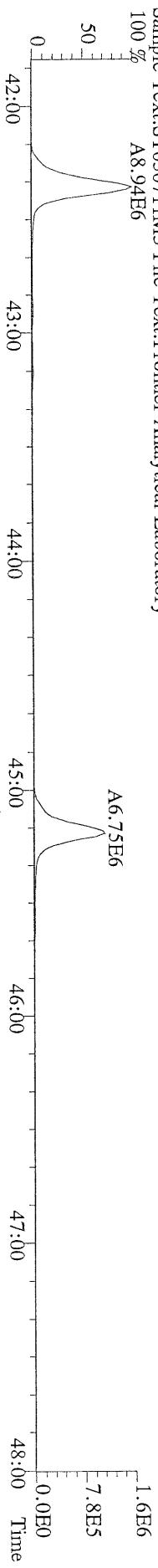
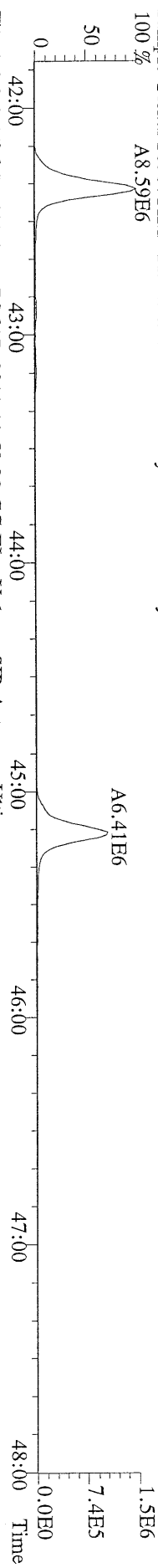


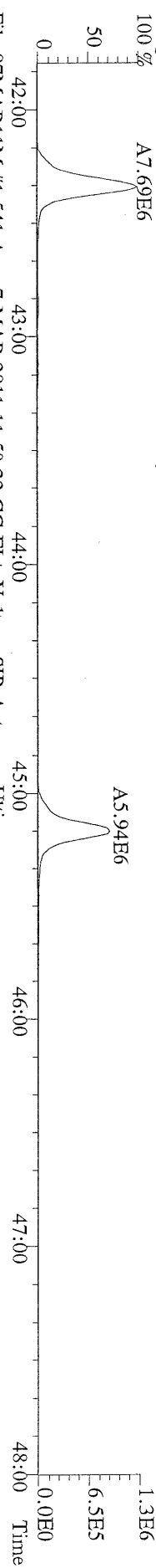
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407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



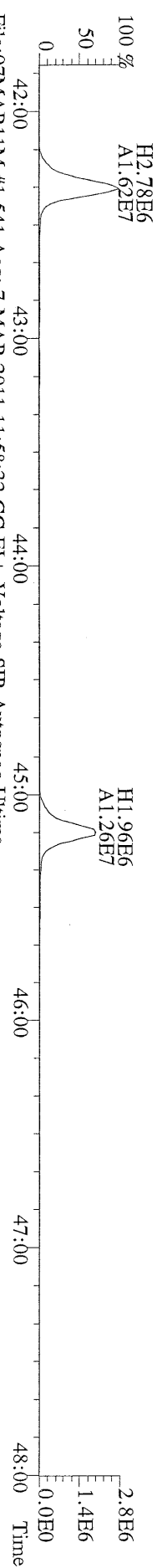
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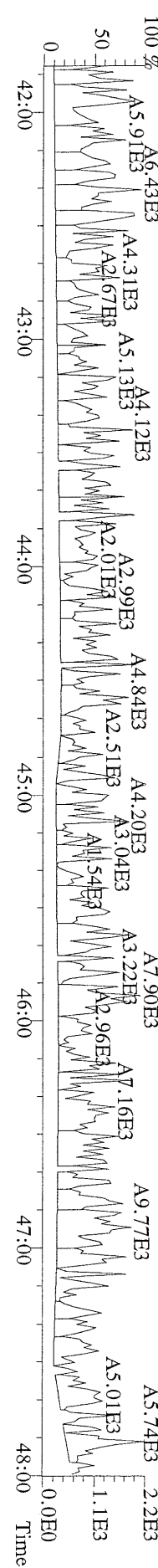
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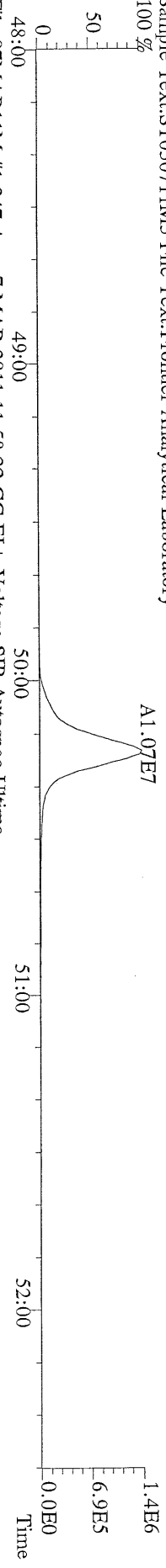
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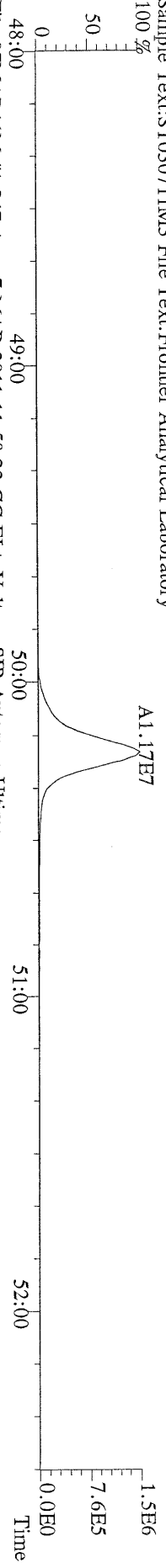
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Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



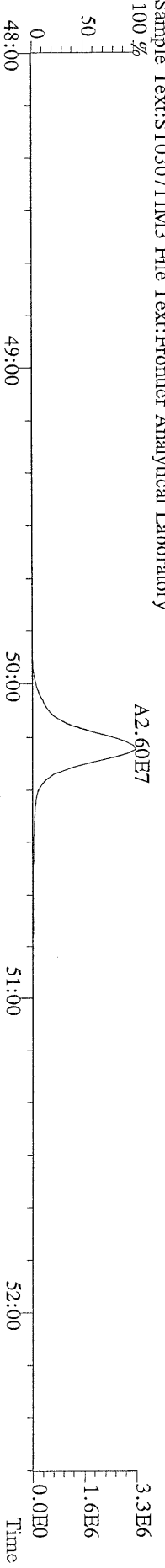
File:07MAR11M #1-347 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



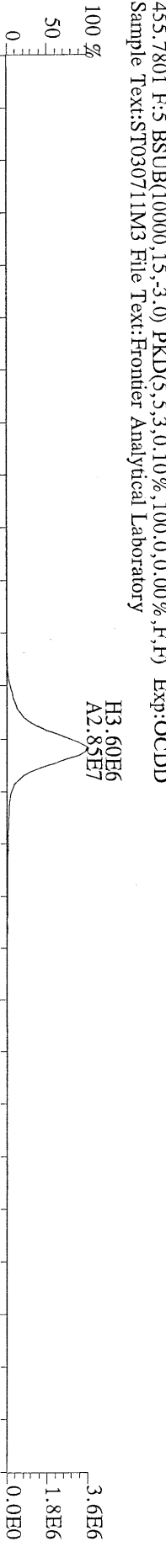
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 443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



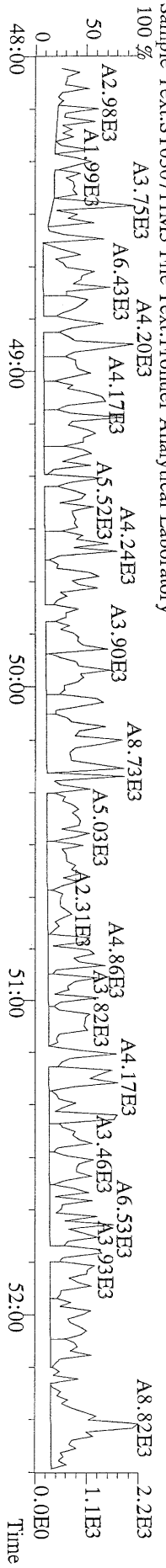
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



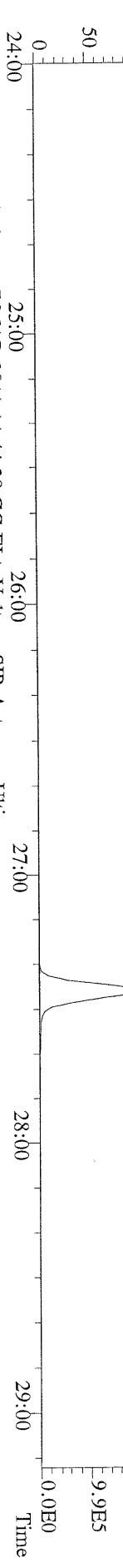
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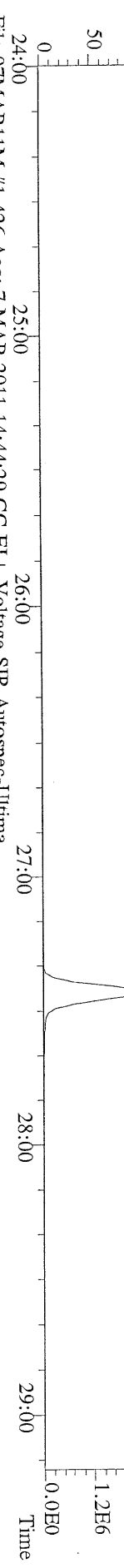
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 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



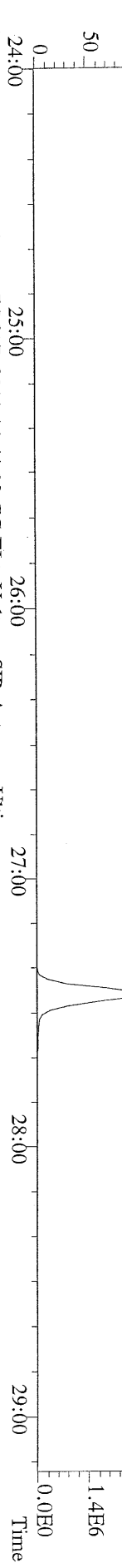
File:07MAR11M #1-426 Acq: 7-MAR-2011 14:44:29 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



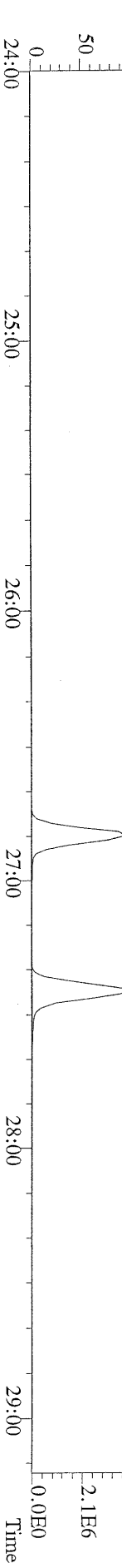
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321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



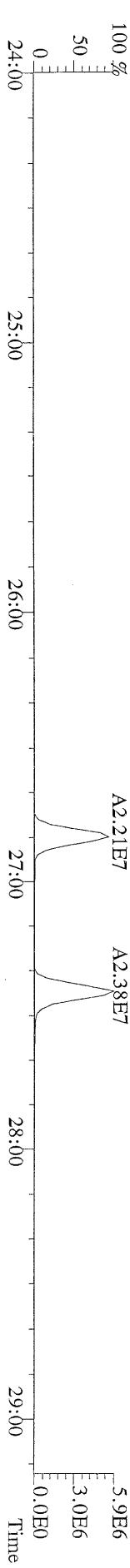
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327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



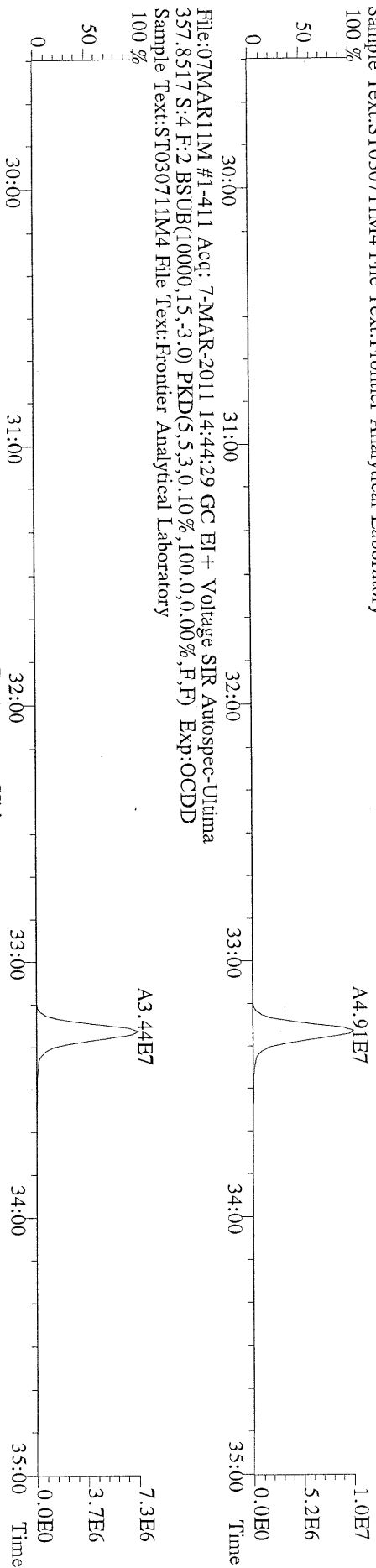
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331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



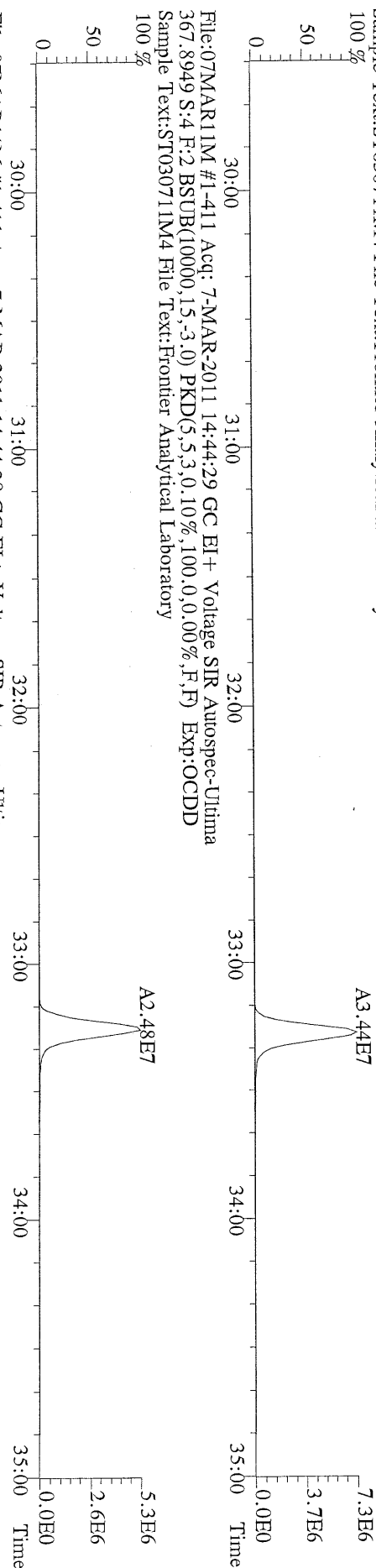
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333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



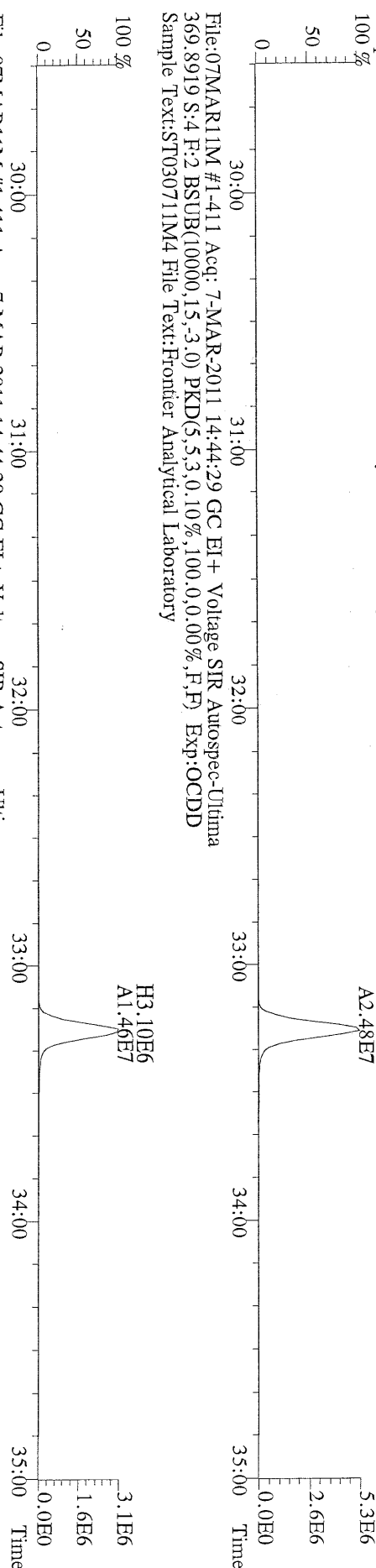
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355.8546 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



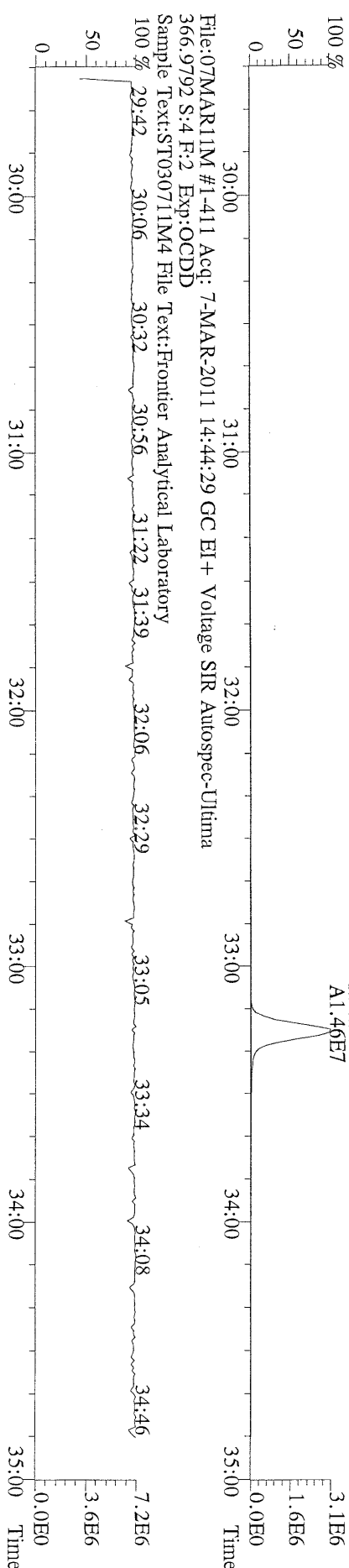
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357.8517 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



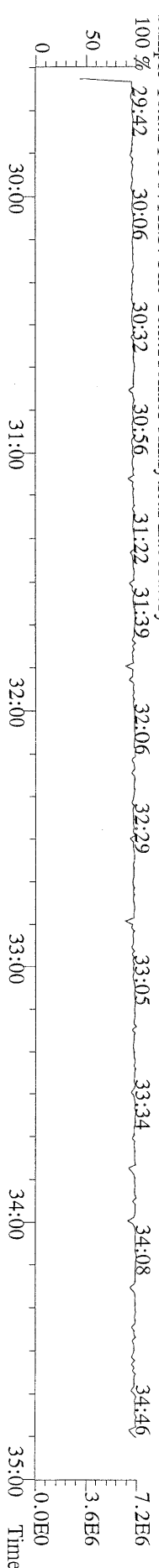
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367.8949 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



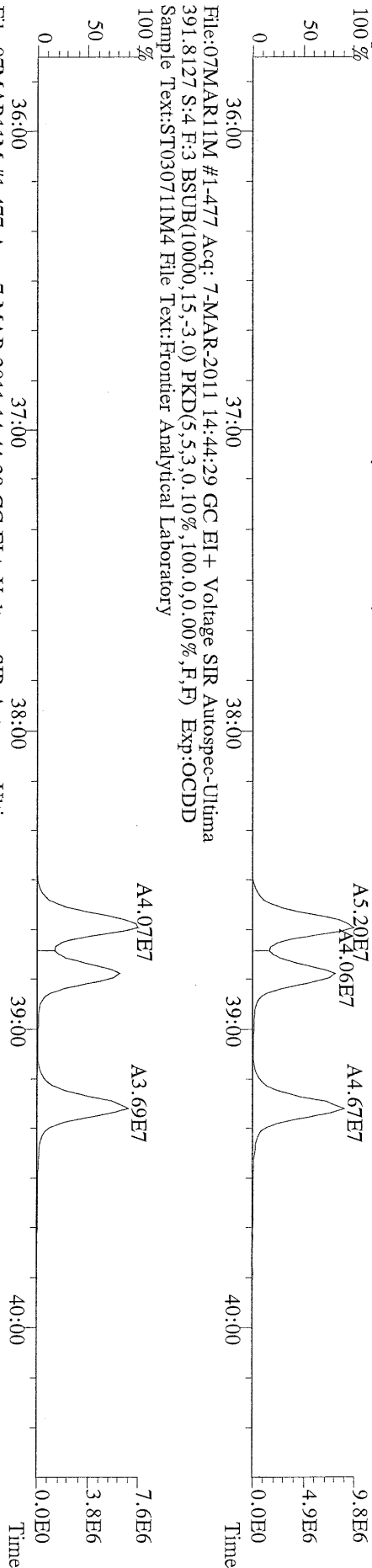
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369.8919 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



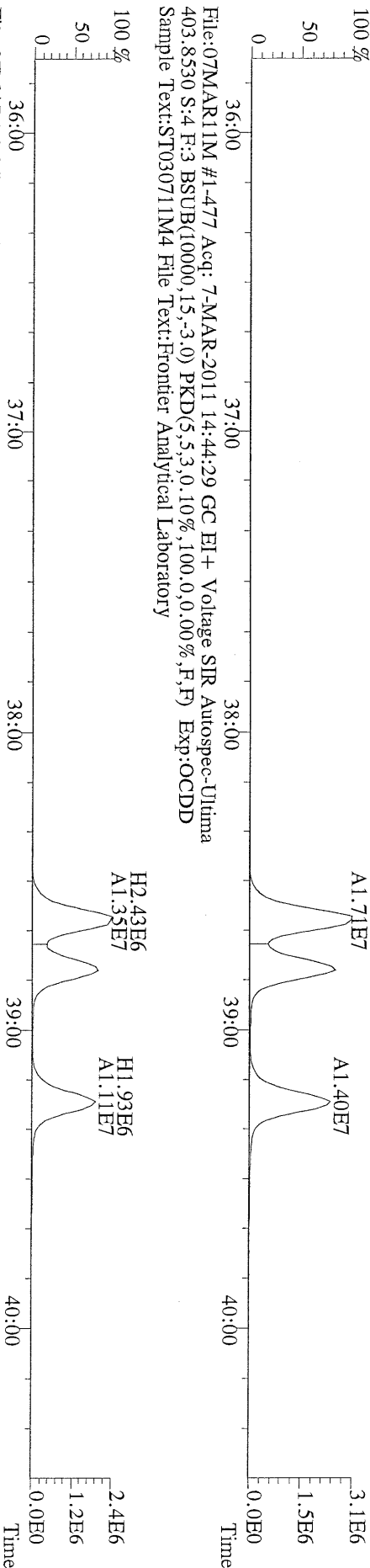
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366.9792 S:4 F:2 Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



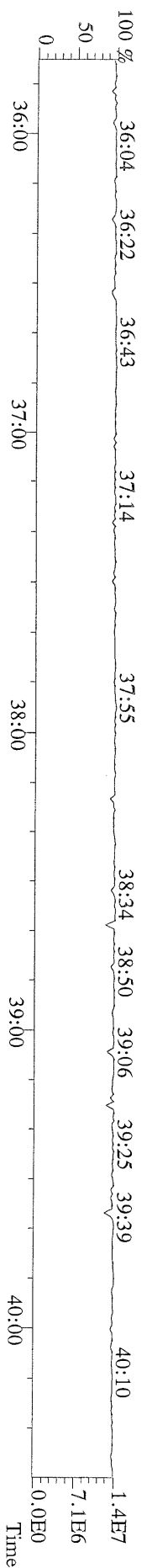
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389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



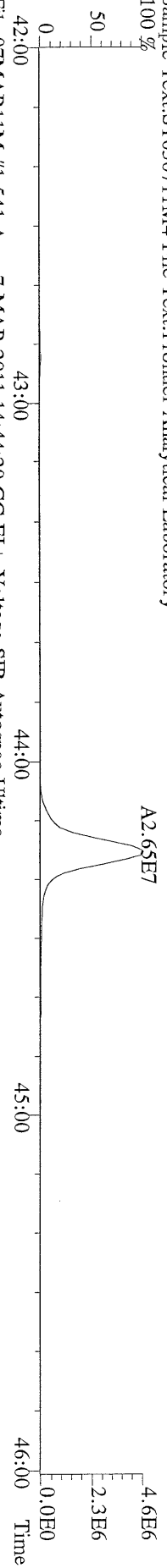
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401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



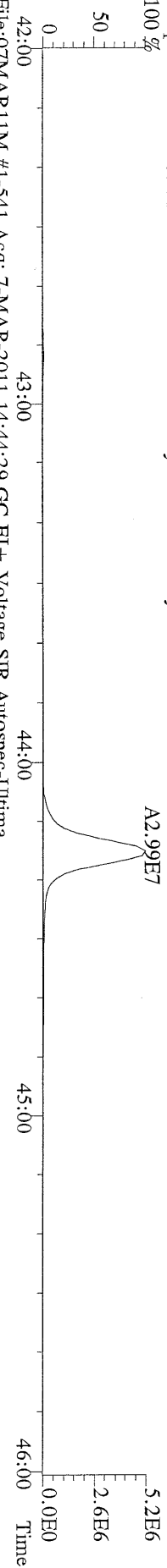
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380.9760 S:4 F:3 Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



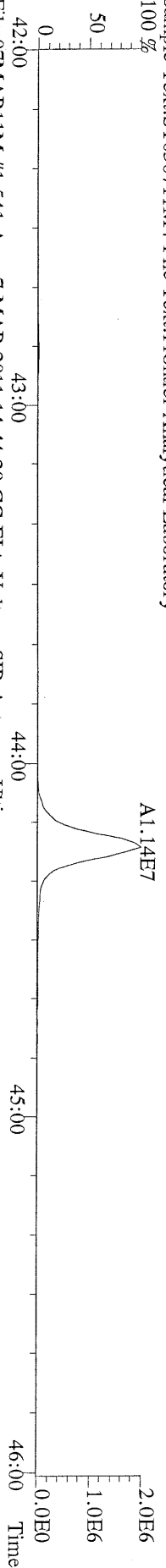
File:07MAR11M #1-541 Acq: 7-MAR-2011 14:44:29 GC EI+ Voltage SIR Autospec-Utima
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



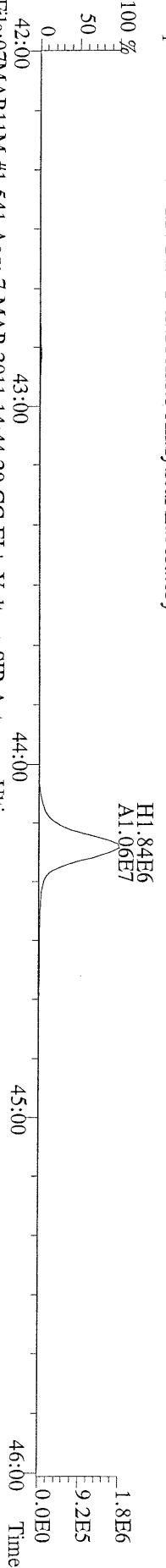
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425.7737 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



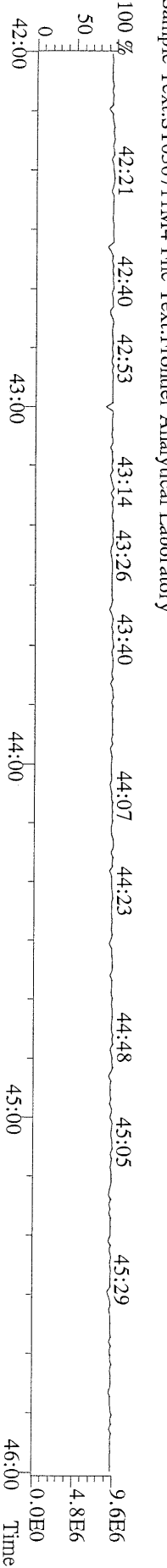
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435.8169 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



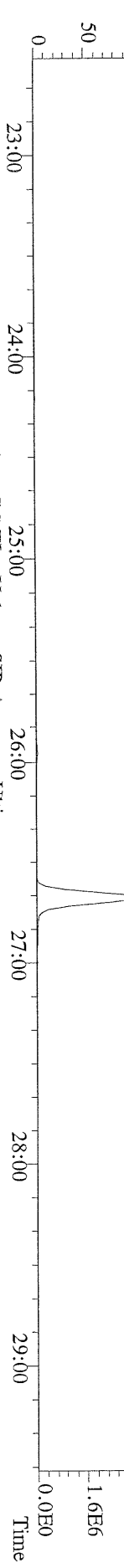
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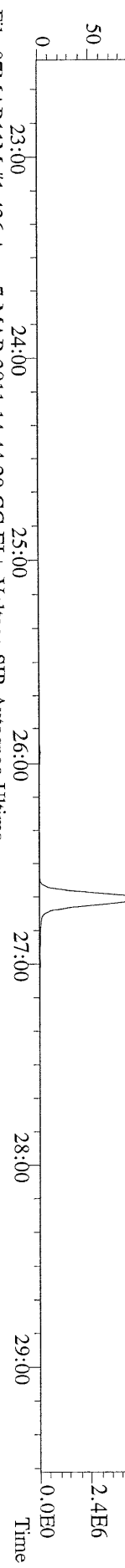
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



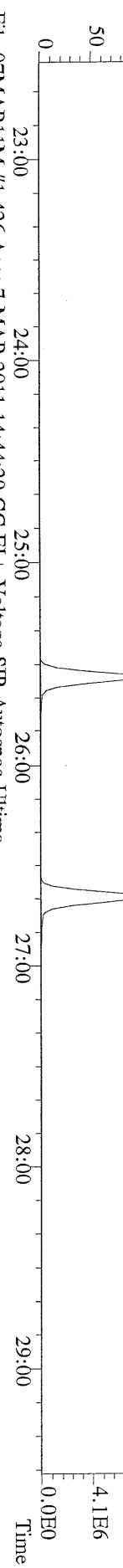
File:07MAR11M #1-426 Acq: 7-MAR-2011 14:44:29 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



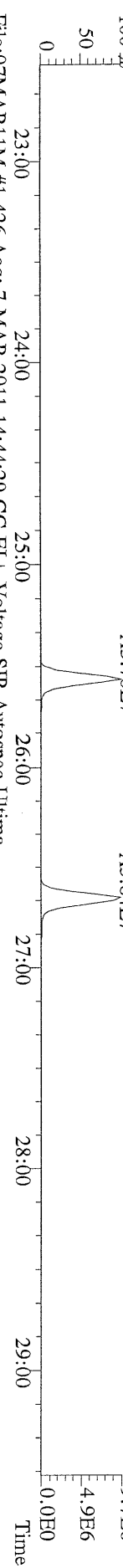
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 305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



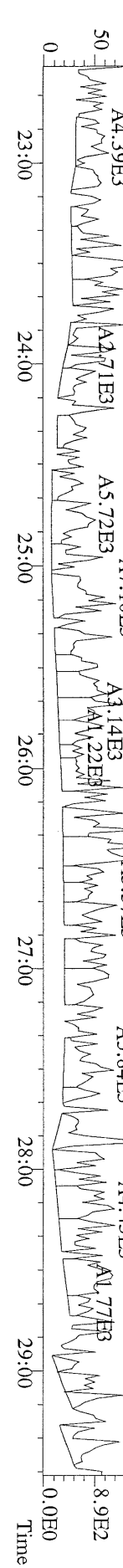
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 315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



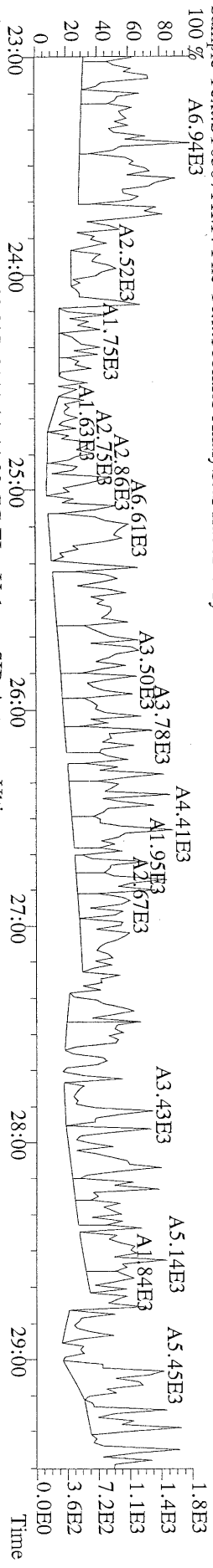
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 317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
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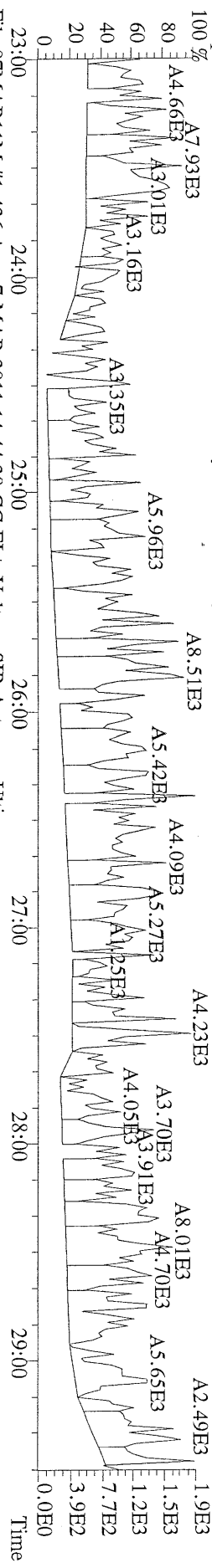
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 375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



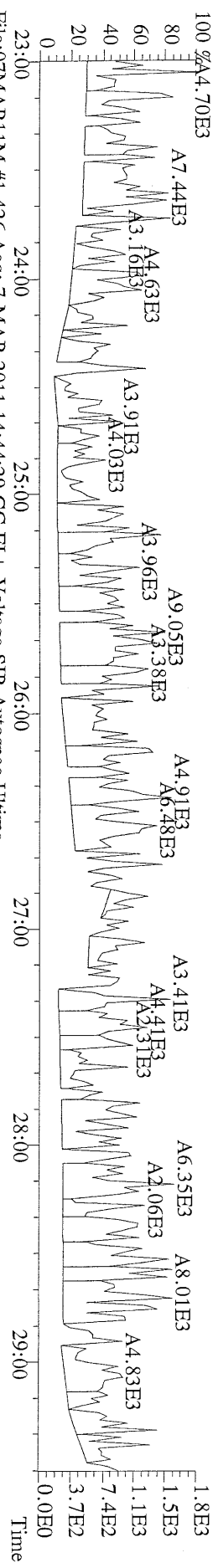
File:07MAR11M #1-426 Acq: 7-MAR-2011 14:44:29 GC EI+ Voltage SIR Autospec-Utima
 339.8597 S:4 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



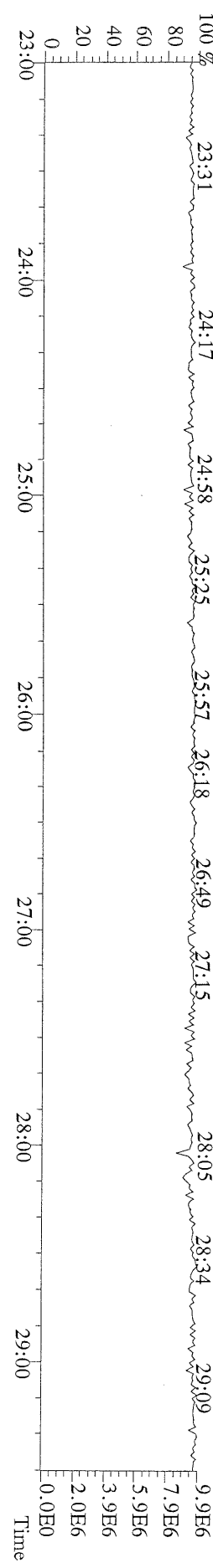
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 341.8568 S:4 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



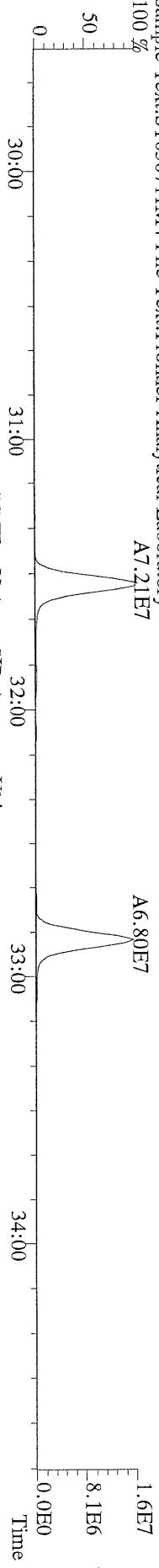
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 409.7974 S:4 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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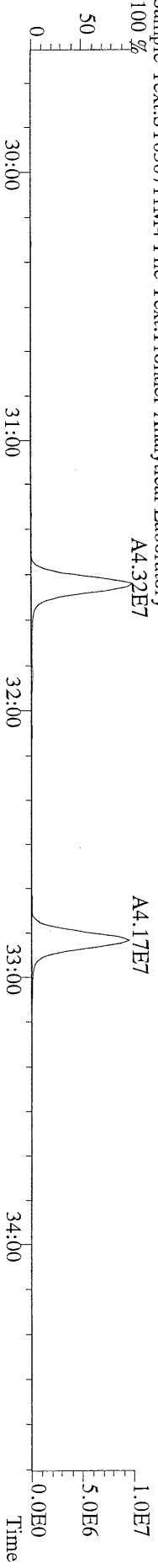
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 316.9824 S:4 Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



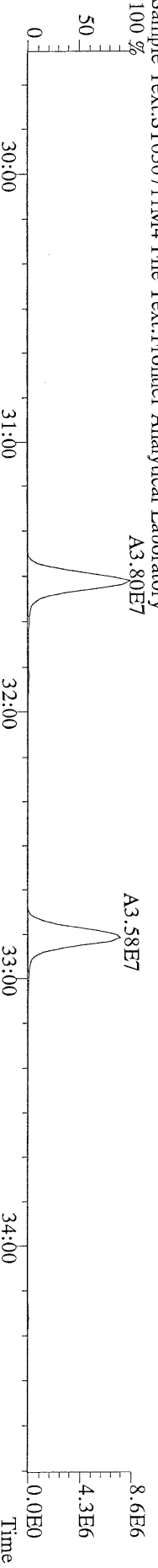
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 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



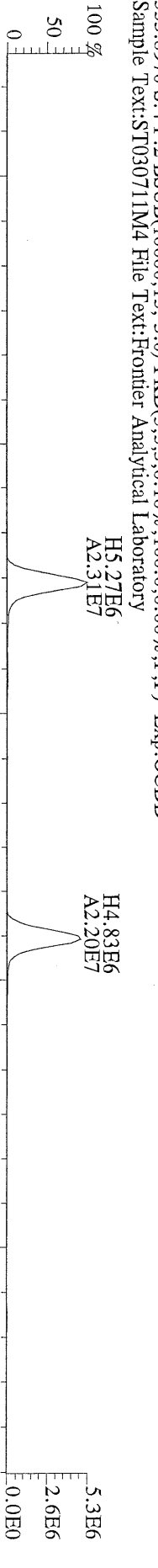
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 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



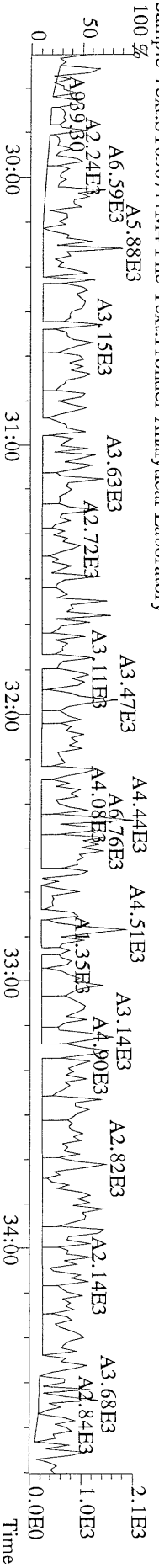
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 351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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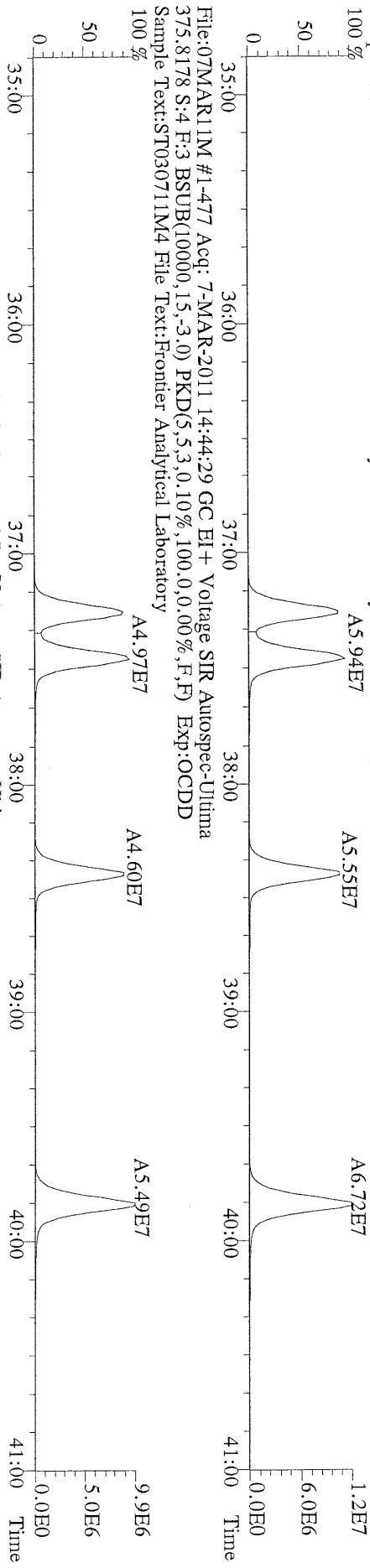
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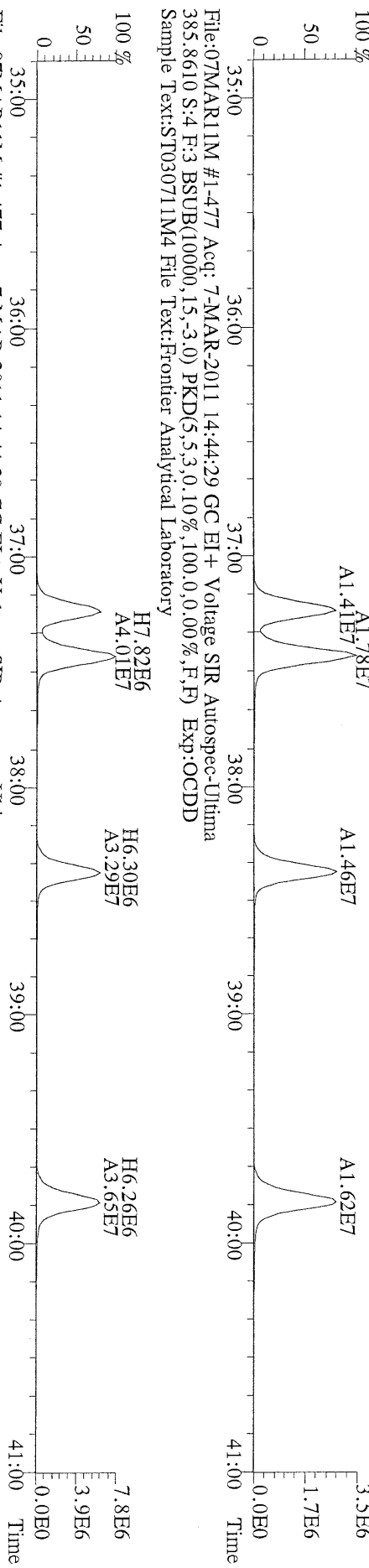
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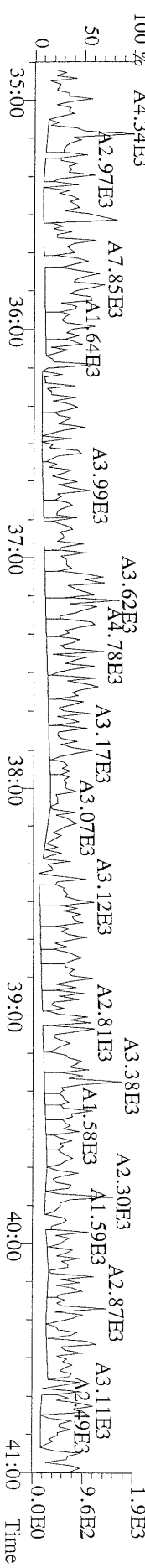
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 Sample Text:ST030711M4 File Text:Fronter Analytical Laboratory
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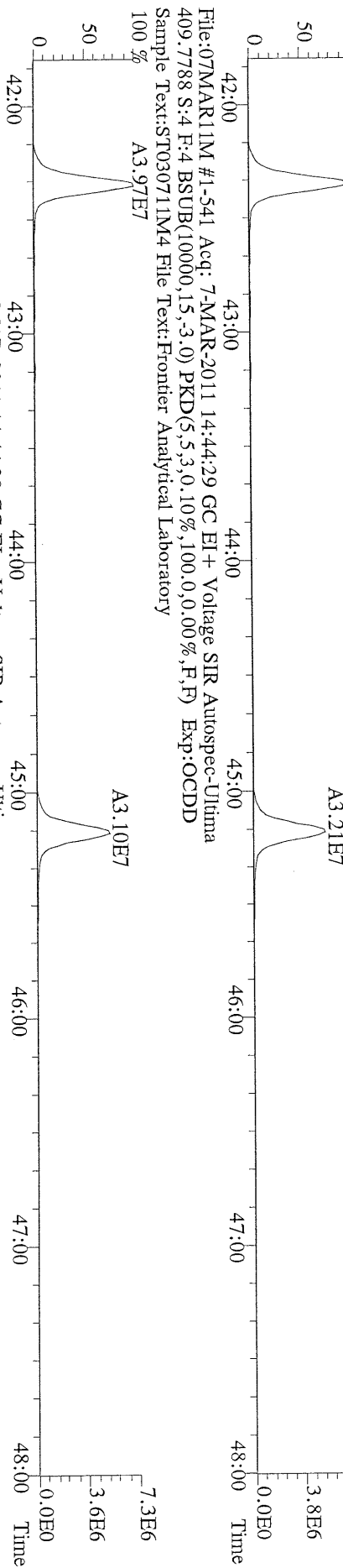
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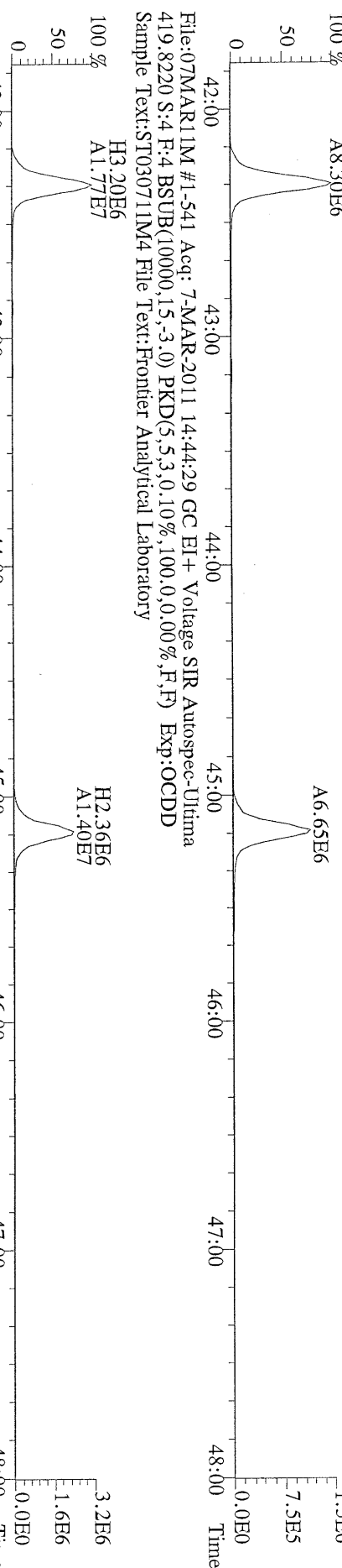
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 Sample Text:ST030711M4 File Text:Fronter Analytical Laboratory
 100 %



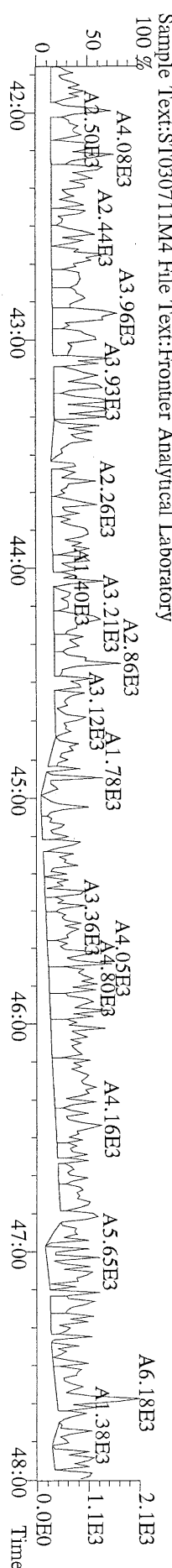
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



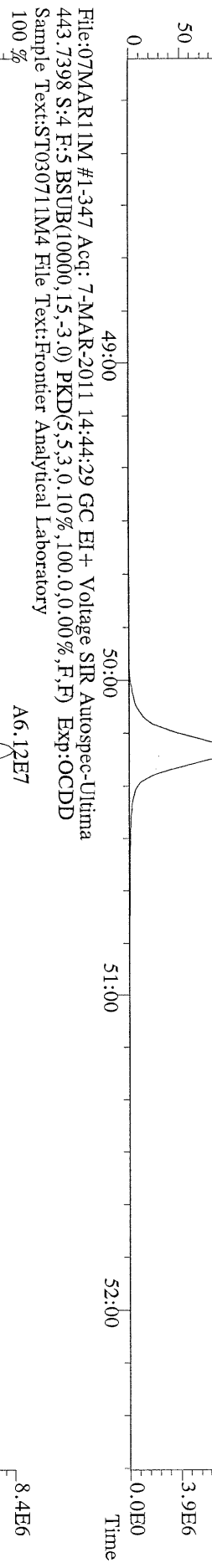
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100 %



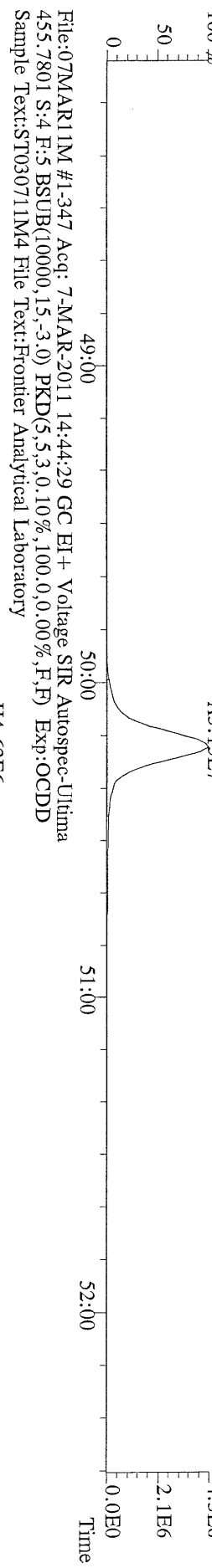
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



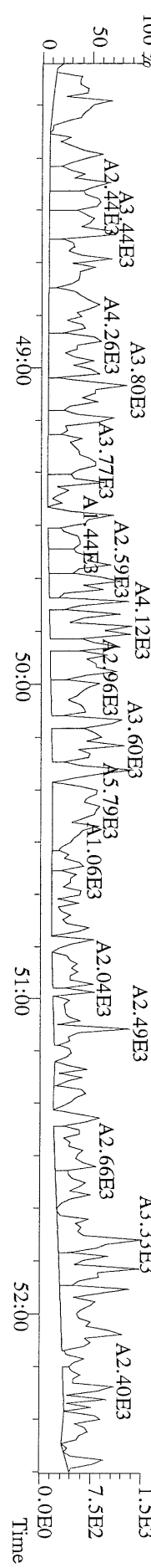
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 441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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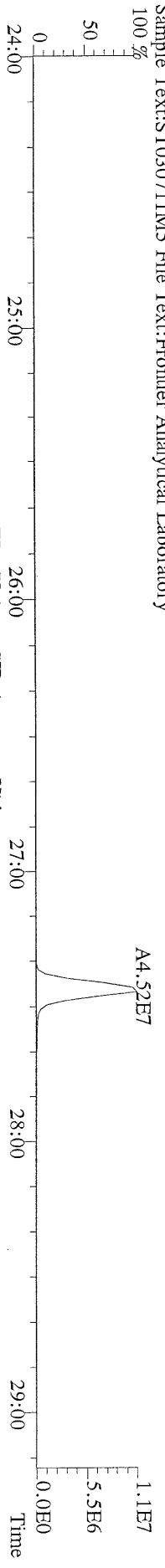
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 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



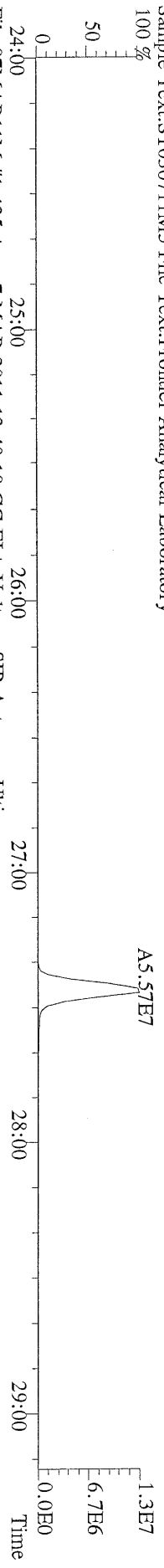
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 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



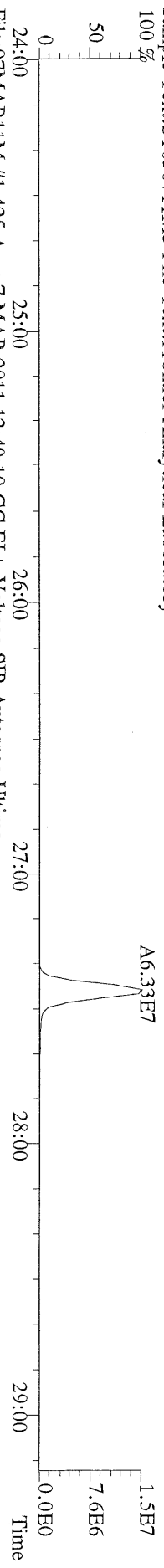
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319.8965 S:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



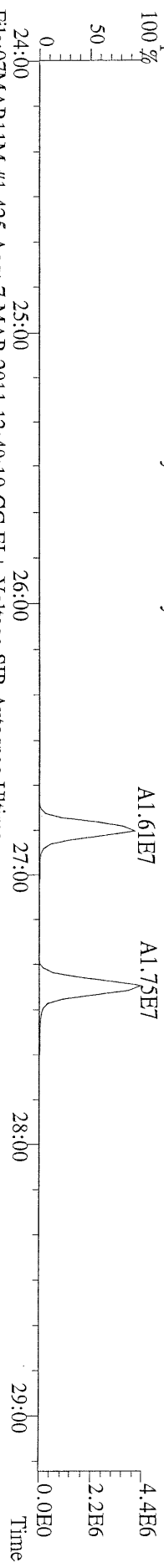
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



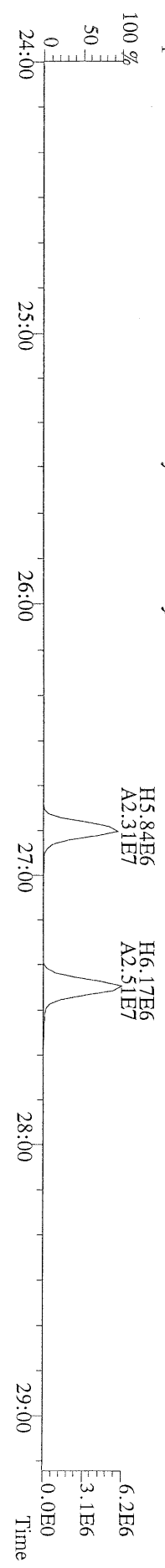
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327.8847 S:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



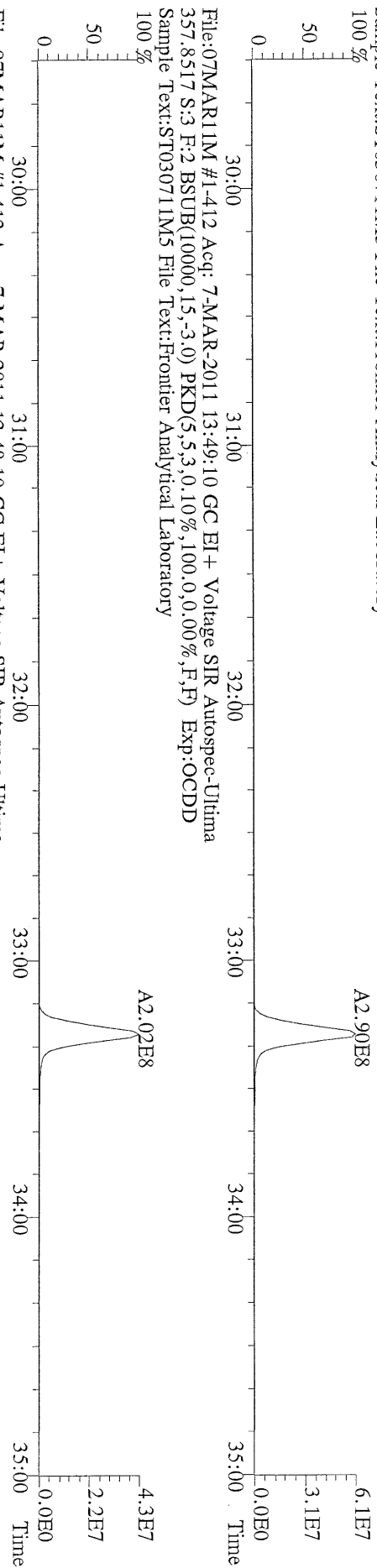
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



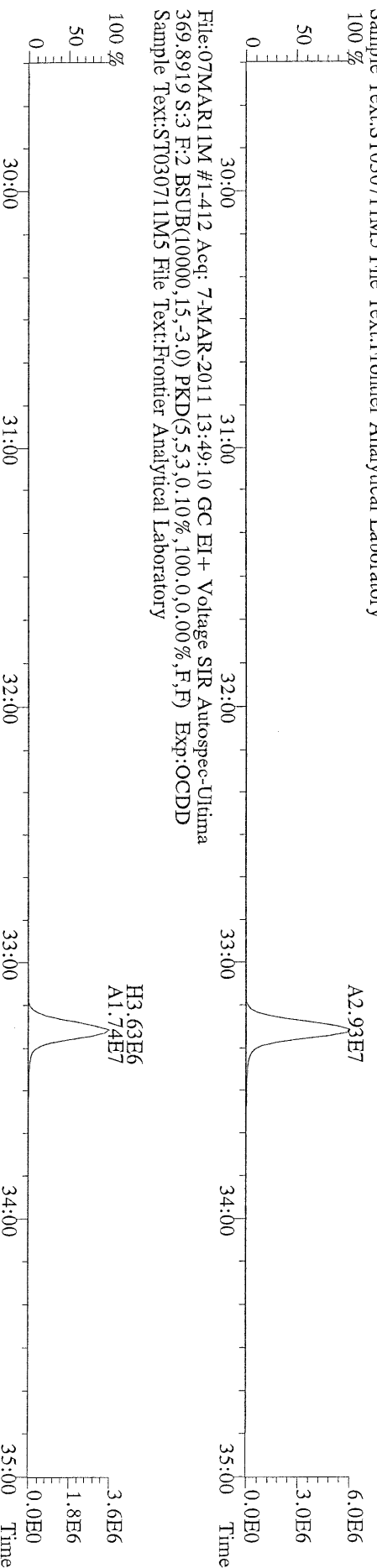
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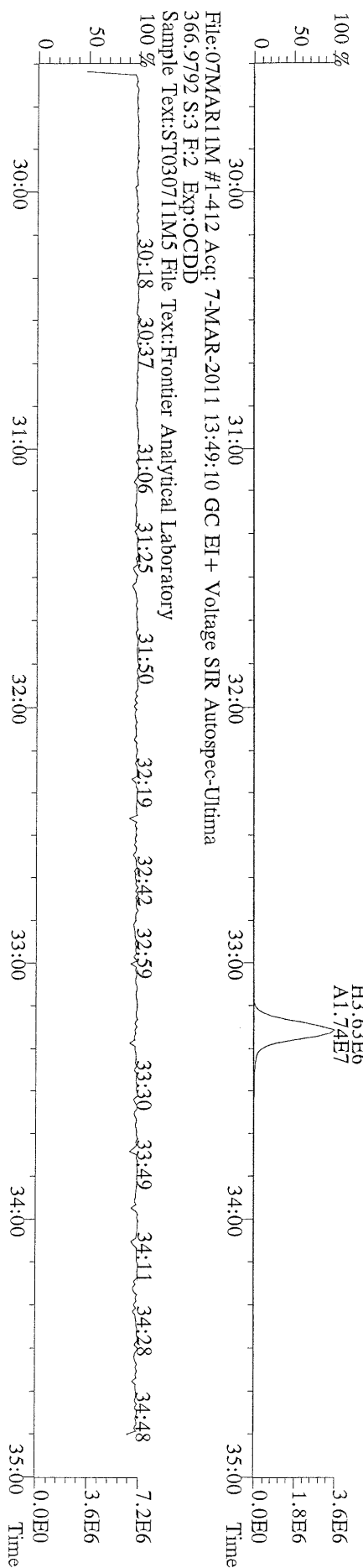
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



File:07MAR11M #1-412 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %

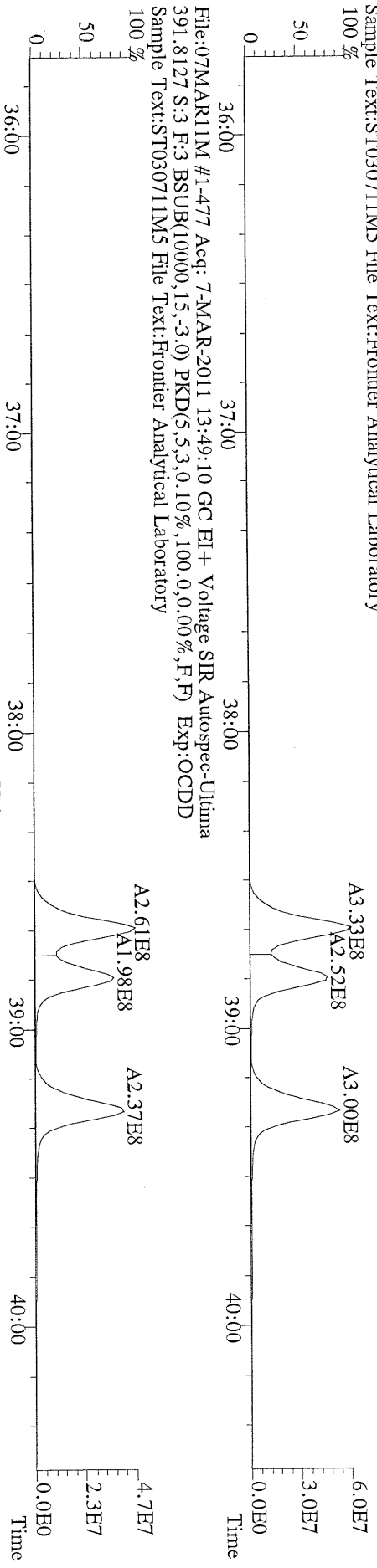


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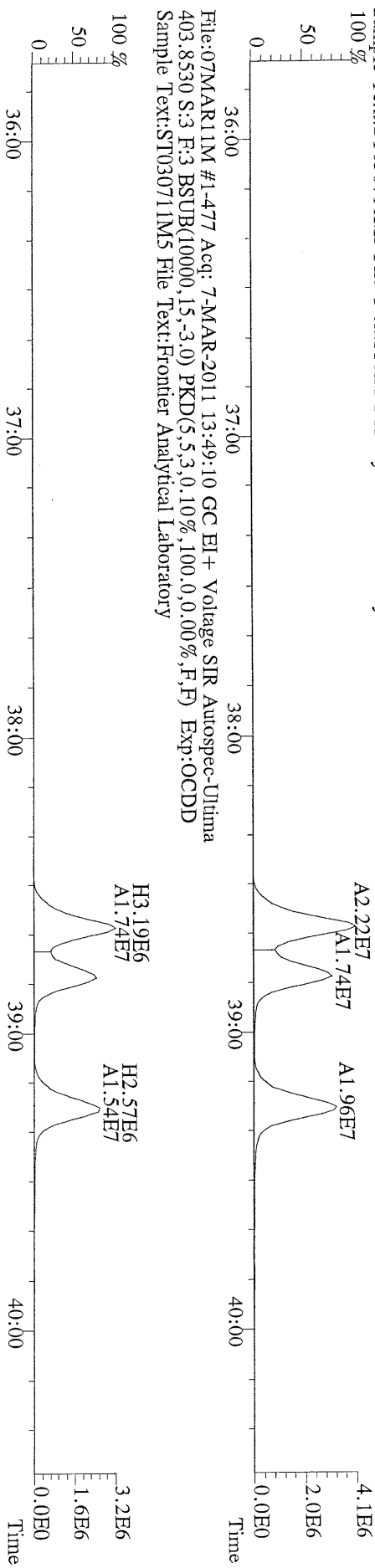


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366.9792 S:3 F:2 Exp:OCDD
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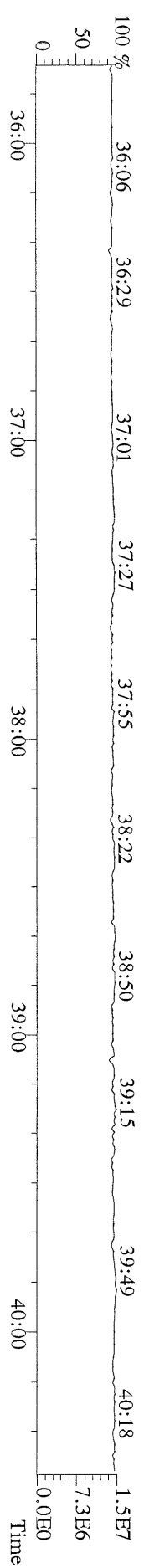
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



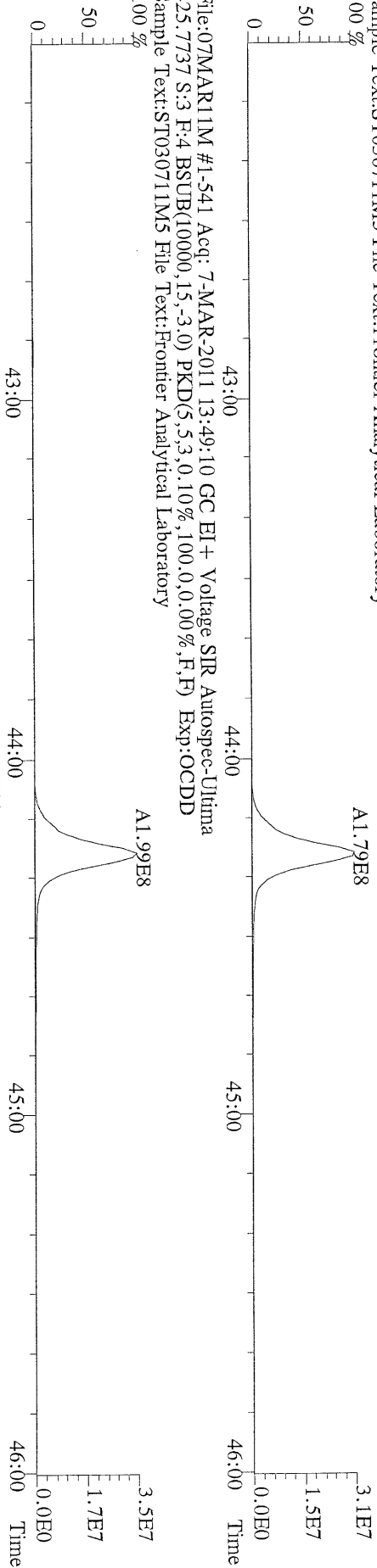
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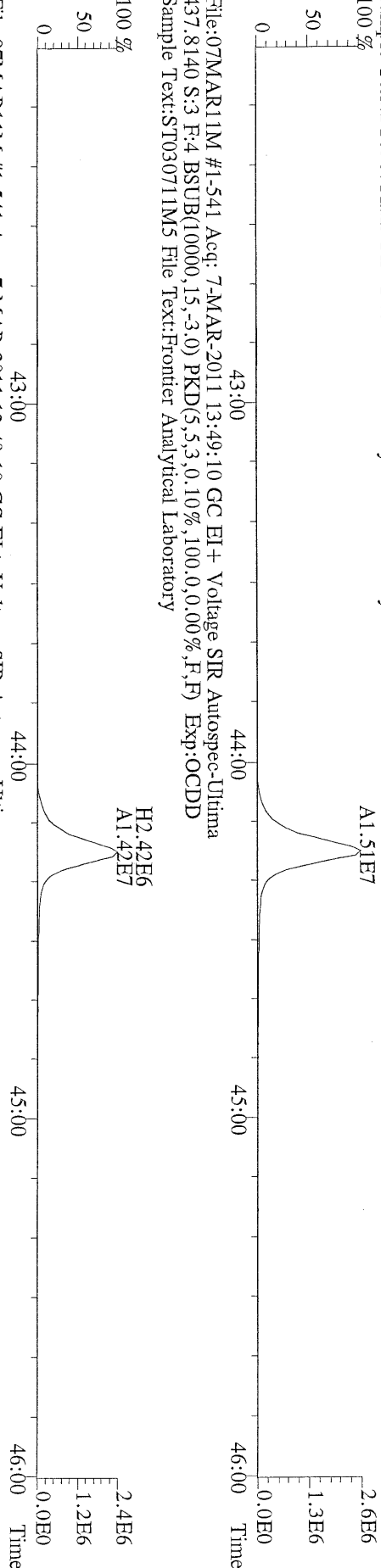
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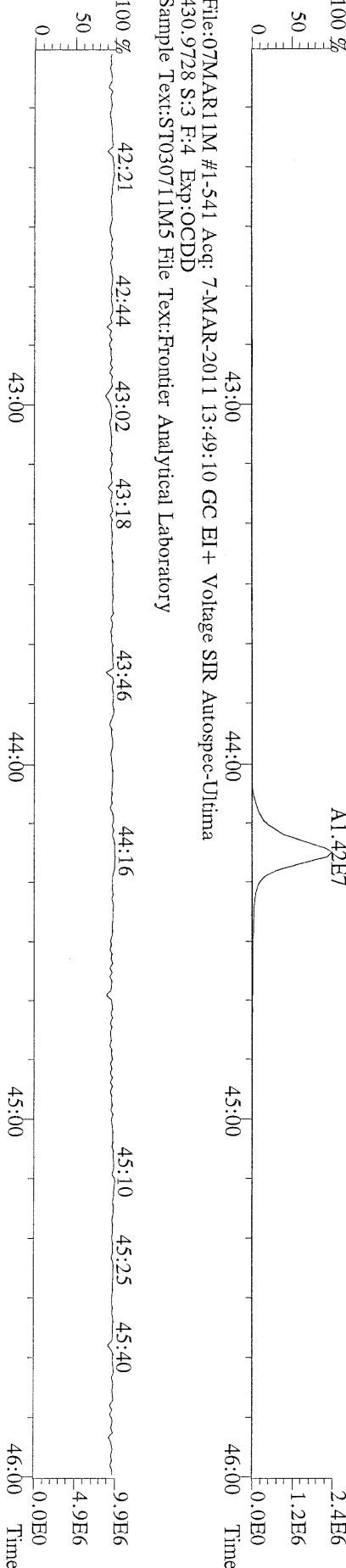
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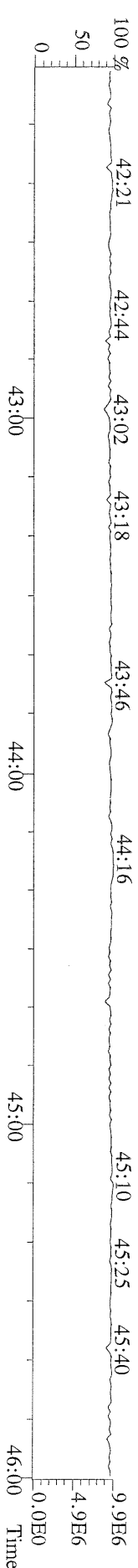
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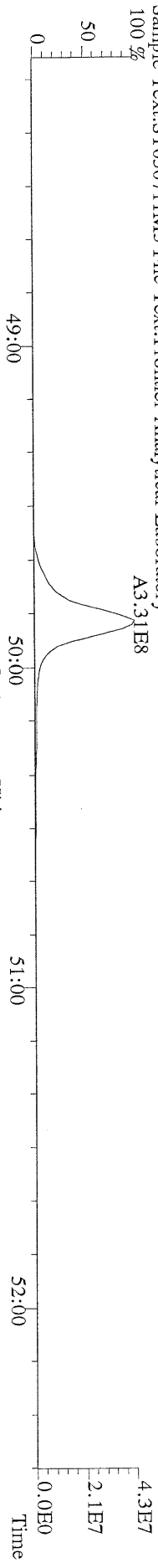
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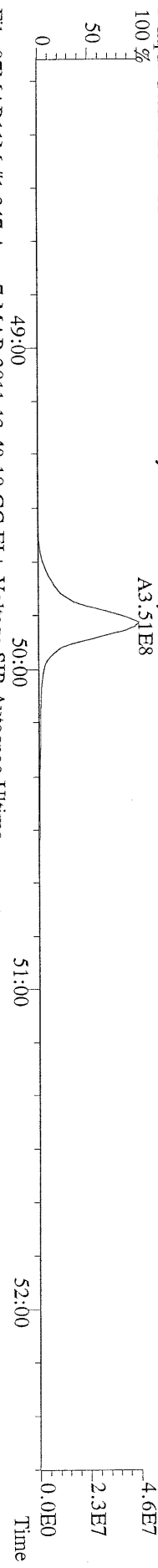
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



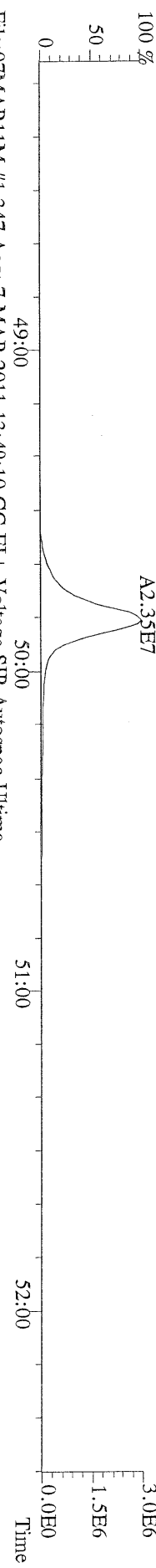
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457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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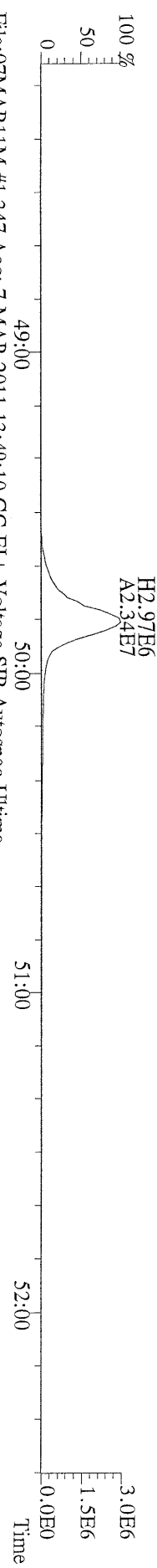
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459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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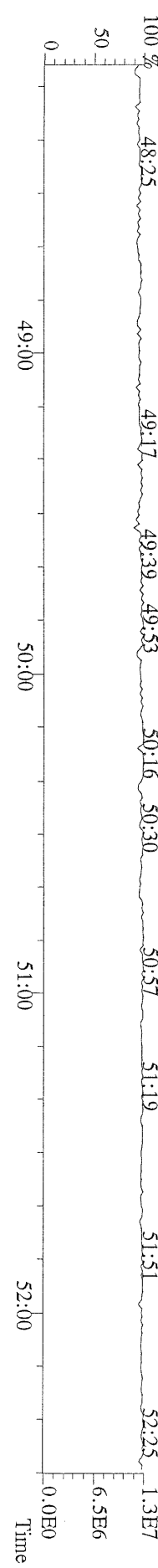
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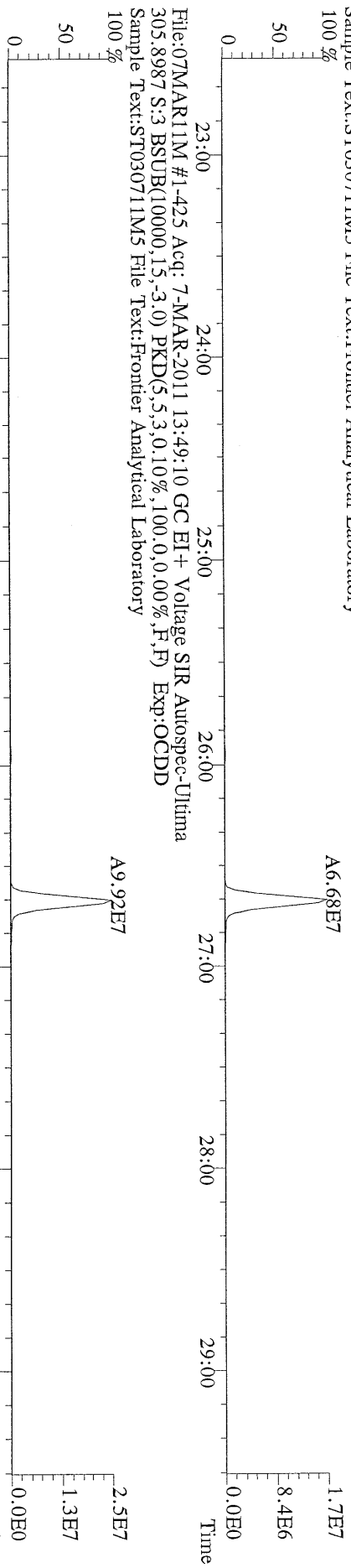
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471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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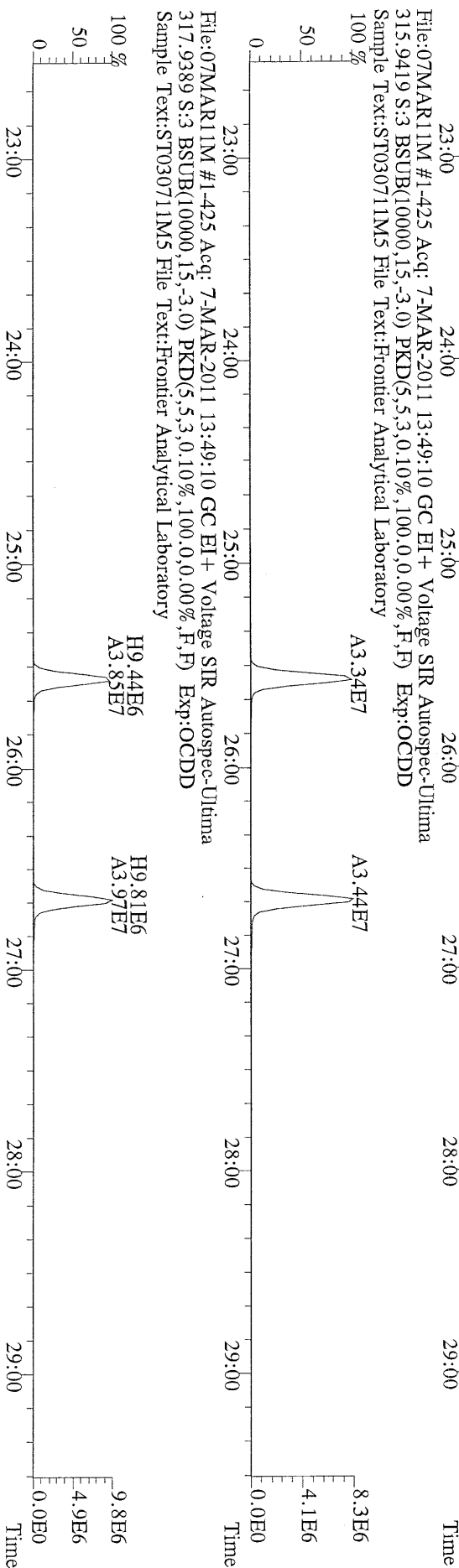
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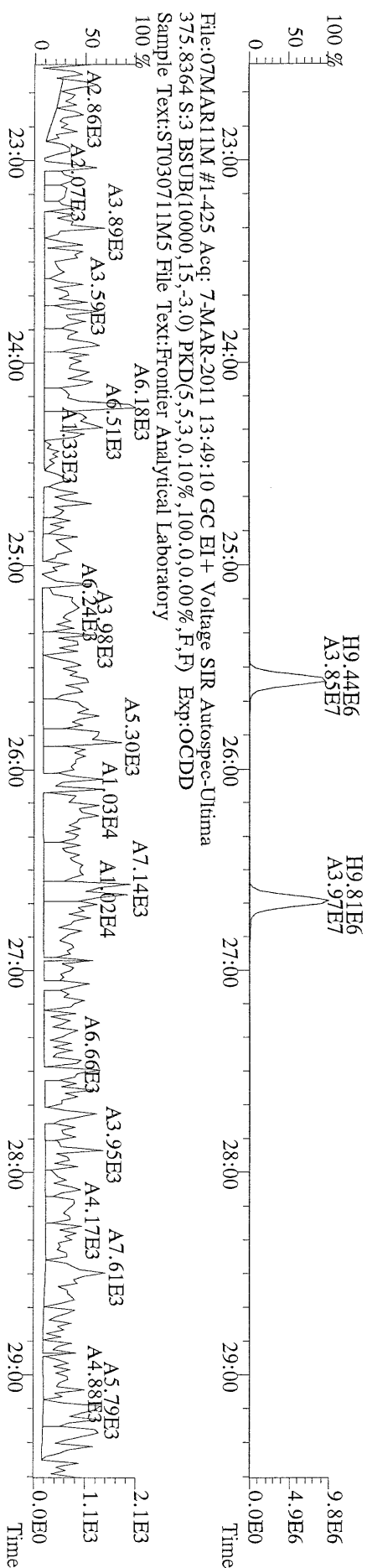
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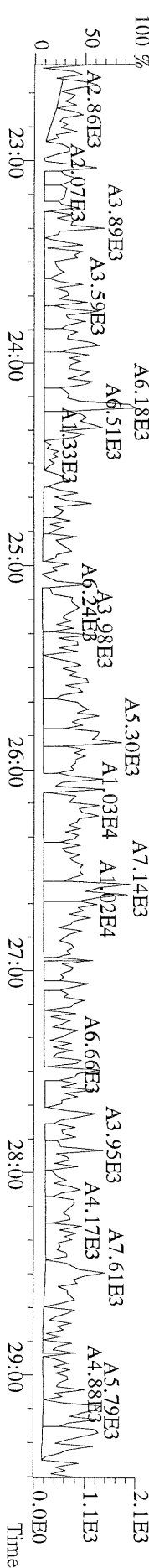
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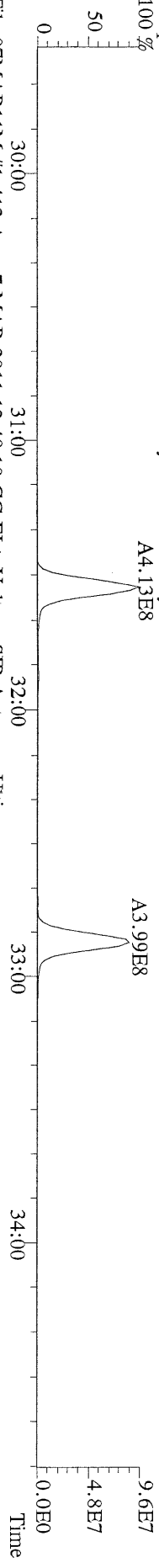
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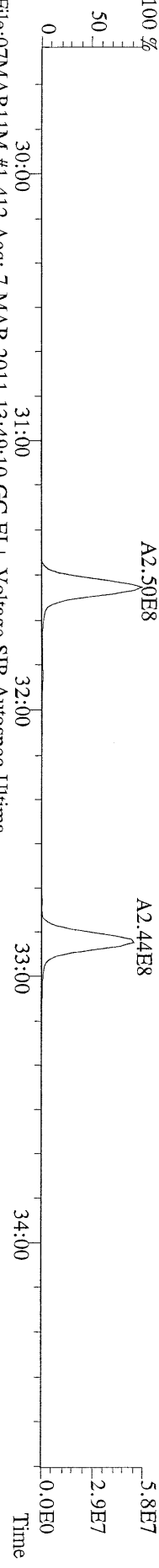
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 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



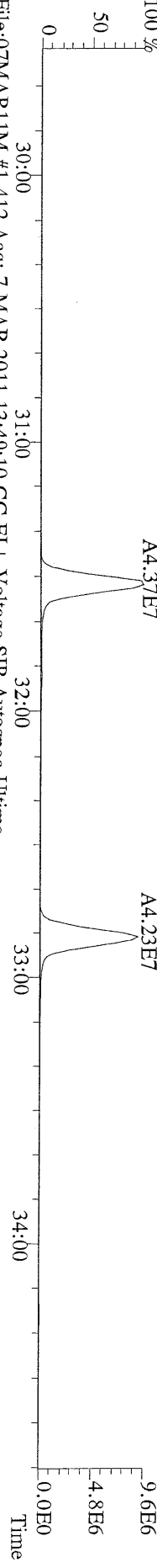
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 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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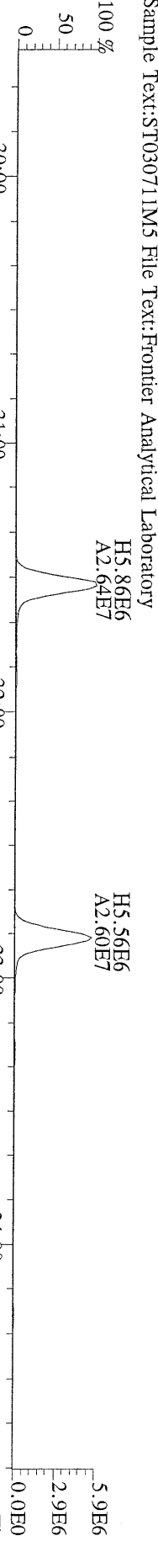
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 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
 100 %



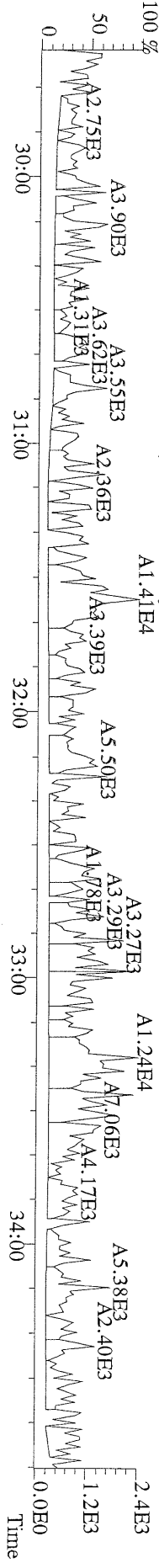
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 351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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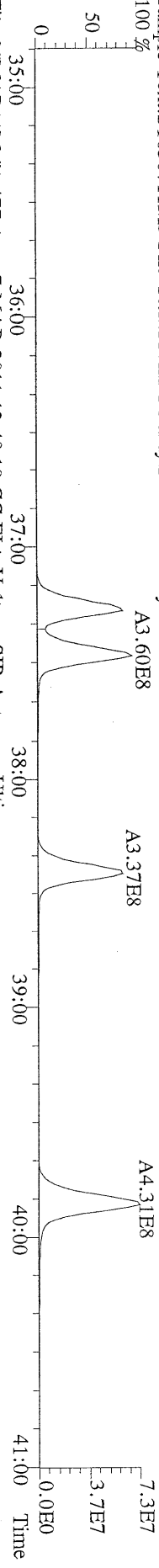
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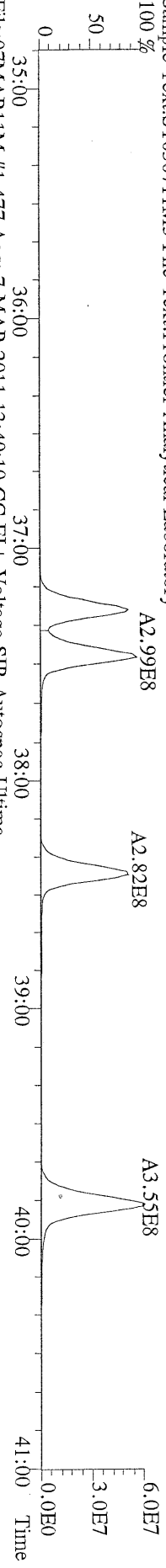
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 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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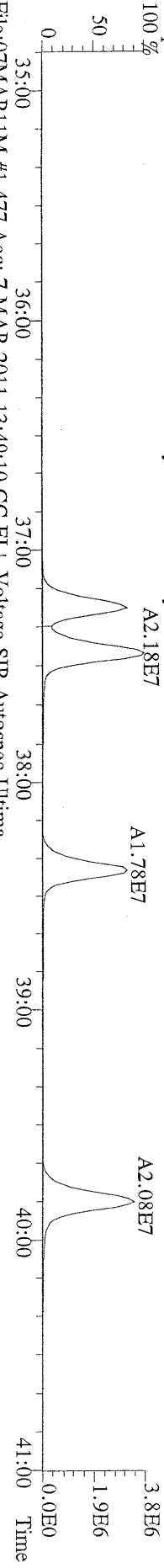
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 373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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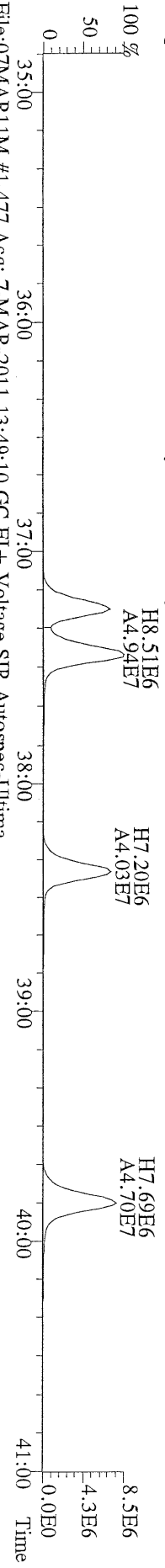
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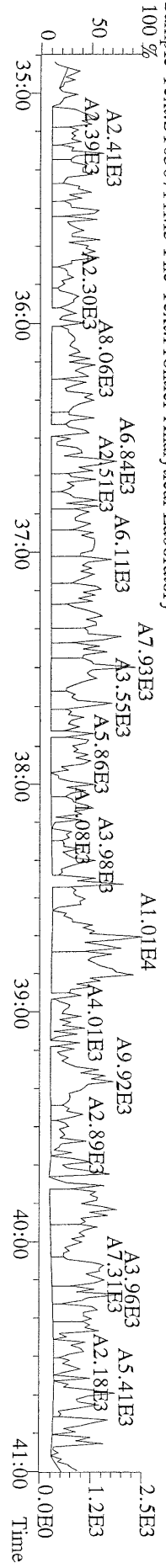
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 383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



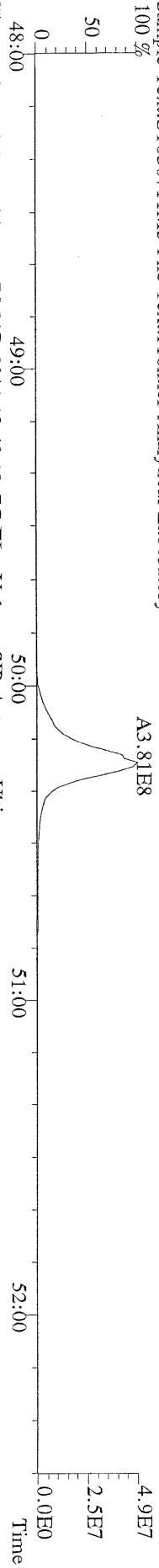
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 385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



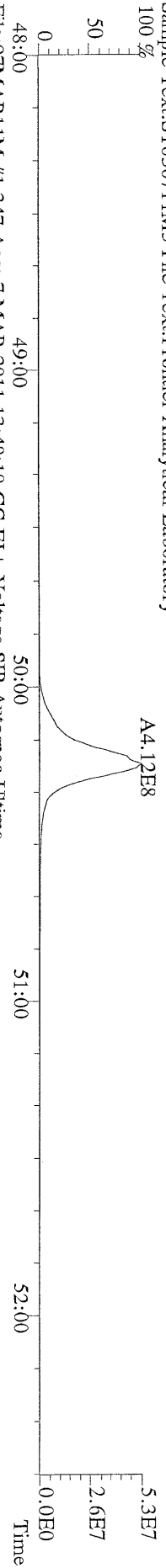
File:07MAR11M #1-477 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
 445.7555 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



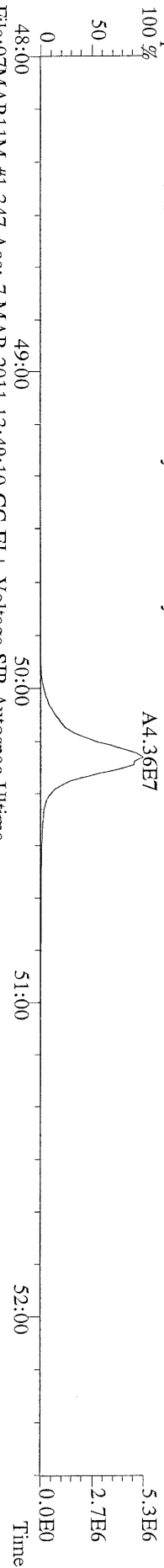
File:07MARI1M #1-347 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



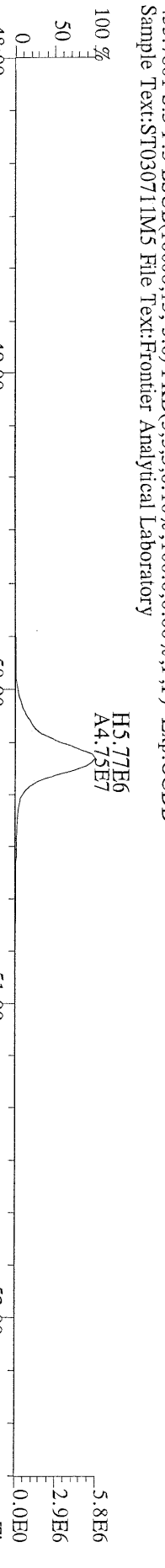
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443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory



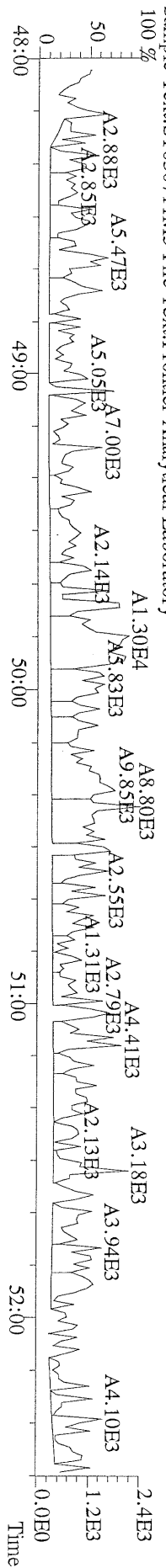
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453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

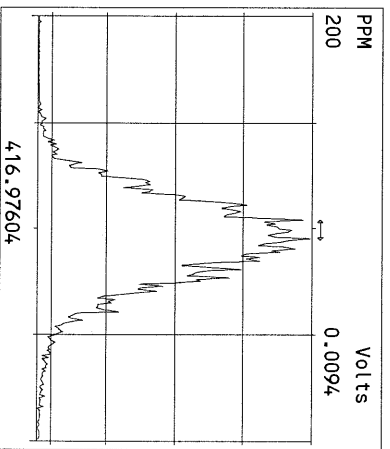
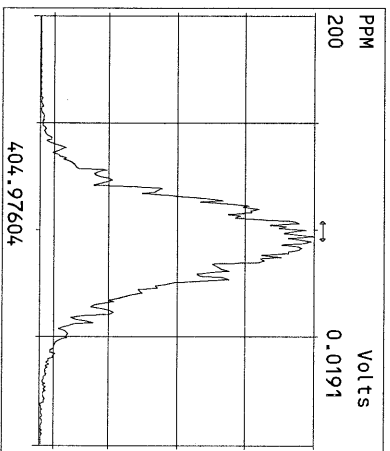
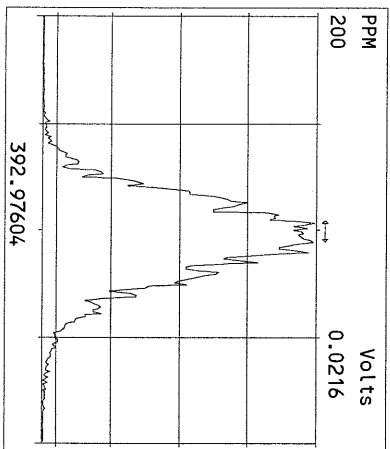
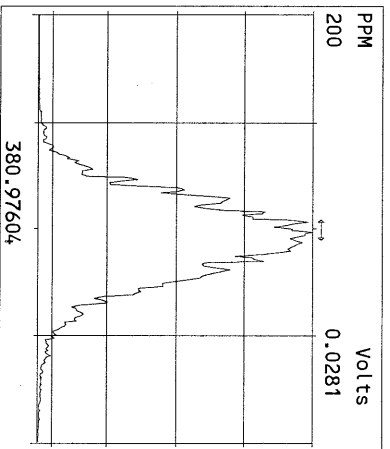
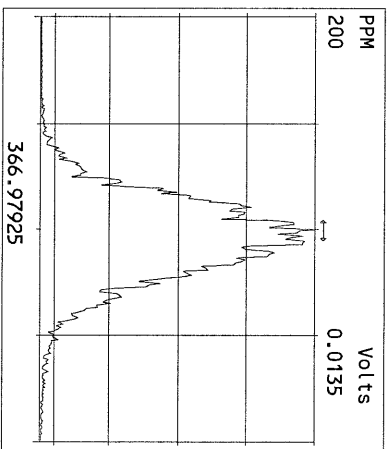
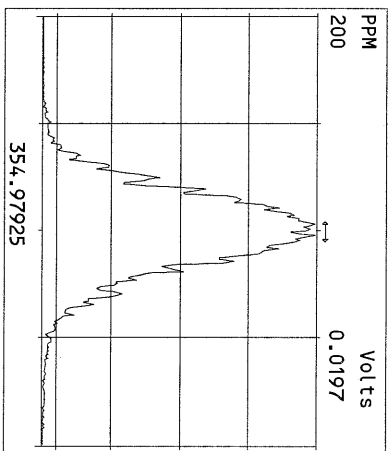
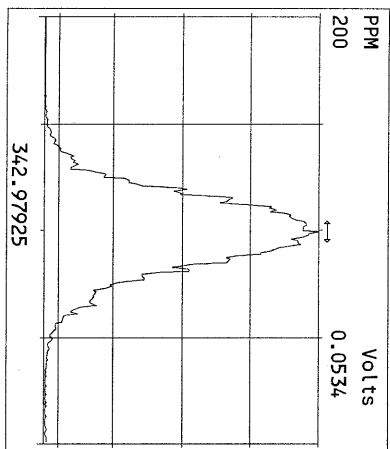
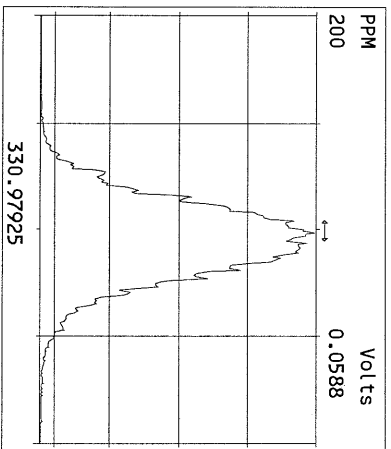
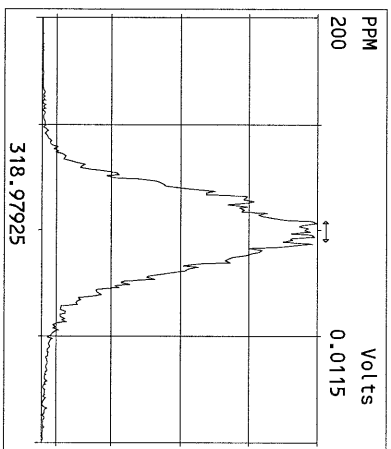
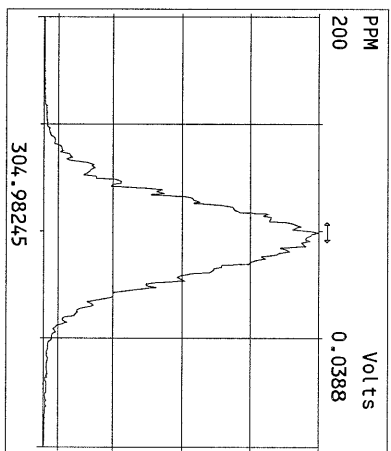
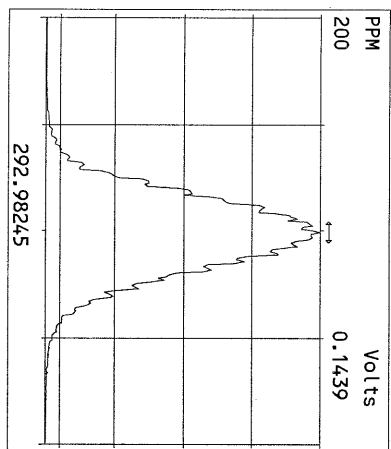


File:07MARI1M #1-347 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

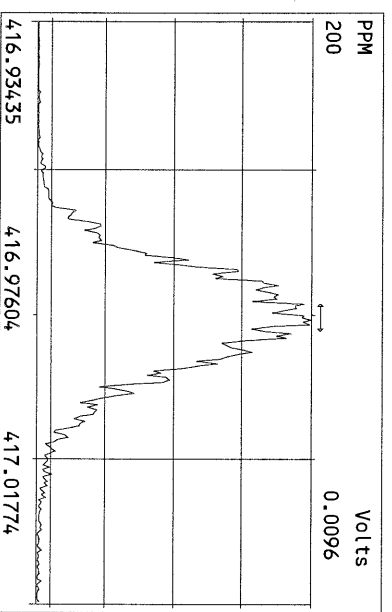
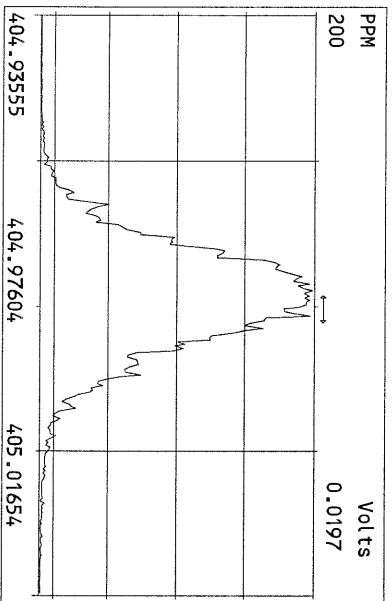
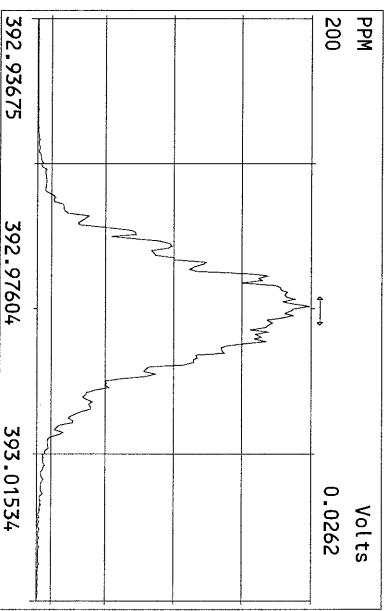
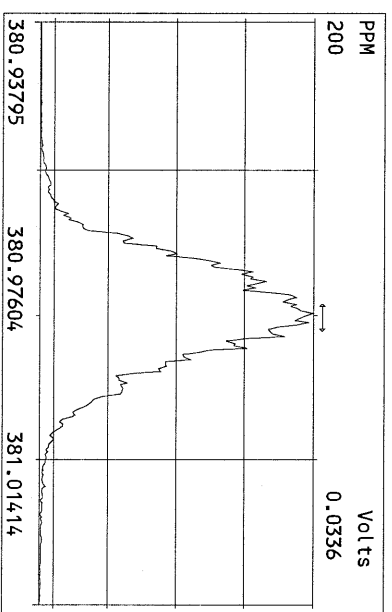
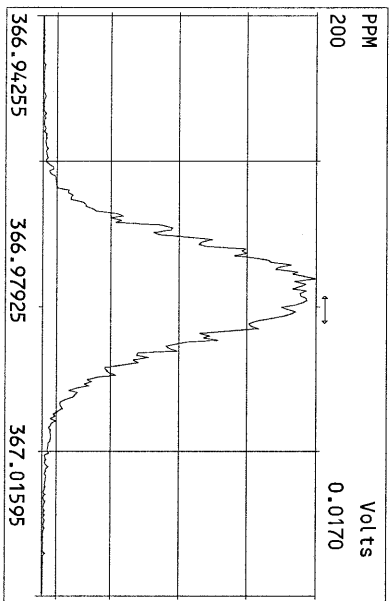
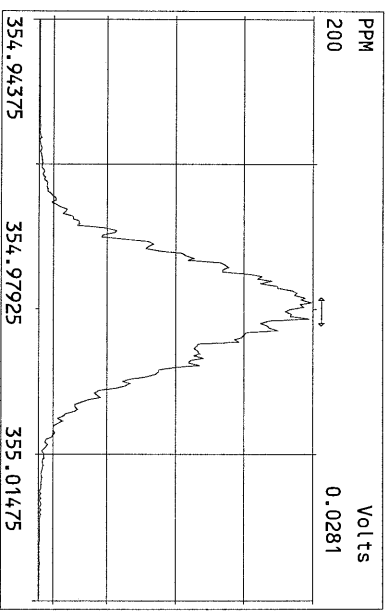
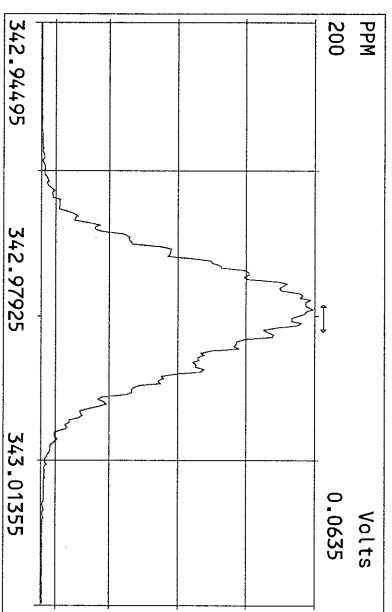
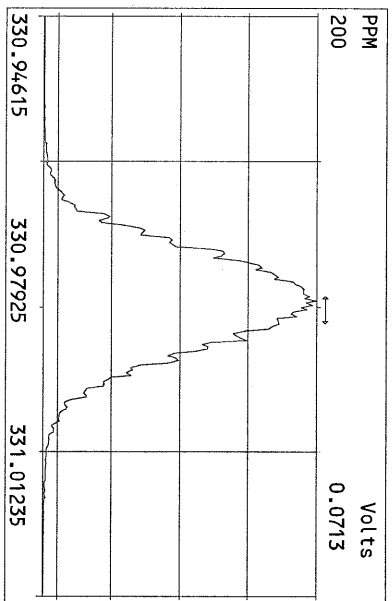


File:07MARI1M #1-347 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

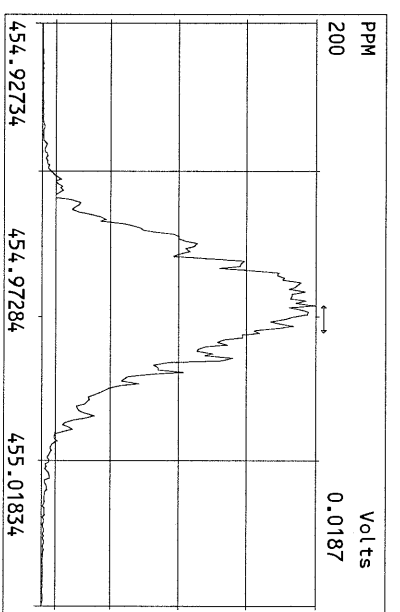
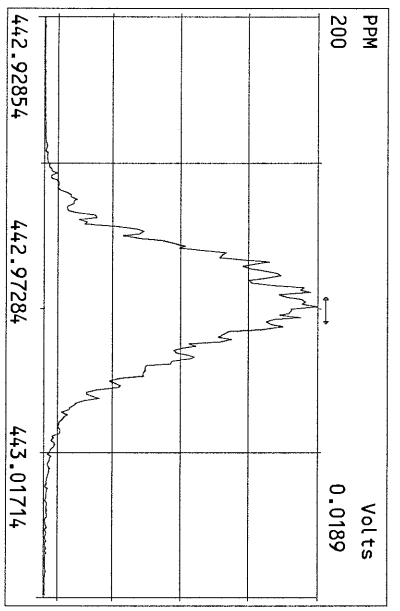
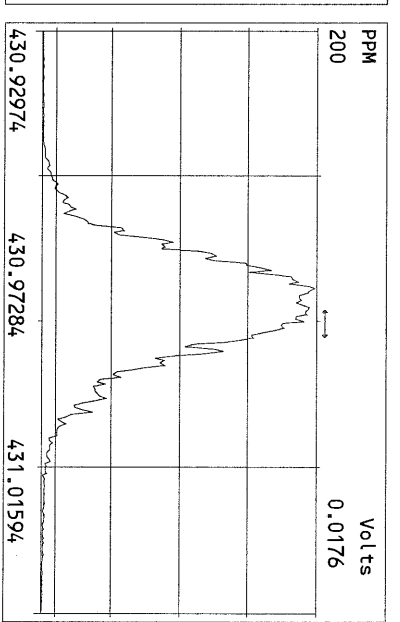
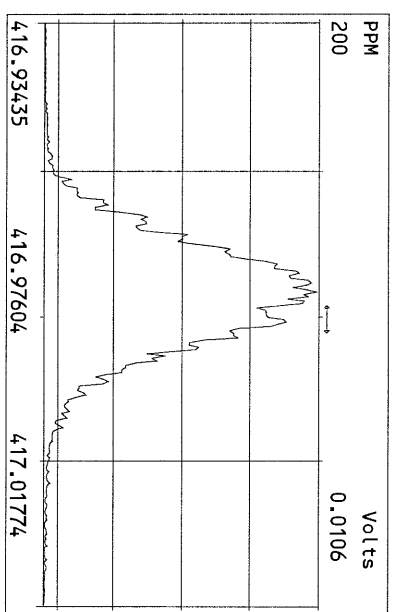
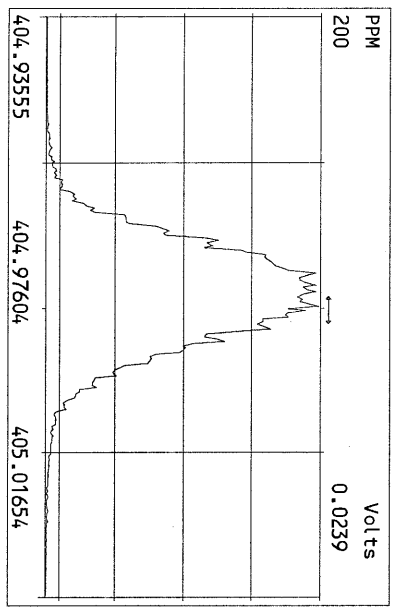
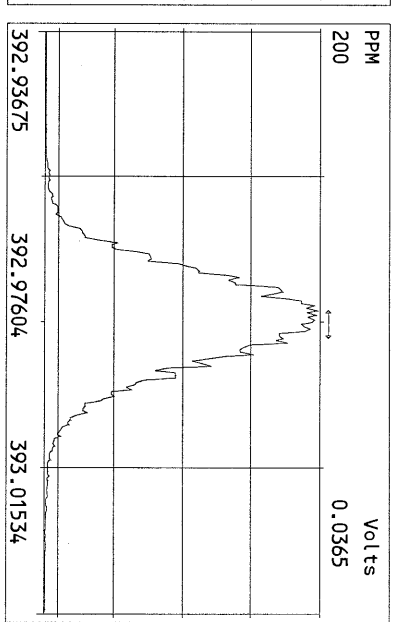
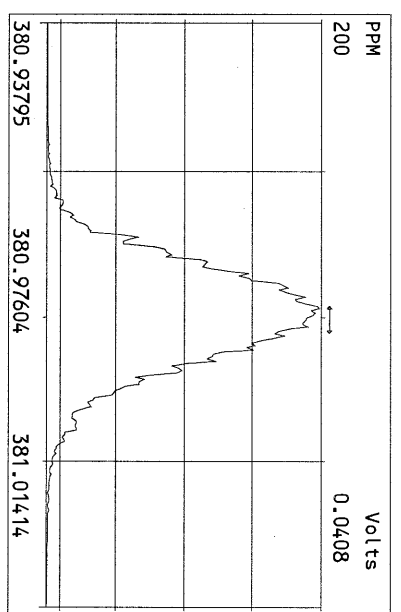
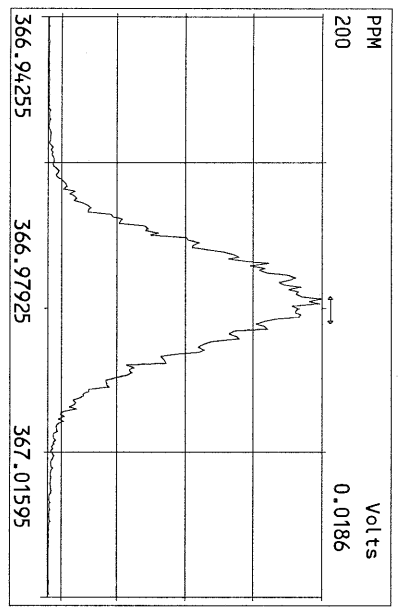


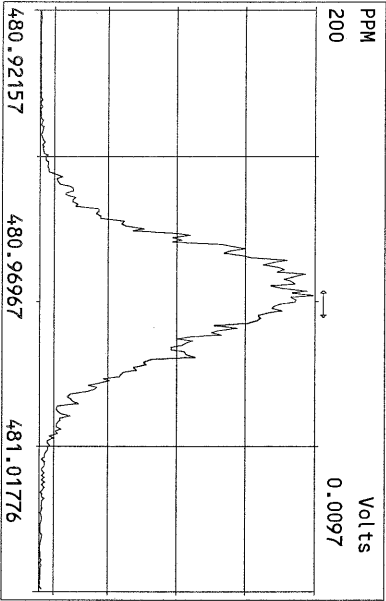
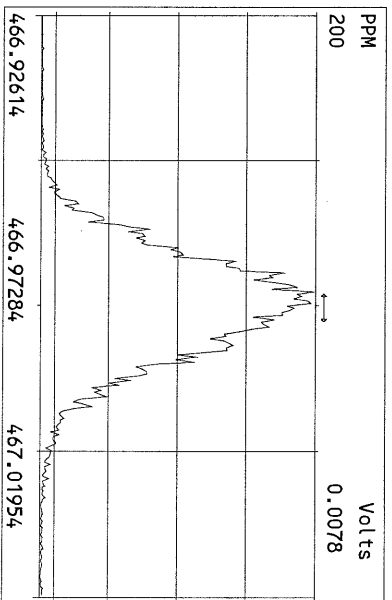
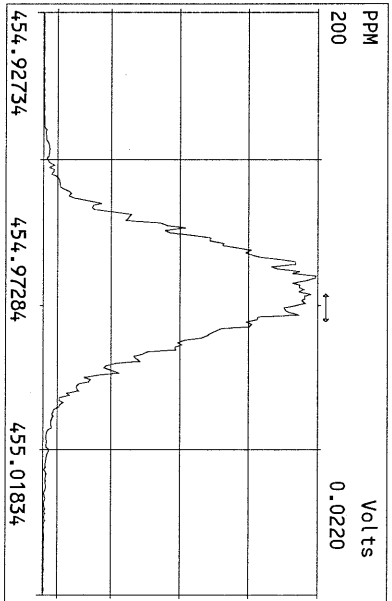
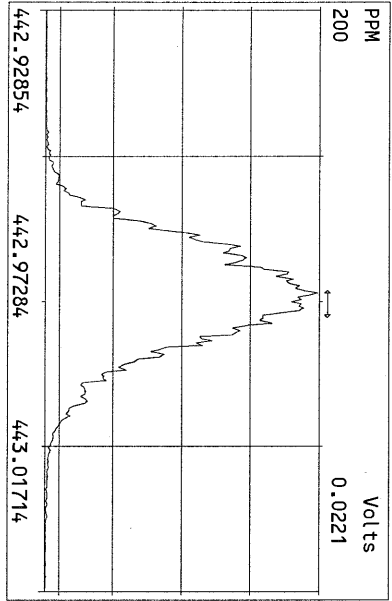
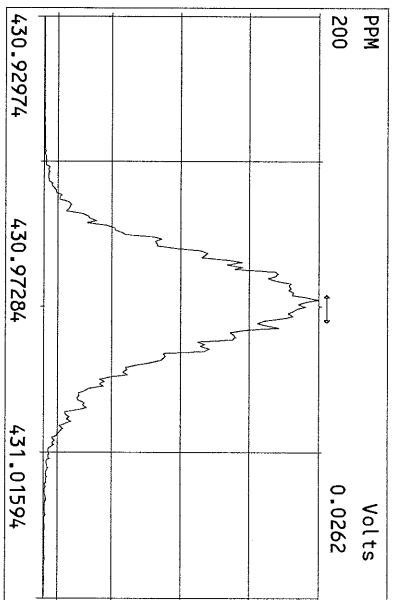
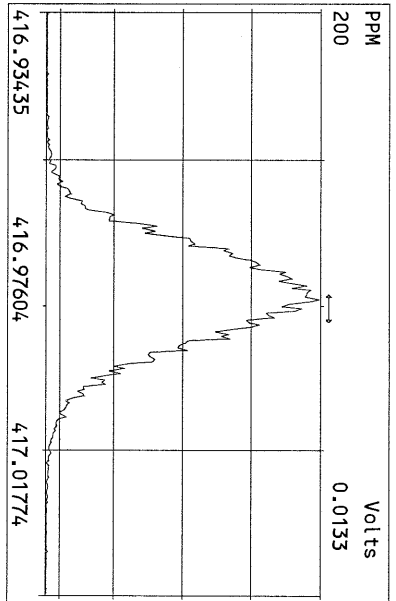
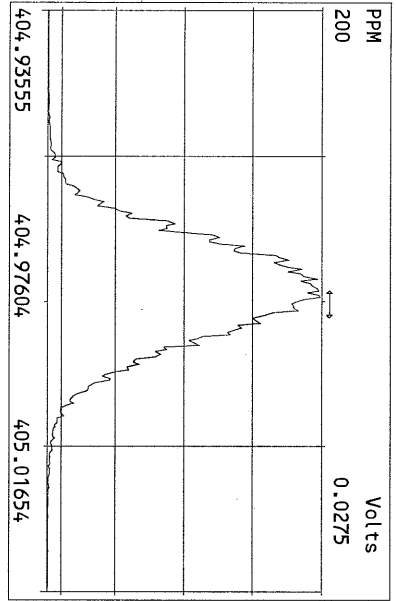


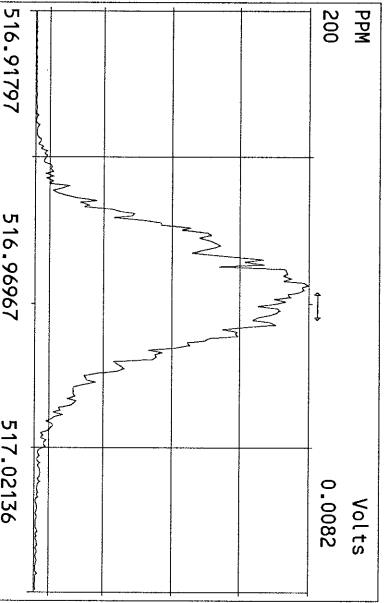
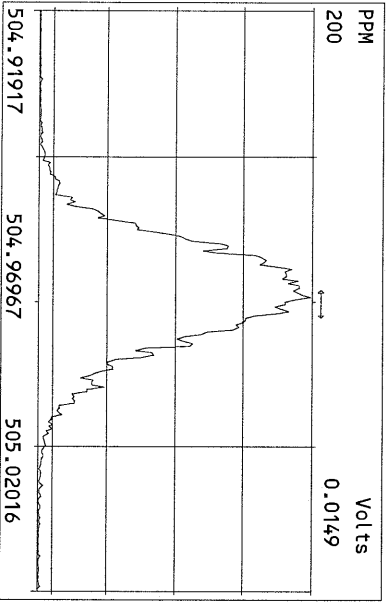
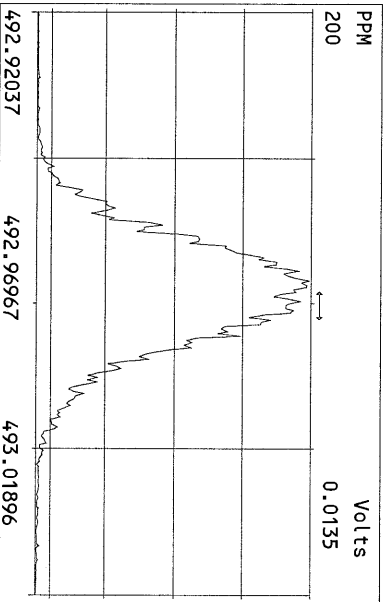
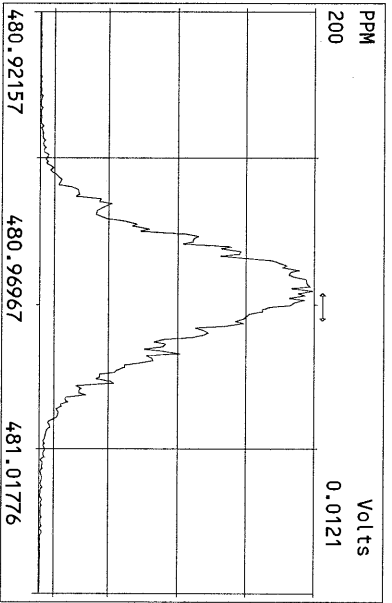
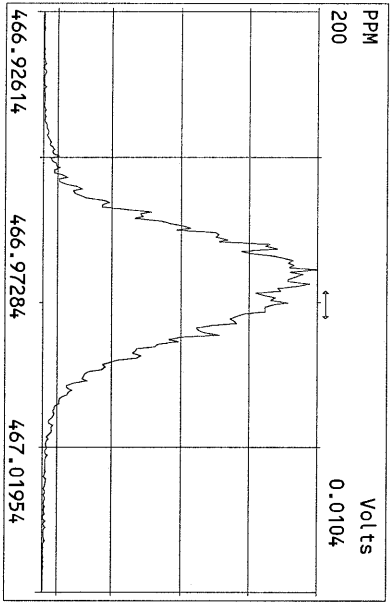
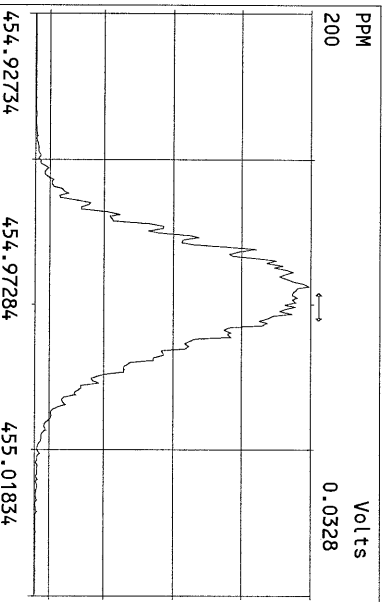
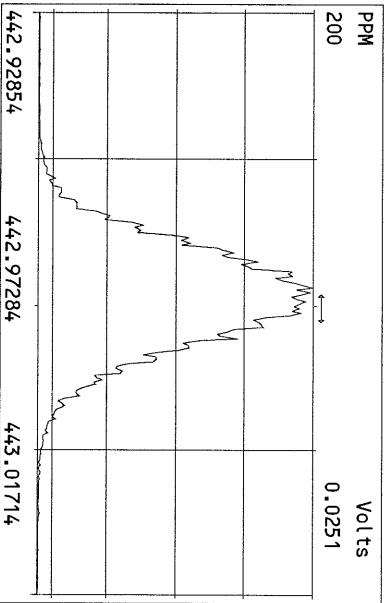
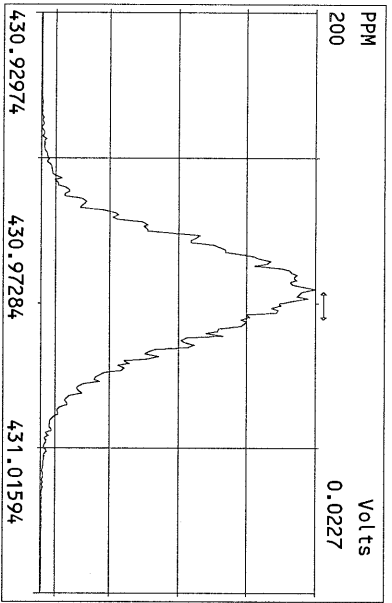
Peak Locate Examination: 8-MAR-2011:08:19 File:07MAR11M_RES_CHECK
 Experiment:OCDD Function:2 Reference:PFK



Peak Locate Examination: 8-MAR-2011:08:19 File:07MAR11M_RES_CHECK
Experiment:OCDD Function:3 Reference:PFK







USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3 GC Column ID: DB5

VER Data Filename: 18MAY11M Sam:1 Analysis Date: 18-MAY-11 09:54:39

NATIVE ANALYTES	M/Z'S	ION	QC	ACCEPT	CONC.	CONC.
	FORMING	ABUND.	LIMITS		FOUND	RANGE
	RATIO (1)	RATIO	(2)		FOUND	(ng/mL) (3)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	10.00	7.80 - 12.9
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	y	49.7	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	45.7	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	45.4	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	y	46.7	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.91	0.88-1.20	y	49.9	43.0 - 58.0
OCDD	M+2/M+4	0.93	0.76-1.02	y	101	79.0 - 126
2,3,7,8-TCDF	M/M+2	0.67	0.65-0.89	y	10.5	8.40 - 12.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	48.9	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	y	47.3	41.0 - 60.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	45.1	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	45.5	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	45.2	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	y	46.7	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	y	45.3	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	y	47.0	43.0 - 58.0
OCDF	M+2/M+4	0.92	0.76-1.02	y	86.9	63.0 - 159

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

Analyst: 

Date: 5/19/11

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 18-MAY-11 09:54:39

CS3 or VER Data Filename: 18MAY11M

Sam:1

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.001	0.999-1.002
LABELED COMPOUNDS			
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052
13C-2,3,7,8-TCDD		1.022	0.976-1.043
13C-2,3,7,8-TCDF		0.993	0.923-1.103
13C-1,2,3,7,8-PeCDD		1.239	1.000-1.567
13C-1,2,3,7,8-PeCDF		1.175	0.923-1.203
13C-2,3,4,7,8-PeCDF		1.224	0.923-1.303

(1) Contract-required limits for Relative Retention Times (RRT) as specified
in Table 2, Method 1613.

Analyst: Date: 5/19/11

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 18-MAY-11 09:54:39

CS3 or VER Data Filename: 18MAY11M

Sam:1

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.001	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.012	1.000-1.019
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.001	0.999-1.001
OCDD	13C-OCDD	1.001	0.999-1.001
OCDF	13C-OCDF	1.001	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,7,8,9-HxCDD	0.985	0.977-1.000
13C-1,2,3,6,7,8-HxCDD		0.989	0.981-1.003
13C-1,2,3,4,7,8-HxCDF		0.949	0.944-0.970
13C-1,2,3,6,7,8-HxCDF		0.955	0.949-0.975
13C-2,3,4,6,7,8-HxCDF		0.978	0.959-1.021
13C-1,2,3,7,8,9-HxCDF		1.015	0.977-1.047
13C-1,2,3,4,6,7,8-HpCDD		1.128	1.086-1.130
13C-1,2,3,4,6,7,8-HpCDF		1.080	1.043-1.085
13C-1,2,3,4,7,8,9-HpCDF		1.151	1.057-1.154
13C-OCDD		1.269	1.032-1.311
13C-OCDF		1.279	1.000-1.311

(1) Contract-required limits for Relative Retention Times (RRT) as specified
in Table 2, Method 1613.

Analyst: Date: 5/19/11

Name	Resp	RA	RT	RRF	WHO 1998 Tox:		WHO 2005 Tox:		110 DL		
					Conc	Qual	Fac Noise-1	Noise-2			
2,3,7,8-TCDD	4.18e+06	0.79 y	27:17	1.13	10.00		2.50	-	-	*	
1,2,3,7,8-PeCDD	1.58e+07	1.55 y	33:06	1.02	49.7		2.50	-	-	*	
1,2,3,4,7,8-HxCDD	1.46e+07	1.29 y	38:28	1.45	45.7		2.50	-	-	*	
1,2,3,6,7,8-HxCDD	1.25e+07	1.29 y	38:38	1.45	45.4		2.50	-	-	*	
1,2,3,7,8,9-HxCDD	1.41e+07	1.29 y	39:04	1.47	46.7		2.50	-	-	*	
1,2,3,4,6,7,8-HpCDD	1.00e+07	0.91 y	44:04	1.30	49.9		2.50	-	-	*	
OCDD	1.31e+07	0.93 y	49:35	1.45	101		2.50	-	-	*	
2,3,7,8-TCDF	7.11e+06	0.67 y	26:31	1.15	10.5		2.50	-	-	*	
1,2,3,7,8-PeCDF	2.01e+07	1.55 y	31:21	0.89	48.9		2.50	-	-	*	
2,3,4,7,8-PeCDF	1.87e+07	1.54 y	32:40	0.89	47.3		2.50	-	-	*	
1,2,3,4,7,8-HxCDF	1.55e+07	1.22 y	37:04	1.01	45.1		2.50	-	-	*	
1,2,3,6,7,8-HxCDF	1.78e+07	1.23 y	37:16	0.89	45.5		2.50	-	-	*	
2,3,4,6,7,8-HxCDF	1.56e+07	1.25 y	38:12	1.02	45.2		2.50	-	-	*	
1,2,3,7,8,9-HxCDF	1.72e+07	1.23 y	39:38	1.10	46.7		2.50	-	-	*	
1,2,3,4,6,7,8-HpCDF	1.18e+07	1.04 y	42:09	1.48	45.3		2.50	-	-	*	
1,2,3,4,7,8,9-HpCDF	7.70e+06	1.05 y	44:58	1.43	47.0		2.50	-	-	*	
OCDF	1.14e+07	0.92 y	49:57	0.84	86.9		2.50	-	-	*	
										Rec	
13C-2,3,7,8-TCDD	3.68e+07	0.78 y	27:15	1.03	89.2					89.2	
13C-1,2,3,7,8-PeCDD	3.12e+07	1.74 y	33:04	1.01	76.9					76.9	
13C-1,2,3,4,7,8-HxCDD	2.20e+07	1.27 y	38:27	1.19	102					102	
13C-1,2,3,6,7,8-HxCDD	1.90e+07	1.28 y	38:36	0.94	111					111	
13C-1,2,3,4,6,7,8-HpCDD	1.54e+07	1.03 y	44:02	0.83	103					103	
13C-OCDD	1.79e+07	0.93 y	49:33	0.61	162					81.2	
13C-2,3,7,8-TCDF	5.88e+07	0.87 y	26:30	0.98	94.4					94.4	
13C-1,2,3,7,8-PeCDF	4.65e+07	1.67 y	31:21	0.83	88.2					88.2	
13C-2,3,4,7,8-PeCDF	4.42e+07	1.65 y	32:39	0.80	86.5					86.5	
13C-1,2,3,4,7,8-HxCDF	3.41e+07	0.48 y	37:03	1.84	102					102	
13C-1,2,3,6,7,8-HxCDF	4.37e+07	0.48 y	37:16	2.29	105					105	
13C-2,3,4,6,7,8-HxCDF	3.40e+07	0.49 y	38:11	1.86	101					101	
13C-1,2,3,7,8,9-HxCDF	3.33e+07	0.48 y	39:36	1.98	92.5					92.5	
13C-1,2,3,4,6,7,8-HpCDF	1.75e+07	0.46 y	42:08	0.99	97.5					97.5	
13C-1,2,3,4,7,8,9-HpCDF	1.15e+07	0.46 y	44:56	0.77	82.4					82.4	
13C-OCDF	3.12e+07	0.93 y	49:56	1.17	147					73.5	
37Cl-2,3,7,8-TCDD	2.47e+06		27:16	0.73	8.45					84.5	
13C-1,2,3,4-TCDD	4.01e+07	0.79 y	26:41	-	106						
13C-1,2,3,4-TCDF	6.36e+07	0.87 y	25:26	-	88.3						
13C-1,2,3,7,8,9-HxCDD	1.82e+07	1.28 y	39:02	-	73.3						
							Fac Noise-1	Noise-2	DL	#Hom	
Total Tetra-Dioxins	2.25e+07		23:16	1.13	53.9		2.50	-	-	*	23
Total Penta-Dioxins	3.54e+07		30:07	1.02	112		2.50	-	-	*	10
Total Hexa-Dioxins	4.74e+07		36:00	1.46	159		2.50	-	-	*	18
Total Hepta-Dioxins	2.16e+07		42:40	1.30	108		2.50	-	-	*	18
Total Tetra-Furans	3.53e+07		22:57	1.15	52.3		2.50	-	-	*	24
1st Fn. Tot Penta-Furans	2.90e+07		28:18	0.89	72.0		2.50	-	-	*	PeCDF 1
Total Penta-Furans	5.53e+07		30:02	0.89	137		2.50	-	-	*	209 11
Total Hexa-Furans	7.74e+07		35:07	1.00	214		2.50	-	-	*	16
Total Hepta-Furans	2.03e+07		42:09	1.46	96.4		2.50	-	-	*	17

Analyst: 

Date: 5/19/11

Frontier Analytical Laboratory - Acquisition Log

Run Name:18MAY11M

Instrument: FAL3

GC: DB5

Experiment:OCDD

Data File S	FAL ID	Client ID	Acquired	ConCal	EndCal	Analyst
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18MAY11M 2	2292-001-0001-OPR	OPR	18-MAY-11 10:50:01	ST051811M1	ST051811M2	TC
18MAY11M 3	2292-001-0001-MB	Method Blank	18-MAY-11 11:45:24	ST051811M1	ST051811M2	TC
18MAY11M 4	6742-001-0001-SA	MW5042811	18-MAY-11 12:40:47	ST051811M1	ST051811M2	TC
18MAY11M 5	6742-002-0001-SA	MW4042811	18-MAY-11 13:36:09	ST051811M1	ST051811M2	TC
18MAY11M 6	6742-003-0001-SA	MW14042811	18-MAY-11 14:31:32	ST051811M1	ST051811M2	TC
18MAY11M 7	6746-001-0001-SA	PZ-FL-5	18-MAY-11 15:26:55	ST051811M1	ST051811M2	TC
18MAY11M 8	6746-002-0001-SA	PZ-FL-6	18-MAY-11 16:22:18	ST051811M1	ST051811M2	TC
18MAY11M 9	QC051811M1	QC1	18-MAY-11 17:17:38	ST051811M1	ST051811M2	TC
18MAY11M 10	QC051811M2	QC2	18-MAY-11 18:13:01	ST051811M1	ST051811M2	TC
18MAY11M 11	SB051811M1	Solvent Blank	18-MAY-11 19:08:28	ST051811M1	ST051811M2	TC
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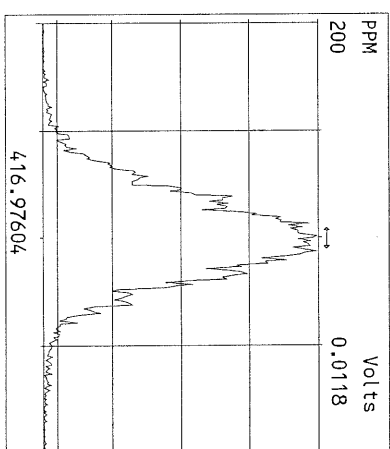
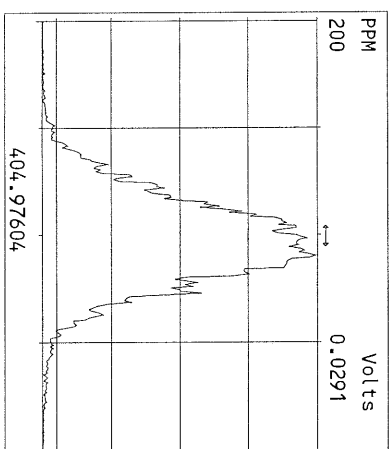
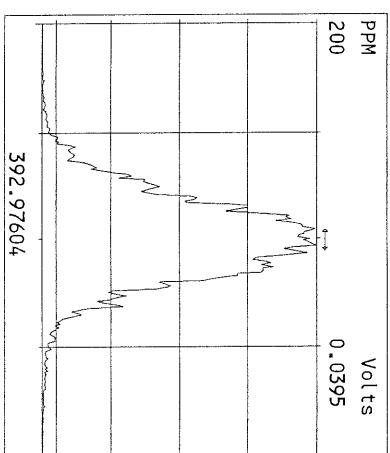
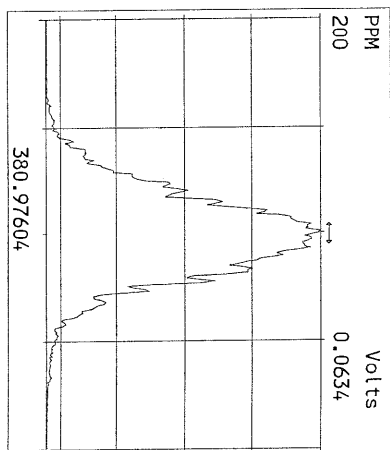
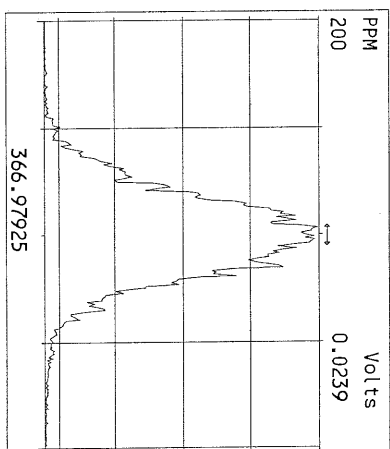
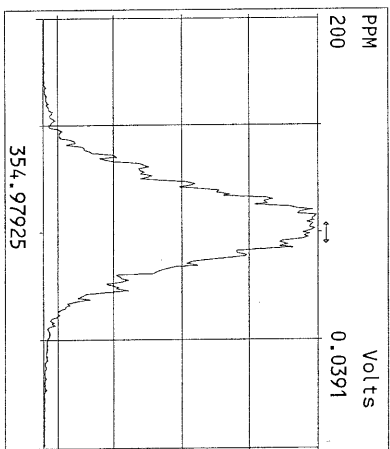
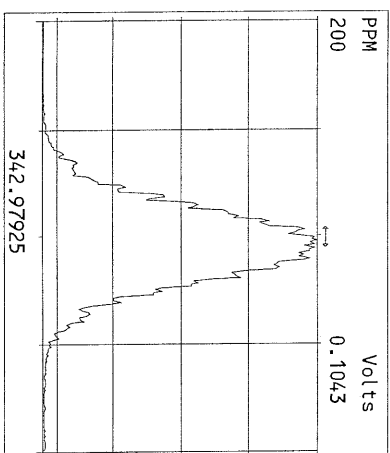
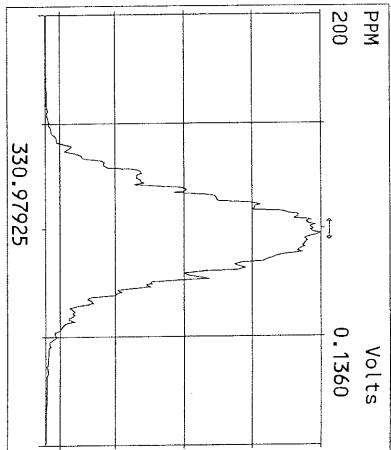
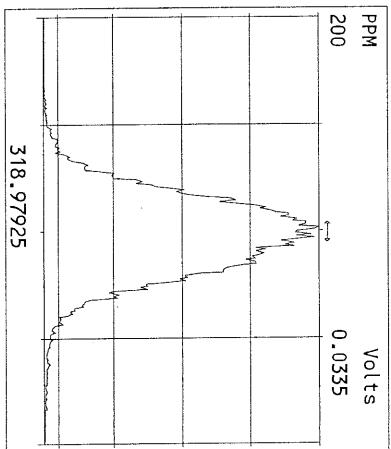
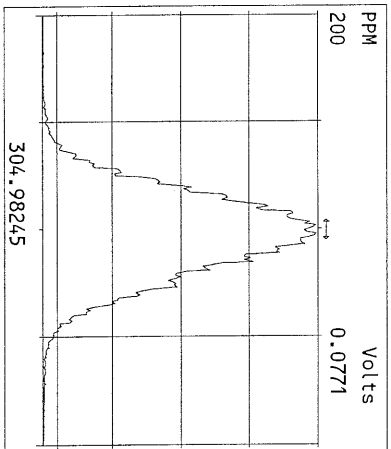
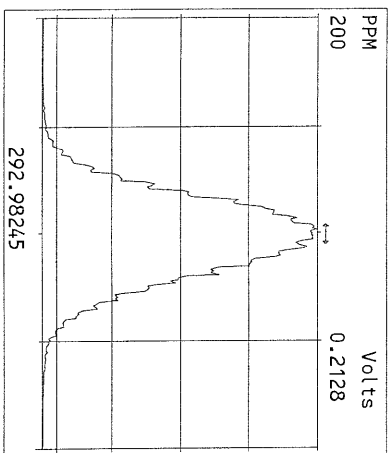


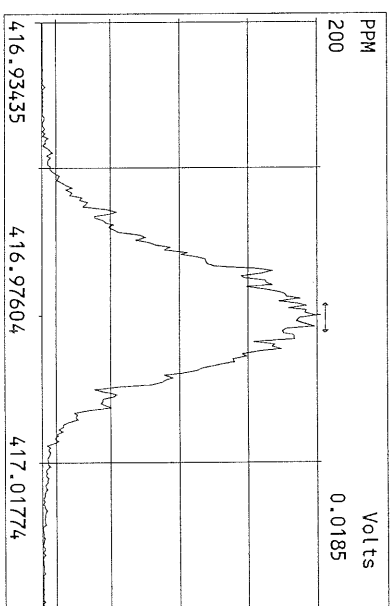
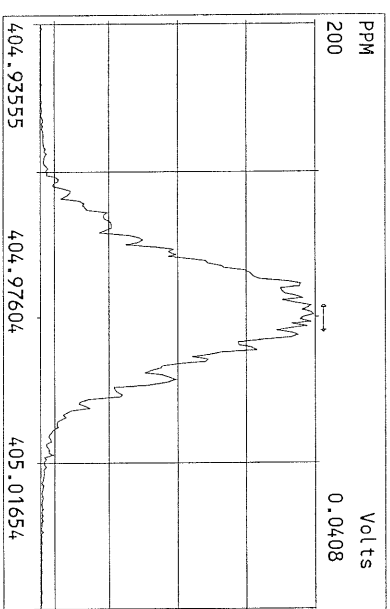
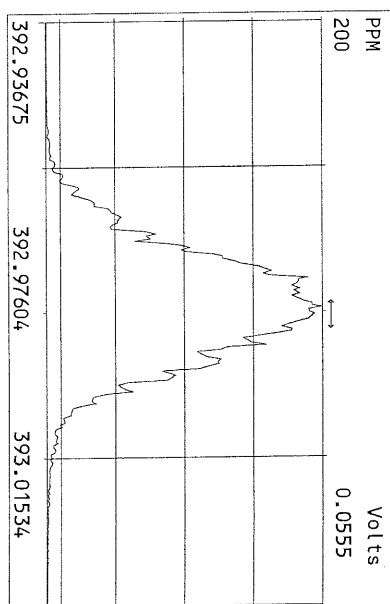
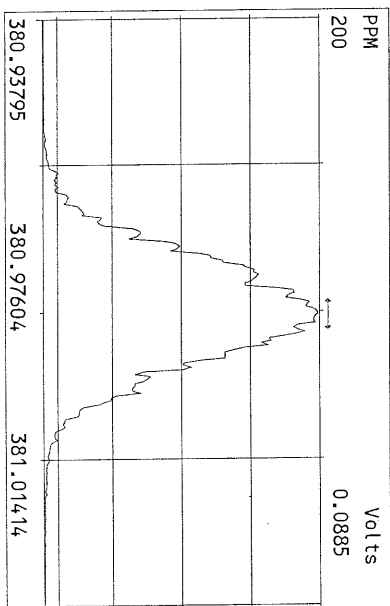
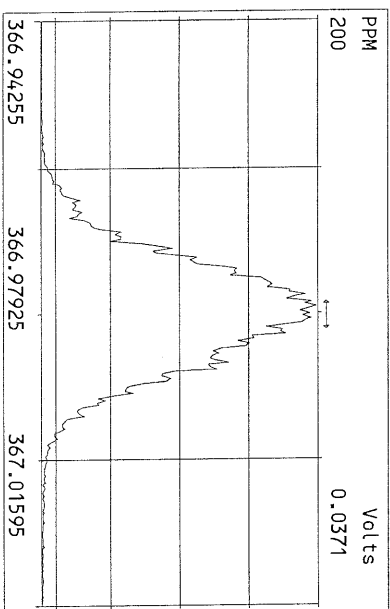
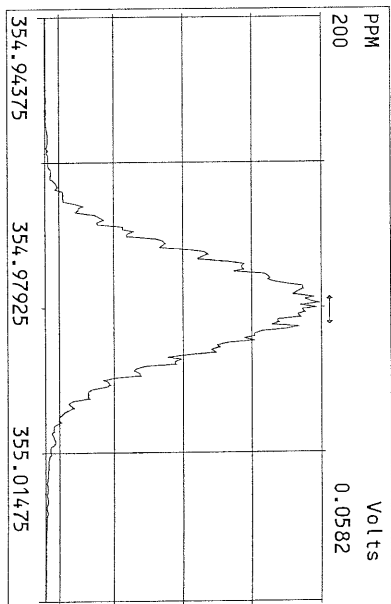
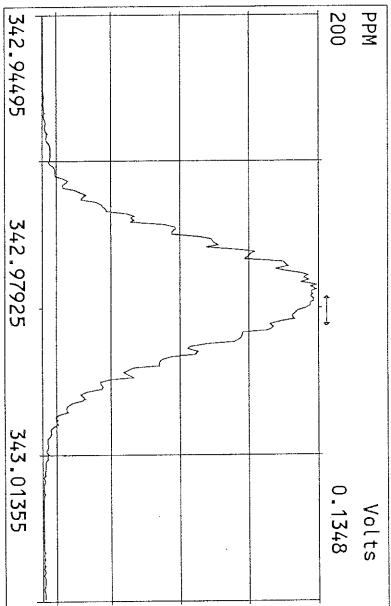
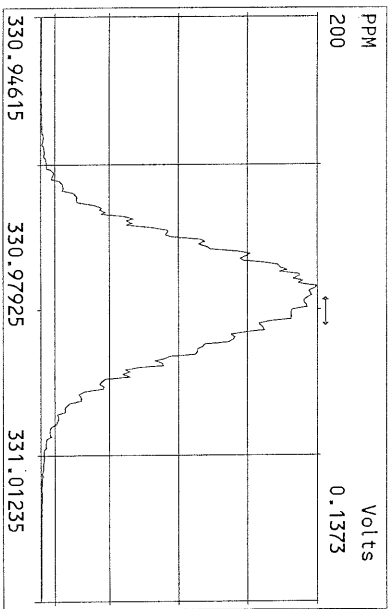
5/19/11

