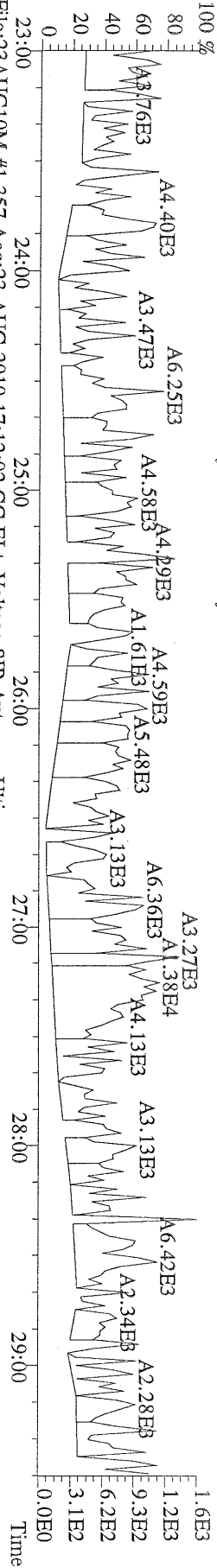
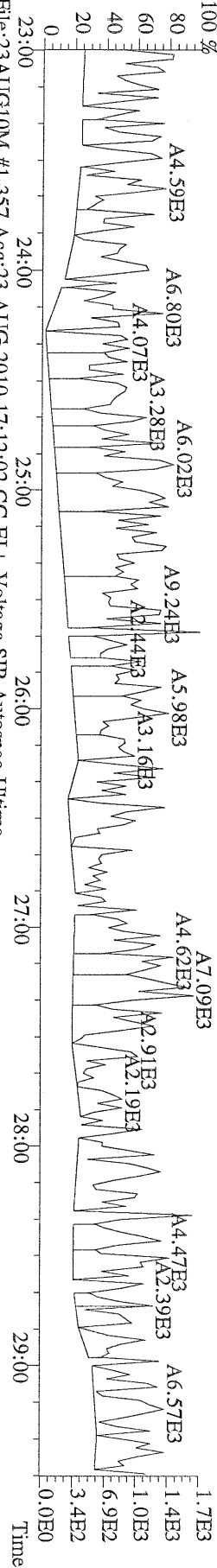


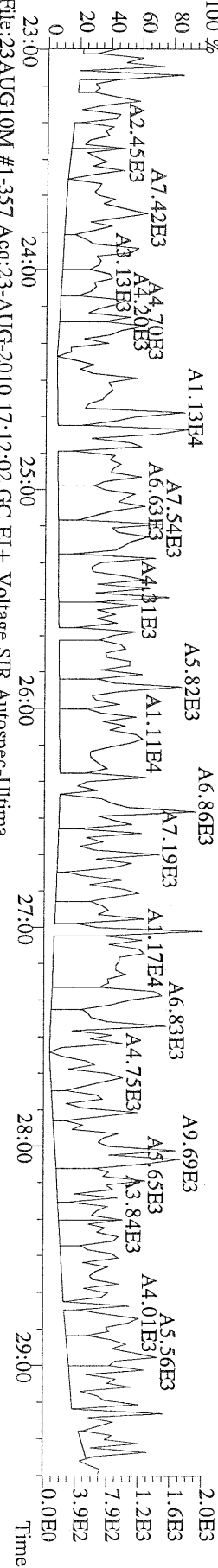
File:23AUG10M #1-357 Acq:23-AUG-2010 17:12:02 GC EI + Voltage SIR Autospec-Utima
 339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



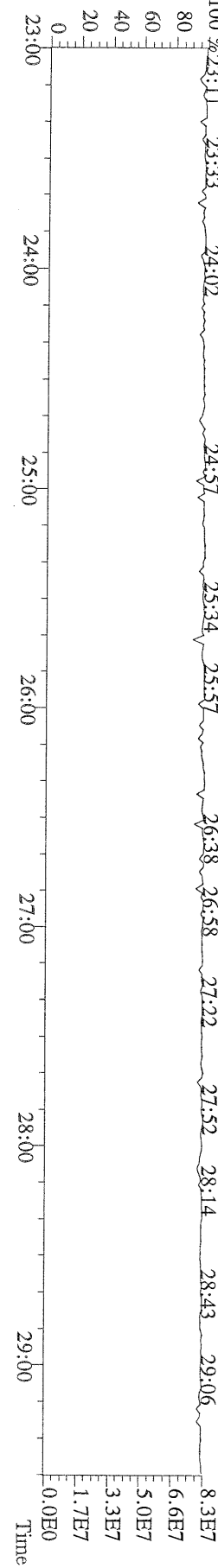
File:23AUG10M #1-357 Acq:23-AUG-2010 17:12:02 GC EI + Voltage SIR Autospec-Utima
 341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



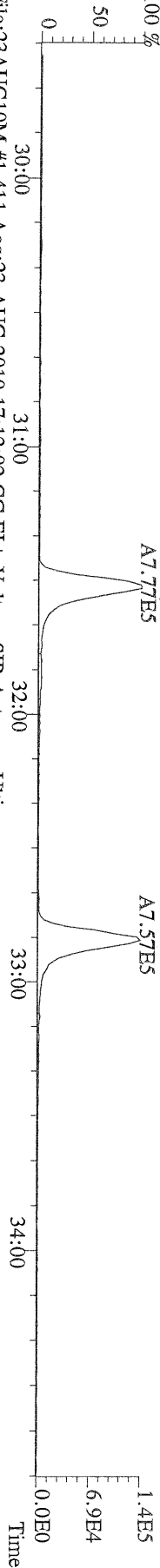
File:23AUG10M #1-357 Acq:23-AUG-2010 17:12:02 GC EI + Voltage SIR Autospec-Utima
 409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



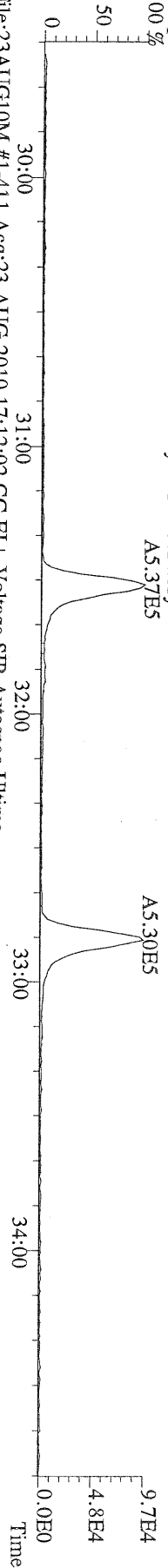
File:23AUG10M #1-357 Acq:23-AUG-2010 17:12:02 GC EI + Voltage SIR Autospec-Utima
 330.9792 S:4 Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



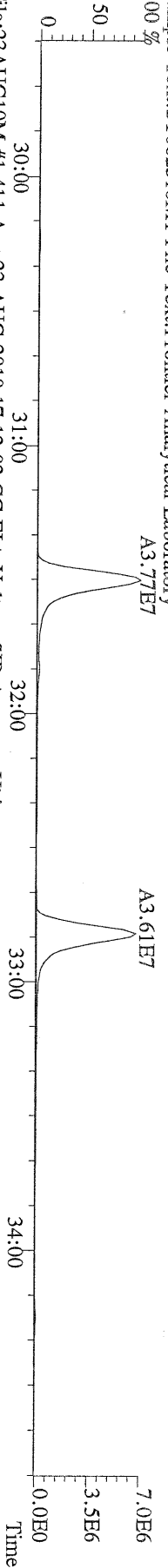
File:23AUG10M #1-411 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



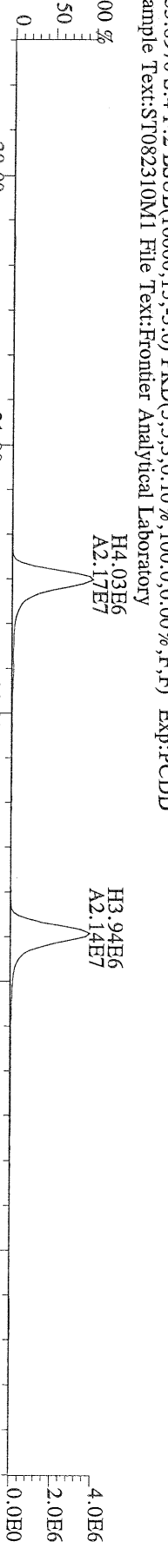
File:23AUG10M #1-411 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



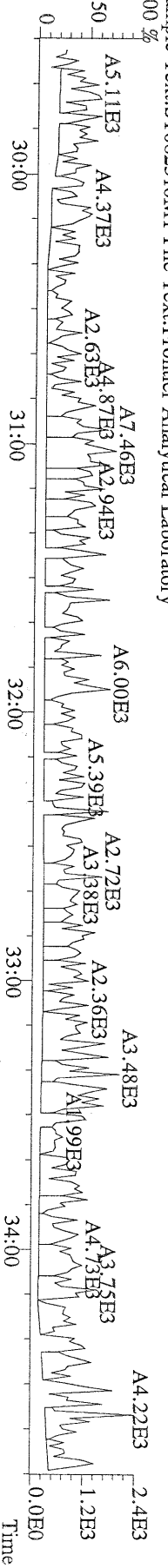
File:23AUG10M #1-411 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



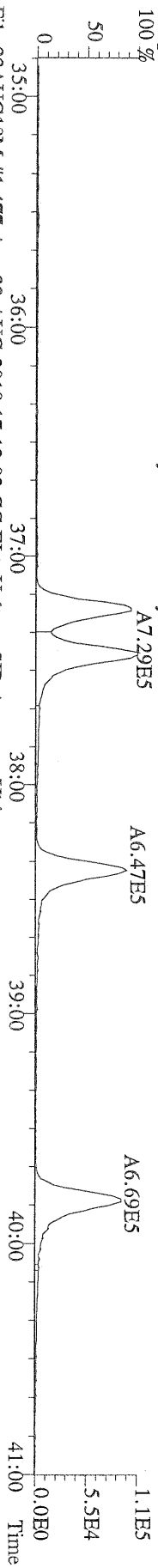
File:23AUG10M #1-411 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 353.8970 S:4 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



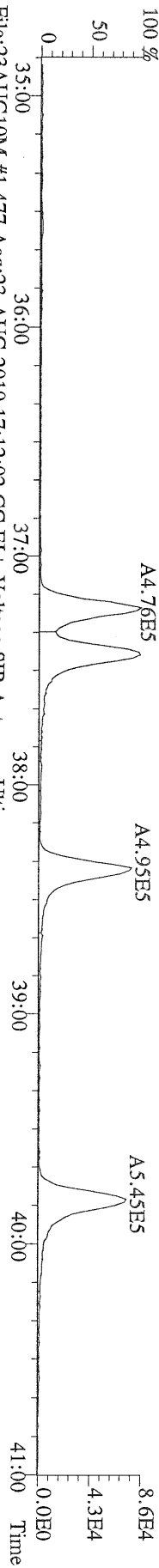
File:23AUG10M #1-411 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:4 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



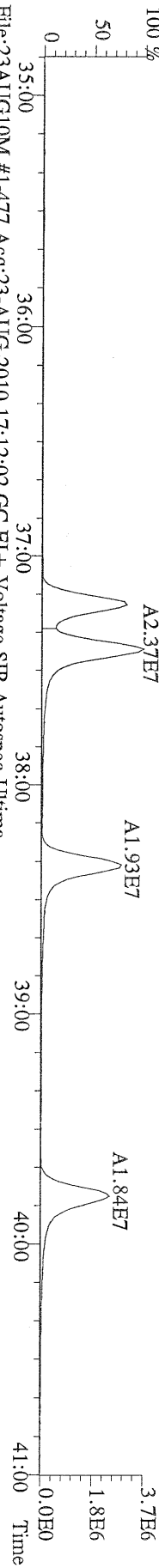
File:23AUG10M #1-477 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



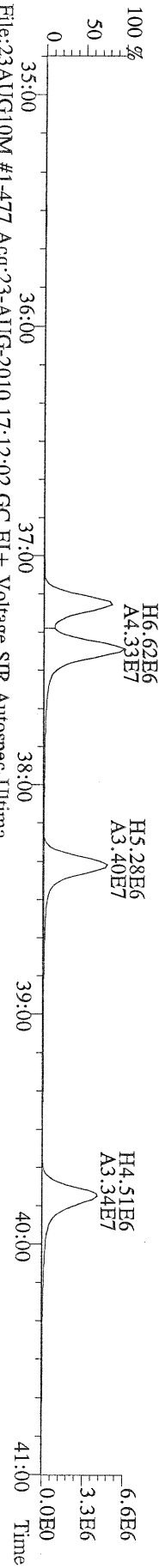
File:23AUG10M #1-477 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



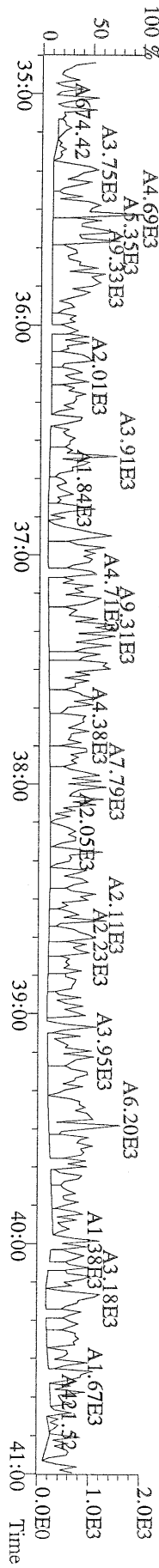
File:23AUG10M #1-477 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



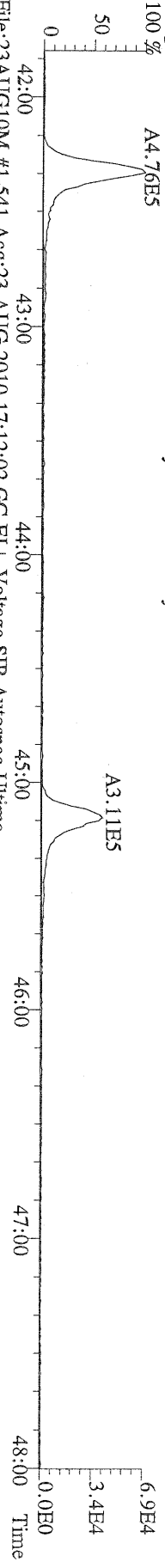
File:23AUG10M #1-477 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



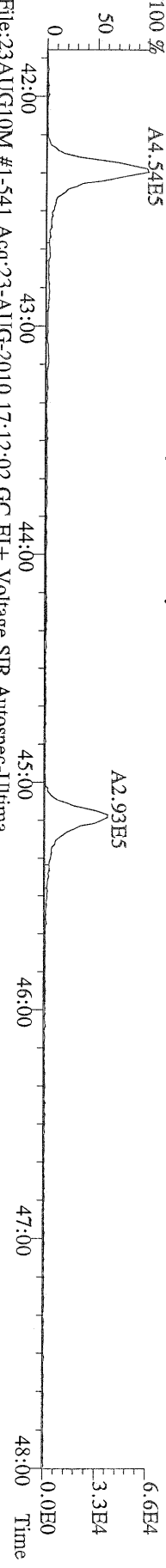
File:23AUG10M #1-477 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



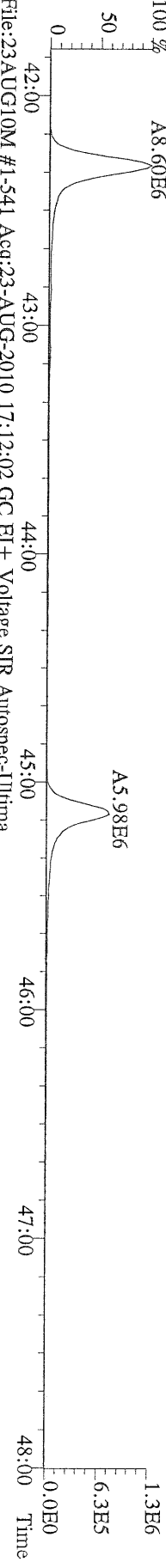
File:23AUG10M #1-541 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



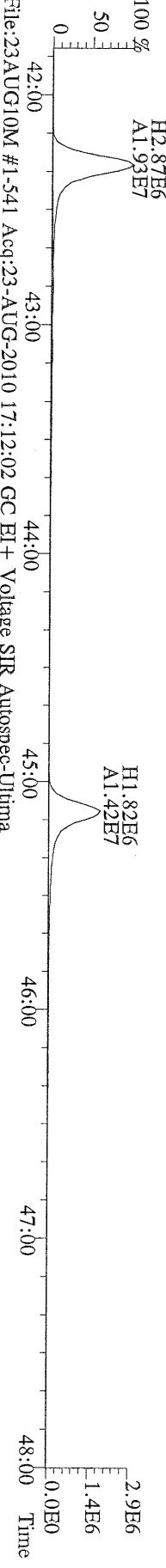
File:23AUG10M #1-541 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



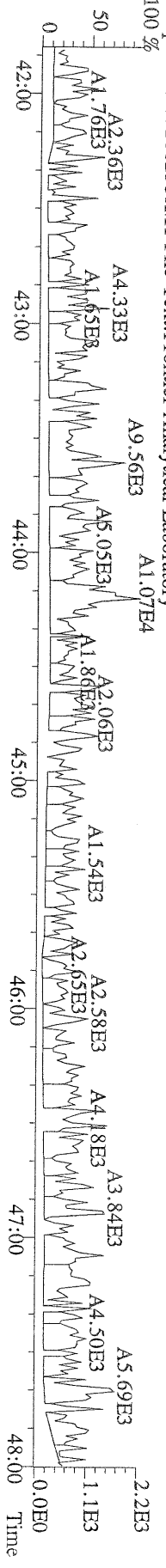
File:23AUG10M #1-541 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



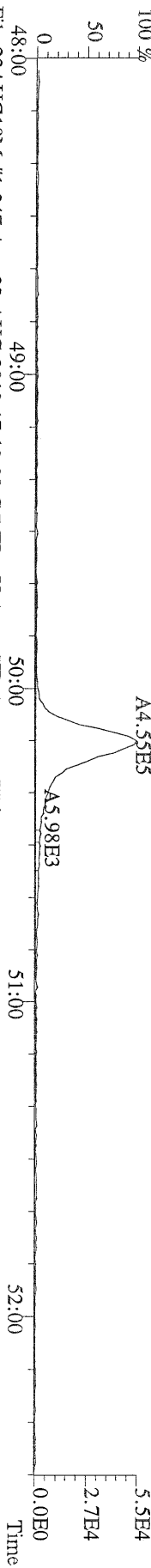
File:23AUG10M #1-541 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



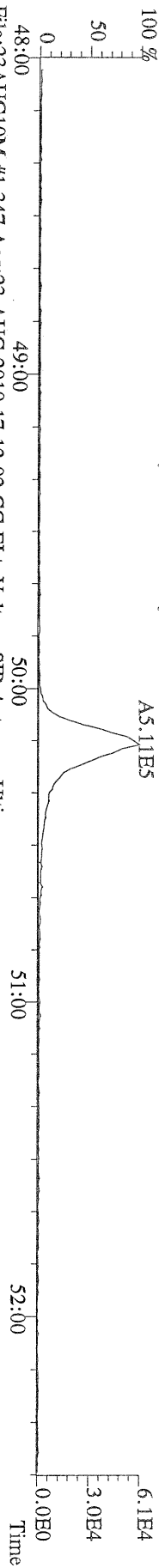
File:23AUG10M #1-541 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
 479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



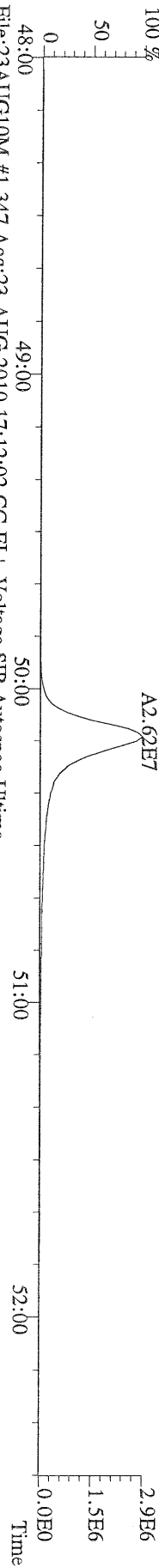
File:23AUG10M #1-347 Acq:23-AUG-2010 17:12:02 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



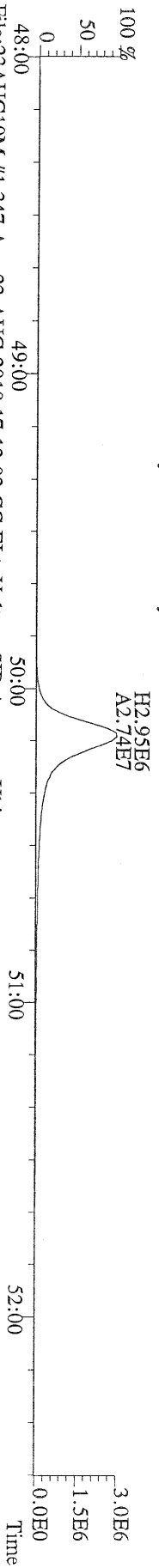
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443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



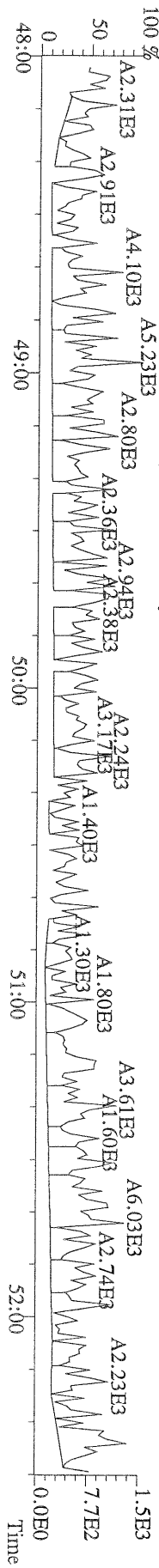
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453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



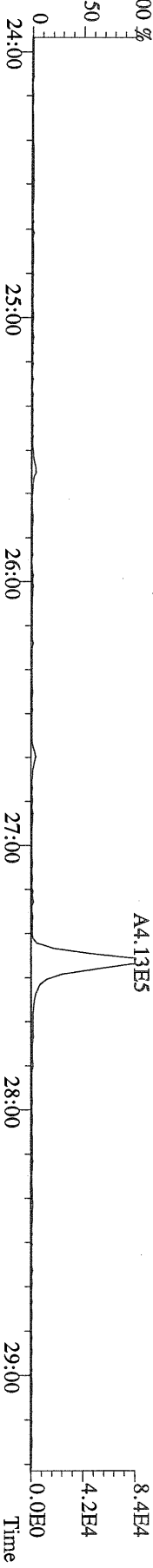
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455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



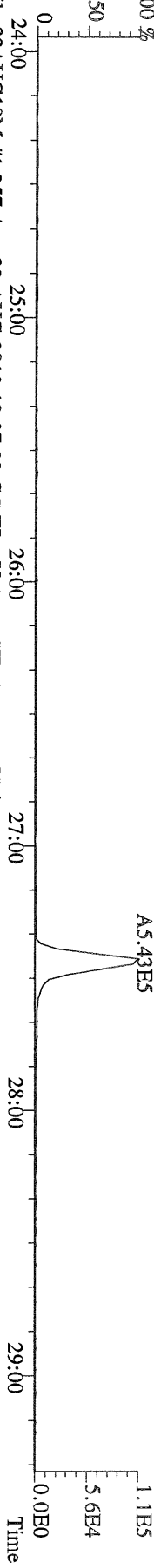
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513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M1 File Text:Frontier Analytical Laboratory



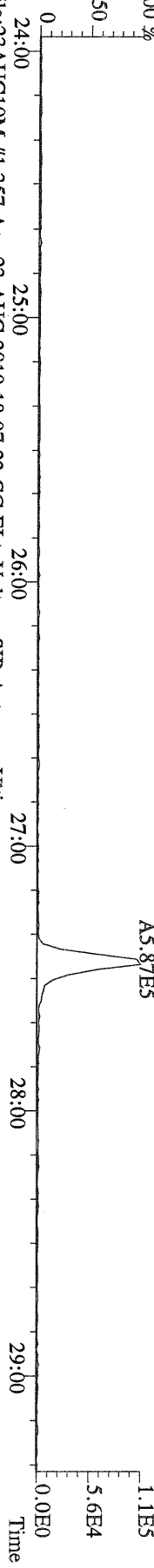
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



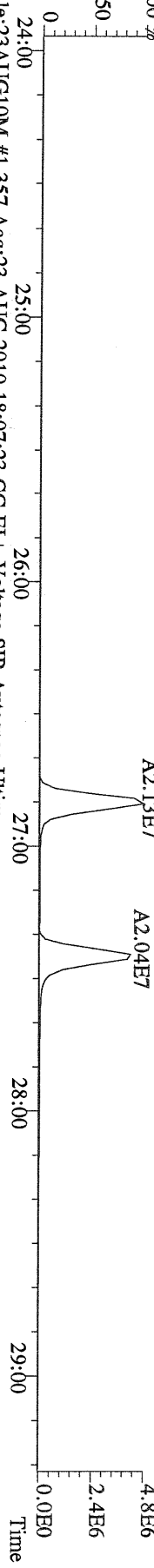
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



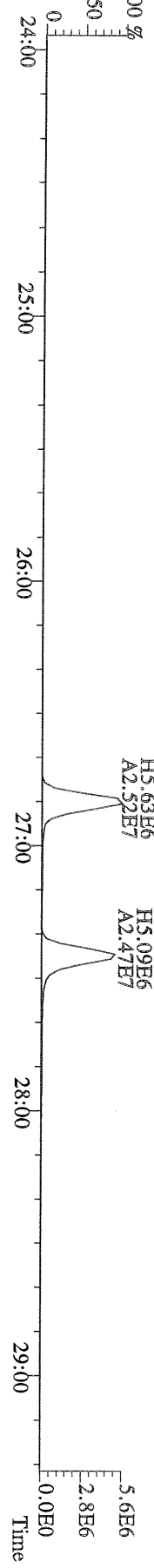
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



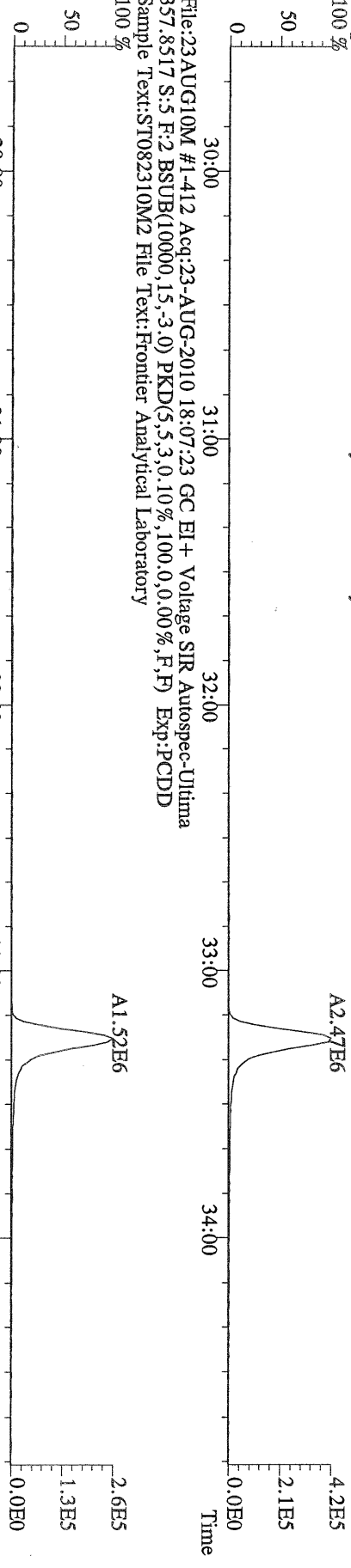
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



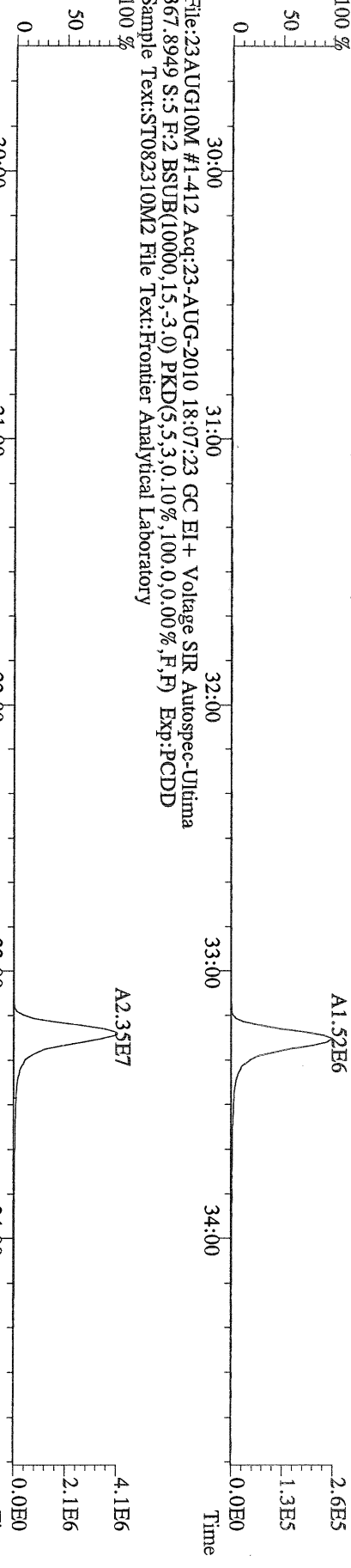
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



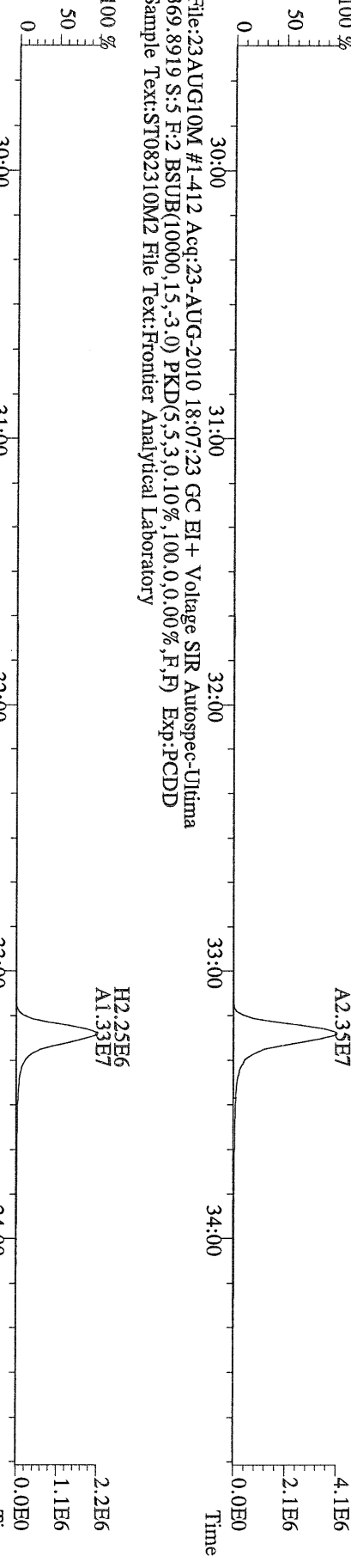
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



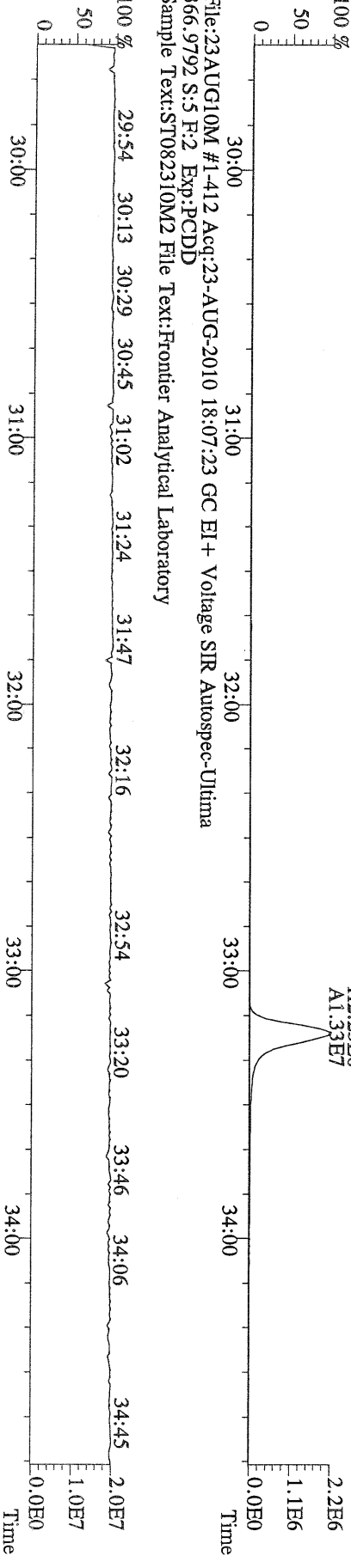
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357.8517 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



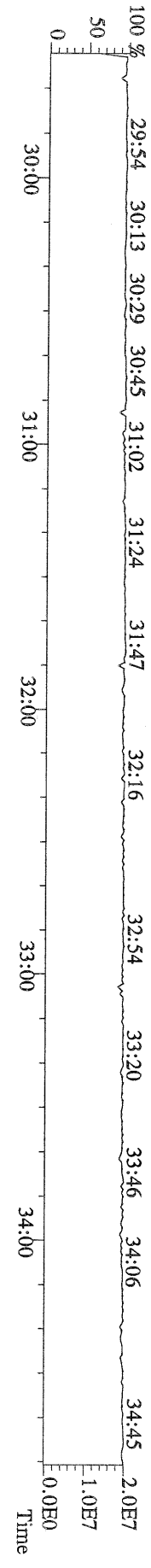
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



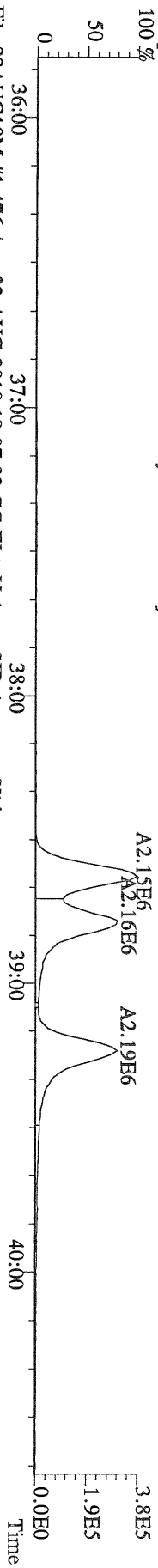
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
369.8919 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



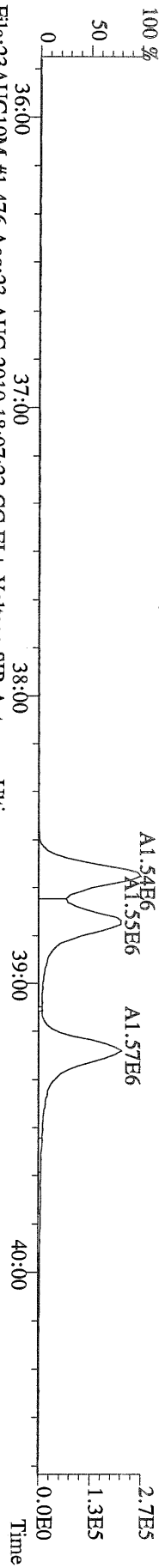
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:5 F:2 Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



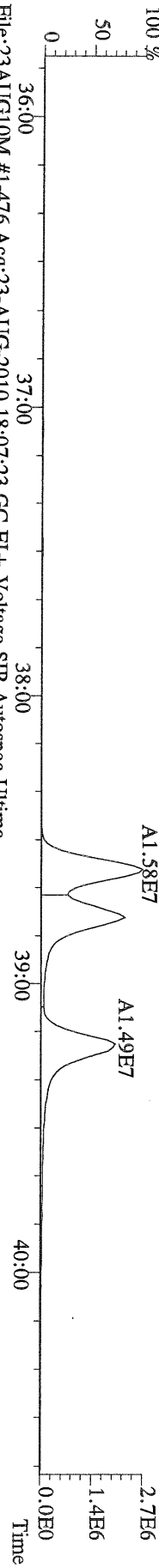
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp.:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



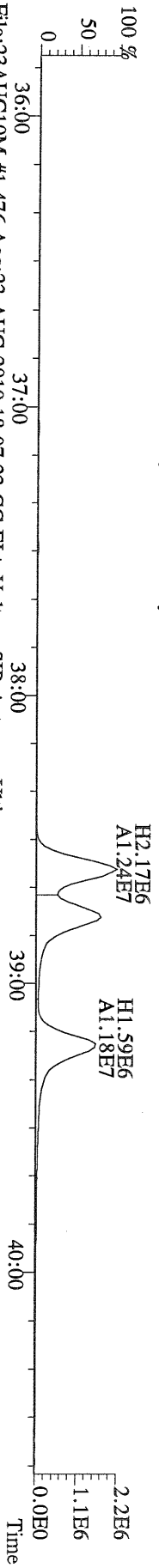
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp.:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



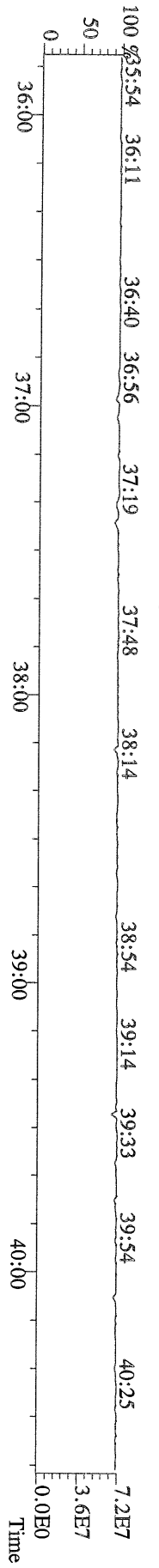
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp.:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



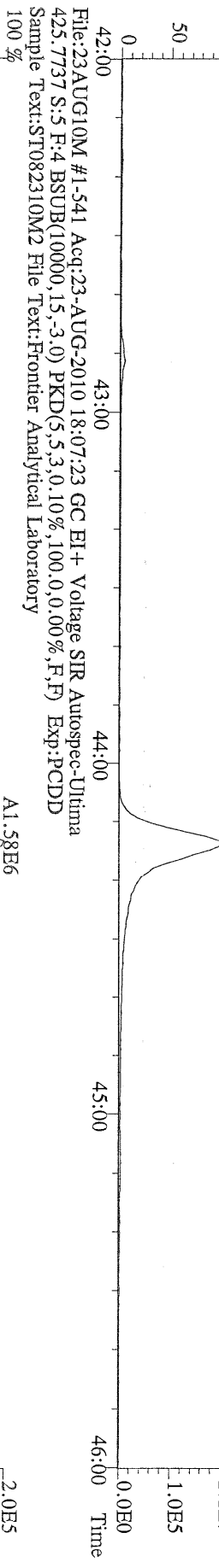
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp.:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



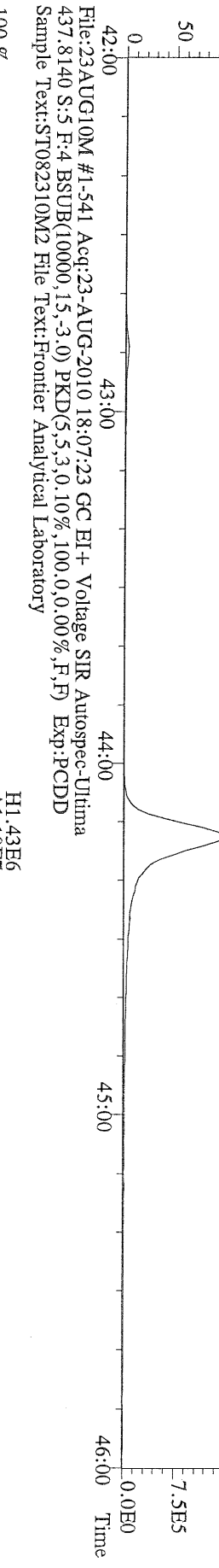
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
380.9760 S:5 F:3 Exp.:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



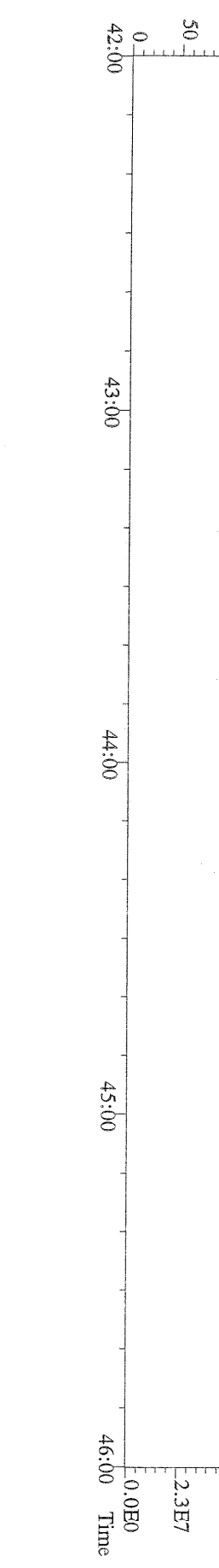
File:23AUG10M #1-541 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



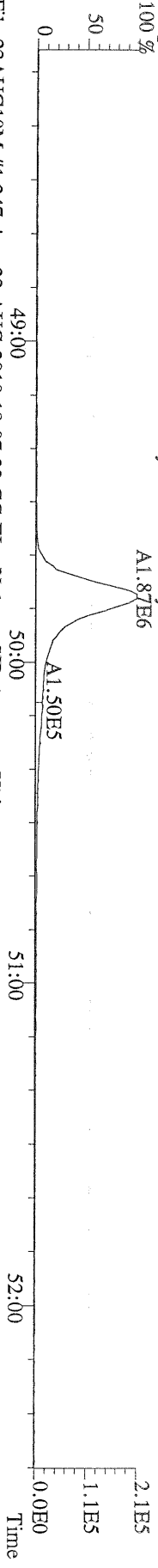
File:23AUG10M #1-541 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



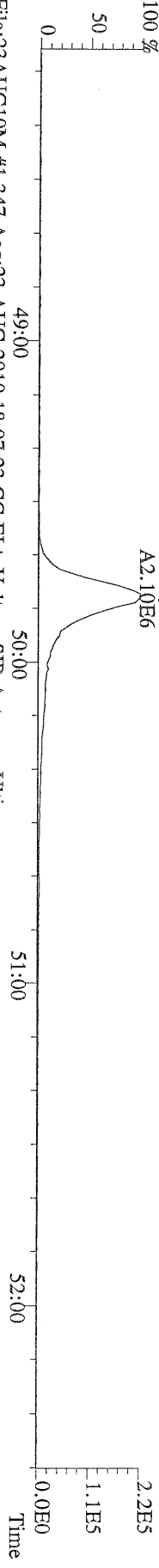
File:23AUG10M #1-541 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:5 F:4 Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory
100 %



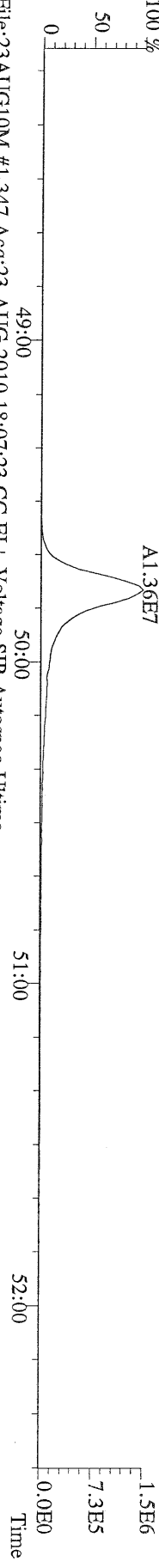
File:23AUG10M #1-347 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



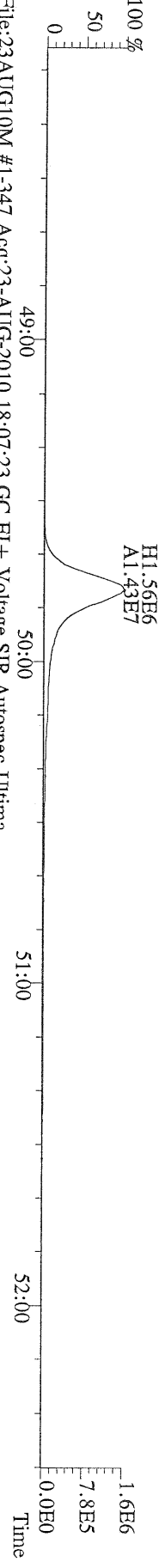
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459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



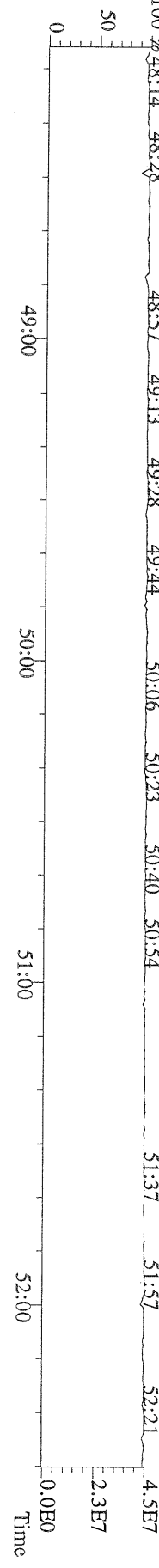
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469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



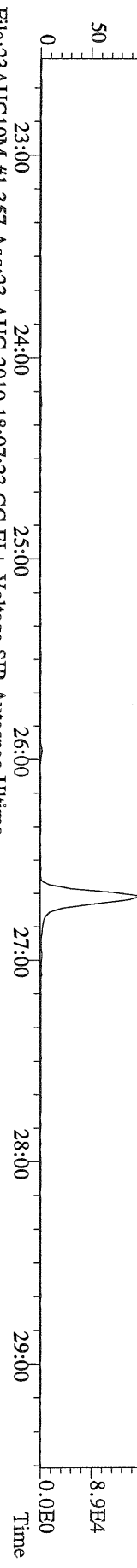
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471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



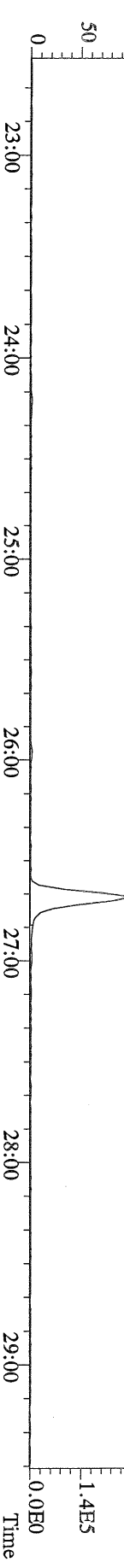
File:23AUG10M #1-347 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
454.9728 S:5 F:5 Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



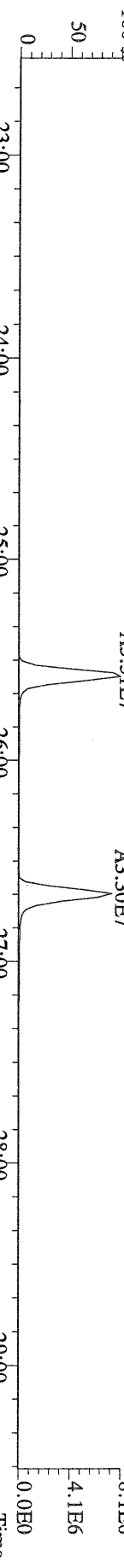
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



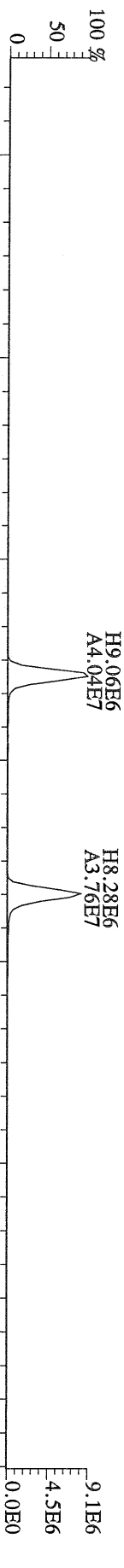
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



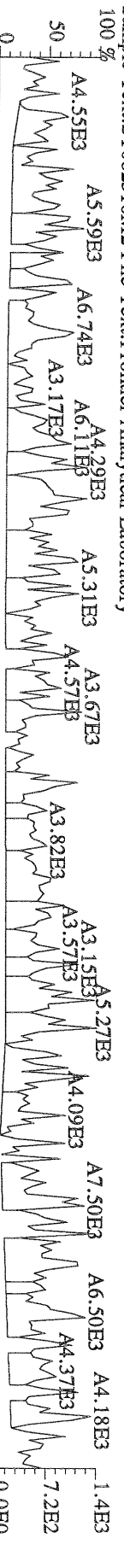
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



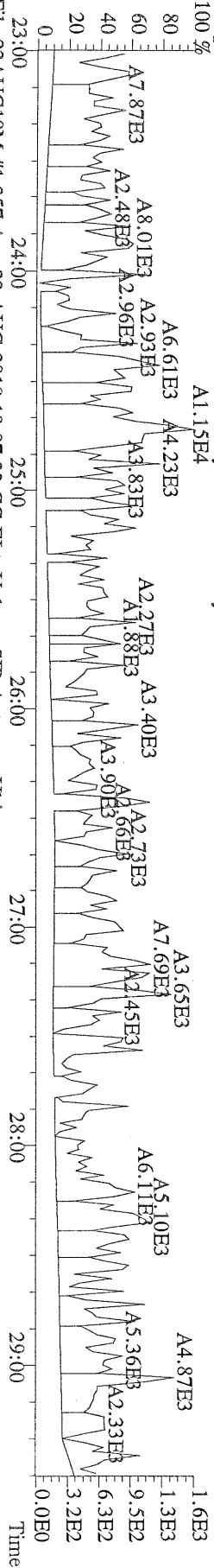
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 317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



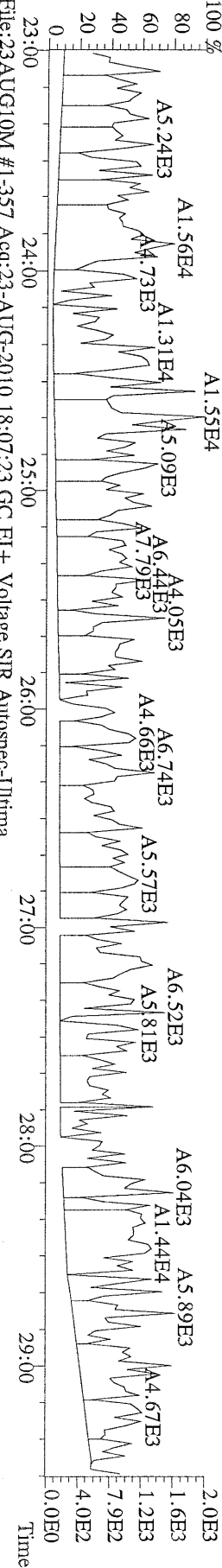
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 375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



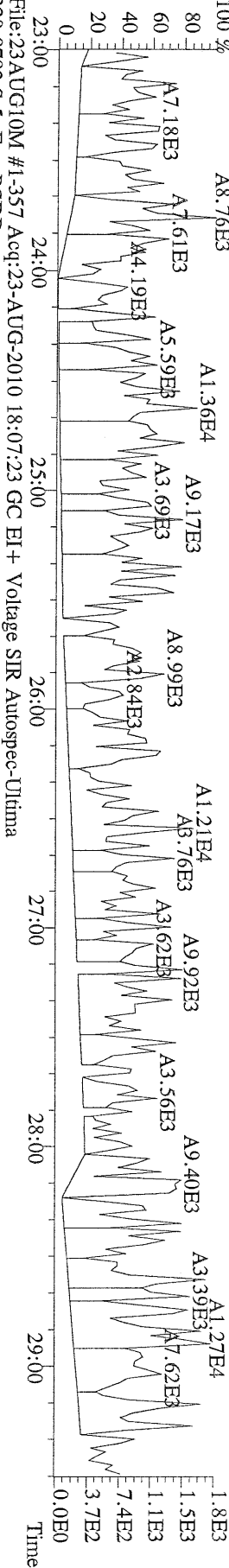
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



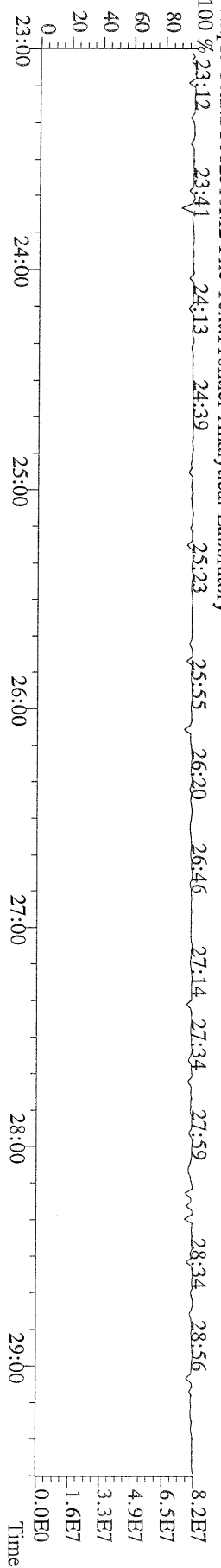
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



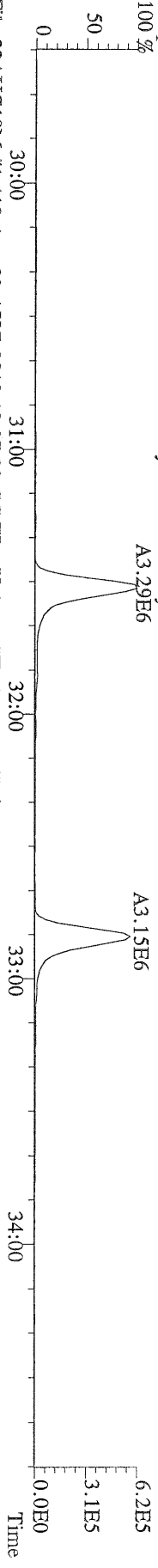
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



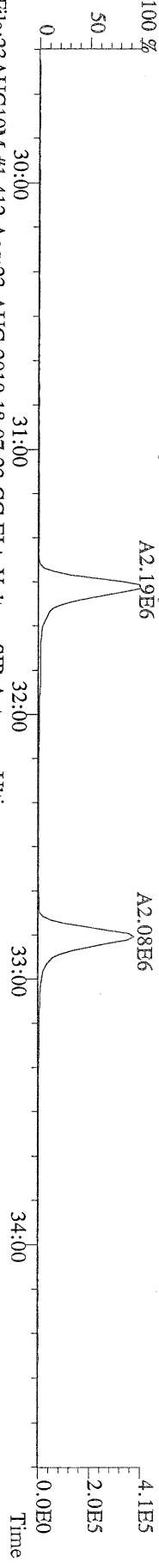
File:23AUG10M #1-357 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 330.9792 S:5 Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



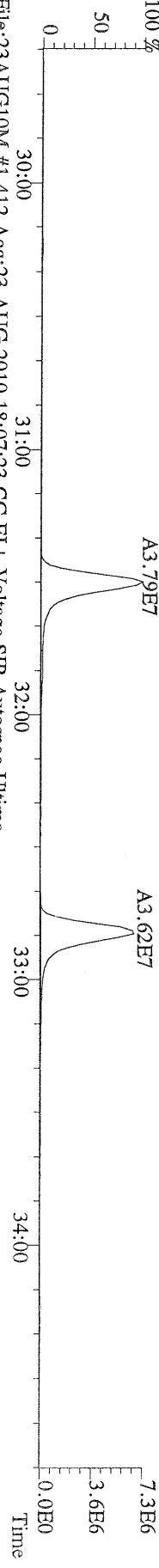
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
 339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



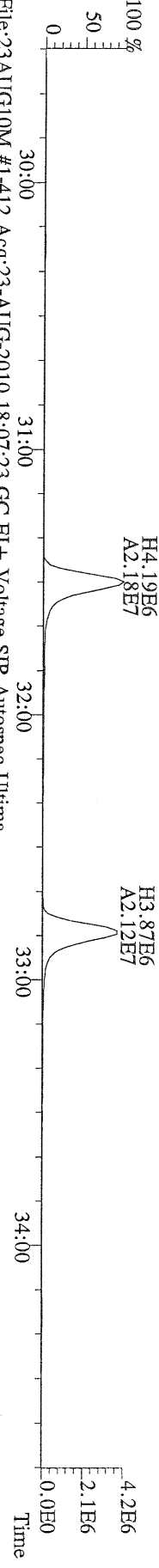
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
 341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



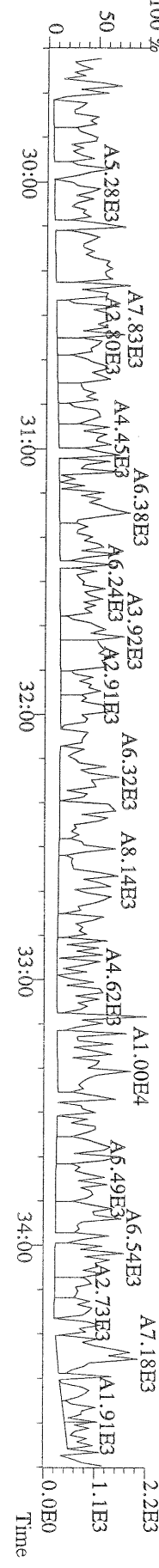
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
 351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



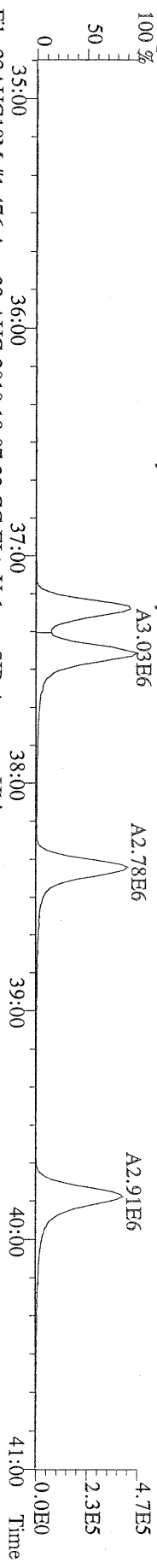
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
 353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



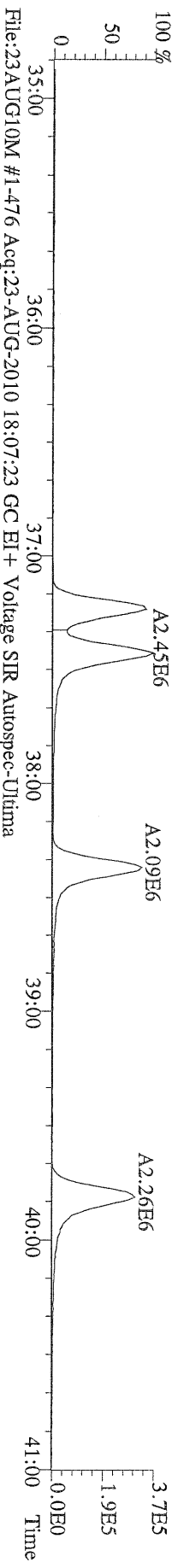
File:23AUG10M #1-412 Acq:23-AUG-2010 18:07:23 GC EI + Voltage SIR Autospec-Ultima
 409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



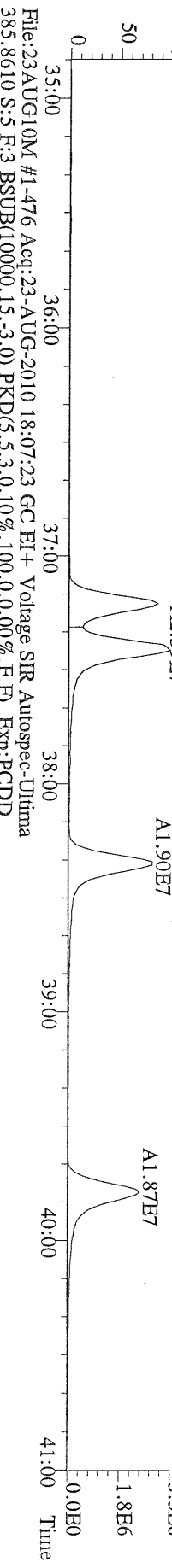
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



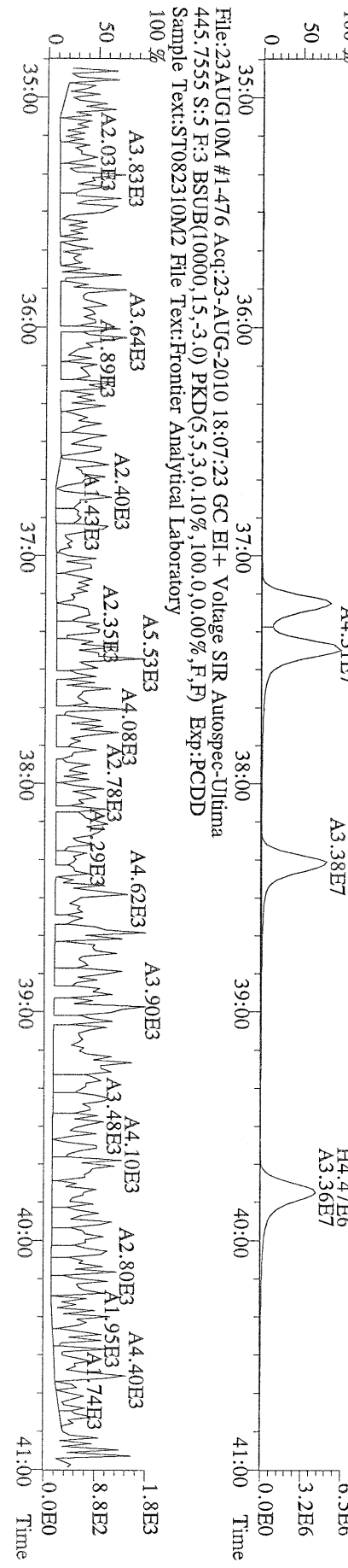
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



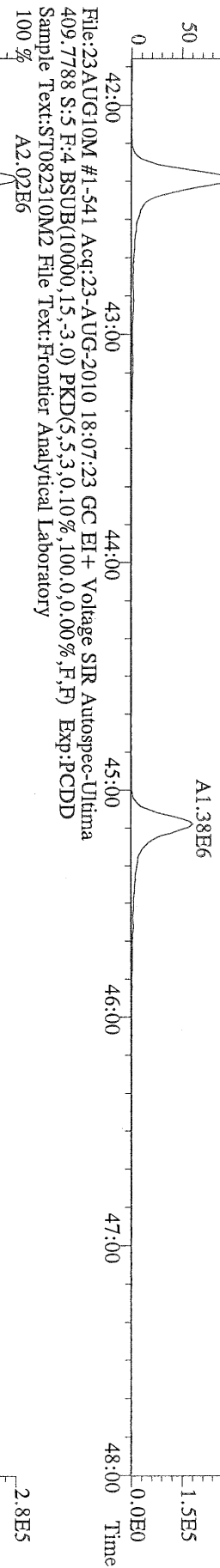
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



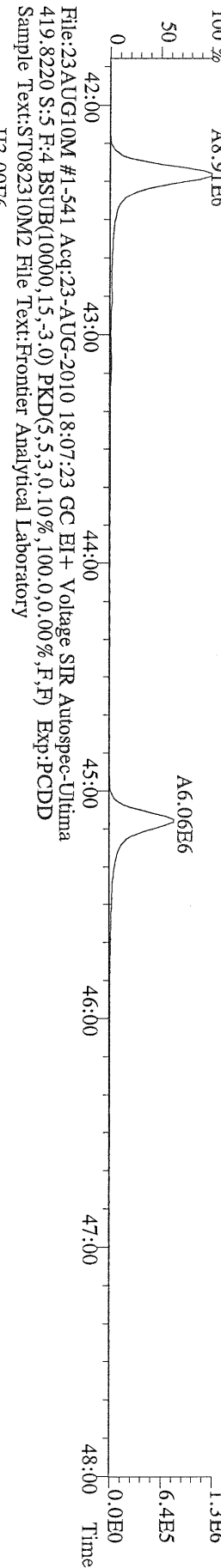
File:23AUG10M #1-476 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



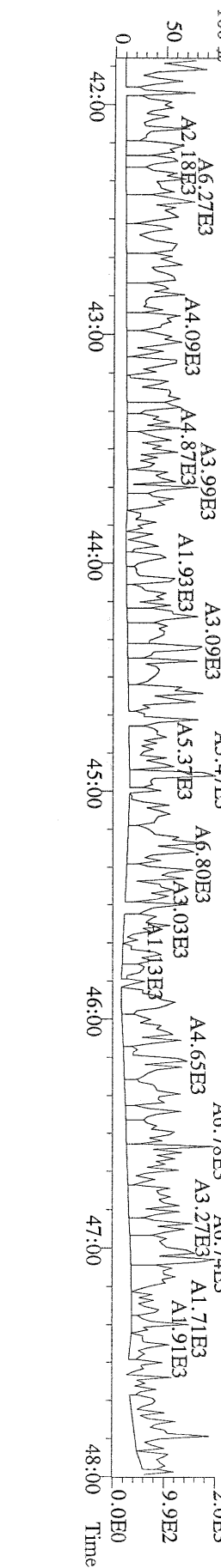
File:23AUG10M #1-541 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Fronter Analytical Laboratory



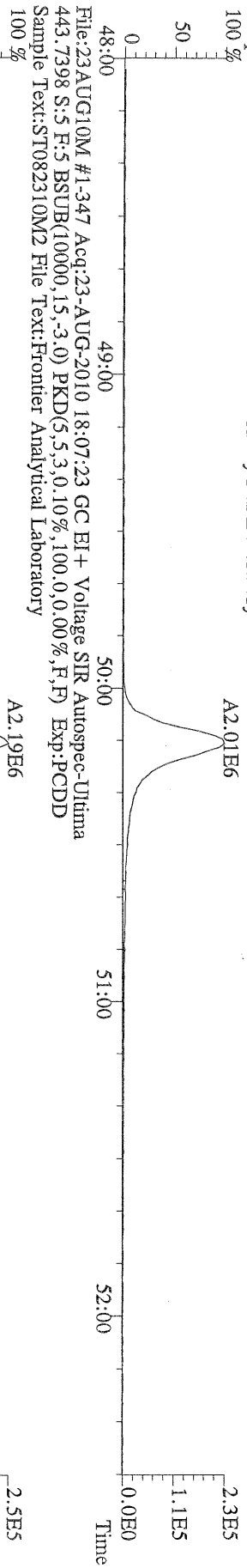
File:23AUG10M #1-541 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Fronter Analytical Laboratory



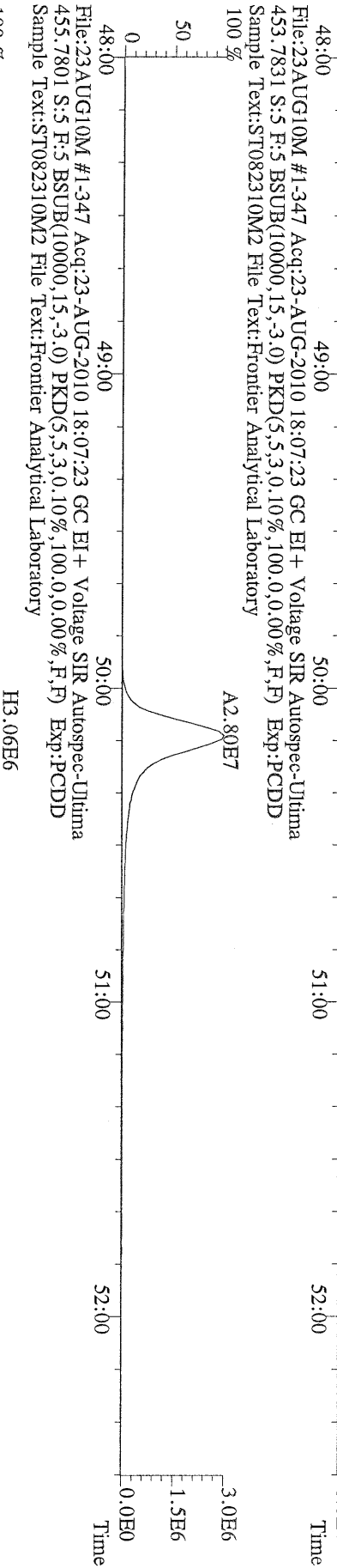
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419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0,0%) F,F) Exp:PCDD
Sample Text:ST082310M2 File Text:Fronter Analytical Laboratory



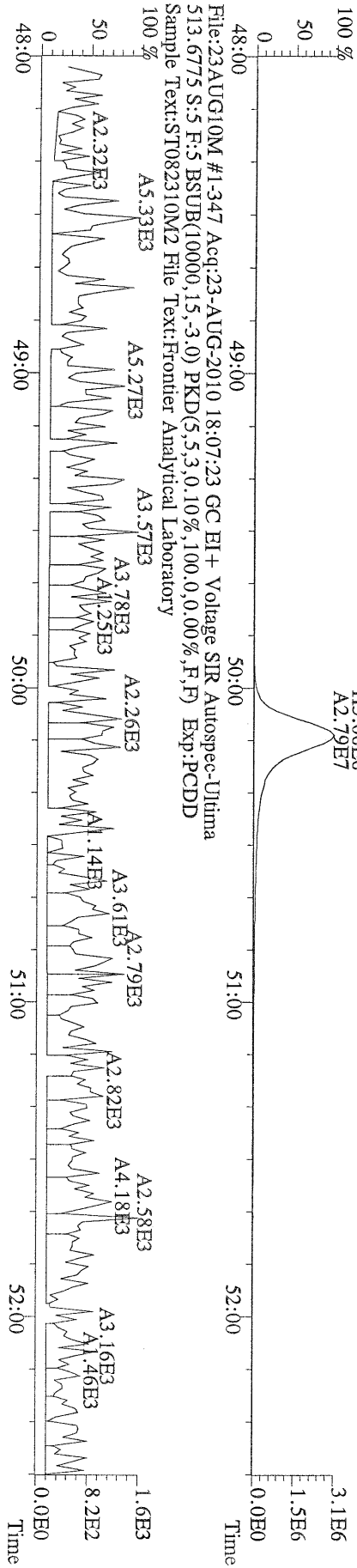
File:23AUG10M #1-347 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



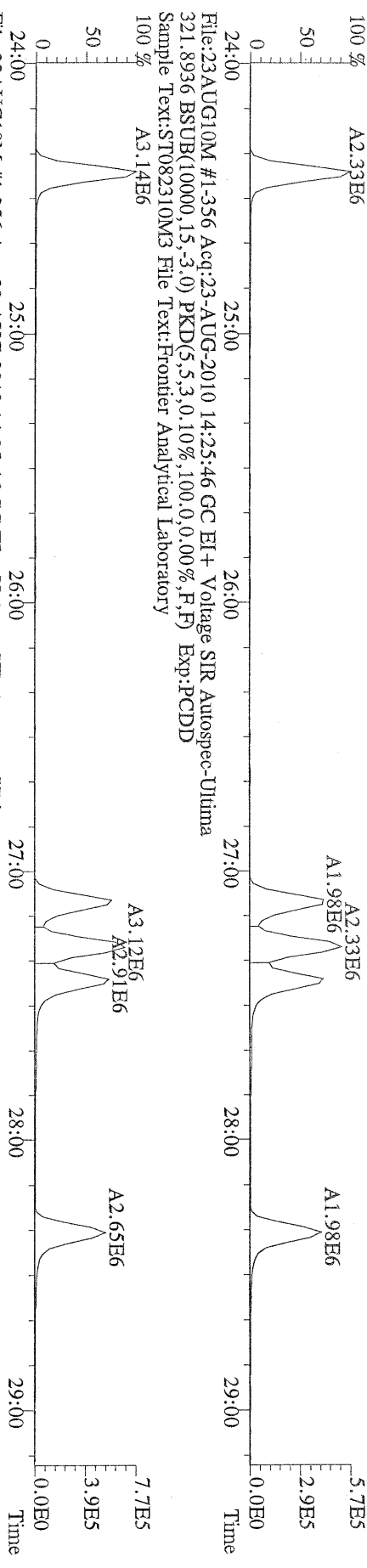
File:23AUG10M #1-347 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



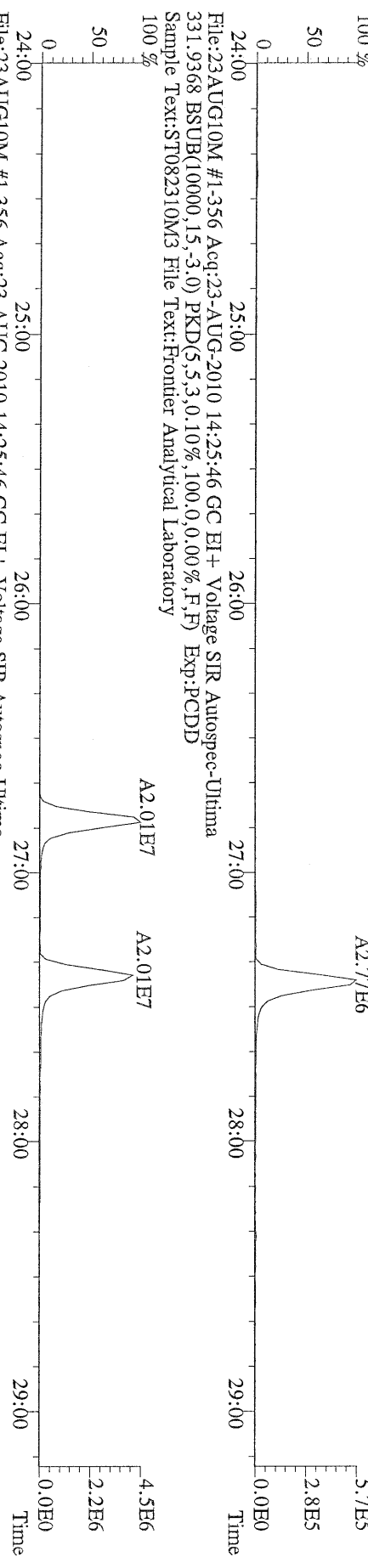
File:23AUG10M #1-347 Acq:23-AUG-2010 18:07:23 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M2 File Text:Frontier Analytical Laboratory



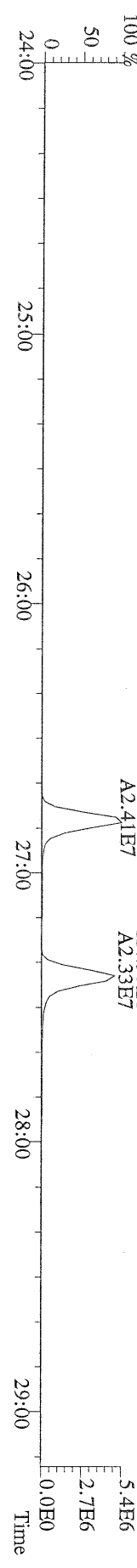
File:23AUG10M #1-356 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



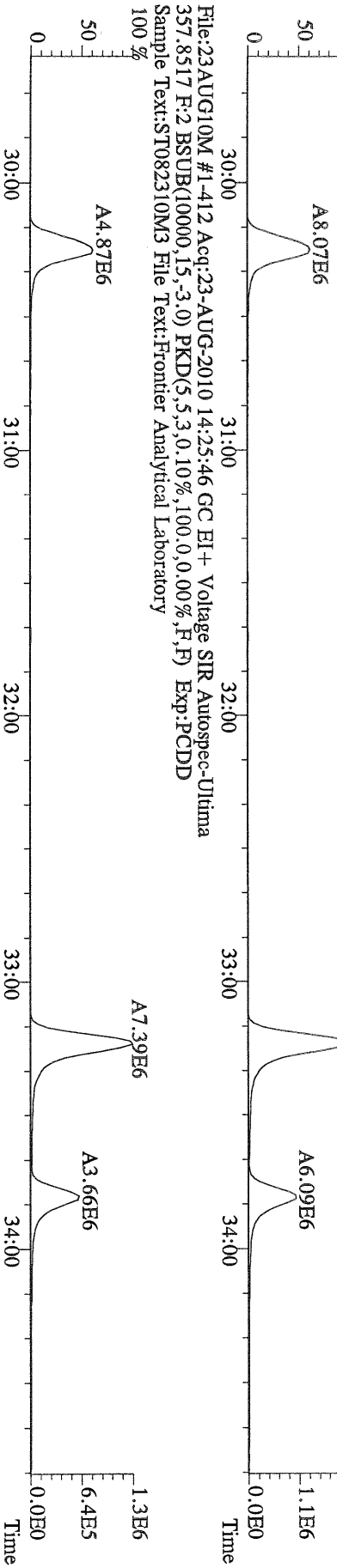
File:23AUG10M #1-356 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



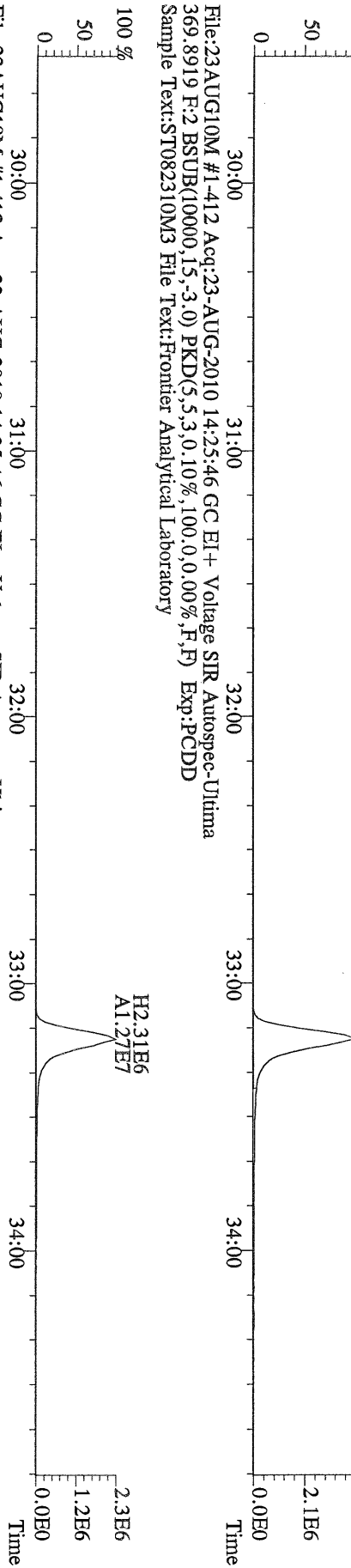
File:23AUG10M #1-356 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



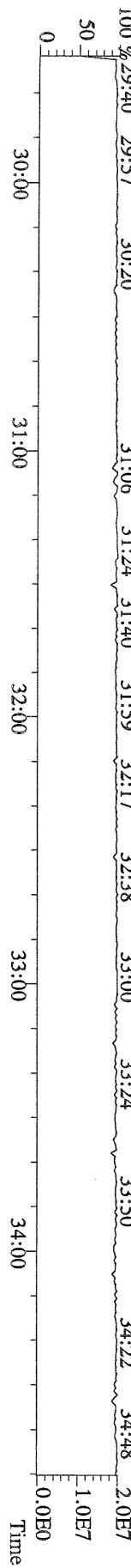
File:23AUG10M #1-412 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory
 100 %



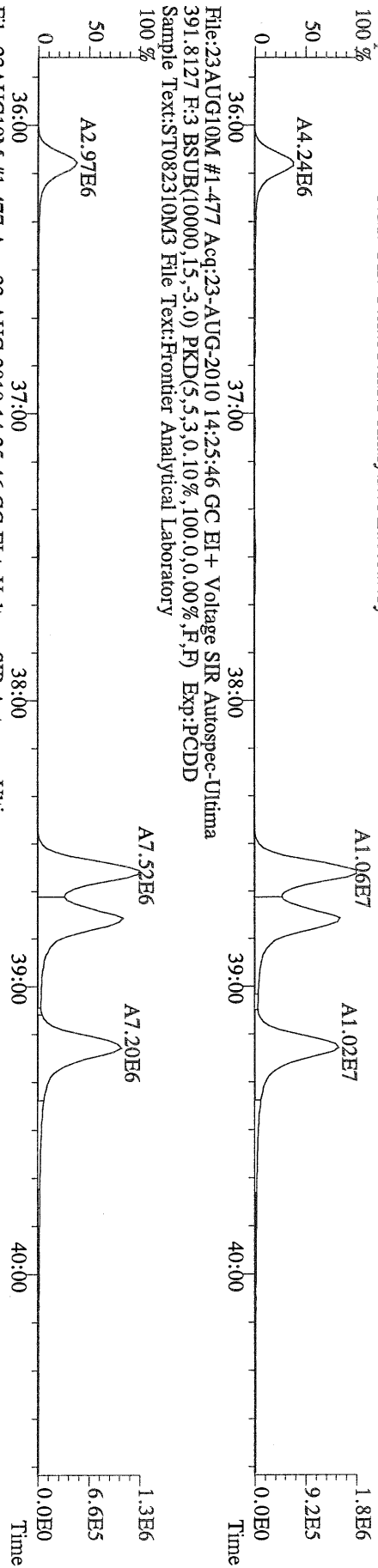
File:23AUG10M #1-412 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3.0,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory
 100 %



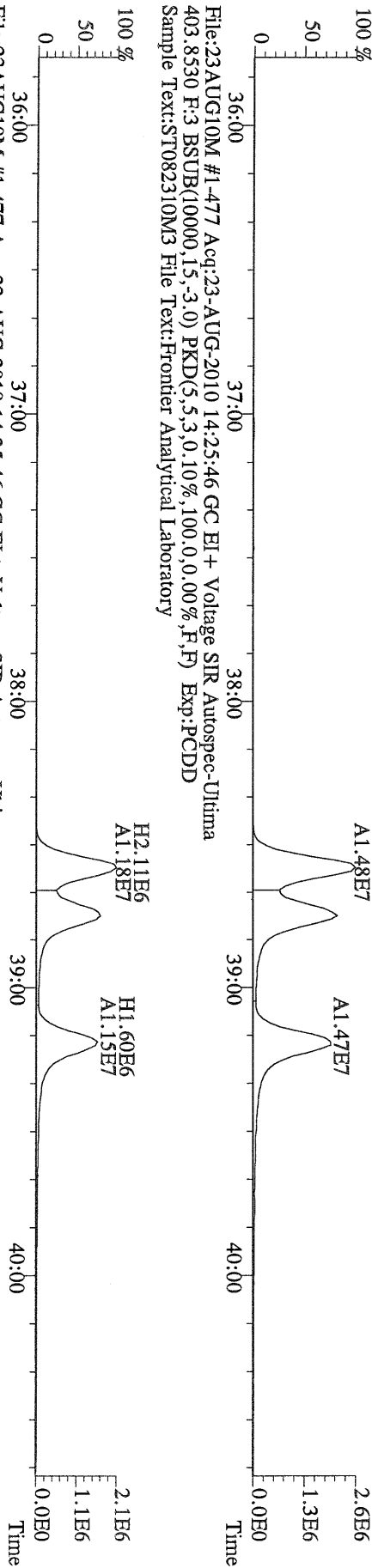
File:23AUG10M #1-412 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 366.9792 F:2 Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



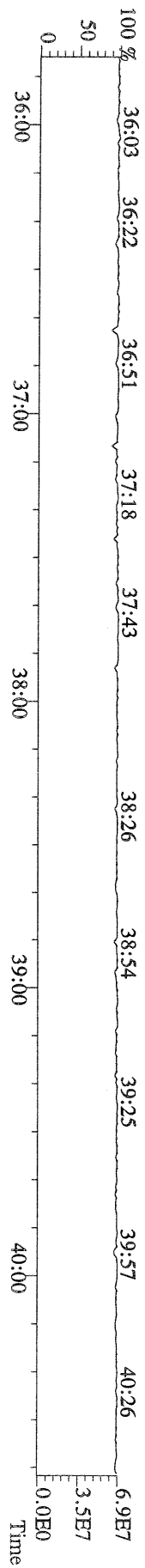
File:23AUG10M #1-477 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 389.8156 F.3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Fronter Analytical Laboratory



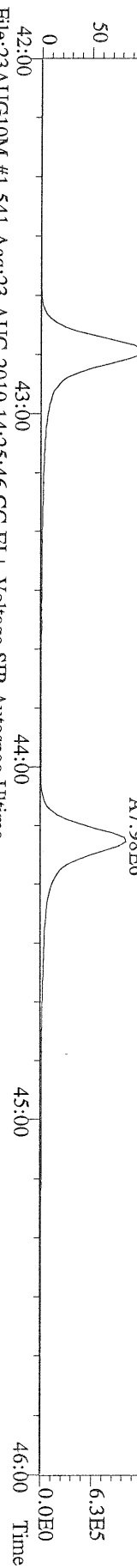
File:23AUG10M #1-477 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 401.8559 F.3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Fronter Analytical Laboratory



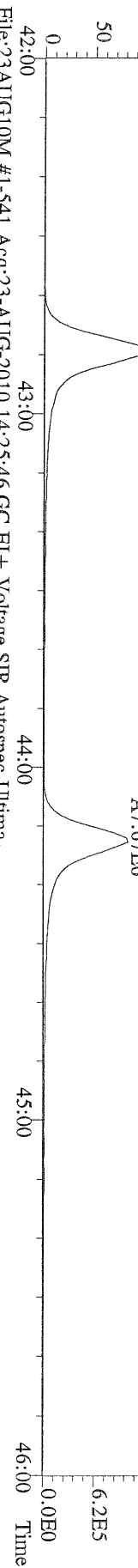
File:23AUG10M #1-477 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 380.9760 F.3 Exp:PCDD
 Sample Text:ST082310M3 File Text:Fronter Analytical Laboratory



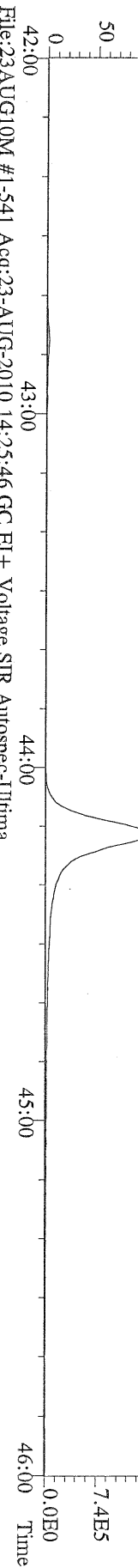
File:23AUG10M #1-541 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



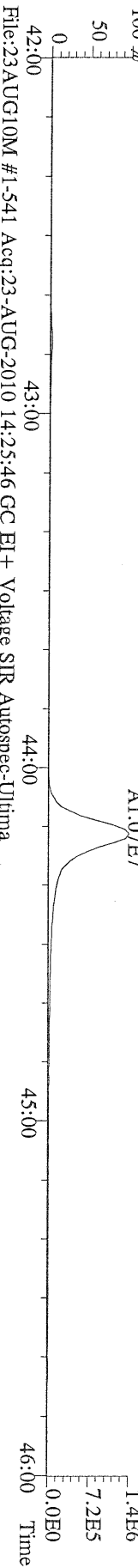
File:23AUG10M #1-541 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



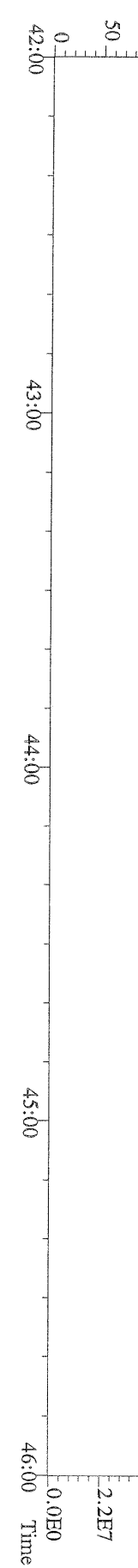
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437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



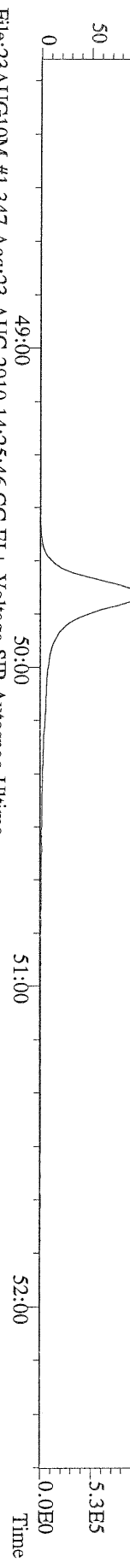
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430.9728 F:4 Exp:PCDD
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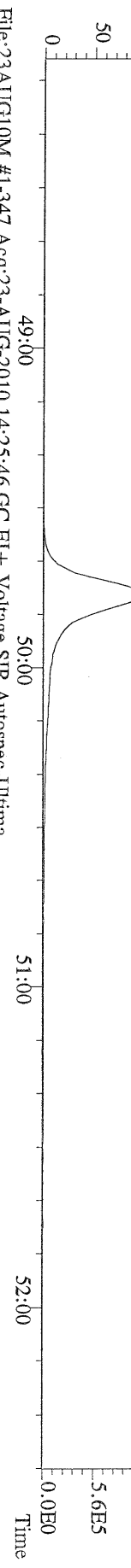
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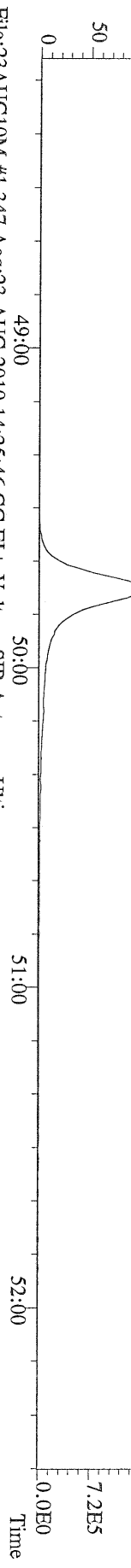
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457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



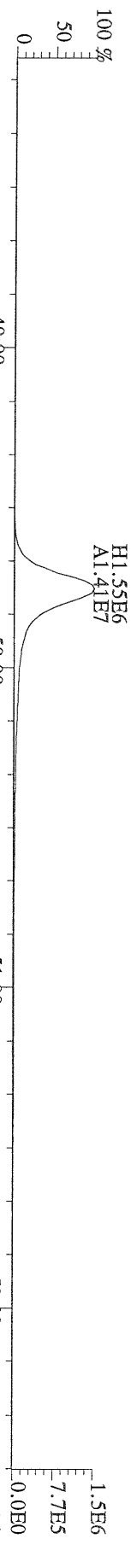
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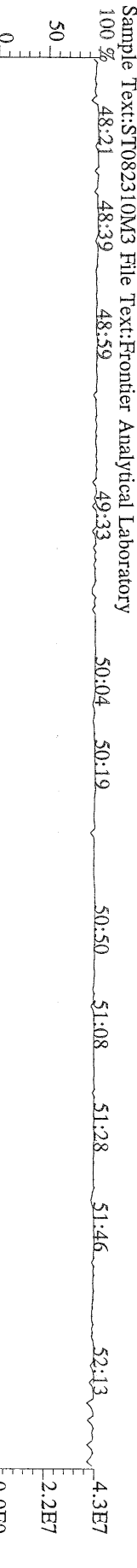
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469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



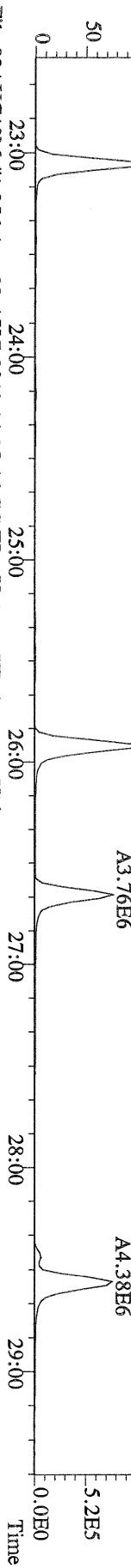
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Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



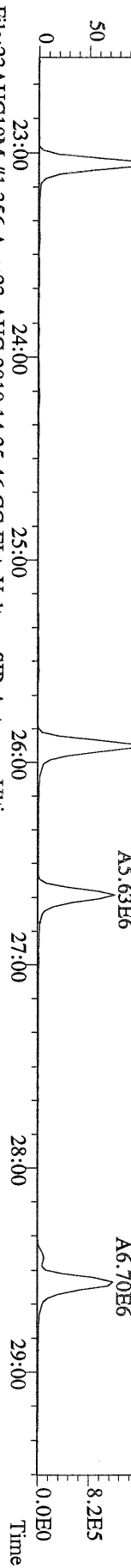
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454.9728 F:5 Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



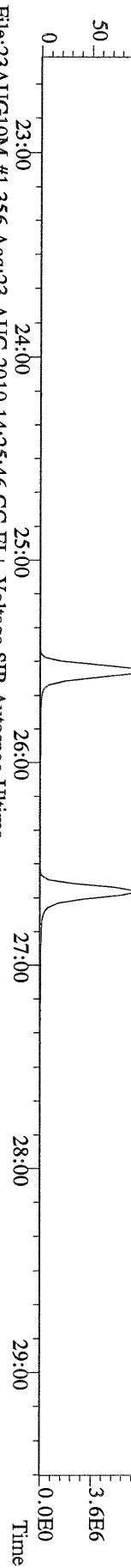
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



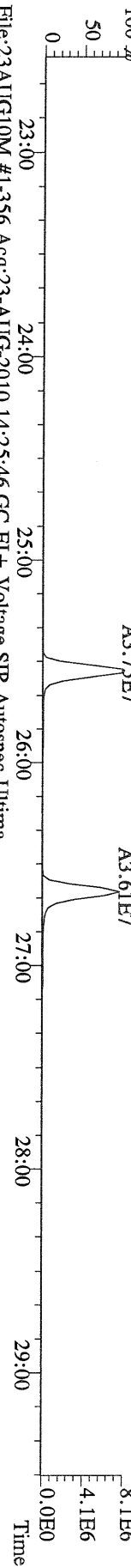
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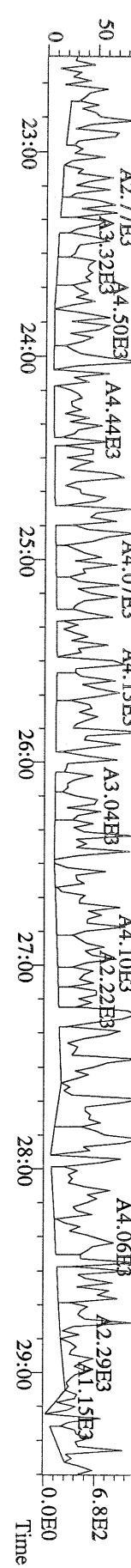
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



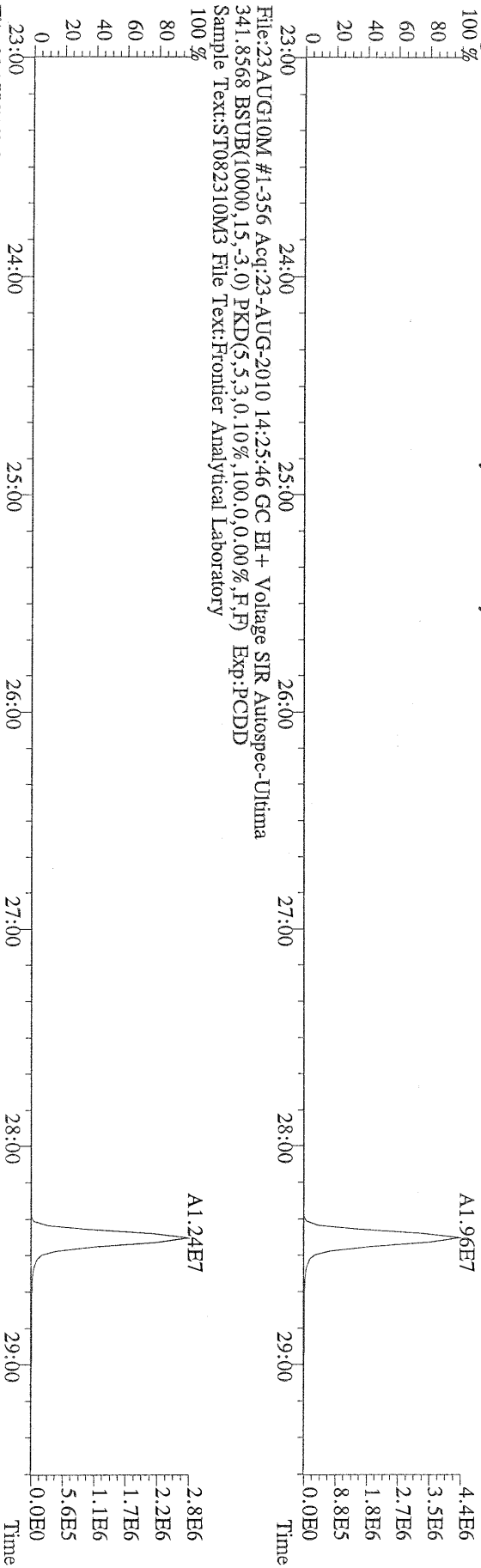
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



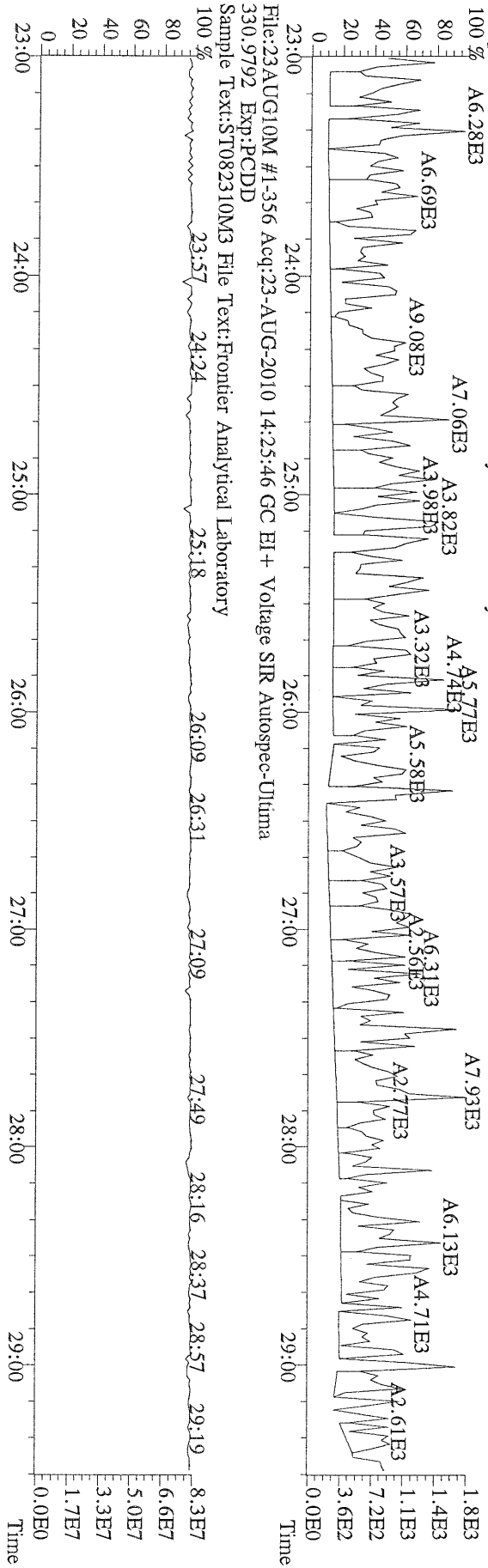
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 375.8364 BSUB(10000,15,-3,0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



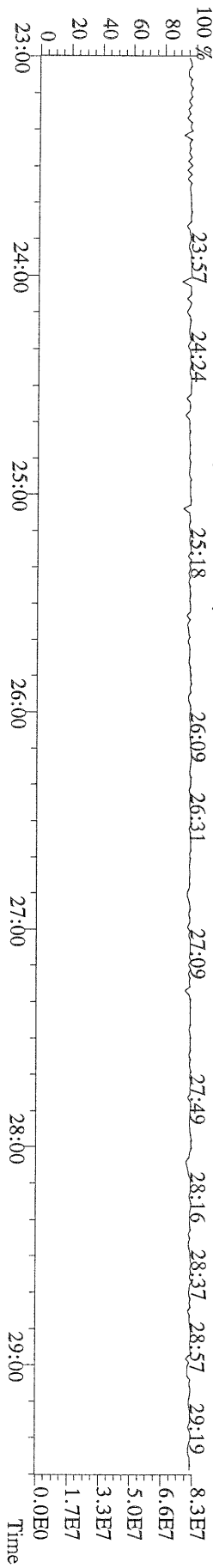
File:23AUG10M #1-356 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



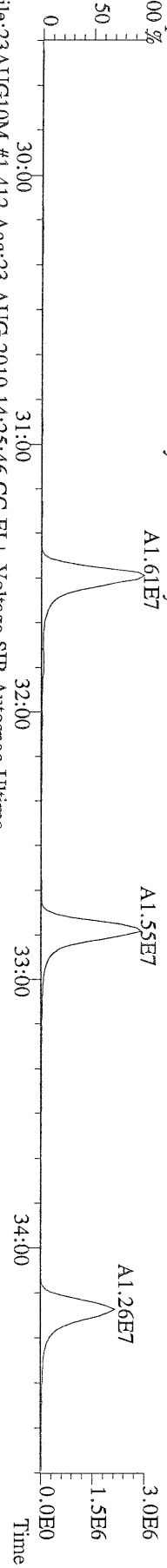
File:23AUG10M #1-356 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



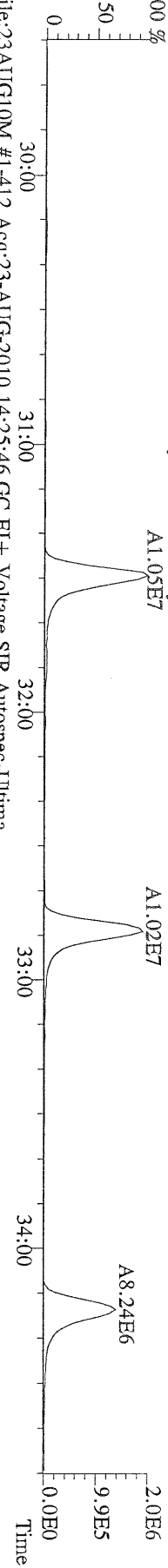
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



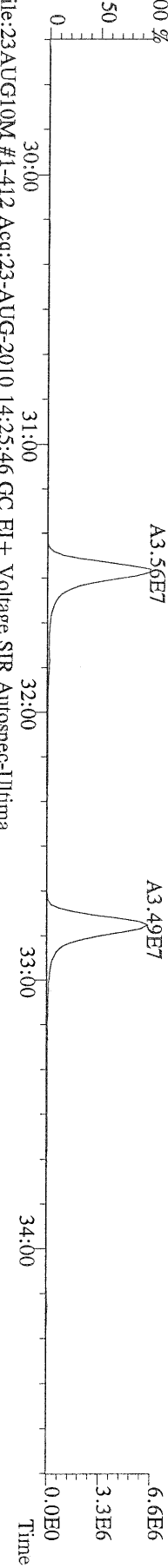
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



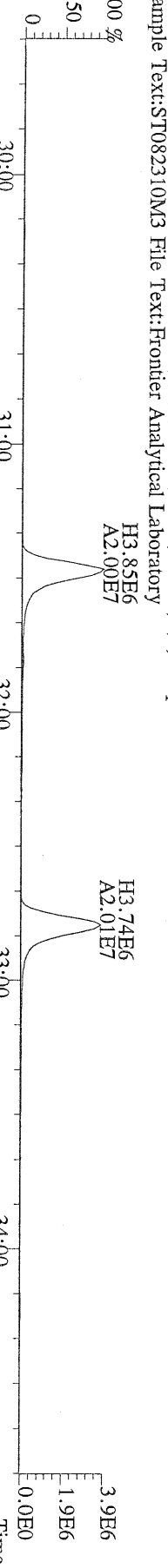
File:23AUG10M #1-412 Acq:23-AUG-2010 14:25:46 GC EI+ Voltage SIR Autospec-Ultima
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 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



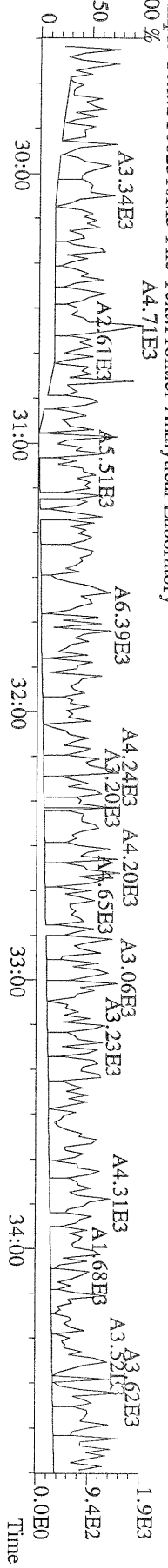
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 351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



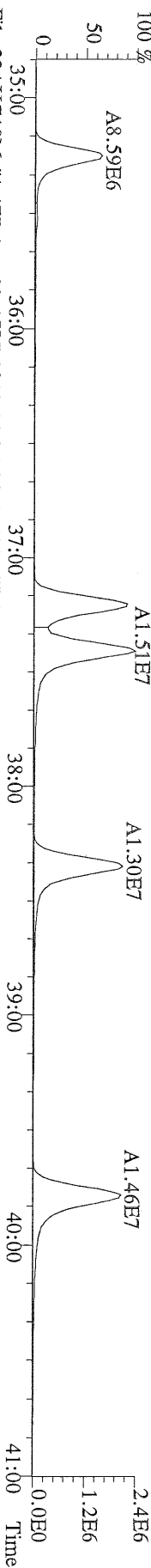
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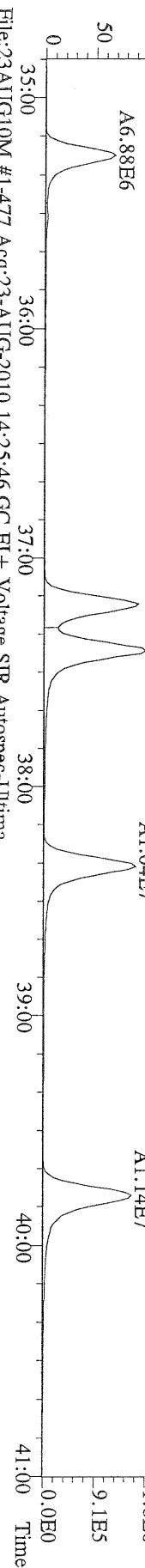
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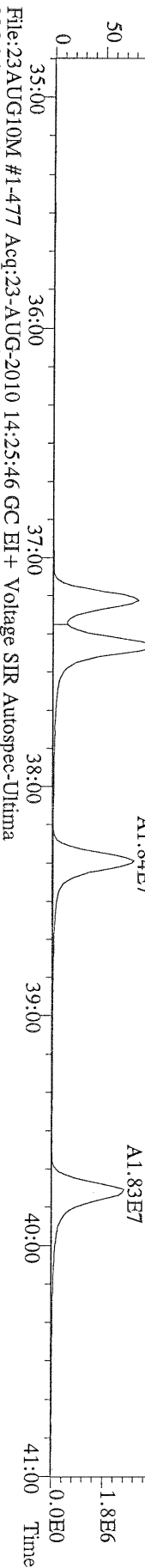
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373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



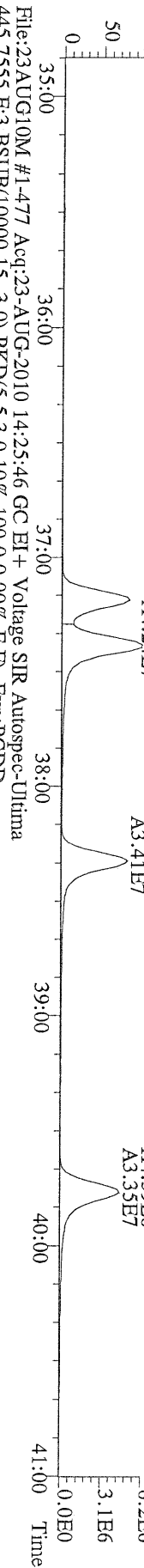
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375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



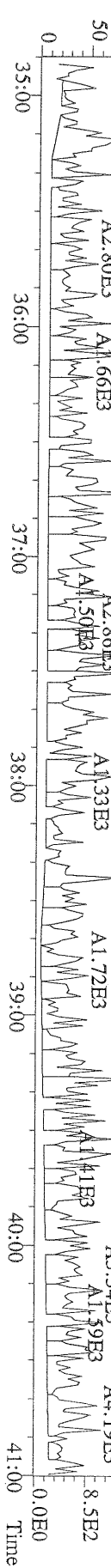
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383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



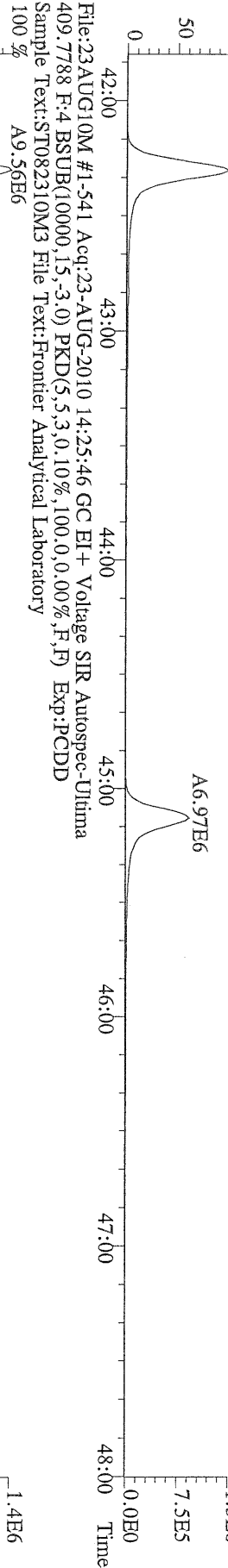
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385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
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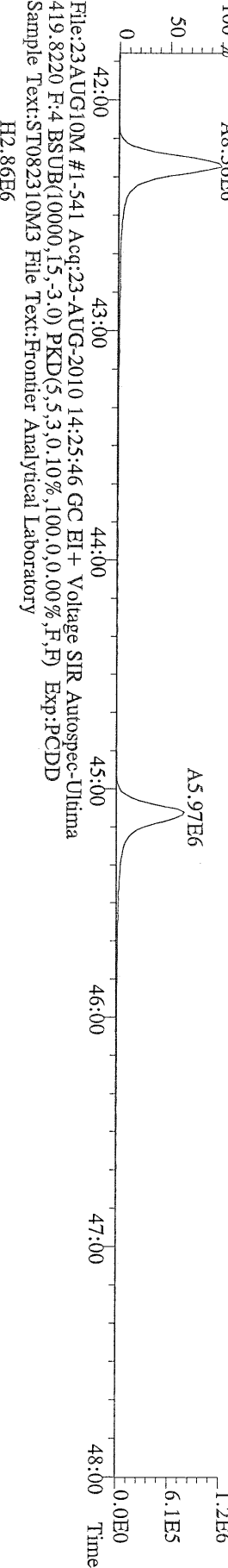
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445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



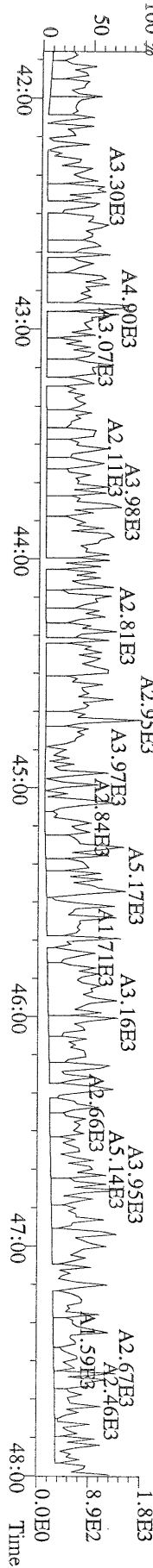
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 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



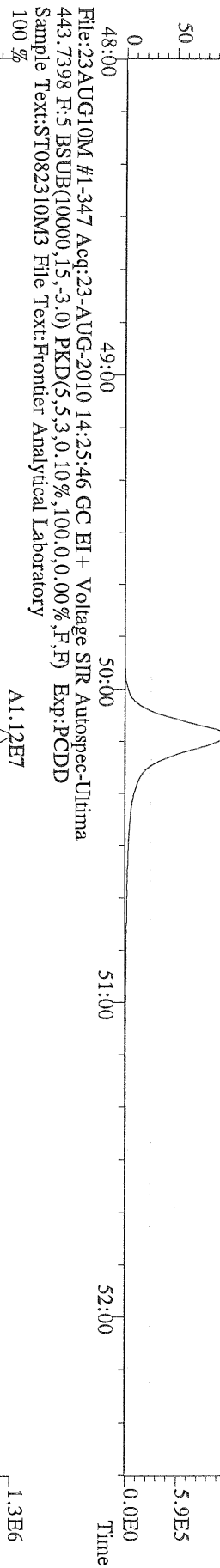
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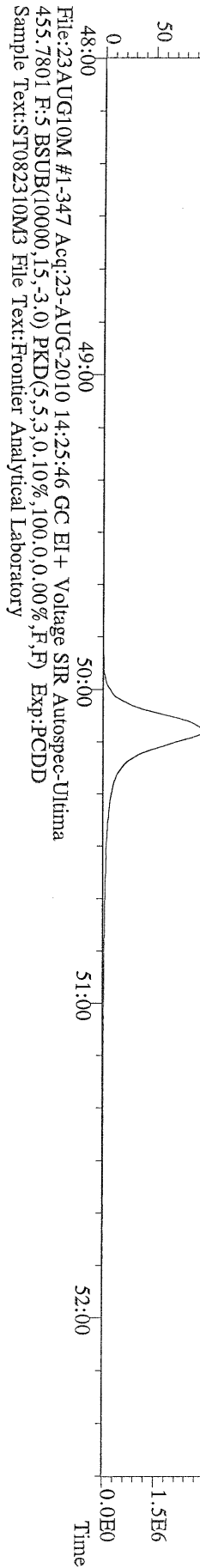
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 419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
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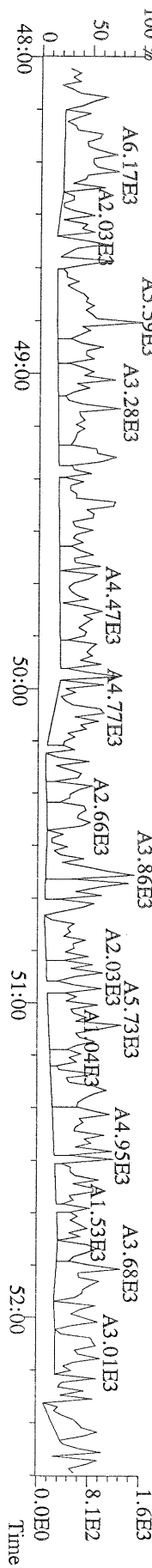
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 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M3 File Text:Frontier Analytical Laboratory



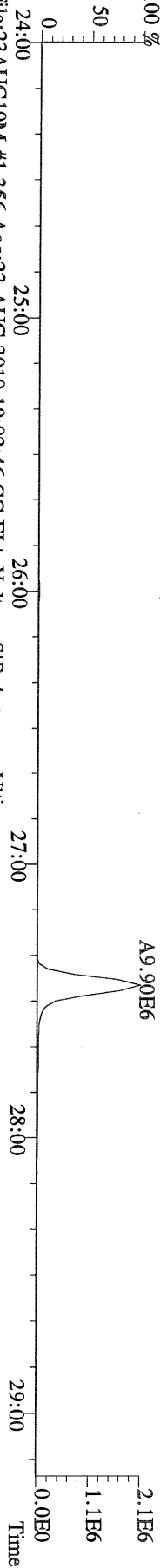
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
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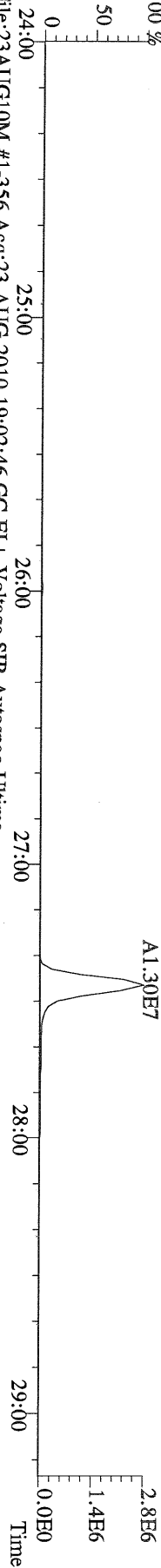
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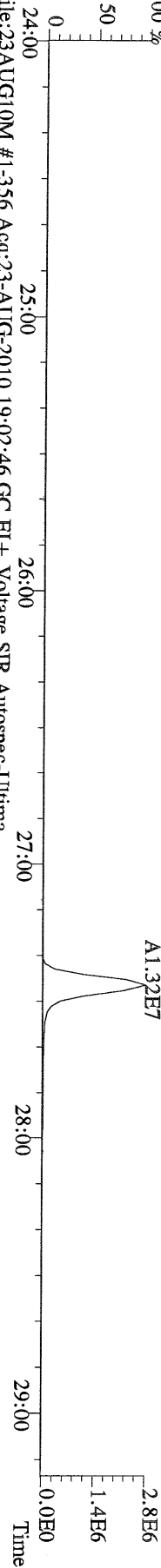
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319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



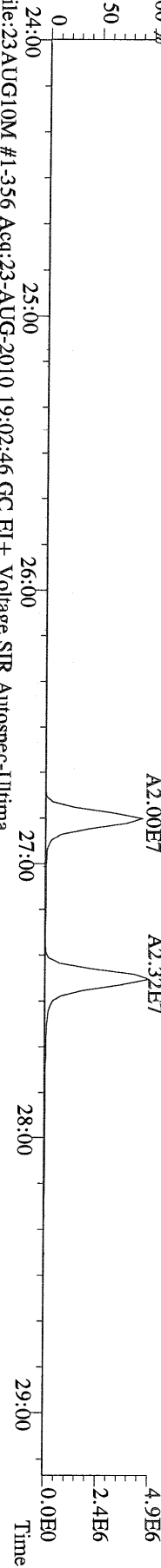
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Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



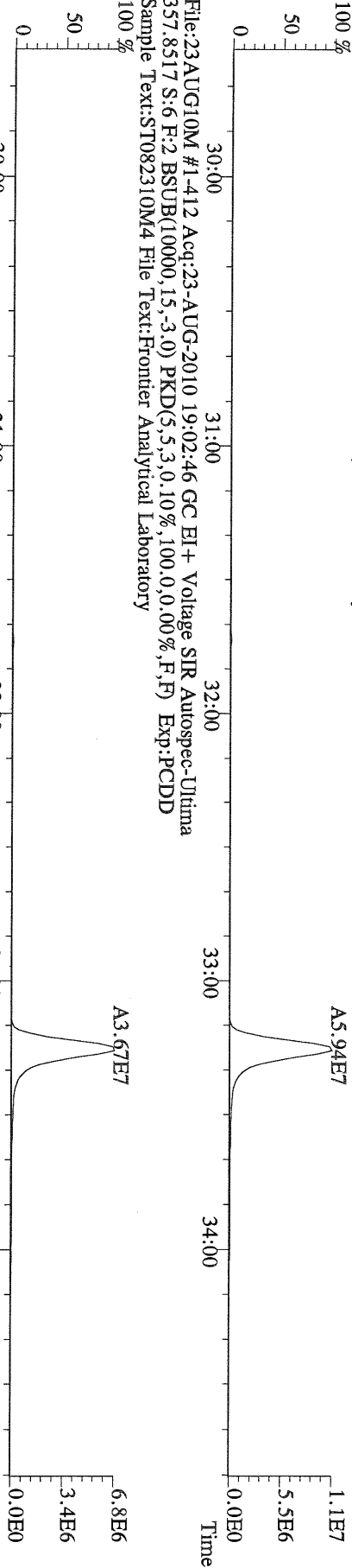
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331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



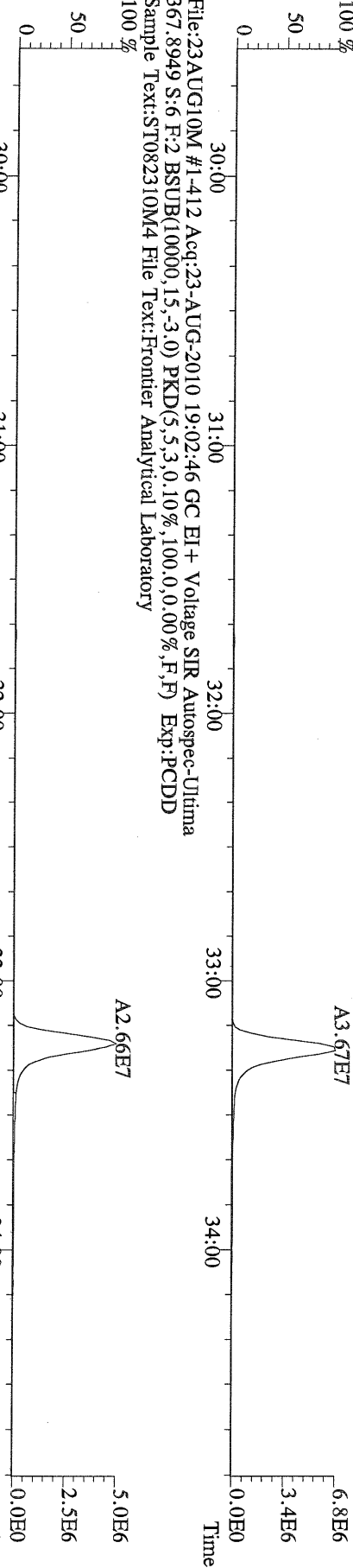
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333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



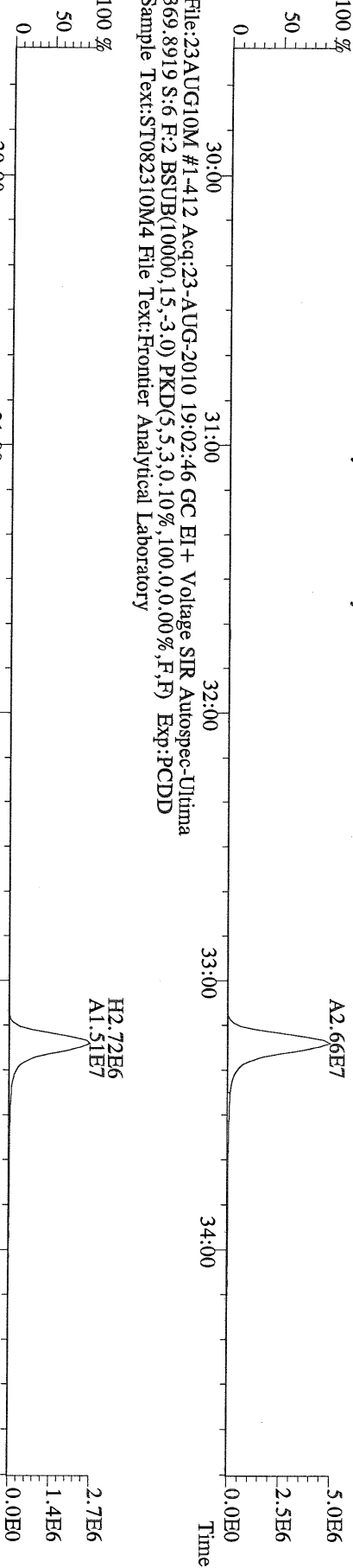
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355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



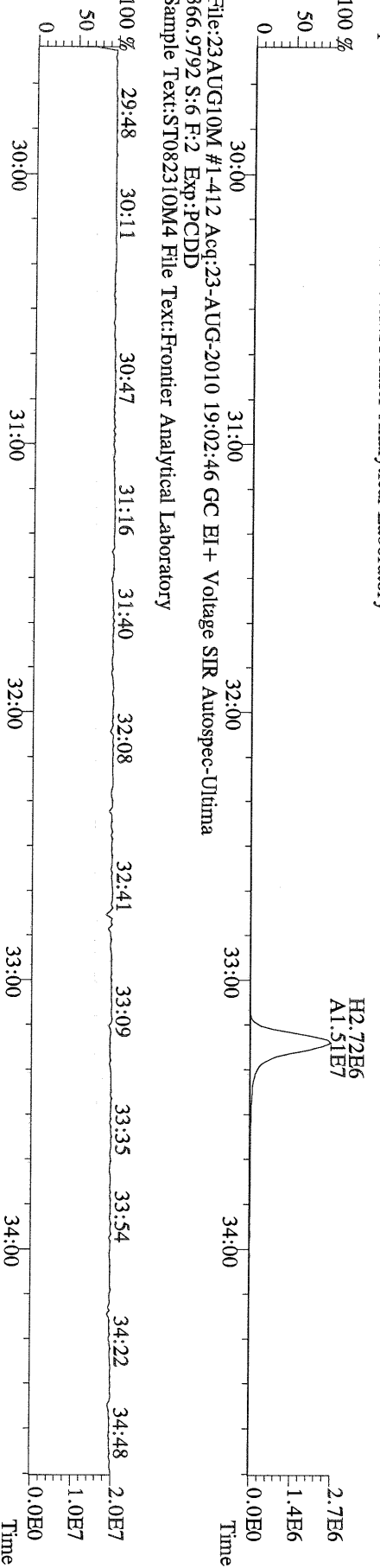
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357.8517 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



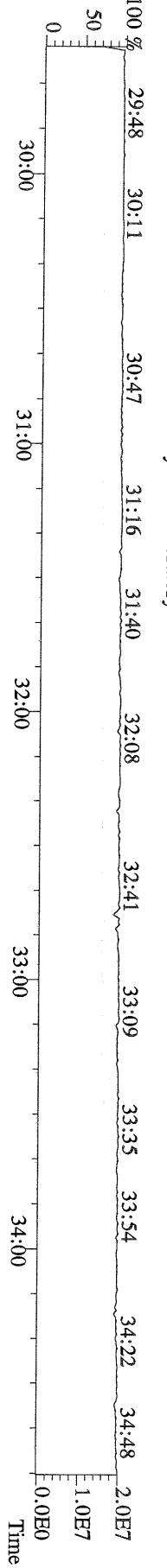
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367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



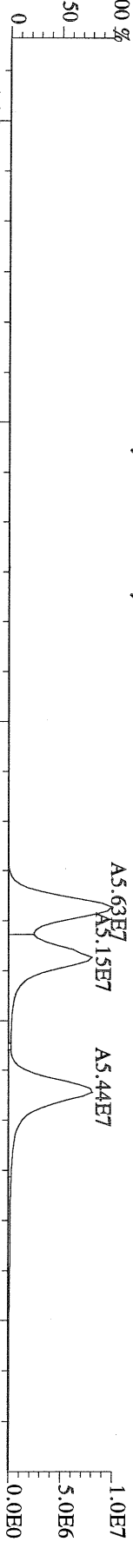
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369.8919 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



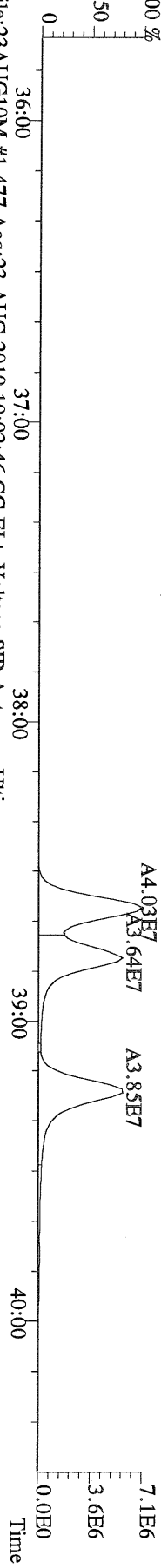
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366.9792 S:6 F:2 Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



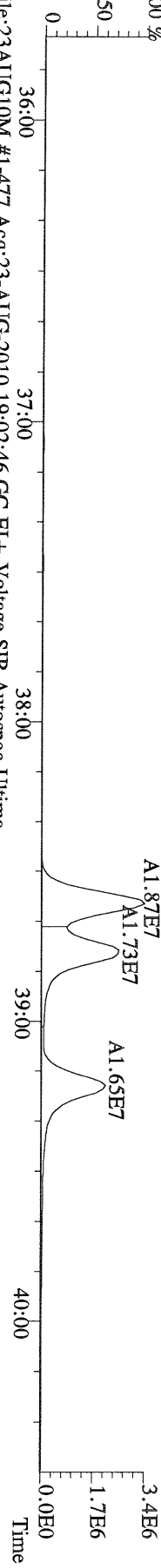
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 389.8156 S:6 F:3 BSUB(10000,15,-3.0) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



