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Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

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Air

EPA

Hot Mix Asphalt Plants
Kiln Dryer Stack
Manual Methods Testing

Asphalt Plant B
Cary, North Carolina
Volume 2 of 2

Office of Air Quality
Clean Air
OAQPS
Planning and Standards

FINAL REPORT

EMISSIONS TEST AT AN ASPHALT CONCRETE PRODUCTION PLANT: ASPHALT PLANT "B" - CARY, NORTH CAROLINA

VOLUME II OF II
APPENDIX C
APPENDIX D
APPENDIX E
APPENDIX F

EPA Contract No. 68D70069
Work Assignment No. 2-09

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September 1999
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Submitted by

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ANALYTICAL DATA

Appendix C.1

Analytical Data

Method 5 Particulate Matter

PACIFIC ENVIRONMENTAL SERVICES, INC.

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Fax: (919) 493-7779

SAMPLE ANALYTICAL DATA FORM

Plant Asphalt Plant "B" Run number R-29-0-1

Sample location Baghouse Outlet

Relative humidity -

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	M-22	
filter(s)	M97-013 M-23	

Acetone rinse container number Beaker M-22

Acetone rinse volume (V_{aw}) 262.9 ml

Acetone blank residue concentration (C_a) 0.0000 mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (262.9) (0.7899) = 0.0000 mg

Date and time of wt 9/25/97 0905 Gross wt 96.7004 mg

Date and time of wt 9/25/97 2025 Gross wt 96.7007 mg

Average gross wt 96.7006 mg

Tare wt 96.6697 mg

Less acetone blank wt (W_a) 0.0000 mg

Weight of particulate in acetone rinse (m_a) 0.0309 mg

Filter(s) container number Beaker No M-23

Date and time of wt 9/25/97 0905 Gross wt 100.7683 mg

Date and time of wt 9/25/97 2025 Gross wt 100.7684 mg

Average gross wt 100.7684 mg

Beaker No M-23 & Filter M97-013 Tare wt 100.6845 mg

Weight of particulate on filter(s) (m_f) 0.0839 mg or 0.0832

Weight of particulate in acetone rinse 0.0309 mg

Total weight of particulate (m_n) 0.1148 mg

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of analyst

Signature of reviewer

PACIFIC ENVIRONMENTAL SERVICES, INC.

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Durham, North Carolina 27707
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Fax: (919) 493-7779

SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-24-O-2

Sample location BAGHOUSE OUTLET

Relative humidity —

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	M-24	
filter(s)	M97-019	

Acetone rinse container number Beaker No M-24

Acetone rinse volume (V_{aw}) 144.7 ml

Acetone blank residue concentration (C_a) 0.0000 mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (144.7) (0.7899) = 0.0000 mg

Date and time of wt 9/25/97 2025 Gross wt 101.8797 mg

Date and time of wt 9/26/97 0935 Gross wt 101.8800 mg

Average gross wt 101.8799 mg

Tare wt 101.8551 mg

Less acetone blank wt (W_a) 0.0000 mg

Weight of particulate in acetone rinse (m_a) 0.0248 mg

Filter(s) container number FILTER M97-019

Date and time of wt 9/24/97 1835 Gross wt 0.5244 mg

Date and time of wt 9/25/97 0905 Gross wt 0.5242 mg

Average gross wt 0.5243 mg

Tare wt 0.4509 mg

Weight of particulate on filter(s) (m_f) 0.0734 mg

Weight of particulate in acetone rinse 0.0248 mg

Total weight of particulate (m_n) 0.0982 mg

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of analyst

Signature of reviewer

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SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-29-0-3

Sample location BAGHOUSE OUTLET

Relative humidity -

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	W-10	
filter(s)	M-021 W-11	

Acetone rinse container number Beaker No W-10

Acetone rinse volume (V_{aw}) 177.4 ml

Acetone blank residue concentration (C_a) 0.0000 mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (177.4) (0.7899) = 0.0000 mg

Date and time of wt 9/25/97 2025 Gross wt 103.8617 mg

Date and time of wt 9/26/97 0935 Gross wt 103.8613 mg

Average gross wt 103.8615 mg

Tare wt 103.8061 mg

Less acetone blank wt (W_a) 0.0000 mg

Weight of particulate in acetone rinse (m_a) 0.0554 mg

Filter(s) container number Beaker No W-11

Date and time of wt 9/24/97 1835 Gross wt 103.8076 mg

Date and time of wt 9/25/97 0905 Gross wt 103.8077 mg

Average gross wt 103.8077 mg

Beaker No. W-11 & Filter M-021 Tare wt ~~103.2452~~ mg 103.6965

Weight of particulate on filter(s) (m_f) ~~0.5625~~ mg 0.1212

Weight of particulate in acetone rinse 0.0554 mg

Total weight of particulate (m_n) ~~0.6179~~ mg 0.1766

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of analyst

Signature of reviewer

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SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-29-I-1

Sample location BAGHOUSE INLET

Relative humidity –

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	Beaker M-12	
filter(s)	M-000, M-001, M-012, M-014, M-015, Beaker M-3	

Acetone rinse container number Beaker M-12

Acetone rinse volume (V_{aw}) 643.0 ml

Acetone blank residue concentration (C_a) 0.0000 mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (643.0) (0.7899) = 0.0000 mg

Date and time of wt 9/25/97 0905 Gross wt 235.0 mg

Date and time of wt 9/25/97 2025 Gross wt 234.8 mg

Average gross wt 234.9 mg

Tare wt 103.6078 mg

Less acetone blank wt (W_a) ~~131.3~~ 0.000 mg

Weight of particulate in acetone rinse (m_a) 131.3 mg

Filter(s) container number Beaker No M-3

Date and time of wt 9/22/97 1315 Gross wt 104.1310 mg

Date and time of wt 9/23/97 0830 Gross wt 104.1315 mg

Average gross wt 104.1313 mg

Beaker M-3
Σ Filters M-010, M-011, M-012, M-014, M-015 Tare wt 99.13334 mg

Weight of particulate on filter(s) (m_f) 4.9980 mg

Weight of particulate in acetone rinse ~~0.0000~~ mg 131.3

Total weight of particulate (m_n) 136.3 mg

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks Beaker M-12 weighed on triple beam balance. FH particulate catch far exceeded the ~~ca~~ capacity of the analytical balance.

Signature of analyst [signature]

Signature of reviewer

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SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-29-I-2

Sample location BAGHOUSE INLET

Relative humidity -

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	Beaker M-19	
filter(s)	M97-016, 1002, Beaker M-17	

Acetone rinse container number Beaker M-19

Acetone rinse volume (V_{aw}) 643.0 ml

Acetone blank residue concentration (C_a) 0.0000 ~~mg~~/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (643.0) (0.7899) = 0.0000 ~~mg~~

Date and time of wt 9/25/97 0905 Gross wt 369.2 ~~mg~~

Date and time of wt 9/25/97 2025 Gross wt 368.8 ~~mg~~

Average gross wt 369.0 ~~mg~~

Tare wt 100.6672 ~~mg~~

Less acetone blank wt (W_a) 0.0000 ~~mg~~

Weight of particulate in acetone rinse (m_a) 268.3 ~~mg~~

Filter(s) container number Beaker No M-17

Date and time of wt 9/22/97 1315 Gross wt 101.1080 ~~mg~~

Date and time of wt 9/23/97 0830 Gross wt 101.1080 ~~mg~~

Average gross wt 101.1080 ~~mg~~ g

Σ Filter M97-016, 1002 & Beaker M-17 Tare wt ~~100.8262~~ ~~mg~~ 100.1999

Weight of particulate on filter(s) (m_f) ~~0.2818~~ ~~mg~~ 0.9081

Weight of particulate in acetone rinse ~~0.0000~~ ~~mg~~ 268.3

Total weight of particulate (m_n) ~~0.281~~ ~~mg~~ ~~268.6~~ 269.2 g

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks Beaker M-19 weighed on a triple beam balance. Fit particulate catch-for exceeded the capacity of the analytical balance.

Signature of analyst [signature]

Signature of reviewer

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SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-29-1-3

Sample location BAGHOUSE INLET

Relative humidity –

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	Beaker M-21	
filter(s)	M-20 ~~Beaker M-21~~	

Acetone rinse container number Beaker No M-21

Acetone rinse volume (V_{aw}) 418.3 ml

Acetone blank residue concentration (C_a) 0.0000 mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (418.3) (0.7899) = 0.0000 mg

Date and time of wt 9/25/97 2025 Gross wt 103.6787 mg

Date and time of wt 9/26/97 0935 Gross wt 103.6787 mg

Average gross wt 103.6787 mg

Tare wt 102.7992 mg

Less acetone blank wt (W_a) 0.0000 mg

Weight of particulate in acetone rinse (m_a) 0.8795 mg

Filter(s) container number Zip lock BAG & BEAKER M-20

Date and time of wt 9/24/97 1935 Gross wt 95.9429 + 402.0 mg

Date and time of wt 9/25/97 0905 Gross wt 95.9428 + 402.0 mg

Average gross wt 497.9 mg

Beaker M-20, BAG & Filters (2 Pecco) Tare wt 93.3073 mg

Weight of particulate on filter(s) (m_f) 404.6 mg

Weight of particulate in acetone rinse 0.8795 mg

Total weight of particulate (m_n) 405.5 mg

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks DURING FILTER CHANGES, DRY PARTICULATE MATTER WAS COLLECTED INTO A ZIP-LOCK BAGGIE. BAGGIE COULD NOT BE CLEANED FOR TARE WT. TARE WT OF USED BAGS

Signature of analyst [illegible]

Signature of reviewer

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SAMPLE ANALYTICAL DATA FORM

Plant ASPHALT PLANT "B" Run number R-29-FB

Sample location R -

Relative humidity -

Density of acetone (ρ_a) 0.7899 g/ml

Sample type	Sample identifiable	Liquid level marked and/or container sealed
Acetone rinse	W-12	
filter(s)	M97-017	

Acetone rinse container number Beaker No W-12

Acetone rinse volume (V_{aw}) 63.8 ~~µl~~ ml

Acetone blank residue concentration (C_a) 0.0000 ~~µ~~mg/g

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (63.8) (0.7899) = 0.0000 ~~µ~~mg

Date and time of wt 9/24/97 1835 Gross wt 108.2100 ~~µ~~mg

Date and time of wt 9/25/97 0905 Gross wt 108.2096 ~~µ~~mg

Average gross wt 108.2098 ~~µ~~mg

Tare wt 108.2096 ~~µ~~mg

Less acetone blank wt (W_a) 0.0000 ~~µ~~mg

Weight of particulate in acetone rinse (m_a) 0.0002 ~~µ~~mg

Filter(s) container number Filter No M97-017

Date and time of wt 9/24/97 1835 Gross wt 0.4471 ~~µ~~mg

Date and time of wt 9/25/97 0905 Gross wt 0.4468 ~~µ~~mg

Average gross wt 0.4470 ~~µ~~mg

Tare wt 0.4469 ~~µ~~mg

Weight of particulate on filter(s) (m_f) 0.0001 ~~µ~~mg

Weight of particulate in acetone rinse 0.0002 ~~µ~~mg

Total weight of particulate (m_n) 0.0003 ~~µ~~mg

Note: In no case should a blank residue >0.01 mg/g or 0.001% of the weight of acetone used be subtracted from the sample weight.

Remarks

Signature of analyst [signature]

Signature of reviewer

METHOD 5
TARE WEIGHT

Project Number: S413-004 **Item Weighed:** BEAKERS

		0940	1600	1100					
Date		8/25/97	9/11/97	9/12/97					
R.H. (%)									
Temp. (°F)		78							
Std. Wt.			99.9997	100.0000					
Analyst		TAA	MDM	MDM					
ID Number	**Field Sample Number**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Final Wt. (g)**	**Tare Wt. (g)**	**Difference (mg)**
M-1		99.5289	99.5285					99.5287	
M-2		96.9392	96.9392					96.9392	
M-3		96.7072	96.7078	96.7075				96.7077	
M-4		102.4354	102.4352					102.4353	
M-5		96.8489	96.8487					96.8488	
M-6		91.8831	91.8832					91.8832	
M-7		99.5635	99.5633					99.5634	
M-8		101.1552	101.1548					101.1550	
M-9		96.6742	96.6737					96.6740	
M-10		100.5937	100.5939					100.5938	
M-11		100.9631	100.9630					100.9631	
M-12		103.6085	103.6078	103.6078				103.6078	
M-13		101.0551	101.0541	101.0547				101.0544	
M-14		96.7491	96.7489					96.7490	
M-15		102.5882	102.5877					102.5880	
M-16		97.4828	97.4822					97.4825	
M-17		99.6888	99.6882	99.6883				99.6883	
M-18		98.5474	98.5469					98.5472	
M-19		100.0674	100.0670					100.0672	
M-20		92.3073	92.3072					92.3073	
M-21		102.7994	102.7989					102.7992	
M-22		96.6699	96.6694					96.6697	
M-23		100.1799	100.1792	100.1793				100.1793	
M-24		101.8553	101.8549					101.8551	

PACIFIC ENVIRONMENTAL SERVICES, INC.

METHOD 5
TARE WEIGHT

Project Number: S413.004 **Item Weighed:** Filters

		1100 ~~1100~~	KF2026						
Date		8/7/97	8/7/97						
R.H. (%)									
Temp. (°F)		74°	76°						
Std. Wt.		0.5000	0.5000						
Analyst		MDM	MDM						
ID Number	**Field Sample Number**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Final Wt. (g)**	**Tare Wt. (g)**	**Difference (mg)**
M97-001		0.3832	0.3831				0.3832		
M97-002		0.3809	0.3807				0.3808		
M97-003		0.3926	0.3923				0.3925		
M97-004		0.3829	0.3829				0.3829		
M97-005		0.3761	0.3758				0.3760		
M97-006		0.3812	0.3810				0.3811		
M97-007		–	–				–		
M97-008		0.3825	0.3822				0.3824		
M97-009		0.3804	0.3804				0.3804		
M97-010	REA I-M29-1	0.3801	0.3800				0.3801		
M97-011	REA I-M29-1	0.5073	0.5075				0.5074		
M97-012	REA I-M29-1	0.5124	0.5126				0.5125		
M97-013		0.5051	0.5052				0.5052		
M97-014	REA I-M29-1	0.5079	0.5082				0.5081		
M97-015	REA I-M29-1	0.5175	0.5177				~~0.5175~~	0.5176 CMC	
M97-016		0.5114	0.5117				0.5116		
M97-017		0.4470	0.4467				0.4469		
M97-018		0.4517	0.4516				0.4517		
M97-019		0.4509	0.4509				0.4509		
M97-020		0.4526	0.4524				0.4525		
M97-021		0.4513	0.4512				0.4513		
M97-022		0.4414	0.4415				0.4415		
M97-023		0.4524	0.4521				0.4523		
M97-024		0.4473	0.4470				0.4472		

PACIFIC ENVIRONMENTAL SERVICES, INC.

METHOD 5
TARE WEIGHT

Project Number: 5413-004 **Item Weighed:** Filters

		1100	2026						
Date		8/17/97	8/17/97						
R.H. (%)		-							
Temp. (°F)		74°	76°						
Std. Wt.		0.5000	0.5000						
Analyst		MDM	MDM						
ID Number	**Field Sample Number**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Final Wt. (g)**	**Tare Wt. (g)**	**Difference (mg)**
M97-025		0.4493	0.4491				0.4492		
M97-026		0.4489	0.4487				0.4488		
M97-027		0.4447	0.4446				0.4447		
M97-028		0.4556	0.4560				0.4558		
M97-029		0.4549	0.4551				0.4550		

PACIFIC ENVIRONMENTAL SERVICES, INC.

METHOD 5
FINAL WEIGHT

Project Number: S413-004 **Item Weighed:** Beakers, Beakers & Filters

		1470	1600	1315	0830	1315			
Date		9/19/97	9/19/97	9/22/97	9/23/97	9/23/97			
R.H. (%)									
Temp. (°F)									
Std. Wt.		99.9997	99.9999	99.9997	99.9998	99.9999			
Analyst		MDM	MDM	MDM	MDM	MDM			
ID Number	**Field Sample Number**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Final Wt. (g)**	**Tare Wt. (g)**	**Difference (mg)**
M-1	M97-003 S-29-0-1	100.3139	100.3159	100.3147	100.3146		100.3146	99.5287	0.7859
M-2	FH Rinse S-29-0-1	96.9954	96.9958				96.9956	96.9392	0.0564
M-3	** Multiple Filters ***	18	104.1382	104.1310	104.1315		104.1313	96.7077	7.4236
M-4	M97-002 S-29-0-2	102.8722	102.8740	102.8729	102.8729		102.8729	102.4353	0.4376
M-5	FH Rinse S-29-0-2	96.8539	96.8551	96.8543	96.8540		96.8542	96.8488	0.0054
M-6	M97-004 S-29-0-3	92.2880	92.2893	92.2885	92.2883		92.2884	91.8832	~~0.04~~ 0.4052
M-7	FH Rinse S-29-0-3	99.5688	99.5700	99.5684	99.5686		99.5685	99.5634	0.0051
M-8	M97-005 S-29-0-4	101.5387	101.5399	101.5382	101.5395	101.5388			
M-9	FH Rinse S-29-0-4				96.6794	96.6792	96.6793	96.6740	0.0053
M-10	M97-001 S-29-I-1	112.0607	112.0578	112.0534	112.0536		112.0535	100.5938	11.4597
M-11	FH Rinse S-29-I-1	133.2376	133.2320	133.2250	133.2250		133.2250	100.9631	32.2619
M-12	FH Rinse R-29-I-1								
M-13		101.0551	101.0554				101.0553	101.0544	0.0009
M-14	M97-006 S-29-RB	97.1303	97.1308				97.1306	96.7490	0.3816
M-15	FH Rinse S-29-RB	102.5881	102.5879	102.5881	102.5877		102.5879	102.5880	(0.0001)
M-16	M97-008 S-29-RB	97.8647	97.8658	97.8638	97.8653	97.8642			
M-17	Filters R-29-I-2		101.1098	101.1080	101.1080		101.1080	99.6883	1.4197
M-18	Acetone Reagent Blank.				98.5469	98.5473	98.5471	98.5472	(0.0001)
M-19	FH Rinse R-29-I-2								
M-20	Filter R-M29-I-3		95.9443	95.9407	95.9418	95.9429			
M-21	FH Rinse R-29-I-3				103.6790	103.6787			

PACIFIC ENVIRONMENTAL SERVICES, INC.

METHOD 5
FINAL WEIGHT

Project Number: 5413-004 **Item Weighed:** Beakers & Filters

			0900	1835	0905	2035	0935			
Date			9/24/97	9/24/97	9/25/97	9/25/97	9/26/97			
R.H. (%)				56	58	50	54			
Temp. (°F)				70.5	68	70.2	68.3			
Std. Wt.			99.9998	99.9996	100.0000	99.9998	100.0000			
Analyst			MDM	MDM	MDM	MDM	MDM			
ID Number	**Field Sample Number**		**1st**	**2nd**	**3rd**	**4th**	**5th**	**Final Wt. (g)**	**Tare Wt. (g)**	**Difference (mg)**
M-8	M97-005	S29-0-4	101.5392					101.5390		
M-16	M97-008	S29-R8	97.8641					97.8642		
~~M-R~~	FH Rinse	R-29-I-2	~~95.9414~~							
M-20	Filter	R-29-I-3	95.9414	95.9429	95.9428					
M-21	Fit Rinse	R-29-I-3		103.6790	103.6798	103.6787	103.6787			
M-22				~~100.7699~~	96.7004	96.7007		96.7008		
M-23				100.7699	100.7683	100.7684		100.7684		
M-24					101.8786	101.8797	101.8800	101.8799		
W-10					103.8609	103.8617	103.8613			
W-11				103.8076	103.8077					
W-12				108.2100	108.2096					
CHK WT				0.5000	0.5000					
M97-019				0.5244	0.5242					
M97-017				0.4471	0.4468					
M-12 *				~~235~~	235.0	234.8				
M-19 *					369.2	368.8				

These beakers were weighed on an Ohaus Triple-beam balance because the gross weight exceeded the capacity of the micro-balance

PACIFIC ENVIRONMENTAL SERVICES, INC.

Appendix C.2

Analytical Data

Method 23 PCDDs/PCDFs

TRIANGLE LABS

CASE NARRATIVE

Analysis of Samples for the Presence of

Polychlorinated Dibenzo-*p*-Dioxins and Dibenzofurans by

High-Resolution Chromatography / High-Resolution Mass Spectrometry

Method 23 (6/93)

Date:	September 18, 1997
Client ID:	Pacific Environmental Services
P.O. Number:	104-98-0019- & -0020
TLI Project Number:	43085

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Rev. 05/08/97

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Overview

Eight M23 samples were received from Pacific Environmental Services in good condition on September 03, 1997 at 6.0 °C. The samples were stored in a refrigerator at 4°C. The samples and any associated QC samples were extracted and analyzed according to procedures described in the Triangle Laboratories' Data User's Manual (Rev. 12/92-HK-2-AH-2/93). Any particular difficulties encountered during the samples' handling by Triangle Laboratories will be discussed in the QC Remarks section below. Results reported relate only to the items tested.

Quality Control Samples

A laboratory method blank, identified as the TLI M23 Blank, was prepared along with the samples.

Laboratory control spike (LCS) and laboratory control spike duplicate (LCSD) samples were extracted and analyzed along with the samples. A report summarizing the analyte recoveries and relative percent differences for these samples is included in the data package.

Quality Control Remarks

This release of this particular set of Pacific Environmental Services analytical data by Triangle Laboratories was authorized by the Quality Control Chemist who has reviewed each sample data package individually following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effect of these deviations upon the validity and reliability of the results. Please consult Triangle Laboratories' Data User's Manual for further details. Specific QC issues associated with this particular project are:

Sample Preparation Laboratory: As per client request, the impinger samples are to be archived and not analyzed.

Samples O-M23-1, O-M23-2, I-M23-1, I-M23-2, and I-M23-3 had larger than normal XAD traps, requiring several Soxhlet apparatus.

Mass Spectrometry: None

Data Review: Most of the samples exhibit severe matrix-related problems. There are shifts in the retention times and severe quantitative interferences. As a result, several samples have elevated detection limits, out-of-ratio labeled standards, and labeled

standards that are below the QC criteria of 10:1 signal-to-noise. The final reports have been flagged accordingly. Please refer to the data flags for further details and possible effects on data quality.

Other Comments: Any analytes found in the TLI M23 Blank are detected at a level equal to or less than the Target Detection Limit. This level of contamination is acceptable as per TLI guidelines.

Sample Calculations:

Analyte Concentration

The amount of any analyte is calculated using the following expression.

$$Amt_{(\sigma)} = \frac{A_\sigma * Q_\beta}{A_\beta * RRF_{(\sigma)} * W}$$

Where:

$Amt_{(\sigma)}$ is the amount of a given analyte,

A_σ is the integrated current for the characteristic ions of the analyte,

A_β is the integrated current of the characteristic ions of the corresponding internal standard,

Q_β represents the amount of internal standard added to the sample before extraction,

$RRF_{(\sigma)}$ is the mean analyte relative response factor from the initial calibration (ICal) and,

W is the sample weight or volume (W = 1 for M23)

The amount is expressed in nanograms (ng) or picograms (pg).

Detection Limits

The detection limit reported for a target analyte that is not detected or presents an analyte response that is less than 2.5 times the background level is calculated by using the following expression. The area of the analyte is replaced by the noise level measured in a region of the chromatogram clear of genuine GC signals multiplied by an empirically determined factor. The detection limits represent the maximum possible concentration of a target analyte that could be present without being detected.

$$DL_{(\sigma)} = \frac{2 * 2.5 * (F * H) * Q_{\beta}}{A_{\beta} * RRF_{(\sigma)} * W}$$

Where:

$DL_{(\sigma)}$ is the estimated detection limit for a target analyte,

2.5 is the minimum response required for a GC signal,

F is an empirical number that approximates the area to height ratio for a GC signal. This number is 3.7 for both the DB-5 GC column and the DB-225 GC column,

H is the height of the noise

A_{β} is the integrated current of the characteristic ions of the corresponding internal standard,

Q_{β} represents the amount of internal standard added to the sample before extraction,

$RRF_{(\sigma)}$ is the mean analyte relative response factor from the initial calibration (ICal) and,

W is the sample weight or volume

The detection limit is expressed in nanograms (ng) or picograms (pg).

Other sample calculations may be found in the Triangle Laboratories Data User's Manual.

Data Flags

In order to assist with data interpretation, data qualifier flags are used on the final reports, as discussed in Triangle Laboratories' Method 23 Data User's Manual. Please note that all data qualifier flags are subjective and are applied as consistently as possible. Each flag has been reviewed by two independent Chemists and the impact of the data qualifier flag on the quality of the data discussed above. The most commonly used flags are:

A **'B'** flag is used to indicate that an analyte has been detected in the laboratory method blank as well as in an associated field sample. The 'B' flag will be used only when the concentration of analyte found in the sample is less than 20 times that found in the associated blank. This flag denotes possible contribution of background laboratory contamination to the concentration or amount of that analyte detected in the field sample. Under Triangle Laboratories guidelines, a laboratory blank is acceptable if the tetra-

through hepta-CDD/CDF levels are all below the target detection limits (TDLS) or if the contamination levels are less than 5% of the levels detected in the associated field samples. If these conditions are satisfied or if the blank is unable to be reextracted, the interpretation of the contamination levels relative to the samples should be as follows: 1) analyte quantitations should be considered valid if the level of blank contamination is less than five percent of the level detected in the field sample, 2) analyte quantitations should be considered estimated if the analyte level in the sample is five to twenty times the level of the analyte in the blank, or 3) analytes whose level in a sample is the same as or less than five times the level detected in the associated blank should be considered present likely due to laboratory contamination and not native to the sample.

An **'E'** flag is used to indicate that an PCDF peak has eluted at the same time as the associated diphenyl ether (DPE) and that the DPE peak intensity is ten percent or more of the PCDF peak intensity. Total PCDF values are flagged 'E' if the total DPE contribution to the total PCDF value is greater than ten percent. All PCDF peaks that are significantly influenced by the presence of DPE peaks are quantitated with EMPC values, regardless of the isotopic abundance ratio. These EMPC values are most likely overestimated due to the DPE contribution to the peak area.

An **'I'** flag is used to indicate labeled standards have been interfered with on the GC column by coeluting, interferent peaks. The interference may have caused the standard's area to be overestimated. All quantitations relative to this standard, therefore, may be underestimated.

A **'PR'** flag is used to indicate that a GC peak is poorly resolved. This resolution problem may be seen as two closely eluting peaks without a reasonable valley between the peak tops, overly broad peaks, or peaks whose shapes vary greatly from a normal distribution. The concentrations or amounts reported for such peaks are most likely overestimated.

A **'Q'** flag is used to indicate the presence of QC ion instabilities caused by quantitative interferences. Affected analytes may be overestimated or underestimated as a result of this interference. A peak is flagged 'Q' only if it is affected by a QC ion deviation greater than 20% full scale as determined relative to the labeled standard against which it is quantitated. Total PCDF/PCDF quantitations will be flagged 'Q' if the interferences affect ten percent or more of the total PCDD/PCDF peak areas.

An **'RO'** flag is used to indicate that a labeled standard has an ion abundance ratio that is outside of the acceptable QC limits, most likely due to a coeluting interference. This may have caused the percent recovery of the standard to be overestimated. All quantitations versus this standard, therefore, may be underestimated.

A **'U'** flag is used to indicate that a specific (2,3,7,8-substituted) isomer cannot be resolved from a large, coeluting interferent GC peak. The specific isomer is reported as

not detected as a valid concentration/amount cannot be determined. The calculated detection limit, therefore, should be considered an underestimated value.

A **'V'** flag is used to indicate that, although the percent recovery of a labeled standard may be below a specific QC limit, the signal-to-noise ratio of the peak is greater than ten-to-one. The standard is considered reliably quantifiable. All quantitations derived from the standard are considered valid as well.

By our interpretation, the analytical data in this project are valid based on the guidelines of EPA Method 23 (6/93) and Triangle Laboratories' Method 23 Data User's Manual. Any specific QC concerns or problems have been discussed in the QC Remarks section of this case narrative with emphasis on their effect on the data. Should Pacific Environmental Services have any questions or comments regarding this data package, please feel free to contact our Project Scientist, Amy Boehm, at (919) 544-5729, ext. 268.

For Triangle Laboratories, Inc.,

Report Preparation

Sheila A. Lee-Lewis
Report Preparation Chemist

Quality Control

VIJAY S. CHHABRA
Report Preparation Chemist

The total number of pages in the data package is : 319 .

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

American Association for Laboratory Accreditation. Certification pending. Certificate Number 0226-01. Accreditation for technical competence in Environmental Testing.(Including Waste Water, Sol/Haz Waste, Pulp/Paper, and Air Matrices) Parameters are AOX/TOX, Volatiles, Pesticides, PCB's. BNA's, and Dioxin/Furan. Method 1613 for Drinking Water.

State of Alabama, Department of Environmental Management. Expires December 31, 1997. Laboratory I.D. # 40950. Dioxin in drinking water.

State of Alaska, Department of Environmental Conservation. Expires December 21, 1997. Certificate number OS-00397. Dioxin in drinking water.

State of Arizona, Department of Health Services. Expires May 26, 1998. Certificate #AZ0423. Drinking Water for Dioxin, Dioxin in WW and S/H Waste.

State of Arkansas, Department of Pollution Control and Ecology. Expires February 18, 1998. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furan; AOX/TOX.

State of California, Department of Health Services. Expires August 31, 1999. Certificate #1922. Selected Metals in Waste Water; Volatiles, Semi-volatiles, and Dioxin/furan in WW and Sol/Haz Waste. Dioxin in drinking water.

State of Connecticut, Department of Health Services. Expires September 30, 1997. Registration # PH-0117. Dioxin in drinking water.

Delaware Health and Social Services. Expires December 31, 1997. Certificate #NC 140. Dioxin in drinking water.

Florida Department of Health and Rehabilitative Services. Expires June 30, 1998.Dioxin in DW. Drinking Water ID HRS# 87424. Metals, Extractable Organics (GC/MS), Pesticides/PCB's (GC) and Volatiles (GC/MS) in Environmental Samples. Environmental water ID HRS# E87411.

Hawaii Department of Health. Expires March 1, 1998. Dioxin in drinking water. "Accepted" status for regulatory purposes .

Revised 9/18/97 RM

Printed 9/18/97

Idaho Department of Health and Welfare. Expires November 30, 1997. Dioxin in drinking water.

State of Kansas, Department of Health and Environment. Expires January 31, 1998. Environmental Analyses/Non potable Water and Solid and Hazardous Waste. Method 1613 for drinking water. ID #'s - Drinking water and/or pollution control - E-215. Solid or Hazardous Waste - E-1209.

Commonwealth of Kentucky, Department for Environmental Protection. Expires December 31, 1997. ID#90060. Dioxin in drinking water.

Maryland Department of Health and Mental Hygiene. Expires September 30, 1997. Certification #235. Drinking water by Method 1613A.

State of Michigan, Department of Public Health. Expires March 31, 1998. Drinking water by Method 1613.

Mississippi State Department of Health. No expiration date.. Dioxin in drinking water.

Montana Department of Health and Environmental Services. Expires December 31, 1997. Dioxin in drinking water.

State of New Jersey, Department of Environmental Protection and Energy. Extended by state. Temporary certificate until December 31, 1997. ID #67851. BNAs and Volatiles. Dioxin in drinking water.

State of New Mexico, Environment Department. Certification pending. Dioxin in drinking water.

New York State Department of Health. *Expires June 30, 1997. ID #11026. Environmental Analyses of non-potable Water, Solid and Hazardous Waste. Method 1613 in DW.*

State of North Carolina, Department of Environment Health and Natural Resources Expires August 31, 1999. Certificate # 37751. Dioxin in drinking water.

State of North Carolina, Department of Env onment, Health, and Natural Resources, Division of Environmental Management. Expires December 31, 1997. Certificate # 485. Metals, pesticides & PCBs, semi-volatiles and volatiles; TCLP.

North Dakota State Department of Health and Consolidated Laboratories. Expires December 31, 1997. Certificate # R-076. Effective October 4, 1993. Dioxin in drinking water.

Oklahoma Department of Environmental Quality. Expires October 31, 1997. Laboratory #9612. Dioxin by 1613A, 8290 and 8280.

State of South Carolina, Department of Health and Environmental Control. Expires June 30, 1997. Certificate number #99040001 (drinking water). Expires August 31, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

State of Tennessee. Department of Environment and Conservation. Expires February 5, 1999. ID #02992. Method 1613 Drinking water only.

U.S. Department of Agriculture Soil Permit. Expires September 30, 2001. Permit No. S-3790. Under the authority of the Federal Plant Pest Act, permission is granted to receive foreign soil samples for use in laboratory analysis.

U.S. Army Corps of Engineers. Expires November 30, 1997. Validated to perform methods 8280 & 8290 for Lockbourne Landfill Site Investigation, Defense Distribution Depot Projects, and assorted projects for the USACE North Pacific Division Laboratory.

U.S. EPA Region V. Expires November 14, 1999. Dioxin in drinking water.

U.S. EPA Region VIII, for the State of Wyoming. Expires November 13, 1997. Dioxin in drinking water.

State of Utah, Department of Health. Expires December 31, 1997. Certificate Number E-166. Certification for the following parameters: Semi-Volatiles and Volatiles under RCRA; Volatiles under Clean Water Act; Dioxin/furans by Method 8280; Drinking water for Dioxin by Method 1613; Metals including Mercury and Microwave Digestion.

Commonwealth of Virginia, Department of General Services, Division of Consolidated Laboratory Services. Expires June 30, 1998. ID # 00341. Dioxin in drinking water.

State of Washington, Department of Ecology. Expires September 1998. Lab Accreditation Number C067. Scope of Accreditation applies to water analyses for Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans, BNA Extr (Semivolatile) Organics and Purgeable (Volatile) Organics.

State of Washington, Department of Health. Expires April 30, 1998. Dioxin in drinking water. Lab I.D. 129

State of West Virginia, Department of Health. Expires December 31, 1997. Certificate No. 9923(C). Dioxin in drinking water.

Revised 9/18/97 RM

Printed 9/18/97

State of Wisconsin, Department of Natural Resources. Expires August 31, 1998. Laboratory ID Number 999869530. Certification for the following categories of Organics: Purgeable, Base/Neutral, Acid, PCBs, and Dioxin. Expires November 14, 1999. Laboratory ID 999869530. Dioxin in drinking water.

PHARMACEUTICAL

Drug Enforcement Agency (DEA). Expires November 30, 1997. Registration number RT01195835. Controlled substance registration for schedules 1,2,3,3N,4,5.

N.C. Department of Human Resources. Expires October 31, 1997. Registration number NC-PT 0000 0031. North Carolina controlled substances registration. Application submitted for renewal.

Food & Drug Administration (FDA) Registration. Expires June 1998. ID #'s 001500 1053481. Annual registration of drug establishment. Annual registration of drug establishment.

OTHER

Clinical Laboratory Improvement Amendments (CLIA) Registration. Expires May 30, 1999. ID # 34D0705123. Department of Health & Human Services, Health Care Financing Administration.

U.S. EPA Large Quantity Hazardous Waste Generator. No expiration date. EPA ID #NCD982156879. Permit indicates that the laboratory is a large generator of hazardous waste.

North Carolina Radioactive Materials License. Expires April 30 1998. License No. 032-0954-1. License authorizes the licensee to receive, acquire, own, possess, transfer, import and use such radioactive materials as designated.

North Carolina General License for Radiation Protection. No. expiration date. License No. 032-875-OG. The general license applies only to radioactive material contained in devices which have been manufactured and labeled in accordance with specific requirements.

TRIANGLE LABS

DOCUMENT CONTROL

Triangle Laboratories, Inc.
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729

P.O. Box 13485
Research Triangle Park, NC 27709-3485
Fax # 919-544-5491

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Chain of Custody Record

Project Num: s413-004

Project Name: US EPA EMC Asphalt Cement, Sea Asphalt Plant "B"

Samplers: Dickerson, McDonald, Thompson, Hamiliton

Date	Time	Field Sample ID	Sample Description	PCDD	PCDF						Remarks
8/27/97	0945	I-M23-1-Ace/Tol	Acetone / Toluene Rinse	•	•						
8/27/97	0945	I-M23-1-Filter	Filter	•	•						
8/27/97	0945	I-M23-1-XAD	XAD Trap	•	•						
8/27/97	0945	I-M23-1-Imp	BH Impinger Contents								ARCHIVE
8/27/97	0945	O-M23-1-Ace/Tol	Acetone/ Toluene Rinse	•	•						
8/27/97	0945	O-M23-1-Filter	Filter	•	•						
8/27/97	0945	O-M23-1-XAD	XAD Trap	•	•						
8/27/97	0945	O-M23-1-Imp (1/2)	BH Impinger Contents								ARCHIVE
8/27/97	0945	O-M23-1-Imp (2/2)	BH Impinger Contents								ARCHIVE
8/28/97	0845	I-M23-2-Ace/Tol	Acetone / Toluene Rinse	•	•						
8/28/97	0845	I-M23-2-Filter	Filter	•	•						
8/28/97	0845	I-M23-2-XAD	XAD Trap	•	•						
8/28/97	0845	I-M23-2-Imp	BH Impinger Contents								ARCHIVE
8/28/97	0745	O-M23-2-Ace/Tol	Acetone/ Toluene Rinse	•	•						
8/28/97	0745	O-M23-2-Filter	Filter	•	•						
8/28/97	0745	O-M23-2-XAD	XAD Trap	•	•						
8/28/97	0745	O-M23-2-Imp (1/2)	BH Impinger Contents								ARCHIVE
8/28/97	0745	O-M23-2-Imp (2/2)	BH Impinger Contents								ARCHIVE

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
T. McDonald	9-3-97 12:13				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for lab by: (Signature)	REMARKS		
	9/3/97 12:00	Bill Hunt			

Page:____ of ____

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Chain of Custody Record

Project Num: s413-004

Project Name: US EPA EMC Asphalt Cement, Asphalt PLANT "B"

Samplers: Dickerson, McDonald, Thompson, Hamiliton

Date	Time	Field Sample ID	Sample Description	PCDD	PCDF						Remarks
8/29/97	0745	I-M23-3-Ace/Tol	Acetone / Toluene Rinse	•	•						
8/29/97	0745	I-M23-3-Filter	Filter	•	•						
8/29/97	0745	I-M23-3-XAD	XAD Trap	•	•						
8/29/97	0745	I-M23-3-Imp	BH Impinger Contents								ARCHIVE
8/29/97	0745	O-M23-3-Ace/Tol	Acetone/ Toluene Rinse	•	•						
8/29/97	0745	O-M23-3-Filter	Filter	•	•						
8/29/97	0745	O-M23-3-XAD	XAD Trap	•	•						
8/29/97	0745	O-M23-3-Imp (1/2)	BH Impinger Contents								ARCHIVE
8/29/97	0745	O-M23-3-Imp (2/2)	BH Impinger Contents								ARCHIVE
8/29/97	0745	O-M23-FB-Ace/Tol	Acetone / Toluene Rinse - Field Blank	•	•						
8/29/97	0745	O-M23-FB-Filter	Filter - Field Blank	•	•						
8/29/97	0745	O-M23-FB-XAD	XAD Trap - Field Blank	•	•						
8/29/97	0745	O-M23-FB-Imp	BH Impinger Contents - Field Blank								ARCHIVE
8/29/97	0745	M23-RB - Acetone	Acetone Reagent Blank								ARCHIVE
8/29/97	0745	M23-RB - Filters	Filter Reagent Blank	•	•						
8/29/97	0745	M23-RB-XAD	XAD Reagent Blank	•	•						
8/29/97	0745	M23-RB-Toluene	Toluene Reagent Blank	•	•						
8/29/97	0745	M23-RB - Water	Water Reagent Blank	•	•						

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
T C McDonald	9-3 12-13-97				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time 9/3/97	Received for lab by: (Signature)	REMARKS		

Page:____ of ____

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Present/Intact
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Present
Container...: Intact

TLI Project Number 43085
Client: PES03 - Pacific Environmental Services

Book 181

Date Received 09/03/97 By [illegible]

Page 55

Ice Chest ICE PACKS Temp 6.0 C

Carrier and Number TIM MCDONALD

TLI Number.. nR/H:CPM.	Client Sample ID..... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
181-55-1A	O-M23-1-FILTER O-M23-1-FILTER	FILTER C02	LA 9/4/97		USED						
181-55-1B	O-M23-1-XAD O-M23-1-XAD	XAD C02									
181-55-1C	O-M23-1-IMP O-M23-1-IMP	IMP C02									
181-55-1D	O-M23-1-IMP O-M23-1-IMP	IMP C02									
181-55-1E	O-M23-1-ACE/TOL O-M23-1-ACE/TOL	ACE/TOL C02									
181-55-2A	O-M23-2-FILTER O-M23-2-FILTER	FILTER C02			USED						
181-55-2B	O-M23-2-XAD O-M23-2-XAD	XAD C02									
181-55-2C	O-M23-2-IMP O-M23-2-IMP	FH/RINSE C02									
181-55-2D	O-M23-2-IMP O-M23-2-IMP	BH/RINSE C02			USED LA 9/4/97						
181-55-2E	O-M23-2-ACE/TOL O-M23-2-ACE/TOL	IMPINGER C02									
181-55-3A	O-M23-3-FILTER O-M23-3-FILTER	FILTER C02			USED						
181-55-3B	O-M23-3-XAD O-M23-3-XAD	XAD C02									
181-55-3C	O-M23-3-IMP O-M23-3-IMP	FH/RINSE C02									
181-55-3D	O-M23-3-IMP O-M23-3-IMP	BH/RINSE C02									

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Present/Intact Sample Seals: Present
Chain of Custody : Present Container...: Intact
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

TLI Project Number 43085
Client: PES03 - Pacific Environmental Services

Book 181

Date Received 09/03/97 By

Page 55

Ice Chest ICE PACKS Temp 6.0 C

Carrier and Number TIM MCDONALD

TLI Number.. nR/H:CPM.	Client Sample ID..... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
181-55-3E	O-M23-3-ACE/TOL O-M23-3-ACE/TOL	IMPINGER C02	LA 9/4/97		USED						
181-55-4A	O-M23-FB-FILTER O-M23-FB-FILTER	FILTER C02			USED						
181-55-4B	O-M23-FB-XAD O-M23-FB-XAD	XAD C02									
181-55-4C	O-M23-FB-IMP O-M23-FB-IMP	FH/RINSE C02									
181-55-4D	O-M23-FB-ACE/TOL O-M23-FB-ACE/TOL	BH/RINSE C02			USED						
181-55-5A	1-M23-1-FILTER 1-M23-1-FILTER	FILTER C02			USED						
181-55-5B	1-M23-1-XAD 1-M23-1-XAD	XAD C02									
181-55-5C	1-M23-1-IMP 1-M23-1-IMP	FH/RINSE C02									
181-55-5D	1-M23-1-ACE/TOL 1-M23-1-ACE/TOL	BH/RINSE C02									
181-55-6A	1-M23-2-FILTER 1-M23-2-FILTER	FILTER C02			USED						
181-55-6B	1-M23-2-XAD 1-M23-2-XAD	XAD C02									
181-55-6C	1-M23-2-IMP 1-M23-2-IMP	FH/RINSE C02									
181-55-6D	1-M23-2-ACE/TOL 1-M23-2-ACE/TOL	BH/RINSE C02									
181-55-7A	1-M23-3-FILTER 1-M23-3-FILTER	FILTER C02			USED						

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Present/Intact
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Present
Container...: Intact

TLI Project Number 43085
Client: PES03 - Pacific Environmental Services

Date Received 09/03/97 By

Carrier and Number TIM MCDONALD

Book 181

Page 55

Ice Chest ICE PACKS Temp 6.0 C

TLI Number.. nR/H:CPM.	Client Sample ID..... Client COC ID.....*	Location	Matrix	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
181-55-7B	1-M23-3-XAD		XAD	LA 9/4/97	USED							
	1-M23-3-XAD	C02										
181-55-7C	1-M23-3-IMP		FH/RINSE									
	1-M23-3-IMP	C02										
181-55-7D	1-M23-3-ACE/TOL		BH/RINSE									
	1-M23-3-ACE/TOL	C02										
181-55-8A	M23-RB-FILTER		FILTER			USED						
	M23-RB-FILTER	C02										
181-55-8B	M23-RB-XAD		XAD									
	M23-RB-XAD	C02										
181-55-8C	M23-RB-ACETONE		FH/RINSE									
	M23-RB-ACETONE	C02										
181-55-8D	M23-RB-WATER		BH/RINSE			USED						
	M23-RB-WATER	C02										
181-55-8E	M23-RB-TOLUENE		IMPINGER									
	M23-RB-TOLUENE	C02										

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

----------ADMINISTRATIVE INFORMATION----------

TLI Proj#: 43085-	Samples: 8	TurnAround.: 14 Day(s)
Prod Code: D23061	Matrix.: M23Train	Hold Time..: 30 Day(s)
DetectLim: 0.05 ng	Type...: A	Start Date.: 09/03/97
	Recvd..: 09/03/97	Ship By....: 09/15/97
		DWL Due Dt.: 09/10/97

Analyte List.: tetra-octa PCDDs/PCDFs

Method.....: Method 23:Tetra-Octa (Tol Combined)
Client Proj..: S413-004
Client.....: Pacific Environmental Services (PES03)
P.O. No.....: 104-98-0019 & -0020 Collect Dt/Tm: SeeCOC
Contact.....: Frank Meadows Phone.....: 919-941-0333
Proj. Mgr....: Amy J. Boehm Fax.....: 919-941-0234
Sample Origin: NC

----------SPECIAL INSTRUCTIONS / QA REQUIREMENTS----------

Prep Project: 03803
Prespike Standard: USF-CS
Prespike Amount..: 4.0ng
Extraction Exp...: 09/26/97

----------REPORTING REQUIREMENTS----------

Reporting Format: Report Option II

See MILES for Instructions/Communications.

Completed by: WM DATE: 9/3/97

Reviewed by: AB DATE: 9/3/97 (PMGT0197)

TRIANGLE LABORATORIES, INC.
Wet Lab MM5/PUF Observations
Project: 43085

Sample #	crd	TLI_Number..	Customer.Sample.Id.....	F. No	XAD Color.....	Filter Color.....	Glass Wool Color.....	PUF Color.....	Odor.....	Air Q.No.	Entered.By.....	Date....	Time....	S
000		TLI Blank	TLI M23 Blank	0	WHITE				NONE	03803	ADKINS	09/04	20:29	F
001		181-55-1ABE	O-M23-1	1	WHITE	WHITE/BRWN	WHITE/YELL		OIL	03803	ADKINS	09/04	20:29	F
002		181-55-2ABE	O-M23-2	1	WHITE	WHITE/BRWN	WHITE/YELL		OIL	03083	ADKINS	09/04	20:29	F
003		181-55-3ABE	O-M23-3	1	WHITE	WHITE/BRWN	WHITE/YELL		OIL	03803	ADKINS	09/04	20:29	F
004		181-55-4ABD	O-M23-FB	1	WHITE	WHITE	WHITE		NONE	03803	ADKINS	09/04	20:29	F
005		181-55-5ABD	I-M23-1	4	WHITE	WHITE/BRWN	WHITE		OIL	03803	ADKINS	09/04	20:29	F
006		181-55-6ABD	I-M23-2	4	WHITE	WHITE/BRWN	WHITE		OIL	03803	ADKINS	09/04	20:29	F
007		181-55-7ABD	I-M23-3	4	WHITE	WHITE/BRWN	WHITE		OIL	03803	ADKINS	09/04	20:29	F
008		181-55-8ABDE	M23-RB	1	WHITE	WHITE	WHITE		NONE	03804	ADKINS	09/04	20:29	F
009		TLI LCS	TLI LCS	0	WHITE				NONE		ADKINS	09/04	20:29	F
010		TLI LCSD	TLI LCSD	0	WHITE				NONE		ADKINS	09/04	20:29	F

*** End of Report ***

TRIANGLE LABORATORIES OF RTP, INC.

PROJECT COMMUNICATION TRACKING FORM

TLI Project Number: 43085

Use this form to record all exchanges of information between production units as well as personnel handling this project. Decisions, corrective actions and recommendations must also appear on this tracking document.

ate	Name	Comment / Decision / Resolution / Action / Observation
		5A ≈ 272 GRAMS OF PARTICULATE AND FILTERS.
		6A ≈ 170 " " " " "
		7A ≈ 407 " " " " "
		PES03-Pacific Environmental Services O-M23-1-FILTER Project:43085 181-55-1A — 1 Filter white/brown residue
		PES03-Pacific Environmental Services O-M23-1-ACE/TOL Project:43085 181-55-1E — 4 Glassware - white yellow
		PES03-Pacific Environmental Services O-M23-1-XAD Project:43085 181-55-1B — XAD - white odor - oil
		PES03-Pacific Environmental Services O-M23-2-XAD Project:43085 181-55-2B — Same as 1
		PES03-Pacific Environmental Services O-M23-2-ACE/TOL Project:43085 181-55-2E
		PES03-Pacific Environmental Services O-M23-2-FILTER Project:43085 181-55-2A

LA 9/4/97

TLI Project Number: 43085

Use this form to record all exchanges of information between production units as well as personnel handling this project. Decisions, corrective actions and recommendations must also appear on this tracking document.

Date	Name	Comment / Decision / Resolution / Action / Observation
		PES03-Pacific Environmental Services O-M23-3-ACE/TOL Project:43085 181-55-3E PES03-Pacific Environmental Services O-M23-3-FILTER Project:43085 181-55-3A PES03-Pacific Environmental Services O-M23-3-XAD Project:43085 181-55-3B
		Same as 1
		PES03-Pacific Environmental Services O-M23-FB-XAD Project:43085 181-55-4B PES03-Pacific Environmental Services O-M23-FB-FILTER Project:43085 181-55-4A PES03-Pacific Environmental Services O-M23-FB-ACE/TOL Project:43085 181-55-4D
		1 Filter - white XAD white Glasswool white no smell
		PES03-Pacific Environmental Services 1-M23-1-FILTER Project:43085 181-55-5A PES03-Pacific Environmental Services 1-M23-1-ACE/TOL Project:43085 181-55-5D PES03-Pacific Environmental Services 1-M23-1-XAD Project:43085 181-55-5B
		4 Filters white with much particulate gray/brown -XAD white -glasswool white oil smell

LA 9/4/97 20

TRIANGLE LABORATORIES OF RTP, INC.

PROJECT COMMUNICATION TRACKING FORM

TLI Project Number: 43085

Use this form to record all exchanges of information between production units as well as personnel handling this project. Decisions, corrective actions and recommendations must also appear on this tracking document.

ate	Name	Comment / Decision / Resolution / Action / Observation
		PES03-Pacific Environmental Services 1-M23-2-FILTER Project:43085 181-55-6A
6		PES03-Pacific Environmental Services 1-M23-2-XAD Project:43085 181-55-6B Same as 5
		PES03-Pacific Environmental Services 1-M23-2-ACE/TOL Project:43085 181-55-6D
		PES03-Pacific Environmental Services 1-M23-3-XAD Project:43085 181-55-7B
7		~~PES03-Pacific Environmental Services~~ ~~1-M23-3-ACE/TOL~~ ~~Project:43085~~ ~~181-55-7D~~ Same as 5
		PES03-Pacific Environmental Services 1-M23-3-FILTER Project:43085 181-55-7A
		PES03-Pacific Environmental Services M23-RB-XAD Project:43085 181-55-8B
8		PES03-Pacific Environmental Services M23-RB-FILTER Project:43085 181-55-8A 1 Filter white XAD white glasswool white.
		PES03-Pacific Environmental Services M23-RB-ACETONE Project:43085 181-55-8C
		LA 9/4/97

TRIANGLE LABORATORIES, INC.

Dioxin Sample Preparation Tracking & Management Form

Project: 43085

Client: Pacific Environmental Services (PES03)

Solvent(s)/Acid(s): Toluene / _____ / _____

Lot Numbers: 972118 / _____ / _____

Method: Method 23:Tetra-Octa (Tol Combined) Matrix: MZ3 XAD

Extraction Date: 9/4/97

IS Spike: 40 µl conc: 0.1000 ng/µl

SS Spike: ____ µl conc: __.____ ng/µl

MS Spike: 0 µl conc: 0.0000 ng/µl

LCS Spike: 0 µl conc: 0.0000 ng/µl

OPR Spike: __20 µl conc: _0.01__ ng/µl

S#.crd	TLI / SAMPLE ID	/ CLIENT SAMPLE ID	GROSS WEIGHT Before	GROSS WEIGHT After	SAMPLE SIZE g / ml	LA	LA	LA		Chemis
						5234 I	5233 B	5235-D		Spike
						USF I	USF MX	USF-A		" ID
						7/02/98	12/17/97	7/2/98	__/__/__	" Exp
						9/04/97	9/04/97	9/6/97	__/__/__	" Dat
						19 : 30	19 : 31	3 : 15	__ : __	" Tim
						0.1 ng/µl	0.01 ng/µl	0.1 ng/µl	____ ng/µl	" Con
						40 µl	40 µl	40 µl	____ µl	" Vol
000	TLI Blank	TLI M23 Blank			1	L.C.		BHR		Any Le yes/
001	181-55-1ABE	O-M23-1			1	L.C.		BHR		Any Le yes/
002	181-55-2ABE	O-M23-2			1	L.C.		BHR		Any Le yes/
003	181-55-3ABE	O-M23-3			1	L.C.		BHR		Any Le yes/
004	181-55-4ABD	O-M23-FB			1	L.C.		BHR		Any L yes/
005	181-55-5ABD	I-M23-1			1	L.C.		BHR		Any L yes/
006	181-55-6ABD	I-M23-2			1	L.C.		BHR		Any L yes/
007	181-55-7ABD	I-M23-3			1	L.C.		BHR		Any L yes/
008	181-55-8ABDE	M23-RB			1	L.C.		BHR		Any I yes/
009	TLI LCS	TLI LCS			1	L.C.	* L.C.	BHR		Any I yes/

Gross weight of sample container + sample before/after aliquot removal.

Comments: Prespiked blank (Prep #03804) used for TLI Blank
Supelco XAD used for LCS, LCSD (Lot #P1030)
Samples

Initials: LA Date: 9/4/

Initials of both SPIKER AND OBSERVER must be entered.

XXXXX = Gross Weight not provided for WATER Sampl

REV 05/27/97 (PSTMF

TRIANGLE LABORATORIES, INC.

Dioxin Sample Preparation Tracking & Management Form

Project: 43085

Client: Pacific Environmental Services (PES03)

Solvent(s)/Acid(s): Toluene / _____ / _____

Lot Numbers: 972118 / _____ / _____

Method: Method 23:Tetra-Octa (Tol Combined) Matrix: XAD

Extraction Date: 9/4/97

IS Spike: 40 µl conc: 0.1000 ng/µl

SS Spike: ____ µl conc: __.____ ng/µl

MS Spike: 0 µl conc: 0.0000 ng/µl

LCS Spike: 0 µl conc: 0.0000 ng/µl

OPR Spike: __20 µl conc: _0.01__ ng/µl

					LA	LA	LA		Chemist
					5234I	5233B	5235-D		Spike #
					USF I	USF MX	USF-A		" ID
					7/02/98	12/17/97	7/2/98	__/__/__	" Expir
					9/04/97	9/04/97	9/6/97	__/__/__	" Date
	TLI /	GROSS	SAMPLE		19 : 30	19 : 31	8 : 15	__ : __	" Time
S#.crd	SAMPLE / CLIENT	WEIGHT	SIZE		0.1 ng/µl	0.01 ng/µl	0.1 ng/µl	____ ng/µl	" Conc.
	ID / SAMPLE ID	Before After	g / ml		40 µl	40 µl	40 µl	____ µl	" Vol.
	TLI LCSD								Any Left
010	TLI LCSD			1	L.C.	L.C.	BHR		yes/no
									Any Left
									yes/no
									Any Left
									yes/no
									Any Left
									yes/no
									Any Left
									yes/no
									Any Left
									yes/no
									Any Left
									yes/no
									Any Left
									yes/no

Gross weight of sample container + sample before/after aliquot removal.

Comments: _____

Initials: LA Date: 9/4/97

Initials of both SPIKER AND OBSERVER must be entered.

XXXXX = Gross Weight not provided for WATER Samples.

REV 05/27/97 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43085

Ext S#.crd and TLI Number	1	2	4A	6	3	4B	7	8A	3/4 9 L.C.	8B	9
000 TLI Blank	LA 9/4/97	LA BHR 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	JCR 9-7-97 JC 2 shakes	L.C 9-7-97	MH 9/8/97	9/8/9
001 181-55-1ABE								4 sh			
002 181-55-2ABE								4 sh			
003 181-55-3ABE								4 sh			
004 181-55-4ABD								2 sh			
005 181-55-5ABD								4 sh			
006 181-55-6ABD								4 sh			
007 181-55-7ABD								3 shake			
008 181-55-8ABDE								2 Shake			
009 TLI LCS								2 sh			

Enter the procedure number below into the box at the top of each column to signify the step performed.
Initial and date each sample for each numbered procedure performed.

#.. .....PROCEDURE.....	DETAILS (circle)
1) EXTRACTION	ON ✓ OFF Soxhlet / Jar / Sep Funnel / Steam Dist / Cont LL / ASE / Waste Dilut
2) SPIKE AFTER EXTRACTION	9/4/97 9/5/97 LA
3) ADD TRIDECANE	19:45 11:45
4) ROTOVAP	40mL / 10mL A / Dryness B
5) COMBINE	
6) DIVIDE / LIPID DETERMINATION	20%/80% 50%/50% 5mL/20mL Other_____
7) SOLVENT EXCHANGE	A 8B
8) CLEANUP	Double Column DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
9) TRANSFER	
10) ADDITIONAL CLEANUP	Mod. DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
11) FINAL TRANSFER	

Comments: Samples 005 and 006 were still dirty after 4 shakes.

Rev 06/24/97 (PSTMF 4

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43085

Ext S#.crd and TLI Number	1	2	4A	6	3	4B	7	8A	3/4 L.C.	8B	9
010 TLI LCSD	LA 9/4/97	LA BHR 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	BHR L.C. 9/6/97	SOL LC (2 stage) 9-7-97	L.C. 9-7-97	MH 9/8/97	9/8/97 JLE

Enter the procedure number below into the box at the top of each column to signify the step performed.
Initial and date each sample for each numbered procedure performed.

#.. .....PROCEDURE.....	DETAILS (circle)
1) EXTRACTION	ON ✓ OFF __ Soxhlet / Jar / Sep Funnel / Steam Dist / Cont LL / ASE / Waste Dilution
2) SPIKE AFTER EXTRACTION	9/4/97 14:45 9/5/97 11:45 LA
3) ADD TRIDECANE	
4) ROTOVAP	40mL / 10mL A / Dryness B
5) COMBINE	
6) DIVIDE / LIPID DETERMINATION	20%/80% 50%/50% 5mL/20mL Other_____
7) SOLVENT EXCHANGE	
8) CLEANUP	DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
9) TRANSFER	
10) ADDITIONAL CLEANUP	Mod. DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
11) FINAL TRANSFER	

Comments: _____

Rev 06/24/97 (PSTMF 4)

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43085

Transfer From: DWLH5 To: DMS5

	Initials..	Date.....	Time...
Released by:	JLE	9/8/97	19:50
Accepted by:		/ /	:

MILES.ID.....		TLI_No.....	Cust.Id.....
43085-	-000	TLI Blank	TLI M23 Blank
43085-	-001	181-55-1ABE	O-M23-1
43085-	-002	181-55-2ABE	O-M23-2
43085-	-003	181-55-3ABE	O-M23-3
43085-	-004	181-55-4ABD	O-M23-FB
43085-	-005	181-55-5ABD	I-M23-1
43085-	-006	181-55-6ABD	I-M23-2
43085-	-007	181-55-7ABD	I-M23-3
43085-	-008	181-55-8ABDE	M23-RB
43085-	-009	TLI LCS	TLI LCS
43085-	-010	TLI LCSD	TLI LCSD

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43085

Transfer From: DWLH5 To: DMS5

	Initials..	Date.....	Time...
Released by:	[illegible]	09/09/97	08:30
Accepted by:	[illegible]	9/9/97	9:00

MILES.ID.....		TLI_No.....	Cust.Id.....
43085-	-000	TLI Blank	TLI M23 Blank
43085-	-001	181-55-1ABE	O-M23-1
43085-	-002	181-55-2ABE	O-M23-2
43085-	-003	181-55-3ABE	O-M23-3
43085-	-004	181-55-4ABD	O-M23-FB
43085-	-005	181-55-5ABD	I-M23-1
43085-	-006	181-55-6ABD	I-M23-2
43085-	-007	181-55-7ABD	I-M23-3
43085-	-008	181-55-8ABDE	M23-RB
43085-	-009	TLI LCS	TLI LCS
43085-	-010	TLI LCSD	TLI LCSD

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.

Method: Method 23:Tetra-Octa (Tol Combined) HR GC/HRMS ANALYSIS

Required Detection Limit: 0.05 ng

PROJECT: 43085

SAMPLE INFORMATION

RS Conc 20 µl @ 100.0 PG/µl

S#.crd	TLI / SAMPLE ID /	CLIENT / SAMPLE ID	1ST COLUMN GC/MS FILENAME COLUMN: DB5	CONFIRM	2ND COLUMN CONFIRM FILENAME COLUMN: DB225	USF-RS VOLUME SOLN ID	USF-RS INIT. DATE	ANALYSIS COMMENTS
000	TLI Blank	TLI M23 Blank	S975815	Y	P973852	20 µl 5296J	9/9/97	9:47
001	181-55-1ABE	O-M23-1	S975866 / ~~S975844~~ / ~~S975820~~	N	—			ac deflections
002	181-55-2ABE	O-M23-2	S975867 / ~~S975847~~ / ~~S975821~~	N	—			ac deflections
003	181-55-3ABE 10µl of Nonane added MVL 9/12/97	O-M23-3	S975868 / ~~S975822~~	Y NO	~~P973850~~			ac deflection
004	181-55-4ABD	O-M23-FB	S975533 / ~~S975823~~	Y	P973861 / ~~P973851~~			Std nonane added 4µl
005	181-55-5ABD	I-M23-1	S975834 / ~~S975824~~	N	—			ac deflections
006	181-55-6ABD	I-M23-2	S975835 / ~~S975829~~	Y NO	~~P973862~~ / ~~P973853~~			Std nonane added 4µl
007	181-55-7ABD	I-M23-3	S975843 / ~~S975824~~	Y	P973854			
008	181-55-8ABDE	M23-RB	S975844 / ~~S975827~~	N	—			
009	TLI LCS	TLI LCS	S975831 / ~~S975828~~		—			
010	TLI LCSD	TLI LCSD	S975832 / ~~S975829~~		—			

BJG 9/11/97

Comments: * Retention times off, ~~Samples need to be Reran~~ BJG 9/11/97

Type: A

Spike File: SPX23704

Amt of Extract: 50%

REV 03/07/95 (PSTMF

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
705	DB5	5711413	T02	2.0uL	EPCUS2	EPCUS
				Signature		9/10/97 Date

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
5975800	9/10/97	15:33	43107	TCI BLANK	0	TCI M23 BLANK	AUTO	5.1 E6	BJG 9/10/97	MITSUBISHI
5975801		1614		181-77-1-4	1	N-008-1-4 : XIP-7027		5.6 E6		
5975802		1654		TCI LCS	2	TCI LCS		5.4 E6		
5975803	9/10/97	1733	43107	TCI LCSD	3	TCI LCSD	AUTO	5.4 E6	BJG 9/10/97	
5975804	9/10/97	1830	—	5296J	—	RS-100 KB 9/10/97	AUTO RS-100	4.7 E6	ML 9/10/97	
5975805		1913	43107	TCI Blank ~~43107~~ KB 9/10/97	0	TCI M23 Blank		5.6 E6	ML 9/10/97	
5975806		1952		181-77-1-4	1	N-008-1-4 : XIP 7027		5.2 E6		
5975807		2032	43059	TCI Blank ~~43059~~ KB 9/10/97	0	TCI M23 Blank		5.6 E6		
5975808		2111		181-27-1AC	1	I-M23-1		5.2 E6		
5975809		2150		181-27-2AC	2	O-M23-1		5.5 E6		
5975810		2227		181-27-3AC	3	O-M23-2		4.8 E6		
5975811		2309		181-27-4AC	4	O-M23-3		9.4 E6		
5975812	9/10/97	2347	—	5170B	—	RETENTION WINDOW CHECK	RTCHK		KB 9/10/97	

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: 00:08 (12:08 AM)
ConCal Due: _____

srvr1/qa/forms/hrrunlog.doc (02/05/97)

Page: _____

[redacted]

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
705	DB5	5711413	T02	2.0 µl	EPCW82	GPCW

Signature: [signature] Date: 9/11/97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
5975813	9.11.97	00:59	—	4514G	—	M23 ConCal 50.0	m-0 50	—	Jm 9/11/97	NG OCPD [illegible] Jm 9.11.97
5975814	9/11/97	2:02	—	4514G	—	8260/m23 ConCal 50.0	m-0 50	4	Jm 9/11/97	Good Jm 9.11.97
15	↓	3:08	43085	Blank	0	TLI M23 Blank	Auto	38 EG	Hm 9/11/97	QC deflections BJG 9/11/97
16	↓	3:44	43057	181-27-5A C	5	0-M23-FB		40 EG		
17		4:25		181-27-7AB & BM	7	0-M23-RB		4.4 EG		
18		5:04		LCS	8	LCS		3.5 EG		Times BJG 9/11/97 R.O. OCPD IS Jm 9.11.97
19		5:44	43057	LCSD	9	LCSD		4.1 EG		
20		6:23	43085	181-55-1ABE	1	0-M23-1		1.5 EG		Retention on times off BJG 9/11/97 (NG)
21		7:02		-2ABE	2	0-M23-2		1.6 EG		Retention on times off BJG 9/11/97 (NG)
22		7:42		-3ABE	3	0-M23-3		1.8 EG		Retention on times off BJG 9/11/97 (NG)
23				-4ABD	4	0-M23-FB				DID
24				-5ABD	5	I-M23-1				NOT BJG 9/11/97
5975825			43085	181-55-6ABD	6	I-M23-2	Auto		Hm 9/11/97	RUN

* Transcribed from chromatographic data

** Dated initials required

ConCal Due: 14:02

ConCal Due: _____

srvr1/qa/forms/hrrunlog.doc (02/05/97)

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
203	DB5	571413	T02	2.0 µl	EPCUS 2	EPCUS

Signature: [illegible] Date: 9/11/97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
~~5975826~~			43085	~~181-55-7ABD~~	7	I-M23-3	Auto		[illegible] 9AU97	DID
27				181-55-8ABD	8	M23-RB				NOT
28				LCS	9	LCS				RUN
~~5975829~~			43085	LCSD	10	LCSD	Auto		~~[illegible] 9/11/97~~	BJG 9/11/97
5975830	9/11/97	10:00	—	5296L	—	RS-100	RS100	4.0 ΣG	BJG 9/11/97	Δ std BJG Clean 9/11/97
5975831	9/11/97	10:59	43085	TLLCS	9	TLLCS	AUTO	4.9 ΣG	BJG 9/11/97	
5975832		11:39		TLLCSD	10	TLLCSD		5.0 ΣG		
5975833		12:18		181-55-4ABD	4	O-M23-RB		6.9 ΣG		
5975834	9/11/97	12:58	43085	181-55-5ABD	5	I-M23-1	AUTO	2.4 ΣS	BJG 9/11/97	QC deflections 9/
5975835	9/11/97	13:40	43085	181-55-6ABD	6	I-M23-2	AUTO	1.2 ΣG	BJG 9/11/97	QC deflections BJG 9/11
5975836	9/11/97	14:23	—	5170B	—	RTCHK	RTCHK	13%	BJG 9/11/97	Good BJG 9/11/97
5975837	9/11/97	15:08	—	4514G	—	M23 Conc of 50.0	M-0 50	1.9 ΣG	BJG 9/11/97	NG [illegible] BJG 9/11/97
5975837	9/11/97		—	4514G	—	M23 Conc of 50.0	M-0 50		BJG 9/11/97	Δ std NG [illegible]

* Transcribed from chromatographic data

** Dated initials required

ConCal Due: 14:02

ConCal Due: _____

srvr1/qa/forms/hrrunlog.doc (02/05/97)

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70s	DB5	5711413	T02	20uO	EPCUS 2	EPCUS

Signature: Ken Brunning Date: 9/11/97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
5975838	9/11/97	—	—	45146	—	M23 Concal 50.0	50	3.6 EG	KB 9/11/97	Change Term Good Increase high mass response
5975839	9/11/97	17:42	—	↓	—	↓	↓	3.3 EG	KB ↓	Good Beginning
5975840	9/11/97	18:29	—	5170B	—	Retention Window Check	RTCHK	14%	KB 9-11-97	
5975841	9/11/97	19:13	—	5246K	—	RS-100	RS-100	4.0 EG	KB 9-11-97	
5975842	9/11/97	19:55	43034r1	TLI BLANK	0	TLI BLANK	SF011	4.0 EG	KB 9-11-97	
5975843	9/11/97	21:06	43085	181-55-7ABD	7	I-M23 3	AUTO	5.8 EG	KB 9-11-97	
5975844		21:43		181-55-8ABDE	8	M23-RB		4.2 EG		
5975845		22:22	43062A	TLI Blank	0	TLI M23 Blank		7.5 EG		
5975846		23:02		181-32-1ABDE	1	GGC-TC2-M23/0010-101		6.2 EG		
5975847		23:41		181-32-2ABDE	2	GGC-TC2-M23/0010-102		5.4 EG		
5975848	9/12/97	00:20		TLI LCS	3	TLI LCS		6.4 EG		
5975849		00:59	↓	TLI LCSD	4	TLI LCSD		6.7 EG		
5975850		01:39	43034r1	181-4-1A-C	1	ALLOA-M23-1		6.7 EG		

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: 5:42
ConCal Due: _____

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Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
705	DB5	7458551	TD2	2.0 uL	EPCUS2	EPCUS

Signature: Glenn Graham
Date: 9-12-97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
S975858	9-12-97		—	5170B	—	RTCHK	RTCHK		GG 9-12-97	
S975859	9-12-97	1837	—	5414G	—	Concal 50.0	M-0 50	4.4 E6	KAS 9-12-97	NG
S975860	9-12-97	2003	—	5170B	—	* RTCHK	RTCHK	8%	ML 9-12-97	* EE ML 9/12/97 Good
S975861	9-12-97	2120	—	5414G	—	Concal 50 M23	M-0 50	6.8 E6	ML 9-12-97	Good
S975862	9-12-97	2220	—	5413	—	8290 Concal 5.0	M-0 R3	6.2 E6	ML 9/12/97	Good
S975863	9-12-97	2306	4297971	Tri Blank	0	Tri M23 Blank	S9121	4.9 E6	ML 9/12/97	
S975864	9-13-97	00:14	4305771	Tri Blank	0	Tri M23 Blank	Auto	6.0 E6	ML 9/13/97	
S975865		00:54		181-27-6A-C	6	O-M23-4		6.2 E6		
S975866		01:33	43085	181-55-1ABE	1	O-M23-1		2.7 E6		
S975867		02:12		181-55-2ABE	2	O-M23-2		2.4 E6		
S975868		02:52		181-55-3ABE	3	O-M23-3		1.1 E6		10ul of nonane added.
S975869		03:31	43054A	Tri Blank	0	Tri Solid Blank		8.1 E6		
S975870		04:11		181-24-1	1	ME050-SL-087-PRIM.SL		8.3 E6		

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: M23 out at 9:20 9/13/97
ConCal Due: 8290 out at 10:20 9/13/97

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Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70P	DB 225	G360413	TT1	20ul	DB 225	DB 225
				Signature		9/12/97 Date

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
P973842	9/12/97	10:13	—	5170B	–	RTCH4	MCH	1.4	DL 9/12/97	
1 43	1	11:04	—	4497D	–	TETRA LOW CAL 5.0	TETRA 5.0	1.9 EC	1	Good DL 9/12/97
1 44	1	11:59	—	5296L	–	RS-100	RS-100	1.7 EC	1	clean DL 9/12/97
1 45	1	12:45	43057	181-27-3AC	3	O-M23-2	P9081	1.9 EC	1	
1 46	1	13:32	1	1 -4AC	4	1 -3	1	3.0 EC	1	
1 47	1	14:19	1	1 -7AC 181-83-1	7	1 -RB	1	2.9 EC	1	
1 48	1	15:06	43057 or 1	TU BLANK	0	TU M23 BLANK	1	2.0 EC	1	
1 49	1	1553	1	181-27-6AC	6	O-M23-4	1	1.5 EC	1	
P973850	9/12/97	1642	43085	181-55	3	O-M23-3	↓	9.1 EC	BB 9/12/97	
P973851	9/12/97	1731	43085	181-55-4ABD	4	O-M23-FB	↓	7.4 EC	ML 9/12/97	Fail DL
P973852	9/12/97	1810	43085	TU Blank	0	TU M23 Blank	↓	6.8 EC	ML 9/12/97	
P973853	9/12/97	1905	43085	181-55-6ABD	6	I-M23-2	↓	4.5 EC	ML 9/12/97	Fail DL
P973854	9/12/97	1951	43085	181-55-7ABD	7	I-M23-3	↓	3.4 EC	ML 9/12/97	

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: _____
ConCal Due: _____

srvr1/qa/forms/hrrunlog.doc (02/05/97)

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
7UP	DB225	6360413	TT1	2.0µl	DB225	DB225
				Minh Lam (Signature)		9/12/97 (Date)

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
P973855	9/12/97	2037	430345	181-4-1A-C	1	ALCOA-M23-1	P9081	1.3 E6	ML 9/12/97	
P973856	↓	2126	↓	181-4-2A-C	2	ALCOA-M23-2	↓	1.2 E6	↓	
P973857	↓	2213	↓	181-4-3A-C	3	ALCOA-M23-3	↓	1.3 E6	↓	
P973858	9/13/97	09:21	—	517015	—	RTCHK	RTCHK	2016	Jm 9/13/97	Good Jm 9.13.97
P973859	↓	10:24	—	4497D	—	Tetra ConCal 5.0	Tetra 5.0	1.3 E4	Jm 9/13/97	Good Jm 9.13.97
P973860	↓	11:12	—	5296L	—	RS-10V	RS10V	1.5 E4	Jm 9/13/97	Clean Jm 9.13.97
P973861	↓	11:57	43085	181-55-4MBD	4	O-M23-FB	P9081	3.2 E5	↓	
P973862	↓	12:53	↓	181-55-6ABD	6	I-M23-2	P9081	4.3 E5	↓	
P973863			43054A	181-24-1	1	ME050-SL087-PMIm.SL	P9081		↓	

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: _____
ConCal Due: _____

srvr1/qa/forms/hrrunlog doc (02/05/97)

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TRIANGLE LABS

SAMPLE DATA

Triangle Laboratories, Inc.
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729
P.O. Box 13485
Research Triangle Park, NC 27709-
Fax # 919-544-5491

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 43085
Method 8290X Full Screen Analyses (DB-5)

09/18/97

Data File	S975815	S975866	S975867	S975868
Sample ID	TLI M23 Blank	O-M23-1	O-M23-2	O-M23-3
Units	ng	ng	ng	ng
Extraction Date	09/04/97	09/04/97	09/04/97	09/04/97
Analysis Date	09/11/97	09/13/97	09/13/97	09/13/97
Instrument	S	S	S	S
Matrix	XAD	M23Train	M23Train	M23Train
Extraction Type	Soxhlet	Soxhlet	Soxhlet	Soxhlet
Analytes				
2378-TCDD	(0.005)	(0.09)	(0.07)	(0.01)
12378-PeCDD	(0.006)	(0.1)	(0.09)	(0.01)
123478-HxCDD	(0.006)	(0.1)	(0.1)	(0.02)
123678-HxCDD	(0.005)	(0.1)	(0.1)	(0.02)
123789-HxCDD	(0.005)	(0.1)	(0.1)	(0.02)
1234678-HpCDD	0.02	(0.2)	(0.2)	(0.03)
OCDD	0.05	(0.5)	(0.6)	(0.10)
2378-TCDF	0.006	(0.08)	(0.05)	(0.006)
12378-PeCDF	(0.004)	(0.09)	{0.24} E	(0.01)
23478-PeCDF	(0.004)	(0.09)	(0.07)	(0.01)
123478-HxCDF	(0.005)	(0.09)	(0.09)	(0.01)
123678-HxCDF	(0.003)	(0.07)	(0.07)	(0.01)
234678-HxCDF	(0.004)	(0.09)	(0.08)	(0.01)
123789-HxCDF	(0.005)	(0.1)	{0.24} Q,E	(0.01)
1234678-HpCDF	0.02	(0.1)	(0.2)	(0.02)
1234789-HpCDF	(0.007)	(0.2)	(0.2)	(0.03)
OCDF	0.03	(0.4)	(0.4)	(0.07)
TOTAL TCDD	(0.005)	(0.09)	(0.07)	(0.01)
TOTAL PeCDD	(0.006)	{0.53}	{1.0}	(0.01)
TOTAL HxCDD	(0.006)	(0.1)	0.44	(0.02)
TOTAL HpCDD	0.02	(0.2)	{1.0}	(0.03)
TOTAL TCDF	0.006	0.15	(0.05)	(0.006)
TOTAL PeCDF	(0.004)	(0.09)	{0.41} E	{0.02}
TOTAL HxCDF	(0.004)	(0.09)	{0.46} E	(0.01)
TOTAL HpCDF	0.02	(0.2)	{0.36}	(0.02)
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	94.6	79.3	100	101
13C12-PeCDF 234	101 Q	71.8	93.1	93.4
13C12-HxCDF 478	87.3	73.8	94.3 Q	85.0
13C12-HxCDD 478	81.6	64.4 V	85.6 Q	83.2
13C12-HpCDF 789	78.6	78.7	116 Q	86.7
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	69.4	74.3 Q	58.2 Q	84.8
13C12-HxCDF 234	73.3	92.3	73.7 Q	94.6
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	105 Q	137	88.1	114
13C12-2378-TCDD	74.6	145	90.2	95.4
13C12-PeCDF 123	94.4 Q	160 RO	82.1 Q,RO	91.9
13C12-PeCDD 123	101 Q	177	102	100
13C12-HxCDF 678	73.5	124	81.0 Q	103
13C12-HxCDD 678	83.2	122	77.6 Q	92.2
13C12-HpCDF 678	64.0	91.2	47.2 Q	64.7
13C12-HpCDD 678	71.5	88.5	53.2 Q	63.8
13C12-OCDD	73.1	60.5	29.8 Q	31.6

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 43085
Method 8290X Full Screen Analyses (DB-5)

Data File	S975833		S975834		S975835		S975843	
Sample ID	O-M23-FB		I-M23-1		I-M23-2		I-M23-3	
Units	ng		ng		ng		ng	
Extraction Date	09/04/97		09/04/97		09/04/97		09/04/97	
Analysis Date	09/11/97		09/11/97		09/11/97		09/11/97	
Instrument	S		S		S		S	
Matrix	M23Train		M23Train		M23Train		M23Train	
Extraction Type	Soxhlet		Soxhlet		Soxhlet		Soxhlet	
Analytes								
2378-TCDD	{0.009}		(0.06)		(0.03)		(0.005)	
12378-PeCDD	0.04		(0.2)		(0.06)		(0.009)	
123478-HxCDD	0.02	Q	(0.2)		(0.1)		(0.01)	
123678-HxCDD	0.03		(0.2)		(0.09)		(0.01)	
123789-HxCDD	0.03		(0.2)		(0.09)		(0.01)	
1234678-HpCDD	0.03	B	(0.3)		(0.2)		0.14	B
OCDD	0.09	B	9.7		8.2		16.2	
2378-TCDF	0.02	B	(0.05)		(0.02)		0.01	B
12378-PeCDF	0.04		(0.09)		(0.04)		(0.005)	
23478-PeCDF	0.04		(0.09)		(0.04)		(0.005)	
123478-HxCDF	0.03		(0.1)		(0.06)		0.02	
123678-HxCDF	0.03		(0.1)		(0.05)		(0.006)	
234678-HxCDF	0.03		(0.1)		(0.06)		{0.006}	
123789-HxCDF	0.03		(0.2)		(0.07)		(0.008)	
1234678-HpCDF	{0.03}	B	(0.2)		(0.1)		0.04	B
1234789-HpCDF	0.02		(0.2)		(0.1)		(0.02)	
OCDF	0.03	B	(0.3)		(0.4)		(0.05)	
TOTAL TCDD	{0.009}		(0.06)		(0.03)		(0.005)	
TOTAL PeCDD	0.04		(0.2)		(0.06)		(0.009)	
TOTAL HxCDD	0.09		(0.2)		(0.10)		0.02	
TOTAL HpCDD	0.04		{0.35}		(0.2)		0.34	
TOTAL TCDF	0.02		{0.18}		0.17		0.01	
TOTAL PeCDF	0.08		0.47		0.33		{0.01}	
TOTAL HxCDF	0.11		(0.1)		(0.06)		0.03	
TOTAL HpCDF	0.02		(0.2)		{0.26}		0.04	
Other Standards Percent Recovery Summary (% Rec)								
37Cl-TCDD	95.6		102		102		103	
13C12-PeCDF 234	89.4		92.1		87.4		93.4	
13C12-HxCDF 478	83.1		117	Q	100		112	
13C12-HxCDD 478	72.6	Q	89.9	Q	90.2		99.8	
13C12-HpCDF 789	67.8	V	110	Q	84.3	R	75.7	
Other Standards Percent Recovery Summary (% Rec)								
13C12-HxCDF 789	69.7		80.6	Q	49.8		54.2	
13C12-HxCDF 234	81.5		76.4	Q	53.8		73.5	
Internal Standards Percent Recovery Summary (% Rec)								
13C12-2378-TCDF	75.7		72.8		45.4		63.3	
13C12-2378-TCDD	71.5		73.3		50.6		58.5	
13C12-PeCDF 123	75.4		50.6		36.1	V,Q	56.9	
13C12-PeCDD 123	86.9		45.4	Q	35.5	V,Q	57.2	
13C12-HxCDF 678	81.3		65.4	Q	56.9		64.5	Q
13C12-HxCDD 678	76.5		70.9	Q	49.5		58.0	
13C12-HpCDF 678	75.9		56.0	Q	32.2		35.3	
13C12-HpCDD 678	87.9		59.6	Q	30.0		29.8	
13C12-OCDD	87.6		55.8	Q	17.5	N	16.0	V

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 43085
Method 8290X Full Screen Analyses (DB-5)

Data File	S975844	S975831	S975832
Sample ID	M23-RB	TLI LCS	TLI LCSD
Units	ng	ng	ng
Extraction Date	09/04/97	09/04/97	09/04/97
Analysis Date	09/11/97	09/11/97	09/11/97
Instrument	S	S	S
Matrix	M23Train	XAD	XAD
Extraction Type	Soxhlet	Soxhlet	Soxhlet
Analytes			
2378-TCDD	(0.004)	0.36	0.36
12378-PeCDD	(0.005)	1.8	1.9
123478-HxCDD	(0.005)	1.8	1.7
123678-HxCDD	0.006	1.8	1.8
123789-HxCDD	0.007	1.8	1.9
1234678-HpCDD	0.03 B	1.7	1.8
OCDD	0.05 B	3.4	3.6
2378-TCDF	(0.003)	0.36	0.37
12378-PeCDF	(0.004)	2.0	1.9
23478-PeCDF	{0.005}	1.8	1.9
123478-HxCDF	0.03	1.7	1.7
123678-HxCDF	0.01	1.7	1.8
234678-HxCDF	0.01	1.6	1.7
123789-HxCDF	(0.003)	1.5	1.8
1234678-HpCDF	0.05 B	2.1	1.8
1234789-HpCDF	{0.008}	1.5	1.6
OCDF	0.05 B	2.7	2.8
TOTAL TCDD	{0.007}		
TOTAL PeCDD	{0.01}		
TOTAL HxCDD	0.01		
TOTAL HpCDD	0.04		
TOTAL TCDF	(0.003)		
TOTAL PeCDF	0.007		
TOTAL HxCDF	0.07		
TOTAL HpCDF	0.07		
Other Standards Percent Recovery Summary (% Rec)			
37Cl-TCDD	105		
13C12-PeCDF 234	95.0		
13C12-HxCDF 478	89.0		
13C12-HxCDD 478	87.7		
13C12-HpCDF 789	97.8		
Other Standards Percent Recovery Summary (% Rec)			
13C12-HxCDF 789	75.8	72.3	75.4
13C12-HxCDF 234	79.3	76.2	77.5
Internal Standards Percent Recovery Summary (% Rec)			
13C12-2378-TCDF	68.5	64.9	65.4
13C12-2378-TCDD	61.5	62.6	60.9
13C12-PeCDF 123	67.5	65.3	64.9
13C12-PeCDD 123	69.2	69.4	66.7
13C12-HxCDF 678	75.6	72.8	72.8
13C12-HxCDD 678	69.2	73.1	70.3
13C12-HpCDF 678	60.9	58.4	62.5
13C12-HpCDD 678	66.8	64.5	67.1
13C12-OCDD	60.2	56.7	60.2

{Estimated Maximum Possible Concentration}, (Detection Limit).

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 43085
Method 23X (DB-225)

Data File	P973852	P973854	P973861
Sample ID	TLI M23 Blank	I-M23-3	O-M23-FB
Units	ng	ng	ng
Extraction Date	09/04/97	09/04/97	09/04/97
Analysis Date	09/12/97	09/12/97	09/13/97
Instrument	P	P	P
Matrix	XAD	M23Train	M23Train
Extraction Type	Soxhlet	Soxhlet	Soxhlet
Analytes			
2378-TCDF	(0.03)	(0.03)	(0.05)
Internal Standards Percent Recovery Summary (% Rec)			
13C12-2378-TCDF	67.4	53.9	70.9

(Detection Limit).

TRIANGLE LABORATORIES, INC.
LAB CONTROL SPIKE RECOVERY ANALYSIS AND COMPARISON

Project: 43085
Matrix: XAD
Method: Modified 23

Isomer	S975815 ID: TLI M23 Blank Sample (ng)	S975831 ID: TLI LCS With Spike (ng)	Percent Recovery	S975832 ID: TLI LCSD Spike Dup (ng)	Percent Recovery	Relative Percent Difference
2378-TCDD	ND	0.36	89.5	0.36	89.1	0.45
12378-PeCDD	ND	1.8	91.7	1.9	93.6	2.05
123478-HxCDD	ND	1.8	87.5	1.7	87.4	0.11
123678-HxCDD	ND	1.8	89.1	1.8	90.4	1.45
123789-HxCDD	ND	1.8	89.4	1.9	94.9	5.97
1234678-HpCDD	0.02	1.7	84.5	1.8	87.7	3.72
OCDD	0.05	3.4	84.9	3.6	88.7	4.38
2378-TCDF	0.006	0.36	88.6	0.37	89.9	1.46
12378-PeCDF	ND	2.0	101	1.9	94.7	6.44
23478-PeCDF	ND	1.8	91.1	1.9	95.0	4.19
123478-HxCDF	ND	1.7	85.3	1.7	86.8	1.74
123678-HxCDF	ND	1.7	84.2	1.8	87.8	4.19
234678-HxCDF	ND	1.6	80.0	1.7	83.5	4.28
123789-HxCDF	ND	1.5	76.7	1.8	90.4	16.4
1234678-HpCDF	0.02	2.1	102	1.8	90.6	11.8
1234789-HpCDF	ND	1.5	77.2	1.6	80.6	4.31
OCDF	0.03	2.7	68.0	2.8	70.2	3.18

ND: Not Detected
NA: Not Applicable
[..]: EMPC Value

MILES 4.15.00
GRY_PSUM v1.01

Processed By: Sherlewis Date: 09/18/97

ercent Recovery QC Limits: 70 to 130 percent.
elative Percent Difference QC Limits: +/- 20 percent.

ote: Method 23 does not address spiked samples. Triangle Labs uses Method 8290 control limits as advisory guidelines.

ominal Spike Levels (ng):
TCDD/TCDF..: 0.4 ng
PeCDD/PeCDF: 2.0 ng
HxCDD/HxCDF: 2.0 ng
HpCDD/HpCDF: 2.0 ng
OCDD/OCDF..: 4.0 ng

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI M23 Blank** Analysis File: **S975815**

Client Project:	S413-004				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLI ID:	TLI Blank	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/11/97	ConCal:	S975814
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	HLM	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.005				—
1,2,3,7,8-PeCDD	ND	0.006				—
1,2,3,4,7,8-HxCDD	ND	0.006				—
1,2,3,6,7,8-HxCDD	ND	0.005				—
1,2,3,7,8,9-HxCDD	ND	0.005				—
1,2,3,4,6,7,8-HpCDD	0.02			1.07	32:01	—
1,2,3,4,6,7,8,9-OCDD	0.05			0.84	34:33	—
2,3,7,8-TCDF	0.006			0.85	20:25	—
1,2,3,7,8-PeCDF	ND	0.004				—
2,3,4,7,8-PeCDF	ND	0.004				—
1,2,3,4,7,8-HxCDF	ND	0.005				—
1,2,3,6,7,8-HxCDF	ND	0.003				—
2,3,4,6,7,8-HxCDF	ND	0.004				—
1,2,3,7,8,9-HxCDF	ND	0.005				—
1,2,3,4,6,7,8-HpCDF	0.02			1.18	31:11	—
1,2,3,4,7,8,9-HpCDF	ND	0.007				—
1,2,3,4,6,7,8,9-OCDF	0.03			0.76	34:39	—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.005		—
Total PeCDD	ND		0.006		—
Total HxCDD	ND		0.006		—
Total HpCDD	0.02	1			—
Total TCDF	0.006	1			—
Total PeCDF	ND		0.004		—
Total HxCDF	ND		0.004		—
Total HpCDF	0.02	1			—

X237_PSR v2.00, LARS 6.1

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Printed: 13:58 09/17/

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **TLI M23 Blank** Analysis File: **S975815**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.2	105	40%-130%	0.76	20:23	Q___
$^{13}C_{12}$-2,3,7,8-TCDD	3.0	74.6	40%-130%	0.80	21:13	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.8	94.4	40%-130%	1.70	24:42	Q___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.1	101	40%-130%	1.41	25:50	Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.9	73.5	40%-130%	0.49	28:28	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.3	83.2	40%-130%	1.18	29:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.6	64.0	25%-130%	0.43	31:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.9	71.5	25%-130%	0.95	32:02	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	5.8	73.1	25%-130%	0.78	34:32	___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	94.6	70%-140%		21:13	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.0	101	70%-140%	1.51	25:28	Q___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.5	87.3	70%-140%	0.51	28:22	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.3	81.6	70%-140%	1.15	29:06	___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.1	78.6	70%-140%	0.43	32:23	___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.8	69.4	40%-130%	0.48	29:41	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.9	73.3	40%-130%	0.50	28:59	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	21:00	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.19	29:29	___

Data Reviewer: Sherlewis 09/17/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 13:58 09/17/97

Initial ....Date...

Data Review By: SL 9/17/97 Calculated Noise Area: 1.55

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975815B.dbf
09/17/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.820-1.101			
304-306		DC	NL	0:00	RO	0.10	0.18			0.000			
		DC	SN	17:38	RO	0.93	1.61			0.865			
		DC	SN	19:40	RO	2.17	1.93			0.965			
	D	DC	SN	19:57	RO	0.56	6.21			0.979			
		DC	SN	20:14		0.76	1.94			0.993			
	M			20:25		0.85	8.52	3.91	4.61	1.002	2378-TCDF	AN	
		DC	SN	20:58	RO	1.39	2.62			1.029			
		DC	SN	22:17	RO	0.35	4.07			1.093			
304-306				1 Peak			8.52						
13C12-TCDF						0.65-0.89				0.951-1.049			
316-318		DC	NL	0:00	RO	0.55	1.56			0.000			
		DC	WL	19:11		0.69	49.17			0.941			
				19:32	RO	0.57	6.64	2.89	5.03	0.958			
				19:54	RO	0.59	25.77	11.21	18.88	0.976			
				20:23		0.76	4,593.60	1,979.96	2,613.64	1.000	13C12-2378-TCDF	ISO	Q
				20:51	RO	1.23	19.88	13.84	11.23	1.023			
316-318				4 Peaks			4,645.89						

---------- Above: TCDF / TCDD Follows ----------

TCDD						0.65-0.89				0.853-1.059			
320-322		DC	NL	0:00	RO	5.13	0.14			0.000			
		DC	SN	18:15	RO	4.53	0.30			0.860			
		DC	SN	18:42	RO	3.00	0.30			0.881			
		DC	SN	20:01	RO	0.44	1.52			0.943			
		DC	SN	20:23	RO	4.40	1.20			0.961			
		DC	SN	20:37	RO	1.43	0.25			0.972			
		DC	SN	20:38	RO	6.69	0.28			0.973			
		DC	SN	20:58	RO	2.84	0.78			0.988			
		DC	SN	21:13	RO	0.30	2.09			1.000	2378-TCDD	AN	
		DC	SN	21:28	RO	0.29	0.87			1.012			
		DC	SN	21:40	RO	1.86	0.25			1.021			
		DC	SN	21:42	RO	0.18	0.16			1.023			
		DC	SN	22:01	RO	4.69	0.62			1.038			
		DC	SN	22:15	RO	0.94	1.38			1.049			
		DC	WH	22:37	RO	5.70	0.41			1.066			
320-322				0 Peaks			0.00						
37Cl-TCDD										0.906-1.094			
328		DC	NL	0:00			0.08			0.000			
	DMT	DC		0:00			0.00			0.000			
				19:40			13.92	13.92		0.927			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
AN				21:13			2,110.00	2,110.00		1.000	37Cl-TCDD	SUR1	
				21:29			2.91	2.91		1.013			
				21:38			2.91	2.91		1.020			
				21:42			2.17	2.17		1.023			
	DC	SN		22:01			1.01			1.038			
328			5	Peaks			2,131.91						
13C12-TCDD				0.65-0.89					0.906-1.094				
332-334	DC	NL		0:00	RO	20.25	0.14			0.000			
	DC	WL		19:05	RO	0.91	2.46			0.899			
	DC	SN		19:29	RO	1.16	1.31			0.918			
				19:54	RO	1.05	16.35	9.69	9.24	0.938			
	DC	SN		20:36		0.84	3.83			0.971			
				21:00		0.81	3,329.10	1,490.55	1,838.55	0.990	13C12-1234-TCDD	RS1	
				21:13		0.80	2,645.89	1,177.55	1,468.34	1.000	13C12-2378-TCDD	IS1	
				21:34	RO	1.08	41.54	25.41	23.47	1.016			
	DC	SN		22:00	RO	0.35	1.54			1.037			
332-334			4	Peaks			6,032.88						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF				1.32-1.78					0.907-1.078				
340-342	DC	NL		0:00	RO	0.09	0.12			0.000			
	DC	SN		22:56	RO	0.09	0.10			0.928			
	DC	SN		23:04	RO	0.52	0.54			0.934			
	DC	SN		23:31	RO	0.30	0.59			0.952			
	DC	SN		23:50	RO	0.61	2.88			0.965			
	DC	SN		24:10	RO	0.27	1.07			0.978			
	DC	SN		24:27	RO	2.73	4.74			0.990			
	DC	SN		24:35	RO	2.15	0.84			0.995			
	DC	SN		24:45	RO	0.79	2.68			1.002	12378-PeCDF	AN	
	DC	SN		25:16	RO	0.50	2.02			1.023			
	DC	SN		25:48	RO	1.13	0.15			1.045			
	DC	SN		26:28	RO	0.23	0.81			1.072			
	DC	SN		26:36	RO	0.31	0.64			1.077			
	DC	WH		26:43	RO	0.78	2.20			1.082			
340-342			0	Peaks			0.00						
13C12-PeCDF				1.32-1.78					0.838-1.162				
352-354	DC	NL		0:00	RO	1.00	0.15			0.000			
				23:49		1.62	56.50	34.94	21.56	0.964			
				24:20		1.60	20.27	12.47	7.80	0.985			
				24:42		1.70	3,558.95	2,241.95	1,317.00	1.000	13C12-PeCDF 123	IS2	Q
				25:00		1.58	33.92	20.75	13.17	1.012			
				25:28		1.51	3,479.61	2,092.50	1,387.11	1.031	13C12-PeCDF 234	SUR2	Q
				25:50	RO	1.93	6.17	4.68	2.42	1.046			
				26:27	RO	1.23	10.18	6.19	5.04	1.071			
352-354			7	Peaks			7,165.60						

---------- Above: PeCDF / PeCDD Follows ----------

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
PeCDD				1.32-1.78						0.921-1.026			
356-358	DC	NL		0:00	RO	12.71	0.18			0.000			
	DC	SN		23:59		1.63	2.18			0.928			
	DC	SN		24:43	RO	7.49	1.05			0.957			
	DC	SN		25:00	RO	0.53	1.14			0.968			
D	DC	SN		25:51	RO	1.18	4.16			1.001	12378-PeCDD	AN	
	DC	SN		26:19	RO	0.77	0.76			1.019			
	DC	SN		26:30	RO	4.30	0.94			1.026			
356-358				0 Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370	DC	NL		0:00	RO	1.00	0.13			0.000			
	DC	SN		24:01	RO	0.86	1.32			0.930			
	DC	SN		24:42		1.71	3.60			0.956			
	DC	SN		24:52	RO	3.69	1.71			0.963			
	DC	SN		25:34	RO	1.27	2.76			0.990			
				25:50		1.41	2,144.29	1,255.11	889.18	1.000	13C12-PeCDD 123 IS3		Q
				25:59		1.52	196.92	118.64	78.28	1.006			
	DC	SN		26:34	RO	1.89	2.40			1.028			
368-370				2 Peaks			2,341.21						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF				1.05-1.43						0.955-1.052			
374-376	DC	NL		0:00	RO	1.91	2.46			0.000			
	DC	SN		27:35		1.20	2.13			0.969			
	DC	SN		28:17	RO	3.04	2.44			0.994			
D	DC	SN		28:23		1.05	10.30			0.997	123478-HxCDF	AN	
	DC	SN		28:28	RO	0.56	1.61			1.000	123678-HxCDF	AN	
	DC	SN		28:43	RO	0.85	1.48			1.009			
	DC	SN		28:53	RO	0.50	1.16			1.015			
D	DC	SN		28:59	RO	0.96	6.94			1.018	234678-HxCDF	AN	
	DC	SN		29:06	RO	1.84	1.28			1.022			
	DC	SN		29:22	RO	0.13	0.11			1.032			
D	DC	SN		29:37		1.19	8.15			1.040			
374-376				0 Peaks			0.00						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386	DC	NL		0:00	RO	0.91	2.97			0.000			
				27:21	RO	0.41	8.50	2.87	7.04	0.961			
				27:29		0.53	23.70	8.20	15.50	0.965			
				28:22		0.51	2,397.48	812.87	1,584.61	0.996	13C12-HxCDF 478 SUR3		
				28:28		0.49	2,862.76	938.49	1,924.27	1.000	13C12-HxCDF 678 IS4		
				28:37	RO	0.62	10.45	4.29	6.92	1.005			
				28:59		0.50	2,646.33	878.42	1,767.91	1.018	13C12-HxCDF 234 ALT2		
				29:08		0.46	8.99	2.82	6.17	1.023			
	DC	SN		29:22		0.59	1.99			1.032			
	DC	SN		29:27	RO	0.31	2.10			1.035			
	DC	SN		29:33	RO	0.72	1.48			1.038			
				29:41		0.48	2,176.54	708.64	1,467.90	1.043	13C12-HxCDF 789 ALT1		
	DC	SN		29:55	RO	0.97	2.94			1.051			
	DC	SN		30:11	RO	0.34	1.39			1.060			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
384-386				8 Peaks			10,134.75						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD						1.05-1.43				0.950-1.015			
390-392	DC	NL		0:00	RO	0.80	1.75			0.000			
	DC	SN		28:21	RO	3.97	0.72			0.971			
	DC	SN		28:28	RO	1.49	2.80			0.975			
	DC	SN		28:54	RO	2.55	0.65			0.990			
	DC	SN		29:12	RO	1.95	1.84			1.001	123678-HxCDD	AN	
	DC	SN		29:19	RO	0.41	1.16			1.005			
D	DC	SN		29:24		1.33	5.20			1.007			
	DC	SN		29:28	RO	2.91	0.72			1.010	123789-HxCDD	AN	
	DC	WH		29:48	RO	1.56	0.56			1.021			
390-392				0 Peaks			0.00						
13C12-HxCDD						1.05-1.43				0.966-1.034			
402-404	DC	NL		0:00		1.40	1.25			0.000			
				28:35	RO	0.99	12.77	7.07	7.15	0.979			
				29:06		1.15	2,128.76	1,138.54	990.22	0.997	13C12-HxCDD 478	SUR4	
				29:11		1.18	2,679.88	1,451.98	1,227.90	1.000	13C12-HxCDD 678	IS5	
				29:29		1.19	3,236.46	1,760.90	1,475.56	1.010	13C12-HxCDD 789	RS2	
				29:40	RO	1.00	6.79	3.76	3.75	1.017			
	DC	SN		29:45	RO	0.73	1.70			1.019			
	DC	SN		29:49	RO	1.45	2.22			1.022			
402-404				5 Peaks			8,064.66						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF						0.88-1.20				0.995-1.044			
408-410	DC	NL		0:00	RO	1.63	0.94			0.000			
MKT				31:11		1.18	14.68	7.95	6.73	1.000	1234678-HpCDF	AN	
	DC	SN		31:33		1.09	3.15			1.012			
	DC	SN		32:10	RO	0.26	0.45			1.032			
D	DC	SN		32:24	RO	0.87	5.98			1.039	1234789-HpCDF	AN	
	DC	WH		32:39	RO	0.29	0.31			1.047			
	DC	WH		32:53	RO	2.24	1.90			1.055			
408-410				1 Peak			14.68						
13C12-HpCDF						0.37-0.51				0.936-1.128			
418-420	DC	NL		0:00	RO	1.34	1.18			0.000			
				31:11		0.43	1,836.69	550.23	1,286.46	1.000	13C12-HpCDF 678	IS6	
	DC	SN		31:26	RO	1.87	1.90			1.008			
				32:23		0.43	1,113.47	333.82	779.65	1.038	13C12-HpCDF 789	SUR5	
418-420				2 Peaks			2,950.16						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD						0.88-1.20				0.976-1.006			
424-426	DC	NL		0:00	RO	7.14	0.14			0.000			
	DC	SN		31:17	RO	1.37	1.20			0.977			
	DC	SN		31:28	RO	3.09	1.41			0.982			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	31:39	RO	2.30	0.94			0.988			
MT				32:01		1.07	7.73	4.00	3.73	0.999	1234678-HpCDD	AN	
424-426			1	Peak			7.73						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438		DC	NL	0:00		1.11	3.77			0.000			
				31:26	RO	1.25	7.08	4.33	3.47	0.981			
				32:02		0.95	1,887.05	918.59	968.46	1.000	13C12-HpCDD 678	IS7	
436-438			2	Peaks			1,894.13						

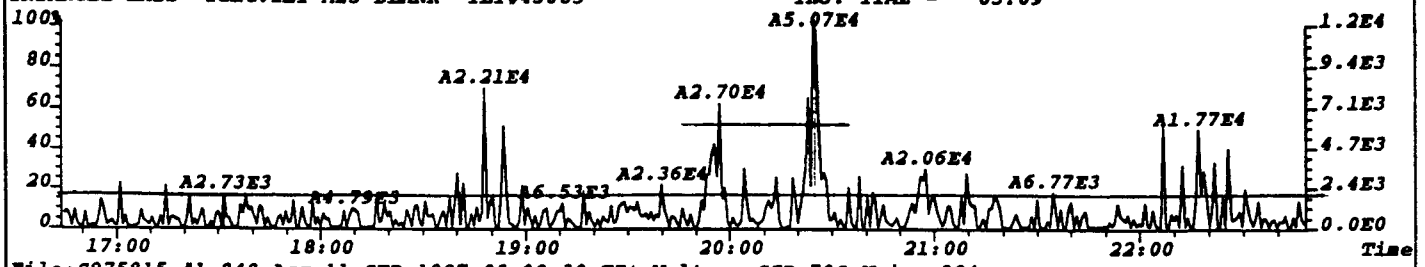
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

OCDF				0.76-1.02						0.884-1.116			
442-444		DC	NL	0:00		0.89	0.68			0.000			
		DC	SN	30:55	RO	1.16	1.61			0.895			
		DC	SN	31:21	RO	1.14	0.40			0.908			
		DC	SN	31:41	RO	0.04	0.13			0.917			
		DC	SN	31:58	RO	0.08	0.13			0.926			
		DC	SN	32:19		1.00	0.66			0.936			
		DC	SN	32:32	RO	2.93	0.57			0.942			
		DC	SN	32:41	RO	0.68	1.06			0.946			
		DC	SN	33:09	RO	2.28	0.55			0.960			
		DC	SN	33:15	RO	0.36	0.51			0.963			
		DC	SN	33:33	RO	0.67	0.76			0.972			
		DC	SN	34:24	RO	0.34	1.32			0.996			
M				34:39		0.76	13.25	5.71	7.54	1.003	OCDF	AN	
		DC	SN	35:18	RO	1.94	0.93			1.022			
		DC	SN	35:40	RO	0.15	0.49			1.033			
		DC	SN	35:54	RO	0.64	0.64			1.040			
442-444			1	Peak			13.25						
OCDD				0.76-1.02						0.884-1.116			
458-460		DC	NL	0:00		1.00	0.14			0.000			
M				34:33		0.84	17.46	7.98	9.48	1.000	OCDD	AN	
		DC	SN	34:46	RO	3.00	0.30			1.007			
458-460			1	Peak			17.46						
13C12-OCDD				0.76-1.02						0.995-1.005			
470-472		DC	NL	0:00		1.00	0.14			0.000			
				34:32		0.78	2,454.20	1,074.52	1,379.68	1.000	13C12-OCDD	IS8	
470-472			1	Peak			2,454.20						

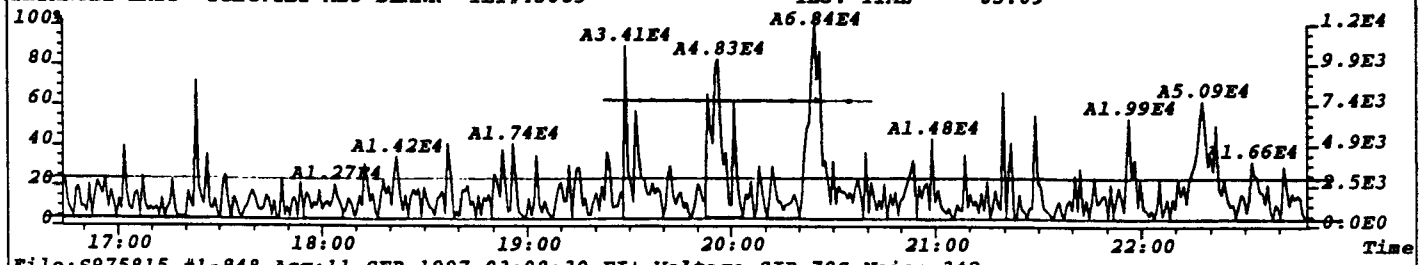
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

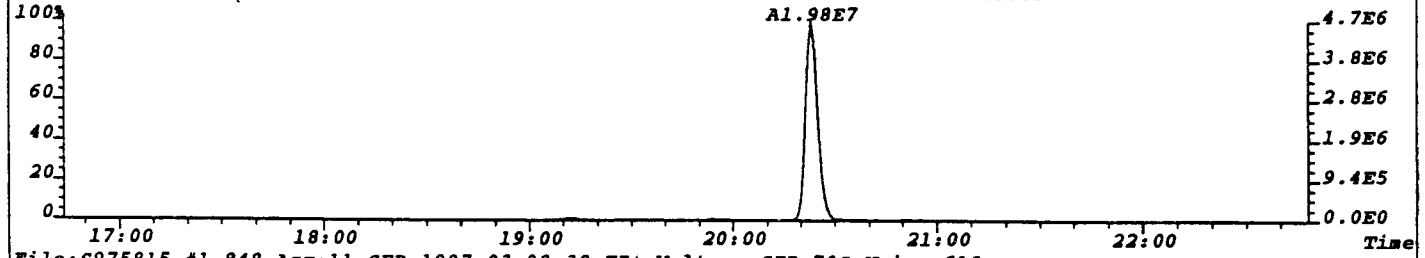
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:38
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



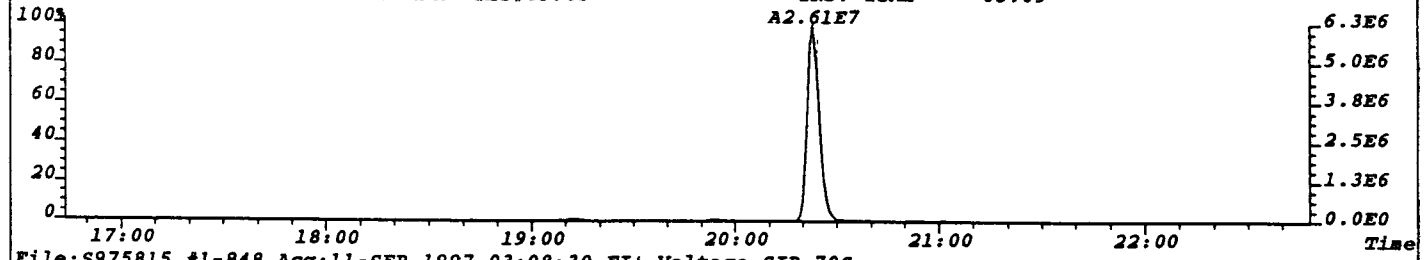
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:384
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1536.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



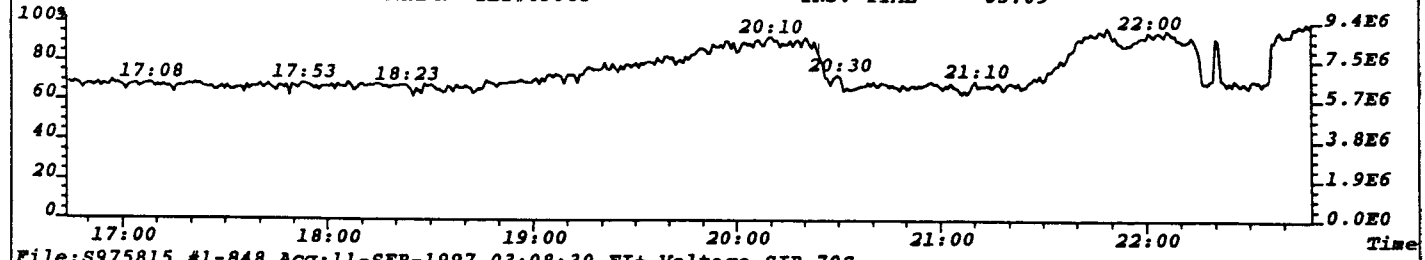
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:342
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1368.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



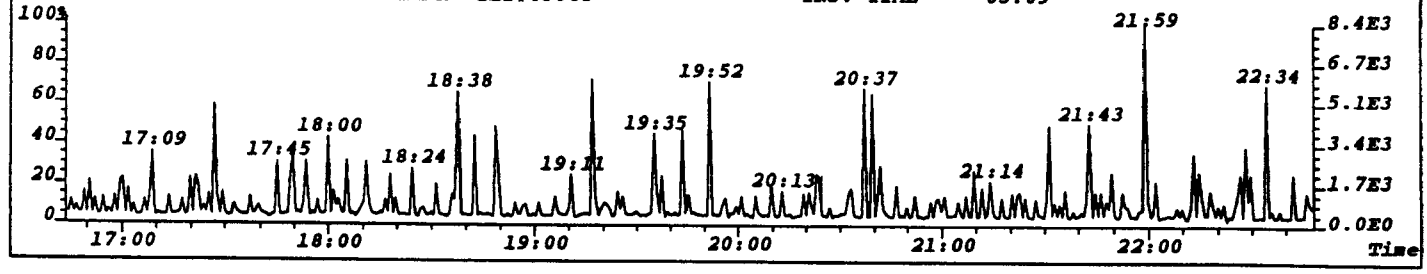
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:613
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2452.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



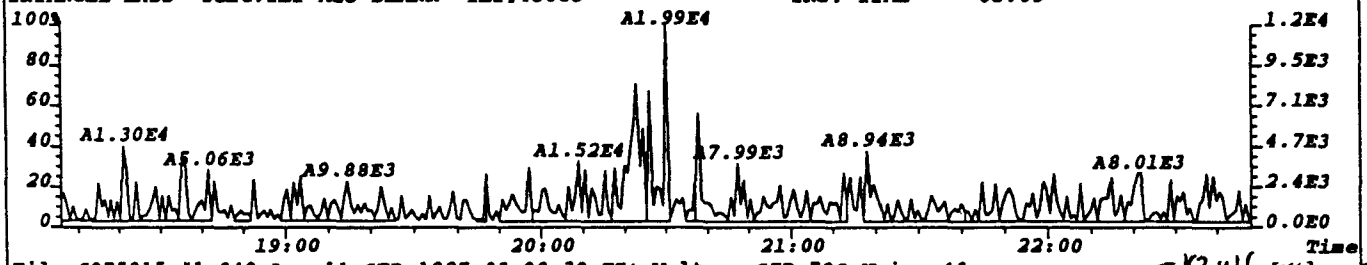
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09

