Port of Seattle
Lora Lake Apartments Site

Remedial Investigation/ Feasibility Study

Volume II

Appendix G
Lora Lake Parcel
Remedial Investigation Data Report

Attachment G.3
Laboratory Analytical Data Reports

FINAL

DIOXIN/FURAN ANALYTICAL METHODS AND REPORTING LIMIT DEFINITIONS

Frontier Analytical Laboratories analyzed soil, groundwater, and sediment samples collected as part of the Lora Lake Apartments Remedial Investigation and Feasibility Study (RI/FS) for dioxins/furans using U.S. Environmental Protection Agency (USEPA) Method 1613.

Currently, there are eight analytical methods that are routinely used for the determination of dioxins and furans. Of those, USEPA Methods 8290 and 1613 are fine-scale analytical methods comparable in the quality of analysis and results.[1] Both employ high resolution gas chromatography/high-resolution mass spectrometry processes that provide test results as low as parts per trillion (ppt) for solid samples and parts per quadrillion (ppq) for aqueous samples.

Analytical requirements for dioxins/furans are unique compared to other routinely monitored contaminants. Because dioxins/furans are toxic at much lower concentrations than other contaminants and dioxin/furan analysis requires speciation of many congeners, the analytical requirements are far more sophisticated and sensitive. For instance, most contaminants are commonly measured in parts per million (ppm) and parts per billion (ppb) whereas dioxins/furans are commonly measured in ppt and ppq. Stable isotopically labeled analogs of the target compounds are used to determine exact retention times and to correct targets for recovery, providing a more analytically precise value for the dioxins/furans than most other analyte groups.

USEPA Method 1613 defines three analytical limits for dioxin/furan analysis that are critical to the evaluation of the reported data and assessment of data quality. The Minimum Limit (ML) is the highest (least fine scale) limit, the Detection Limit (DL) is a mid-range limit, and the Method Detection Limit (MDL) is the lowest (finest scale) limit (refer to Figure 1). These limit definitions have significant importance in the calculation of dioxin/furan toxic equivalency quotients (TEQs), as discussed below.

The MDL is defined as “The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the value is above zero and is determined from analysis of a sample in a given matrix type containing the analyte.” (USEPA SW-846).[2] Therefore, there is a statistically valid 99 percent probability that any analyte observed greater than the MDL is, indeed, present in the sample. The USEPA has established the MDL as a reporting threshold. By laboratory and USEPA

[1] The primary differences in these methods are analyte recovery limits, internal standards, and sample holding times (described in detail in the Lora Lake Apartments RI/FS Work Plan). USEPA Method 1613 was selected to analyze the Lora Lake Apartments Site RI samples to take advantage of the method holding time of 1 year (in contrast to the USEPA Method 8290 holding time of 30 days). The longer holding time made it possible to follow the tiered dioxin/furan soil analysis approach described in the Lora Lake Apartments RI/FS Work Plan (Floyd|Snider 2010).

[2] The MDL is a statistically calculated value, and for operational purposes the USEPA states that when it is necessary to determine the MDL in a matrix, the MDL should be determined by multiplying the appropriate one-sided 99 percent t-statistic by the standard deviation obtained from a minimum of three analyses of matrix spike containing the analyte of interest at a concentration three to five times the estimated MDL, where the t-statistic is obtained from standard references or as described in Chapter 1 of SW-846 (USEPA 1992).

standards and industry convention, the analyte is considered “not present” even if a measured value less than this level is reported by the analytical process.

For USEPA Method 1613 the term Minimum Limit is used to represent the lowest point of calibration on the instrument or lowest standard. Minimum requirements for the MLs for dioxin/furan congeners are specified in the method. The ML is equivalent to a “reporting limit” (RL) as that term is used for other analytical methods (e.g., USEPA Method 6010 for metals or USEPA Method 8290 for semivolatile organic compounds). MLs and RLs are equivalent, and, in common practice are used interchangeably to refer to the lowest concentration of an analyte that the laboratory will routinely report or can reliably measure within specified control limits. Detected concentrations greater than or equal to the ML are quantified with a known and acceptable level of precision and accuracy.

MDLs and RLs are terms used to define analytical process limits used consistently across various analytical methods. USEPA Method 1613 dioxin/furan analysis also uses the term Detection Limit or DL. The DL is a “real response” that is based on the method-specific minimum signal-to-noise ratio for each congener, for each analysis run. The DL represents the sample- and matrix-specific level at which a congener can be detected. The DL level or concentration is greater than the MDL, but less than the ML. By definition, to designate a positive detection of an analyte, the analyte concentration must be measured at more than the method-specific minimum signal-to-noise ratio. A positive detection greater than the MDL and less than the ML is given a “J” qualifier to indicate that the analyte or congener was positively identified, but that the concentration was estimated because the precision and accuracy of the result is unknown at this low level. For USEPA Method 1613, the DL is effectively equivalent to the Estimated Detection Limit or EDL used for USEPA Method 8290. An EDL is often still calculated for USEPA Method 1613, per the Contract Laboratory Program requirements.

Given these definitions of analytical limits used for USEPA Method 1613, the common term “non-detect” or “non-detected” means that the analyte measurement was less than the MDL, where potential instrument responses are within the background noise associated with the equipment and analyses. When calculating dioxin/furan TEQ concentrations, non-detect congeners may be assigned a value of one-half of the DL, (WSDOE 2007) or may be assigned “zero.” Because dioxins/furans are toxic at very low concentrations, the approach of assigning one-half of the DL for non-detected congeners or setting non-detect compounds to zero for the calculation of dioxin/furan TEQ concentrations is important in evaluating environmental data. Risk-based cleanup levels are often at low levels that may be near or less than the DLs.

REFERENCES

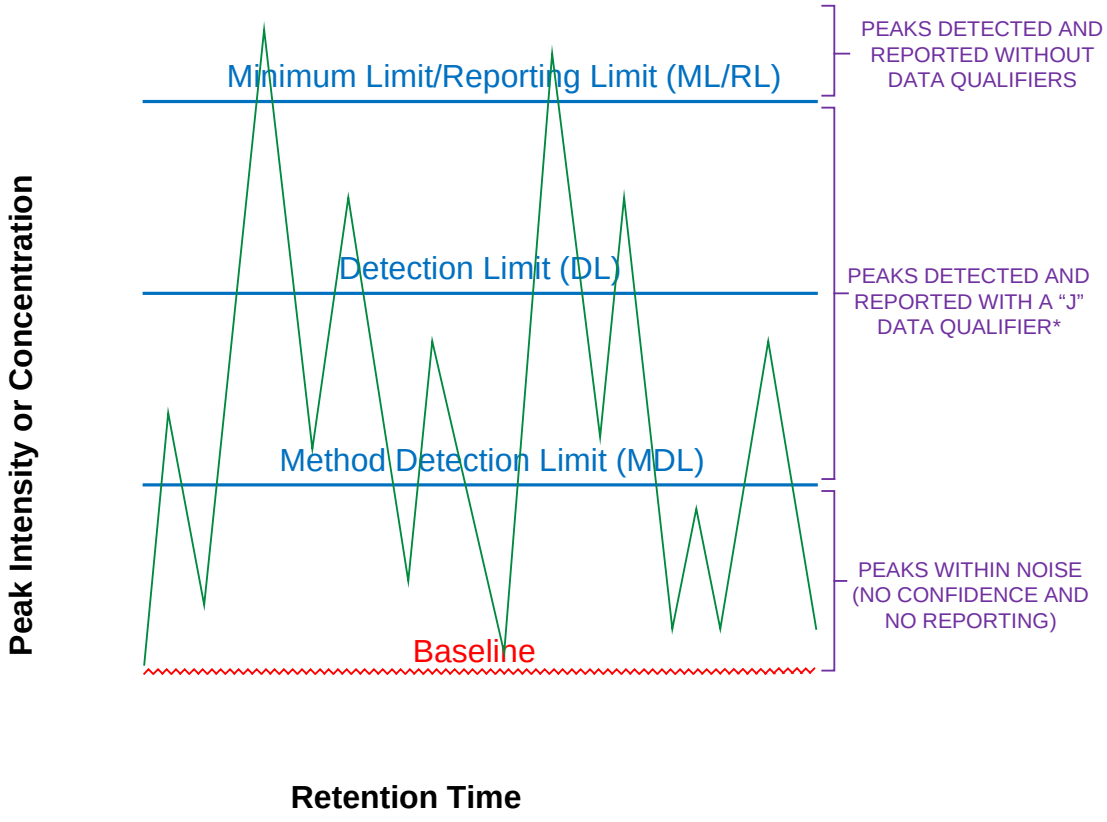
Floyd|Snider. 2010. *Lora Lake Apartments Final Remedial Investigation/Feasibility Study Work Plan*. Prepared for Port of Seattle. 30 July.

U.S. Environmental Protection Agency (USEPA). 1992. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*. Third Edition. Chapter 1.

http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm. Last accessed on November 29, 2011.

Washington State Department of Ecology (WSDOE). 2007. *Concise Explanatory Statement and Responsiveness Summary for the Amendment of Chapter 173-340 WAC, Model Toxics Control Act Cleanup Regulation*. Publication Number 07-09-108. October.

Figure



Note:

* "J" qualifier indicated that the analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

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Remedial Investigation/ Feasibility Study
Port of Seattle
Lora Lake Apartments Site
Burien, Washington

Attachment G.3
Figure 1
USEPA Method 1613
Analytical Limits

Laboratory Reports

Table of Contents: ARI Job SN54

Client: Floyd Snider

Project: POS-LL Lora Lake - Subsurface Sediment

3C
Signature

March-24-2011
Date

FRONTIER
ANALYTICAL LABORATORY

May 10, 2011

Ms. Sue Dunnihoo
Analytical Resources Incorporated
4611 South 134th Place
Tukwila, WA 98168-3240

Dear Ms. Dunnihoo,

Enclosed are the results for Frontier Analytical Laboratory project **6733**. This corresponds to your **Lora Lake Parcel** project under ARI project number **SS71**. Nineteen soil samples were received on 4/22/2011 in good condition. These samples were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. In addition, a matrix spike and matrix spike duplicate (MS/MSD) were performed on sample 6733-009-SA (ARI ID: LL-SB4-2-4-041911). The 2005 World Health Organizations toxic equivalency factors (TEFs) were used to calculate the toxic equivalents (TEQ) on your report. Analytical Resources Incorporated requested a Level IV data package and a turnaround time of fifteen business days for project **6733**.

The following Level IV report consists of an Analytical Data section, a Sample Receipt section, a Laboratory Raw Data section, and an Instrument Raw Data section. The Analytical Data section contains our project-sample tracking log and the analytical results. The Sample Receipt section contains your chain of custodies, our sample login form and the sample photos. The Laboratory Raw Data section contains our project request sheet, a percent solids sheet, an extraction bench sheet and the cleanup bench sheet. The instrument raw data section contains three sub-sections; the sample results section, the initial calibration section and the continuing/ending calibration section. The sample results sub-section consists of the quantitation summary forms with chromatograms for all samples and QC. The initial calibration sub-section consists of the individual quantitation summary forms and chromatograms for each point of the initial calibration curve as well as an overall quantitation summary form of the initial calibration curve. The continuing/ending calibration sub-section consists of the quantitation summary forms and chromatograms for all beginning and ending calibration injections associated with the samples and QC. You also requested Electronic Data Deliverables (EDD) for this project. The EDD and Level I summary have been sent to you via email. The Level IV report has been sent to you on compact disk. A hardcopy of the data package will not be forwarded unless specifically requested. The attached results are specifically for the samples referenced in this report only. These results meet all NELAC requirements and shall not be reproduced except in full.

If you have any questions regarding project **6733**, please feel free to contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Bradley B. Silverbush
Director of Operations

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: **6733**

Received on: **04/22/2011** Project Due: **05/16/2011** Storage: **R2**

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
6733-001-SA	0	SS71	LL-SB6-0-0.5-041811	EPA 1613 D/F	Soil	04/18/2011	02:50 pm	04/17/2012
6733-002-SA	0	SS71	LL-SB6-1.5-2-041811	EPA 1613 D/F	Soil	04/18/2011	03:05 pm	04/17/2012
6733-003-SA	0	SS71	LL-SB6-2-4-041811	EPA 1613 D/F	Soil	04/18/2011	03:15 pm	04/17/2012
6733-004-SA	0	SS71	LL-SB5-0-0.5-041811	EPA 1613 D/F	Soil	04/18/2011	04:00 pm	04/17/2012
6733-005-SA	0	SS71	LL-SB5-1.5-2-041811	EPA 1613 D/F	Soil	04/18/2011	04:15 pm	04/17/2012
6733-006-SA	0	SS71	LL-SB5-2-4-041811	EPA 1613 D/F	Soil	04/18/2011	04:30 pm	04/17/2012
6733-007-SA	0	SS71	LL-SB4-0-0.5-041911	EPA 1613 D/F	Soil	04/19/2011	09:10 am	04/18/2012
6733-008-SA	0	SS71	LL-SB4-1.5-2-041911	EPA 1613 D/F	Soil	04/19/2011	09:25 am	04/18/2012
6733-009-SA	0	SS71	LL-SB4-2-4-041911	EPA 1613 D/F	Soil	04/19/2011	09:45 am	04/18/2012
6733-009-MS	0	SS71	LL-SB4-2-4-041911	EPA 1613 D/F	Soil	04/19/2011	09:45 am	04/18/2012
6733-009-MSD	0	SS71	LL-SB4-2-4-041911	EPA 1613 D/F	Soil	04/19/2011	09:45 am	04/18/2012
6733-010-SA	0	SS71	LL-SB3-0-0.5-041911	EPA 1613 D/F	Soil	04/19/2011	11:20 am	04/18/2012
6733-011-SA	0	SS71	LL-SB3-1.5-2-041911	EPA 1613 D/F	Soil	04/19/2011	11:30 am	04/18/2012
6733-012-SA	0	SS71	LL-SB3-2-4-041911	EPA 1613 D/F	Soil	04/19/2011	11:40 am	04/18/2012
6733-013-SA	0	SS71	LL-SB2-0-0.5-041911	EPA 1613 D/F	Soil	04/19/2011	01:45 pm	04/18/2012
6733-014-SA	0	SS71	LL-SB2-1.5-2-041911	EPA 1613 D/F	Soil	04/19/2011	02:00 pm	04/18/2012
6733-015-SA	0	SS71	LL-SB2-2-3.5-041911	EPA 1613 D/F	Soil	04/19/2011	02:15 pm	04/18/2012
6733-016-SA	0	SS71	LL-SB1-0-0.5-041911	EPA 1613 D/F	Soil	04/19/2011	03:10 pm	04/18/2012
6733-017-SA	0	SS71	LL-SB1-0-0.5-041911-D	EPA 1613 D/F	Soil	04/19/2011	03:15 pm	04/18/2012
6733-018-SA	0	SS71	LL-SB1-1.5-2-041911	EPA 1613 D/F	Soil	04/19/2011	03:35 pm	04/18/2012
6733-019-SA	0	SS71	LL-SB1-2-4-041911	EPA 1613 D/F	Soil	04/19/2011	03:50 pm	04/18/2012

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-001-MB
Client ID: Method Blank
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: NA
Amount: 5.00 g

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 0.00

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.142		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.203		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.219		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.288		-	0.0587	Total TCDD	ND	0.142	
1,2,3,7,8,9-HxCDD	ND	0.247		-	0.0529	Total PeCDD	ND	0.203	
1,2,3,4,6,7,8-HpCDD	ND	0.341		-	0.0742	Total HxCDD	ND	0.288	
OCDD	ND	0.834		-	0.144	Total HpCDD	ND	0.341	
2,3,7,8-TCDF	ND	0.115		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.157		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.169		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.179		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.168		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.190		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.176		-	0.0386	Total TCDF	ND	0.115	
1,2,3,4,6,7,8-HpCDF	ND	0.255		-	0.0393	Total PeCDF	ND	0.169	
1,2,3,4,7,8,9-HpCDF	ND	0.292		-	0.0418	Total HxCDF	ND	0.190	
OCDF	ND	0.648		-	0.105	Total HpCDF	ND	0.292	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	92.2	25.0 - 164	
13C-1,2,3,7,8-PeCDD	85.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	91.1	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	100	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	102	23.0 - 140	
13C-OCDD	76.2	17.0 - 157	
13C-2,3,7,8-TCDF	98.4	24.0 - 169	
13C-1,2,3,7,8-PeCDF	97.7	24.0 - 185	
13C-2,3,4,7,8-PeCDF	95.4	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	95.9	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	99.9	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.1	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	99.2	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	93.0	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	115	26.0 - 138	
13C-OCDF	79.7	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	88.8	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-001-OPR
Client ID: OPR
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: NA
Amount: 5.00 g

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: ng/ml

Acquired: 05-04-2011
2005 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	8.24	6.70 - 15.8	
1,2,3,7,8-PeCDD	45.7	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	43.0	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	41.9	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	43.8	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	45.5	35.0 - 70.0	
OCDD	88.6	78.0 - 144	
2,3,7,8-TCDF	9.63	7.50 - 15.8	
1,2,3,7,8-PeCDF	45.6	40.0 - 67.0	
2,3,4,7,8-PeCDF	46.0	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	42.9	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	42.6	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	41.4	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	42.4	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	42.7	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	43.5	39.0 - 69.0	
OCDF	83.6	63.0 - 170	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	95.0	20.0 - 175	
13C-1,2,3,7,8-PeCDD	90.3	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	92.0	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	103	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	103	26.0 - 166	
13C-OCDD	79.0	13.0 - 198	
13C-2,3,7,8-TCDF	101	22.0 - 152	
13C-1,2,3,7,8-PeCDF	101	21.0 - 192	
13C-2,3,4,7,8-PeCDF	98.6	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	97.1	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	101	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	97.7	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	98.2	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	94.7	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	122	20.0 - 186	
13C-OCDF	83.4	13.0 - 198	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	92.0	31.0 - 191	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-001-MB
Client ID: Method Blank
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: NA
Amount: 5.00 g

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 0.00

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.126		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.209		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.250		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.322		-	0.0587	Total TCDD	ND	0.126	
1,2,3,7,8,9-HxCDD	ND	0.279		-	0.0529	Total PeCDD	ND	0.209	
1,2,3,4,6,7,8-HpCDD	ND	0.424		-	0.0742	Total HxCDD	ND	0.322	
OCDD	ND	1.13		-	0.144	Total HpCDD	ND	0.424	
2,3,7,8-TCDF	ND	0.115		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.170		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.186		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.228		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.234		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.261		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.246		-	0.0386	Total TCDF	ND	0.115	
1,2,3,4,6,7,8-HpCDF	ND	0.263		-	0.0393	Total PeCDF	ND	0.186	
1,2,3,4,7,8,9-HpCDF	ND	0.335		-	0.0418	Total HxCDF	ND	0.261	
OCDF	ND	0.905		-	0.105	Total HpCDF	ND	0.335	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	93.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	95.7	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	94.5	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	98.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	93.8	23.0 - 140	
13C-OCDD	53.7	17.0 - 157	
13C-2,3,7,8-TCDF	98.1	24.0 - 169	
13C-1,2,3,7,8-PeCDF	105	24.0 - 185	
13C-2,3,4,7,8-PeCDF	101	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	98.6	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	101	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	94.2	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	93.9	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	93.0	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	108	26.0 - 138	
13C-OCDF	58.7	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	85.4	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
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J	Analyte concentration is below calibration range
M	Maximum possible concentration
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NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-001-OPR
Client ID: OPR
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: NA
Amount: 5.00 g

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: ng/ml

Acquired: 05-07-2011
2005 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	10.4	6.70 - 15.8	
1,2,3,7,8-PeCDD	50.8	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	51.4	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	50.8	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	52.6	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	51.9	35.0 - 70.0	
OCDD	102	78.0 - 144	
2,3,7,8-TCDF	11.1	7.50 - 15.8	
1,2,3,7,8-PeCDF	53.5	40.0 - 67.0	
2,3,4,7,8-PeCDF	53.2	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	50.0	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	52.0	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	50.3	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	51.5	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	49.7	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	51.6	39.0 - 69.0	
OCDF	104	63.0 - 170	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	99.5	20.0 - 175	
13C-1,2,3,7,8-PeCDD	108	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	95.3	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	105	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	99.4	26.0 - 166	
13C-OCDD	58.9	13.0 - 198	
13C-2,3,7,8-TCDF	103	22.0 - 152	
13C-1,2,3,7,8-PeCDF	109	21.0 - 192	
13C-2,3,4,7,8-PeCDF	106	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	103	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	102	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	97.5	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	98.0	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	96.6	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	110	20.0 - 186	
13C-OCDF	62.6	13.0 - 198	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	95.3	31.0 - 191	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-001-SA
Client ID: LL-SB6-0-0.5-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 5.03 g
% Solids: 84.24

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 40.4

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.890	-	J	0.890	0.0259				
1,2,3,7,8-PeCDD	7.97	-		7.97	0.0434				
1,2,3,4,7,8-HxCDD	15.9	-		1.59	0.0467				
1,2,3,6,7,8-HxCDD	46.6	-		4.66	0.0587	Total TCDD	3.04	-	
1,2,3,7,8,9-HxCDD	30.3	-		3.03	0.0529	Total PeCDD	29.5	-	
1,2,3,4,6,7,8-HpCDD	1330	-		13.3	0.0742	Total HxCDD	221	-	
OCDD	10700	-		3.21	0.144	Total HpCDD	2140	-	
2,3,7,8-TCDF	0.477	-	J	0.0477	0.0200				
1,2,3,7,8-PeCDF	0.617	-	J	0.0185	0.0304				
2,3,4,7,8-PeCDF	2.02	-	J	0.606	0.0322				
1,2,3,4,7,8-HxCDF	17.2	-		1.72	0.0365				
1,2,3,6,7,8-HxCDF	5.74	-		0.574	0.0357				
2,3,4,6,7,8-HxCDF	7.35	-		0.735	0.0399				
1,2,3,7,8,9-HxCDF	1.55	-	J	0.155	0.0386	Total TCDF	9.56	-	
1,2,3,4,6,7,8-HpCDF	173	-		1.73	0.0393	Total PeCDF	37.2	-	
1,2,3,4,7,8,9-HpCDF	8.16	-		0.0816	0.0418	Total HxCDF	176	-	
OCDF	405	-		0.122	0.105	Total HpCDF	506	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	79.4	25.0 - 164	
13C-1,2,3,7,8-PeCDD	79.4	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	77.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	84.4	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	95.7	23.0 - 140	
13C-OCDD	86.3	17.0 - 157	
13C-2,3,7,8-TCDF	83.1	24.0 - 169	
13C-1,2,3,7,8-PeCDF	91.3	24.0 - 185	
13C-2,3,4,7,8-PeCDF	88.9	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	79.2	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	80.1	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	78.0	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	81.5	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	83.3	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	102	26.0 - 138	
13C-OCDF	82.5	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	75.9	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-002-SA
Client ID: LL-SB6-1.5-2-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 5.04 g
% Solids: 88.43

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 7.57

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.317	-	J	0.317	0.0259				
1,2,3,7,8-PeCDD	1.21	-	J	1.21	0.0434				
1,2,3,4,7,8-HxCDD	2.04	-	J	0.204	0.0467				
1,2,3,6,7,8-HxCDD	8.56	-		0.856	0.0587	Total TCDD	7.72	-	
1,2,3,7,8,9-HxCDD	4.05	-	J	0.405	0.0529	Total PeCDD	14.3	-	
1,2,3,4,6,7,8-HpCDD	238	-		2.38	0.0742	Total HxCDD	59.0	-	
OCDD	2440	-		0.732	0.144	Total HpCDD	467	-	
2,3,7,8-TCDF	0.625	-	J	0.0625	0.0200				
1,2,3,7,8-PeCDF	0.330	-	J	0.00990	0.0304				
2,3,4,7,8-PeCDF	0.825	-	J	0.248	0.0322				
1,2,3,4,7,8-HxCDF	2.91	-	J	0.291	0.0365				
1,2,3,6,7,8-HxCDF	1.29	-	J	0.129	0.0357				
2,3,4,6,7,8-HxCDF	2.09	-	J	0.209	0.0399				
1,2,3,7,8,9-HxCDF	0.247	-	J	0.0247	0.0386	Total TCDF	16.5	-	
1,2,3,4,6,7,8-HpCDF	43.0	-		0.430	0.0393	Total PeCDF	19.7	-	
1,2,3,4,7,8,9-HpCDF	2.06	-	J	0.0206	0.0418	Total HxCDF	42.2	-	
OCDF	137	-		0.0411	0.105	Total HpCDF	141	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	97.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	97.2	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	98.8	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	104	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	114	23.0 - 140	
13C-OCDD	97.3	17.0 - 157	
13C-2,3,7,8-TCDF	102	24.0 - 169	
13C-1,2,3,7,8-PeCDF	108	24.0 - 185	
13C-2,3,4,7,8-PeCDF	107	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	101	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	105	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	100	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	102	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	103	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	121	26.0 - 138	
13C-OCDF	97.4	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	93.4	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-003-SA
Client ID: LL-SB6-2-4-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 4.96 g
% Solids: 90.31

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 4.58

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.193		-	0.0259				
1,2,3,7,8-PeCDD	0.767	-	J	0.767	0.0434				
1,2,3,4,7,8-HxCDD	1.19	-	J	0.119	0.0467				
1,2,3,6,7,8-HxCDD	5.50	-		0.550	0.0587	Total TCDD	1.95	-	
1,2,3,7,8,9-HxCDD	2.29	-	J	0.229	0.0529	Total PeCDD	6.83	-	
1,2,3,4,6,7,8-HpCDD	154	-		1.54	0.0742	Total HxCDD	34.7	-	
OCDD	1710	-		0.513	0.144	Total HpCDD	312	-	
2,3,7,8-TCDF	0.286	-	J	0.0286	0.0200				
1,2,3,7,8-PeCDF	ND	0.202		-	0.0304				
2,3,4,7,8-PeCDF	0.465	-	J	0.140	0.0322				
1,2,3,4,7,8-HxCDF	2.00	-	J	0.200	0.0365				
1,2,3,6,7,8-HxCDF	0.792	-	J	0.0792	0.0357				
2,3,4,6,7,8-HxCDF	1.11	-	J	0.111	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.277		-	0.0386	Total TCDF	7.65	-	
1,2,3,4,6,7,8-HpCDF	26.6	-		0.266	0.0393	Total PeCDF	10.6	-	
1,2,3,4,7,8,9-HpCDF	1.37	-	J	0.0137	0.0418	Total HxCDF	25.4	-	
OCDF	94.3	-		0.0283	0.105	Total HpCDF	88.4	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	88.3	25.0 - 164	
13C-1,2,3,7,8-PeCDD	87.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	95.0	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	105	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	104	23.0 - 140	
13C-OCDD	78.9	17.0 - 157	
13C-2,3,7,8-TCDF	91.8	24.0 - 169	
13C-1,2,3,7,8-PeCDF	96.1	24.0 - 185	
13C-2,3,4,7,8-PeCDF	92.0	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	101	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	103	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	93.8	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	95.3	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	97.5	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	116	26.0 - 138	
13C-OCDF	82.2	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	88.4	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-004-SA
Client ID: LL-SB5-0-0.5-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 5.03 g
% Solids: 73.02

