.01834
PPM
Volts
200
0.0018
466.92614
466.97284
467.01954
PPM
Volts
200
0.0031
480.92157
480.96967
481.01776

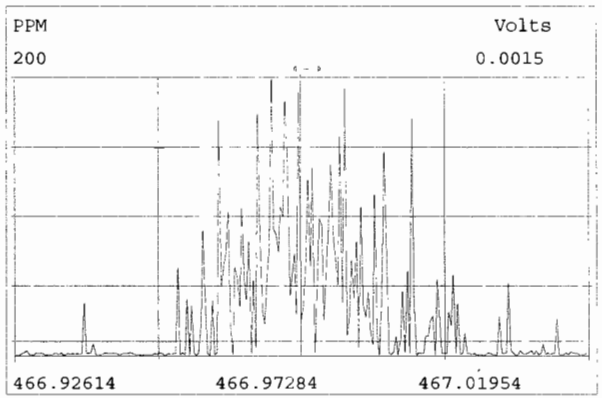
Peak Locate Examination:10-OCT-2019:06:44 File:RES_CHECK

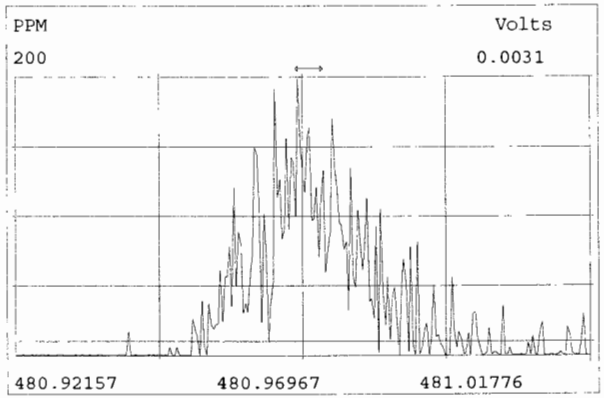
Experiment:OCDD_DB5 Function:5 Reference:PFK

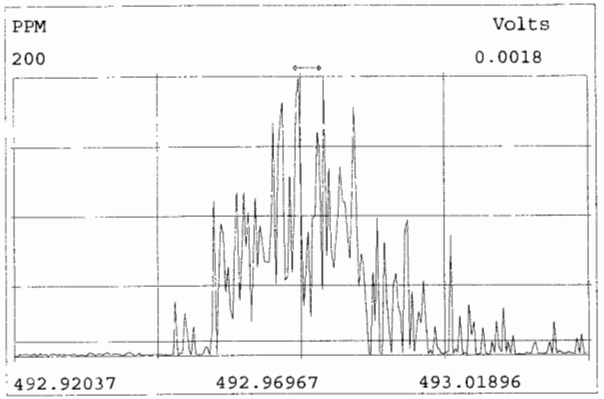


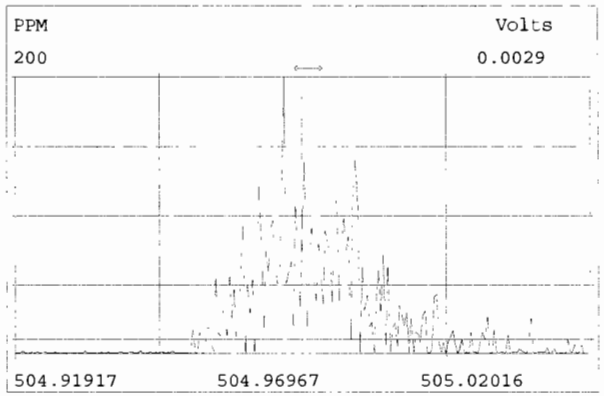


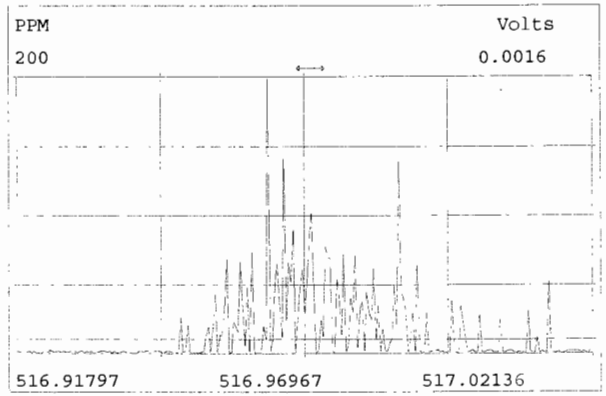












FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: SS191009D1-1

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
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 FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.72	0.65-0.89	y	100	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.64	0.54-0.72	y	101	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	95.9	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	95.6	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	94.3	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	91.7	72.0 - 138.0
13C-OCDD	M/M+2	0.92	0.76-1.02	y	190	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.78	0.65-0.89	y	97.2	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	97.4	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	96.6	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	101	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	97.1	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	99.0	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	96.6	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	102	77.0 - 129.0
13C-OCDF	M+2/M+4	0.88	0.76-1.02	y	197	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.08	7.9 - 12.7

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

(2) Ion Abundance Ratio Control Limits as specified

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

Analyst: DB

Date: 10/10/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10-9-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 191009D1 S#8 Analysis Date: 9-OCT-19 Time: 21:46:34

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

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	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	1.000	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 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	1.001	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 Filename: 191009D1 S:8 Acq: 9-OCT-19 21:46:34 ConCal: ST191009D1-4
Lab ID: SS191009D1-1 GC Column ID: ZB-5MS ICal: 1613VG7-10-9-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	8.36e+05	0.83 y	0.91	26:36	10.234			* 2.5	*
	1,2,3,7,8-PeCDD	3.38e+06	0.63 y	0.90	30:57	51.323			* 2.5	*
	1,2,3,4,7,8-HxCDD	2.55e+06	1.31 y	1.10	34:18	48.909			* 2.5	*
	1,2,3,6,7,8-HxCDD	3.09e+06	1.18 y	0.94	34:24	52.378			* 2.5	*
	1,2,3,7,8,9-HxCDD	2.83e+06	1.17 y	0.96	34:44	50.434			* 2.5	*
	1,2,3,4,6,7,8-HpCDD	2.34e+06	1.02 y	0.98	38:07	51.915			* 2.5	*
	OCDD	4.27e+06	0.92 y	0.96	41:30	105.37			* 2.5	*
	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				
IS	13C-1,2,3,7,8-PeCDD	7.29e+06	0.64 y	0.88	30:56	100.87				
IS	13C-1,2,3,4,7,8-HxCDD	4.73e+06	1.23 y	0.64	34:16	95.948				
IS	13C-1,2,3,6,7,8-HxCDD	6.28e+06	1.25 y	0.86	34:24	95.558				
IS	13C-1,2,3,7,8,9-HxCDD	5.85e+06	1.26 y	0.81	34:43	94.306				
IS	13C-1,2,3,4,6,7,8-HpCDD	4.61e+06	1.06 y	0.65	38:06	91.680				
IS	13C-OCDD	8.45e+06	0.92 y	0.58	41:29	189.68				
IS	13C-2,3,7,8-TCDF	1.26e+07	0.78 y	1.03	25:52	97.199				
IS	13C-1,2,3,7,8-PeCDF	1.04e+07	1.62 y	0.85	29:48	97.425				
IS	13C-2,3,4,7,8-PeCDF	1.03e+07	1.59 y	0.85	30:41	96.649				
IS	13C-1,2,3,4,7,8-HxCDF	6.55e+06	0.51 y	0.83	33:22	102.43				
IS	13C-1,2,3,6,7,8-HxCDF	8.06e+06	0.51 y	1.03	33:30	101.42				
IS	13C-2,3,4,6,7,8-HxCDF	7.11e+06	0.51 y	0.95	34:08	97.073				
IS	13C-1,2,3,7,8,9-HxCDF	6.30e+06	0.51 y	0.83	35:09	98.999				
IS	13C-1,2,3,4,6,7,8-HpCDF	5.62e+06	0.43 y	0.76	36:57	96.588				
IS	13C-1,2,3,4,7,8,9-HpCDF	4.58e+06	0.44 y	0.58	38:42	102.46				
IS	13C-OCDF	1.04e+07	0.88 y	0.69	41:44	196.65				
C/Up	37Cl-2,3,7,8-TCDD	8.91e+05		1.20	26:36	9.0817				
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				

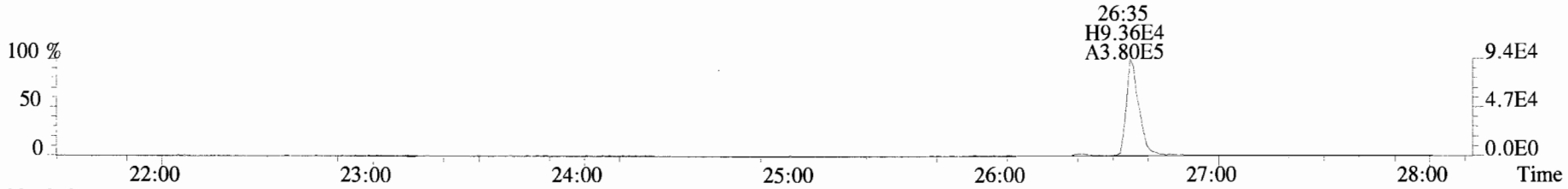
Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	10.4	11.4		*	*
Total Penta-Dioxins	51.4	51.7		*	*
Total Hexa-Dioxins	153	153		*	*
Total Hepta-Dioxins	53.5	54.4		*	*
Total Tetra-Furans	10.7	11.4		*	*
Total Penta-Furans	110.38	111.73		*	*
Total Hexa-Furans	205	207		*	*
Total Hepta-Furans	104	106		*	*