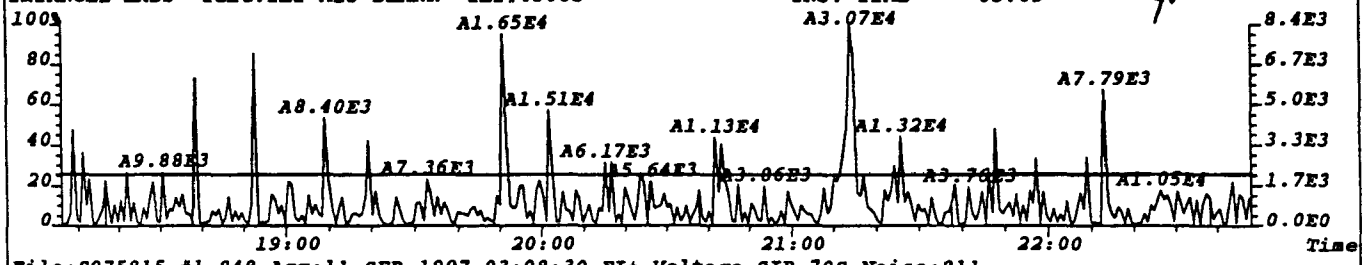


File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:206
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,824.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09

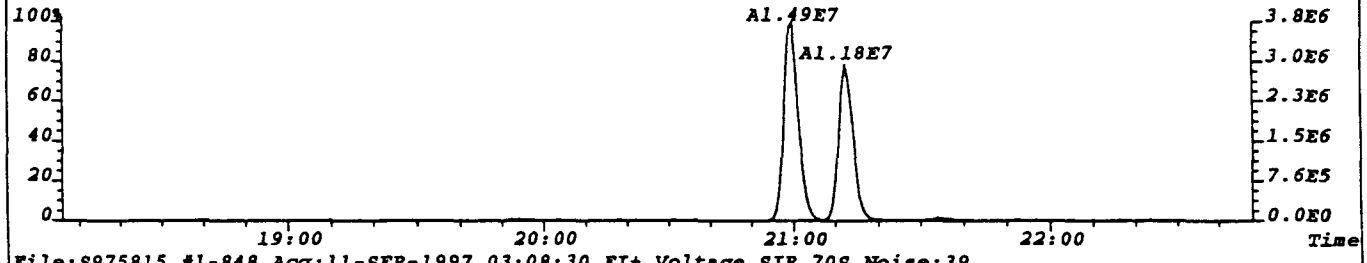


File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:40
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09

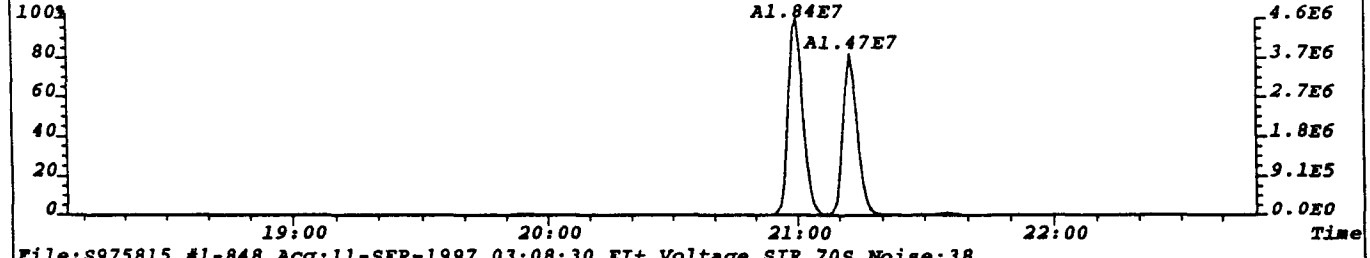
N=(.25)(7.4)(.84)=1.55
Jun 9-11-97



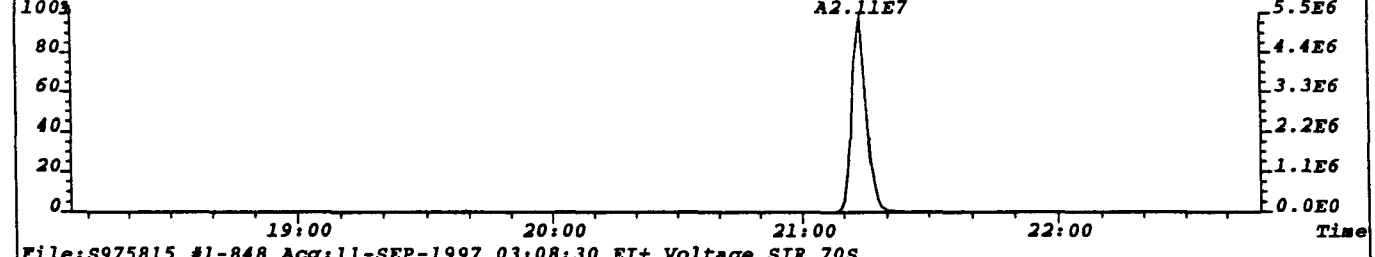
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:811
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3244.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



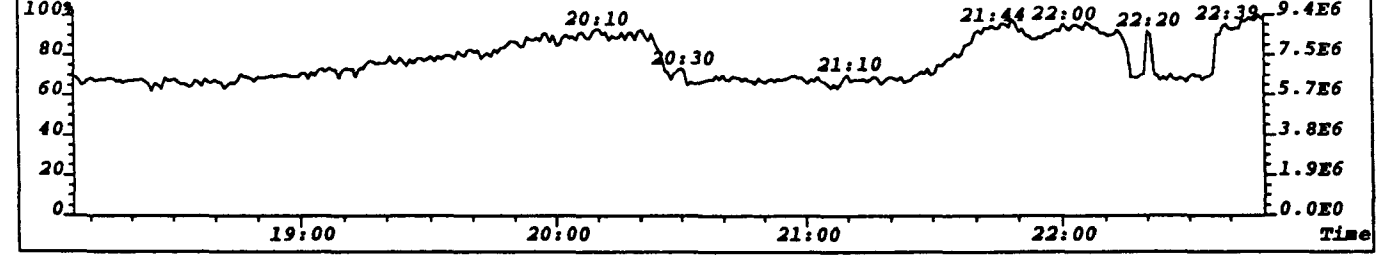
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:39
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



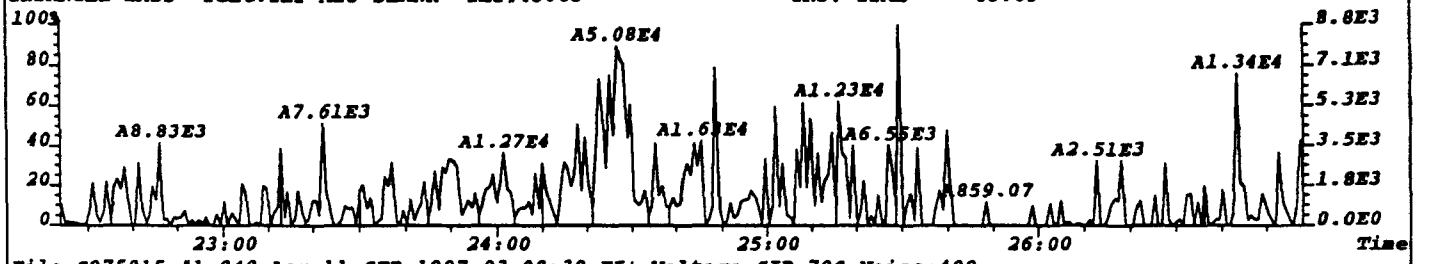
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:38
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



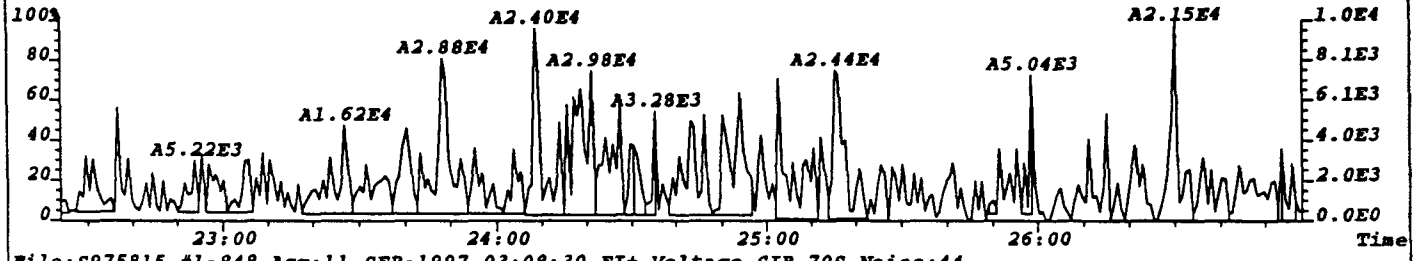
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



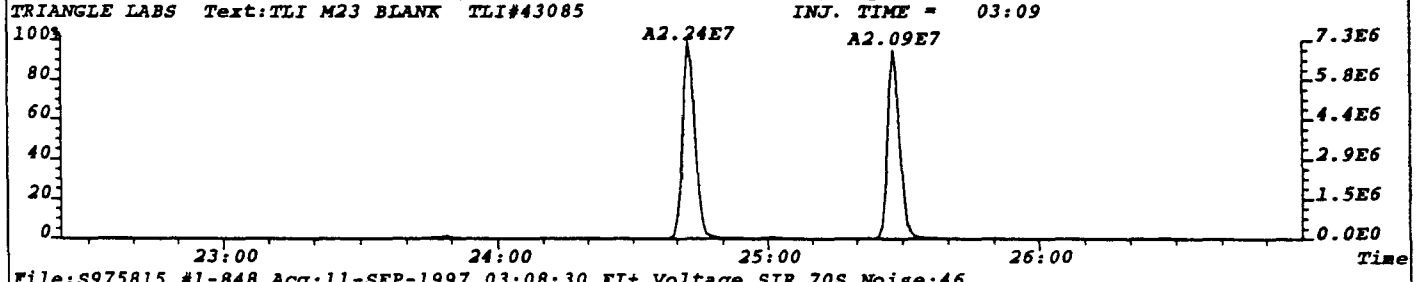
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:33
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



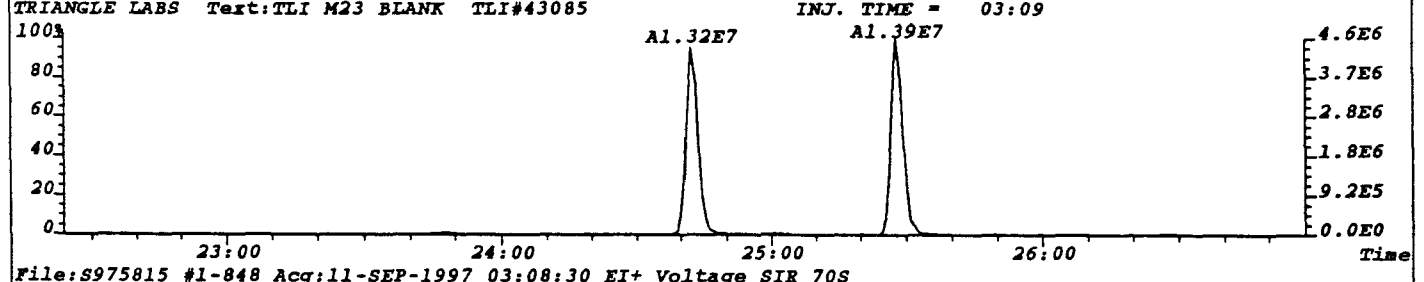
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:409
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1636.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



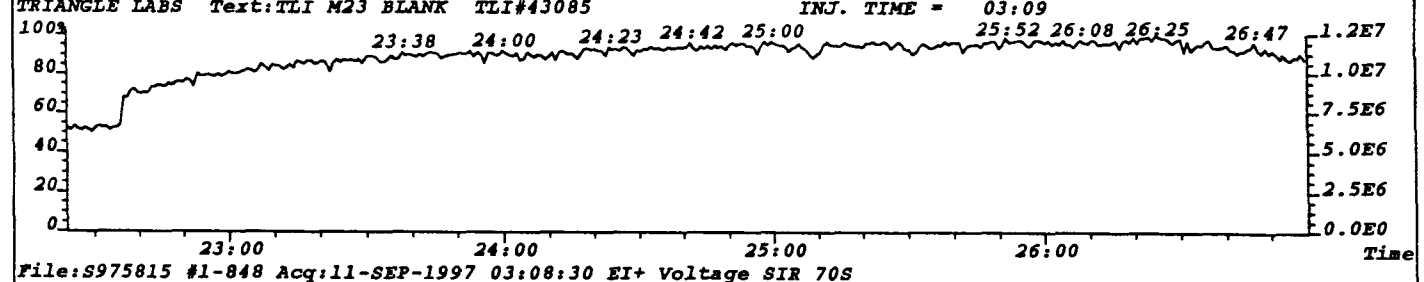
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:44
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,176.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



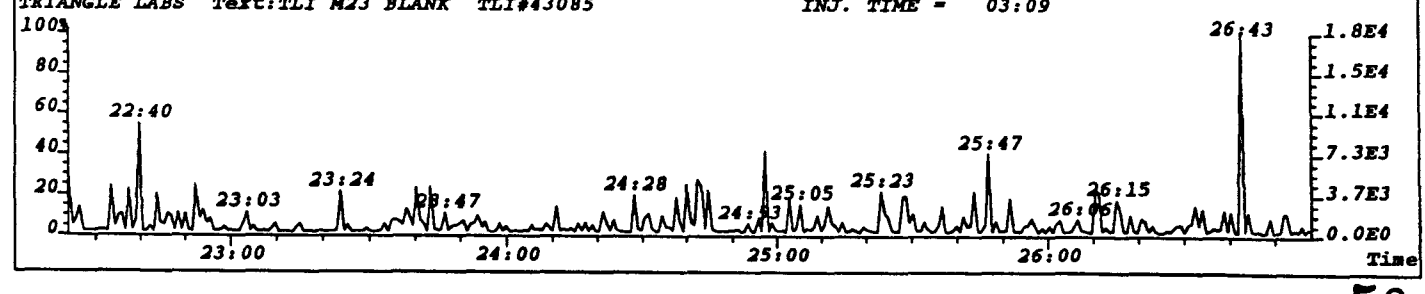
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:46
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



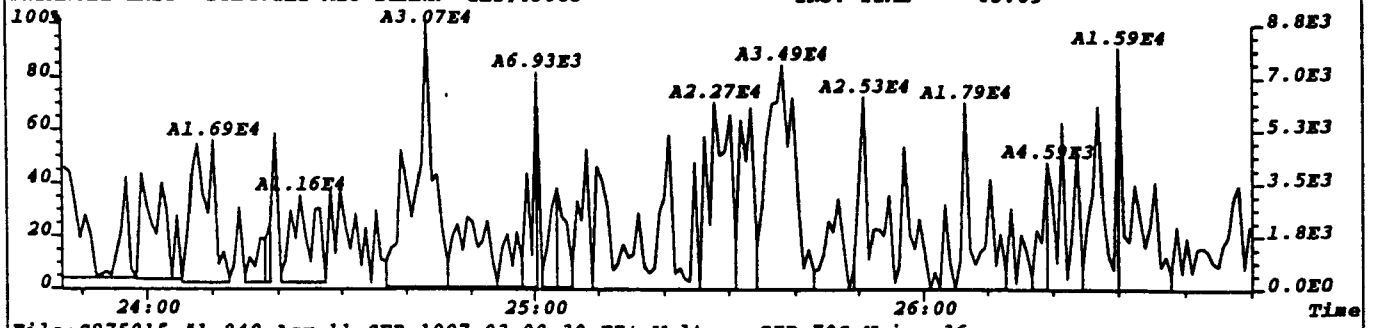
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



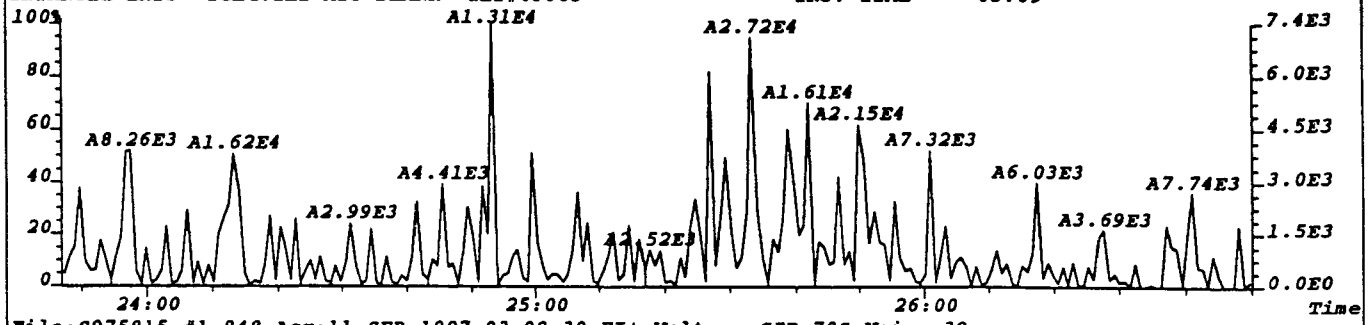
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



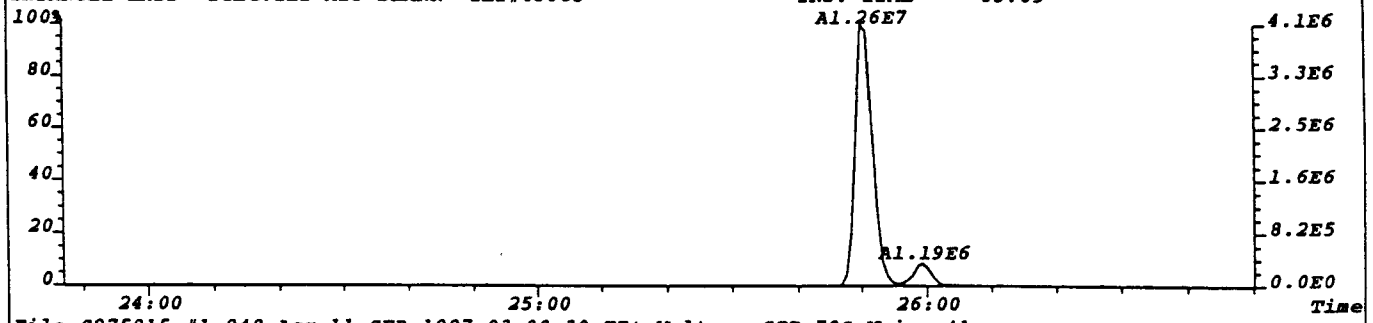
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:446
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1784.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



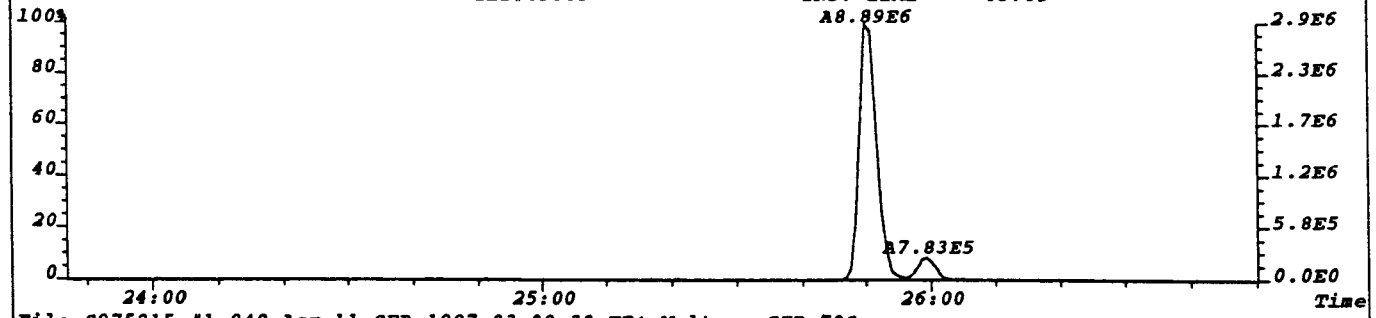
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:36
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



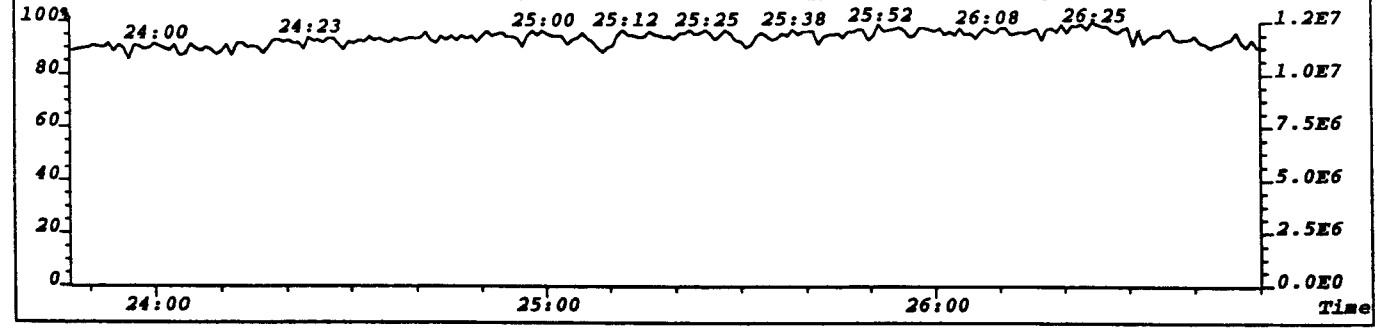
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:39
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



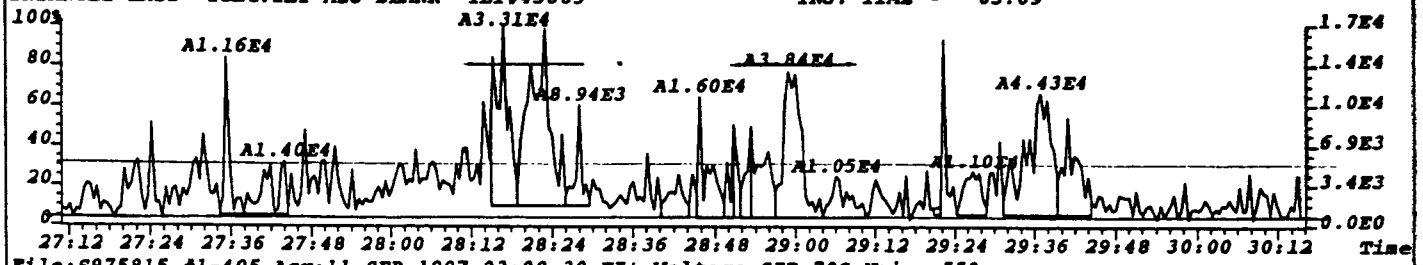
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:41
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



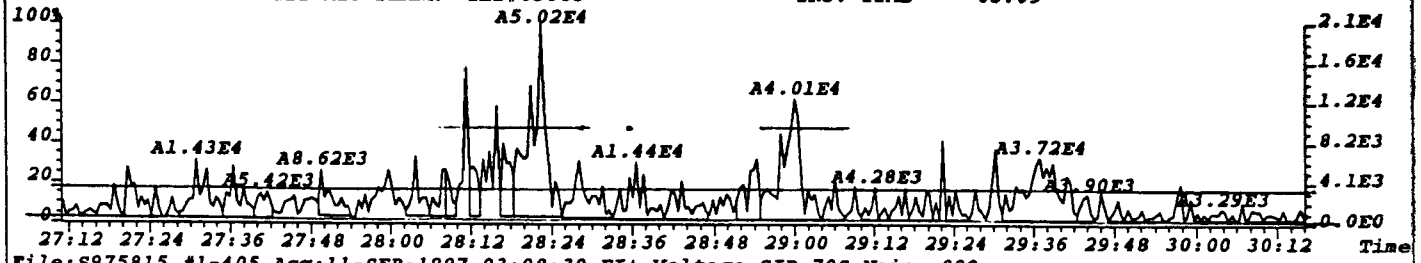
File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



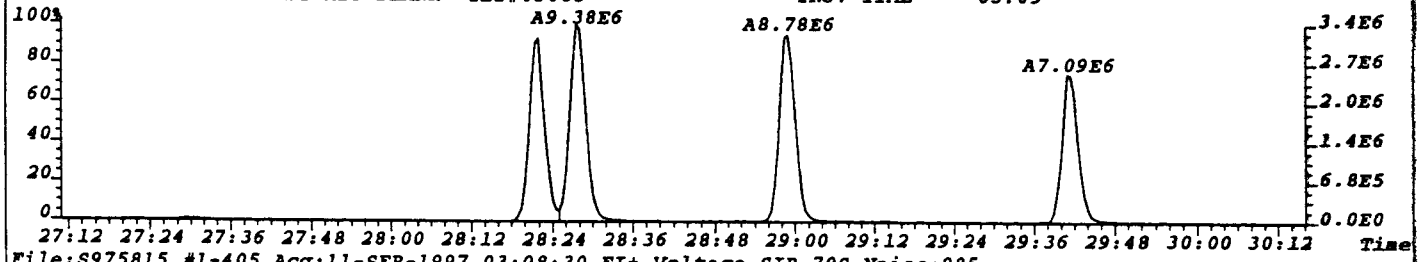
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:1048
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4192.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



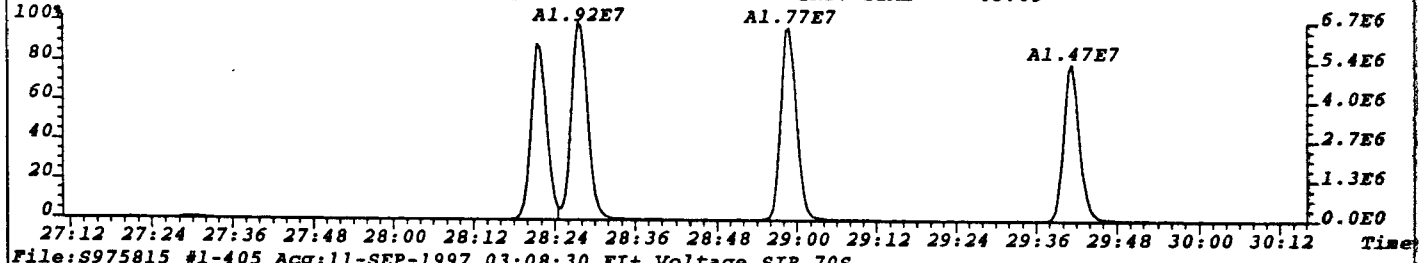
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:550
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2200.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



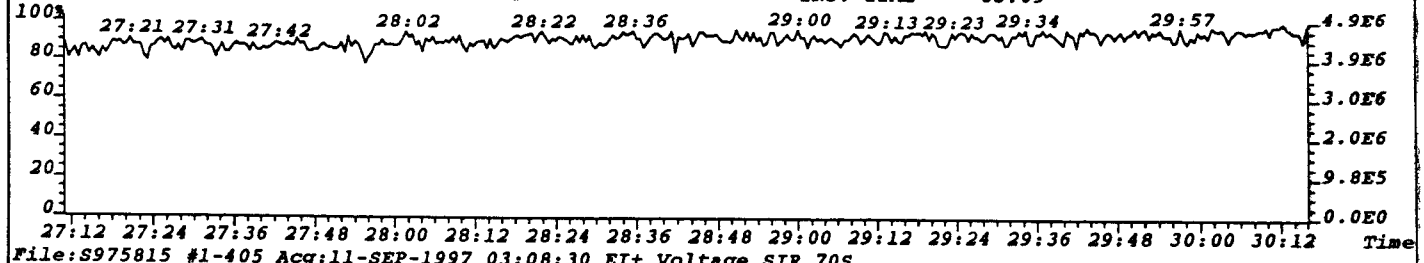
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:899
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3596.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



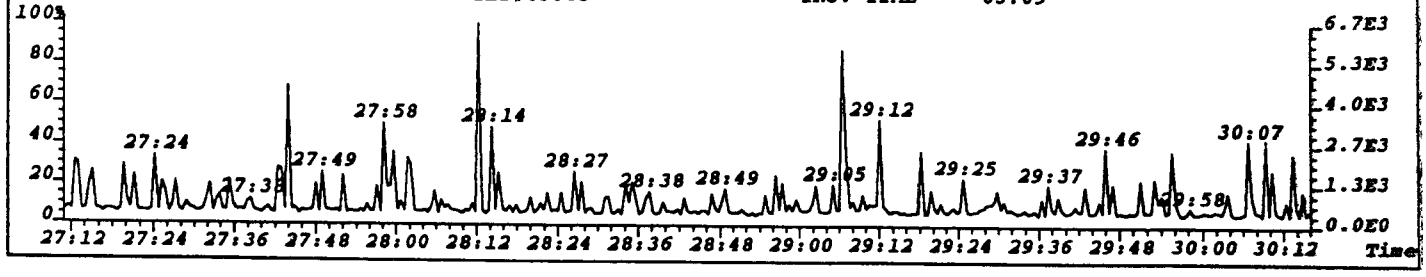
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:985
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3940.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



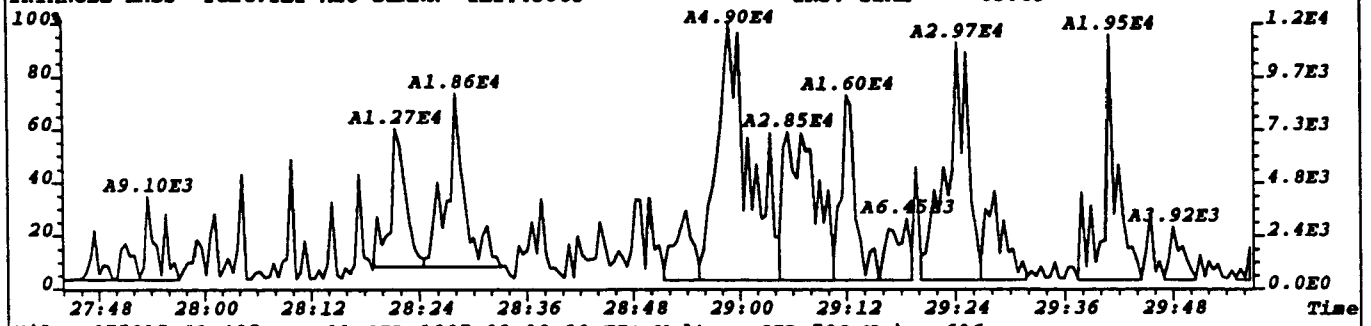
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



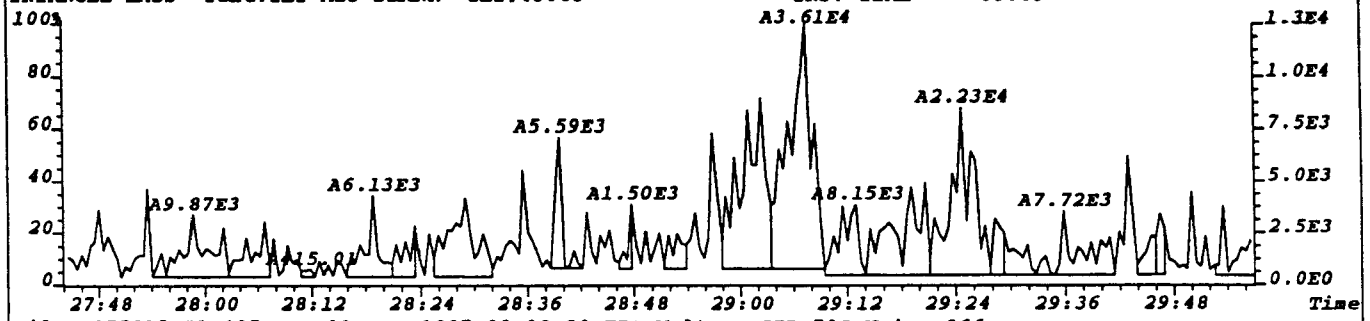
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



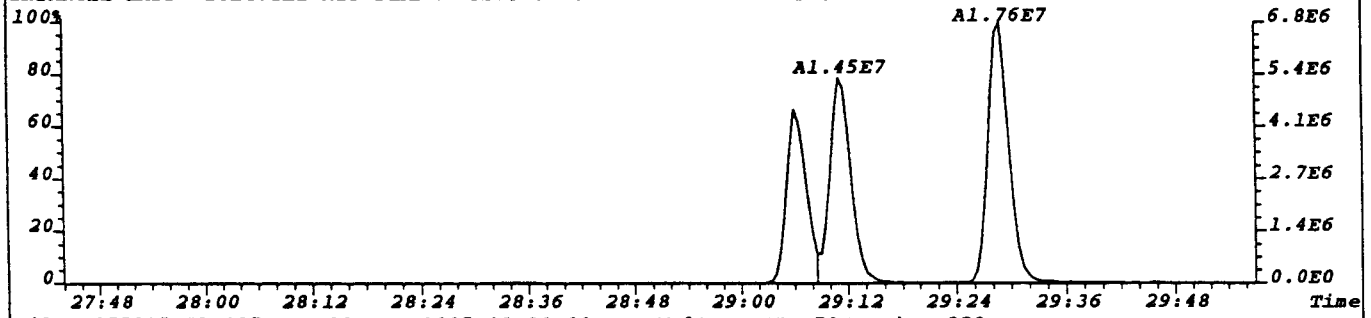
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:486
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1944.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



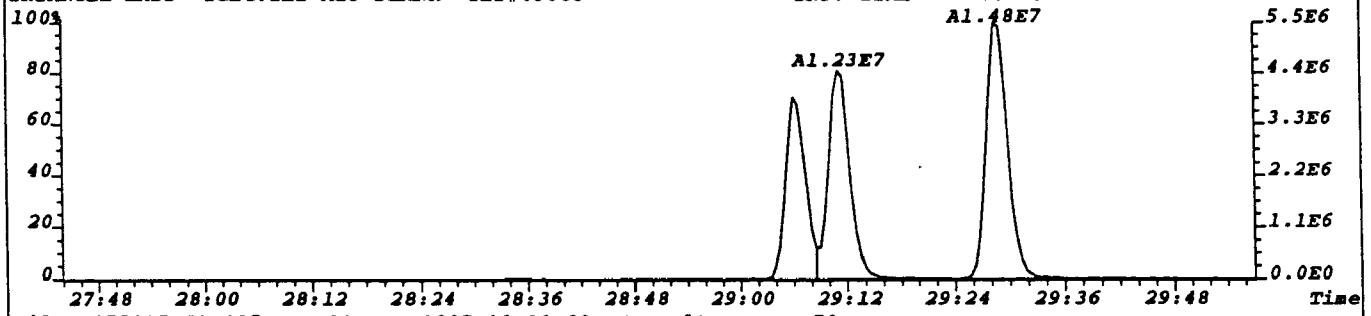
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:606
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2424.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



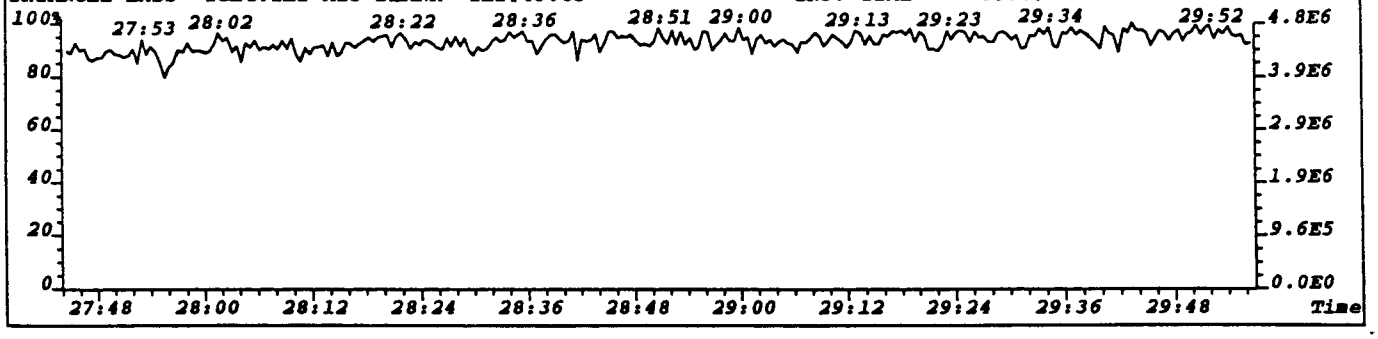
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:366
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1464.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



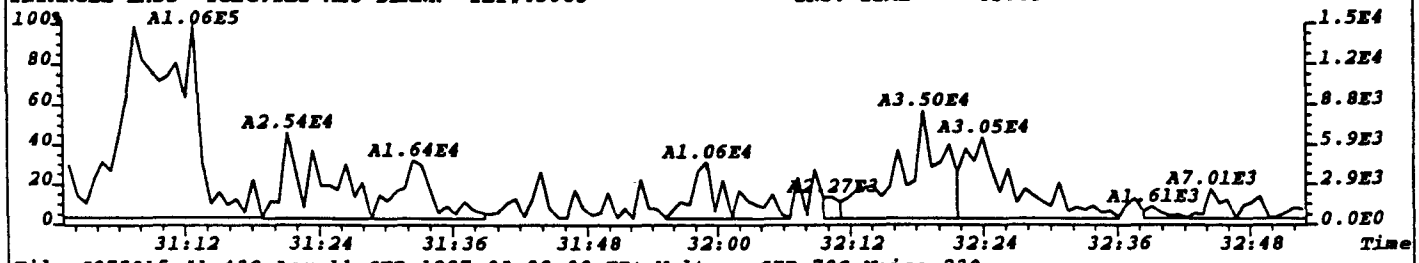
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:259
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1036.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



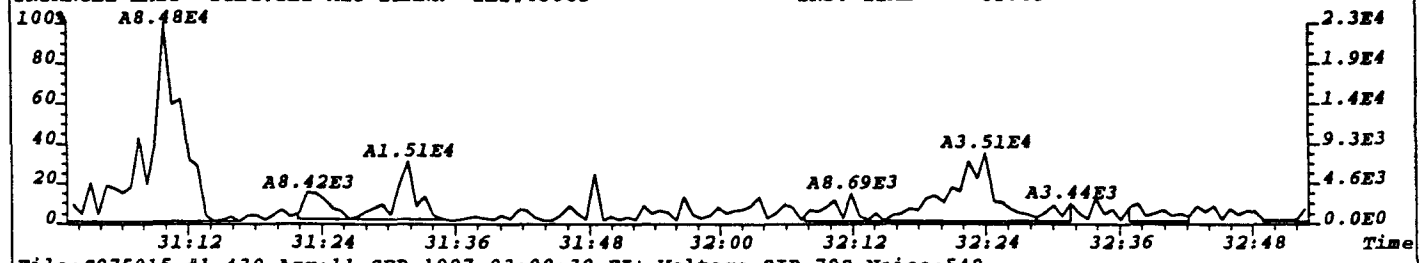
File:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



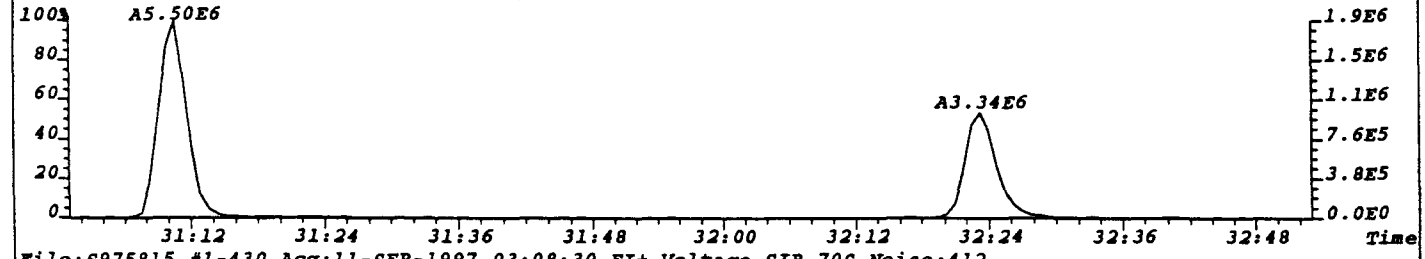
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:376
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1504.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



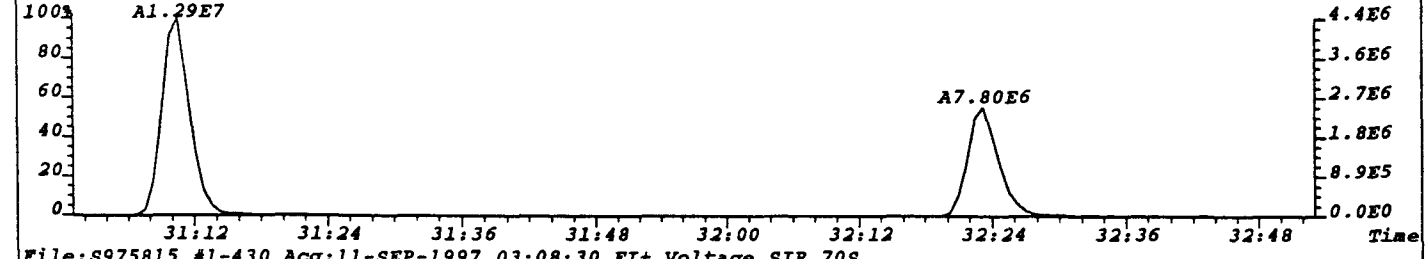
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:230
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,920.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



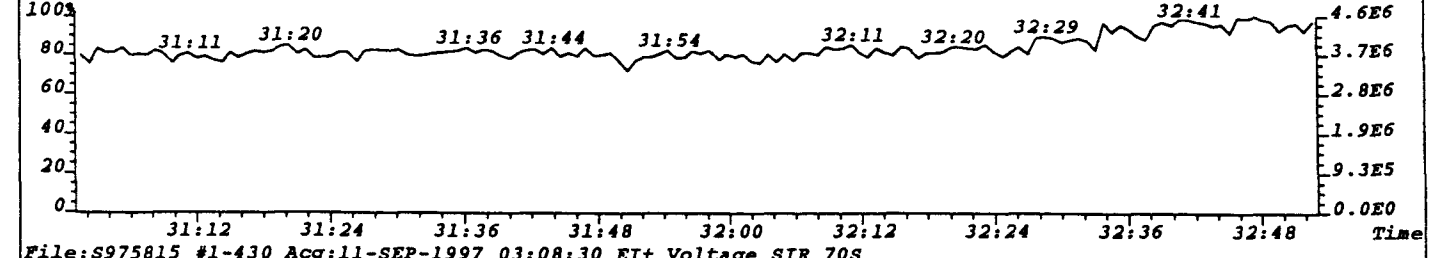
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:548
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2192.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



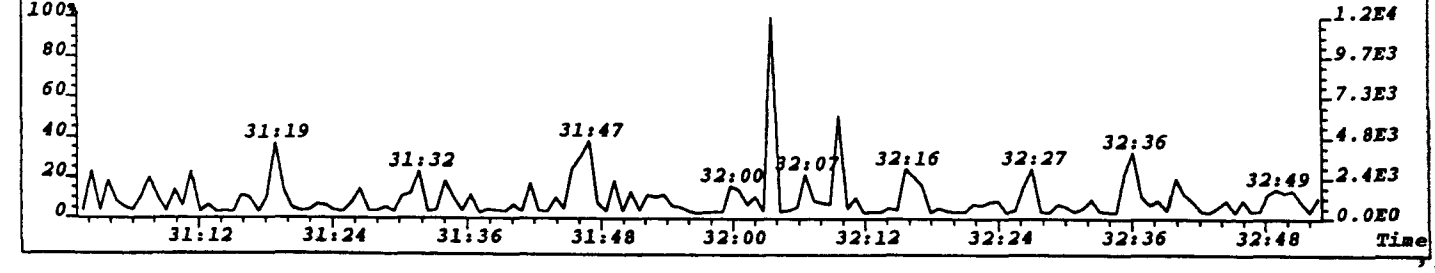
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:412
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1648.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



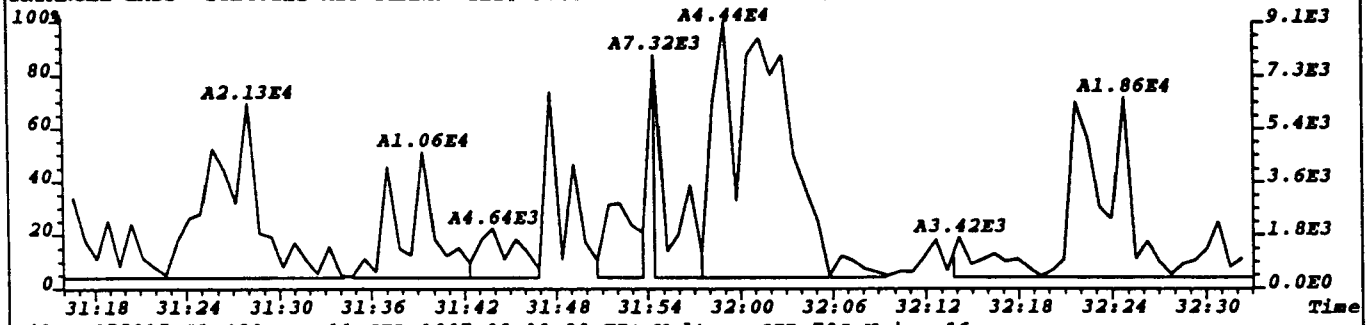
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



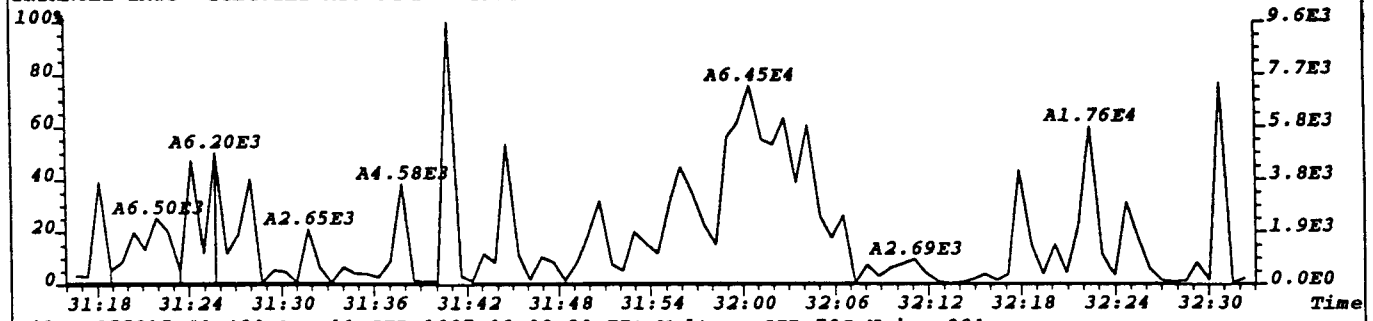
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



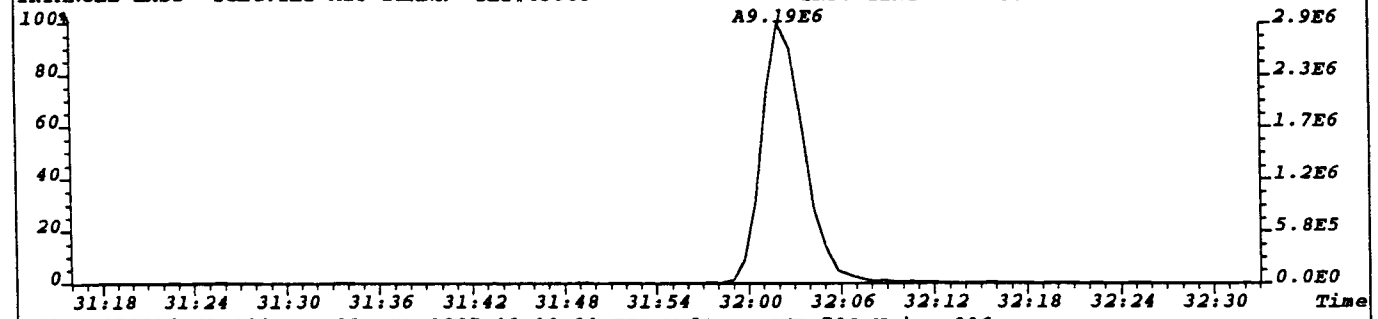
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:248
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,992.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



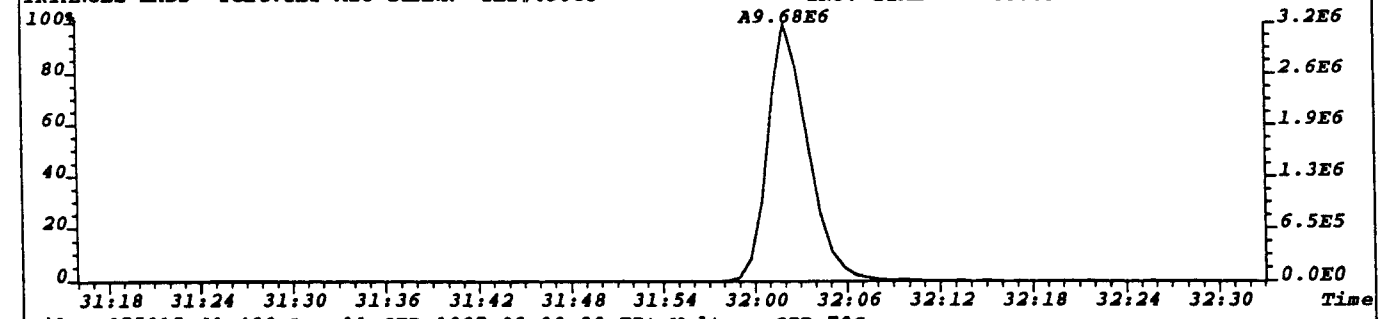
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:36
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



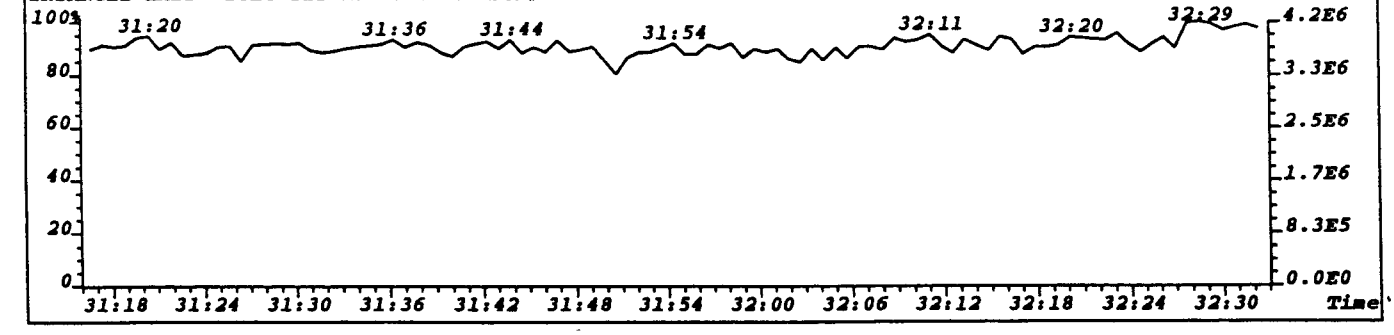
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:991
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3964.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



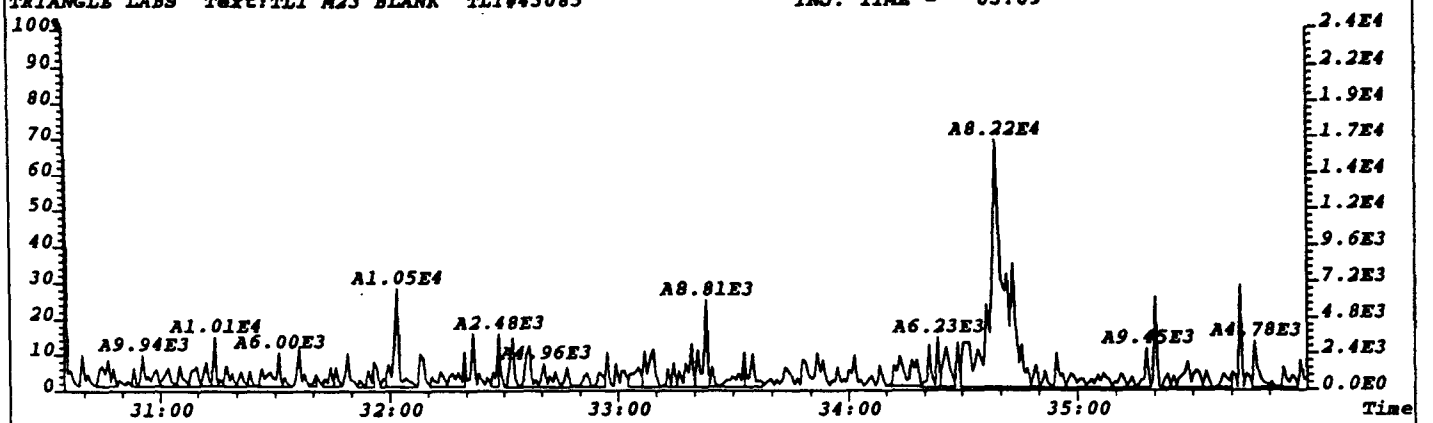
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:896
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3584.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



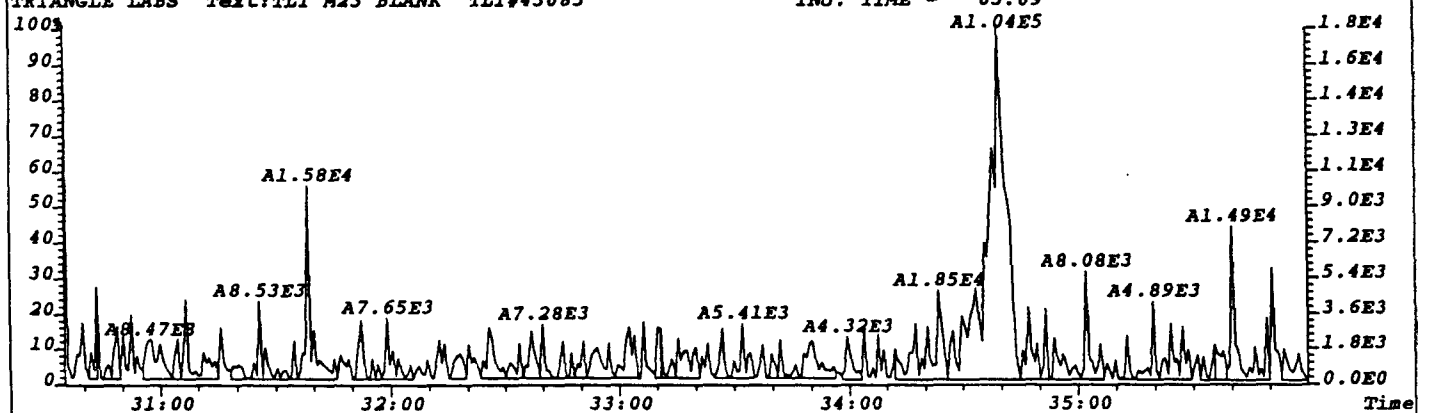
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



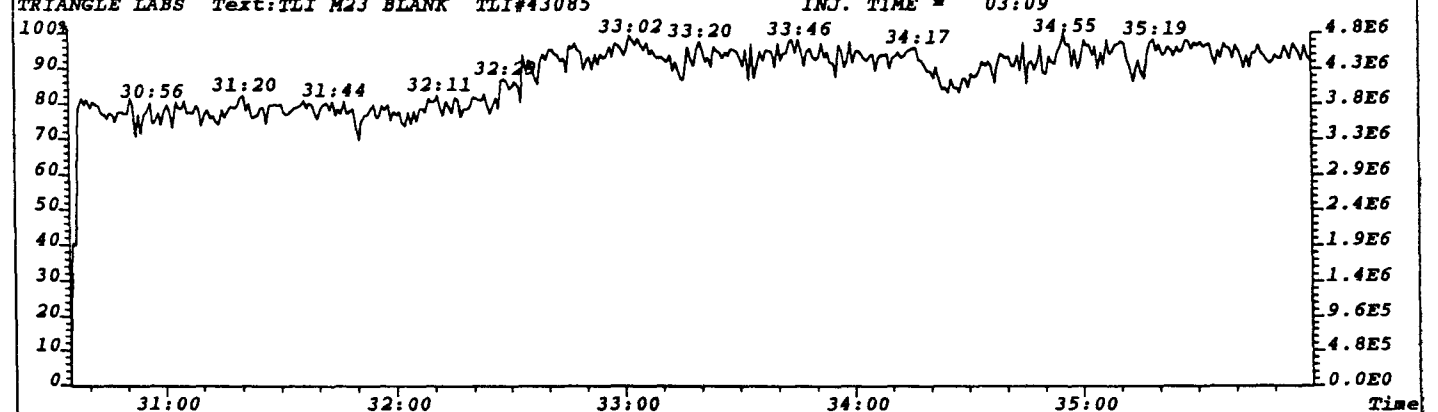
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:160
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,640.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



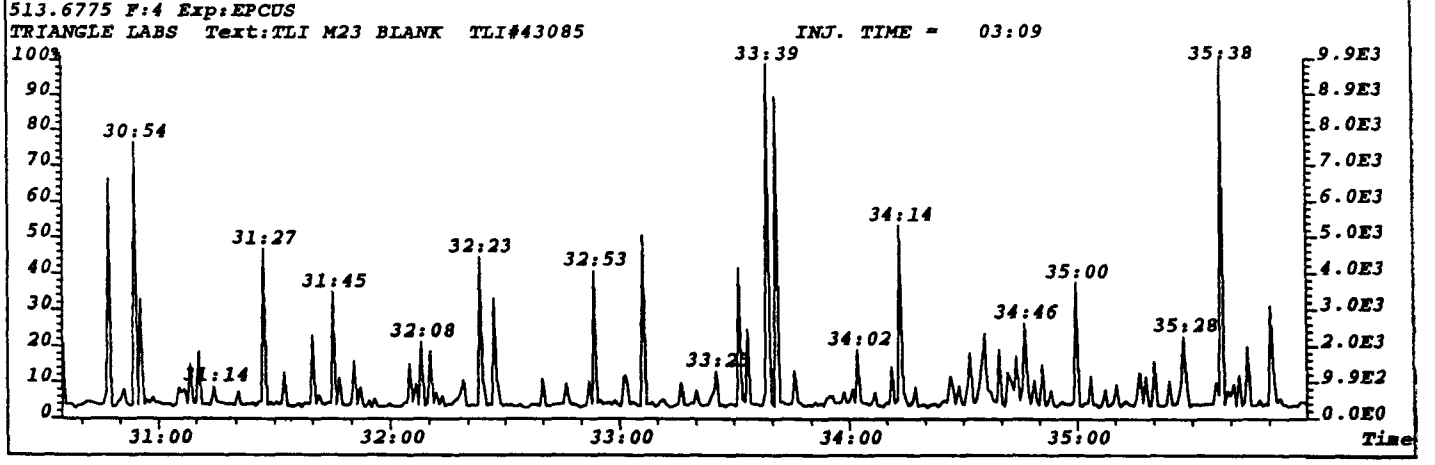
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:178
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,712.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



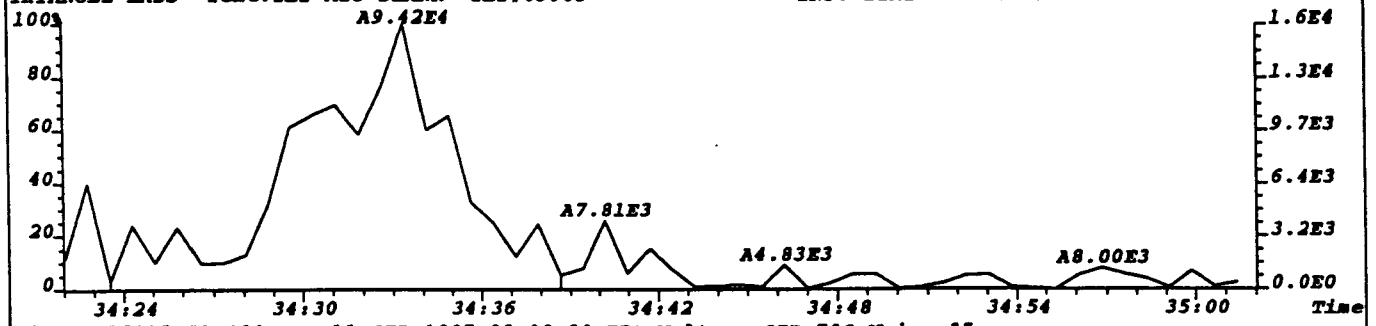
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



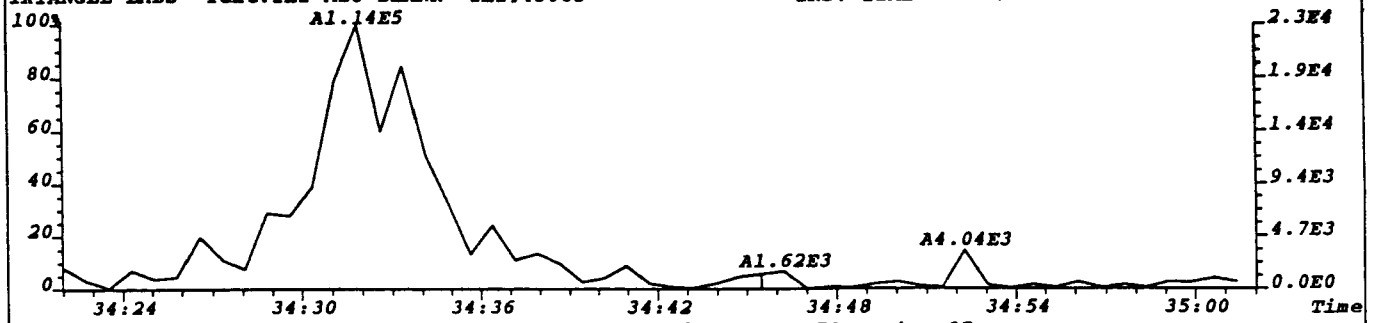
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



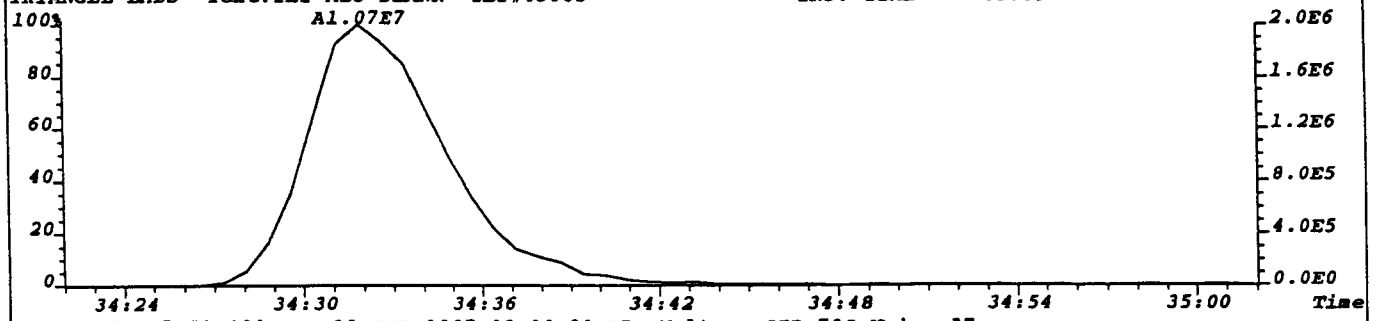
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:36
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



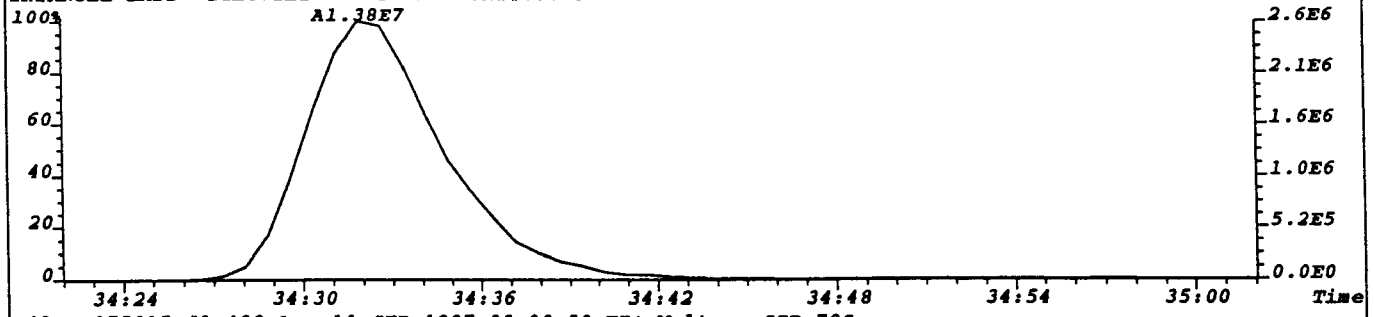
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:35
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



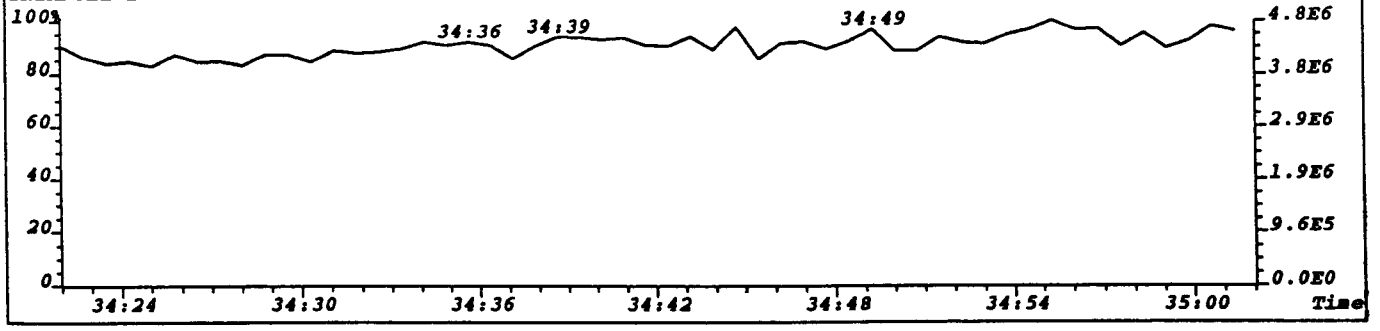
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:37
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09

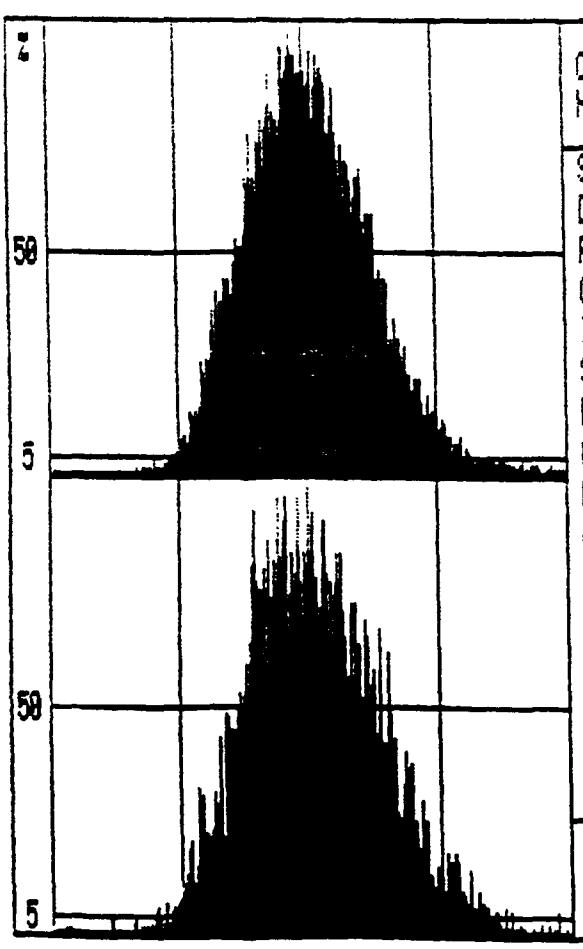


File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S Noise:37
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09



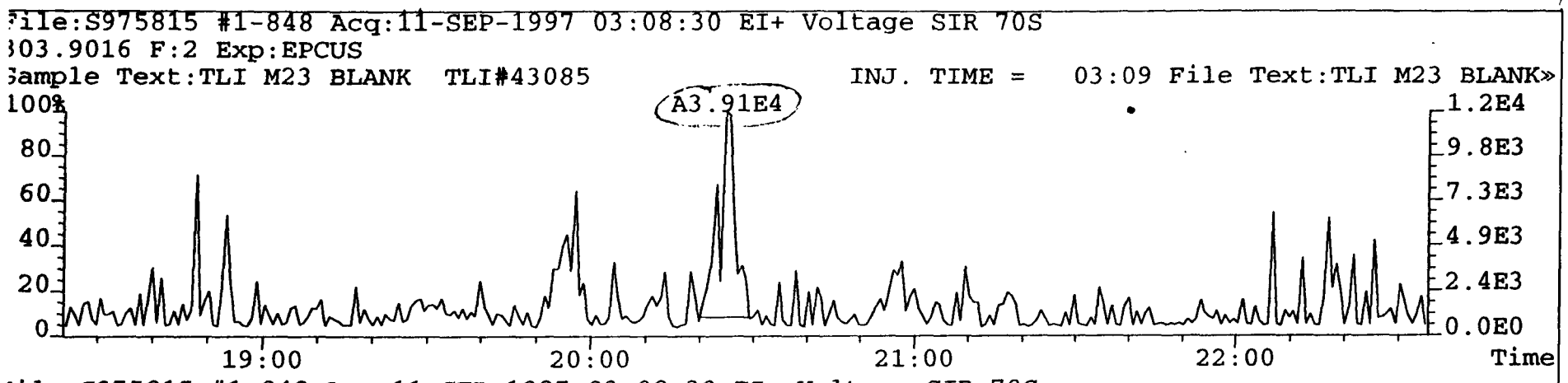


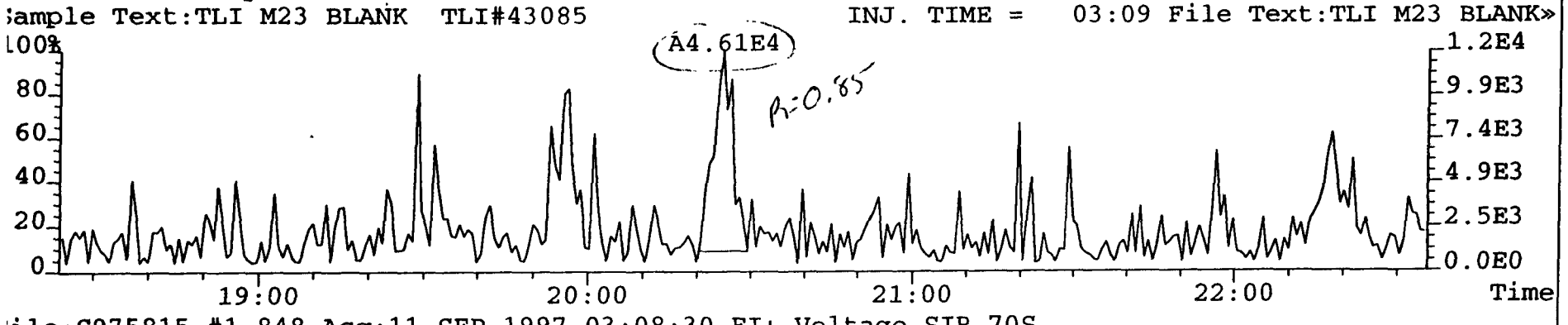
Channel I 330.3792 Peak top
Height 3.25 volts Span 200 ppm

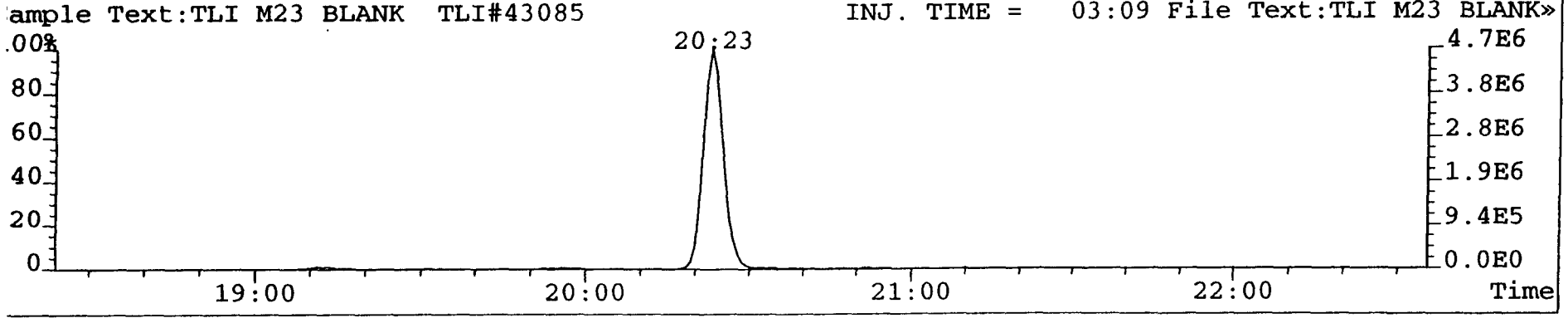
System file name	EPCUS2
Data file name	A:S911971
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

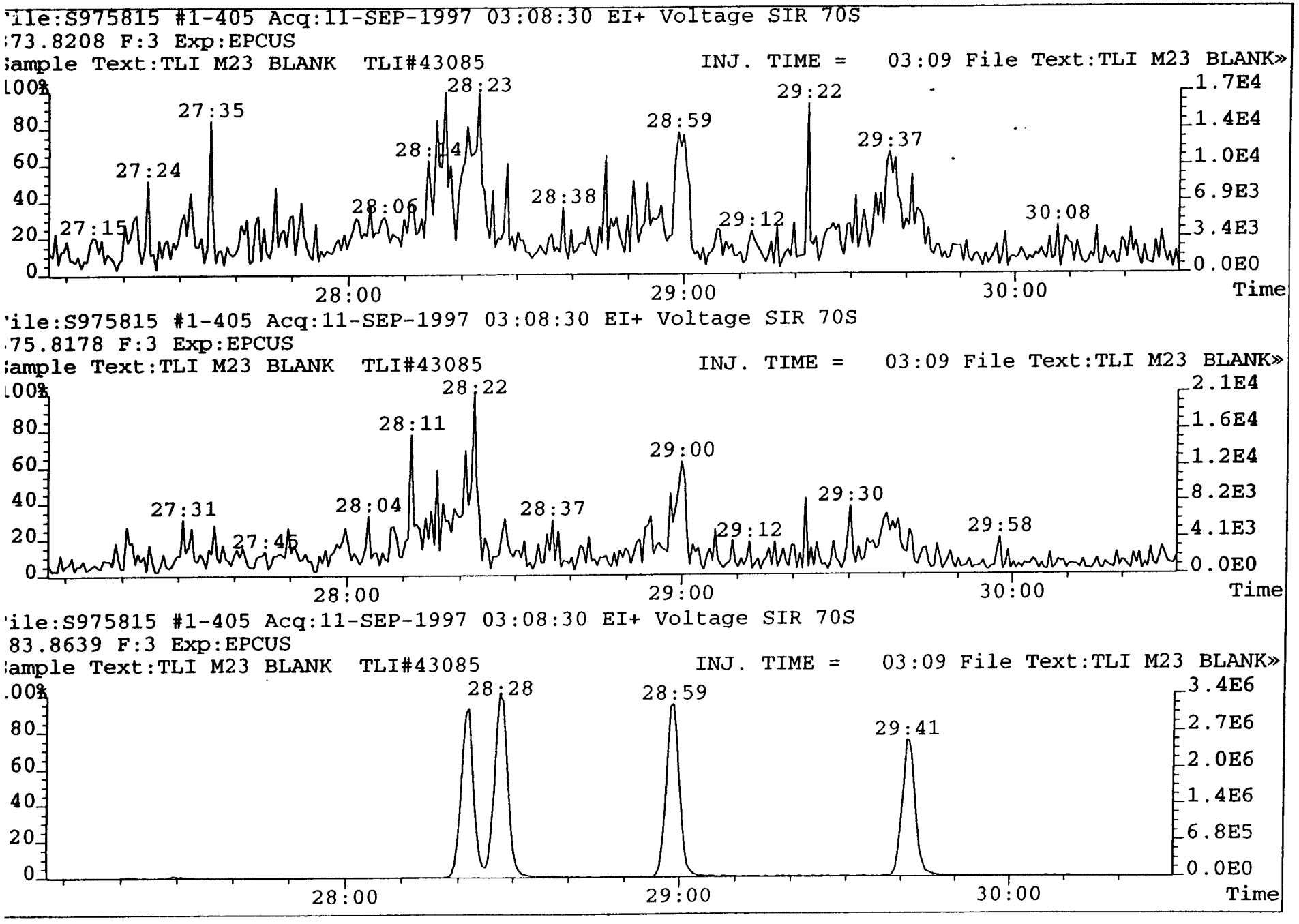
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .72 volts Span 200 ppm

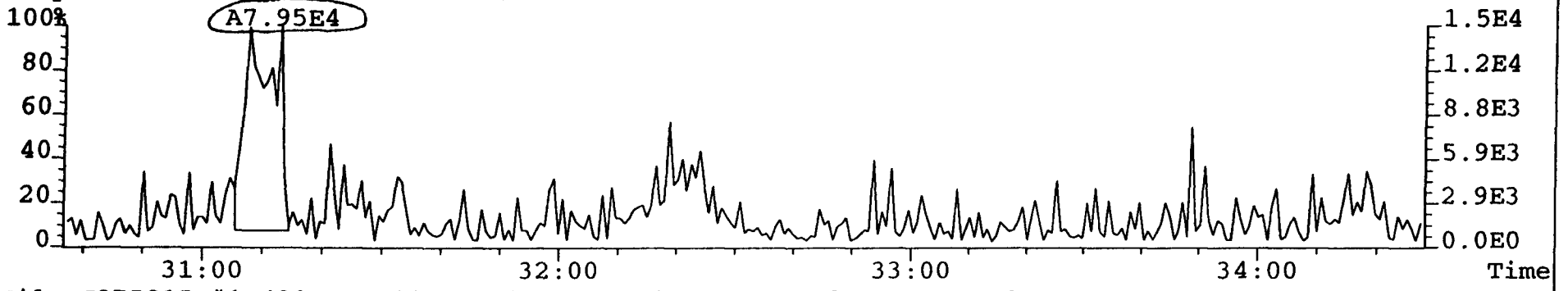

File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
A3.91E4
100%
80
60
40
20
0
1.2E4
9.8E3
7.3E3
4.9E3
2.4E3
0.0E0
19:00
20:00
21:00
22:00
Time


File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
A4.61E4
R=0.85
100%
80
60
40
20
0
1.2E4
9.9E3
7.4E3
4.9E3
2.5E3
0.0E0
19:00
20:00
21:00
22:00
Time

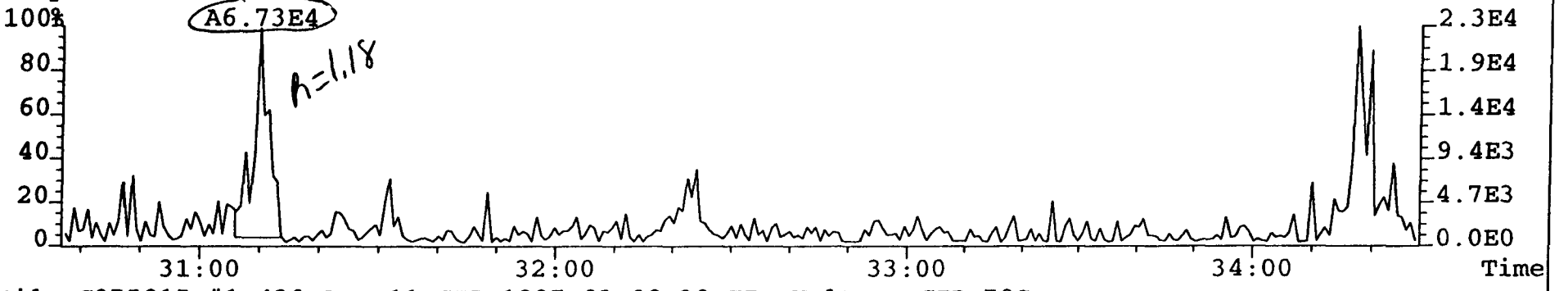

File:S975815 #1-848 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
20:23
100%
80
60
40
20
0
4.7E6
3.8E6
2.8E6
1.9E6
9.4E5
0.0E0
19:00
20:00
21:00
22:00
Time


'ile:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
73.8208 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
100%
80
60
40
20
0
27:15
27:24
27:35
28:06
28:14
28:23
28:38
28:59
29:12
29:22
29:37
30:08
1.7E4
1.4E4
1.0E4
6.9E3
3.4E3
0.0E0
28:00
29:00
30:00
Time
'ile:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
75.8178 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
100%
80
60
40
20
0
27:31
27:45
28:04
28:11
28:22
28:37
29:00
29:12
29:30
29:58
2.1E4
1.6E4
1.2E4
8.2E3
4.1E3
0.0E0
28:00
29:00
30:00
Time
'ile:S975815 #1-405 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
83.8639 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
.00%
80
60
40
20
0
28:28
28:59
29:41
3.4E6
2.7E6
2.0E6
1.4E6
6.8E5
0.0E0
28:00
29:00
30:00
Time

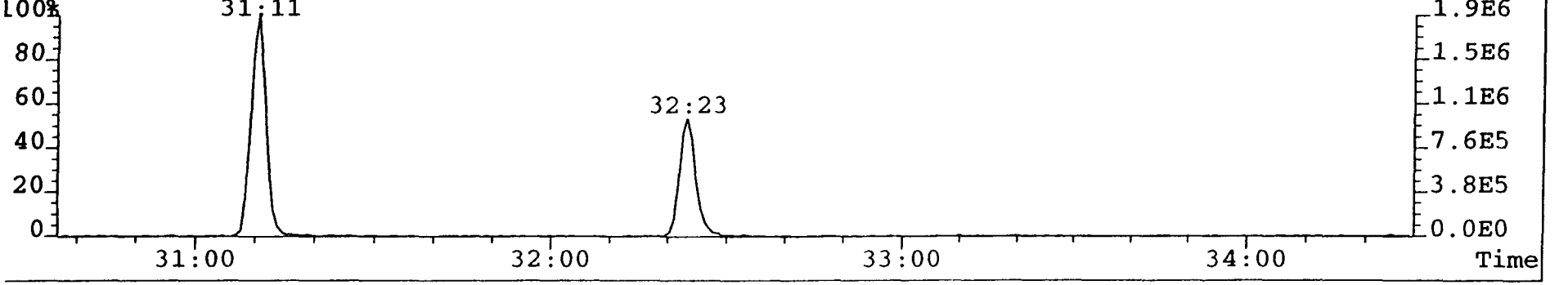
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



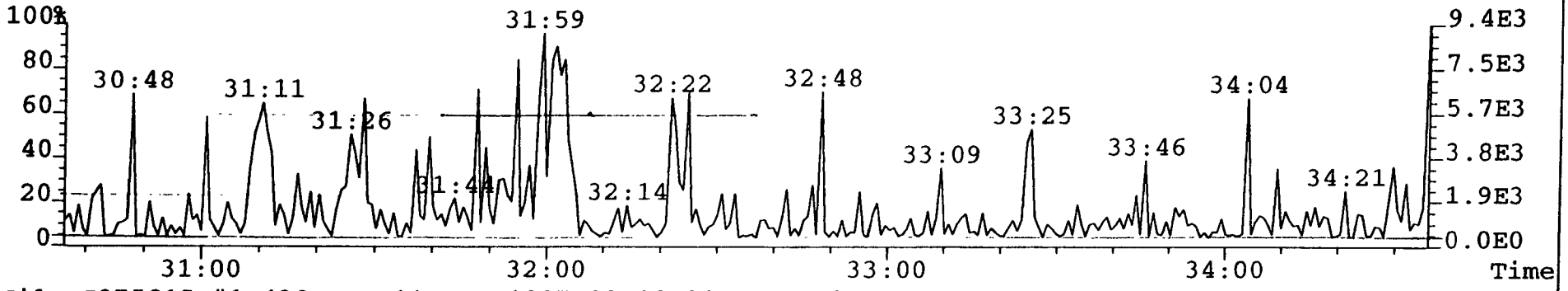
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



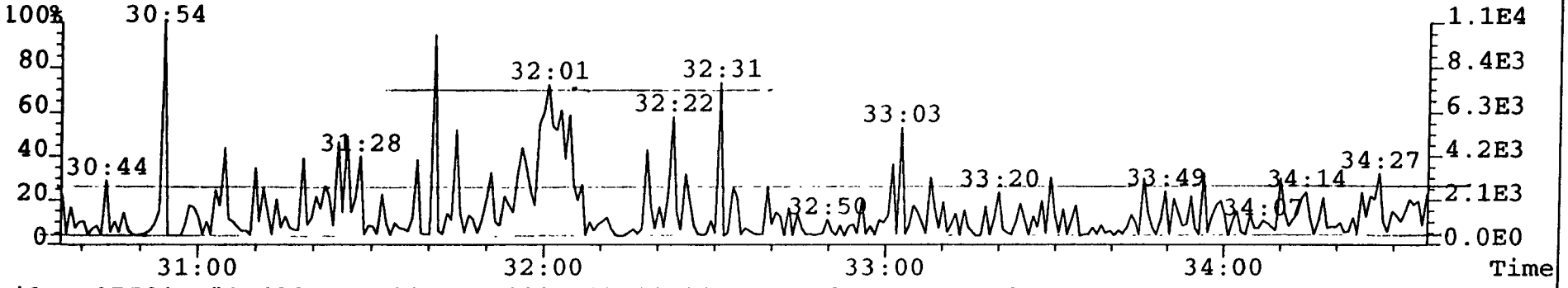
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



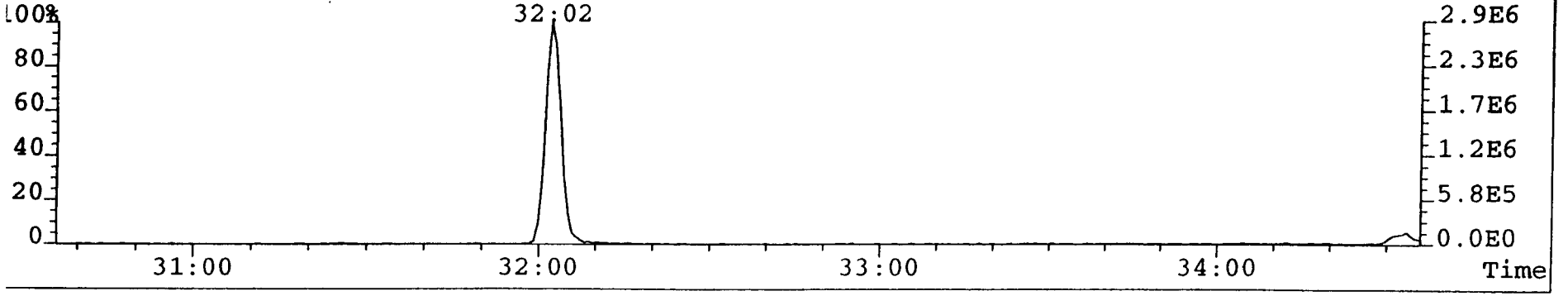
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



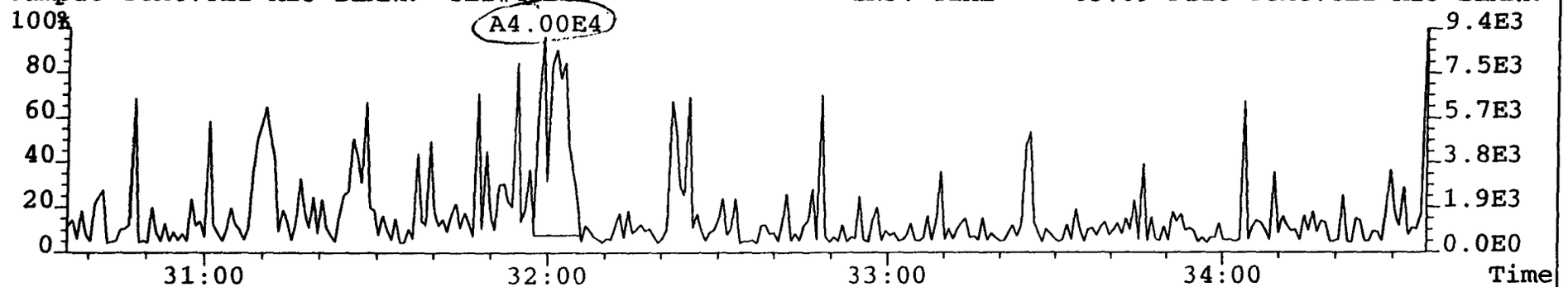
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



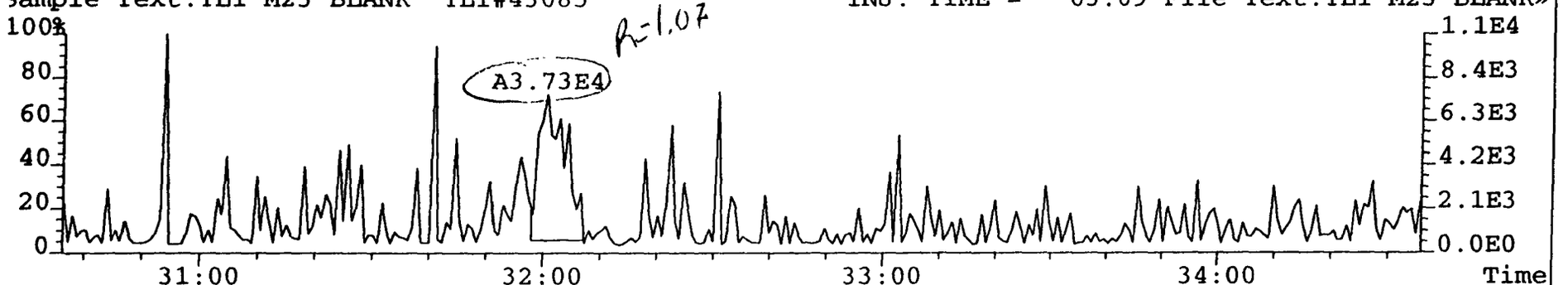
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



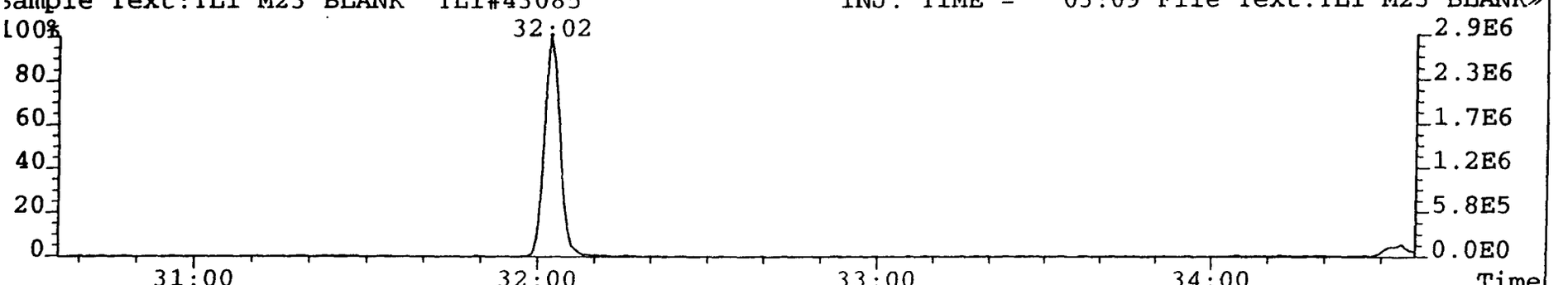
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
123.7766 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



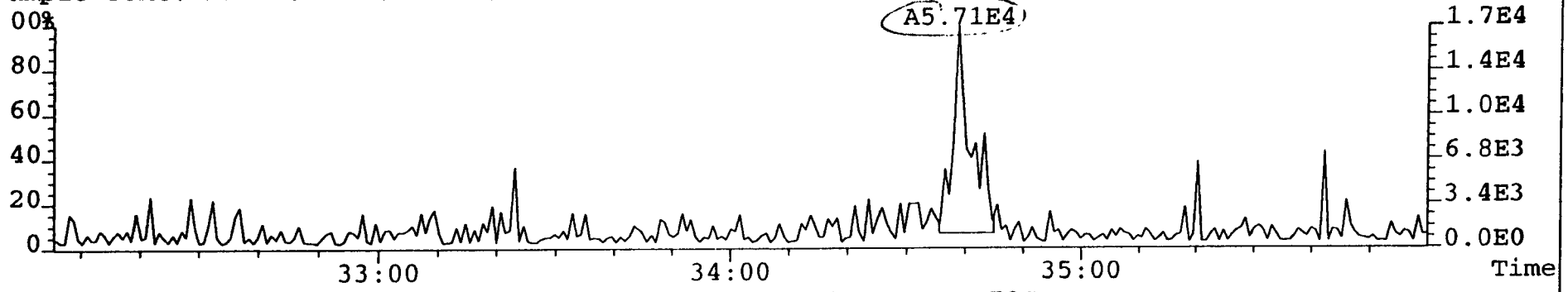
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
125.7737 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



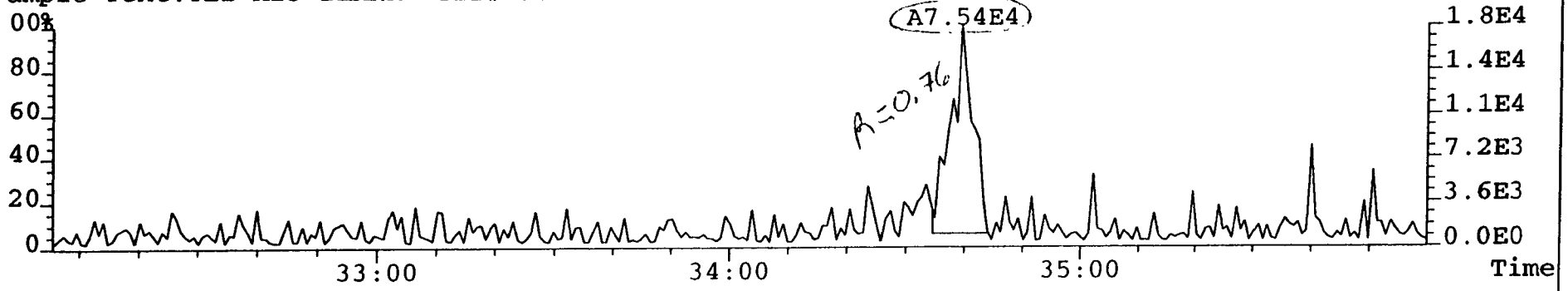
File:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
135.8169 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»



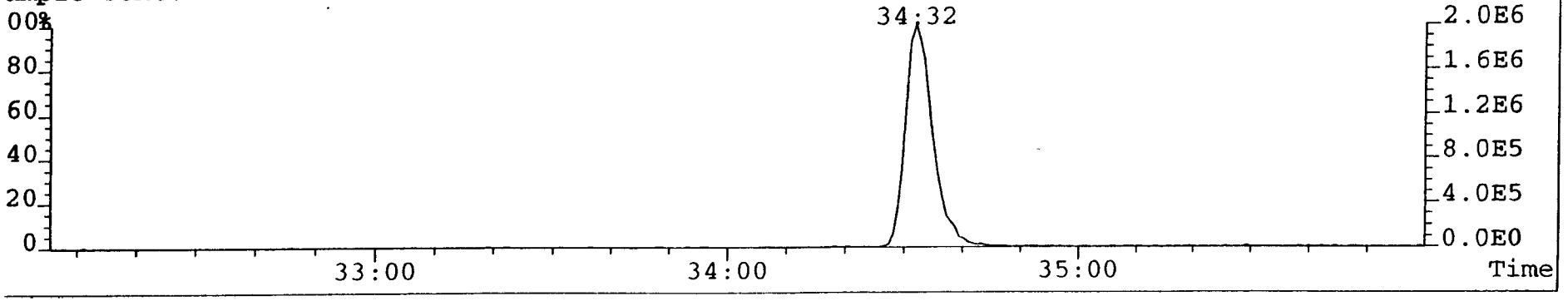
ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
41.7428 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»

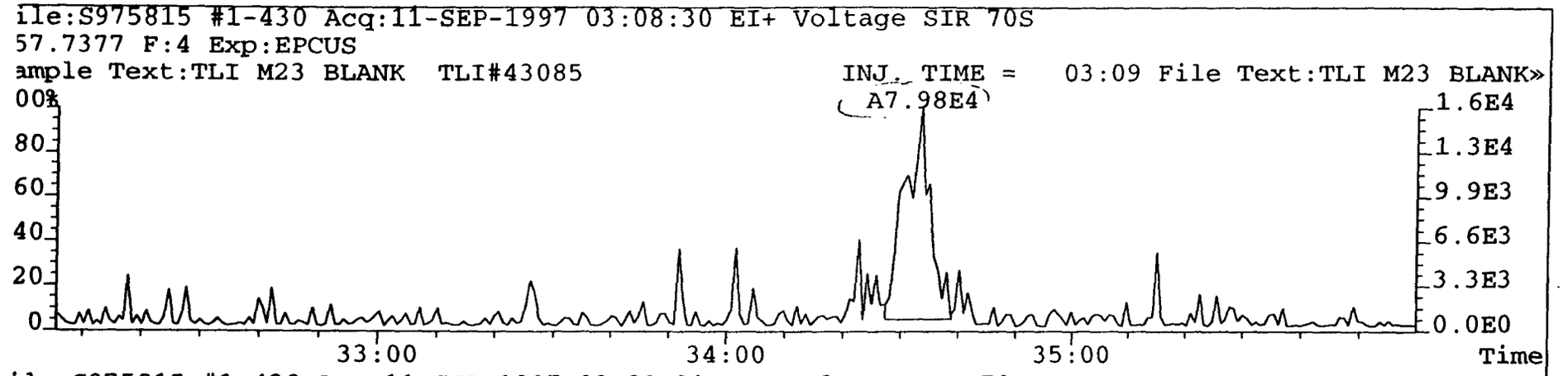


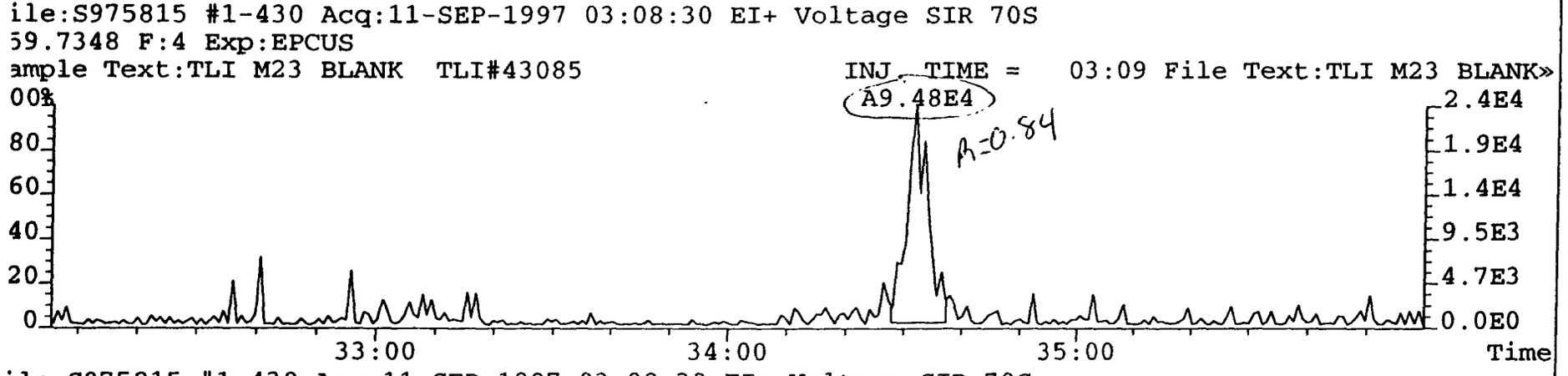
ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
43.7399 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»

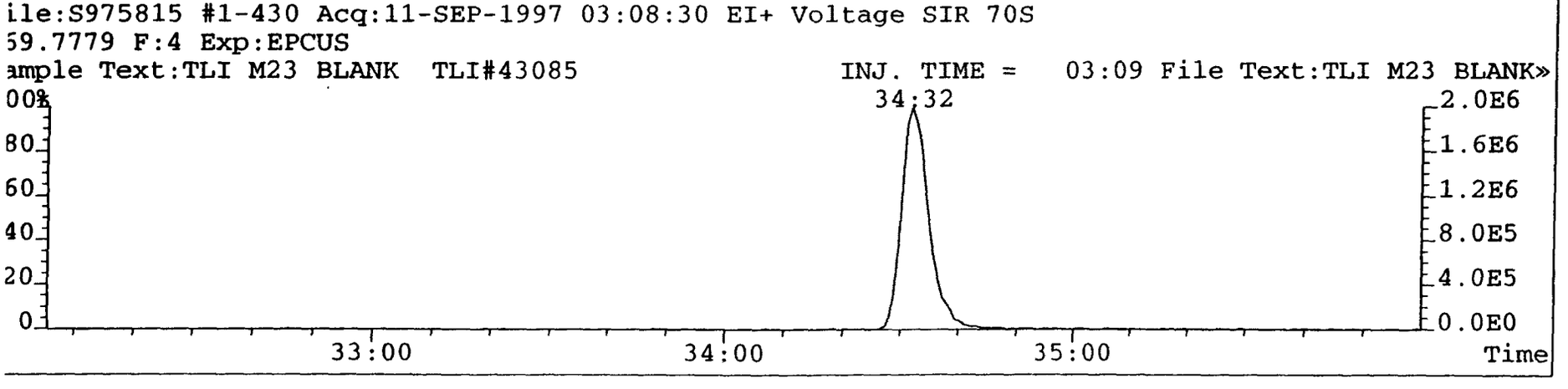


ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
69.7779 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085 INJ. TIME = 03:09 File Text:TLI M23 BLANK»




ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
57.7377 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
A7.98E4
00%
80
60
40
20
0
1.6E4
1.3E4
9.9E3
6.6E3
3.3E3
0.0E0
33:00
34:00
35:00
Time


ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
59.7348 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
A9.48E4
A=0.84
00%
80
60
40
20
0
2.4E4
1.9E4
1.4E4
9.5E3
4.7E3
0.0E0
33:00
34:00
35:00
Time


ile:S975815 #1-430 Acq:11-SEP-1997 03:08:30 EI+ Voltage SIR 70S
59.7779 F:4 Exp:EPCUS
ample Text:TLI M23 BLANK TLI#43085
INJ. TIME = 03:09 File Text:TLI M23 BLANK»
34:32
00%
80
60
40
20
0
2.0E6
1.6E6
1.2E6
8.0E5
4.0E5
0.0E0
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: **43085** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **TLI M23 Blank** Analysis File: **P973852**

Client Project:	S413-004				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPC2NF04
TLI ID:	TLI Blank	Date Extracted:	09/04/97	ICal:	PF22206
		Date Analyzed:	09/12/97	ConCal:	P973843
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P973852	% Lipid:	n/a
GC Column:	DB-225	Analyst:	ML	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	ND	0.03				—

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.7	67.4	40%-130%	0.78	20:39	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	19:41	—

Data Reviewer: Shu-Lin 09/18/97

C2NF_PSR v2.00, LARS 6.10.04

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Printed: 15:52 09/18/97

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 1.53

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of P973852B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.786-1.096			
304-306	DC	NL		0:00		0.87	1.96			0.000			
	DC	SN		22:12	RO	1.00	0.58			1.075			
	DC	SN		22:16		0.65	0.91			1.078			
304-306			0	Peaks			0.00						
13C12-TCDF						0.65-0.89				0.952-1.048			
316-318	DC	NL		0:00	RO	0.94	2.25			0.000			
	DC	WL		19:12	RO	3.77	0.23			0.930			
	DC	WL		19:21	RO	0.34	0.92			0.937			
	DC	WL		19:31	RO	4.38	0.42			0.945			
	DC	WL		19:36		0.86	6.26			0.949			
				20:39		0.78	516.62	225.80	290.82	1.000	13C12-2378-TCDF	IS0	
	DC	SN		21:31	RO	4.45	0.19			1.042			
	DC	WH		22:30	RO	0.93	4.96			1.090			
316-318			1	Peak			516.62						

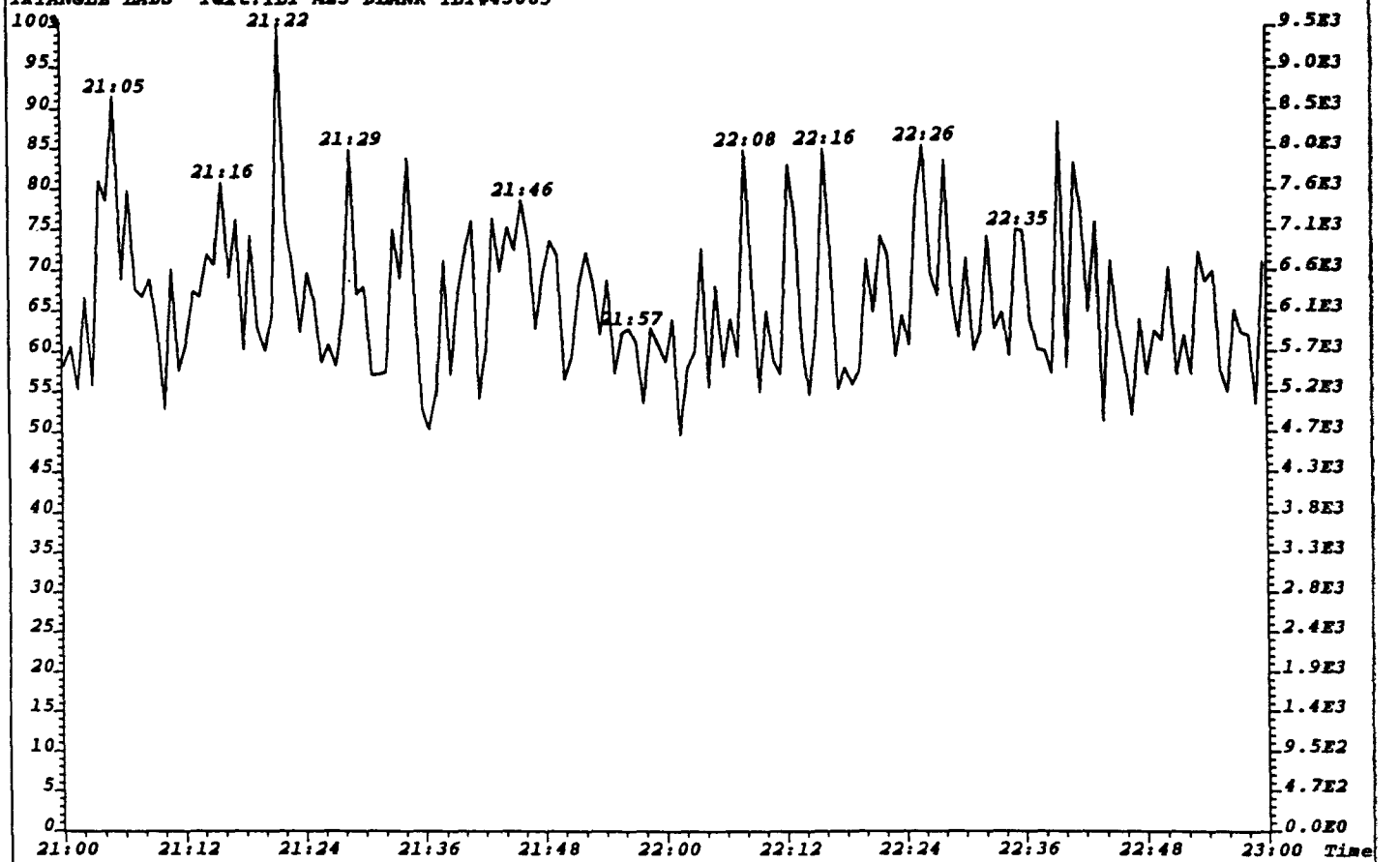
---------- Above: TCDF / TCDD Follows ----------

13C12-TCDD						0.65-0.89				0.897-1.103			
332-334	DC	NL		0:00	RO	1.39	2.11			0.000			
	DC	SN		18:23	RO	1.33	1.49			0.945			
				19:27		0.79	431.45	191.02	240.43	1.000	13C12-2378-TCDD	IS1	
				19:41		0.79	552.23	242.97	309.26	1.012	13C12-1234-TCDD	RS1	
				20:21	RO	0.91	5.26	2.71	2.97	1.046			
332-334			3	Peaks			988.94						

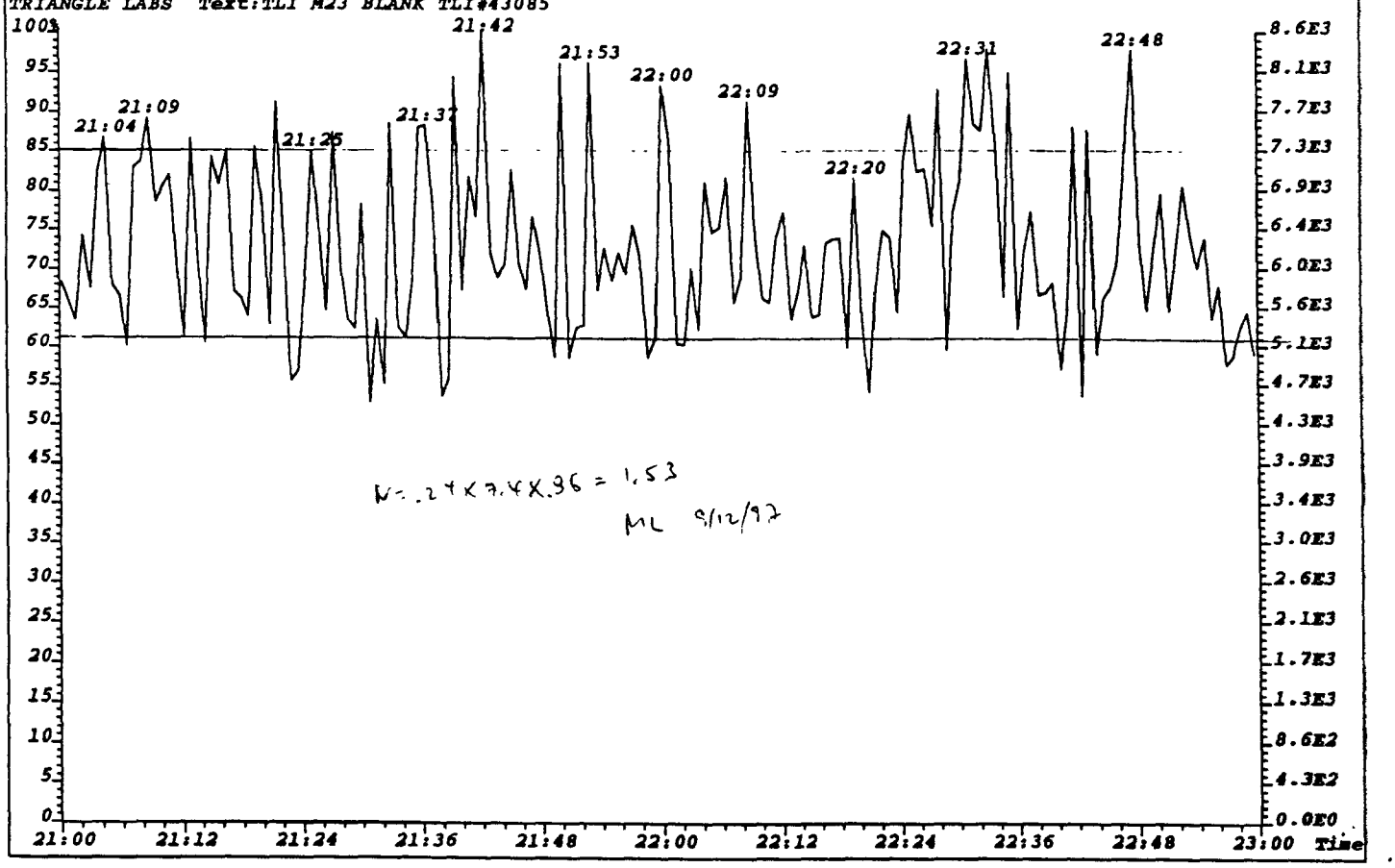
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085