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 8.76

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	1.39	-		1.39	0.0259				
1,2,3,7,8-PeCDD	1.19	-	J	1.19	0.0434				
1,2,3,4,7,8-HxCDD	1.85	-	J	0.185	0.0467				
1,2,3,6,7,8-HxCDD	8.17	-		0.817	0.0587	Total TCDD	7.77	-	
1,2,3,7,8,9-HxCDD	4.23	-	J	0.423	0.0529	Total PeCDD	14.1	-	
1,2,3,4,6,7,8-HpCDD	217	-		2.17	0.0742	Total HxCDD	56.8	-	
OCDD	2140	-		0.642	0.144	Total HpCDD	413	-	
2,3,7,8-TCDF	1.32	-		0.132	0.0200				
1,2,3,7,8-PeCDF	0.772	-	J	0.0232	0.0304				
2,3,4,7,8-PeCDF	1.29	-	J	0.387	0.0322				
1,2,3,4,7,8-HxCDF	3.20	-	J	0.320	0.0365				
1,2,3,6,7,8-HxCDF	2.10	-	J	0.210	0.0357				
2,3,4,6,7,8-HxCDF	3.61	-	J	0.361	0.0399				
1,2,3,7,8,9-HxCDF	0.500	-	J	0.0500	0.0386	Total TCDF	42.1	-	
1,2,3,4,6,7,8-HpCDF	41.0	-		0.410	0.0393	Total PeCDF	62.3	-	
1,2,3,4,7,8,9-HpCDF	2.03	-	J	0.0203	0.0418	Total HxCDF	63.3	-	
OCDF	111	-		0.0333	0.105	Total HpCDF	118	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	103	25.0 - 164	
13C-1,2,3,7,8-PeCDD	104	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	99.8	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	110	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	123	23.0 - 140	
13C-OCDD	117	17.0 - 157	
13C-2,3,7,8-TCDF	108	24.0 - 169	
13C-1,2,3,7,8-PeCDF	115	24.0 - 185	
13C-2,3,4,7,8-PeCDF	116	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	101	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	104	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	101	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	106	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	108	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	131	26.0 - 138	
13C-OCDF	112	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	94.2	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-005-SA
Client ID: LL-SB5-1.5-2-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 4.96 g
% Solids: 85.34

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 10.8

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	1.13	-		1.13	0.0259				
1,2,3,7,8-PeCDD	1.44	-	J	1.44	0.0434				
1,2,3,4,7,8-HxCDD	2.28	-	J	0.228	0.0467				
1,2,3,6,7,8-HxCDD	11.2	-		1.12	0.0587	Total TCDD	5.41	-	
1,2,3,7,8,9-HxCDD	5.11	-		0.511	0.0529	Total PeCDD	13.4	-	
1,2,3,4,6,7,8-HpCDD	331	-		3.31	0.0742	Total HxCDD	73.3	-	
OCDD	3390	-		1.02	0.144	Total HpCDD	665	-	
2,3,7,8-TCDF	0.671	-	J	0.0671	0.0200				
1,2,3,7,8-PeCDF	0.381	-	J	0.0114	0.0304				
2,3,4,7,8-PeCDF	1.15	-	J	0.345	0.0322				
1,2,3,4,7,8-HxCDF	4.63	-	J	0.463	0.0365				
1,2,3,6,7,8-HxCDF	1.55	-	J	0.155	0.0357				
2,3,4,6,7,8-HxCDF	2.48	-	J	0.248	0.0399				
1,2,3,7,8,9-HxCDF	0.334	-	J	0.0334	0.0386	Total TCDF	19.4	-	
1,2,3,4,6,7,8-HpCDF	61.2	-		0.612	0.0393	Total PeCDF	28.0	-	
1,2,3,4,7,8,9-HpCDF	2.64	-	J	0.0264	0.0418	Total HxCDF	60.3	-	
OCDF	217	-		0.0651	0.105	Total HpCDF	204	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	89.6	25.0 - 164	
13C-1,2,3,7,8-PeCDD	89.4	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	93.7	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	104	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	114	23.0 - 140	
13C-OCDD	101	17.0 - 157	
13C-2,3,7,8-TCDF	99.8	24.0 - 169	
13C-1,2,3,7,8-PeCDF	101	24.0 - 185	
13C-2,3,4,7,8-PeCDF	102	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	96.0	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	98.6	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	96.1	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	97.3	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	105	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	123	26.0 - 138	
13C-OCDF	100	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	87.0	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-006-SA
Client ID: LL-SB5-2-4-041811
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 5.05 g
% Solids: 82.42

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 22.7

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	7.35	-		7.35	0.0259				
1,2,3,7,8-PeCDD	2.32	-	J	2.32	0.0434				
1,2,3,4,7,8-HxCDD	3.56	-	J	0.356	0.0467				
1,2,3,6,7,8-HxCDD	18.0	-		1.80	0.0587	Total TCDD	16.6	-	
1,2,3,7,8,9-HxCDD	8.08	-		0.808	0.0529	Total PeCDD	23.3	-	
1,2,3,4,6,7,8-HpCDD	521	-		5.21	0.0742	Total HxCDD	121	-	
OCDD	5170	-		1.55	0.144	Total HpCDD	1040	-	
2,3,7,8-TCDF	1.13	-		0.113	0.0200				
1,2,3,7,8-PeCDF	0.569	-	J	0.0171	0.0304				
2,3,4,7,8-PeCDF	2.00	-	J	0.600	0.0322				
1,2,3,4,7,8-HxCDF	7.23	-		0.723	0.0365				
1,2,3,6,7,8-HxCDF	2.53	-	J	0.253	0.0357				
2,3,4,6,7,8-HxCDF	3.77	-	J	0.377	0.0399				
1,2,3,7,8,9-HxCDF	0.474	-	J	0.0474	0.0386	Total TCDF	23.9	-	
1,2,3,4,6,7,8-HpCDF	101	-		1.01	0.0393	Total PeCDF	36.3	-	
1,2,3,4,7,8,9-HpCDF	4.11	-	J	0.0411	0.0418	Total HxCDF	93.5	-	
OCDF	364	-		0.109	0.105	Total HpCDF	336	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	81.3	25.0 - 164	
13C-1,2,3,7,8-PeCDD	77.6	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	78.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	84.5	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	93.6	23.0 - 140	
13C-OCDD	88.8	17.0 - 157	
13C-2,3,7,8-TCDF	85.8	24.0 - 169	
13C-1,2,3,7,8-PeCDF	88.9	24.0 - 185	
13C-2,3,4,7,8-PeCDF	88.3	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	79.4	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	78.9	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	78.1	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	83.2	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	85.4	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	101	26.0 - 138	
13C-OCDF	85.3	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	79.3	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-007-SA
Client ID: LL-SB4-0-0.5-041911
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 5.03 g
% Solids: 79.39

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 5.59

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	1.35	-		1.35	0.0259				
1,2,3,7,8-PeCDD	0.768	-	J	0.768	0.0434				
1,2,3,4,7,8-HxCDD	1.15	-	J	0.115	0.0467				
1,2,3,6,7,8-HxCDD	4.76	-	J	0.476	0.0587	Total TCDD	14.0	-	
1,2,3,7,8,9-HxCDD	2.48	-	J	0.248	0.0529	Total PeCDD	11.7	-	
1,2,3,4,6,7,8-HpCDD	128	-		1.28	0.0742	Total HxCDD	36.1	-	
OCDD	1150	-		0.345	0.144	Total HpCDD	255	-	
2,3,7,8-TCDF	1.09	-		0.109	0.0200				
1,2,3,7,8-PeCDF	0.471	-	J	0.0141	0.0304				
2,3,4,7,8-PeCDF	0.772	-	J	0.232	0.0322				
1,2,3,4,7,8-HxCDF	1.29	-	J	0.129	0.0365				
1,2,3,6,7,8-HxCDF	0.836	-	J	0.0836	0.0357				
2,3,4,6,7,8-HxCDF	1.40	-	J	0.140	0.0399				
1,2,3,7,8,9-HxCDF	0.258	-	J	0.0258	0.0386	Total TCDF	19.7	-	
1,2,3,4,6,7,8-HpCDF	24.3	-		0.243	0.0393	Total PeCDF	20.3	-	
1,2,3,4,7,8,9-HpCDF	1.27	-	J	0.0127	0.0418	Total HxCDF	27.7	-	
OCDF	76.0	-		0.0228	0.105	Total HpCDF	78.1	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	79.9	25.0 - 164	
13C-1,2,3,7,8-PeCDD	78.8	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	84.6	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	91.5	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	96.7	23.0 - 140	
13C-OCDD	80.7	17.0 - 157	
13C-2,3,7,8-TCDF	85.3	24.0 - 169	
13C-1,2,3,7,8-PeCDF	87.8	24.0 - 185	
13C-2,3,4,7,8-PeCDF	86.2	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	87.2	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	89.3	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	84.9	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	86.2	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	86.6	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	97.2	26.0 - 138	
13C-OCDF	79.8	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	75.3	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-008-SA
Client ID: LL-SB4-1.5-2-041911
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 4.93 g
% Solids: 90.26

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 0.0456

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.119		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.198		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.214		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.280		-	0.0587	Total TCDD	ND	0.119	
1,2,3,7,8,9-HxCDD	ND	0.241		-	0.0529	Total PeCDD	ND	0.198	
1,2,3,4,6,7,8-HpCDD	3.08	-	J	0.0308	0.0742	Total HxCDD	0.469	-	J
OCDD	26.4	-		0.00792	0.144	Total HpCDD	6.48	-	
2,3,7,8-TCDF	ND	0.108		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.129		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.135		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.181		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.186		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.204		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.187		-	0.0386	Total TCDF	0.287	-	J
1,2,3,4,6,7,8-HpCDF	0.635	-	J	0.00635	0.0393	Total PeCDF	0.358	-	J
1,2,3,4,7,8,9-HpCDF	ND	0.218		-	0.0418	Total HxCDF	0.641	-	J
OCDF	1.71	-	J	0.000513	0.105	Total HpCDF	1.71	-	J

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	94.8	25.0 - 164	
13C-1,2,3,7,8-PeCDD	93.0	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	92.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	99.0	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	103	23.0 - 140	
13C-OCDD	73.1	17.0 - 157	
13C-2,3,7,8-TCDF	99.7	24.0 - 169	
13C-1,2,3,7,8-PeCDF	102	24.0 - 185	
13C-2,3,4,7,8-PeCDF	101	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	95.0	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	99.5	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.7	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	97.7	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	91.9	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	117	26.0 - 138	
13C-OCDF	78.0	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	88.1	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-009-SA
Client ID: LL-SB4-2-4-041911
Matrix: Soil
Batch No: X2282

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Amount: 4.95 g
% Solids: 86.80

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-04-2011
2005 WHO TEQ: 0.0148

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.134		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.230		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.226		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.287		-	0.0587	Total TCDD	0.544	-	J
1,2,3,7,8,9-HxCDD	ND	0.250		-	0.0529	Total PeCDD	ND	0.230	
1,2,3,4,6,7,8-HpCDD	1.17	-	J	0.0117	0.0742	Total HxCDD	0.578	-	J
OCDD	10.3	-		0.00309	0.144	Total HpCDD	2.92	-	J
2,3,7,8-TCDF	ND	0.105		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.147		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.156		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.207		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.202		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.218		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.203		-	0.0386	Total TCDF	0.203	-	J
1,2,3,4,6,7,8-HpCDF	ND	0.220		-	0.0393	Total PeCDF	ND	0.156	
1,2,3,4,7,8,9-HpCDF	ND	0.255		-	0.0418	Total HxCDF	ND	0.218	
OCDF	ND	0.527		-	0.105	Total HpCDF	ND	0.255	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	84.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	78.4	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	85.9	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	89.8	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	93.4	23.0 - 140	
13C-OCDD	69.4	17.0 - 157	
13C-2,3,7,8-TCDF	92.2	24.0 - 169	
13C-1,2,3,7,8-PeCDF	91.3	24.0 - 185	
13C-2,3,4,7,8-PeCDF	88.5	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	86.7	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	90.5	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	89.5	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	90.9	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	86.8	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	106	26.0 - 138	
13C-OCDF	73.5	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	79.2	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-009-MS/MSD
Client ID: LL-SB4-2-4-041911
Matrix: Soil

Date Extracted: 05-02-2011
Date Received: 04-22-2011
Sample Amount: 4.95 g
MS Amount: 4.96 g
MSD Amount: 5.06 g

ICal: PCDDFAL3-3-7-11
Batch No: X2282
Units: pg/g

MS Acquired: 2011-05-04
MSD Acquired: 2011-05-04
GC Column: DB5

Compound	Amount Spiked (pg)	Sample Amount	MS Amount	MSD Amount	% RSD	Qual
2,3,7,8-TCDD	200	-	34.5	34.8	2.88	
1,2,3,7,8-PeCDD	1000	-	189	187	0.956	
1,2,3,4,7,8-HxCDD	1000	-	177	180	3.69	
1,2,3,6,7,8-HxCDD	1000	-	178	175	0.339	
1,2,3,7,8,9-HxCDD	1000	-	184	177	1.88	
1,2,3,4,6,7,8-HpCDD	1000	1.17	185	184	1.42	
OCDD	2000	10.3	371	370	1.66	
2,3,7,8-TCDF	200	-	38.8	38.8	2.06	
1,2,3,7,8-PeCDF	1000	-	186	186	1.93	
2,3,4,7,8-PeCDF	1000	-	186	185	1.40	
1,2,3,4,7,8-HxCDF	1000	-	175	171	0.346	
1,2,3,6,7,8-HxCDF	1000	-	177	179	3.14	
2,3,4,6,7,8-HxCDF	1000	-	173	174	2.53	
1,2,3,7,8,9-HxCDF	1000	-	179	174	0.905	
1,2,3,4,6,7,8-HpCDF	1000	-	176	175	1.48	
1,2,3,4,7,8,9-HpCDF	1000	-	178	179	2.57	
OCDF	2000	-	350	340	1.16	

Internal Standards		% Rec	% Rec	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	2000	84.1	97.4	98.0	25.0 - 164	
13C-1,2,3,7,8-PeCDD	2000	78.4	95.0	92.6	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	2000	85.9	95.8	94.5	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	2000	89.8	101	100	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	2000	93.4	111	105	23.0 - 140	
13C-OCDD	4000	69.4	89.6	78.9	17.0 - 157	
13C-2,3,7,8-TCDF	2000	92.2	103	102	24.0 - 169	
13C-1,2,3,7,8-PeCDF	2000	91.3	106	107	24.0 - 185	
13C-2,3,4,7,8-PeCDF	2000	88.5	105	105	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	2000	86.7	96.1	96.3	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	2000	90.5	97.6	96.8	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	2000	89.5	96.4	94.6	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	2000	90.9	99.9	100	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	2000	86.8	99.0	95.8	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	2000	106	124	115	26.0 - 138	
13C-OCDF	4000	73.5	91.4	83.1	17.0 - 157	

Cleanup Surrogate						
37Cl-2,3,7,8-TCDD	800	79.2	93.2	93.4	35.0 - 197	

Analyst: _____
Date: 5/5/11

Reviewed By: _____
Date: 5/6/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-010-SA
Client ID: LL-SB3-0-0.5-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.00 g
% Solids: 85.48

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 5.17

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	2.11	-		2.11	0.0259				
1,2,3,7,8-PeCDD	0.637	-	J	0.637	0.0434				
1,2,3,4,7,8-HxCDD	0.941	-	J	0.0941	0.0467				
1,2,3,6,7,8-HxCDD	3.67	-	J	0.367	0.0587	Total TCDD	6.00	-	
1,2,3,7,8,9-HxCDD	1.91	-	J	0.191	0.0529	Total PeCDD	8.66	-	
1,2,3,4,6,7,8-HpCDD	82.6	-		0.826	0.0742	Total HxCDD	28.0	-	
OCDD	665	-		0.200	0.144	Total HpCDD	162	-	
2,3,7,8-TCDF	0.785	-	J	0.0785	0.0200				
1,2,3,7,8-PeCDF	ND	0.333		-	0.0304				
2,3,4,7,8-PeCDF	0.664	-	J	0.199	0.0322				
1,2,3,4,7,8-HxCDF	1.04	-	J	0.104	0.0365				
1,2,3,6,7,8-HxCDF	0.760	-	J	0.0760	0.0357				
2,3,4,6,7,8-HxCDF	1.11	-	J	0.111	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.323		-	0.0386	Total TCDF	12.4	-	
1,2,3,4,6,7,8-HpCDF	15.6	-		0.156	0.0393	Total PeCDF	12.9	-	
1,2,3,4,7,8,9-HpCDF	1.11	-	J	0.0111	0.0418	Total HxCDF	18.6	-	
OCDF	47.8	-		0.0143	0.105	Total HpCDF	43.7	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	92.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	98.3	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	91.9	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	98.2	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	102	23.0 - 140	
13C-OCDD	70.7	17.0 - 157	
13C-2,3,7,8-TCDF	99.4	24.0 - 169	
13C-1,2,3,7,8-PeCDF	108	24.0 - 185	
13C-2,3,4,7,8-PeCDF	106	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	100	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	96.6	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.5	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	94.8	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	102	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	115	26.0 - 138	
13C-OCDF	72.6	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	87.8	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-011-SA
Client ID: LL-SB3-1.5-2-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.04 g
% Solids: 90.35

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 1.06

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.567	-	J	0.567	0.0259				
1,2,3,7,8-PeCDD	ND	0.277		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.258		-	0.0467				
1,2,3,6,7,8-HxCDD	0.828	-	J	0.0828	0.0587	Total TCDD	2.17	-	
1,2,3,7,8,9-HxCDD	0.679	-	J	0.0679	0.0529	Total PeCDD	1.12	-	J
1,2,3,4,6,7,8-HpCDD	21.3	-		0.213	0.0742	Total HxCDD	7.40	-	
OCDD	150	-		0.0450	0.144	Total HpCDD	42.5	-	
2,3,7,8-TCDF	ND	0.215		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.235		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.260		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.225		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.222		-	0.0357				
2,3,4,6,7,8-HxCDF	0.411	-	J	0.0411	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.245		-	0.0386	Total TCDF	1.71	-	
1,2,3,4,6,7,8-HpCDF	3.58	-	J	0.0358	0.0393	Total PeCDF	4.14	-	J
1,2,3,4,7,8,9-HpCDF	ND	0.429		-	0.0418	Total HxCDF	5.09	-	
OCDF	9.58	-	J	0.00287	0.105	Total HpCDF	10.1	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	92.8	25.0 - 164	
13C-1,2,3,7,8-PeCDD	101	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	98.0	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	105	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	102	23.0 - 140	
13C-OCDD	62.7	17.0 - 157	
13C-2,3,7,8-TCDF	98.6	24.0 - 169	
13C-1,2,3,7,8-PeCDF	111	24.0 - 185	
13C-2,3,4,7,8-PeCDF	105	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	105	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	104	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	93.0	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	96.3	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	103	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	103	26.0 - 138	
13C-OCDF	66.6	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	87.7	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-012-SA
Client ID: LL-SB3-2-4-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.01 g
% Solids: 88.97

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 1.92

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.888	-	J	0.888	0.0259				
1,2,3,7,8-PeCDD	ND	0.381		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.364		-	0.0467				
1,2,3,6,7,8-HxCDD	1.70	-	J	0.170	0.0587	Total TCDD	2.57	-	
1,2,3,7,8,9-HxCDD	0.902	-	J	0.0902	0.0529	Total PeCDD	1.67	-	J
1,2,3,4,6,7,8-HpCDD	35.2	-		0.352	0.0742	Total HxCDD	11.7	-	
OCDD	239	-		0.0717	0.144	Total HpCDD	68.3	-	
2,3,7,8-TCDF	0.378	-	J	0.0378	0.0200				
1,2,3,7,8-PeCDF	ND	0.260		-	0.0304				
2,3,4,7,8-PeCDF	0.366	-	J	0.110	0.0322				
1,2,3,4,7,8-HxCDF	0.496	-	J	0.0496	0.0365				
1,2,3,6,7,8-HxCDF	0.405	-	J	0.0405	0.0357				
2,3,4,6,7,8-HxCDF	0.506	-	J	0.0506	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.331		-	0.0386	Total TCDF	5.20	-	
1,2,3,4,6,7,8-HpCDF	5.52	-		0.0552	0.0393	Total PeCDF	6.54	-	
1,2,3,4,7,8,9-HpCDF	ND	0.488		-	0.0418	Total HxCDF	8.51	-	
OCDF	14.8	-		0.00444	0.105	Total HpCDF	15.0	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	93.0	25.0 - 164	
13C-1,2,3,7,8-PeCDD	91.7	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	91.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	94.4	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	83.3	23.0 - 140	
13C-OCDD	41.8	17.0 - 157	
13C-2,3,7,8-TCDF	97.4	24.0 - 169	
13C-1,2,3,7,8-PeCDF	103	24.0 - 185	
13C-2,3,4,7,8-PeCDF	97.5	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	94.8	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	99.2	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	84.3	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	81.9	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	86.7	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	91.5	26.0 - 138	
13C-OCDF	48.2	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	83.3	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-013-SA
Client ID: LL-SB2-0-0.5-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.01 g
% Solids: 87.78

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 13.2

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	7.82	-		7.82	0.0259				
1,2,3,7,8-PeCDD	1.19	-	J	1.19	0.0434				
1,2,3,4,7,8-HxCDD	1.72	-	J	0.172	0.0467				
1,2,3,6,7,8-HxCDD	5.33	-		0.533	0.0587	Total TCDD	15.1	-	
1,2,3,7,8,9-HxCDD	2.63	-	J	0.263	0.0529	Total PeCDD	15.1	-	
1,2,3,4,6,7,8-HpCDD	119	-		1.19	0.0742	Total HxCDD	43.8	-	
OCDD	978	-		0.293	0.144	Total HpCDD	245	-	
2,3,7,8-TCDF	1.49	-		0.149	0.0200				
1,2,3,7,8-PeCDF	0.785	-	J	0.0236	0.0304				
2,3,4,7,8-PeCDF	1.82	-	J	0.546	0.0322				
1,2,3,4,7,8-HxCDF	2.22	-	J	0.222	0.0365				
1,2,3,6,7,8-HxCDF	1.72	-	J	0.172	0.0357				
2,3,4,6,7,8-HxCDF	2.72	-	J	0.272	0.0399				
1,2,3,7,8,9-HxCDF	0.434	-	J	0.0434	0.0386	Total TCDF	47.0	-	D,M
1,2,3,4,6,7,8-HpCDF	27.4	-		0.274	0.0393	Total PeCDF	51.7	-	D,M
1,2,3,4,7,8,9-HpCDF	2.11	-	J	0.0211	0.0418	Total HxCDF	52.5	-	
OCDF	72.6	-		0.0218	0.105	Total HpCDF	78.5	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	76.7	25.0 - 164	
13C-1,2,3,7,8-PeCDD	79.9	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	87.0	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	92.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	77.0	23.0 - 140	
13C-OCDD	40.4	17.0 - 157	
13C-2,3,7,8-TCDF	73.2	24.0 - 169	
13C-1,2,3,7,8-PeCDF	89.3	24.0 - 185	
13C-2,3,4,7,8-PeCDF	75.1	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	95.2	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	93.3	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	67.7	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	71.6	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	88.1	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	76.0	26.0 - 138	
13C-OCDF	46.2	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	72.2	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-014-SA
Client ID: LL-SB2-1.5-2-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.04 g
% Solids: 91.52

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 0.0277

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.208		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.273		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.286		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.367		-	0.0587	Total TCDD	0.453	-	J
1,2,3,7,8,9-HxCDD	ND	0.319		-	0.0529	Total PeCDD	ND	0.273	
1,2,3,4,6,7,8-HpCDD	1.87	-	J	0.0187	0.0742	Total HxCDD	ND	0.367	
OCDD	13.3	-		0.00399	0.144	Total HpCDD	4.08	-	J
2,3,7,8-TCDF	ND	0.173		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.202		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.215		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.212		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.208		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.234		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.222		-	0.0386	Total TCDF	ND	0.173	
1,2,3,4,6,7,8-HpCDF	0.497	-	J	0.00497	0.0393	Total PeCDF	ND	0.215	
1,2,3,4,7,8,9-HpCDF	ND	0.396		-	0.0418	Total HxCDF	ND	0.234	
OCDF	ND	1.51		-	0.105	Total HpCDF	1.04	-	J

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	95.8	25.0 - 164	
13C-1,2,3,7,8-PeCDD	103	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	91.8	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	99.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	96.2	23.0 - 140	
13C-OCDD	58.4	17.0 - 157	
13C-2,3,7,8-TCDF	102	24.0 - 169	
13C-1,2,3,7,8-PeCDF	114	24.0 - 185	
13C-2,3,4,7,8-PeCDF	112	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	98.7	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	100	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.3	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	95.1	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	96.9	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	103	26.0 - 138	
13C-OCDF	62.9	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	88.0	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-015-SA
Client ID: LL-SB2-2-3.5-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.23 g
% Solids: 90.43

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 0.0253

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.157		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.210		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.245		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.319		-	0.0587	Total TCDD	0.365	-	J
1,2,3,7,8,9-HxCDD	ND	0.275		-	0.0529	Total PeCDD	ND	0.210	
1,2,3,4,6,7,8-HpCDD	1.71	-	J	0.0171	0.0742	Total HxCDD	ND	0.319	
OCDD	15.3	-		0.00459	0.144	Total HpCDD	3.68	-	J
2,3,7,8-TCDF	ND	0.133		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.157		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.175		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.168		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.167		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.183		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.172		-	0.0386	Total TCDF	ND	0.133	
1,2,3,4,6,7,8-HpCDF	0.365	-	J	0.00365	0.0393	Total PeCDF	ND	0.175	
1,2,3,4,7,8,9-HpCDF	ND	0.290		-	0.0418	Total HxCDF	ND	0.183	
OCDF	ND	1.07		-	0.105	Total HpCDF	0.979	-	J

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	101	25.0 - 164	
13C-1,2,3,7,8-PeCDD	110	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	98.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	103	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	102	23.0 - 140	
13C-OCDD	66.0	17.0 - 157	
13C-2,3,7,8-TCDF	104	24.0 - 169	
13C-1,2,3,7,8-PeCDF	118	24.0 - 185	
13C-2,3,4,7,8-PeCDF	116	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	101	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	102	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	99.7	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	99.2	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	101	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	119	26.0 - 138	
13C-OCDF	71.1	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	92.4	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-016-SA
Client ID: LL-SB1-0-0.5-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.08 g
% Solids: 92.85