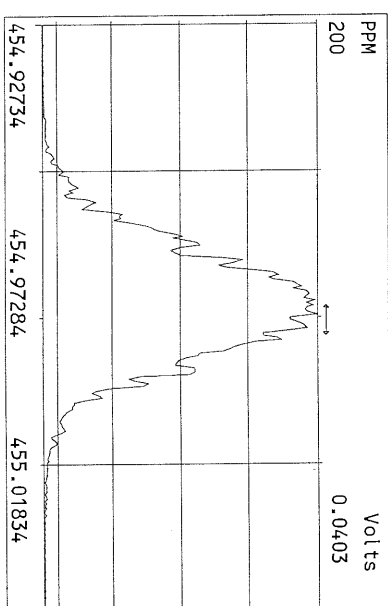
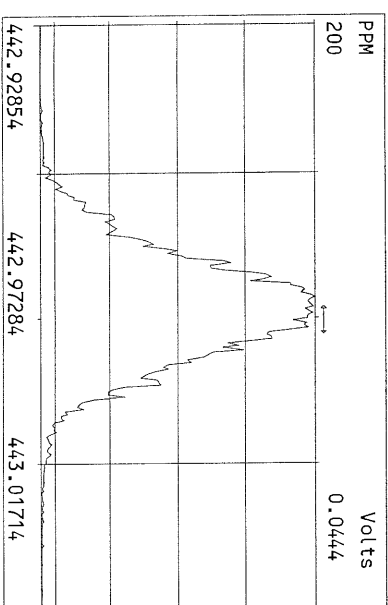
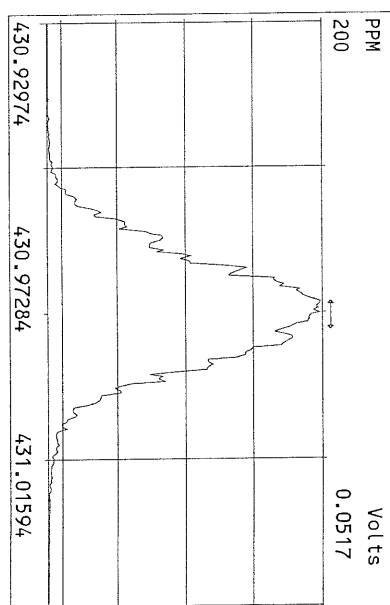
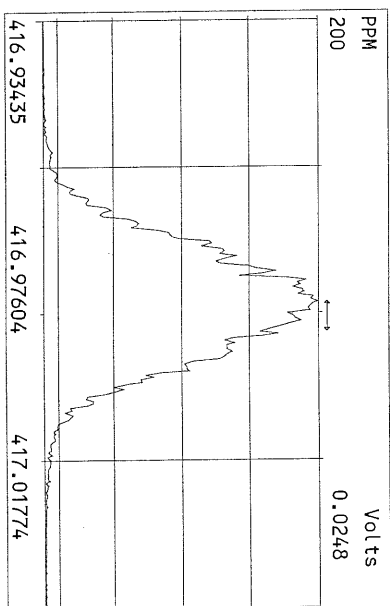
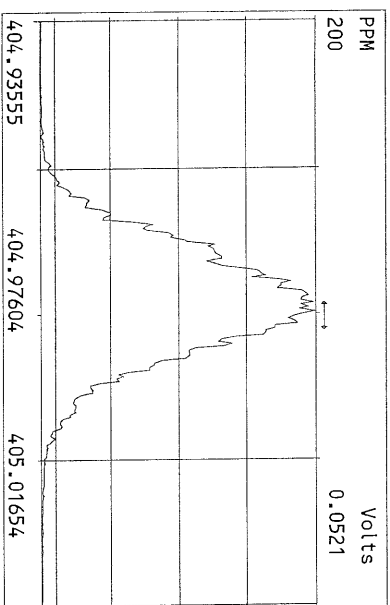
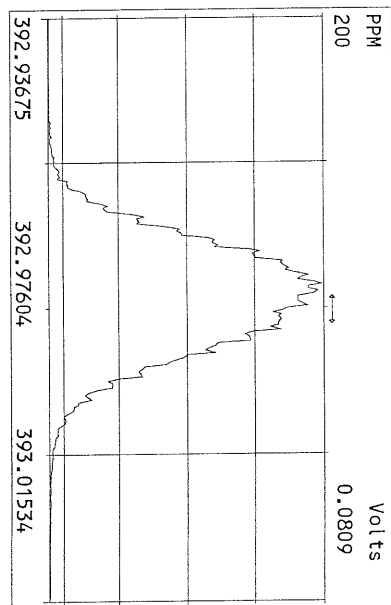
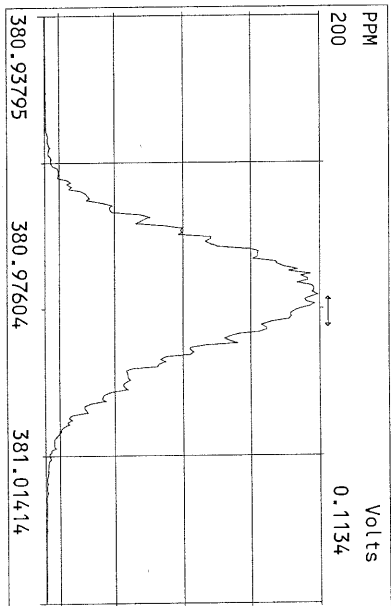
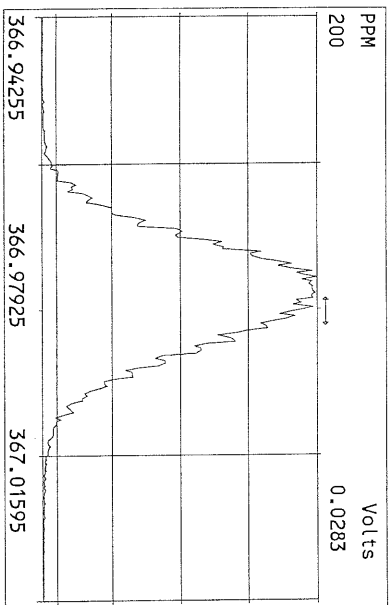
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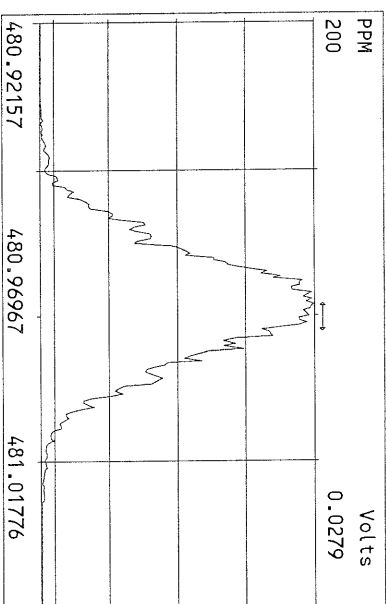
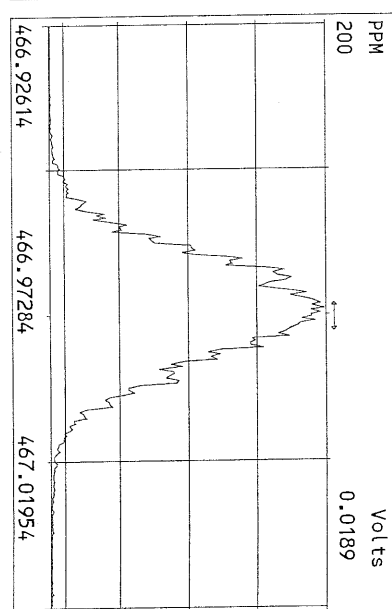
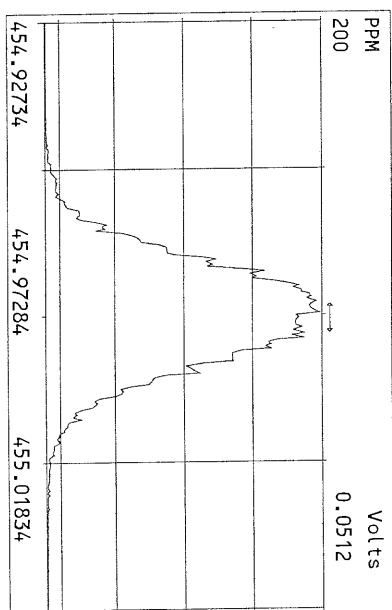
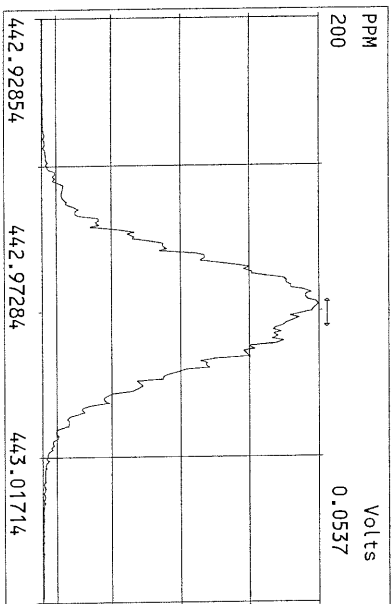
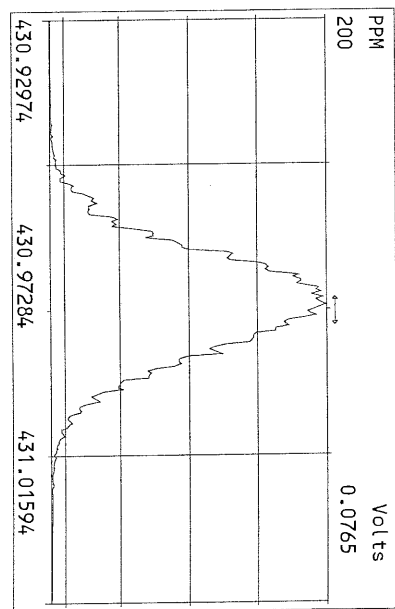
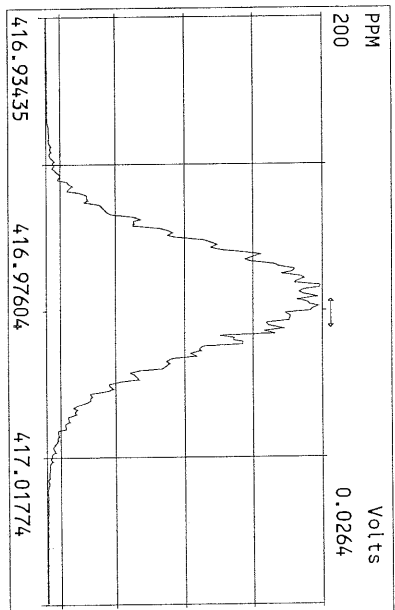
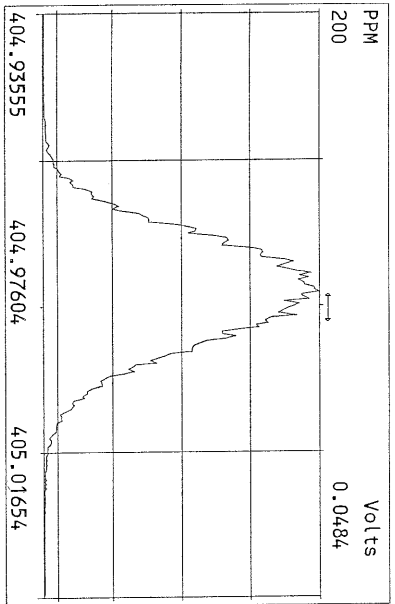
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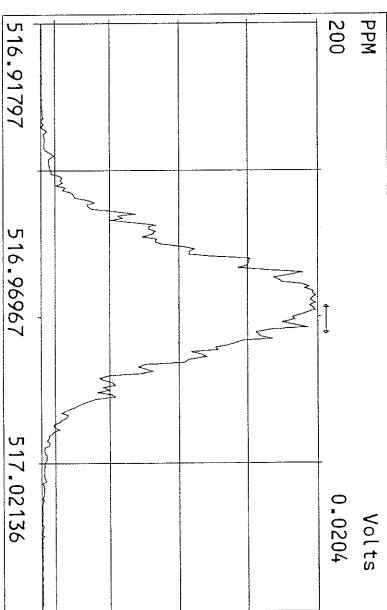
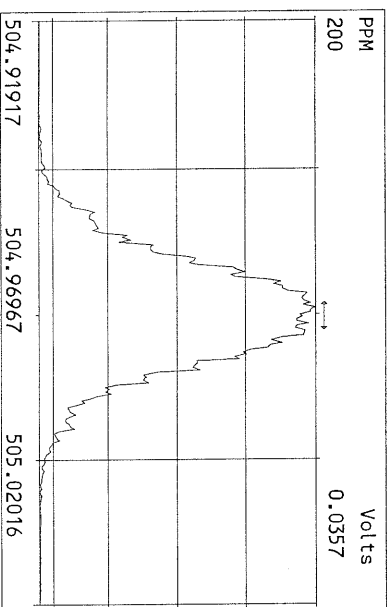
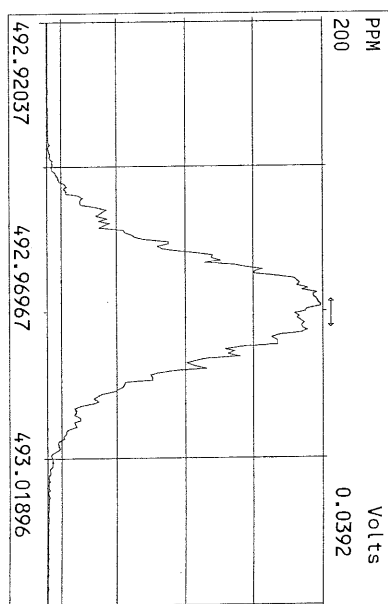
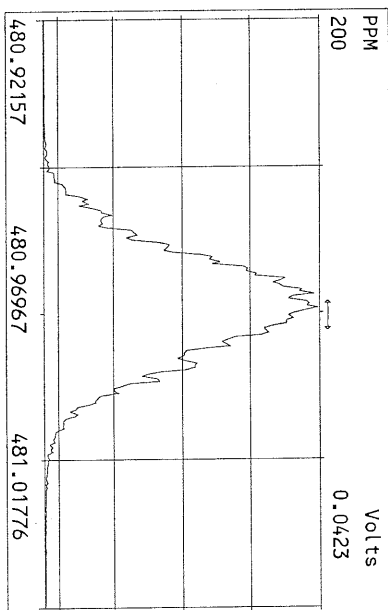
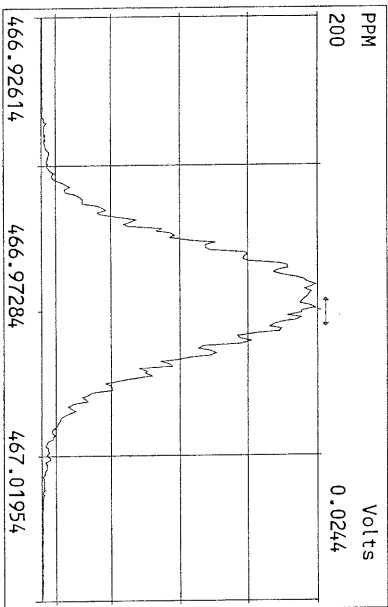
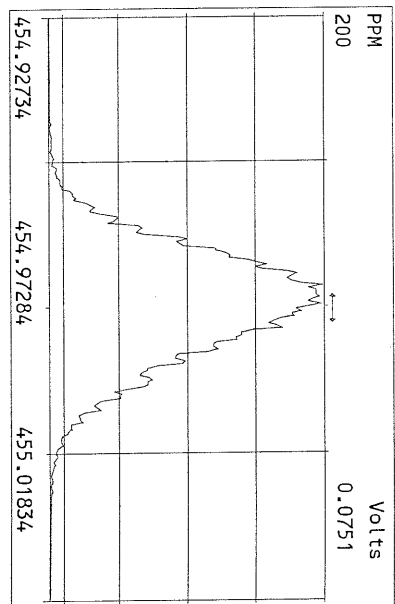
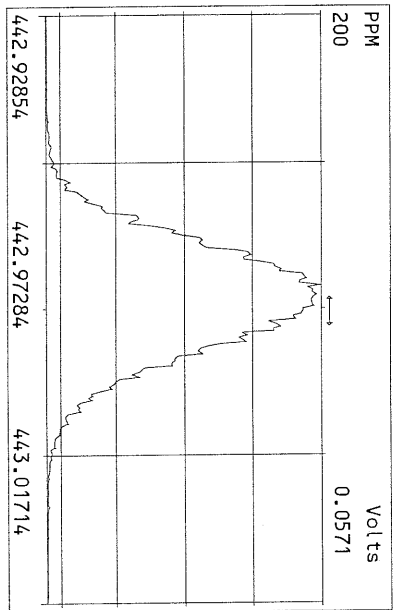
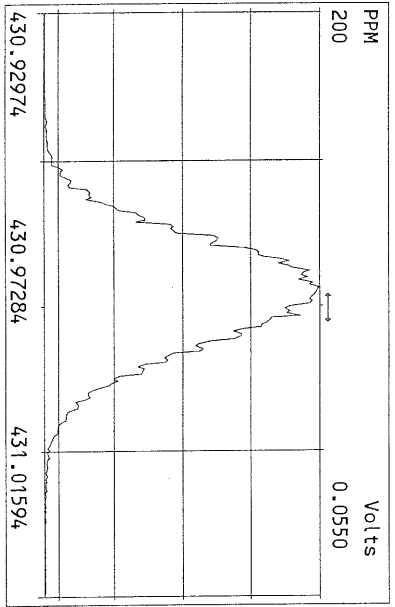
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Experiment:OCD Function:1 Reference:PFK



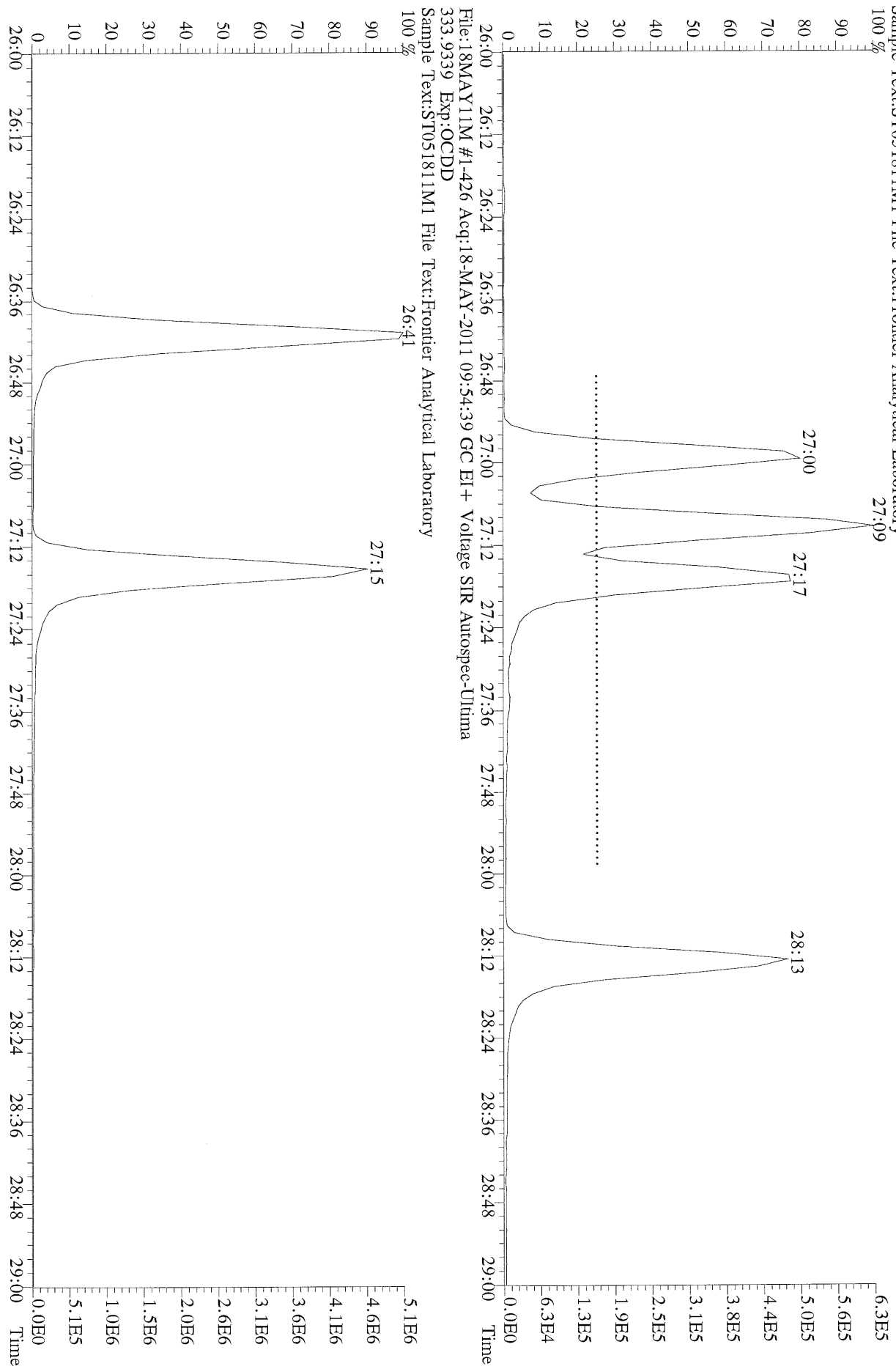






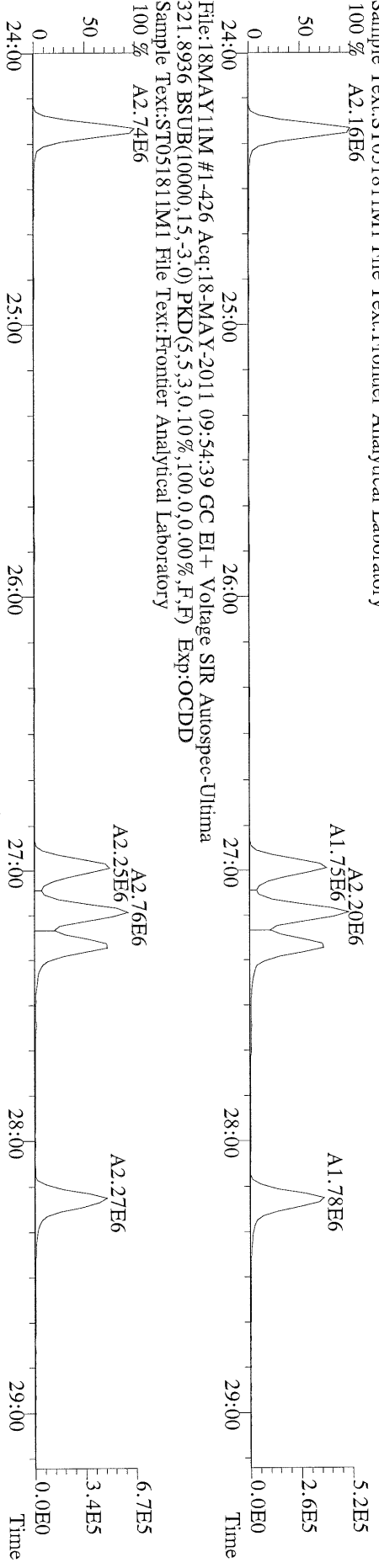


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321.8936 Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100%

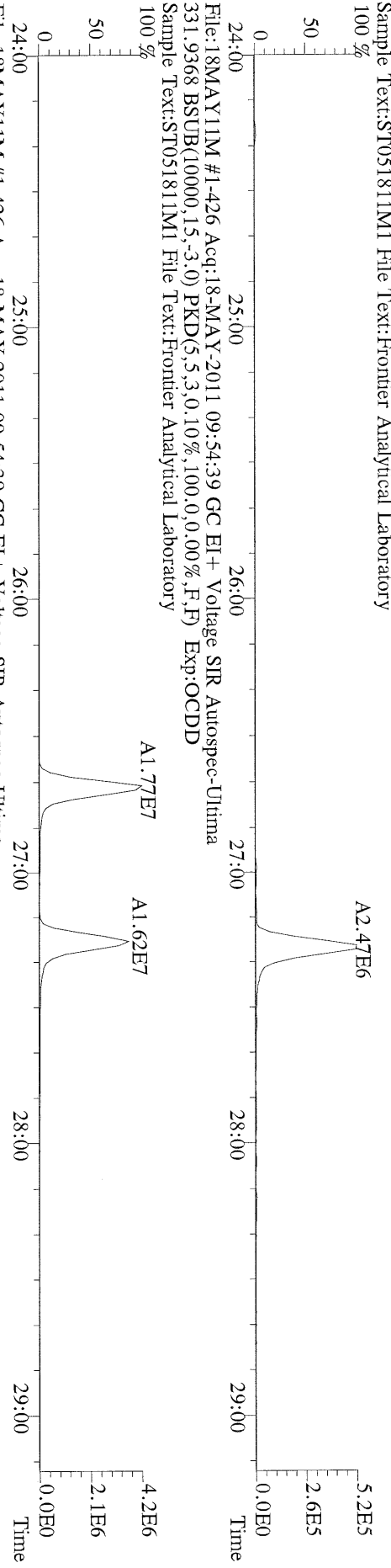


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333.9339 Exp:OCDD
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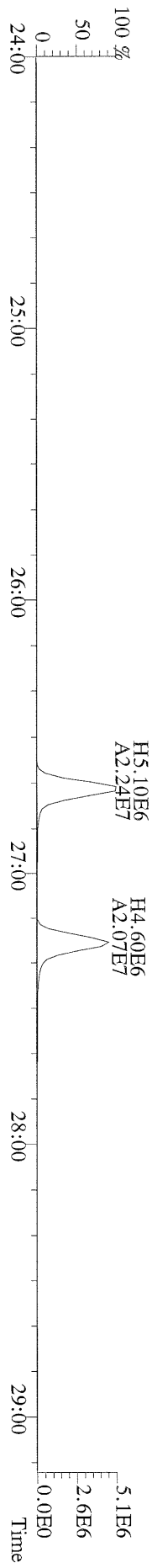
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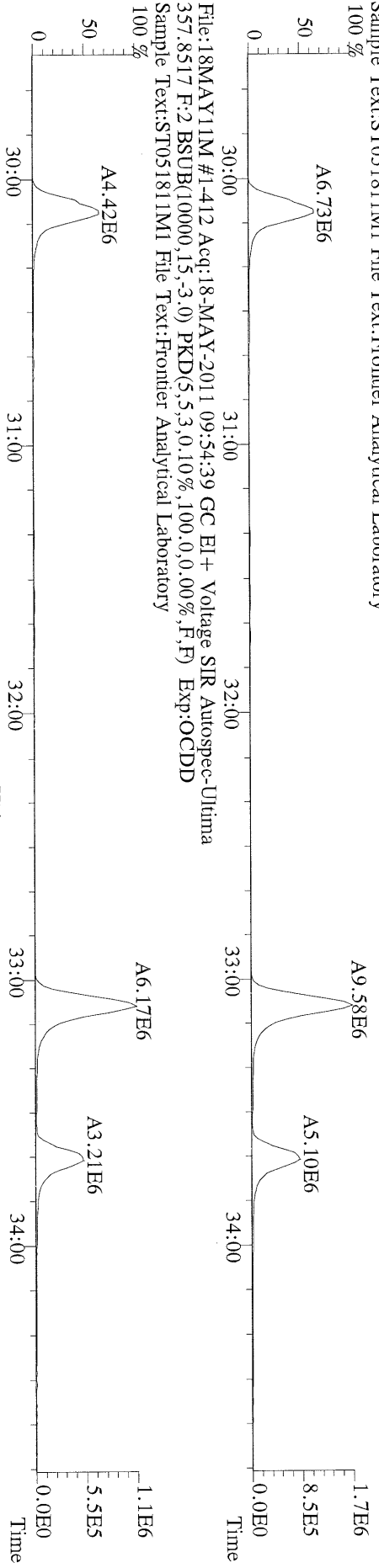
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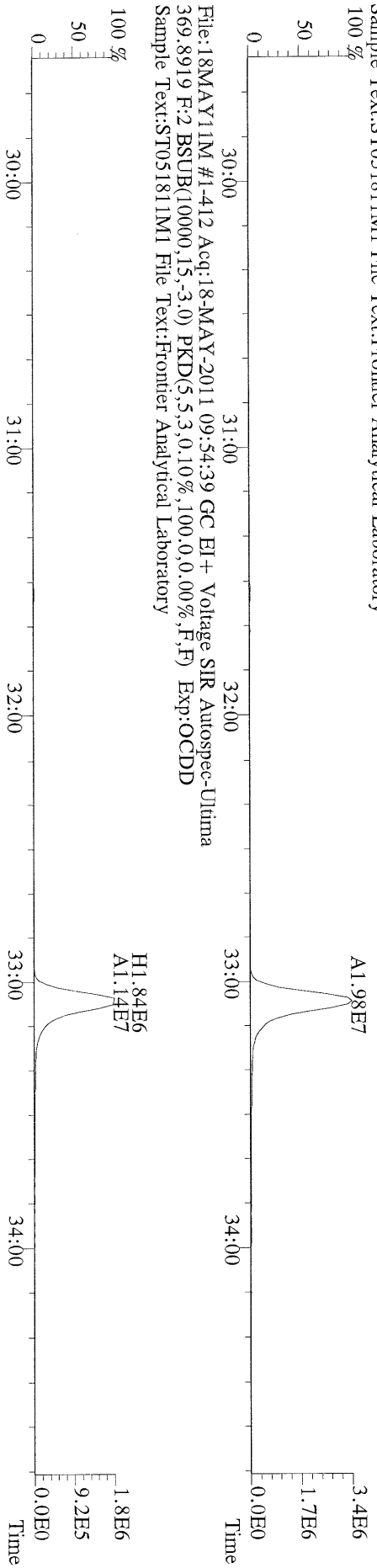
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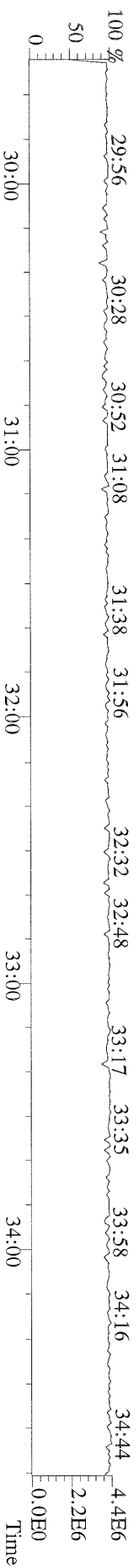
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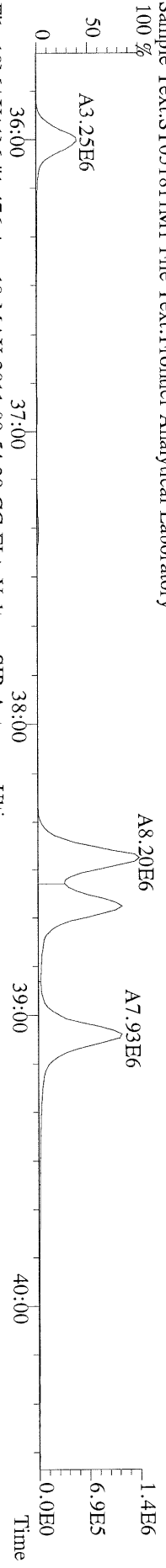
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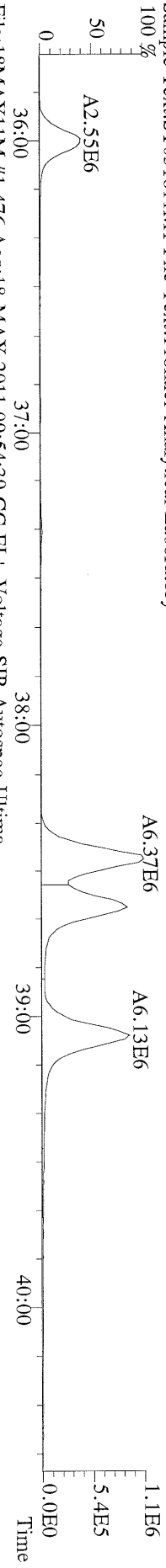
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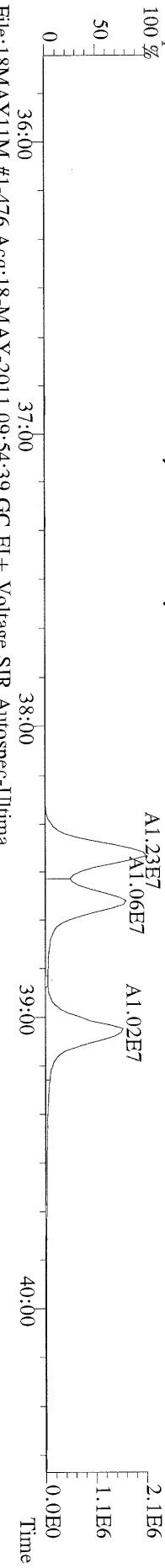
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 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



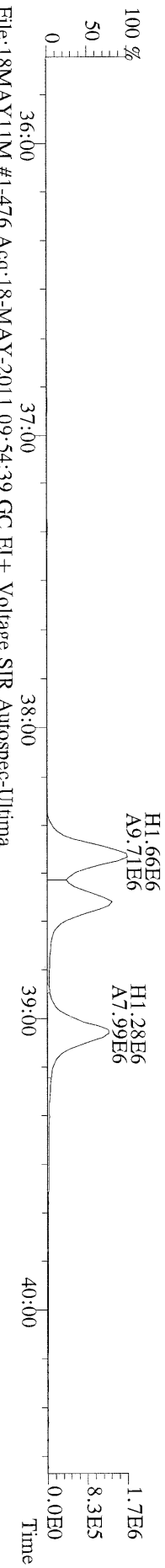
File:18MAY11M #1-476 Acq:18-MAY-2011 09:54:39 GC EI+ Voltage SIR Autospec-Ultima
 391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



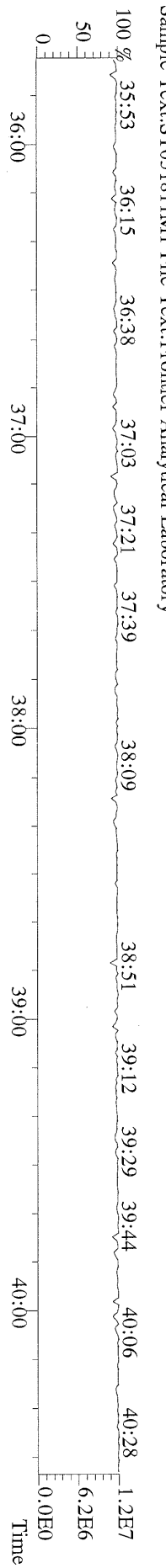
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 401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



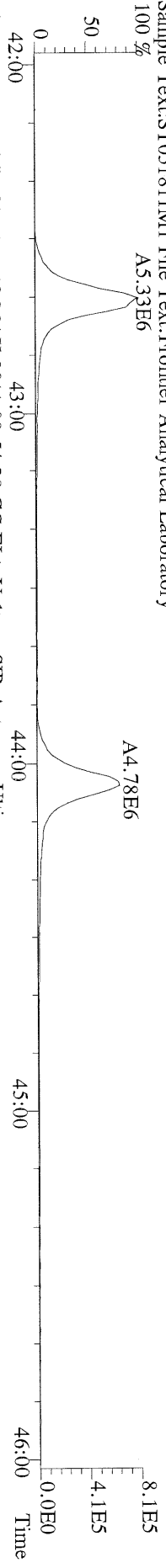
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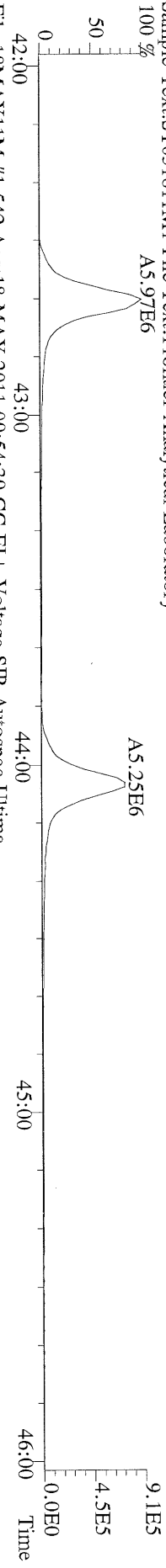
File:18MAY11M #1-476 Acq:18-MAY-2011 09:54:39 GC EI+ Voltage SIR Autospec-Ultima
 380.9760 F:3 Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



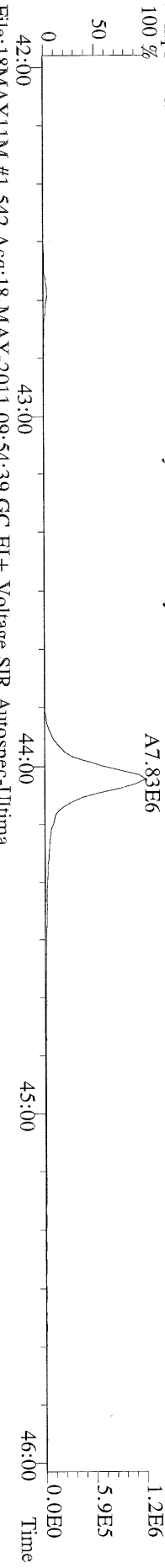
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423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



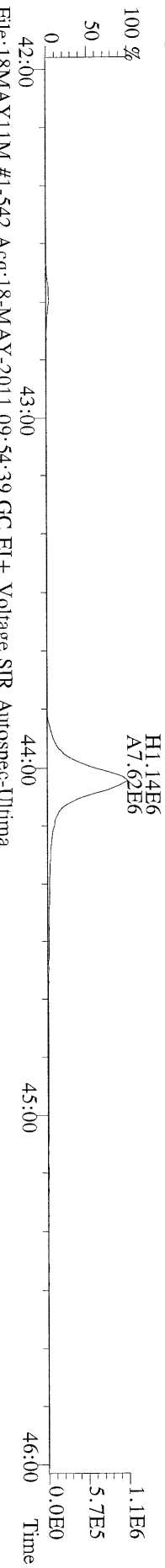
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425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



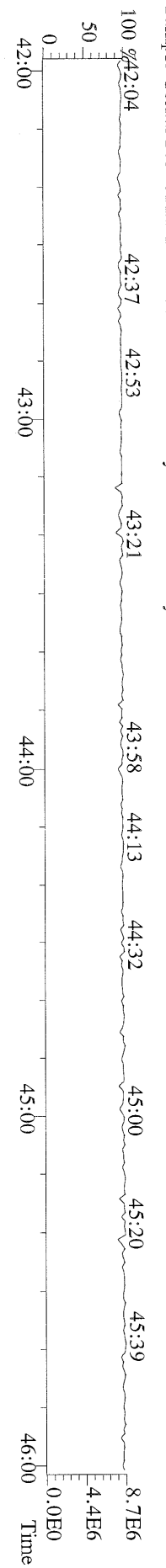
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435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



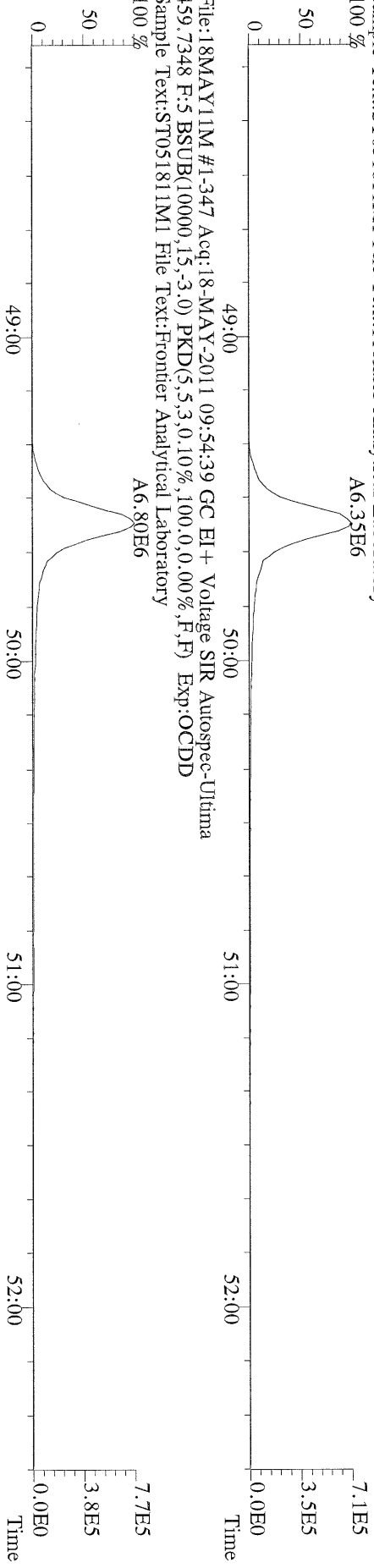
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Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



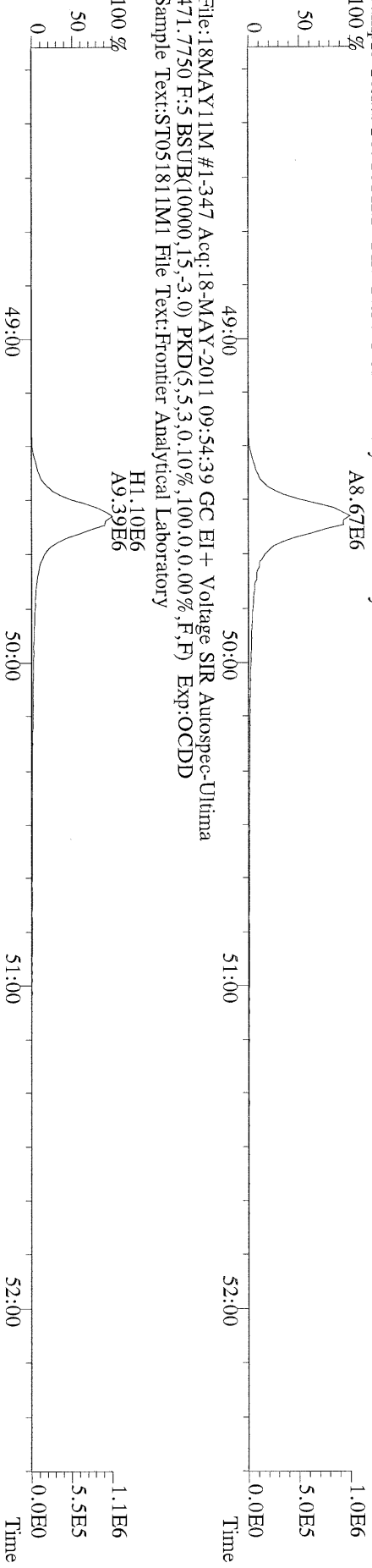
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430.9728 F:4 Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



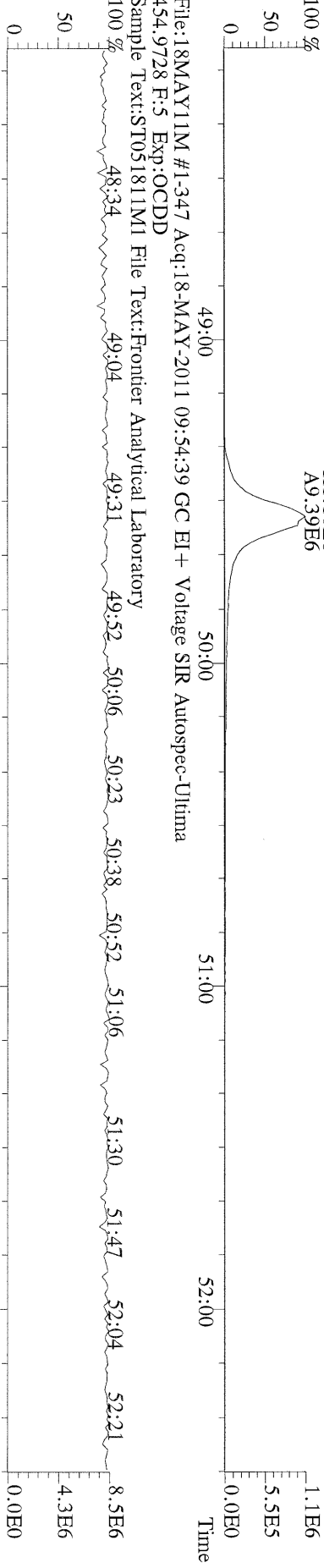
File:18MAY11M #1-347 Acq:18-MAY-2011 09:54:39 GC EI+ Voltage SIR Autospec-Ultima
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100 %



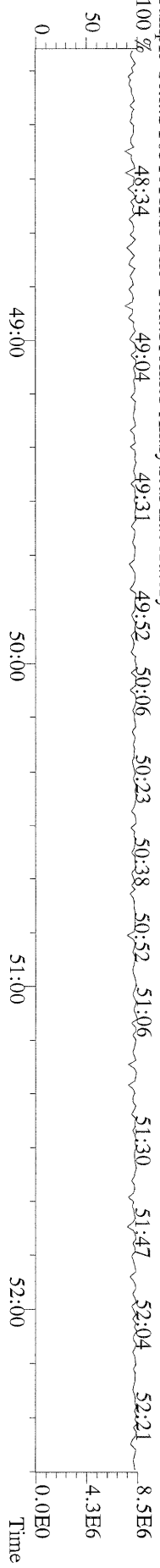
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469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100 %



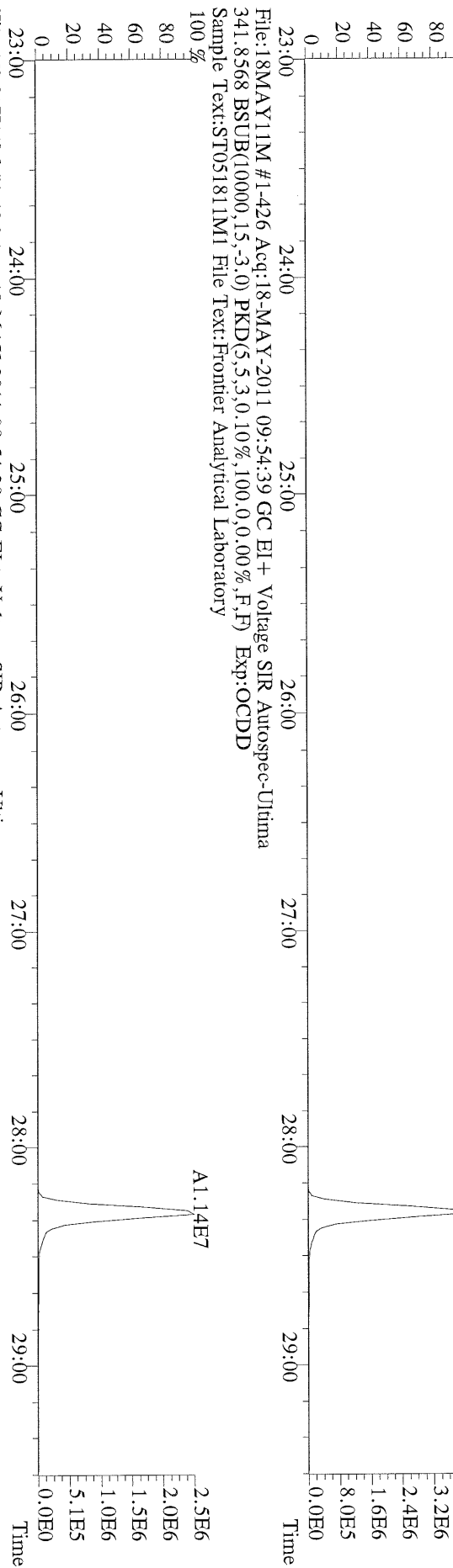
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471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100 %



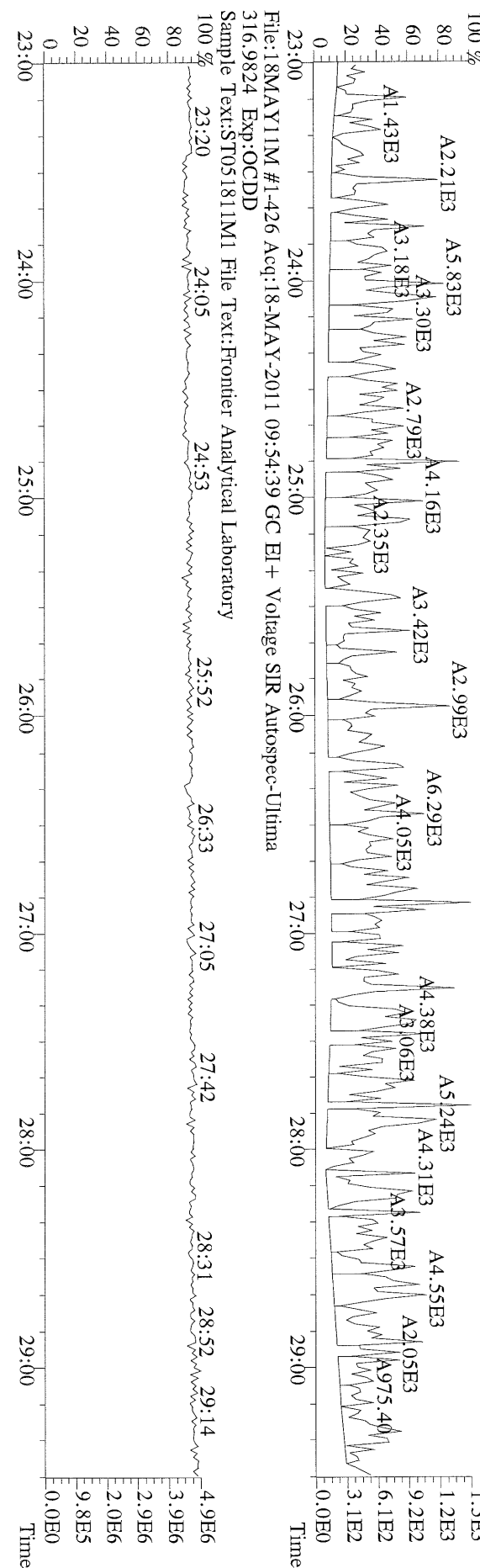
File:18MAY11M #1-347 Acq:18-MAY-2011 09:54:39 GC EI+ Voltage SIR Autospec-Ultima
454.9728 F:5 Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100 %



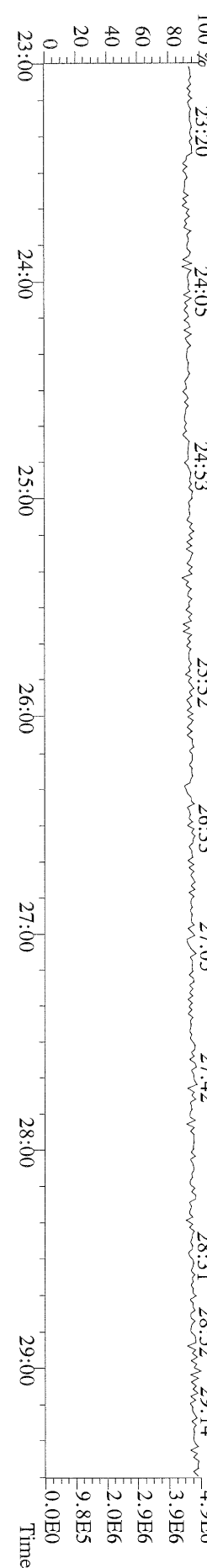
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 339.8597 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



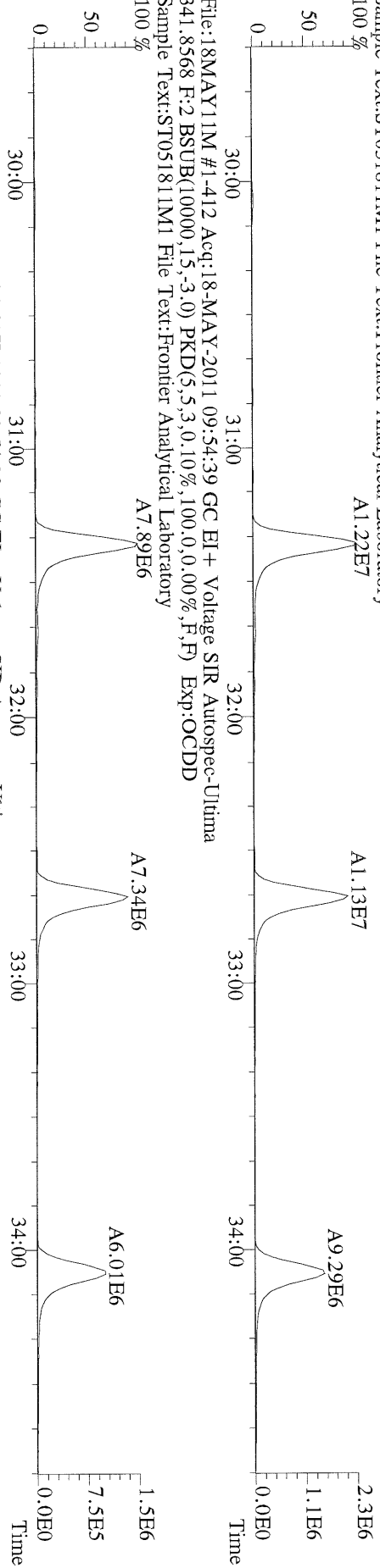
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 409.7974 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



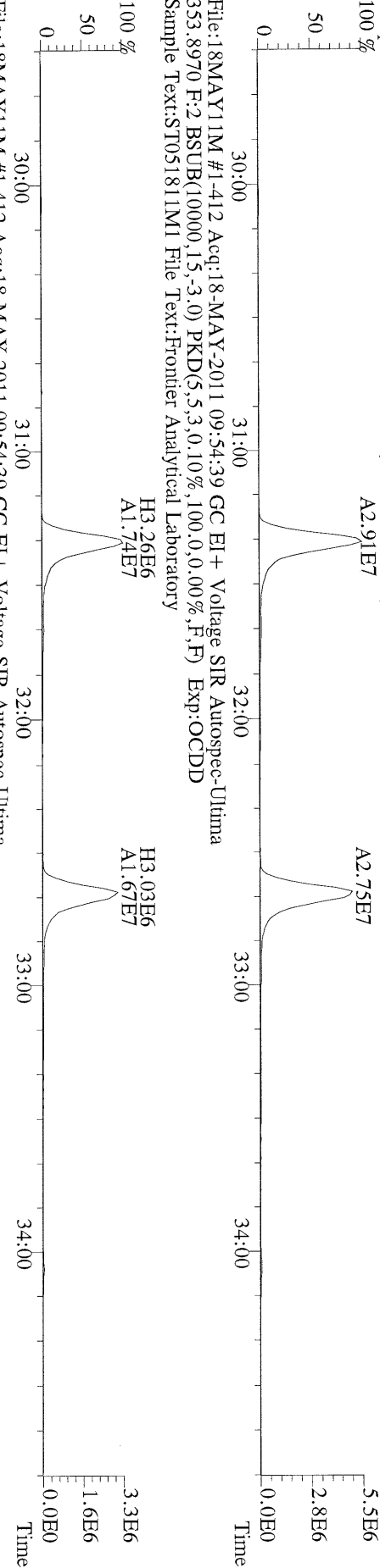
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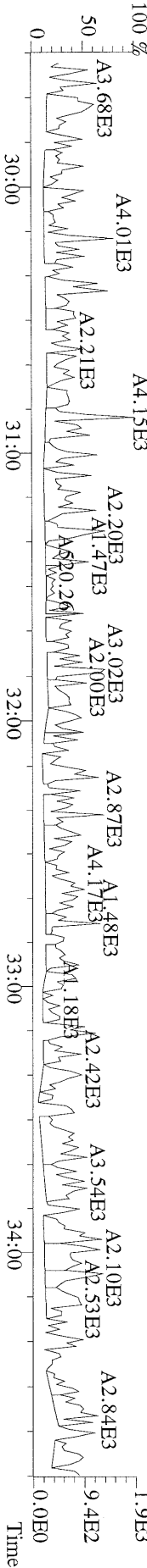
File:18MAY11M #1-412 Acq:18-MAY-2011 09:54:39 GC EI + Voltage SIR Autospec-Ultima
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



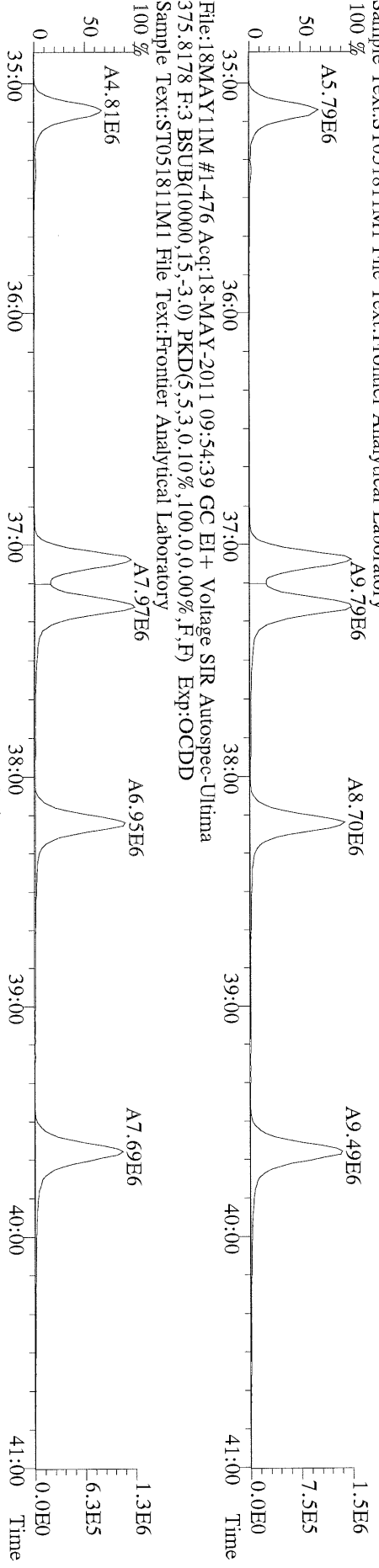
File:18MAY11M #1-412 Acq:18-MAY-2011 09:54:39 GC EI + Voltage SIR Autospec-Ultima
 351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



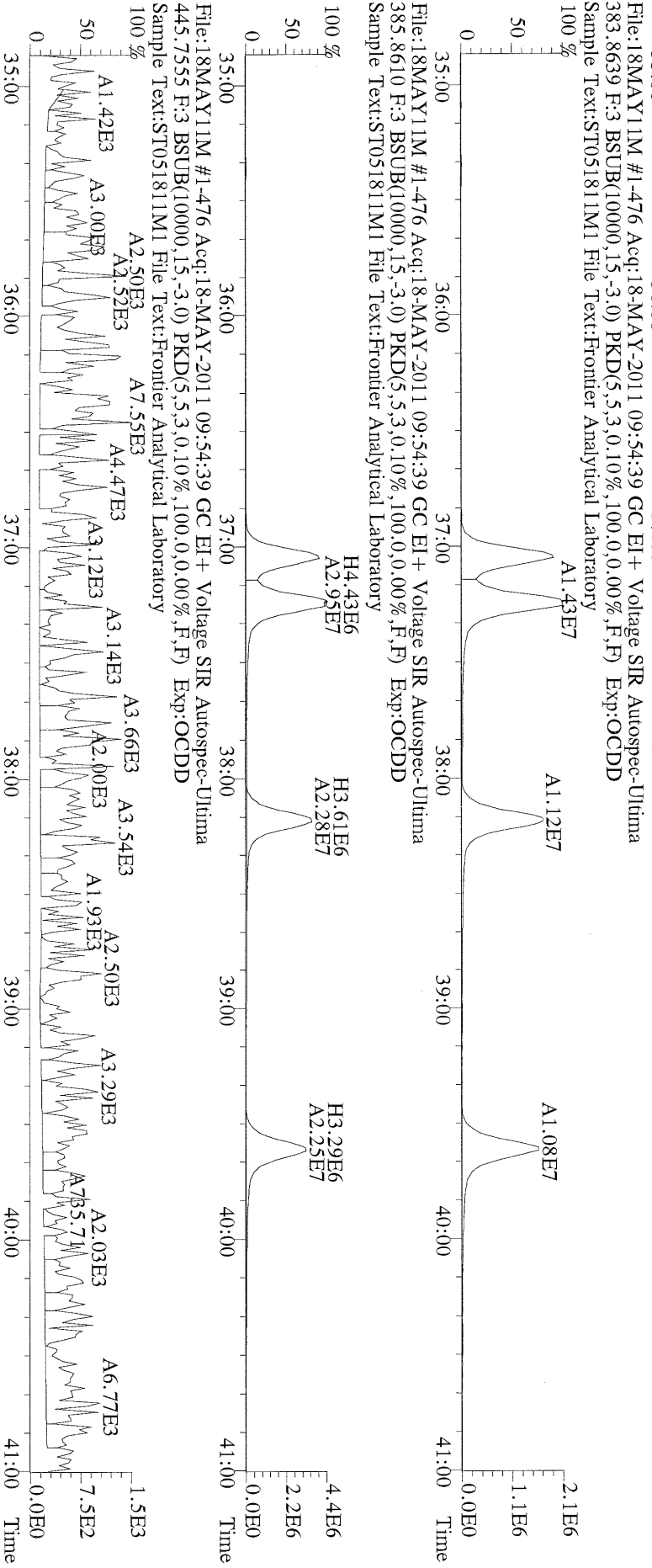
File:18MAY11M #1-412 Acq:18-MAY-2011 09:54:39 GC EI + Voltage SIR Autospec-Ultima
 409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



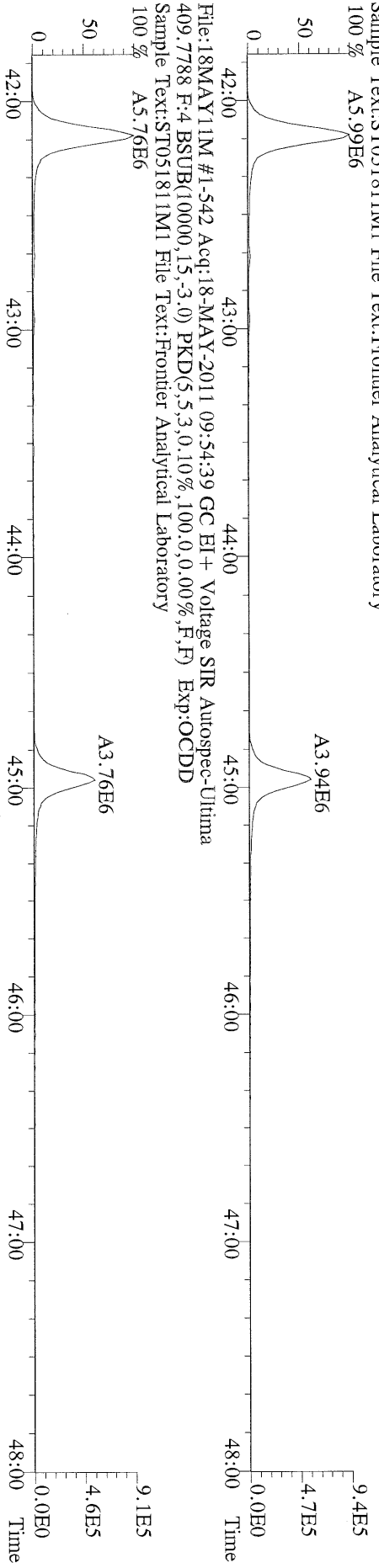
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373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



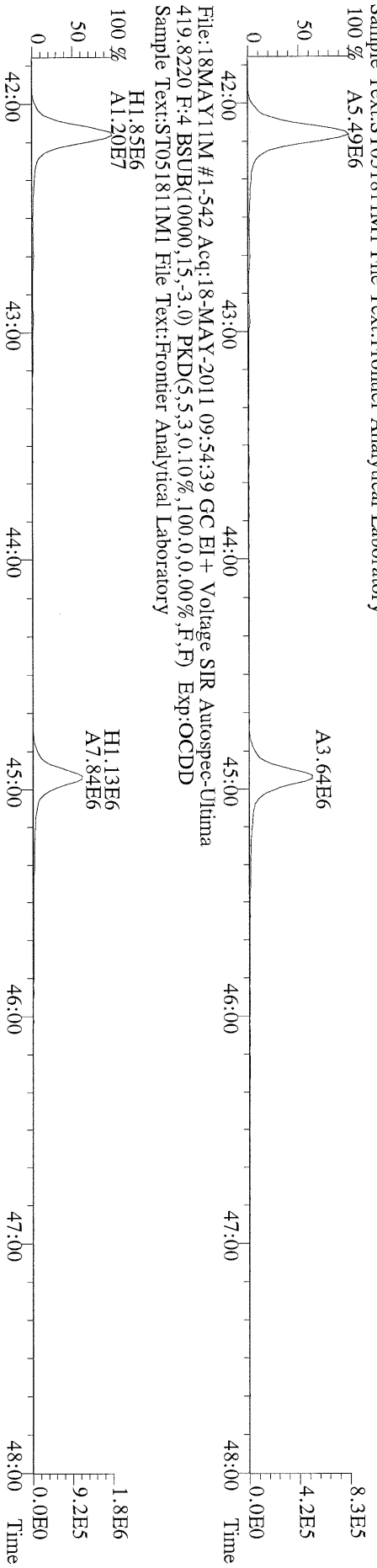
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383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



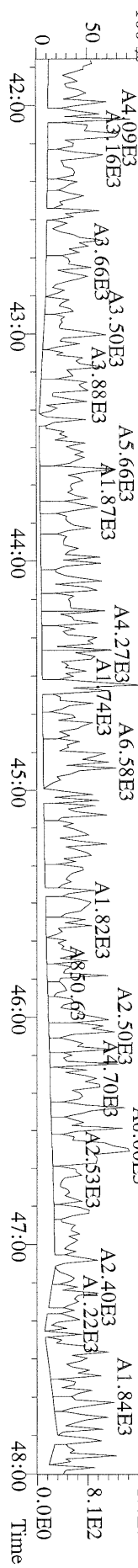
File:18MAY11M #1-542 Acq:18-MAY-2011 09:54:39 GC EI + Voltage SIR Autospec-Utima
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100% A5.99E6



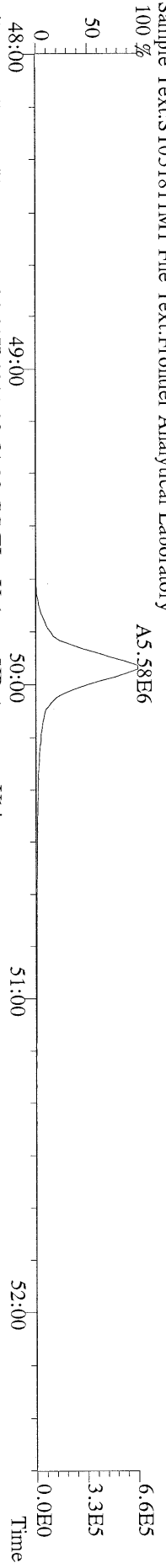
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417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory
100% A5.49E6



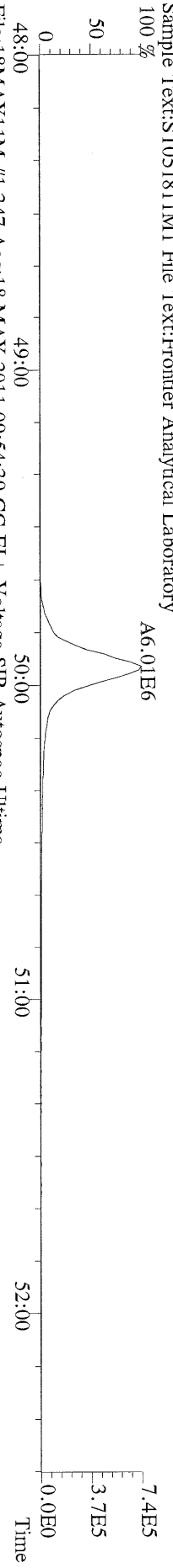
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479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



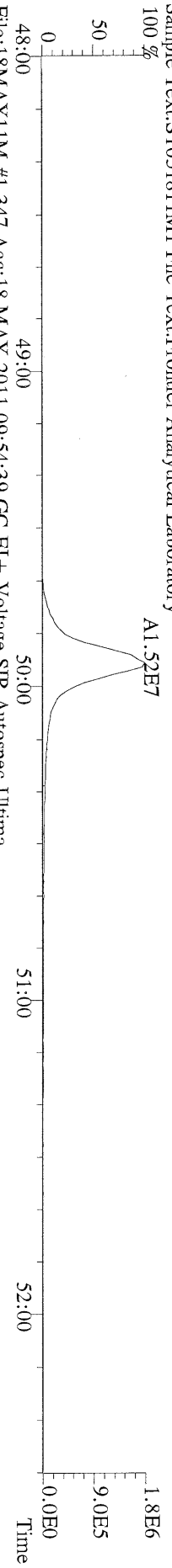
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441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



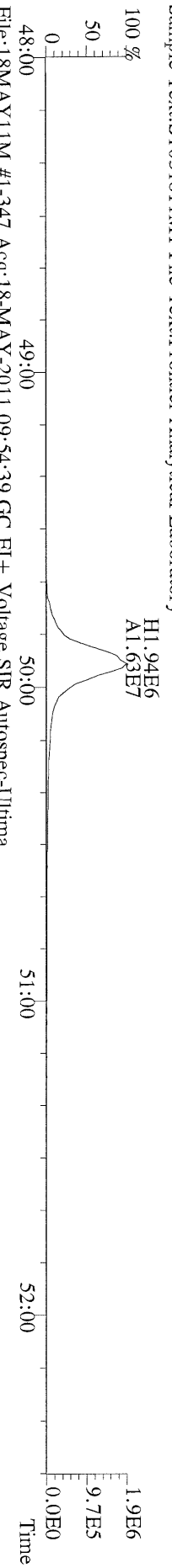
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443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



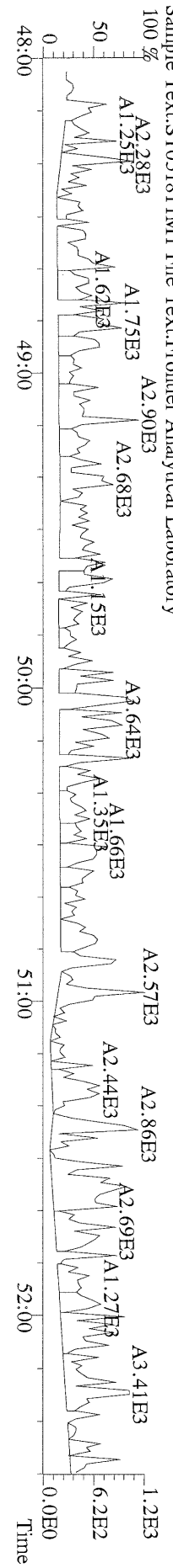
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453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory

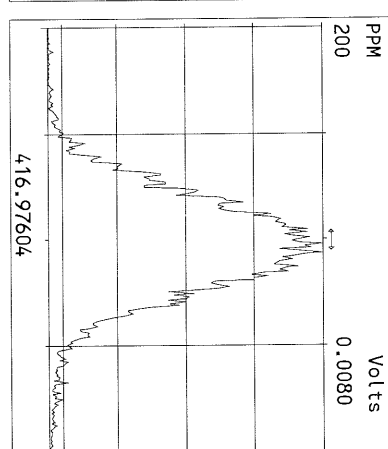
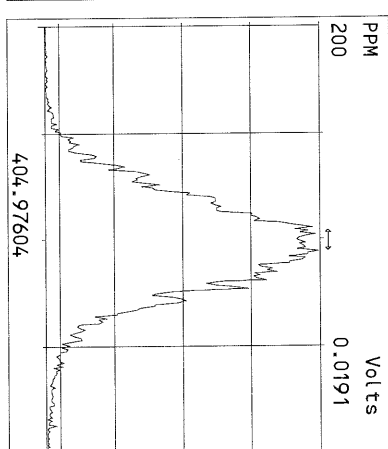
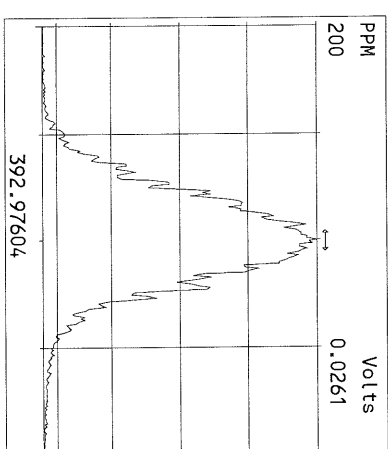
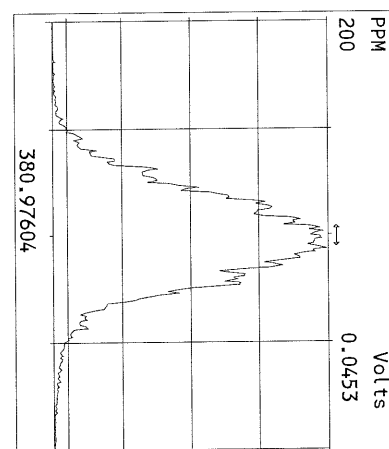
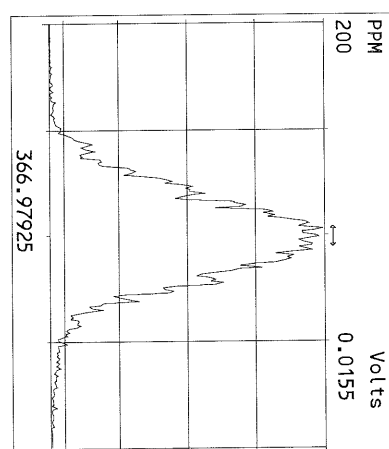
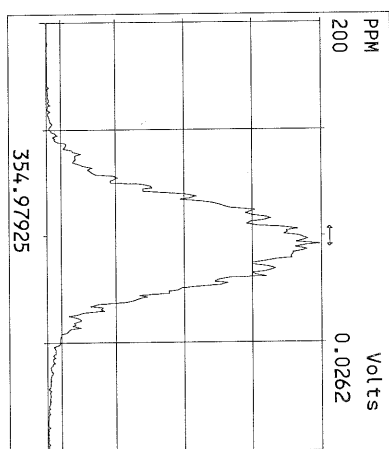
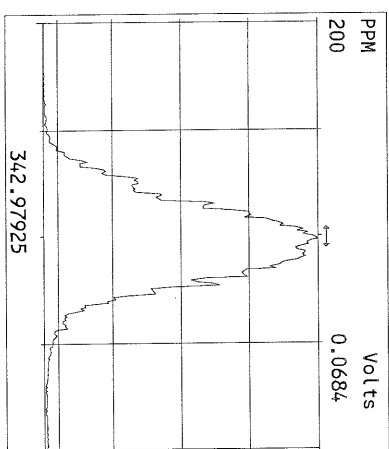
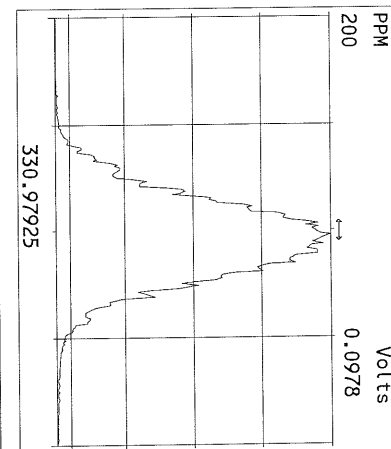
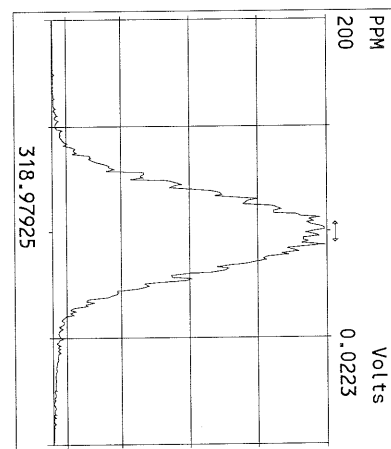
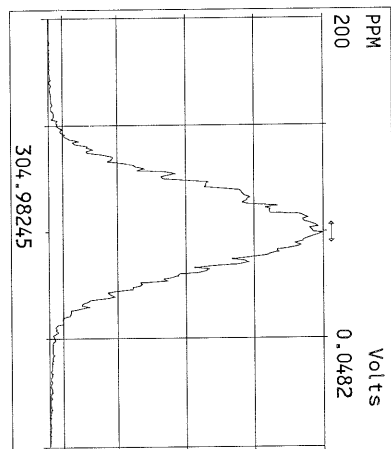
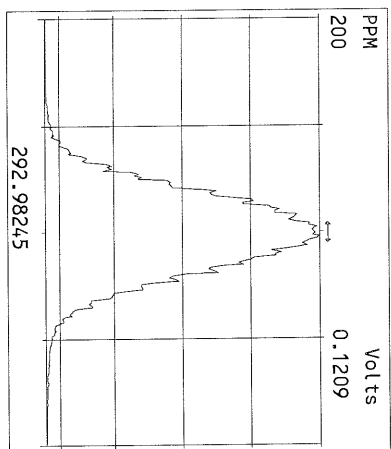


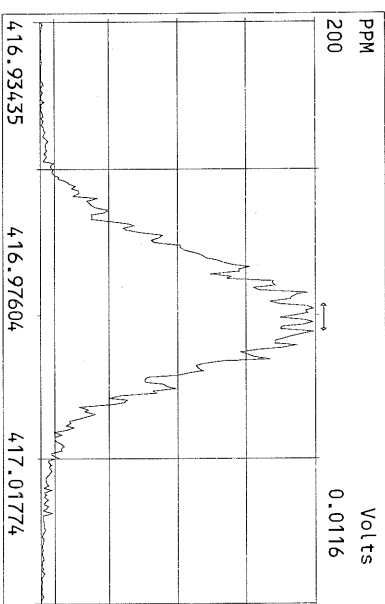
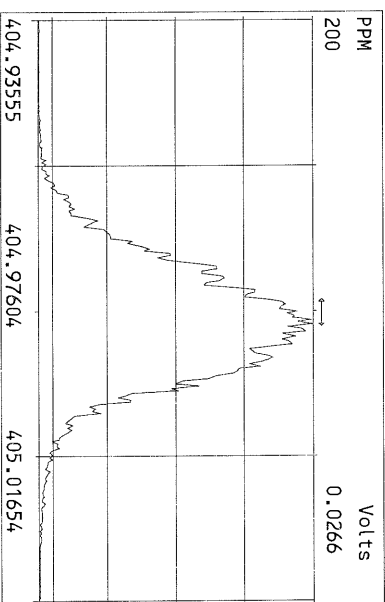
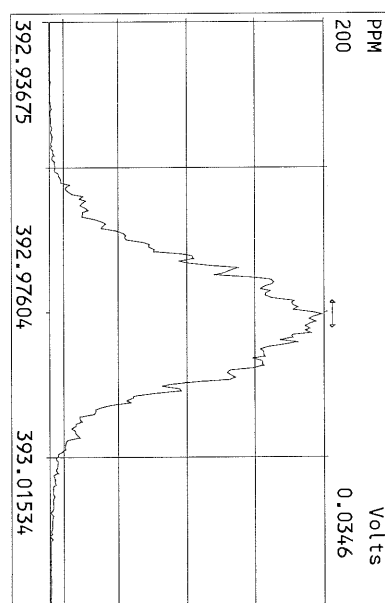
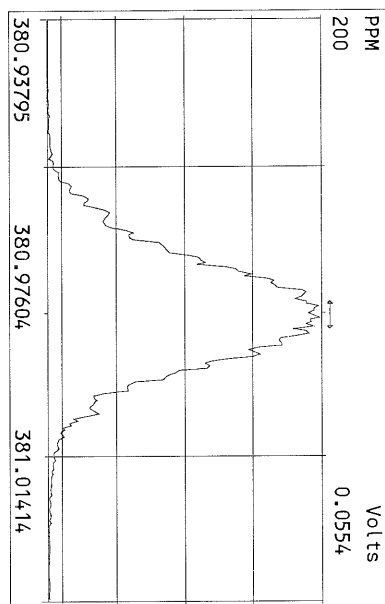
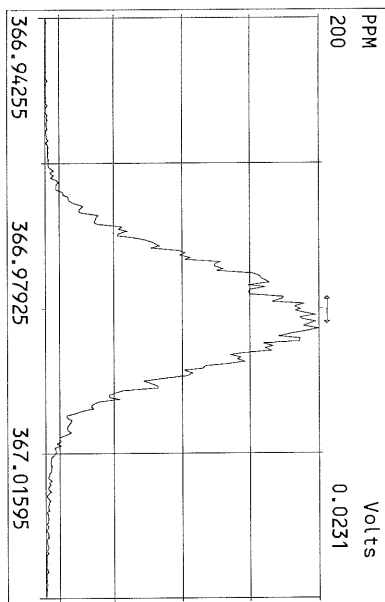
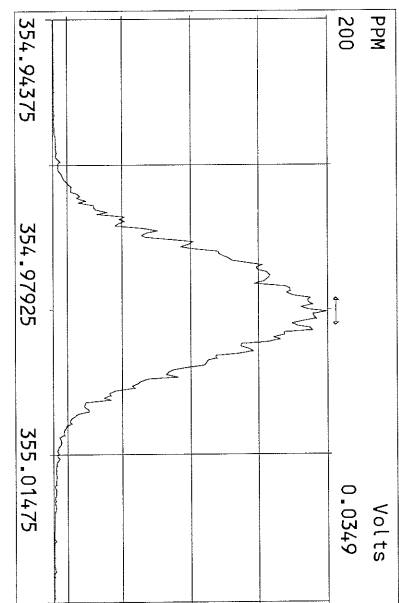
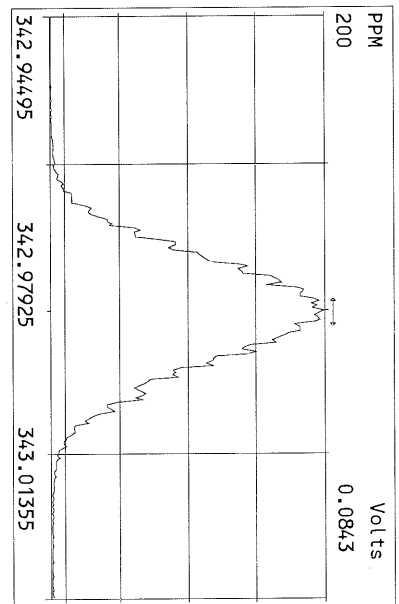
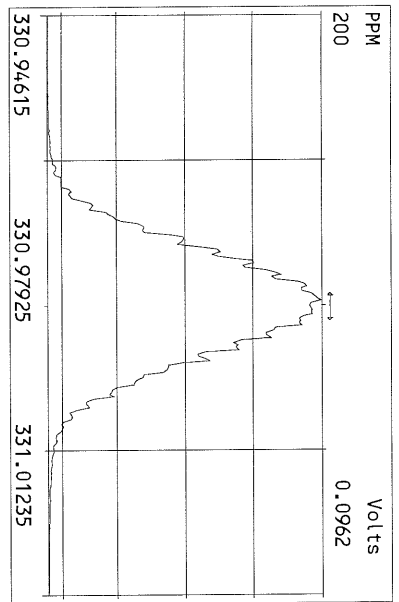
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455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory

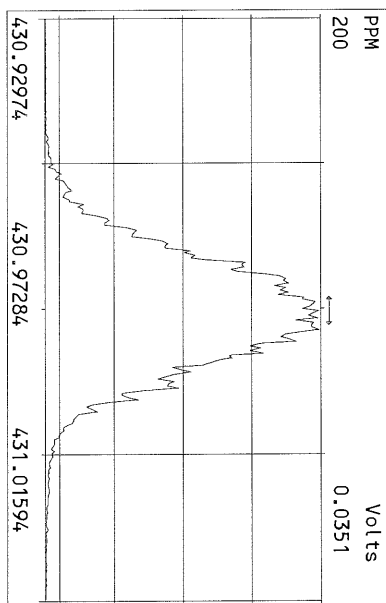
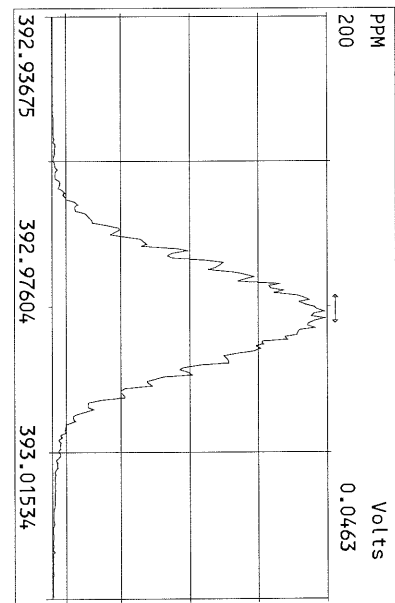
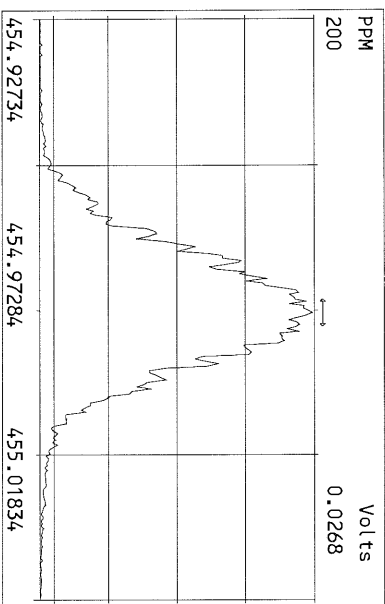
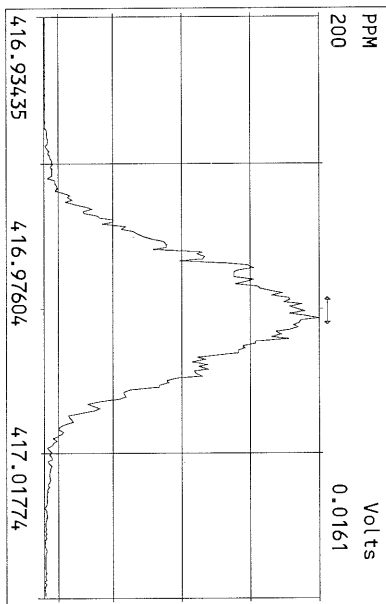
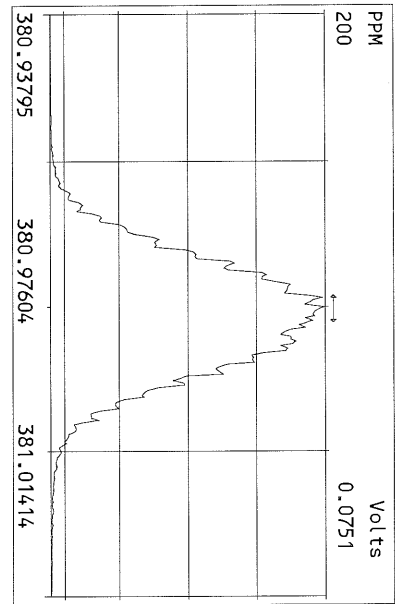
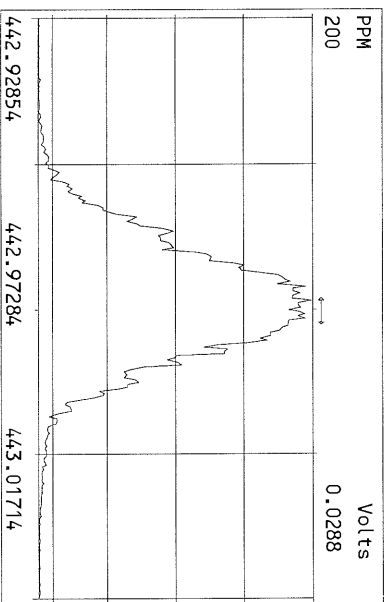
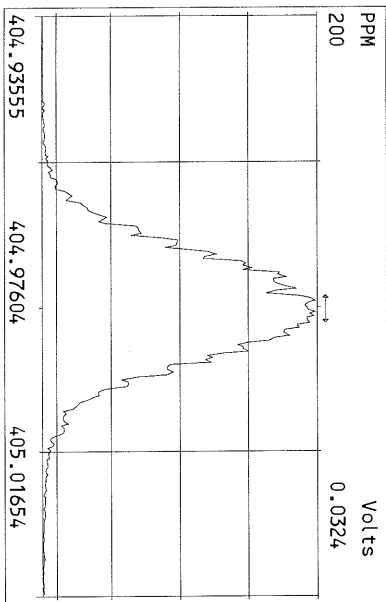
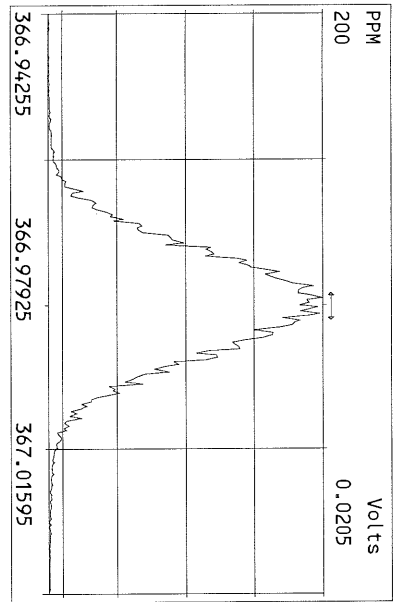


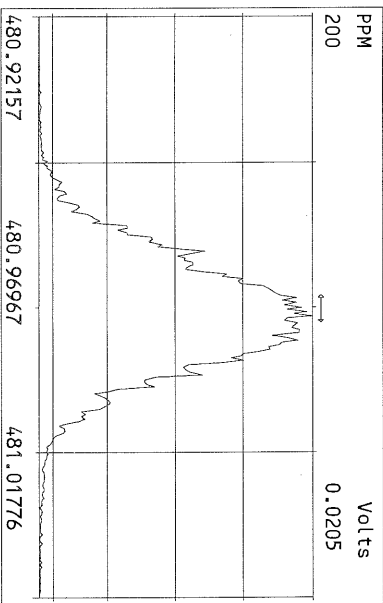
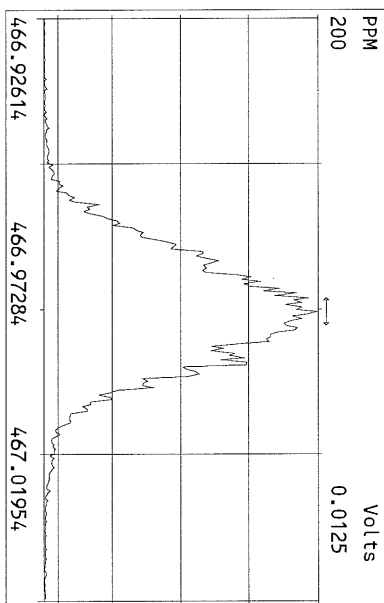
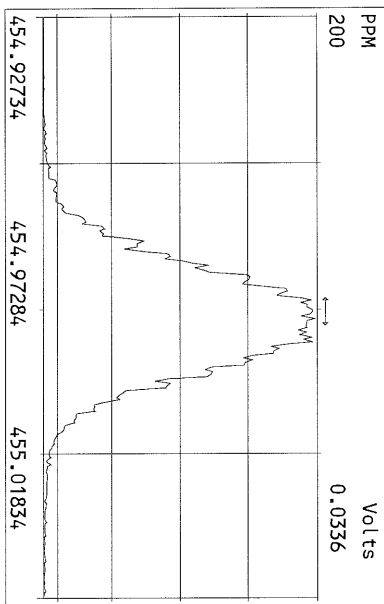
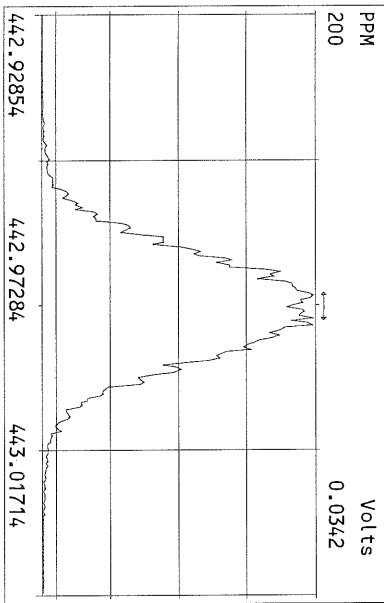
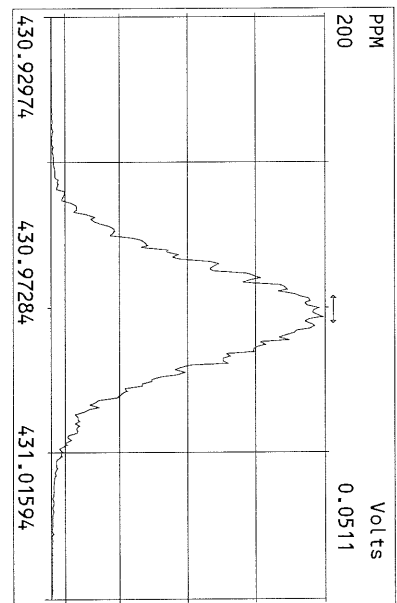
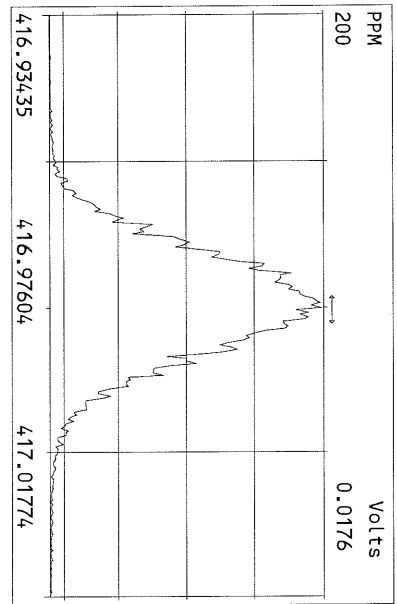
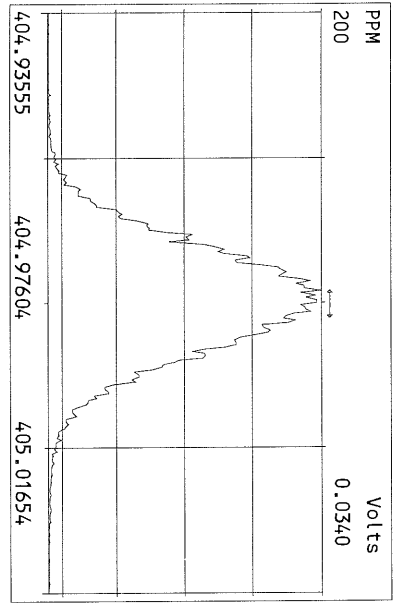
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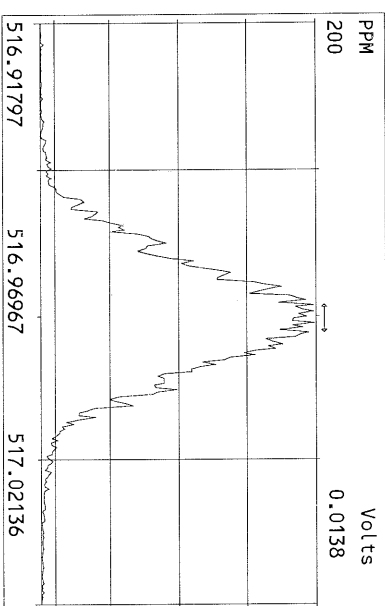
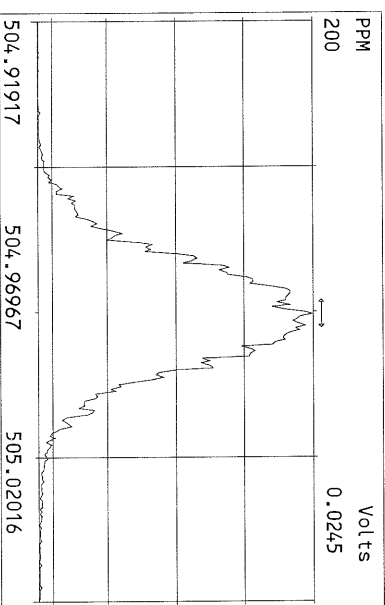
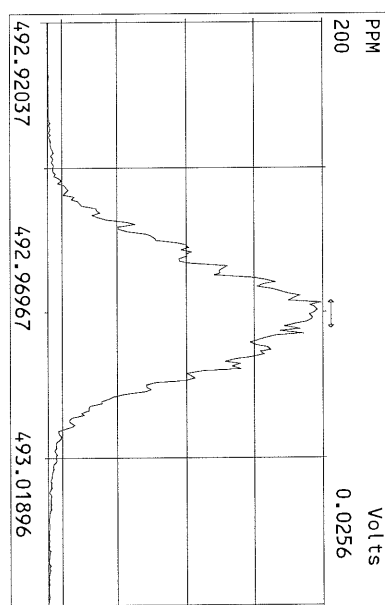
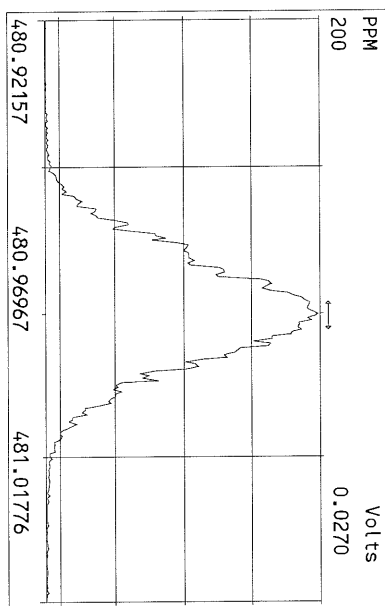
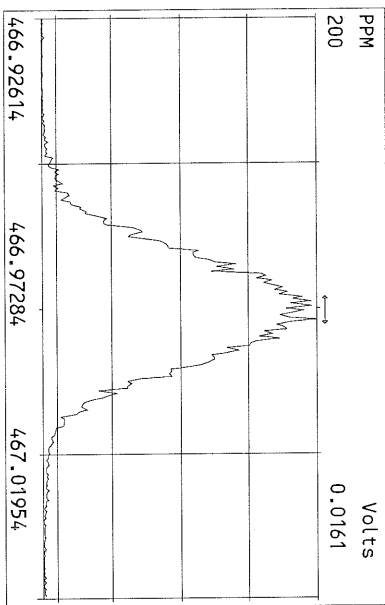
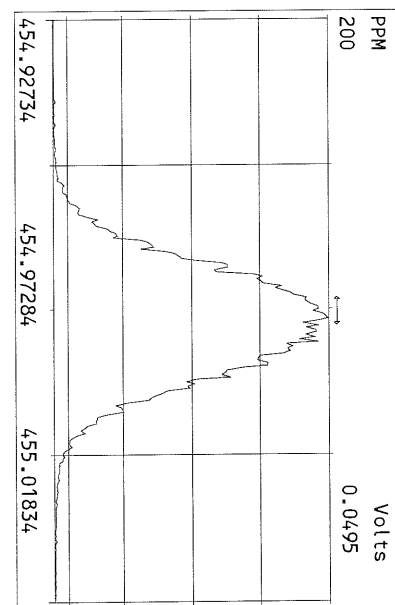
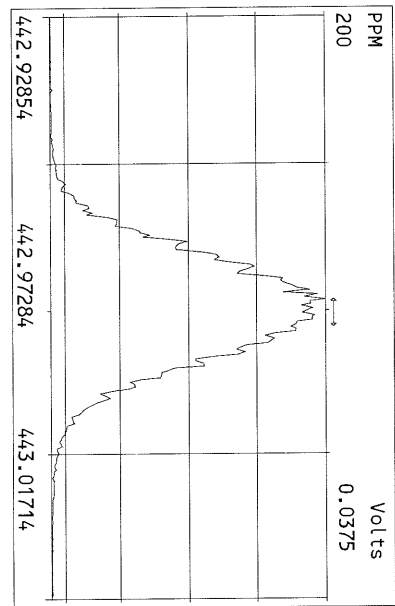
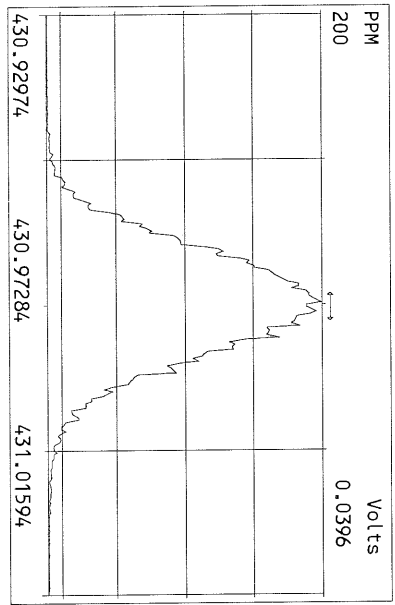












USEPA - ITD

FORM 4A

PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3 GC Column ID: DB5

VER Data Filename: 18MAY11M Sam:12 Analysis Date: 18-MAY-11 20:03:51

NATIVE ANALYTES	M/Z'S	ION	QC	ACCEPT	CONC. FOUND	CONC. RANGE (ng/mL) (3)
	FORMING RATIO (1)	ABUND. RATIO	LIMITS (2)			
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	9.95	7.80 - 12.9
1,2,3,7,8-PeCDD	M+2/M+4	1.52	1.32-1.78	y	51.5	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	45.6	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	y	46.5	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	y	48.7	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.89	0.88-1.20	y	50.0	43.0 - 58.0
OCDD	M+2/M+4	0.95	0.76-1.02	y	101	79.0 - 126
2,3,7,8-TCDF	M/M+2	0.67	0.65-0.89	y	11.0	8.40 - 12.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	48.7	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	47.4	41.0 - 60.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	46.5	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	46.7	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	46.2	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	y	46.9	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	y	47.5	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	y	48.3	43.0 - 58.0
OCDF	M+2/M+4	0.92	0.76-1.02	y	89.4	63.0 - 159

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

Analyst: 

Date: 5/19/11

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 18MAY11M Sam:12

Analysis Date: 18-MAY-11 20:03:51

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	ACCEPT	CONC. FOUND	CONC. RANGE (ng/mL) (3)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	91.6	82.0 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.73	1.32-1.78	y	82.6	62.0 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	y	97.8	85.0 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	y	100	85.0 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	101	72.0 - 138
13C-OCDD	M+2/M+4	0.93	0.76-1.02	y	157	96.0 - 415
13C-2,3,7,8-TCDF	M/M+2	0.87	0.65-0.89	y	94.6	71.0 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.65	1.32-1.78	y	93.1	76.0 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.67	1.32-1.78	y	93.3	77.0 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	101	76.0 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.49	0.43-0.59	y	100	70.0 - 143
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.49	0.43-0.59	y	96.4	73.0 - 137
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.49	0.43-0.59	y	90.2	74.0 - 135
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	y	92.1	78.0 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.47	0.37-0.51	y	84.8	77.0 - 129
13C-OCDF	M+2/M+4	0.93	0.76-1.02	y	147	96.0 - 415
CLEANUP STANDARD (4)						
37Cl-2,3,7,8-TCDD					8.70	7.80 - 12.8

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

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

Analyst: Date: 5/19/11

FORM 5
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Frontier Analytical Laboratory Episode No.:
Contract No.: SAS No.:
Instrument ID: FAL3 Initial Calibration Date: 3/7/11
RT Window Data Filename: 18MAY11M Sam:12 Analysis Date: 18-MAY-11 Time: 20:03:51
DB-5 IS Data Filename: 18MAY11M Sam:12 Analysis Date: 18-MAY-11 Time: 20:03:51
DB-225 IS Data Filename: Analysis Date: Time:

DB-5 RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	24:17	1,3,6,8-TCDF (F)	22:57
1,2,8,9-TCDD (L)	28:12	1,2,8,9-TCDF (L)	28:25
1,2,4,7,9-PeCDD (F)	30:07	1,3,4,6,8-PeCDF (F)	28:17
1,2,3,8,9-PeCDD (L)	33:40	1,2,3,8,9-PeCDF (L)	34:05
1,2,4,6,7,9-HxCDD (F)	35:59	1,2,3,4,6,8-HxCDF (F)	35:07
1,2,3,7,8,9-HxCDD (L)	39:03	1,2,3,7,8,9-HxCDF (L)	39:38
1,2,3,4,6,7,9-HpCDD (F)	42:40	1,2,3,4,6,7,8-HpCDF (F)	42:08
1,2,3,4,6,7,8-HpCDD (L)	44:03	1,2,3,4,7,8,9-HpCDF (L)	44:57

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

=====

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT
BETWEEN
COMPARED PEAKS (1)

<25%

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

Analyst: 

Date: 5/19/11

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 18-MAY-11 20:03:51

CS3 or VER Data Filename: 18MAY11M

Sam:12

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052
13C-2,3,7,8-TCDD		1.022	0.976-1.043
13C-2,3,7,8-TCDF		0.993	0.923-1.103
13C-1,2,3,7,8-PeCDD		1.239	1.000-1.567
13C-1,2,3,7,8-PeCDF		1.174	0.923-1.203
13C-2,3,4,7,8-PeCDF		1.224	0.923-1.303

(1) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

Analyst: Date: 5/19/11

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11


Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 18-MAY-11 20:03:51 CS3 or VER Data Filename: 18MAY11M Sam:12

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.012	1.000-1.019
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.001	0.999-1.001
OCDF	13C-OCDF	1.001	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,7,8,9-HxCDD	0.984	0.977-1.000
13C-1,2,3,6,7,8-HxCDD		0.989	0.981-1.003
13C-1,2,3,4,7,8-HxCDF		0.949	0.944-0.970
13C-1,2,3,6,7,8-HxCDF		0.954	0.949-0.975
13C-2,3,4,6,7,8-HxCDF		0.978	0.959-1.021
13C-1,2,3,7,8,9-HxCDF		1.015	0.977-1.047
13C-1,2,3,4,6,7,8-HpCDD		1.128	1.086-1.130
13C-1,2,3,4,6,7,8-HpCDF		1.079	1.043-1.085
13C-1,2,3,4,7,8,9-HpCDF		1.151	1.057-1.154
13C-OCDD		1.269	1.032-1.311
13C-OCDF		1.278	1.000-1.311

(1) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

Analyst: 

Date: 5/19/11

Frontier Analytical Laboratory - Acquisition Log

Run Name:18MAY11M

Instrument: FAL3

GC: DB5

Experiment:OCDD

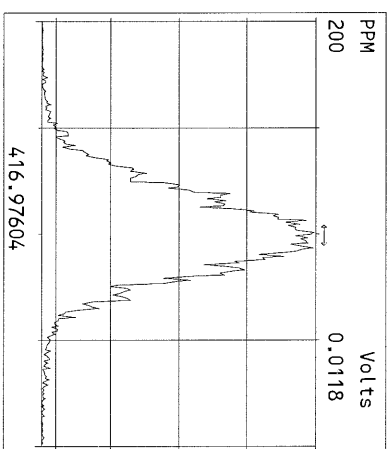
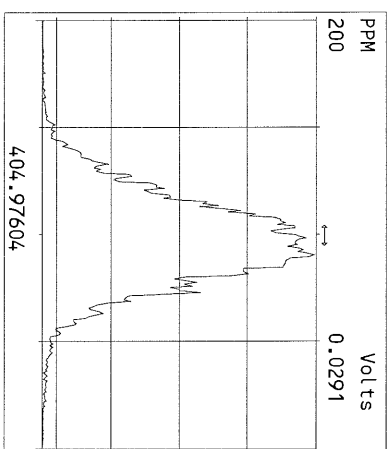
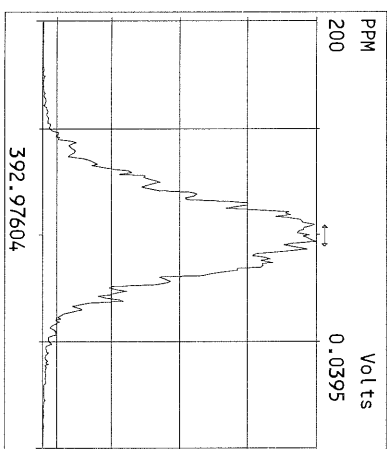
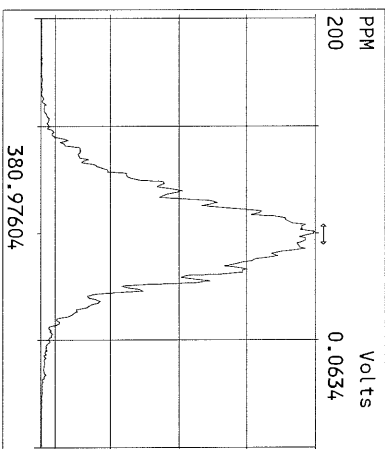
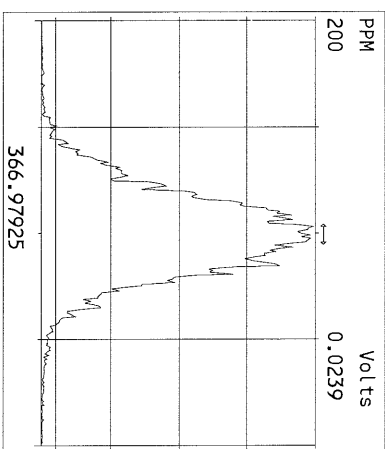
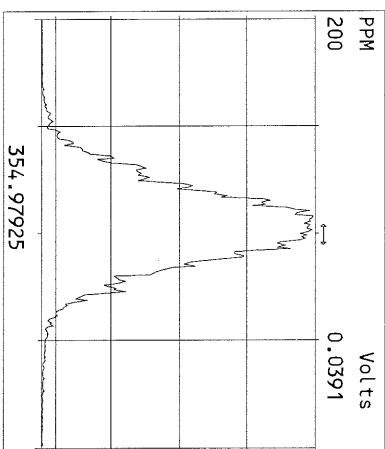
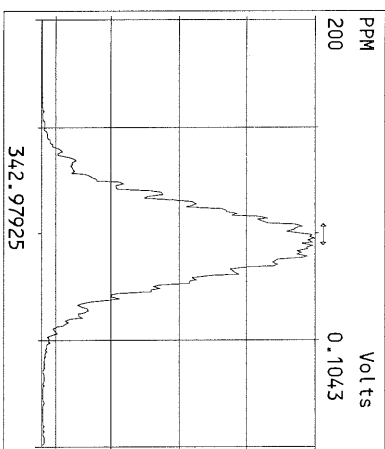
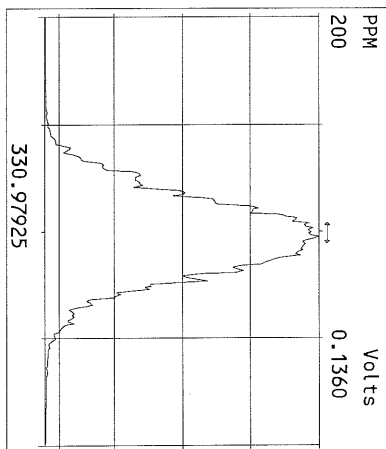
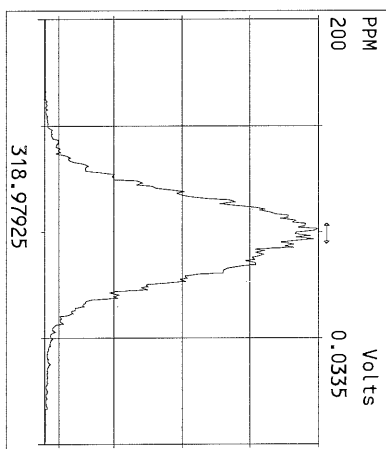
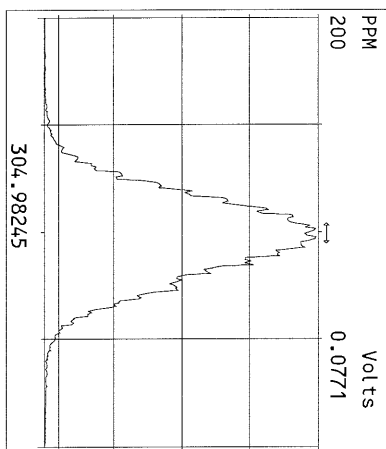
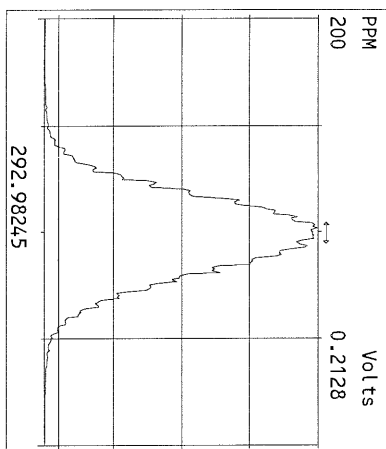
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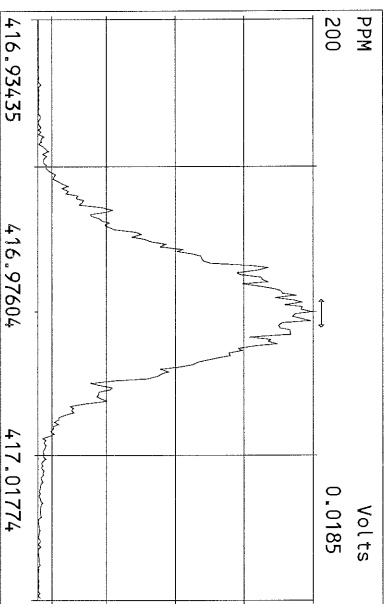
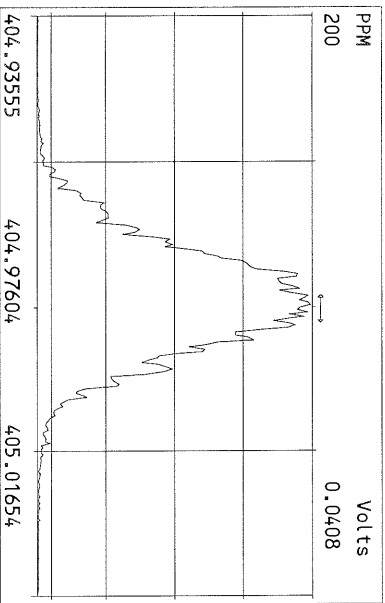
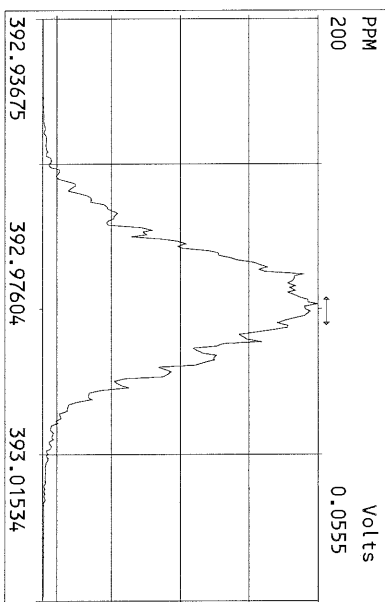
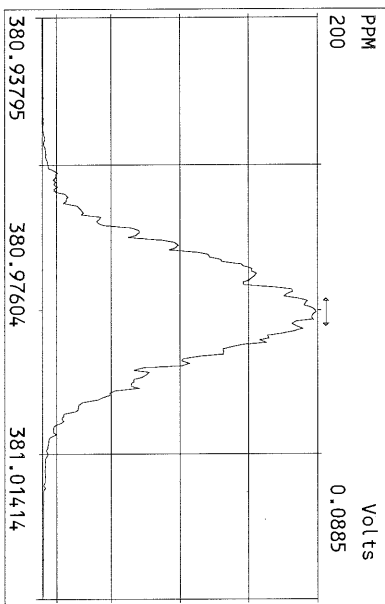
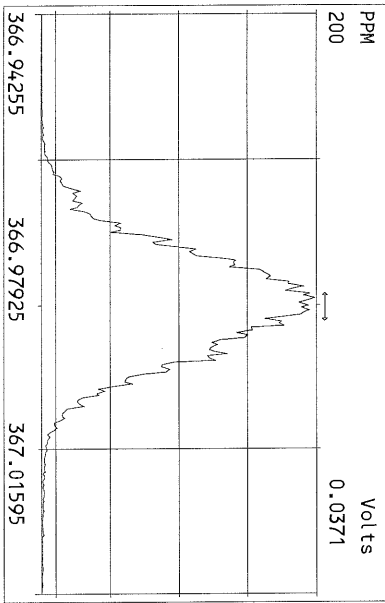
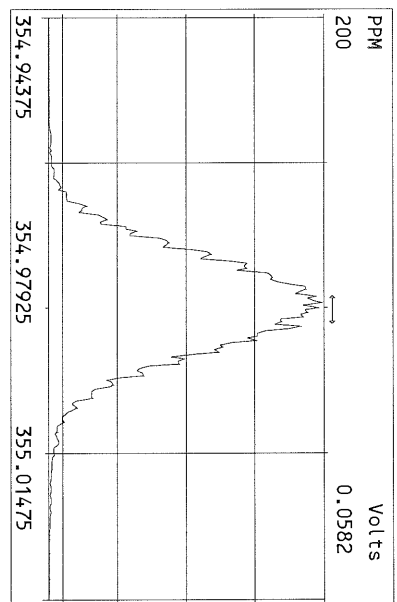
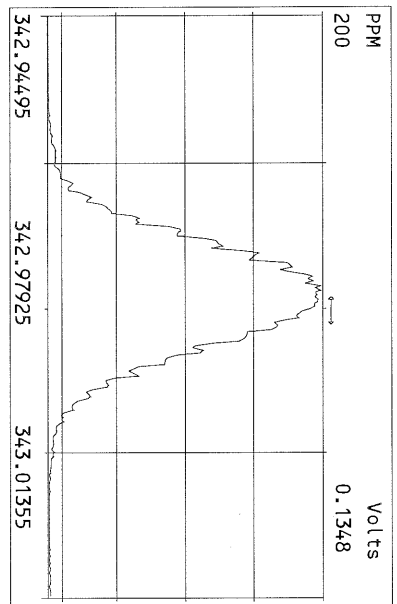
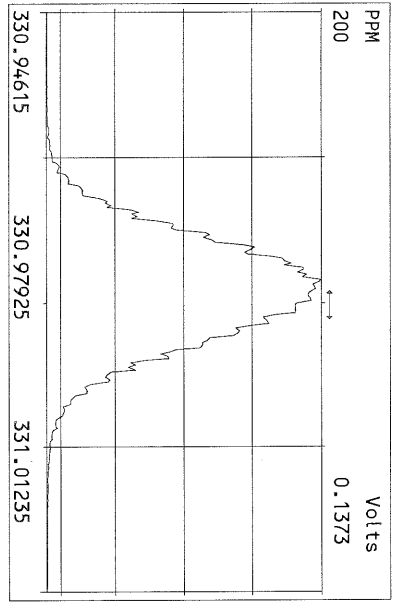


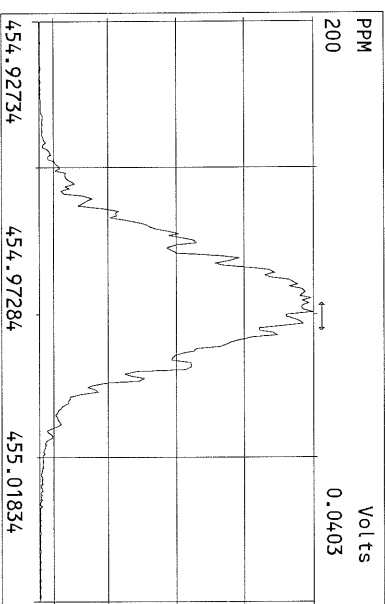
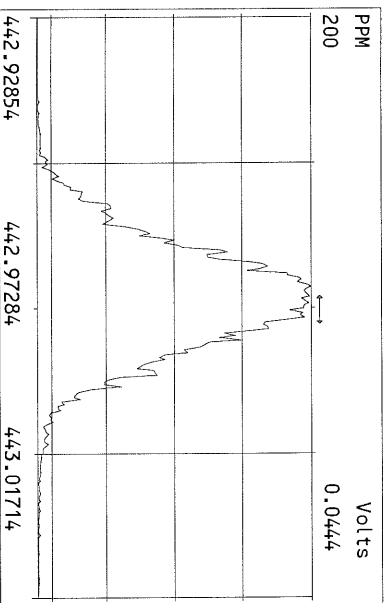
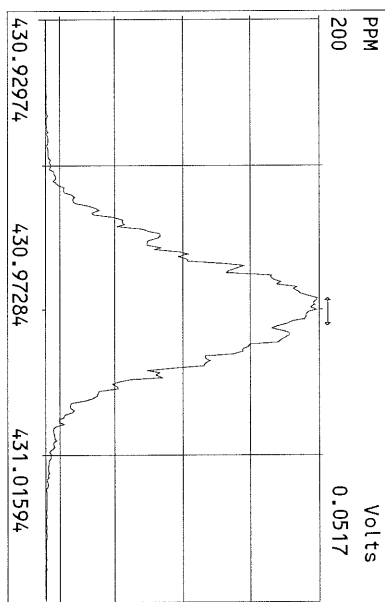
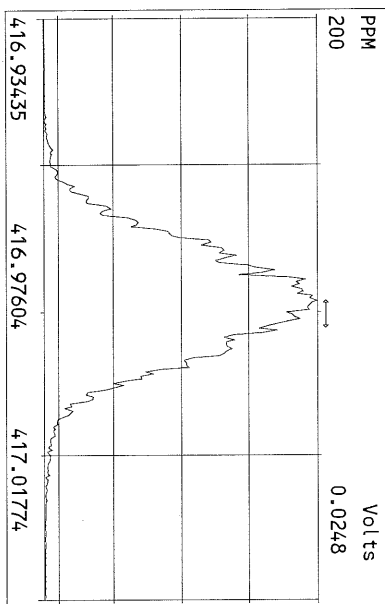
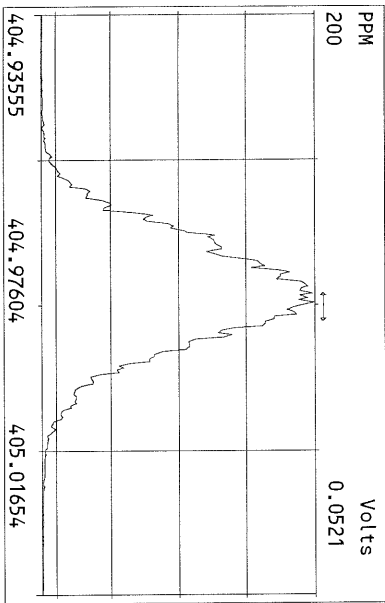
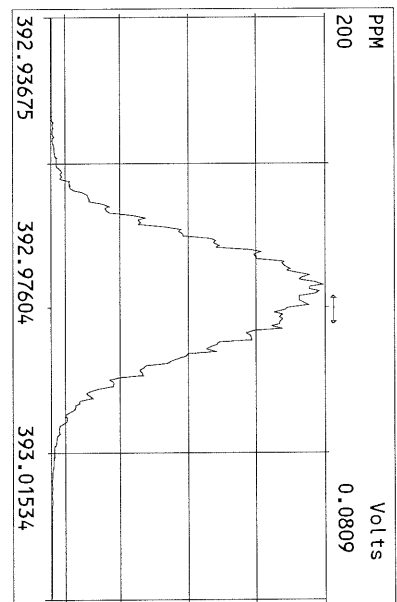
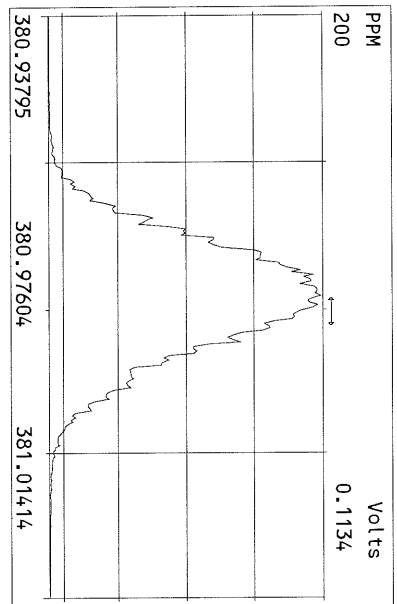
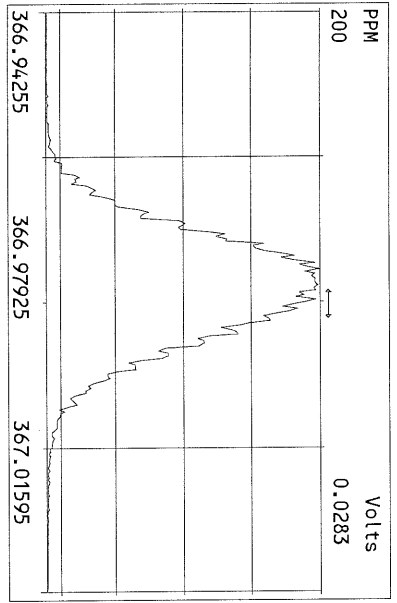
5/19/11

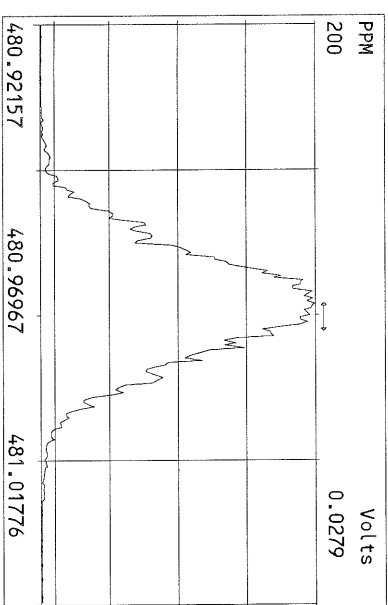
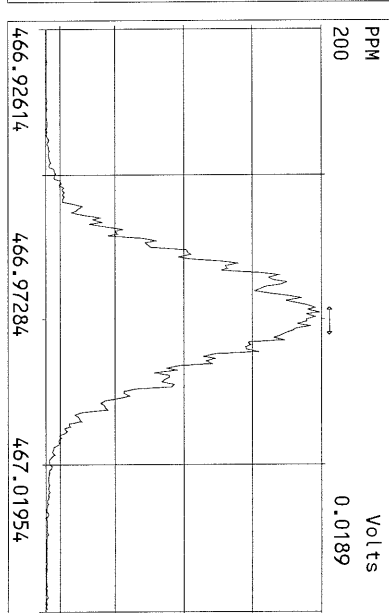
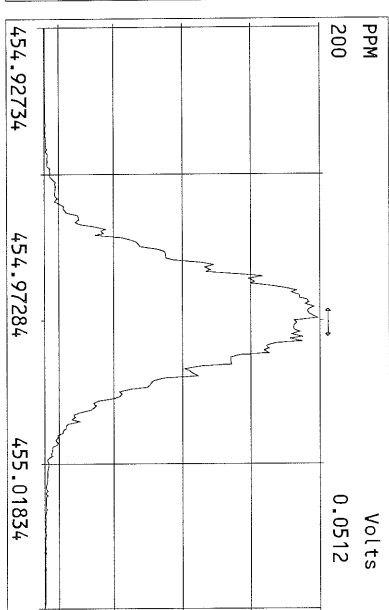
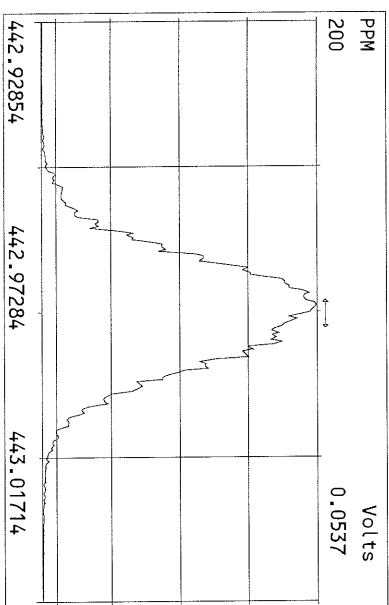
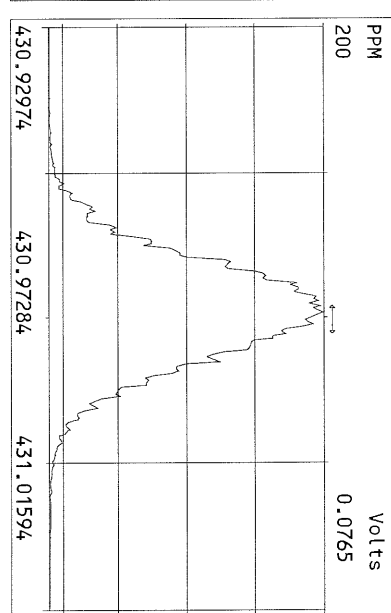
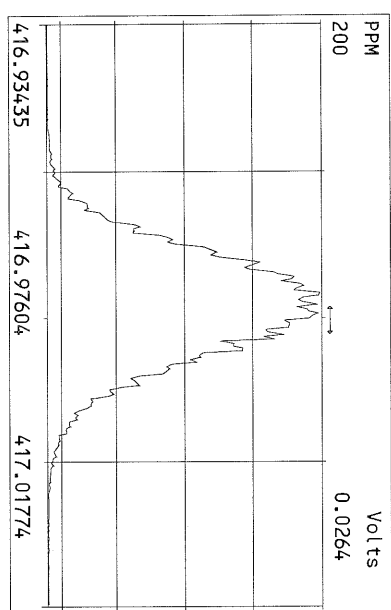
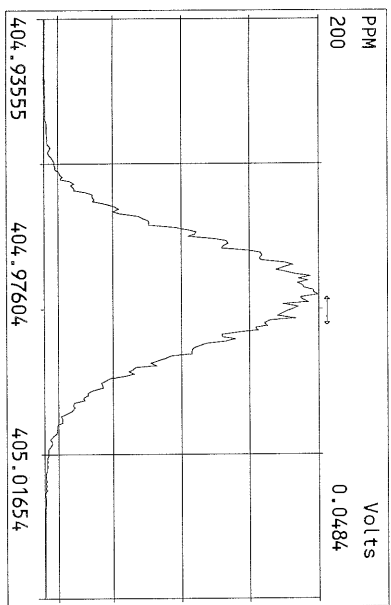
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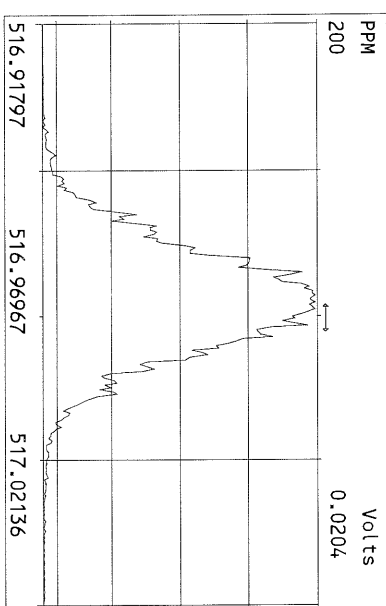
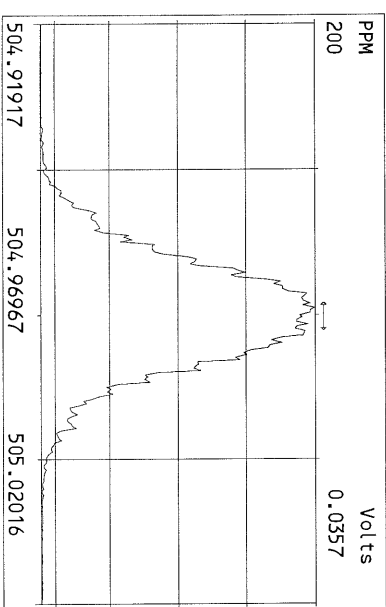
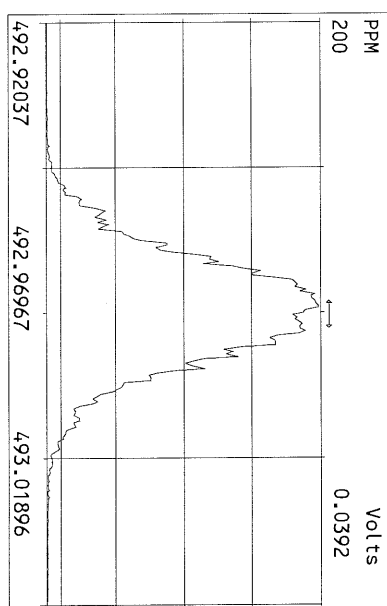
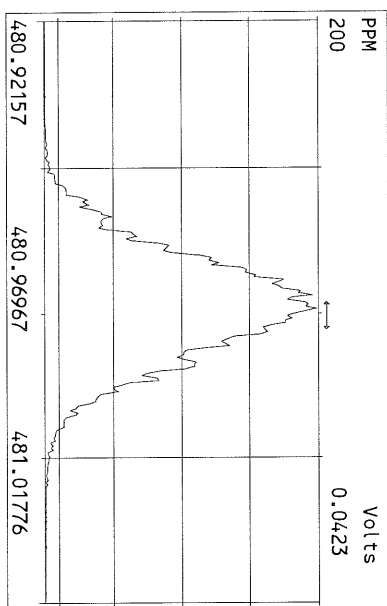
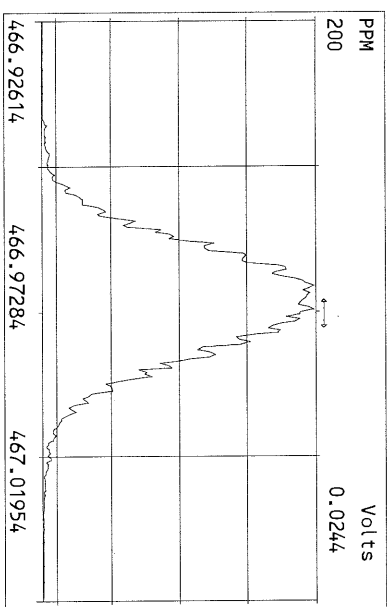
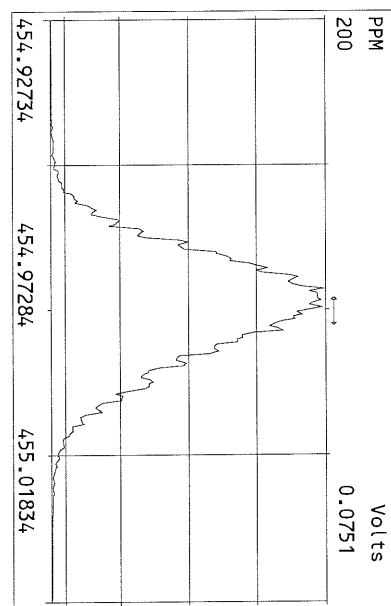
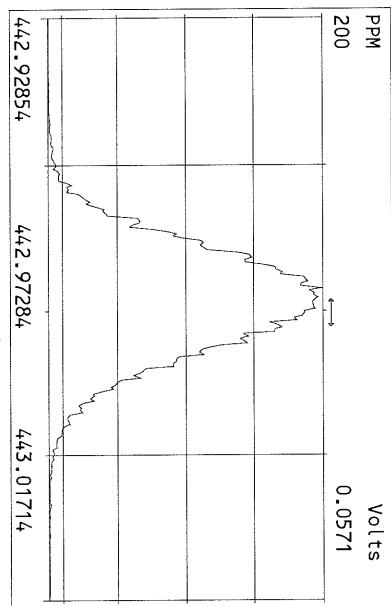
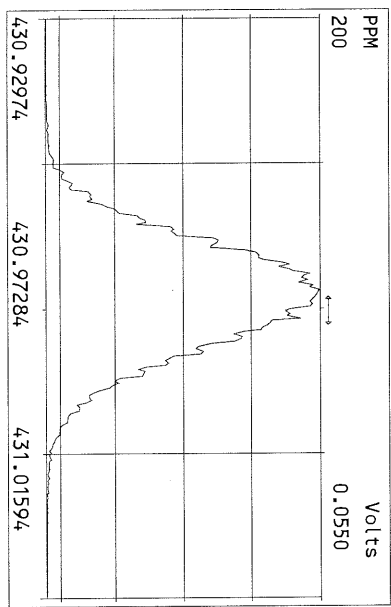
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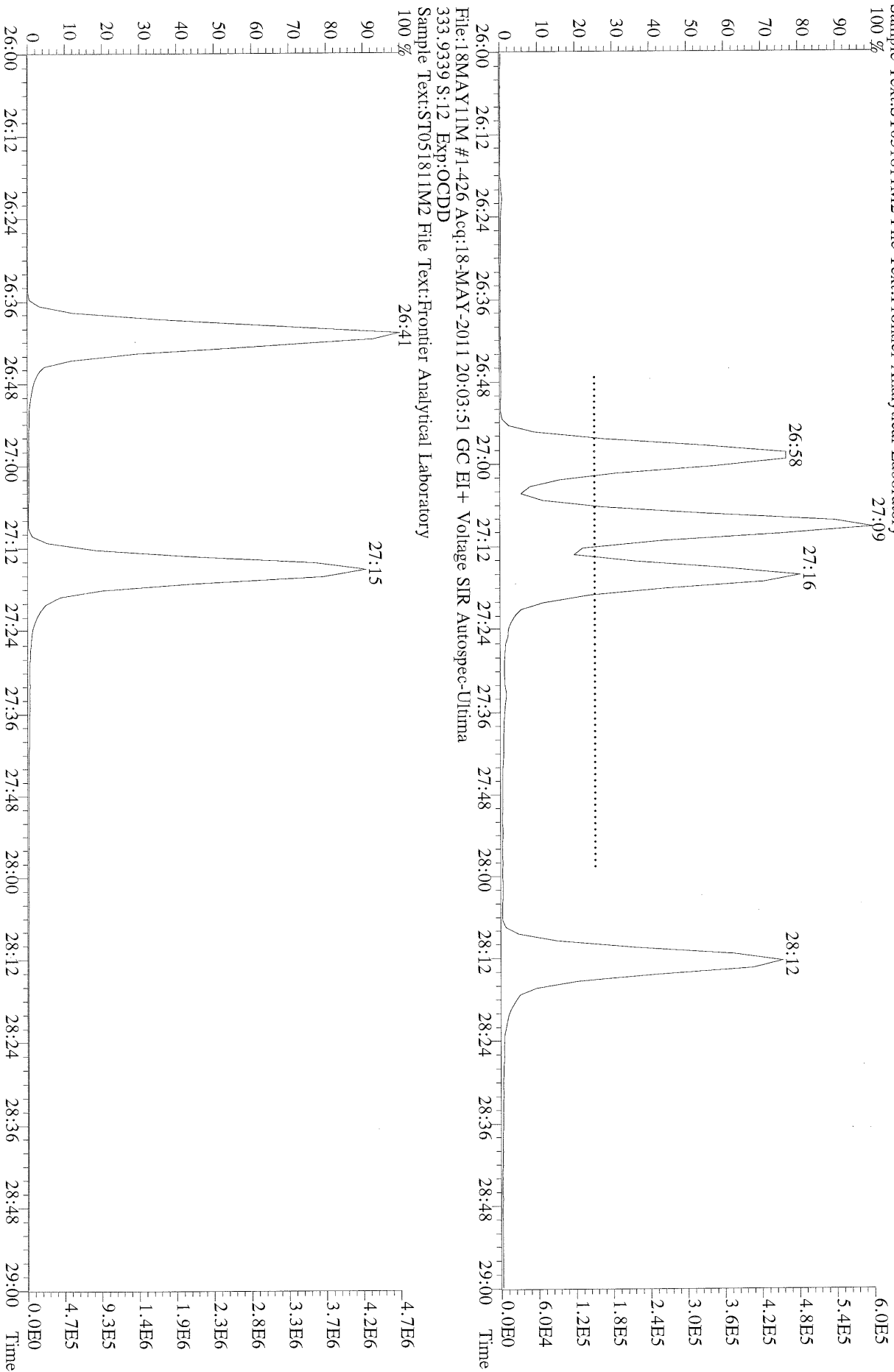




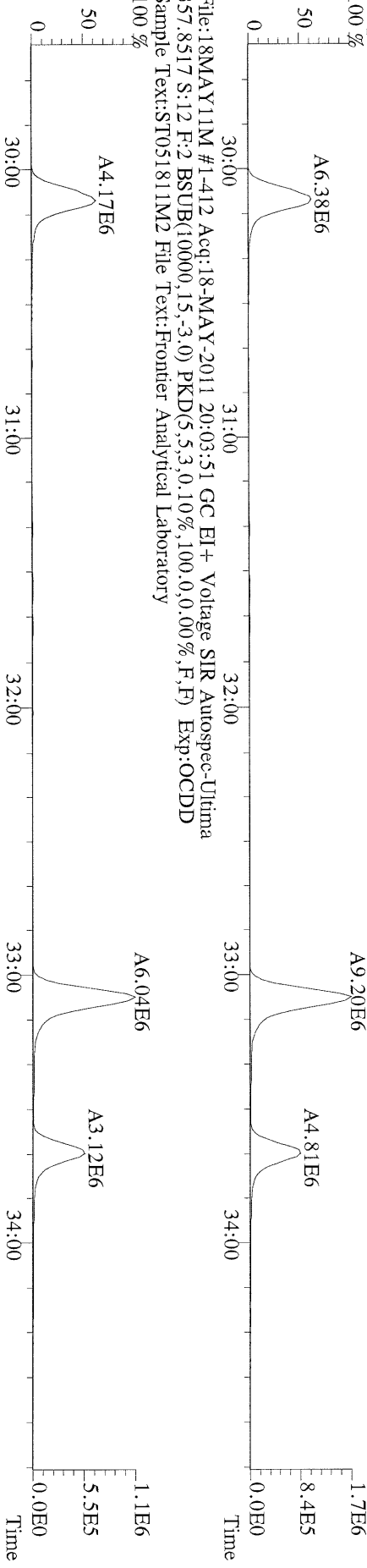




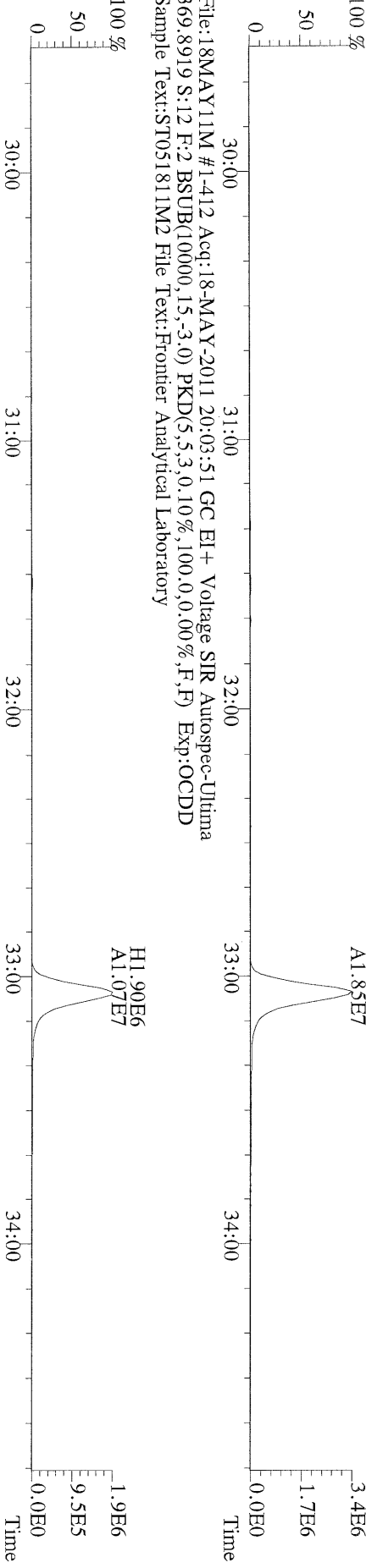
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321.8936 S:12 Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



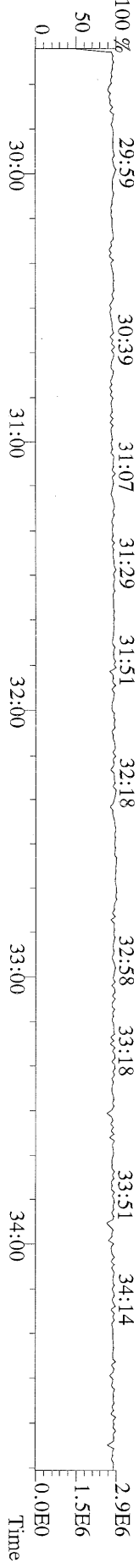
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355.8546 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Fronier Analytical Laboratory



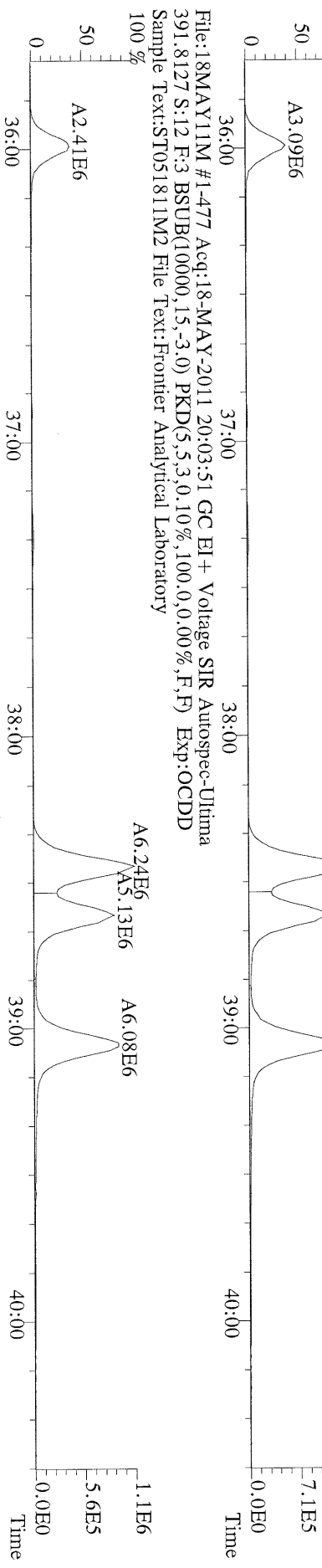
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367.8949 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Fronier Analytical Laboratory



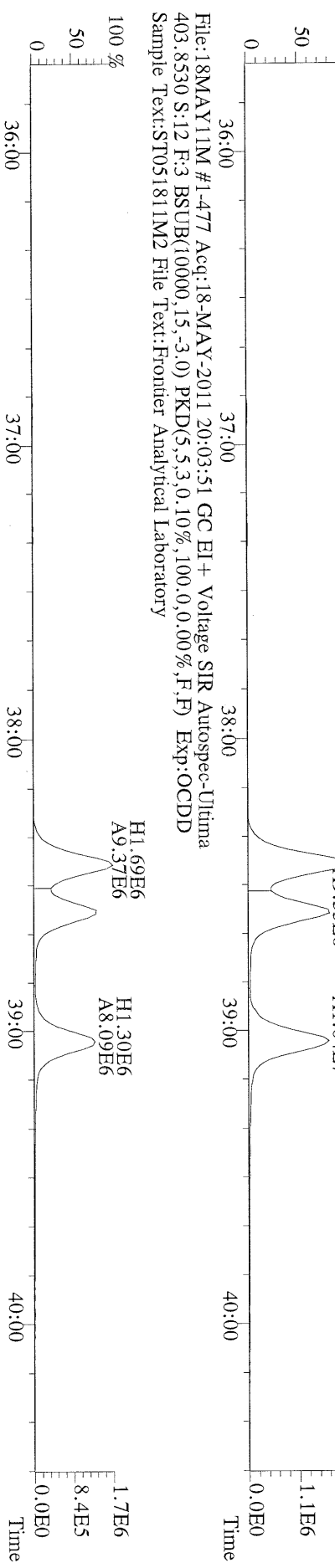
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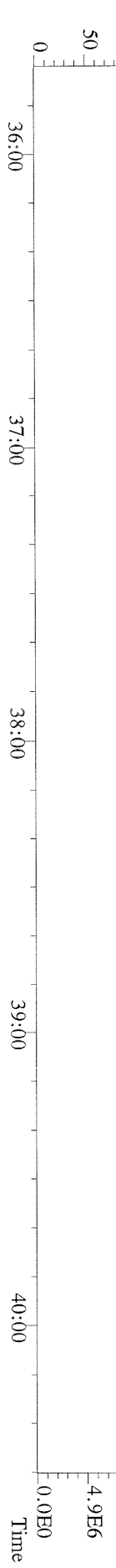
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389.8156 S:12 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



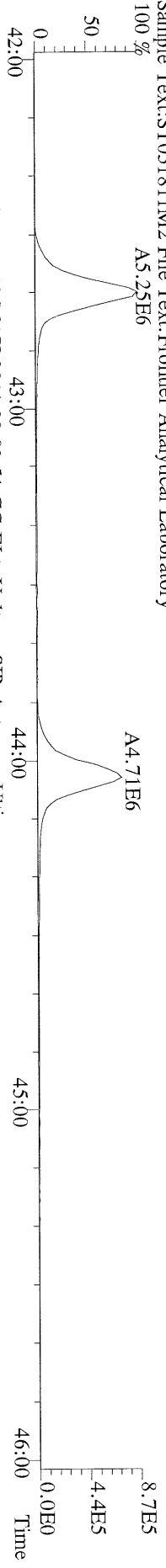
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Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



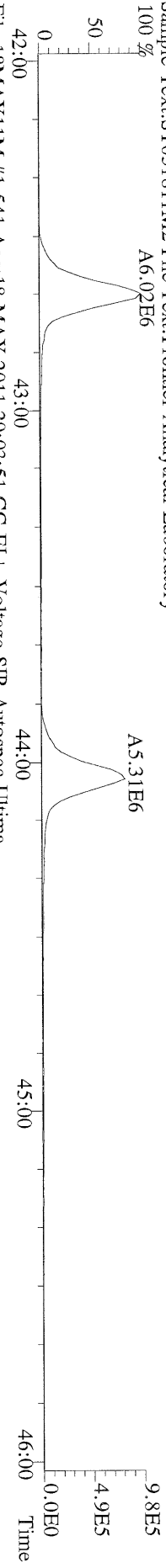
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380.9760 S:12 F:3 Exp:OCDD
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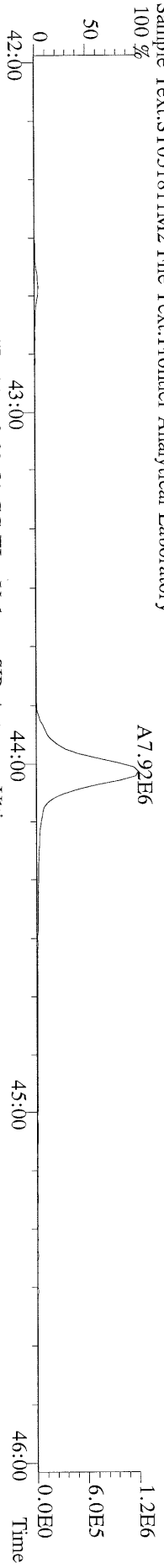
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423.7767 S:12 F:4 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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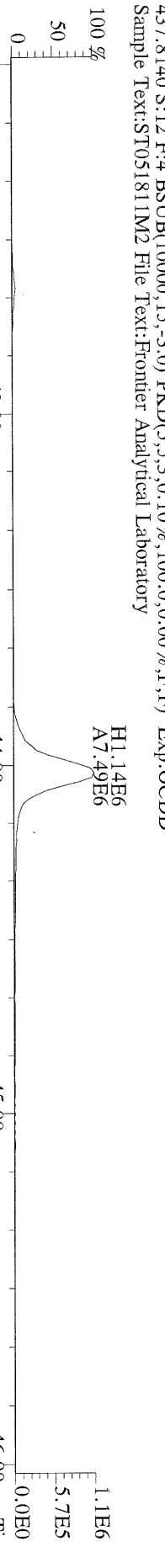
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425.7737 S:12 F:4 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



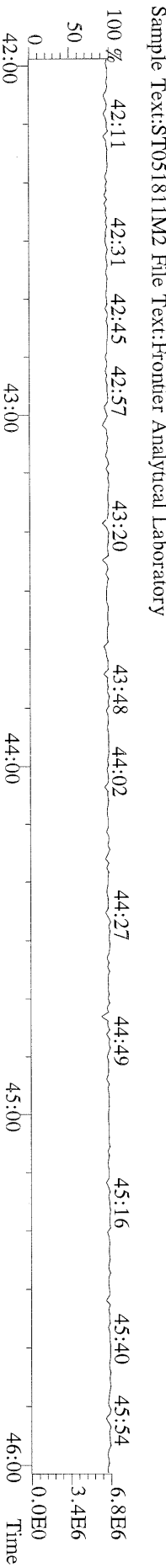
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Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



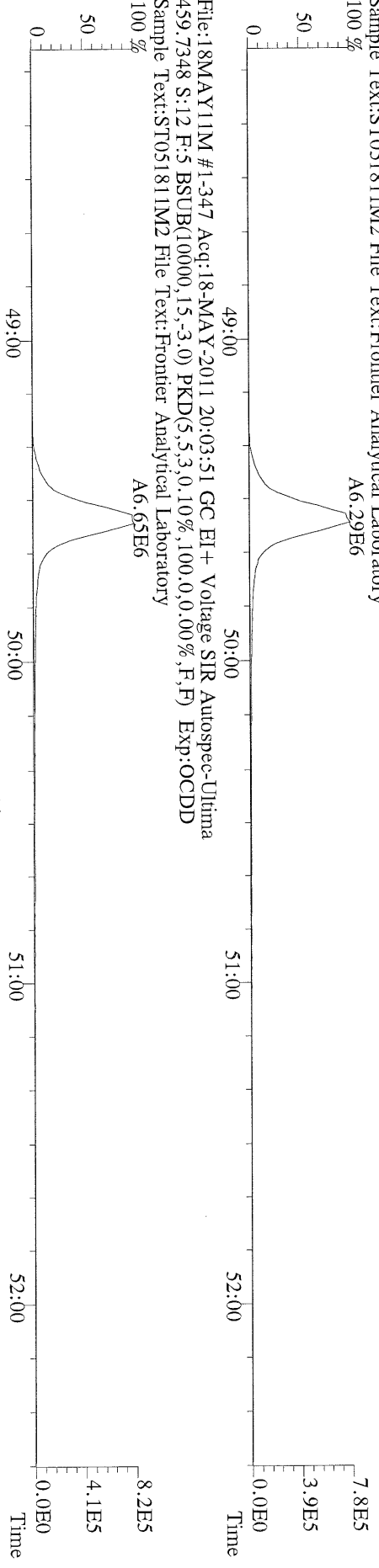
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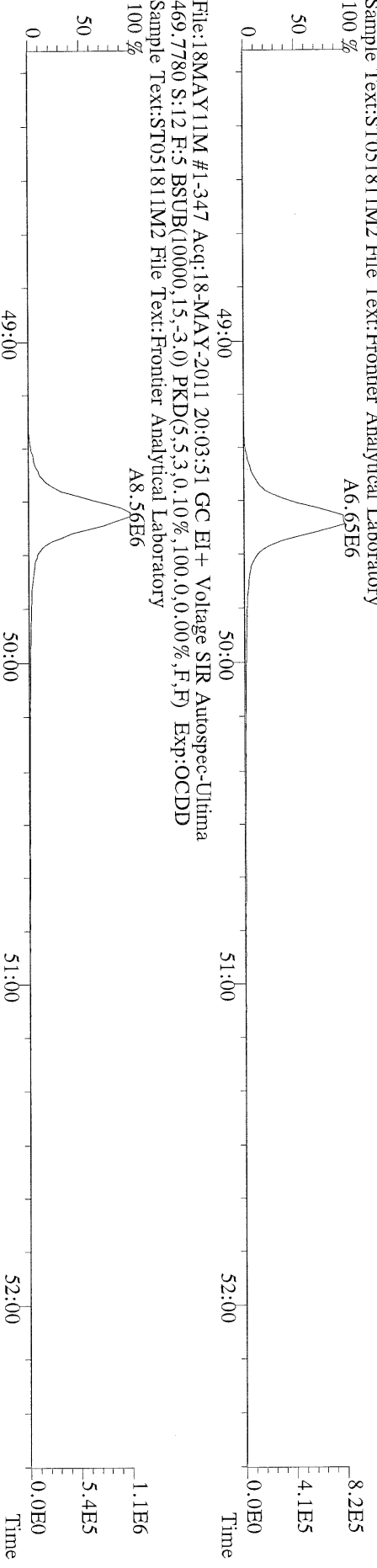
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430.9728 S:12 F:4 Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



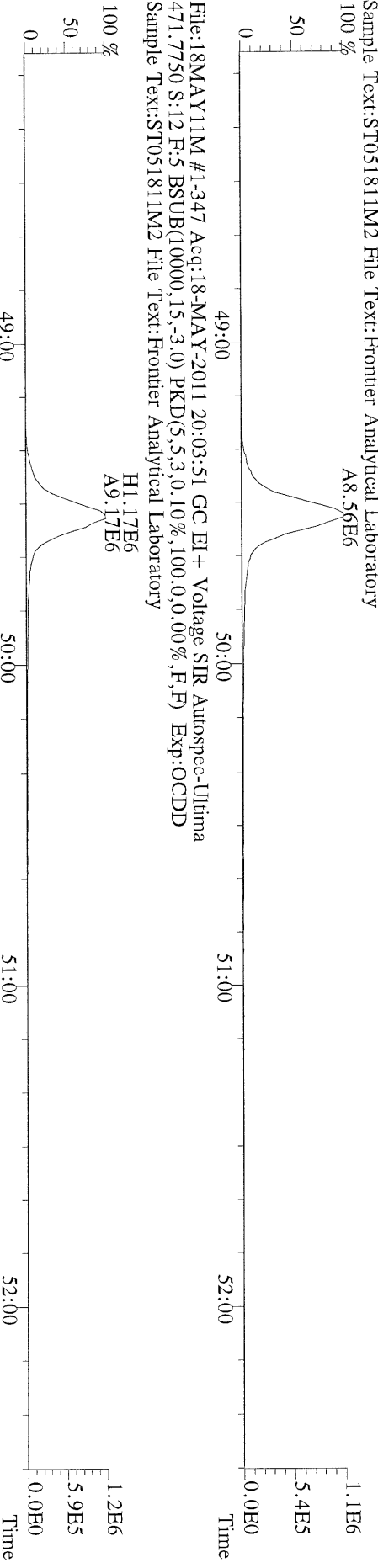
File:18MAY11M #1-347 Acq:18-MAY-2011 20:03:51 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 %



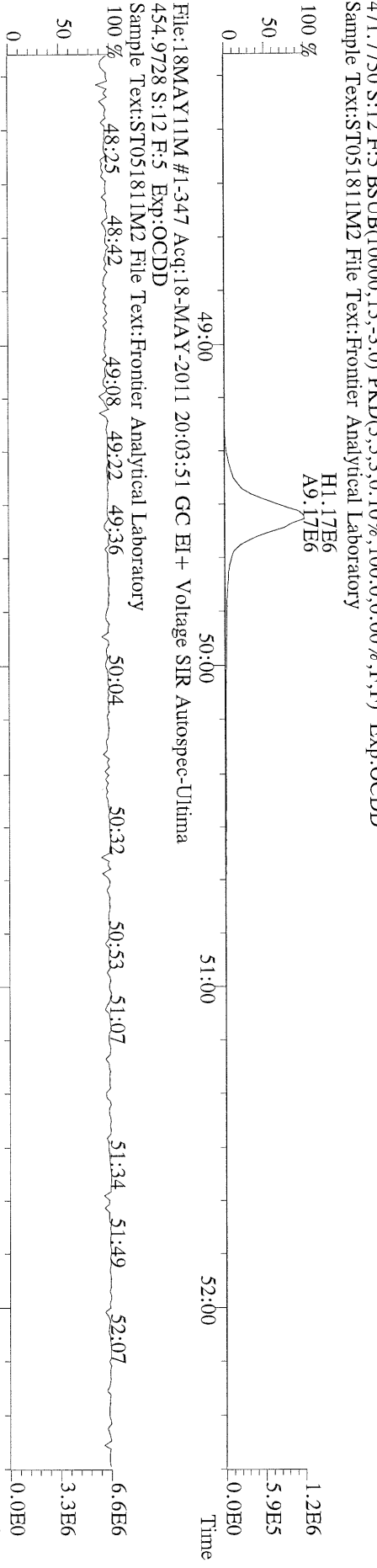
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459.7348 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 %



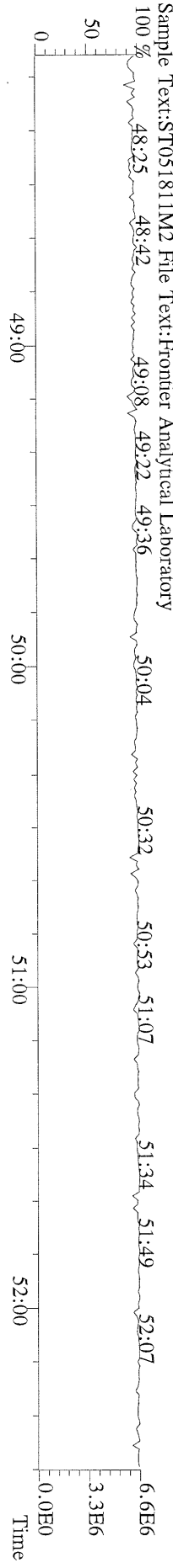
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469.7780 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 %



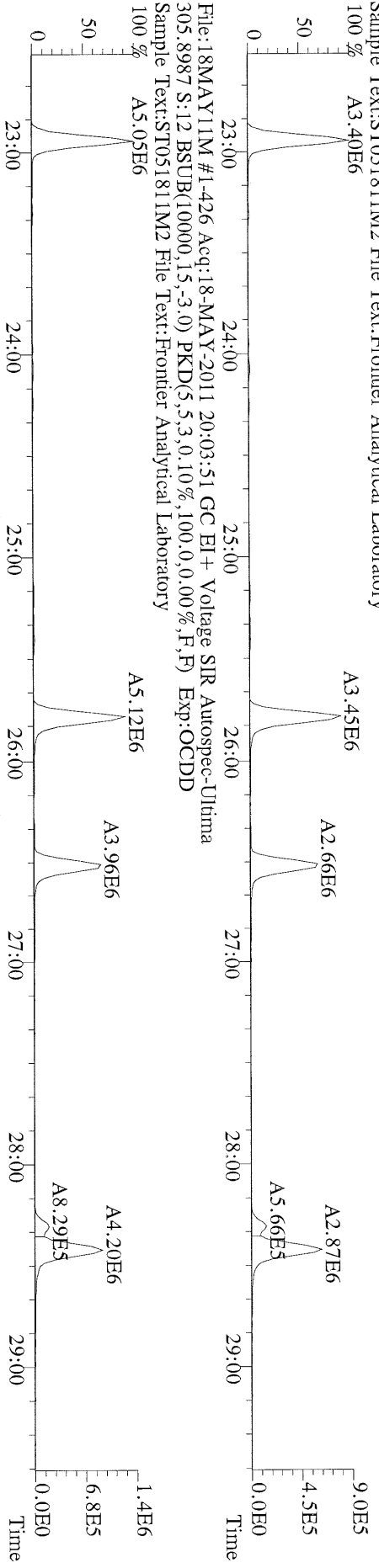
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Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 %