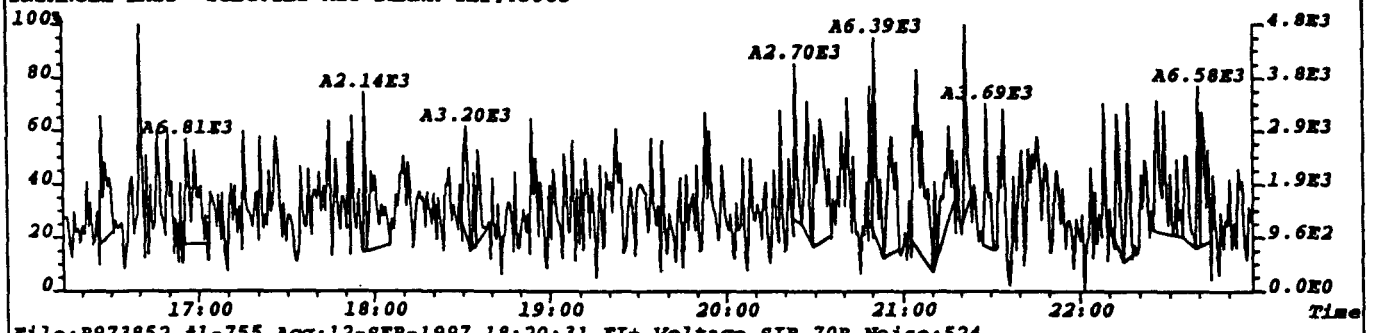


File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085

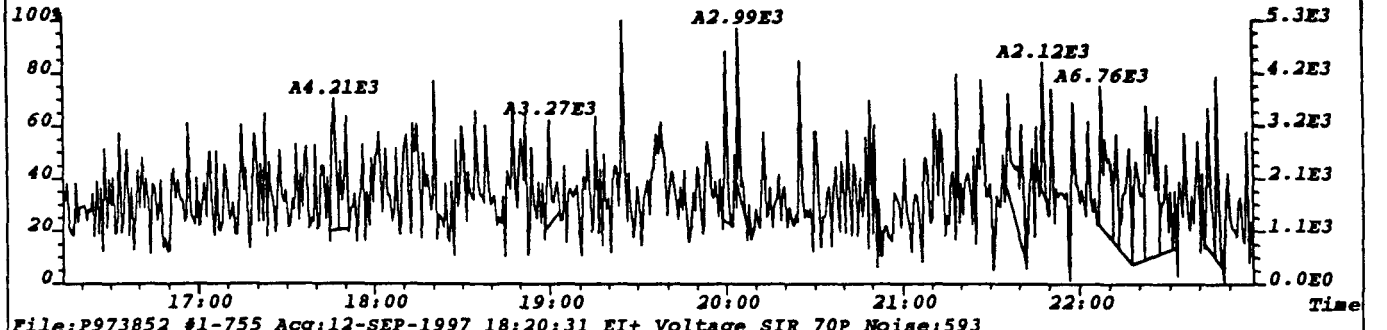


N = .24 x 7.4 x .86 = 1.53
ML 9/12/97

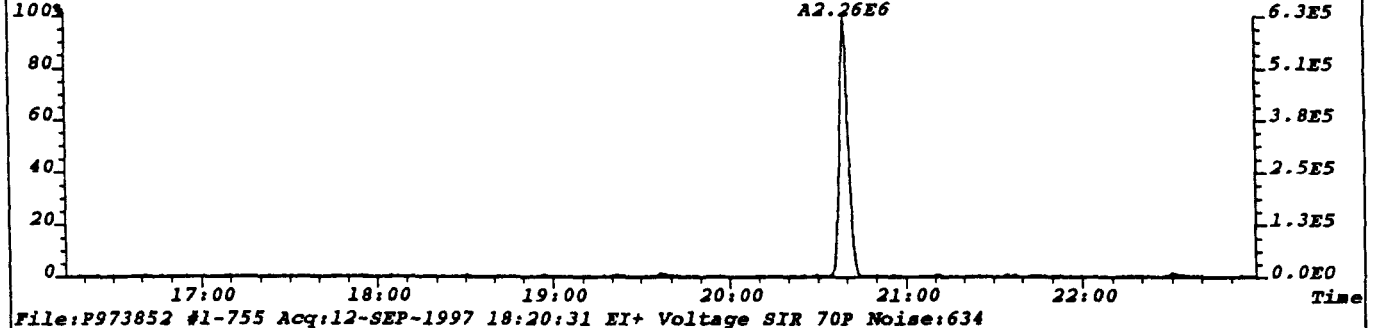
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:457
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1828.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



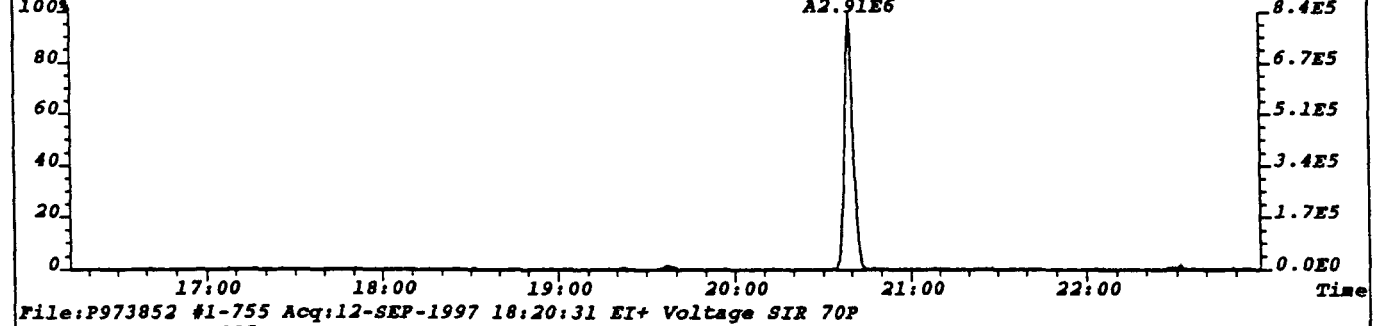
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:524
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2096.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



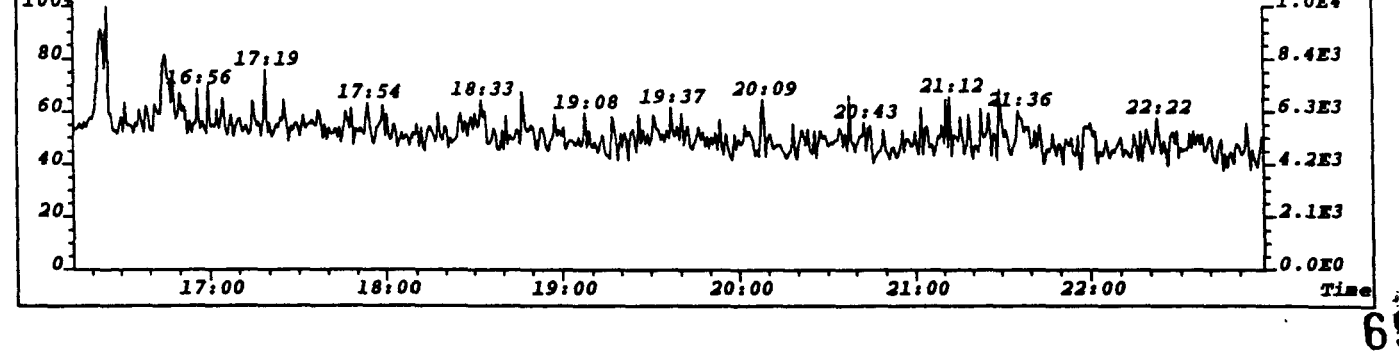
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:593
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2372.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



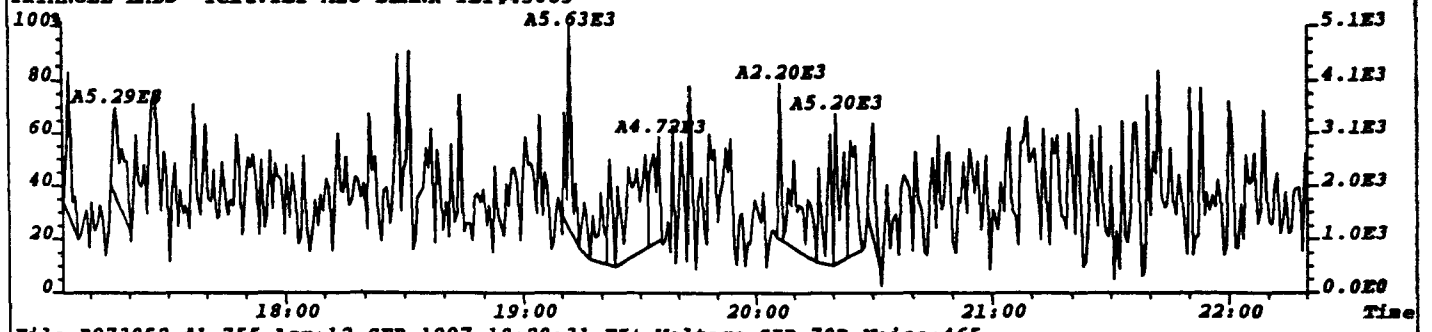
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:634
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2536.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



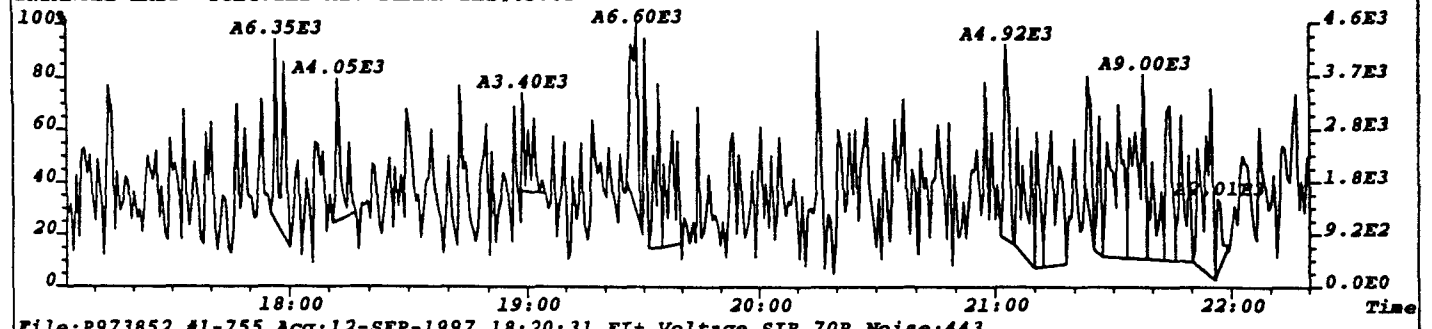
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



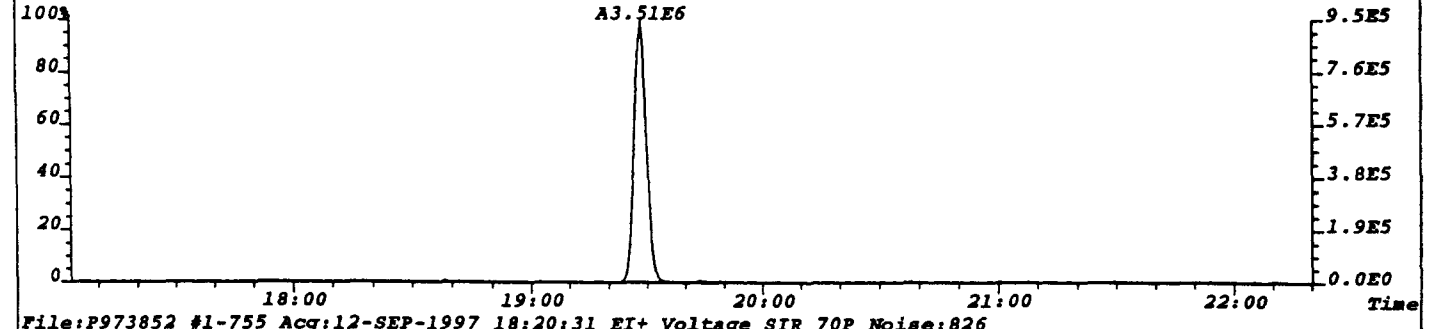
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:575
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2300.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



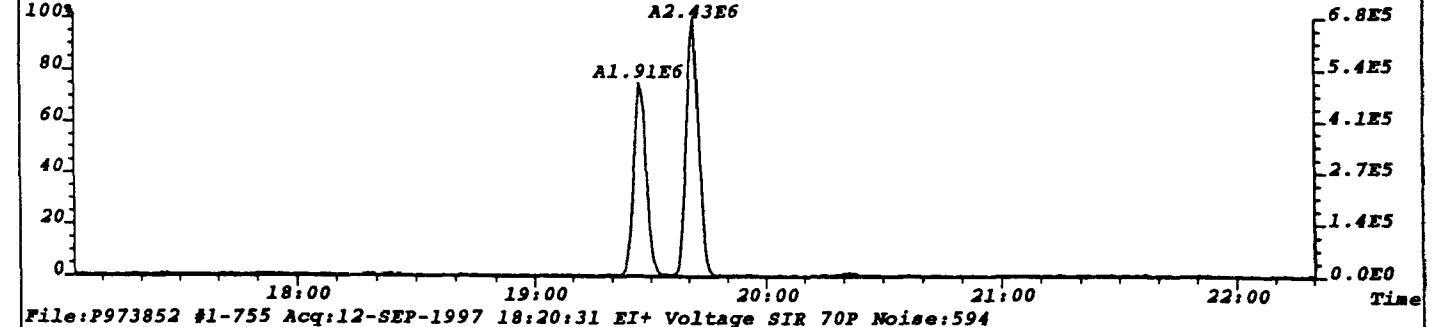
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:465
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1860.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:443
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1772.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:826
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3304.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P Noise:594
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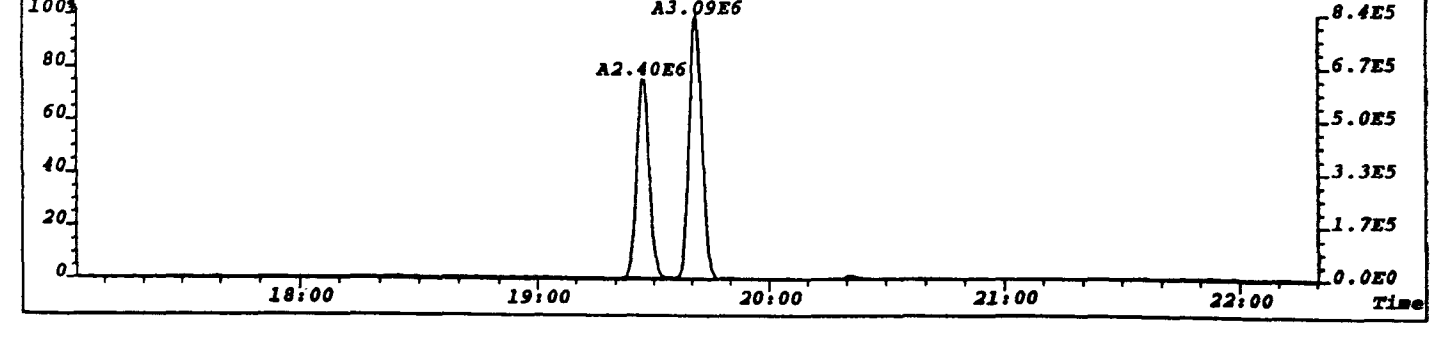
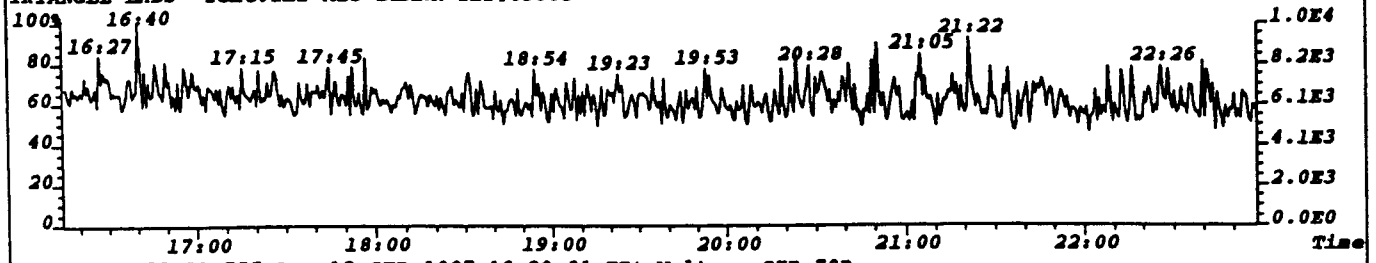
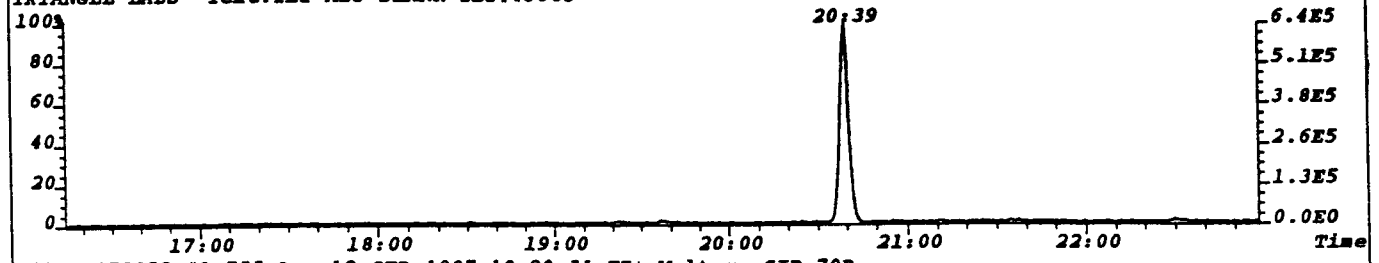
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



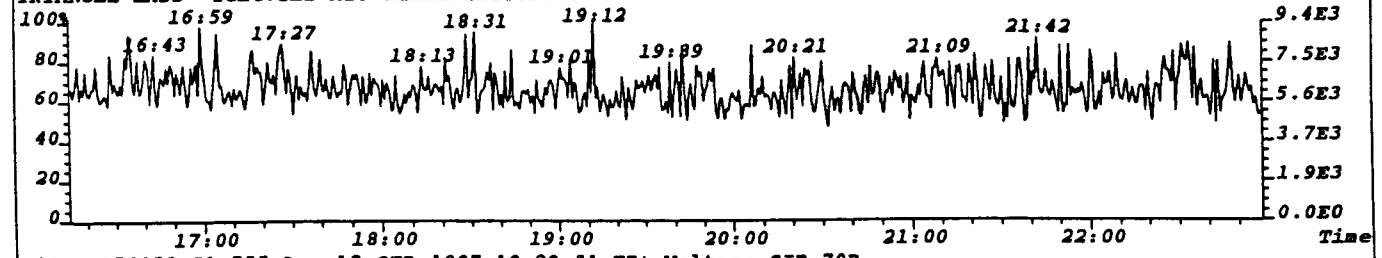
File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



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331.9368 Exp:DB225
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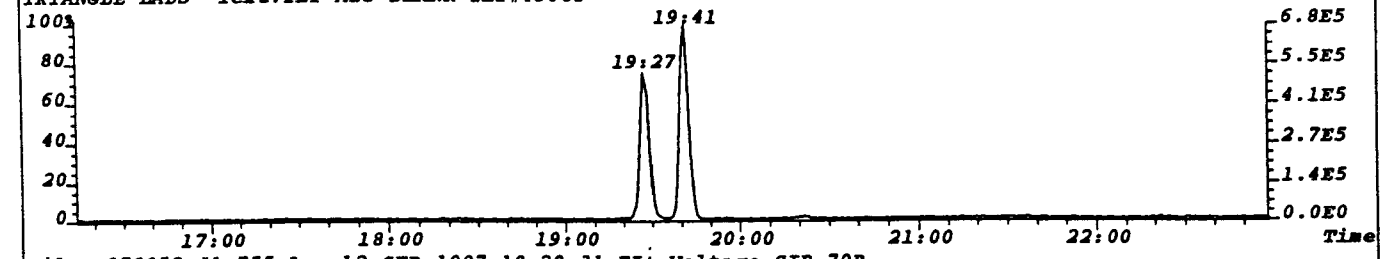
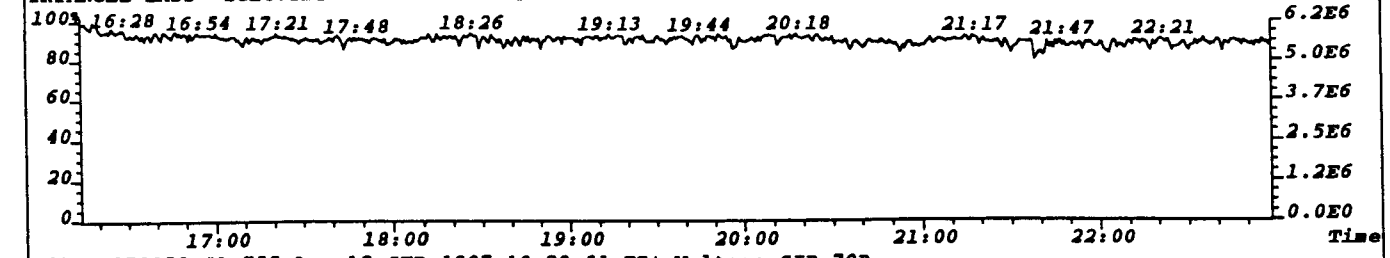
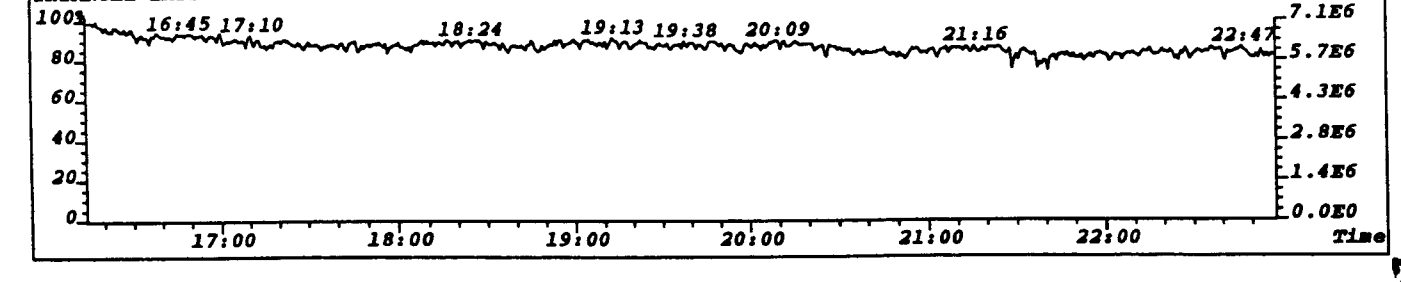
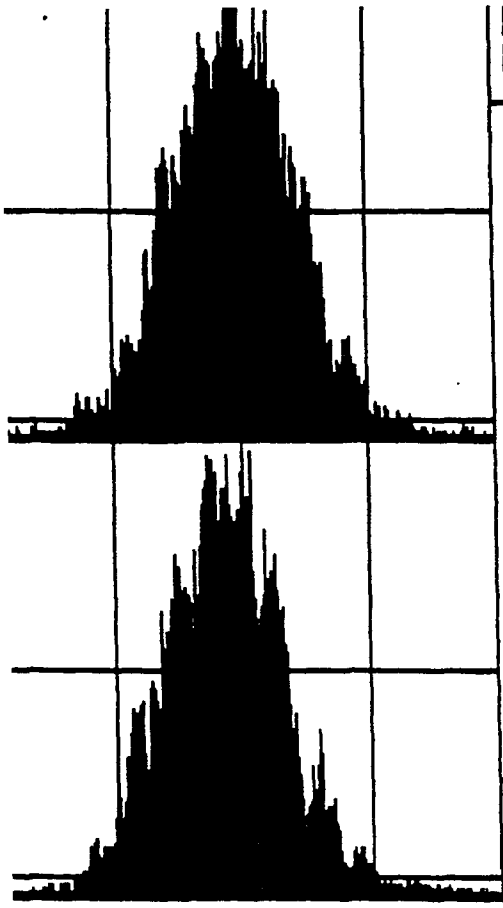


File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085



File:P973852 #1-755 Acq:12-SEP-1997 18:20:31 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43085





Ref. mass 292.9825 Peak top
Height 1.05 volts Span 200 ppm

System file name	DB225
Data file name	A:P973952
Resolution	10000
Group number	1
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 380.9761

A	292.9825	J	330.9792
B	303.9016	K	331.9368
C	305.8987	L	333.9338
D	315.9419	M	375.8364
E	317.9389		
F	319.8965		
G	321.8936		
H	327.8847		
I	330.9792		

Channel I 330.9792 Peak top
Height 1.05 volts Span 200 ppm

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **O-M23-1** Analysis File: **S975866**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPX23704**
TLI ID:	**181-55-1ABE**	Date Extracted:	**09/04/97**	ICal:	**SF56117**
		Date Analyzed:	**09/13/97**	ConCal:	**S975861**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**S975815**	% Lipid:	**n/a**
GC Column:	**DB-5**	Analyst:	**ML**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.09				—
1,2,3,7,8-PeCDD	ND	0.1				—
1,2,3,4,7,8-HxCDD	ND	0.1				—
1,2,3,6,7,8-HxCDD	ND	0.1				—
1,2,3,7,8,9-HxCDD	ND	0.1				—
1,2,3,4,6,7,8-HpCDD	ND	0.2				—
1,2,3,4,6,7,8,9-OCDD	ND	0.5				—
2,3,7,8-TCDF	ND	0.08				—
1,2,3,7,8-PeCDF	ND	0.09				—
2,3,4,7,8-PeCDF	ND	0.09				—
1,2,3,4,7,8-HxCDF	ND	0.09				—
1,2,3,6,7,8-HxCDF	ND	0.07				—
2,3,4,6,7,8-HxCDF	ND	0.09				—
1,2,3,7,8,9-HxCDF	ND	0.1				—
1,2,3,4,6,7,8-HpCDF	ND	0.1				—
1,2,3,4,7,8,9-HpCDF	ND	0.2				—
1,2,3,4,6,7,8,9-OCDF	ND	0.4				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.09		—
Total PeCDD	EMPC			0.53	—
Total HxCDD	ND		0.1		—
Total HpCDD	ND		0.2		—
Total TCDF	0.15	1			—
Total PeCDF	ND		0.09		—
Total HxCDF	ND		0.09		—
Total HpCDF	ND		0.2		—

X237_PSR v2.00, LARS 6.10.0

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Printed: 15:16 09/17/9

Pacific Environmental Services

TLI Project: **43085**
Client Sample: **O-M23-1**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975866**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	5.5	137	40%-130%	0.80	23:17	___
$^{13}C_{12}$-2,3,7,8-TCDD	5.8	145	40%-130%	0.78	23:47	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	6.4	160	40%-130%	1.23	26:29	RO___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	7.1	177	40%-130%	1.46	27:24	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	4.9	124	40%-130%	0.51	29:38	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	4.9	122	40%-130%	1.19	30:16	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.6	91.2	25%-130%	0.43	32:06	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.5	88.5	25%-130%	1.02	32:52	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.8	60.5	25%-130%	1.00	35:22	___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.2	79.3	70%-140%		23:48	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2.9	71.8	70%-140%	1.41	27:06	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.0	73.8	70%-140%	0.52	29:33	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2.6	64.4	70%-140%	1.21	30:12	V___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.1	78.7	70%-140%	0.44	33:14	___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.0	74.3	40%-130%	0.52	30:45	Q___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.7	92.3	40%-130%	0.50	30:05	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:37	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.23	30:32	___

Data Reviewer: Steve Lewis 09/17/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 15:16 09/17/97

Initial ....Date...

Data Review By: Sn 9/17/97 Calculated Noise Area: 1.69

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975866B.dbf
09/17/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.838-1.092			
304-306	DC	NL		0:00	RO	0.94	0.28			0.000			
	DC	WL		18:34	RO	1.47	1.66			0.805			
	DC	WL		19:02	RO	0.51	1.36			0.826			
	DC	WL		19:19	RO	3.29	0.60			0.838			
	DC	SN		19:33	RO	4.89	3.17			0.848			
	DC	SN		19:49	RO	8.59	1.95			0.860			
D	DC	SN		20:02	RO	2.73	4.94			0.869			
	DC	SN		21:24	RO	1.11	3.72			0.928			
D	DC	SN		21:52	RO	0.92	5.15			0.949			
				22:05		0.78	8.27	3.62	4.65	0.958			
D	DC	SN		22:26	RO	0.94	5.06			0.973			
304-306			1	Peak			8.27						
13C12-TCDF				0.65-0.89						0.954-1.046			
316-318	DC	NL		0:00	RO	1.86	0.39			0.000			
	DC	WL		18:57	RO	0.50	1.56			0.822			
	DC	SN		22:25	RO	1.91	2.67			0.973			
	DC	SN		22:46	RO	10.08	0.71			0.988			
MKT				23:17		0.80	176.80	78.80	98.00	1.000	13C12-2378-TCDF	ISO	
316-318			1	Peak			176.80						

---------- Above: TCDF / TCDD Follows ----------

TCDD				0.65-0.89						0.875-1.055			
320-322	DC	NL		0:00	RO	1.09	0.62			0.000			
	DC	WL		19:54	RO	1.43	0.90			0.837			
	DC	WL		20:01	RO	0.97	1.89			0.842			
	DC	WL		20:17	RO	4.88	0.42			0.853			
	DC	WL		20:30	RO	3.70	0.35			0.862			
	DC	WL		20:33	RO	1.27	0.46			0.864			
	DC	WL		20:47	RO	0.45	0.83			0.874			
	DC	SN		21:07	RO	0.58	2.00			0.888			
	DC	SN		21:20	RO	0.52	0.80			0.897			
	DC	SN		21:26	RO	0.92	0.85			0.901			
	DC	SN		21:46	RO	1.60	1.66			0.915			
	DC	SN		22:23	RO	1.57	0.50			0.941			
	DC	SN		22:47	RO	0.44	1.01			0.958			
	DC	SN		22:54	RO	2.65	0.55			0.963			
	DC	SN		22:59	RO	2.88	0.92			0.966			
	DC	SN		23:39	RO	3.30	0.65			0.994			
320-322			0	Peaks			0.00						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
37Cl-TCDD										0.910-1.090			
328	DC	NL		0:00			0.11			0.000			
	DC	WL		19:30			0.43			0.820			
	DC	WL		19:45			6.06			0.830			
	DC	WL		19:57			0.51			0.839			
	DC	WL		20:10			0.35			0.848			
	DC	WL		20:10			1.06			0.848			
	DC	WL		20:25			0.38			0.858			
	DC	WL		20:30			1.04			0.862			
	DC	WL		20:41			0.96			0.870			
	DC	WL		20:53			2.42			0.878			
	DC	WL		20:55			1.16			0.879			
	DC	WL		21:15			1.13			0.893			
	DC	WL		21:29			1.10			0.903			
	DC	SN		21:40			1.01			0.911			
	DC	SN		21:43			0.38			0.913			
	DC	SN		21:43			0.40			0.913			
	DC	SN		21:59			0.41			0.924			
	DC	SN		22:19			0.78			0.938			
	DC	SN		22:28			0.59			0.945			
	DC	SN		22:37			0.72			0.951			
	DC	SN		22:47			0.74			0.958			
	DC	SN		22:53			0.67			0.962			
	DC	SN		23:07			1.03			0.972			
	DC	SN		23:29			0.11			0.987			
				23:39			7.13	7.13		0.994			
				23:48			101.18	101.18		1.001	37Cl-TCDD		SUR1
328			2	Peaks			108.31						
13C12-TCDD					0.65-0.89					0.910-1.090			
332-334	DC	NL		0:00		0.82	0.31			0.000			
	DC	WL		20:08	RO	1.98	1.04			0.847			
	DC	WL		20:24	RO	1.45	1.45			0.858			
	DC	WL		20:58	RO	0.28	0.64			0.882			
	DC	WL		21:03	RO	0.12	0.18			0.885			
	DC	WL		21:11	RO	1.48	0.44			0.891			
	DC	WL		21:29	RO	3.37	0.87			0.903			
	DC	SN		22:07	RO	3.95	0.37			0.930			
	DC	SN		22:30		0.88	1.09			0.946			
	DC	SN		22:37	RO	2.22	0.32			0.951			
	DC	SN		23:28	RO	1.21	3.40			0.987			
				23:37		0.84	98.04	44.64	53.40	0.993	13C12-1234-TCDD		RS1
				23:47		0.78	151.41	66.29	85.12	1.000	13C12-2378-TCDD		IS1
332-334			2	Peaks			249.45						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF					1.32-1.78					0.915-1.074			
340-342	DC	NL		0:00	RO	0.92	0.20			0.000			
	DC	WL		23:40	RO	0.28	4.49			0.865			
	DC	WL		23:54	RO	0.53	0.53			0.873			
	DC	WL		24:05	RO	0.63	1.35			0.880			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	WL	24:24	RO	0.57	0.99			0.892			
		DC	WL	24:54	RO	2.04	7.75			0.910			
		DC	SN	25:22	RO	2.12	0.87			0.927			
		DC	SN	25:48	RO	7.75	0.82			0.943			
	D	DC	SN	26:32	RO	0.24	7.55			0.970			
		DC	SN	26:47		1.38	1.12			0.979			
		DC	SN	27:16	RO	0.59	0.87			0.996			
		DC	SN	27:27	RO	2.23	1.22			1.003			
340-342			0	Peaks			0.00						
13C12-PeCDF				1.32-1.78						0.844-1.156			
352-354		DC	NL	0:00	RO	1.09	0.20			0.000			
		DC	SN	23:32	RO	1.29	0.72			0.860			
				23:40	RO	0.72	7.44	4.52	6.26	0.865			
		DC	SN	24:09	RO	0.77	0.66			0.882			
		DC	SN	24:33	RO	2.38	0.66			0.897			
		DC	SN	25:27	RO	0.63	0.90			0.930			
		DC	SN	25:46		1.68	2.98			0.942			
		DC	SN	26:01	RO	0.55	1.04			0.951			
	NM			26:29	RO	1.23	177.68	108.00	87.70	0.968	13C12-PeCDF 123	IS2	
	N			27:06		1.41	123.73	72.49	51.24	0.990	13C12-PeCDF 234	SUR2	
	N	DC	SN	27:22	RO	0.79	2.65			1.000			
352-354			3	Peaks			308.85						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD				1.32-1.78						0.926-1.024			
356-358		DC	NL	0:00	RO	1.20	0.20			0.000			
		DC	WL	24:59	RO	0.81	1.30			0.908			
		DC	SN	25:41	RO	4.11	1.66			0.934			
		DC	SN	26:21		1.55	2.40			0.958			
				26:32	RO	2.90	18.28	20.78	7.17	0.965			Q
356-358			1	Peak			18.28						
13C12-PeCDD				1.32-1.78						0.850-1.150			
368-370		DC	NL	0:00		1.56	0.23			0.000			
		DC	SN	25:53	RO	0.74	2.35			0.941			
				26:32	RO	0.70	12.91	7.85	11.26	0.965			
	N			27:24		1.46	110.12	65.30	44.82	0.996	13C12-PeCDD 123	IS3	
	N			27:30	RO	1.03	11.68	7.10	6.86	1.000			
368-370			3	Peaks			134.71						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.959-1.050			
374-376		DC	NL	0:00	RO	0.96	3.96			0.000			
		DC	WL	28:42	RO	1.57	2.26			0.954			
		DC	WL	28:49	RO	2.33	5.42			0.958			
		DC	SN	30:16	RO	1.55	1.93			1.006			
		DC	SN	30:41		1.17	2.95			1.020			
374-376			0	Peaks			0.00						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-HxCDF				0.43-0.59						0.863-1.137			
384-386		DC	NL	0:00	RO	0.89	3.88			0.000			
		DC	SN	28:33	RO	2.57	0.82			0.949			
		DC	SN	28:40		0.46	2.40			0.953			
				28:50	RO	0.69	8.02	3.67	5.31	0.958			
	N			29:33		0.52	104.54	35.91	68.63	0.982	13C12-HxCDF	478	SUR3
	N			29:38		0.51	147.69	49.82	97.87	0.985	13C12-HxCDF	678	IS4
		DC	SN	29:50	RO	0.77	0.59			0.992			
		DC	SN	29:53	RO	3.57	0.32			0.993			
	N	DC	SN	29:58	RO	1.00	1.66			0.996			
	N			30:05		0.50	102.23	33.98	68.25	1.000	13C12-HxCDF	234	ALT2
	N			30:45		0.52	71.53	24.50	47.03	1.022	13C12-HxCDF	789	ALT1 Q
384-386			5	Peaks			434.01						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD				1.05-1.43						0.953-1.014			
390-392		DC	NL	0:00	RO	1.04	3.63			0.000			
		DC	WL	28:48		1.16	3.88			0.943			
		DC	SN	29:55	RO	0.46	1.97			0.980			
		DC	SN	30:01	RO	0.29	0.94			0.983			
		DC	SN	30:44	RO	1.02	4.10			1.007			
390-392			0	Peaks			0.00						
13C12-HxCDD				1.05-1.43						0.967-1.033			
402-404		DC	NL	0:00		1.12	3.39			0.000			
		DC	WL	28:49	RO	1.64	13.66			0.944			
		DC	WL	29:04	RO	2.93	1.93			0.952			
		DC	WL	29:16	RO	4.32	1.12			0.959			
		DC	WL	29:21		1.35	2.77			0.961			
		DC	WL	29:27	RO	0.51	1.93			0.965			
		DC	SN	29:41	RO	3.41	1.81			0.972			
		DC	SN	29:49	RO	0.93	1.37			0.977			
		DC	SN	29:53	RO	1.49	3.02			0.979			
	N			30:12		1.21	75.64	41.38	34.26	0.989	13C12-HxCDD	478	SUR4
	N			30:16		1.19	120.70	65.47	55.23	0.991	13C12-HxCDD	678	IS5
	N			30:32		1.23	99.30	54.81	44.49	1.000	13C12-HxCDD	789	RS2
				30:45		1.34	10.71	6.14	4.57	1.007			
402-404			4	Peaks			306.35						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF				0.88-1.20						0.995-1.042			
408-410		DC	NL	0:00		0.99	3.54			0.000			
408-410			0	Peaks			0.00						
13C12-HpCDF				0.37-0.51						0.937-1.125			
418-420		DC	NL	0:00	RO	1.19	2.39			0.000			
				32:06		0.43	80.36	24.04	56.32	1.000	13C12-HpCDF	678	IS6
				32:24	RO	1.25	6.29	5.48	4.37	1.009			
		DC	SN	32:50		0.45	2.49			1.023			
		DC	SN	32:54	RO	0.65	2.10			1.025			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
N				33:14		0.44	48.74	14.81	33.93	1.035	13C12-HpCDF	789	SUR5
	DC	SN		33:32	RO	2.95	1.90			1.045			
418-420			3	Peaks			135.39						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.977-1.005			
424-426	DC	NL		0:00		1.09	2.24			0.000			
	DC	SN		32:12	RO	1.47	2.41			0.980			
	DC	SN		32:19	RO	0.72	1.53			0.983			
D	DC	SN		32:24	RO	0.78	5.16			0.986			
	DC	WH		33:11	RO	0.51	1.71			1.010			
424-426			0	Peaks			0.00						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	2.68	0.90			0.000			
	DC	SN		32:24	RO	0.60	4.30			0.986			
				32:52		1.02	71.64	36.09	35.55	1.000	13C12-HpCDD	678	IS7
	DC	SN		33:05	RO	0.77	0.96			1.007			
436-438			1	Peak			71.64						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

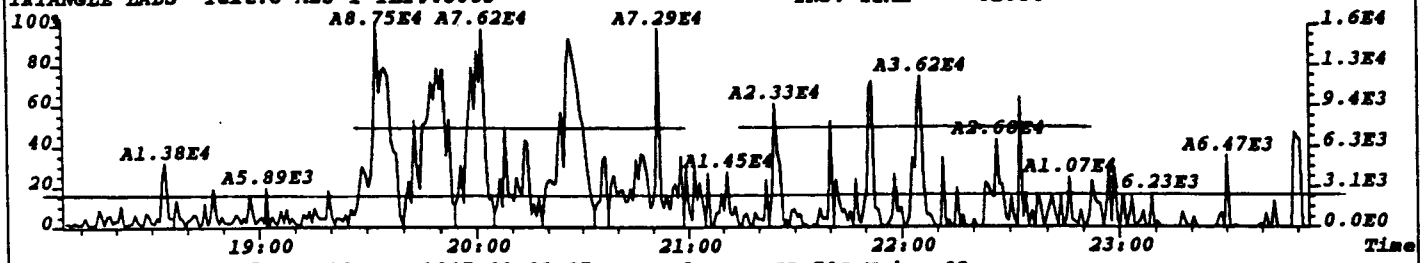
OCDF				0.76-1.02						0.887-1.113			
442-444	DC	NL		0:00	RO	0.74	1.72			0.000			
	DC	SN		31:31		0.93	0.89			0.891			
	DC	SN		31:43	RO	1.12	1.38			0.897			
	DC	SN		32:02	RO	0.57	1.30			0.906			
				32:22	RO	0.48	5.59	2.63	5.49	0.915			
	DC	SN		33:19		0.97	2.21			0.942			
	DC	SN		33:31	RO	0.53	2.70			0.948			
	DC	SN		33:54	RO	0.70	4.99			0.959			
	DC	SN		34:26	RO	5.03	0.59			0.974			
	DC	SN		35:26		0.89	2.80			1.002			
442-444			1	Peak			5.59						
OCDD				0.76-1.02						0.887-1.113			
458-460	DC	NL		0:00	RO	0.63	0.96			0.000			
	DC	SN		35:06	RO	0.49	0.96			0.992			
	DC	SN		35:14	RO	3.09	0.21			0.996			
	DC	SN		35:26	RO	4.57	1.02			1.002	OCDD		AN
	DC	SN		35:44		0.98	1.80			1.010			
458-460			0	Peaks			0.00						
13C12-OCDD				0.76-1.02						0.996-1.005			
470-472	DC	NL		0:00	RO	0.28	0.23			0.000			
				35:22		1.00	62.34	31.22	31.12	1.000	13C12-OCDD		IS8
	DC	WH		35:36	RO	0.24	0.91			1.007			
	DC	WH		35:47	RO	1.22	0.85			1.012			
470-472			1	Peak			62.34						

Compound/
M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID.. Flags.

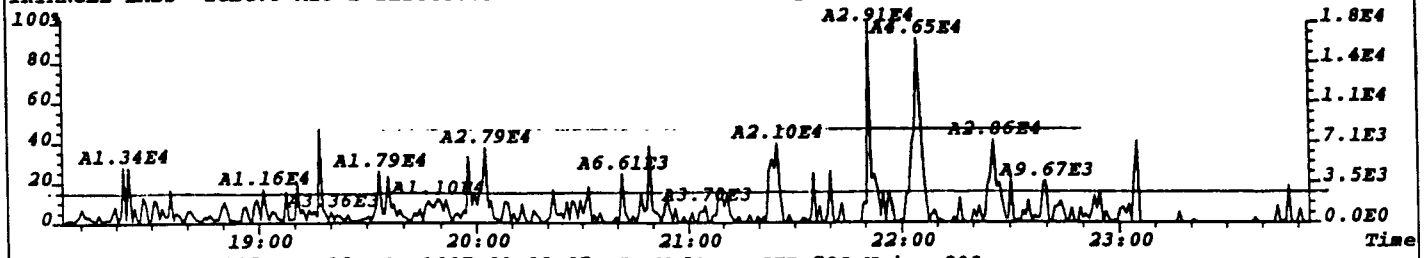
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

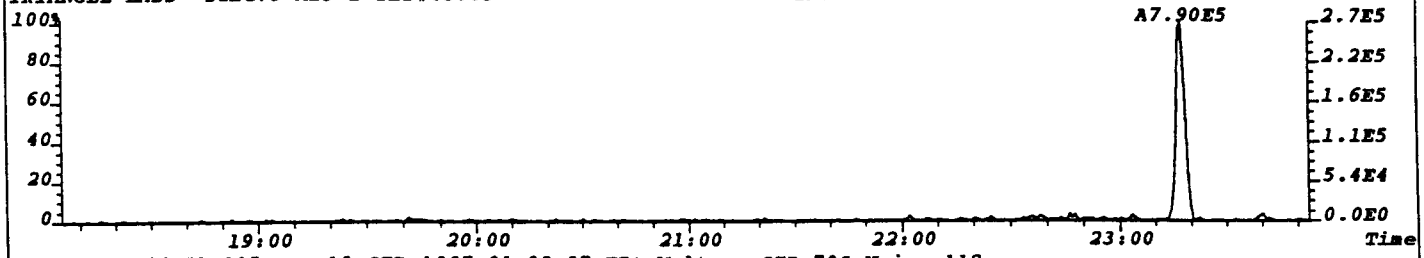
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:75
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,300.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



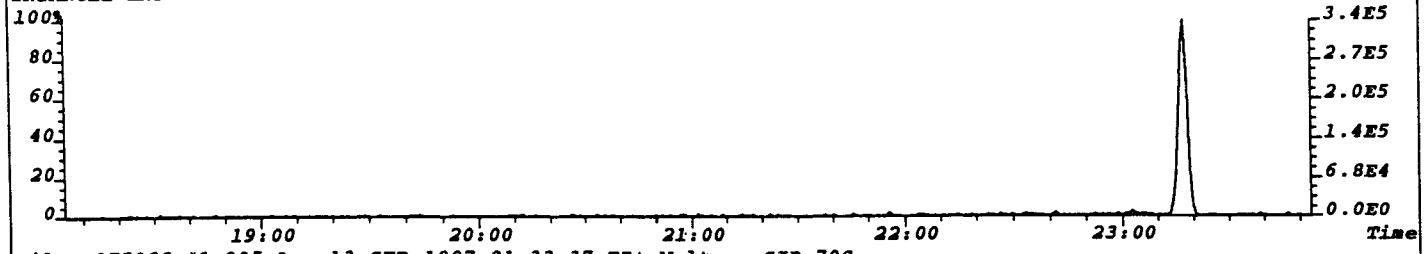
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:82
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,328.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



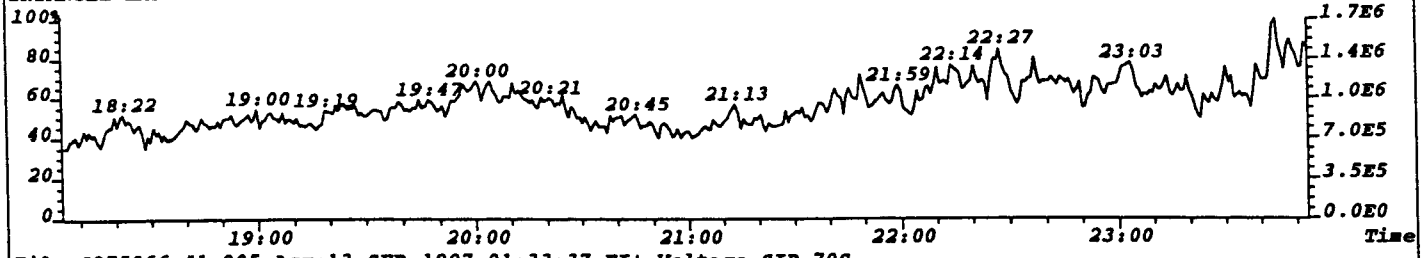
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:203
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,812.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



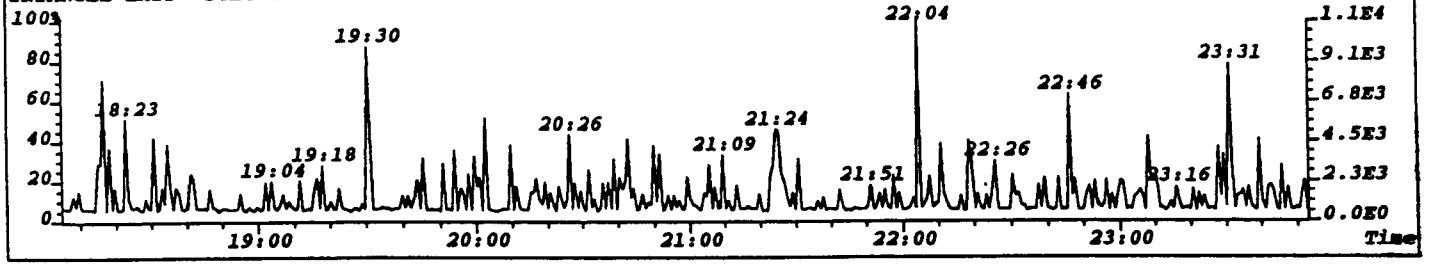
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:112
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,448.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



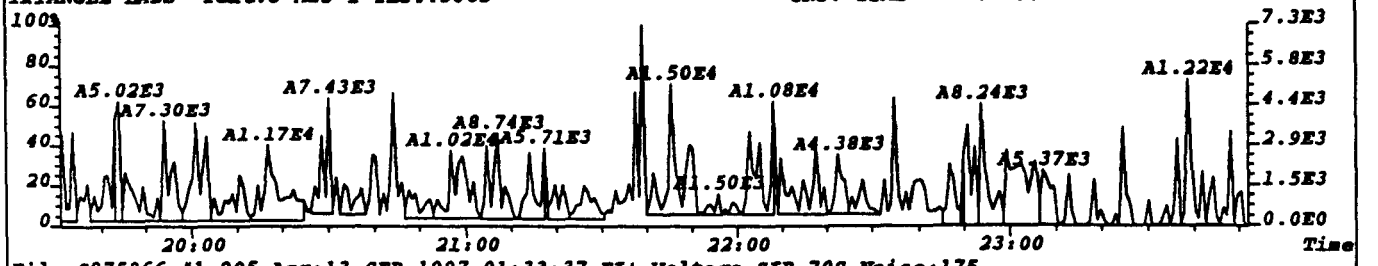
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



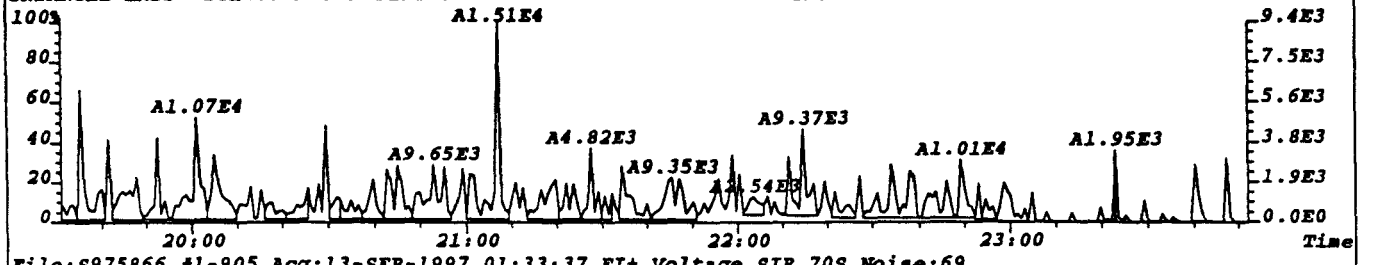
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



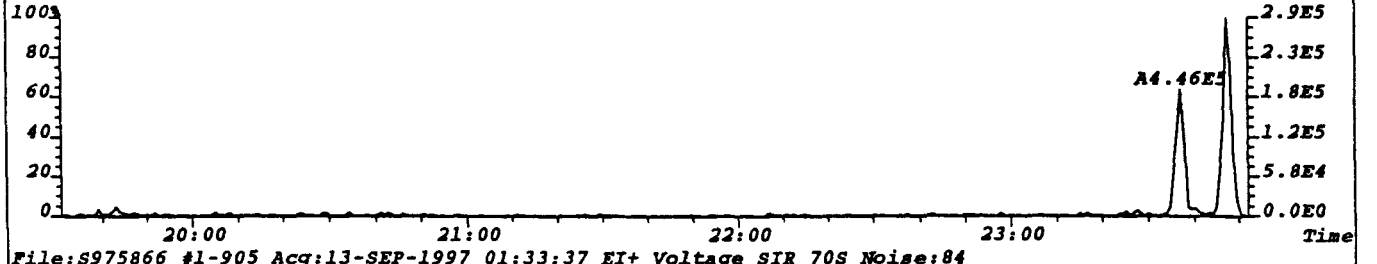
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:192
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,768.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



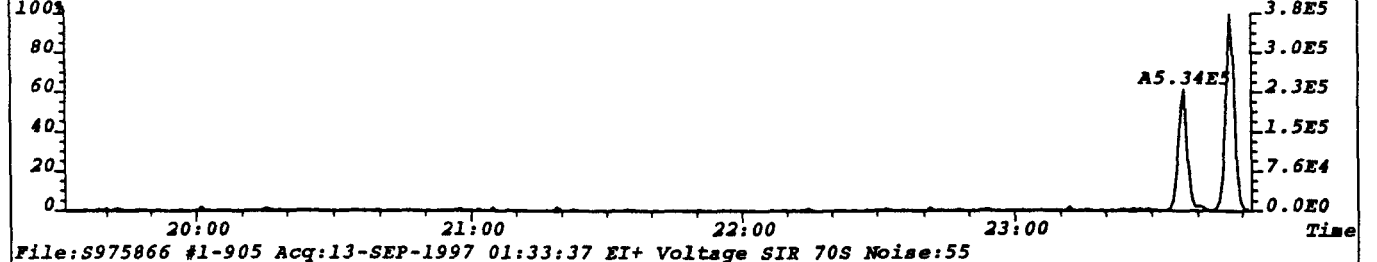
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:175
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,700.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



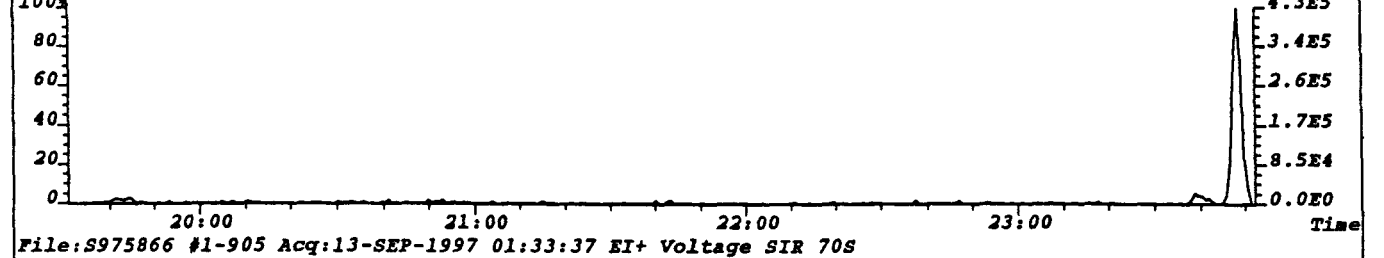
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:69
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,276.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



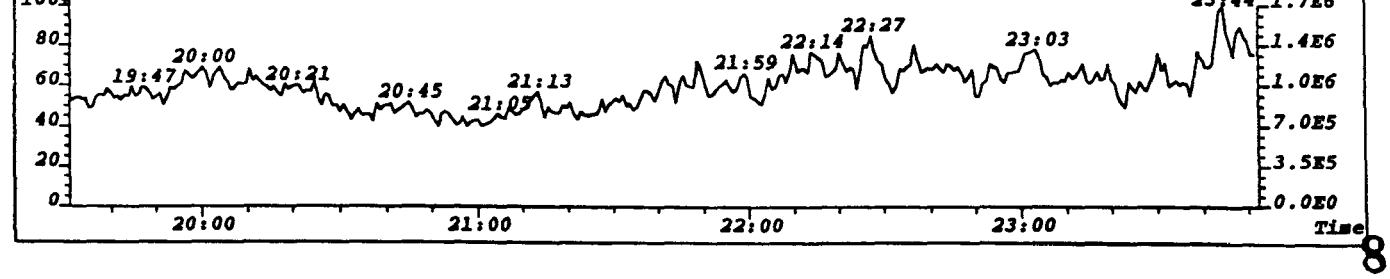
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:84
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,336.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



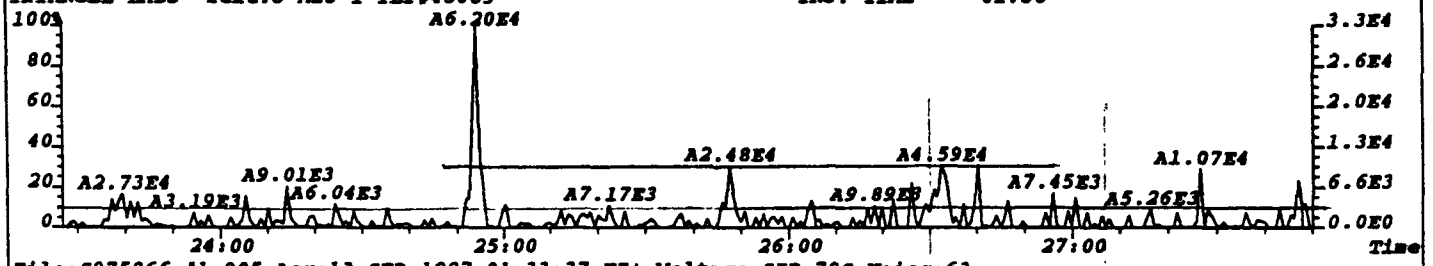
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:55
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,220.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



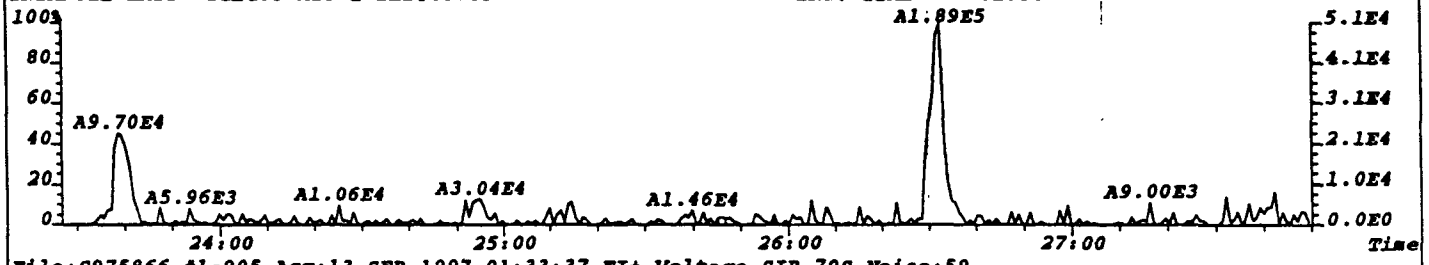
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



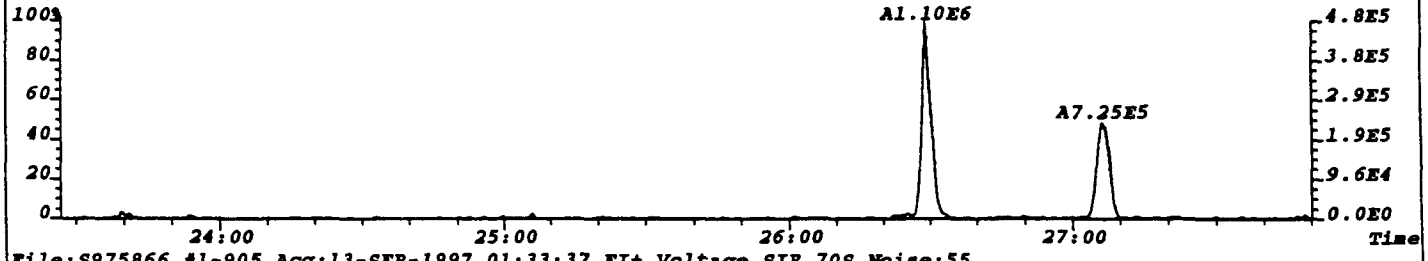
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:58
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,232.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



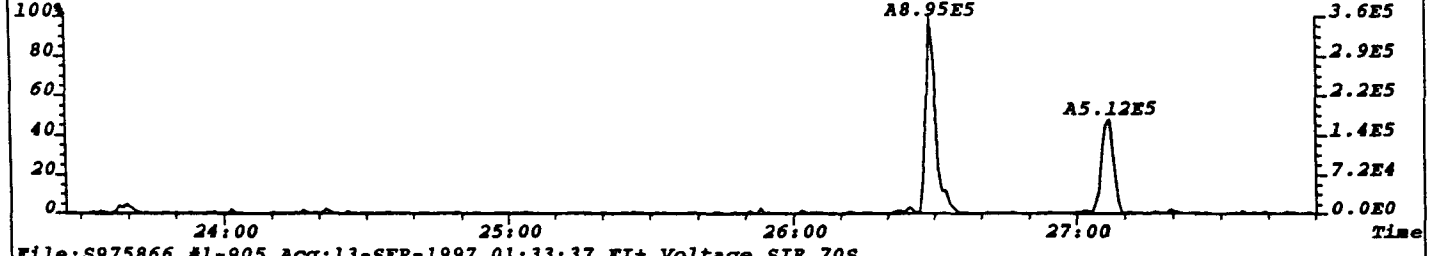
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:63
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



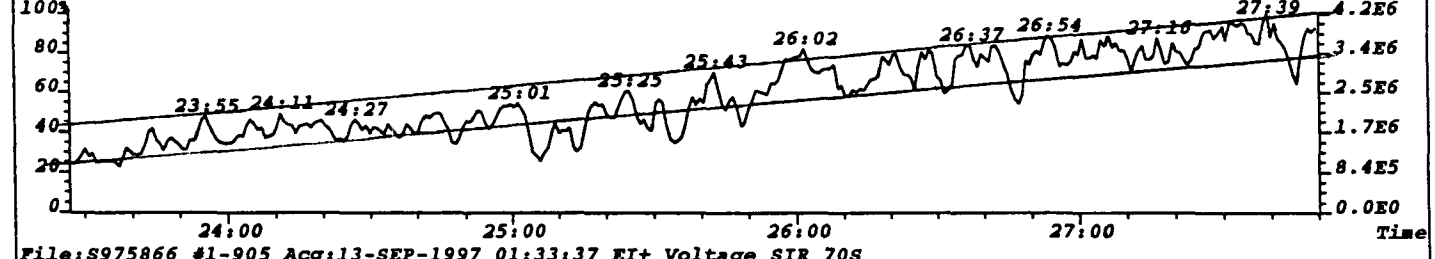
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:59
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



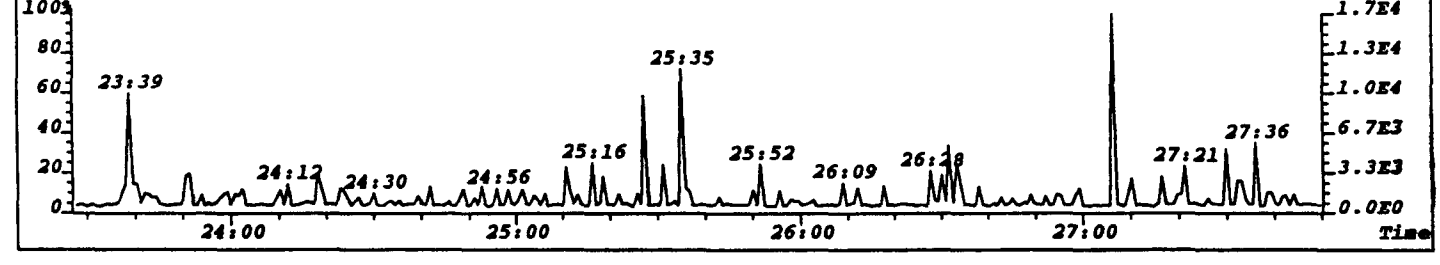
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:55
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,220.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



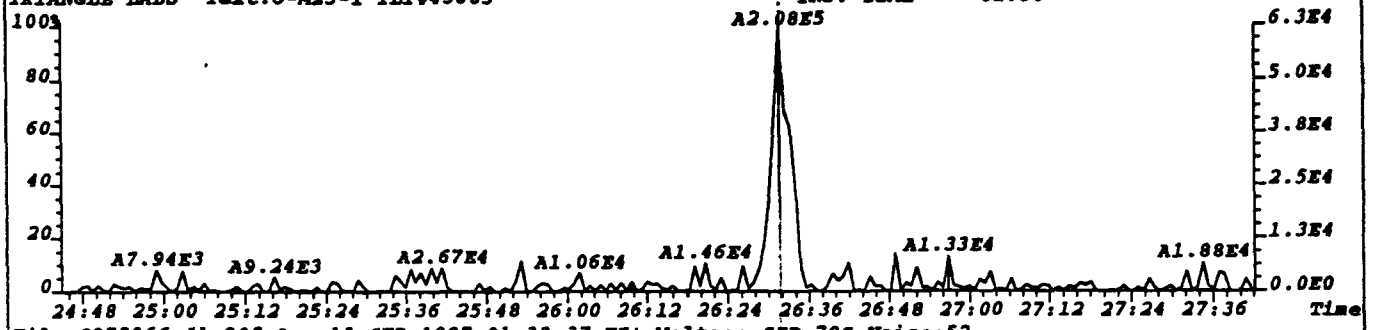
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



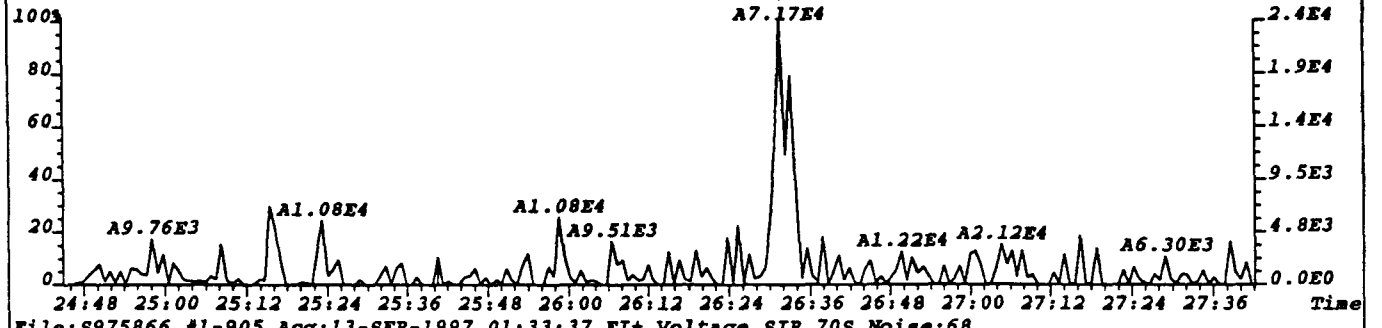
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



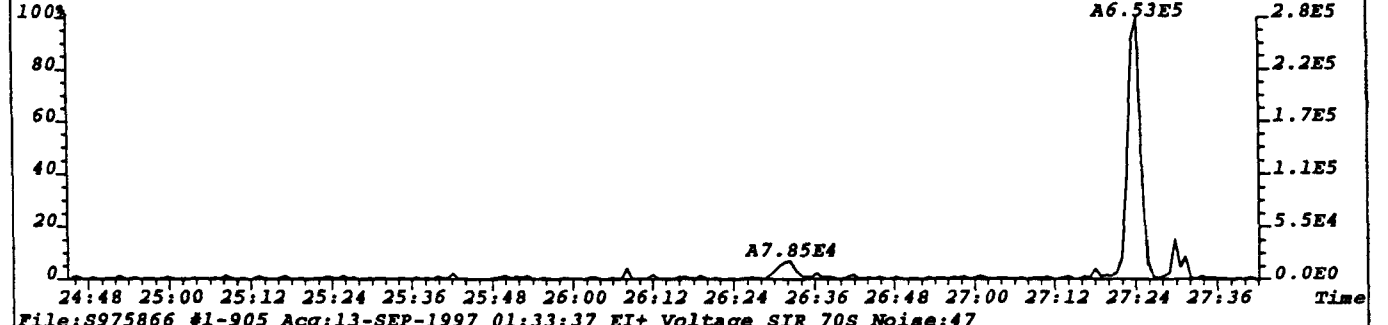
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:58
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,232.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



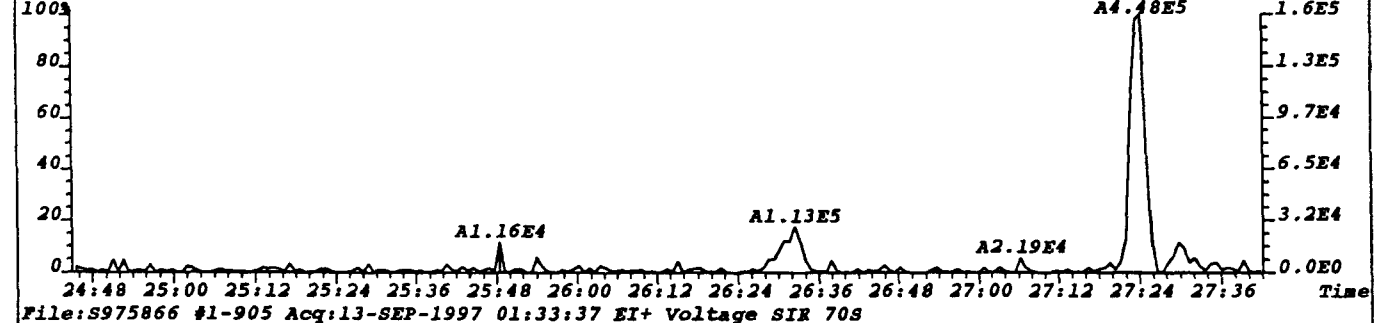
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:52
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



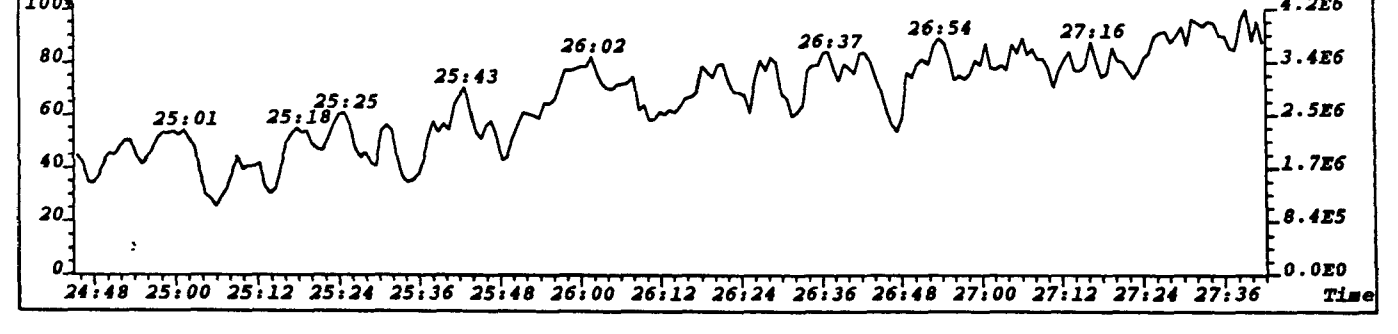
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:68
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,272.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



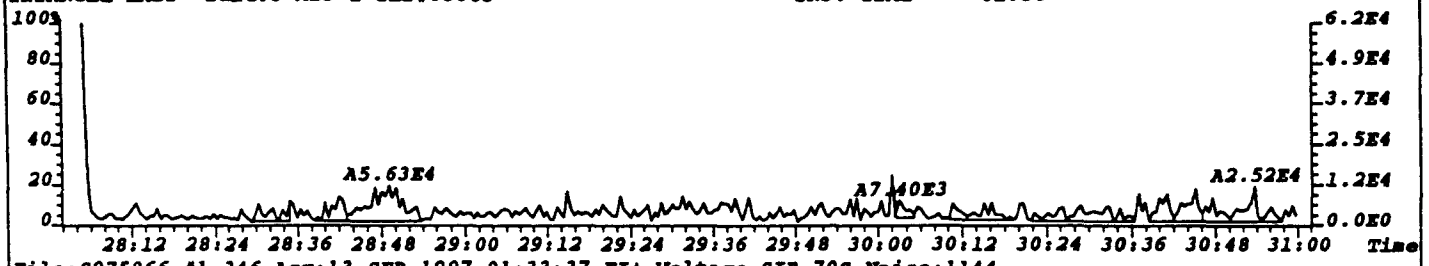
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:47
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,188.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



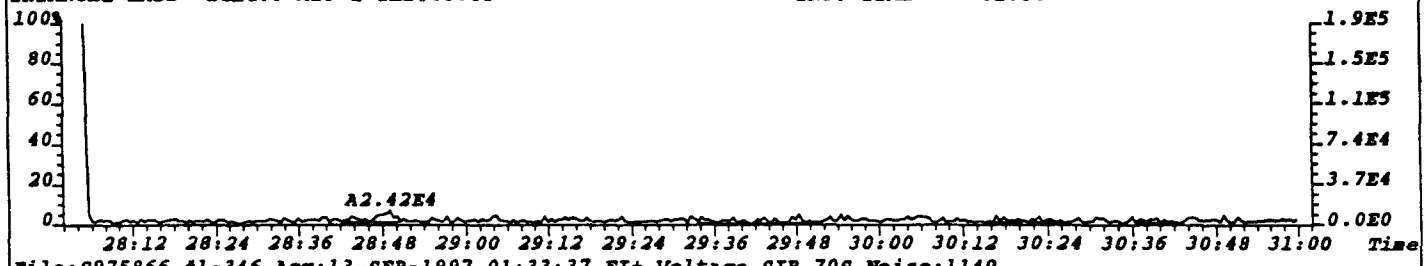
File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



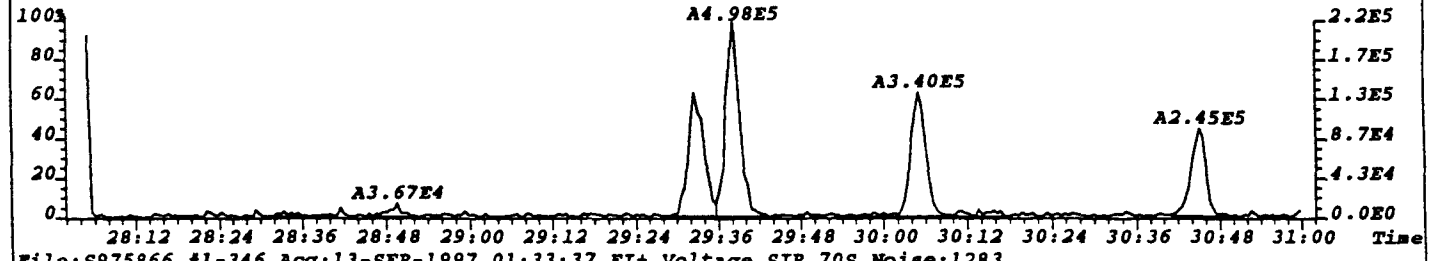
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:1094
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4376.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



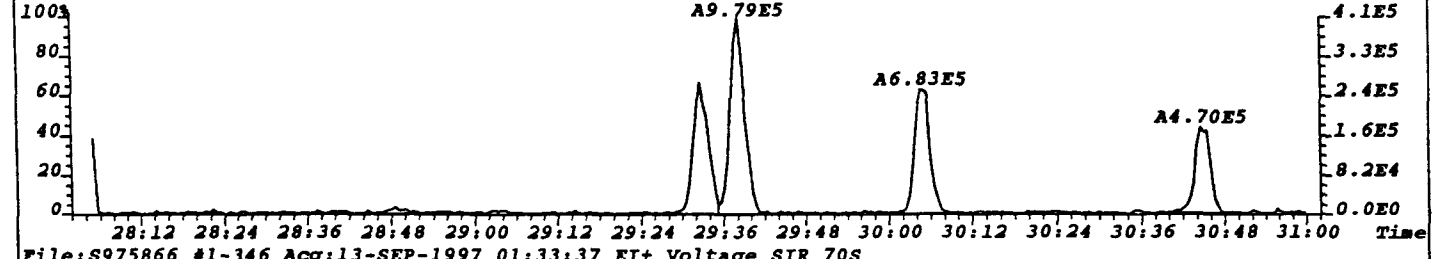
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:1144
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4576.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



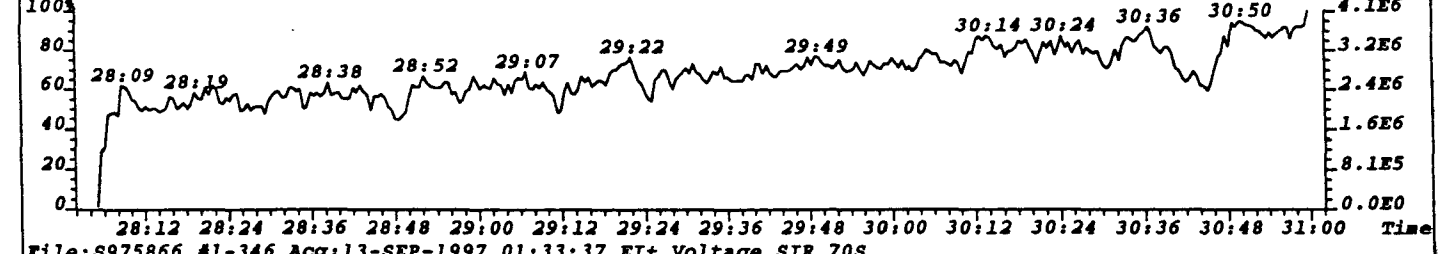
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:1149
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4596.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



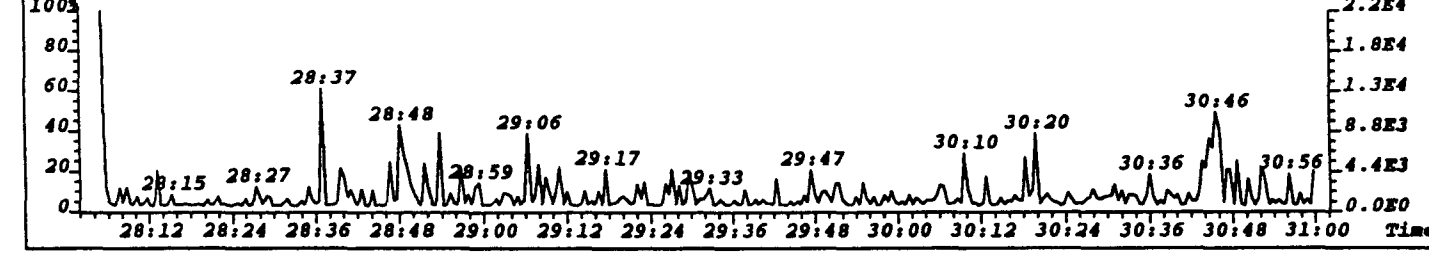
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:1283
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



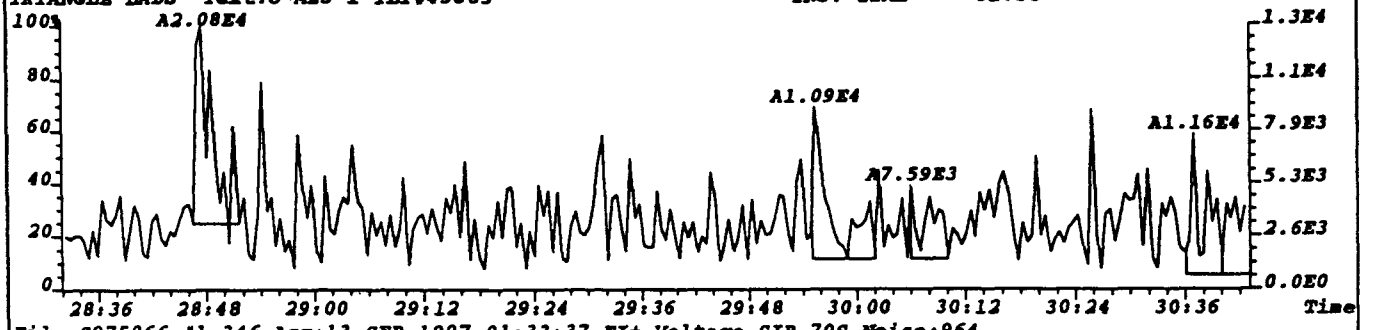
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



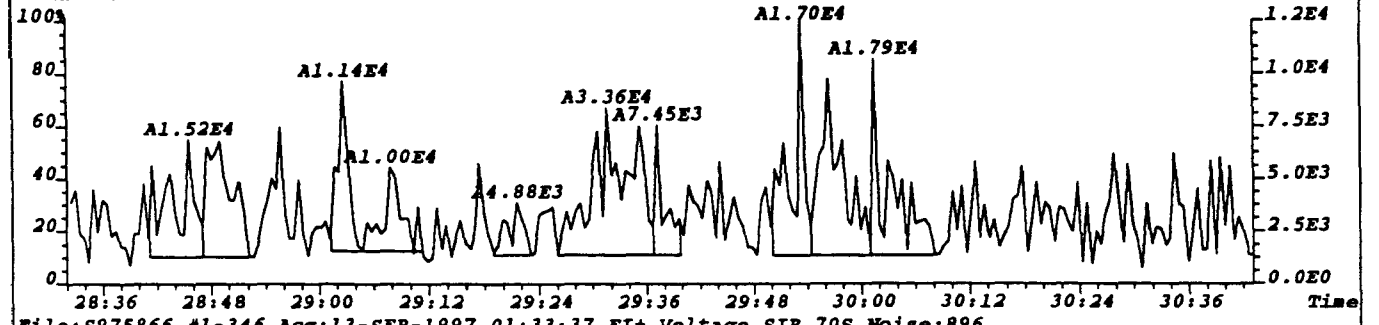
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



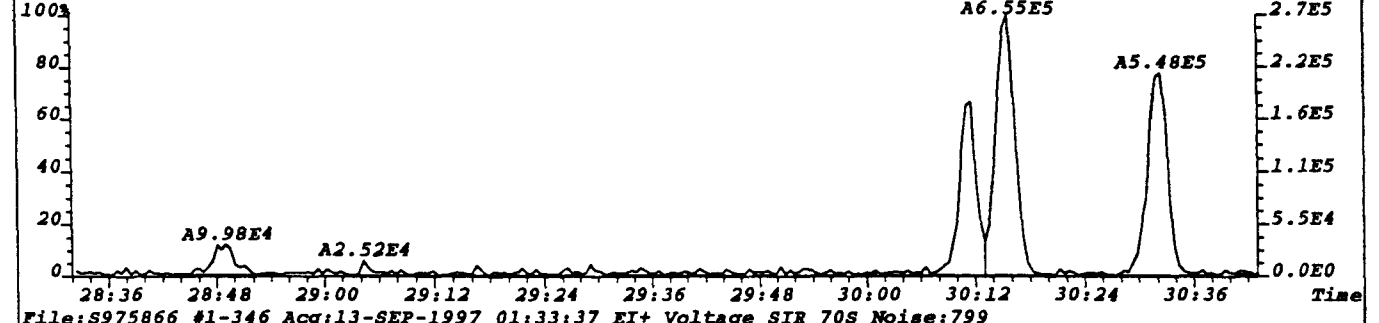
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:1006
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4024.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



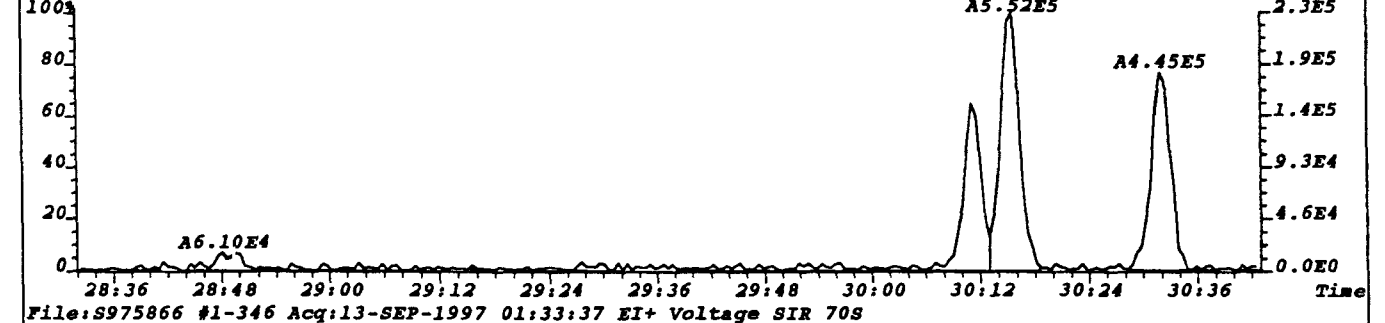
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:964
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3856.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



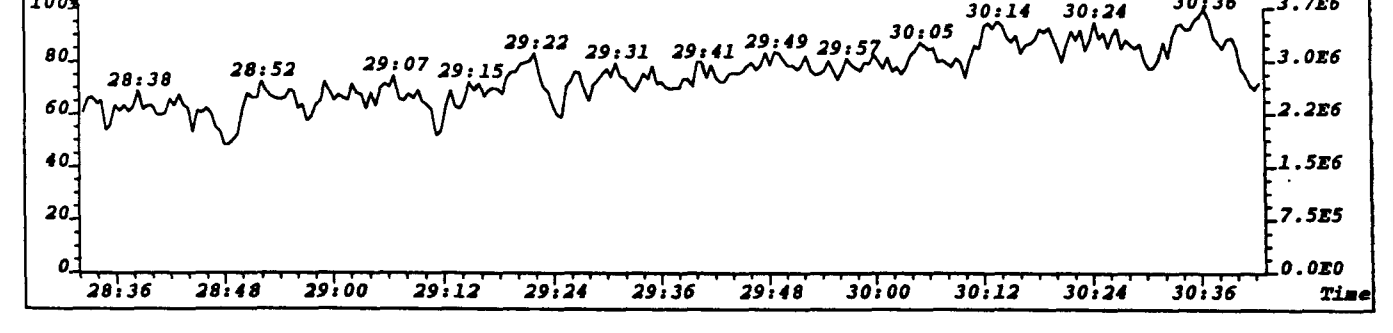
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:896
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3584.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



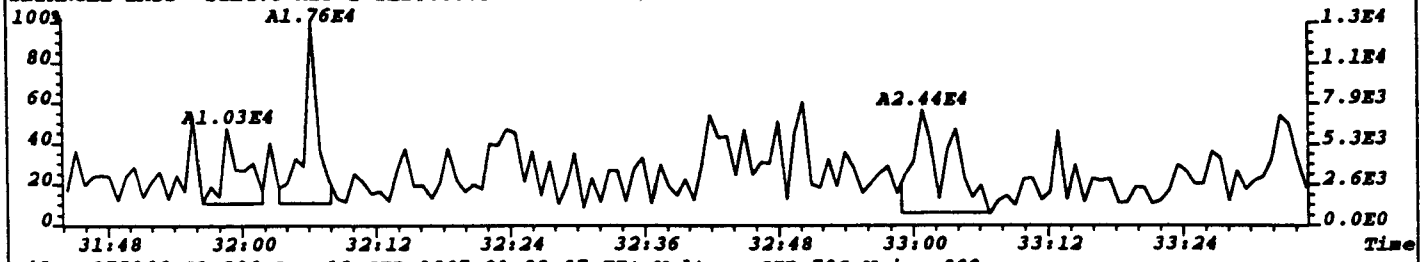
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:799
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3196.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



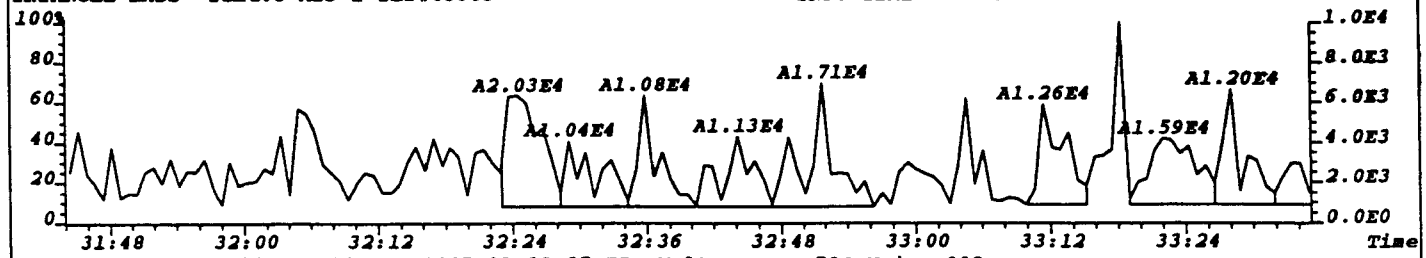
File:S975866 #1-346 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



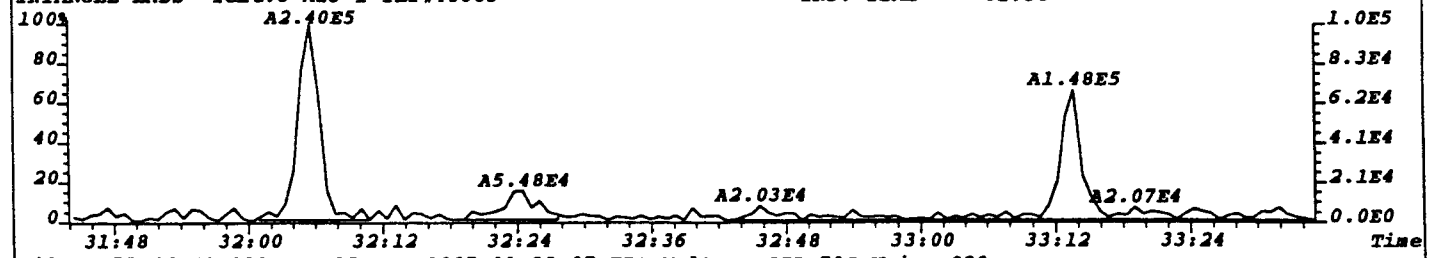
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:880
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3520.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



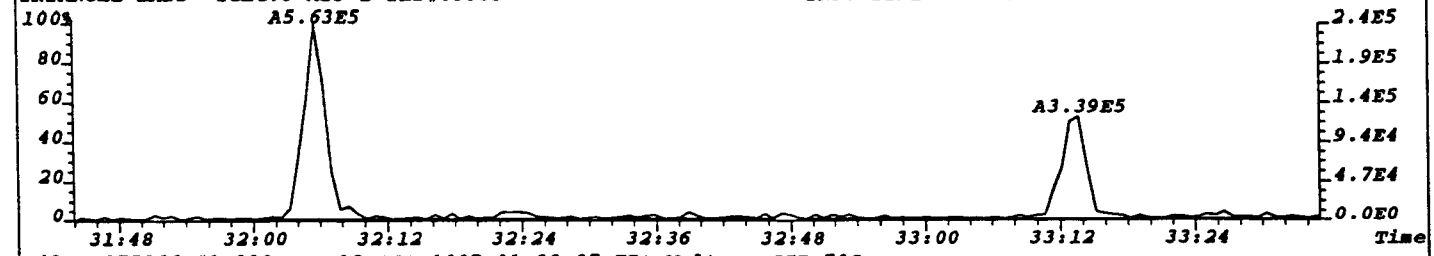
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:889
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3556.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



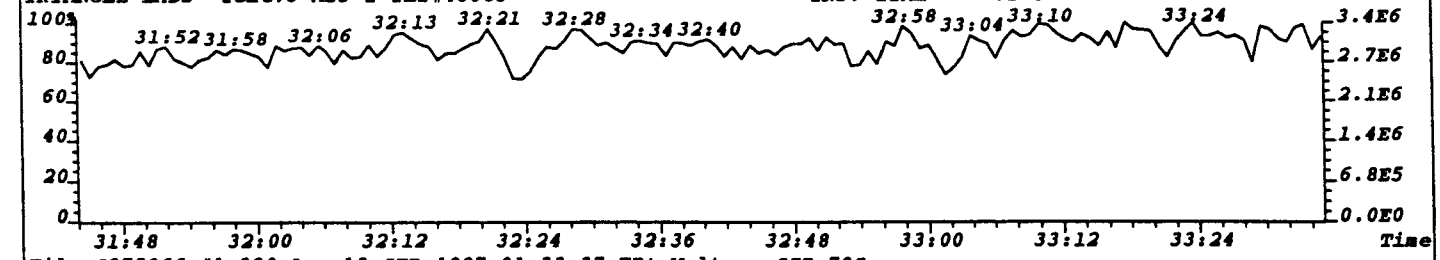
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:992
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3968.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



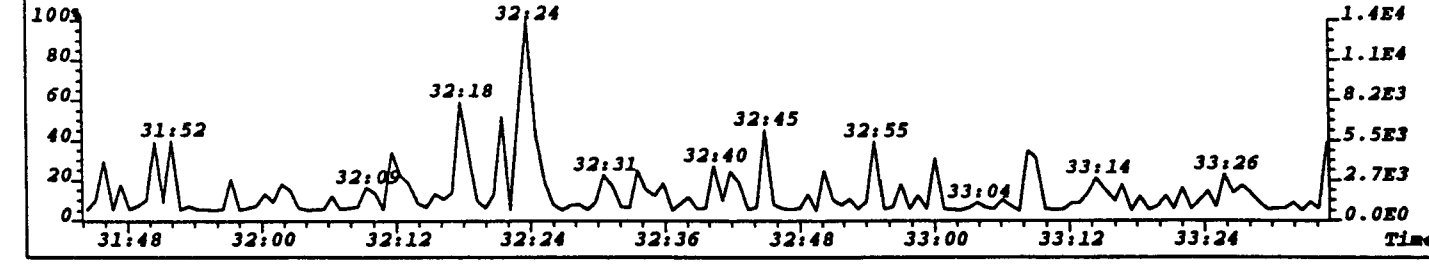
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:829
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3316.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



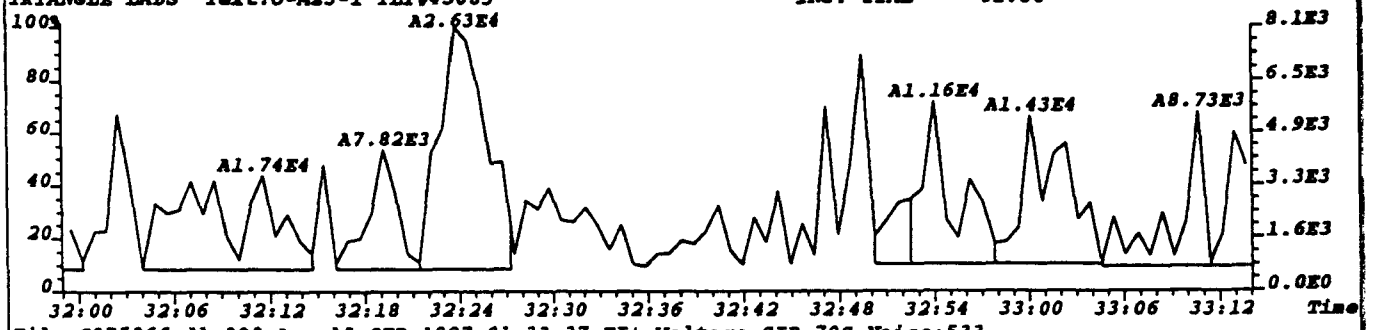
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



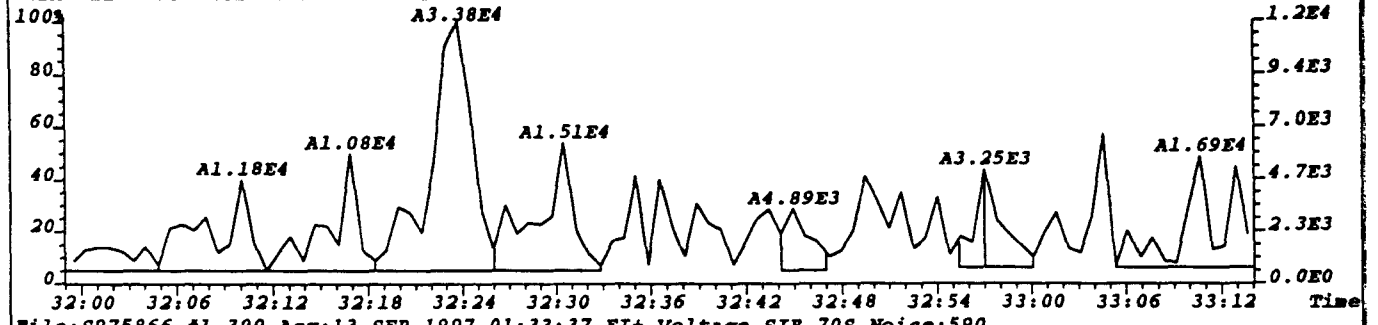
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



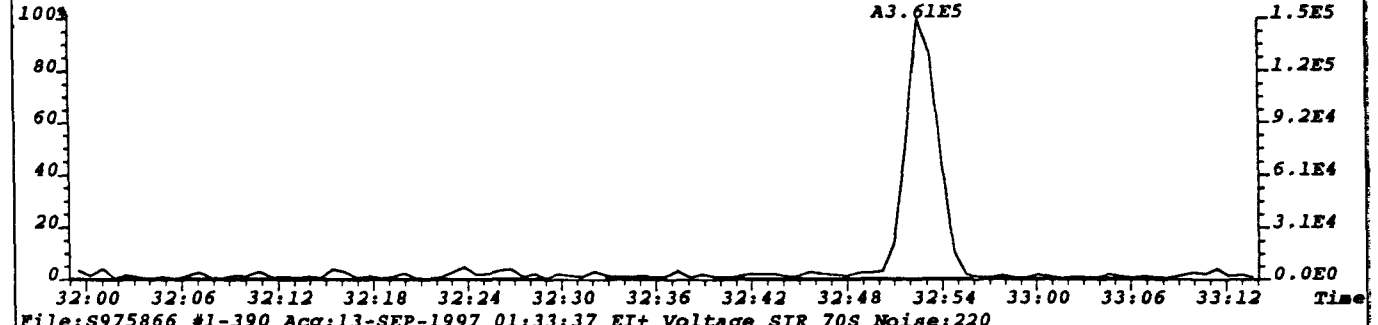
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:587
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2348.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



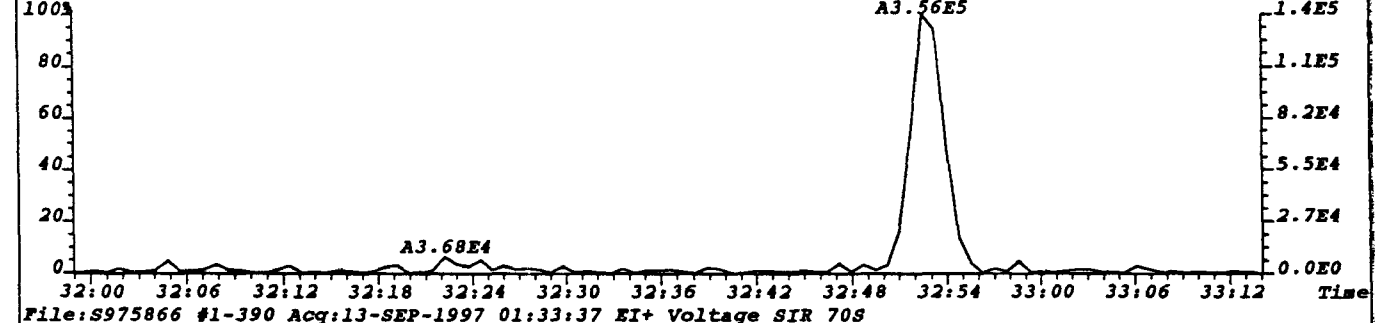
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:533
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



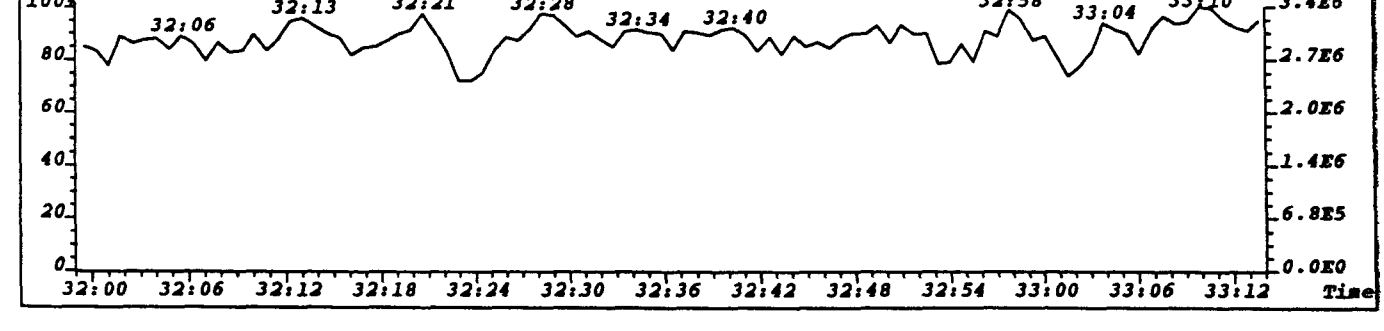
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:590
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2360.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



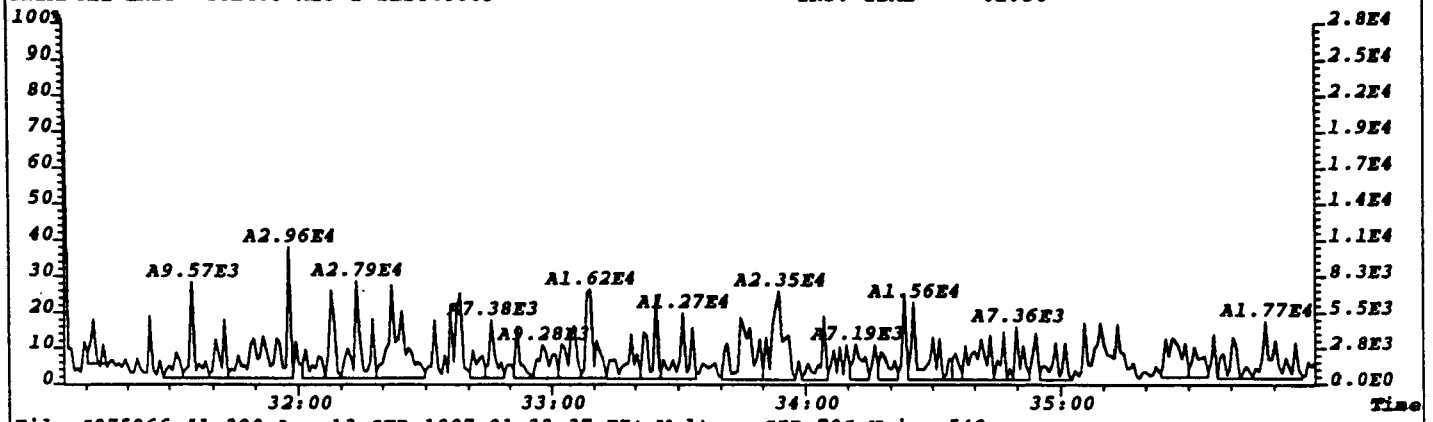
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:220
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,880.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



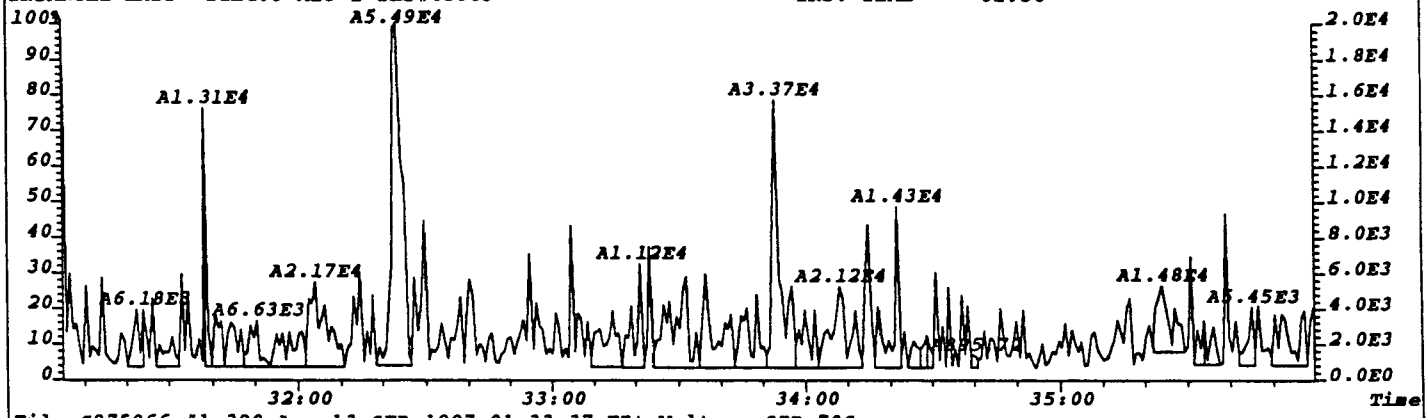
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



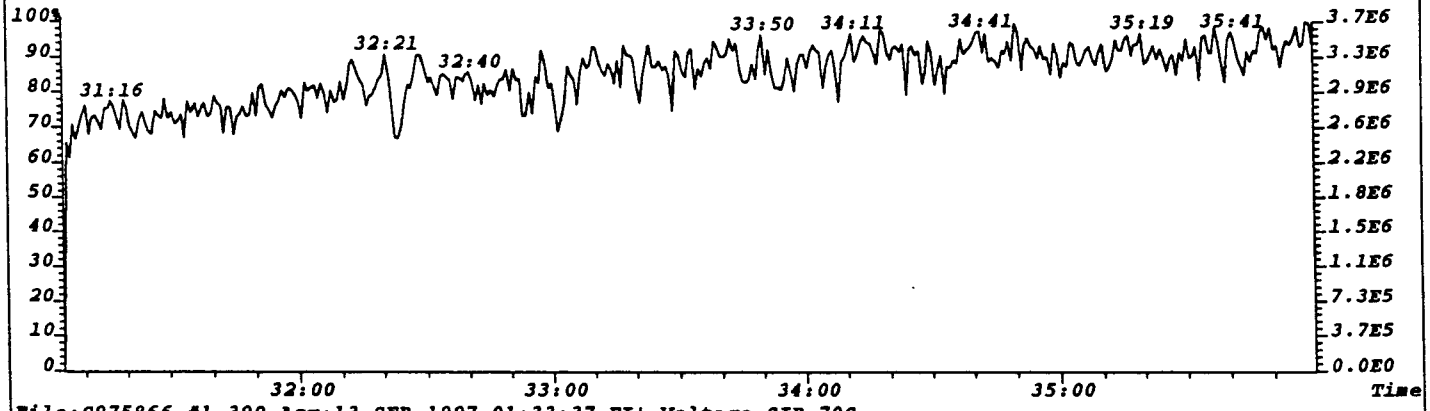
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:403
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1612.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



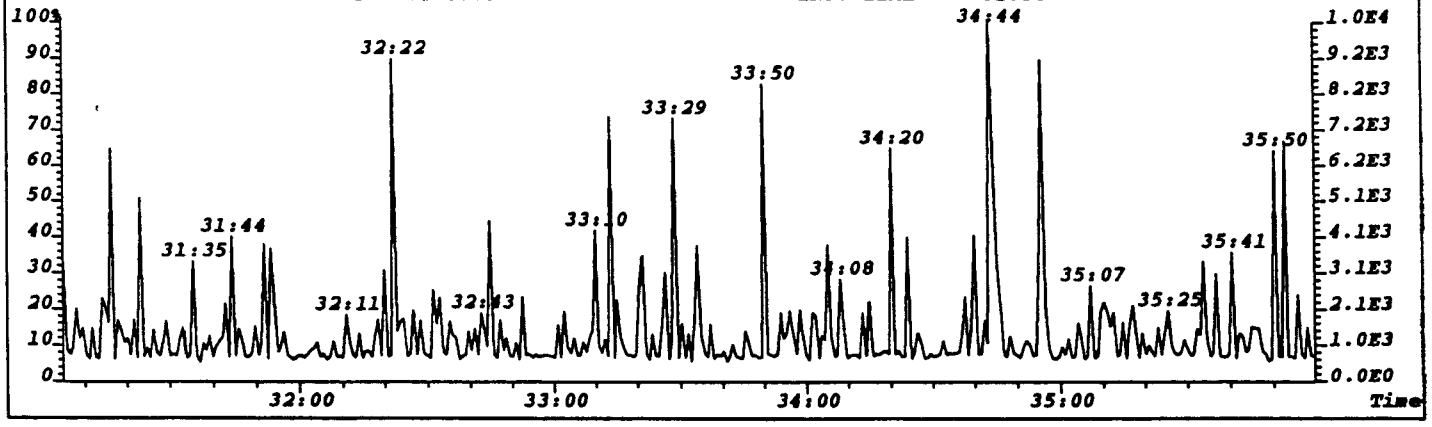
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:549
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2196.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



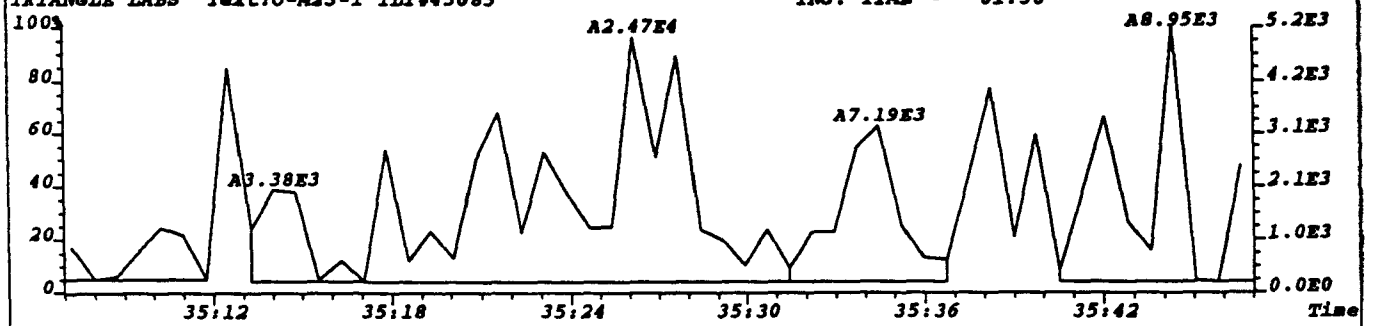
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



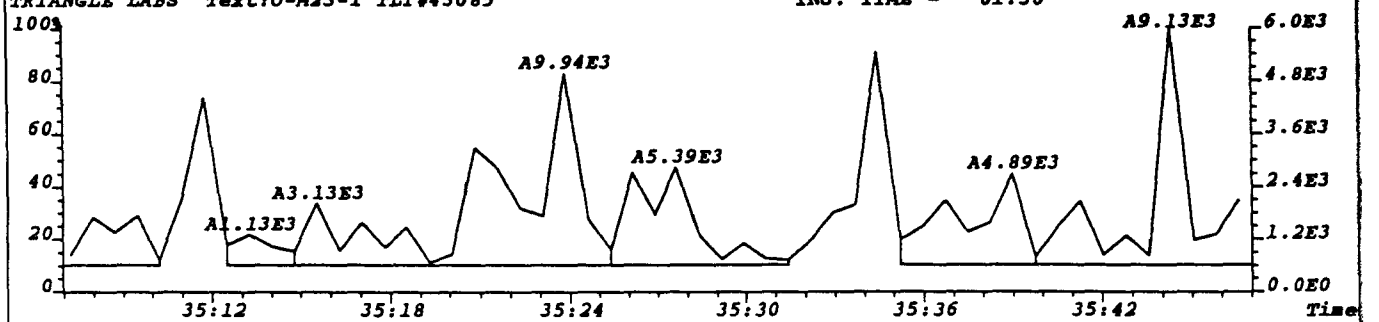
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



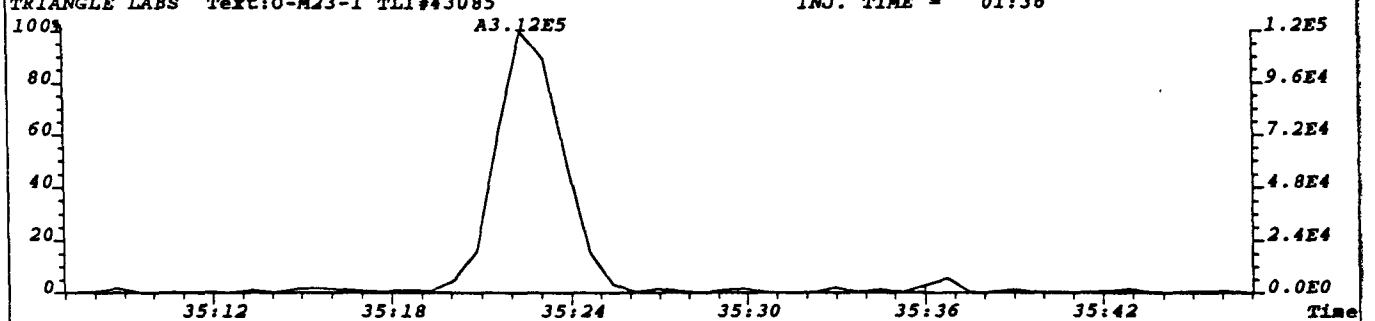
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:225
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,900.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



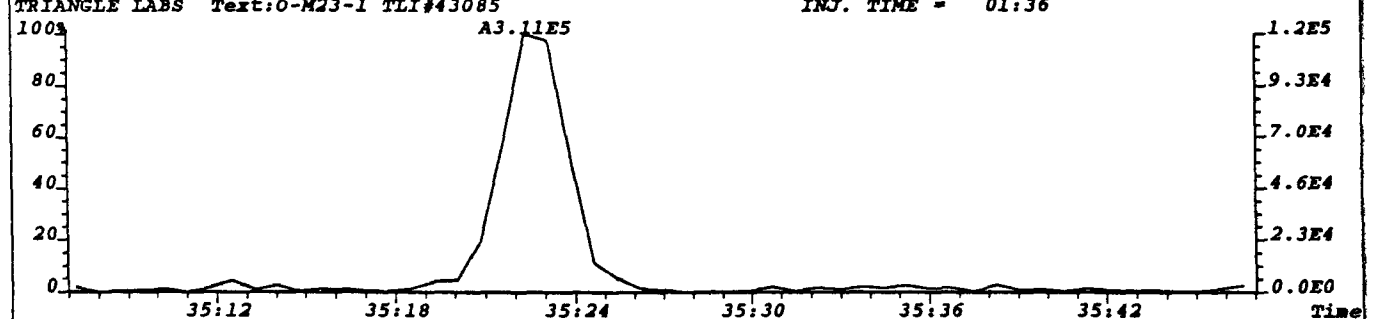
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:359
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1436.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