	Rec	Qual
IS	100	
IS	101	
IS	95.9	
IS	95.6	
IS	94.3	
IS	91.7	
IS	94.8	
IS	97.2	
IS	97.4	
IS	96.6	
IS	102	
IS	101	
IS	97.1	
IS	99.0	
IS	96.6	
IS	102	
IS	98.3	
C/Up	90.8	

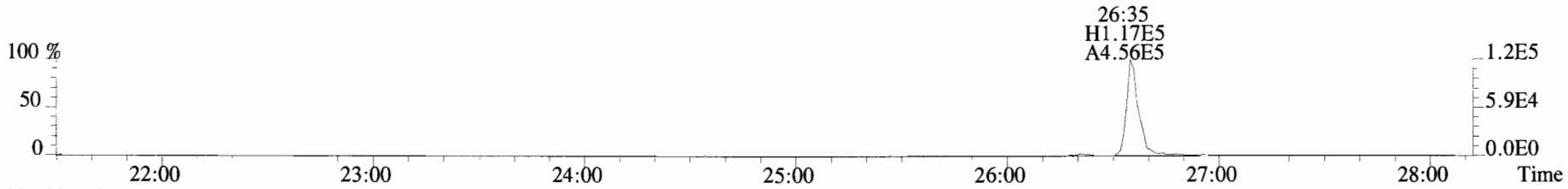
Integrations by Analyst: DB Date: 10/10/19

Reviewed by Analyst: CT Date: 10/10/19

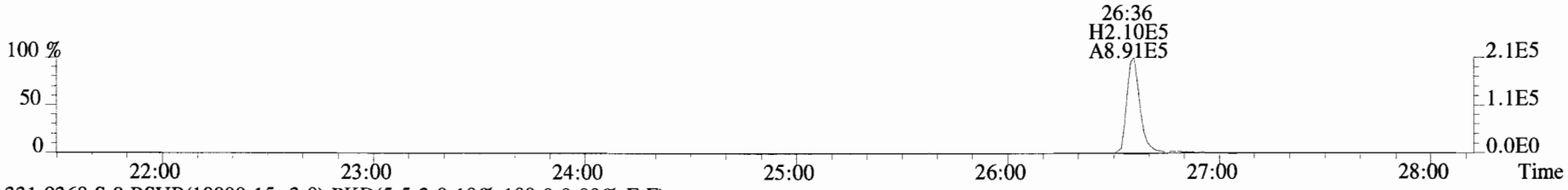
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



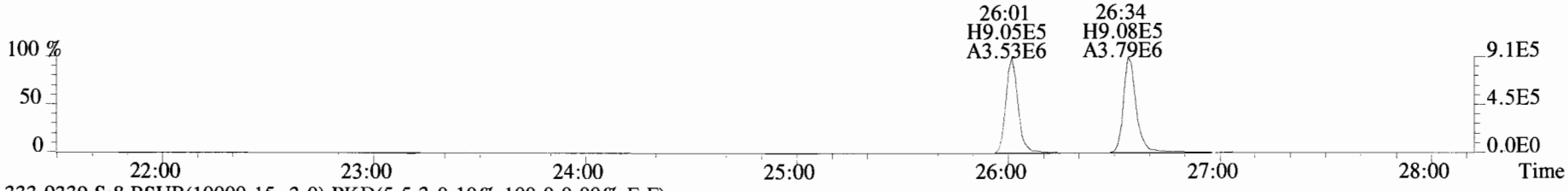
321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



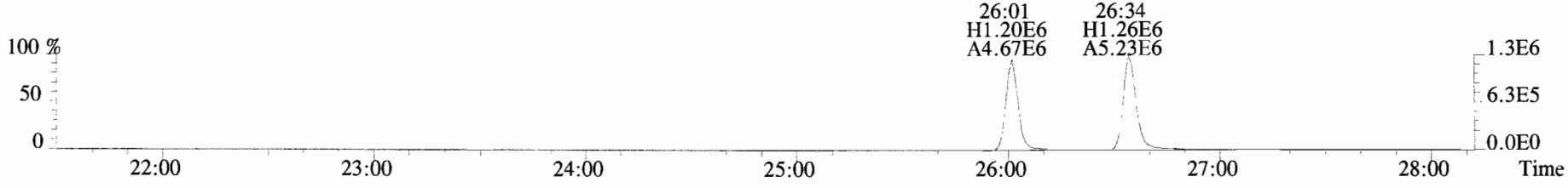
327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



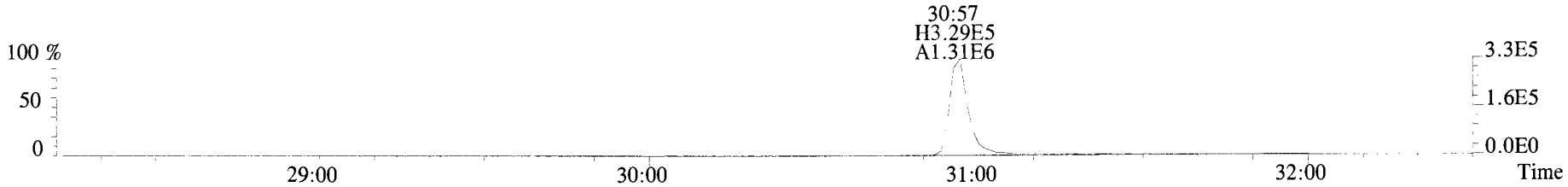
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



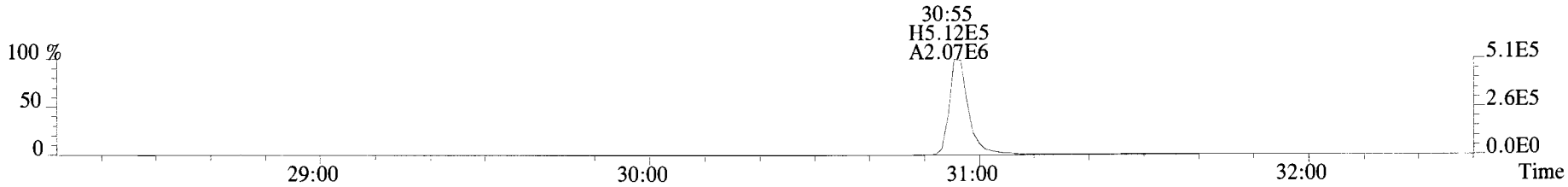
333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



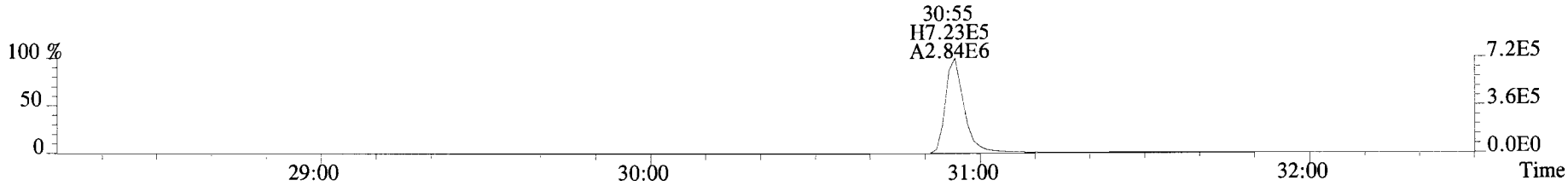
File:191009D1 #1-210 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



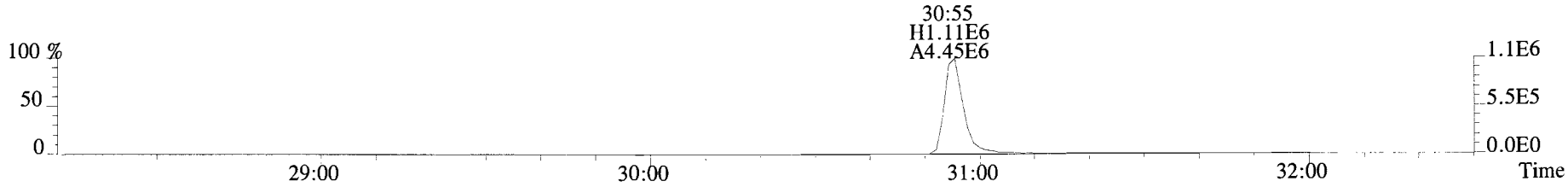
355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