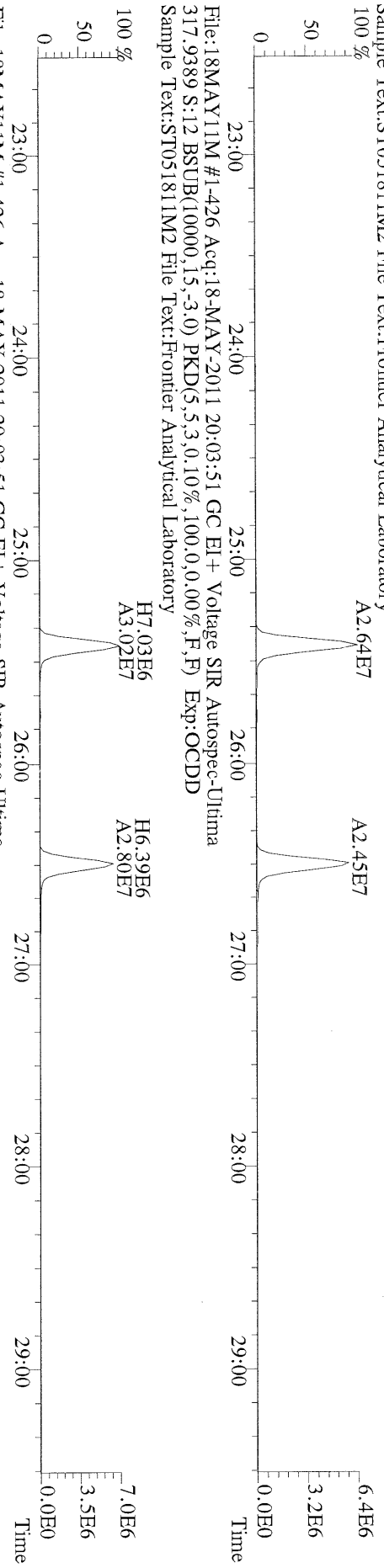
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Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 %



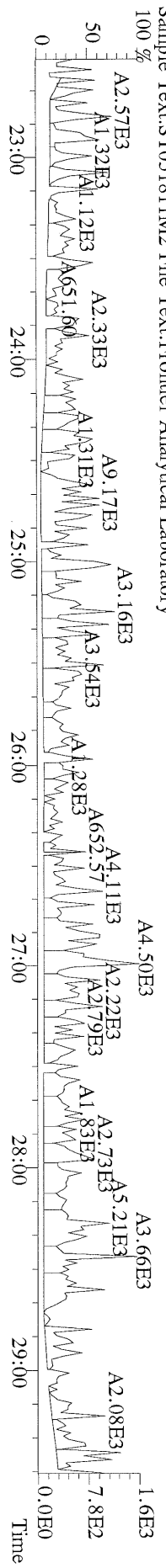
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 303.9016 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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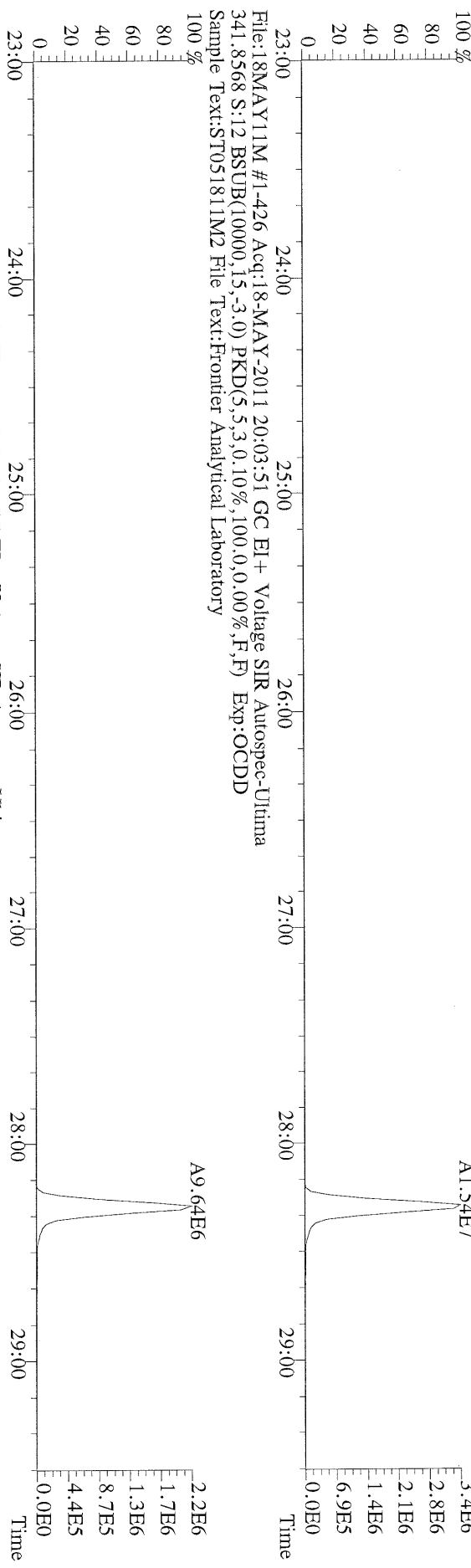
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 315.9419 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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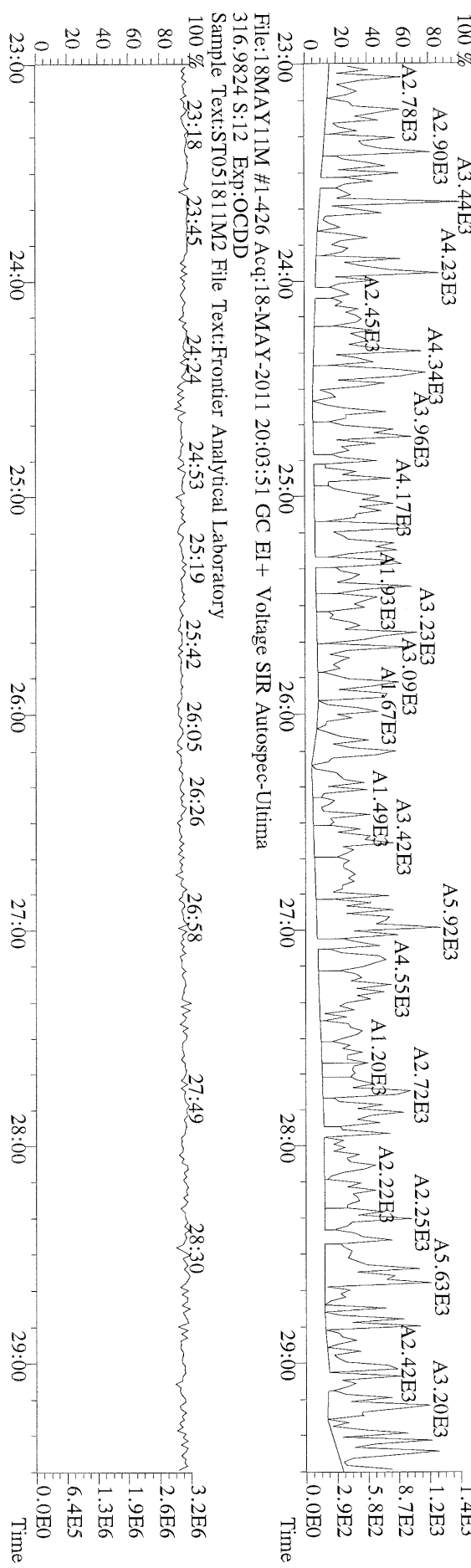
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 375.8364 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



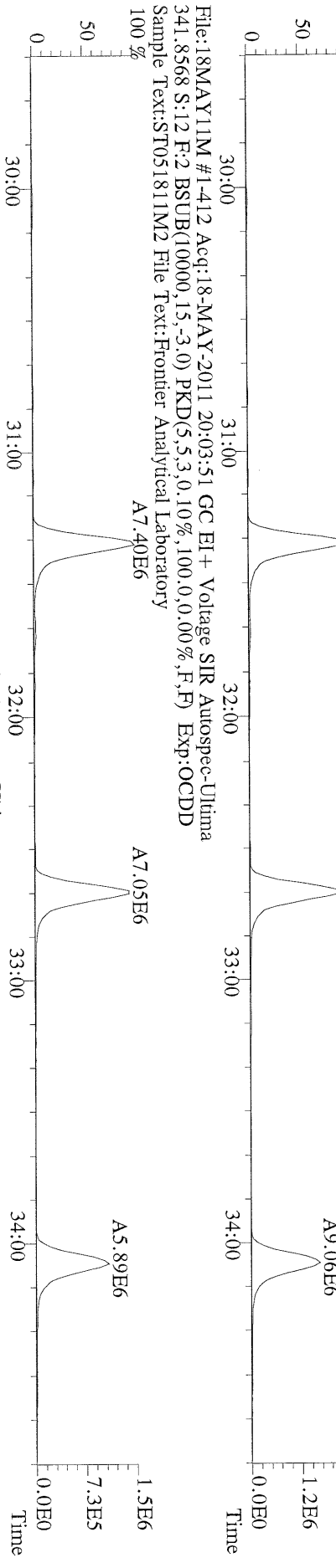
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 339.8597 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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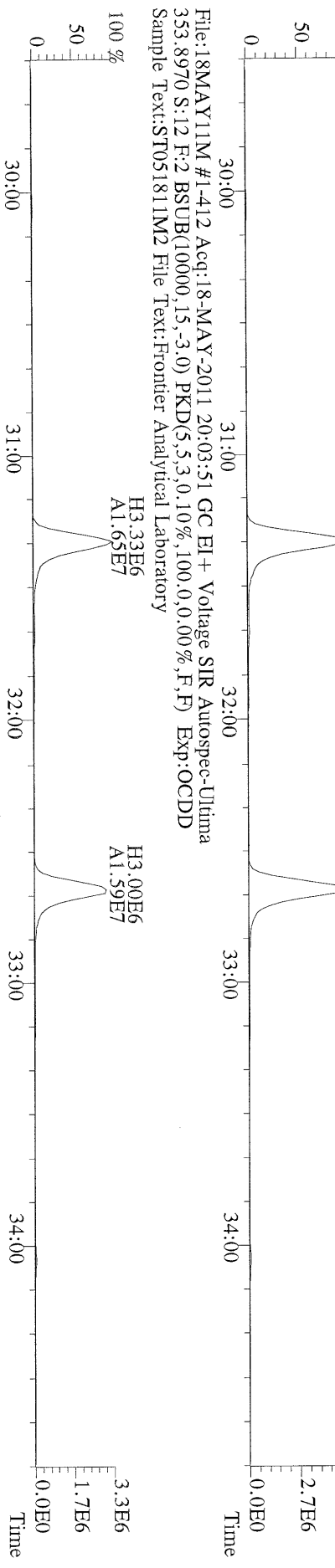
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 409.7974 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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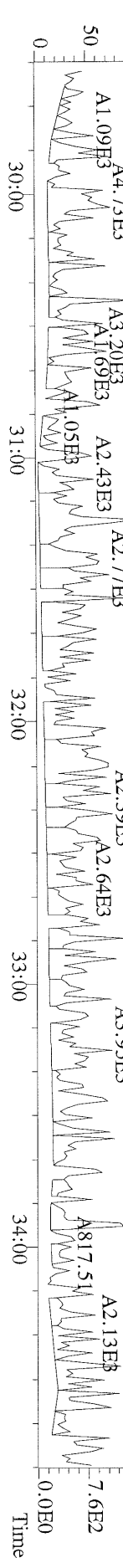
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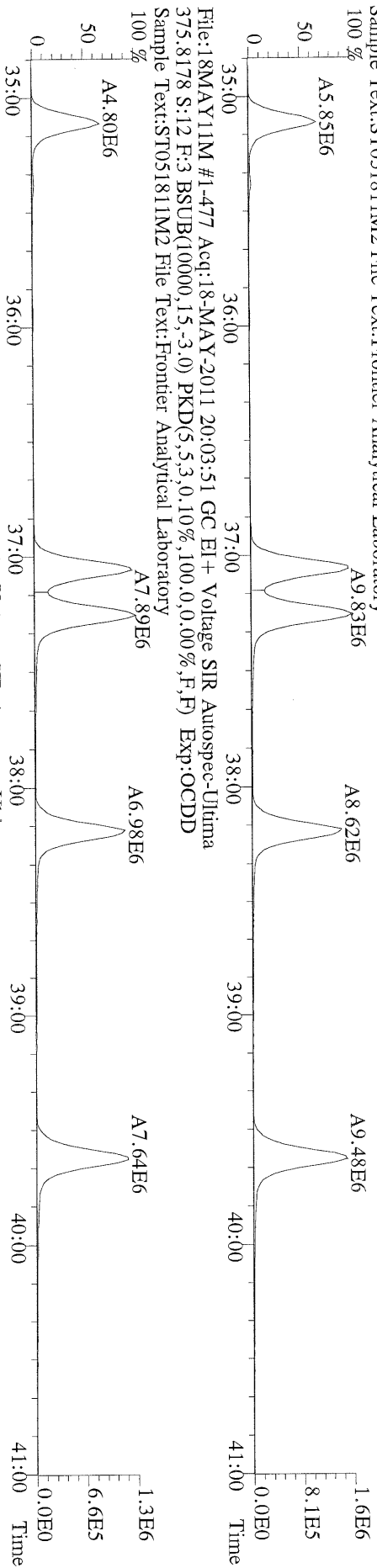
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 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



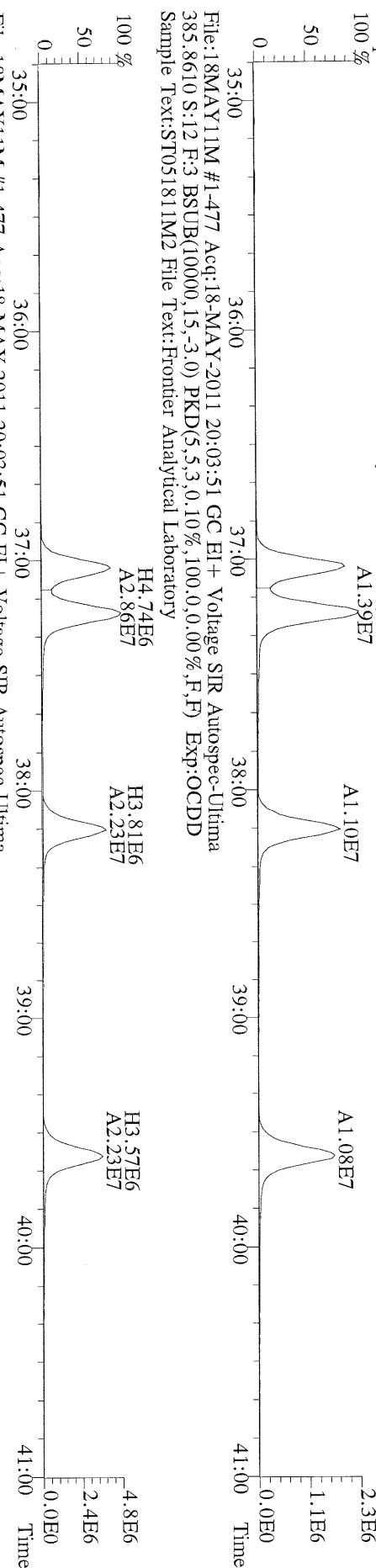
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 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



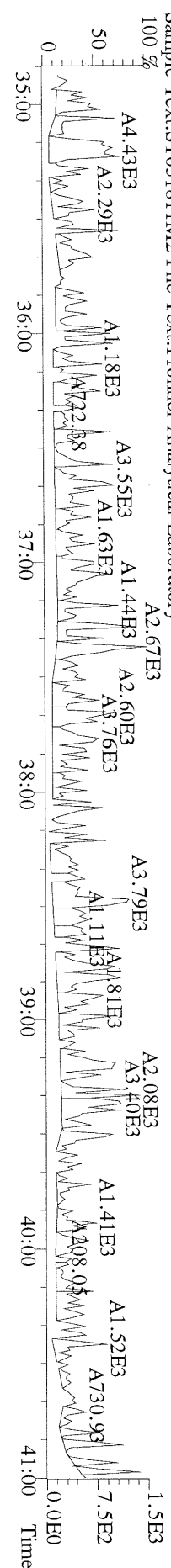
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 373.8207 S:12 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



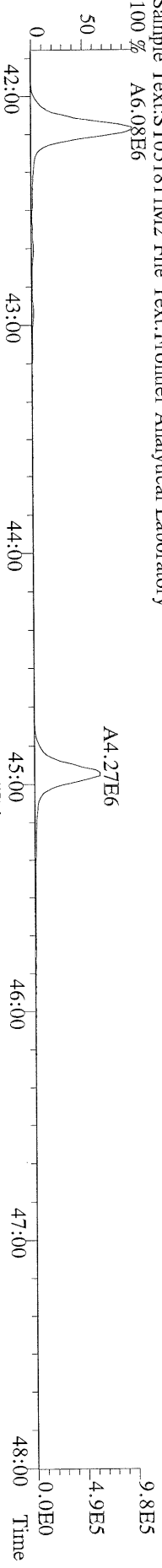
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 383.8639 S:12 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



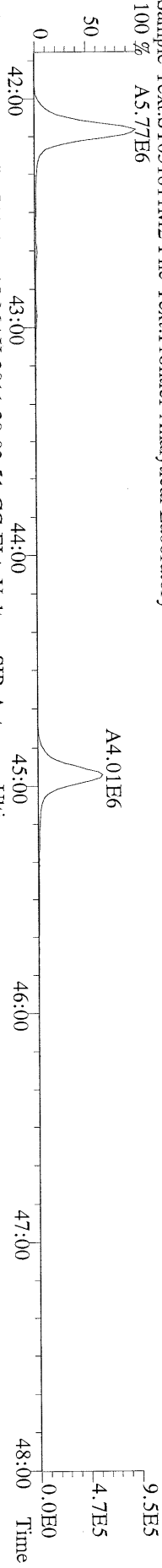
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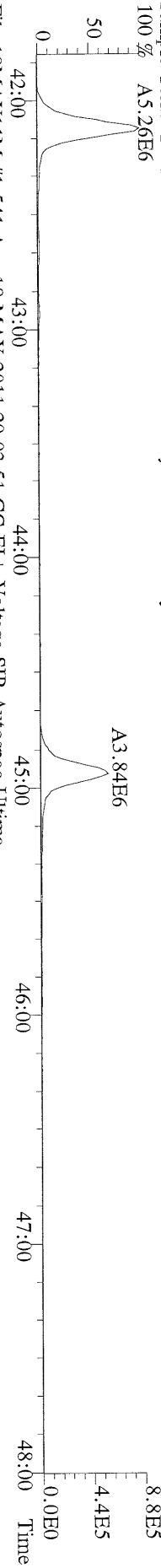
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407.7818 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 % A6.08E6



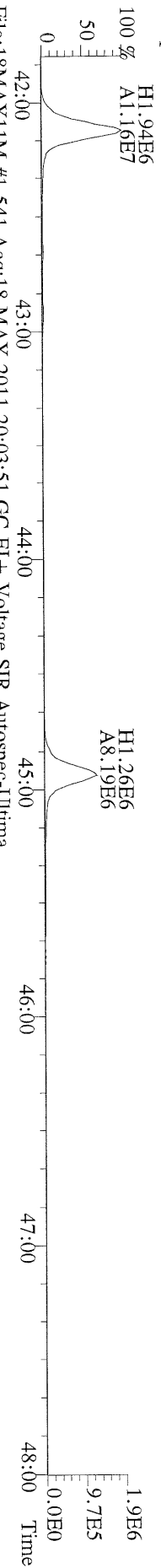
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409.7788 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 % A5.77E6



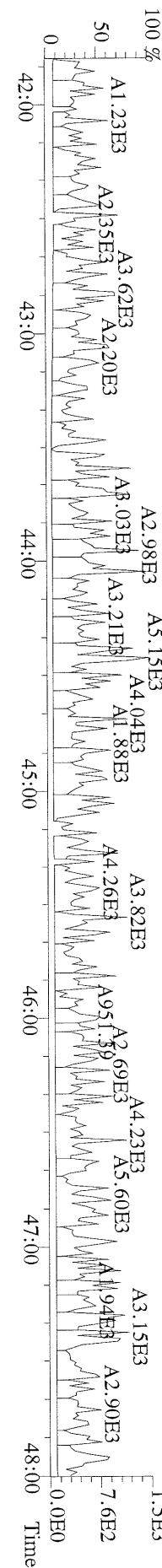
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Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
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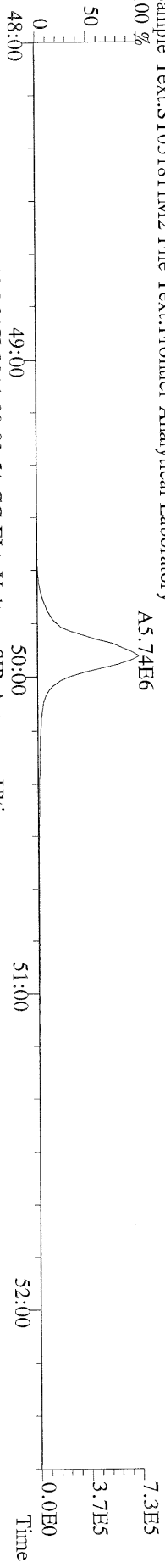
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419.8220 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 % H1.94E6
A1.16E7



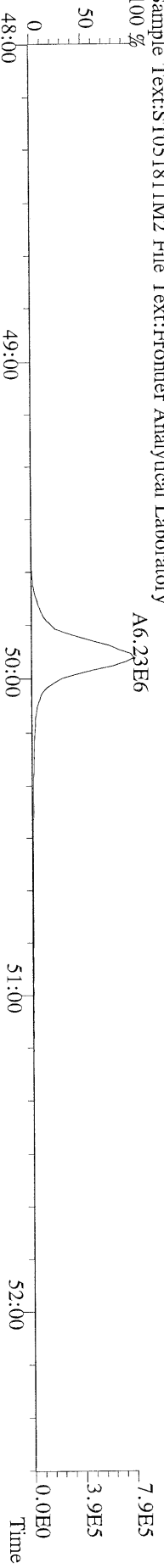
File:18MAY11M #1-541 Acq:18-MAY-2011 20:03:51 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory
100 % A1.23E3
A2.135E3
A3.62E3
A2.420E3
A8.03E3
A2.98E3
A5.15E3
A4.04E3
A1.88E3
A3.82E3
A4.26E3
A95.139
A2.69E3
A4.23E3
A5.60E3
A1.94E3
A3.15E3
A2.90E3



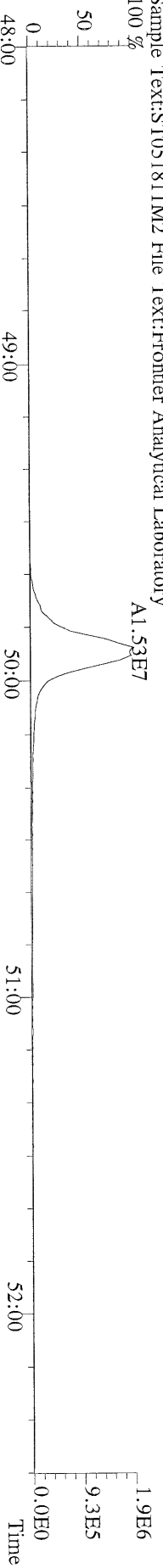
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 441.7428 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



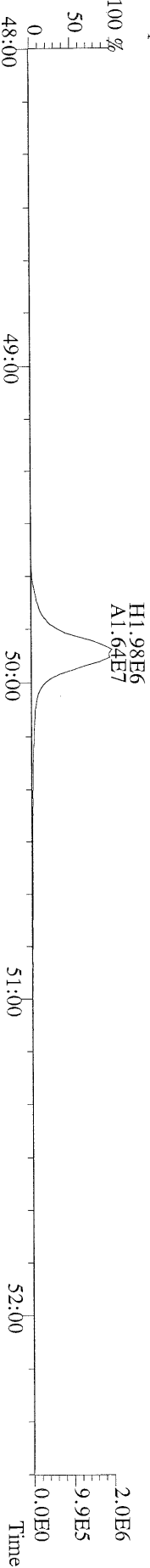
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 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory



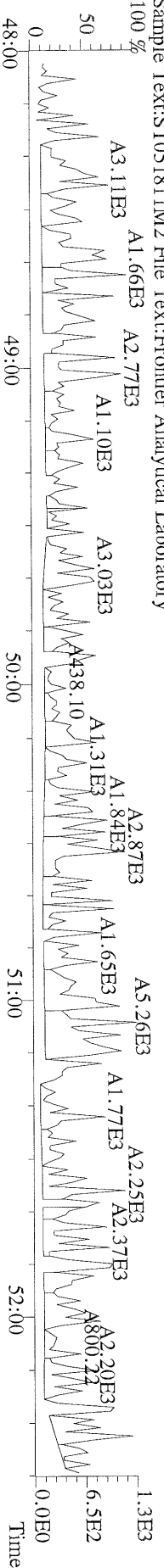
File:18MAY11M #1-347 Acq:18-MAY-2011 20:03:51 GC EI+ Voltage SIR Autospec-Ultima
 453.7831 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory

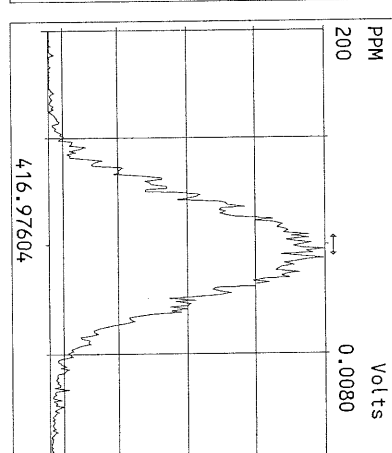
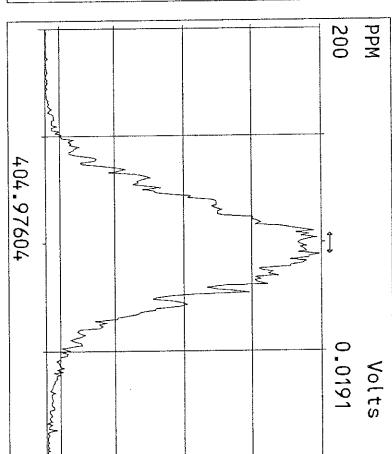
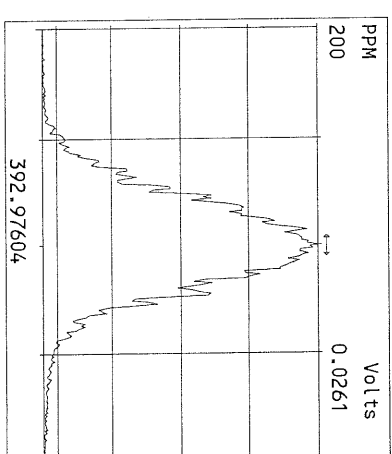
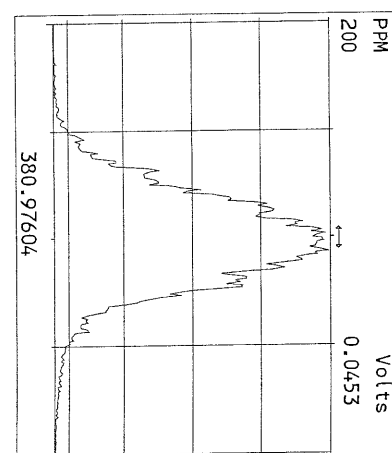
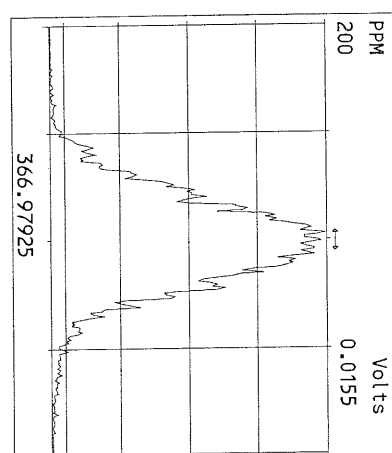
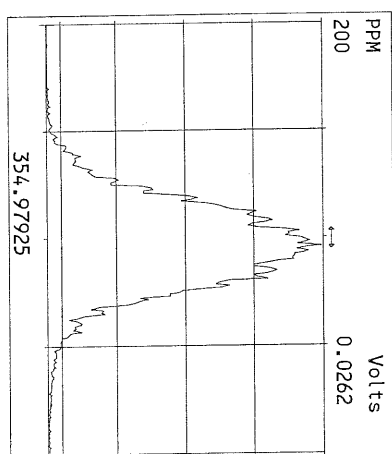
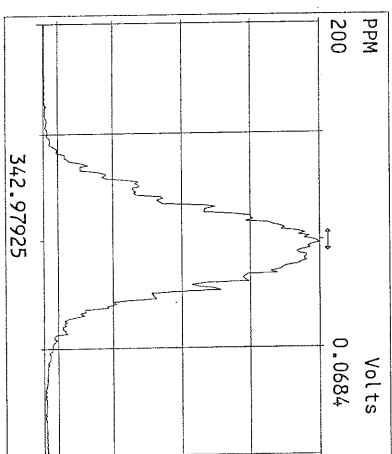
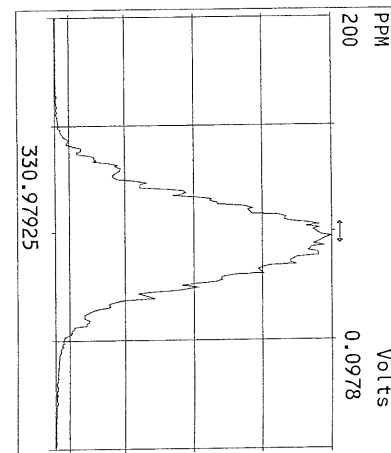
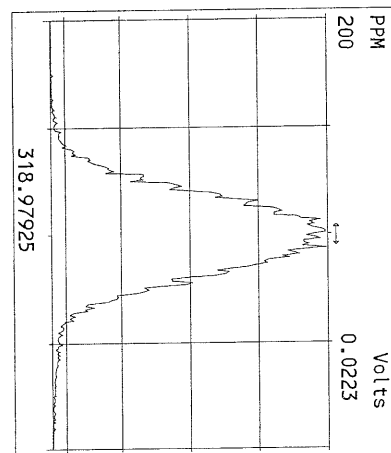
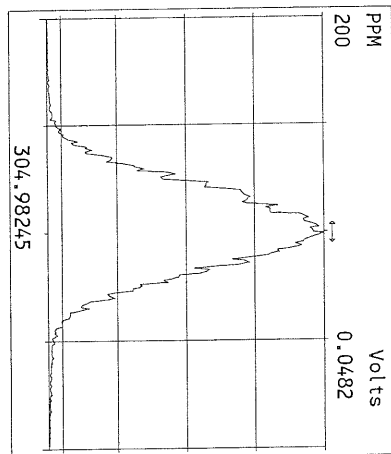
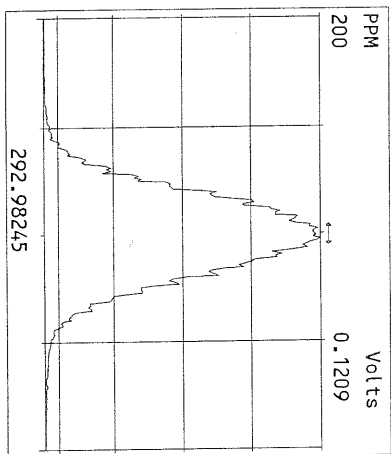


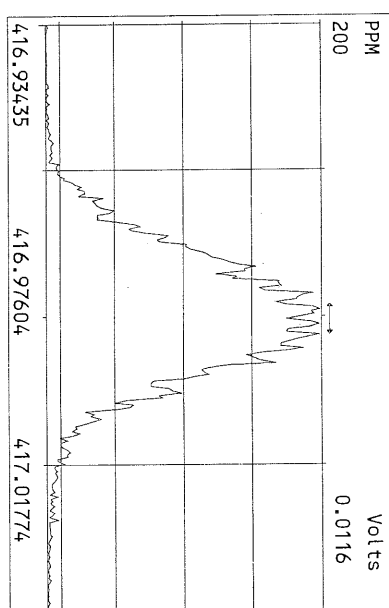
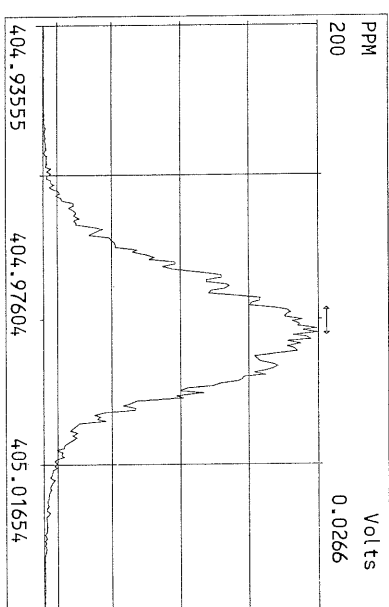
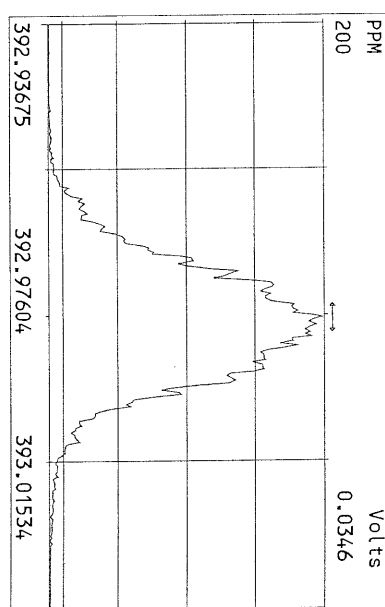
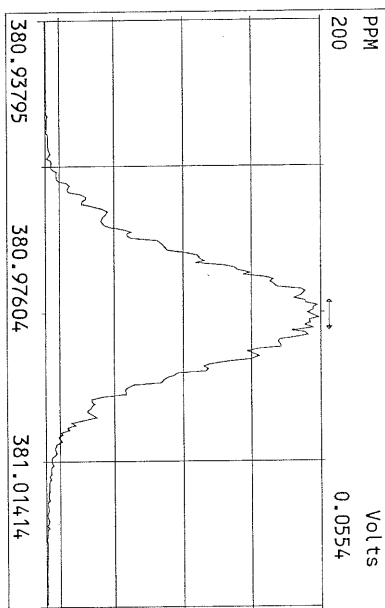
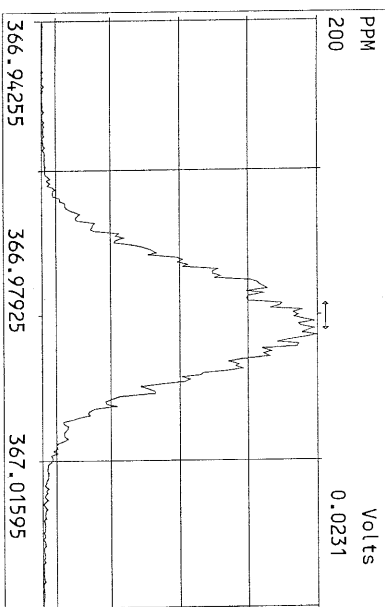
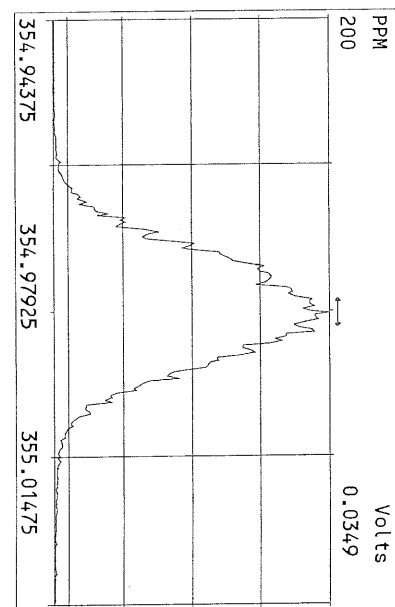
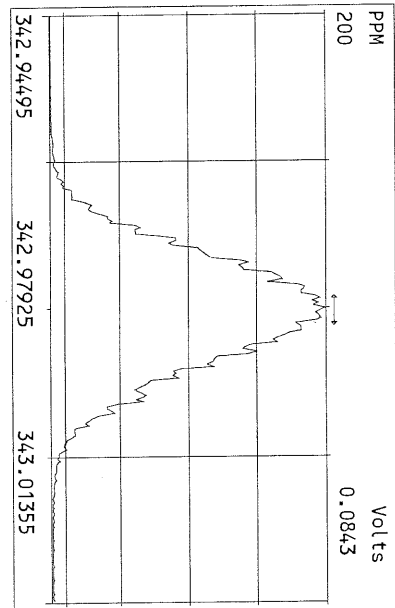
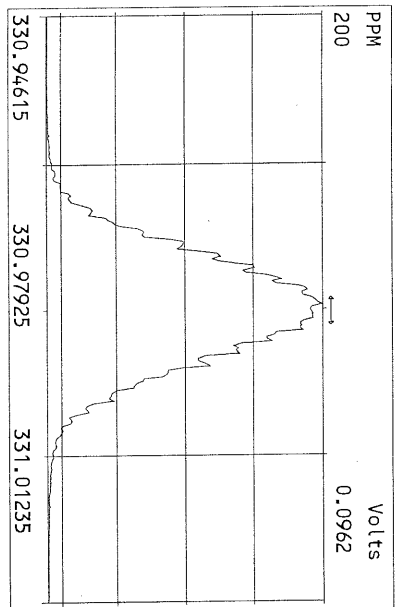
File:18MAY11M #1-347 Acq:18-MAY-2011 20:03:51 GC EI+ Voltage SIR Autospec-Ultima
 455.7801 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory

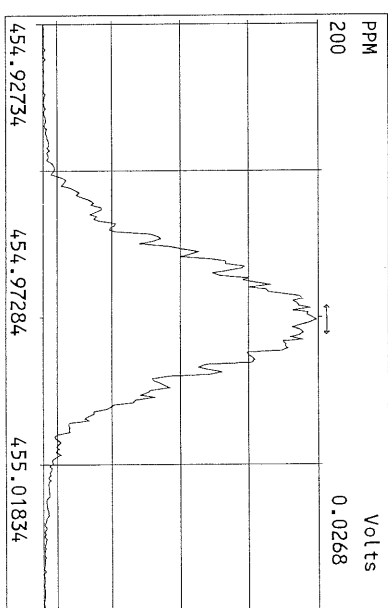
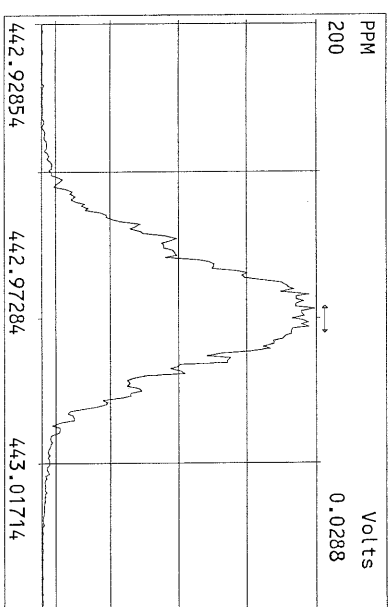
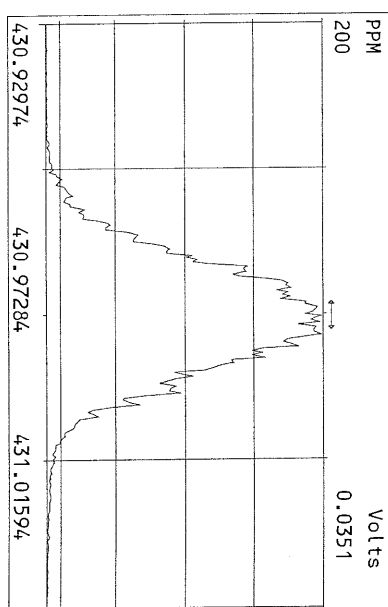
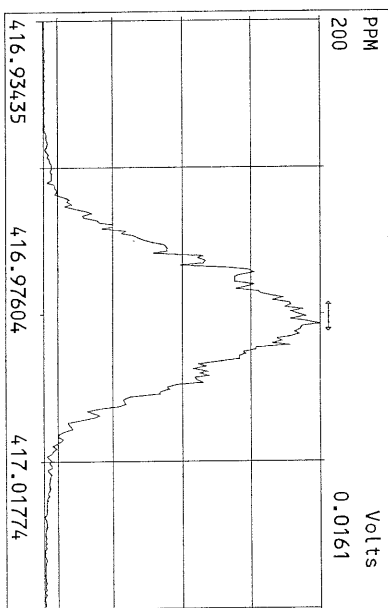
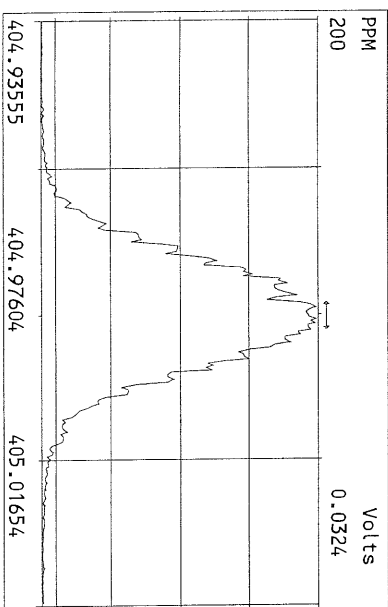
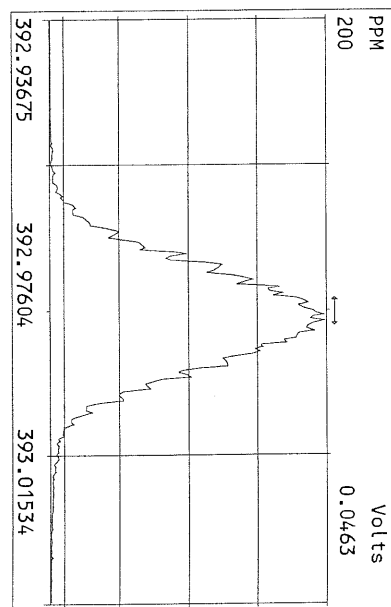
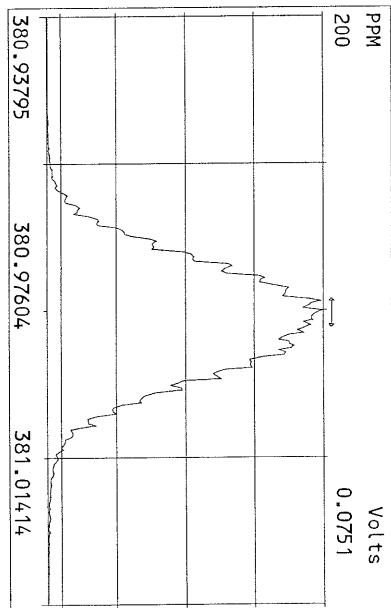
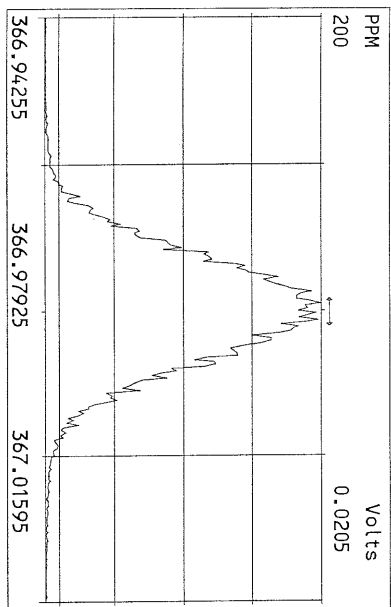


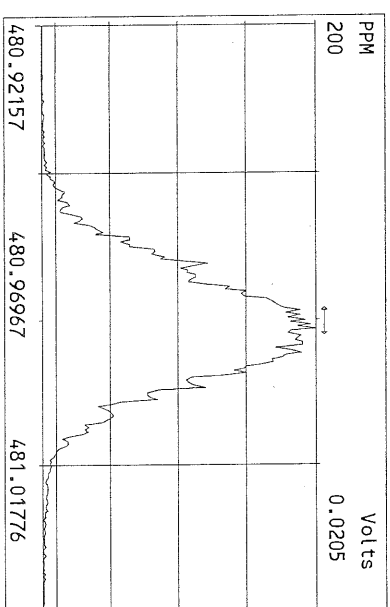
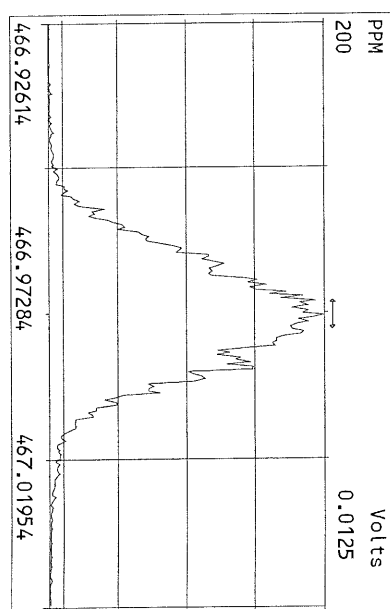
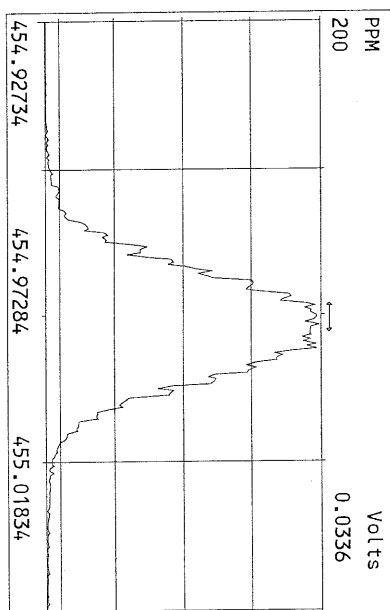
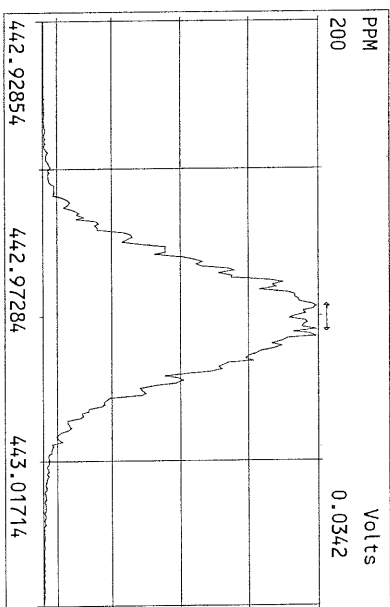
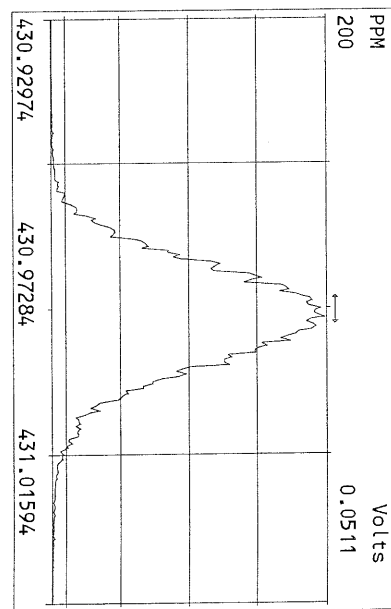
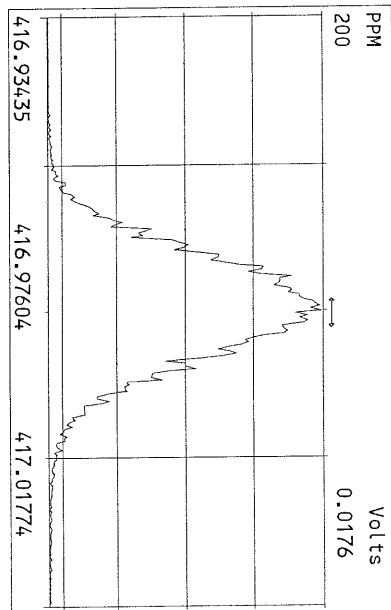
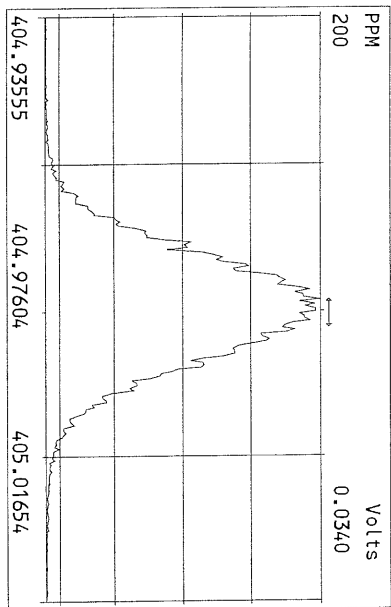
File:18MAY11M #1-347 Acq:18-MAY-2011 20:03:51 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051811M2 File Text:Frontier Analytical Laboratory

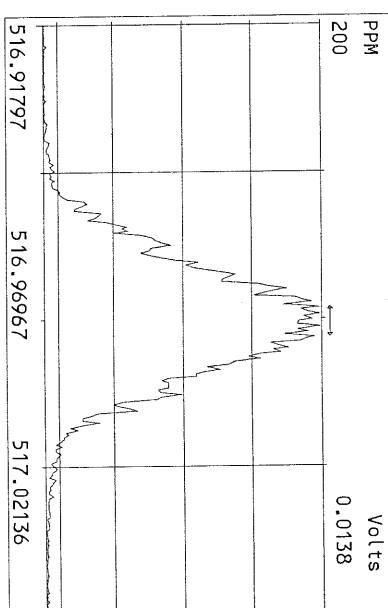
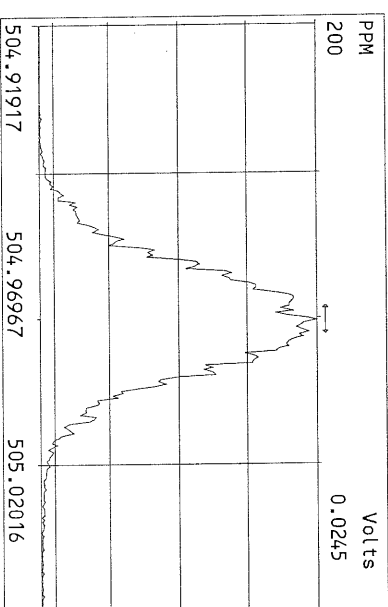
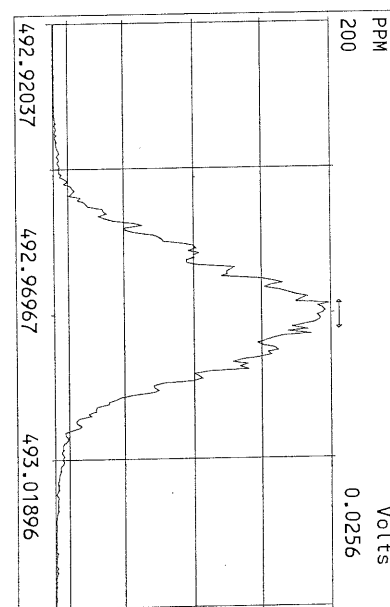
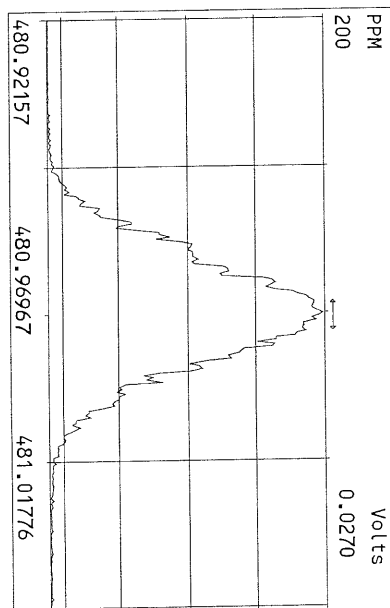
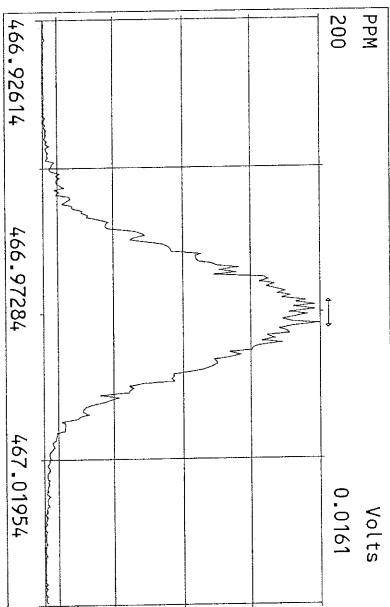
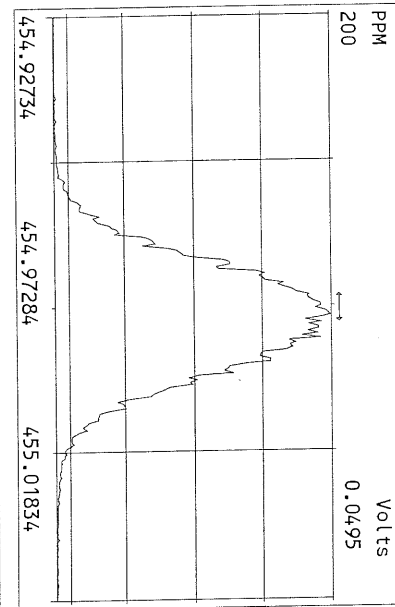
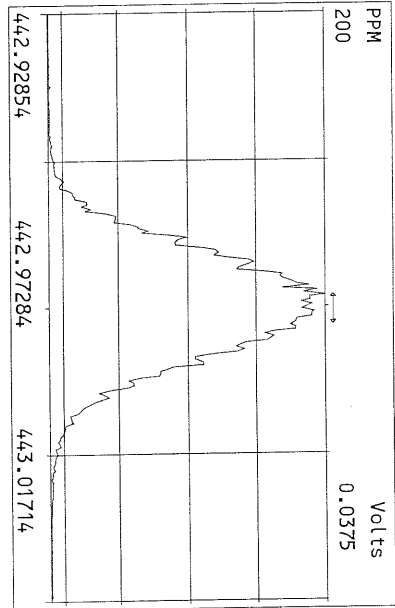
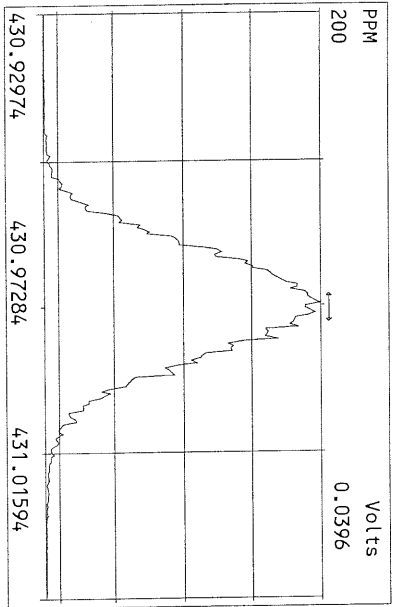












May 20, 2011

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 **6743**. This corresponds to your **Lora Lake Apts RI** project under ARI project number **SU73**. Two aqueous samples were received on 5/4/2011 in good condition. These samples were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. 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 **6743**.

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 photo. 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 **6743**, 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: 6743

Received on: 05/04/2011

Project Due: 05/26/2011 Storage: R1

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time	Hold Time Due Date
6743-001-SA	1	SU73	MW-01-042911	EPA 1613 D/F	Aqueous	04/29/2011	09:55 am	04/30/2012
6743-002-SA	1	SU73	MW-01-042911-D	EPA 1613 D/F	Aqueous	04/29/2011	10:00 am	04/30/2012

EPA Method 1613
PCDD/F



FAL ID: 6743-001-MB
Client ID: Method Blank
Matrix: Aqueous
Batch No: X2294

Date Extracted: 05-18-2011
Date Received: NA
Amount: 1.000 L

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

Acquired: 05-19-2011
2005 WHO TEQ: 0.00

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	1.07		-	0.215				
1,2,3,7,8-PeCDD	ND	2.04		-	0.317				
1,2,3,4,7,8-HxCDD	ND	2.42		-	0.326				
1,2,3,6,7,8-HxCDD	ND	3.16		-	0.424	Total TCDD	ND	1.07	
1,2,3,7,8,9-HxCDD	ND	2.71		-	0.367	Total PeCDD	ND	2.04	
1,2,3,4,6,7,8-HpCDD	ND	3.57		-	0.497	Total HxCDD	ND	3.16	
OCDD	ND	7.45		-	1.41	Total HpCDD	ND	3.57	
2,3,7,8-TCDF	ND	0.953		-	0.209				
1,2,3,7,8-PeCDF	ND	1.49		-	0.235				
2,3,4,7,8-PeCDF	ND	1.56		-	0.243				
1,2,3,4,7,8-HxCDF	ND	1.77		-	0.255				
1,2,3,6,7,8-HxCDF	ND	1.76		-	0.248				
2,3,4,6,7,8-HxCDF	ND	1.92		-	0.262				
1,2,3,7,8,9-HxCDF	ND	2.00		-	0.258	Total TCDF	ND	0.953	
1,2,3,4,6,7,8-HpCDF	ND	2.42		-	0.324	Total PeCDF	ND	1.56	
1,2,3,4,7,8,9-HpCDF	ND	3.99		-	0.490	Total HxCDF	ND	2.00	
OCDF	ND	5.70		-	0.805	Total HpCDF	ND	3.99	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	76.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	70.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	73.0	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	75.6	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	74.1	23.0 - 140	
13C-OCDD	60.0	17.0 - 157	
13C-2,3,7,8-TCDF	78.2	24.0 - 169	
13C-1,2,3,7,8-PeCDF	74.6	24.0 - 185	
13C-2,3,4,7,8-PeCDF	75.8	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	77.4	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	77.0	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	76.5	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	65.8	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	69.9	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	60.7	26.0 - 138	
13C-OCDF	54.3	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: [Signature]
Date: 5/20/11

Reviewed By: [Signature]
Date: 5/20/11

EPA Method 1613
PCDD/F



FAL ID: 6743-001-OPR
Client ID: OPR
Matrix: Aqueous
Batch No: X2294

Date Extracted: 05-18-2011
Date Received: NA
Amount: 1.000 L

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

Acquired: 05-19-2011
2005 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	11.1	6.70 - 15.8	
1,2,3,7,8-PeCDD	58.0	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	52.9	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	55.9	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	54.7	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	55.3	35.0 - 70.0	
OCDD	107	78.0 - 144	
2,3,7,8-TCDF	12.3	7.50 - 15.8	
1,2,3,7,8-PeCDF	54.5	40.0 - 67.0	
2,3,4,7,8-PeCDF	53.2	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	51.3	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	52.3	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	51.8	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	51.2	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	51.0	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	52.5	39.0 - 69.0	
OCDF	102	63.0 - 170	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	88.7	20.0 - 175	
13C-1,2,3,7,8-PeCDD	79.9	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	88.9	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	90.7	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	98.0	26.0 - 166	
13C-OCDD	86.7	13.0 - 198	
13C-2,3,7,8-TCDF	81.6	22.0 - 152	
13C-1,2,3,7,8-PeCDF	87.7	21.0 - 192	
13C-2,3,4,7,8-PeCDF	79.9	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	98.9	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	97.1	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	84.8	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	83.7	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	96.8	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	86.5	20.0 - 186	
13C-OCDF	80.8	13.0 - 198	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	87.9	31.0 - 191	
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- 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: [Signature]
Date: 5/20/11

Reviewed By: [Signature]
Date: 5/20/11

EPA Method 1613
PCDD/F



FAL ID: 6743-001-SA
Client ID: MW-01-042911
Matrix: Aqueous
Batch No: X2294

Date Extracted: 05-18-2011
Date Received: 05-04-2011
Amount: 0.960 L

Ical: PCDDFAL3-3-7-11
GC Column: DB5
Units: pg/L

Acquired: 05-19-2011
2005 WHO TEQ: 24.1

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	2.27	-		2.27	0.215				
1,2,3,7,8-PeCDD	4.97	-	J	4.97	0.317				
1,2,3,4,7,8-HxCDD	4.05	-	J	0.405	0.326				
1,2,3,6,7,8-HxCDD	27.1	-		2.71	0.424	Total TCDD	11.2	-	
1,2,3,7,8,9-HxCDD	11.8	-		1.18	0.367	Total PeCDD	150	-	
1,2,3,4,6,7,8-HpCDD	599	-		5.99	0.497	Total HxCDD	322	-	
OCDD	8430	-		2.53	1.41	Total HpCDD	1290	-	
2,3,7,8-TCDF	ND	1.56		-	0.209				
1,2,3,7,8-PeCDF	14.6	-	J	0.438	0.235				
2,3,4,7,8-PeCDF	3.23	-	J	0.969	0.243				
1,2,3,4,7,8-HxCDF	4.20	-	J	0.420	0.255				
1,2,3,6,7,8-HxCDF	6.06	-	J	0.606	0.248				
2,3,4,6,7,8-HxCDF	7.38	-	J	0.738	0.262				
1,2,3,7,8,9-HxCDF	2.04	-	J	0.204	0.258	Total TCDF	333	-	D,M
1,2,3,4,6,7,8-HpCDF	54.3	-		0.543	0.324	Total PeCDF	547	-	D,M
1,2,3,4,7,8,9-HpCDF	6.30	-	J	0.0630	0.490	Total HxCDF	183	-	D,M
OCDF	207	-		0.0621	0.805	Total HpCDF	197	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	81.1	25.0 - 164	
13C-1,2,3,7,8-PeCDD	79.8	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	86.7	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	90.6	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	103	23.0 - 140	
13C-OCDD	96.0	17.0 - 157	
13C-2,3,7,8-TCDF	83.7	24.0 - 169	
13C-1,2,3,7,8-PeCDF	91.4	24.0 - 185	
13C-2,3,4,7,8-PeCDF	90.2	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	87.0	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	87.7	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	87.1	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	80.8	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	93.7	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	88.1	26.0 - 138	
13C-OCDF	84.6	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD 78.3 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: [Signature]

Date: 5/20/11

Reviewed By: [Signature]

Date: 5/20/11

EPA Method 1613
PCDD/F



FAL ID: 6743-002-SA
Client ID: MW-01-042911-D
Matrix: Aqueous
Batch No: X2294

Date Extracted: 05-18-2011
Date Received: 05-04-2011
Amount: 1.005 L

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

Acquired: 05-19-2011
2005 WHO TEQ: 11.2

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	1.17		-	0.215				
1,2,3,7,8-PeCDD	1.50	-	J	1.50	0.317				
1,2,3,4,7,8-HxCDD	2.91	-	J	0.291	0.326				
1,2,3,6,7,8-HxCDD	16.0	-	J	1.60	0.424	Total TCDD	2.30	-	J
1,2,3,7,8,9-HxCDD	6.43	-	J	0.643	0.367	Total PeCDD	76.8	-	
1,2,3,4,6,7,8-HpCDD	305	-		3.05	0.497	Total HxCDD	183	-	
OCDD	3520	-		1.06	1.41	Total HpCDD	638	-	
2,3,7,8-TCDF	ND	1.25		-	0.209				
1,2,3,7,8-PeCDF	13.1	-	J	0.393	0.235				
2,3,4,7,8-PeCDF	2.50	-	J	0.750	0.243				
1,2,3,4,7,8-HxCDF	2.58	-	J	0.258	0.255				
1,2,3,6,7,8-HxCDF	4.42	-	J	0.442	0.248				
2,3,4,6,7,8-HxCDF	6.34	-	J	0.634	0.262				
1,2,3,7,8,9-HxCDF	2.11	-	J	0.211	0.258	Total TCDF	248	-	D,M
1,2,3,4,6,7,8-HpCDF	31.8	-		0.318	0.324	Total PeCDF	508	-	D,M
1,2,3,4,7,8,9-HpCDF	4.16	-	J	0.0416	0.490	Total HxCDF	103	-	D,M
OCDF	113	-		0.0339	0.805	Total HpCDF	119	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	87.2	25.0 - 164	
13C-1,2,3,7,8-PeCDD	84.2	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	92.6	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	98.7	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	109	23.0 - 140	
13C-OCDD	99.2	17.0 - 157	
13C-2,3,7,8-TCDF	93.1	24.0 - 169	
13C-1,2,3,7,8-PeCDF	99.2	24.0 - 185	
13C-2,3,4,7,8-PeCDF	96.8	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	93.6	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	95.7	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	93.7	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	88.5	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	95.5	26.0 - 138	
13C-OCDF	87.4	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD 77.8 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
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- 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: E

Date: 5/20/11

Reviewed By: J

Date: 5/20/11

SUBCONTRACTOR ANALYSIS REQUEST
 CUSTODY TRANSFER 04/29/11



6743
OK

ARI Project: SU73

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

ARI Client: Floyd Snider
 Project ID: Lora Lake Apts RI
 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): **email**

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 successors, 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, notwithstanding 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
11-9762-SU73A	MW-01-042911	04/29/11 09:55	Water	2	Dioxin/Furans 1613(Sub)
Special Instructions: None					
11-9763-SU73B	MW-01-042911-D	04/29/11 10:00	Water	2	Dioxin/Furans 1613(Sub)
Special Instructions: None					

Carrier	UPS	Airbill	128326950150968222	Date	5/3/11
Relinquished by	M	Company	ARI	Date	5/3/11
Received by	[Signature]	Company	FAL	Date	5/4/11
				Time	1509
				Time	10:30

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **6743**

Client:	Analytical Resources Inc. Sue Dunnihoo
Client Project ID:	SU73
Date Received:	05/04/2011
Time Received:	10:30 am
Received By:	BS
Logged In By:	KZ
# of Samples Received:	2
Duplicates:	2
Storage Location:	R1

Method of Delivery:	UPS
Tracking Number:	1Z8326950150933633
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	Yes
Thiosulfate Added	No
Earliest Sample Hold Time Expiration	04/30/2012
Adequate Sample Volume	Yes
pH Range	Between 4 and 9
Anomalies or additional comments:	
L4 & EDD	



Frontier Analytical Laboratory

EXTRACTION SHEET

Project #: 6743 Extraction Date: 2011-05-18 Extraction Chemist: GN

Method/Analysis: EPA 1613 D/F

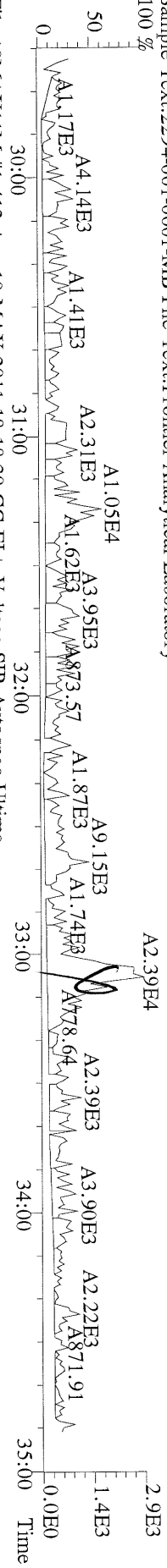
Procedure: SPE/SOX Solvent: Toluene

Sample ID	Wet wt. (g/L)	Dry wt. (g/L)	IS	NS	CSS
			Amt: 10.0uL ID: 100511A Vial: 6 Chemist/Witness/Date	Amt: 10.0uL ID: 100511B Vial: 6 Chemist/Witness/Date	Amt: 10.0uL ID: 100511C Vial: 6 Chemist/Witness/Date
2294-001-0001-MB	(1.000L)	} GN	GN \checkmark 5/18/11	NA	GN \checkmark 5/19/11
2294-001-0001-OPR	(1.000L)		↓	GN \checkmark 5/18/11	↓
6743-001-0001-SA	0.960		↓	NA	↓
6743-002-0001-SA	1.005		↓	↓	↓

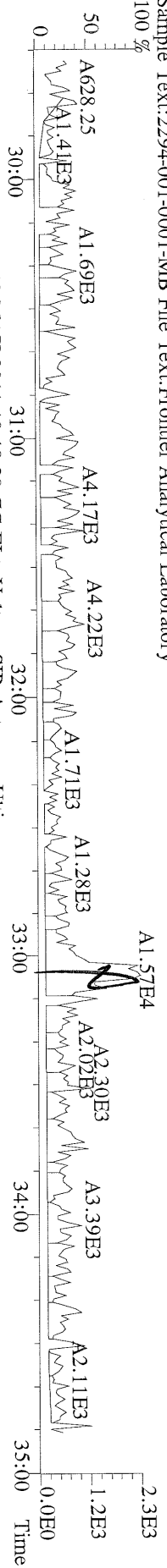
AX-21 Charcoal Cleaned	082510	Acetone	107203	Acid Alumina	A0281479	Hexane	110182
Hydrochloric Acid	B08505	Methanol	108367	Methylene Chloride (DCM)	51020	Silica Gel	TA1592834
Sodium Hydroxide	0062836	Sodium Sulfate	1750C277	Sulfuric Acid	110205	Tetradecane	086237
Toluene	108273	Water	51004	C-18 Empore Discs	320552	Cyclohexane	50204

Comments: GN 5/18/11
6743-1 OPR MB
6744-1
6744-3 6744-2 6743-2
6745 GN
6759-1 6758-1 6743-1

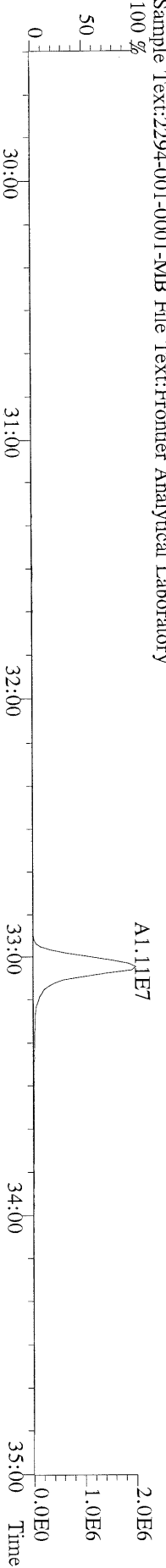
File:19MAY11M #1-412 Acq:19-MAY-2011 18:18:30 GC EI + Voltage SIR Autospec-Ultima
 355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



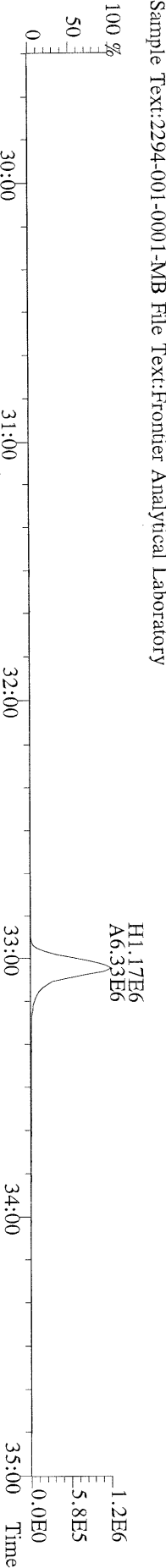
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 357.8517 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



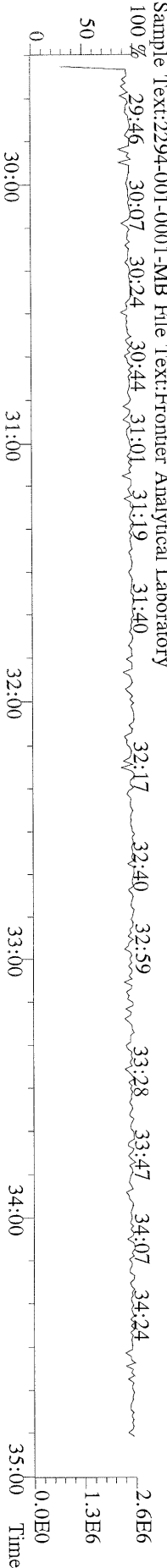
File:19MAY11M #1-412 Acq:19-MAY-2011 18:18:30 GC EI + Voltage SIR Autospec-Ultima
 367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



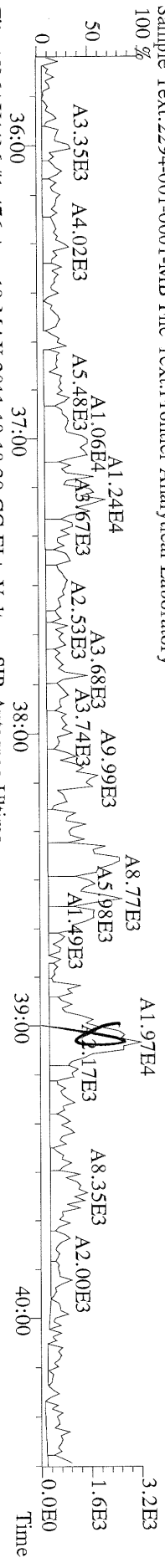
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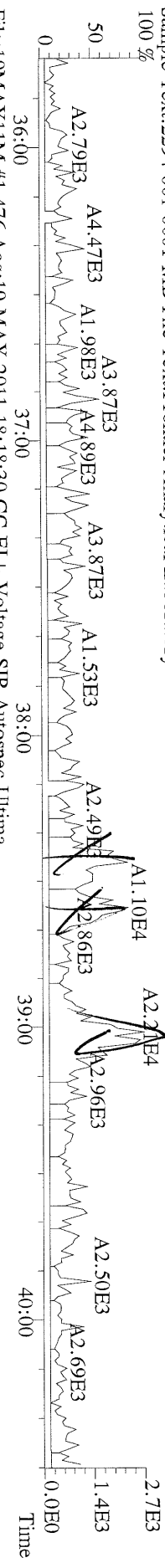
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 366.9792 S:6 F:2 Exp:OCDD
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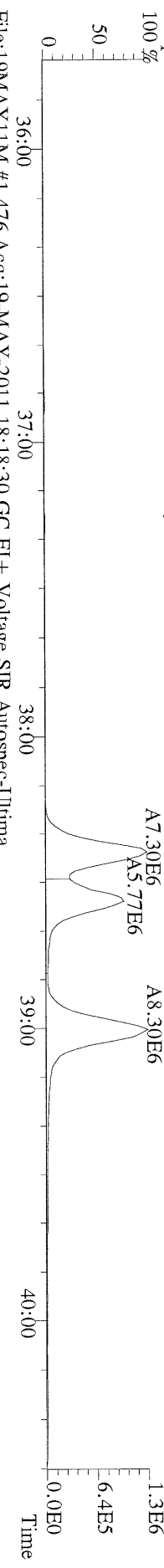
File:19MAY11M #1-476 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



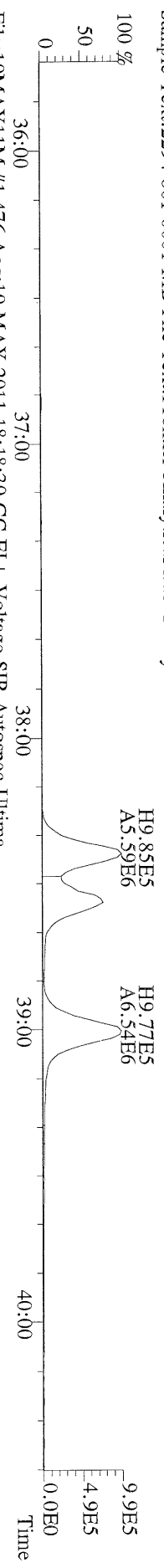
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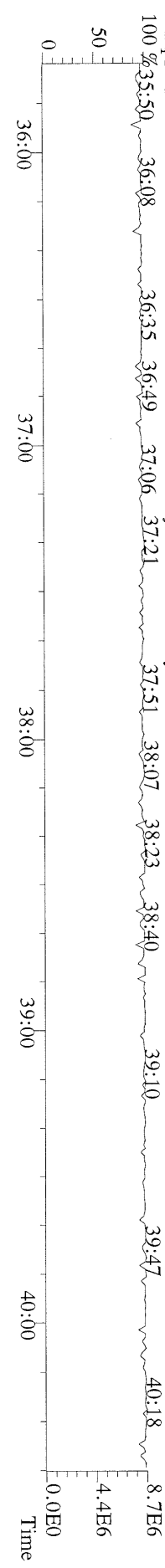
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 401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



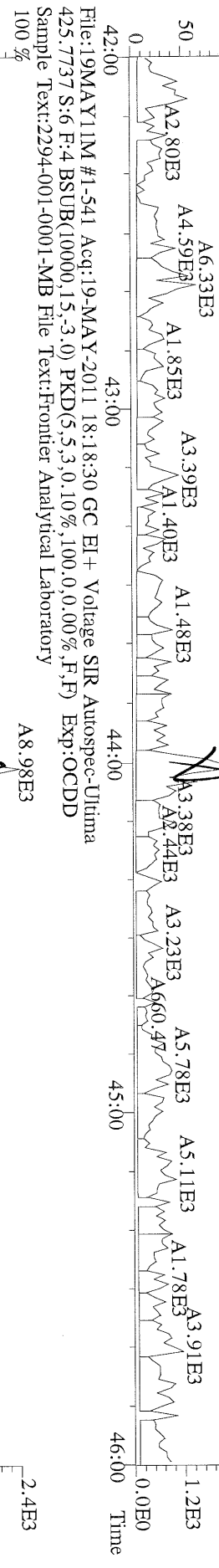
File:19MAY11M #1-476 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
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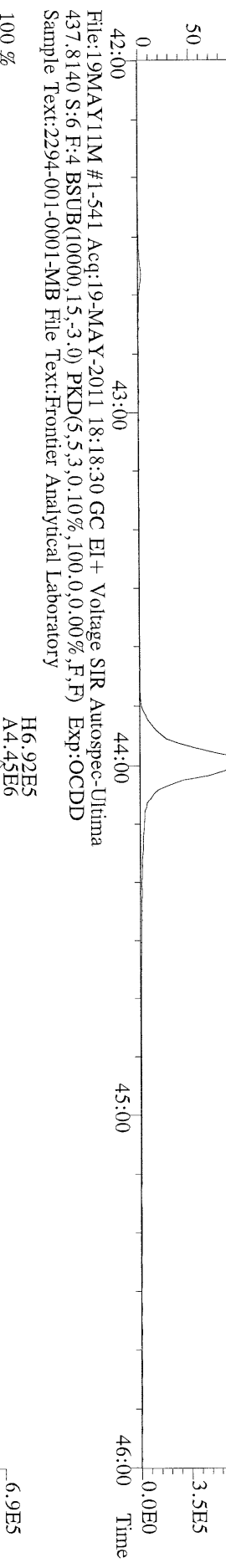
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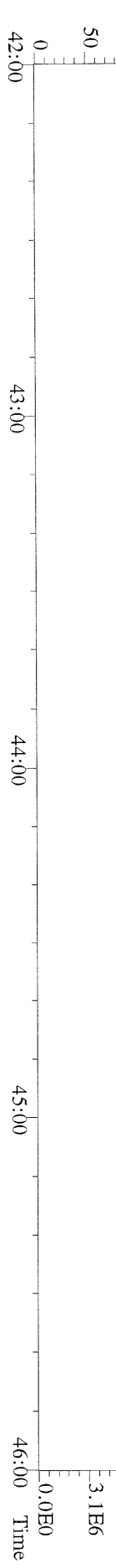
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 423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



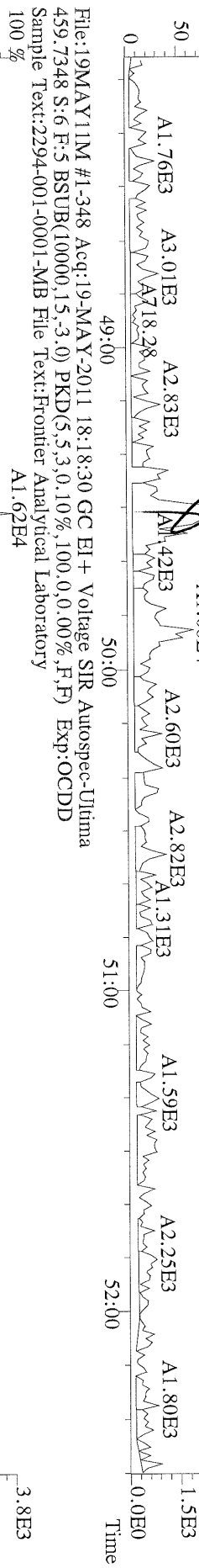
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 435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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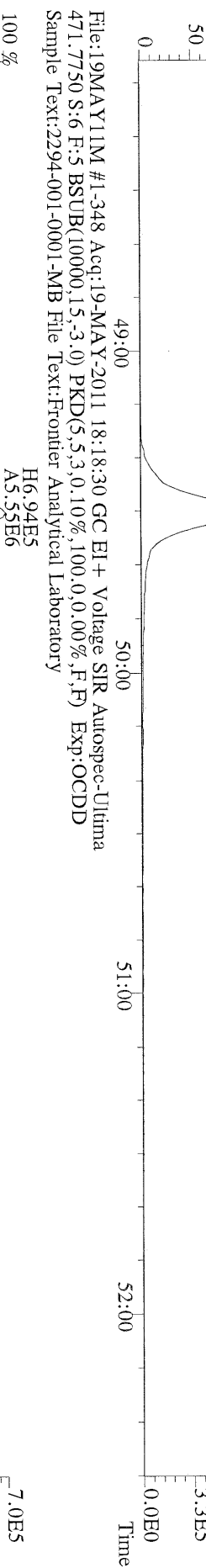
File:19MAY11M #1-541 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
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 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



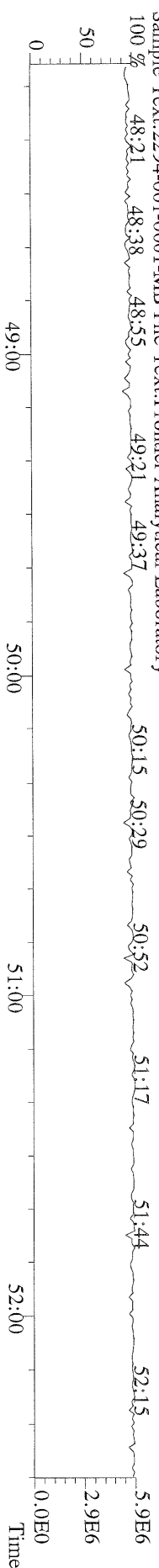
File:19MAY11M #1-348 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



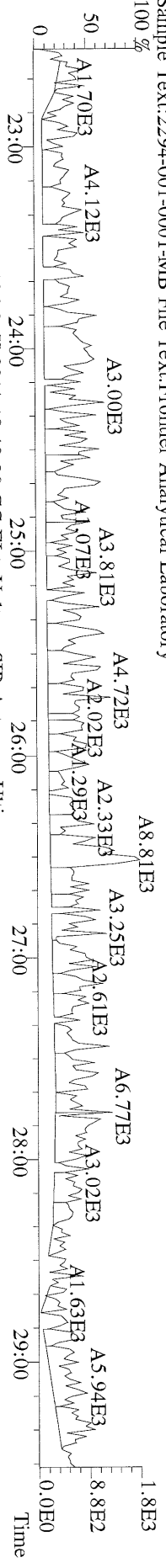
File:19MAY11M #1-348 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



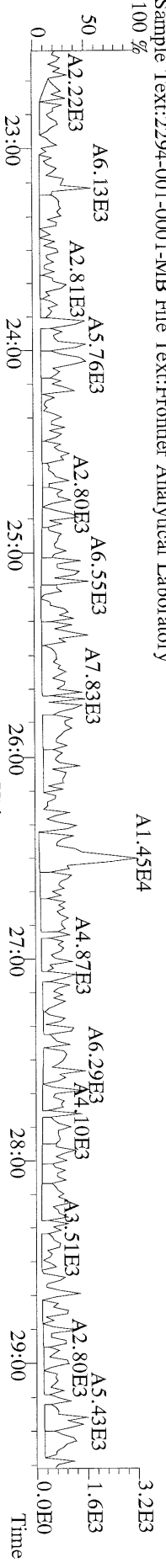
File:19MAY11M #1-348 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 454.9728 S:6 F:5 Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



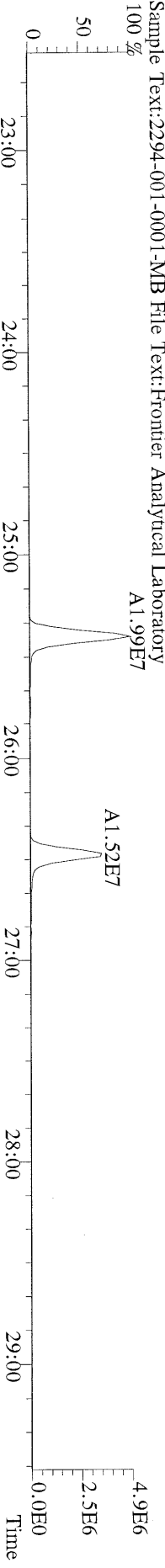
File:19MAY11M #1-426 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



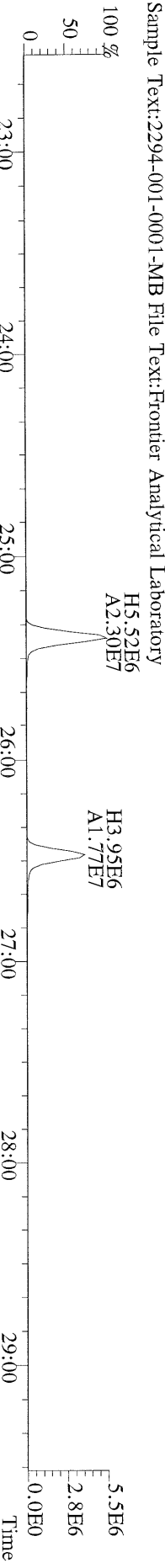
File:19MAY11M #1-426 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
 305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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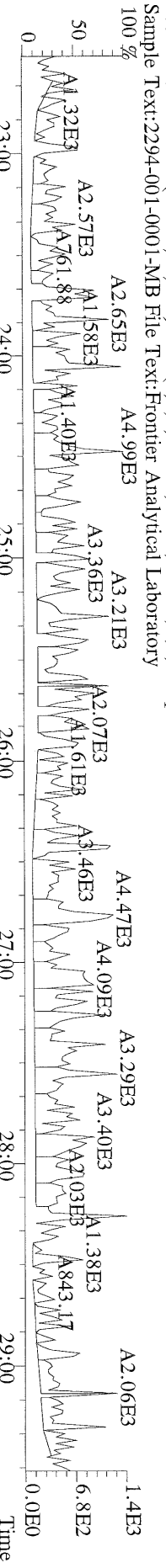
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 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



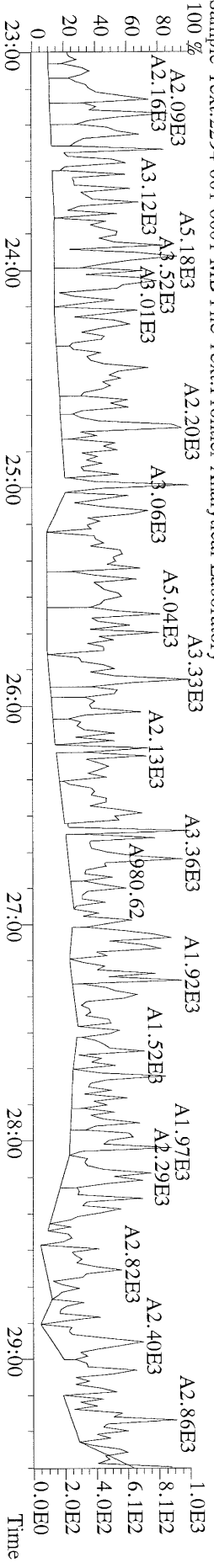
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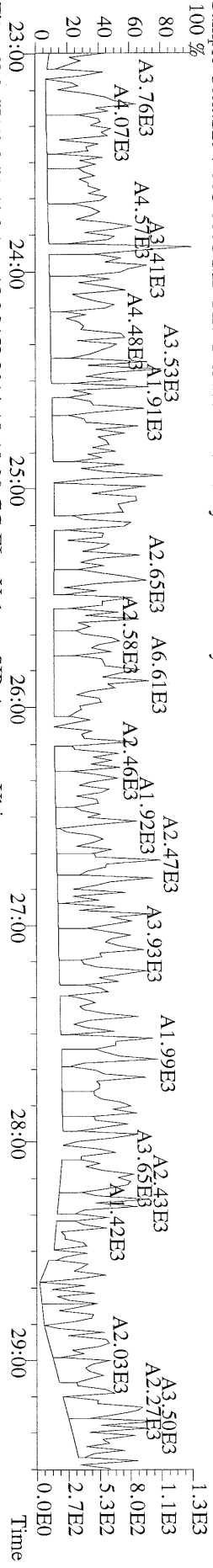
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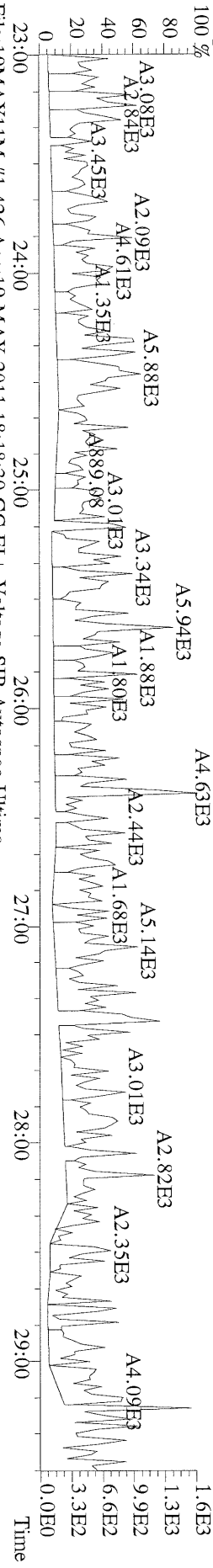
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 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



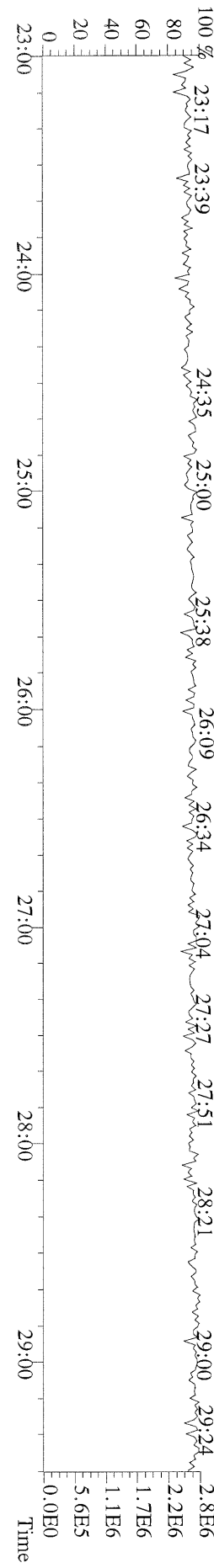
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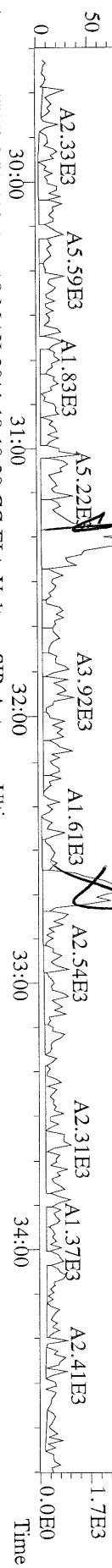
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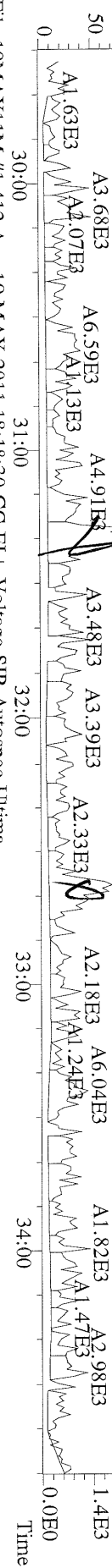
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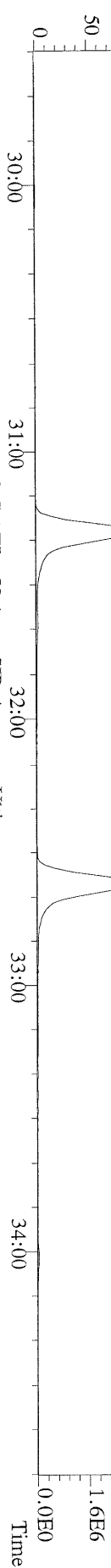
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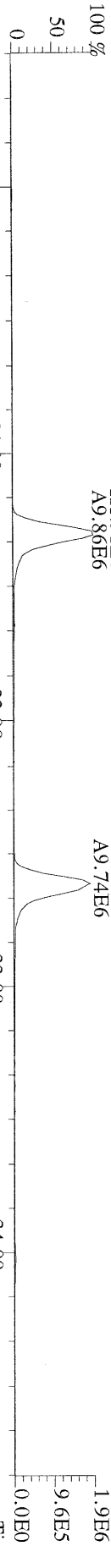
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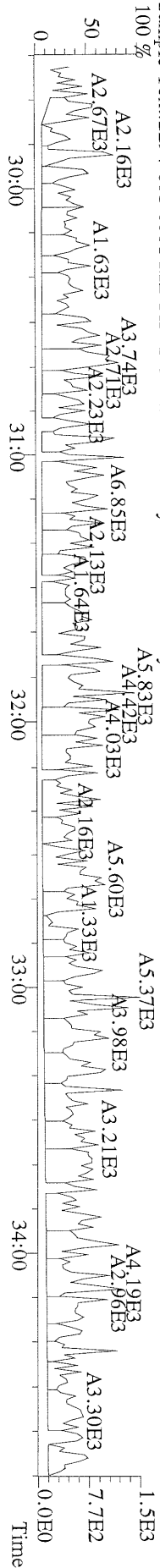
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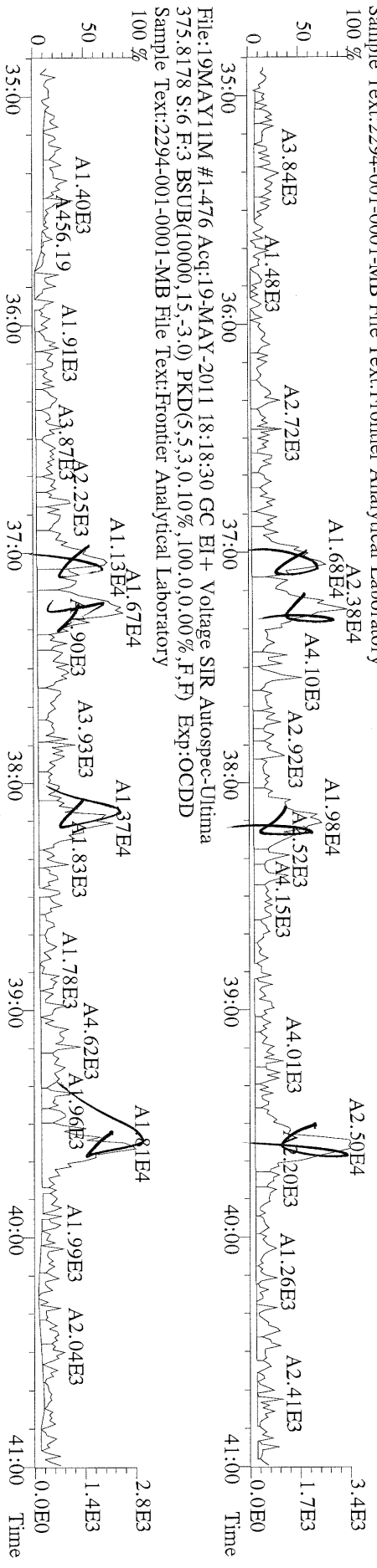
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 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



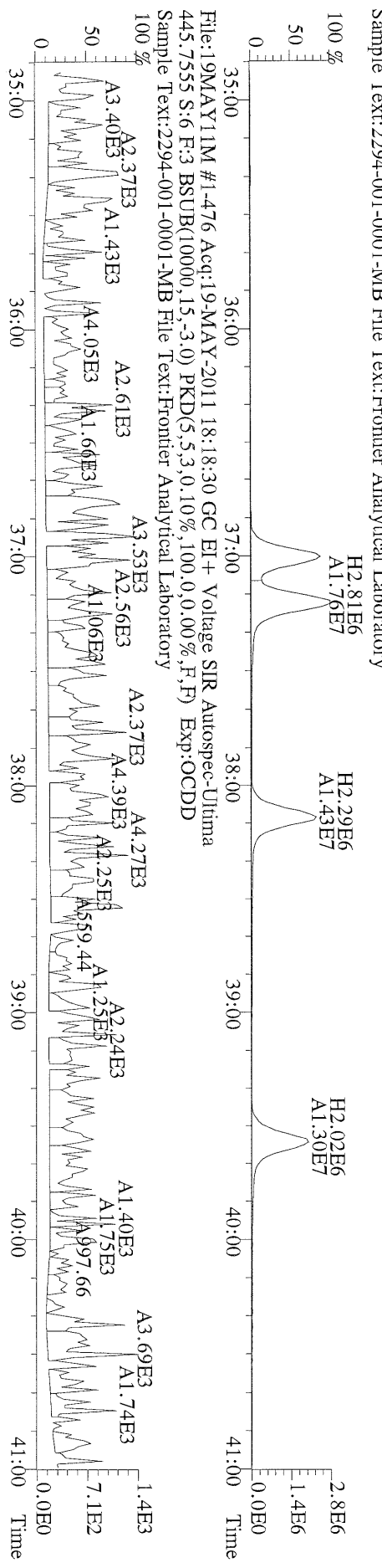
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 Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



File:19MAY11M #1-476 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



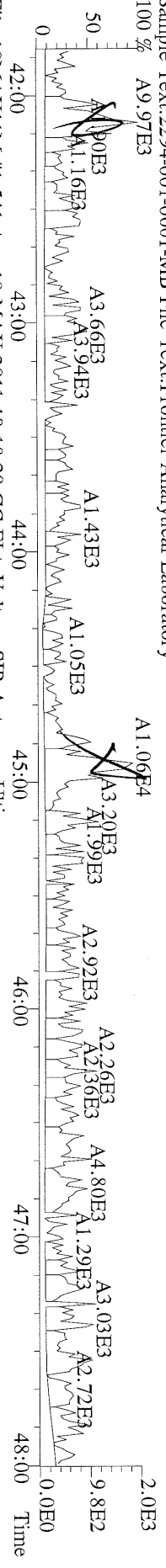
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Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



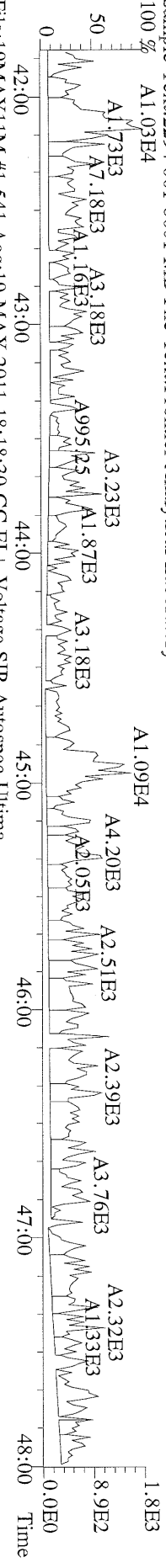
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Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



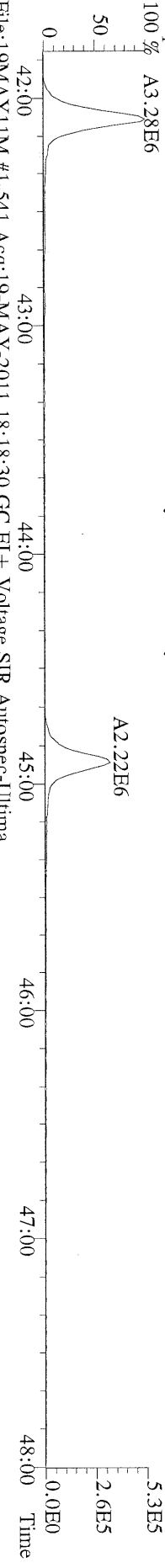
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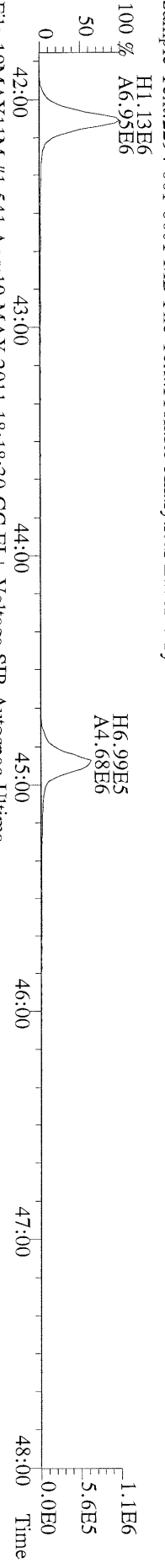
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 100 % A1.03E4



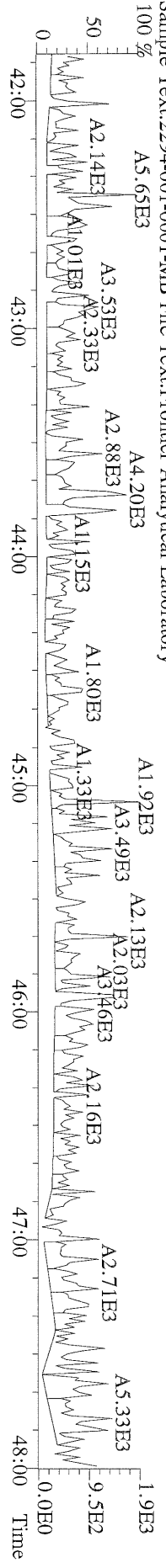
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 100 % A3.28E6



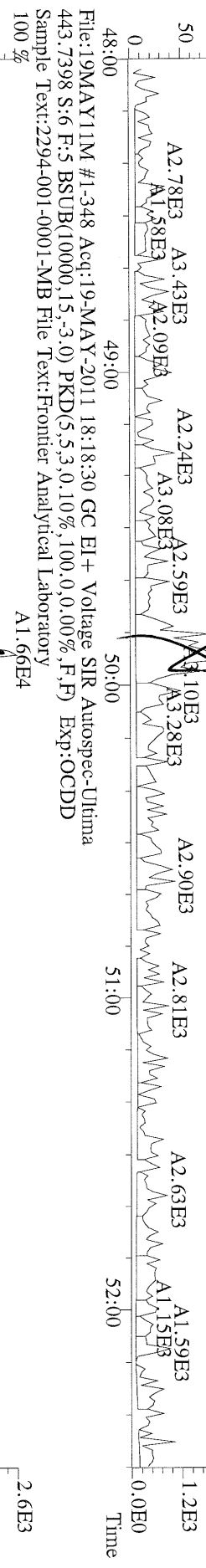
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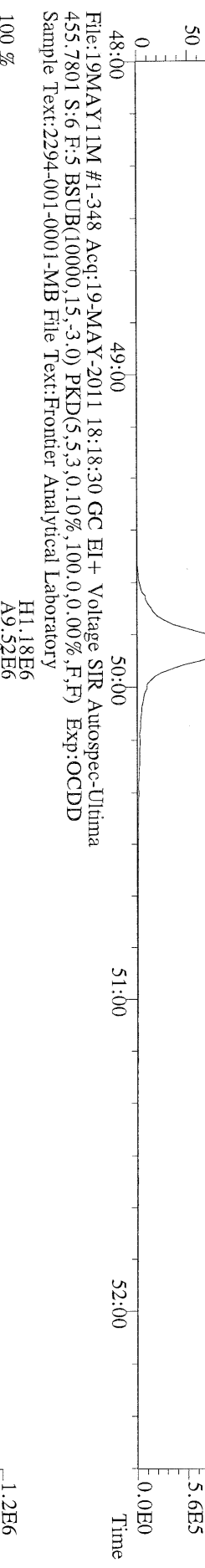
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 100 % A5.65E3



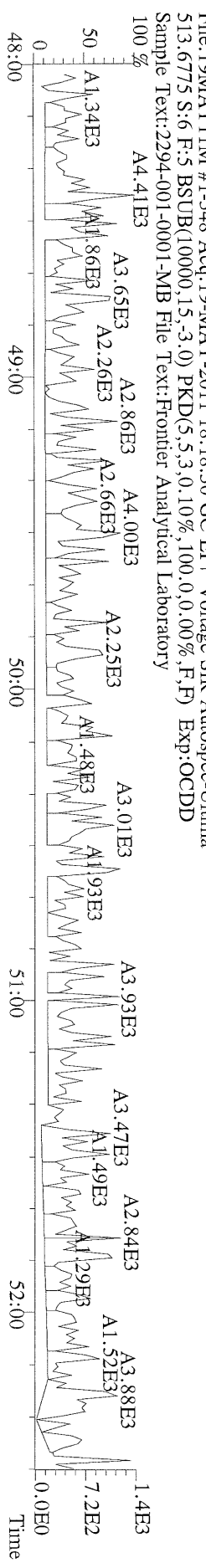
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441.7428 S:6 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



File:19MAY11M #1-348 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:6 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-MB File Text:Frontier Analytical Laboratory



File:19MAY11M #1-348 Acq:19-MAY-2011 18:18:30 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:6 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-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.:

Matrix (aqueous/solid/leachate): Aqueous OPR Data Filename: 19MAY11M Sam:5

Ext. Date: 5/18/11 Shift: Day Analysis Date: 19-MAY-11 17:23:07

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	11.1	6.70 - 15.8
1,2,3,7,8-PeCDD	50	58.0	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	52.9	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	55.9	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	54.7	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	55.3	35.0 - 70.0
OCDD	100	107	78.0 - 144
2,3,7,8-TCDF	10	12.3	7.50 - 15.8
1,2,3,7,8-PeCDF	50	54.5	40.0 - 67.0
2,3,4,7,8-PeCDF	50	53.2	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	51.3	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	52.3	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	51.8	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	51.2	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	51.0	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	52.5	39.0 - 69.0
OCDF	100	102	63.0 - 170

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

Analyst: 

Date: 5/20/11

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): Aqueous OPR Data Filename: 19MAY11M Sam:5

Ext. Date: 5/18/11 Shift: Day Analysis Date: 19-MAY-11 17:23:07

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

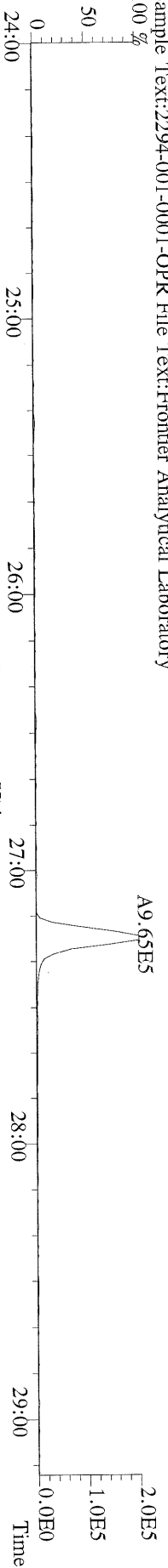
	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	100	88.7	20.0 - 175
13C-1,2,3,7,8-PeCDD	100	79.9	21.0 - 227
13C-1,2,3,4,7,8-HxCDD	100	88.9	21.0 - 193
13C-1,2,3,6,7,8-HxCDD	100	90.7	25.0 - 163
13C-1,2,3,4,6,7,8-HpCDD	100	98.0	26.0 - 166
13C-OCDD	200	173	26.0 - 397
13C-2,3,7,8-TCDF	100	81.6	22.0 - 152
13C-1,2,3,7,8-PeCDF	100	87.7	21.0 - 192
13C-2,3,4,7,8-PeCDF	100	79.9	13.0 - 328
13C-1,2,3,4,7,8-HxCDF	100	98.9	19.0 - 202
13C-1,2,3,6,7,8-HxCDF	100	97.1	21.0 - 159
13C-2,3,4,6,7,8-HxCDF	100	84.8	22.0 - 176
13C-1,2,3,7,8,9-HxCDF	100	83.7	17.0 - 205
13C-1,2,3,4,6,7,8-HpCDF	100	96.8	21.0 - 158
13C-1,2,3,4,7,8,9-HpCDF	100	86.5	20.0 - 186
13C-OCDF	200	162	26.0 - 397
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	35.2	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%.

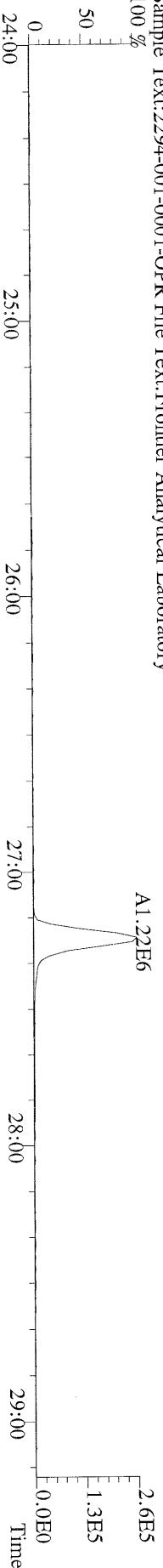
Analyst: 

Date: 

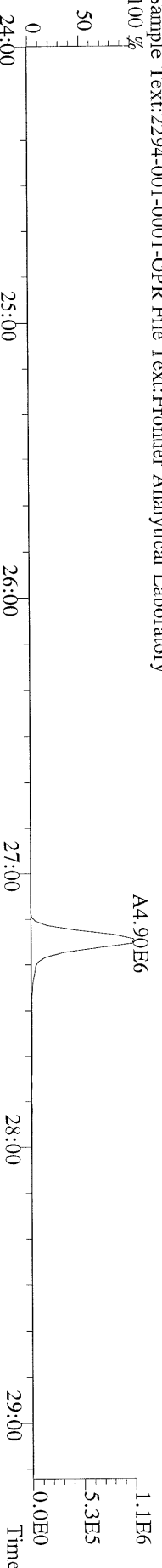
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319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



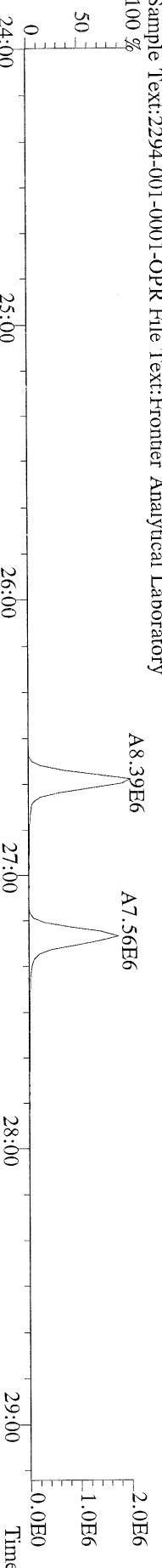
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321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



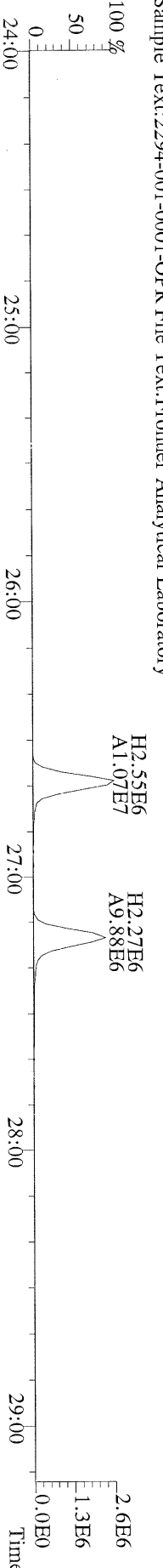
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327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



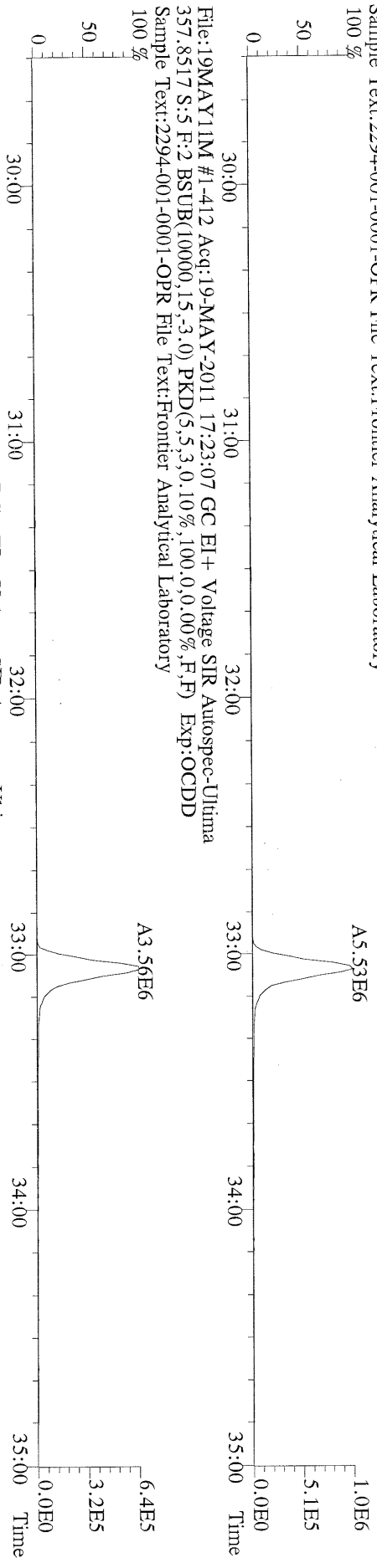
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331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



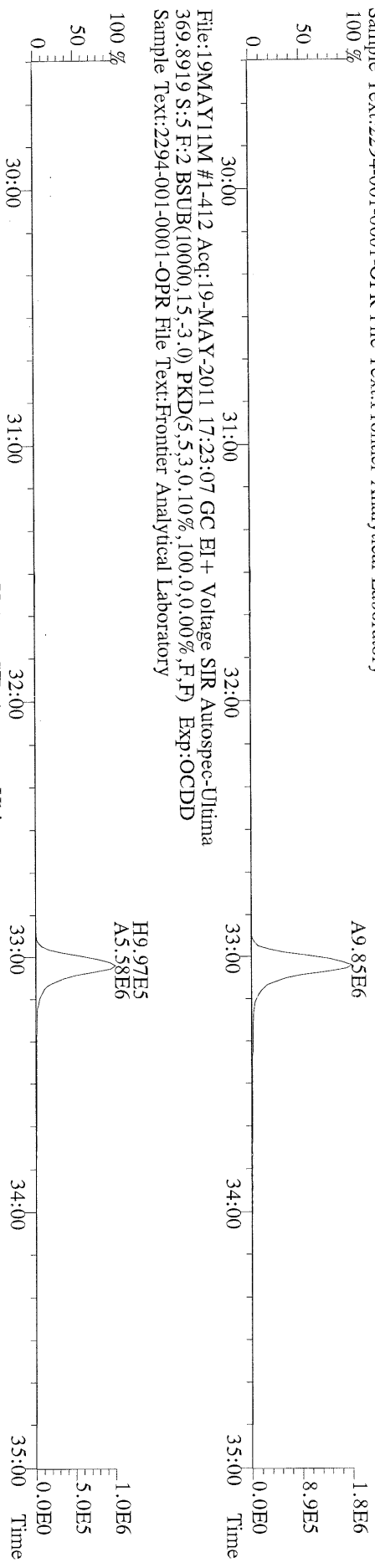
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333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



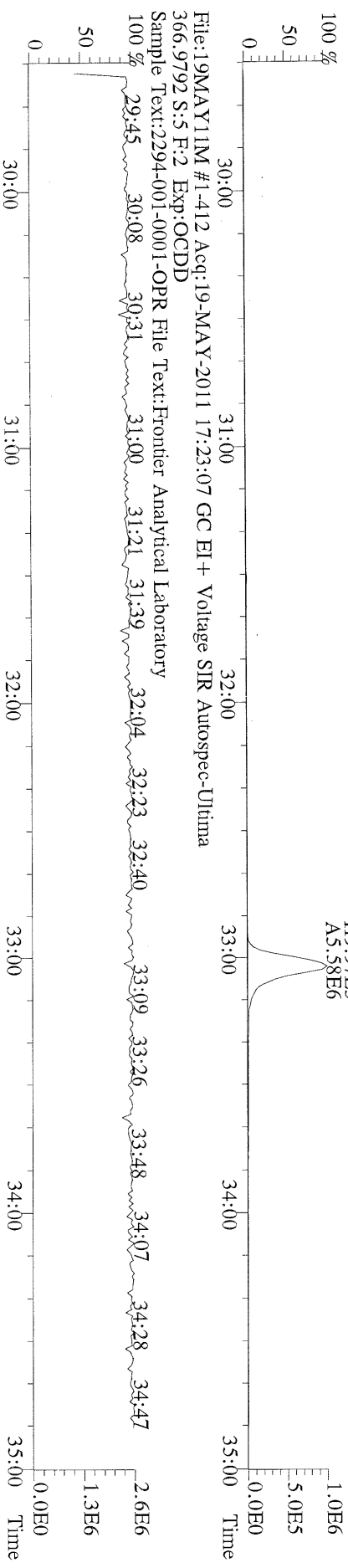
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355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



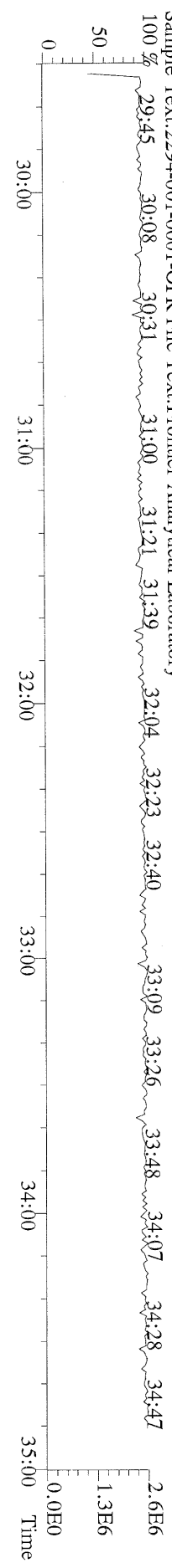
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367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



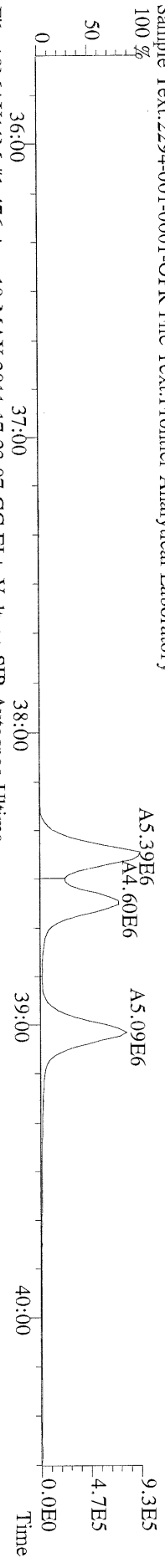
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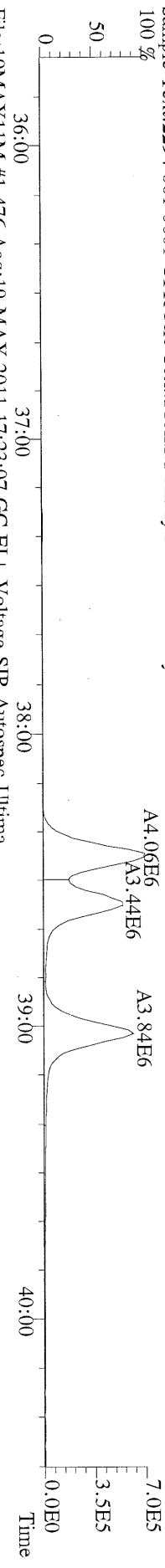
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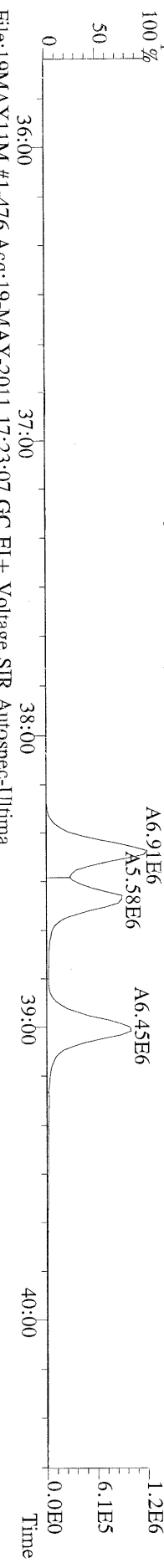
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 389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



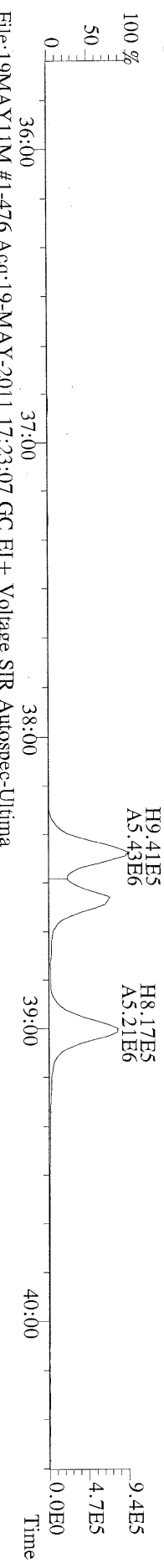
File:19MAY11M #1-476 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



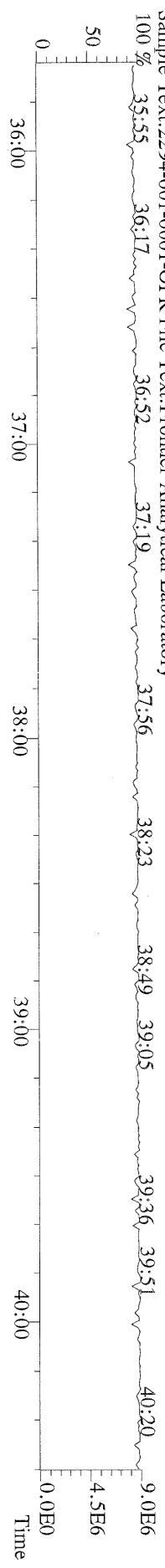
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 401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



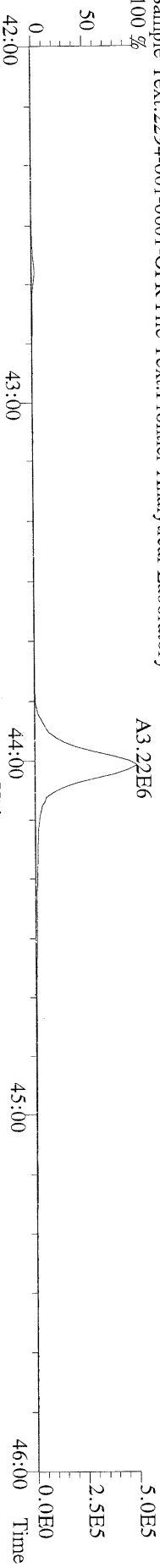
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 403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



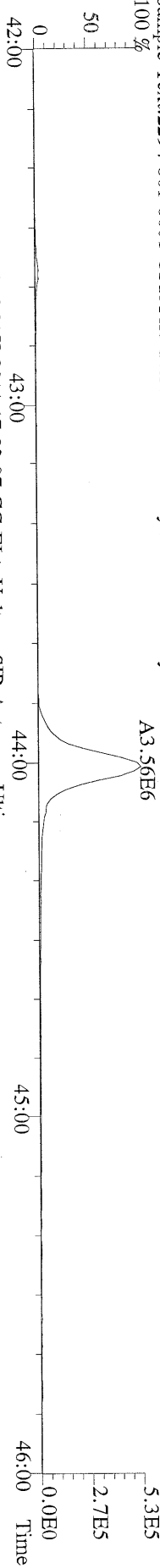
File:19MAY11M #1-476 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 380.9760 S:5 F:3 Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



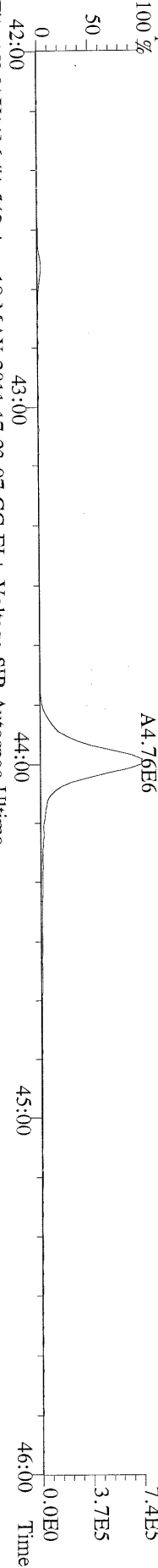
File:19MAY11M #1-542 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



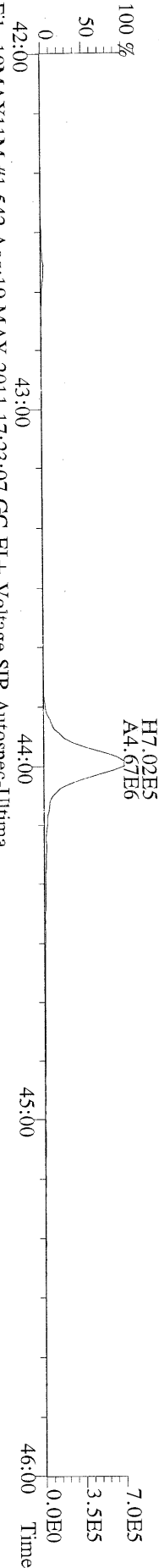
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 425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



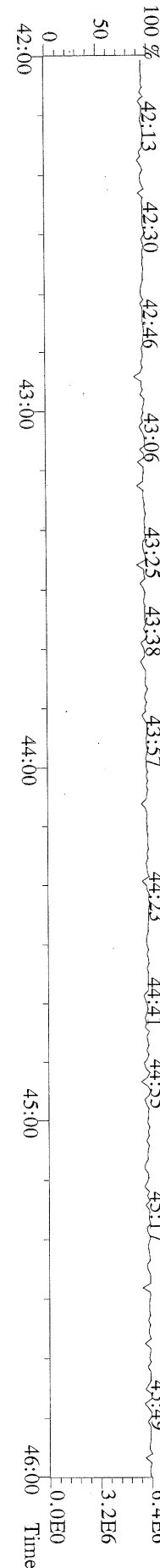
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 435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



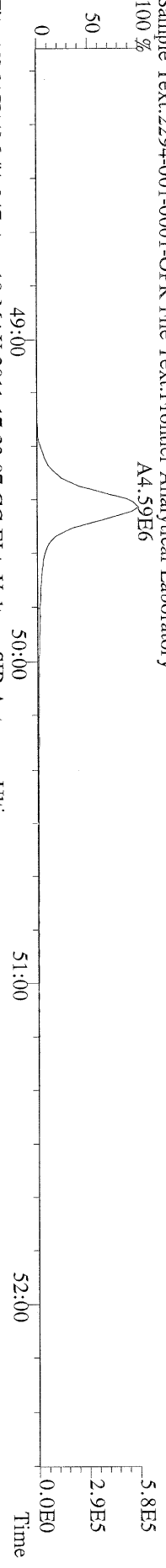
File:19MAY11M #1-542 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



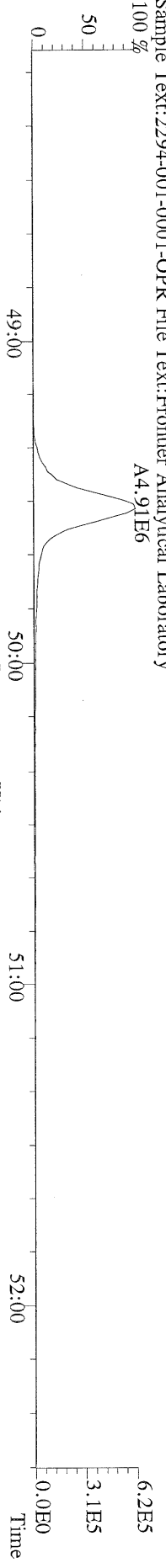
File:19MAY11M #1-542 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 430.9728 S:5 F:4 Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



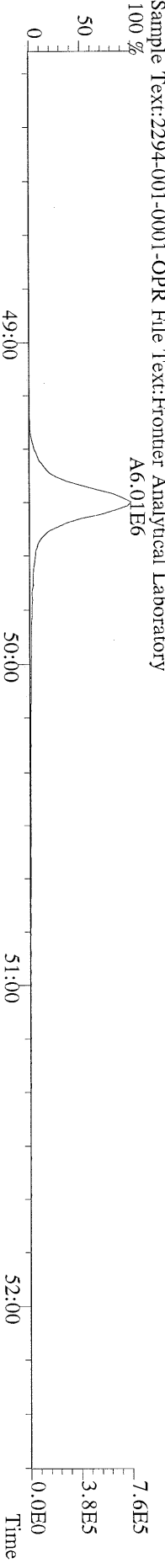
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 %



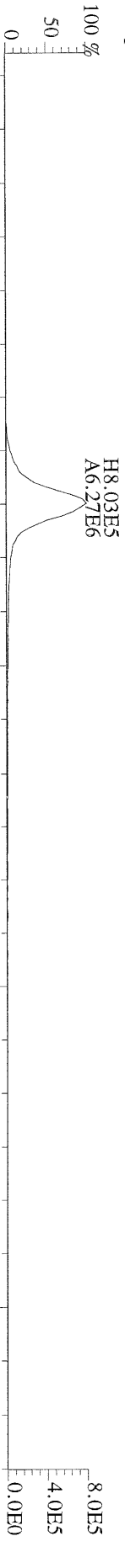
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 %



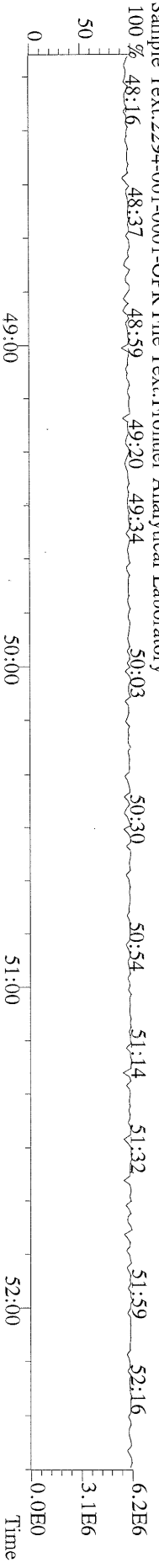
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 469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 %



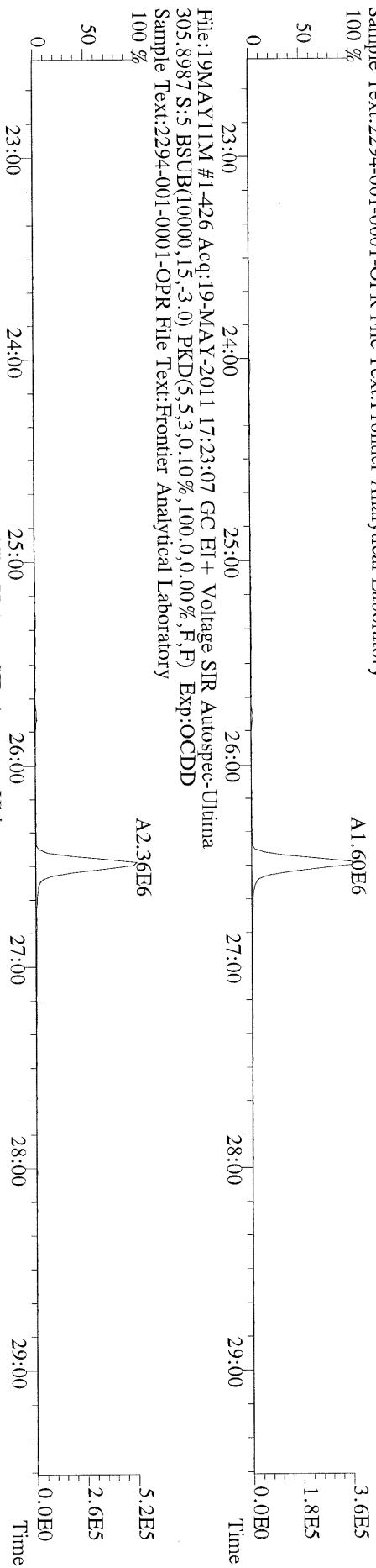
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 %



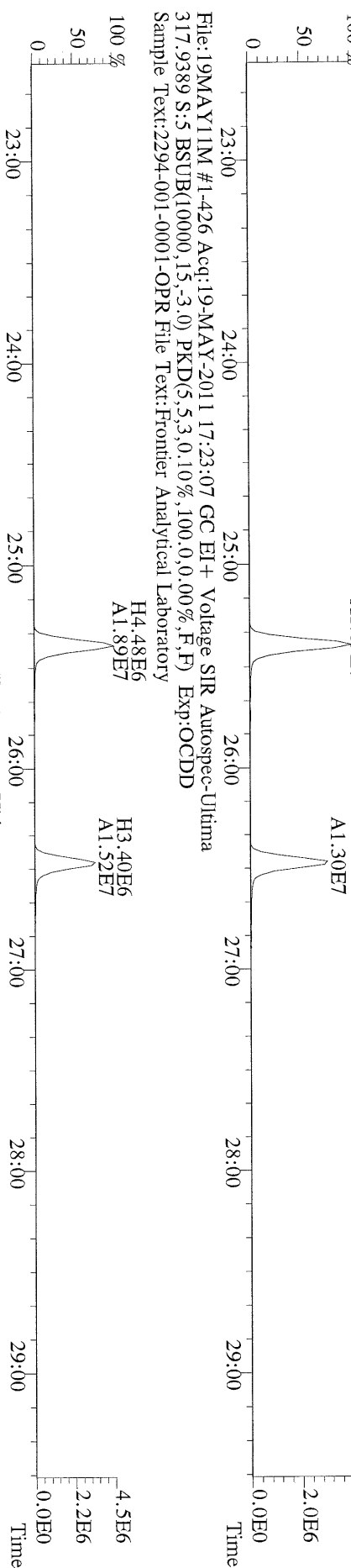
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 454.9728 S:5 F:5 Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 %



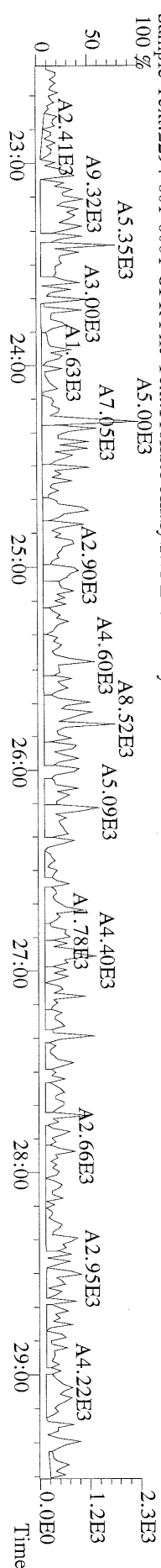
File:19MAY11M #1-426 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



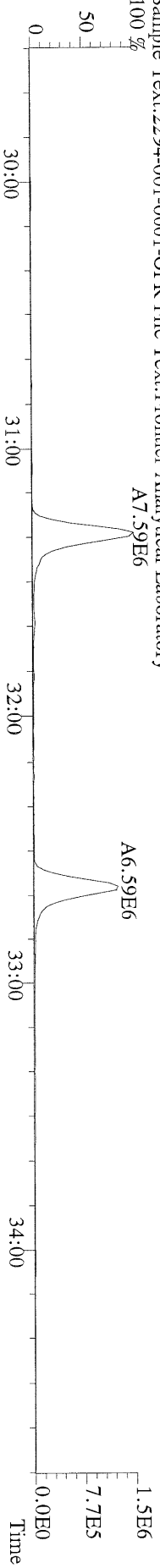
File:19MAY11M #1-426 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



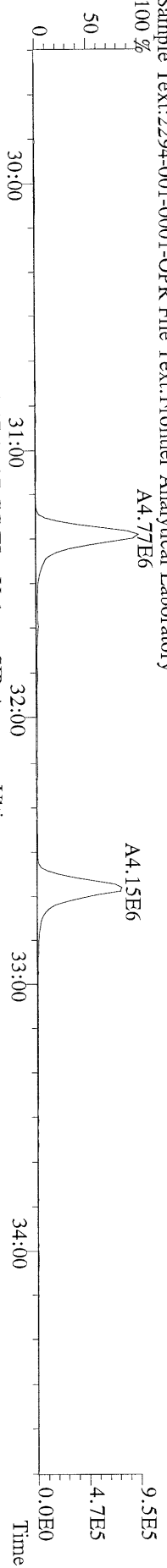
File:19MAY11M #1-426 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
 375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



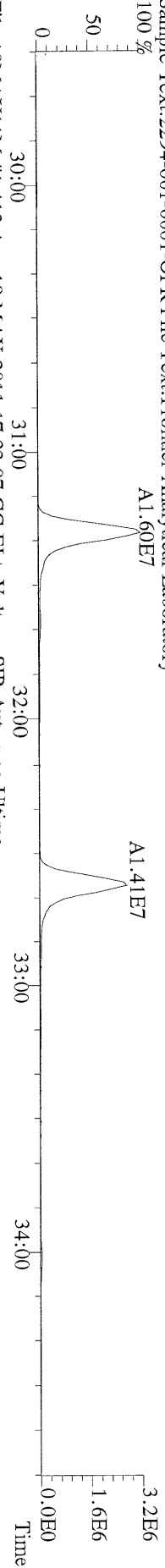
File:19MAY11M #1-412 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



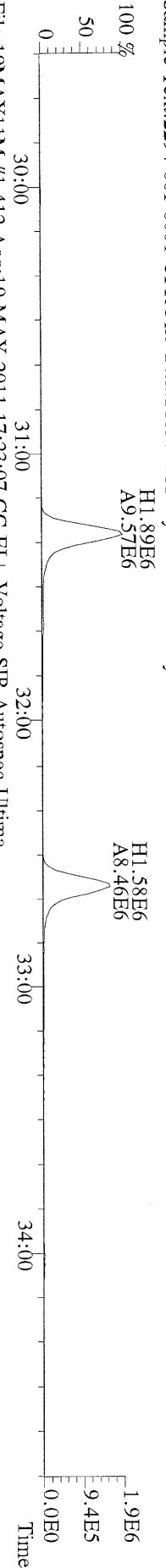
File:19MAY11M #1-412 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



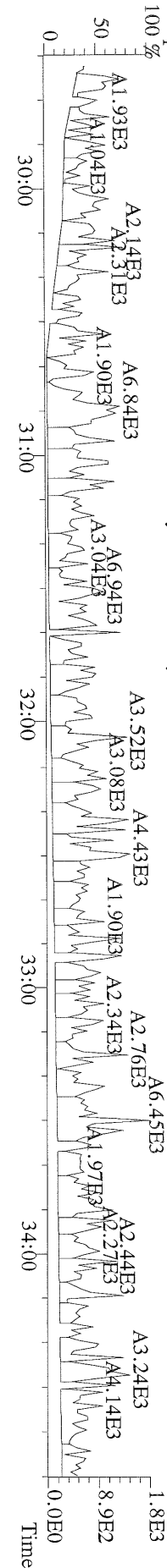
File:19MAY11M #1-412 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



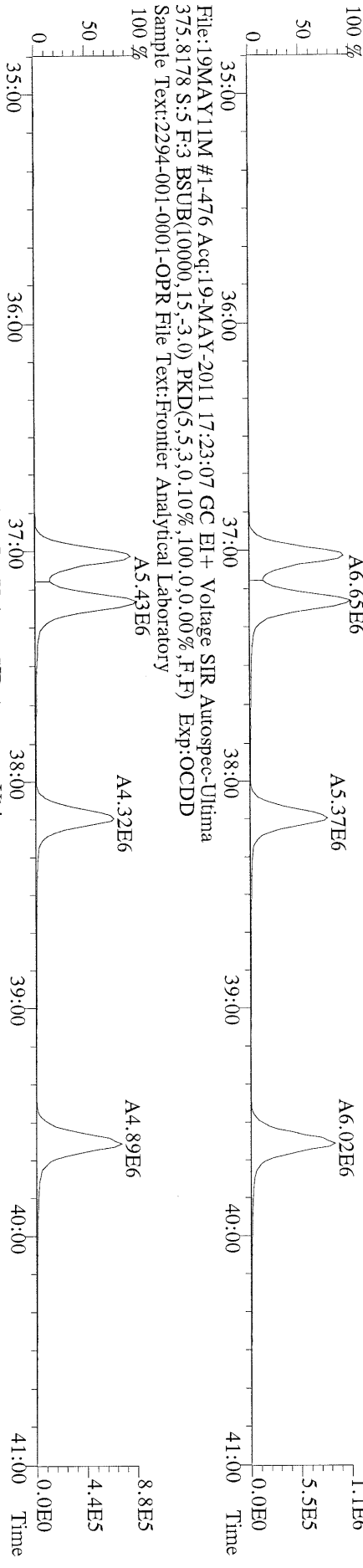
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 353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



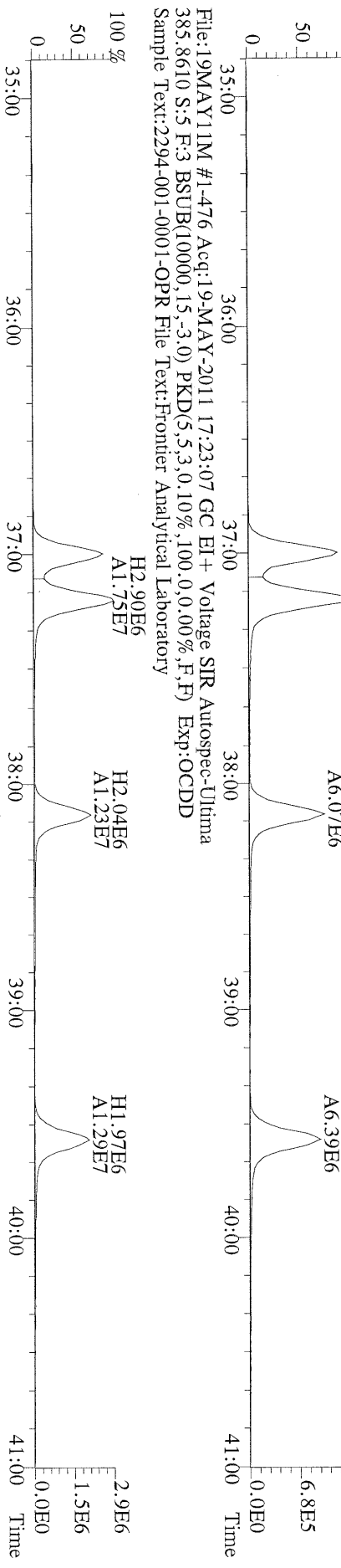
File:19MAY11M #1-412 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



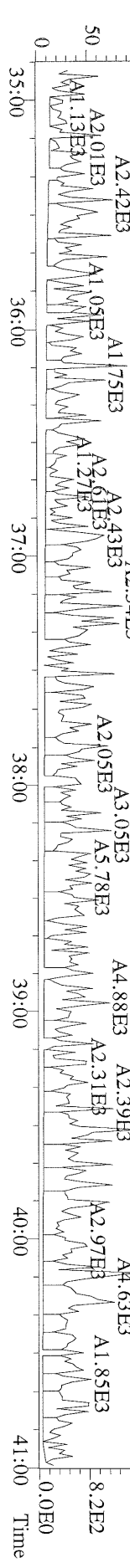
File:19MAY11M #1-476 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



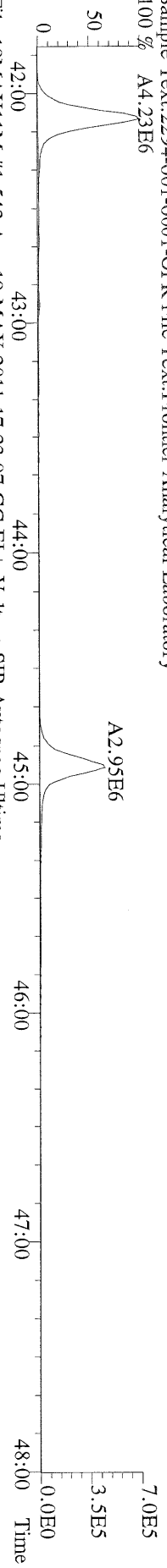
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383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



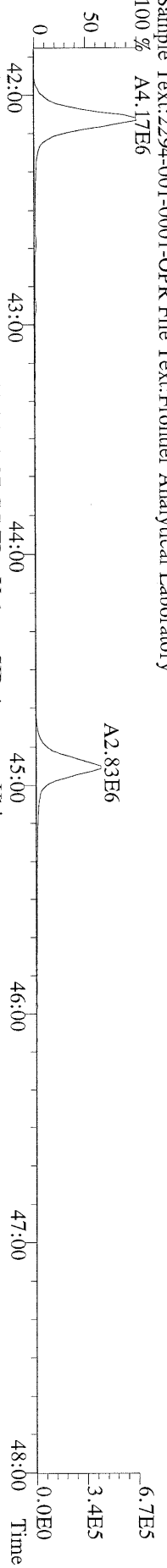
File:19MAY11M #1-476 Acq:19-MAY-2011 17:23:07 GC EI+ Voltage SIR Autospec-Ultima
445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



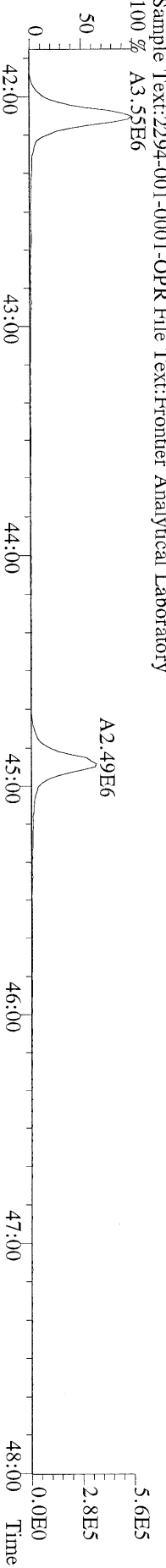
File:19MAY11M #1-542 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 % A4.23E6



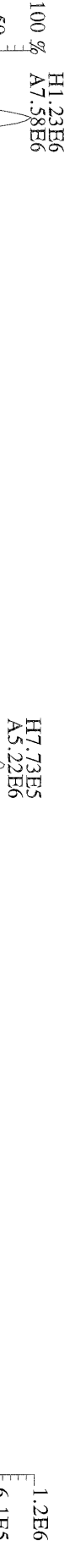
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 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 % A4.17E6



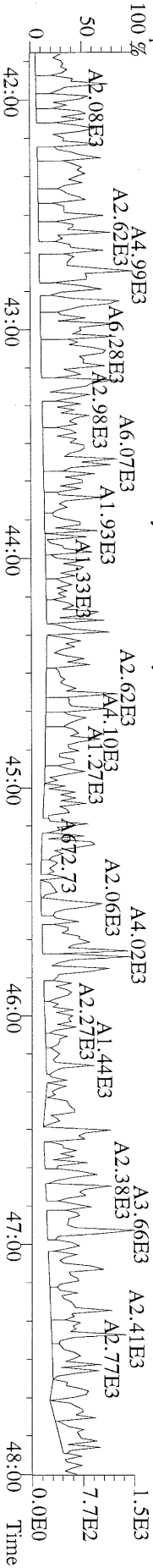
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 417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory
 100 % A3.55E6



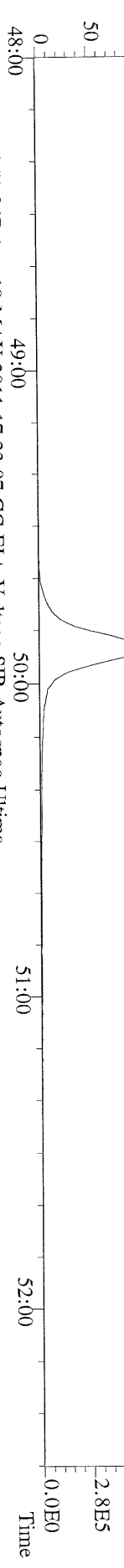
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 419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
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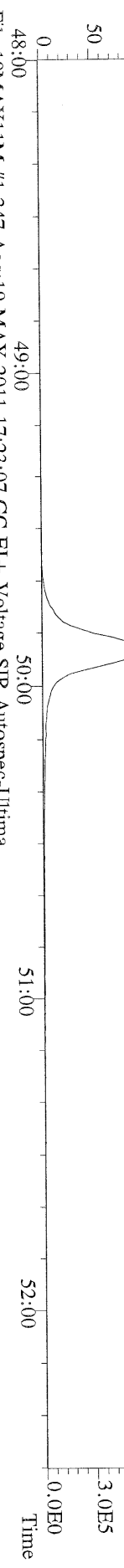
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 479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



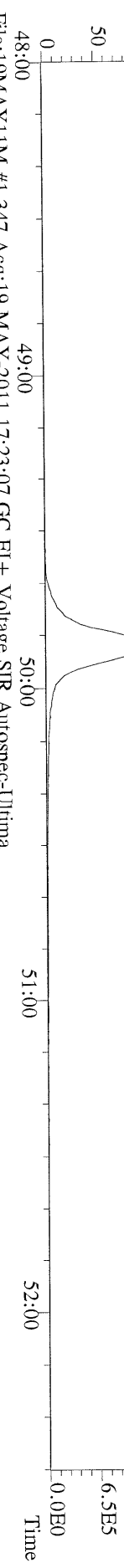
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



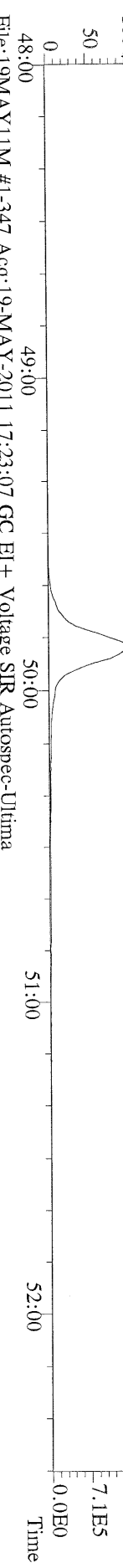
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 443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



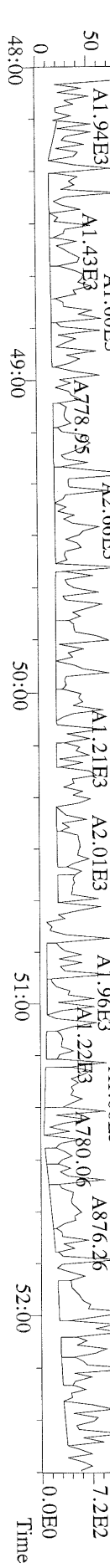
File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



File:19MAY11M #1-347 Acq:19-MAY-2011 17:23:07 GC EI + Voltage SIR Autospec-Ultima
 513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:2294-001-0001-OPR File Text:Frontier Analytical Laboratory



Totals class: Total Tetra-Dioxins

Entry #: 38

Run: 11

File: 19MAY11M

S: 7 I: 1 F: 1

Acquired: 19-MAY-11 19:13:53

Total Concentration: 11.2

Unnamed Concentration: 8.957

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
24:16	1.14e+04	1.47e+04	0.78 y	2.61e+04	2.23	
25:49	1.02e+04	1.47e+04	0.69 y	2.49e+04	2.12	
26:39	2.37e+04	3.02e+04	0.79 y	5.39e+04	4.61	
27:15	1.14e+04	1.53e+04	0.74 y	2.66e+04	2.27	2,3,7,8-TCDD

Totals class: Total Penta-Dioxins

Entry #: 39

Run: 11

File: 19MAY11M

S: 7 I: 1 F: 2

Acquired: 19-MAY-11 19:13:53

Total Concentration: 150

Unnamed Concentration: 144.738

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
30:04	5.55e+05	3.54e+05	1.57 y	9.09e+05	89.6	
30:25	5.35e+04	3.57e+04	1.50 y	8.93e+04	8.80	
31:20	4.88e+04	3.08e+04	1.58 y	7.96e+04	7.85	
31:32	5.44e+04	3.53e+04	1.54 y	8.97e+04	8.84	
31:40	3.25e+04	1.86e+04	1.75 y	5.12e+04	5.04	
31:58	4.54e+04	2.70e+04	1.69 y	7.24e+04	7.14	
32:44	3.22e+04	2.05e+04	1.57 y	5.27e+04	5.20	
33:05	3.11e+04	1.93e+04	1.61 y	5.04e+04	4.97	1,2,3,7,8-PeCDD
33:07	7.91e+04	4.51e+04	1.75 y	1.24e+05	12.3	

Totals class: Total Hexa-Dioxins

Entry #: 40

Run: 11 File: 19MAY11M S: 7 I: 1 F: 3
Acquired: 19-MAY-11 19:13:53

Total Concentration: 322

Unnamed Concentration: 278.873

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
35:58	9.15e+05	7.00e+05	1.31 y	1.61e+06	145	
36:53	1.05e+05	7.66e+04	1.37 y	1.82e+05	16.3	
36:59	5.40e+04	4.15e+04	1.30 y	9.55e+04	8.57	
37:19	5.69e+05	4.21e+05	1.35 y	9.90e+05	88.8	
37:26	1.23e+05	1.02e+05	1.20 y	2.25e+05	20.2	
38:26	2.54e+04	2.38e+04	1.07 y	4.92e+04	4.05	1,2,3,4,7,8-HxCDD
38:35	1.49e+05	1.22e+05	1.22 y	2.72e+05	27.1	1,2,3,6,7,8-HxCDD
39:02	7.51e+04	5.71e+04	1.31 y	1.32e+05	11.8	1,2,3,7,8,9-HxCDD

Totals class: Total Hepta-Dioxins

Entry #: 41

Run: 11

File: 19MAY11M

S: 7 I: 1 F: 4

Acquired: 19-MAY-11 19:13:53

Total Concentration: 1290

Unnamed Concentration: 695.120

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
42:39	2.93e+06	3.30e+06	0.89 y	6.23e+06	695	
44:02	2.53e+06	2.84e+06	0.89 y	5.37e+06	599	1,2,3,4,6,7,8-HpCDD

Totals class: Total Tetra-Furans

Entry #: 42

Run: 11 File: 19MAY11M S: 7 I: 1 F: 1
Acquired: 19-MAY-11 19:13:53

Total Concentration: 333

Unnamed Concentration: 332.898

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
23:17	1.57e+04	2.23e+04	0.71 y	3.80e+04	1.97	
23:32	1.74e+04	2.05e+04	0.85 y	3.80e+04	1.97	
23:39	5.93e+04	8.16e+04	0.73 y	1.41e+05	7.29	
23:59	6.17e+04	9.16e+04	0.67 y	1.53e+05	7.93	
24:17	1.02e+05	1.54e+05	0.66 y	2.57e+05	13.3	
24:29	1.46e+04	1.86e+04	0.79 y	3.32e+04	1.72	
24:36	2.65e+04	3.76e+04	0.70 y	6.40e+04	3.31	
25:18	2.84e+04	3.53e+04	0.80 y	6.37e+04	3.29	
25:27	9.46e+04	1.37e+05	0.69 y	2.31e+05	12.0	
25:40	1.37e+06	1.98e+06	0.69 y	3.34e+06	173	
26:52	2.66e+04	3.84e+04	0.69 y	6.51e+04	3.37	
27:15	1.11e+05	1.48e+05	0.75 y	2.59e+05	13.4	
27:27	2.89e+04	4.28e+04	0.68 y	7.17e+04	3.71	
27:44	3.25e+05	4.96e+05	0.66 y	8.21e+05	42.5	
27:56	3.56e+05	5.00e+05	0.71 y	8.57e+05	44.3	

Totals class: 1st Fn. Tot Penta-Furans Entry #: 43

Run: 11 File: 19MAY11M S: 7 I: 1 F: 1
Acquired: 19-MAY-11 19:13:53

Total Concentration: 31.7 Unnamed Concentration: 31.724

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
28:18	1.47e+05	1.03e+05	1.43 y	2.51e+05	18.5	
28:57	5.36e+04	3.73e+04	1.44 y	9.09e+04	6.72	
29:28	5.38e+04	3.42e+04	1.57 y	8.80e+04	6.50	