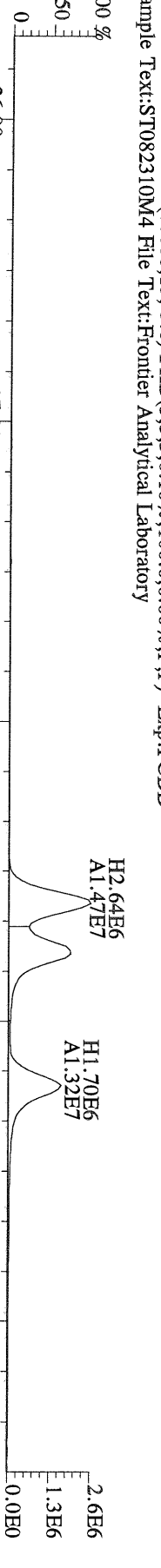
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 391.8127 S:6 F:3 BSUB(10000,15,-3.0) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



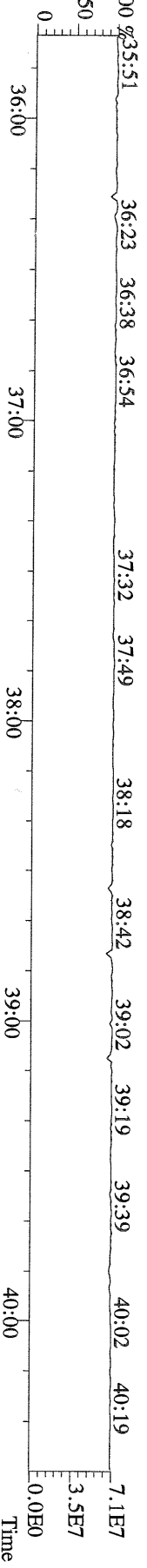
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 401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



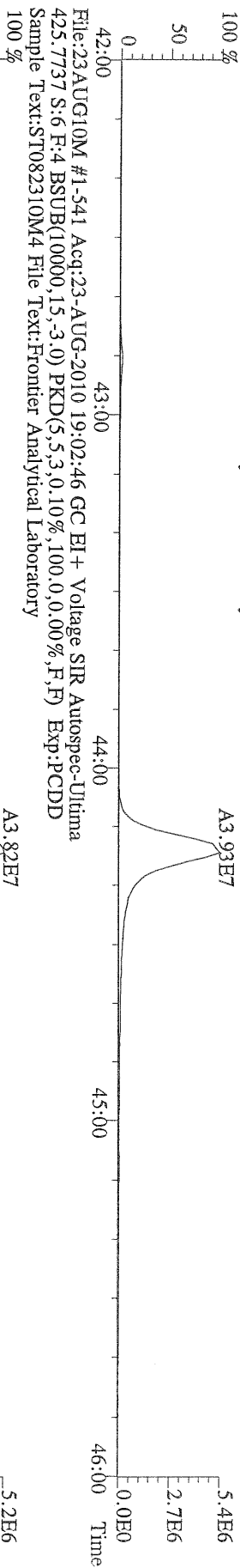
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



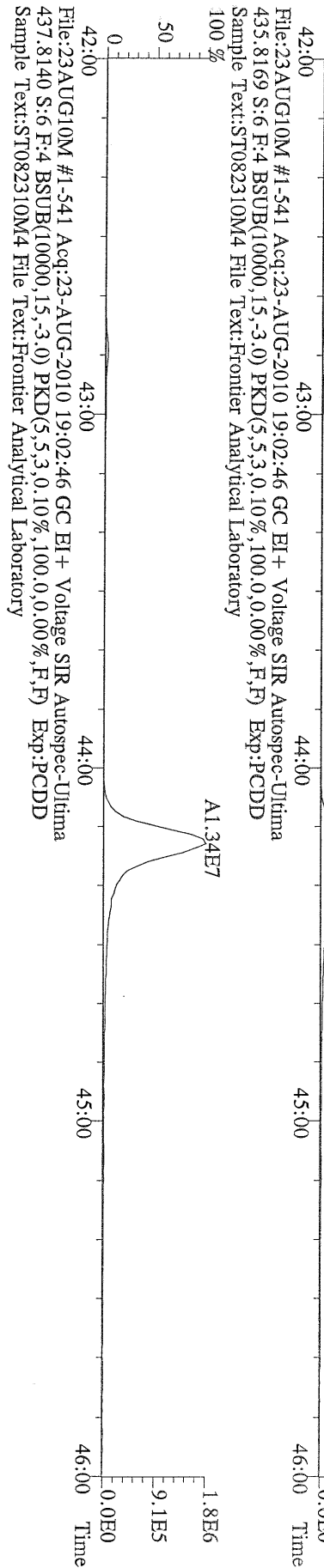
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 380.9760 S:6 F:3 Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



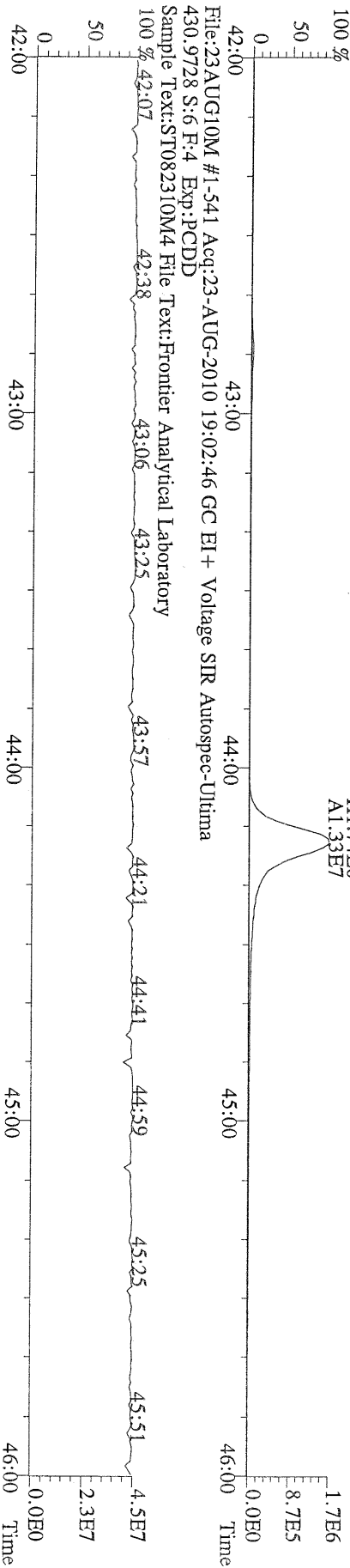
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



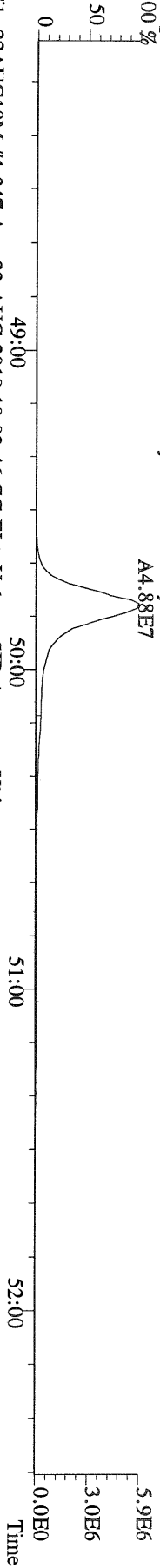
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



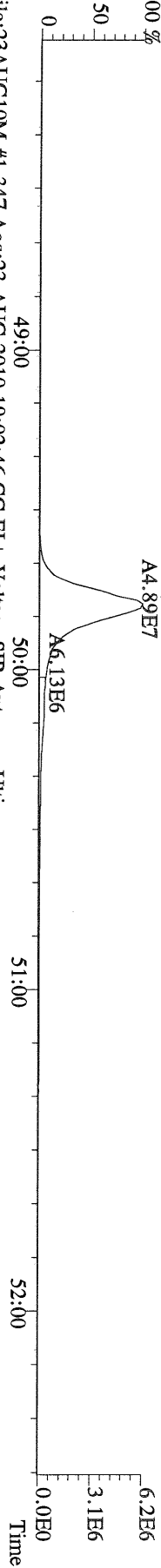
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:6 F:4 Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



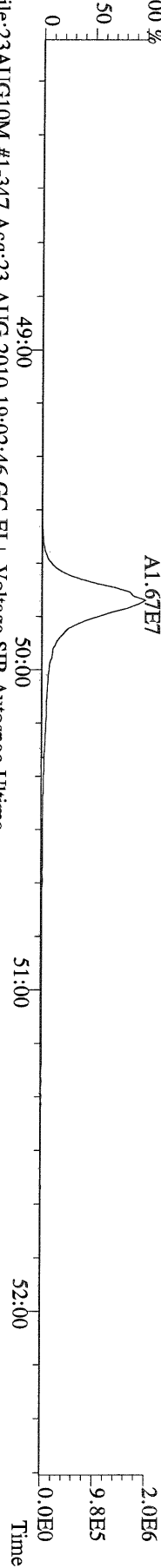
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



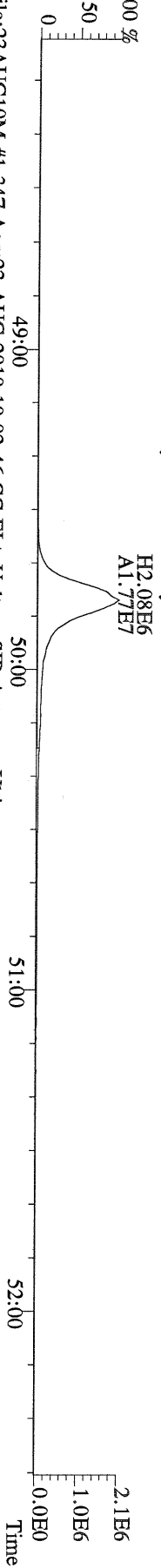
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459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



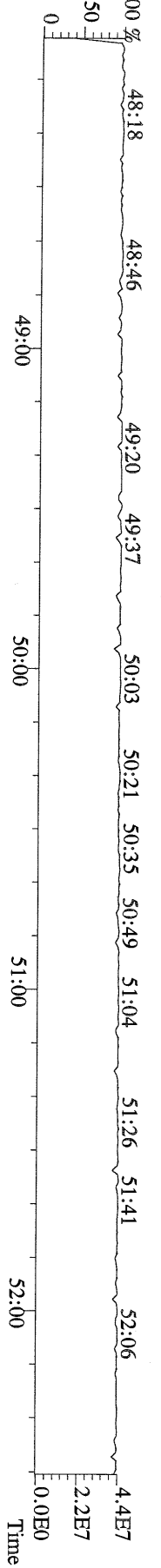
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



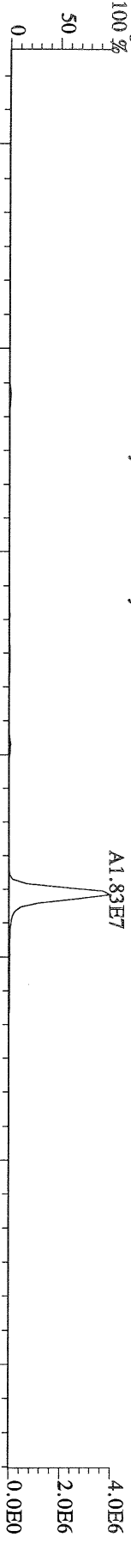
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471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



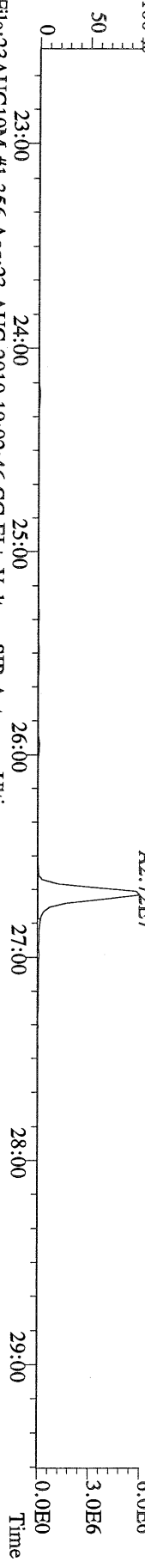
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:6 F:5 Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



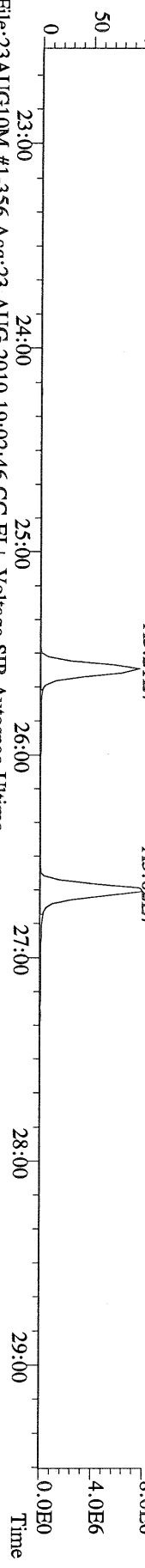
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Ultima
 303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



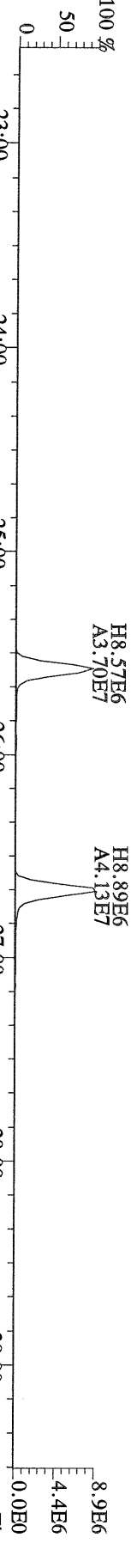
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Ultima
 305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



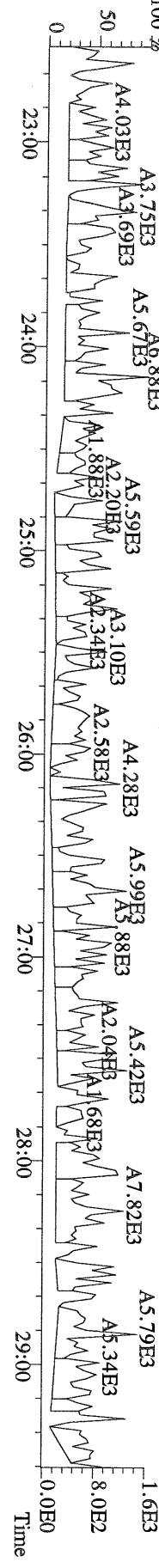
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Ultima
 315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



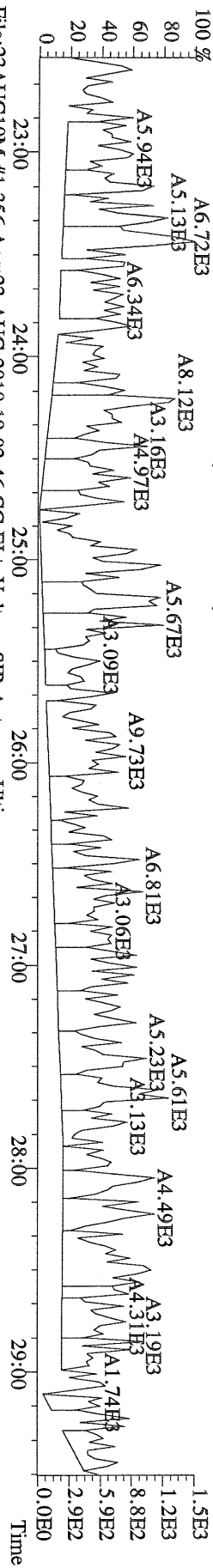
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Ultima
 317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



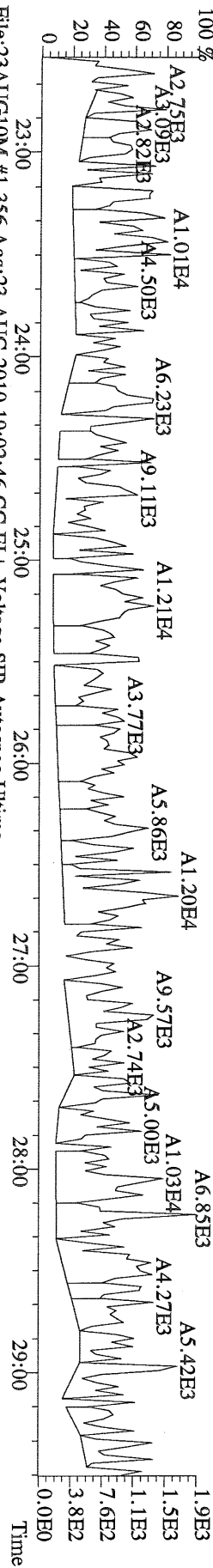
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Ultima
 375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



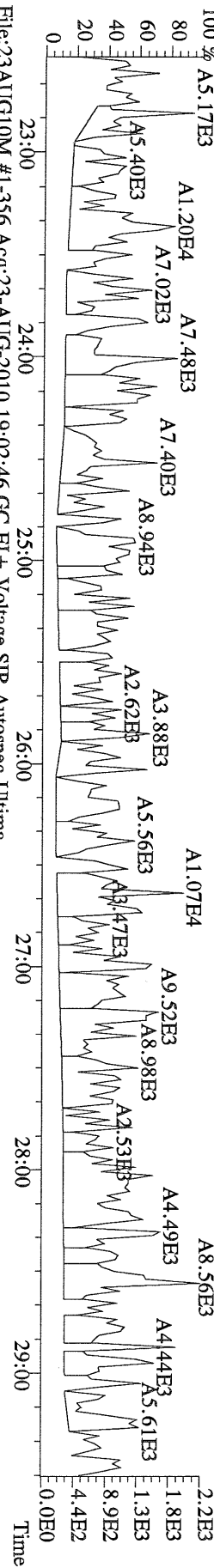
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



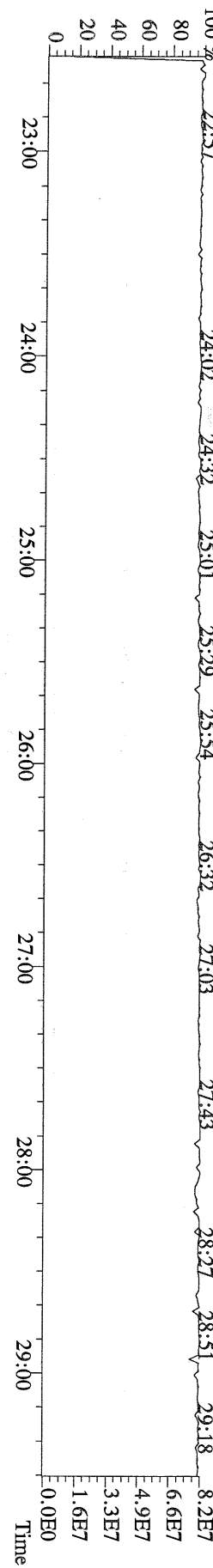
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



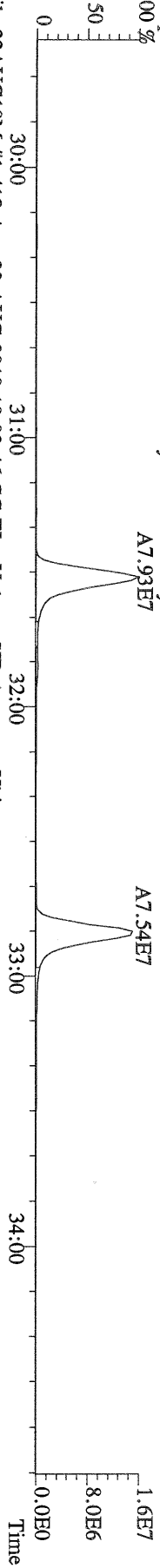
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



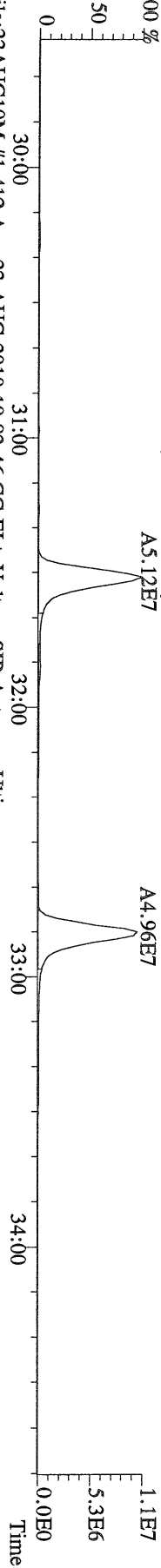
File:23AUG10M #1-356 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 LOCK MASS CHECK S:6 Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



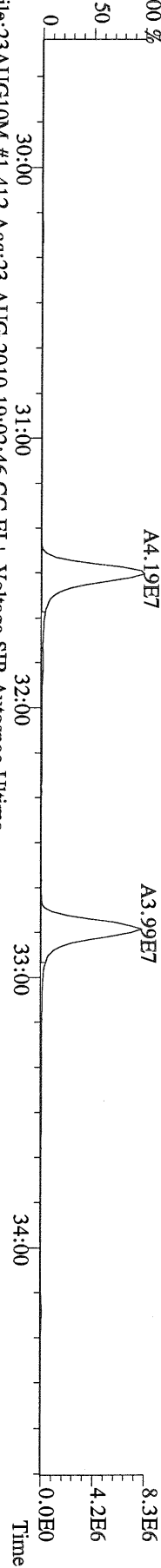
File:23AUG10M #1-412 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



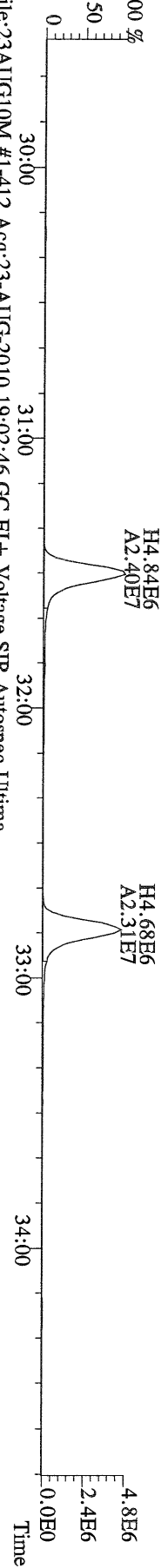
File:23AUG10M #1-412 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



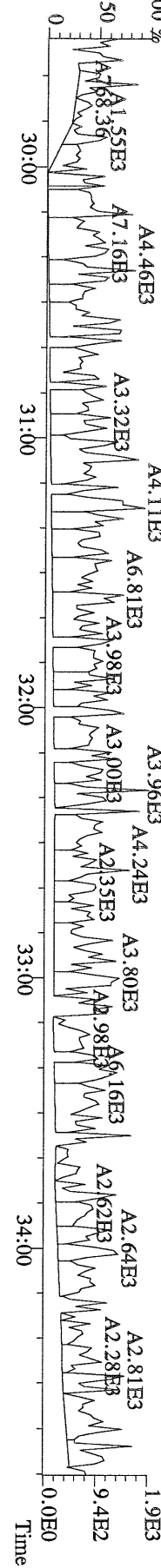
File:23AUG10M #1-412 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



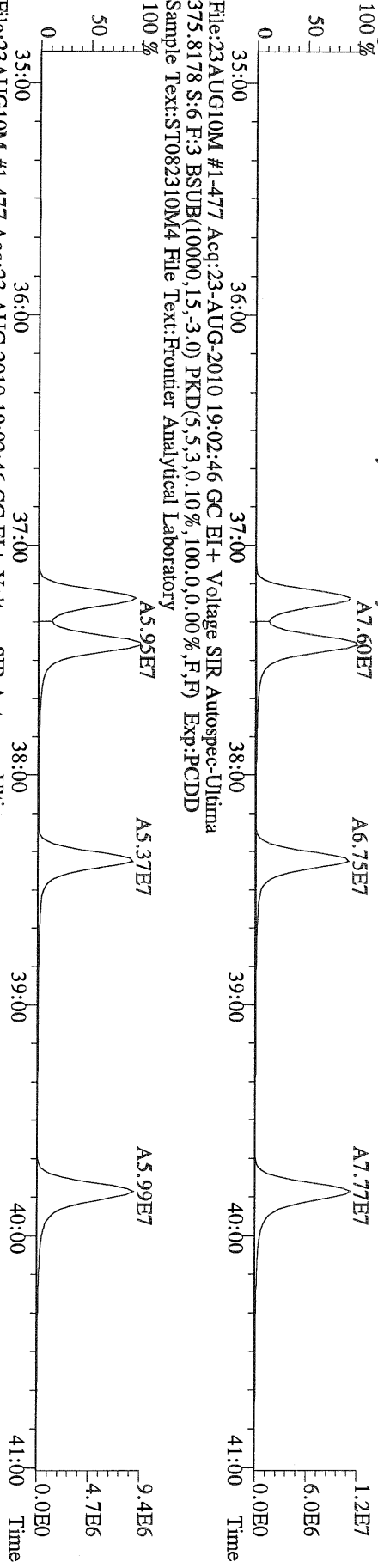
File:23AUG10M #1-412 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



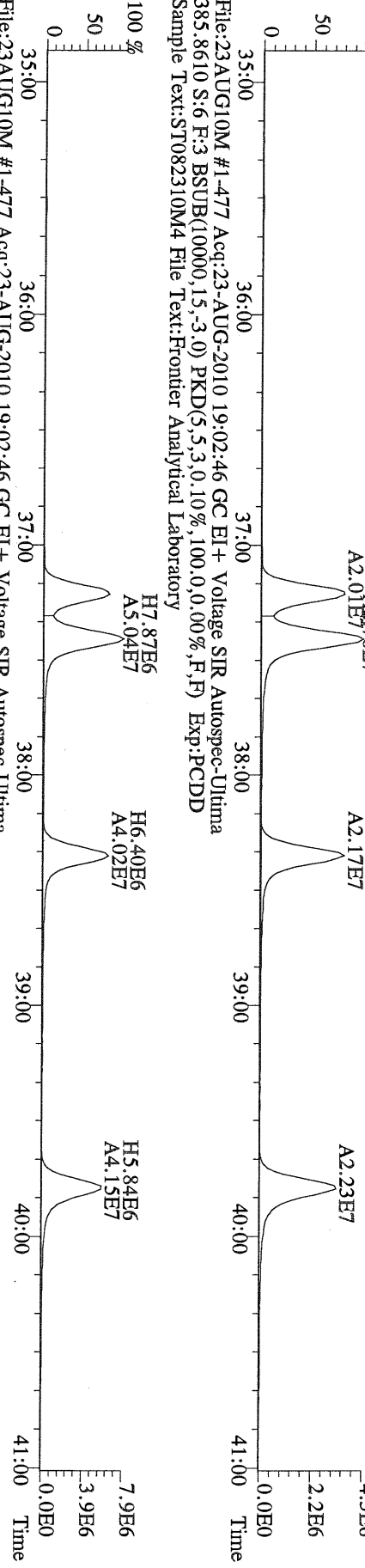
File:23AUG10M #1-412 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



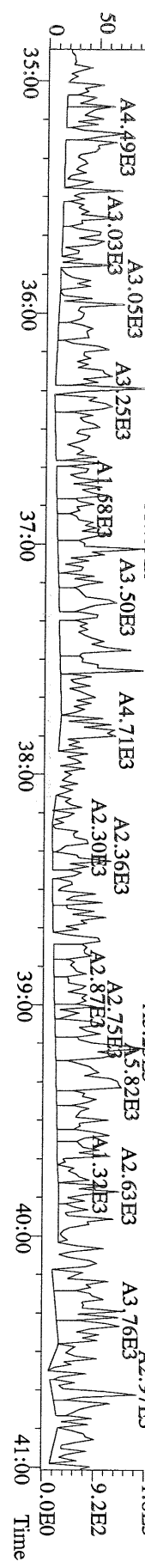
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Utima
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



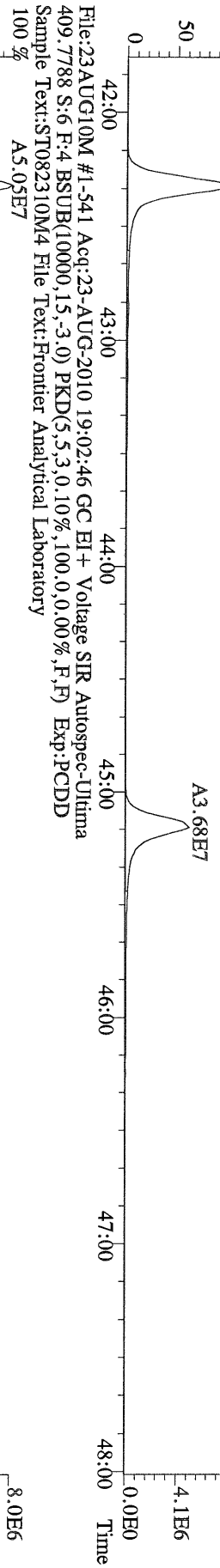
File:23AUG10M #1-477 Acq:23-AUG-2010 19:02:46 GC EI + Voltage SIR Autospec-Utima
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



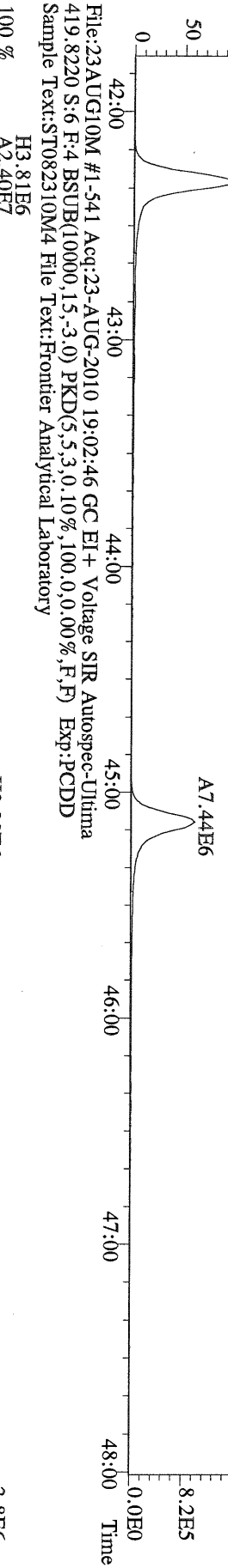
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445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



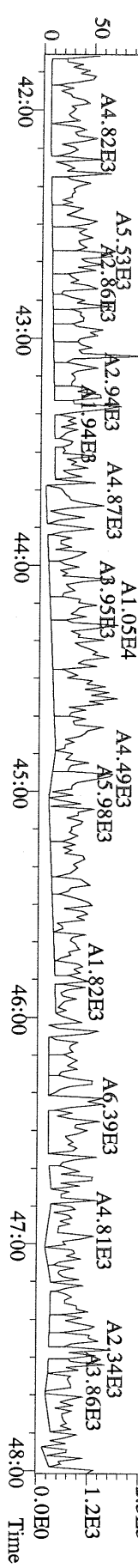
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp.:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



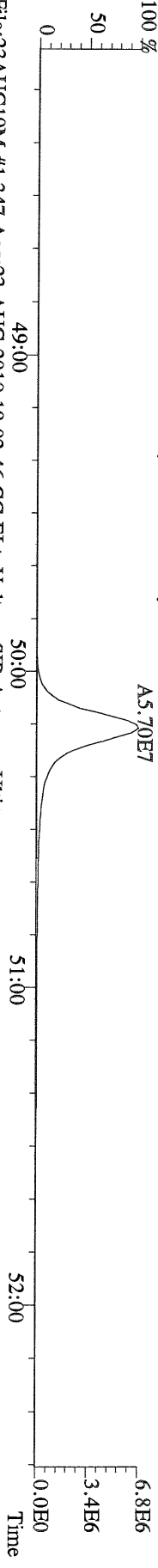
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:6 F:4 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp.:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



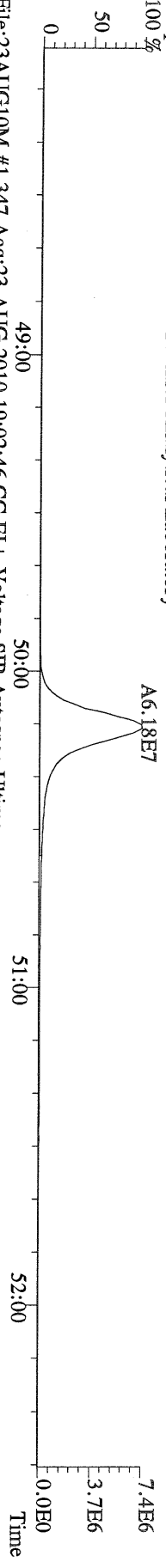
File:23AUG10M #1-541 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
419.8220 S:6 F:4 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp.:PCDD
Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



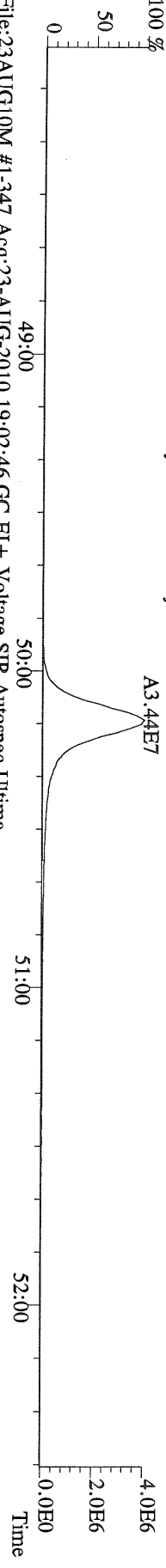
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



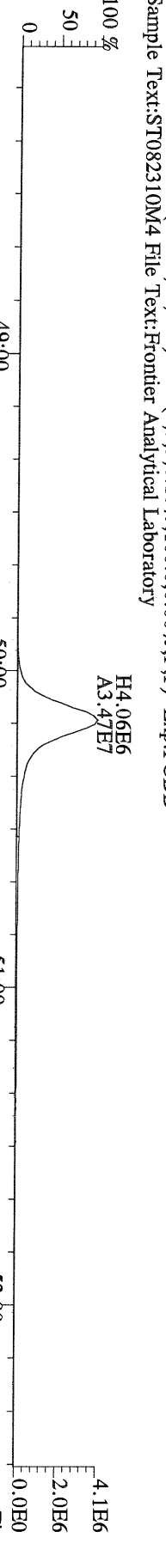
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



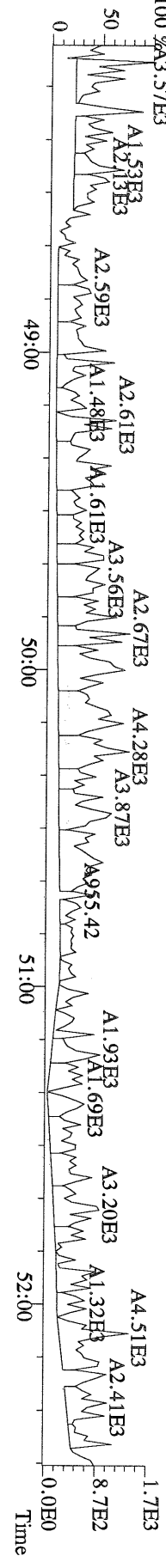
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



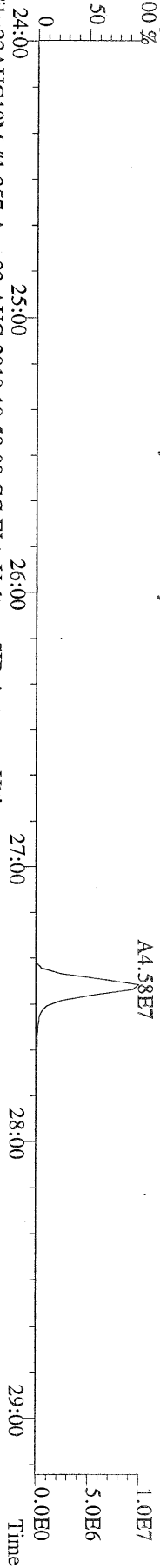
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 455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



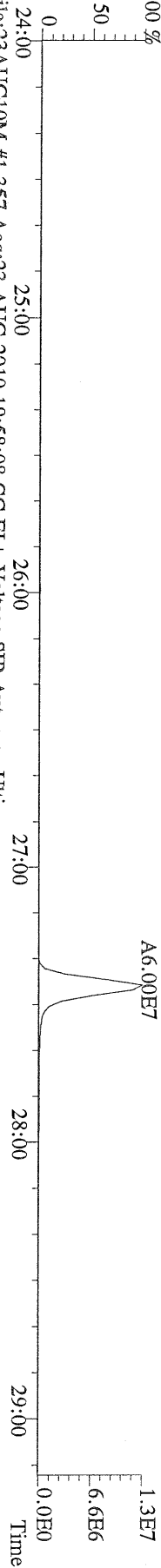
File:23AUG10M #1-347 Acq:23-AUG-2010 19:02:46 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 S:6 F:5 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M4 File Text:Frontier Analytical Laboratory



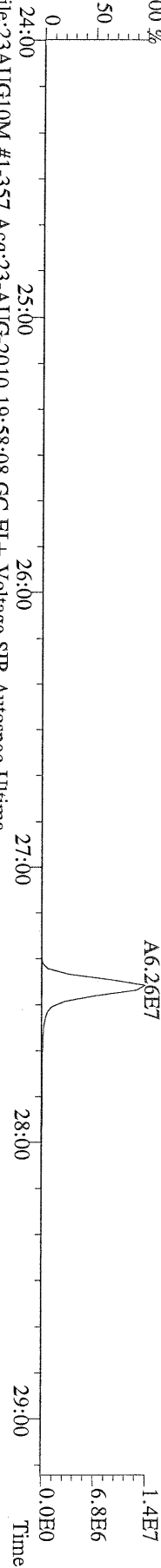
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



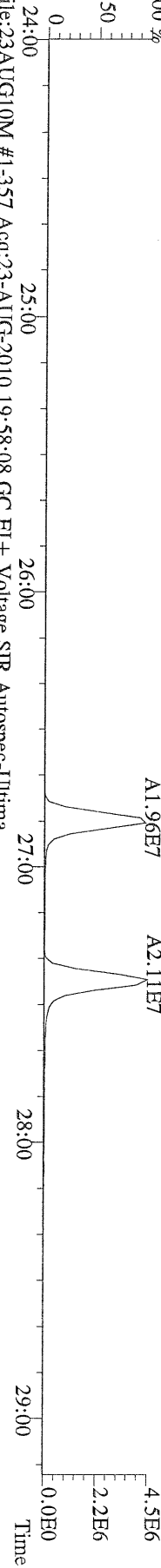
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



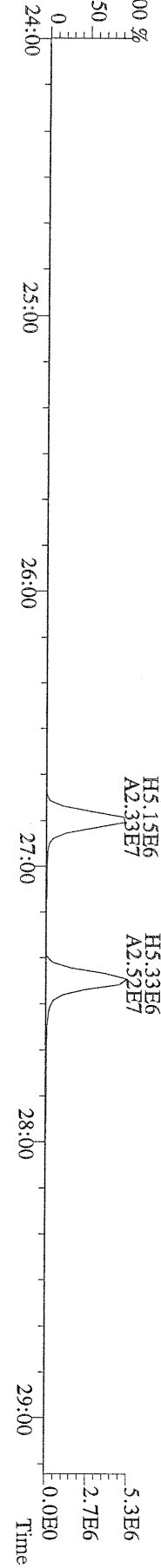
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
327.8847 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



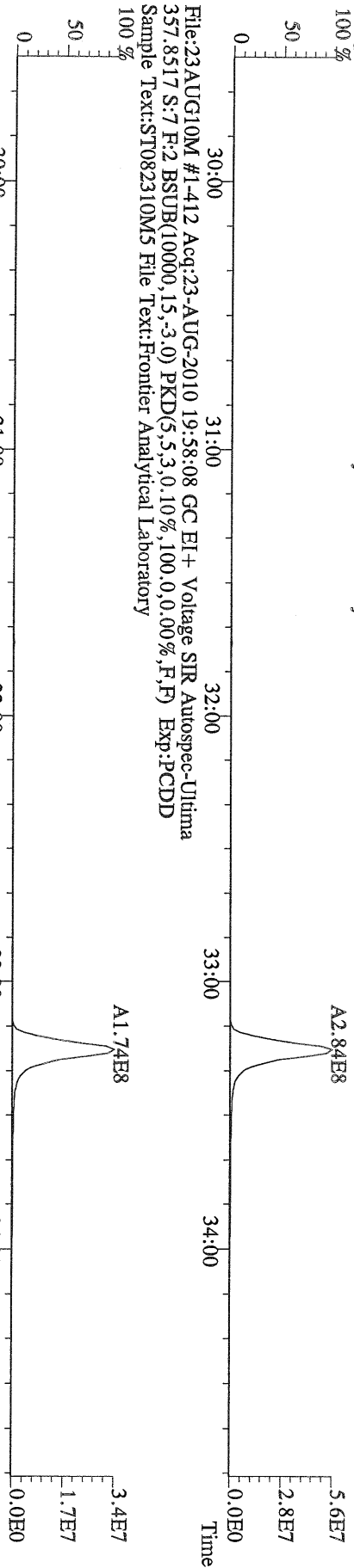
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



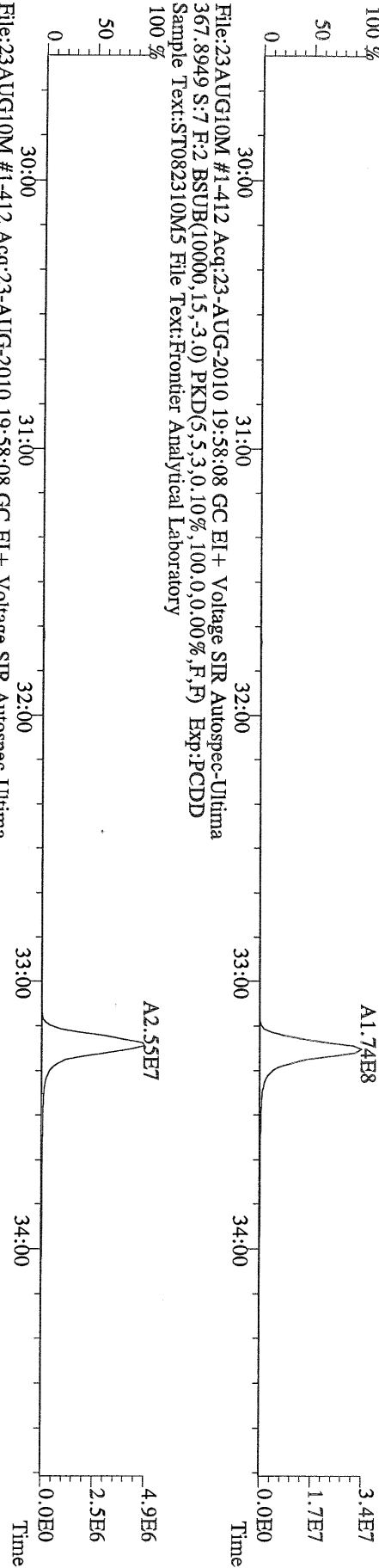
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



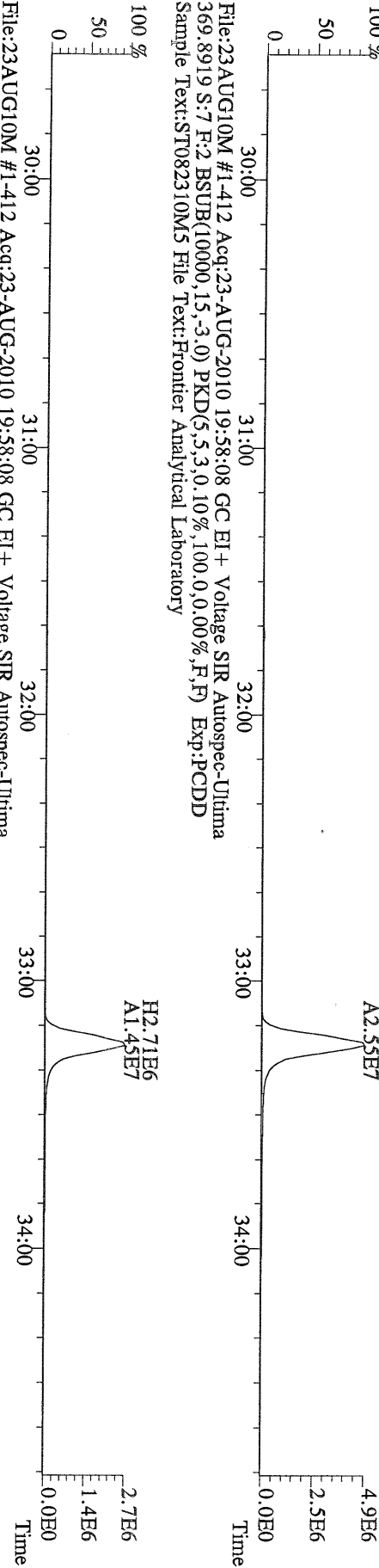
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Fronter Analytical Laboratory



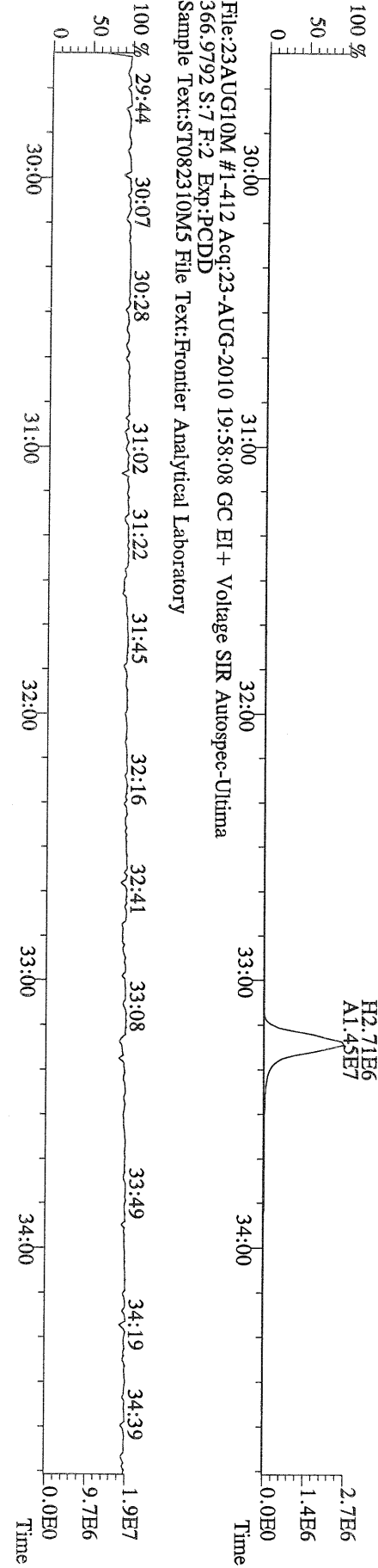
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
357.8517 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Fronter Analytical Laboratory



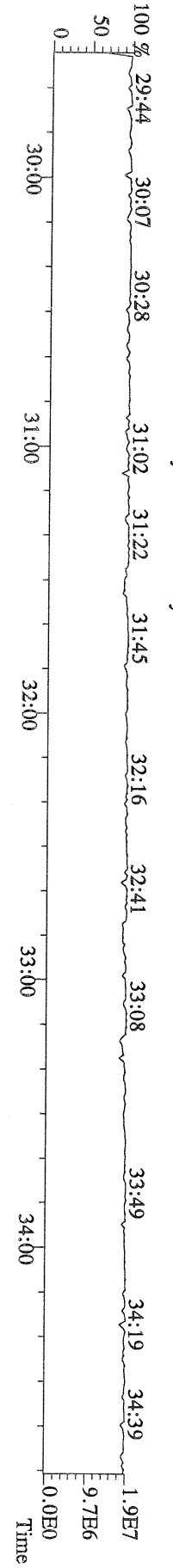
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
367.8949 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Fronter Analytical Laboratory



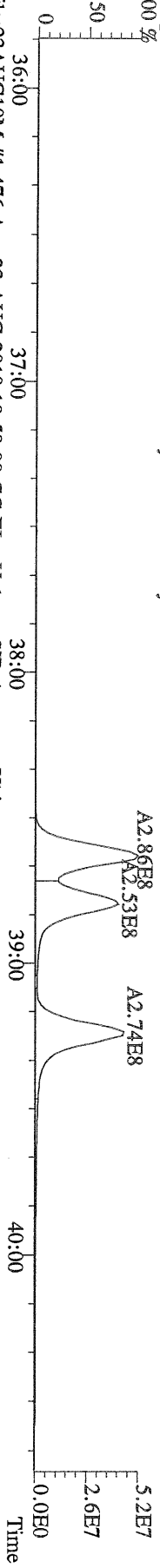
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369.8919 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Fronter Analytical Laboratory



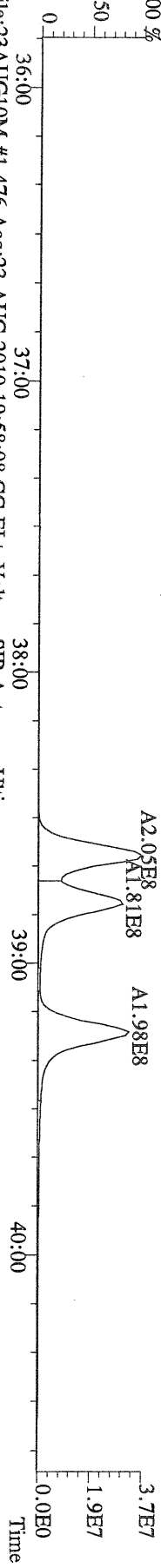
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
366.9792 S:7 F:2 Exp:PCDD
Sample Text:ST082310M5 File Text:Fronter Analytical Laboratory



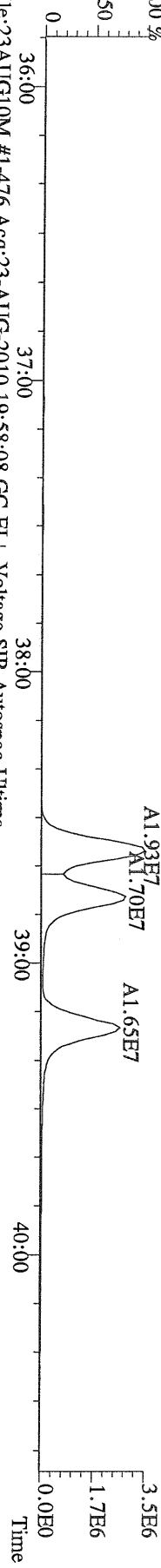
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



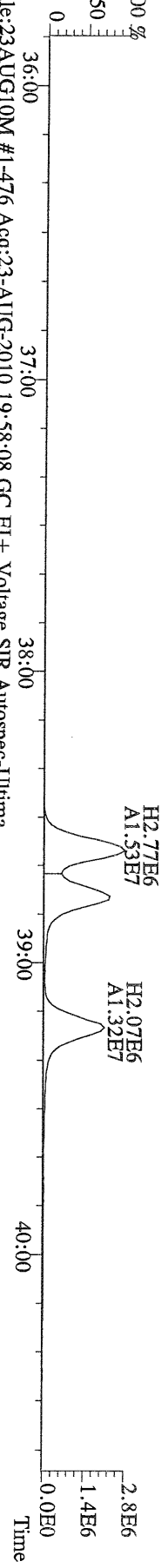
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391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



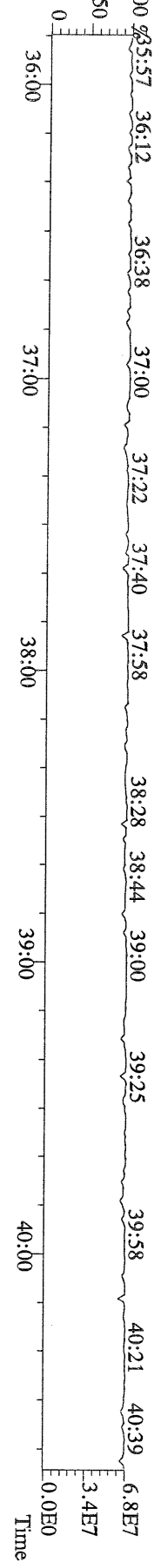
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



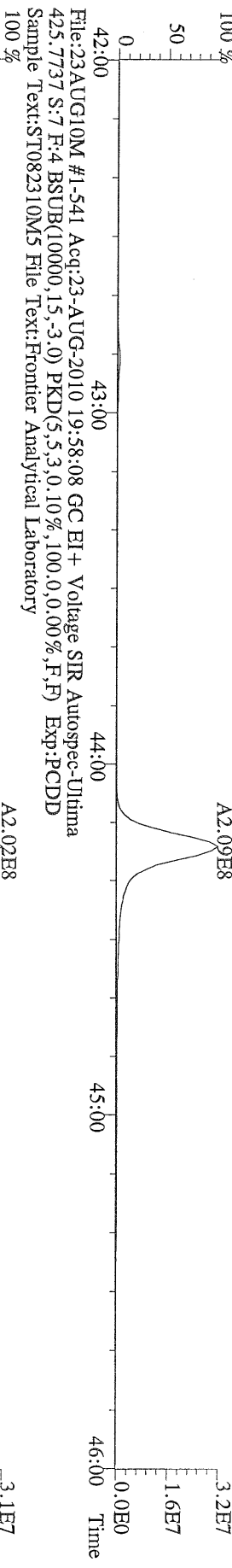
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403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



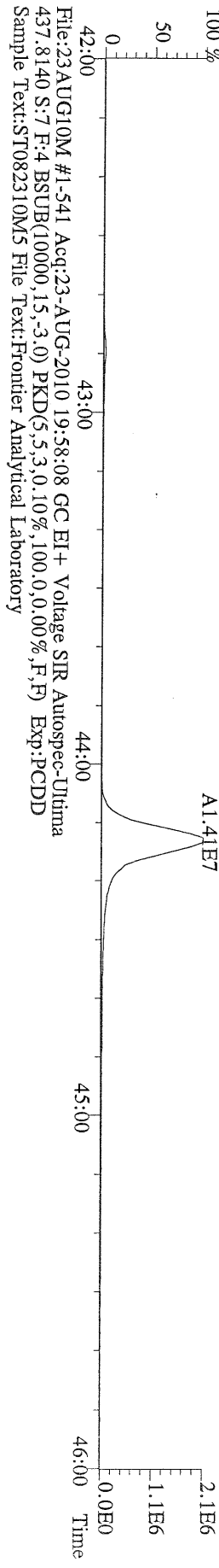
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
380.9760 S:7 F:3 Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



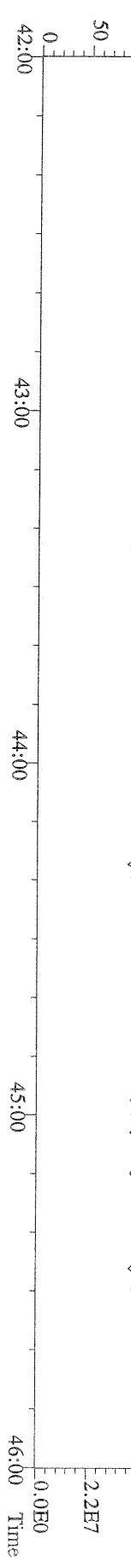
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



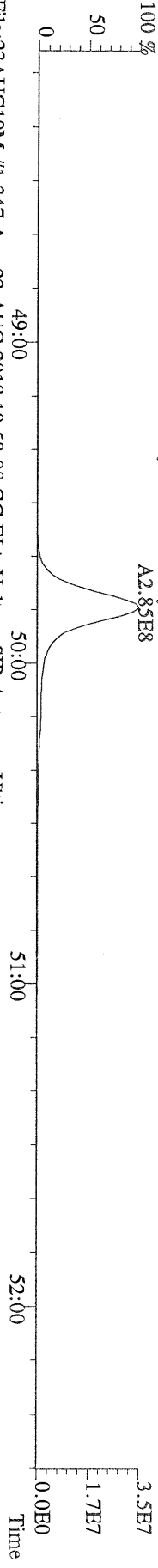
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
435.8169 S:7 F:4 BSUB(10000,15,-3.0) PKD(5.5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



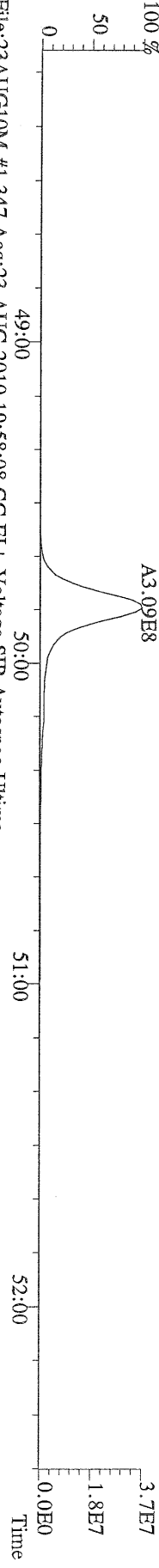
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
430.9728 S:7 F:4 Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



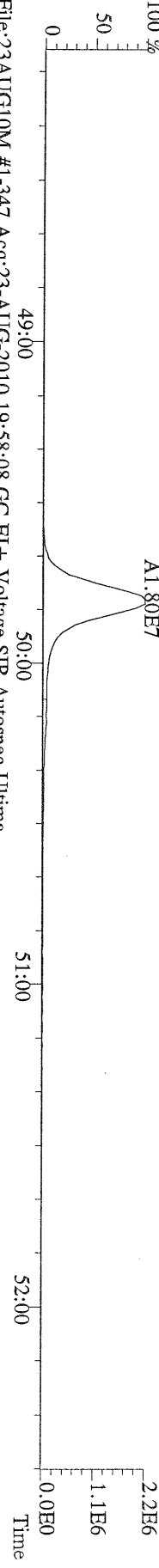
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



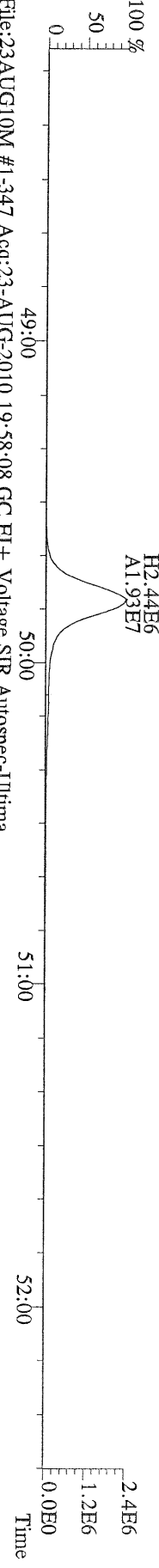
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



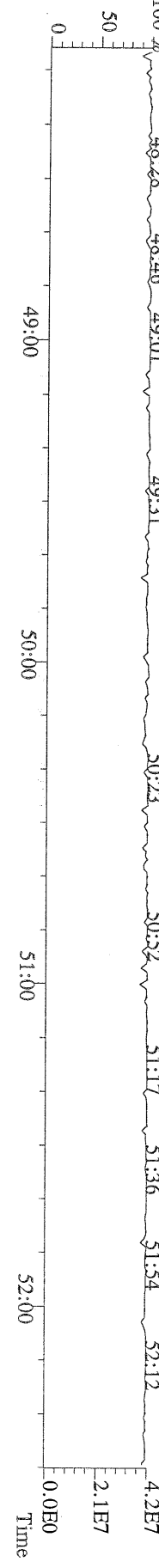
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



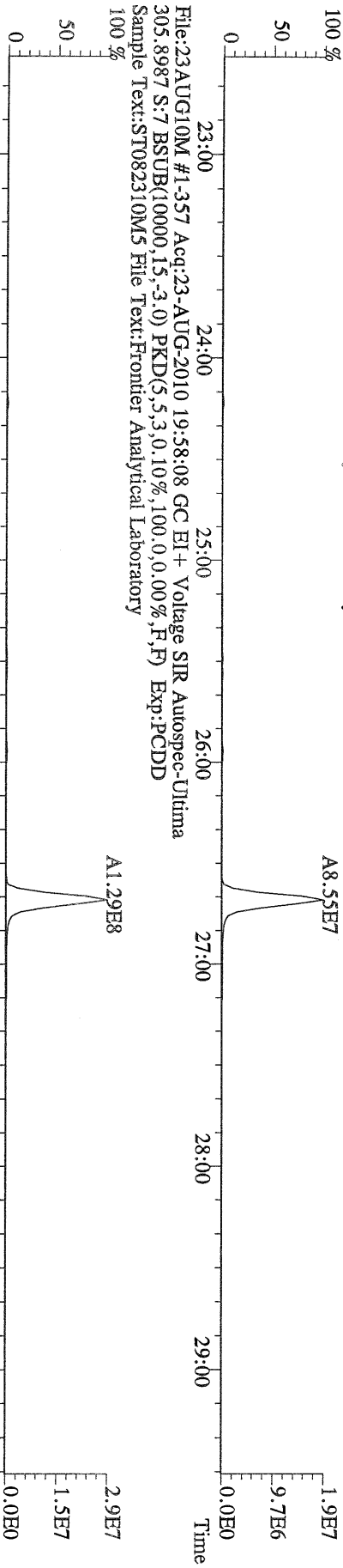
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471.7750 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



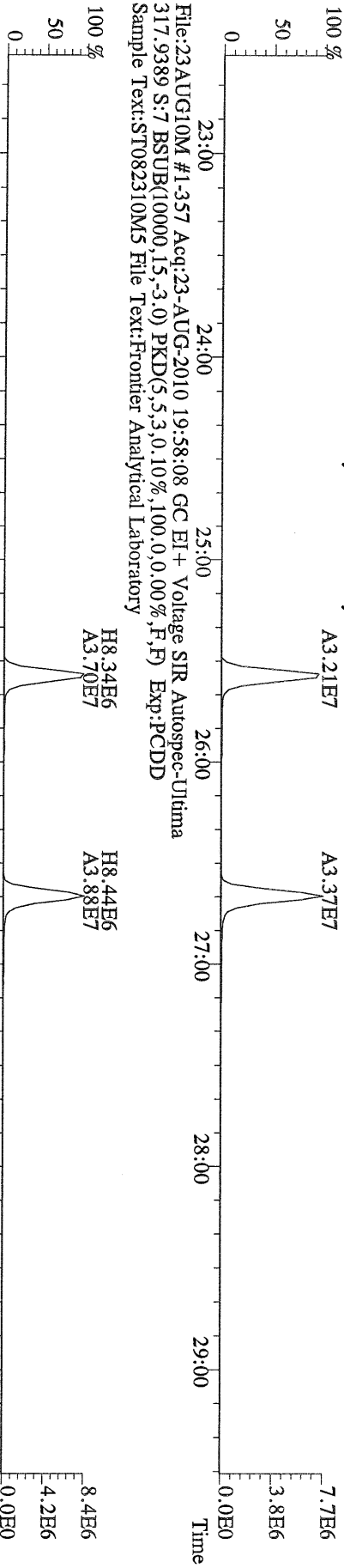
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:7 F:5 Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



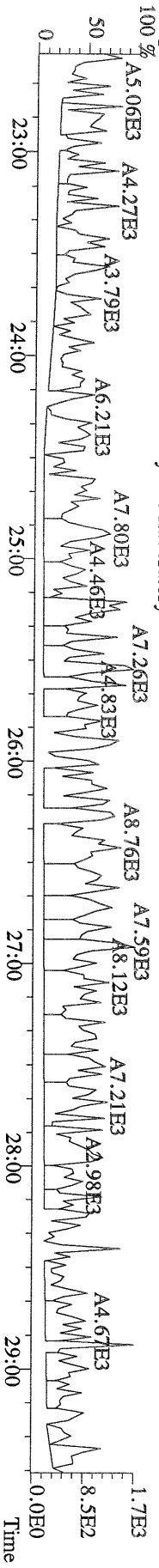
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



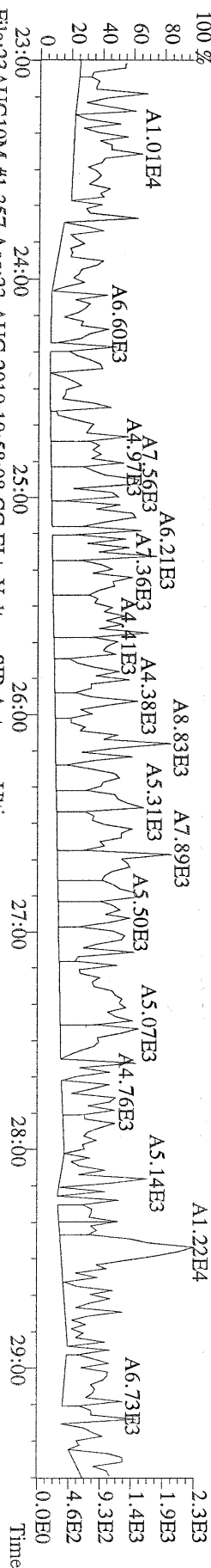
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



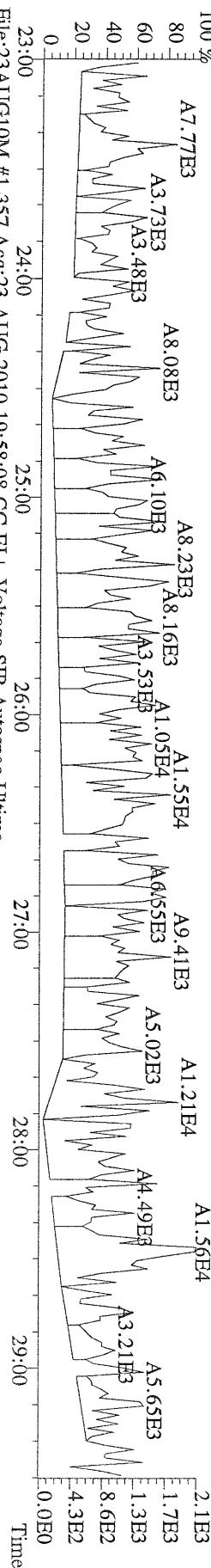
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



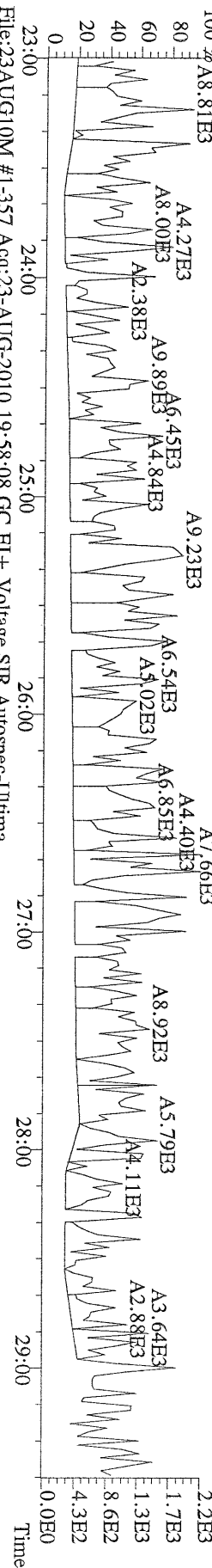
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



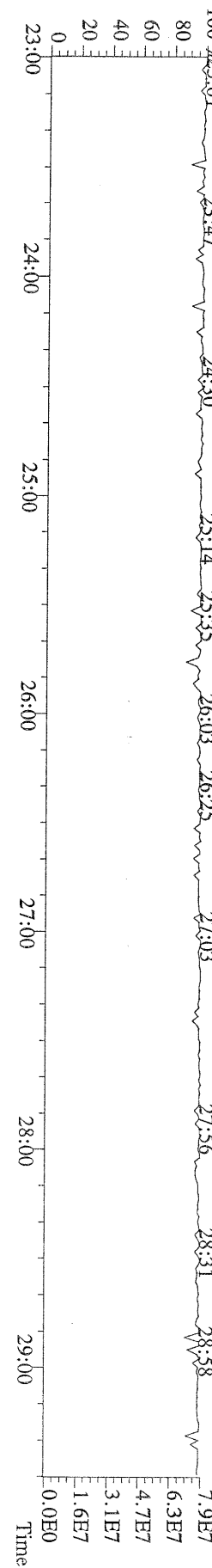
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



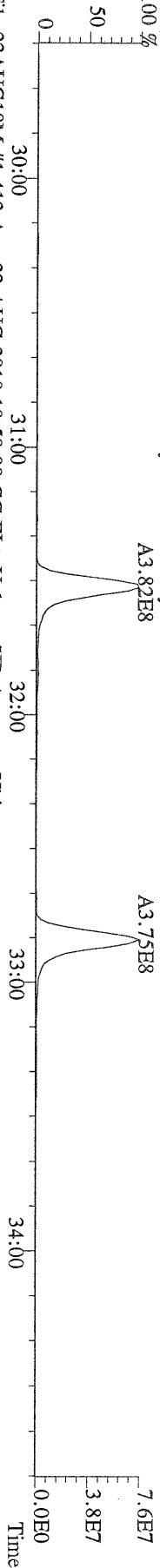
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:PCDD
 Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



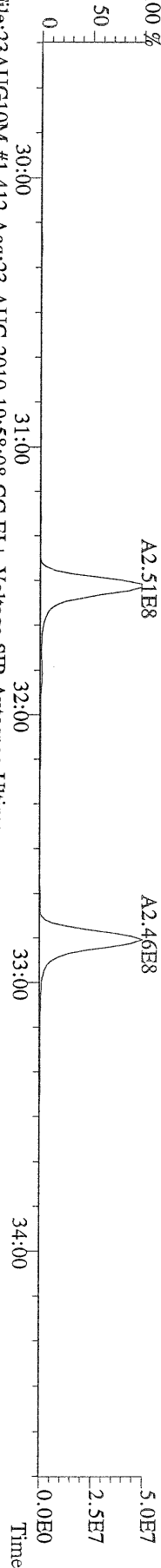
File:23AUG10M #1-357 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
 330.9792 S:7 Exp:PCDD
 Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



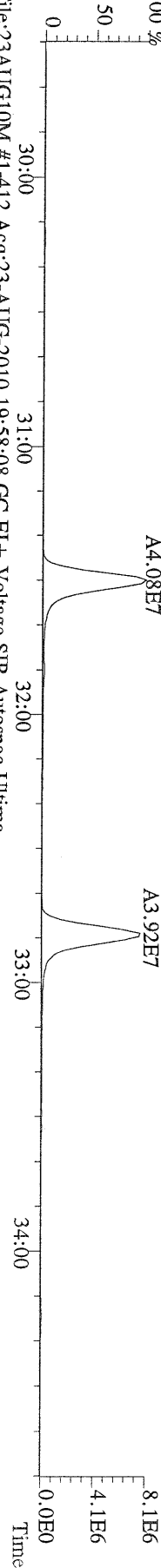
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



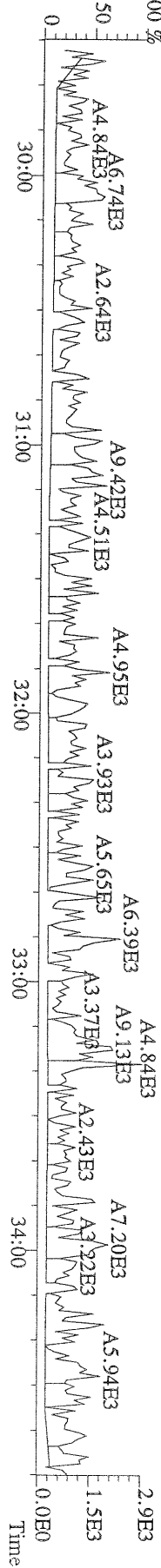
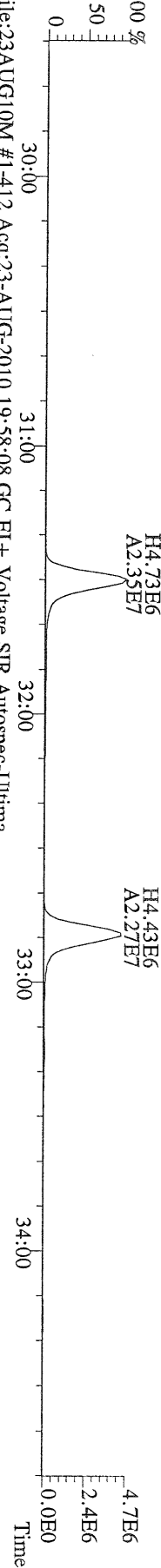
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341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



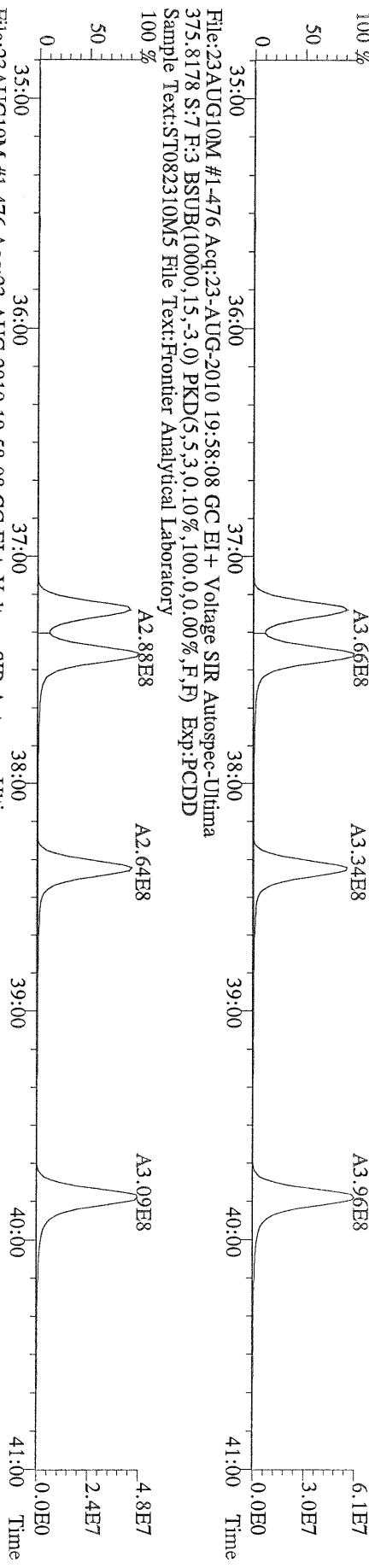
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351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



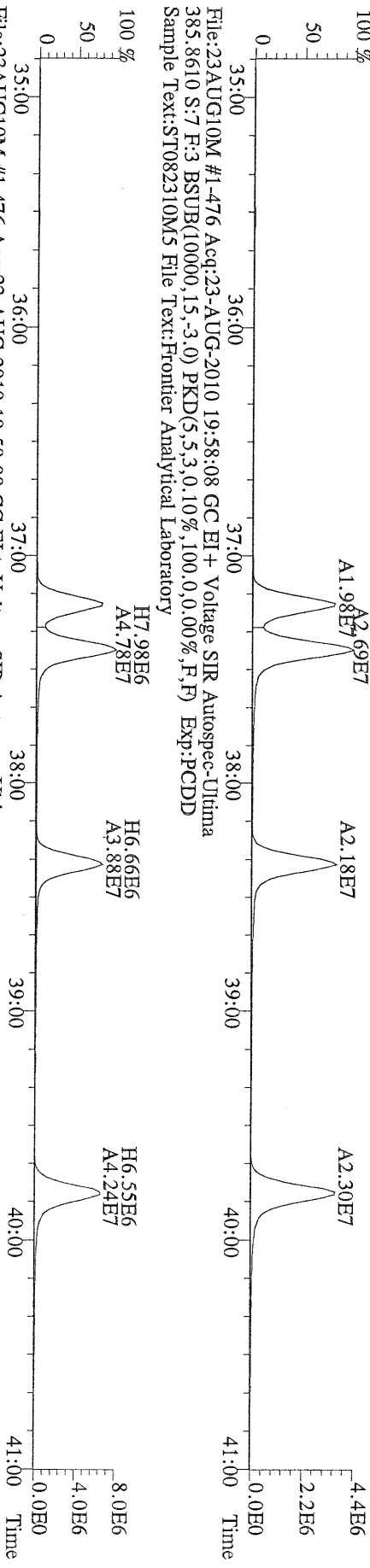
File:23AUG10M #1-412 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5.5,3.0,100.0,0.00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



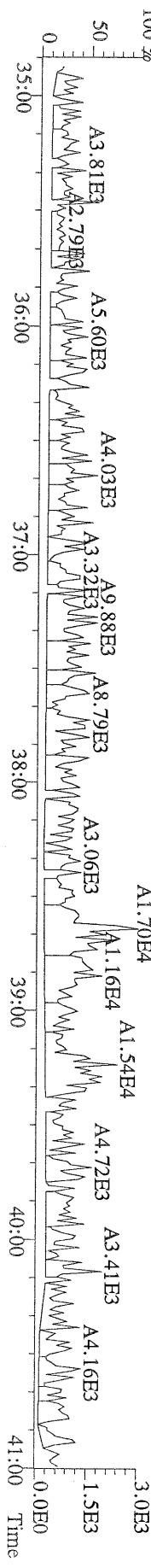
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Utima
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



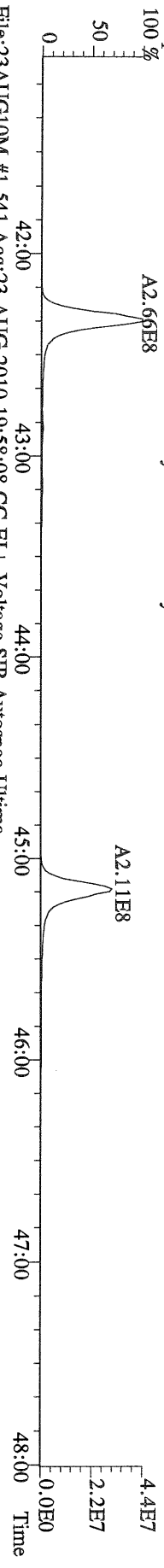
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Utima
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



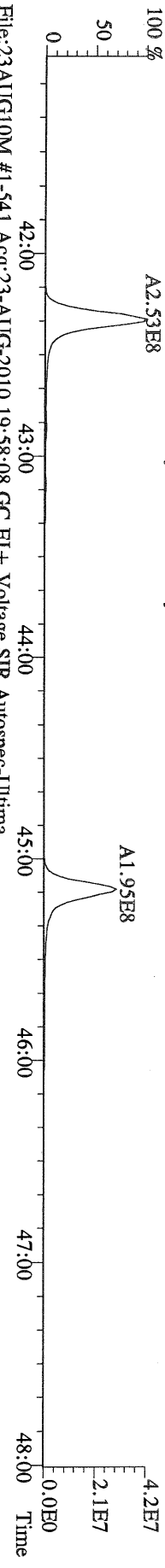
File:23AUG10M #1-476 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Utima
445.7555 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



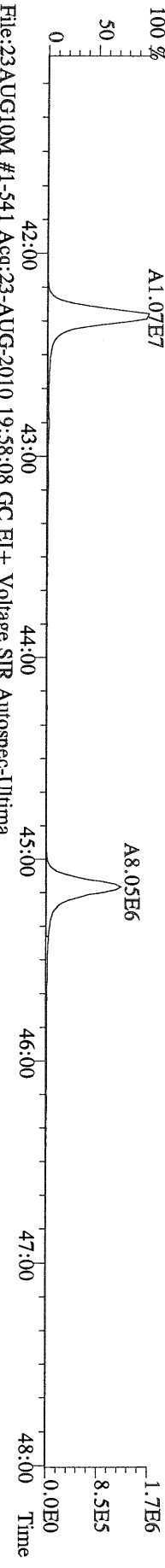
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



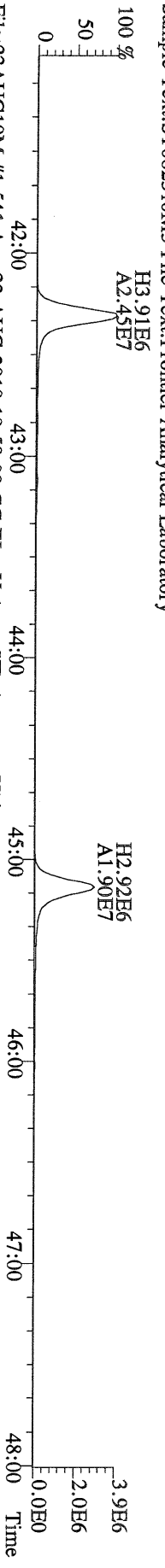
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



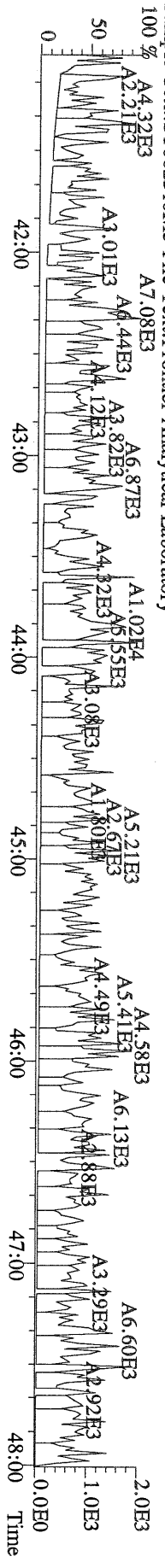
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



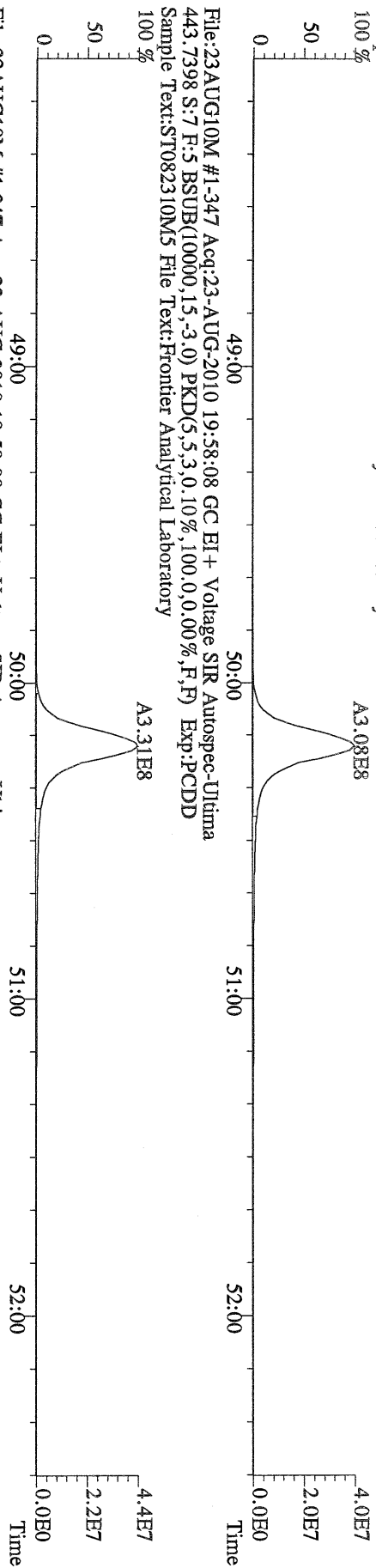
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



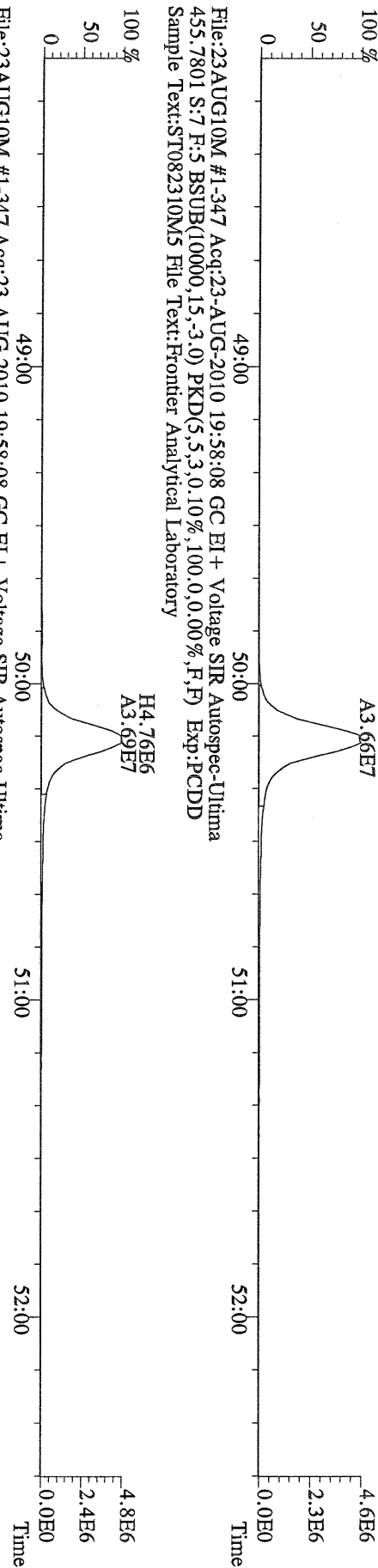
File:23AUG10M #1-541 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory



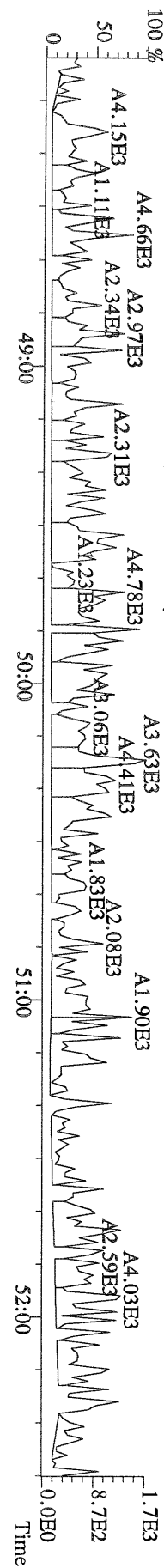
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:P:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory

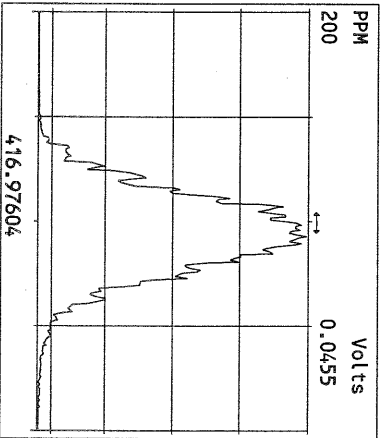
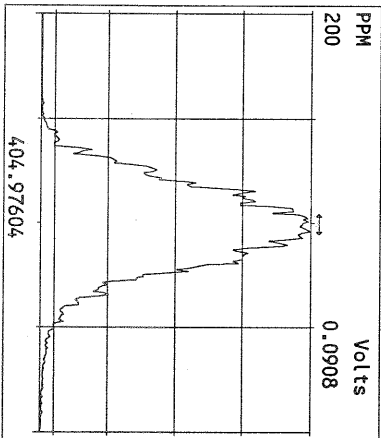
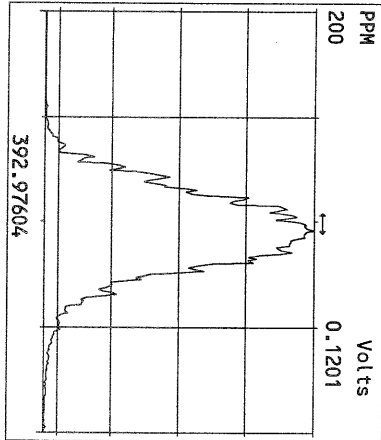
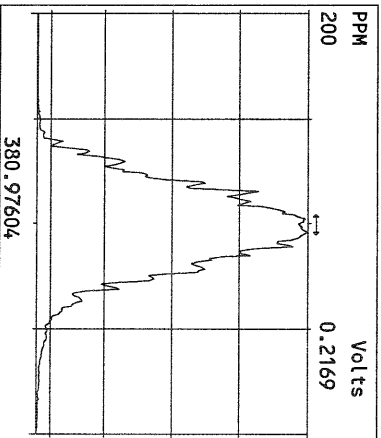
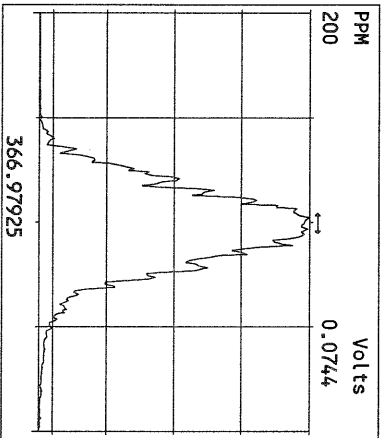
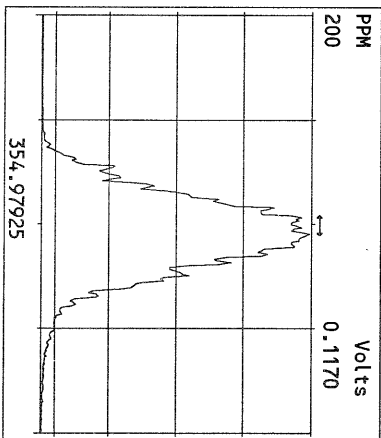
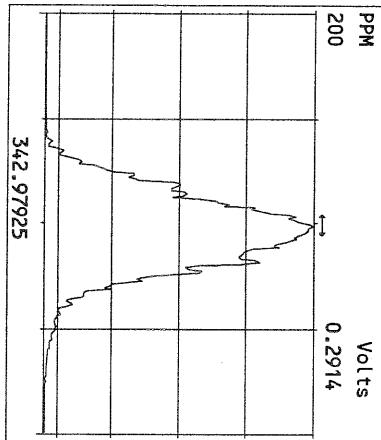
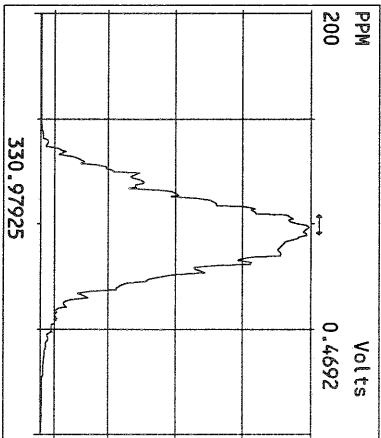
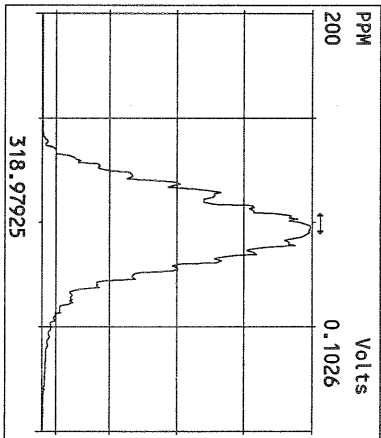
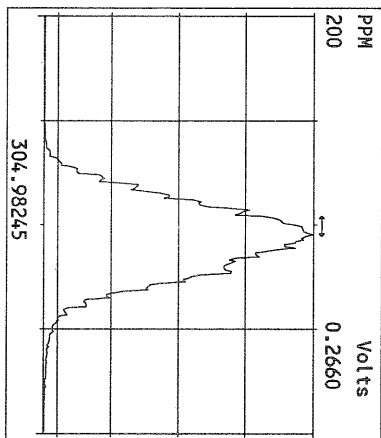
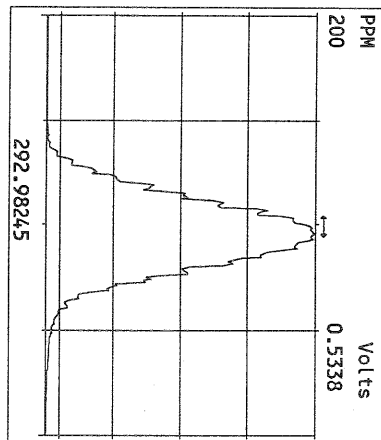


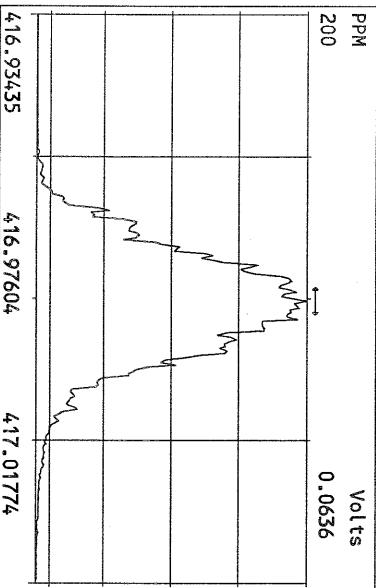
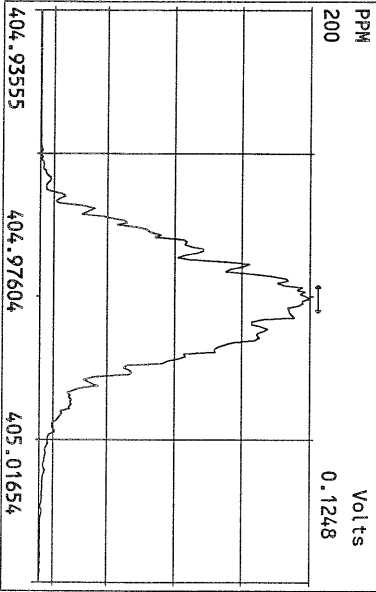
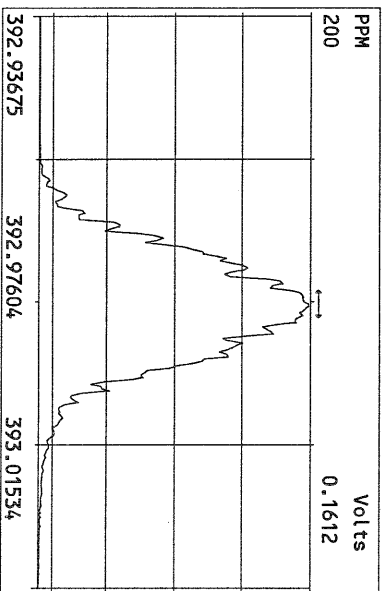
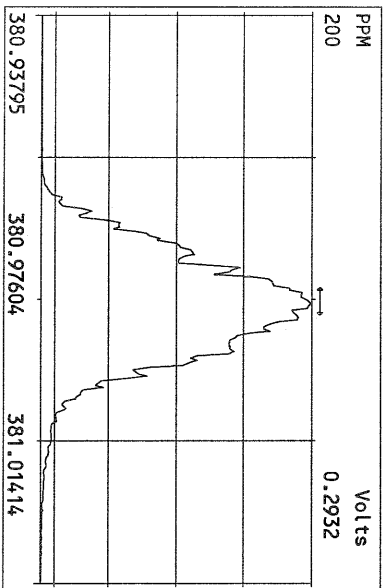
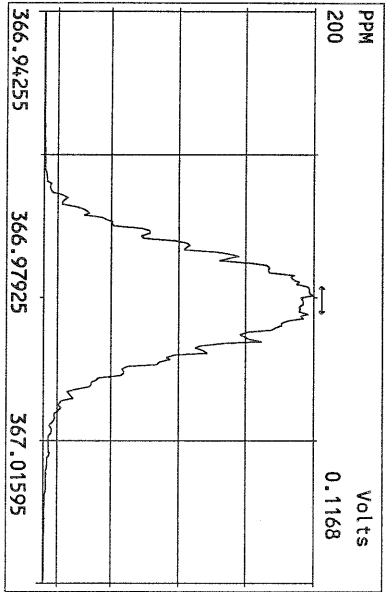
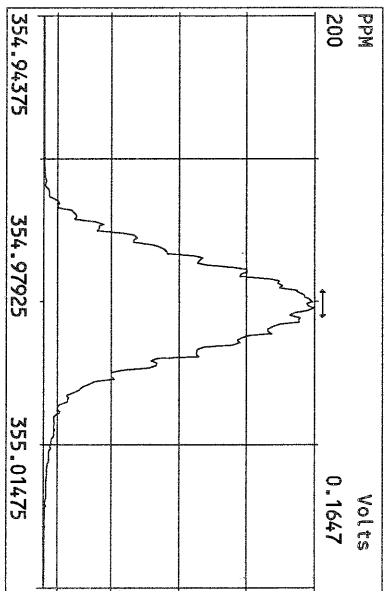
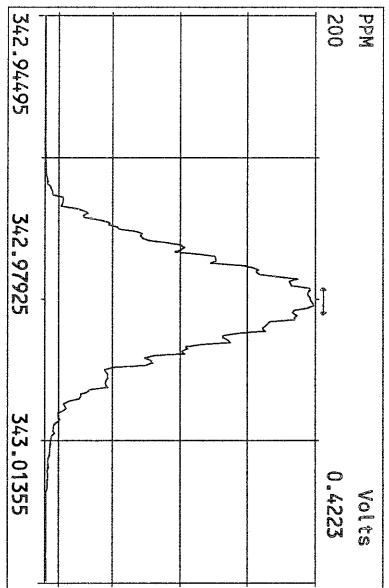
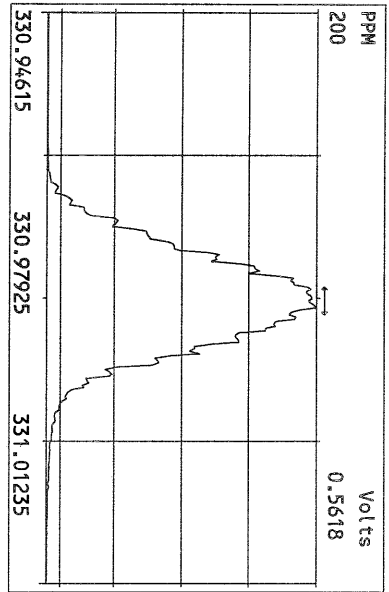
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:P:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory

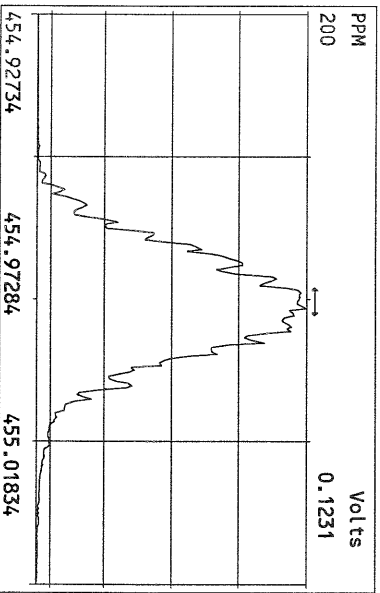
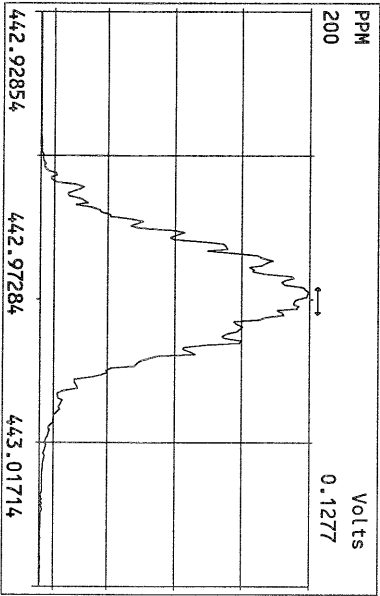
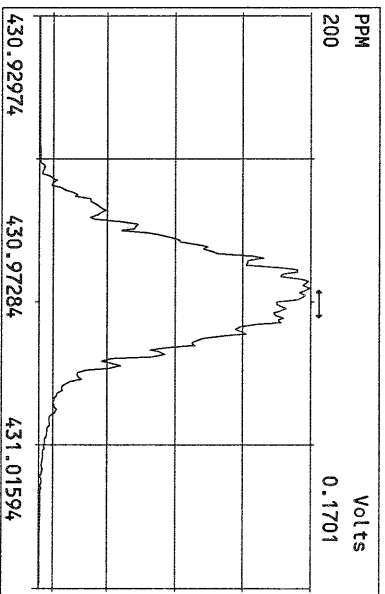
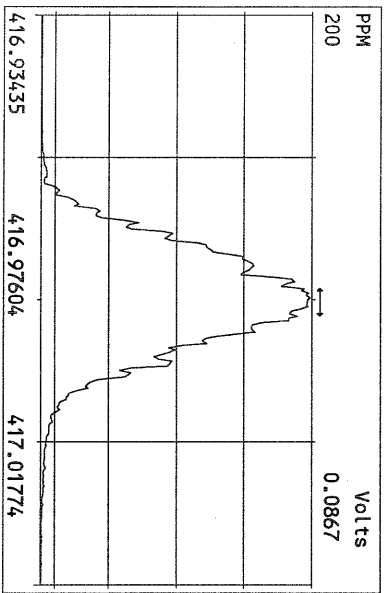
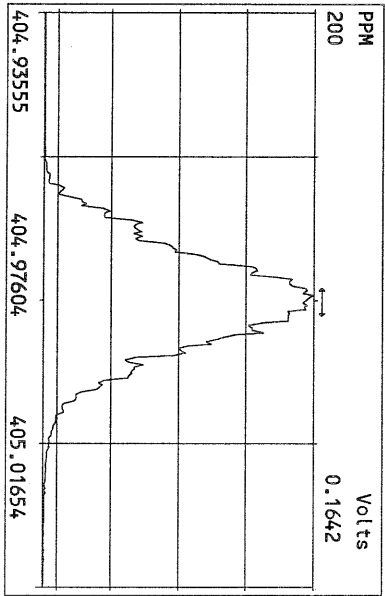
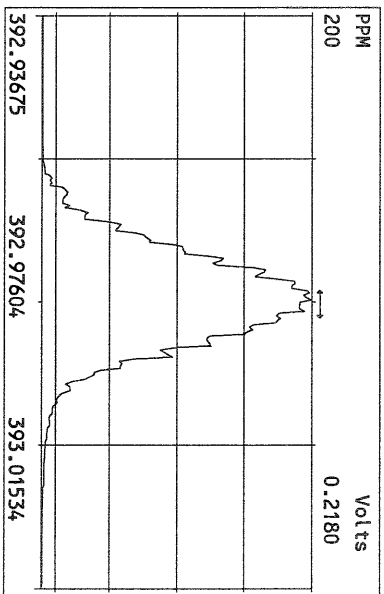
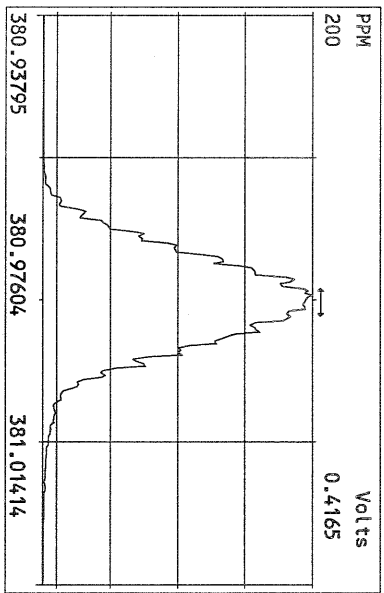
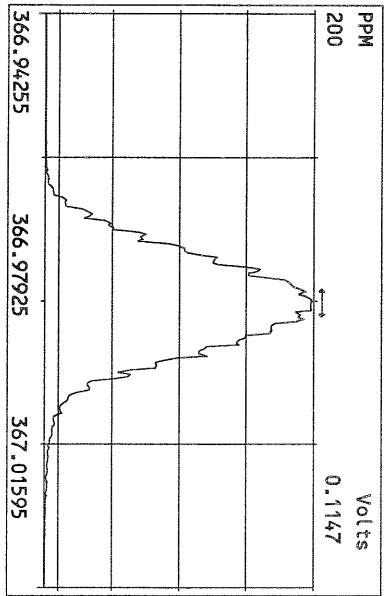


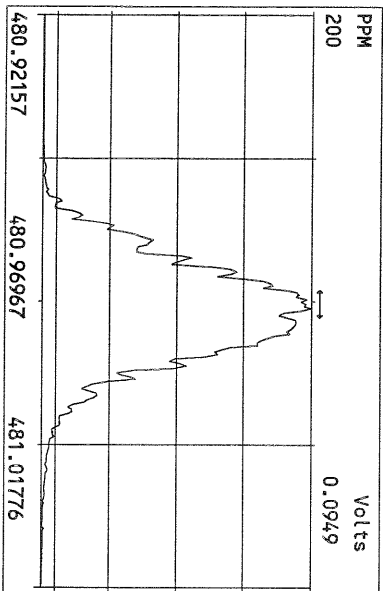
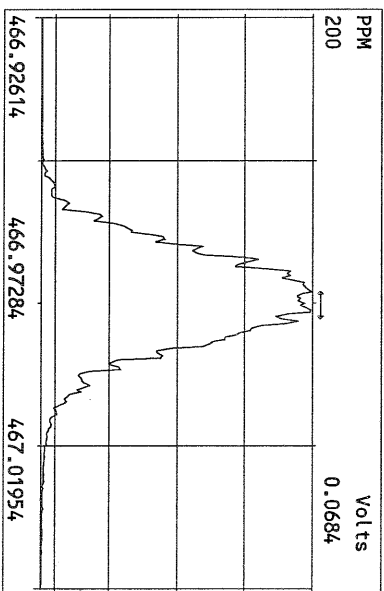
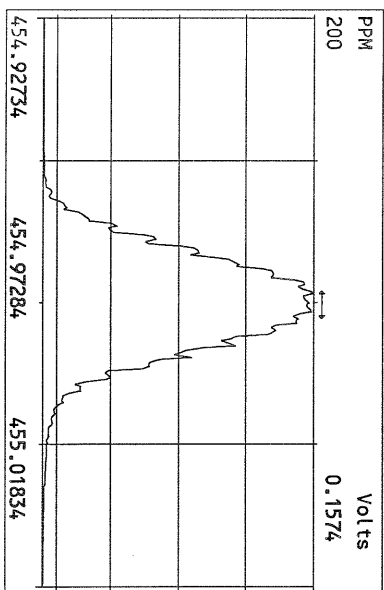
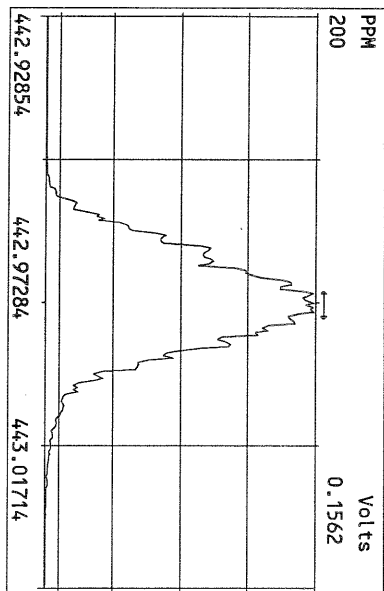
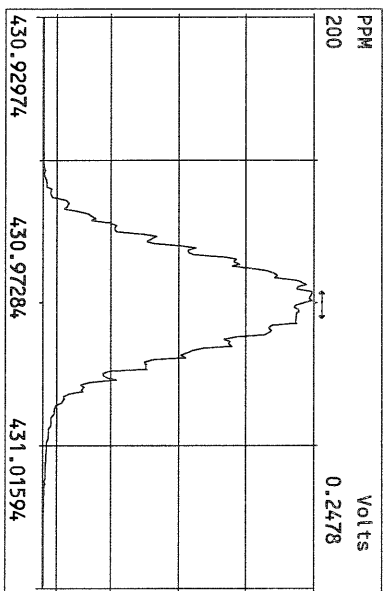
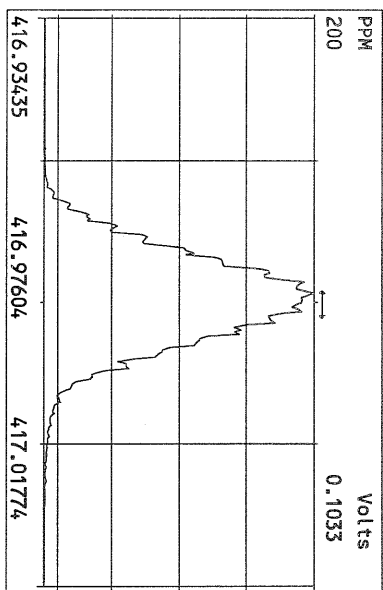
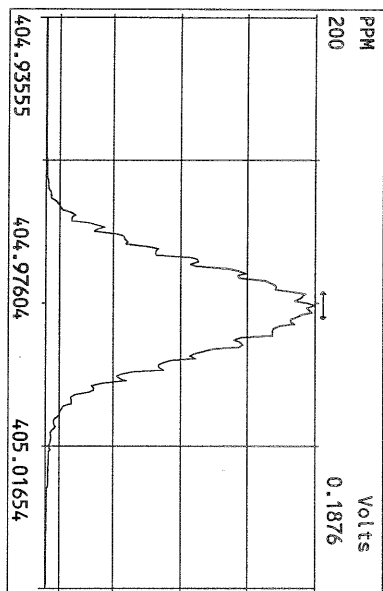
File:23AUG10M #1-347 Acq:23-AUG-2010 19:58:08 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:P:PCDD
Sample Text:ST082310M5 File Text:Frontier Analytical Laboratory

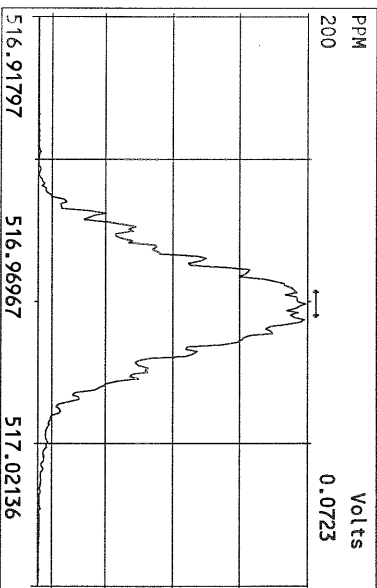
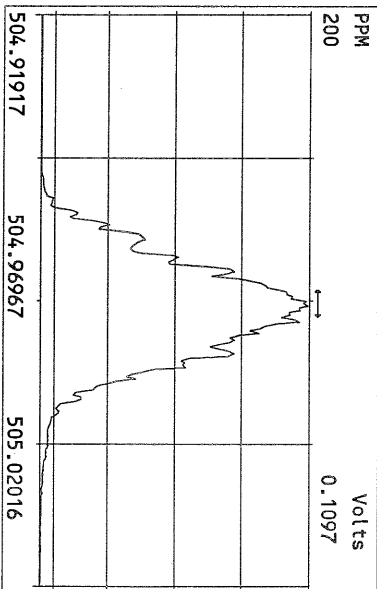
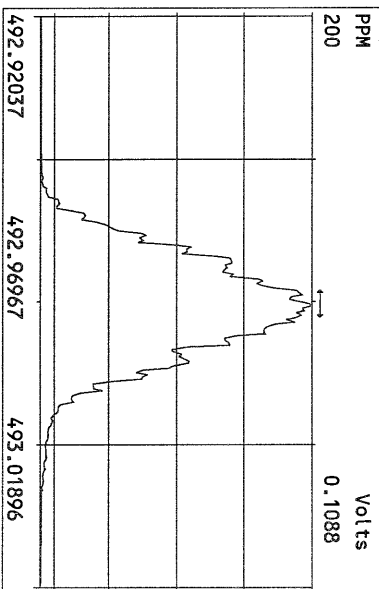
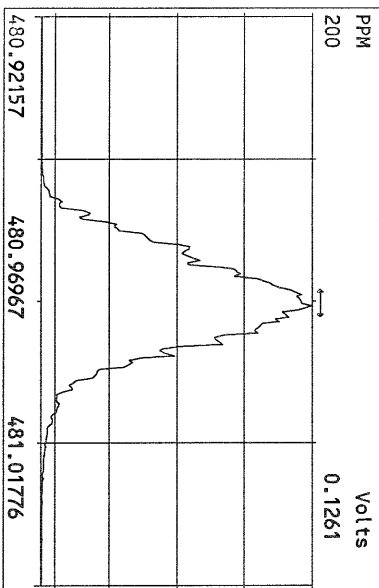
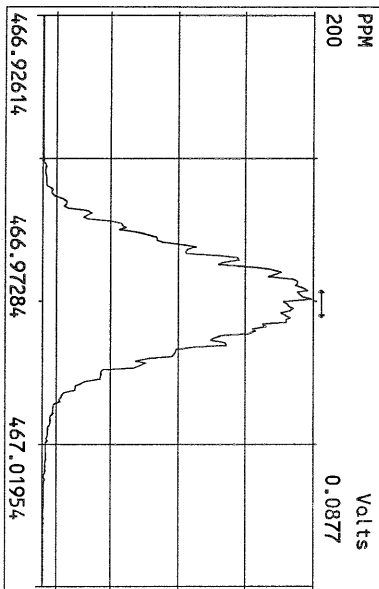
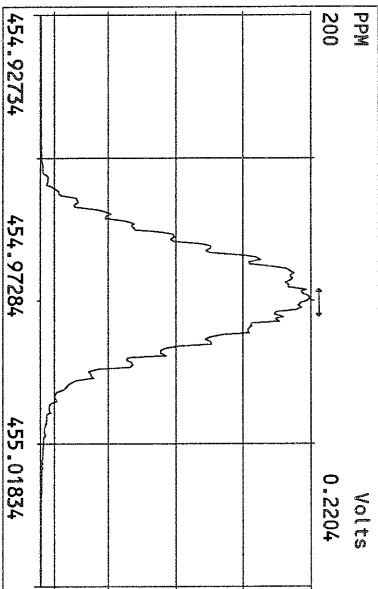
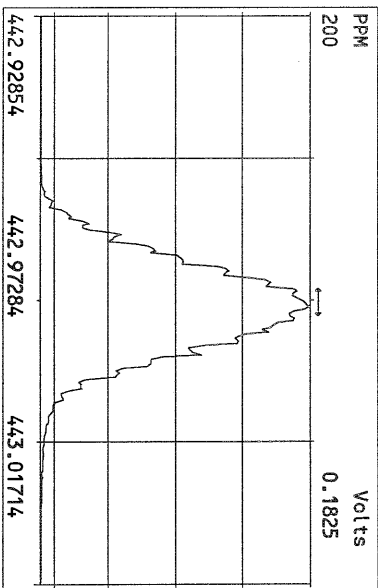
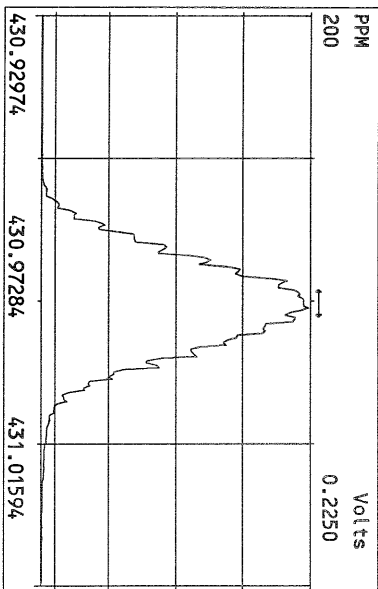












USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M Sam:1

Analysis Date: 30-SEP-10 09:37:00

| | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| NATIVE ANALYTES | | | | | | |
| 2,3,7,8-TCDD | M/M+2 | 0.79 | 0.65-0.89 | y | 11.1 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.60 | 1.32-1.78 | y | 52.1 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 48.6 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.39 | 1.05-1.43 | y | 47.8 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.38 | 1.05-1.43 | y | 50.6 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.99 | 0.88-1.20 | y | 48.5 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.95 | 0.76-1.02 | y | 98.9 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.69 | 0.65-0.89 | y | 9.04 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.48 | 1.32-1.78 | y | 55.1 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.45 | 1.32-1.78 | y | 53.3 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.22 | 1.05-1.43 | y | 46.7 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.21 | 1.05-1.43 | y | 48.1 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.21 | 1.05-1.43 | y | 48.2 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.21 | 1.05-1.43 | y | 48.0 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.03 | 0.88-1.20 | y | 46.9 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.04 | 0.88-1.20 | y | 46.0 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.91 | 0.76-1.02 | y | 100 | 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: 10/1/10

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M Sam:1

Analysis Date: 30-SEP-10 09:37:00


| 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 | 0.79 | 0.65-0.89 | y | 98.3 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.74 | 1.32-1.78 | y | 120 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 106 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.24 | 1.05-1.43 | y | 92.7 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.96 | 0.88-1.20 | y | 100 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.93 | 0.76-1.02 | y | 200 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.88 | 0.65-0.89 | y | 99.8 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.74 | 1.32-1.78 | y | 110 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.71 | 1.32-1.78 | y | 112 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 107 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.53 | 0.43-0.59 | y | 94.3 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 97.9 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 105 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.44 | 0.37-0.51 | y | 93.3 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.44 | 0.37-0.51 | y | 100 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 1.00 | 0.76-1.02 | y | 203 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 10.2 | 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: 10/1/10

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: 8/23/10
RT Window Data Filename: 30SEP10M Sam:1 Analysis Date: 30-SEP-10 Time: 09:37:00
DB-5 IS Data Filename: 30SEP10M Sam:1 Analysis Date: 30-SEP-10 Time: 09:37:00
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) | 24:26 ✓ | 1,3,6,8-TCDF (F) | 23:05 ✓ |
| 1,2,8,9-TCDD (L) | 28:22 ✓ | 1,2,8,9-TCDF (L) | 28:34 ✓ |
| 1,2,4,7,9-PeCDD (F) | 30:17 ✓ | 1,3,4,6,8-PeCDF (F) | 28:27 ✓ |
| 1,2,3,8,9-PeCDD (L) | 33:50 ✓ | 1,2,3,8,9-PeCDF (L) | 34:15 ✓ |
| 1,2,4,6,7,9-HxCDD (F) | 36:10 ✓ | 1,2,3,4,6,8-HxCDF (F) | 35:17 ✓ |
| 1,2,3,7,8,9-HxCDD (L) | 39:14 ✓ | 1,2,3,7,8,9-HxCDF (L) | 39:47 ✓ |
| 1,2,3,4,6,7,9-HpCDD (F) | 42:51 ✓ | 1,2,3,4,6,7,8-HpCDF (F) | 42:19 ✓ |
| 1,2,3,4,6,7,8-HpCDD (L) | 44:13 ✓ | 1,2,3,4,7,8,9-HpCDF (L) | 45:07 ✓ |

(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: 10/1/10

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5


Analysis Date: 30-SEP-10 09:37:00

CS3 or VER Data Filename: 30SEP10M

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 | 1.000 | 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 | | 1.238 | 1.000-1.567 ✓ |
| 13C-1,2,3,7,8-PeCDF | | 1.174 | 0.923-1.203 ✓ |
| 13C-2,3,4,7,8-PeCDF | | 1.223 | 0.923-1.303 ✓ |

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

Analyst: Date: 10/1/10

USEPA - ITD

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 30-SEP-10 09:37:00

CS3 or VER Data Filename: 30SEP10M

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 | 1.000 | 0.999-1.001 ✓ |
| 1,2,3,6,7,8-HxCDF | 13C-1,2,3,6,7,8-HxCDF | 1.000 | 0.997-1.005 ✓ |
| 2,3,4,6,7,8-HxCDF | 13C-2,3,4,6,7,8-HxCDF | 1.000 | 0.999-1.001 ✓ |
| 1,2,3,7,8,9-HxCDF | 13C-1,2,3,7,8,9-HxCDF | 1.000 | 0.999-1.001 ✓ |
| 1,2,3,4,6,7,8-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 | 1.001 | 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 | 0.985 | 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 | | 1.014 | 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: 