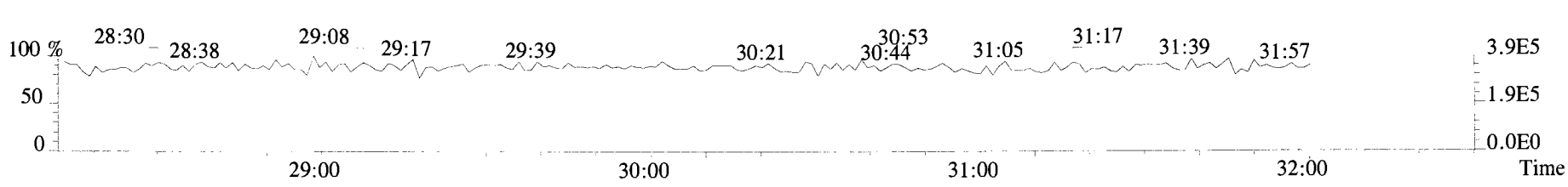
365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



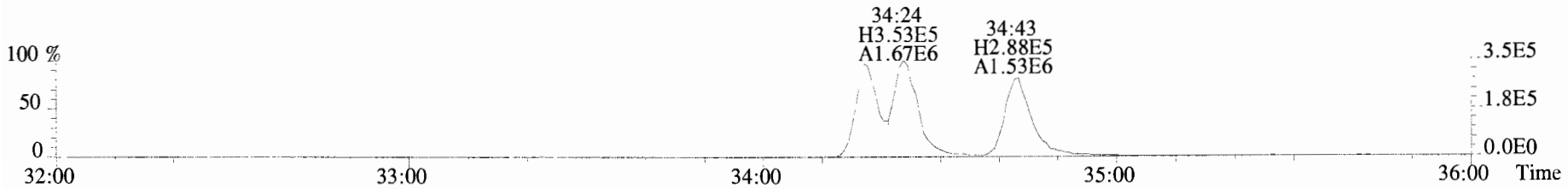
367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



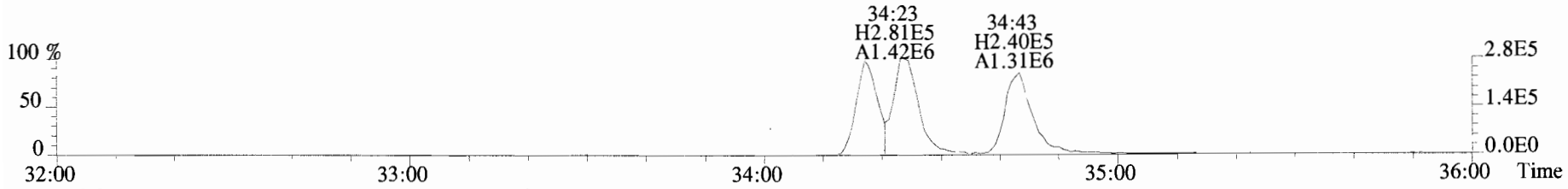
366.9792 S:8 F:2



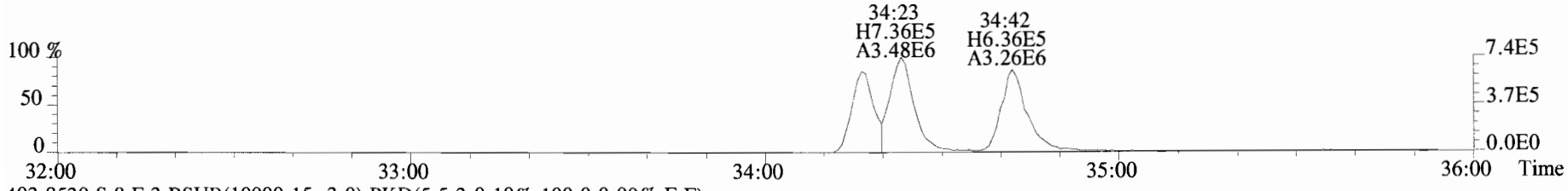
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



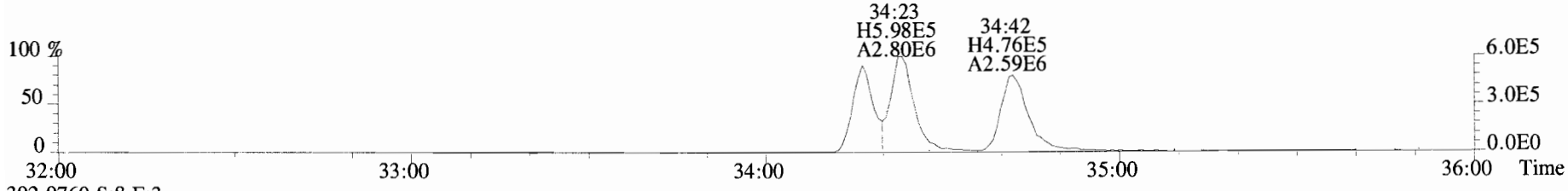
391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



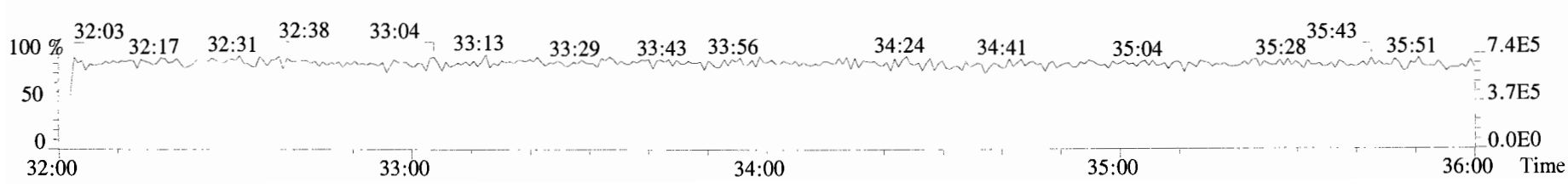
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



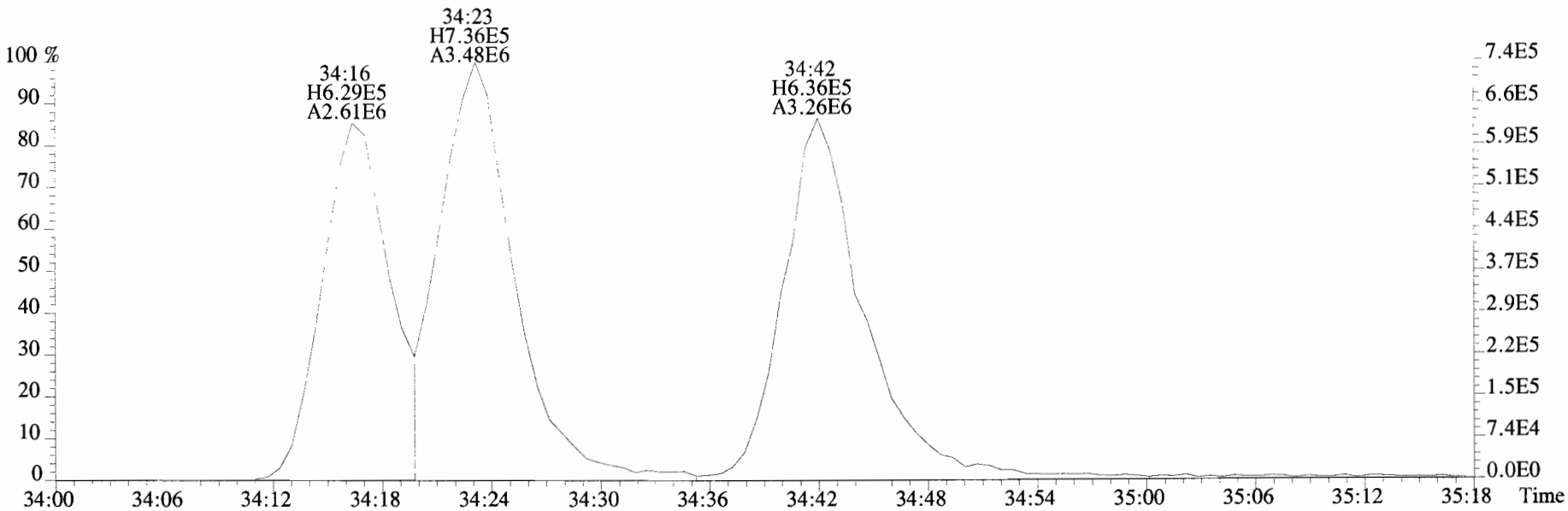
403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