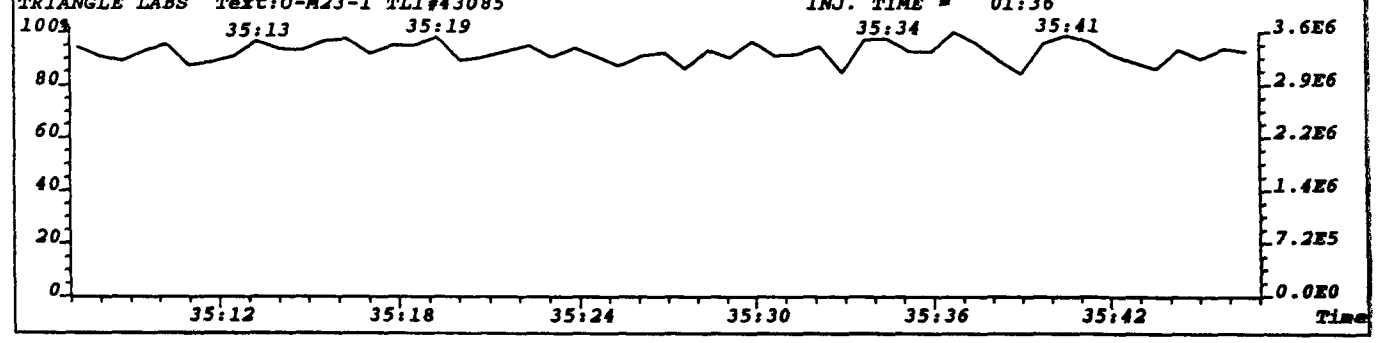
File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:55
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,220.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36

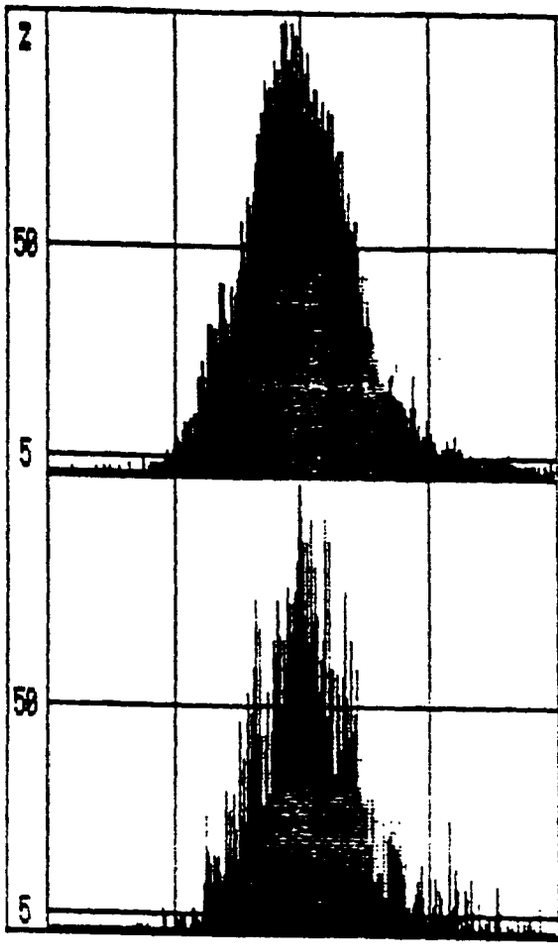


File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S Noise:200
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,800.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



File:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43085 INJ. TIME = 01:36



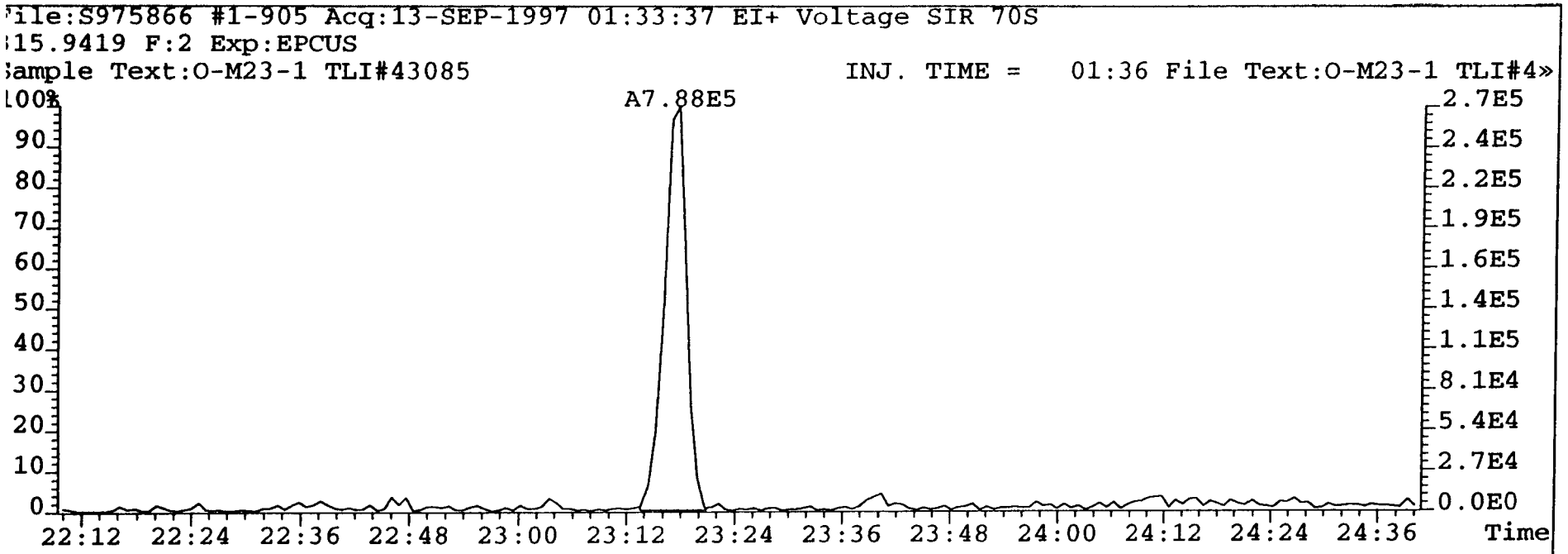


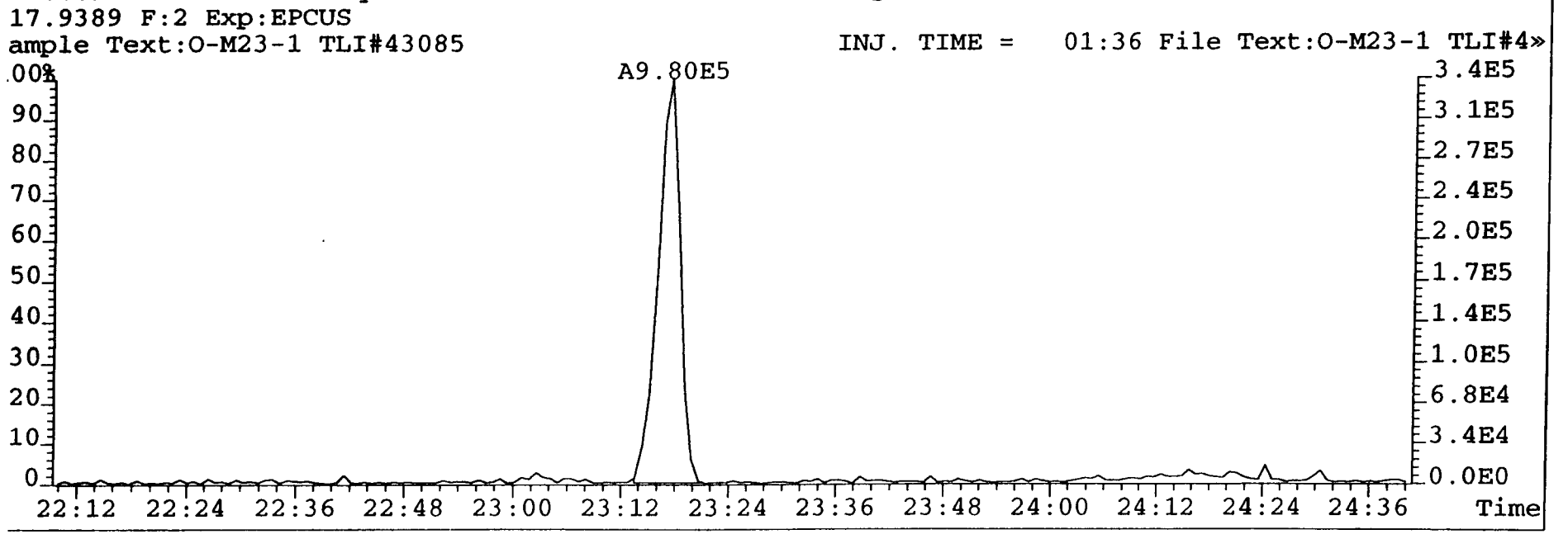
Channel I 330.9792 Peak top
Height 2.32 volts Span 200 ppm

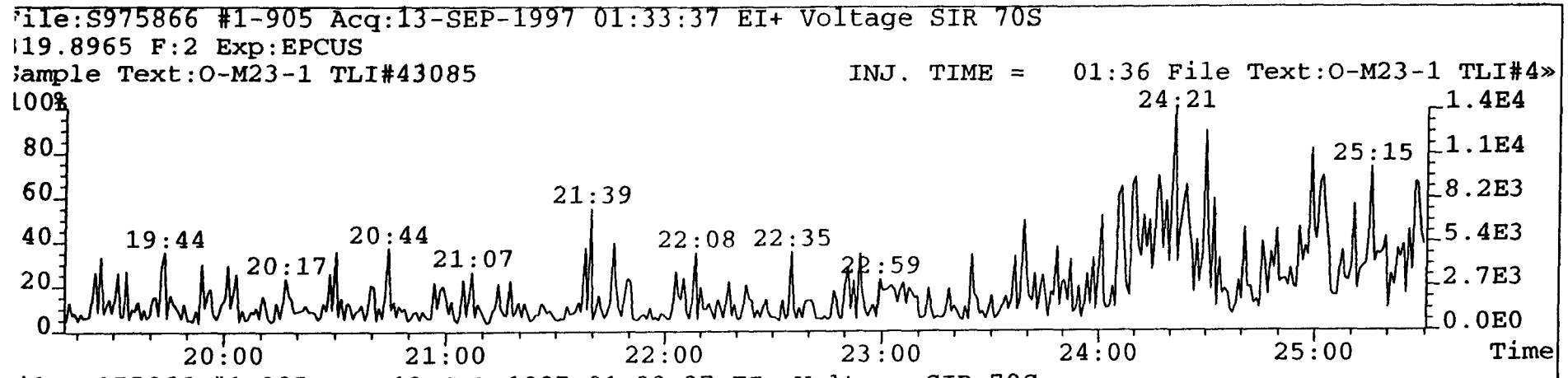
System file name	EPCUS2
Data file name	A:S913971
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

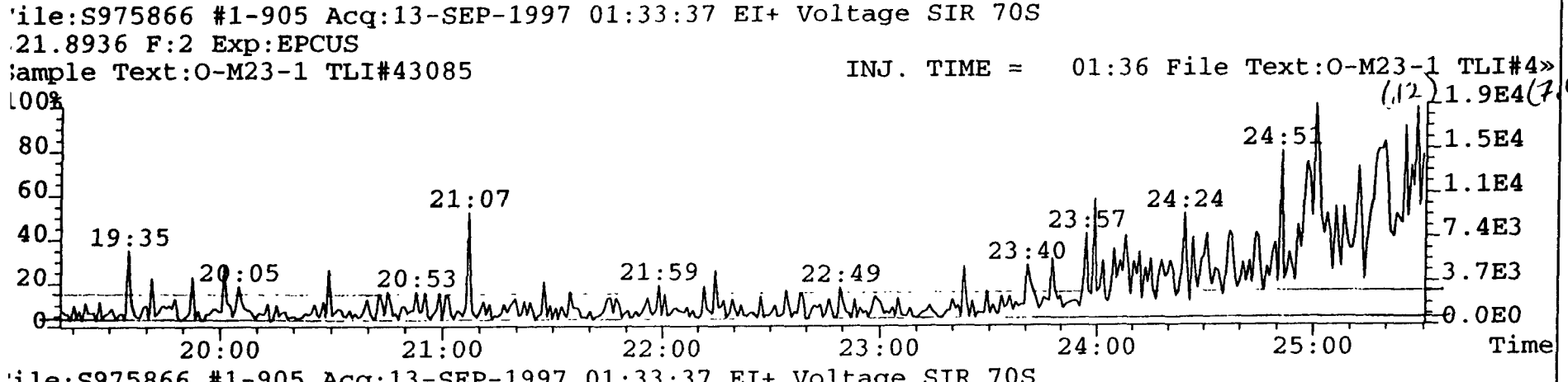
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .30 volts Span 200 ppm

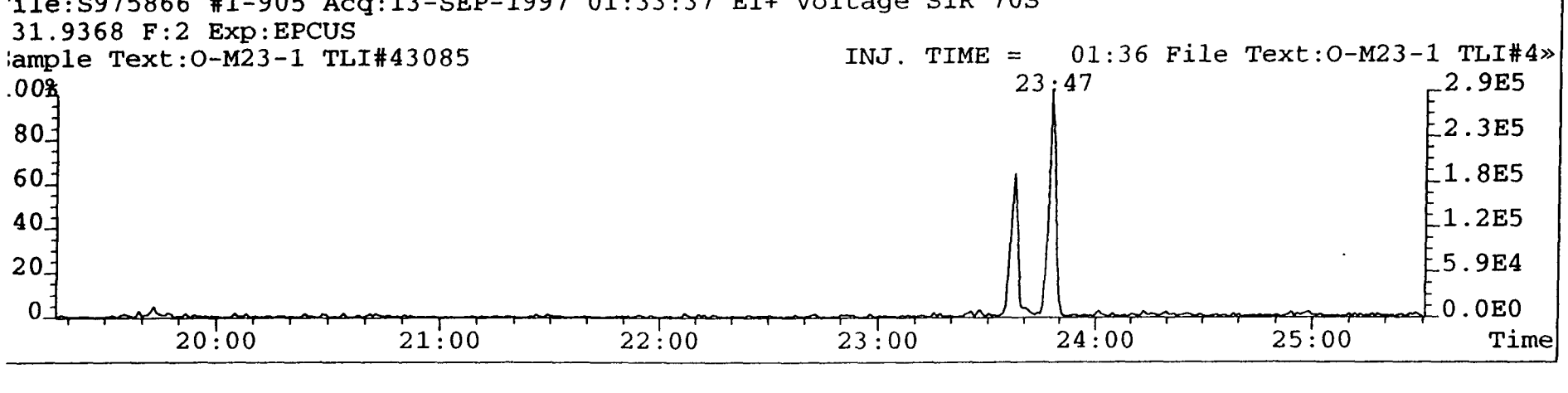

File:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
15.9419 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43085
INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»
A7.88E5
100%
90
80
70
60
50
40
30
20
10
0
2.7E5
2.4E5
2.2E5
1.9E5
1.6E5
1.4E5
1.1E5
8.1E4
5.4E4
2.7E4
0.0E0
22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24 24:36
Time

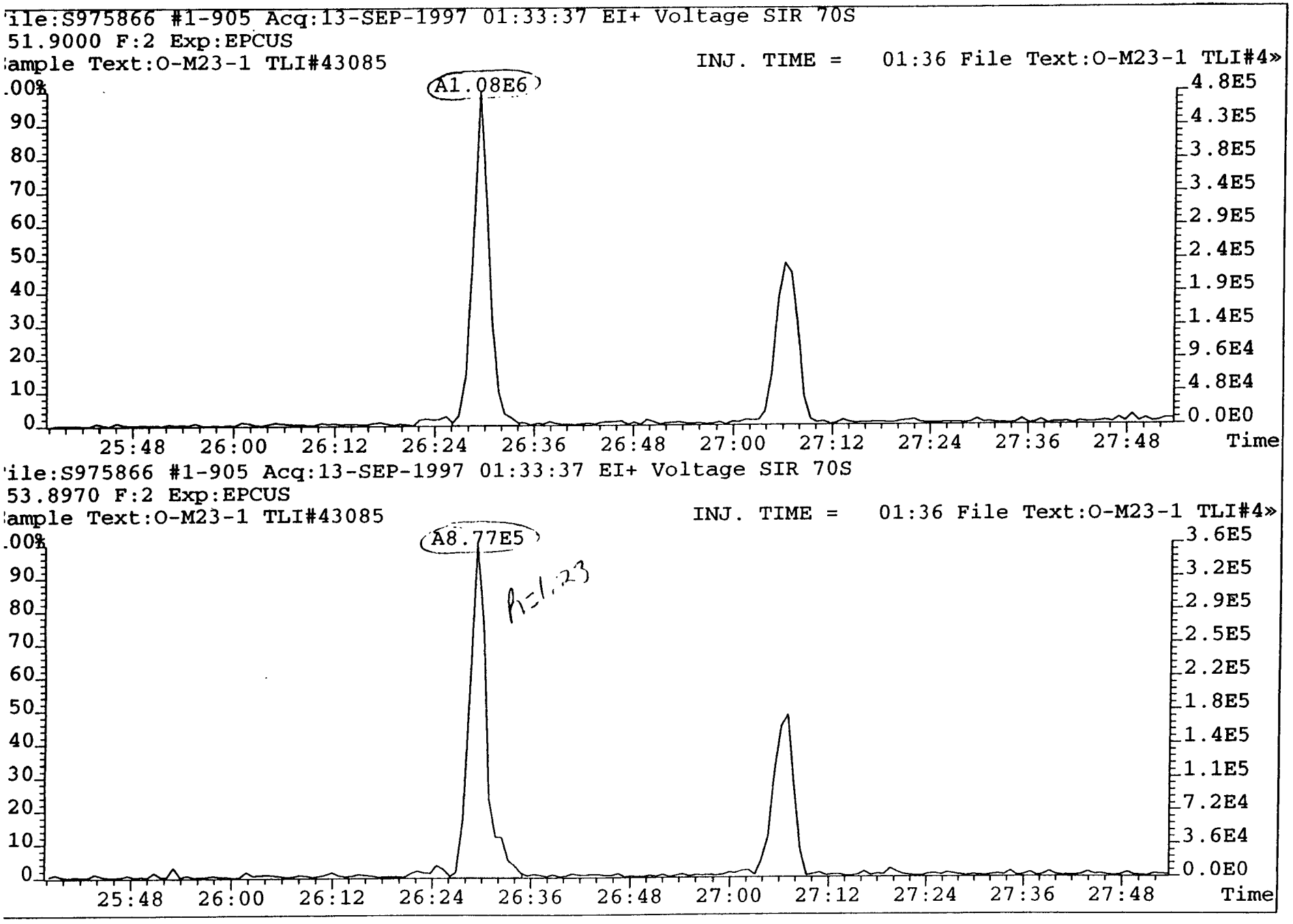

ile:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
17.9389 F:2 Exp:EPCUS
ample Text:O-M23-1 TLI#43085
INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»
A9.80E5
.00%
90
80
70
60
50
40
30
20
10
0
3.4E5
3.1E5
2.7E5
2.4E5
2.0E5
1.7E5
1.4E5
1.0E5
6.8E4
3.4E4
0.0E0
22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24 24:36
Time



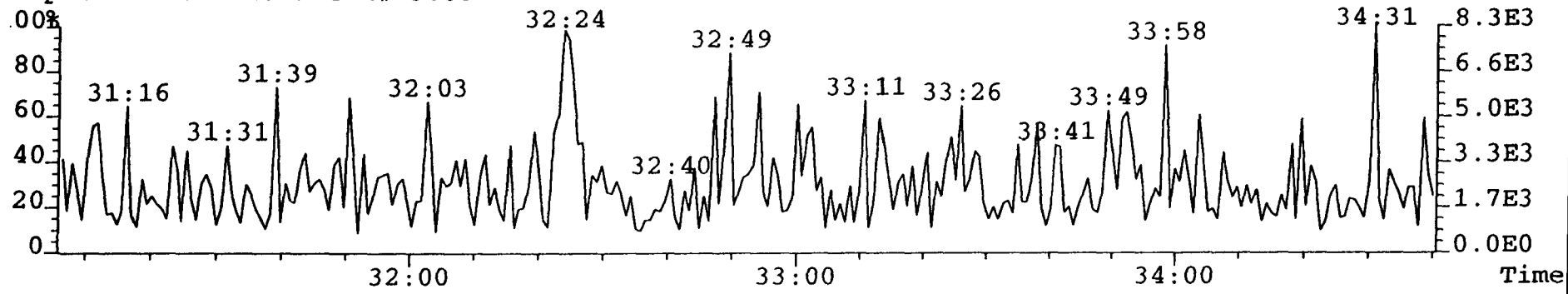


(12)(7.4)=1.69
SV
9/17/97

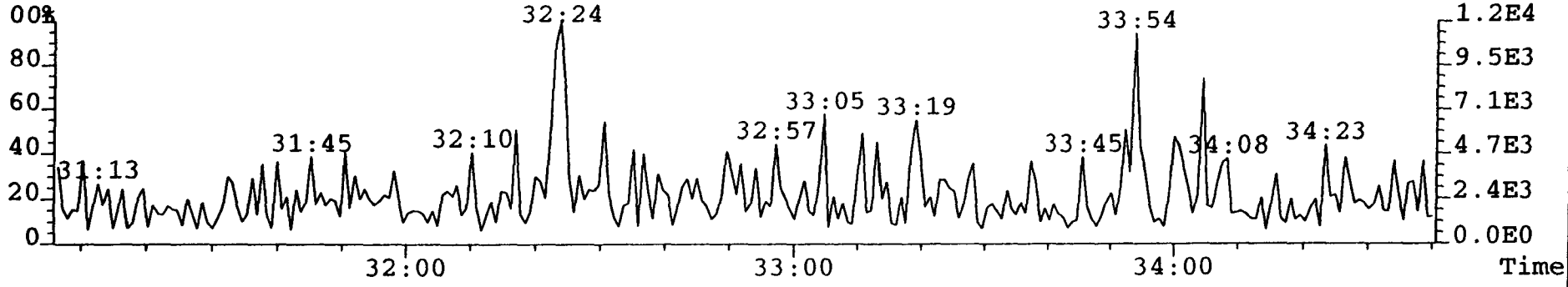



ile:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
51.9000 F:2 Exp:EPCUS
ample Text:O-M23-1 TLI#43085
INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»
A1.08E6
.00%
90
80
70
60
50
40
30
20
10
0
4.8E5
4.3E5
3.8E5
3.4E5
2.9E5
2.4E5
1.9E5
1.4E5
9.6E4
4.8E4
0.0E0
25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 27:48
Time
ile:S975866 #1-905 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
53.8970 F:2 Exp:EPCUS
ample Text:O-M23-1 TLI#43085
INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»
A8.77E5
R=1.23
.00%
90
80
70
60
50
40
30
20
10
0
3.6E5
3.2E5
2.9E5
2.5E5
2.2E5
1.8E5
1.4E5
1.1E5
7.2E4
3.6E4
0.0E0
25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 27:48
Time

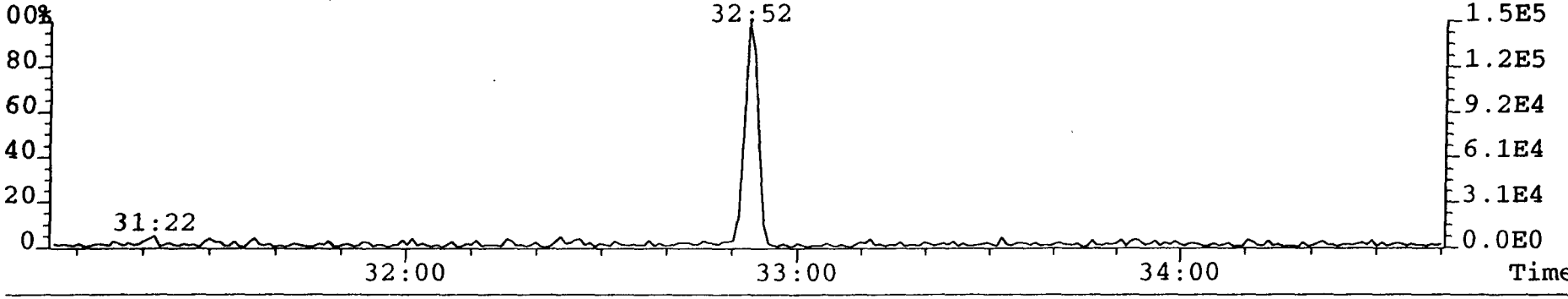
ile:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
23.7766 F:4 Exp:EPCUS
ample Text:O-M23-1 TLI#43085 INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»



ile:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
25.7737 F:4 Exp:EPCUS
ample Text:O-M23-1 TLI#43085 INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»



ile:S975866 #1-390 Acq:13-SEP-1997 01:33:37 EI+ Voltage SIR 70S
35.8169 F:4 Exp:EPCUS
ample Text:O-M23-1 TLI#43085 INJ. TIME = 01:36 File Text:O-M23-1 TLI#4»



Pacific Environmental Services

TLI Project: **43085**
Client Sample: **O-M23-2**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975867**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPX23704**
TLI ID:	**181-55-2ABE**	Date Extracted:	**09/04/97**	ICal:	**SF56117**
		Date Analyzed:	**09/13/97**	ConCal:	**S975861**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**S975815**	% Lipid:	**n/a**
GC Column:	**DB-5**	Analyst:	**ML**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.07				
1,2,3,7,8-PeCDD	ND	0.09				
1,2,3,4,7,8-HxCDD	ND	0.1				
1,2,3,6,7,8-HxCDD	ND	0.1				
1,2,3,7,8,9-HxCDD	ND	0.1				
1,2,3,4,6,7,8-HpCDD	ND	0.2				
1,2,3,4,6,7,8,9-OCDD	ND	0.6				
2,3,7,8-TCDF	ND	0.05				
1,2,3,7,8-PeCDF	EMPC		0.24			E
2,3,4,7,8-PeCDF	ND	0.07				
1,2,3,4,7,8-HxCDF	ND	0.09				
1,2,3,6,7,8-HxCDF	ND	0.07				
2,3,4,6,7,8-HxCDF	ND	0.08				
1,2,3,7,8,9-HxCDF	EMPC		0.24			QE
1,2,3,4,6,7,8-HpCDF	ND	0.2				
1,2,3,4,7,8,9-HpCDF	ND	0.2				
1,2,3,4,6,7,8,9-OCDF	ND	0.4				

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.07		
Total PeCDD	EMPC			1.0	Q
Total HxCDD	0.44	1			Q
Total HpCDD	EMPC			1.0	Q
Total TCDF	ND		0.05		
Total PeCDF	EMPC			0.41	E,Q
Total HxCDF	EMPC			0.46	E,Q
Total HpCDF	EMPC			0.36	

X237_PSR v2.00, LARS 6.10.04

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Printed: 12:07 09/18/97

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **O-M23-2** Analysis File: **S975867**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.5	88.1	40%-130%	0.77	23:16	___
$^{13}C_{12}$-2,3,7,8-TCDD	3.6	90.2	40%-130%	0.83	23:47	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.3	82.1	40%-130%	1.11	26:29	QRO___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.1	102	40%-130%	1.44	27:23	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	3.2	81.0	40%-130%	0.52	29:37	Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.1	77.6	40%-130%	1.36	30:15	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.9	47.2	25%-130%	0.47	32:05	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.1	53.2	25%-130%	1.11	32:52	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	2.4	29.8	25%-130%	1.00	35:22	Q___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.0	100	70%-140%		23:47	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.7	93.1	70%-140%	1.33	27:06	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.8	94.3	70%-140%	0.56	29:33	Q___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.4	85.6	70%-140%	1.31	30:11	Q___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.6	116	70%-140%	0.42	33:13	Q___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.3	58.2	40%-130%	0.55	30:44	Q___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.9	73.7	40%-130%	0.47	30:04	Q___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:36	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	30:31	Q___

Data Reviewer: Shu-Lewis 09/18/97

X237_PSR v2.00, LARS 6.10

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Printed: 12:07 09/18/

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 1.02

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

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09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.838-1.092			
304-306	DC	NL		0:00	RO	1.27	0.19			0.000			
	DC	WL		18:27	RO	1.03	0.57			0.793			
	DC	WL		19:27	RO	2.47	2.37			0.836			
	DC	SN		19:43	RO	3.15	2.76			0.847			
	DC	SN		20:41	RO	4.86	0.39			0.889			
	DC	SN		21:20	RO	1.15	3.59			0.917			
	DC	SN		22:00		0.73	5.04			0.946			
	DC	SN		22:14		0.69	1.49			0.956			
	DC	SN		22:25		0.81	3.90			0.963			
	DC	SN		22:37	RO	2.14	1.13			0.972			
	DC	SN		22:50		0.87	2.21			0.981			
304-306			0	Peaks			0.00						
13C12-TCDF						0.65-0.89				0.954-1.046			
316-318	DC	NL		0:00	RO	1.24	0.37			0.000			
	DC	WL		18:27	RO	0.24	0.37			0.793			
	DC	WL		19:26	RO	1.46	0.96			0.835			
	DC	WL		20:03	RO	0.33	0.32			0.862			
	DC	WL		20:15	RO	1.16	1.22			0.870			
	DC	SN		22:21	RO	2.84	0.65			0.961			
				23:16		0.77	154.49	67.28	87.21	1.000	13C12-2378-TCDF	ISO	
316-318			1	Peak			154.49						

---------- Above: TCDF / TCDD Follows ----------

TCDD						0.65-0.89				0.875-1.055			
320-322	DC	NL		0:00		0.75	0.35			0.000			
	DC	WL		19:28	RO	2.27	0.39			0.819			
	DC	WL		19:43	RO	0.61	1.24			0.829			
	DC	WL		20:10	RO	0.48	0.87			0.848			
	DC	WL		20:22		0.65	1.17			0.856			
	DC	WL		20:29	RO	0.27	0.48			0.861			
	DC	WL		20:38	RO	1.35	0.87			0.868			
	DC	SN		21:07	RO	1.84	0.34			0.888			
	DC	SN		21:13	RO	0.54	1.03			0.892			
	DC	SN		21:25	RO	0.94	1.72			0.900			
	DC	SN		21:46	RO	1.22	0.41			0.915			
	DC	SN		21:54	RO	1.49	0.83			0.921			
	DC	SN		22:03	RO	0.56	0.85			0.927			
	DC	SN		22:15	RO	1.53	0.27			0.936			
	DC	SN		22:34		0.84	0.57			0.949			
	DC	SN		22:43	RO	2.00	0.51			0.955			
	DC	SN		23:29	RO	1.38	0.65			0.987			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		23:40	RO	1.92	1.40			0.995			
320-322		0	Peaks				0.00						
37Cl-TCDD													
328										0.910-1.090			
	DC	NL		0:00			0.16			0.000			
	DC	WL		19:42			9.29			0.828			
	DC	WL		19:57			0.33			0.839			
	DC	WL		20:00			0.10			0.841			
	DC	WL		20:09			0.17			0.847			
	DC	WL		20:09			0.20			0.847			
	DC	WL		20:24			0.21			0.858			
	DC	WL		20:27			0.30			0.860			
	DC	WL		20:36			0.66			0.866			
	DC	WL		20:54			0.64			0.879			
	DC	WL		21:02			0.15			0.884			
	DC	WL		21:18			0.47			0.896			
	DC	WL		21:29			0.88			0.903			
	DC	SN		21:43			1.09			0.913			
	DC	SN		21:53			0.51			0.920			
	DC	SN		22:01			0.31			0.926			
	DC	SN		22:16			1.04			0.936			
	DC	SN		22:27			1.15			0.944			
	DC	SN		22:34			0.26			0.949			
	DC	SN		22:41			0.71			0.954			
	DC	SN		22:52			0.49			0.961			
	DC	SN		23:05			0.51			0.971			
	DC	SN		23:19			0.18			0.980			
	DC	SN		23:27			0.49			0.986			
				23:39			12.85	12.85		0.994			
				23:47			108.07	108.07		1.000	37Cl-TCDD	SUR1	
328		2	Peaks				120.92						
13C12-TCDD						0.65-0.89				0.910-1.090			
332-334	DC	NL		0:00	RO	3.54	0.23			0.000			
	DC	WL		19:39	RO	1.87	6.48			0.826			
	DC	WL		20:06	RO	1.35	0.35			0.845			
	DC	WL		20:18	RO	11.75	0.14			0.854			
	DC	WL		20:35	RO	2.04	0.87			0.865			
	DC	WL		21:09	RO	1.50	0.25			0.889			
	DC	SN		21:40	RO	4.19	0.64			0.911			
	DC	SN		21:52	RO	1.44	0.96			0.919			
	DC	SN		22:00	RO	4.26	0.67			0.925			
	DC	SN		22:12	RO	1.42	0.64			0.933			
	DC	SN		22:21	RO	5.47	0.27			0.940			
	DC	SN		22:50	RO	0.46	1.52			0.960			
	DC	SN		23:12	RO	0.55	1.08			0.975			
	DC	SN		23:25	RO	1.41	2.21			0.985			
				23:36		0.84	132.99	60.76	72.23	0.992	13C12-1234-TCDD	RS1	
				23:47		0.83	127.81	57.91	69.90	1.000	13C12-2378-TCDD	IS1	
332-334		2	Peaks				260.80						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF				1.32-1.78						0.915-1.074			
340-342		DC	NL	0:00	RO	1.00	0.16			0.000			
		DC	WL	23:29	RO	0.89	0.66			0.867			
		DC	WL	23:40	RO	0.23	8.01			0.873			
		DC	WL	24:30	RO	0.61	0.44			0.904			
	E		E	24:53	RO	1.40	5.86	3.56	2.54	0.918			
		DC	SN	25:20	RO	0.18	0.53			0.935			
		DC	SN	25:55	RO	0.78	1.09			0.956			
		DC	SN	26:08	RO	2.72	1.63			0.964			
		DC	SN	26:21	RO	9.48	0.79			0.972			
	E		E	26:32	RO	0.17	8.29	5.04	29.97	0.979	12378-PeCDF	AN	Q
		DC	SN	27:02	RO	0.70	0.94			0.998			
		DC	SN	27:27	RO	3.78	1.02			1.013			
		DC	SN	27:45	RO	4.40	3.09			1.024			
340-342				2 Peaks			14.15						
13C12-PeCDF				1.32-1.78						0.844-1.156			
352-354		DC	NL	0:00	RO	1.20	0.20			0.000			
				23:39	RO	0.68	9.92	6.03	8.92	0.873			
		DC	SN	24:58	RO	7.83	0.61			0.921			
		DC	SN	25:26	RO	0.48	0.44			0.938			
		DC	SN	26:04	RO	1.21	1.63			0.962			
		DC	SN	26:12		1.70	2.13			0.967			
	N			26:29	RO	1.11	123.77	75.23	67.88	0.977	13C12-PeCDF 123	IS2	Q
		DC	SN	26:57		1.37	5.93			0.994			
	N			27:06		1.33	111.72	63.86	47.86	1.000	13C12-PeCDF 234	SUR2	
352-354				3 Peaks			245.41						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD				1.32-1.78						0.926-1.024			
356-358		DC	NL	0:00	RO	1.09	0.20			0.000			
		DC	WL	24:48	RO	2.13	0.20			0.902			
		DC	WL	25:09	RO	1.26	0.72			0.915			
		DC	WL	25:27	RO	1.09	0.41			0.925			
		DC	SN	25:39		1.51	1.43			0.933			
		DC	SN	25:50	RO	0.72	0.46			0.939			
		DC	SN	26:14	RO	2.07	1.05			0.954			
				26:30	RO	3.05	27.95	33.38	10.96	0.964			Q
		DC	SN	26:47	RO	0.78	0.69			0.974			
		DC	SN	27:36	RO	0.33	0.58			1.004			
356-358				1 Peak			27.95						
13C12-PeCDD				1.32-1.78						0.850-1.150			
368-370		DC	NL	0:00	RO	0.92	0.18			0.000			
		DC	SN	25:12	RO	0.40	0.56			0.916			
		DC	SN	25:23		1.57	0.95			0.923			
		DC	SN	26:10	RO	0.38	0.58			0.952			
				26:30	RO	0.44	14.99	9.11	20.64	0.964			
		DC	SN	26:59	RO	0.62	0.64			0.981			

Listing of S975867B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	27:08	RO	1.00	0.67			0.987			
	N			27:23		1.44	86.32	50.92	35.40	0.996	13C12-PeCDD 123	IS3	
	N			27:30		1.56	10.69	6.52	4.17	1.000			
		DC	SN	27:41	RO	0.52	0.23			1.007			
368-370			3	Peaks			112.00						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF					1.05-1.43					0.959-1.050			
374-376		DC	NL	0:00	RO	1.02	1.81			0.000			
		DC	WL	28:33		1.35	1.48			0.950			
		DC	WL	28:41	RO	0.25	0.13			0.954			
	EK		E	28:49	RO	1.40	6.97	4.35	3.11	0.958			Q
		DC	SN	29:03	RO	0.57	0.47			0.966			
		DC	SN	29:09	RO	2.03	0.65			0.970			
		DC	SN	29:21	RO	0.49	0.45			0.976			
		DC	SN	29:32	RO	1.80	1.10			0.982			
		DC	SN	29:35	RO	0.39	0.45			0.984			
		DC	SN	29:45	RO	0.62	1.28			0.989			
		DC	SN	29:49	RO	1.79	0.94			0.992			
		DC	SN	29:53	RO	3.50	1.03			0.994			
		DC	SN	29:58		1.20	1.23			0.997	123478-HxCDF	AN	
		DC	SN	30:06		1.15	3.09			1.001	123678-HxCDF	AN	
		DC	SN	30:11	RO	0.56	1.63			1.004			
		DC	SN	30:24	RO	0.37	0.70			1.011			
		DC	SN	30:33	RO	0.45	1.32			1.016			
		DC	SN	30:37	RO	0.75	1.32			1.018	234678-HxCDF	AN	
	E		E	30:44	RO	0.89	6.63	3.67	4.12	1.022	123789-HxCDF	AN	Q
		DC	SN	30:57	RO	0.05	0.20			1.029			
374-376			2	Peaks			13.60						
13C12-HxCDF					0.43-0.59					0.863-1.137			
384-386		DC	NL	0:00	RO	0.94	1.01			0.000			
		DC	SN	28:18	RO	0.70	0.69			0.941			
		DC	SN	28:25	RO	3.46	0.20			0.945			
		DC	SN	28:29	RO	0.19	0.50			0.947			
		DC	SN	28:35	RO	0.39	0.80			0.951			
				28:49	RO	0.79	9.44	4.91	6.25	0.958			
		DC	SN	28:54		0.54	1.05			0.961			
		DC	SN	28:58	RO	0.86	0.63			0.963			
		DC	SN	29:13	RO	1.13	0.47			0.972			
		DC	SN	29:16	RO	4.36	0.17			0.973			
	N			29:33		0.56	89.18	32.02	57.16	0.983	13C12-HxCDF 478	SUR3	Q
	N			29:37		0.52	98.61	33.78	64.83	0.985	13C12-HxCDF 678	IS4	Q
	N			30:04		0.47	83.08	26.72	56.36	1.000	13C12-HxCDF 234	ALT2	Q
		DC	SN	30:11	RO	0.82	1.10			1.004			
	N	DC	SN	30:33	RO	1.68	1.45			1.016			
	N			30:44		0.55	57.08	20.26	36.82	1.022	13C12-HxCDF 789	ALT1	Q
		DC	SN	30:55	RO	1.56	0.83			1.028			
384-386			5	Peaks			337.39						

Listing of S975867B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.953-1.014			
390-392		DC	NL	0:00	RO	0.83	0.99			0.000			
		DC	WL	28:39	RO	0.35	0.13			0.939			
	K			28:48		1.34	9.02	5.17	3.85	0.944			Q
		DC	WL	28:54	RO	0.86	1.19			0.947			
		DC	SN	29:09		1.14	1.50			0.955			
		DC	SN	29:16		1.23	1.05			0.959			
		DC	SN	29:20	RO	0.53	0.89			0.961			
		DC	SN	29:29	RO	0.23	0.33			0.966			
		DC	SN	29:34	RO	0.25	0.14			0.969			
		DC	SN	29:36	RO	0.63	0.47			0.970			
		DC	SN	29:44		1.07	0.91			0.974			
		DC	SN	29:47		1.32	0.95			0.976			
		DC	SN	29:53		1.23	0.78			0.979			
		DC	SN	30:02	RO	2.87	0.69			0.984			
		DC	SN	30:10	RO	0.59	1.05			0.989			
		DC	SN	30:12	RO	0.14	0.20			0.990			
		DC	SN	30:18	RO	1.88	0.58			0.993			
		DC	SN	30:36	RO	0.75	1.28			1.003			
	D	DC	WH	30:45		1.19	10.16			1.008			
390-392			1	Peak			9.02						
13C12-HxCDD				1.05-1.43						0.967-1.033			
402-404		DC	NL	0:00	RO	0.87	1.39			0.000			
		DC	WL	28:40	RO	2.93	1.03			0.939			
		DC	WL	28:49	RO	2.23	16.89			0.944			
		DC	WL	29:11	RO	0.83	1.03			0.956			
		DC	WL	29:15	RO	2.25	0.63			0.958			
		DC	WL	29:20	RO	5.43	0.52			0.961			
		DC	SN	29:32	RO	2.78	0.20			0.968			
	N			30:11		1.31	65.09	36.92	28.17	0.989	13C12-HxCDD 478	SUR4	Q
	N			30:15		1.36	78.12	45.06	33.06	0.991	13C12-HxCDD 678	IS5	Q
	N			30:31		1.20	101.17	55.23	45.94	1.000	13C12-HxCDD 789	RS2	Q
				30:43	RO	1.85	18.91	15.60	8.44	1.007			
402-404			4	Peaks			263.29						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20						0.995-1.042			
408-410		DC	NL	0:00	RO	1.67	1.98			0.000			
				32:23	RO	1.79	5.22	4.59	2.56	1.009			
		DC	SN	32:40		1.13	0.96			1.018			
		DC	SN	33:05	RO	1.77	2.18			1.031			
408-410			1	Peak			5.22						
13C12-HpCDF				0.37-0.51						0.937-1.125			
418-420		DC	NL	0:00	RO	1.24	1.48			0.000			
		DC	SN	31:58	RO	2.80	0.66			0.996			
				32:05		0.47	42.38	13.48	28.90	1.000	13C12-HpCDF 678	IS6	Q
				32:23	RO	1.43	8.57	8.53	5.95	1.009			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	32:41	RO	0.63	0.66			1.019			
		DC	SN	32:52	RO	0.65	2.43			1.024			
	N			33:13		0.42	37.78	11.15	26.63	1.035	13C12-HpCDF 789 SUR5		Q
		DC	SN	33:31	RO	0.57	1.27			1.045			
418-420				3 Peaks			88.73						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.977-1.005			
424-426		DC	NL	0:00		0.95	1.21			0.000			
				32:22	RO	0.64	11.85	6.04	9.37	0.985			Q
		DC	WH	33:08	RO	0.45	1.53			1.008			
424-426				1 Peak			11.85						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438		DC	NL	0:00	RO	2.38	0.59			0.000			
		DC	SN	32:02	RO	0.24	0.31			0.975			
		DC	SN	32:11	RO	1.75	1.45			0.979			
		DC	SN	32:22	RO	1.88	2.98			0.985			
				32:52		1.11	43.89	23.07	20.82	1.000	13C12-HpCDD 678	IS7	Q
		DC	SN	33:14	RO	3.10	1.06			1.011			
436-438				1 Peak			43.89						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

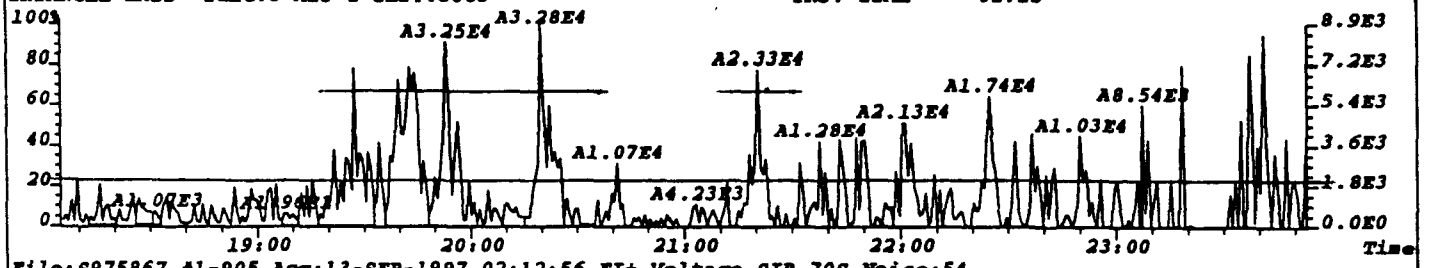
OCDF				0.76-1.02						0.887-1.113			
442-444		DC	NL	0:00	RO	0.65	1.40			0.000			
		DC	SN	32:02	RO	0.61	1.17			0.906			
				32:22	RO	0.41	11.70	5.51	13.44	0.915			Q
		DC	SN	32:56	RO	2.19	0.51			0.931			
		DC	SN	33:09	RO	0.21	0.42			0.937			
		DC	SN	33:14	RO	1.67	0.68			0.940			
				33:53	RO	0.38	8.22	3.87	10.30	0.958			Q
		DC	SN	34:44	RO	1.67	0.93			0.982			
		DC	SN	35:03	RO	0.43	1.36			0.991			
		DC	SN	35:09		0.89	1.78			0.994			
		DC	SN	35:26	RO	0.42	4.88			1.002			
		DC	SN	35:32	RO	2.19	2.25			1.005	OCDF	AN	
442-444				2 Peaks			19.92						
OCDD				0.76-1.02						0.887-1.113			
458-460		DC	NL	0:00	RO	1.38	0.15			0.000			
458-460				0 Peaks			0.00						
13C12-OCDD				0.76-1.02						0.996-1.005			
470-472		DC	NL	0:00		0.93	0.27			0.000			
				35:22		1.00	31.27	15.60	15.67	1.000	13C12-OCDD	IS8	Q
470-472				1 Peak			31.27						

Compound/
M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID.. Flags.

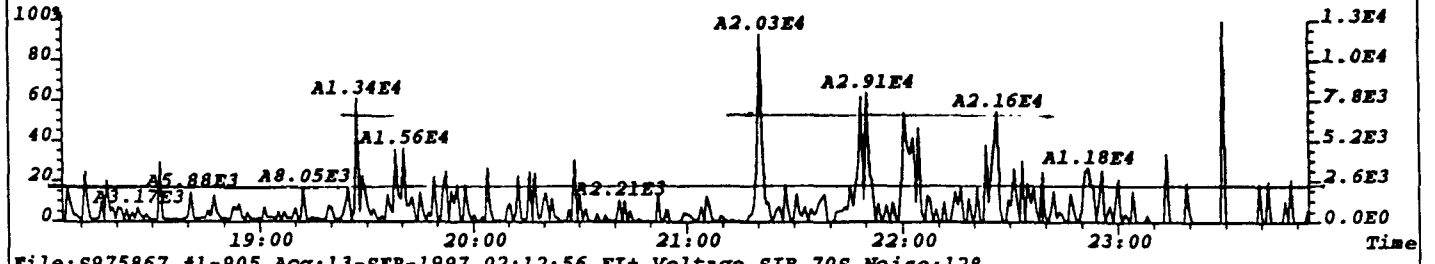
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

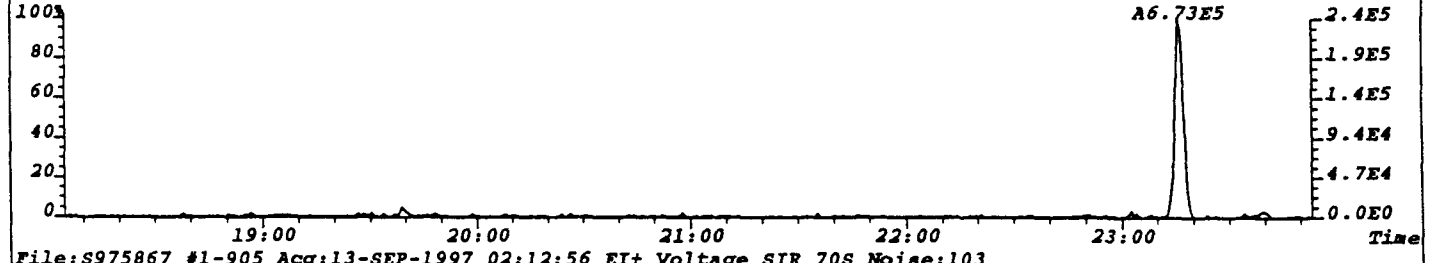
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:68
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,272.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



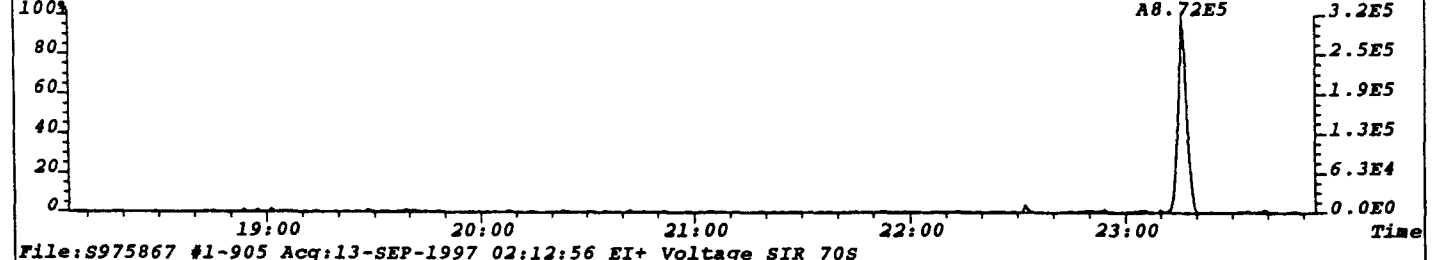
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:54
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



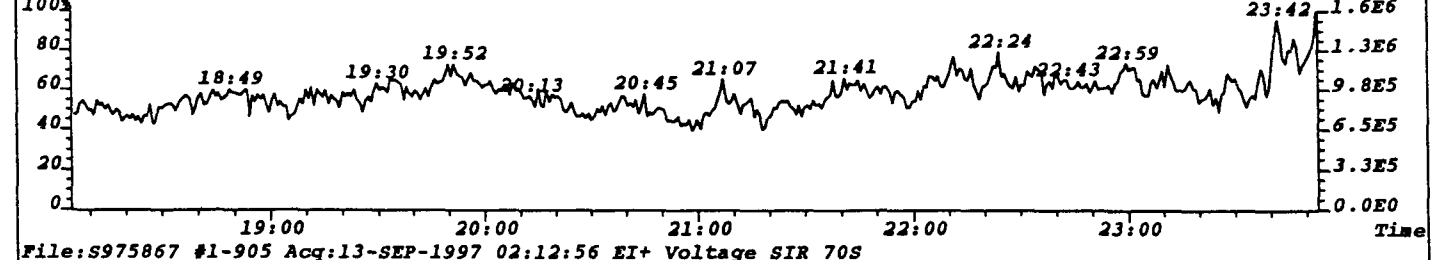
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:128
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,512.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



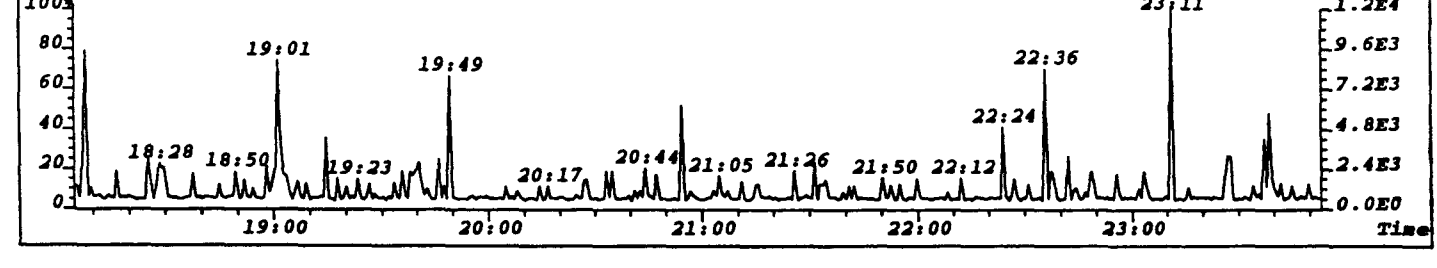
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:103
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,412.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



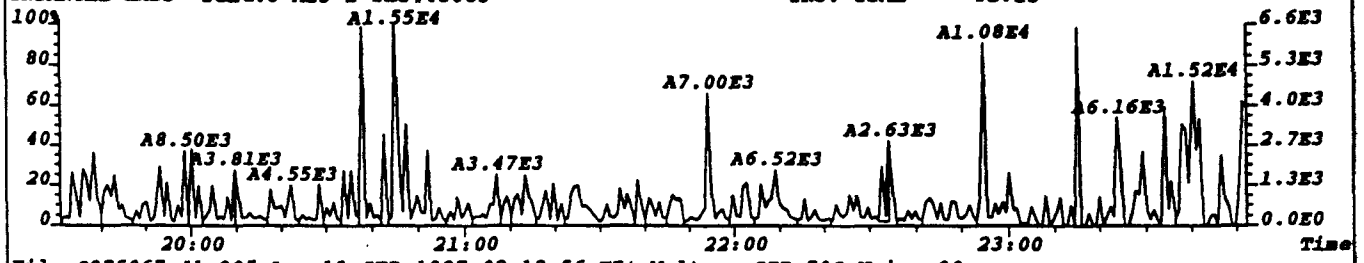
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



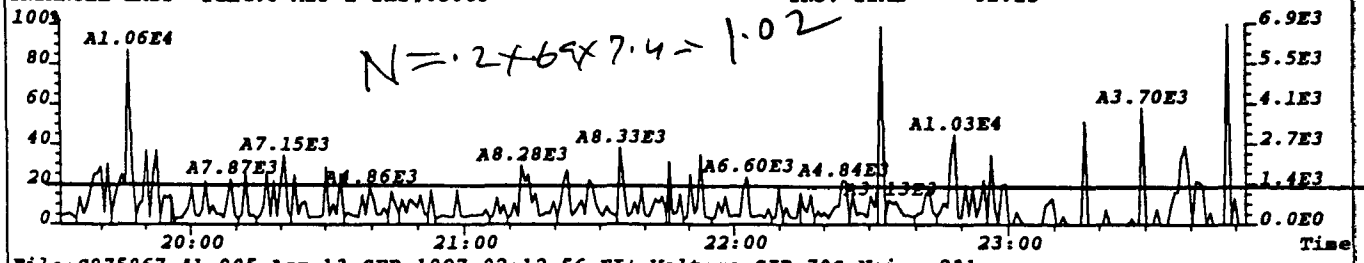
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



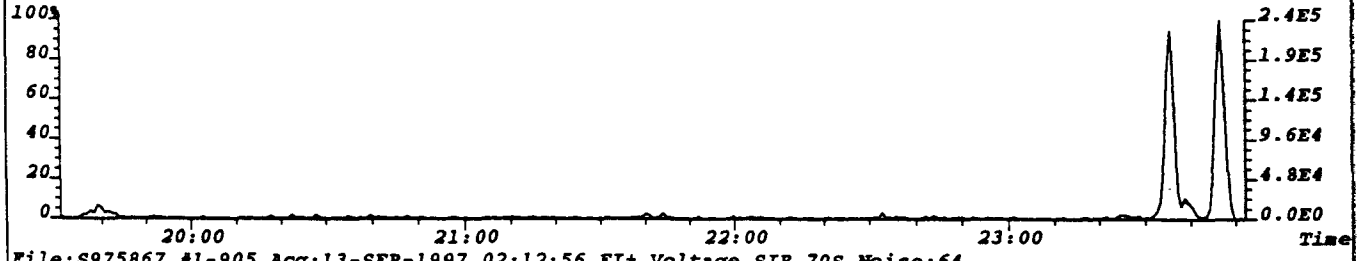
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:76
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,304.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



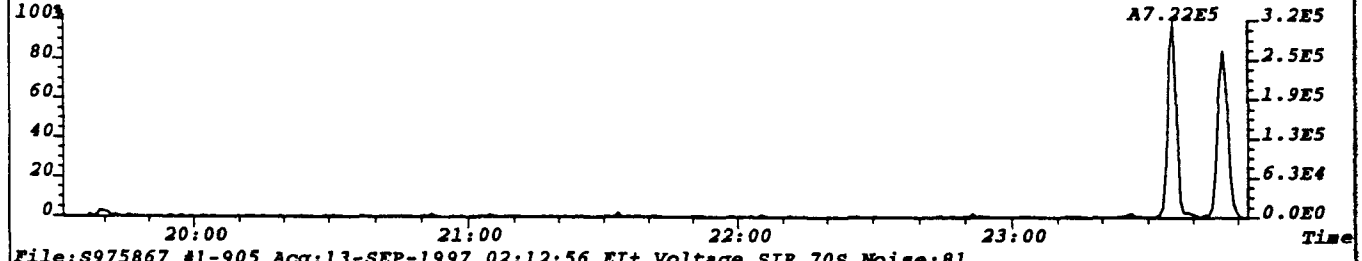
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:98
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,392.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



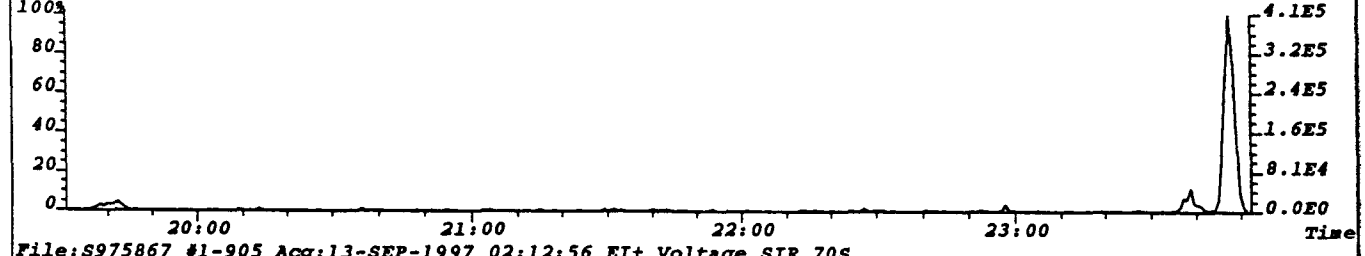
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:231
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,924.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



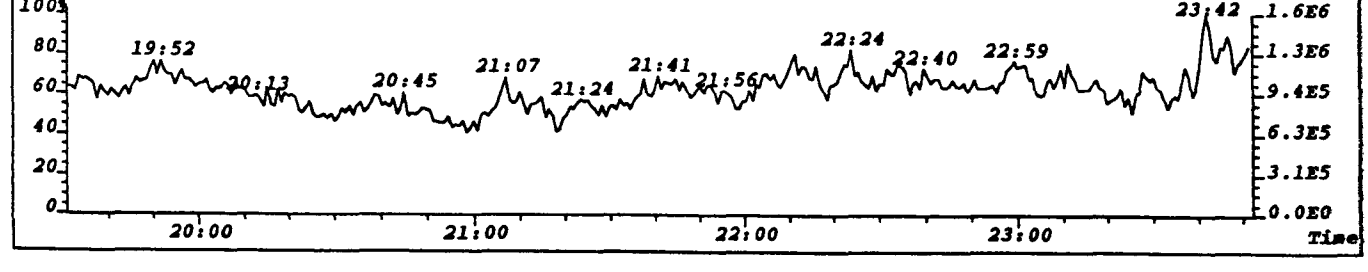
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:64
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,256.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



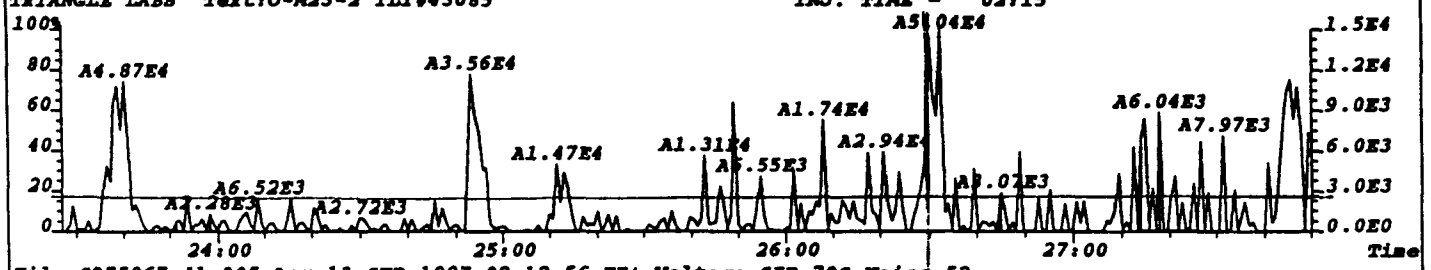
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:81
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,324.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



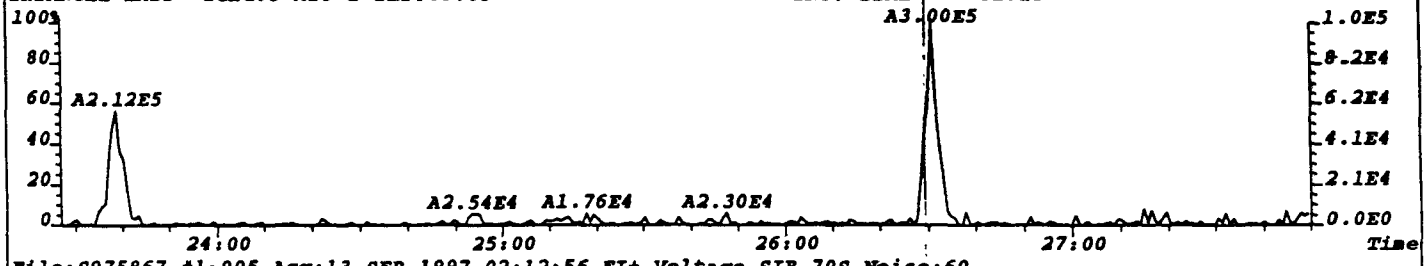
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



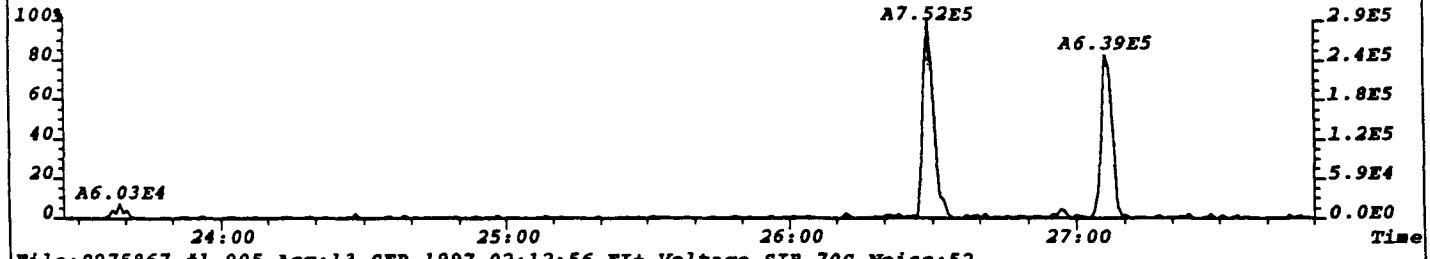
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:52
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



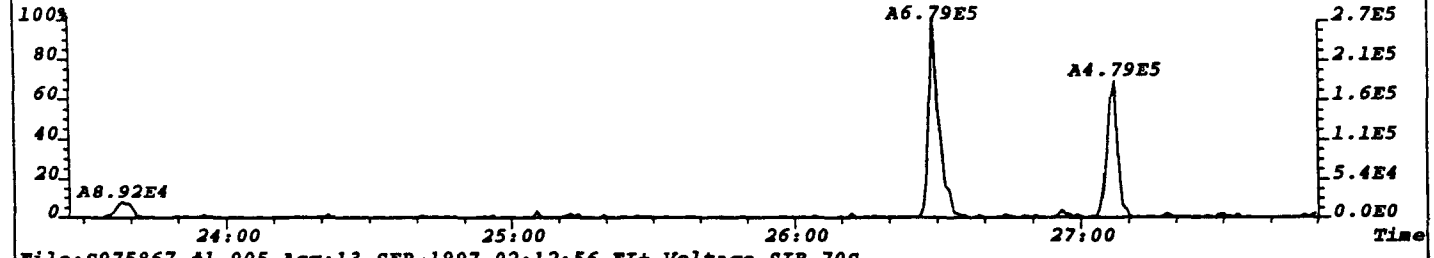
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:52
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



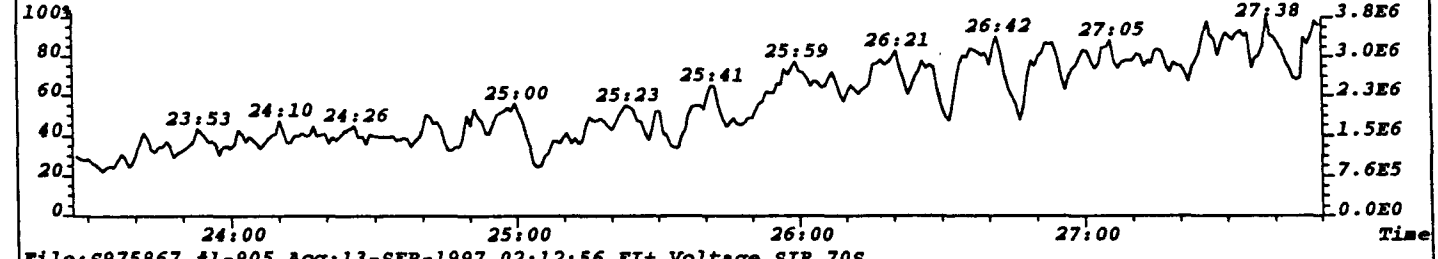
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:60
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



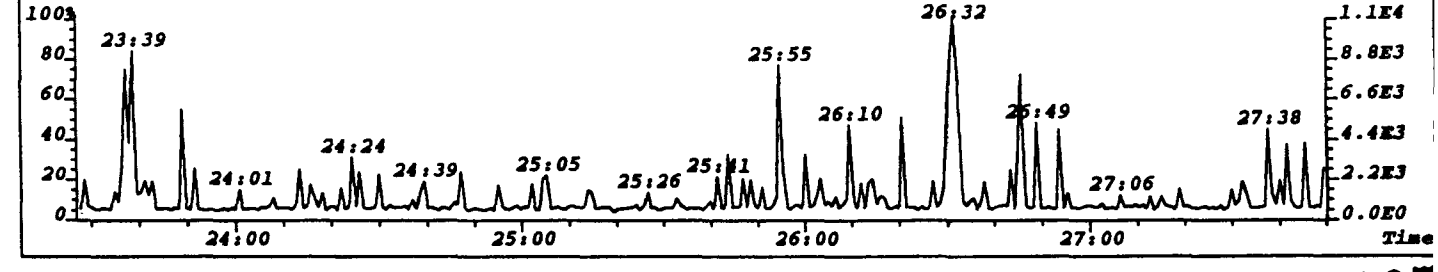
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:52
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



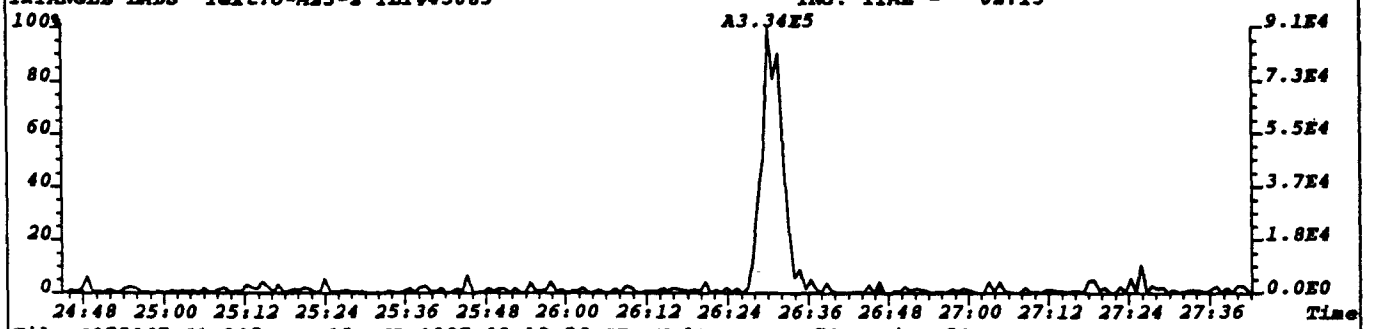
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



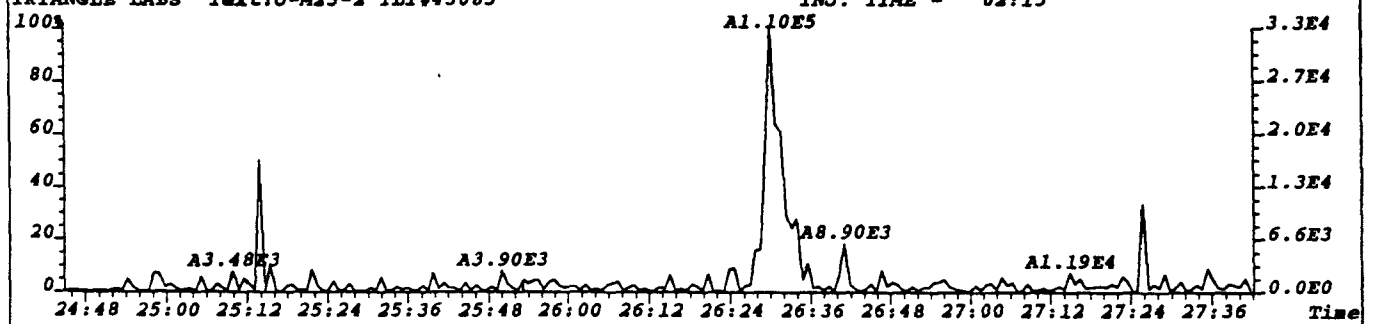
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



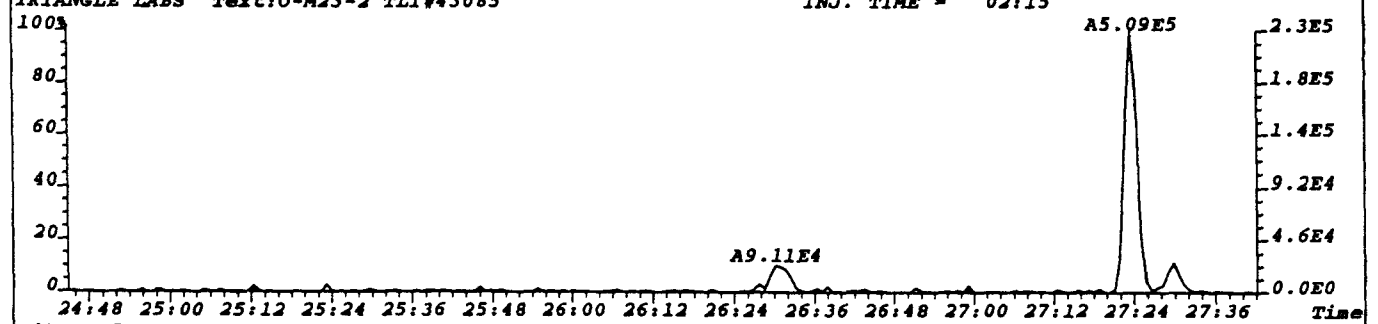
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:60
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



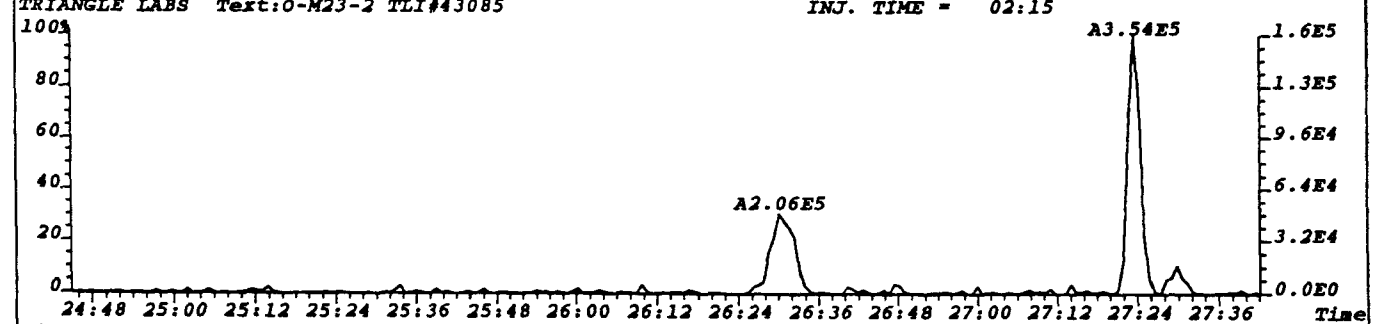
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:54
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



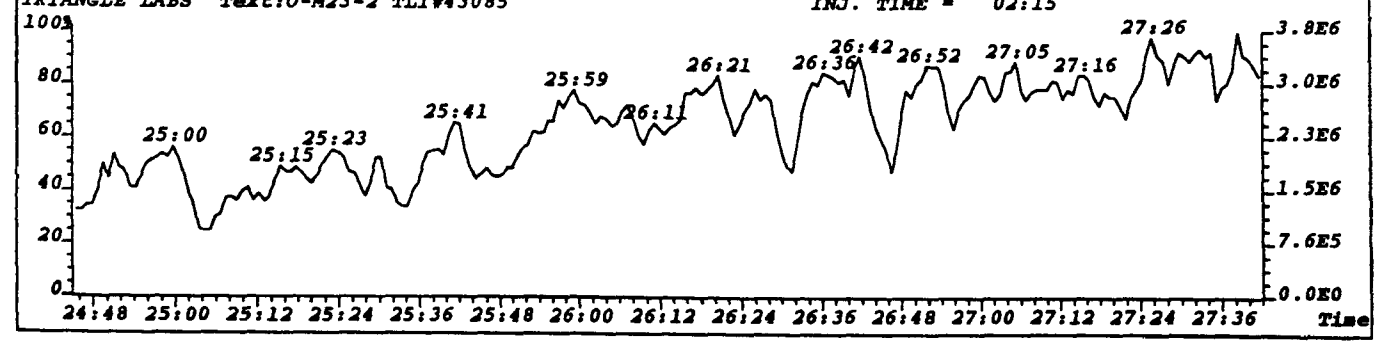
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:56
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,224.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



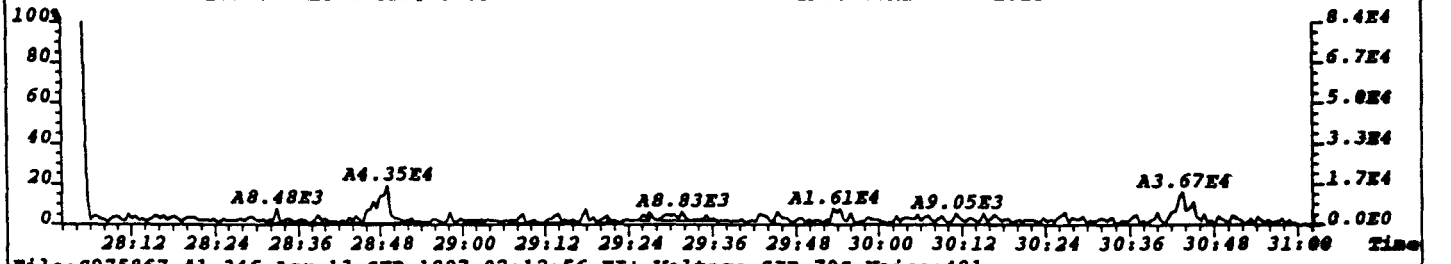
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:58
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,232.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



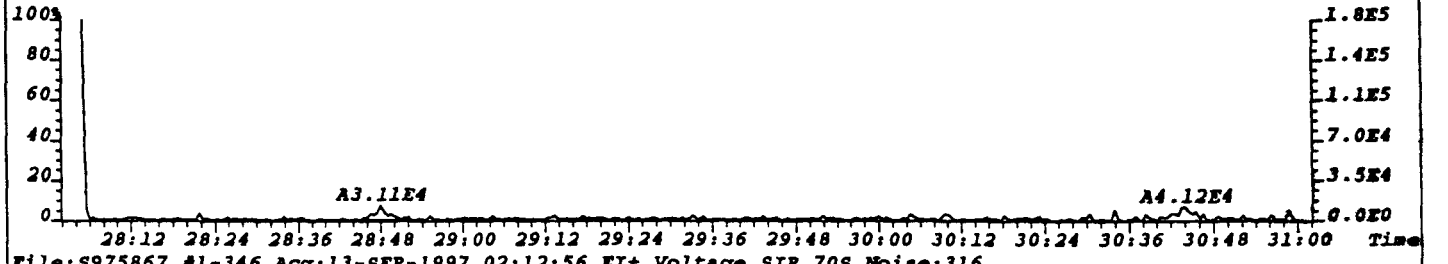
File:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



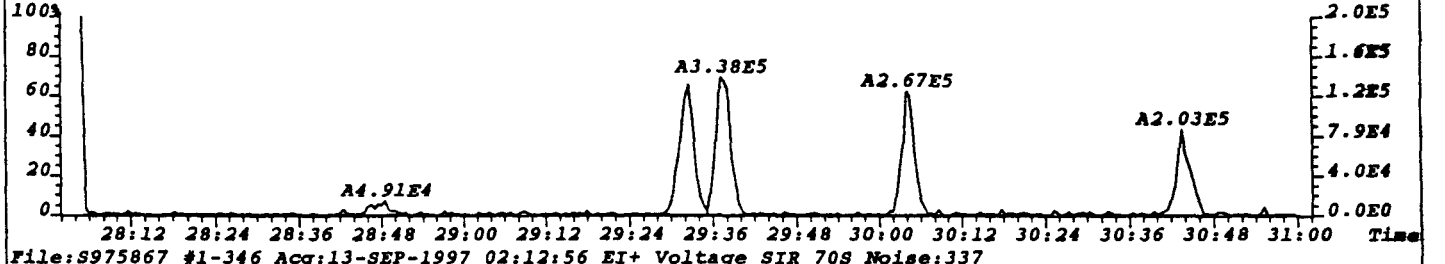
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:498
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1992.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



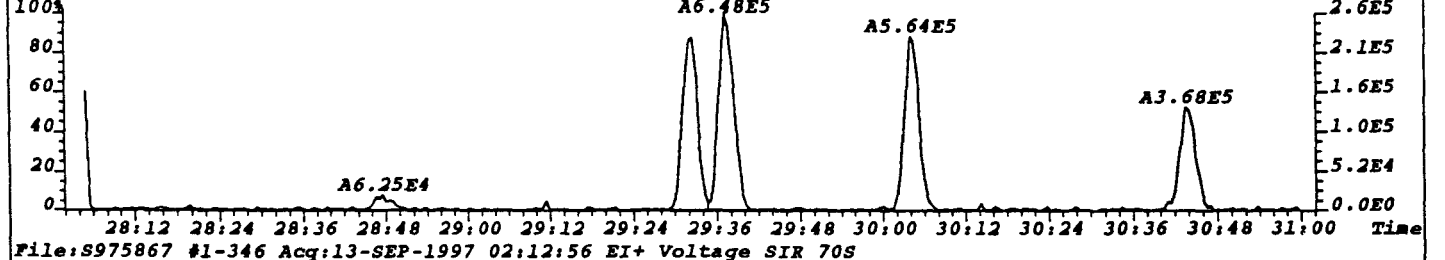
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:491
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1964.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



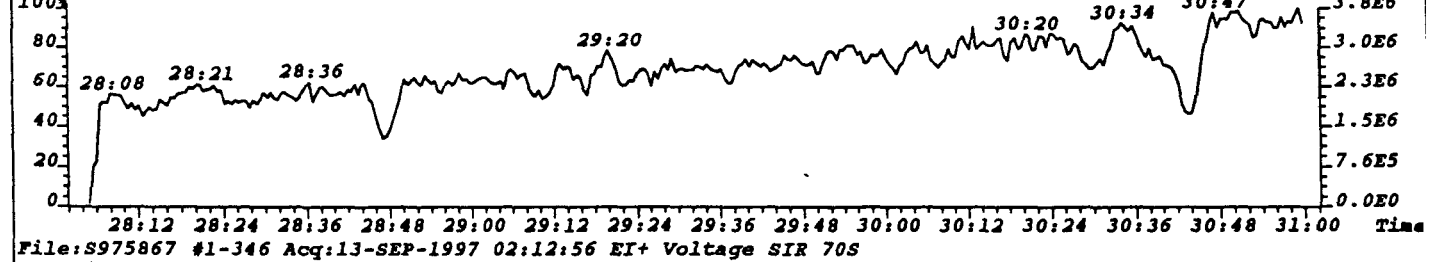
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:316
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1264.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



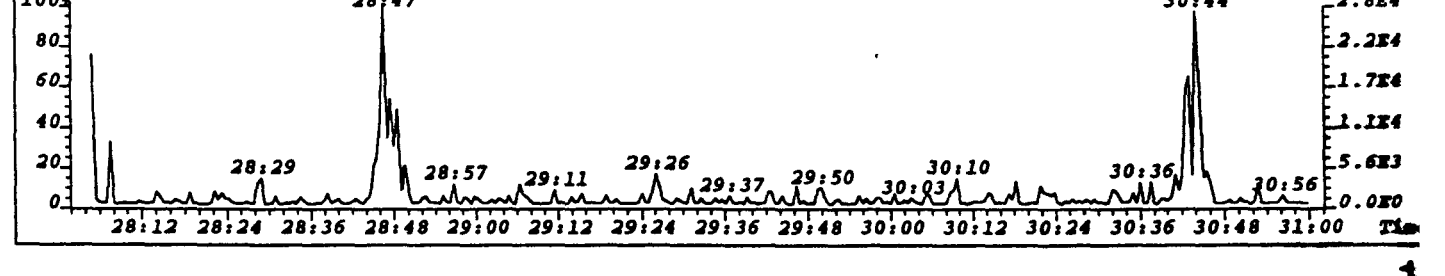
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:337
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1348.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



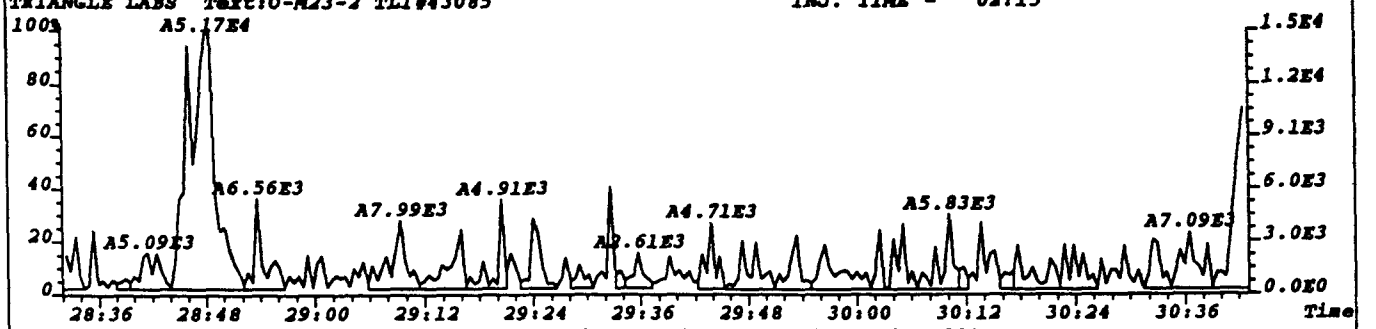
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



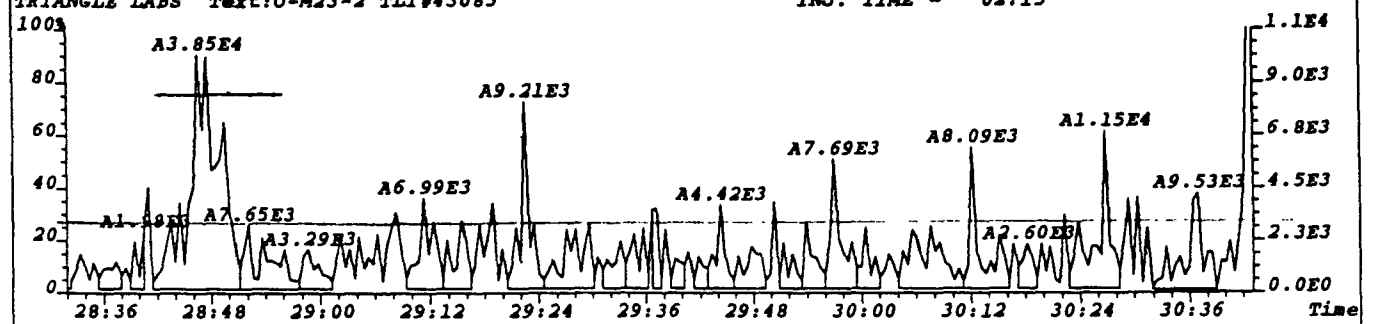
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



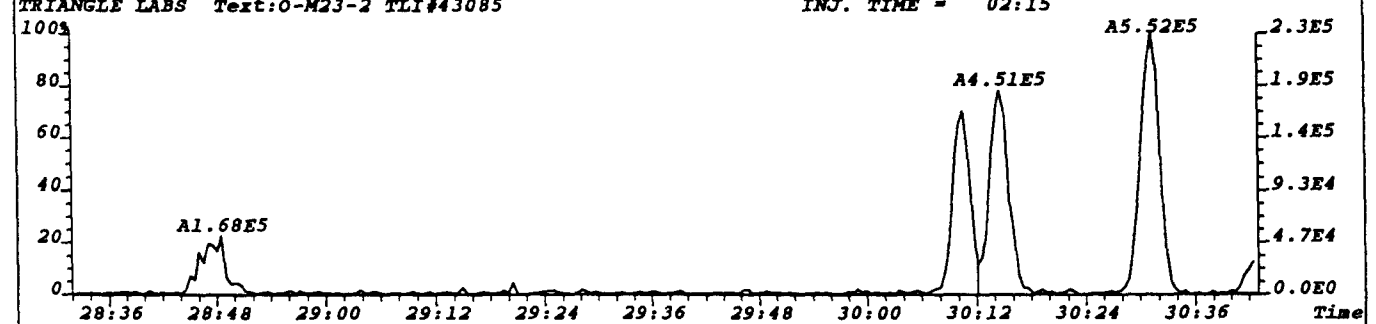
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:276
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



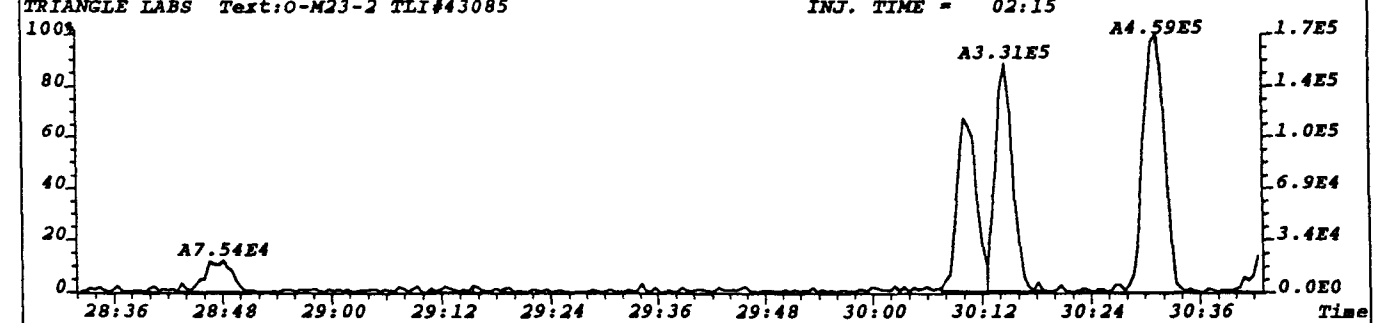
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:331
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1324.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



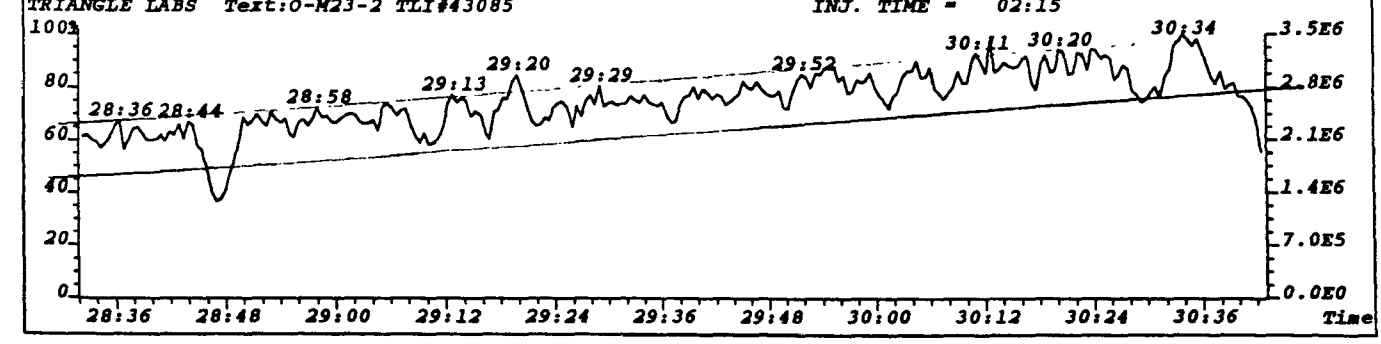
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:387
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1548.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



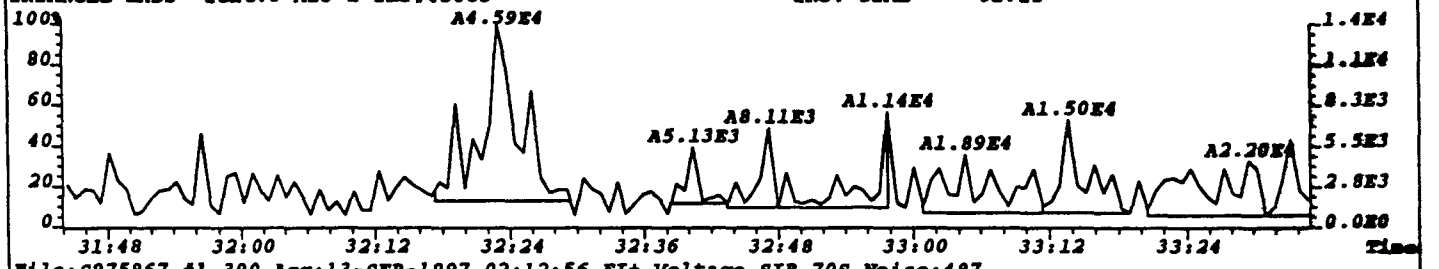
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:443
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1772.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



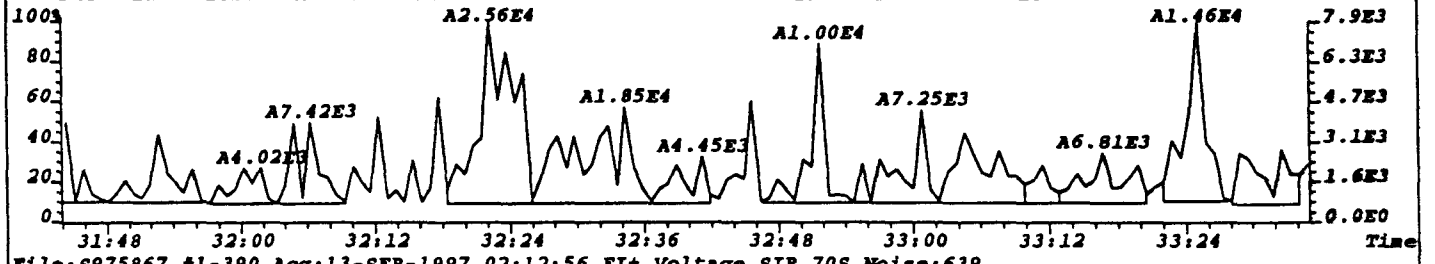
File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



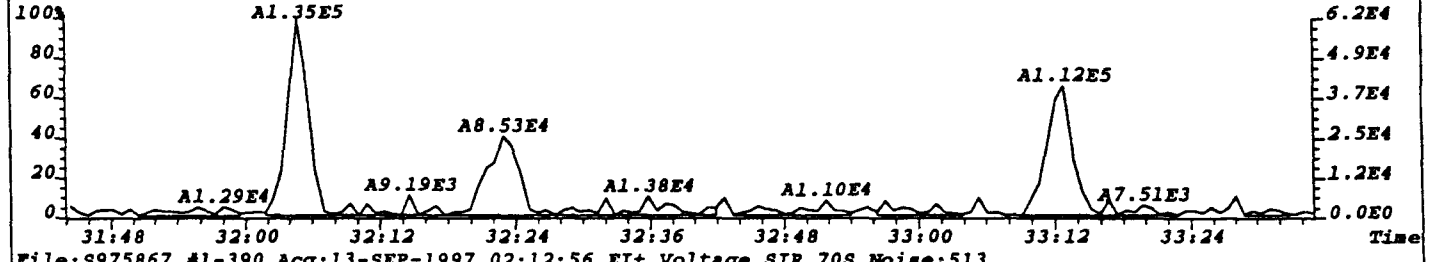
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:811
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3244.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



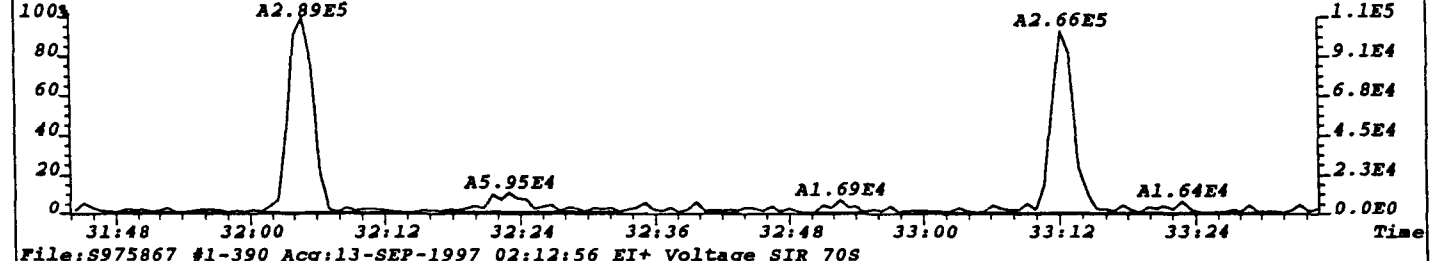
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:487
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1948.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



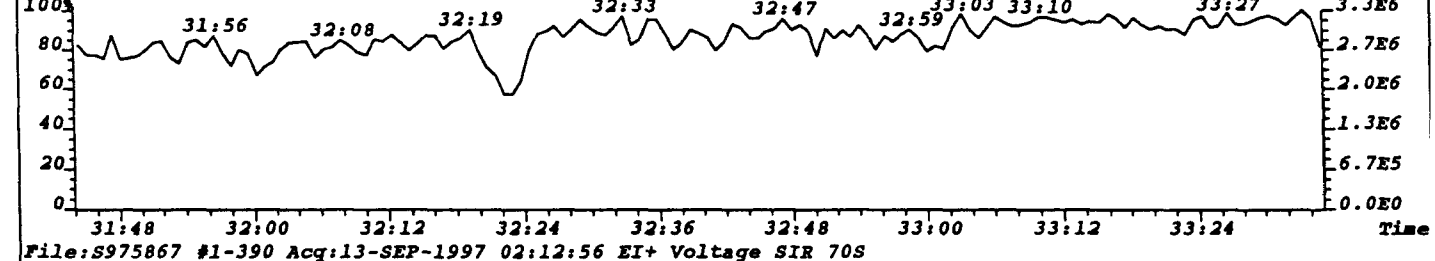
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:639
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2556.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



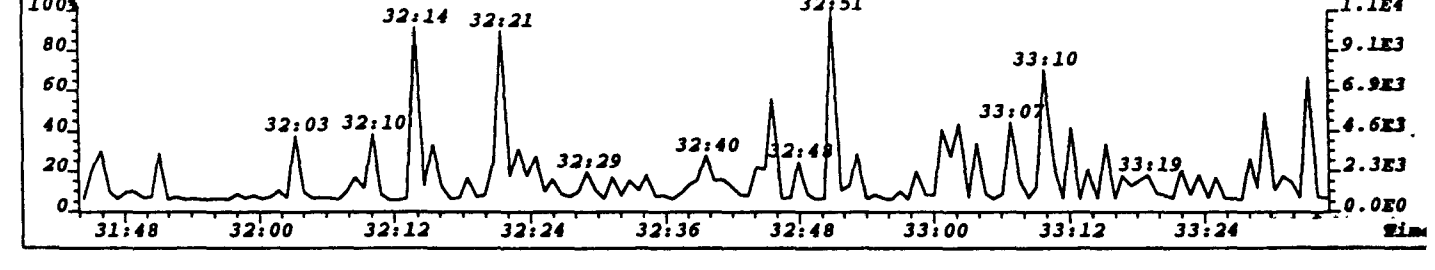
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:513
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2052.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



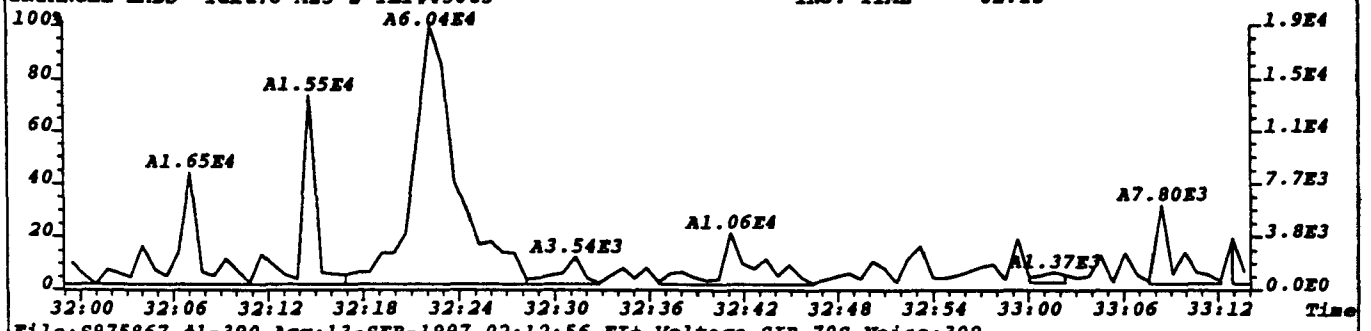
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



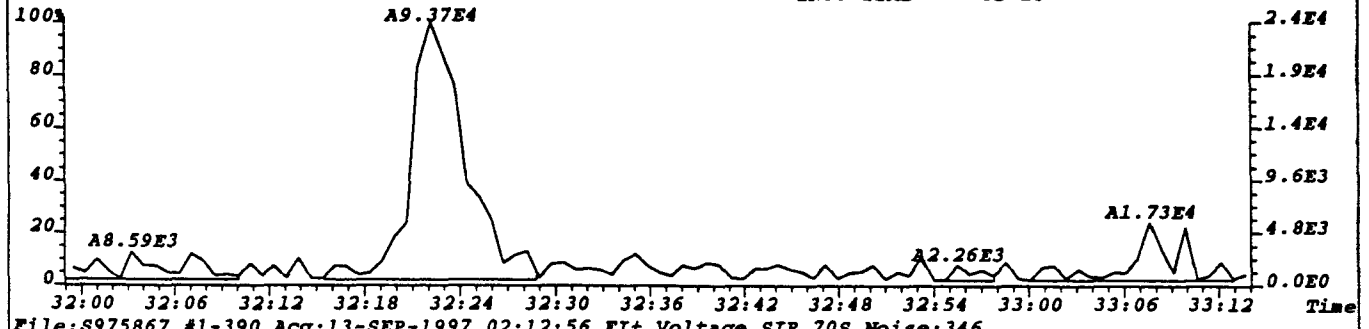
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



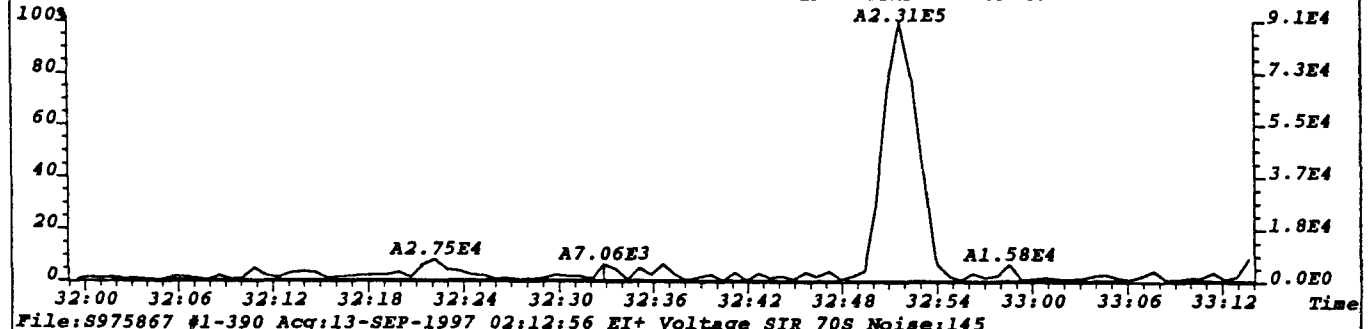
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:293
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



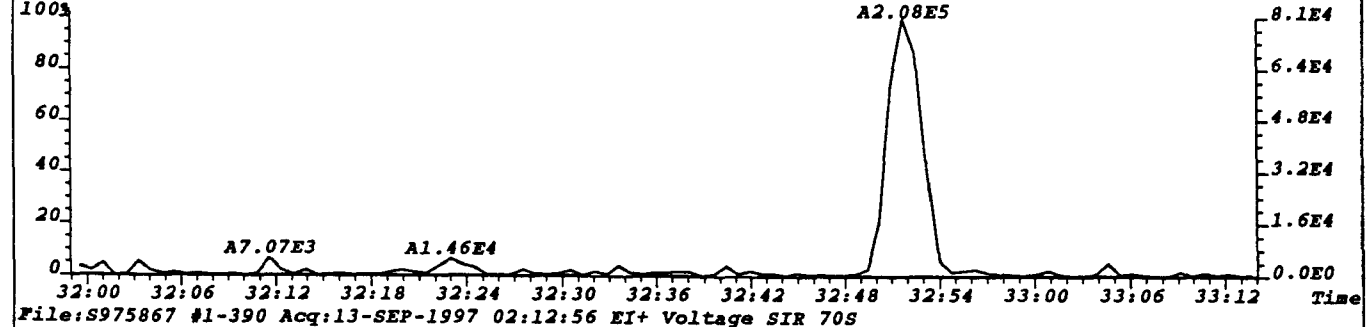
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:309
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



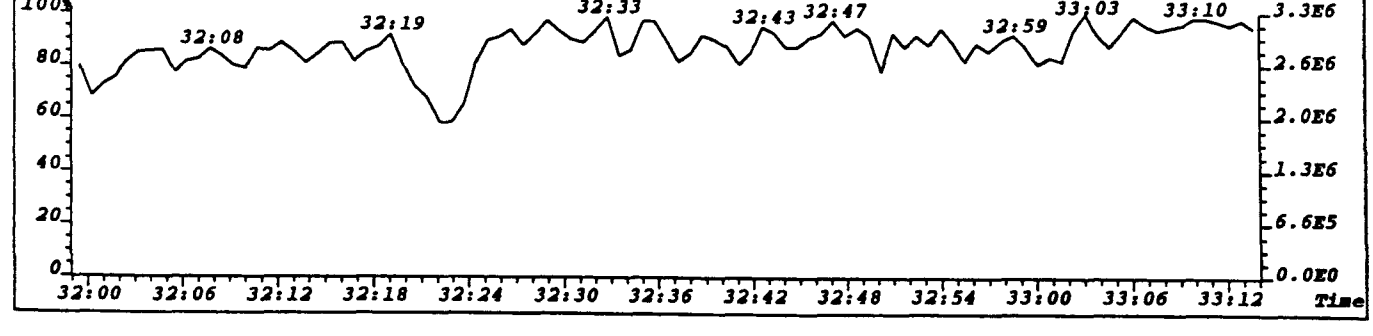
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:346
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1384.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



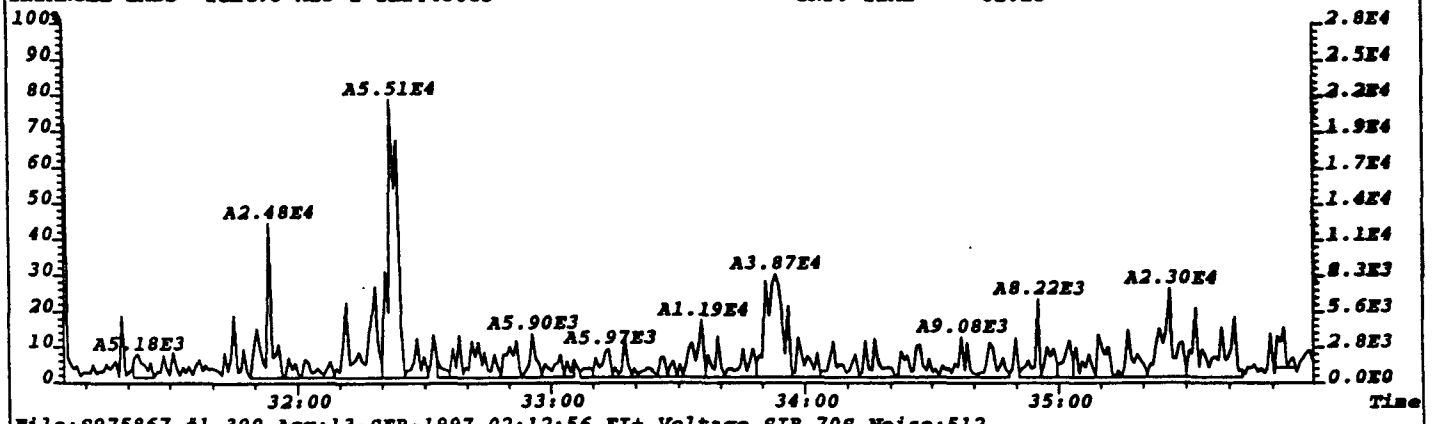
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:145
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,580.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



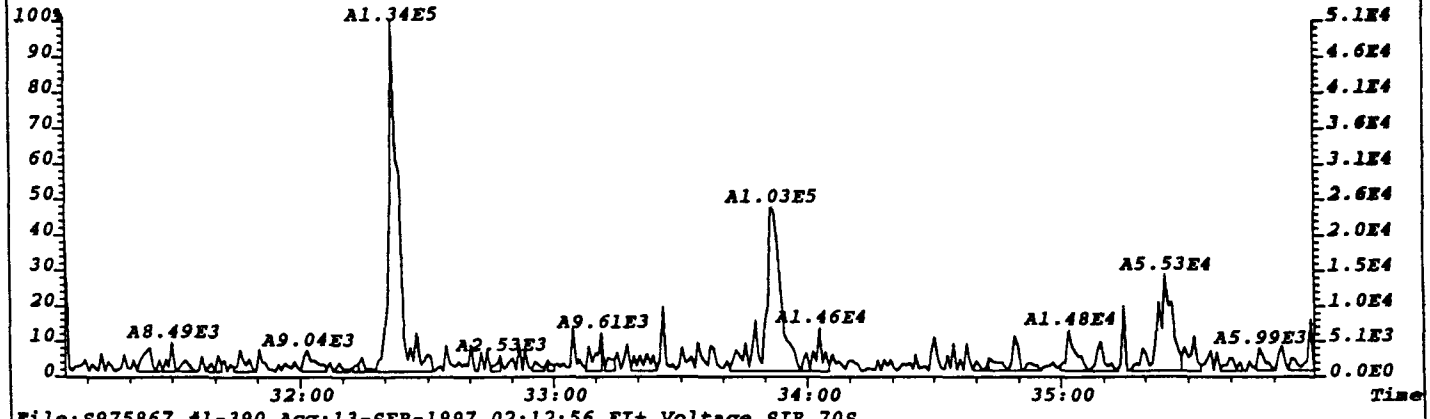
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



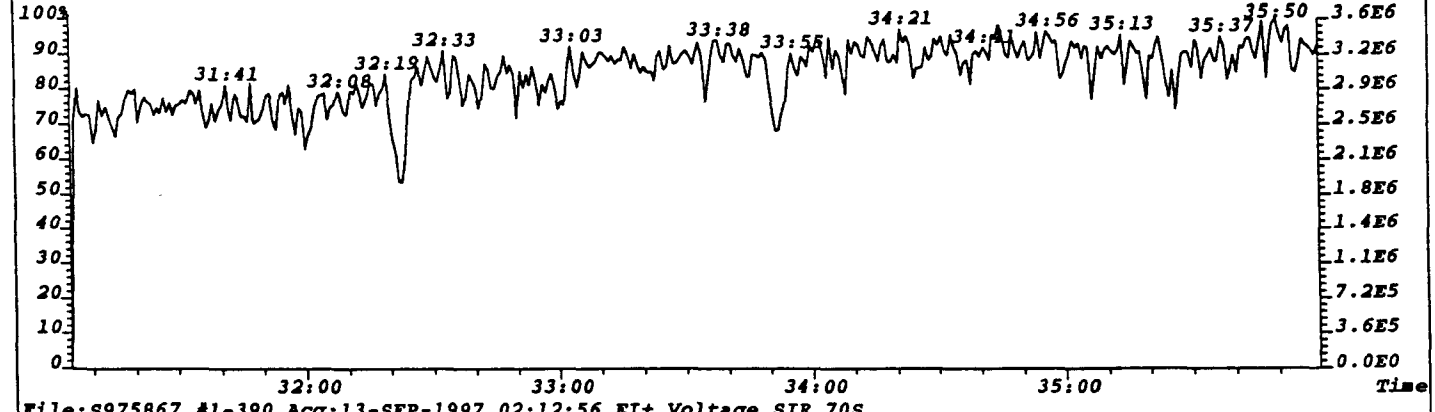
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:332
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1328.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



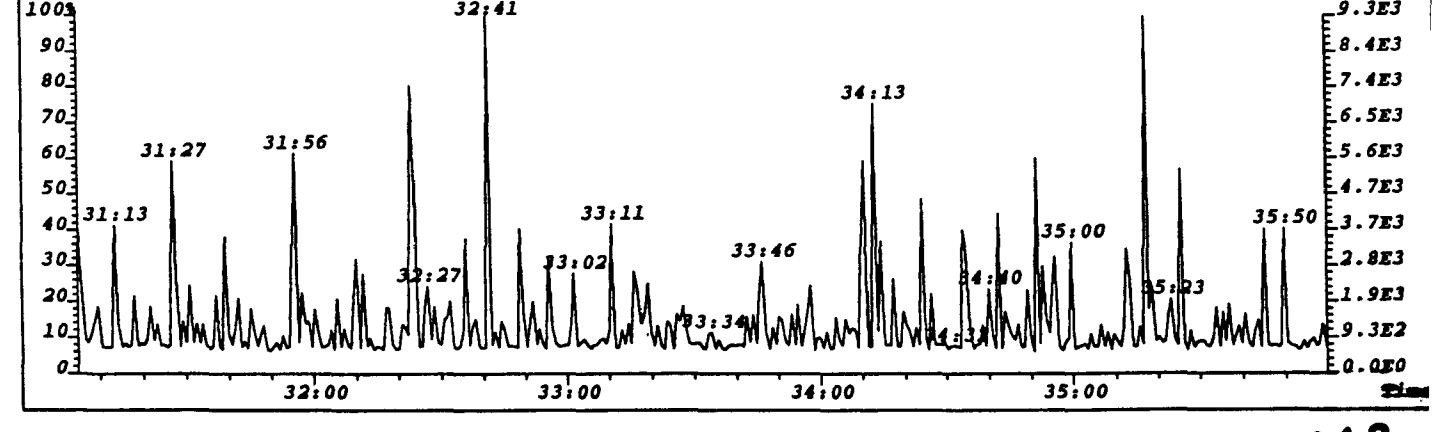
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:512
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2048.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

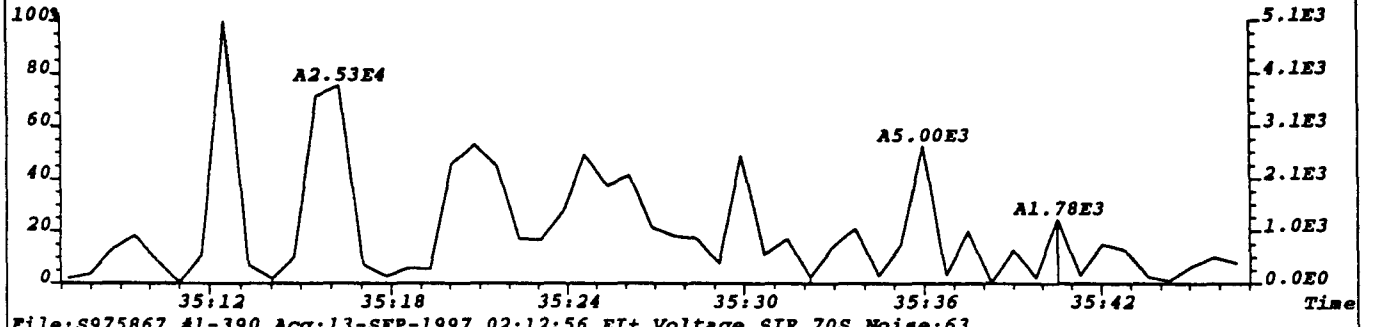


File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

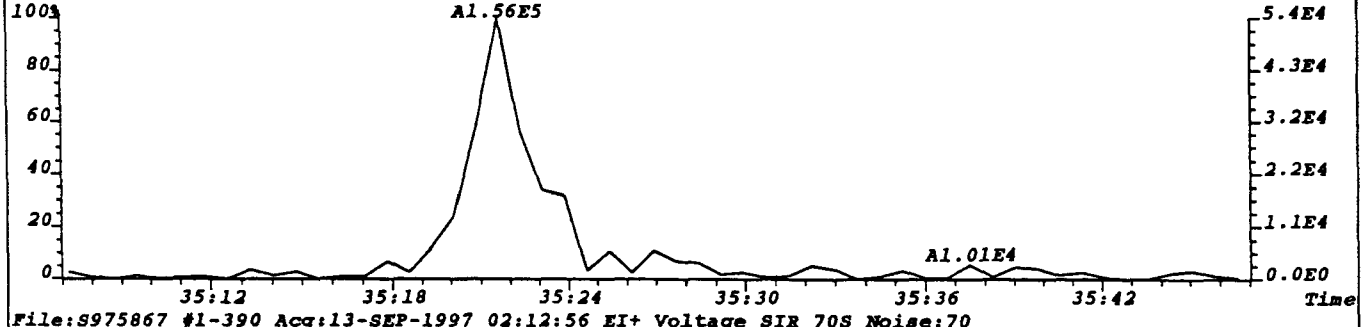


File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:54
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