Date: 10/1/10

Frontier Analytical Laboratory - Acquisition Log

Run Name:30SEP10M

Instrument: FAL3

GC: DB5

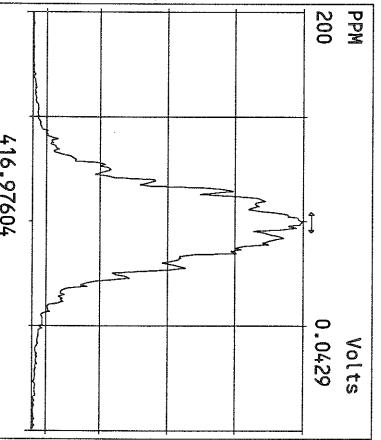
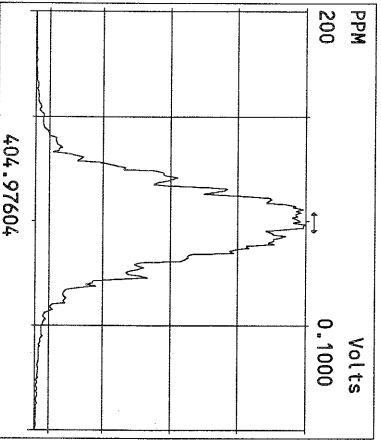
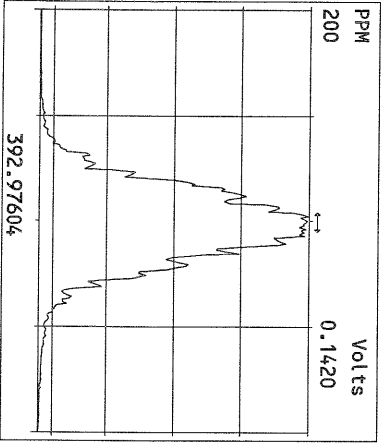
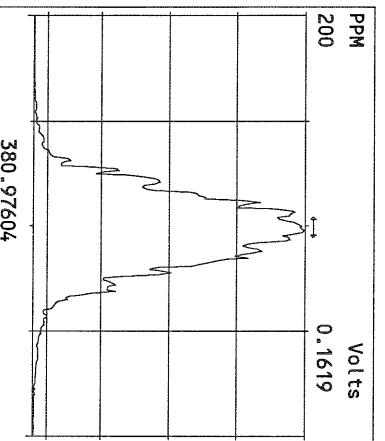
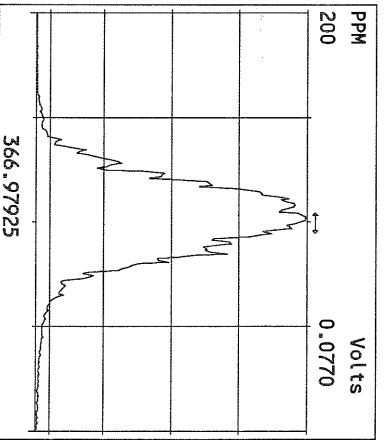
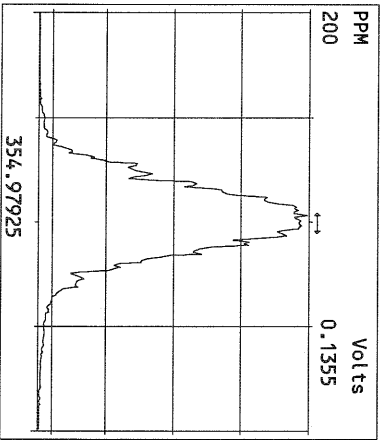
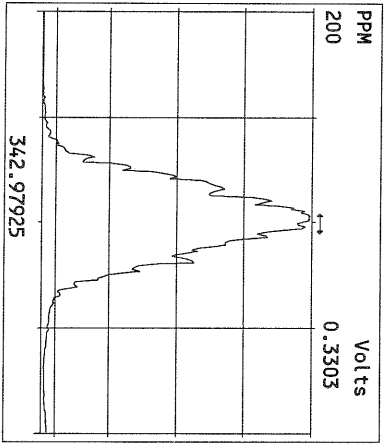
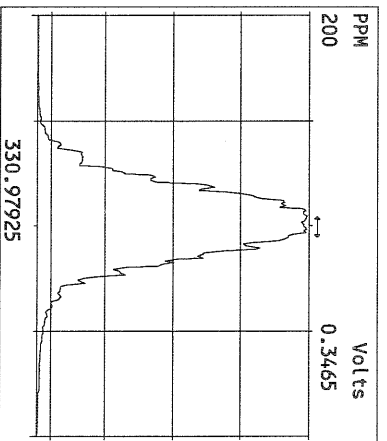
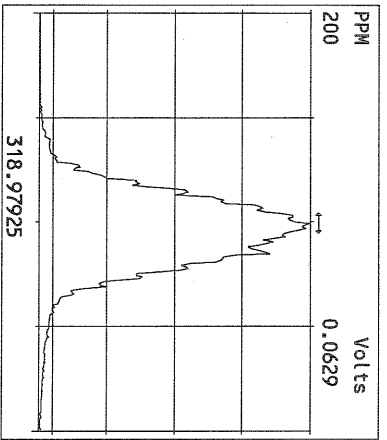
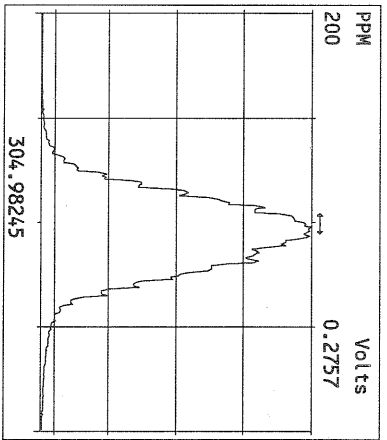
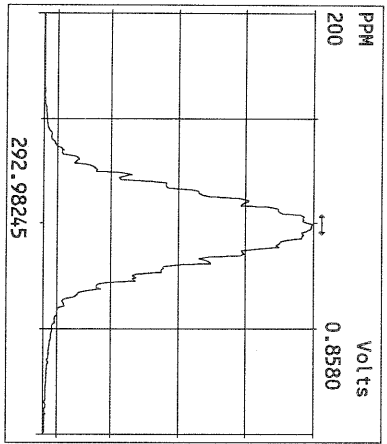
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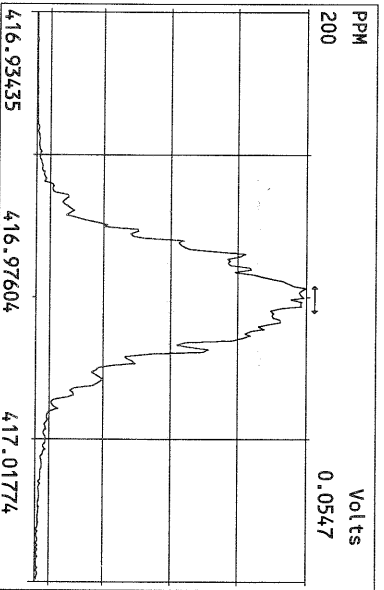
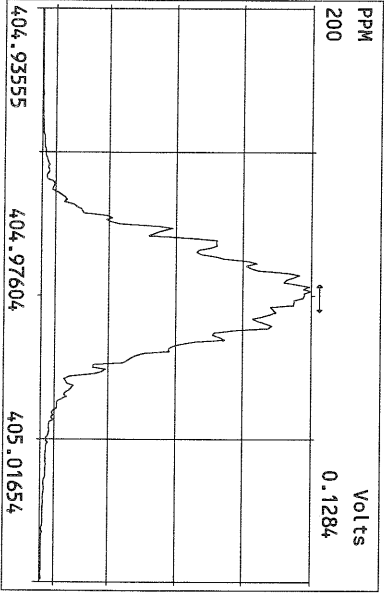
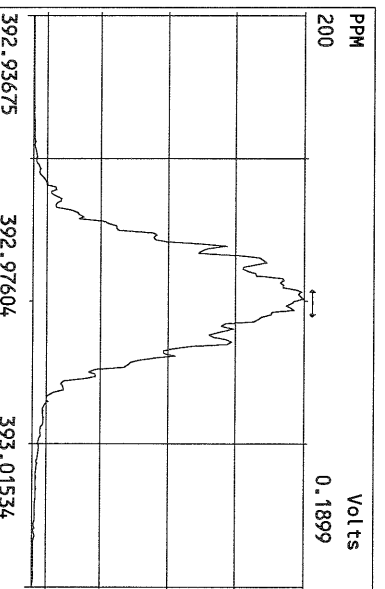
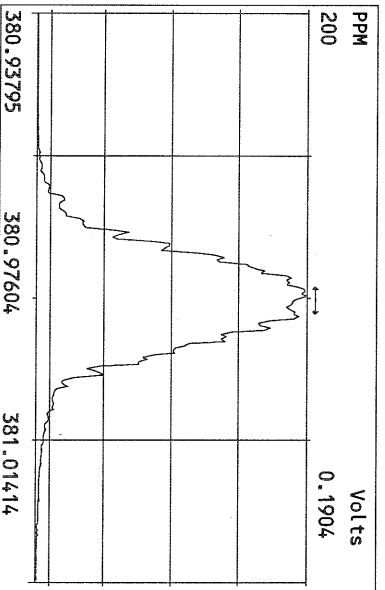
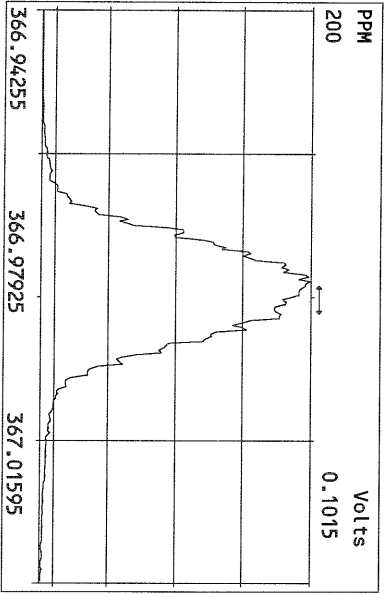
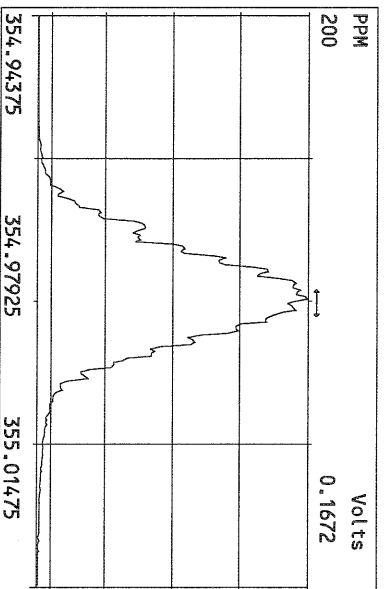
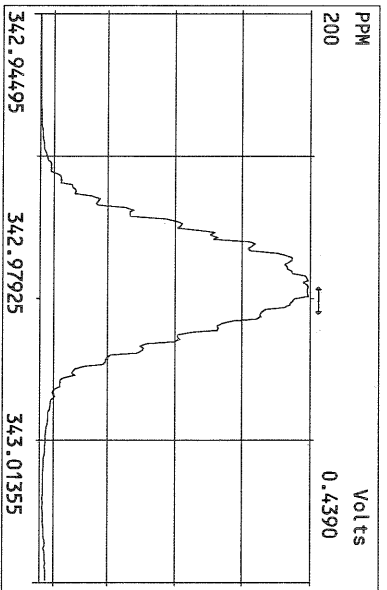
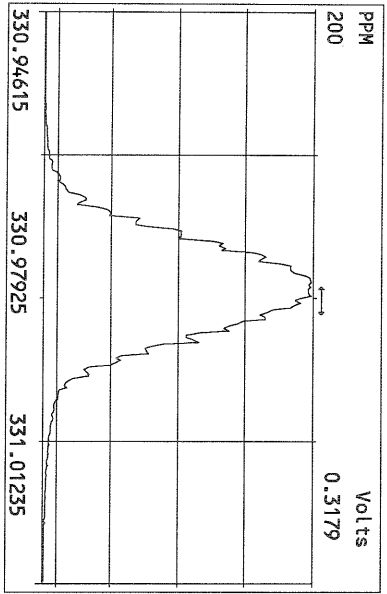
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| 30SEP10M | 6 | 6367-003-X002-SA | RM-51177 LOT-820657 | 30-SEP-10 14:14:17 | ST093010M1 | ST093010M2 | TC |
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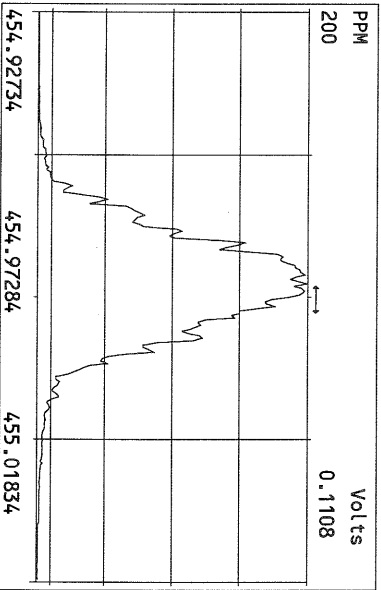
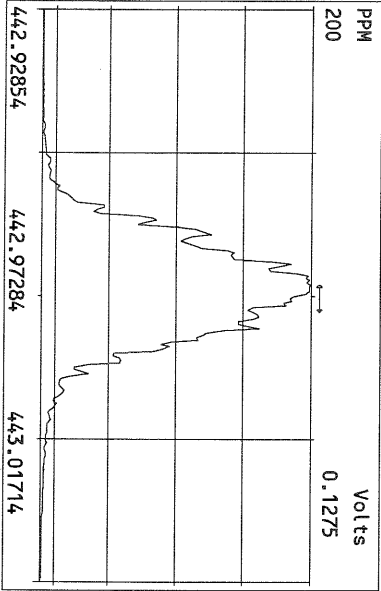
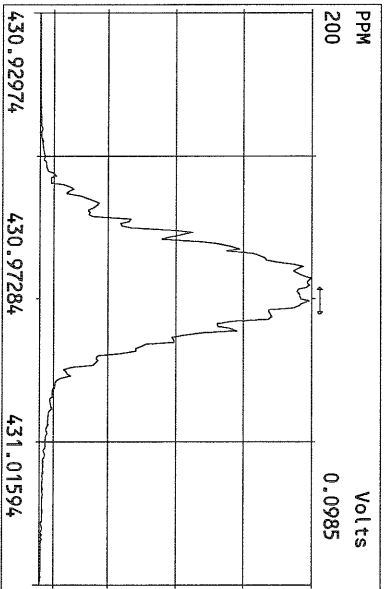
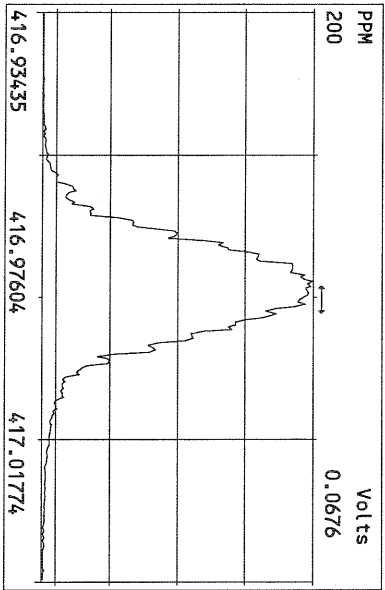
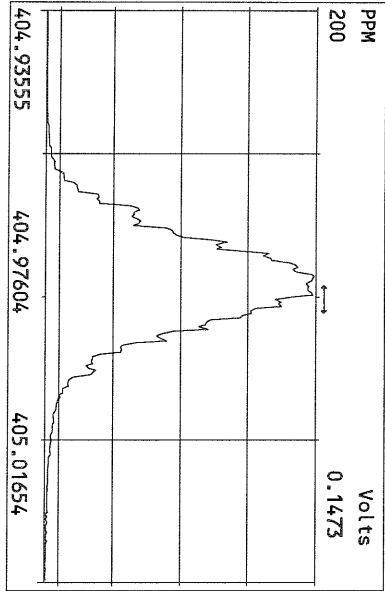
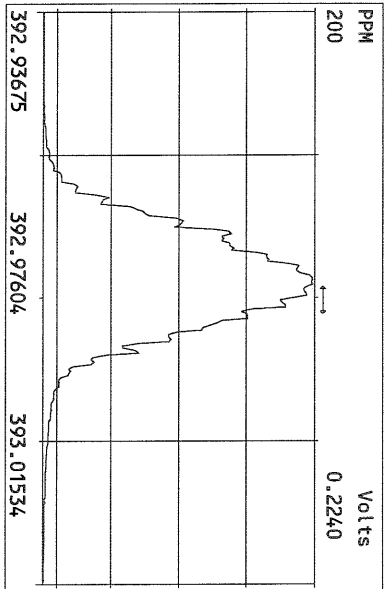
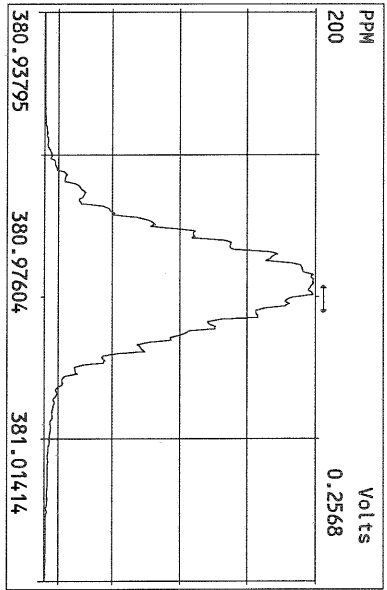
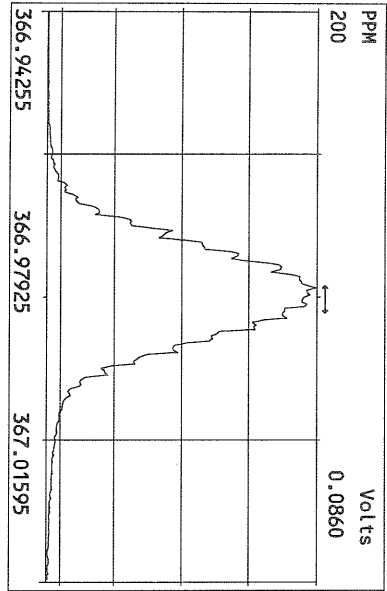
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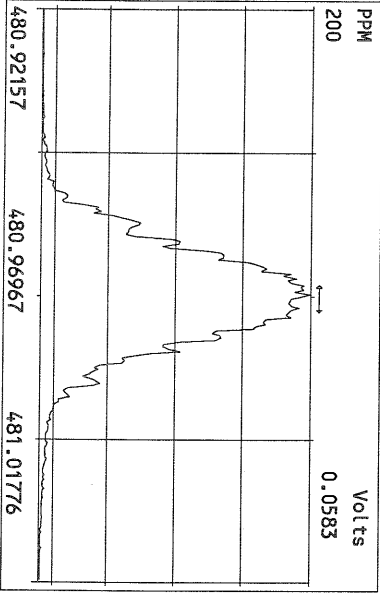
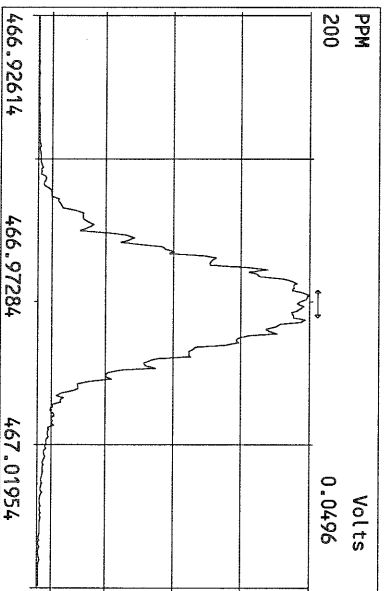
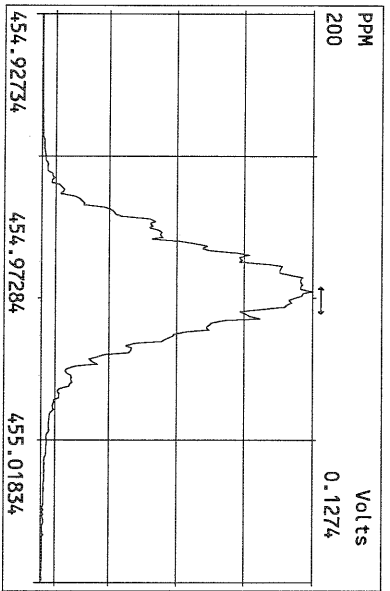
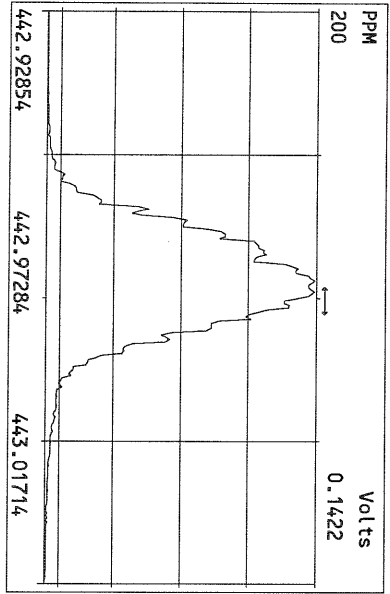
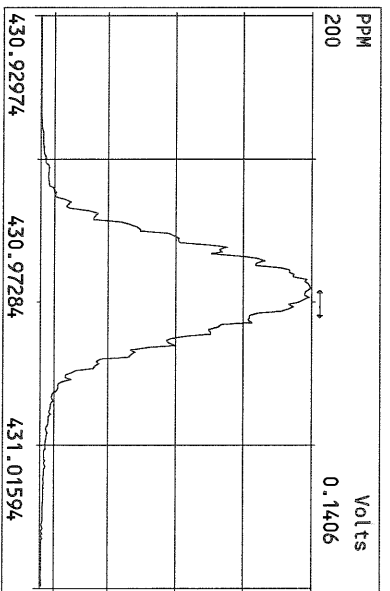
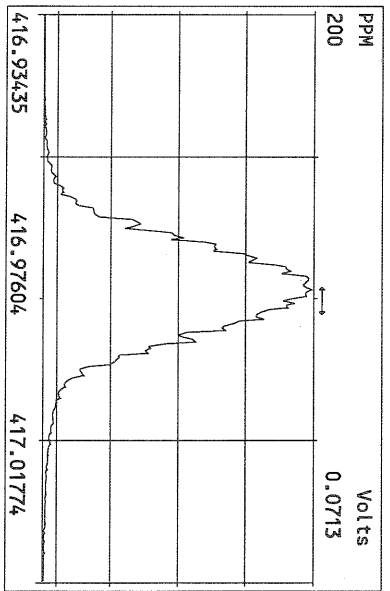
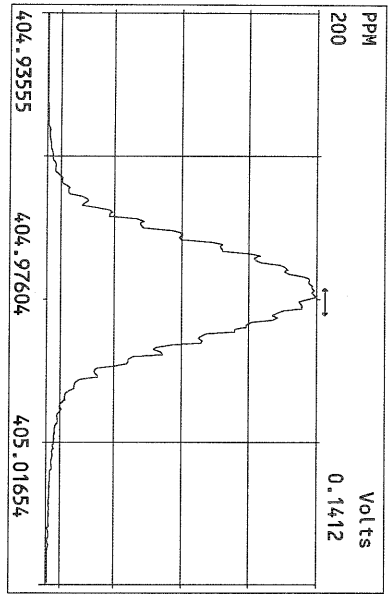
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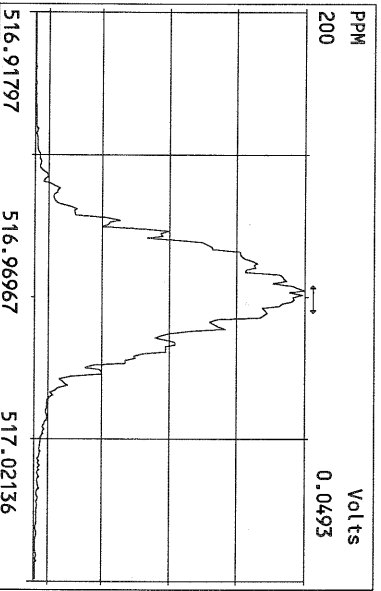
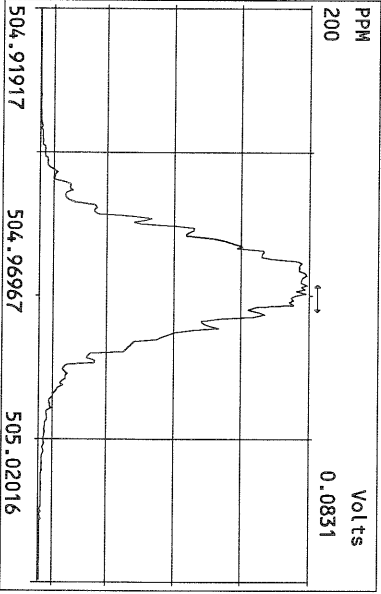
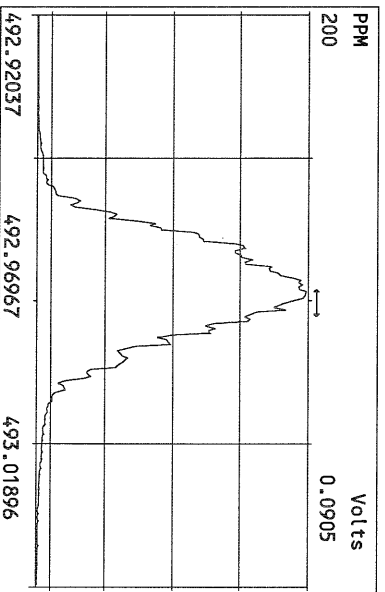
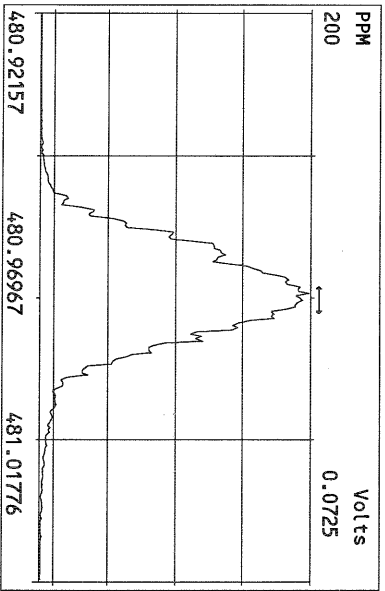
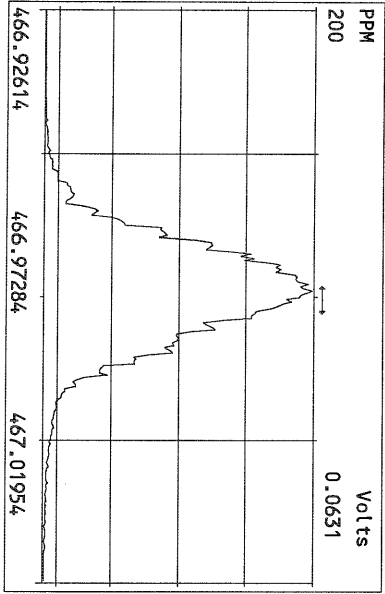
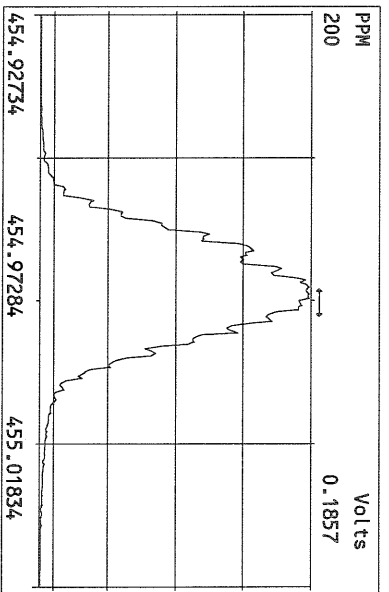
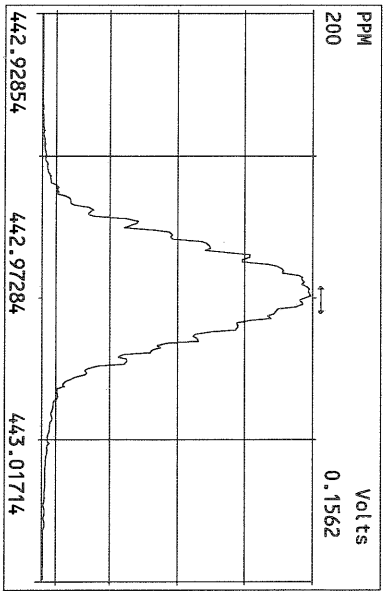
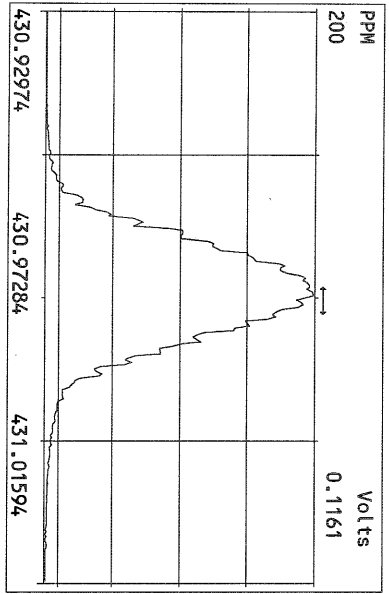
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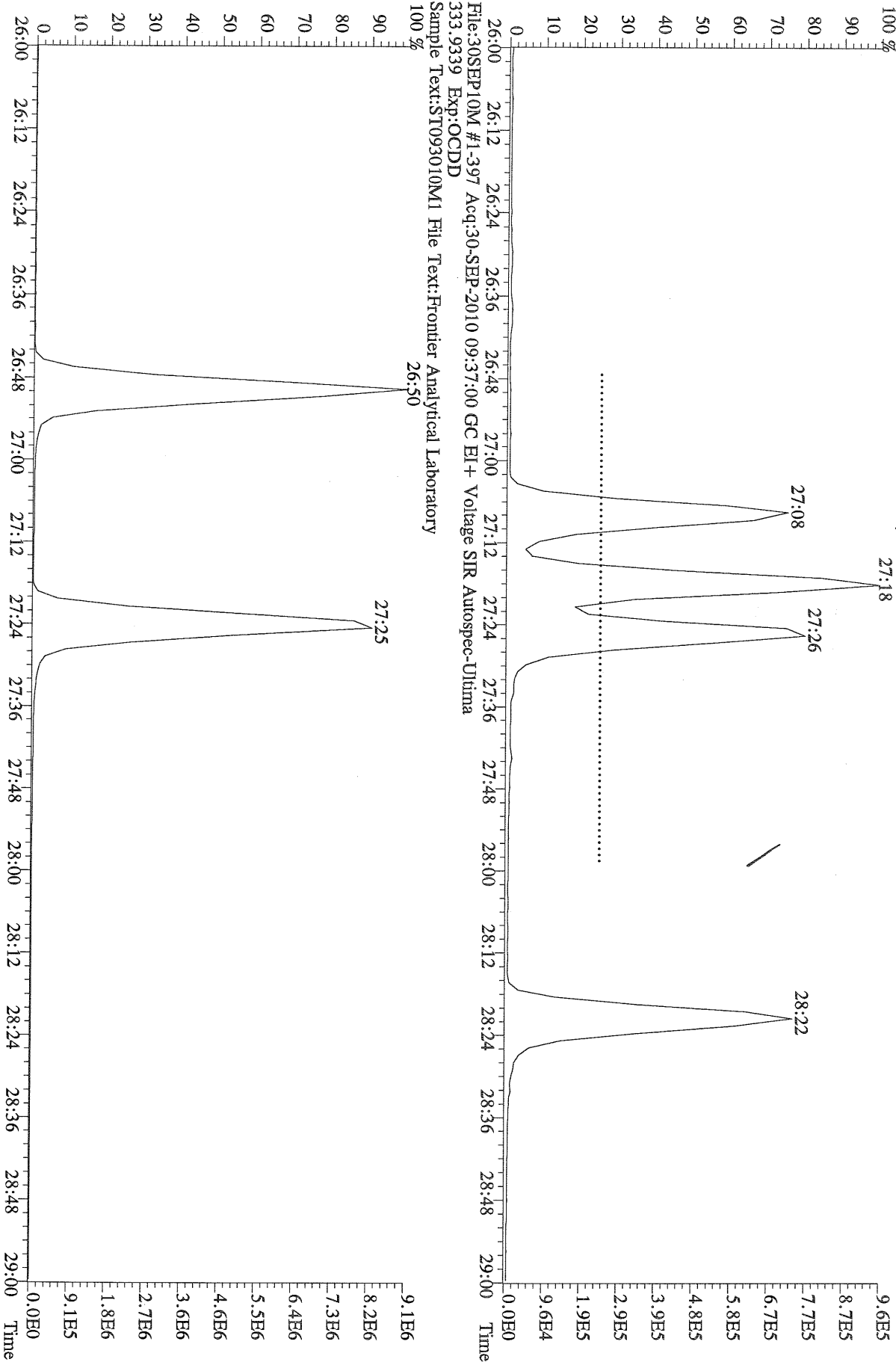




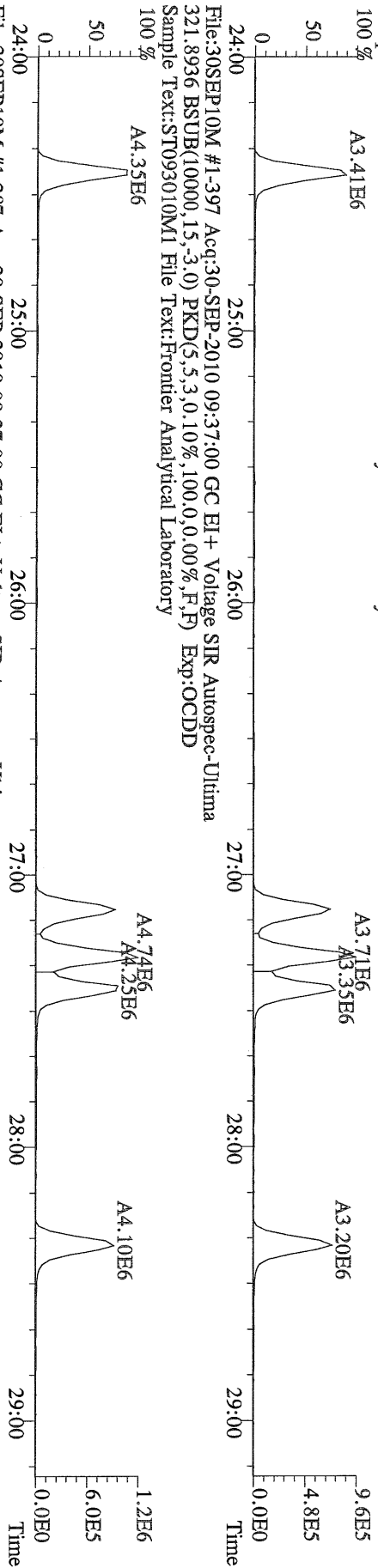




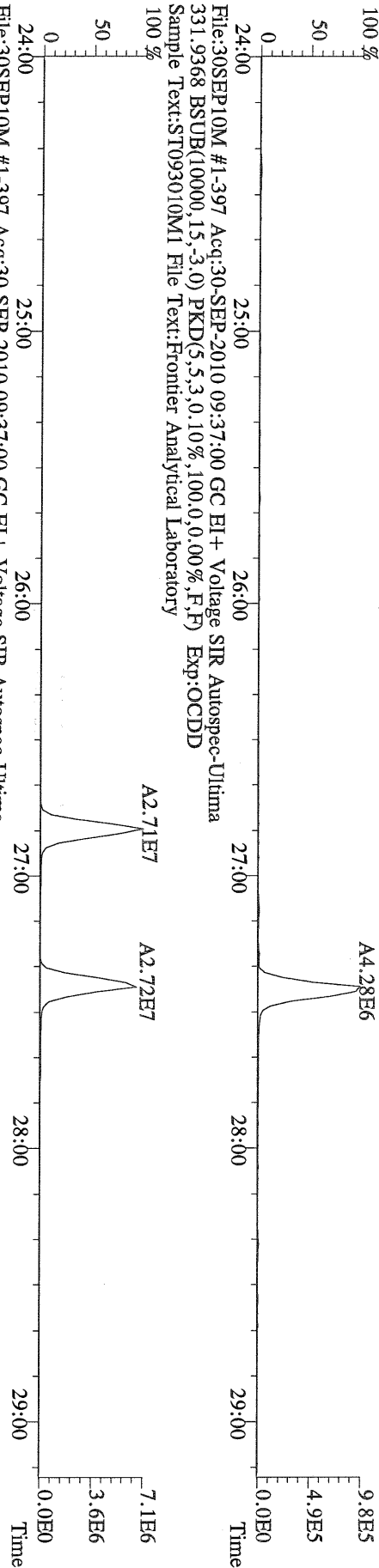
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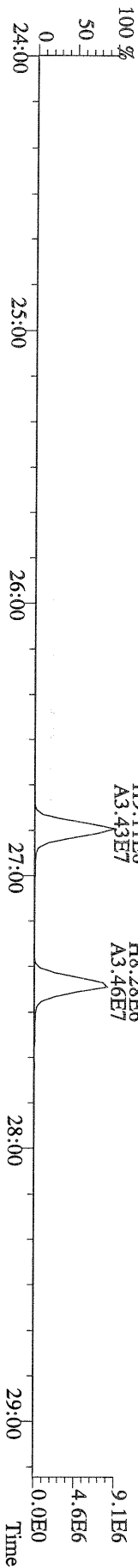
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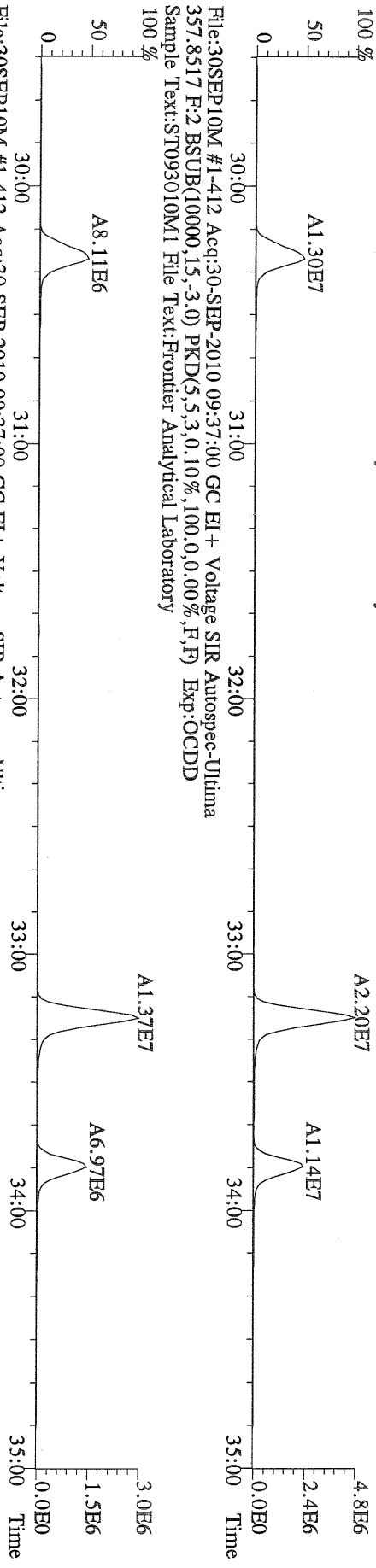
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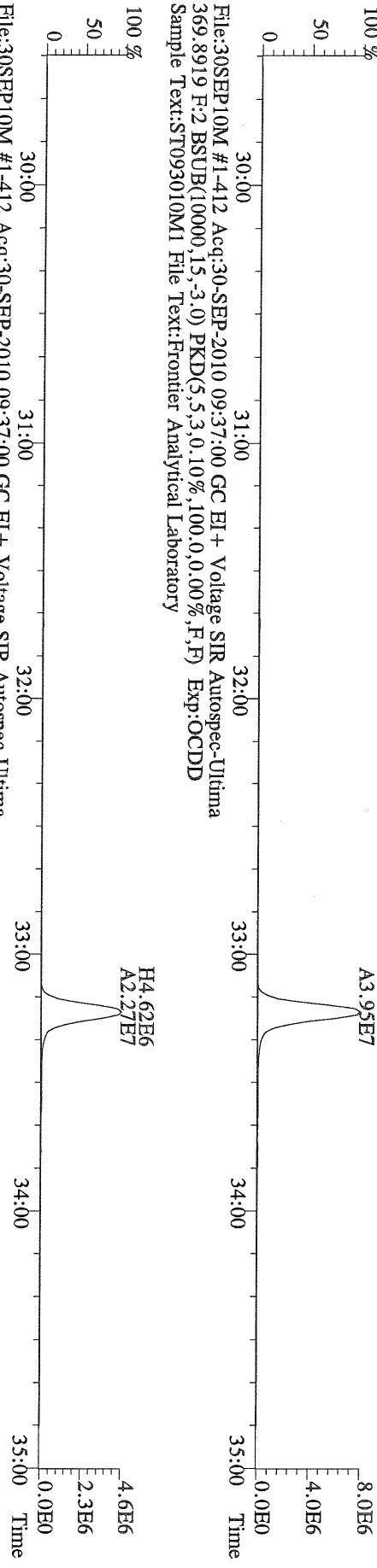
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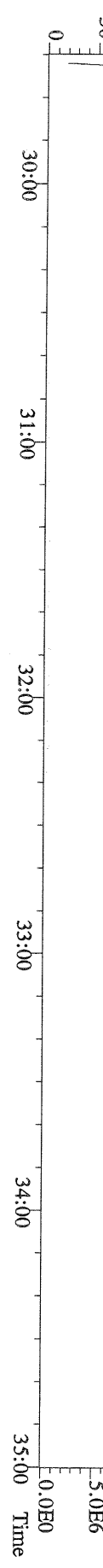
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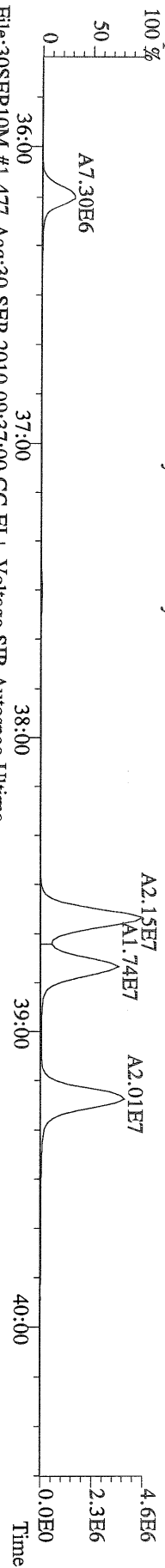
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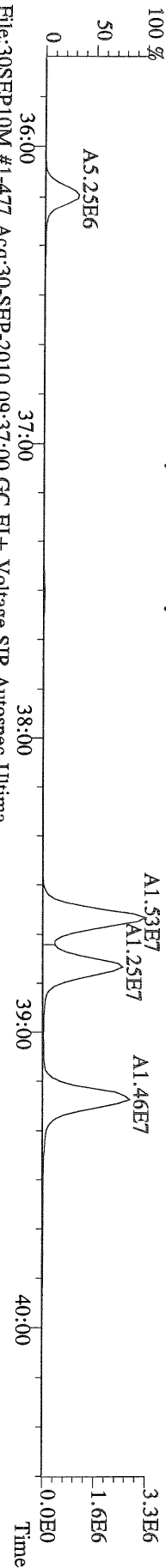
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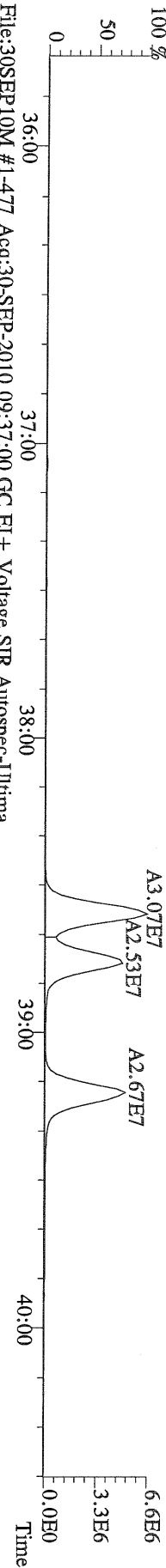
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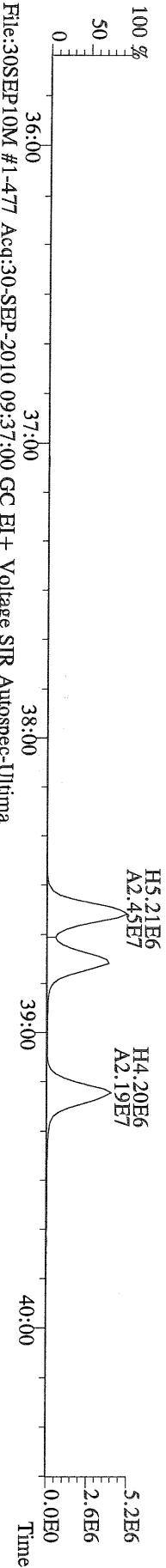
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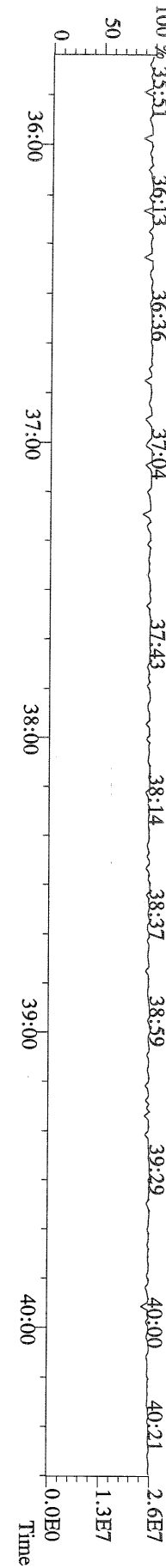
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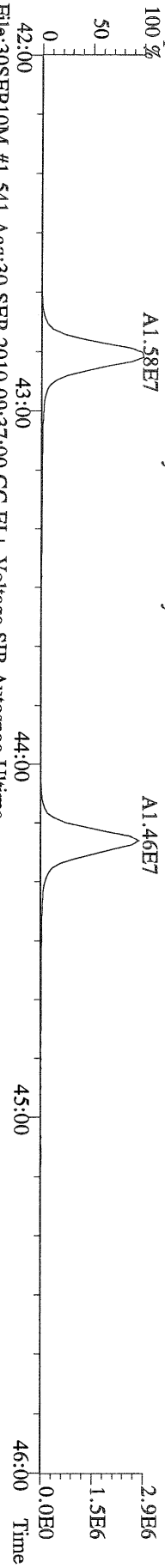
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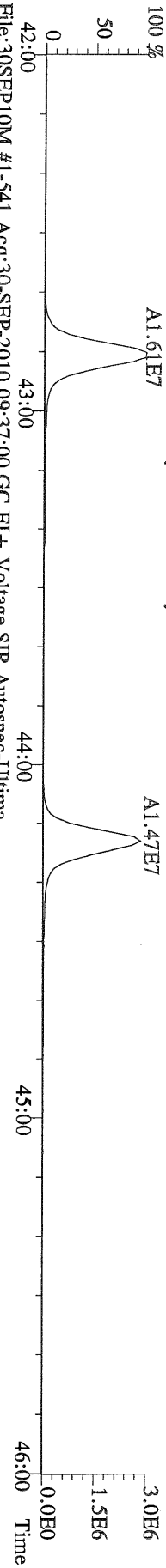
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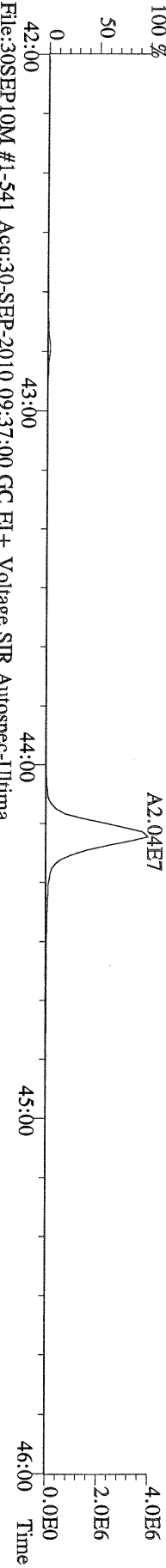
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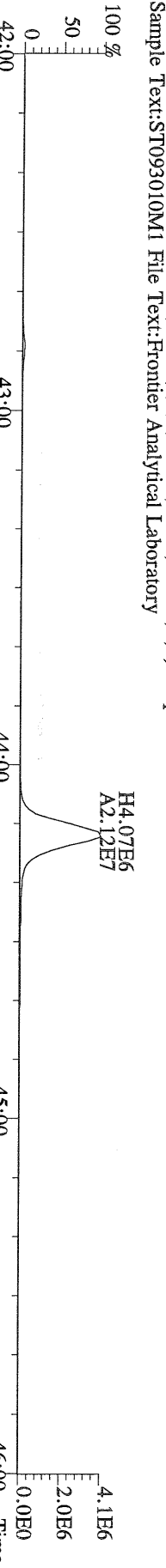
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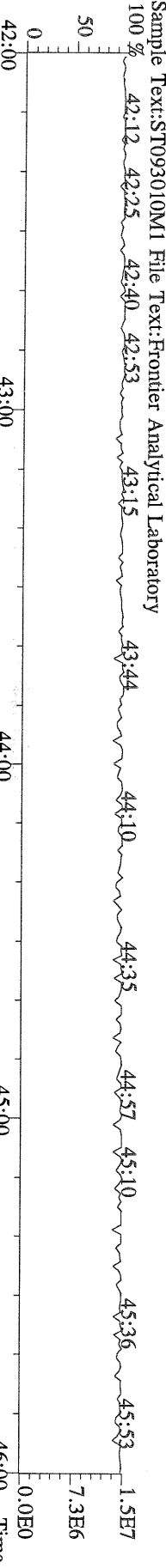
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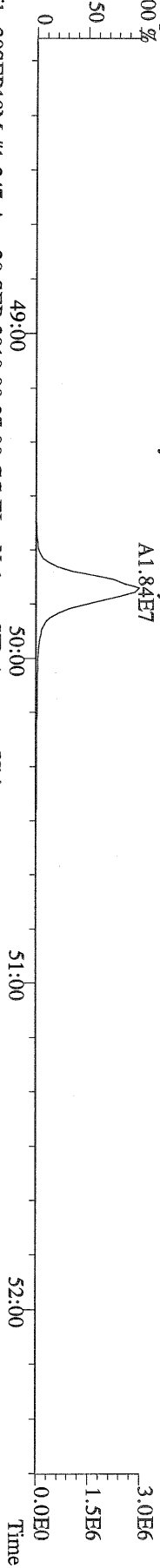
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437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



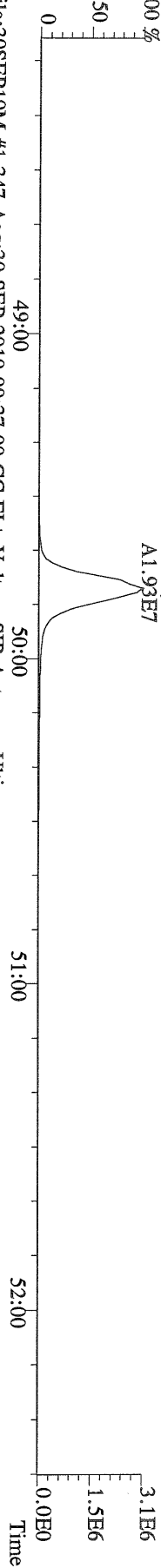
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430.9728 F:4 Exp:OCDD
Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



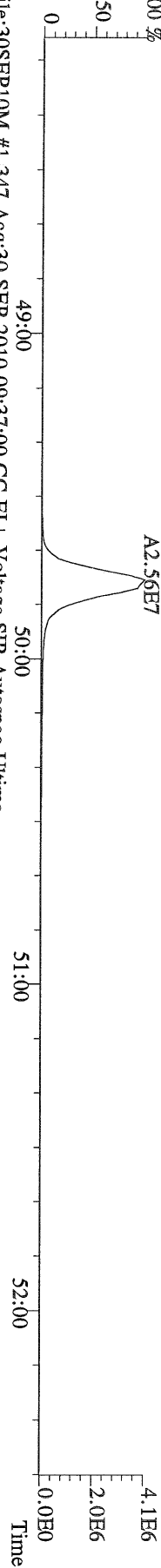
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 457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



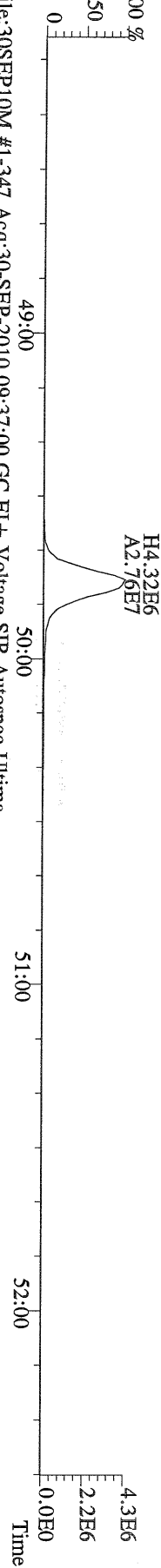
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 459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



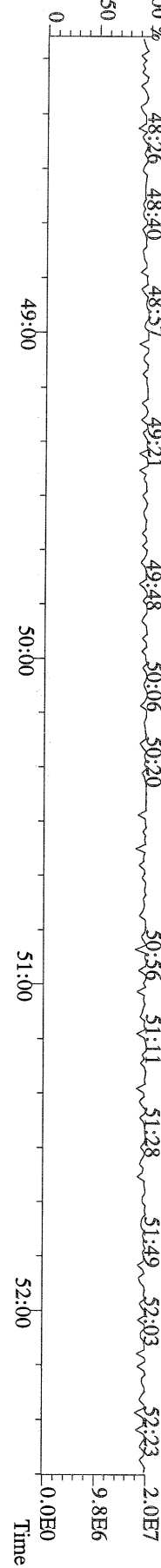
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 469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.00%,F,F) Exp:OCDD
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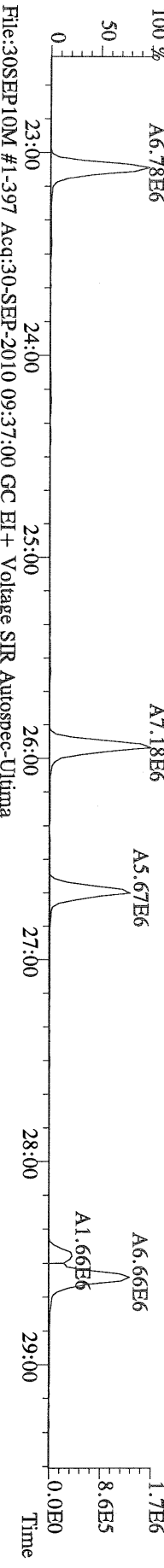
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 471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



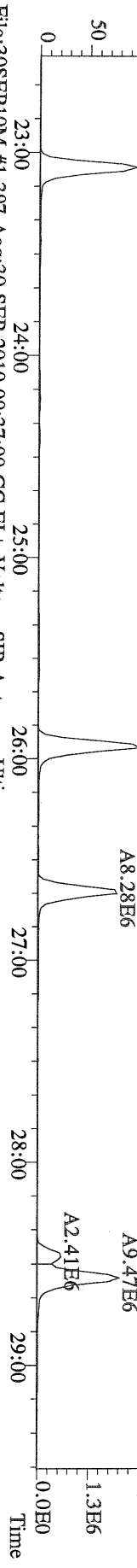
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 454.9728 F:5 Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



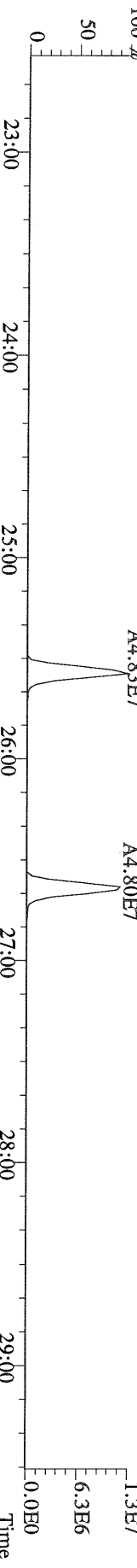
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



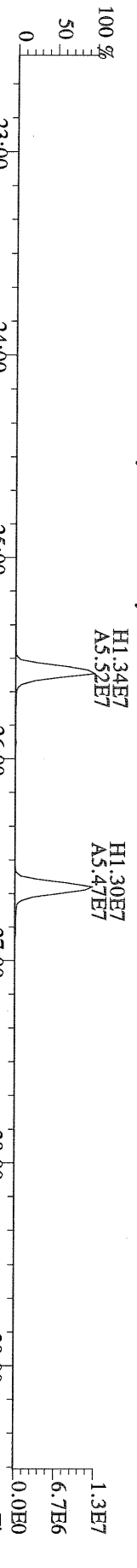
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



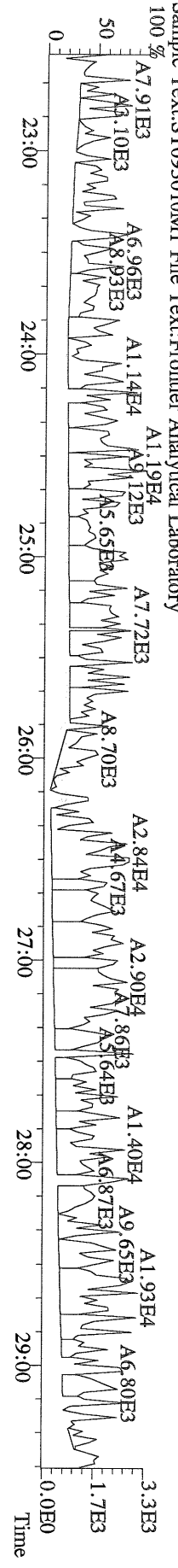
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 315.9419 BSUB(10000,15,50.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



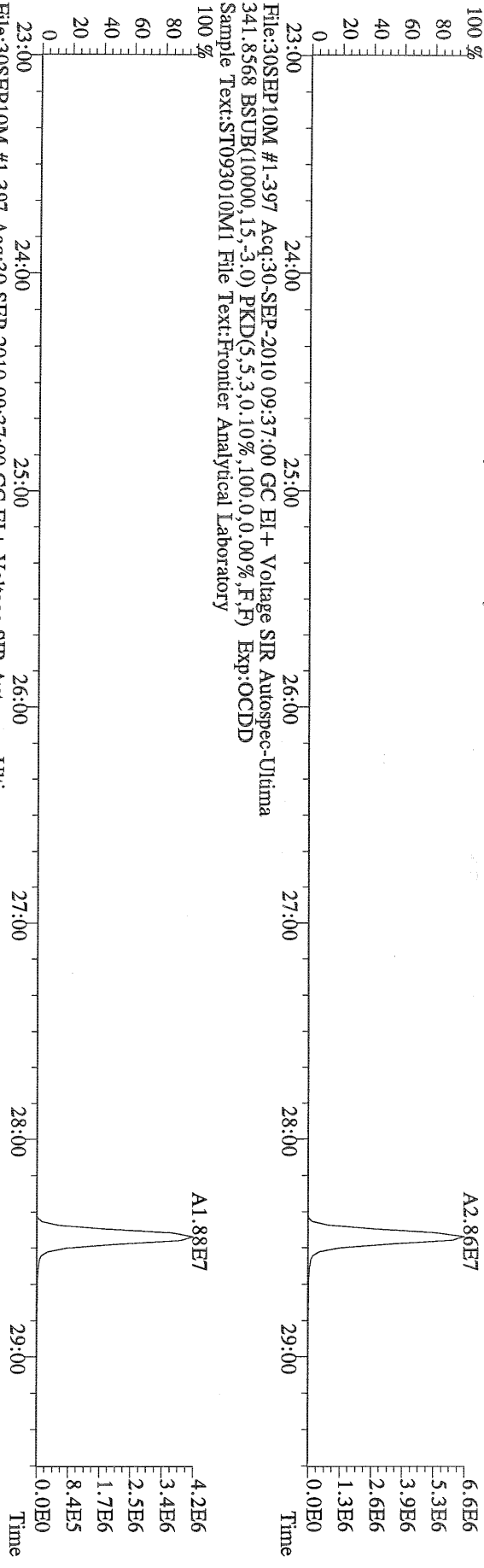
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



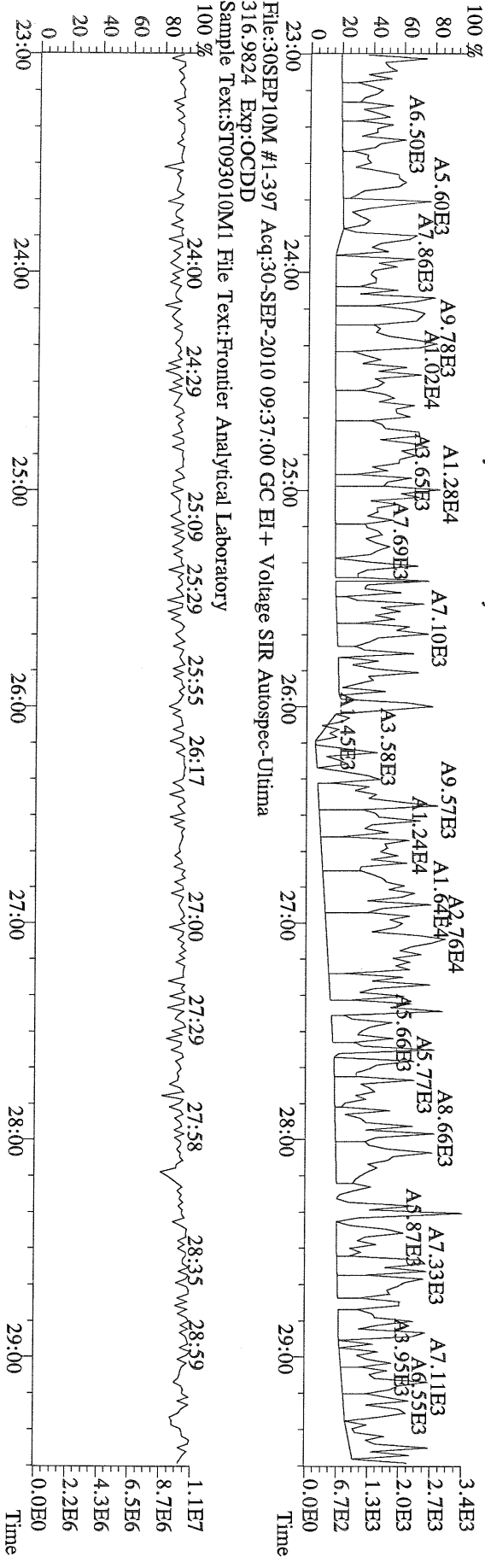
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



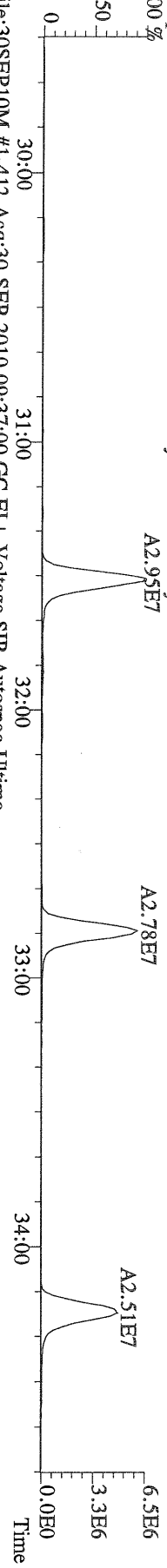
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



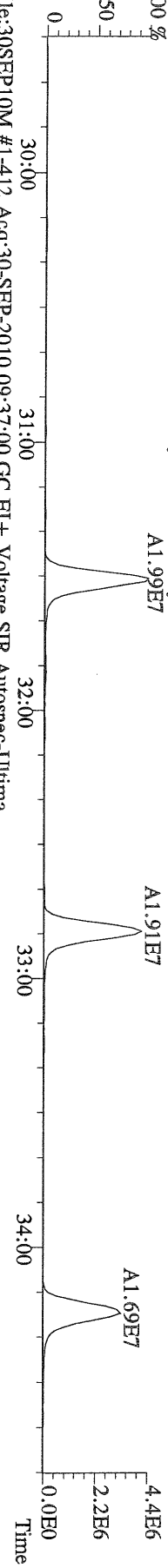
File:30SEP10M #1-397 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



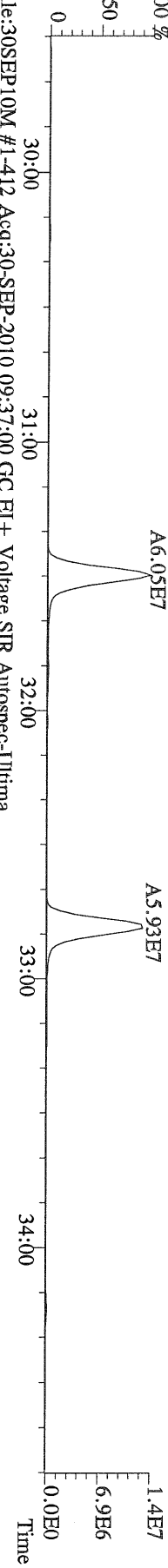
File:30SEP10M #1-412 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 339.8597 F:2.BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



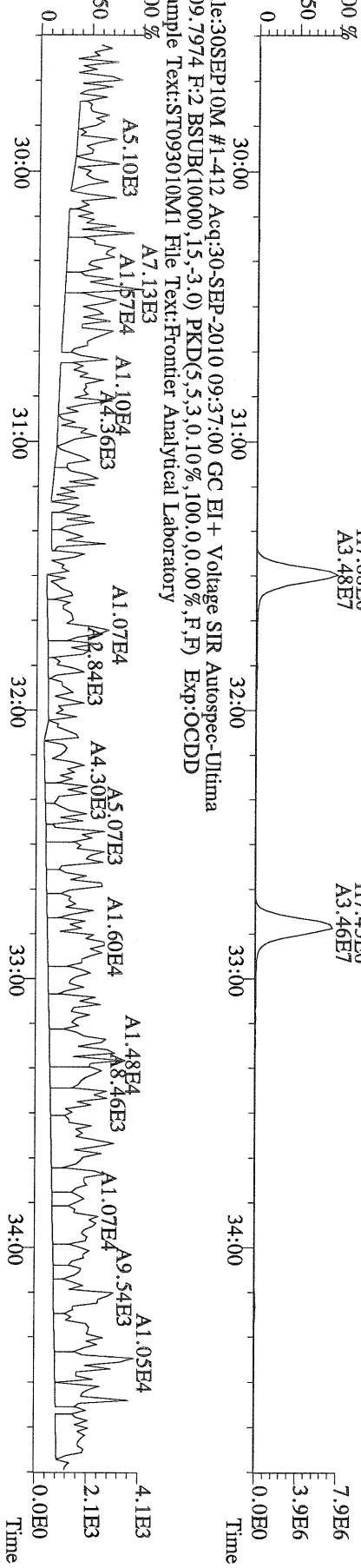
File:30SEP10M #1-412 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 341.8568 F:2.BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



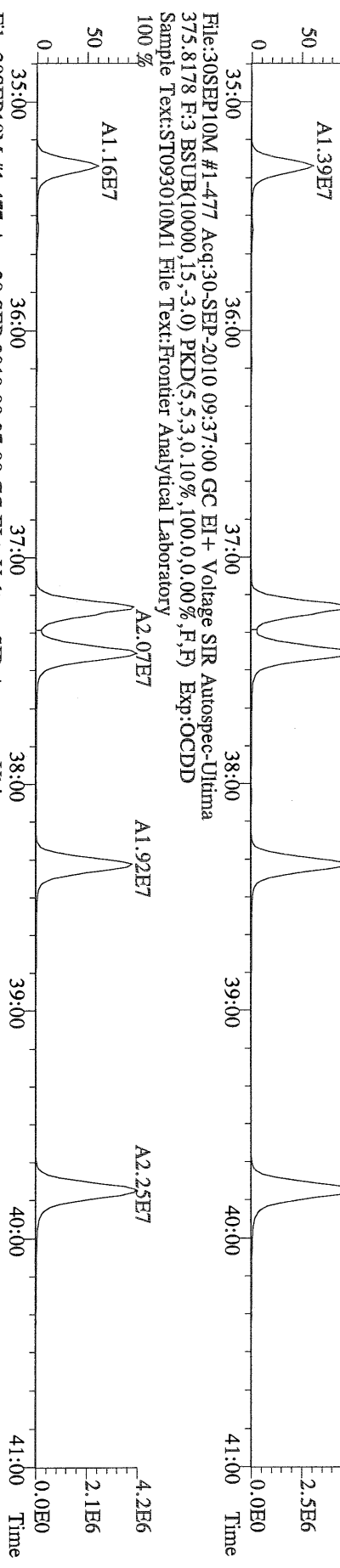
File:30SEP10M #1-412 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
 351.9000 F:2.BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



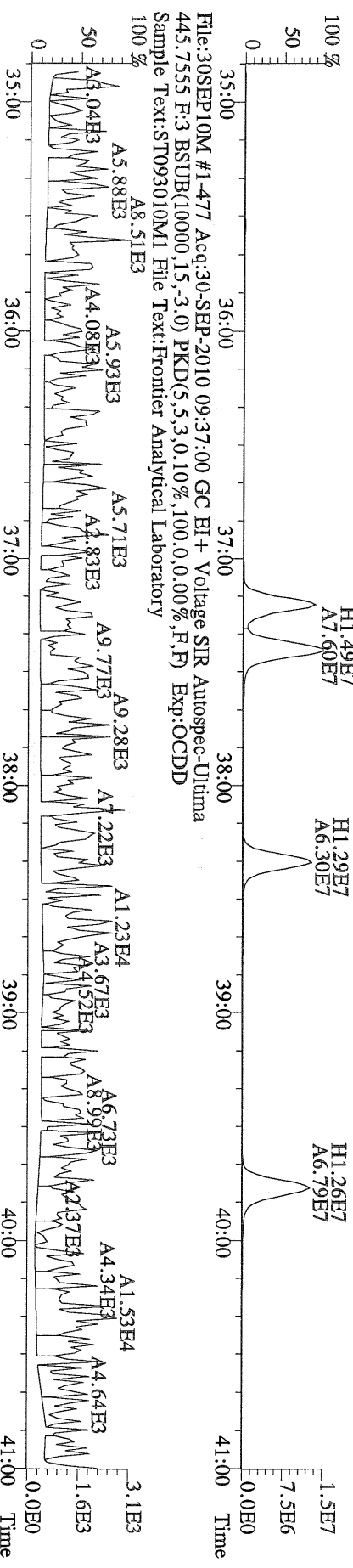
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 409.7974 F:2.BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



File:30SEP10M #1-477 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
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:ST093010M1 File Text:Frontier Analytical Laboratory



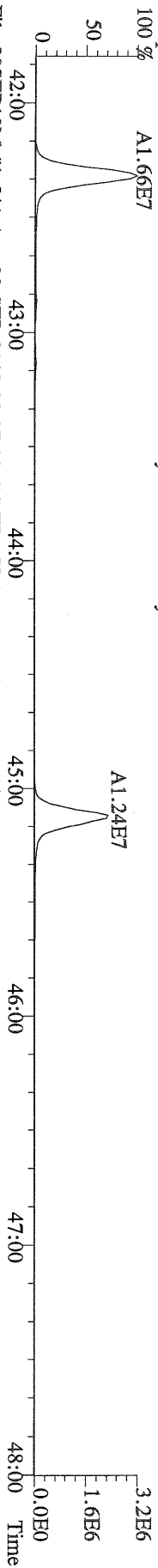
File:30SEP10M #1-477 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



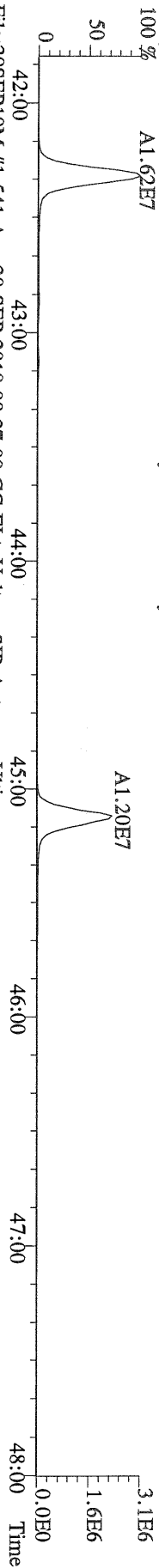
File:30SEP10M #1-477 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Utima
445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



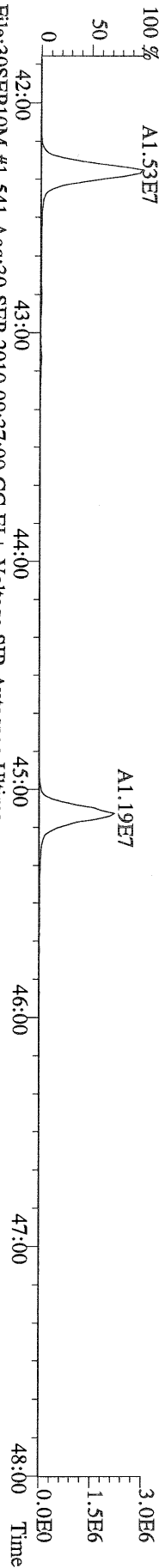
File:30SEP10M #1-541 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Ultima
 407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Fronter Analytical Laboratory



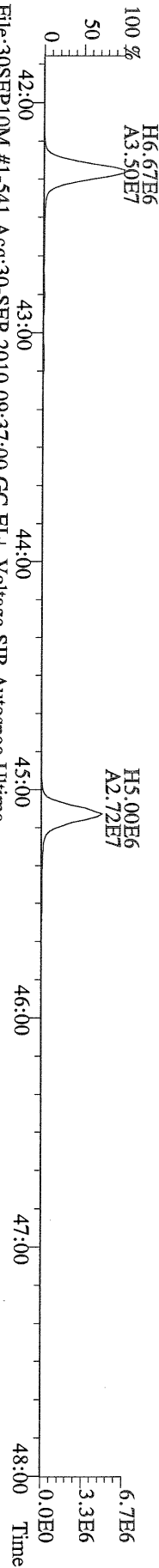
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 409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Fronter Analytical Laboratory



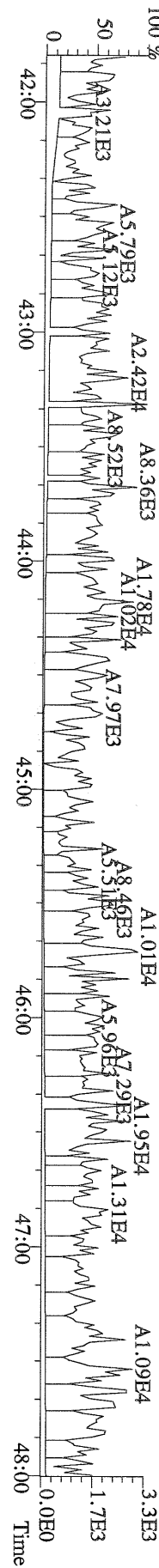
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 417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Fronter Analytical Laboratory



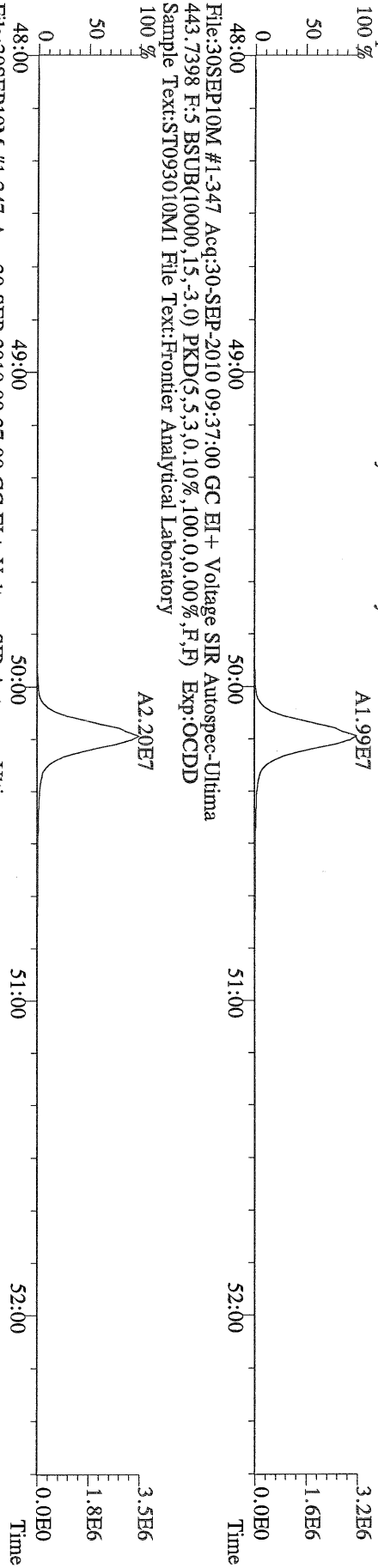
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 419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Fronter Analytical Laboratory



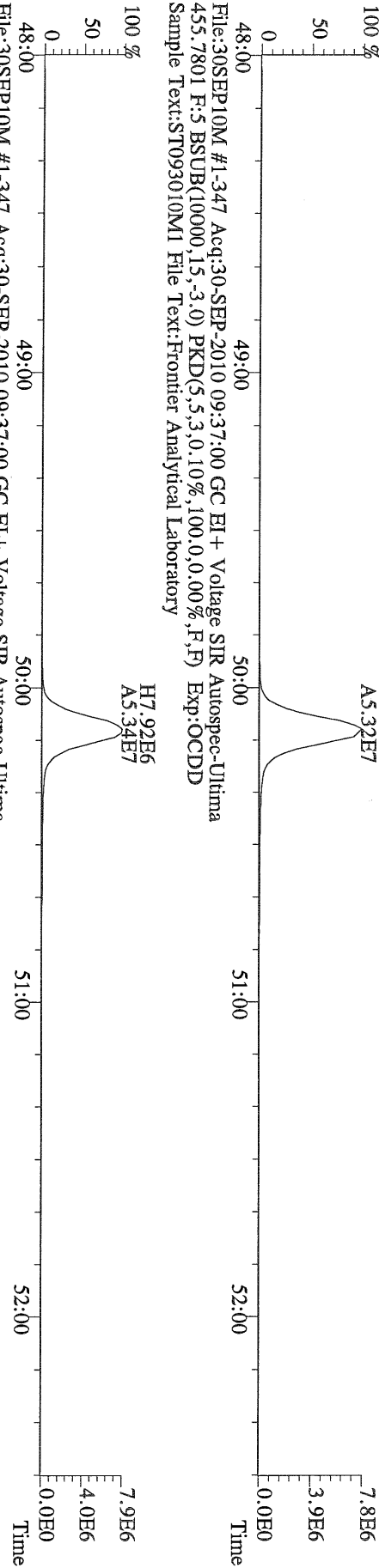
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 479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Fronter Analytical Laboratory



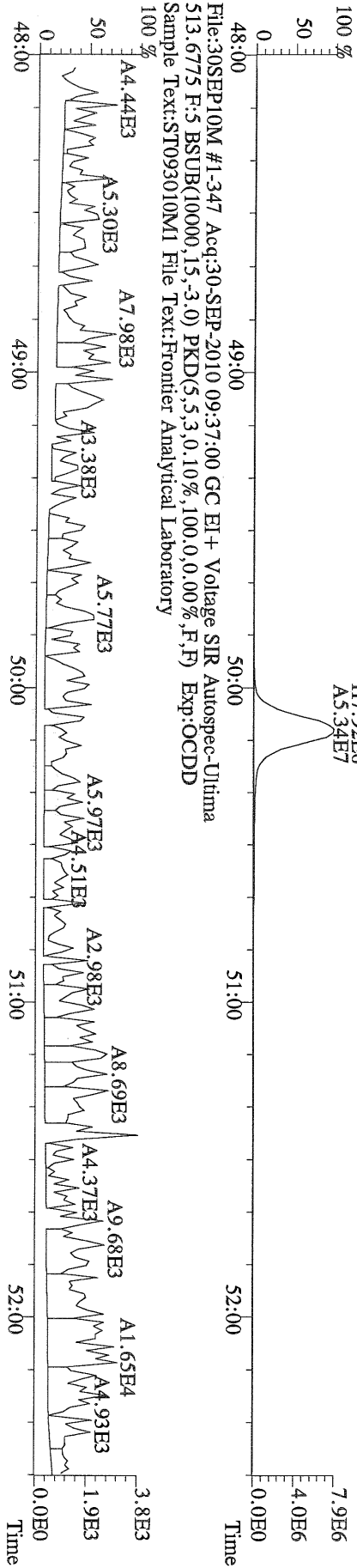
File:30SEP10M #1-347 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



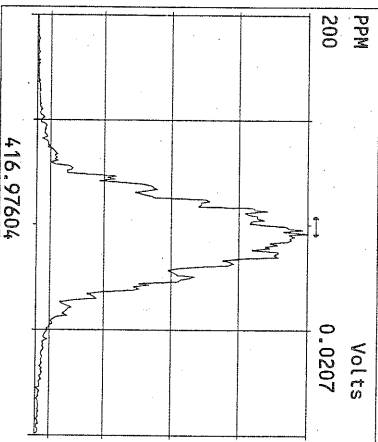
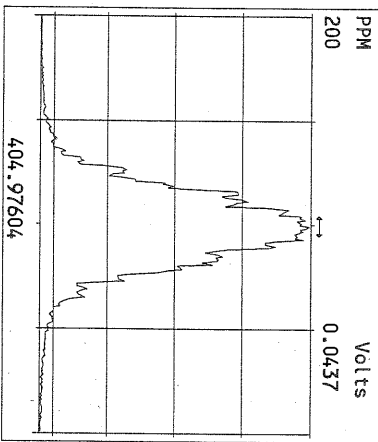
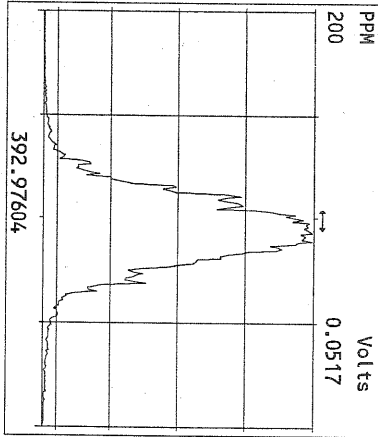
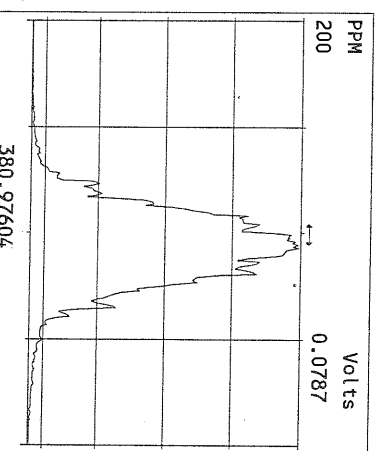
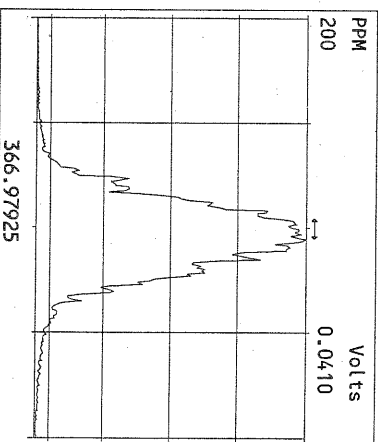
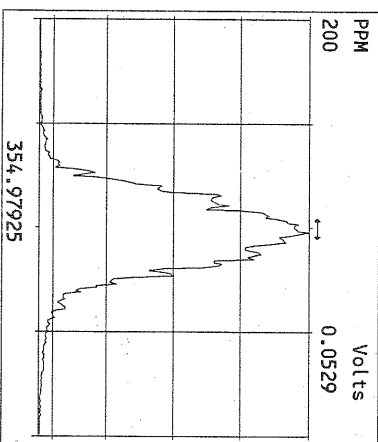
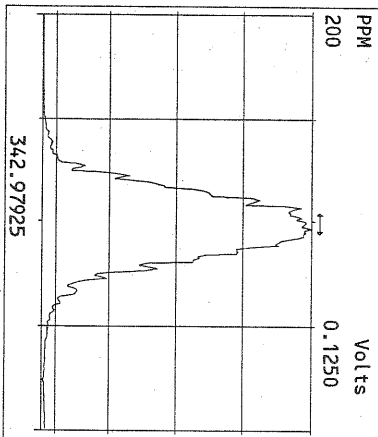
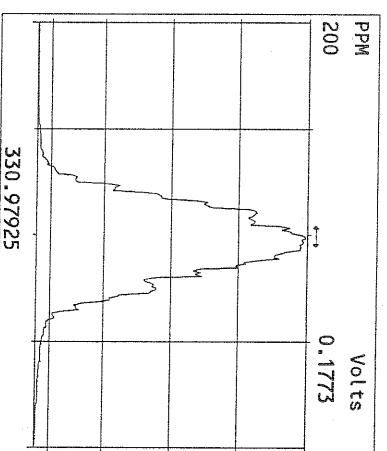
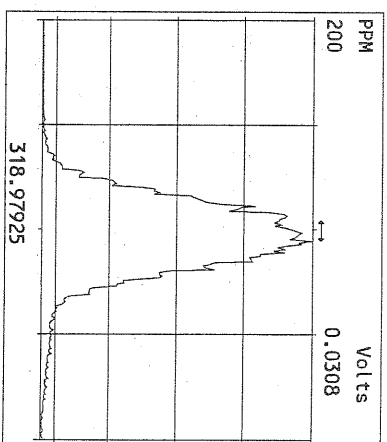
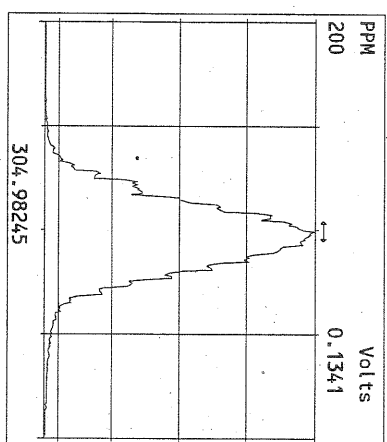
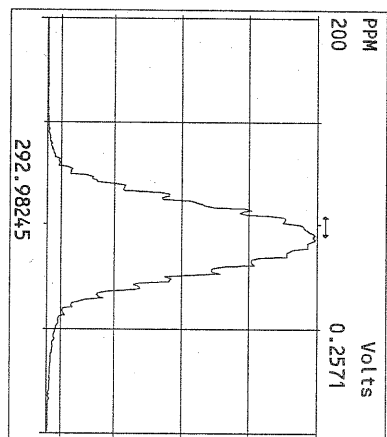
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory



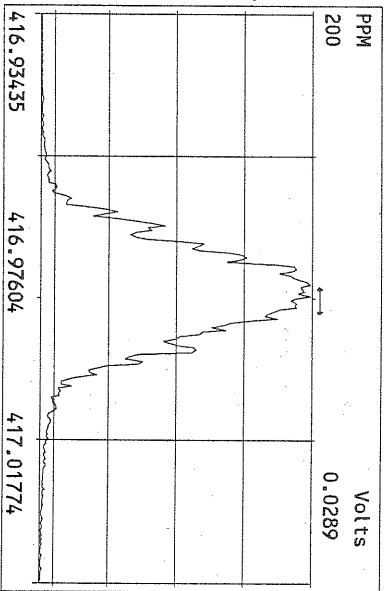
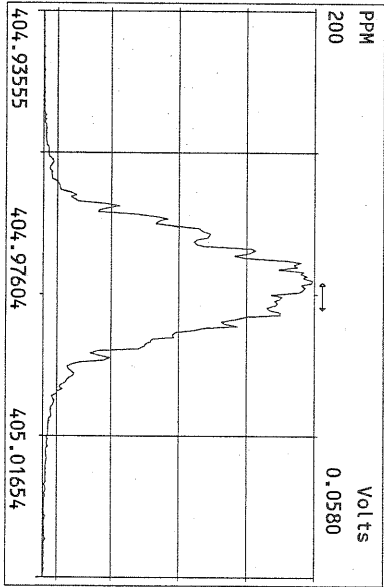
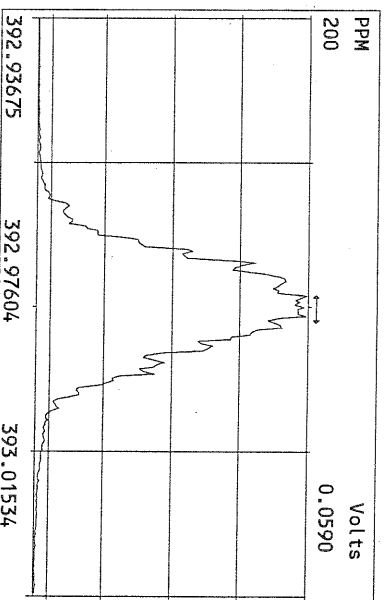
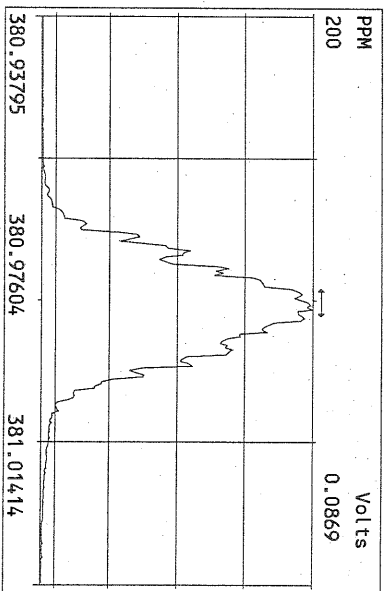
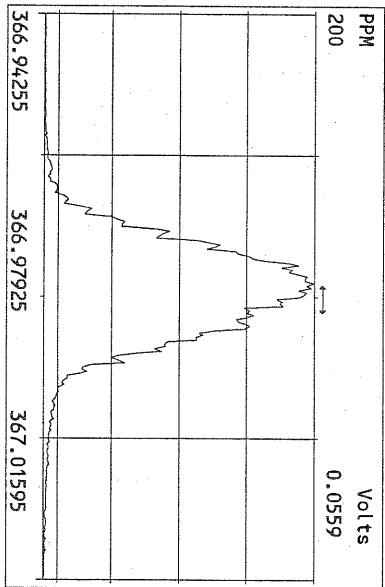
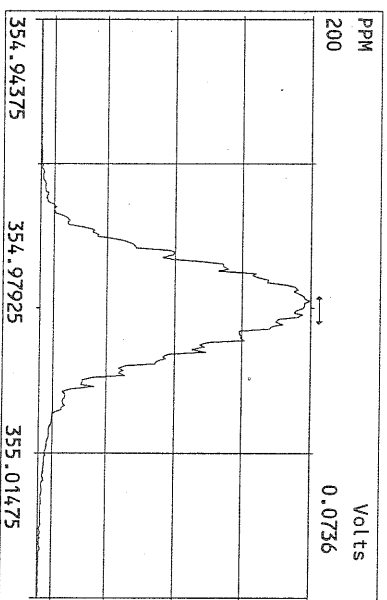
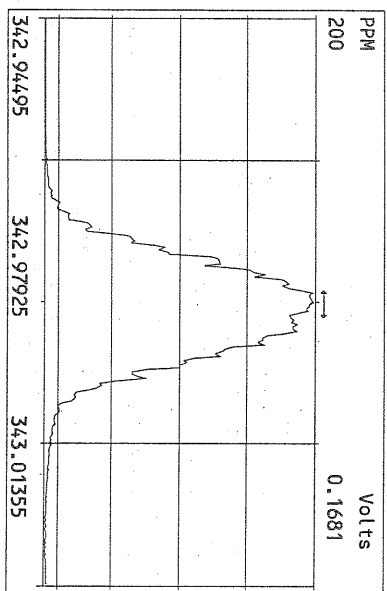
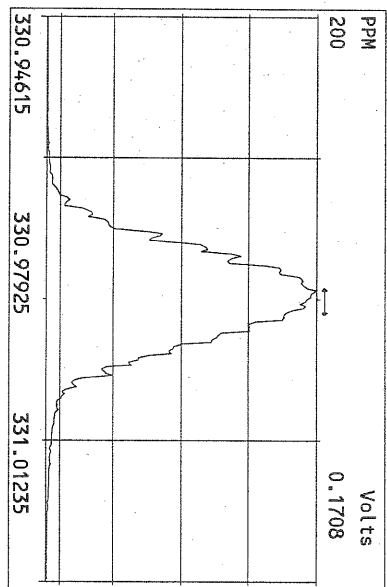
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 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory

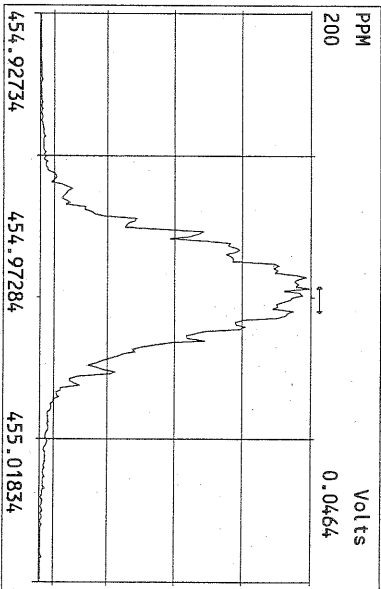
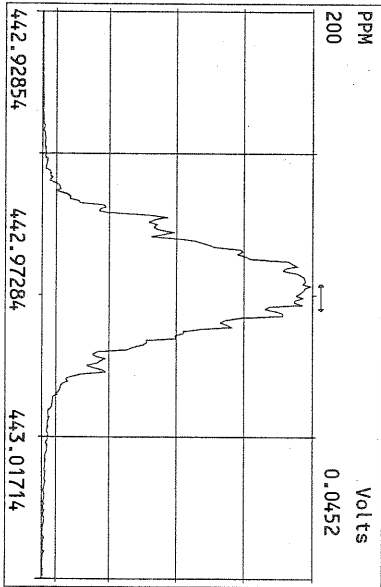
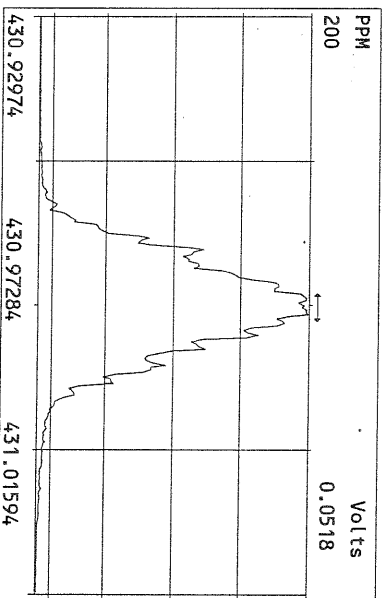
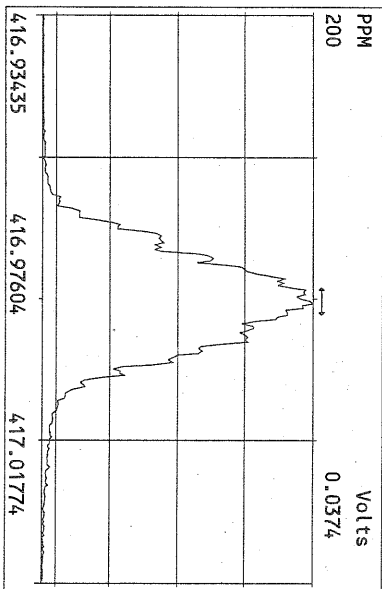
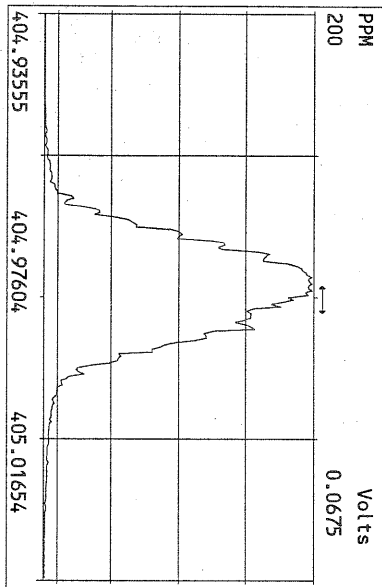
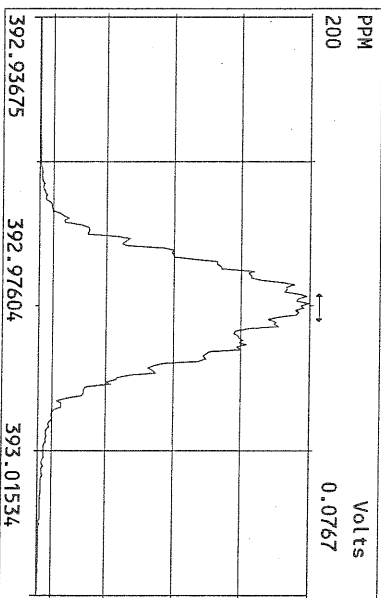
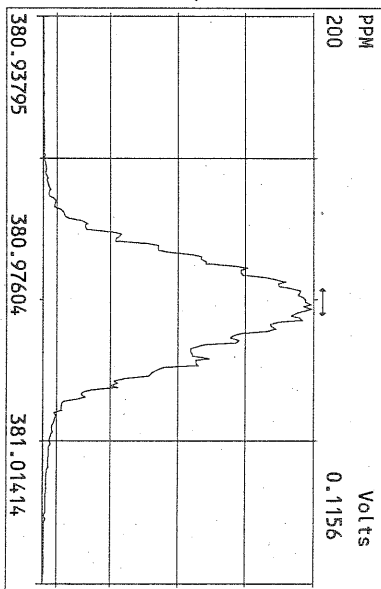
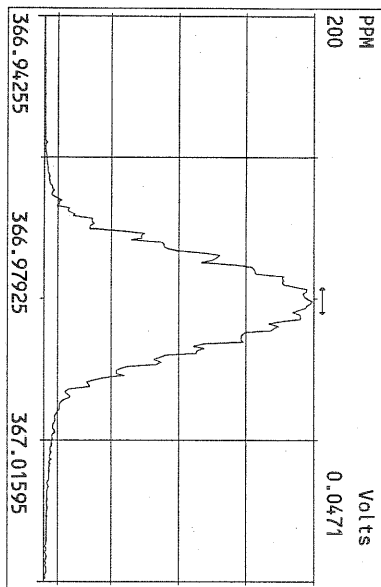


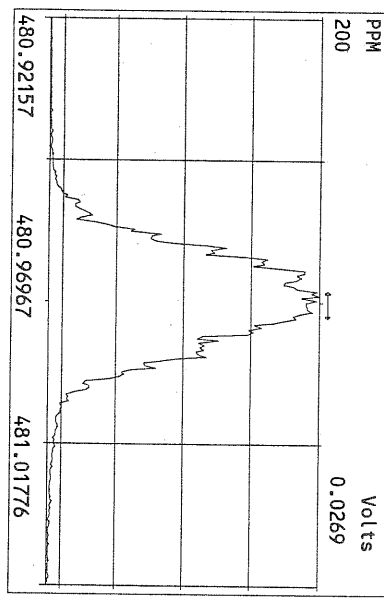
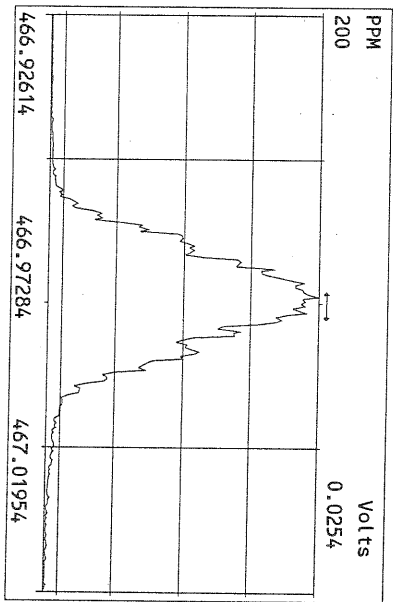
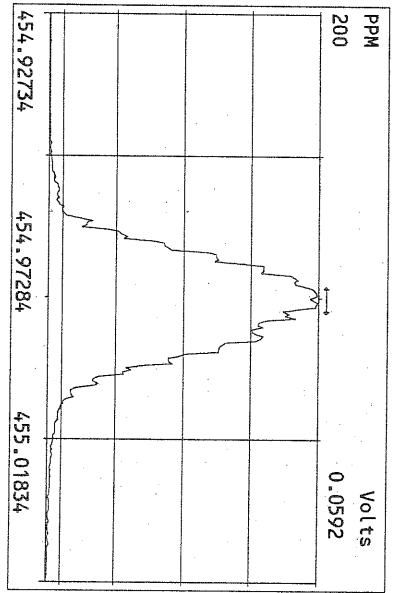
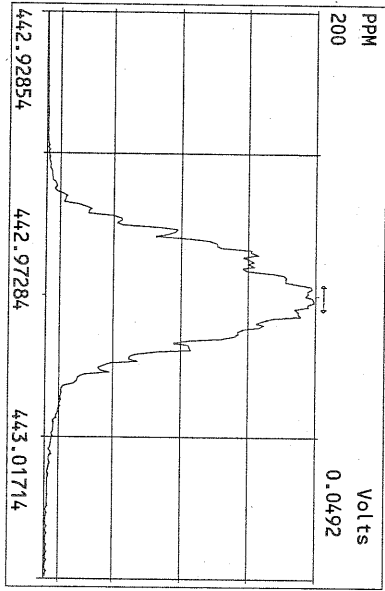
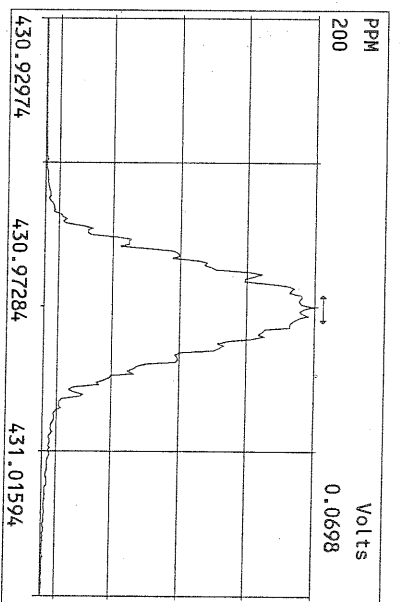
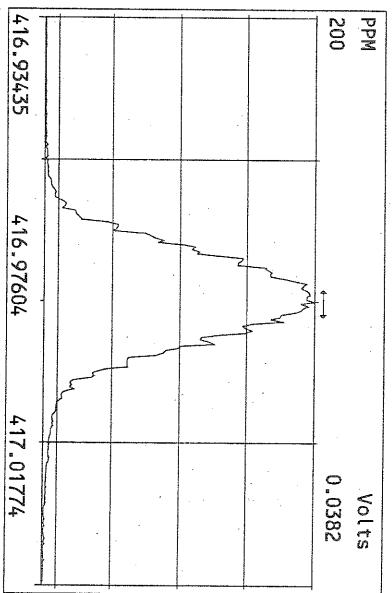
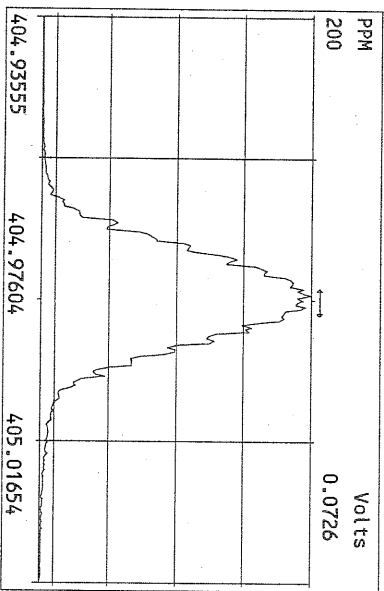
File:30SEP10M #1-347 Acq:30-SEP-2010 09:37:00 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M1 File Text:Frontier Analytical Laboratory

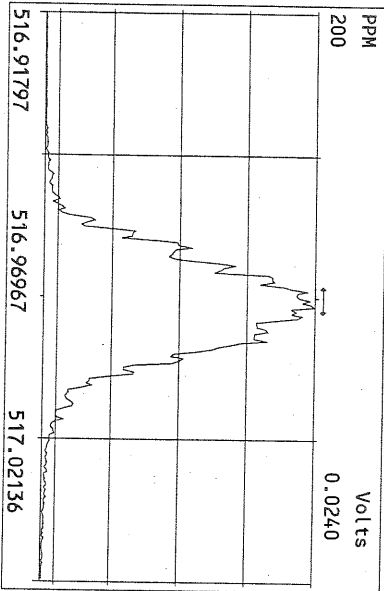
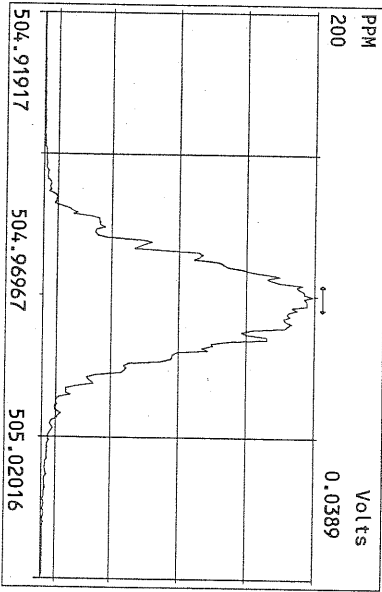
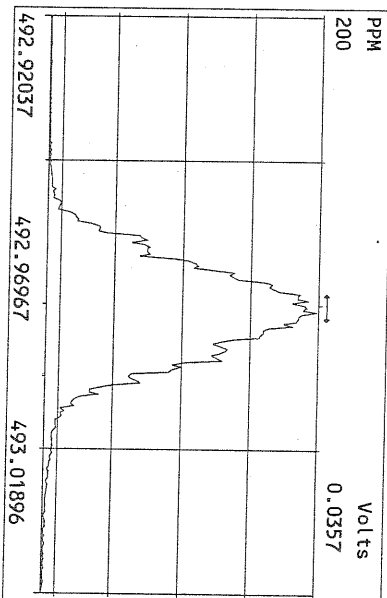
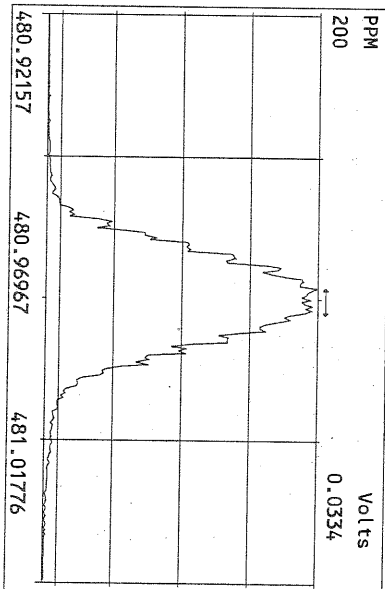
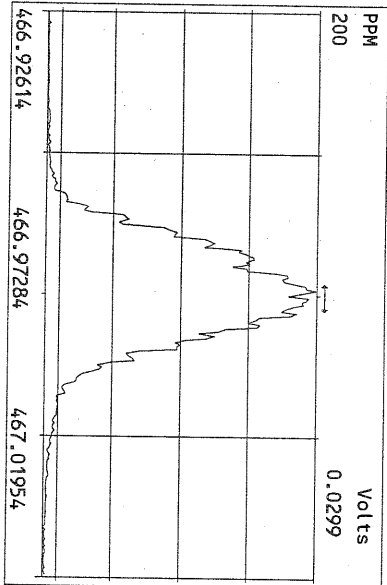
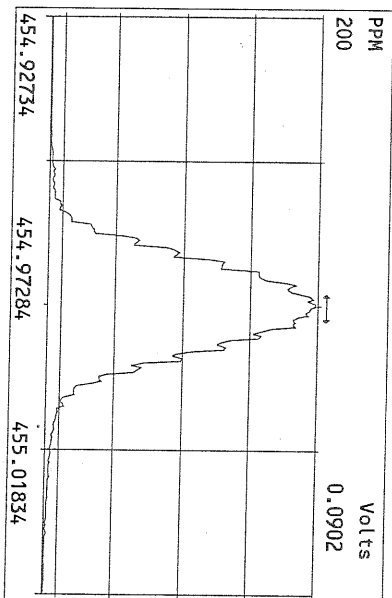
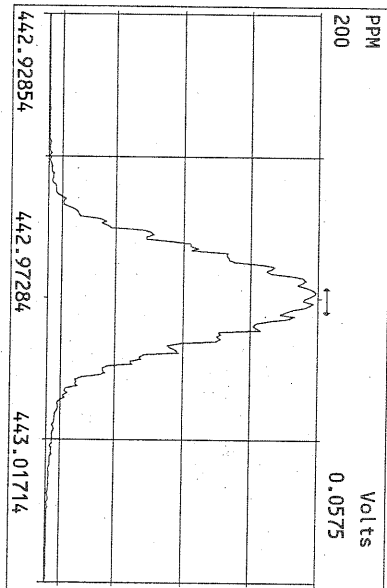
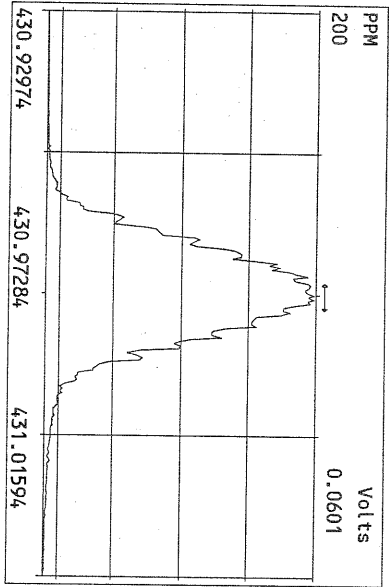


Peak Locate Examination: 1-OCT-2010:07:50 File:30SEP10M_RES_CHECK
 Experiment:OCDD Function:2 Reference:PFK









USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M Sam:16

Analysis Date: 30-SEP-10 23:28:02

| NATIVE ANALYTES | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| 2,3,7,8-TCDD | M/M+2 | 0.80 | 0.65-0.89 | y | 10.7 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.60 | 1.32-1.78 | y | 51.5 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.39 | 1.05-1.43 | y | 48.0 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.38 | 1.05-1.43 | y | 49.0 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 52.8 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.98 | 0.88-1.20 | y | 48.0 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.98 | 0.76-1.02 | y | 99.5 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.67 | 0.65-0.89 | y | 8.98 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.50 | 1.32-1.78 | y | 54.4 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.49 | 1.32-1.78 | y | 54.5 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.23 | 1.05-1.43 | y | 47.3 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.22 | 1.05-1.43 | y | 47.9 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 48.0 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 48.2 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.06 | 0.88-1.20 | y | 50.0 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.07 | 0.88-1.20 | y | 50.1 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.91 | 0.76-1.02 | y | 99.5 | 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: 10/1/10

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M

Sam:16

Analysis Date: 30-SEP-10 23:28:02

| 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 | 103 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.78 | 1.32-1.78 | y | 115 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 104 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 87.3 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.94 | 0.88-1.20 | y | 102 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.95 | 0.76-1.02 | y | 210 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.87 | 0.65-0.89 | y | 97.8 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.75 | 1.32-1.78 | y | 100 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.76 | 1.32-1.78 | y | 97.6 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 107 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 91.6 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 97.7 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 105 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.45 | 0.37-0.51 | y | 92.0 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.45 | 0.37-0.51 | y | 103 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.97 | 0.76-1.02 | y | 210 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 10.4 | 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: 10/1/10

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: 8/23/10
RT Window Data Filename: 30SEP10M Sam:16 Analysis Date: 30-SEP-10 Time: 23:28:02
DB-5 IS Data Filename: 30SEP10M Sam:16 Analysis Date: 30-SEP-10 Time: 23:28:02
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) | 24:25 ✓ | 1,3,6,8-TCDF (F) | 23:04 ✓ |
| 1,2,8,9-TCDD (L) | 28:21 ✓ | 1,2,8,9-TCDF (L) | 28:35 ✓ |
| 1,2,4,7,9-PeCDD (F) | 30:16 ✓ | 1,3,4,6,8-PeCDF (F) | 28:27 ✓ |
| 1,2,3,8,9-PeCDD (L) | 33:49 ✓ | 1,2,3,8,9-PeCDF (L) | 34:14 ✓ |
| 1,2,4,6,7,9-HxCDD (F) | 36:10 ✓ | 1,2,3,4,6,8-HxCDF (F) | 35:17 ✓ |
| 1,2,3,7,8,9-HxCDD (L) | 39:13 ✓ | 1,2,3,7,8,9-HxCDF (L) | 39:47 ✓ |
| 1,2,3,4,6,7,9-HpCDD (F) | 42:50 ✓ | 1,2,3,4,6,7,8-HpCDF (F) | 42:19 ✓ |
| 1,2,3,4,6,7,8-HpCDD (L) | 44:13 ✓ | 1,2,3,4,7,8,9-HpCDF (L) | 45:07 ✓ |

(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: 10/1/10

USEPA - ITD

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 30-SEP-10 23:28:02

CS3 or VER Data Filename: 30SEP10M

Sam:16

| 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 | | 1.021 | 0.976-1.043 ✓ |
| 13C-2,3,7,8-TCDF | | 0.993 | 0.923-1.103 ✓ |
| 13C-1,2,3,7,8-PeCDD | | 1.238 | 1.000-1.567 ✓ |
| 13C-1,2,3,7,8-PeCDF | | 1.174 | 0.923-1.203 ✓ |
| 13C-2,3,4,7,8-PeCDF | | 1.223 | 0.923-1.303 ✓ |

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

Analyst: Date: 10/1/10

USEPA - ITD

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 30-SEP-10 23:28:02 CS3 or VER Data Filename: 30SEP10M Sam:16


| 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 | 1.001 | 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 | 1.001 | 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 | 1.000 | 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 | | 0.988 | 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: 

Date: 10/11/10

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | Rec | #Hom |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|---------|
| 2,3,7,8-TCDD | 7.78e+06 | 0.80 y | 27:25 | 1.11 | 10.7 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDD | 3.39e+07 | 1.60 y | 33:15 | 1.10 | 51.5 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDD | 3.54e+07 | 1.39 y | 38:37 | 1.37 | 48.0 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDD | 2.85e+07 | 1.38 y | 38:46 | 1.37 | 49.0 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDD | 3.45e+07 | 1.40 y | 39:13 | 1.36 | 52.8 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDD | 2.92e+07 | 0.98 y | 44:13 | 1.45 | 48.0 | | 2.50 | - | - | * | |
| OCDD | 3.93e+07 | 0.98 y | 49:47 | 1.43 | 99.5 | | 2.50 | - | - | * | |
| 2,3,7,8-TCDF | 1.51e+07 | 0.67 y | 26:39 | 1.50 | 8.98 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDF | 4.95e+07 | 1.50 y | 31:31 | 0.94 | 54.4 | | 2.50 | - | - | * | |
| 2,3,4,7,8-PeCDF | 4.65e+07 | 1.49 y | 32:49 | 0.94 | 54.5 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDF | 4.16e+07 | 1.23 y | 37:13 | 0.93 | 47.3 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDF | 4.37e+07 | 1.22 y | 37:25 | 0.82 | 47.9 | | 2.50 | - | - | * | |
| 2,3,4,6,7,8-HxCDF | 4.16e+07 | 1.24 y | 38:21 | 0.92 | 48.0 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDF | 4.93e+07 | 1.24 y | 39:47 | 1.00 | 48.2 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDF | 3.40e+07 | 1.06 y | 42:19 | 1.39 | 50.0 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8,9-HpCDF | 2.68e+07 | 1.07 y | 45:07 | 1.36 | 50.1 | | 2.50 | - | - | * | |
| OCDF | 4.26e+07 | 0.91 y | 50:09 | 0.79 | 99.5 | | 2.50 | - | - | * | |
| 13C-2,3,7,8-TCDD | 6.54e+07 | 0.79 y | 27:24 | 1.02 | 103 | | | | | 103 | |
| 13C-1,2,3,7,8-PeCDD | 5.97e+07 | 1.78 y | 33:13 | 0.84 | 115 | | | | | 115 | |
| 13C-1,2,3,4,7,8-HxCDD | 5.37e+07 | 1.25 y | 38:36 | 1.07 | 104 | | | | | 104 | |
| 13C-1,2,3,6,7,8-HxCDD | 4.23e+07 | 1.25 y | 38:45 | 1.01 | 87.3 | | | | | 87.3 | |
| 13C-1,2,3,4,6,7,8-HpCDD | 4.19e+07 | 0.94 y | 44:12 | 0.86 | 102 | | | | | 102 | |
| 13C-OCDD | 5.50e+07 | 0.95 y | 49:46 | 0.55 | 210 | | | | | 105 | |
| 13C-2,3,7,8-TCDF | 1.12e+08 | 0.87 y | 26:38 | 0.99 | 97.8 | | | | | 97.8 | |
| 13C-1,2,3,7,8-PeCDF | 9.67e+07 | 1.75 y | 31:29 | 0.84 | 100 | | | | | 100 | |
| 13C-2,3,4,7,8-PeCDF | 9.10e+07 | 1.76 y | 32:48 | 0.81 | 97.6 | | | | | 97.6 | |
| 13C-1,2,3,4,7,8-HxCDF | 9.48e+07 | 0.51 y | 37:12 | 1.85 | 107 | | | | | 107 | |
| 13C-1,2,3,6,7,8-HxCDF | 1.11e+08 | 0.51 y | 37:24 | 2.54 | 91.6 | | | | | 91.6 | |
| 13C-2,3,4,6,7,8-HxCDF | 9.43e+07 | 0.52 y | 38:20 | 2.01 | 97.7 | | | | | 97.7 | |
| 13C-1,2,3,7,8,9-HxCDF | 1.03e+08 | 0.52 y | 39:46 | 2.03 | 105 | | | | | 105 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 4.89e+07 | 0.45 y | 42:18 | 1.11 | 92.0 | | | | | 92.0 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 3.95e+07 | 0.45 y | 45:07 | 0.80 | 103 | | | | | 103 | |
| 13C-OCDF | 1.09e+08 | 0.97 y | 50:08 | 1.08 | 210 | | | | | 105 | |
| 37Cl-2,3,7,8-TCDD | 4.42e+06 | | 27:25 | 0.69 | 10.4 | | | | | 104 | |
| 13C-1,2,3,4-TCDD | 6.18e+07 | 0.77 y | 26:50 | - | 137 | | | | | | |
| 13C-1,2,3,4-TCDF | 1.15e+08 | 0.87 y | 25:34 | - | 159 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 4.79e+07 | 1.26 y | 39:13 | - | 174 | | | | | | |
| Total Tetra-Dioxins | 4.20e+07 | | 24:25 | 1.11 | 57.8 | | 2.50 | - | - | * | 21 |
| Total Penta-Dioxins | 7.27e+07 | | 30:16 | 1.10 | 110 | | 2.50 | - | - | * | 6 |
| Total Hexa-Dioxins | 1.11e+08 | | 36:10 | 1.37 | 169 | | 2.50 | - | - | * | 5 |
| Total Hepta-Dioxins | 6.08e+07 | | 42:50 | 1.45 | 100 | | 2.50 | - | - | * | 6 |
| Total Tetra-Furans | 7.44e+07 | | 23:04 | 1.50 | 44.3 | | 2.50 | - | - | * | 15 |
| 1st Fn. Tot Penta-Furans | 5.09e+07 | | 28:27 | 0.94 | 57.7 | | 2.50 | - | - | * | PeCDF 1 |
| Total Penta-Furans | 1.40e+08 | | 30:13 | 0.94 | 159 | | 2.50 | - | - | * | 216 9 |
| Total Hexa-Furans | 2.02e+08 | | 35:17 | 0.91 | 220 | | 2.50 | - | - | * | 7 |
| Total Hepta-Furans | 6.11e+07 | | 42:19 | 1.38 | 101 | | 2.50 | - | - | * | 4 |

Analyst:  Date: 10/1/10

Frontier Analytical Laboratory - Acquisition Log

Run Name:30SEP10M

Instrument: FAL3

GC: DB5

Experiment:PCDD

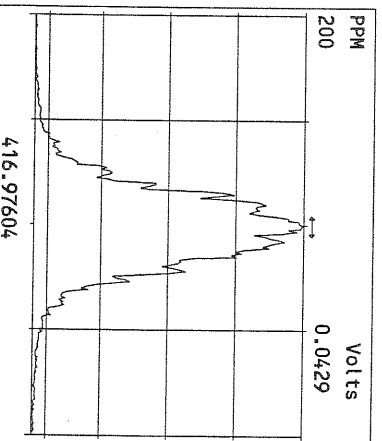
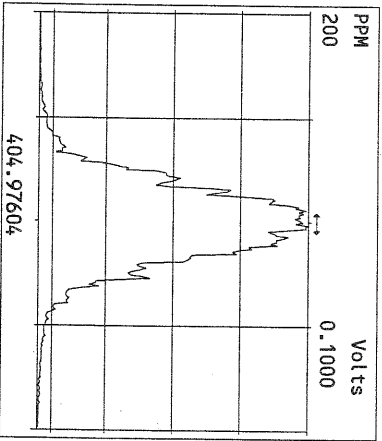
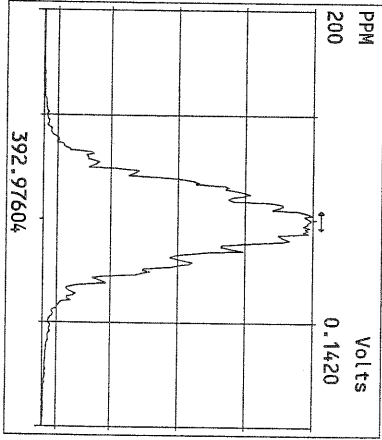
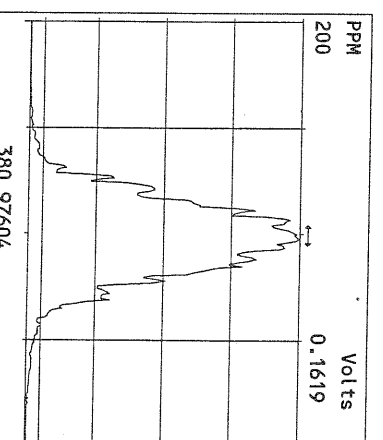
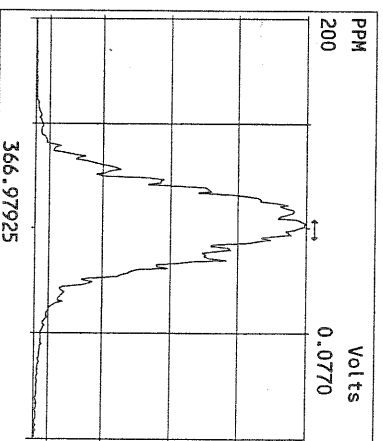
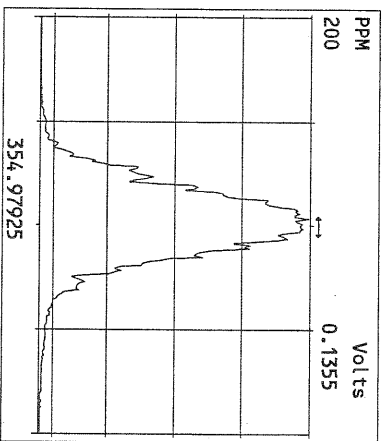
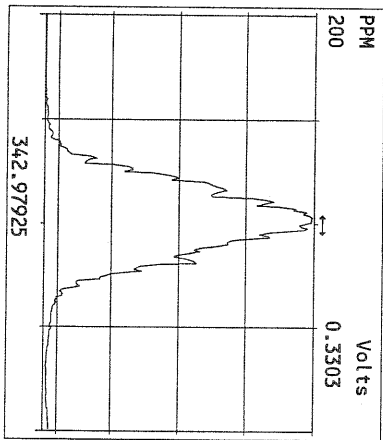
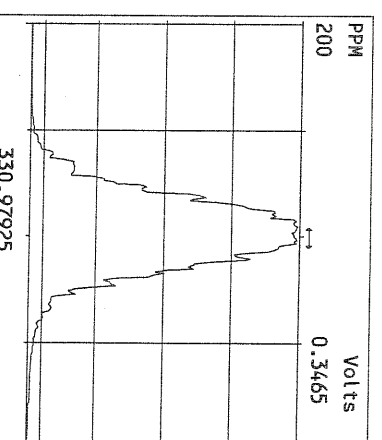
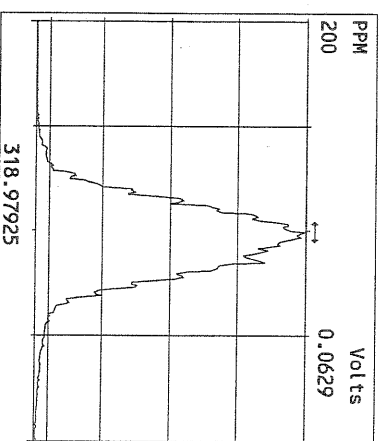
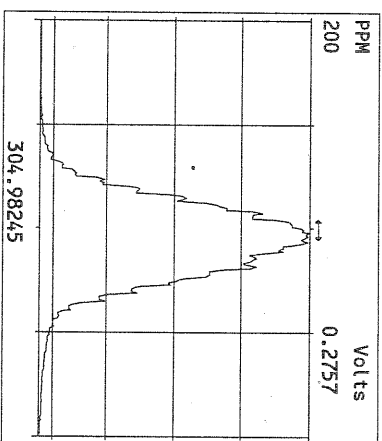
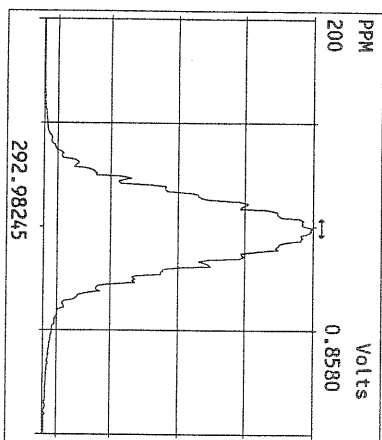
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| 30SEP10M 3 | 2119-001-0001-OPR | OPR | 30-SEP-10 11:27:41 | ST093010M1 | ST093010M2 | TC |
| 30SEP10M 4 | 2118-001-0001-MB | Method Blank | 30-SEP-10 12:23:04 | ST093010M1 | ST093010M2 | TC |
| 30SEP10M 5 | 2119-001-0001-MB | Method Blank | 30-SEP-10 13:18:59 | ST093010M1 | ST093010M2 | TC |
| 30SEP10M 6 | 6367-003-X002-SA | RM-51177 LOT-820657 | 30-SEP-10 14:14:17 | ST093010M1 | ST093010M2 | TC |
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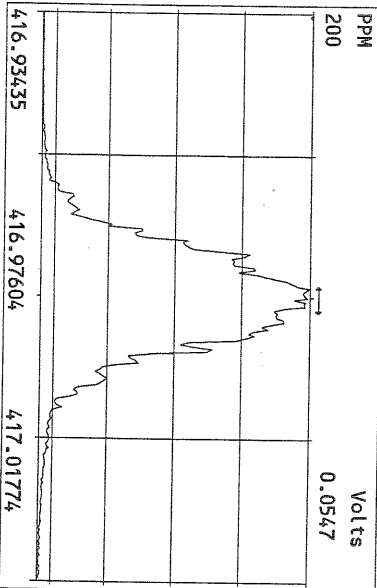
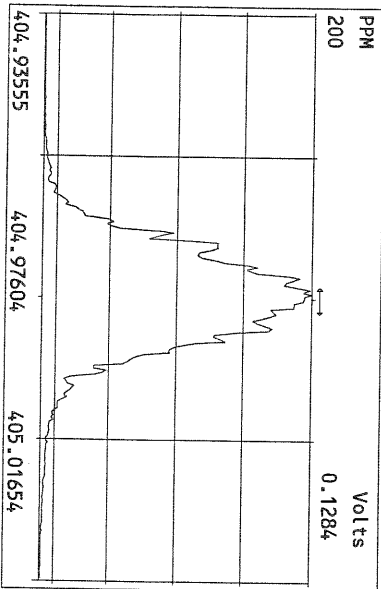
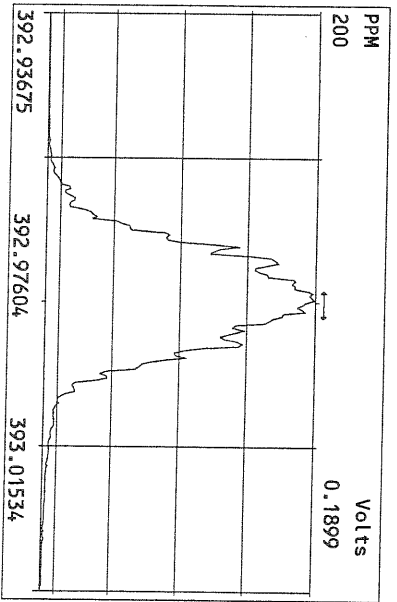
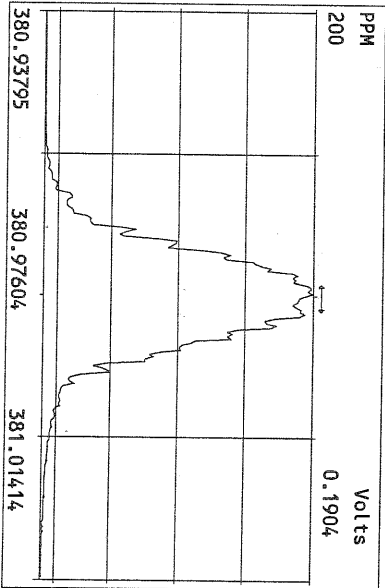
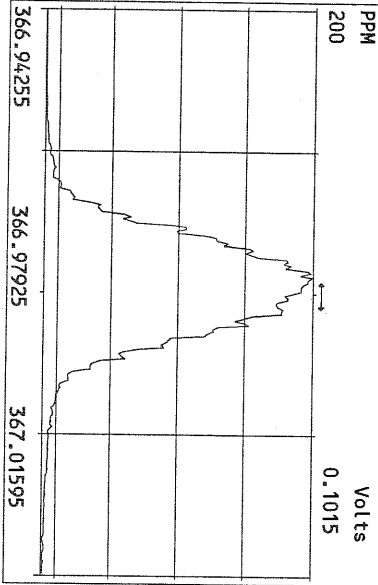
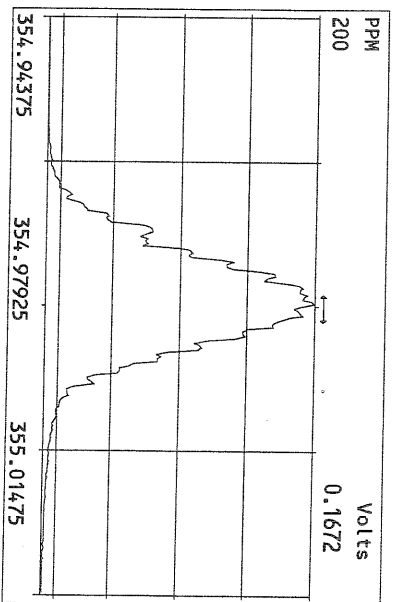
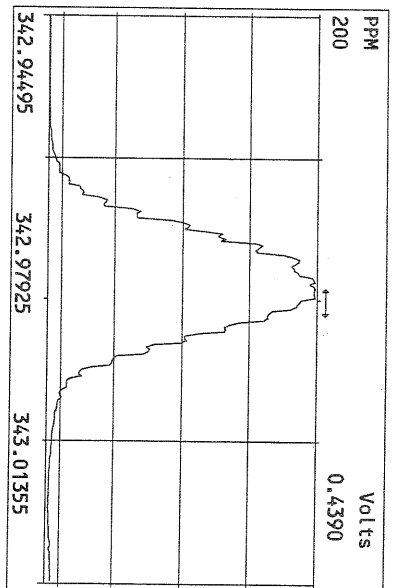
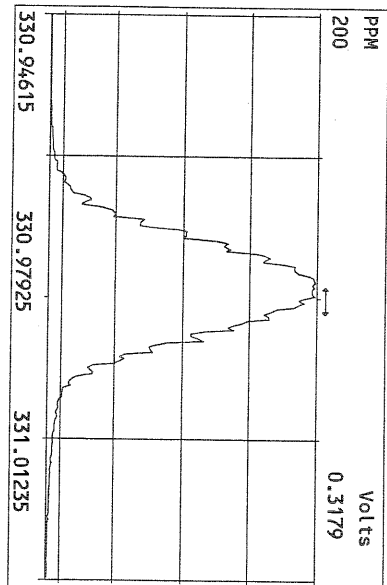