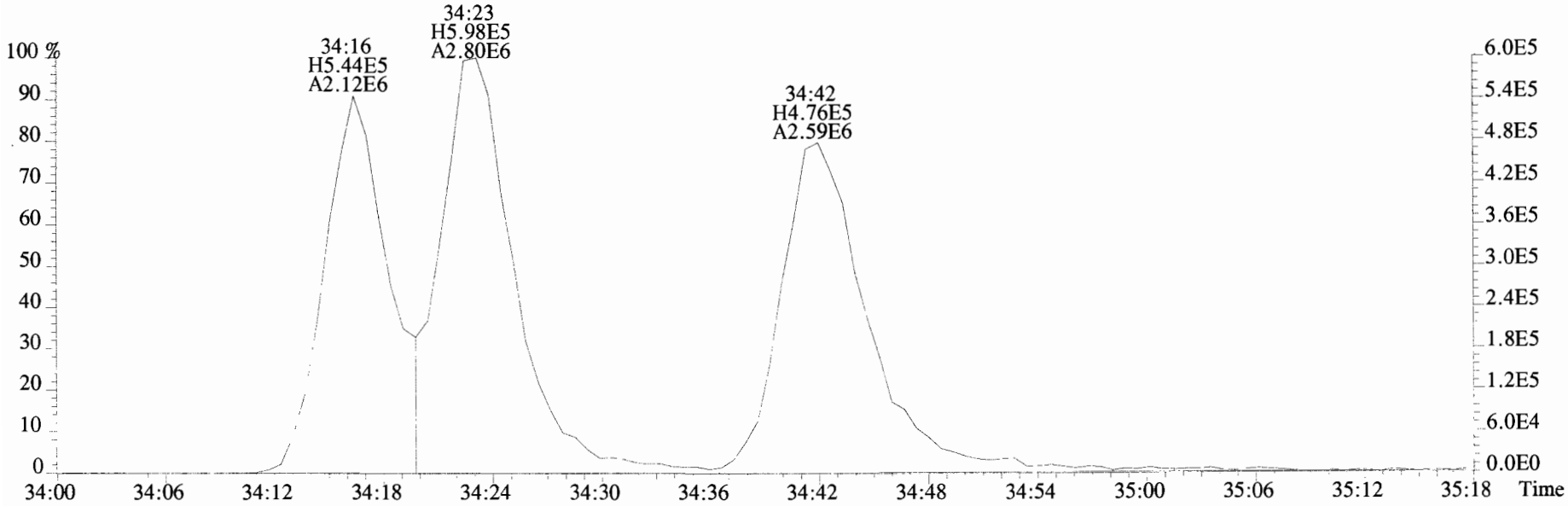
392.9760 S:8 F:3



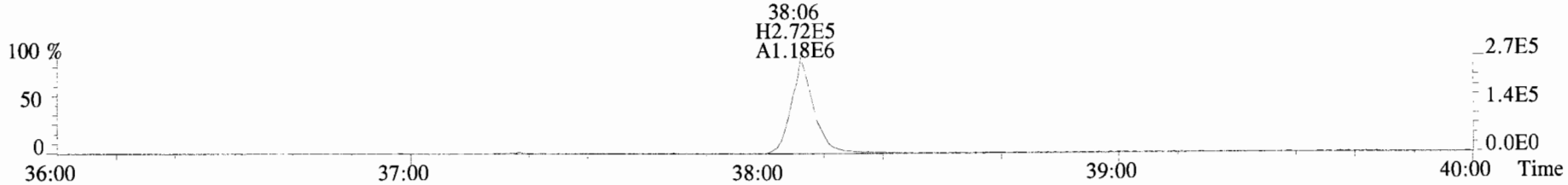
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



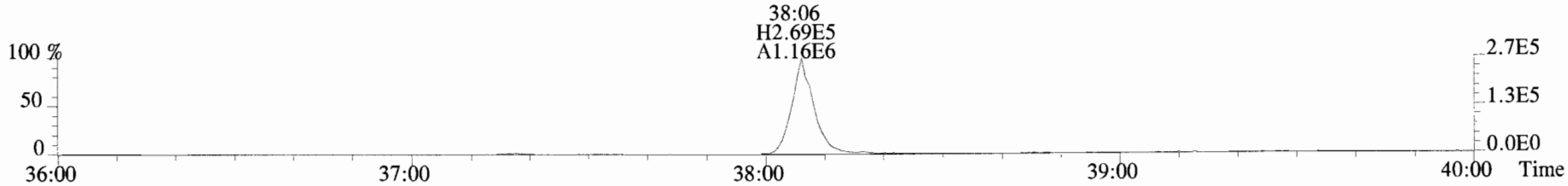
403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



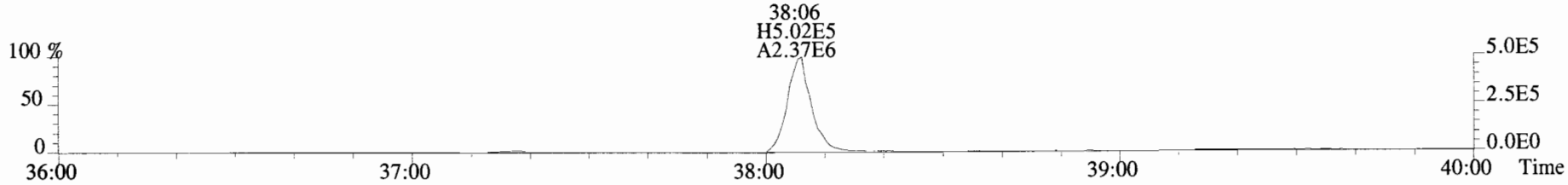
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



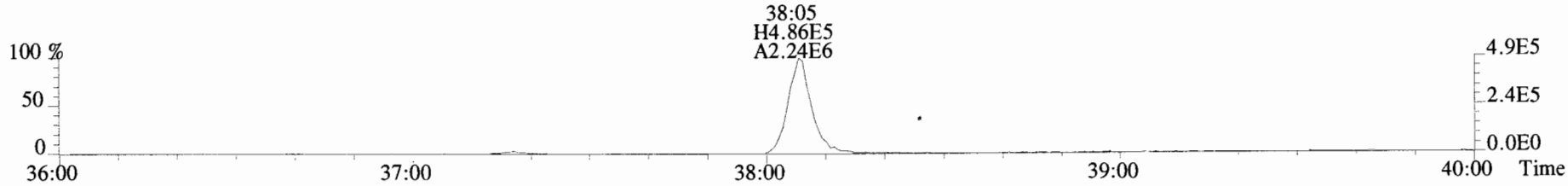
425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



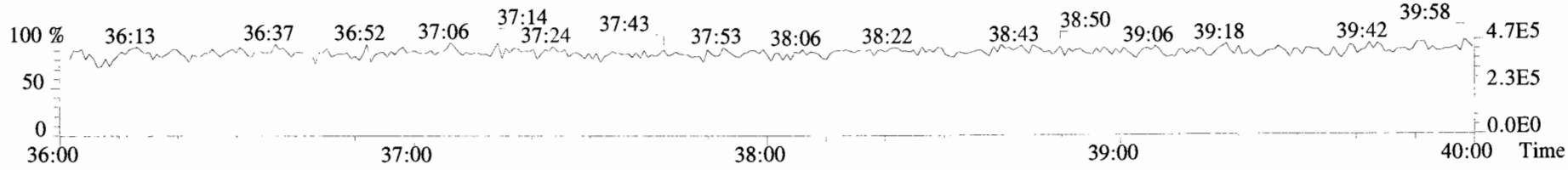
435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



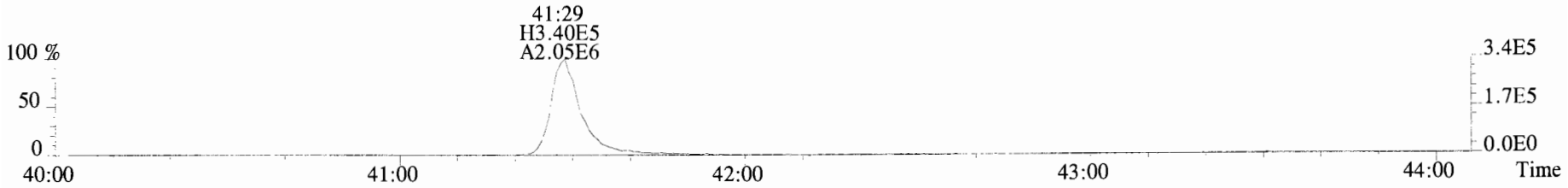
437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



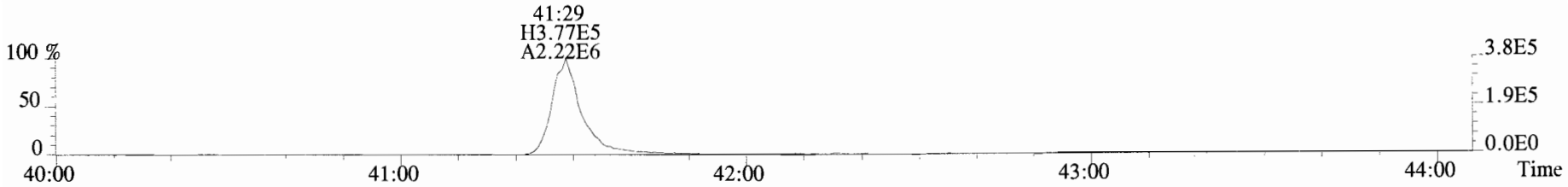
454.9728 S:8 F:4



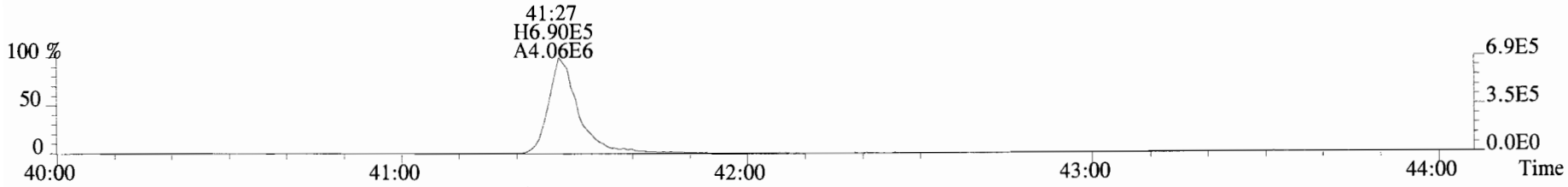
File:191009D1 #1-431 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