Totals class: Total Penta-Furans

Entry #: 44

Run: 11 File: 19MAY11M S: 7 I: 1 F: 2
Acquired: 19-MAY-11 19:13:53

Total Concentration: 515

Unnamed Concentration: 497.151

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
29:51	5.60e+04	3.62e+04	1.55 y	9.22e+04	6.81	
30:04	1.07e+05	6.90e+04	1.55 y	1.76e+05	13.0	
30:26	5.33e+04	3.29e+04	1.62 y	8.61e+04	6.36	
30:32	3.32e+04	2.26e+04	1.47 y	5.57e+04	4.12	
30:50	3.95e+04	2.82e+04	1.40 y	6.77e+04	5.00	
30:57	5.93e+05	3.84e+05	1.55 y	9.77e+05	72.2	
31:12	2.37e+06	1.49e+06	1.59 y	3.86e+06	285	
31:18	1.26e+05	7.50e+04	1.68 y	2.01e+05	14.6	1,2,3,7,8-PeCDF
31:37	3.61e+05	2.40e+05	1.50 y	6.01e+05	44.4	
31:56	8.06e+04	5.42e+04	1.49 y	1.35e+05	9.96	
32:33	3.21e+05	1.98e+05	1.62 y	5.20e+05	38.4	
32:40	2.66e+04	1.63e+04	1.63 y	4.29e+04	3.23	2,3,4,7,8-PeCDF
33:59	9.65e+04	5.97e+04	1.62 y	1.56e+05	11.5	

Totals class: Total Hexa-Furans

Entry #: 45

Run: 11 File: 19MAY11M S: 7 I: 1 F: 3
Acquired: 19-MAY-11 19:13:53

Total Concentration: 183

Unnamed Concentration: 162.927

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
35:05	2.86e+04	2.48e+04	1.15 y	5.34e+04	3.84	
35:22	1.24e+05	9.67e+04	1.29 y	2.21e+05	15.9	
35:47	4.67e+05	3.64e+05	1.28 y	8.32e+05	59.8	
35:57	7.20e+04	5.90e+04	1.22 y	1.31e+05	9.42	
36:16	2.28e+05	1.87e+05	1.22 y	4.15e+05	29.8	
36:34	3.78e+04	2.94e+04	1.29 y	6.72e+04	4.83	
36:51	1.98e+04	1.42e+04	1.39 y	3.40e+04	2.45	
37:02	3.17e+04	2.34e+04	1.35 y	5.52e+04	4.20	1,2,3,4,7,8-HxCDF
37:13	4.92e+04	3.91e+04	1.26 y	8.83e+04	6.06	1,2,3,6,7,8-HxCDF
37:30	2.32e+04	2.03e+04	1.15 y	4.35e+04	3.13	
37:42	5.34e+04	4.64e+04	1.15 y	9.98e+04	7.17	
37:57	2.08e+05	1.62e+05	1.28 y	3.69e+05	26.6	
38:11	5.40e+04	4.51e+04	1.20 y	9.90e+04	7.38	2,3,4,6,7,8-HxCDF
39:40	1.53e+04	1.41e+04	1.08 y	2.94e+04	2.04	1,2,3,7,8,9-HxCDF

Totals class: Total Hepta-Furans

Entry #: 46

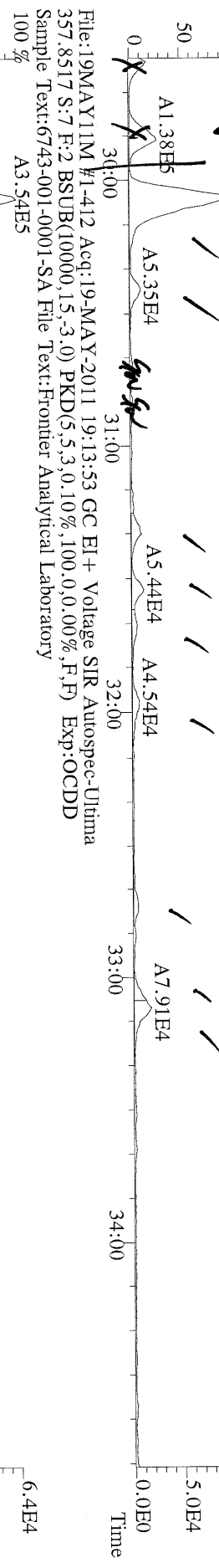
Run: 11 File: 19MAY11M S: 7 I: 1 F: 4
Acquired: 19-MAY-11 19:13:53

Total Concentration: 197

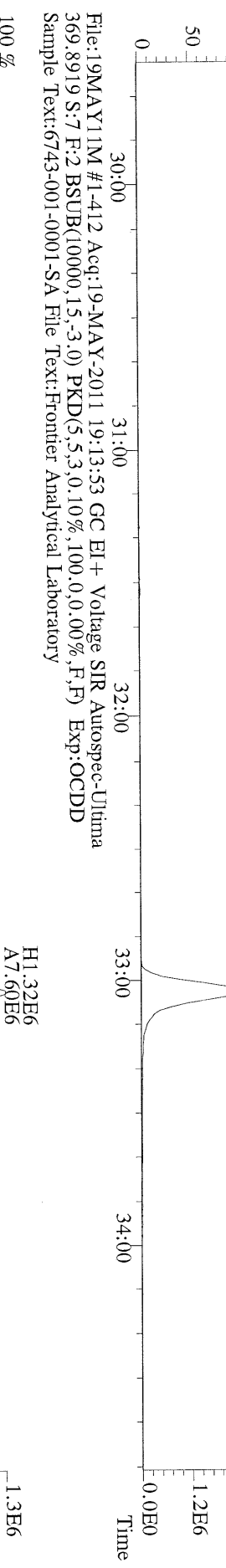
Unnamed Concentration: 136.403

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
42:07	3.11e+05	2.95e+05	1.06 y	6.06e+05	54.3	1,2,3,4,6,7,8-HpCDF
42:40	2.17e+04	2.19e+04	0.99 y	4.36e+04	4.60	
42:57	6.26e+05	6.24e+05	1.00 y	1.25e+06	132	
44:57	2.60e+04	2.33e+04	1.11 y	4.93e+04	6.30	1,2,3,4,7,8,9-HpCDF

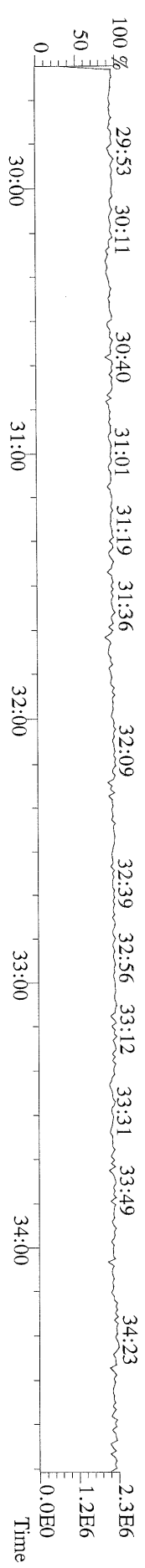
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0,0,0,0) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



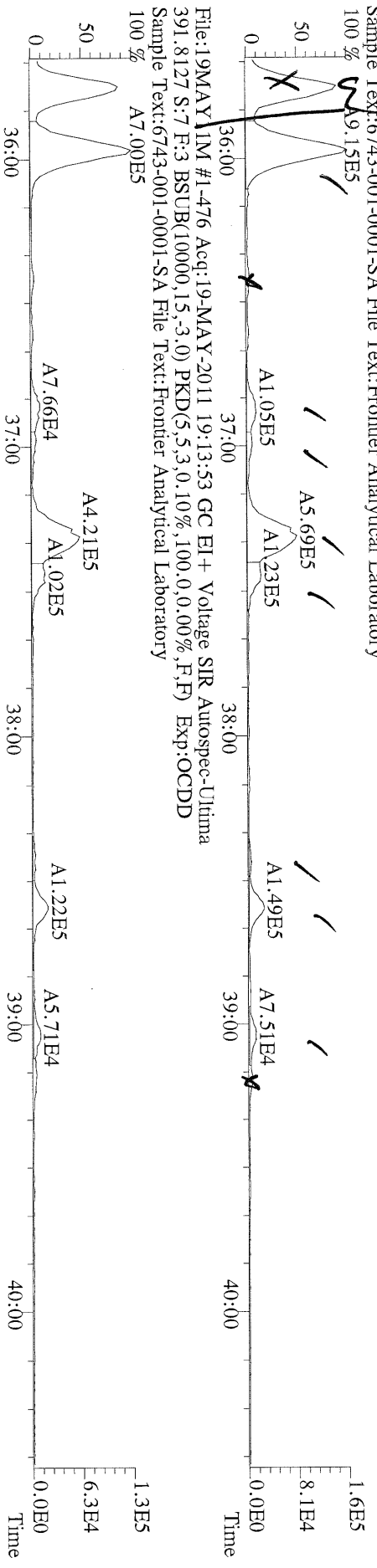
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 367.8949 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0,0,0) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



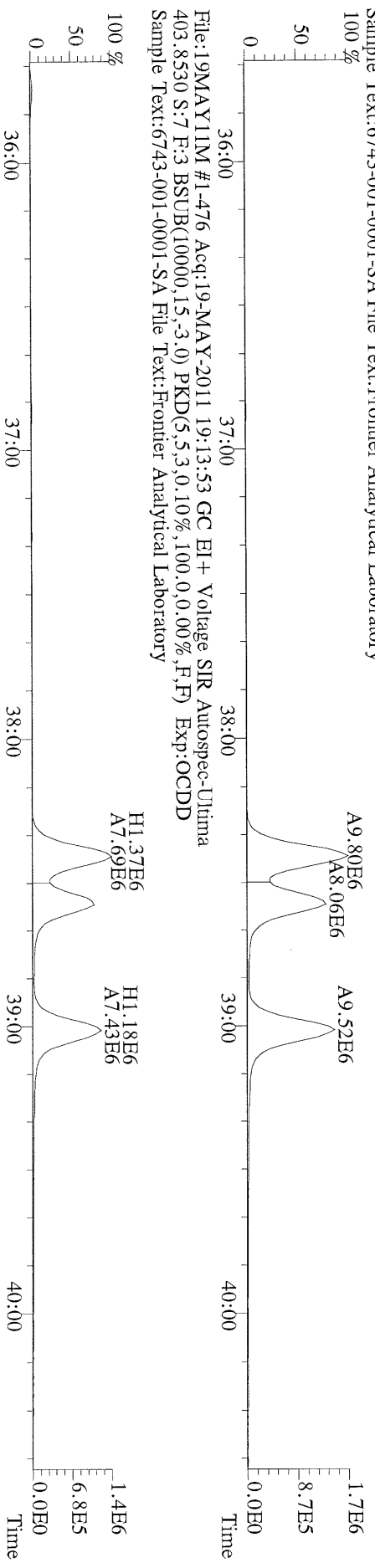
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 366.9792 S:7 F:2 Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



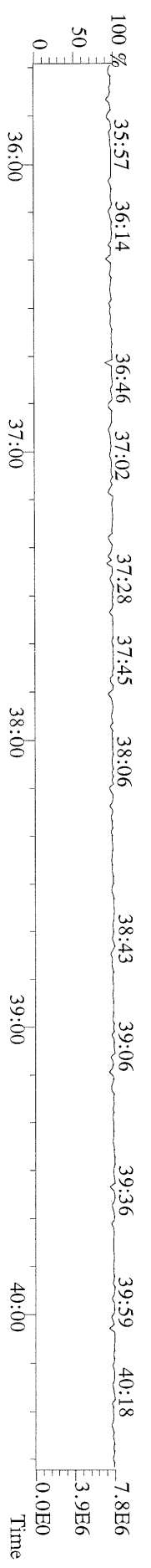
File:19MAY11M #1-476 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



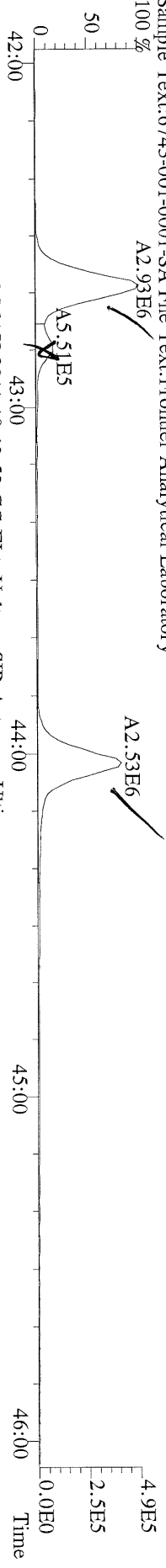
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 401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



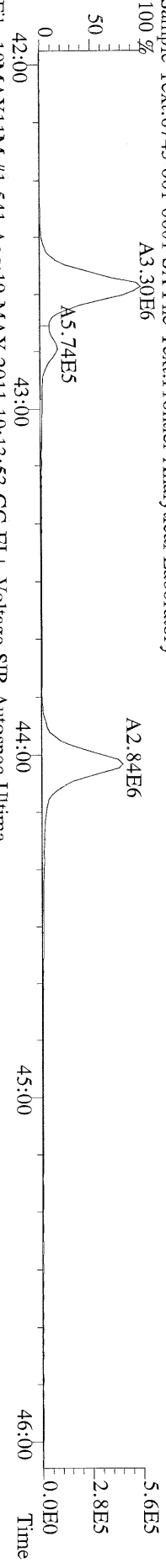
File:19MAY11M #1-476 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 380.9760 S:7 F:3 Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



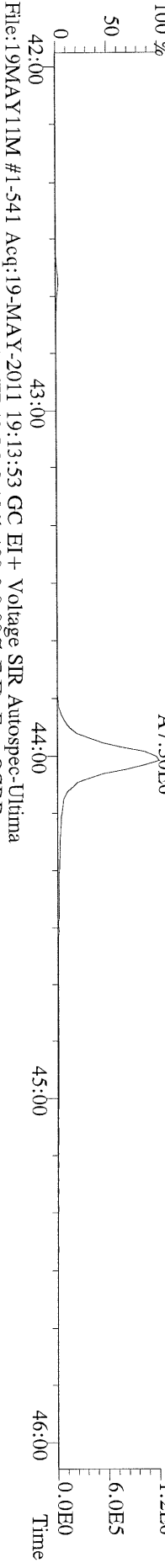
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



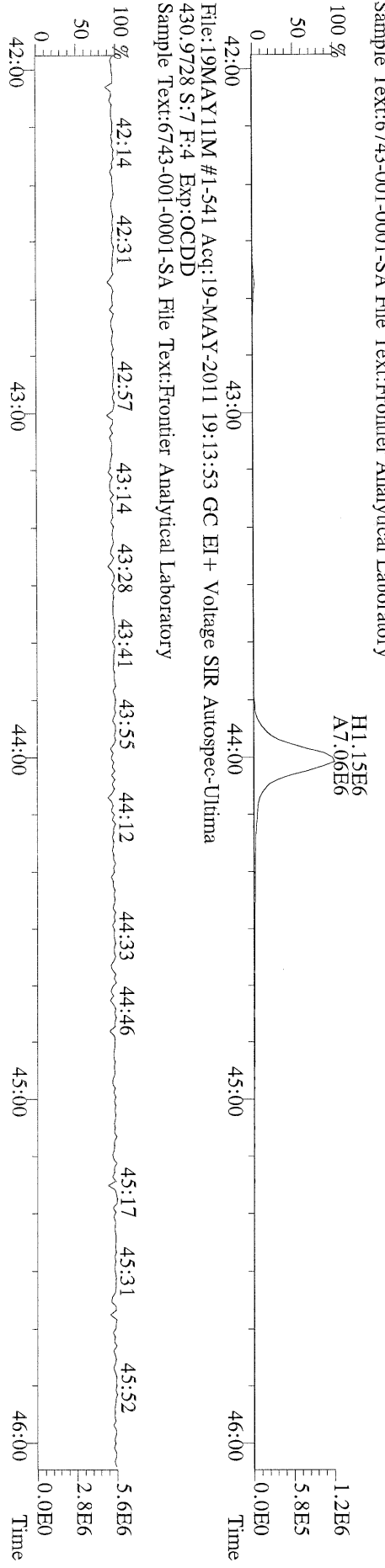
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425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



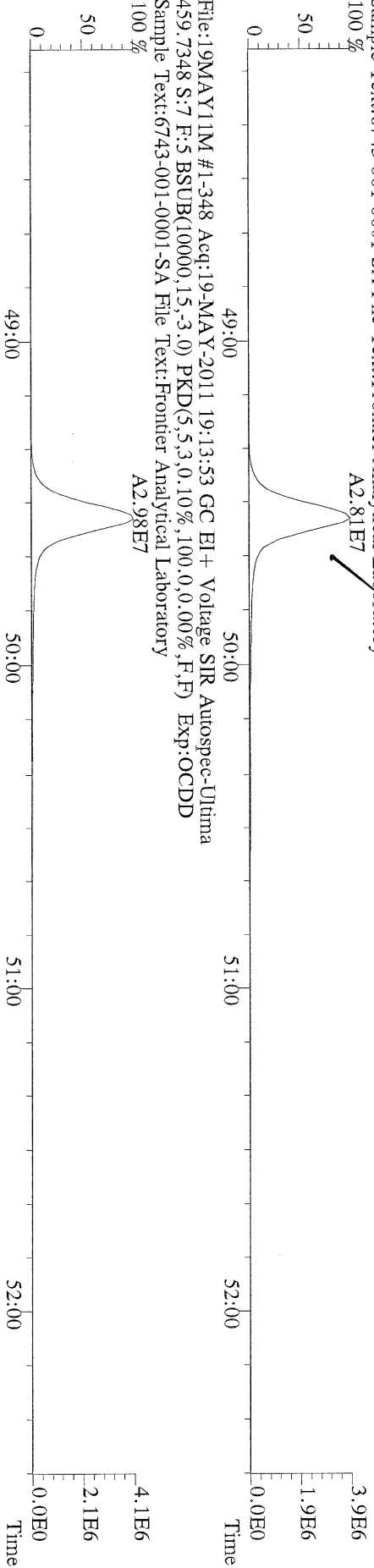
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437.8169 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



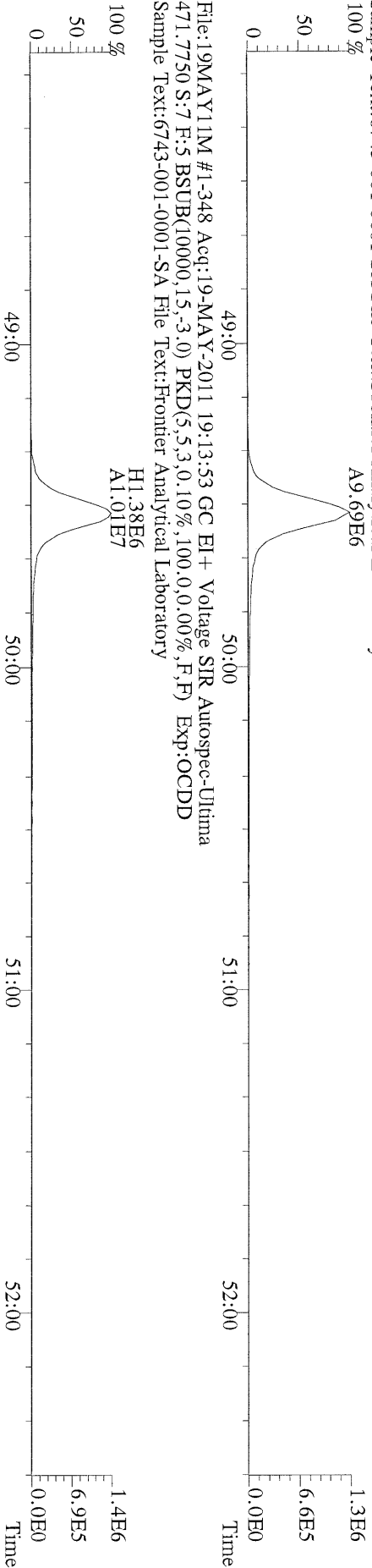
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:7 F:4 Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



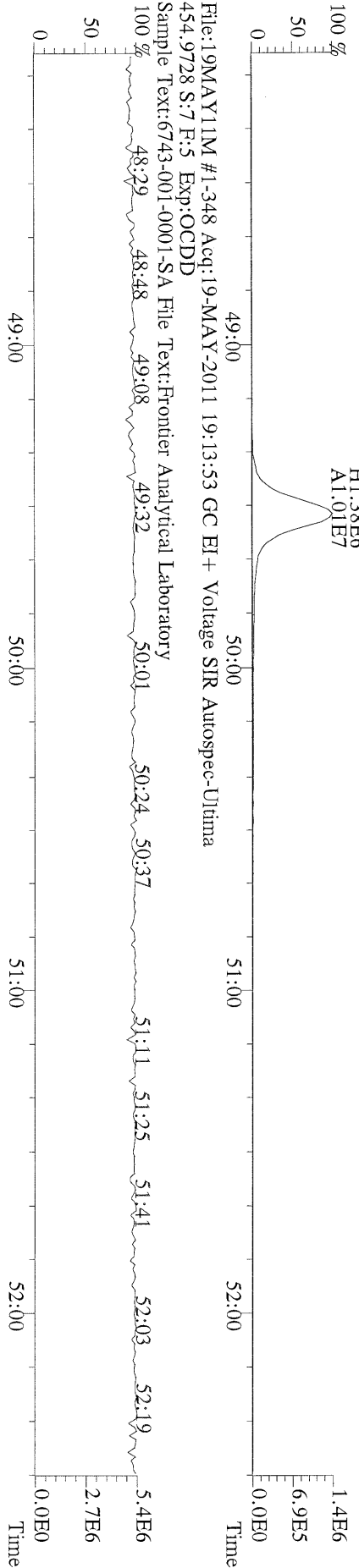
File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %



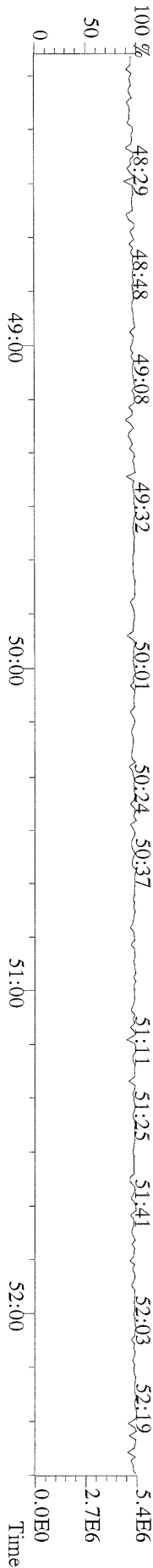
File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %



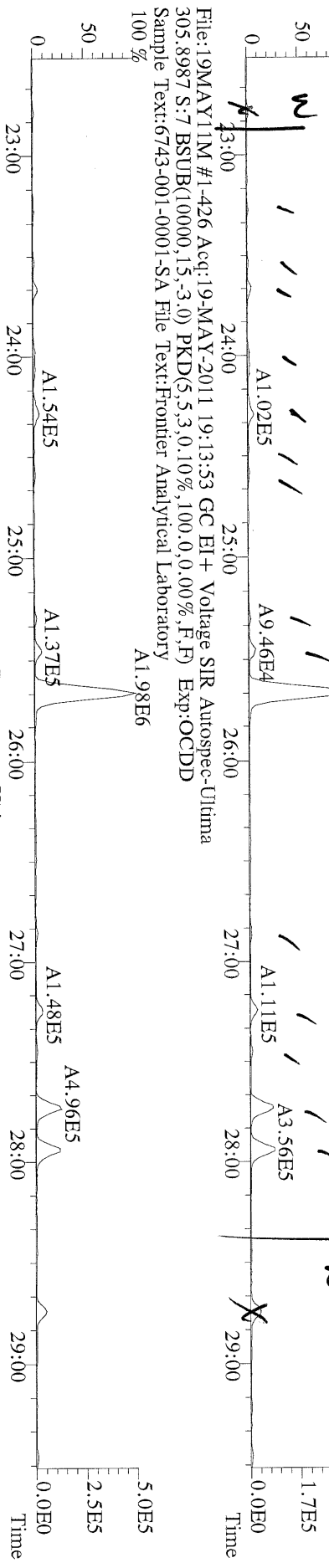
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471.7750 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



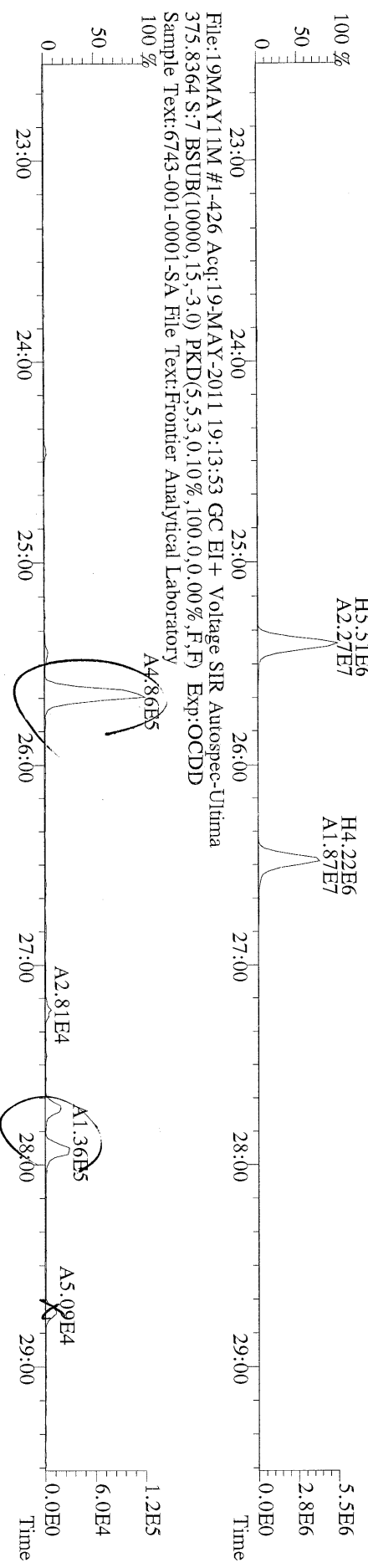
File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:7 F:5 Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %



File:19MAY11IM #1-426 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %

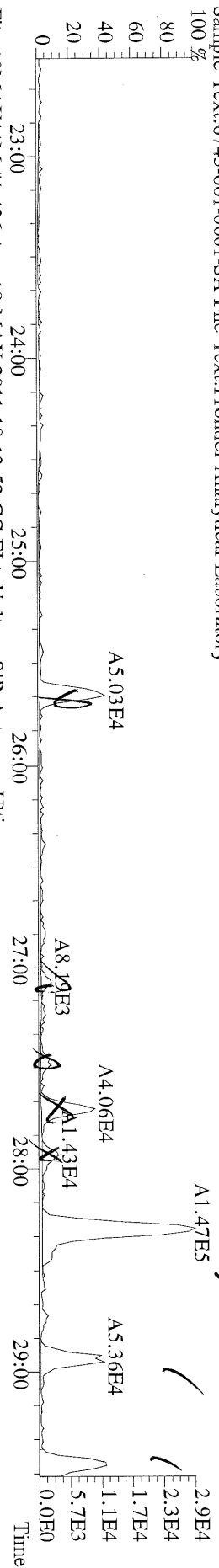


File:19MAY11IM #1-426 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %

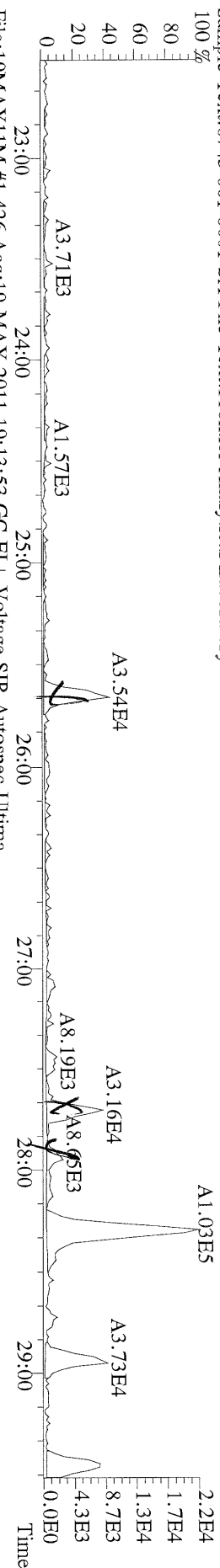


File:19MAY11IM #1-426 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 %

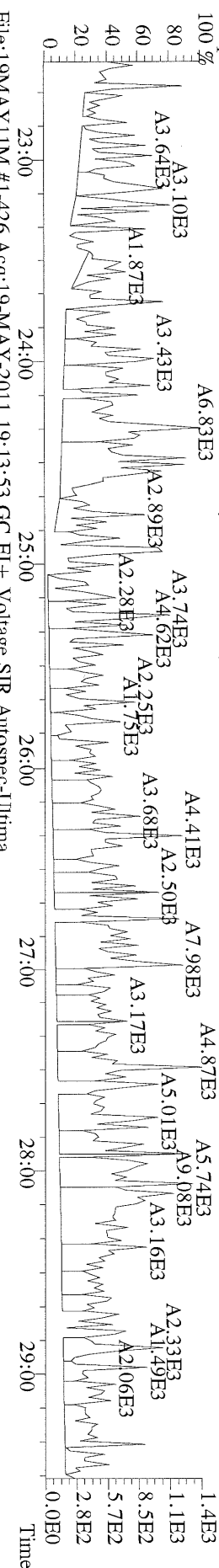
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 339.8597 S:7 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



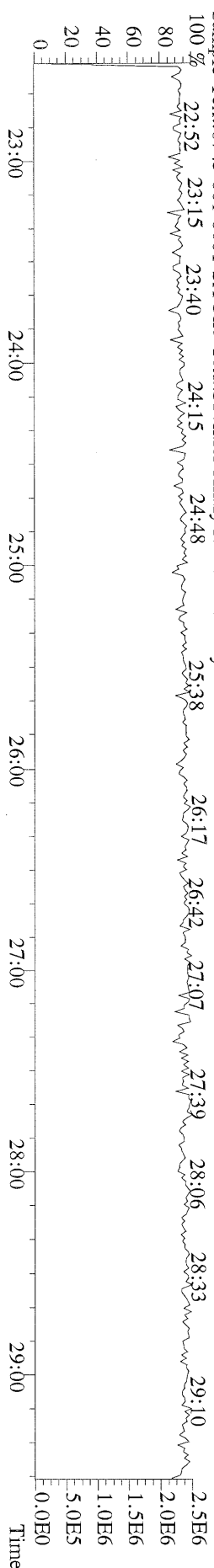
File:19MAY11IM #1-426 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:7 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



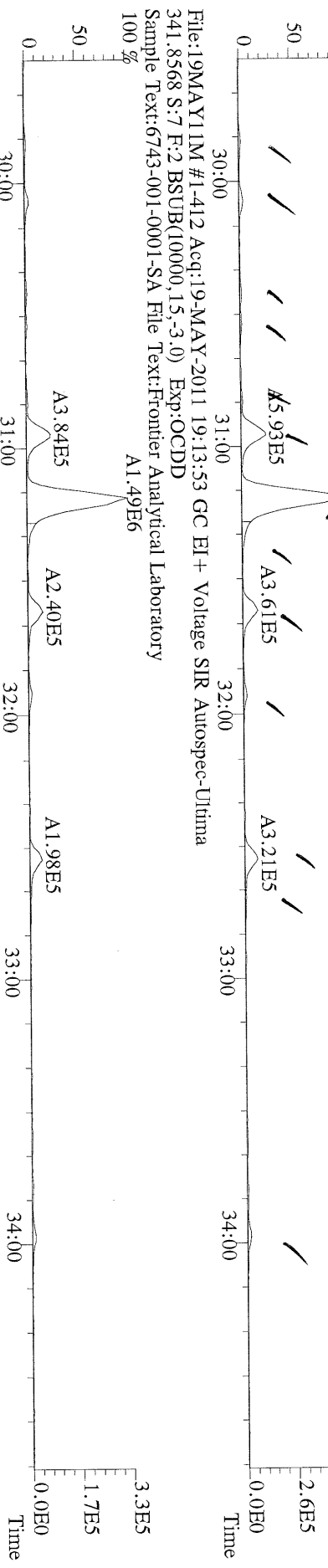
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 409.7974 S:7 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



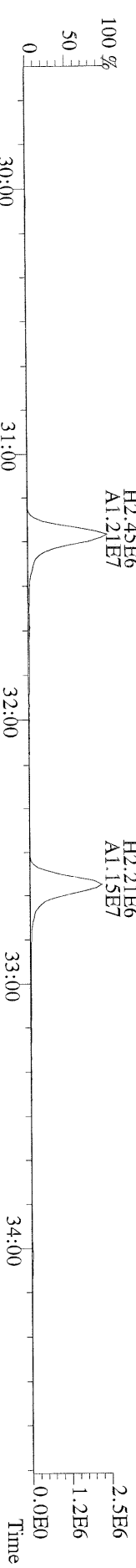
File:19MAY11IM #1-426 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 LOCK MASS CHECK S:7 Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



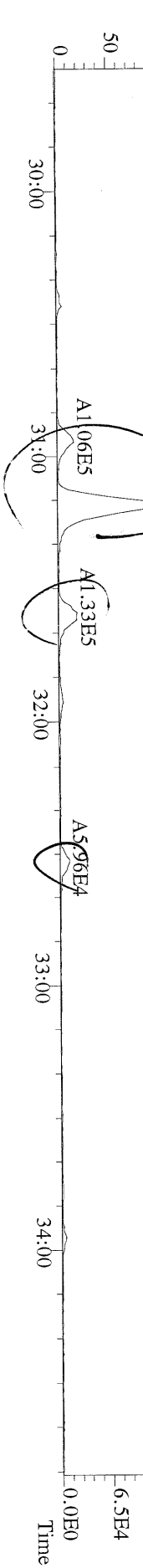
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:7 F:2 BSUB(10000,15,-3.0) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



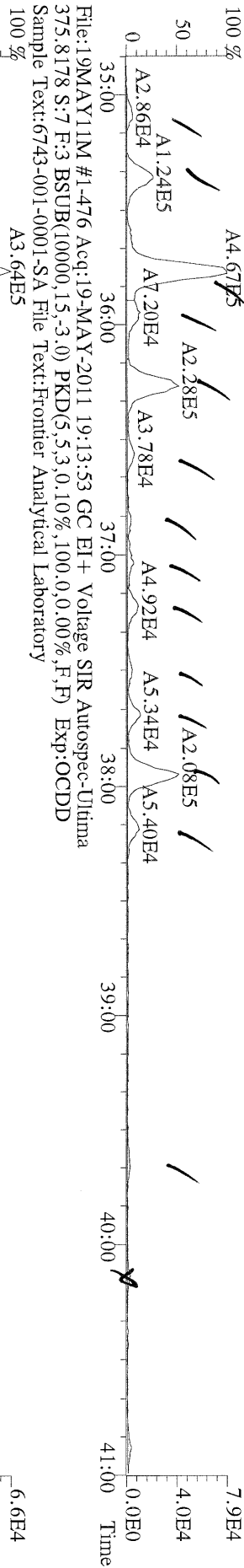
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



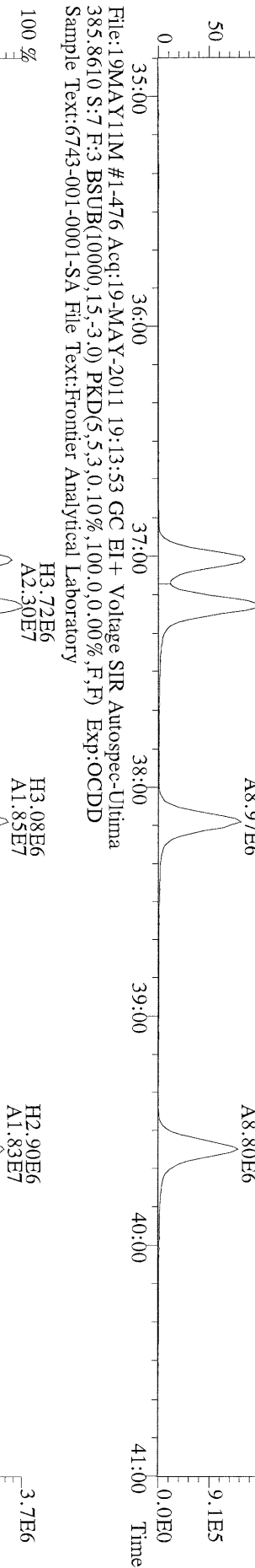
File:19MAY11M #1-412 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



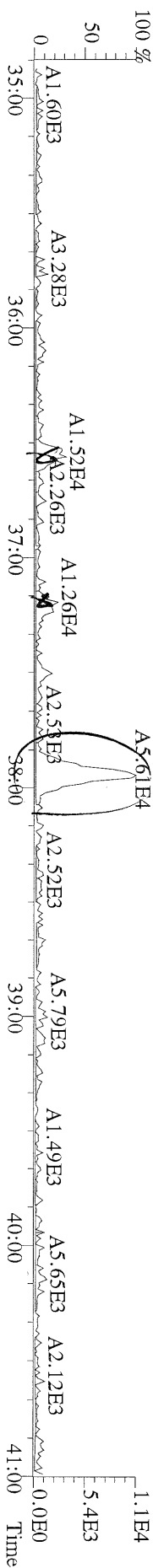
File:19MAY11M #1-476 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
373.8207 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



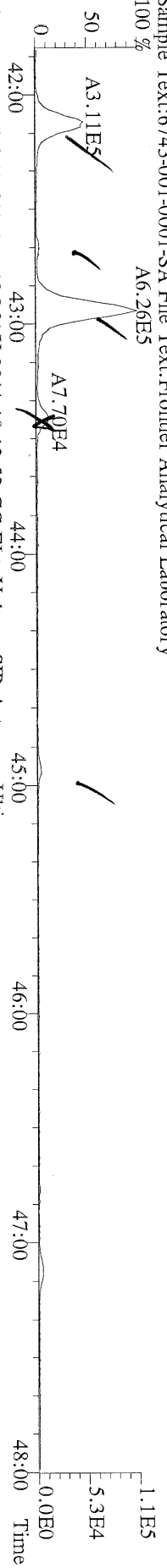
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383.8639 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



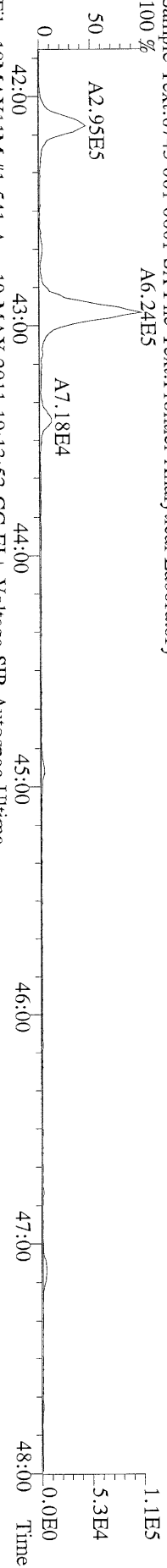
File:19MAY11M #1-476 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
445.7555 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



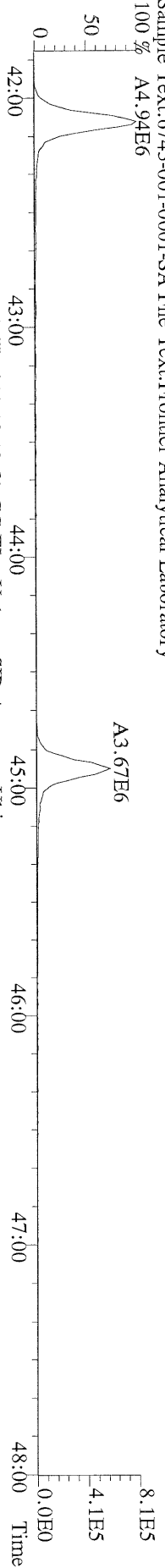
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 % A6.26E5



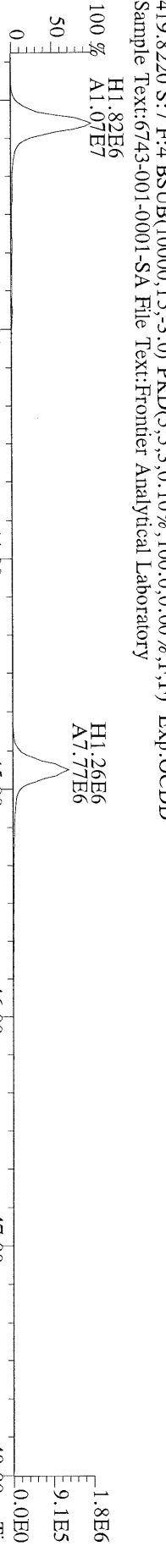
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 % A6.24E5



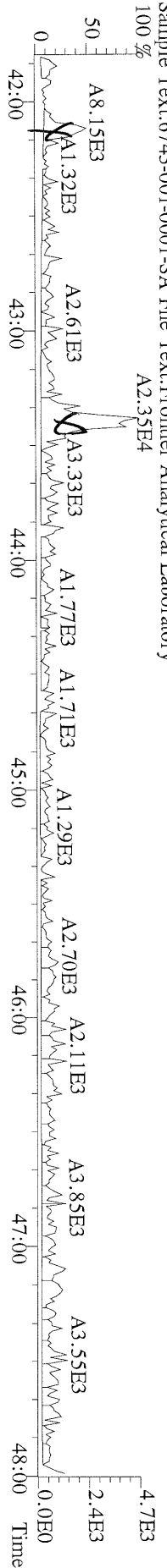
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 % A4.94E6



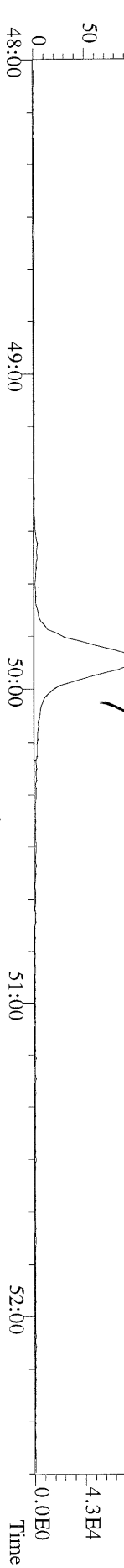
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



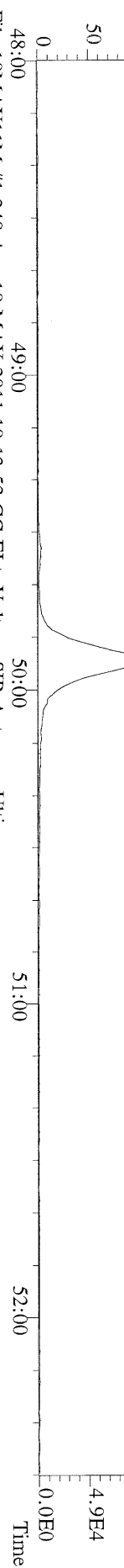
File:19MAY11M #1-541 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Utima
479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) Exp:OCDD
Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
100 % A2.35E4



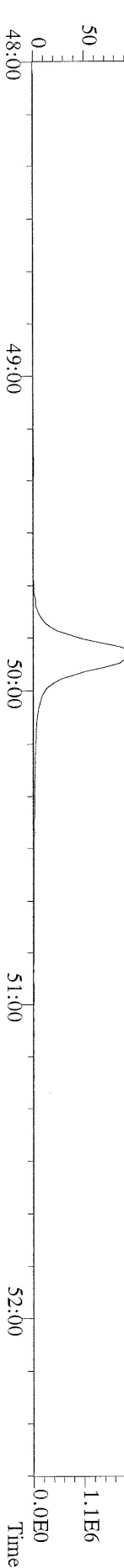
File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



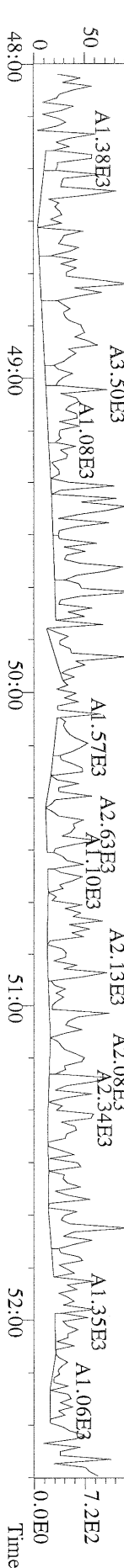
File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory
 100 %



File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 455.7801 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



File:19MAY11M #1-348 Acq:19-MAY-2011 19:13:53 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:6743-001-0001-SA File Text:Frontier Analytical Laboratory



Totals class: Total Tetra-Dioxins

Entry #: 38

Run: 12

File: 19MAY11M

S: 8 I: 1 F: 1

Acquired: 19-MAY-11 20:09:21

Total Concentration: 2.30

Unnamed Concentration: 2.301

RT	ml Resp	m2 Resp RA	Resp	Concentration	Name
24:16	1.32e+04	1.74e+04	0.76 y	3.06e+04	2.30

Totals class: Total Penta-Dioxins

Entry #: 39

Run: 12 File: 19MAY11M S: 8 I: 1 F: 2
Acquired: 19-MAY-11 20:09:21

Total Concentration: 76.8

Unnamed Concentration: 75.319

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
30:03	3.09e+05	2.02e+05	1.53 y	5.11e+05	45.2	
30:25	1.86e+04	1.35e+04	1.38 y	3.21e+04	2.83	
31:19	5.06e+04	2.89e+04	1.75 y	7.96e+04	7.03	
31:32	4.09e+04	3.04e+04	1.35 y	7.13e+04	6.29	
31:39	2.39e+04	1.50e+04	1.59 y	3.90e+04	3.44	
31:57	4.35e+04	2.94e+04	1.48 y	7.30e+04	6.44	
33:04	1.01e+04	6.89e+03	1.46 y	1.69e+04	1.50	1,2,3,7,8-PeCDD
33:05	2.81e+04	1.85e+04	1.52 y	4.65e+04	4.11	

Totals class: Total Hexa-Dioxins

Entry #: 40

Run: 12

File: 19MAY11M

S: 8 I: 1 F: 3

Acquired: 19-MAY-11 20:09:21

Total Concentration: 183

Unnamed Concentration: 158.038

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
35:58	6.01e+05	4.64e+05	1.29 y	1.07e+06	85.8	
36:53	4.17e+04	3.11e+04	1.34 y	7.28e+04	5.86	
37:19	4.77e+05	3.48e+05	1.37 y	8.24e+05	66.4	
38:25	2.27e+04	1.64e+04	1.38 y	3.91e+04	2.91	1,2,3,4,7,8-HxCDD
38:35	1.04e+05	7.68e+04	1.36 y	1.81e+05	16.0	1,2,3,6,7,8-HxCDD
39:03	4.71e+04	3.34e+04	1.41 y	8.05e+04	6.43	1,2,3,7,8,9-HxCDD

Totals class: Total Hepta-Dioxins

Entry #: 41

Run: 12

File: 19MAY11M

S: 8 I: 1 F: 4

Acquired: 19-MAY-11 20:09:21

Total Concentration: 638

Unnamed Concentration: 333.216

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
42:39	1.55e+06	1.73e+06	0.89 y	3.28e+06	333	
44:02	1.41e+06	1.59e+06	0.89 y	3.00e+06	305	1,2,3,4,6,7,8-HpCDD

Totals class: Total Tetra-Furans

Entry #: 42

Run: 12

File: 19MAY11M

S: 8 I: 1 F: 1

Acquired: 19-MAY-11 20:09:21

Total Concentration: 248

Unnamed Concentration: 248.416

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
23:39	3.16e+04	4.34e+04	0.73 y	7.49e+04	3.37	
23:59	7.87e+04	1.19e+05	0.66 y	1.97e+05	8.88	
24:18	1.53e+05	2.26e+05	0.68 y	3.79e+05	17.0	
25:28	1.09e+05	1.64e+05	0.67 y	2.73e+05	12.3	
25:40	1.45e+06	2.13e+06	0.68 y	3.58e+06	161	
26:51	2.55e+04	3.45e+04	0.74 y	6.00e+04	2.70	
27:15	7.07e+04	9.48e+04	0.75 y	1.65e+05	7.44	
27:26	2.60e+04	3.20e+04	0.81 y	5.80e+04	2.61	
27:44	1.49e+05	2.20e+05	0.68 y	3.69e+05	16.6	
27:56	1.51e+05	2.13e+05	0.71 y	3.64e+05	16.4	

Totals class: 1st Fn. Tot Penta-Furans Entry #: 43

Run: 12 File: 19MAY11M S: 8 I: 1 F: 1
Acquired: 19-MAY-11 20:09:21

Total Concentration: 19.3 Unnamed Concentration: 19.324

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
28:18	1.54e+05	1.04e+05	1.48 y	2.58e+05	17.0	
28:56	2.10e+04	1.34e+04	1.56 y	3.44e+04	2.28	

Totals class: Total Penta-Furans

Entry #: 44

Run: 12

File: 19MAY11M

S: 8 I: 1 F: 2

Acquired: 19-MAY-11 20:09:21

Total Concentration: 489

Unnamed Concentration: 472.966

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
30:04	9.29e+04	5.37e+04	1.73 y	1.47e+05	9.70	
30:32	7.59e+04	4.82e+04	1.57 y	1.24e+05	8.21	
30:49	6.02e+04	4.02e+04	1.50 y	1.00e+05	6.65	
30:57	6.68e+05	4.25e+05	1.57 y	1.09e+06	72.3	
31:12	2.82e+06	1.80e+06	1.57 y	4.63e+06	306	
31:17	1.28e+05	7.44e+04	1.72 y	2.03e+05	13.1	1,2,3,7,8-PeCDF
31:36	2.25e+05	1.39e+05	1.62 y	3.64e+05	24.1	
31:56	6.22e+04	4.03e+04	1.54 y	1.02e+05	6.78	
32:33	3.16e+05	2.09e+05	1.51 y	5.24e+05	34.7	
32:43	2.20e+04	1.48e+04	1.48 y	3.68e+04	2.50	2,3,4,7,8-PeCDF
33:58	3.96e+04	2.58e+04	1.54 y	6.53e+04	4.32	

Totals class: Total Hexa-Furans

Entry #: 45

Run: 12 File: 19MAY11M S: 8 I: 1 F: 3
Acquired: 19-MAY-11 20:09:21

Total Concentration: 103

Unnamed Concentration: 87.683

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
35:05	2.20e+04	1.62e+04	1.36 y	3.83e+04	2.45	
35:20	7.46e+04	6.10e+04	1.22 y	1.36e+05	8.69	
35:47	9.78e+04	8.01e+04	1.22 y	1.78e+05	11.4	
35:57	6.78e+04	5.01e+04	1.35 y	1.18e+05	7.56	
36:16	2.03e+05	1.56e+05	1.30 y	3.59e+05	23.0	
36:33	2.76e+04	2.22e+04	1.24 y	4.98e+04	3.19	
37:02	2.11e+04	1.66e+04	1.27 y	3.77e+04	2.58	1,2,3,4,7,8-HxCDF
37:13	4.08e+04	3.19e+04	1.28 y	7.27e+04	4.42	1,2,3,6,7,8-HxCDF
37:30	2.43e+04	1.85e+04	1.31 y	4.28e+04	2.75	
37:40	1.07e+05	8.61e+04	1.24 y	1.93e+05	12.4	
37:57	1.42e+05	1.12e+05	1.27 y	2.54e+05	16.3	
38:09	5.33e+04	4.13e+04	1.29 y	9.46e+04	6.34	2,3,4,6,7,8-HxCDF
39:38	1.81e+04	1.63e+04	1.11 y	3.44e+04	2.11	1,2,3,7,8,9-HxCDF

Totals class: Total Hepta-Furans

Entry #: 46

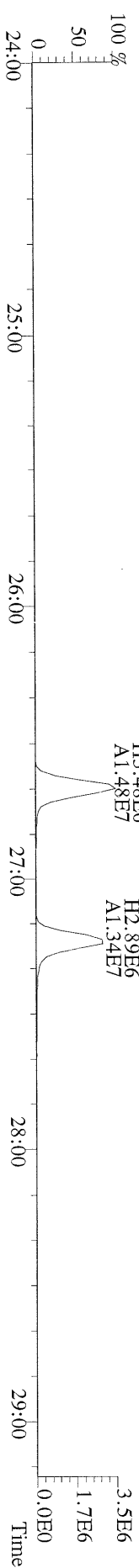
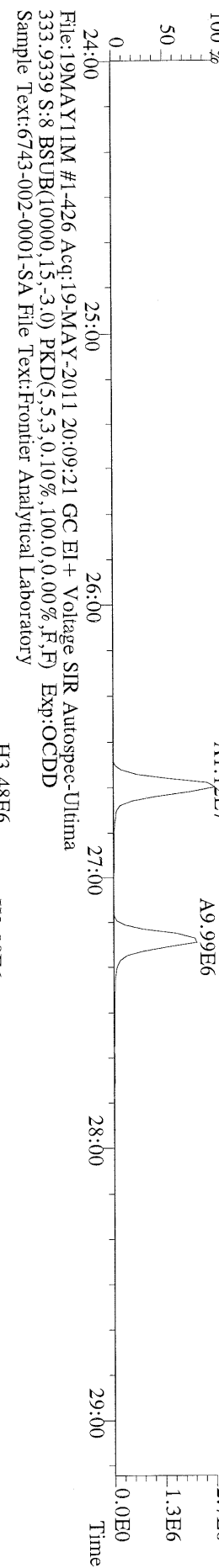
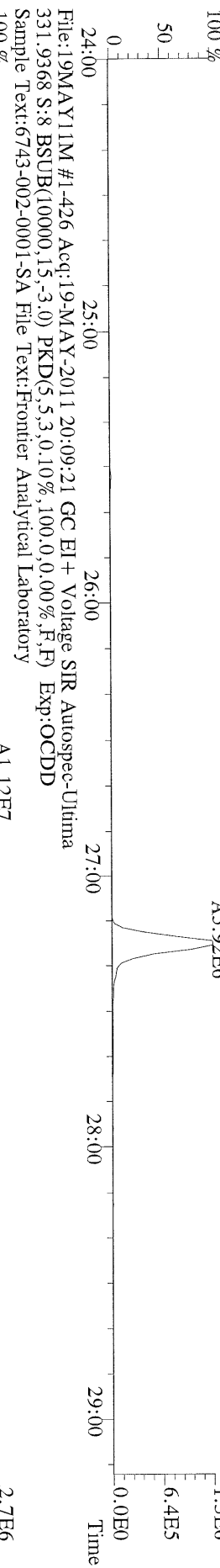
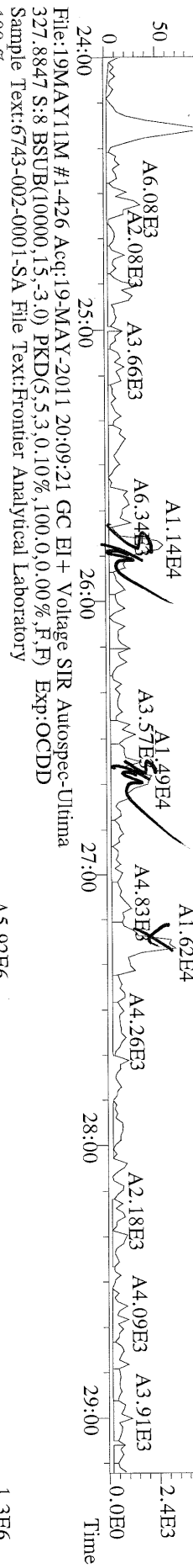
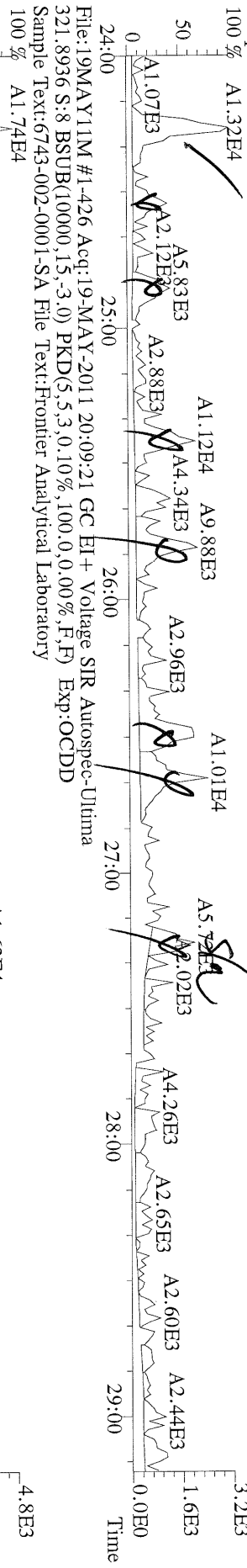
Run: 12 File: 19MAY11M S: 8 I: 1 F: 4
Acquired: 19-MAY-11 20:09:21

Total Concentration: 119

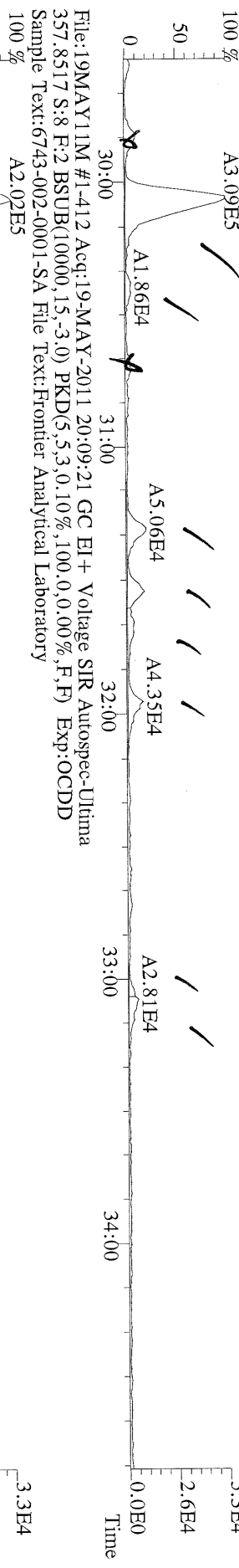
Unnamed Concentration: 82.716

RT	ml Resp	m2 Resp	RA	Resp	Concentration	Name
42:08	2.03e+05	1.91e+05	1.07 y	3.94e+05	31.8	1,2,3,4,6,7,8-HpCDF
42:40	1.49e+04	1.29e+04	1.15 y	2.77e+04	2.62	
42:56	4.32e+05	4.17e+05	1.04 y	8.48e+05	80.1	
44:55	1.81e+04	1.84e+04	0.98 y	3.65e+04	4.16	1,2,3,4,7,8,9-HpCDF

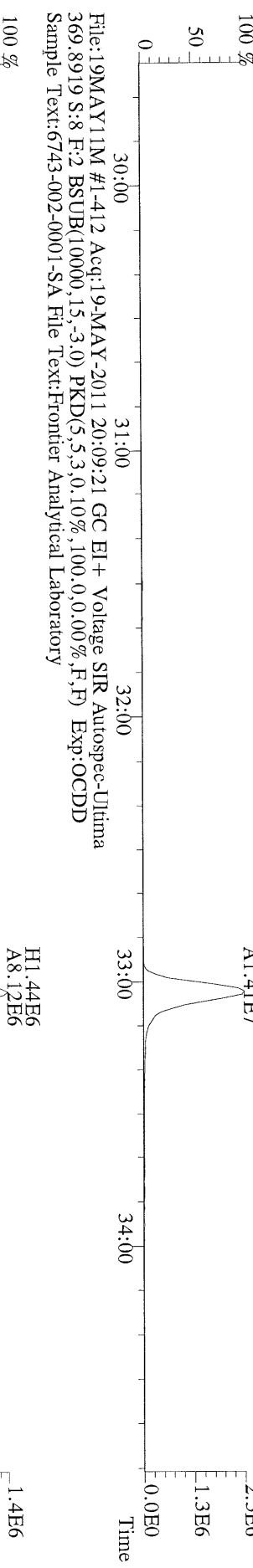
File:19MAY11M #1-426 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



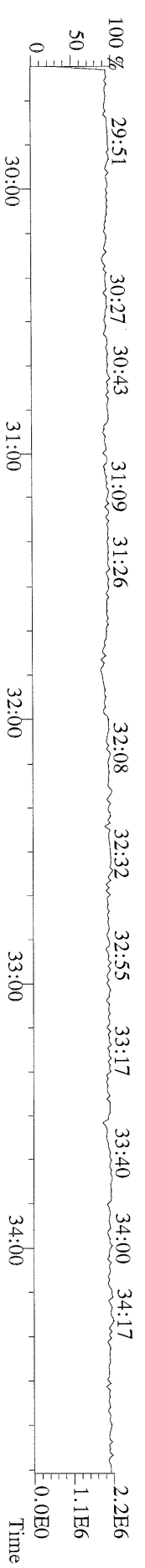
File:19MAY11M #1-412 Acq:19-MAY-2011 20:09:21 GC EI + Voltage SIR Autospec-Ultima
355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



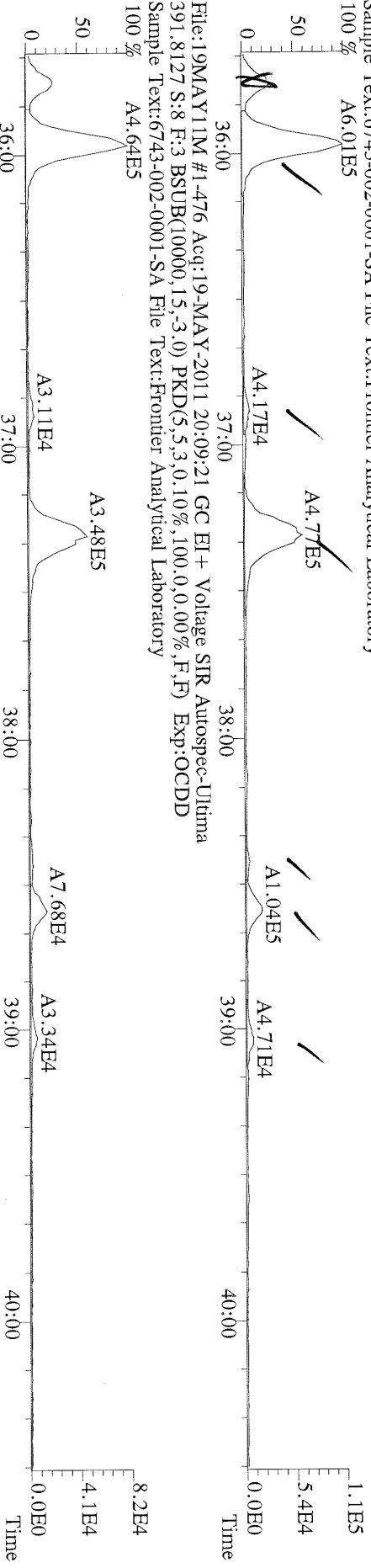
File:19MAY11M #1-412 Acq:19-MAY-2011 20:09:21 GC EI + Voltage SIR Autospec-Ultima
367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



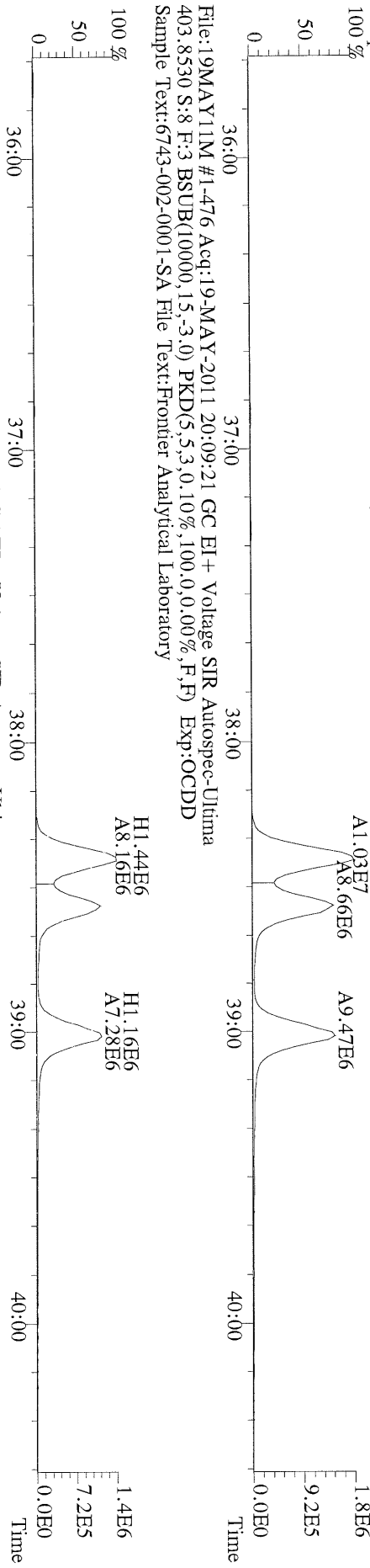
File:19MAY11M #1-412 Acq:19-MAY-2011 20:09:21 GC EI + Voltage SIR Autospec-Ultima
366.9792 S:8 F:2 Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



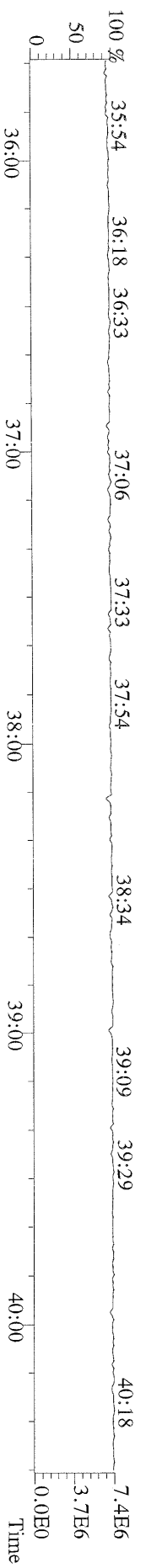
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



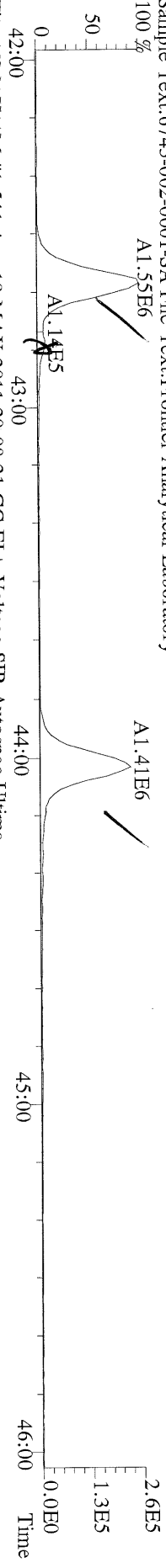
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



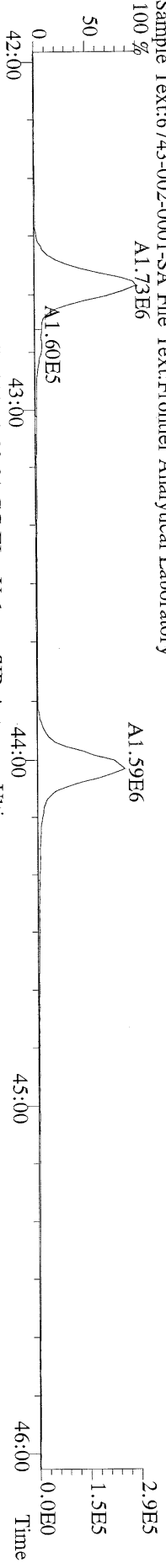
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



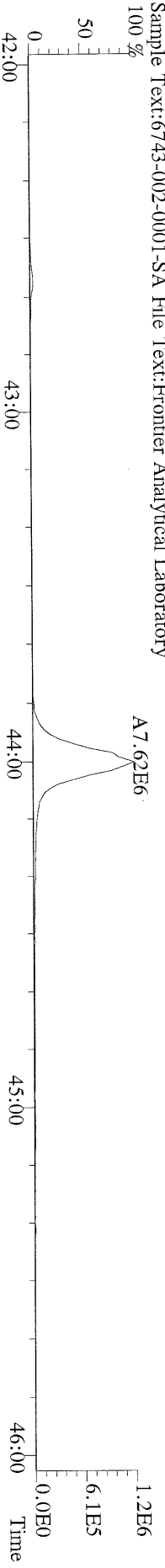
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



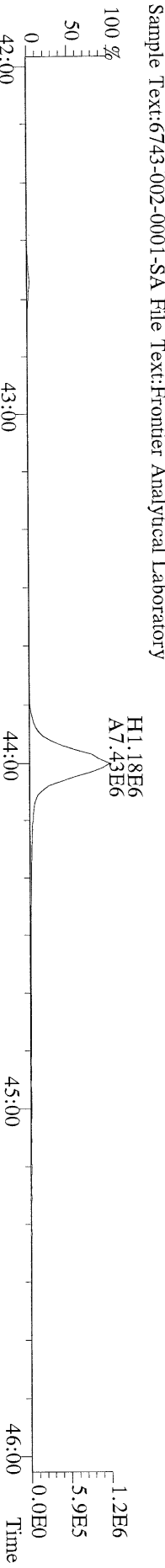
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



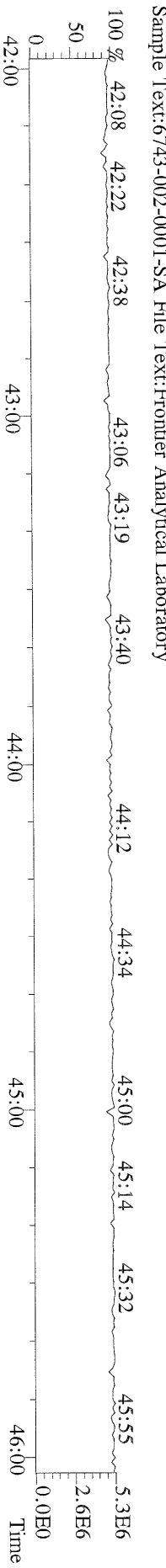
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



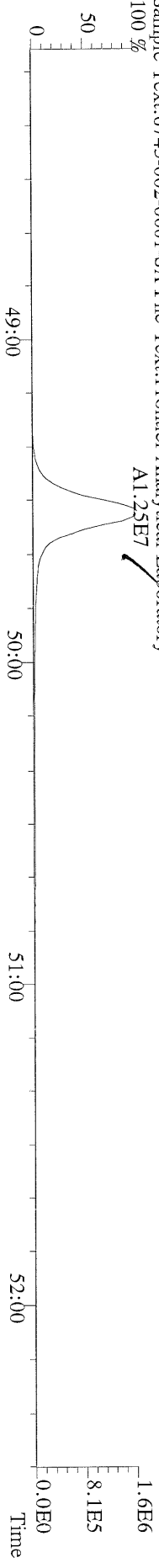
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



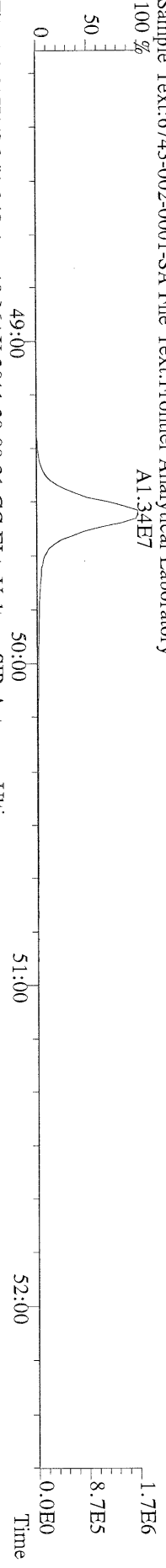
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 430.9728 S:8 F:4 Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



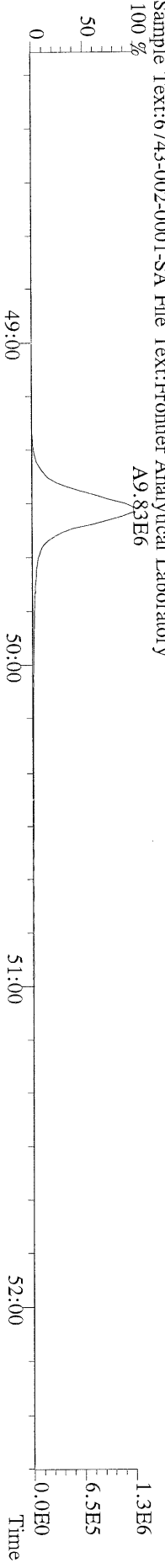
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory
 100 %
 A1.23E7 ✓



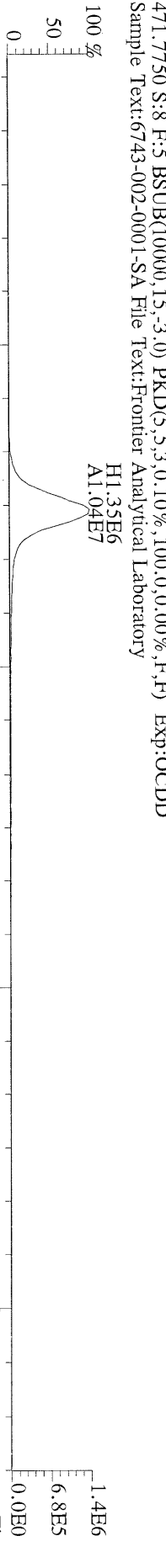
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory
 100 %
 A1.34E7



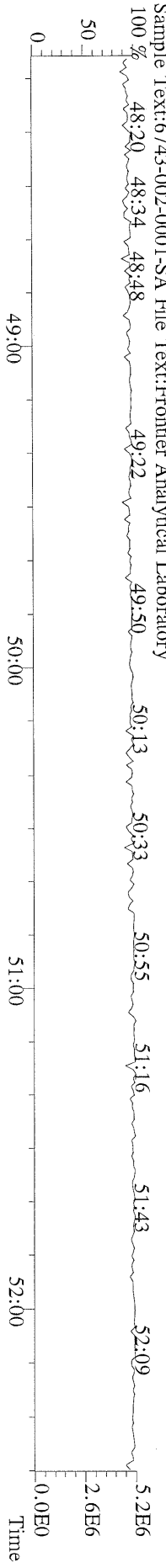
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory
 100 %
 A9.83E6



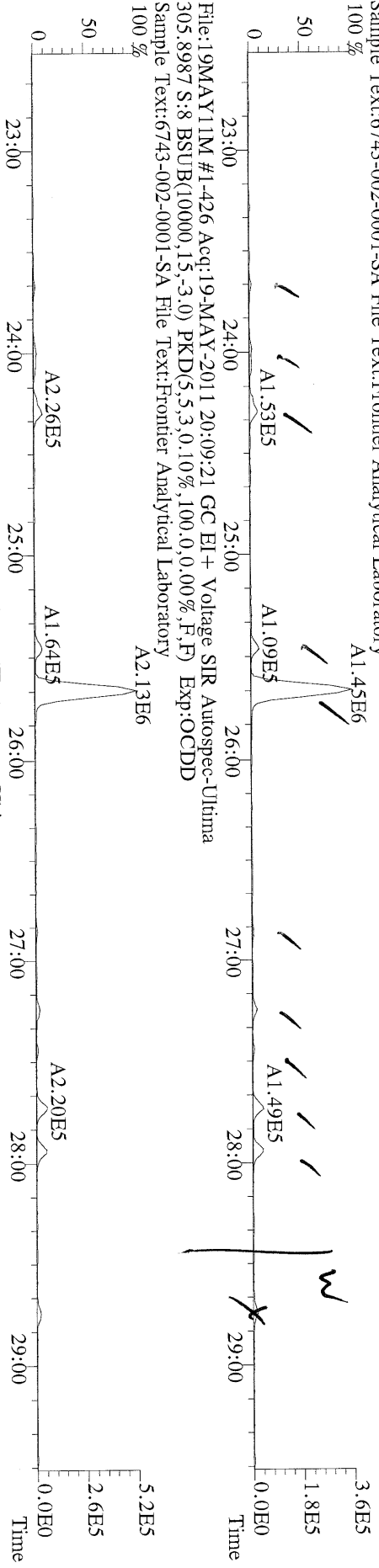
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory
 100 %
 H1.35E6
 A1.04E7



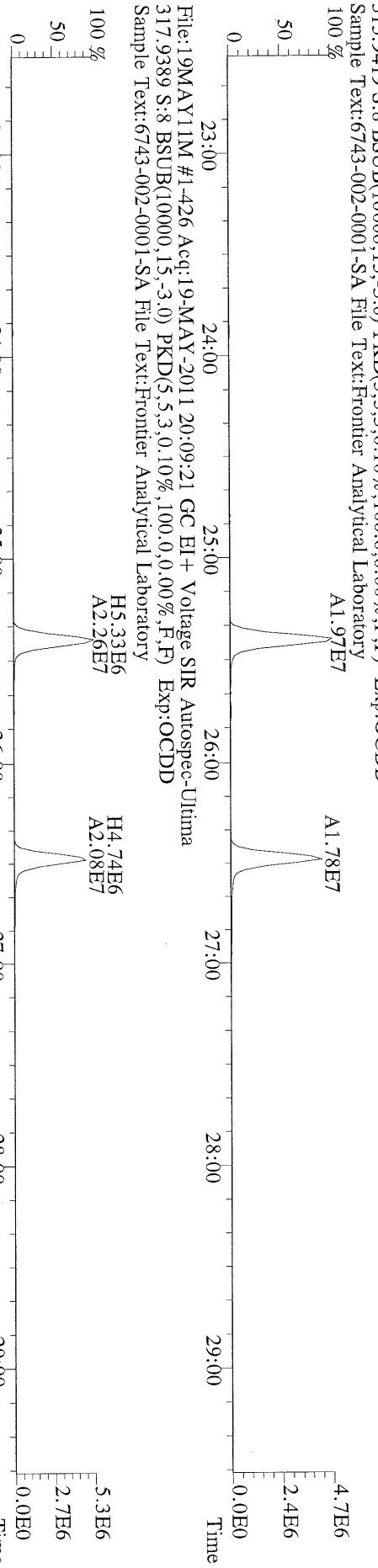
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 454.9728 S:8 F:5 Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory
 100 %
 48:20 48:34 48:48 49:22 49:50 50:13 50:33 50:55 51:16 51:43 52:09



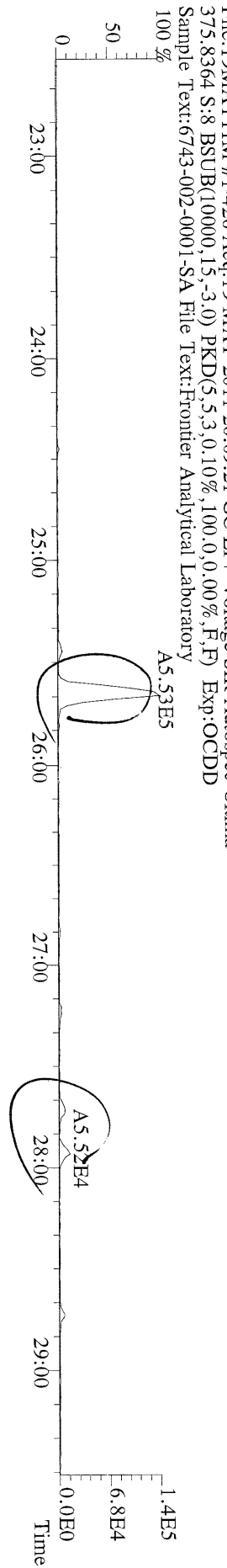
File:19MAY11M #1-426 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



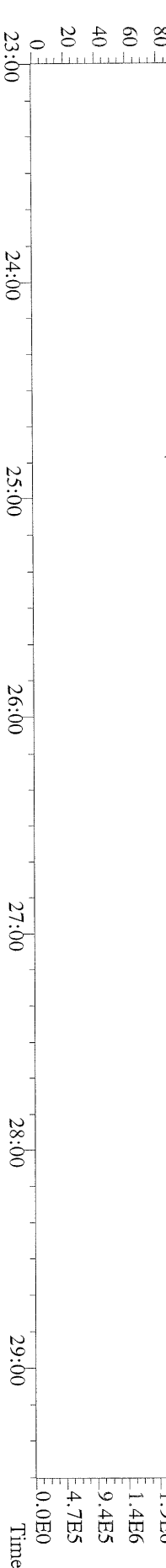
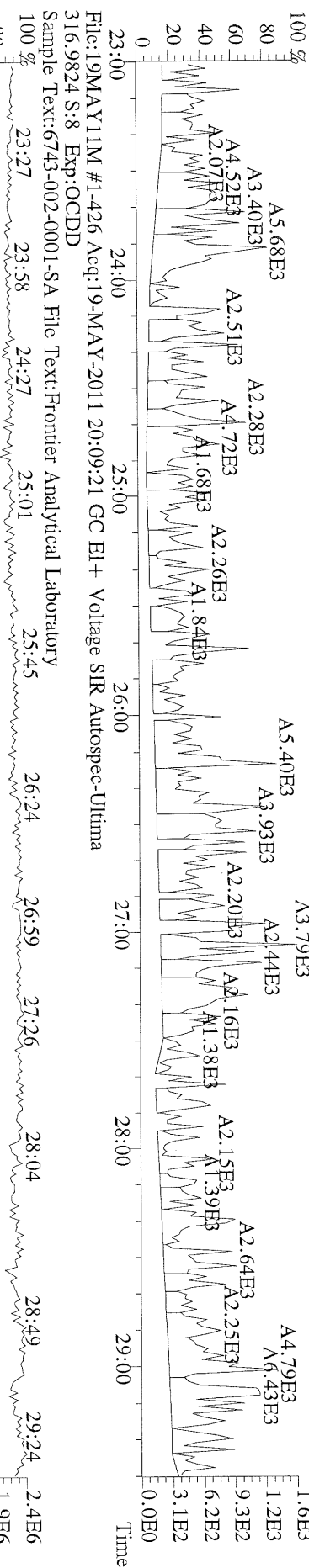
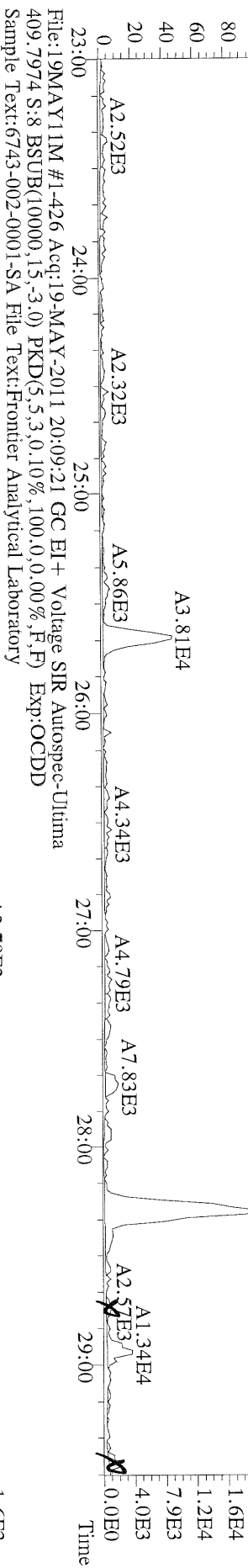
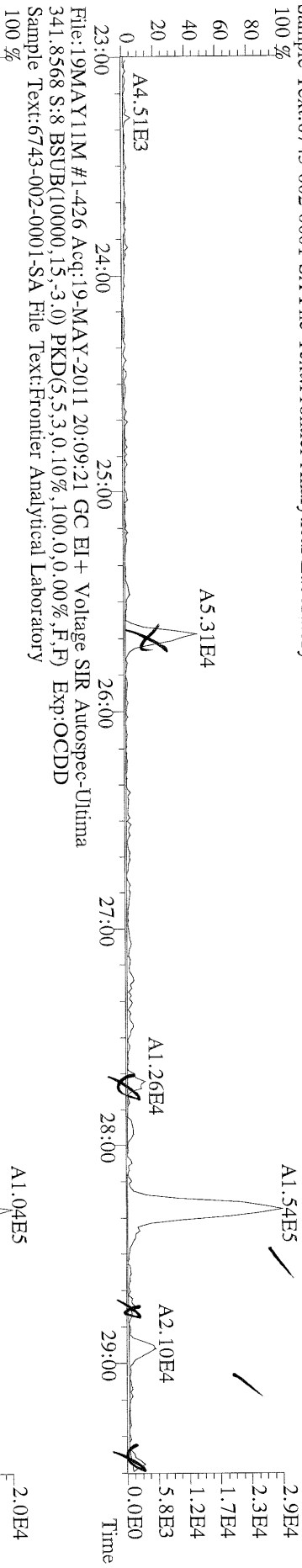
File:19MAY11M #1-426 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



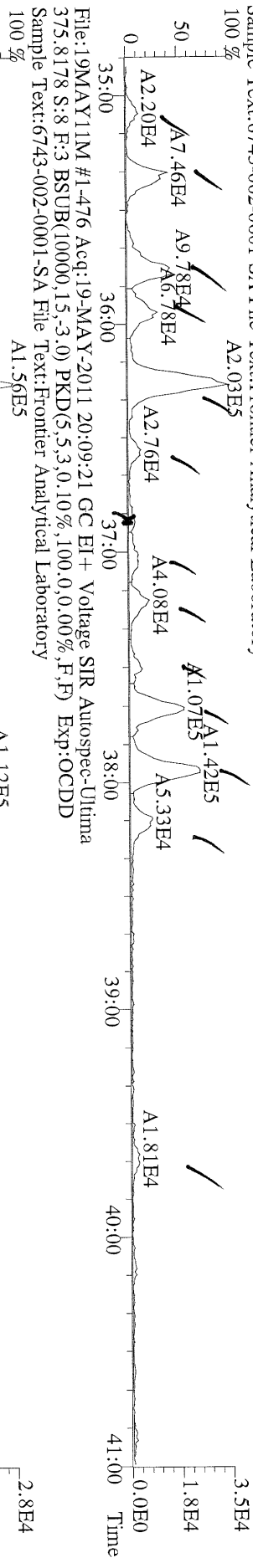
File:19MAY11M #1-426 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



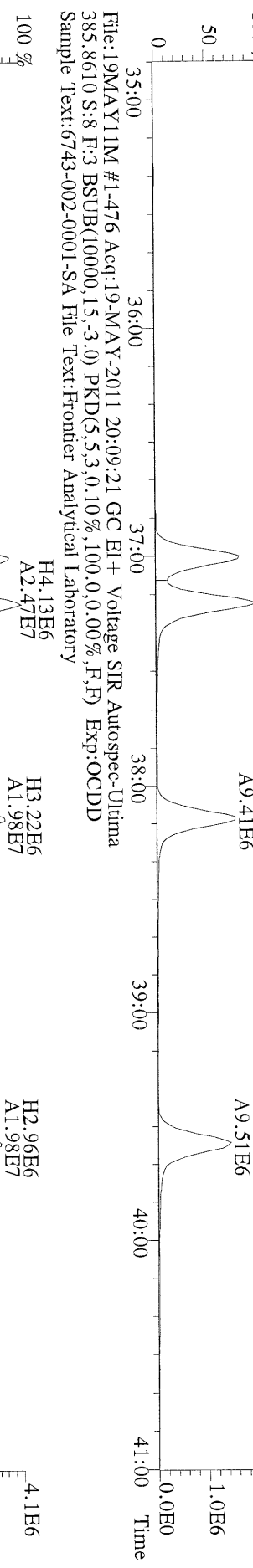
File:19MAY11M #1-426 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



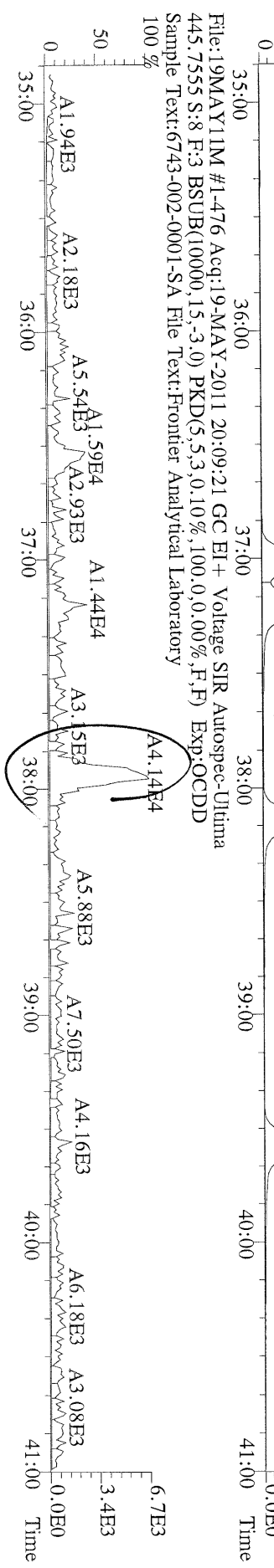
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



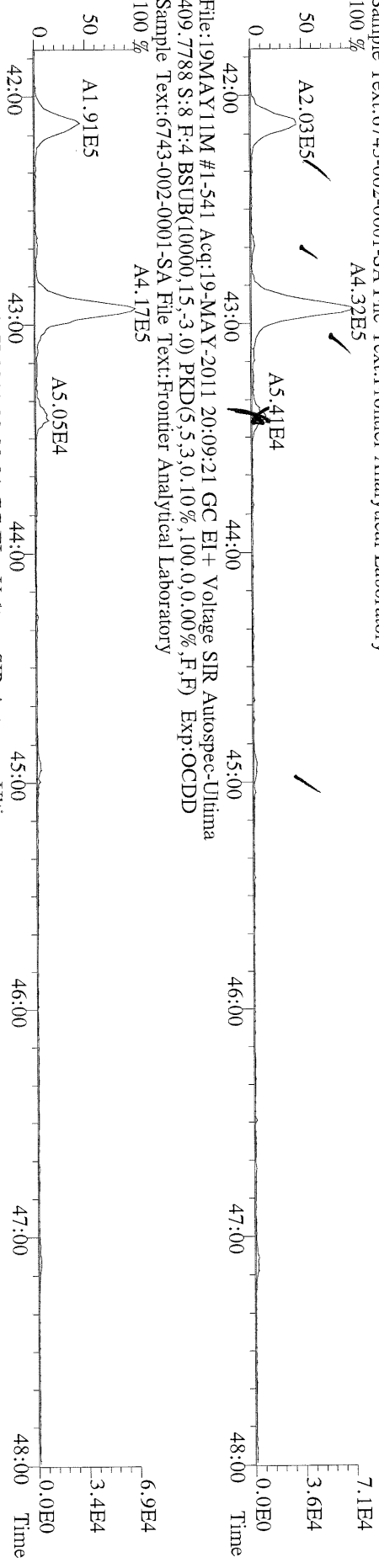
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



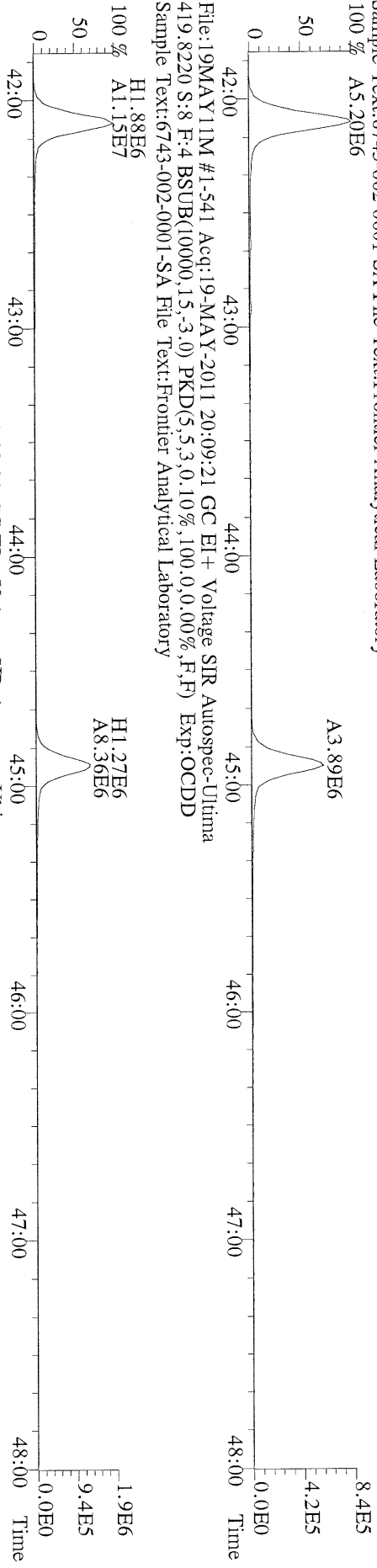
File:19MAY11M #1-476 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



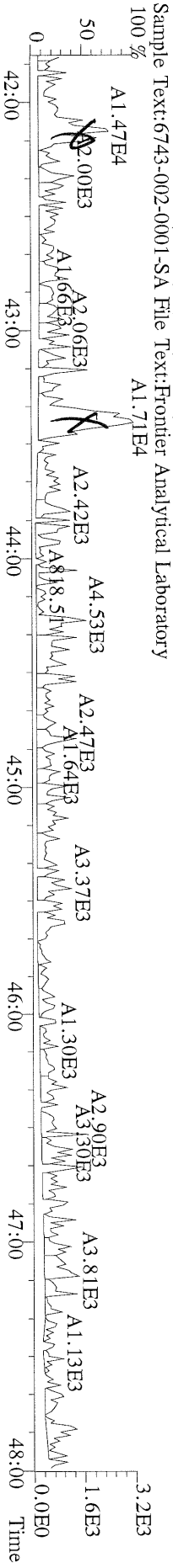
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



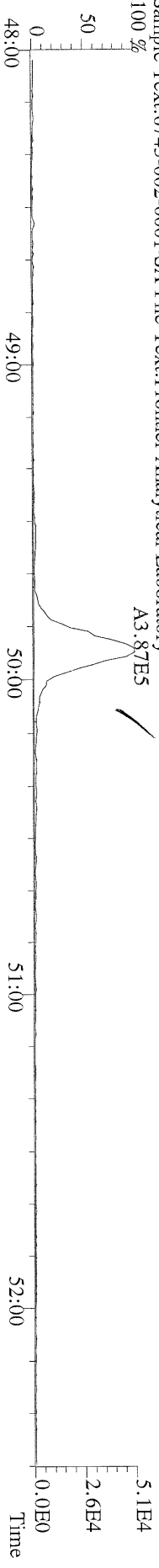
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



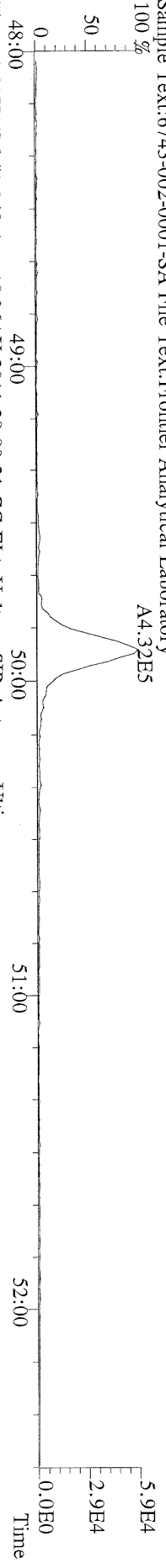
File:19MAY11M #1-541 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



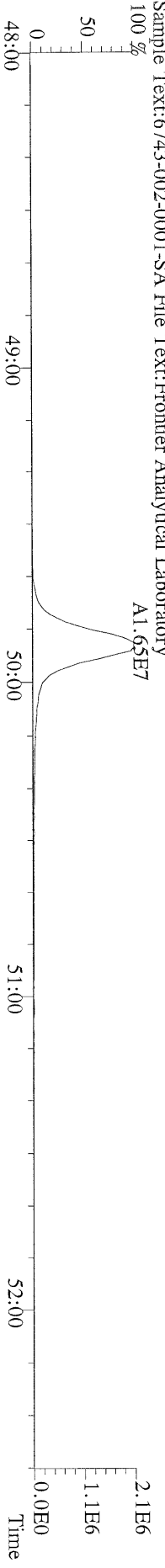
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



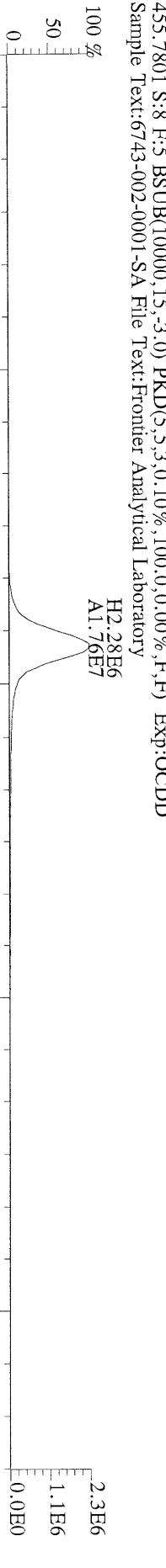
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



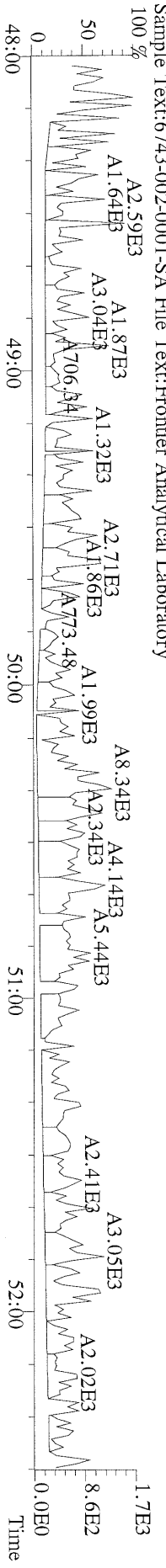
File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



File:19MAY11M #1-348 Acq:19-MAY-2011 20:09:21 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:6743-002-0001-SA File Text:Frontier Analytical Laboratory



Run #3 Filename 07MAR11M
Client ID: ST030711M4

S: 4

Acquired: 7-MAR-11 14:44:29

Cal: PCDDFAL3-3-7-11

Analyte:

FAL ID: 1613 Cs4 100511K

Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk 2,3,7,8-TCDD	40.00	1.84e+07	0.80 y	27:27	-	1.14 y
2	Unk 1,2,3,7,8-PeCDD	200.00	8.36e+07	1.43 y	33:16	-	1.06 y
3	Unk 1,2,3,4,7,8-HxCDD	200.00	9.27e+07	1.28 y	38:40	-	1.51 y
4	Unk 1,2,3,6,7,8-HxCDD	200.00	7.25e+07	1.27 y	38:49	-	1.47 y
5	Unk 1,2,3,7,8,9-HxCDD	200.00	8.35e+07	1.27 y	39:16	-	1.51 y
6	Unk 1,2,3,4,6,7,8-HpCDD	200.00	5.64e+07	0.89 y	44:15	-	1.28 y
7	Unk OCDD	400.00	1.00e+08	0.91 y	49:51	-	1.47 y
8	Unk 2,3,7,8-TCDF	40.00	3.24e+07	0.67 y	26:40	-	1.13 y
9	Unk 1,2,3,7,8-PeCDF	200.00	1.15e+08	1.67 y	31:33	-	0.943 y
10	Unk 2,3,4,7,8-PeCDF	200.00	1.10e+08	1.63 y	32:52	-	0.948 y
11	Unk 1,2,3,4,7,8-HxCDF	200.00	9.76e+07	1.20 y	37:15	-	1.06 y
12	Unk 1,2,3,6,7,8-HxCDF	200.00	1.09e+08	1.20 y	37:28	-	0.943 y
13	Unk 2,3,4,6,7,8-HxCDF	200.00	1.01e+08	1.20 y	38:24	-	1.07 y
14	Unk 1,2,3,7,8,9-HxCDF	200.00	1.22e+08	1.22 y	39:50	-	1.16 y
15	Unk 1,2,3,4,6,7,8-HpCDF	200.00	8.08e+07	1.03 y	42:21	-	1.55 y
16	Unk 1,2,3,4,7,8,9-HpCDF	200.00	6.31e+07	1.04 y	45:11	-	1.53 y
17	Unk OCDF	400.00	1.18e+08	0.93 y	50:13	-	0.902 y
18	IS/RT 13C-2,3,7,8-TCDD	100.00	4.05e+07	0.70 y	27:25	-	1.07 y
19	IS 13C-1,2,3,7,8-PeCDD	100.00	3.94e+07	1.69 y	33:16	-	1.04 y
20	IS 13C-1,2,3,4,7,8-HxCDD	100.00	3.06e+07	1.27 y	38:37	-	1.22 y
21	IS 13C-1,2,3,6,7,8-HxCDD	100.00	2.47e+07	1.27 y	38:48	-	0.983 y
22	IS 13C-1,2,3,4,6,7,8-HpCDD	100.00	2.20e+07	1.07 y	44:14	-	0.877 y
23	IS 13C-OCDD	200.00	3.41e+07	1.00 y	49:49	-	0.679 y
24	IS 13C-2,3,7,8-TCDF	100.00	7.18e+07	0.87 y	26:39	-	1.02 y
25	IS 13C-1,2,3,7,8-PeCDF	100.00	6.11e+07	1.64 y	31:31	-	0.872 y
26	IS 13C-2,3,4,7,8-PeCDF	100.00	5.79e+07	1.63 y	32:51	-	0.826 y
27	IS 13C-1,2,3,4,7,8-HxCDF	100.00	4.62e+07	0.44 y	37:14	-	1.84 y
28	IS 13C-1,2,3,6,7,8-HxCDF	100.00	5.78e+07	0.44 y	37:26	-	2.31 y
29	IS 13C-2,3,4,6,7,8-HxCDF	100.00	4.75e+07	0.44 y	38:23	-	1.89 y
30	IS 13C-1,2,3,7,8,9-HxCDF	100.00	5.27e+07	0.44 y	39:49	-	2.10 y
31	IS 13C-1,2,3,4,6,7,8-HpCDF	100.00	2.60e+07	0.47 y	42:20	-	1.04 y
32	IS 13C-1,2,3,4,7,8,9-HpCDF	100.00	2.07e+07	0.47 y	45:09	-	0.823 y
33	IS 13C-OCDF	200.00	6.54e+07	0.93 y	50:12	-	1.30 y
34	C/Up 37Cl-2,3,7,8-TCDD	40.00	1.14e+07		27:27	-	0.750 y
35	RS 13C-1,2,3,4-TCDD	100.00	3.80e+07	0.72 y	26:50	3.80e+05	- n
36	RS 13C-1,2,3,4-TCDF	100.00	7.01e+07	0.85 y	25:34	7.01e+05	- n
37	RS/RT 13C-1,2,3,7,8,9-HxCDD	100.00	2.51e+07	1.26 y	39:14	2.51e+05	- n
38	Tot Total Tetra-Dioxins	0.00	-	- n	-	-	1.14 y
39	Tot Total Penta-Dioxins	0.00	-	- n	-	-	1.06 y
40	Tot Total Hexa-Dioxins	0.00	-	- n	-	-	1.50 y
41	Tot Total Hepta-Dioxins	0.00	-	- n	-	-	1.28 y
42	Tot Total Tetra-Furans	0.00	-	- n	-	-	1.13 y
43	Tot 1st Fn. Tot Penta-Furans	0.00	-	- n	-	-	0.945 y
44	Tot Total Penta-Furans	0.00	-	- n	-	-	0.945 y
45	Tot Total Hexa-Furans	0.00	-	- n	-	-	1.05 y
46	Tot Total Hepta-Furans	0.00	-	- n	-	-	1.54 y

Analyst: J

Date: 3/8/11

USEPA - ITD

FORM 3B

PCDD/PCDF INITIAL CALIBRATION RELATIVE RESPONSES

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3 GC Column ID: DB5

CS0 Data Filename: 07MAR11M S1 CS4 Data Filename: 07MAR11M S5

CS1 Data Filename: 07MAR11M S3 CS4 Data Filename: 07MAR11M S6

CS2 Data Filename: 07MAR11M S4 CS5 Data Filename: 07MAR11M S7

Labeled Compounds	RELATIVE RESPONSE (RR)						MEAN	Cv
	CS1	CS2	CS3	CS4	CS5	CS6	RR	(%RSD)
13C-2,3,7,8-TCDD	1.00	1.09	1.07	1.00	1.01	1.01	1.03	3.69
13C-1,2,3,7,8-PeCDD	1.03	1.19	1.04	0.94	0.93	0.94	1.01	9.97
13C-1,2,3,4,7,8-HxCDD	1.20	1.13	1.22	1.18	1.22	1.19	1.19	2.78
13C-1,2,3,6,7,8-HxCDD	0.92	0.89	0.98	0.95	0.92	0.95	0.94	3.41
13C-1,2,3,4,6,7,8-HpCDD	0.85	0.84	0.88	0.81	0.80	0.79	0.83	4.23
13C-OCDD	0.62	0.67	0.68	0.58	0.55	0.55	0.61	9.50
13C-2,3,7,8-TCDF	0.96	1.03	1.02	0.96	0.96	0.94	0.98	3.84
13C-1,2,3,7,8-PeCDF	0.80	0.97	0.87	0.79	0.77	0.78	0.83	9.66
13C-2,3,4,7,8-PeCDF	0.79	0.95	0.83	0.75	0.77	0.74	0.80	9.70
13C-1,2,3,4,7,8-HxCDF	1.80	1.56	1.84	1.92	1.94	1.97	1.84	8.15
13C-1,2,3,6,7,8-HxCDF	2.28	2.03	2.31	2.33	2.38	2.41	2.29	5.90
13C-2,3,4,6,7,8-HxCDF	1.86	1.66	1.89	1.90	1.92	1.94	1.86	5.48
13C-1,2,3,7,8,9-HxCDF	1.96	1.94	2.10	1.96	1.96	1.98	1.98	3.04
13C-1,2,3,4,6,7,8-HpCDF	0.99	0.95	1.04	0.97	0.98	0.99	0.99	2.88
13C-1,2,3,4,7,8,9-HpCDF	0.77	0.80	0.82	0.74	0.73	0.73	0.77	5.17
13C-OCDF	1.13	1.30	1.30	1.12	1.06	1.07	1.17	9.46
CLEANUP STANDARD								
37Cl-2,3,7,8-TCDD	0.68	0.81	0.75	0.68	0.74	0.71	0.73	6.57

Analyst: 6Date: 3/8/11

PCDD/PCDF INITIAL CALIBRATION ION ABUNDANCE RATIOS

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

CS0 Data Filename: 07MAR11M S1 CS3 Data Filename: 07MAR11M S5

CS1 Data Filename: 07MAR11M S3 CS4 Data Filename: 07MAR11M S6

CS2 Data Filename: 07MAR11M S4 CS5 Data Filename: 07MAR11M S7

NATIVE ANALYTES	M/Z'S FORMING RATIO	ION ABUNDANCE RATIOS						QC LIMITS
		CS1	CS2	CS3	CS4	CS5	CS6	
2,3,7,8-TCDD	M/M+2	0.83	0.81	0.80	0.83	0.79	0.86	0.65-0.89
1,2,3,7,8-PeCDD	M+2/M+4	1.44	1.44	1.43	1.37	1.41	1.37	1.32-1.78
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.27	1.28	1.27	1.30	1.25	1.05-1.43
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.27	1.27	1.27	1.27	1.31	1.05-1.43
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.27	1.27	1.26	1.26	1.25	1.05-1.43
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.90	0.90	0.89	0.89	0.89	0.90	0.88-1.20
OCDD	M+2/M+4	0.94	0.94	0.91	0.95	0.94	1.00	0.76-1.02
2,3,7,8-TCDF	M/M+2	0.67	0.67	0.67	0.66	0.69	0.68	0.65-0.89
1,2,3,7,8-PeCDF	M+2/M+4	1.66	1.65	1.67	1.69	1.64	1.61	1.32-1.78
2,3,4,7,8-PeCDF	M+2/M+4	1.65	1.64	1.63	1.64	1.64	1.61	1.32-1.78
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.20	1.20	1.19	1.23	1.22	1.05-1.43
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.20	1.20	1.21	1.22	1.18	1.05-1.43
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.19	1.20	1.19	1.22	1.20	1.05-1.43
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.21	1.22	1.21	1.19	1.18	1.05-1.43
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	1.04	1.03	1.04	1.02	1.02	0.88-1.20
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	1.04	1.04	1.02	1.03	1.03	0.88-1.20
OCDF	M+2/M+4	0.91	0.92	0.93	0.94	0.91	0.90	0.76-1.02

Analyst: 8Date: 3/8/11

USEPA - ITD

FORM 4B

PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 07MAR11M Sam:1

Analysis Date: 7-MAR-11 11:58:32

LABELLED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	ACCEPT	CONC. FOUND	CONC. RANGE (ng/mL) (3)
13C-2,3,7,8-TCDD	M/M+2	0.67	0.65-0.89	y	97.6	82.0 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.70	1.32-1.78	y	101	62.0 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	101	85.0 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	98.3	85.0 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	103	72.0 - 138
13C-OCDD	M+2/M+4	1.00	0.76-1.02	y	203	96.0 - 415
13C-2,3,7,8-TCDF	M/M+2	0.86	0.65-0.89	y	98.0	71.0 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.64	1.32-1.78	y	96.5	76.0 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.65	1.32-1.78	y	97.7	77.0 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.44	0.43-0.59	y	97.8	76.0 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.44	0.43-0.59	y	99.5	70.0 - 143
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.44	0.43-0.59	y	99.9	73.0 - 137
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.44	0.43-0.59	y	98.7	74.0 - 135
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.48	0.37-0.51	y	100	78.0 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.47	0.37-0.51	y	100	77.0 - 129
13C-OCDF	M+2/M+4	0.91	0.76-1.02	y	194	96.0 - 415
CLEANUP STANDARD (4)						
37Cl-2,3,7,8-TCDD					9.35	7.80 - 12.8

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

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

Analyst: JDate: 3/8/11

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 7-MAR-11 11:58:32 CS3 or VER Data Filename: 07MAR11M Sam:1

NATIVE ANALYTES	RETENTION TIME		RRT	RRT
	REFERENCE			QC LIMITS (1)
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD		1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD		1.001	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,6,7,8-HxCDD		1.012	1.000-1.019
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF		1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF		1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF		1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF		1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD		1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF		1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF		1.001	0.999-1.001
OCDD	13C-OCDD		1.001	0.999-1.001
OCDF	13C-OCDF		1.000	0.999-1.001
LABELED COMPOUNDS				
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,7,8,9-HxCDD		0.984	0.977-1.000
13C-1,2,3,6,7,8-HxCDD			0.988	0.981-1.003
13C-1,2,3,4,7,8-HxCDF			0.949	0.944-0.970
13C-1,2,3,6,7,8-HxCDF			0.954	0.949-0.975
13C-2,3,4,6,7,8-HxCDF			0.978	0.959-1.021
13C-1,2,3,7,8,9-HxCDF			1.014	0.977-1.047
13C-1,2,3,4,6,7,8-HpCDD			1.127	1.086-1.130
13C-1,2,3,4,6,7,8-HpCDF			1.079	1.043-1.085
13C-1,2,3,4,7,8,9-HpCDF			1.151	1.057-1.154
13C-OCDD			1.269	1.032-1.311
13C-OCDF			1.279	1.000-1.311

(1) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

Analyst: 8Date: 3/8/11

Frontier Analytical Laboratory - Acquisition Log

Run Name:07MAR11M

Instrument: FAL3

GC: DB5

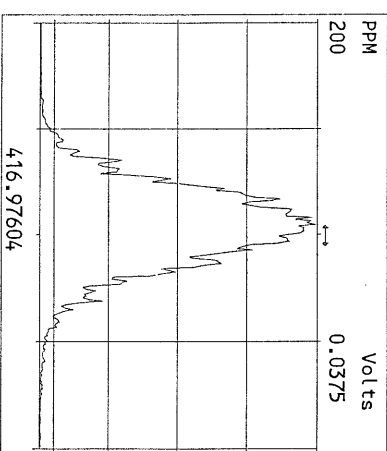
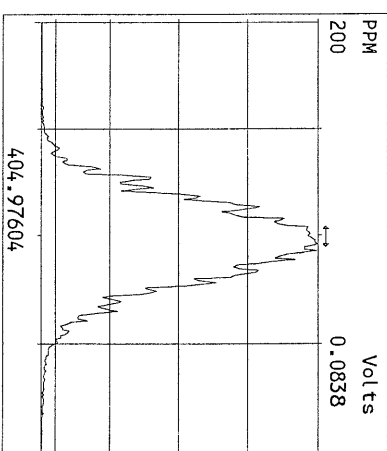
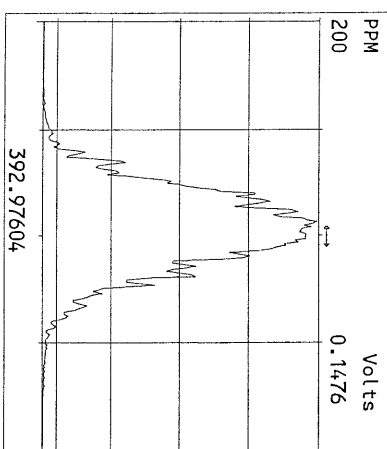
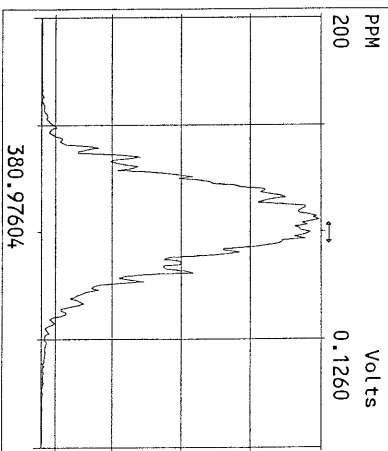
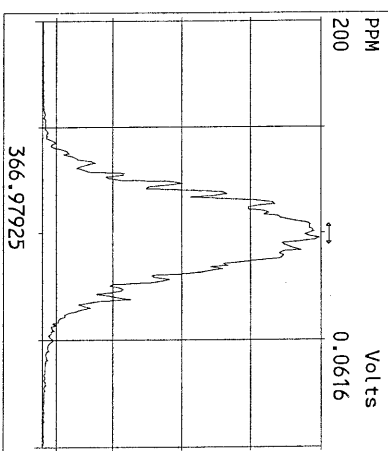
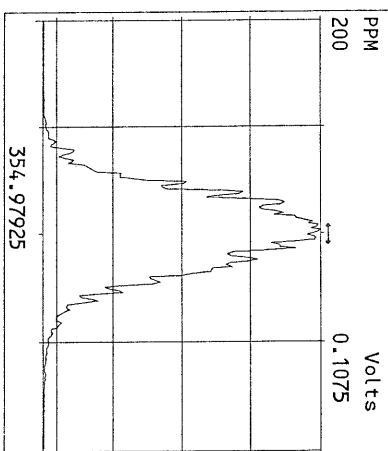
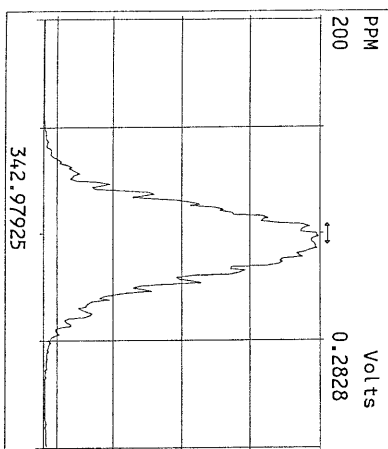
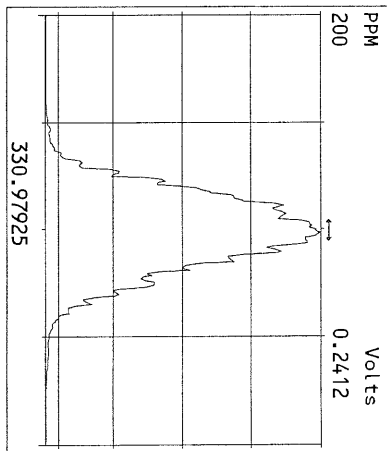
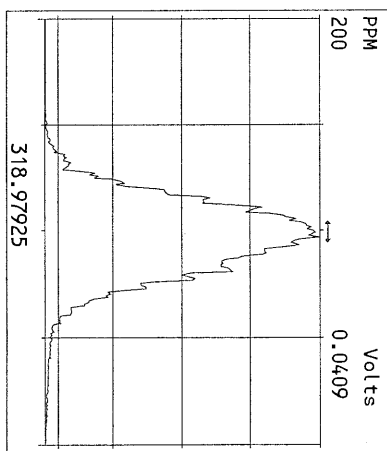
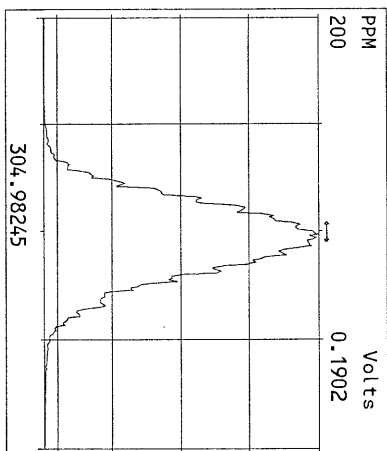
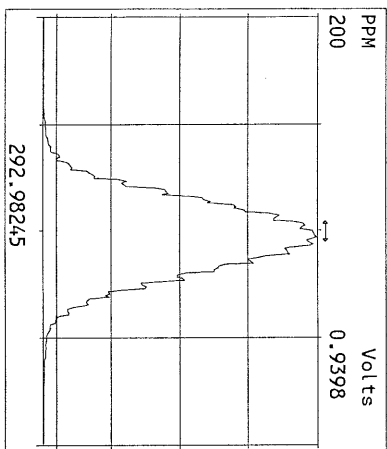
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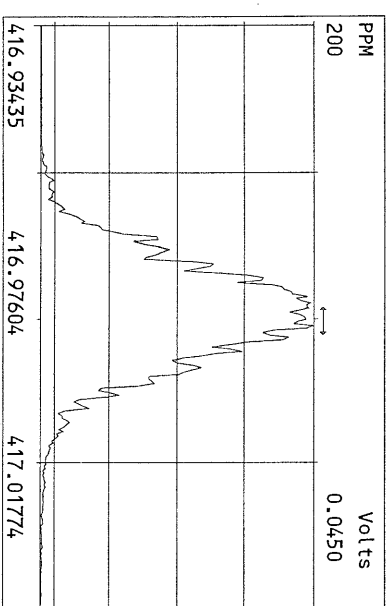
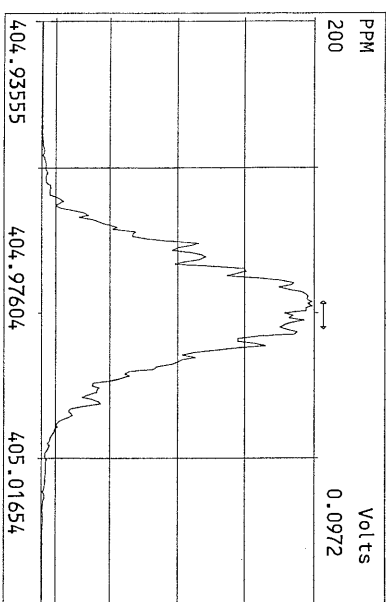
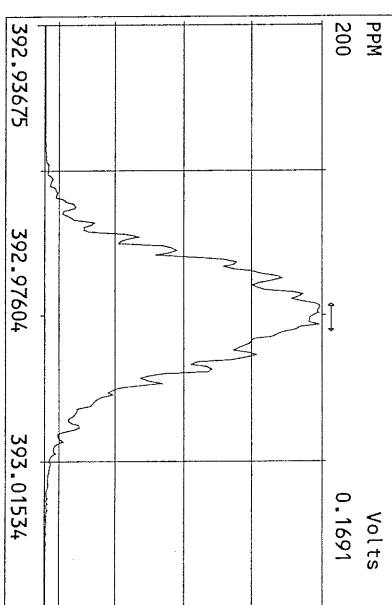
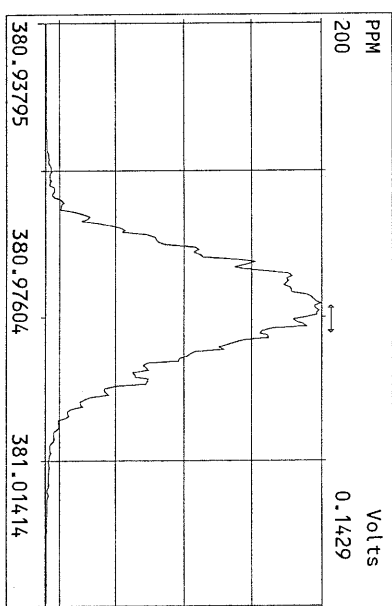
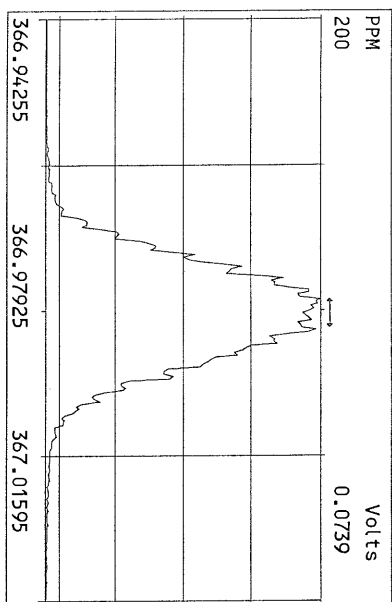
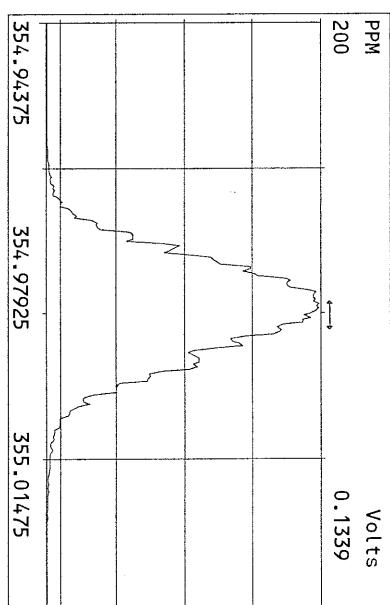
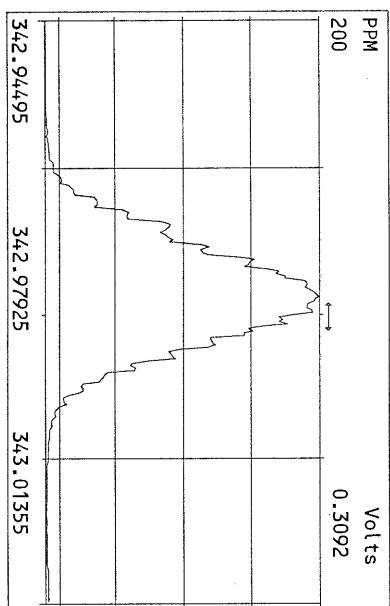
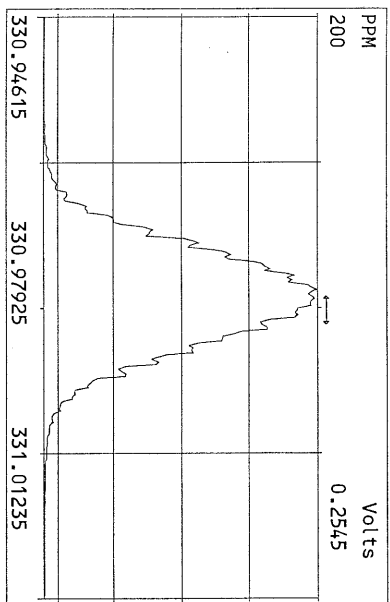
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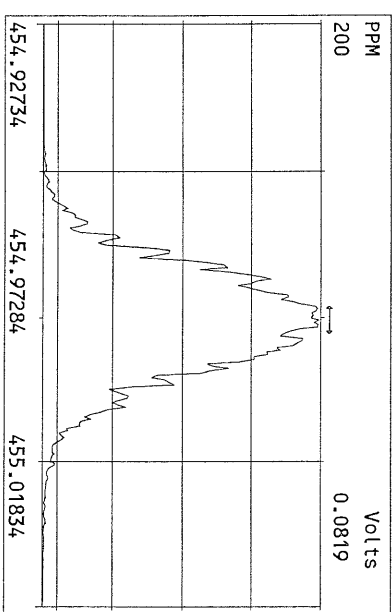
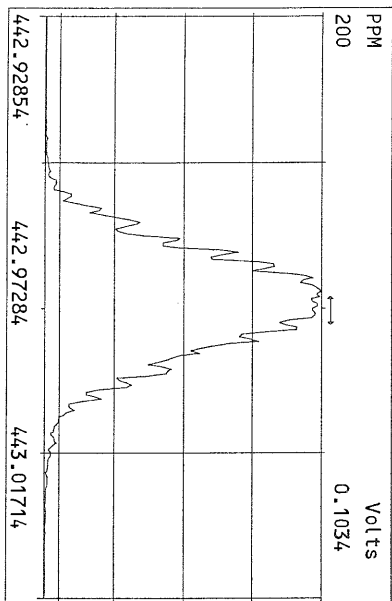
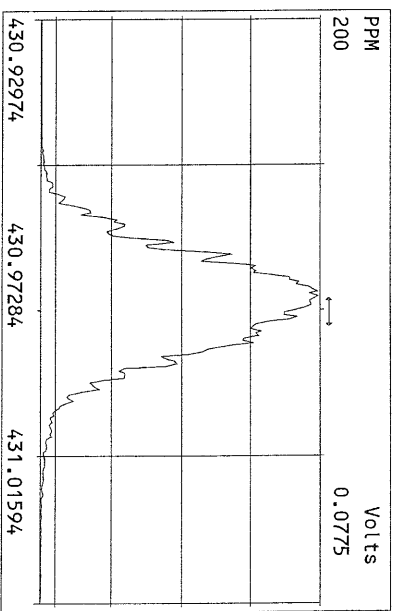
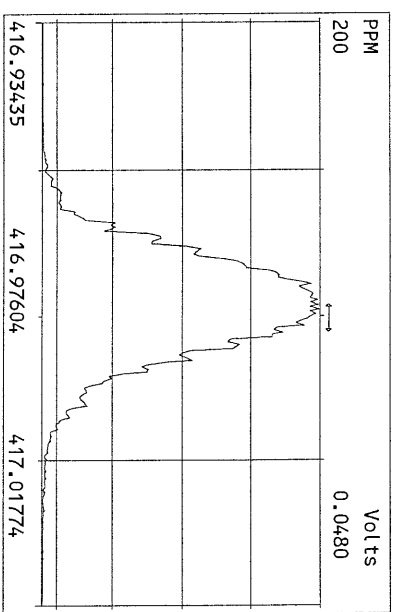
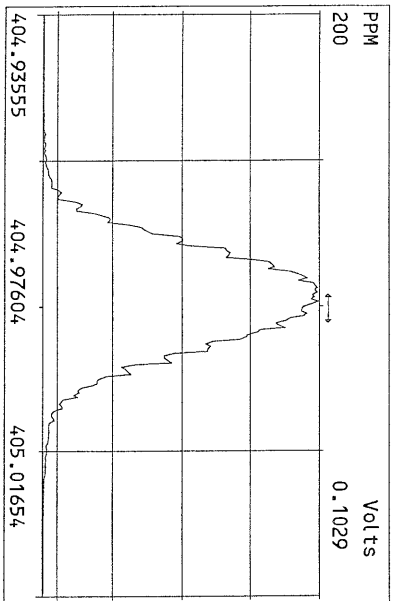
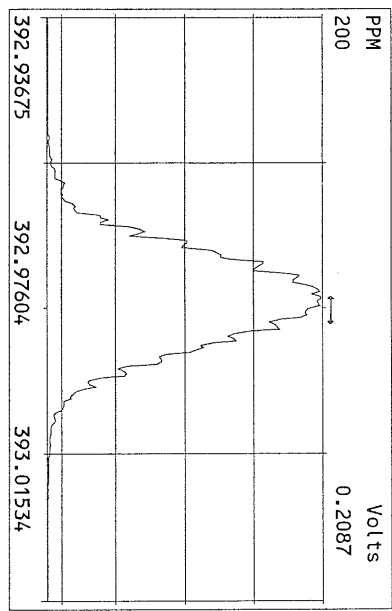
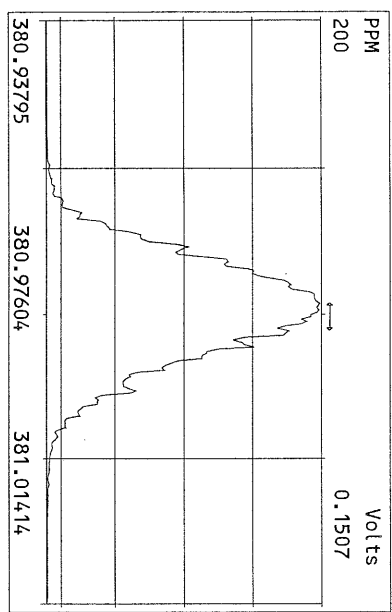
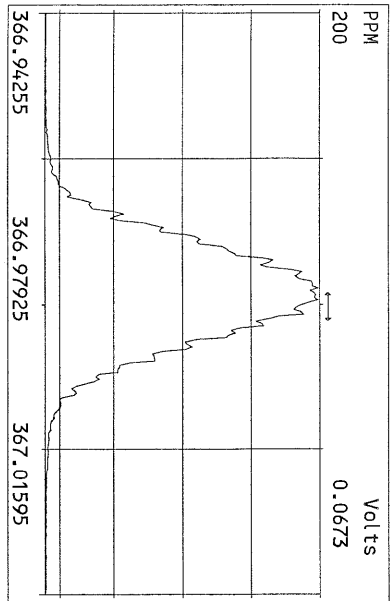
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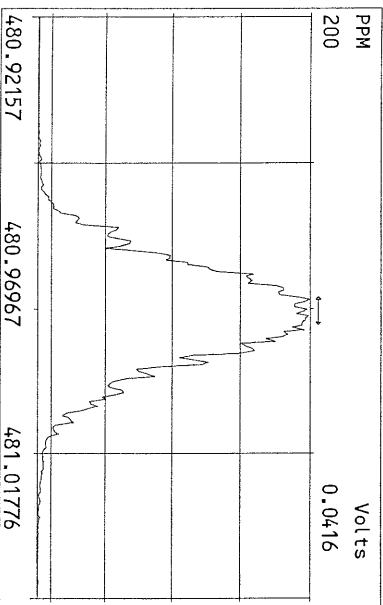
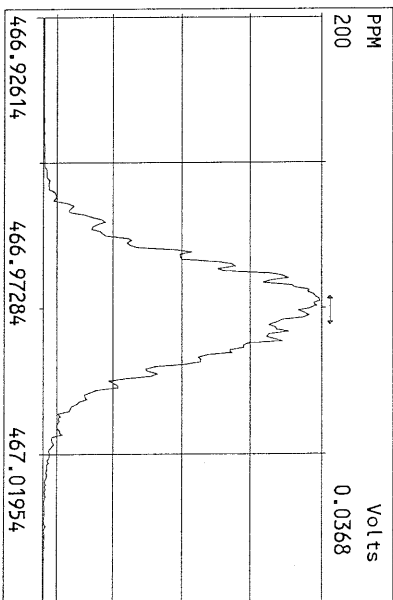
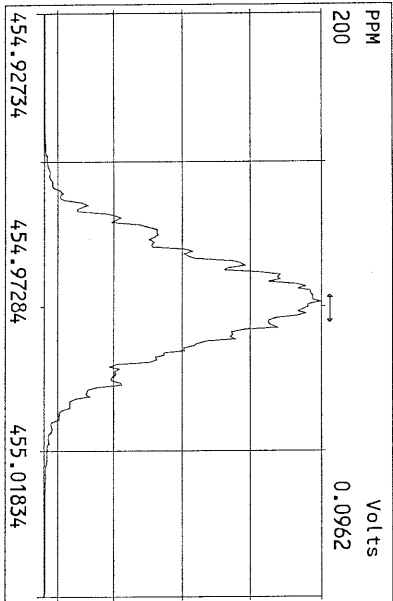
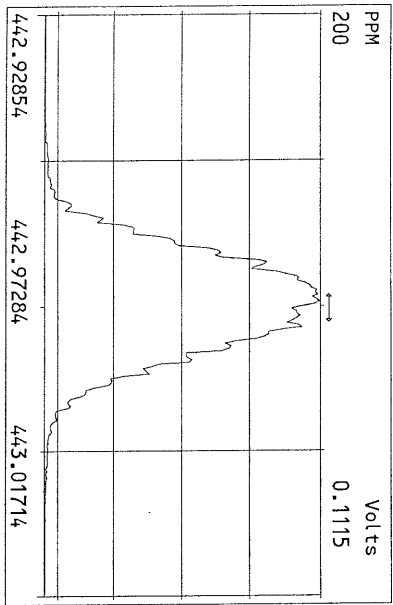
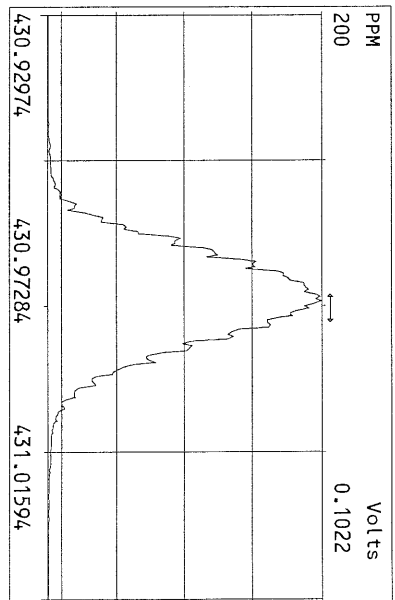
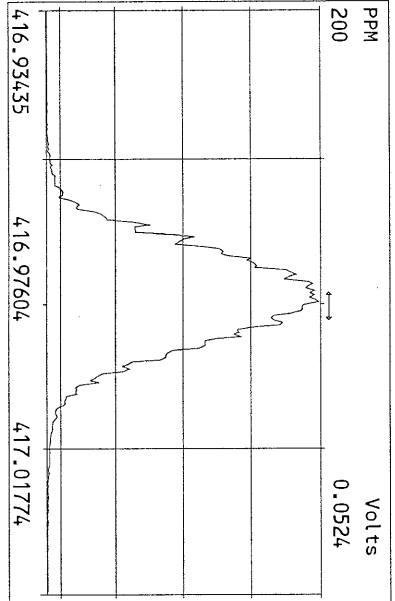
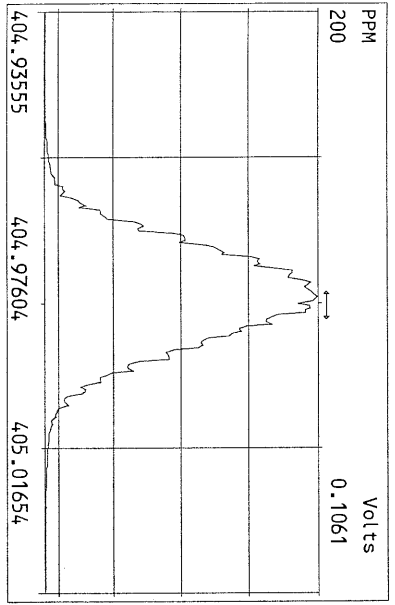
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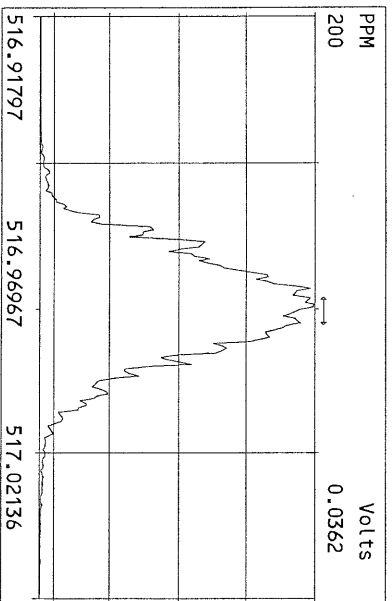
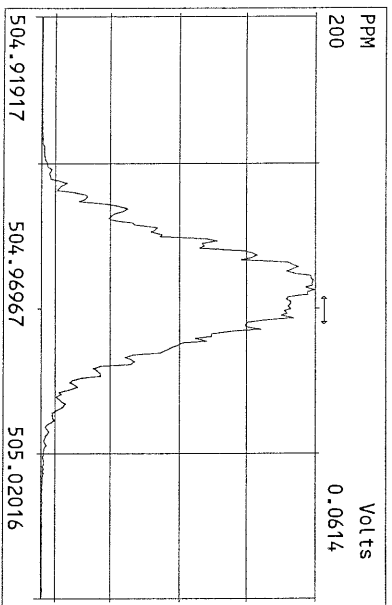
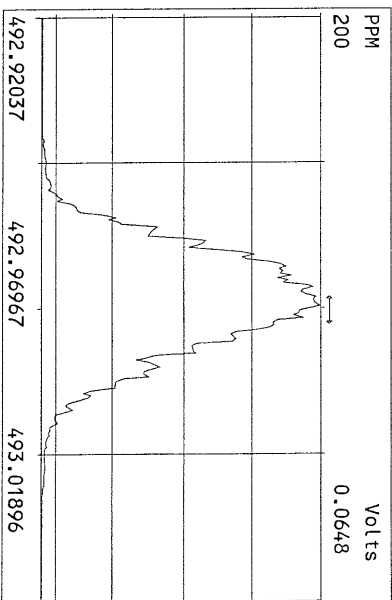
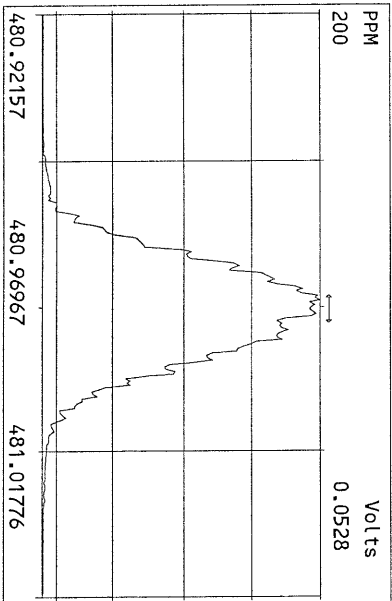
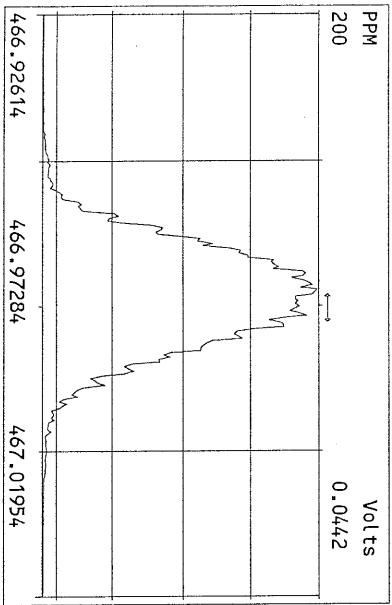
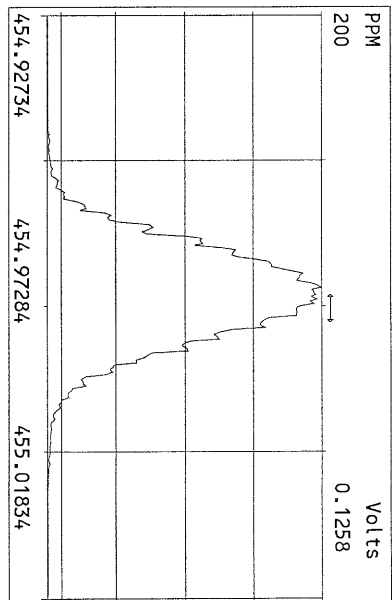
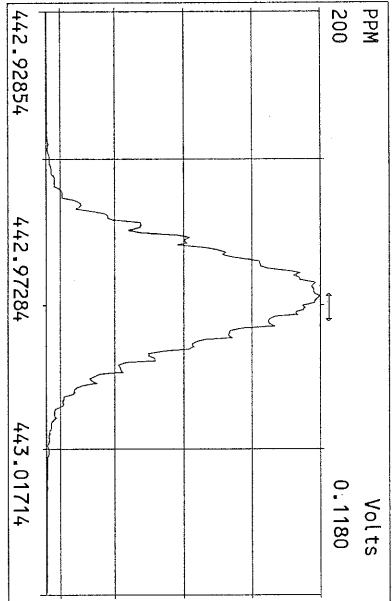
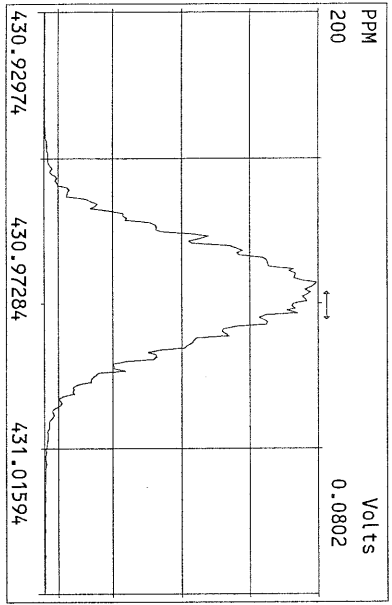
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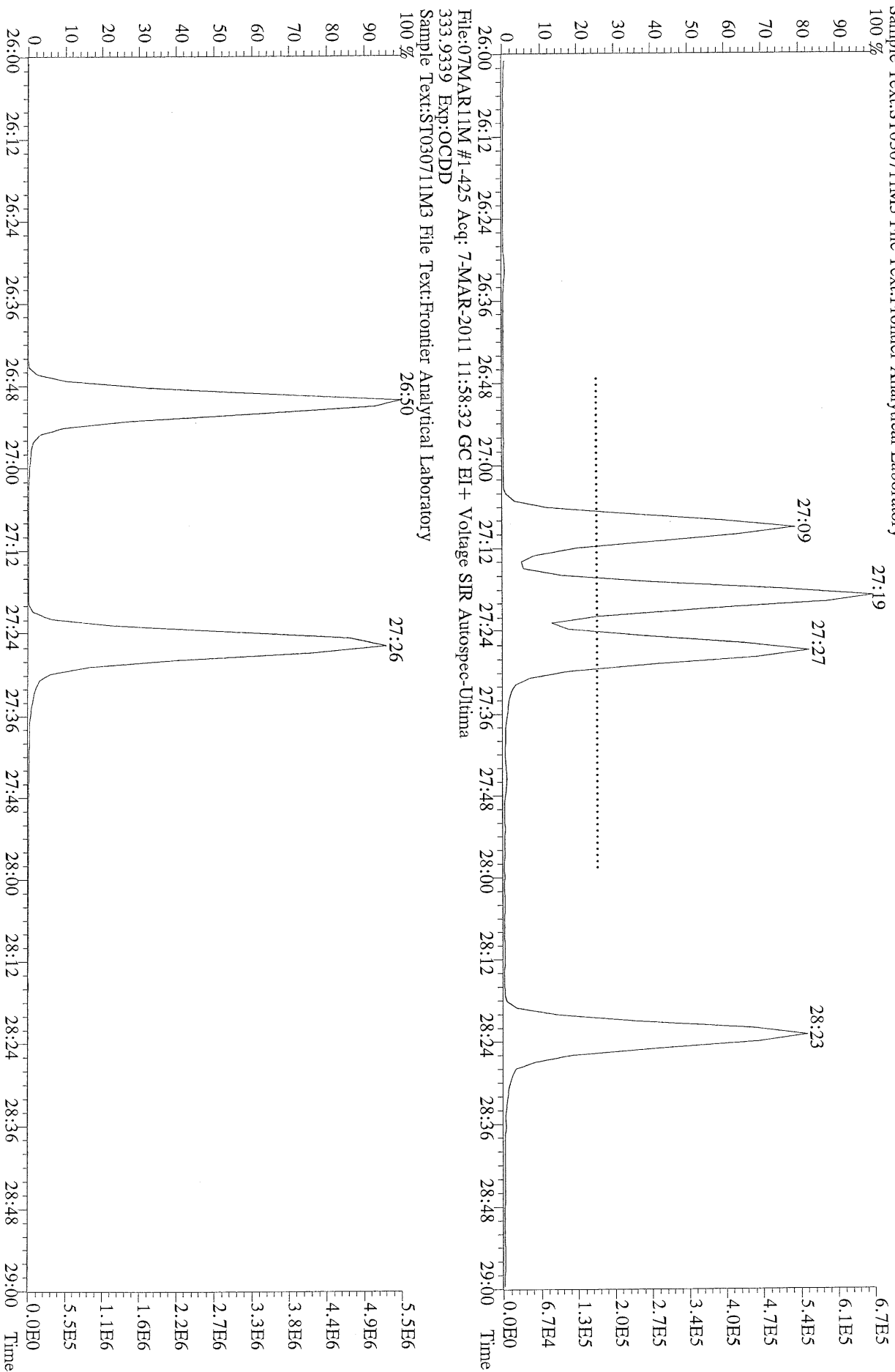






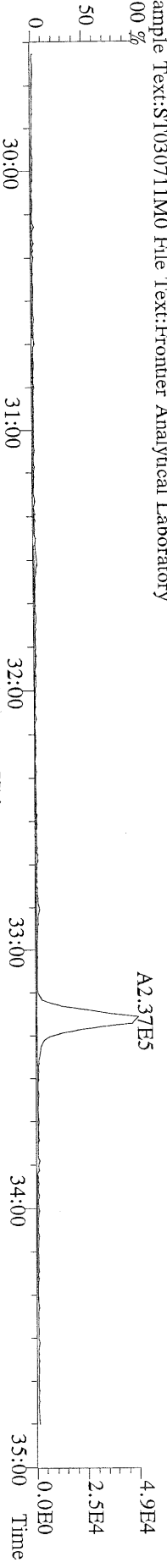


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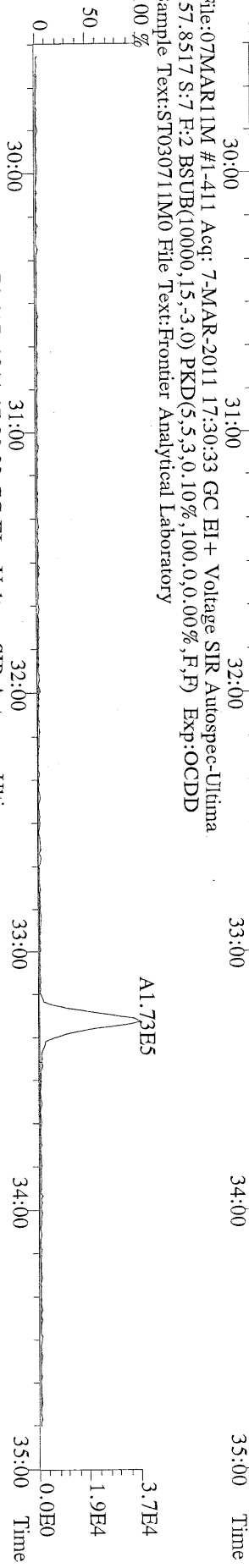


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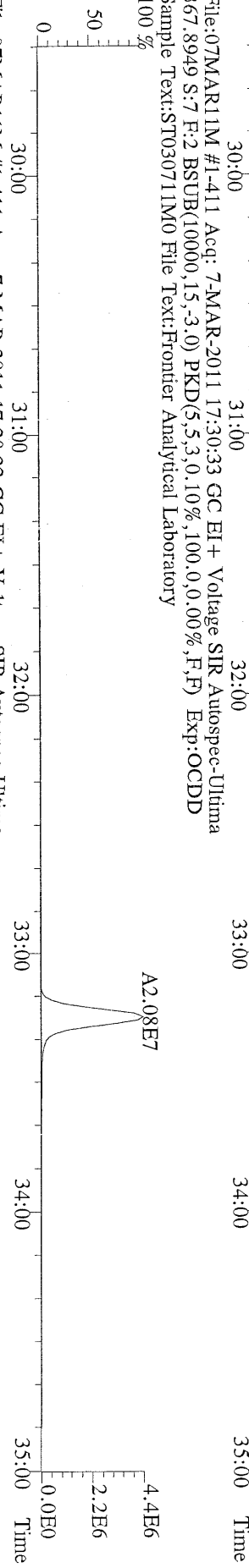
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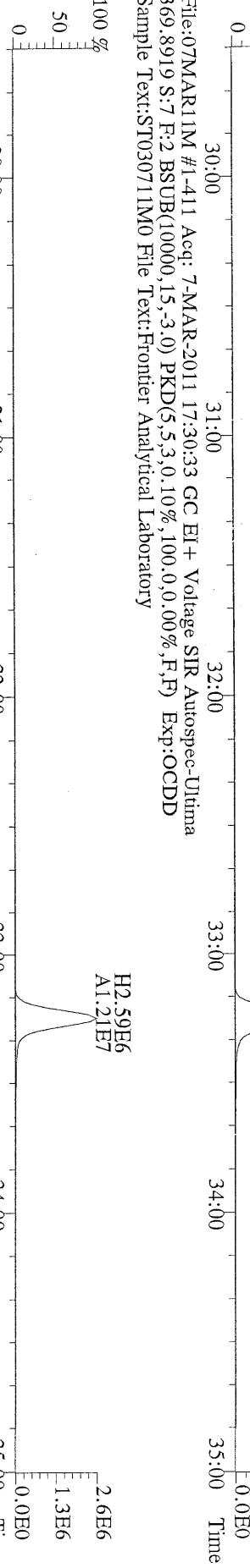
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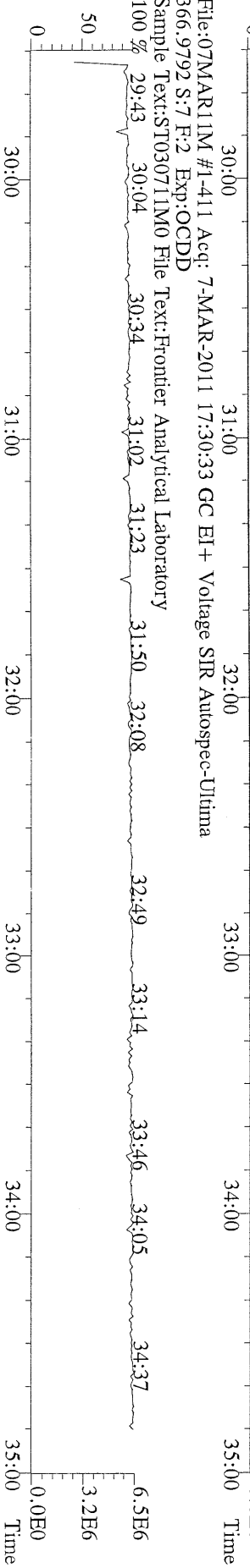
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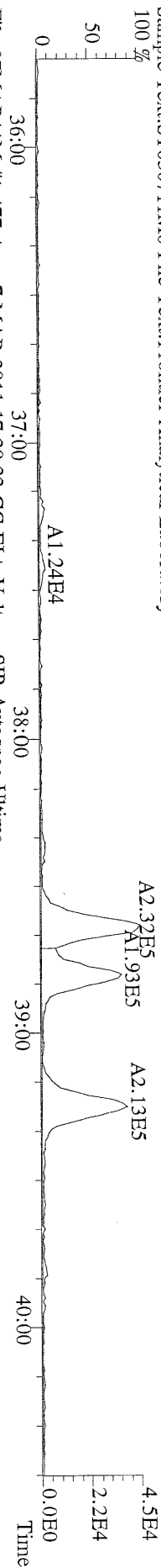
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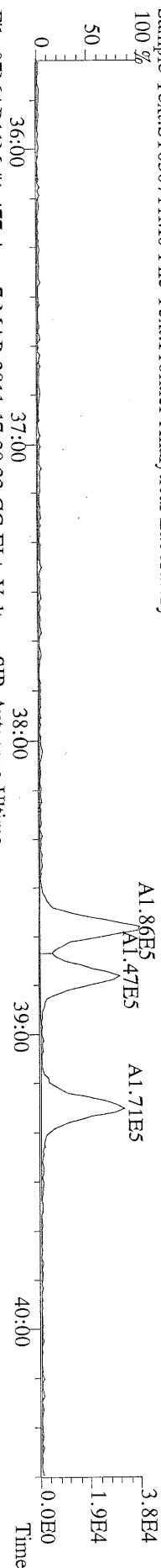
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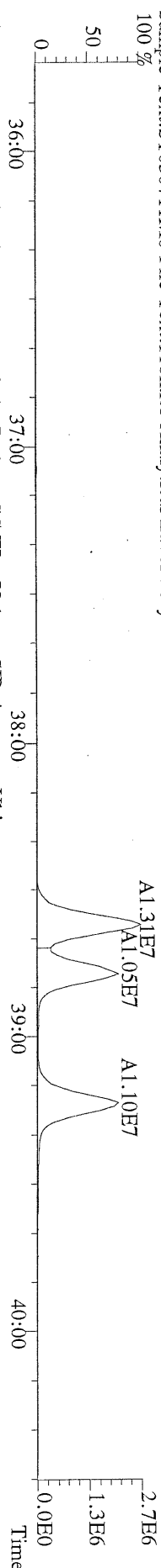
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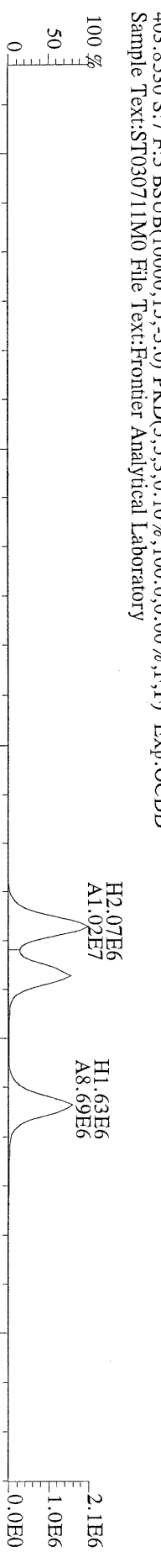
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391.8127 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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100 %



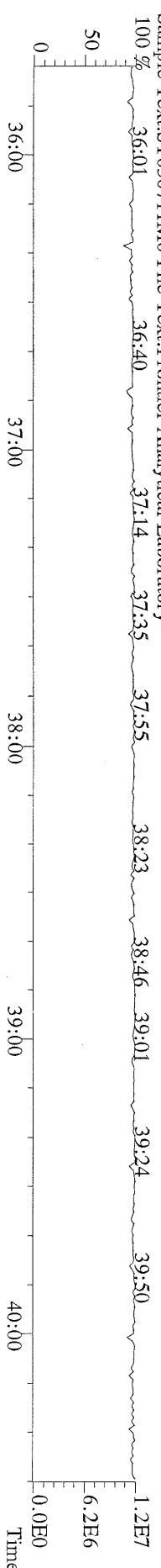
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401.8559 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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100 %



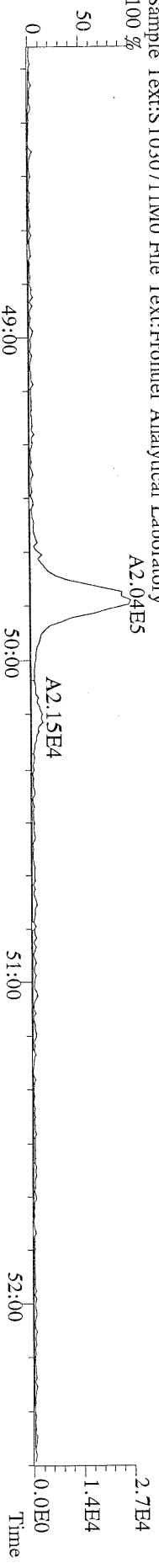
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403.8530 S:7 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



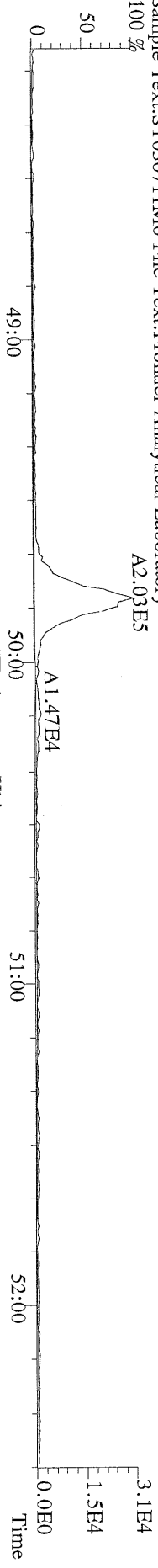
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380.9760 S:7 F:3 Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



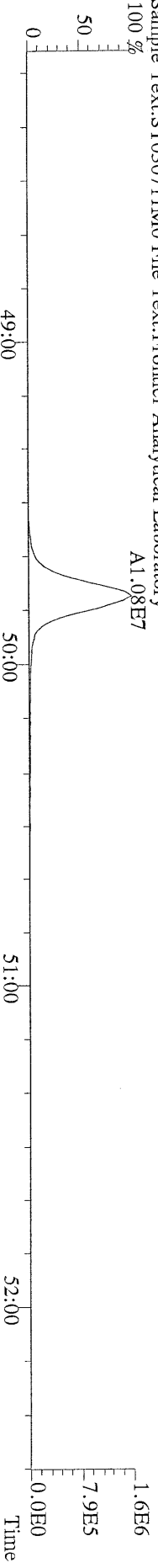
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457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