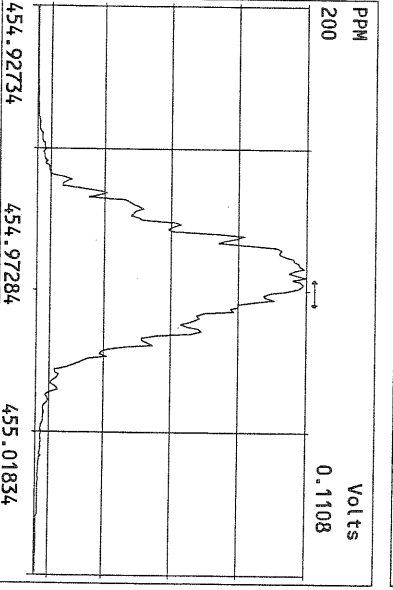
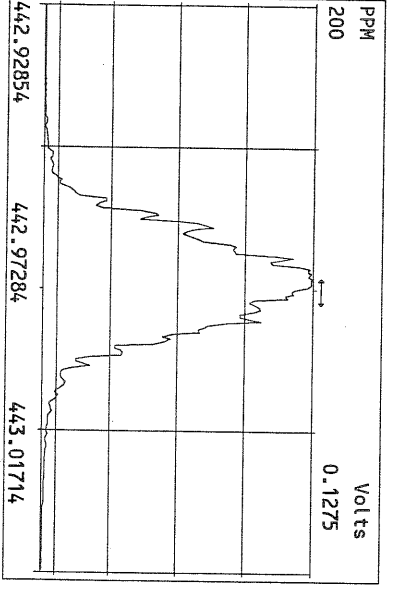
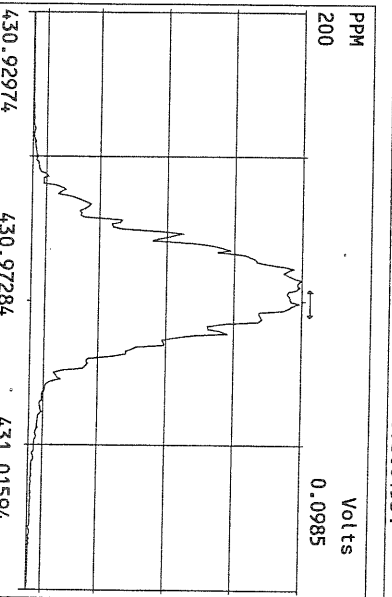
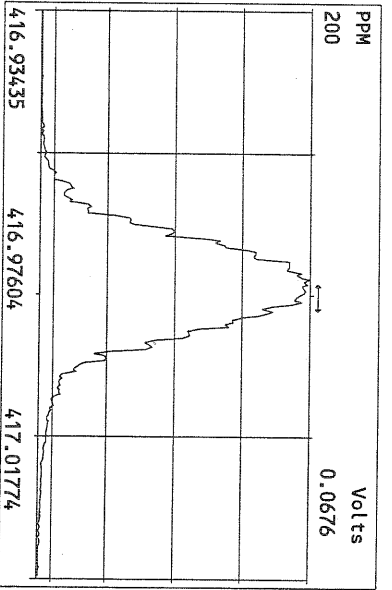
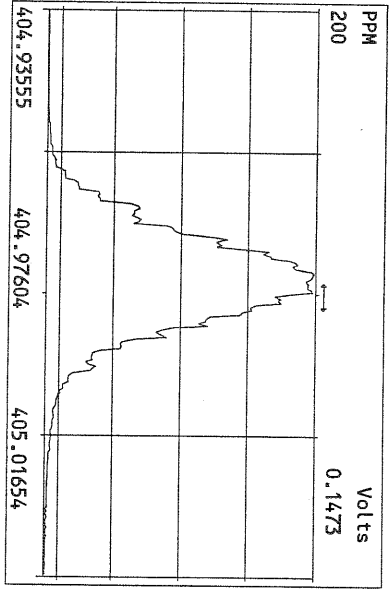
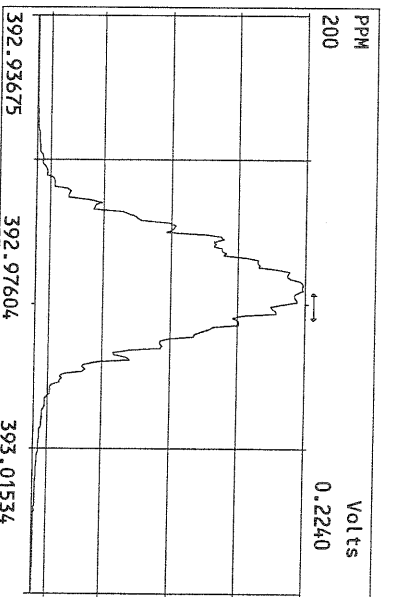
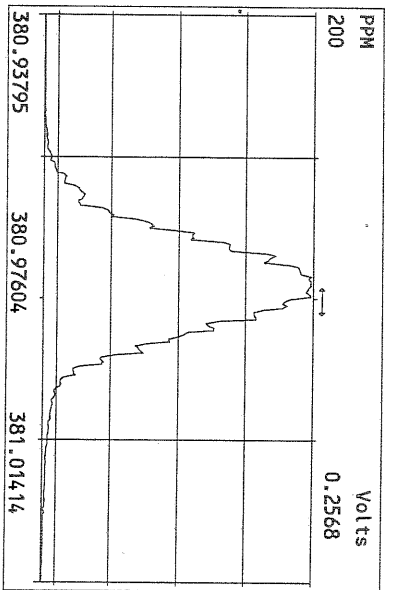
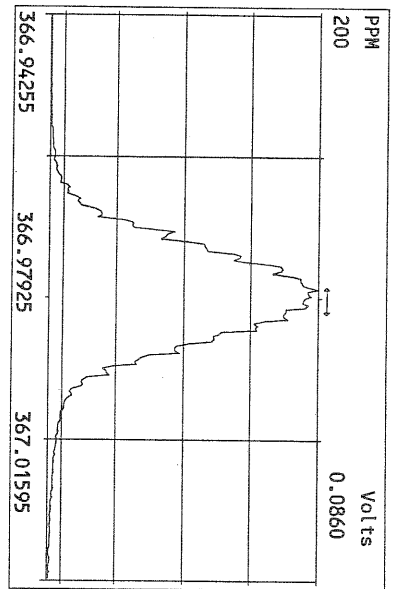
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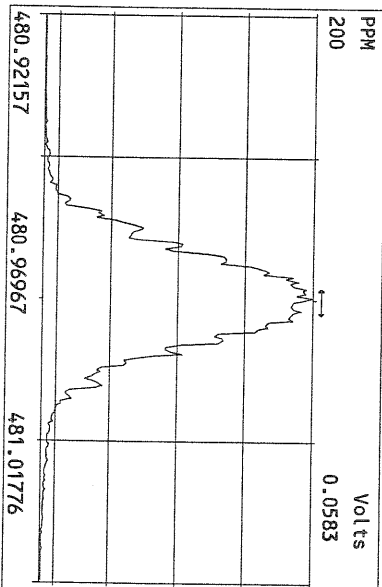
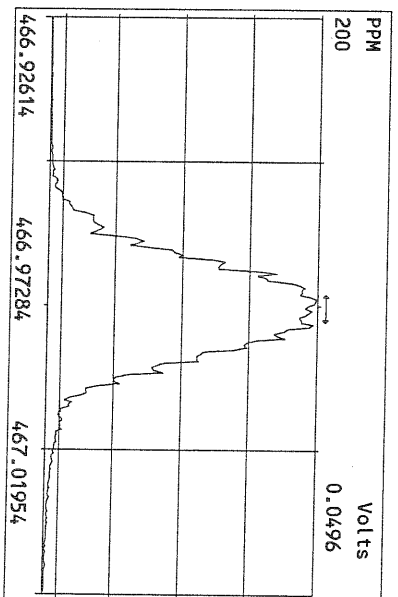
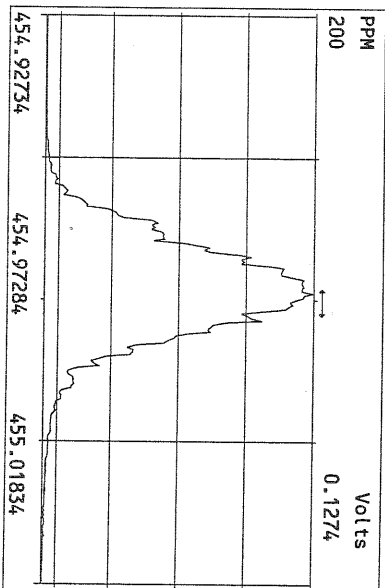
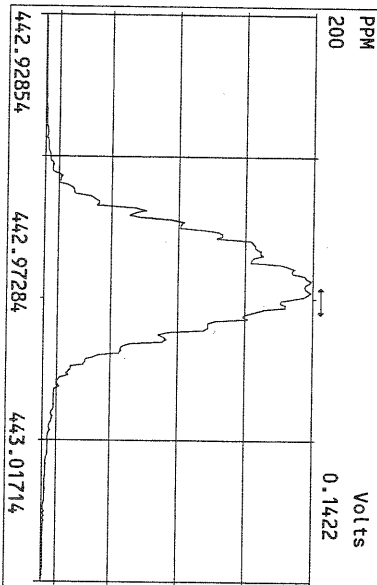
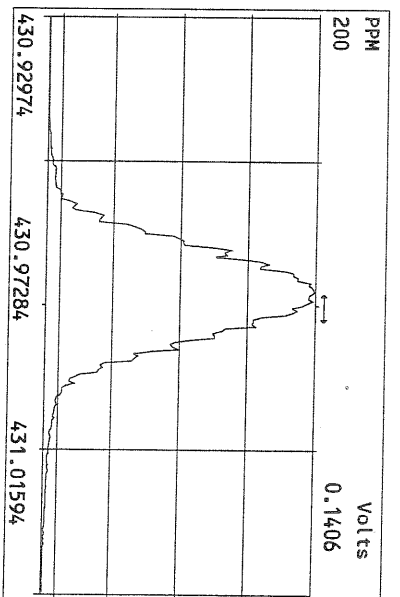
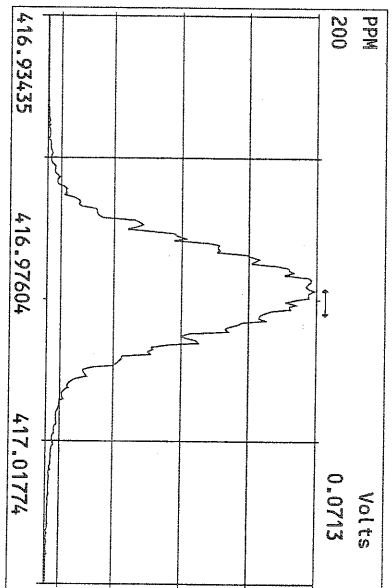
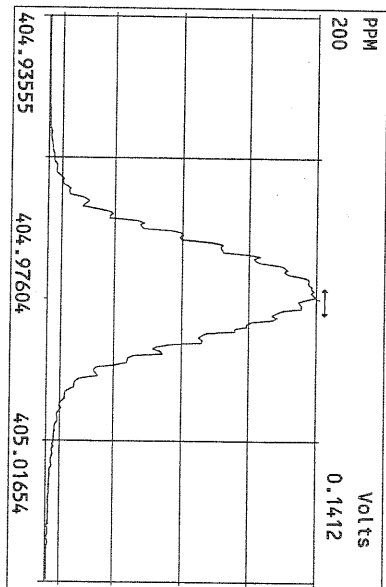
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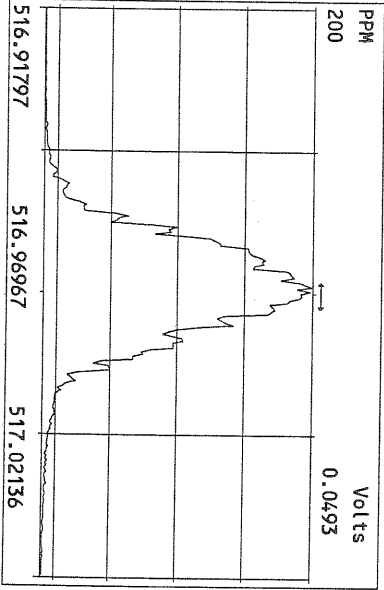
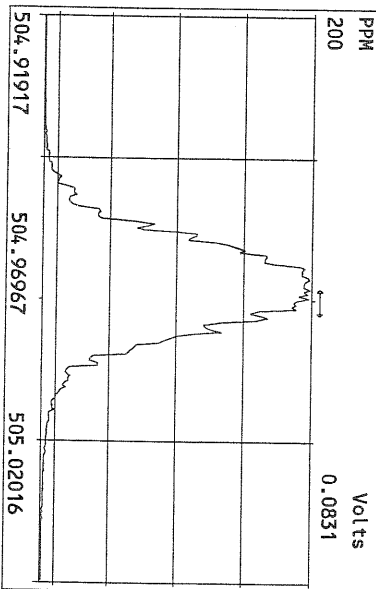
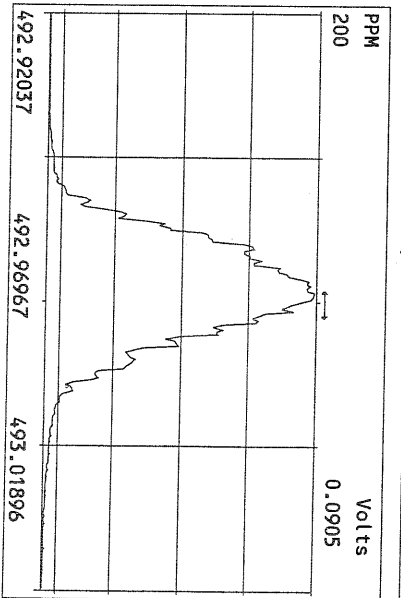
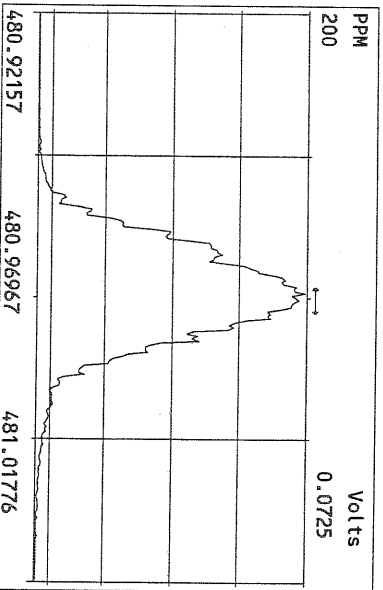
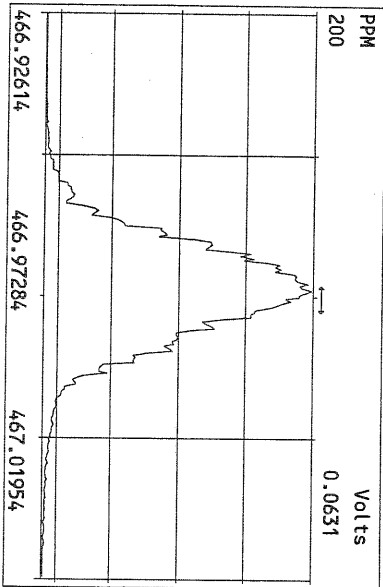
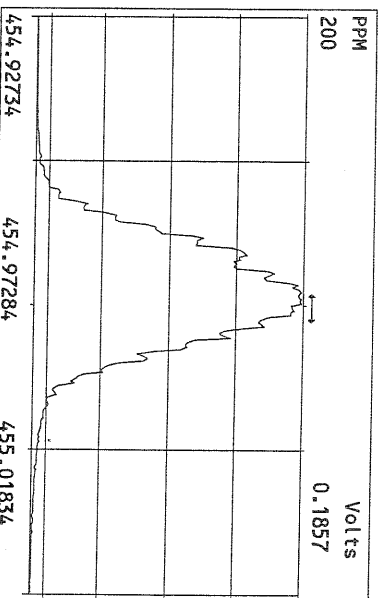
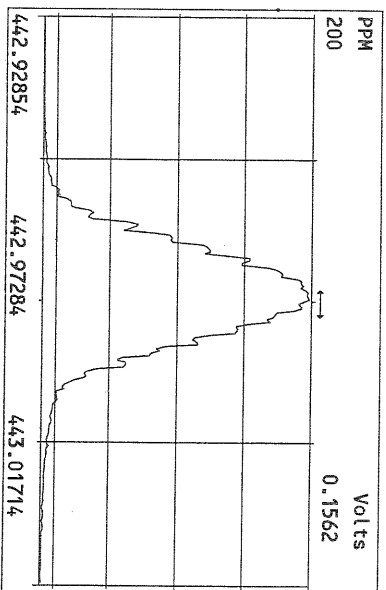
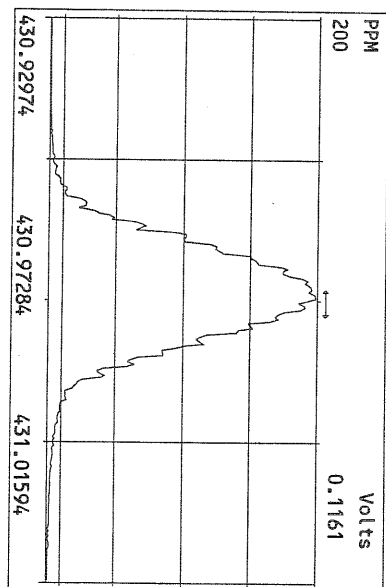
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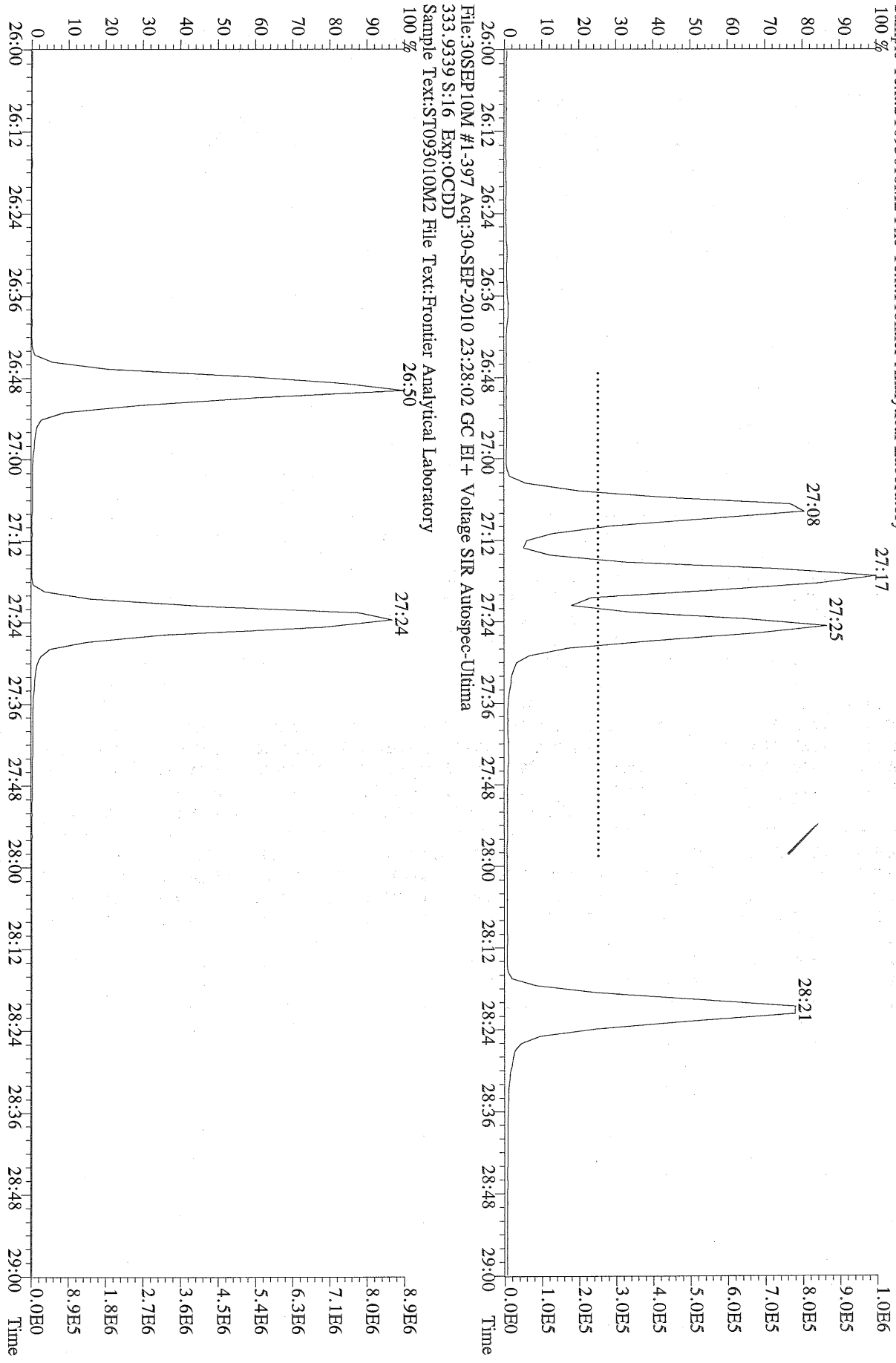






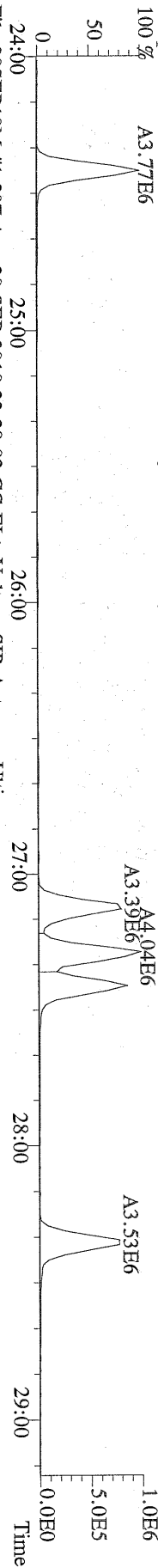


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100%

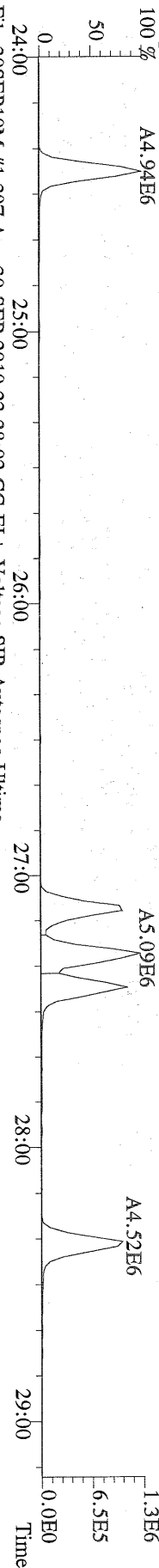


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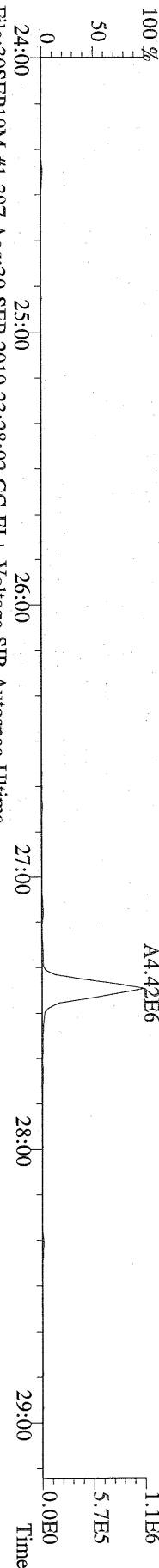
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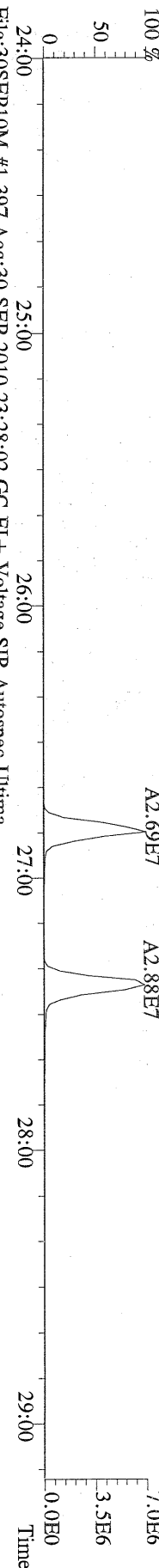
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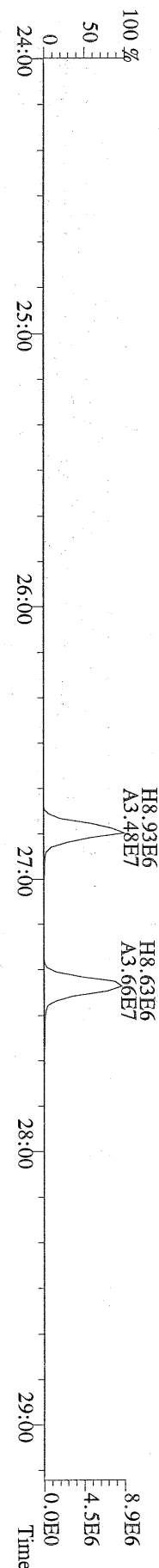
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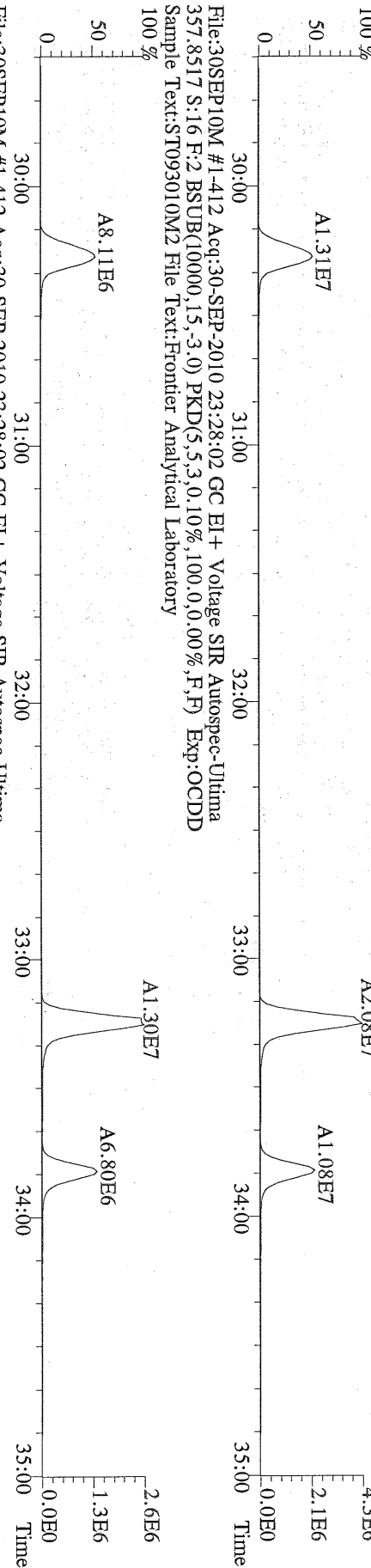
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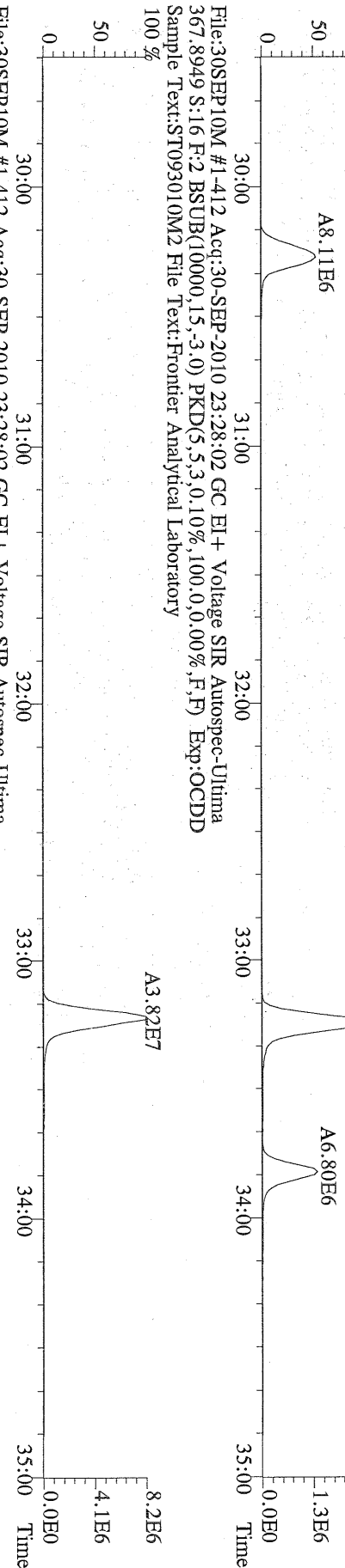
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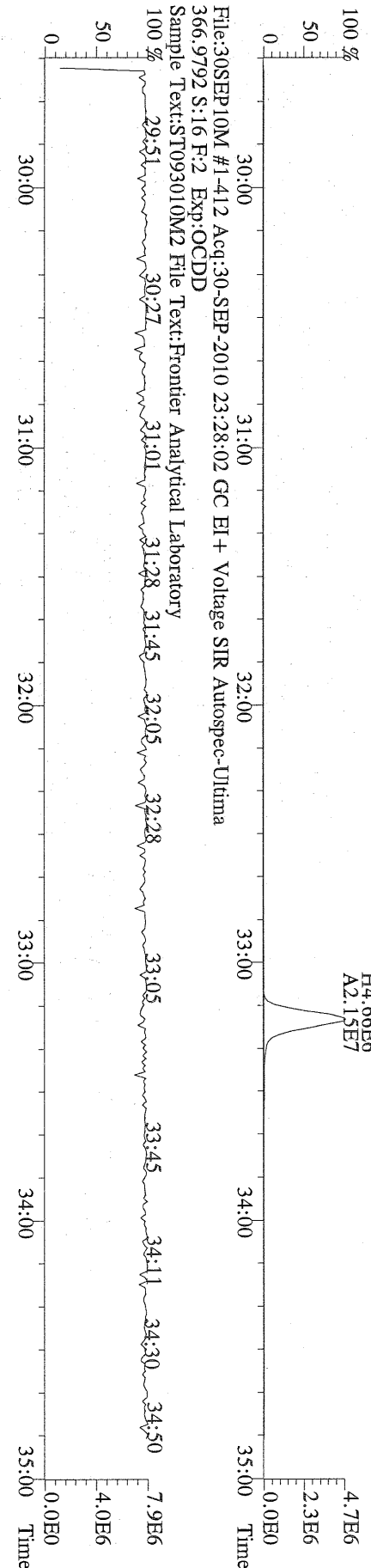
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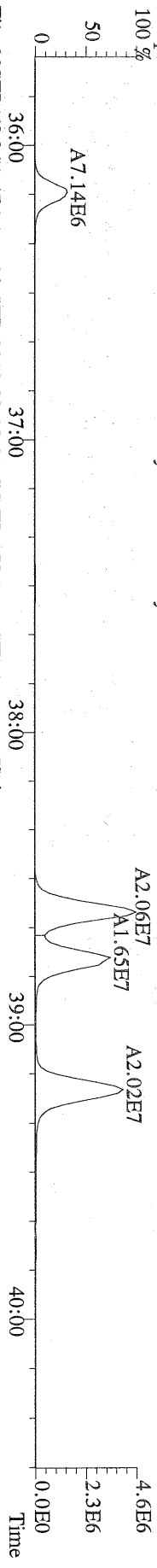


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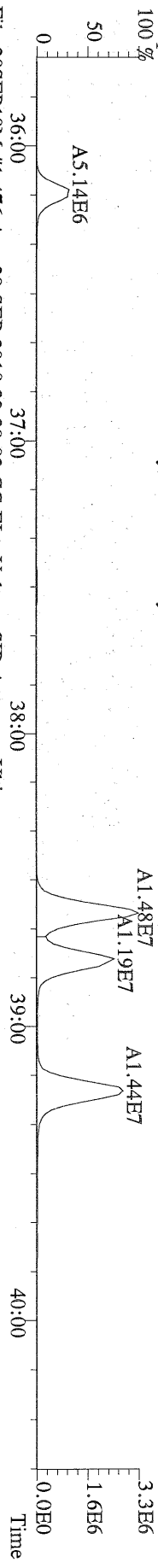


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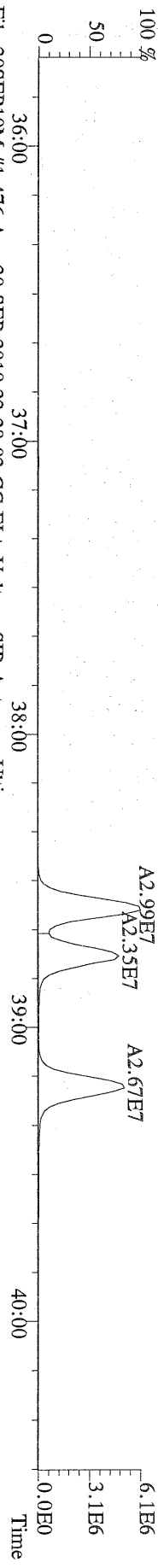
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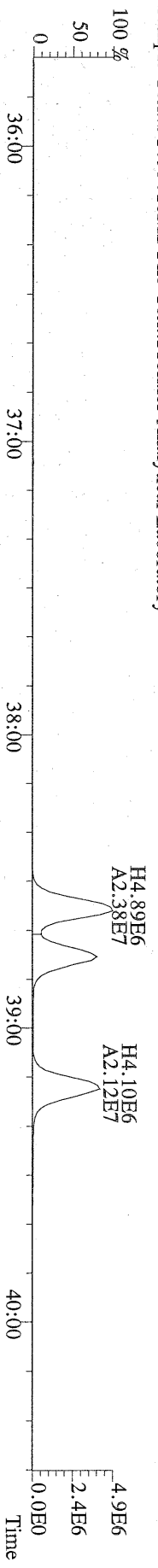
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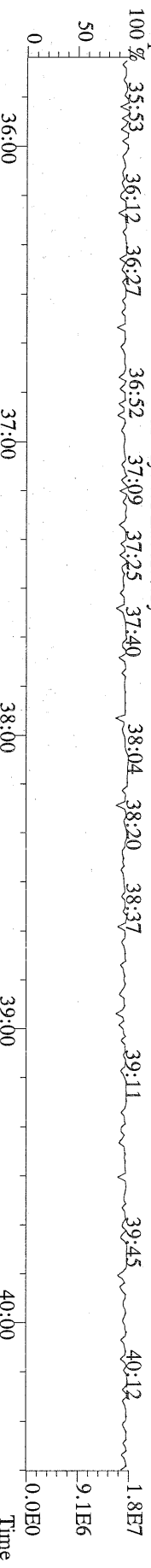
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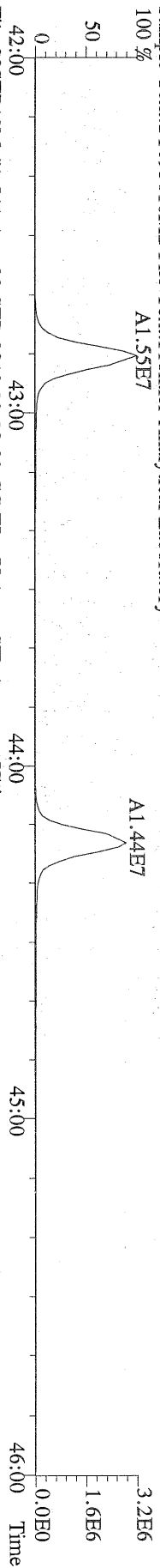
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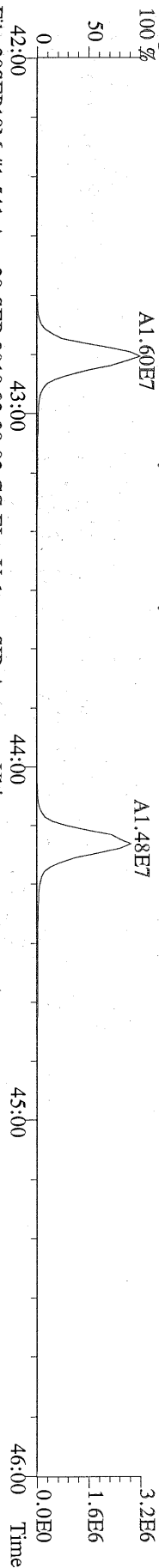
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380.9760 S:16 F:3 Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



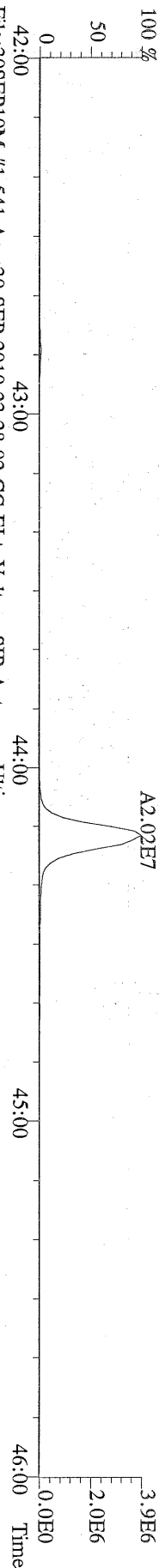
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Utima
423.7767 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory
100 %



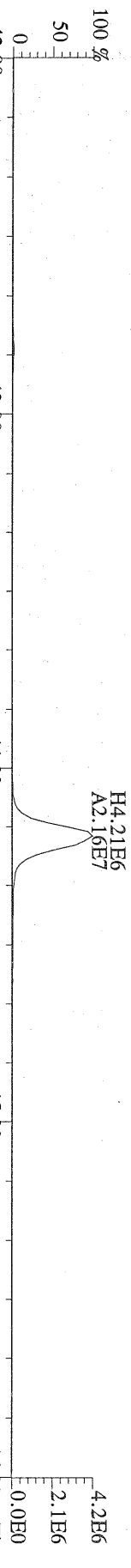
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Utima
425.7737 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory
100 %



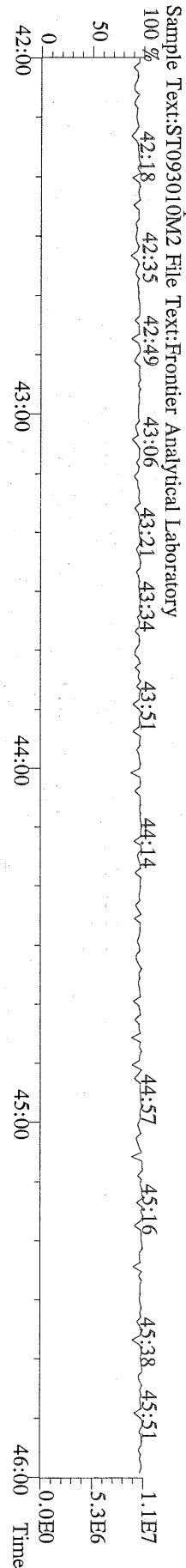
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Utima
435.8169 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory
100 %



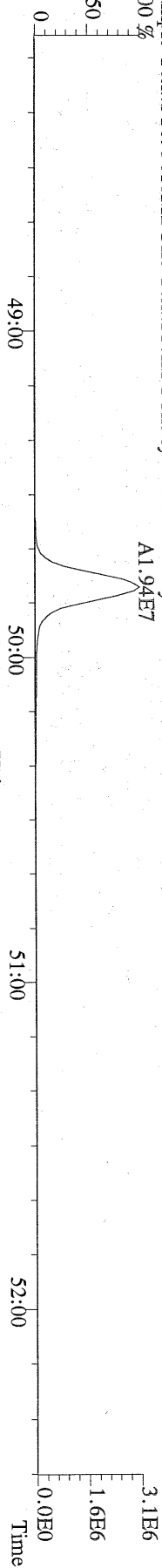
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437.8140 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



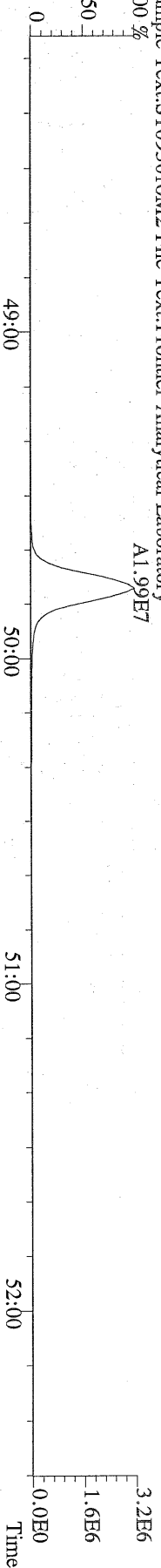
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Utima
430.9728 S:16 F:4 Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



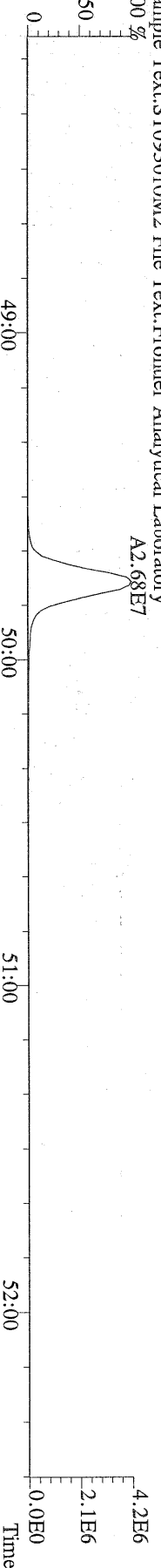
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



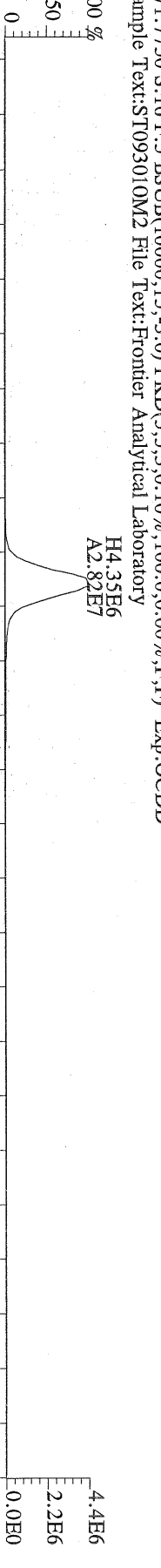
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
459.7348 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



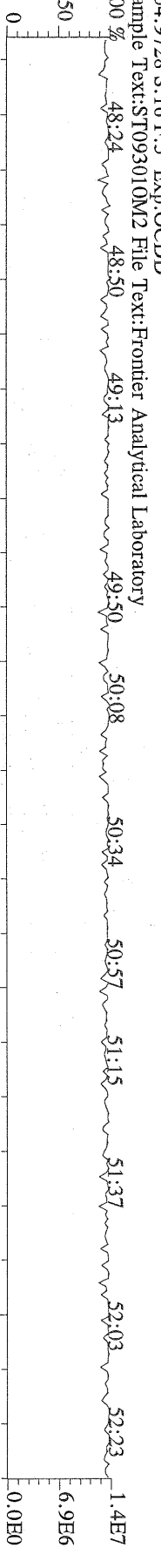
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



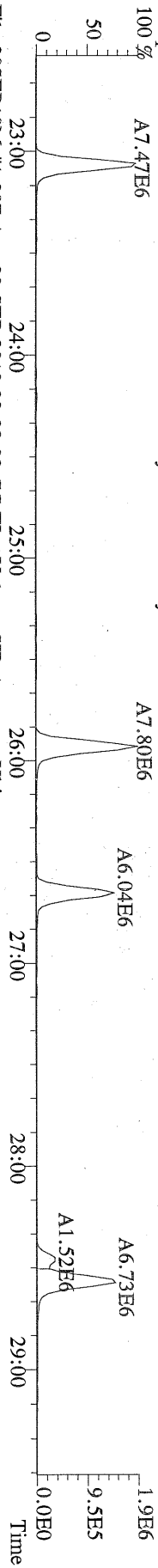
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
471.7750 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



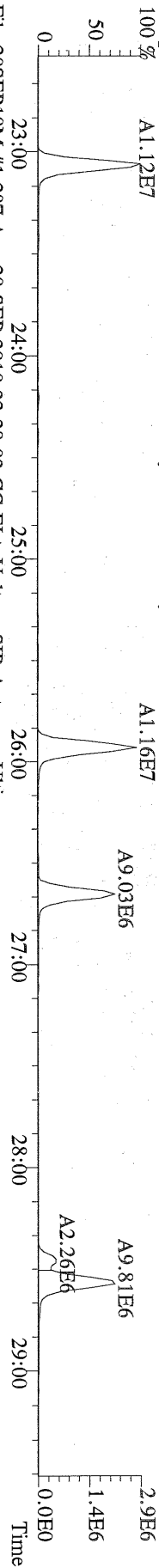
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:16 F:5 Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



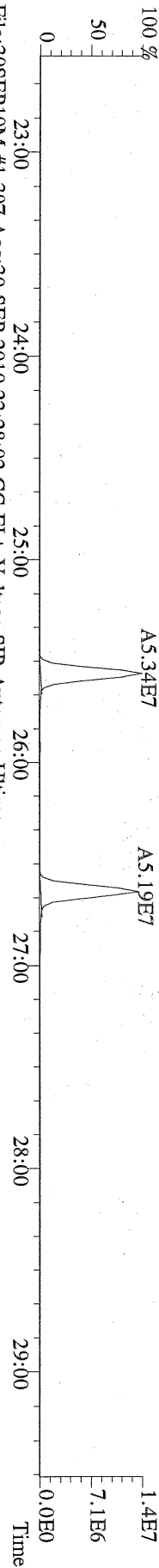
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
303.9016 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



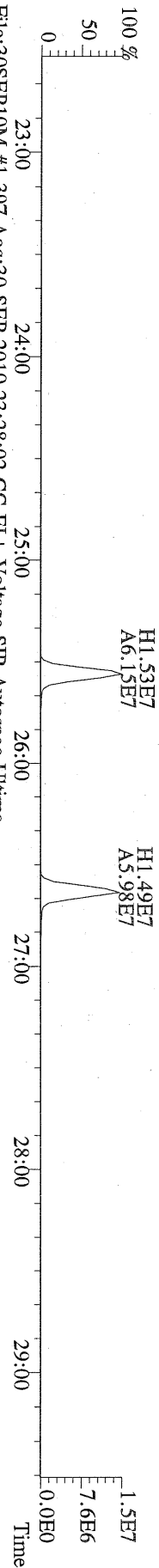
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
305.8887 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



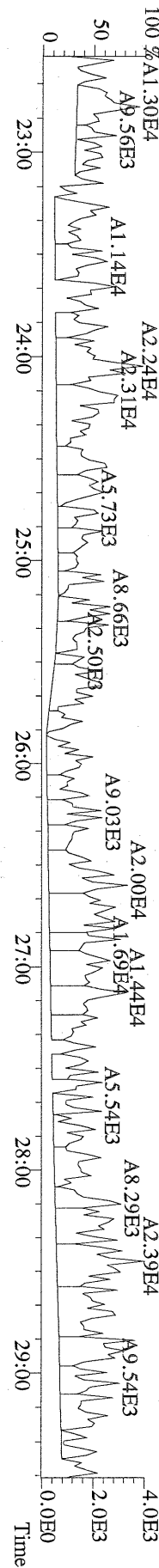
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
317.9389 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



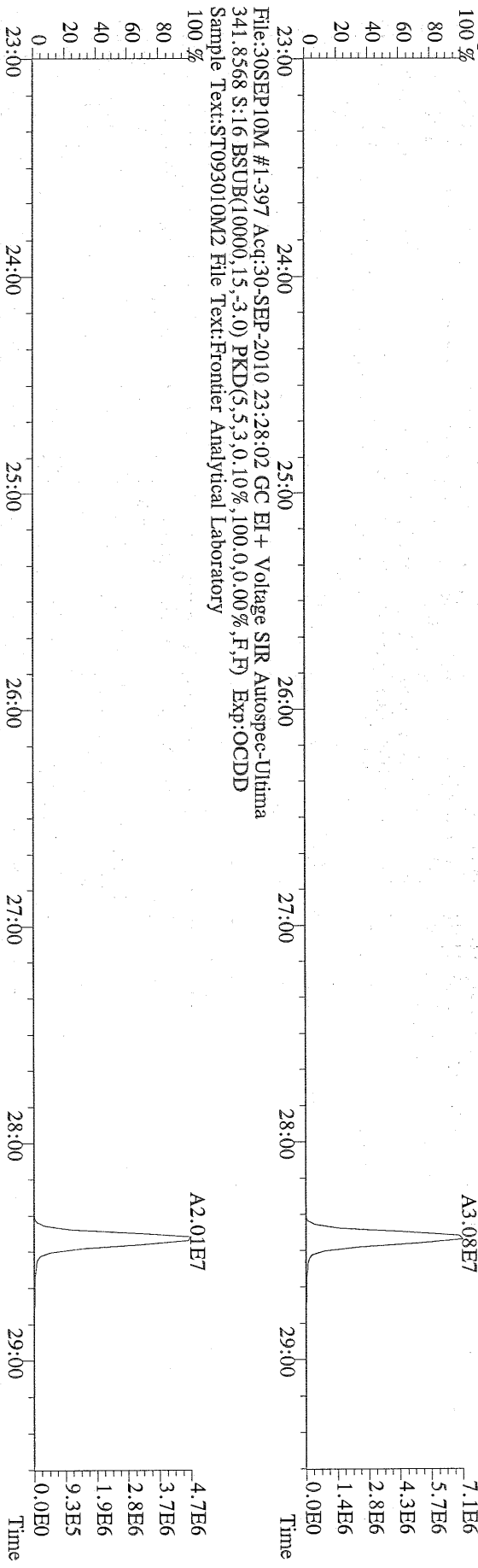
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
375.8364 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



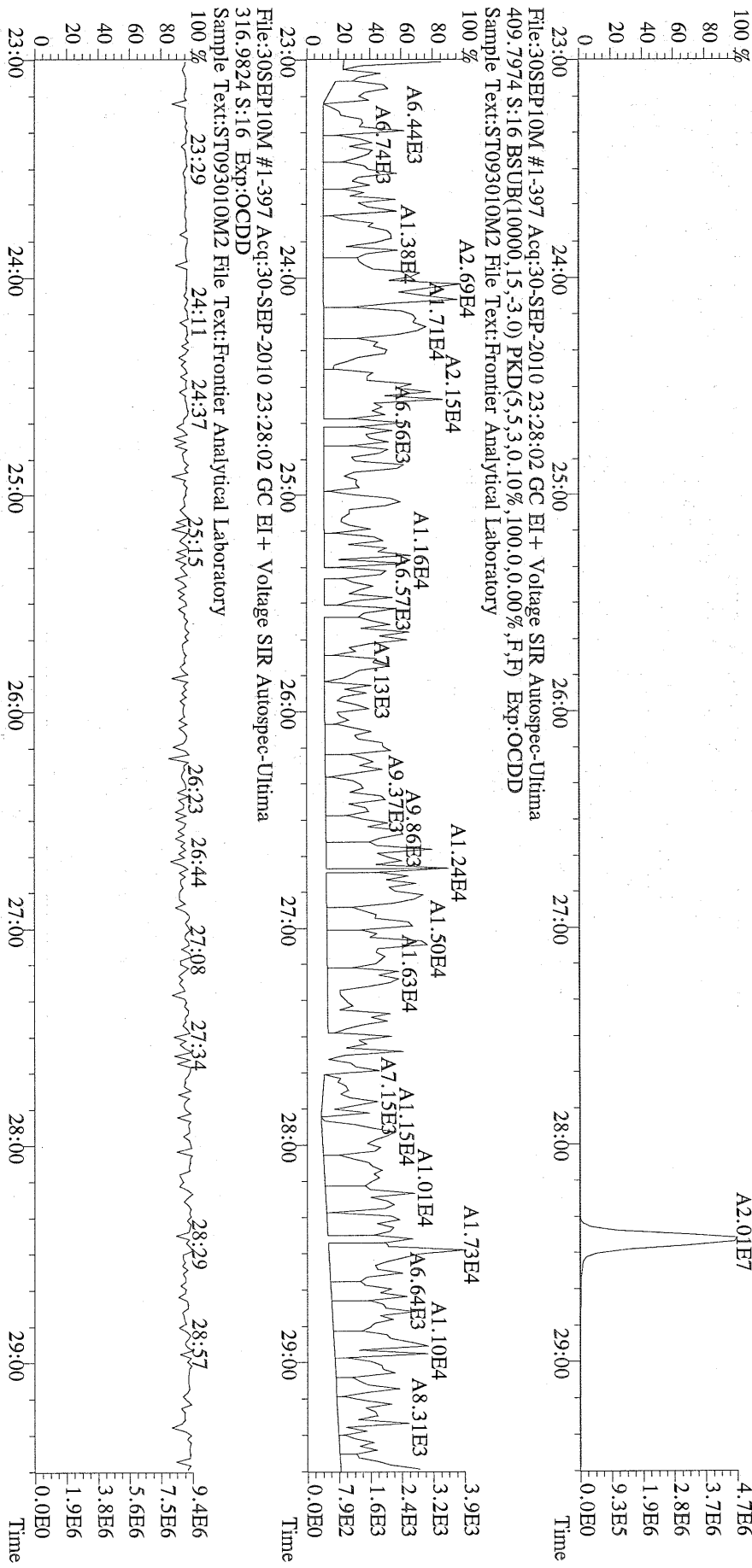
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375.8364 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



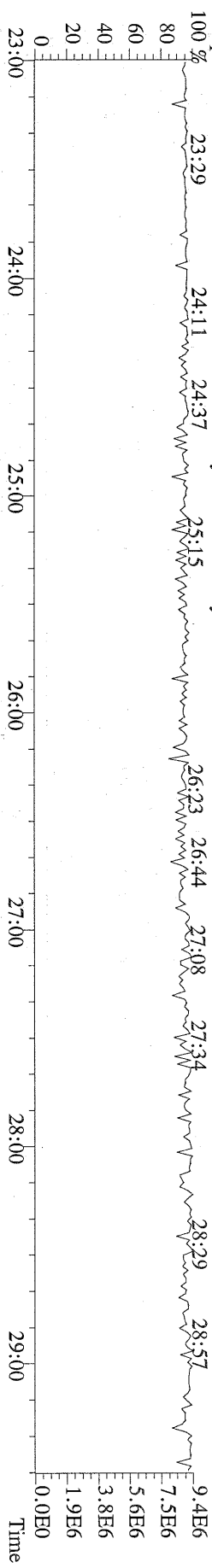
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



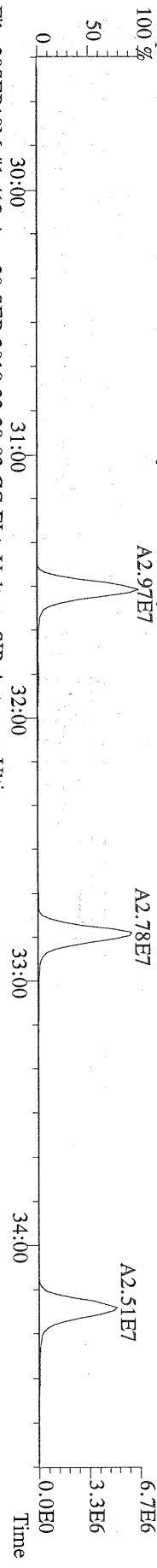
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



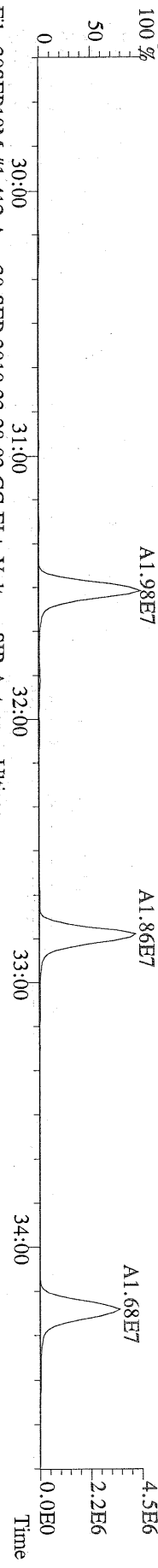
File:30SEP10M #1-397 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 316.9824 S:16 Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



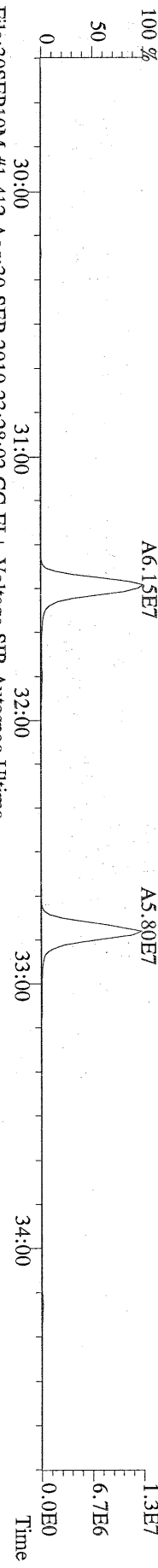
File:30SEP10M #1-412 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 S:16 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



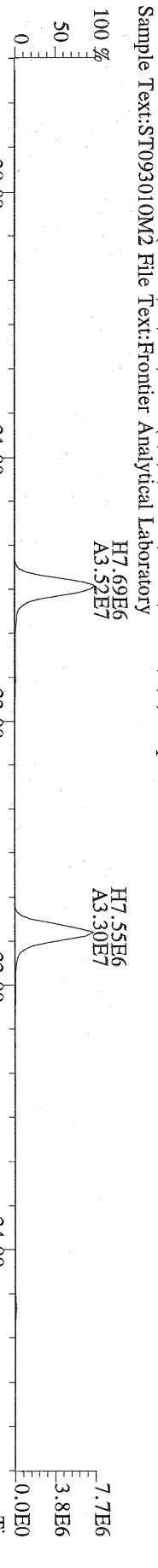
File:30SEP10M #1-412 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:16 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



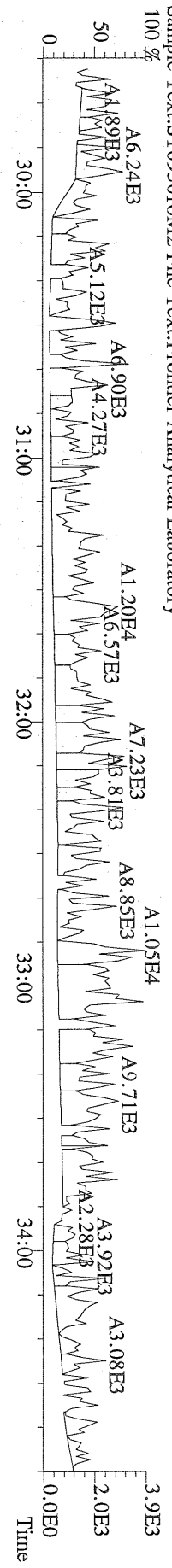
File:30SEP10M #1-412 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 S:16 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



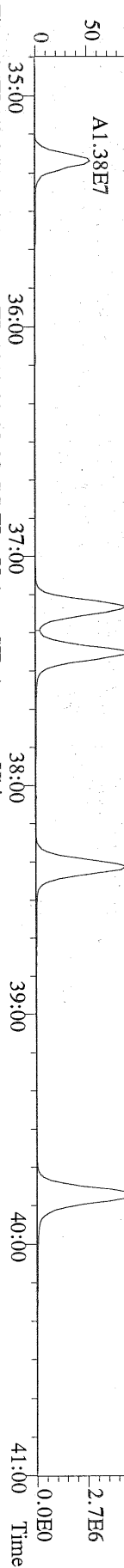
File:30SEP10M #1-412 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 353.8970 S:16 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



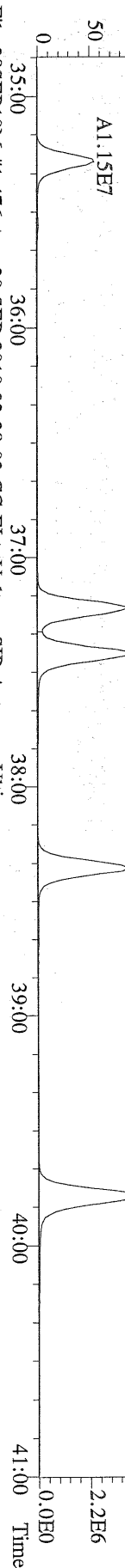
File:30SEP10M #1-412 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 409.7974 S:16 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



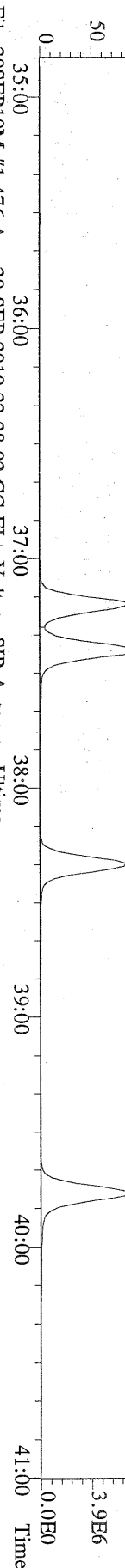
File:30SEP10M #1-476 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 373.8207 S:16 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



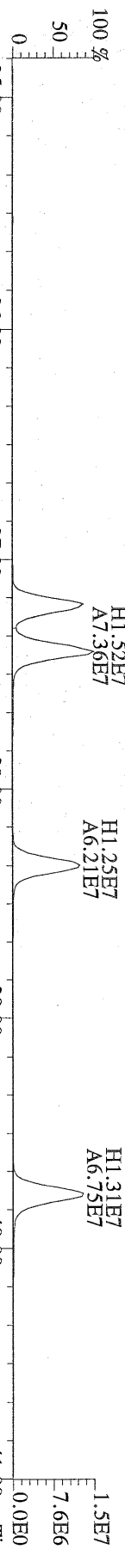
File:30SEP10M #1-476 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 375.8178 S:16 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



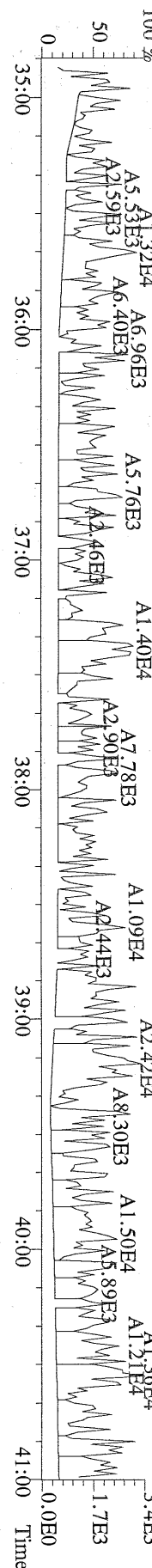
File:30SEP10M #1-476 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
 383.8639 S:16 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



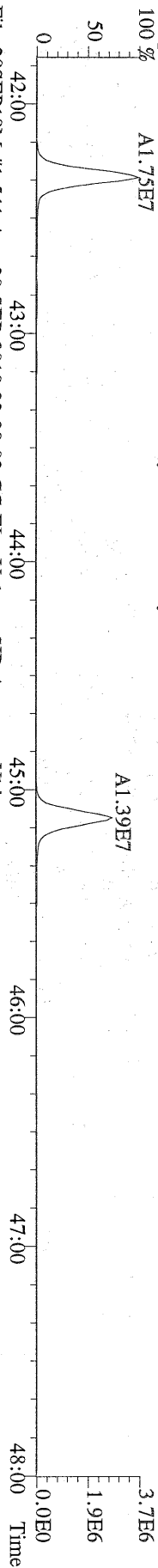
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 385.8610 S:16 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



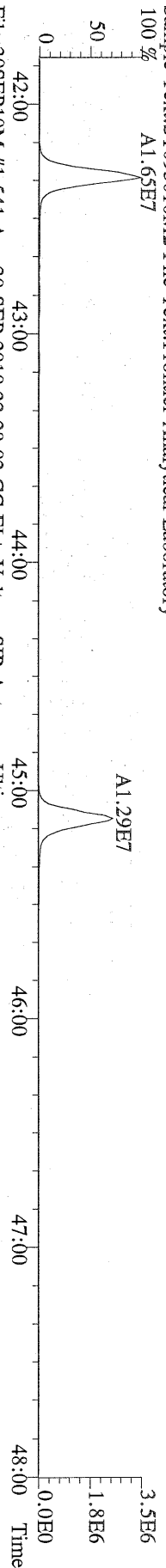
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 445.7555 S:16 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



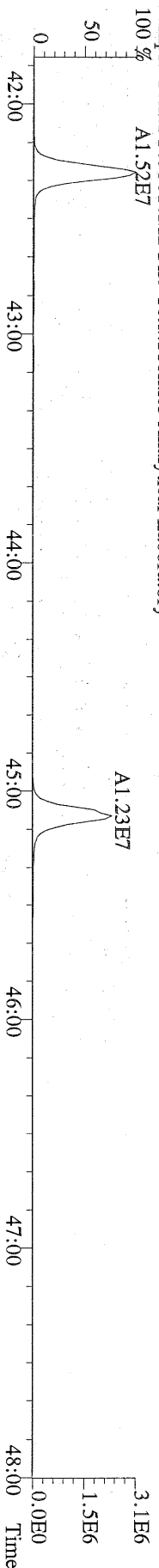
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



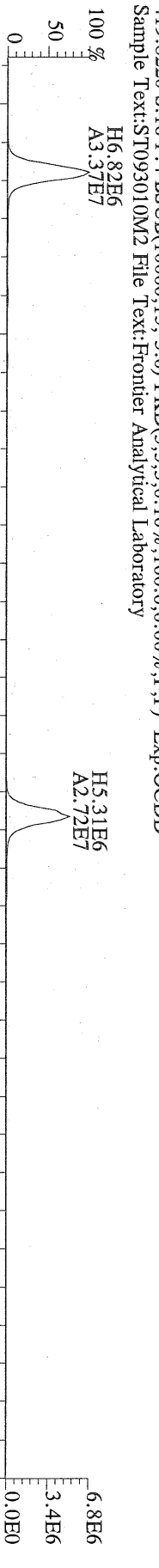
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
409.7788 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



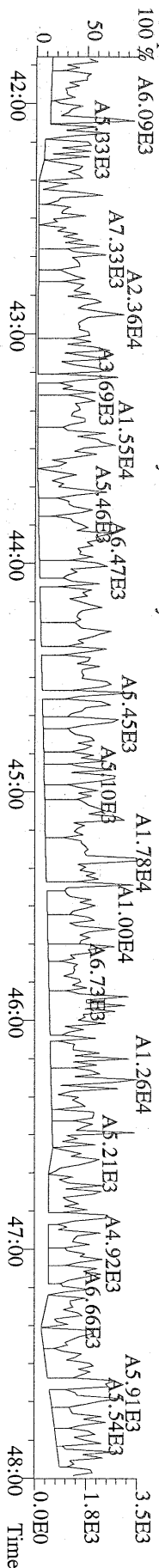
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



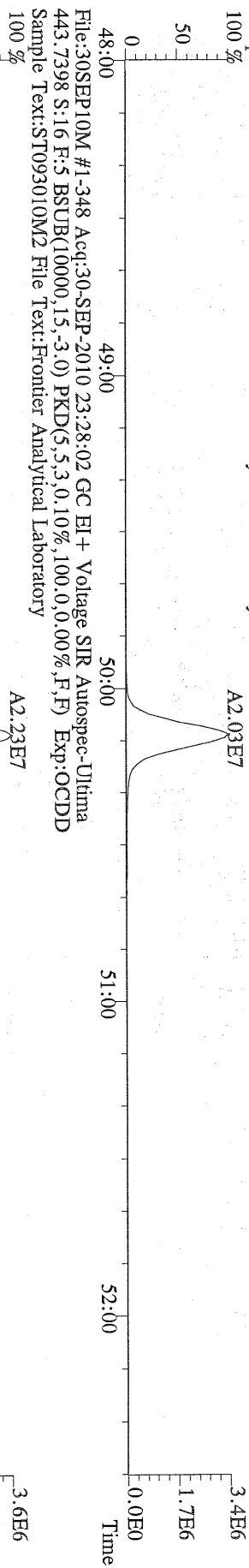
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419.8220 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



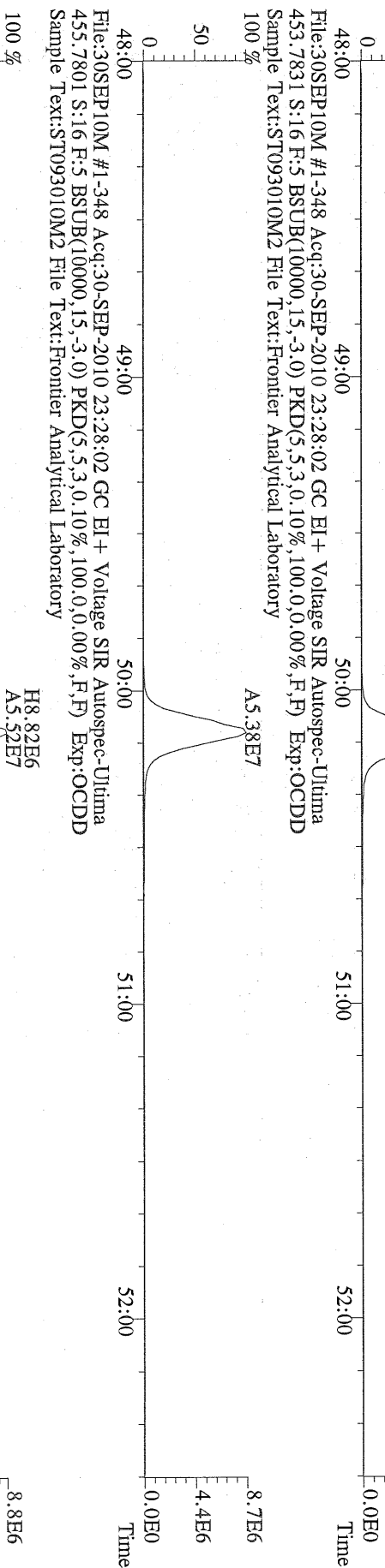
File:30SEP10M #1-541 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:16 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



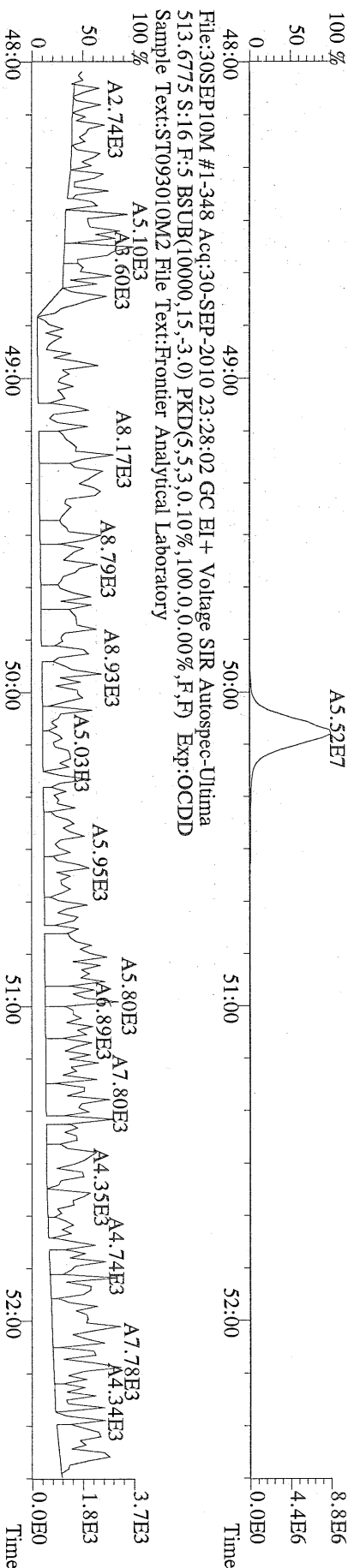
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory



File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
453.7831 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory

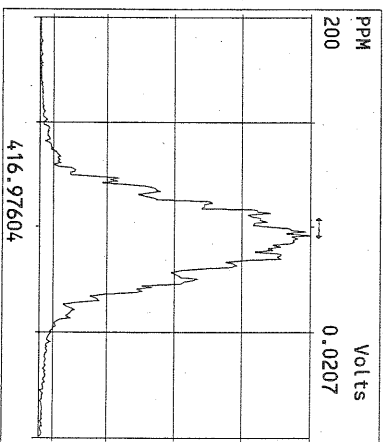
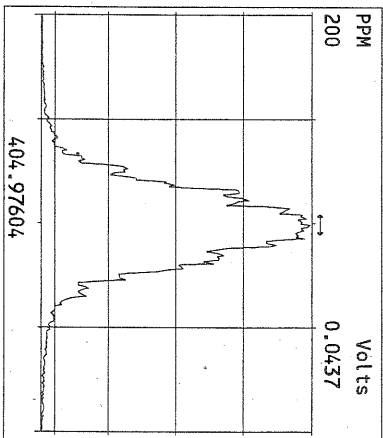
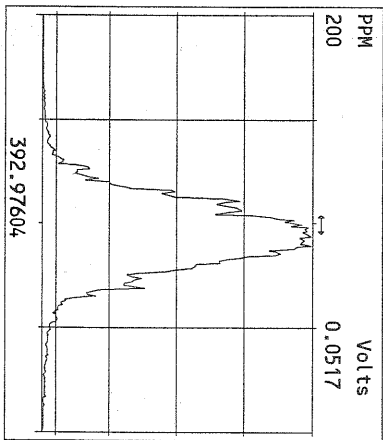
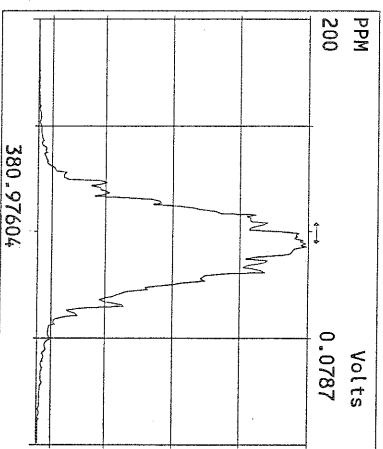
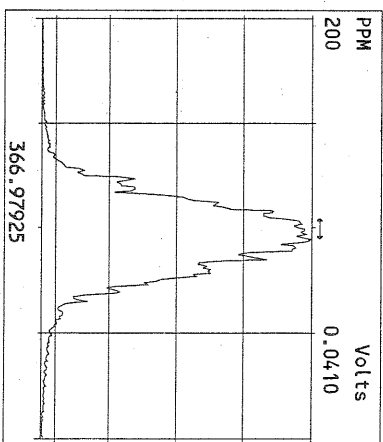
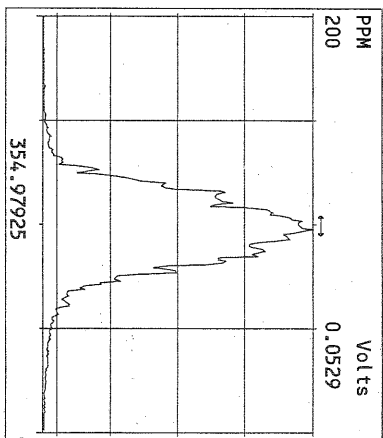
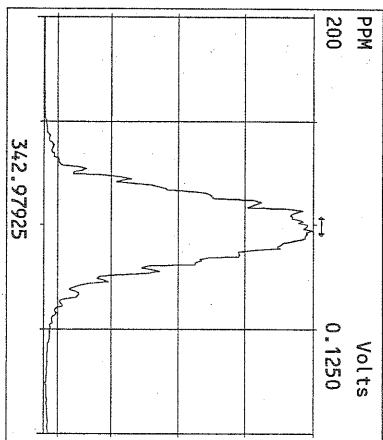
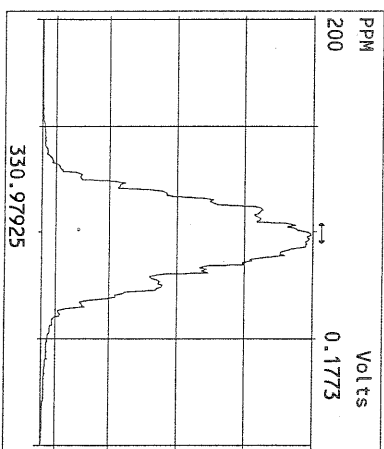
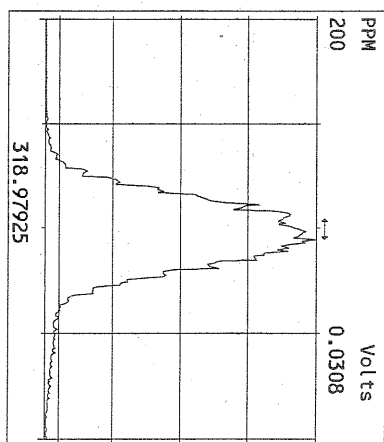
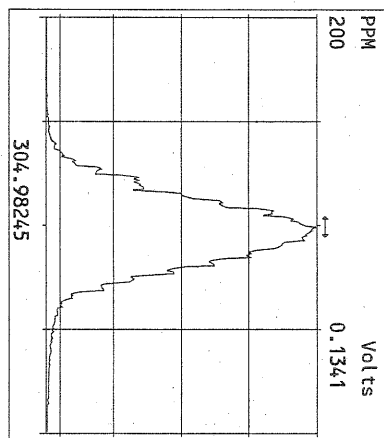
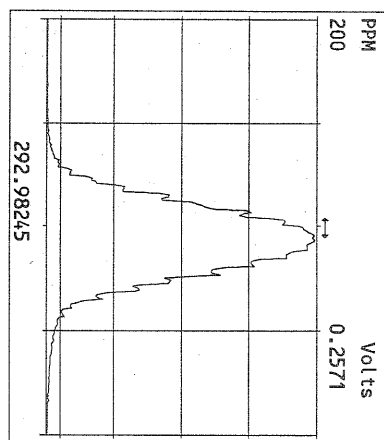


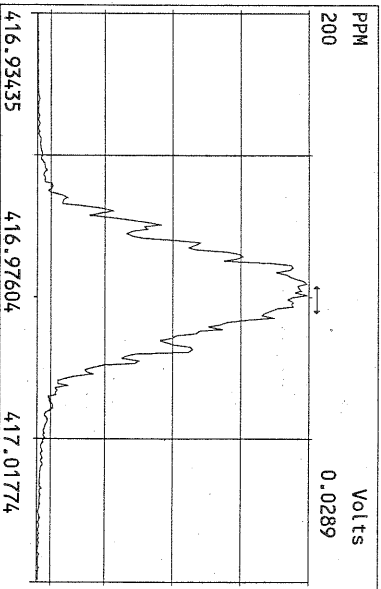
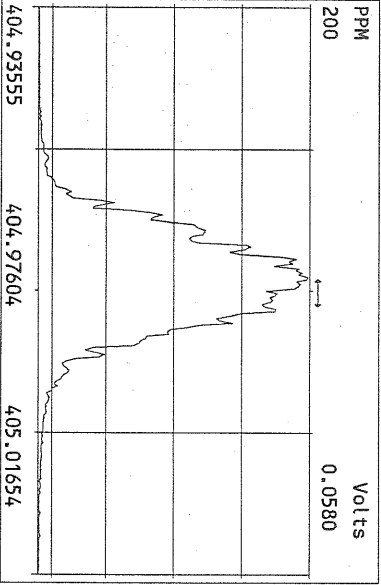
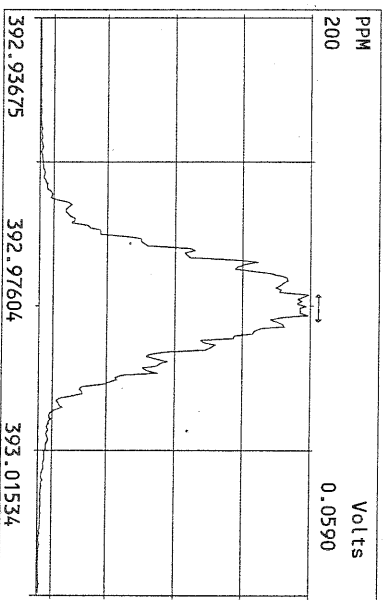
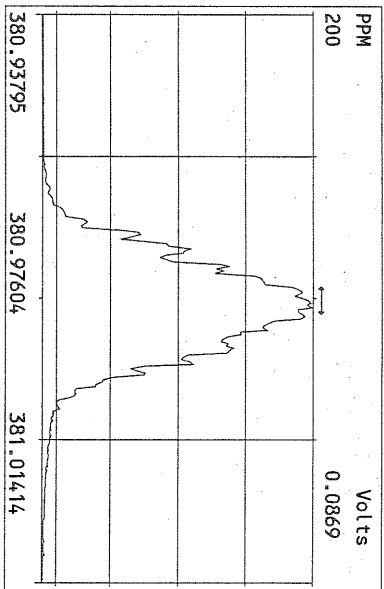
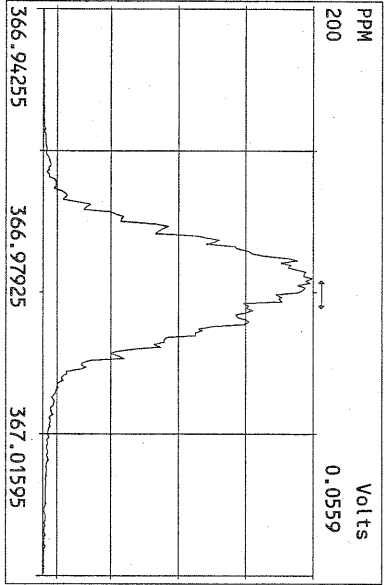
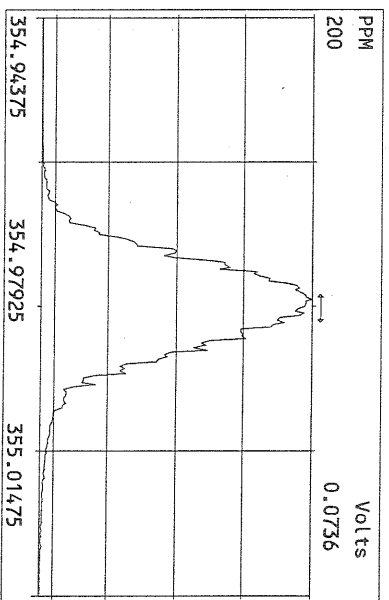
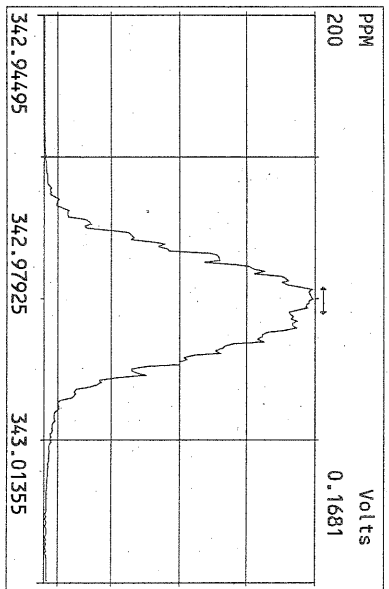
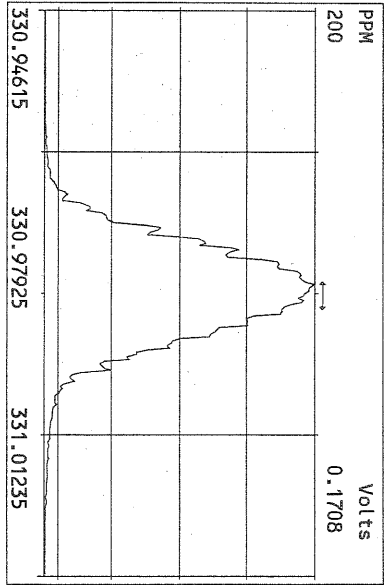
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
455.7801 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory

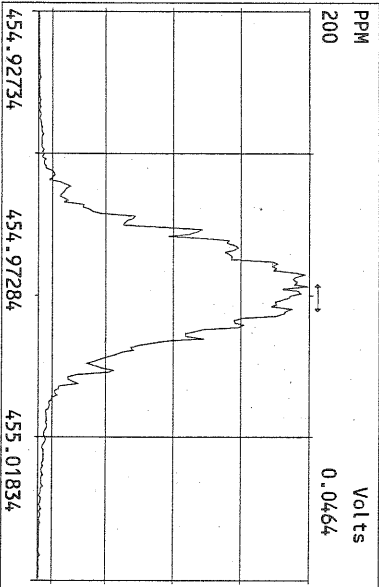
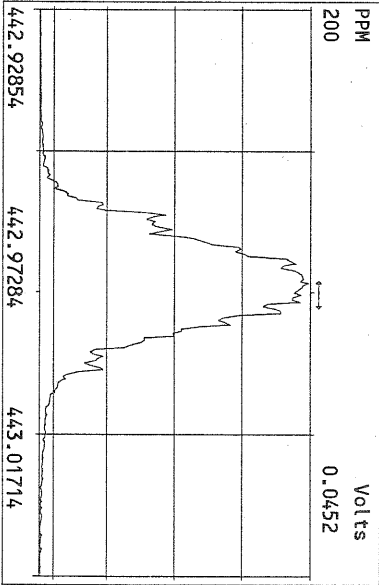
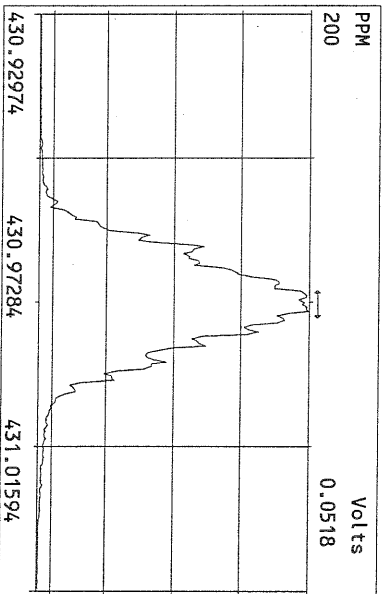
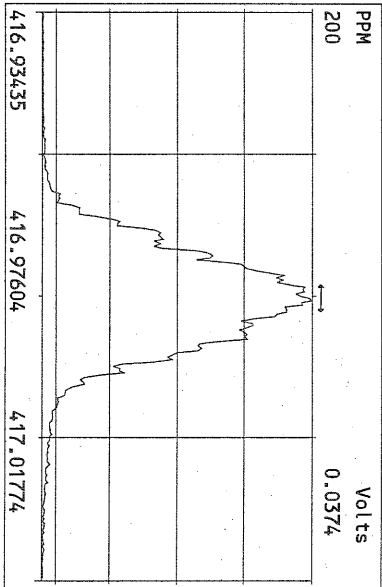
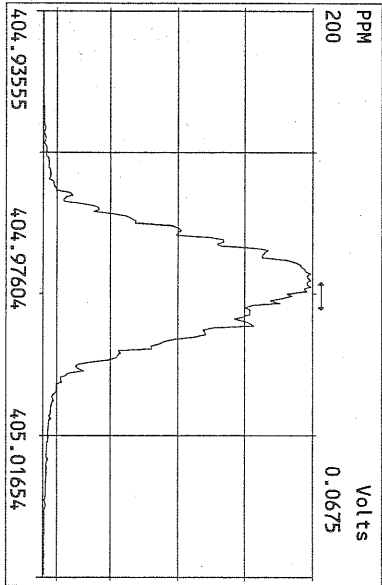
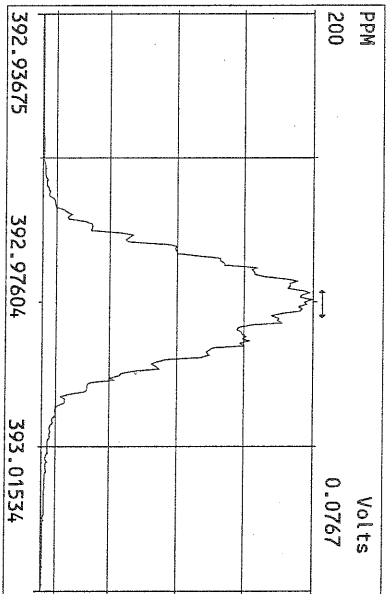
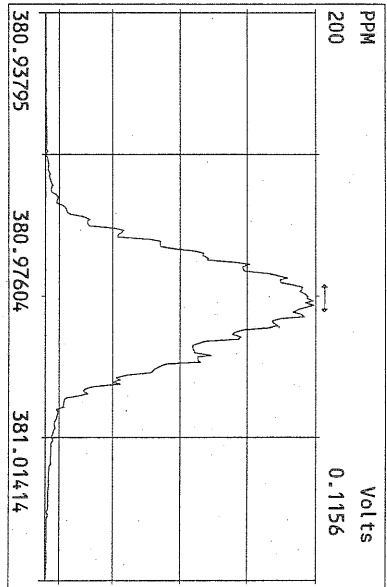
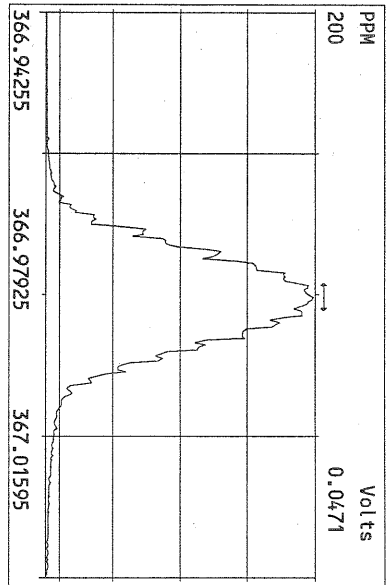


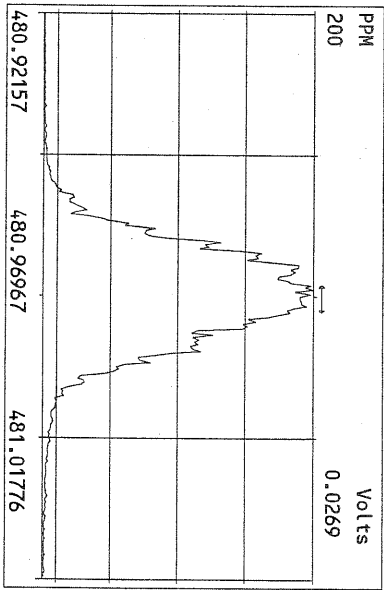
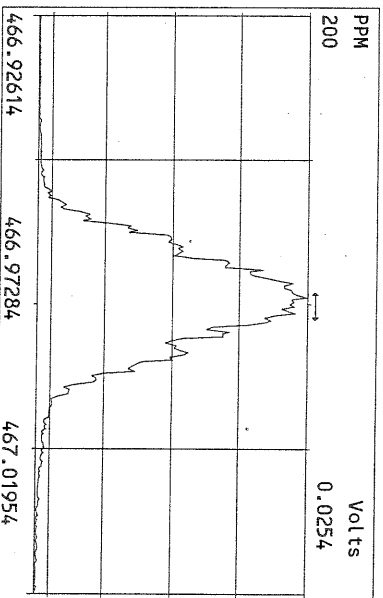
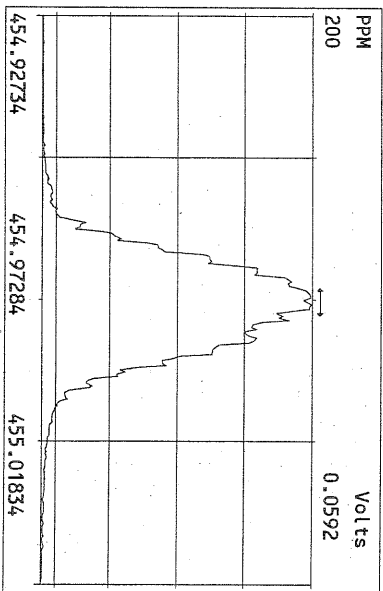
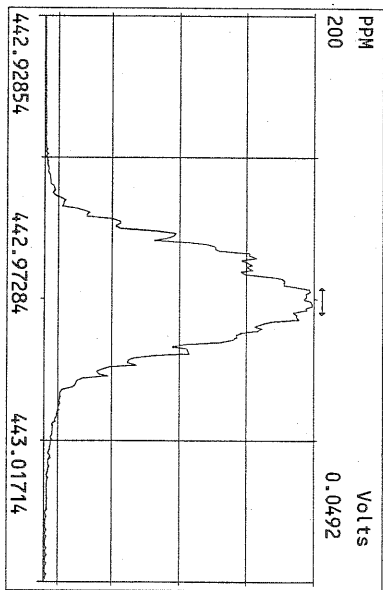
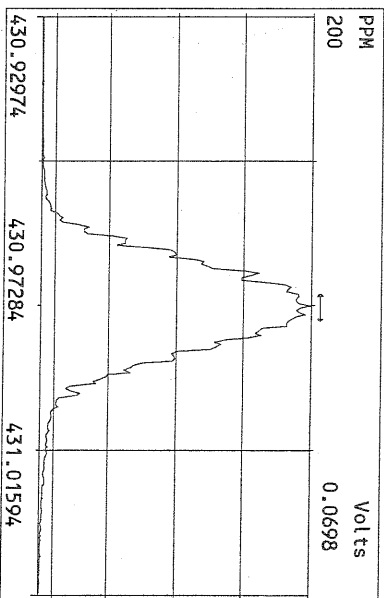
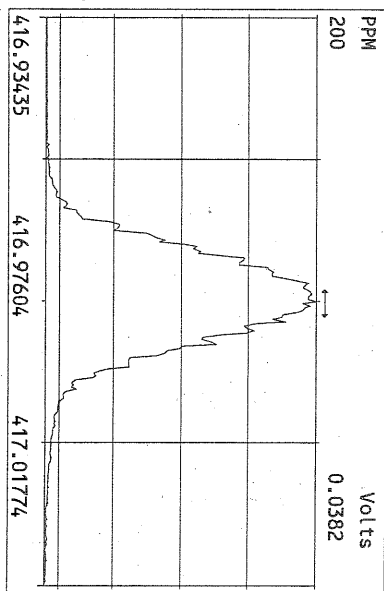
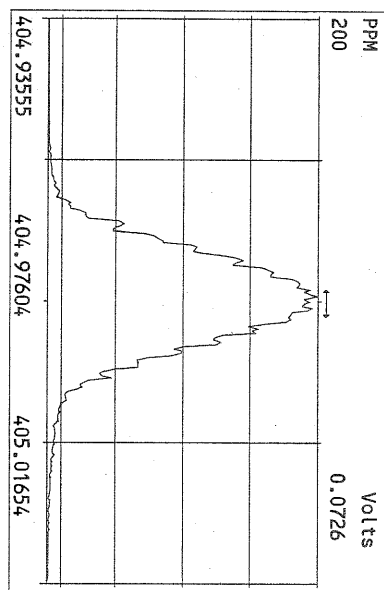
File:30SEP10M #1-348 Acq:30-SEP-2010 23:28:02 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:16 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M2 File Text:Frontier Analytical Laboratory

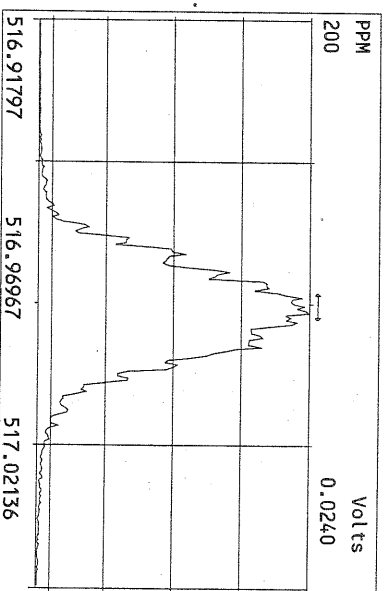
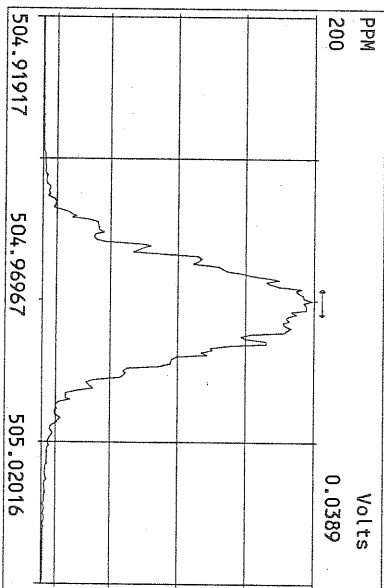
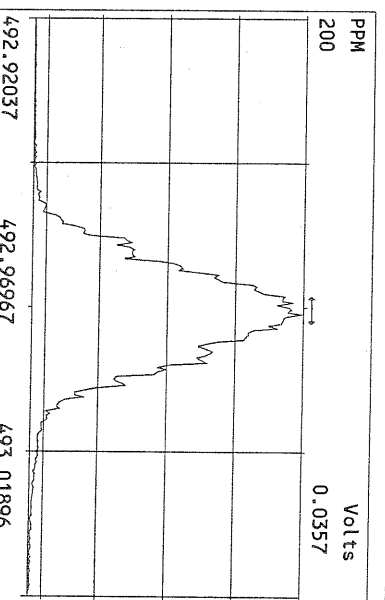
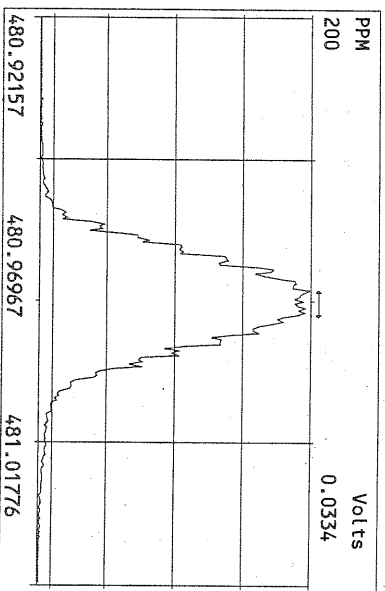
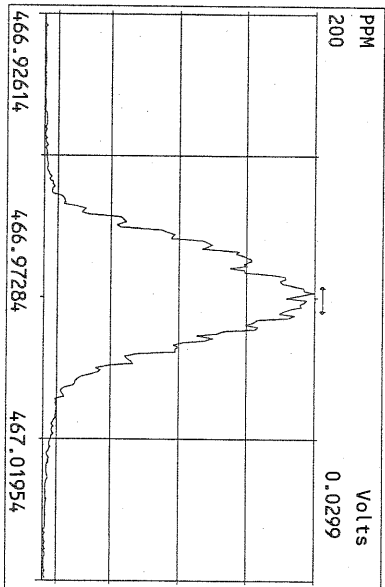
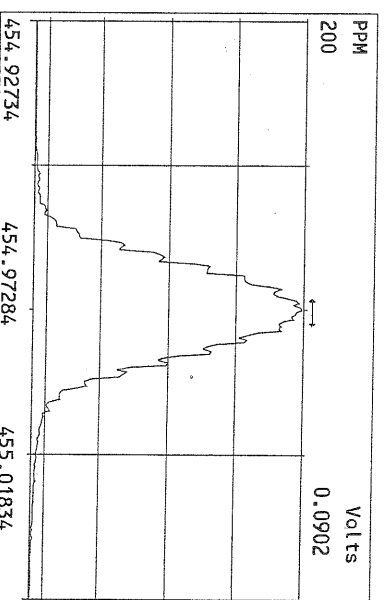
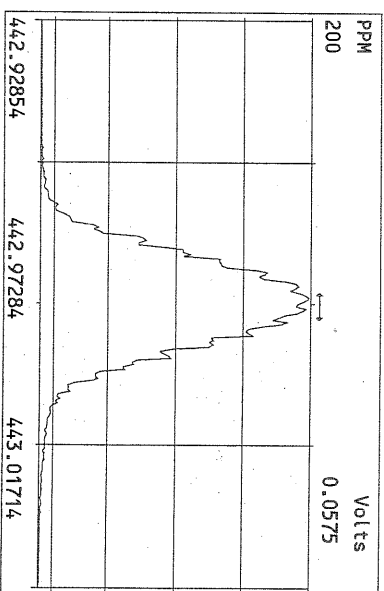
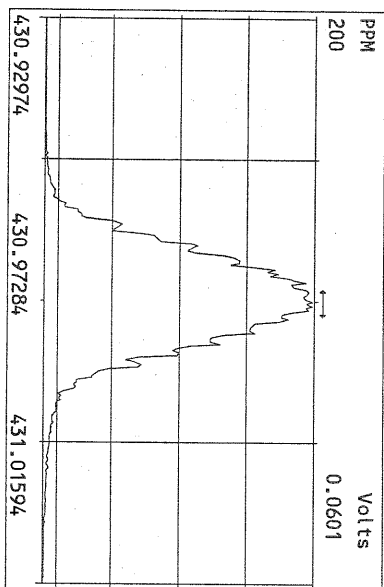
Peak Locate Examination: 1-OCT-2010:07:48 File:30SEP10M_RES_CHECK
Experiment:OCDD Function:1 Reference:PFK











USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M Sam:24


Analysis Date: 1-OCT-10 06:50:45

| | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| NATIVE ANALYTES | | | | | | |
| 2,3,7,8-TCDD | M/M+2 | 0.78 | 0.65-0.89 | y | 10.4 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.63 | 1.32-1.78 | y | 50.4 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.41 | 1.05-1.43 | y | 48.4 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 49.6 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.39 | 1.05-1.43 | y | 52.2 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.97 | 0.88-1.20 | y | 48.0 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.97 | 0.76-1.02 | y | 100 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.67 | 0.65-0.89 | y | 9.49 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.51 | 1.32-1.78 | y | 55.2 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.51 | 1.32-1.78 | y | 54.1 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.21 | 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 | 47.8 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.20 | 1.05-1.43 | y | 48.0 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 49.0 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.06 | 0.88-1.20 | y | 50.2 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.07 | 0.88-1.20 | y | 50.2 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.91 | 0.76-1.02 | y | 98.4 | 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: 10/1/10

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 30SEP10M

Sam:24

Analysis Date: 1-OCT-10 06:50:45

| 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 | 0.82 | 0.65-0.89 | y | 97.5 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.75 | 1.32-1.78 | y | 107 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.27 | 1.05-1.43 | y | 107 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.26 | 1.05-1.43 | y | 90.0 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.93 | 0.88-1.20 | y | 102 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.94 | 0.76-1.02 | y | 208 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.87 | 0.65-0.89 | y | 97.9 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.74 | 1.32-1.78 | y | 98.1 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.77 | 1.32-1.78 | y | 100 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 113 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 96.1 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 99.9 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 107 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.45 | 0.37-0.51 | y | 93.5 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.44 | 0.37-0.51 | y | 104 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.98 | 0.76-1.02 | y | 213 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 9.82 | 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: 10/1/10

USEPA - ITD

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5


Analysis Date: 1-OCT-10 06:50:45

CS3 or VER Data Filename: 30SEP10M

Sam:24

| 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 | 1.001 | 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 | | 1.021 | 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 | | 1.223 | 0.923-1.303 ✓ |

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

Analyst: Date: 10/1/10

USEPA - ITD

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 1-OCT-10 06:50:45

CS3 or VER Data Filename: 30SEP10M

Sam:24

| 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 | 1.001 | 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 | 1.001 | 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 | 1.001 | 0.999-1.001 ✓ |
| 1,2,3,4,7,8,9-HpCDF | 13C-1,2,3,4,7,8,9-HpCDF | 1.000 | 0.999-1.001 ✓ |
| OCDD | 13C-OCDD | 1.000 | 0.999-1.001 ✓ |
| OCDF | 13C-OCDF | 1.001 | 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 | | 0.988 | 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 | | 1.278 | 1.000-1.311 ✓ |

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

Analyst: Date: 10/1/10

FAL ID: ST093010M3

Filename: 30SEP10M

Sam:24

Acquired: 1-OCT-10 06:50:45

ICal: pcddfal3-8-23-10

Client ID: 1613 CS3 100511J

ConCal: ST093010M2

EndCal: ST093010M3

Results: 6365

GC Column: DB5

Amount: 1.000

NATO 1989 Tox: 102

WHO 1998 Tox: 127

WHO 2005 Tox:

115

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | | |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|---------|
| 2,3,7,8-TCDD | 6.79e+06 | 0.78 y | 27:24 | 1.11 | 10.4 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDD | 2.94e+07 | 1.63 y | 33:14 | 1.10 | 50.4 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDD | 3.10e+07 | 1.41 y | 38:36 | 1.37 | 48.4 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDD | 2.51e+07 | 1.40 y | 38:46 | 1.37 | 49.6 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDD | 2.96e+07 | 1.39 y | 39:12 | 1.36 | 52.2 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDD | 2.47e+07 | 0.97 y | 44:12 | 1.45 | 48.0 | | 2.50 | - | - | * | |
| OCDD | 3.32e+07 | 0.97 y | 49:45 | 1.43 | 100 | | 2.50 | - | - | * | |
| 2,3,7,8-TCDF | 1.38e+07 | 0.67 y | 26:38 | 1.50 | 9.49 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDF | 4.24e+07 | 1.51 y | 31:30 | 0.94 | 55.2 | | 2.50 | - | - | * | |
| 2,3,4,7,8-PeCDF | 4.08e+07 | 1.51 y | 32:49 | 0.94 | 54.1 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDF | 3.64e+07 | 1.21 y | 37:12 | 0.93 | 46.5 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDF | 3.87e+07 | 1.25 y | 37:25 | 0.82 | 47.8 | | 2.50 | - | - | * | |
| 2,3,4,6,7,8-HxCDF | 3.59e+07 | 1.20 y | 38:21 | 0.92 | 48.0 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDF | 4.28e+07 | 1.24 y | 39:46 | 1.00 | 49.0 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDF | 2.93e+07 | 1.06 y | 42:18 | 1.39 | 50.2 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8,9-HpCDF | 2.31e+07 | 1.07 y | 45:06 | 1.36 | 50.2 | | 2.50 | - | - | * | |
| OCDF | 3.60e+07 | 0.91 y | 50:09 | 0.79 | 98.4 | | 2.50 | - | - | * | |
| | | | | | | | | | | Rec | |
| 13C-2,3,7,8-TCDD | 5.89e+07 | 0.82 y | 27:23 | 1.02 | 97.5 | | | | | 97.5 | |
| 13C-1,2,3,7,8-PeCDD | 5.29e+07 | 1.75 y | 33:13 | 0.84 | 107 | | | | | 107 | |
| 13C-1,2,3,4,7,8-HxCDD | 4.66e+07 | 1.27 y | 38:34 | 1.07 | 107 | | | | | 107 | |
| 13C-1,2,3,6,7,8-HxCDD | 3.69e+07 | 1.26 y | 38:45 | 1.01 | 90.0 | | | | | 90.0 | |
| 13C-1,2,3,4,6,7,8-HpCDD | 3.54e+07 | 0.93 y | 44:11 | 0.86 | 102 | | | | | 102 | |
| 13C-OCDD | 4.60e+07 | 0.94 y | 49:45 | 0.55 | 208 | | | | | 104 | |
| 13C-2,3,7,8-TCDF | 9.65e+07 | 0.87 y | 26:37 | 0.99 | 97.9 | | | | | 97.9 | |
| 13C-1,2,3,7,8-PeCDF | 8.16e+07 | 1.74 y | 31:29 | 0.84 | 98.1 | | | | | 98.1 | |
| 13C-2,3,4,7,8-PeCDF | 8.07e+07 | 1.77 y | 32:47 | 0.81 | 100 | | | | | 100 | |
| 13C-1,2,3,4,7,8-HxCDF | 8.43e+07 | 0.51 y | 37:12 | 1.85 | 113 | | | | | 113 | |
| 13C-1,2,3,6,7,8-HxCDF | 9.87e+07 | 0.52 y | 37:23 | 2.54 | 96.1 | | | | | 96.1 | |
| 13C-2,3,4,6,7,8-HxCDF | 8.15e+07 | 0.52 y | 38:19 | 2.01 | 99.9 | | | | | 99.9 | |
| 13C-1,2,3,7,8,9-HxCDF | 8.77e+07 | 0.52 y | 39:45 | 2.03 | 107 | | | | | 107 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 4.20e+07 | 0.45 y | 42:17 | 1.11 | 93.5 | | | | | 93.5 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 3.39e+07 | 0.44 y | 45:06 | 0.80 | 104 | | | | | 104 | |
| 13C-OCDF | 9.32e+07 | 0.98 y | 50:06 | 1.08 | 213 | | | | | 106 | |
| 37Cl-2,3,7,8-TCDD | 3.97e+06 | | 27:24 | 0.69 | 9.82 | | | | | 98.2 | |
| 13C-1,2,3,4-TCDD | 5.90e+07 | 0.82 y | 26:49 | - | 131 | | | | | | |
| 13C-1,2,3,4-TCDF | 9.92e+07 | 0.87 y | 25:33 | - | 137 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 4.05e+07 | 1.24 y | 39:12 | - | 147 | | | | | | |
| | | | | | | | Fac Noise-1 | Noise-2 | DL | #Hom | |
| Total Tetra-Dioxins | 3.56e+07 | | 24:24 | 1.11 | 54.5 | | 2.50 | - | - | * | 17 |
| Total Penta-Dioxins | 6.35e+07 | | 30:16 | 1.10 | 109 | | 2.50 | - | - | * | 8 |
| Total Hexa-Dioxins | 9.66e+07 | | 36:09 | 1.37 | 169 | | 2.50 | - | - | * | 5 |
| Total Hepta-Dioxins | 5.09e+07 | | 42:49 | 1.45 | 99.0 | | 2.50 | - | - | * | 2 |
| Total Tetra-Furans | 6.66e+07 | | 23:04 | 1.50 | 45.9 | | 2.50 | - | - | * | 17 |
| 1st Fn. Tot Penta-Furans | 4.37e+07 | | 28:26 | 0.94 | 57.4 | | 2.50 | - | - | * | PeCDF 1 |
| Total Penta-Furans | 1.23e+08 | | 30:11 | 0.94 | 161 | | 2.50 | - | - | * | 218 8 |
| Total Hexa-Furans | 1.75e+08 | | 35:15 | 0.91 | 218 | | 2.50 | - | - | * | 8 |
| Total Hepta-Furans | 5.26e+07 | | 42:18 | 1.38 | 101 | | 2.50 | - | - | * | 5 |

Analyst: 

Date: 10/1/10

Frontier Analytical Laboratory - Acquisition Log

Run Name:30SEP10M

Instrument: FAL3

GC: DB5

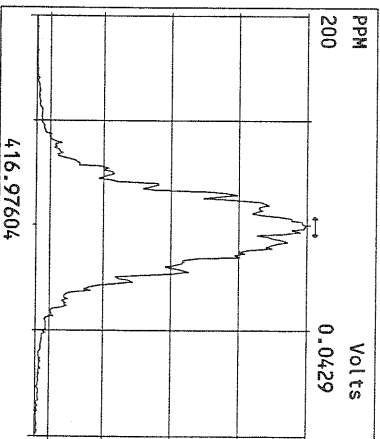
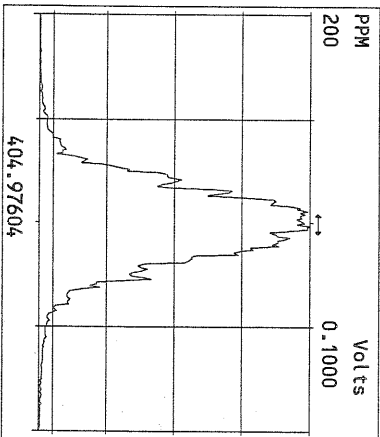
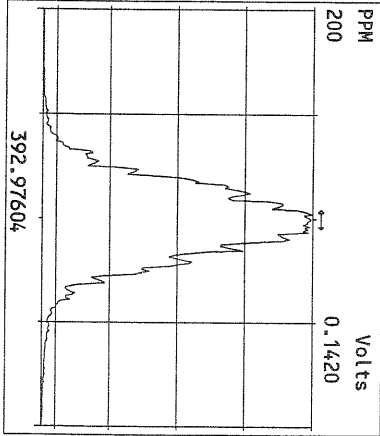
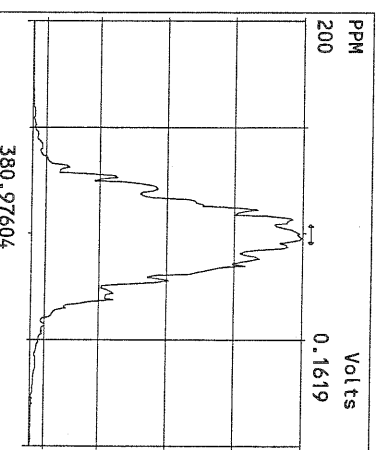
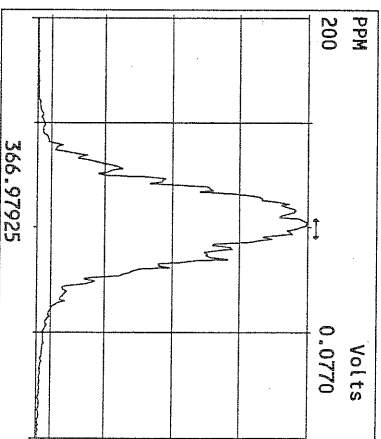
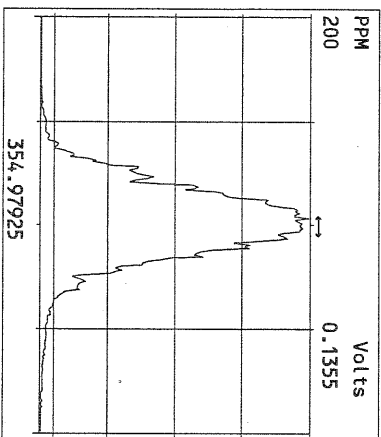
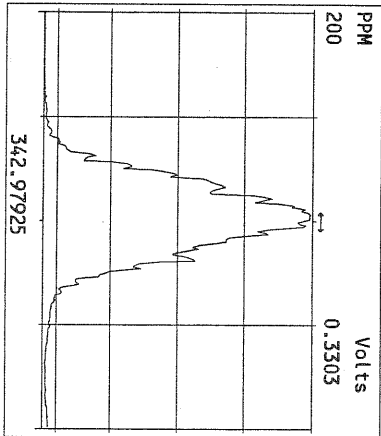
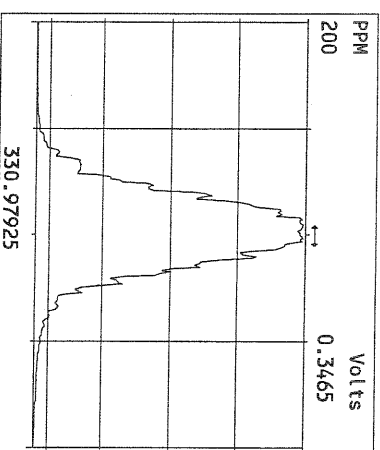
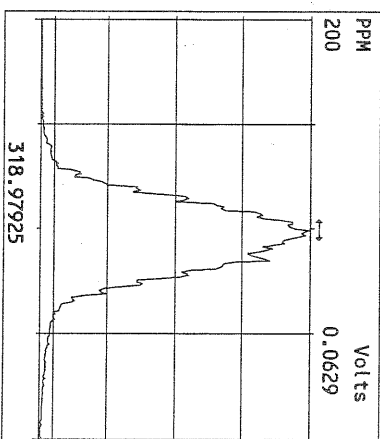
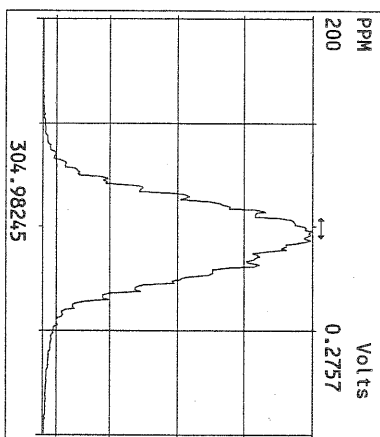
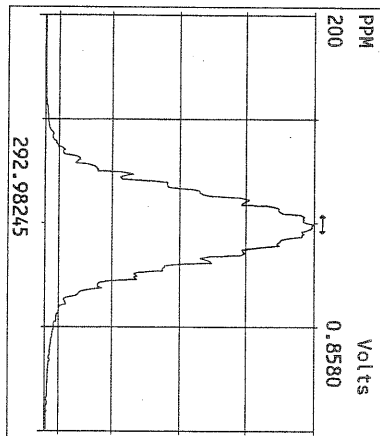
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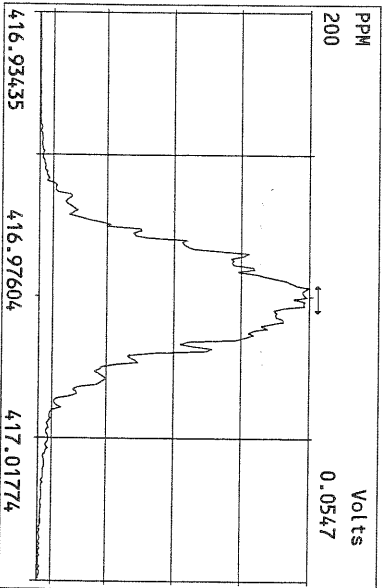
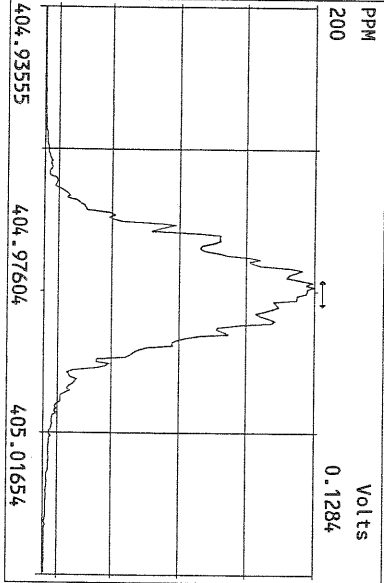
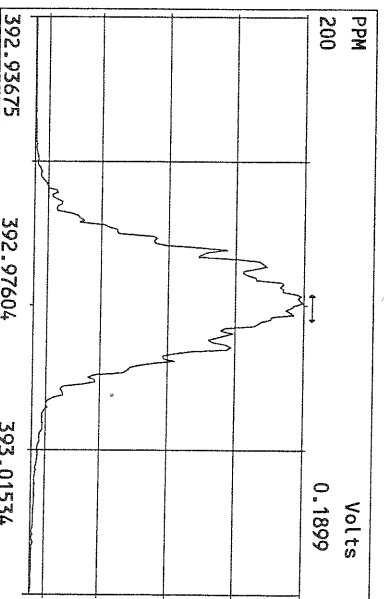
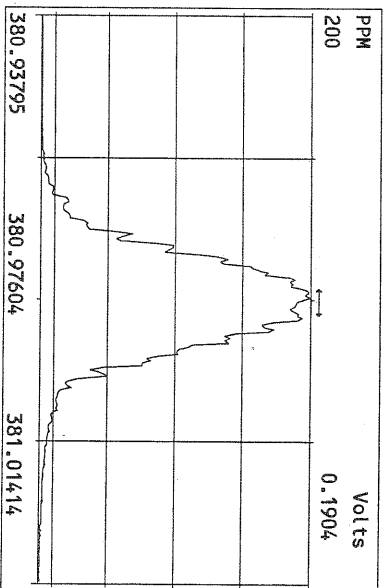
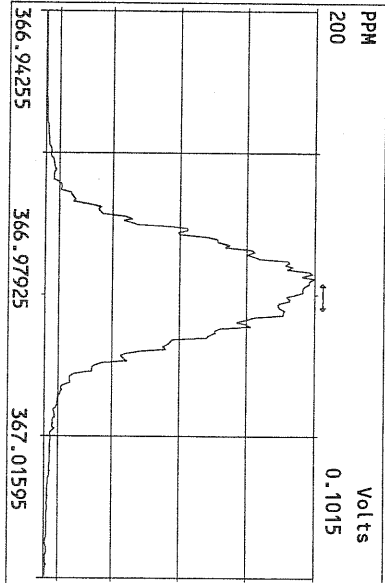
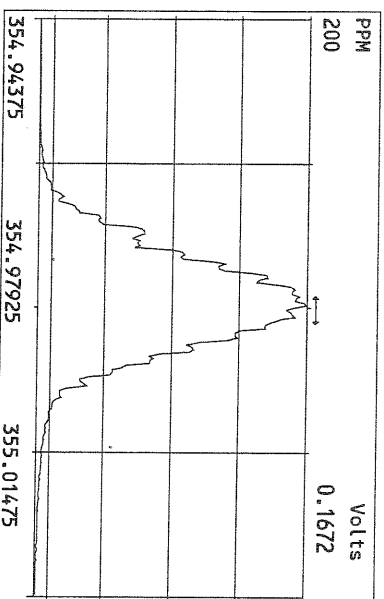
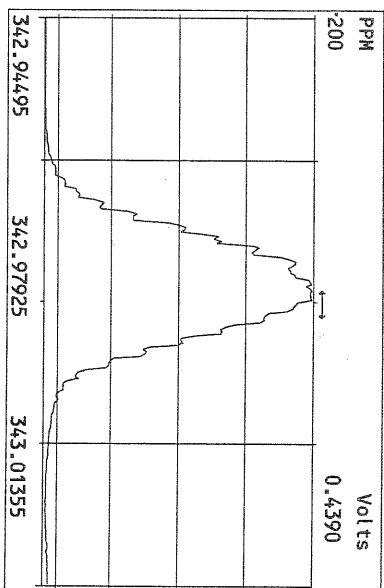
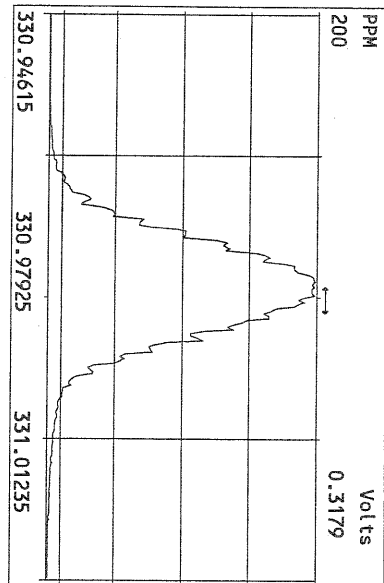
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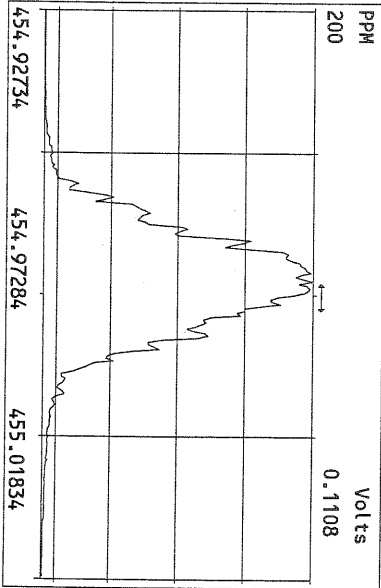
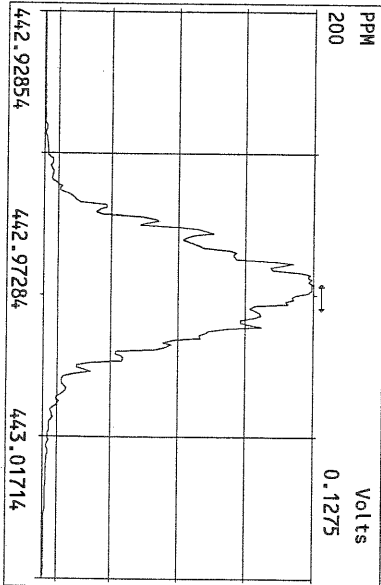
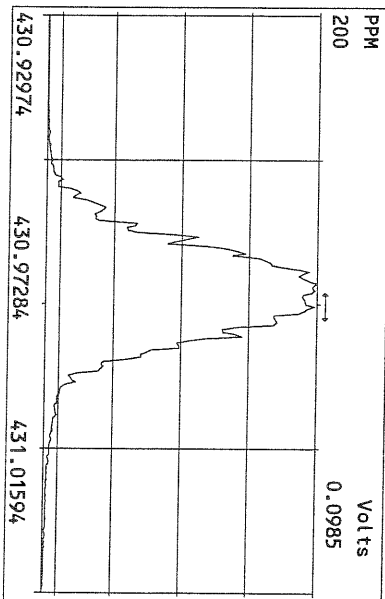
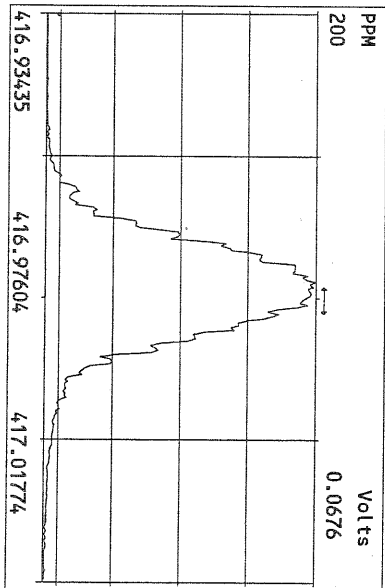
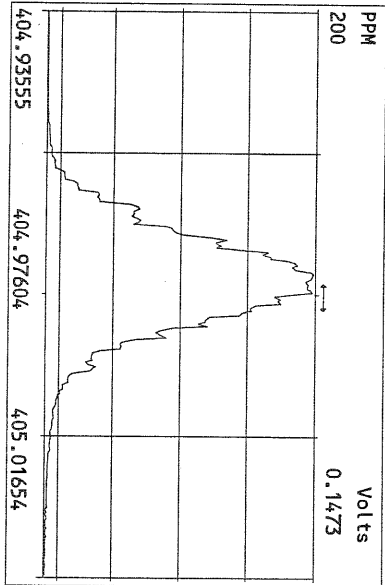
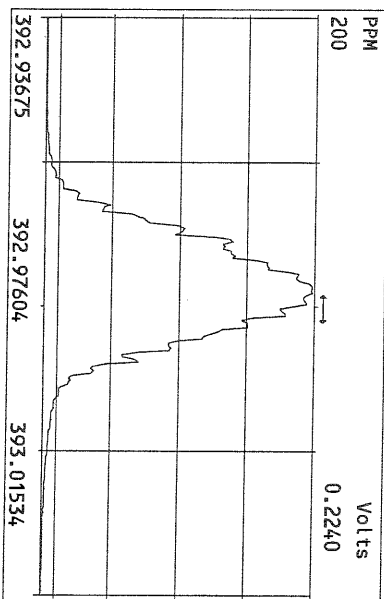
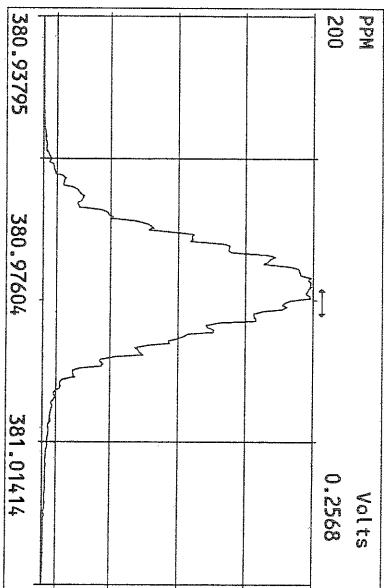
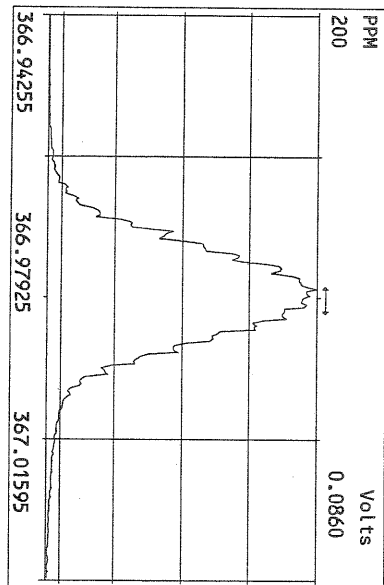
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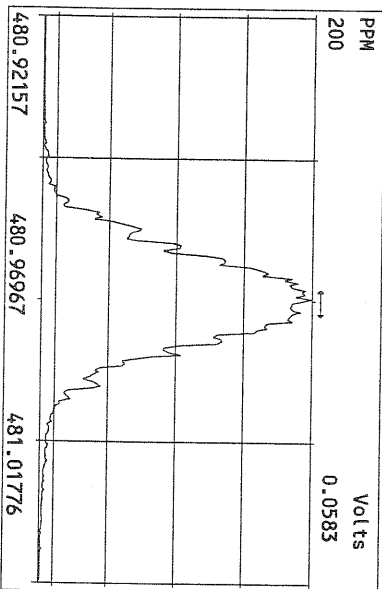
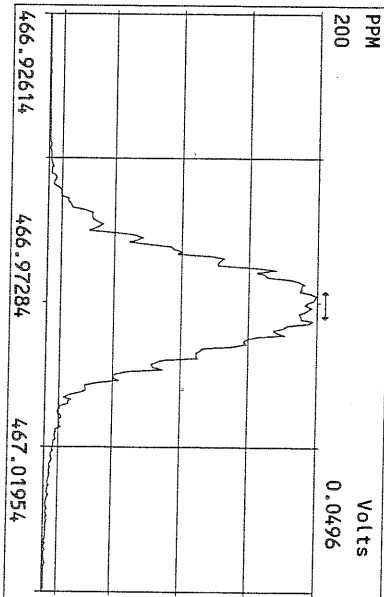
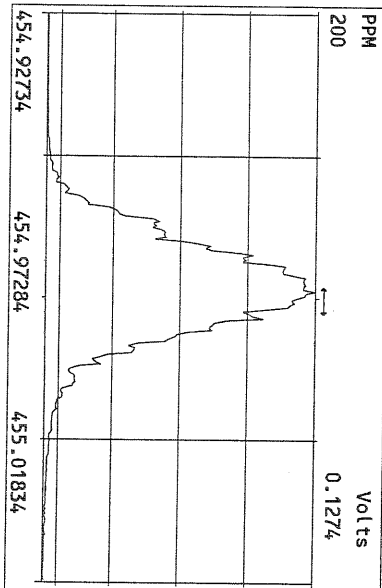
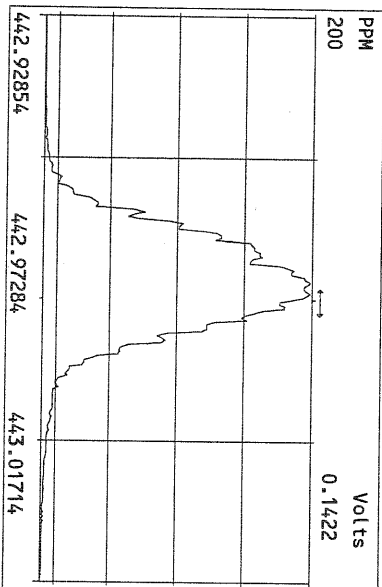
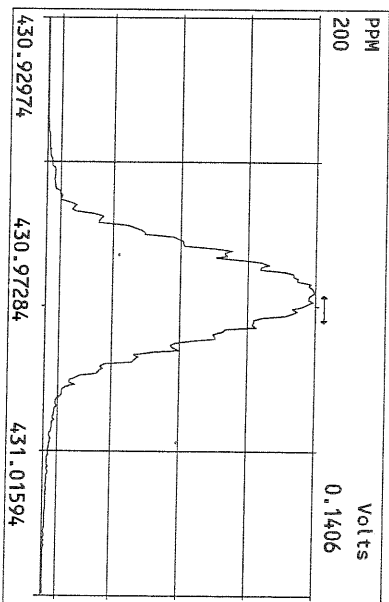
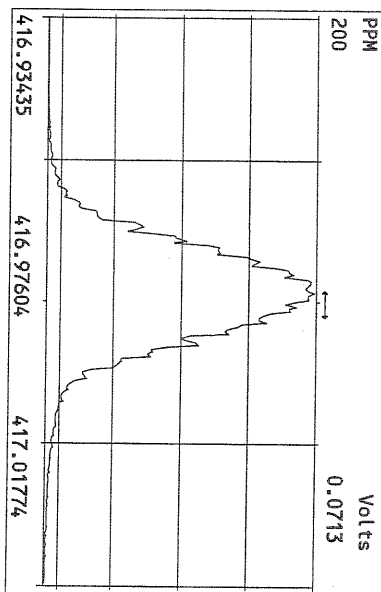
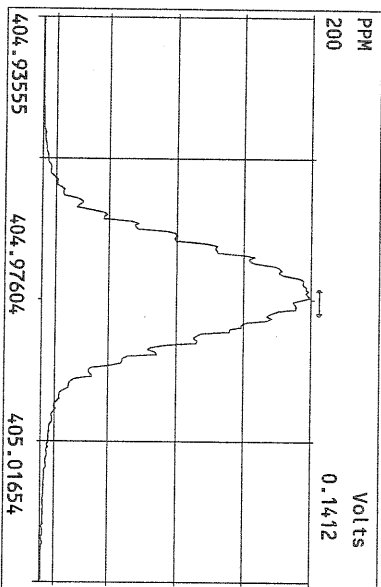
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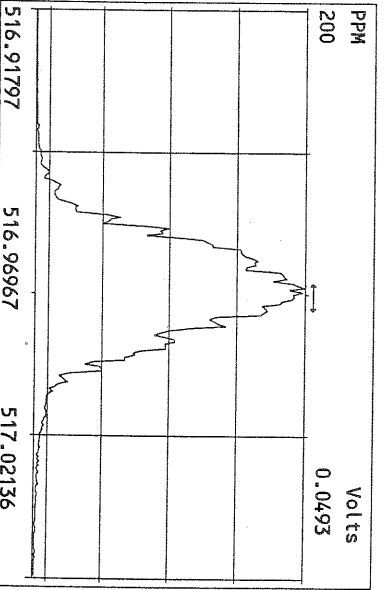
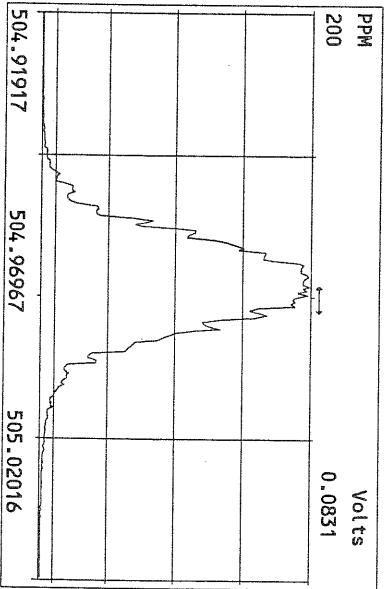
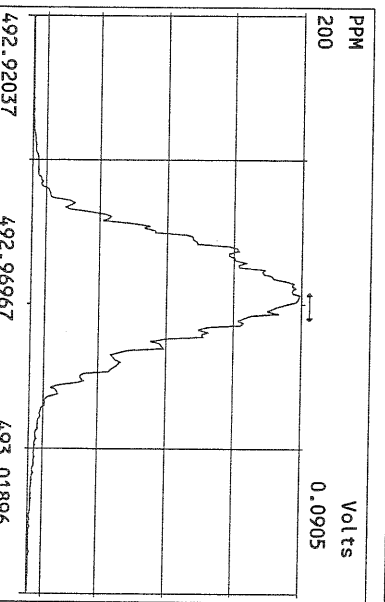
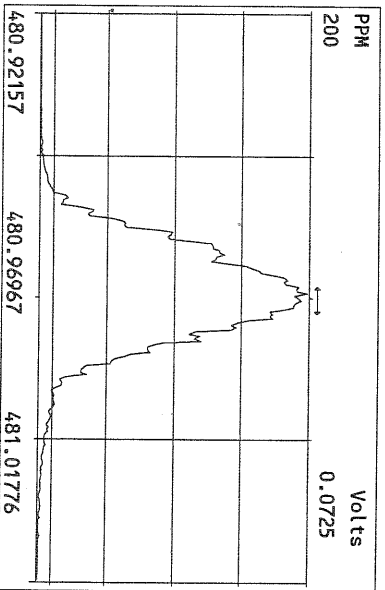
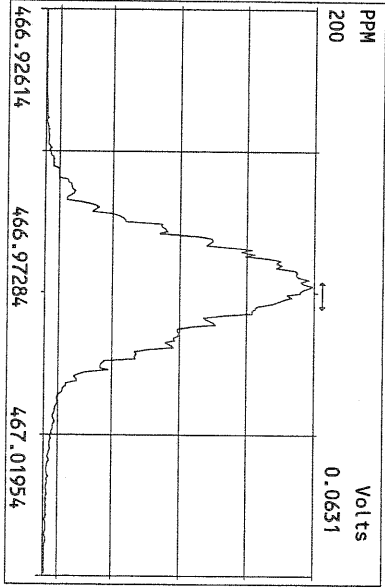
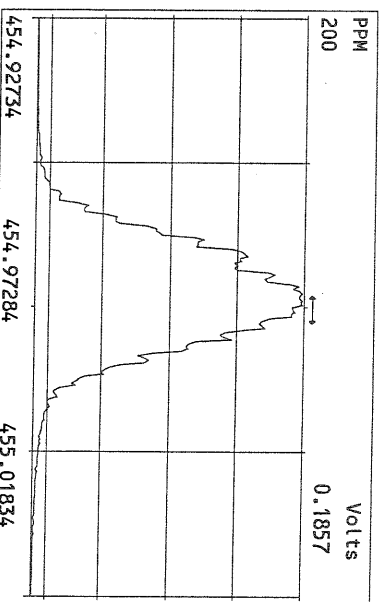
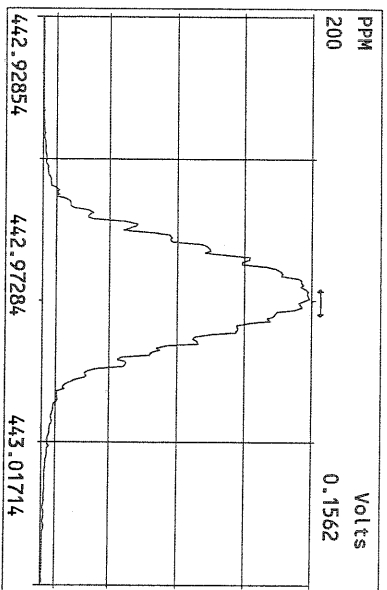
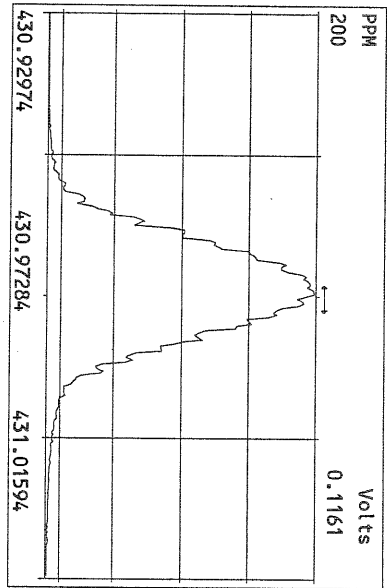
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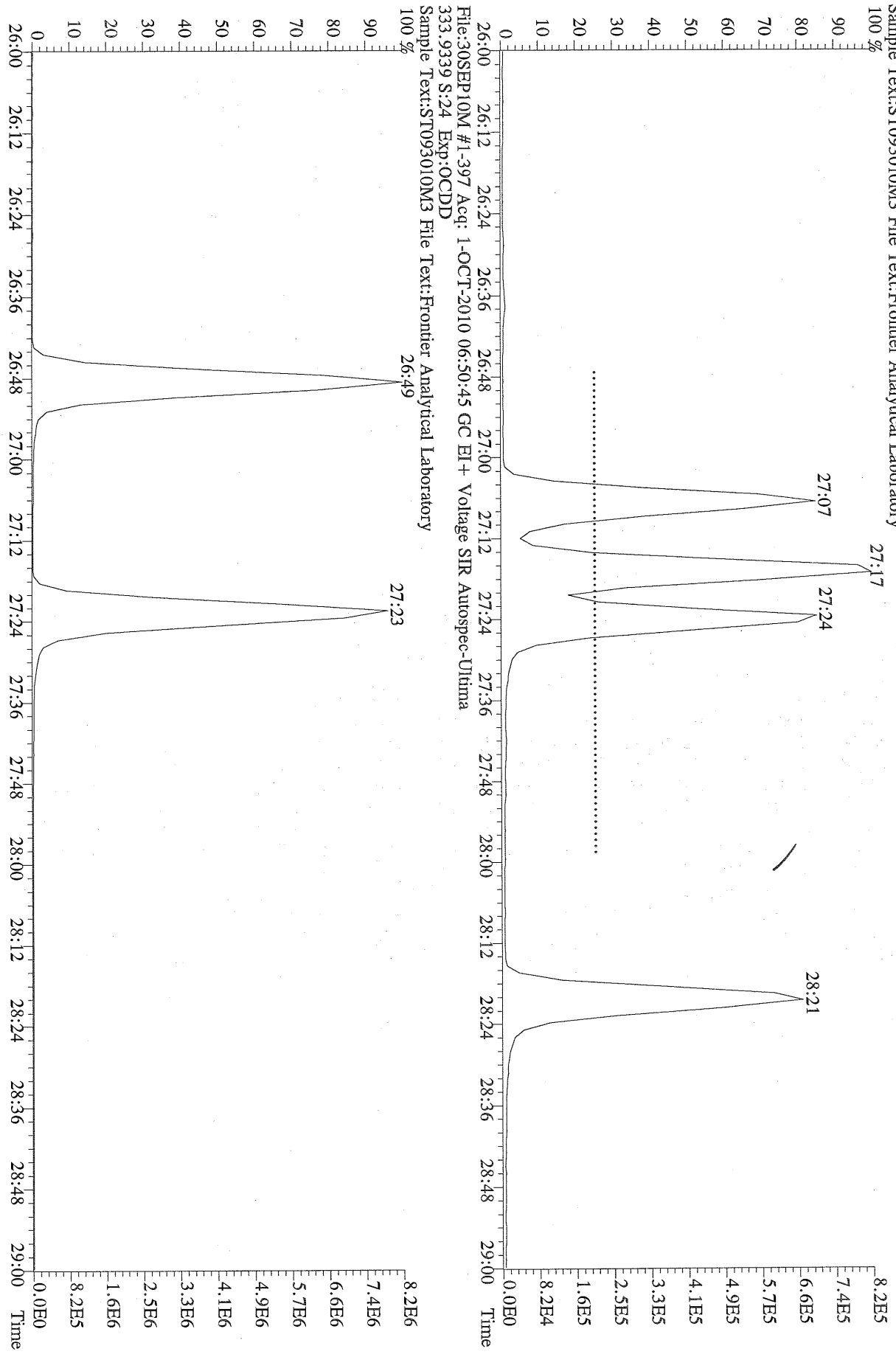