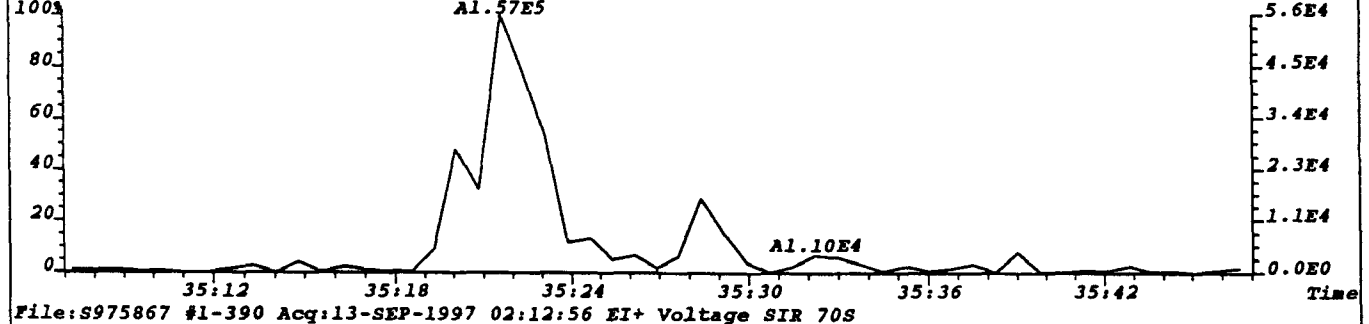
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:40
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15



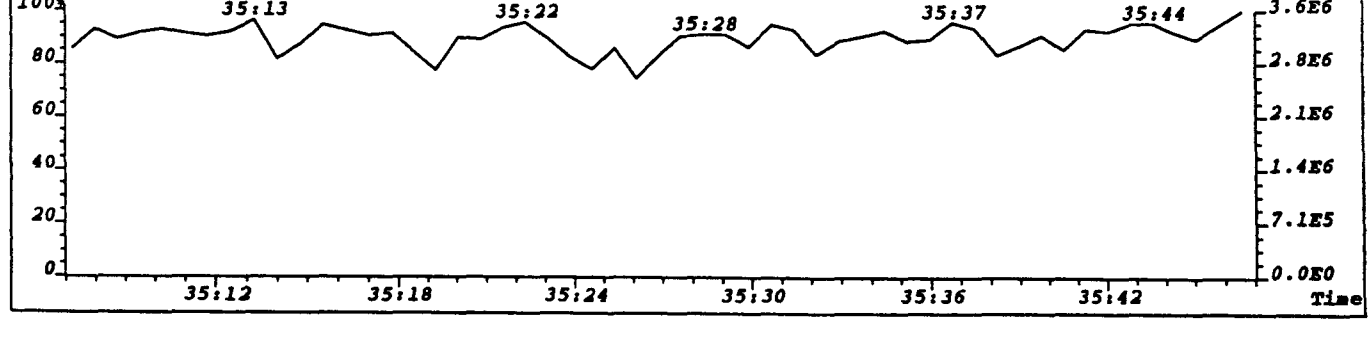
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:63
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

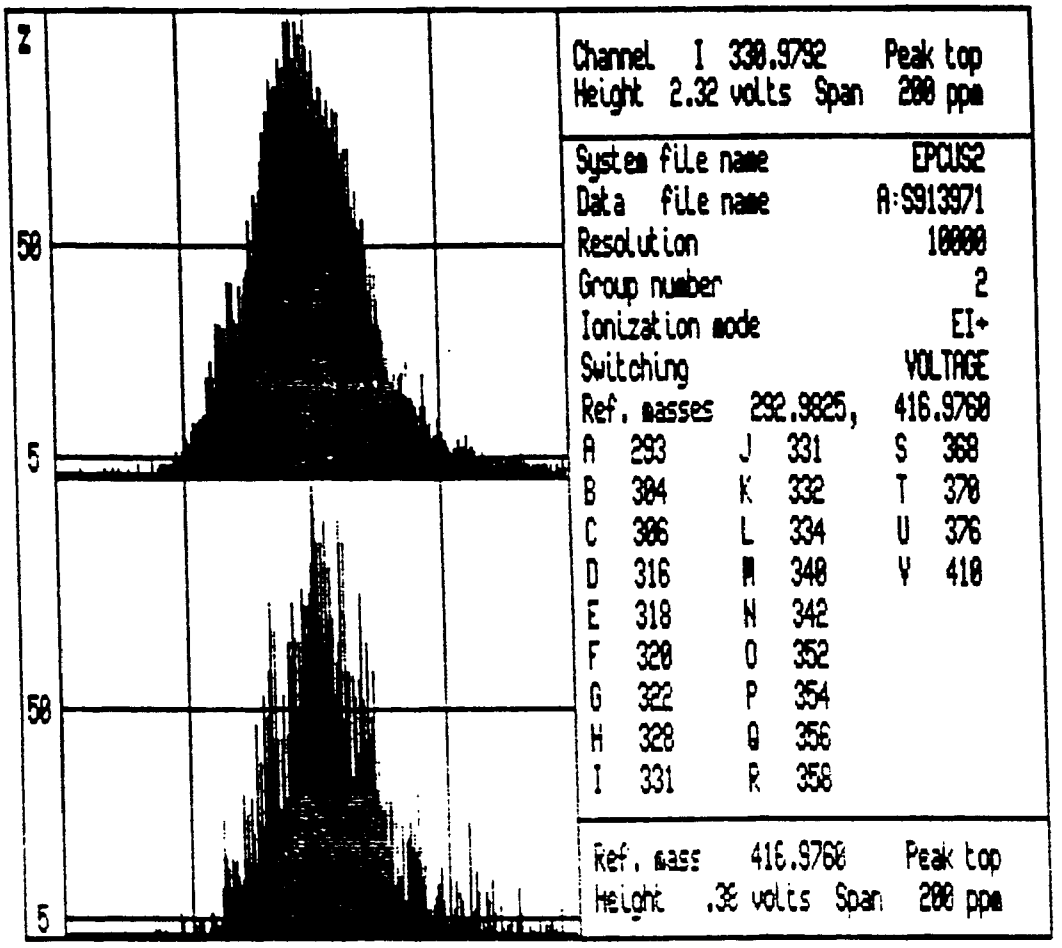


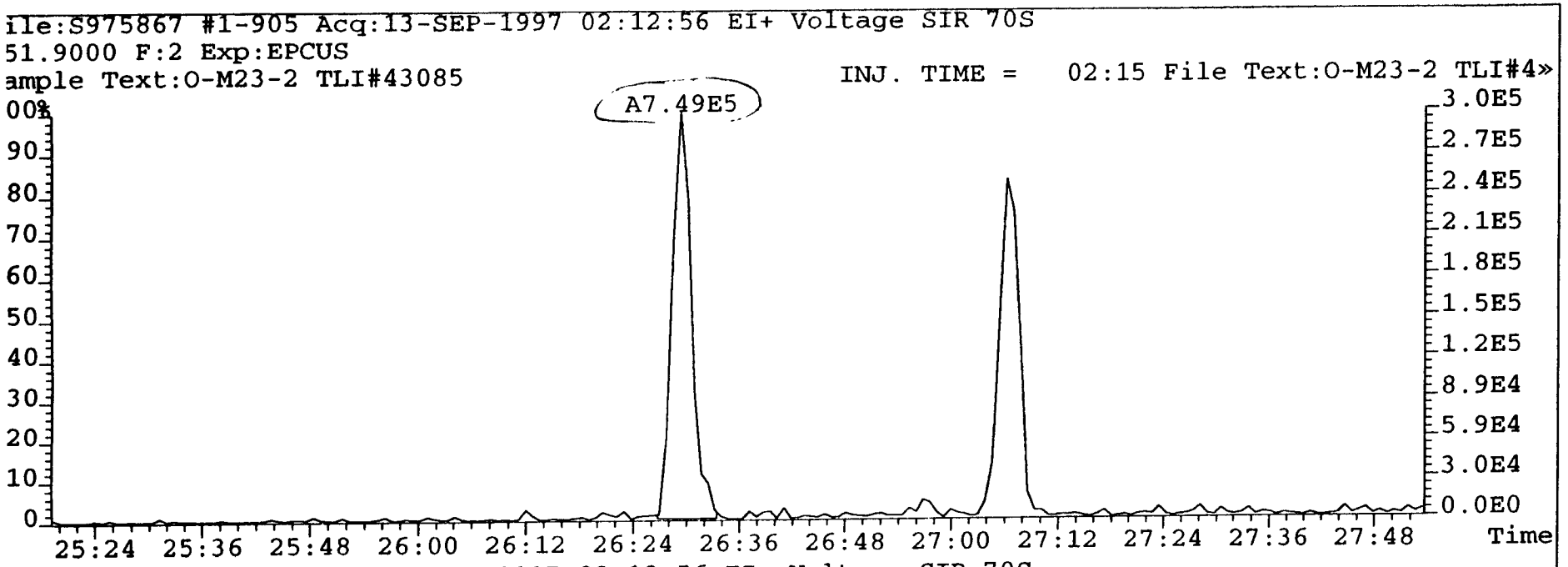
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S Noise:70
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,280.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

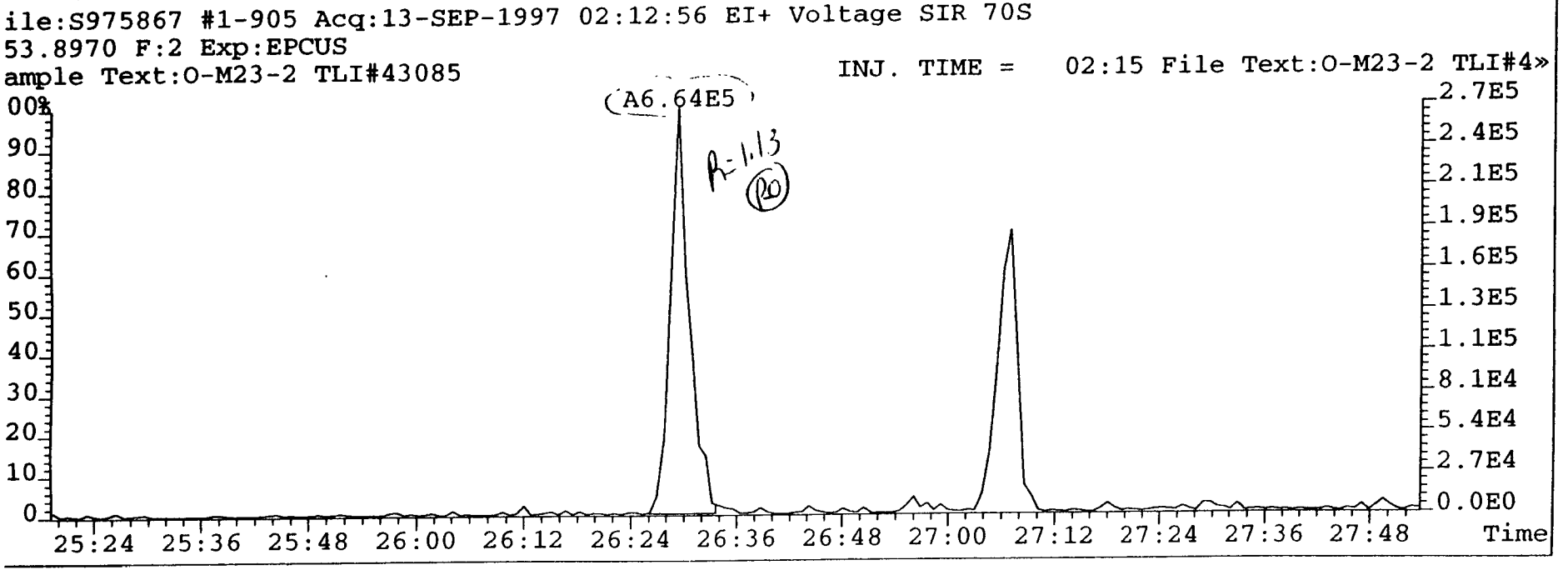


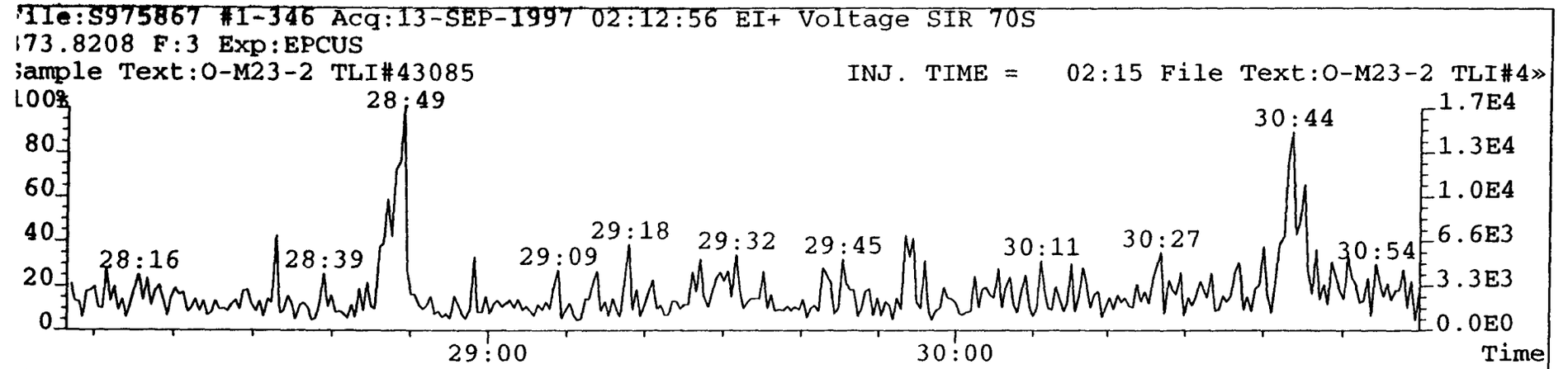
File:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43085 INJ. TIME = 02:15

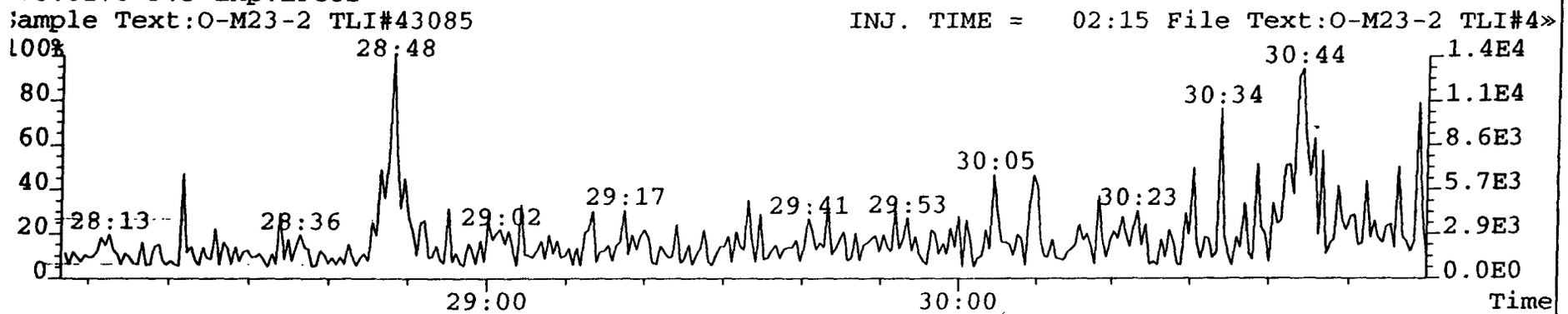


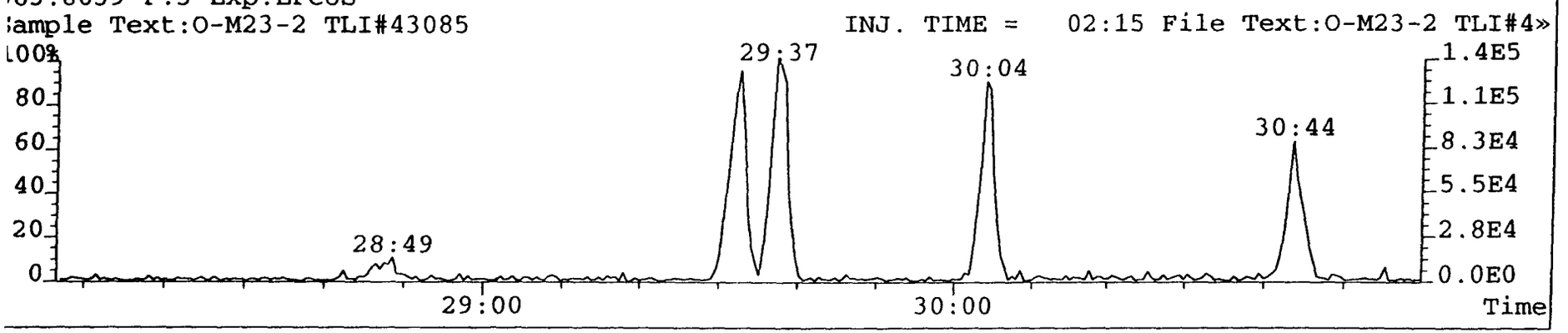

Z
50
5
50
5
Channel I 330.9792 Peak top
Height 2.32 volts Span 200 ppm
System file name EPCUS2
Data file name A:S913971
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.9825, 416.9760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Ref. mass 416.9760 Peak top
Height .38 volts Span 200 ppm

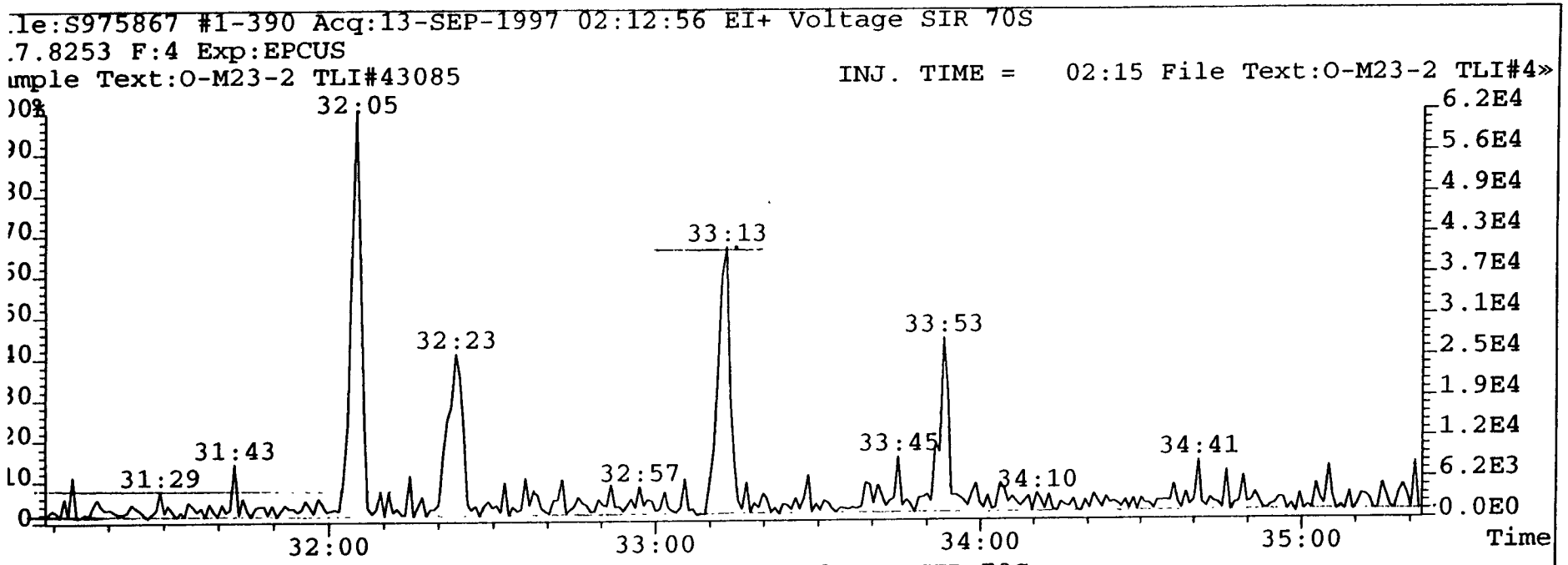

ile:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
51.9000 F:2 Exp:EPCUS
ample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
A7.49E5
00%
90
80
70
60
50
40
30
20
10
0
3.0E5
2.7E5
2.4E5
2.1E5
1.8E5
1.5E5
1.2E5
8.9E4
5.9E4
3.0E4
0.0E0
25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 27:48
Time

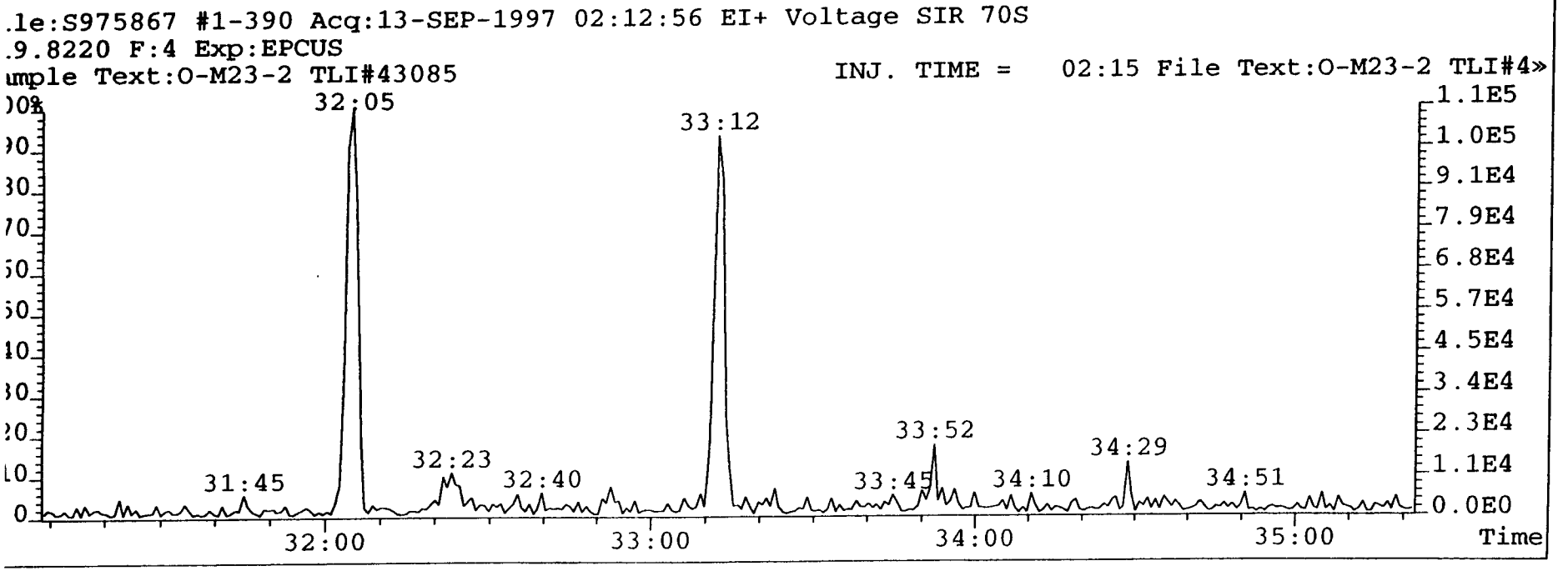

ile:S975867 #1-905 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
53.8970 F:2 Exp:EPCUS
ample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
A6.64E5
R=1.13
(20)
00%
90
80
70
60
50
40
30
20
10
0
2.7E5
2.4E5
2.1E5
1.9E5
1.6E5
1.3E5
1.1E5
8.1E4
5.4E4
2.7E4
0.0E0
25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 27:48
Time

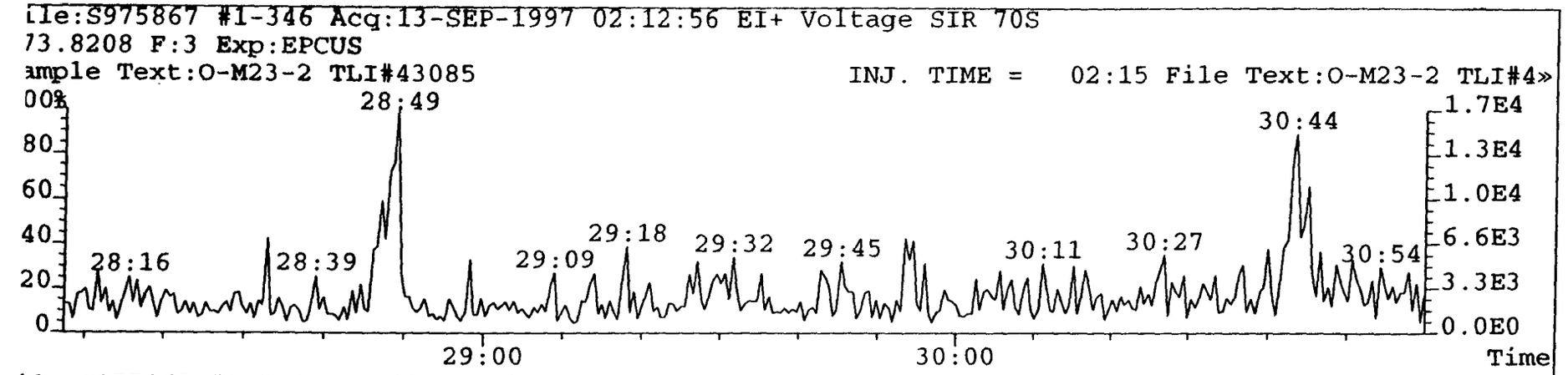

File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
173.8208 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
100%
80
60
40
20
0
28:16
28:39
28:49
29:09
29:18
29:32
29:45
30:11
30:27
30:44
30:54
1.7E4
1.3E4
1.0E4
6.6E3
3.3E3
0.0E0
29:00
30:00
Time

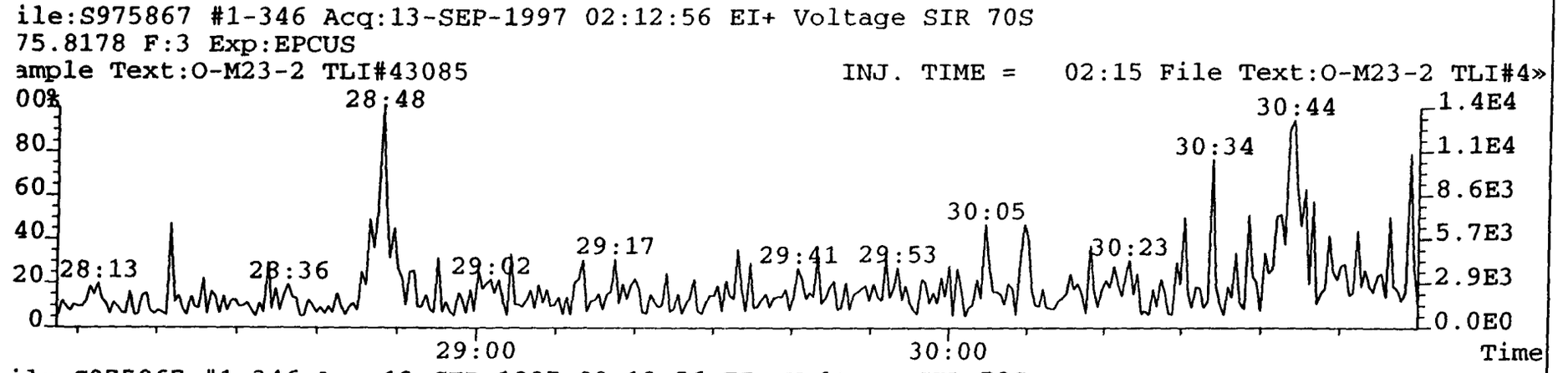

File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
175.8178 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
100%
80
60
40
20
0
28:13
28:36
28:48
29:02
29:17
29:41
29:53
30:05
30:23
30:34
30:44
1.4E4
1.1E4
8.6E3
5.7E3
2.9E3
0.0E0
29:00
30:00
Time

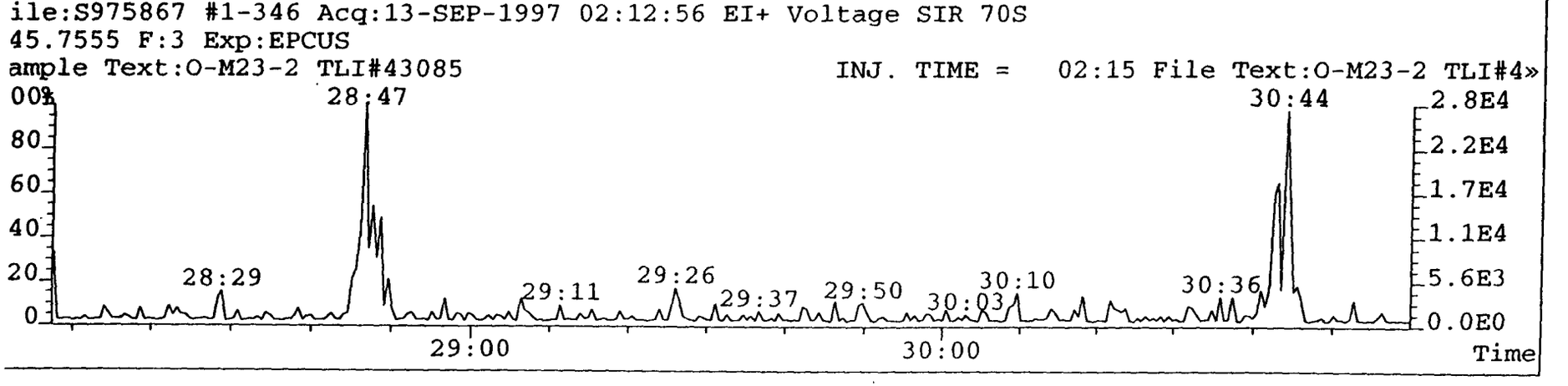

File:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
183.8639 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
100%
80
60
40
20
0
28:49
29:37
30:04
30:44
1.4E5
1.1E5
8.3E4
5.5E4
2.8E4
0.0E0
29:00
30:00
Time


.le:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
.7.8253 F:4 Exp:EPCUS
ımple Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
32:05
33:13
32:23
33:53
31:43
31:29
32:57
33:45
34:10
34:41
6.2E4
5.6E4
4.9E4
4.3E4
3.7E4
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
32:00
33:00
34:00
35:00
Time

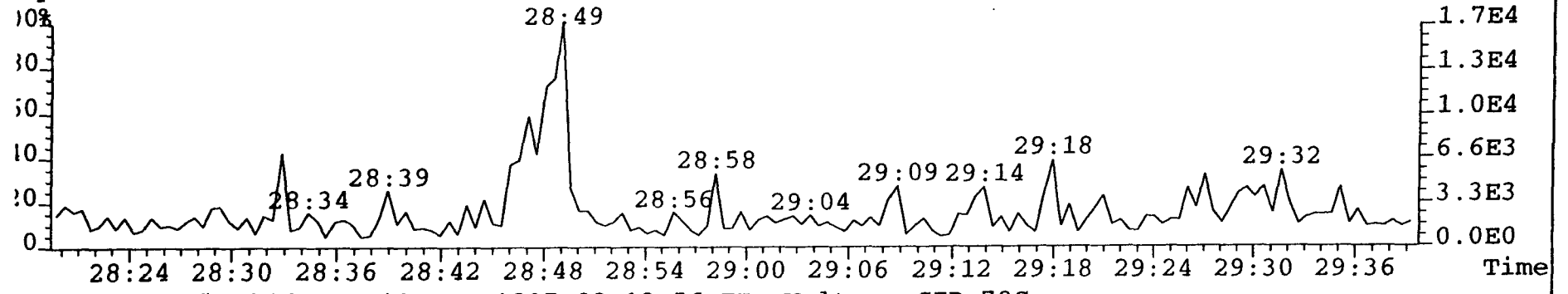

.le:S975867 #1-390 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
.9.8220 F:4 Exp:EPCUS
ımple Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
32:05
33:12
33:52
34:29
31:45
32:23
32:40
33:45
34:10
34:51
1.1E5
1.0E5
9.1E4
7.9E4
6.8E4
5.7E4
4.5E4
3.4E4
2.3E4
1.1E4
0.0E0
32:00
33:00
34:00
35:00
Time


ile:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
73.8208 F:3 Exp:EPCUS
ample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
80
60
40
20
0
28:16
28:39
28:49
29:09
29:18
29:32
29:45
30:11
30:27
30:44
30:54
1.7E4
1.3E4
1.0E4
6.6E3
3.3E3
0.0E0
29:00
30:00
Time

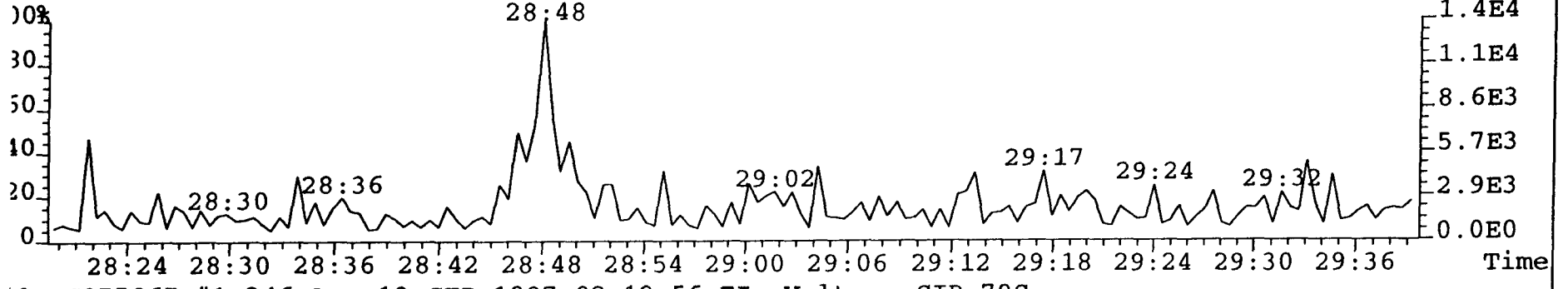

ile:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
75.8178 F:3 Exp:EPCUS
ample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
80
60
40
20
0
28:13
28:36
28:48
29:02
29:17
29:41
29:53
30:05
30:23
30:34
30:44
1.4E4
1.1E4
8.6E3
5.7E3
2.9E3
0.0E0
29:00
30:00
Time


ile:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
45.7555 F:3 Exp:EPCUS
ample Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
80
60
40
20
0
28:29
28:47
29:11
29:26
29:37
29:50
30:03
30:10
30:36
30:44
2.8E4
2.2E4
1.7E4
1.1E4
5.6E3
0.0E0
29:00
30:00
Time

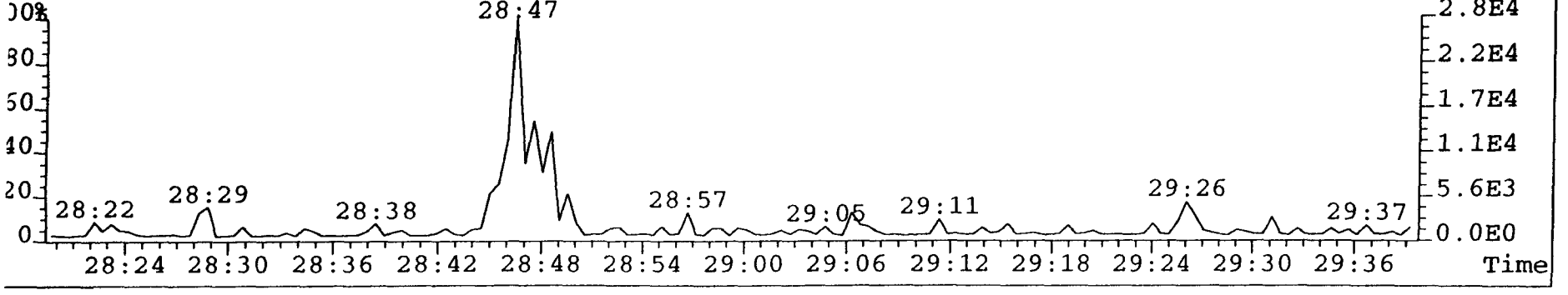
le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
3.8208 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085 INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»

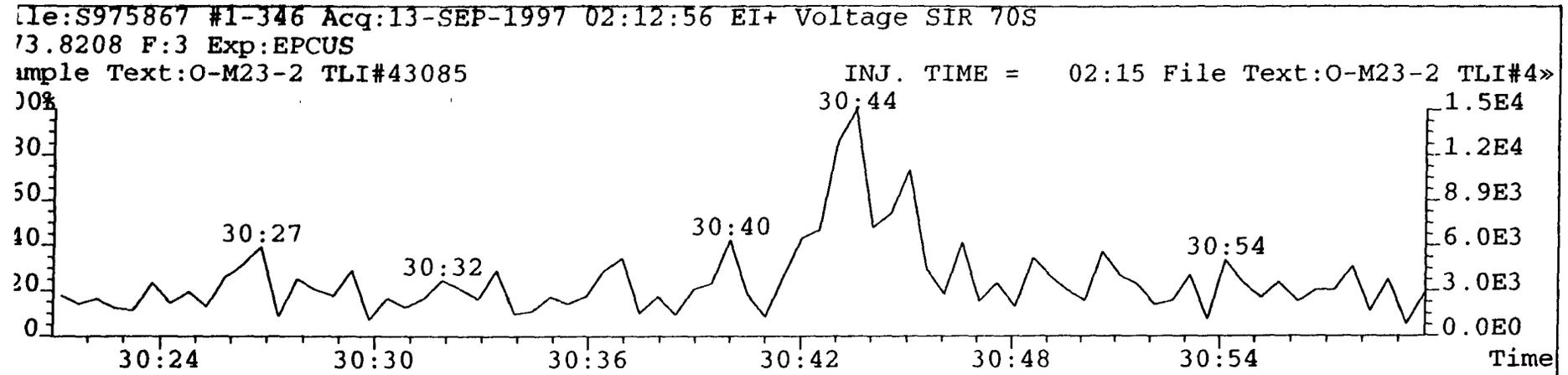


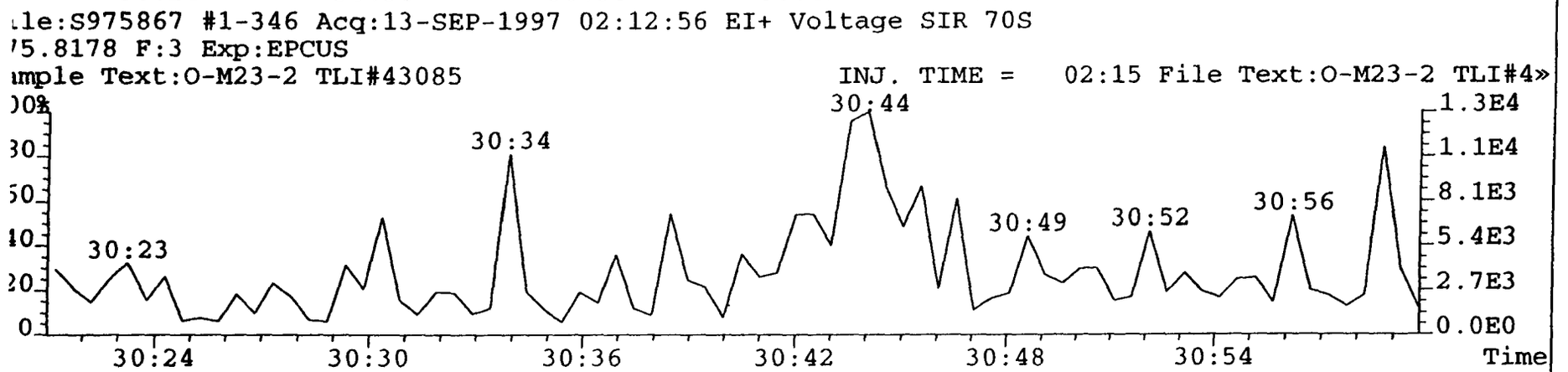
le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
5.8178 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085 INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»

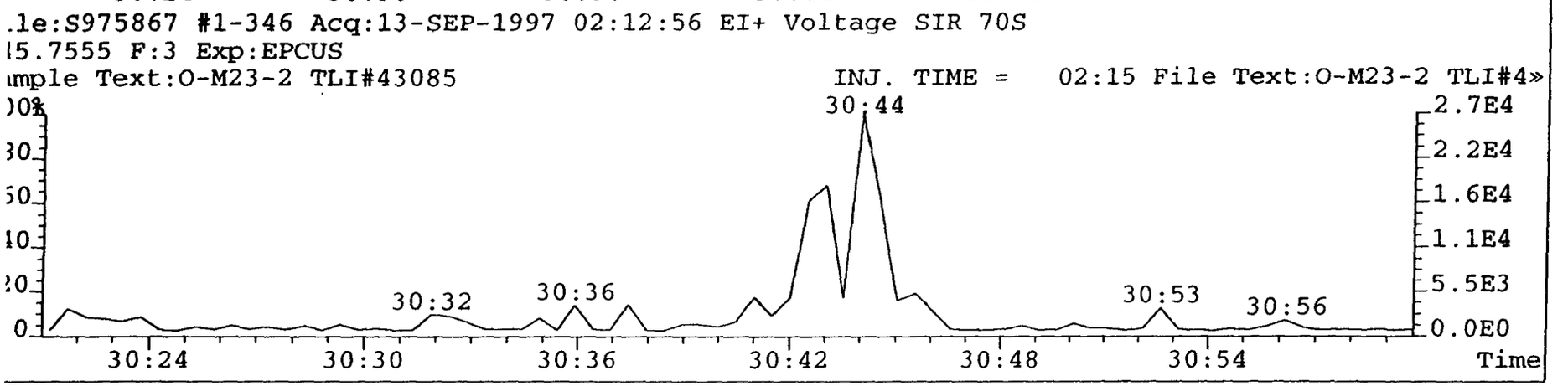


le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
5.7555 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085 INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»




le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
73.8208 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
30
50
40
20
0
30:27
30:32
30:40
30:44
30:54
1.5E4
1.2E4
8.9E3
6.0E3
3.0E3
0.0E0
30:24
30:30
30:36
30:42
30:48
30:54
Time


le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
75.8178 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
30
50
40
20
0
30:23
30:34
30:44
30:49
30:52
30:56
1.3E4
1.1E4
8.1E3
5.4E3
2.7E3
0.0E0
30:24
30:30
30:36
30:42
30:48
30:54
Time


le:S975867 #1-346 Acq:13-SEP-1997 02:12:56 EI+ Voltage SIR 70S
15.7555 F:3 Exp:EPCUS
mple Text:O-M23-2 TLI#43085
INJ. TIME = 02:15 File Text:O-M23-2 TLI#4»
00%
30
50
40
20
0
30:32
30:36
30:44
30:53
30:56
2.7E4
2.2E4
1.6E4
1.1E4
5.5E3
0.0E0
30:24
30:30
30:36
30:42
30:48
30:54
Time

Pacific Environmental Services

TLI Project: 43085 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: O-M23-3 — Analysis File: S975868

Client Project:	S413-004				
Sample Matrix:	M23Train	Date Received:	09/03/97	Spike File:	SPX23704
TLI ID:	181-55-3ABE	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/13/97	ConCal:	S975861
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	ML	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.01				—
1,2,3,7,8-PeCDD	ND	0.01				—
1,2,3,4,7,8-HxCDD	ND	0.02				—
1,2,3,6,7,8-HxCDD	ND	0.02				—
1,2,3,7,8,9-HxCDD	ND	0.02				—
1,2,3,4,6,7,8-HpCDD	ND	0.03				—
1,2,3,4,6,7,8,9-OCDD	ND	0.10				—
2,3,7,8-TCDF	ND	0.006				—
1,2,3,7,8-PeCDF	ND	0.01				—
2,3,4,7,8-PeCDF	ND	0.01				—
1,2,3,4,7,8-HxCDF	ND	0.01				—
1,2,3,6,7,8-HxCDF	ND	0.01				—
2,3,4,6,7,8-HxCDF	ND	0.01				—
1,2,3,7,8,9-HxCDF	ND	0.01				—
1,2,3,4,6,7,8-HpCDF	ND	0.02				—
1,2,3,4,7,8,9-HpCDF	ND	0.03				—
1,2,3,4,6,7,8,9-OCDF	ND	0.07				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.01		—
Total PeCDD	ND		0.01		—
Total HxCDD	ND		0.02		—
Total HpCDD	ND		0.03		—
Total TCDF	ND		0.006		—
Total PeCDF	EMPC			0.02	—
Total HxCDF	ND		0.01		—
Total HpCDF	ND		0.02		—

X237_PSR v2.00, LARS 6.10.04

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Printed: 13:19 09/18/97

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **O-M23-3** Analysis File: **S975868**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.5	114	40%-130%	0.74	21:37	—
$^{13}C_{12}$-2,3,7,8-TCDD	3.8	95.4	40%-130%	0.77	22:22	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.7	91.9	40%-130%	1.36	25:41	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.0	100	40%-130%	1.50	26:44	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	4.1	103	40%-130%	0.50	29:17	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.7	92.2	40%-130%	1.22	29:58	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.6	64.7	25%-130%	0.43	31:56	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.6	63.8	25%-130%	1.04	32:46	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	2.5	31.6	25%-130%	0.91	35:20	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.0	101	70%-140%		22:23	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.7	93.4	70%-140%	1.49	26:23	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.4	85.0	70%-140%	0.50	29:11	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.3	83.2	70%-140%	1.27	29:54	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.5	86.7	70%-140%	0.44	33:08	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.4	84.8	40%-130%	0.52	30:29	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.8	94.6	40%-130%	0.51	29:46	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	22:10	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.22	30:16	—

Data Reviewer: Shu-Lin 09/18/97

X237_PSR v2.00, LARS 6.1(

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Printed: 13:19 09/18

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 0.93

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975868B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.838-1.092			
304-306	DC	NL		0:00		0.85	0.24			0.000			
	DC	SN		18:24	RO	1.24	0.89			0.851			
	DC	SN		19:30		0.71	2.04			0.902			
	DC	SN		20:14	RO	0.41	2.05			0.936			
	DC	SN		20:35	RO	0.50	2.46			0.952			
	DC	SN		20:51		0.74	1.97			0.965			
	DC	SN		21:12	RO	0.90	3.27			0.981			
	DC	SN		21:37	RO	0.63	5.03			1.000	2378-TCDF		AN
304-306			0	Peaks			0.00						
13C12-TCDF				0.65-0.89						0.954-1.046			
316-318	DC	NL		0:00	RO	0.93	0.27			0.000			
				21:10	RO	1.06	5.52	3.30	3.12	0.979			
				21:37		0.74	1,205.98	514.33	691.65	1.000	13C12-2378-TCDF		ISO
316-318			2	Peaks			1,211.50						

---------- Above: TCDF / TCDD Follows ----------

TCDD				0.65-0.89						0.875-1.055			
320-322	DC	NL		0:00		0.79	0.25			0.000			
	DC	SN		19:57	RO	0.44	0.57			0.892			
	DC	SN		20:04	RO	2.93	0.50			0.897			
	DC	SN		20:16	RO	0.17	0.16			0.906			
	DC	SN		20:52	RO	1.55	0.35			0.933			
	DC	SN		21:01	RO	1.09	1.03			0.940			
	DC	SN		21:14	RO	1.47	0.60			0.949			
	DC	SN		21:36	RO	1.45	0.71			0.966			
	DC	SN		22:05	RO	3.75	0.57			0.987			
	DC	SN		22:23	RO	0.52	1.70			1.001	2378-TCDD		AN
	DC	SN		22:37		0.68	0.52			1.011			
	DC	SN		22:46		0.68	0.69			1.018			
	DC	SN		22:52	RO	0.59	0.62			1.022			
	DC	SN		23:07	RO	2.82	0.39			1.034			
	DC	SN		23:27	RO	2.08	1.29			1.048			
	DC	WH		23:47	RO	0.50	0.97			1.063			
320-322			0	Peaks			0.00						
37Cl-TCDD										0.910-1.090			
328	DC	NL		0:00			0.38			0.000			
	DC	WL		19:47			0.74			0.885			
	DC	WL		19:57			0.32			0.892			
	DC	SN		20:41			1.56			0.925			
	DC	SN		20:58			0.97			0.937			

Listing of S975868B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		21:38			0.79			0.967			
	DC	SN		21:42			1.22			0.970			
	DC	SN		21:59			0.84			0.983			
	DC	SN		22:09			1.28			0.990			
				22:23			695.96	695.96		1.001	37Cl-TCDD		SUR1
	DC	SN		22:53			1.03			1.023			
	DC	SN		23:14			0.72			1.039			
	DC	SN		23:29			0.92			1.050			
	DC	SN		23:42			0.76			1.060			
328			1	Peak			695.96						
13C12-TCDD					0.65-0.89					0.910-1.090			
332-334	DC	NL		0:00	RO	2.90	0.51			0.000			
	DC	WL		19:52	RO	2.25	1.13			0.888			
	DC	WL		20:17	RO	2.20	0.80			0.907			
				22:10		0.83	805.02	364.99	440.03	0.991	13C12-1234-TCDD		RS1
				22:22		0.77	818.51	356.56	461.95	1.000	13C12-2378-TCDD		IS1
	DC	SN		22:32	RO	1.81	1.22			1.007			
				22:42	RO	1.13	13.42	8.54	7.58	1.015			
	DC	SN		22:56	RO	1.07	0.53			1.025			
	DC	SN		23:00	RO	0.55	1.01			1.028			
332-334			3	Peaks			1,636.95						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF					1.32-1.78					0.915-1.074			
340-342	DC	NL		0:00	RO	1.14	0.26			0.000			
				23:41	RO	0.66	4.59	2.79	4.24	0.922			
	DC	SN		23:56	RO	0.65	0.71			0.932			
	DC	SN		24:49	RO	2.05	2.09			0.966			
	DC	SN		24:59	RO	2.00	0.54			0.973			
	DC	SN		25:14	RO	0.81	0.43			0.982			
	DC	SN		25:23		1.74	0.96			0.988			
	DC	SN		25:59	RO	0.95	1.66			1.012			
	DC	SN		26:17	RO	0.30	1.02			1.023			
	DC	SN		26:27		1.74	2.22			1.030	23478-PeCDF		AN
	DC	SN		26:43	RO	0.42	0.41			1.040			
	DC	SN		27:01	RO	0.44	0.74			1.052			
	DC	SN		27:17	RO	0.95	1.37			1.062			
	DC	SN		27:34	RO	8.25	0.41			1.073			
340-342			1	Peak			4.59						
13C12-PeCDF					1.32-1.78					0.844-1.156			
352-354	DC	NL		0:00	RO	0.92	0.20			0.000			
	DC	SN		23:40	RO	0.44	0.56			0.921			
	DC	SN		24:13	RO	3.94	0.41			0.943			
	DC	SN		24:18	RO	0.79	0.25			0.946			
	DC	SN		25:09		1.76	1.35			0.979			
	DC	SN		25:21	RO	3.34	3.11			0.987			
				25:41		1.36	838.49	482.87	355.62	1.000	13C12-PeCDF 123		IS2
	DC	SN		25:57	RO	1.01	4.06			1.010			
	DC	SN		26:05		1.51	1.18			1.016			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
N				26:23		1.49	759.27	454.30	304.97	1.027	13C12-PeCDF	234	SUR2
	DC	SN		27:12		1.45	1.15			1.059			
	DC	SN		27:32	RO	0.67	0.92			1.072			
352-354			2	Peaks			1,597.76						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.926-1.024			
356-358	DC	NL		0:00	RO	1.18	0.21			0.000			
	DC	WL		24:44	RO	4.27	0.28			0.925			
	DC	SN		25:04	RO	4.33	0.54			0.938			
	DC	SN		25:22	RO	9.89	0.23			0.949			
	DC	SN		26:09	RO	0.70	0.82			0.978			
	DC	SN		26:18	RO	6.89	0.92			0.984			
	DC	SN		26:28	RO	3.08	0.66			0.990			
	DC	SN		27:13	RO	3.80	0.38			1.018			
	DC	WH		27:27	RO	0.15	0.15			1.027			
356-358			0	Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.850-1.150			
368-370	DC	NL		0:00	RO	1.00	0.20			0.000			
	DC	SN		24:42	RO	3.11	0.48			0.924			
	DC	SN		25:20	RO	0.67	0.51			0.948			
	DC	SN		26:02		1.75	0.55			0.974			
	DC	SN		26:17	RO	0.18	0.44			0.983			
				26:44		1.50	513.20	307.56	205.64	1.000	13C12-PeCDD	123	IS3
				26:54		1.48	40.92	24.43	16.49	1.006			
	DC	SN		27:27	RO	0.51	0.81			1.027			
368-370			2	Peaks			554.12						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF				1.05-1.43						0.959-1.050			
374-376	DC	NL		0:00		1.40	1.56			0.000			
	DC	SN		28:13	RO	1.57	1.41			0.964			
	DC	SN		28:22	RO	1.02	3.00			0.969			
	DC	SN		28:40	RO	0.84	0.69			0.979			
	DC	SN		28:49	RO	1.60	1.46			0.984			
	DC	SN		29:11		1.25	2.86			0.997	123478-HxCDF		AN
	DC	SN		29:16	RO	1.86	2.02			0.999			
	DC	SN		29:23		1.37	1.23			1.003			
	DC	SN		29:36	RO	1.51	1.41			1.011			
	DC	SN		30:22	RO	0.99	1.39			1.037			
	DC	SN		30:30	RO	0.76	1.61			1.042	123789-HxCDF		AN
	DC	WH		30:48	RO	1.78	1.01			1.052			
	DC	WH		30:55	RO	0.94	1.10			1.056			
374-376			0	Peaks			0.00						
13C12-HxCDF				0.43-0.59						0.863-1.137			
384-386	DC	NL		0:00	RO	0.65	1.37			0.000			
	DC	SN		28:21	RO	0.42	1.07			0.968			
	DC	SN		28:35		0.54	1.20			0.976			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		29:01	RO	0.91	0.51			0.991			
				29:11		0.50	529.99	176.72	353.27	0.997	13C12-HxCDF	478	SUR3
				29:17		0.50	649.92	217.16	432.76	1.000	13C12-HxCDF	678	IS4
	DC	SN		29:34	RO	0.19	0.41			1.010			
				29:46		0.51	551.11	184.95	366.16	1.017	13C12-HxCDF	234	ALT2
	DC	SN		30:03	RO	0.16	0.36			1.026			
	DC	SN		30:16	RO	0.23	0.86			1.034			
				30:29		0.52	429.21	146.08	283.13	1.041	13C12-HxCDF	789	ALT1
	DC	SN		30:37	RO	0.81	1.34			1.046			
384-386			4	Peaks			2,160.23						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD					1.05-1.43					0.953-1.014			
390-392	DC	NL		0:00	RO	0.54	0.85			0.000			
	DC	SN		29:18	RO	3.87	0.34			0.978			
	DC	SN		29:24	RO	1.03	0.60			0.981			
	DC	SN		29:33	RO	0.71	0.81			0.986			
	DC	SN		29:53	RO	2.23	0.29			0.997	123478-HxCDD		AN
	DC	SN		29:59	RO	2.41	0.65			1.001	123678-HxCDD		AN
	DC	SN		30:07		1.42	1.60			1.005			
	DC	SN		30:15	RO	0.27	0.25			1.009	123789-HxCDD		AN
	DC	SN		30:22	RO	0.47	0.98			1.013			
	DC	WH		30:38	RO	0.35	0.67			1.022			
	DC	WH		30:41	RO	0.44	1.46			1.024			
390-392			0	Peaks			0.00						
13C12-HxCDD					1.05-1.43					0.967-1.033			
402-404	DC	NL		0:00	RO	1.51	1.32			0.000			
	DC	WL		28:36	RO	0.60	0.87			0.954			
	DC	WL		28:41	RO	2.17	0.94			0.957			
	DC	SN		29:00	RO	1.73	1.01			0.968			
	DC	SN		29:23		1.30	2.51			0.981			
				29:54		1.27	388.14	216.84	171.30	0.998	13C12-HxCDD	478	SUR4
				29:58		1.22	479.40	263.42	215.98	1.000	13C12-HxCDD	678	IS5
	DC	SN		30:06	RO	0.95	1.41			1.004			
				30:16		1.22	522.49	286.75	235.74	1.010	13C12-HxCDD	789	RS2
	DC	SN		30:27	RO	0.62	0.70			1.016			
	DC	SN		30:41	RO	0.91	1.63			1.024			
402-404			3	Peaks			1,390.03						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF					0.88-1.20					0.995-1.042			
408-410	DC	NL		0:00	RO	1.83	1.94			0.000			
	DC	WL		31:45	RO	2.50	0.73			0.994			
	DC	SN		31:52	RO	7.12	2.18			0.998			
	DC	SN		32:11	RO	0.61	2.30			1.008			
	DC	SN		32:24	RO	2.23	1.06			1.015			
	DC	SN		33:08		0.88	2.07			1.038	1234789-HpCDF		AN
	DC	SN		33:15	RO	3.02	2.06			1.041			
408-410			0	Peaks			0.00						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-HpCDF				0.37-0.51						0.937-1.125			
418-420	DC	NL		0:00	RO	0.63	2.28			0.000			
				31:56		0.43	299.89	90.77	209.12	1.000	13C12-HpCDF 678	IS6	
	DC	SN		32:47		0.37	1.60			1.027			
				33:08		0.44	200.37	61.08	139.29	1.038	13C12-HpCDF 789	SUR5	
418-420				2 Peaks			500.26						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.977-1.005			
424-426	DC	NL		0:00	RO	1.86	0.88			0.000			
	DC	WL		31:58	RO	2.09	1.31			0.976			
	DC	SN		32:09	RO	2.53	0.61			0.981			
	DC	SN		32:46	RO	0.26	1.08			1.000	1234678-HpCDD	AN	
424-426				0 Peaks			0.00						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	2.11	0.94			0.000			
				32:46		1.04	271.50	138.72	132.78	1.000	13C12-HpCDD 678	IS7	
	DC	SN		33:03	RO	2.44	1.65			1.009			
	DC	SN		33:16	RO	0.80	1.33			1.015			
436-438				1 Peak			271.50						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

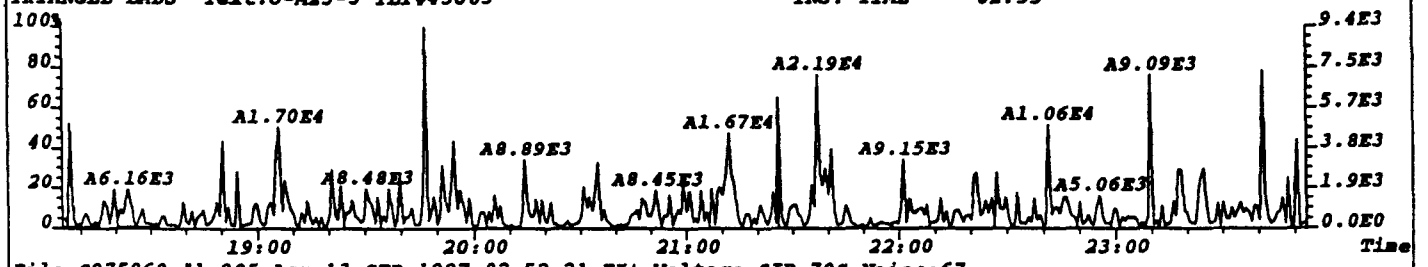
OCDF				0.76-1.02						0.887-1.113			
442-444	DC	NL		0:00	RO	1.07	1.34			0.000			
	DC	WL		31:17	RO	3.65	0.81			0.885			
	DC	SN		31:55		0.81	1.86			0.903			
	DC	SN		32:32	RO	2.26	0.95			0.921			
	DC	SN		33:00	RO	0.66	2.29			0.934			
	DC	SN		33:23	RO	3.00	0.68			0.945			
	DC	SN		33:58	RO	0.68	1.55			0.961			
	DC	SN		34:38	RO	0.47	2.31			0.980			
	DC	SN		34:51	RO	2.75	1.59			0.986			
	DC	SN		35:13	RO	0.40	0.96			0.997			
	DC	SN		35:28		0.78	3.52			1.004	OCDF	AN	
442-444				0 Peaks			0.00						
OCDD				0.76-1.02						0.887-1.113			
458-460	DC	NL		0:00	RO	2.59	0.42			0.000			
	DC	SN		35:19		0.83	4.47			1.000			
	DC	SN		35:46	RO	9.43	0.13			1.012			
458-460				0 Peaks			0.00						
13C12-OCDD				0.76-1.02						0.996-1.005			
470-472	DC	NL		0:00	RO	3.44	0.17			0.000			
	DC	WL		35:04	RO	2.49	2.00			0.992			
				35:20		0.91	171.61	81.81	89.80	1.000	13C12-OCDD	IS8	
470-472				1 Peak			171.61						

Compound/
M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID.. Flags.

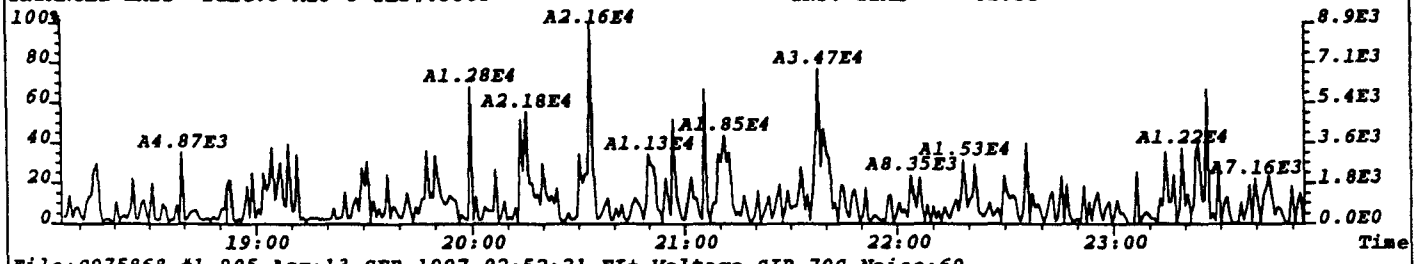
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

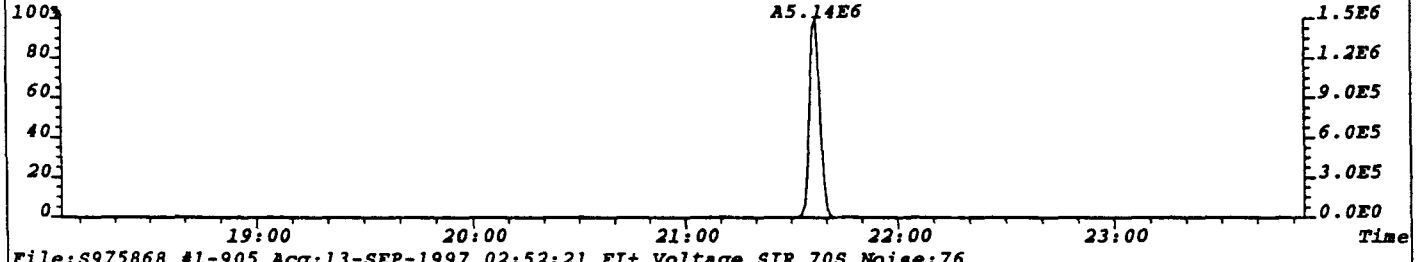
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:57
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,228.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



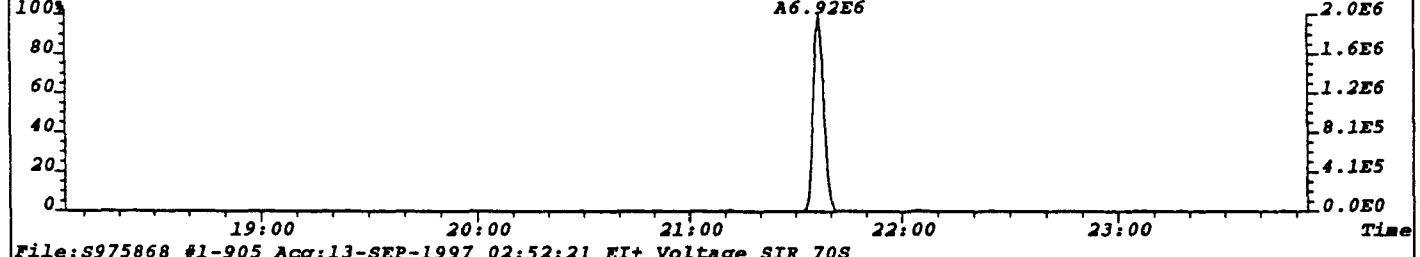
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:67
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,268.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



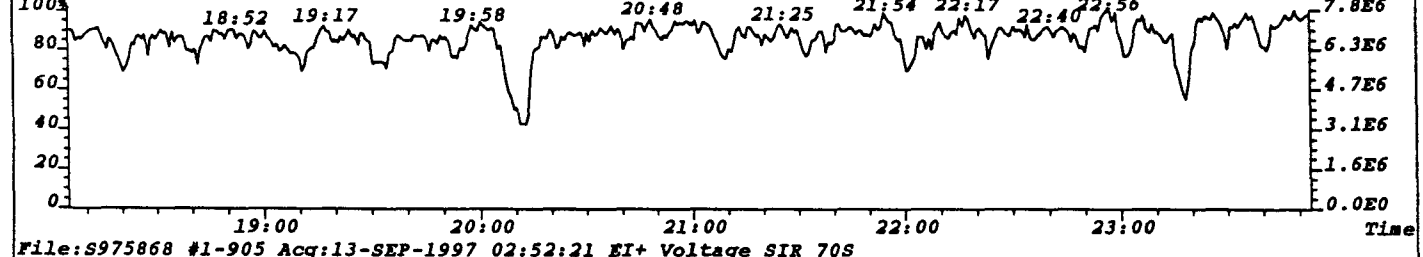
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:69
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,276.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



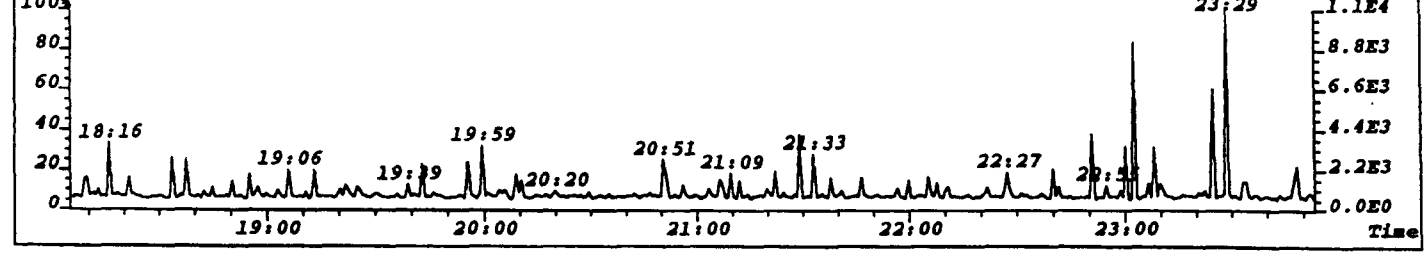
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:76
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,304.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



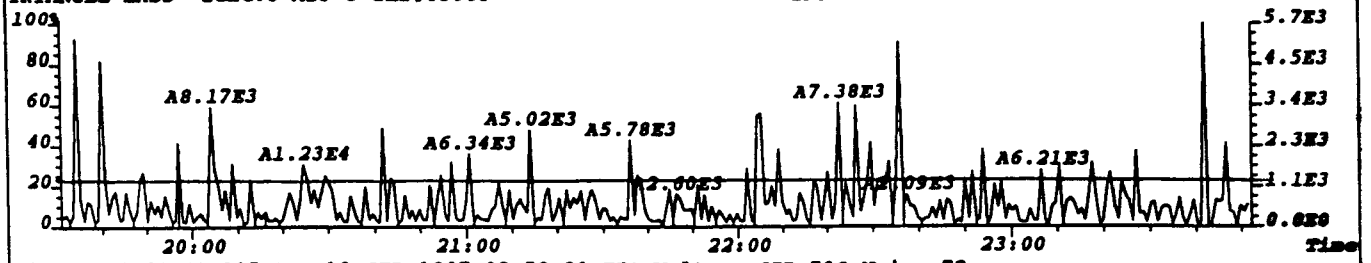
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



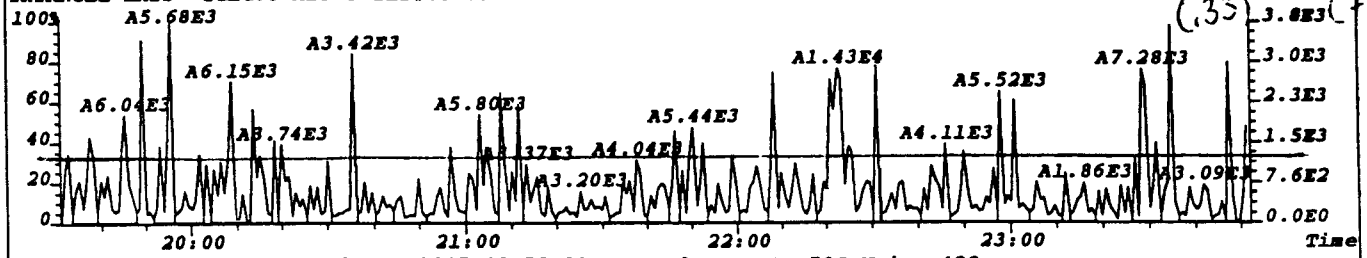
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:56
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,224.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55

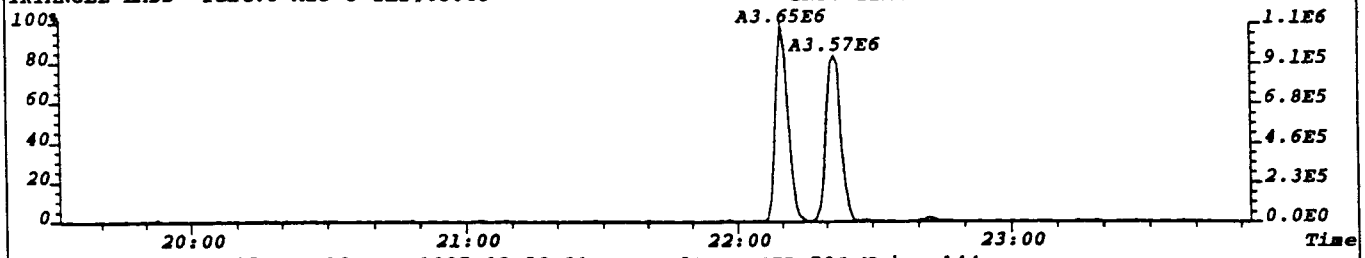


File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:72
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,288.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55

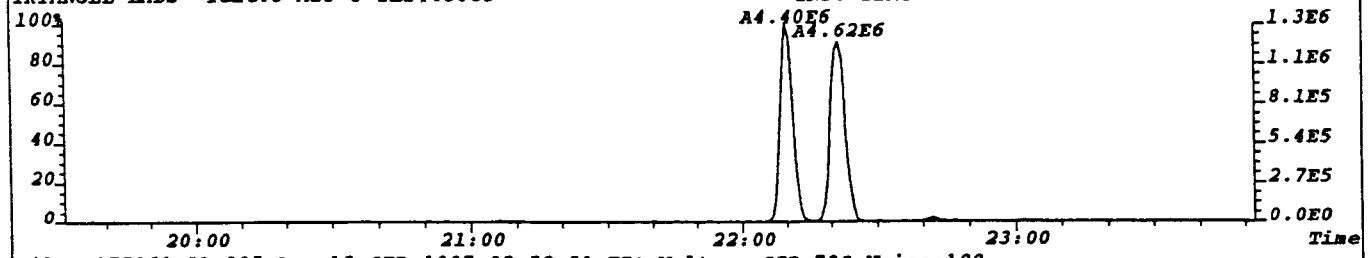


(.35) (7,4)=0
ru
9|KSK

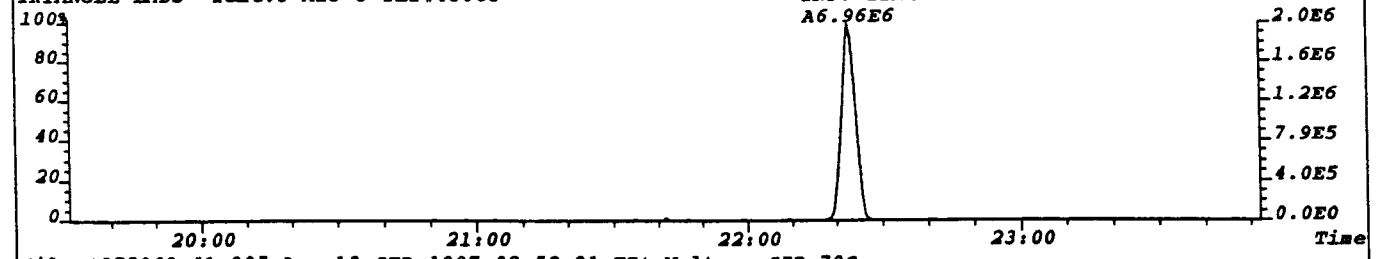
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:422
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1688.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



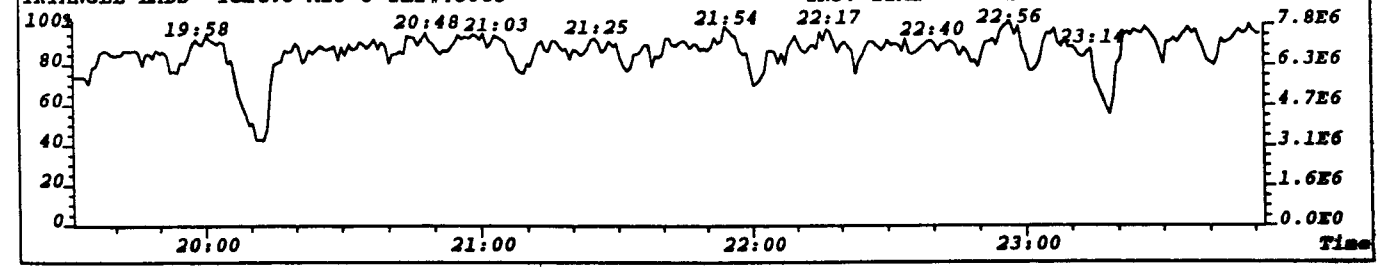
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:144
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,576.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



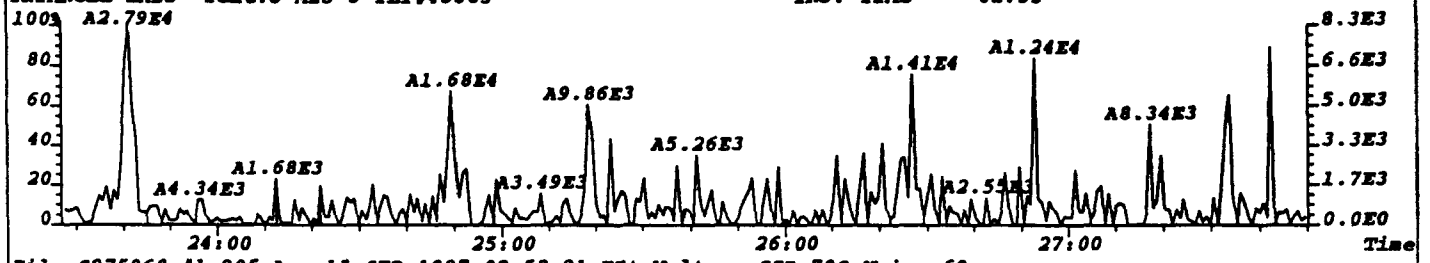
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:188
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,752.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



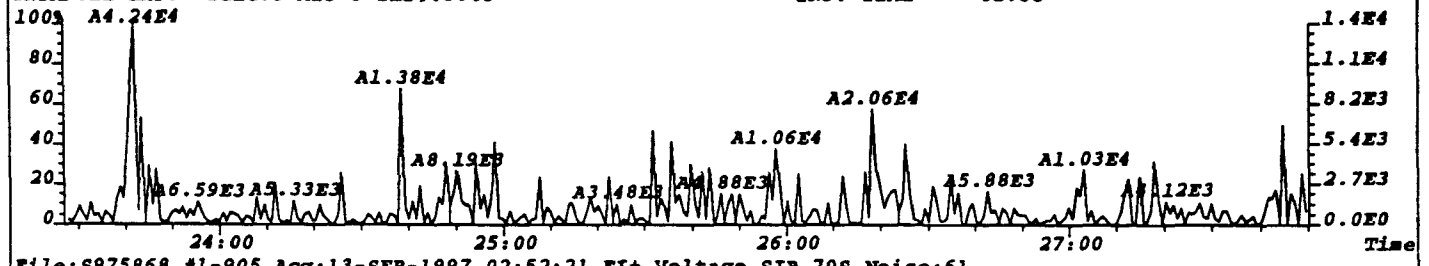
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



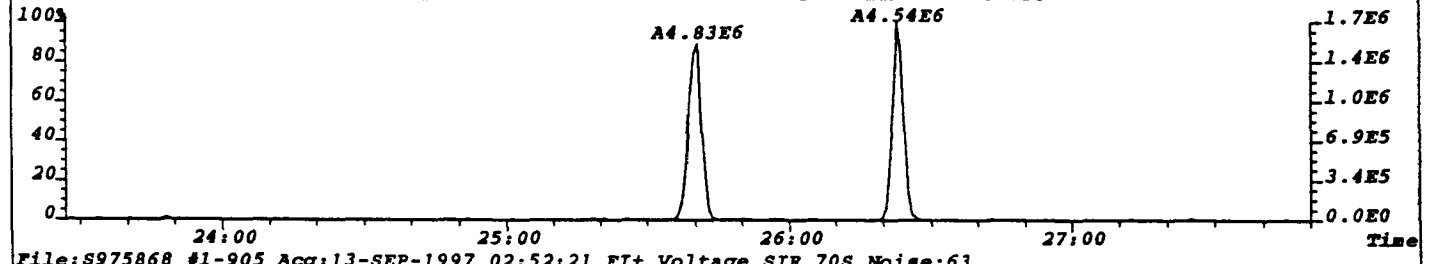
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:80
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,320.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



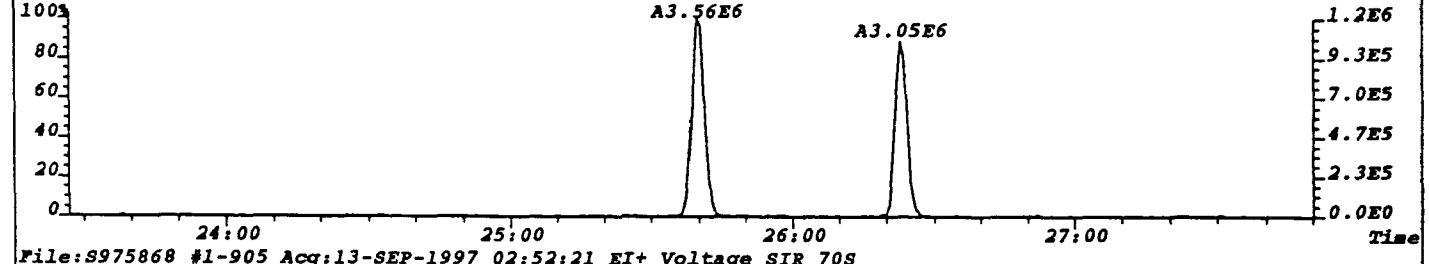
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:68
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,272.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



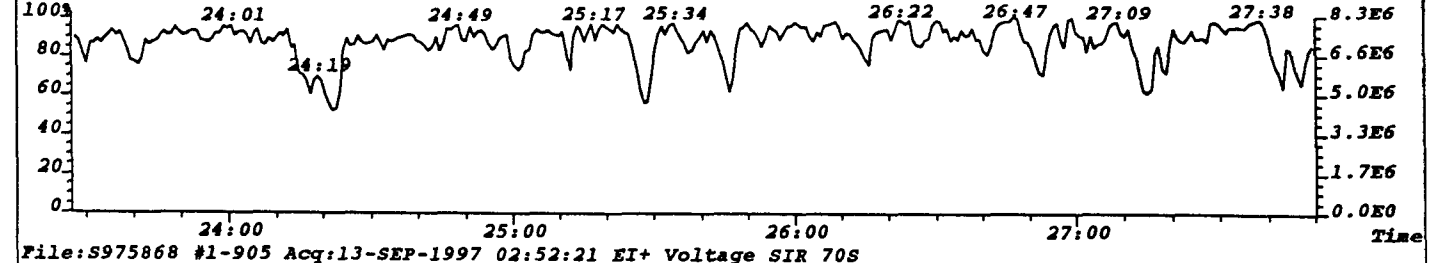
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:61
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,244.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



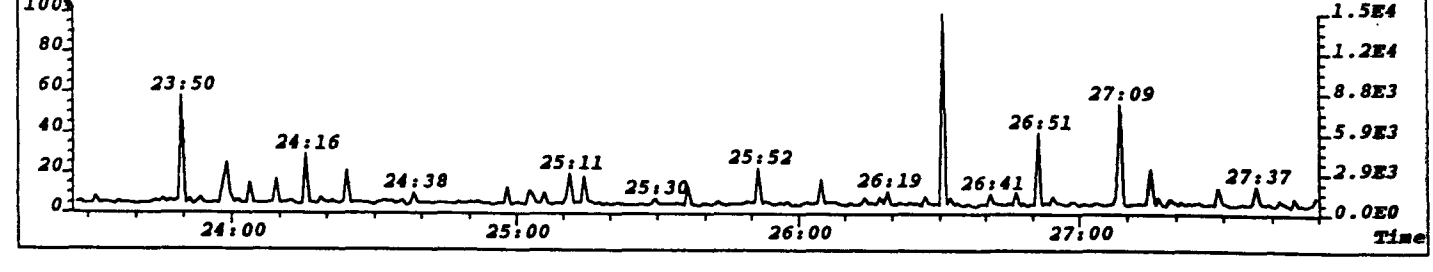
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:63
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



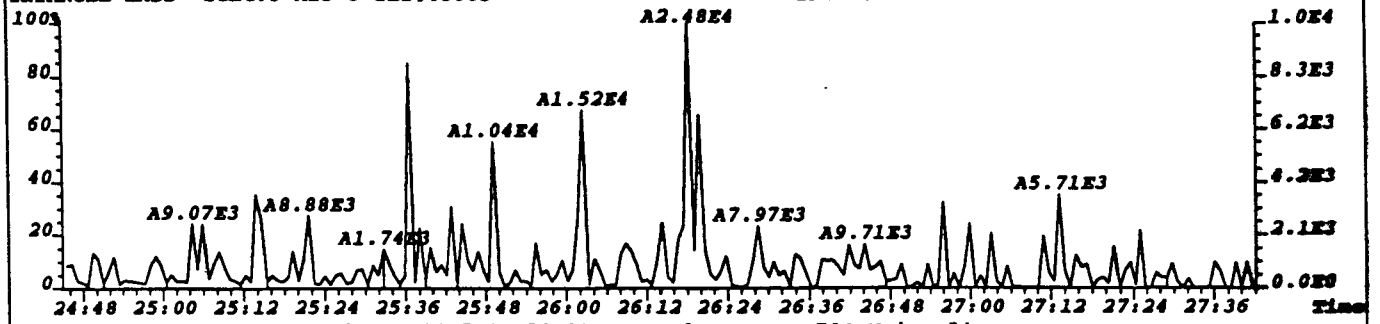
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



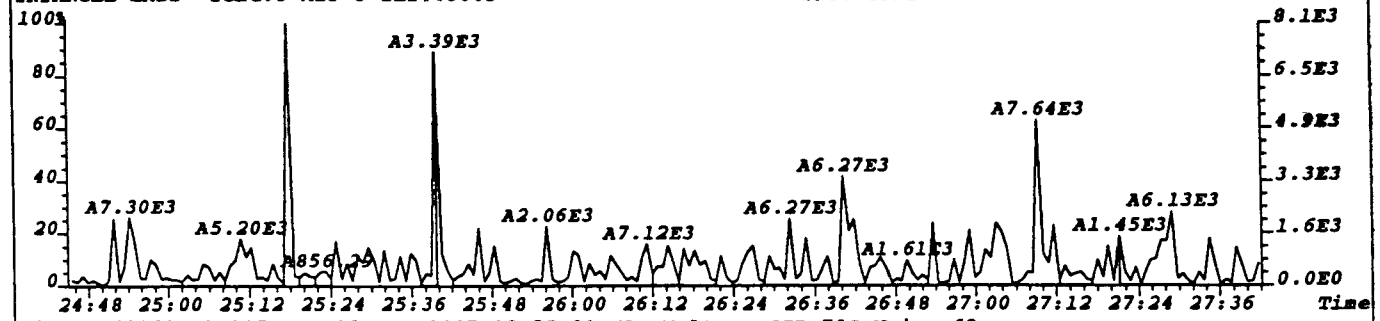
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



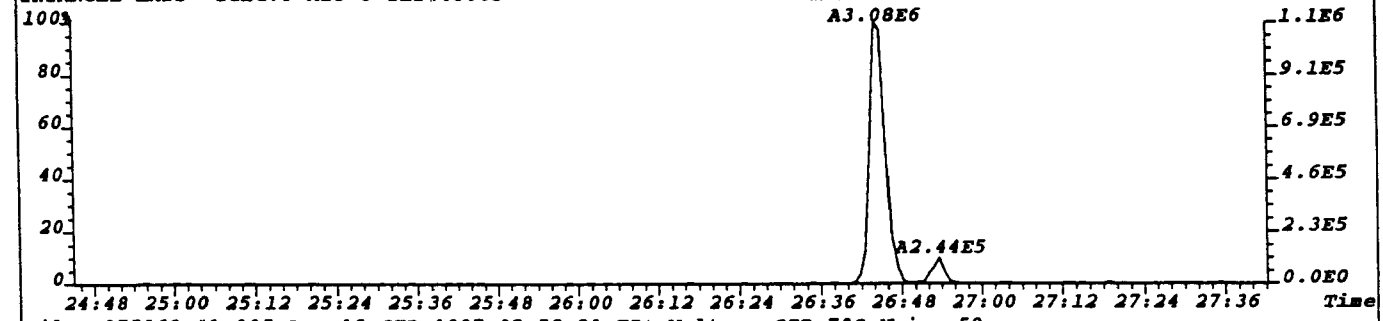
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:65
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



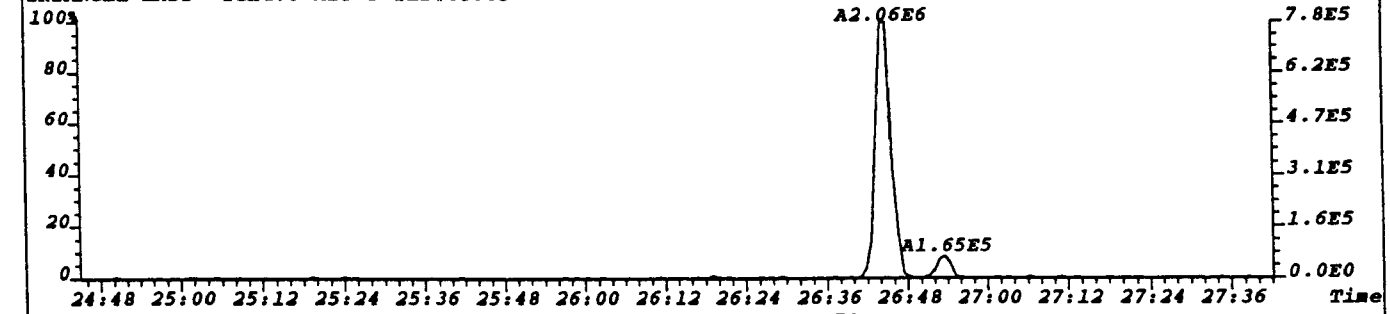
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:54
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



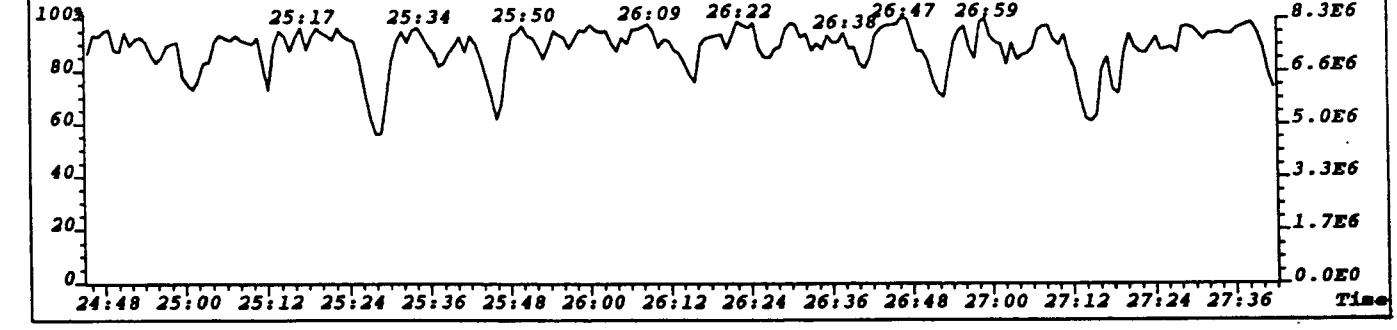
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:62
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,248.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



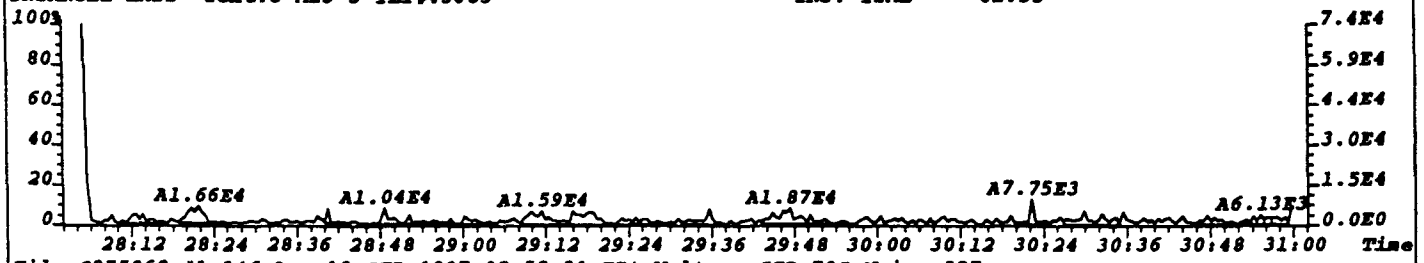
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:59
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



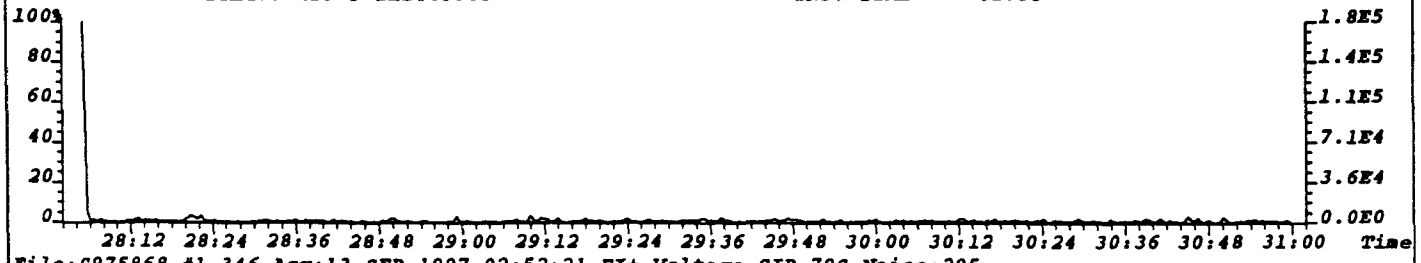
File:S975868 #1-905 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



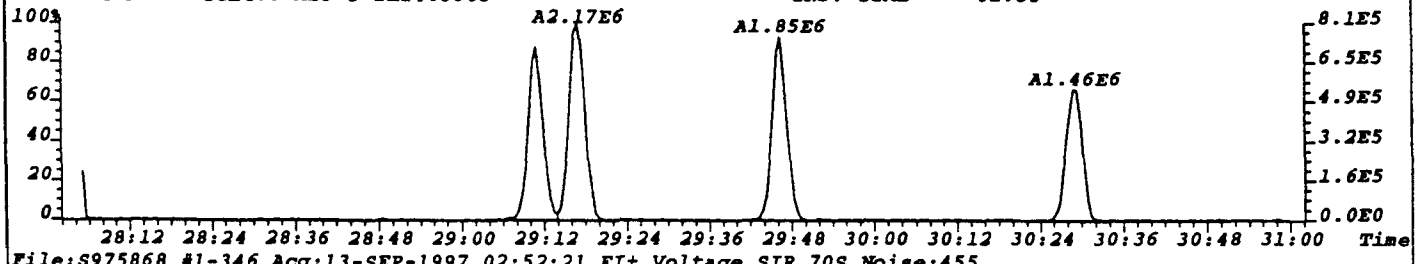
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:454
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1816.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



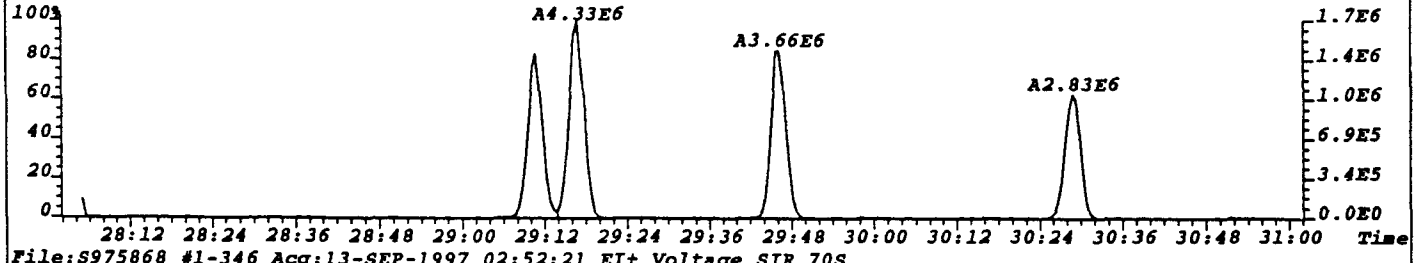
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:327
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1308.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



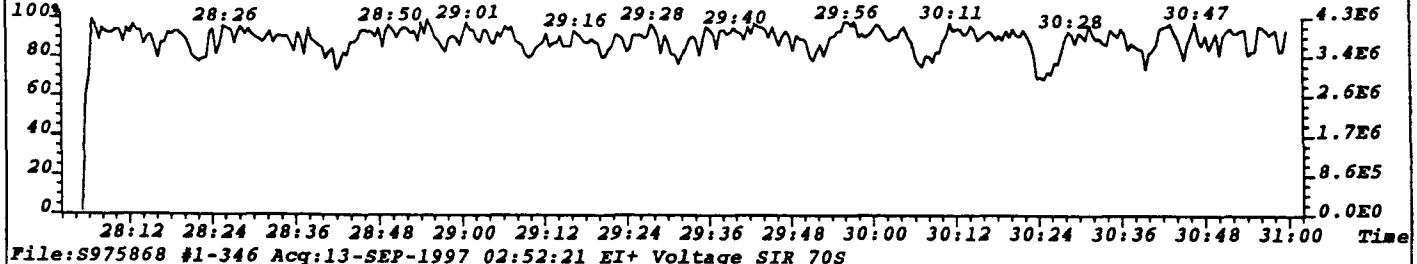
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:295
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



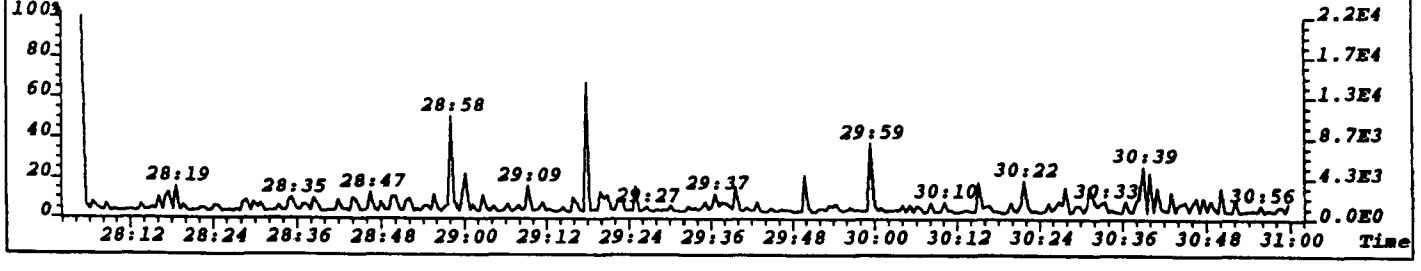
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:455
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1820.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



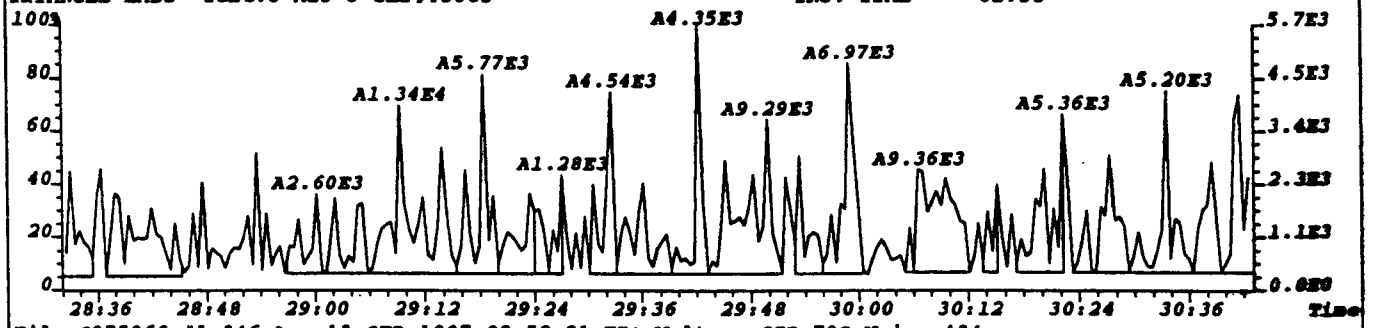
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



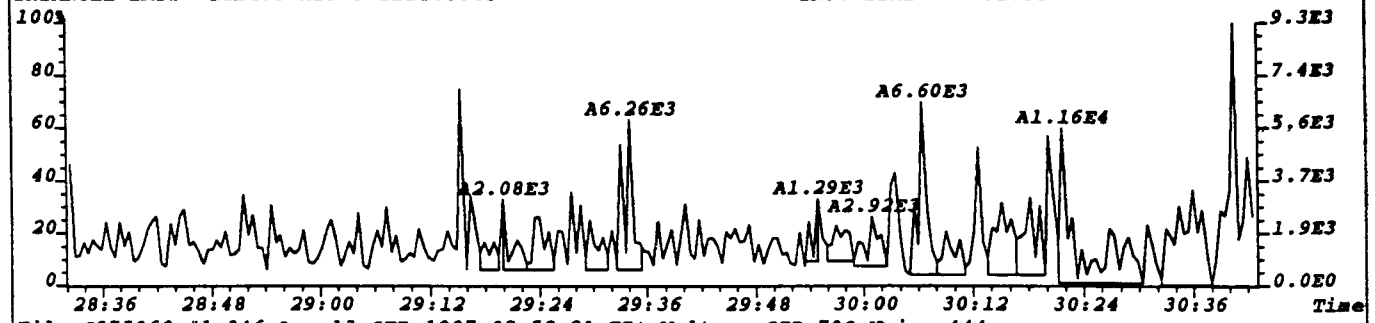
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



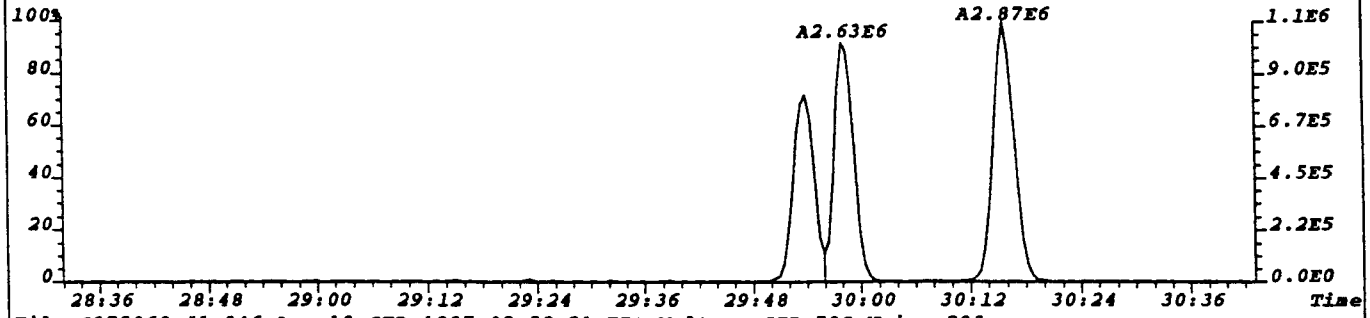
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:235
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,940.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



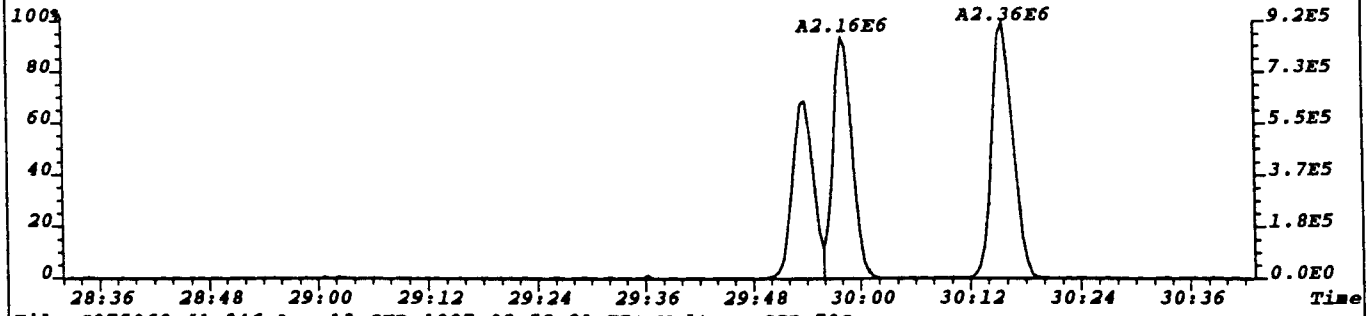
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:434
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1736.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



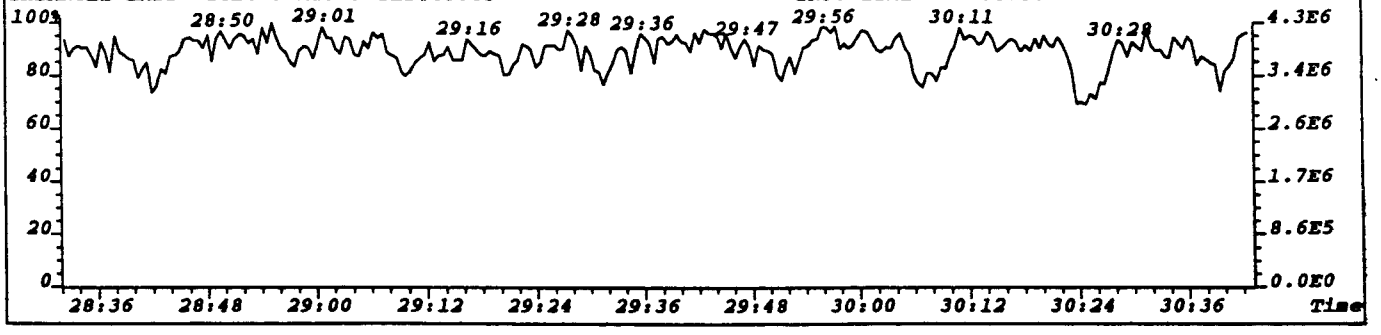
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:444
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1776.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



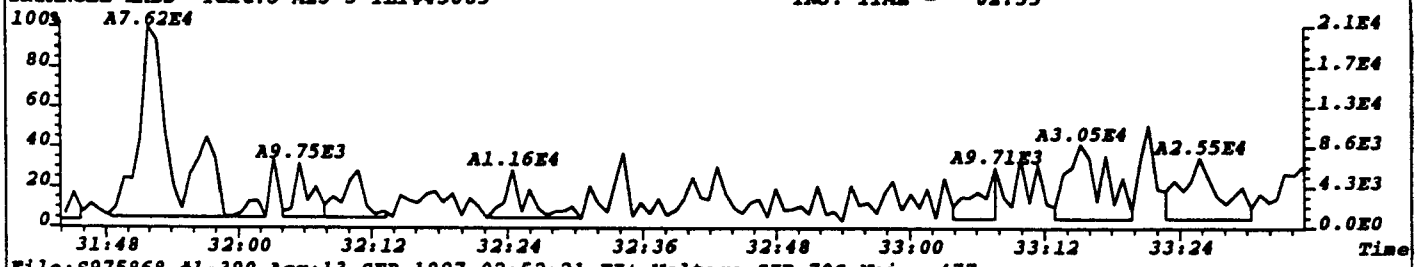
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:293
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



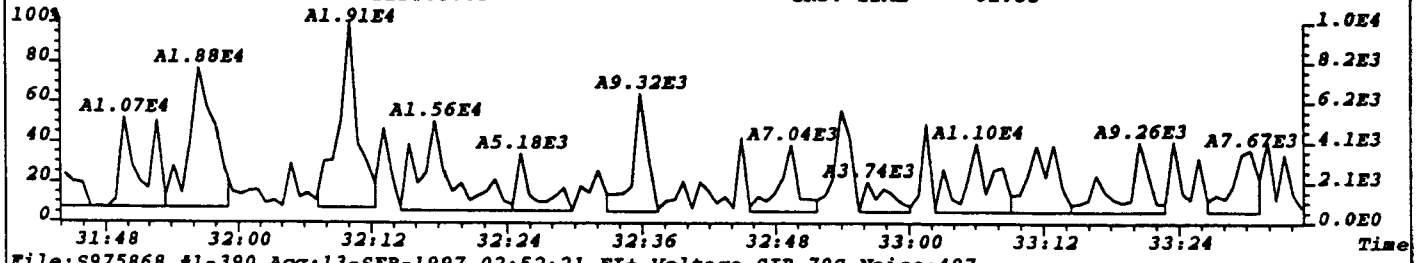
File:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



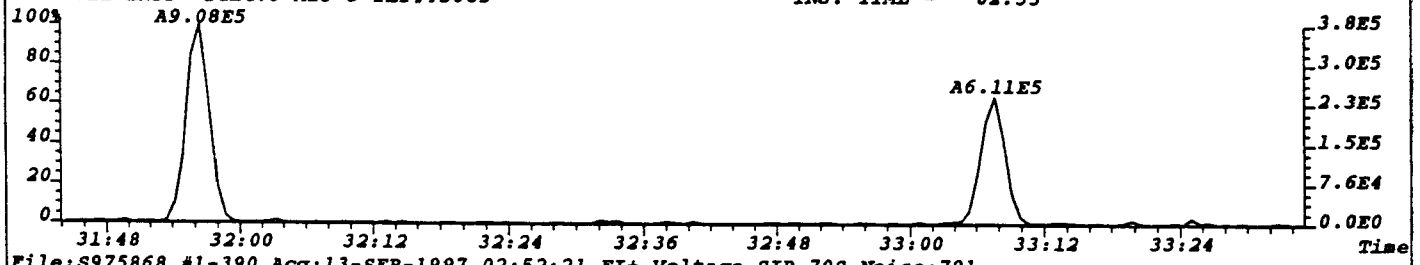
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:869
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3476.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



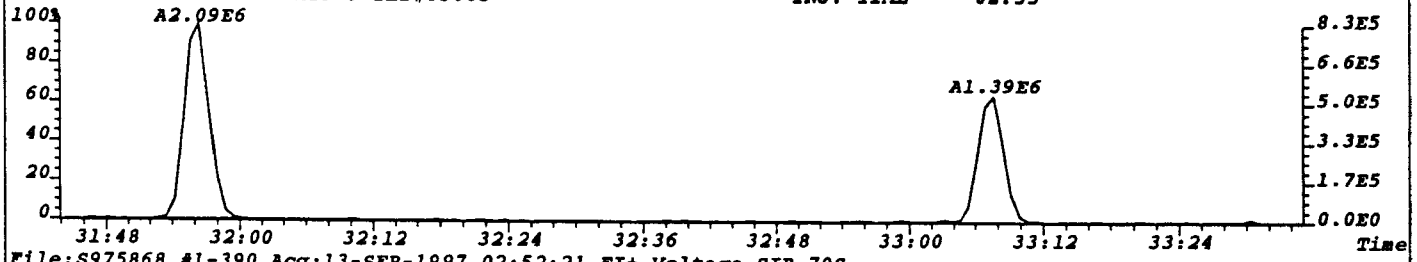
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:477
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1908.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



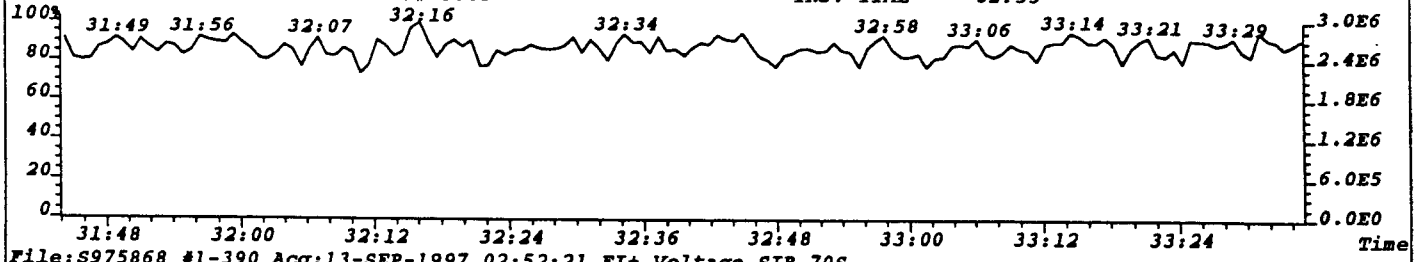
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:497
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1988.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



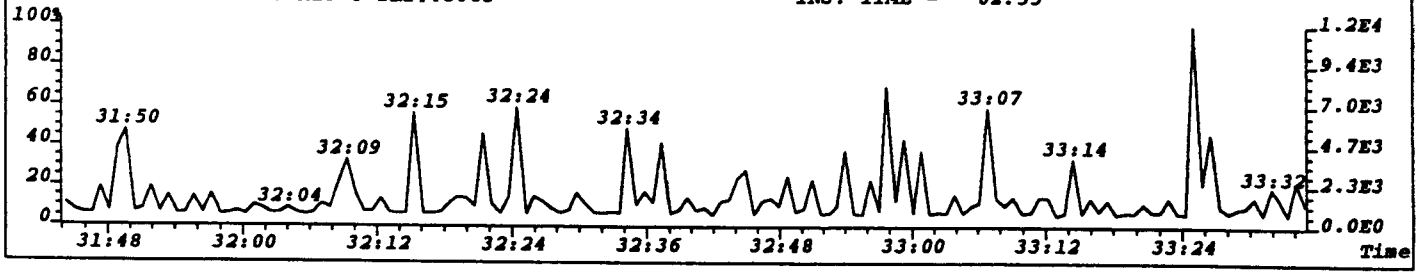
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:791
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



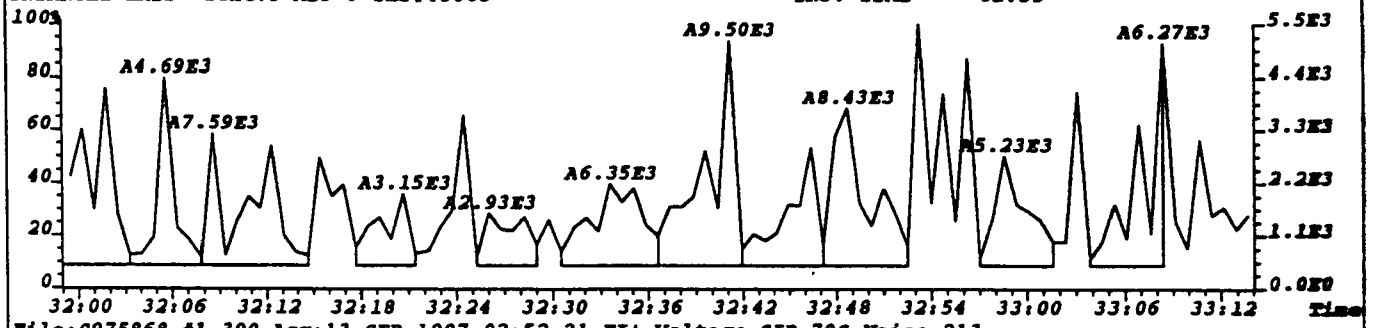
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