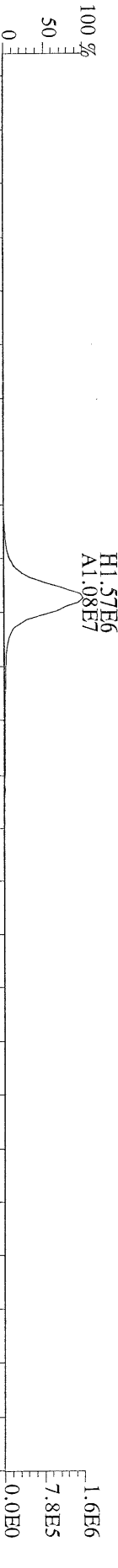
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459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



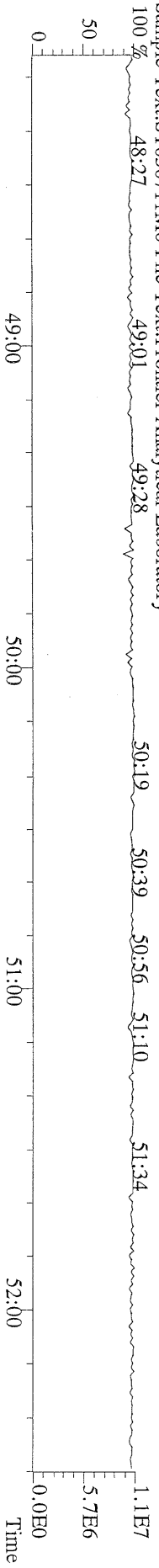
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469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



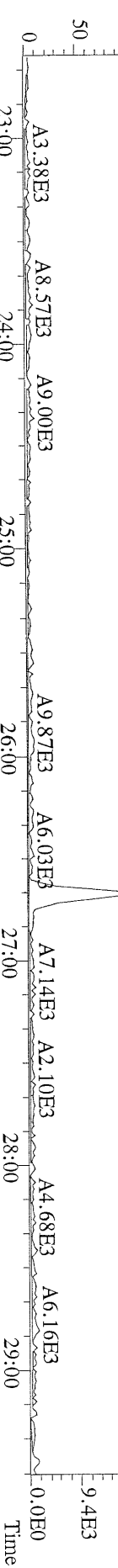
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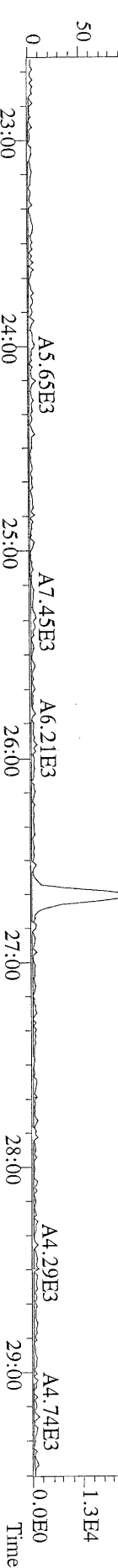
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454.9728 S:7 F:5 Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



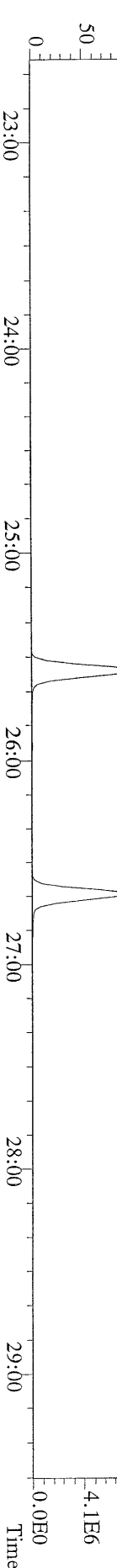
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 303.9016 S:7 BSUB(10000,15,-3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



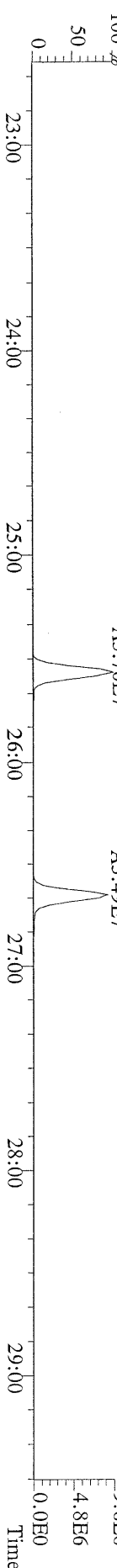
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 305.8987 S:7 BSUB(10000,15,-3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



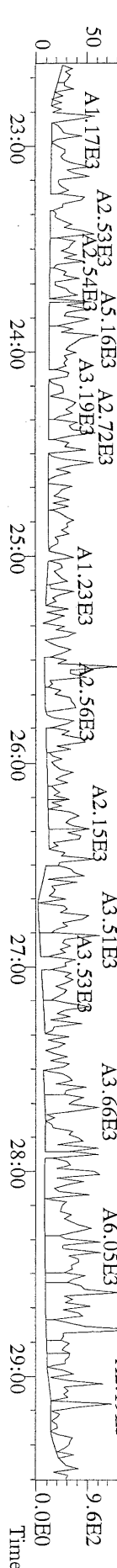
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 315.9419 S:7 BSUB(10000,15,-3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



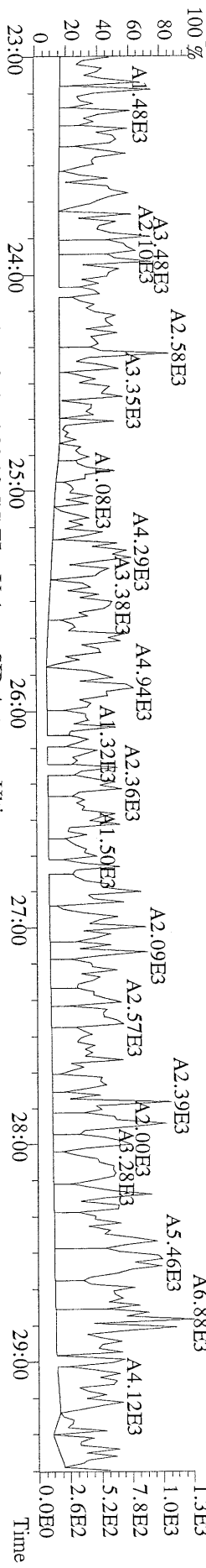
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 317.9389 S:7 BSUB(10000,15,-3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



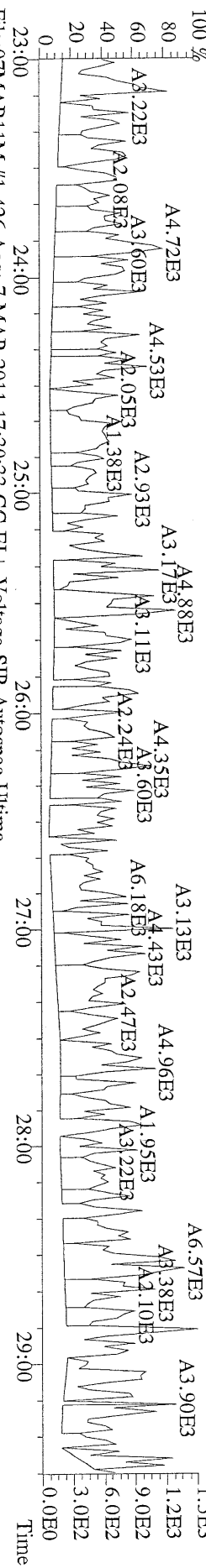
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 375.8364 S:7 BSUB(10000,15,-3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



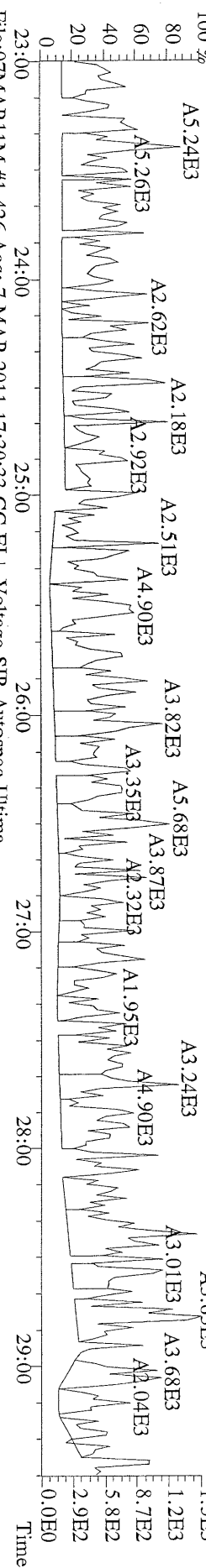
File:07MAR11M #1-426 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Utima
 339.8568 S:7 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



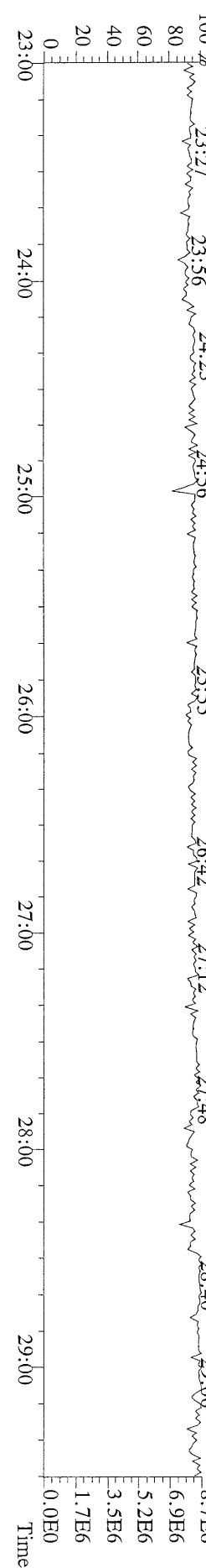
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 341.8568 S:7 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



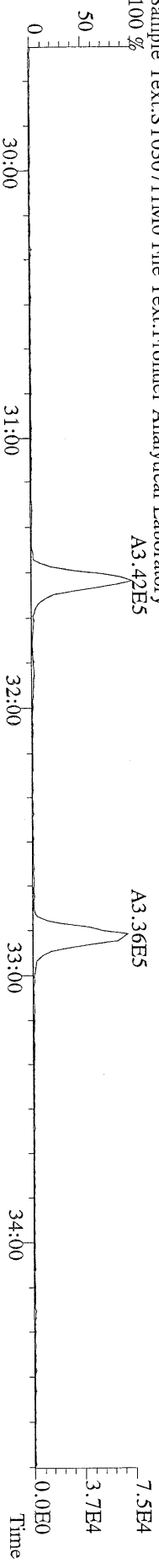
File:07MAR11M #1-426 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Utima
 409.7974 S:7 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



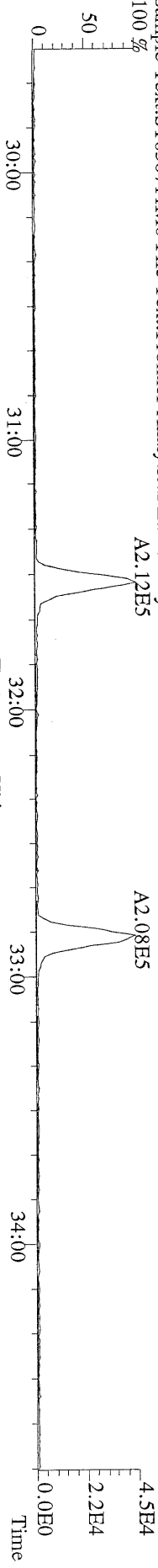
File:07MAR11M #1-426 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Utima
 316.9824 S:7 Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



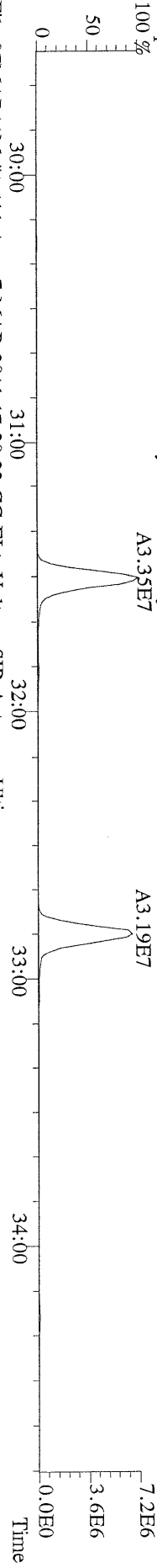
File:07MAR11M #1-411 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



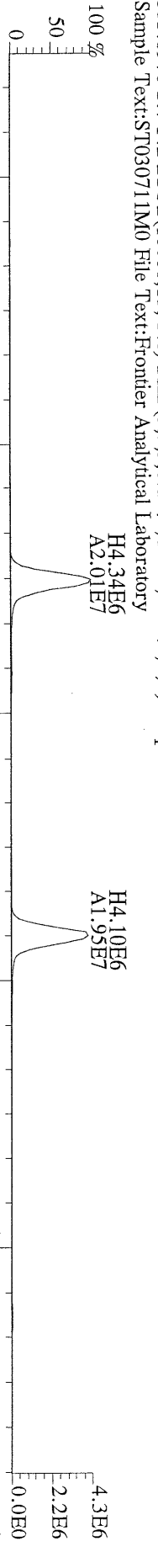
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 341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



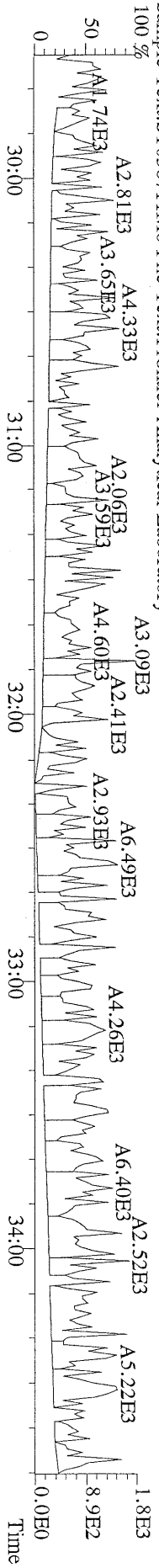
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 351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



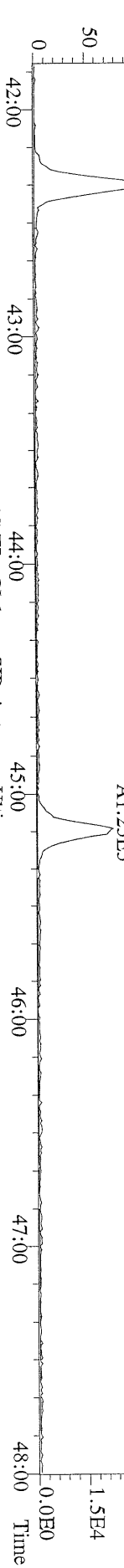
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 353.8970 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



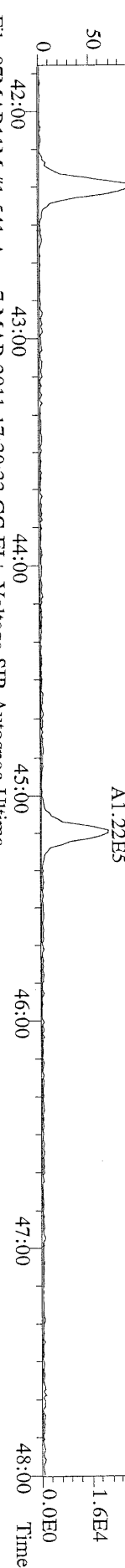
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 409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



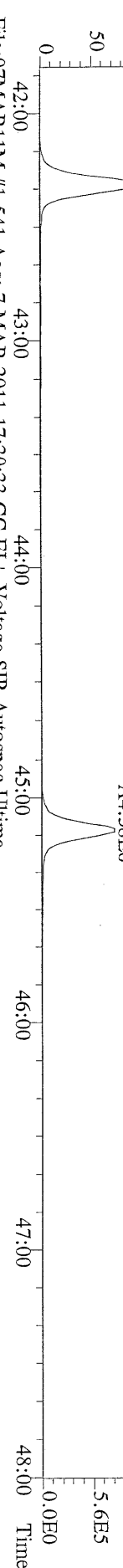
File:07MARI1M #1-541 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Utima
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



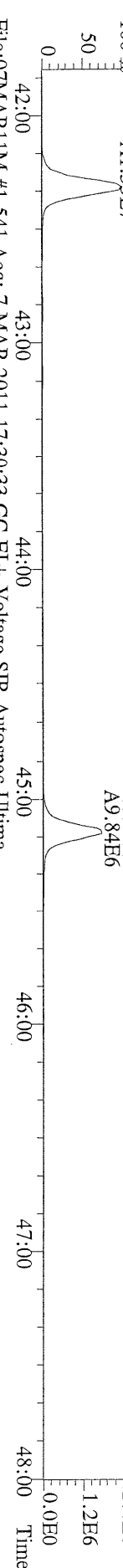
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409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



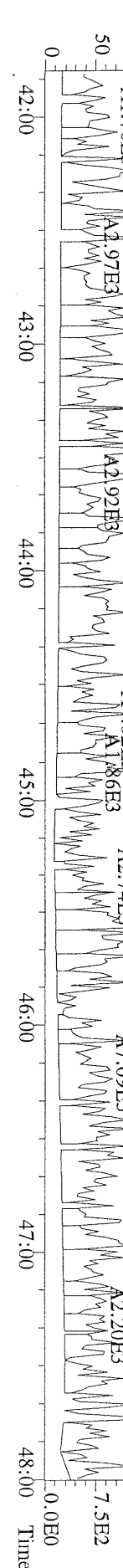
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417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



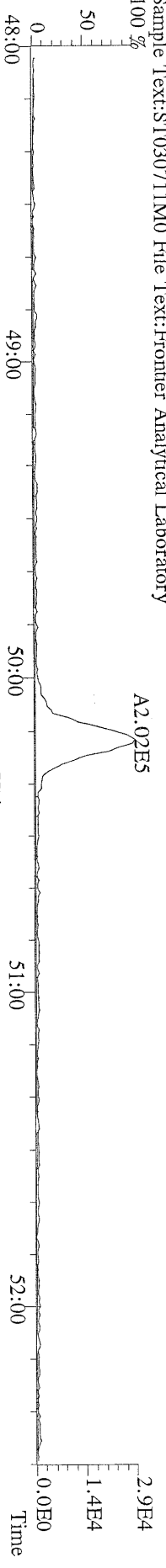
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419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



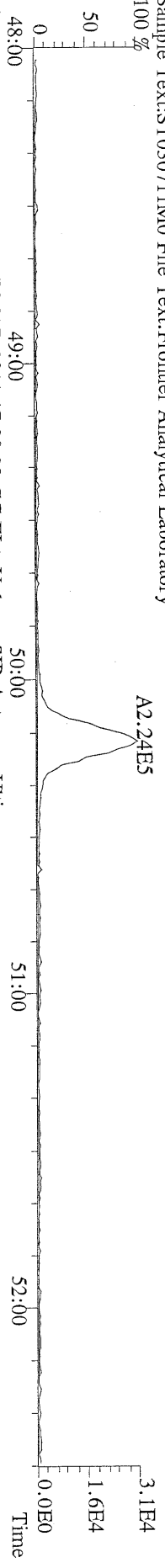
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479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



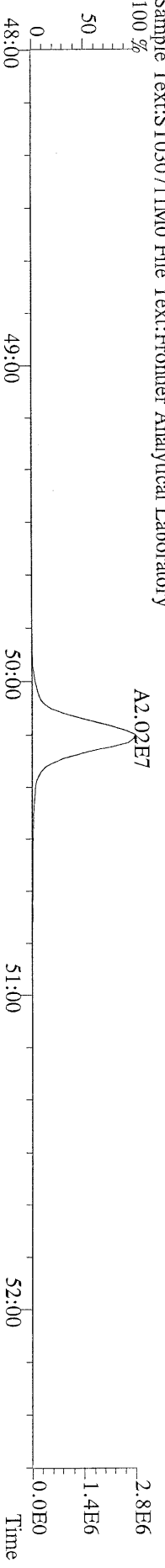
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441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



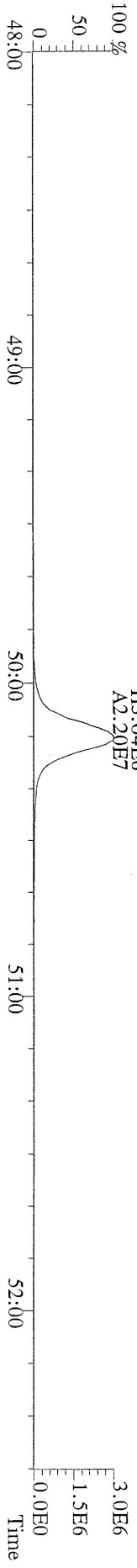
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443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



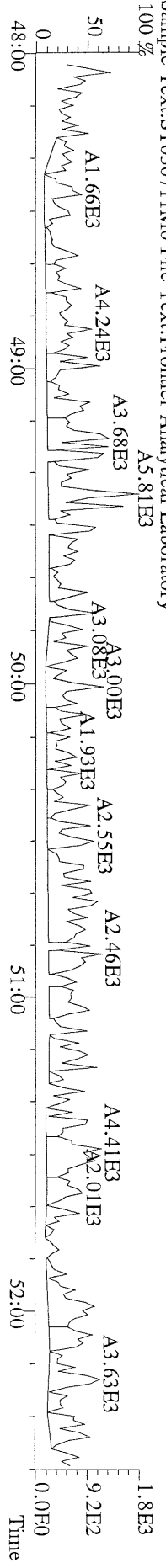
File:07MAR11M #1-347 Acq: 7-MAR-2011 17:30:33 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



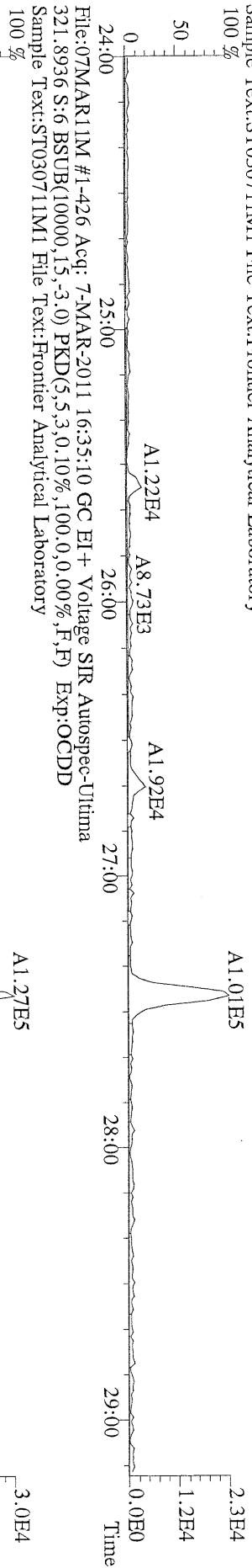
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455.7801 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory



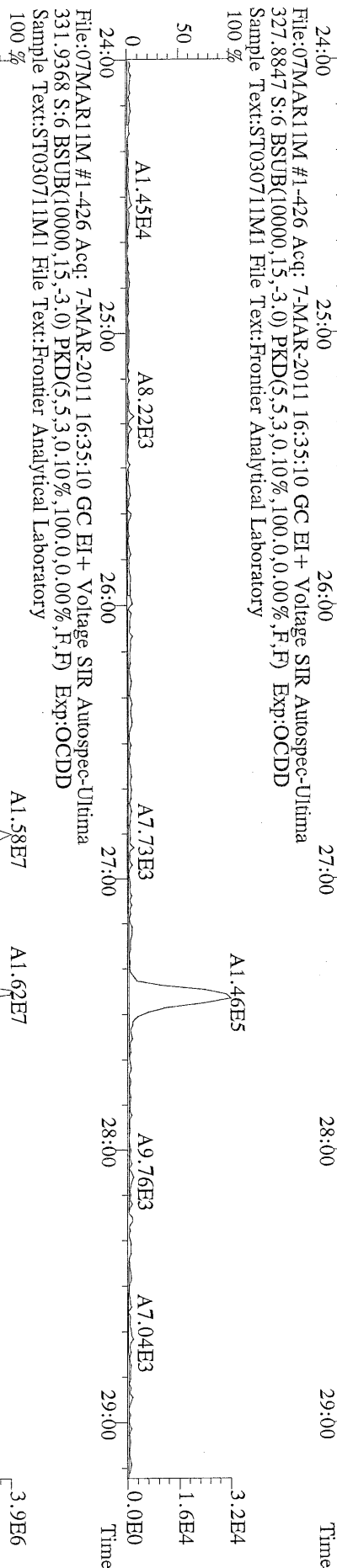
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513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M0 File Text:Frontier Analytical Laboratory
100 %



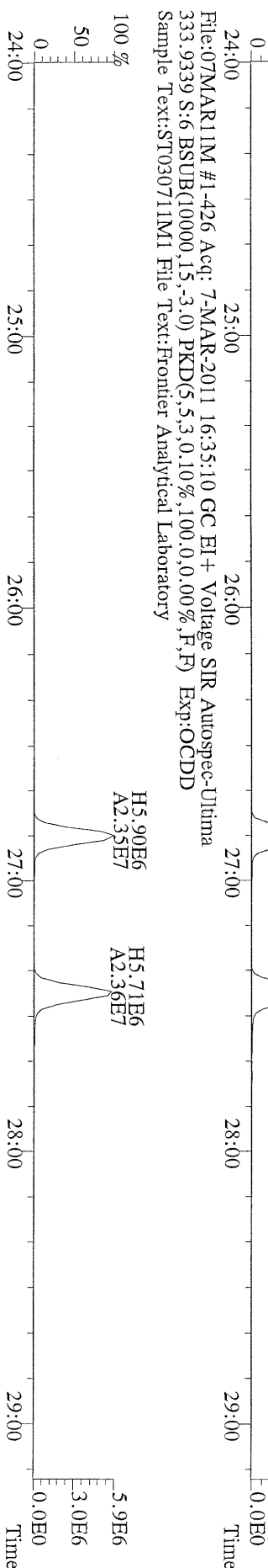
File:07MAR11M1 #1-426 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



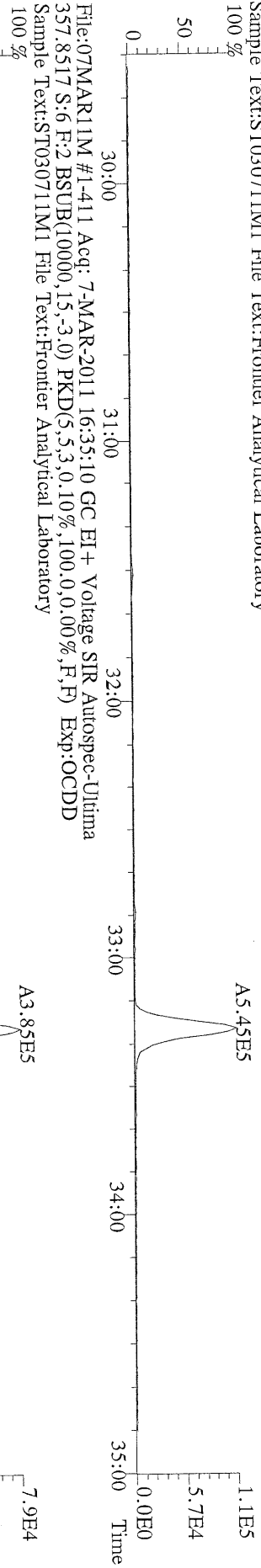
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327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



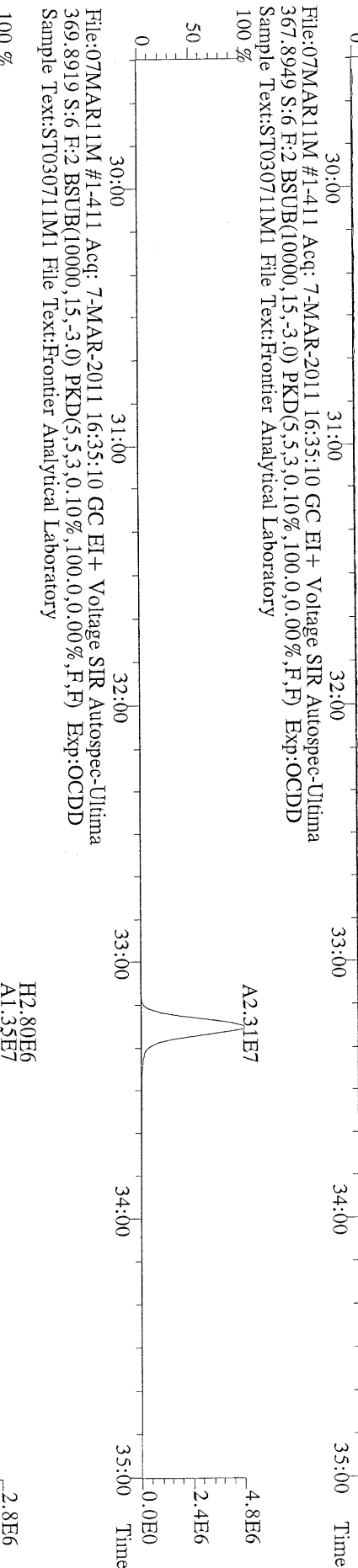
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333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



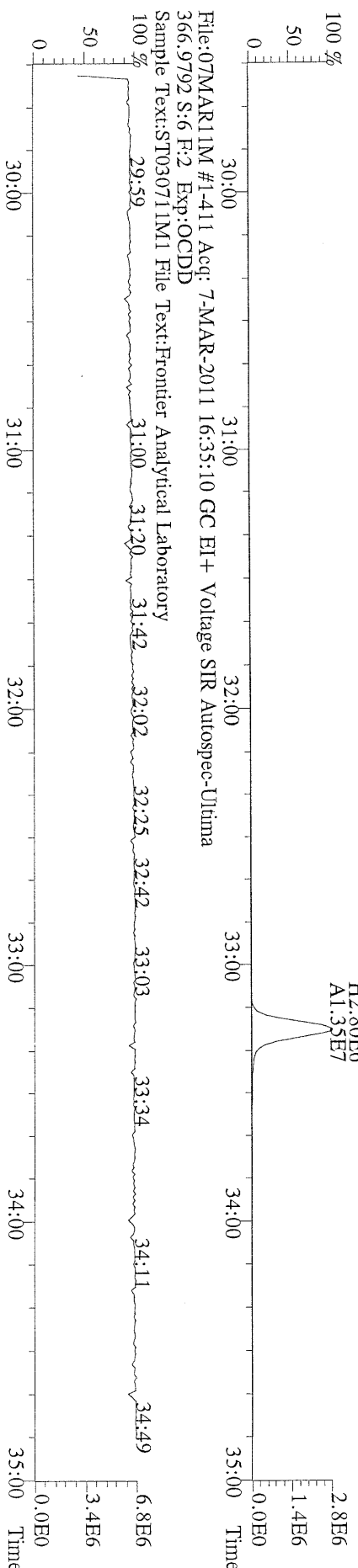
File:07MAR11M #1-411 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
 355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



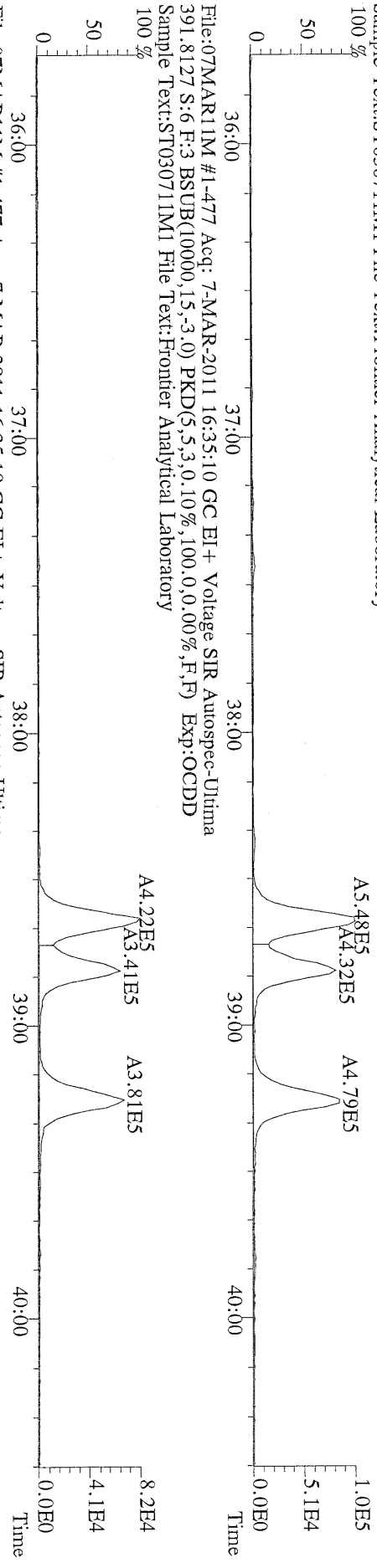
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 367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



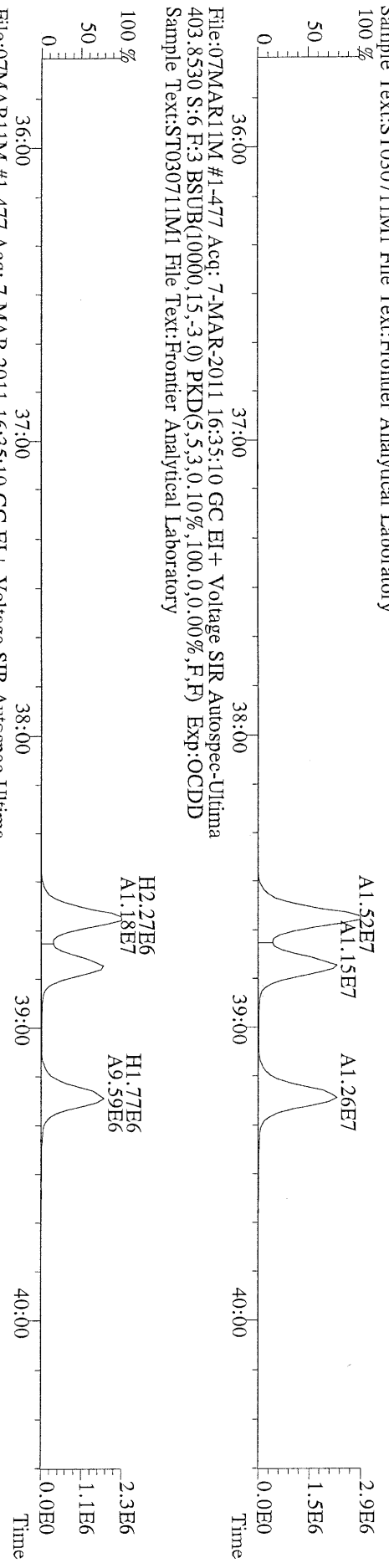
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 369.8919 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



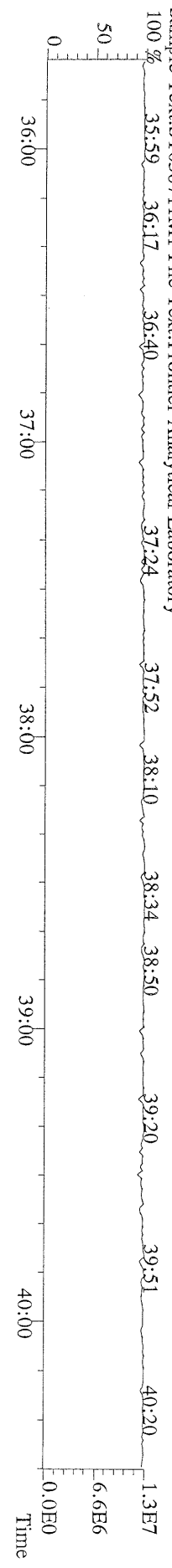
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389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



File:07MAR11M #1-477 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Utima
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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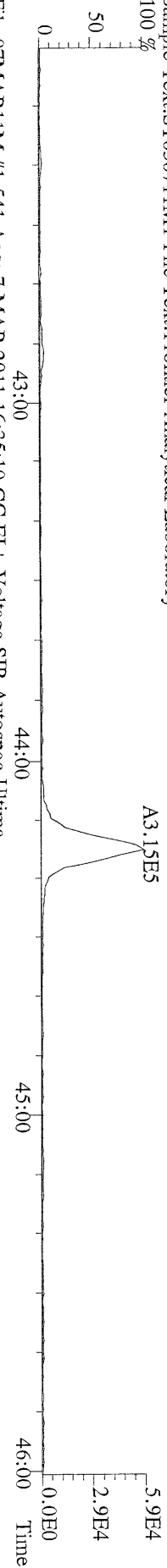
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380.9760 S:6 F:3 Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



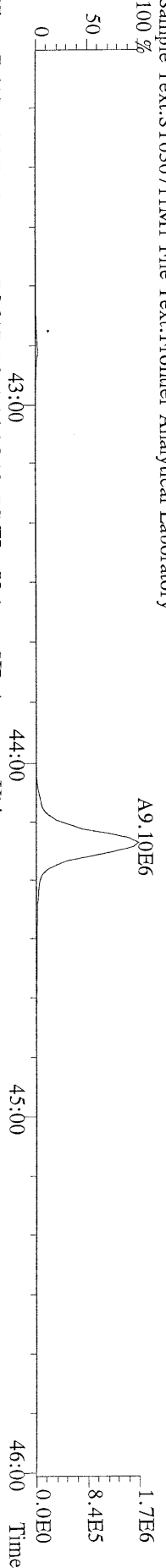
File:07MAR11M #1-541 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



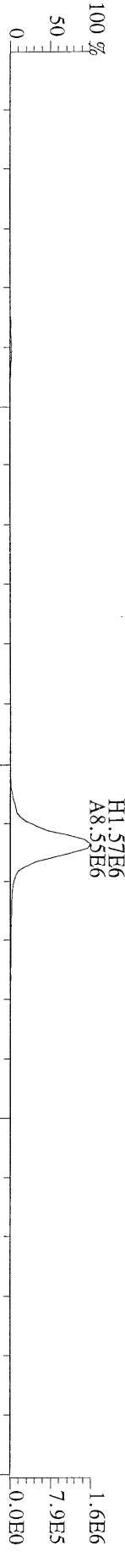
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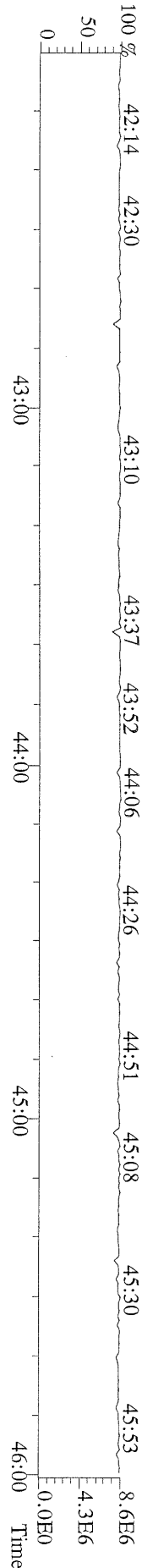
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435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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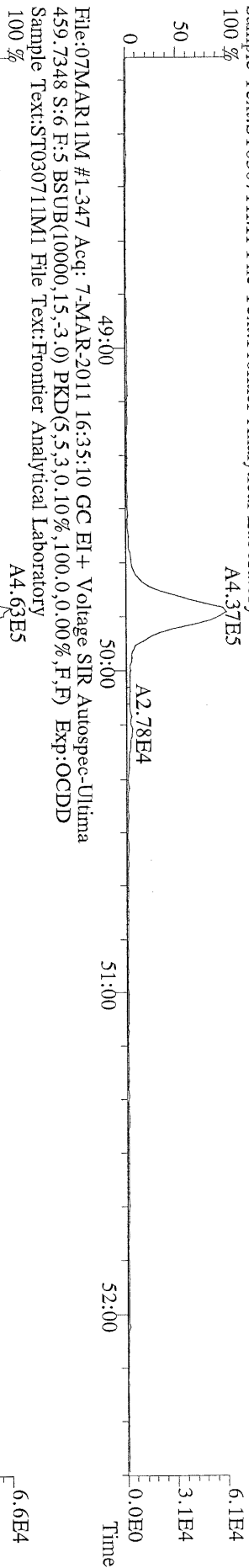
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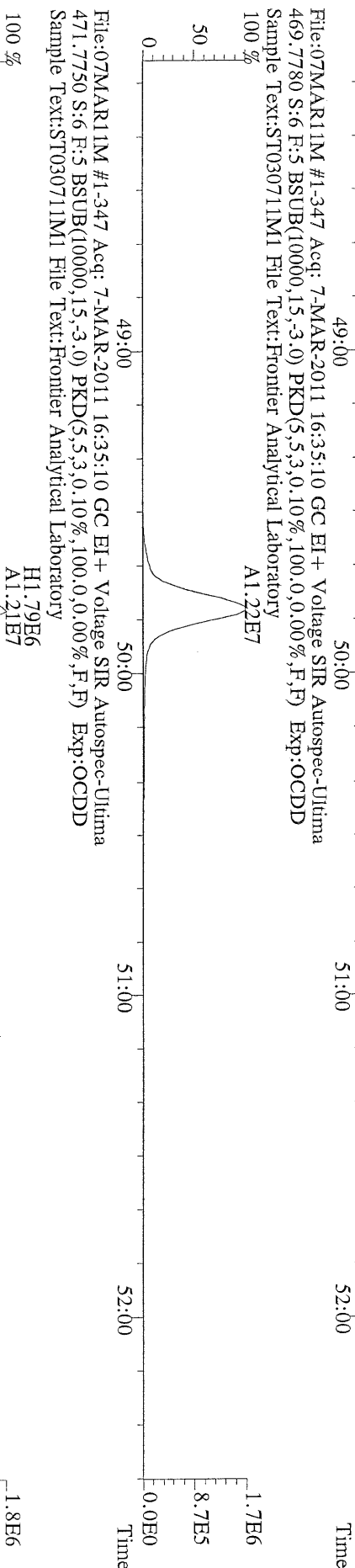
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430.9728 S:6 F:4 Exp:OCDD
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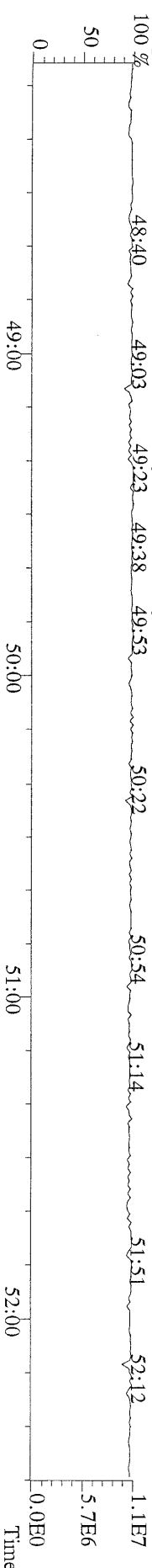
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457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



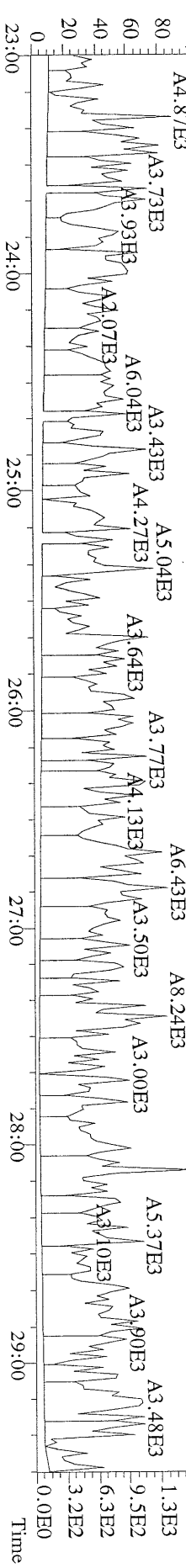
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469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
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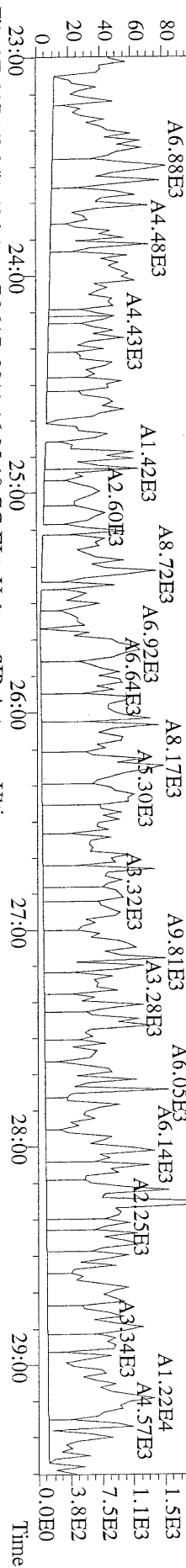
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454.9728 S:6 F:5 Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



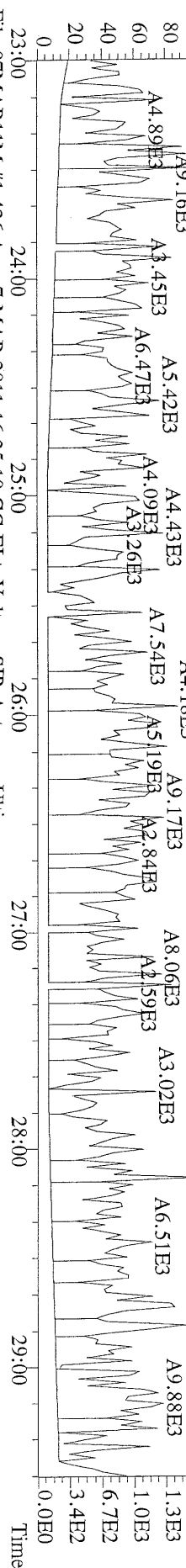
File:07MARI1M #1-426 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Utima
 339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



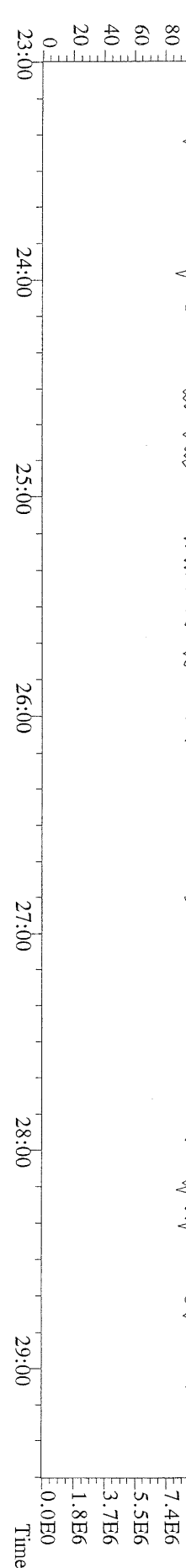
File:07MARI1M #1-426 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Utima
 341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



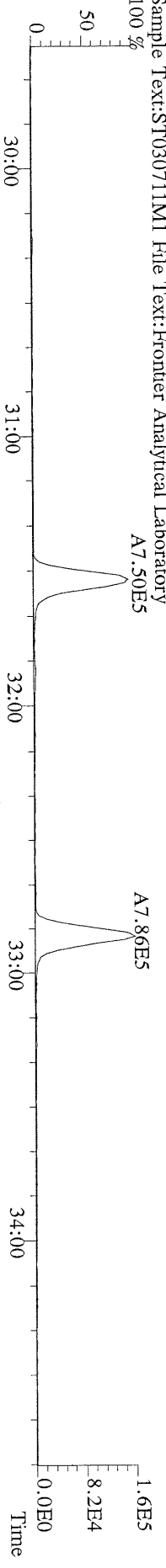
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 409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



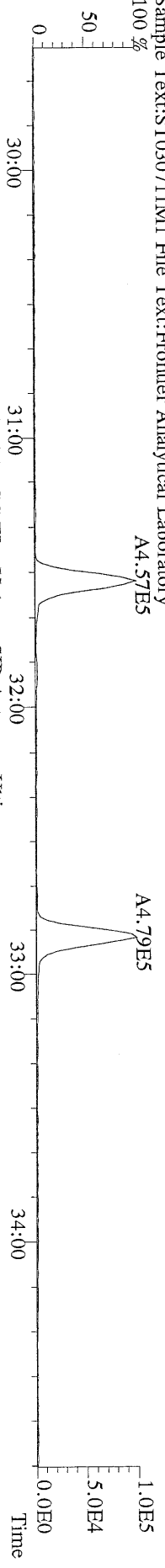
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 316.9824 S:6 Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



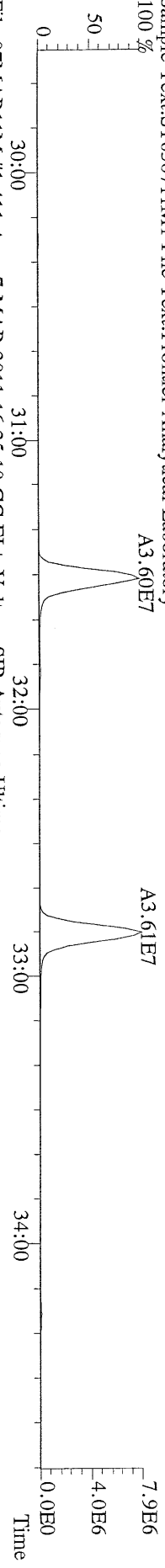
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 339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



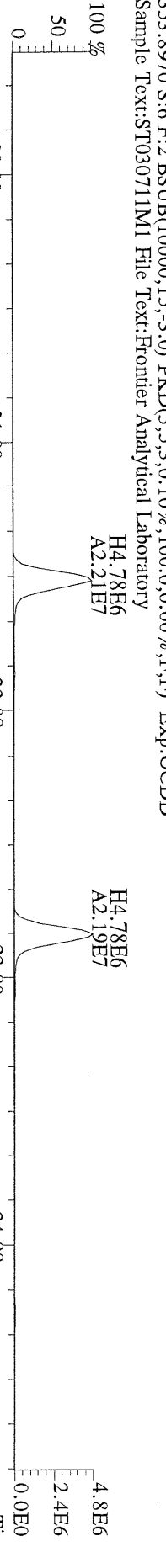
File:07MAR11M #1-411 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



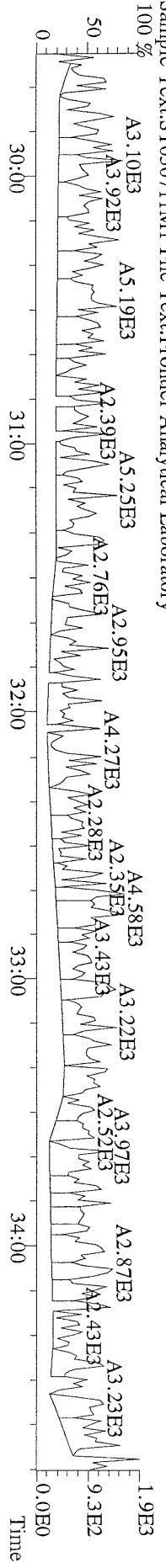
File:07MAR11M #1-411 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



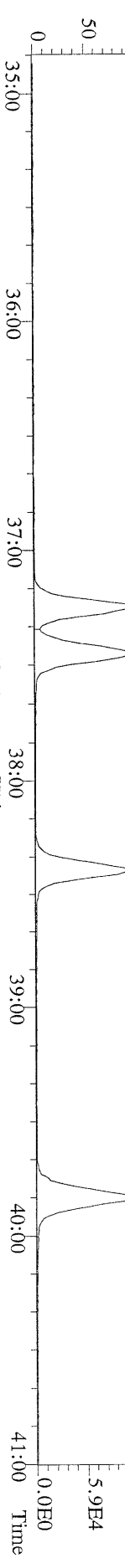
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 353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



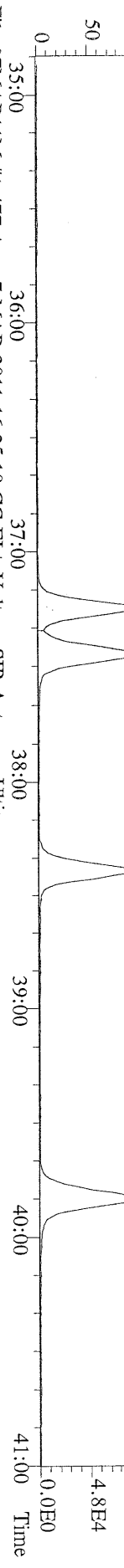
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 409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



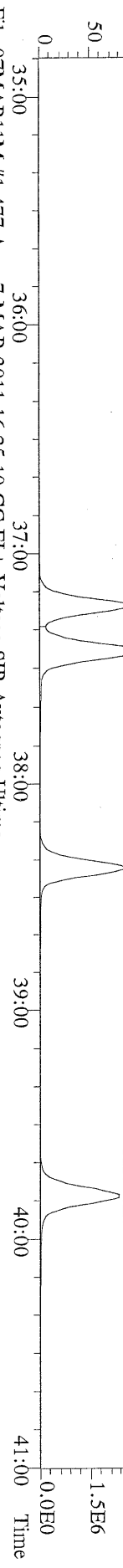
File:07MAR11M #1-477 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



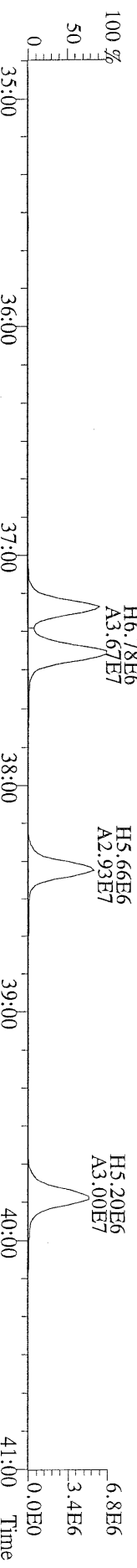
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 375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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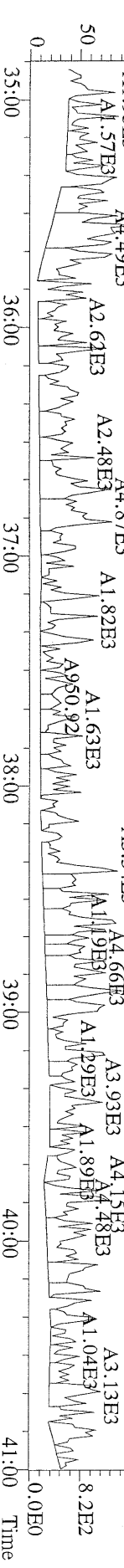
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 383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



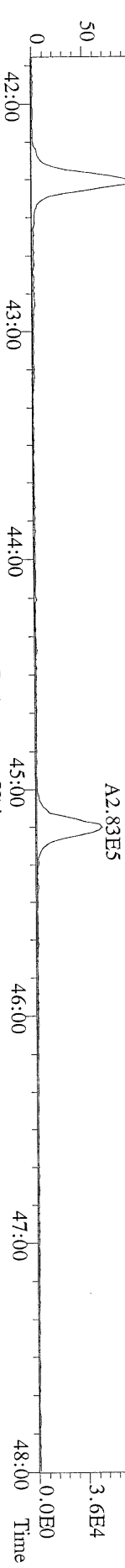
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 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



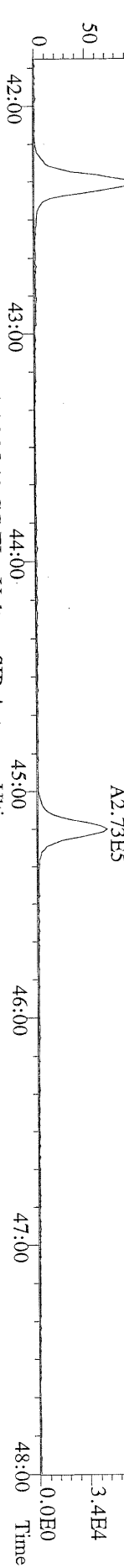
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 445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



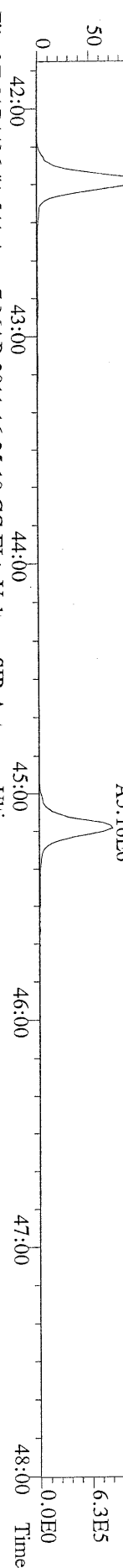
File:07MAR11M #1-541 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Utima
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



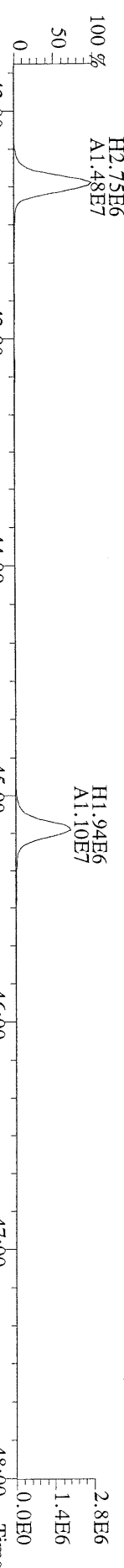
File:07MAR11M #1-541 Acq: 7-MAR-2011 16:35:10 GC EI+ Voltage SIR Autospec-Utima
409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



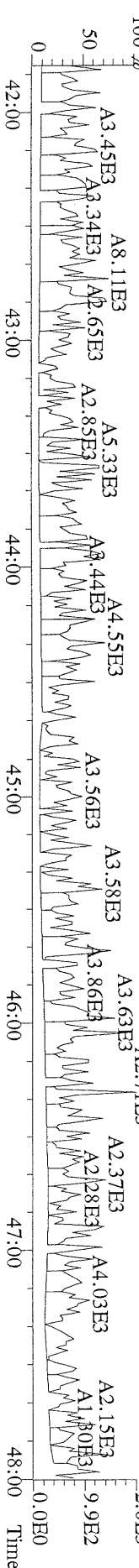
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417.8253 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



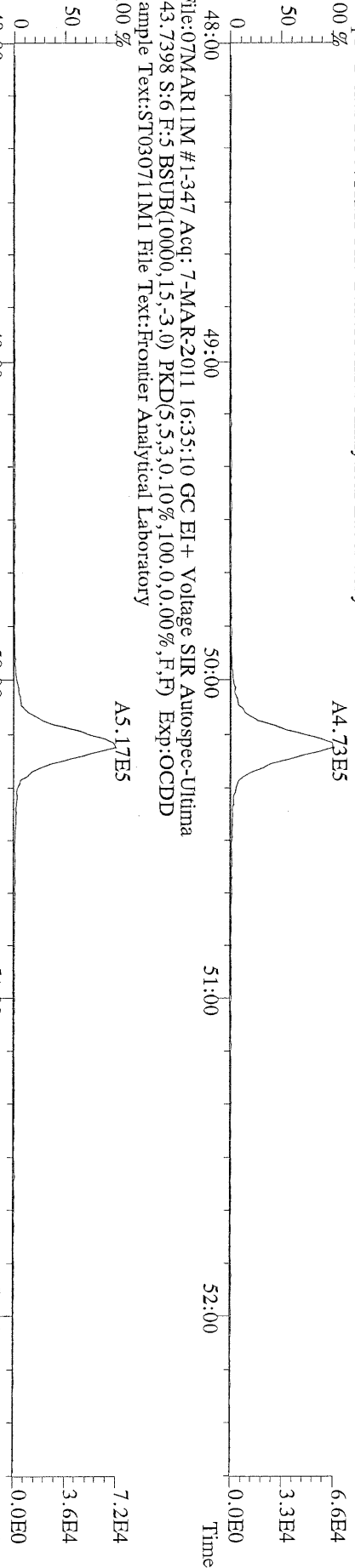
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419.8220 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



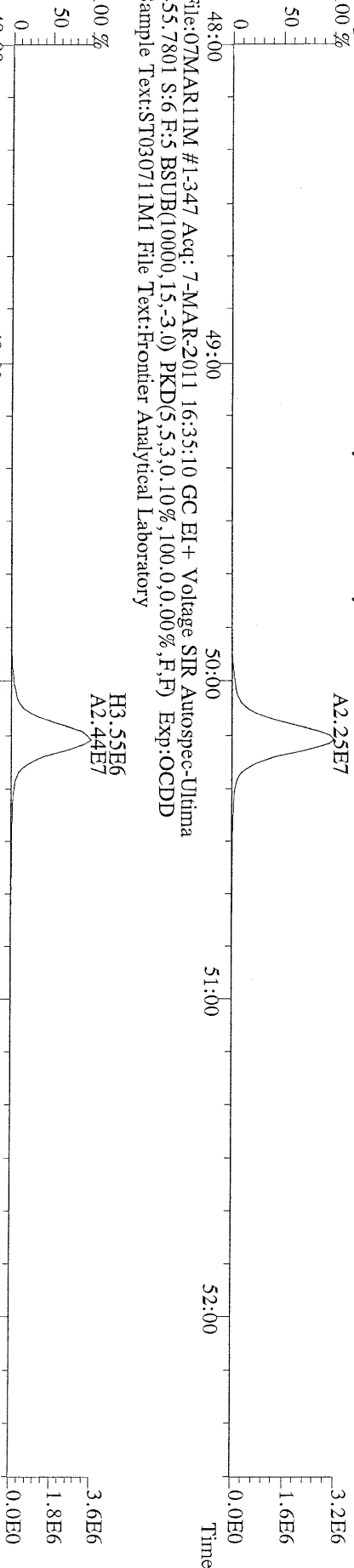
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479.7165 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



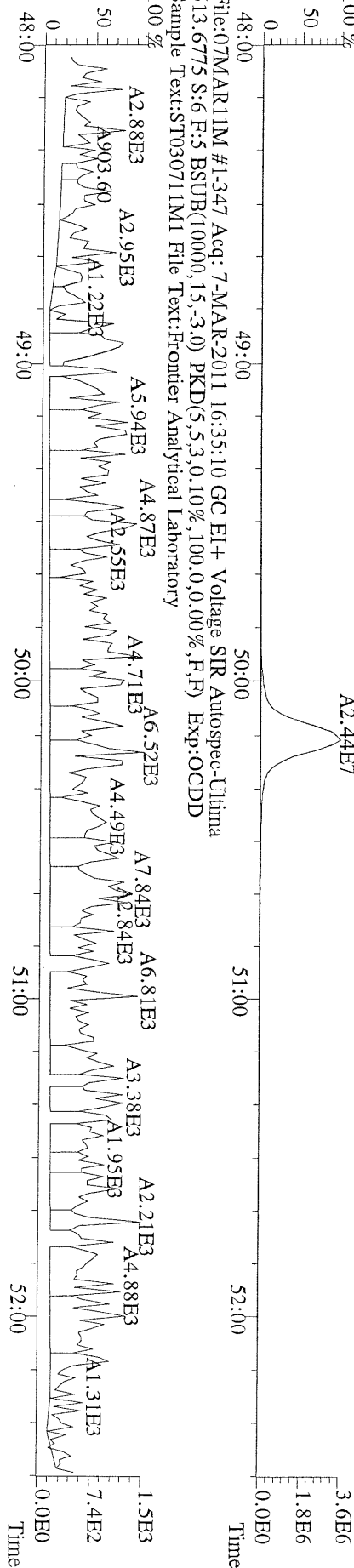
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441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



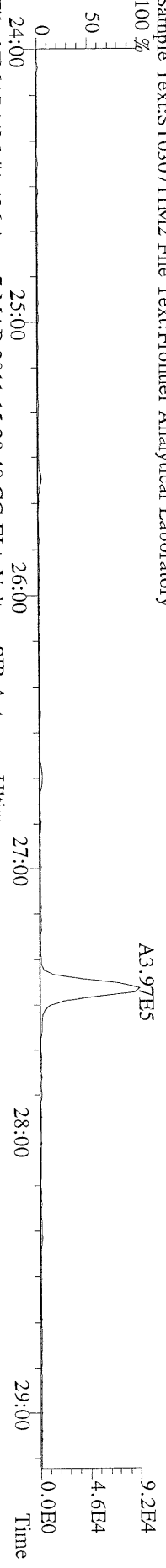
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453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



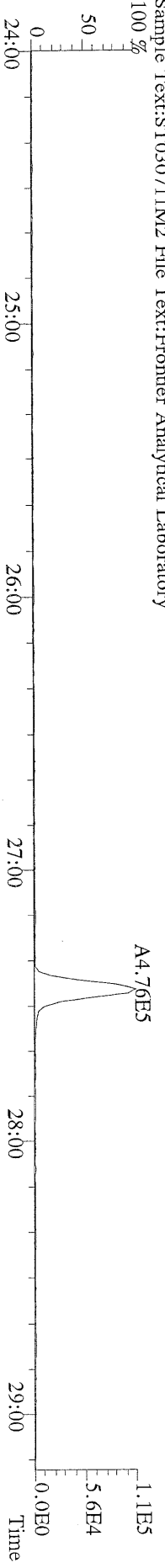
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455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M1 File Text:Frontier Analytical Laboratory



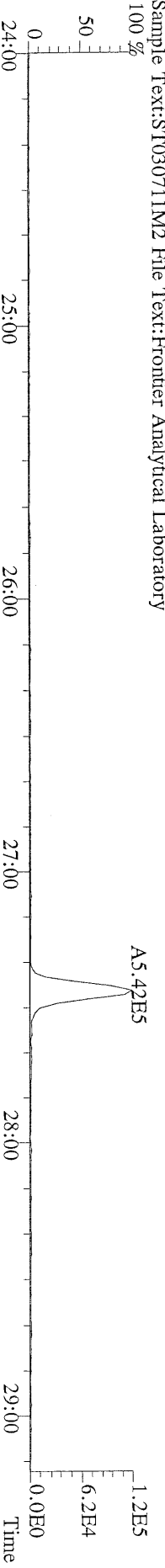
File:07MAR11M #1-426 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory
100 %



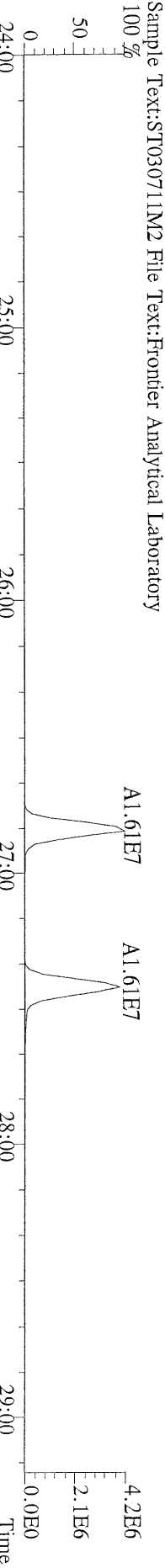
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321.8936 S:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory
100 %



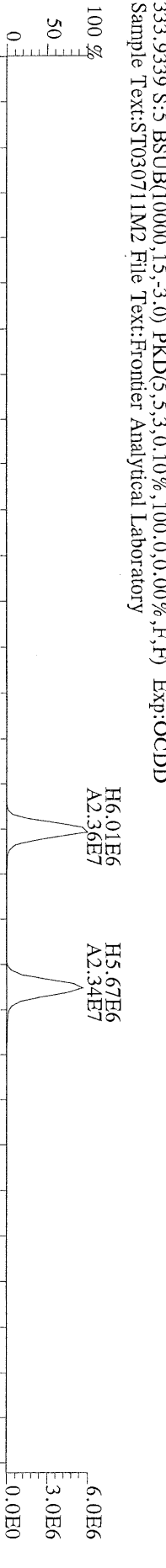
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327.8847 S:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory
100 %



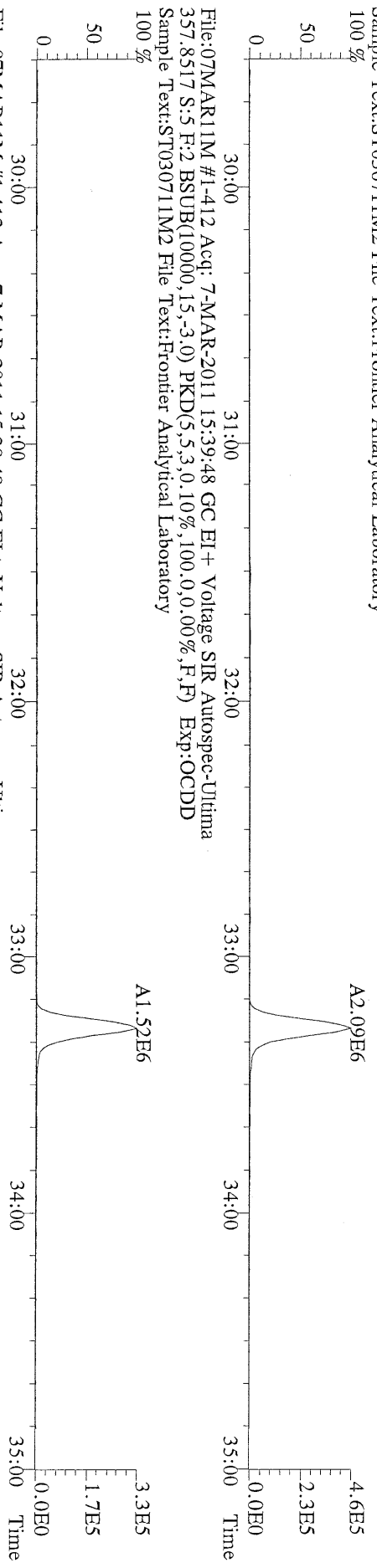
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331.9368 S:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory
100 %



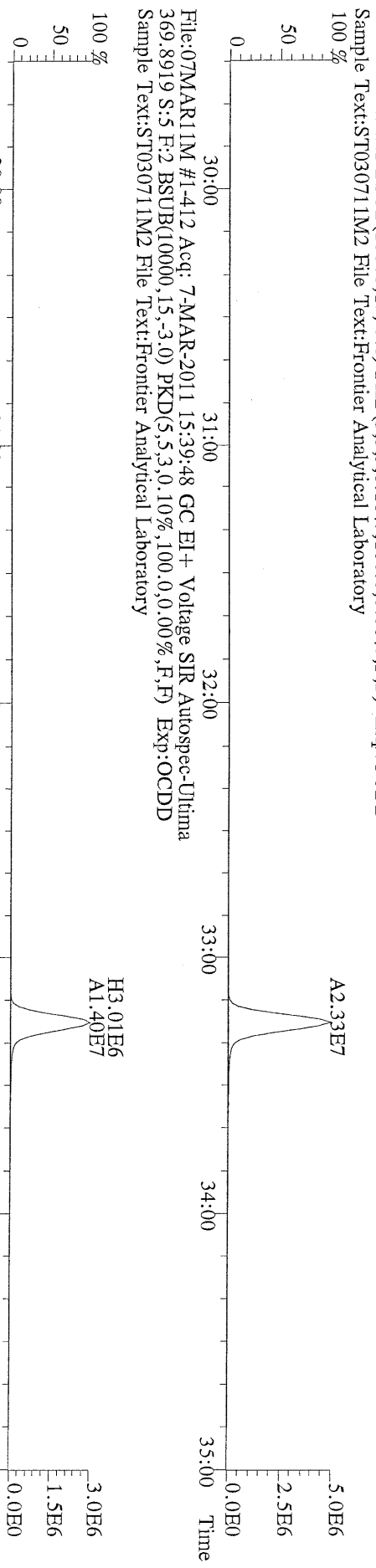
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333.9339 S:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



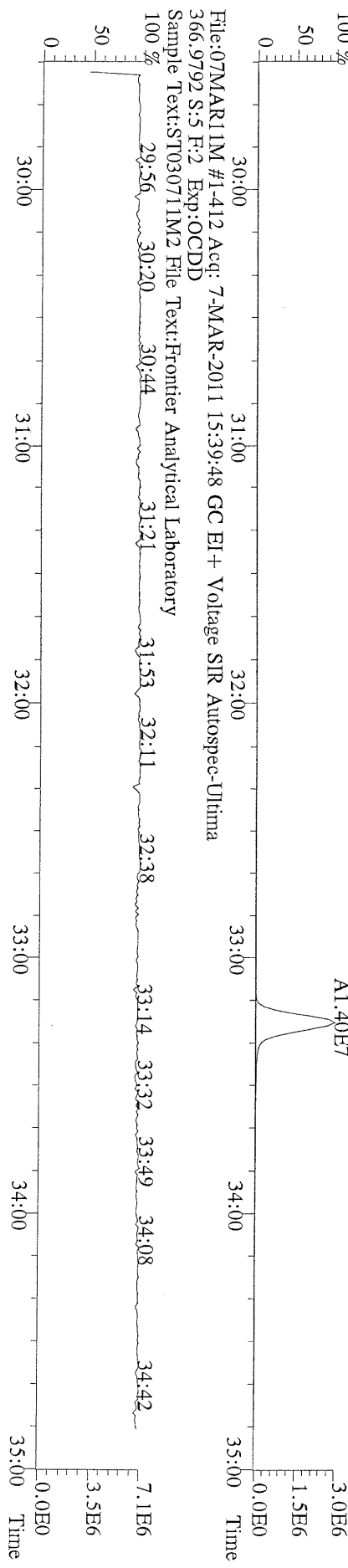
File:07MAR11M #1-412 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



File:07MAR11M #1-412 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

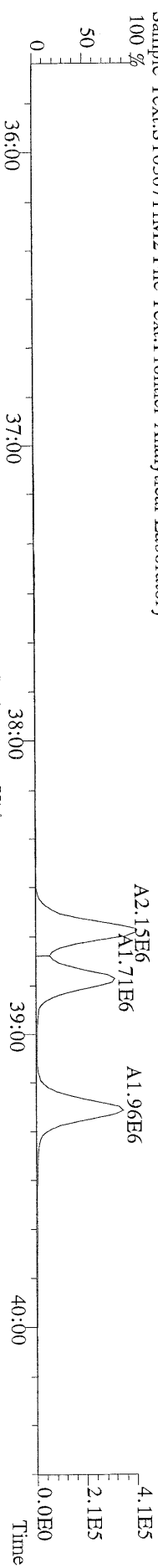


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369.8919 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

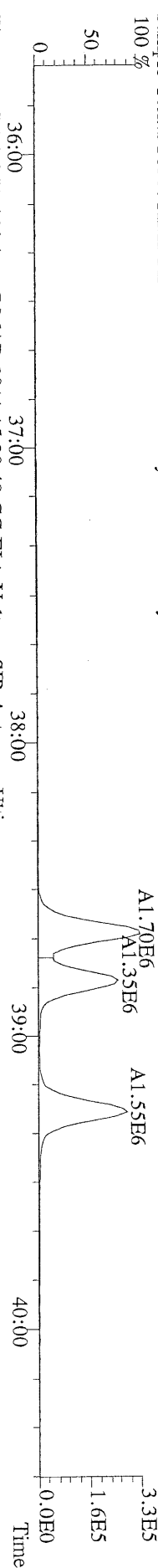


File:07MAR11M #1-412 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:5 F:2 Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

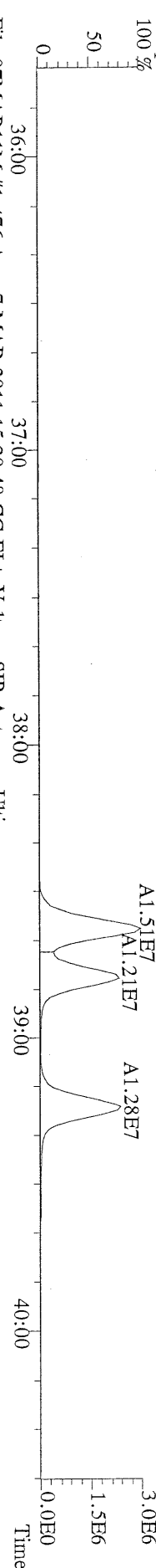
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 389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



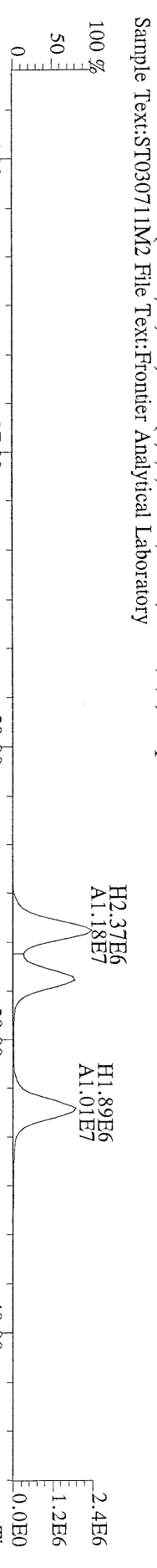
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 391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



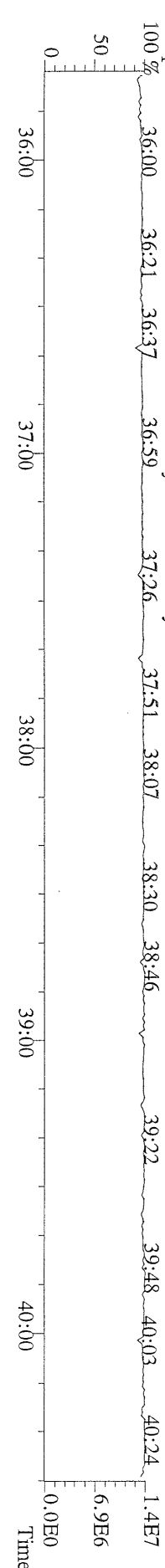
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 401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



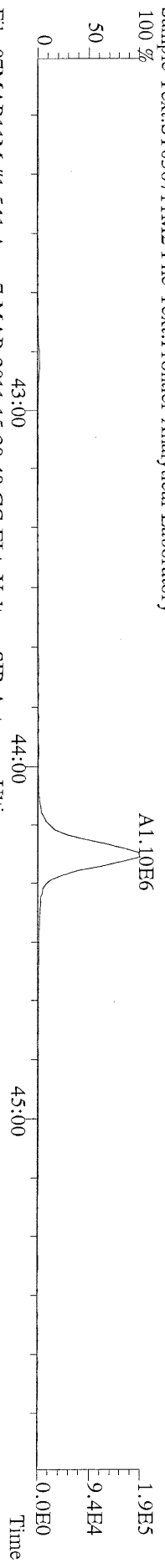
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 403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



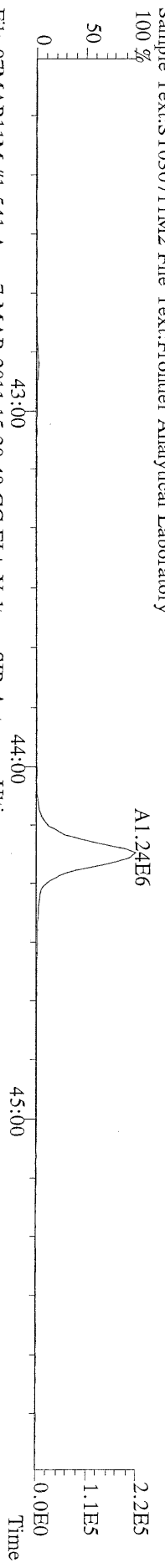
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 380.9760 S:5 F:3 Exp:OCDD
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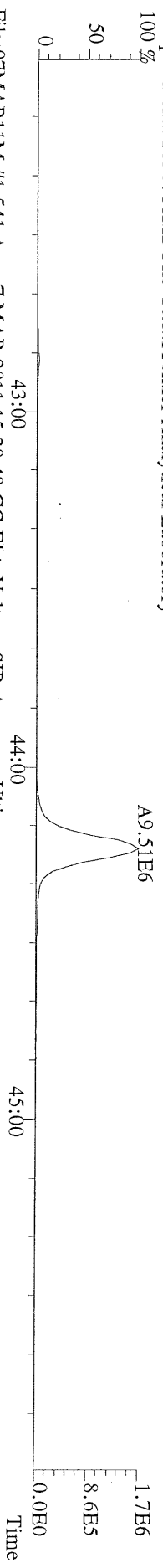
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423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



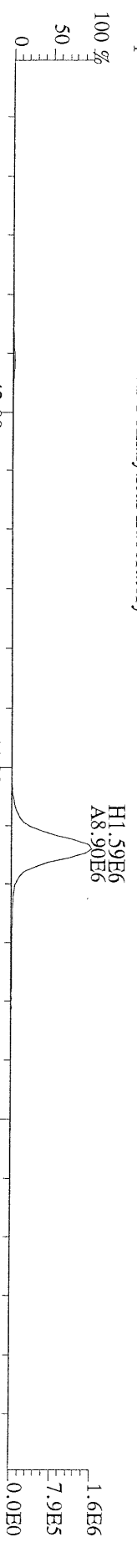
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Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



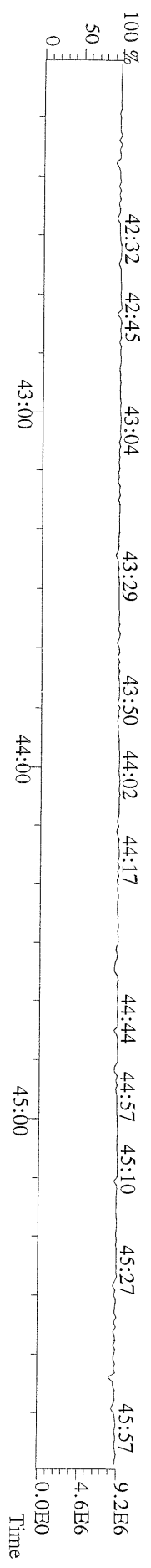
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Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



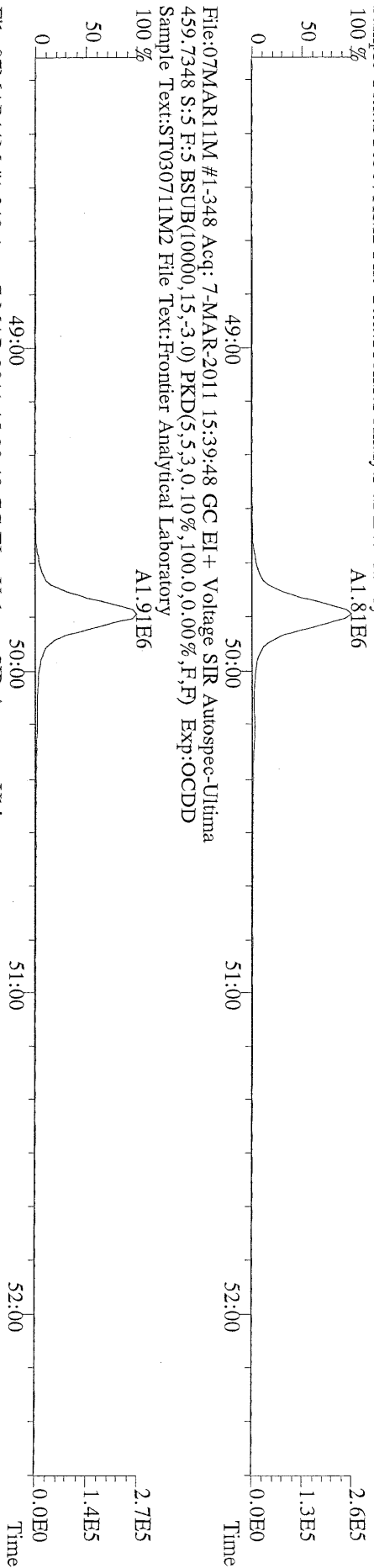
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437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



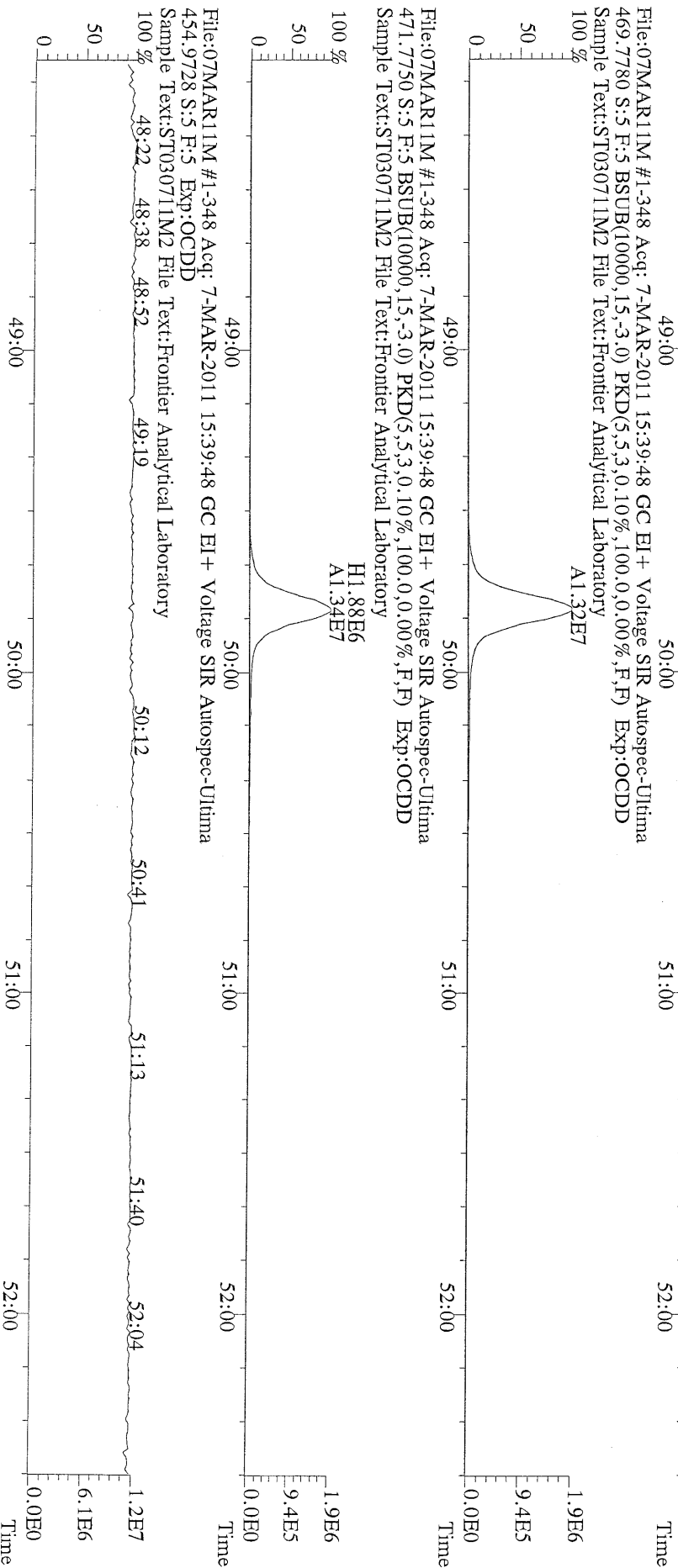
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430.9728 S:5 F:4 Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



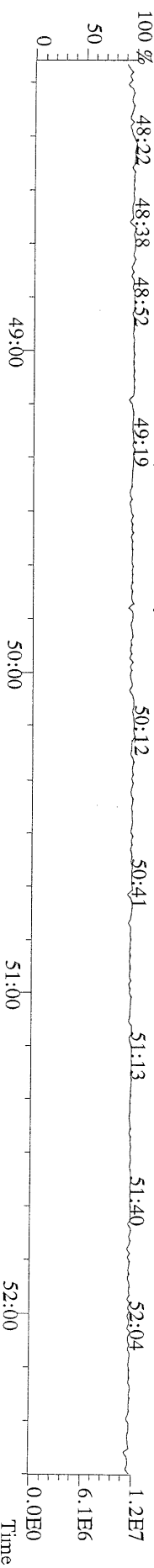
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457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



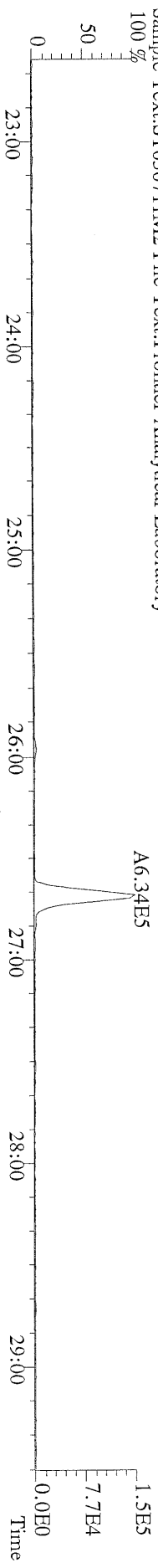
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Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



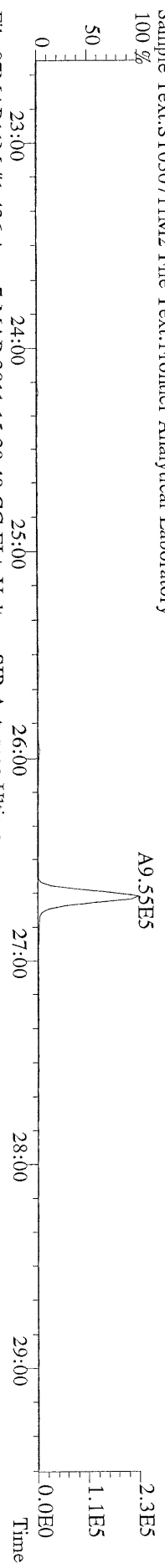
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454.9728 S:5 F:5 Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



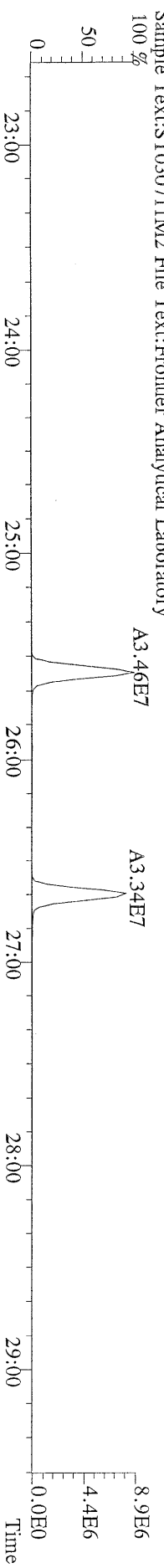
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 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



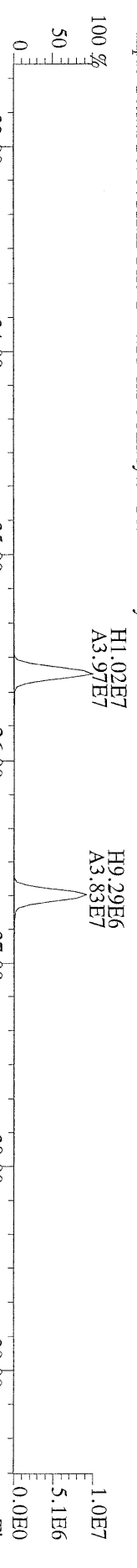
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 305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



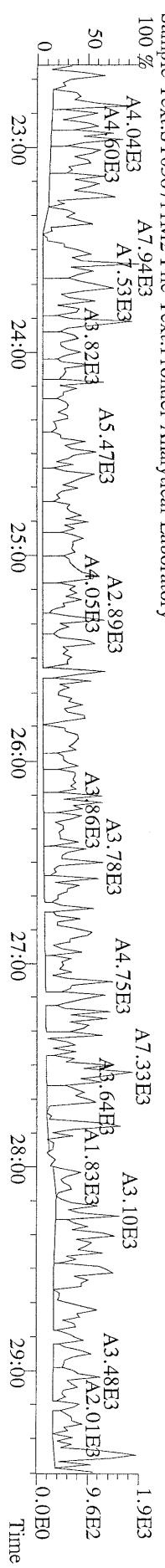
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 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



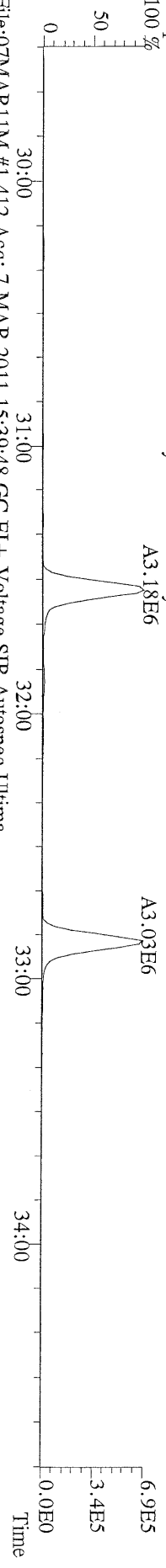
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 317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



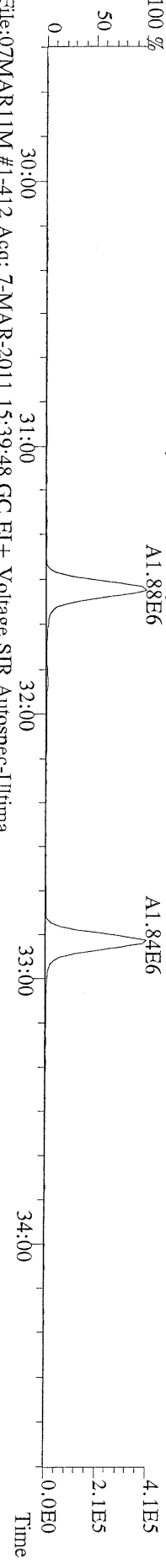
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 375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



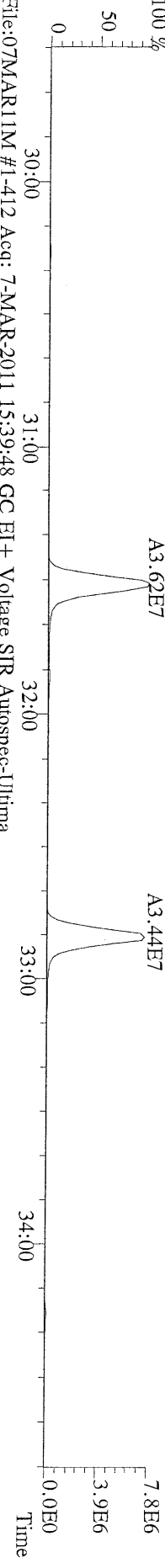
File:07MARI1M #1-412 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



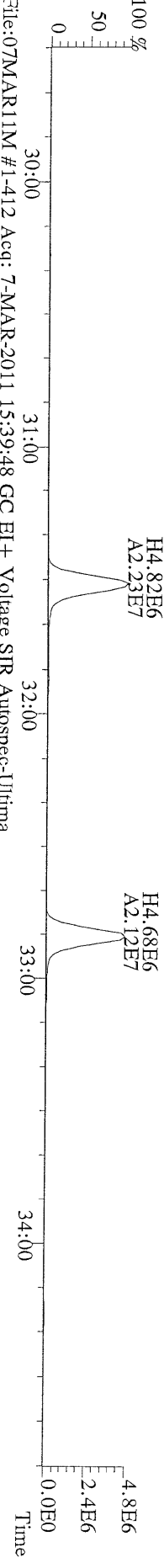
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341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



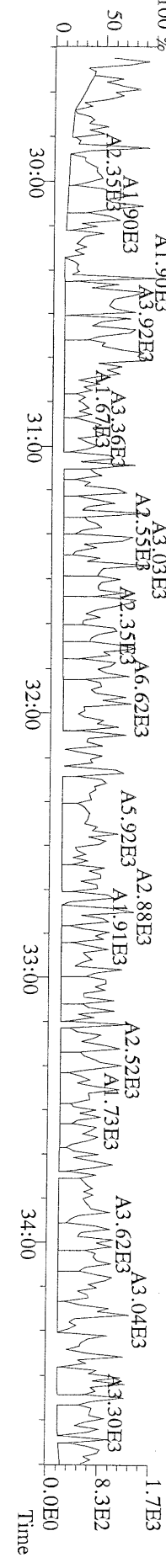
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351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



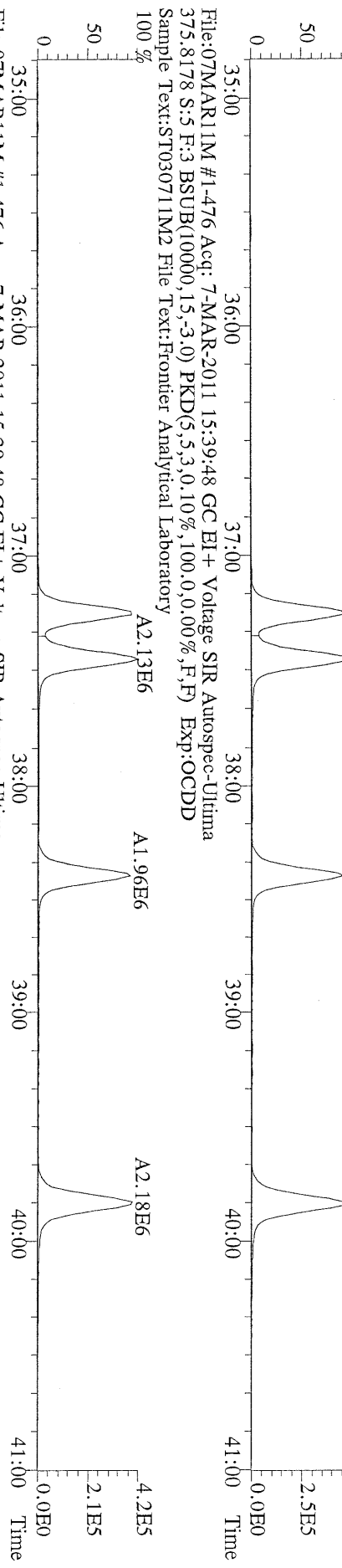
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Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



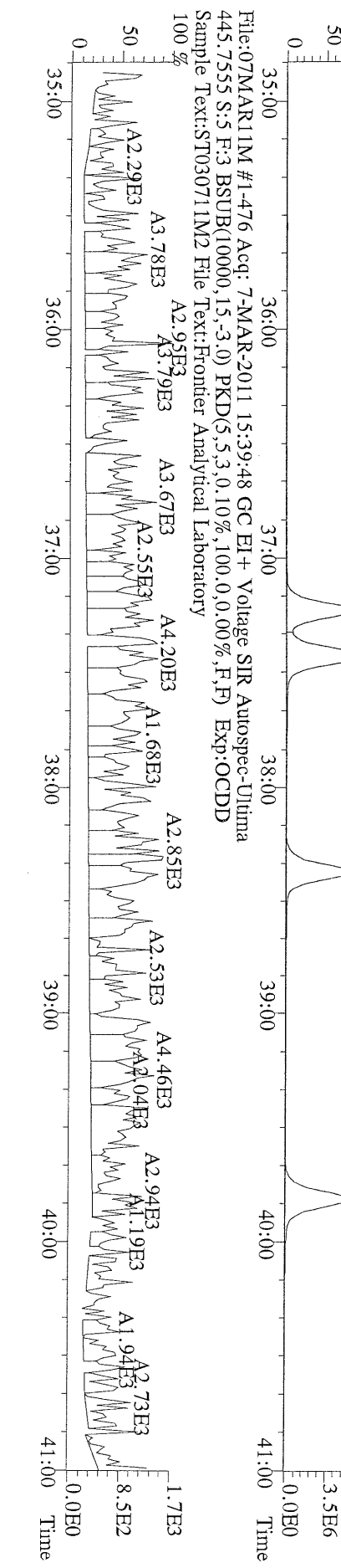
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409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



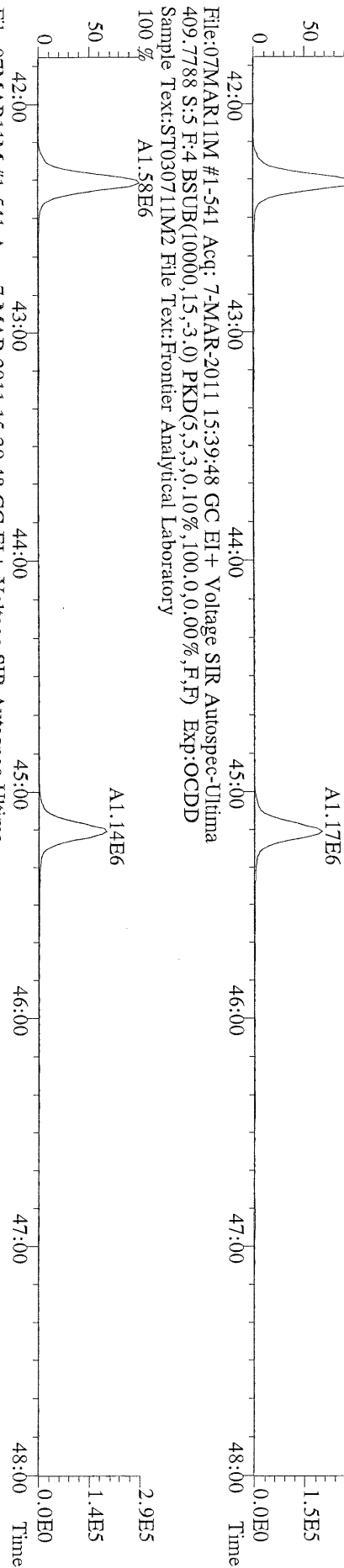
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373.8207 S:5 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



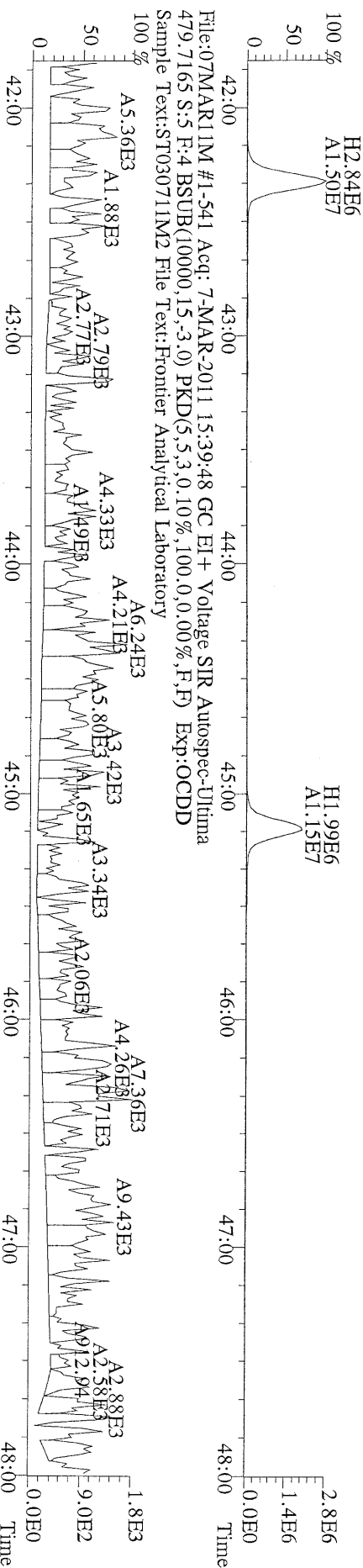
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383.8639 S:5 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



File:07MAR11M #1-541 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Utima
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

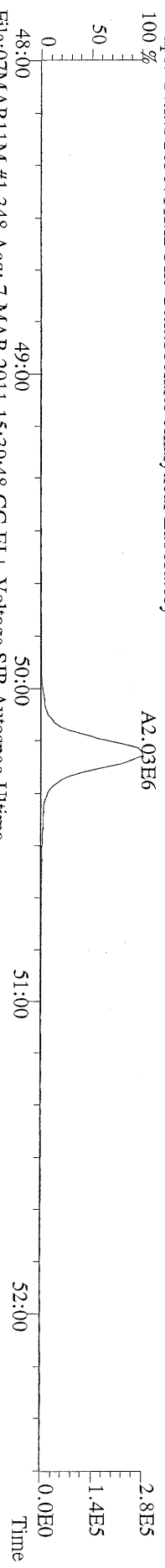


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Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

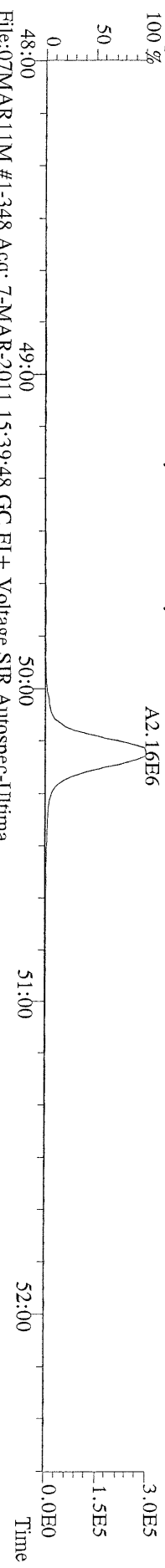


File:07MAR11M #1-541 Acq: 7-MAR-2011 15:39:48 GC EI+ Voltage SIR Autospec-Utima
479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory

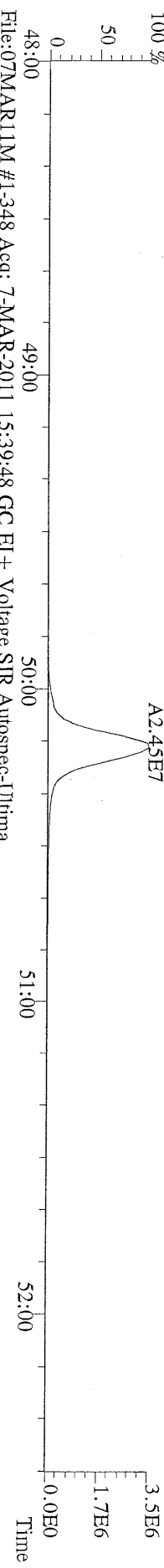
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441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



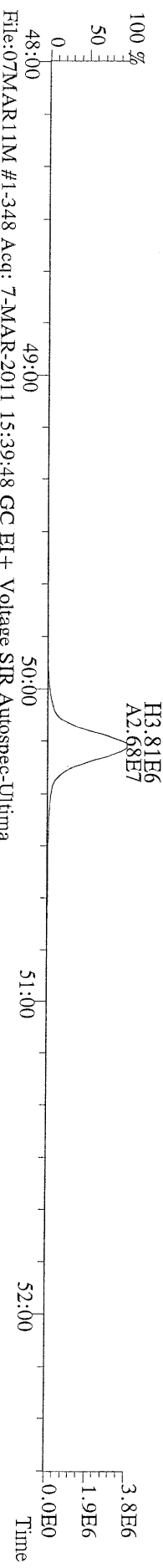
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443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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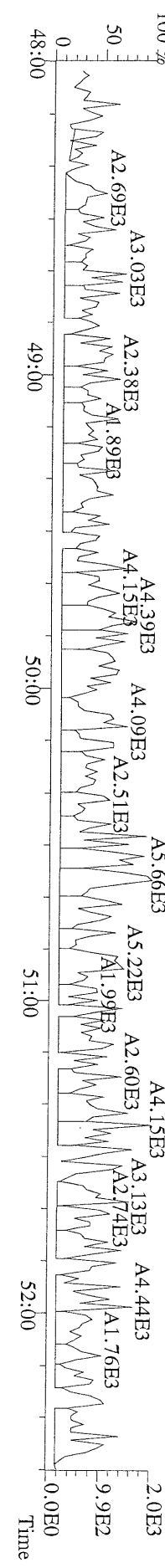
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453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



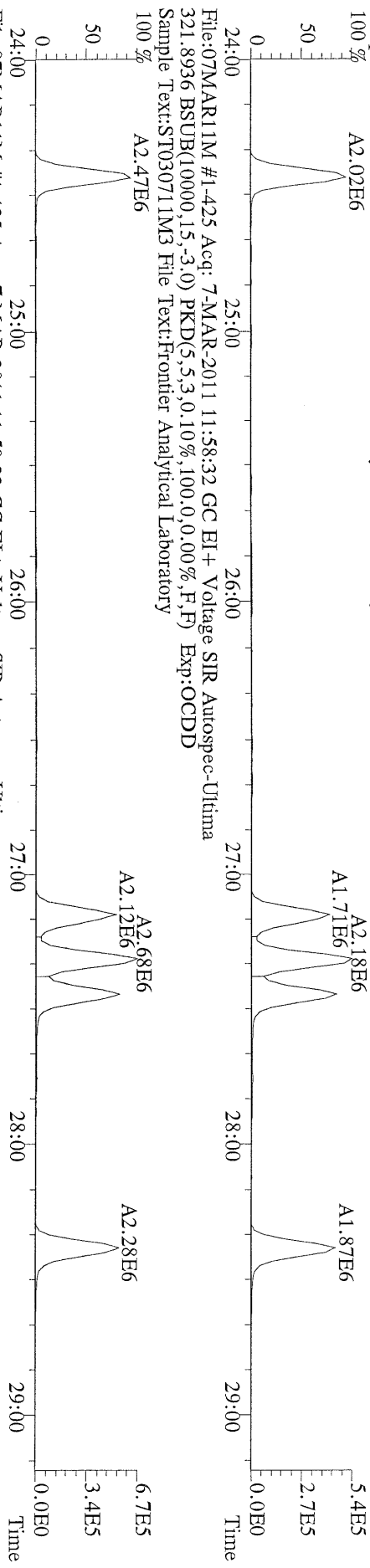
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455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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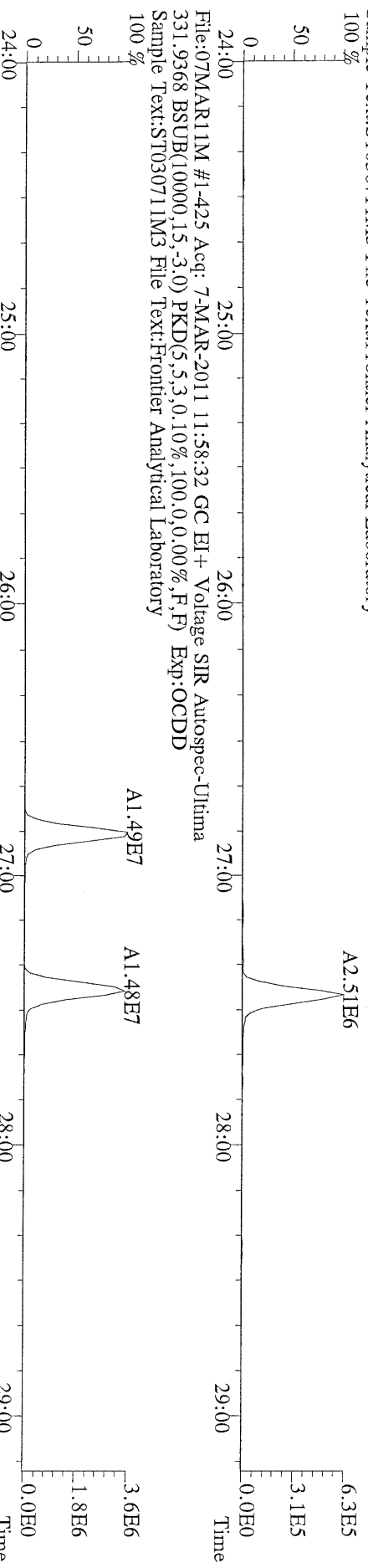
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513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M2 File Text:Frontier Analytical Laboratory



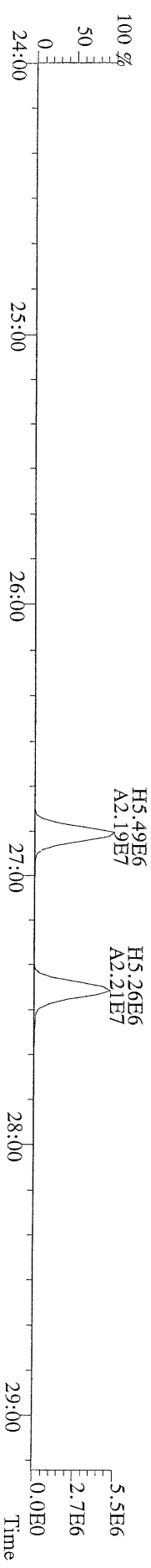
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319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory
100 %



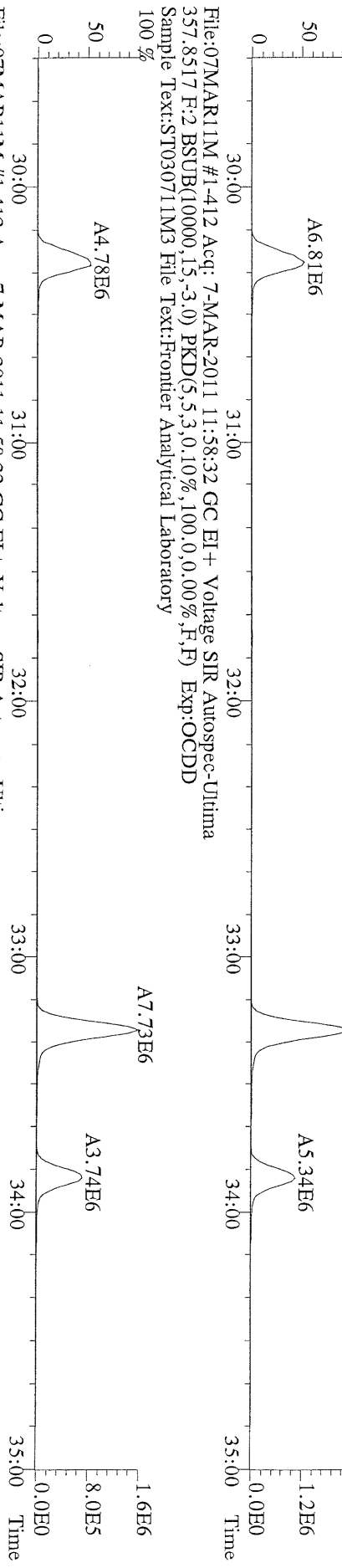
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327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory
100 %



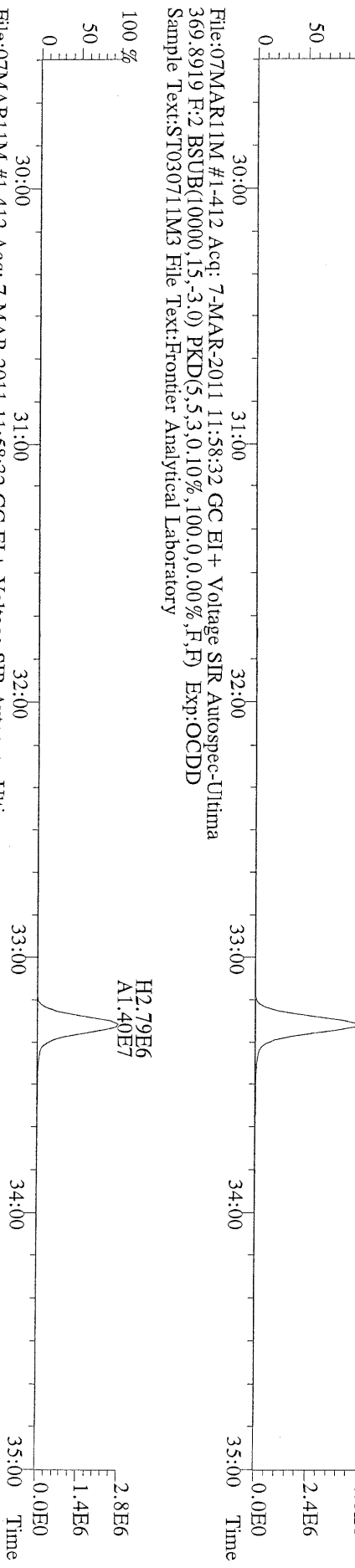
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333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



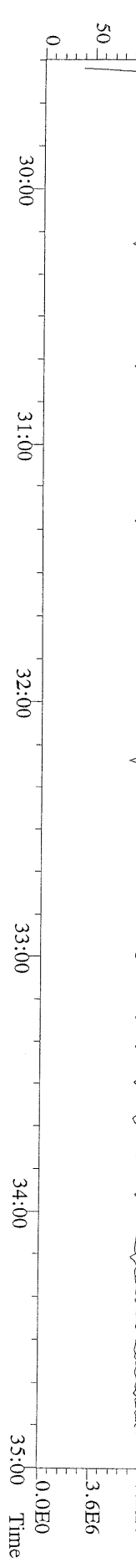
File:07TMARI1M #1-412 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



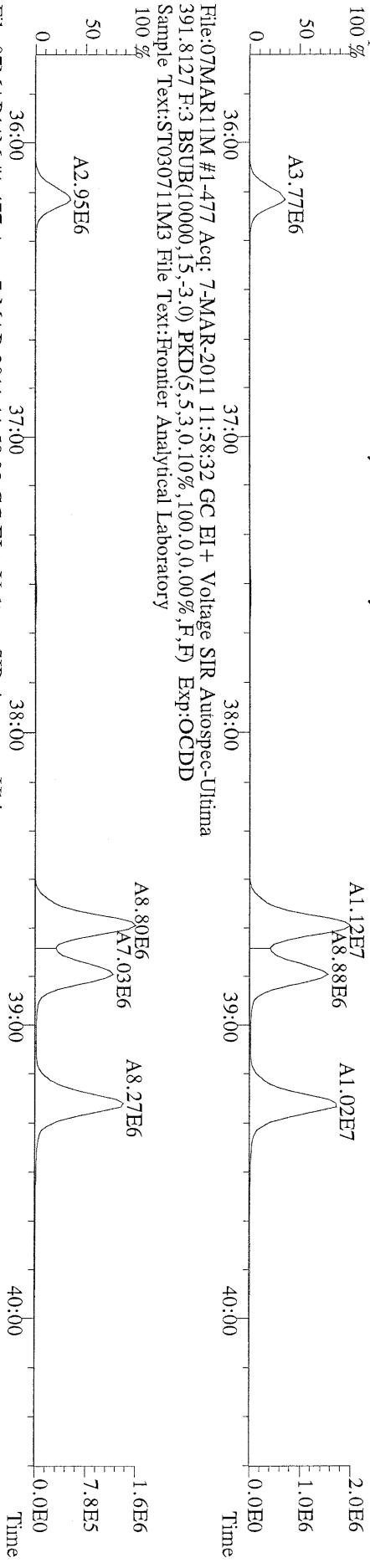
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367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



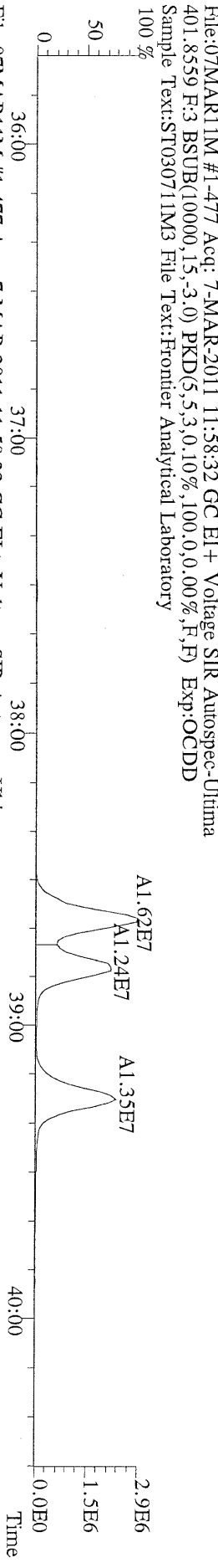
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366.9792 F:2 Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



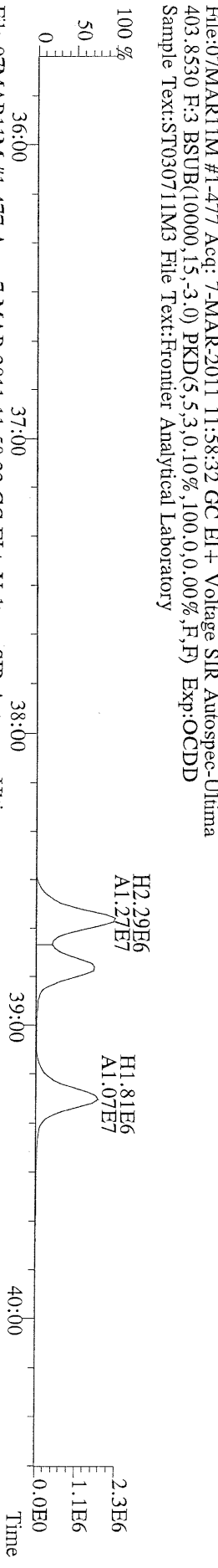
File:07MAR11M #1-477 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Utima
 389.8156 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST03071IM3 File Text:Frontier Analytical Laboratory



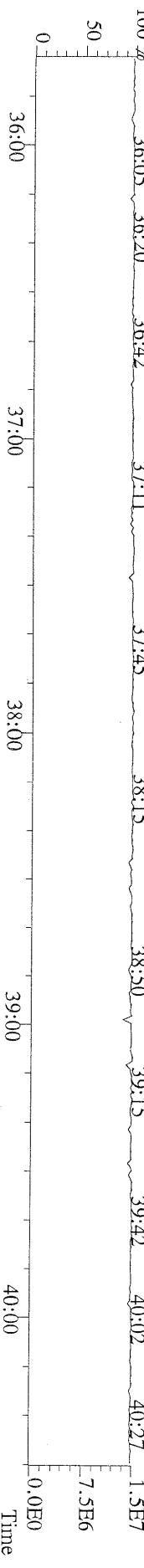
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 401.8559 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST03071IM3 File Text:Frontier Analytical Laboratory



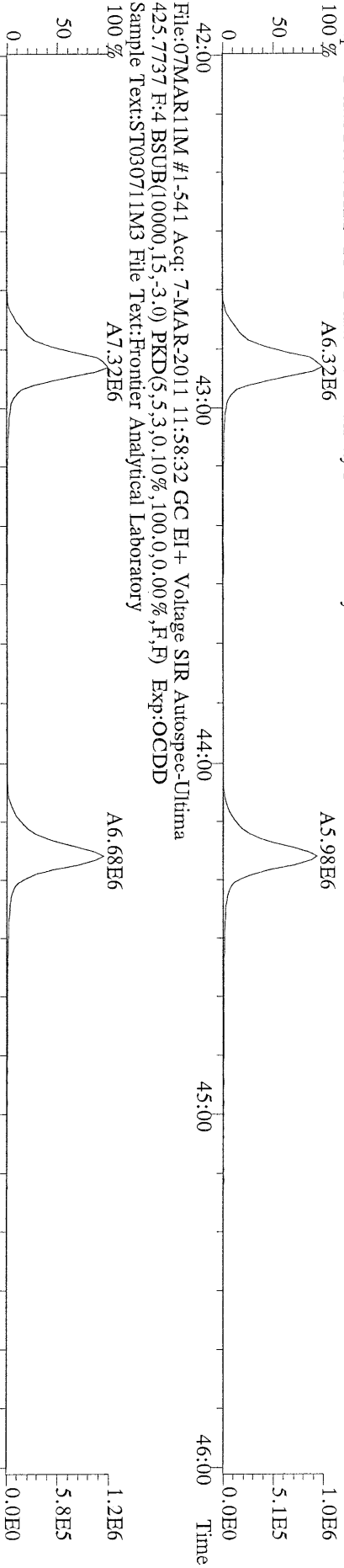
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 403.8530 F:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST03071IM3 File Text:Frontier Analytical Laboratory



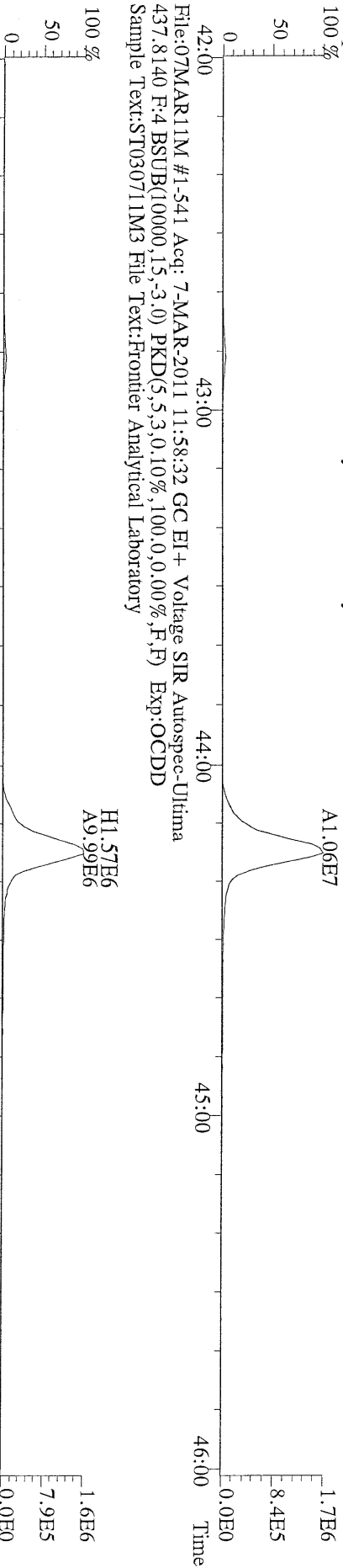
File:07MAR11M #1-477 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Utima
 380.9760 F:3 Exp:OCDD
 Sample Text:ST03071IM3 File Text:Frontier Analytical Laboratory



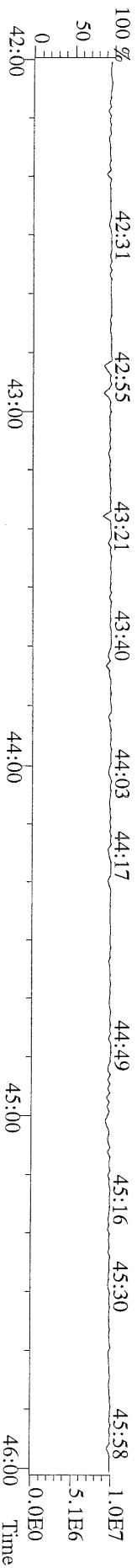
File:07MARI1M #1-541 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



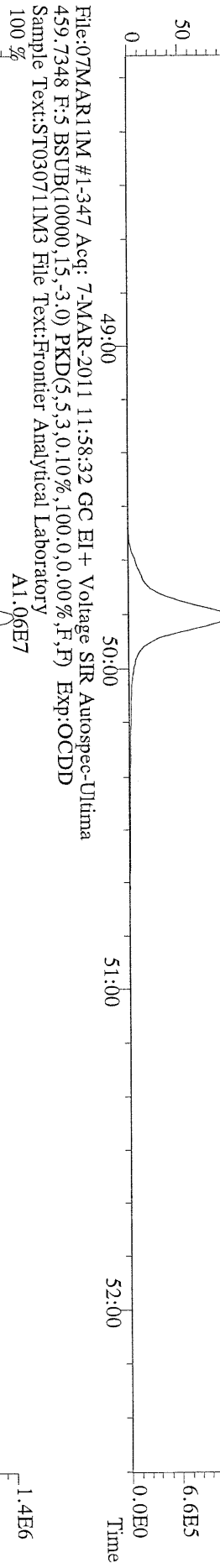
File:07MARI1M #1-541 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



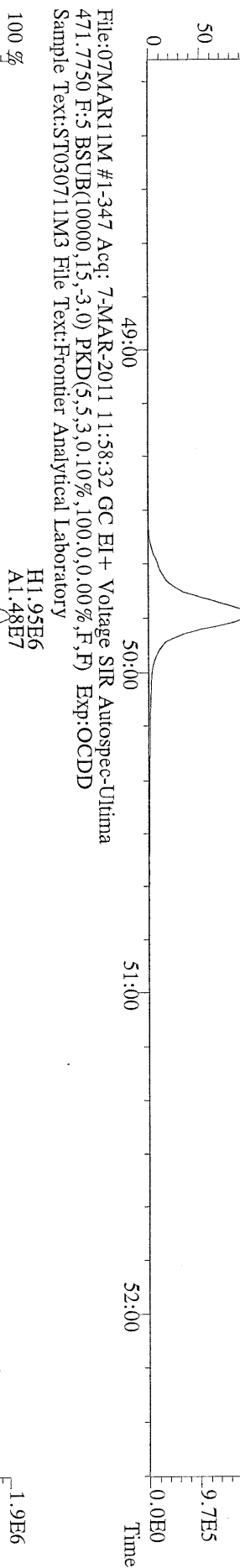
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430.9728 F:4 Exp:OCDD
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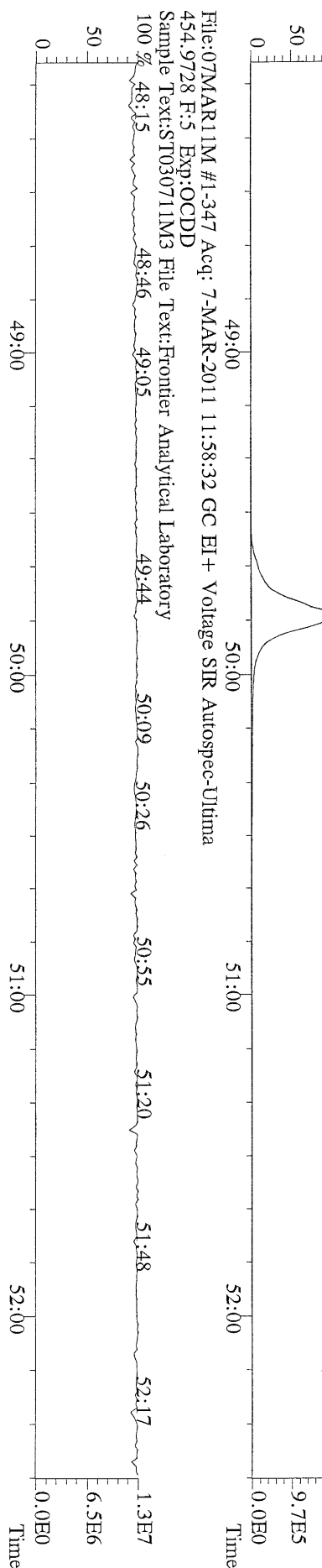
File:07MAR11M #1-347 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
457.7377 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory
100 % A9.93E6



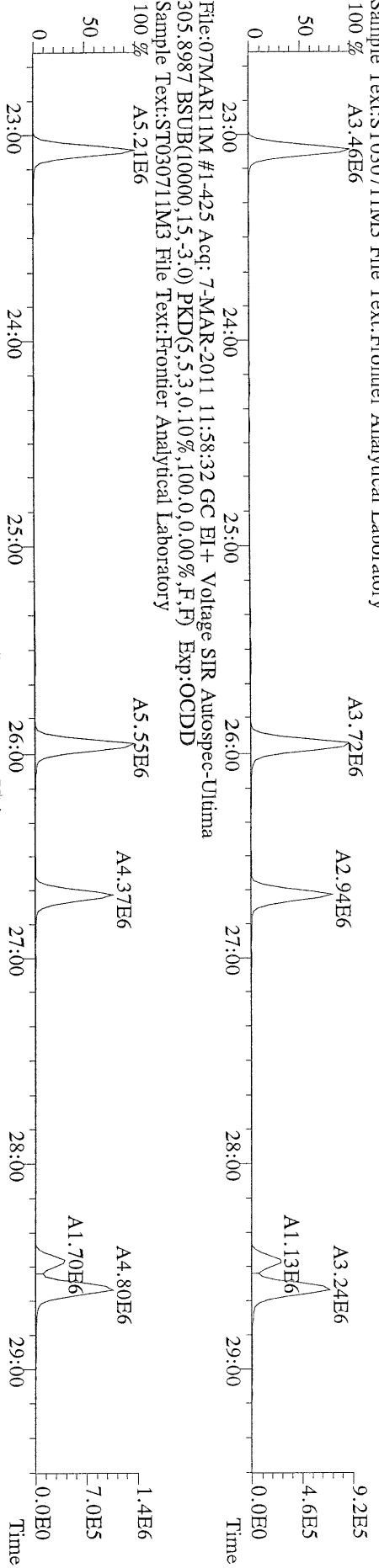
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100 % A1.49E7



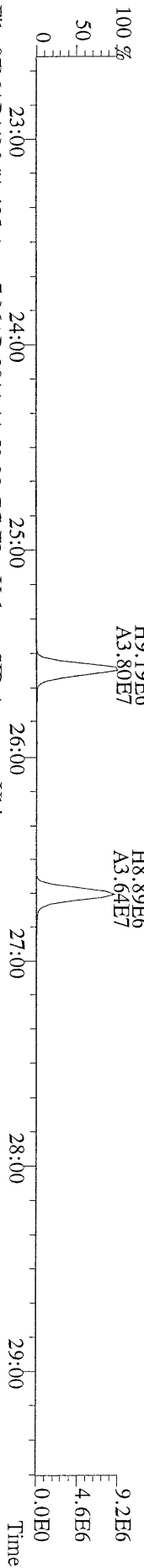
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454.9728 F:5 Exp:OCDD
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100 % A1.48E7



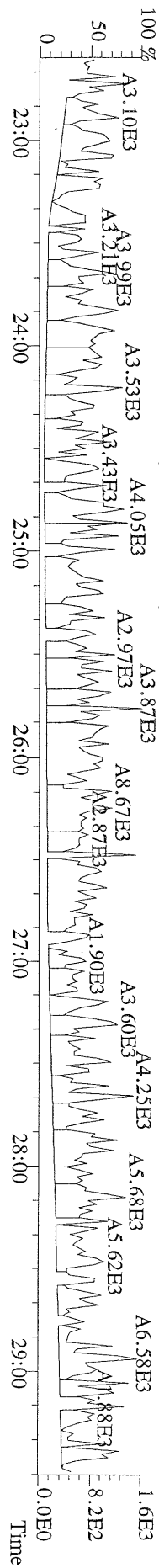
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303.9016 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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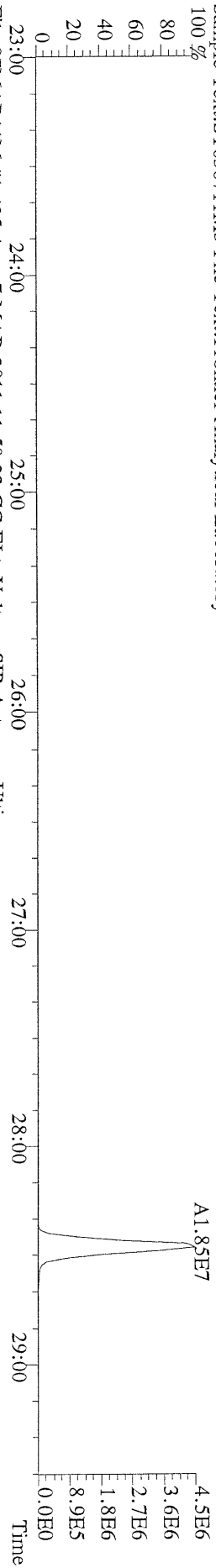
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317.9389 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



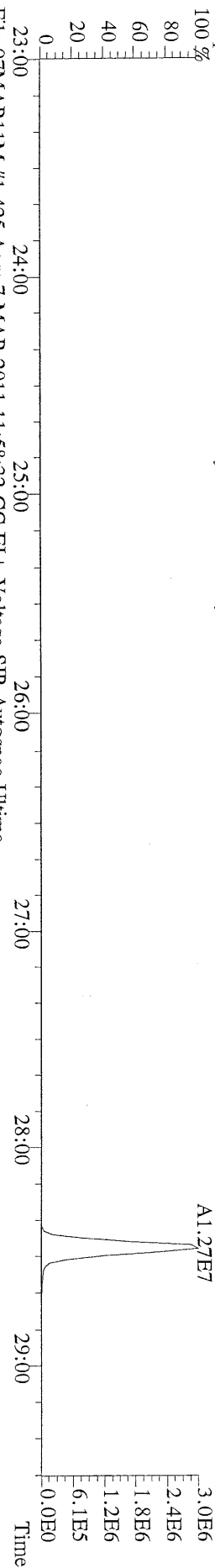
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375.8364 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



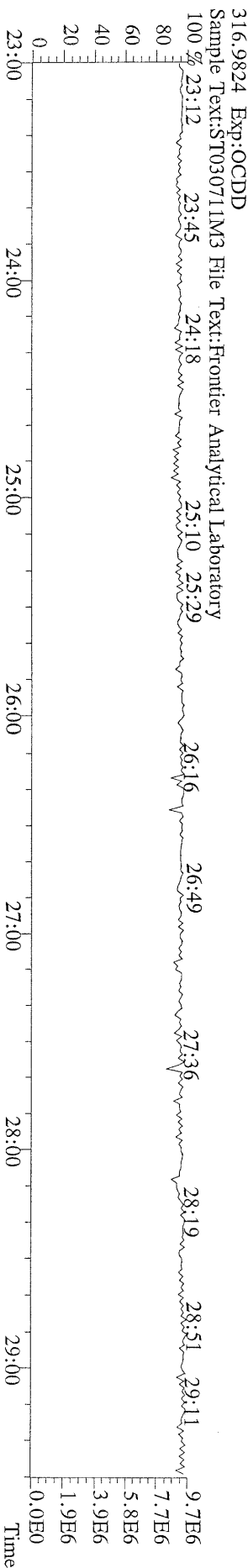
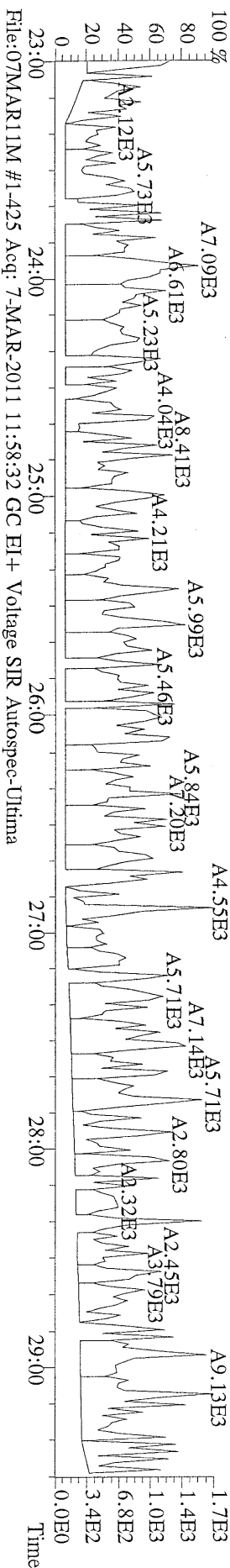
File:07MAR11M #1-425 Acq: 7-MAR-2011 11:58:32 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



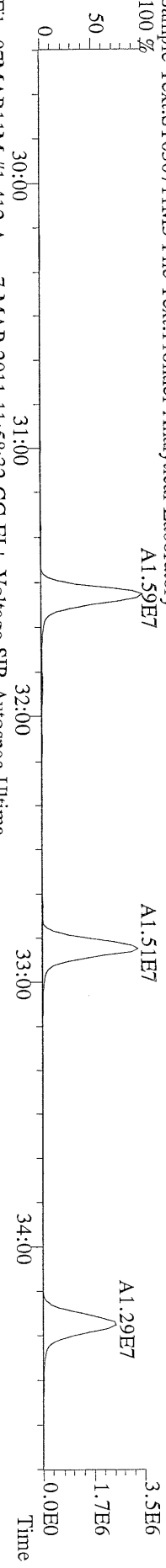
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 341.8568 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



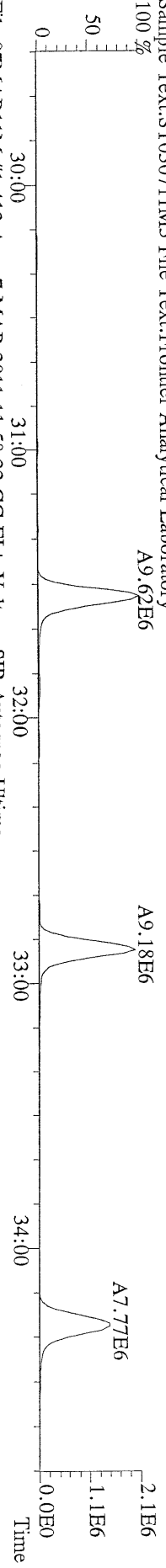
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 409.7974 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



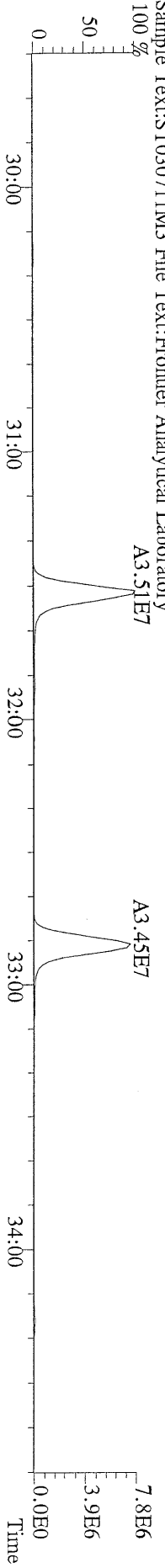
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 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



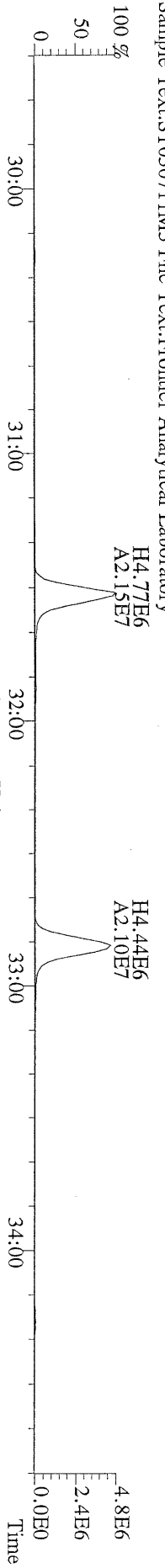
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 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



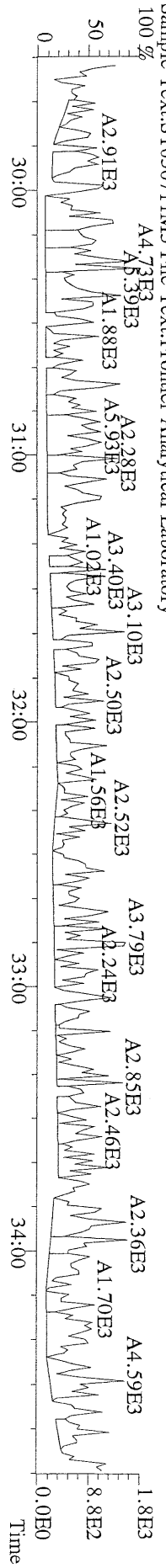
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 351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



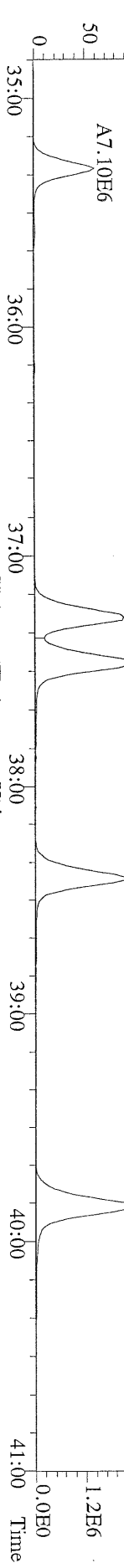
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 353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



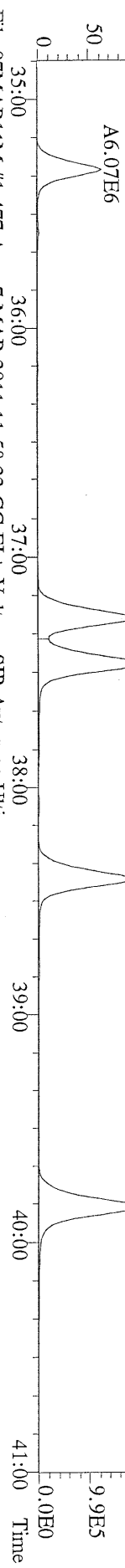
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 409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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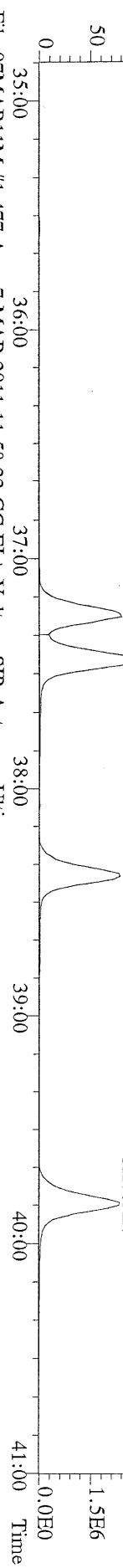
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373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



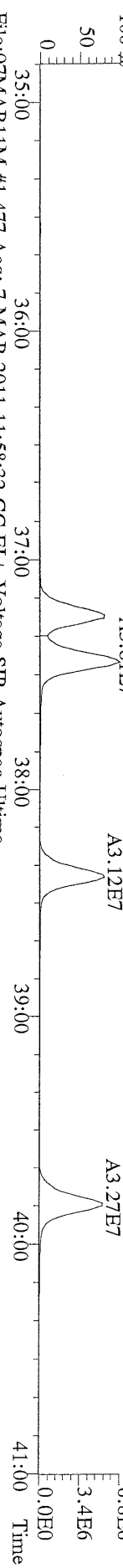
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375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



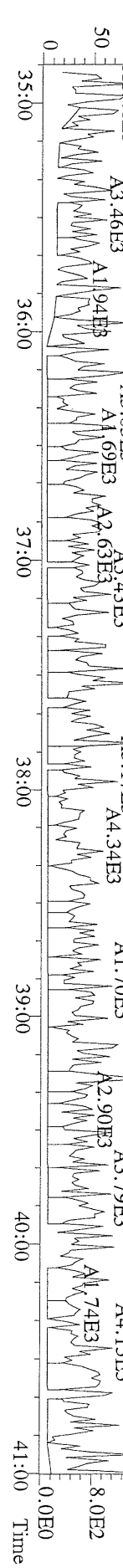
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383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



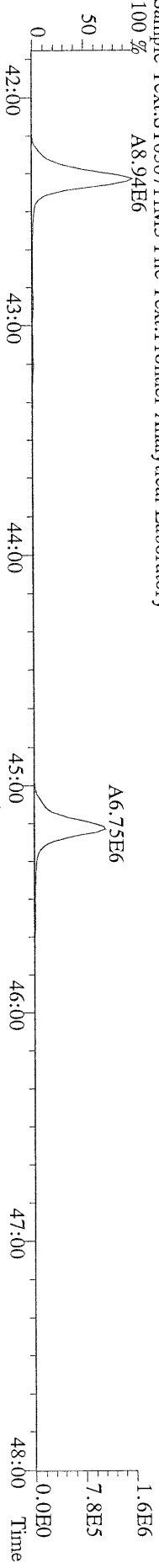
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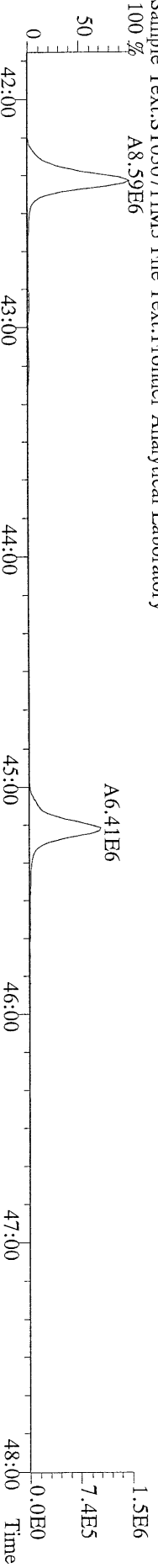
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445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



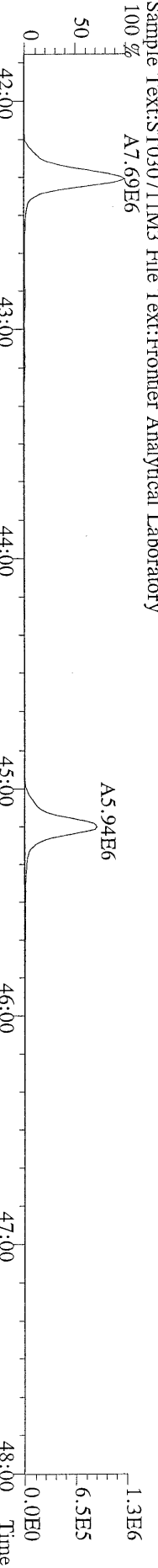
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407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



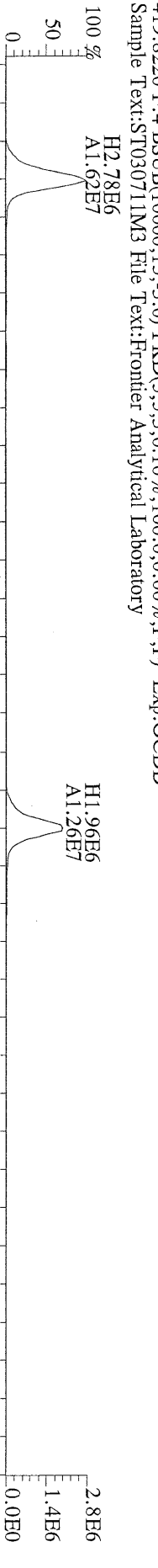
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Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



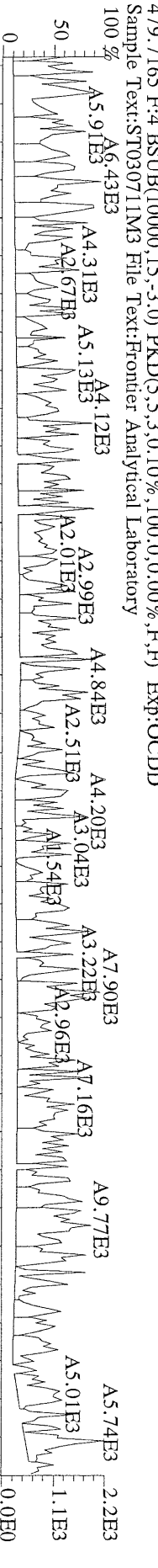
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417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



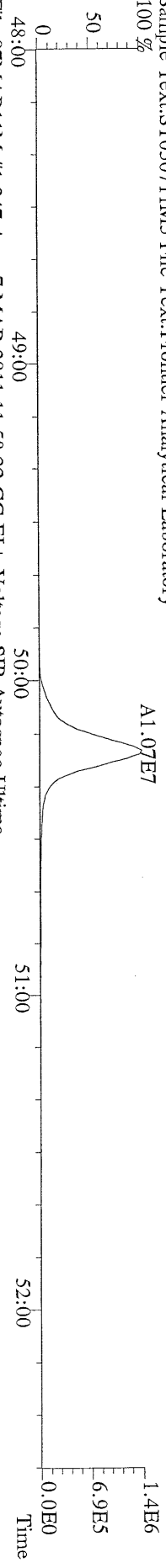
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419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



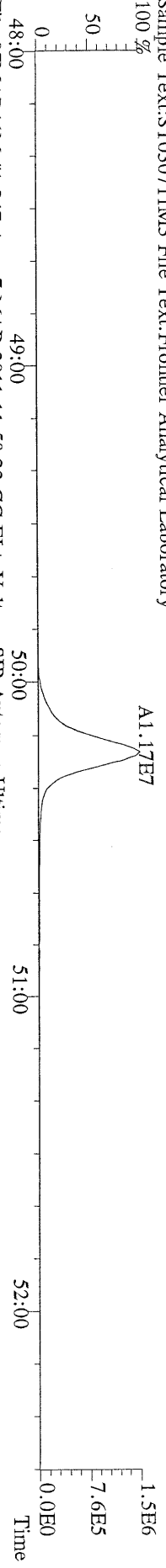
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479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



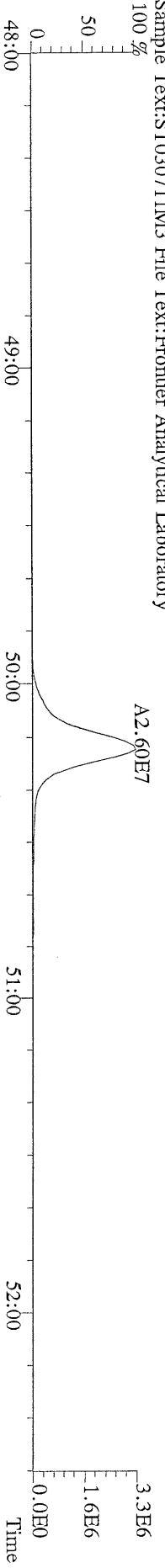
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 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



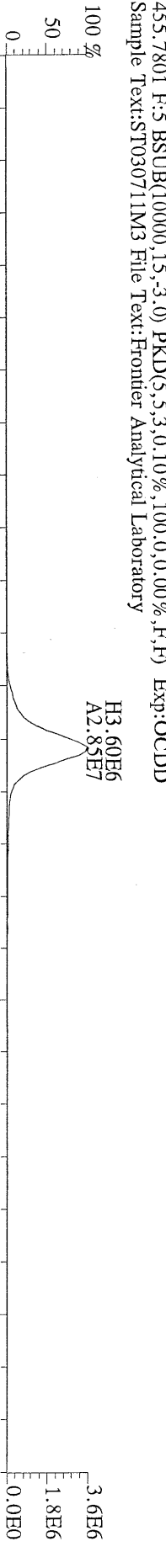
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 443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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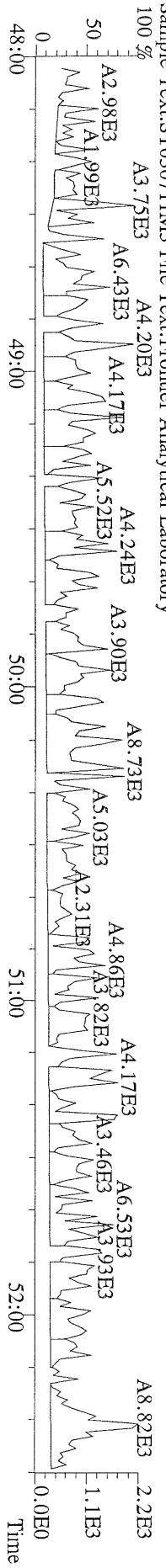
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M3 File Text:Frontier Analytical Laboratory



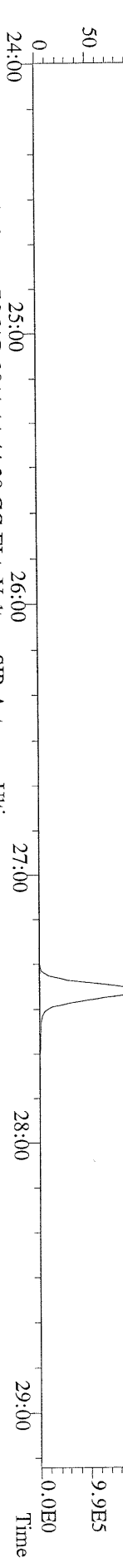
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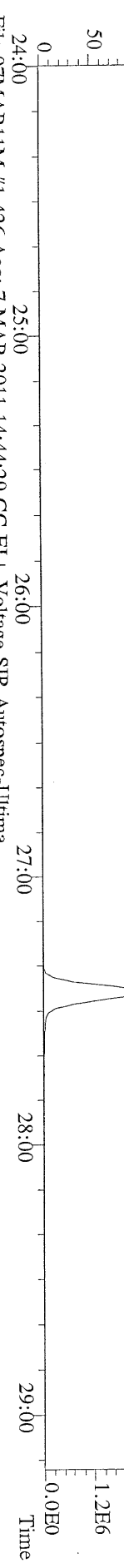
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 513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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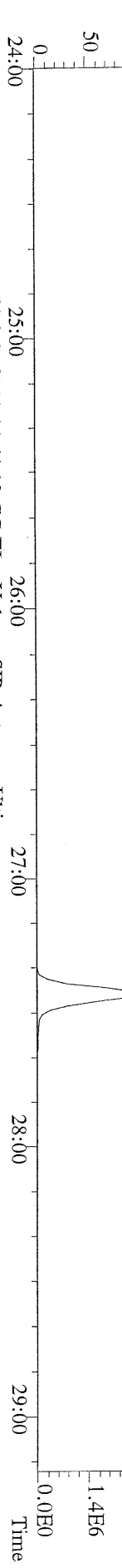
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319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



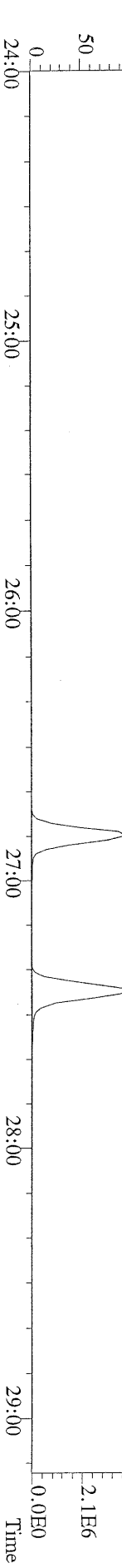
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321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