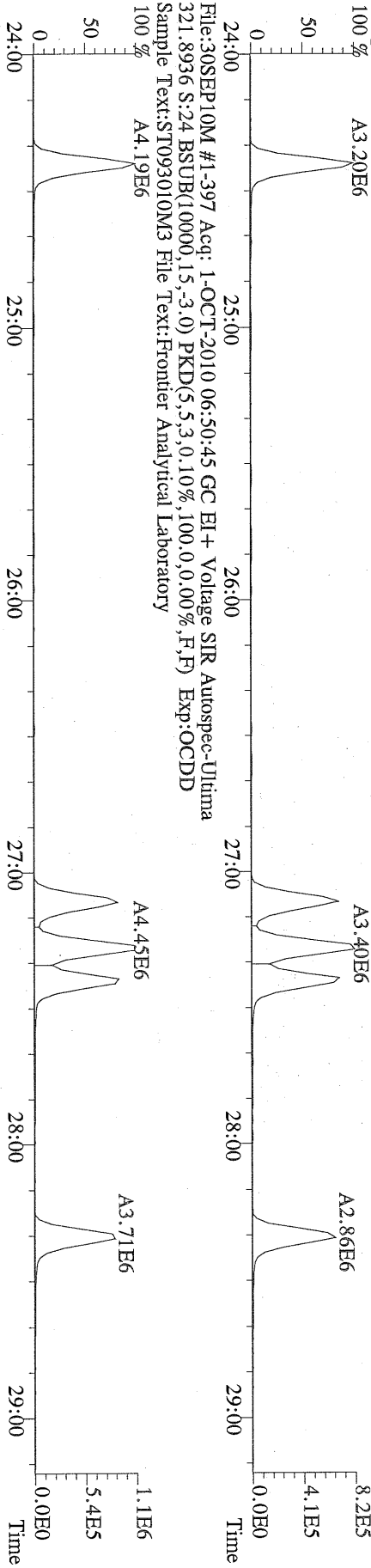


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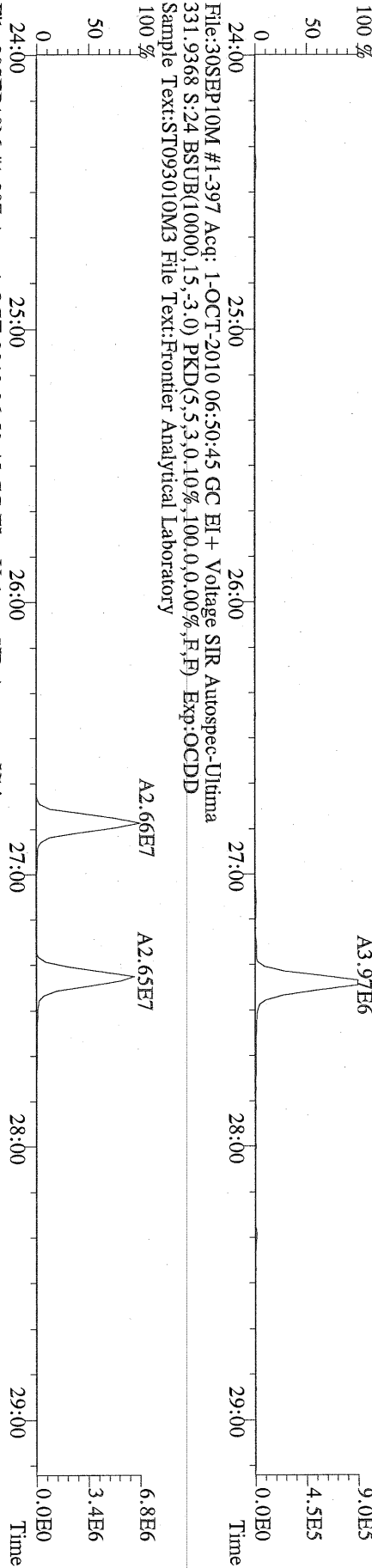


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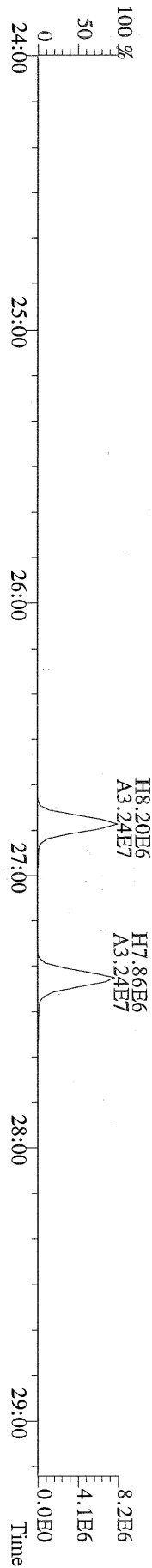
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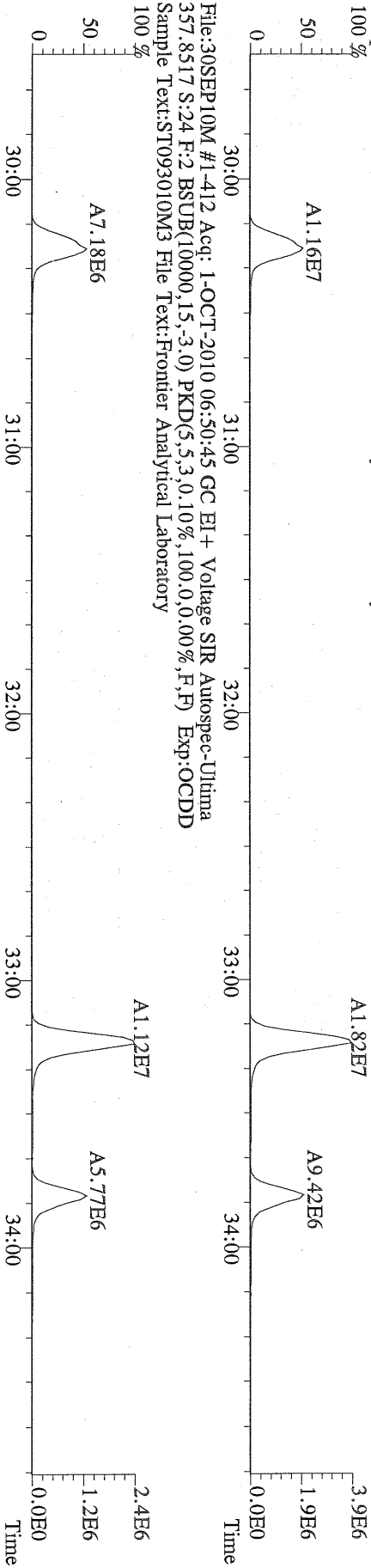
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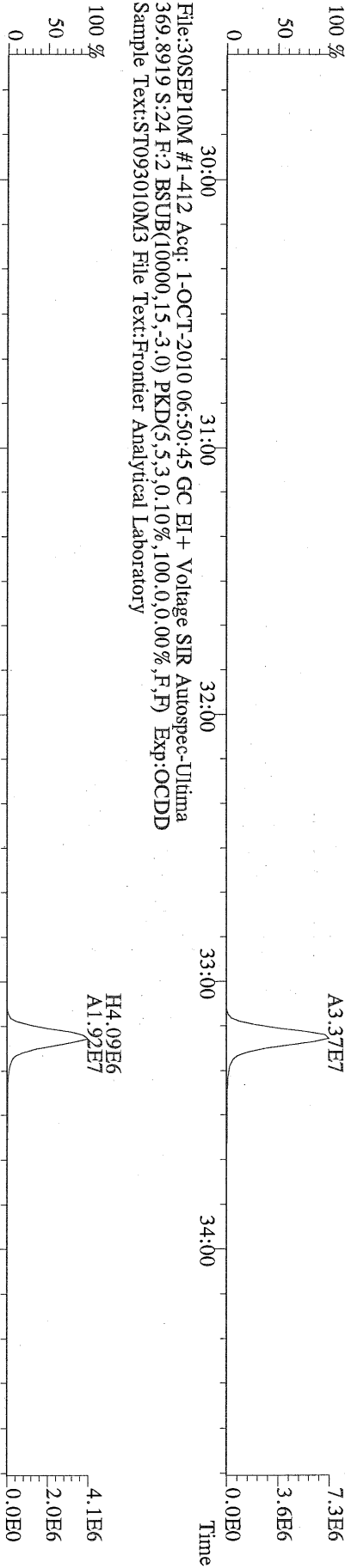
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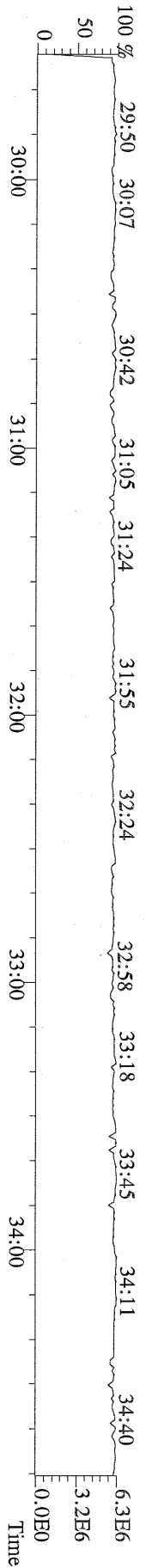
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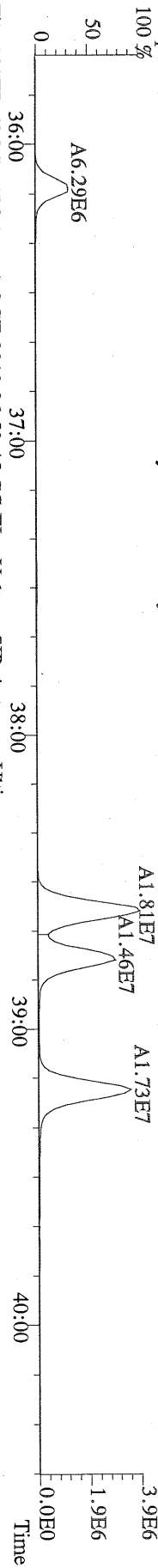
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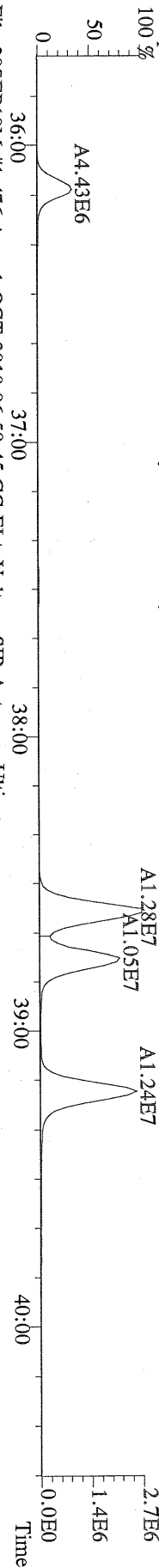
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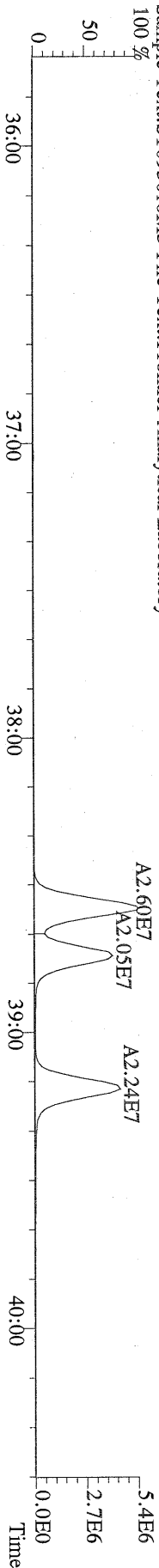
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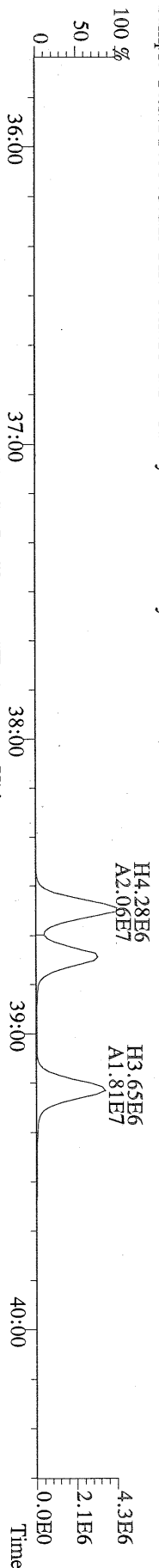
File:30SEP10M #1-476 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
 391.8127 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



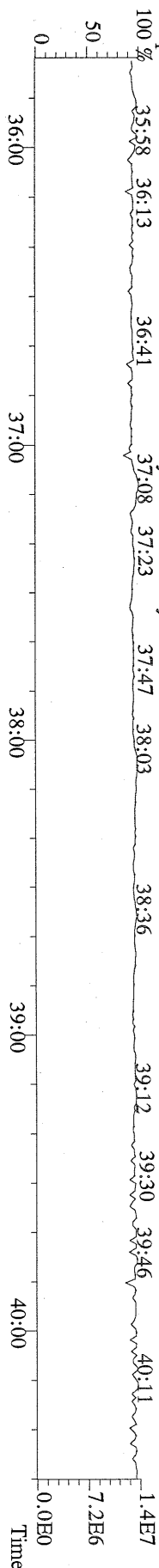
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 401.8559 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



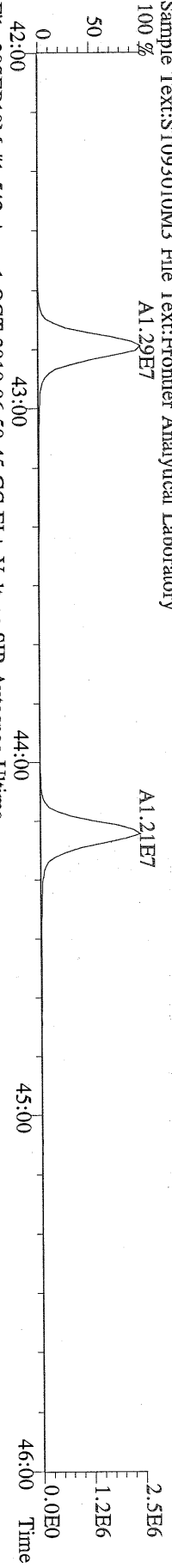
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 403.8530 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



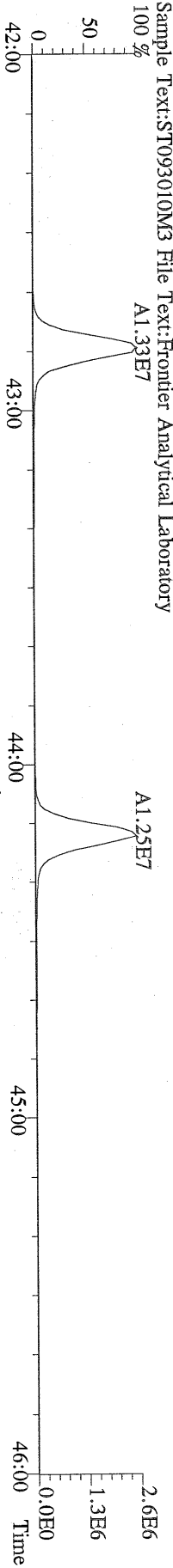
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 380.9760 S:24 F:3 Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



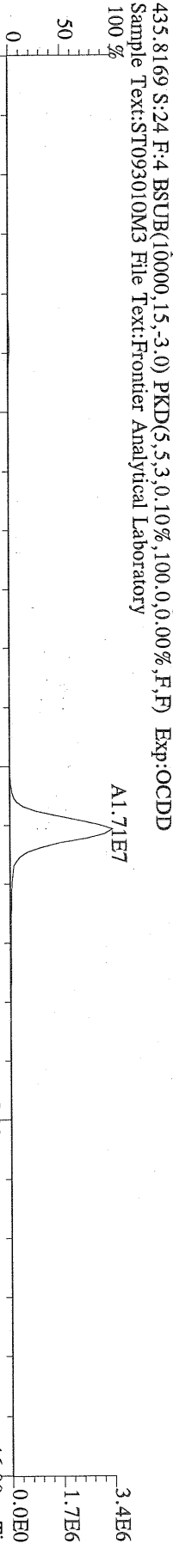
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423.7767 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



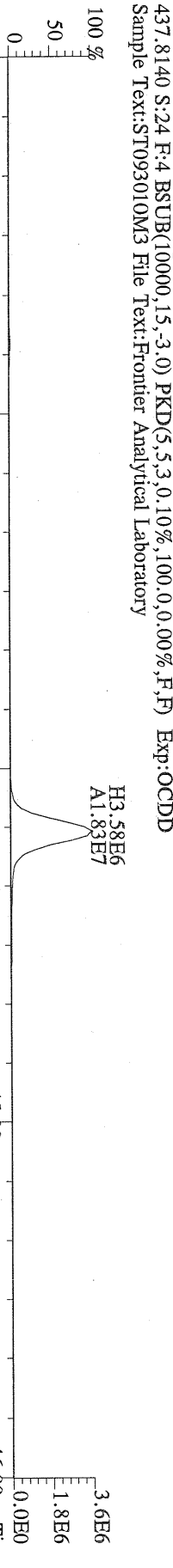
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425.7737 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



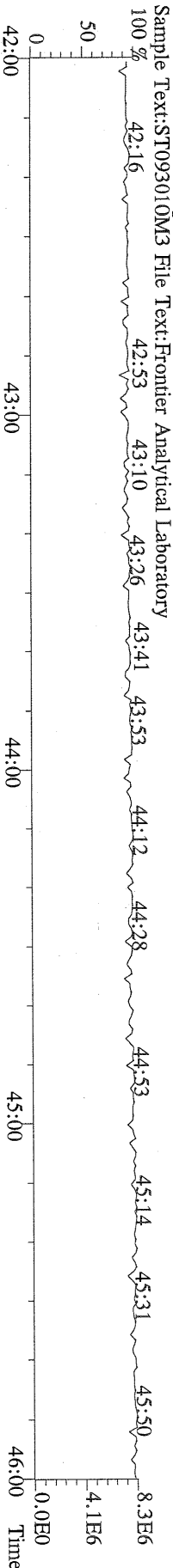
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435.8169 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



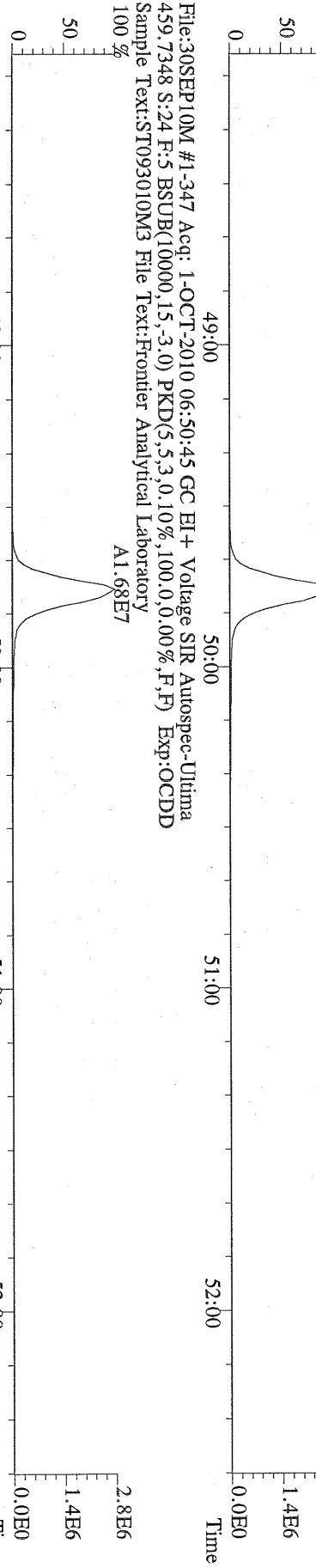
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437.8140 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



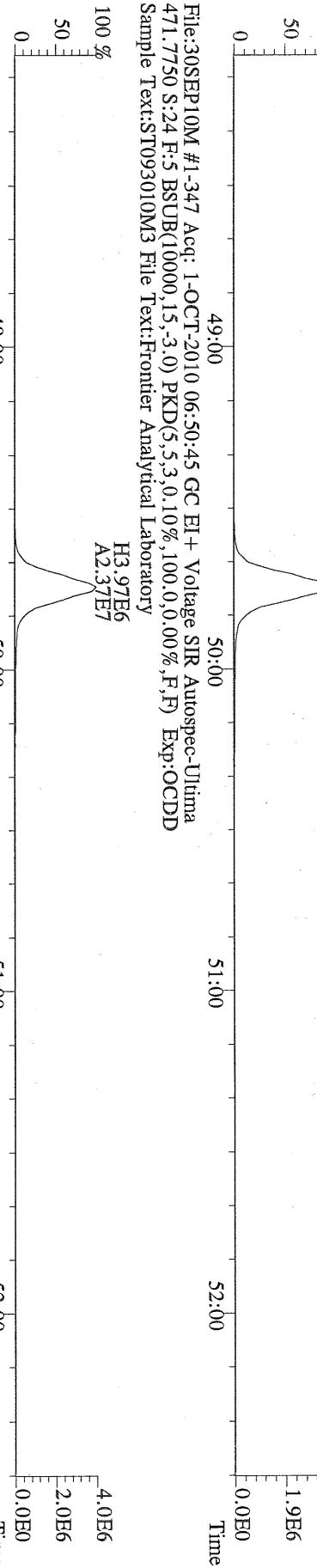
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430.9728 S:24 F:4 Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



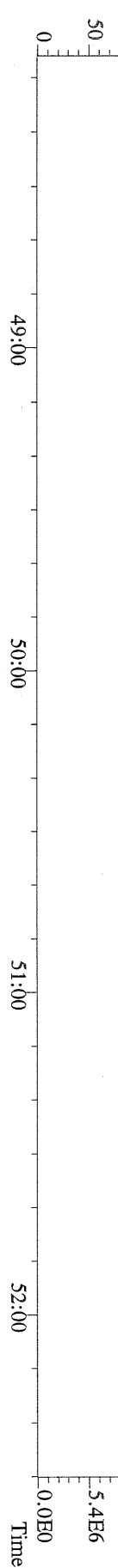
File:30SEP10M #1-347 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



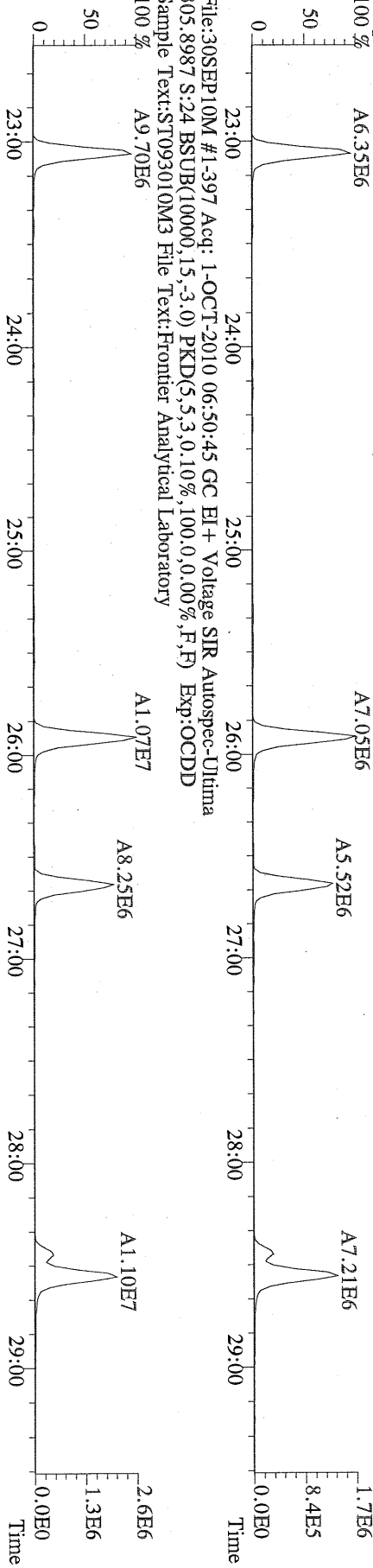
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469.7780 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



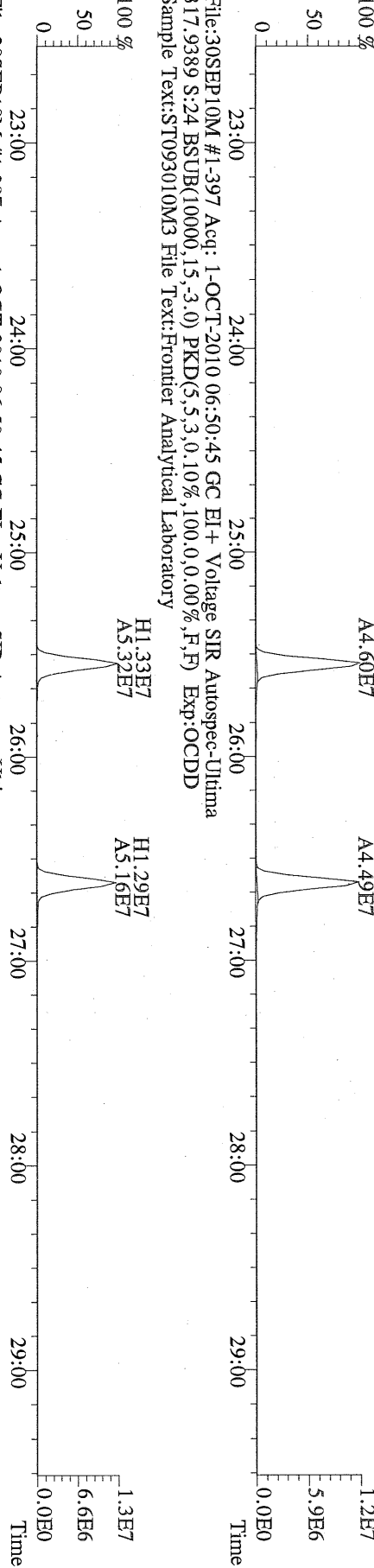
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471.7750 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



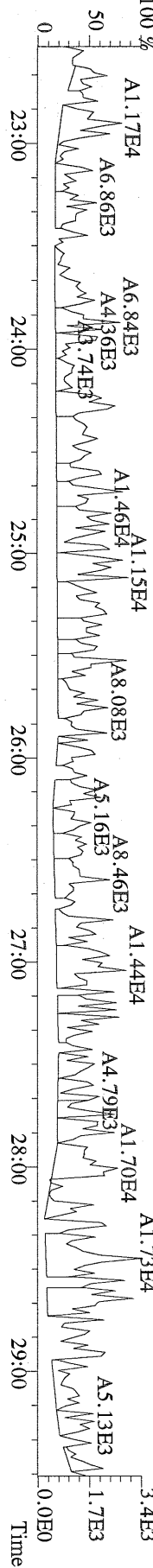
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI + Voltage SIR Autospec-Ultima
303.9016 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



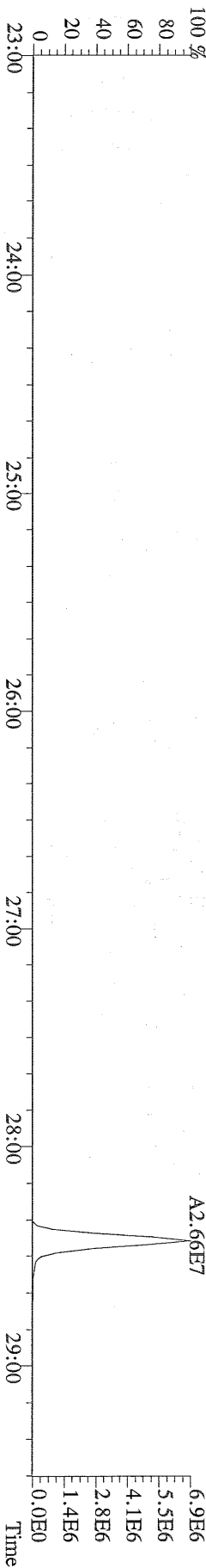
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI + Voltage SIR Autospec-Ultima
315.9419 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



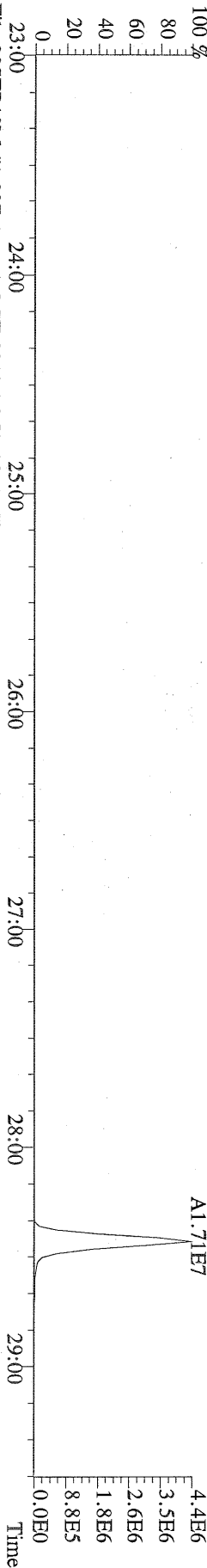
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI + Voltage SIR Autospec-Ultima
375.8364 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



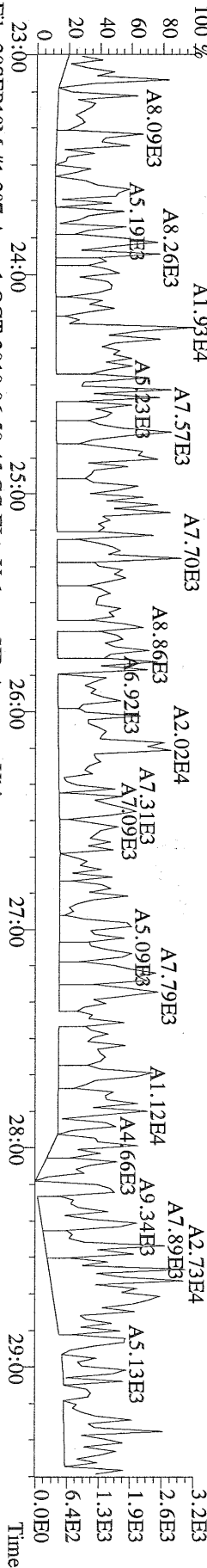
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Utima
 339.8597 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



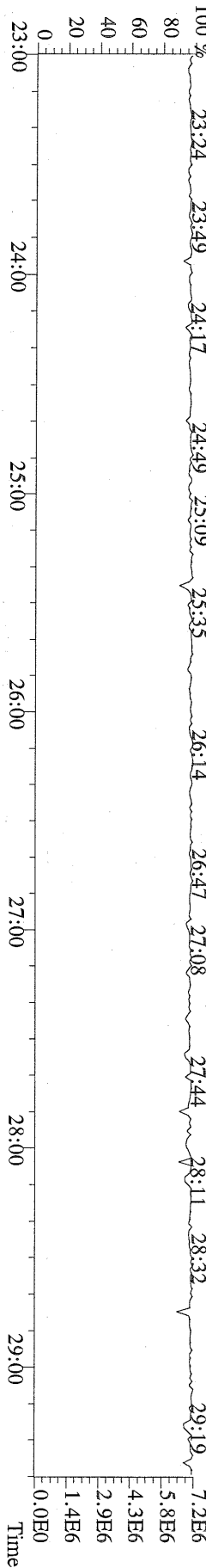
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Utima
 341.8568 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



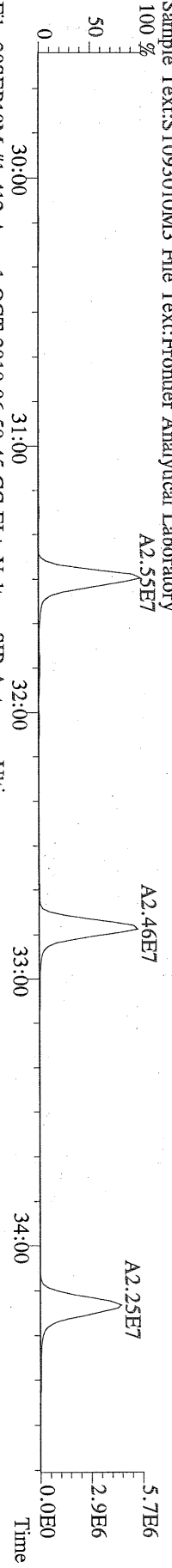
File:30SEP10M #1-397 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Utima
 409.7974 S:24 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



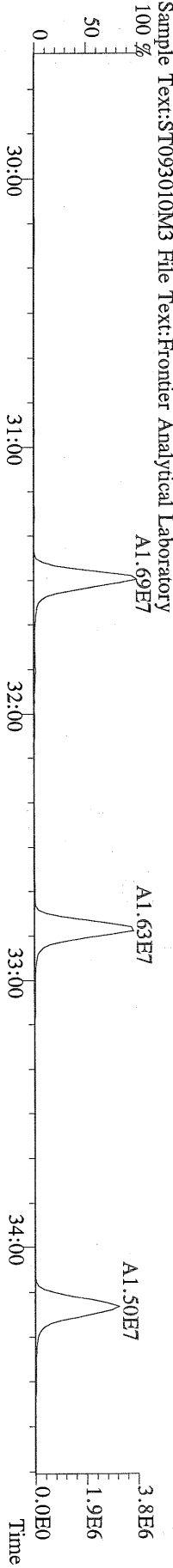
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 316.9824 S:24 Exp:OCDD
 Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



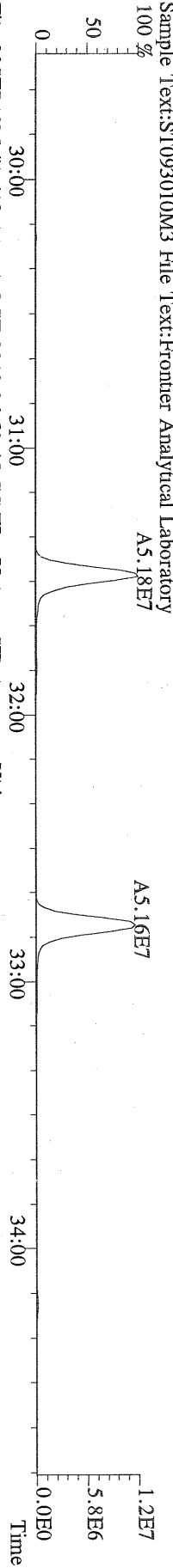
File:30SEP10M #1-412 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
339.8597 S:24 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



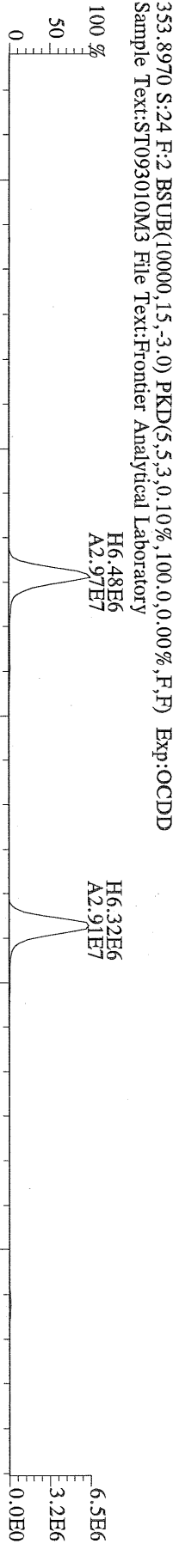
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341.8568 S:24 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



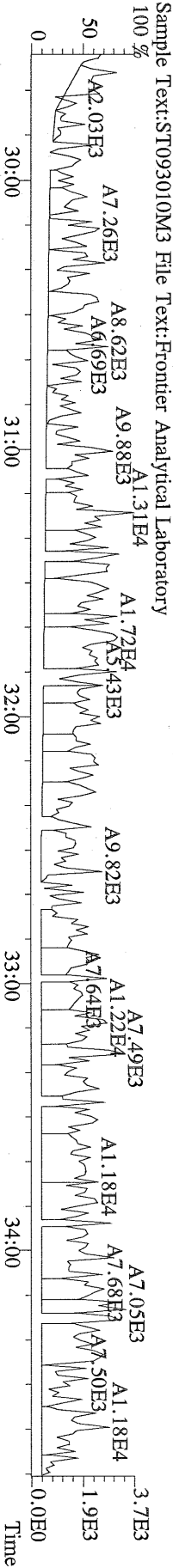
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351.9000 S:24 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



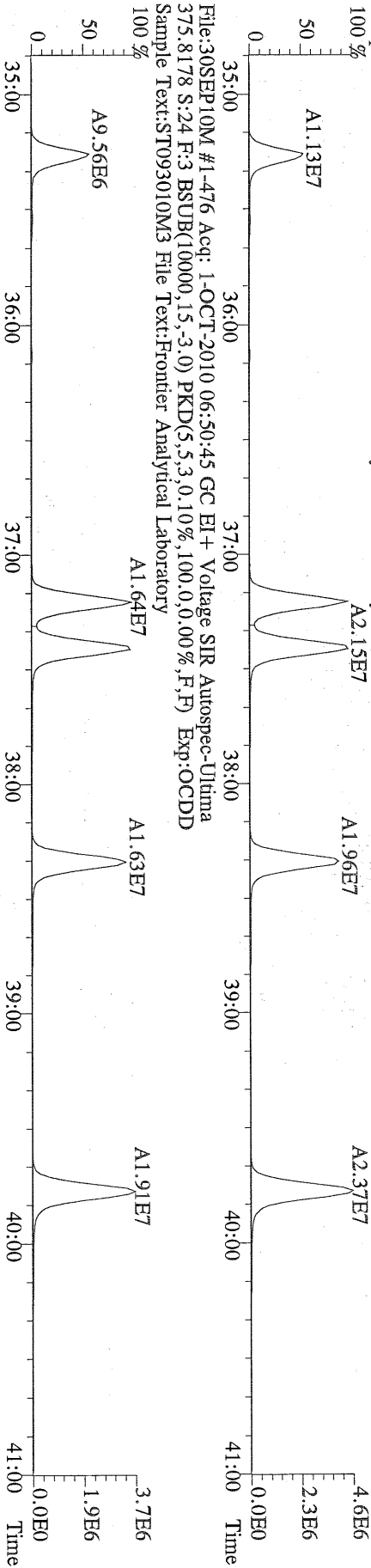
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353.8970 S:24 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



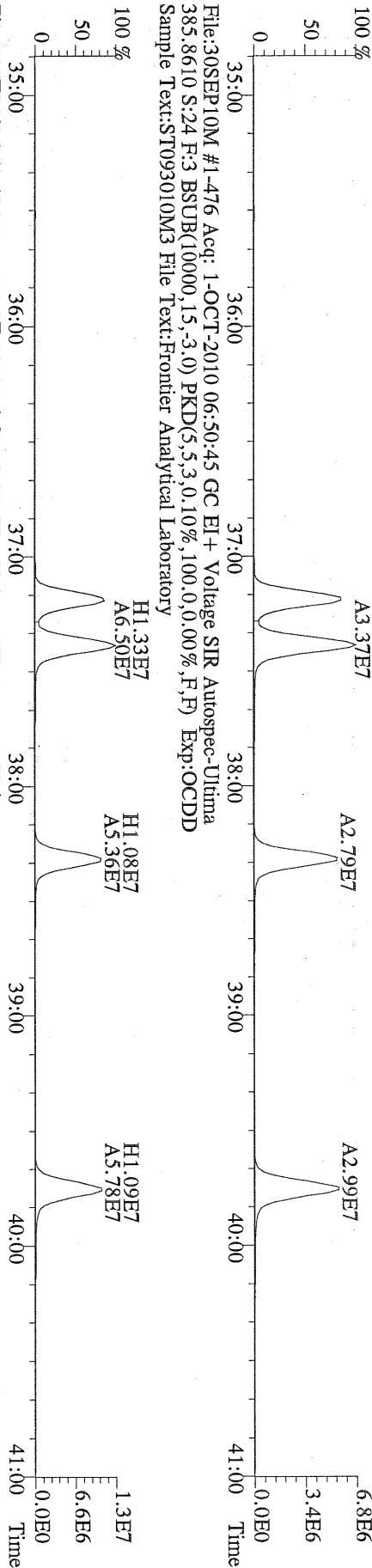
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409.7974 S:24 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



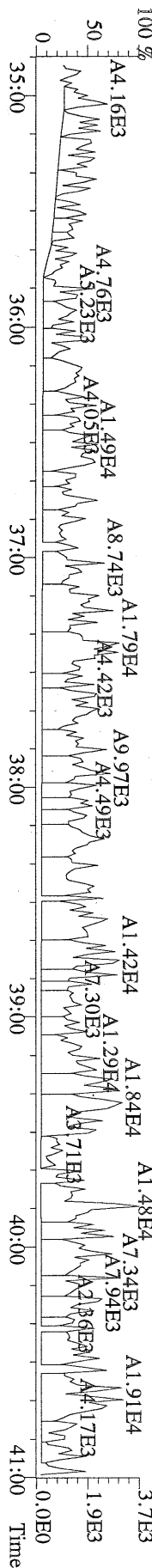
File:30SEP10M #1-476 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



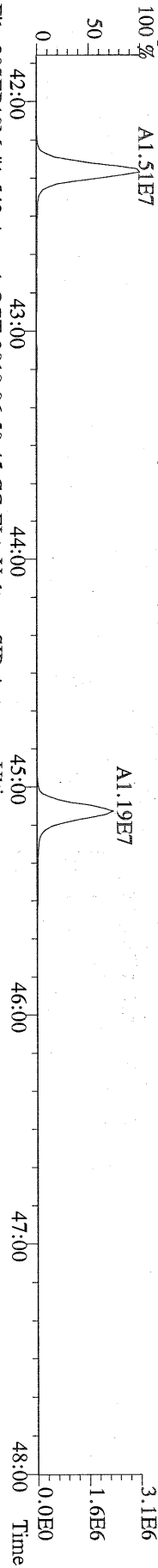
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383.8639 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



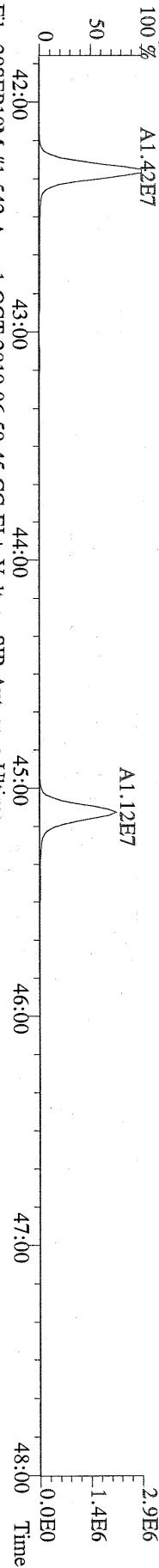
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445.7555 S:24 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



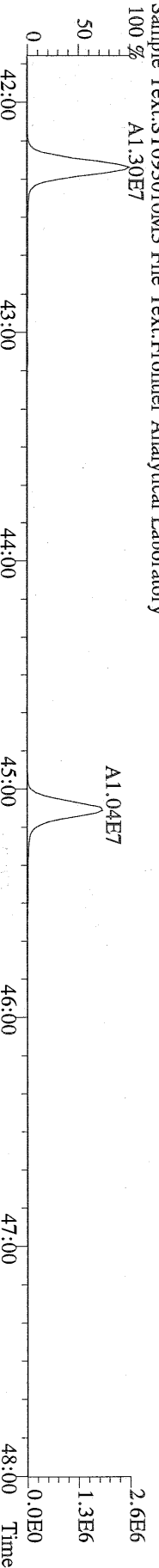
File:30SEP10M #1-542 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



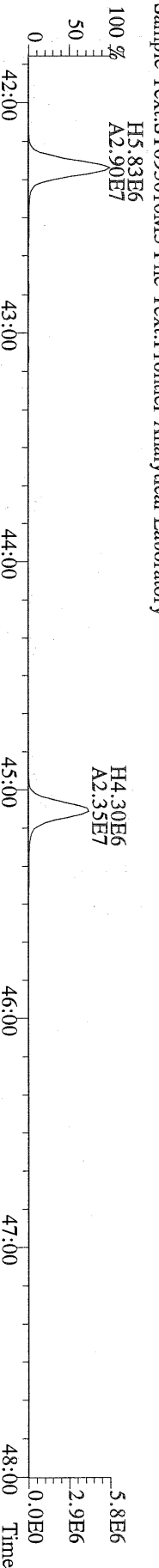
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409.7788 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



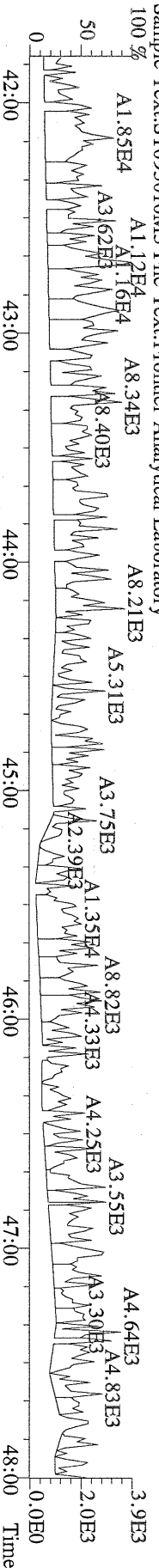
File:30SEP10M #1-542 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
417.8253 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



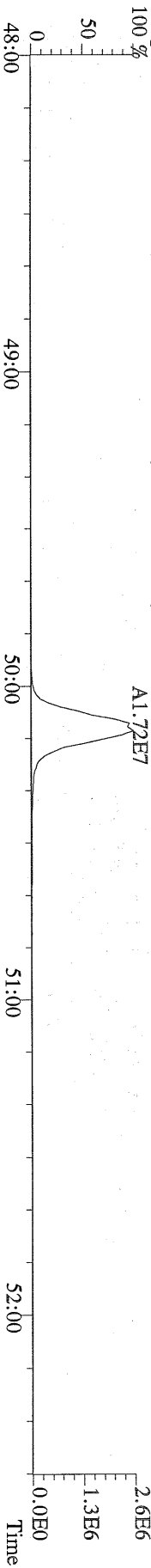
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419.8220 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



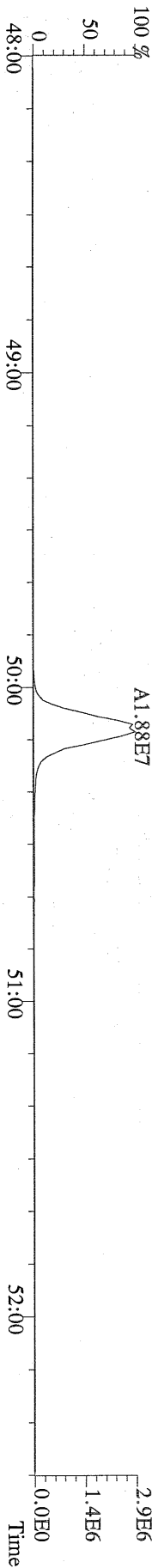
File:30SEP10M #1-542 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
479.7165 S:24 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



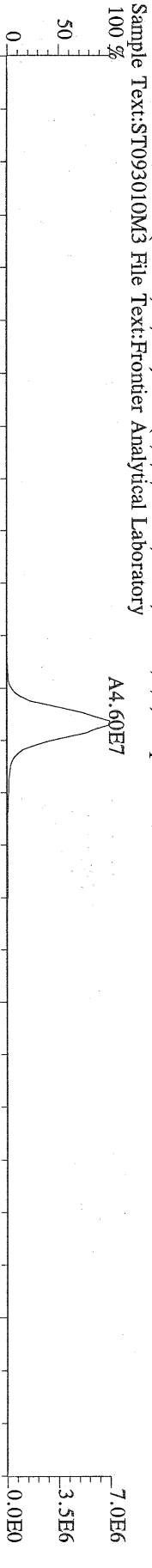
File:30SEP10M #1-347 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
441.7428 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



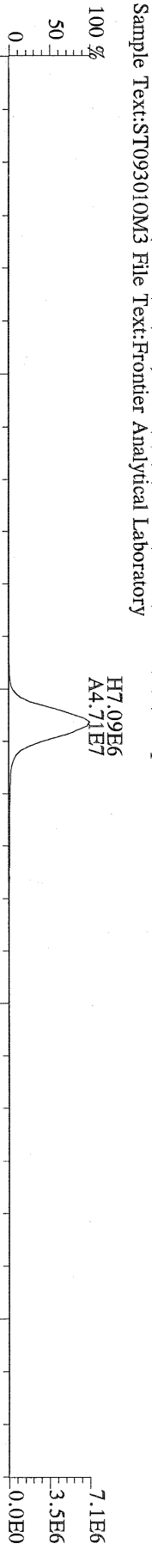
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443.7398 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



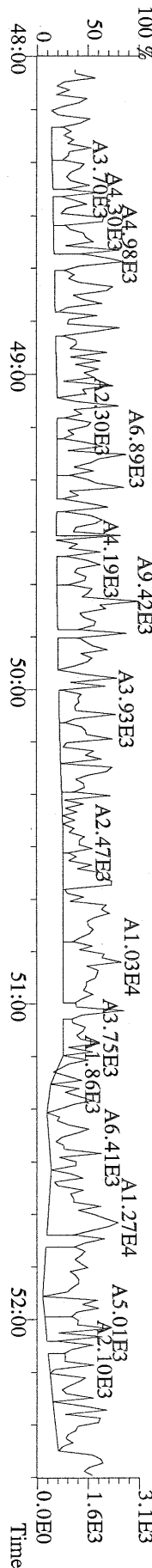
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453.7831 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



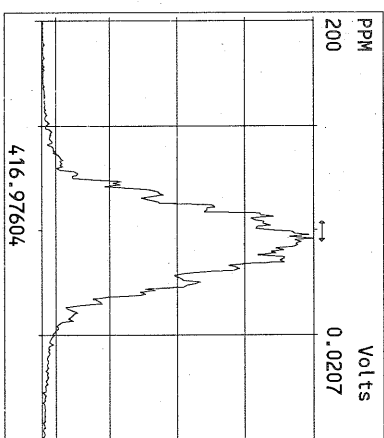
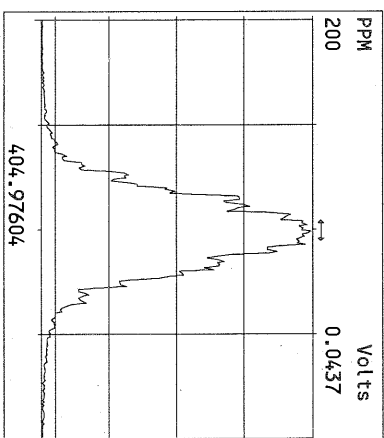
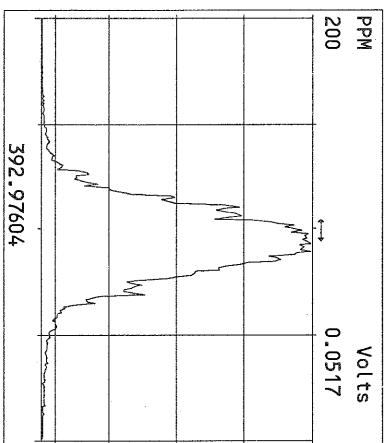
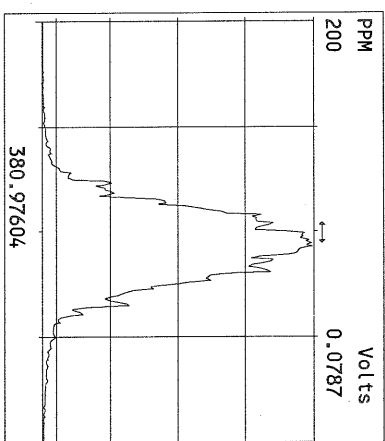
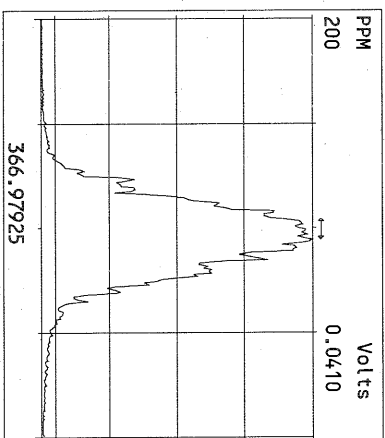
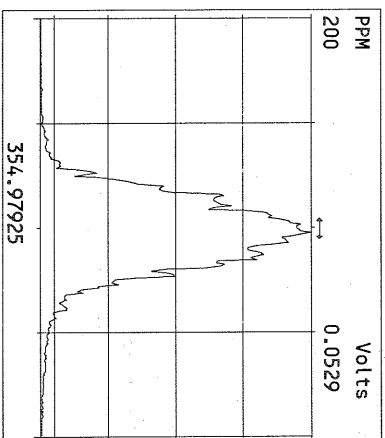
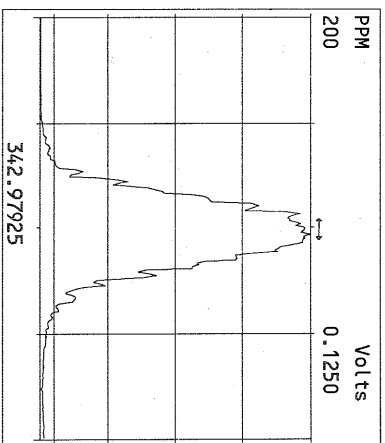
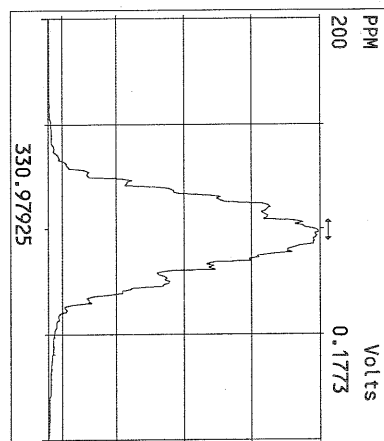
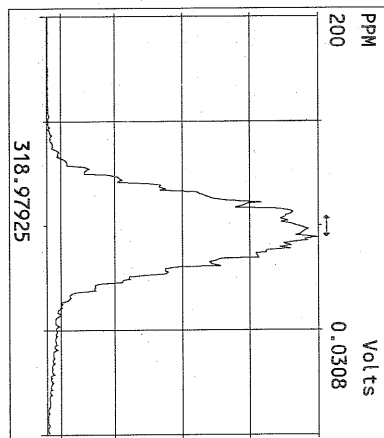
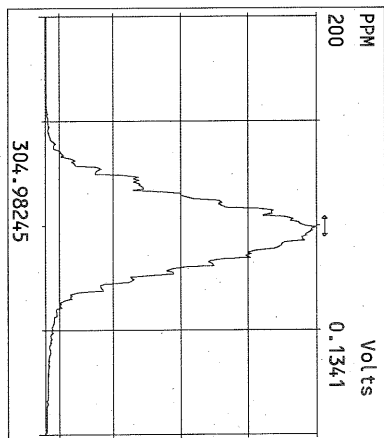
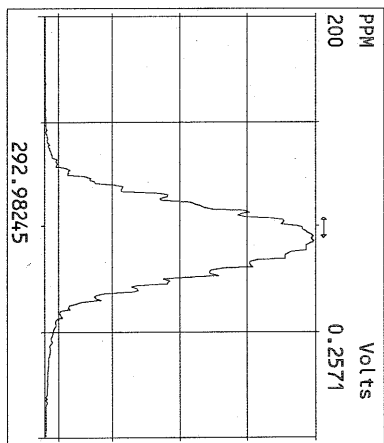
File:30SEP10M #1-347 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
455.7801 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory

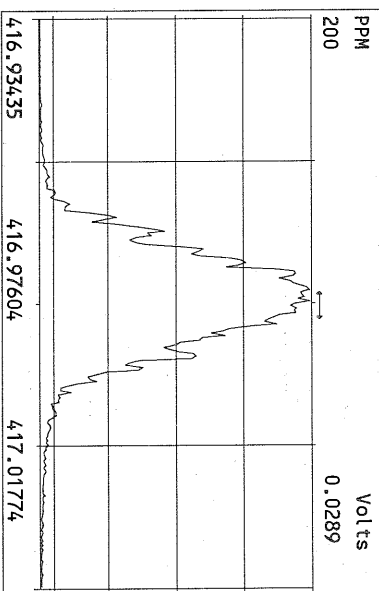
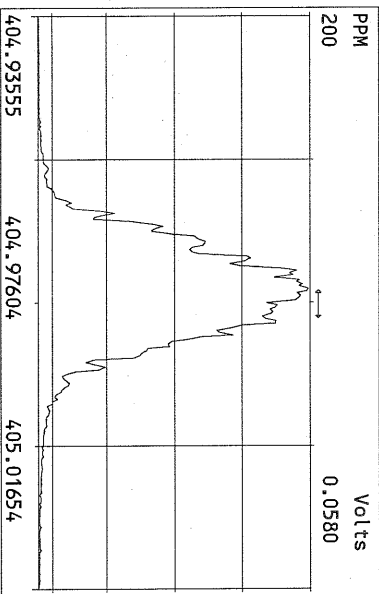
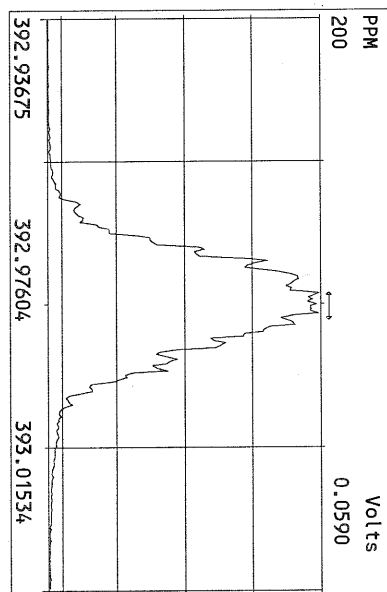
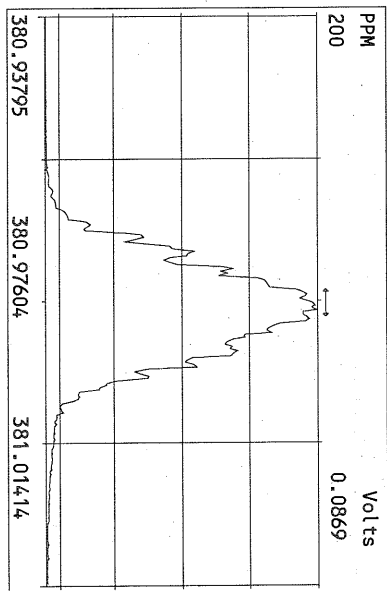
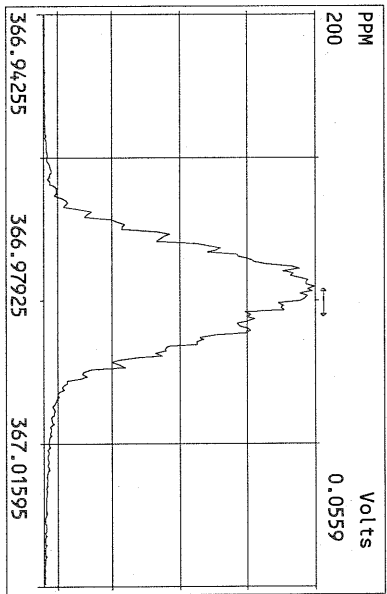
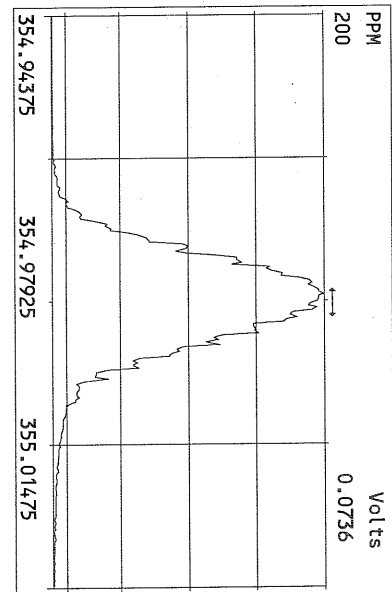
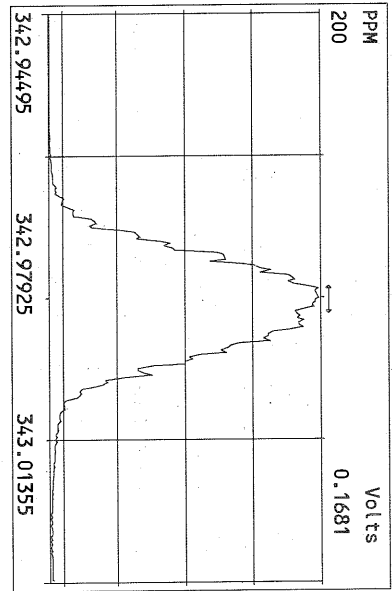
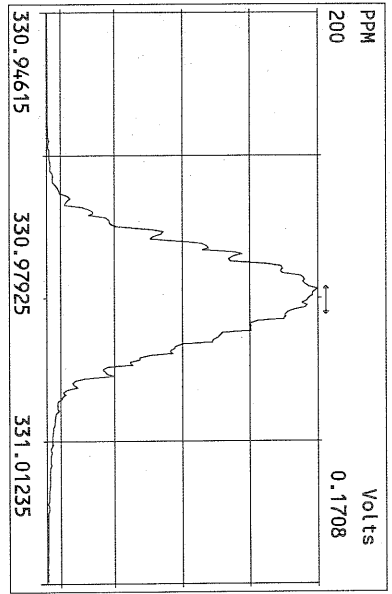


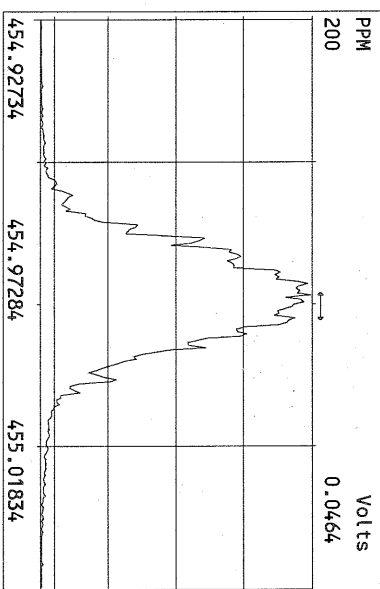
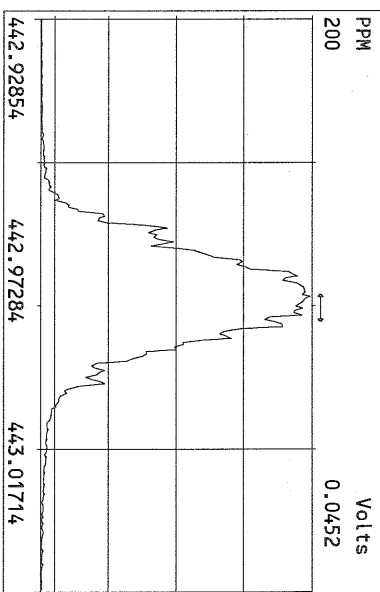
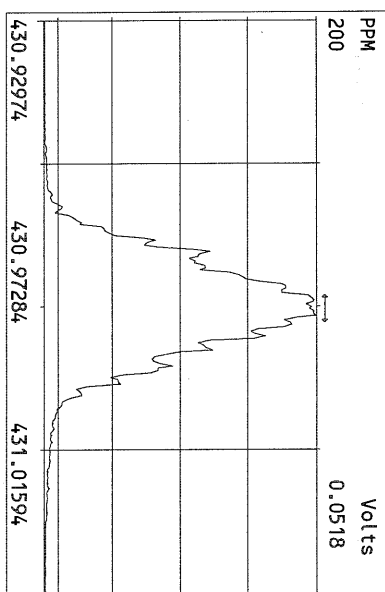
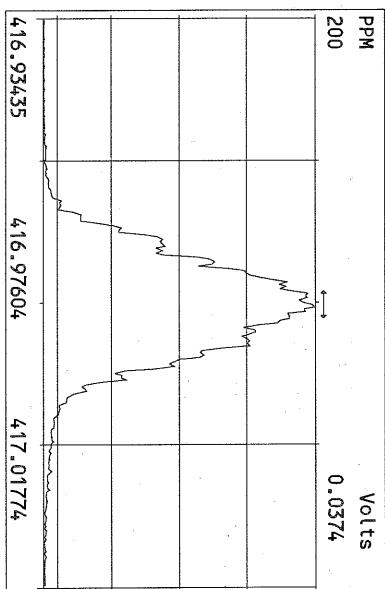
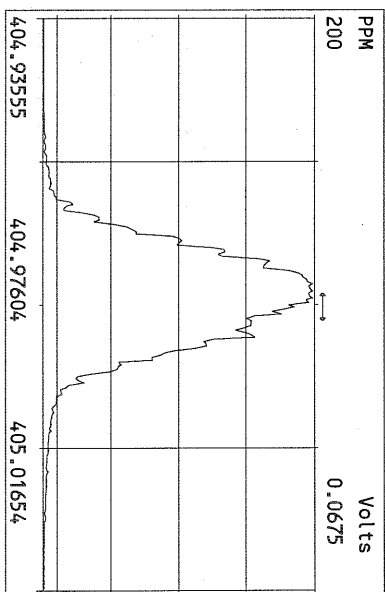
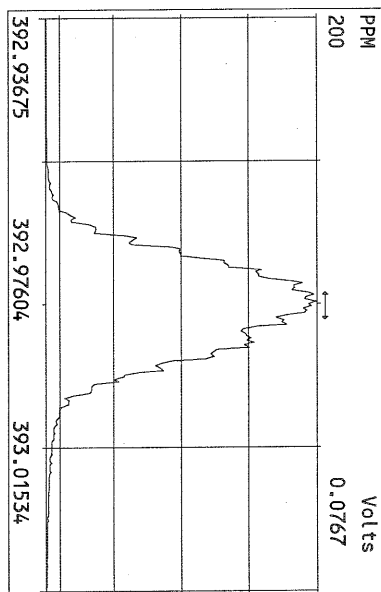
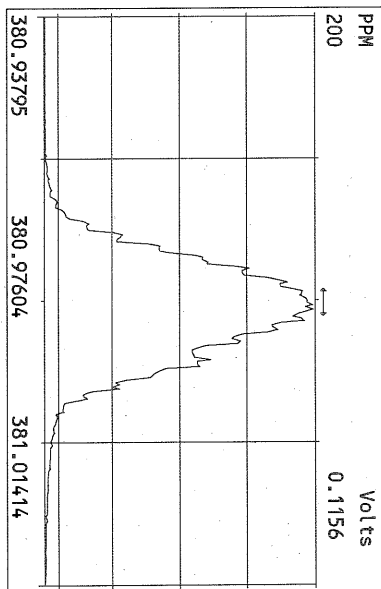
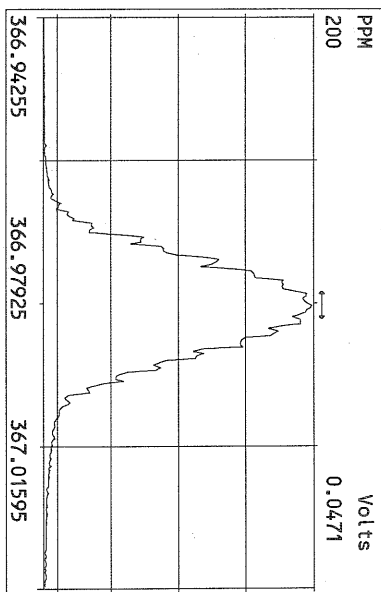
File:30SEP10M #1-347 Acq: 1-OCT-2010 06:50:45 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:24 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST093010M3 File Text:Frontier Analytical Laboratory



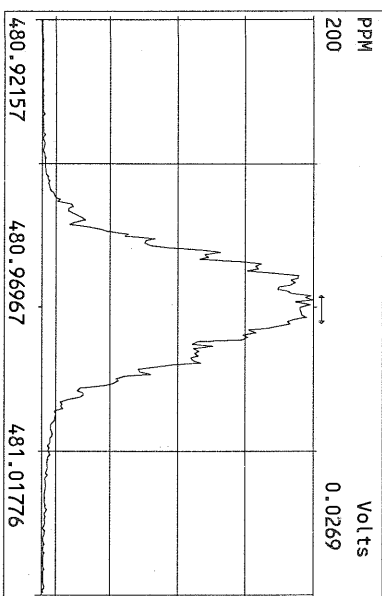
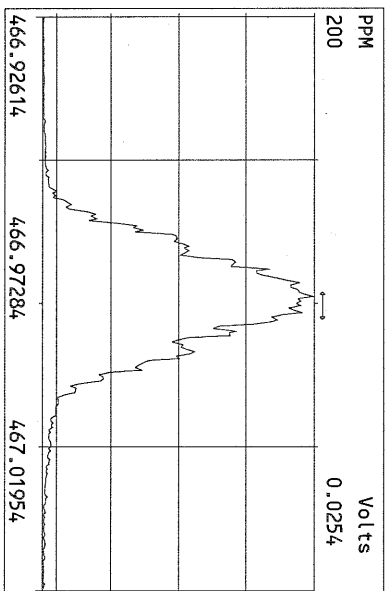
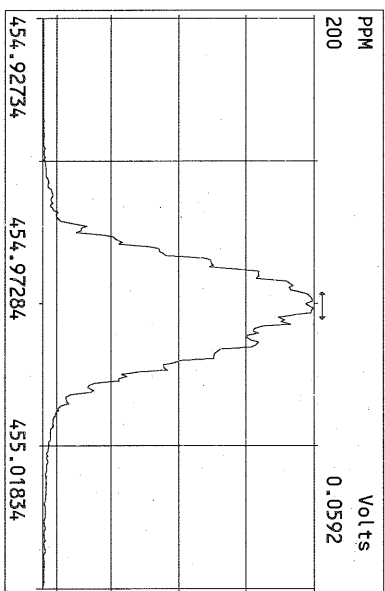
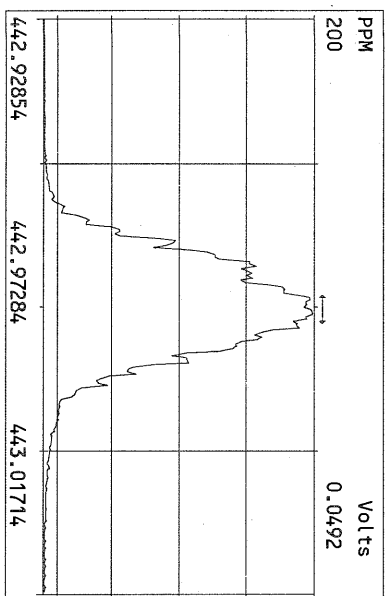
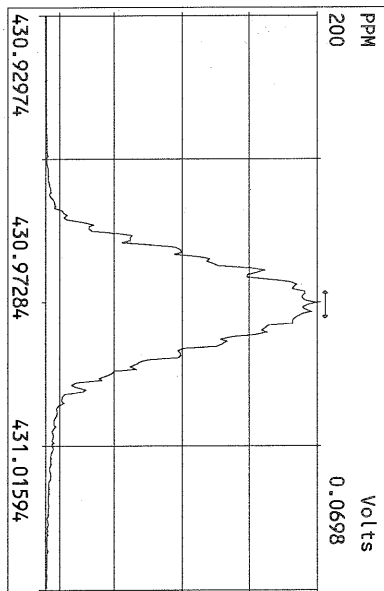
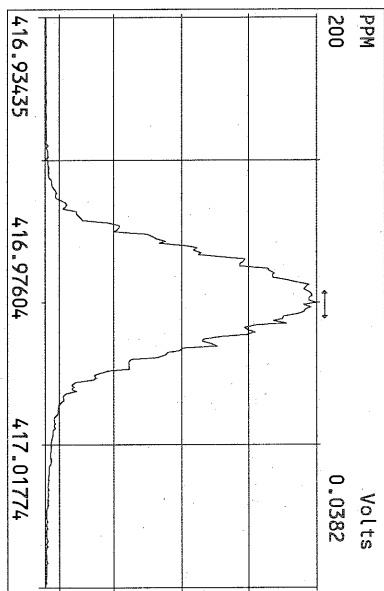
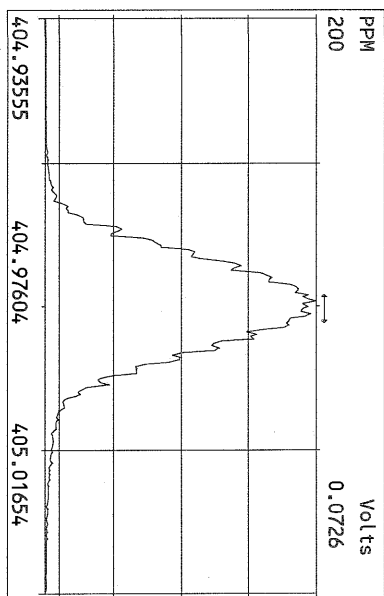
Peak Locate Examination: 1-OCT-2010:07:48 File:30SEP10M_RES_CHECK
Experiment:OCDD Function:1 Reference:PFK



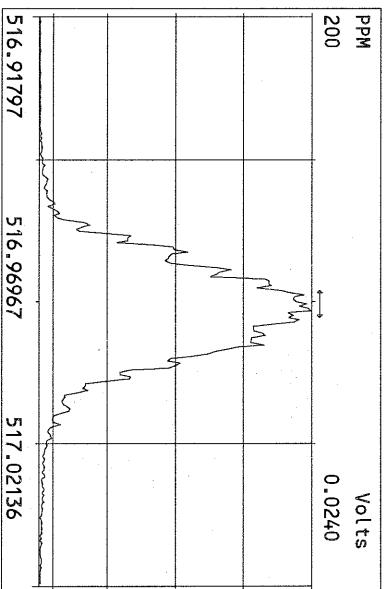
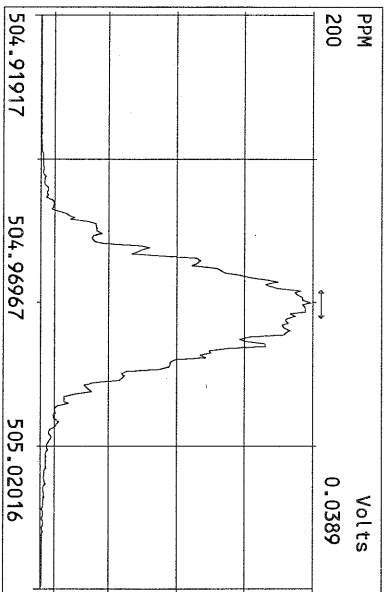
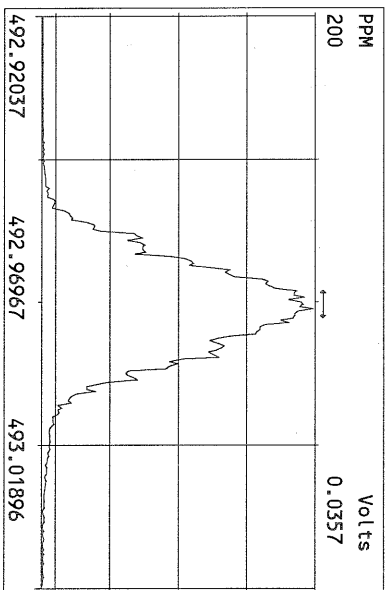
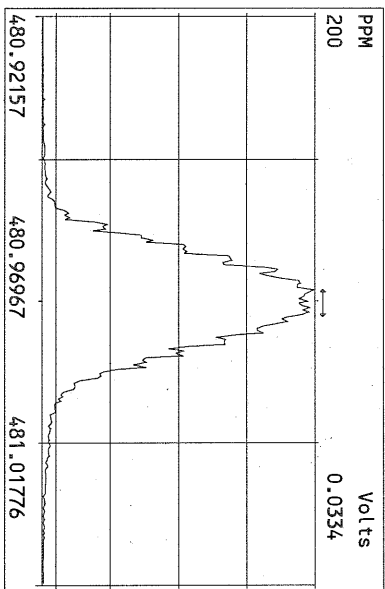
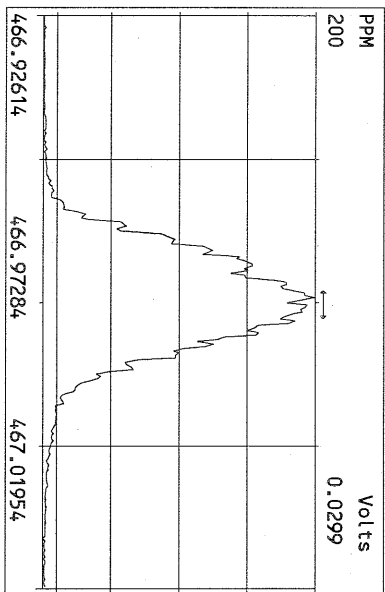
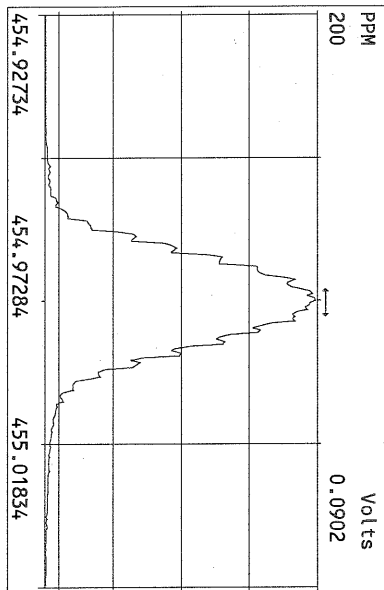
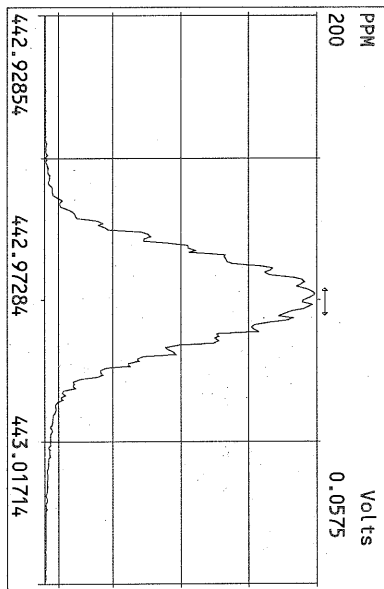
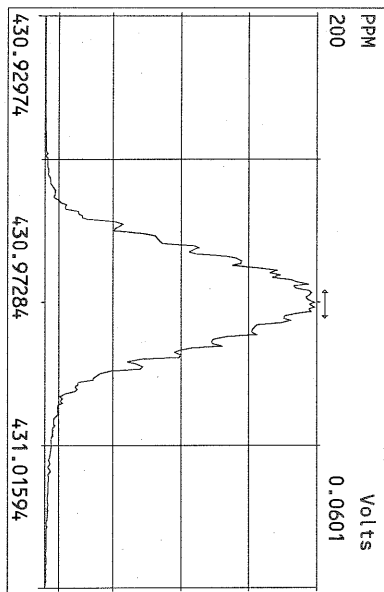




Peak Locate Examination: 1-OCT-2010:07:54 File:30SEP10M_RES_CHECK
Experiment:OCDD Function:4 Reference:PFK



Peak Locate Examination: 1-OCT-2010:07:56 File:30SEP10M_RES_CHECK
Experiment:OCDP Function:5 Reference:PFK



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 02OCT10M Sam:1


Analysis Date: 2-OCT-10 08:49:58

| NATIVE ANALYTES | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| 2,3,7,8-TCDD | M/M+2 | 0.76 | 0.65-0.89 | y | 9.62 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.60 | 1.32-1.78 | y | 51.5 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.42 | 1.05-1.43 | y | 49.0 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.42 | 1.05-1.43 | y | 48.2 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.41 | 1.05-1.43 | y | 50.9 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.99 | 0.88-1.20 | y | 47.0 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.98 | 0.76-1.02 | y | 102 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.68 | 0.65-0.89 | y | 9.16 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.50 | 1.32-1.78 | y | 53.2 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.51 | 1.32-1.78 | y | 52.6 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 46.4 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.25 | 1.05-1.43 | y | 47.1 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 47.6 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.26 | 1.05-1.43 | y | 47.9 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.03 | 0.88-1.20 | y | 47.3 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.02 | 0.88-1.20 | y | 47.0 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.90 | 0.76-1.02 | y | 99.5 | 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: 10/4/10

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 02OCT10M Sam:1

Analysis Date: 2-OCT-10 08:49:58

| 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 | 0.84 | 0.65-0.89 | y | 98.7 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.75 | 1.32-1.78 | y | 96.3 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 111 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.26 | 1.05-1.43 | y | 96.4 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.97 | 0.88-1.20 | y | 88.4 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.96 | 0.76-1.02 | y | 143 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.86 | 0.65-0.89 | y | 96.2 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.74 | 1.32-1.78 | y | 89.7 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.73 | 1.32-1.78 | y | 88.6 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 128 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 108 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 109 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 108 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.42 | 0.37-0.51 | y | 90.7 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.42 | 0.37-0.51 | y | 87.0 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.96 | 0.76-1.02 | y | 134 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 9.27 | 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: 10/4/10

USEPA - ITD

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 2-OCT-10 08:49:58

CS3 or VER Data Filename: 02OCT10M

Sam:1

| NATIVE ANALYTES | RETENTION TIME | | RRT | RRT |
|---------------------|---------------------|--|-------|---------------|
| | REFERENCE | | | QC LIMITS (1) |
| 2,3,7,8-TCDD | 13C-2,3,7,8-TCDD | | 1.001 | 0.999-1.002 ✓ |
| 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 | | | 1.021 | 0.976-1.043 ✓ |
| 13C-2,3,7,8-TCDF | | | 0.993 | 0.923-1.103 ✓ |
| 13C-1,2,3,7,8-PeCDD | | | 1.238 | 1.000-1.567 ✓ |
| 13C-1,2,3,7,8-PeCDF | | | 1.174 | 0.923-1.203 ✓ |
| 13C-2,3,4,7,8-PeCDF | | | 1.223 | 0.923-1.303 ✓ |

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

Analyst: Date: 10/4/10

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 2-OCT-10 08:49:58

CS3 or VER Data Filename: 02OCT10M

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 | 1.000 | 0.999-1.001 ✓ |
| 1,2,3,4,7,8,9-HpCDF | 13C-1,2,3,4,7,8,9-HpCDF | 1.000 | 0.999-1.001 ✓ |
| OCDD | 13C-OCDD | 1.000 | 0.999-1.001 ✓ |
| OCDF | 13C-OCDF | 1.000 | 0.999-1.001 ✓ |
| LABELED COMPOUNDS | | | |
| 13C-1,2,3,4,7,8-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 | | 1.014 | 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: 

Date: 10/4/10

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | Rec | #Hom |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|---------|
| 2,3,7,8-TCDD | 3.32e+06 | 0.76 y | 27:23 | 1.11 | 9.62 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDD | 1.41e+07 | 1.60 y | 33:14 | 1.10 | 51.5 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDD | 1.18e+07 | 1.42 y | 38:35 | 1.37 | 49.0 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDD | 9.54e+06 | 1.42 y | 38:45 | 1.37 | 48.2 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDD | 1.11e+07 | 1.41 y | 39:12 | 1.36 | 50.9 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDD | 7.62e+06 | 0.99 y | 44:11 | 1.45 | 47.0 | | 2.50 | - | - | * | |
| OCDD | 8.39e+06 | 0.98 y | 49:45 | 1.43 | 102 | | 2.50 | - | - | * | |
| 2,3,7,8-TCDF | 6.77e+06 | 0.68 y | 26:38 | 1.50 | 9.16 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDF | 1.94e+07 | 1.50 y | 31:30 | 0.94 | 53.2 | | 2.50 | - | - | * | |
| 2,3,4,7,8-PeCDF | 1.82e+07 | 1.51 y | 32:48 | 0.94 | 52.6 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDF | 1.51e+07 | 1.24 y | 37:12 | 0.93 | 46.4 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDF | 1.56e+07 | 1.25 y | 37:24 | 0.82 | 47.1 | | 2.50 | - | - | * | |
| 2,3,4,6,7,8-HxCDF | 1.41e+07 | 1.24 y | 38:20 | 0.92 | 47.6 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDF | 1.55e+07 | 1.26 y | 39:46 | 1.00 | 47.9 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDF | 9.77e+06 | 1.03 y | 42:17 | 1.39 | 47.3 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8,9-HpCDF | 6.58e+06 | 1.02 y | 45:06 | 1.36 | 47.0 | | 2.50 | - | - | * | |
| OCDF | 8.35e+06 | 0.90 y | 50:07 | 0.79 | 99.5 | | 2.50 | - | - | * | |
| 13C-2,3,7,8-TCDD | 3.10e+07 | 0.84 y | 27:22 | 1.02 | 98.7 | | | | | 98.7 | |
| 13C-1,2,3,7,8-PeCDD | 2.49e+07 | 1.75 y | 33:12 | 0.84 | 96.3 | | | | | 96.3 | |
| 13C-1,2,3,4,7,8-HxCDD | 1.76e+07 | 1.25 y | 38:34 | 1.07 | 111 | | | | | 111 | |
| 13C-1,2,3,6,7,8-HxCDD | 1.44e+07 | 1.26 y | 38:44 | 1.01 | 96.4 | | | | | 96.4 | |
| 13C-1,2,3,4,6,7,8-HpCDD | 1.12e+07 | 0.97 y | 44:10 | 0.86 | 88.4 | | | | | 88.4 | |
| 13C-OCDD | 1.15e+07 | 0.96 y | 49:44 | 0.55 | 143 | | | | | 71.5 | |
| 13C-2,3,7,8-TCDF | 4.92e+07 | 0.86 y | 26:37 | 0.99 | 96.2 | | | | | 96.2 | |
| 13C-1,2,3,7,8-PeCDF | 3.86e+07 | 1.74 y | 31:28 | 0.84 | 89.7 | | | | | 89.7 | |
| 13C-2,3,4,7,8-PeCDF | 3.70e+07 | 1.73 y | 32:47 | 0.81 | 88.6 | | | | | 88.6 | |
| 13C-1,2,3,4,7,8-HxCDF | 3.51e+07 | 0.52 y | 37:11 | 1.85 | 128 | | | | | 128 | |
| 13C-1,2,3,6,7,8-HxCDF | 4.04e+07 | 0.52 y | 37:23 | 2.54 | 108 | | | | | 108 | |
| 13C-2,3,4,6,7,8-HxCDF | 3.23e+07 | 0.52 y | 38:19 | 2.01 | 109 | | | | | 109 | |
| 13C-1,2,3,7,8,9-HxCDF | 3.24e+07 | 0.52 y | 39:45 | 2.03 | 108 | | | | | 108 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 1.49e+07 | 0.42 y | 42:16 | 1.11 | 90.7 | | | | | 90.7 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 1.03e+07 | 0.42 y | 45:06 | 0.80 | 87.0 | | | | | 87.0 | |
| 13C-OCDF | 2.14e+07 | 0.96 y | 50:06 | 1.08 | 134 | | | | | 66.8 | |
| 37Cl-2,3,7,8-TCDD | 1.95e+06 | | 27:23 | 0.69 | 9.27 | | | | | 92.7 | |
| 13C-1,2,3,4-TCDD | 3.07e+07 | 0.84 y | 26:49 | - | 68.4 | | | | | | |
| 13C-1,2,3,4-TCDF | 5.14e+07 | 0.88 y | 25:33 | - | 71.1 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 1.48e+07 | 1.26 y | 39:11 | - | 53.5 | | | | | | |
| Total Tetra-Dioxins | 1.76e+07 | | 23:23 | 1.11 | 51.0 | | 2.50 | - | - | * | 28 |
| Total Penta-Dioxins | 3.11e+07 | | 30:15 | 1.10 | 113 | | 2.50 | - | - | * | 4 |
| Total Hexa-Dioxins | 3.70e+07 | | 36:09 | 1.37 | 169 | | 2.50 | - | - | * | 9 |
| Total Hepta-Dioxins | 1.69e+07 | | 41:17 | 1.45 | 104 | | 2.50 | - | - | * | 38 |
| Total Tetra-Furans | 3.30e+07 | | 23:04 | 1.50 | 44.7 | | 2.50 | - | - | * | 25 |
| 1st Fn. Tot Penta-Furans | 2.24e+07 | | 28:25 | 0.94 | 62.9 | | 2.50 | - | - | * | PeCDF 1 |
| Total Penta-Furans | 5.48e+07 | | 30:12 | 0.94 | 154 | | 2.50 | - | - | * | 217 8 |
| Total Hexa-Furans | 6.99e+07 | | 35:15 | 0.91 | 219 | | 2.50 | - | - | * | 16 |
| Total Hepta-Furans | 1.66e+07 | | 41:20 | 1.38 | 95.7 | | 2.50 | - | - | * | 26 |

Analyst: 

Date: 10/4/10

Frontier Analytical Laboratory - Acquisition Log

Run Name:02OCT10M

Instrument: FAL3

GC: DB5

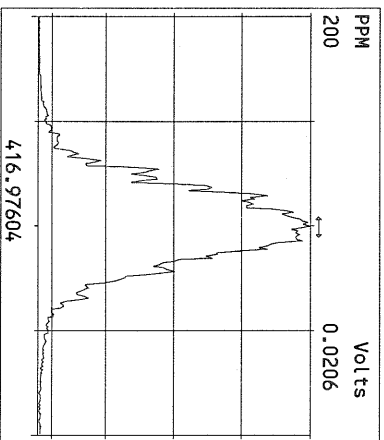
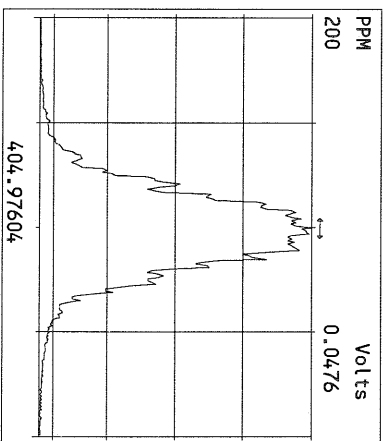
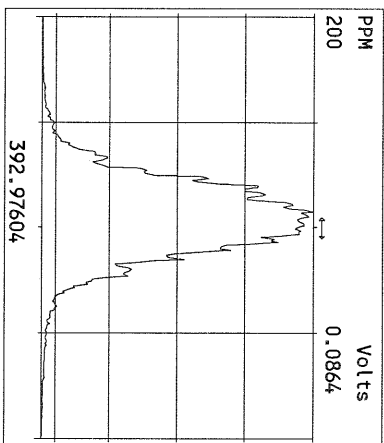
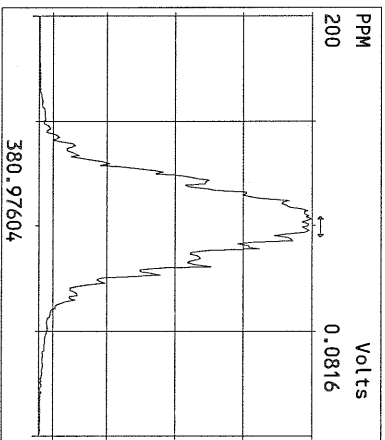
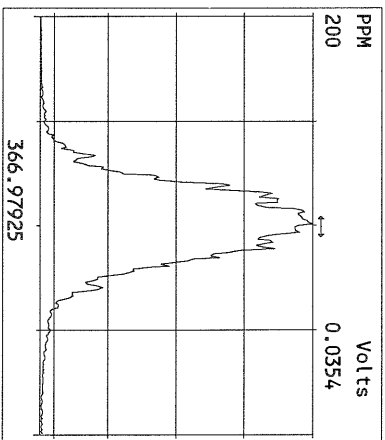
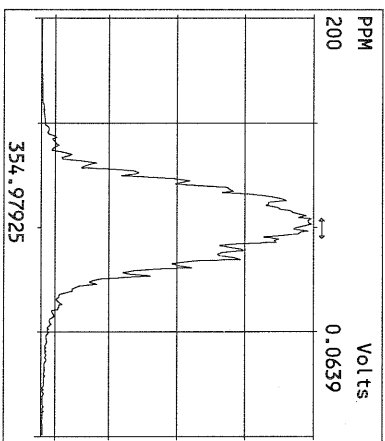
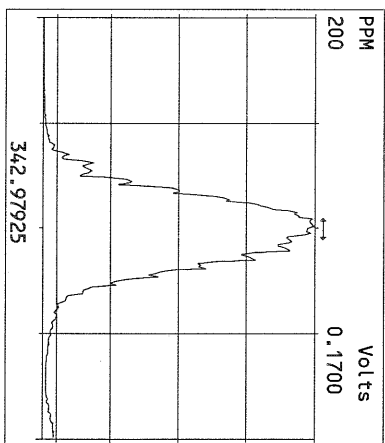
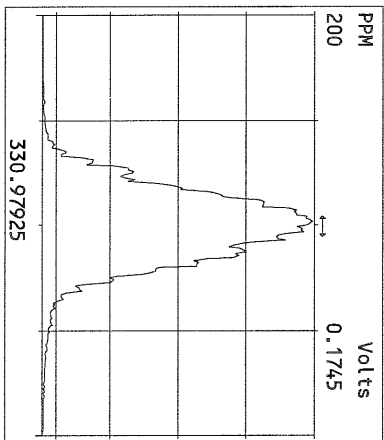
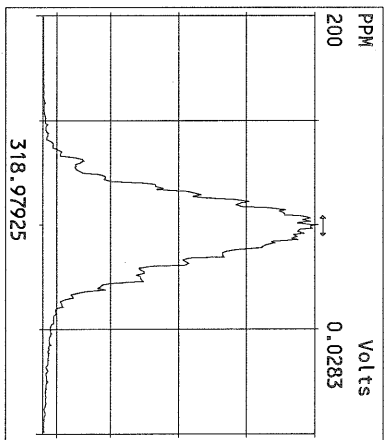
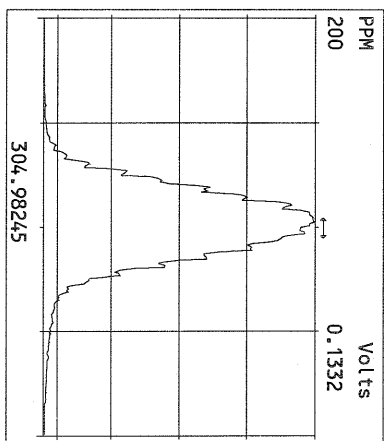
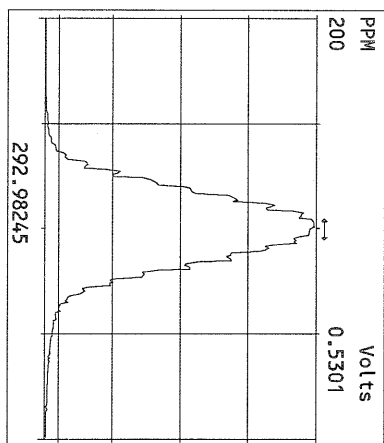
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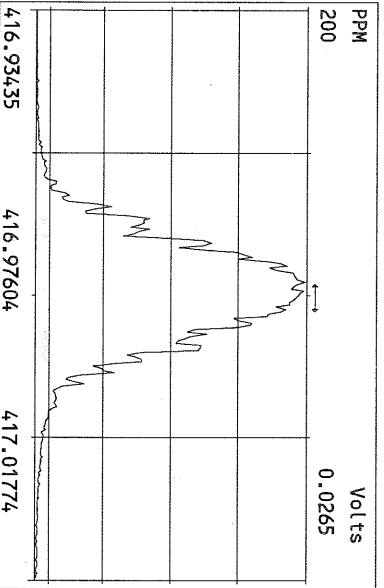
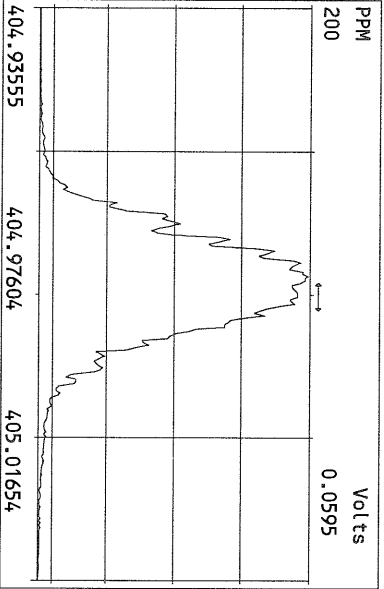
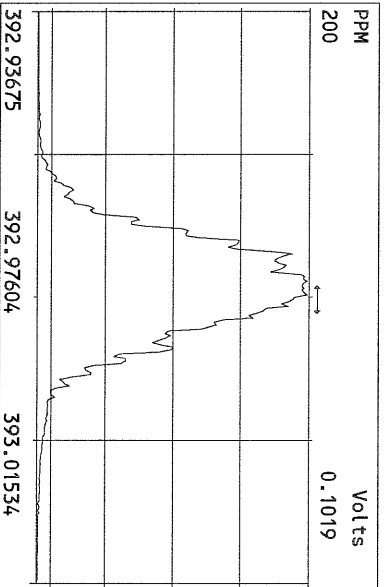
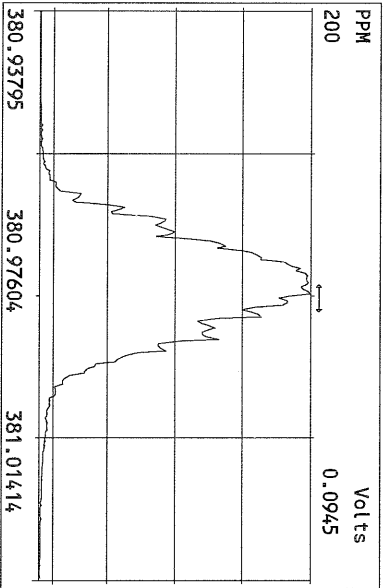
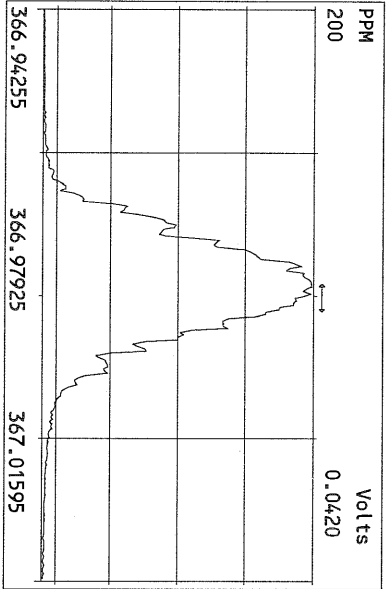
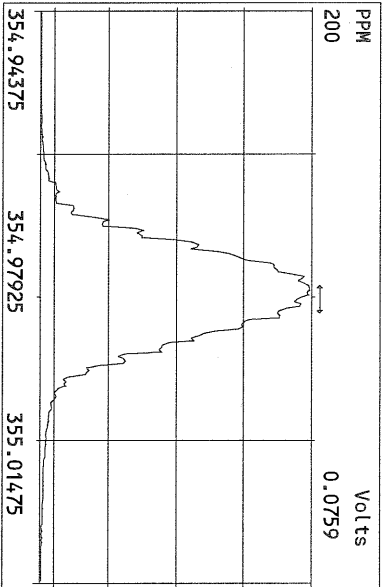
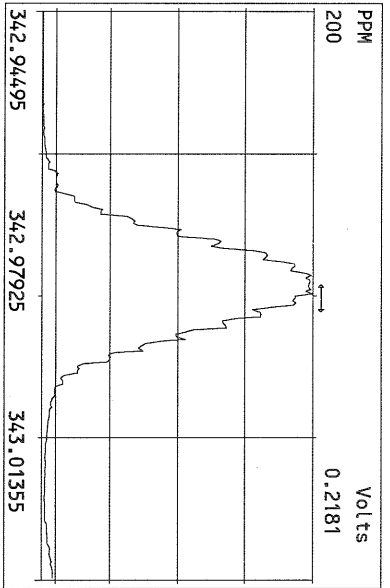
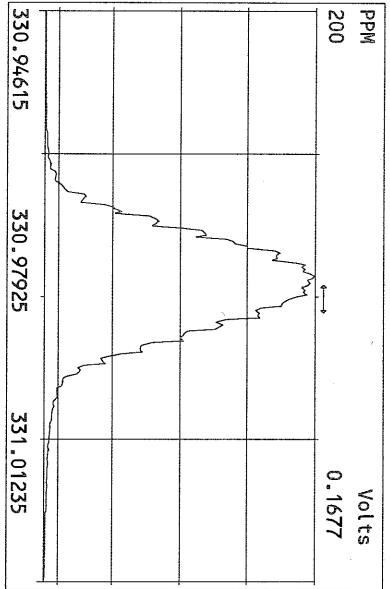
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| 02OCT10M 4 | 6353-001-0001-SA | GW-EFF | 2-OCT-10 11:35:58 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 5 | 6354-001-0001-SA | Gross Effluent | 2-OCT-10 12:31:16 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 6 | 6355-001-0001-SA | 001/002 D/F | 2-OCT-10 13:26:35 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 7 | 6368-001-0001-SA | Final Effluent | 2-OCT-10 14:21:53 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 8 | 6374-001-0001-SA | Paradise Cove Eff. Grab | 2-OCT-10 15:17:16 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 9 | 6365-003-0001-SA | SSB10-0-0.5-080310 | 2-OCT-10 16:12:39 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 10 | SB100210M1 | Solvent Blank | 2-OCT-10 17:07:58 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M 11 | SB100210M2 | Solvent Blank | 2-OCT-10 18:03:17 | ST100210M1 | ST100210M2 | TC |
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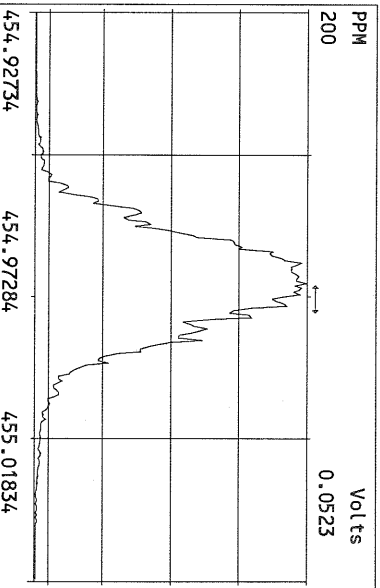
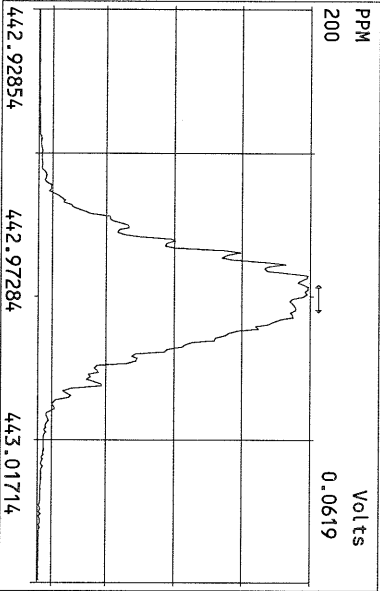
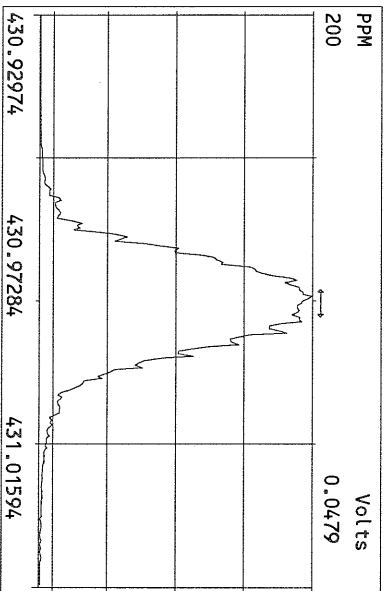
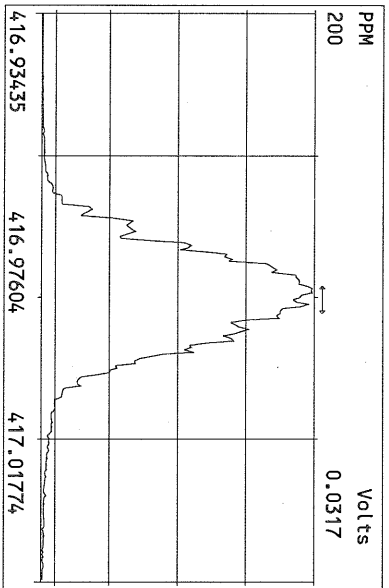
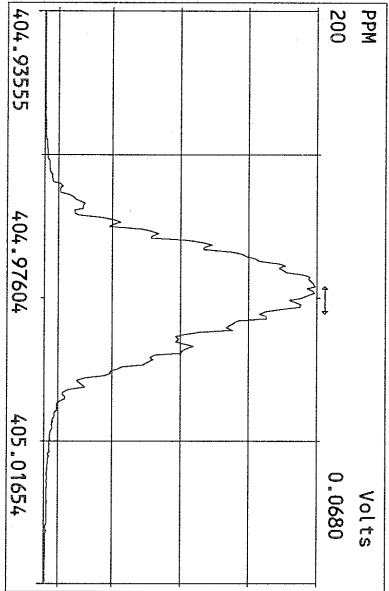
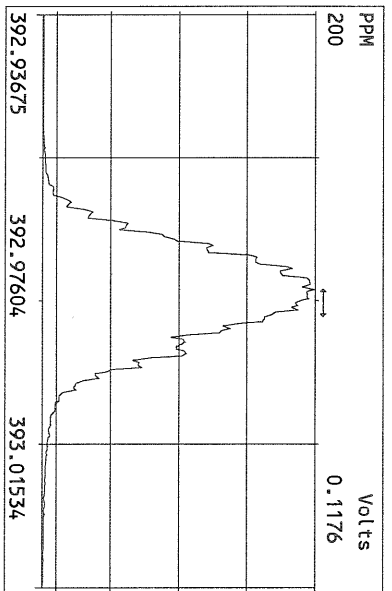
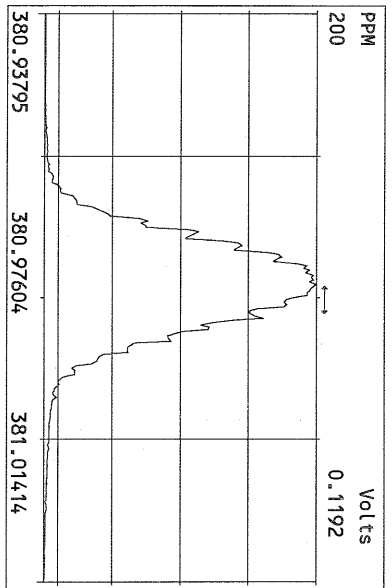
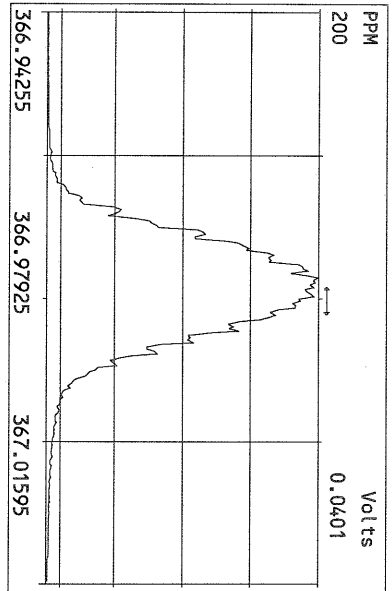
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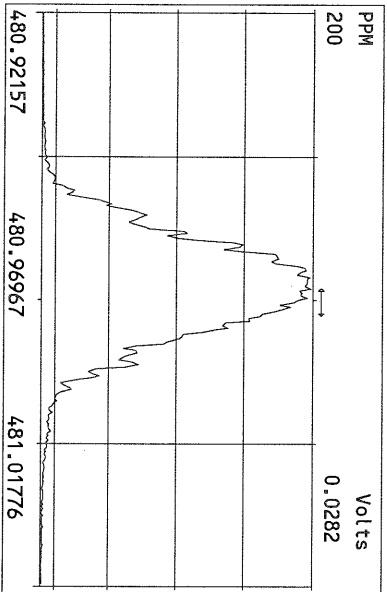
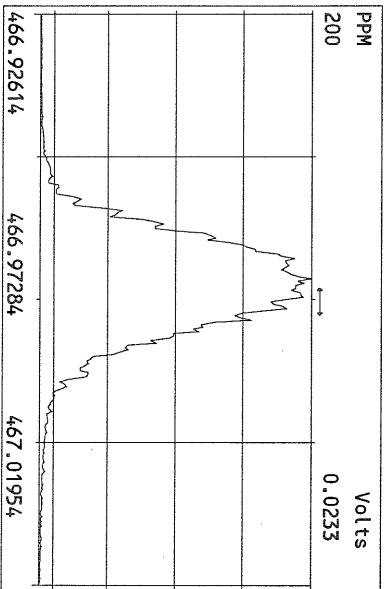
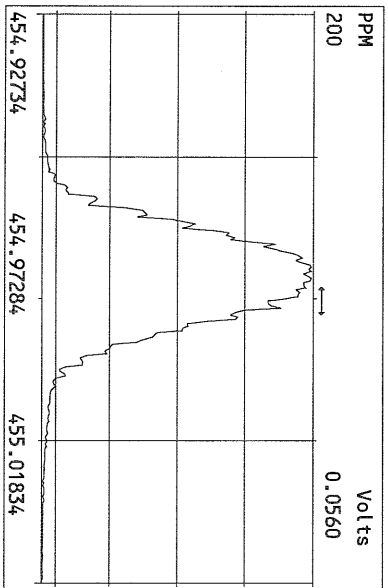
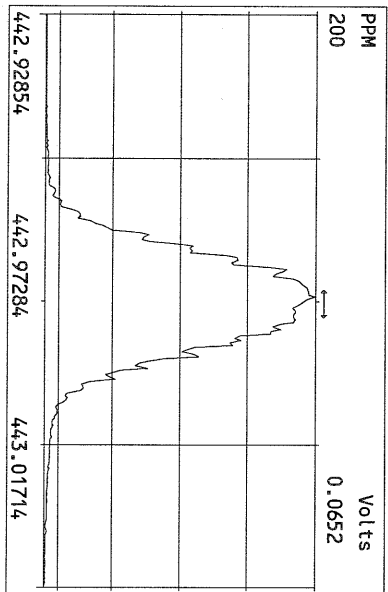
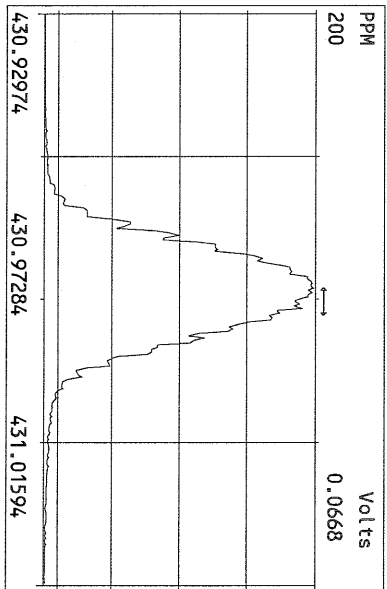
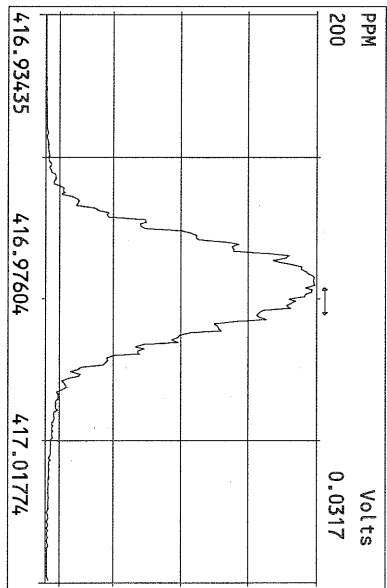
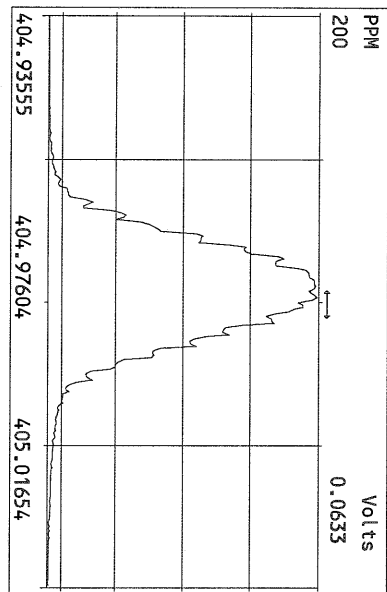
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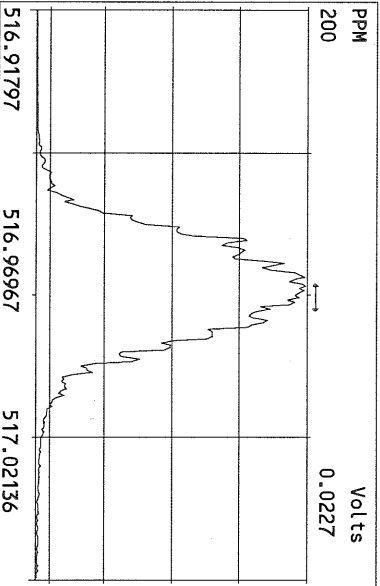
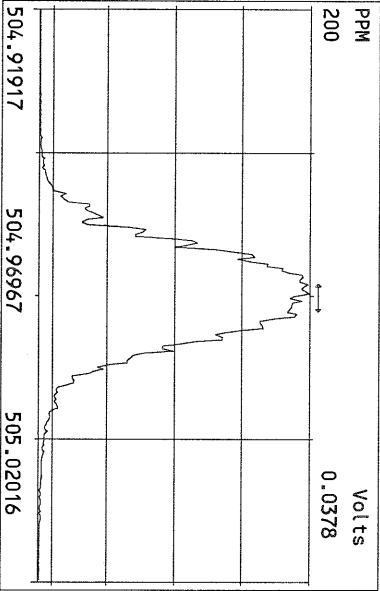
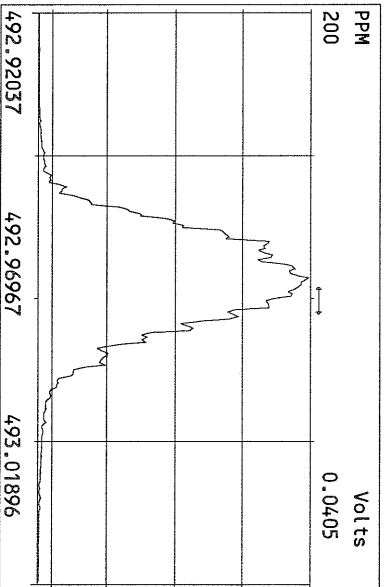
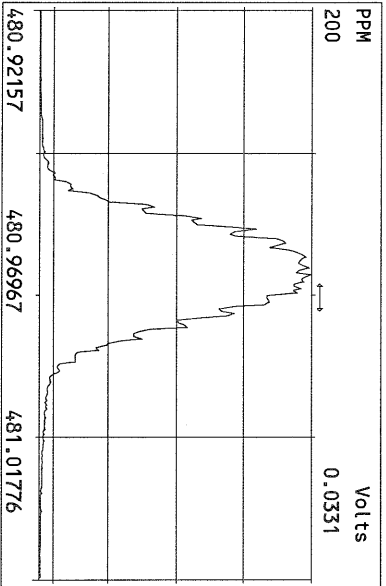
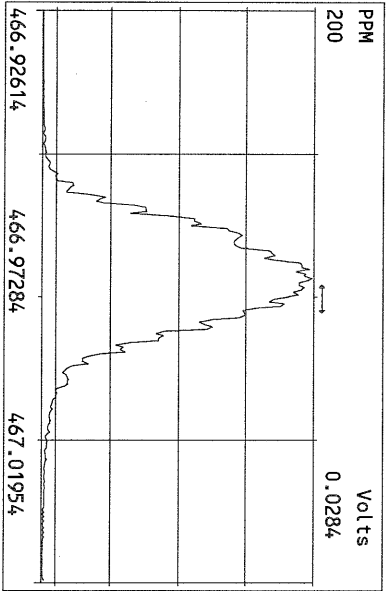
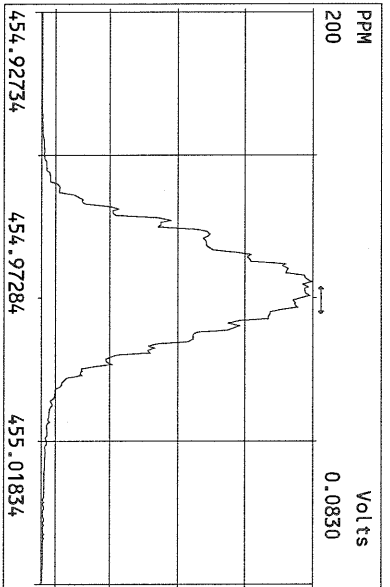
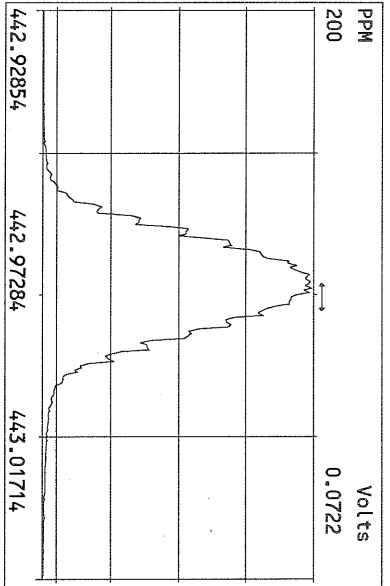
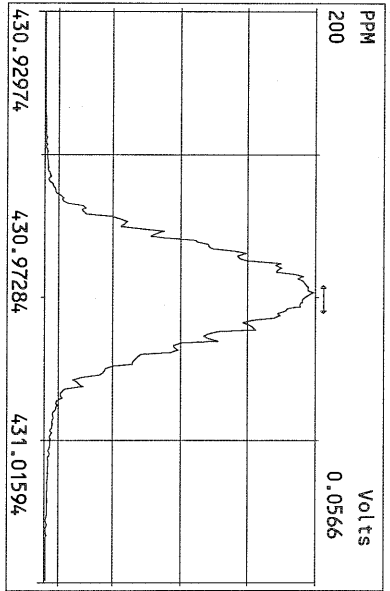
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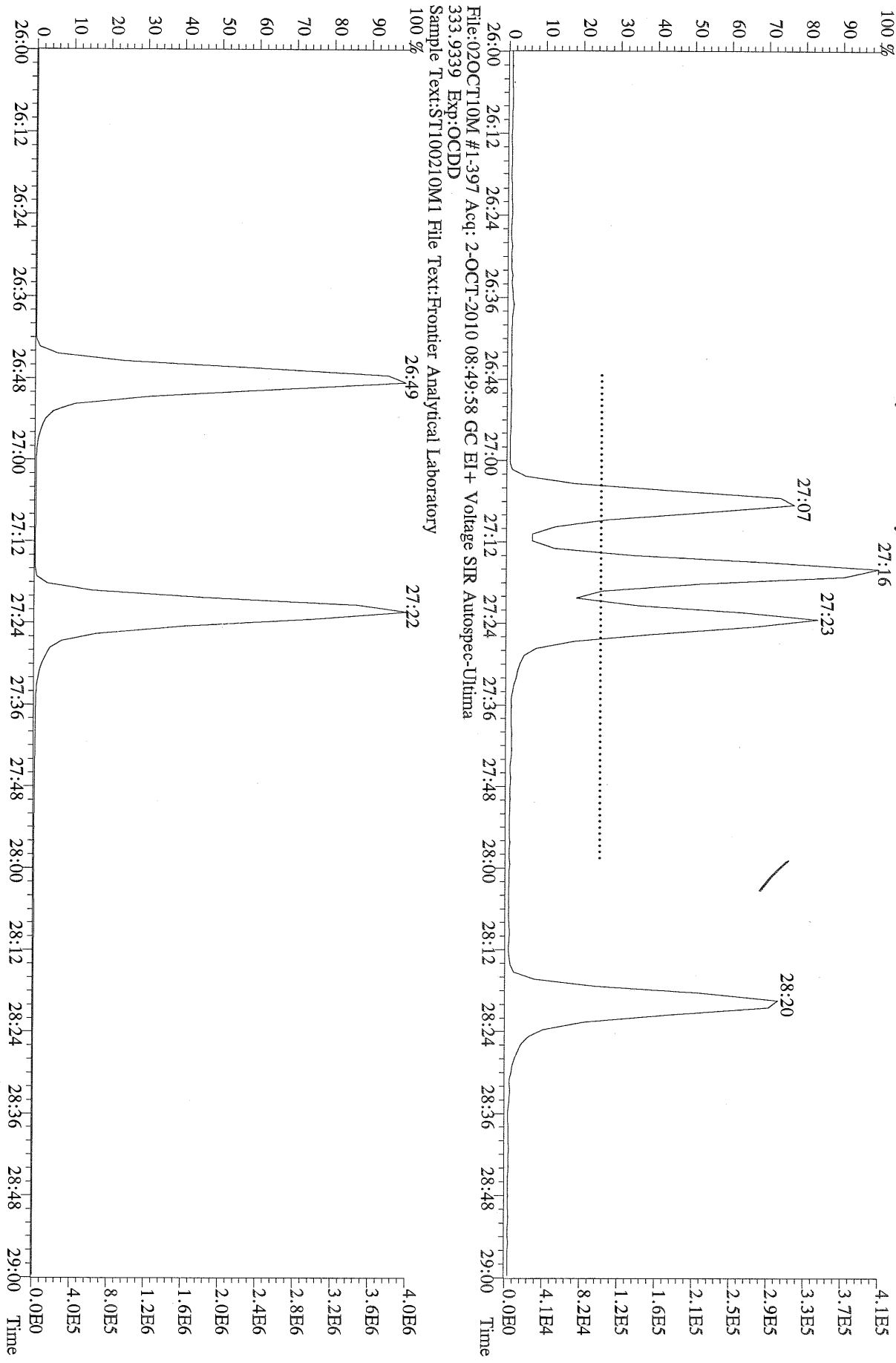