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 0.0357

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.193		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.278		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.291		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.364		-	0.0587	Total TCDD	0.596	-	J
1,2,3,7,8,9-HxCDD	ND	0.320		-	0.0529	Total PeCDD	ND	0.278	
1,2,3,4,6,7,8-HpCDD	2.53	-	J	0.0253	0.0742	Total HxCDD	ND	0.364	
OCDD	18.6	-		0.00558	0.144	Total HpCDD	5.20	-	
2,3,7,8-TCDF	ND	0.168		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.231		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.243		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.177		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.181		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.192		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.184		-	0.0386	Total TCDF	0.285	-	J
1,2,3,4,6,7,8-HpCDF	0.483	-	J	0.00483	0.0393	Total PeCDF	ND	0.243	
1,2,3,4,7,8,9-HpCDF	ND	0.379		-	0.0418	Total HxCDF	ND	0.192	
OCDF	ND	1.18		-	0.105	Total HpCDF	1.08	-	J

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	83.8	25.0 - 164	
13C-1,2,3,7,8-PeCDD	89.0	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	80.6	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	87.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	84.9	23.0 - 140	
13C-OCDD	57.5	17.0 - 157	
13C-2,3,7,8-TCDF	86.5	24.0 - 169	
13C-1,2,3,7,8-PeCDF	95.6	24.0 - 185	
13C-2,3,4,7,8-PeCDF	93.9	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	88.4	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	86.7	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	85.8	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	84.0	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	85.4	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	94.0	26.0 - 138	
13C-OCDF	60.5	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	76.1	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-017-SA
Client ID: LL-SB1-0-0.5-041911-D
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.01 g
% Solids: 93.20

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 0.0860

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.185		-	0.0259				
1,2,3,7,8-PeCDD	ND	0.252		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.261		-	0.0467				
1,2,3,6,7,8-HxCDD	ND	0.331		-	0.0587	Total TCDD	0.829	-	J
1,2,3,7,8,9-HxCDD	ND	0.289		-	0.0529	Total PeCDD	ND	0.252	
1,2,3,4,6,7,8-HpCDD	6.18	-		0.0618	0.0742	Total HxCDD	ND	0.496	
OCDD	61.9	-		0.0186	0.144	Total HpCDD	11.3	-	
2,3,7,8-TCDF	ND	0.157		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.166		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.176		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.155		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.156		-	0.0357				
2,3,4,6,7,8-HxCDF	ND	0.172		-	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.160		-	0.0386	Total TCDF	0.433	-	J
1,2,3,4,6,7,8-HpCDF	0.562	-	J	0.00562	0.0393	Total PeCDF	ND	0.176	
1,2,3,4,7,8,9-HpCDF	ND	0.322		-	0.0418	Total HxCDF	0.660	-	J
OCDF	ND	1.31		-	0.105	Total HpCDF	1.26	-	J

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	96.8	25.0 - 164	
13C-1,2,3,7,8-PeCDD	106	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	93.5	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	99.4	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	96.8	23.0 - 140	
13C-OCDD	61.9	17.0 - 157	
13C-2,3,7,8-TCDF	99.5	24.0 - 169	
13C-1,2,3,7,8-PeCDF	114	24.0 - 185	
13C-2,3,4,7,8-PeCDF	113	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	99.6	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	98.5	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.5	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	95.8	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	97.5	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	111	26.0 - 138	
13C-OCDF	63.6	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	92.8	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-018-SA
Client ID: LL-SB1-1.5-2-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.02 g
% Solids: 91.98

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 1.05

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.611	-	J	0.611	0.0259				
1,2,3,7,8-PeCDD	ND	0.377		-	0.0434				
1,2,3,4,7,8-HxCDD	ND	0.320		-	0.0467				
1,2,3,6,7,8-HxCDD	0.942	-	J	0.0942	0.0587	Total TCDD	2.05	-	
1,2,3,7,8,9-HxCDD	0.653	-	J	0.0653	0.0529	Total PeCDD	1.17	-	J
1,2,3,4,6,7,8-HpCDD	16.1	-		0.161	0.0742	Total HxCDD	6.12	-	
OCDD	112	-		0.0336	0.144	Total HpCDD	31.5	-	
2,3,7,8-TCDF	ND	0.267		-	0.0200				
1,2,3,7,8-PeCDF	ND	0.246		-	0.0304				
2,3,4,7,8-PeCDF	ND	0.284		-	0.0322				
1,2,3,4,7,8-HxCDF	ND	0.260		-	0.0365				
1,2,3,6,7,8-HxCDF	ND	0.251		-	0.0357				
2,3,4,6,7,8-HxCDF	0.490	-	J	0.0490	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.257		-	0.0386	Total TCDF	1.82	-	
1,2,3,4,6,7,8-HpCDF	3.20	-	J	0.0320	0.0393	Total PeCDF	2.82	-	J
1,2,3,4,7,8,9-HpCDF	ND	0.388		-	0.0418	Total HxCDF	4.48	-	J
OCDF	7.18	-	J	0.00215	0.105	Total HpCDF	7.82	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	98.5	25.0 - 164	
13C-1,2,3,7,8-PeCDD	105	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	93.0	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	96.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	102	23.0 - 140	
13C-OCDD	66.7	17.0 - 157	
13C-2,3,7,8-TCDF	101	24.0 - 169	
13C-1,2,3,7,8-PeCDF	115	24.0 - 185	
13C-2,3,4,7,8-PeCDF	110	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	96.8	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	97.6	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	93.9	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	95.6	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	98.3	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	113	26.0 - 138	
13C-OCDF	68.7	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	93.5	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 6733-019-SA
Client ID: LL-SB1-2-4-041911
Matrix: Soil
Batch No: X2283

Date Extracted: 05-05-2011
Date Received: 04-22-2011
Amount: 5.01 g
% Solids: 90.89

ICal: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/g

Acquired: 05-07-2011
2005 WHO TEQ: 1.77

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.671	-	J	0.671	0.0259				
1,2,3,7,8-PeCDD	ND	0.314		-	0.0434				
1,2,3,4,7,8-HxCDD	0.524	-	J	0.0524	0.0467				
1,2,3,6,7,8-HxCDD	1.41	-	J	0.141	0.0587	Total TCDD	2.16	-	
1,2,3,7,8,9-HxCDD	0.908	-	J	0.0908	0.0529	Total PeCDD	2.27	-	J
1,2,3,4,6,7,8-HpCDD	33.1	-		0.331	0.0742	Total HxCDD	11.2	-	
OCDD	251	-		0.0753	0.144	Total HpCDD	64.2	-	
2,3,7,8-TCDF	0.389	-	J	0.0389	0.0200				
1,2,3,7,8-PeCDF	ND	0.204		-	0.0304				
2,3,4,7,8-PeCDF	0.433	-	J	0.130	0.0322				
1,2,3,4,7,8-HxCDF	0.586	-	J	0.0586	0.0365				
1,2,3,6,7,8-HxCDF	0.451	-	J	0.0451	0.0357				
2,3,4,6,7,8-HxCDF	0.688	-	J	0.0688	0.0399				
1,2,3,7,8,9-HxCDF	ND	0.248		-	0.0386	Total TCDF	6.03	-	
1,2,3,4,6,7,8-HpCDF	6.32	-		0.0632	0.0393	Total PeCDF	8.41	-	
1,2,3,4,7,8,9-HpCDF	ND	0.490		-	0.0418	Total HxCDF	10.2	-	
OCDF	15.2	-		0.00456	0.105	Total HpCDF	16.7	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	93.7	25.0 - 164	
13C-1,2,3,7,8-PeCDD	98.1	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	98.7	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	107	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	95.4	23.0 - 140	
13C-OCDD	53.5	17.0 - 157	
13C-2,3,7,8-TCDF	93.1	24.0 - 169	
13C-1,2,3,7,8-PeCDF	105	24.0 - 185	
13C-2,3,4,7,8-PeCDF	92.7	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	108	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	106	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	81.9	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	88.6	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	103	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	98.7	26.0 - 138	
13C-OCDF	58.4	17.0 - 157	
Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	84.5	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
P	Pre-filtered through a Whatman 0.7um GF/F filter
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 5/9/11

Reviewed By: _____
Date: 5/9/11

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SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 04/20/11

ANALYTICAL RESOURCES INCORPORATED

ARI Project: SS71

Laboratory: Frontier Analytical Laboratory
Lab Contact: BRAD SILVERBUSH
Lab Address: 5172 Hillsdale Circle
El Dorado Hills, CA 95762
Phone: 916-934-0900
Fax: 916-934-0999

ARI Client: Floyd Snider
Project ID: Lora Lake Parcel
ARI PM: Sue Dunnihoo
Phone: 206-695-6207
Fax: 206-695-6201

Analytical Protocol: In-house
Special Instructions:

Requested Turn Around:
Email Results (Y/N): **Yes**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
11-8654-SS71A	LL-SB6-0-0.5-041811	04/18/11 14:50	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8655-SS71B	LL-SB6-1.5-2-041811	04/18/11 15:05	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8656-SS71C	LL-SB6-2-4-041811	04/18/11 15:15	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8657-SS71D	LL-SB5-0-0.5-041811	04/18/11 16:00	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8658-SS71E	LL-SB5-1.5-2-041811	04/18/11 16:15	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8659-SS71F	LL-SB5-2-4-041811	04/18/11 16:30	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8660-SS71G	LL-SB4-0-0.5-041911	04/19/11 09:10	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					

L48 EDD

1Z832695015070450S
1Z832695015001 8695

Carrier UPS	Airbill 1Z832695015073808 7		Date 4/21/11
Relinquished by	Company ARI	Date 4/21/11	Time 1543
Received by	Company Frontier	Date 4-22-11	Time 1020

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 04/20/11

ANALYTICAL RESOURCES INCORPORATED

6733
02

ARI Project: SS71

Laboratory: Frontier Analytical Laboratory
Lab Contact: BRAD SILVERBUSH

ARI Client: Floyd Snider
Project ID: POS-LL

ARI Sample ID	Client Sample ID/ Add'l Sample ID	Sampled	Matrix	Bottles	Analyses
11-8661-SS71H	LL-SB4-1.5-2-041911	04/19/11 09:25	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8662-SS71I	LL-SB4-2-4-041911	04/19/11 09:45	Soil	3	Dioxin/Furans 1613(Sub)
Special Instructions: MS/MSD					
11-8663-SS71J	LL-SB3-0-0.5-041911	04/19/11 11:20	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8664-SS71K	LL-SB3-1.5-2-041911	04/19/11 11:30	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8665-SS71L	LL-SB3-2-4-041911	04/19/11 11:40	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8666-SS71M	LL-SB2-0-0.5-041911	04/19/11 13:45	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8667-SS71N	LL-SB2-1.5-2-041911	04/19/11 14:00	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8668-SS71O	LL-SB2-2-3.5-041911	04/19/11 14:15	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8669-SS71P	LL-SB1-0-0.5-041911	04/19/11 15:10	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8670-SS71Q	LL-SB1-0-0.5-041911-D	04/19/11 15:15	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-8671-SS71R	LL-SB1-1.5-2-041911	04/19/11 15:35	Soil	1	Dioxin/Furans 1613(Sub)
Special Instructions: None					

LH a EDD

Carrier UPS	Airbill		Date 4-21-11
Relinquished by	Company ARI	Date 4-21-11	Time 1543
Received by	Company Frontier	Date 4-22-11	Time 1020

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 04/20/11

ANALYTICAL RESOURCES INCORPORATED

ARI Project: SS71

Laboratory: Frontier Analytical Laboratory
Lab Contact: BRAD SILVERBUSH

ARI Client: Floyd Snider
Project ID: POS-LL

ARI Sample ID	Client Sample ID/ Add'l Sample ID	Sampled	Matrix	Bottles	Analyses
11-8672-SS71S	LL-SB1-2-4-041911	04/19/11 15:50	Soil	1	Dioxin/Furans 1613(Sub)

Special Instructions: None

LL + EDD

Carrier UPS	Airbill		Date 4/21/11
Relinquished by	Company ARI	Date 4/21/11	Time 1543
Received by	Company Frontier	Date 4-22-11	Time 1020

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **6733**

Client:	Analytical Resources Inc. Sue Dunnihoo
Client Project ID:	SS71
Date Received:	04/22/2011
Time Received:	10:20 am
Received By:	KZ
Logged In By:	KZ
# of Samples Received:	19
Duplicates:	0
Storage Location:	R2

Method of Delivery:	UPS
Tracking Number:	1Z8326950150704505
Shipping Container Received Intact	Yes
Custody seals(s) present?	Yes
Custody seals(s) intact?	Yes
Sample Arrival Temperature (C)	0
Cooling Method	Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test for residual Chlorine	No
Thiosulfate Added	No
Earliest Sample Hold Time Expiration	04/17/2012
Adequate Sample Volume	Yes
pH Range	N/A
Anomalies or additional comments: L4 & EDD	

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PROJECT REQUEST SHEET

Project #:	6733	Sample #:	1-9 ~~1-19~~ DIV 5.2.11	Client Manager:	BS
Client:	Analytical Resources Inc. Sue Dunnihoo			Hold Time:	04/17/2012
Matrix:	Soil	Extraction Batch:	2282	Due Date:	05/16/2011
Method:	EPA 1613 D/F			Storage:	R2
SOP:	SOPs: EP2A Rev.9 IP2A Rev.10				

COMMENTS/INSTRUCTIONS:

MS·MSD requested on sample 6733·009.SA.

Results: 6733

Instrument:
DB5 Fcl3
DB225 ____
DB1 ____
Other ____

Extract/s located in box: "wind mill"

Standards: 6733

Frontier Analytical Laboratory
Percent Solids

FAL Project: 6733

	Sample ID	Chemist	Date	Wet Sample Weight (g)	Dry Sample Weight (g)	% Solids	10g Equiv
-1.32	6733-001-0001-SA	WM	04-26-11	8.63	7.27	84.24	11.87
-1.32	6733-002-0001-SA			8.21	7.26	88.43	11.31
-1.34	6733-003-0001-SA			7.02	6.34	90.31	11.07
-1.33	6733-004-0001-SA			7.08	5.17	73.02	13.69
-1.32	6733-005-0001-SA			9.48	8.09	85.34	11.72
-1.33	6733-006-0001-SA			8.59	7.08	82.42	12.13
-1.33	6733-007-0001-SA			6.89	5.47	79.39	12.60
-1.32	6733-008-0001-SA			8.93	8.06	90.26	11.08
-1.33	6733-009-0001-SA			8.56	7.43	86.80	11.52
-1.32	6733-009-0002-MS			7.24	6.29	86.88	11.51
-1.31	6733-009-0002-MSD			9.49	7.98	84.09	11.89
-1.32	6733-010-0001-SA			4.96	4.24	85.48	11.70
-1.32	6733-011-0001-SA			6.32	5.71	90.35	11.07
-1.32	6733-012-0001-SA			7.16	6.37	88.97	11.24
-1.32	6733-013-0001-SA			9.25	8.12	87.78	11.39
-1.32	6733-014-0001-SA			6.96	6.37	91.52	10.93
-1.32	6733-015-0001-SA			8.78	7.94	90.43	11.06
-1.34	6733-016-0001-SA			6.99	6.49	92.85	10.77
-1.32	6733-017-0001-SA			6.18	5.76	93.20	10.73
-1.33	6733-018-0001-SA			9.10	8.37	91.98	10.87
-1.32	6733-019-0001-SA	↓	↓	6.15	5.59	90.89	11.00

% Solids Summary:

Non-Filtered Determination

1. Place an aliquot of sample into a pre-weighed aluminum weighing boat. Use approximately two to ten grams for solid samples, approximately 10 mL for aqueous samples.
2. Record the weight.
3. Dry sample overnight at approximately 110 C.

Filtered Determination

1. Pre-weigh a glass fiber filter of appropriate pore size and pressure filter a sample aliquot (200-1000mL) through it.
2. Air dry the filter and record the dry weight.

Frontier Analytical Laboratory

EXTRACTION SHEET

Project #: 6733 Extraction Date: 2011-05-02 Extraction Chemist: DV

Method/Analysis: EPA 1613 D/F

Procedure: SOX/SDS Solvent: Toluene

Sample ID	Wet wt. (g/L)	Dry wt. (g/L)	IS Amt: 10.0uL ID: 100511A Vial: 5 Chemist/Witness/Date	NS Amt: 10.0uL ID: 100511B Vial: 5 Chemist/Witness/Date	CSS Amt: 10.0uL ID: 100511C Vial: 5 Chemist/Witness/Date
2282-001-0001-MB	(5.00g)	(5.00g)	DN WM 5.2.11	N/A	DN GN 5.3.11
2282-001-0001-OPR	(5.00g)	(5.00g)		DN WM 5.2.11	
6733-001-0001-SA	5.97	5.03g		N/A	
6733-002-0001-SA	5.70	5.04g			
6733-003-0001-SA	5.49	4.96g			
6733-004-0001-SA	6.89	5.03g			
6733-005-0001-SA	5.81	4.96g			
6733-006-0001-SA	6.13	5.05g			
6733-007-0001-SA	6.33	5.03g			
6733-008-0001-SA	5.46	4.93g			
6733-009-0001-SA	5.70	4.95g			
6733-009-0002-MS	5.71	4.96g		DN WM 5.2.11	
6733-009-0002-MSD	6.02	5.06g			

AX-21 Charcoal Cleaned	082510	Acetone	107203	Acid Alumina	A0284730	Hexane	110182
Hydrochloric Acid	B08505	Methanol	106063	Methylene Chloride (DCM)	51042	Silica Gel	TA1592834
Sodium Hydroxide	0062836	Sodium Sulfate	1750C277	Sulfuric Acid	110205	Tetradecane	086237
Toluene	108273	Water	50321	C-18 Empore Discs	320555	Cyclohexane	50204

Comments:

Frontier Analytical Laboratory

CLEANUP SHEET

Project #: 6733

Method/Analysis: EPA 1613 D/F

Splits: 0 Split Date: N/A Final Volume: 20.0uL

Sample ID	Cleanup 1 MSA.AA Chemist/Date	Cleanup 2 CC Chemist/Date	Cleanup 3 N/A Chemist/Date	RS Amt: 10.0uL ID: 100511D Vial: 8 Chemist/Witness/Date
2282-001-0001-MB	DN 5.3.11	DN 5.3.11	N/A	DN GN 5.3.11
2282-001-0001-OPR				
6733-001-0001-SA				
6733-002-0001-SA				
6733-003-0001-SA				
6733-004-0001-SA				
6733-005-0001-SA				
6733-006-0001-SA				
6733-007-0001-SA				
6733-008-0001-SA				
6733-009-0001-SA				
6733-009-0002-MS				
6733-009-0002-MSD				

Comments:

Frontier Analytical Laboratory

PROJECT REQUEST SHEET

Project #:	6733	Sample #:	10-19 ~~1-19~~ DN 5.2.11	Client Manager:	BS
Client:	Analytical Resources Inc. Sue Dunnihoo			Hold Time:	04/17/2012
Matrix:	Soil	Extraction Batch:	2283	Due Date:	05/16/2011
Method:	EPA 1613 D/F			Storage:	R2
SOP:	SOPs: EP2A Rev.9 IP2A Rev.10				

COMMENTS/INSTRUCTIONS:

Results: 6733-10

Extract/s located in box: "Wind Mill"

Standards: 6733

Instrument:	
DB5	FAL-3
DB225	_____
DB1	_____
Other	_____

Frontier Analytical Laboratory
Percent Solids

FAL Project: 6733

	Sample ID	Chemist	Date	Wet Sample Weight (g)	Dry Sample Weight (g)	% Solids	10g Equiv	
-1.32	6733-001-0001-SA	WM	04-26-11	8.63	7.27	84.24	11.87	
-1.32	6733-002-0001-SA			8.21	7.26	88.43	11.31	
-1.34	6733-003-0001-SA			7.02	6.34	90.31	11.07	
-1.33	6733-004-0001-SA			7.08	5.17	73.02	13.69	
-1.32	6733-005-0001-SA			9.48	8.09	85.34	11.72	
-1.33	6733-006-0001-SA			8.59	7.08	82.42	12.13	
-1.33	6733-007-0001-SA			6.89	5.47	79.39	12.60	
-1.32	6733-008-0001-SA			8.93	8.06	90.26	11.08	
-1.33	6733-009-0001-SA			8.56	7.43	86.80	11.52	
-1.32	6733-009-0002-MS			7.24	6.29	86.88	11.51	
-1.31	6733-009-0002-MSD			9.49	7.98	84.09	11.89	
-1.32	6733-010-0001-SA			4.96	4.24	85.48	11.70	5.85
-1.32	6733-011-0001-SA			6.32	5.71	90.35	11.07	5.54
-1.32	6733-012-0001-SA			7.16	6.37	88.97	11.24	5.62
-1.32	6733-013-0001-SA			9.25	8.12	87.78	11.39	5.70
-1.32	6733-014-0001-SA			6.96	6.37	91.52	10.93	5.47
-1.32	6733-015-0001-SA			8.78	7.94	90.43	11.06	5.53
-1.34	6733-016-0001-SA			6.99	6.49	92.85	10.77	5.39
-1.32	6733-017-0001-SA			6.18	5.76	93.20	10.73	5.37
-1.33	6733-018-0001-SA			9.10	8.37	91.98	10.87	5.44
-1.32	6733-019-0001-SA	↓	↓	6.15	5.59	90.89	11.00	5.50

% Solids Summary:

Non-Filtered Determination

1. Place an aliquot of sample into a pre-weighed aluminum weighing boat. Use approximately two to ten grams for solid samples, approximately 10 mL for aqueous samples.
2. Record the weight.
3. Dry sample overnight at approximately 110 C.

Filtered Determination

1. Pre-weigh a glass fiber filter of appropriate pore size and pressure filter a sample aliquot (200-1000mL) through it.
2. Air dry the filter and record the dry weight.

Frontier Analytical Laboratory
EXTRACTION SHEET

Project #: 6733 Extraction Date: 2011-05-05 Extraction Chemist: GN

Method/Analysis: EPA 1613 D/F

Procedure: SOX/SDS Solvent: Toluene

Sample ID	Wet wt. (g/L)	Dry wt. (g/L)	IS Amt: 10.0uL ID: 100511A Vial: 5 Chemist/Witness/Date	NS Amt: 10.0uL ID: 100511B Vial: ~~5~~ 6 GN 5/5/11 Chemist/Witness/Date	CSS Amt: 10.0uL ID: 100511C Vial: 5 Chemist/Witness/Date
2283-001-0001-MB	(5.00)	(5.00)	GN YM 5/5/11	NA	GN 5/6/11
2283-001-0001-OPR	(5.00)	(5.00)		GN YM 5/5/11	
6733-010-0001-SA	5.85	5.00		NA	
6733-011-0001-SA	5.58	5.04			
6733-012-0001-SA	5.63	5.01			
6733-013-0001-SA	5.71	5.01			
6733-014-0001-SA	5.51	5.04			
6733-015-0001-SA	5.78	5.23			
6733-016-0001-SA	5.47	5.08			
6733-017-0001-SA	5.38	5.01			
6733-018-0001-SA	5.46	5.02			
6733-019-0001-SA	5.51	5.01			

AX-21 Charcoal Cleaned	082510	Acetone	107203	Acid Alumina	A0284730	Hexane	110182
Hydrochloric Acid	B08505	Methanol	106063	Methylene Chloride (DCM)	51042	Silica Gel	TA1592834
Sodium Hydroxide	0062836	Sodium Sulfate	1750C277	Sulfuric Acid	110205	Tetradecane	086237
Toluene	108273	Water	50321	C-18 Empore Discs	320555	Cyclohexane	50204

Comments:

Frontier Analytical Laboratory
CLEANUP SHEET

Project #: 6733

Method/Analysis: EPA 1613 D/F

Splits: 0 Split Date: N/A Final Volume: 20.0uL

Sample ID	Cleanup 1 MSG|AA Chemist/Date	Cleanup 2 Charcoal Chemist/Date	Cleanup 3 NA Chemist/Date	RS Amt: 10.0uL ID: 100511D Vial: 8 Chemist/Witness/Date
2283-001-0001-MB	GN 5/6/11	GN 5/6/11	NA	GN ZM 5/6/11
2283-001-0001-OPR				
6733-010-0001-SA				
6733-011-0001-SA				
6733-012-0001-SA				
6733-013-0001-SA				
6733-014-0001-SA				
6733-015-0001-SA				
6733-016-0001-SA				
6733-017-0001-SA				
6733-018-0001-SA				
6733-019-0001-SA				

Comments:

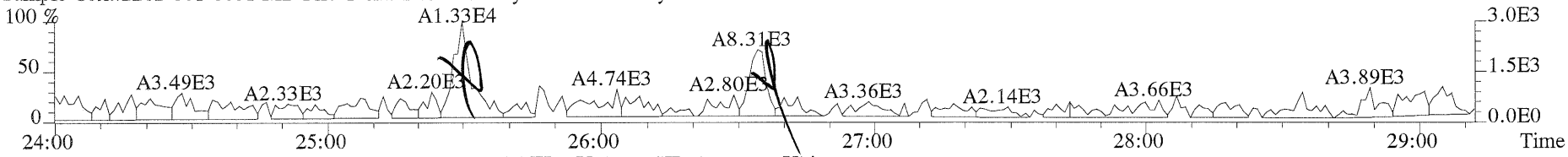
FAL ID: 2282-001-0001-MB Filename: 04MAY11M Sam:3 Acquired: 4-MAY-11 10:32:58 ICal: PCDDFAL3-3-7-11
Client ID: Method Blank ConCal: ST050411M1 EndCal: ST050411M2
Results: 2282 GC Column: DB5 Amount: 5.000 NATO 1989 Tox: 0.00
WHO 1998 Tox: 0.00 WHO 2005 Tox: 0.00