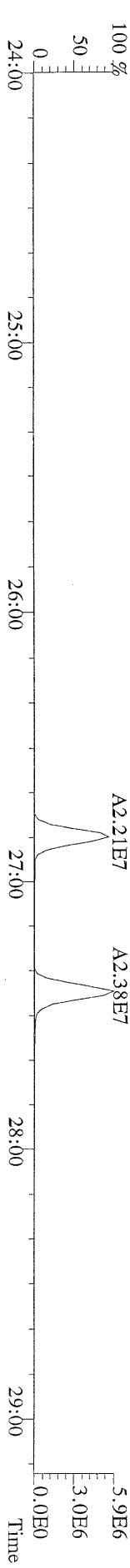
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327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



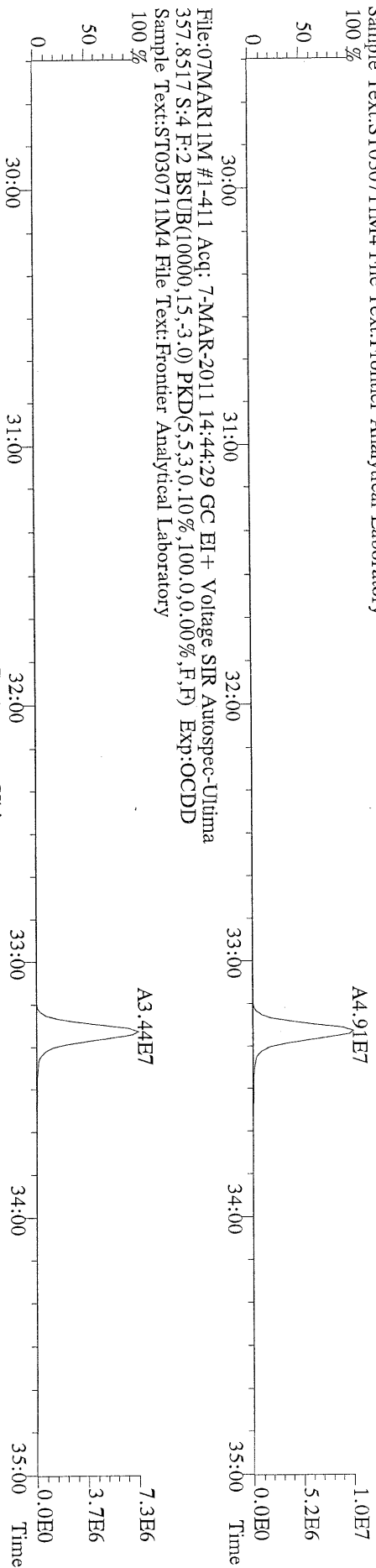
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331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



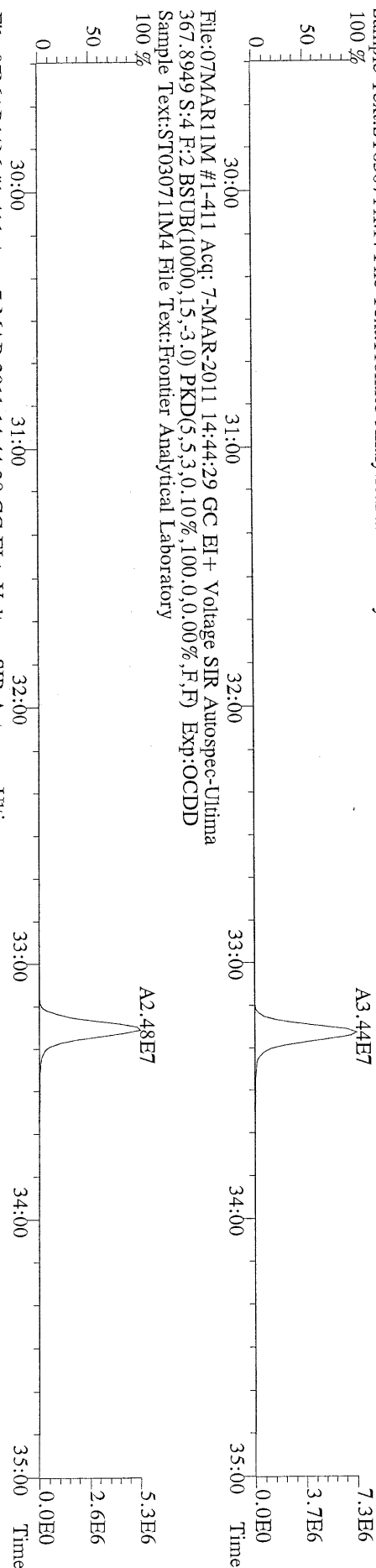
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333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



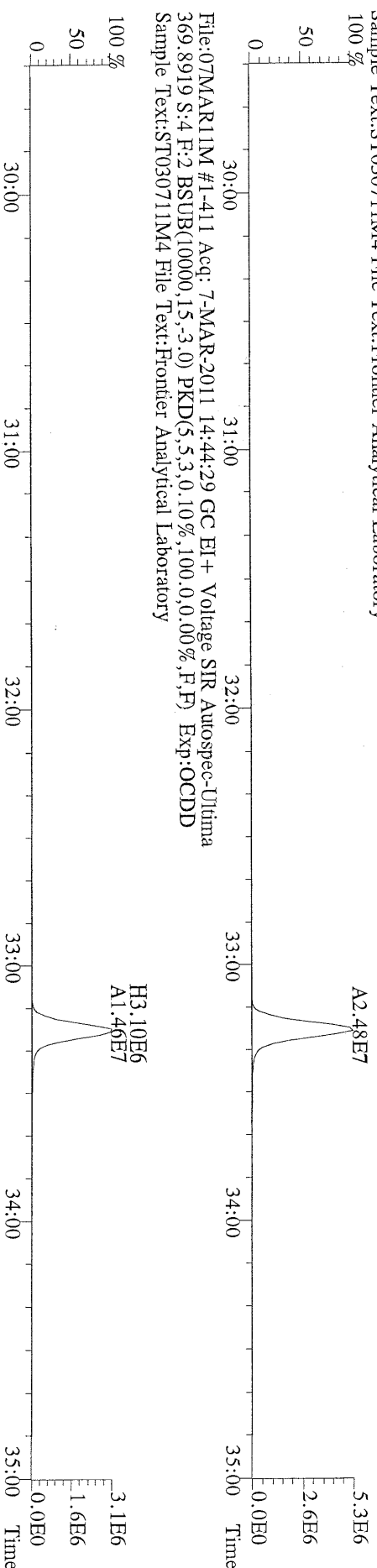
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355.8546 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



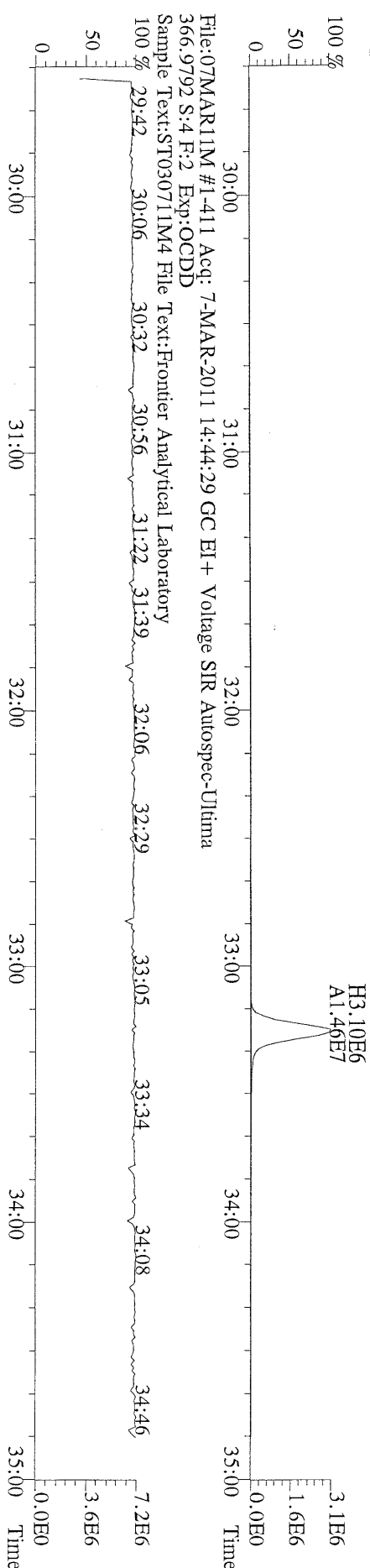
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357.8517 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



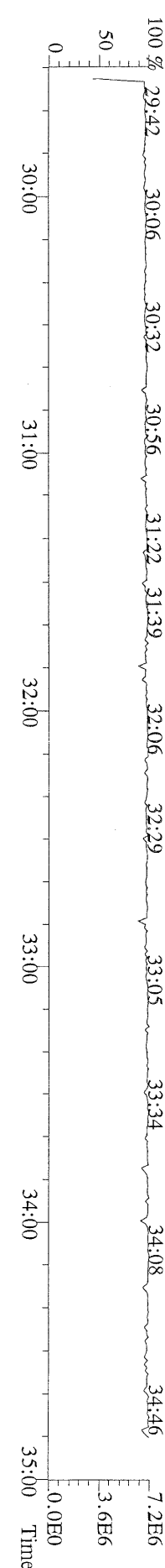
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367.8949 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



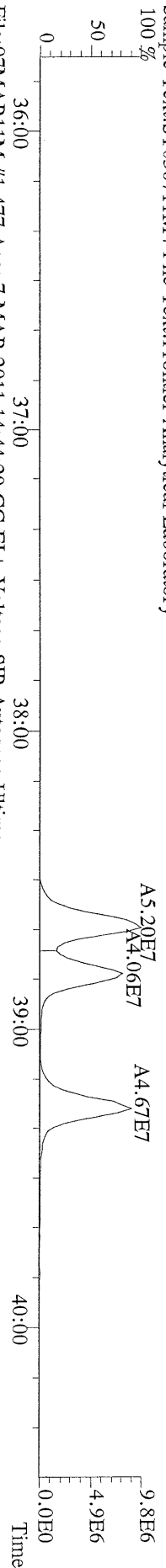
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369.8919 S:4 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



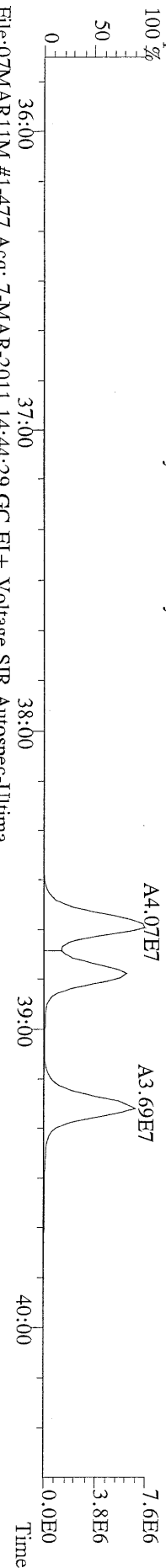
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366.9792 S:4 F:2 Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



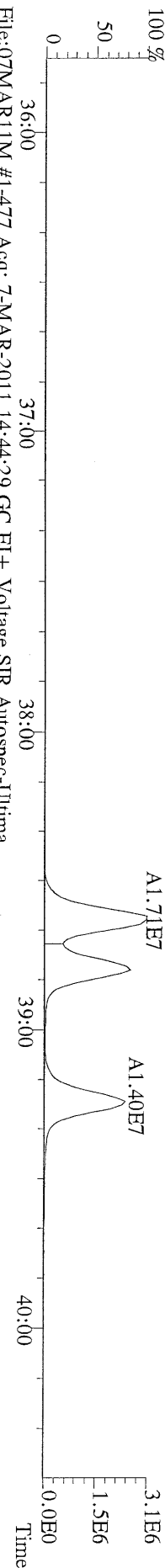
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389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



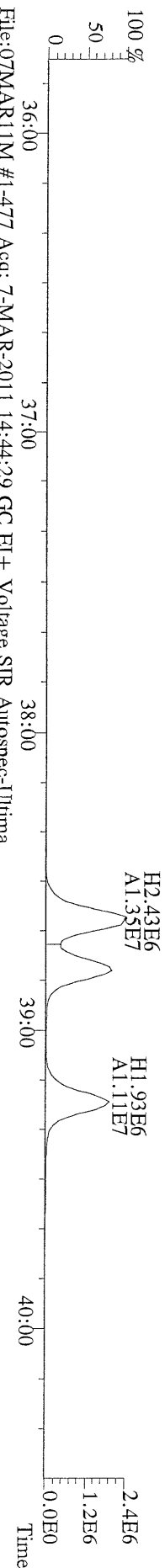
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391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



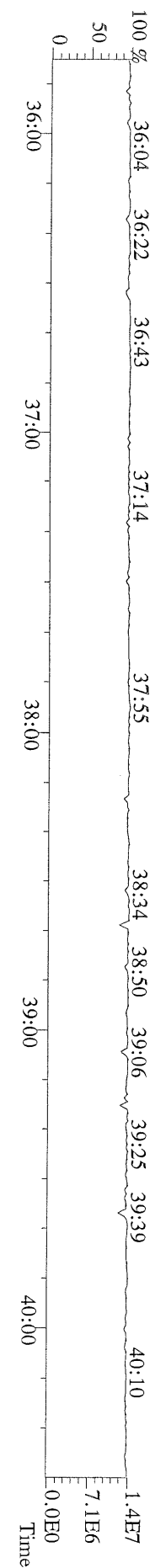
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401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



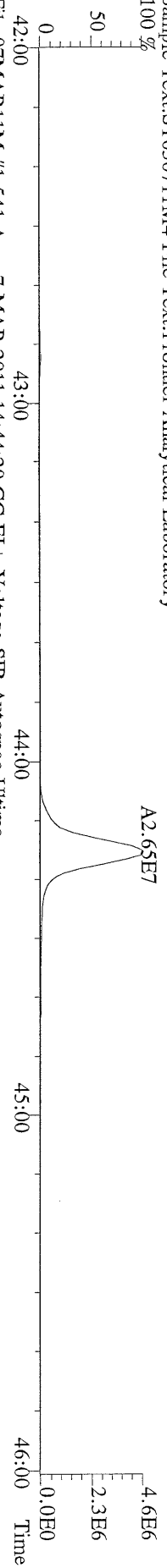
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403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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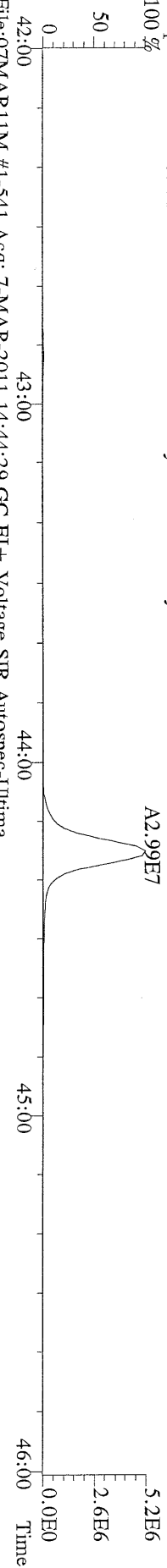
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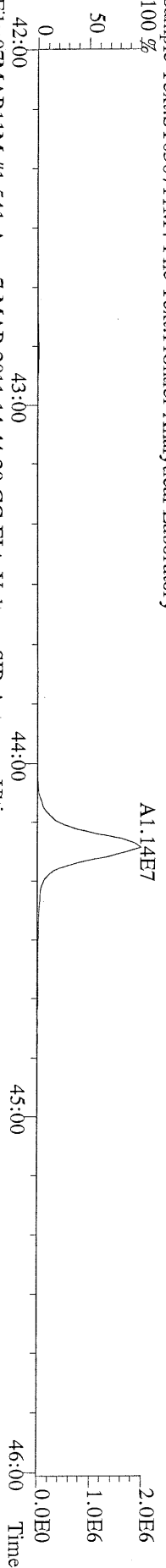
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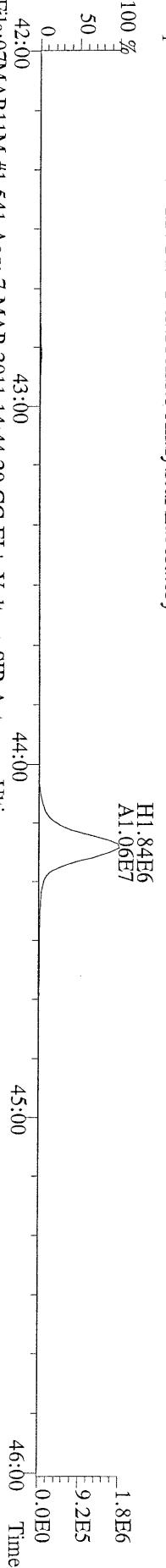
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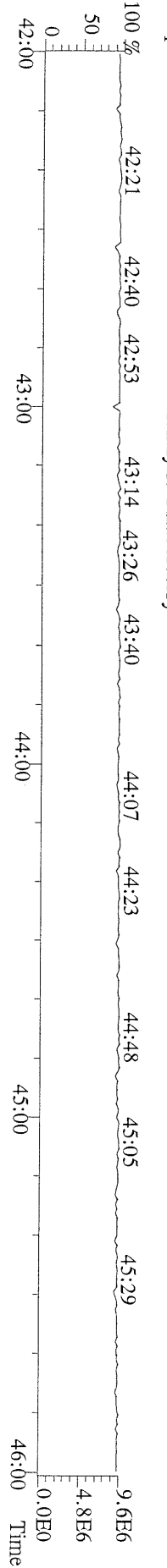
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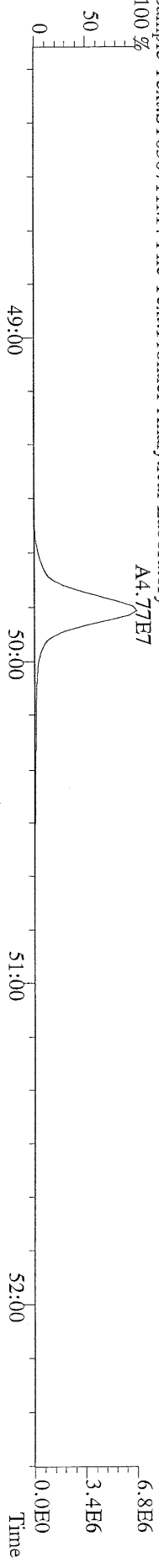
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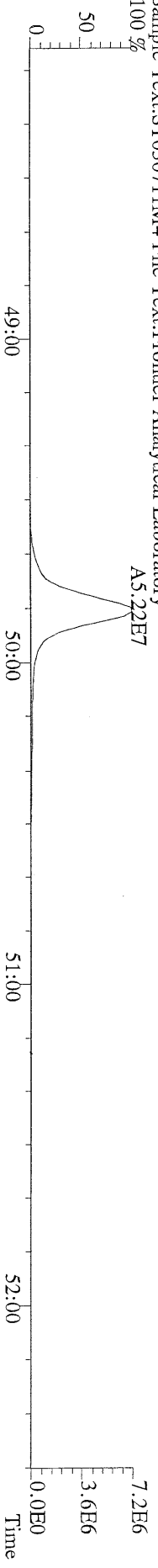
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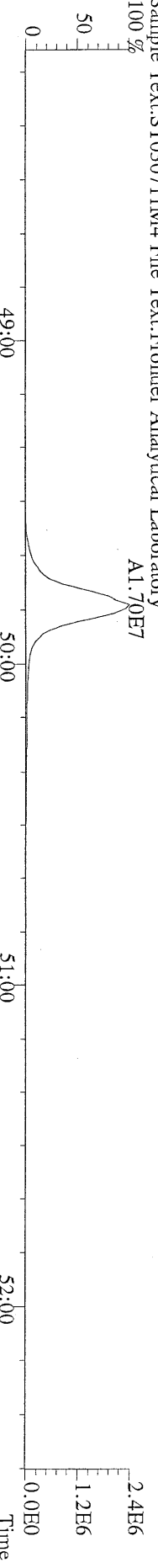
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



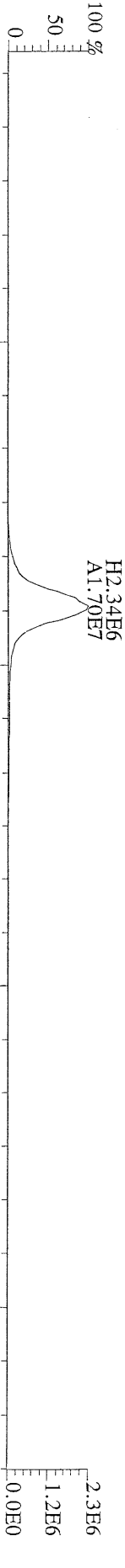
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
100 %



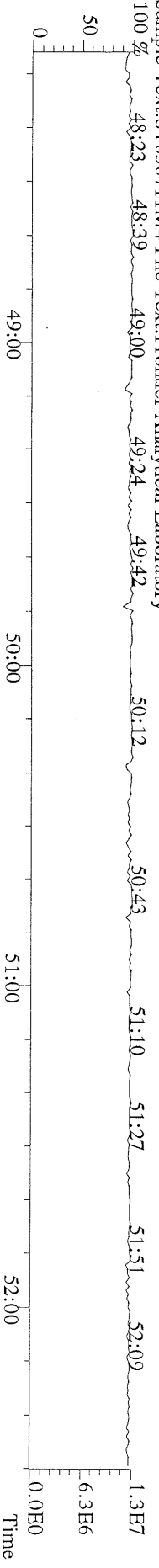
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100 %



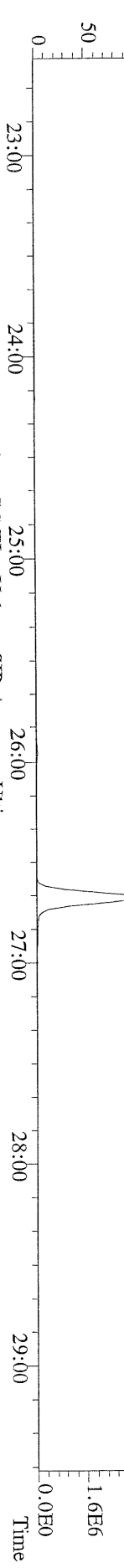
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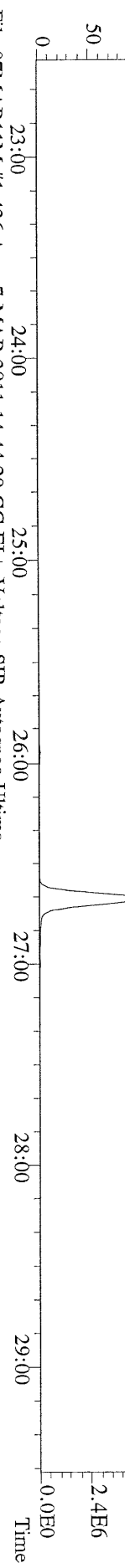
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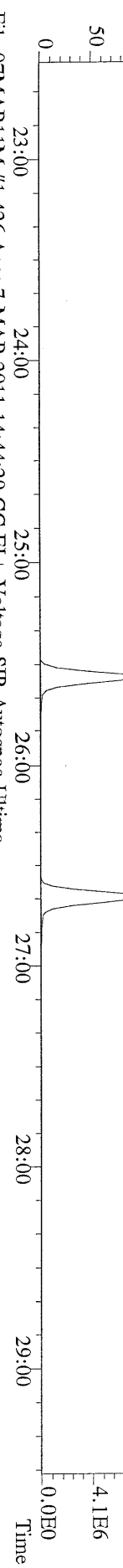
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 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



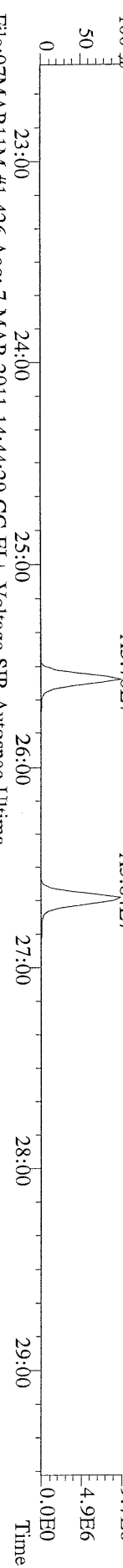
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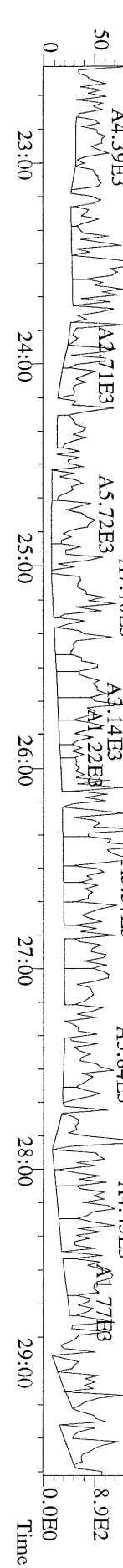
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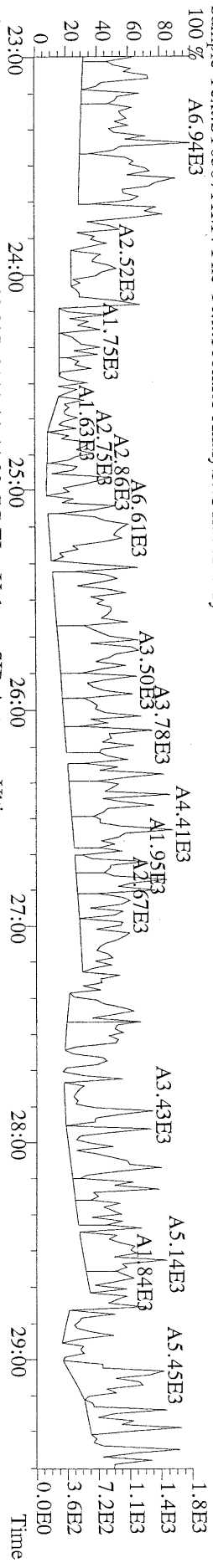
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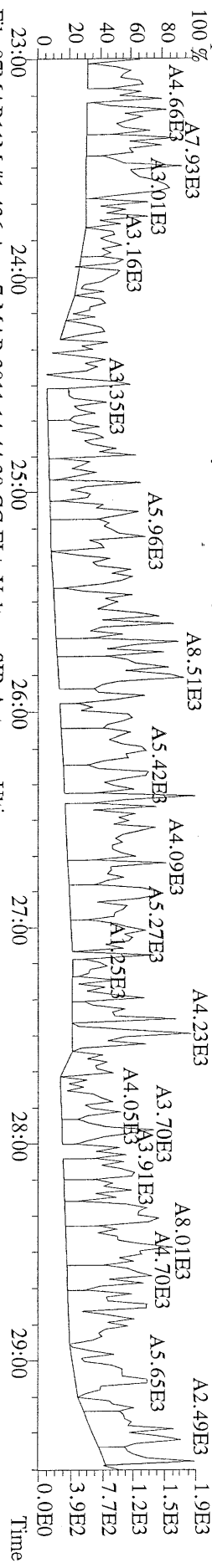
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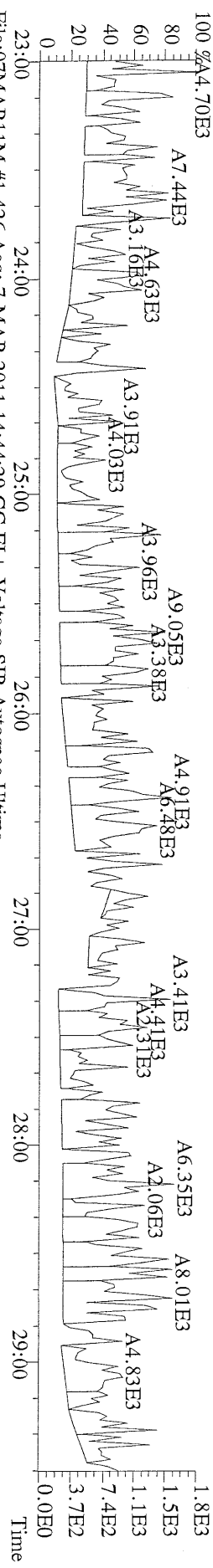
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 339,8597 S:4 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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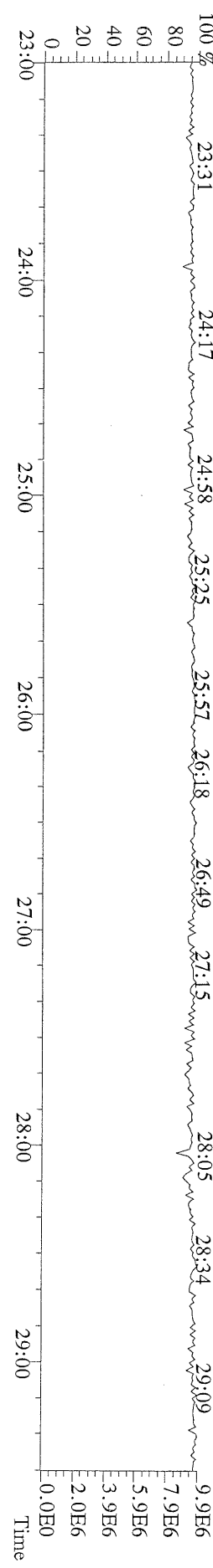
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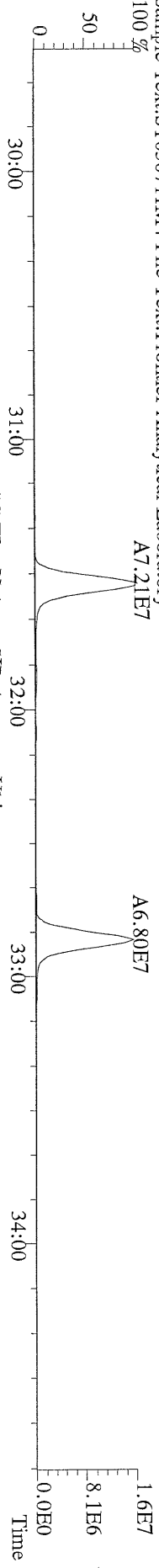
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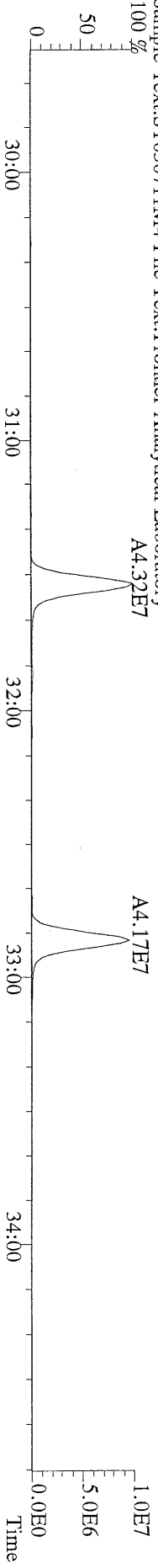
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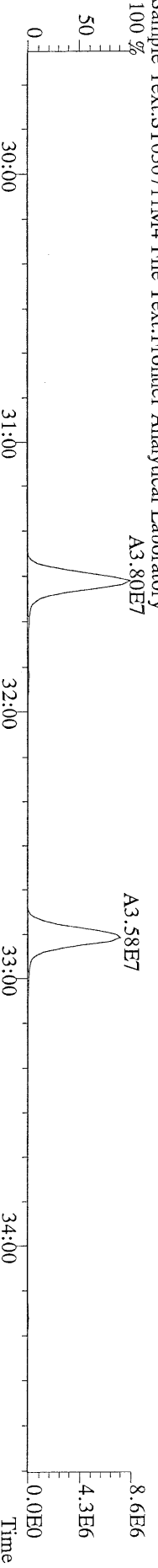
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 339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



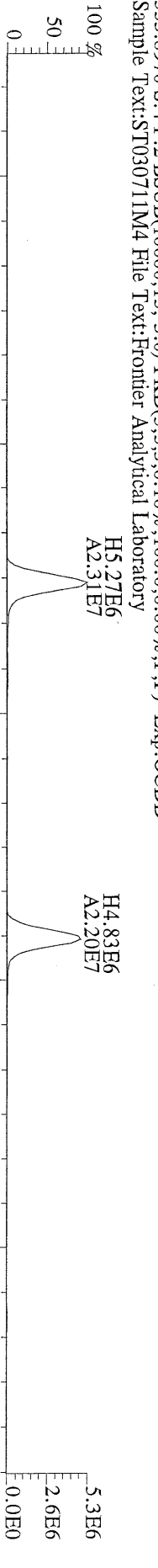
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 341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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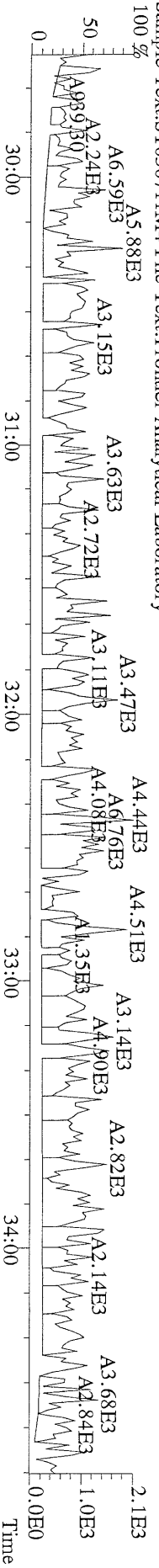
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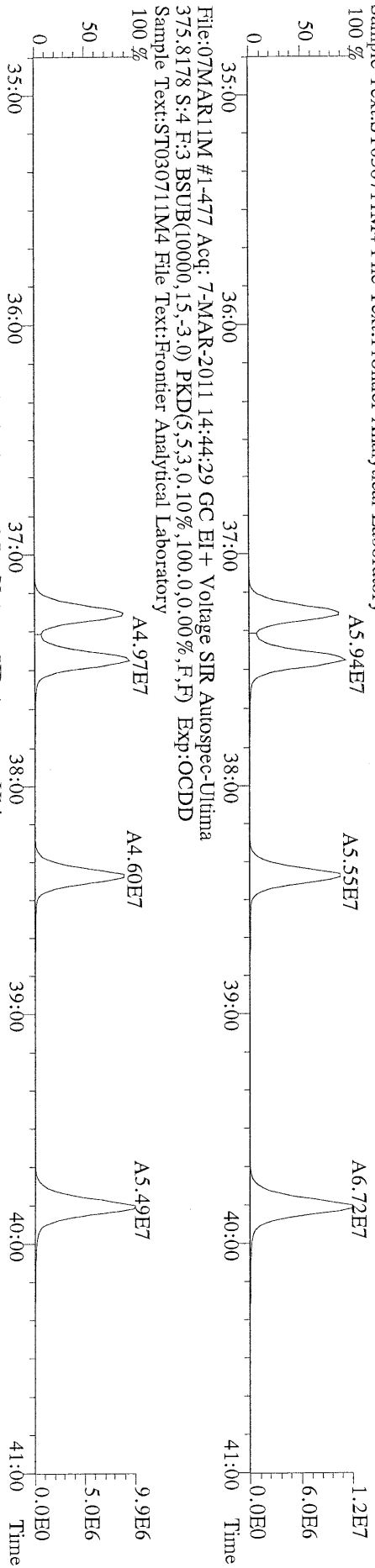
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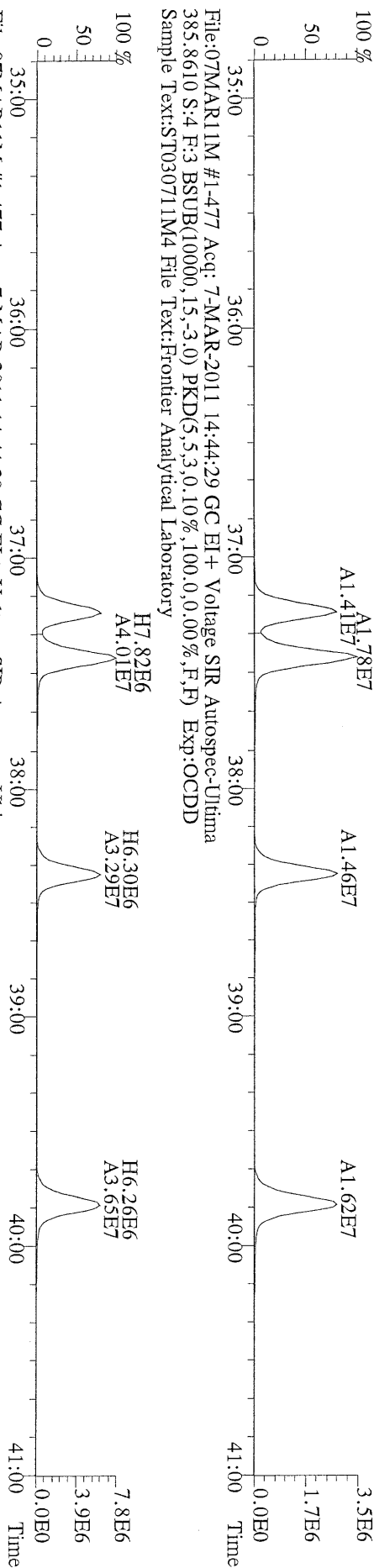
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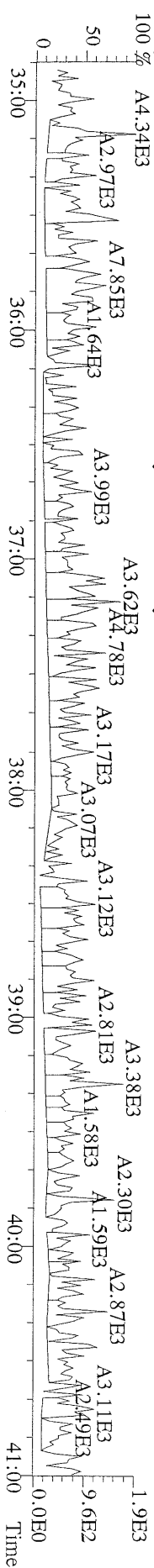
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373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
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100 %



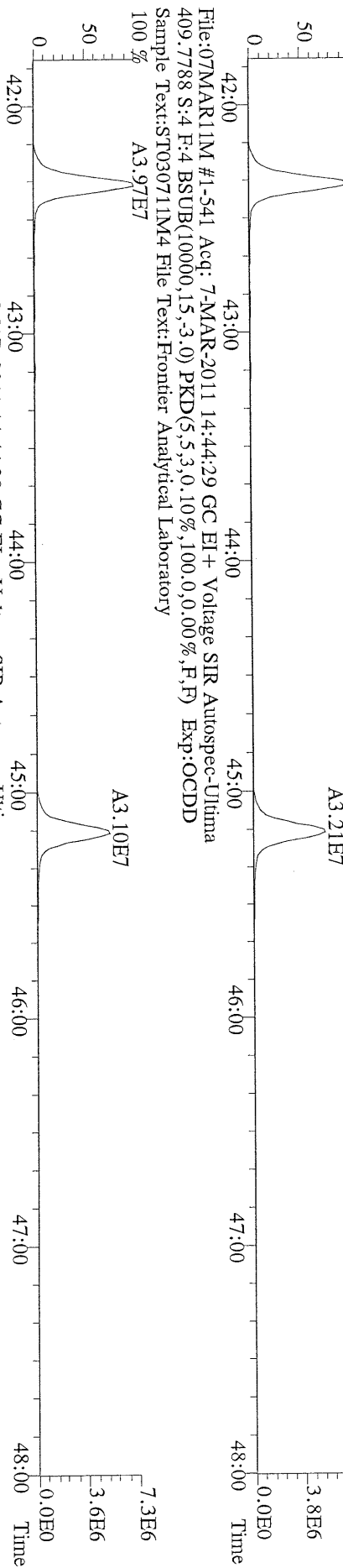
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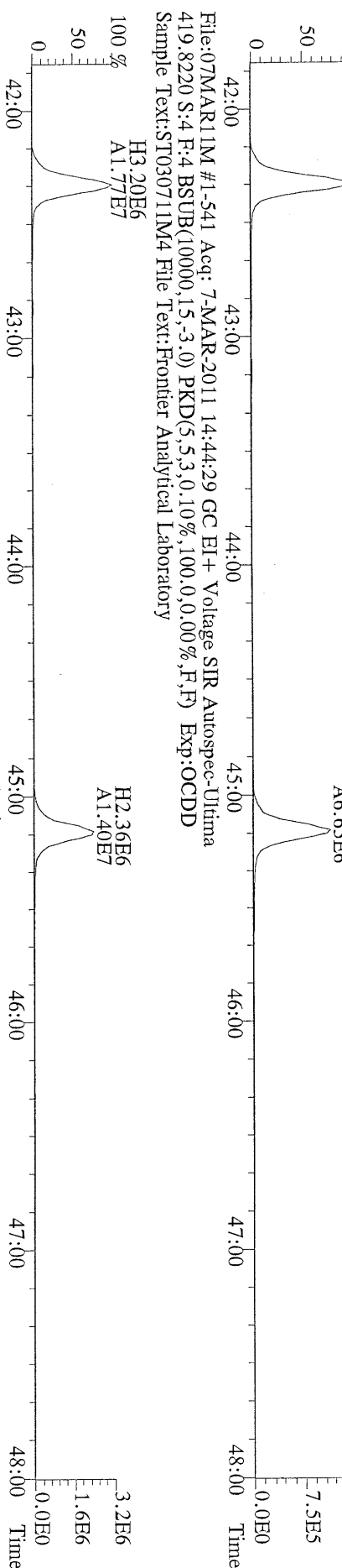
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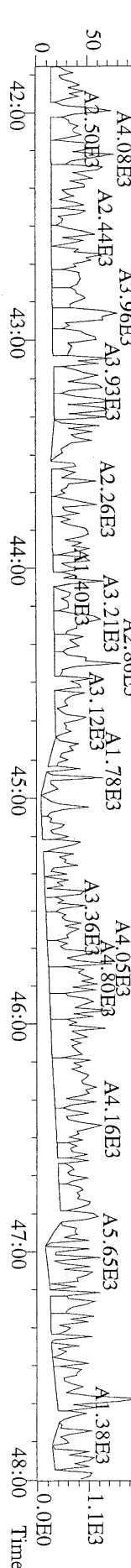
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407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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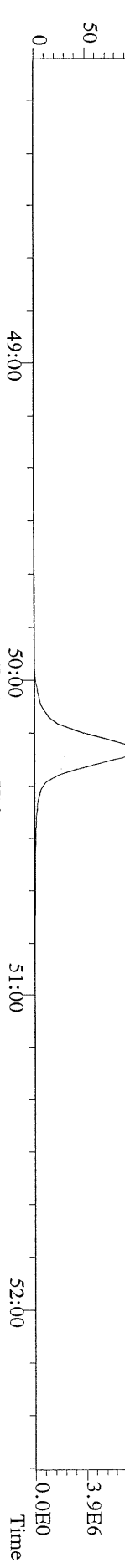
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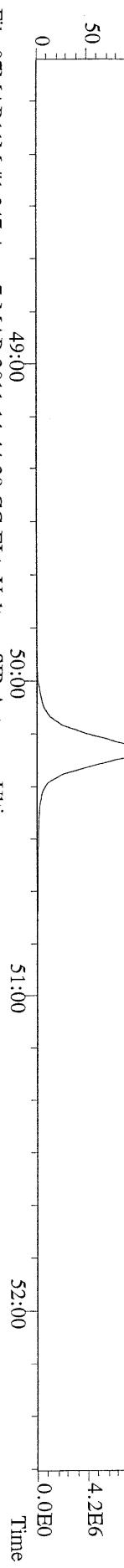
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479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory
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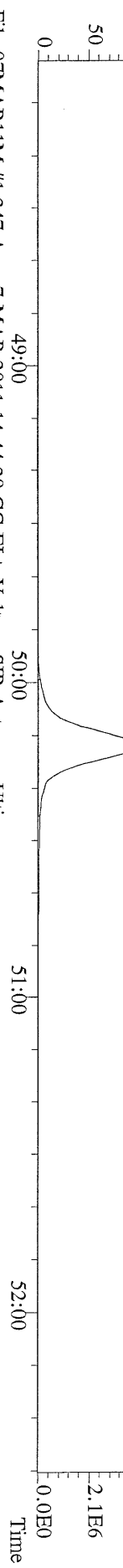
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



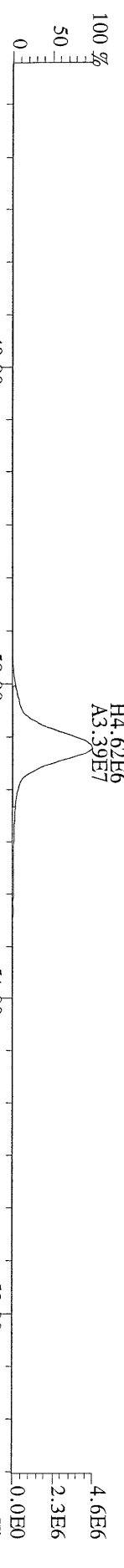
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



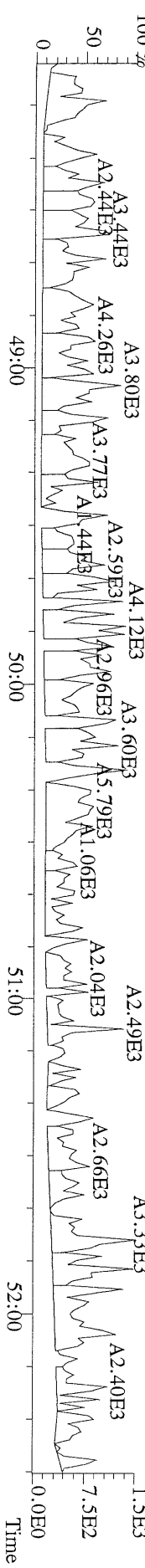
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453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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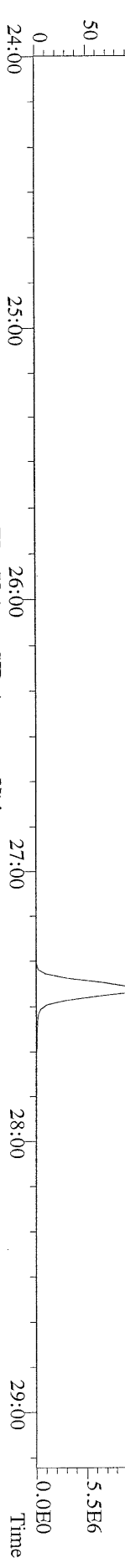
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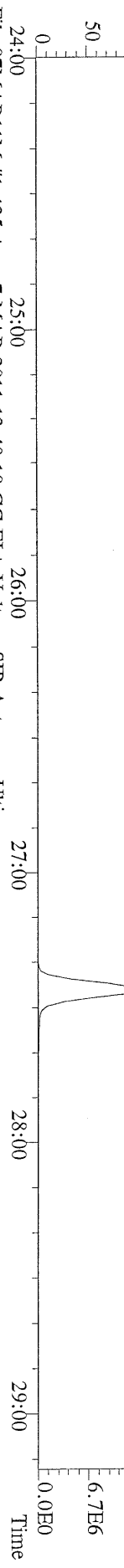
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Sample Text:ST030711M4 File Text:Frontier Analytical Laboratory



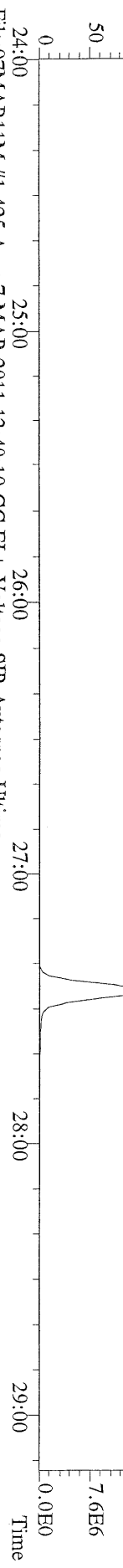
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319.8965 S:3 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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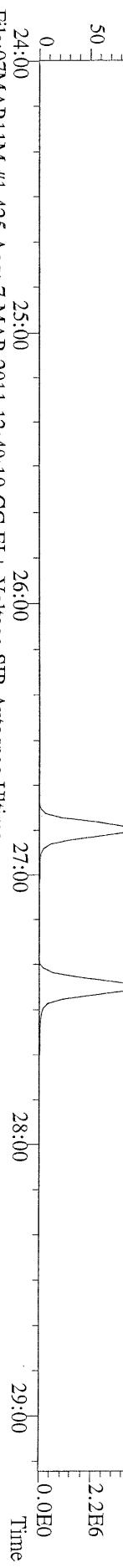
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
100 %



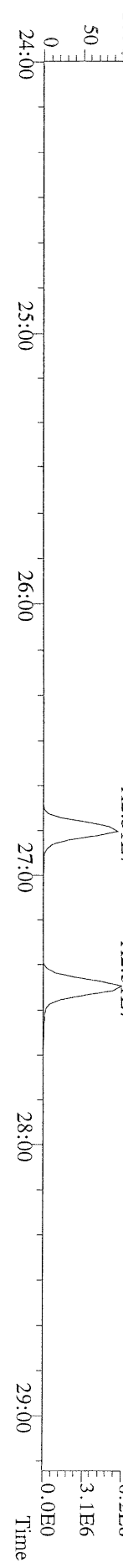
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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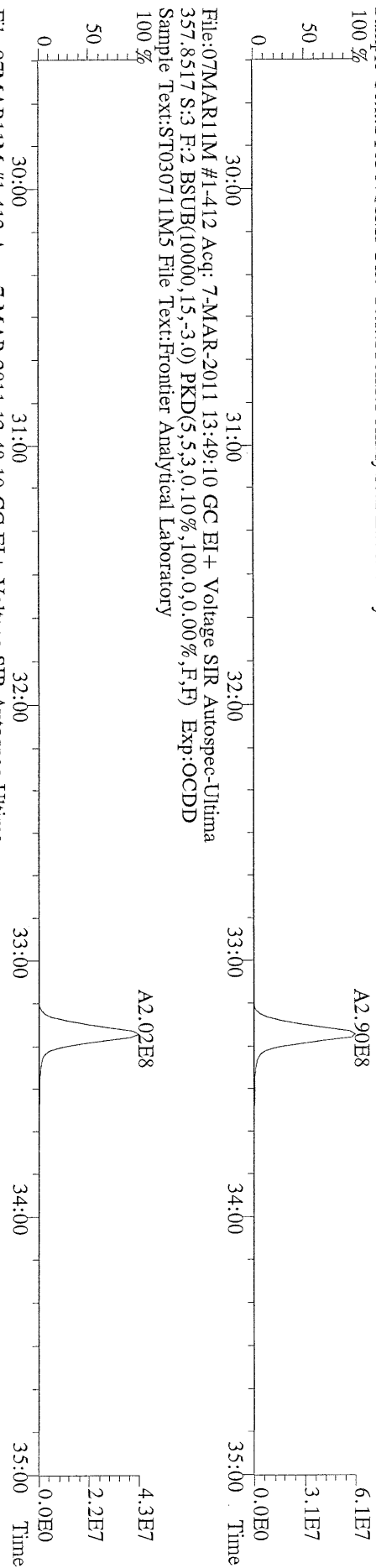
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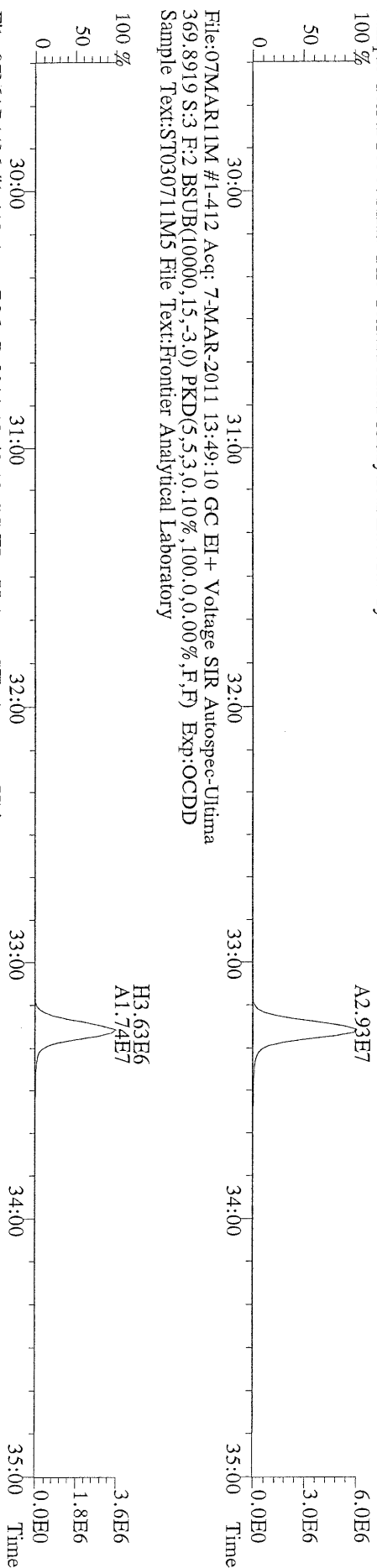
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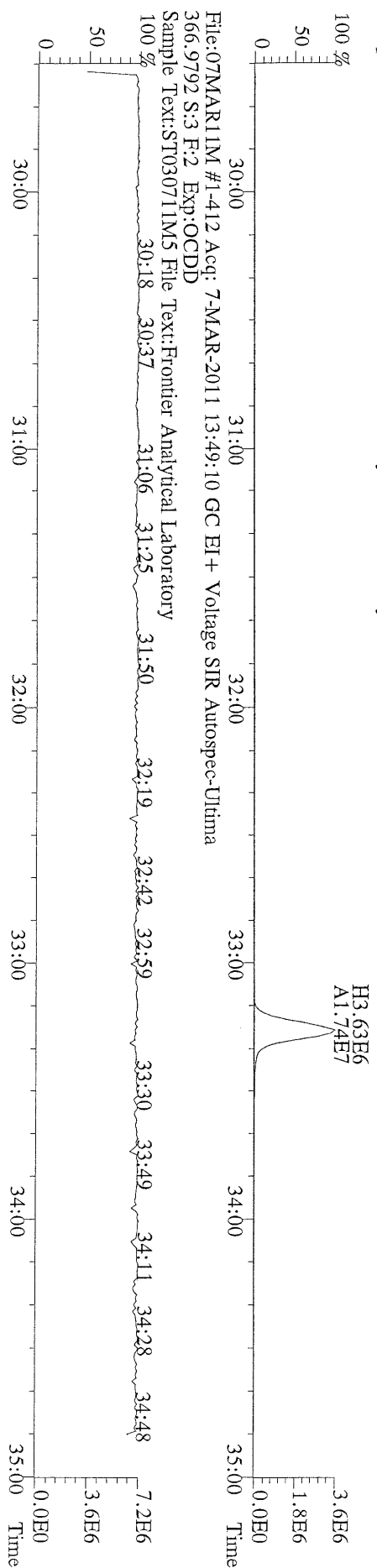
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100 %



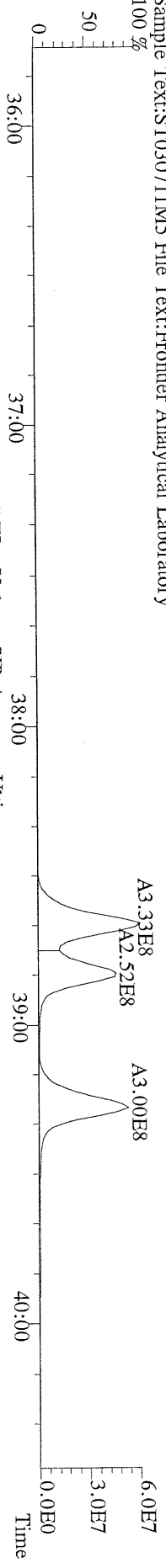
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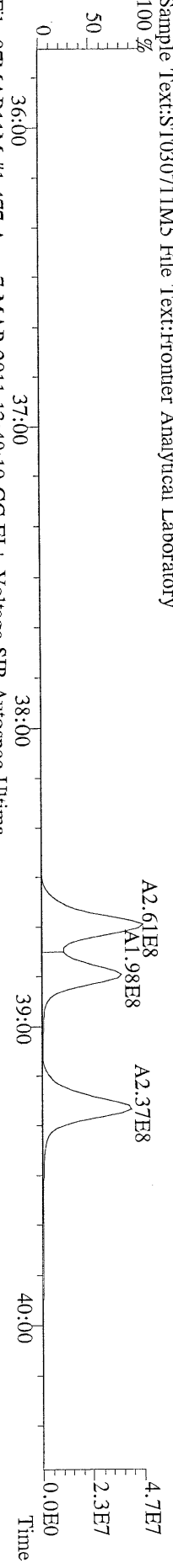
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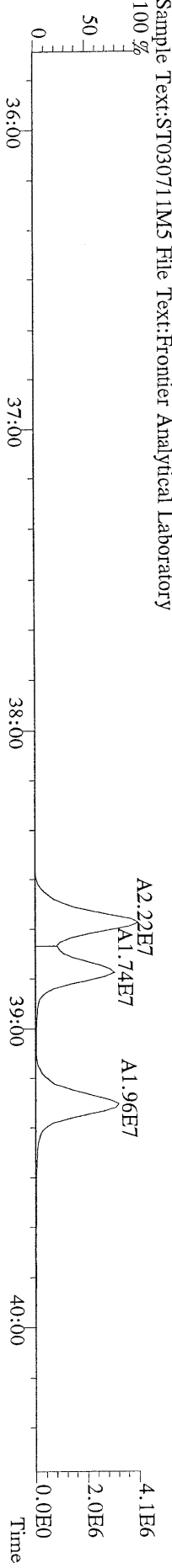
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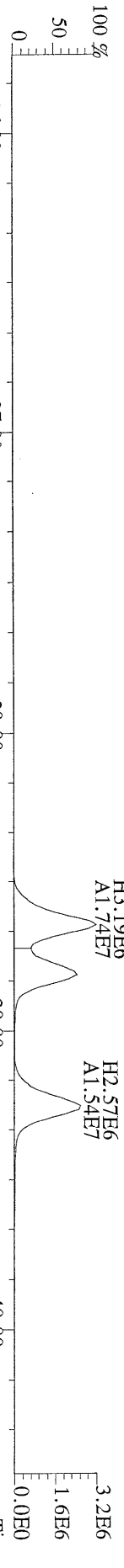
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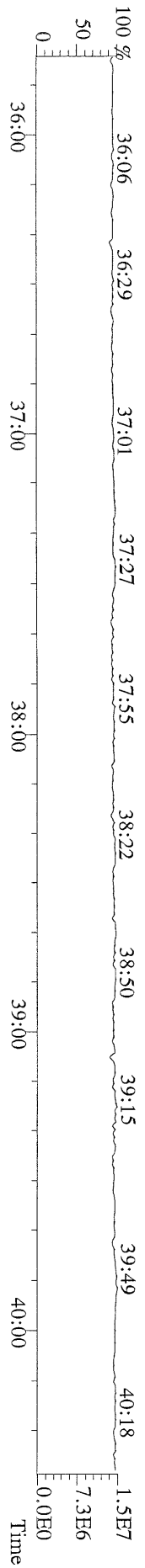
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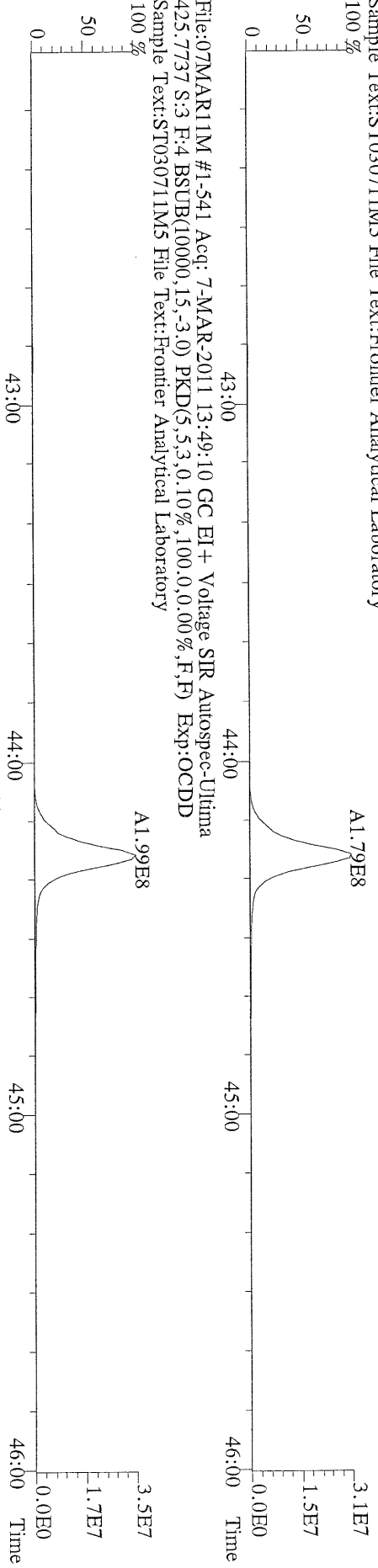
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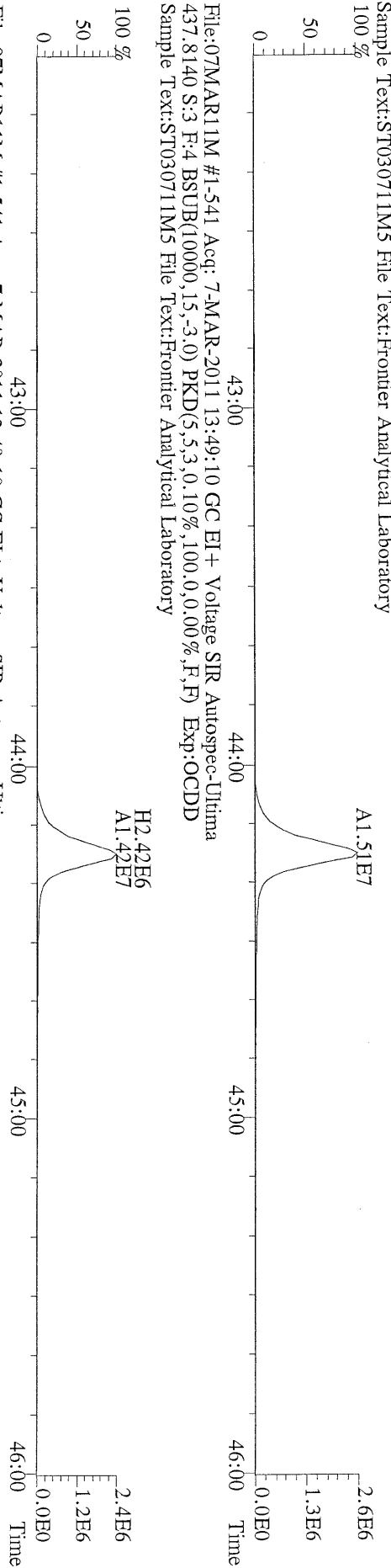
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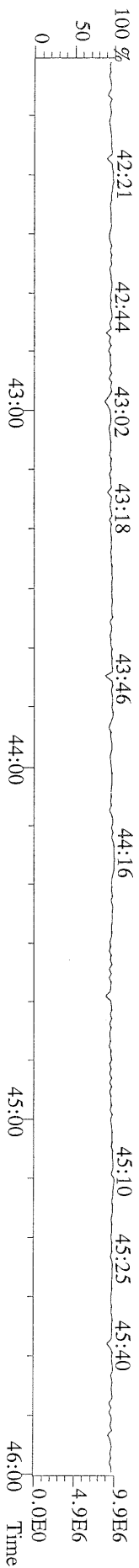
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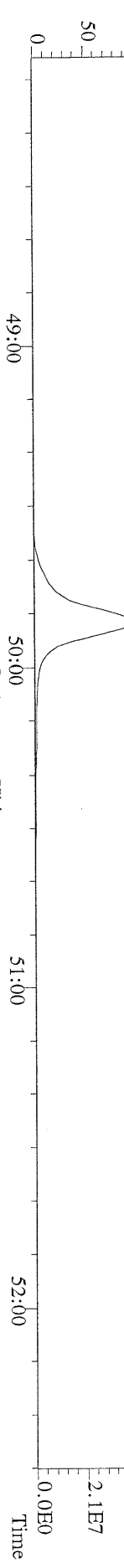
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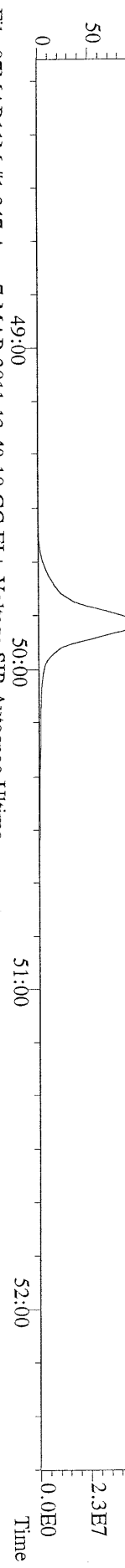
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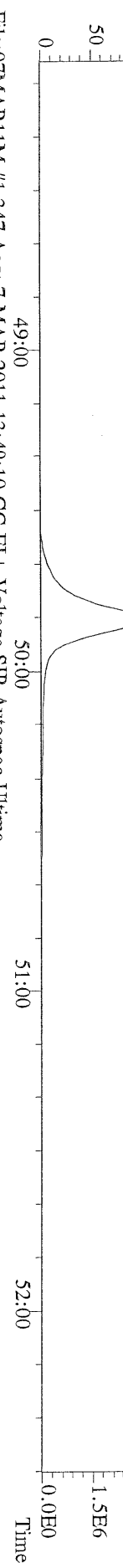
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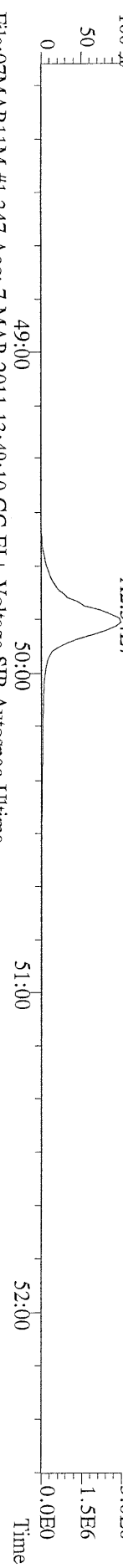
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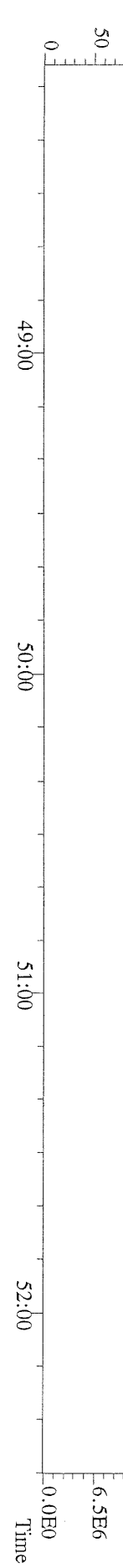
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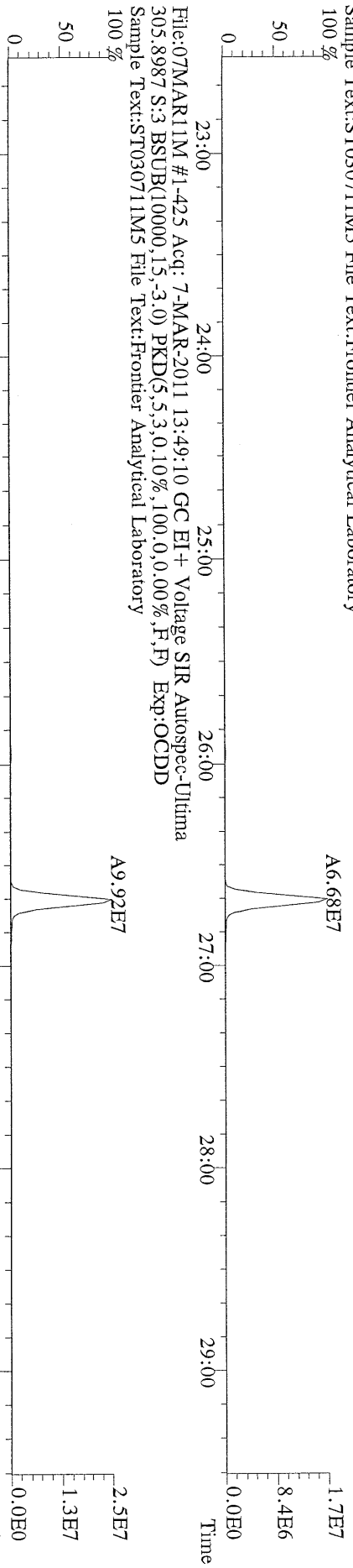
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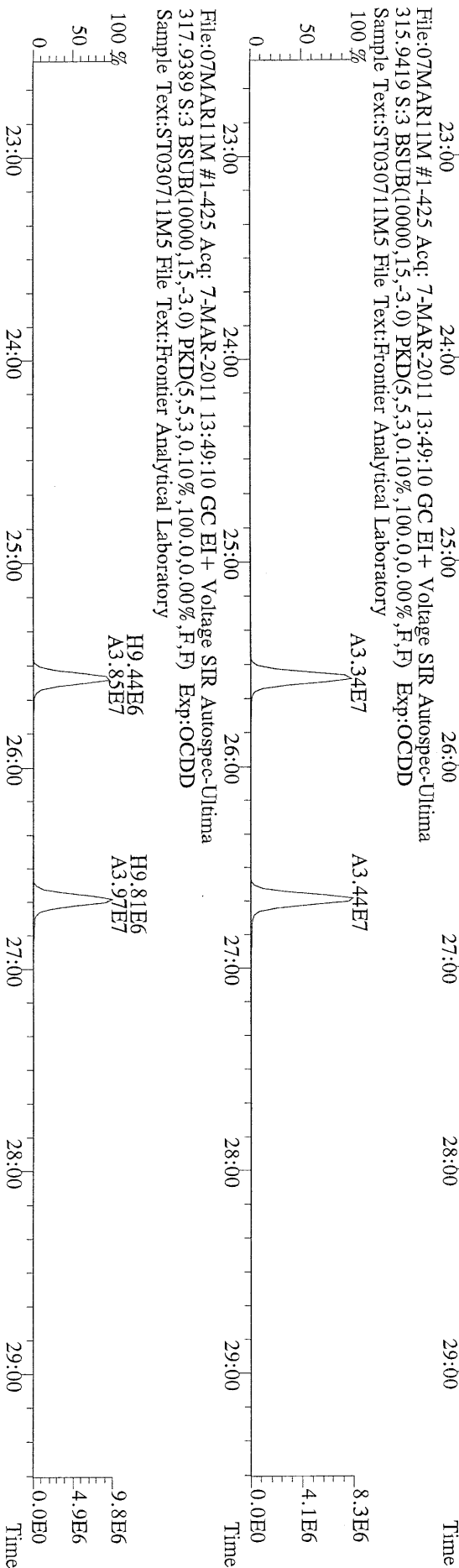
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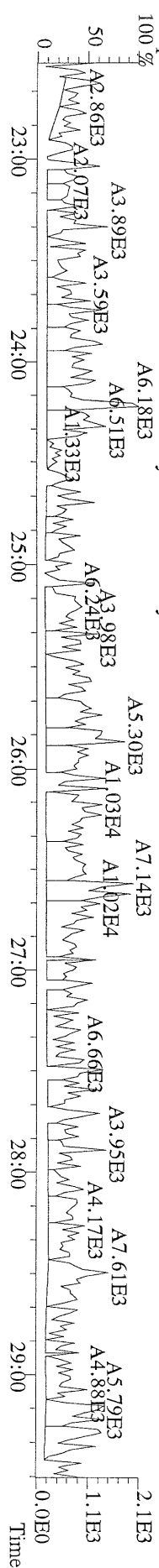
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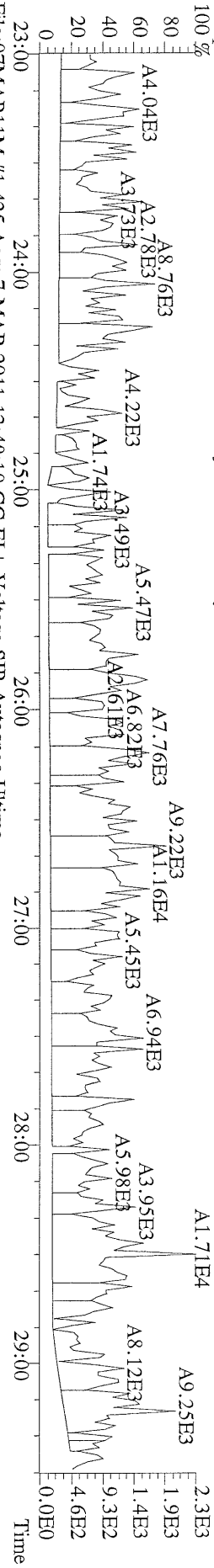
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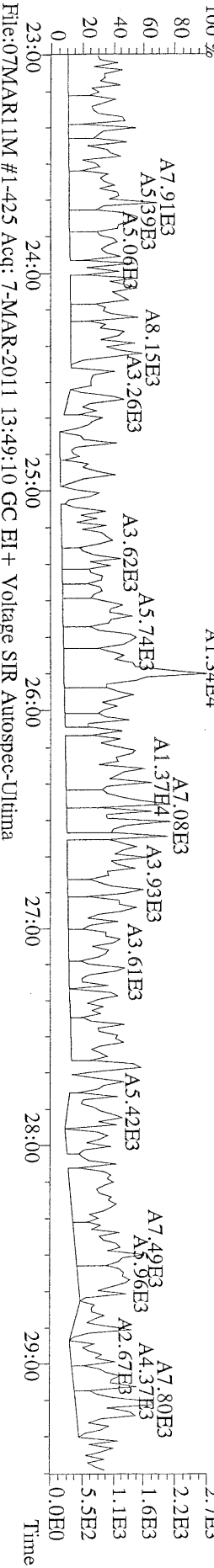
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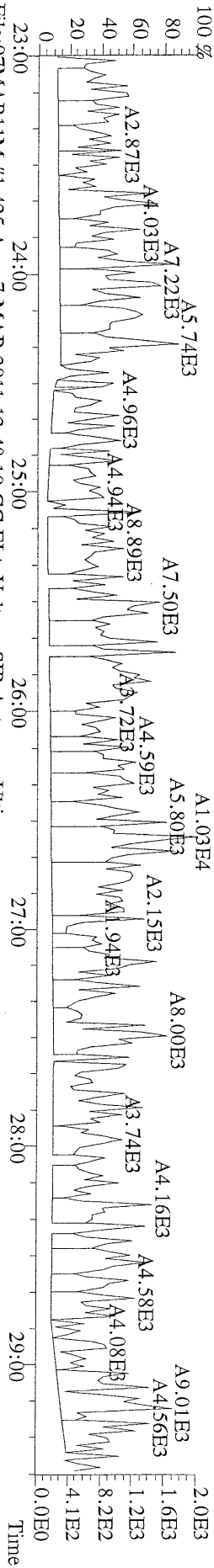
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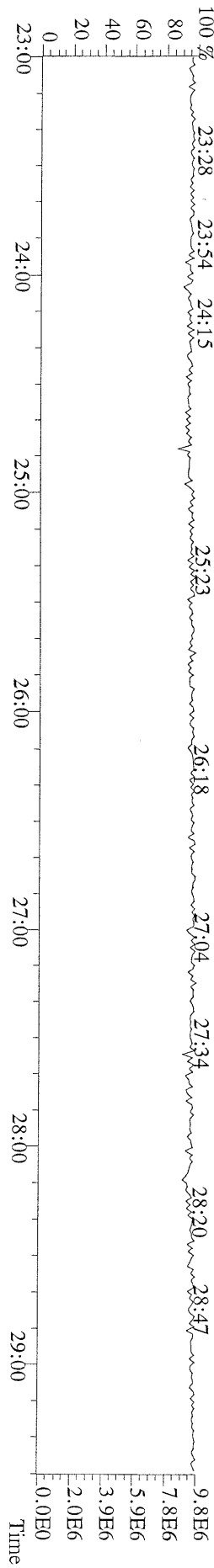
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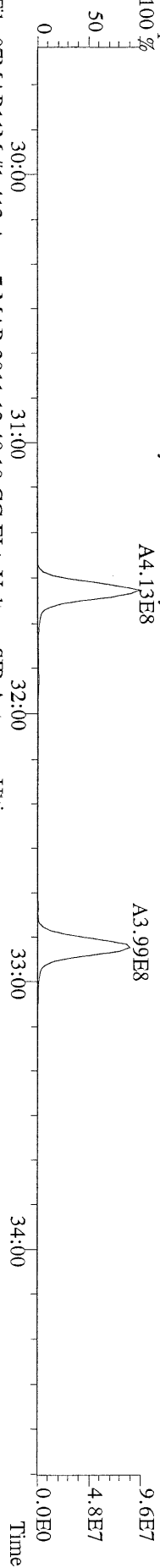
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 409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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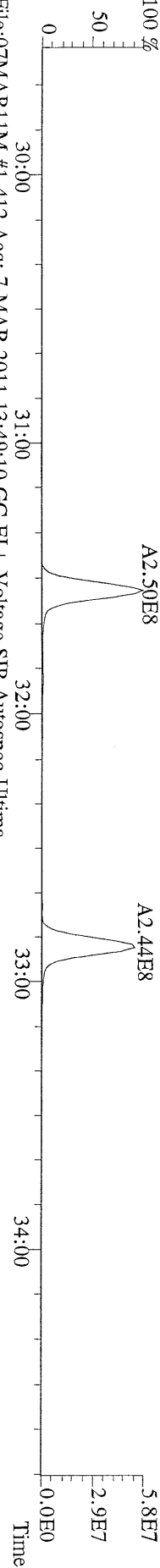
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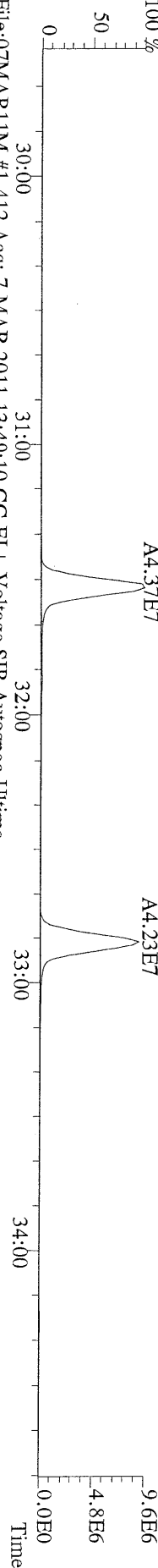
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 Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory
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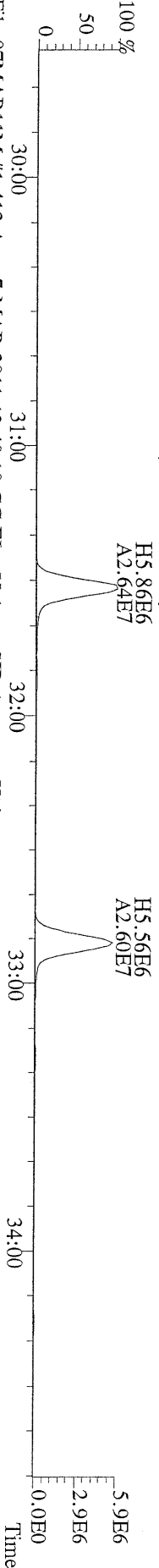
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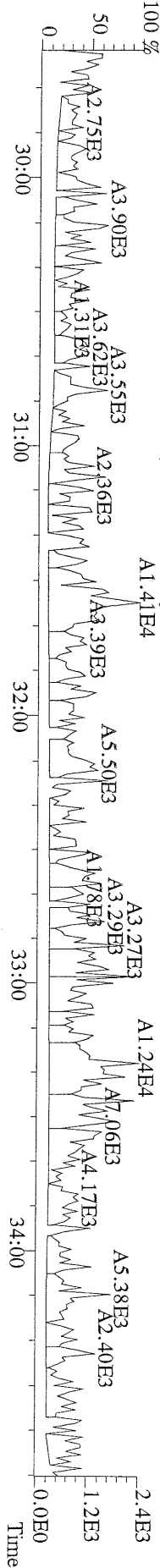
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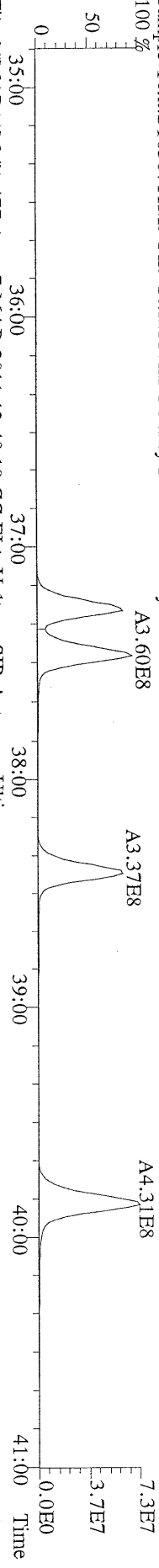
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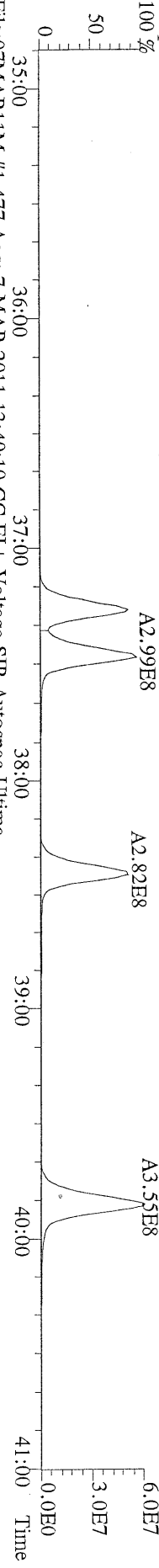
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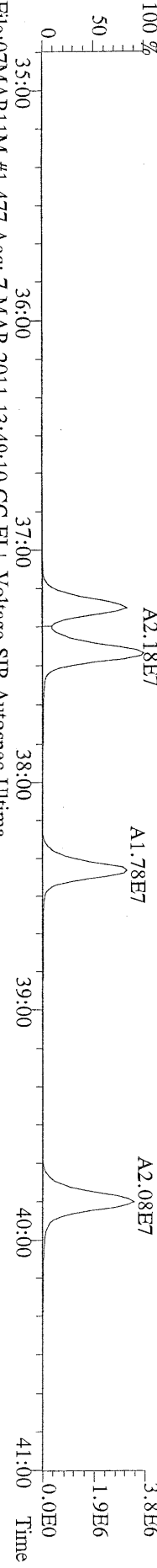
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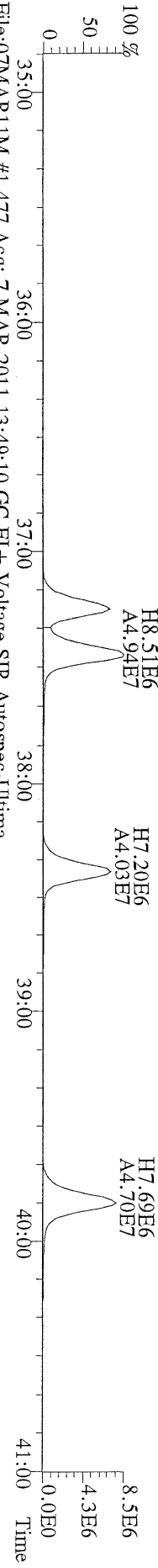
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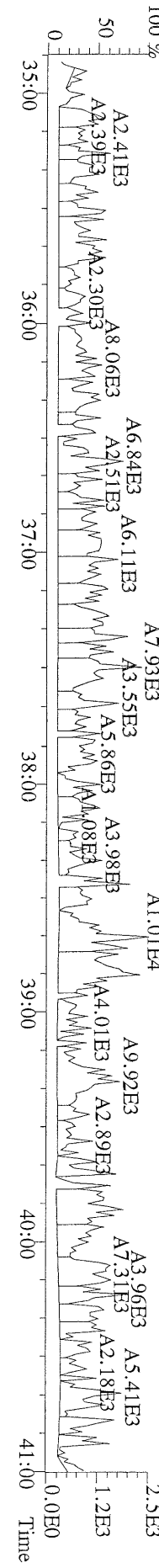
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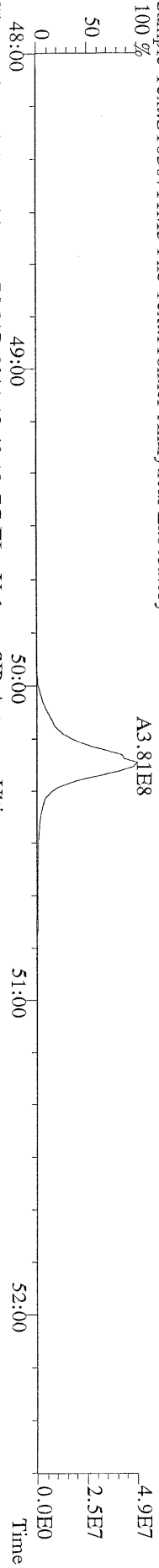
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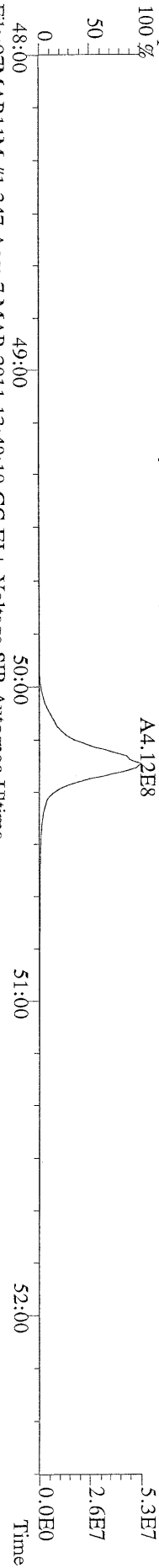
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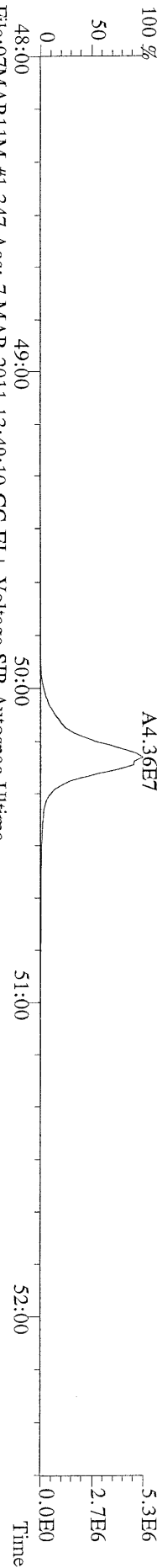
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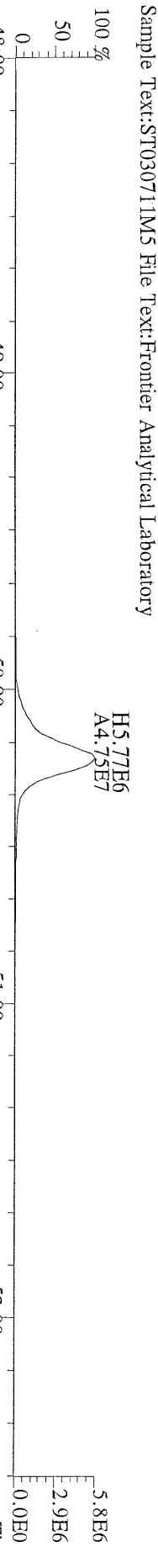
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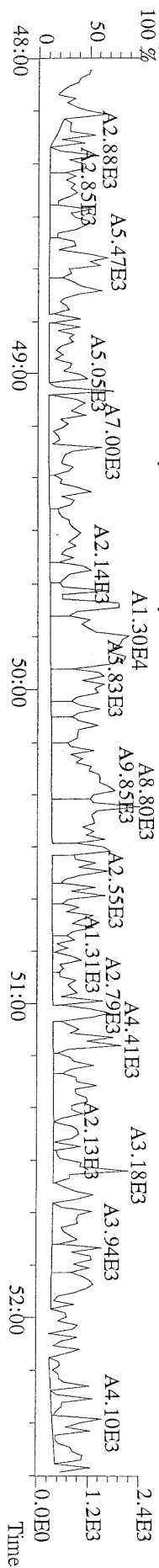
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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

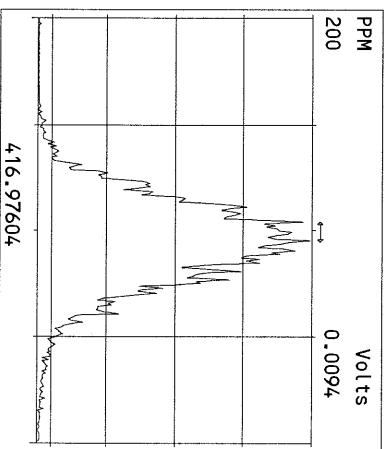
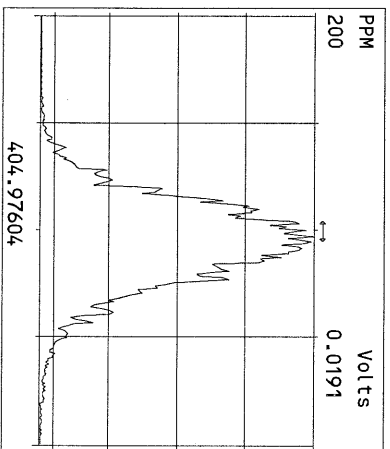
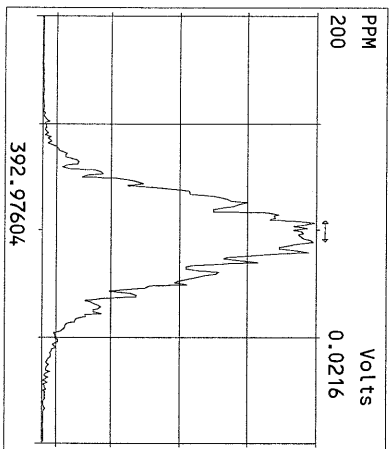
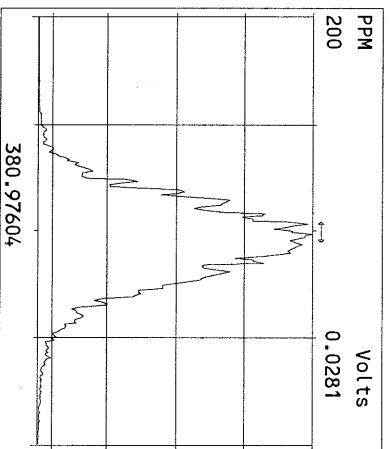
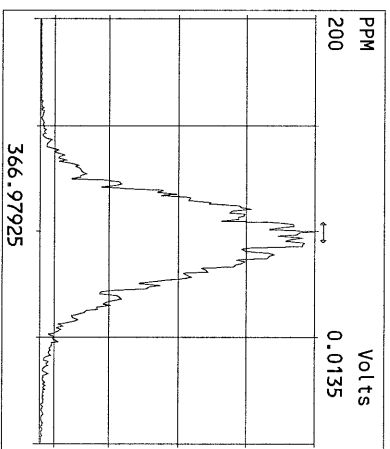
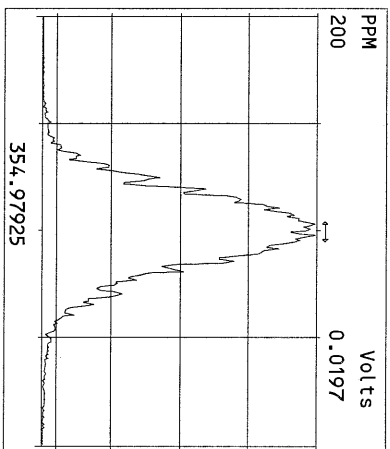
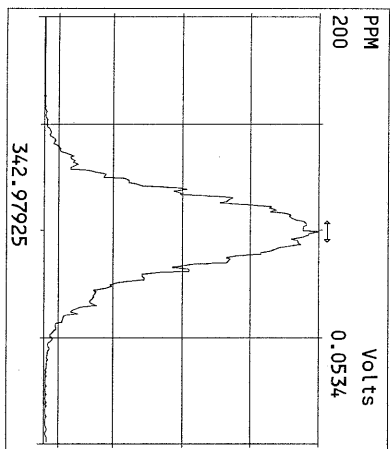
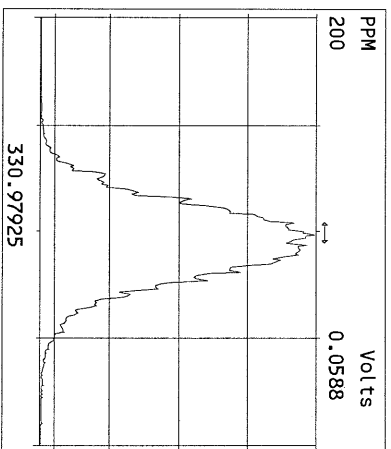
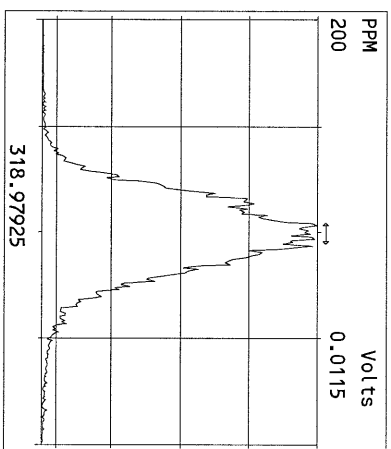
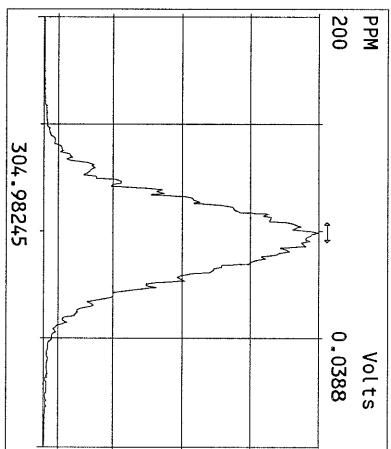
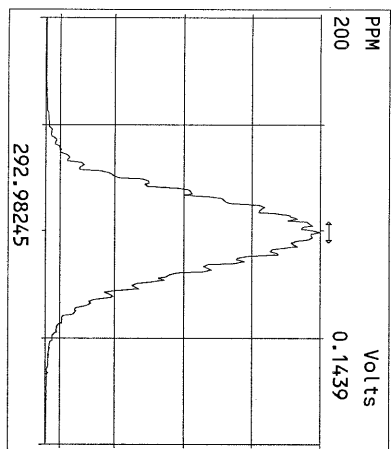


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Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

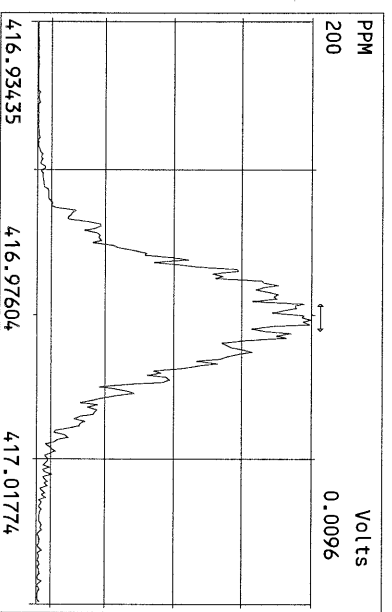
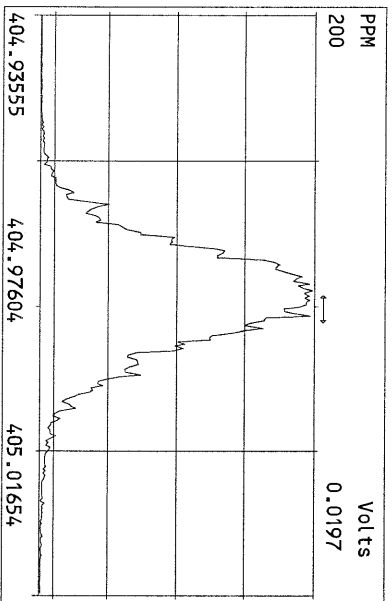
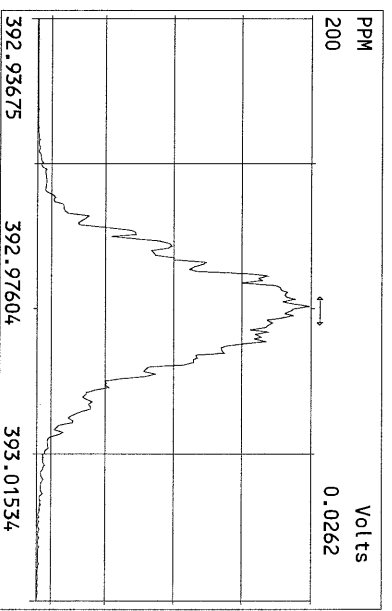
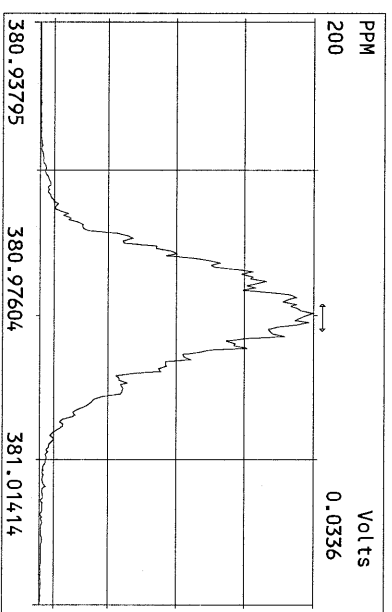
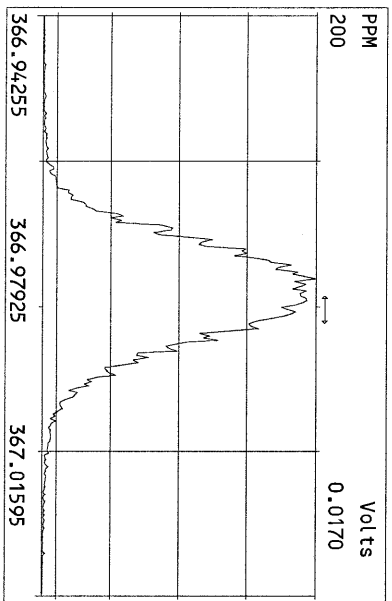
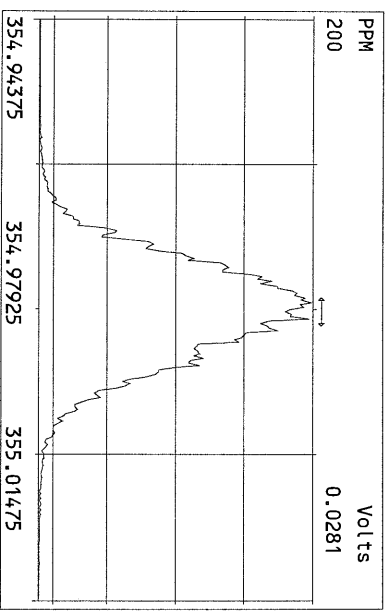
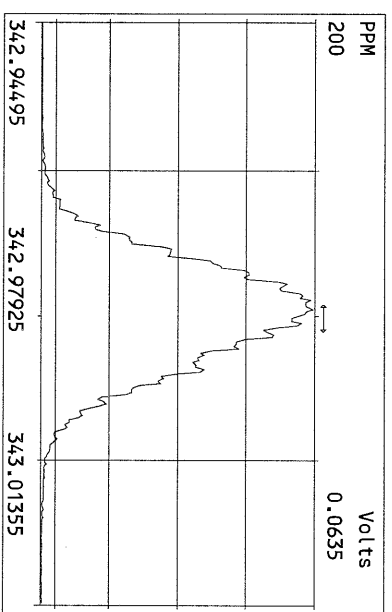
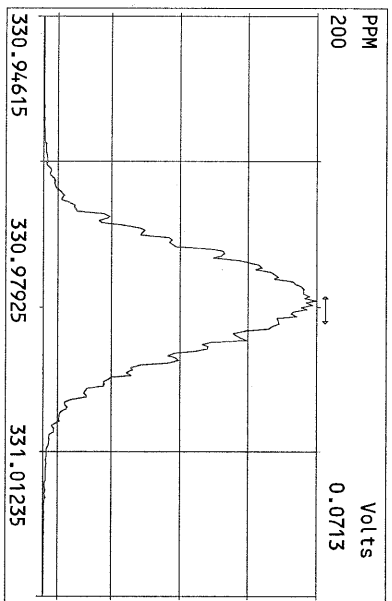


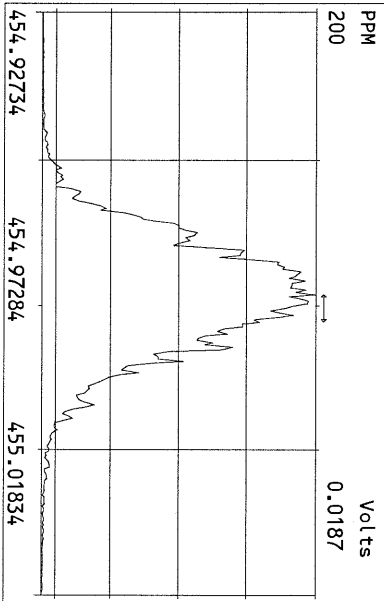
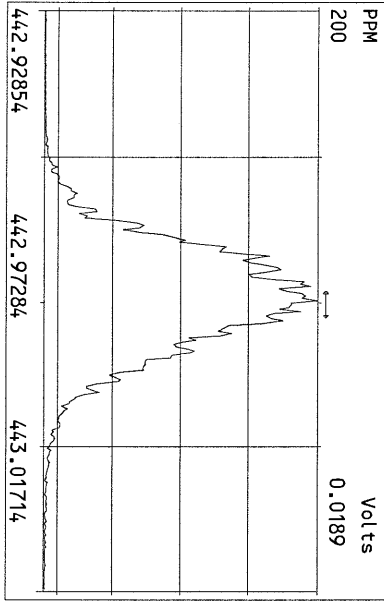
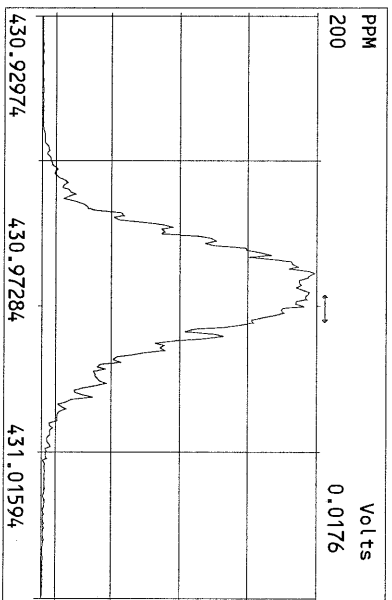
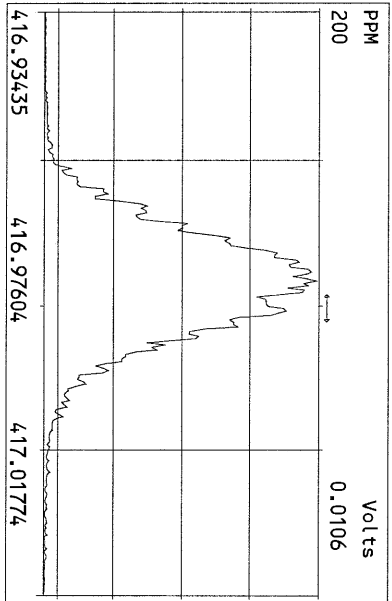
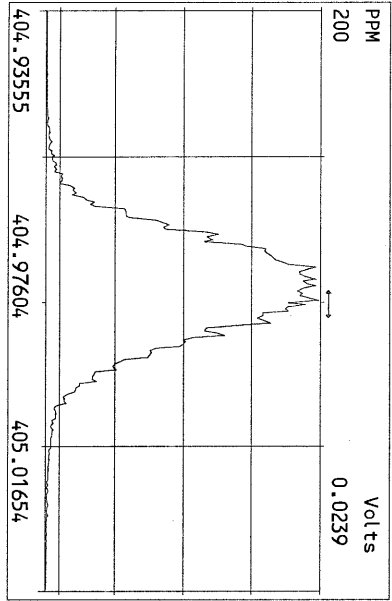
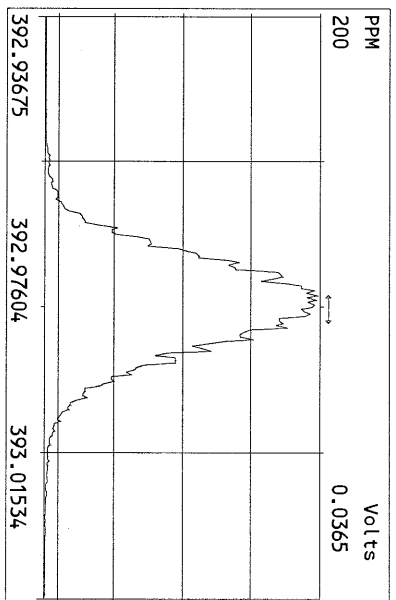
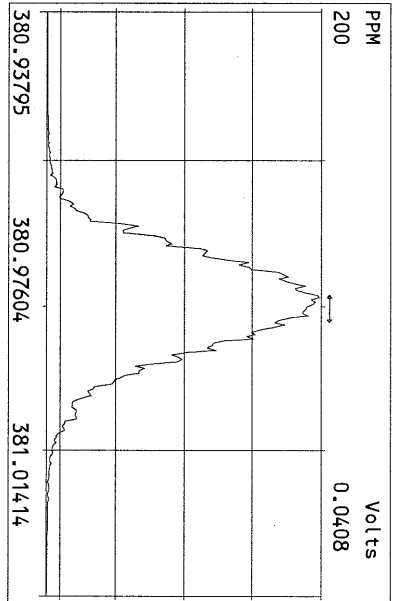
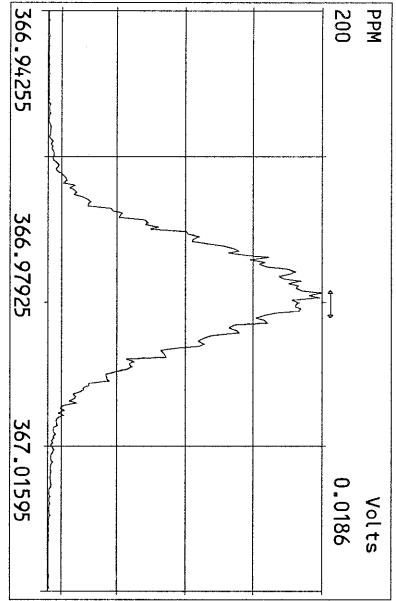
File:07MARI1M #1-347 Acq: 7-MAR-2011 13:49:10 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST030711M5 File Text:Frontier Analytical Laboratory

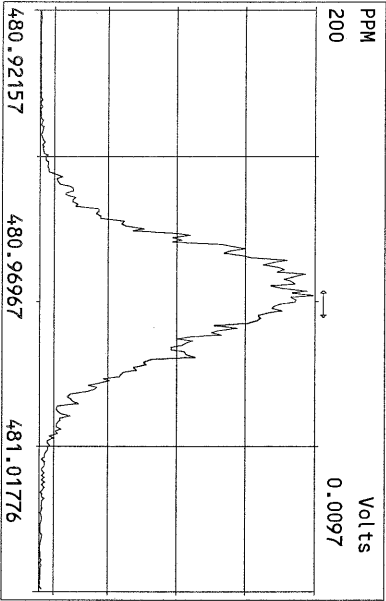
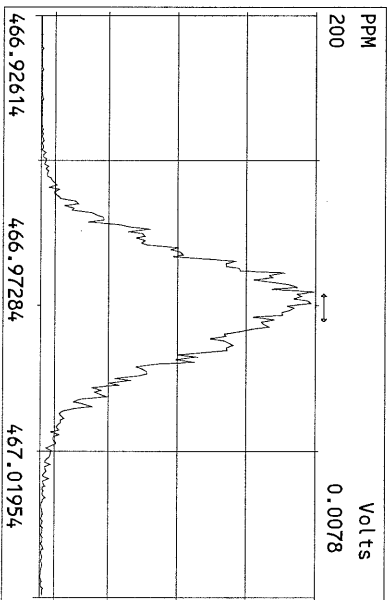
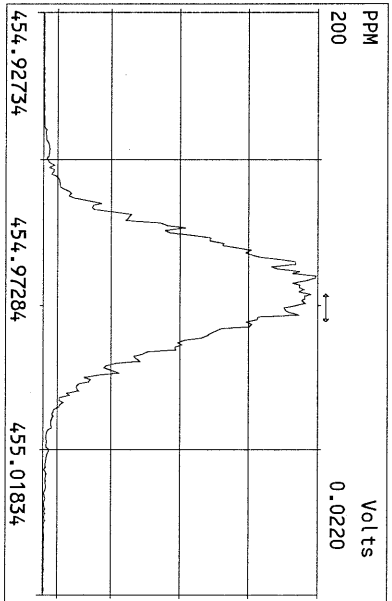
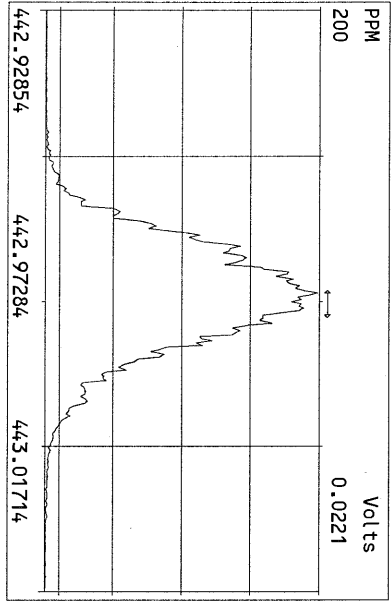
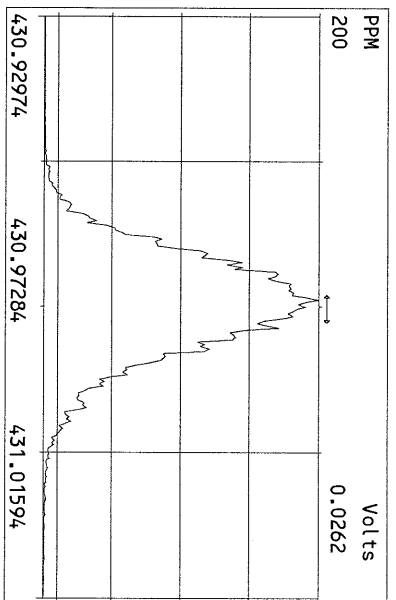
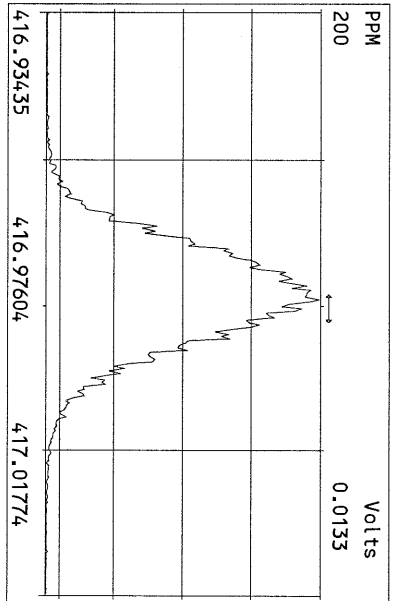
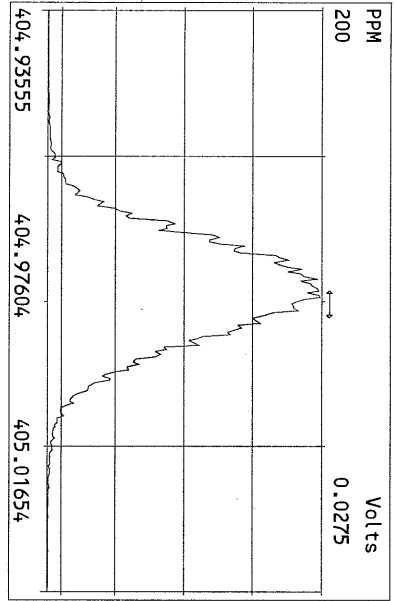


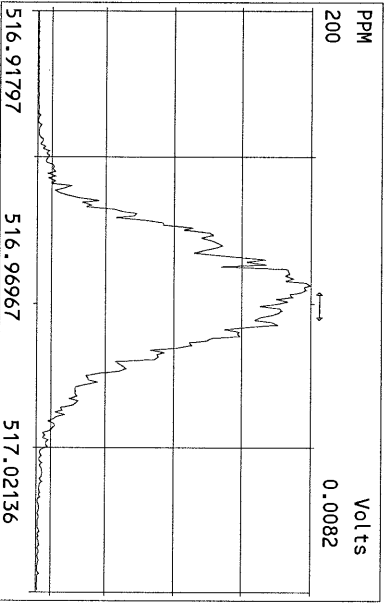
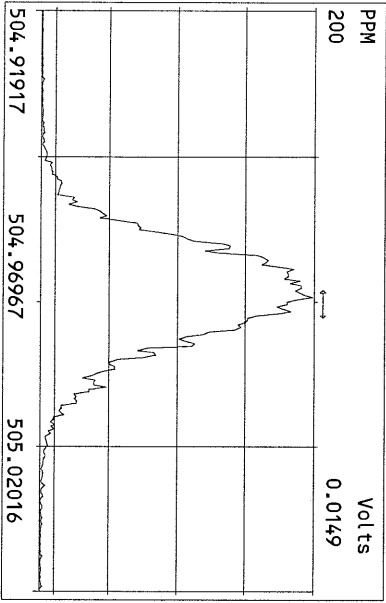
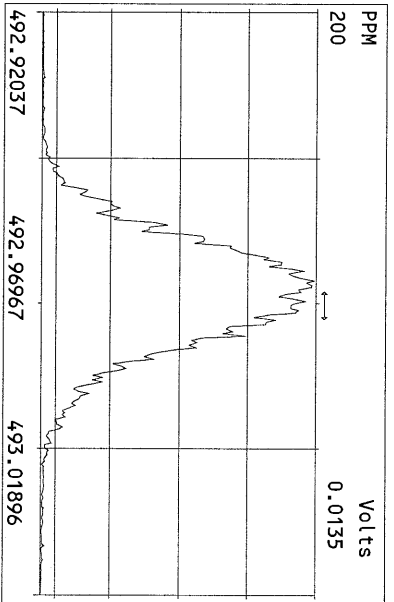
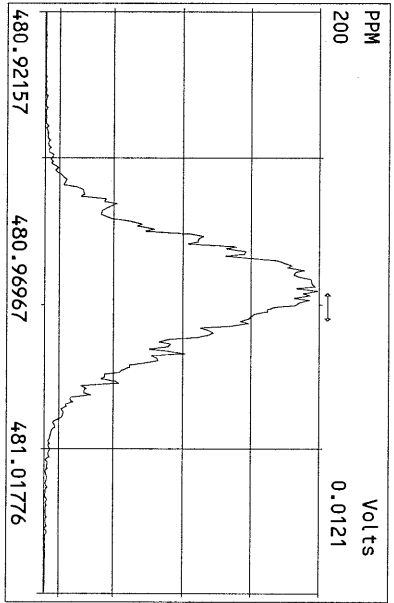
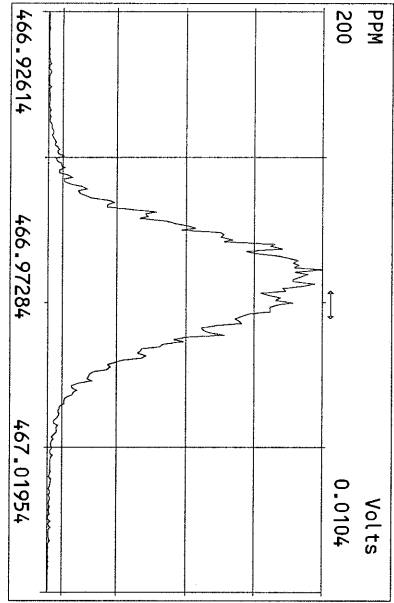
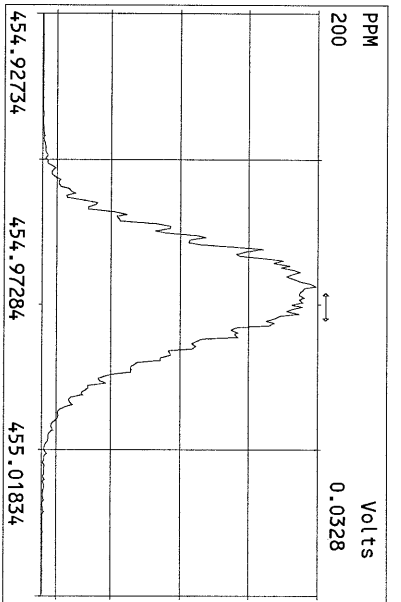
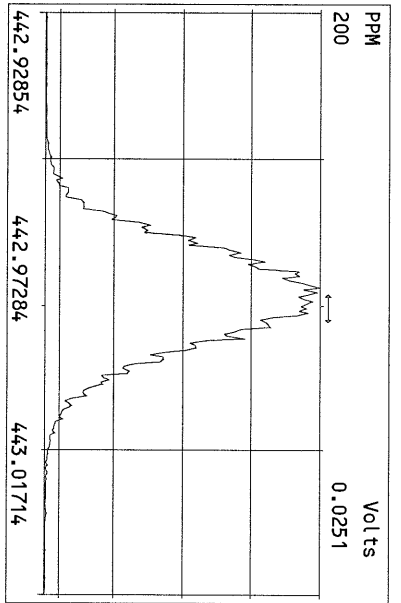
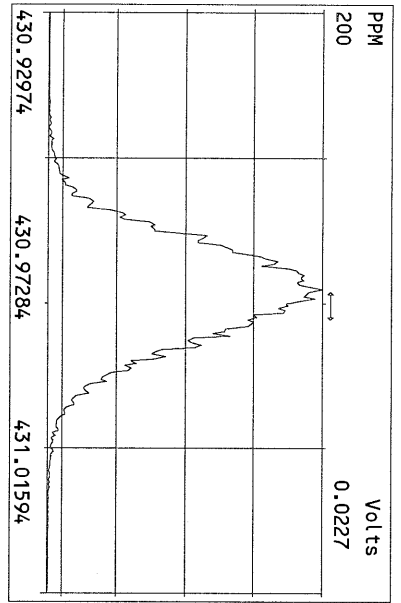


Peak Locate Examination: 8-MAR-2011:08:19 File:07MAR11M_RES_CHECK
Experiment:OCDD Function:2 Reference:PFK









FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 19MAY11M Sam:1

Analysis Date: 19-MAY-11 13:41:40

LABELLED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	ACCEPT	CONC. FOUND	CONC. RANGE (ng/mL) (3)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	89.4	82.0 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.74	1.32-1.78	y	83.7	62.0 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	92.8	85.0 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	y	102	85.0 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	97.1	72.0 - 138
13C-OCDD	M+2/M+4	0.98	0.76-1.02	y	163	96.0 - 415
13C-2,3,7,8-TCDF	M/M+2	0.86	0.65-0.89	y	92.0	71.0 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.69	1.32-1.78	y	92.7	76.0 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.68	1.32-1.78	y	93.1	77.0 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	100	76.0 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	103	70.0 - 143
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.49	0.43-0.59	y	95.8	73.0 - 137
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.48	0.43-0.59	y	86.8	74.0 - 135
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	y	95.2	78.0 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	y	80.8	77.0 - 129
13C-OCDF	M+2/M+4	0.95	0.76-1.02	y	150	96.0 - 415
CLEANUP STANDARD (4)						
37Cl-2,3,7,8-TCDD					8.62	7.80 - 12.8

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

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

Analyst: Date: 5/20/11

FORM 5
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Frontier Analytical Laboratory Episode No.:
Contract No.: SAS No.:
Instrument ID: FAL3 Initial Calibration Date: 3/7/11
RT Window Data Filename: 19MAY11M Sam:1 Analysis Date: 19-MAY-11 Time: 13:41:40
DB-5 IS Data Filename: 19MAY11M Sam:1 Analysis Date: 19-MAY-11 Time: 13:41:40
DB-225 IS Date Filename: Analysis Date: Time:

DB-5 RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	24:15	1,3,6,8-TCDF (F)	22:54
1,2,8,9-TCDD (L)	28:11	1,2,8,9-TCDF (L)	28:22
1,2,4,7,9-PeCDD (F)	30:04	1,3,4,6,8-PeCDF (F)	28:14
1,2,3,8,9-PeCDD (L)	33:37	1,2,3,8,9-PeCDF (L)	34:02
1,2,4,6,7,9-HxCDD (F)	35:56	1,2,3,4,6,8-HxCDF (F)	35:04
1,2,3,7,8,9-HxCDD (L)	39:01	1,2,3,7,8,9-HxCDF (L)	39:35
1,2,3,4,6,7,9-HpCDD (F)	42:38	1,2,3,4,6,7,8-HpCDF (F)	42:06
1,2,3,4,6,7,8-HpCDD (L)	43:60	1,2,3,4,7,8,9-HpCDF (L)	44:55

(F) = First eluting iosmer (DB-5); (L) = Last eluting isomer (DB-5)

=====

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT
BETWEEN
COMPARED PEAKS (1)

<25%

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

Analyst: 

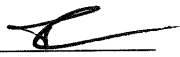
Date: 5/20/11

USEPA - ITD
FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory Episode No. :
Contract No. : SAS No. : Init. Cal. Date: 3/7/11
Instrument ID: FAL3 GC Column ID: DB5
Analysis Date: 19-MAY-11 13:41:40 CS3 or VER Data Filename: 19MAY11M Sam:1

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052
13C-2,3,7,8-TCDD		1.022	0.976-1.043
13C-2,3,7,8-TCDF		0.994	0.923-1.103
13C-1,2,3,7,8-PeCDD		1.240	1.000-1.567
13C-1,2,3,7,8-PeCDF		1.175	0.923-1.203
13C-2,3,4,7,8-PeCDF		1.224	0.923-1.303

(1) Contract-required limits for Relative Retention Times (RRT) as specified
in Table 2, Method 1613.

Analyst:  Date: 5/20/11

USEPA - ITD

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 19-MAY-11 13:41:40 CS3 or VER Data Filename: 19MAY11M Sam:1


NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.012	1.000-1.019
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.001	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.001	0.999-1.001
OCDD	13C-OCDD	1.001	0.999-1.001
OCDF	13C-OCDF	1.001	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,7,8,9-HxCDD	0.985	0.977-1.000
13C-1,2,3,6,7,8-HxCDD		0.989	0.981-1.003
13C-1,2,3,4,7,8-HxCDF		0.949	0.944-0.970
13C-1,2,3,6,7,8-HxCDF		0.954	0.949-0.975
13C-2,3,4,6,7,8-HxCDF		0.978	0.959-1.021
13C-1,2,3,7,8,9-HxCDF		1.015	0.977-1.047
13C-1,2,3,4,6,7,8-HpCDD		1.128	1.086-1.130
13C-1,2,3,4,6,7,8-HpCDF		1.079	1.043-1.085
13C-1,2,3,4,7,8,9-HpCDF		1.151	1.057-1.154
13C-OCDD		1.269	1.032-1.311
13C-OCDF		1.279	1.000-1.311

(1) Contract-required limits for Relative Retention Times (RRT) as specified
in Table 2, Method 1613.

Analyst: Date: 5/20/11

FAL ID: ST051811M1 Filename: 19MAY11M Sam:1 Acquired: 19-MAY-11 13:41:40 ICal: PCDDFAL3-3-7-11
 Client ID: 1613 CS3 100511J ConCal: ST051911M1 EndCal: ST051911M2
 Results: GC Column: DB5 Amount: 1.000 NATO 1989 Tox: 99.3
 WHO 1998 Tox: 125 WHO 2005 Tox: 115

Name	Resp	RA	RT	RRF	Conc	Qual	Fac Noise-1	Noise-2	DL	
2,3,7,8-TCDD	2.79e+06	0.78 y	27:14	1.13	10.3		2.50	-	*	
1,2,3,7,8-PeCDD	1.18e+07	1.57 y	33:03	1.02	52.7		2.50	-	*	
1,2,3,4,7,8-HxCDD	1.07e+07	1.30 y	38:24	1.45	47.3		2.50	-	*	
1,2,3,6,7,8-HxCDD	9.74e+06	1.31 y	38:34	1.45	49.4		2.50	-	*	
1,2,3,7,8,9-HxCDD	1.08e+07	1.28 y	39:01	1.47	50.3		2.50	-	*	
1,2,3,4,6,7,8-HpCDD	7.49e+06	0.91 y	44:00	1.30	50.5		2.50	-	*	
OCDD	1.02e+07	0.95 y	49:31	1.45	100		2.50	-	*	
2,3,7,8-TCDF	4.76e+06	0.66 y	26:29	1.15	10.8		2.50	-	*	
1,2,3,7,8-PeCDF	1.43e+07	1.61 y	31:19	0.89	49.0		2.50	-	*	
2,3,4,7,8-PeCDF	1.38e+07	1.59 y	32:37	0.89	48.5		2.50	-	*	
1,2,3,4,7,8-HxCDF	1.20e+07	1.21 y	37:01	1.01	45.5		2.50	-	*	
1,2,3,6,7,8-HxCDF	1.38e+07	1.24 y	37:12	0.89	46.2		2.50	-	*	
2,3,4,6,7,8-HxCDF	1.20e+07	1.22 y	38:09	1.02	46.8		2.50	-	*	
1,2,3,7,8,9-HxCDF	1.25e+07	1.24 y	39:35	1.10	46.5		2.50	-	*	
1,2,3,4,6,7,8-HpCDF	9.15e+06	1.05 y	42:06	1.48	46.3		2.50	-	*	
1,2,3,4,7,8,9-HpCDF	6.07e+06	1.06 y	44:55	1.43	48.4		2.50	-	*	
OCDF	9.58e+06	0.92 y	49:52	0.84	91.4		2.50	-	*	
Rec										
13C-2,3,7,8-TCDD	2.39e+07	0.79 y	27:12	1.03	89.4				89.4	
13C-1,2,3,7,8-PeCDD	2.20e+07	1.74 y	33:01	1.01	83.7				83.7	
13C-1,2,3,4,7,8-HxCDD	1.57e+07	1.26 y	38:24	1.19	92.8				92.8	
13C-1,2,3,6,7,8-HxCDD	1.36e+07	1.24 y	38:33	0.94	102				102	
13C-1,2,3,4,6,7,8-HpCDD	1.14e+07	1.04 y	43:58	0.83	97.1				97.1	
13C-OCDD	1.41e+07	0.98 y	49:29	0.61	163				81.5	
13C-2,3,7,8-TCDF	3.84e+07	0.86 y	26:28	0.98	92.0				92.0	
13C-1,2,3,7,8-PeCDF	3.28e+07	1.69 y	31:18	0.83	92.7				92.7	
13C-2,3,4,7,8-PeCDF	3.19e+07	1.68 y	32:36	0.80	93.1				93.1	
13C-1,2,3,4,7,8-HxCDF	2.62e+07	0.48 y	36:59	1.84	100				100	
13C-1,2,3,6,7,8-HxCDF	3.35e+07	0.48 y	37:12	2.29	103				103	
13C-2,3,4,6,7,8-HxCDF	2.53e+07	0.49 y	38:07	1.86	95.8				95.8	
13C-1,2,3,7,8,9-HxCDF	2.44e+07	0.48 y	39:34	1.98	86.8				86.8	
13C-1,2,3,4,6,7,8-HpCDF	1.33e+07	0.46 y	42:04	0.99	95.2				95.2	
13C-1,2,3,4,7,8,9-HpCDF	8.80e+06	0.46 y	44:53	0.77	80.8				80.8	
13C-OCDF	2.49e+07	0.95 y	49:51	1.17	150				75.1	
37Cl-2,3,7,8-TCDD	1.63e+06		27:13	0.73	8.62				86.2	
13C-1,2,3,4-TCDD	2.60e+07	0.78 y	26:38	-	68.4					
13C-1,2,3,4-TCDF	4.27e+07	0.87 y	25:23	-	59.3					
13C-1,2,3,7,8,9-HxCDD	1.42e+07	1.28 y	38:59	-	57.3					
Total Tetra-Dioxins	1.51e+07		22:50	1.13	55.8		2.50	-	*	22
Total Penta-Dioxins	2.64e+07		30:04	1.02	118		2.50	-	*	13
Total Hexa-Dioxins	3.64e+07		35:56	1.46	171		2.50	-	*	19
Total Hepta-Dioxins	1.63e+07		42:38	1.30	110		2.50	-	*	20
Total Tetra-Furans	2.39e+07		22:54	1.15	54.2		2.50	-	*	28
1st Fn. Tot Penta-Furans	1.96e+07		28:14	0.89	68.2		2.50	-	*	PeCDF 1
Total Penta-Furans	4.10e+07		29:50	0.89	142		2.50	-	*	211 17
Total Hexa-Furans	5.98e+07		35:04	1.00	219		2.50	-	*	26
Total Hepta-Furans	1.57e+07		42:06	1.46	97.8		2.50	-	*	22

Analyst:  Date: 5/20/11

Frontier Analytical Laboratory - Acquisition Log

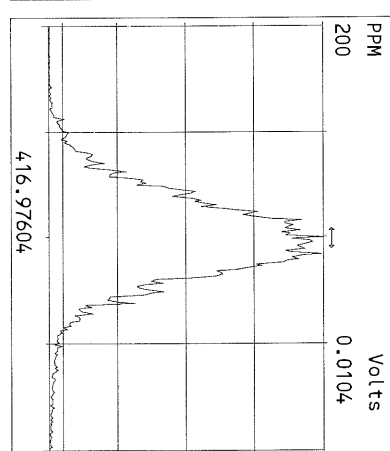
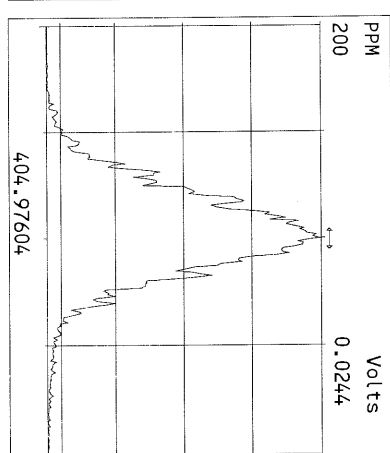
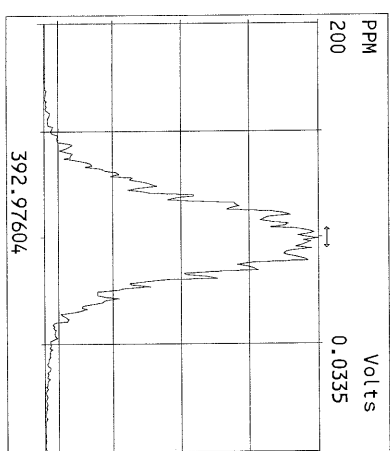
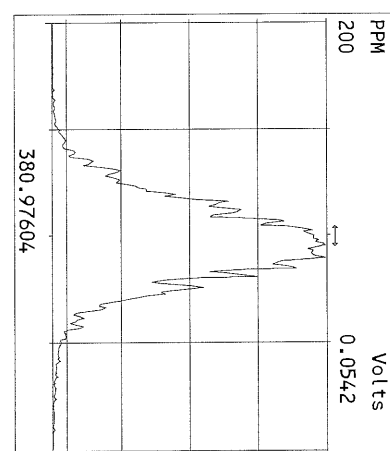
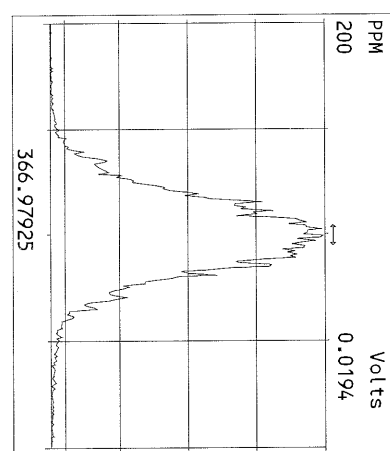
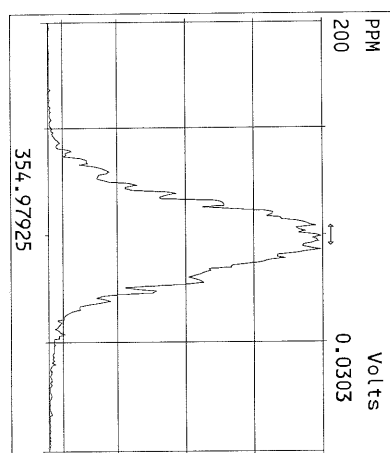
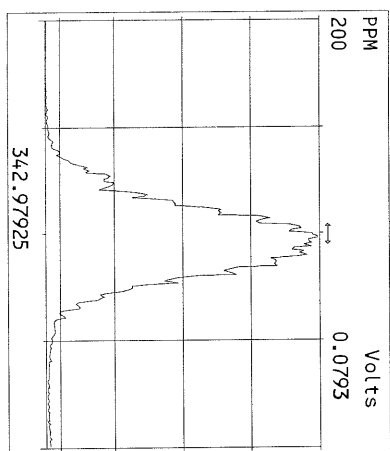
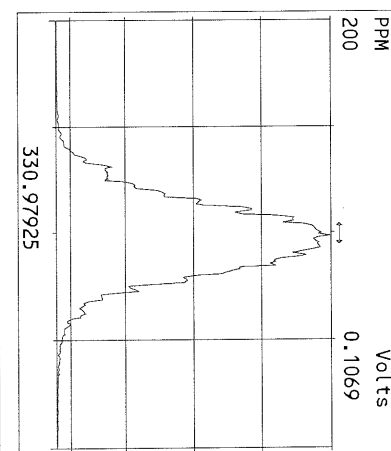
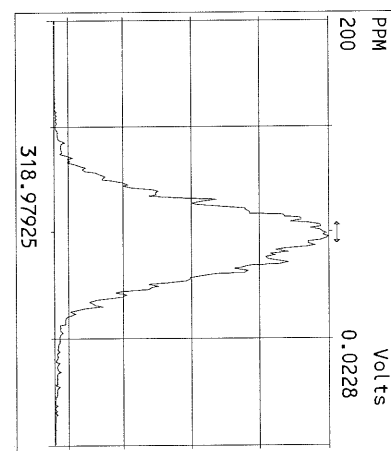
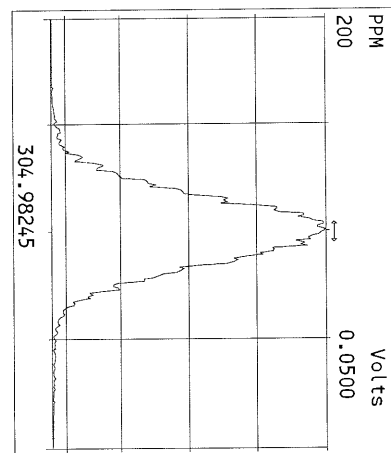
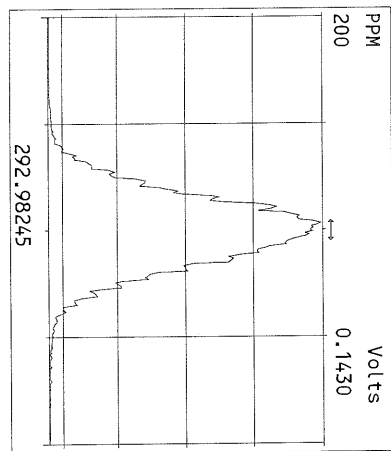
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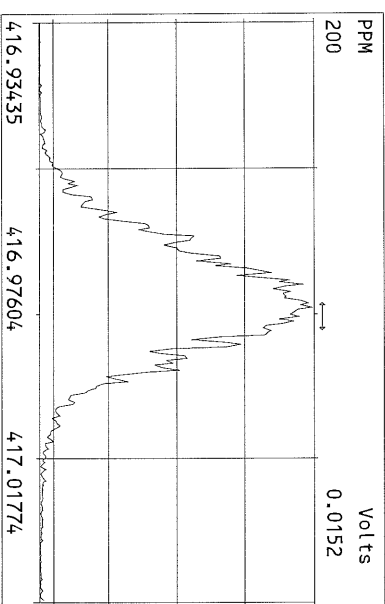
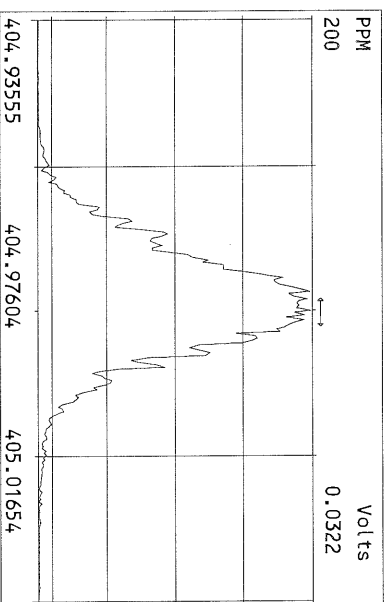
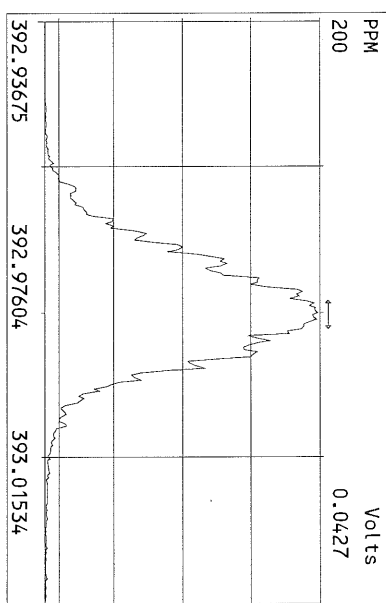
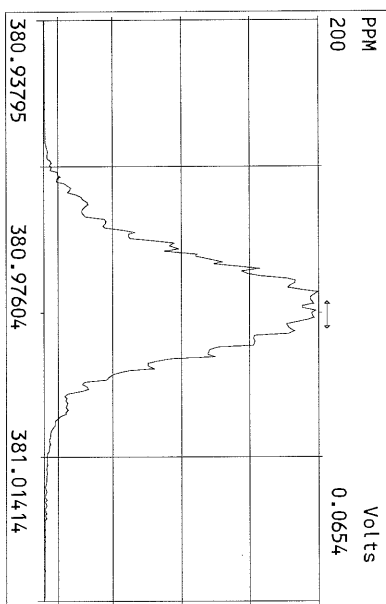
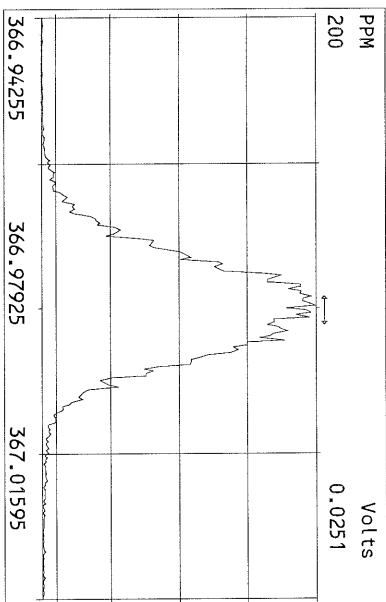
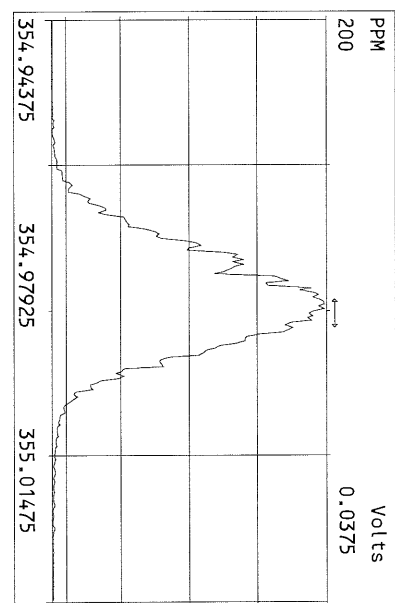
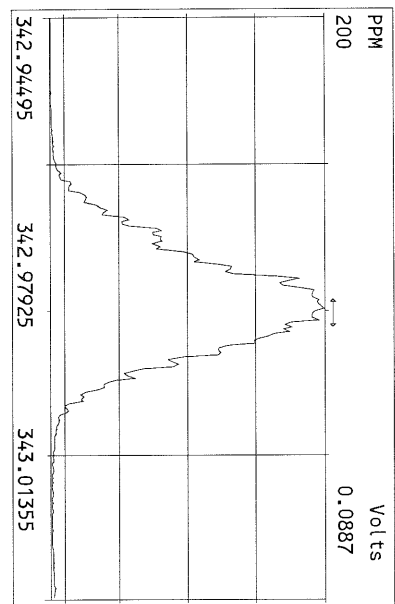
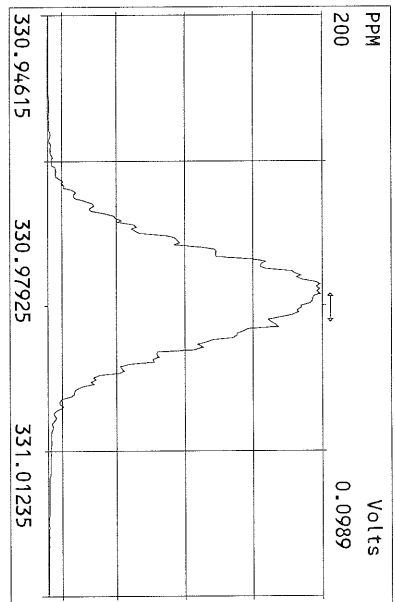
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19MAY11M	3	QC051911M2	QC2	19-MAY-11 15:32:26	ST051911M1	ST051911M2	TC
19MAY11M	4	QC051911M3	QC3	19-MAY-11 16:27:48	ST051911M1	ST051911M2	TC
19MAY11M	5	2294-001-0001-OPR	OPR	19-MAY-11 17:23:07	ST051911M1	ST051911M2	TC
19MAY11M	6	2294-001-0001-MB	Method Blank	19-MAY-11 18:18:30	ST051911M1	ST051911M2	TC
19MAY11M	7	6743-001-0001-SA	MW-01-042911	19-MAY-11 19:13:53	ST051911M1	ST051911M2	TC
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19MAY11M	12	6758-001-0001-SA	D AVILLA S.I.	19-MAY-11 23:50:48	ST051911M1	ST051911M2	TC
19MAY11M	13	6759-001-0001-SA	CARRIAGE HILL S.I.	20-MAY-11 00:46:10	ST051911M1	ST051911M2	TC
19MAY11M	14	SB051911M1	Solvent Blank	20-MAY-11 01:41:37	ST051911M1	ST051911M2	TC
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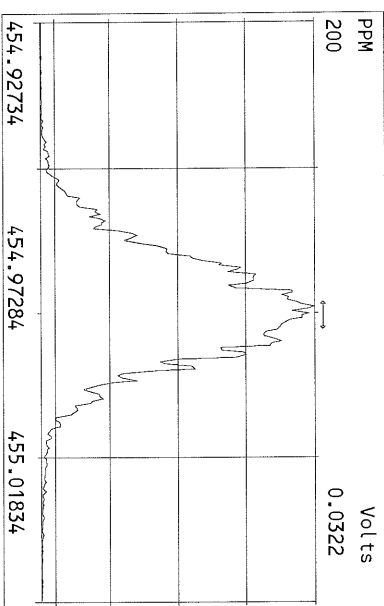
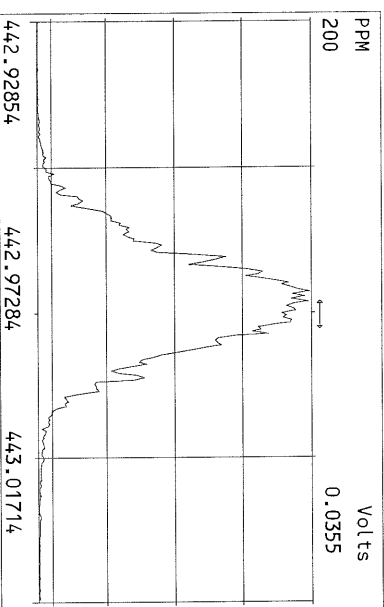
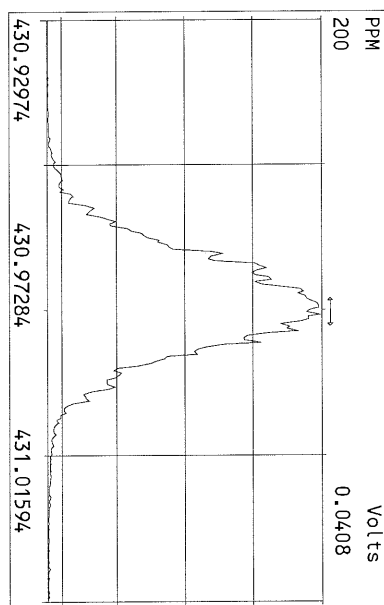
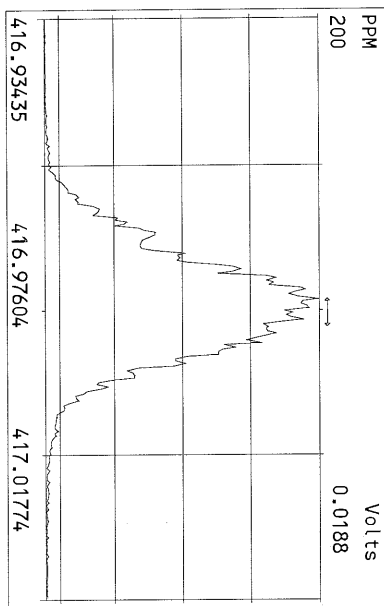
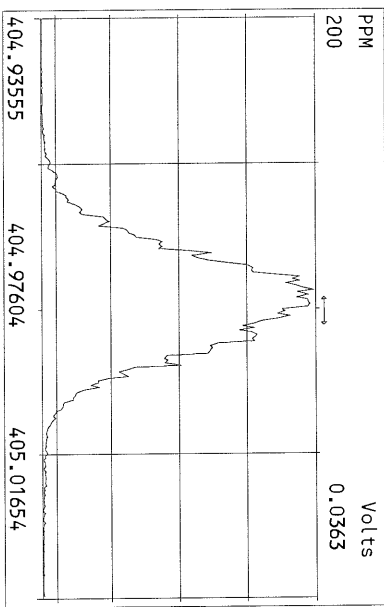
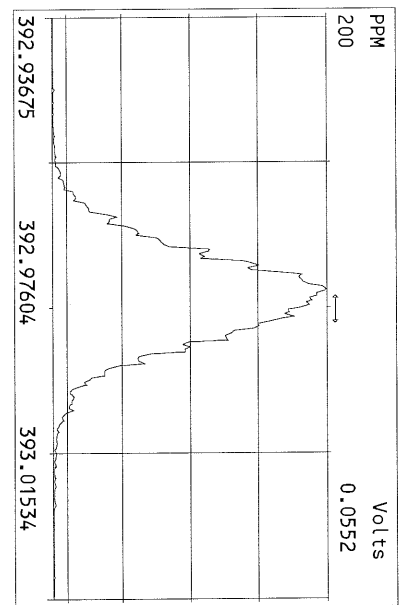
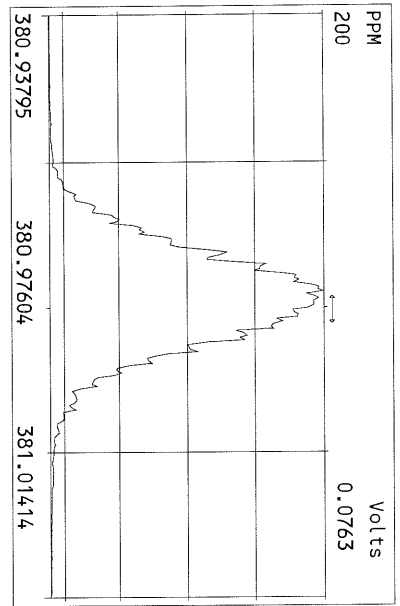
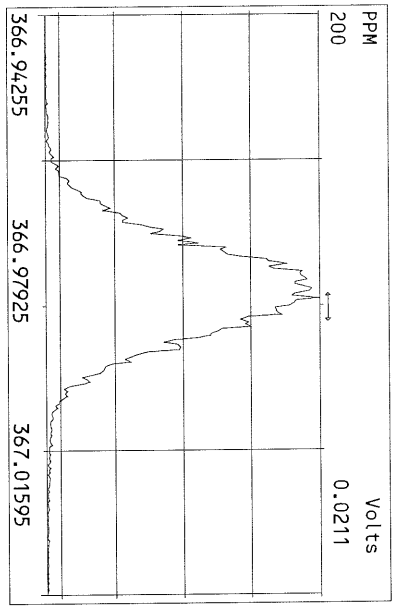
E. Stoller

Data Backed Up: _____

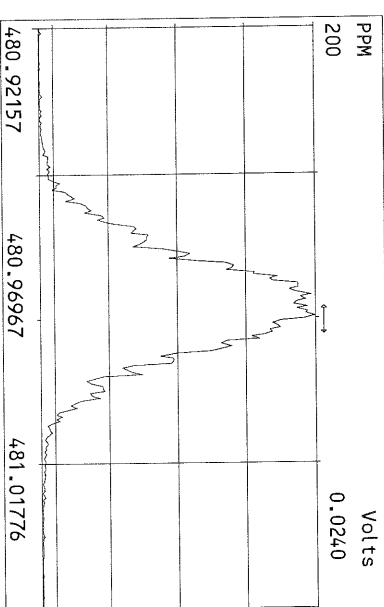
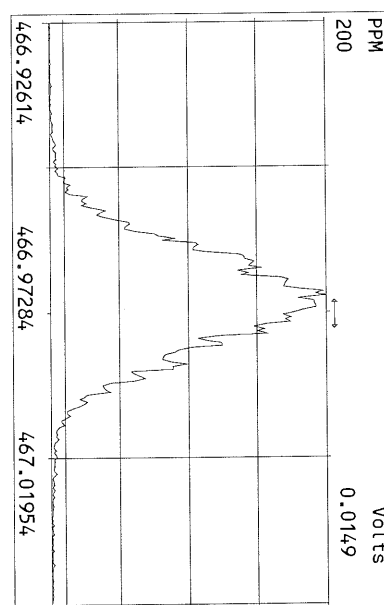
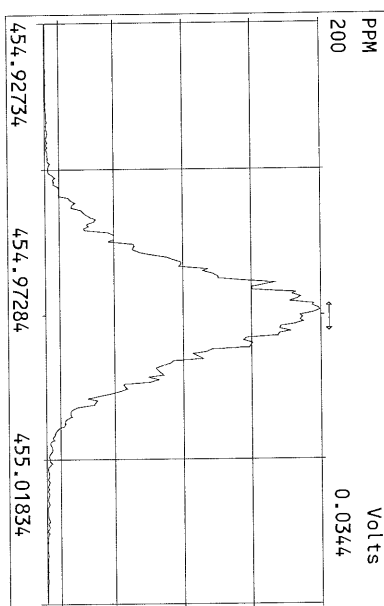
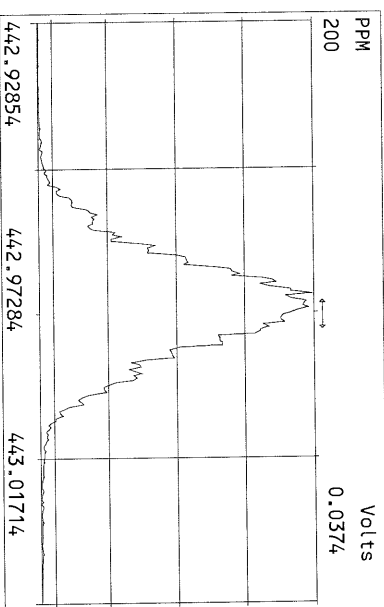
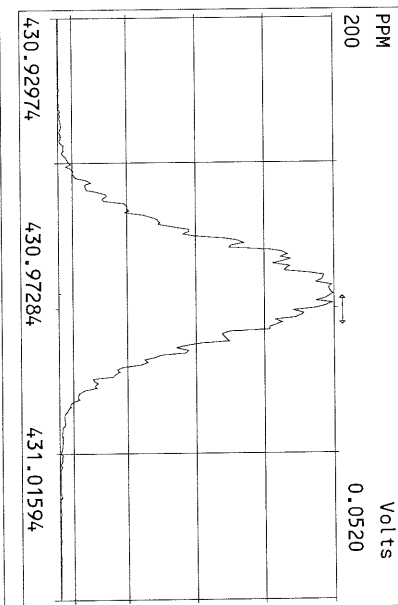
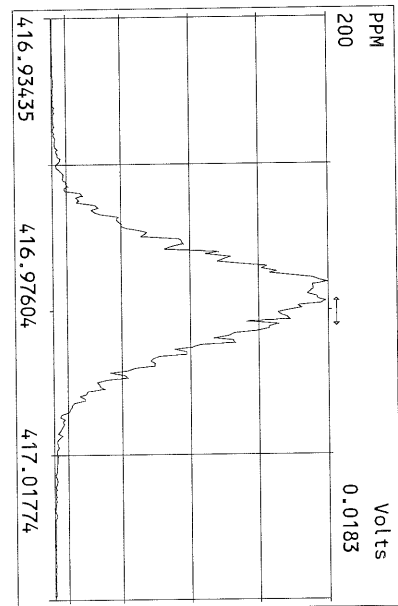
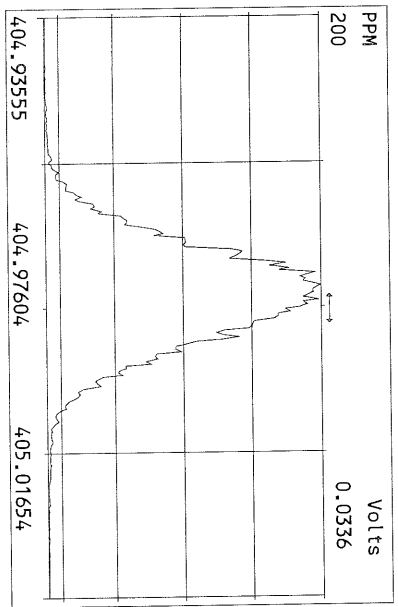
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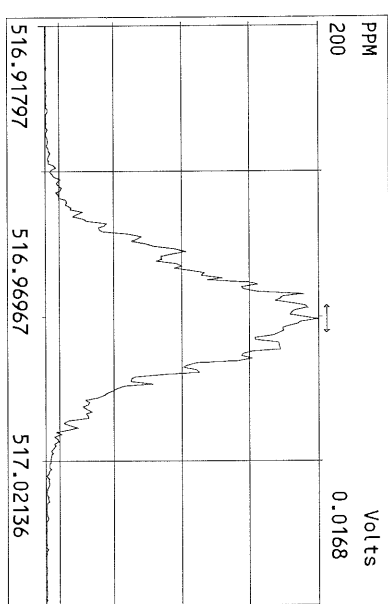
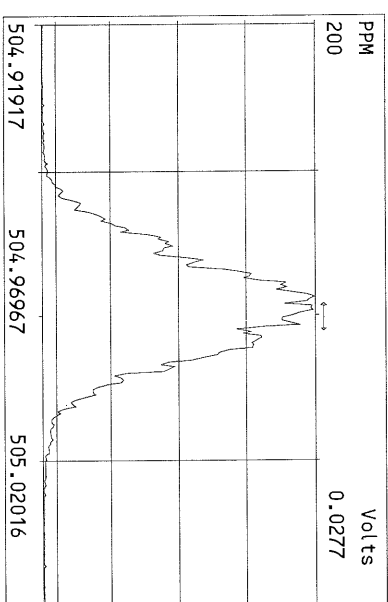
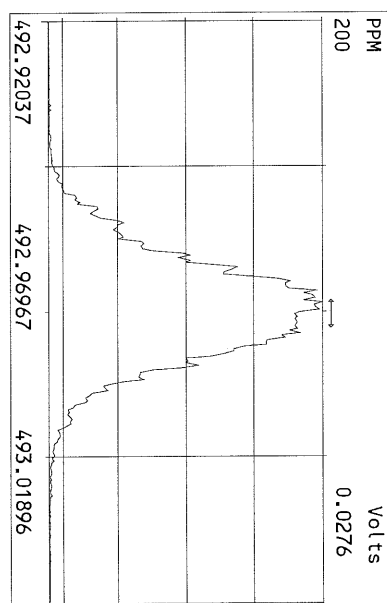
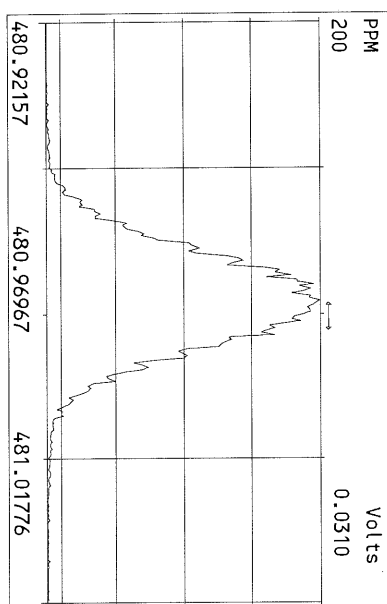
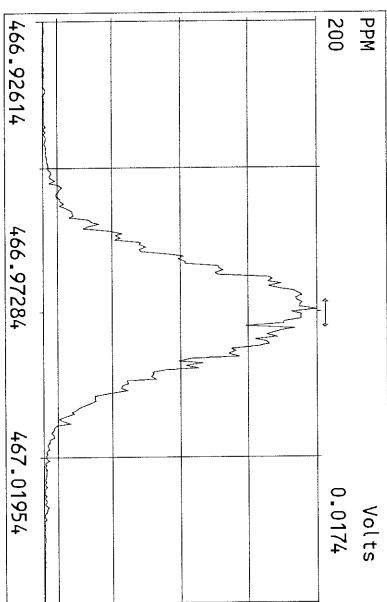
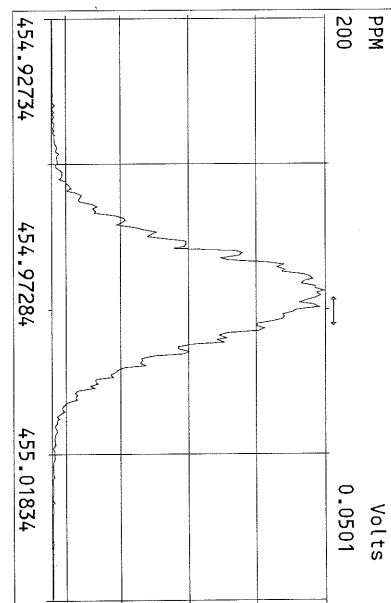
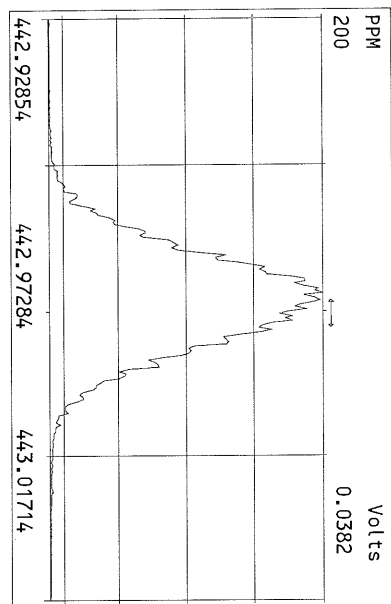
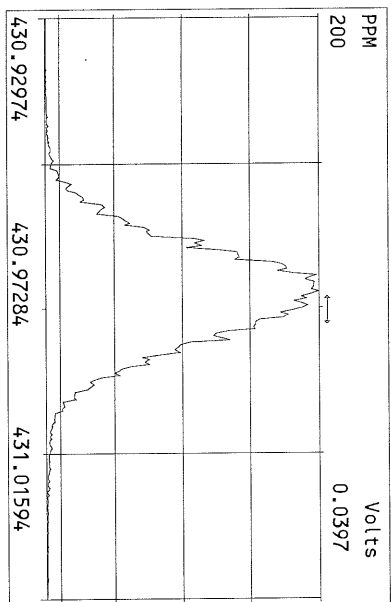