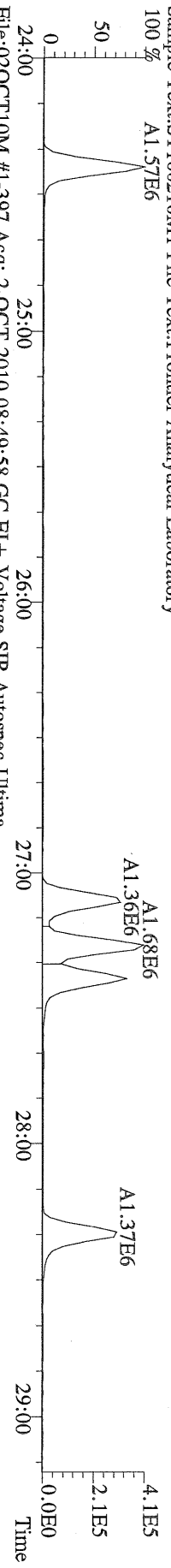




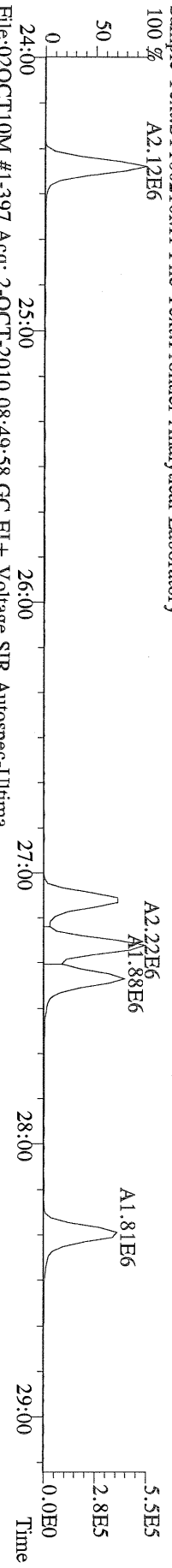
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319.8965 Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



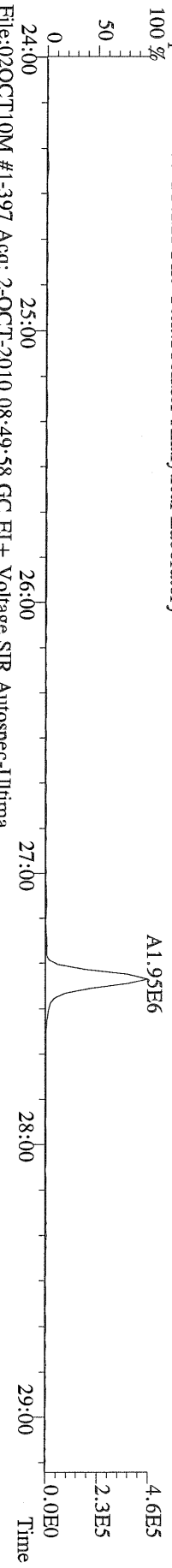
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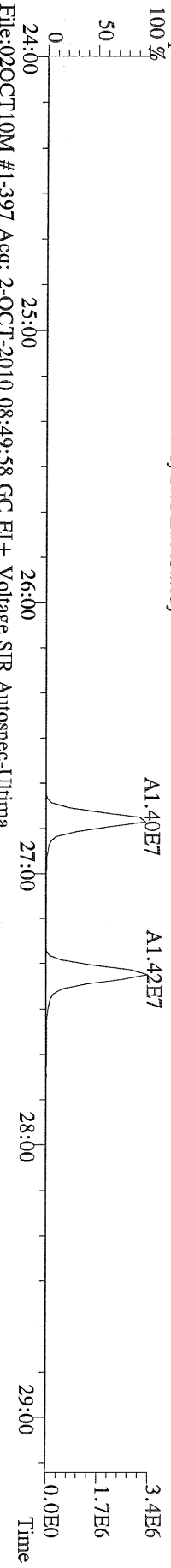
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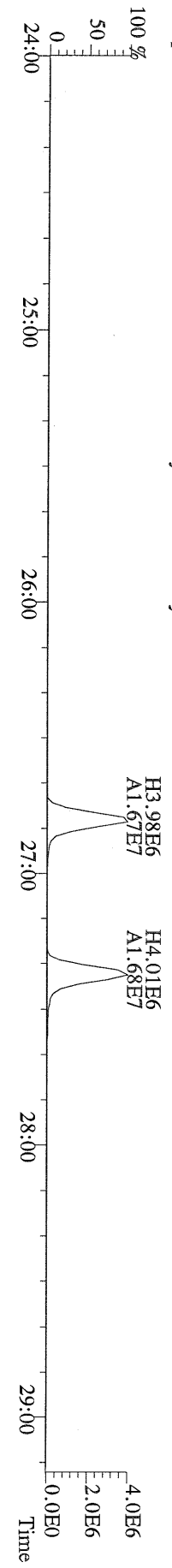
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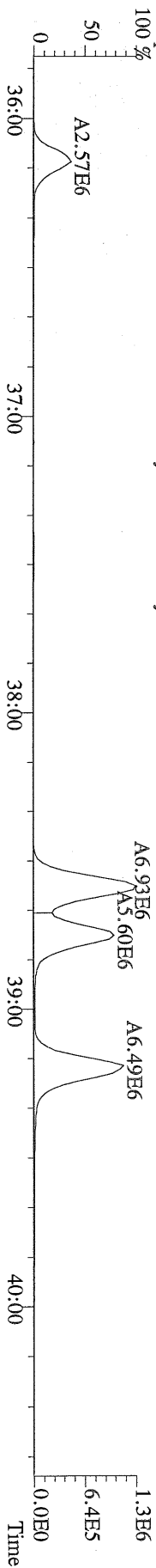
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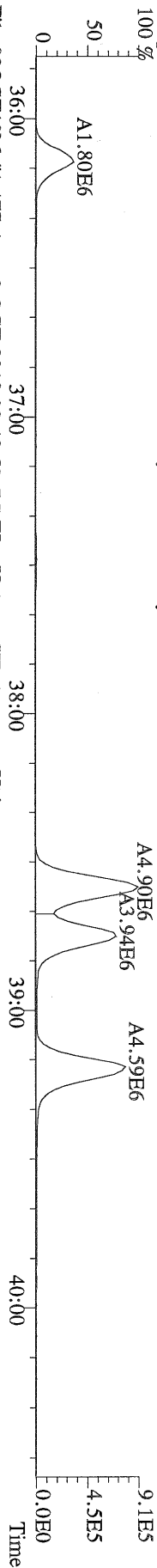
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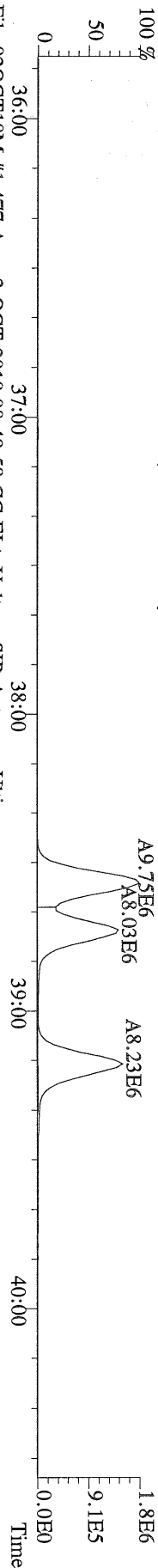
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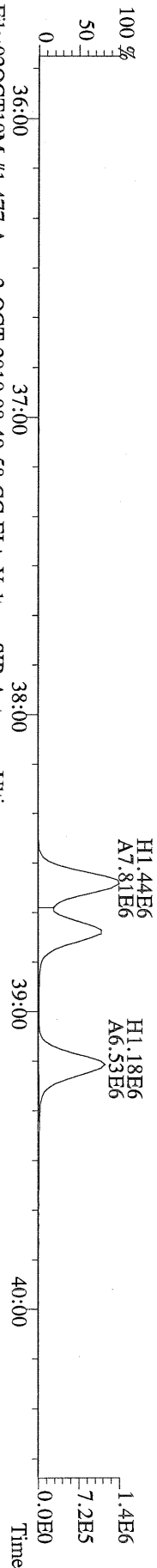
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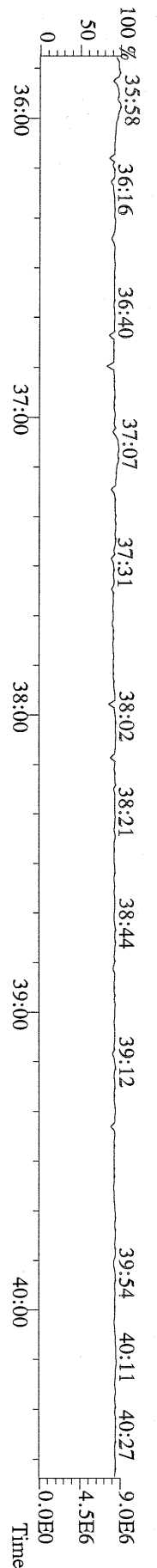
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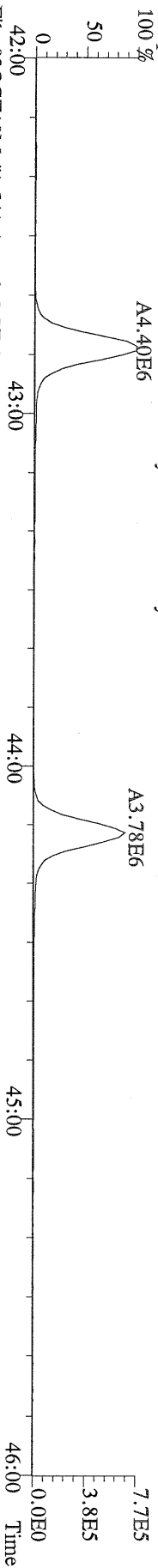
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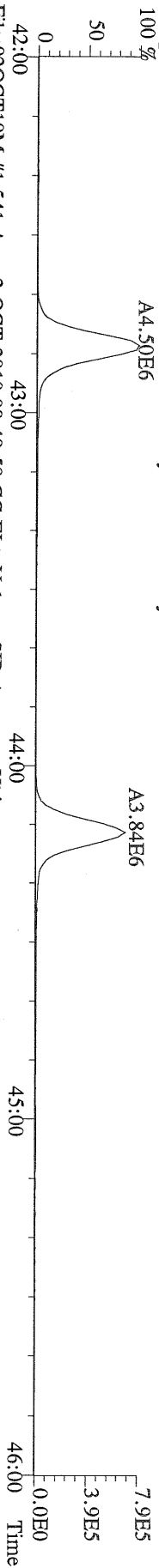
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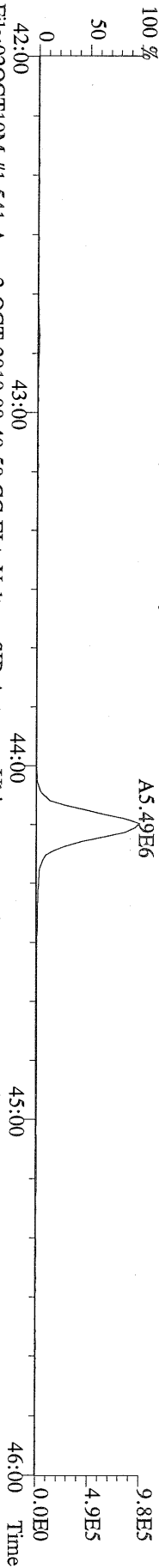
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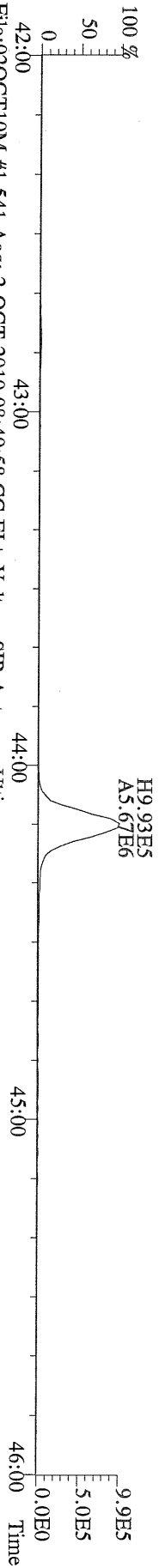
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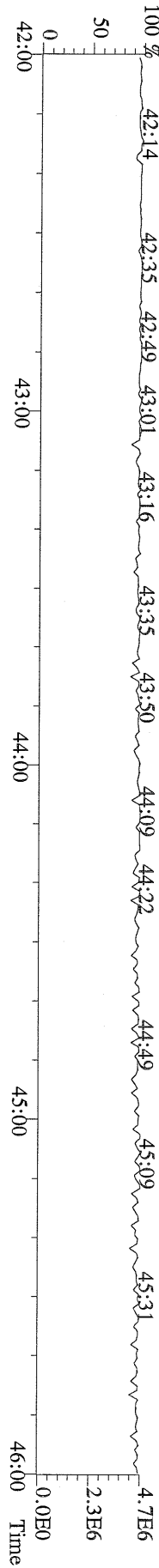
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435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



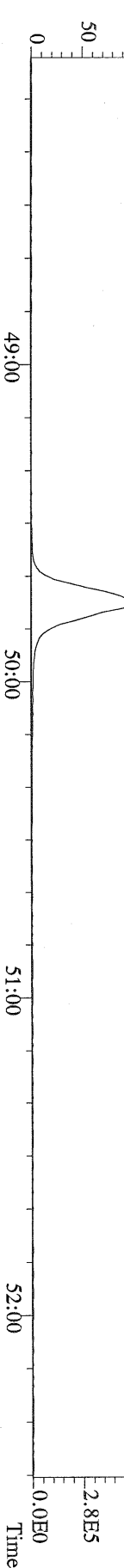
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Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



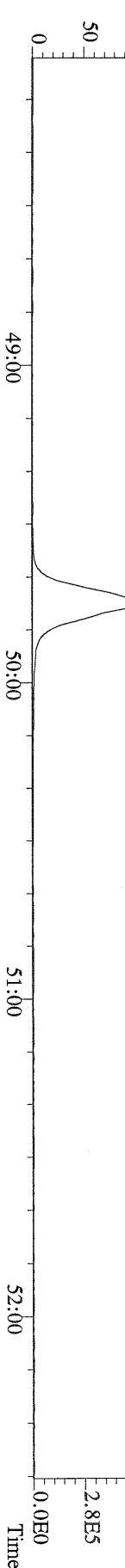
File:02OCT10M #1-541 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultima
430.9728 F:4 Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



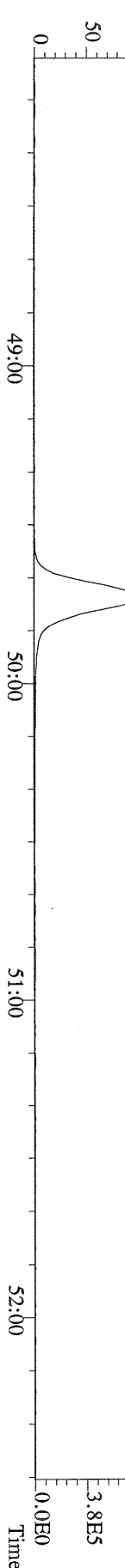
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Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
100 %



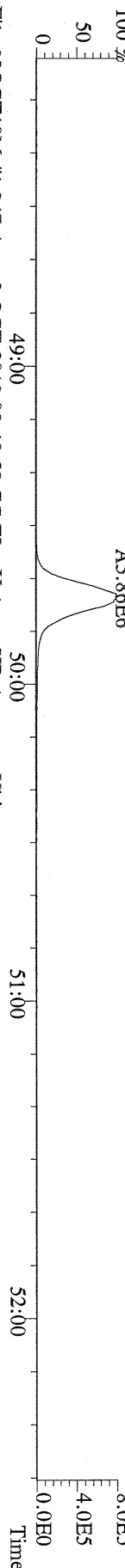
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459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
100 %



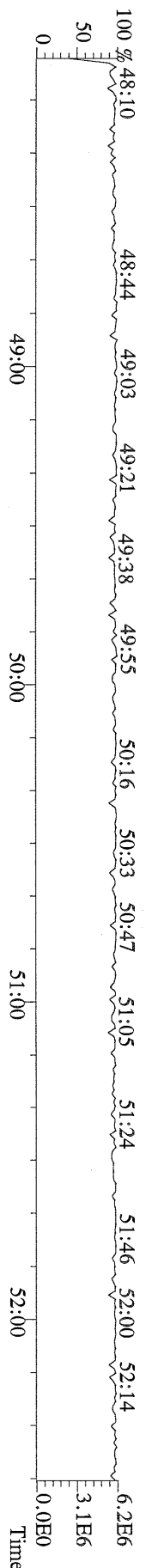
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469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
100 %



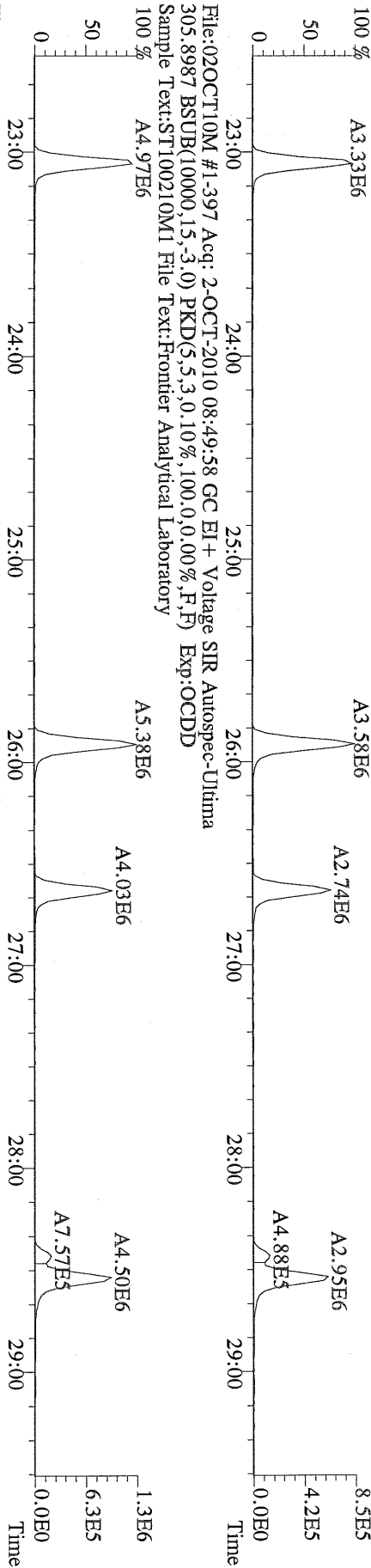
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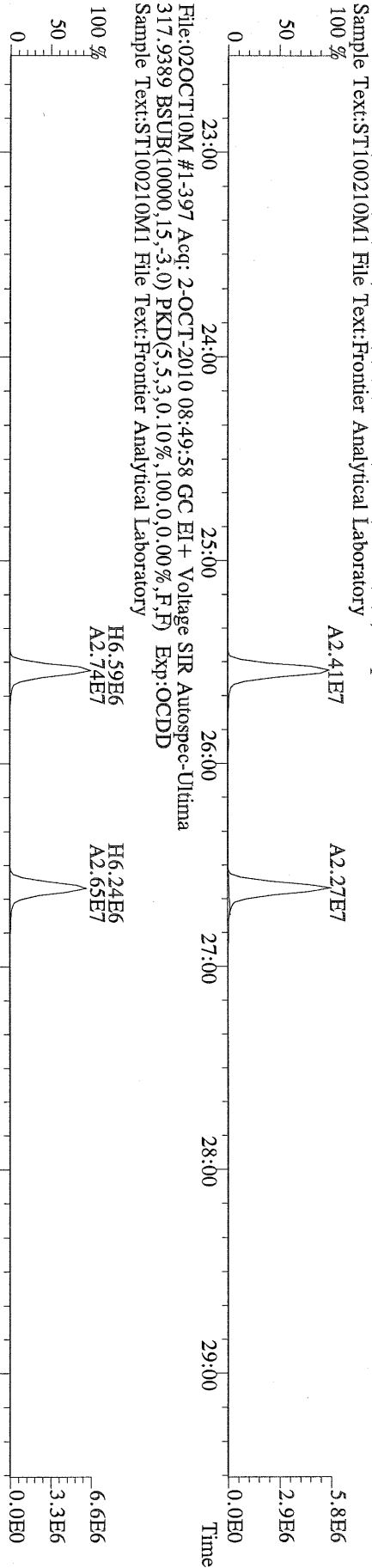
File:02OCT10M #1-347 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Ultima
454.9728 F:5 Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



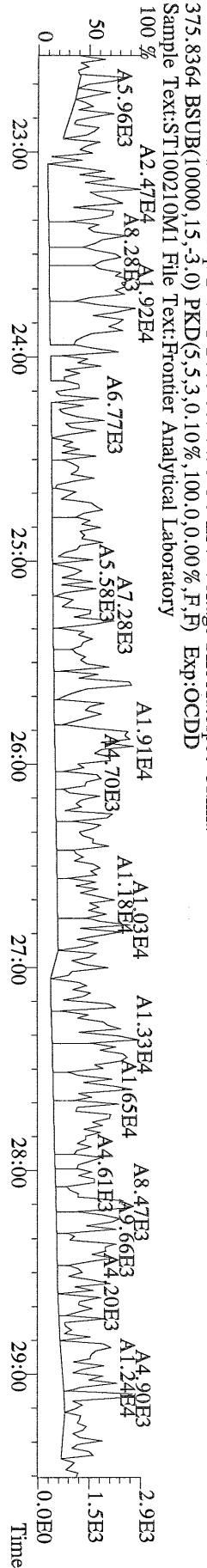
File:02OCT10M #1-397 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Ultima
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



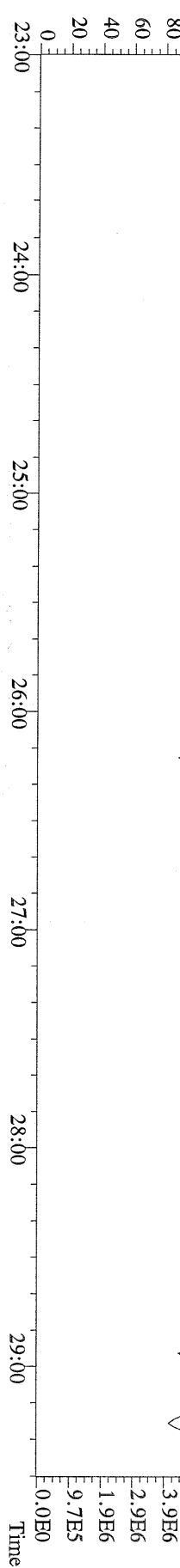
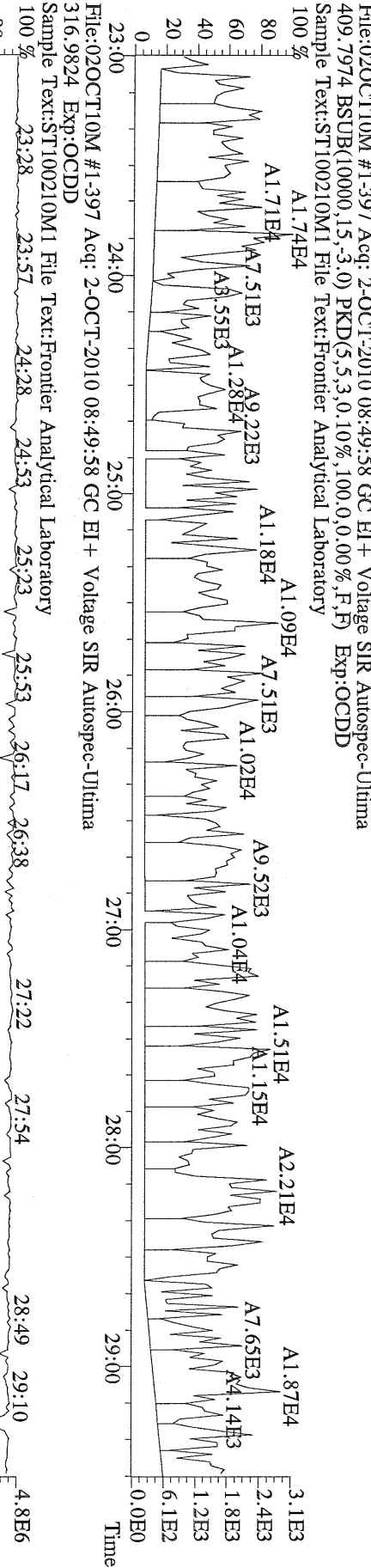
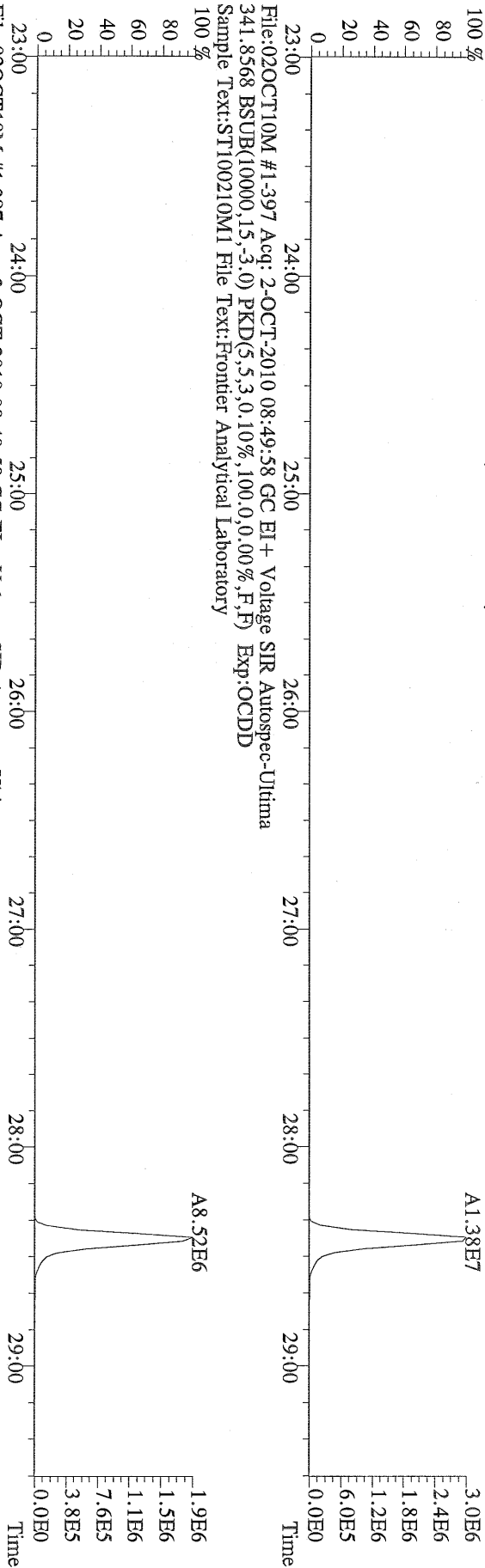
File:02OCT10M #1-397 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Ultima
315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



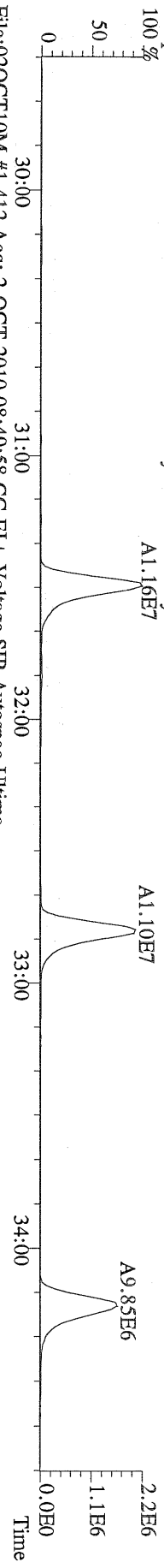
File:02OCT10M #1-397 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Ultima
375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



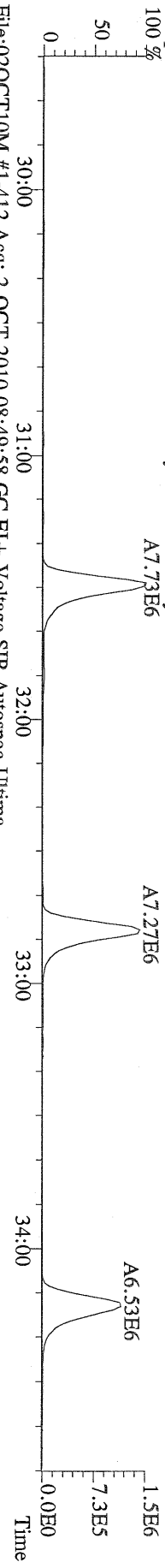
File:02OCT10M #1-397 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Utima
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



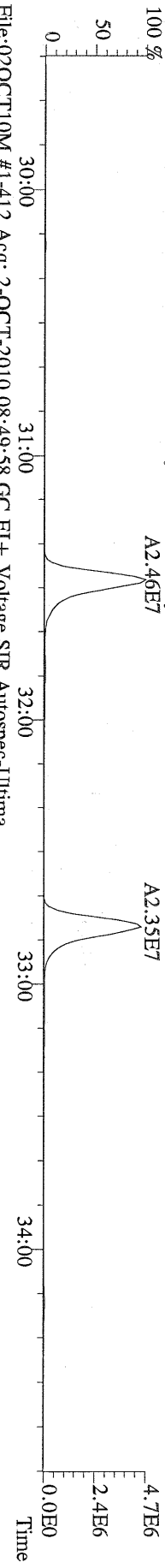
File:02OCT10M #1-412 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultima
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



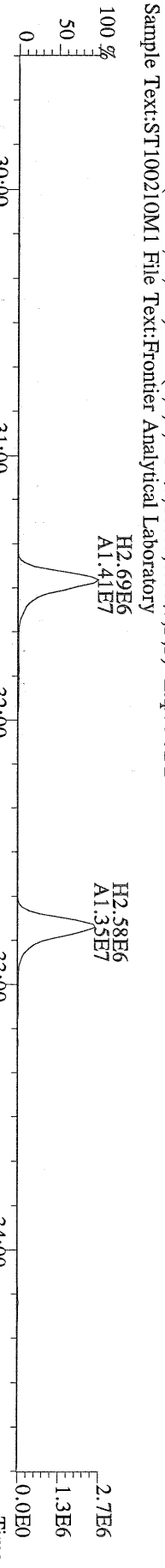
File:02OCT10M #1-412 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultima
 341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



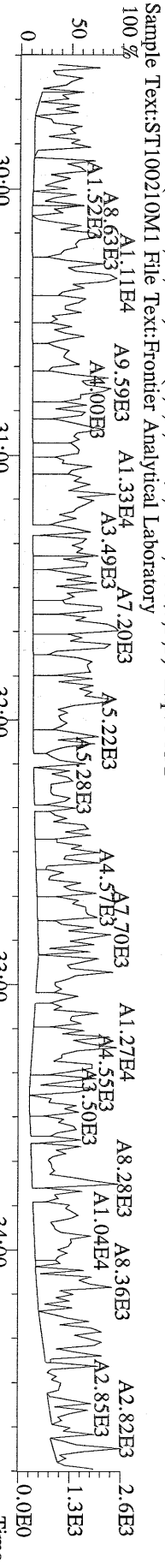
File:02OCT10M #1-412 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultima
 351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



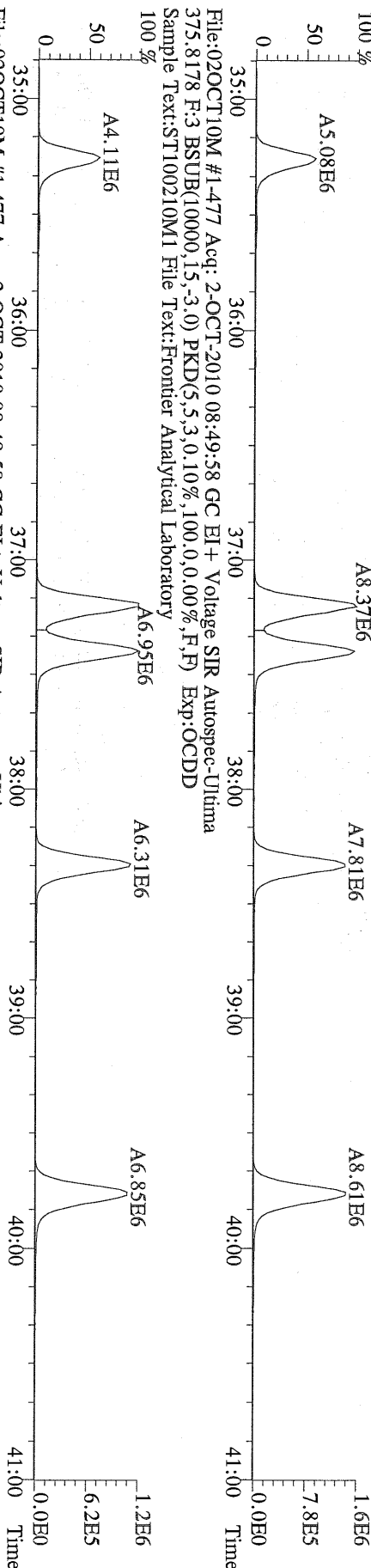
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 353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



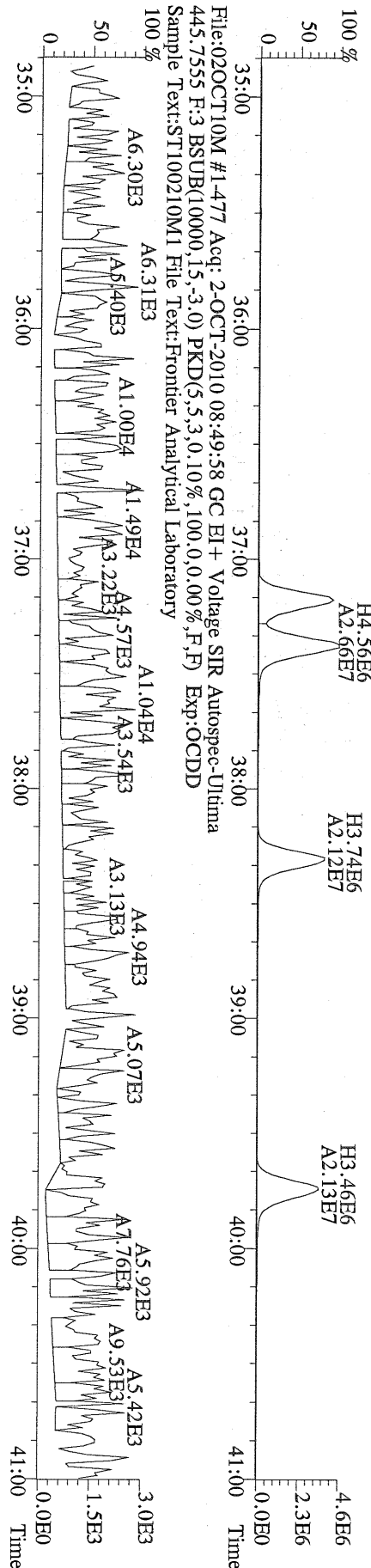
File:02OCT10M #1-412 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultima
 409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



File:02OCT10M #1-477 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Utima
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:ST100210M1 File Text:Frontier Analytical Laboratory



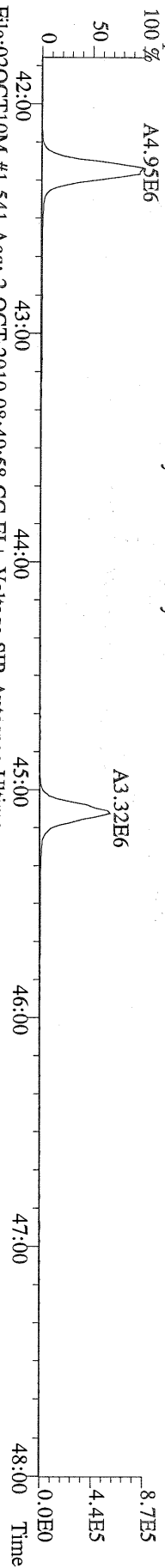
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383.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



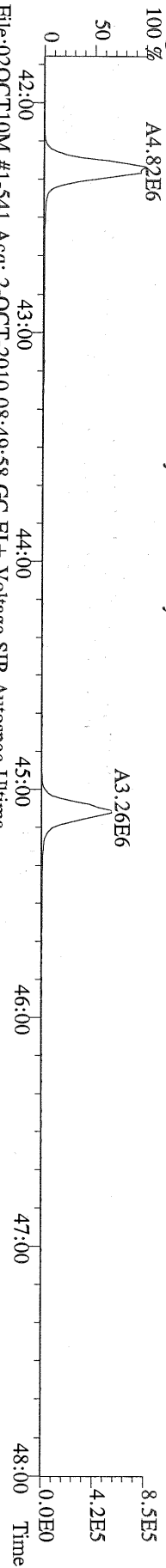
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445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



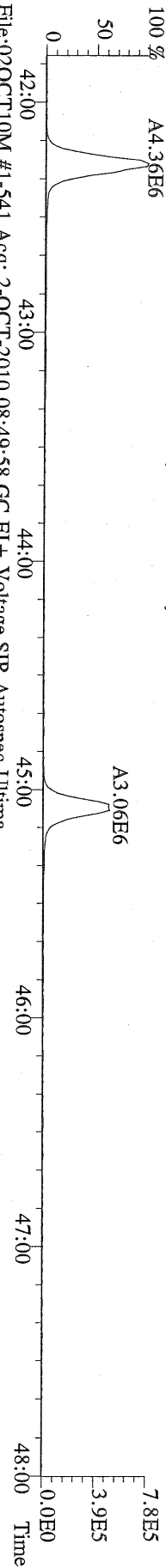
File:02OCT10M #1-541 Acq: 2-OCT-2010 08:49:58 GC EI + Voltage SIR Autospec-Ultime
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



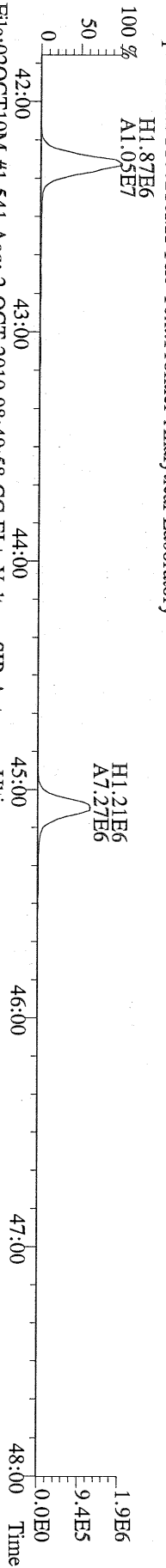
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409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



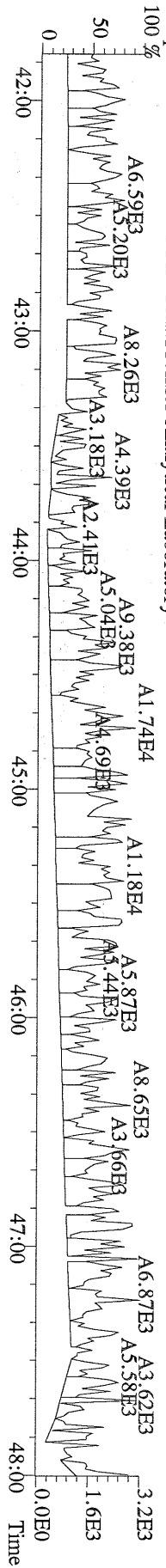
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417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



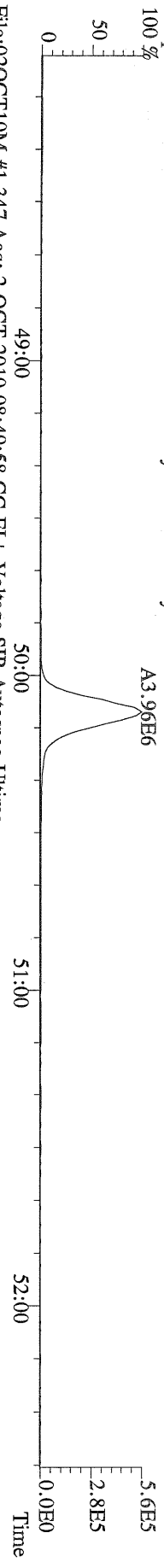
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419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



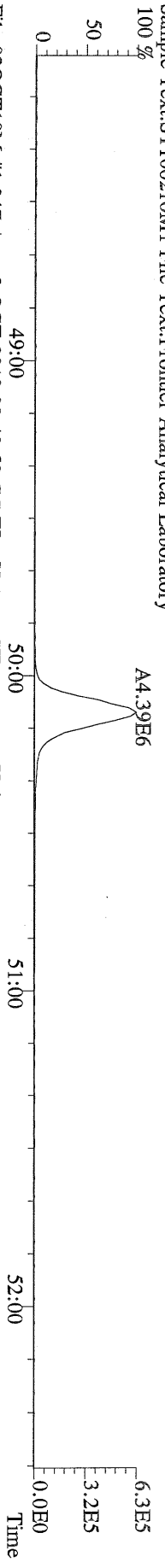
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Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory



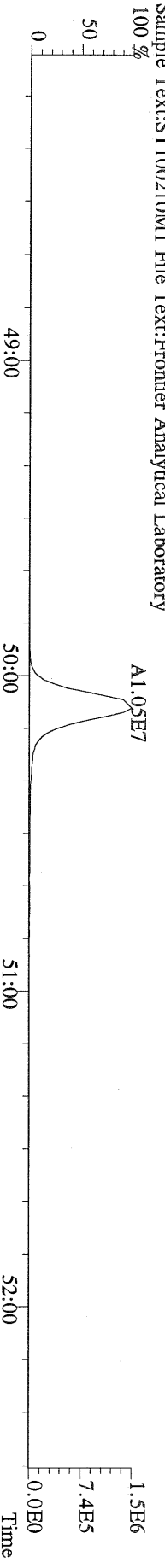
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 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
 100 %



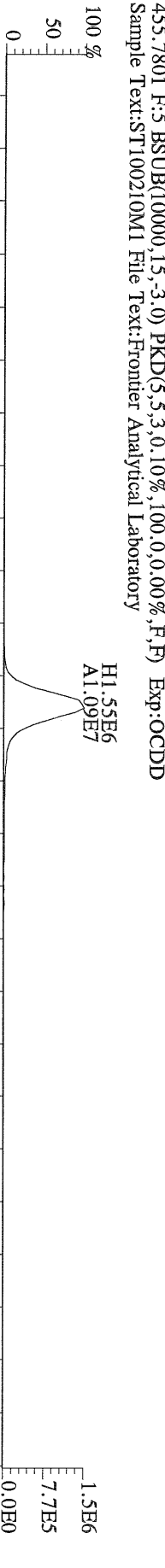
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 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
 100 %



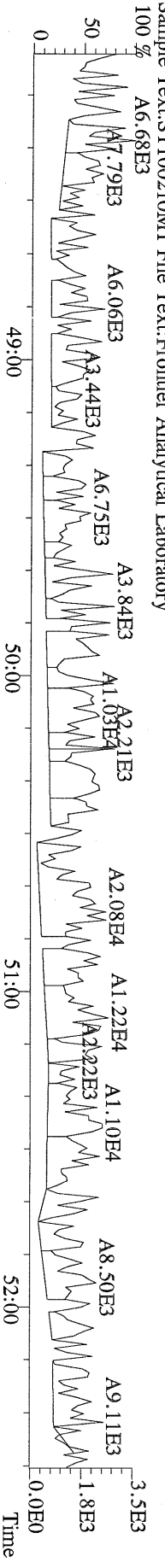
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
 100 %

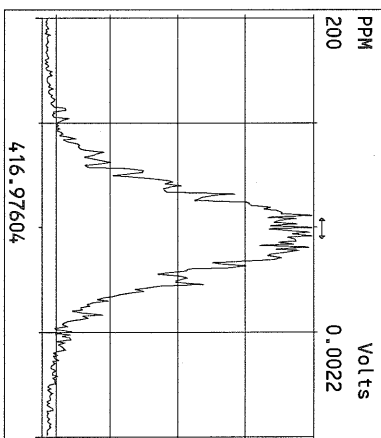
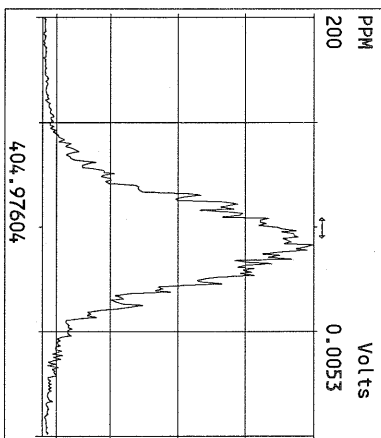
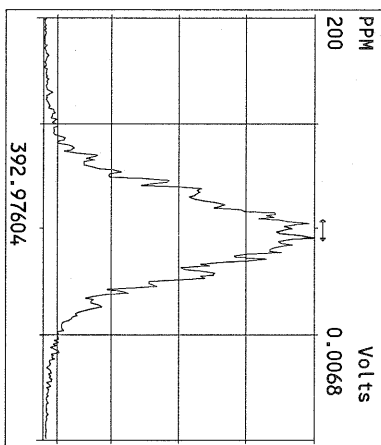
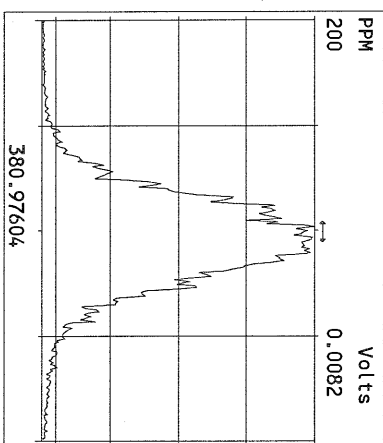
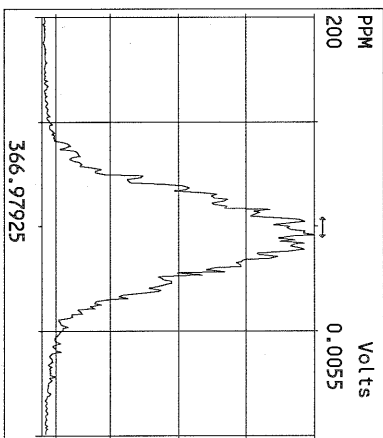
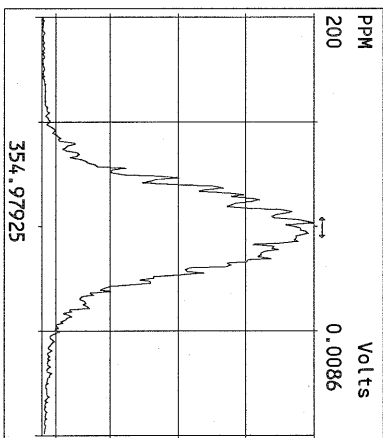
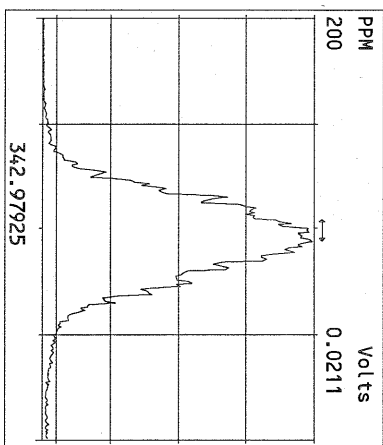
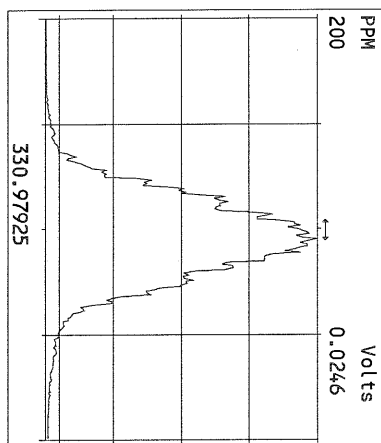
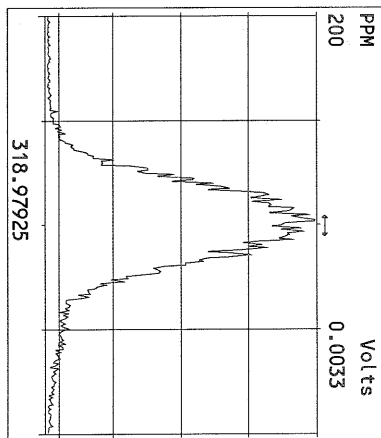
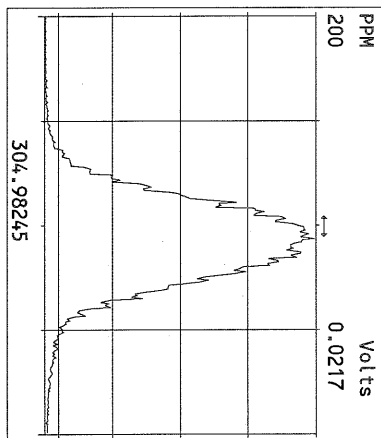
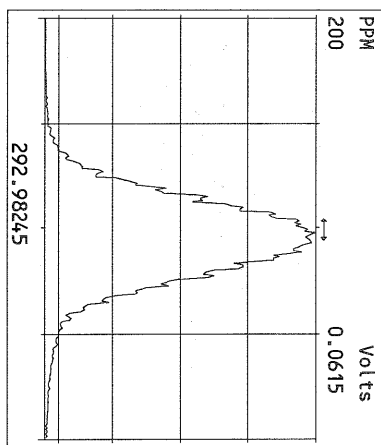


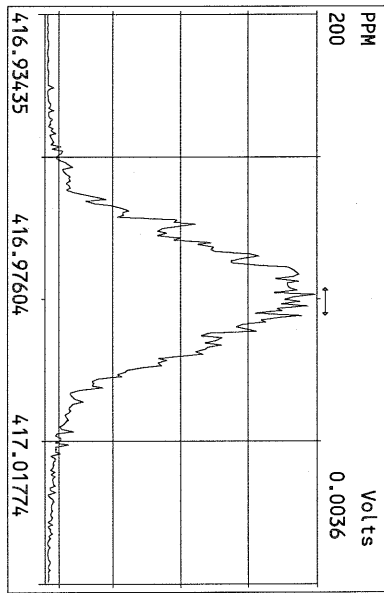
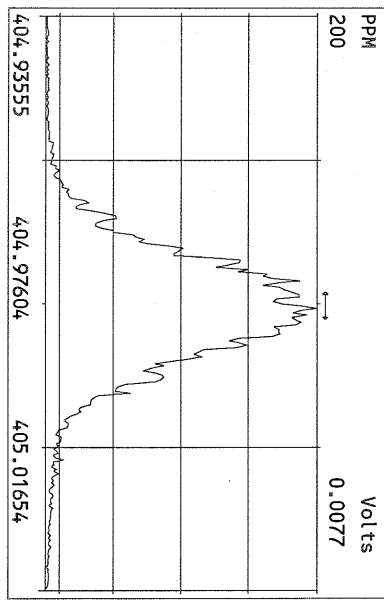
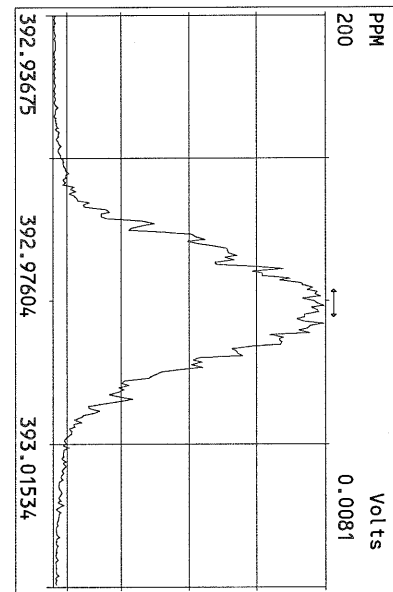
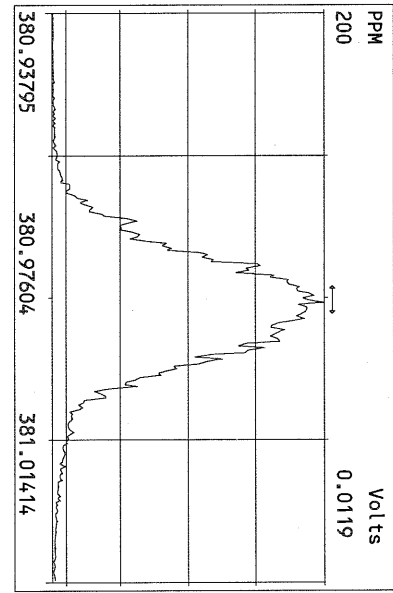
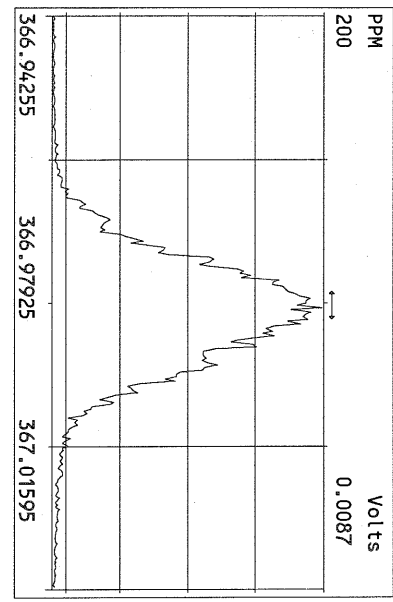
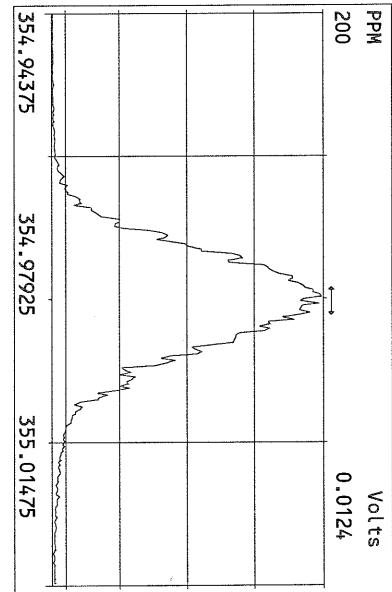
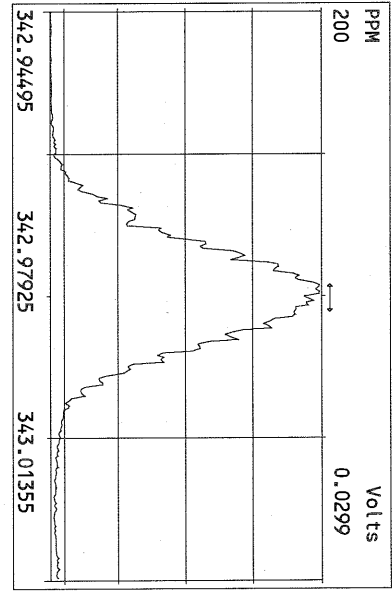
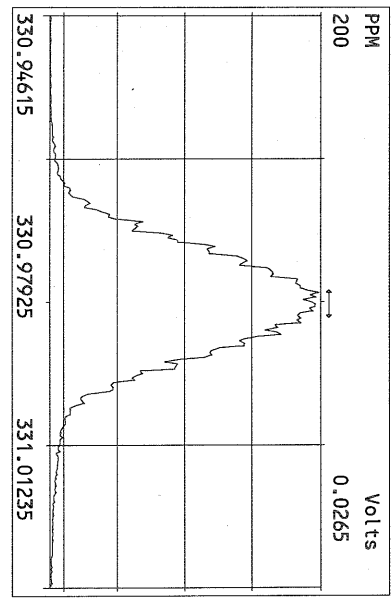
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 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory

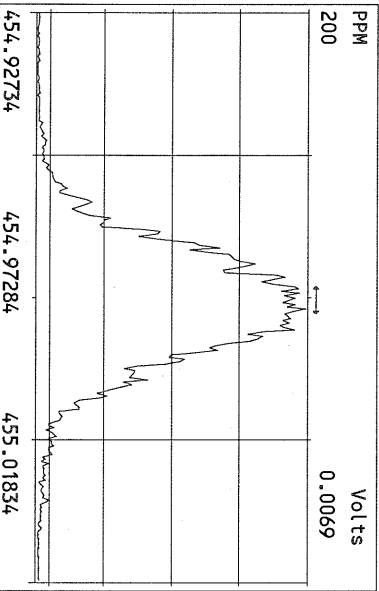
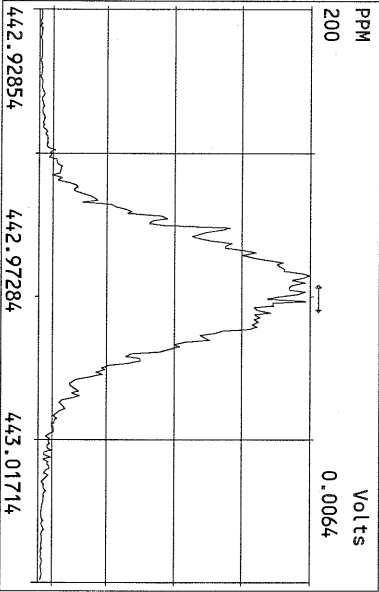
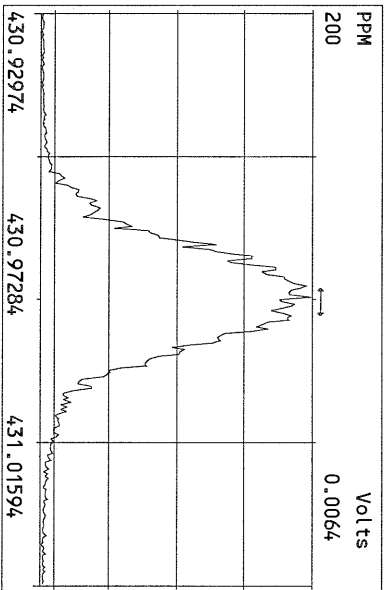
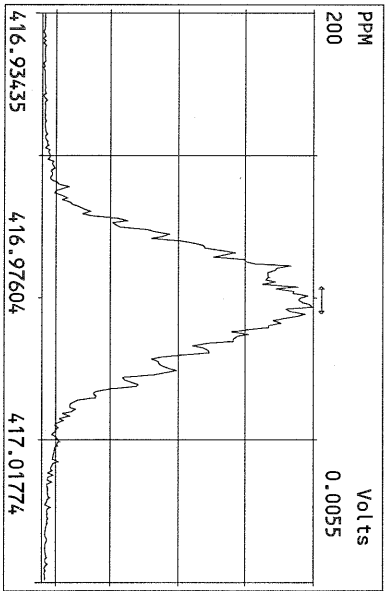
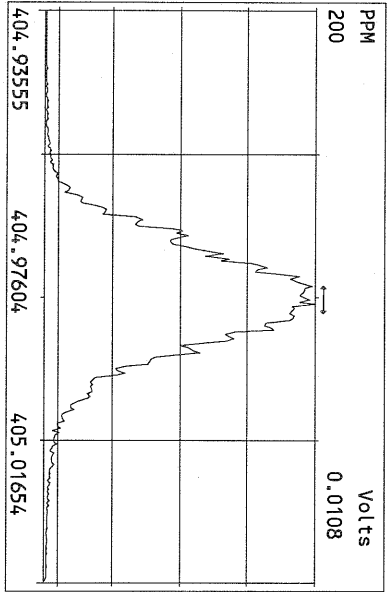
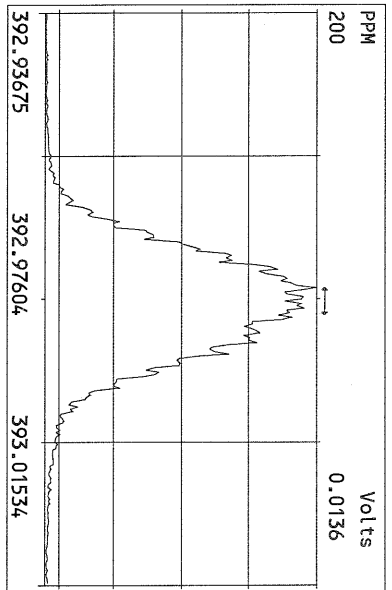
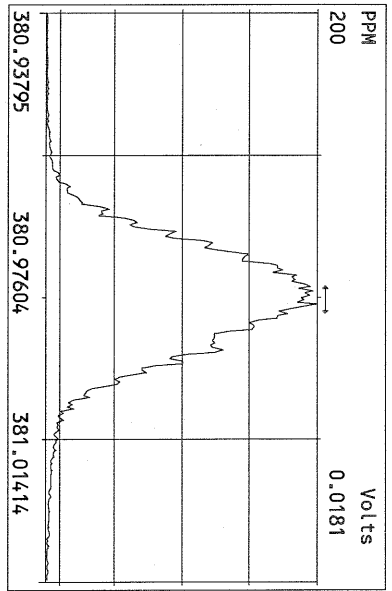
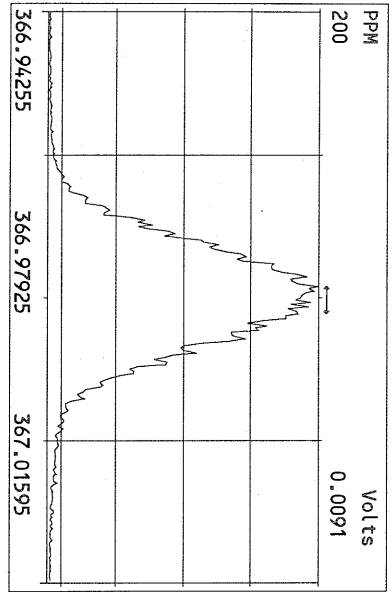


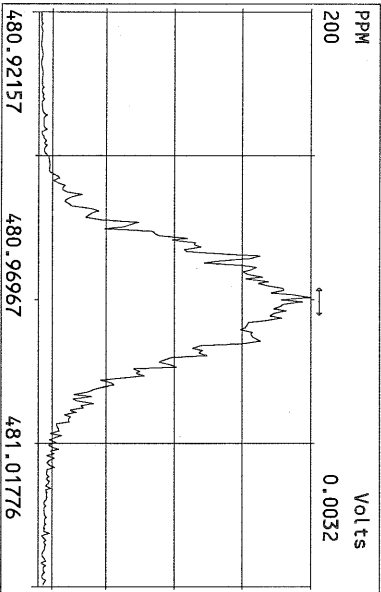
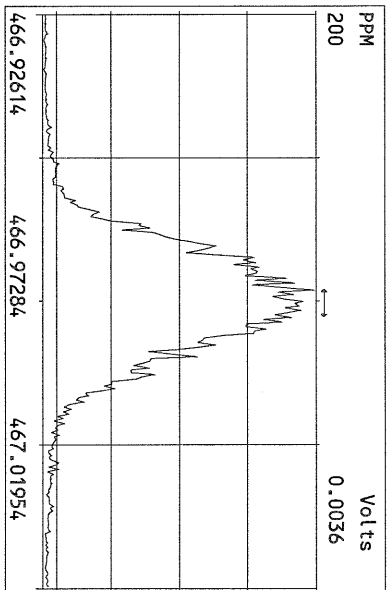
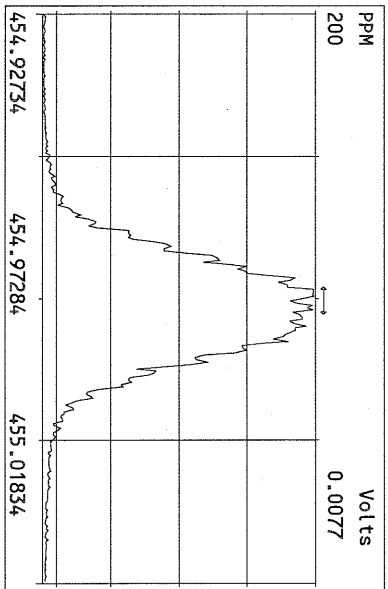
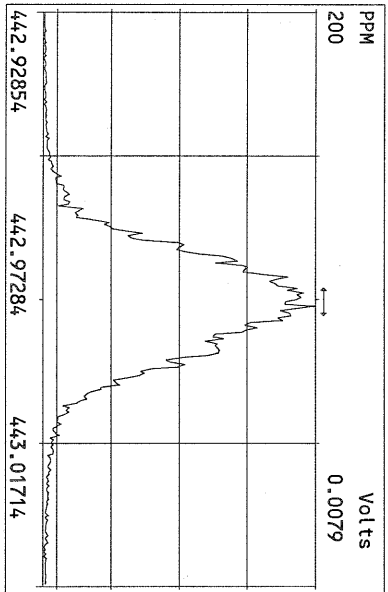
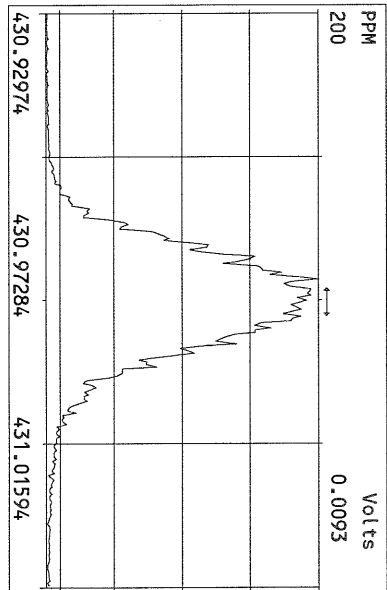
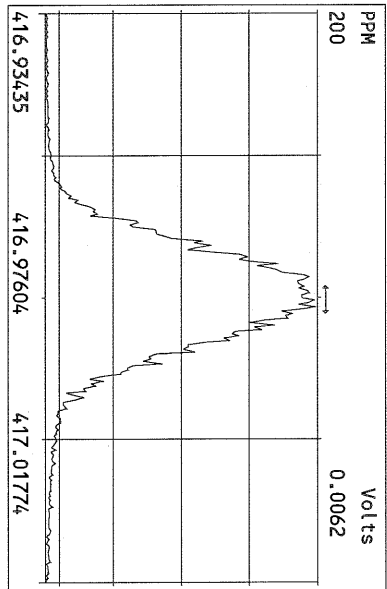
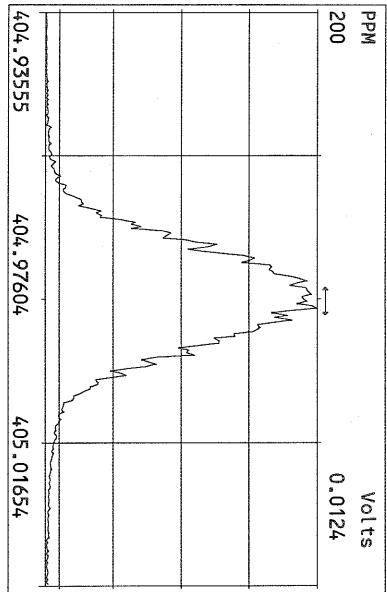
File:02OCT10M #1-347 Acq: 2-OCT-2010 08:49:58 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 F:5 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M1 File Text:Frontier Analytical Laboratory
 100 %

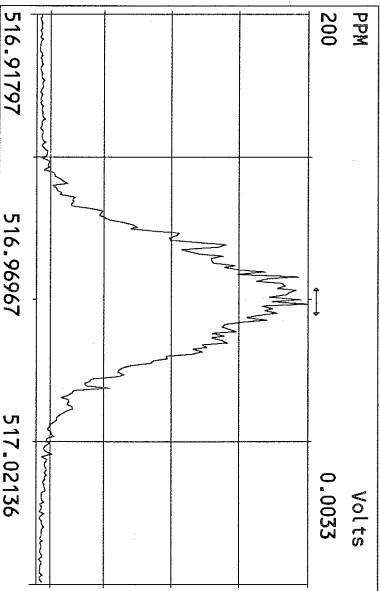
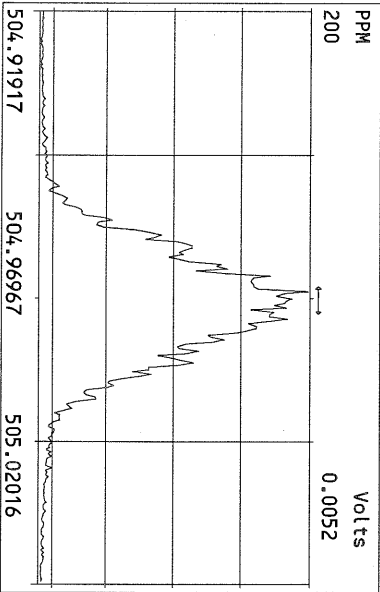
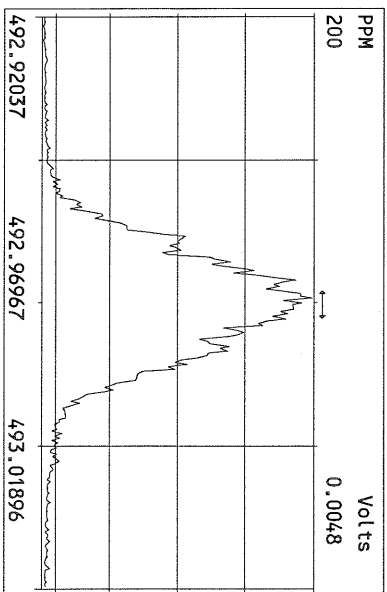
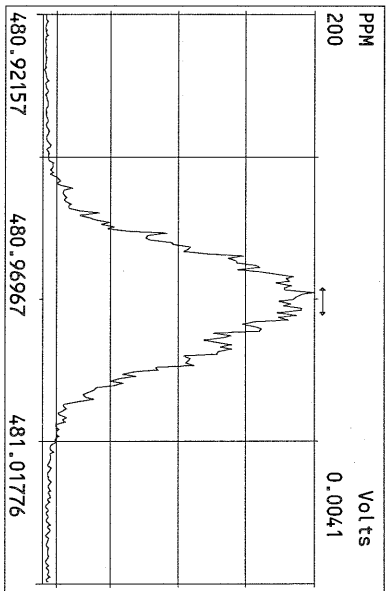
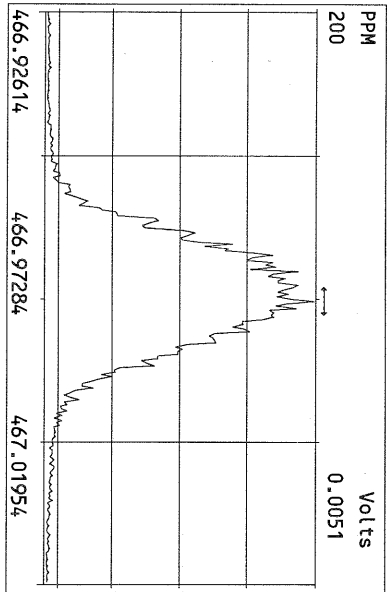
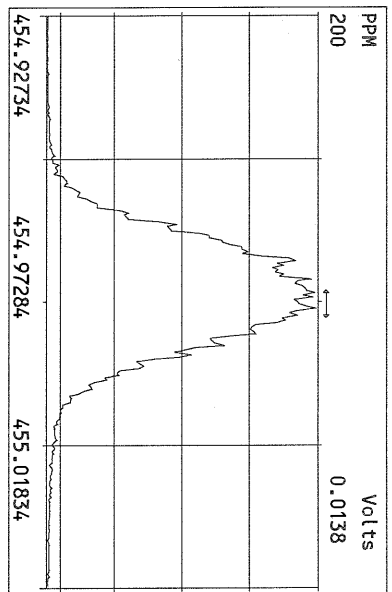
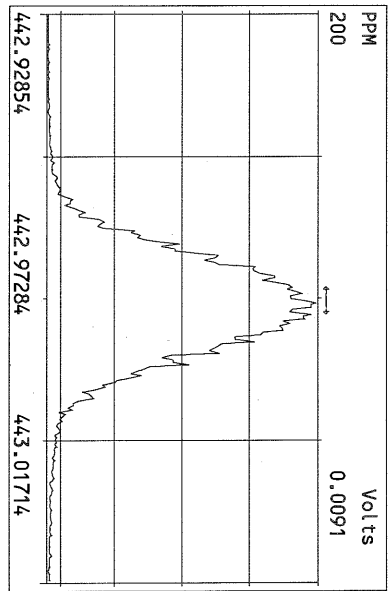
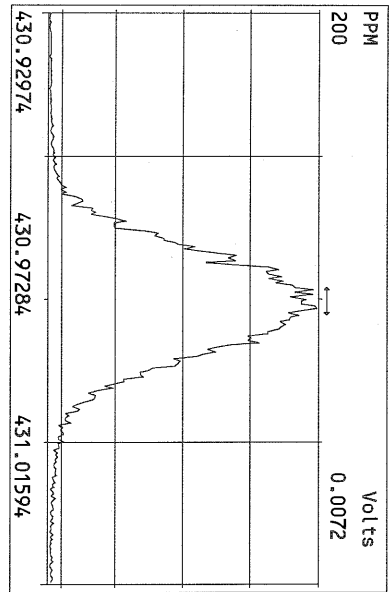












USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 02OCT10M Sam:12


Analysis Date: 2-OCT-10 18:58:36

| NATIVE ANALYTES | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| 2,3,7,8-TCDD | M/M+2 | 0.78 | 0.65-0.89 | y | 10.5 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.60 | 1.32-1.78 | y | 54.4 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.42 | 1.05-1.43 | y | 50.2 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.42 | 1.05-1.43 | y | 51.7 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 53.9 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.98 | 0.88-1.20 | y | 48.7 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 1.01 | 0.76-1.02 | y | 109 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.66 | 0.65-0.89 | y | 9.33 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.53 | 1.32-1.78 | y | 53.7 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.51 | 1.32-1.78 | y | 53.6 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.26 | 1.05-1.43 | y | 46.5 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 48.1 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.21 | 1.05-1.43 | y | 48.1 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 49.3 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.05 | 0.88-1.20 | y | 49.7 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.04 | 0.88-1.20 | y | 50.0 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.92 | 0.76-1.02 | y | 110 | 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: 10/4/10

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 02OCT10M

Sam:12

Analysis Date: 2-OCT-10 18:58:36

| 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 | 0.84 | 0.65-0.89 | y | 98.9 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.75 | 1.32-1.78 | y | 92.4 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.26 | 1.05-1.43 | y | 105 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.27 | 1.05-1.43 | y | 85.5 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.95 | 0.88-1.20 | y | 82.3 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.96 | 0.76-1.02 | y | 157 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.88 | 0.65-0.89 | y | 96.4 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.74 | 1.32-1.78 | y | 82.3 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.78 | 1.32-1.78 | y | 81.8 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 130 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 108 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 106 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.52 | 0.43-0.59 | y | 105 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.42 | 0.37-0.51 | y | 89.3 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.42 | 0.37-0.51 | y | 85.8 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.99 | 0.76-1.02 | y | 152 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 9.65 | 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: 10/4/10

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: 8/23/10
RT Window Data Filename: 02OCT10M Sam:12 Analysis Date: 2-OCT-10 Time: 18:58:36
DB-5 IS Data Filename: 02OCT10M Sam:12 Analysis Date: 2-OCT-10 Time: 18:58:36
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) | 24:25 ✓ | 1,3,6,8-TCDF (F) | 23:04 ✓ |
| 1,2,8,9-TCDD (L) | 28:21 ✓ | 1,2,8,9-TCDF (L) | 28:34 ✓ |
| 1,2,4,7,9-PeCDD (F) | 30:17 ✓ | 1,3,4,6,8-PeCDF (F) | 28:26 ✓ |
| 1,2,3,8,9-PeCDD (L) | 33:50 ✓ | 1,2,3,8,9-PeCDF (L) | 34:14 ✓ |
| 1,2,4,6,7,9-HxCDD (F) | 36:10 ✓ | 1,2,3,4,6,8-HxCDF (F) | 35:17 ✓ |
| 1,2,3,7,8,9-HxCDD (L) | 39:14 ✓ | 1,2,3,7,8,9-HxCDF (L) | 39:48 ✓ |
| 1,2,3,4,6,7,9-HpCDD (F) | 42:51 ✓ | 1,2,3,4,6,7,8-HpCDF (F) | 42:19 ✓ |
| 1,2,3,4,6,7,8-HpCDD (L) | 44:13 ✓ | 1,2,3,4,7,8,9-HpCDF (L) | 45:08 ✓ |

(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: 10/4/10

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 2-OCT-10 18:58:36

CS3 or VER Data Filename: 02OCT10M

Sam:12

| NATIVE ANALYTES | RETENTION TIME | | RRT | RRT |
|---------------------|---------------------|--|-------|---------------|
| | REFERENCE | | | QC LIMITS (1) |
| 2,3,7,8-TCDD | 13C-2,3,7,8-TCDD | | 1.001 | 0.999-1.002 ✓ |
| 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 | | 1.001 | 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 | | | 0.994 | 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 | | | 1.223 | 0.923-1.303 ✓ |

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

Analyst: Date: 10/19/10

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 2-OCT-10 18:58:36

CS3 or VER Data Filename: 02OCT10M

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 | 1.000 | 0.999-1.001 ✓ |
| 1,2,3,6,7,8-HxCDF | 13C-1,2,3,6,7,8-HxCDF | 1.001 | 0.997-1.005 ✓ |
| 2,3,4,6,7,8-HxCDF | 13C-2,3,4,6,7,8-HxCDF | 1.001 | 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 | 1.000 | 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 | 1.000 | 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 | | 0.989 | 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 | | 1.014 | 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 | | 1.150 | 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: 10/4/10

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | Rec | #Hom |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|----------|
| 2,3,7,8-TCDD | 1.15e+06 | 0.78 y | 27:25 | 1.11 | 10.5 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDD | 4.56e+06 | 1.60 y | 33:15 | 1.10 | 54.4 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDD | 3.72e+06 | 1.42 y | 38:37 | 1.37 | 50.2 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDD | 2.95e+06 | 1.42 y | 38:46 | 1.37 | 51.7 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDD | 3.50e+06 | 1.40 y | 39:14 | 1.36 | 53.9 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDD | 2.39e+06 | 0.98 y | 44:13 | 1.45 | 48.7 | | 2.50 | - | - | * | |
| OCDD | 3.21e+06 | 1.01 y | 49:47 | 1.43 | 109 | | 2.50 | - | - | * | |
| 2,3,7,8-TCDF | 2.45e+06 | 0.66 y | 26:40 | 1.50 | 9.33 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDF | 6.37e+06 | 1.53 y | 31:31 | 0.94 | 53.7 | | 2.50 | - | - | * | |
| 2,3,4,7,8-PeCDF | 6.07e+06 | 1.51 y | 32:49 | 0.94 | 53.6 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDF | 5.01e+06 | 1.26 y | 37:14 | 0.93 | 46.5 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDF | 5.20e+06 | 1.27 y | 37:26 | 0.82 | 48.1 | | 2.50 | - | - | * | |
| 2,3,4,6,7,8-HxCDF | 4.52e+06 | 1.21 y | 38:22 | 0.92 | 48.1 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDF | 5.05e+06 | 1.27 y | 39:48 | 1.00 | 49.3 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDF | 3.29e+06 | 1.05 y | 42:19 | 1.39 | 49.7 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8,9-HpCDF | 2.24e+06 | 1.04 y | 45:08 | 1.36 | 50.0 | | 2.50 | - | - | * | |
| OCDF | 3.39e+06 | 0.92 y | 50:08 | 0.79 | 110 | | 2.50 | - | - | * | |
| 13C-2,3,7,8-TCDD | 9.90e+06 | 0.84 y | 27:24 | 1.02 | 98.9 | | | | | 98.9 | |
| 13C-1,2,3,7,8-PeCDD | 7.60e+06 | 1.75 y | 33:13 | 0.84 | 92.4 | | | | | 92.4 | |
| 13C-1,2,3,4,7,8-HxCDD | 5.40e+06 | 1.26 y | 38:36 | 1.07 | 105 | | | | | 105 | |
| 13C-1,2,3,6,7,8-HxCDD | 4.16e+06 | 1.27 y | 38:46 | 1.01 | 85.5 | | | | | 85.5 | |
| 13C-1,2,3,4,6,7,8-HpCDD | 3.38e+06 | 0.95 y | 44:12 | 0.86 | 82.3 | | | | | 82.3 | |
| 13C-OCDD | 4.12e+06 | 0.96 y | 49:45 | 0.55 | 157 | | | | | 78.5 | |
| 13C-2,3,7,8-TCDF | 1.75e+07 | 0.88 y | 26:39 | 0.99 | 96.4 | | | | | 96.4 | |
| 13C-1,2,3,7,8-PeCDF | 1.26e+07 | 1.74 y | 31:30 | 0.84 | 82.3 | | | | | 82.3 | |
| 13C-2,3,4,7,8-PeCDF | 1.21e+07 | 1.78 y | 32:48 | 0.81 | 81.8 | | | | | 81.8 | |
| 13C-1,2,3,4,7,8-HxCDF | 1.16e+07 | 0.52 y | 37:13 | 1.85 | 130 | | | | | 130 | |
| 13C-1,2,3,6,7,8-HxCDF | 1.32e+07 | 0.52 y | 37:24 | 2.54 | 108 | | | | | 108 | |
| 13C-2,3,4,6,7,8-HxCDF | 1.02e+07 | 0.51 y | 38:20 | 2.01 | 106 | | | | | 106 | |
| 13C-1,2,3,7,8,9-HxCDF | 1.03e+07 | 0.52 y | 39:46 | 2.03 | 105 | | | | | 105 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 4.76e+06 | 0.42 y | 42:18 | 1.11 | 89.3 | | | | | 89.3 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 3.31e+06 | 0.42 y | 45:07 | 0.80 | 85.8 | | | | | 85.8 | |
| 13C-OCDF | 7.88e+06 | 0.99 y | 50:07 | 1.08 | 152 | | | | | 75.8 | |
| 37Cl-2,3,7,8-TCDD | 6.47e+05 | | 27:25 | 0.69 | 9.65 | | | | | 96.5 | |
| 13C-1,2,3,4-TCDD | 9.78e+06 | 0.84 y | 26:49 | - | 21.8 | | | | | | |
| 13C-1,2,3,4-TCDF | 1.82e+07 | 0.88 y | 25:34 | - | 25.2 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 4.80e+06 | 1.24 y | 39:13 | - | 17.4 | | | | | | |
| Total Tetra-Dioxins | 6.08e+06 | | 22:52 | 1.11 | 55.2 | | 2.50 | - | - | * | 32 |
| Total Penta-Dioxins | 1.05e+07 | | 29:41 | 1.10 | 125 | | 2.50 | - | - | * | 33 |
| Total Hexa-Dioxins | 1.19e+07 | | 35:06 | 1.37 | 182 | | 2.50 | - | - | * | 29 |
| Total Hepta-Dioxins | 5.55e+06 | | 41:28 | 1.45 | 113 | | 2.50 | - | - | * | 42 |
| Total Tetra-Furans | 1.19e+07 | | 23:04 | 1.50 | 45.4 | | 2.50 | - | - | * | 29 |
| 1st Fn. Tot Penta-Furans | 7.12e+06 | | 23:05 | 0.94 | 61.4 | | 2.50 | - | - | * | PeCDF 22 |
| Total Penta-Furans | 1.86e+07 | | 29:48 | 0.94 | 160 | | 2.50 | - | - | * | 222 30 |
| Total Hexa-Furans | 2.30e+07 | | 35:00 | 0.91 | 223 | | 2.50 | - | - | * | 33 |
| Total Hepta-Furans | 5.99e+06 | | 41:21 | 1.38 | 108 | | 2.50 | - | - | * | 50 |

Analyst: 

Date: 10/14/10

Frontier Analytical Laboratory - Acquisition Log

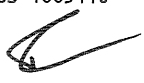
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GC: DB5

Experiment:PCDD

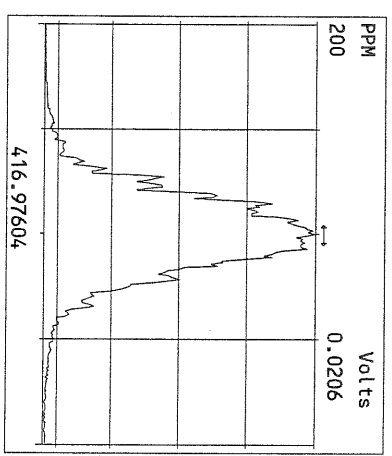
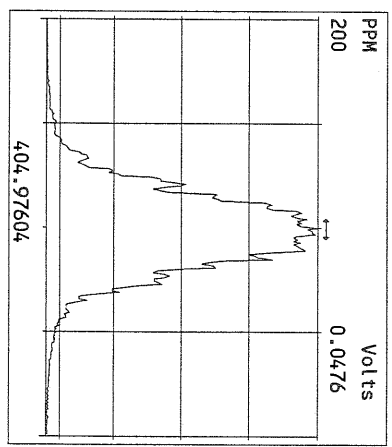
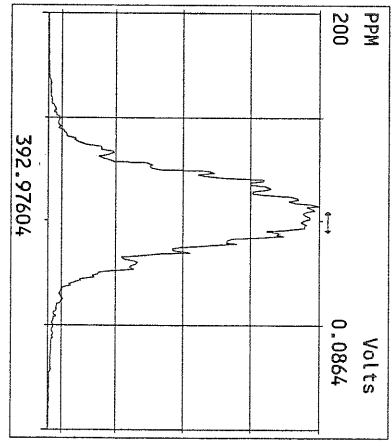
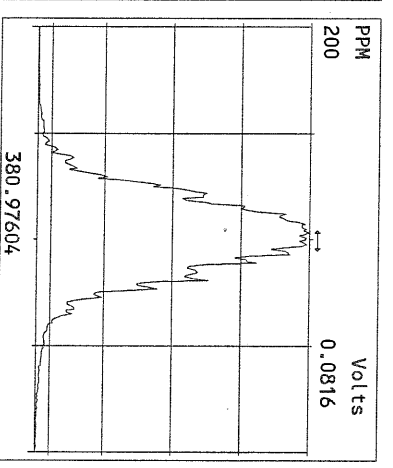
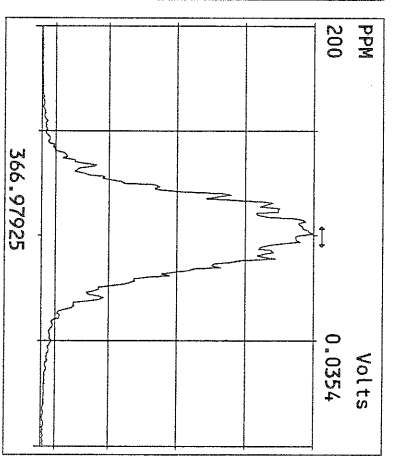
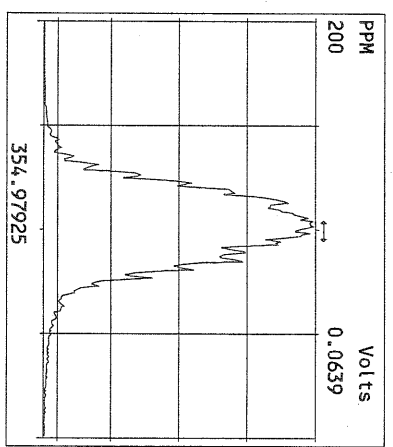
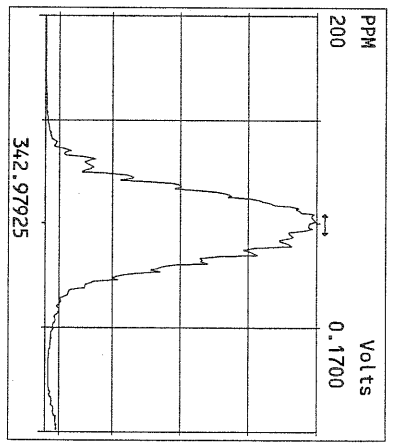
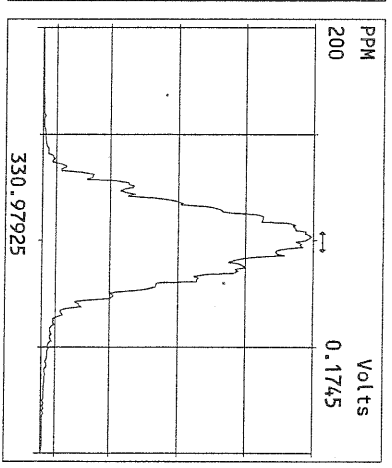
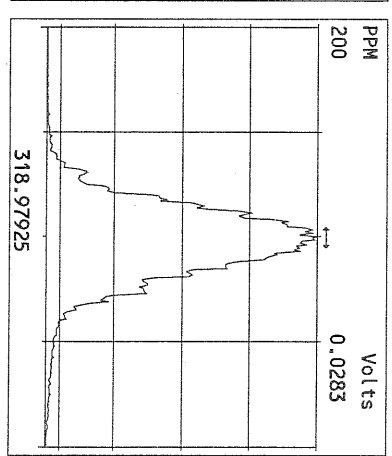
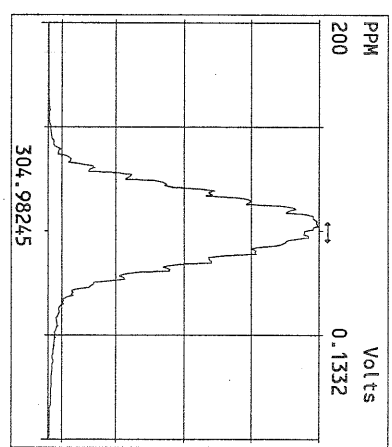
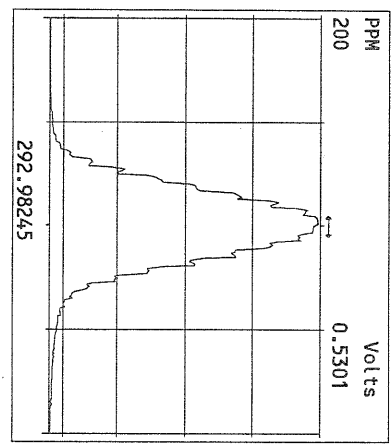
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| 02OCT10M | 7 | 6368-001-0001-SA | Final Effluent | 2-OCT-10 14:21:53 | ST100210M1 | ST100210M2 | TC |
| 02OCT10M | 8 | 6374-001-0001-SA | Paradise Cove Eff. Grab | 2-OCT-10 15:17:16 | ST100210M1 | ST100210M2 | TC |
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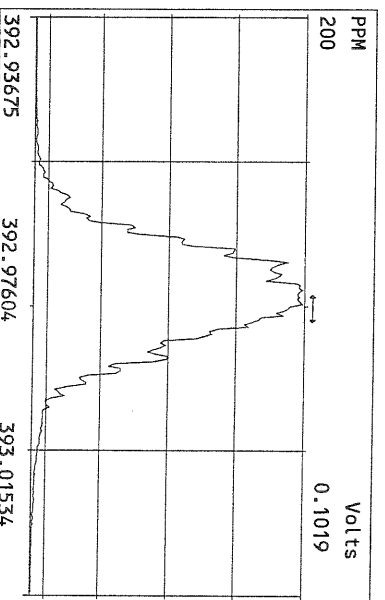
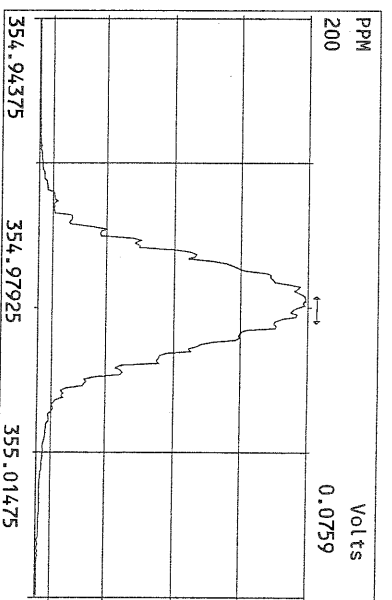
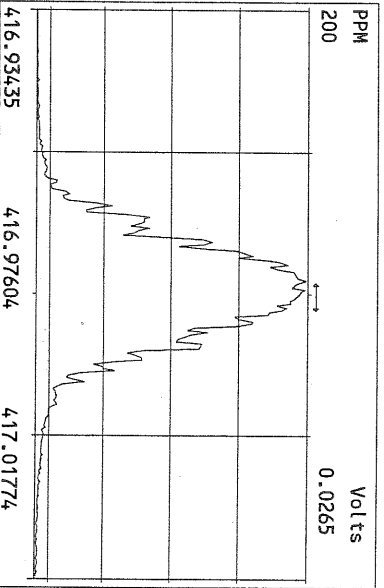
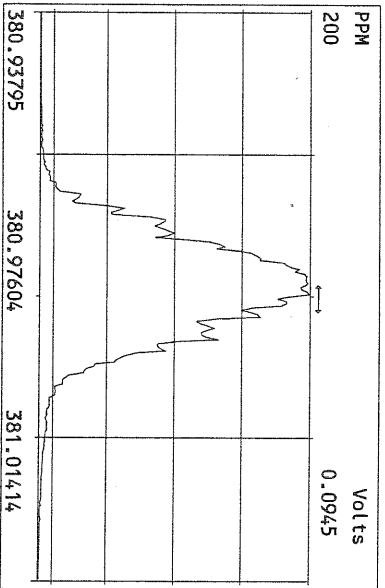
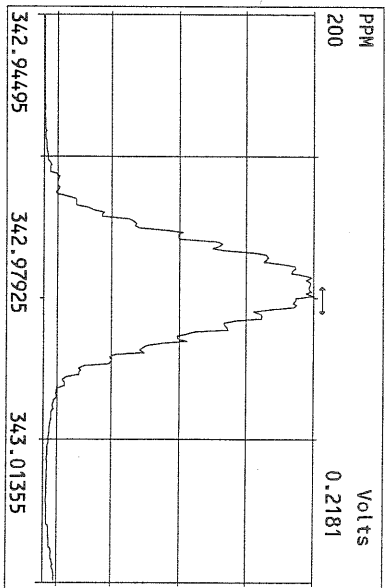
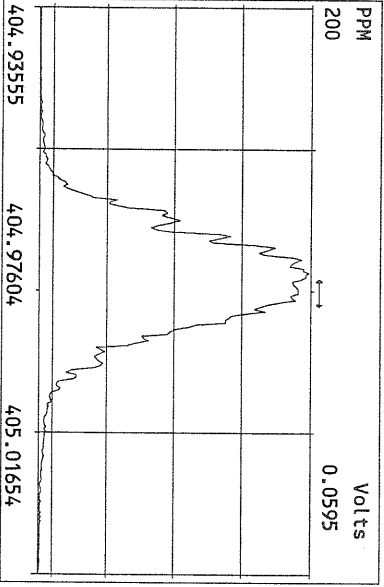
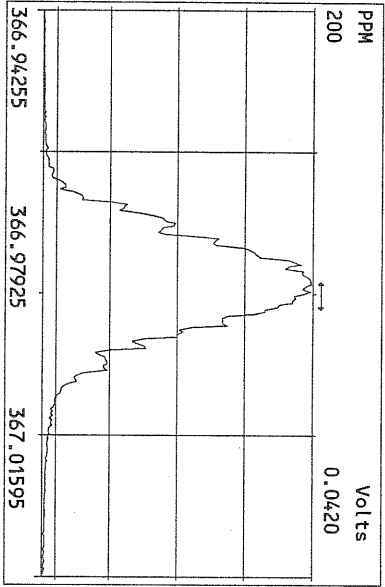
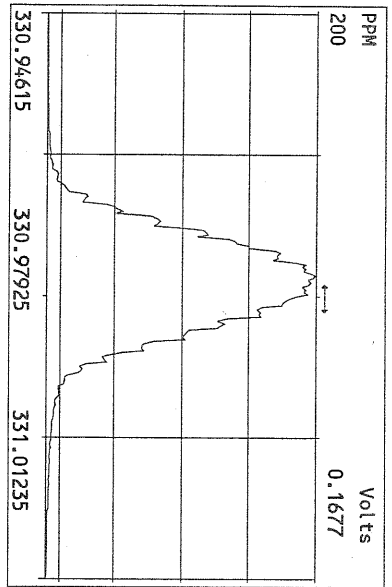


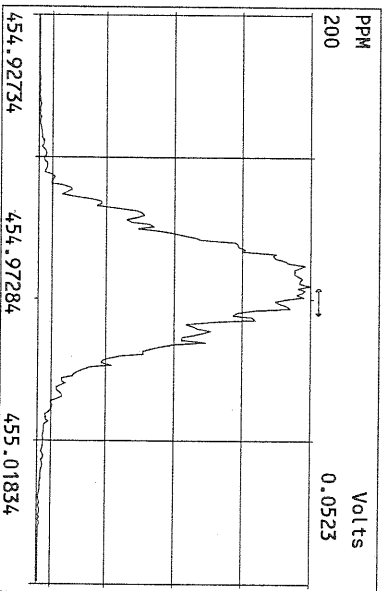
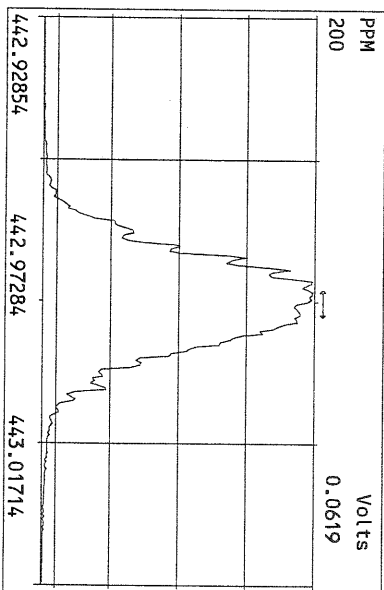
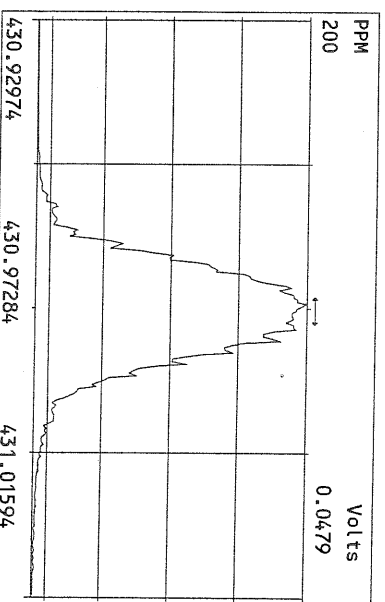
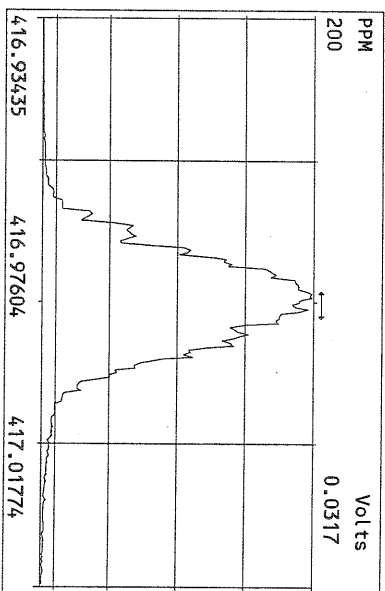
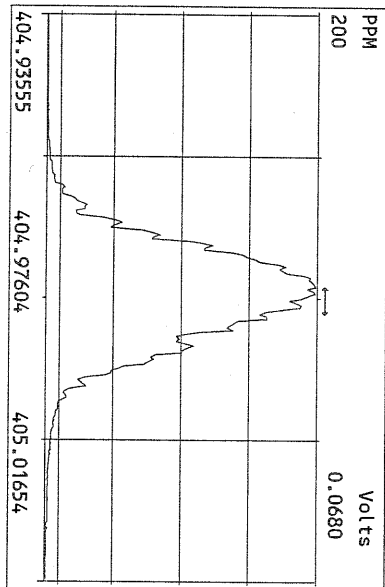
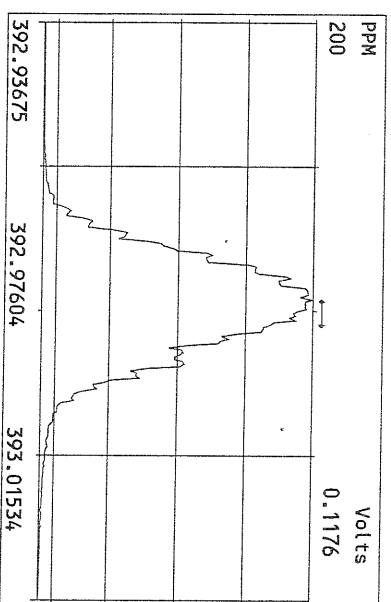
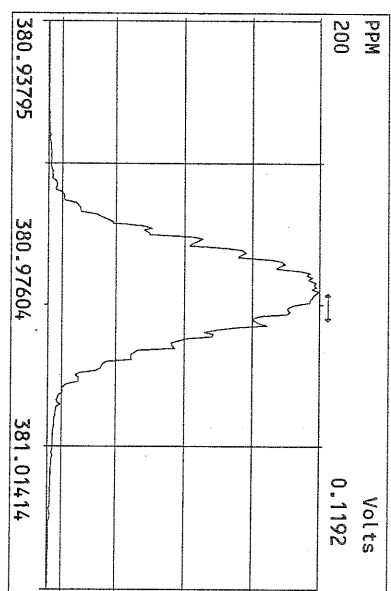
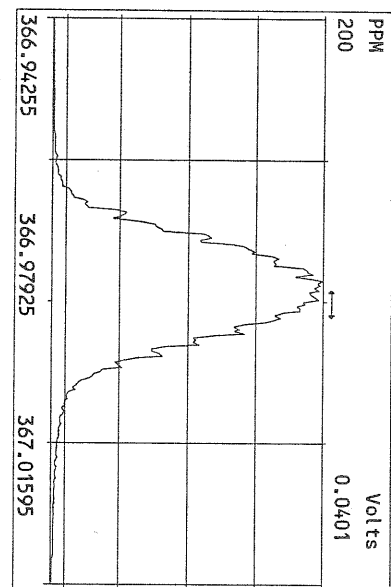
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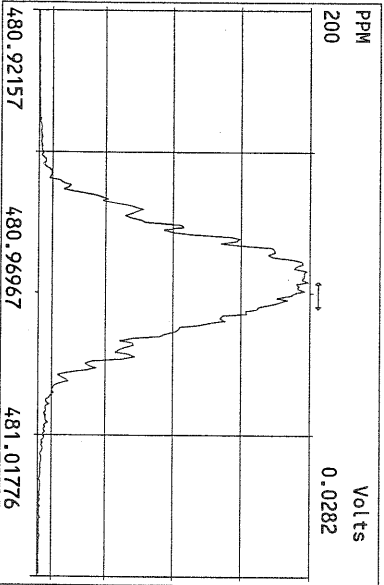
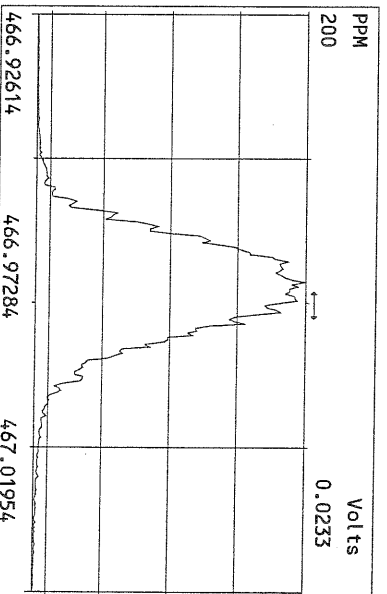
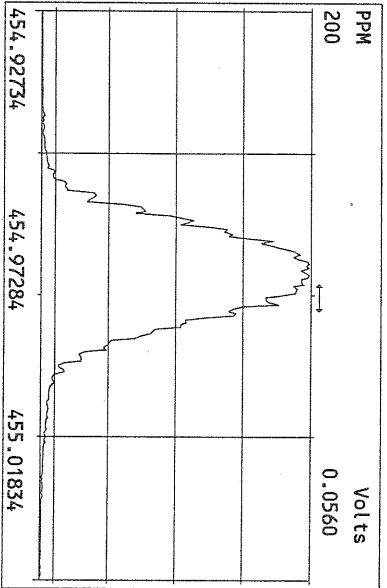
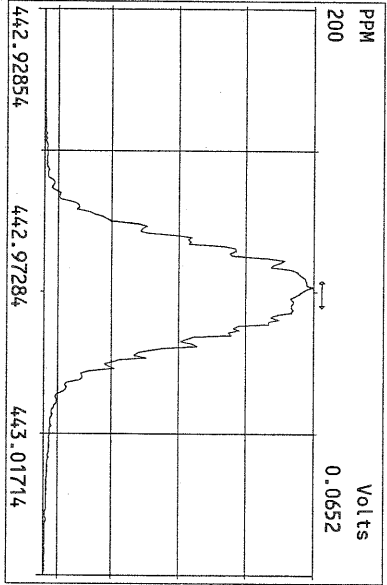
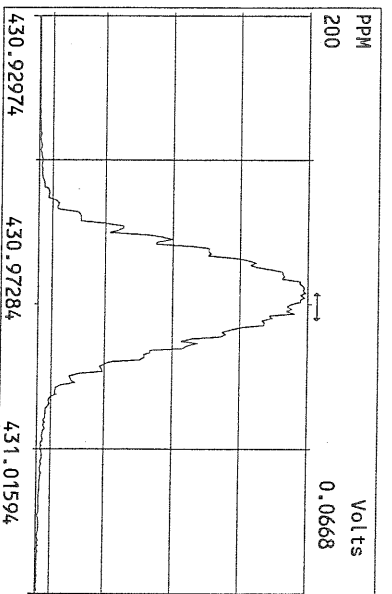
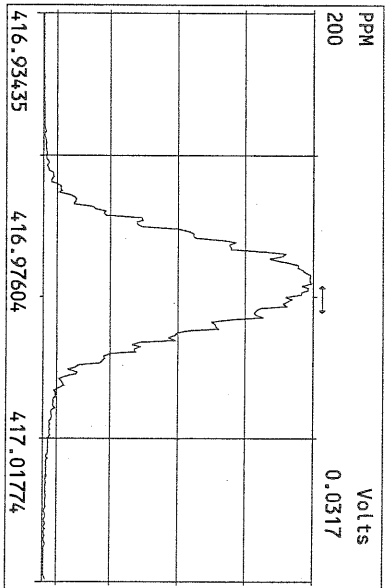
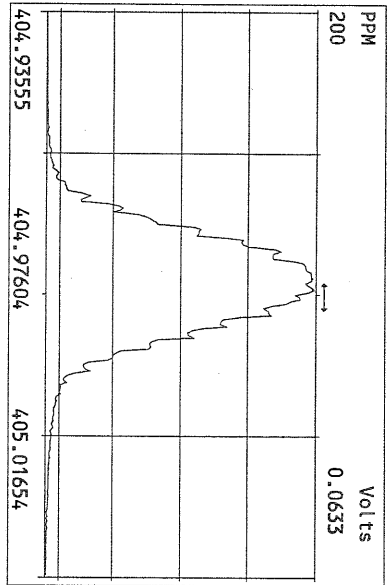
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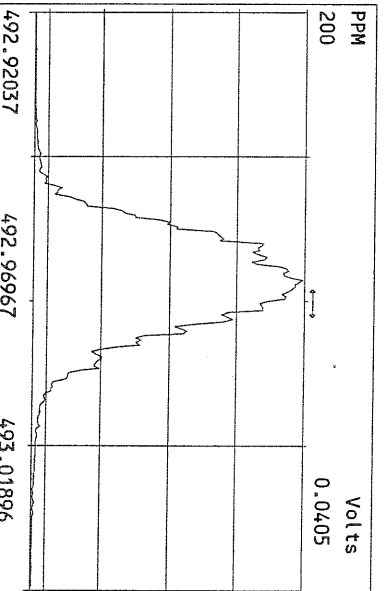
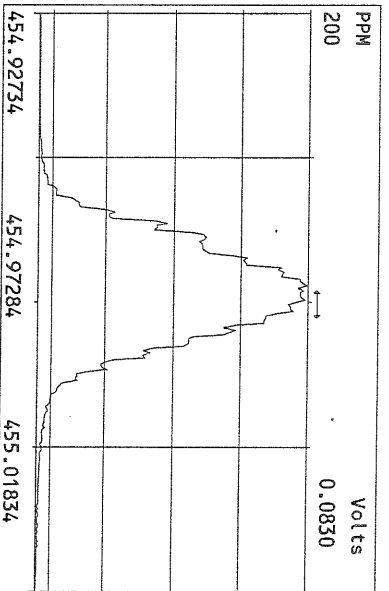
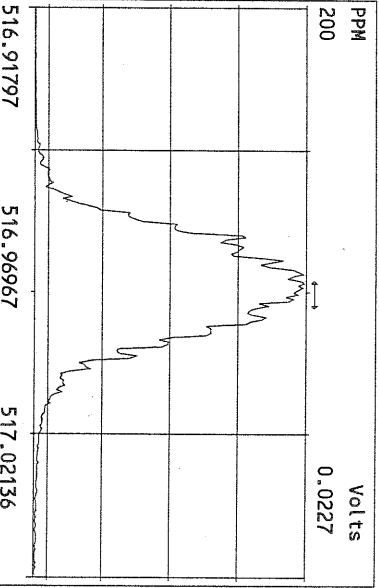
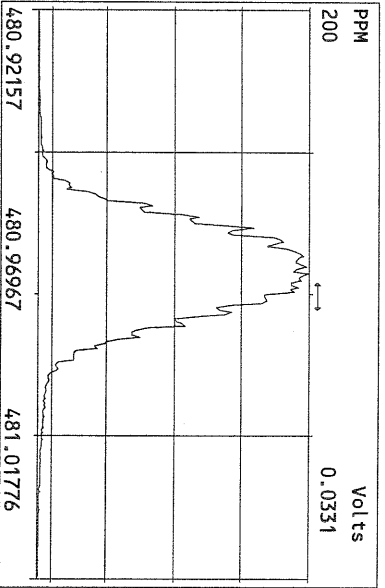
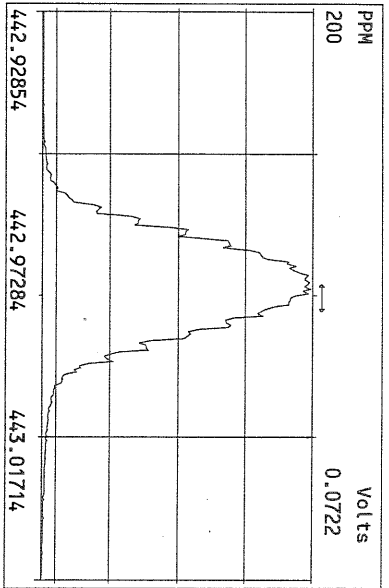
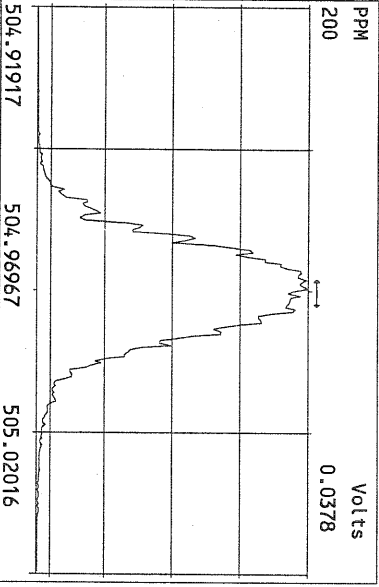
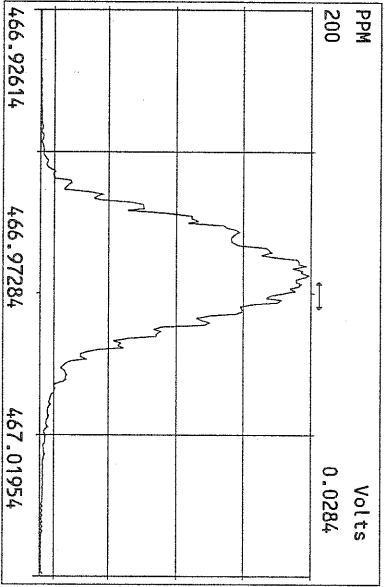
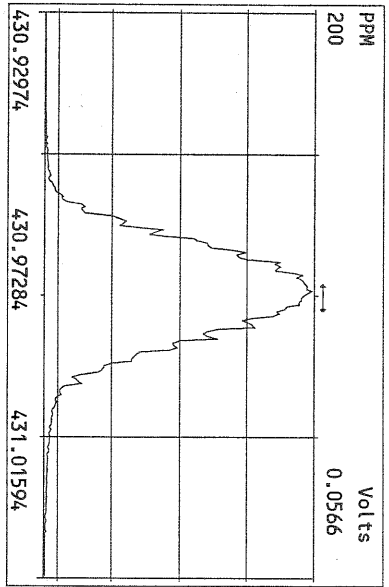
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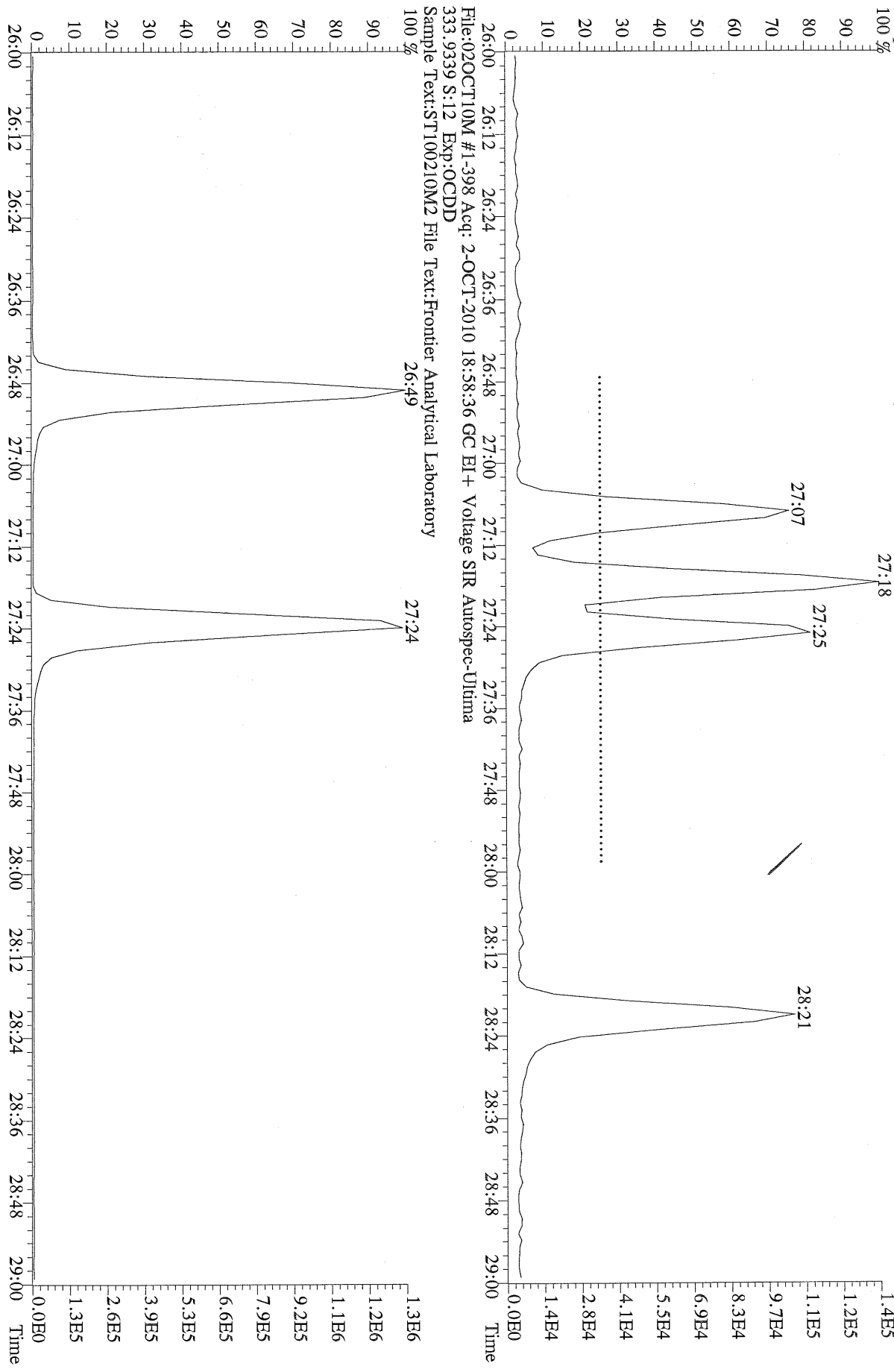




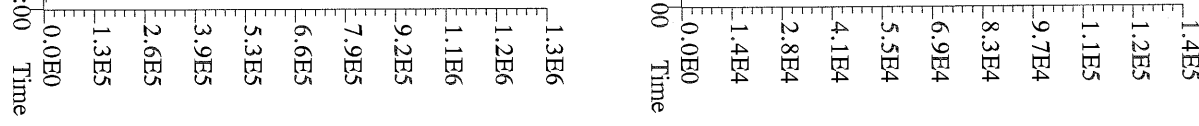




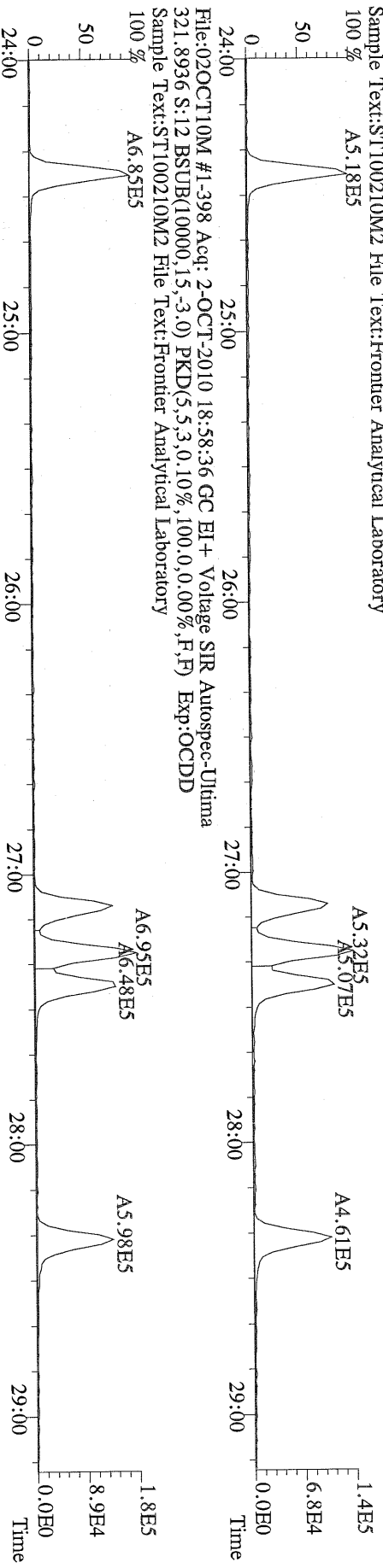
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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



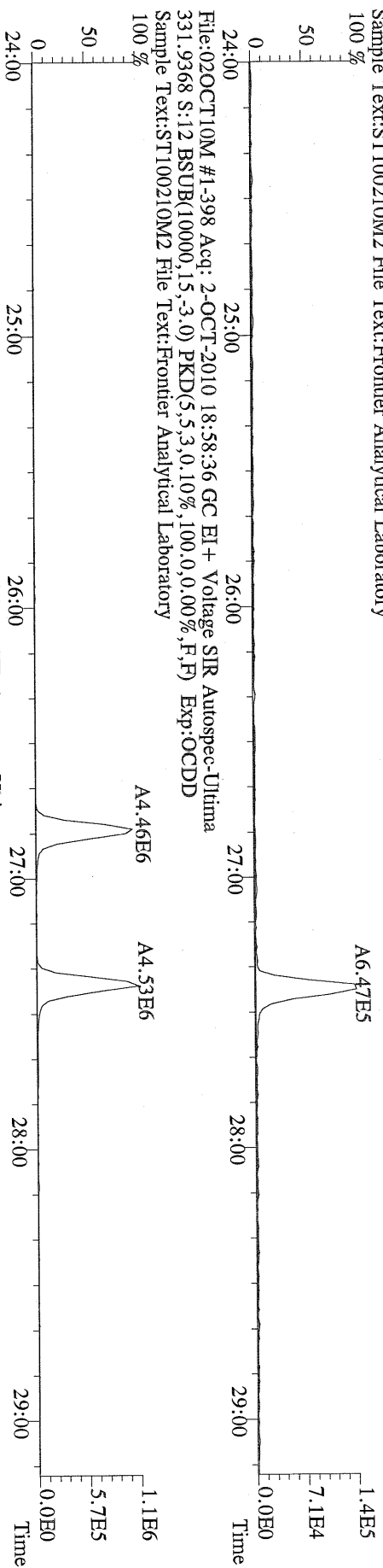
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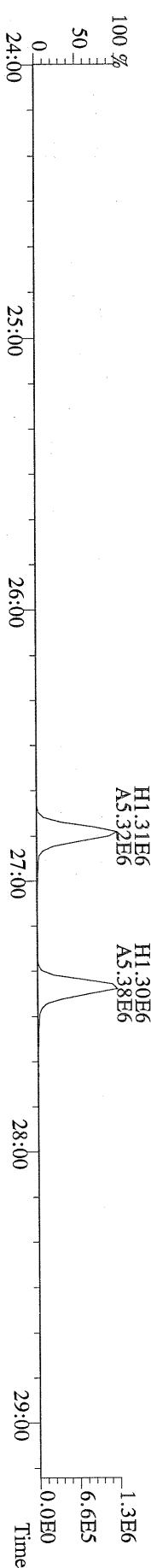
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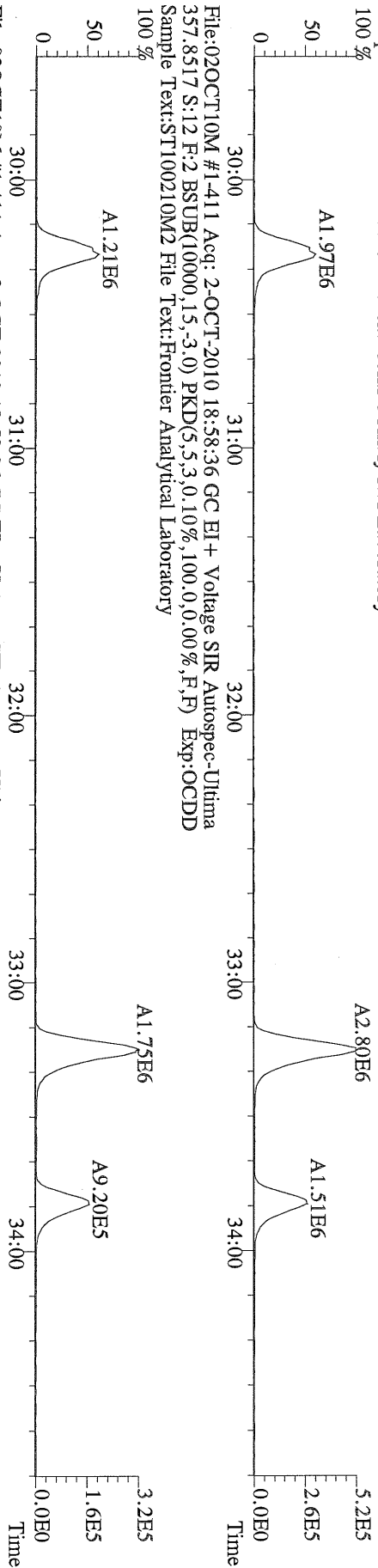
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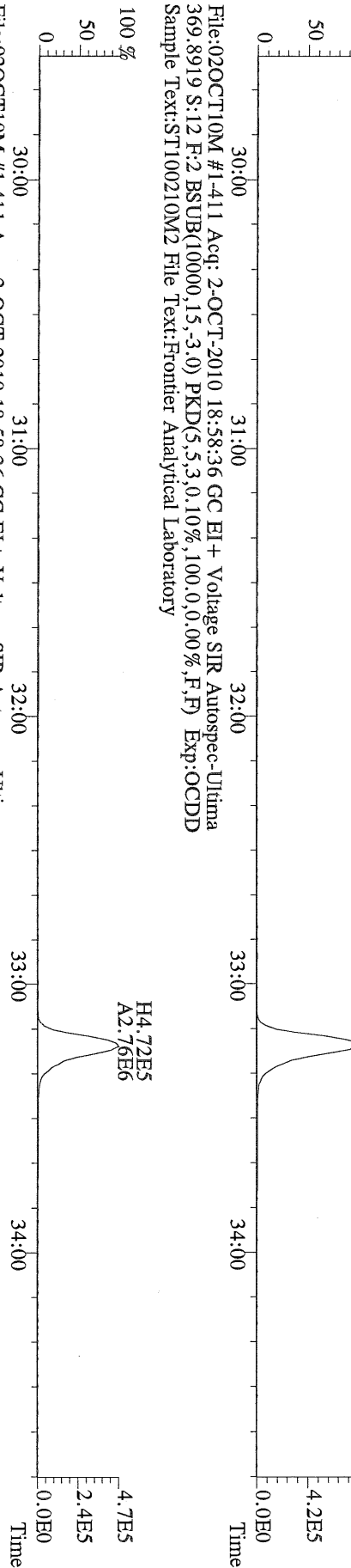
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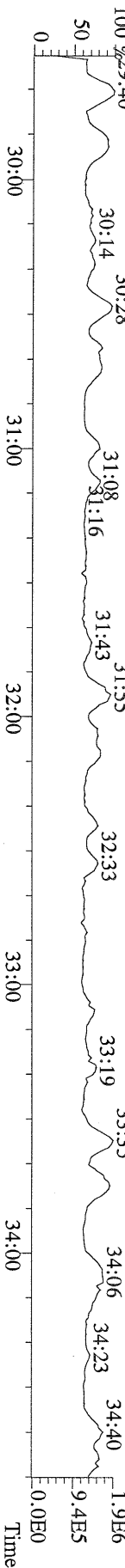
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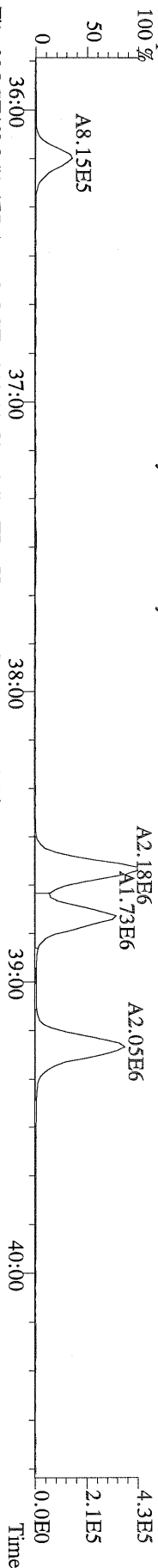
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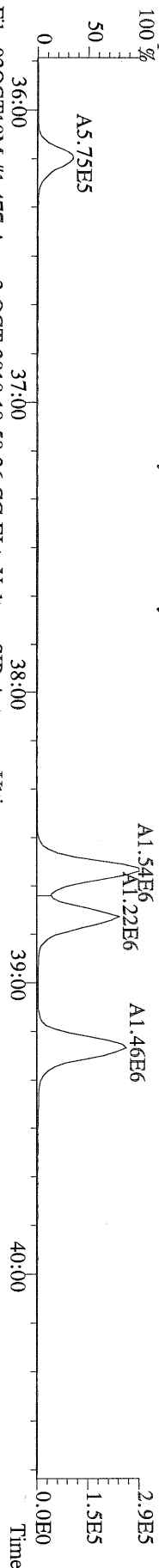
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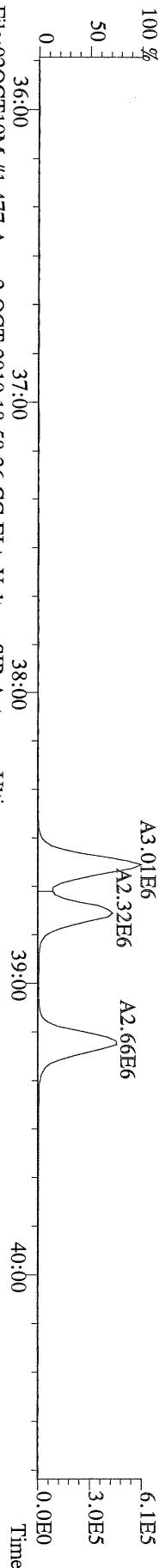
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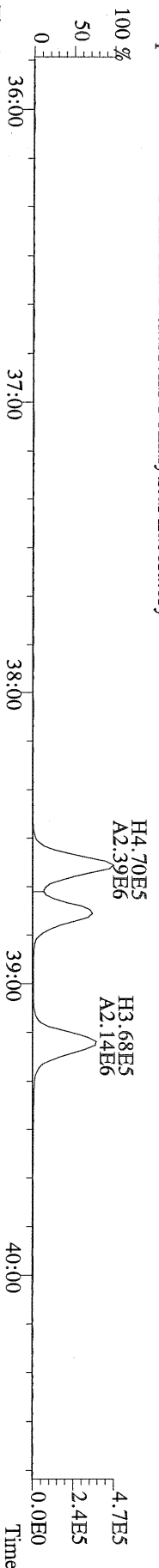
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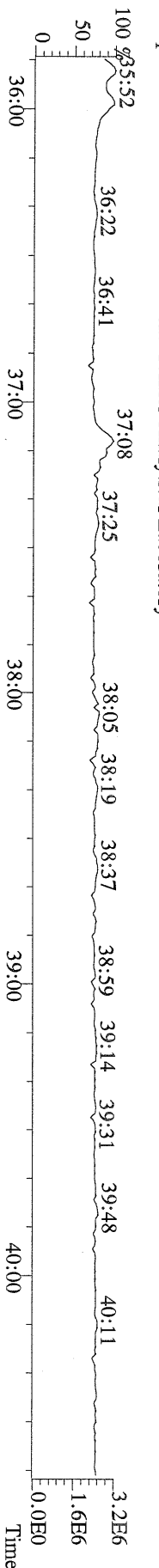
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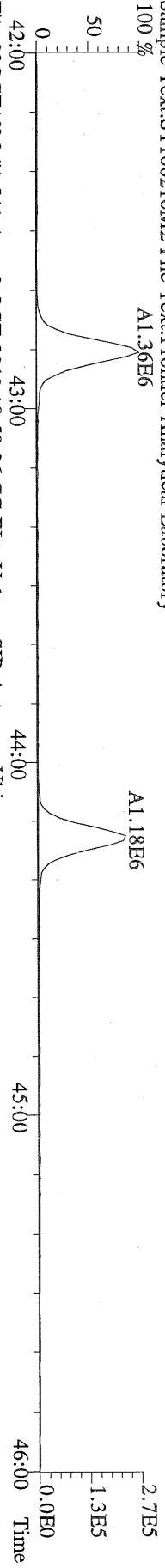
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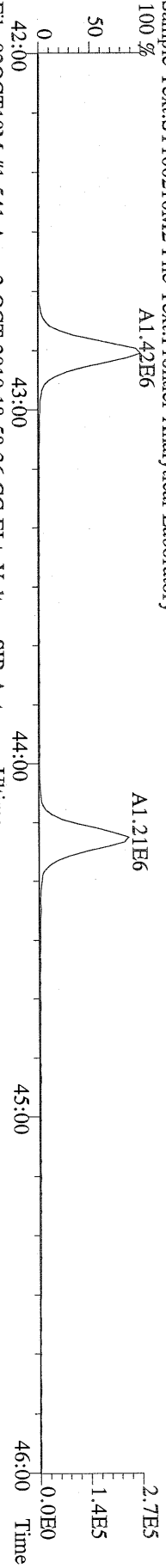
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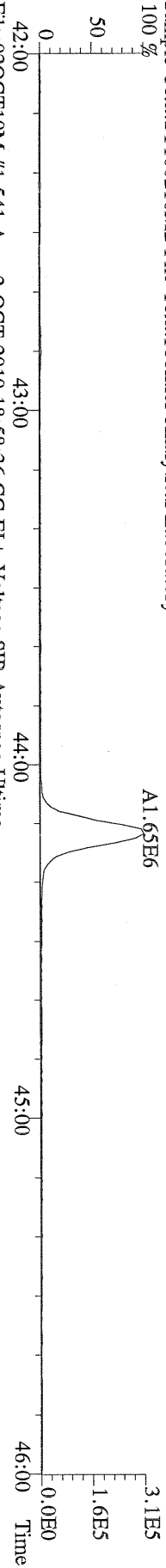
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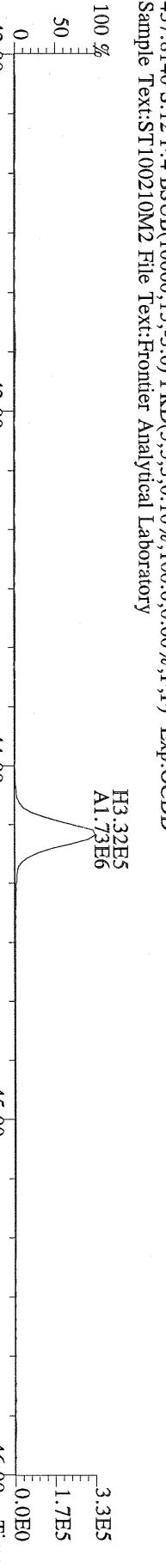
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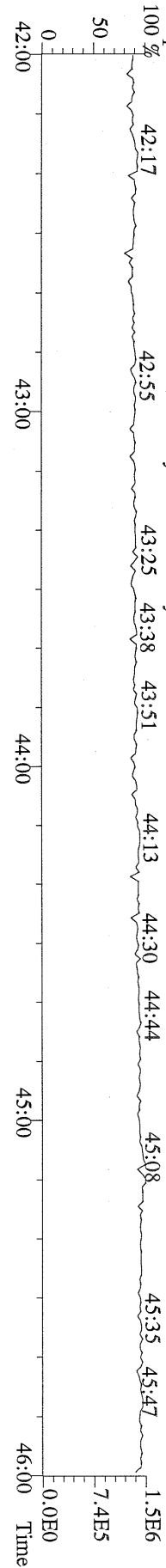
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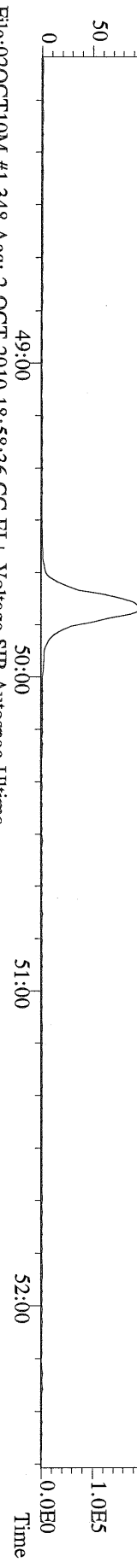
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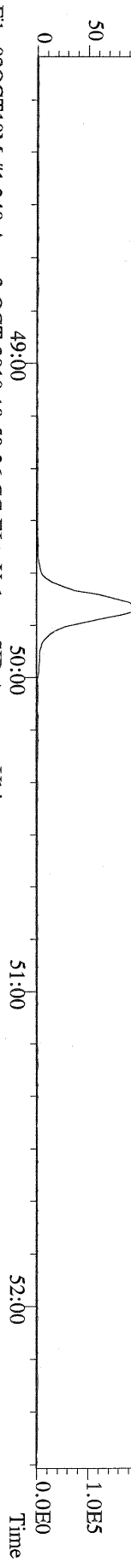
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430.9728 S:12 F:4 Exp:OCDD
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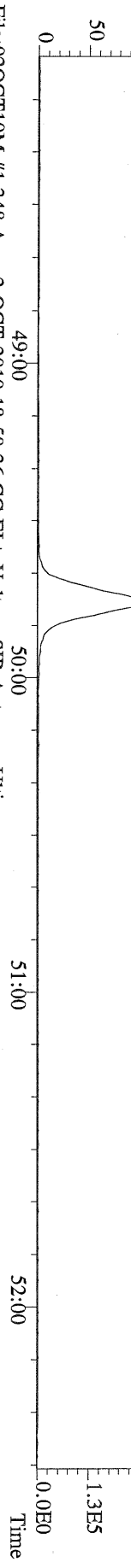
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457.7377 S:12 F:5 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