Name	Resp	RA		RT	RRF	Conc	Qual	Fac	Noise-1	Noise-2	DL
2,3,7,8-TCDD	*	*	n	NotFnd	1.13	*		2.50	540	596	0.142
1,2,3,7,8-PeCDD	*	*	n	NotFnd	1.02	*		2.50	576	476	0.203
1,2,3,4,7,8-HxCDD	*	*	n	NotFnd	1.45	*		2.50	636	552	0.219
1,2,3,6,7,8-HxCDD	*	*	n	NotFnd	1.45	*		2.50	636	552	0.288
1,2,3,7,8,9-HxCDD	*	*	n	NotFnd	1.47	*		2.50	636	552	0.247
1,2,3,4,6,7,8-HpCDD	*	*	n	NotFnd	1.30	*		2.50	524	536	0.341
OCDD	*	*	n	NotFnd	1.45	*		2.50	612	624	0.834
2,3,7,8-TCDF	*	*	n	NotFnd	1.15	*		2.50	780	804	0.115
1,2,3,7,8-PeCDF	*	*	n	NotFnd	0.89	*		2.50	588	628	0.157
2,3,4,7,8-PeCDF	*	*	n	NotFnd	0.89	*		2.50	588	628	0.169
1,2,3,4,7,8-HxCDF	*	*	n	NotFnd	1.01	*		2.50	524	536	0.179
1,2,3,6,7,8-HxCDF	*	*	n	NotFnd	0.89	*		2.50	524	536	0.168
2,3,4,6,7,8-HxCDF	*	*	n	NotFnd	1.02	*		2.50	524	536	0.190
1,2,3,7,8,9-HxCDF	*	*	n	NotFnd	1.10	*		2.50	524	536	0.176
1,2,3,4,6,7,8-HpCDF	*	*	n	NotFnd	1.48	*		2.50	524	508	0.255
1,2,3,4,7,8,9-HpCDF	*	*	n	NotFnd	1.43	*		2.50	524	508	0.292
OCDF	*	*	n	NotFnd	0.84	*		2.50	544	620	0.648
											Rec
13C-2,3,7,8-TCDD	3.18e+07	0.78	y	27:19	1.03	369					92.2
13C-1,2,3,7,8-PeCDD	2.89e+07	1.77	y	33:09	1.01	342					85.5
13C-1,2,3,4,7,8-HxCDD	2.10e+07	1.26	y	38:31	1.19	364					91.1
13C-1,2,3,6,7,8-HxCDD	1.81e+07	1.26	y	38:41	0.94	401					100
13C-1,2,3,4,6,7,8-HpCDD	1.63e+07	1.03	y	44:06	0.83	409					102
13C-OCDD	1.79e+07	0.97	y	49:39	0.61	609					76.2
13C-2,3,7,8-TCDF	5.37e+07	0.87	y	26:34	0.98	394					98.4
13C-1,2,3,7,8-PeCDF	4.52e+07	1.69	y	31:25	0.83	391					97.7
13C-2,3,4,7,8-PeCDF	4.27e+07	1.70	y	32:44	0.80	382					95.4
13C-1,2,3,4,7,8-HxCDF	3.41e+07	0.46	y	37:07	1.84	384					95.9
13C-1,2,3,6,7,8-HxCDF	4.43e+07	0.47	y	37:20	2.29	400					99.9
13C-2,3,4,6,7,8-HxCDF	3.42e+07	0.47	y	38:15	1.86	380					95.1
13C-1,2,3,7,8,9-HxCDF	3.80e+07	0.47	y	39:41	1.98	397					99.2
13C-1,2,3,4,6,7,8-HpCDF	1.78e+07	0.46	y	42:13	0.99	372					93.0
13C-1,2,3,4,7,8,9-HpCDF	1.70e+07	0.45	y	45:01	0.77	459					115
13C-OCDF	3.59e+07	0.95	y	50:01	1.17	638					79.7
37Cl-2,3,7,8-TCDD	8.68e+06			27:21	0.73	142					88.8
13C-1,2,3,4-TCDD	3.35e+07	0.78	y	26:46	-	17.6					
13C-1,2,3,4-TCDF	5.57e+07	0.88	y	25:30	-	15.5					
13C-1,2,3,7,8,9-HxCDD	1.93e+07	1.25	y	39:07	-	15.6					

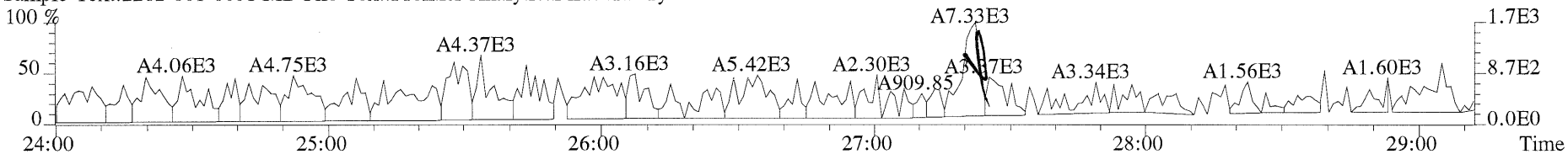
				Fac	Noise-1	Noise-2	DL		#Hom
Total Tetra-Dioxins	*	NotFnd	1.13	*	2.50	540	596	0.142		0
Total Penta-Dioxins	*	NotFnd	1.02	*	2.50	576	476	0.203		0
Total Hexa-Dioxins	*	NotFnd	1.46	*	2.50	636	552	0.288		0
Total Hepta-Dioxins	*	NotFnd	1.30	*	2.50	524	536	0.341		0
Total Tetra-Furans	*	NotFnd	1.15	*	2.50	780	804	0.115		0
1st Fn. Tot Penta-Furans	*	NotFnd	0.89	*	2.50	588	628	0.169	PeCDF	0
Total Penta-Furans	*	NotFnd	0.89	*	2.50	588	628	0.169	*	0
Total Hexa-Furans	*	NotFnd	1.00	*	2.50	524	536	0.190		0
Total Hepta-Furans	*	NotFnd	1.46	*	2.50	524	508	0.292		0

Analyst: _____ Date: 5/5/11

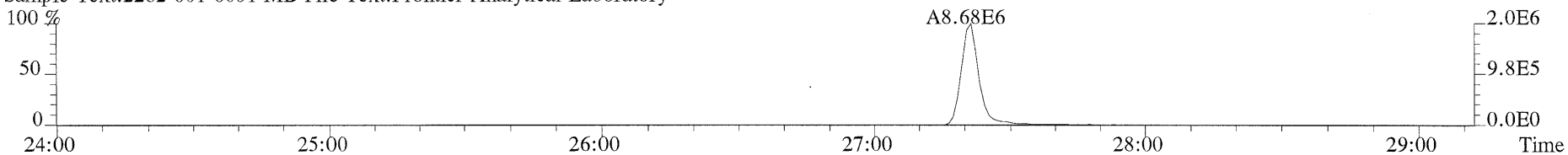
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



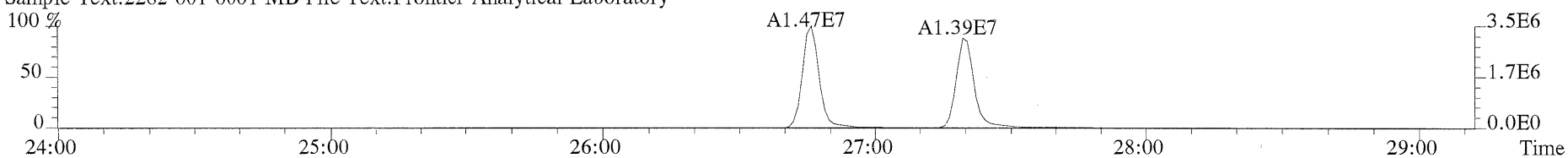
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



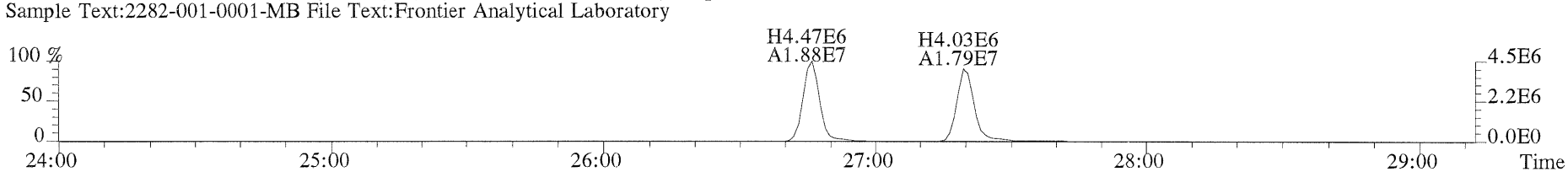
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



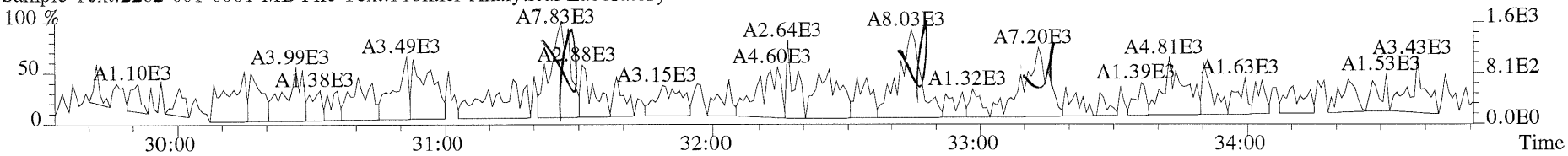
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



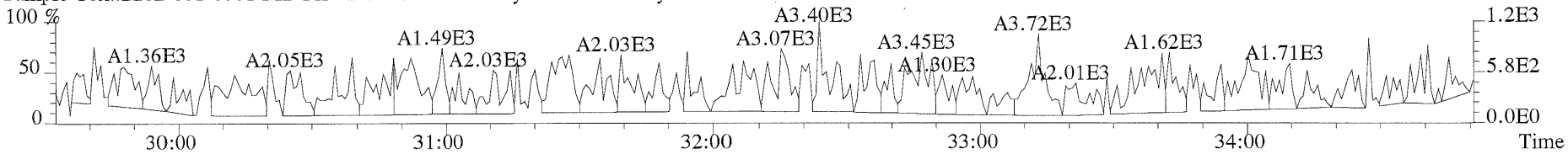
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



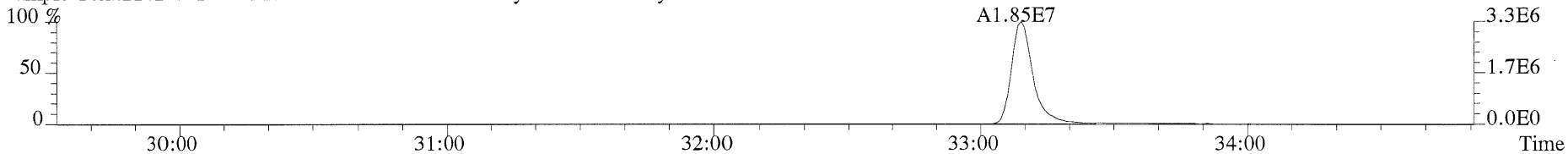
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



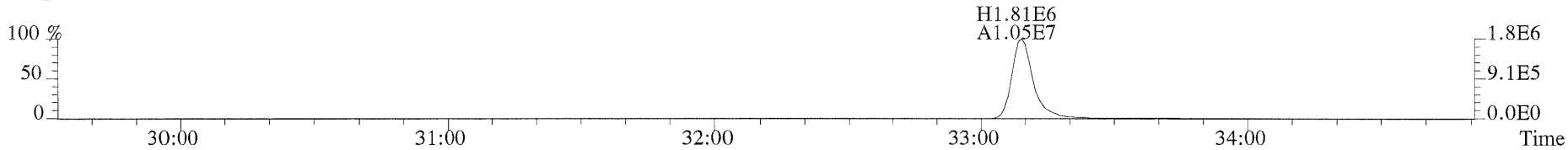
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
357.8517 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



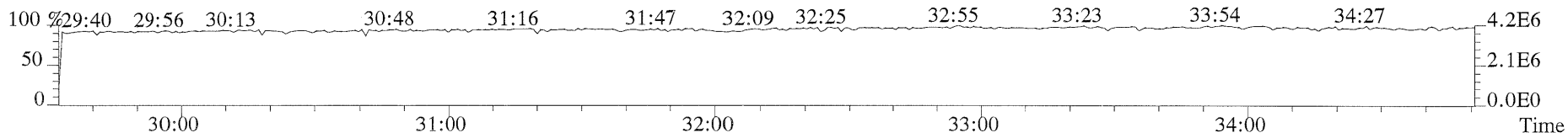
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



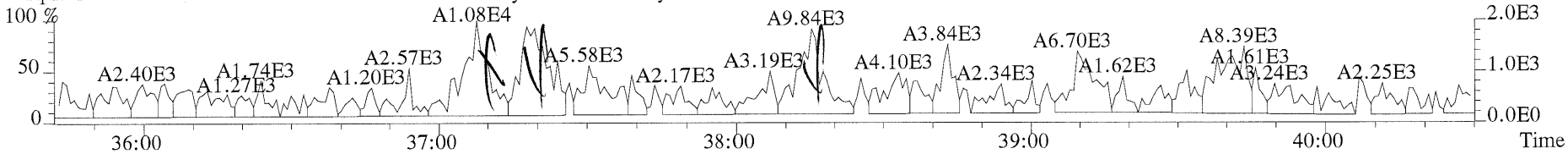
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
369.8919 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



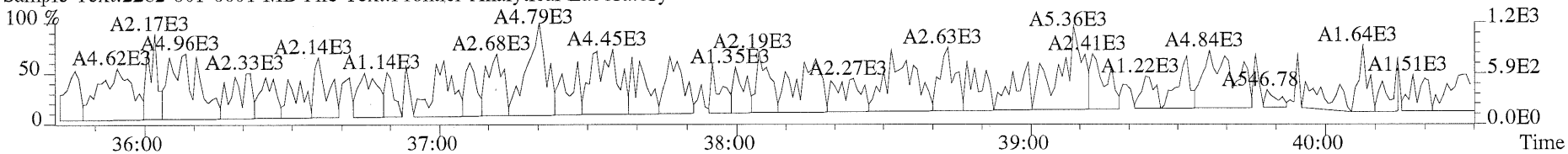
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:3 F:2 Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



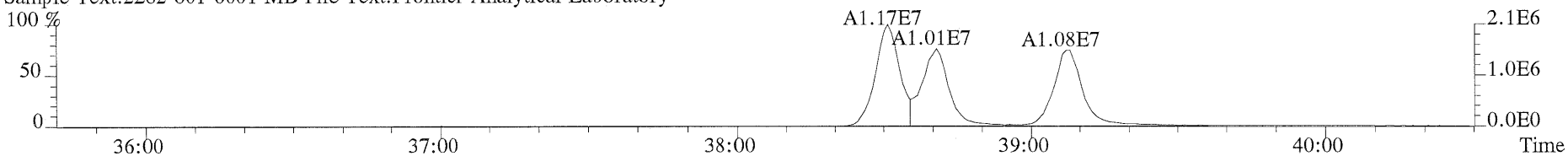
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



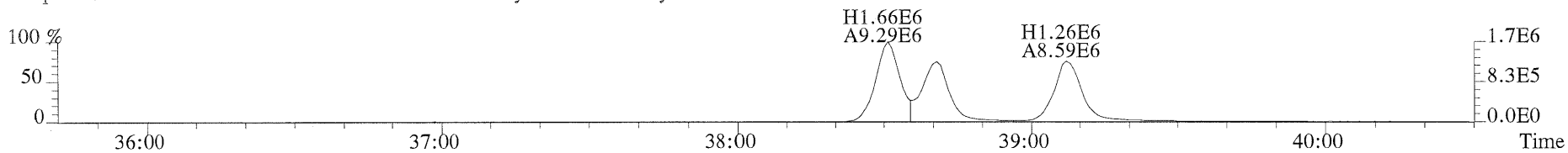
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



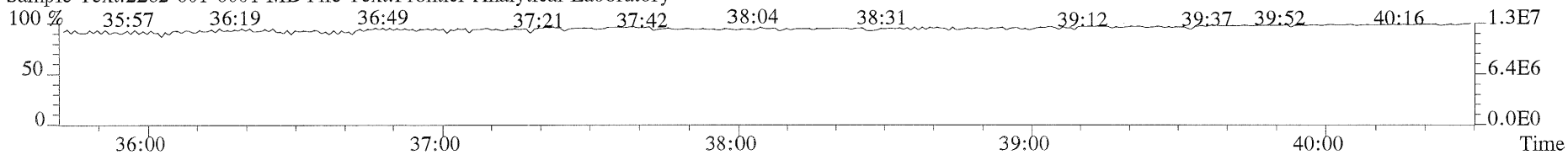
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



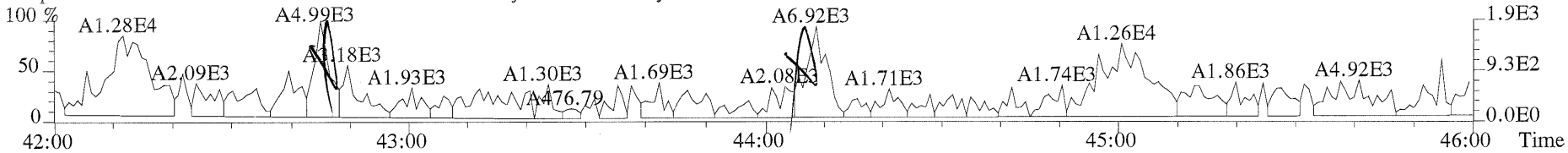
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



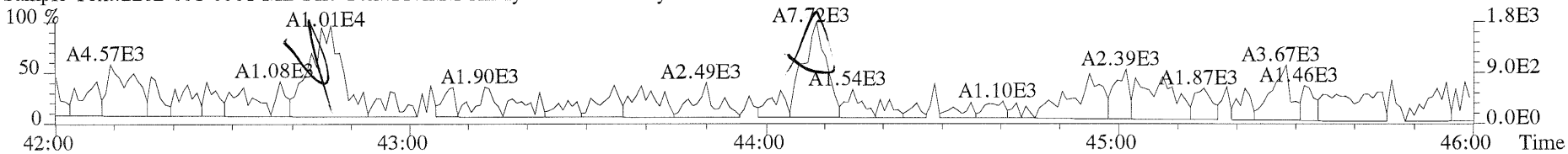
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
380.9760 S:3 F:3 Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



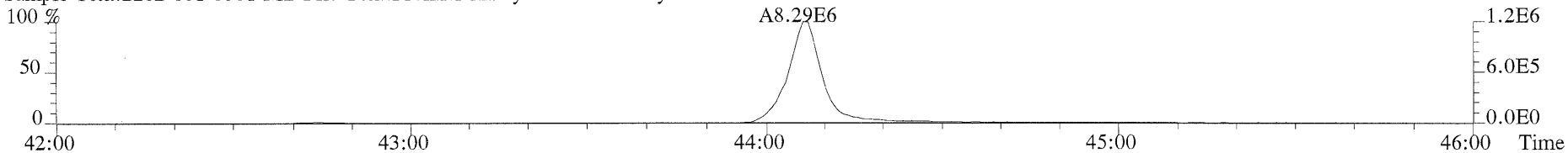
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



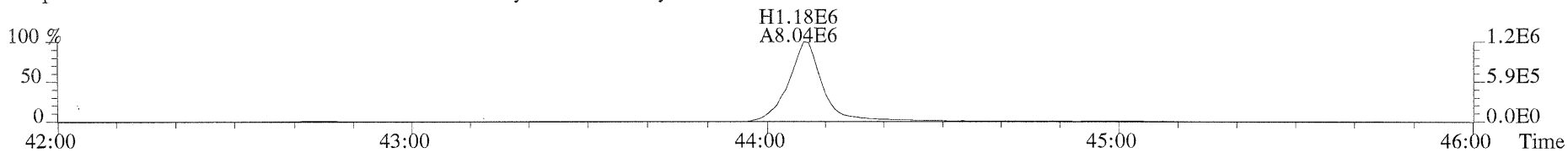
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



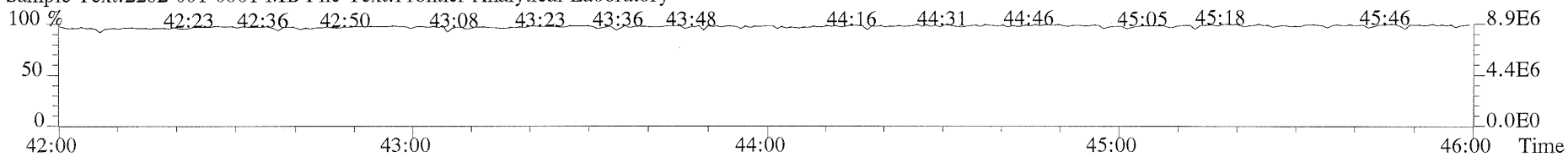
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



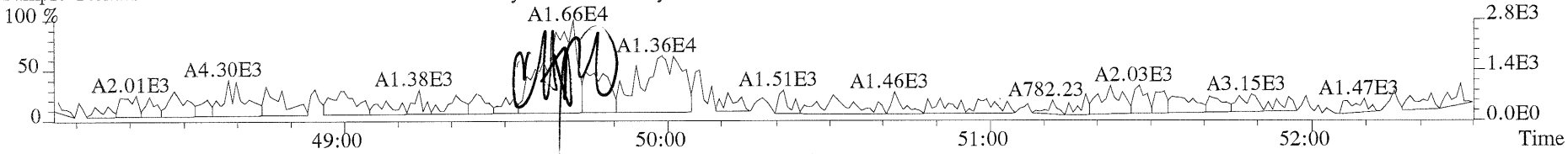
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



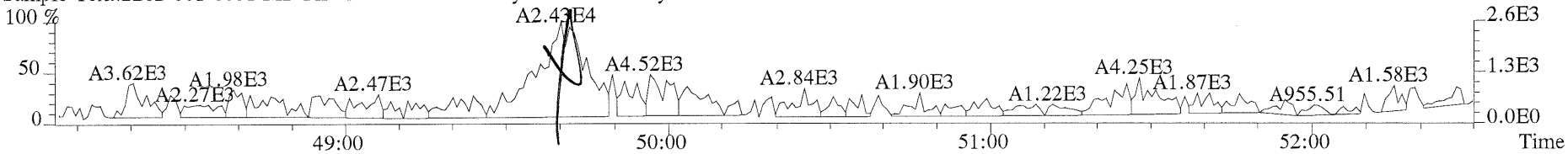
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:3 F:4 Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



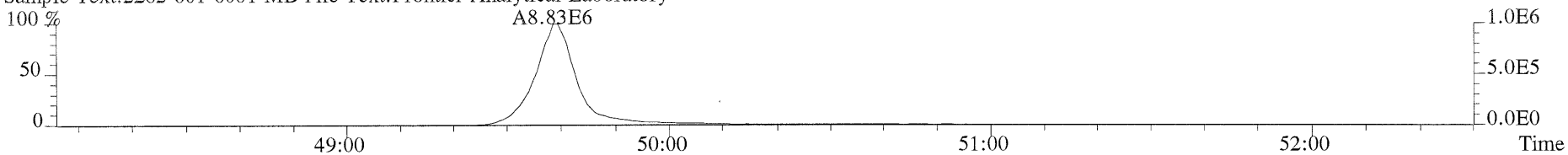
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



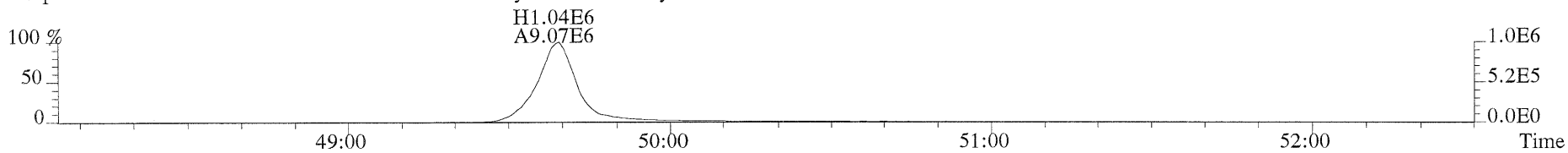
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



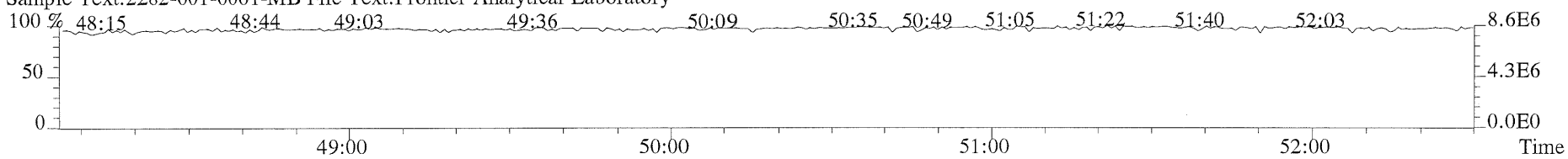
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



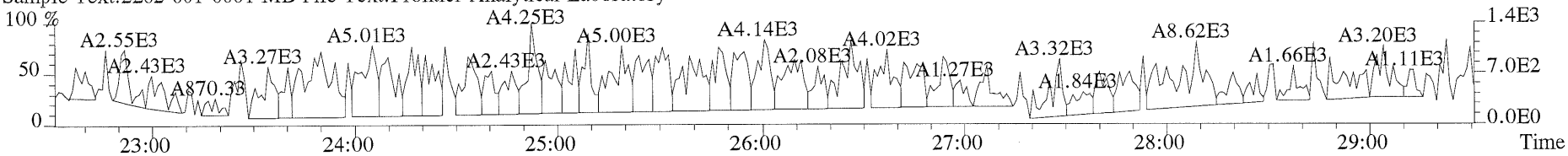
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



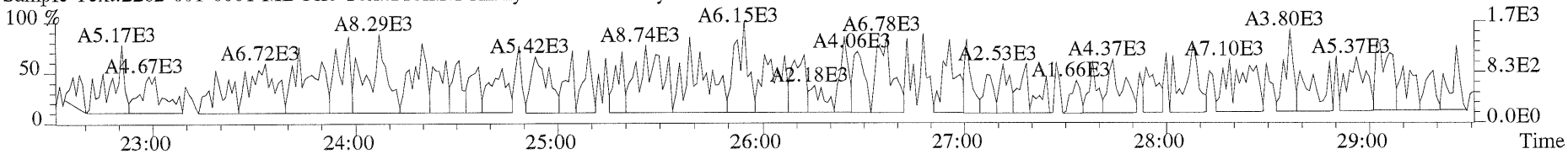
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:3 F:5 Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



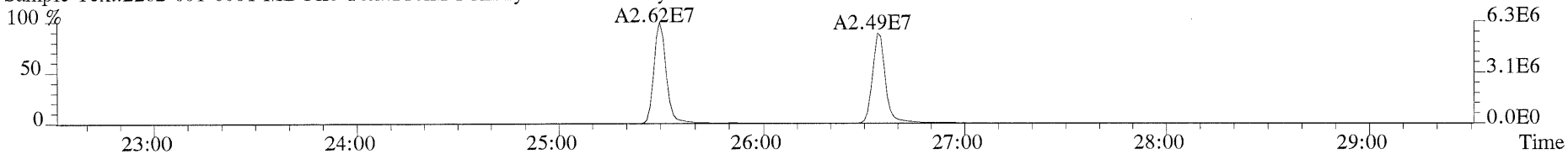
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



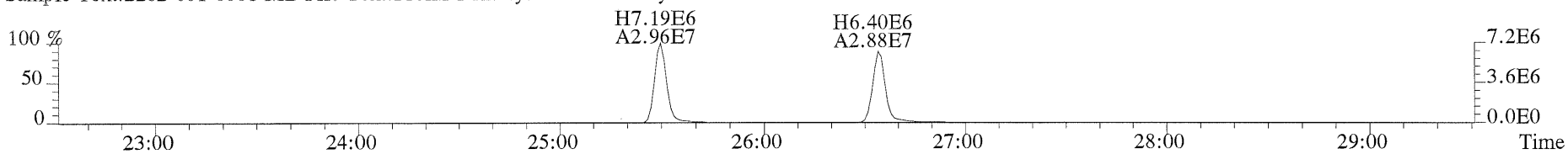
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