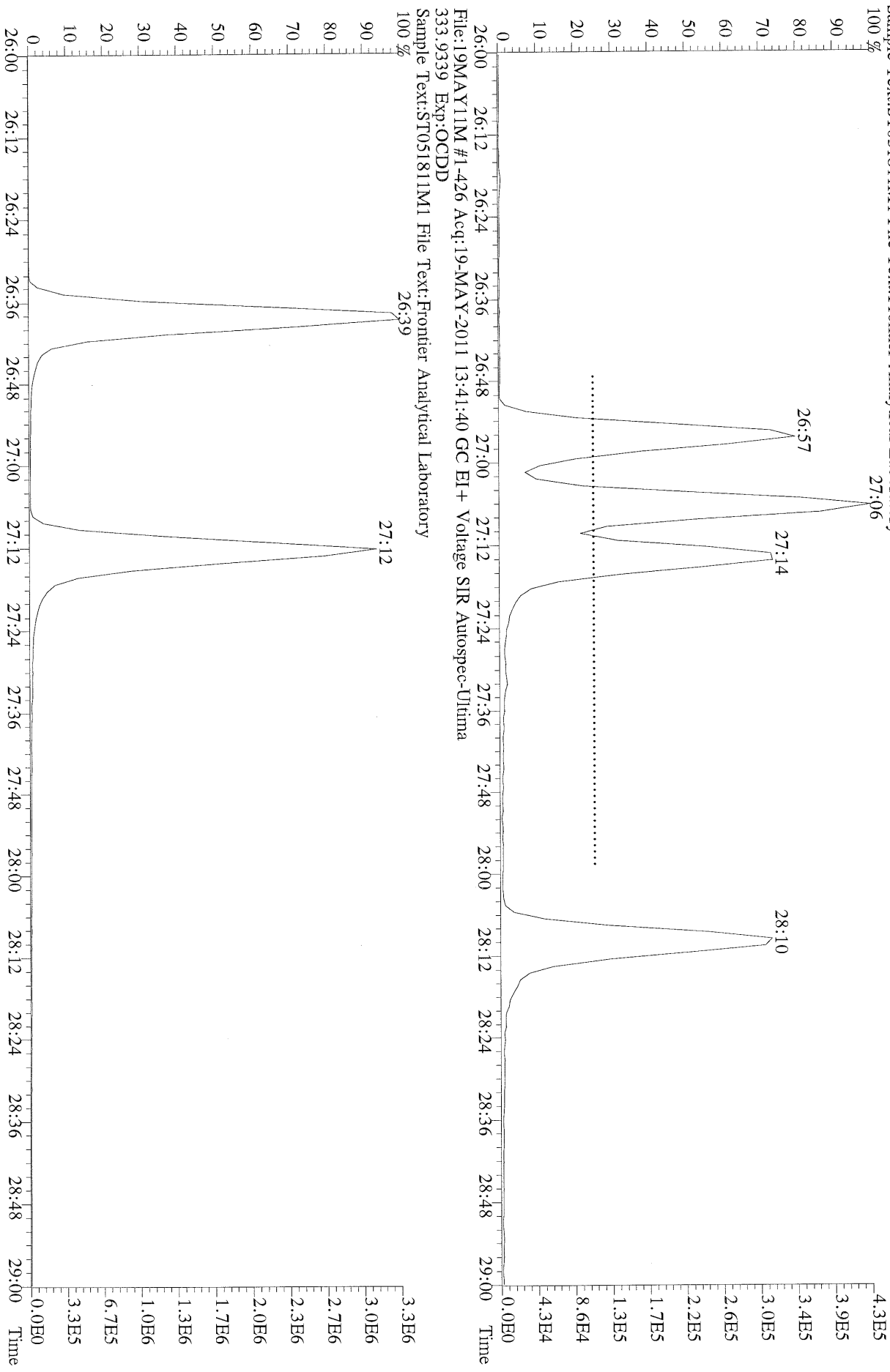


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Experiment:OCDD Function:4 Reference:PFK

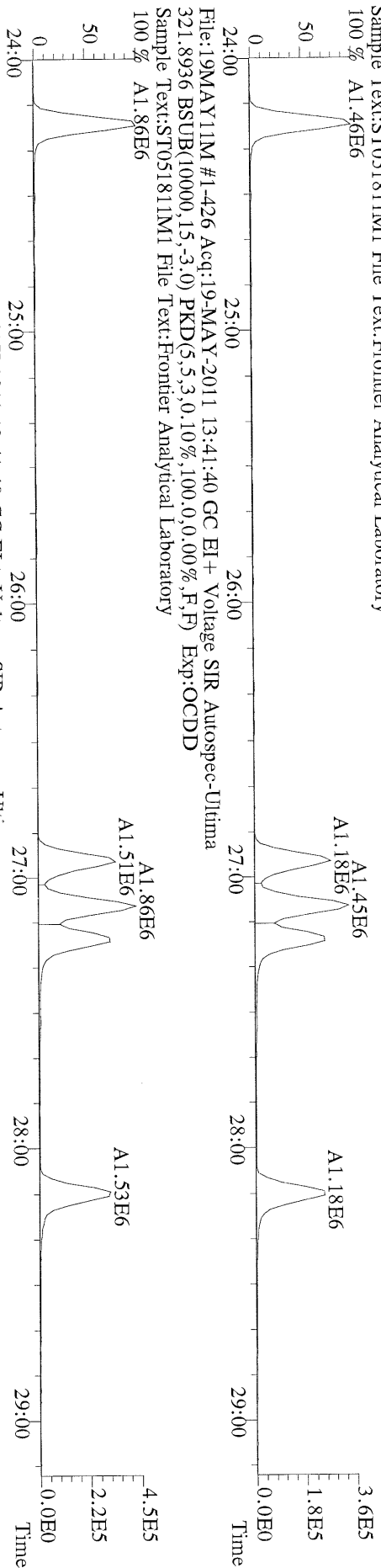




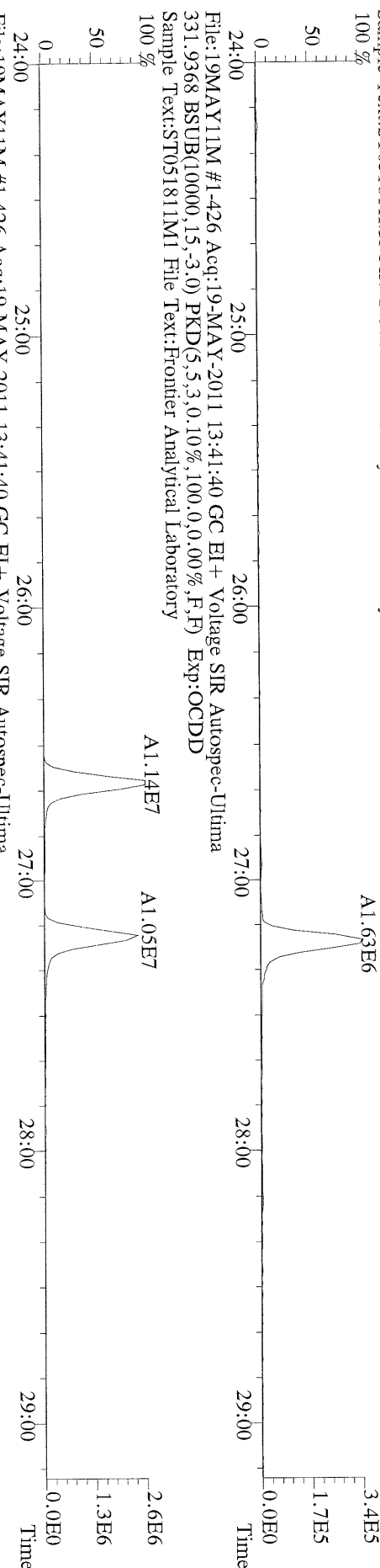
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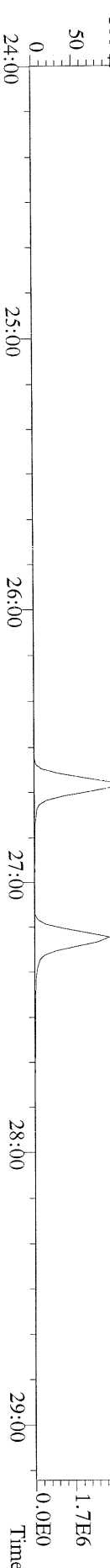
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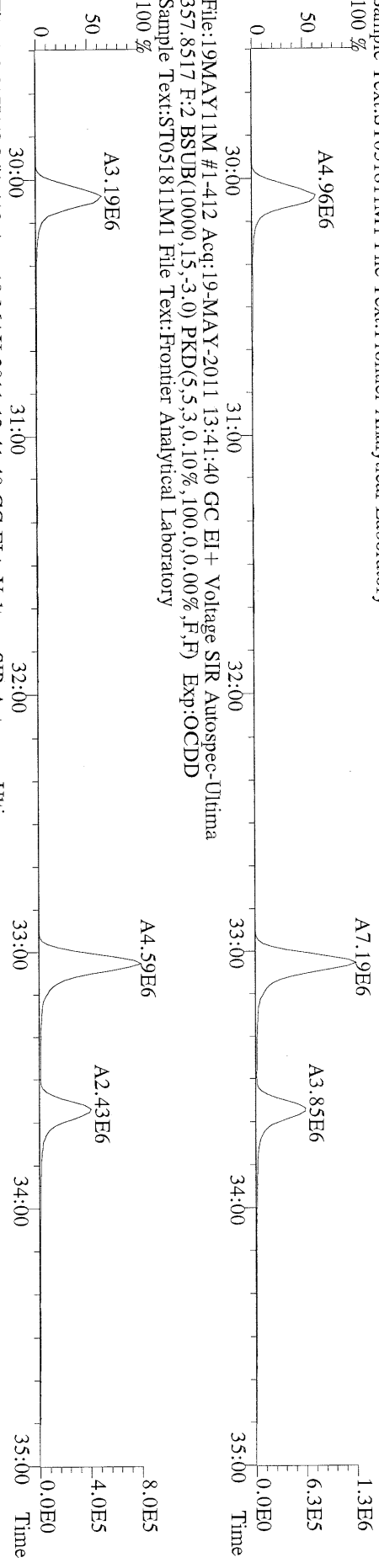
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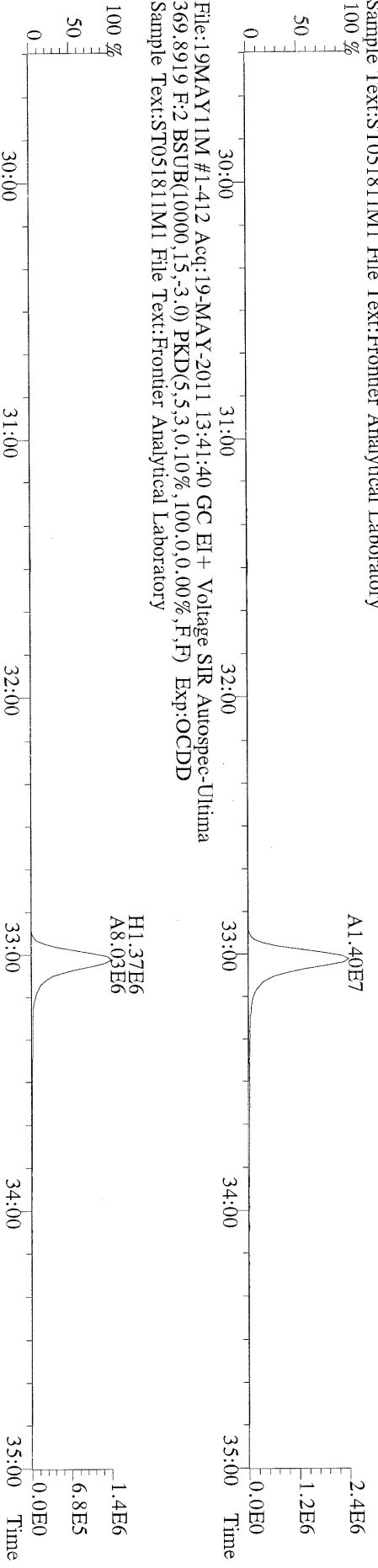
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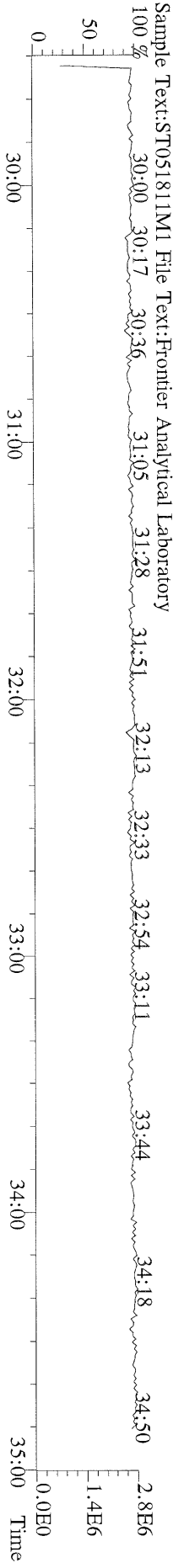
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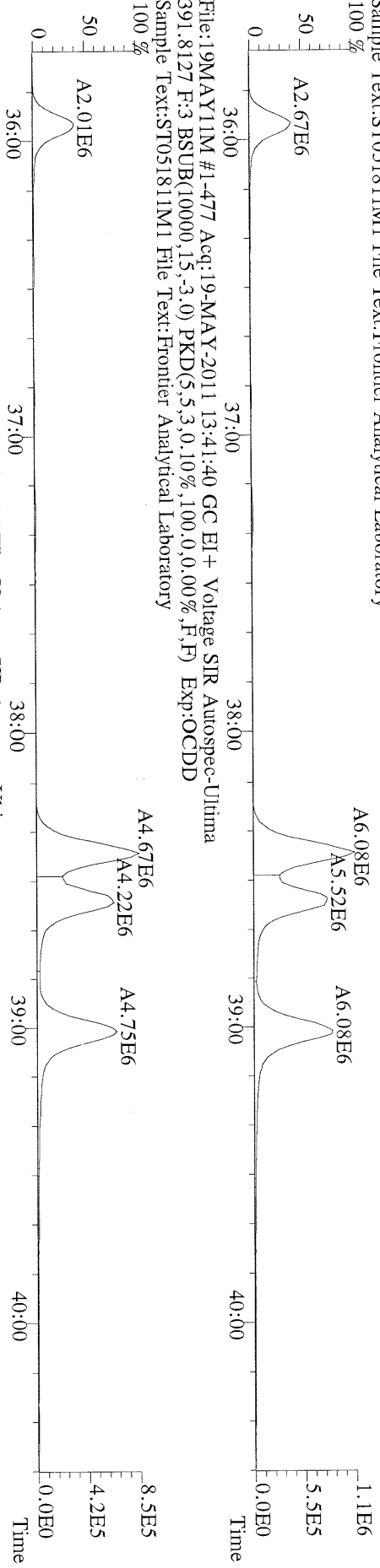
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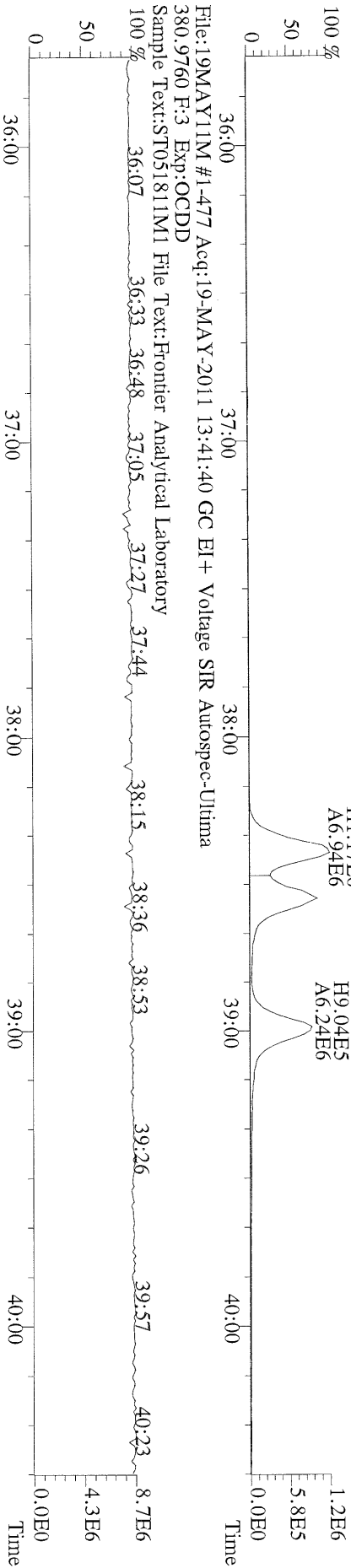
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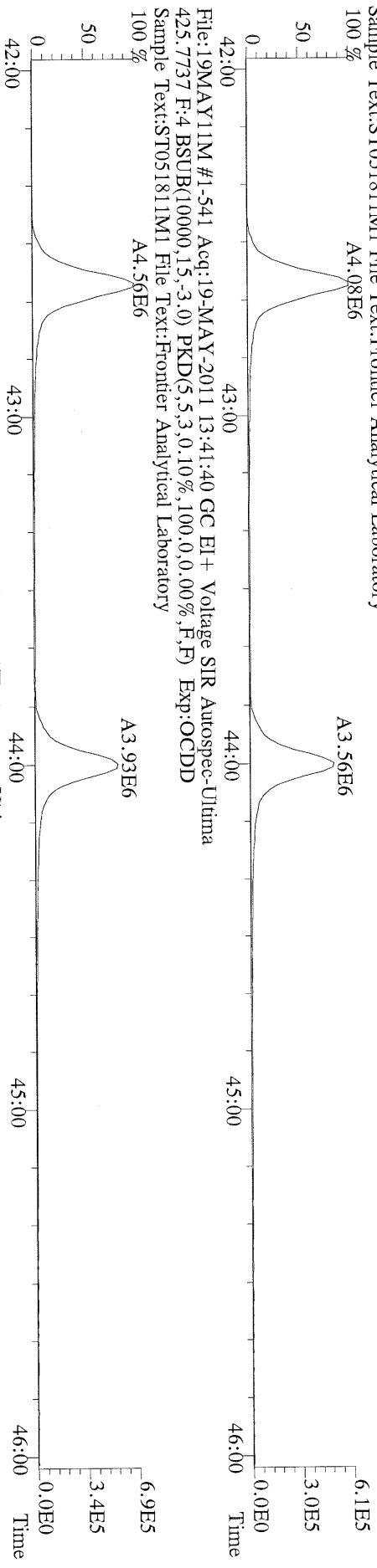
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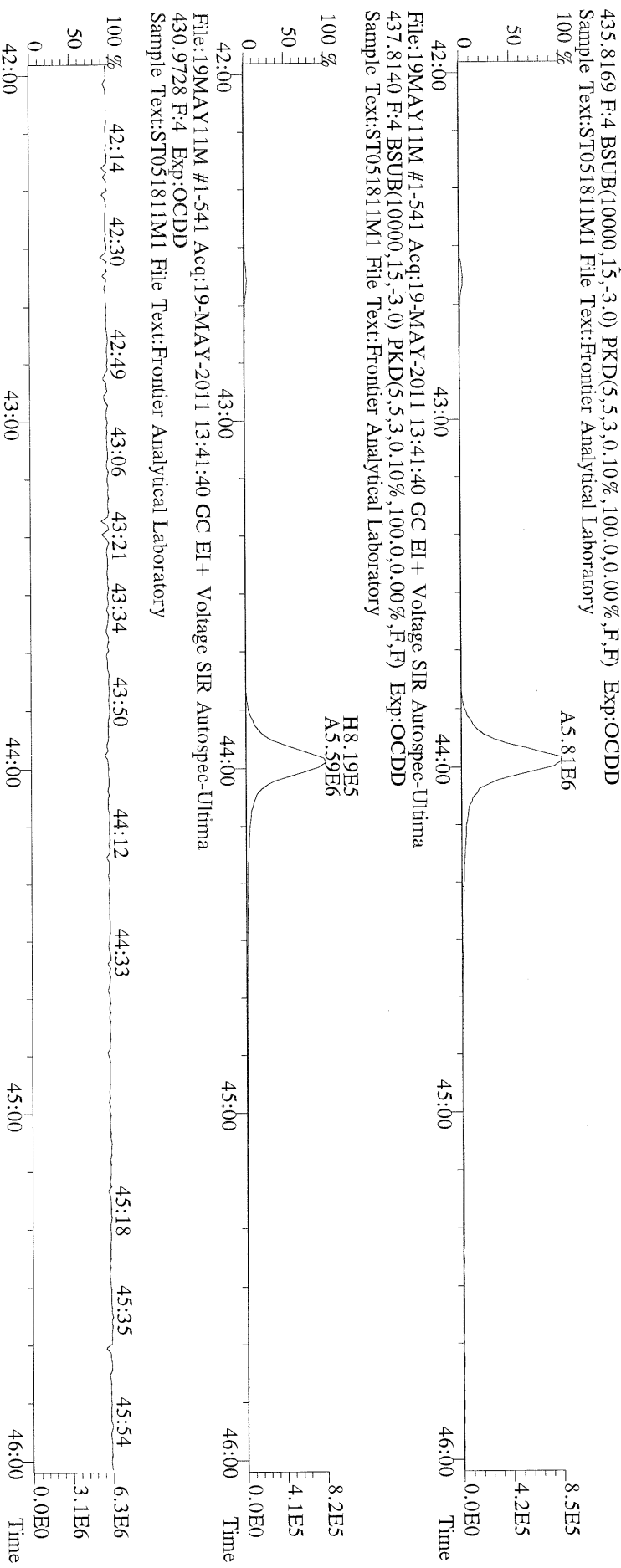
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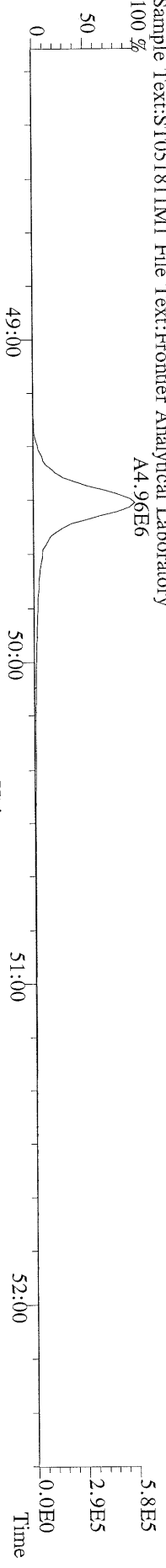
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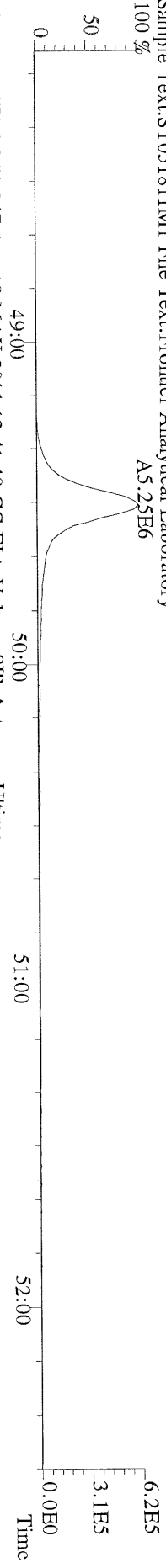
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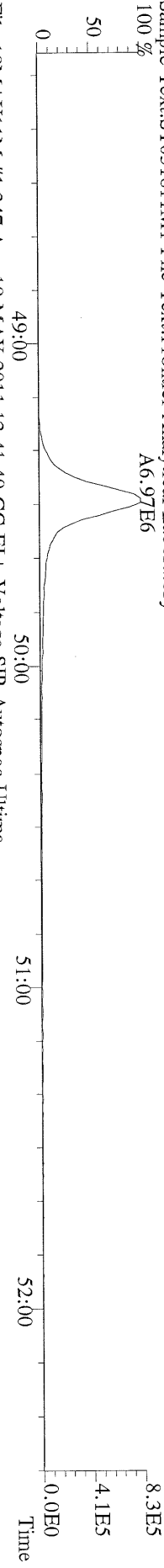
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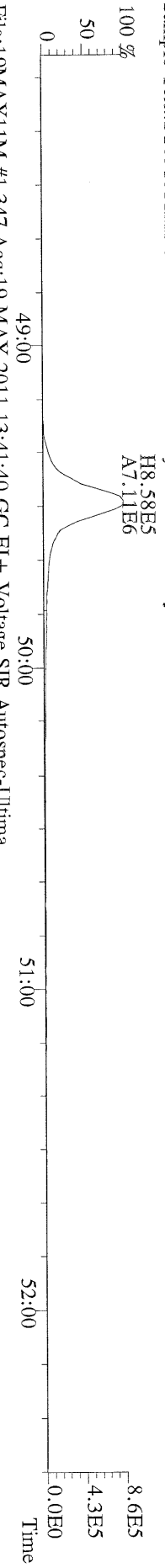
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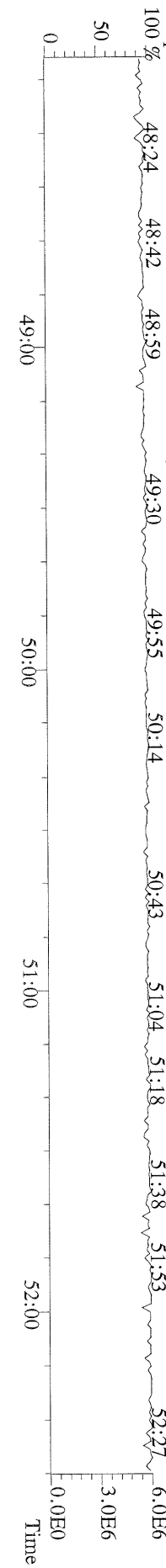
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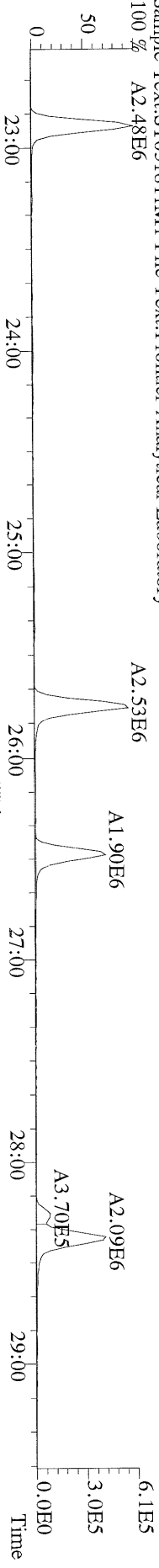
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471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



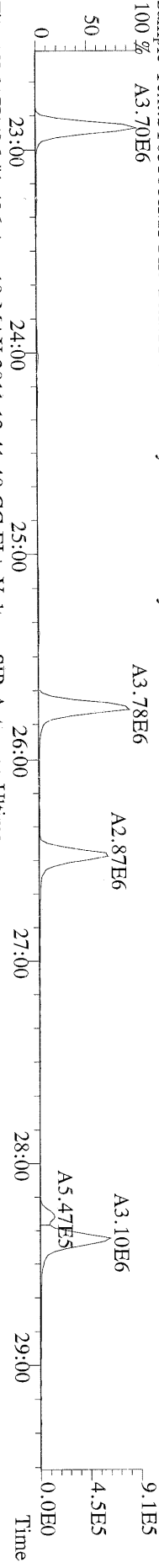
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454.9728 F:5 Exp:OCDD
Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



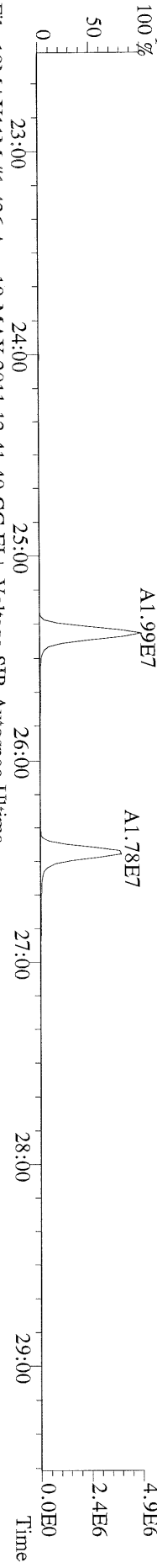
File:19MAY11M #1-426 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



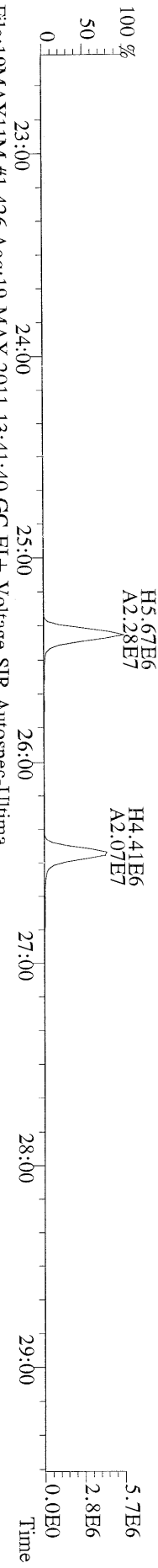
File:19MAY11M #1-426 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 305.8987 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



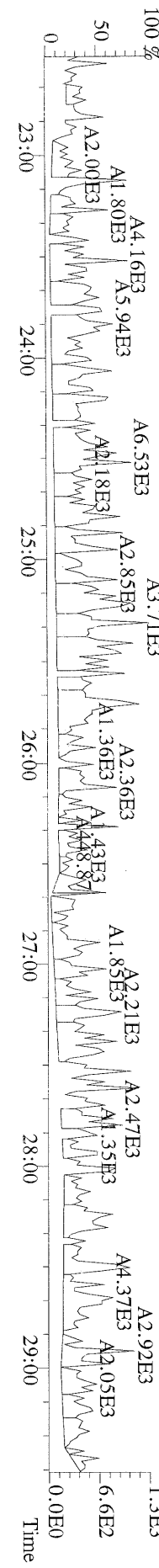
File:19MAY11M #1-426 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 315.9419 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



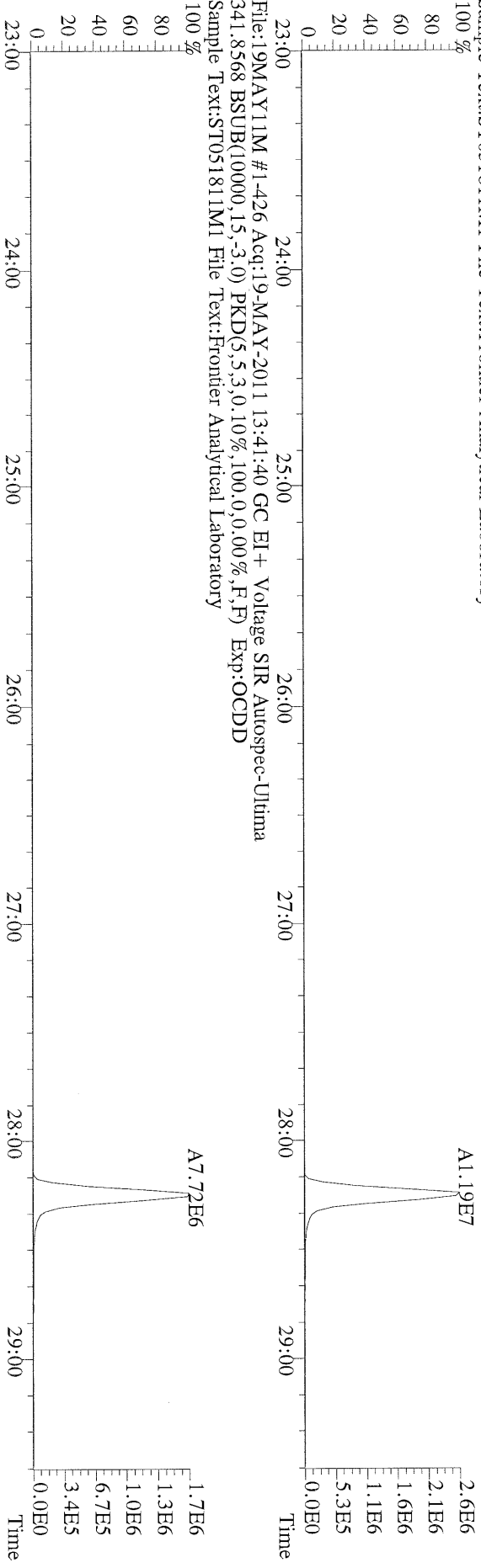
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 317.9389 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
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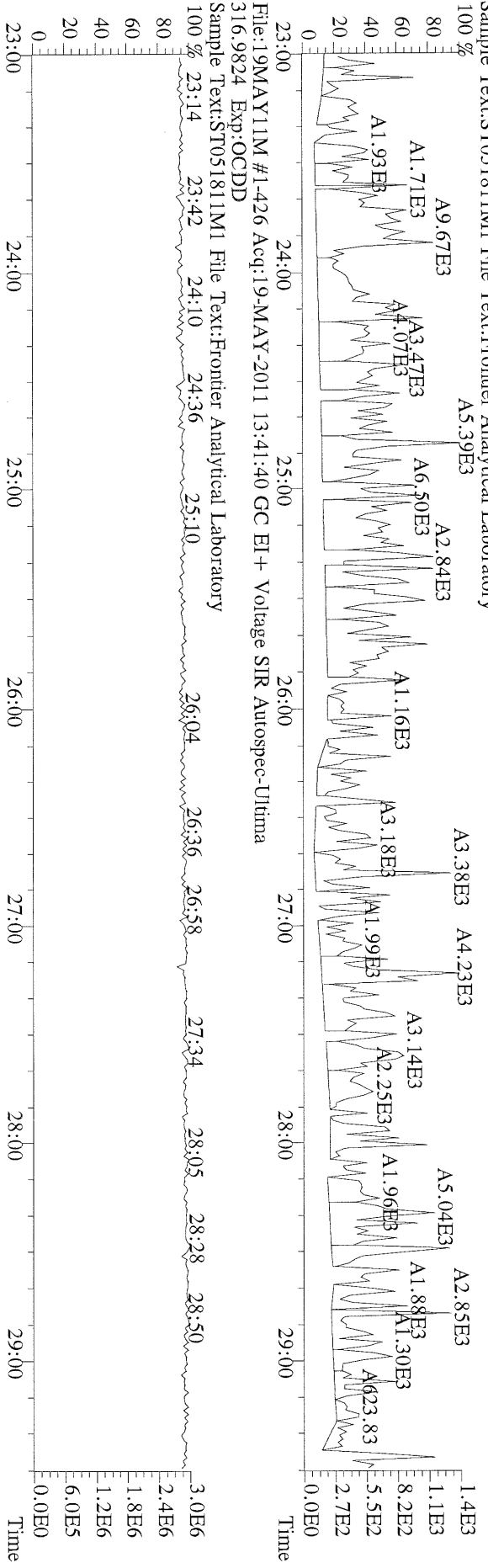
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 375.8364 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
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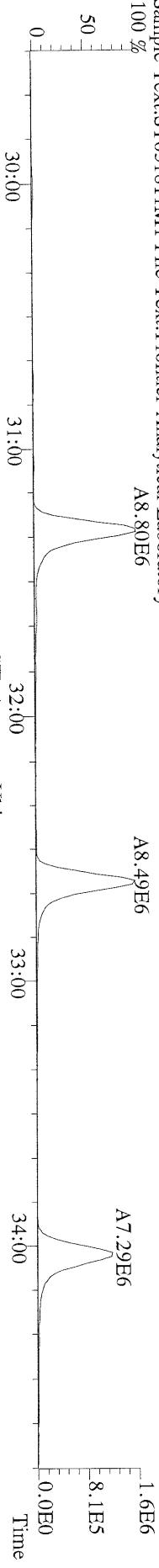
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 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



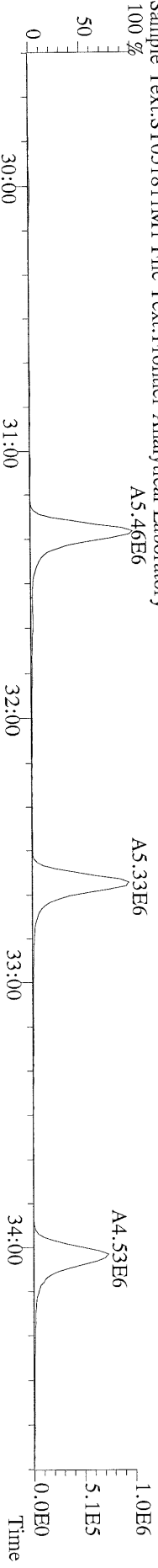
File:19MAY11M #1-426 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



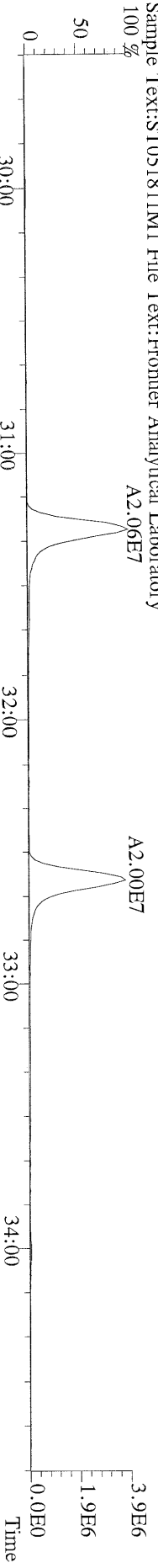
File:19MAY11M #1-412 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



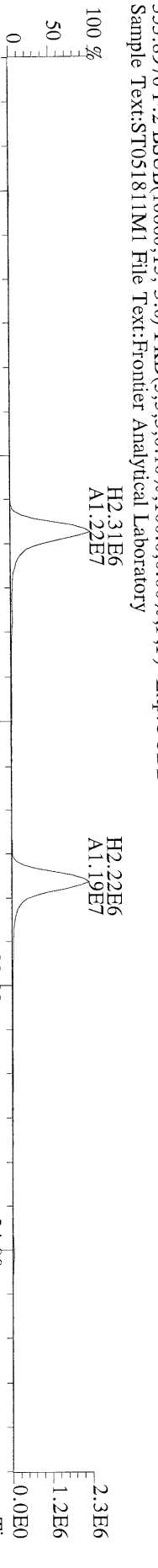
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 341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



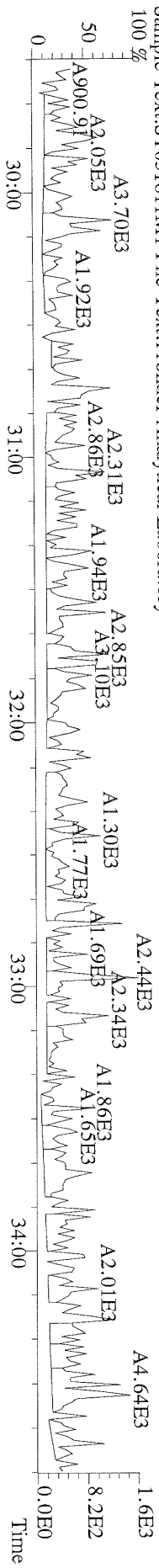
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 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



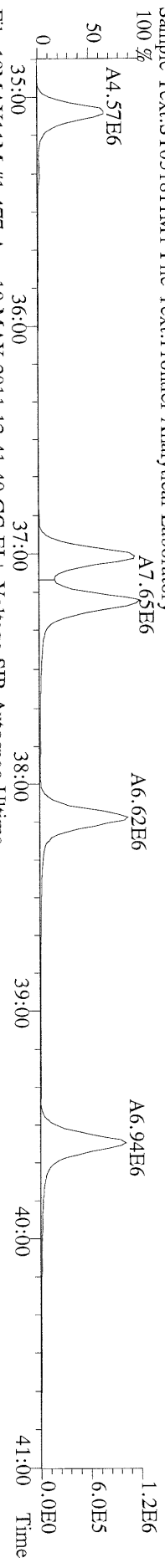
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 353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



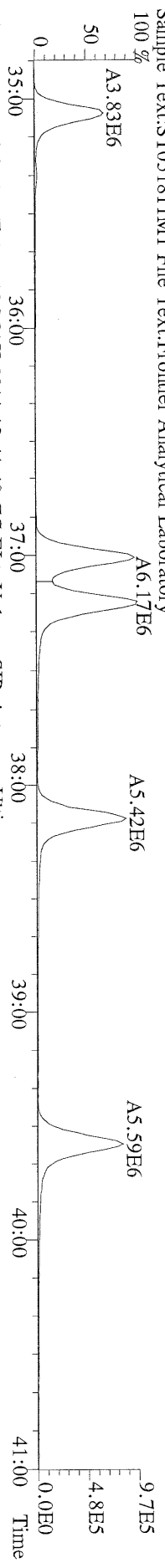
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 409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
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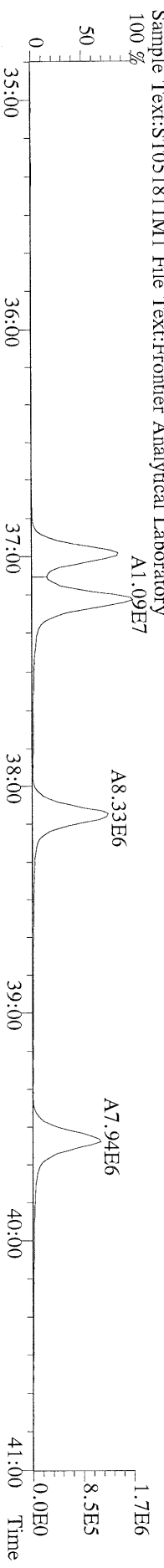
File:19MAY11M #1-477 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



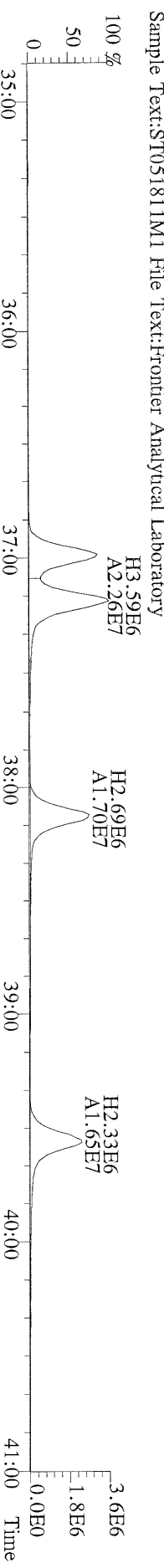
File:19MAY11M #1-477 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



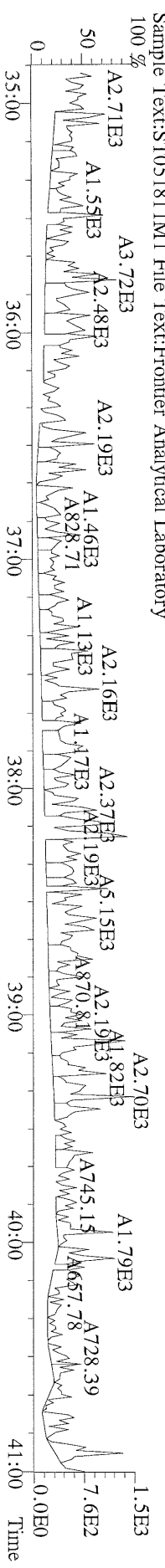
File:19MAY11M #1-477 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
 383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



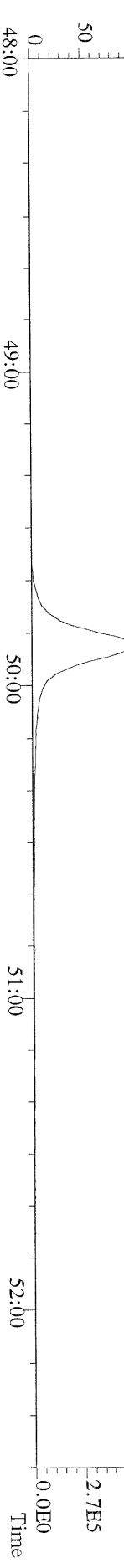
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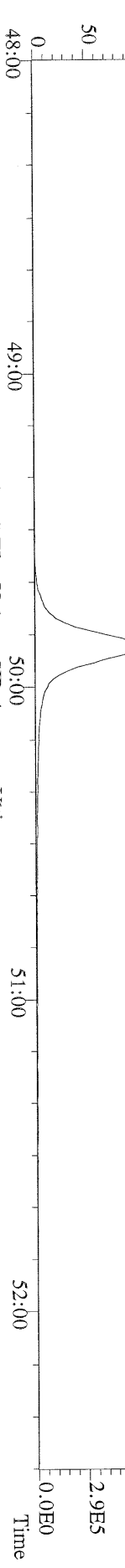
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 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



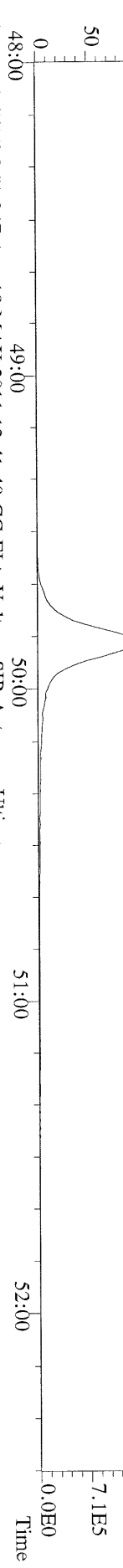
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 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



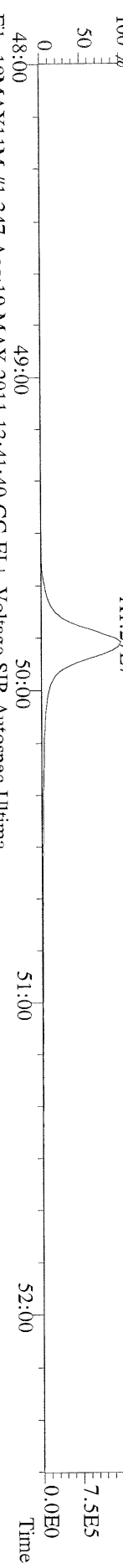
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 443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



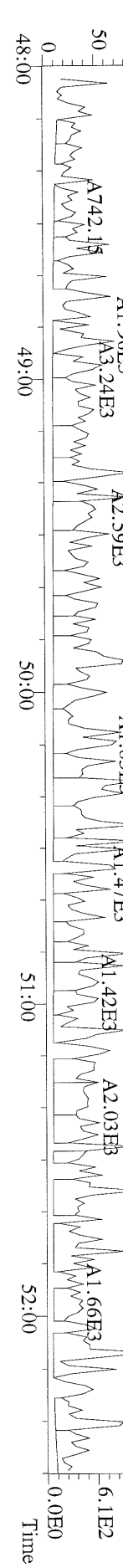
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 455.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory



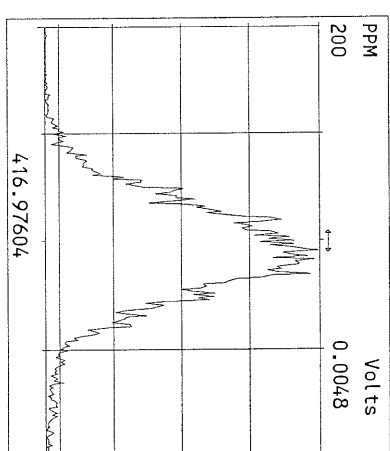
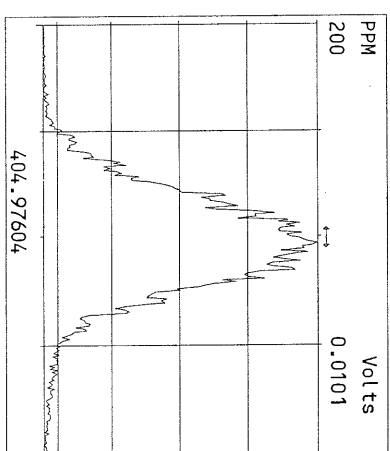
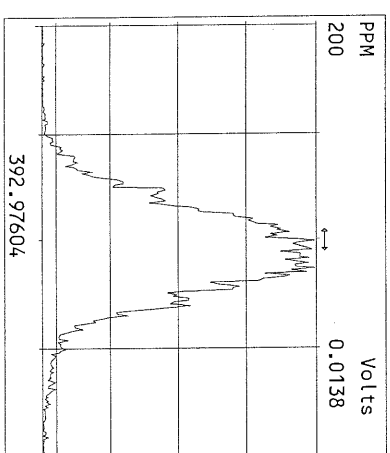
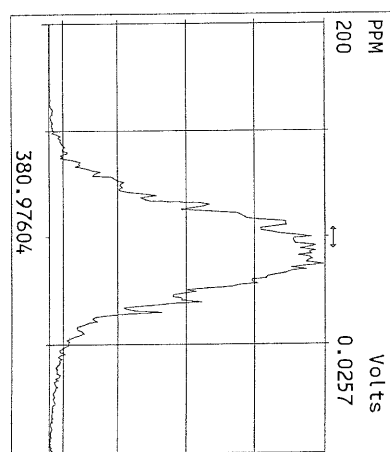
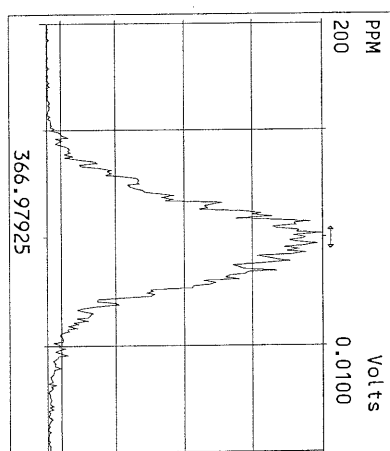
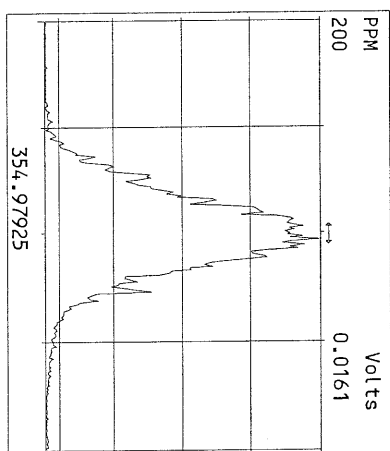
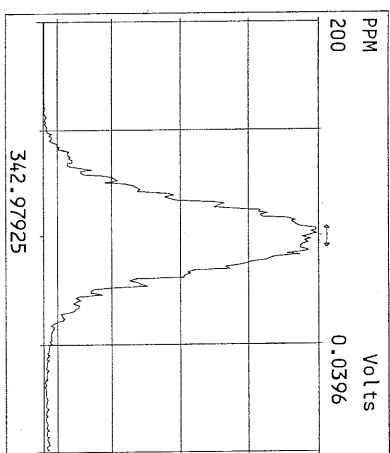
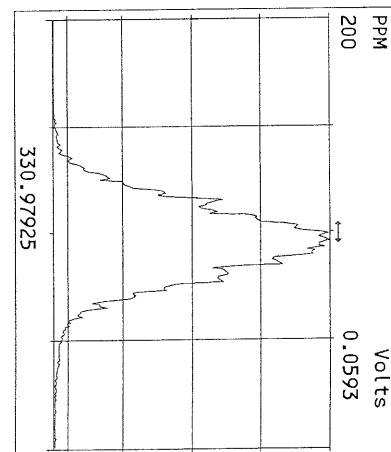
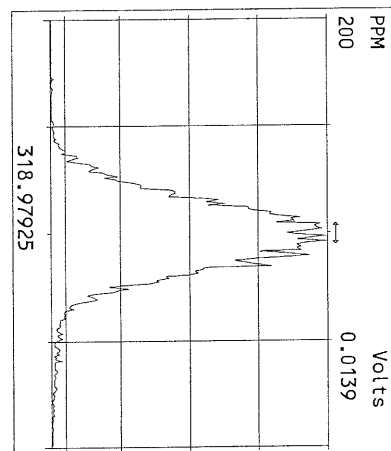
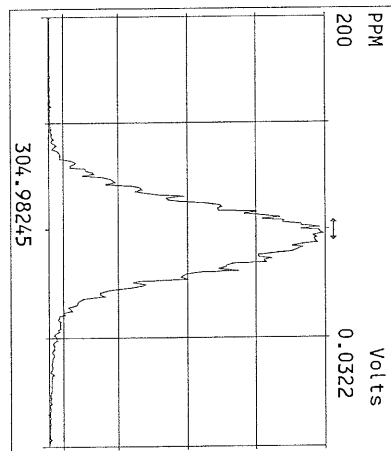
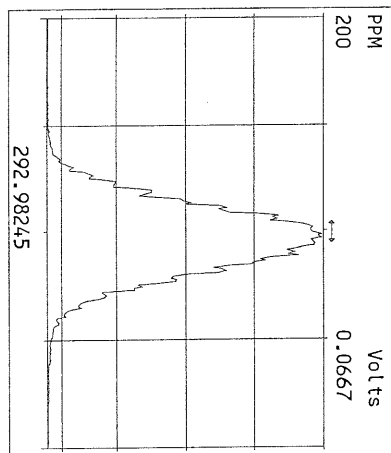
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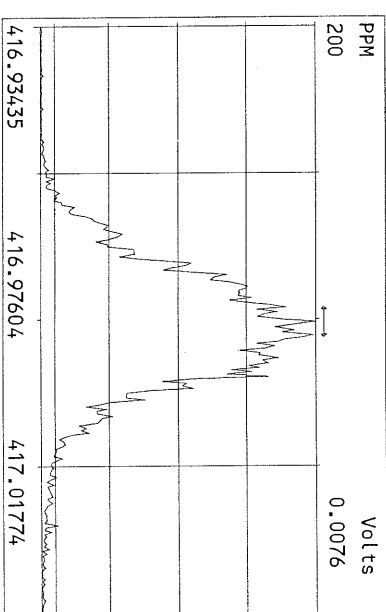
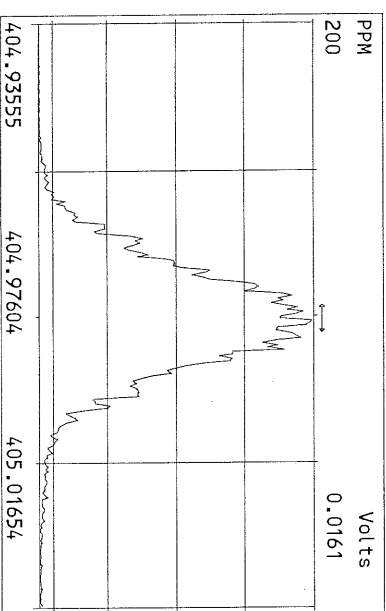
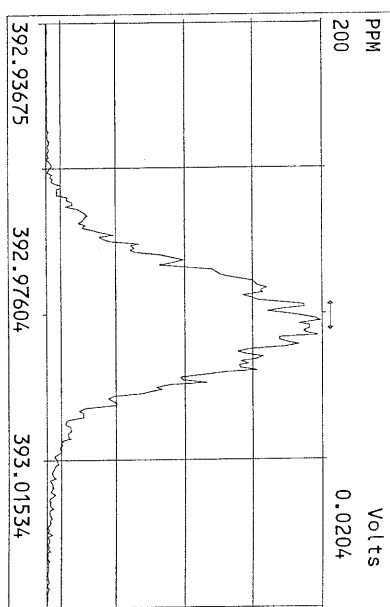
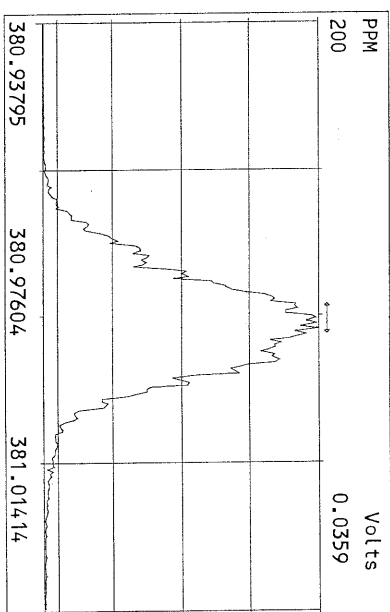
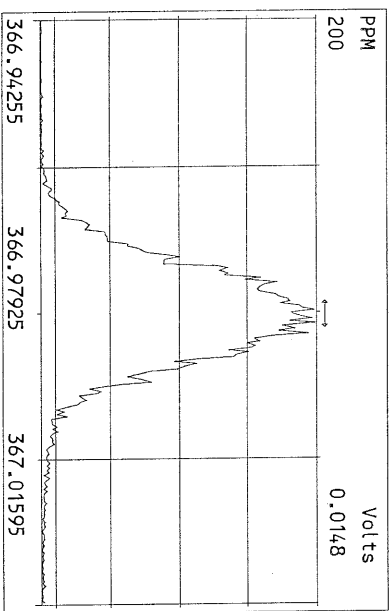
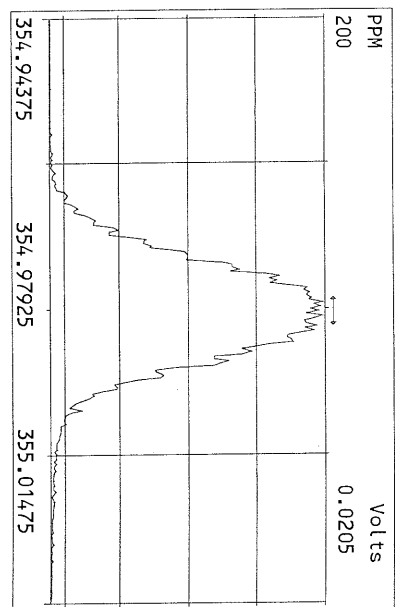
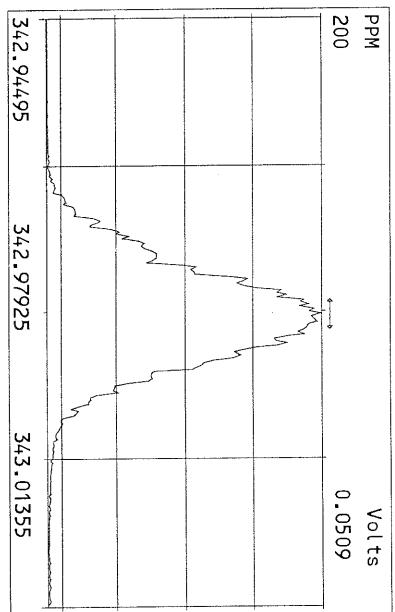
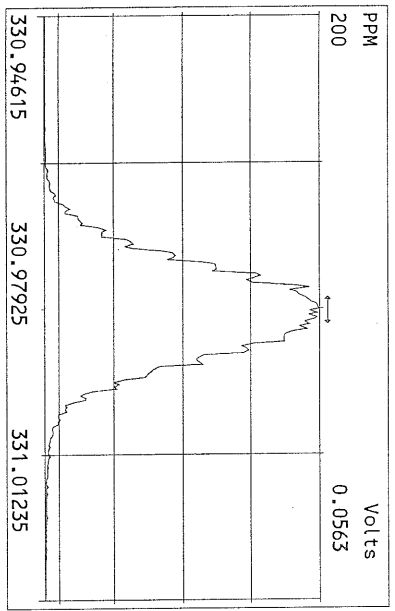


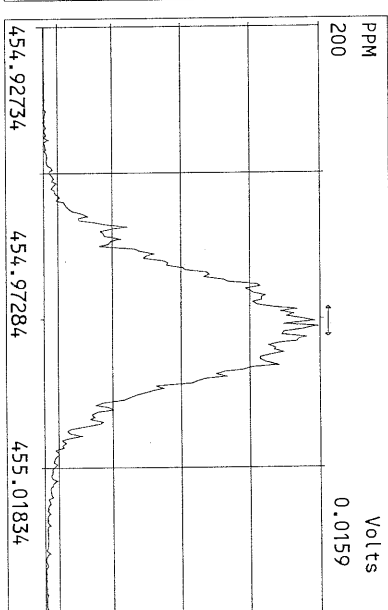
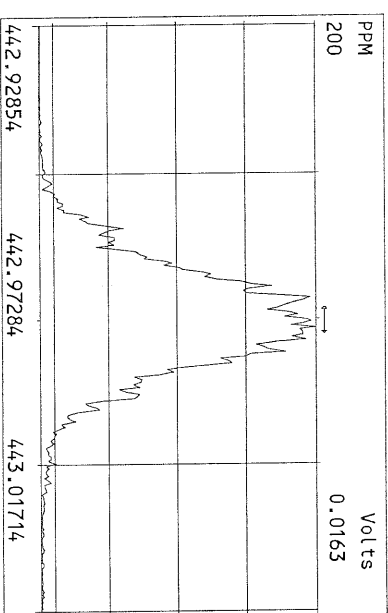
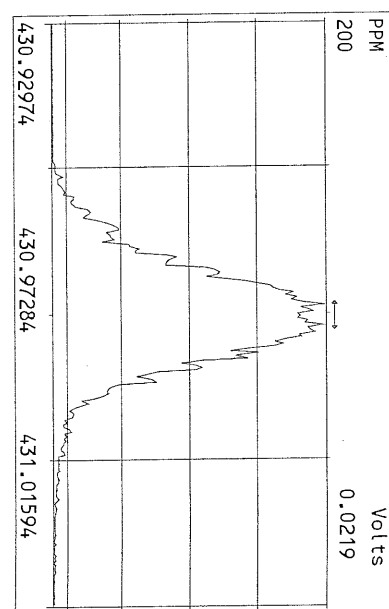
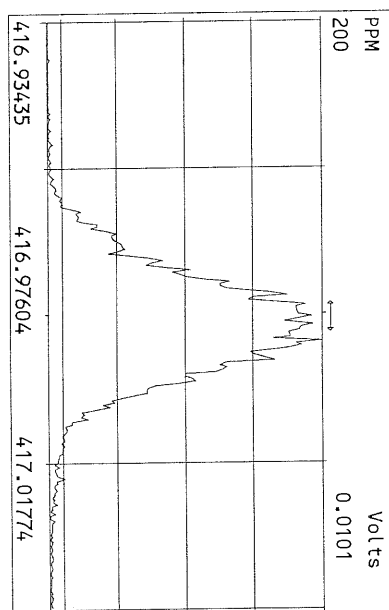
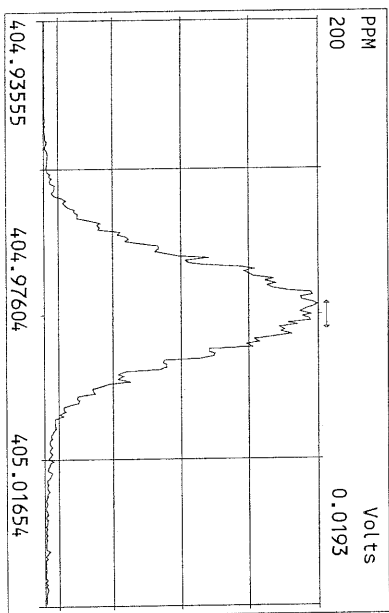
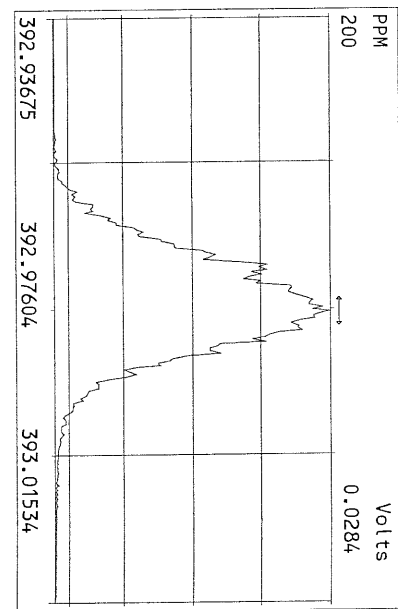
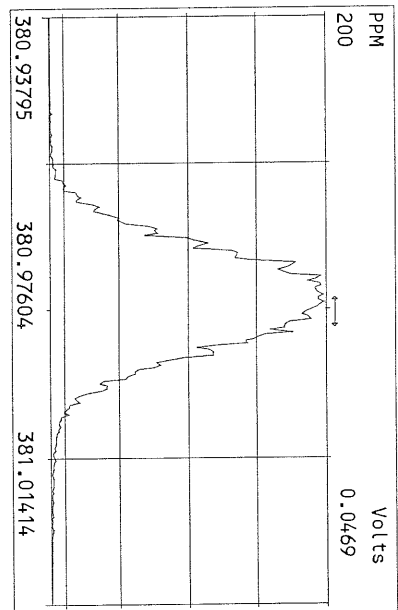
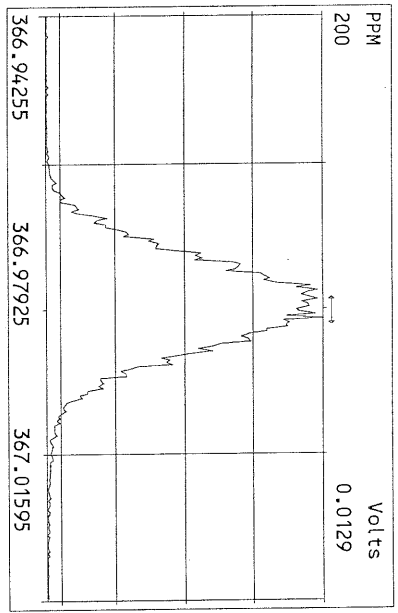
File:19MAYY11M #1-347 Acq:19-MAY-2011 13:41:40 GC EI+ Voltage SIR Autospec-Ultima
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 Sample Text:ST051811M1 File Text:Frontier Analytical Laboratory

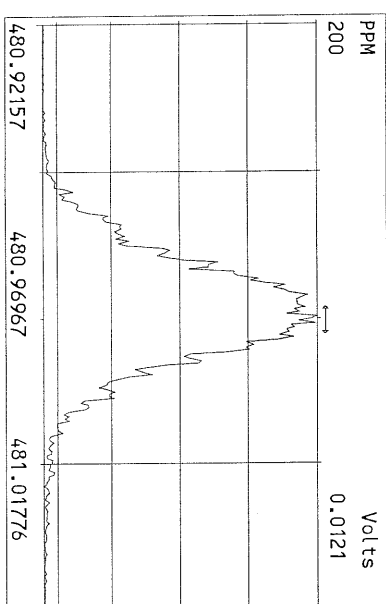
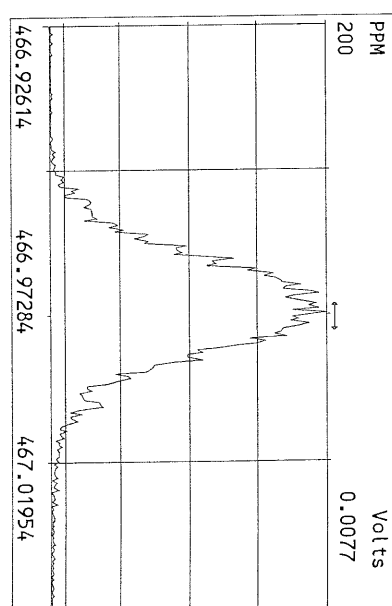
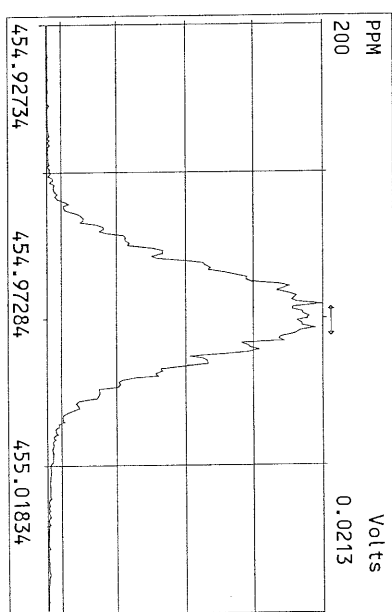
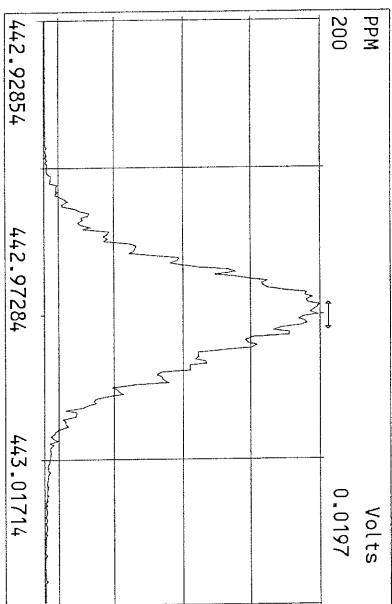
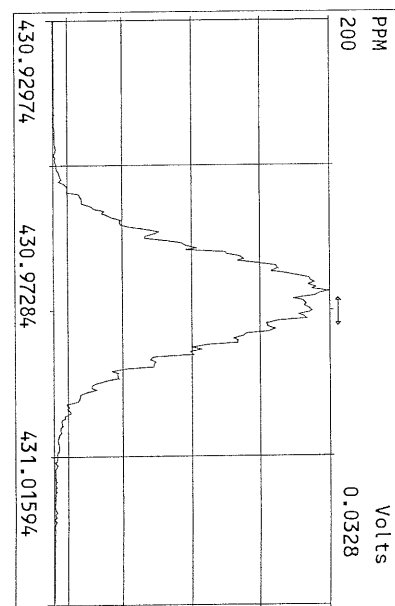
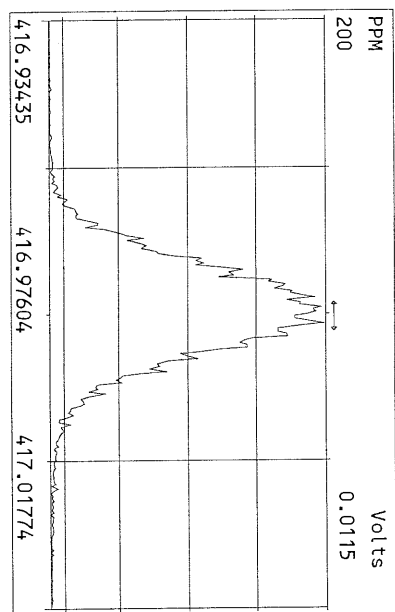
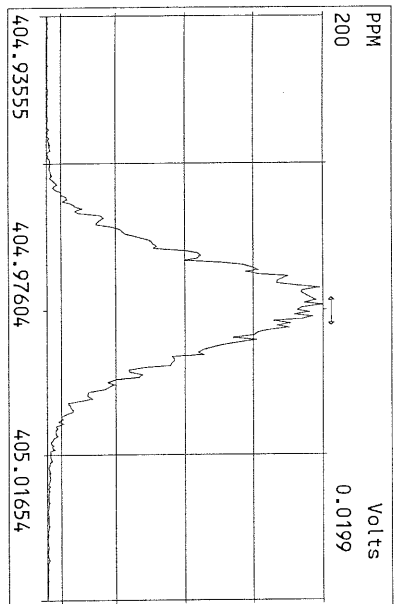


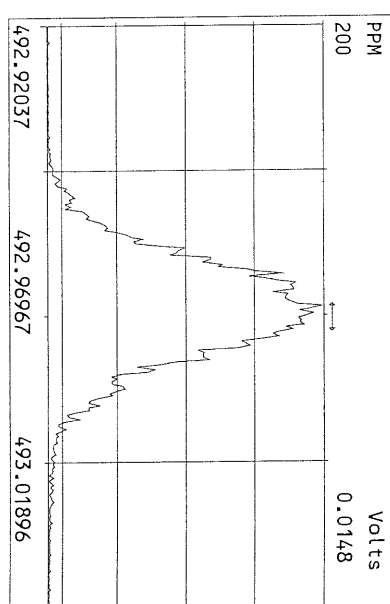
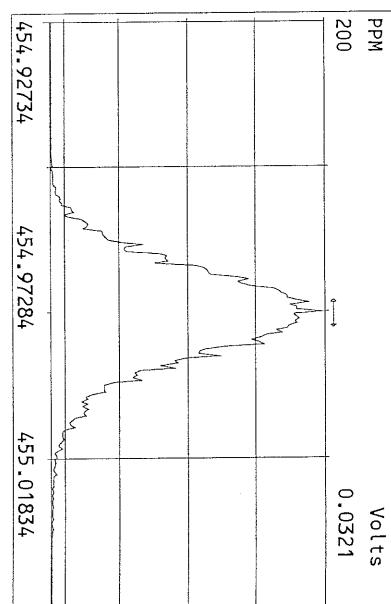
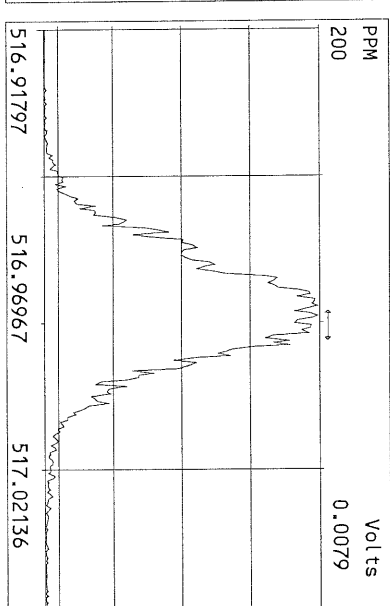
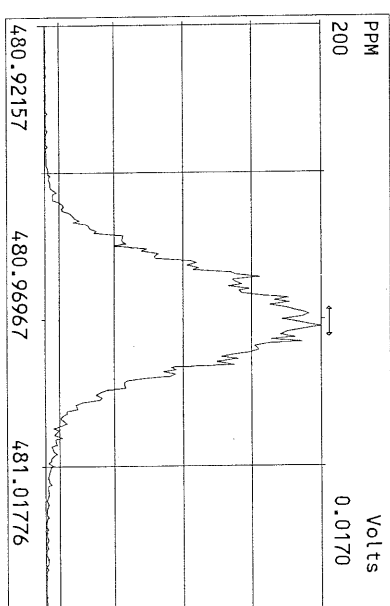
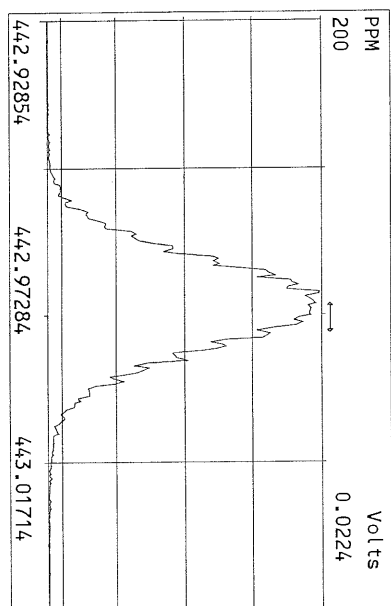
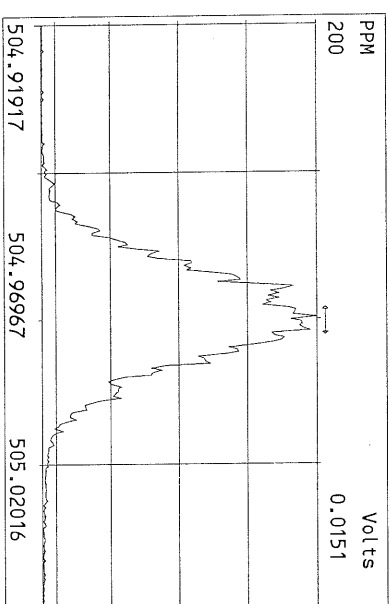
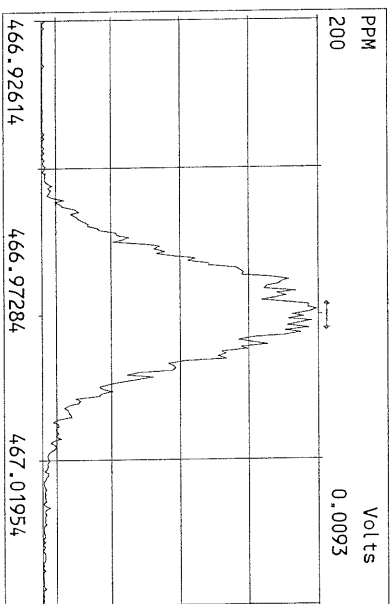
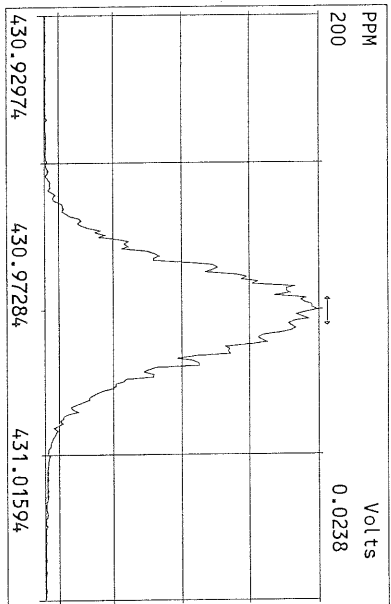
Peak Locate Examination:20-MAY-2011:10:01 File:19MAY11M_RES_CHECK
Experiment:OCDD Function:1 Reference:PFK











USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 19MAY11M Sam:15

Analysis Date: 20-MAY-11 02:37:00

LABELLED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	ACCEPT	CONC. FOUND	CONC. RANGE (ng/mL) (3)
13C-2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	y	89.5	82.0 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.71	1.32-1.78	y	93.6	62.0 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	92.1	85.0 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	101	85.0 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	114	72.0 - 138
13C-OCDD	M+2/M+4	0.95	0.76-1.02	y	197	96.0 - 415
13C-2,3,7,8-TCDF	M/M+2	0.87	0.65-0.89	y	93.8	71.0 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.70	1.32-1.78	y	97.1	76.0 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.68	1.32-1.78	y	100	77.0 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	101	76.0 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	97.2	70.0 - 143
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.48	0.43-0.59	y	97.5	73.0 - 137
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.48	0.43-0.59	y	95.3	74.0 - 135
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	y	105	78.0 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.47	0.37-0.51	y	99.3	77.0 - 129
13C-OCDF	M+2/M+4	0.95	0.76-1.02	y	182	96.0 - 415
CLEANUP STANDARD (4)						
37Cl-2,3,7,8-TCDD					8.78	7.80 - 12.8

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

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

(3) Contract-required concentration range as specified in Table 6, Method 1613.

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

Analyst: Date: 5/20/11

FORM 5
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Frontier Analytical Laboratory Episode No.:
Contract No.: SAS No.:
Instrument ID: FAL3 Initial Calibration Date: 3/7/11
RT Window Data Filename: 19MAY11M Sam:15 Analysis Date: 20-MAY-11 Time: 02:37:00
DB-5 IS Data Filename: 19MAY11M Sam:15 Analysis Date: 20-MAY-11 Time: 02:37:00
DB-225 IS Data Filename: Analysis Date: Time:

DB-5 RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	24:16	1,3,6,8-TCDF (F)	22:55
1,2,8,9-TCDD (L)	28:11	1,2,8,9-TCDF (L)	28:24
1,2,4,7,9-PeCDD (F)	30:06	1,3,4,6,8-PeCDF (F)	28:16
1,2,3,8,9-PeCDD (L)	33:38	1,2,3,8,9-PeCDF (L)	34:03
1,2,4,6,7,9-HxCDD (F)	35:58	1,2,3,4,6,8-HxCDF (F)	35:05
1,2,3,7,8,9-HxCDD (L)	39:02	1,2,3,7,8,9-HxCDF (L)	39:36
1,2,3,4,6,7,9-HpCDD (F)	42:38	1,2,3,4,6,7,8-HpCDF (F)	42:07
1,2,3,4,6,7,8-HpCDD (L)	44:01	1,2,3,4,7,8,9-HpCDF (L)	44:56

(F) = First eluting isomer (DB-5); (L) = Last eluting isomer (DB-5)

=====

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT
BETWEEN
COMPARED PEAKS (1)

<25%

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

Analyst: 

Date: 

USEPA - ITD
FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory Episode No.:

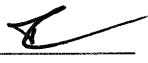
Contract No.: SAS No.: Init. Cal. Date: 3/7/11

Instrument ID: FAL3 GC Column ID: DB5

Analysis Date: 20-MAY-11 02:37:00 CS3 or VER Data Filename: 19MAY11M Sam:15

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.000	0.999-1.002
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.989-1.052
13C-2,3,7,8-TCDD		1.022	0.976-1.043
13C-2,3,7,8-TCDF		0.993	0.923-1.103
13C-1,2,3,7,8-PeCDD		1.240	1.000-1.567
13C-1,2,3,7,8-PeCDF		1.175	0.923-1.203
13C-2,3,4,7,8-PeCDF		1.224	0.923-1.303

(1) Contract-required limits for Relative Retention Times (RRT) as specified
in Table 2, Method 1613.

Analyst:  Date: 5/20/11

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 3/7/11

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 20-MAY-11 02:37:00

CS3 or VER Data Filename: 19MAY11M

Sam:15

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.012	1.000-1.019
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.001	0.999-1.001
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.001	0.999-1.001
OCDD	13C-OCDD	1.001	0.999-1.001
OCDF	13C-OCDF	1.001	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,7,8,9-HxCDD	0.984	0.977-1.000
13C-1,2,3,6,7,8-HxCDD		0.989	0.981-1.003
13C-1,2,3,4,7,8-HxCDF		0.949	0.944-0.970
13C-1,2,3,6,7,8-HxCDF		0.954	0.949-0.975
13C-2,3,4,6,7,8-HxCDF		0.978	0.959-1.021
13C-1,2,3,7,8,9-HxCDF		1.015	0.977-1.047
13C-1,2,3,4,6,7,8-HpCDD		1.128	1.086-1.130
13C-1,2,3,4,6,7,8-HpCDF		1.079	1.043-1.085
13C-1,2,3,4,7,8,9-HpCDF		1.151	1.057-1.154
13C-OCDD		1.269	1.032-1.311
13C-OCDF		1.279	1.000-1.311

(1) Contract-required limits for Relative Retention Times (RRT) as specified in Table 2, Method 1613.

Analyst: Date: 

Results: GC Column: DB5 Amount: 1.000 NATO 1989 Tox: 101
 WHO 1998 Tox: 127 WHO 2005 Tox: 116

Name	Resp	RA	RT	RRF	Conc	Qual	Fac Noise-1	Noise-2	DL	Rec	#Hom
2,3,7,8-TCDD	2.49e+06	0.76 y	27:15	1.13	11.0		2.50	-	-	*	
1,2,3,7,8-PeCDD	1.10e+07	1.58 y	33:03	1.02	52.6		2.50	-	-	*	
1,2,3,4,7,8-HxCDD	1.11e+07	1.32 y	38:26	1.45	50.4		2.50	-	-	*	
1,2,3,6,7,8-HxCDD	9.41e+06	1.31 y	38:35	1.45	49.6		2.50	-	-	*	
1,2,3,7,8,9-HxCDD	1.09e+07	1.32 y	39:02	1.47	52.3		2.50	-	-	*	
1,2,3,4,6,7,8-HpCDD	8.47e+06	0.90 y	44:01	1.30	50.0		2.50	-	-	*	
OCDD	1.22e+07	0.95 y	49:32	1.45	102		2.50	-	-	*	
2,3,7,8-TCDF	4.45e+06	0.67 y	26:29	1.15	11.1		2.50	-	-	*	
1,2,3,7,8-PeCDF	1.37e+07	1.61 y	31:20	0.89	50.6		2.50	-	-	*	
2,3,4,7,8-PeCDF	1.34e+07	1.57 y	32:39	0.89	49.2		2.50	-	-	*	
1,2,3,4,7,8-HxCDF	1.20e+07	1.21 y	37:02	1.01	46.4		2.50	-	-	*	
1,2,3,6,7,8-HxCDF	1.30e+07	1.24 y	37:14	0.89	47.3		2.50	-	-	*	
2,3,4,6,7,8-HxCDF	1.18e+07	1.24 y	38:10	1.02	46.1		2.50	-	-	*	
1,2,3,7,8,9-HxCDF	1.37e+07	1.23 y	39:36	1.10	47.4		2.50	-	-	*	
1,2,3,4,6,7,8-HpCDF	1.01e+07	1.05 y	42:07	1.48	47.5		2.50	-	-	*	
1,2,3,4,7,8,9-HpCDF	7.33e+06	1.06 y	44:56	1.43	48.8		2.50	-	-	*	
OCDF	1.15e+07	0.92 y	49:54	0.84	92.9		2.50	-	-	*	
13C-2,3,7,8-TCDD	2.01e+07	0.75 y	27:14	1.03	89.5					89.5	
13C-1,2,3,7,8-PeCDD	2.06e+07	1.71 y	33:03	1.01	93.6					93.6	
13C-1,2,3,4,7,8-HxCDD	1.52e+07	1.27 y	38:24	1.19	92.1					92.1	
13C-1,2,3,6,7,8-HxCDD	1.30e+07	1.28 y	38:34	0.94	101					101	
13C-1,2,3,4,6,7,8-HpCDD	1.30e+07	1.04 y	43:60	0.83	114					114	
13C-OCDD	1.66e+07	0.95 y	49:30	0.61	197					98.4	
13C-2,3,7,8-TCDF	3.48e+07	0.87 y	26:28	0.98	93.8					93.8	
13C-1,2,3,7,8-PeCDF	3.05e+07	1.70 y	31:19	0.83	97.1					97.1	
13C-2,3,4,7,8-PeCDF	3.05e+07	1.68 y	32:38	0.80	100					100	
13C-1,2,3,4,7,8-HxCDF	2.57e+07	0.48 y	37:00	1.84	101					101	
13C-1,2,3,6,7,8-HxCDF	3.08e+07	0.48 y	37:12	2.29	97.2					97.2	
13C-2,3,4,6,7,8-HxCDF	2.51e+07	0.48 y	38:09	1.86	97.5					97.5	
13C-1,2,3,7,8,9-HxCDF	2.62e+07	0.48 y	39:35	1.98	95.3					95.3	
13C-1,2,3,4,6,7,8-HpCDF	1.44e+07	0.46 y	42:06	0.99	105					105	
13C-1,2,3,4,7,8,9-HpCDF	1.05e+07	0.47 y	44:55	0.77	99.3					99.3	
13C-OCDF	2.93e+07	0.95 y	49:53	1.17	182					90.8	
37Cl-2,3,7,8-TCDD	1.39e+06		27:15	0.73	8.78					87.8	
13C-1,2,3,4-TCDD	2.18e+07	0.77 y	26:39	-	57.3						
13C-1,2,3,4-TCDF	3.79e+07	0.87 y	25:24	-	52.6						
13C-1,2,3,7,8,9-HxCDD	1.39e+07	1.27 y	39:00	-	55.9						
Total Tetra-Dioxins	1.34e+07		23:02	1.13	59.1		2.50	-	-	*	22
Total Penta-Dioxins	2.39e+07		30:06	1.02	114		2.50	-	-	*	18
Total Hexa-Dioxins	3.59e+07		35:58	1.46	174		2.50	-	-	*	14
Total Hepta-Dioxins	1.81e+07		42:38	1.30	107		2.50	-	-	*	17
Total Tetra-Furans	2.18e+07		22:55	1.15	54.6		2.50	-	-	*	28
1st Fn. Tot Penta-Furans	1.53e+07		28:16	0.89	56.4		2.50	-	-	*	PeCDF 2
Total Penta-Furans	3.89e+07		30:03	0.89	143		2.50	-	-	*	200 11
Total Hexa-Furans	5.90e+07		35:05	1.00	219		2.50	-	-	*	24
Total Hepta-Furans	1.80e+07		42:07	1.46	98.9		2.50	-	-	*	16

Analyst:  Date: 5/20/11

Frontier Analytical Laboratory - Acquisition Log

Run Name:19MAY11M

Instrument: FAL3

GC: DB5

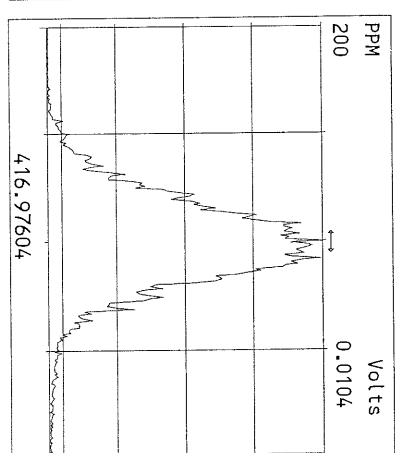
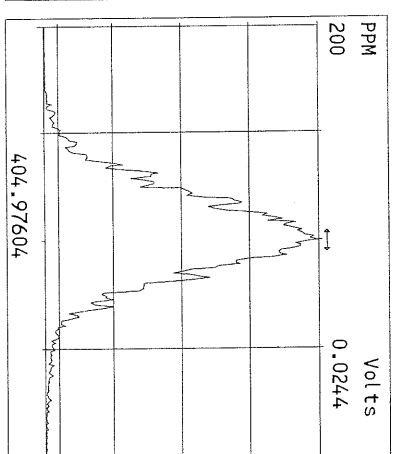
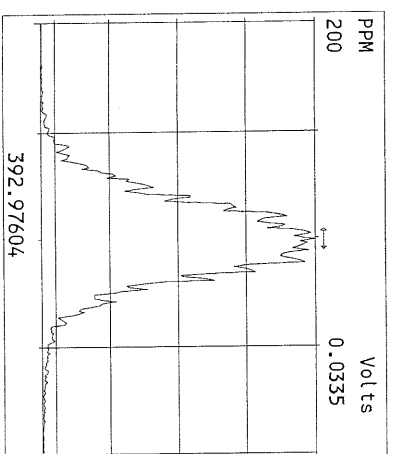
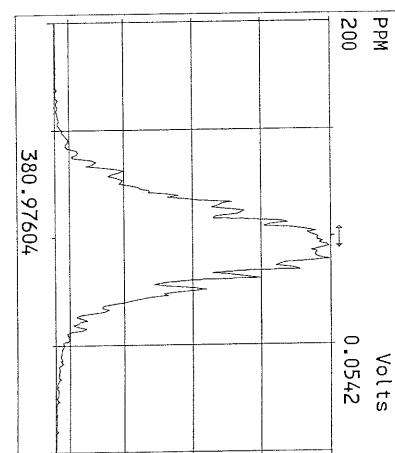
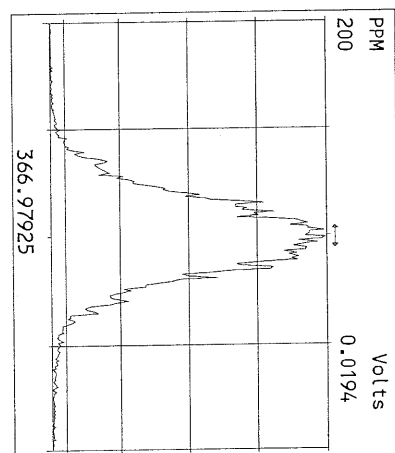
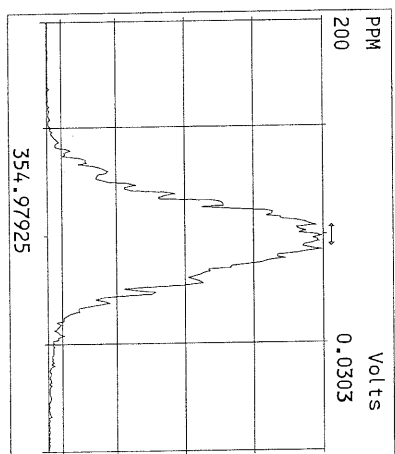
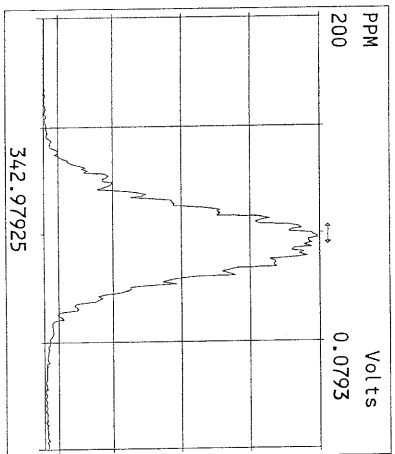
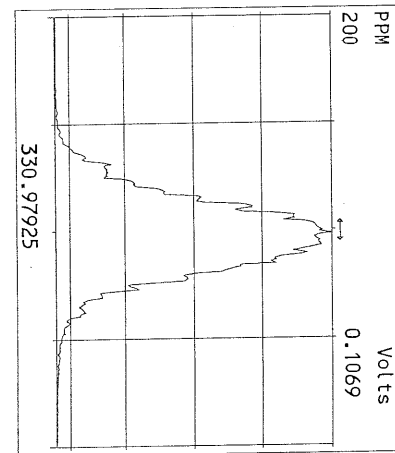
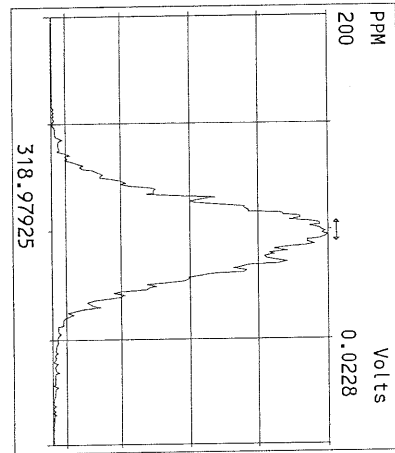
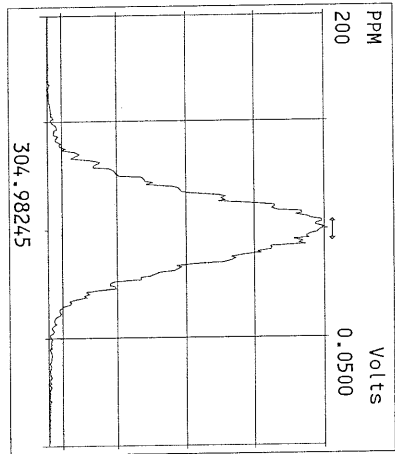
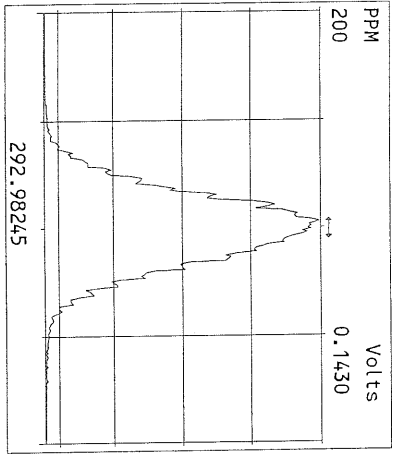
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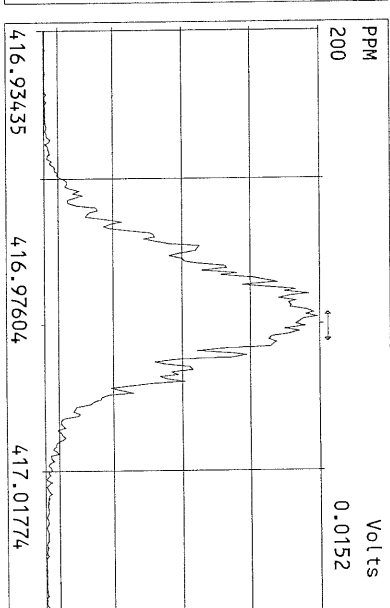
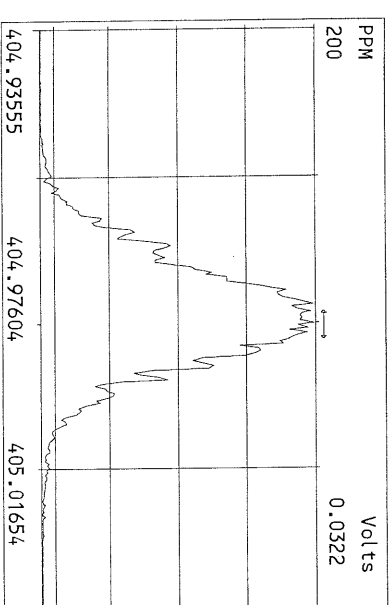
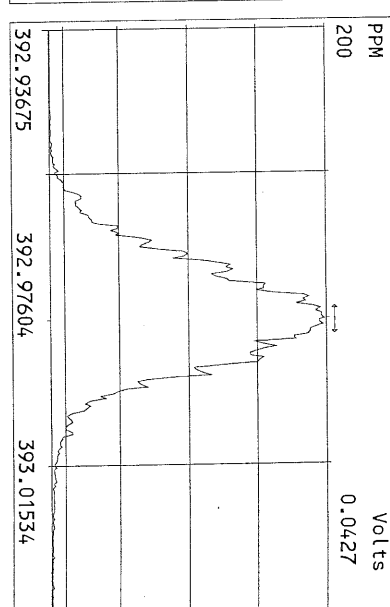
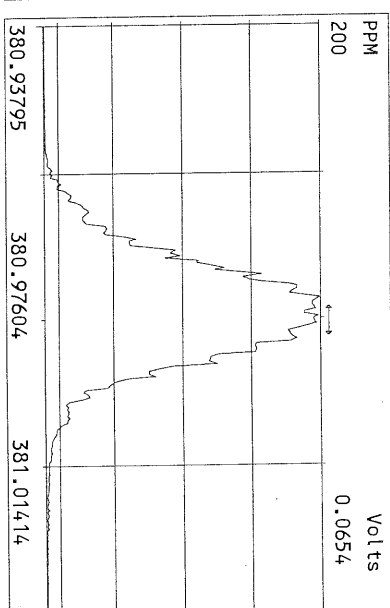
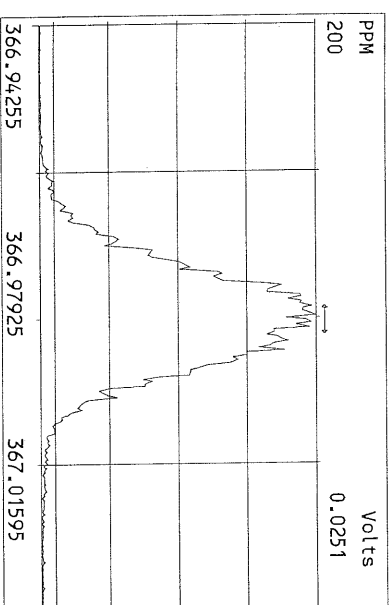
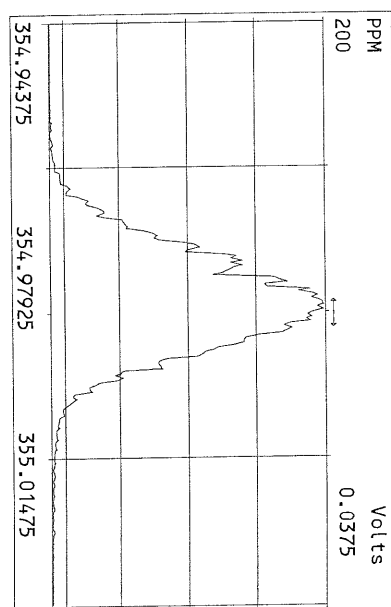
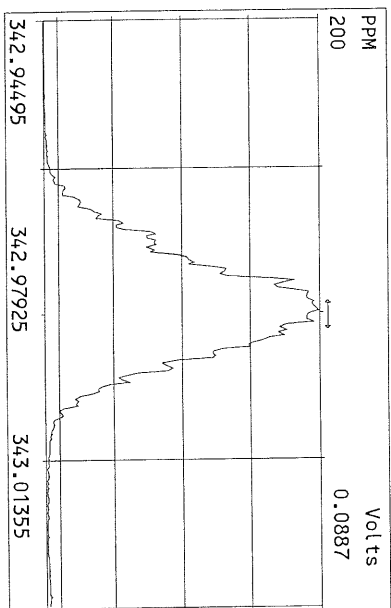
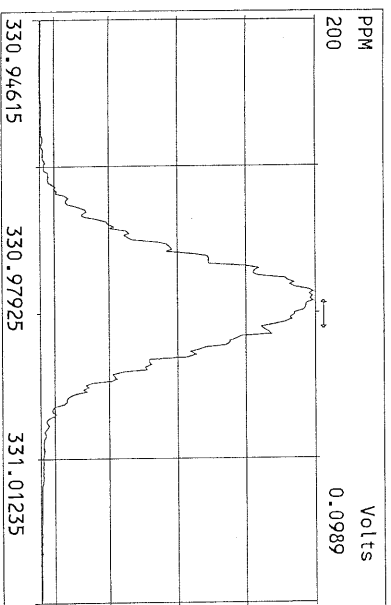
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19MAY11M 2	QC051911M1	QC1	19-MAY-11 14:37:03	ST051911M1	ST051911M2	TC
19MAY11M 3	QC051911M2	QC2	19-MAY-11 15:32:26	ST051911M1	ST051911M2	TC
19MAY11M 4	QC051911M3	QC3	19-MAY-11 16:27:48	ST051911M1	ST051911M2	TC
19MAY11M 5	2294-001-0001-OPR	OPR	19-MAY-11 17:23:07	ST051911M1	ST051911M2	TC
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19MAY11M 7	6743-001-0001-SA	MW-01-042911	19-MAY-11 19:13:53	ST051911M1	ST051911M2	TC
19MAY11M 8	6743-002-0001-SA	MW-01-042911-D	19-MAY-11 20:09:21	ST051911M1	ST051911M2	TC
19MAY11M 9	6744-001-0001-SA	B312-042911	19-MAY-11 21:04:44	ST051911M1	ST051911M2	TC
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19MAY11M 11	6744-003-0001-SA	B311-042911	19-MAY-11 22:55:29	ST051911M1	ST051911M2	TC
19MAY11M 12	6758-001-0001-SA	D AVILLA S.I.	19-MAY-11 23:50:48	ST051911M1	ST051911M2	TC
19MAY11M 13	6759-001-0001-SA	CARRIAGE HILL S.I.	20-MAY-11 00:46:10	ST051911M1	ST051911M2	TC
19MAY11M 14	SB051911M1	Solvent Blank	20-MAY-11 01:41:37	ST051911M1	ST051911M2	TC
19MAY11M 15	ST051911M2	1613 CS3 100511J	20-MAY-11 02:37:00	ST051911M1	ST051911M2	TC
19MAY11M 16	ST051911M3	8280 CS3 071227J	20-MAY-11 03:32:21	ST051911M3	ST051911M4	TC
19MAY11M 17	2295-001-0001-OPR	OPR	20-MAY-11 04:27:45	ST051911M3	ST051911M4	TC
19MAY11M 18	2295-001-0001-MB	Method Blank	20-MAY-11 05:23:07	ST051911M3	ST051911M4	TC
19MAY11M 19	6763-001-0001-SA	1104316-01	20-MAY-11 06:18:30	ST051911M3	ST051911M4	TC
19MAY11M 20	6763-002-0001-SA	1104316-02	20-MAY-11 07:13:48	ST051911M3	ST051911M4	TC
19MAY11M 21	SB051911M2	Solvent Blank	20-MAY-11 08:09:07	ST051911M3	ST051911M4	TC
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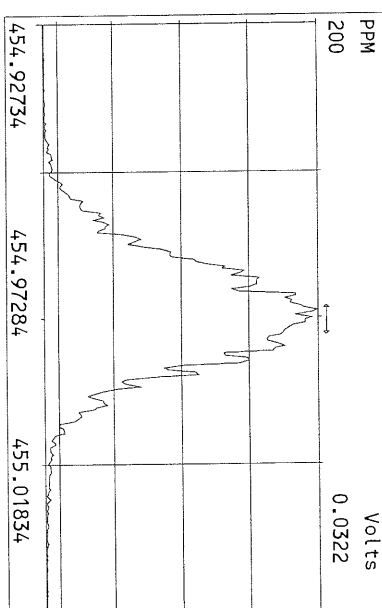
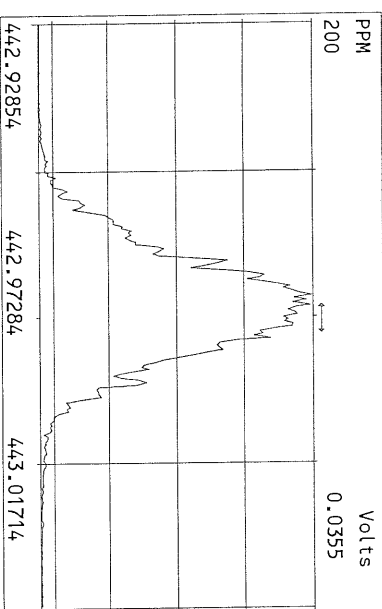
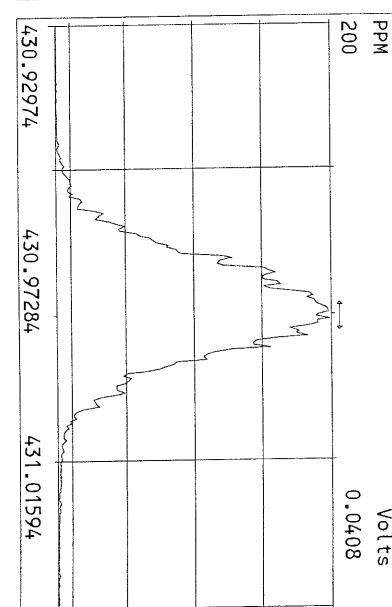
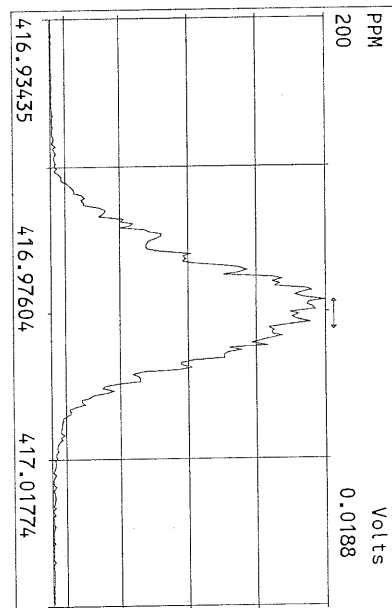
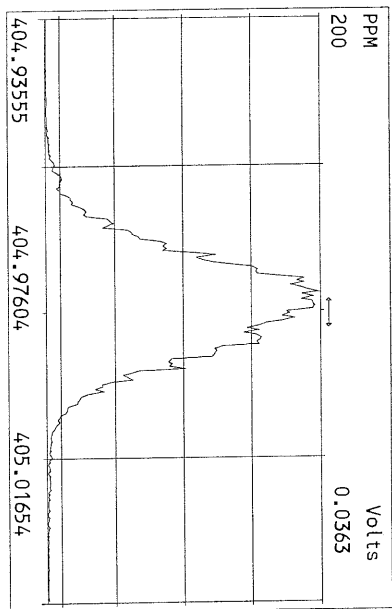
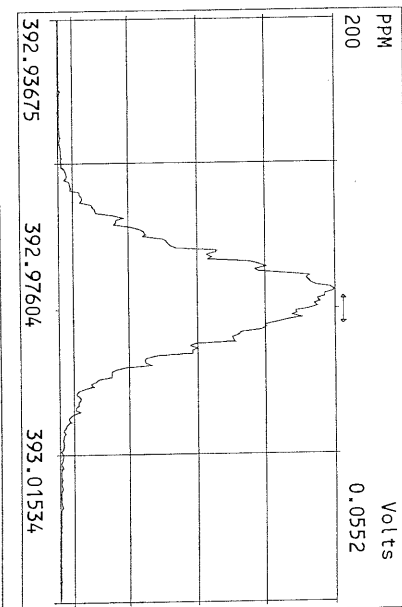
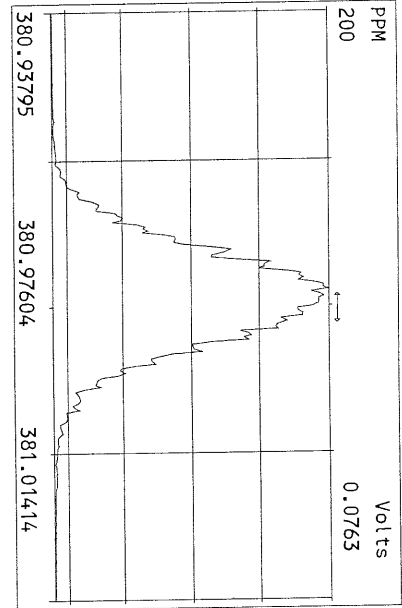
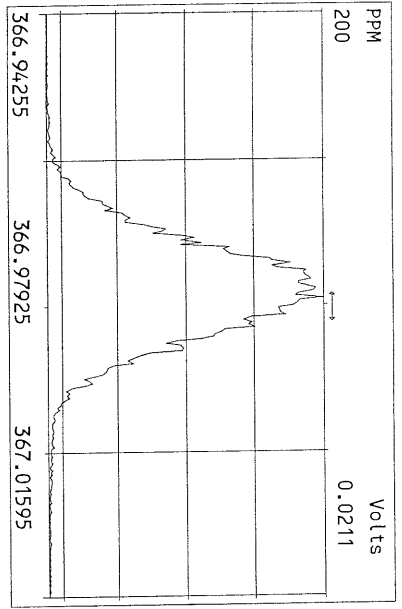
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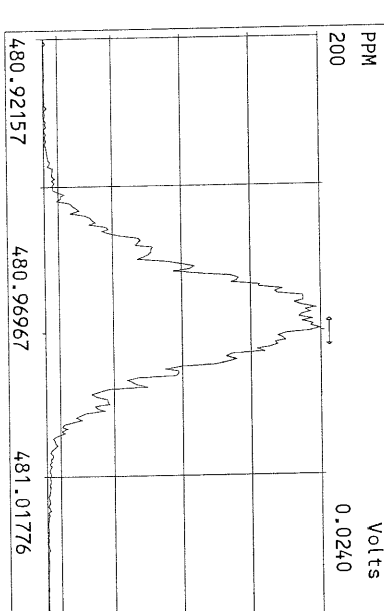
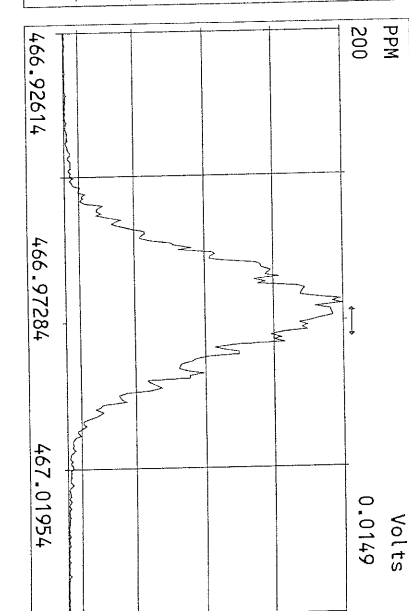
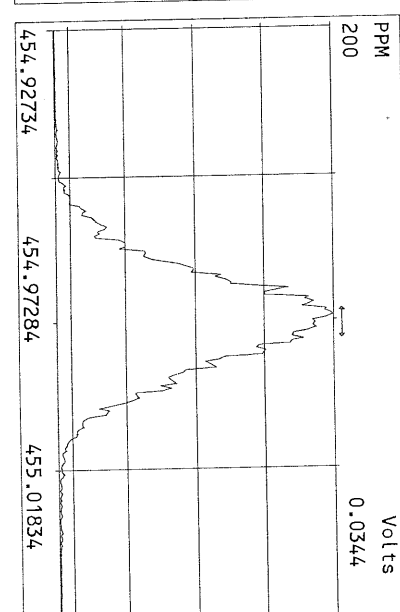
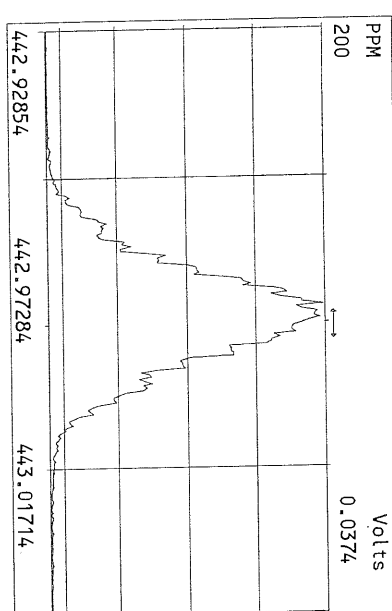
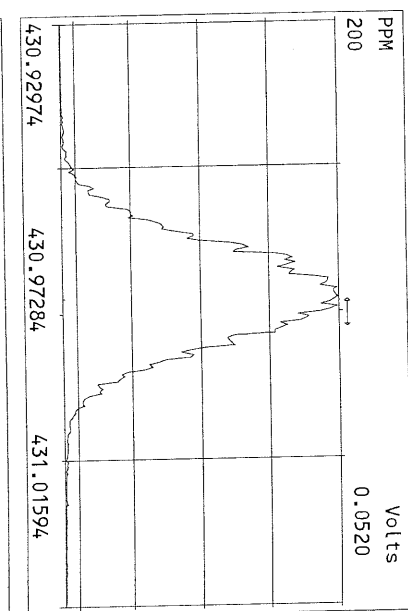
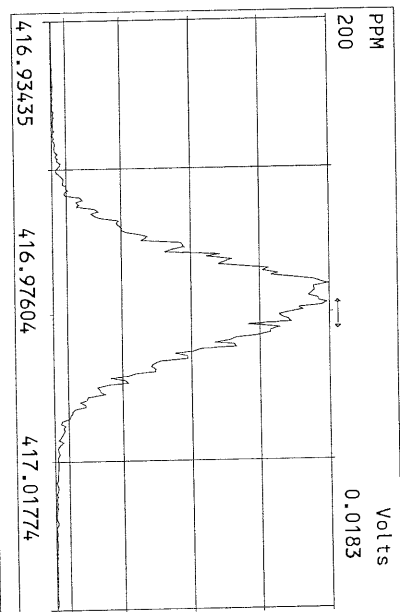
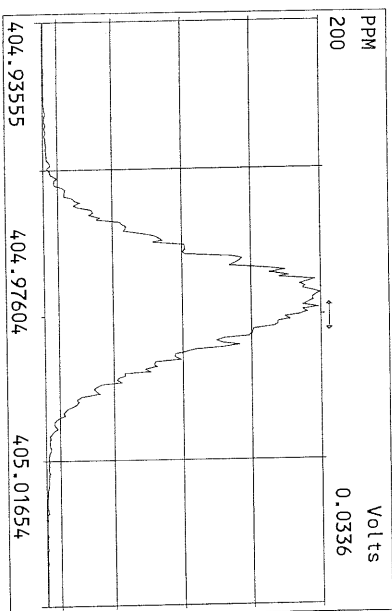
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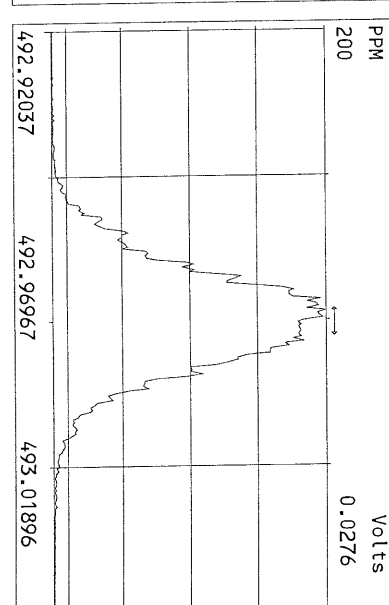
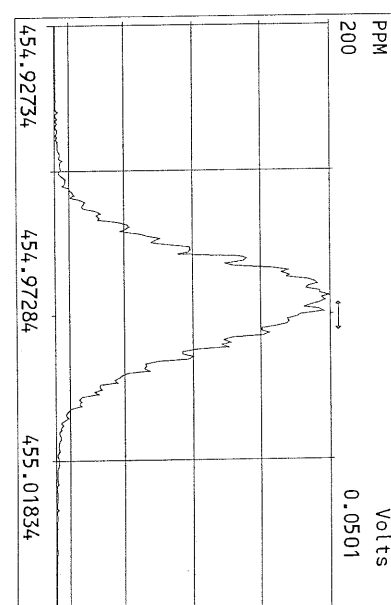
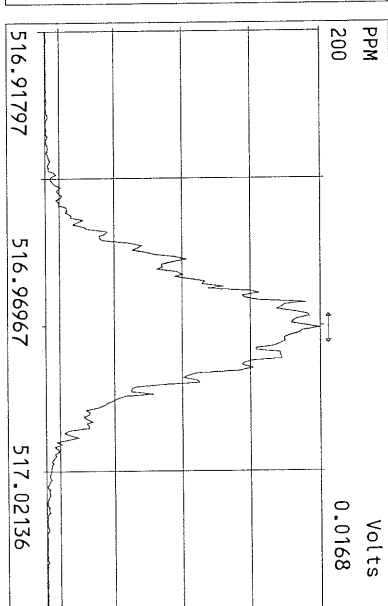
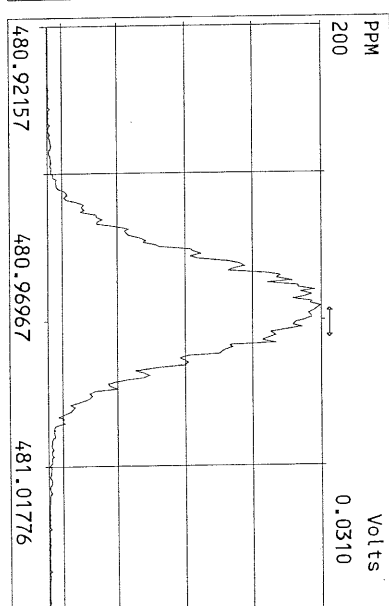
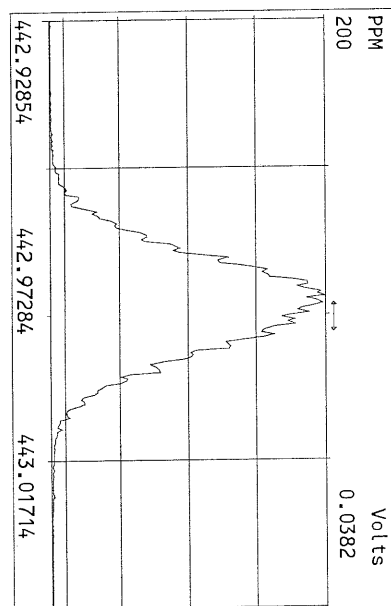
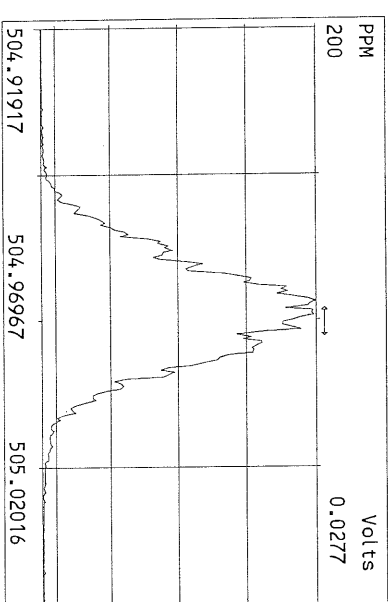
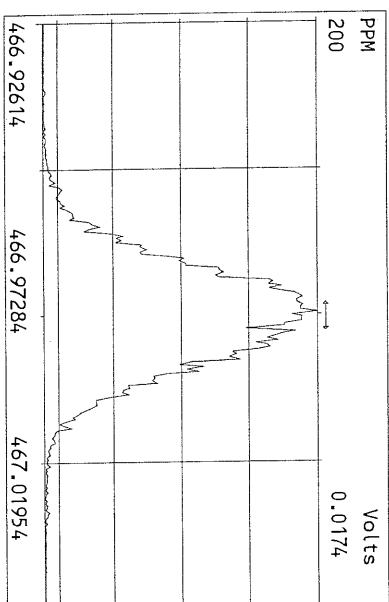
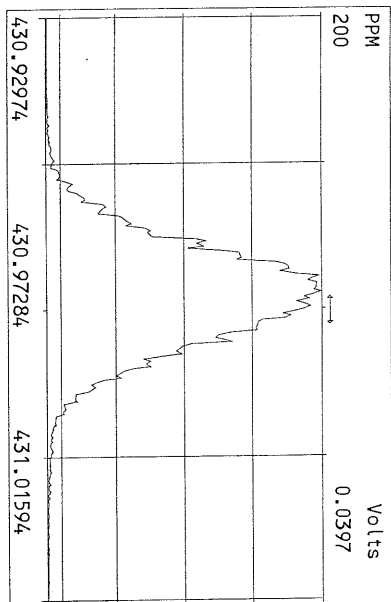




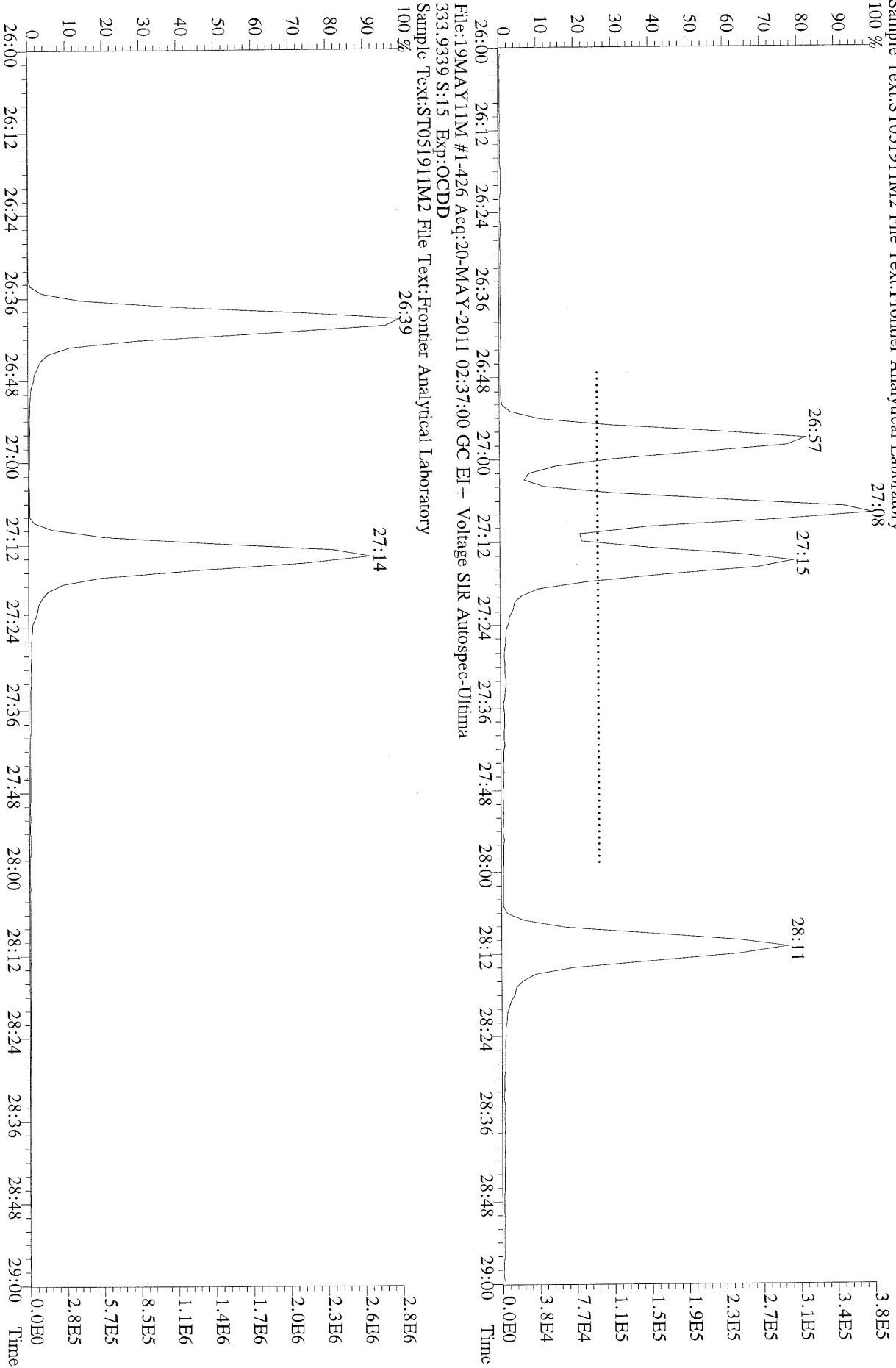


Peak Locate Examination:19-MAY-2011:13:41 File:19MAY11M
Experiment:OCD Function:4 Reference:PFK

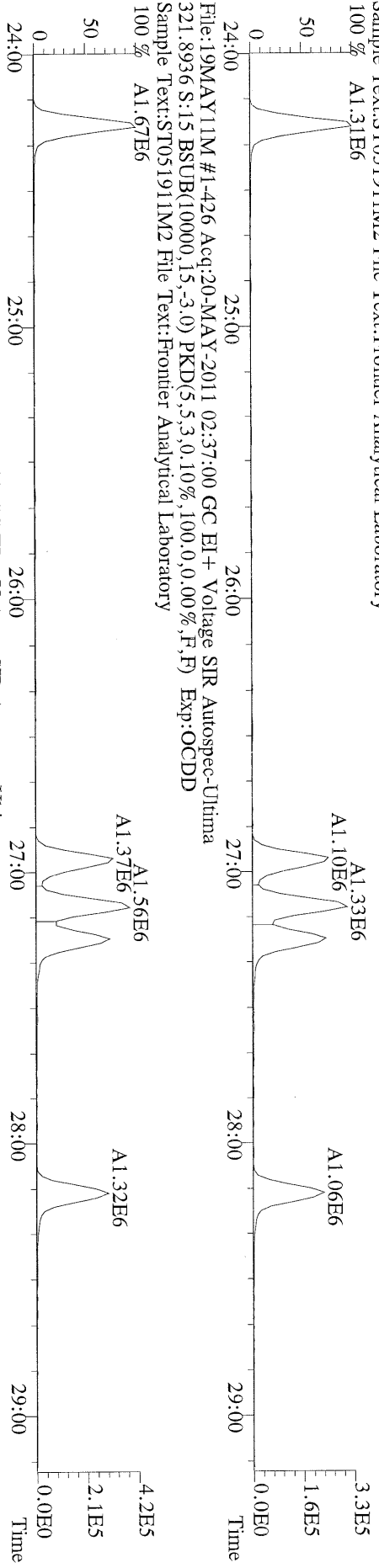




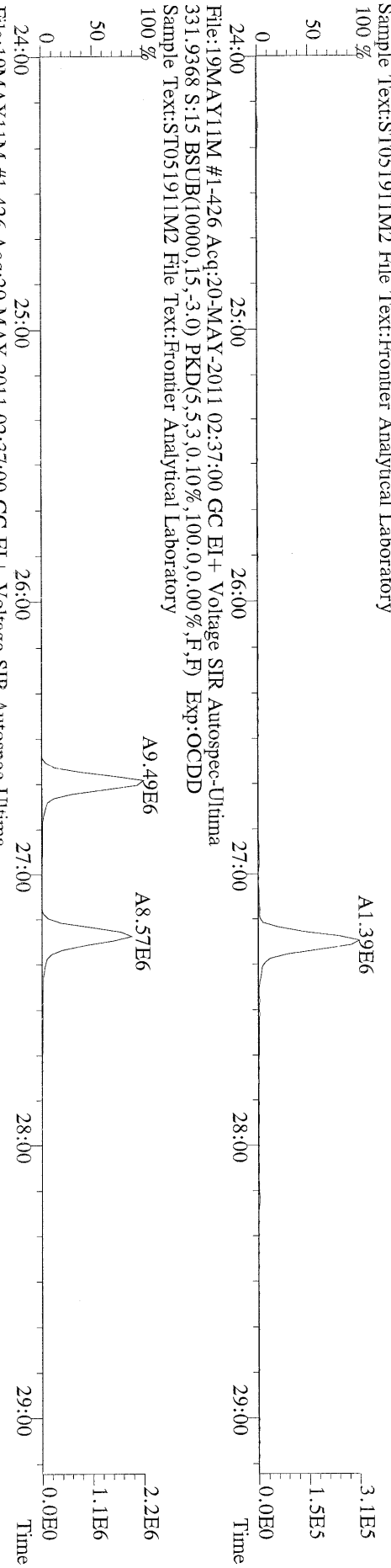
File:19MAY11M #1-426 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Utima
321.8936 S:15 Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



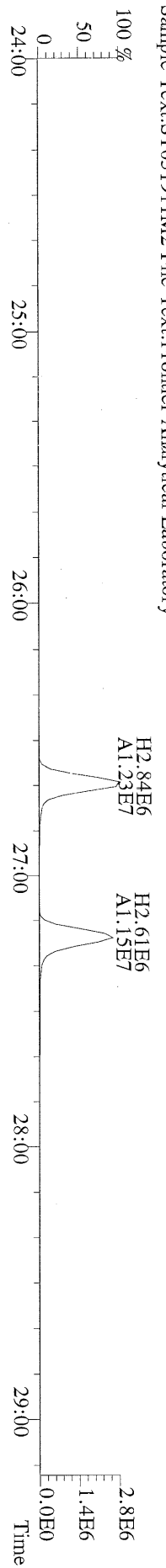
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319.8965 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



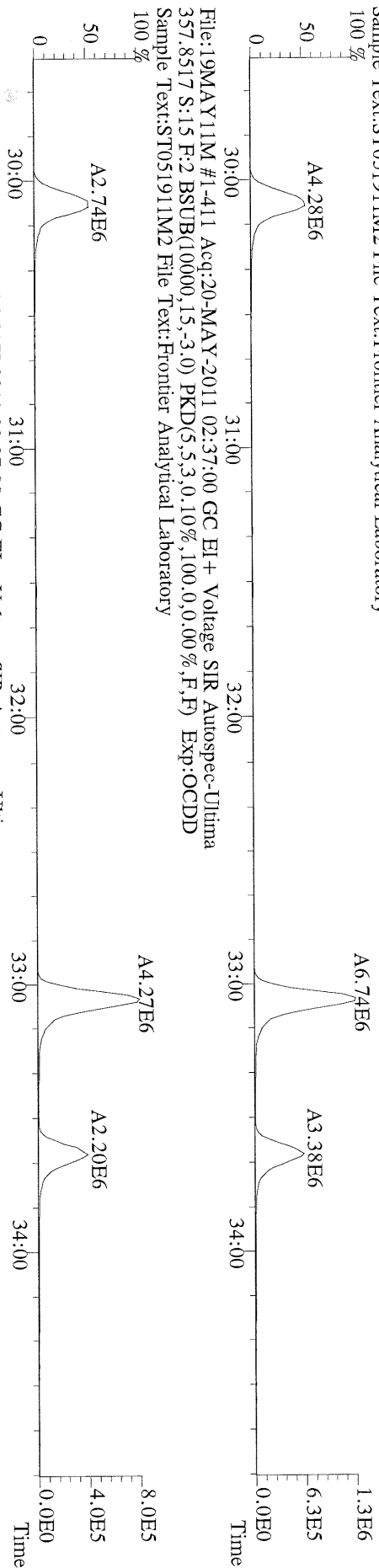
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327.8847 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



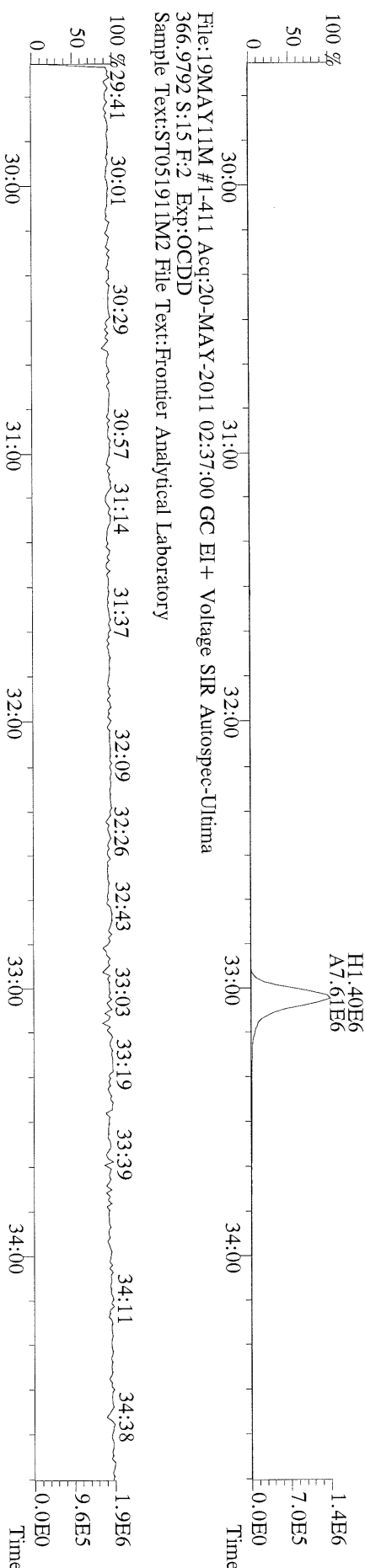
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333.9339 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



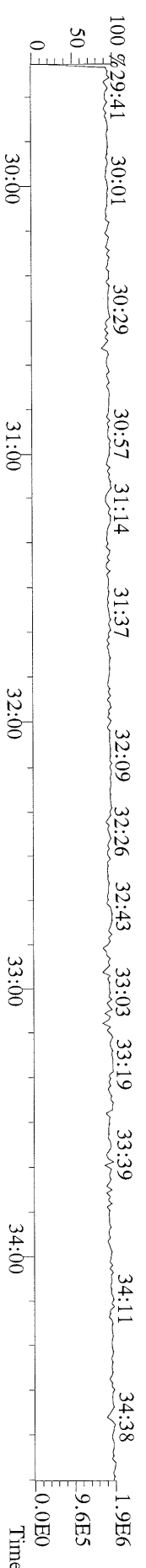
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 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



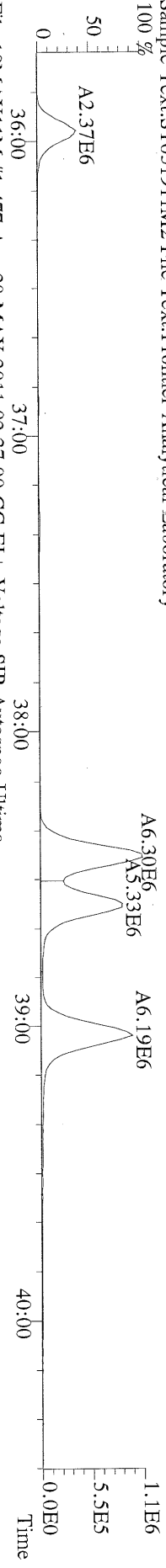
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 367.8949 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



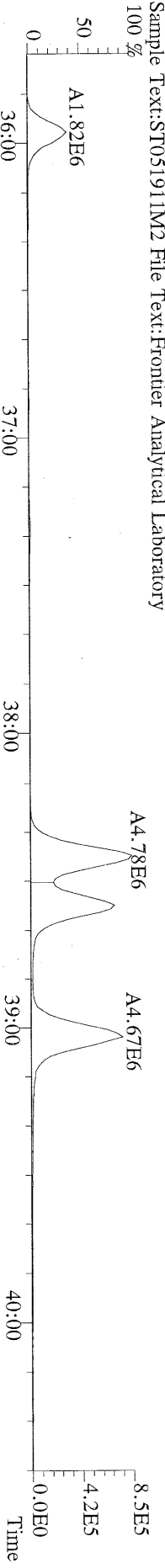
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 366.9792 S:15 F:2 Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



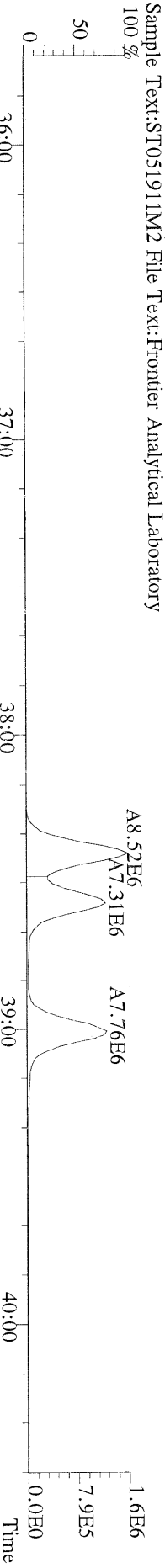
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 389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



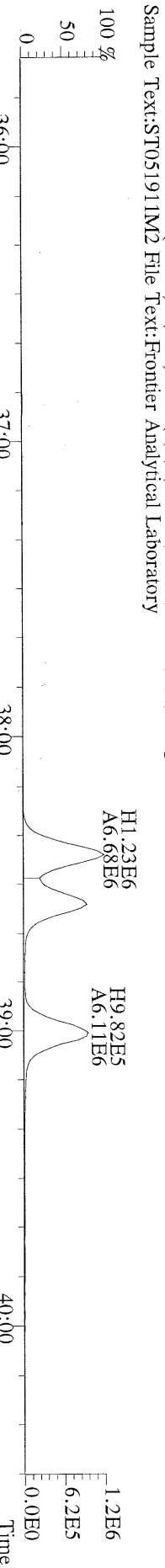
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 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



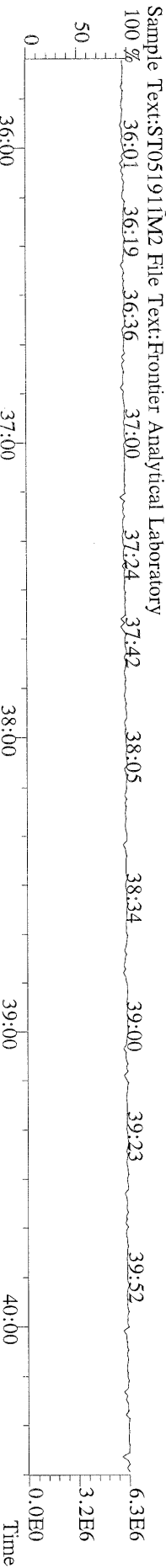
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 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



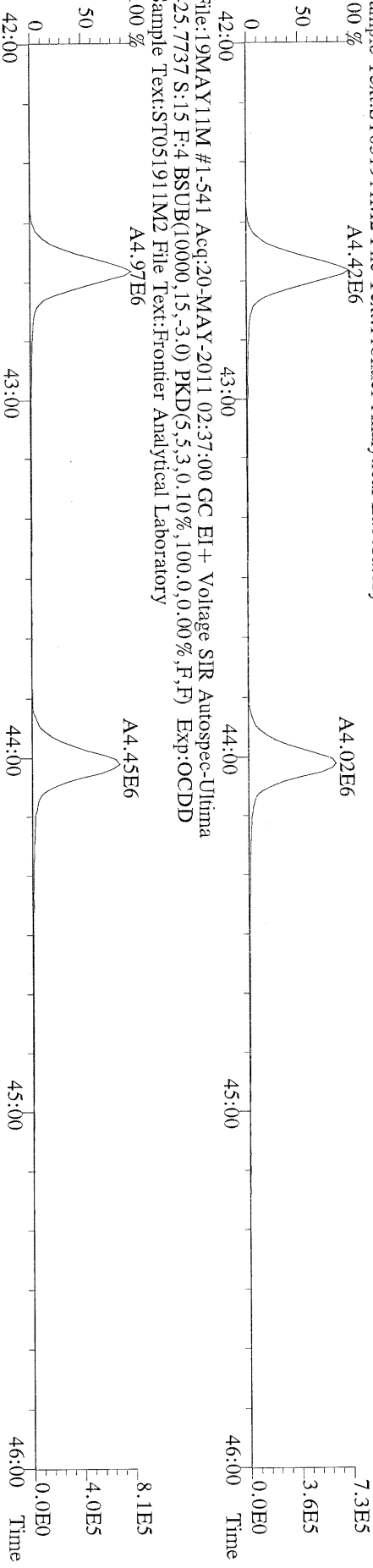
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 403.8530 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5.3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



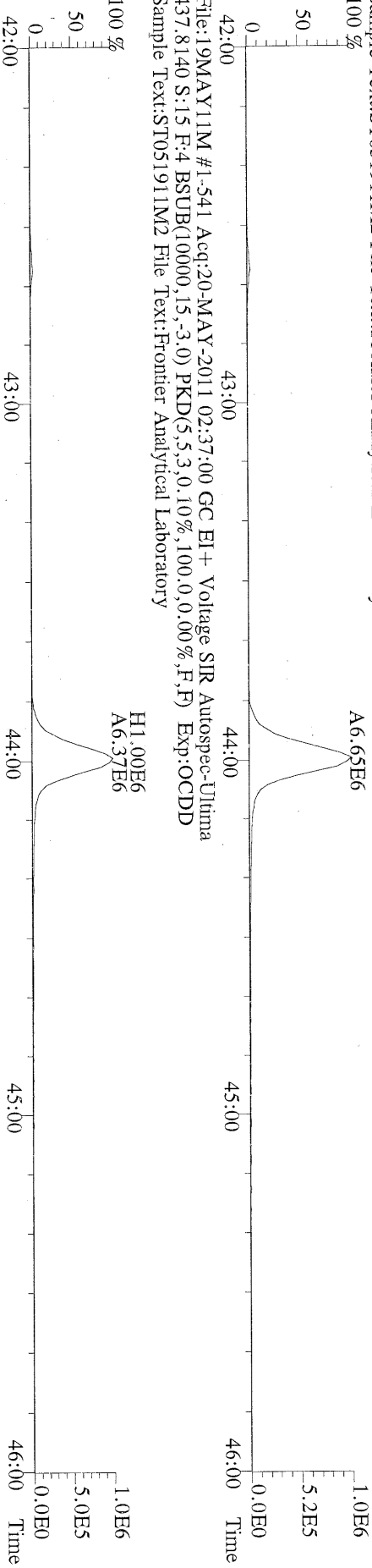
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 380.9760 S:15 F:3 Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



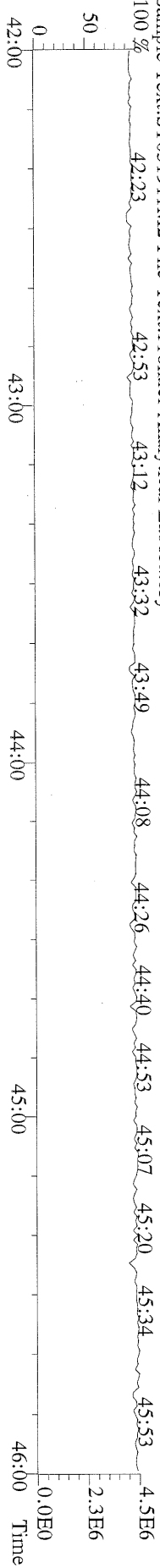
File:19MAY11M #1-541 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 423.7767 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory
 100 %



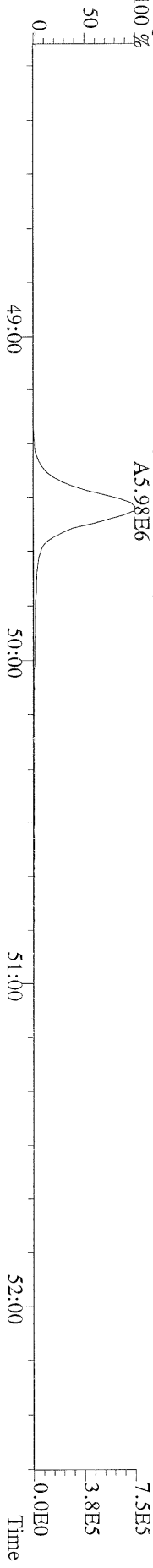
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 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory
 100 %



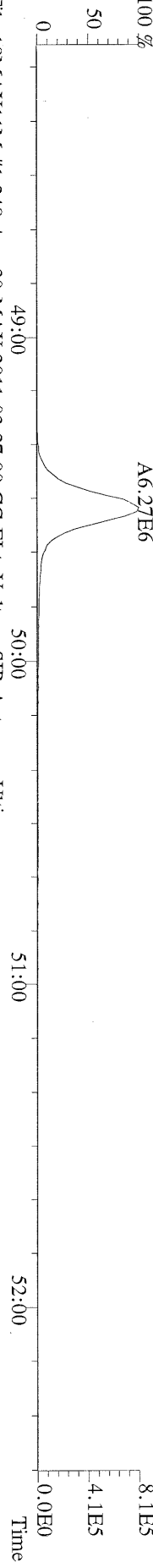
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 100 %



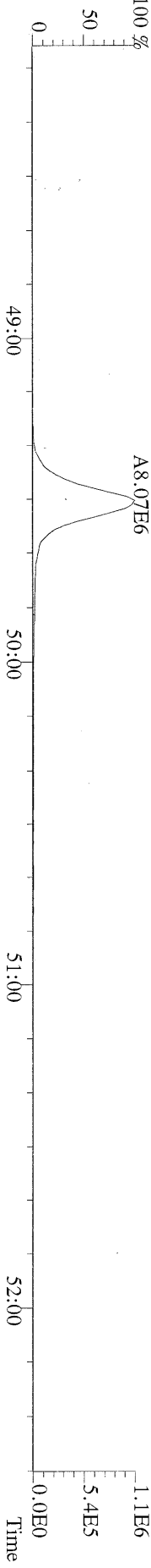
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457.7377 S:15 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
100 %



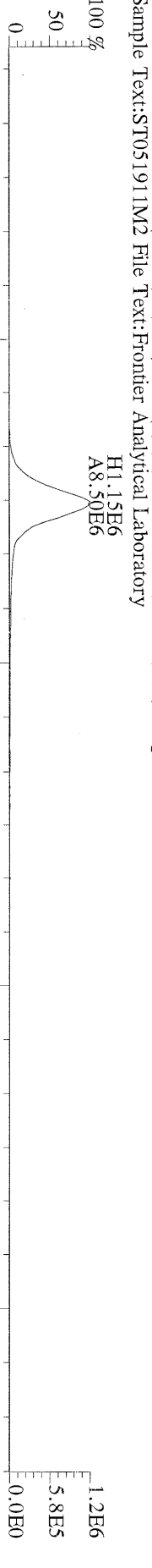
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459.7348 S:15 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
100 %



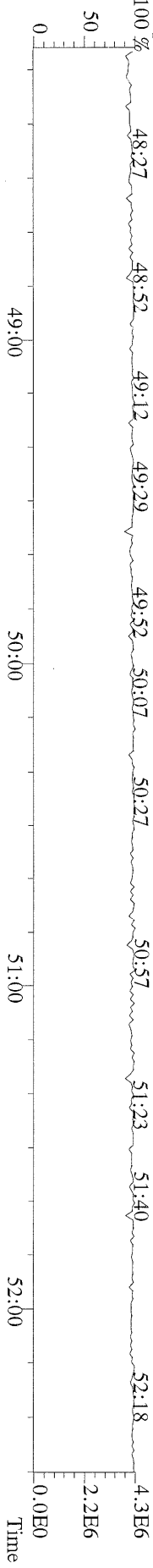
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469.7780 S:15 F:5 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
100 %



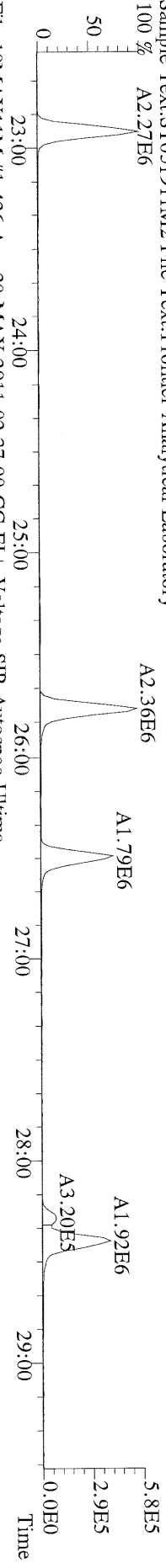
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Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



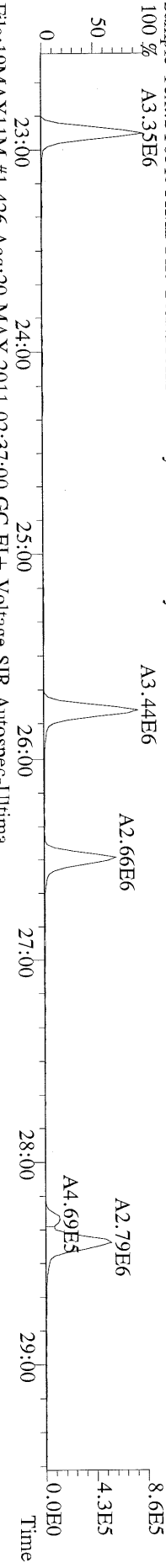
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Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
100 %



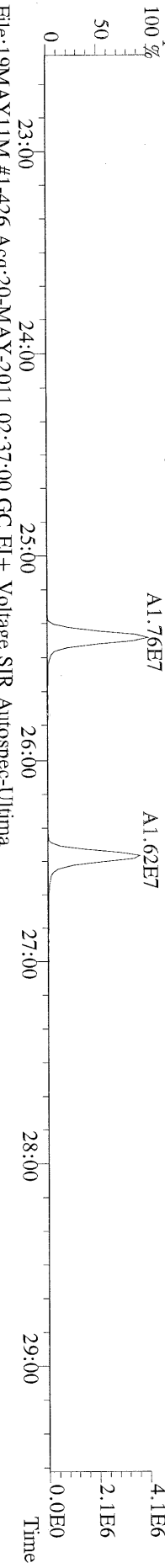
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 303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



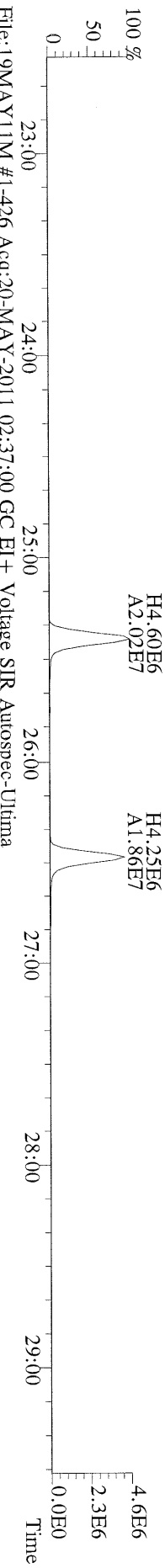
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 305.8887 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



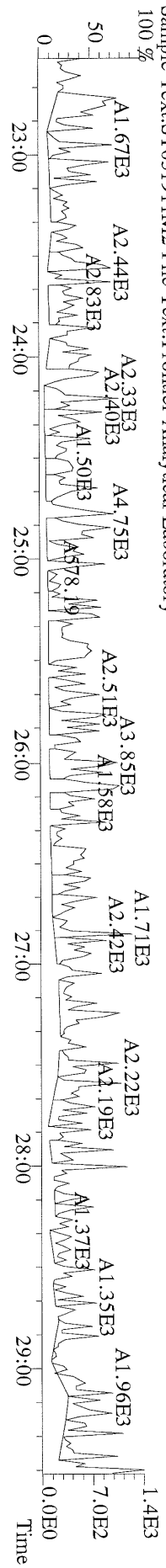
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 315.9419 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



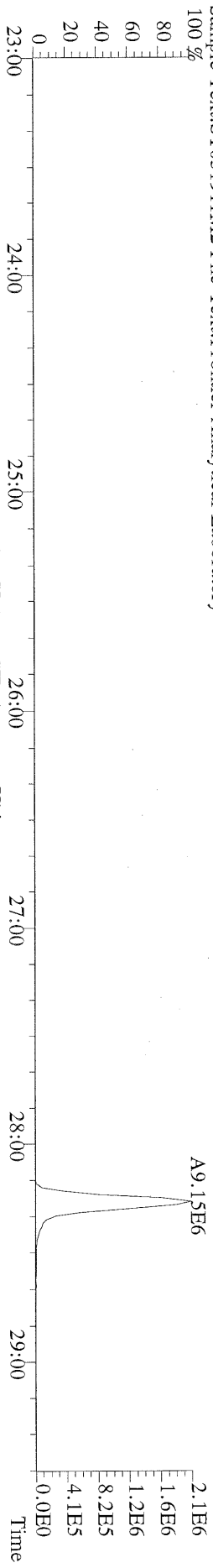
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 317.9389 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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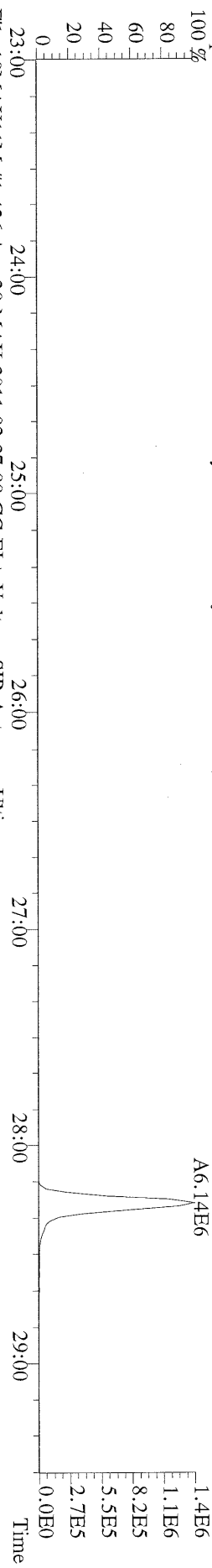
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 375.8364 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
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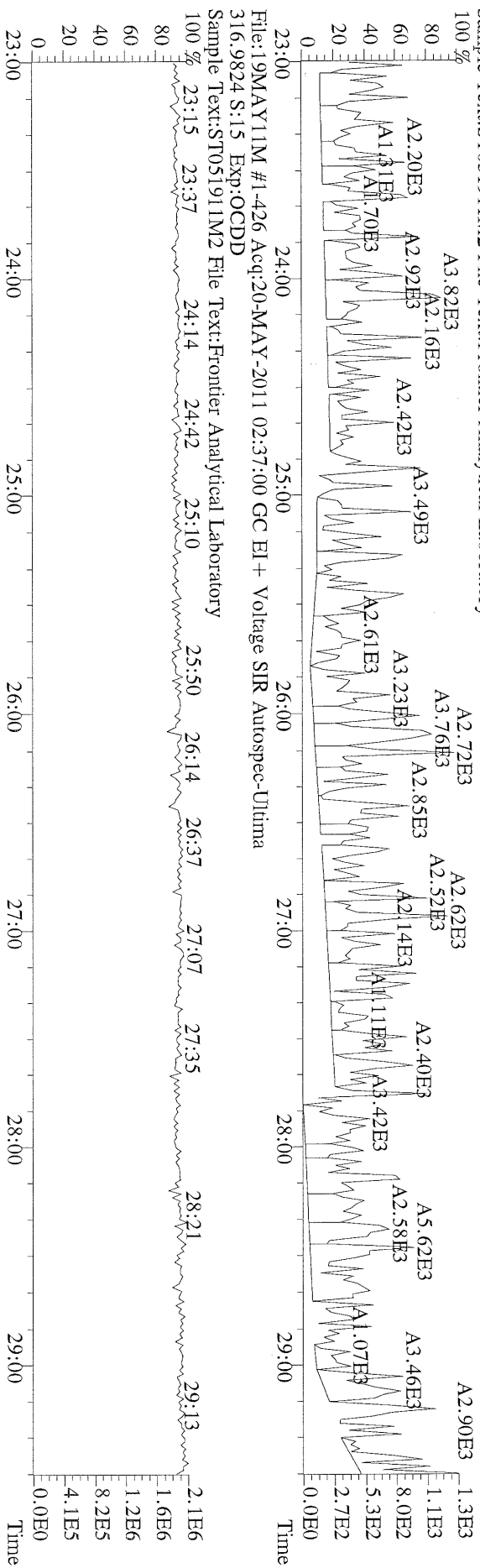
File:19MAY11M #1-426 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Utima
 339.8597 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