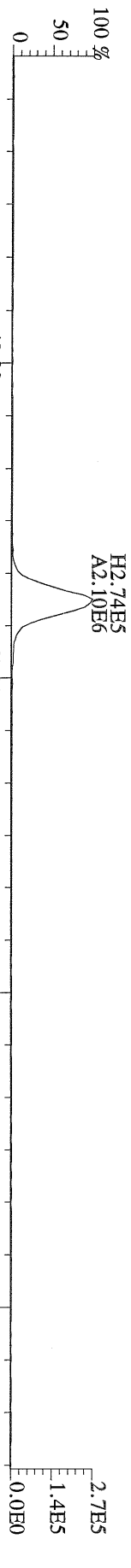
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459.7348 S:12 F:5 BSUB(10000,15,-3.0) PKD(5.5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



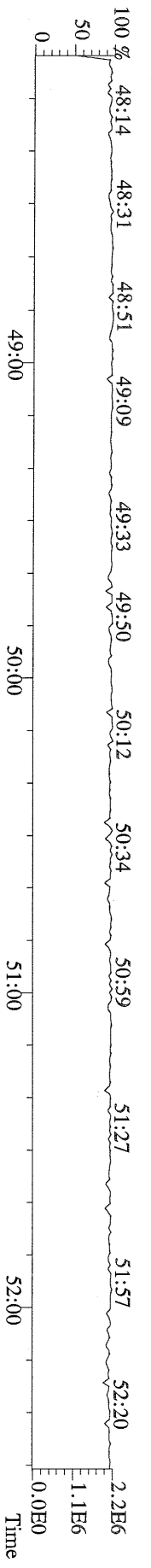
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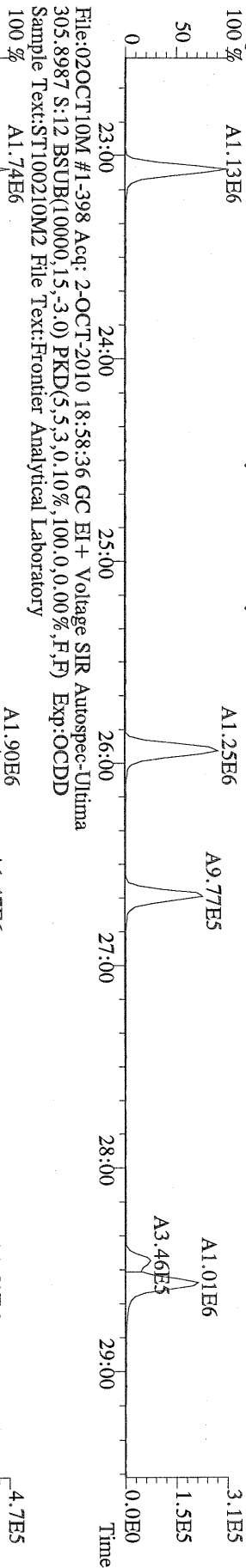
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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



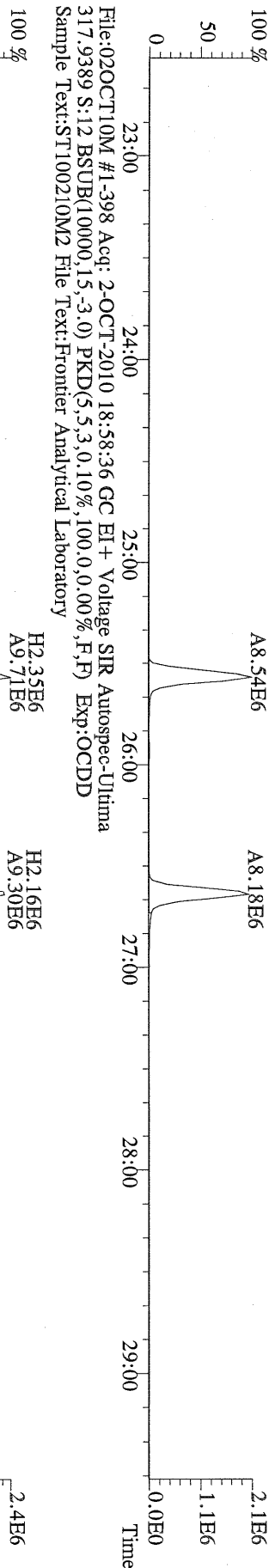
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454.9728 S:12 F:5 Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



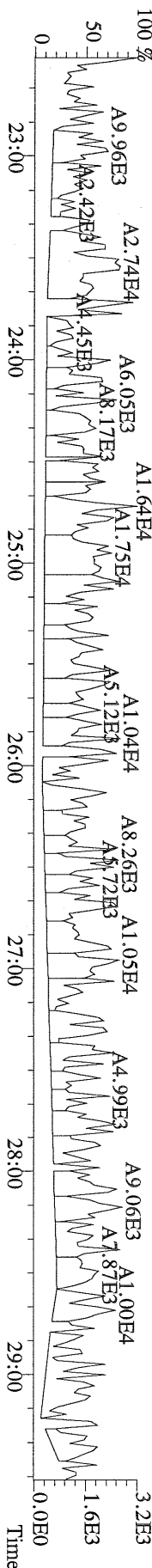
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303.9016 S:12 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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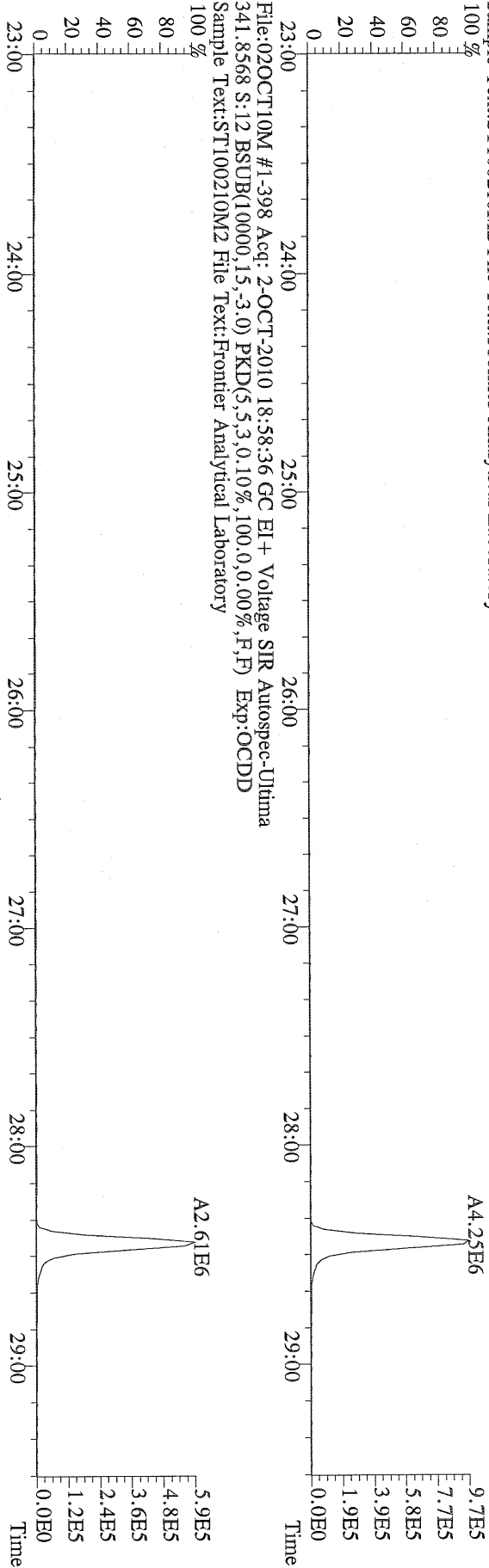
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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



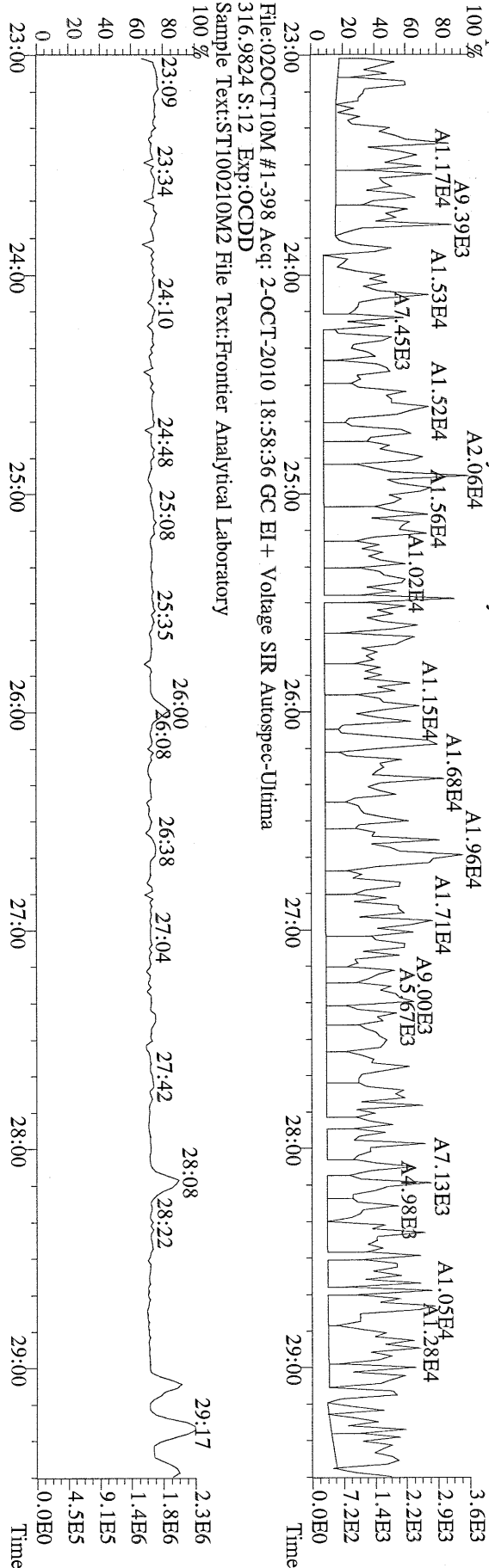
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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



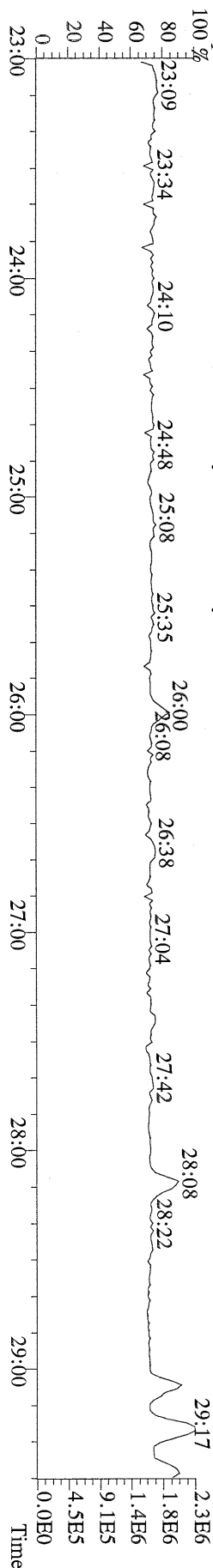
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 339.8597 S:12 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



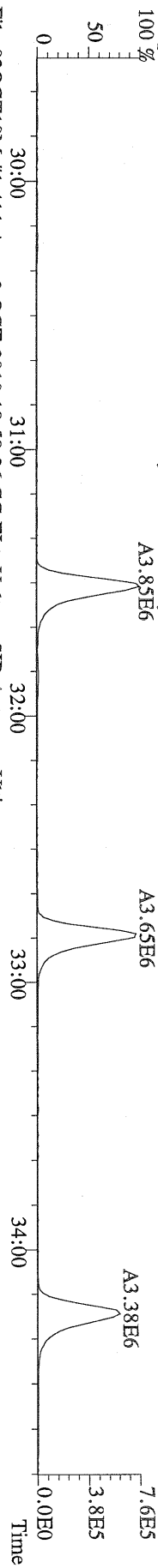
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 409.7974 S:12 BSUB(10000,15,-3.0) PKD(5,5,3.0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



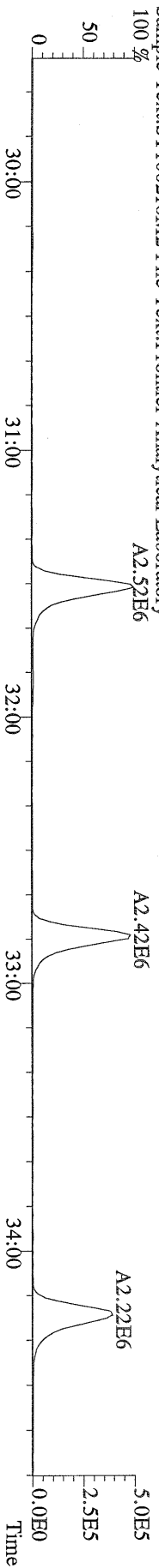
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 316.9824 S:12 Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



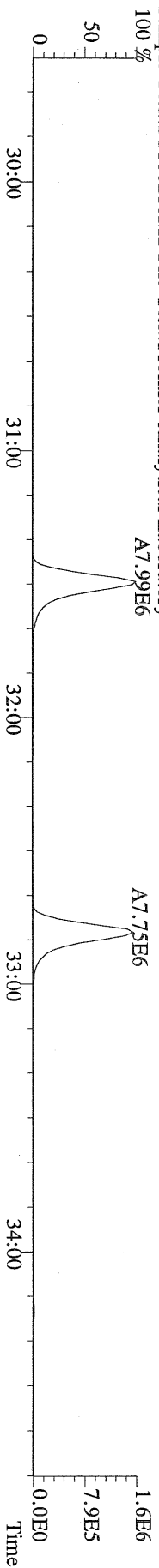
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 339.8597 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



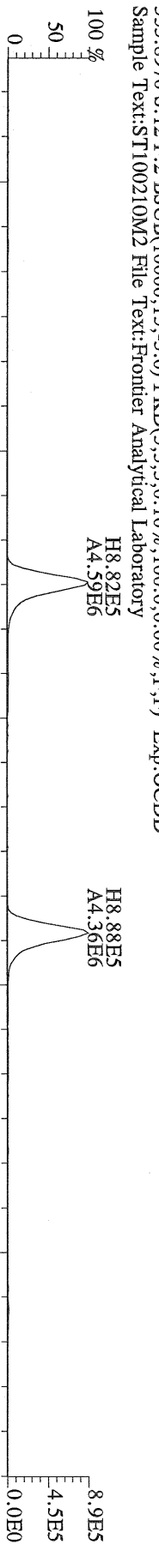
File:02OCT10M #1-411 Acq: 2-OCT-2010 18:58:36 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



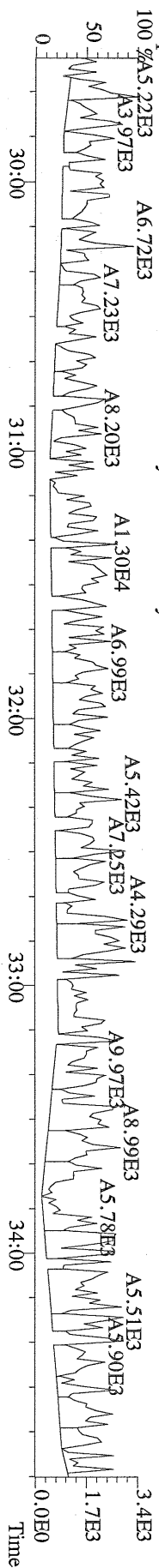
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 351.9000 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



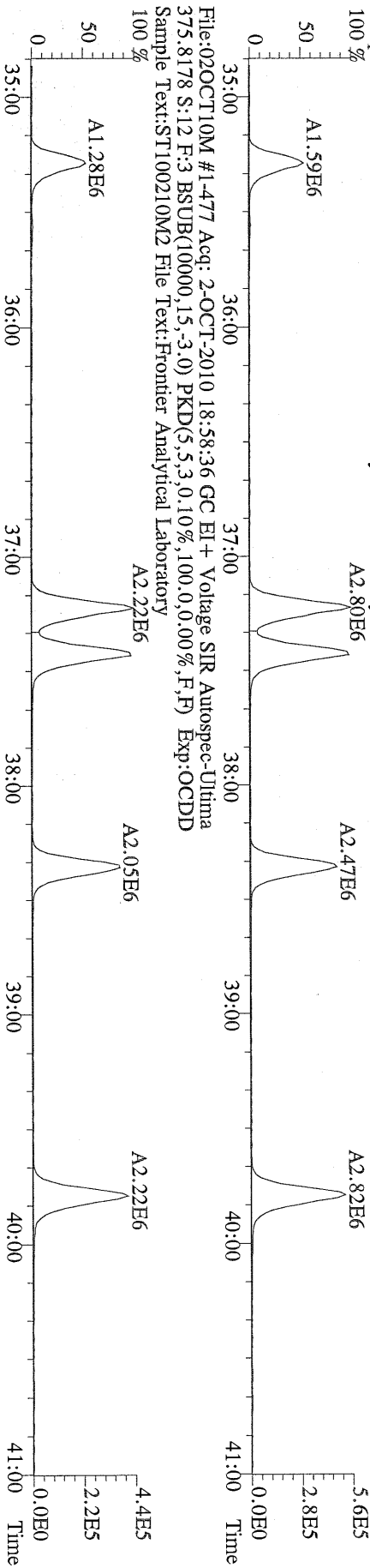
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 353.8970 S:12 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



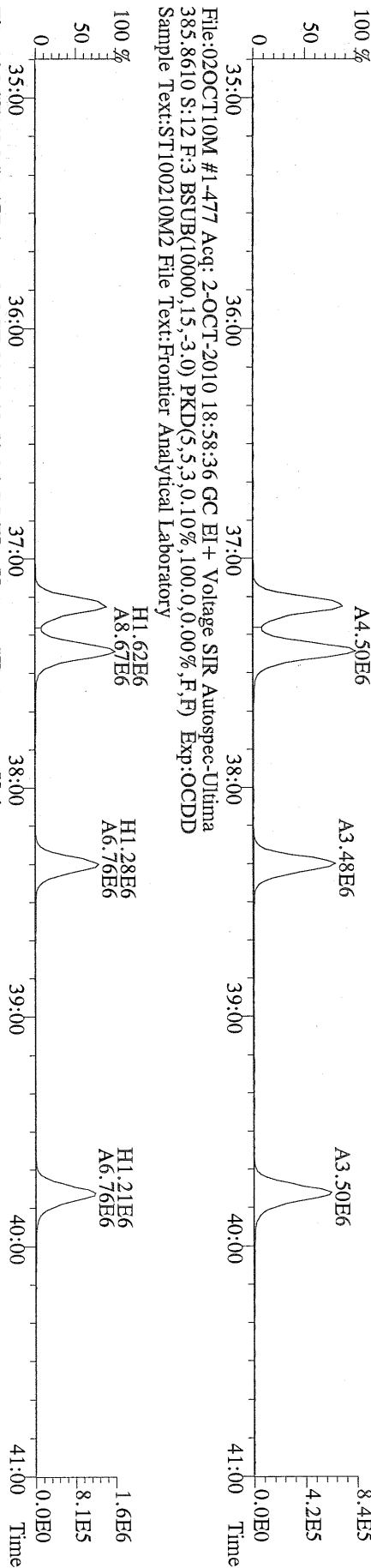
File:02OCT10M #1-411 Acq: 2-OCT-2010 18:58:36 GC EI+ Voltage SIR Autospec-Ultima
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 Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



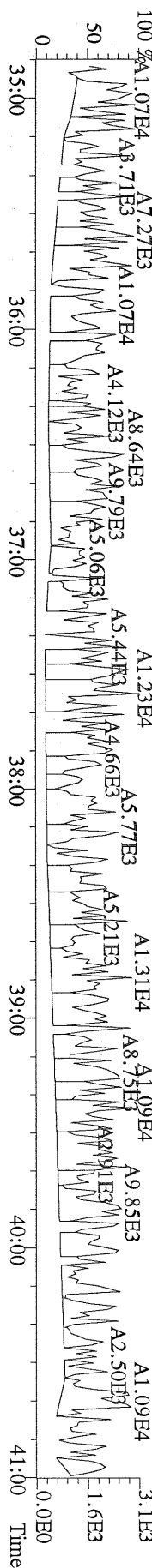
File:02OCT10M #1-477 Acq: 2-OCT-2010 18:58:36 GC EI+ Voltage SIR Autospec-Ultima
373.8207 S:12 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



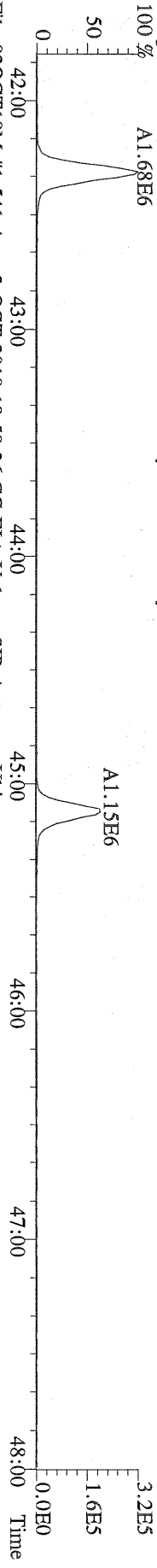
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383.8639 S:12 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



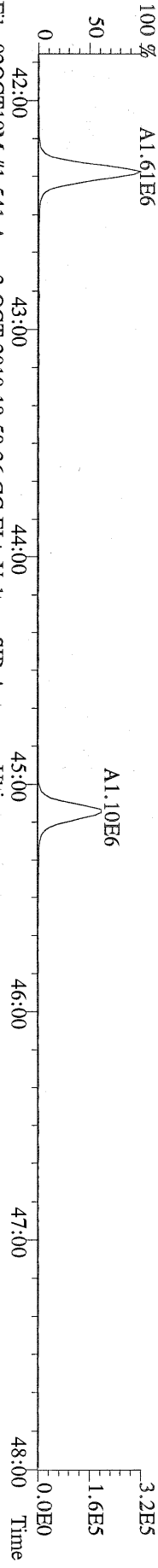
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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



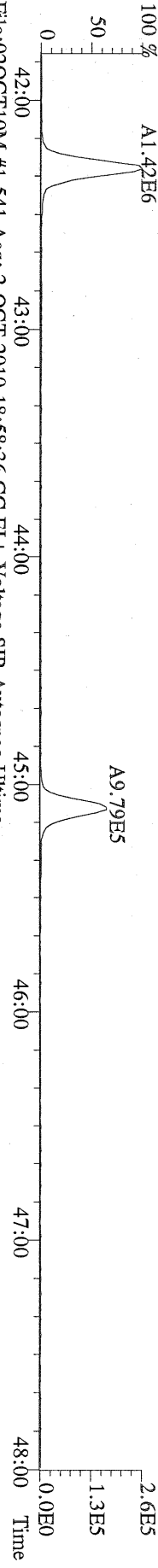
File:02OCT10M #1-541 Acq: 2-OCT-2010 18:58:36 GC EI+ Voltage SIR Autospec-Ultima
407.7818 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



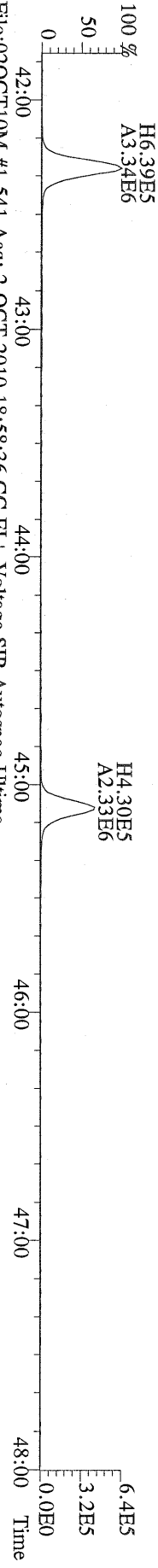
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409.7788 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



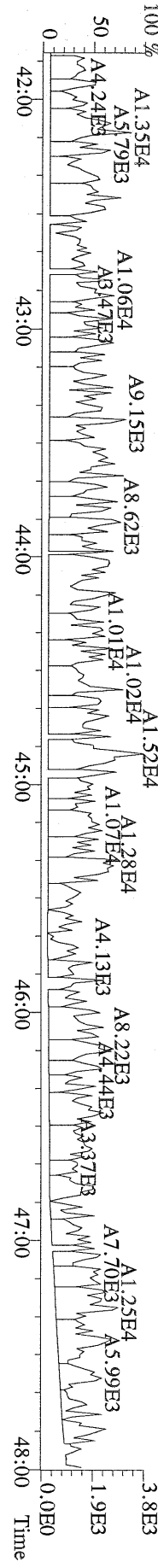
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417.8253 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



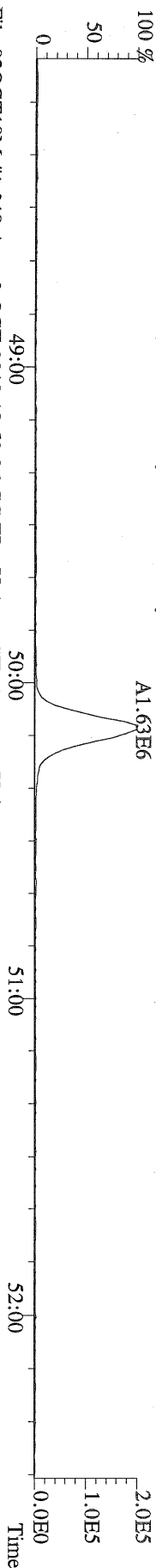
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419.8220 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



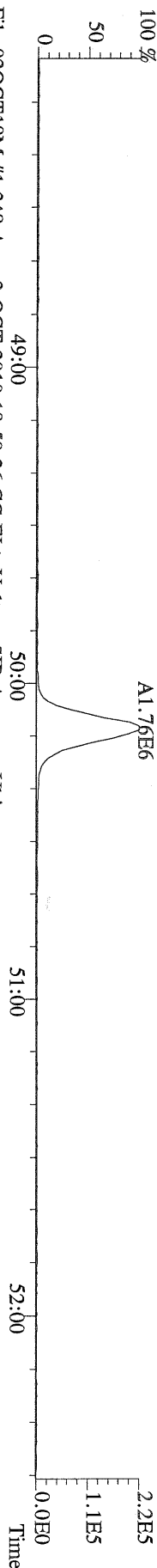
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479.7165 S:12 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



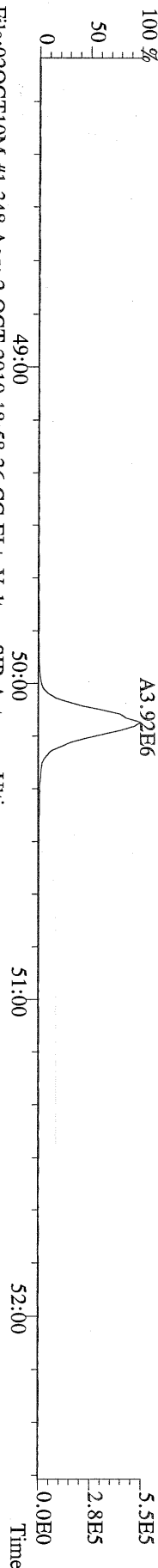
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441.7428 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



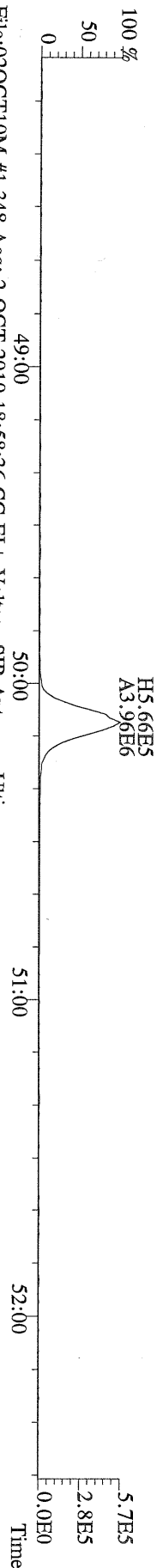
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443.7398 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



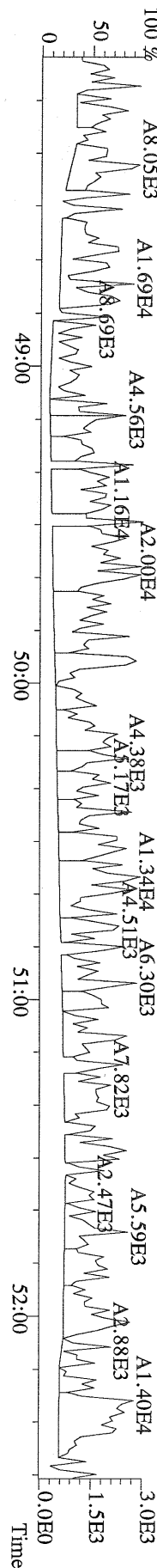
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453.7831 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory

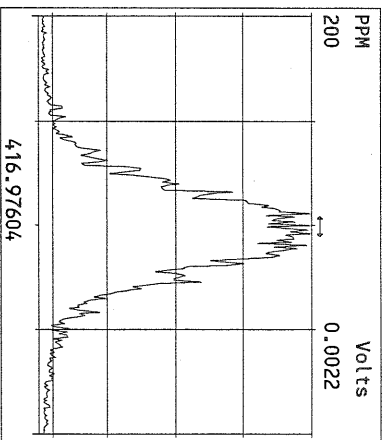
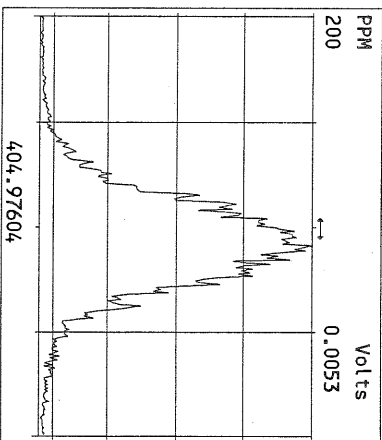
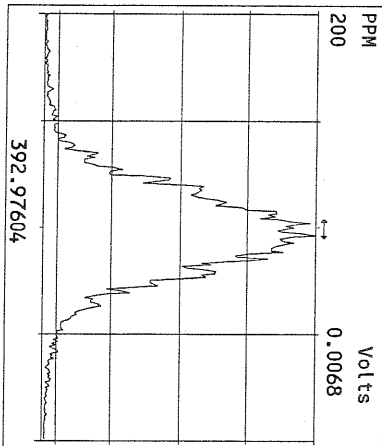
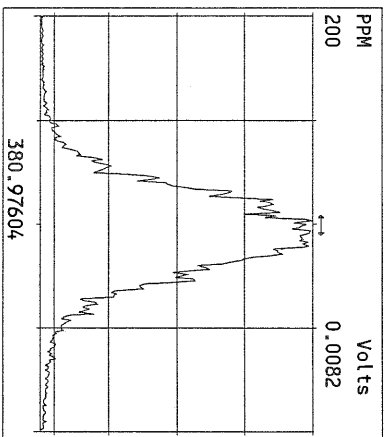
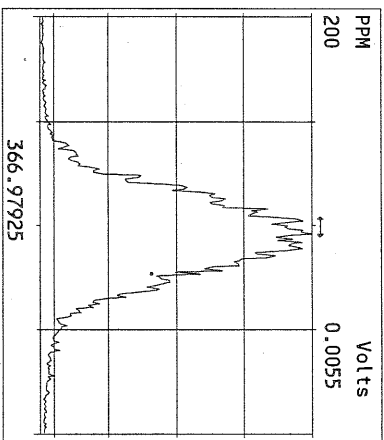
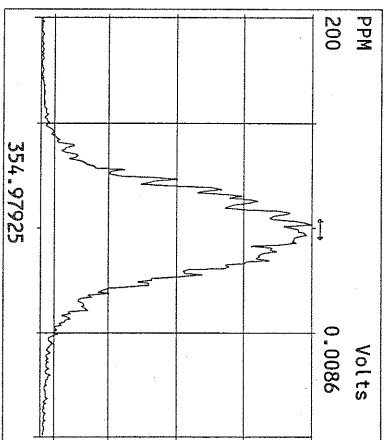
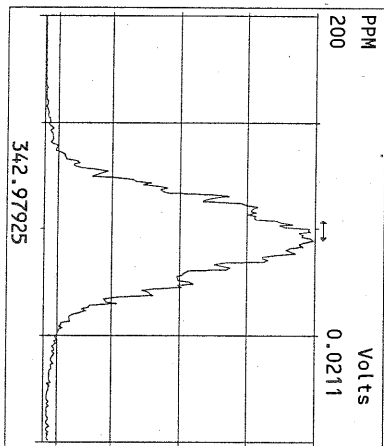
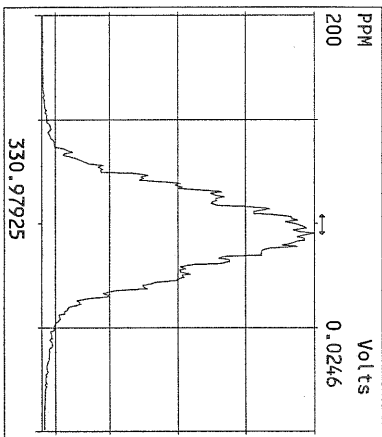
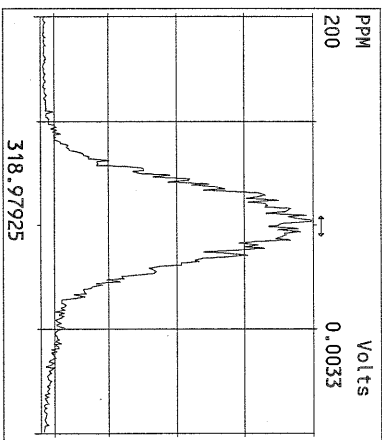
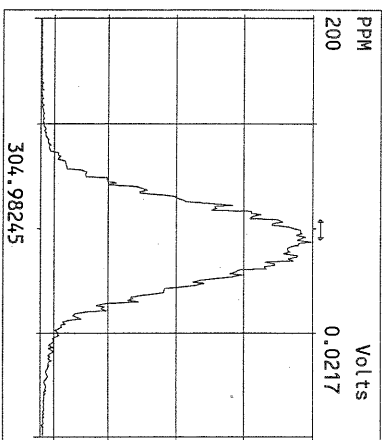
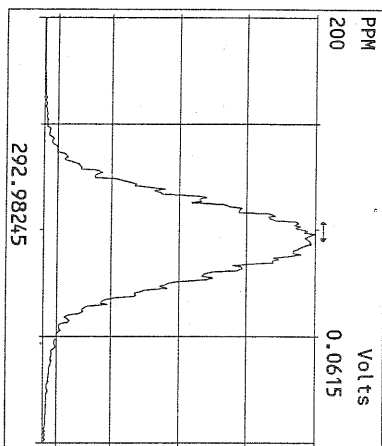


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Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory

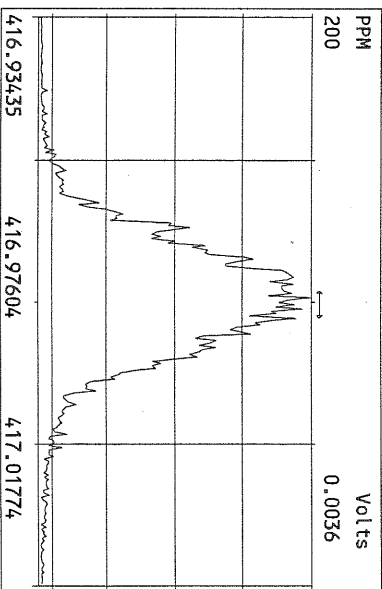
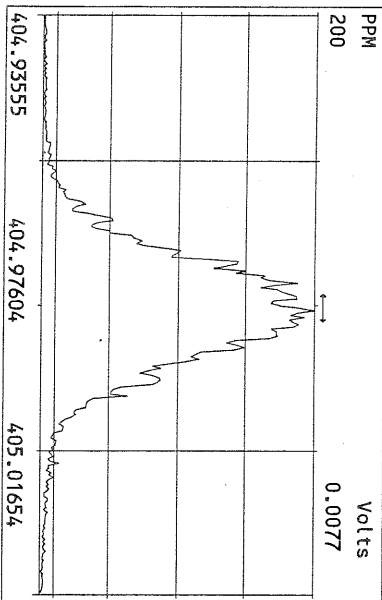
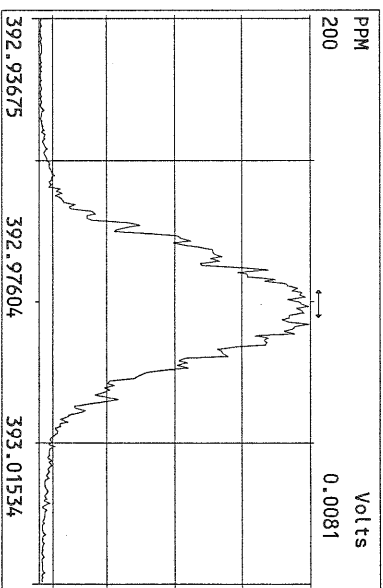
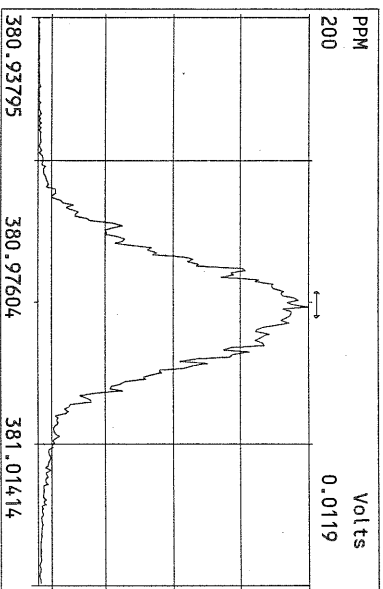
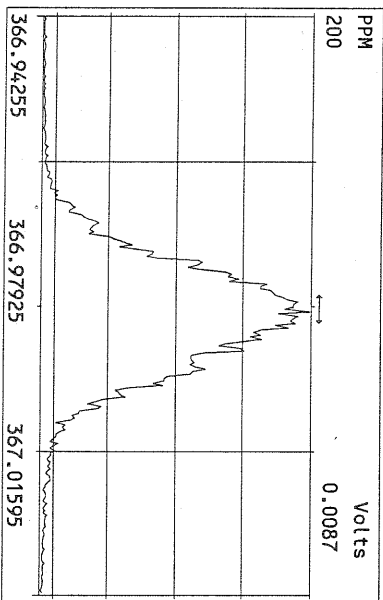
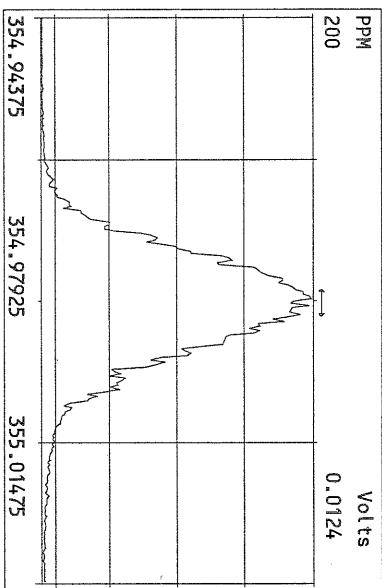
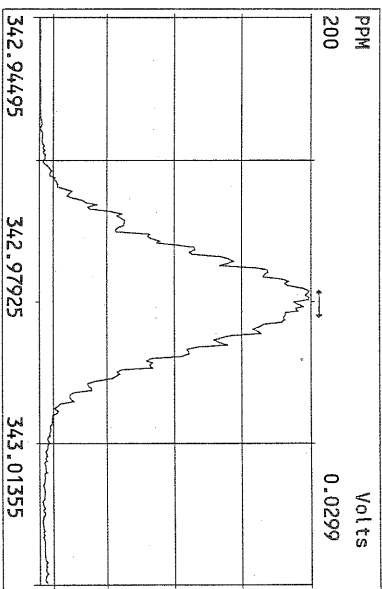
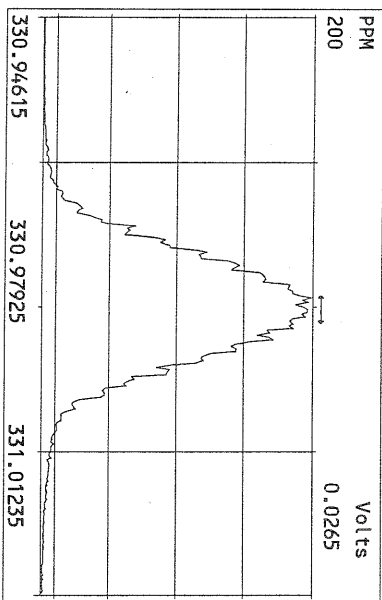


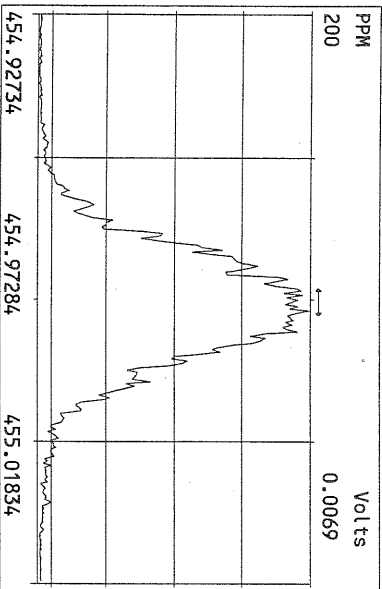
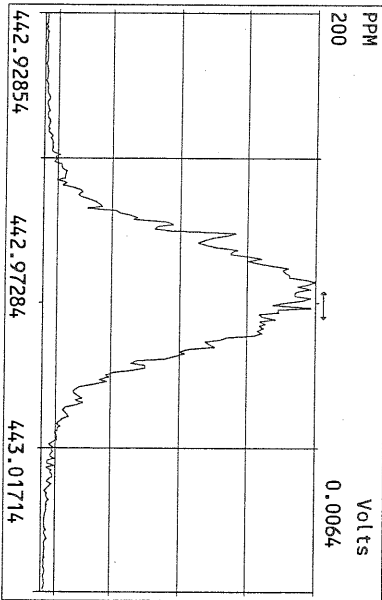
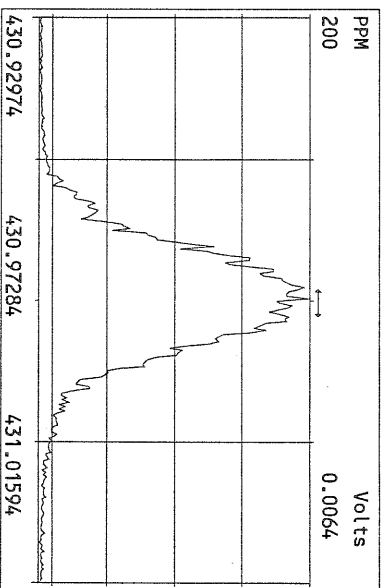
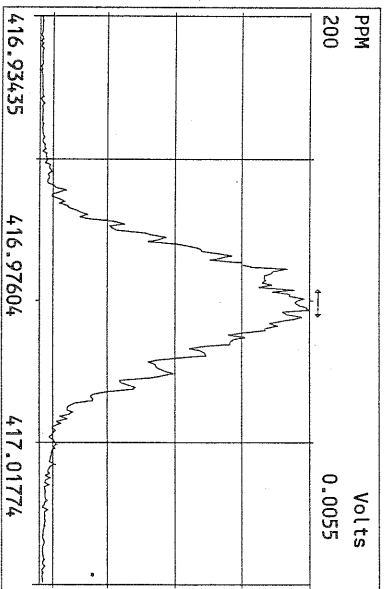
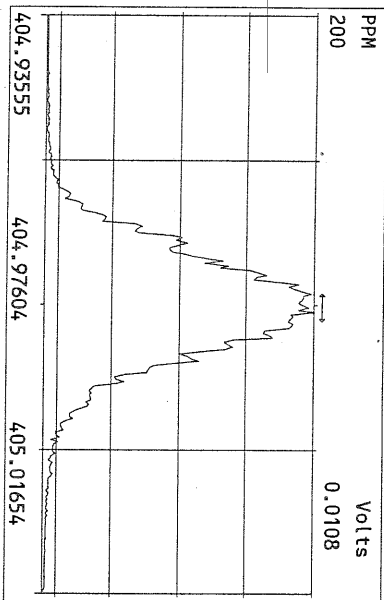
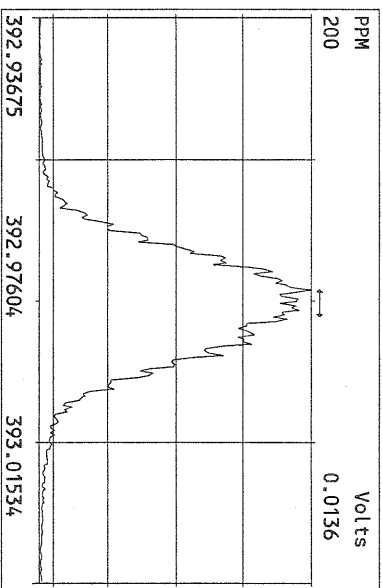
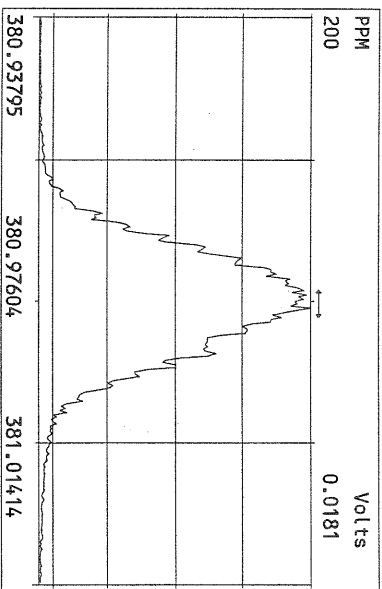
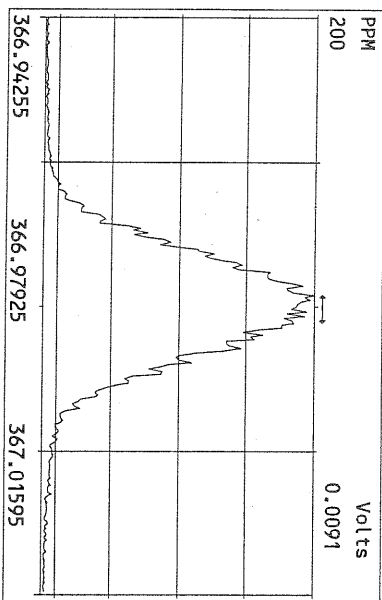
File:02OCT10M #1-348 Acq: 2-OCT-2010 18:58:36 GC EI+ Voltage SIR Autospec-Ultima
513.6775 S:12 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100210M2 File Text:Frontier Analytical Laboratory



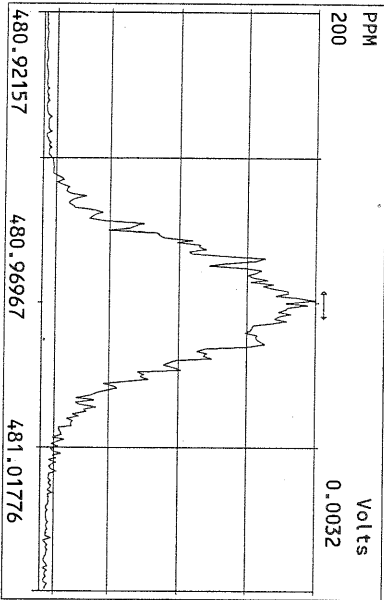
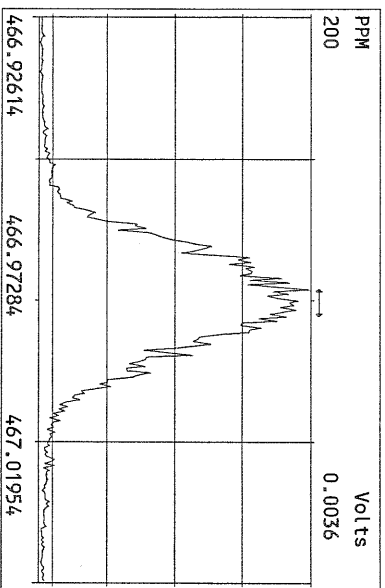
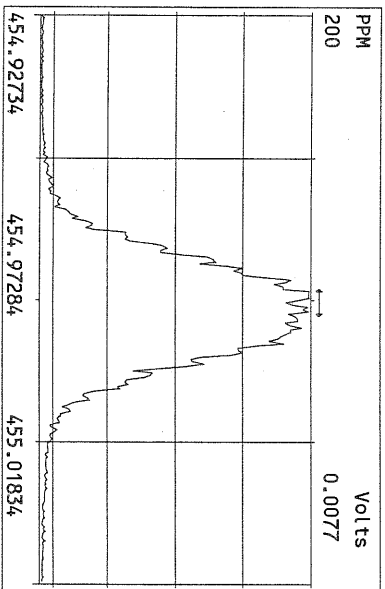
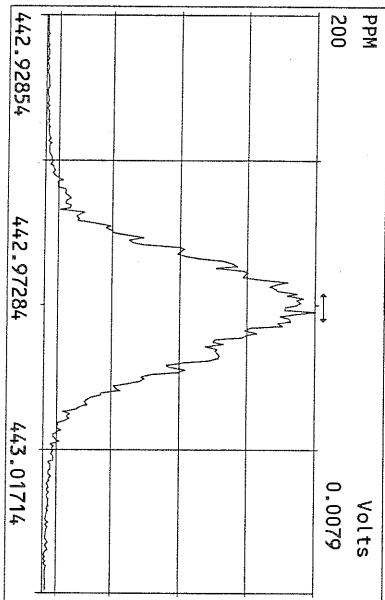
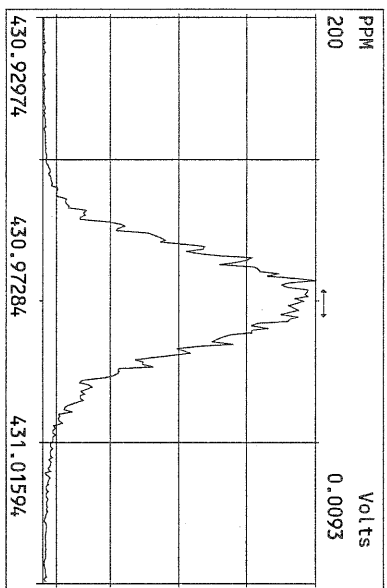
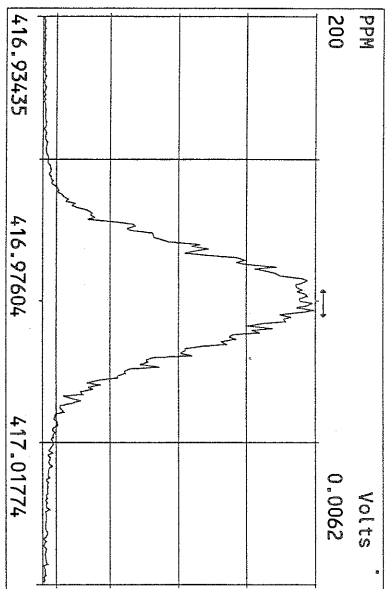
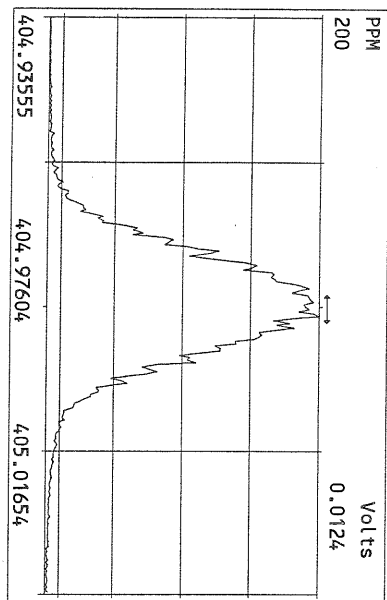


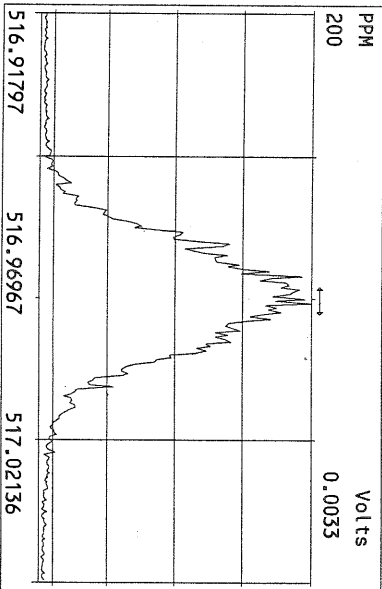
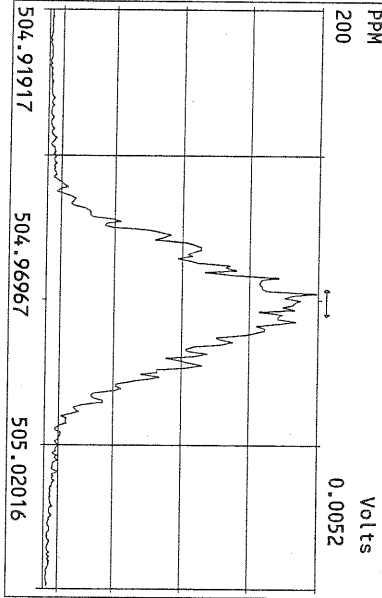
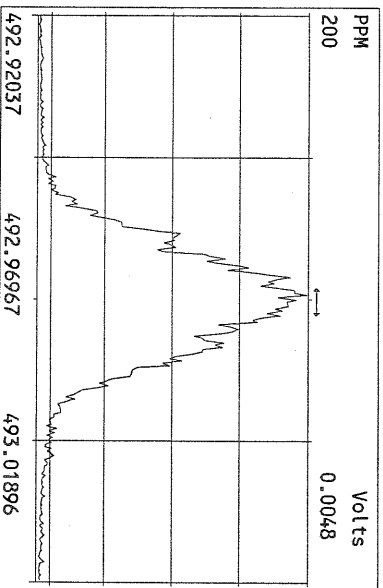
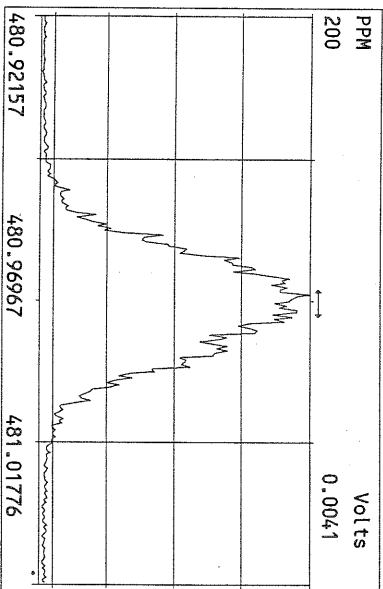
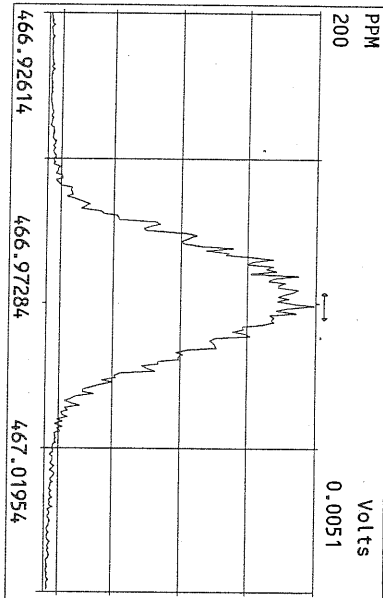
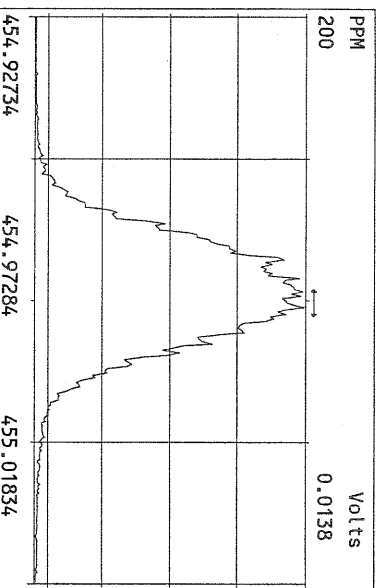
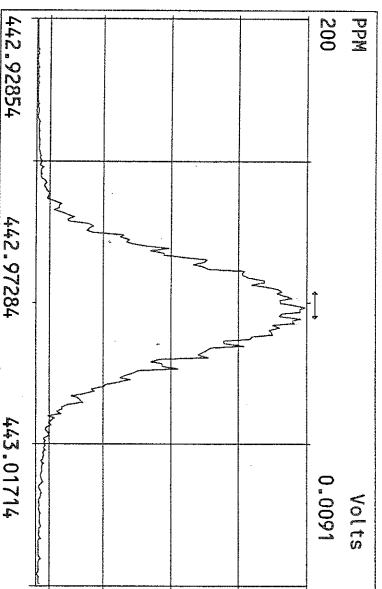
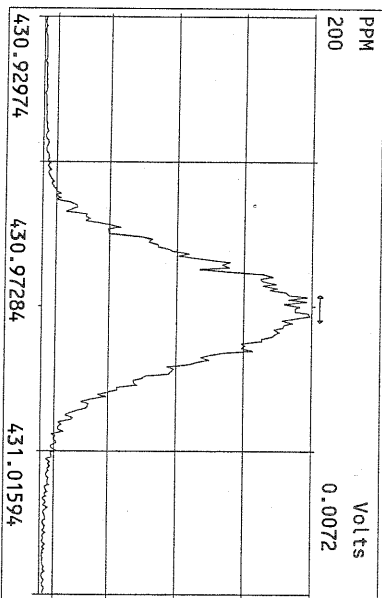
Peak Locate Examination: 2-OCT-2010:19:58 File:02OCT10M_RES_CHECK
Experiment:OCDD Function:2 Reference:PFK





Peak Locate Examination: 2-OCT-2010:20:02 File:02OCT10M_RES_CHECK
 Experiment:OCDD Function:4 Reference:PFK





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 04OCT10M Sam:1


Analysis Date: 4-OCT-10 11:38:47

| | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| NATIVE ANALYTES | | | | | | |
| 2,3,7,8-TCDD | M/M+2 | 0.77 | 0.65-0.89 | y | 10.1 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.65 | 1.32-1.78 | y | 50.0 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.39 | 1.05-1.43 | y | 47.0 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.39 | 1.05-1.43 | y | 48.7 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 49.1 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.94 | 0.88-1.20 | y | 48.3 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.98 | 0.76-1.02 | y | 104 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.66 | 0.65-0.89 | y | 8.79 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.53 | 1.32-1.78 | y | 52.8 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.53 | 1.32-1.78 | y | 52.3 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.26 | 1.05-1.43 | y | 48.3 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.25 | 1.05-1.43 | y | 48.1 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.24 | 1.05-1.43 | y | 49.0 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 49.4 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.09 | 0.88-1.20 | y | 50.4 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.06 | 0.88-1.20 | y | 50.1 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.89 | 0.76-1.02 | y | 93.2 | 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: 10/5/10

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 04OCT10M Sam:1

Analysis Date: 4-OCT-10 11:38:47

| 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 | 0.80 | 0.65-0.89 | y | 98.6 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.78 | 1.32-1.78 | y | 92.0 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 111 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 93.5 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.93 | 0.88-1.20 | y | 81.7 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.93 | 0.76-1.02 | y | 147 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.87 | 0.65-0.89 | y | 97.4 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.76 | 1.32-1.78 | y | 88.7 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.76 | 1.32-1.78 | y | 87.7 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 116 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 108 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 108 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 104 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.45 | 0.37-0.51 | y | 83.2 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.43 | 0.37-0.51 | y | 79.4 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.97 | 0.76-1.02 | y | 140 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 9.37 | 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: 10/5/10

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: 8/23/10
RT Window Data Filename: 04OCT10M Sam:1 Analysis Date: 4-OCT-10 Time: 11:38:47
DB-5 IS Data Filename: 04OCT10M Sam:1 Analysis Date: 4-OCT-10 Time: 11:38:47
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) | 24:25 ✓ | 1,3,6,8-TCDF (F) | 23:03 ✓ |
| 1,2,8,9-TCDD (L) | 28:21 ✓ | 1,2,8,9-TCDF (L) | 28:34 ✓ |
| 1,2,4,7,9-PeCDD (F) | 30:16 ✓ | 1,3,4,6,8-PeCDF (F) | 28:27 ✓ |
| 1,2,3,8,9-PeCDD (L) | 33:50 ✓ | 1,2,3,8,9-PeCDF (L) | 34:15 ✓ |
| 1,2,4,6,7,9-HxCDD (F) | 36:10 ✓ | 1,2,3,4,6,8-HxCDF (F) | 35:18 ✓ |
| 1,2,3,7,8,9-HxCDD (L) | 39:14 ✓ | 1,2,3,7,8,9-HxCDF (L) | 39:48 ✓ |
| 1,2,3,4,6,7,9-HpCDD (F) | 42:51 ✓ | 1,2,3,4,6,7,8-HpCDF (F) | 42:19 ✓ |
| 1,2,3,4,6,7,8-HpCDD (L) | 44:13 ✓ | 1,2,3,4,7,8,9-HpCDF (L) | 45:08 ✓ |

(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: 10/5/10

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 4-OCT-10 11:38:47

CS3 or VER Data Filename: 04OCT10M

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 | 1.001 | 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 | | 1.021 | 0.976-1.043✓ |
| 13C-2,3,7,8-TCDF | | 0.993 | 0.923-1.103✓ |
| 13C-1,2,3,7,8-PeCDD | | 1.238 | 1.000-1.567✓ |
| 13C-1,2,3,7,8-PeCDF | | 1.174 | 0.923-1.203✓ |
| 13C-2,3,4,7,8-PeCDF | | 1.223 | 0.923-1.303✓ |

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

Analyst: Date: 10/5/10

USEPA - ITD

FORM 6B

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 4-OCT-10 11:38:47

CS3 or VER Data Filename: 04OCT10M

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 | 1.001 | 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 | 1.000 | 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 | 1.001 | 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 | | 0.988 | 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: Date: 10/5/10

Results: GC Column: DB5 Amount: 1.000 NATO 1989 Tox: 100 WHO 1998 Tox: 125 WHO 2005 Tox: 114

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | #Hom | |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|---------|
| 2,3,7,8-TCDD | 2.42e+06 | 0.77 y | 27:24 | 1.11 | 10.1 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDD | 9.07e+06 | 1.65 y | 33:15 | 1.10 | 50.0 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDD | 7.82e+06 | 1.39 y | 38:37 | 1.37 | 47.0 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDD | 6.45e+06 | 1.39 y | 38:47 | 1.37 | 48.7 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDD | 7.28e+06 | 1.40 y | 39:14 | 1.36 | 49.1 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDD | 5.01e+06 | 0.94 y | 44:13 | 1.45 | 48.3 | | 2.50 | - | - | * | |
| OCDD | 6.09e+06 | 0.98 y | 49:48 | 1.43 | 104 | | 2.50 | - | - | * | |
| 2,3,7,8-TCDF | 4.76e+06 | 0.66 y | 26:39 | 1.50 | 8.79 | | 2.50 | - | - | * | |
| 1,2,3,7,8-PeCDF | 1.37e+07 | 1.53 y | 31:31 | 0.94 | 52.8 | | 2.50 | - | - | * | |
| 2,3,4,7,8-PeCDF | 1.30e+07 | 1.53 y | 32:49 | 0.94 | 52.3 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8-HxCDF | 9.79e+06 | 1.26 y | 37:14 | 0.93 | 48.3 | | 2.50 | - | - | * | |
| 1,2,3,6,7,8-HxCDF | 1.10e+07 | 1.25 y | 37:25 | 0.82 | 48.1 | | 2.50 | - | - | * | |
| 2,3,4,6,7,8-HxCDF | 9.99e+06 | 1.24 y | 38:22 | 0.92 | 49.0 | | 2.50 | - | - | * | |
| 1,2,3,7,8,9-HxCDF | 1.06e+07 | 1.27 y | 39:48 | 1.00 | 49.4 | | 2.50 | - | - | * | |
| 1,2,3,4,6,7,8-HpCDF | 6.60e+06 | 1.09 y | 42:19 | 1.39 | 50.4 | | 2.50 | - | - | * | |
| 1,2,3,4,7,8,9-HpCDF | 4.42e+06 | 1.06 y | 45:08 | 1.36 | 50.1 | | 2.50 | - | - | * | |
| OCDF | 5.67e+06 | 0.89 y | 50:09 | 0.79 | 93.2 | | 2.50 | - | - | * | |
| | | | | | | | | | | Rec | |
| 13C-2,3,7,8-TCDD | 2.15e+07 | 0.80 y | 27:23 | 1.02 | 98.6 | | | | | 98.6 | |
| 13C-1,2,3,7,8-PeCDD | 1.65e+07 | 1.78 y | 33:13 | 0.84 | 92.0 | | | | | 92.0 | |
| 13C-1,2,3,4,7,8-HxCDD | 1.21e+07 | 1.25 y | 38:36 | 1.07 | 111 | | | | | 111 | |
| 13C-1,2,3,6,7,8-HxCDD | 9.66e+06 | 1.25 y | 38:45 | 1.01 | 93.5 | | | | | 93.5 | |
| 13C-1,2,3,4,6,7,8-HpCDD | 7.14e+06 | 0.93 y | 44:12 | 0.86 | 81.7 | | | | | 81.7 | |
| 13C-OCDD | 8.17e+06 | 0.93 y | 49:46 | 0.55 | 147 | | | | | 73.3 | |
| 13C-2,3,7,8-TCDF | 3.60e+07 | 0.87 y | 26:38 | 0.99 | 97.4 | | | | | 97.4 | |
| 13C-1,2,3,7,8-PeCDF | 2.76e+07 | 1.76 y | 31:30 | 0.84 | 88.7 | | | | | 88.7 | |
| 13C-2,3,4,7,8-PeCDF | 2.65e+07 | 1.76 y | 32:48 | 0.81 | 87.7 | | | | | 87.7 | |
| 13C-1,2,3,4,7,8-HxCDF | 2.18e+07 | 0.51 y | 37:12 | 1.85 | 116 | | | | | 116 | |
| 13C-1,2,3,6,7,8-HxCDF | 2.78e+07 | 0.51 y | 37:24 | 2.54 | 108 | | | | | 108 | |
| 13C-2,3,4,6,7,8-HxCDF | 2.22e+07 | 0.51 y | 38:20 | 2.01 | 108 | | | | | 108 | |
| 13C-1,2,3,7,8,9-HxCDF | 2.15e+07 | 0.51 y | 39:46 | 2.03 | 104 | | | | | 104 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 9.41e+06 | 0.45 y | 42:18 | 1.11 | 83.2 | | | | | 83.2 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 6.51e+06 | 0.43 y | 45:06 | 0.80 | 79.4 | | | | | 79.4 | |
| 13C-OCDF | 1.55e+07 | 0.97 y | 50:08 | 1.08 | 140 | | | | | 70.2 | |
| 37Cl-2,3,7,8-TCDD | 1.37e+06 | | 27:24 | 0.69 | 9.37 | | | | | 93.7 | |
| 13C-1,2,3,4-TCDD | 2.13e+07 | 0.79 y | 26:49 | - | 47.3 | | | | | | |
| 13C-1,2,3,4-TCDF | 3.72e+07 | 0.87 y | 25:33 | - | 51.4 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 1.02e+07 | 1.26 y | 39:12 | - | 37.0 | | | | | | |
| Total Tetra-Dioxins | 1.24e+07 | | 22:56 | 1.11 | 52.1 | | 2.50 | - | - | * | 28 |
| Total Penta-Dioxins | 1.99e+07 | | 30:16 | 1.10 | 110 | | 2.50 | - | - | * | 18 |
| Total Hexa-Dioxins | 2.46e+07 | | 35:29 | 1.37 | 165 | | 2.50 | - | - | * | 28 |
| Total Hepta-Dioxins | 1.12e+07 | | 41:12 | 1.45 | 108 | | 2.50 | - | - | * | 41 |
| Total Tetra-Furans | 2.29e+07 | | 23:03 | 1.50 | 42.3 | | 2.50 | - | - | * | 30 |
| 1st Fn. Tot Penta-Furans | 1.64e+07 | | 28:27 | 0.94 | 64.5 | | 2.50 | - | - | * | PeCDF 1 |
| Total Penta-Furans | 3.80e+07 | | 30:13 | 0.94 | 150 | | 2.50 | - | - | * | 214 9 |
| Total Hexa-Furans | 4.78e+07 | | 35:18 | 0.91 | 225 | | 2.50 | - | - | * | 14 |
| Total Hepta-Furans | 1.14e+07 | | 41:26 | 1.38 | 104 | | 2.50 | - | - | * | 35 |

Analyst:  Date: 10/5/10

Frontier Analytical Laboratory - Acquisition Log


Run Name:04OCT10M

Instrument: FAL3

GC: DB5

Experiment:PCDD

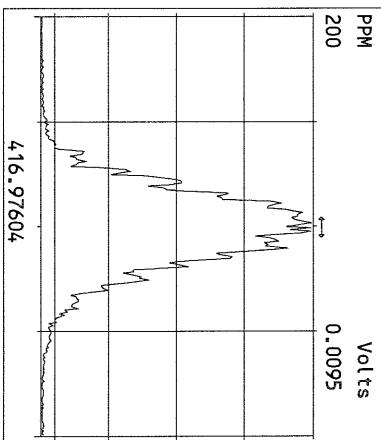
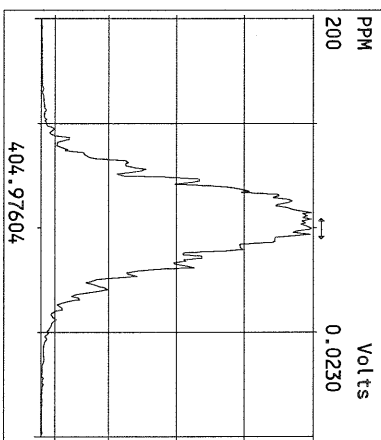
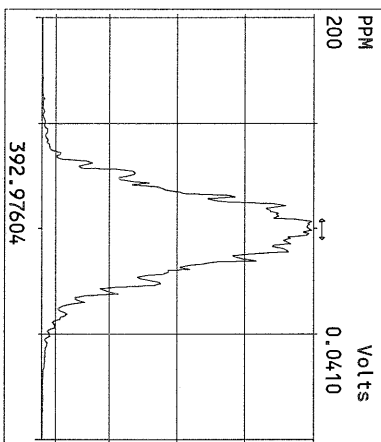
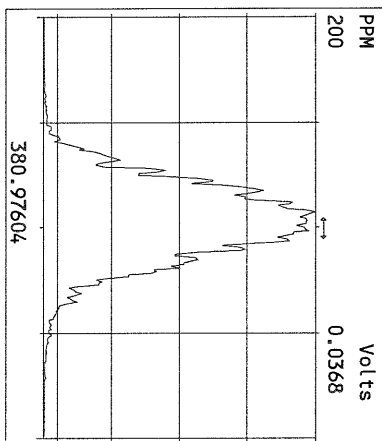
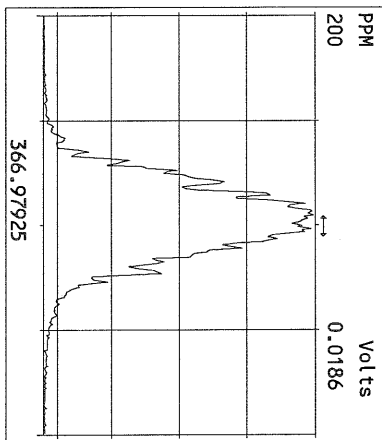
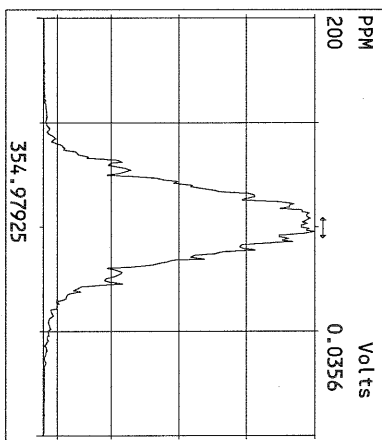
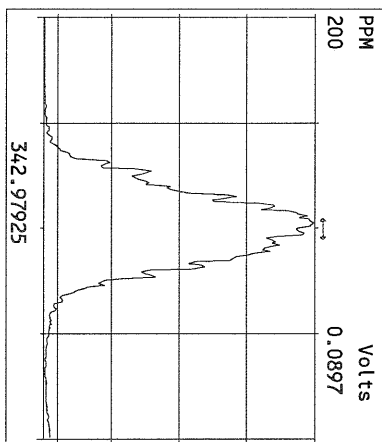
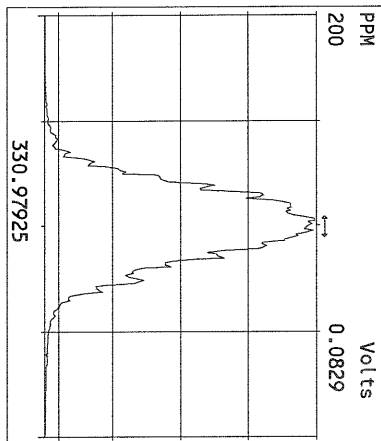
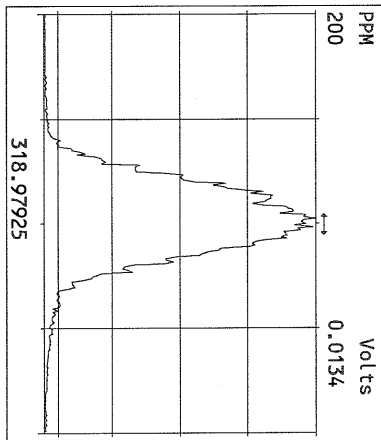
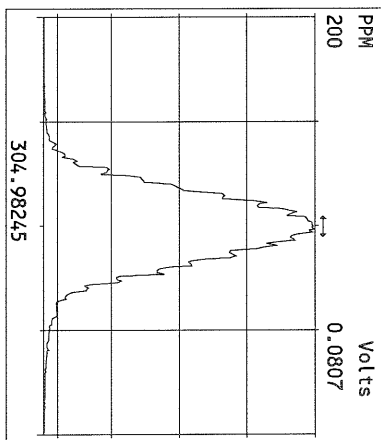
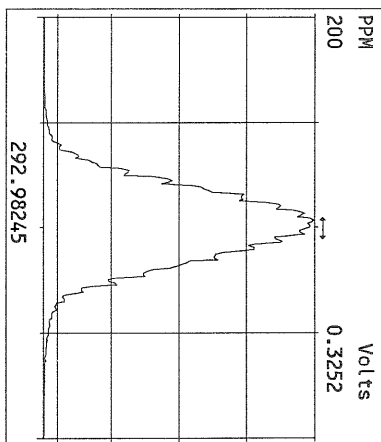
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| 04OCT10M | 2 | SB100410M1 | Solvent Blank | 4-OCT-10 12:34:05 | ST100410M1 | ST100410M2 TC |
| 04OCT10M | 3 | 6365-008-0001-SA | SSB3-0-0.5-080610 | 4-OCT-10 13:29:24 | ST100410M1 | ST100410M2 TC |
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| 04OCT10M | 5 | 6364-002-0001-SA | PSB14-4-7-072810 1:5 | 4-OCT-10 15:20:02 | ST100410M1 | ST100410M2 TC |
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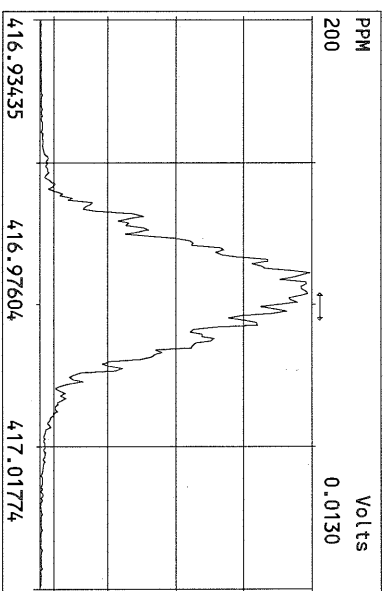
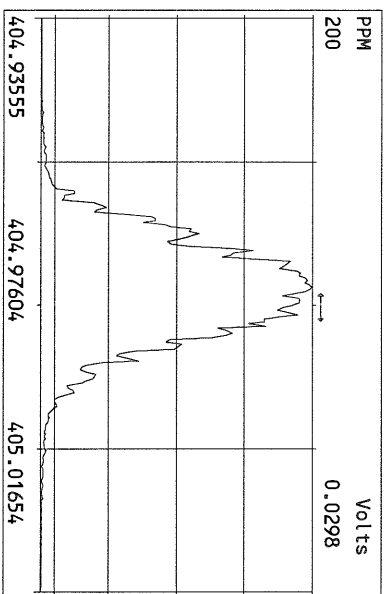
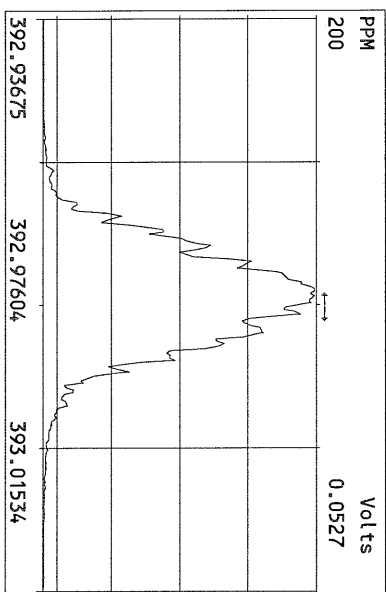
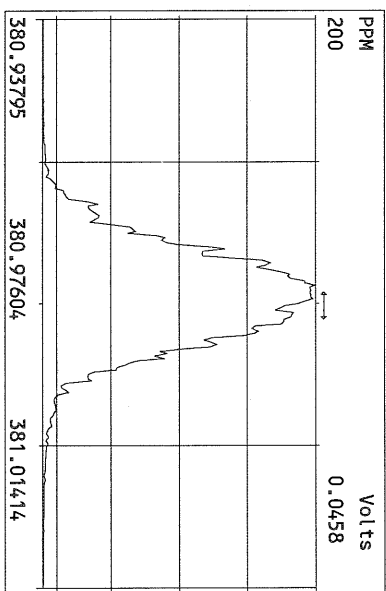
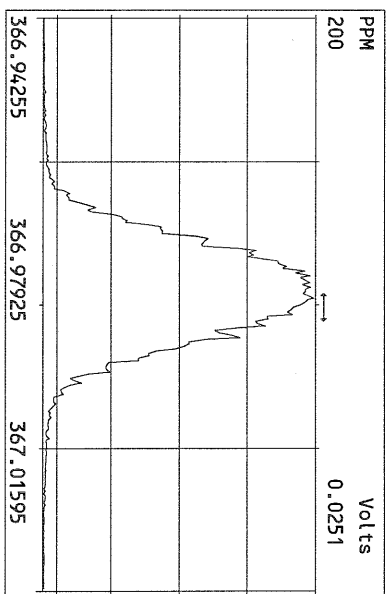
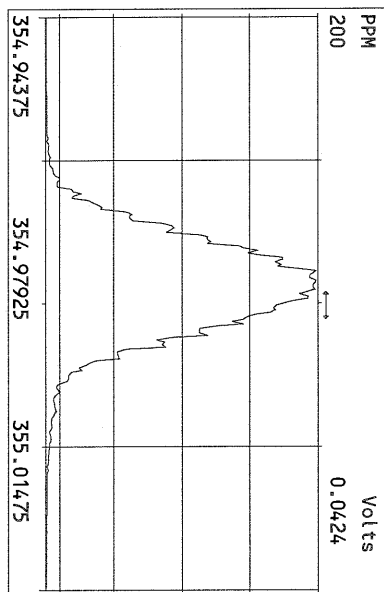
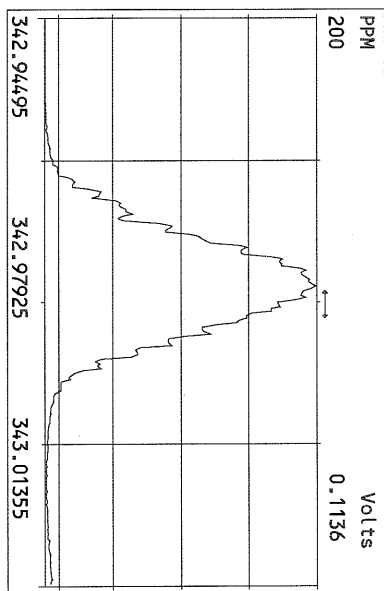
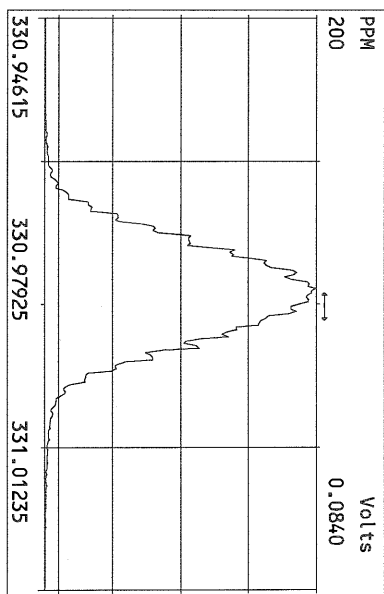
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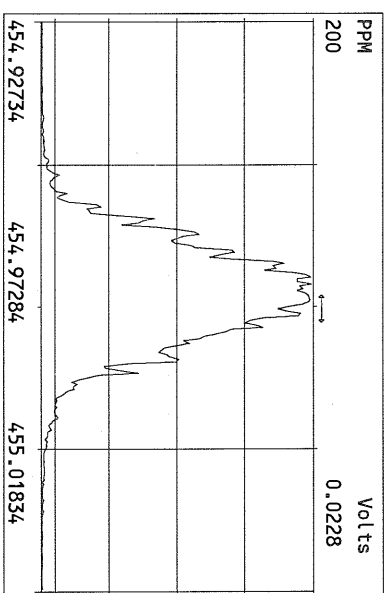
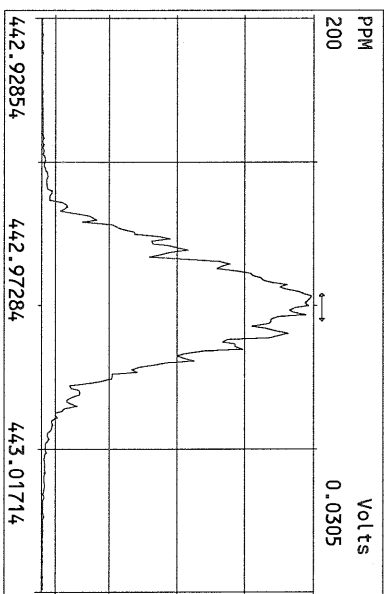
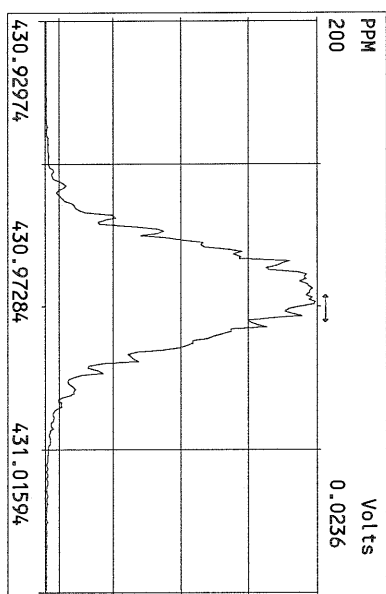
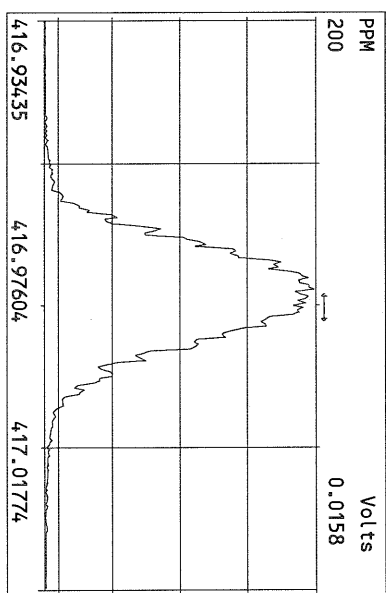
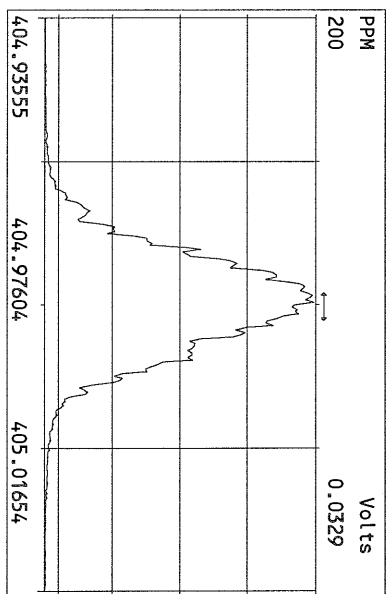
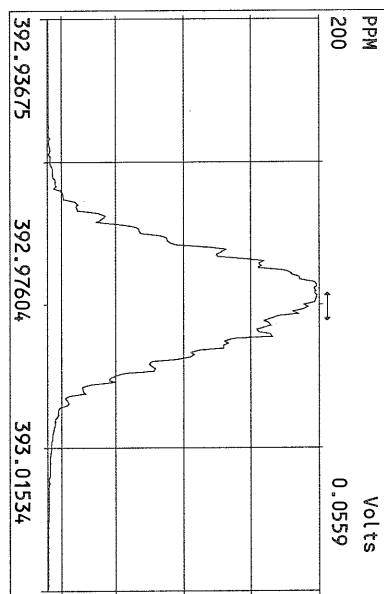
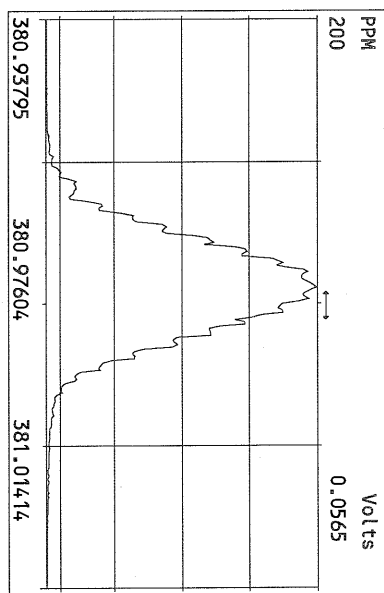
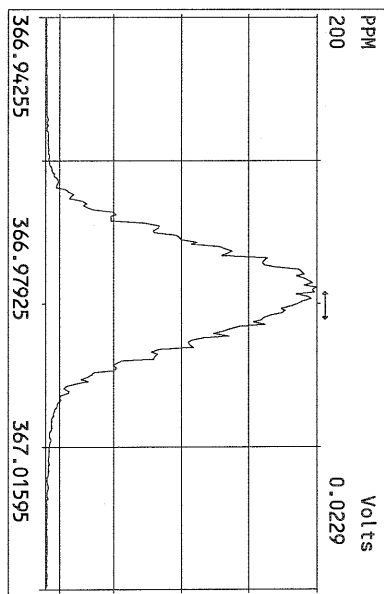
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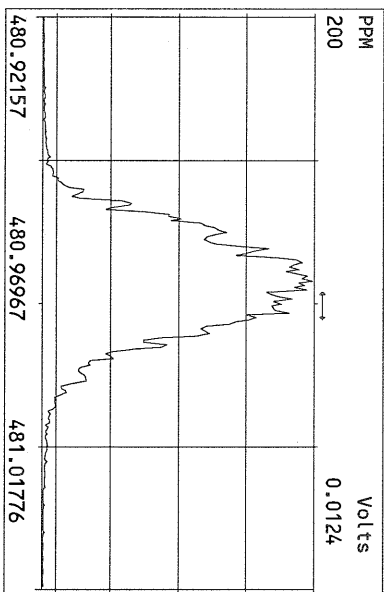
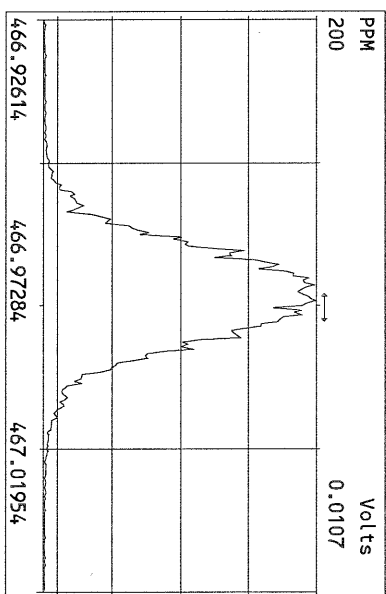
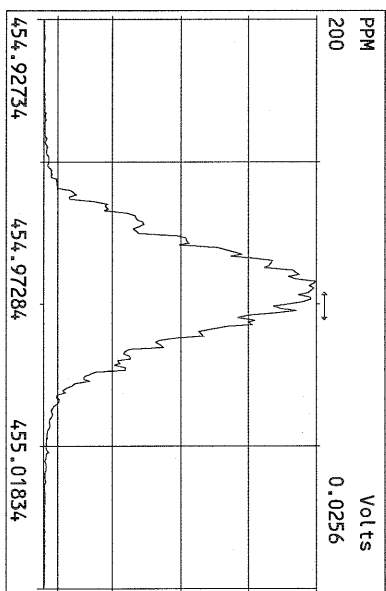
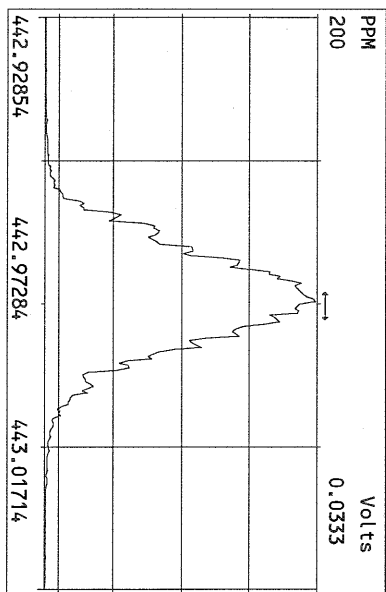
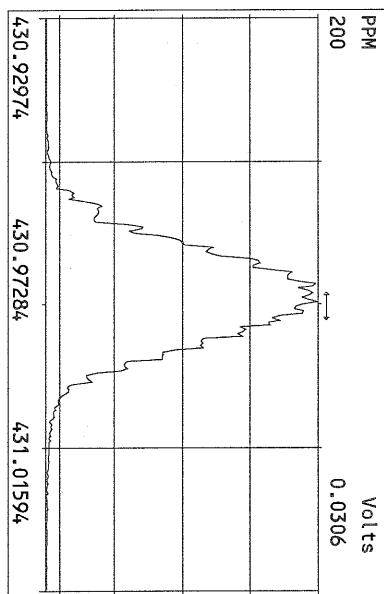
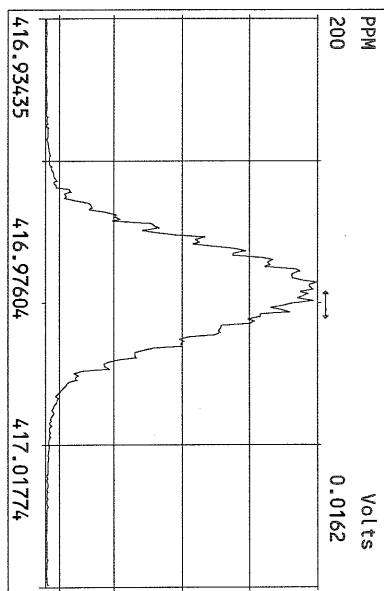
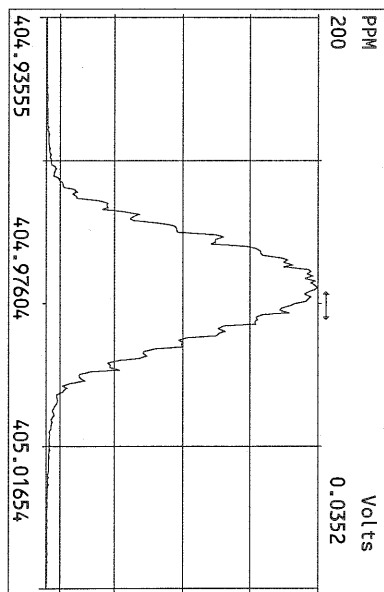
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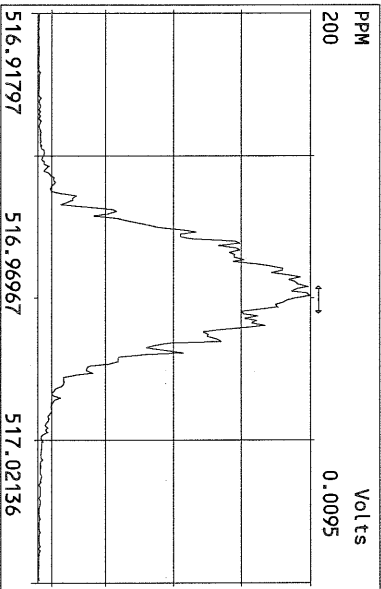
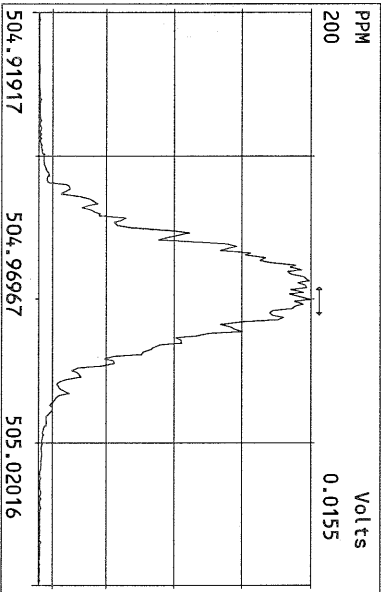
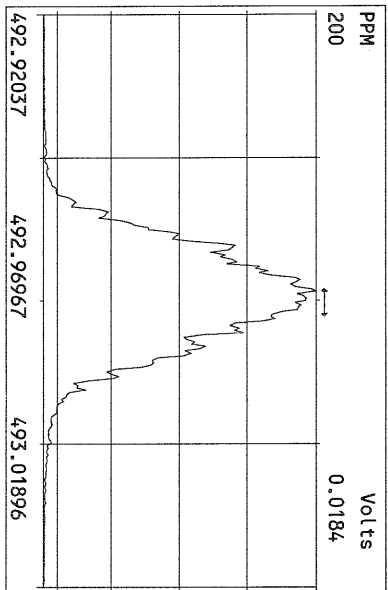
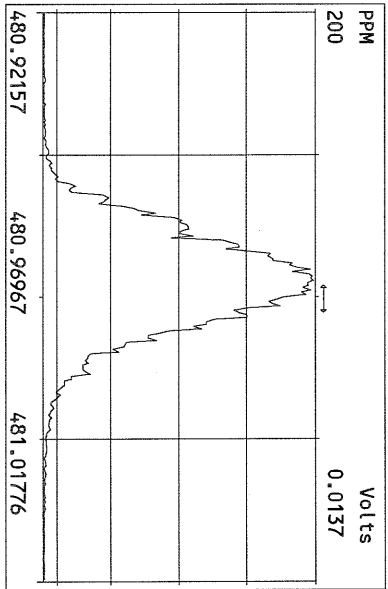
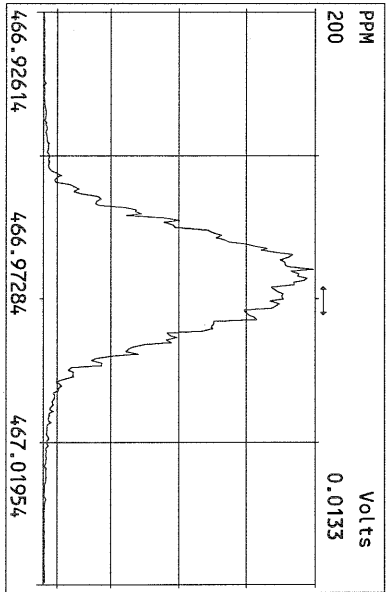
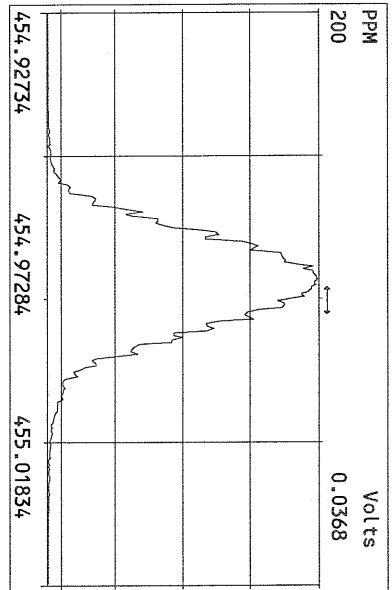
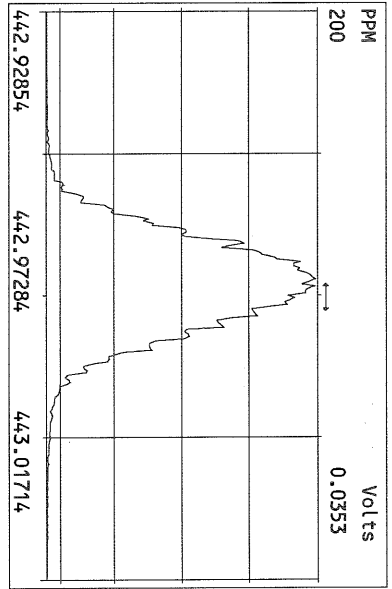
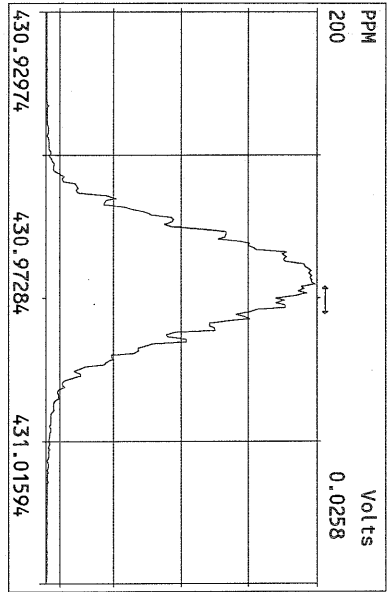
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Experiment:0CDD Function:1 Reference:PFK



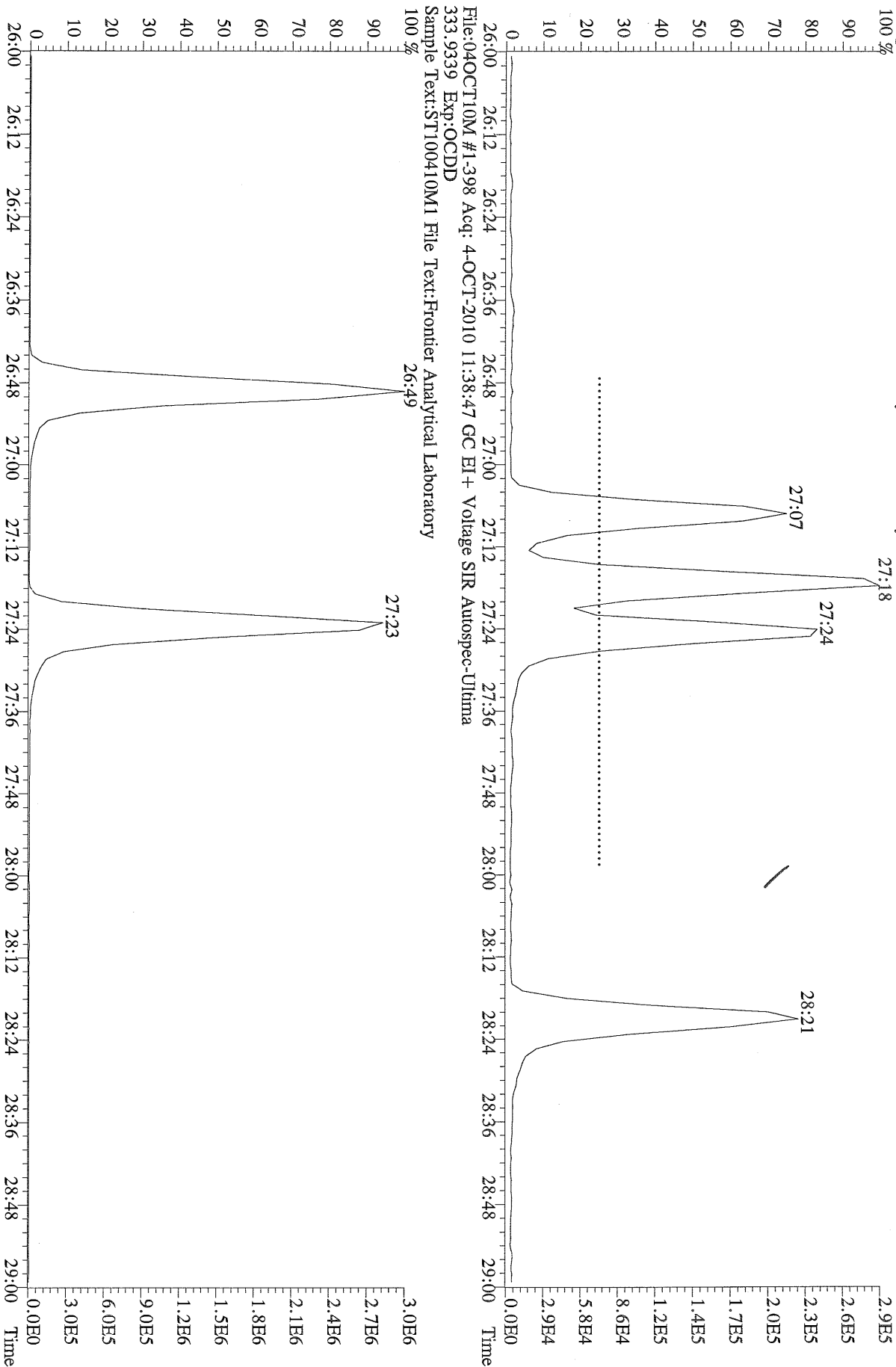




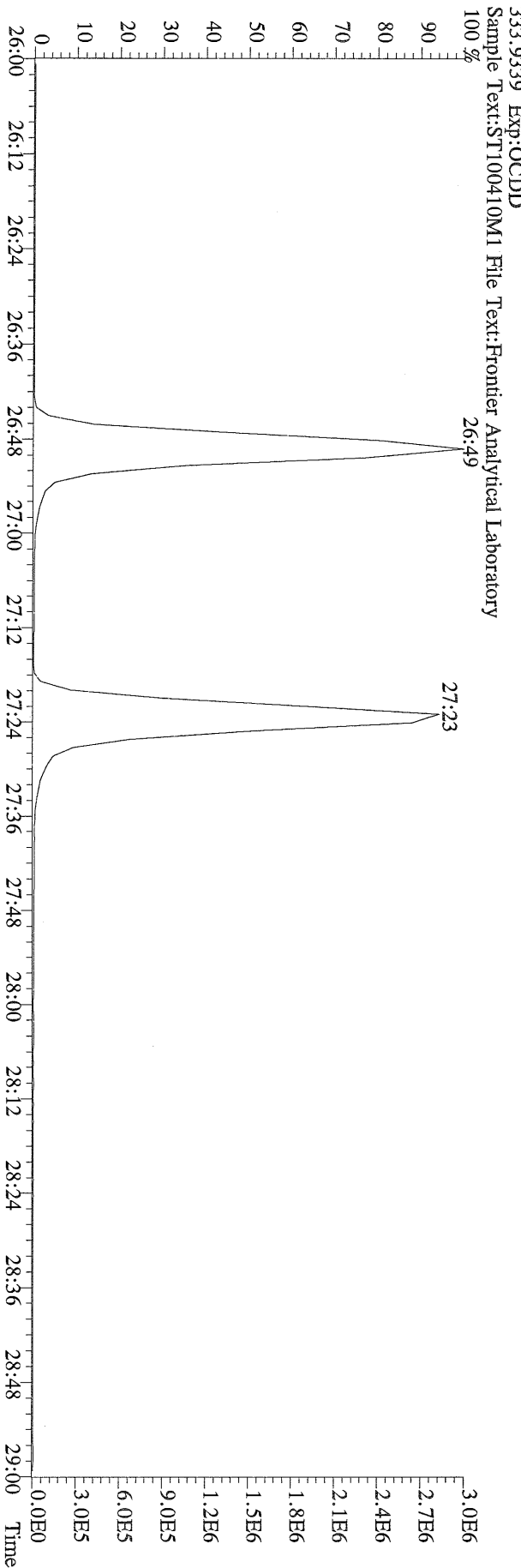




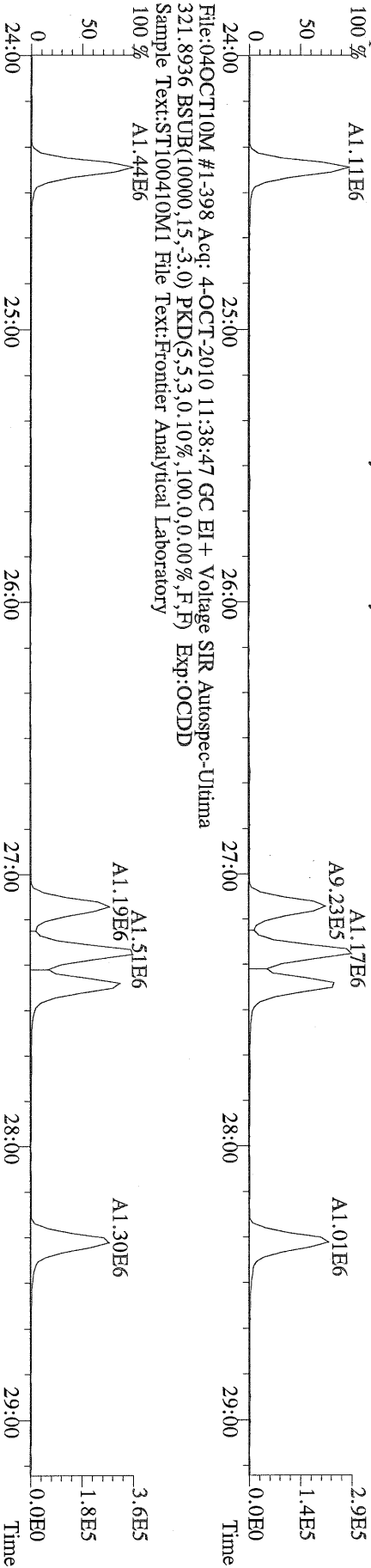
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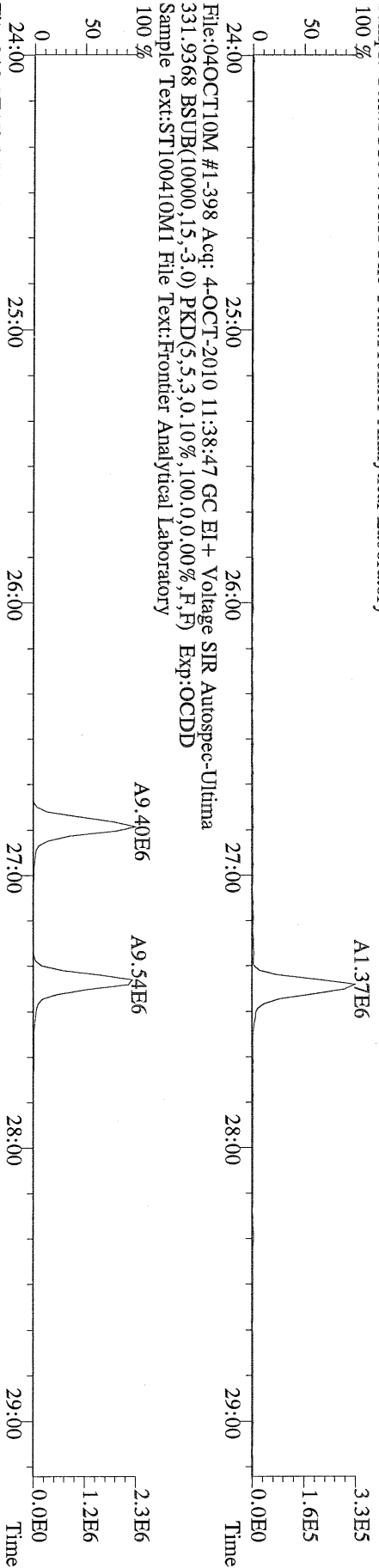
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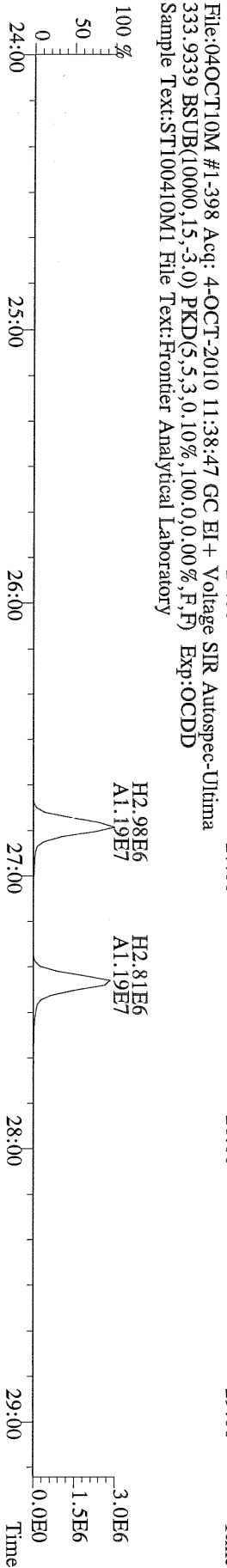
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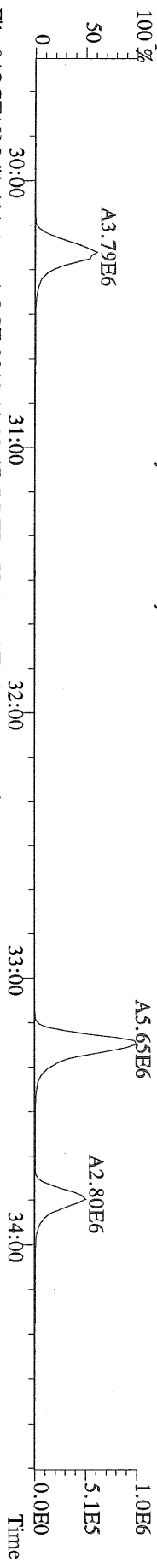
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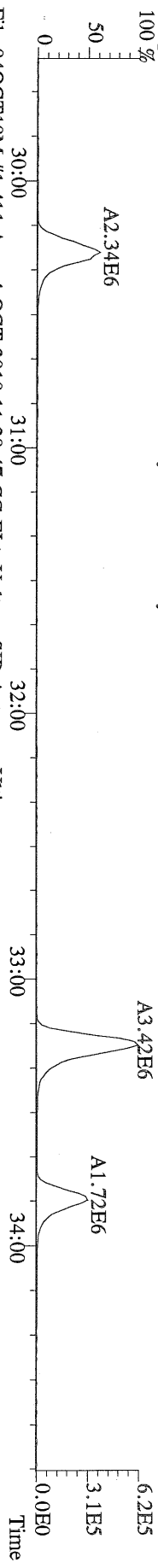
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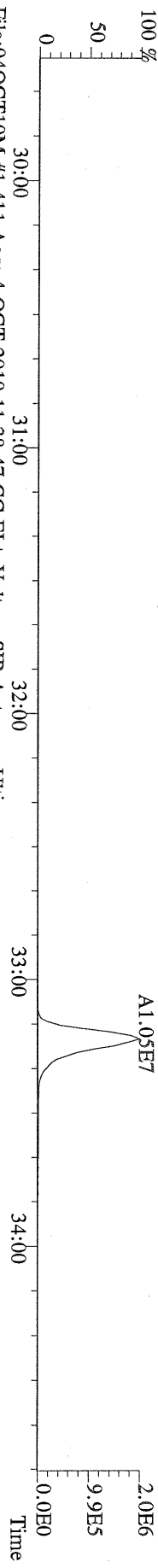
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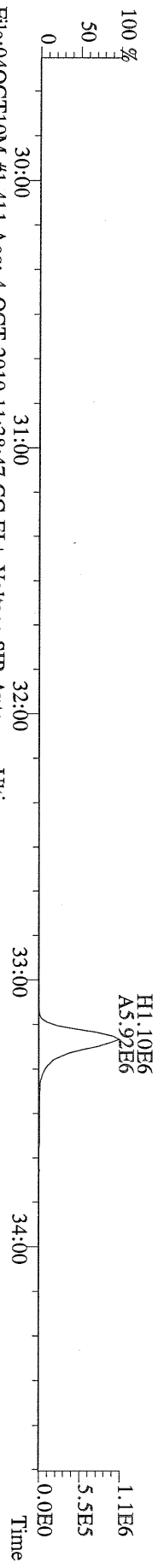
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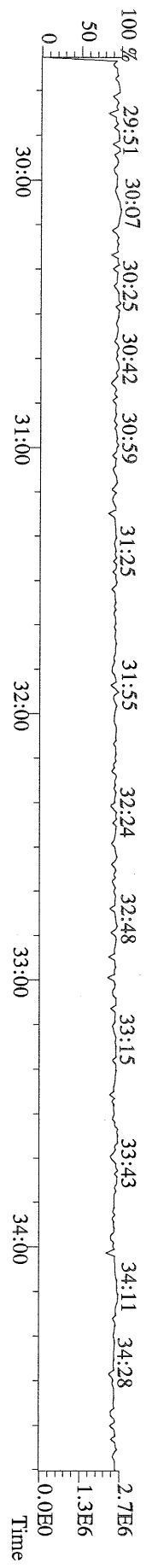
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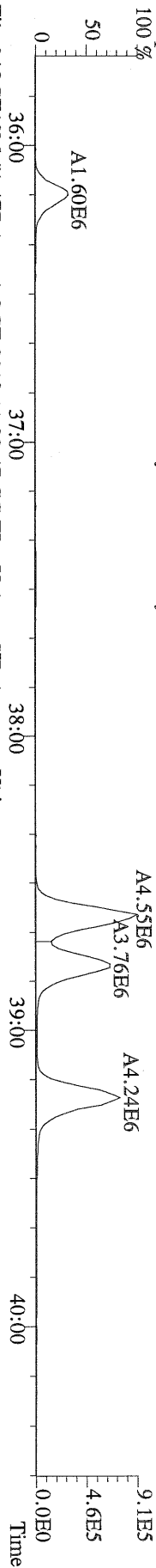
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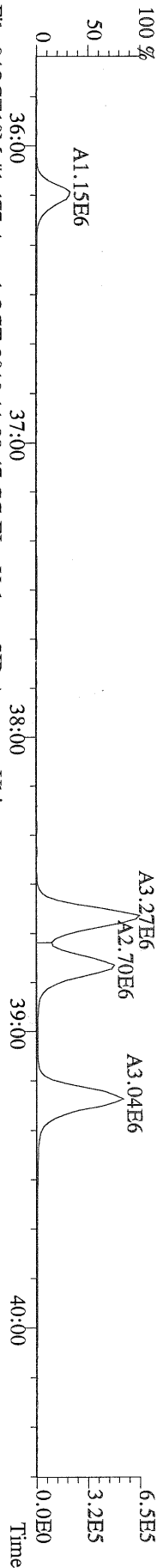
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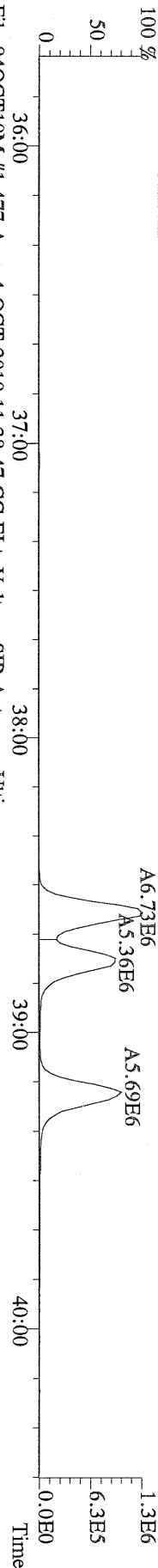
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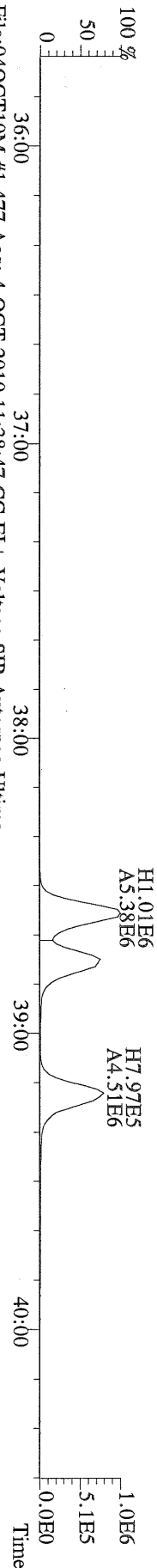
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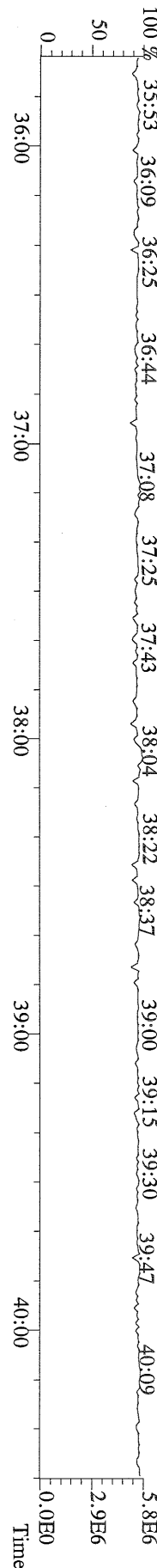
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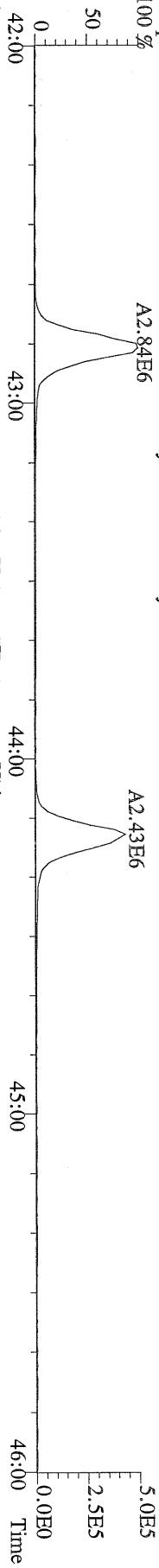
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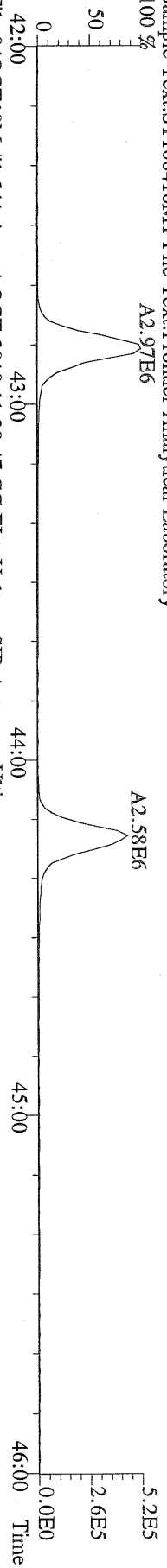
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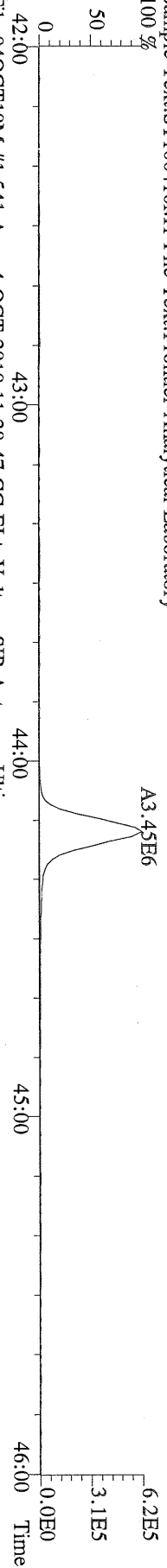
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423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



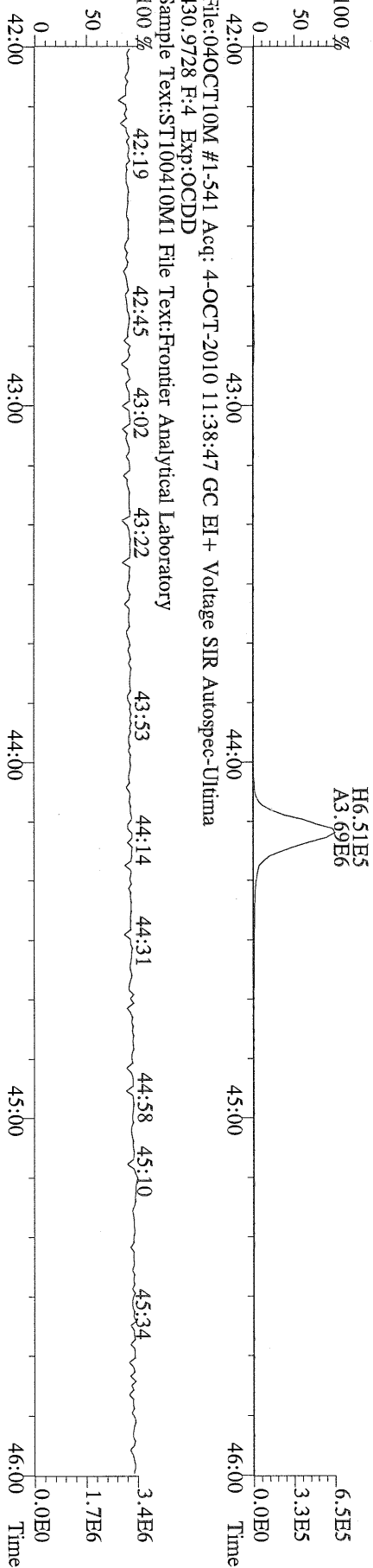
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425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