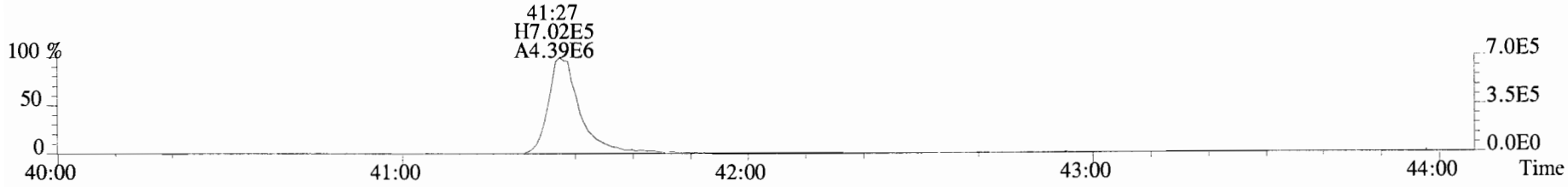
459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



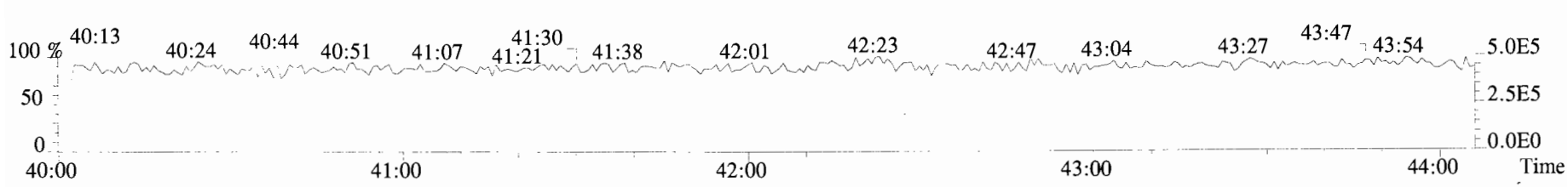
469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



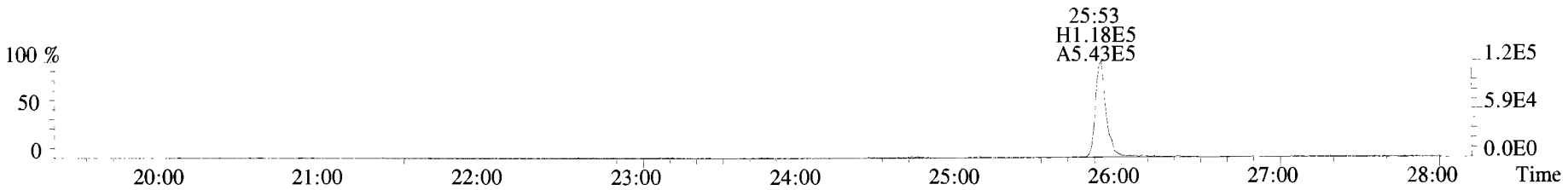
471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



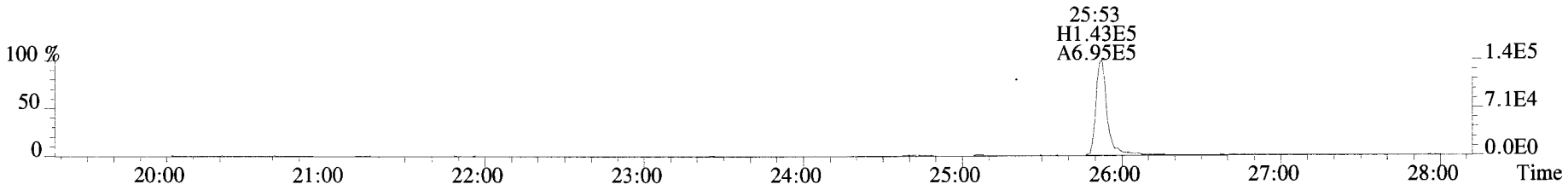
454.9728 S:8 F:5



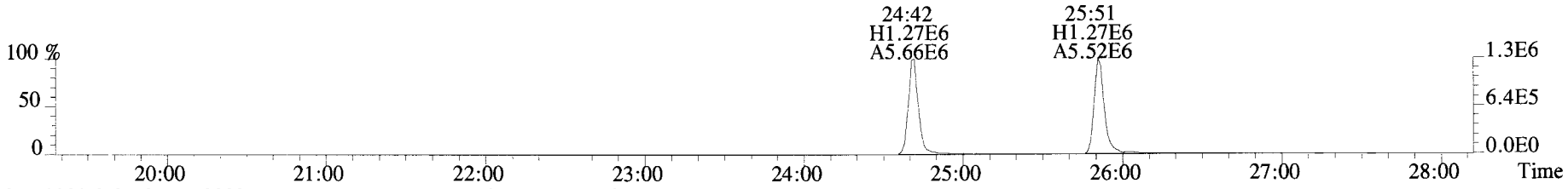
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



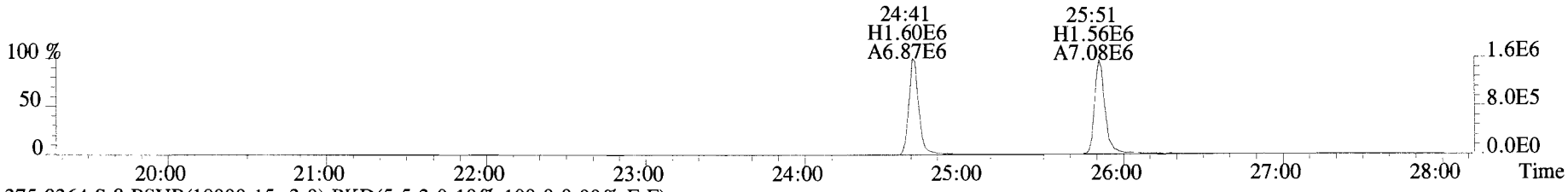
305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



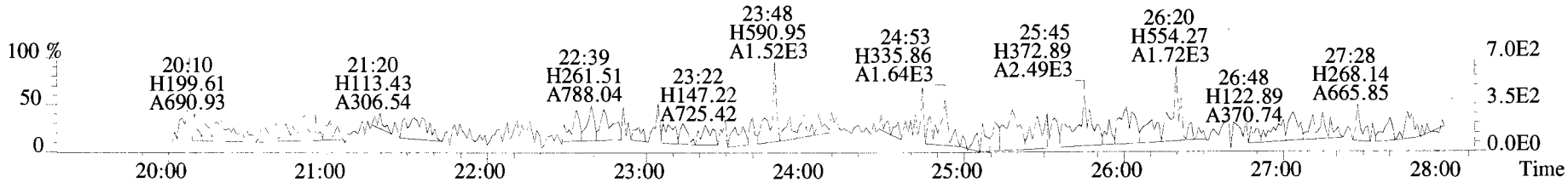
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



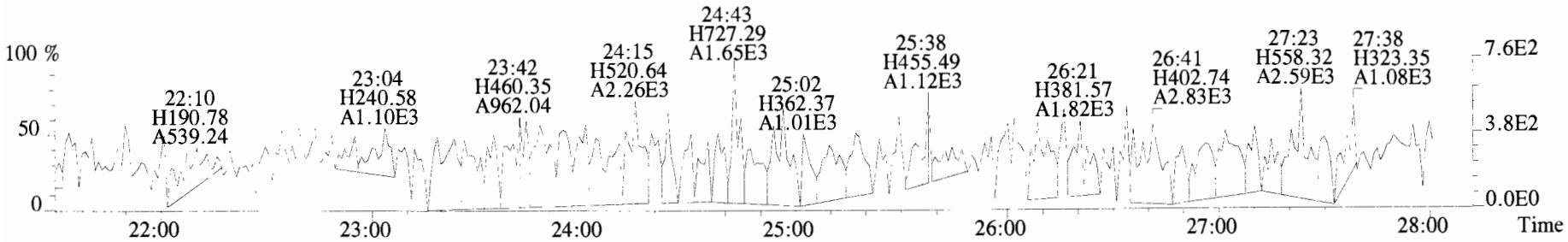
317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



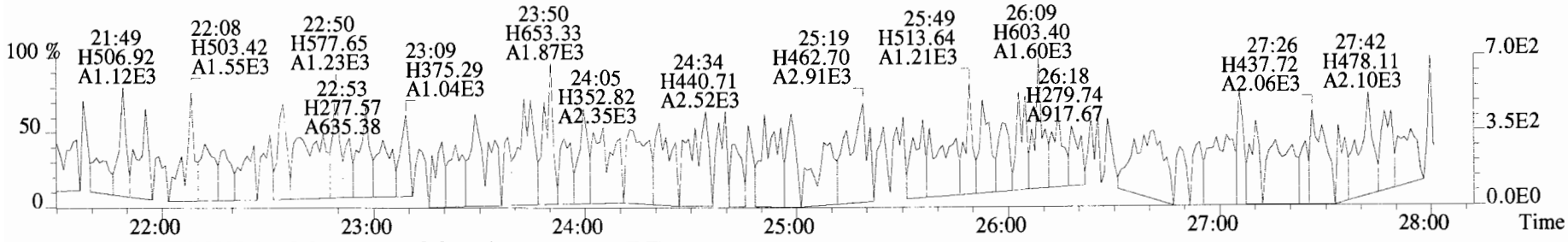
375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