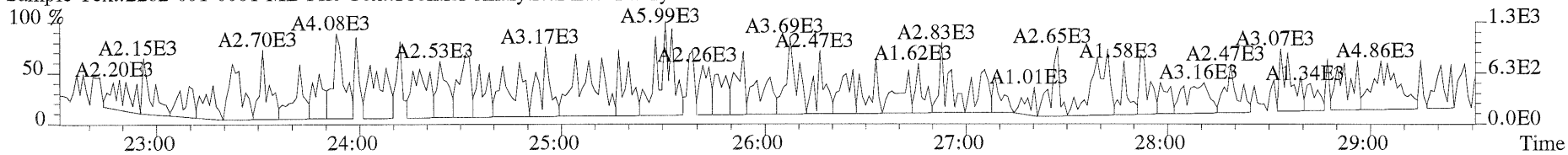
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



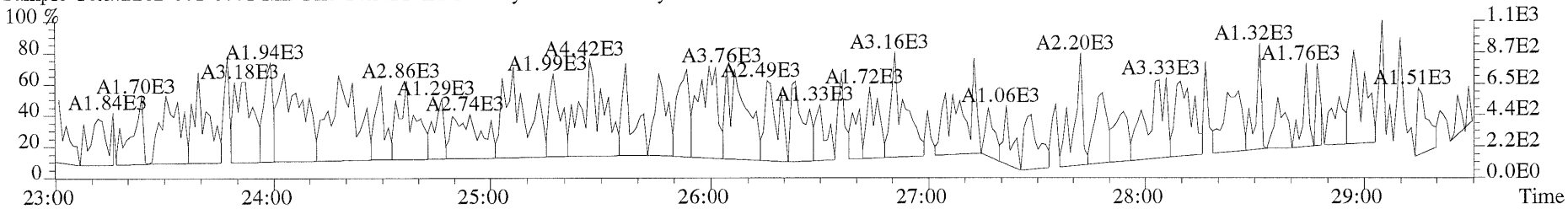
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



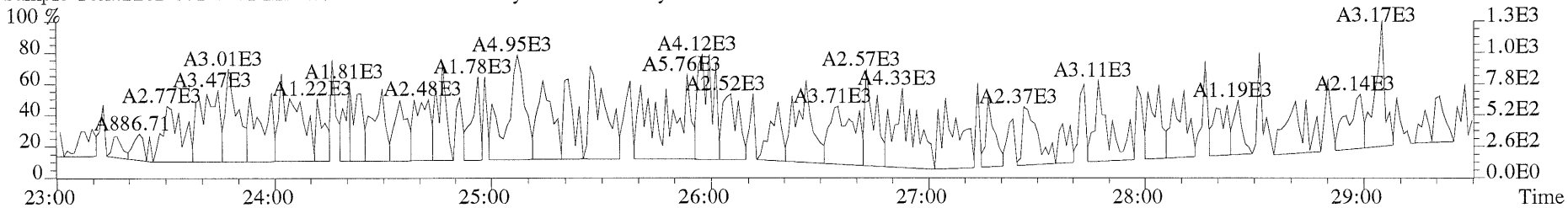
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



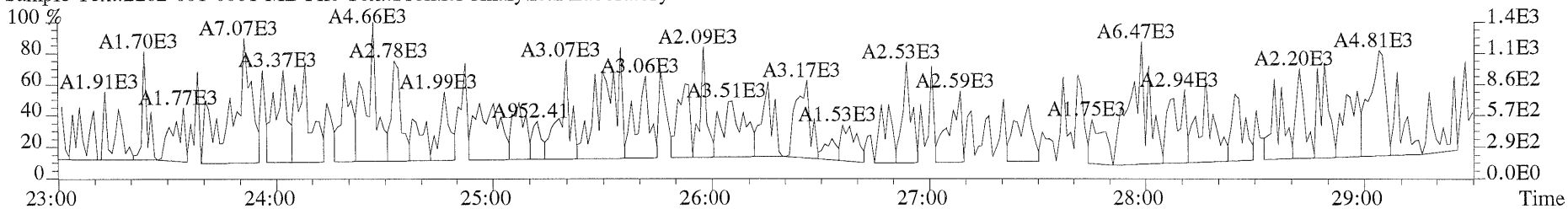
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



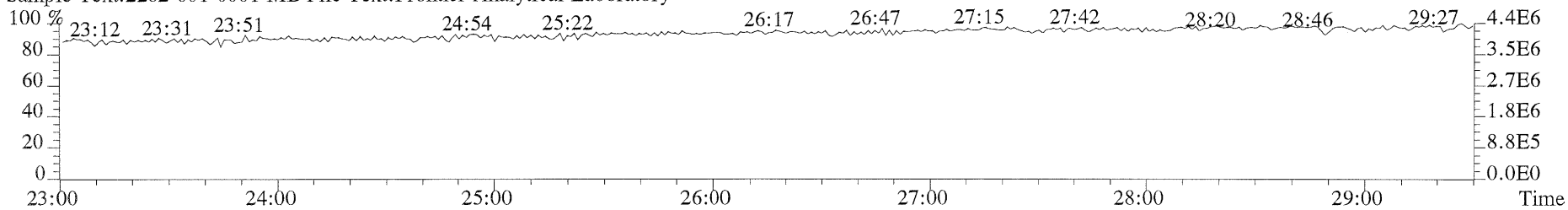
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



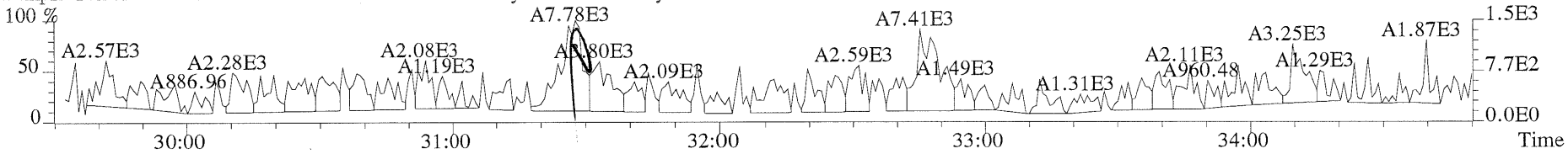
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



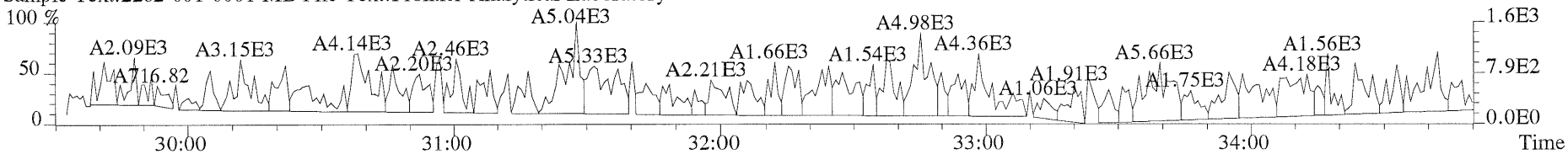
File:04MAY11M #1-426 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
316.9824 S:3 Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



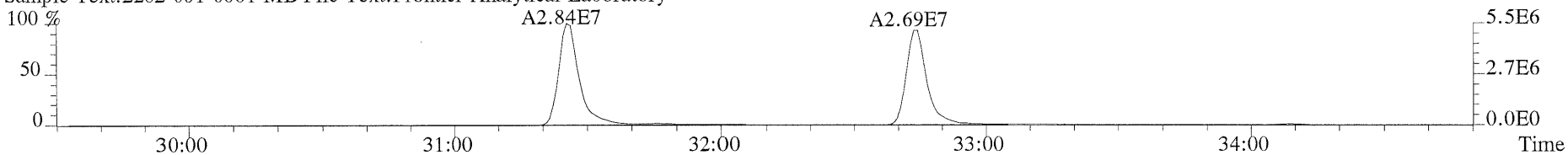
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



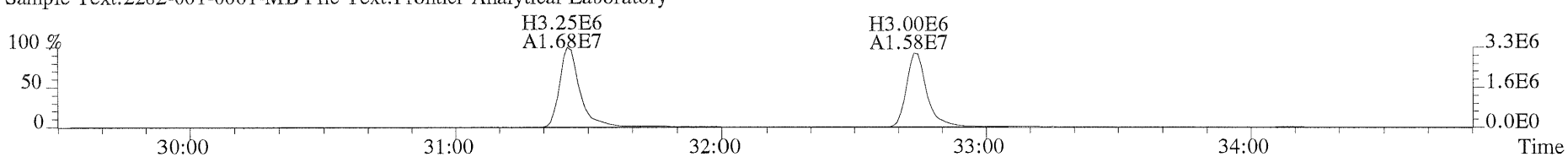
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



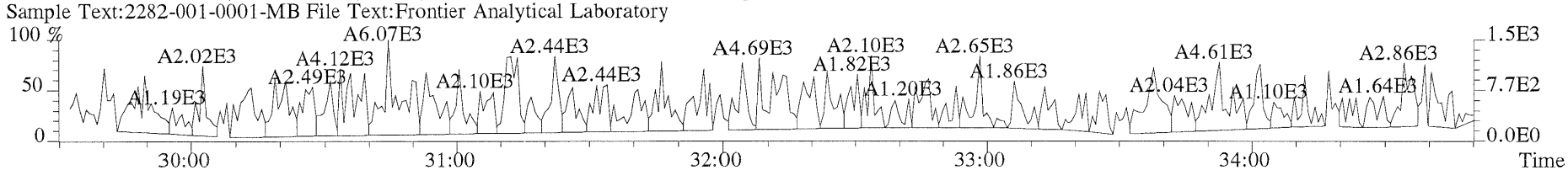
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



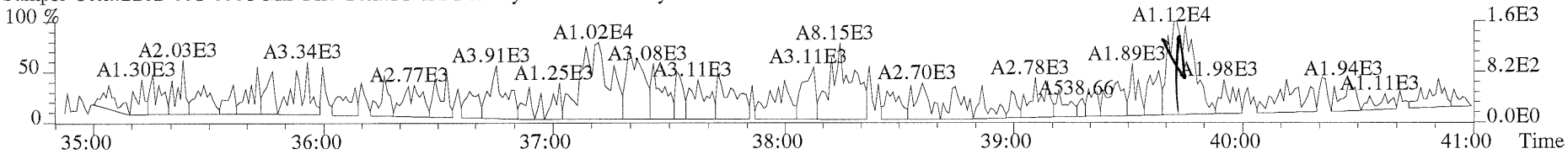
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
353.8970 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



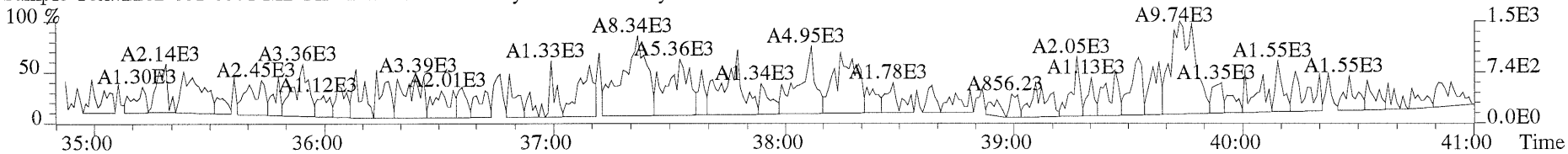
File:04MAY11M #1-412 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



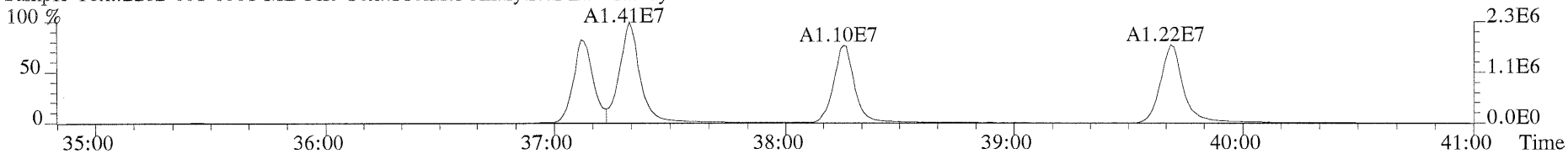
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



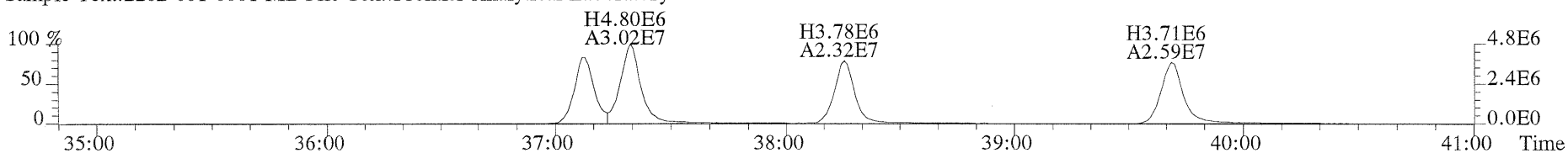
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
375.8178 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



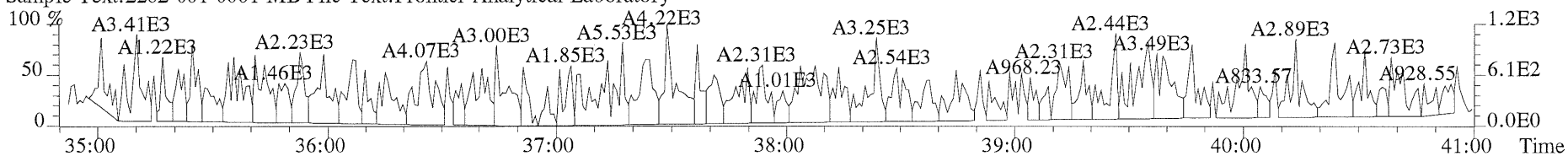
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



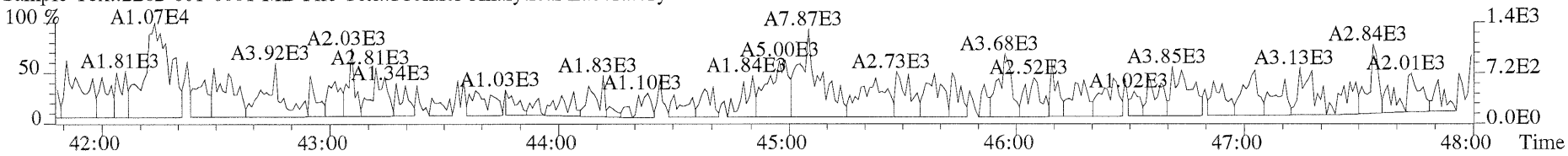
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



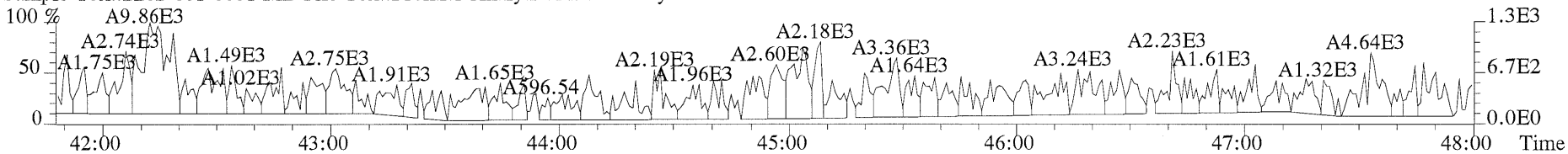
File:04MAY11M #1-476 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
445.7555 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



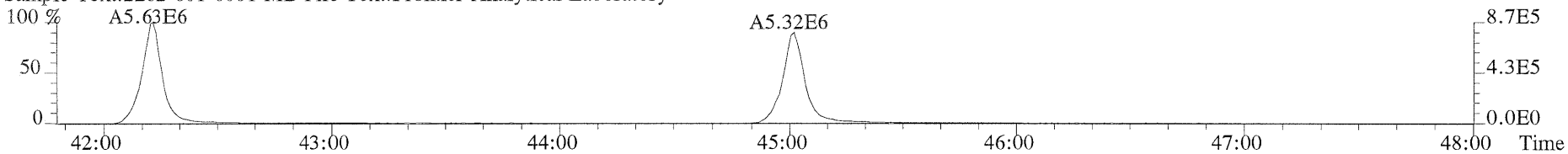
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



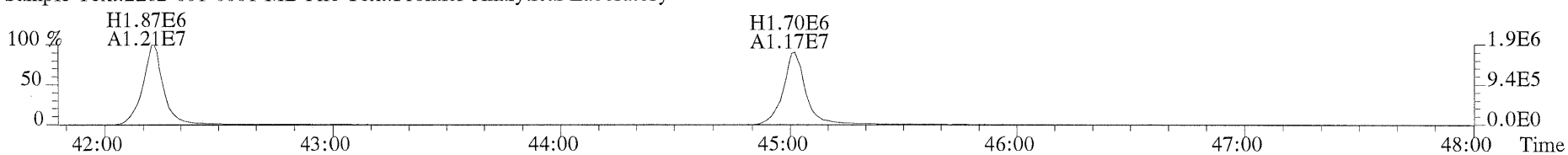
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
409.7788 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



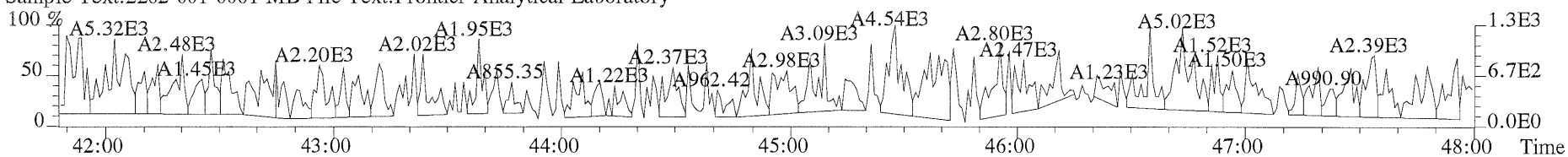
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



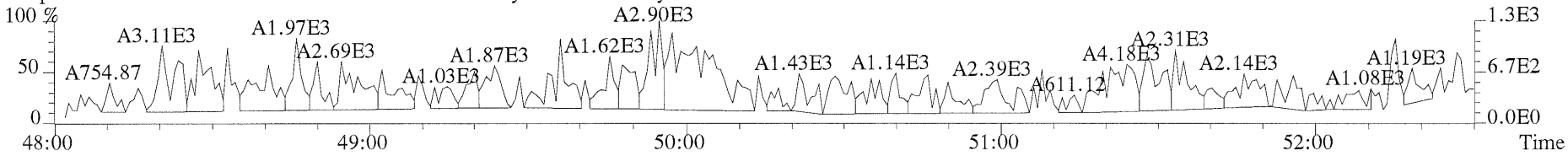
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
419.8220 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



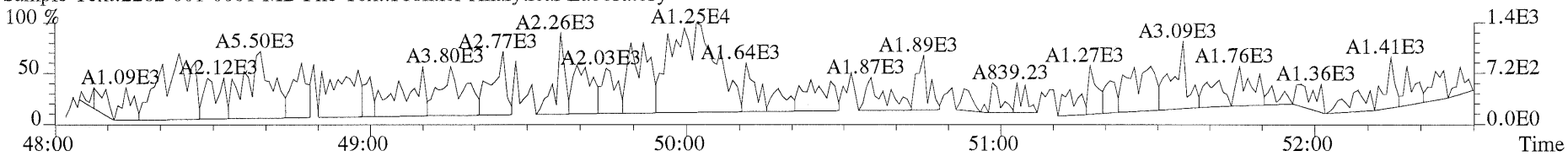
File:04MAY11M #1-541 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



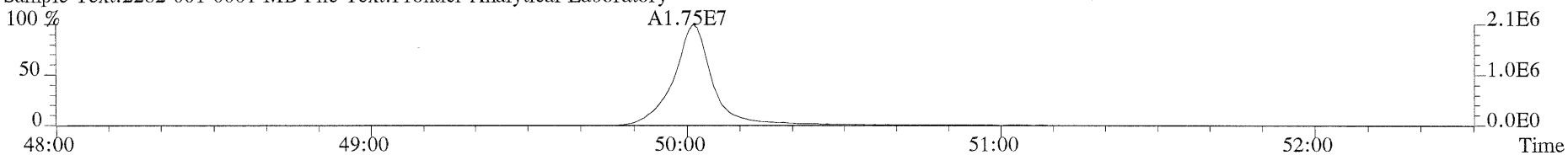
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



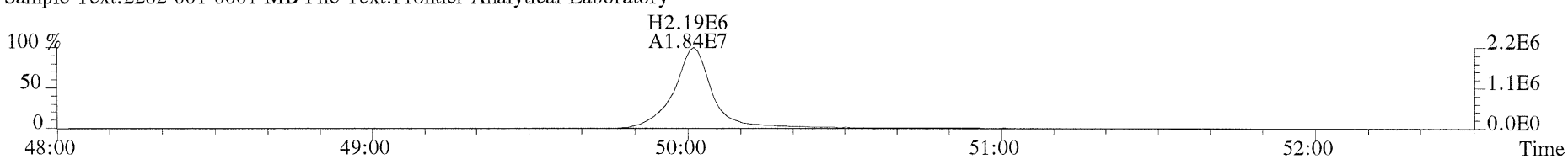
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



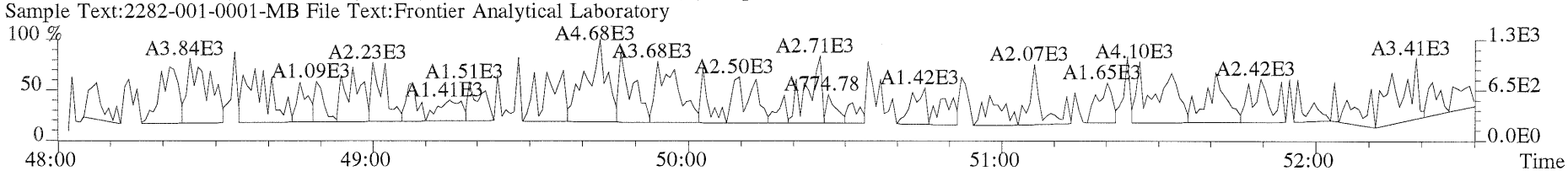
File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



File:04MAY11M #1-348 Acq: 4-MAY-2011 10:32:58 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-MB File Text:Frontier Analytical Laboratory



USEPA - ITD

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

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): Soil OPR Data Filename: 04MAY11M Sam:2

Ext. Date: 5/2/11 Shift: Day Analysis Date: 4-MAY-11 09:37:40

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
NATIVE ANALYTES			
2,3,7,8-TCDD	10	8.24	6.70 - 15.8
1,2,3,7,8-PeCDD	50	45.7	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	43.0	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	41.9	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	43.8	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	45.5	35.0 - 70.0
OCDD	100	88.6	78.0 - 144
2,3,7,8-TCDF	10	9.63	7.50 - 15.8
1,2,3,7,8-PeCDF	50	45.6	40.0 - 67.0
2,3,4,7,8-PeCDF	50	46.0	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	42.9	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	42.6	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	41.4	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	42.4	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	42.7	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	43.5	39.0 - 69.0
OCDF	100	83.6	63.0 - 170

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

Analyst: _____ Date: 5/5/11

USEPA - ITD

FORM 8B

PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): Soil OPR Data Filename: 04MAY11M Sam:2

Ext. Date: 5/2/11 Shift: Day Analysis Date: 4-MAY-11 09:37:40

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	95.0	20.0 - 175
13C-1,2,3,7,8-PeCDD	100	90.3	21.0 - 227
13C-1,2,3,4,7,8-HxCDD	100	92.0	21.0 - 193
13C-1,2,3,6,7,8-HxCDD	100	103	25.0 - 163
13C-1,2,3,4,6,7,8-HpCDD	100	103	26.0 - 166
13C-OCDD	200	158	26.0 - 397
13C-2,3,7,8-TCDF	100	101	22.0 - 152
13C-1,2,3,7,8-PeCDF	100	101	21.0 - 192
13C-2,3,4,7,8-PeCDF	100	98.6	13.0 - 328
13C-1,2,3,4,7,8-HxCDF	100	97.1	19.0 - 202
13C-1,2,3,6,7,8-HxCDF	100	101	21.0 - 159
13C-2,3,4,6,7,8-HxCDF	100	97.7	22.0 - 176
13C-1,2,3,7,8,9-HxCDF	100	98.2	17.0 - 205
13C-1,2,3,4,6,7,8-HpCDF	100	94.7	21.0 - 158
13C-1,2,3,4,7,8,9-HpCDF	100	122	20.0 - 186
13C-OCDF	200	167	26.0 - 397
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	36.8	12.4 - 76.4

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613
Labeled compound concentration limits are based on required percent recovery of 25%-150%.