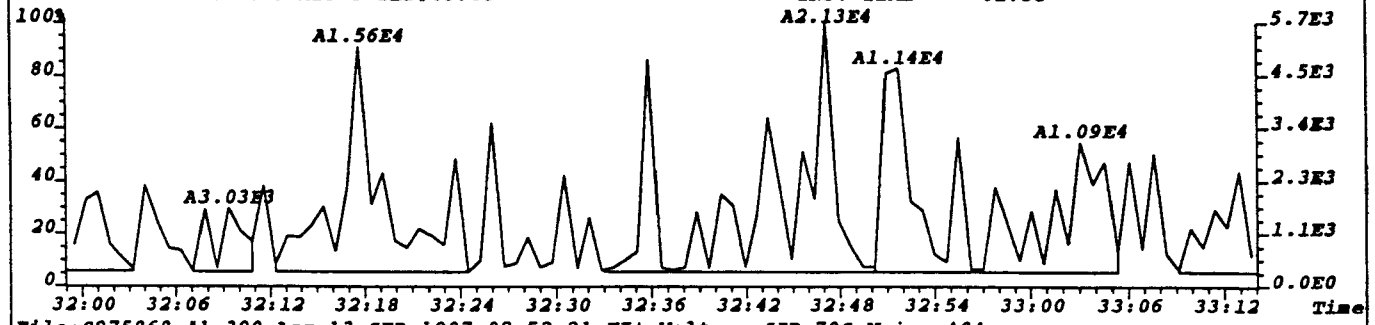
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



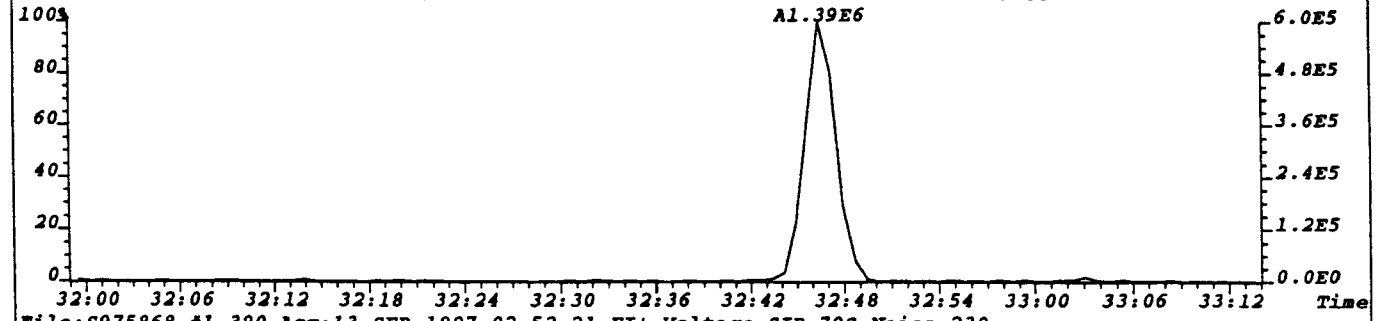
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:398
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1592.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



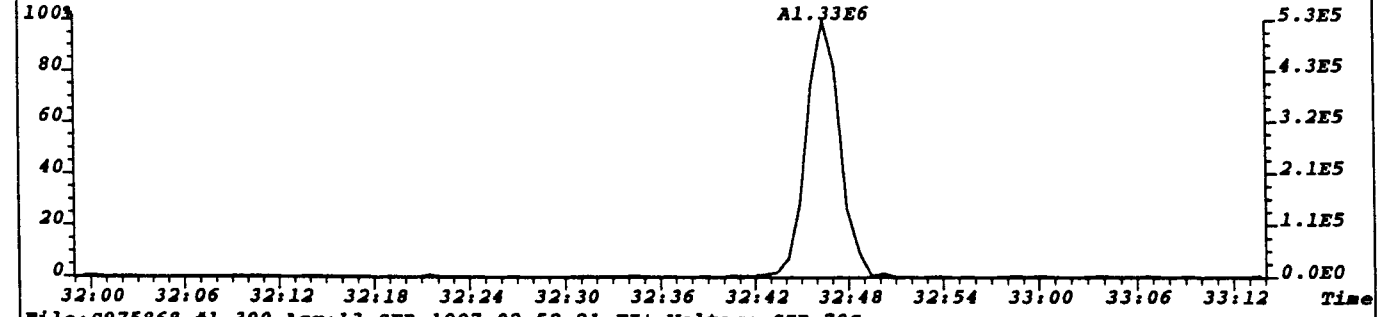
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:213
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,852.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



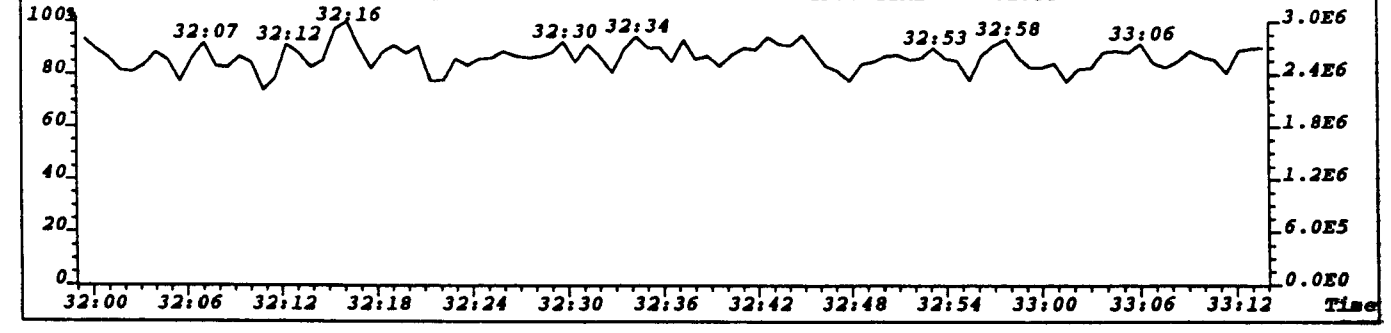
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:484
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1936.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



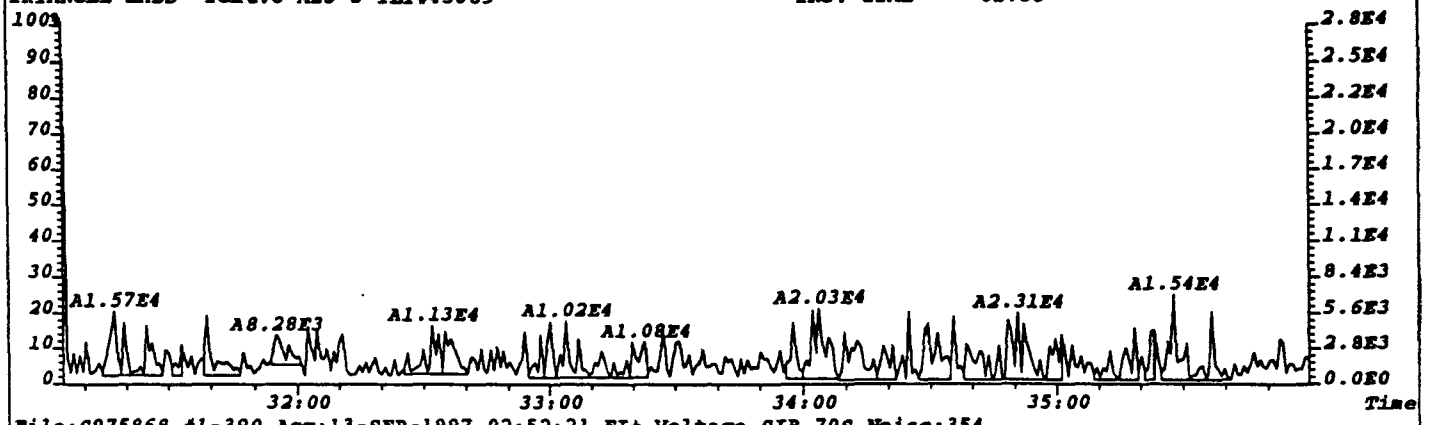
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:230
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,920.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



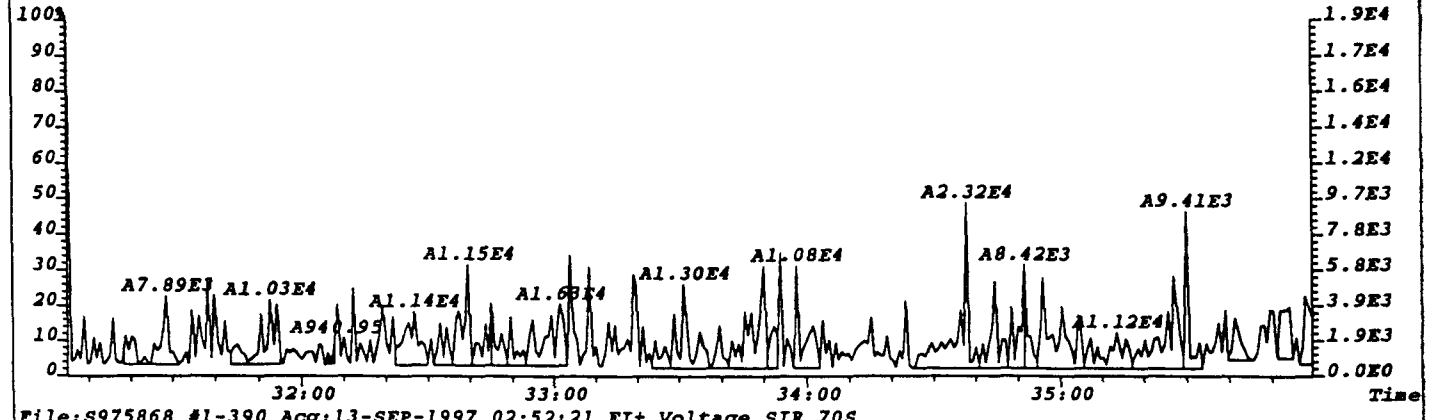
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



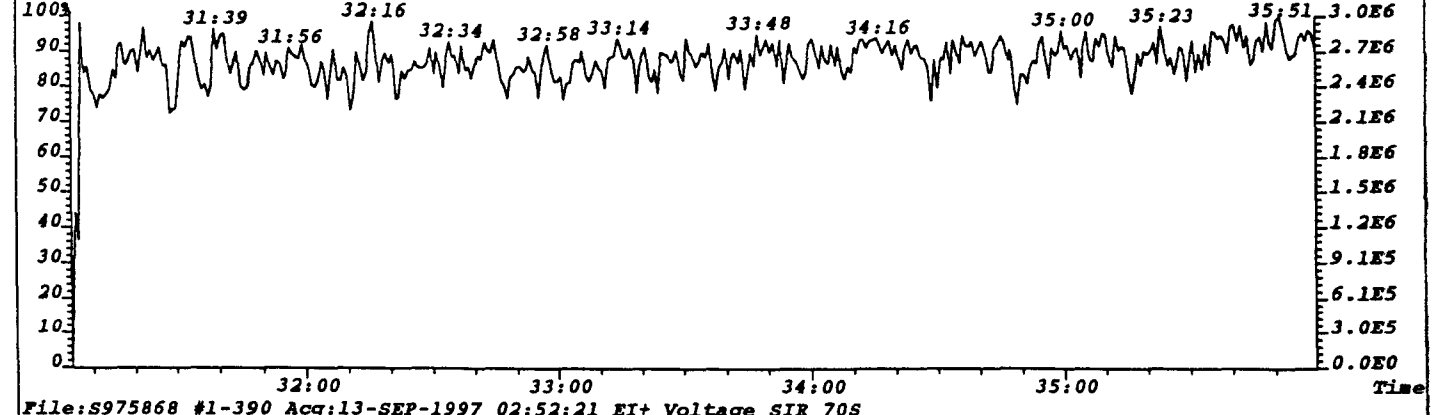
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:382
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1528.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



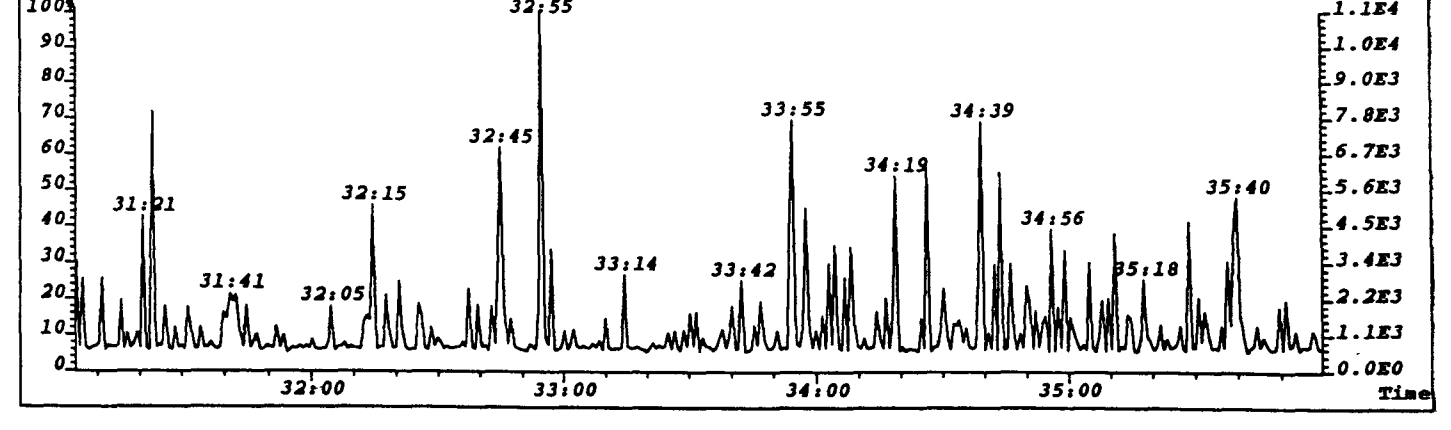
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:354
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1416.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



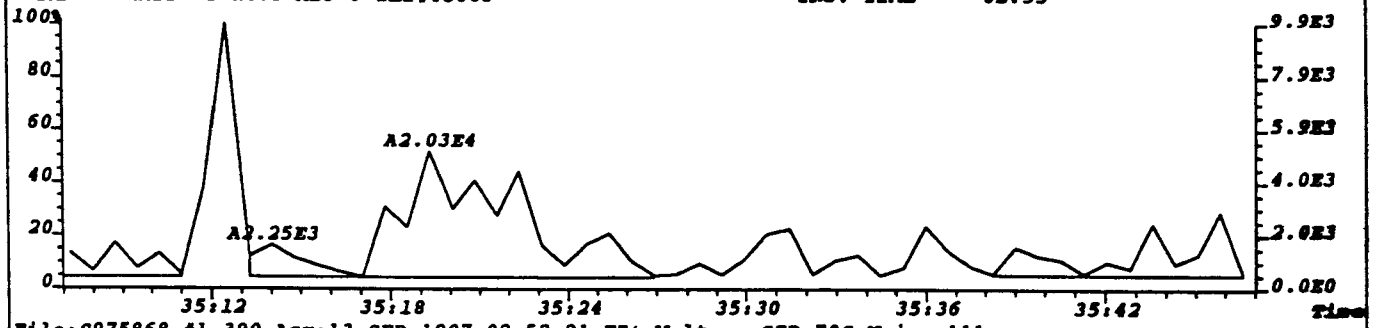
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



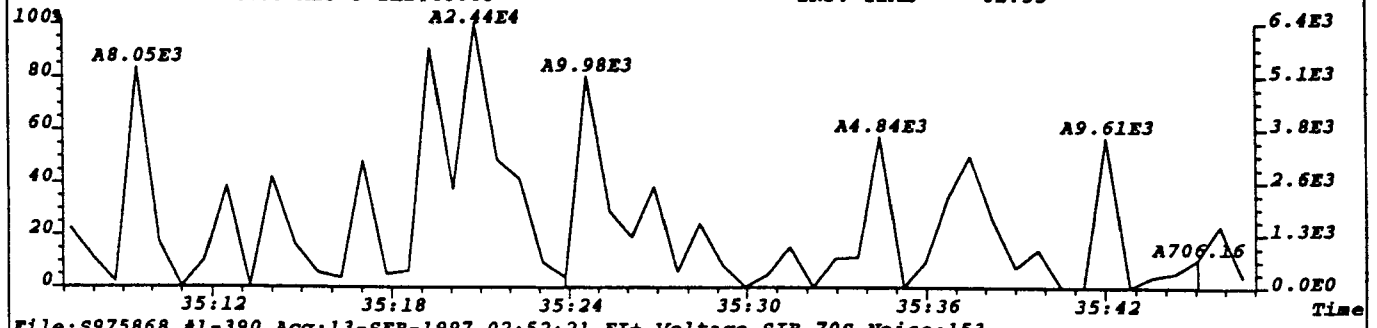
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



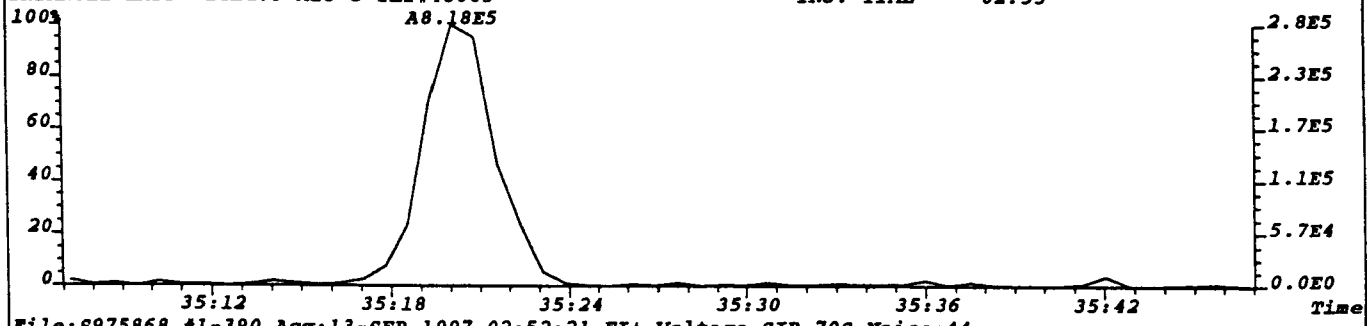
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:286
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



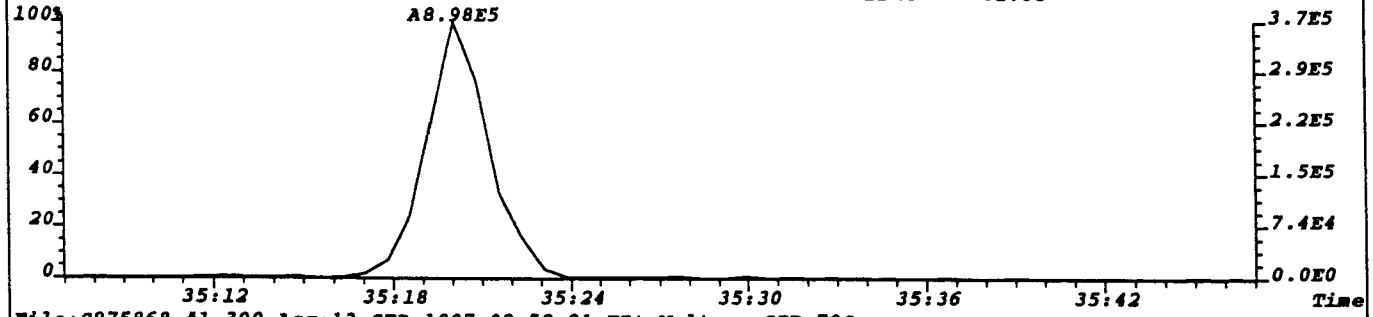
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:111
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,444.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



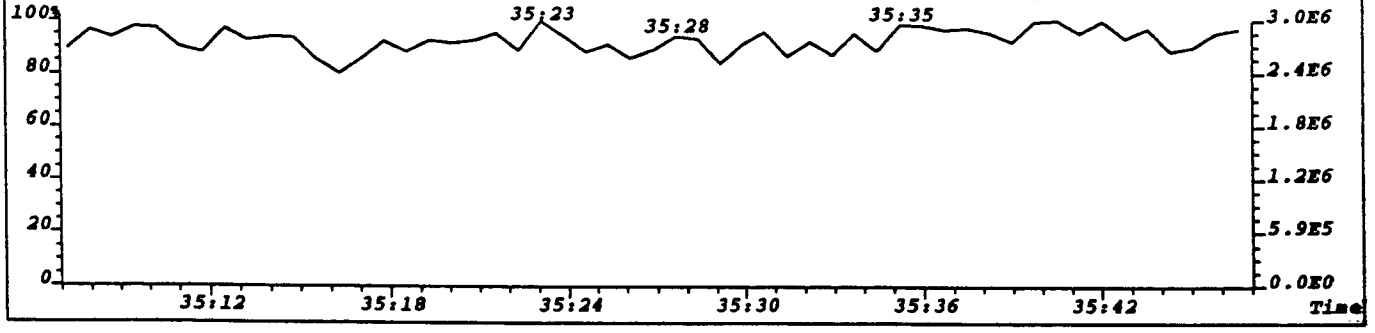
File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:153
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,612.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55

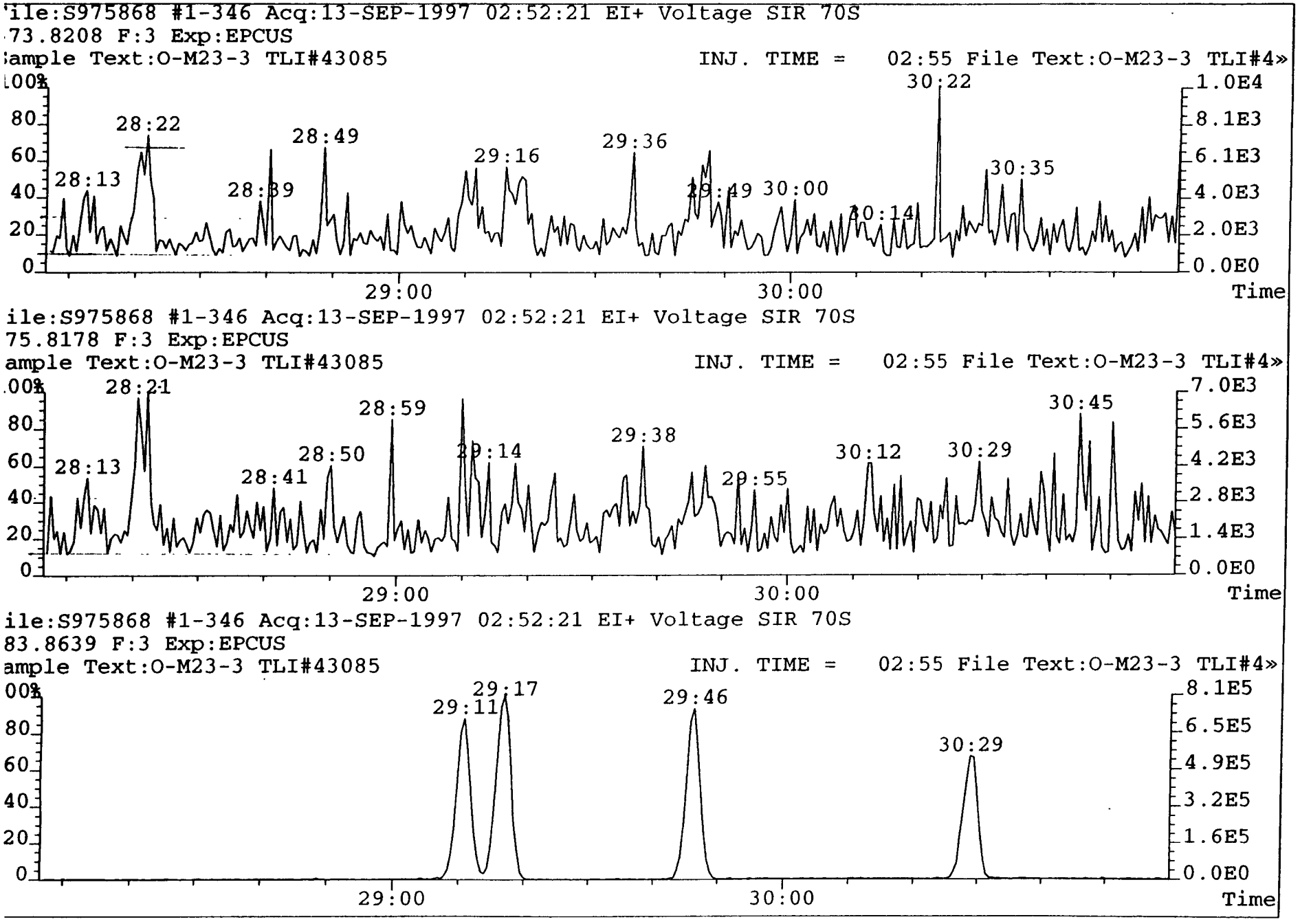


File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S Noise:44
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,176.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55



File:S975868 #1-390 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43085 INJ. TIME = 02:55




'ile:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
73.8208 F:3 Exp:EPCUS
ample Text:O-M23-3 TLI#43085
INJ. TIME = 02:55 File Text:O-M23-3 TLI#4»
28:13
28:22
28:39
28:49
29:16
29:36
29:49
30:00
30:14
30:22
30:35
29:00
30:00
Time
ile:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
75.8178 F:3 Exp:EPCUS
ample Text:O-M23-3 TLI#43085
INJ. TIME = 02:55 File Text:O-M23-3 TLI#4»
28:13
28:21
28:41
28:50
28:59
29:14
29:38
29:55
30:12
30:29
30:45
29:00
30:00
Time
ile:S975868 #1-346 Acq:13-SEP-1997 02:52:21 EI+ Voltage SIR 70S
83.8639 F:3 Exp:EPCUS
ample Text:O-M23-3 TLI#43085
INJ. TIME = 02:55 File Text:O-M23-3 TLI#4»
29:11
29:17
29:46
30:29
29:00
30:00
Time

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **O-M23-FB** Analysis File: **S975833**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPX23704**
TLI ID:	**181-55-4ABD**	Date Extracted:	**09/04/97**	ICal:	**SF56117**
		Date Analyzed:	**09/11/97**	ConCal:	**S975814**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**S975815**	% Lipid:	**n/a**
GC Column:	**DB-5**	Analyst:	**BJG**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	EMPC		0.009			__
1,2,3,7,8-PeCDD	0.04			1.67	25:51	__
1,2,3,4,7,8-HxCDD	0.02			1.39	29:08	Q__
1,2,3,6,7,8-HxCDD	0.03			1.22	29:13	__
1,2,3,7,8,9-HxCDD	0.03			1.23	29:30	__
1,2,3,4,6,7,8-HpCDD	0.03			0.94	32:04	B__
1,2,3,4,6,7,8,9-OCDD	0.09			0.94	34:38	B__
2,3,7,8-TCDF	0.02			0.70	20:23	B__
1,2,3,7,8-PeCDF	0.04			1.66	24:43	__
2,3,4,7,8-PeCDF	0.04			1.36	25:29	__
1,2,3,4,7,8-HxCDF	0.03			1.43	28:22	__
1,2,3,6,7,8-HxCDF	0.03			1.14	28:29	__
2,3,4,6,7,8-HxCDF	0.03			1.17	29:00	__
1,2,3,7,8,9-HxCDF	0.03			1.08	29:42	__
1,2,3,4,6,7,8-HpCDF	EMPC		0.03			B__
1,2,3,4,7,8,9-HpCDF	0.02			1.03	32:25	__
1,2,3,4,6,7,8,9-OCDF	0.03			0.88	34:44	B__

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	EMPC			0.009	__
Total PeCDD	0.04	1			__
Total HxCDD	0.09	3			__
Total HpCDD	0.04	2			__
Total TCDF	0.02	1		0.02	__
Total PeCDF	0.08	2		0.09	__
Total HxCDF	0.11	4			__
Total HpCDF	0.02	1		0.05	__

X237_PSR v2.00, LARS 6.10.0

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Printed: 14:06 09/18/97

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **O-M23-FB** Analysis File: **S975833**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.0	75.7	40%-130%	0.77	20:22	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.9	71.5	40%-130%	0.80	21:12	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.0	75.4	40%-130%	1.55	24:42	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3.5	86.9	40%-130%	1.49	25:51	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	3.3	81.3	40%-130%	0.50	28:28	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.1	76.5	40%-130%	1.21	29:12	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.0	75.9	25%-130%	0.42	31:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.5	87.9	25%-130%	0.99	32:04	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	7.0	87.6	25%-130%	0.86	34:37	___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	95.6	70%-140%		21:13	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.6	89.4	70%-140%	1.59	25:28	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.3	83.1	70%-140%	0.51	28:21	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2.9	72.6	70%-140%	1.23	29:07	Q___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2.7	67.8	70%-140%	0.42	32:25	V___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.8	69.7	40%-130%	0.49	29:41	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.3	81.5	40%-130%	0.50	28:59	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	20:59	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.21	29:29	___

Data Reviewer: _____ 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 14:06 09/18/97

Initial ....Date...

Data Review By: Sr 9/18/97 Calculated Noise Area: n/a

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975833B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....		QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF					0.65-0.89						0.820-1.101			
304-306		DC	NL		0:00	RO	1.14	0.12			0.000			
		DC	SN		17:36	RO	0.58	2.64			0.864			
		DC	SN		18:12	RO	0.21	1.08			0.894			
		DC	SN		18:29	RO	0.31	1.52			0.908			
		DC	SN		19:09	RO	0.44	2.34			0.940			
		DC	SN		19:28	RO	1.14	3.08			0.956			
					19:54	RO	1.22	10.04	6.90	5.67	0.977			
					20:23		0.70	31.84	13.16	18.68	1.001	2378-TCDF		AN
	D	DC	SN		20:54		0.81	5.81			1.026			
	D	DC	SN		22:15		0.69	7.40			1.092			
304-306				2	Peaks			41.88						
13C12-TCDF					0.65-0.89						0.951-1.049			
316-318		DC	NL		0:00	RO	1.69	0.87			0.000			
		DC	WL		19:11		0.73	141.93			0.942			
					19:31		0.75	15.12	6.48	8.64	0.958			
					19:53		0.80	48.40	21.58	26.82	0.976			
					20:22		0.77	6,305.72	2,733.69	3,572.03	1.000	13C12-2378-TCDF		ISO
					20:52	RO	0.61	22.14	9.63	15.74	1.025			
					20:59	RO	1.18	6.92	4.63	3.91	1.030			
316-318				5	Peaks			6,398.30						

---------- Above: TCDF / TCDD Follows ----------

TCDD					0.65-0.89						0.853-1.059			
320-322		DC	NL		0:00	RO	8.14	0.12			0.000			
		DC	SN		18:06		0.81	0.67			0.854			
		DC	SN		18:13	RO	1.22	1.66			0.859			
		DC	SN		18:52	RO	0.57	1.17			0.890			
		DC	SN		20:04	RO	1.09	0.41			0.947			
		DC	SN		20:23	RO	2.28	2.16			0.961			
		DC	SN		20:43	RO	0.58	0.60			0.977			
		DC	SN		20:56		0.83	0.42			0.987			
					21:12	RO	0.56	12.60	5.48	9.82	1.000	2378-TCDD		AN
		DC	SN		21:31	RO	0.40	0.39			1.015			
		DC	SN		21:52	RO	0.21	0.78			1.031			
		DC	SN		22:22	RO	0.30	0.41			1.055			
		DC	WH		22:40	RO	1.18	1.38			1.069			
320-322				1	Peak			12.60						
37Cl-TCDD											0.906-1.094			
328		DC	NL		0:00			0.06			0.000			
					19:39			130.92	130.92		0.927			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				21:13			3,881.17	3,881.17		1.001	37Cl-TCDD		SUR1
328				2 Peaks			4,012.09						
13C12-TCDD				0.65-0.89						0.906-1.094			
332-334	DC	NL		0:00	RO	1.67	2.71			0.000			
				19:52		0.79	29.49	13.01	16.48	0.937			
				20:59		0.81	6,317.39	2,820.24	3,497.15	0.990	13C12-1234-TCDD		RS1
				21:12		0.80	4,816.30	2,138.52	2,677.78	1.000	13C12-2378-TCDD		IS1
				21:34		0.78	78.21	34.15	44.06	1.017			
				22:41	RO	0.59	5.82	2.53	4.29	1.070			
332-334				5 Peaks			11,247.21						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF				1.32-1.78						0.907-1.078			
340-342	DC	NL		0:00	RO	0.18	0.15			0.000			
	DC	SN		22:34		1.67	5.48			0.914			
	DC	SN		22:56	RO	0.72	1.41			0.928			
	DC	SN		23:39	RO	0.45	1.60			0.957			
				23:49	RO	0.87	7.57	4.60	5.26	0.964			
	DC	SN		24:14	RO	0.82	0.76			0.981			
	DC	SN		24:23		1.44	2.90			0.987			
				24:43		1.66	63.12	39.40	23.72	1.001	12378-PeCDF		AN
	DC	SN		25:00	RO	3.05	1.50			1.012			
				25:29		1.36	58.09	33.43	24.66	1.032	23478-PeCDF		AN
	DC	SN		25:46		1.69	1.21			1.043			
	DC	SN		25:57	RO	0.67	0.81			1.051			
	DC	WH		26:44	RO	4.47	0.87			1.082			
	DC	WH		27:00	RO	1.29	2.06			1.093			
340-342				3 Peaks			128.78						
13C12-PeCDF				1.32-1.78						0.838-1.162			
352-354	DC	NL		0:00	RO	0.88	0.12			0.000			
				23:48		1.51	211.92	127.42	84.50	0.964			
				24:20		1.66	28.69	17.89	10.80	0.985			
				24:42		1.55	5,398.40	3,280.01	2,118.39	1.000	13C12-PeCDF 123		IS2
				25:00		1.55	41.06	24.96	16.10	1.012			
				25:28		1.59	4,680.89	2,870.11	1,810.78	1.031	13C12-PeCDF 234		SUR2
	DC	SN		25:45	RO	2.36	5.92			1.043			
				26:28		1.47	16.36	9.74	6.62	1.072			
352-354				6 Peaks			10,377.32						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.921-1.026			
356-358	DC	NL		0:00	RO	0.86	0.10			0.000			
	DC	SN		23:54	RO	0.06	1.48			0.925			
	DC	SN		24:12	RO	0.23	2.06			0.936			
	DC	SN		25:29	RO	5.78	1.28			0.986			
	DC	SN		25:39	RO	1.96	0.64			0.992			
				25:51		1.67	38.74	24.22	14.52	1.000	12378-PeCDD		AN
	DC	SN		25:59	RO	0.46	1.00			1.005			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		26:31	RO	0.53	1.45			1.026			
	DC	WH		26:54	RO	3.33	0.77			1.041			
356-358			1	Peak			38.74						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370	DC	NL		0:00	RO	1.00	0.12			0.000			
	DC	SN		24:42	RO	2.75	5.81			0.956			
	DC	SN		24:53	RO	2.05	6.30			0.963			
				25:51		1.49	3,485.93	2,084.63	1,401.30	1.000	13C12-PeCDD 123	IS3	
				25:59		1.63	335.10	207.75	127.35	1.005			
368-370			2	Peaks			3,821.03						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF				1.05-1.43						0.955-1.052			
374-376	DC	NL		0:00		1.20	3.25			0.000			
	DC	SN		27:23	RO	1.48	3.02			0.962			
D	DC	SN		27:30		1.40	6.12			0.966			
	DC	SN		27:43	RO	5.48	0.60			0.974			
	DC	SN		27:49	RO	0.46	1.88			0.977			
	DC	SN		28:00	RO	1.98	2.35			0.984			
	DC	SN		28:04		1.35	1.62			0.986			
				28:22		1.43	42.35	24.95	17.40	0.996	123478-HxCDF	AN	
				28:29		1.14	48.34	25.72	22.62	1.001	123678-HxCDF	AN	
	DC	SN		28:41		1.15	1.89			1.008			
				29:00		1.17	37.58	20.23	17.35	1.019	234678-HxCDF	AN	
	DC	SN		29:34	RO	6.00	0.63			1.039			
				29:42		1.08	38.79	20.11	18.68	1.043	123789-HxCDF	AN	
374-376			4	Peaks			167.06						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386	DC	NL		0:00		0.54	4.98			0.000			
				27:21		0.50	26.79	8.96	17.83	0.961			
				27:30		0.50	69.75	23.40	46.35	0.966			
				28:21		0.51	3,668.30	1,230.99	2,437.31	0.996	13C12-HxCDF 478	SUR3	
				28:28		0.50	4,602.27	1,532.26	3,070.01	1.000	13C12-HxCDF 678	IS4	
	DC	SN		28:47	RO	0.23	1.48			1.011			
				28:59		0.50	4,273.95	1,421.97	2,851.98	1.018	13C12-HxCDF 234	ALT2	
				29:13	RO	0.74	7.90	3.86	5.23	1.026			
	DC	SN		29:29	RO	0.29	2.22			1.036			
				29:41		0.49	3,176.71	1,044.27	2,132.44	1.043	13C12-HxCDF 789	ALT1	
	DC	SN		29:53	RO	0.27	5.60			1.050			
384-386			7	Peaks			15,825.67						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD				1.05-1.43						0.950-1.015			
390-392	DC	NL		0:00		1.22	3.13			0.000			
	DC	SN		28:23	RO	1.67	4.66			0.972			
	DC	SN		28:29	RO	2.54	3.16			0.975			
	DC	SN		28:36	RO	0.36	0.96			0.979			
	DC	SN		28:41	RO	1.76	0.85			0.982			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		28:55	RO	3.35	0.38			0.990			
	DC	SN		29:00	RO	2.13	2.15			0.993			
				29:08		1.39	20.26	11.78	8.48	0.998	123478-HxCDD	AN	Q
				29:13		1.22	29.32	16.09	13.23	1.001	123678-HxCDD	AN	
				29:30		1.23	32.56	17.95	14.61	1.010	123789-HxCDD	AN	
390-392			3	Peaks			82.14						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	NL		0:00	RO	0.99	4.12			0.000			
				28:35		1.29	22.18	12.51	9.67	0.979			
				29:07		1.23	2,527.73	1,393.53	1,134.20	0.997	13C12-HxCDD 478	SUR4	Q
				29:12		1.21	3,578.12	1,960.48	1,617.64	1.000	13C12-HxCDD 678	IS5	
				29:29		1.21	4,703.04	2,577.69	2,125.35	1.010	13C12-HxCDD 789	RS2	
402-404			4	Peaks			10,831.07						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF				0.88-1.20						0.995-1.044			
408-410	DC	NL		0:00	RO	2.11	1.55			0.000			
	DC	WL		31:00	RO	2.71	0.92			0.994			
				31:12	RO	1.26	37.27	23.11	18.27	1.001	1234678-HpCDF	AN	
	DC	SN		32:06	RO	3.91	0.47			1.029			
				32:25		1.03	20.84	10.56	10.28	1.040	1234789-HpCDF	AN	
408-410			2	Peaks			58.11						
13C12-HpCDF				0.37-0.51						0.936-1.128			
418-420	DC	NL		0:00	RO	1.28	1.48			0.000			
				31:11		0.42	3,165.84	939.83	2,226.01	1.000	13C12-HpCDF 678	IS6	
	DC	SN		31:29	RO	0.78	2.33			1.010			
N				32:25		0.42	1,653.99	489.01	1,164.98	1.040	13C12-HpCDF 789	SUR5	
	DC	SN		32:39	RO	0.78	2.82			1.047			
418-420			2	Peaks			4,819.83						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.976-1.006			
424-426	DC	NL		0:00	RO	1.79	0.80			0.000			
				31:26		1.12	5.82	3.07	2.75	0.980			
	DC	SN		31:45		0.91	0.90			0.990			
				32:04		0.94	28.45	13.79	14.66	1.000	1234678-HpCDD	AN	
	DC	WH		32:18	RO	3.13	0.31			1.007			
	DC	WH		32:22	RO	1.84	2.84			1.009			
424-426			2	Peaks			34.27						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	0.70	3.02			0.000			
				31:27		1.00	24.31	12.16	12.15	0.981			
				32:04		0.99	3,368.32	1,672.82	1,695.50	1.000	13C12-HpCDD 678	IS7	
436-438			2	Peaks			3,392.63						

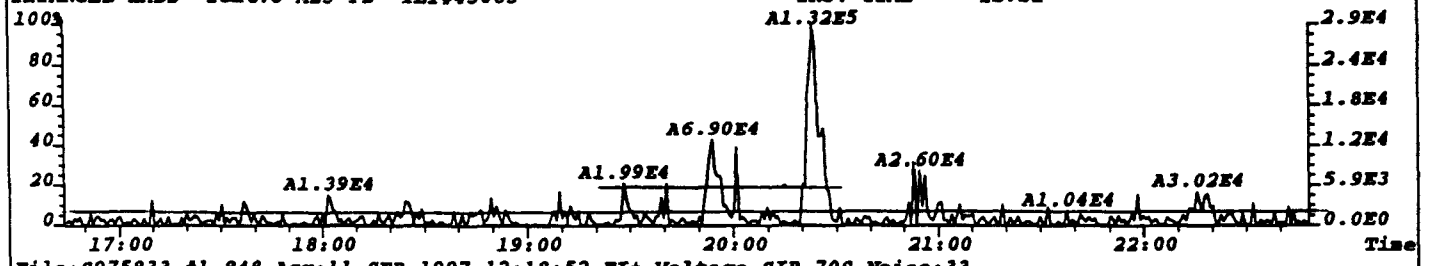
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
OCDF					0.76-1.02					0.884-1.116			
442-444		DC	NL	0:00	RO	0.12	0.13			0.000			
		DC	SN	30:55	RO	0.43	1.08			0.893			
		DC	SN	31:32	RO	2.15	0.49			0.911			
		DC	SN	31:51	RO	1.73	1.25			0.920			
		DC	SN	32:13	RO	7.00	0.11			0.931			
		DC	SN	32:35	RO	0.67	1.53			0.941			
		DC	SN	32:55	RO	1.15	1.51			0.951			
		DC	SN	33:04	RO	1.18	1.49			0.955			
		DC	SN	33:21	RO	1.34	1.17			0.963			
		DC	SN	33:38	RO	0.58	1.85			0.972			
		DC	SN	33:46	RO	2.96	1.02			0.975			
		DC	SN	33:59	RO	0.22	0.23			0.982			
		DC	SN	34:08	RO	0.46	0.87			0.986			
		DC	SN	34:18	RO	1.61	0.53			0.991			
		DC	SN	34:24	RO	0.56	0.96			0.994			
	M			34:44		0.88	27.70	13.00	14.70	1.003	OCDF		AN
		DC	SN	35:26	RO	1.91	1.55			1.024			
		DC	SN	35:34	RO	0.47	1.55			1.027			
		DC	SN	35:56	RO	1.20	3.29			1.038			
442-444			1	Peak			27.70						
OCDD					0.76-1.02					0.884-1.116			
458-460		DC	NL	0:00		0.86	0.13			0.000			
				34:38		0.94	55.85	27.09	28.76	1.000	OCDD		AN
458-460			1	Peak			55.85						
13C12-OCDD					0.76-1.02					0.995-1.005			
470-472		DC	NL	0:00	RO	2.34	0.72			0.000			
				34:37		0.86	4,277.10	1,971.86	2,305.24	1.000	13C12-OCDD		IS8
		DC	WH	34:59	RO	1.61	3.21			1.011			
470-472			1	Peak			4,277.10						

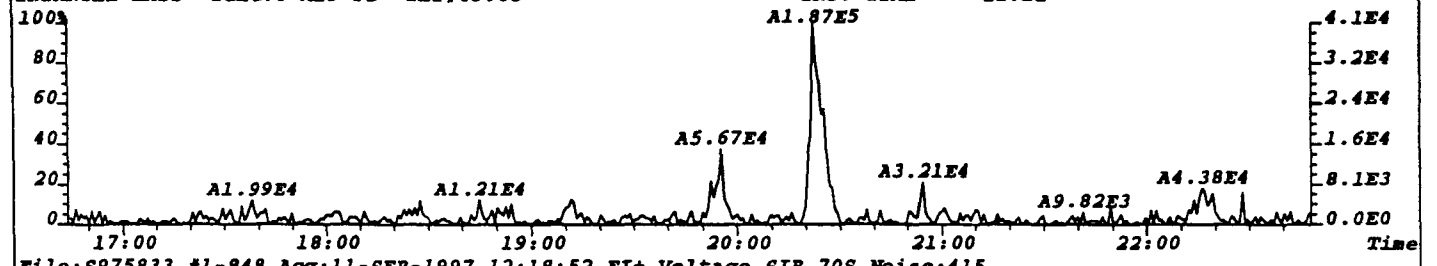
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

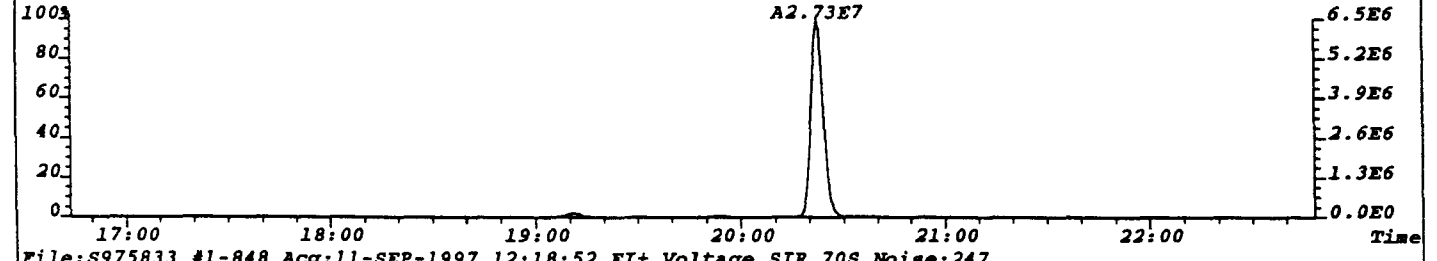
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:39
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



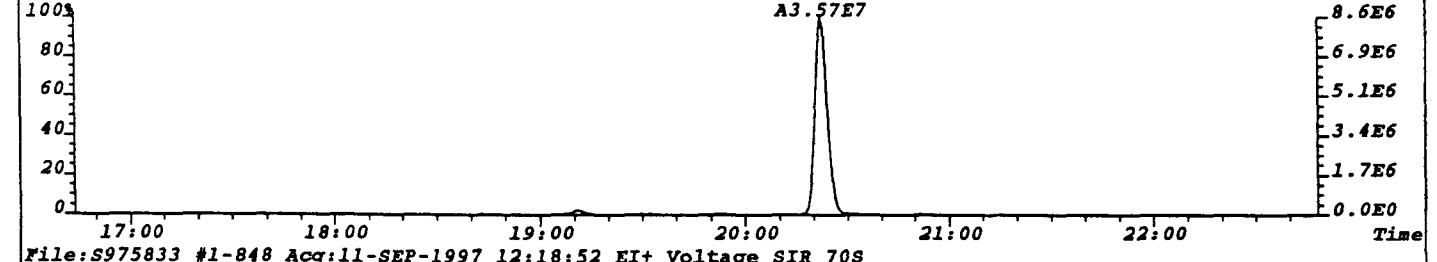
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:33
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



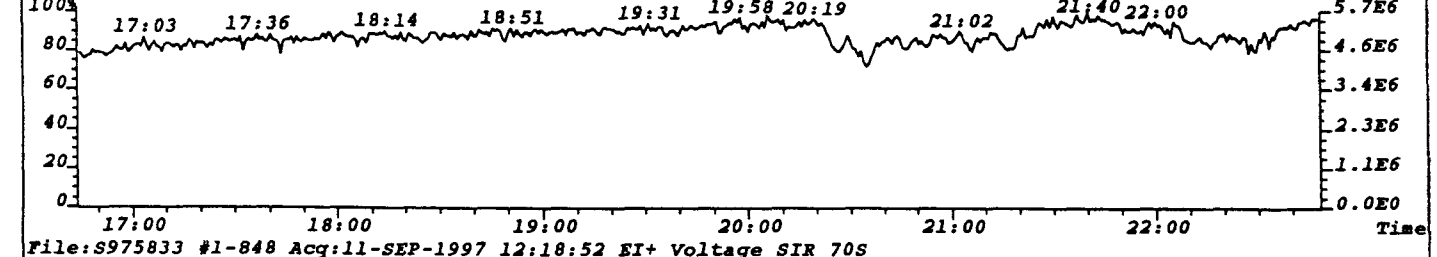
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:415
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1660.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



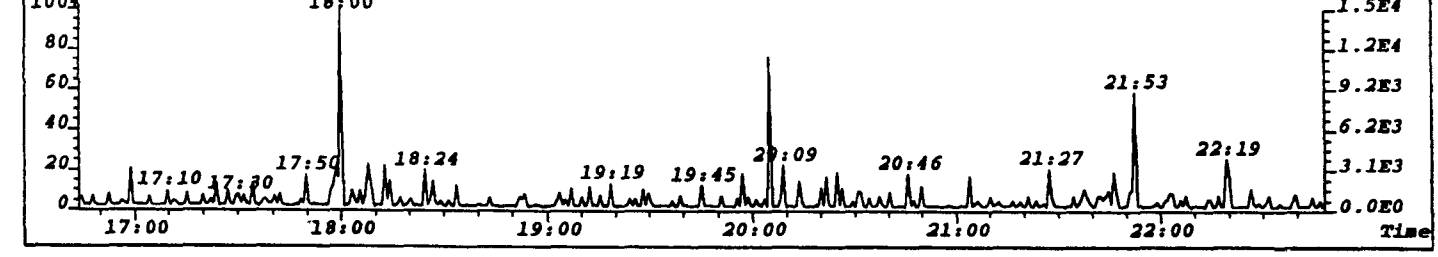
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:247
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,988.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



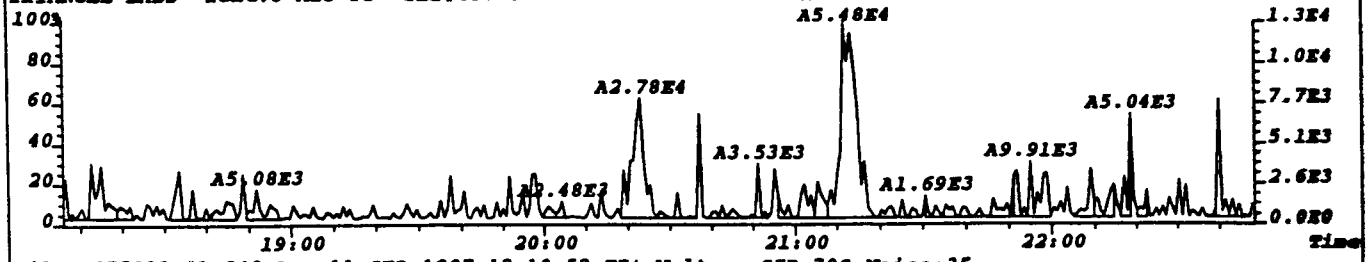
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



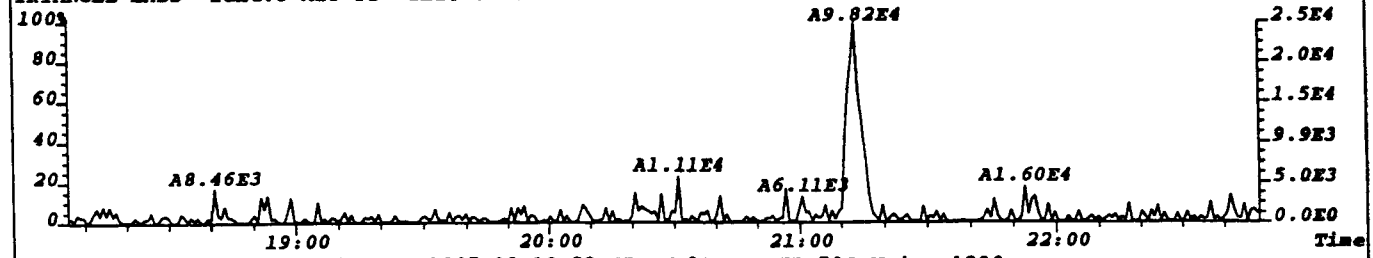
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



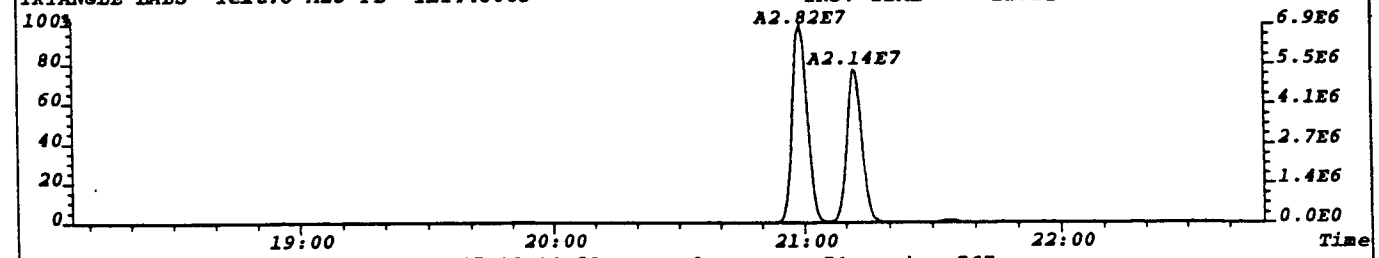
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:286
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



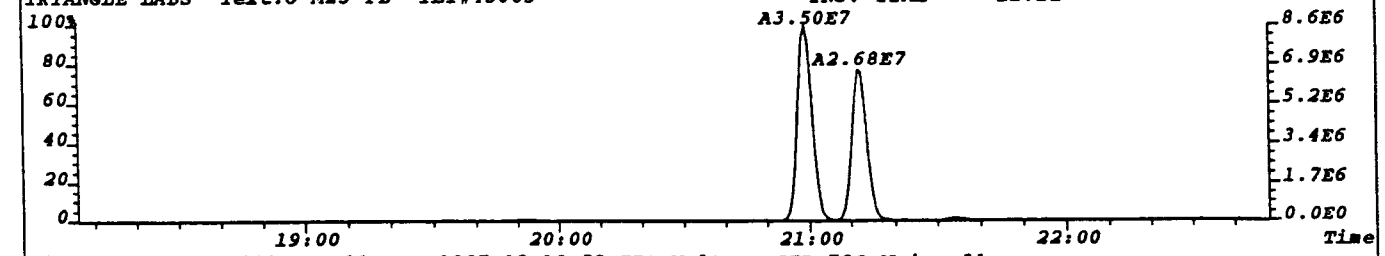
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:35
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



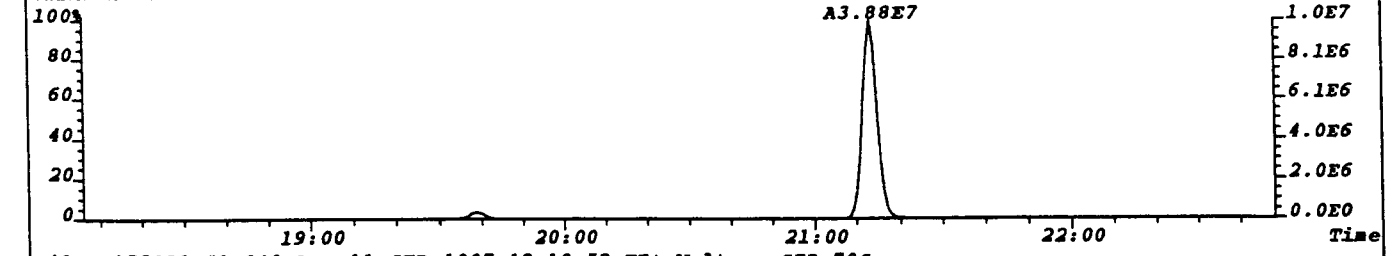
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:1280
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



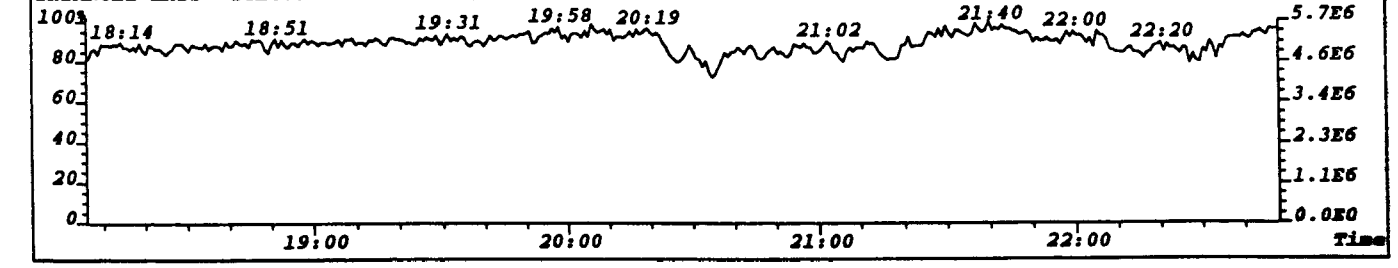
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:767
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3068.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



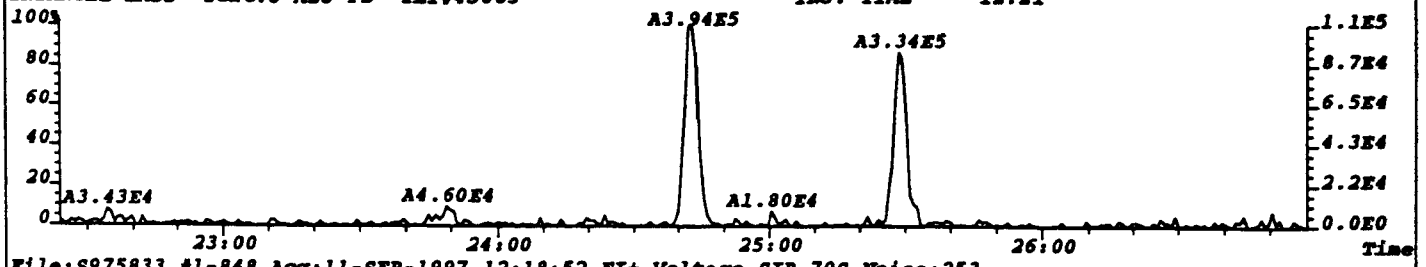
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:31
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



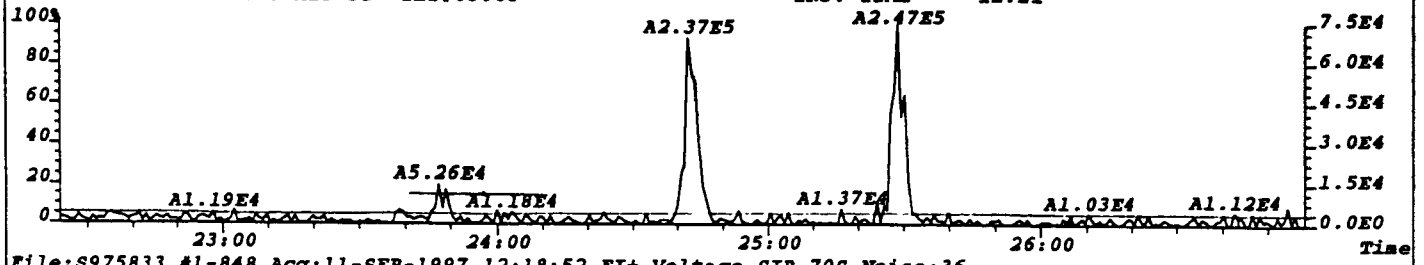
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



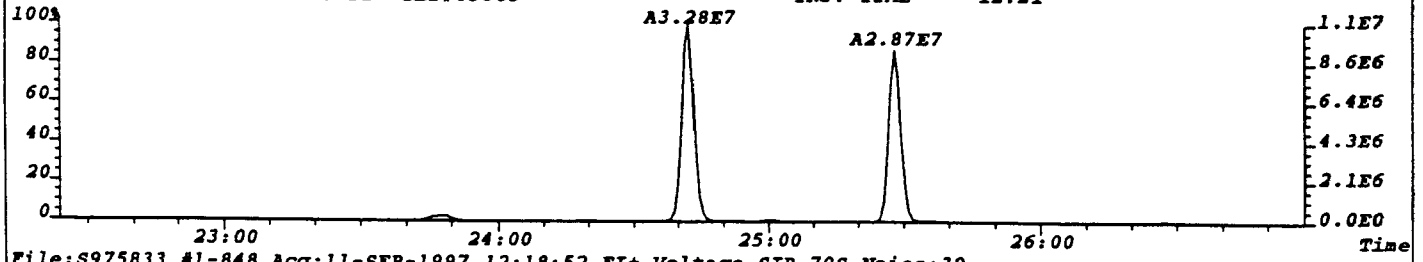
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:43
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



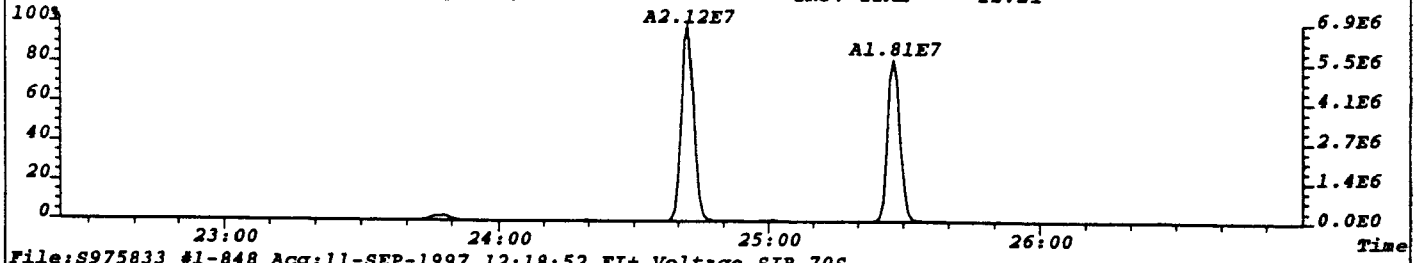
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:253
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1012.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



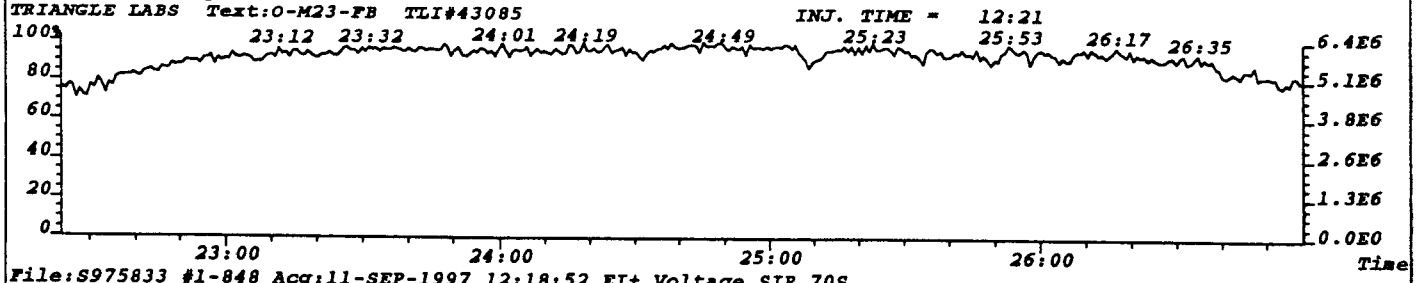
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:36
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



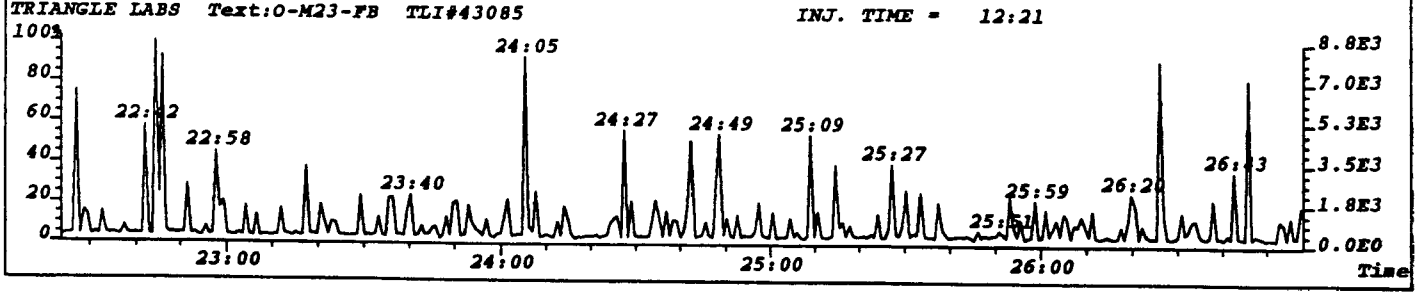
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:39
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



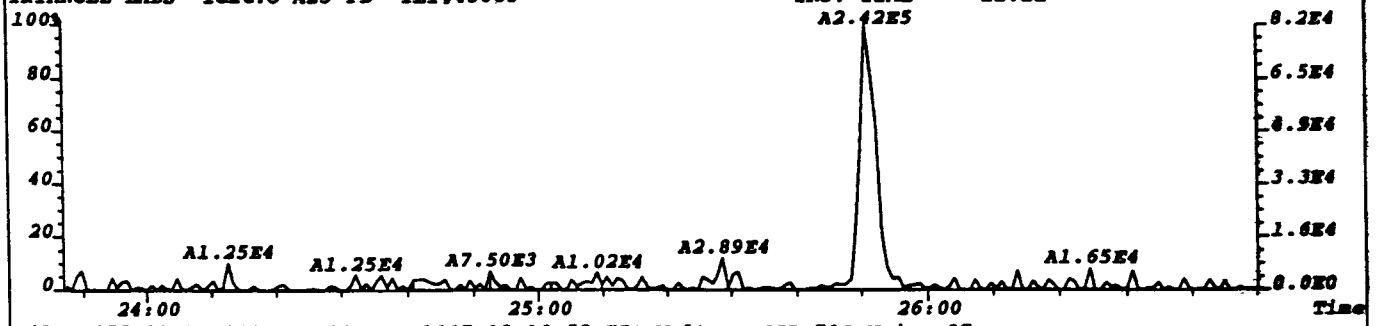
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



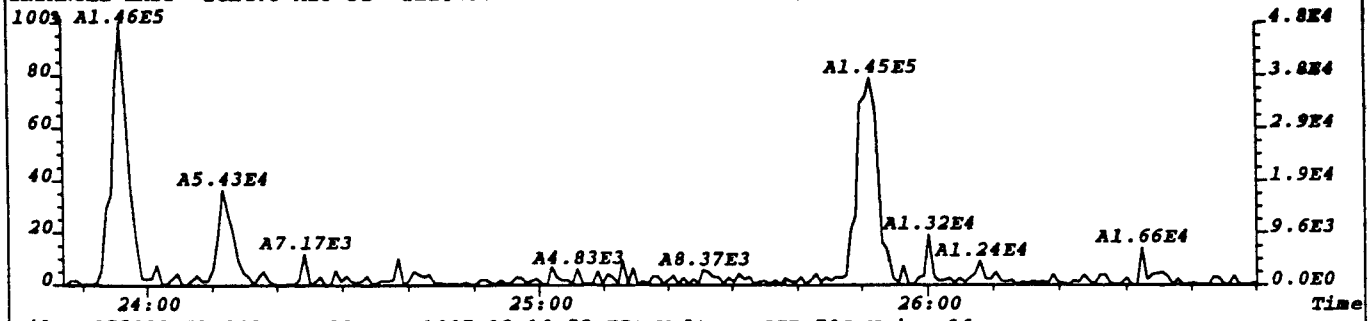
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



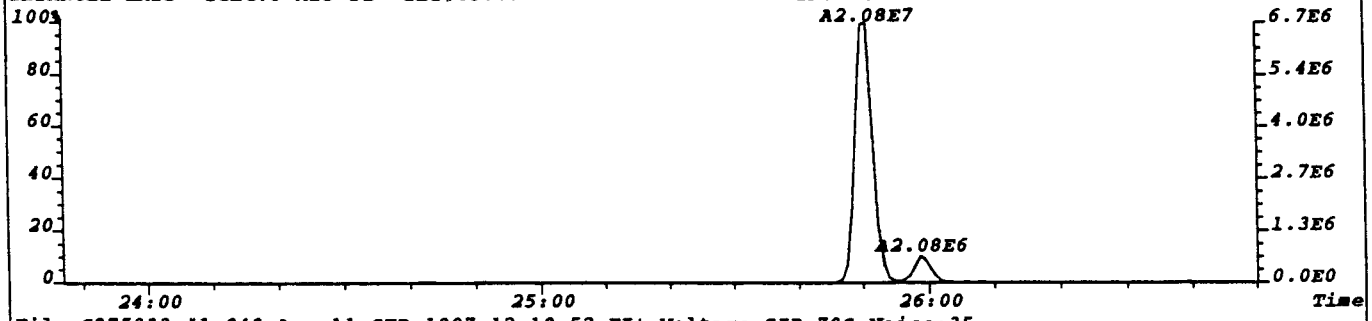
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:32
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



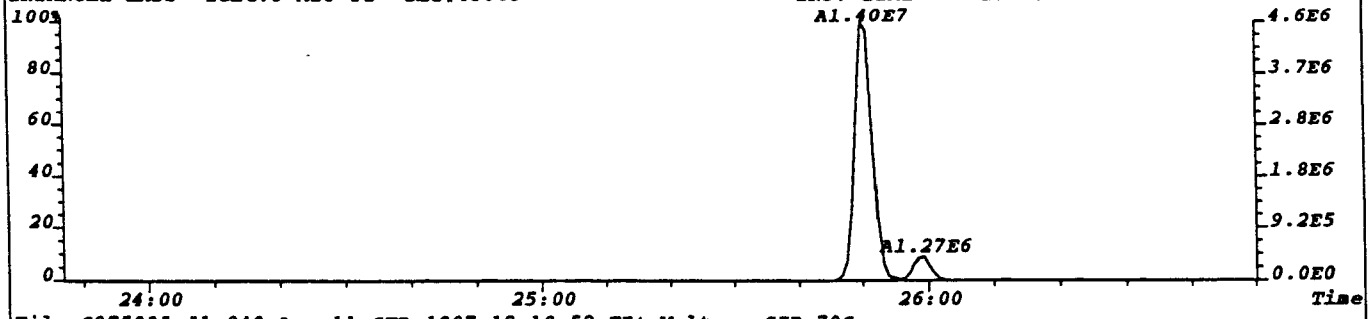
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:37
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



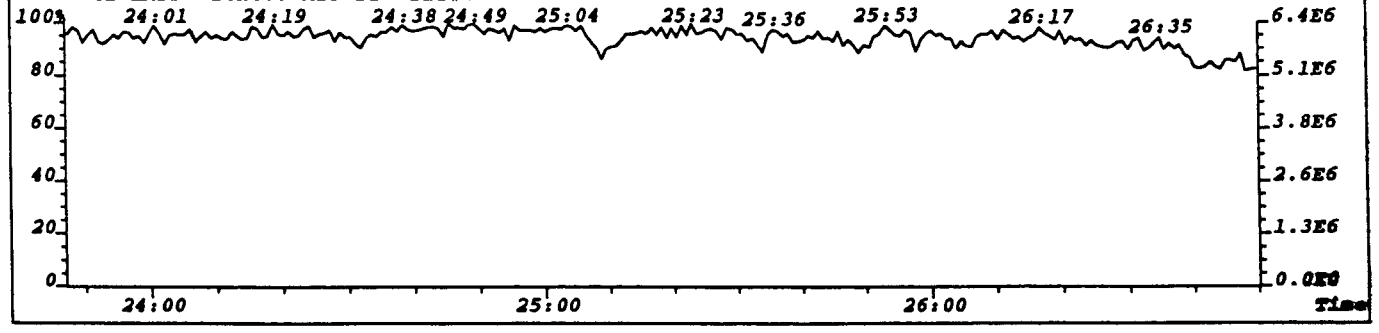
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:36
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



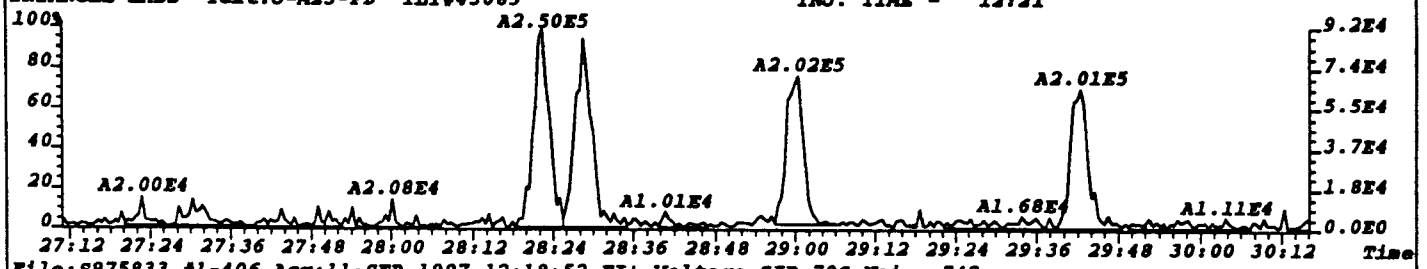
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:35
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



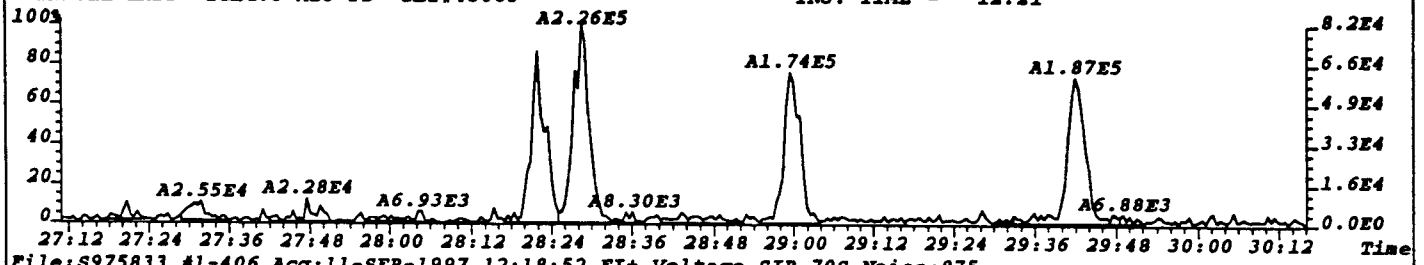
File:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



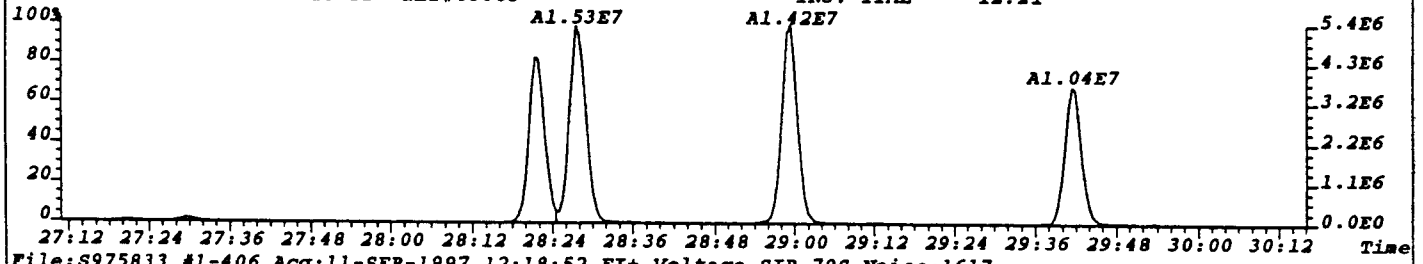
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:885
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



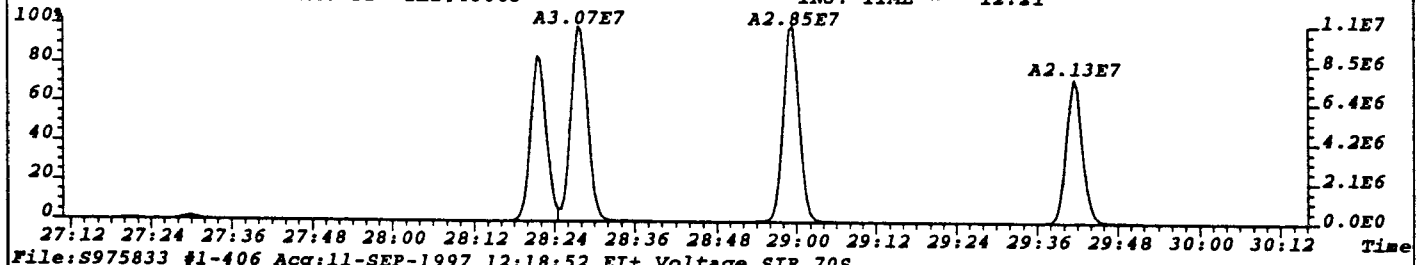
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:742
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2968.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



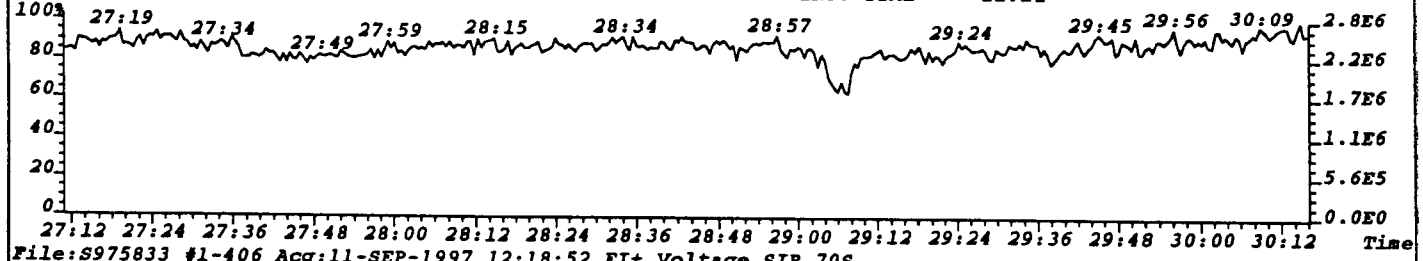
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:875
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3500.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



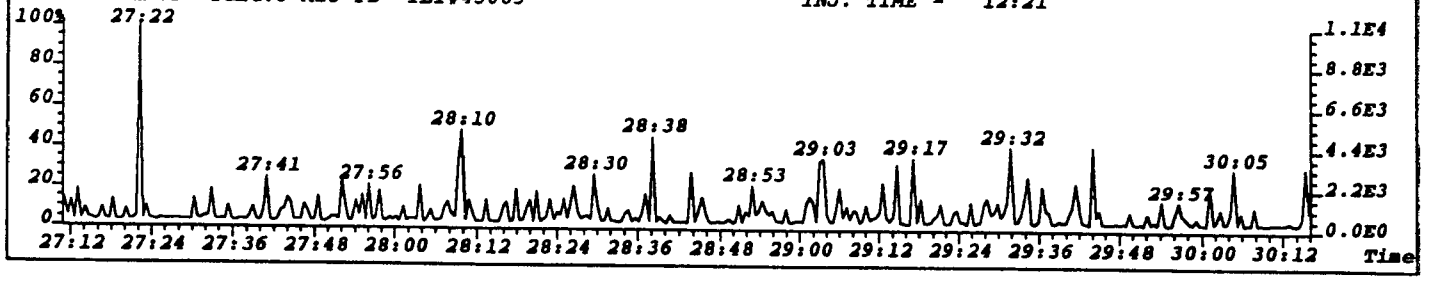
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:1617
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,6468.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



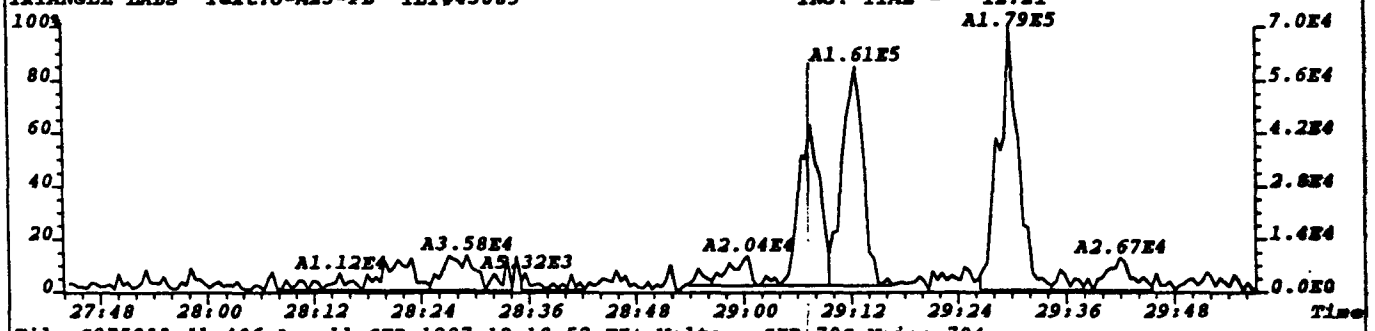
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



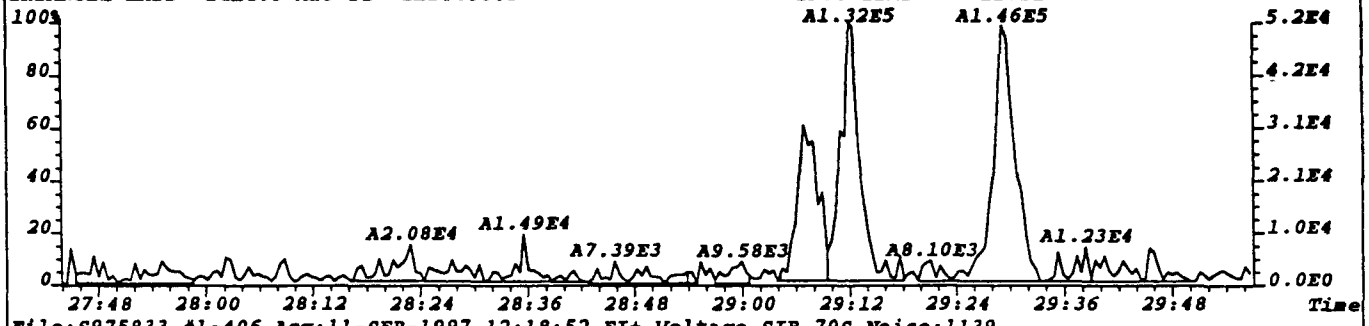
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



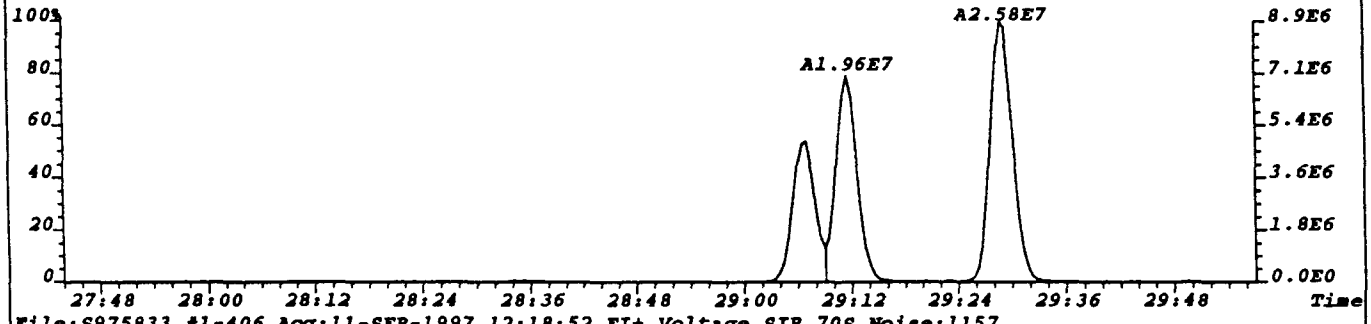
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:858
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3432.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



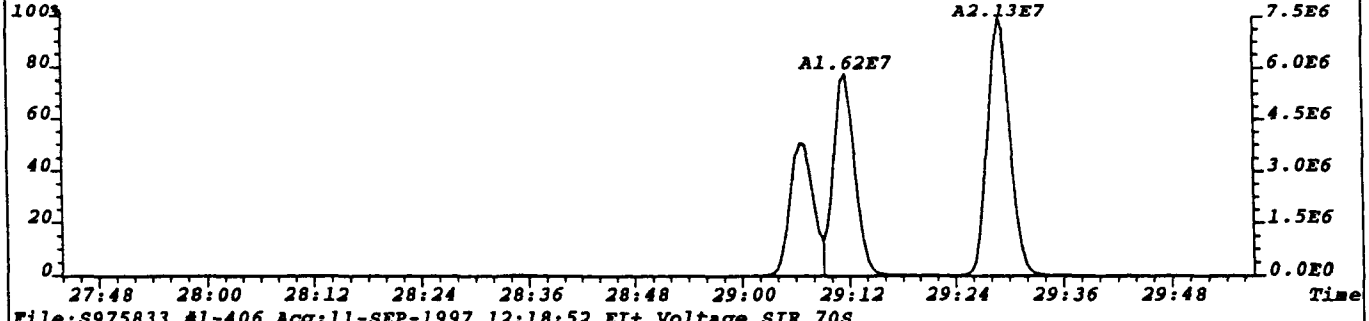
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:704
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2816.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



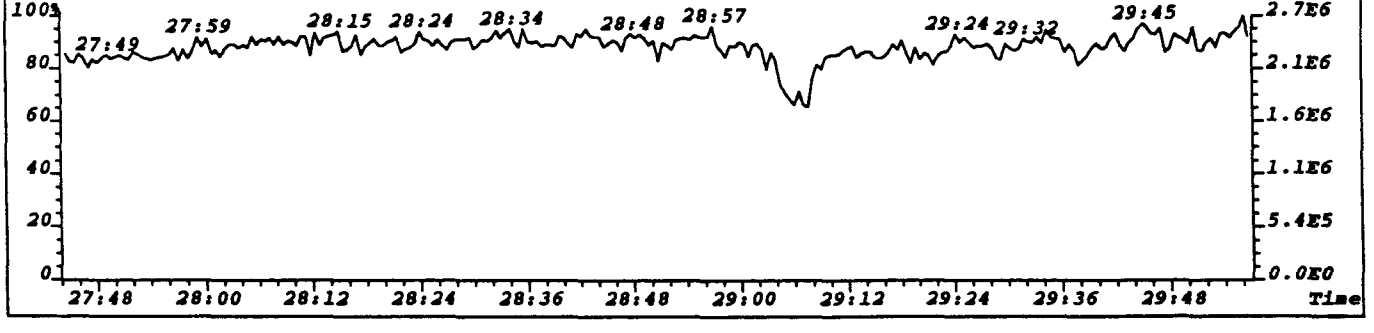
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:1139
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4556.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



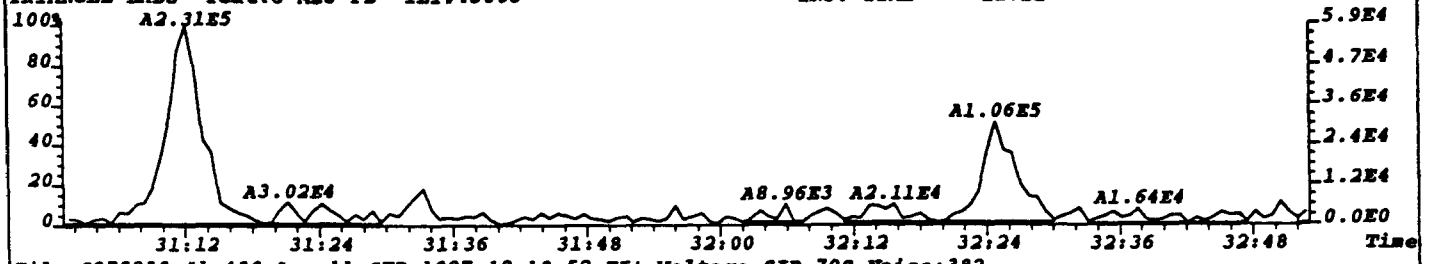
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:1157
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4628.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



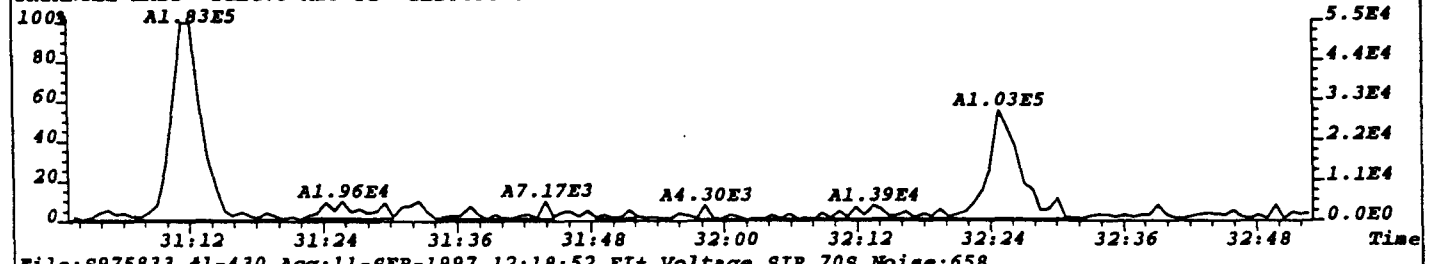
File:S975833 #1-406 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



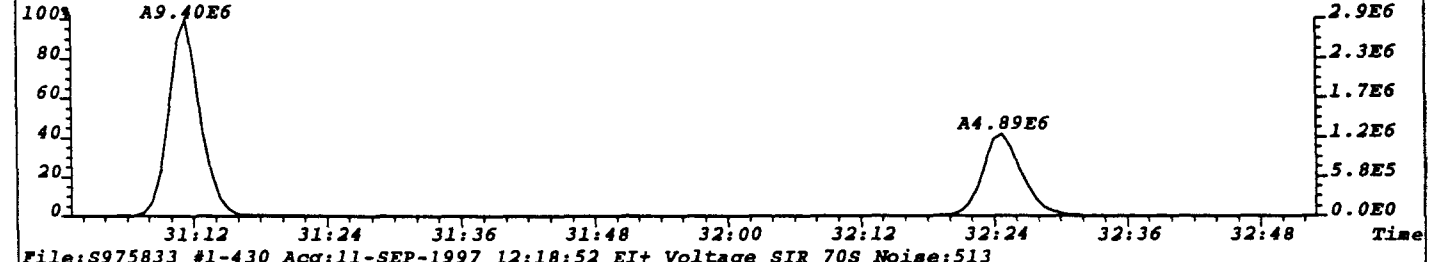
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:802
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



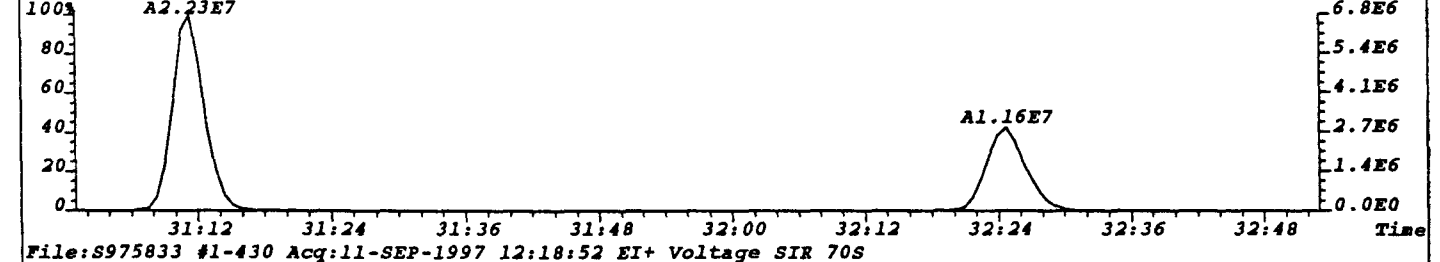
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:382
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1528.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



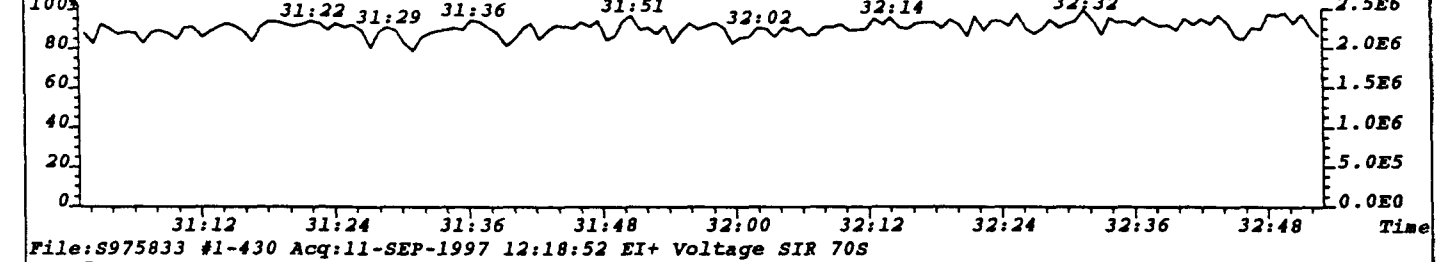
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:658
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2632.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



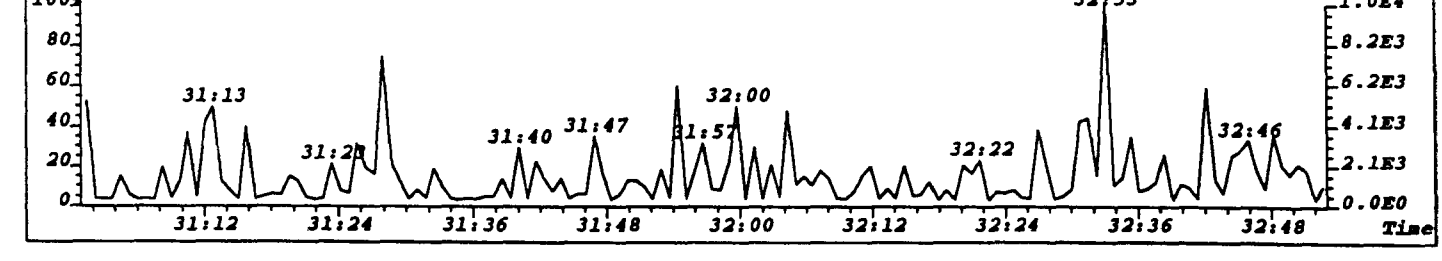
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:513
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2052.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



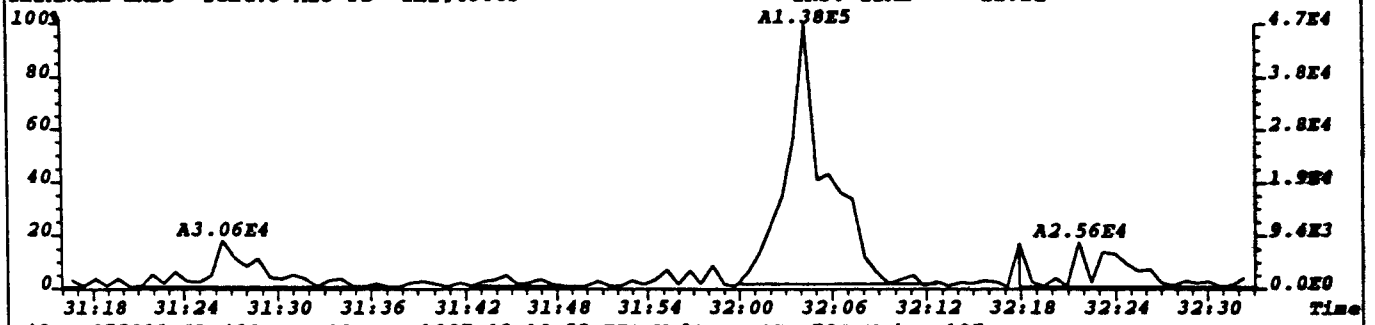
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



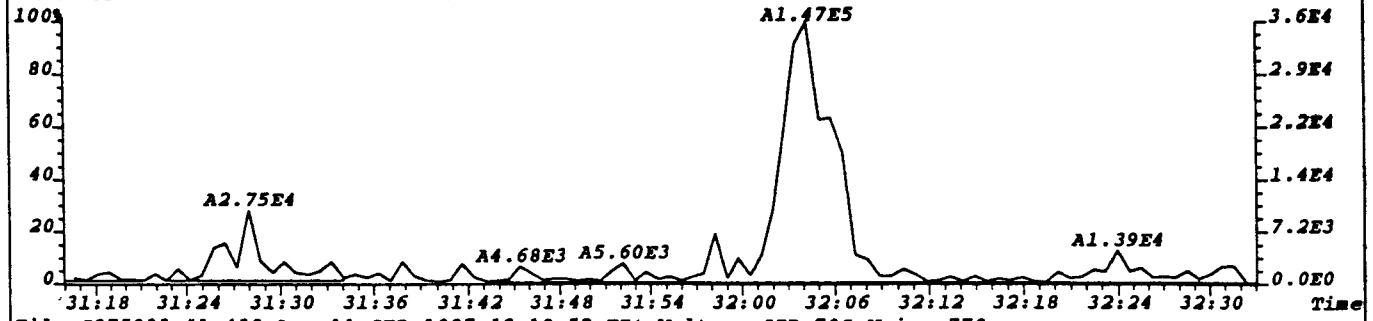
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



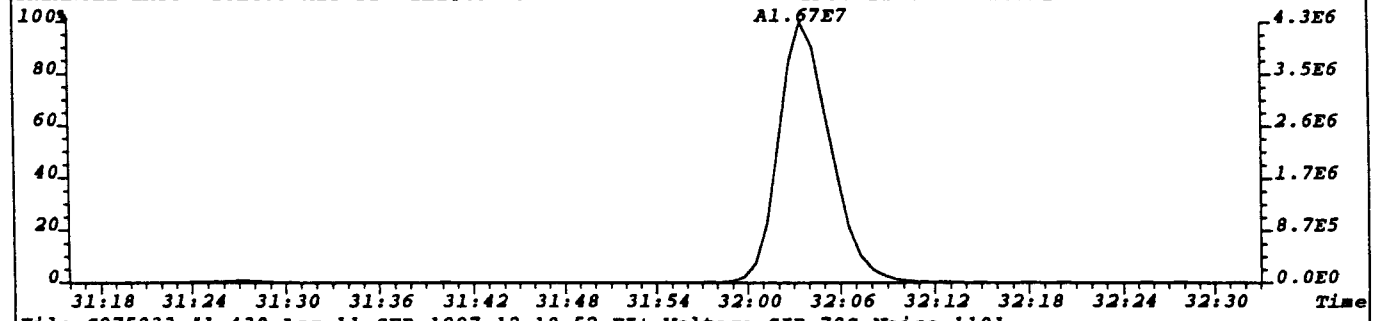
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:348
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1392.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



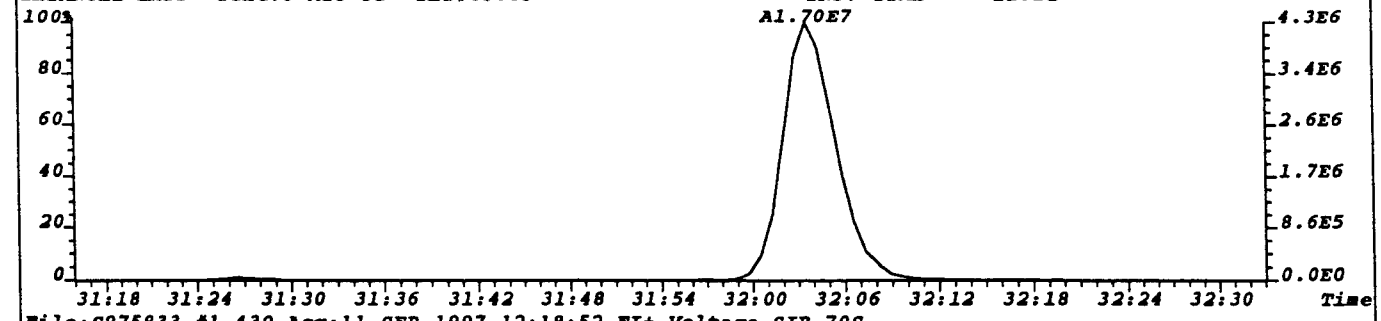
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:197
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,788.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



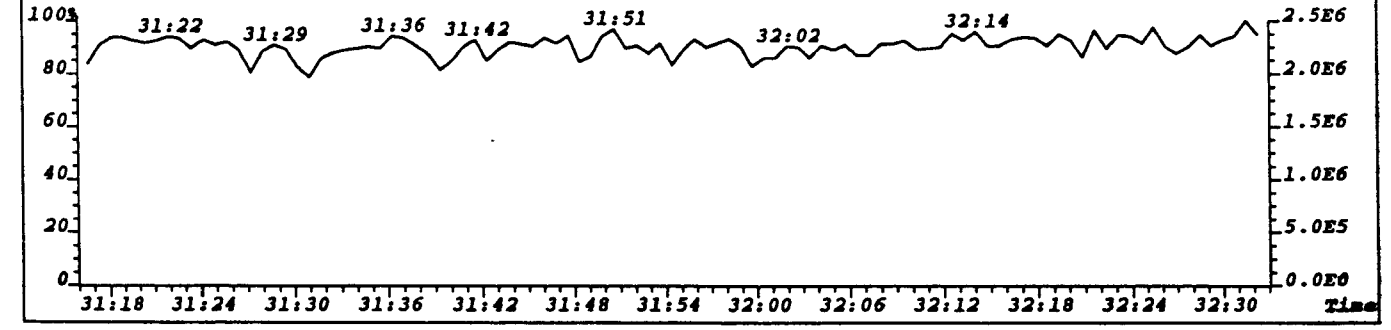
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:770
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3080.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



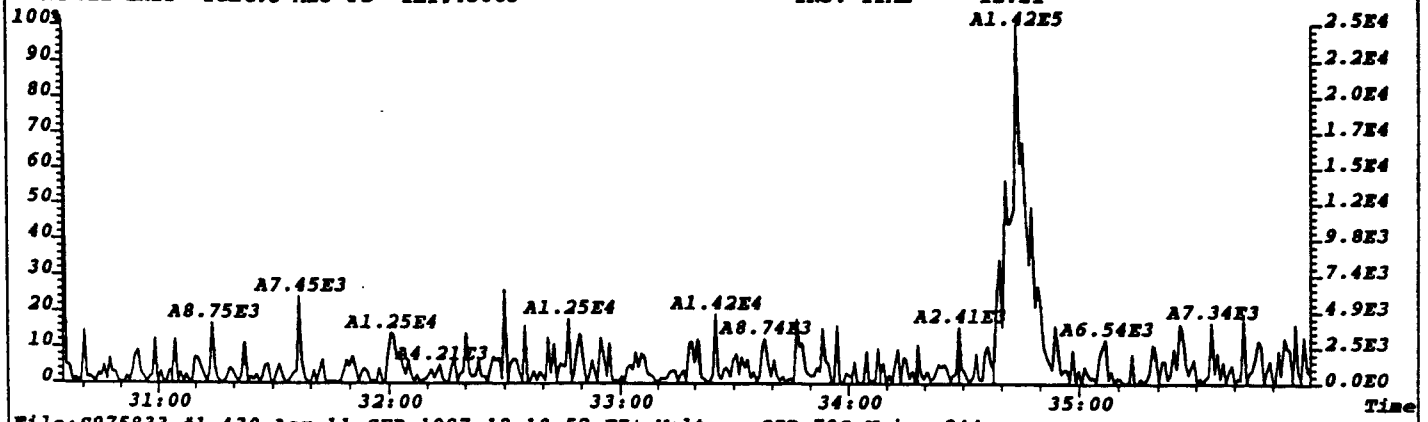
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:1101
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4404.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



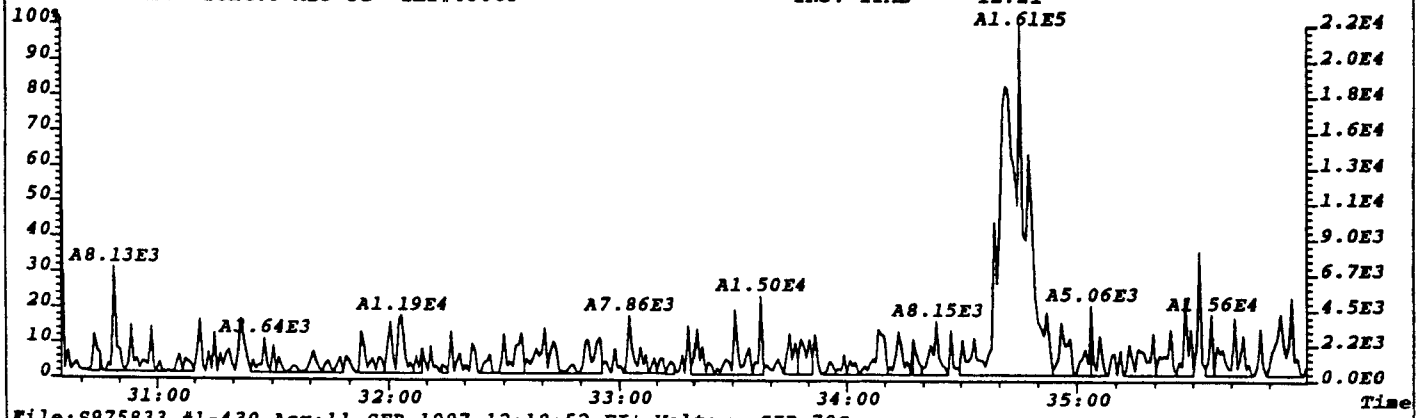
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



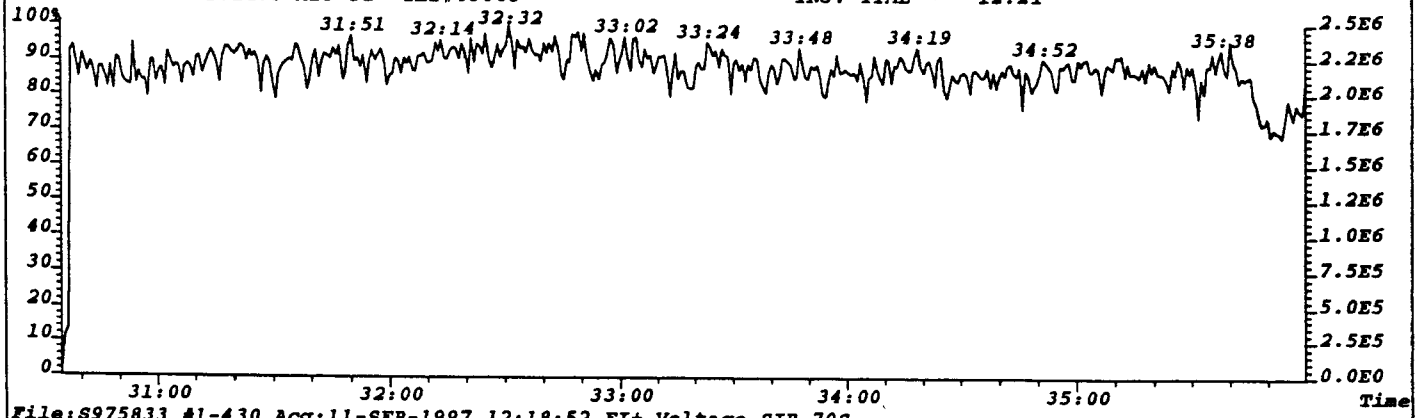
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:32
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



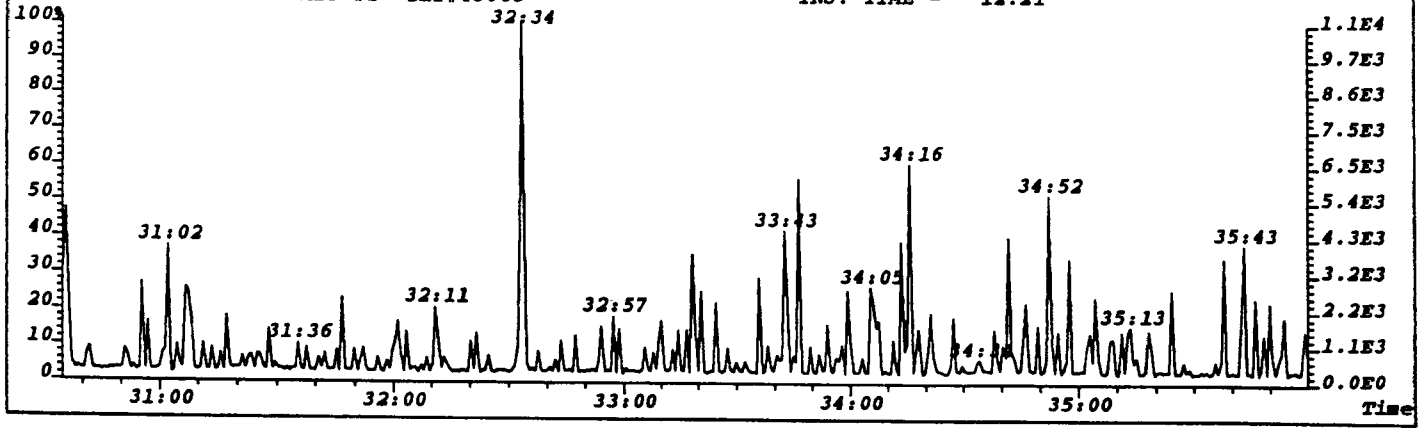
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:244
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,976.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



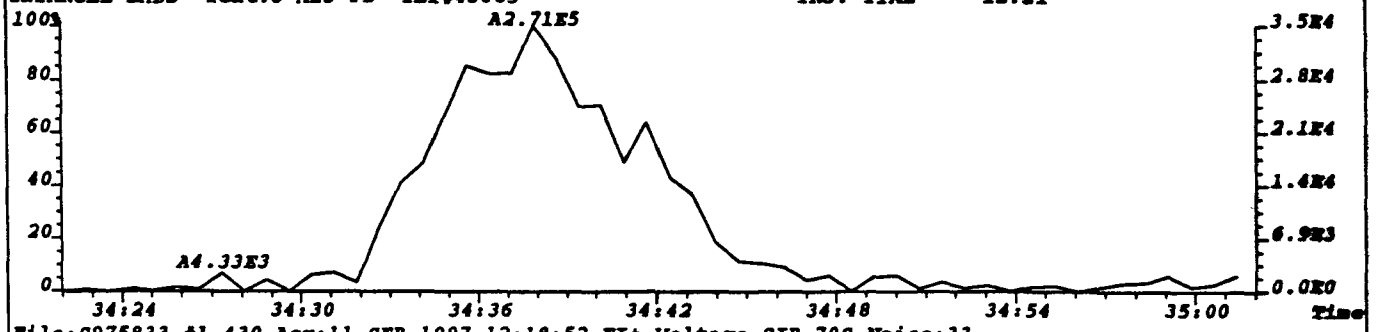
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21

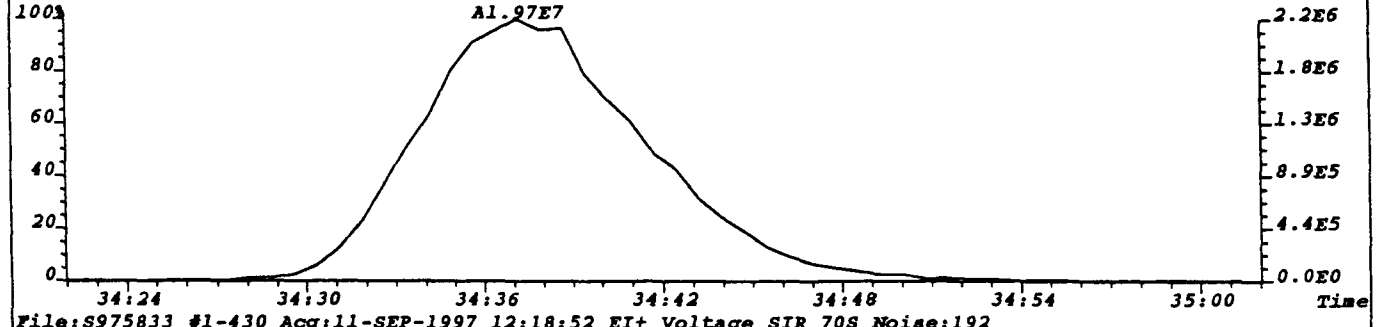


File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:29
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21

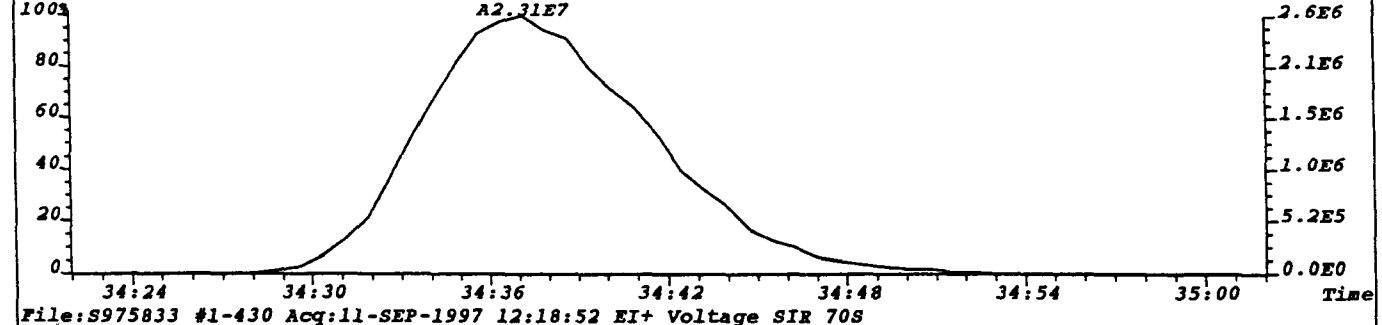


File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:33
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21