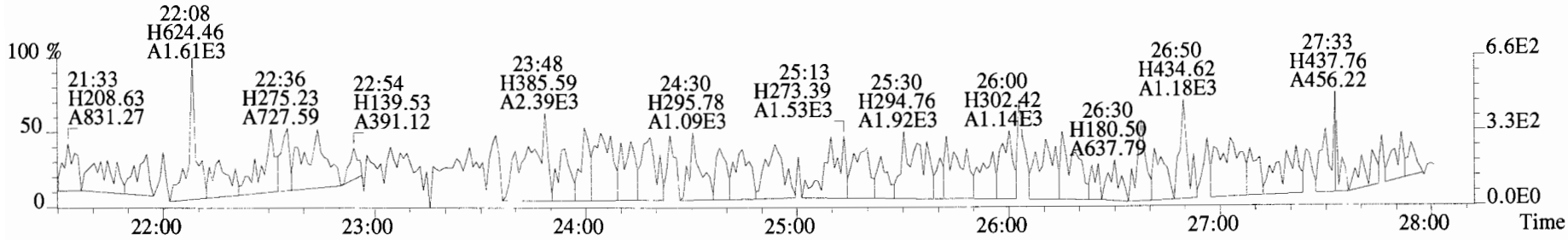
File:191009D1 #1-514 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



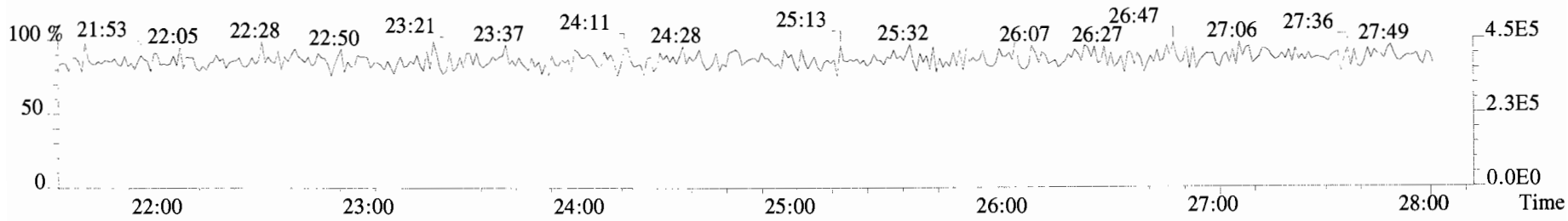
341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



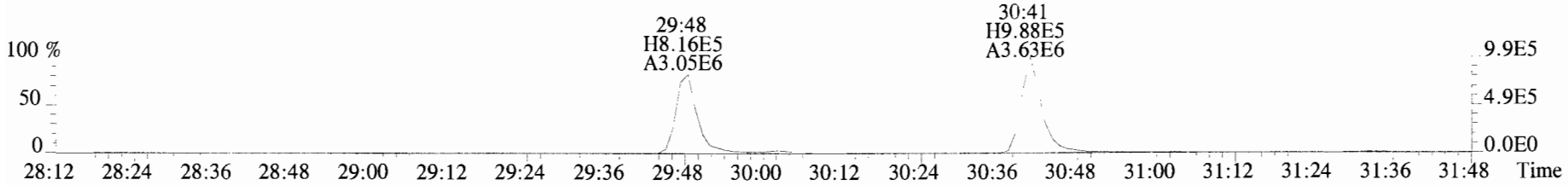
409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



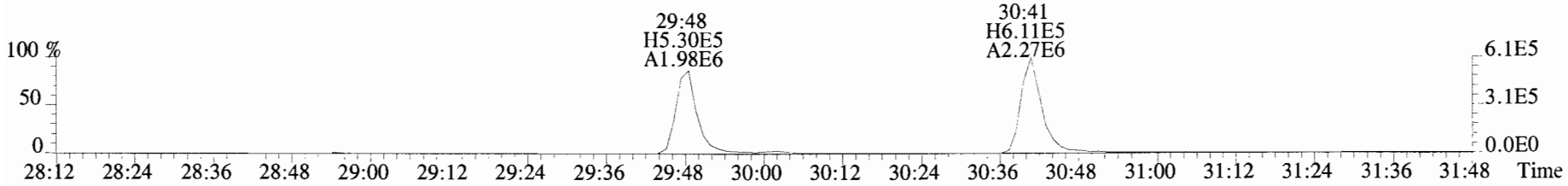
316.9824 S:8



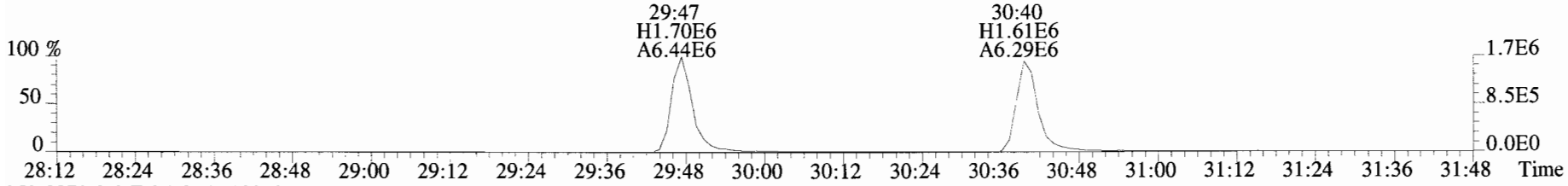
File:191009D1 #1-210 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



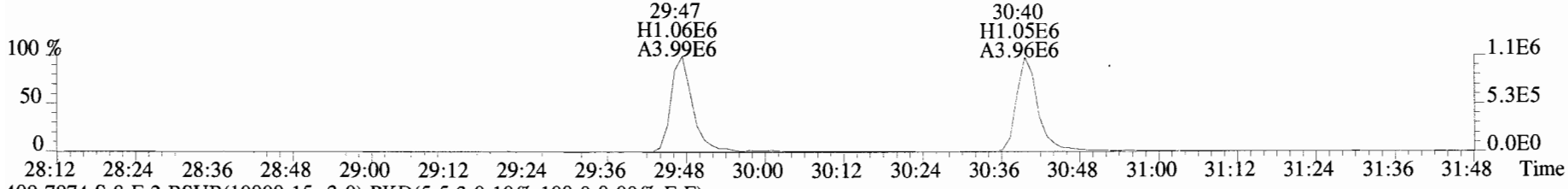
341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



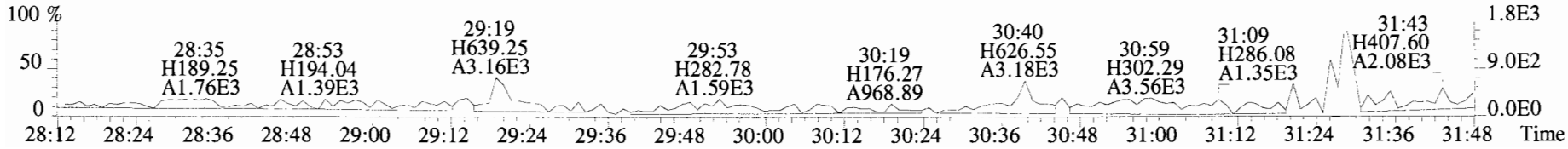
351.9000 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



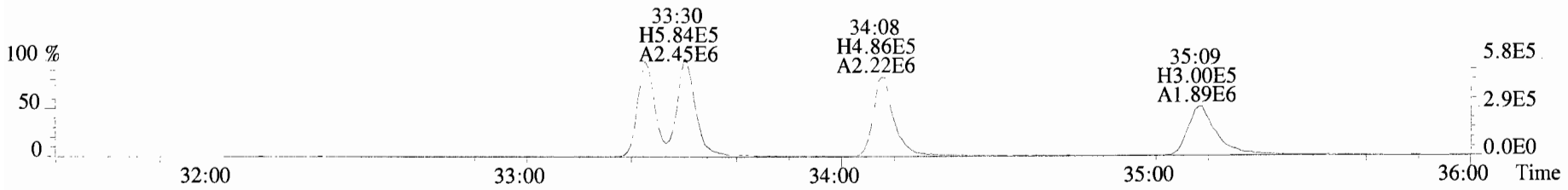
353.8970 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



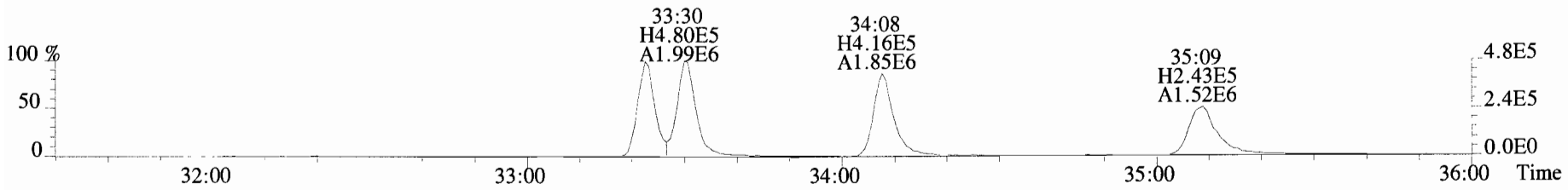
409.7974 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