Analyst: _____ Date: 5/5/11

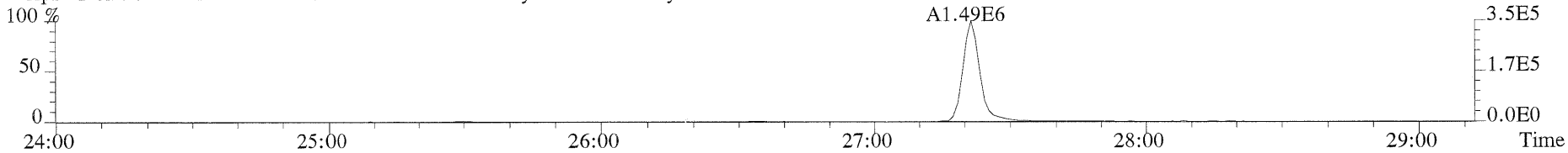
FAL ID: 2282-001-0001-OPR Filename: 04MAY11M Sam:2 Acquired: 4-MAY-11 09:37:40 ICal: PCDDFAL3-3-7-11
Client ID: OPR ConCal: ST050411M1 EndCal: ST050411M2
Results: 2282 GC Column: DB5 Amount: 1.000 NATO 1989 Tox: 88.6
WHO 1998 Tox: 111 WHO 2005 Tox: 101

Name	Resp	RA	RT	RRF	Conc	Qual	Fac	Noise-1	Noise-2	DL
2,3,7,8-TCDD	3.42e+06	0.78 y	27:21	1.13	8.24		2.50	-	-	*
1,2,3,7,8-PeCDD	1.59e+07	1.56 y	33:11	1.02	45.7		2.50	-	-	*
1,2,3,4,7,8-HxCDD	1.60e+07	1.28 y	38:32	1.45	43.0		2.50	-	-	*
1,2,3,6,7,8-HxCDD	1.37e+07	1.29 y	38:42	1.45	41.9		2.50	-	-	*
1,2,3,7,8,9-HxCDD	1.55e+07	1.29 y	39:09	1.47	43.8		2.50	-	-	*
1,2,3,4,6,7,8-HpCDD	1.19e+07	0.90 y	44:08	1.30	45.5		2.50	-	-	*
OCDD	1.45e+07	0.94 y	49:40	1.45	88.6		2.50	-	-	*
2,3,7,8-TCDF	6.89e+06	0.68 y	26:36	1.15	9.63		2.50	-	-	*
1,2,3,7,8-PeCDF	2.13e+07	1.61 y	31:27	0.89	45.6		2.50	-	-	*
2,3,4,7,8-PeCDF	2.06e+07	1.62 y	32:45	0.89	46.0		2.50	-	-	*
1,2,3,4,7,8-HxCDF	1.82e+07	1.24 y	37:09	1.01	42.9		2.50	-	-	*
1,2,3,6,7,8-HxCDF	2.06e+07	1.22 y	37:21	0.89	42.6		2.50	-	-	*
2,3,4,6,7,8-HxCDF	1.80e+07	1.19 y	38:17	1.02	41.4		2.50	-	-	*
1,2,3,7,8,9-HxCDF	2.14e+07	1.22 y	39:43	1.10	42.4		2.50	-	-	*
1,2,3,4,6,7,8-HpCDF	1.39e+07	1.05 y	42:14	1.48	42.7		2.50	-	-	*
1,2,3,4,7,8,9-HpCDF	1.37e+07	1.05 y	45:02	1.43	43.5		2.50	-	-	*
OCDF	1.61e+07	0.92 y	50:03	0.84	83.6		2.50	-	-	*
										Rec
13C-2,3,7,8-TCDD	3.66e+07	0.76 y	27:20	1.03	95.0					95.0
13C-1,2,3,7,8-PeCDD	3.42e+07	1.77 y	33:09	1.01	90.3					90.3
13C-1,2,3,4,7,8-HxCDD	2.57e+07	1.26 y	38:31	1.19	92.0					92.0
13C-1,2,3,6,7,8-HxCDD	2.25e+07	1.26 y	38:40	0.94	103					103
13C-1,2,3,4,6,7,8-HpCDD	2.01e+07	1.04 y	44:06	0.83	103					103
13C-OCDD	2.25e+07	0.98 y	49:40	0.61	158					79.0
13C-2,3,7,8-TCDF	6.24e+07	0.87 y	26:35	0.98	101					101
13C-1,2,3,7,8-PeCDF	5.28e+07	1.67 y	31:25	0.83	101					101
13C-2,3,4,7,8-PeCDF	5.01e+07	1.68 y	32:44	0.80	98.6					98.6
13C-1,2,3,4,7,8-HxCDF	4.20e+07	0.47 y	37:08	1.84	97.1					97.1
13C-1,2,3,6,7,8-HxCDF	5.42e+07	0.46 y	37:20	2.29	101					101
13C-2,3,4,6,7,8-HxCDF	4.27e+07	0.46 y	38:15	1.86	97.7					97.7
13C-1,2,3,7,8,9-HxCDF	4.57e+07	0.46 y	39:41	1.98	98.2					98.2
13C-1,2,3,4,6,7,8-HpCDF	2.20e+07	0.46 y	42:13	0.99	94.7					94.7
13C-1,2,3,4,7,8,9-HpCDF	2.20e+07	0.45 y	45:01	0.77	122					122
13C-OCDF	4.56e+07	0.95 y	50:01	1.17	167					83.4
37Cl-2,3,7,8-TCDD	1.00e+07		27:21	0.73	36.8					92.0
13C-1,2,3,4-TCDD	3.74e+07	0.78 y	26:46	-	98.5					
13C-1,2,3,4-TCDF	6.33e+07	0.88 y	25:30	-	87.9					
13C-1,2,3,7,8,9-HxCDD	2.35e+07	1.26 y	39:07	-	94.7					

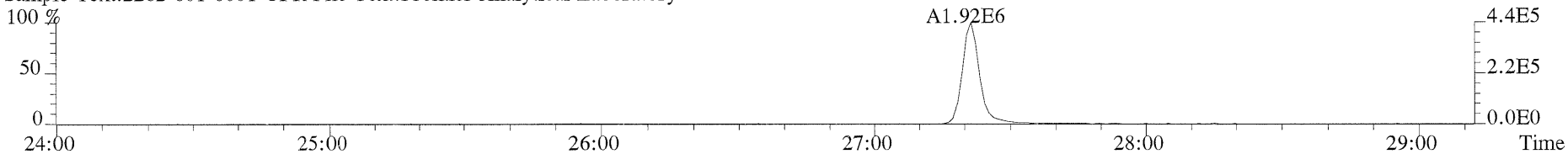
							Fac	Noise-1	Noise-2	DL		#Hom
Total Tetra-Dioxins	3.51e+06		23:11	1.13	8.47		2.50	-	-	*		16
Total Penta-Dioxins	1.60e+07		33:11	1.02	46.2		2.50	-	-	*		12
Total Hexa-Dioxins	4.56e+07		38:32	1.46	130		2.50	-	-	*		13
Total Hepta-Dioxins	1.21e+07		42:46	1.30	46.2		2.50	-	-	*		17
Total Tetra-Furans	6.98e+06		23:20	1.15	9.75		2.50	-	-	*		7
1st Fn. Tot Penta-Furans	1.29e+05		22:47	0.89	0.281		2.50	-	-	*	PeCDF	33
Total Penta-Furans	4.27e+07		30:12	0.89	93.3		2.50	-	-	*	93.6	11
Total Hexa-Furans	7.82e+07		35:29	1.00	169		2.50	-	-	*		6
Total Hepta-Furans	2.78e+07		42:14	1.46	87.0		2.50	-	-	*		12

Analyst: _____ Date: 5/5/11

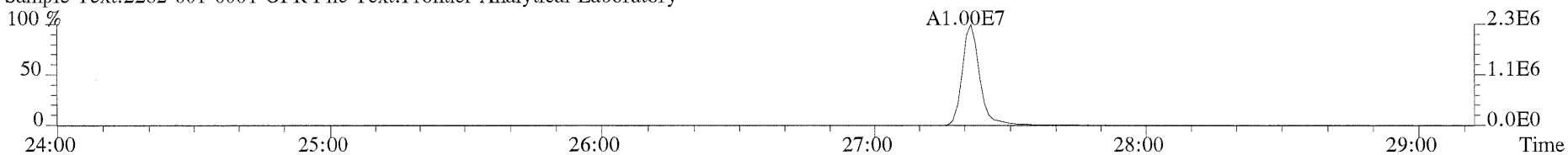
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



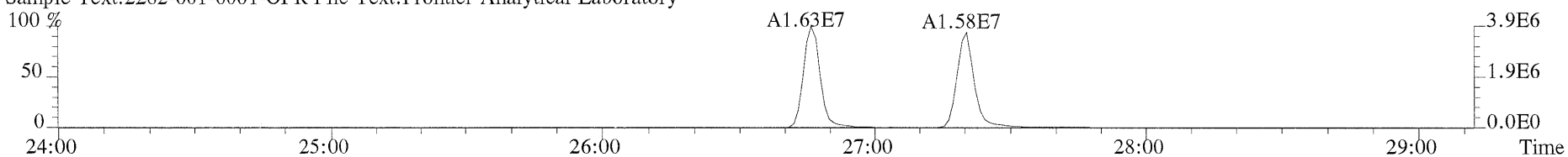
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



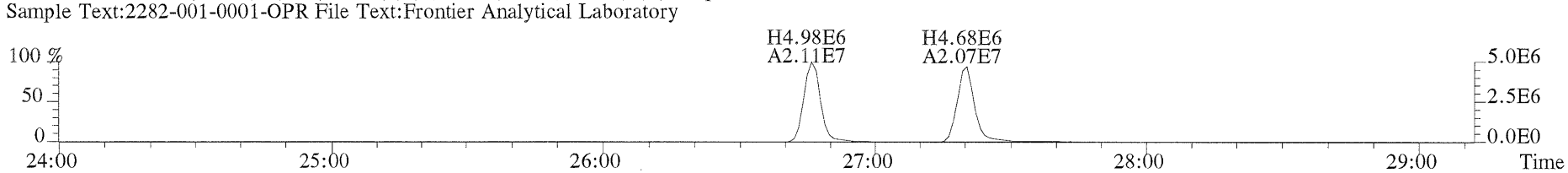
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



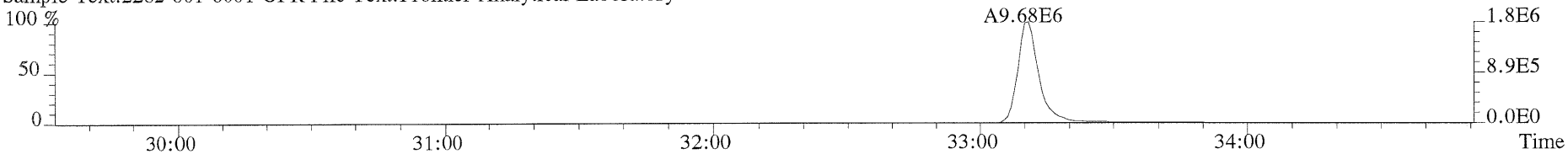
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



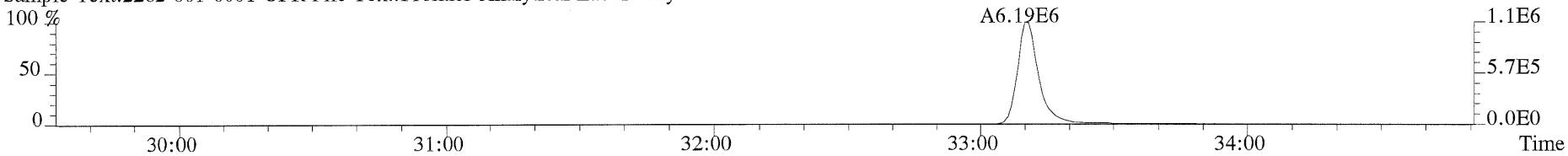
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



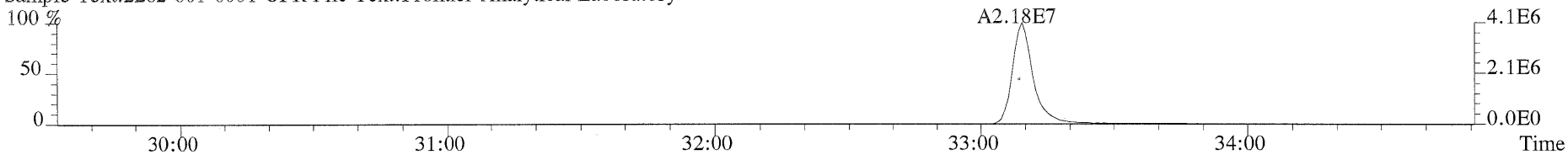
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



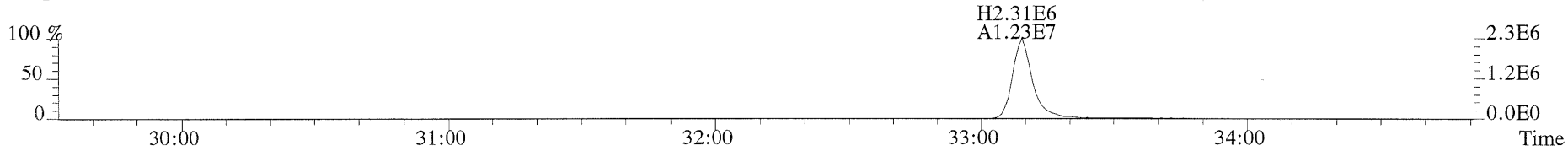
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
357.8517 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



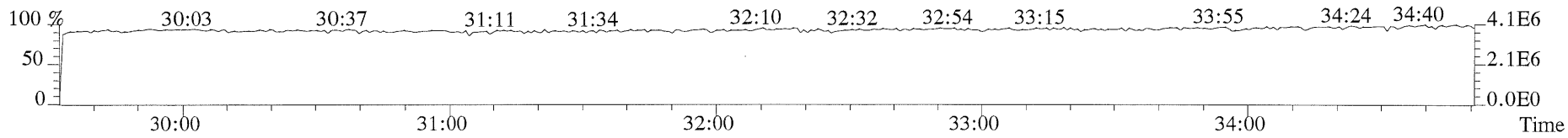
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



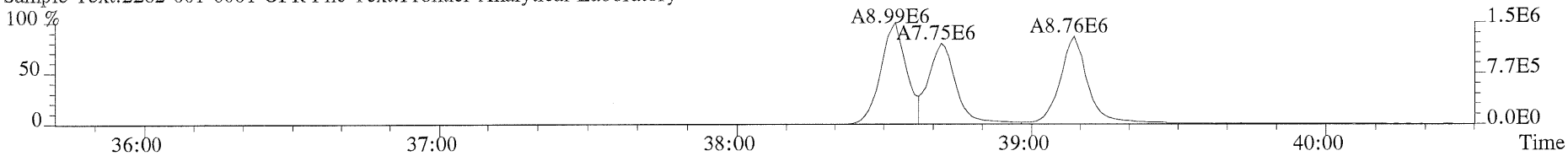
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
369.8919 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



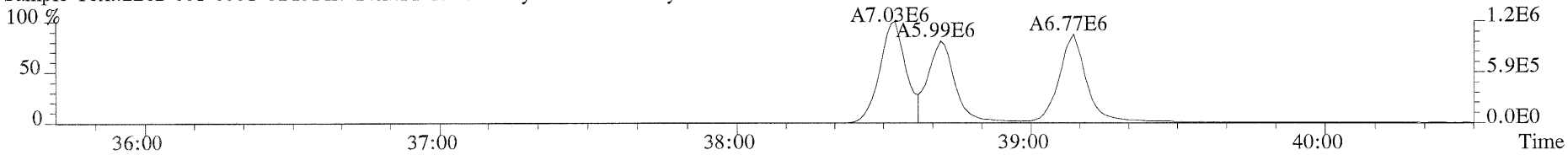
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:2 F:2 Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



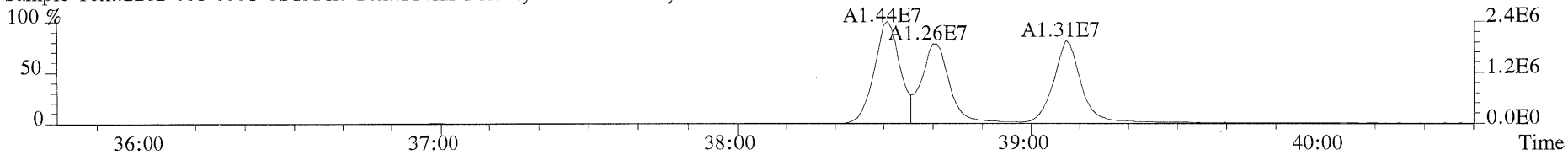
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



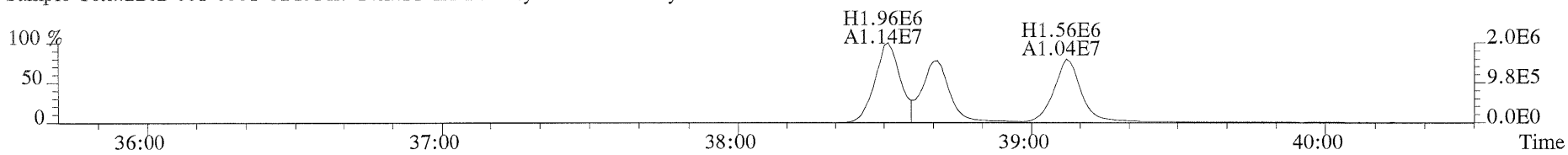
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



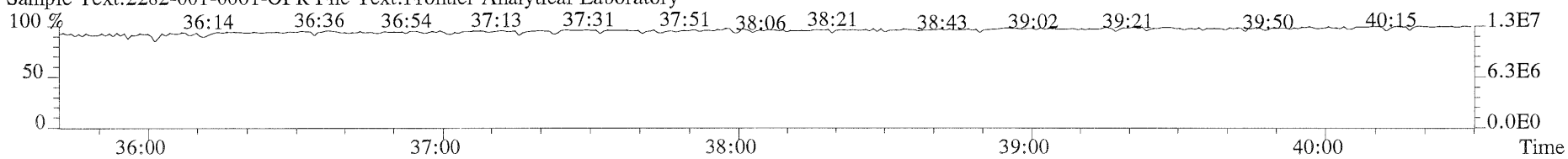
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



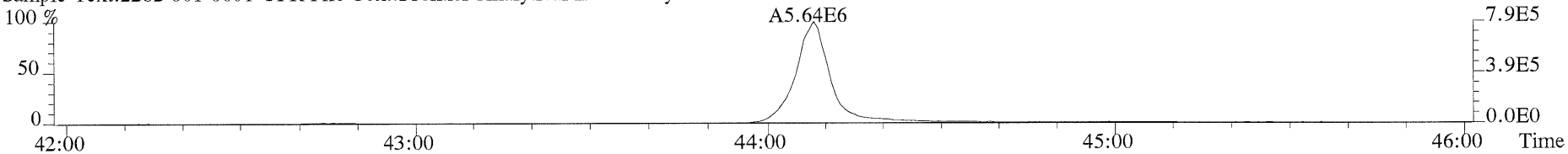
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



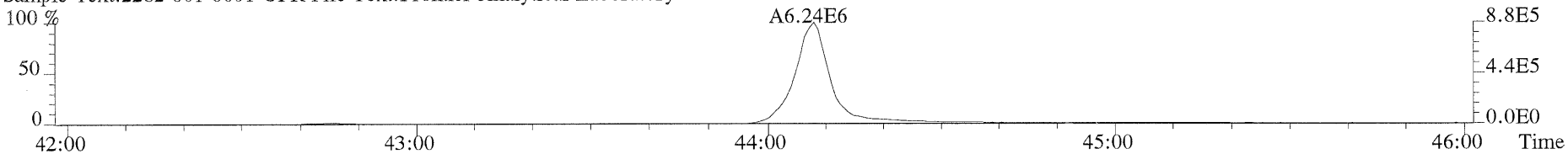
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
380.9760 S:2 F:3 Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



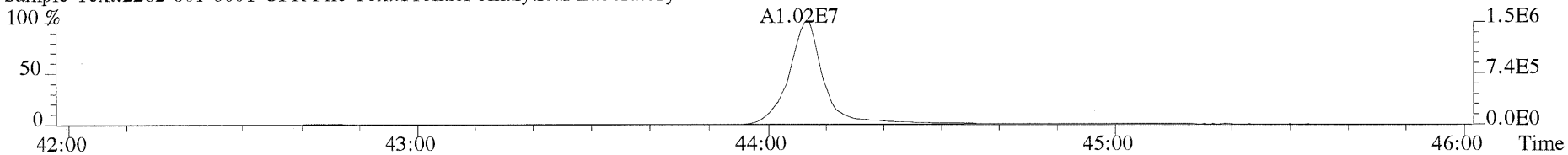
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



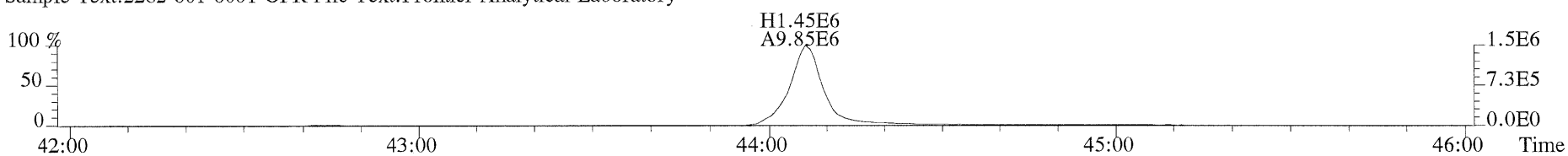
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



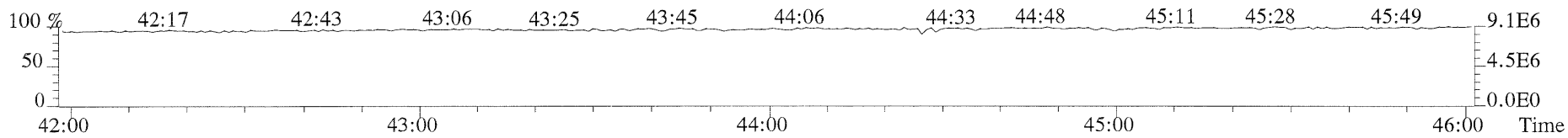
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



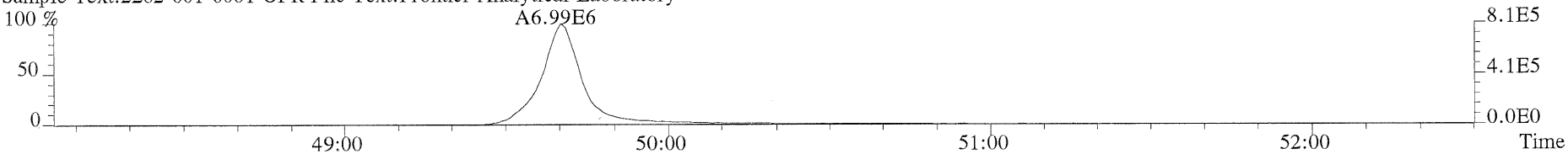
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



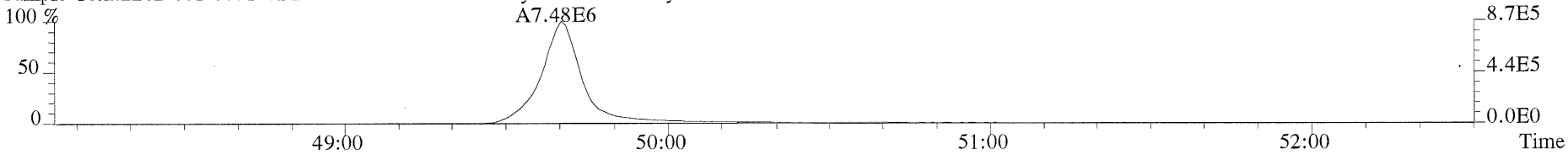
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:2 F:4 Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



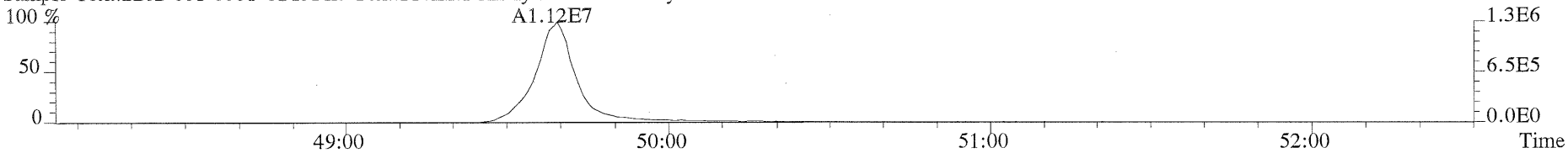
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



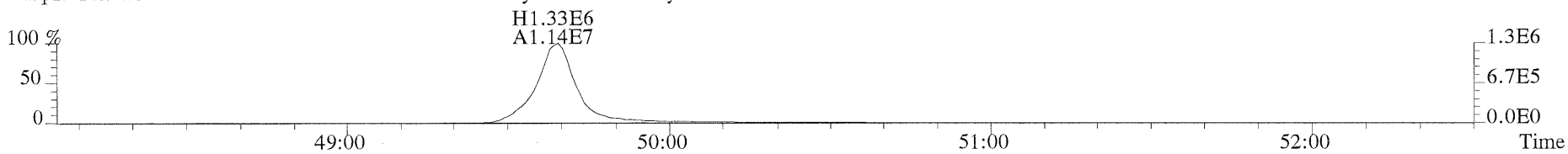
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



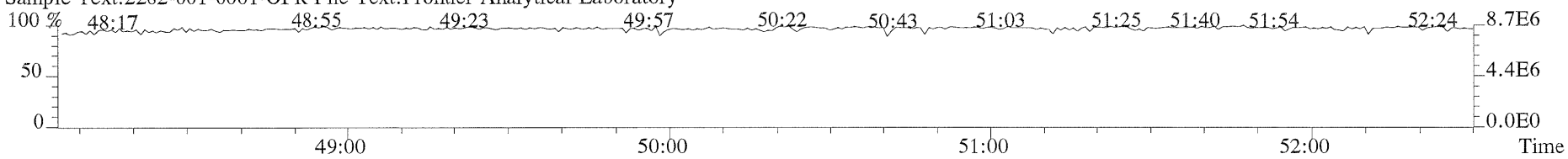
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



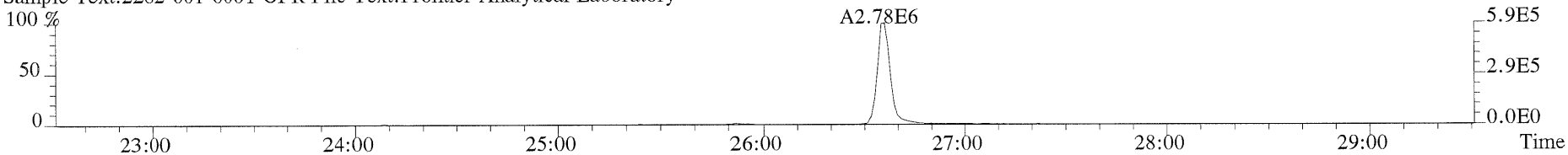
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



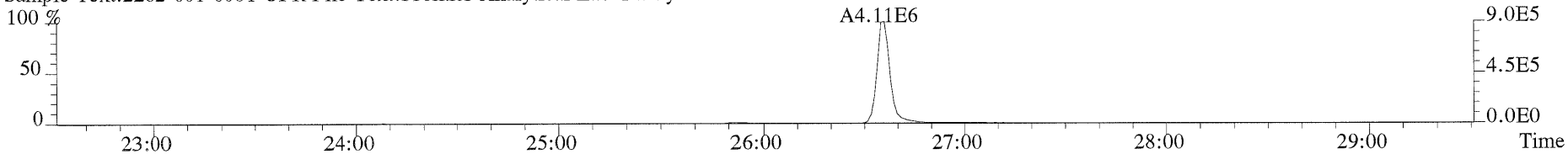
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:2 F:5 Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



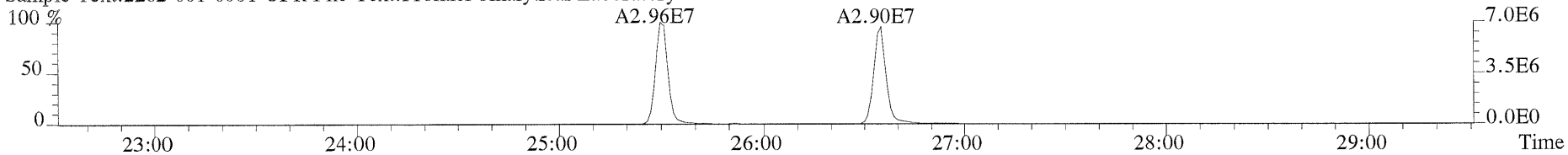
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