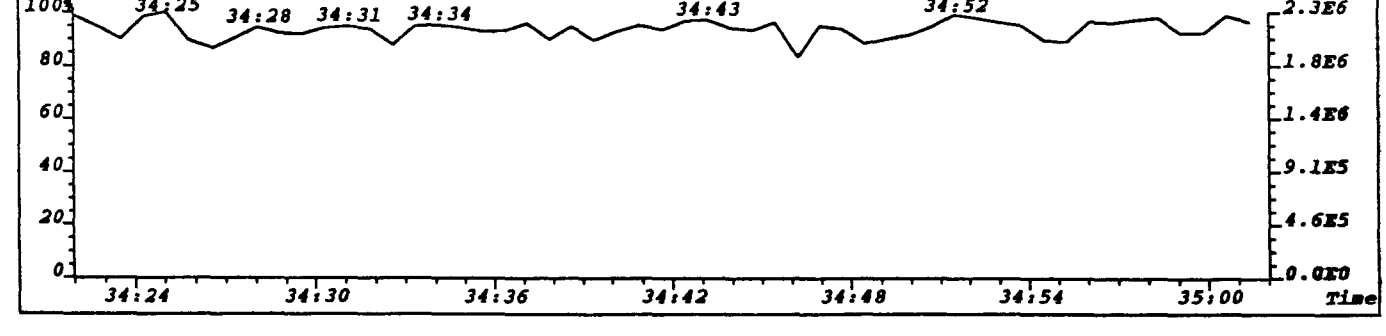
File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:446
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1784.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21

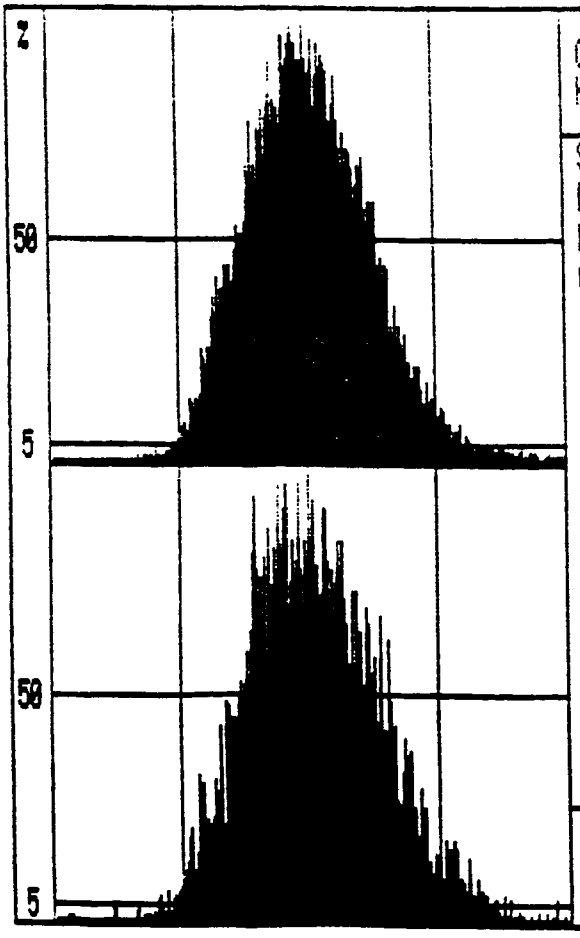


File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S Noise:192
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,768.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21



File:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43085 INJ. TIME = 12:21





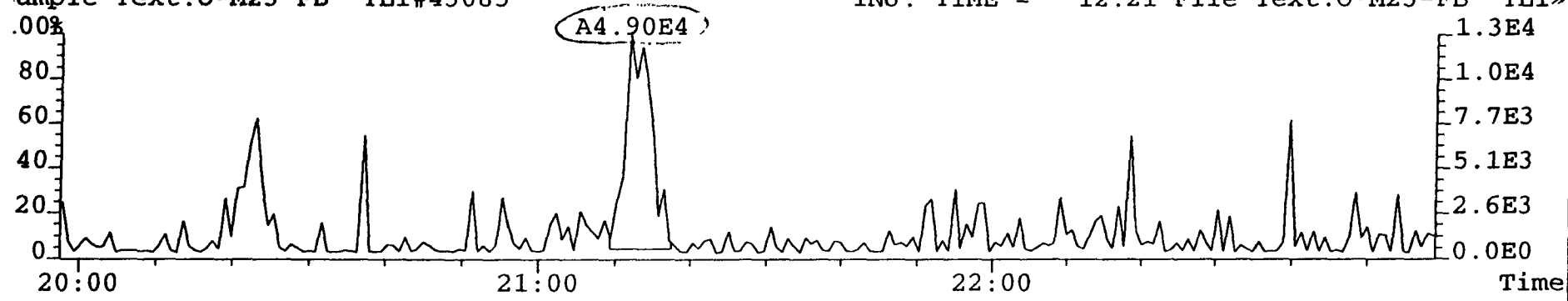
Channel I 330.3792 Peak top
Height 3.25 volts Span 200 ppm

System file name	EPCUS2
Data file name	A:S911971
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

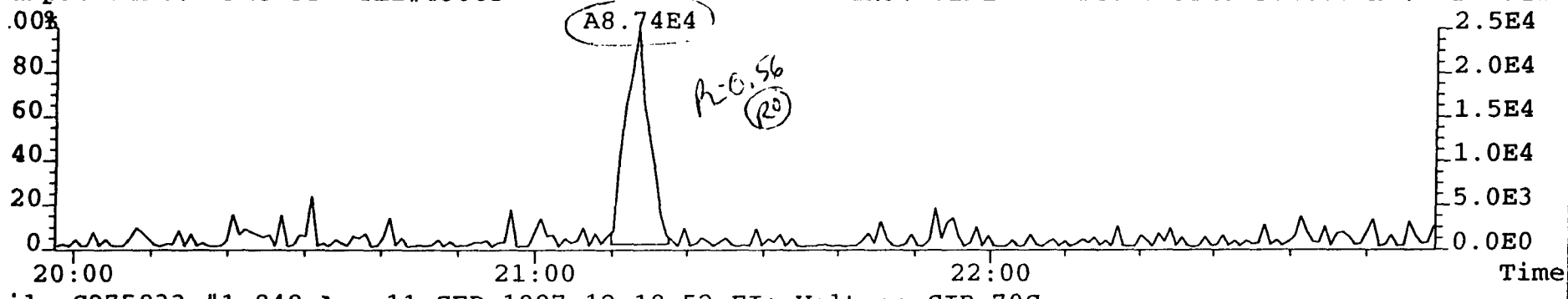
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .72 volts Span 200 ppm

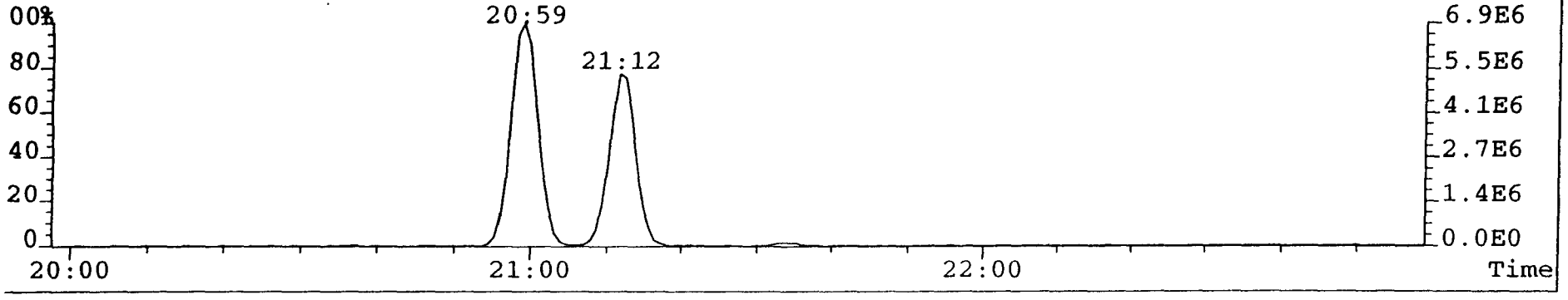
ile:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
19.8965 F:2 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»



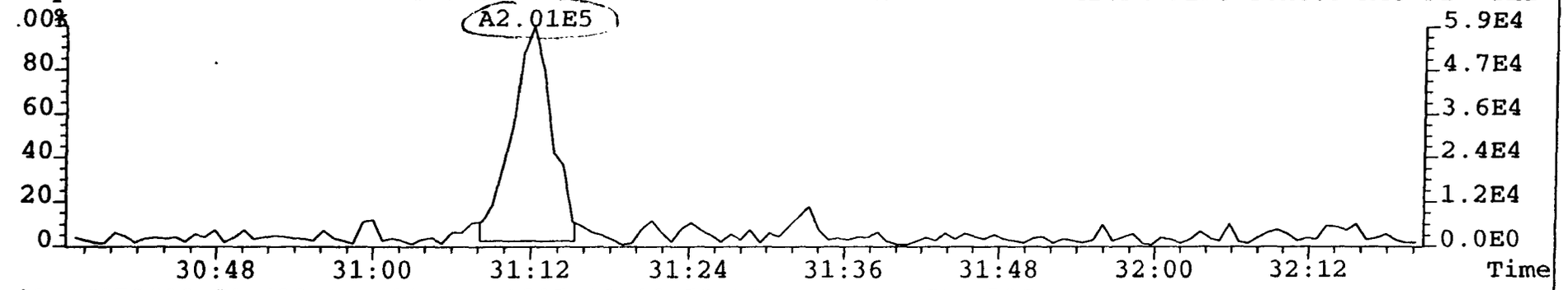
ile:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
21.8936 F:2 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»



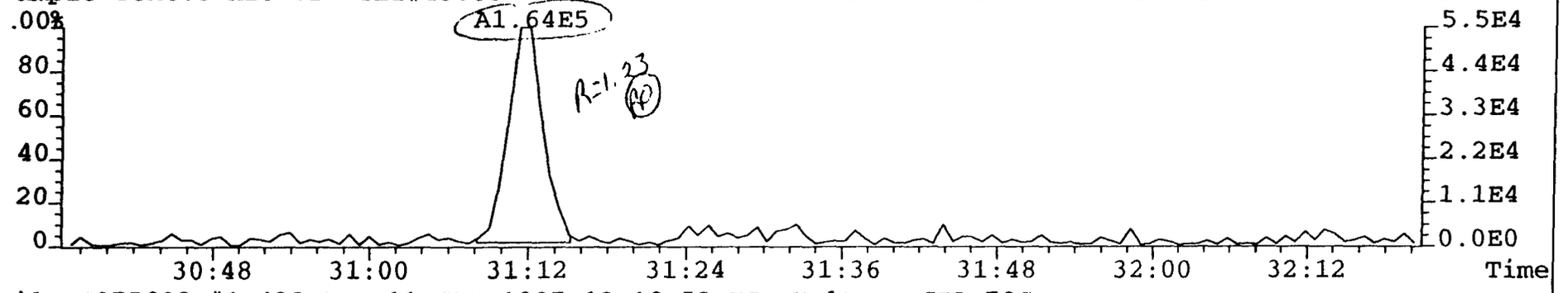
ile:S975833 #1-848 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
31.9368 F:2 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»



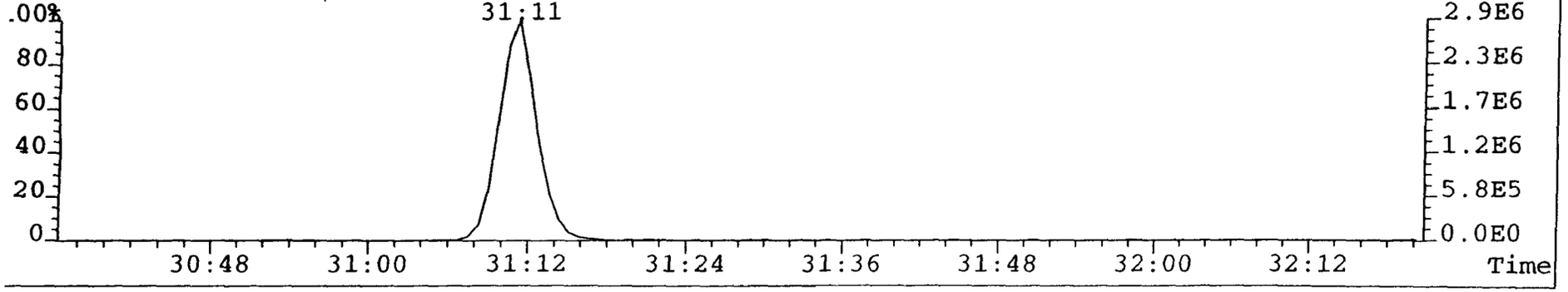
ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
07.7818 F:4 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»

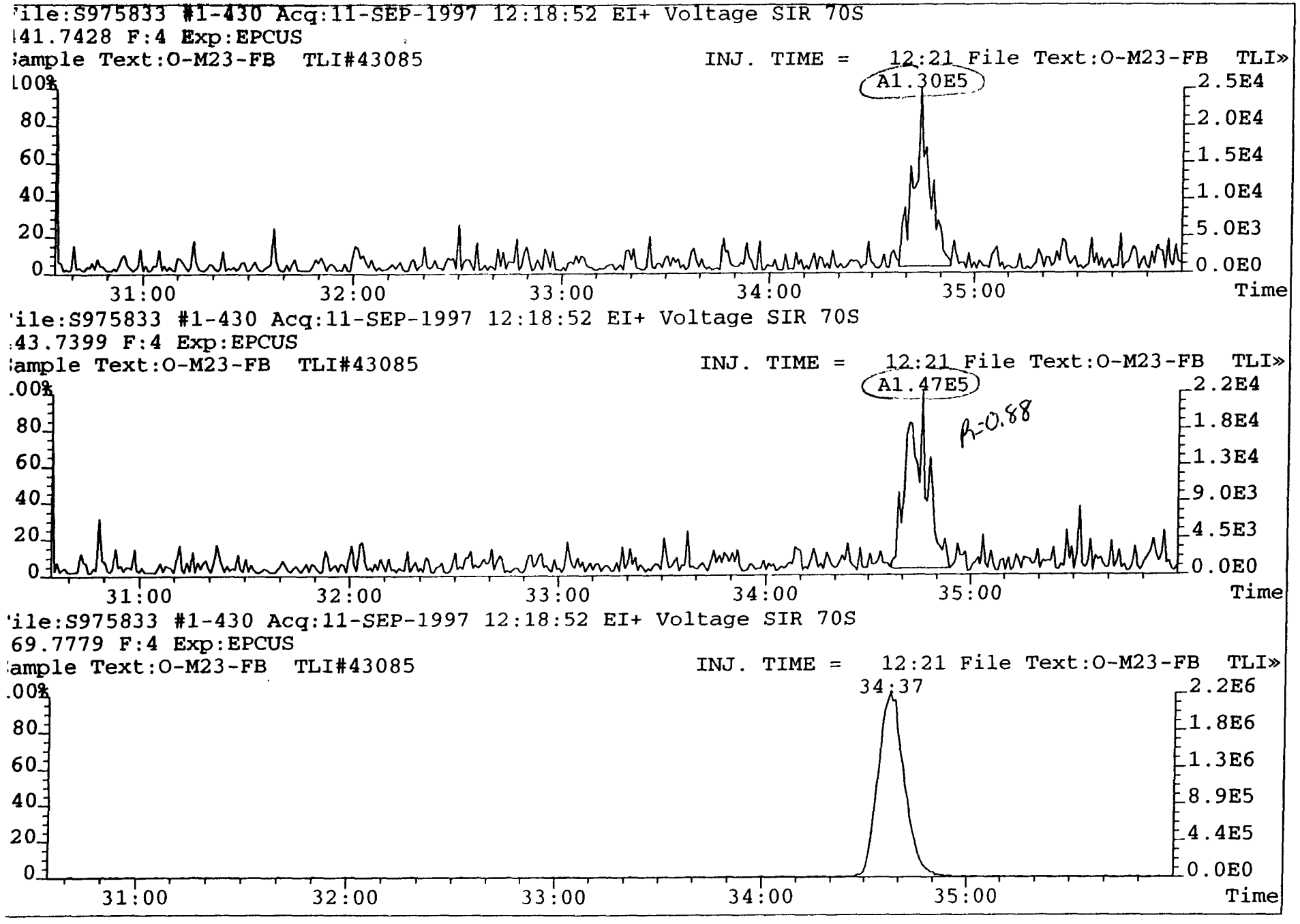


ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
09.7789 F:4 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»



ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
17.8253 F:4 Exp:EPCUS
ample Text:O-M23-FB TLI#43085 INJ. TIME = 12:21 File Text:O-M23-FB TLI»




'ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
141.7428 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43085
INJ. TIME = 12:21 File Text:O-M23-FB TLI»
A1.30E5
100%
80
60
40
20
0
2.5E4
2.0E4
1.5E4
1.0E4
5.0E3
0.0E0
31:00
32:00
33:00
34:00
35:00
Time
'ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
143.7399 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43085
INJ. TIME = 12:21 File Text:O-M23-FB TLI»
A1.47E5
R=0.88
.00%
80
60
40
20
0
2.2E4
1.8E4
1.3E4
9.0E3
4.5E3
0.0E0
31:00
32:00
33:00
34:00
35:00
Time
'ile:S975833 #1-430 Acq:11-SEP-1997 12:18:52 EI+ Voltage SIR 70S
169.7779 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43085
INJ. TIME = 12:21 File Text:O-M23-FB TLI»
34:37
.00%
80
60
40
20
0
2.2E6
1.8E6
1.3E6
8.9E5
4.4E5
0.0E0
31:00
32:00
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: **43085** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **O-M23-FB** Analysis File: **P973861**

Client Project:	S413-004				
Sample Matrix:	M23Train	Date Received:	09/03/97	Spike File:	SPC2NF04
TLI ID:	181-55-4ABD	Date Extracted:	09/04/97	ICal:	PF22206
		Date Analyzed:	09/13/97	ConCal:	P973859
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P973852	% Lipid:	n/a
GC Column:	DB-225	Analyst:	JM	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	ND	0.05				—

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.8	70.9	40%-130%	0.77	20:38	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	19:40	—

Data Reviewer: Sherri Lewis 09/18/97

C2NF_PSR v2.00, LARS 6.10.04

Triangle Laboratories, Inc.®
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 15:53 09/18/97

Initial ....Date...

Data Review By: SC 9/18/97 Calculated Noise Area: 1.26

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of P973861B.dbf
09/13/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.786-1.095			
304-306	DC	NL		0:00		0.81	2.01			0.000			
	DC	SN		20:39	RO	0.46	1.17			1.001	2378-TCDF		AN
304-306			0 Peaks				0.00						
13C12-TCDF				0.65-0.89						0.952-1.048			
316-318	DC	NL		0:00	RO	0.96	2.64			0.000			
	DC	WL		19:21	RO	2.63	1.29			0.938			
				19:38	RO	2.07	2.96	3.45	1.67	0.952			
				20:38		0.77	249.60	108.39	141.21	1.000	13C12-2378-TCDF	ISO	
	DC	WH		22:11	RO	3.45	0.55			1.075			
316-318			2 Peaks				252.56						

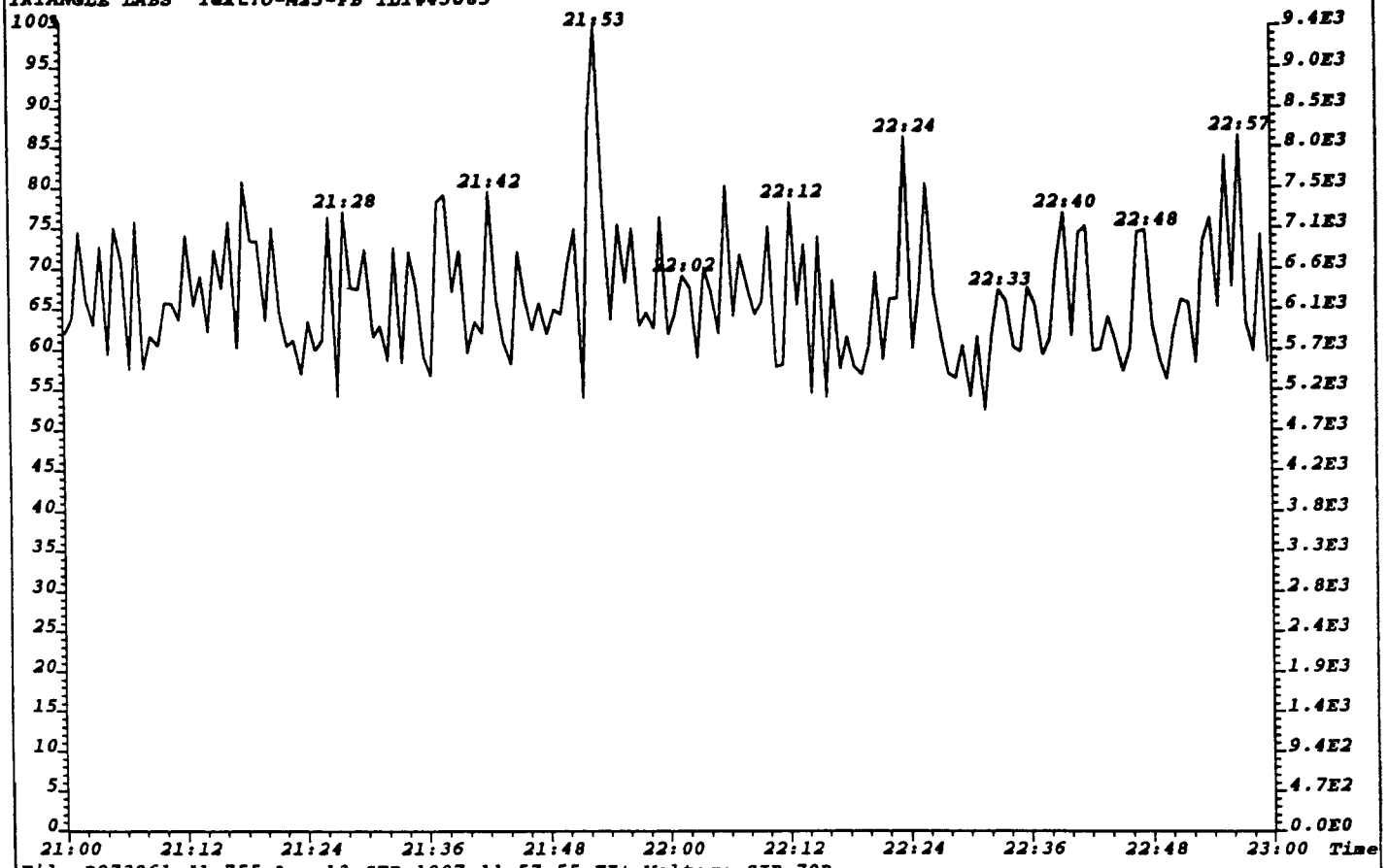
---------- Above: TCDF / TCDD Follows ----------

13C12-TCDD				0.65-0.89						0.897-1.103			
332-334	DC	NL		0:00	RO	2.30	1.43			0.000			
				19:26		0.79	204.62	90.32	114.30	1.000	13C12-2378-TCDD	IS1	
				19:40		0.82	253.67	114.52	139.15	1.012	13C12-1234-TCDD	RS1	
	DC	SN		20:19	RO	0.93	2.41			1.045			
332-334			2 Peaks				458.29						

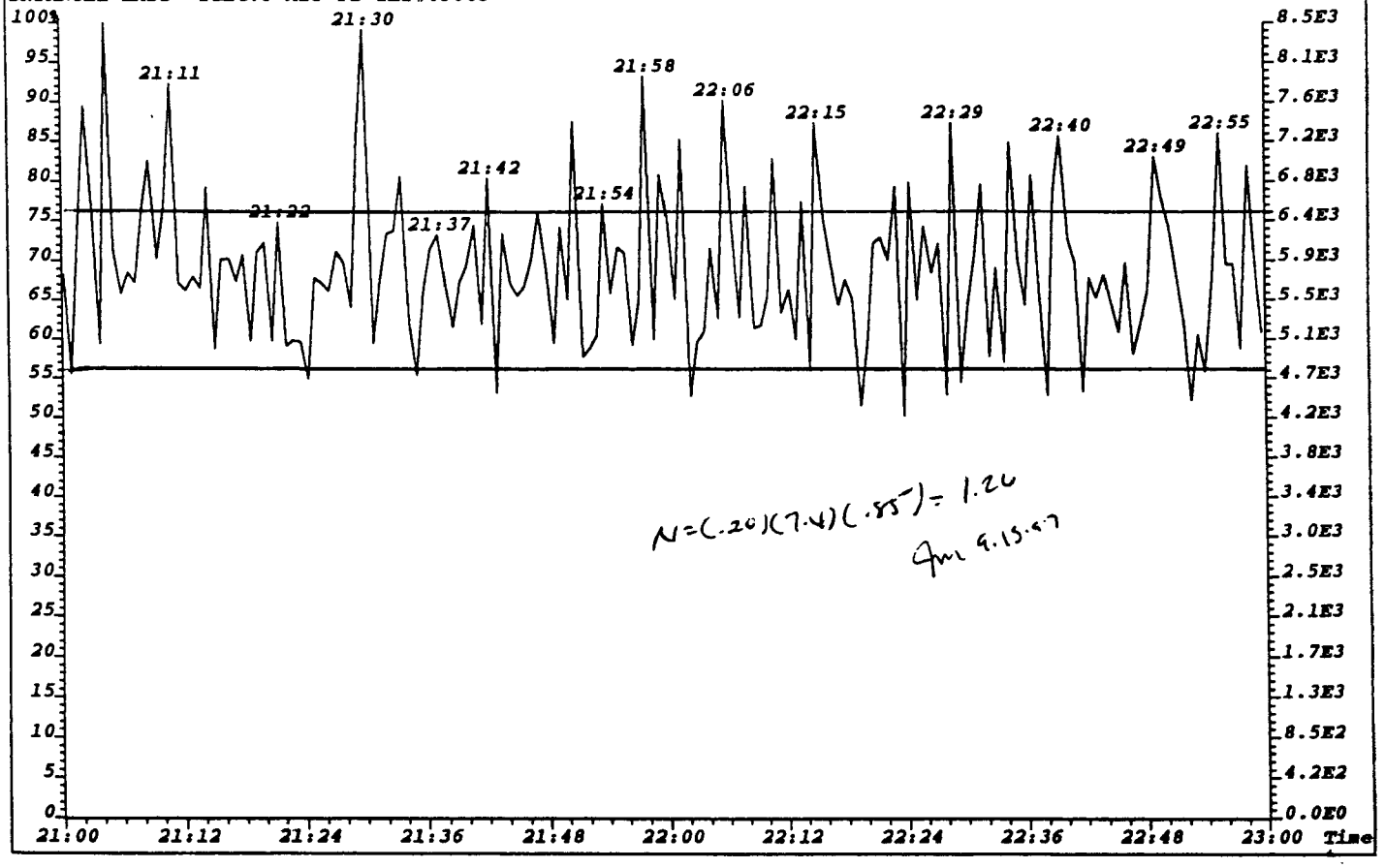
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085

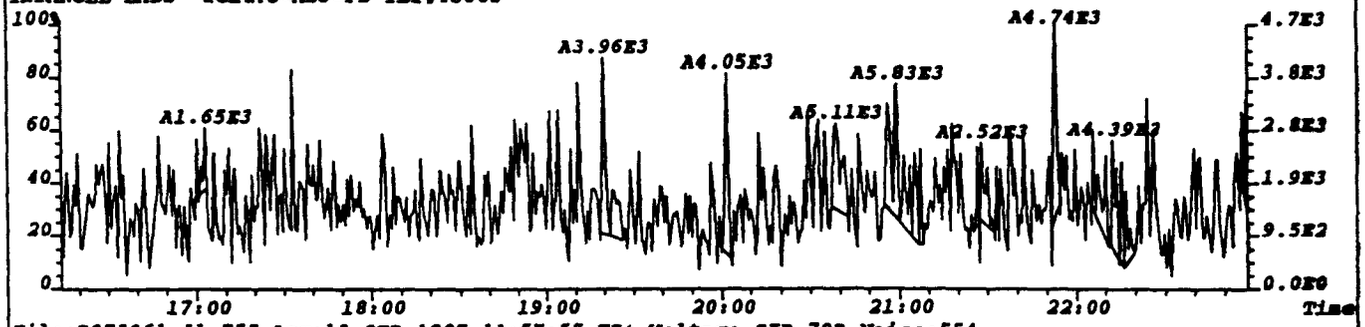


File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085

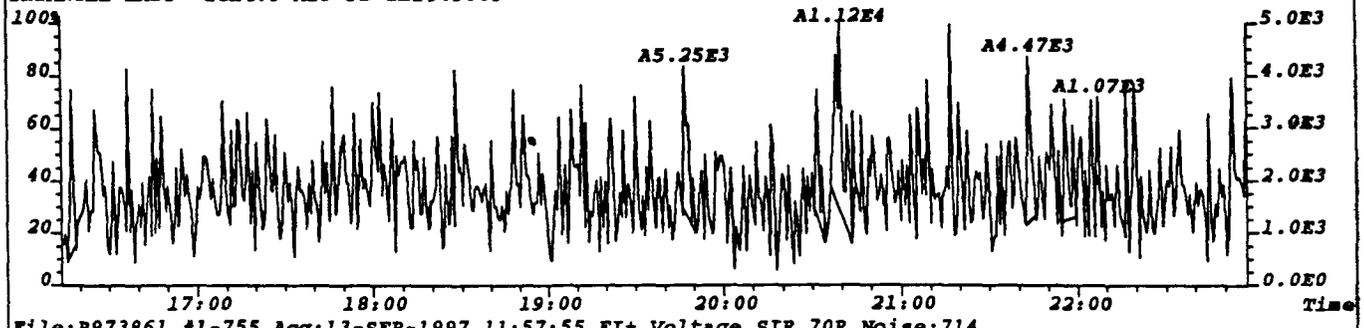


N=(.20)(7.4)(.85)= 1.26
Am 9.15.97

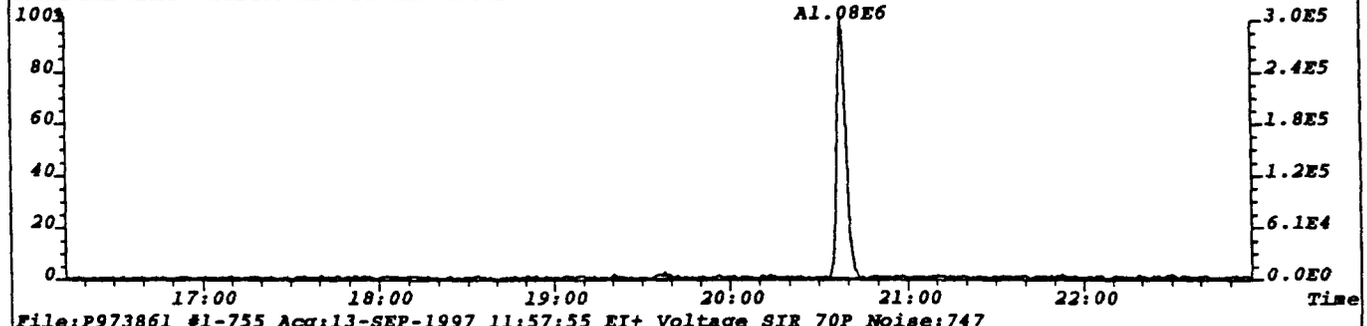
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:450
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1800.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



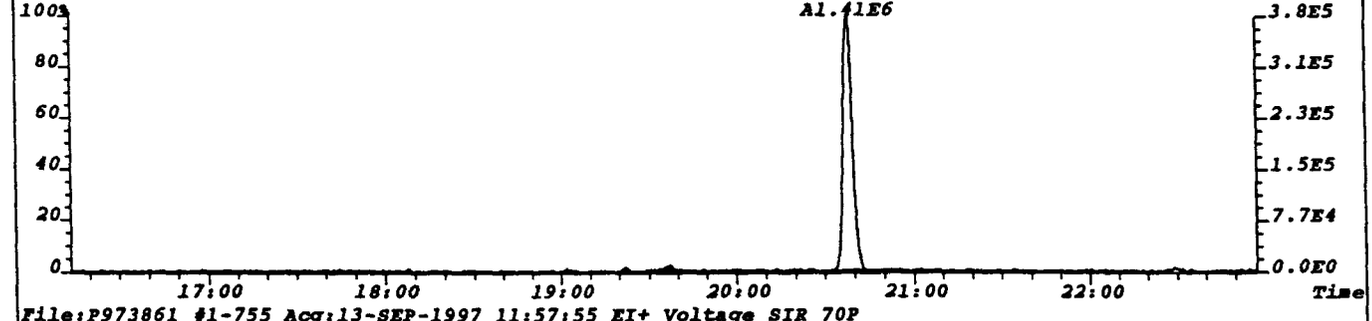
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:554
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2216.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



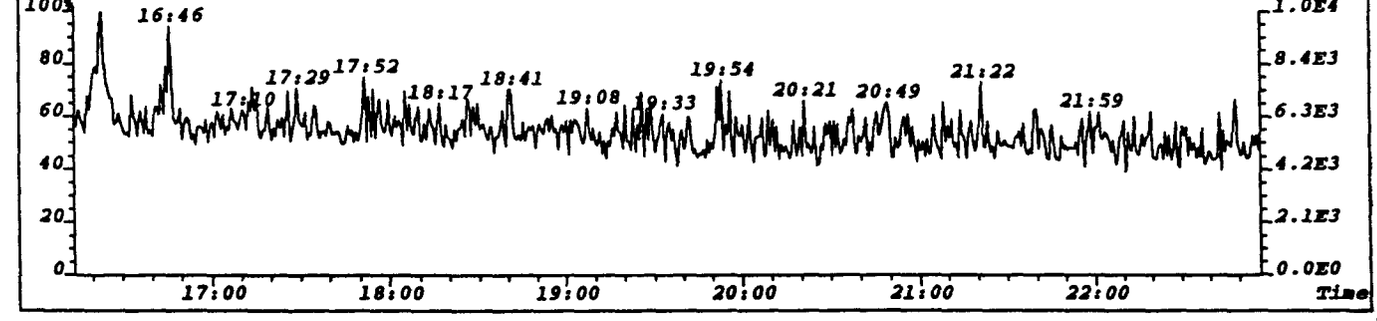
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:714
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2856.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



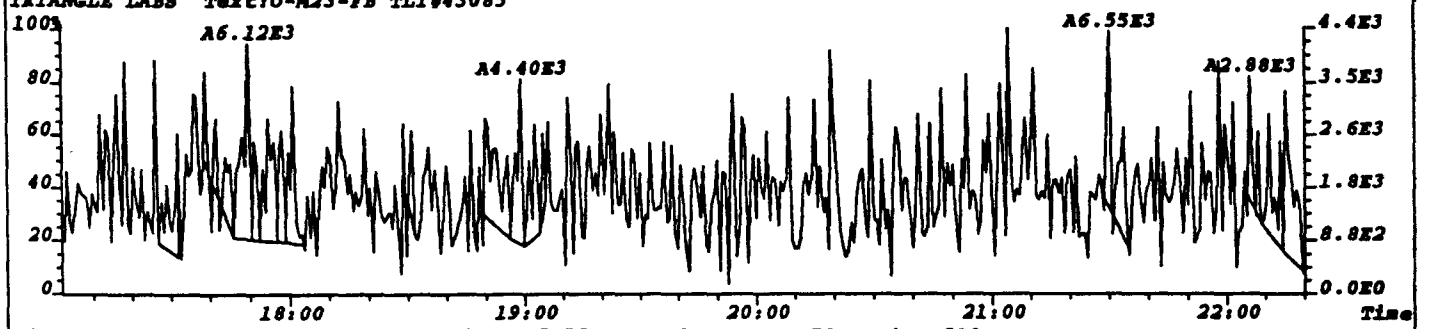
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:747
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2988.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



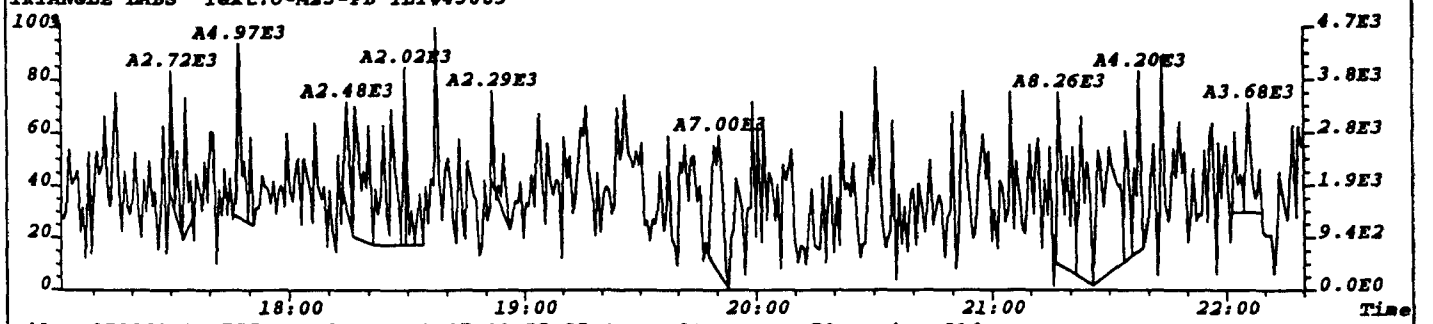
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



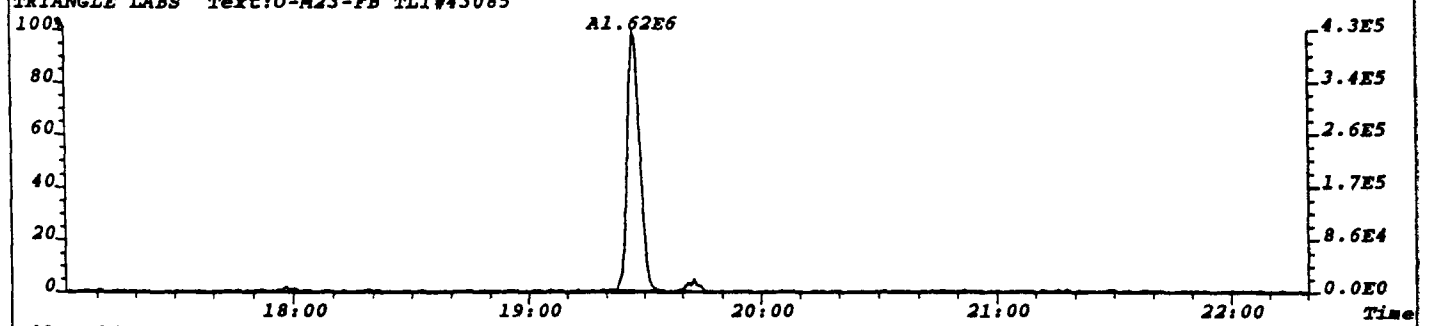
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:512
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2048.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



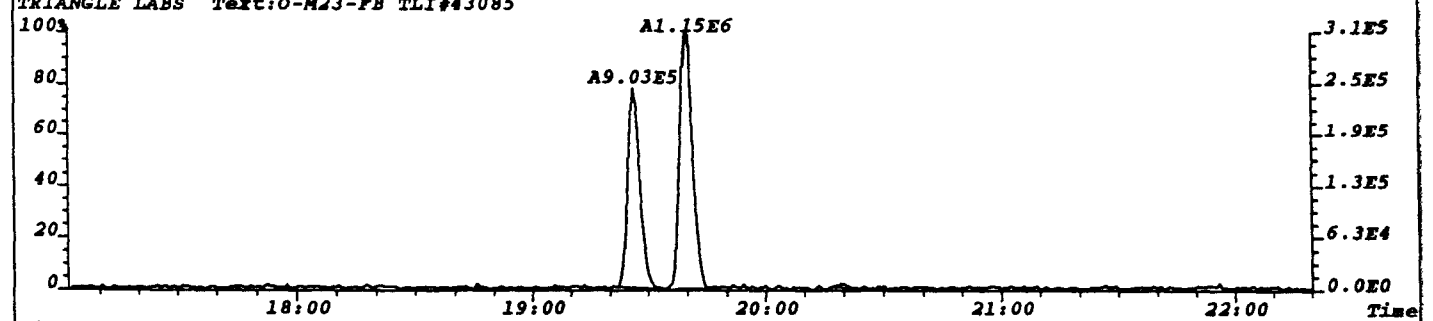
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:518
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2072.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



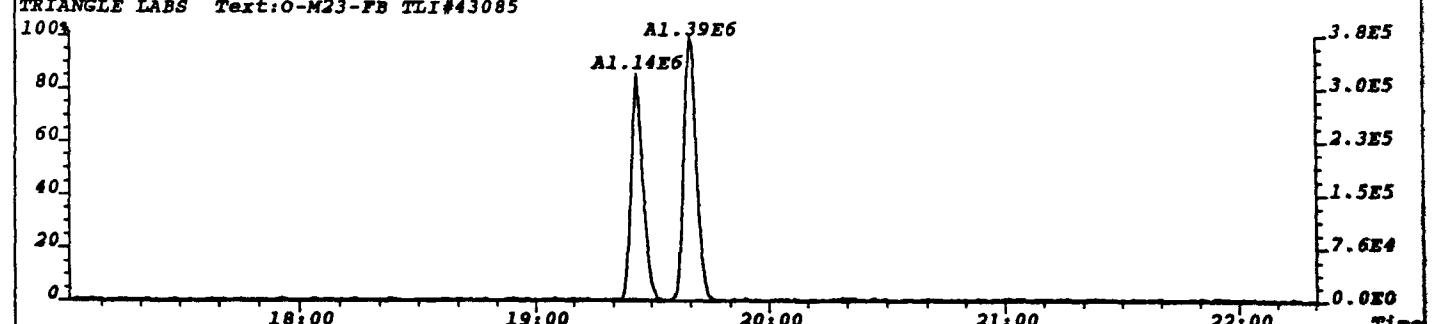
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:516
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2064.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



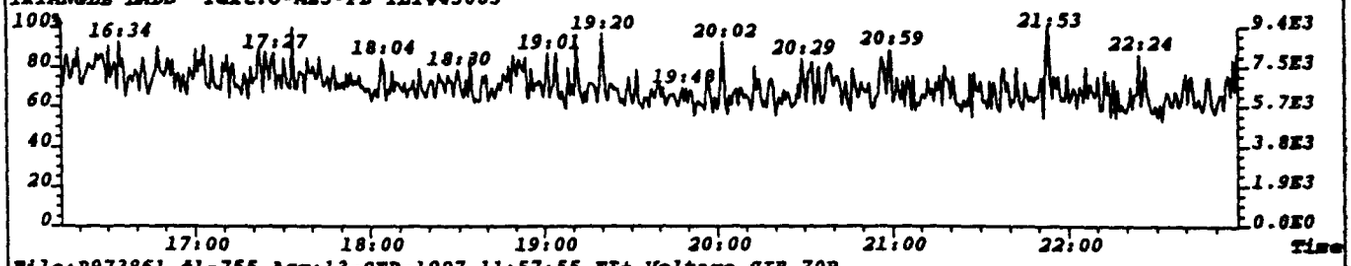
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:928
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3712.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



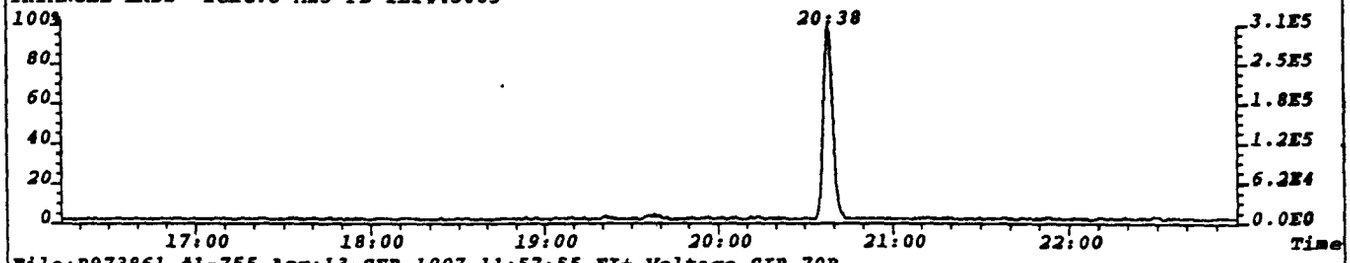
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P Noise:403
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1612.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



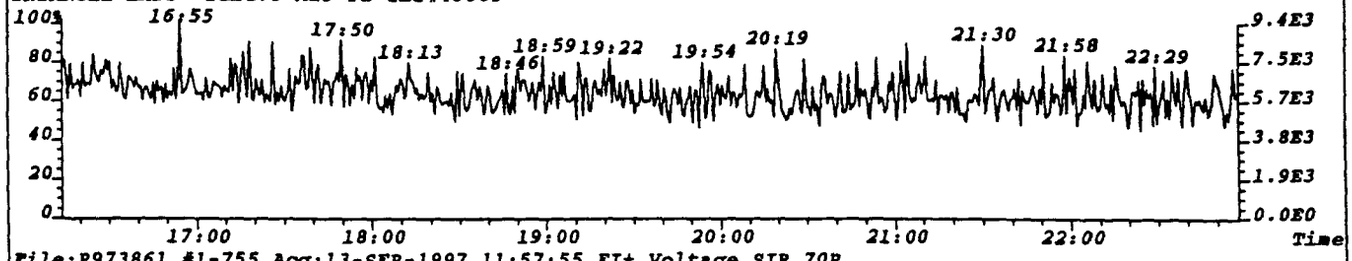
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



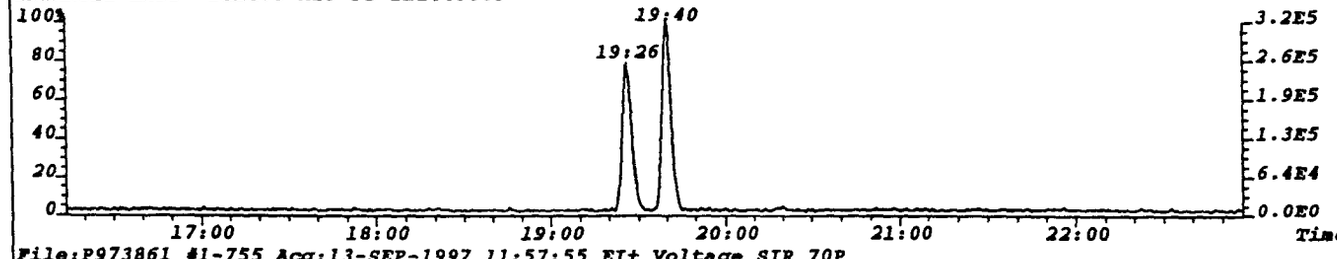
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



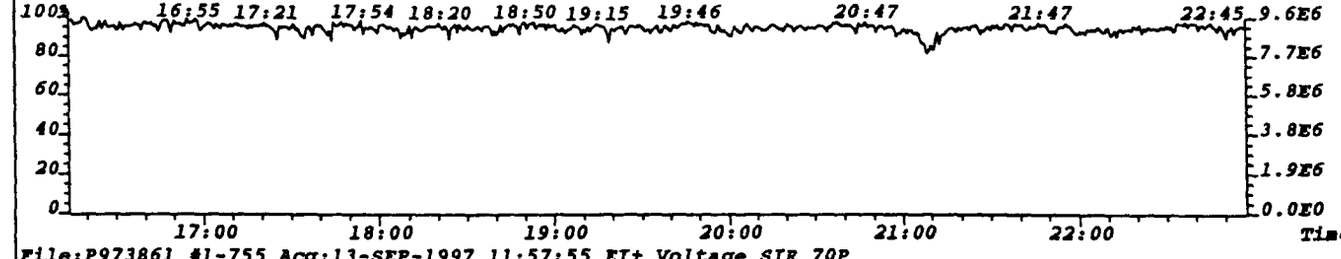
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



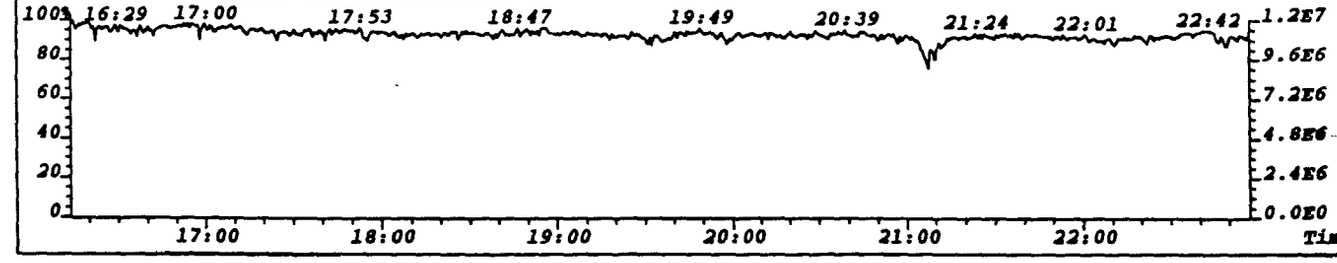
File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085

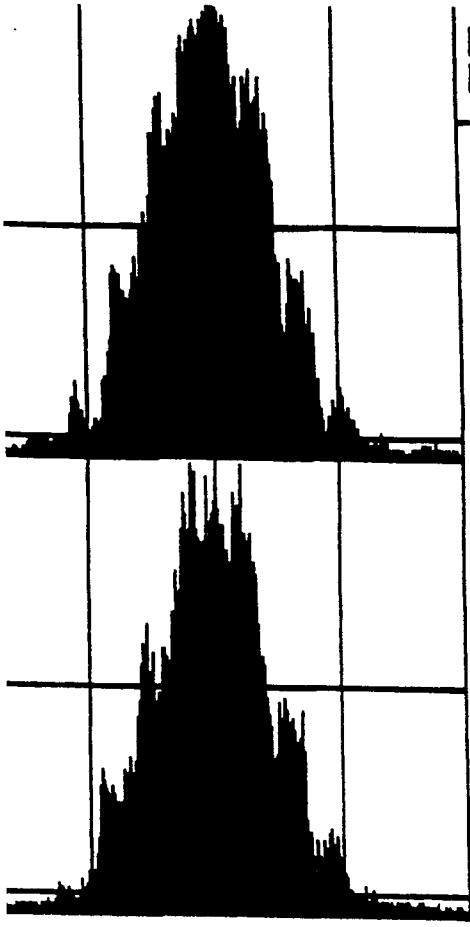


File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085



File:P973861 #1-755 Acq:13-SEP-1997 11:57:55 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:O-M23-FB TLI#43085





Ref. mass 292.9825 Peak top
Height 1.61 volts Span 200 ppm

System file name	DB225
Data file name	A:P973861
Resolution	10000
Group number	1
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 380.9761

A	292.9825	J	330.9792
B	303.9016	K	331.9368
C	305.8987	L	333.9338
D	315.9419	M	375.8364
E	317.9389		
F	319.8965		
G	321.8936		
H	327.8847		
I	330.9792		

Channel I 330.9792 Peak top
Height 1.83 volts Span 200 ppm

Pacific Environmental Services

TLI Project: 43085 — Method 23 PCDD/PCDF Analysis (a)

Client Sample: I-M23-1 — Analysis File: S975834

Client Project:	S413-004				
Sample Matrix:	M23Train	Date Received:	09/03/97	Spike File:	SPX23704
TLI ID:	181-55-5ABD	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/11/97	ConCal:	S975814
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	BJG	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.06				—
1,2,3,7,8-PeCDD	ND	0.2				—
1,2,3,4,7,8-HxCDD	ND	0.2				—
1,2,3,6,7,8-HxCDD	ND	0.2				—
1,2,3,7,8,9-HxCDD	ND	0.2				—
1,2,3,4,6,7,8-HpCDD	ND	0.3				—
1,2,3,4,6,7,8,9-OCDD	9.7			0.93	34:43	—
2,3,7,8-TCDF	ND	0.05				—
1,2,3,7,8-PeCDF	ND	0.09				—
2,3,4,7,8-PeCDF	ND	0.09				—
1,2,3,4,7,8-HxCDF	ND	0.1				—
1,2,3,6,7,8-HxCDF	ND	0.1				—
2,3,4,6,7,8-HxCDF	ND	0.1				—
1,2,3,7,8,9-HxCDF	ND	0.2				—
1,2,3,4,6,7,8-HpCDF	ND	0.2				—
1,2,3,4,7,8,9-HpCDF	ND	0.2				—
1,2,3,4,6,7,8,9-OCDF	ND	0.3				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.06		—
Total PeCDD	ND		0.2		—
Total HxCDD	ND		0.2		—
Total HpCDD	EMPC			0.35	—
Total TCDF	EMPC			0.18	—
Total PeCDF	0.47	1			—
Total HxCDF	ND		0.1		—
Total HpCDF	ND		0.2		—

X237_PSR v2.00, LARS 6.16.04

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Printed: 14:07 09/18/97

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **I-M23-1** Analysis File: **S975834**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.9	72.8	40%-130%	0.74	21:09	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.9	73.3	40%-130%	0.87	21:51	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.0	50.6	40%-130%	1.56	25:08	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.8	45.4	40%-130%	1.56	26:12	Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.6	65.4	40%-130%	0.51	28:42	Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.8	70.9	40%-130%	1.24	29:23	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.2	56.0	25%-130%	0.43	31:21	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.4	59.6	25%-130%	1.04	32:10	Q___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.5	55.8	25%-130%	0.79	34:45	Q___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.1	102	70%-140%		21:52	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.7	92.1	70%-140%	1.49	25:52	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.7	117	70%-140%	0.54	28:36	Q___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.6	89.9	70%-140%	1.22	29:18	Q___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.4	110	70%-140%	0.45	32:31	Q___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.2	80.6	40%-130%	0.51	29:53	Q___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.1	76.4	40%-130%	0.52	29:12	Q___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	21:37	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.17	29:40	Q___

Data Reviewer: Sher-Lewis 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 14:07 09/18/97

Initial ....Date...

Data Review By: [illegible] 9/18/97 Calculated Noise Area: 1.48

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975834B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....		QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF							0.65-0.89				0.820-1.101			
304-306		DC	NL		0:00	RO	0.29	0.46			0.000			
		DC	SN		18:16	RO	0.97	2.76			0.864			
	D	DC	SN		18:35	RO	0.59	13.49			0.879			
		DC	SN		18:55	RO	1.30	1.43			0.894			
		DC	SN		19:17		0.68	6.72			0.912			
					19:35	RO	0.95	14.07	7.55	7.95	0.926			
	D	DC	SN		20:03	RO	0.52	7.40			0.948			
304-306				1	Peak			14.07						
13C12-TCDF							0.65-0.89				0.951-1.049			
316-318		DC	NL		0:00	RO	1.14	0.12			0.000			
		DC	WL		19:54	RO	0.32	0.76			0.941			
		DC	SN		20:43	RO	0.31	1.40			0.980			
					21:09		0.74	257.05	109.18	147.87	1.000	13C12-2378-TCDF	ISO	
		DC	WH		22:17	RO	3.12	1.19			1.054			
316-318				1	Peak			257.05						

---------- Above: TCDF / TCDD Follows ----------

TCDD							0.65-0.89				0.853-1.059			
320-322		DC	NL		0:00	RO	1.00	0.12			0.000			
		DC	WL		18:09	RO	0.64	0.53			0.831			
		DC	SN		18:53		0.69	1.00			0.864			
		DC	SN		19:08	RO	0.40	1.29			0.876			
		DC	SN		19:47	RO	3.33	0.42			0.905			
		DC	SN		19:55	RO	0.94	0.85			0.912			
		DC	SN		19:59	RO	0.94	0.30			0.915			
		DC	SN		20:33	RO	1.36	0.99			0.941			
		DC	SN		21:05	RO	2.00	1.13			0.965			
		DC	SN		21:21	RO	1.04	0.44			0.977			
		DC	SN		21:33	RO	8.17	0.11			0.986			
		DC	SN		21:45		0.73	1.02			0.995			
		DC	SN		21:50	RO	0.43	1.24			0.999	2378-TCDD		AN
		DC	SN		22:30	RO	4.86	0.50			1.030			
		DC	SN		22:42	RO	1.74	1.20			1.039			
		DC	SN		22:46	RO	1.67	1.13			1.042			
320-322				0	Peaks			0.00						
37Cl-TCDD											0.906-1.094			
328		DC	NL		0:00			0.06			0.000			
		DC	WL		18:06			1.64			0.828			
		DC	WL		18:09			0.50			0.831			
		DC	WL		18:28			1.24			0.845			

Listing of S975834B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC		WL	18:35			0.25			0.850			
	DC		WL	18:42			0.40			0.856			
	DC		WL	18:46			0.09			0.859			
	DC		WL	18:59			0.45			0.869			
	DC		WL	19:03			0.59			0.872			
	DC		WL	19:14			0.50			0.880			
	DC		WL	19:20			0.38			0.885			
	DC		WL	19:23			0.16			0.887			
	DC		WL	19:26			0.38			0.889			
	DC		WL	19:38			0.50			0.899			
	DC		WL	19:45			0.22			0.904			
	DC		SN	19:59			0.77			0.915			
				20:10			5.65	5.65		0.923			
	DC		SN	20:24			0.32			0.934			
	DC		SN	20:31			0.15			0.939			
	DC		SN	20:42			0.70			0.947			
	DC		SN	20:59			0.35			0.960			
	DC		SN	21:09			0.55			0.968			
	DC		SN	21:15			0.53			0.973			
	DC		SN	21:20			0.26			0.976			
	DC		SN	21:27			0.94			0.982			
	DC		SN	21:38			0.55			0.990			
				21:52			180.26	180.26		1.001	37Cl-TCDD	SUR1	
				22:13			9.74	9.74		1.017			
	DC		SN	22:23			0.95			1.024			
	DC		SN	22:30			1.38			1.030			
	DC		SN	22:37			0.22			1.035			
328			3	Peaks			195.65						
13C12-TCDD						0.65-0.89				0.906-1.094			
332-334	DC		NL	0:00	RO	38.33	0.11			0.000			
	DC		WL	18:36	RO	0.31	1.06			0.851			
	DC		WL	18:58	RO	3.03	1.19			0.868			
	DC		WL	19:09	RO	12.56	0.57			0.876			
	DC		WL	19:42	RO	17.00	0.30			0.902			
	DC		SN	21:20		0.68	2.89			0.976			
				21.37		0.86	268.06	124.01	144.05	0.989	13C12-1234-TCDD	RS1	
				21:51		0.87	209.33	97.44	111.89	1.000	13C12-2378-TCDD	IS1	
				22:08	RO	1.76	6.02	5.97	3.40	1.013			
	DC		SN	22:23	RO	1.99	1.24			1.024			
	DC		SN	22:33	RO	0.91	1.65			1.032			
	DC		SN	22:37	RO	2.95	0.97			1.035			
332-334			3	Peaks			483.41						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF						1.32-1.78				0.907-1.078			
340-342	DC		NL	0:00	RO	1.17	0.12			0.000			
	DC		WL	22:26	RO	0.62	0.63			0.882			
	DC		WL	22:45	RO	0.90	1.02			0.894			
				23:12		1.52	20.10	12.11	7.99	0.912			
	DC		SN	24:19		1.66	7.23			0.956			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	24:29		1.42	2.18			0.963			
		DC	SN	24:39	RO	1.14	1.65			0.969			
		DC	SN	24:51	RO	1.18	3.08			0.977			
		DC	SN	25:05	RO	0.95	1.04			0.986			
		DC	SN	26:36	RO	0.34	0.95			1.046			
		DC	SN	26:54	RO	0.10	0.56			1.058			
340-342			1	Peak			20.10						
13C12-PeCDF				1.32-1.78						0.838-1.162			
352-354		DC	NL	0:00	RO	1.00	0.13			0.000			
		DC	SN	22:37	RO	0.46	0.87			0.889			
		DC	SN	22:43	RO	0.84	0.89			0.893			
		DC	SN	23:24	RO	1.17	1.37			0.920			
		DC	SN	23:34		1.37	0.83			0.927			
		DC	SN	24:03	RO	0.46	0.41			0.946			
		DC	SN	24:08	RO	0.54	0.41			0.949			
		DC	SN	24:20	RO	0.99	2.16			0.957			
	N			25:08		1.56	153.70	93.72	59.98	0.988	13C12-PeCDF 123	IS2	
	N	DC	SN	25:26	RO	2.21	1.35			1.000			
	N			25:52		1.49	137.24	82.16	55.08	1.017	13C12-PeCDF 234	SUR2	
		DC	SN	26:20	RO	3.21	0.74			1.035			
		DC	SN	26:30		1.55	1.94			1.042			
		DC	SN	26:38	RO	0.77	2.14			1.047			
352-354			2	Peaks			290.94						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.921-1.026			
356-358		DC	NL	0:00	RO	1.00	0.10			0.000			
		DC	WL	24:04	RO	9.18	0.28			0.914			
		DC	SN	25:57	RO	0.62	0.53			0.985			
		DC	SN	26:12	RO	3.43	0.94			0.995			
		DC	SN	26:33	RO	0.20	0.33			1.008			
356-358			0	Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370		DC	NL	0:00	RO	1.00	0.10			0.000			
		DC	SN	24:19	RO	4.42	0.31			0.923			
		DC	SN	24:26	RO	0.82	0.77			0.928			
		DC	SN	24:49	RO	3.28	0.46			0.942			
		DC	SN	25:10	RO	4.29	0.97			0.956			
		DC	SN	25:31		1.72	0.68			0.969			
		DC	SN	25:48	RO	3.93	0.36			0.980			
	N			26:12		1.56	77.33	47.13	30.20	0.995	13C12-PeCDD 123	IS3	Q
	N			26:20		1.66	10.17	6.34	3.83	1.000			
368-370			2	Peaks			87.50						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF				1.05-1.43						0.955-1.052			
374-376		DC	NL	0:00	RO	0.99	1.88			0.000			
		DC	WL	27:48	RO	1.77	3.96			0.952			

Listing of S975834B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC		SN	27:56	RO	0.67	0.65			0.957			
	DC		SN	28:14		1.37	3.08			0.967			
	DC		SN	28:35	RO	2.90	0.47			0.979			
	DC		SN	28:40	RO	0.90	1.26			0.982			
	DC		SN	28:43	RO	6.08	0.54			0.983			
	DC		SN	28:48		1.10	0.88			0.986			
	DC		SN	28:52	RO	0.74	0.63			0.989			
	DC		SN	28:57		1.34	0.89			0.991			
	DC		SN	29:01	RO	1.02	1.99			0.994			
	DC		SN	29:13	RO	2.74	1.95			1.001	123678-HxCDF	AN	
	DC		SN	29:20		1.19	1.53			1.005			
	DC		SN	29:20	RO	0.98	0.74			1.005			
	DC		SN	29:30	RO	0.14	0.78			1.010			
	DC		SN	29:36	RO	1.01	3.09			1.014			
	DC		SN	29:42	RO	0.93	0.90			1.017	234678-HxCDF	AN	
	DC		SN	30:06	RO	1.95	2.89			1.031			
	DC		SN	30:13	RO	4.89	0.63			1.035			
374-376			0	Peaks			0.00						
13C12-HxCDF						0.43-0.59				0.859-1.141			
384-386	DC		NL	0:00	RO	0.40	1.66			0.000			
	DC		SN	27:28	RO	4.06	0.27			0.941			
	DC		SN	27:34	RO	0.14	0.30			0.944			
	DC		SN	27:46	RO	2.70	0.41			0.951			
	DC		SN	27:49	RO	2.54	0.20			0.953			
	DC		SN	27:54	RO	0.15	0.53			0.955			
	DC		SN	28:04	RO	0.75	1.09			0.961			
	DC		SN	28:07	RO	0.34	0.47			0.963			
	DC		SN	28:13		0.58	1.15			0.966			
	DC		SN	28:21	RO	1.94	0.72			0.971			
		N		28:36		0.54	100.38	35.23	65.15	0.979	13C12-HxCDF 478	SUR3	Q
		N		28:42		0.51	89.20	30.12	59.08	0.983	13C12-HxCDF 678	IS4	Q
	DC		SN	28:53	RO	0.60	1.34			0.989			
		N		29:12		0.52	96.55	33.07	63.48	1.000	13C12-HxCDF 234	ALT2	Q
	DC		SN	29:20	RO	0.40	0.92			1.005			
	DC		SN	29:25	RO	1.06	0.71			1.007			
	DC		SN	29:33	RO	7.40	0.23			1.012			
	DC		SN	29:38	RO	0.66	1.28			1.015			
		N		29:53		0.51	88.59	29.97	58.62	1.023	13C12-HxCDF 789	ALT1	Q
	DC		SN	30:14	RO	0.76	1.37			1.035			
384-386			4	Peaks			374.72						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD						1.05-1.43				0.950-1.015			
390-392	DC		NL	0:00		1.41	1.47			0.000			
	DC		WL	28:06		1.14	0.60			0.947			
	DC		SN	28:29	RO	5.10	0.22			0.960			
	DC		SN	28:43	RO	0.11	0.16			0.968			
	DC		SN	28:48		1.07	0.85			0.971			
	DC		SN	28:50	RO	1.02	0.81			0.972			
	DC		SN	29:01	RO	0.53	1.19			0.978			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		29:08		1.38	1.14			0.982			
	DC	SN		29:14	RO	2.97	0.67			0.985			
	DC	SN		29:24	RO	0.37	0.56			0.991			
	DC	SN		29:29	RO	0.75	1.32			0.994			
	DC	SN		29:34	RO	0.08	0.27			0.997	123478-HxCDD	AN	
	DC	SN		29:44	RO	0.25	0.31			1.002	123678-HxCDD	AN	
	DC	SN		29:50	RO	0.77	0.96			1.006			
	DC	SN		29:54	RO	0.14	0.23			1.008			
390-392			0	Peaks			0.00						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	NL		0:00	RO	0.93	1.14			0.000			
	DC	WL		27:50	RO	2.14	0.47			0.938			
	DC	WL		27:58	RO	1.65	1.46			0.943			
	DC	WL		28:19	RO	0.56	0.83			0.954			
	DC	WL		28:21		1.35	1.29			0.956			
	DC	WL		28:29	RO	0.83	0.34			0.960			
	DC	SN		29:00		1.20	0.44			0.978			
	DC	SN		29:00	RO	1.48	0.65			0.978			
	DC	SN		29:09	RO	0.61	1.45			0.983			
N				29:18		1.22	69.92	38.42	31.50	0.988	13C12-HxCDD 478	SUR4	Q
N				29:23		1.24	79.95	44.32	35.63	0.990	13C12-HxCDD 678	IS5	Q
N				29:40		1.17	113.35	61.18	52.17	1.000	13C12-HxCDD 789	RS2	Q
	DC	SN		29:50	RO	0.95	1.63			1.006			
	DC	SN		29:55	RO	2.02	1.01			1.008			
402-404			3	Peaks			263.22						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF				0.88-1.20						0.995-1.044			
408-410	DC	NL		0:00	RO	1.71	4.22			0.000			
408-410			0	Peaks			0.00						
13C12-HpCDF				0.37-0.51						0.936-1.128			
418-420	DC	NL		0:00	RO	0.99	2.02			0.000			
N				31:21		0.43	56.35	17.02	39.33	0.993	13C12-HpCDF 678	IS6	Q
N	DC	SN		31:34	RO	0.98	1.50			1.000			
N				32:31		0.45	47.69	14.86	32.83	1.030	13C12-HpCDF 789	SUR5	Q
	DC	SN		32:41		0.49	2.00			1.035			
	DC	SN		32:51	RO	0.23	2.65			1.041			
418-420			2	Peaks			104.04						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.976-1.006			
424-426	DC	NL		0:00	RO	1.66	1.63			0.000			
	DC	SN		31:26	RO	0.39	0.57			0.977			
M				31:36	RO	0.86	5.10	2.60	3.01	0.982			
424-426			1	Peak			5.10						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	9.63	0.16			0.000			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		31:35		1.10	1.70			0.982			
	DC	SN		31:40	RO	0.42	0.35			0.984			
	DC	SN		31:59	RO	2.49	0.88			0.994			
				32:10		1.04	55.10	28.13	26.97	1.000	13C12-HpCDD 678	IS7	Q
436-438			1	Peak			55.10						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

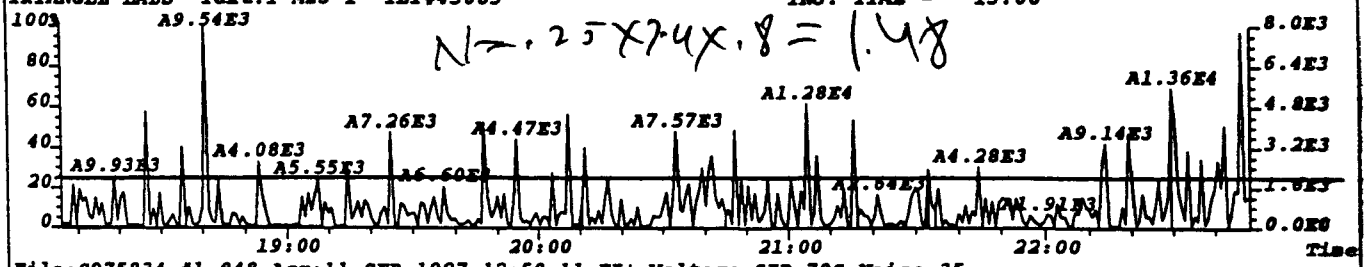
OCDF						0.76-1.02				0.884-1.116			
442-444	DC	NL		0:00		1.00	0.12			0.000			
	DC	SN		30:56	RO	0.47	0.70			0.890			
	DC	SN		31:30	RO	1.11	0.34			0.906			
	DC	SN		31:40	RO	2.86	0.42			0.911			
	DC	SN		32:04	RO	0.13	0.32			0.923			
	DC	SN		32:16		0.85	1.33			0.929			
	DC	SN		32:30		0.80	1.76			0.935			
	DC	SN		32:52	RO	0.08	0.38			0.946			
	DC	SN		33:10	RO	2.32	1.89			0.954			
	DC	SN		33:35	RO	2.96	0.43			0.966			
	DC	SN		33:56	RO	0.52	1.91			0.976			
	DC	SN		34:16		0.86	1.06			0.986			
	DC	SN		35:29	RO	0.45	1.68			1.021			
	DC	SN		35:59	RO	0.58	1.70			1.035			
442-444			0	Peaks			0.00						
OCDD						0.76-1.02				0.884-1.116			
458-460	DC	NL		0:00	RO	1.17	0.11			0.000			
				34:43		0.93	88.40	42.55	45.85	0.999	OCDD		AN
458-460			1	Peak			88.40						
13C12-OCDD						0.76-1.02				0.995-1.005			
470-472	DC	NL		0:00	RO	0.09	0.11			0.000			
	DC	WL		34:33	RO	2.02	0.93			0.994			
				34:45		0.79	65.71	28.91	36.80	1.000	13C12-OCDD	IS8	Q
470-472			1	Peak			65.71						

Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

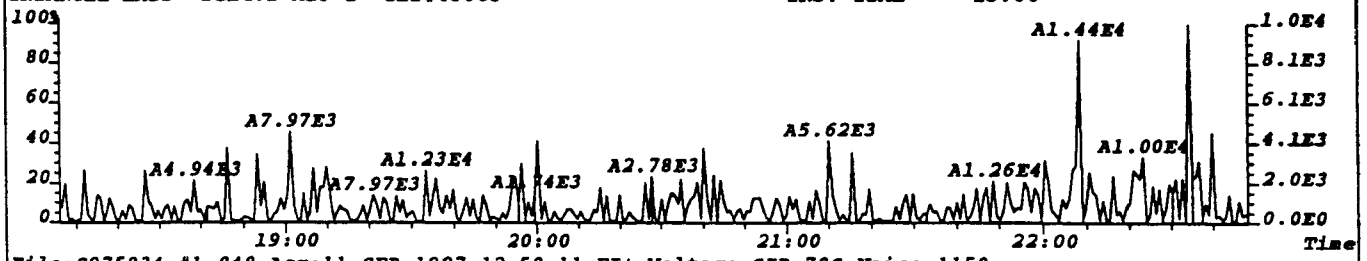
*** End of Report ***

File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:35
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00

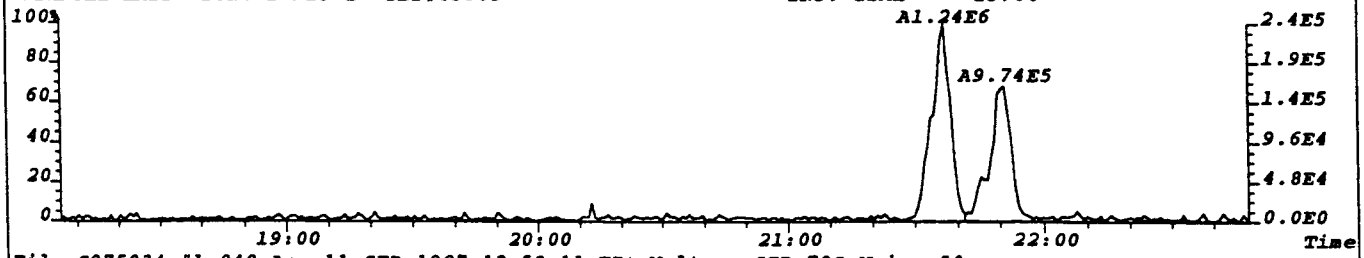
N = .25 X 7.4 X .8 = 1.48



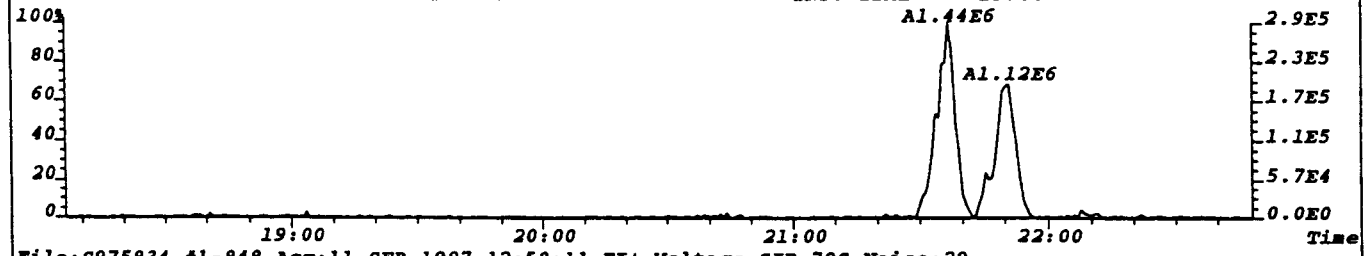
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:35
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



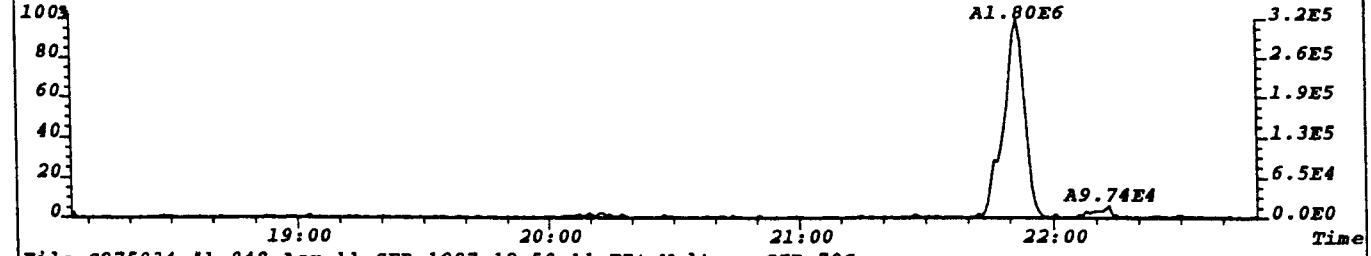
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:1150
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4600.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



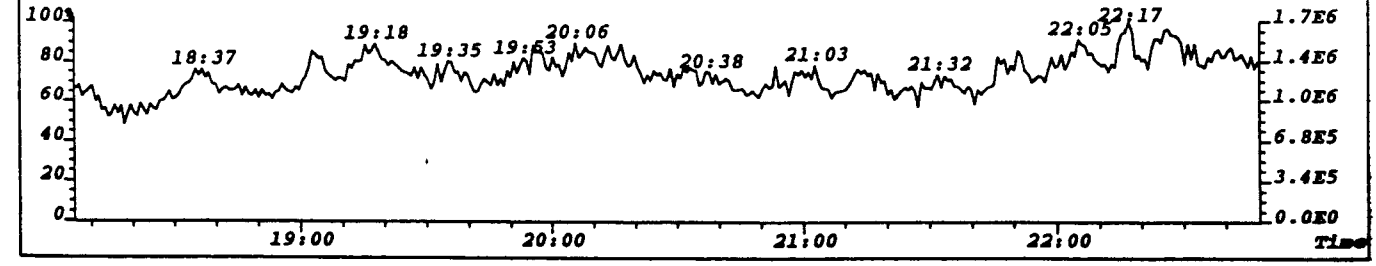
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:30
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



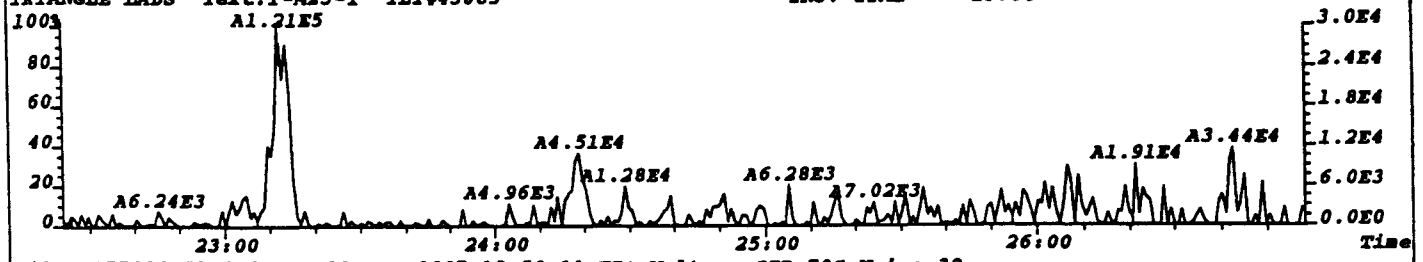
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:29
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



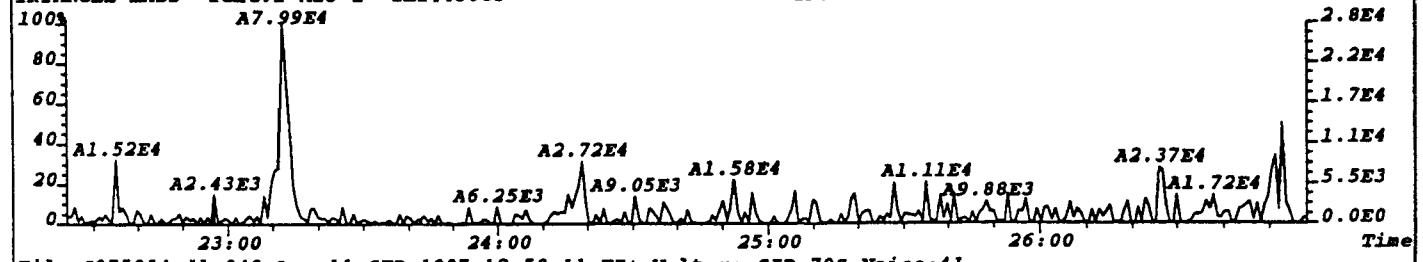
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



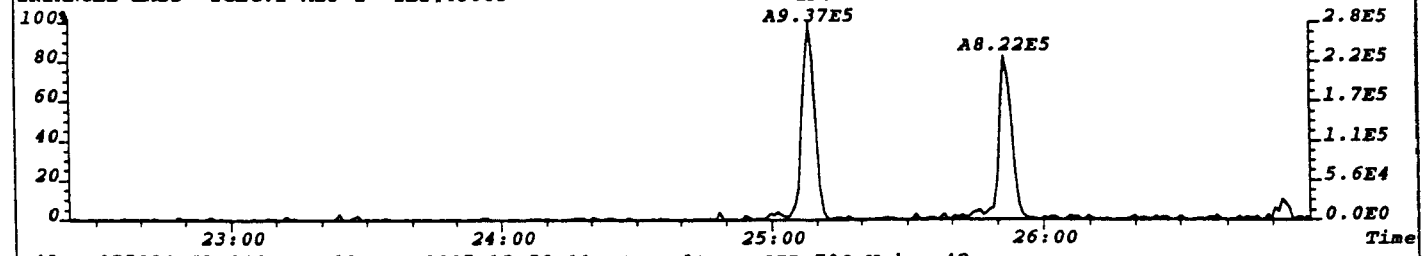
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:36
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



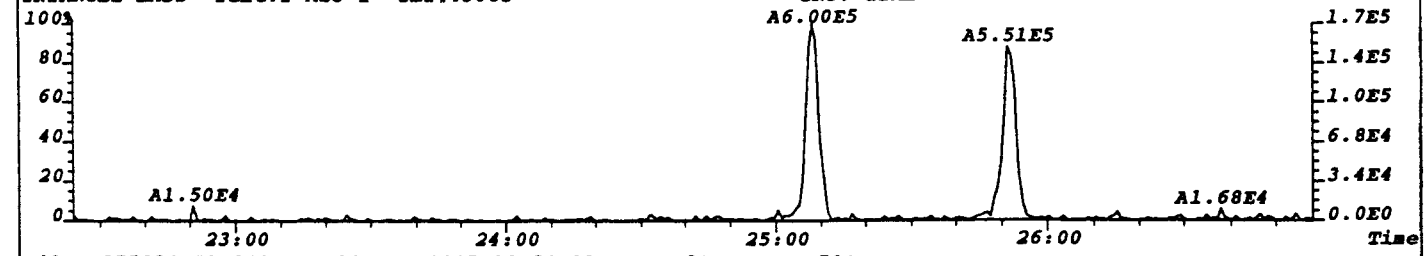
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:30
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



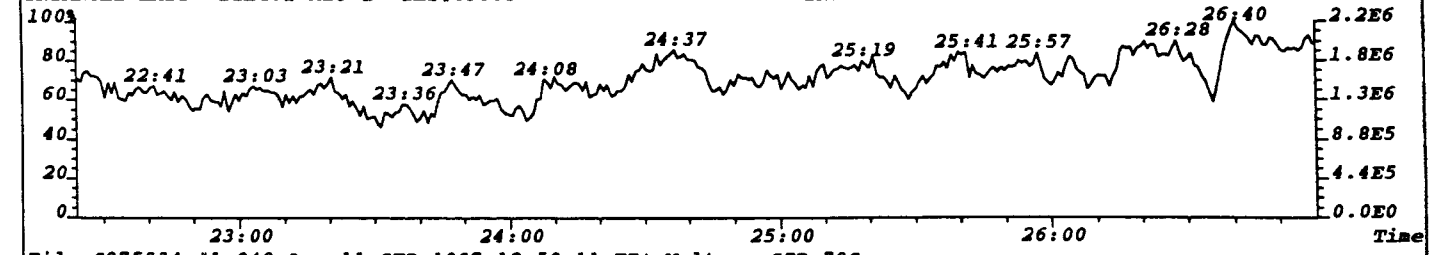
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:41
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



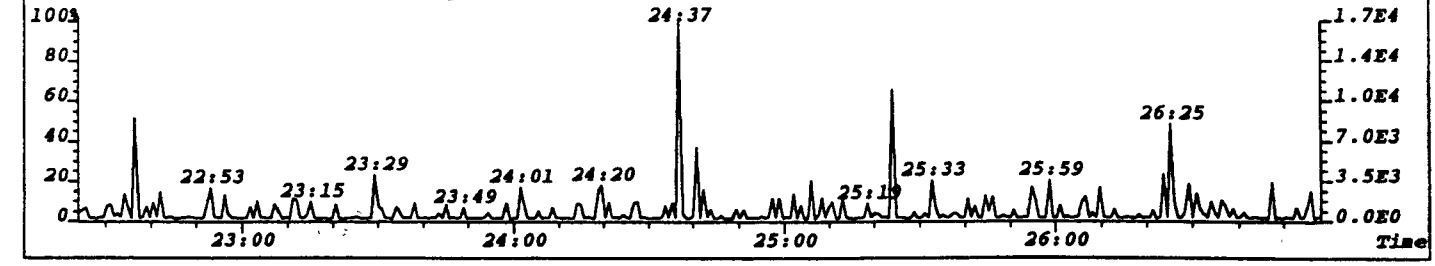
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:42
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



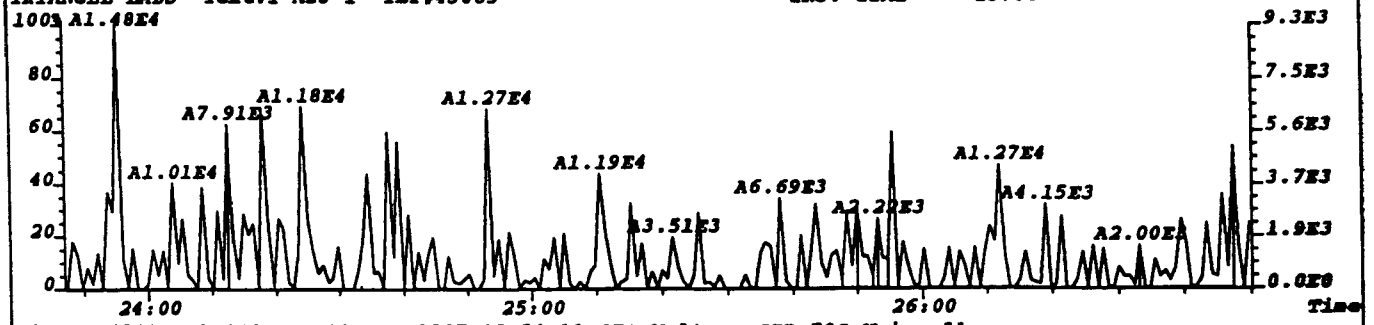
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



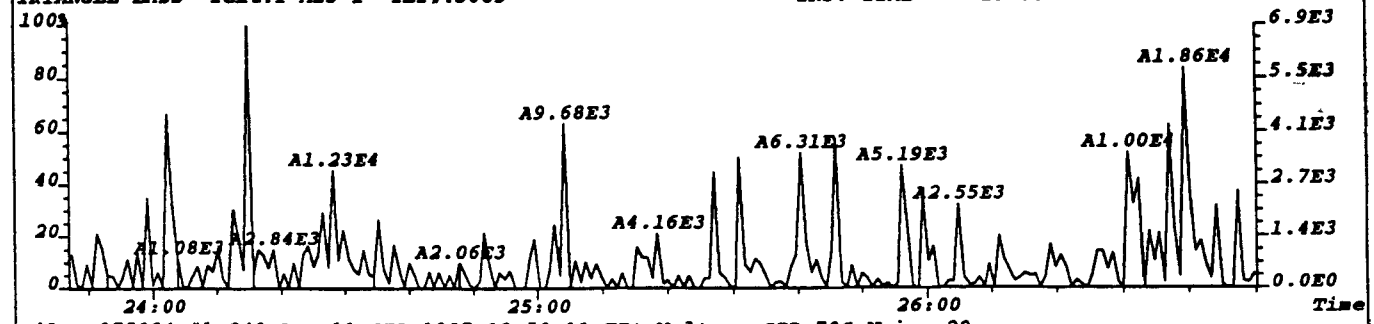
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



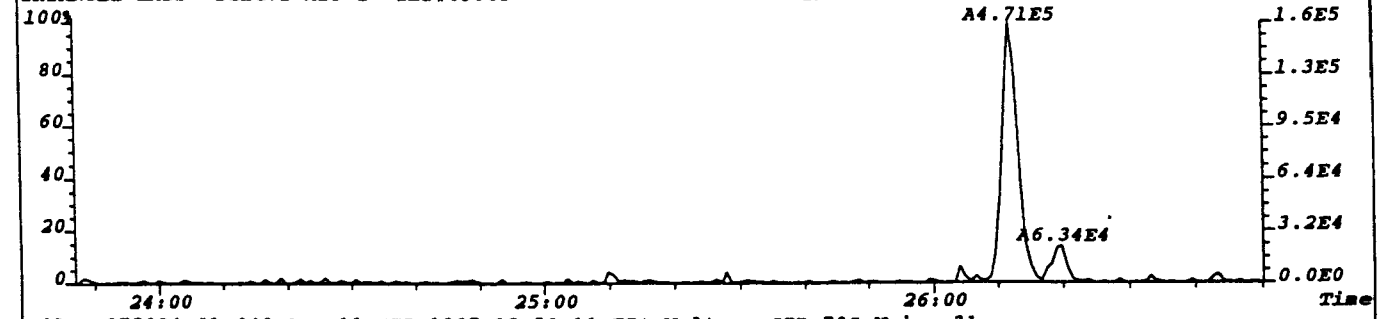
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:28
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:31
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00

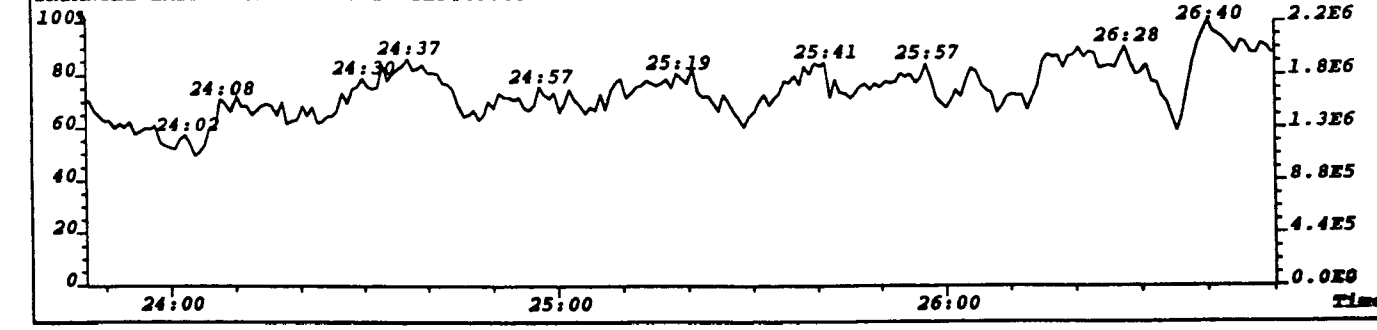


File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:29
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00

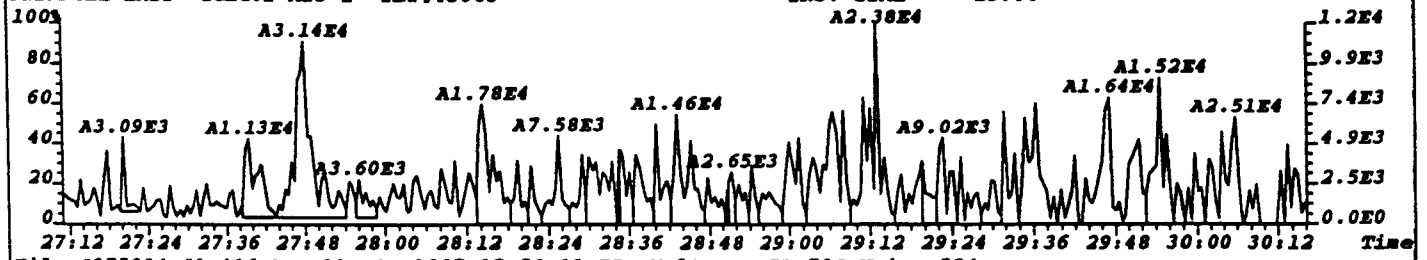


File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:31
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00

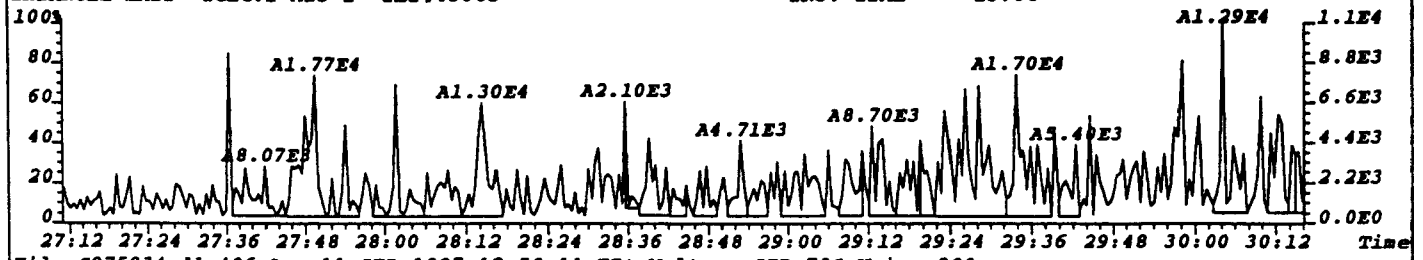
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



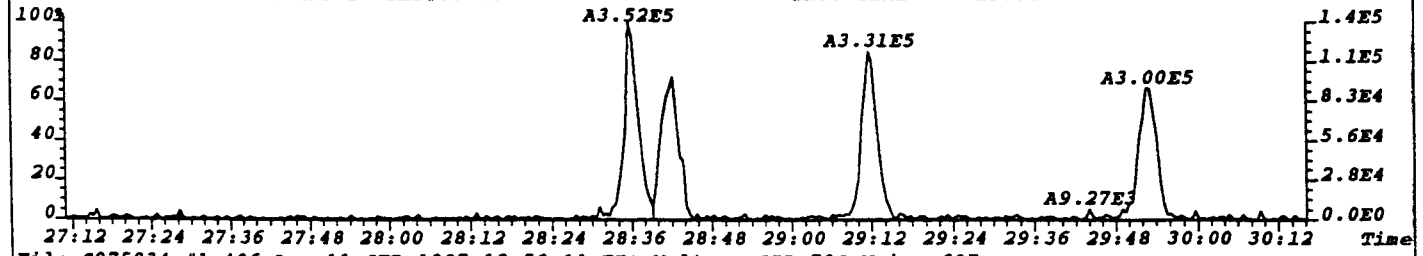
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:521
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2084.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



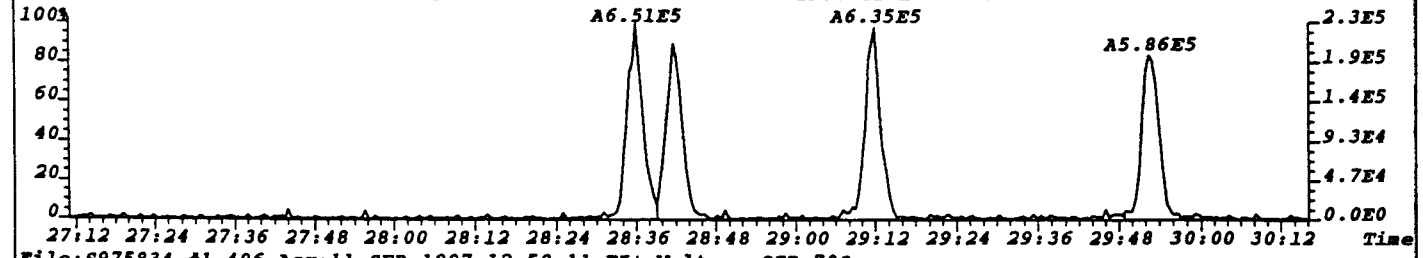
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:524
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2096.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



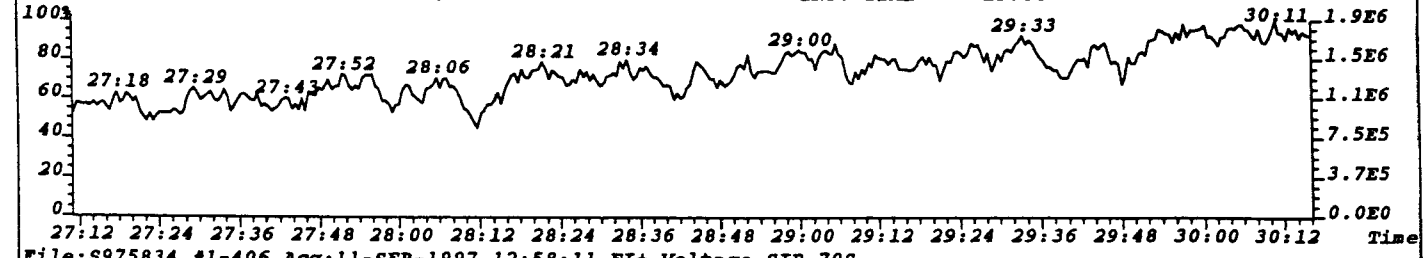
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:280
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



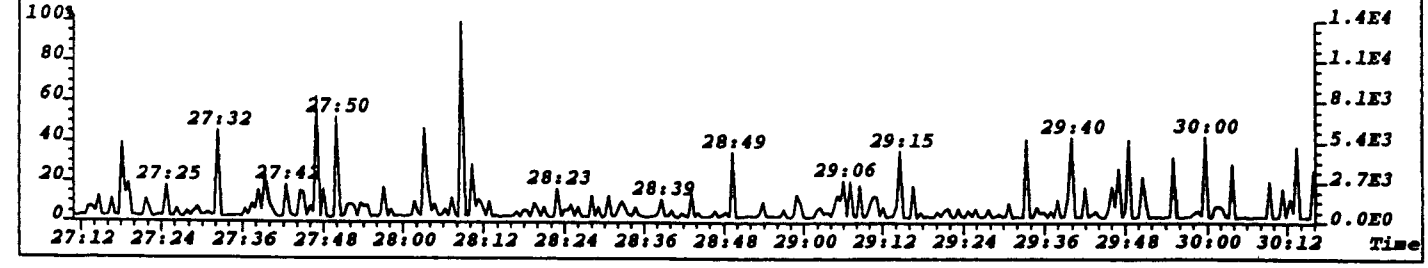
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:697
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2788.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



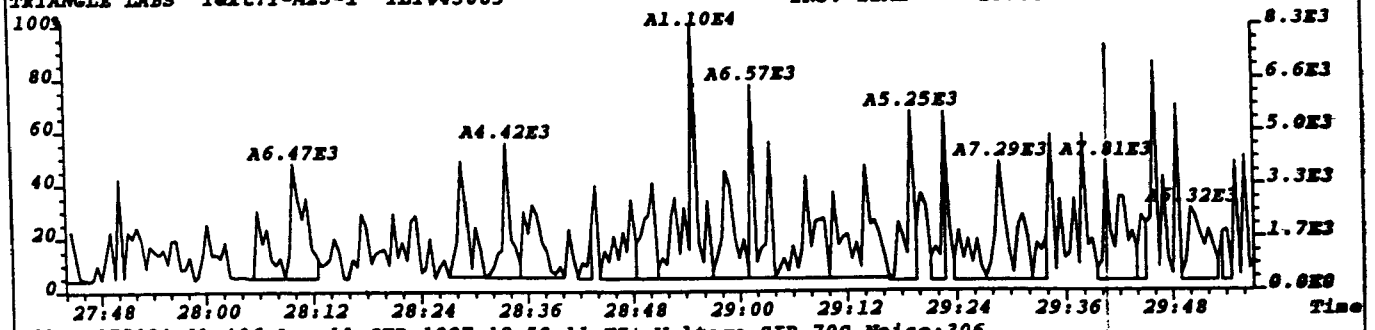
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



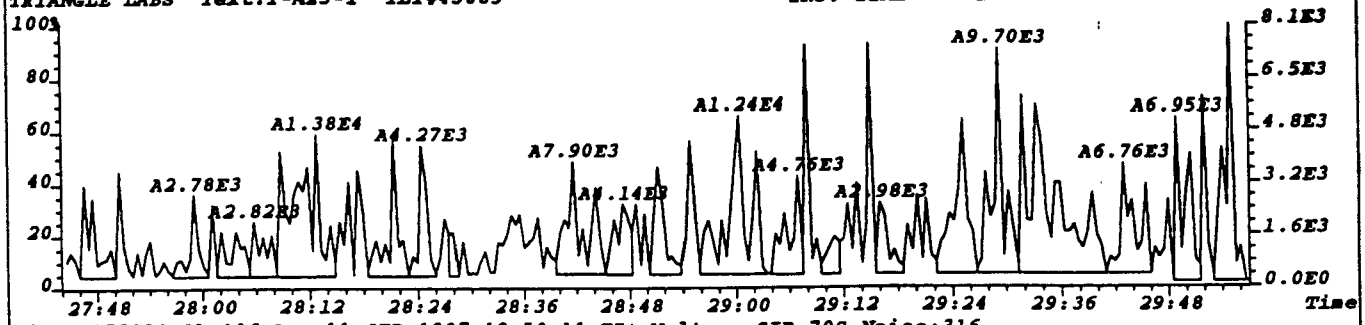
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



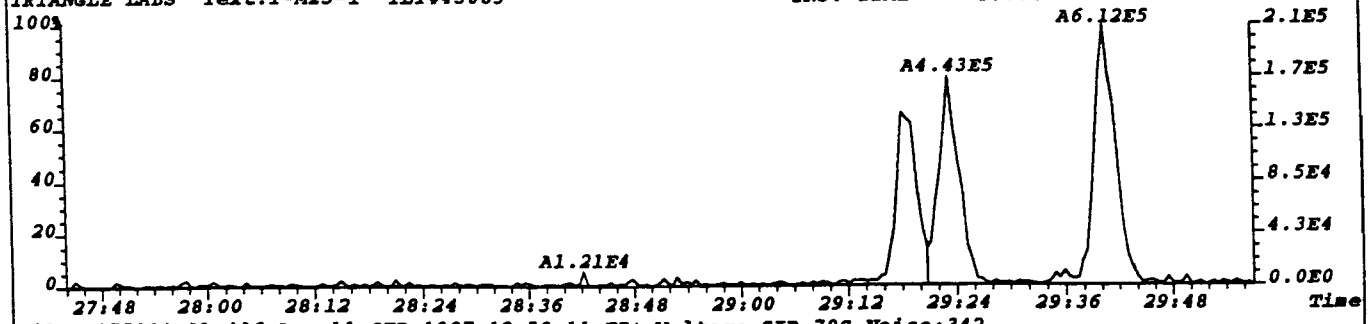
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:429
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1716.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



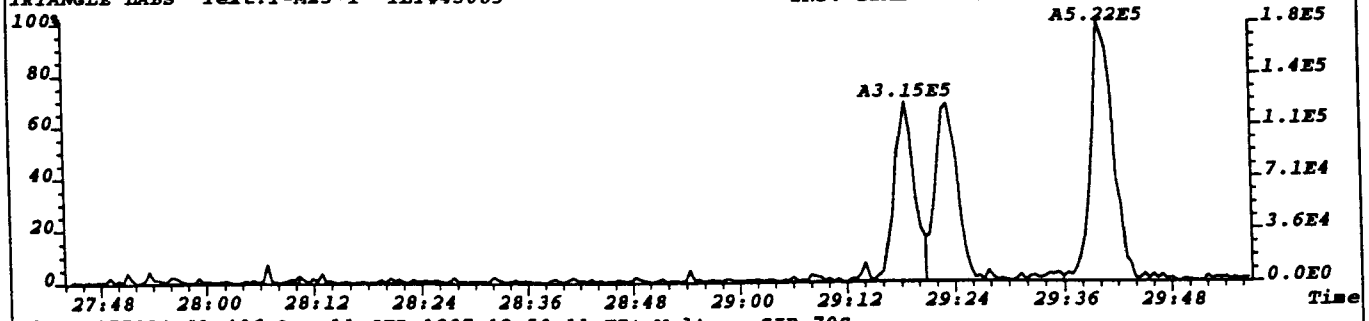
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:306
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1224.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



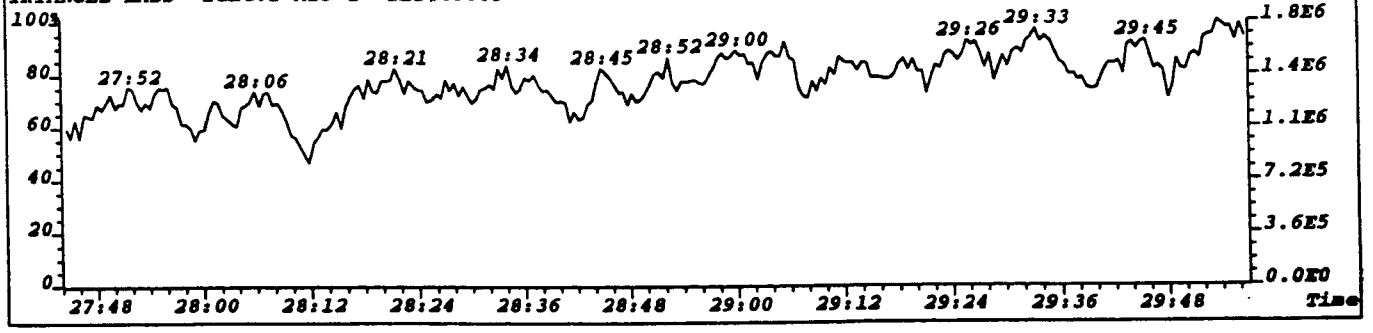
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:316
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1264.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



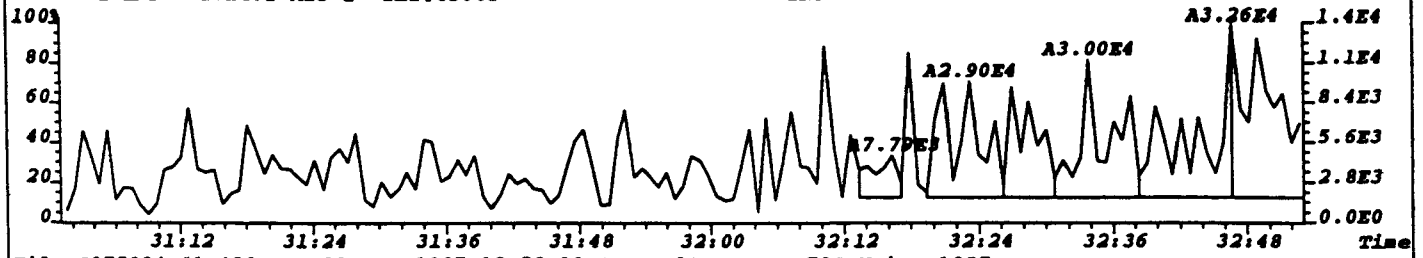
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:342
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1368.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



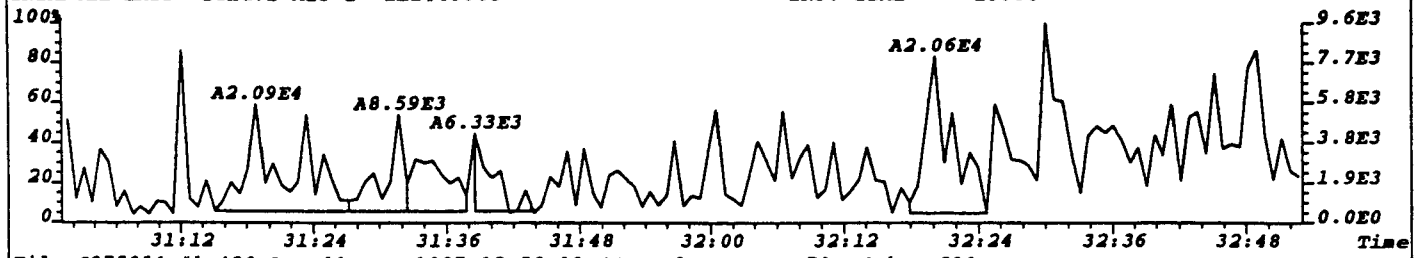
File:S975834 #1-406 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



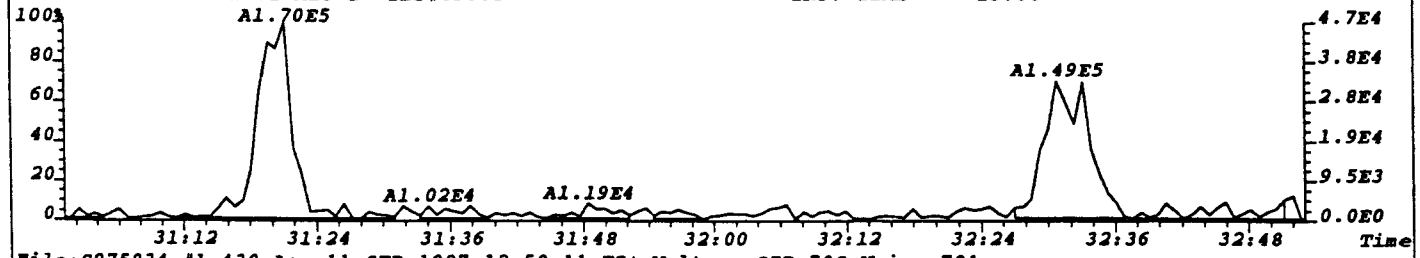
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:1774
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,7096.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



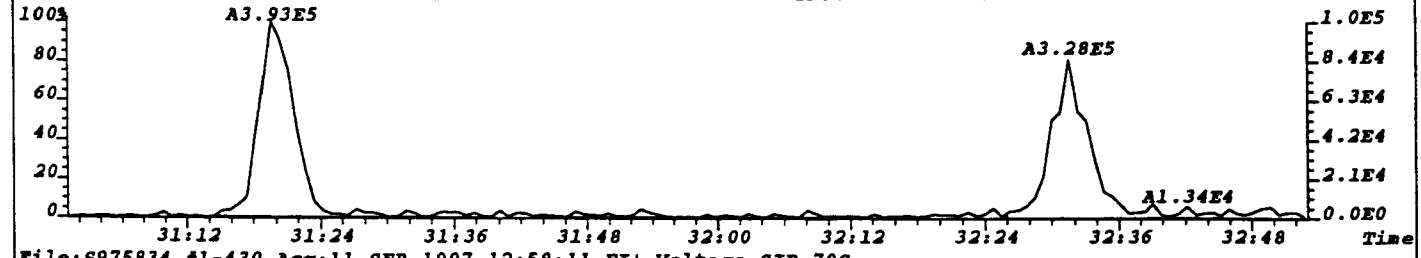
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:1037
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



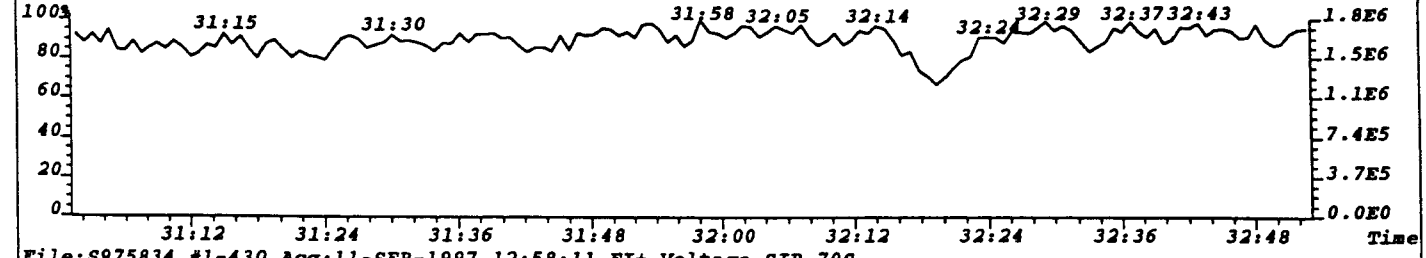
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:690
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2760.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



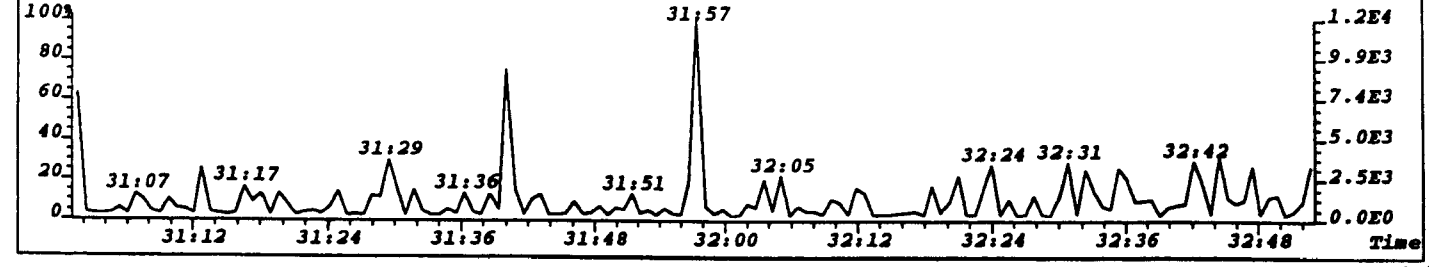
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:701
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2804.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



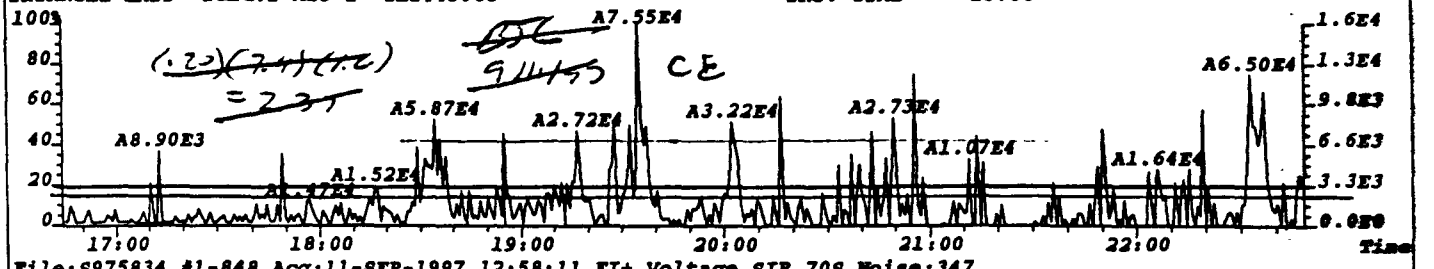
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