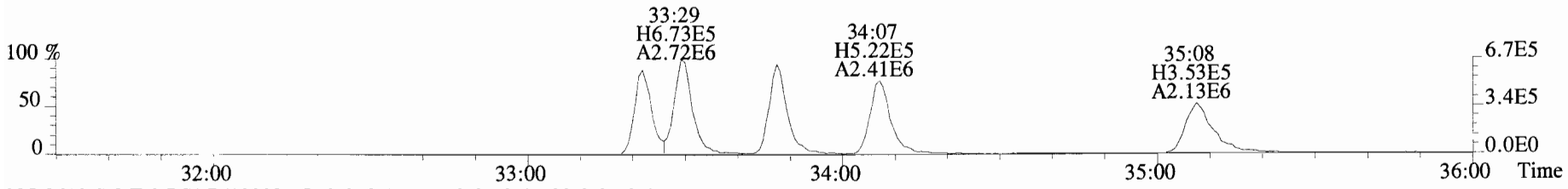
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



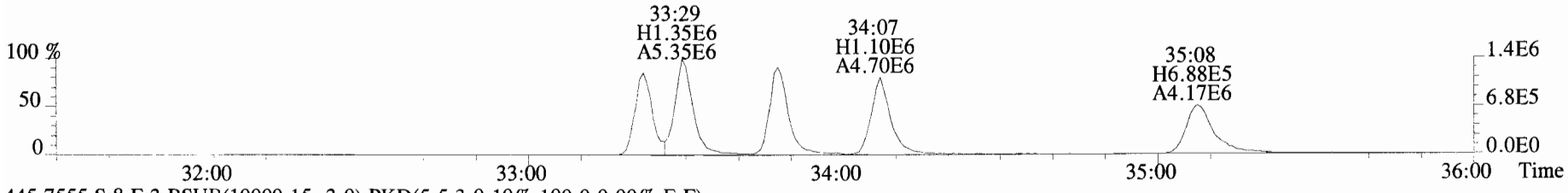
375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



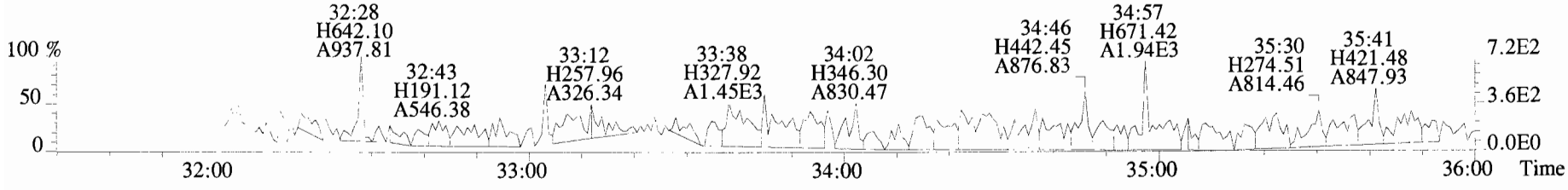
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



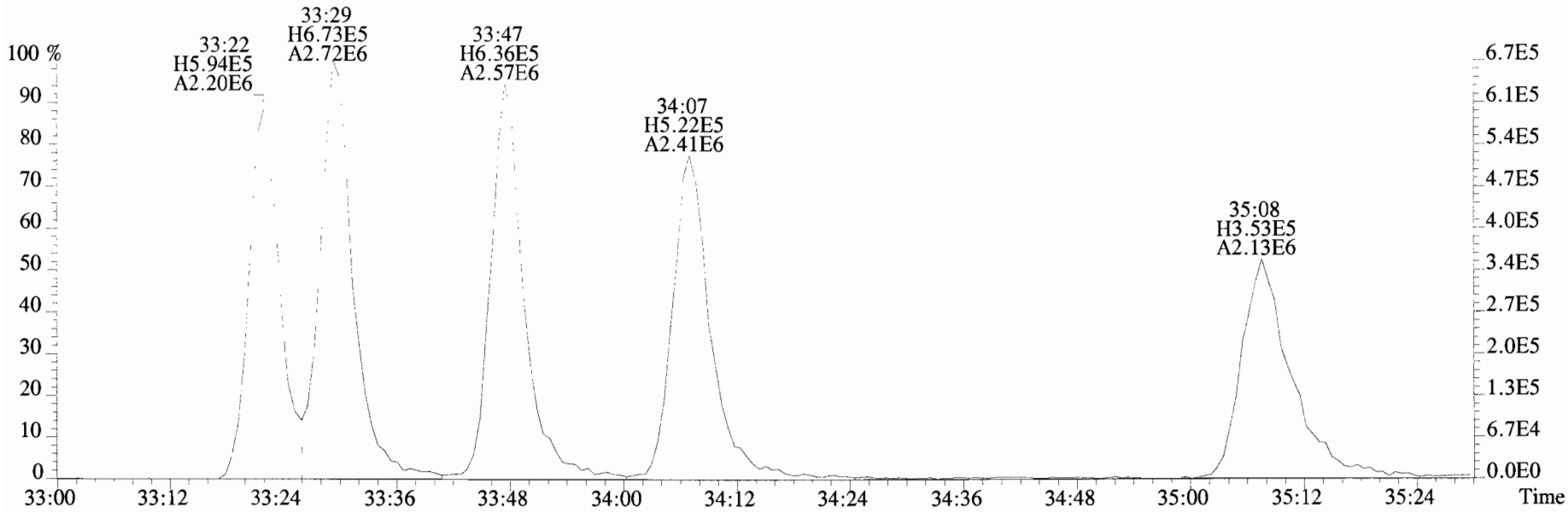
385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



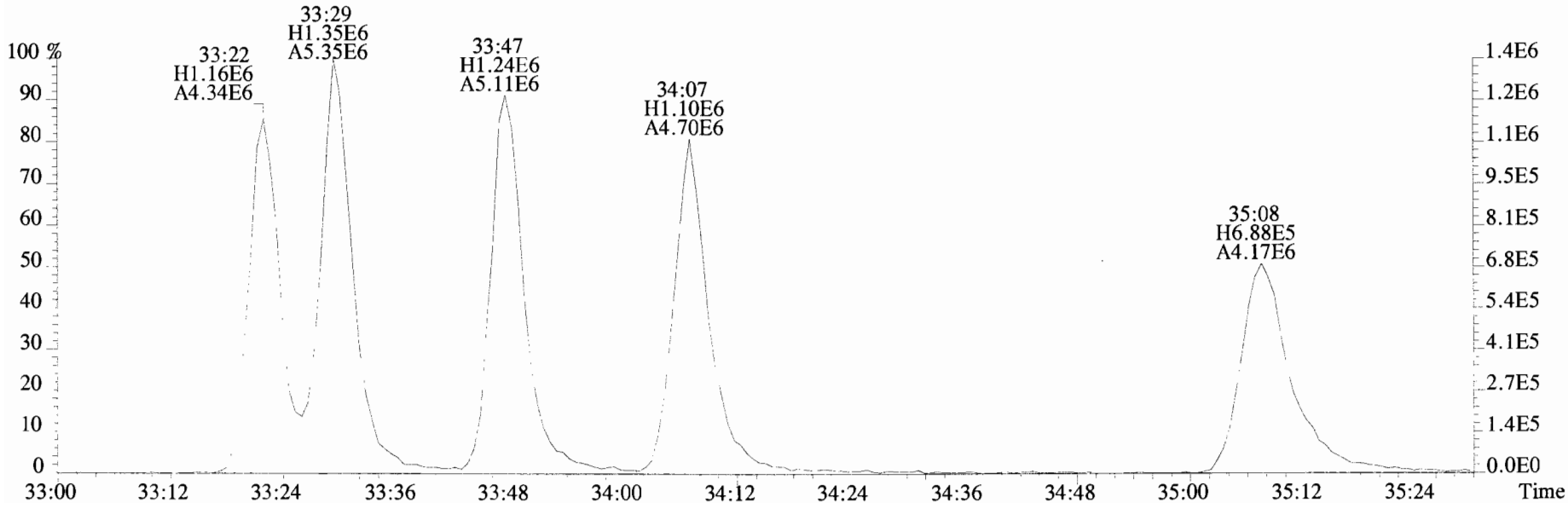
445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



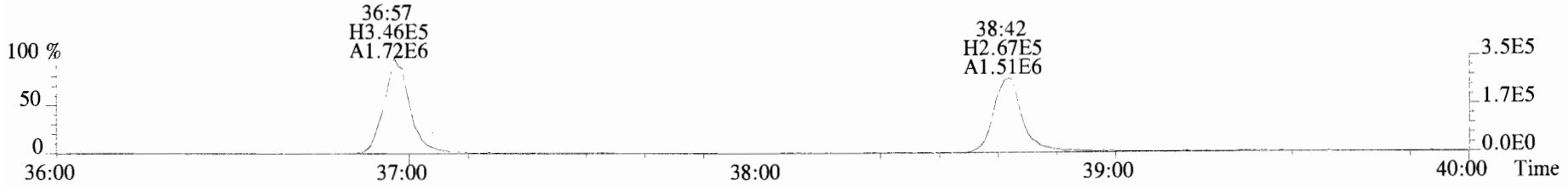
File:191009D1 #1-355 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