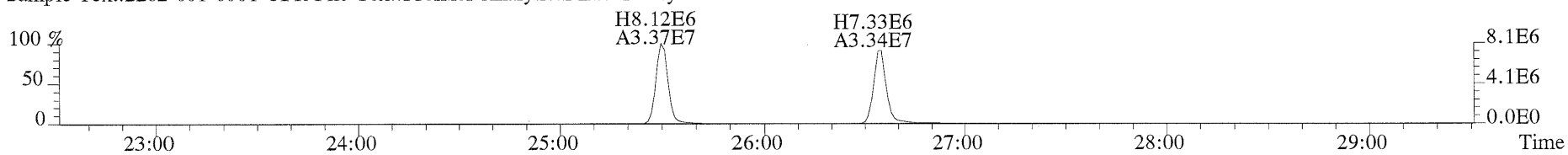
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



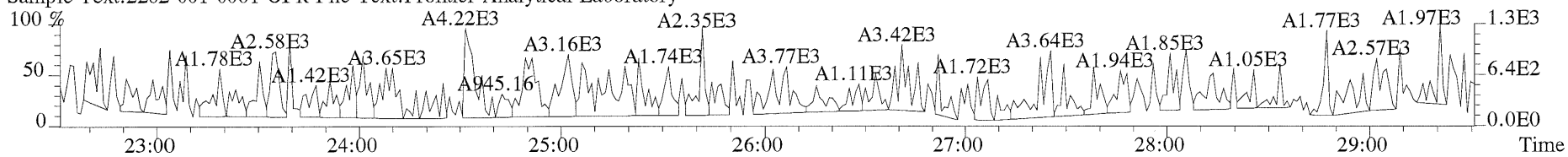
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



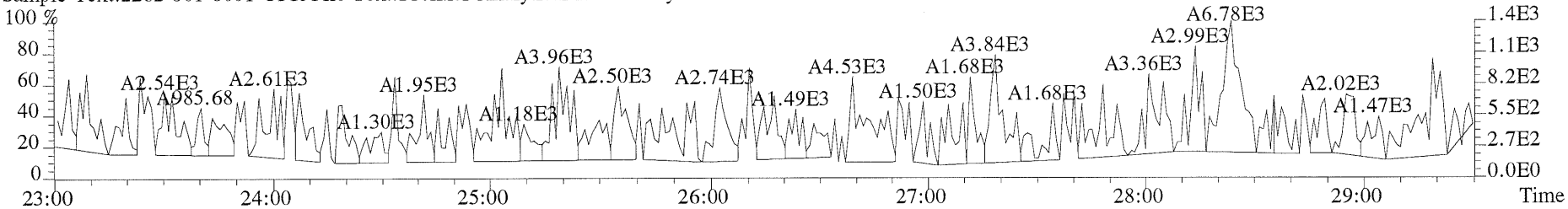
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



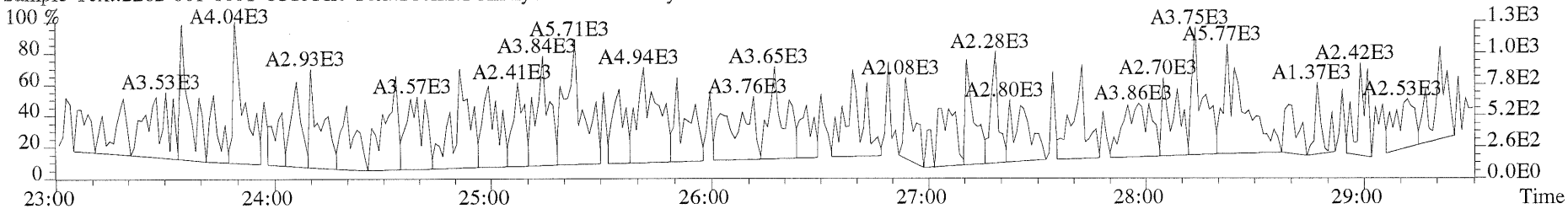
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



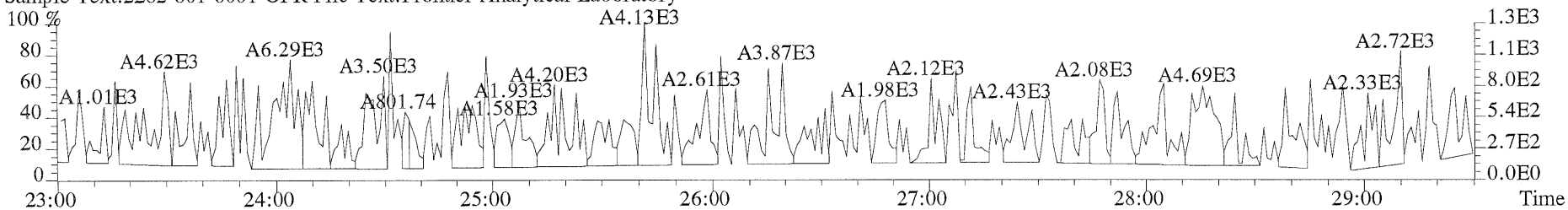
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



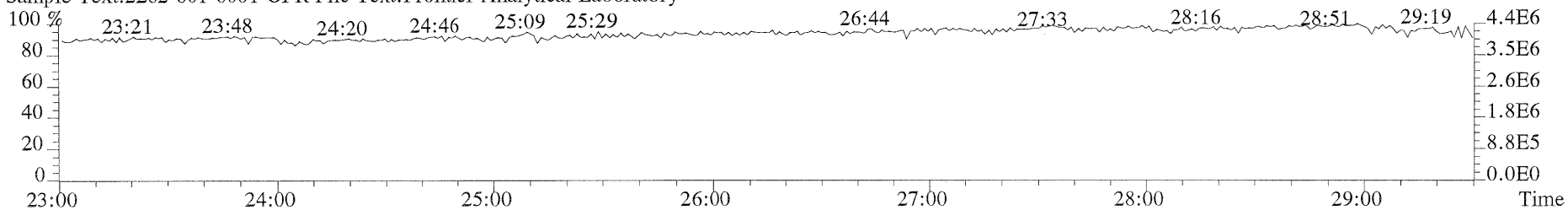
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



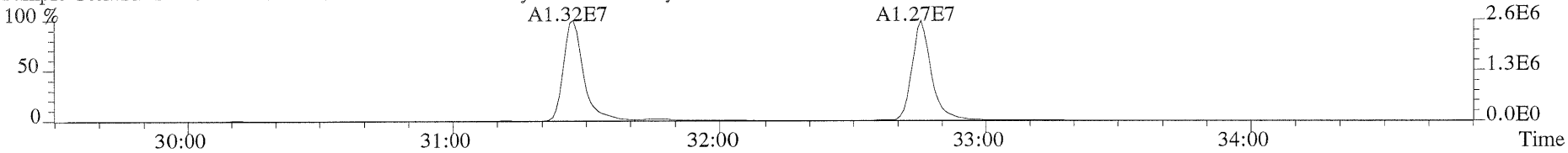
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



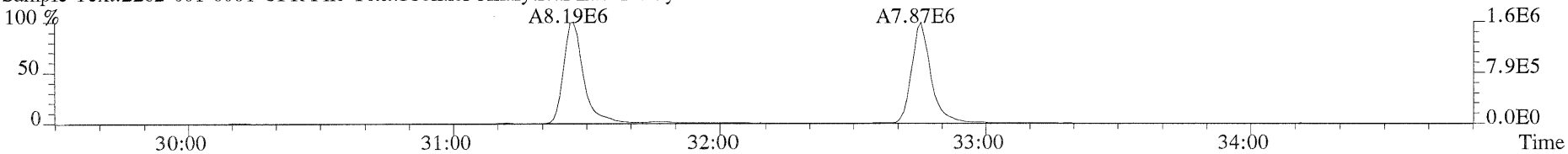
File:04MAY11M #1-426 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
316.9824 S:2 Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



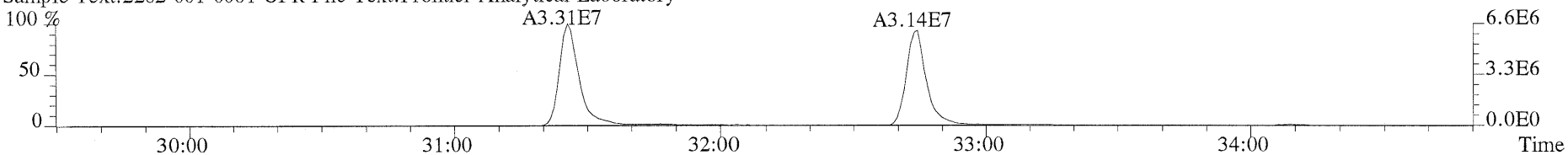
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



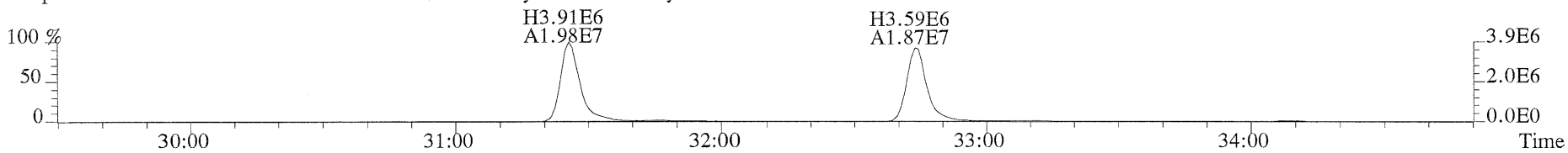
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



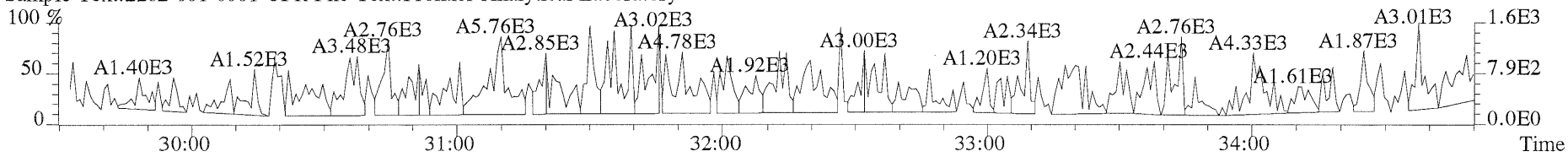
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



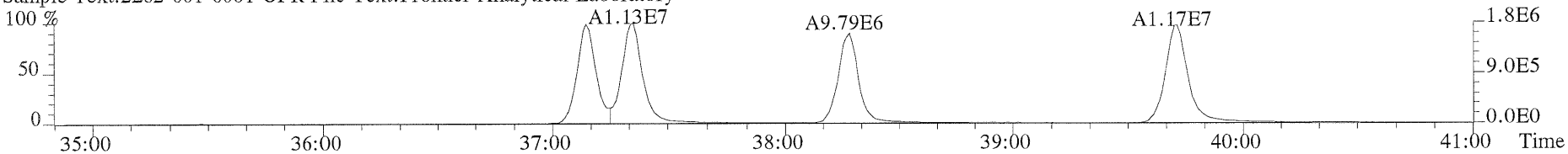
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



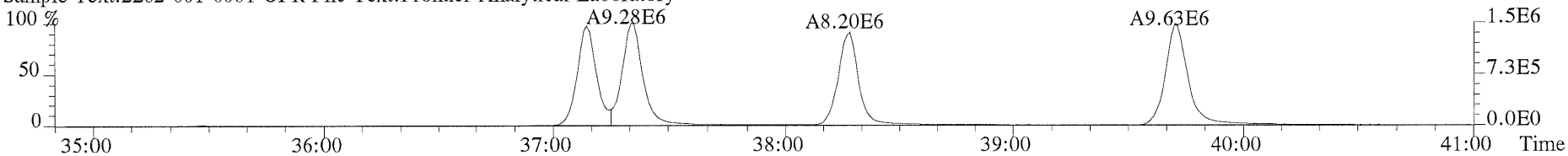
File:04MAY11M #1-412 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



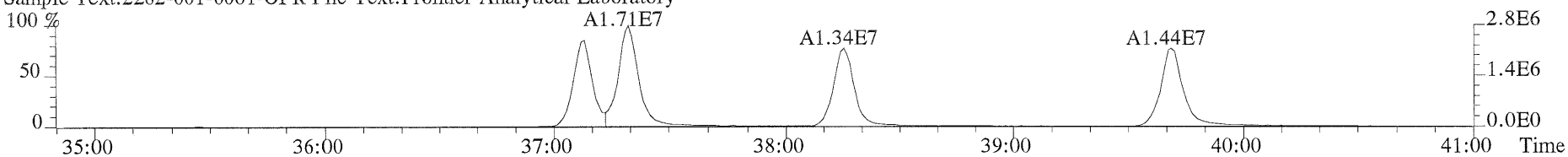
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



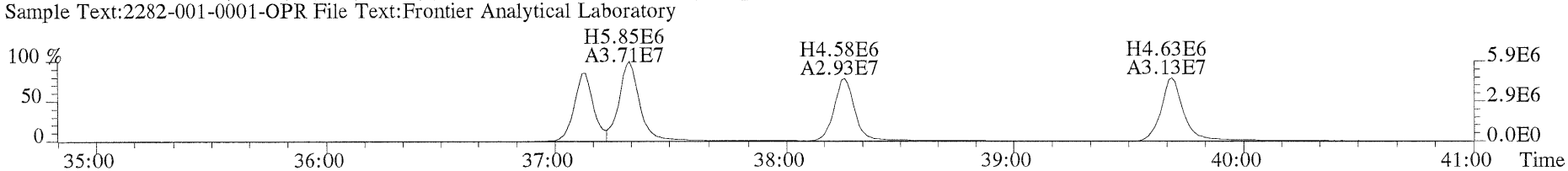
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



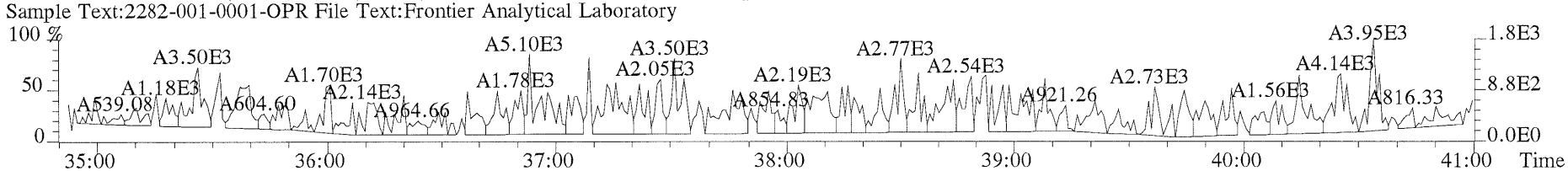
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



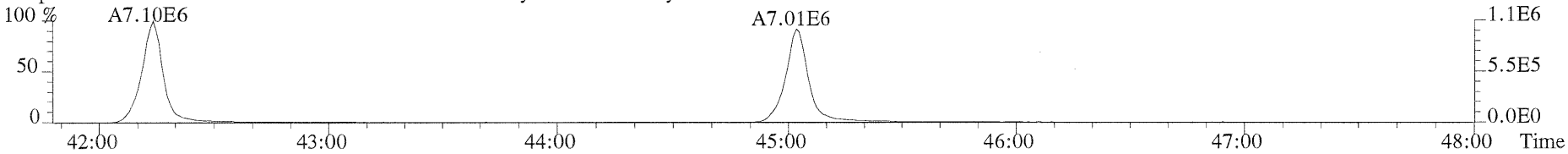
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



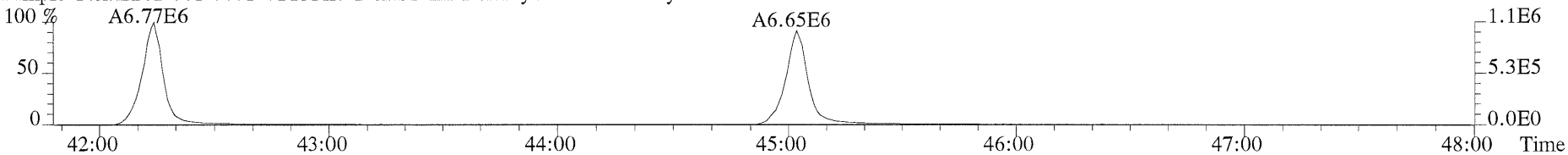
File:04MAY11M #1-476 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



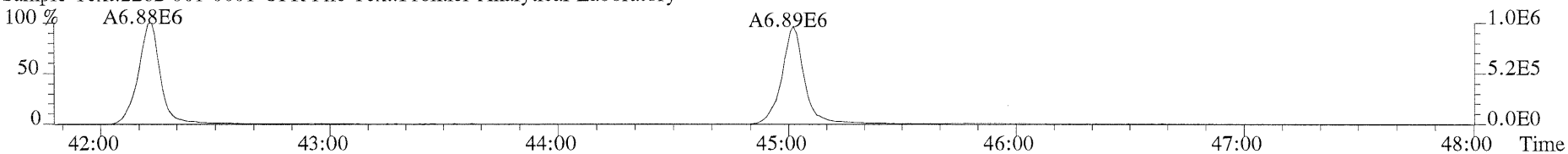
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



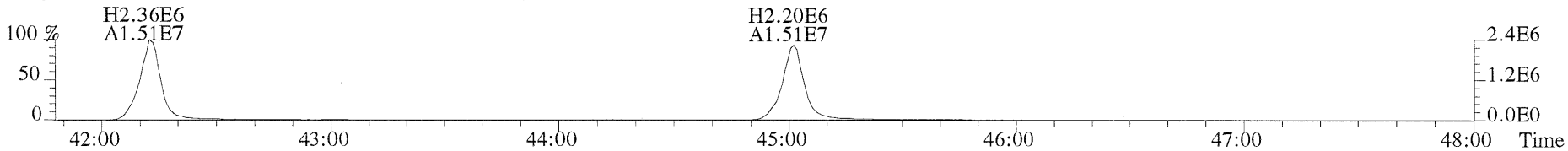
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



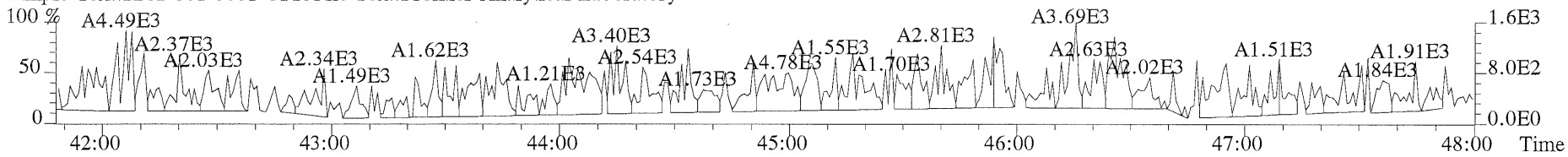
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



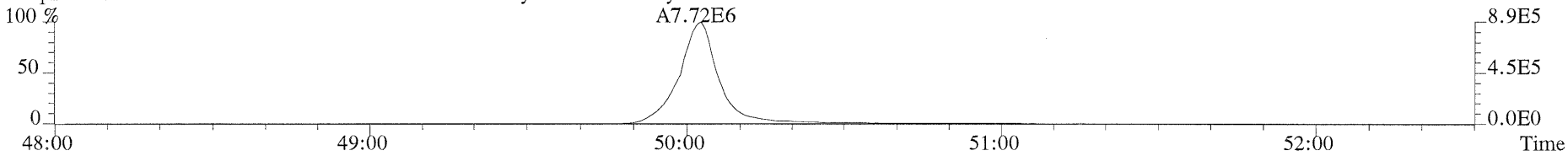
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
419.8220 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



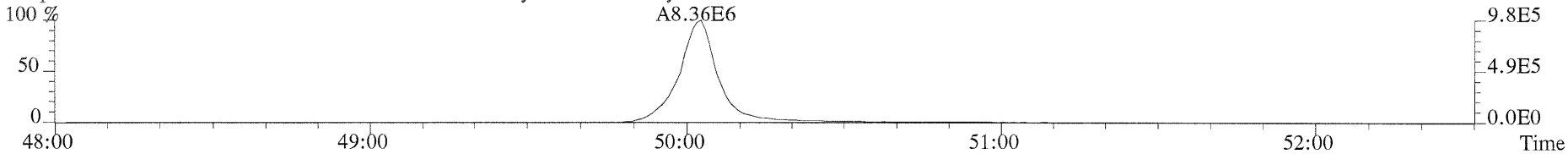
File:04MAY11M #1-541 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



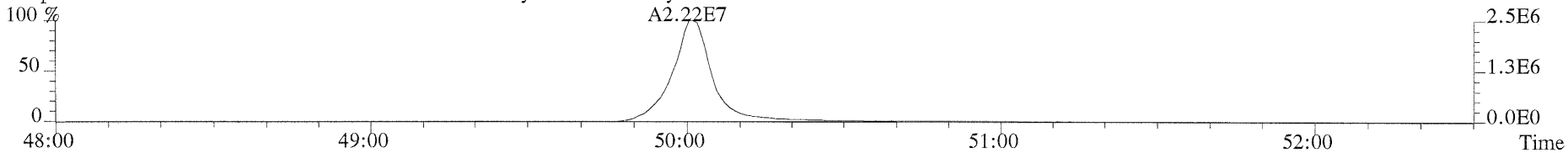
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



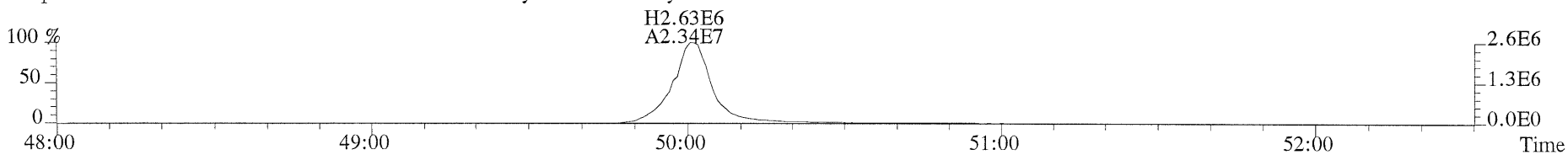
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



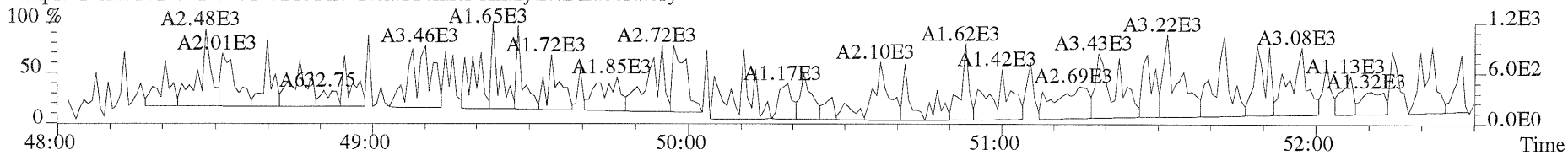
File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
455.7801 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



File:04MAY11M #1-348 Acq: 4-MAY-2011 09:37:40 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2282-001-0001-OPR File Text:Frontier Analytical Laboratory



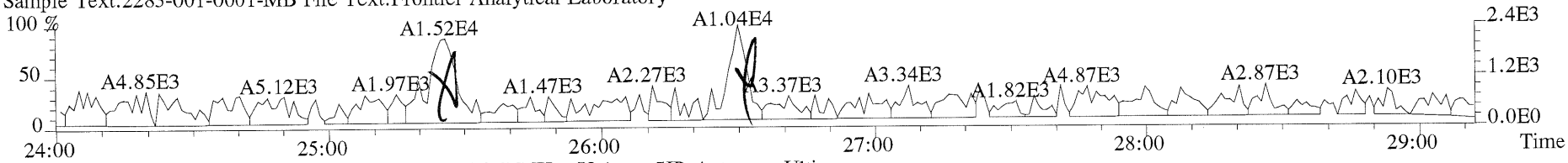
FAL ID: 2283-001-0001-MB Filename: 07MAY11M Sam:3 Acquired: 7-MAY-11 10:08:16 ICal: PCDDFAL3-3-7-11
Client ID: Method Blank ConCal: ST050711M1 EndCal: ST050711M2
Results: 2283 GC Column: DB5 Amount: 5.000 NATO 1989 Tox: 0.00
WHO 1998 Tox: 0.00 WHO 2005 Tox: 0.00

Name	Resp	RA		RT	RRF	Conc	Qual	Fac	Noise-1	Noise-2	DL
2,3,7,8-TCDD	*	*	n	NotFnd	1.13	*		2.50	455	411	0.126
1,2,3,7,8-PeCDD	*	*	n	NotFnd	1.02	*		2.50	597	476	0.209
1,2,3,4,7,8-HxCDD	*	*	n	NotFnd	1.45	*		2.50	636	692	0.250
1,2,3,6,7,8-HxCDD	*	*	n	NotFnd	1.45	*		2.50	636	692	0.322
1,2,3,7,8,9-HxCDD	*	*	n	NotFnd	1.47	*		2.50	636	692	0.279
1,2,3,4,6,7,8-HpCDD	*	*	n	NotFnd	1.30	*		2.50	640	572	0.424
OCDD	*	*	n	NotFnd	1.45	*		2.50	612	616	1.13
2,3,7,8-TCDF	*	*	n	NotFnd	1.15	*		2.50	678	759	0.115
1,2,3,7,8-PeCDF	*	*	n	NotFnd	0.89	*		2.50	606	677	0.170
2,3,4,7,8-PeCDF	*	*	n	NotFnd	0.89	*		2.50	606	677	0.186
1,2,3,4,7,8-HxCDF	*	*	n	NotFnd	1.01	*		2.50	760	664	0.228
1,2,3,6,7,8-HxCDF	*	*	n	NotFnd	0.89	*		2.50	760	664	0.234
2,3,4,6,7,8-HxCDF	*	*	n	NotFnd	1.02	*		2.50	760	664	0.261
1,2,3,7,8,9-HxCDF	*	*	n	NotFnd	1.10	*		2.50	760	664	0.246
1,2,3,4,6,7,8-HpCDF	*	*	n	NotFnd	1.48	*		2.50	560	552	0.263
1,2,3,4,7,8,9-HpCDF	*	*	n	NotFnd	1.43	*		2.50	560	552	0.335
OCDF	*	*	n	NotFnd	0.84	*		2.50	572	608	0.905
											Rec
13C-2,3,7,8-TCDD	2.75e+07	0.72	y	27:15	1.03	372					93.1
13C-1,2,3,7,8-PeCDD	2.78e+07	1.76	y	33:04	1.01	383					95.7
13C-1,2,3,4,7,8-HxCDD	2.13e+07	1.28	y	38:28	1.19	378					94.5
13C-1,2,3,6,7,8-HxCDD	1.75e+07	1.27	y	38:38	0.94	396					98.9
13C-1,2,3,4,6,7,8-HpCDD	1.47e+07	1.05	y	44:05	0.83	375					93.8
13C-OCDD	1.24e+07	0.97	y	49:38	0.61	430					53.7
13C-2,3,7,8-TCDF	4.81e+07	0.88	y	26:30	0.98	392					98.1
13C-1,2,3,7,8-PeCDF	4.36e+07	1.71	y	31:20	0.83	420					105
13C-2,3,4,7,8-PeCDF	4.08e+07	1.70	y	32:40	0.80	406					101
13C-1,2,3,4,7,8-HxCDF	3.44e+07	0.47	y	37:04	1.84	394					98.6
13C-1,2,3,6,7,8-HxCDF	4.36e+07	0.47	y	37:16	2.29	402					101
13C-2,3,4,6,7,8-HxCDF	3.32e+07	0.47	y	38:12	1.86	377					94.2
13C-1,2,3,7,8,9-HxCDF	3.53e+07	0.47	y	39:38	1.98	376					93.9
13C-1,2,3,4,6,7,8-HpCDF	1.74e+07	0.44	y	42:10	0.99	372					93.0
13C-1,2,3,4,7,8,9-HpCDF	1.57e+07	0.44	y	44:60	0.77	433					108
13C-OCDF	2.59e+07	0.95	y	49:59	1.17	470					58.7
37Cl-2,3,7,8-TCDD	7.16e+06			27:16	0.73	137					85.4
13C-1,2,3,4-TCDD	2.87e+07	0.72	y	26:41	-	15.1					
13C-1,2,3,4-TCDF	5.00e+07	0.88	y	25:26	-	13.9					
13C-1,2,3,7,8,9-HxCDD	1.90e+07	1.30	y	39:04	-	15.3					