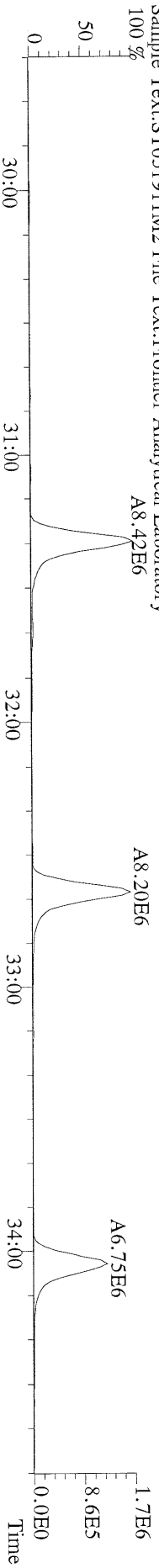
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 341.8568 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



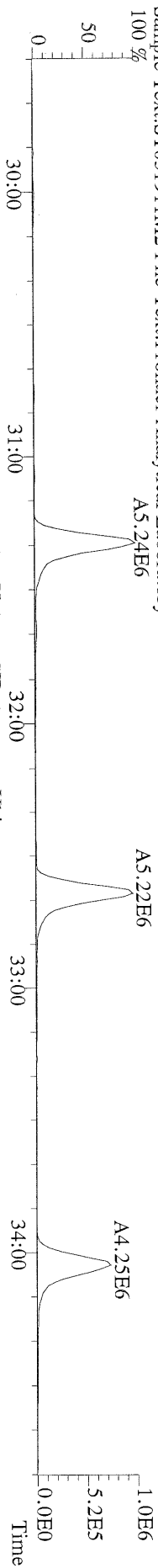
File:19MAY11M #1-426 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Utima
 409.7974 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



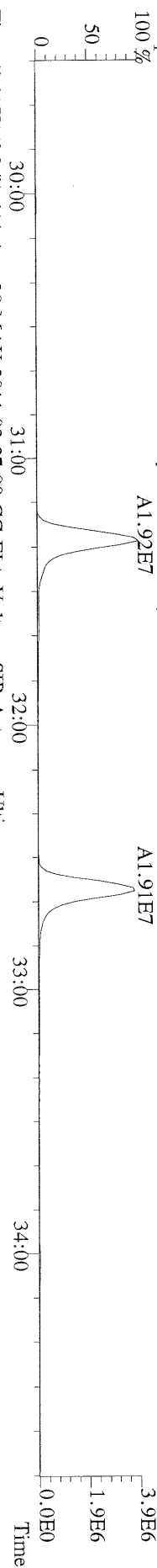
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 339.8597 S:15 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



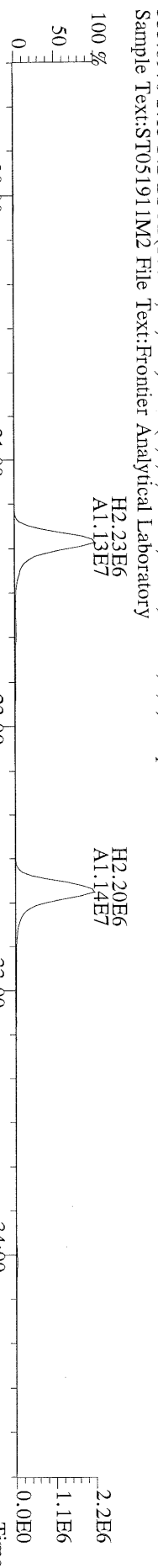
File:19MAY11M #1-411 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:15 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



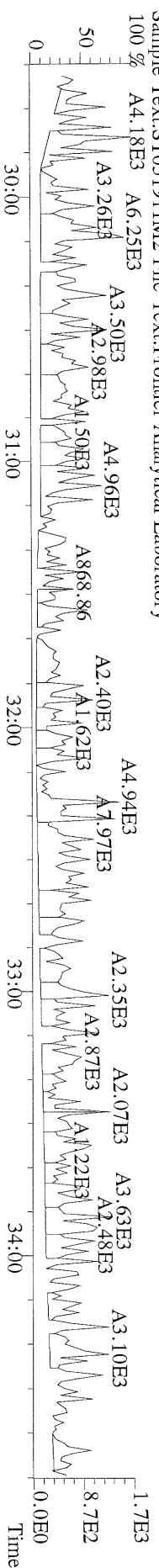
File:19MAY11M #1-411 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 S:15 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



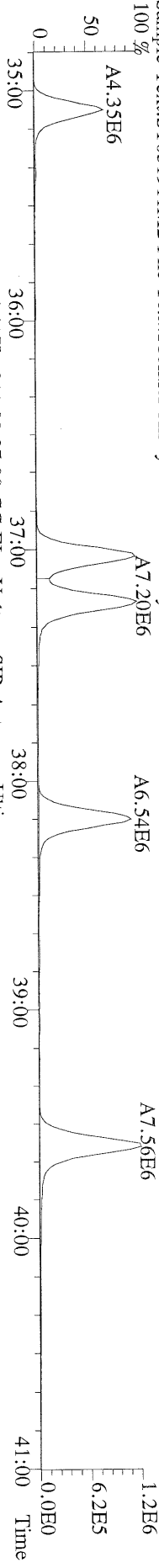
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 353.8970 S:15 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



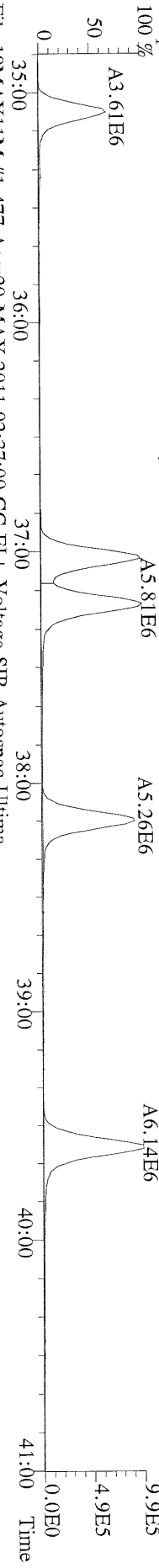
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 409.7974 S:15 F:2 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



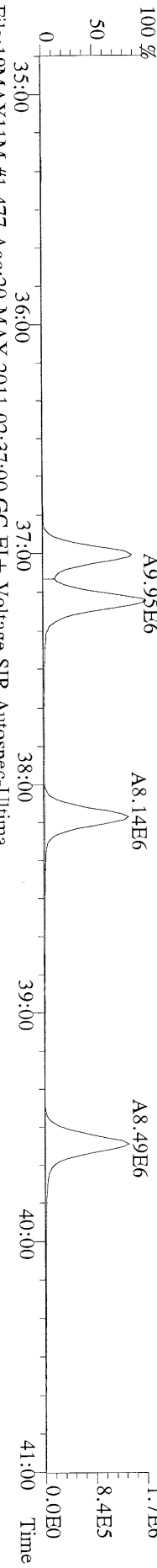
File:19MAY11M #1-477 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory



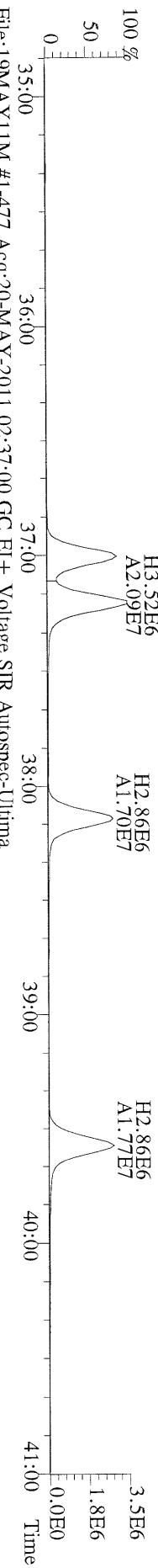
File:19MAY11M #1-477 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory



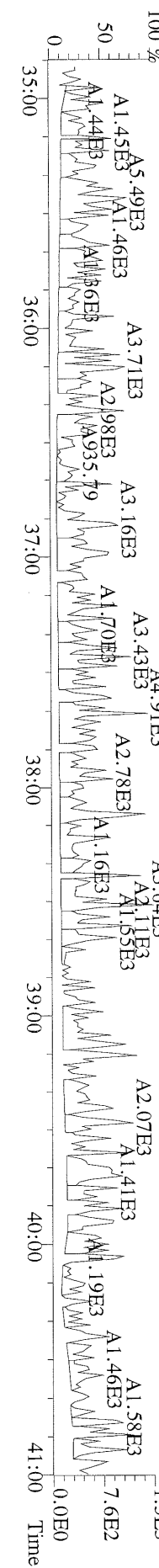
File:19MAY11M #1-477 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 383.8639 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory



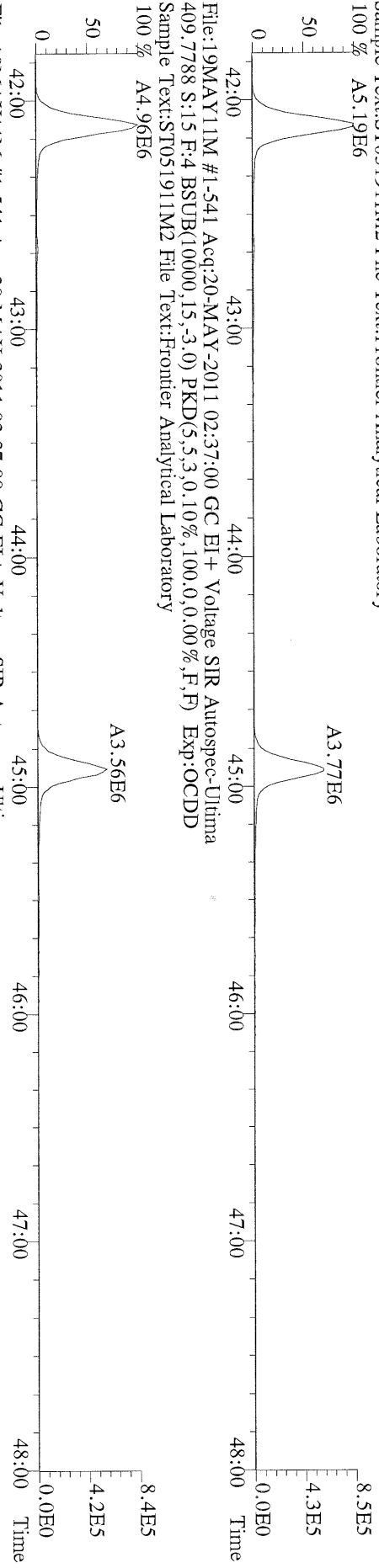
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 385.8610 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory



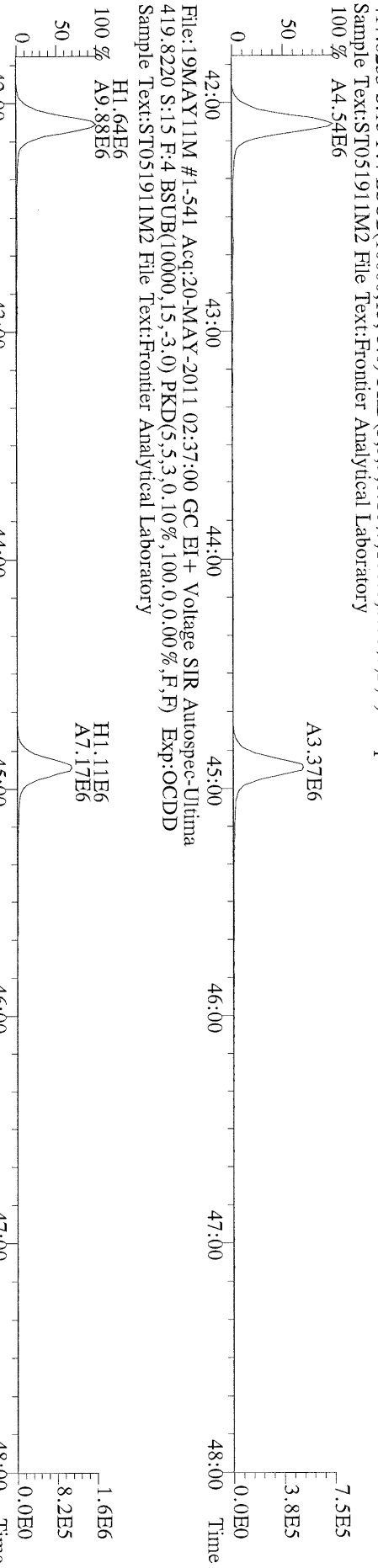
File:19MAY11M #1-477 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 445.7555 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Fronter Analytical Laboratory



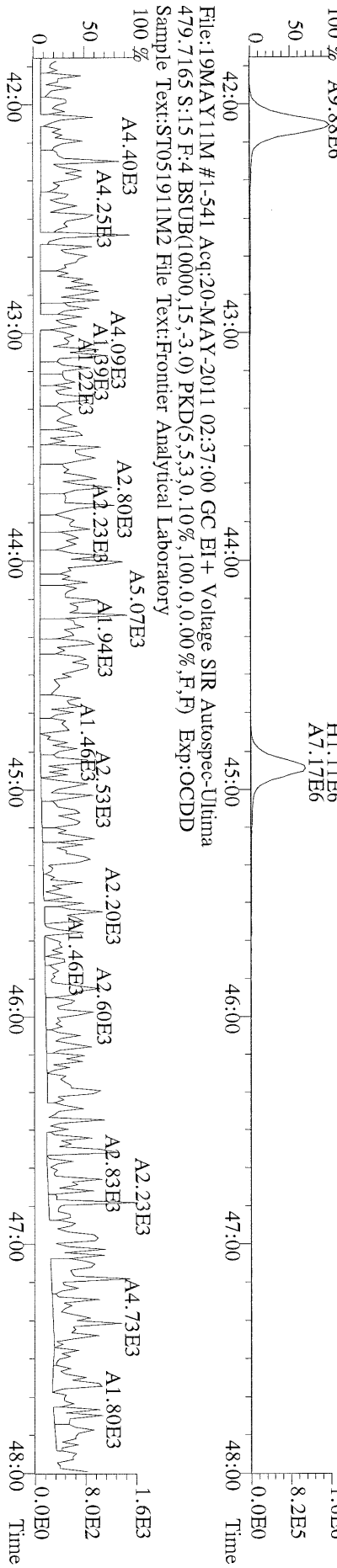
File:19MAYY11M #1-541 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 407.7818 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
 100% A5.19E6



File:19MAYY11M #1-541 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 417.8253 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
 100% A4.54E6

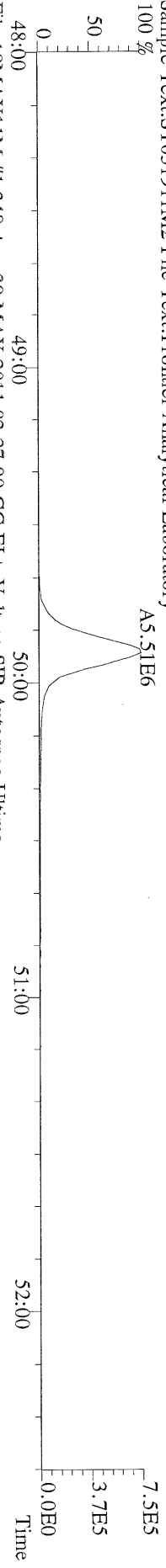


File:19MAYY11M #1-541 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 419.8220 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory
 H1.64E6
 A9.88E6

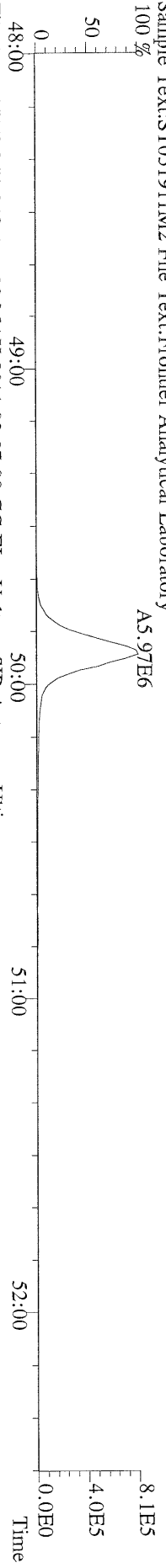


File:19MAYY11M #1-541 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 479.7165 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory

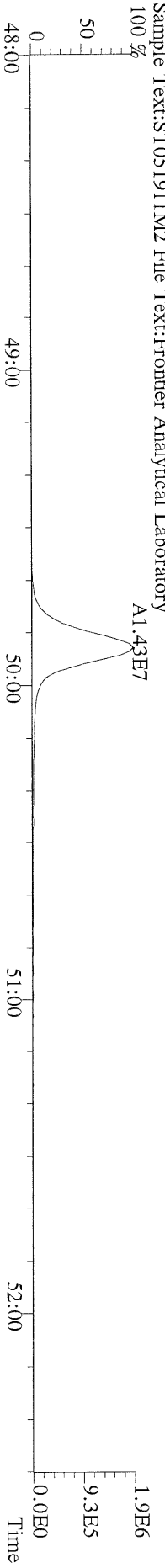
File:19MAYY11M #1-348 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



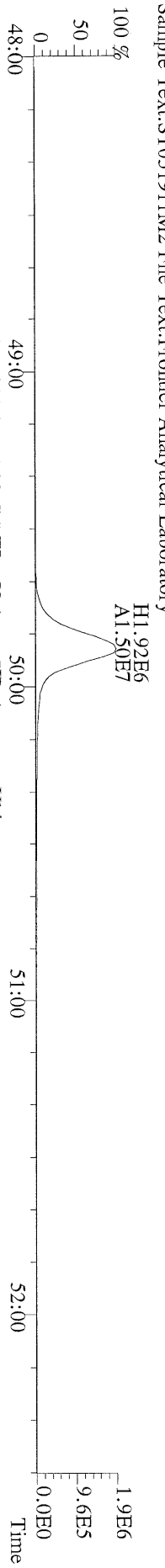
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 443.7398 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory



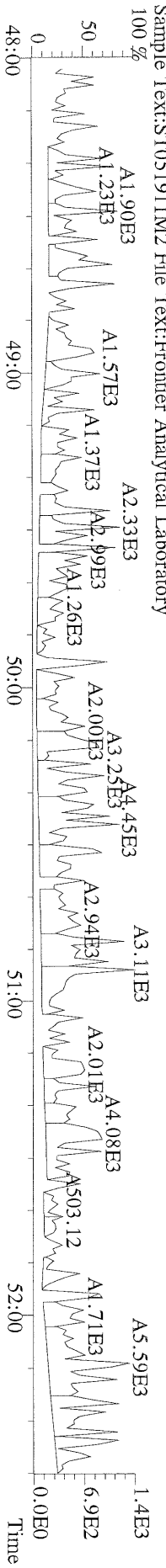
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 453.7831 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory

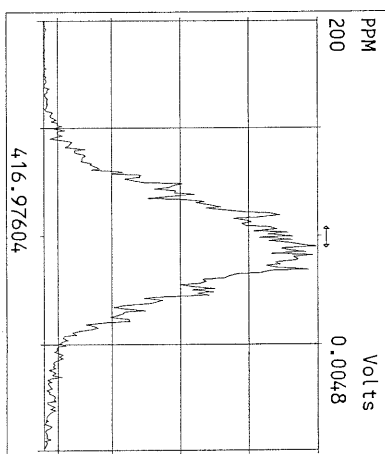
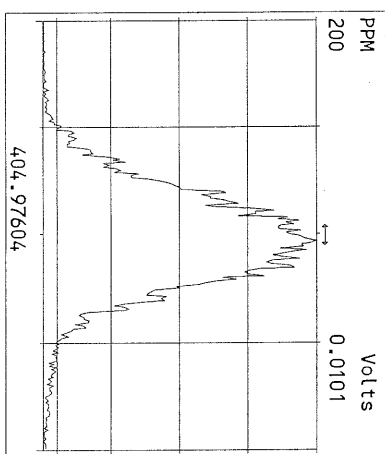
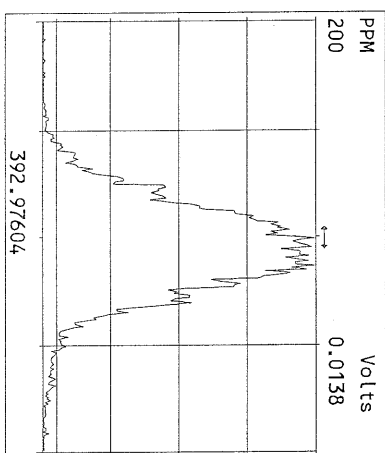
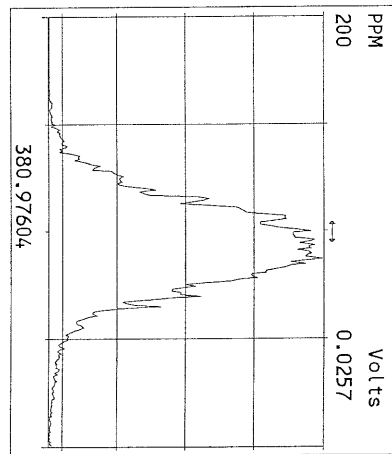
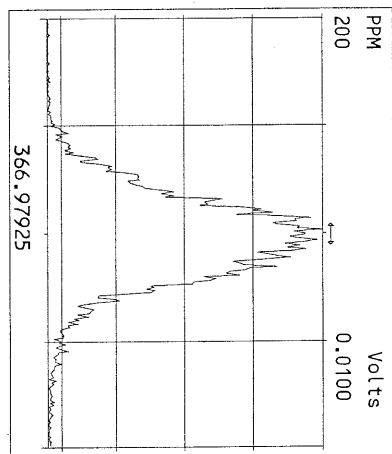
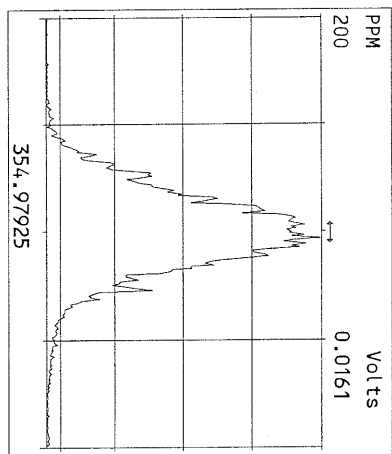
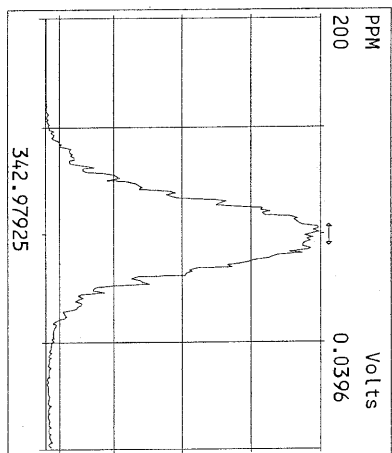
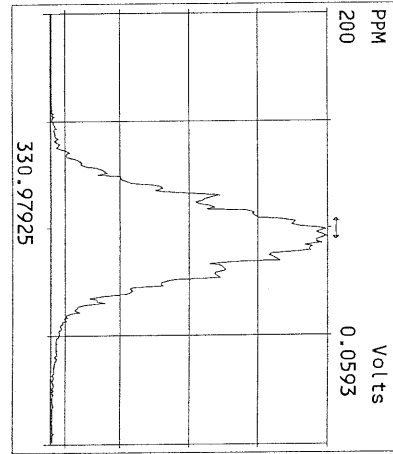
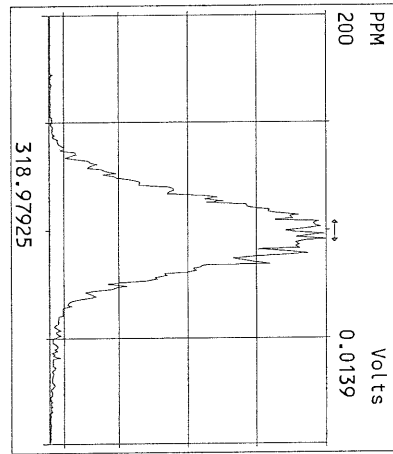
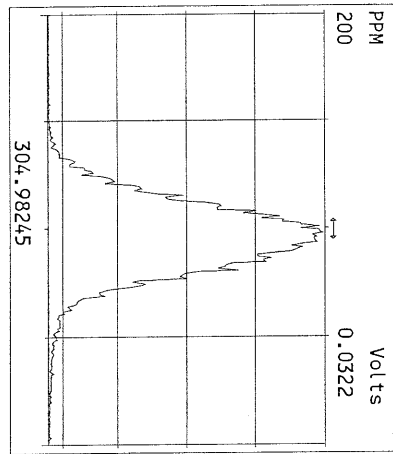
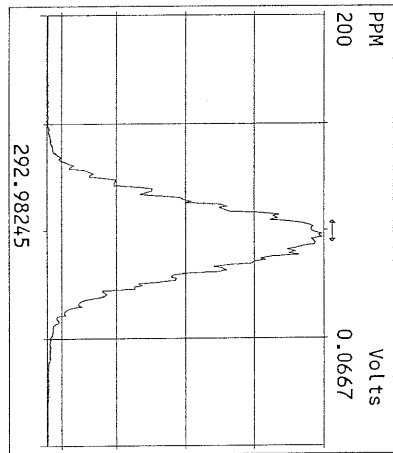


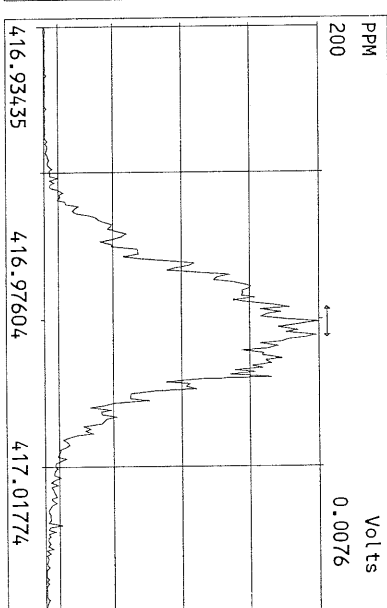
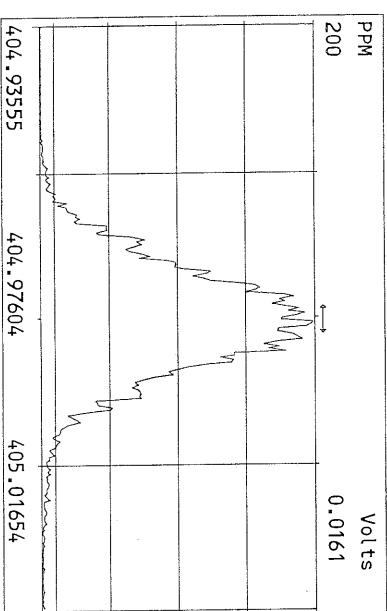
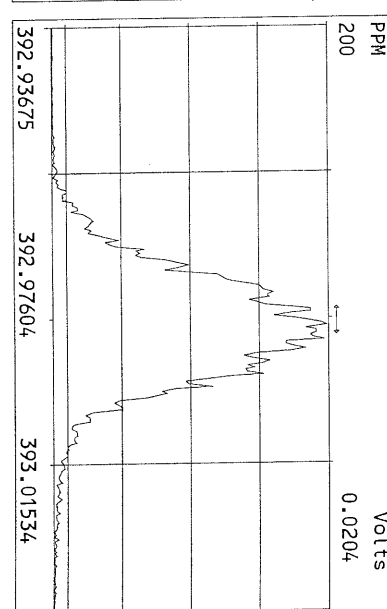
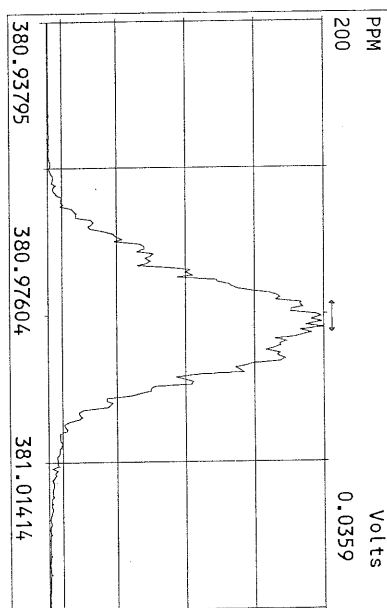
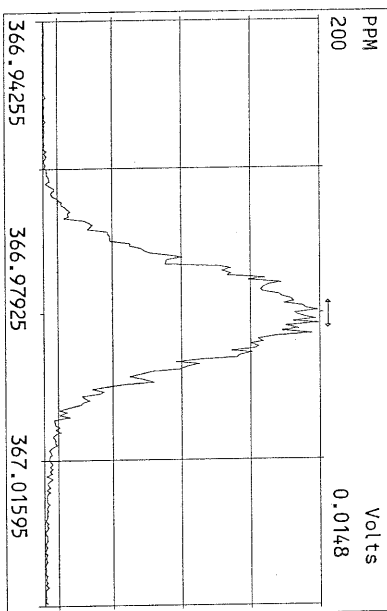
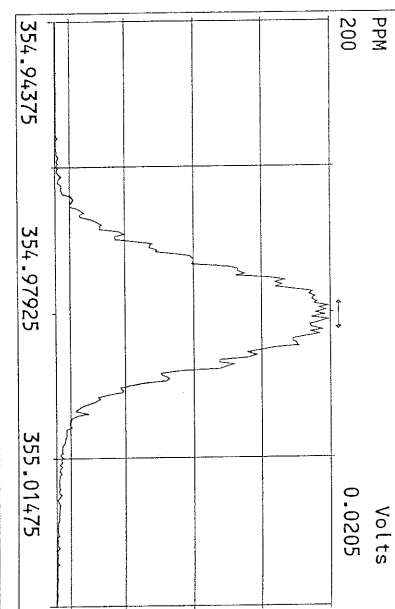
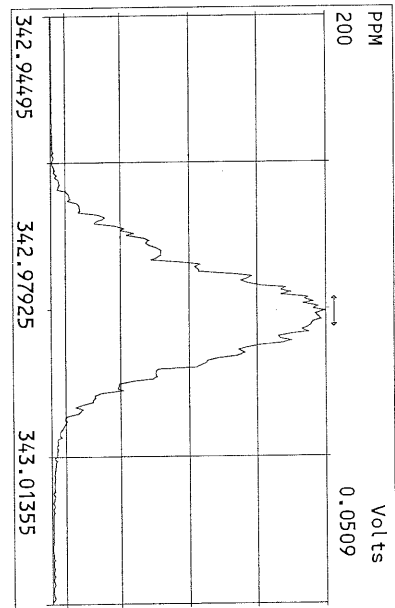
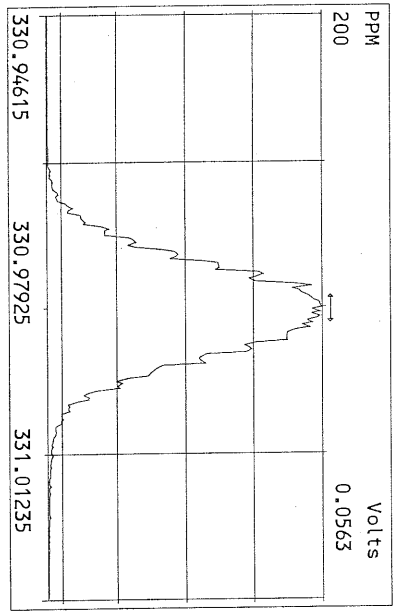
File:19MAYY11M #1-348 Acq:20-MAY-2011 02:37:00 GC EI+ Voltage SIR Autospec-Ultima
 455.7801 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory

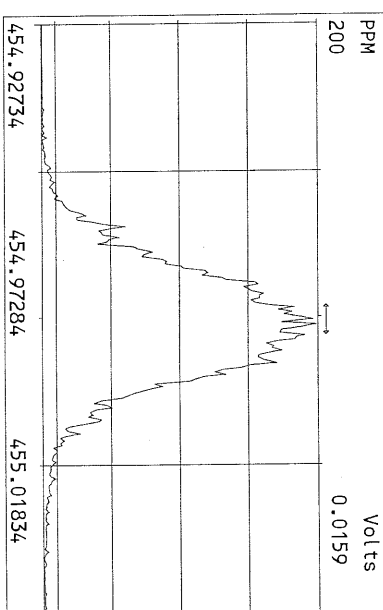
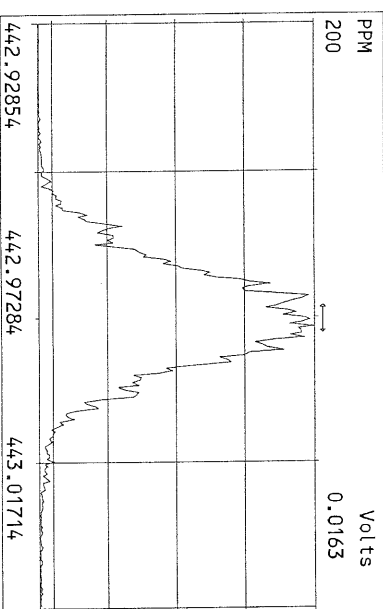
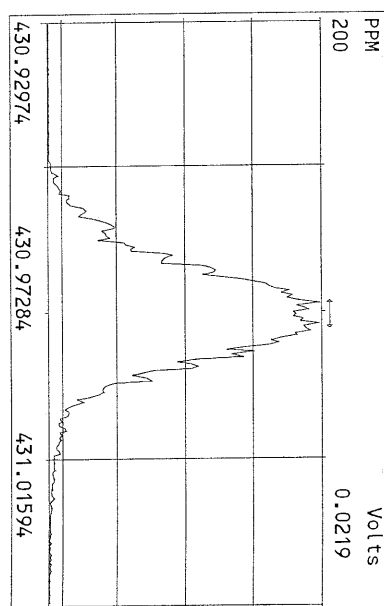
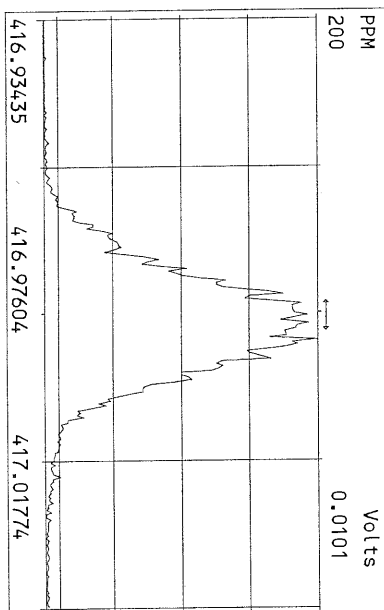
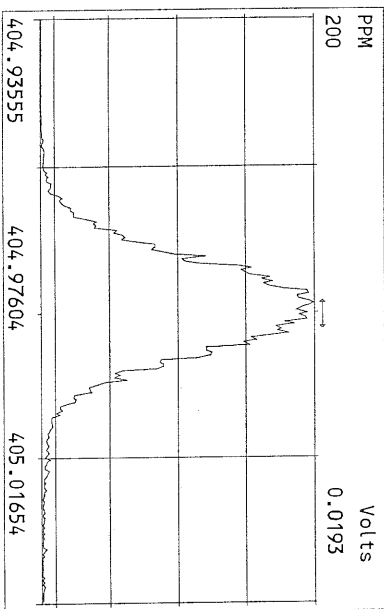
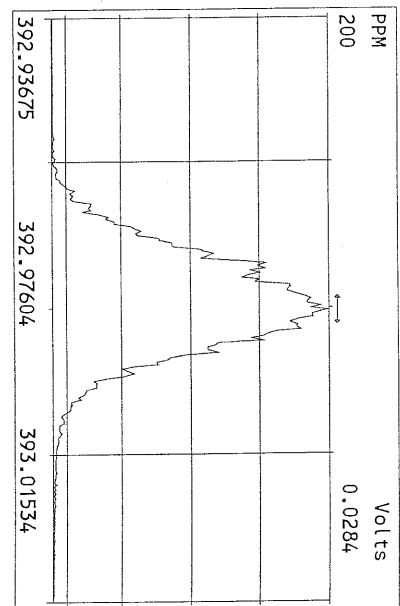
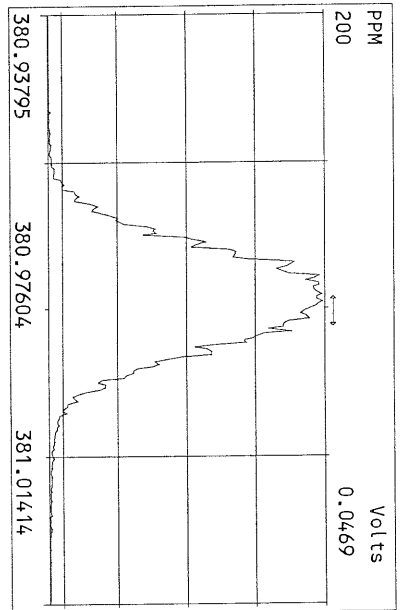
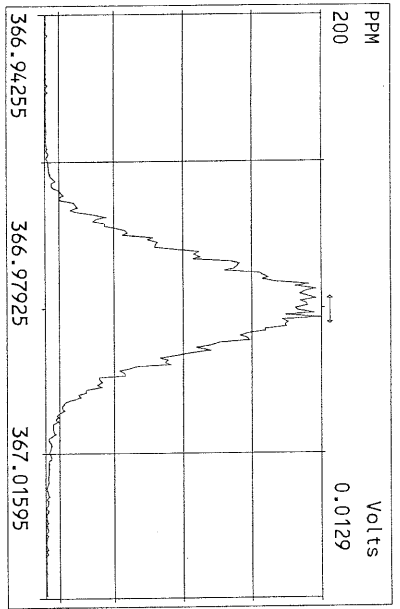


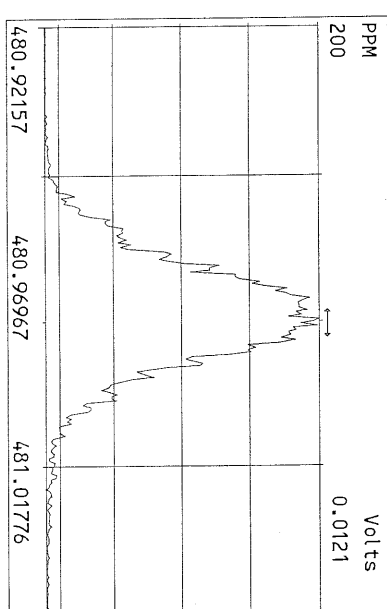
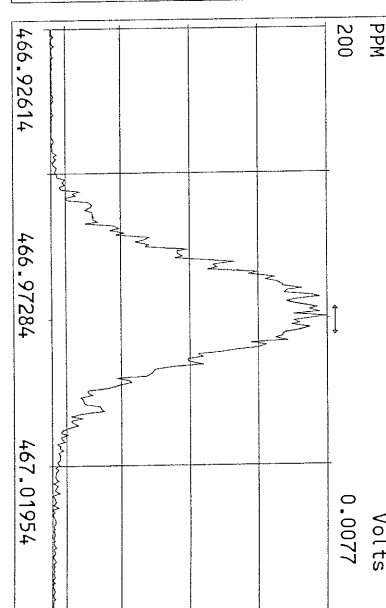
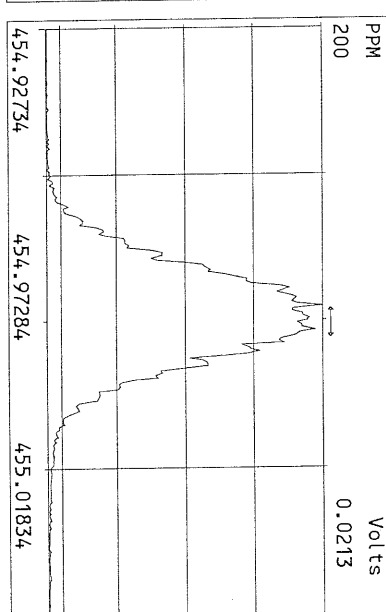
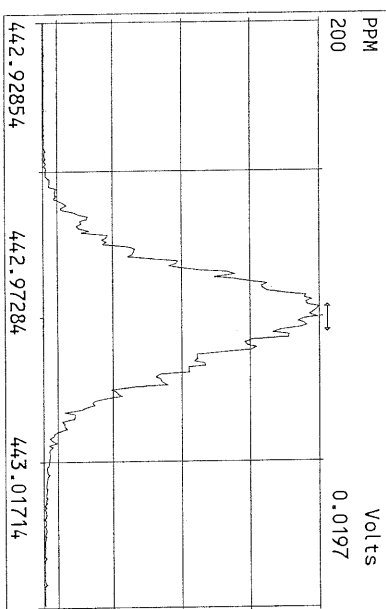
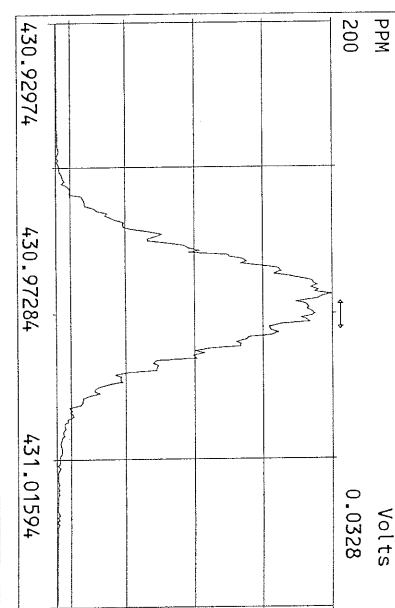
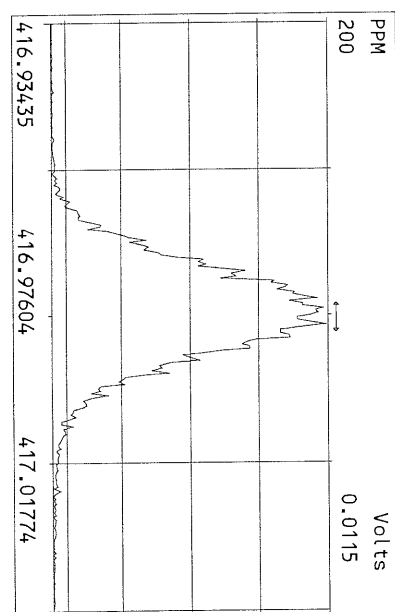
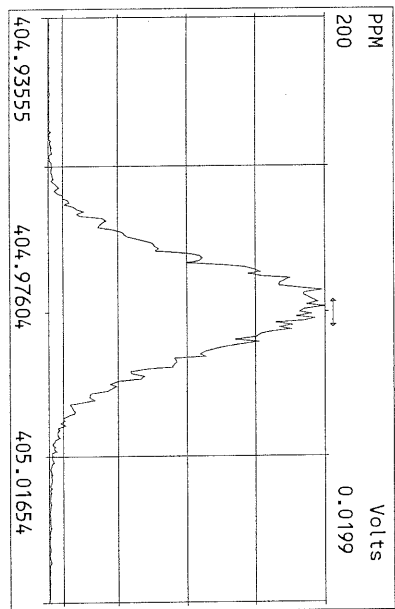
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 513.6775 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST051911M2 File Text:Frontier Analytical Laboratory

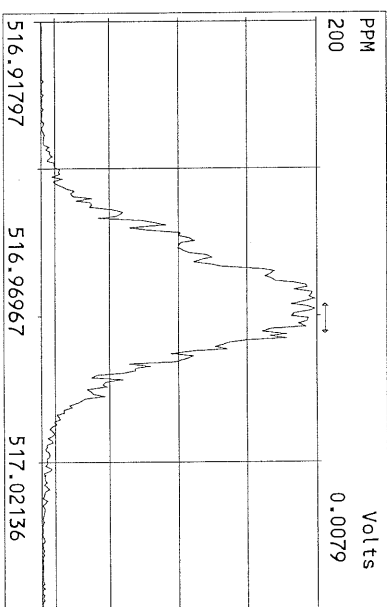
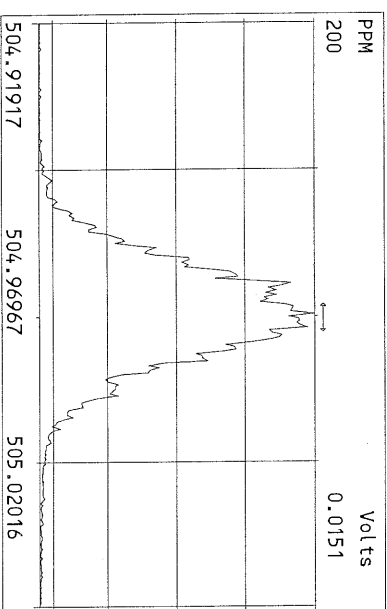
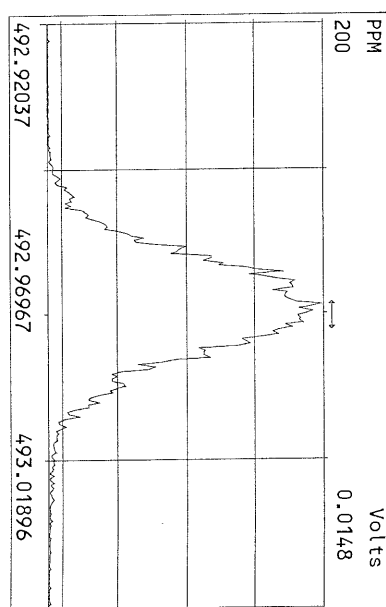
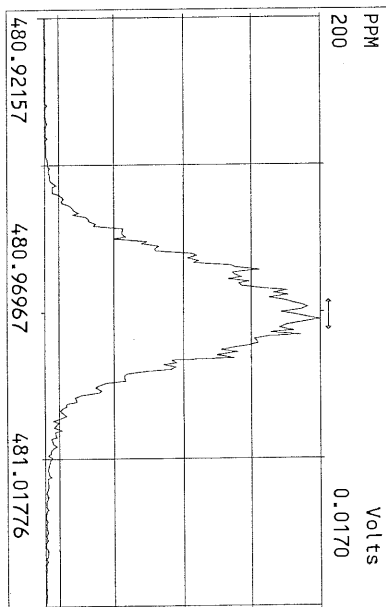
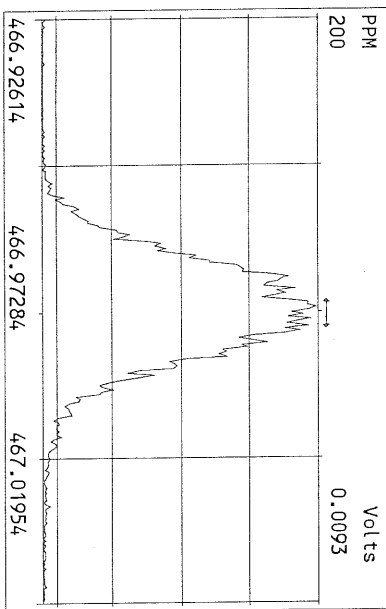
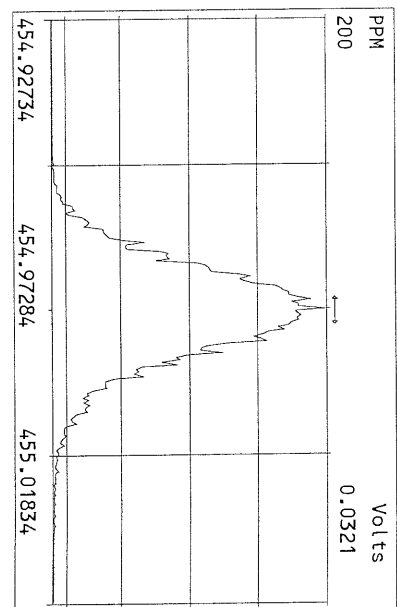
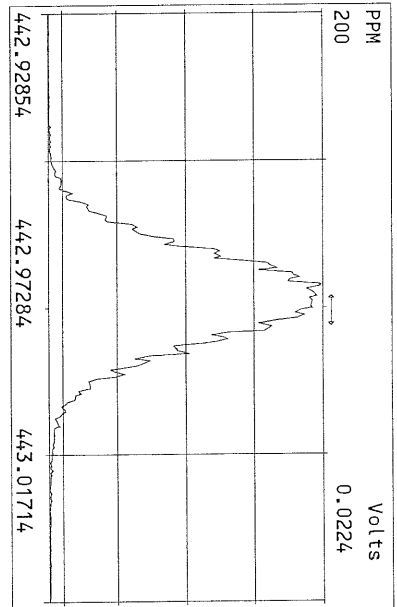
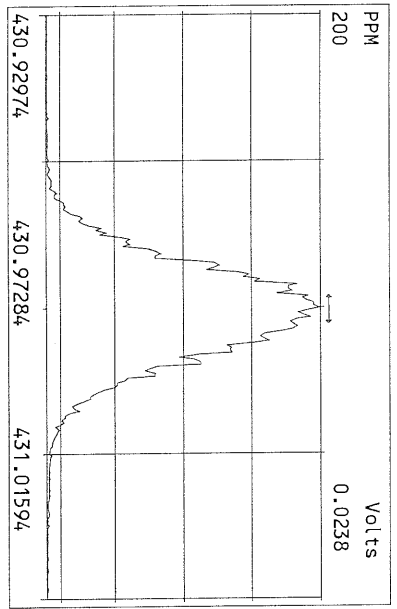














May 23, 2011

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

Dear Ms. Dunninghoo,

Enclosed are the results for Frontier Analytical Laboratory project **6739**. This corresponds to your **Lora Lake Apts RI** project under ARI project number **ST98**. Four aqueous samples were received on 4/29/2011 in good condition. Per your request, a matrix spike and matrix spike duplicate (MS/MSD) were analyzed on sample 6739-004-SA (ARI ID: MW06-042611). All samples were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and furans. The 2005 World Health Organizations toxic equivalency factors were used to calculate the toxic equivalency (TEQs) on your report. Analytical Resources Incorporated requested a Level IV report and a turnaround time of fifteen (15) business days for project **6739**.

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 original chain of custody, our sample login form and 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. The Level I summary and the Electronic Data Deliverables (EDDs) have been sent to you via email. A hardcopy of the Level IV data package has been sent to you via OnTrac overnight delivery. The enclosed 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 **6739**, please contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

A handwritten signature in cursive script that reads "Daniel P. Vickers".

Daniel P. Vickers
Vice President

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: 6739

Received on: 04/29/2011

Project Due: 05/23/2011 Storage: R1

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time
6739-001-SA	1	ST98	MW02-042611	EPA 1613 D/F	Aqueous	04/26/2011	10:20 am
6739-002-SA	1	ST98	MW03-042611	EPA 1613 D/F	Aqueous	04/26/2011	01:25 pm
6739-003-SA	1	ST98	MW13-042611	EPA 1613 D/F	Aqueous	04/26/2011	02:50 pm
6739-004-SA	1	ST98	MW06-042611	EPA 1613 D/F	Aqueous	04/26/2011	04:00 pm
6739-004-MSD	0	ST98	MW06-042611	EPA 1613 D/F	Aqueous	04/26/2011	04:00 pm
6739-004-MS	0	ST98	MW06-042611	EPA 1613 D/F	Aqueous	04/26/2011	04:00 pm

EPA Method 1613
PCDD/F



FAL ID: 6739-001-MB
Client ID: Method Blank
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: pg/L

Acquired: 05-18-2011
2005 WHO TEQ: 0.00

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.866		-	0.215				
1,2,3,7,8-PeCDD	ND	0.894		-	0.317				
1,2,3,4,7,8-HxCDD	ND	1.19		-	0.326				
1,2,3,6,7,8-HxCDD	ND	1.50		-	0.424	Total TCDD	ND	0.866	
1,2,3,7,8,9-HxCDD	ND	1.30		-	0.367	Total PeCDD	ND	0.894	
1,2,3,4,6,7,8-HpCDD	ND	2.13		-	0.497	Total HxCDD	ND	1.50	
OCDD	ND	2.71		-	1.41	Total HpCDD	ND	2.13	
2,3,7,8-TCDF	ND	0.712		-	0.209				
1,2,3,7,8-PeCDF	ND	1.26		-	0.235				
2,3,4,7,8-PeCDF	ND	1.27		-	0.243				
1,2,3,4,7,8-HxCDF	ND	0.892		-	0.255				
1,2,3,6,7,8-HxCDF	ND	0.849		-	0.248				
2,3,4,6,7,8-HxCDF	ND	0.831		-	0.262				
1,2,3,7,8,9-HxCDF	ND	0.768		-	0.258	Total TCDF	ND	0.712	
1,2,3,4,6,7,8-HpCDF	ND	1.09		-	0.324	Total PeCDF	ND	1.27	
1,2,3,4,7,8,9-HpCDF	ND	1.39		-	0.490	Total HxCDF	ND	0.892	
OCDF	ND	2.46		-	0.805	Total HpCDF	ND	1.39	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	98.2	25.0 - 164	
13C-1,2,3,7,8-PeCDD	89.7	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	96.1	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	92.0	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	94.4	23.0 - 140	
13C-OCDD	99.8	17.0 - 157	
13C-2,3,7,8-TCDF	98.3	24.0 - 169	
13C-1,2,3,7,8-PeCDF	86.4	24.0 - 185	
13C-2,3,4,7,8-PeCDF	90.3	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	101	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	98.8	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	102	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	98.6	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	100	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	99.2	26.0 - 138	
13C-OCDF	93.0	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	99.0	35.0 - 197	
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- 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: [Signature]
Date: 5/19/11

Reviewed By: [Signature]
Date: 5/19/11

EPA Method 1613
PCDD/F



FAL ID: 6739-001-OPR
Client ID: OPR
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: NA
Amount: 1.000 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: ng/ml

Acquired: 05-18-2011
2005 WHO TEQ: NA


Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	10.3	6.70 - 15.8	
1,2,3,7,8-PeCDD	56.8	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	56.2	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	56.9	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	58.0	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	58.8	35.0 - 70.0	
OCDD	111	78.0 - 144	
2,3,7,8-TCDF	10.7	7.50 - 15.8	
1,2,3,7,8-PeCDF	57.4	40.0 - 67.0	
2,3,4,7,8-PeCDF	57.2	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	56.1	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	56.9	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	57.7	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	58.1	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	56.8	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	56.2	39.0 - 69.0	
OCDF	119	63.0 - 170	

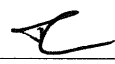
Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	95.7	20.0 - 175	
13C-1,2,3,7,8-PeCDD	80.4	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	84.0	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	78.7	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	76.6	26.0 - 166	
13C-OCDD	81.1	13.0 - 198	
13C-2,3,7,8-TCDF	96.9	22.0 - 152	
13C-1,2,3,7,8-PeCDF	84.6	21.0 - 192	
13C-2,3,4,7,8-PeCDF	88.1	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	88.1	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	86.4	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	88.8	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	84.1	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	81.4	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	81.0	20.0 - 186	
13C-OCDF	77.8	13.0 - 198	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	100	31.0 - 191	
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- 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: 5/19/11

Reviewed By: 
Date: 5/19/11

EPA Method 1613
PCDD/F



FAL ID: 6739-001-SA
Client ID: MW02-042611
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: 04-29-2011
Amount: 1.002 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: pg/L

Acquired: 05-18-2011
2005 WHO TEQ: 0.00275

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.981		-	0.215				
1,2,3,7,8-PeCDD	ND	1.19		-	0.317				
1,2,3,4,7,8-HxCDD	ND	1.76		-	0.326				
1,2,3,6,7,8-HxCDD	ND	2.24		-	0.424	Total TCDD	ND	0.981	
1,2,3,7,8,9-HxCDD	ND	1.93		-	0.367	Total PeCDD	ND	1.19	
1,2,3,4,6,7,8-HpCDD	ND	2.49		-	0.497	Total HxCDD	ND	2.24	
OCDD	9.17	-	J	0.00275	1.41	Total HpCDD	ND	2.49	
2,3,7,8-TCDF	ND	0.749		-	0.209				
1,2,3,7,8-PeCDF	ND	1.31		-	0.235				
2,3,4,7,8-PeCDF	ND	1.32		-	0.243				
1,2,3,4,7,8-HxCDF	ND	1.20		-	0.255				
1,2,3,6,7,8-HxCDF	ND	1.14		-	0.248				
2,3,4,6,7,8-HxCDF	ND	1.17		-	0.262				
1,2,3,7,8,9-HxCDF	ND	1.05		-	0.258	Total TCDF	ND	0.749	
1,2,3,4,6,7,8-HpCDF	ND	1.21		-	0.324	Total PeCDF	ND	1.32	
1,2,3,4,7,8,9-HpCDF	ND	1.53		-	0.490	Total HxCDF	ND	1.20	
OCDF	ND	2.37		-	0.805	Total HpCDF	ND	1.53	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	101	25.0 - 164	
13C-1,2,3,7,8-PeCDD	91.2	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	97.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	95.1	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	98.8	23.0 - 140	
13C-OCDD	111	17.0 - 157	
13C-2,3,7,8-TCDF	102	24.0 - 169	
13C-1,2,3,7,8-PeCDF	92.7	24.0 - 185	
13C-2,3,4,7,8-PeCDF	94.0	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	106	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	101	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	104	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	103	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	106	26.0 - 138	
13C-OCDF	99.7	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	97.9	35.0 - 197
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- 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: [Signature]
Date: 5/19/11

Reviewed By: [Signature]
Date: 5/19/11

EPA Method 1613
PCDD/F



FAL ID: 6739-002-SA
Client ID: MW03-042611
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: 04-29-2011
Amount: 1.035 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: pg/L

Acquired: 05-18-2011
2005 WHO TEQ: 0.00

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.902		-	0.215				
1,2,3,7,8-PeCDD	ND	1.35		-	0.317				
1,2,3,4,7,8-HxCDD	ND	1.51		-	0.326				
1,2,3,6,7,8-HxCDD	ND	1.92		-	0.424	Total TCDD	ND	0.902	
1,2,3,7,8,9-HxCDD	ND	1.66		-	0.367	Total PeCDD	ND	1.35	
1,2,3,4,6,7,8-HpCDD	ND	2.05		-	0.497	Total HxCDD	ND	1.92	
OCDD	ND	2.34		-	1.41	Total HpCDD	ND	2.05	
2,3,7,8-TCDF	ND	0.914		-	0.209				
1,2,3,7,8-PeCDF	ND	1.40		-	0.235				
2,3,4,7,8-PeCDF	ND	1.48		-	0.243				
1,2,3,4,7,8-HxCDF	ND	1.04		-	0.255				
1,2,3,6,7,8-HxCDF	ND	1.03		-	0.248				
2,3,4,6,7,8-HxCDF	ND	1.04		-	0.262				
1,2,3,7,8,9-HxCDF	ND	0.951		-	0.258	Total TCDF	ND	0.914	
1,2,3,4,6,7,8-HpCDF	ND	1.15		-	0.324	Total PeCDF	ND	1.48	
1,2,3,4,7,8,9-HpCDF	ND	1.52		-	0.490	Total HxCDF	ND	1.04	
OCDF	ND	2.51		-	0.805	Total HpCDF	ND	1.52	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	105	25.0 - 164	
13C-1,2,3,7,8-PeCDD	94.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	106	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	102	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	108	23.0 - 140	
13C-OCDD	122	17.0 - 157	
13C-2,3,7,8-TCDF	105	24.0 - 169	
13C-1,2,3,7,8-PeCDF	97.8	24.0 - 185	
13C-2,3,4,7,8-PeCDF	95.7	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	112	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	106	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	107	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	107	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	110	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	112	26.0 - 138	
13C-OCDF	106	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD 101 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: [Signature]
Date: 5/19/11

Reviewed By: [Signature]
Date: 5/19/11

EPA Method 1613
PCDD/F



FAL ID: 6739-003-SA
Client ID: MW13-042611
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: 04-29-2011
Amount: 1.000 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: pg/L

Acquired: 05-18-2011
2005 WHO TEQ: 0.00268

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	1.31		-	0.215				
1,2,3,7,8-PeCDD	ND	1.78		-	0.317				
1,2,3,4,7,8-HxCDD	ND	2.29		-	0.326				
1,2,3,6,7,8-HxCDD	ND	2.96		-	0.424	Total TCDD	ND	1.31	
1,2,3,7,8,9-HxCDD	ND	2.53		-	0.367	Total PeCDD	ND	1.78	
1,2,3,4,6,7,8-HpCDD	ND	3.12		-	0.497	Total HxCDD	ND	2.96	
OCDD	8.94	-	J	0.00268	1.41	Total HpCDD	ND	3.12	
2,3,7,8-TCDF	ND	1.01		-	0.209				
1,2,3,7,8-PeCDF	ND	1.50		-	0.235				
2,3,4,7,8-PeCDF	ND	1.56		-	0.243				
1,2,3,4,7,8-HxCDF	ND	1.56		-	0.255				
1,2,3,6,7,8-HxCDF	ND	1.55		-	0.248				
2,3,4,6,7,8-HxCDF	ND	1.54		-	0.262				
1,2,3,7,8,9-HxCDF	ND	1.39		-	0.258	Total TCDF	ND	1.01	
1,2,3,4,6,7,8-HpCDF	ND	1.72		-	0.324	Total PeCDF	ND	1.56	
1,2,3,4,7,8,9-HpCDF	ND	2.23		-	0.490	Total HxCDF	ND	1.56	
OCDF	ND	3.04		-	0.805	Total HpCDF	ND	2.23	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	75.4	25.0 - 164	
13C-1,2,3,7,8-PeCDD	66.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	71.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	67.0	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	70.1	23.0 - 140	
13C-OCDD	79.0	17.0 - 157	
13C-2,3,7,8-TCDF	74.5	24.0 - 169	
13C-1,2,3,7,8-PeCDF	68.3	24.0 - 185	
13C-2,3,4,7,8-PeCDF	69.4	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	73.1	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	69.2	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	73.0	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	72.6	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	72.6	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	73.3	26.0 - 138	
13C-OCDF	69.0	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD 74.7 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: J
Date: 5/19/11

Reviewed By: [Signature]
Date: 5/19/11

EPA Method 1613
PCDD/F



FAL ID: 6739-004-SA
Client ID: MW06-042611
Matrix: Aqueous
Batch No: X2293

Date Extracted: 05-17-2011
Date Received: 04-29-2011
Amount: 1.035 L

ICal: PCDDFAL4-5-17-11
GC Column: DB5
Units: pg/L

Acquired: 05-19-2011
2005 WHO TEQ: 0.00200

Compound	Conc	DL	Qual	2005 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.979		-	0.215				
1,2,3,7,8-PeCDD	ND	1.07		-	0.317				
1,2,3,4,7,8-HxCDD	ND	1.18		-	0.326				
1,2,3,6,7,8-HxCDD	ND	1.48		-	0.424	Total TCDD	ND	0.979	
1,2,3,7,8,9-HxCDD	ND	1.28		-	0.367	Total PeCDD	ND	1.07	
1,2,3,4,6,7,8-HpCDD	ND	1.62		-	0.497	Total HxCDD	ND	1.48	
OCDD	6.65	-	J	0.00200	1.41	Total HpCDD	ND	1.62	
2,3,7,8-TCDF	ND	0.827		-	0.209				
1,2,3,7,8-PeCDF	ND	1.03		-	0.235				
2,3,4,7,8-PeCDF	ND	1.09		-	0.243				
1,2,3,4,7,8-HxCDF	ND	0.773		-	0.255				
1,2,3,6,7,8-HxCDF	ND	0.751		-	0.248				
2,3,4,6,7,8-HxCDF	ND	0.766		-	0.262				
1,2,3,7,8,9-HxCDF	ND	0.655		-	0.258	Total TCDF	ND	0.827	
1,2,3,4,6,7,8-HpCDF	ND	0.749		-	0.324	Total PeCDF	ND	1.09	
1,2,3,4,7,8,9-HpCDF	ND	0.948		-	0.490	Total HxCDF	ND	0.773	
OCDF	ND	2.06		-	0.805	Total HpCDF	ND	0.948	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	109	25.0 - 164	
13C-1,2,3,7,8-PeCDD	110	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	106	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	97.1	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	111	23.0 - 140	
13C-OCDD	123	17.0 - 157	
13C-2,3,7,8-TCDF	108	24.0 - 169	
13C-1,2,3,7,8-PeCDF	109	24.0 - 185	
13C-2,3,4,7,8-PeCDF	107	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	113	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	105	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	108	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	111	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	116	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	119	26.0 - 138	
13C-OCDF	116	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	104	35.0 - 197	
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- 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: [Signature]
Date: 5/19/11

Reviewed By: [Signature]
Date: 5/20/11

SUBCONTRACTOR ANALYSIS REQUEST
 CUSTODY TRANSFER 04/27/11



6737
0

ARI Project: ST98

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 Apts RI
 ARI PM: Sue Dunning
 Phone: 206-695-6207
 Fax: 206-695-6201

Analytical Protocol: In-house
 Special Instructions:

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

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 successors, 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, notwithstanding 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
11-9409-ST98A	MW02-042611	04/26/11 10:20	Water	2	Dioxin/Furans 1613 (Sub)
Special Instructions: None					
11-9410-ST98B	MW03-042611	04/26/11 13:25	Water	2	Dioxin/Furans 1613 (Sub)
Special Instructions: None					
11-9411-ST98C	MW13-042611	04/26/11 14:50	Water	2	Dioxin/Furans 1613 (Sub)
Special Instructions: None					
11-9412-ST98D	MW06-042611	04/26/11 16:00	Water	4	Dioxin/Furans 1613 (Sub)
Special Instructions: MS/MSD					

LY + EPO

1783269501 49922979
 1783269501 50258392

Carrier	UPS	Airbill	178326950149334999	Date	4/28/11
Relinquished by	Mikka Mulumba	Company	ARI	Date	4/28/11
Received by	Tom Crabtree	Company	Frontier	Date	4/29/11
				Time	10:40AM

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **6739**

Client:	Analytical Resources Inc. Sue Dunning
Client Project ID:	ST98
Date Received:	04/29/2011
Time Received:	10:40 am
Received By:	TC
Logged In By:	GN
# of Samples Received:	4
Duplicates:	4
Storage Location:	R1

Method of Delivery:	UPS
Tracking Number:	1Z8326950149334999
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	Yes
Thiosulfate Added	No
Earliest Sample Hold Time Expiration	04/25/2012
Adequate Sample Volume	Yes
pH Range	Between 4 and 9
Anomalies or additional comments:	
L4 & EDD	





Frontier Analytical Laboratory

PROJECT REQUEST SHEET

Project #: 6739 Sample #: 1 - 4 MS/MSD Client Manager: BS
 Client: Analytical Resources Inc. Sue Dunnihoo Hold Time: 04/25/2012
 Matrix: Aqueous Extraction Batch: 2293 Due Date: 05/23/2011
 Method: EPA 1613 D/F Storage: R1
 SOP: SOPs: EP2A Rev.9 IP2A Rev.10

COMMENTS/INSTRUCTIONS:

- NO CAP -

Sample #	Full Weight (g)	Empty Weight (g)	Empty weight(s)
6739-001-0001-SA	1495.95g	494.33g	
6739-002-0001-SA	1527.04g	492.21g	
6739-003-0001-SA	1493.55g	493.24g	
6739-004-0001-SA	1528.94g	494.37g	
6739-004-0002-MS	1524.64g	493.31g	
6739-004-0002-MSD	1501.35g	494.02g	

Results: 6739

Instrument: FALC4
 DB5 _____
 DB225 _____
 DB1 _____
 Other _____

Extract/s located in box: "Transisters"

Standards: 6739

Frontier Analytical Laboratory

EXTRACTION SHEET

Project #: 6739 Extraction Date: 2011-05-17 Extraction Chemist: DV

Method/Analysis: EPA 1613 D/F

Procedure: SPE/SOX

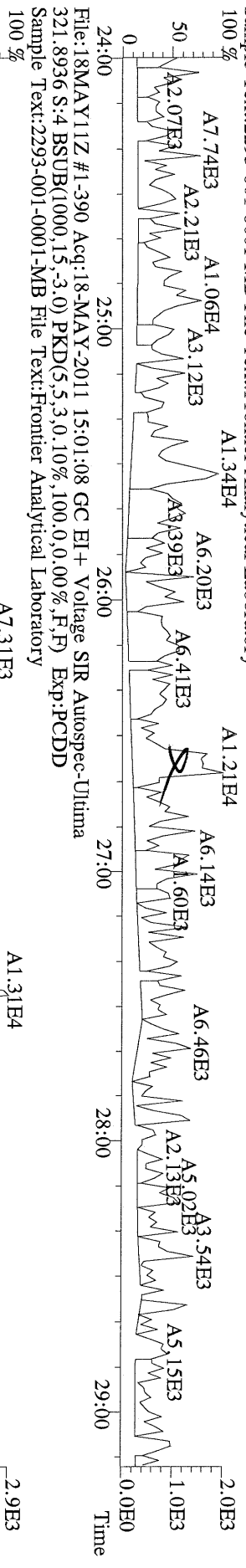
Solvent: Toluene

Sample ID	Wet wt. (g/L)	Dry wt. (g/L)	IS	NS	CSS
			Amt: 10.0uL ID: 100511A Vial: 6 Chemist/Witness/Date	Amt: 10.0uL ID: 100511B Vial: 6 Chemist/Witness/Date	Amt: 10.0uL ID: 100511C Vial: 6 Chemist/Witness/Date
2293-001-0001-MB	(1.000L)	N/A	DN GN 5/17/11	N/A	DN GN 5.18.11
2293-001-0001-OPR	(1.000L)	↓	↓	DN GN 5/17/11	↓
6739-001-0001-SA	1.002L	↓	↓	N/A	↓
6739-002-0001-SA	1.035L	↓	↓	↓	↓
6739-003-0001-SA	1.000L	↓	↓	↓	↓
6739-004-0001-SA	1.035L	↓	↓	↓	↓
6739-004-0002-MS	1.031L	↓	↓	DN GN 5/17/11	↓
6739-004-0002-MSD	1.007L	↓	↓	↓	↓

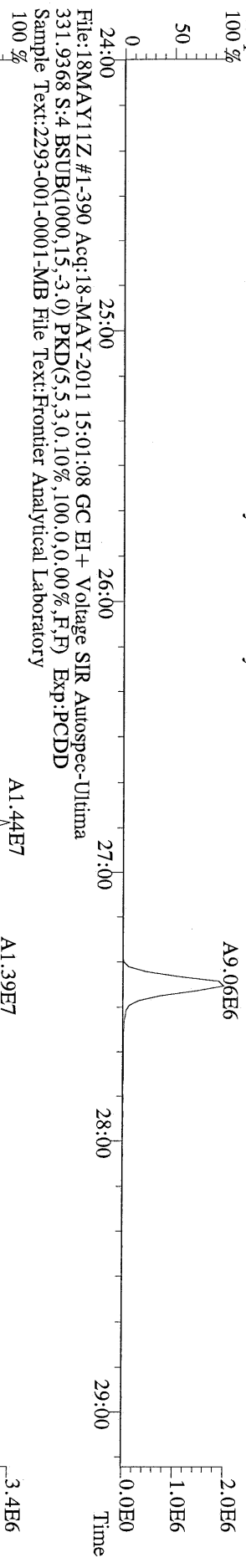
AX-21 Charcoal Cleaned	082510	Acetone	107203	Acid Alumina	A0281479	Hexane	110182
Hydrochloric Acid	B08505	Methanol	108367	Methylene Chloride (DCM)	51020	Silica Gel	TA1592834
Sodium Hydroxide	0062836	Sodium Sulfate	1750C277	Sulfuric Acid	110205	Tetradecane	086237
Toluene	108273	Water	51004	C-18 Empore Discs	320552	Cyclohexane	50204

Comments:

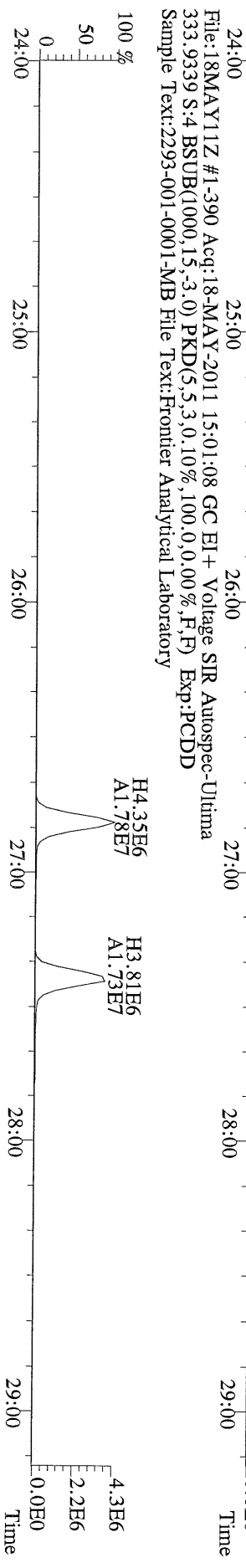
File:18MAY11Z #1-390 Acq:18-MAY-2011 15:01:08 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



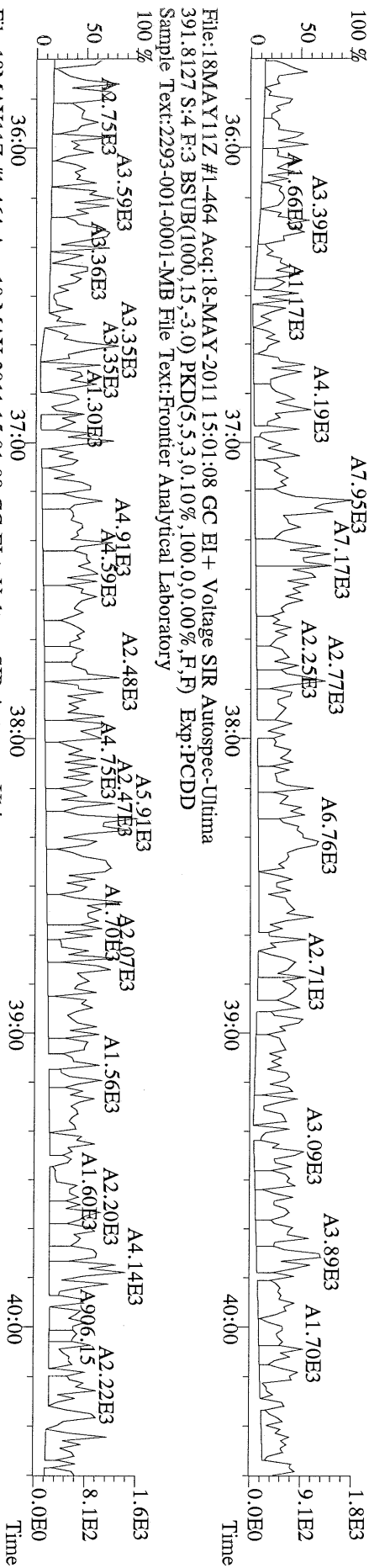
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327.8847 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
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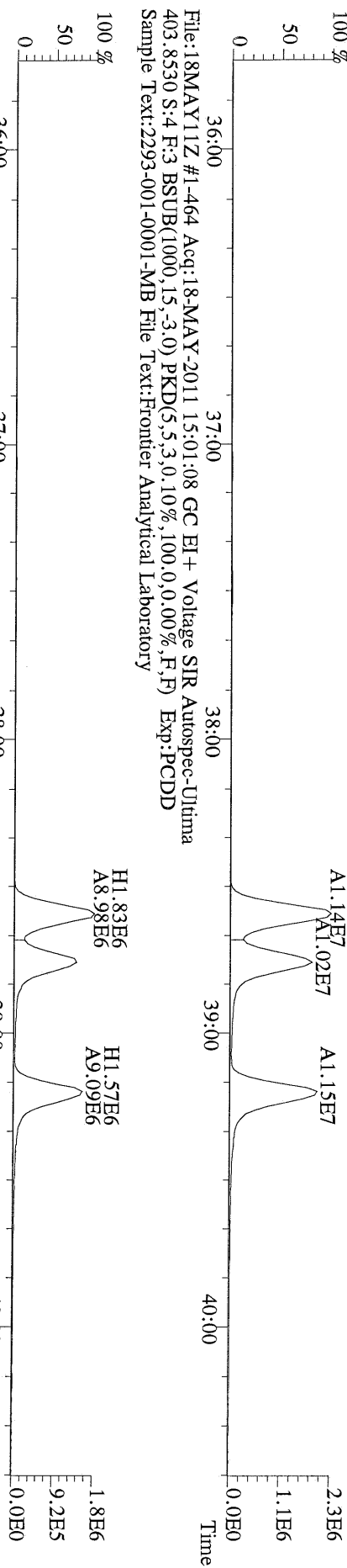
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333.9339 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
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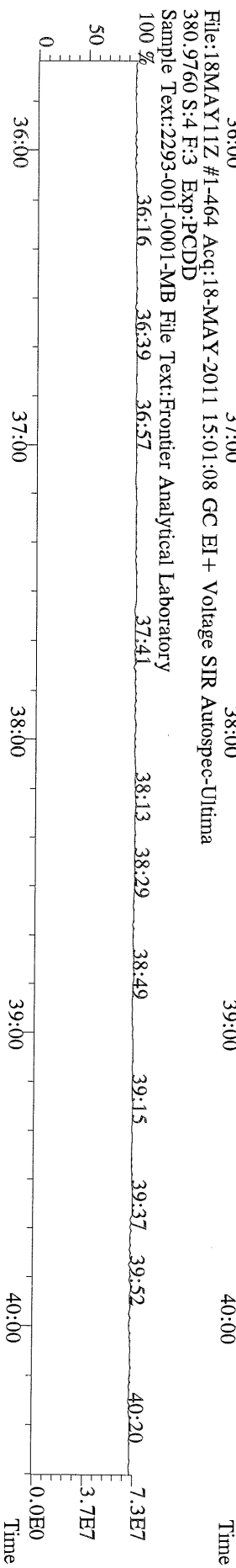
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389.8156 S:4 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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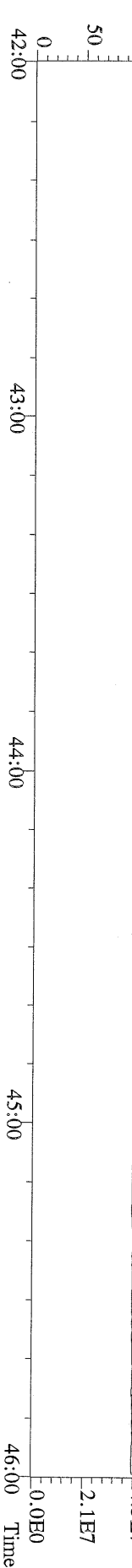
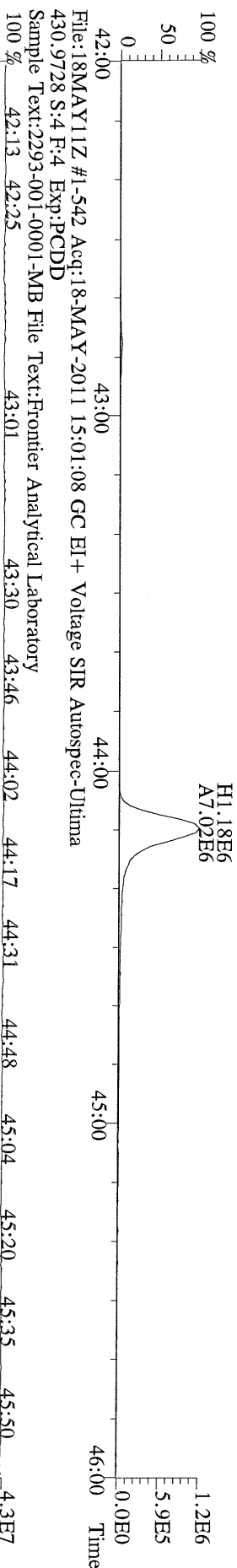
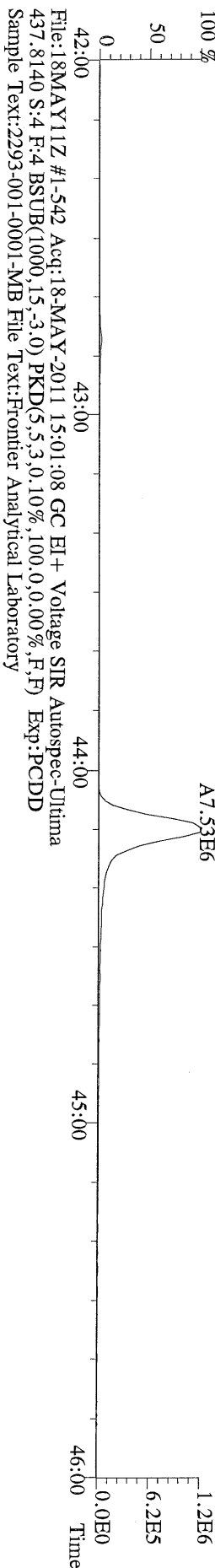
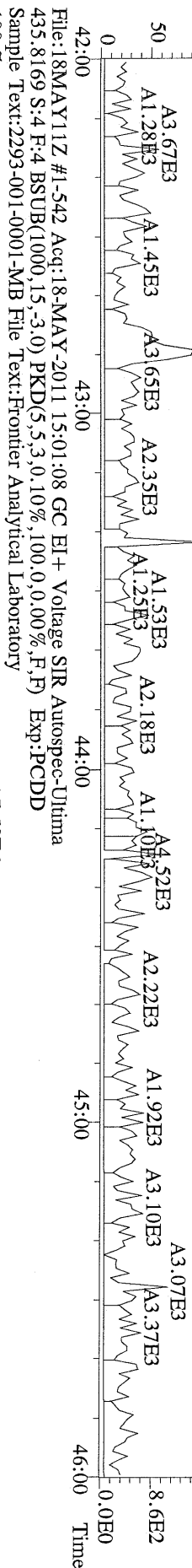
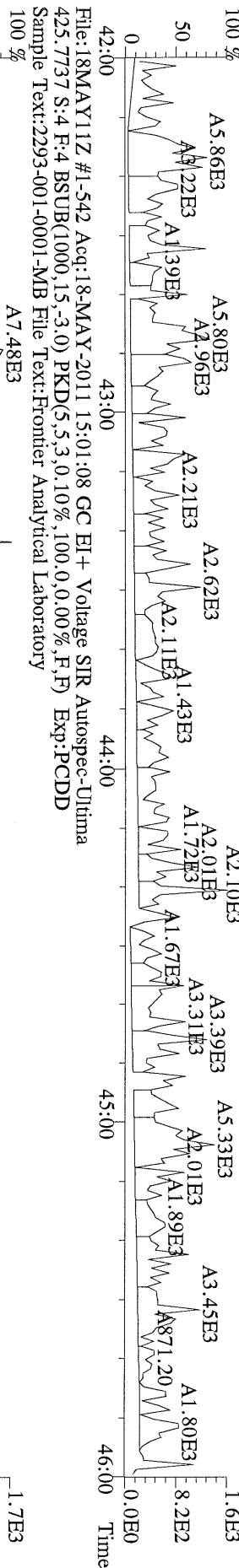
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401.8559 S:4 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



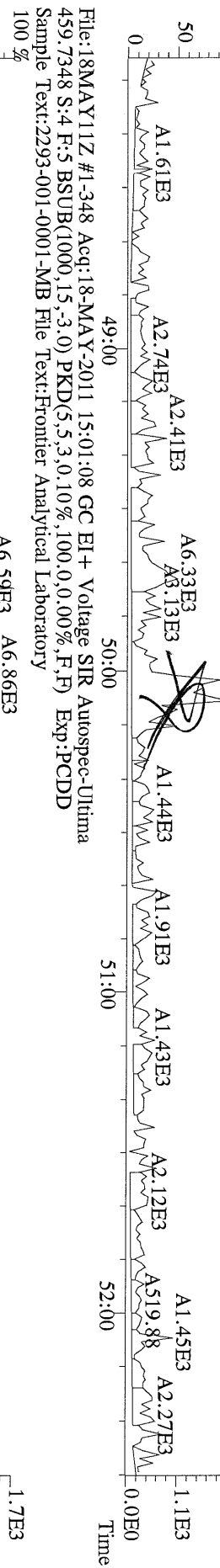
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403.8530 S:4 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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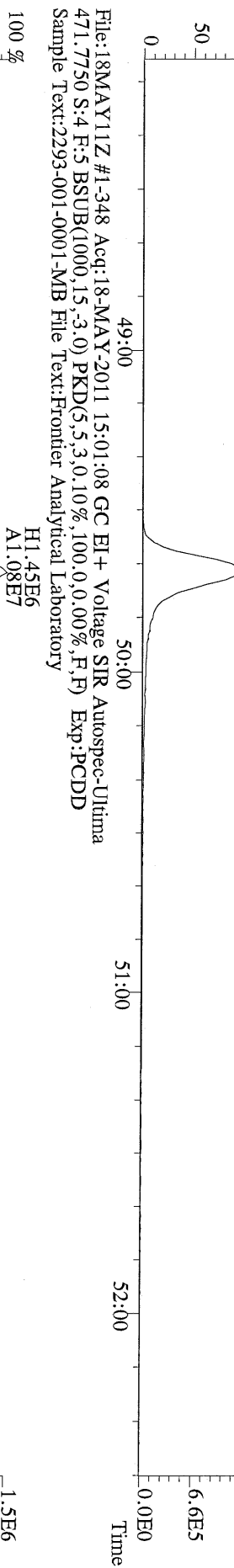
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423.7767 S:4 F:4 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



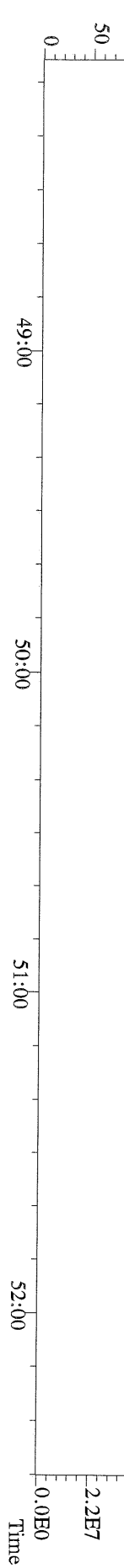
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 457.7377 S:4 F:5 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



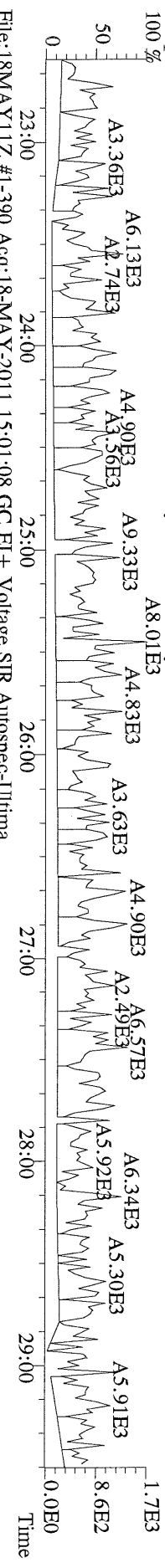
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 469.7780 S:4 F:5 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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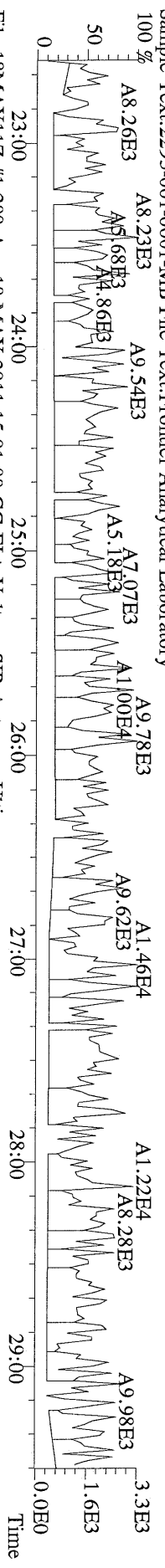
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 471.7750 S:4 F:5 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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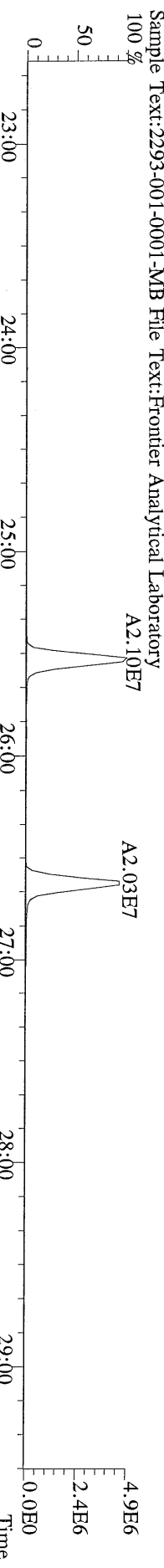
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 303.9016 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



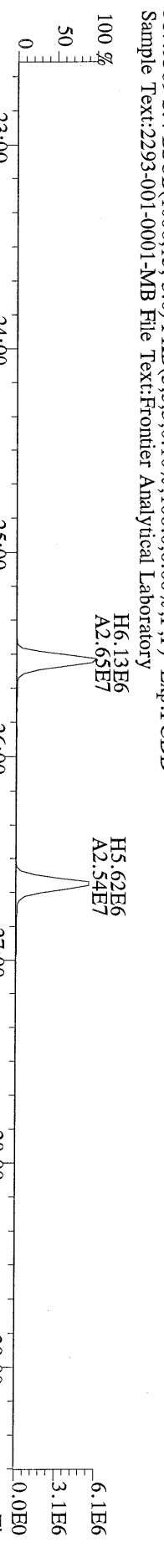
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 305.8987 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



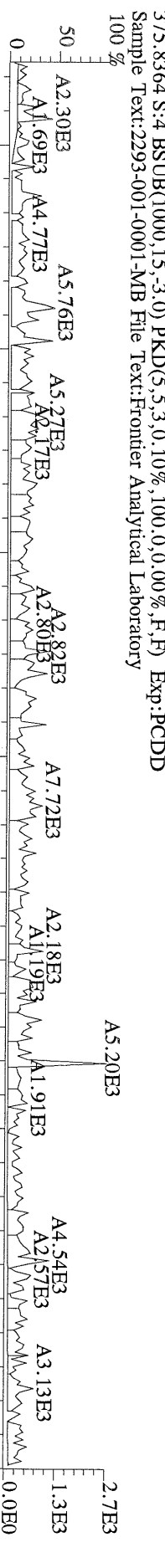
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 315.9419 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
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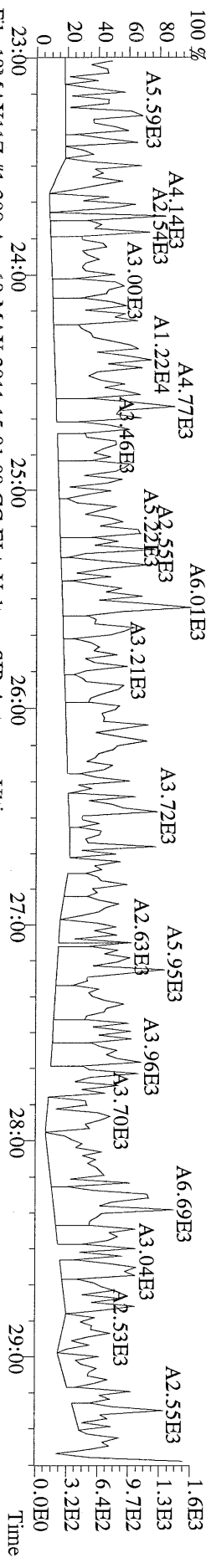
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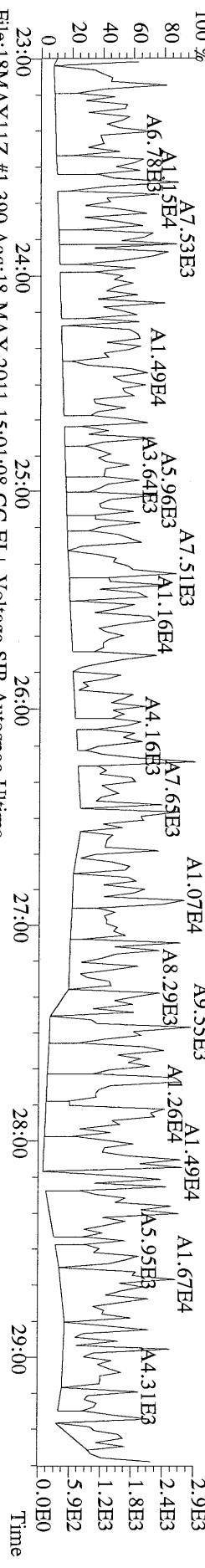
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 375.8364 S:4 BSUB(1000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
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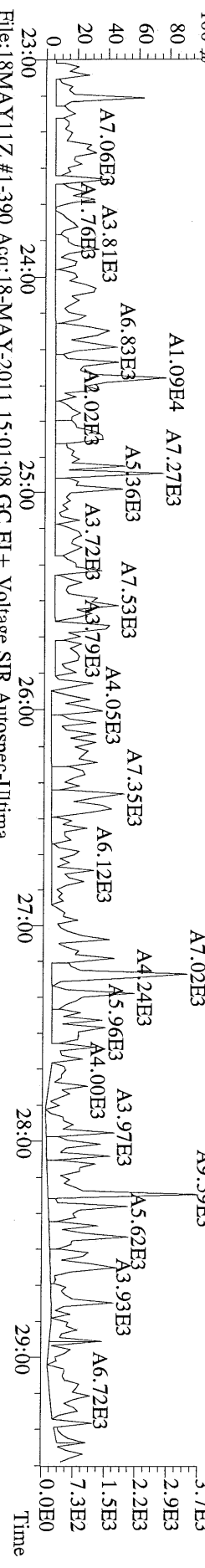
File:18MAY11Z #1-390 Acq:18-MAY-2011 15:01:08 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:4 BSUB(1000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
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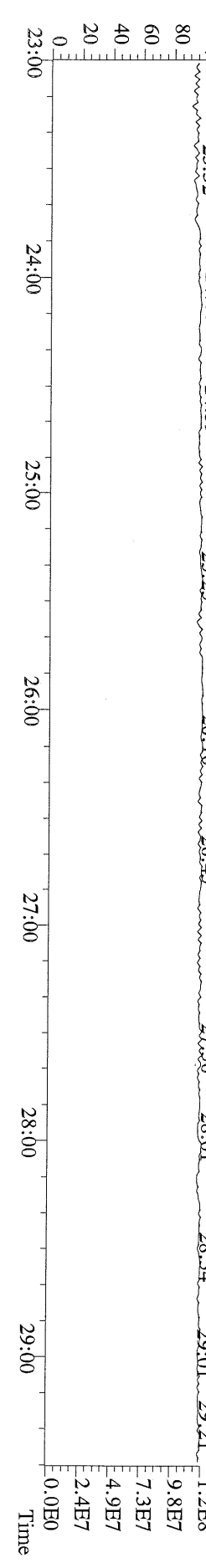
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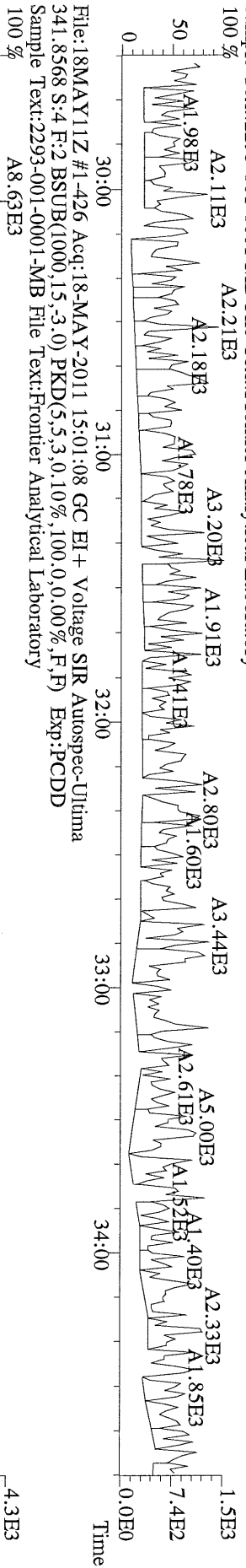
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 409.7974 S:4 BSUB(1000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
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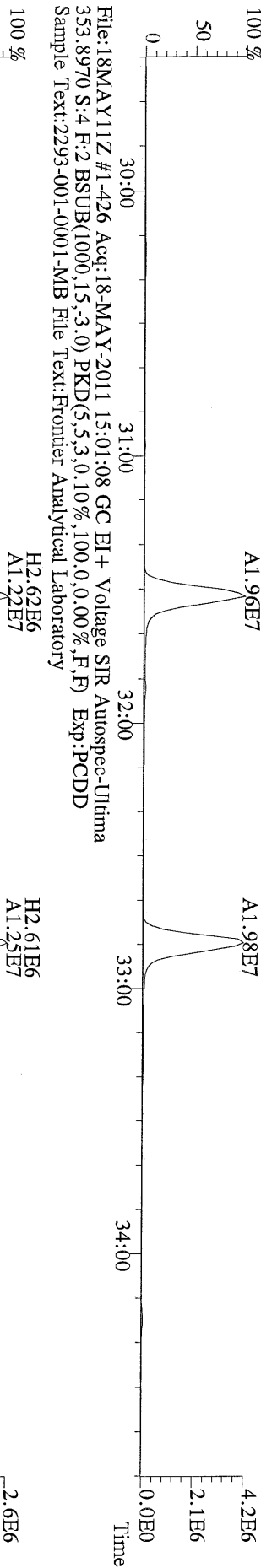
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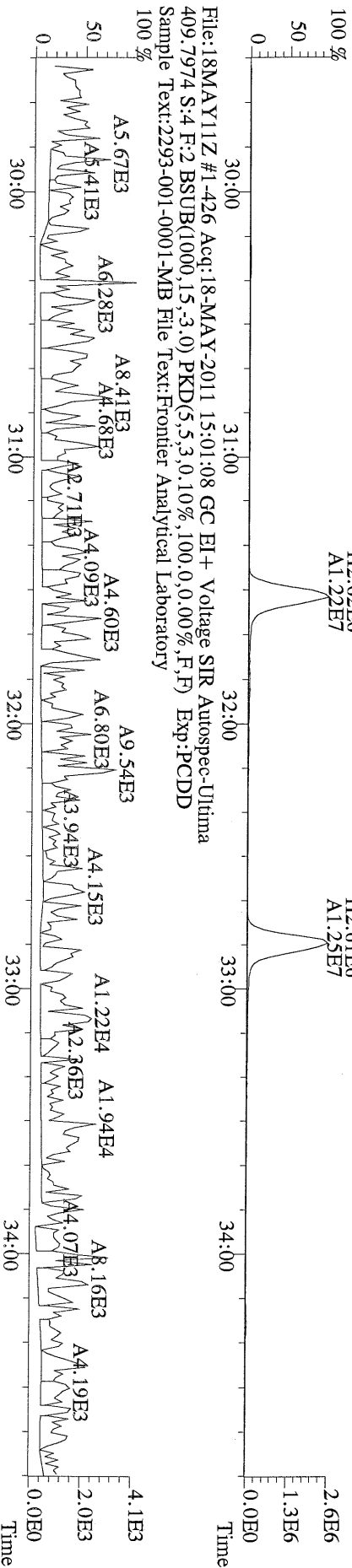
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339.8597 S:4 F:2 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



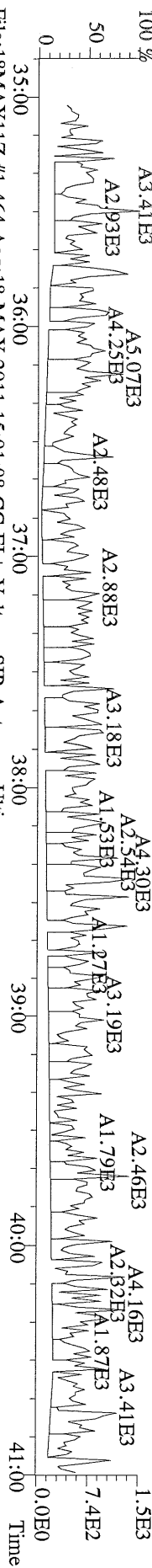
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351.9000 S:4 F:2 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
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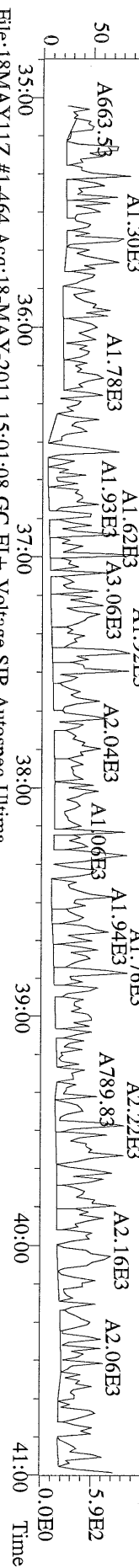
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409.7974 S:4 F:2 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



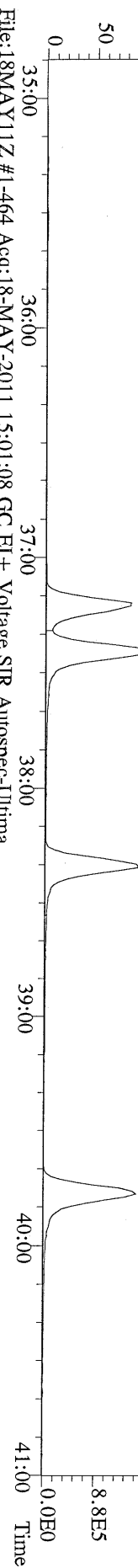
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 373.8207 S:4 F:3 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



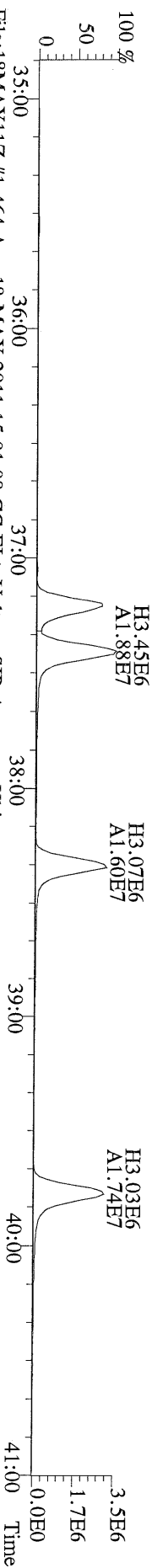
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 375.8178 S:4 F:3 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



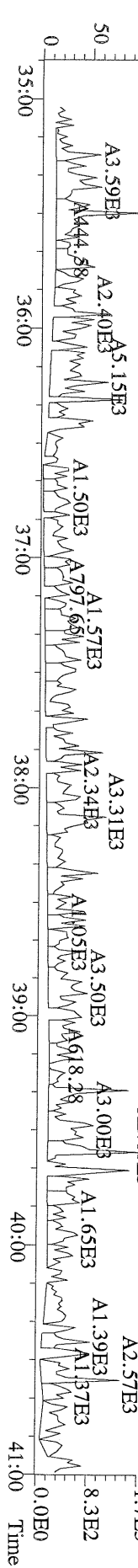
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 383.8639 S:4 F:3 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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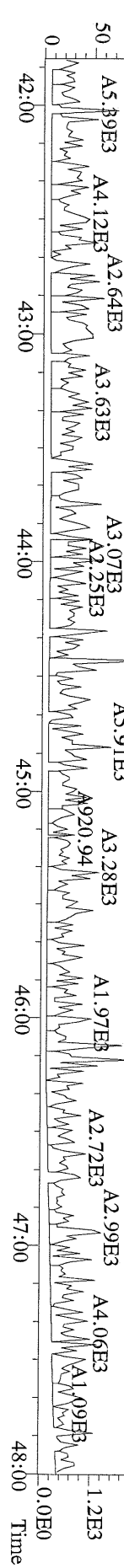
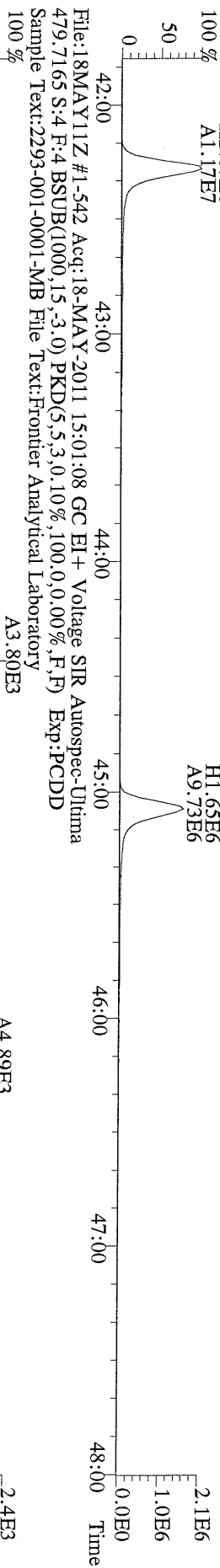
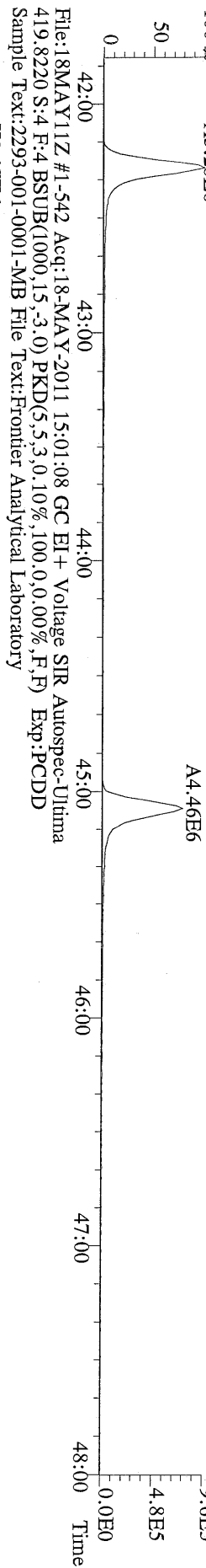
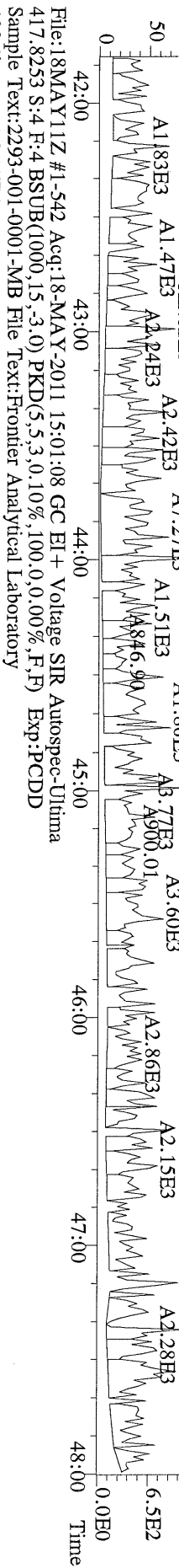
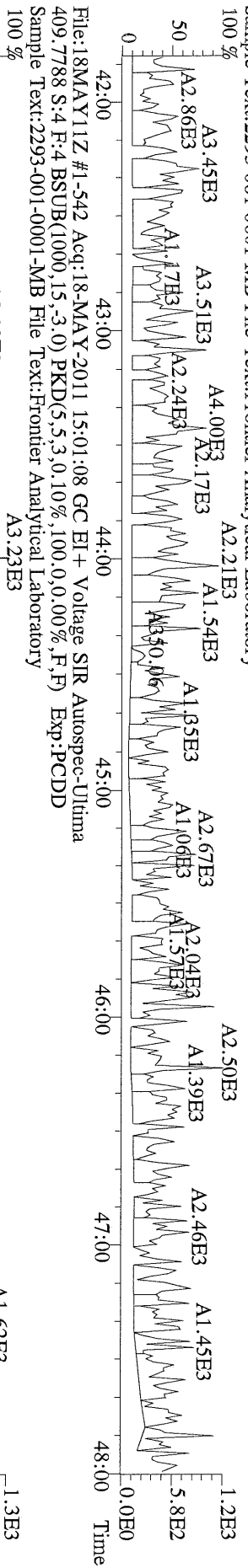
File:18MAY11Z #1-464 Acq:18-MAY-2011 15:01:08 GC EI + Voltage SIR Autospec-Ultima
 385.8610 S:4 F:3 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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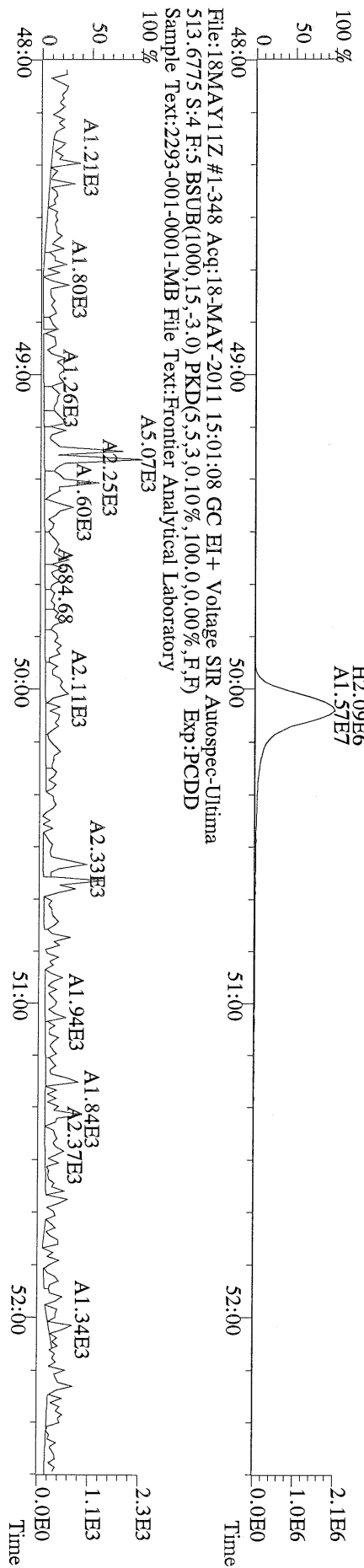
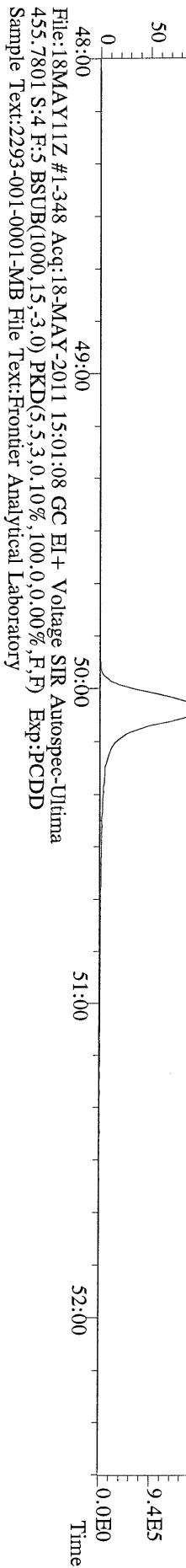
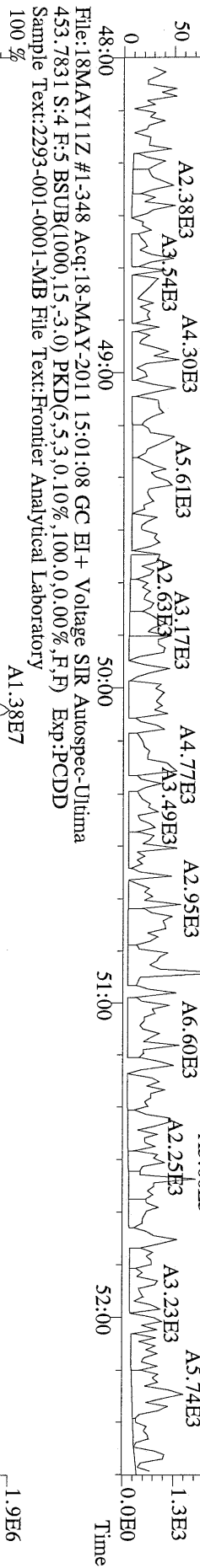
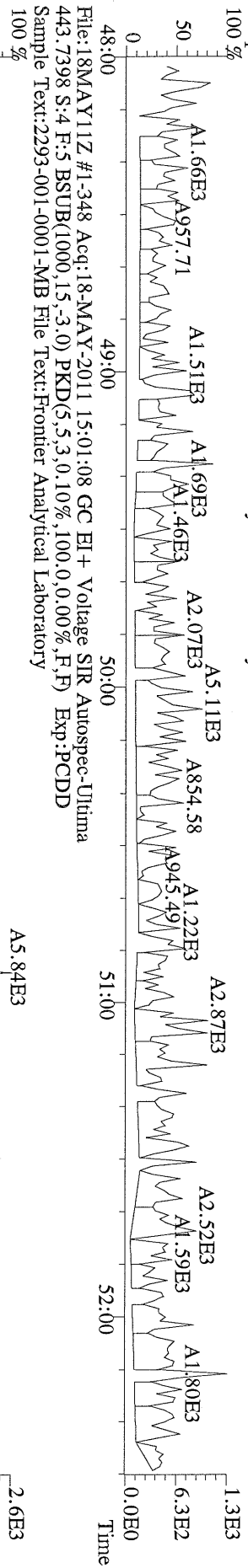
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 445.7555 S:4 F:3 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



File:18MAY11Z #1-542 Acq:18-MAY-2011 15:01:08 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:4 F:4 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



File:18MAY11Z #1-348 Acq:18-MAY-2011 15:01:08 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:4 F:5 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-MB File Text:Frontier Analytical Laboratory



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): Aqueous OPR Data Filename: 18MAY11Z Sam:3

Ext. Date: 5/17/11 Shift: Day Analysis Date: 18-MAY-11 14:06:21

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	95.7	20.0 - 175
13C-1,2,3,7,8-PeCDD	100	80.4	21.0 - 227
13C-1,2,3,4,7,8-HxCDD	100	84.0	21.0 - 193
13C-1,2,3,6,7,8-HxCDD	100	78.7	25.0 - 163
13C-1,2,3,4,6,7,8-HpCDD	100	76.6	26.0 - 166
13C-OCDD	200	162	26.0 - 397
13C-2,3,7,8-TCDF	100	96.9	22.0 - 152
13C-1,2,3,7,8-PeCDF	100	84.6	21.0 - 192
13C-2,3,4,7,8-PeCDF	100	88.1	13.0 - 328
13C-1,2,3,4,7,8-HxCDF	100	88.1	19.0 - 202
13C-1,2,3,6,7,8-HxCDF	100	86.4	21.0 - 159
13C-2,3,4,6,7,8-HxCDF	100	88.8	22.0 - 176
13C-1,2,3,7,8,9-HxCDF	100	84.1	17.0 - 205
13C-1,2,3,4,6,7,8-HpCDF	100	81.4	21.0 - 158
13C-1,2,3,4,7,8,9-HpCDF	100	81.0	20.0 - 186
13C-OCDF	200	156	26.0 - 397
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	40.1	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: _____

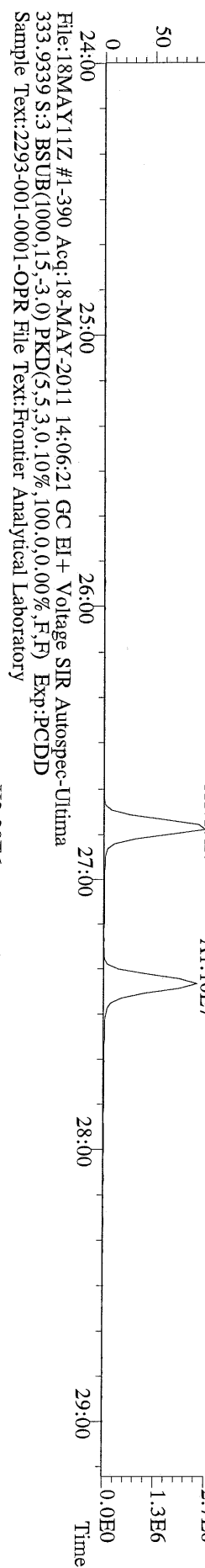
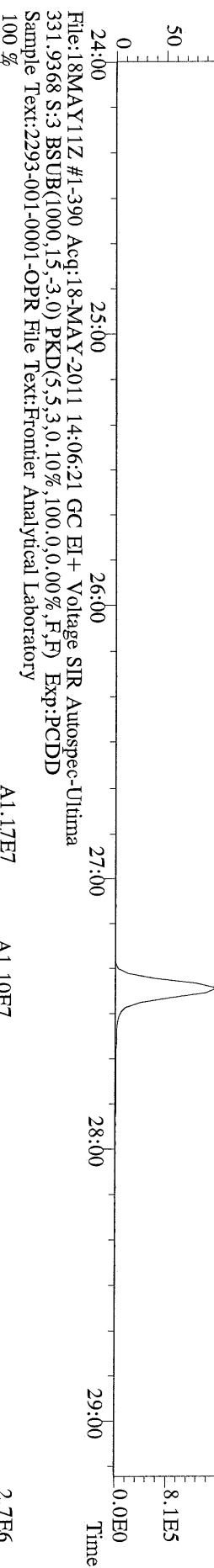
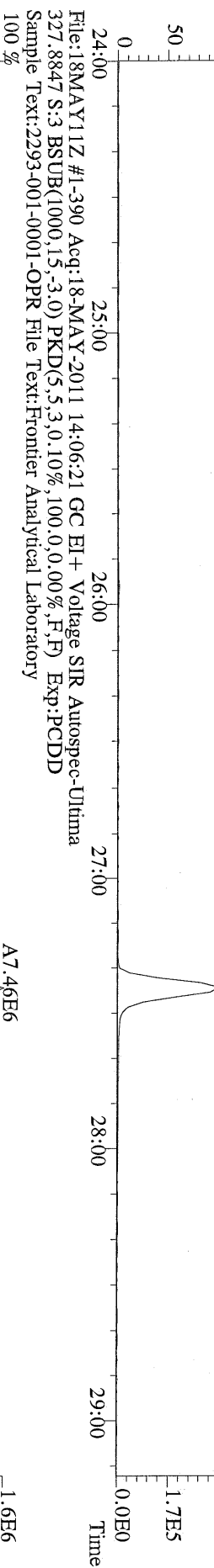
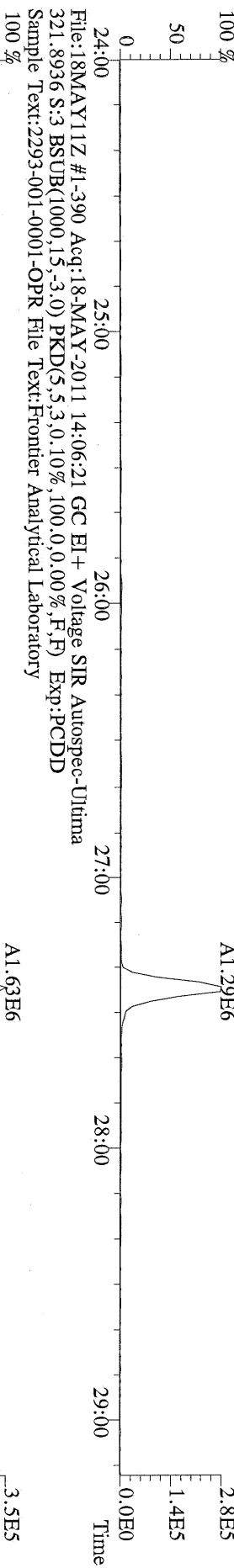
Date: _____

Name	Resp	RA	RT	RRF	Conc	Qual	Fac Noise-1	Noise-2	DL	DL
2,3,7,8-TCDD	2.92e+06	0.80 y	27:24	1.15	10.3	2.50	-	-	*	*
1,2,3,7,8-PeCDD	9.67e+06	1.56 y	33:16	1.02	56.8	2.50	-	-	*	*
1,2,3,4,7,8-HxCDD	8.60e+06	1.26 y	38:36	1.09	56.2	2.50	-	-	*	*
1,2,3,6,7,8-HxCDD	7.55e+06	1.25 y	38:46	1.08	56.9	2.50	-	-	*	*
1,2,3,7,8,9-HxCDD	8.53e+06	1.27 y	39:13	1.12	58.0	2.50	-	-	*	*
1,2,3,4,6,7,8-HpCDD	5.65e+06	1.03 y	44:11	1.03	58.8	2.50	-	-	*	*
OCDD	8.87e+06	0.88 y	49:42	1.21	111	2.50	-	-	*	*
2,3,7,8-TCDF	4.01e+06	0.77 y	26:38	1.09	10.7	2.50	-	-	*	*
1,2,3,7,8-PeCDF	1.32e+07	1.57 y	31:33	0.96	57.4	2.50	-	-	*	*
2,3,4,7,8-PeCDF	1.33e+07	1.58 y	32:51	0.96	57.2	2.50	-	-	*	*
1,2,3,4,7,8-HxCDF	1.00e+07	1.25 y	37:14	1.18	56.1	2.50	-	-	*	*
1,2,3,6,7,8-HxCDF	1.16e+07	1.25 y	37:25	1.03	56.9	2.50	-	-	*	*
2,3,4,6,7,8-HxCDF	1.13e+07	1.25 y	38:22	1.17	57.7	2.50	-	-	*	*
1,2,3,7,8,9-HxCDF	1.31e+07	1.24 y	39:48	1.27	58.1	2.50	-	-	*	*
1,2,3,4,6,7,8-HpCDF	8.46e+06	1.04 y	42:18	1.36	56.8	2.50	-	-	*	*
1,2,3,4,7,8,9-HpCDF	6.92e+06	1.03 y	45:06	1.35	56.2	2.50	-	-	*	*
OCDF	1.12e+07	0.89 y	50:05	0.97	119	2.50	-	-	*	*
13C-2,3,7,8-TCDD	2.48e+07	0.80 y	27:23	0.99	95.7					Rec 95.7
13C-1,2,3,7,8-PeCDD	1.67e+07	1.58 y	33:15	0.79	80.4					80.4
13C-1,2,3,4,7,8-HxCDD	1.41e+07	1.29 y	38:36	1.03	84.0					84.0
13C-1,2,3,6,7,8-HxCDD	1.22e+07	1.23 y	38:45	0.96	78.7					78.7
13C-1,2,3,4,6,7,8-HpCDD	9.31e+06	1.05 y	44:10	0.75	76.6					76.6
13C-OCDD	1.33e+07	0.92 y	49:41	0.50	162					81.1
13C-2,3,7,8-TCDF	3.46e+07	0.80 y	26:37	0.98	96.9					96.9
13C-1,2,3,7,8-PeCDF	2.39e+07	1.60 y	31:31	0.78	84.6					84.6
13C-2,3,4,7,8-PeCDF	2.41e+07	1.61 y	32:50	0.75	88.1					88.1
13C-1,2,3,4,7,8-HxCDF	1.51e+07	0.53 y	37:13	1.05	88.1					88.1
13C-1,2,3,6,7,8-HxCDF	1.97e+07	0.51 y	37:24	1.40	86.4					86.4
13C-2,3,4,6,7,8-HxCDF	1.67e+07	0.52 y	38:20	1.16	88.8					88.8
13C-1,2,3,7,8,9-HxCDF	1.78e+07	0.52 y	39:46	1.30	84.1					84.1
13C-1,2,3,4,6,7,8-HpCDF	1.09e+07	0.45 y	42:17	0.83	81.4					81.4
13C-1,2,3,4,7,8,9-HpCDF	9.14e+06	0.45 y	45:05	0.69	81.0					81.0
13C-OCDF	1.95e+07	0.89 y	50:03	0.77	156					77.8
37Cl-2,3,7,8-TCDD	7.46e+06		27:24	0.71	40.1					100
13C-1,2,3,4-TCDD	2.62e+07	0.81 y	26:49	-	49.1					
13C-1,2,3,4-TCDF	3.64e+07	0.80 y	25:32	-	48.7					
13C-1,2,3,7,8,9-HxCDD	1.63e+07	1.29 y	39:12	-	42.1					
Total Tetra-Dioxins	3.18e+06		23:01	1.15	11.2	2.50	-	-	*	25
Total Penta-Dioxins	9.91e+06		31:30	1.02	58.2	2.50	-	-	*	11
Total Hexa-Dioxins	2.50e+07		38:36	1.10	174	2.50	-	-	*	15
Total Hepta-Dioxins	5.94e+06		42:50	1.03	61.8	2.50	-	-	*	27
Total Tetra-Furans	4.42e+06		22:59	1.09	11.8	2.50	-	-	*	27
1st Fn. Tot Penta-Furans	2.16e+05		22:46	0.96	0.934	2.50	-	-	*	PeCDF 27
Total Penta-Furans	2.74e+07		30:17	0.96	118	2.50	-	-	*	119 14
Total Hexa-Furans	4.62e+07		35:17	1.16	230	2.50	-	-	*	9
Total Hepta-Furans	1.60e+07		42:18	1.36	117	2.50	-	-	*	25

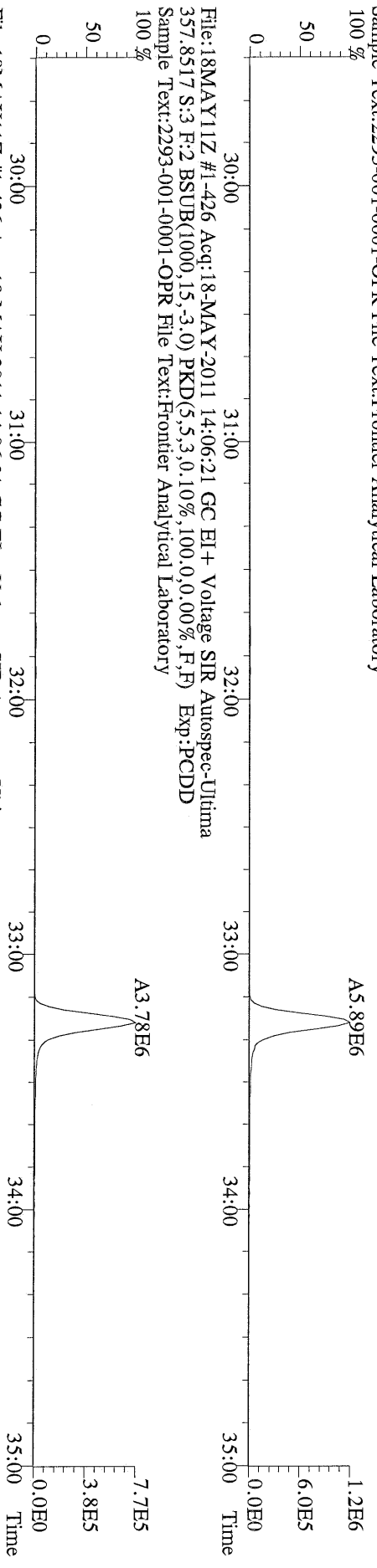
Analyst: J

Date: 5/19/11

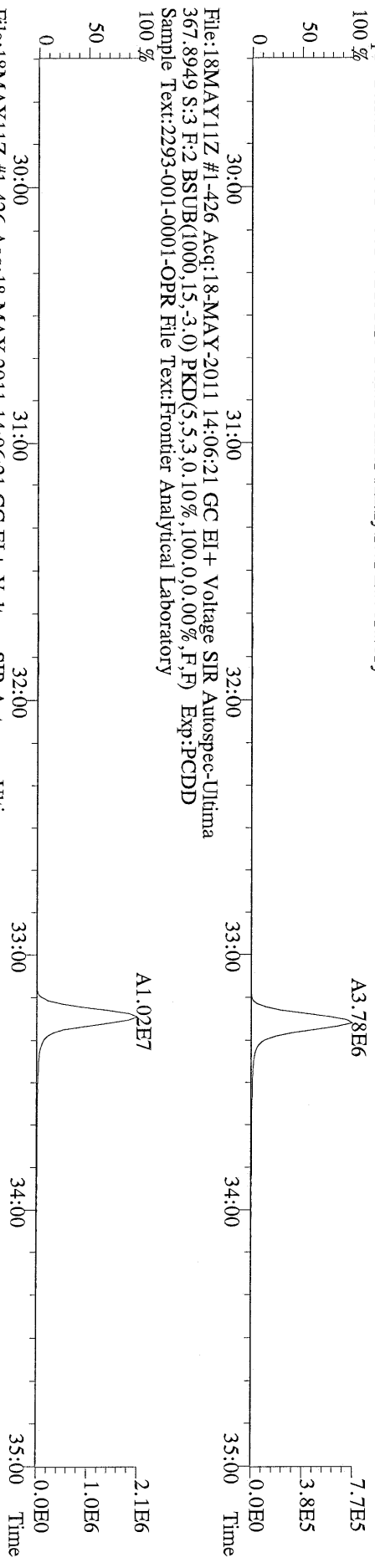
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319.8965 S:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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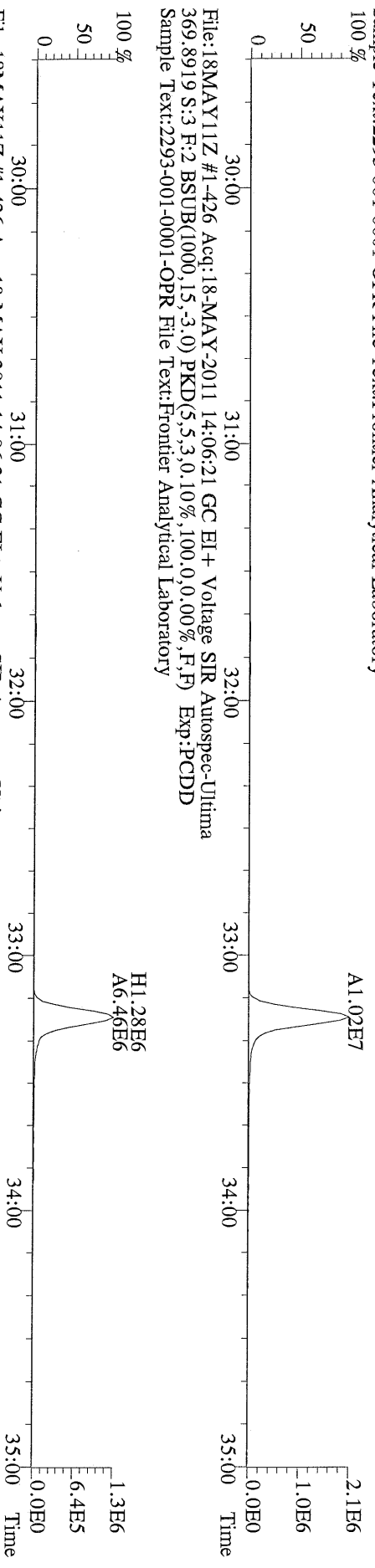
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Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory



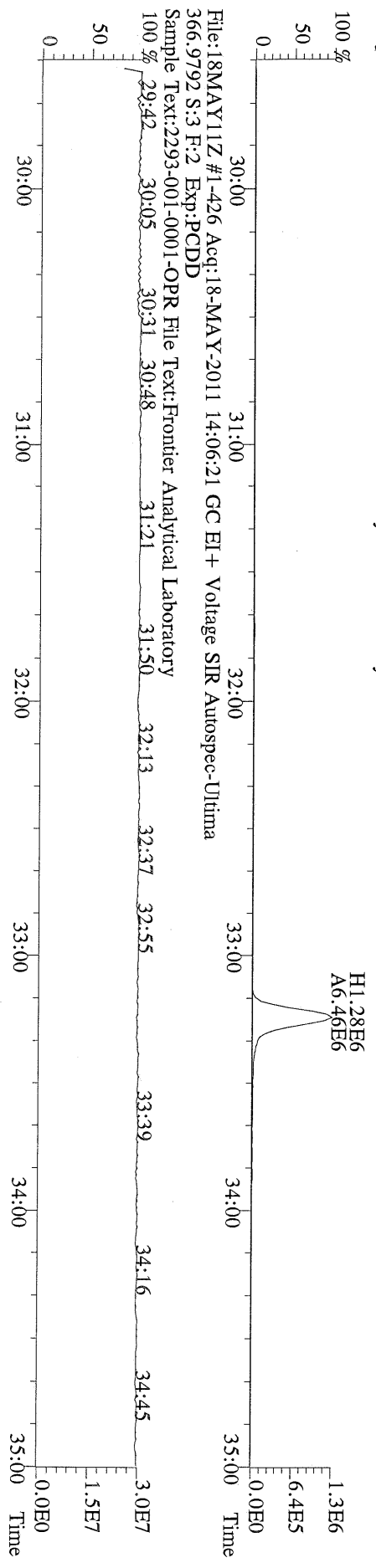
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357.8517 S:3 F:2 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
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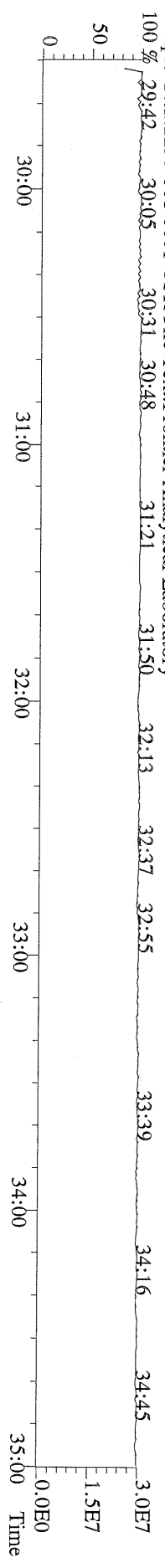
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367.8949 S:3 F:2 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
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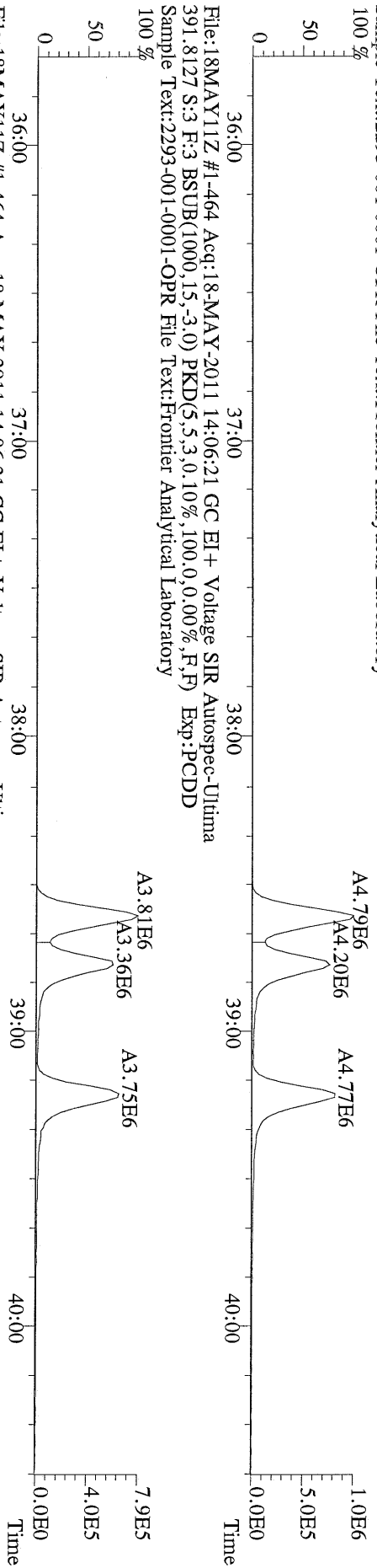
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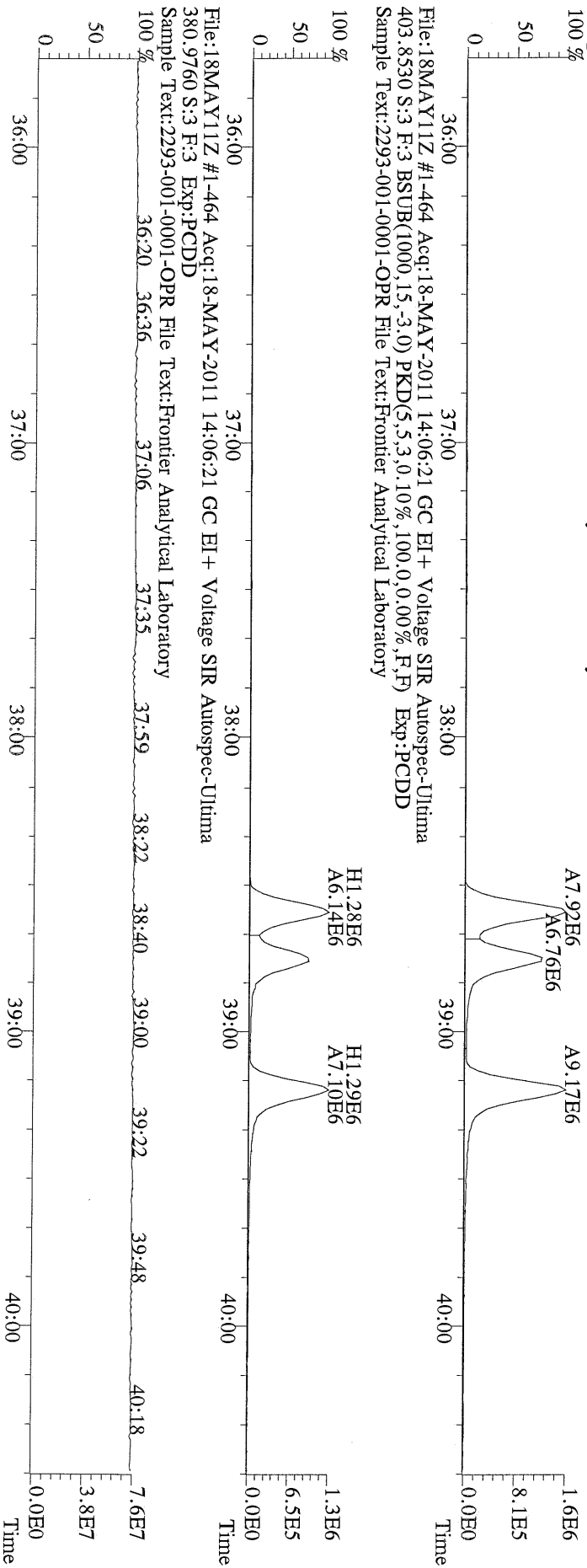
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389.8156 S:3 F:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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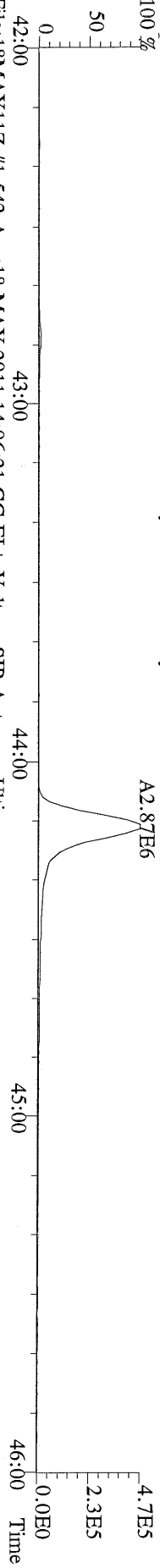
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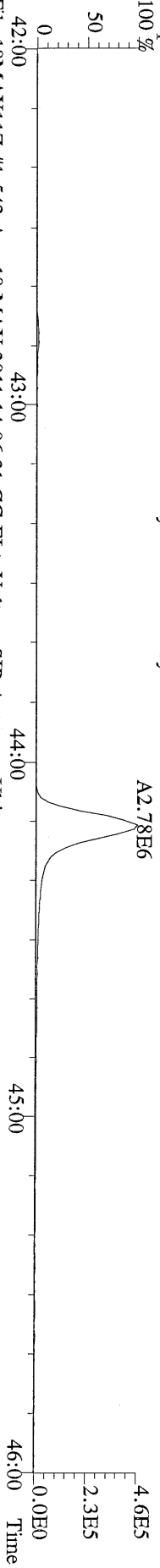
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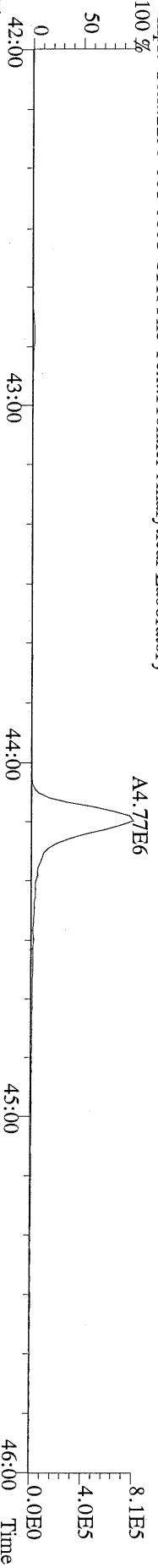
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423.7767 S:3 F:4 BSUB(1000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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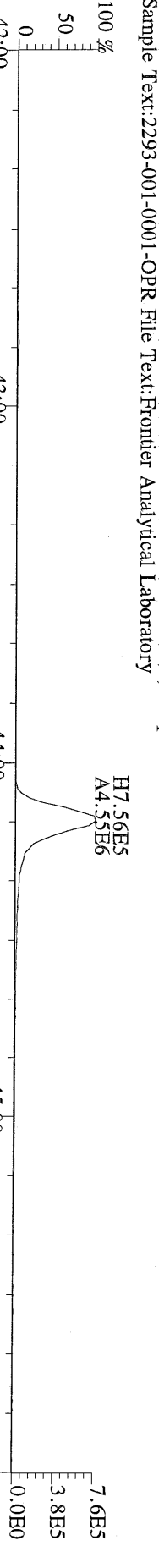
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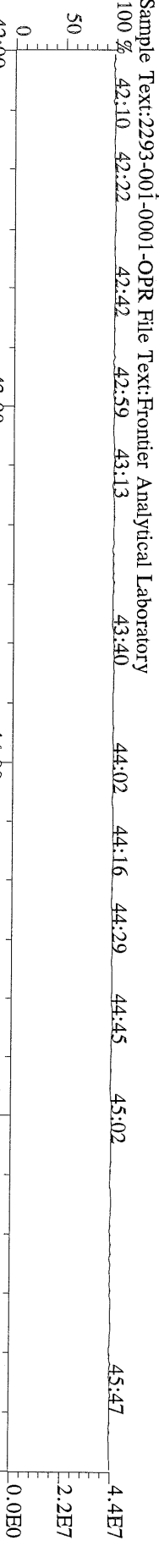
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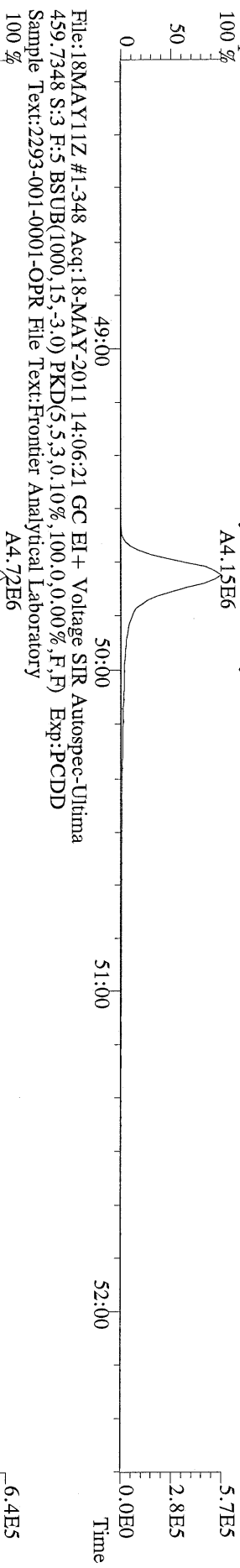
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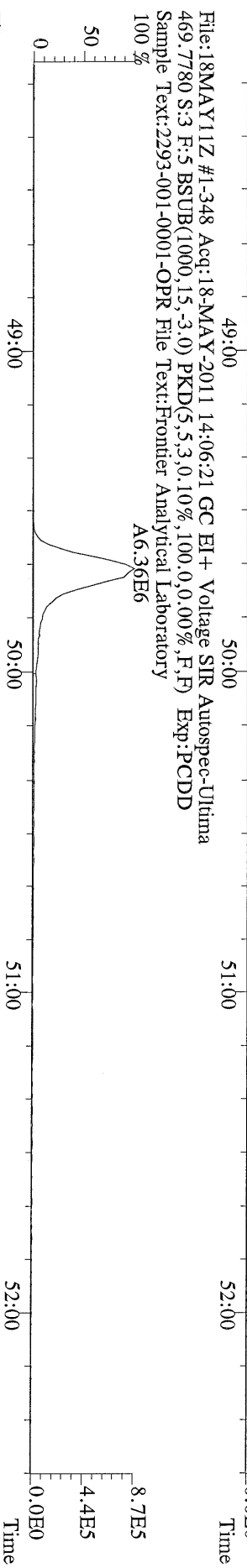
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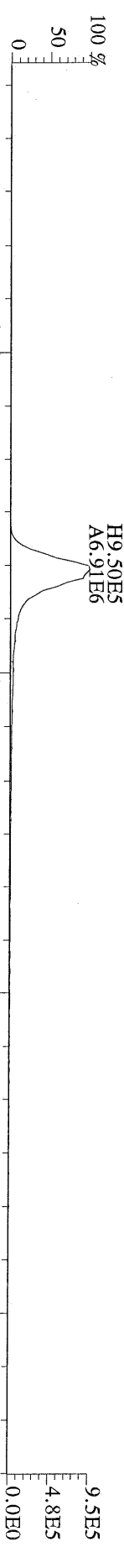
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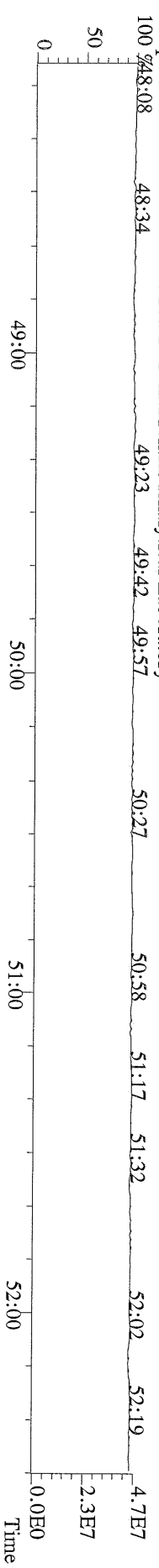
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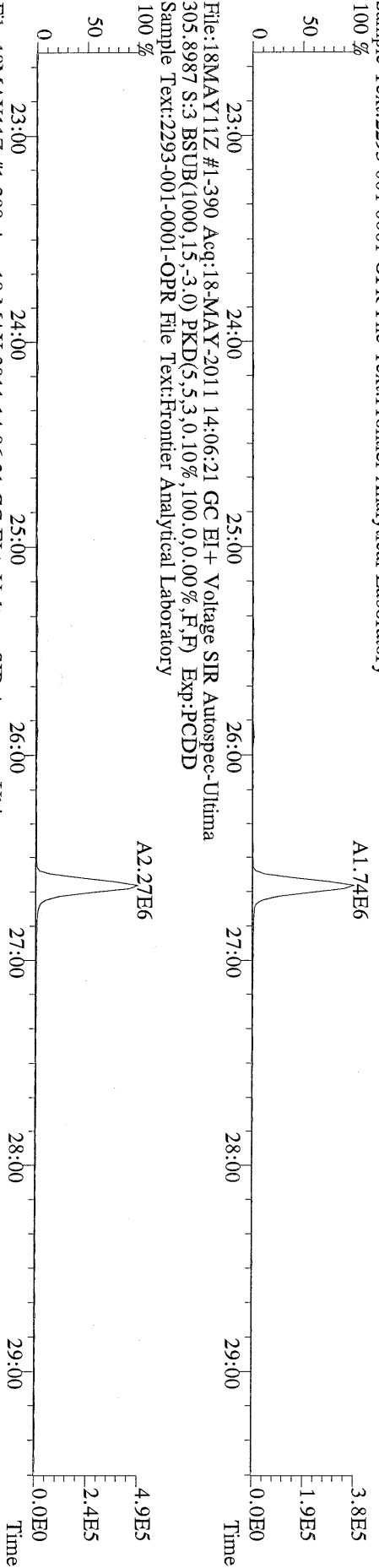
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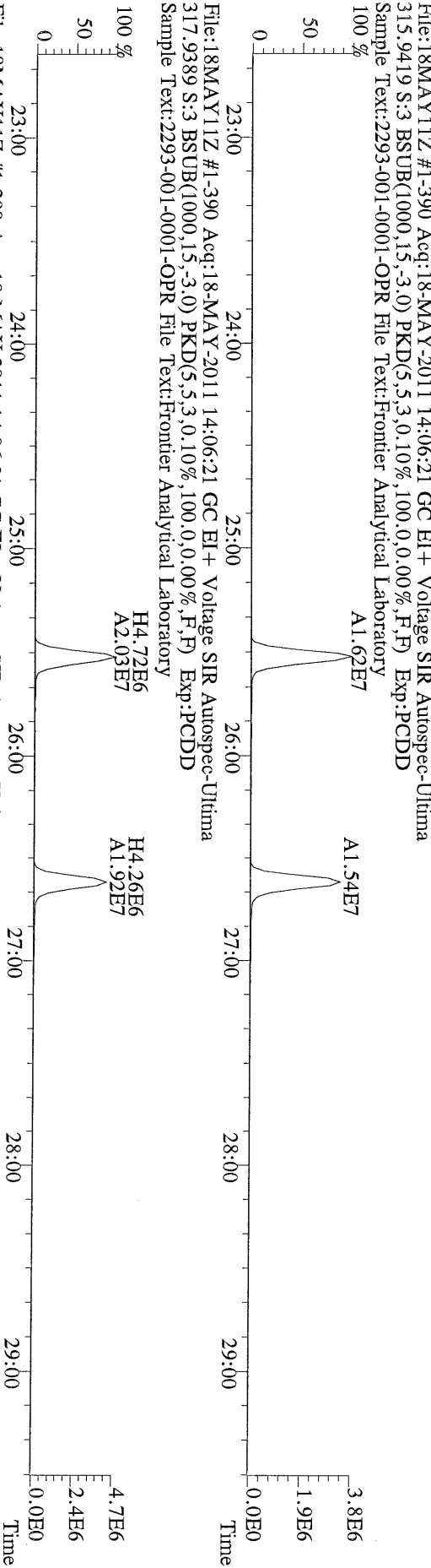
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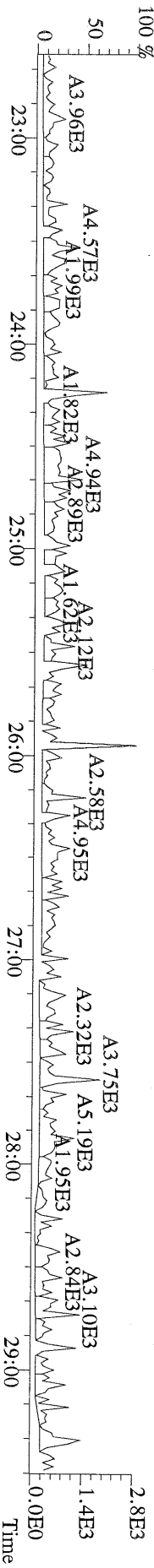
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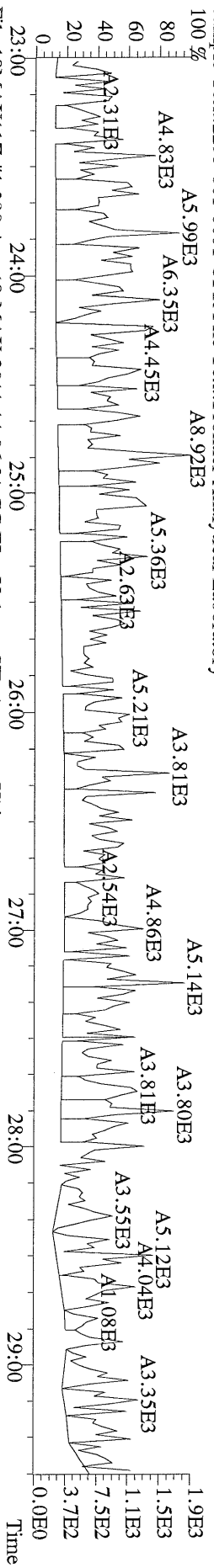
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315.9419 S:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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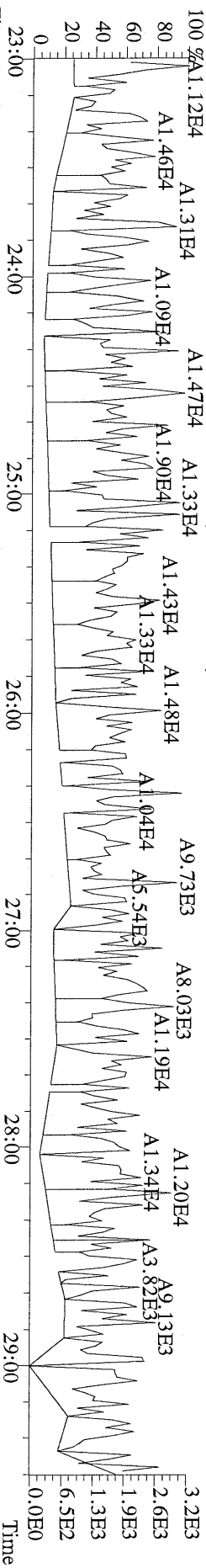
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375.8364 S:3 BSUB(1000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory



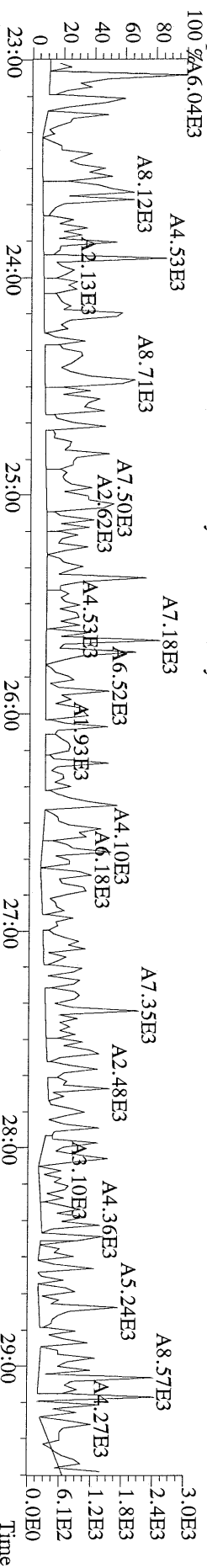
File:18MAY11Z #1-390 Acq:18-MAY-2011 14:06:21 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:3 BSUB(1000,15,3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory



File:18MAY11Z #1-390 Acq:18-MAY-2011 14:06:21 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:3 BSUB(1000,15,3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory



File:18MAY11Z #1-390 Acq:18-MAY-2011 14:06:21 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:3 BSUB(1000,15,3,0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory



File:18MAY11Z #1-390 Acq:18-MAY-2011 14:06:21 GC EI+ Voltage SIR Autospec-Ultima
 330.9792 S:3 Exp:PCDD
 Sample Text:2293-001-0001-OPR File Text:Frontier Analytical Laboratory