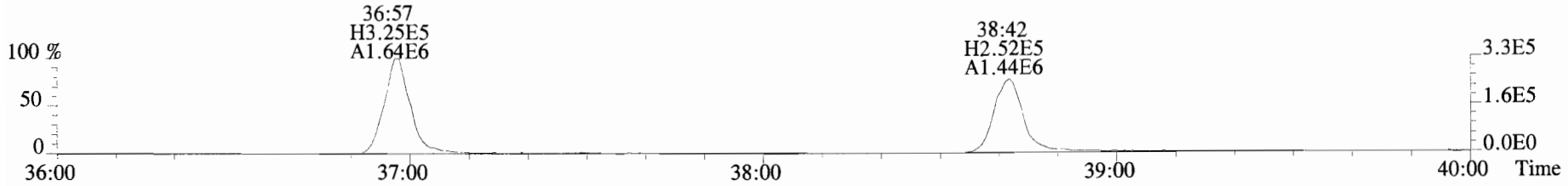
385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



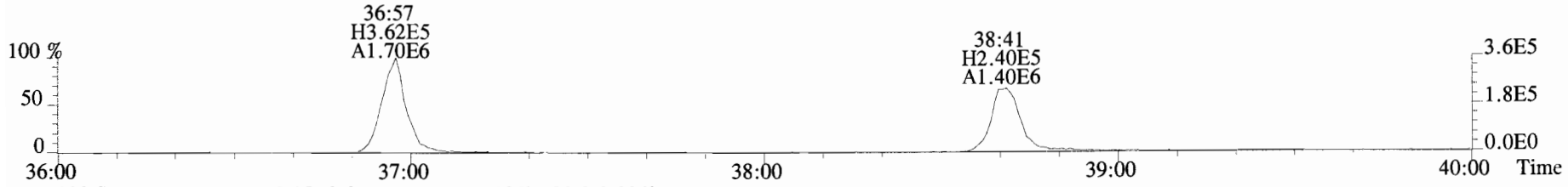
File:191009D1 #1-356 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



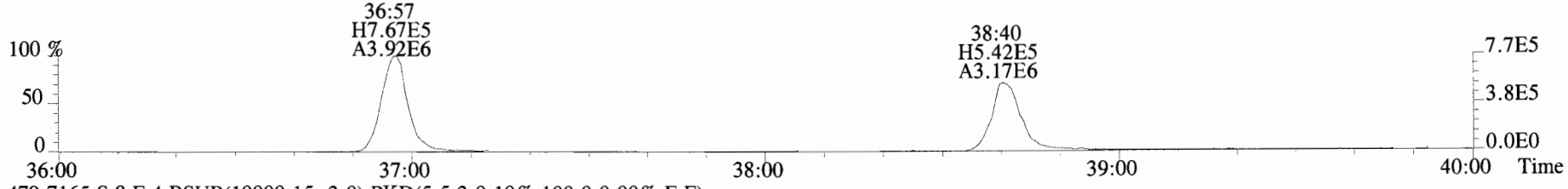
409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



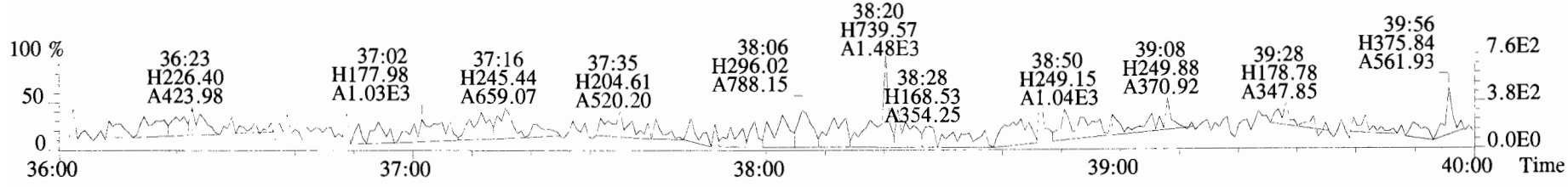
417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



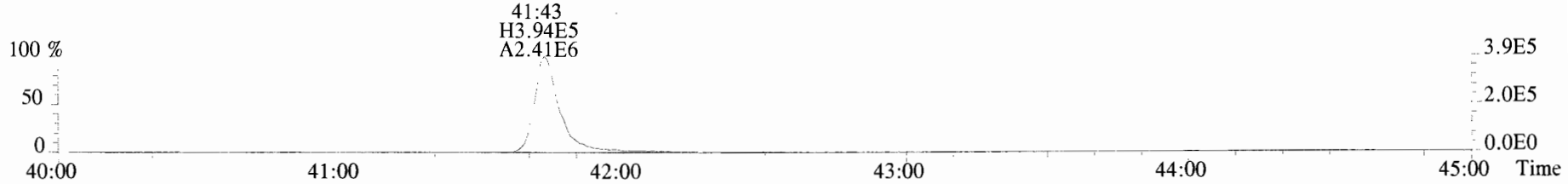
419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



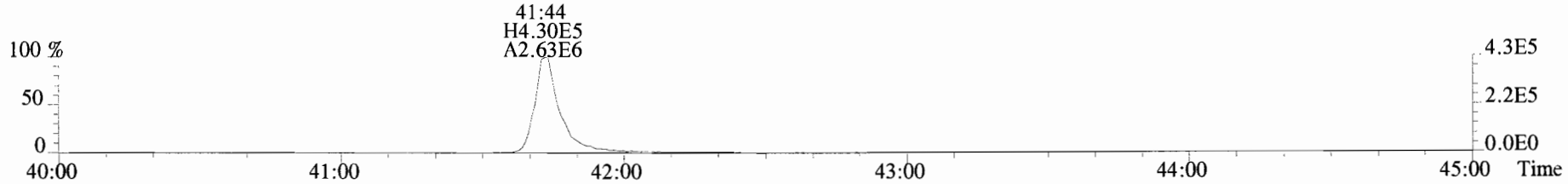
479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



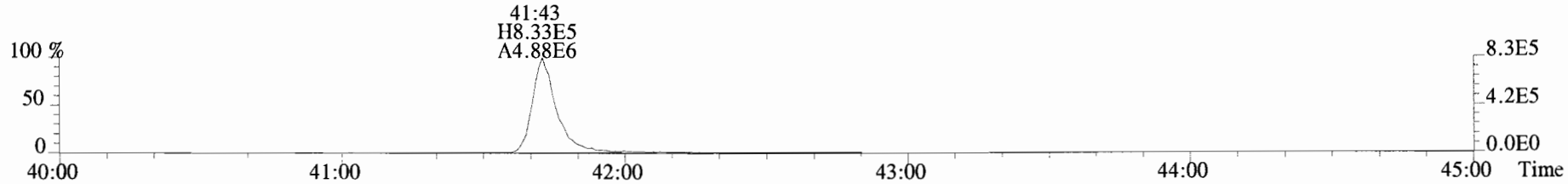
File:191009D1 #1-431 Acq: 9-OCT-2019 21:46:34 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS191009D1-1 1613 SSS 19C2207 Exp:OCDD_DB5
441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



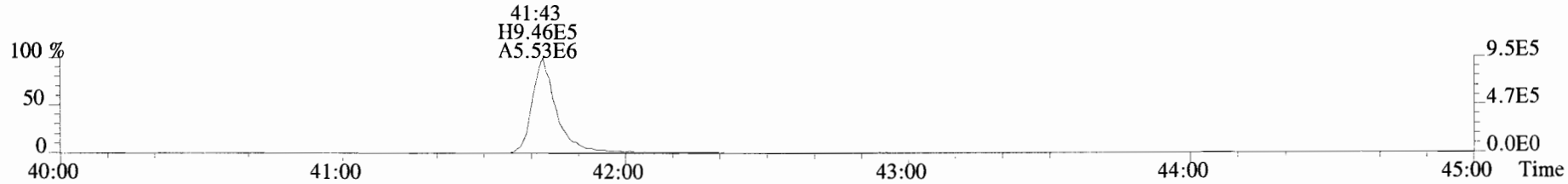
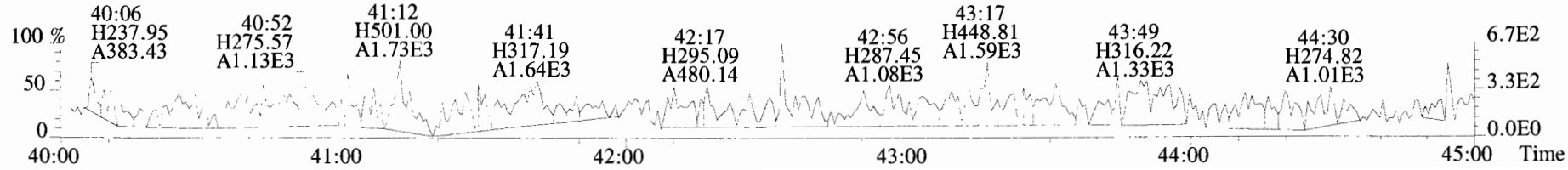
443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)



513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)