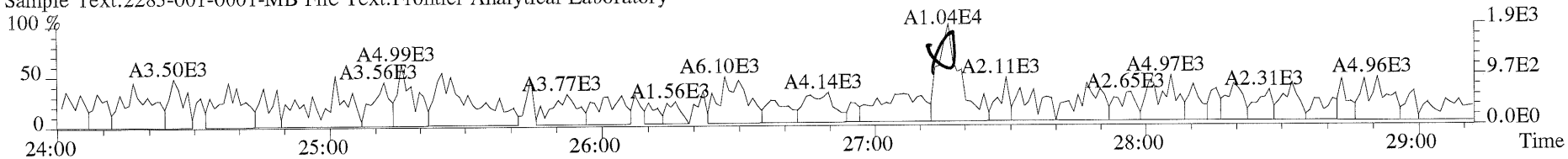
				Fac	Noise-1	Noise-2	DL		#Hom
Total Tetra-Dioxins	*	NotFnd	1.13	*	2.50	455	411	0.126		0
Total Penta-Dioxins	*	NotFnd	1.02	*	2.50	597	476	0.209		0
Total Hexa-Dioxins	*	NotFnd	1.46	*	2.50	636	692	0.322		0
Total Hepta-Dioxins	*	NotFnd	1.30	*	2.50	640	572	0.424		0
Total Tetra-Furans	*	NotFnd	1.15	*	2.50	678	759	0.115		0
1st Fn. Tot Penta-Furans	*	NotFnd	0.89	*	2.50	606	677	0.186	PeCDF	0
Total Penta-Furans	*	NotFnd	0.89	*	2.50	606	677	0.186	*	0
Total Hexa-Furans	*	NotFnd	1.00	*	2.50	760	664	0.261		0
Total Hepta-Furans	*	NotFnd	1.46	*	2.50	560	552	0.335		0

Analyst: _____ Date: 5/9/11

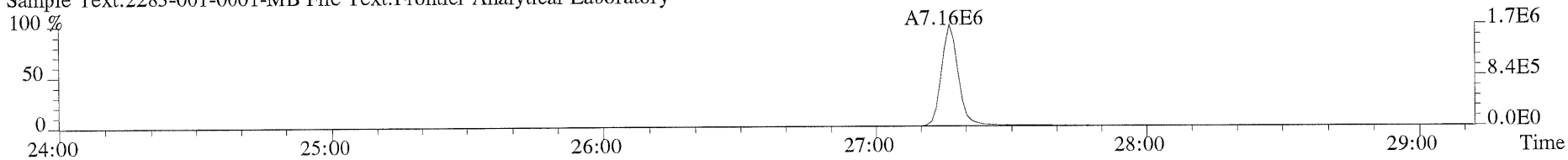
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



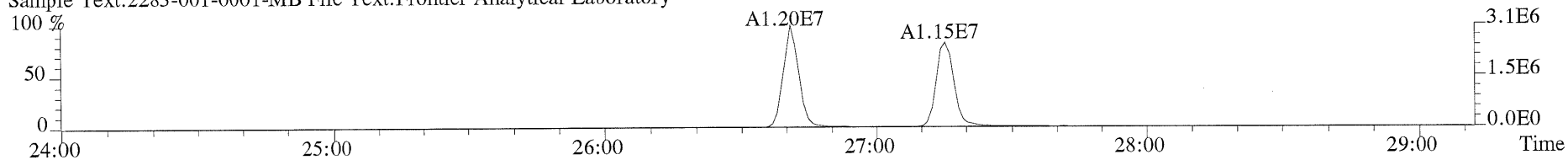
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



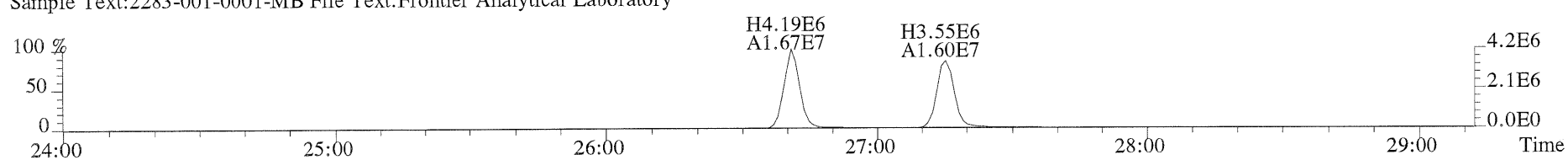
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



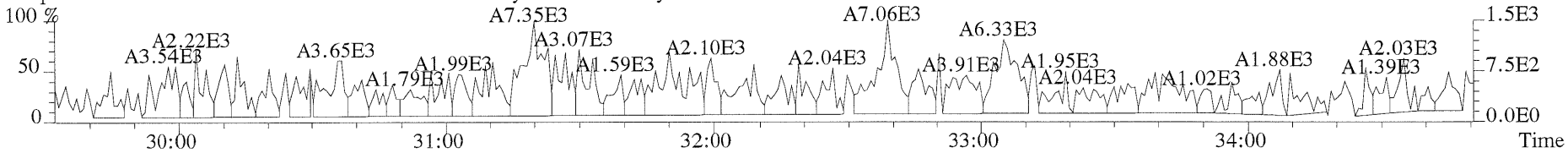
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



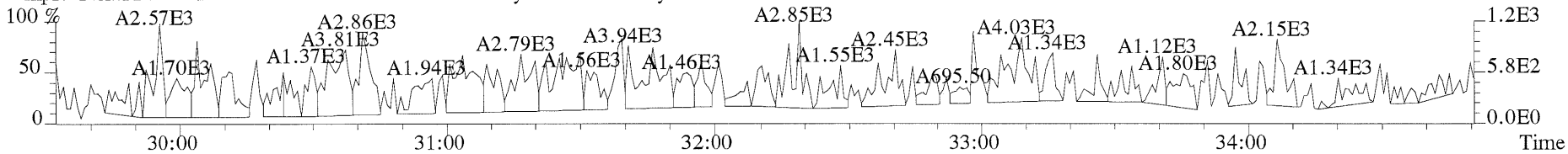
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



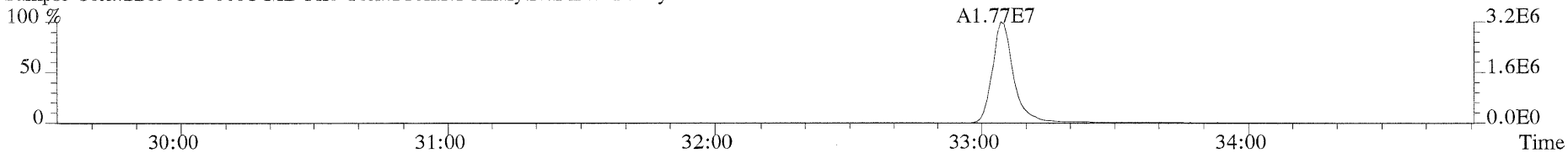
File:07MAY11M #1-412 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



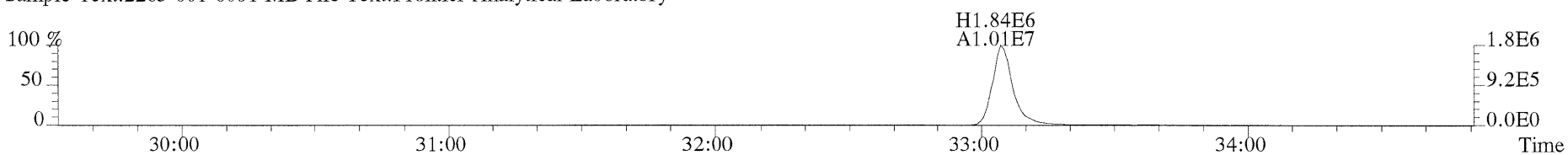
File:07MAY11M #1-412 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
357.8517 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



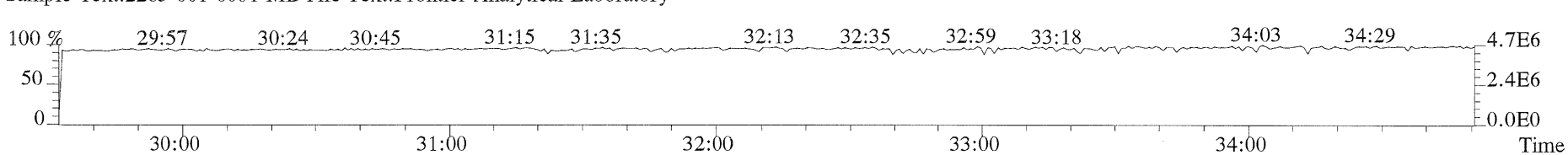
File:07MAY11M #1-412 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



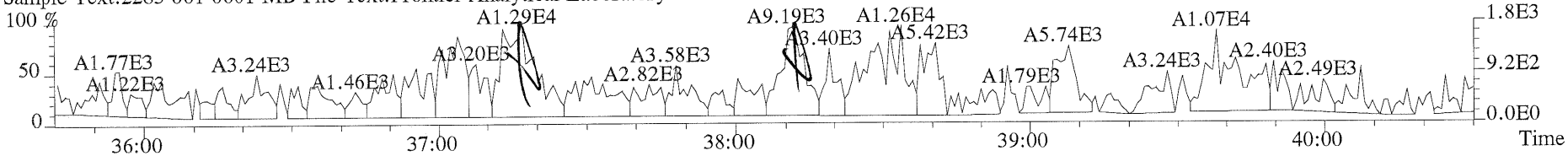
File:07MAY11M #1-412 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
369.8919 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



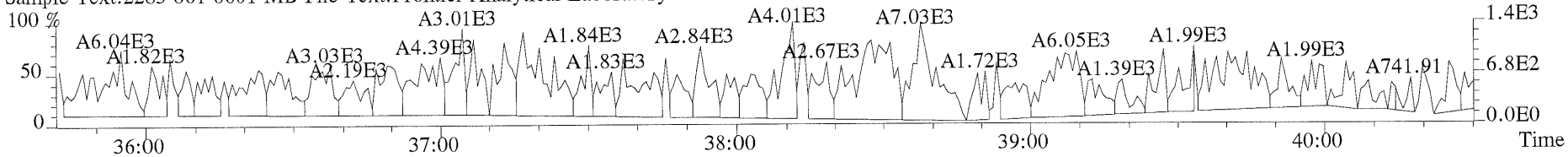
File:07MAY11M #1-412 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:3 F:2 Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



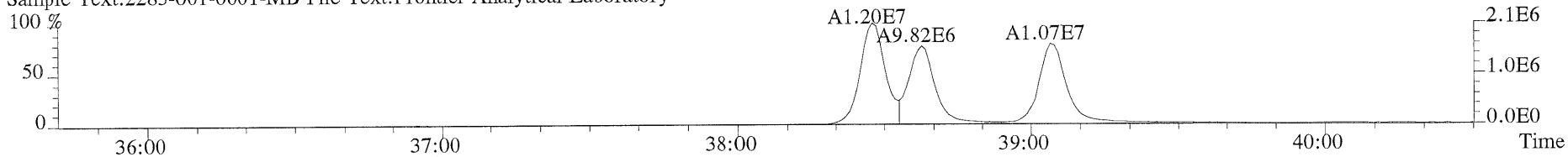
File:07MAY11M #1-476 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



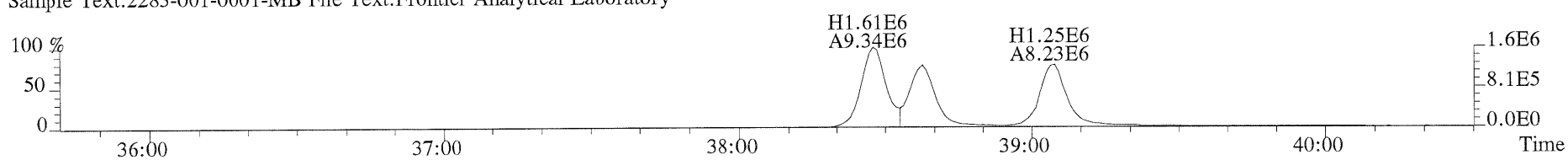
File:07MAY11M #1-476 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



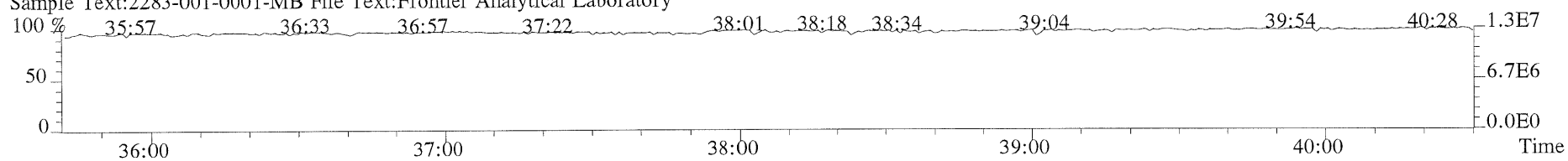
File:07MAY11M #1-476 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



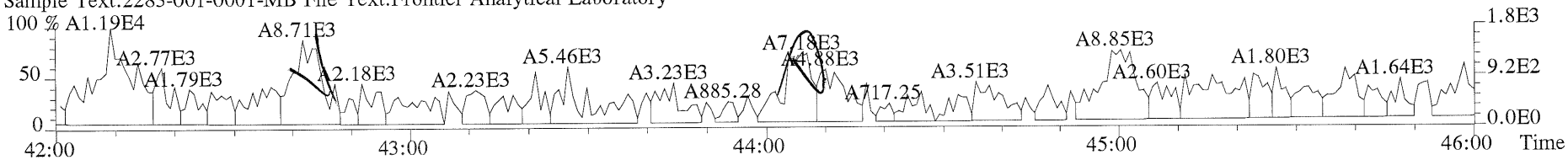
File:07MAY11M #1-476 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



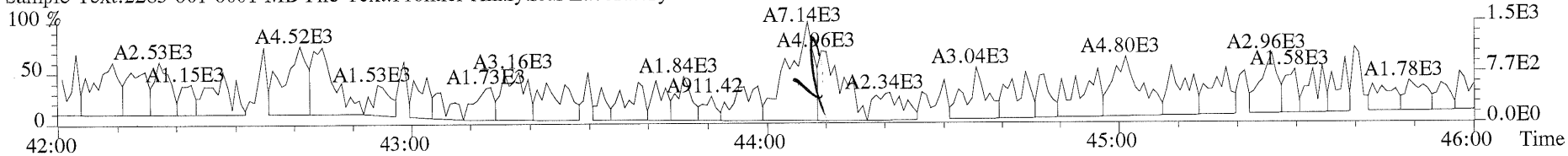
File:07MAY11M #1-476 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
380.9760 S:3 F:3 Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



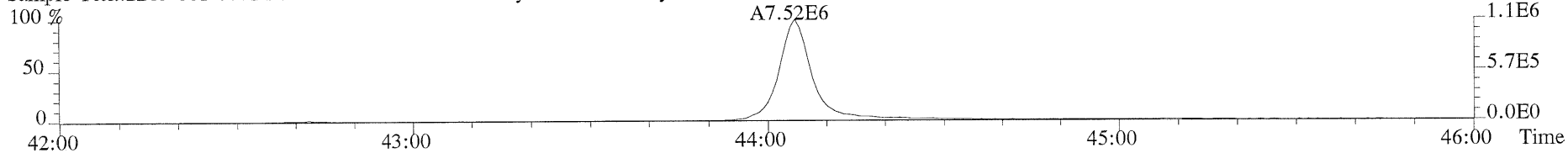
File:07MAY11M #1-541 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



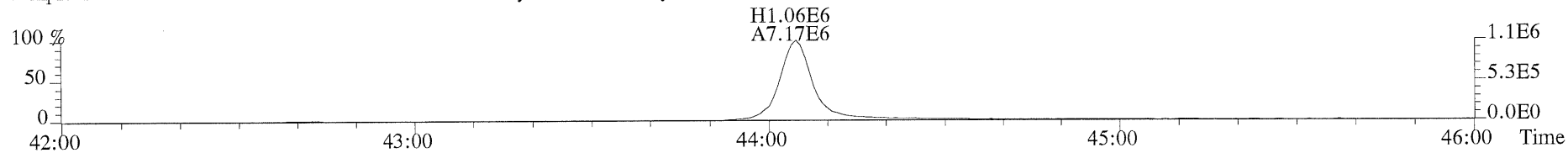
File:07MAY11M #1-541 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



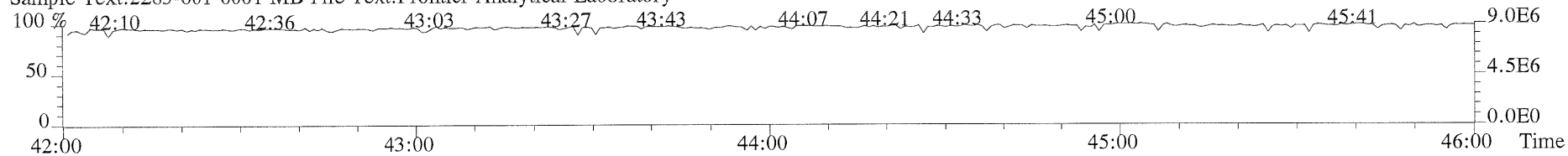
File:07MAY11M #1-541 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



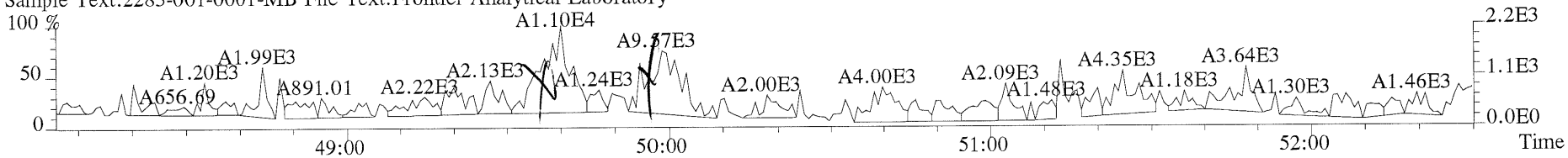
File:07MAY11M #1-541 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



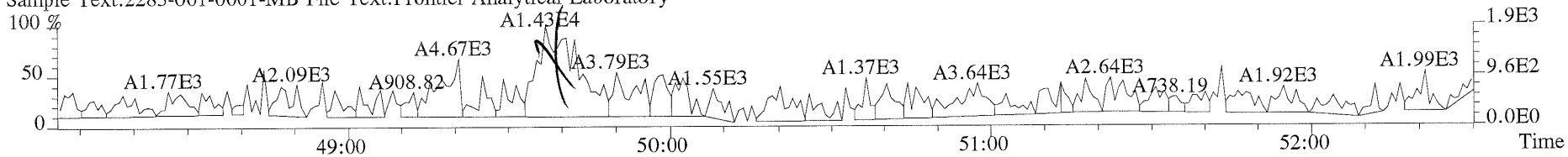
File:07MAY11M #1-541 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:3 F:4 Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



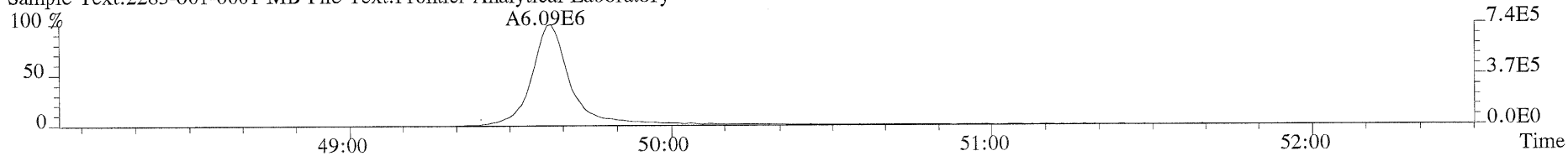
File:07MAY11M #1-348 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



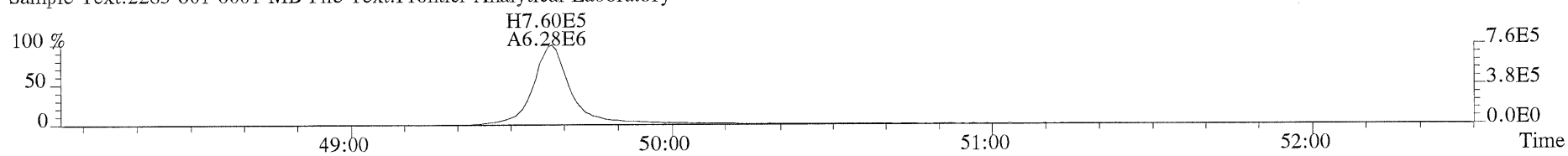
File:07MAY11M #1-348 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



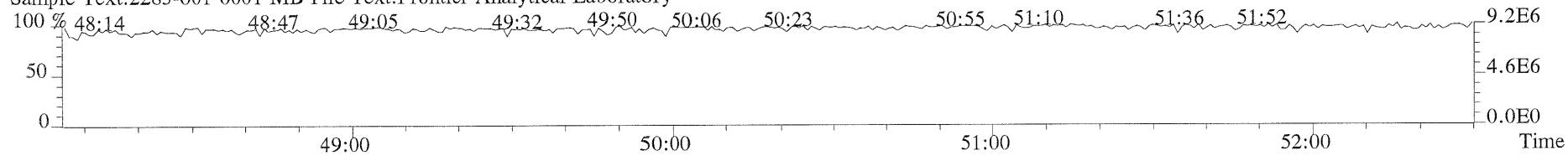
File:07MAY11M #1-348 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



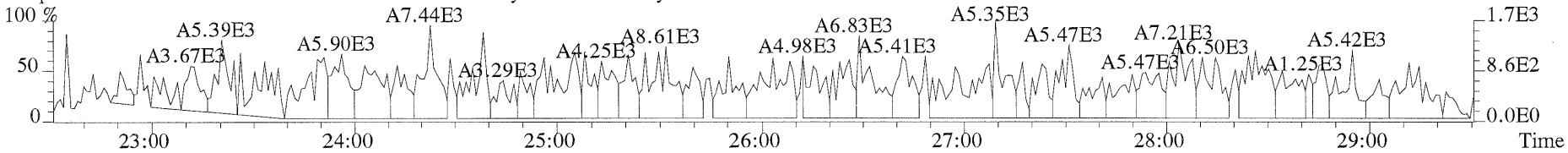
File:07MAY11M #1-348 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



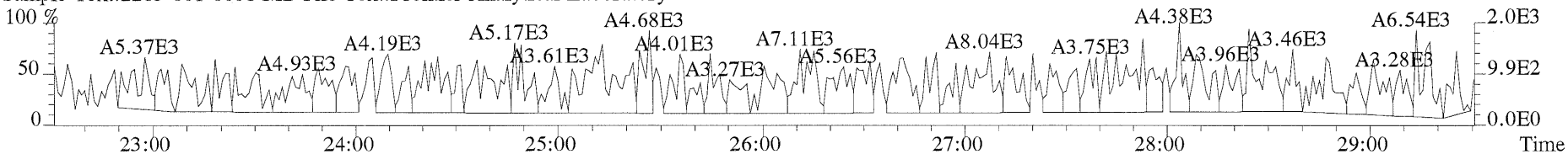
File:07MAY11M #1-348 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:3 F:5 Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



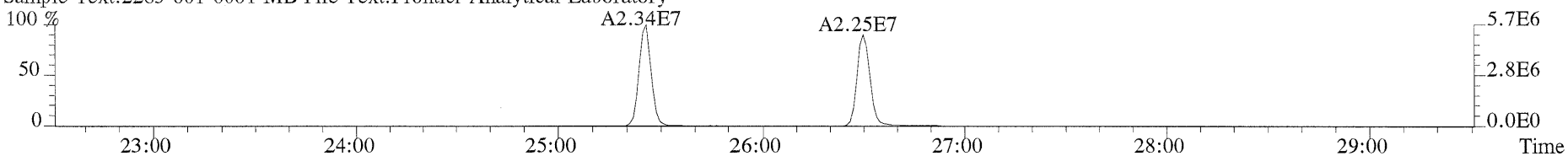
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



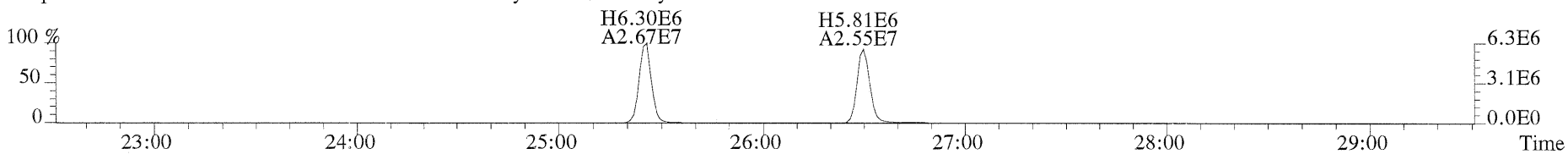
File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory



File:07MAY11M #1-426 Acq: 7-MAY-2011 10:08:16 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2283-001-0001-MB File Text:Frontier Analytical Laboratory