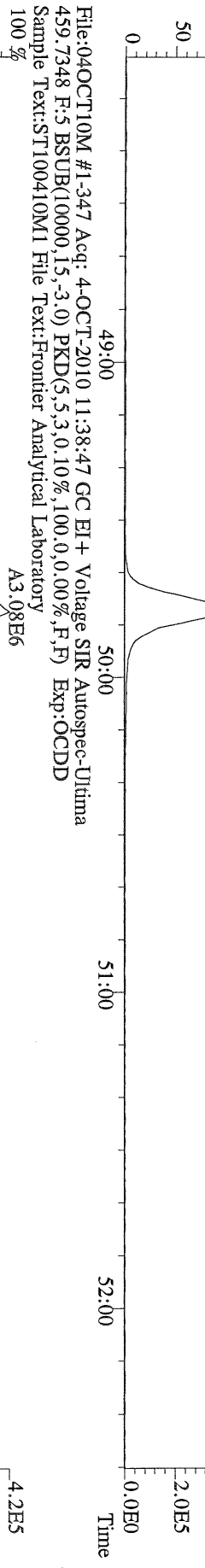
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437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
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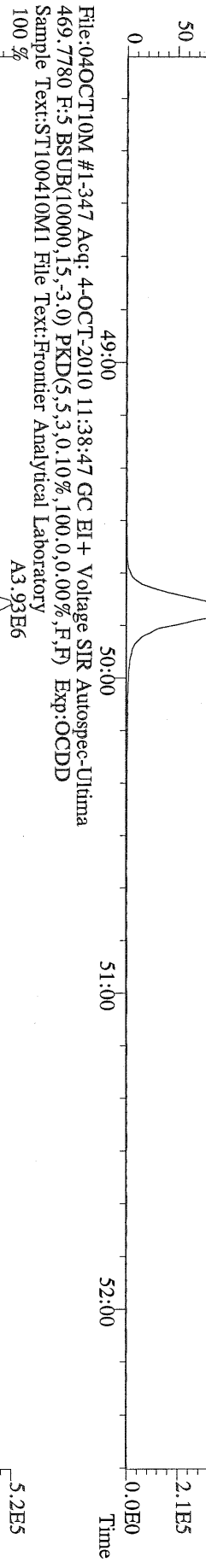
File:04OCT10M #1-541 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
430.9728 F:4 Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



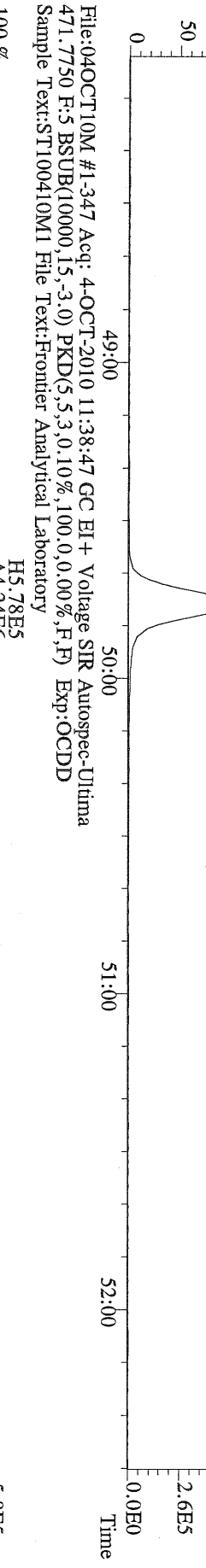
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457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



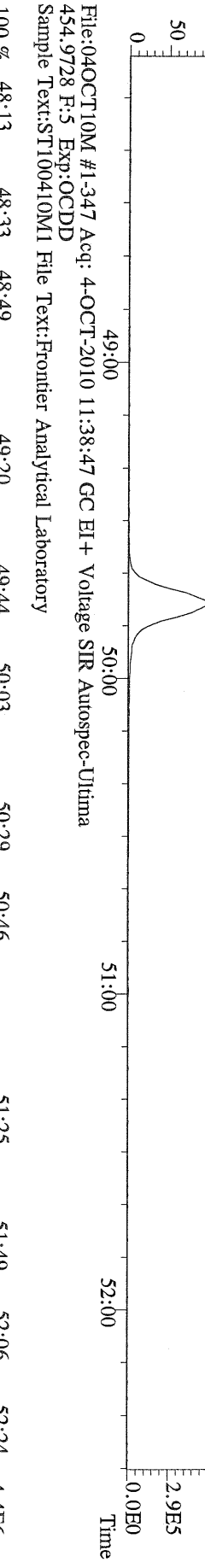
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459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



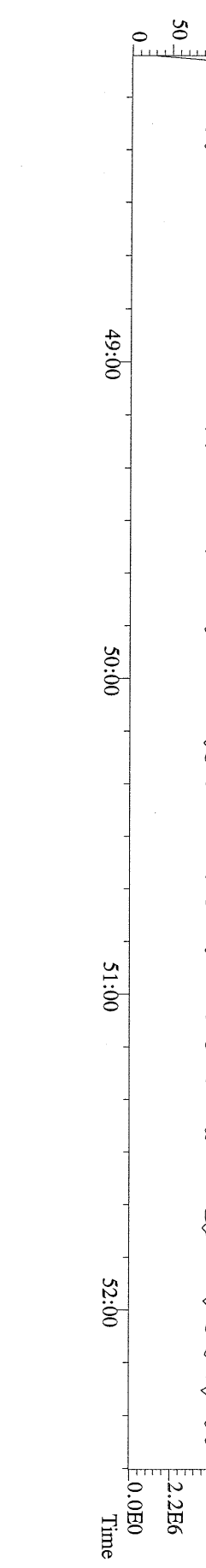
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469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



File:04OCT10M #1-347 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
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:ST100410M1 File Text:Frontier Analytical Laboratory

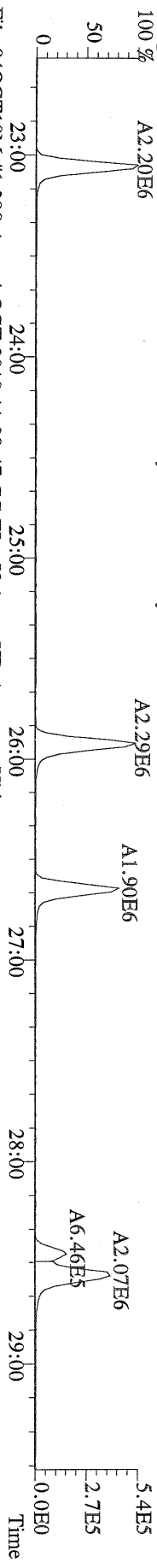


File:04OCT10M #1-347 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
454.9728 F:5 Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory

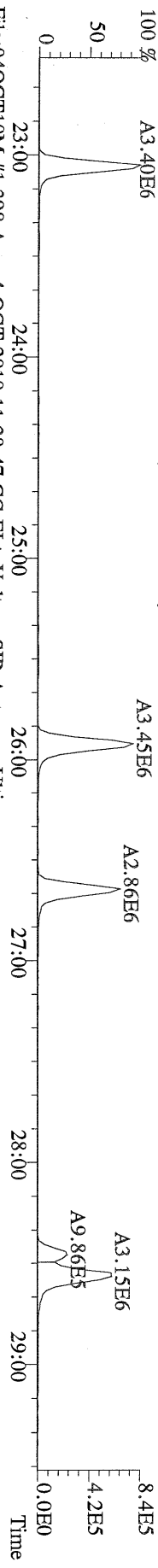


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Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory

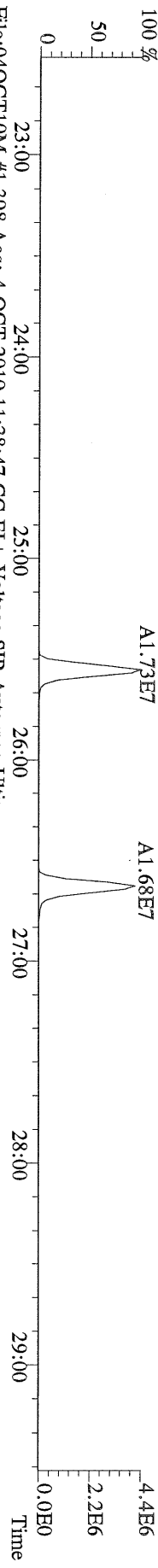
File:04OCT10M #1-398 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



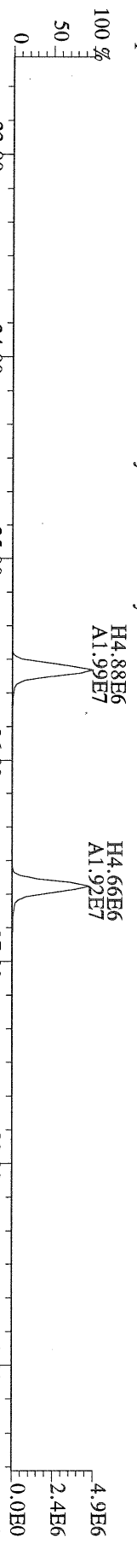
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 305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



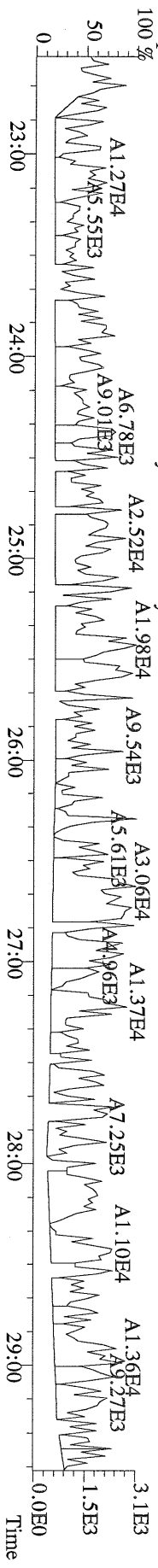
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 315.9419 BSUB(10000,15,50.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



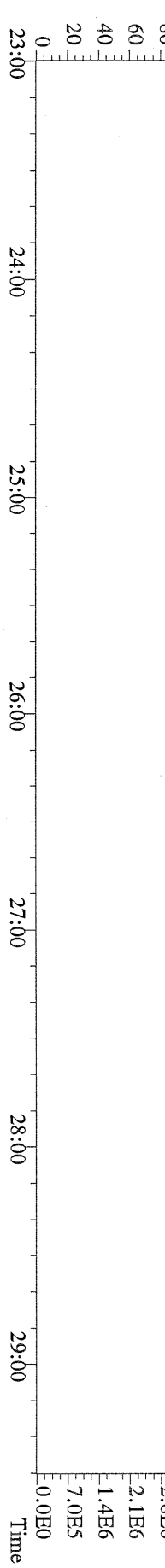
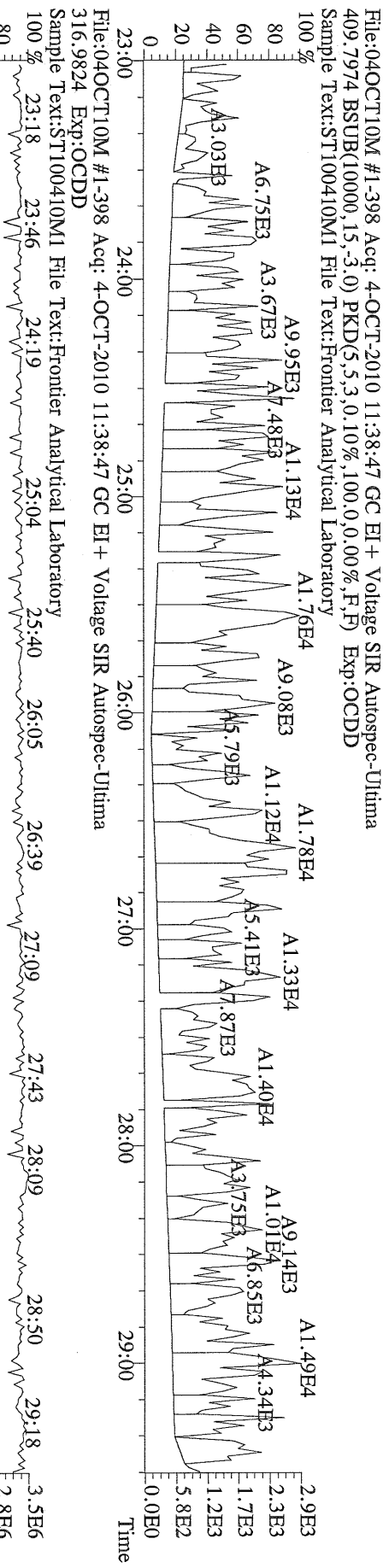
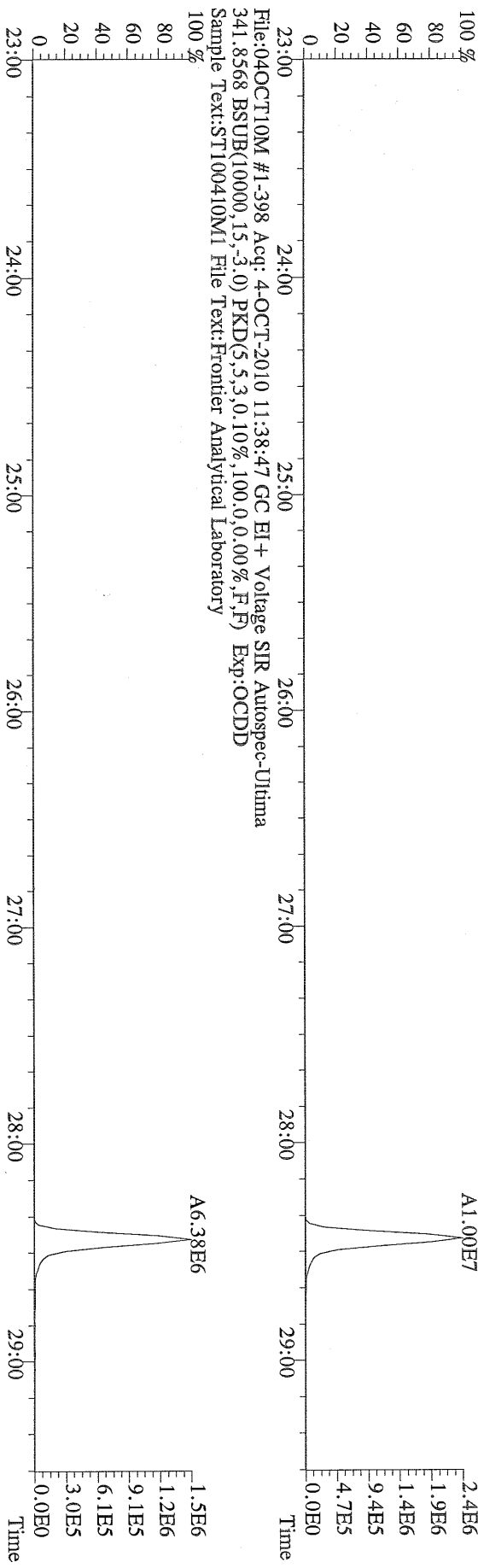
File:04OCT10M #1-398 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



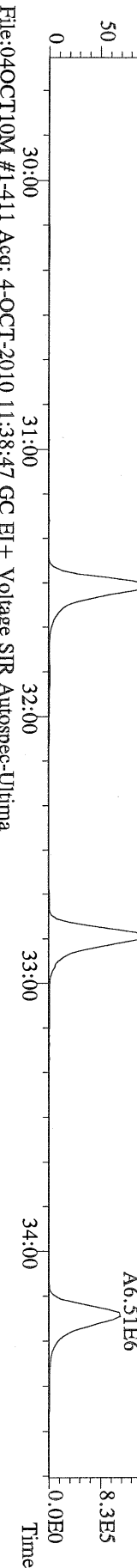
File:04OCT10M #1-398 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



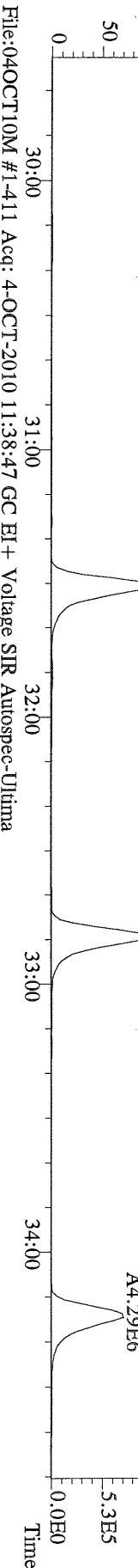
File:04OCT10M #1-398 Acq: 4-OCT-2010 11:38:47 GC EI + Voltage SIR Autospec-Ultima
 339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



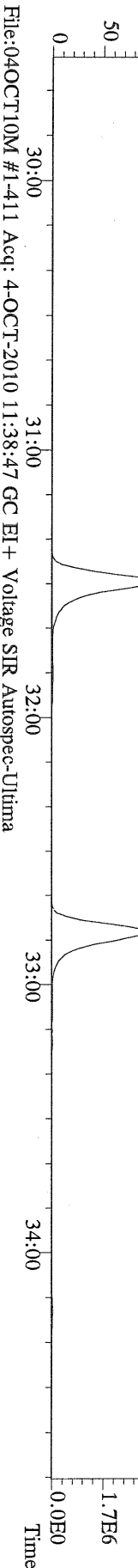
File:04OCT10M #1-411 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



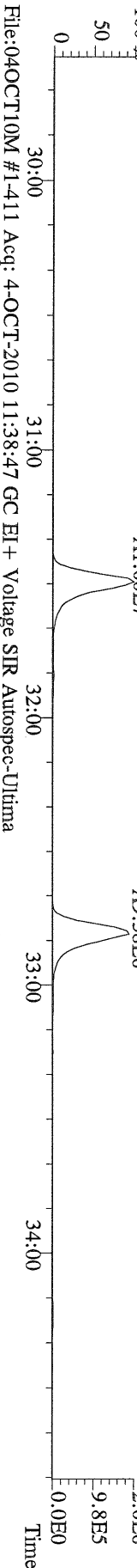
File:04OCT10M #1-411 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



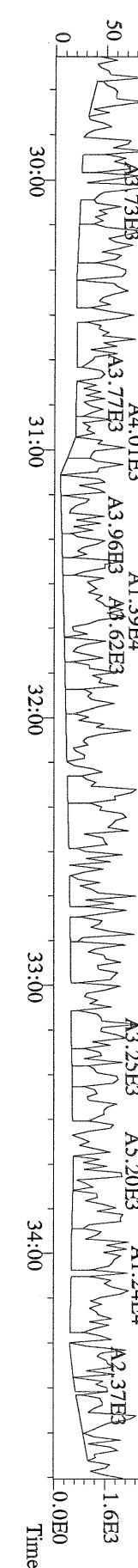
File:04OCT10M #1-411 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



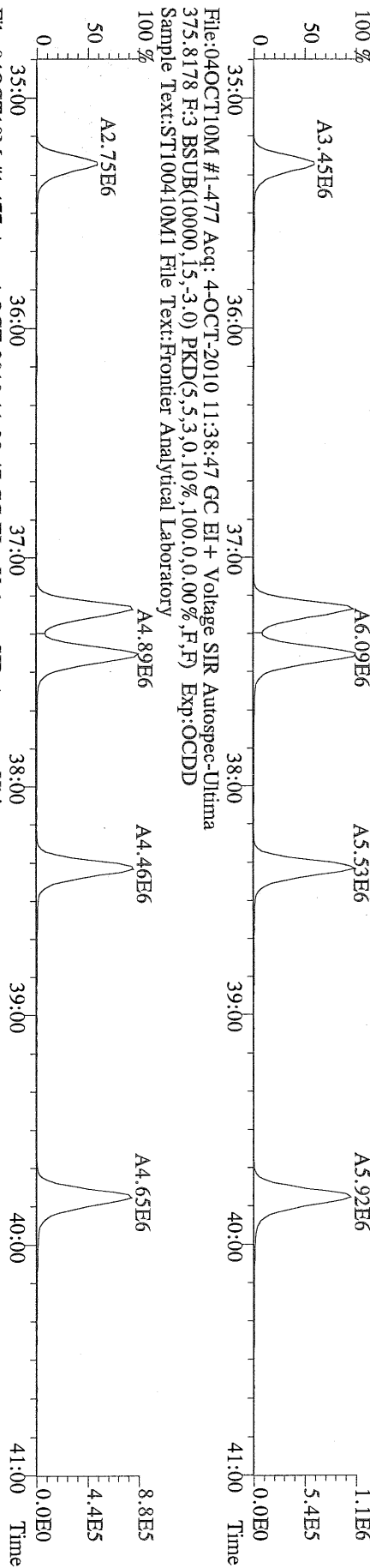
File:04OCT10M #1-411 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



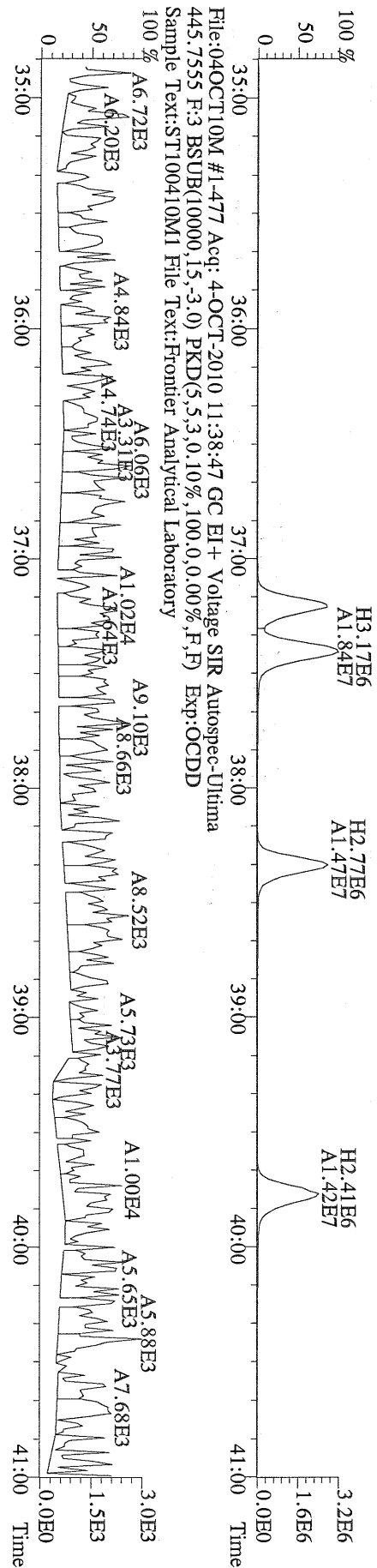
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 409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



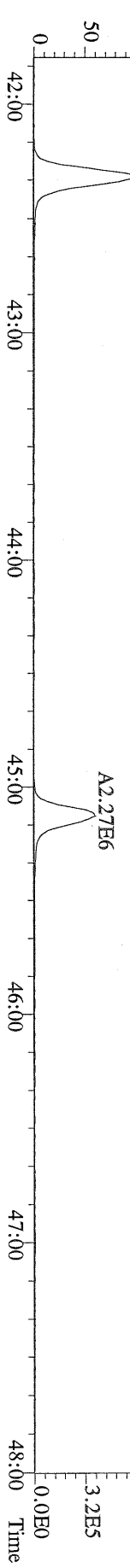
File:04OCT10M #1-477 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ulthma
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



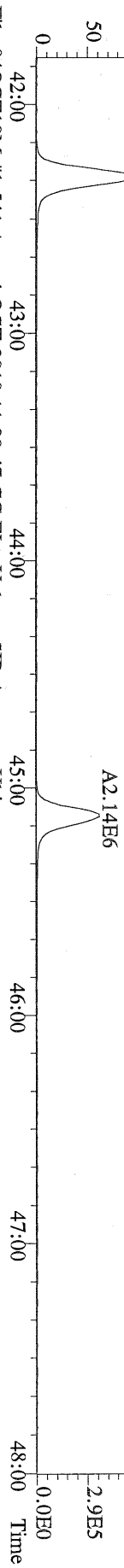
File:04OCT10M #1-477 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ulthma
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5.5,3,0,10%,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



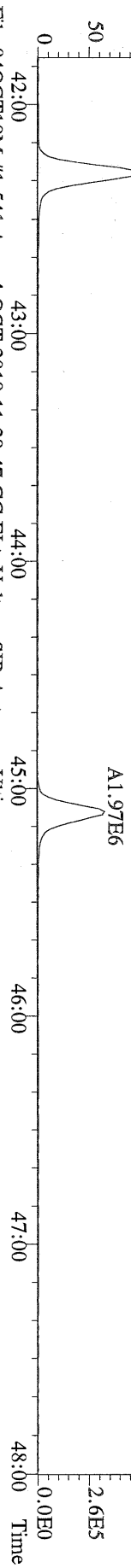
File:04OCT10M #1-541 Acq: 4-OCT-2010 11:38:47 GC EI + Voltage SIR Autospec-Utima
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory
100 % A3.43E6



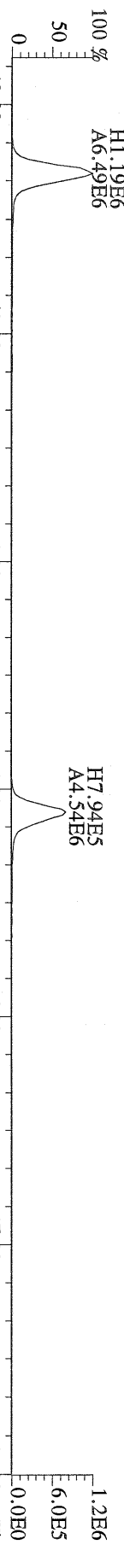
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409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory
100 % A3.16E6



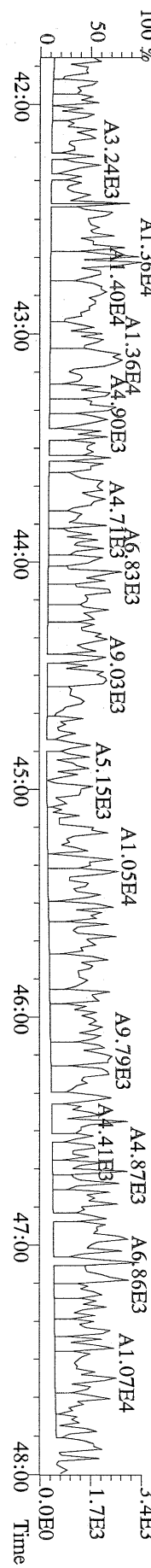
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417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory
100 % A2.92E6



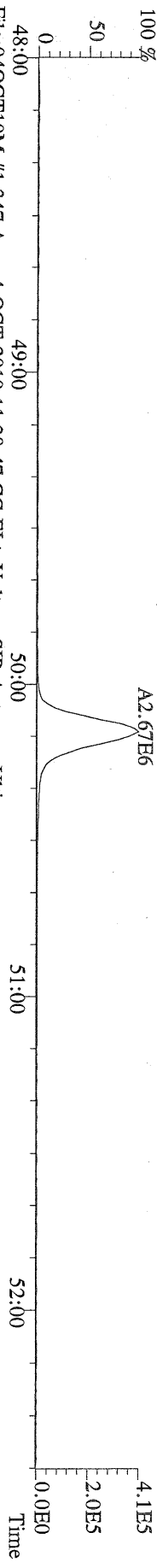
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419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



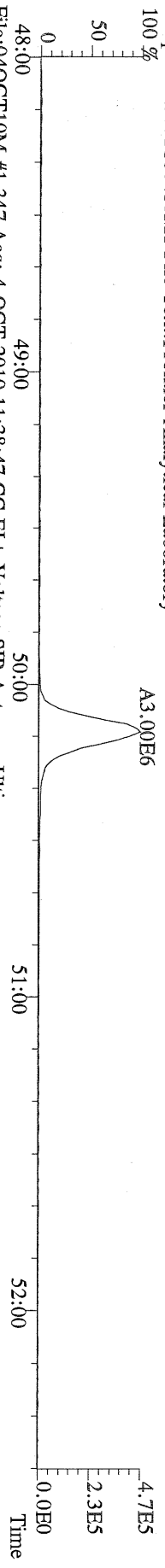
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479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0,100,0,0,00%,F,F) Exp:OCDD
Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



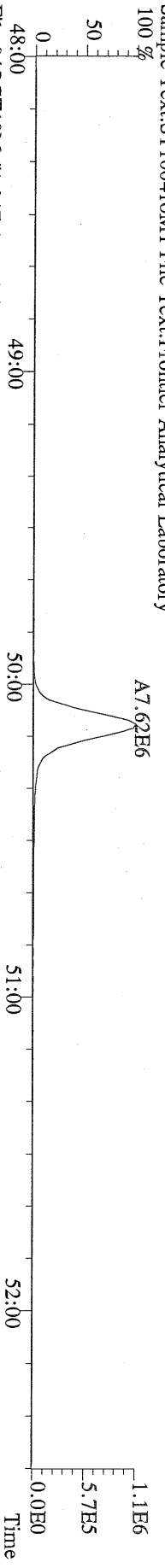
File:04OCT10M #1-347 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



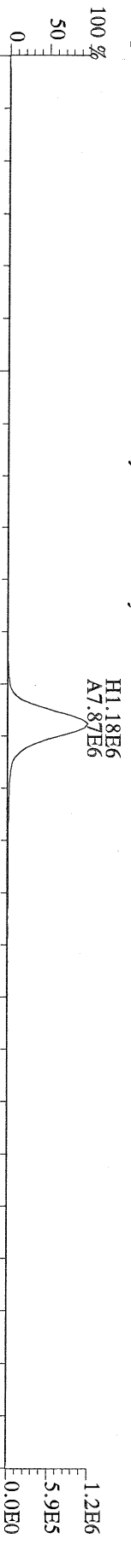
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 443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



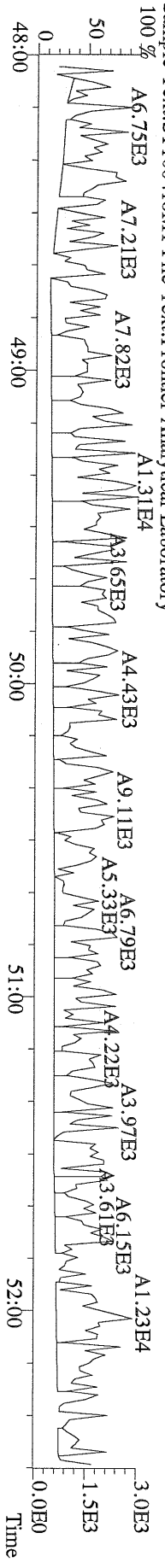
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 453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory



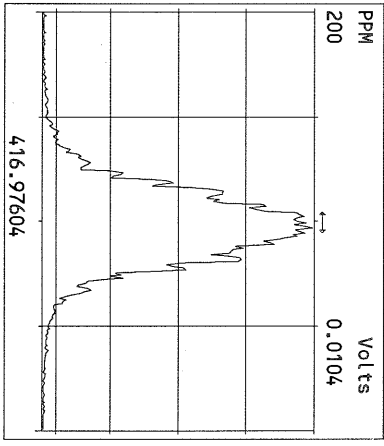
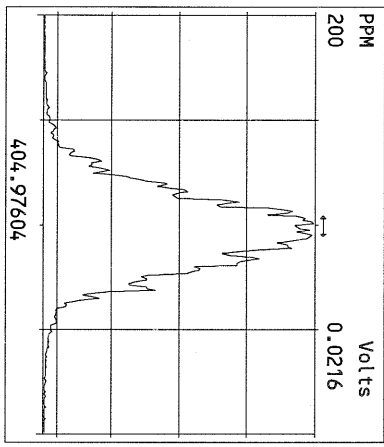
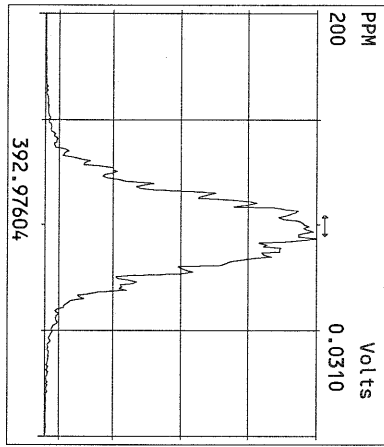
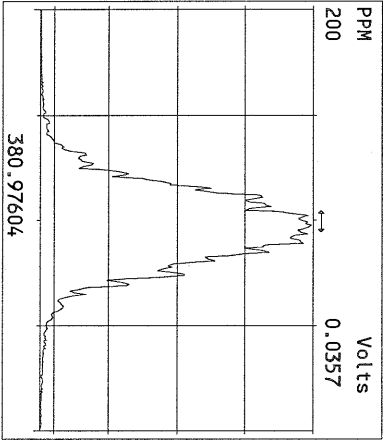
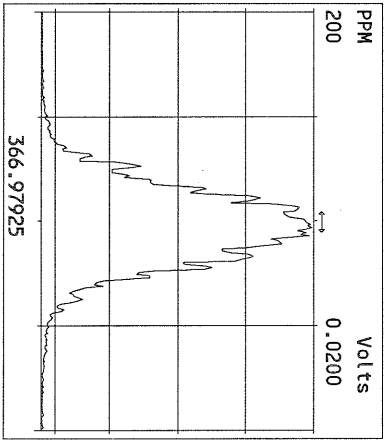
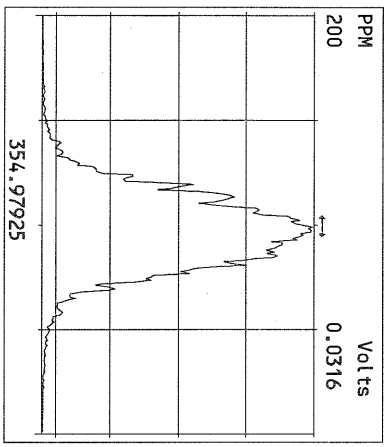
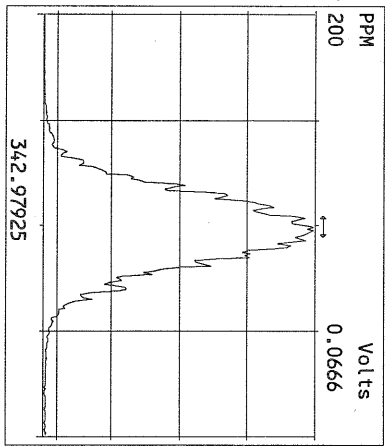
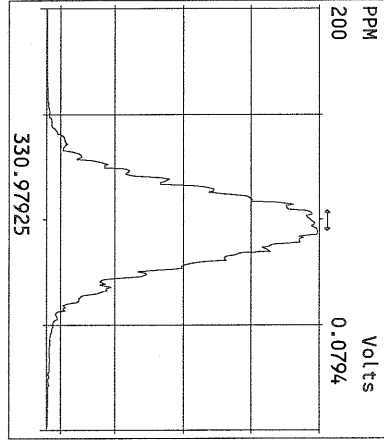
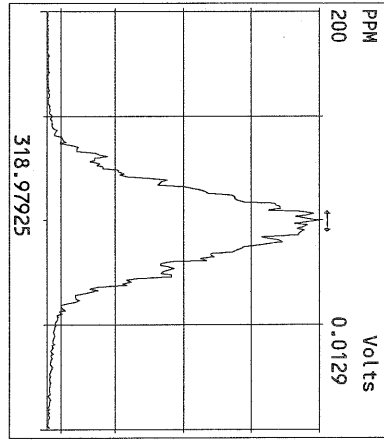
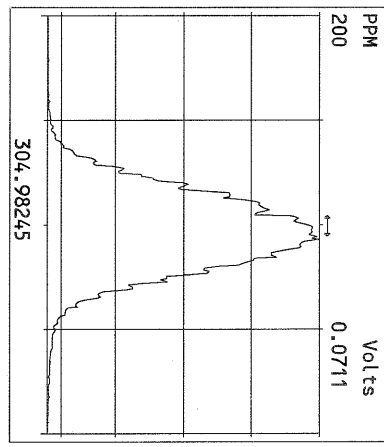
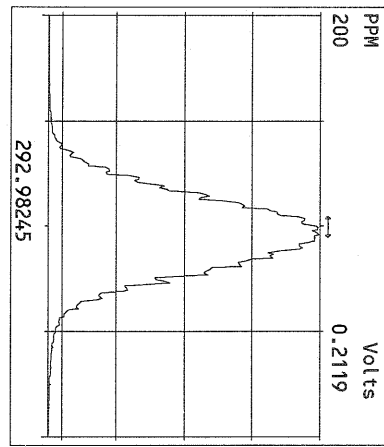
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 455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory

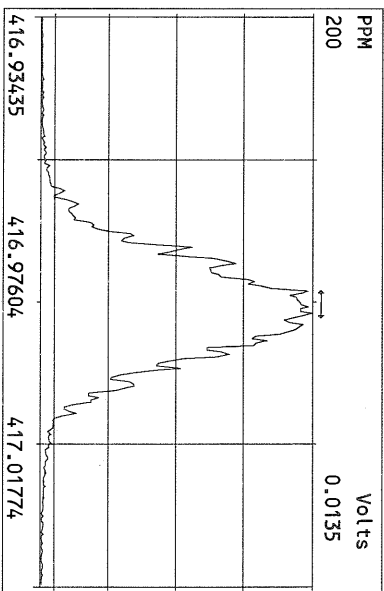
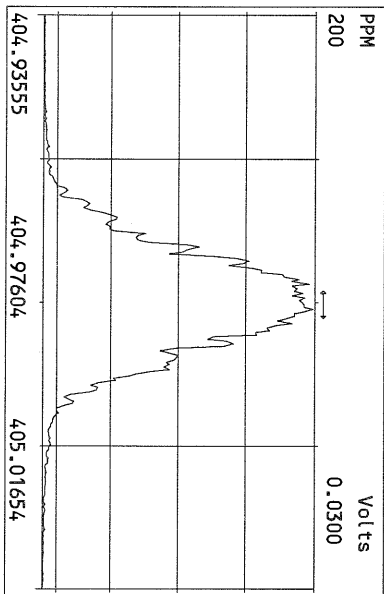
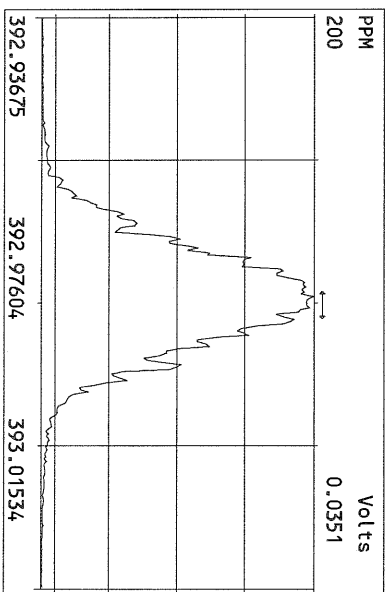
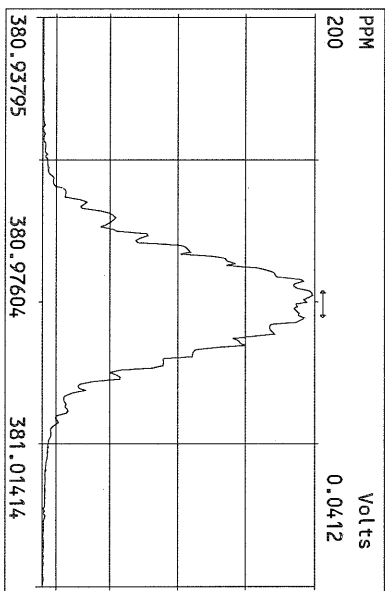
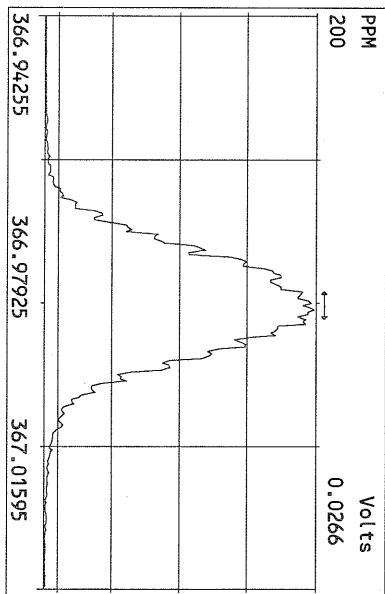
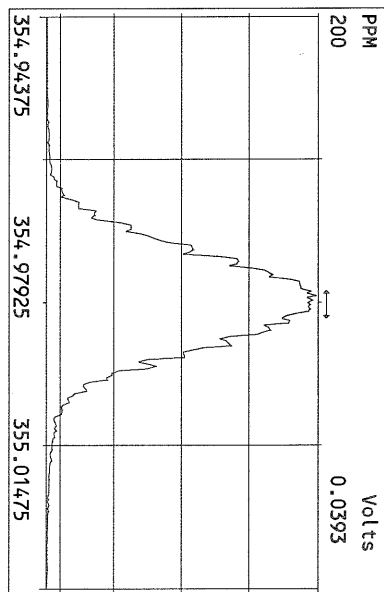
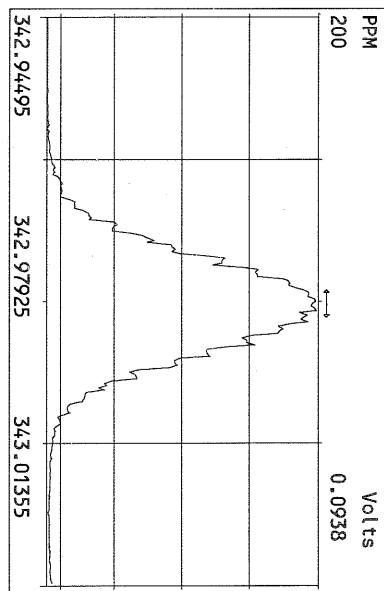
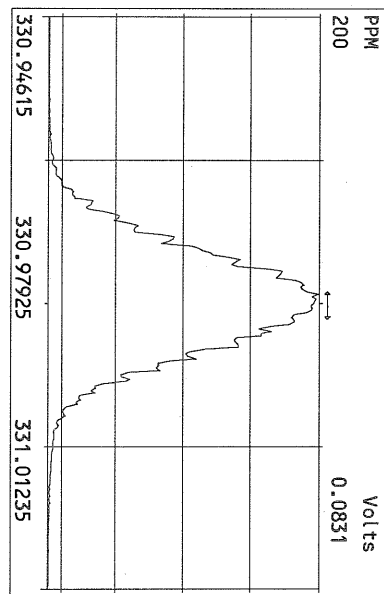


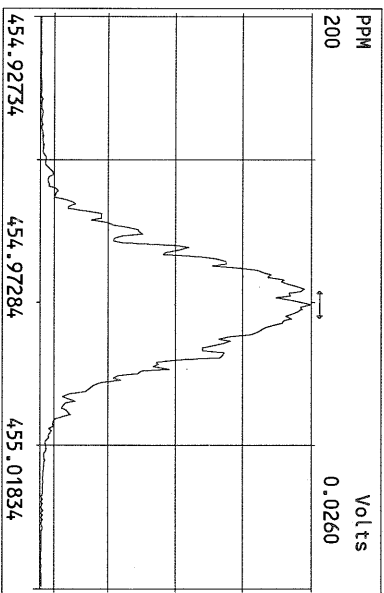
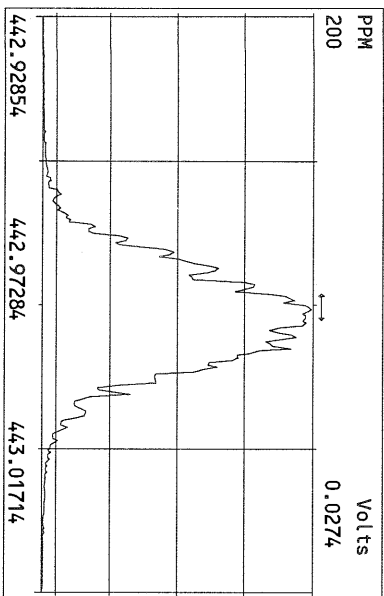
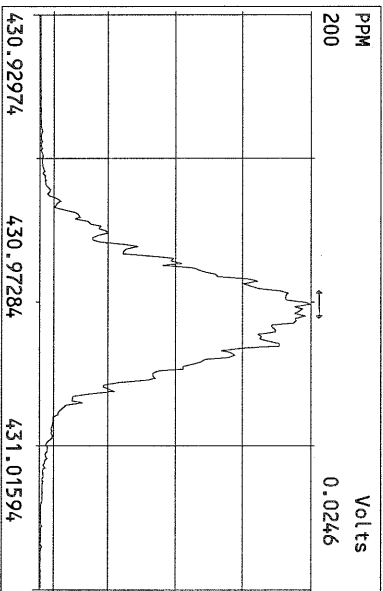
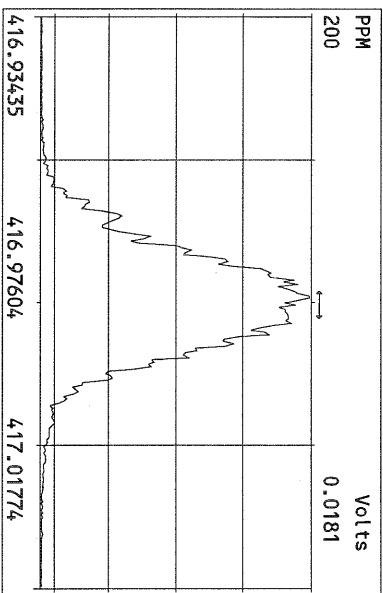
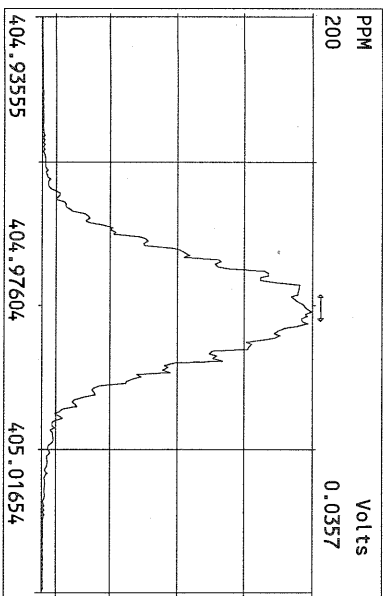
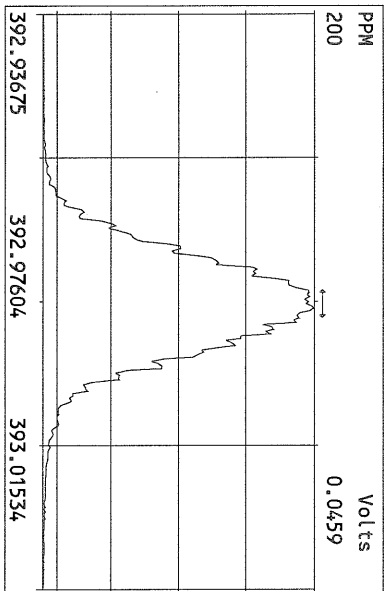
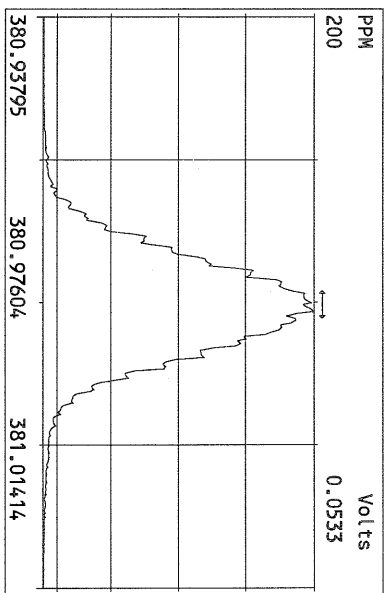
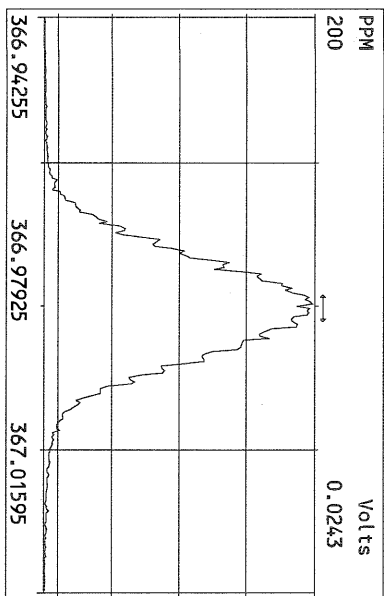
File:04OCT10M #1-347 Acq: 4-OCT-2010 11:38:47 GC EI+ Voltage SIR Autospec-Ultima
 513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0,10%,100.0,0.00%,F,F) Exp:OCDD
 Sample Text:ST100410M1 File Text:Frontier Analytical Laboratory

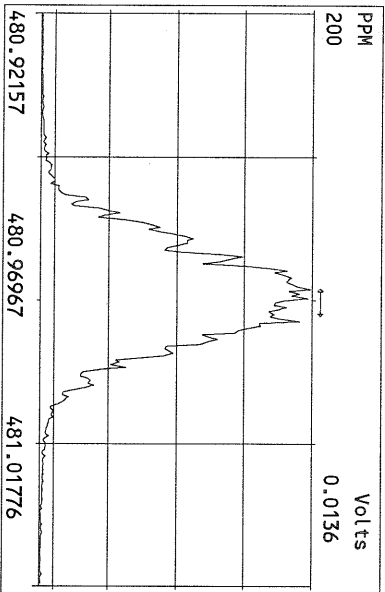
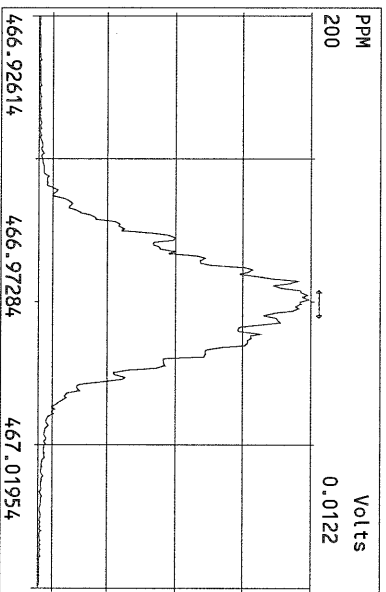
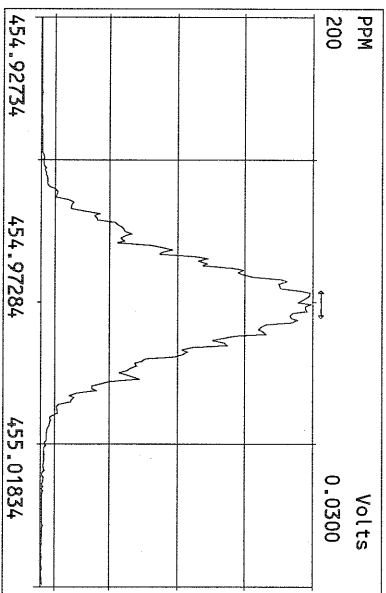
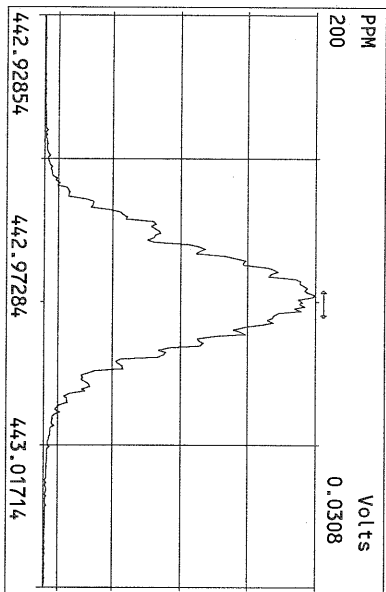
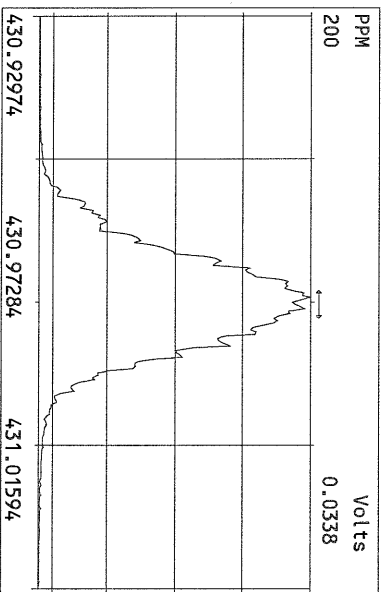
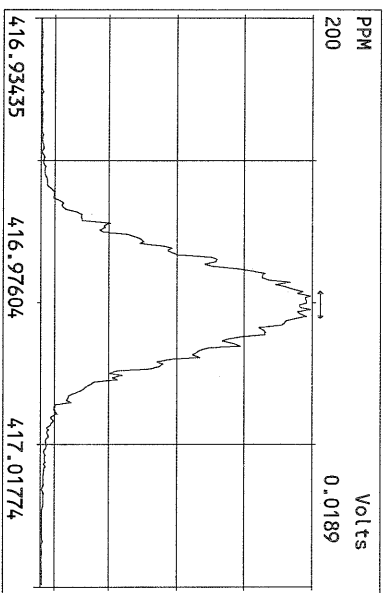
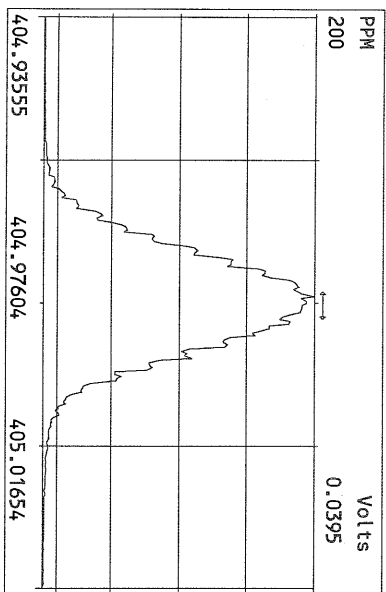


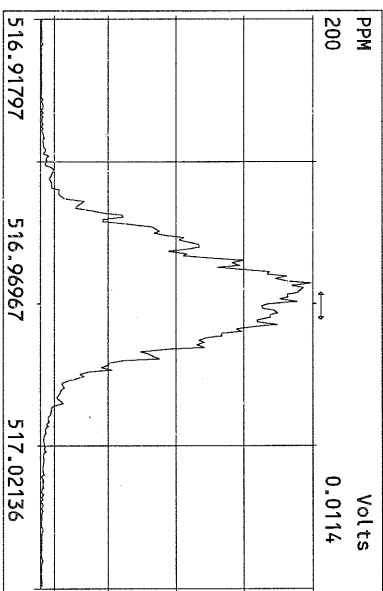
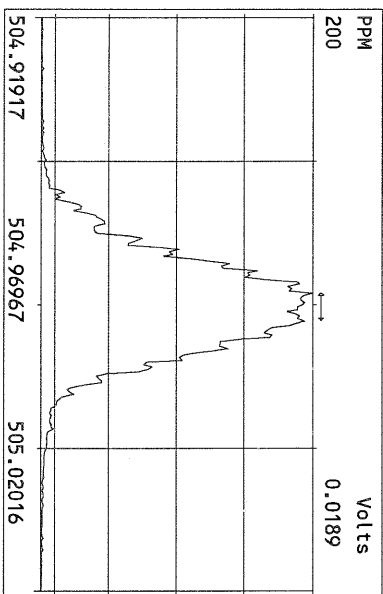
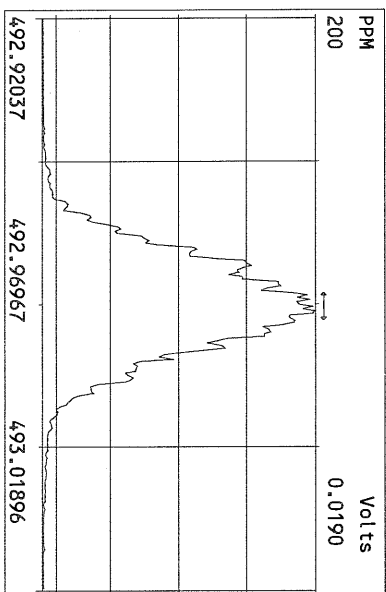
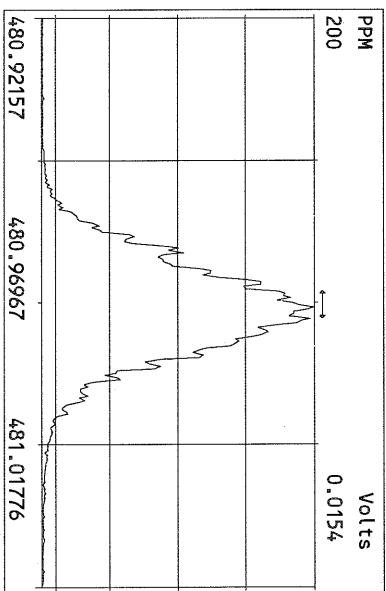
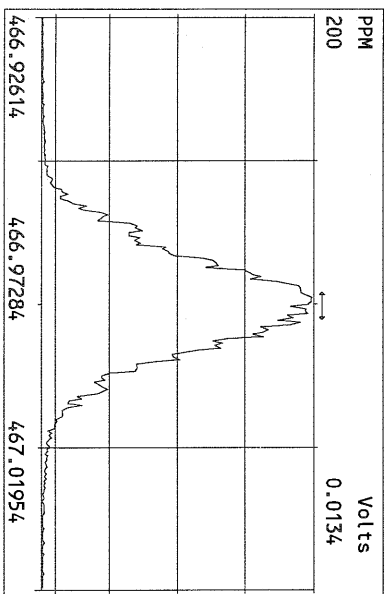
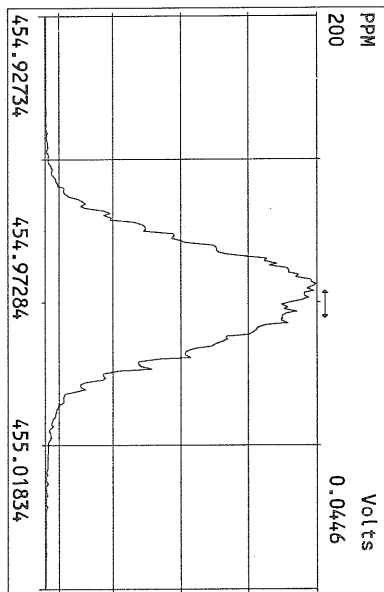
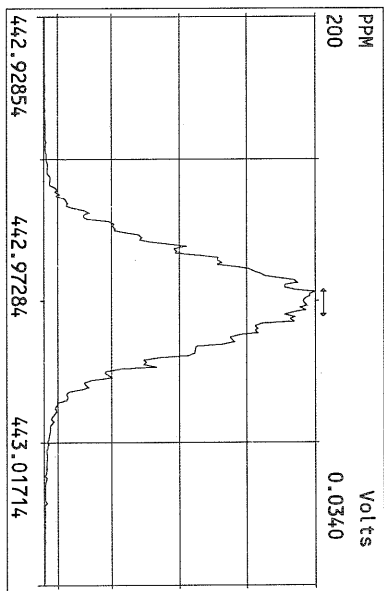
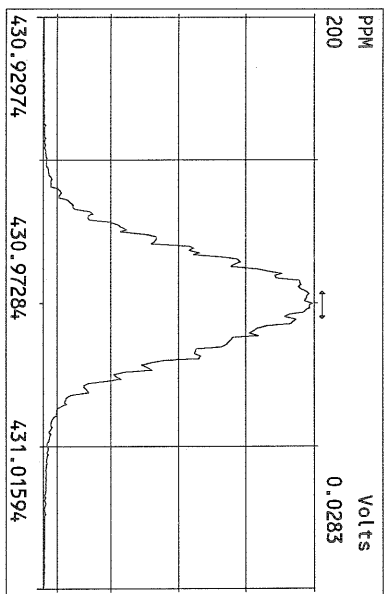
Peak Locate Examination: 5-OCT-2010:00:36 File:04OCT10M_RES_CHECK
Experiment:0CDD Function:1 Reference:PFK











USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 04OCT10M Sam:14

Analysis Date: 4-OCT-10 23:37:47

| NATIVE ANALYTES | M/Z'S FORMING RATIO (1) | ION ABUND. RATIO | QC LIMITS (2) | ACCEPT | CONC. FOUND | CONC. RANGE (ng/mL) (3) |
|---------------------|-------------------------------|------------------------|---------------------|--------|----------------|-------------------------------|
| 2,3,7,8-TCDD | M/M+2 | 0.79 | 0.65-0.89 | y | 10.2 | 7.80 - 12.9 ✓ |
| 1,2,3,7,8-PeCDD | M+2/M+4 | 1.60 | 1.32-1.78 | y | 50.1 | 39.0 - 65.0 ✓ |
| 1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.40 | 1.05-1.43 | y | 48.4 | 39.0 - 64.0 ✓ |
| 1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.41 | 1.05-1.43 | y | 48.1 | 39.0 - 64.0 ✓ |
| 1,2,3,7,8,9-HxCDD | M+2/M+4 | 1.41 | 1.05-1.43 | y | 50.1 | 41.0 - 61.0 ✓ |
| 1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.97 | 0.88-1.20 | y | 47.8 | 43.0 - 58.0 ✓ |
| OCDD | M+2/M+4 | 0.94 | 0.76-1.02 | y | 103 | 79.0 - 126 ✓ |
| 2,3,7,8-TCDF | M/M+2 | 0.68 | 0.65-0.89 | y | 8.63 | 8.40 - 12.0 ✓ |
| 1,2,3,7,8-PeCDF | M+2/M+4 | 1.55 | 1.32-1.78 | y | 53.0 | 41.0 - 60.0 ✓ |
| 2,3,4,7,8-PeCDF | M+2/M+4 | 1.51 | 1.32-1.78 | y | 51.8 | 41.0 - 60.0 ✓ |
| 1,2,3,4,7,8-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 47.5 | 45.0 - 56.0 ✓ |
| 1,2,3,6,7,8-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 49.0 | 44.0 - 57.0 ✓ |
| 2,3,4,6,7,8-HxCDF | M+2/M+4 | 1.27 | 1.05-1.43 | y | 48.2 | 44.0 - 57.0 ✓ |
| 1,2,3,7,8,9-HxCDF | M+2/M+4 | 1.29 | 1.05-1.43 | y | 48.6 | 45.0 - 56.0 ✓ |
| 1,2,3,4,6,7,8-HpCDF | M+2/M+4 | 1.10 | 0.88-1.20 | y | 50.4 | 45.0 - 55.0 ✓ |
| 1,2,3,4,7,8,9-HpCDF | M+2/M+4 | 1.09 | 0.88-1.20 | y | 50.2 | 43.0 - 58.0 ✓ |
| OCDF | M+2/M+4 | 0.87 | 0.76-1.02 | y | 91.8 | 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: 10/5/10

USEPA - ITD

FORM 4B

PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

VER Data Filename: 04OCT10M Sam:14

Analysis Date: 4-OCT-10 23:37:47

| 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 | 0.78 | 0.65-0.89 | y | 95.1 | 82.0 - 121 ✓ |
| 13C-1,2,3,7,8-PeCDD | M+2/M+4 | 1.77 | 1.32-1.78 | y | 91.6 | 62.0 - 160 ✓ |
| 13C-1,2,3,4,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 108 | 85.0 - 117 ✓ |
| 13C-1,2,3,6,7,8-HxCDD | M+2/M+4 | 1.25 | 1.05-1.43 | y | 91.9 | 85.0 - 118 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDD | M+2/M+4 | 0.95 | 0.88-1.20 | y | 89.4 | 72.0 - 138 ✓ |
| 13C-OCDD | M+2/M+4 | 0.93 | 0.76-1.02 | y | 148 | 96.0 - 415 ✓ |
| 13C-2,3,7,8-TCDF | M/M+2 | 0.88 | 0.65-0.89 | y | 96.5 | 71.0 - 140 ✓ |
| 13C-1,2,3,7,8-PeCDF | M+2/M+4 | 1.74 | 1.32-1.78 | y | 88.9 | 76.0 - 130 ✓ |
| 13C-2,3,4,7,8-PeCDF | M+2/M+4 | 1.72 | 1.32-1.78 | y | 89.1 | 77.0 - 130 ✓ |
| 13C-1,2,3,4,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 119 | 76.0 - 131 ✓ |
| 13C-1,2,3,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 104 | 70.0 - 143 ✓ |
| 13C-2,3,4,6,7,8-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 107 | 73.0 - 137 ✓ |
| 13C-1,2,3,7,8,9-HxCDF | M/M+2 | 0.51 | 0.43-0.59 | y | 107 | 74.0 - 135 ✓ |
| 13C-1,2,3,4,6,7,8-HpCDF | M/M+2 | 0.45 | 0.37-0.51 | y | 86.5 | 78.0 - 129 ✓ |
| 13C-1,2,3,4,7,8,9-HpCDF | M/M+2 | 0.44 | 0.37-0.51 | y | 86.8 | 77.0 - 129 ✓ |
| 13C-OCDF | M+2/M+4 | 0.98 | 0.76-1.02 | y | 155 | 96.0 - 415 ✓ |
| CLEANUP STANDARD (4) | | | | | | |
| 37Cl-2,3,7,8-TCDD | | | | | 9.24 | 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: 10/5/10

USEPA - ITD

FORM 6A

PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5


Analysis Date: 4-OCT-10 23:37:47

CS3 or VER Data Filename: 04OCT10M

Sam:14

| 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 | 1.001 | 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 | | 1.021 | 0.976-1.043✓ |
| 13C-2,3,7,8-TCDF | | 0.993 | 0.923-1.103✓ |
| 13C-1,2,3,7,8-PeCDD | | 1.238 | 1.000-1.567✓ |
| 13C-1,2,3,7,8-PeCDF | | 1.174 | 0.923-1.203✓ |
| 13C-2,3,4,7,8-PeCDF | | 1.223 | 0.923-1.303✓ |

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

Analyst: Date: 10/5/10

USEPA - ITD

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Frontier Analytical Laboratory

Episode No.:

Contract No.:

SAS No.:

Init. Cal. Date: 8/23/10

Instrument ID: FAL3

GC Column ID: DB5

Analysis Date: 4-OCT-10 23:37:47

CS3 or VER Data Filename: 04OCT10M

Sam:14

| 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 | 1.000 | 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 | 1.000 | 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 | | 0.988 | 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 | | 1.150 | 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: 10/5/10

Results: GC Column: DB5 Amount: 1.000 NATO 1989 Tox: 100 WHO 1998 Tox: 125 WHO 2005 Tox: 114

| Name | Resp | RA | RT | RRF | Conc | Qual | Fac Noise-1 | Noise-2 | DL | Rec | #Hom |
|--------------------------|----------|--------|-------|------|------|------|-------------|---------|----|------|---------|
| 2,3,7,8-TCDD | 2.35e+06 | 0.79 y | 27:25 | 1.11 | 10.2 | | 2.50 | - | - | 95.1 | * |
| 1,2,3,7,8-PeCDD | 9.05e+06 | 1.60 y | 33:16 | 1.10 | 50.1 | | 2.50 | - | - | 91.6 | * |
| 1,2,3,4,7,8-HxCDD | 8.26e+06 | 1.40 y | 38:38 | 1.37 | 48.4 | | 2.50 | - | - | 108 | * |
| 1,2,3,6,7,8-HxCDD | 6.57e+06 | 1.41 y | 38:47 | 1.37 | 48.1 | | 2.50 | - | - | 91.9 | * |
| 1,2,3,7,8,9-HxCDD | 7.63e+06 | 1.41 y | 39:15 | 1.36 | 50.1 | | 2.50 | - | - | 89.4 | * |
| 1,2,3,4,6,7,8-HpCDD | 5.68e+06 | 0.97 y | 44:14 | 1.45 | 47.8 | | 2.50 | - | - | 73.9 | * |
| OCDD | 6.38e+06 | 0.94 y | 49:48 | 1.43 | 103 | | 2.50 | - | - | | * |
| 2,3,7,8-TCDF | 4.58e+06 | 0.68 y | 26:40 | 1.50 | 8.63 | | 2.50 | - | - | 96.5 | * |
| 1,2,3,7,8-PeCDF | 1.37e+07 | 1.55 y | 31:31 | 0.94 | 53.0 | | 2.50 | - | - | 88.9 | * |
| 2,3,4,7,8-PeCDF | 1.29e+07 | 1.51 y | 32:50 | 0.94 | 51.8 | | 2.50 | - | - | 89.1 | * |
| 1,2,3,4,7,8-HxCDF | 1.04e+07 | 1.27 y | 37:14 | 0.93 | 47.5 | | 2.50 | - | - | 119 | * |
| 1,2,3,6,7,8-HxCDF | 1.13e+07 | 1.27 y | 37:26 | 0.82 | 49.0 | | 2.50 | - | - | 104 | * |
| 2,3,4,6,7,8-HxCDF | 1.02e+07 | 1.27 y | 38:22 | 0.92 | 48.2 | | 2.50 | - | - | 107 | * |
| 1,2,3,7,8,9-HxCDF | 1.12e+07 | 1.29 y | 39:49 | 1.00 | 48.6 | | 2.50 | - | - | 107 | * |
| 1,2,3,4,6,7,8-HpCDF | 7.18e+06 | 1.10 y | 42:20 | 1.39 | 50.4 | | 2.50 | - | - | 86.5 | * |
| 1,2,3,4,7,8,9-HpCDF | 5.08e+06 | 1.09 y | 45:09 | 1.36 | 50.2 | | 2.50 | - | - | 86.8 | * |
| OCDF | 6.48e+06 | 0.87 y | 50:11 | 0.79 | 91.8 | | 2.50 | - | - | 77.5 | * |
| 13C-2,3,7,8-TCDD | 2.07e+07 | 0.78 y | 27:24 | 1.02 | 95.1 | | | | | 92.4 | |
| 13C-1,2,3,7,8-PeCDD | 1.64e+07 | 1.77 y | 33:14 | 0.84 | 91.6 | | | | | | |
| 13C-1,2,3,4,7,8-HxCDD | 1.24e+07 | 1.25 y | 38:36 | 1.07 | 108 | | | | | | |
| 13C-1,2,3,6,7,8-HxCDD | 9.95e+06 | 1.25 y | 38:46 | 1.01 | 91.9 | | | | | | |
| 13C-1,2,3,4,6,7,8-HpCDD | 8.18e+06 | 0.95 y | 44:13 | 0.86 | 89.4 | | | | | | |
| 13C-OCDD | 8.63e+06 | 0.93 y | 49:47 | 0.55 | 148 | | | | | | |
| 13C-2,3,7,8-TCDF | 3.54e+07 | 0.88 y | 26:39 | 0.99 | 96.5 | | | | | 96.5 | |
| 13C-1,2,3,7,8-PeCDF | 2.74e+07 | 1.74 y | 31:30 | 0.84 | 88.9 | | | | | 88.9 | |
| 13C-2,3,4,7,8-PeCDF | 2.66e+07 | 1.72 y | 32:49 | 0.81 | 89.1 | | | | | 89.1 | |
| 13C-1,2,3,4,7,8-HxCDF | 2.36e+07 | 0.51 y | 37:14 | 1.85 | 119 | | | | | 119 | |
| 13C-1,2,3,6,7,8-HxCDF | 2.82e+07 | 0.51 y | 37:25 | 2.54 | 104 | | | | | 104 | |
| 13C-2,3,4,6,7,8-HxCDF | 2.30e+07 | 0.51 y | 38:22 | 2.01 | 107 | | | | | 107 | |
| 13C-1,2,3,7,8,9-HxCDF | 2.32e+07 | 0.51 y | 39:47 | 2.03 | 107 | | | | | 107 | |
| 13C-1,2,3,4,6,7,8-HpCDF | 1.03e+07 | 0.45 y | 42:20 | 1.11 | 86.5 | | | | | 86.5 | |
| 13C-1,2,3,4,7,8,9-HpCDF | 7.47e+06 | 0.44 y | 45:08 | 0.80 | 86.8 | | | | | 86.8 | |
| 13C-OCDF | 1.79e+07 | 0.98 y | 50:09 | 1.08 | 155 | | | | | 77.5 | |
| 37Cl-2,3,7,8-TCDD | 1.35e+06 | | 27:25 | 0.69 | 9.24 | | | | | 92.4 | |
| 13C-1,2,3,4-TCDD | 2.13e+07 | 0.79 y | 26:50 | - | 47.4 | | | | | | |
| 13C-1,2,3,4-TCDF | 3.68e+07 | 0.87 y | 25:34 | - | 50.9 | | | | | | |
| 13C-1,2,3,7,8,9-HxCDD | 1.07e+07 | 1.24 y | 39:14 | - | 38.8 | | | | | | |
| Total Tetra-Dioxins | 1.24e+07 | | 23:01 | 1.11 | 53.8 | | 2.50 | - | - | * | 32 |
| Total Penta-Dioxins | 1.96e+07 | | 30:18 | 1.10 | 109 | | 2.50 | - | - | * | 14 |
| Total Hexa-Dioxins | 2.53e+07 | | 35:48 | 1.37 | 165 | | 2.50 | - | - | * | 15 |
| Total Hepta-Dioxins | 1.25e+07 | | 41:43 | 1.45 | 105 | | 2.50 | - | - | * | 33 |
| Total Tetra-Furans | 2.18e+07 | | 23:04 | 1.50 | 41.1 | | 2.50 | - | - | * | 21 |
| 1st Fn. Tot Penta-Furans | 1.60e+07 | | 28:27 | 0.94 | 62.9 | | 2.50 | - | - | * | PeCDF 1 |
| Total Penta-Furans | 3.79e+07 | | 30:12 | 0.94 | 149 | | 2.50 | - | - | * | 212 9 |
| Total Hexa-Furans | 5.01e+07 | | 35:18 | 0.91 | 225 | | 2.50 | - | - | * | 25 |
| Total Hepta-Furans | 1.26e+07 | | 41:08 | 1.38 | 103 | | 2.50 | - | - | * | 34 |

Analyst:  Date: 10/5/10

Frontier Analytical Laboratory - Acquisition Log


Run Name:04OCT10M

Instrument: FAL3

GC: DB5

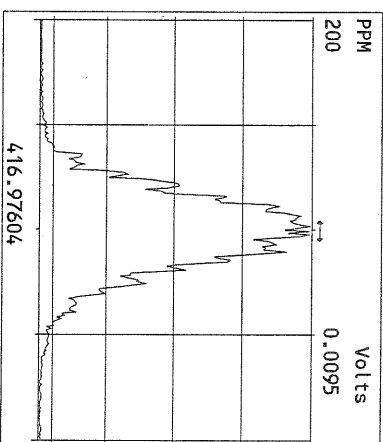
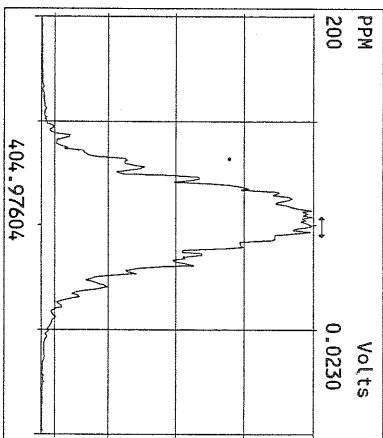
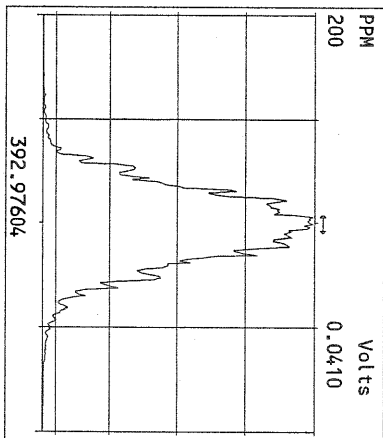
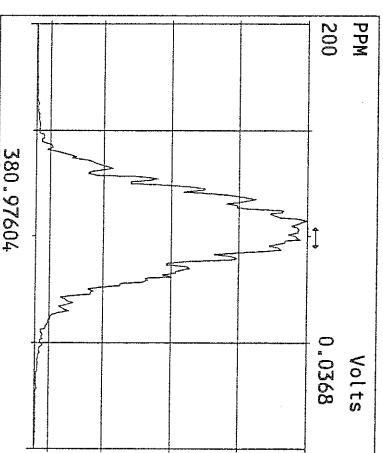
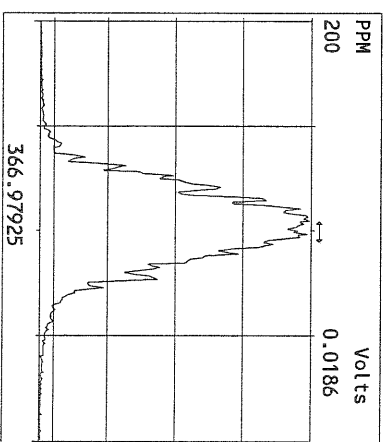
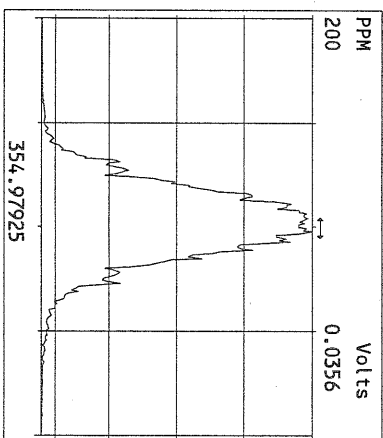
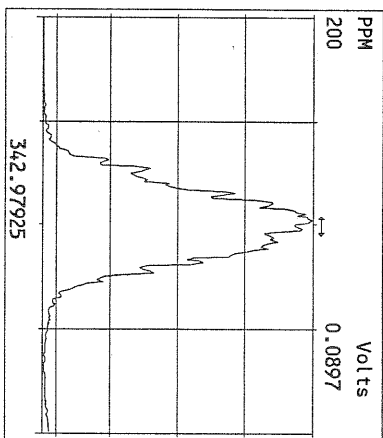
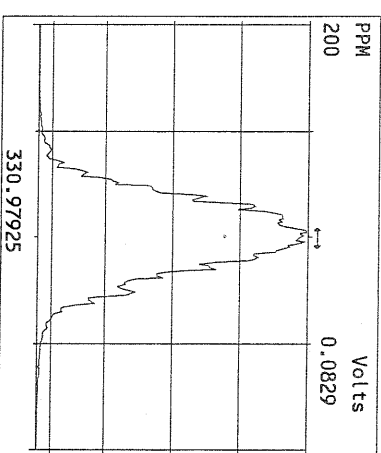
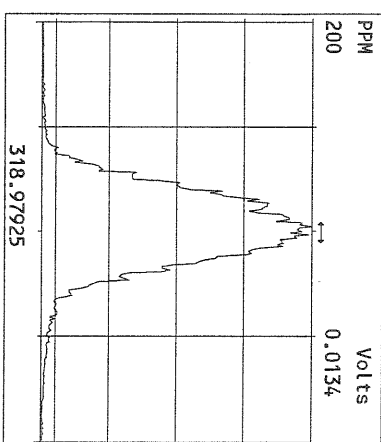
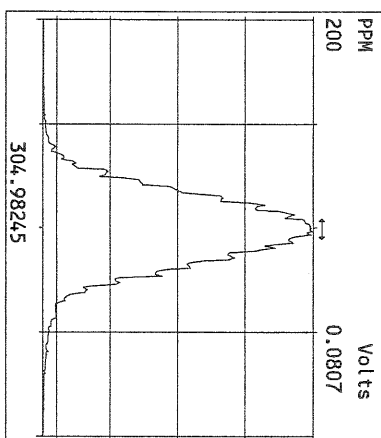
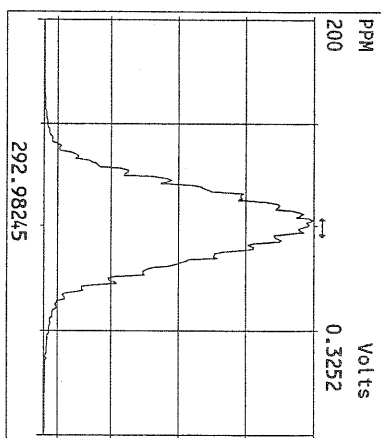
Experiment:PCDD

| Data File S | FAL ID | Client ID | Acquired | ConCal | EndCal | Analyst |
|-------------|------------------|----------------------------|-------------------|------------|------------|---------|
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| 04OCT10M 2 | SB100410M1 | Solvent Blank | 4-OCT-10 12:34:05 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 3 | 6365-008-0001-SA | SSB3-0-0.5-080610 | 4-OCT-10 13:29:24 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 4 | 6364-001-0001-SA | PSB12-4-6-072810 1:5 | 4-OCT-10 14:24:43 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 5 | 6364-002-0001-SA | PSB14-4-7-072810 1:5 | 4-OCT-10 15:20:02 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 6 | 6364-003-0001-SA | PSB14-7-9-072810 1:5 | 4-OCT-10 16:15:20 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 7 | 6364-006-0001-SA | PSB13-4-6-072910 1:5 | 4-OCT-10 17:10:39 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 8 | 6364-009-0001-SA | PSB10-8.5-10-073010 1:10 | 4-OCT-10 18:05:58 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 9 | 6364-008-0001-SA | PSB10-4-6-073010 1:25 | 4-OCT-10 19:01:18 | ST100410M1 | ST100410M2 | TC |
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| 04OCT10M 12 | SB100410M2 | Solvent Blank | 4-OCT-10 21:47:10 | ST100410M1 | ST100410M2 | TC |
| 04OCT10M 13 | SB100410M3 | Solvent Blank | 4-OCT-10 22:42:28 | ST100410M1 | ST100410M2 | TC |
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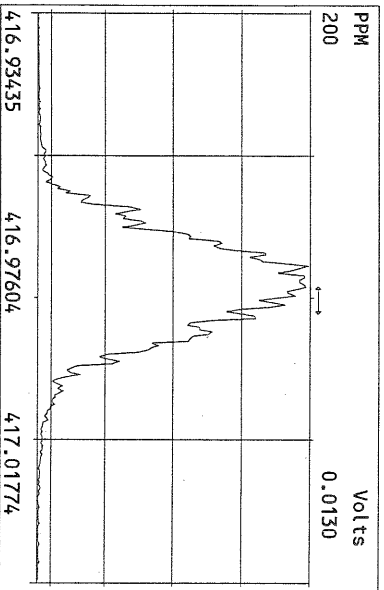
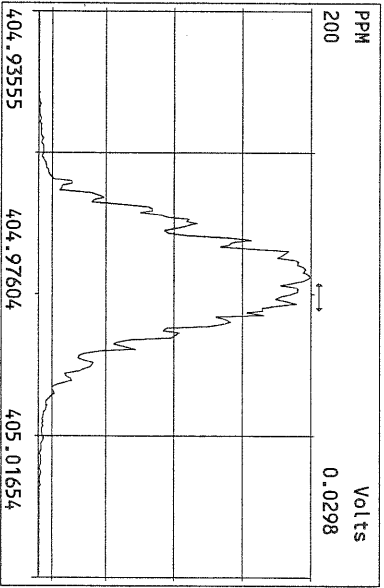
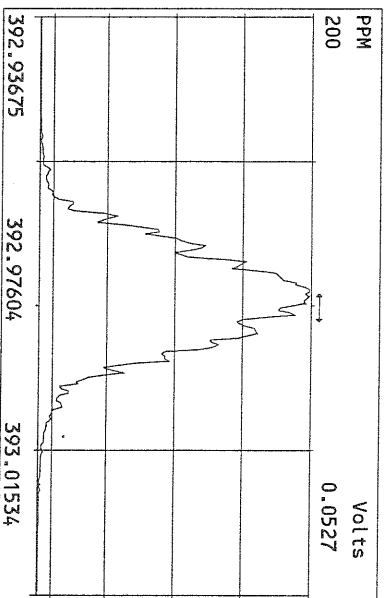
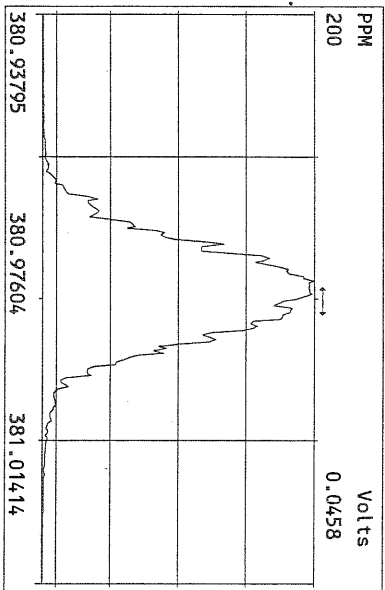
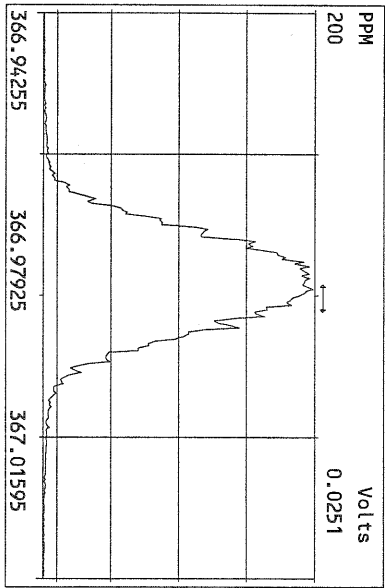
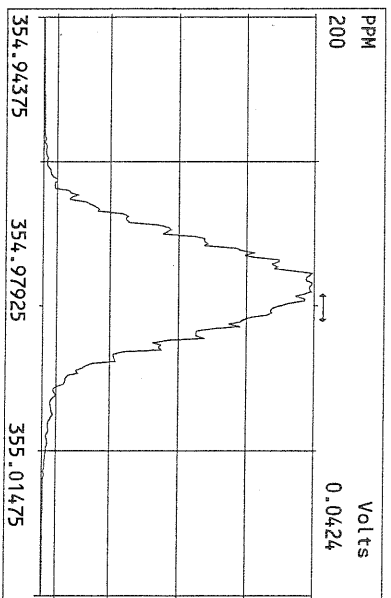
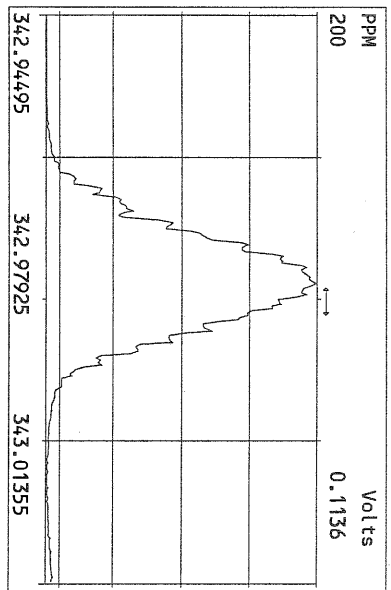
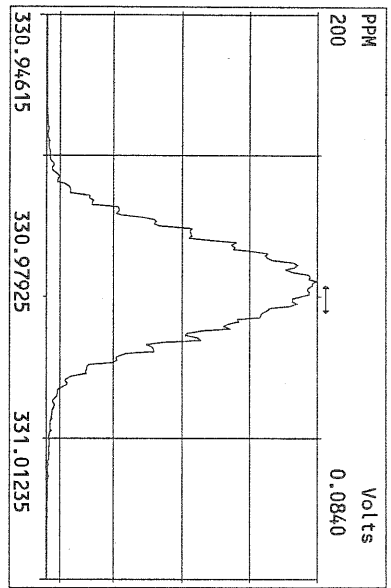
 10/5/10

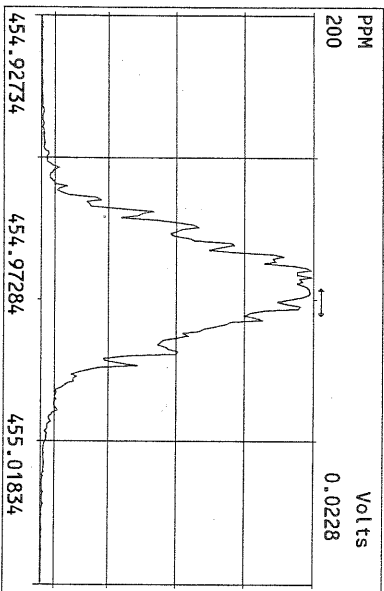
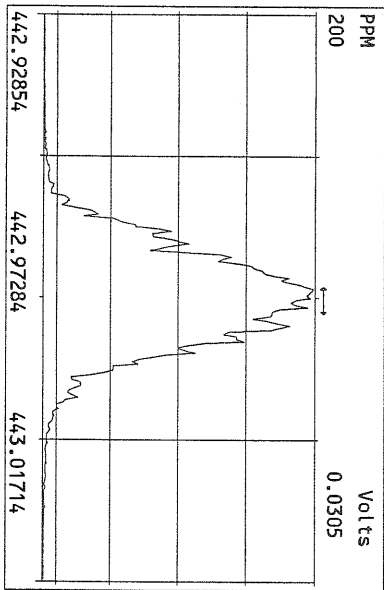
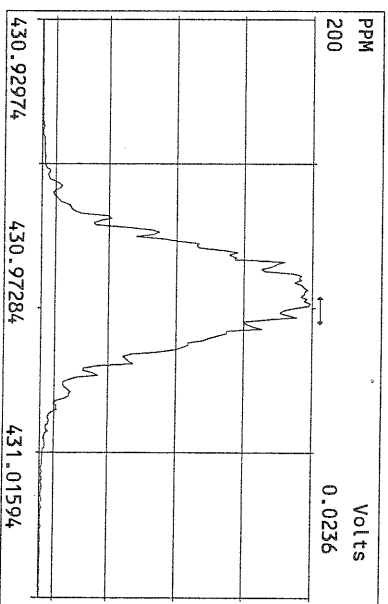
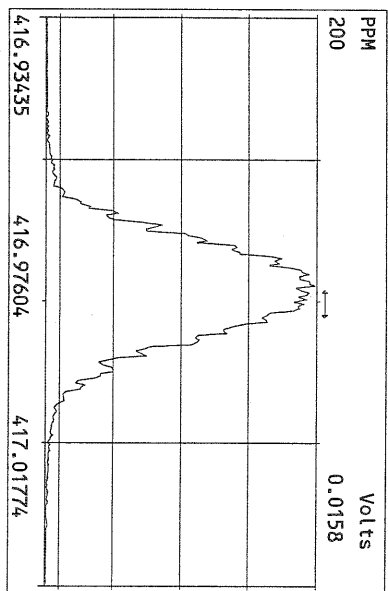
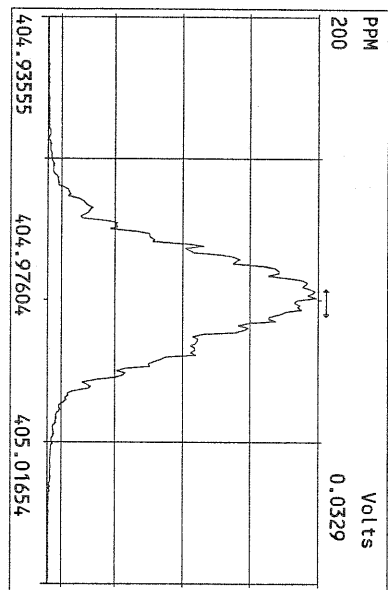
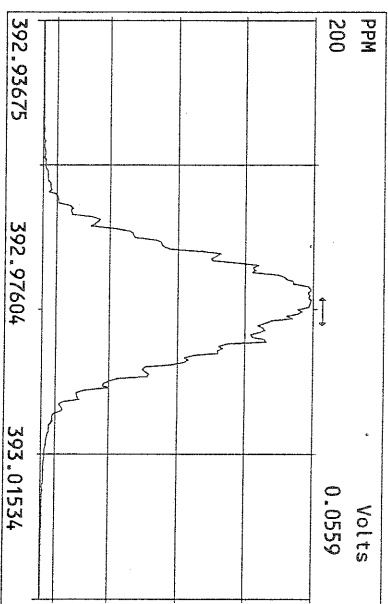
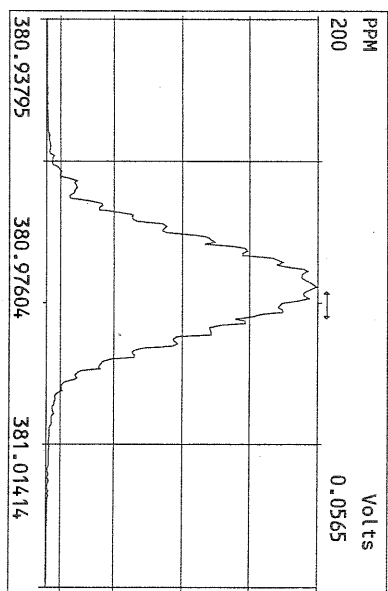
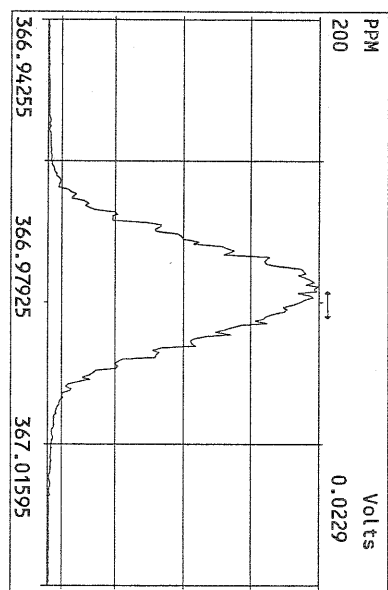
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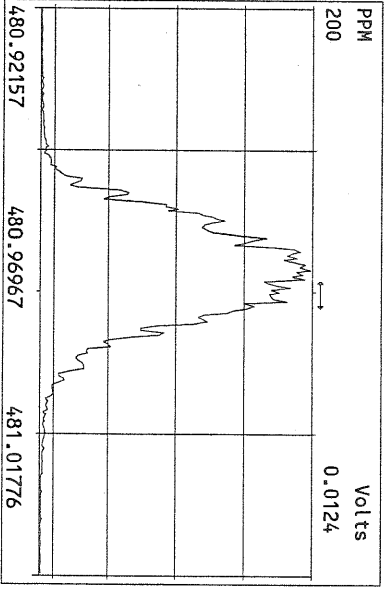
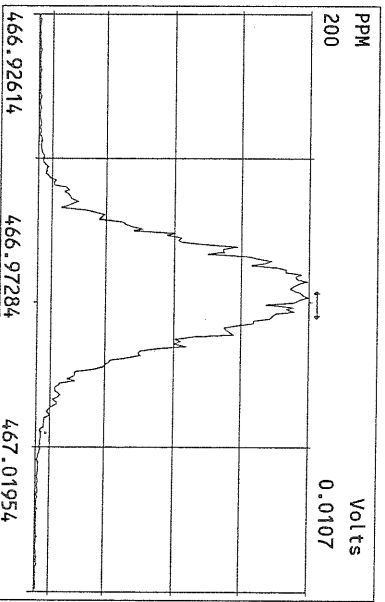
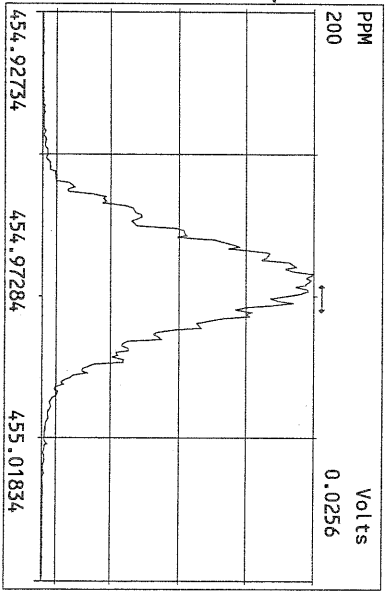
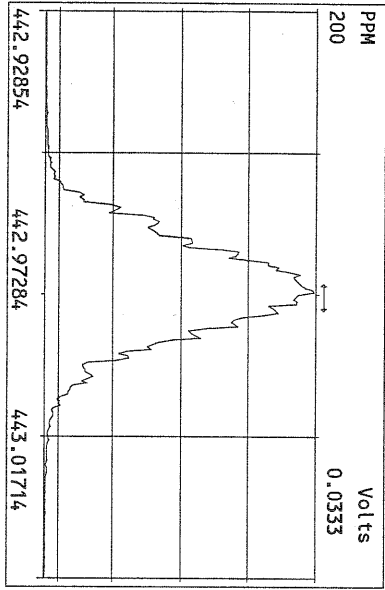
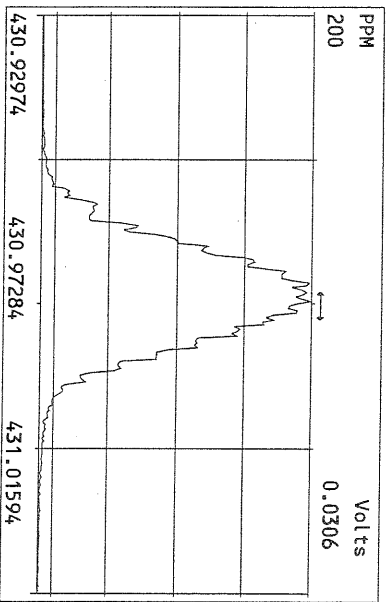
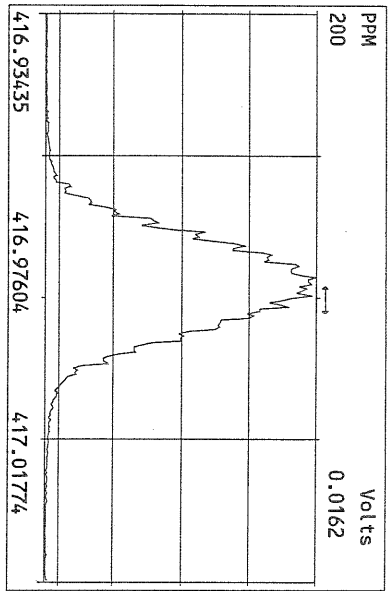
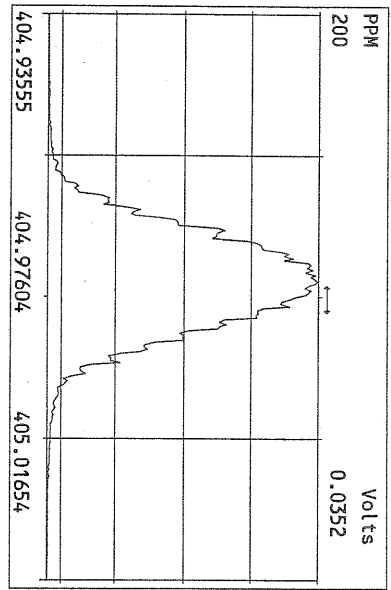


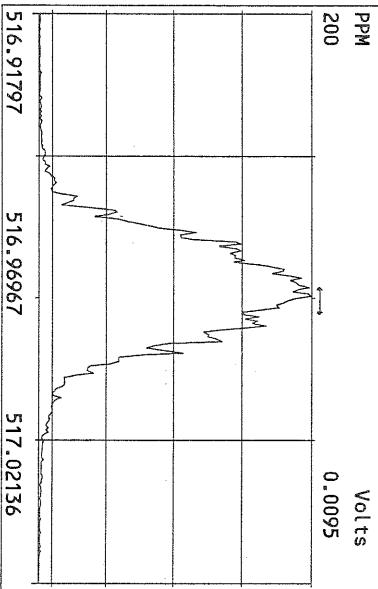
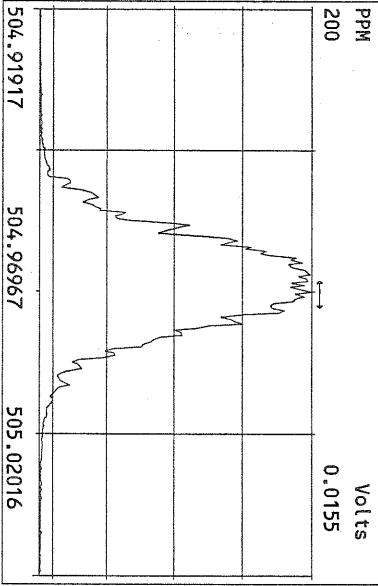
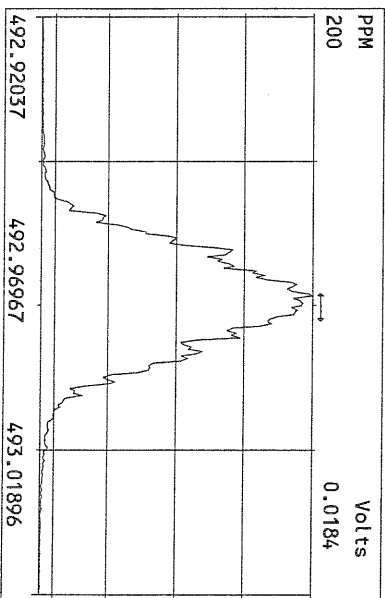
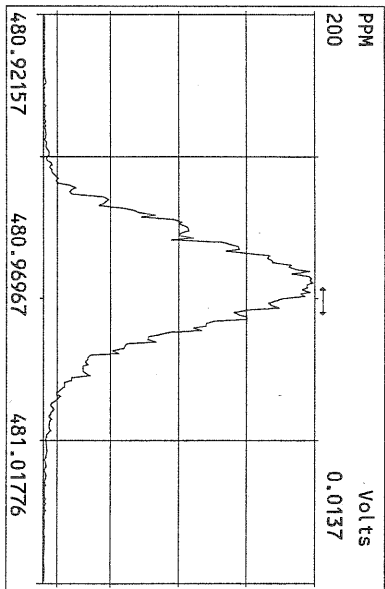
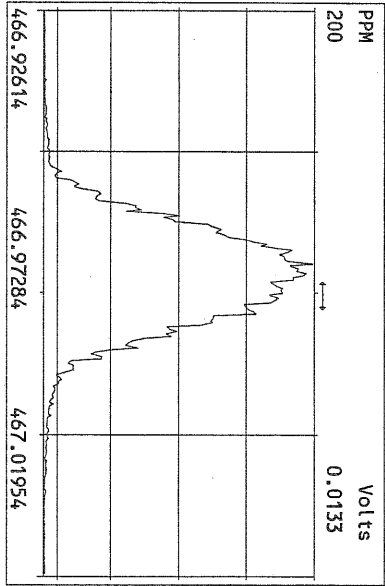
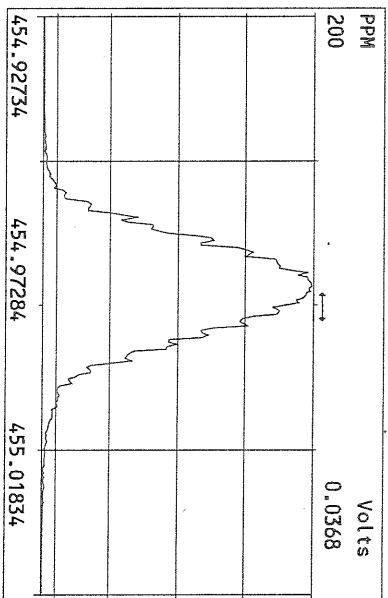
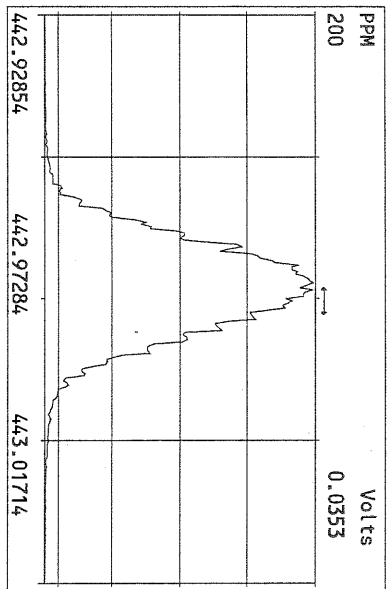
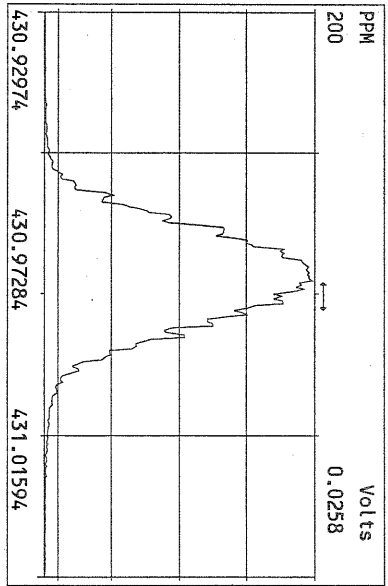
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Experiment:OCDD Function:2 Reference:PFK



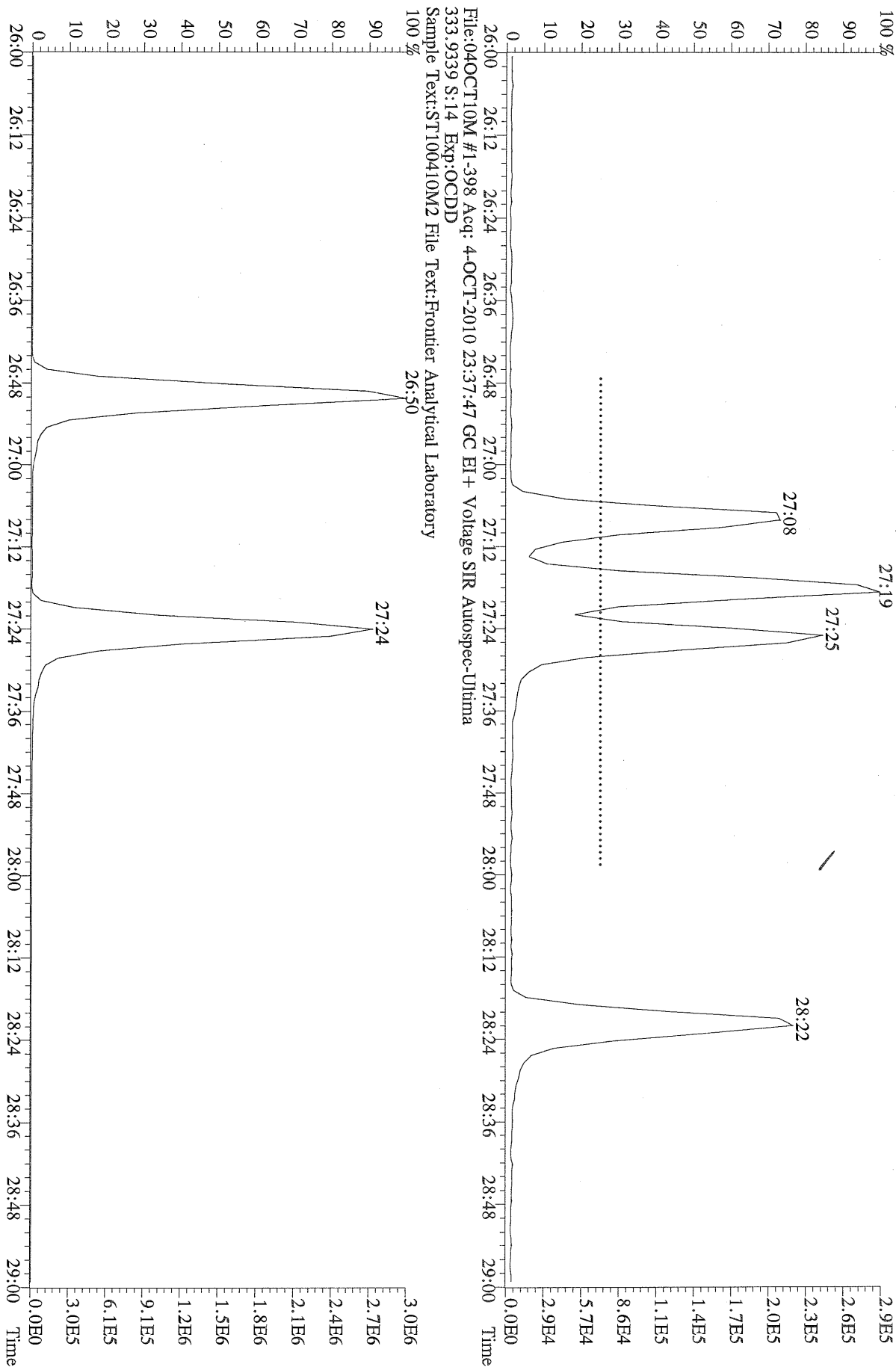


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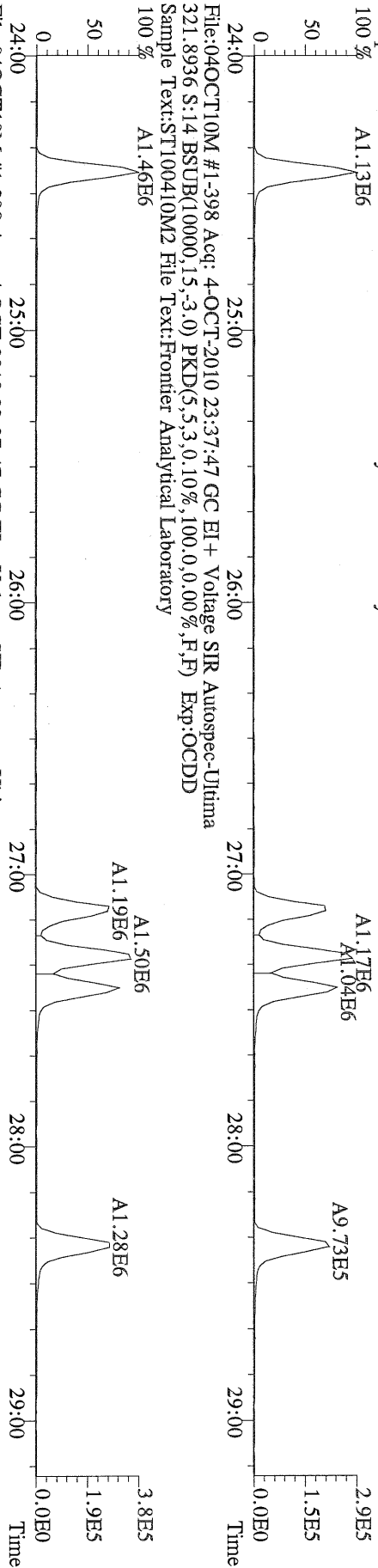




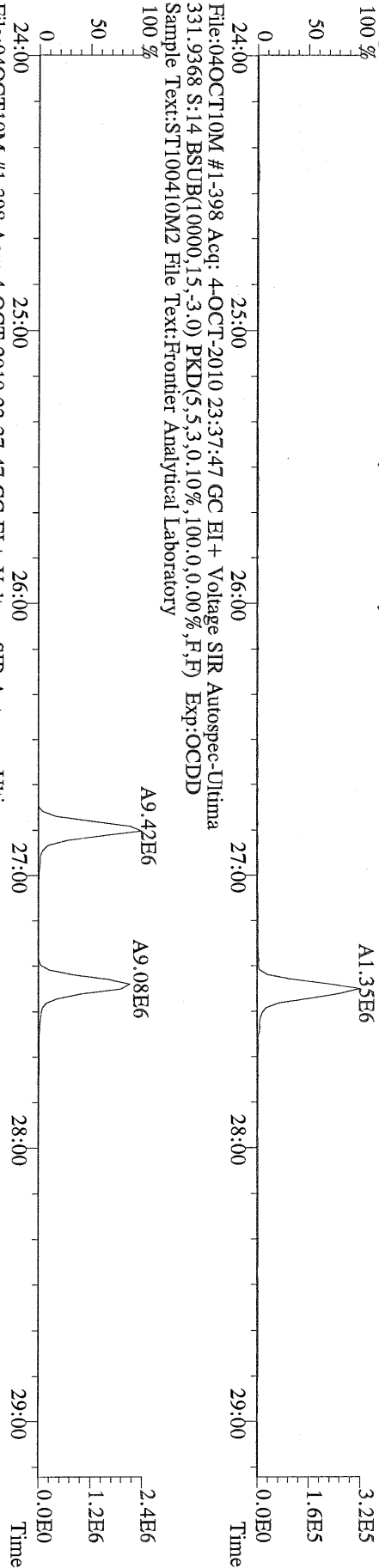
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319.8965 S:14 Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



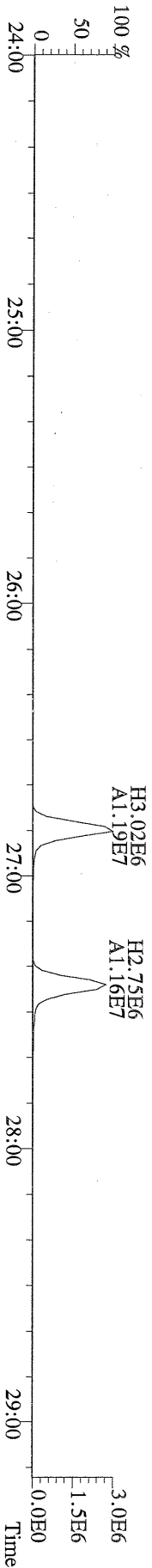
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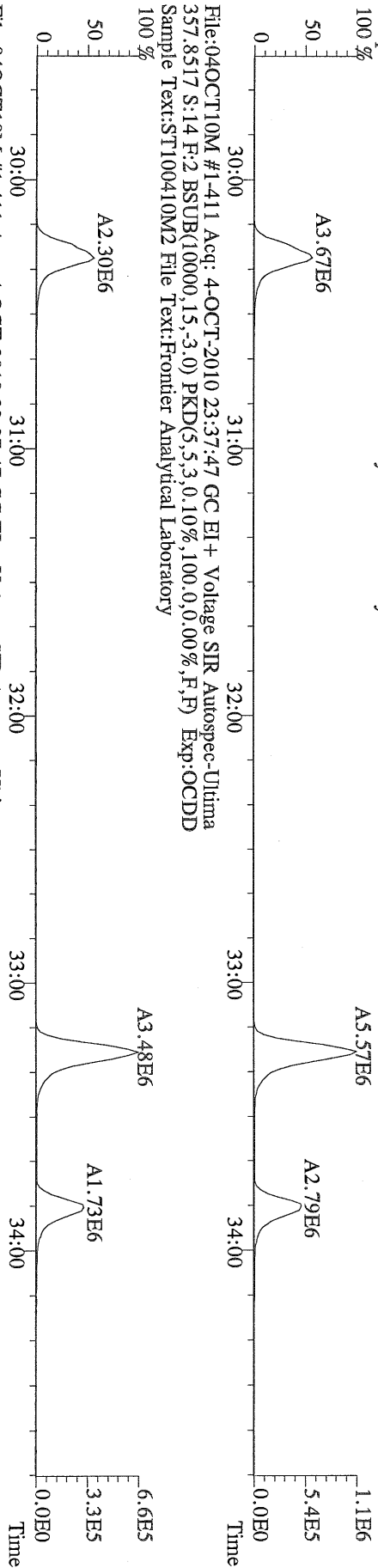
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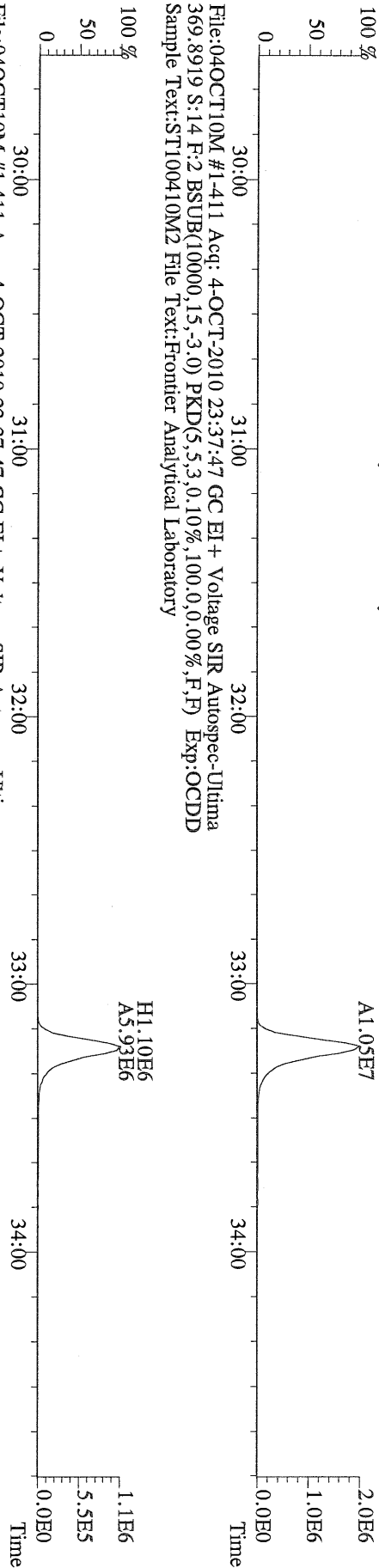
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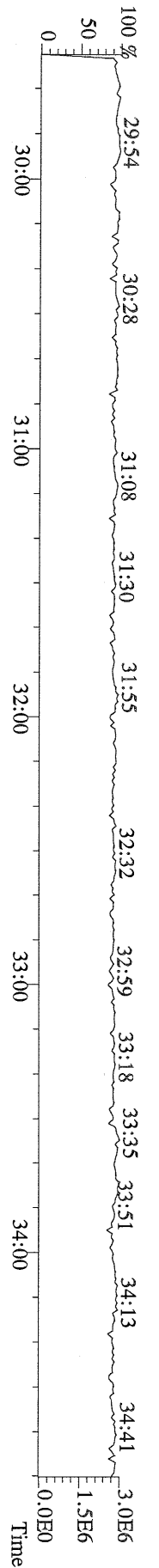
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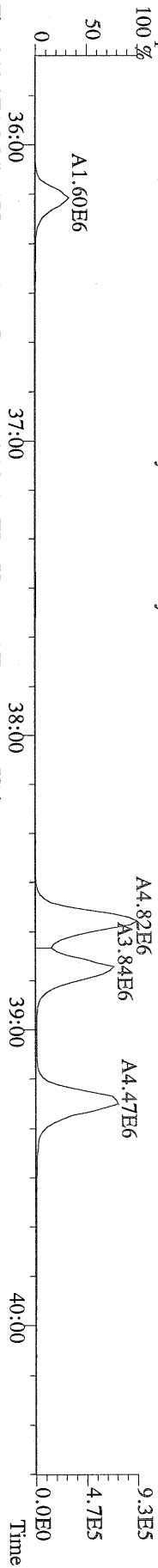
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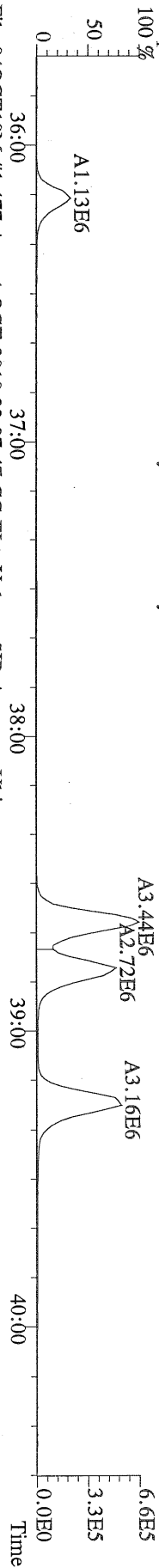
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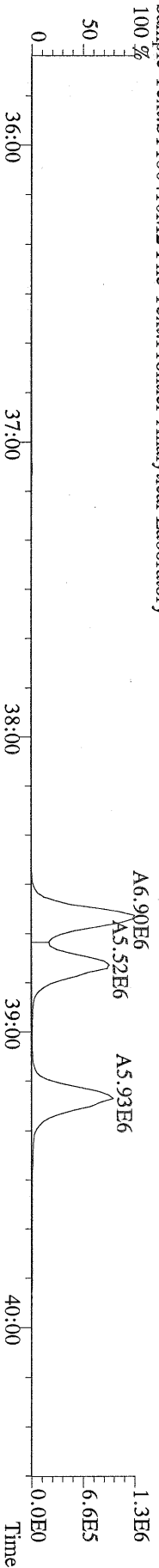
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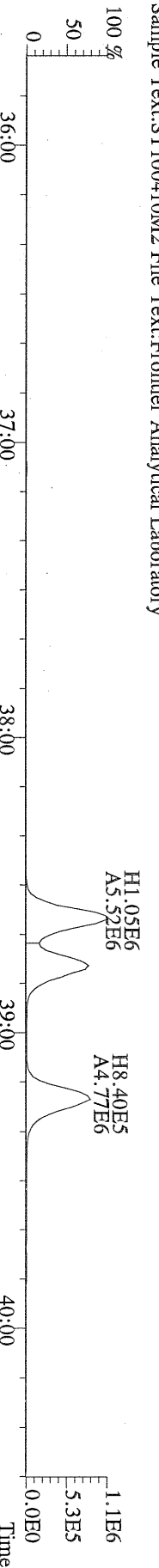
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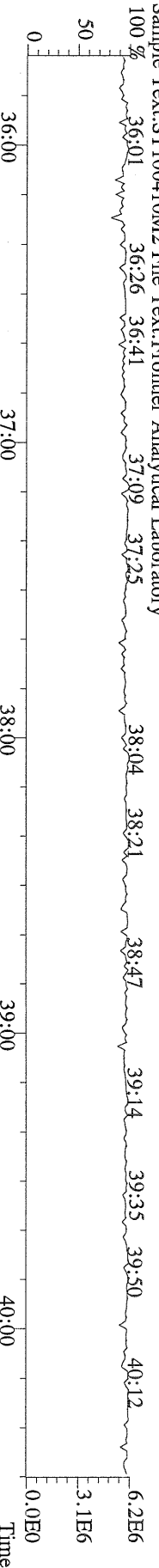
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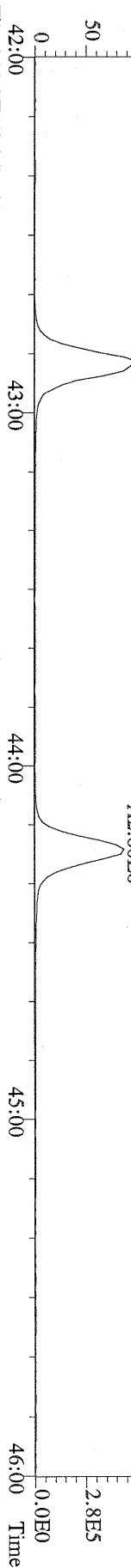
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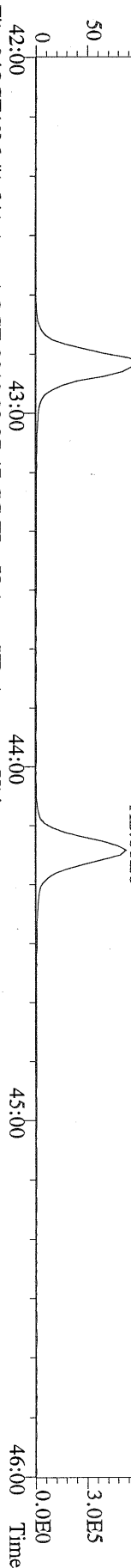
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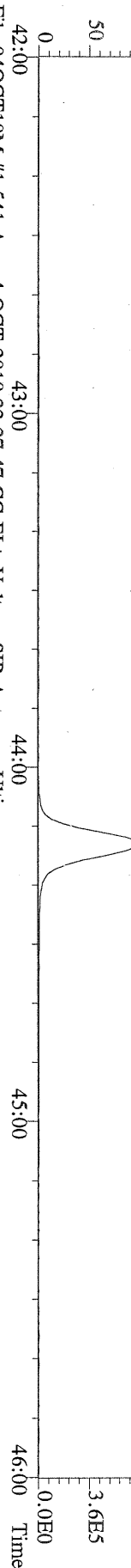
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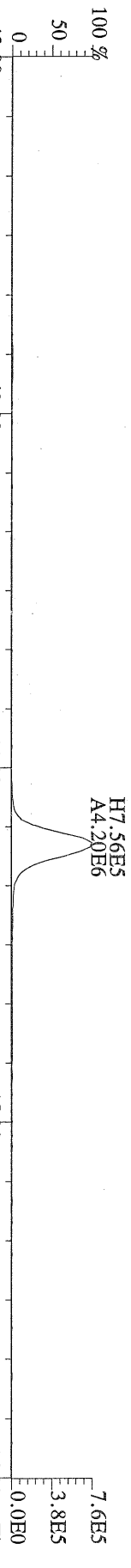
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 100 %



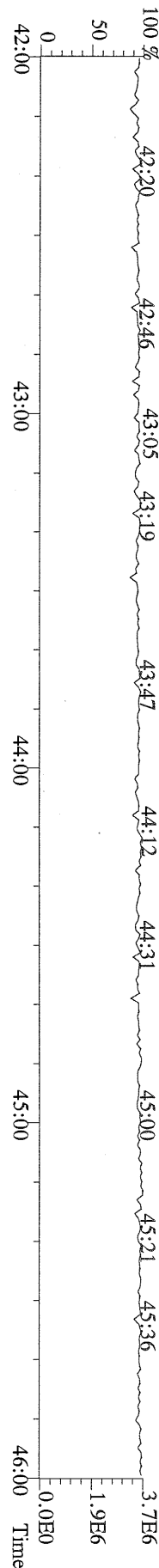
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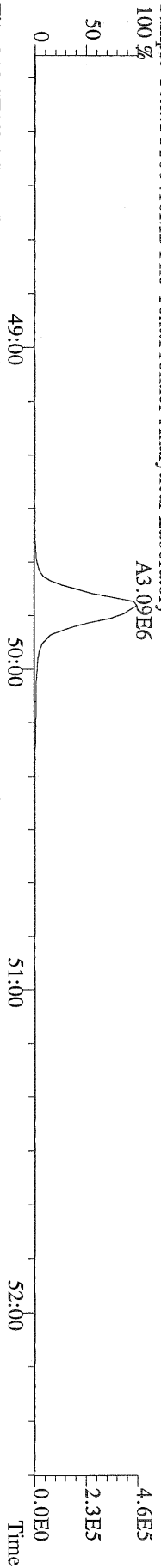
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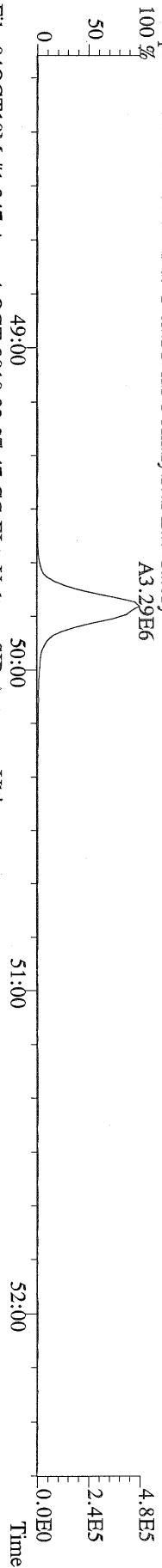
File:04OCT10M #1-541 Acq: 4-OCT-2010 23:37:47 GC EI+ Voltage SIR Autospec-Ultima
 430.9728 S:14 F:4 Exp:OCDD
 Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



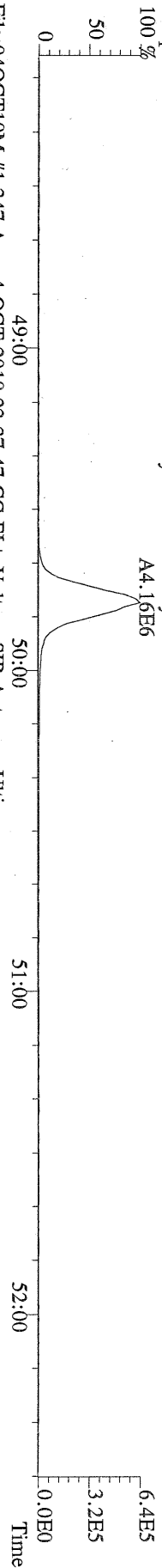
File:04OCT10M #1-347 Acq: 4-OCT-2010 23:37:47 GC EI+ Voltage SIR Autospec-Ultima
457.7377 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



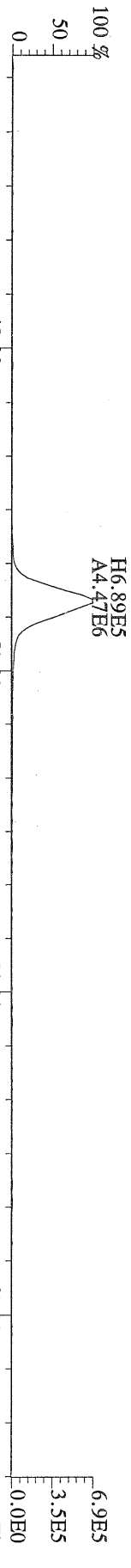
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459.7348 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



File:04OCT10M #1-347 Acq: 4-OCT-2010 23:37:47 GC EI+ Voltage SIR Autospec-Ultima
469.7780 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



File:04OCT10M #1-347 Acq: 4-OCT-2010 23:37:47 GC EI+ Voltage SIR Autospec-Ultima
471.7750 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100,0,0.00%,F,F) Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory



File:04OCT10M #1-347 Acq: 4-OCT-2010 23:37:47 GC EI+ Voltage SIR Autospec-Ultima
454.9728 S:14 F:5 Exp:OCDD
Sample Text:ST100410M2 File Text:Frontier Analytical Laboratory