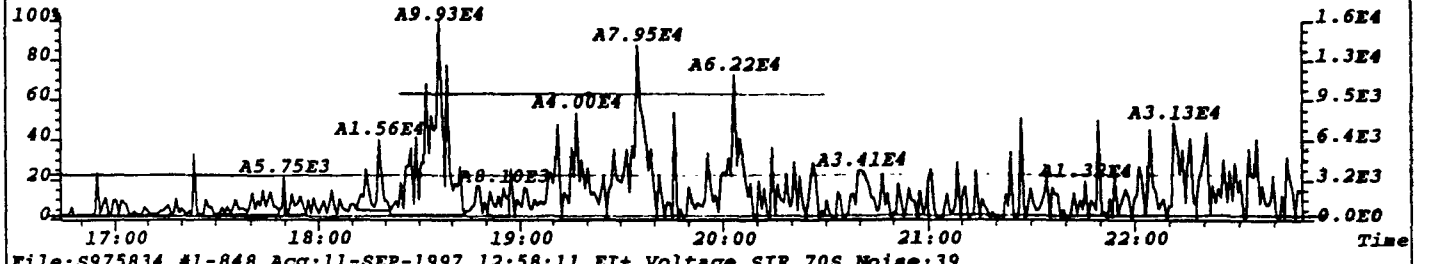
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



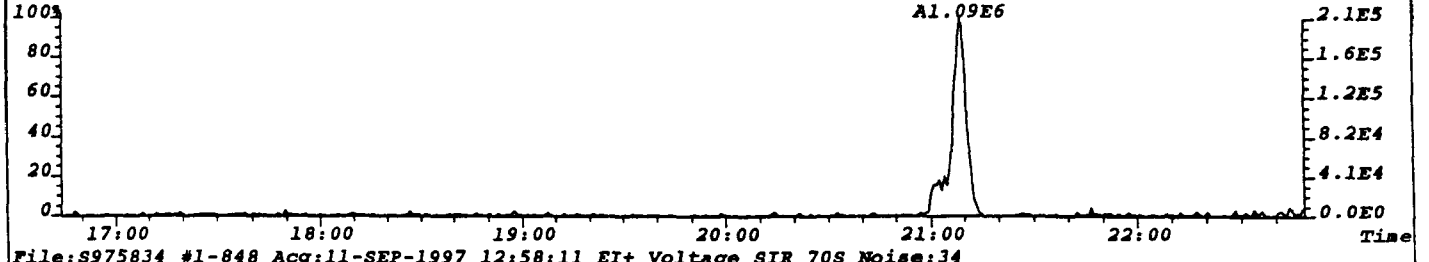
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:99
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,396.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



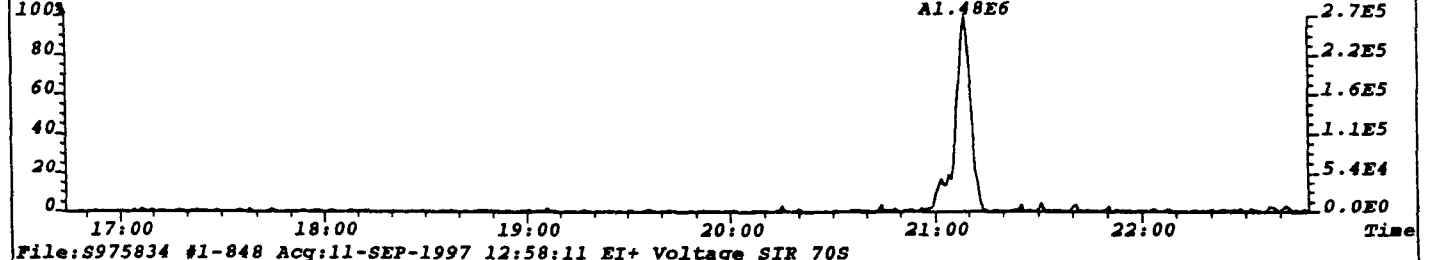
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:347
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1388.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:39
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:34
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
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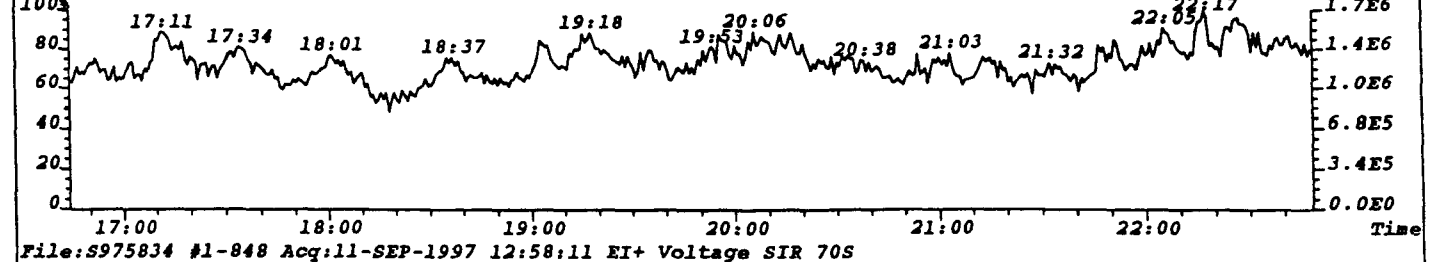
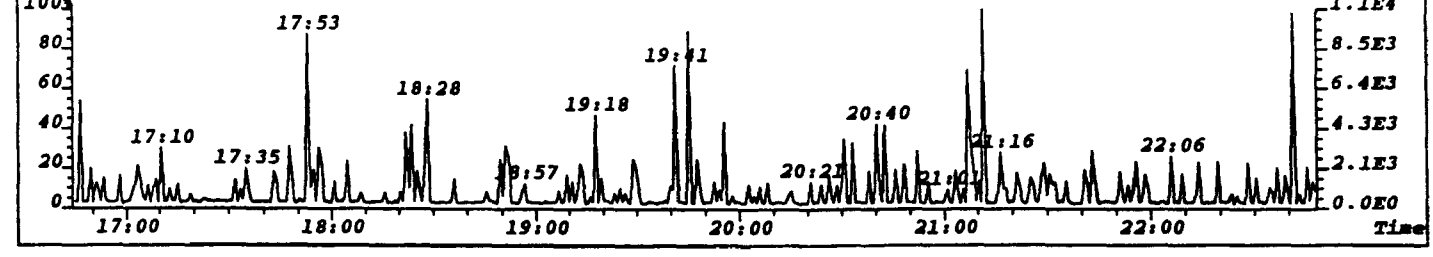
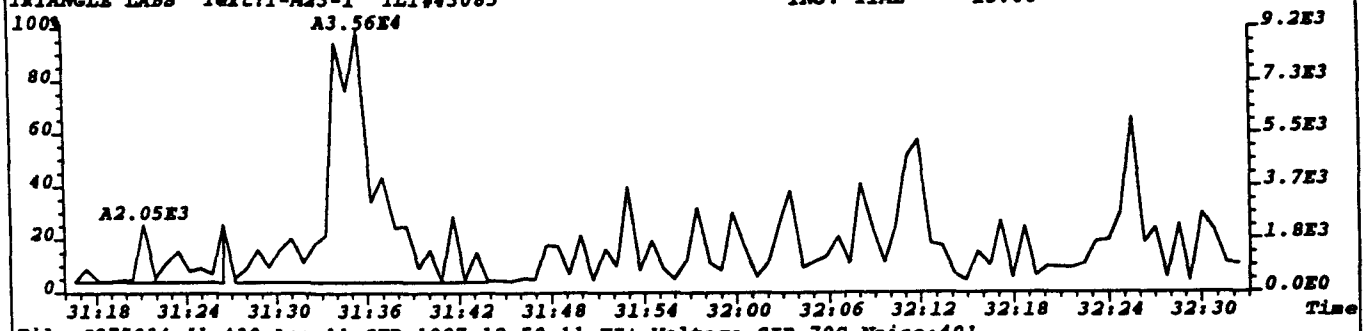


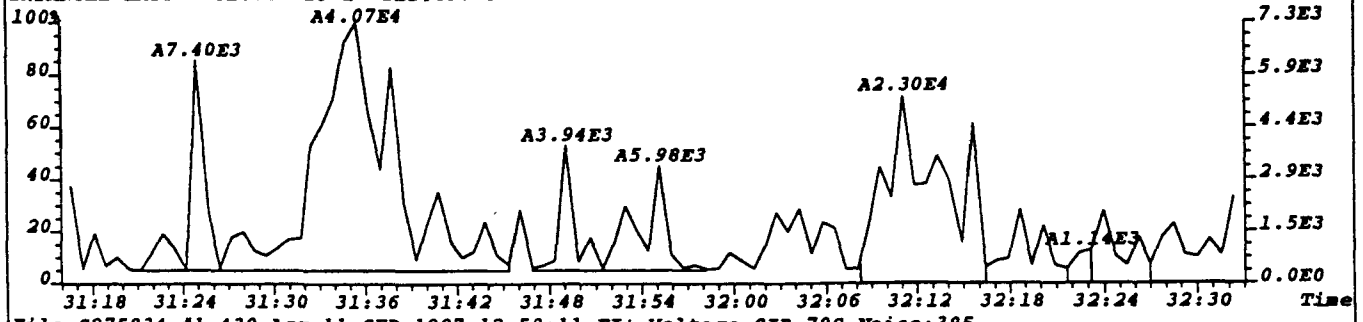
File:S975834 #1-848 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



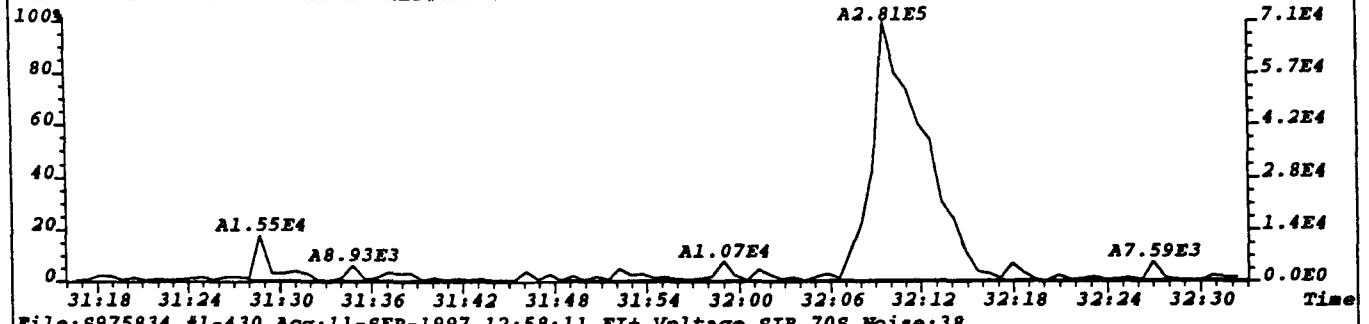
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:667
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2668.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:401
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1604.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:385
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:38
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
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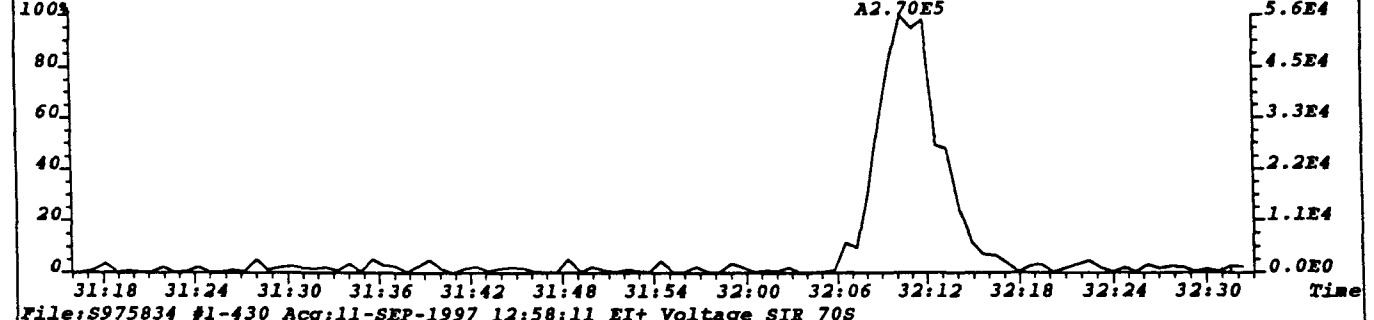
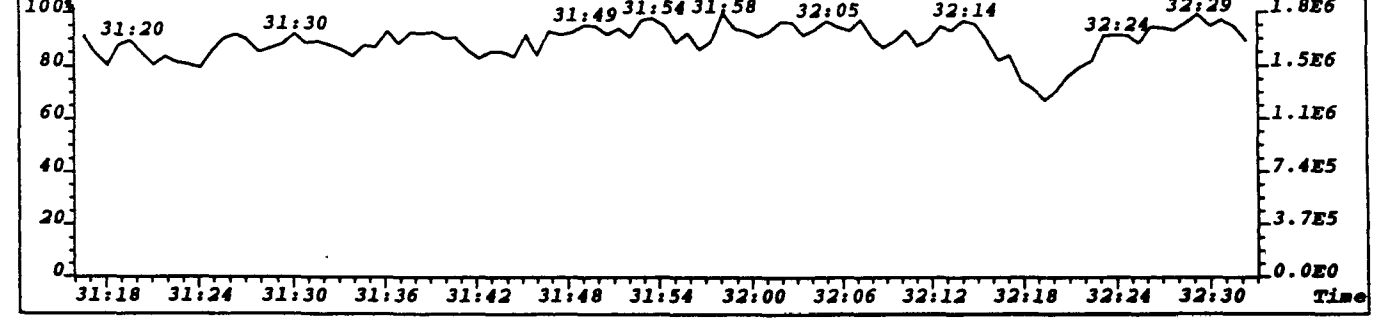
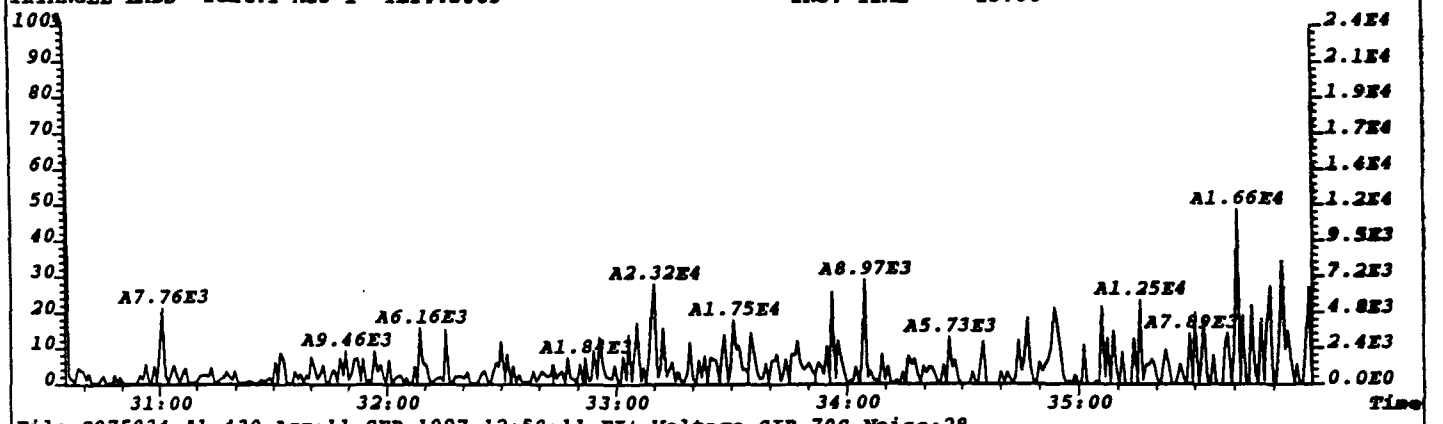


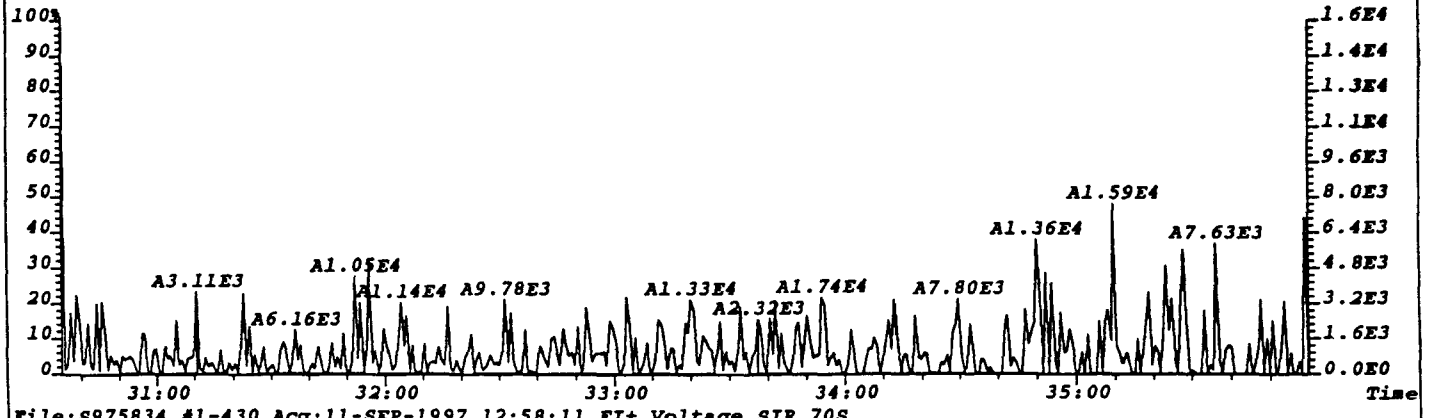
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:31
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:28
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
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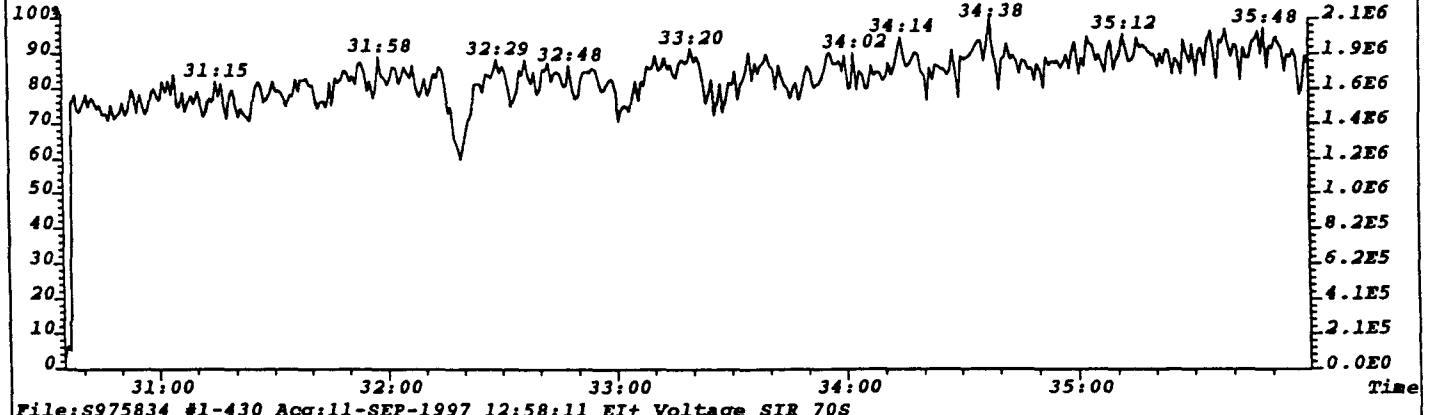

File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
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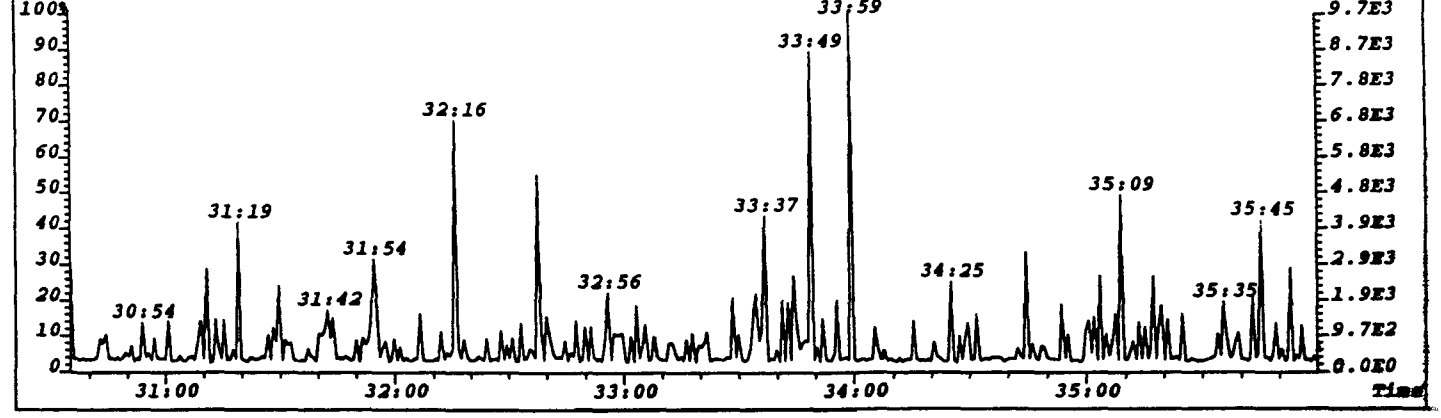
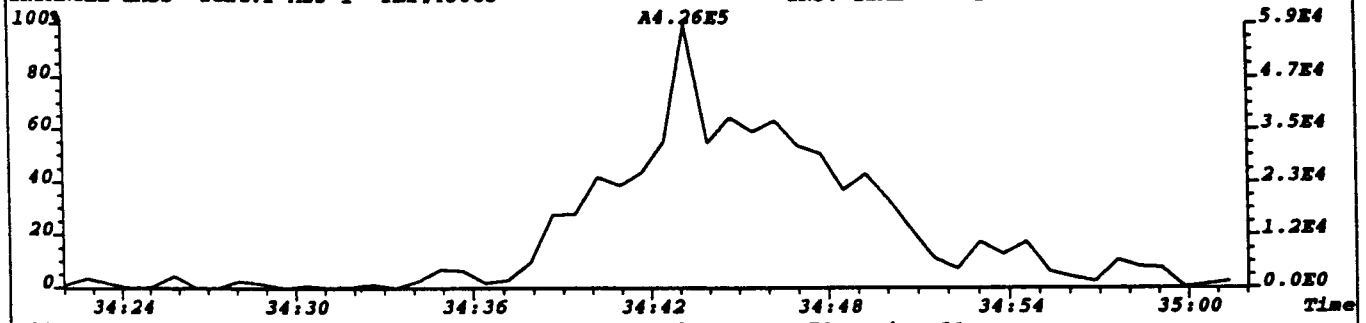


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:34
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:31
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
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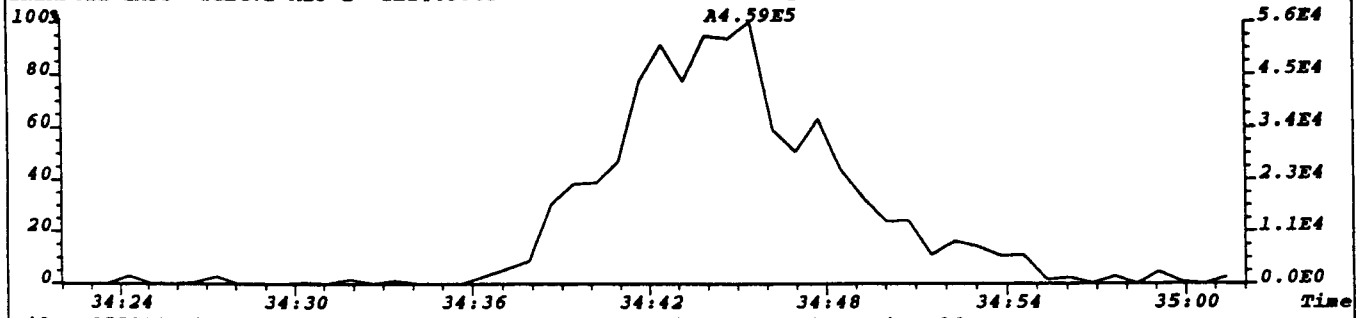
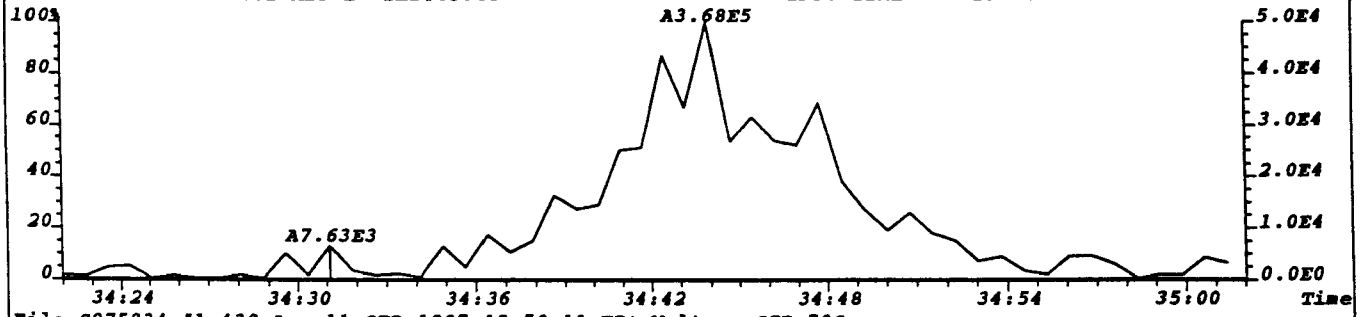


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:26
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00

File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S Noise:286
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
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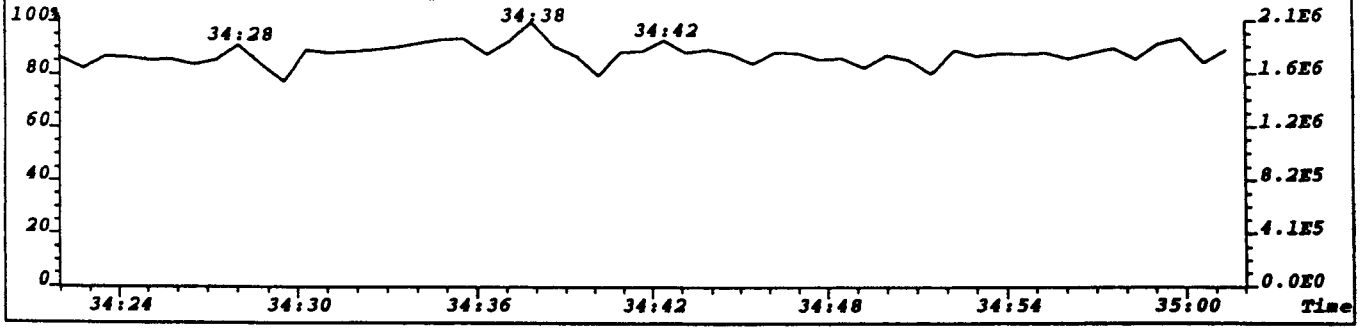
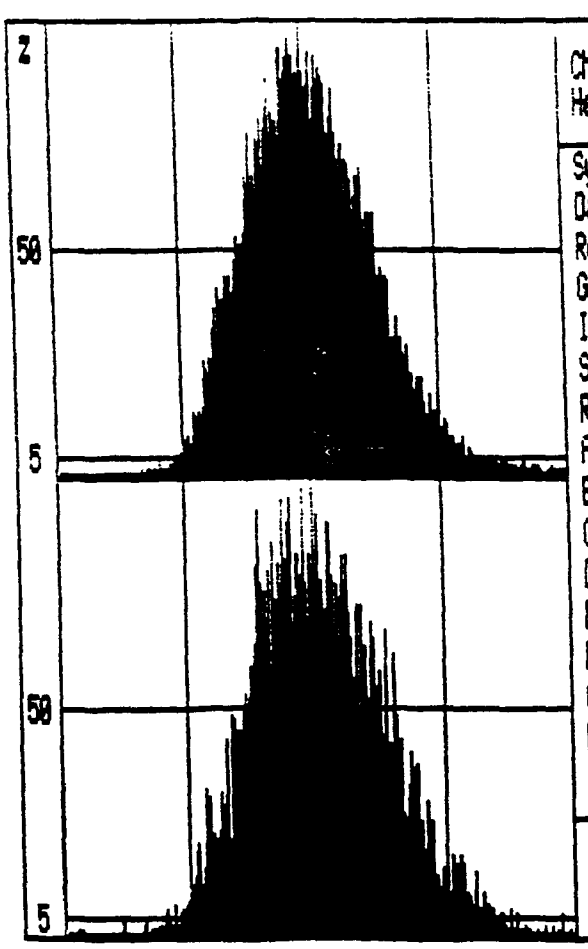
TRIANGLE LABS Text:I-M23-1 TLI#43085 INJ. TIME = 13:00



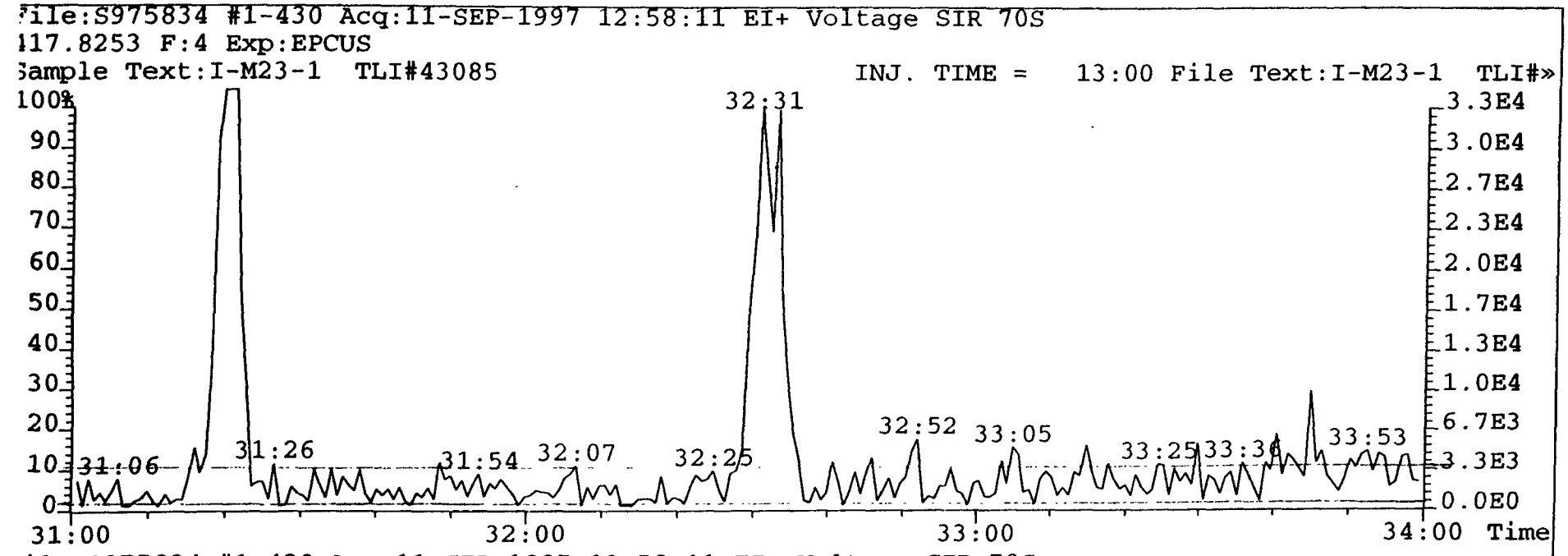


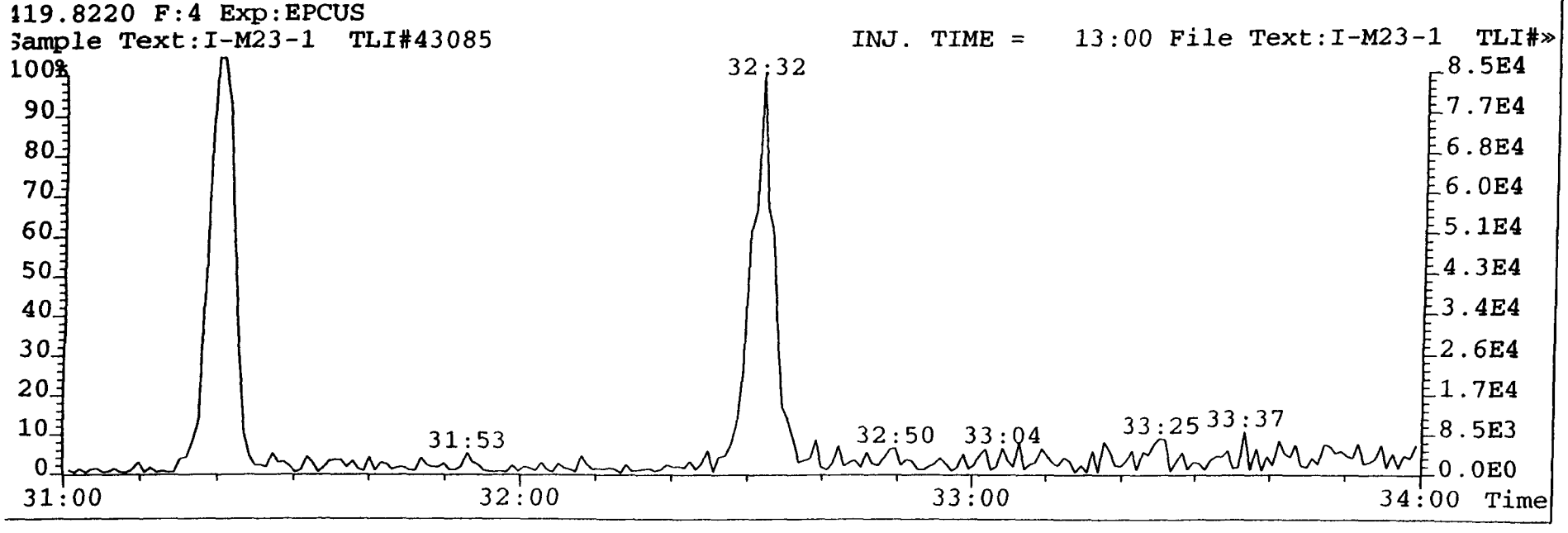
Channel I 330.3792 Peak top
Height 3.25 volts Span 200 ppm

System file name	EPCUS2
Data file name	A:S911971
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

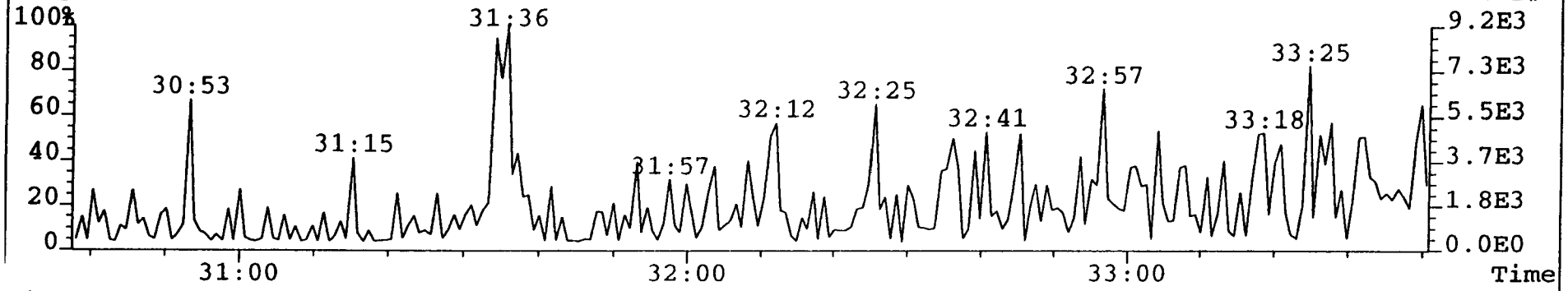
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .72 volts Span 200 ppm

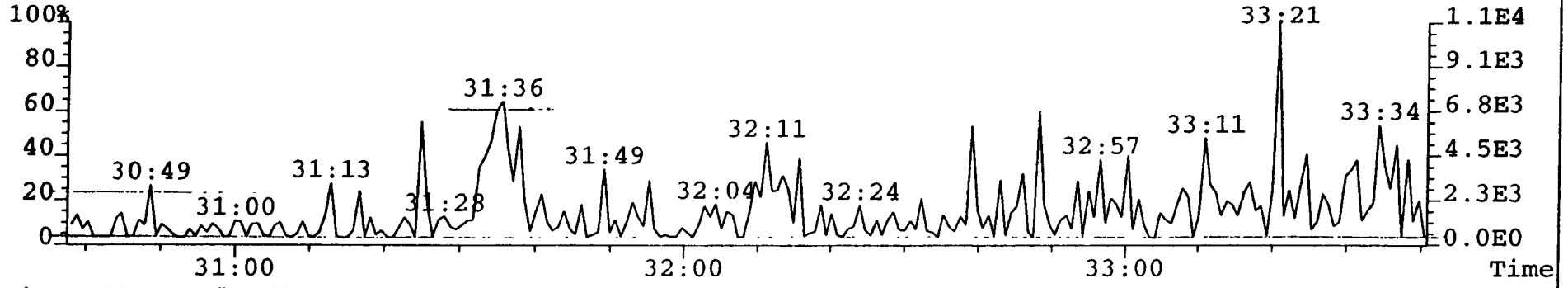

File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
117.8253 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
90
80
70
60
50
40
30
20
10
0
31:06
31:26
31:54
32:07
32:25
32:31
32:52
33:05
33:25
33:36
33:53
3.3E4
3.0E4
2.7E4
2.3E4
2.0E4
1.7E4
1.3E4
1.0E4
6.7E3
3.3E3
0.0E0
31:00
32:00
33:00
34:00 Time


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
119.8220 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
90
80
70
60
50
40
30
20
10
0
31:53
32:32
32:50
33:04
33:25
33:37
8.5E4
7.7E4
6.8E4
6.0E4
5.1E4
4.3E4
3.4E4
2.6E4
1.7E4
8.5E3
0.0E0
31:00
32:00
33:00
34:00 Time

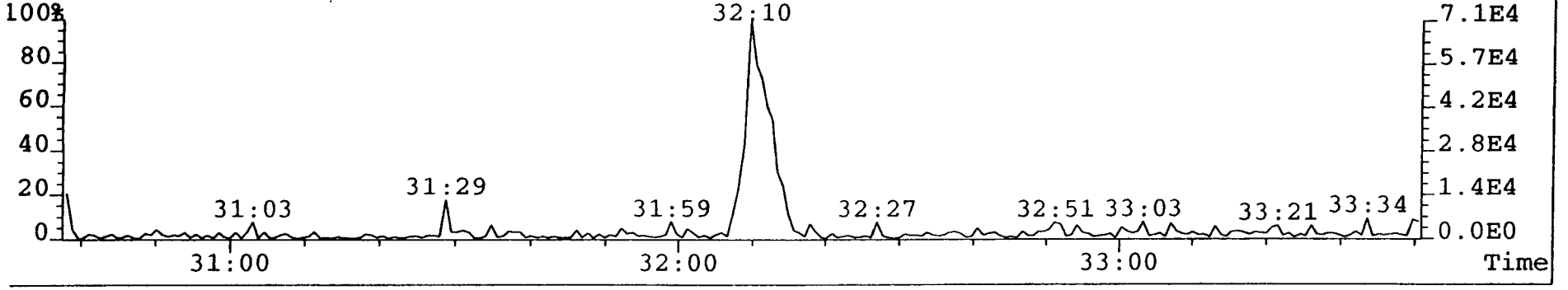
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»



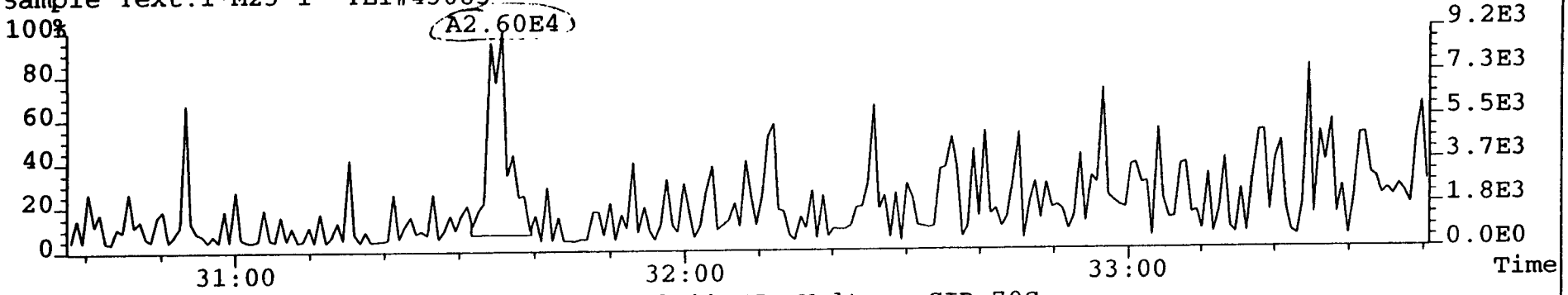
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»



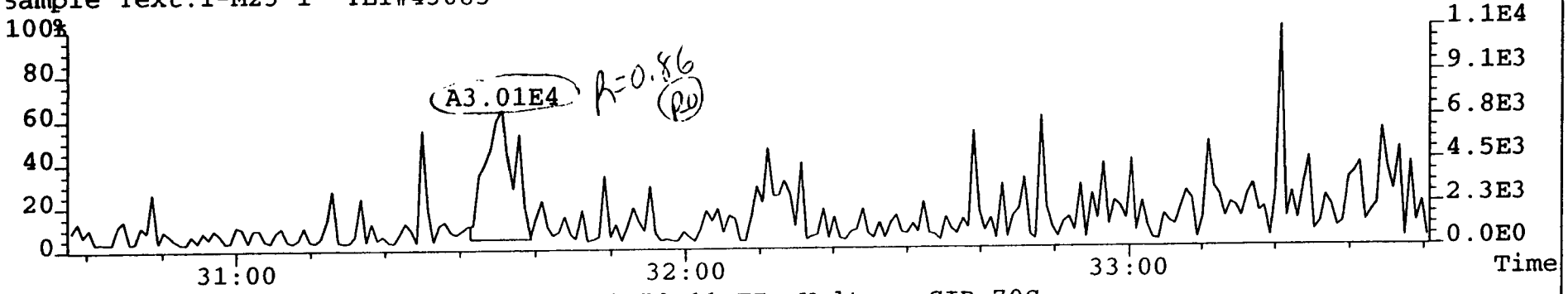
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»



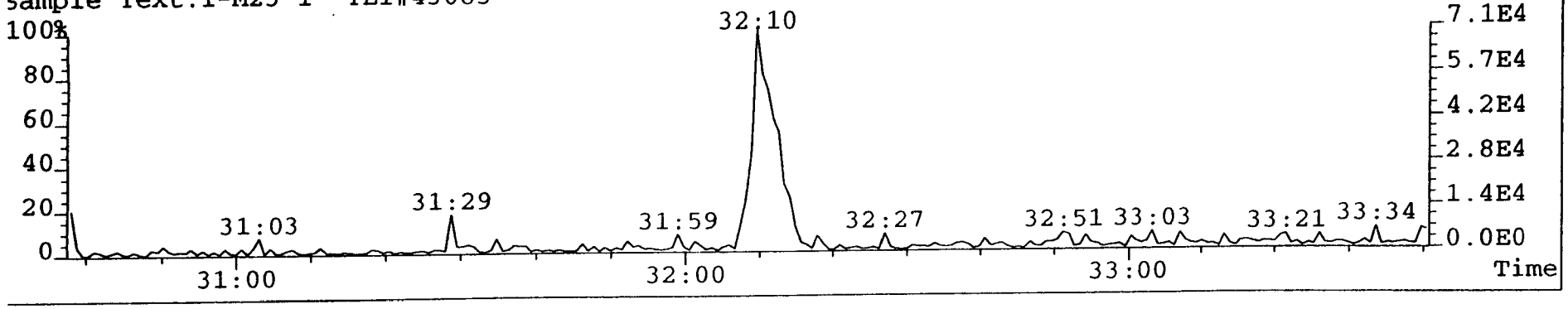
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»

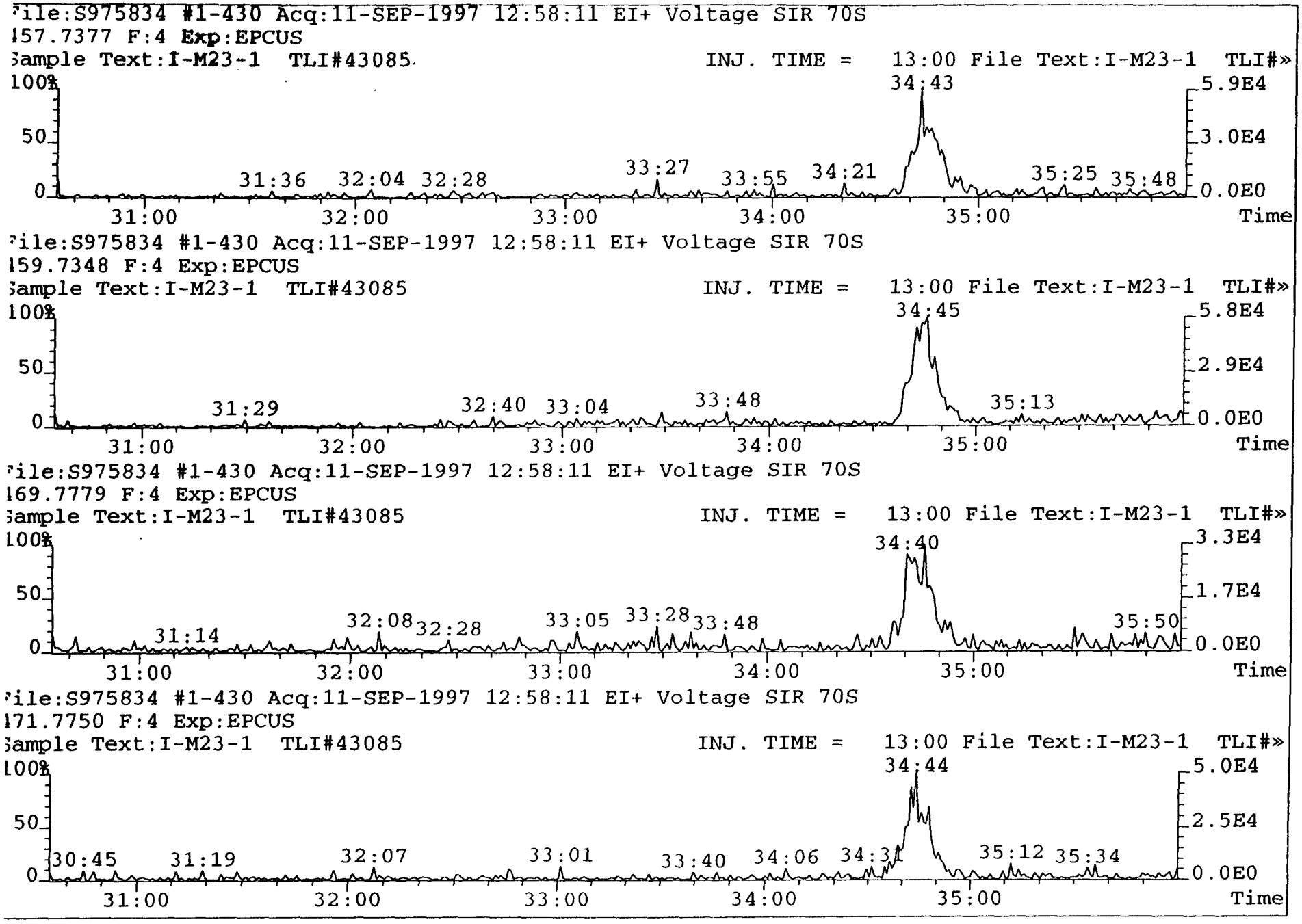


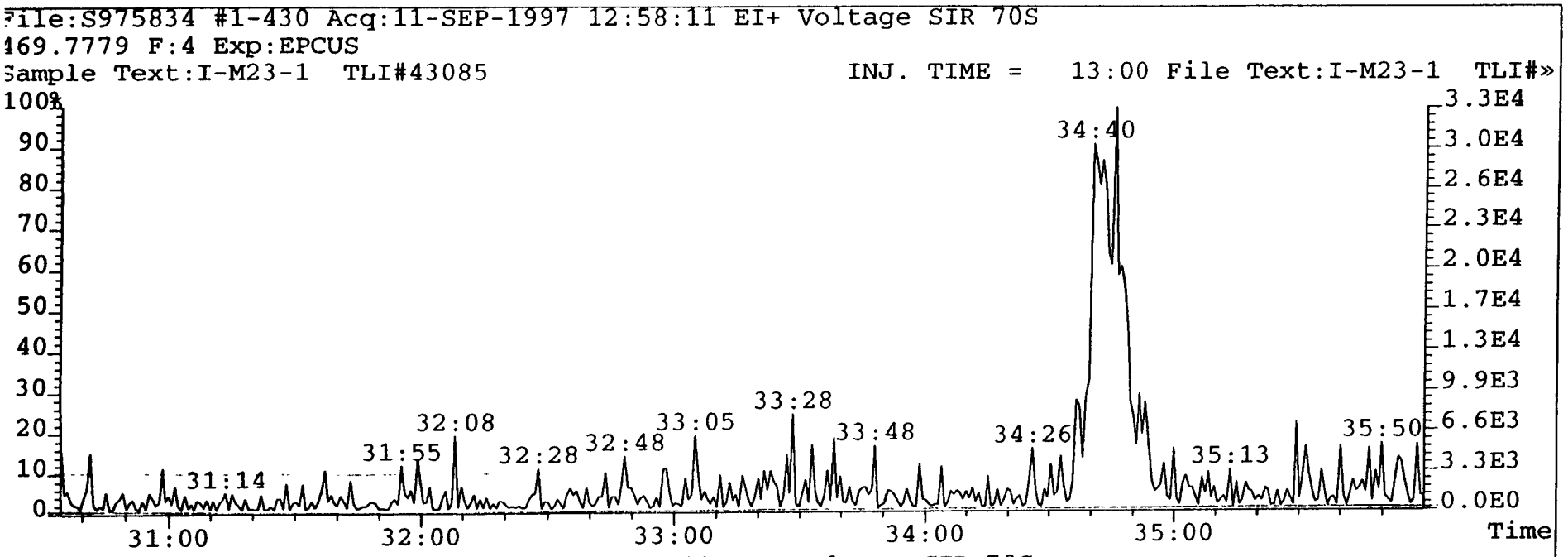
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»

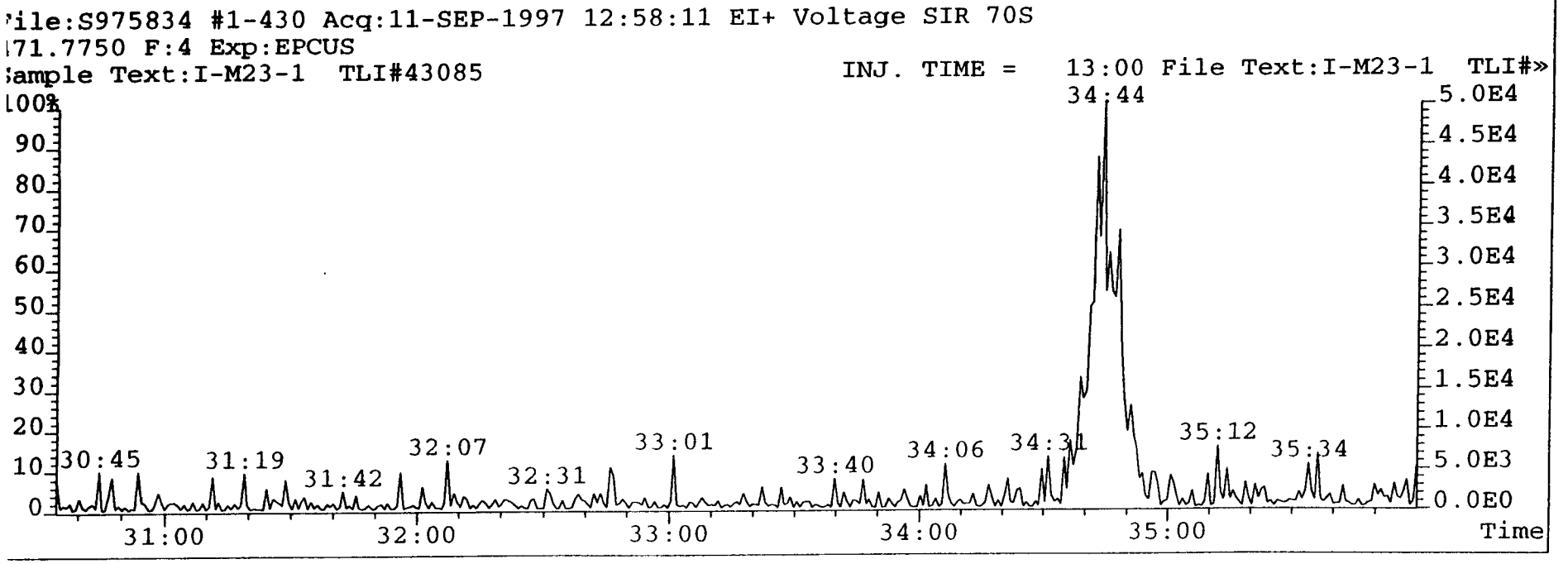


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085 INJ. TIME = 13:00 File Text:I-M23-1 TLI#»




File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
157.7377 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
50
0
31:36 32:04 32:28 33:27 33:55 34:21 34:43 35:25 35:48
5.9E4
3.0E4
0.0E0
31:00 32:00 33:00 34:00 35:00
Time
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
159.7348 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
50
0
31:29 32:40 33:04 33:48 34:45 35:13
5.8E4
2.9E4
0.0E0
31:00 32:00 33:00 34:00 35:00
Time
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
169.7779 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
50
0
31:14 32:08 32:28 33:05 33:28 33:48 34:40 35:50
3.3E4
1.7E4
0.0E0
31:00 32:00 33:00 34:00 35:00
Time
File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
171.7750 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
50
0
30:45 31:19 32:07 33:01 33:40 34:06 34:31 34:44 35:12 35:34
5.0E4
2.5E4
0.0E0
31:00 32:00 33:00 34:00 35:00
Time


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
90
80
70
60
50
40
30
20
10
0
31:14
31:55
32:08
32:28
32:48
33:05
33:28
33:48
34:26
34:40
35:13
35:50
31:00
32:00
33:00
34:00
35:00
Time
3.3E4
3.0E4
2.6E4
2.3E4
2.0E4
1.7E4
1.3E4
9.9E3
6.6E3
3.3E3
0.0E0


File:S975834 #1-430 Acq:11-SEP-1997 12:58:11 EI+ Voltage SIR 70S
471.7750 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43085
INJ. TIME = 13:00 File Text:I-M23-1 TLI#»
100%
90
80
70
60
50
40
30
20
10
0
30:45
31:19
31:42
32:07
32:31
33:01
33:40
34:06
34:31
34:44
35:12
35:34
31:00
32:00
33:00
34:00
35:00
Time
5.0E4
4.5E4
4.0E4
3.5E4
3.0E4
2.5E4
2.0E4
1.5E4
1.0E4
5.0E3
0.0E0

Pacific Environmental Services

TLI Project: **43085**
Client Sample: **I-M23-2**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975835**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPX23704**
TLI ID:	**181-55-6ABD**	Date Extracted:	**09/04/97**	ICal:	**SF56117**
		Date Analyzed:	**09/11/97**	ConCal:	**S975814**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**S975815**	% Lipid:	**n/a**
GC Column:	**DB-5**	Analyst:	**BJG**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.03				—
1,2,3,7,8-PeCDD	ND	0.06				—
1,2,3,4,7,8-HxCDD	ND	0.1				—
1,2,3,6,7,8-HxCDD	ND	0.09				—
1,2,3,7,8,9-HxCDD	ND	0.09				—
1,2,3,4,6,7,8-HpCDD	ND	0.2				—
1,2,3,4,6,7,8,9-OCDD	8.2			0.82	34:42	—
2,3,7,8-TCDF	ND	0.02				—
1,2,3,7,8-PeCDF	ND	0.04				—
2,3,4,7,8-PeCDF	ND	0.04				—
1,2,3,4,7,8-HxCDF	ND	0.06				—
1,2,3,6,7,8-HxCDF	ND	0.05				—
2,3,4,6,7,8-HxCDF	ND	0.06				—
1,2,3,7,8,9-HxCDF	ND	0.07				—
1,2,3,4,6,7,8-HpCDF	ND	0.1				—
1,2,3,4,7,8,9-HpCDF	ND	0.1				—
1,2,3,4,6,7,8,9-OCDF	ND	0.4				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.03		—
Total PeCDD	ND		0.06		—
Total HxCDD	ND		0.10		—
Total HpCDD	ND		0.2		—
Total TCDF	0.17	2			—
Total PeCDF	0.33	1		0.47	—
Total HxCDF	ND		0.06		—
Total HpCDF	EMPC			0.26	—

X237_PSR v2.00, LARS 6.10 04

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Printed: 15:26 09/18/97

Pacific Environmental Services

TLI Project: 43085 — Method 23 PCDD/PCDF Analysis (a)

Client Sample: I-M23-2 — Analysis File: S975835

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	1.8	45.4	40%-130%	0.77	20:44	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.0	50.6	40%-130%	0.81	21:30	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.4	36.1	40%-130%	1.55	24:54	V,Q___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.4	35.5	40%-130%	1.40	26:01	V,Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.3	56.9	40%-130%	0.48	28:35	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.0	49.5	40%-130%	1.21	29:18	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.3	32.2	25%-130%	0.49	31:16	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1.2	30.0	25%-130%	1.03	32:07	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	1.4	17.5	25%-130%	0.80	34:42	N___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.1	102	70%-140%		21:31	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.5	87.4	70%-140%	1.43	25:39	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.0	100	70%-140%	0.52	28:29	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.6	90.2	70%-140%	1.32	29:13	___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.4	84.3	70%-140%	0.42	32:28	R___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.0	49.8	40%-130%	0.54	29:47	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.2	53.8	40%-130%	0.51	29:05	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	21:17	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.18	29:35	___

Data Reviewer: Sherlewis 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 15:26 09/18/97

Initial ....Date...

Data Review By: [illegible] 9/18/97 Calculated Noise Area: 1.49

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975835B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF					0.65-0.89						0.820-1.101			
304-306		DC	NL		0:00	RO	6.00	0.11			0.000			
					18:04		0.66	11.92	4.72	7.20	0.871			Q
	D	DC	SN		18:27	RO	1.41	2.62			0.890			
	D	DC	SN		18:49		0.83	14.14			0.908			
					19:08		0.76	16.17	6.99	9.18	0.923			
	D	DC	SN		19:35	RO	1.07	8.50			0.945			
	D	DC	SN		20:46	RO	1.35	5.40			1.002	2378-TCDF	AN	
		DC	SN		21:27	RO	5.30	0.71			1.035			
304-306				2	Peaks			28.09						
13C12-TCDF					0.65-0.89						0.951-1.049			
316-318		DC	NL		0:00		0.86	0.13			0.000			
		DC	WL		16:46		0.86	1.64			0.809			
		DC	WL		17:25	RO	0.29	0.87			0.840			
		DC	WL		17:47		0.72	1.82			0.858			
		DC	WL		18:19	RO	0.52	1.15			0.883			
		DC	WL		19:00	RO	1.35	2.07			0.916			
		DC	SN		20:15	RO	0.21	1.63			0.977			
					20:44		0.77	518.30	226.11	292.19	1.000	13C12-2378-TCDF	ISO	
316-318				1	Peak			518.30						

---------- Above: TCDF / TCDD Follows ----------

TCDD					0.65-0.89						0.853-1.059			
320-322		DC	NL		0:00		0.86	0.13			0.000			
	D	DC	SN		18:42	RO	1.01	2.19			0.870			
		DC	SN		18:51	RO	1.02	0.80			0.877			
		DC	SN		19:06	RO	1.49	1.96			0.888			
		DC	SN		19:26	RO	1.21	0.51			0.904			
		DC	SN		19:52		0.72	0.62			0.924			
		DC	SN		20:15	RO	0.48	1.47			0.942			
		DC	SN		20:34	RO	0.38	0.46			0.957			
		DC	SN		20:55	RO	4.00	0.50			0.973			
		DC	SN		21:32		0.77	1.47			1.002	2378-TCDD	AN	
		DC	SN		21:53	RO	0.45	1.08			1.018			
		DC	SN		22:02	RO	2.10	0.35			1.025			
		DC	SN		22:19		0.89	1.40			1.038			
		DC	SN		22:31	RO	0.61	0.90			1.047			
		DC	SN		22:43	RO	1.45	1.19			1.057			
320-322				0	Peaks			0.00						
37Cl-TCDD											0.906-1.094			
328		DC	NL		0:00			0.05			0.000			

Listing of S975835B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC		WL	18:05			1.58			0.841			
	DC		WL	18:43			0.41			0.871			
	DC		WL	18:46			0.45			0.873			
	DC		WL	18:55			0.41			0.880			
	DC		WL	19:03			0.39			0.886			
	DC		WL	19:08			0.30			0.890			
				19:54			108.61	108.61		0.926			
	DC		SN	20:10			0.75			0.938			
	DC		SN	20:25			0.55			0.950			
	DC		SN	20:46			0.99			0.966			
	DC		SN	21:02			0.95			0.978			
	DC		SN	21:15			0.24			0.988			
				21:31			403.20	403.20		1.001	37Cl-TCDD	SUR1	
	DC		SN	21:39			0.95			1.007			
				21:53			11.07	11.07		1.018			
	DC		SN	22:19			0.78			1.038			
	DC		SN	22.26			1.12			1.043			
	DC		SN	22:33			0.61			1.049			
	DC		SN	22:41			1.01			1.055			
328			3	Peaks			522.88						
13C12-TCDD						0.65-0.89				0.906-1.094			
332-334	DC		NL	0:00	RO	26.43	0.12			0.000			
	DC		WL	18:11	RO	3.23	1.43			0.846			
	DC		WL	18:43	RO	0.59	1.59			0.871			
	DC		WL	19:14	RO	2.70	1.40			0.895			
	DC		WL	19:23	RO	1.61	1.96			0.902			
	DC		SN	20:13	RO	2.64	1.75			0.940			
	DC		SN	20:16	RO	1.94	1.95			0.943			
	DC		SN	20:28	RO	1.07	0.99			0.952			
	DC		SN	20:35	RO	2.37	0.90			0.957			
	DC		SN	20:39	RO	3.67	0.58			0.960			
				21:17		0.83	866.86	392.91	473.95	0.990	13C12-1234-TCDD	RS1	
				21:30		0.81	467.44	208.59	258.85	1.000	13C12-2378-TCDD	IS1	
				21:50	RO	1.23	8.94	6.21	5.05	1.016			
	DC		SN	22:03	RO	1.34	1.24			1.026			
	DC		SN	22:21	RO	10.30	0.81			1.040			
	DC		SN	22:26	RO	1.70	0.89			1.043			
				22:48	RO	2.01	3.33	3.77	1.88	1.060			
332-334			4	Peaks			1,346.57						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF						1.32-1.78				0.907-1.078			
340-342	DC		NL	0:00	RO	0.16	0.12			0.000			
	DC		WL	22:36	RO	0.34	0.43			0.901			
				22:52		1.63	33.00	20.47	12.53	0.912			
	DC		SN	23:14	RO	0.70	0.77			0.926			
	DC		SN	23:38	RO	2.50	0.71			0.942			
				24:03	RO	1.24	13.18	8.01	6.48	0.959			
	DC		SN	24:12	RO	0.11	0.25			0.965			
D	DC		SN	24:32		1.46	4.92			0.978			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	24:49	RO	2.45	1.02			0.989			
		DC	SN	25:15	RO	0.29	1.48			1.007			
		DC	SN	25:23	RO	3.72	0.74			1.012			
		DC	SN	25:27	RO	0.44	1.53			1.015			
	D	DC	SN	25:51	RO	2.31	5.61			1.031	23478-PeCDF		AN
		DC	SN	26:45	RO	0.56	1.65			1.066			
340-342				2 Peaks			46.18						
13C12-PeCDF				1.32-1.78						0.838-1.162			
352-354		DC	NL	0:00	RO	0.86	0.10			0.000			
		DC	SN	22:44	RO	0.39	0.94			0.906			
		DC	SN	23:04	RO	2.23	1.22			0.920			
		DC	SN	23:19	RO	0.84	1.69			0.930			
	N			24:54		1.55	354.68	215.73	138.95	0.993	13C12-PeCDF 123 IS2		Q
	N	DC	SN	25:05		1.35	2.09			1.000			
				25:10	RO	1.26	3.08	1.87	1.49	1.003			
	N			25:39		1.43	300.59	177.02	123.57	1.023	13C12-PeCDF 234 SUR2		
				25:56	RO	1.06	2.50	1.52	1.43	1.034			
		DC	SN	26:38	RO	1.07	1.66			1.062			
352-354				4 Peaks			660.85						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.921-1.026			
356-358		DC	NL	0:00	RO	1.00	0.12			0.000			
		DC	WL	24:00	RO	2.33	2.07			0.918			
		DC	SN	24:09	RO	2.59	1.76			0.924			
		DC	SN	24:21	RO	0.53	1.41			0.932			
		DC	SN	26:00	RO	1.12	1.50			0.995			
		DC	SN	26:18	RO	0.78	0.41			1.006			
		DC	SN	26:34		1.49	2.32			1.017			
356-358				0 Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370		DC	NL	0:00	RO	1.20	0.10			0.000			
		DC	SN	23:56	RO	0.56	1.02			0.916			
		DC	SN	24:20	RO	0.89	0.64			0.931			
		DC	SN	25:28	RO	0.66	0.94			0.974			
		DC	SN	25:42	RO	0.60	0.20			0.983			
	N			26:01		1.40	195.33	114.11	81.22	0.996	13C12-PeCDD 123 IS3		Q
	N			26:08	RO	1.12	19.63	11.93	10.61	1.000			
		DC	SN	26:51	RO	1.96	2.40			1.027			
368-370				2 Peaks			214.96						

---------- Above: PeCDD / HxCDF Follows ----------

HxCDF				1.05-1.43						0.955-1.052			
374-376		DC	NL	0:00		1.09	2.65			0.000			
	D	DC	SN	27:38		1.24	6.48			0.967			
	D	DC	SN	28:08		1.43	3.92			0.984			
		DC	SN	28:26	RO	4.69	1.10			0.995			
	D	DC	SN	28:34	RO	0.79	2.47			0.999	123678-HxCDF		AN

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC		SN	29:10		1.16	1.58			1.020			
	DC		SN	29:17	RO	0.29	0.38			1.024			
	DC		SN	29:19		1.24	2.20			1.026			
D	DC		SN	29:30		1.12	2.84			1.032			
	DC		SN	29:38	RO	0.37	0.99			1.037			
	DC		SN	29:41	RO	5.42	0.58			1.038			
	DC		SN	29:47	RO	0.26	0.63			1.042	123789-HxCDF	AN	
	DC		SN	30:02	RO	1.62	1.55			1.051			
	DC		WH	30:08	RO	0.34	0.78			1.054			
374-376			0	Peaks			0.00						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386	DC		NL	0:00	RO	0.69	2.10			0.000			
	DC		SN	27:13	RO	0.85	1.24			0.952			
	DC		SN	27:17	RO	3.74	0.47			0.955			
	DC		SN	27:25	RO	0.62	1.27			0.959			
	DC		SN	27:30	RO	0.83	1.00			0.962			
	DC		SN	27:49	RO	0.94	0.79			0.973			
	DC		SN	27:54		0.48	1.27			0.976			
	DC		SN	28:05	RO	2.05	1.45			0.983			
	DC		SN	28:22	RO	1.84	0.83			0.992			
				28:29		0.52	192.92	65.74	127.18	0.997	13C12-HxCDF	478	SUR3
				28:35		0.48	201.07	65.31	135.76	1.000	13C12-HxCDF	678	IS4
				29:05		0.51	176.18	59.34	116.84	1.017	13C12-HxCDF	234	ALT2
	DC		SN	29:34	RO	2.40	0.45			1.034			
				29:47		0.54	141.58	49.90	91.68	1.042	13C12-HxCDF	789	ALT1
384-386			4	Peaks			711.75						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD				1.05-1.43						0.950-1.015			
390-392	DC		NL	0:00		1.08	2.29			0.000			
D	DC		SN	28:02	RO	1.65	3.45			0.957			
	DC		SN	28:14	RO	1.85	1.52			0.964			
	DC		SN	28:30	RO	2.54	1.25			0.973			
	DC		SN	28:31	RO	0.48	0.70			0.973			
	DC		SN	28:42	RO	1.70	2.35			0.980			
	DC		SN	28:46	RO	2.04	1.21			0.982			
	DC		SN	29:03	RO	1.84	1.41			0.991			
	DC		SN	29:10	RO	4.30	0.99			0.995			
	DC		SN	29:14	RO	0.77	1.84			0.998	123478-HxCDD	AN	
	DC		SN	29:19	RO	2.69	0.72			1.001	123678-HxCDD	AN	
	DC		SN	29:34	RO	10.08	0.27			1.009	123789-HxCDD	AN	
	DC		WH	29:49	RO	0.43	0.96			1.018			
390-392			0	Peaks			0.00						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC		NL	0:00	RO	0.98	1.73			0.000			
	DC		WL	27:47	RO	1.79	1.52			0.948			
	DC		WL	27:57	RO	0.97	1.68			0.954			
	DC		WL	28:00	RO	0.54	0.79			0.956			
	DC		WL	28:07	RO	0.13	0.42			0.960			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	WL	28:14	RO	0.22	1.01			0.964			
		DC	SN	28:21	RO	0.40	0.85			0.968			
		DC	SN	28:28	RO	0.47	1.01			0.972			
		DC	SN	28:40	RO	4.79	0.96			0.978			
		DC	SN	28:56	RO	0.16	0.33			0.987			
		DC	SN	29:04	RO	0.44	0.42			0.992			
				29:13		1.32	127.00	72.36	54.64	0.997	13C12-HxCDD	478	SUR4
				29:18		1.21	144.74	79.14	65.60	1.000	13C12-HxCDD	678	IS5
				29:35		1.18	293.62	158.87	134.75	1.010	13C12-HxCDD	789	RS2
		DC	SN	29:54		1.07	2.54			1.020			
402-404			3	Peaks			565.36						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF					0.88-1.20					0.995-1.044			
408-410		DC	NL	0:00	RO	2.96	2.24			0.000			
				31:57	RO	3.76	2.53	4.66	1.24	1.022			
		DC	SN	32:11	RO	5.13	0.61			1.029			
				32:24	RO	0.71	5.00	2.55	3.59	1.036			
408-410			2	Peaks			7.53						
13C12-HpCDF					0.37-0.51					0.936-1.128			
418-420		DC	NL	0:00	RO	0.95	2.12			0.000			
		DC	SN	31:05	RO	1.63	1.77			0.994			
				31:16		0.49	83.95	27.59	56.36	1.000	13C12-HpCDF	678	IS6
				31:37	RO	0.73	2.85	1.44	1.98	1.011			
		DC	SN	31:53		0.47	1.74			1.020			
		DC	SN	31:59	RO	1.28	1.66			1.023			
		DC	SN	32:07	RO	0.58	1.24			1.027			
				32:28		0.42	54.54	16.23	38.31	1.038	13C12-HpCDF	789	SUR5 R
418-420			3	Peaks			141.34						

---------- Above: HpCDF / HpCDD Follows ----------

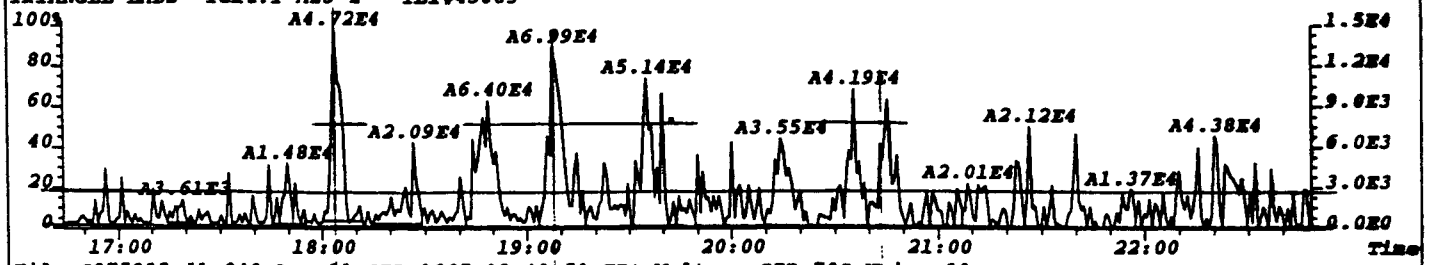
HpCDD					0.88-1.20					0.976-1.006			
424-426		DC	NL	0:00	RO	0.85	1.79			0.000			
		DC	SN	31:24	RO	0.75	1.41			0.978			
	D	DC	SN	31:31		1.14	9.13			0.981			
		DC	SN	31:52	RO	0.45	1.33			0.992			
		DC	SN	32:00	RO	0.72	1.65			0.996			
		DC	SN	32:18	RO	1.58	1.96			1.006			
424-426			0	Peaks			0.00						
13C12-HpCDD					0.88-1.20					0.969-1.031			
436-438		DC	NL	0:00	RO	1.77	1.75			0.000			
		DC	SN	31:23		0.94	0.64			0.977			
				31:37	RO	1.30	3.26	2.08	1.60	0.984			
				32:07		1.03	71.73	36.31	35.42	1.000	13C12-HpCDD	678	IS7
				32:16	RO	0.57	2.47	1.26	2.20	1.005			
		DC	SN	32:29	RO	5.68	0.75			1.011			
436-438			3	Peaks			77.46						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF						0.76-1.02				0.884-1.116			
442-444		DC	NL	0:00	RO	0.59	1.17			0.000			
		DC	SN	31:20	RO	0.63	2.02			0.903			
		DC	SN	31:47	RO	0.22	0.47			0.916			
		DC	SN	32:24	RO	0.43	2.00			0.934			
		DC	SN	32:31		0.76	0.90			0.937			
		DC	SN	32:55	RO	0.33	1.19			0.949			
		DC	SN	33:01	RO	1.75	1.30			0.951			
		DC	SN	33:09		1.01	1.39			0.955			
		DC	SN	33:31	RO	1.32	1.70			0.966			
				33:43	RO	1.74	2.95	2.71	1.56	0.972			
		DC	SN	33:54	RO	0.54	2.19			0.977			
		DC	SN	34:14	RO	0.46	1.95			0.987			
		DC	SN	34:45	RO	0.27	1.95			1.001			
		DC	SN	34:59	RO	1.76	1.78			1.008			
		DC	SN	35:07	RO	1.14	1.40			1.012			
				35:20	RO	0.61	4.31	2.03	3.35	1.018			
		DC	SN	35:51	RO	0.44	2.40			1.033			
442-444			2	Peaks			7.26						
OCDD						0.76-1.02				0.884-1.116			
458-460		DC	NL	0:00		0.81	1.52			0.000			
	AN			34:42		0.82	60.40	27.20	33.20	1.000	OCDD		AN
				35:03	RO	0.63	3.38	1.59	2.54	1.010			
458-460			2	Peaks			63.78						
13C12-OCDD						0.76-1.02				0.995-1.005			
470-472		DC	NL	0:00	RO	1.89	0.89			0.000			
		DC	WL	34:24	RO	2.59	0.93			0.991			
	M			34:42		0.80	53.40	23.80	29.60	1.000	13C12-OCDD	IS8	N
470-472			1	Peak			53.40						

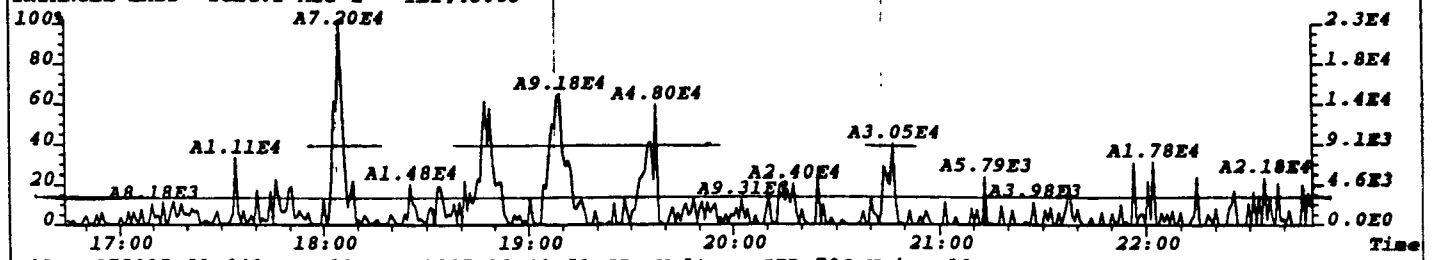
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

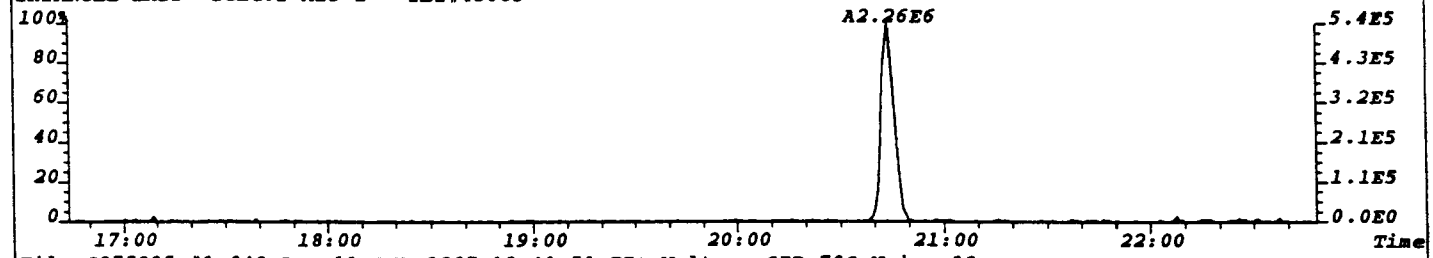
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:180
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,720.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



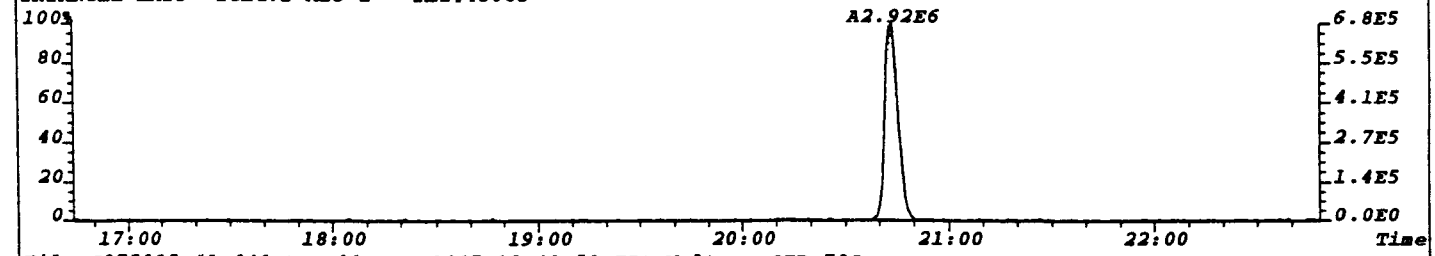
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:30
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



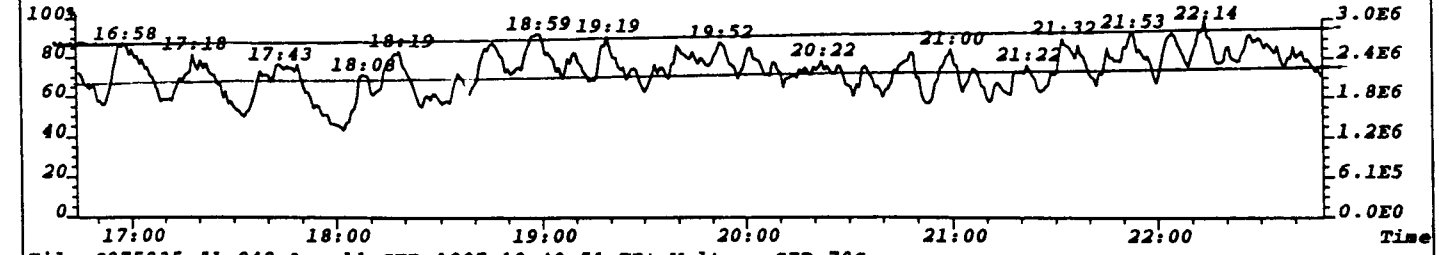
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:30
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



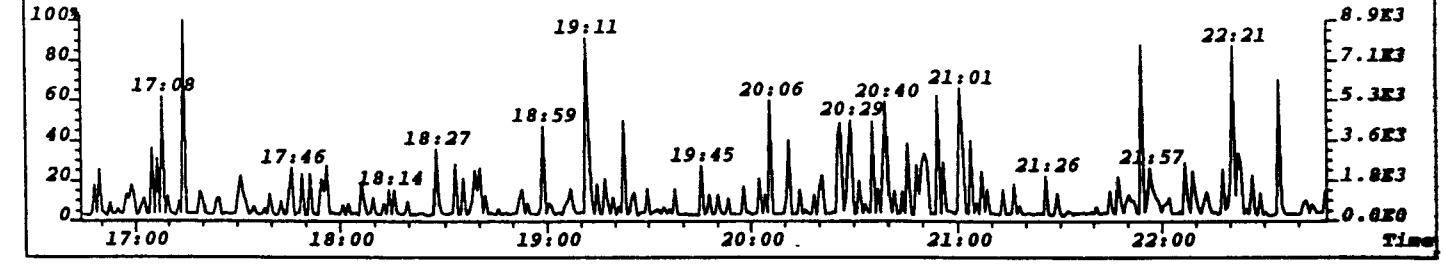
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:33
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



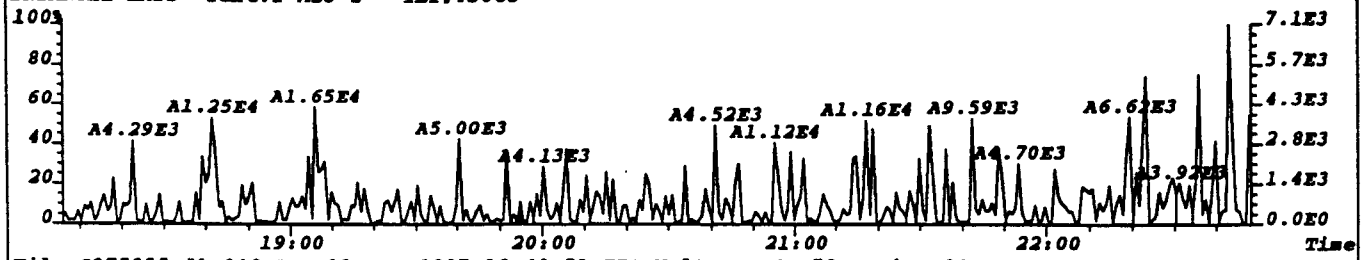
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

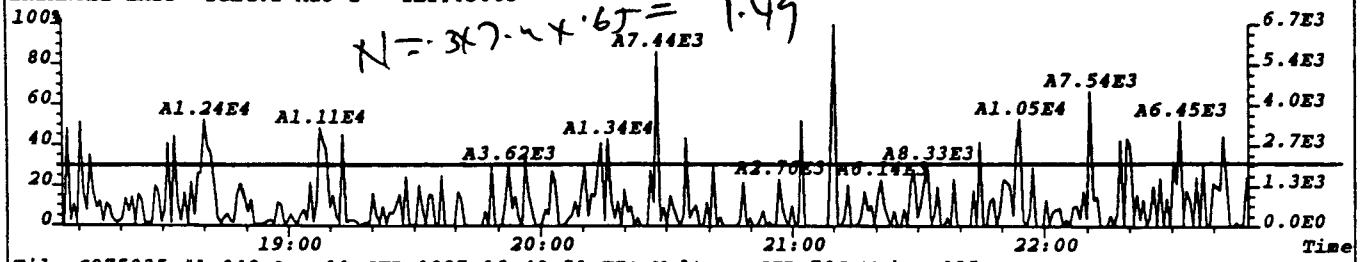


File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:29
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

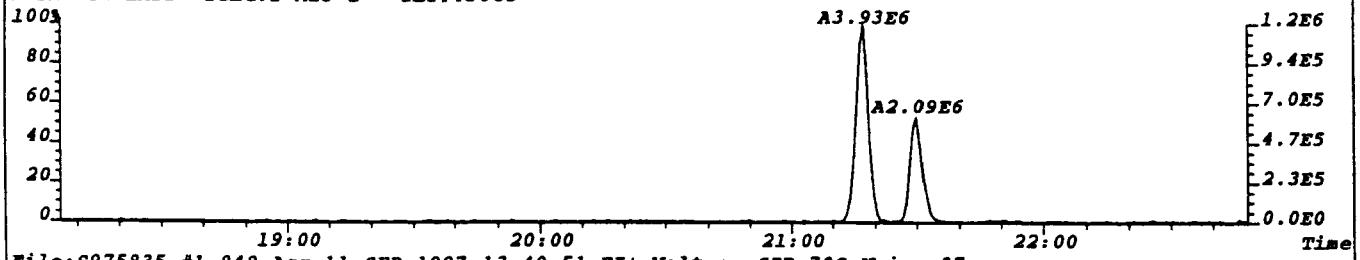


File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:34
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

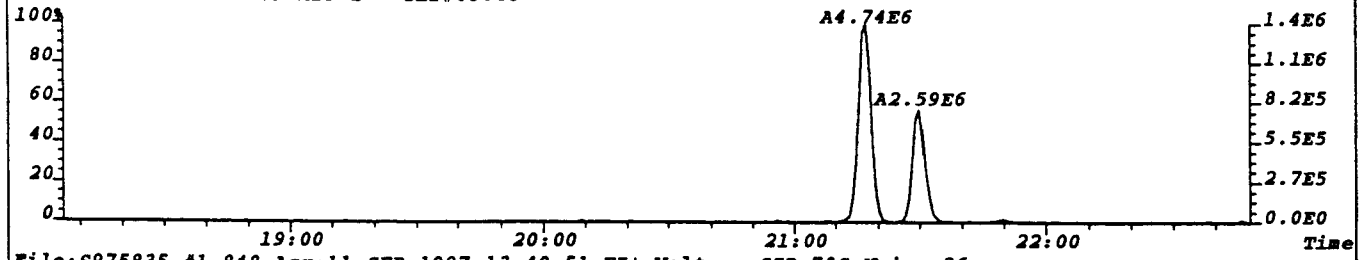
N = 3x7.4x.6T = 1.49



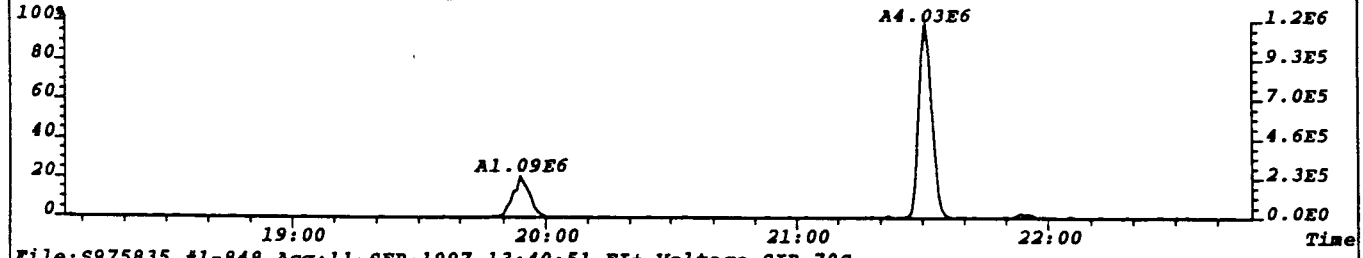
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:925
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3700.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



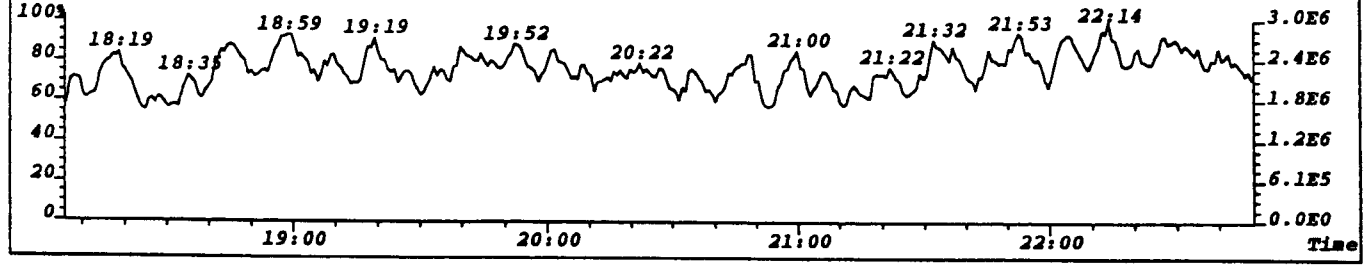
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:37
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



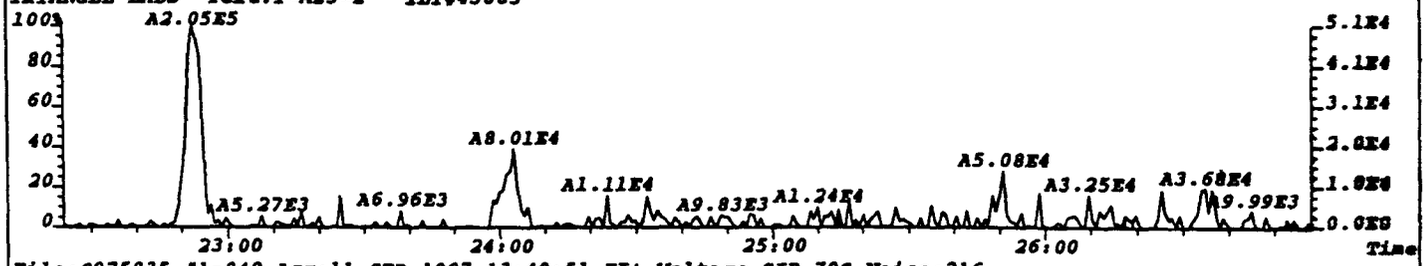
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:26
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



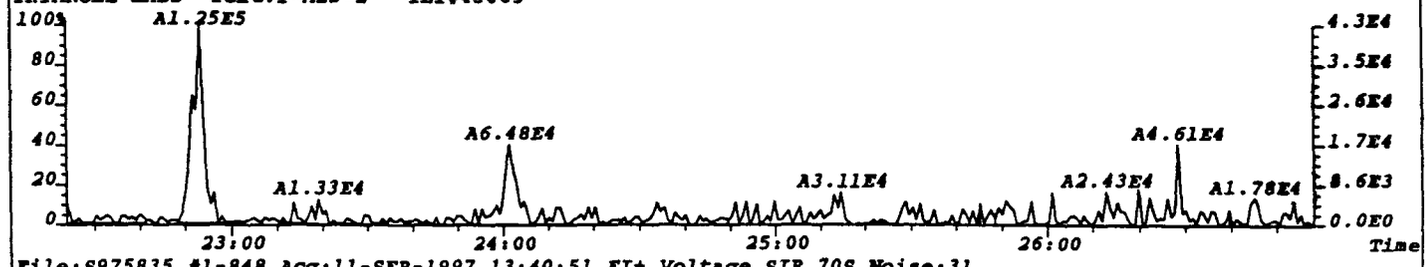
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



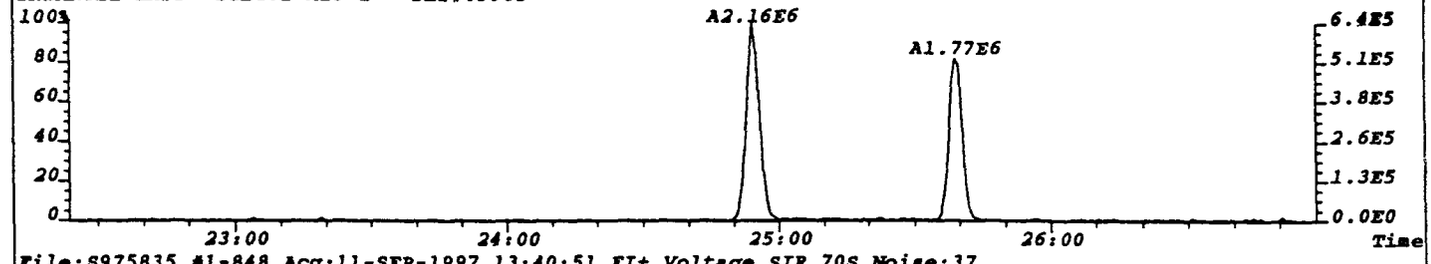
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:35
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:216
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,864.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:31
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



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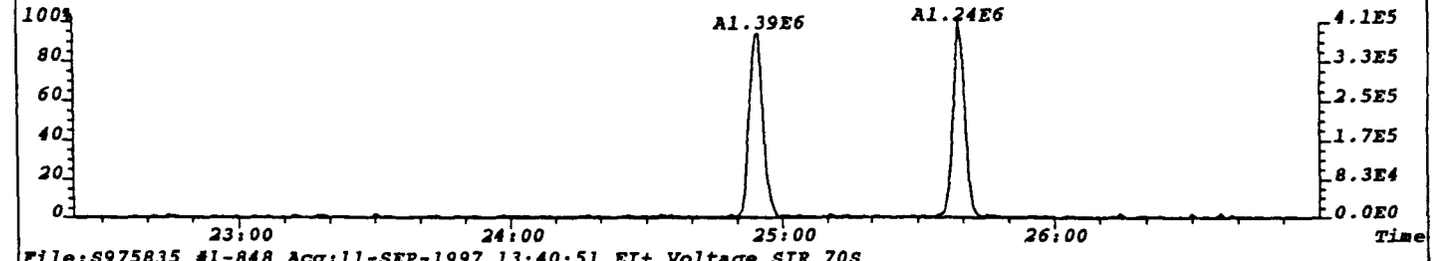
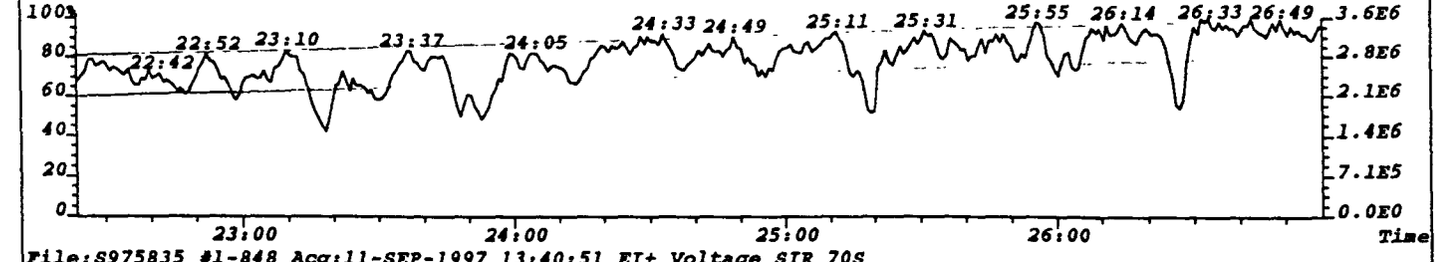
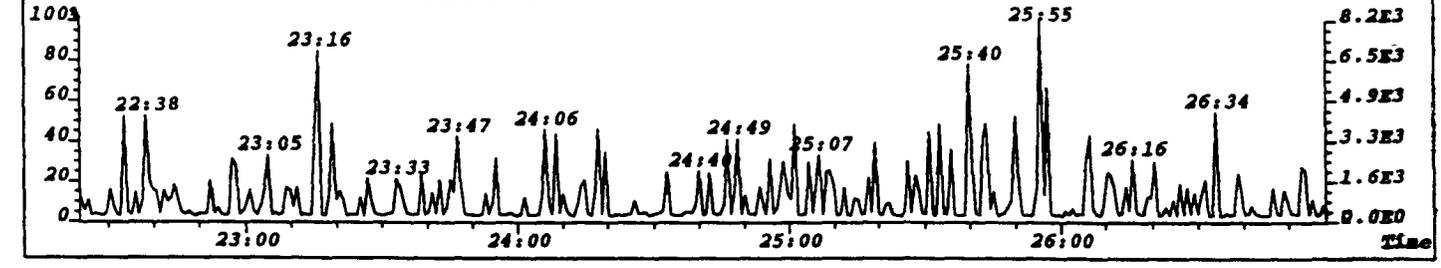
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



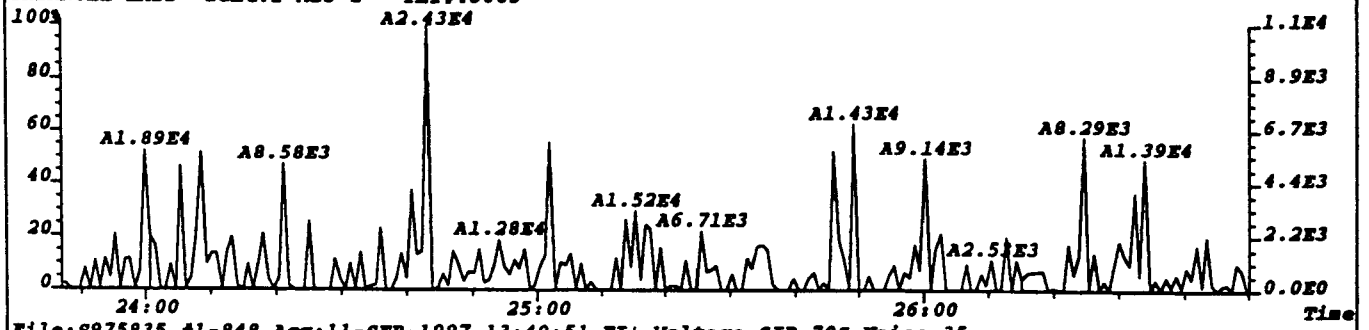
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



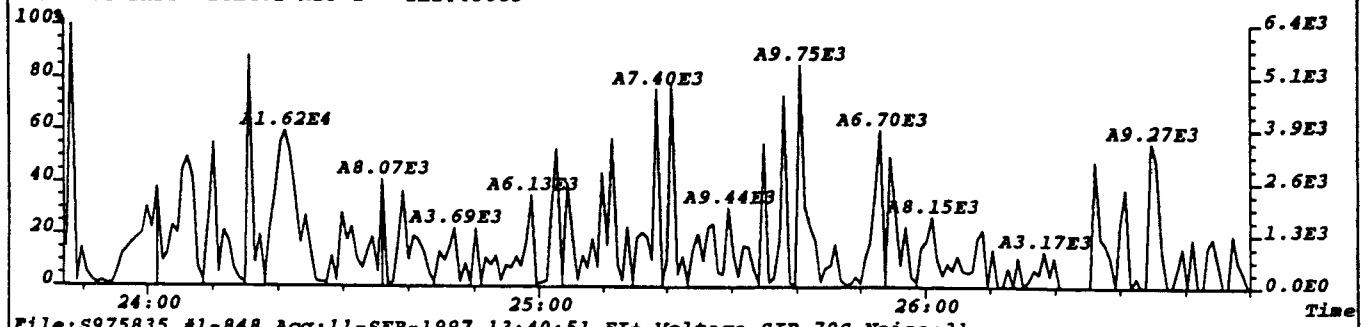
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



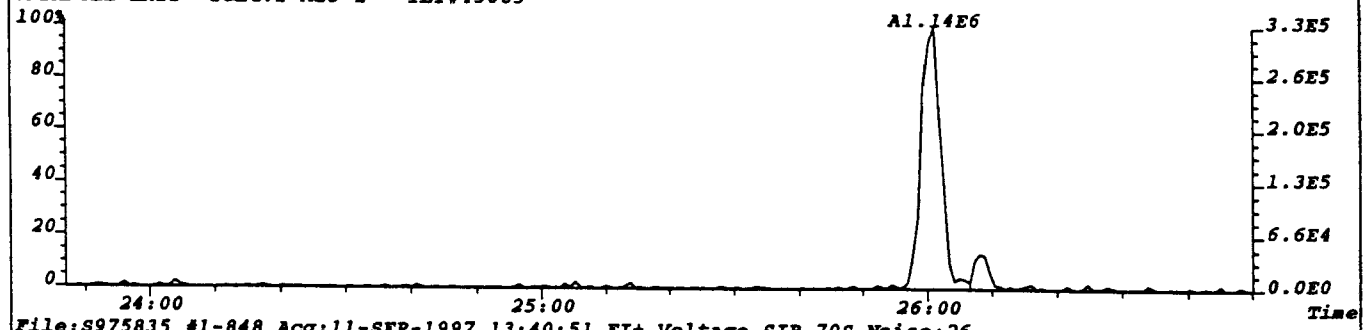
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:33
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



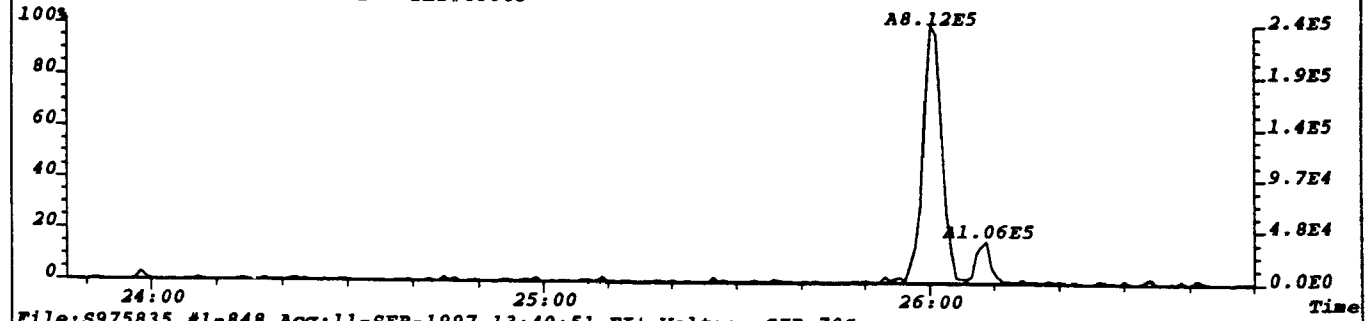
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:35
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



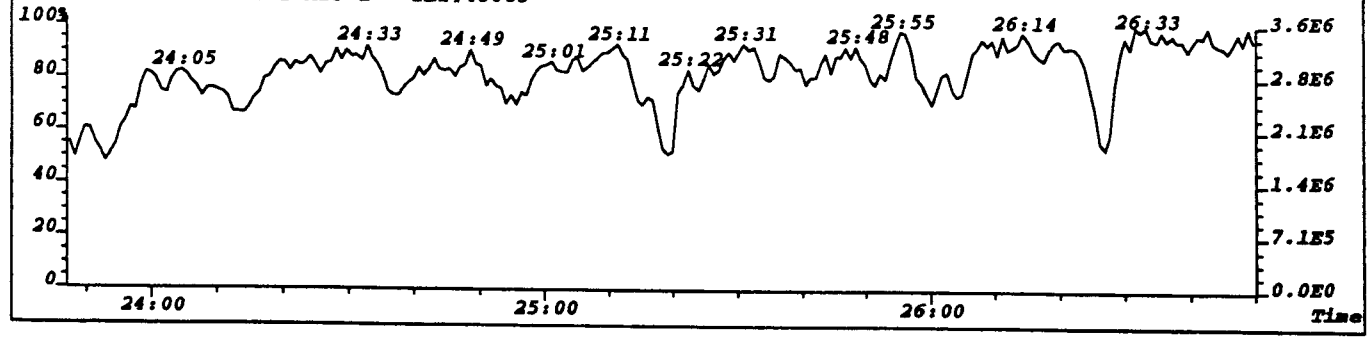
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:31
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



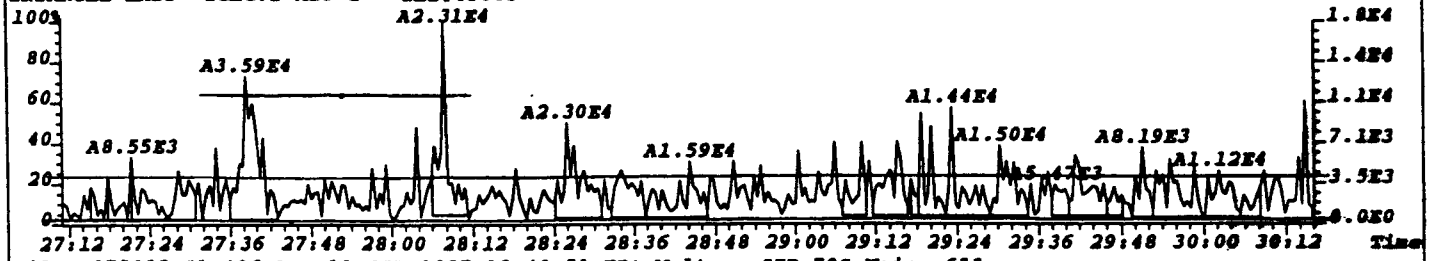
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:26
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



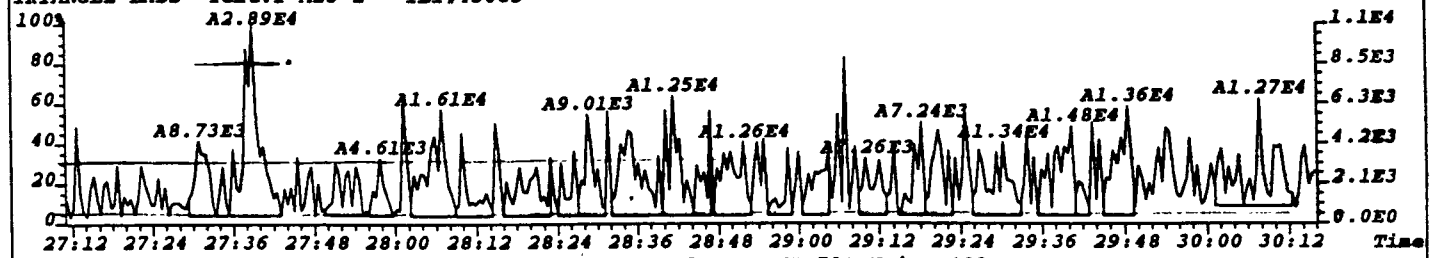
File:S975835 #1-848 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



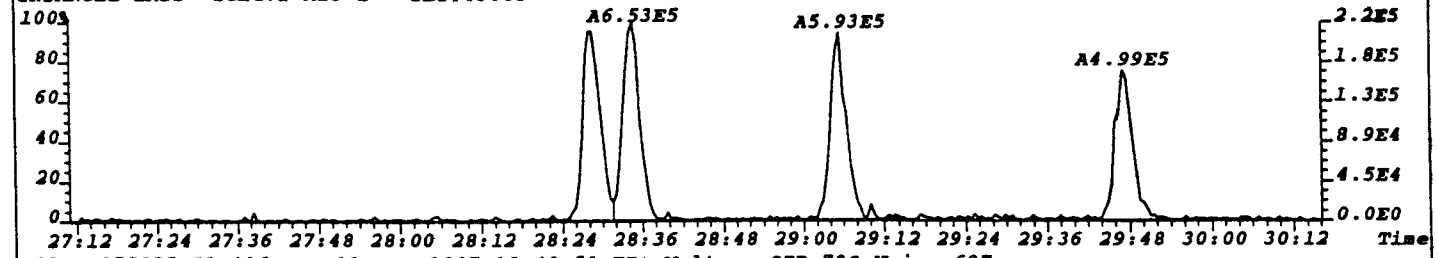
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:689
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2756.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



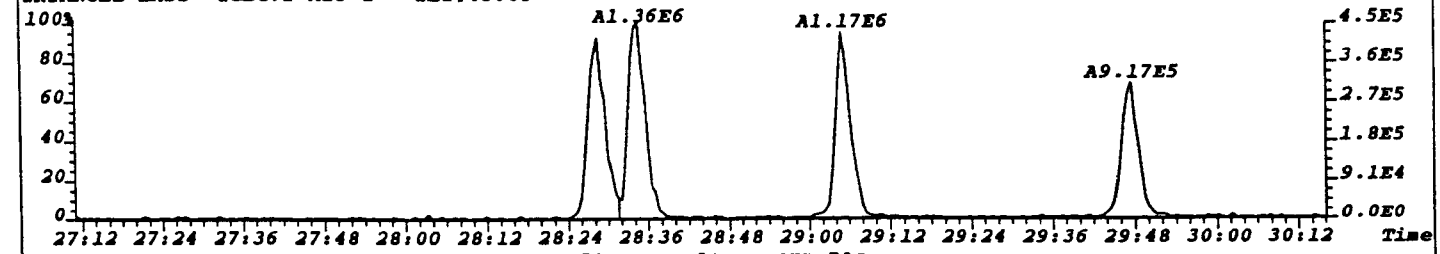
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:633
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2532.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



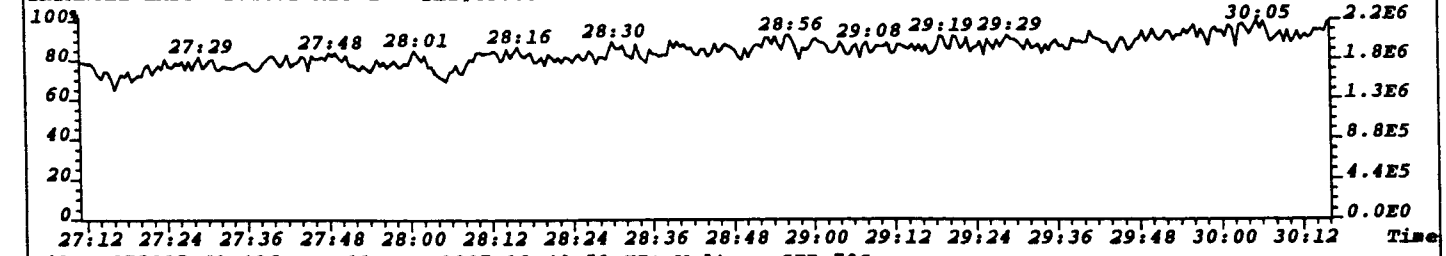
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:482
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1928.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



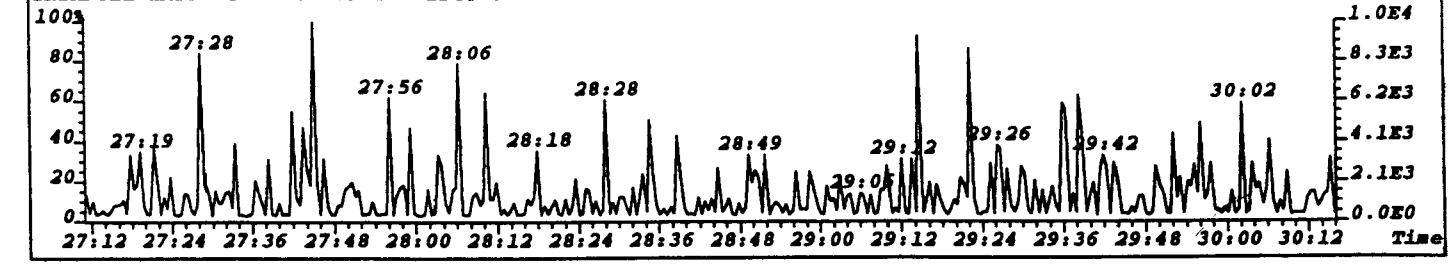
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:697
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2788.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



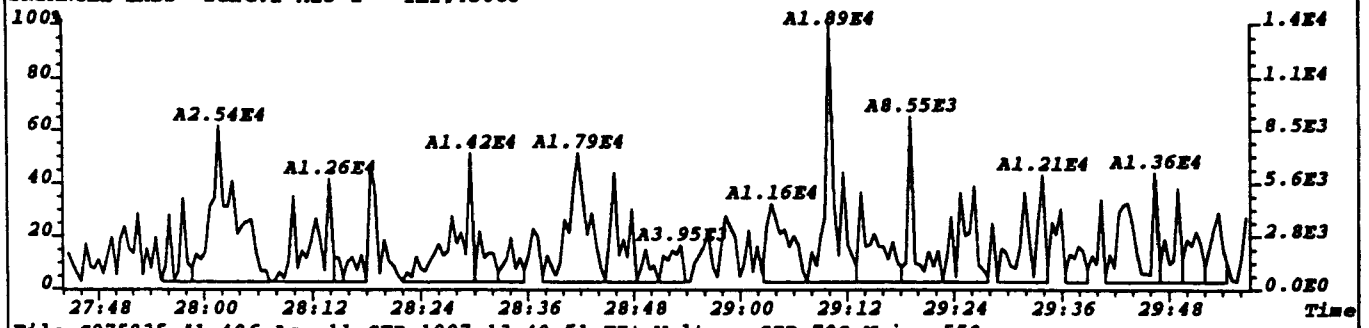
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



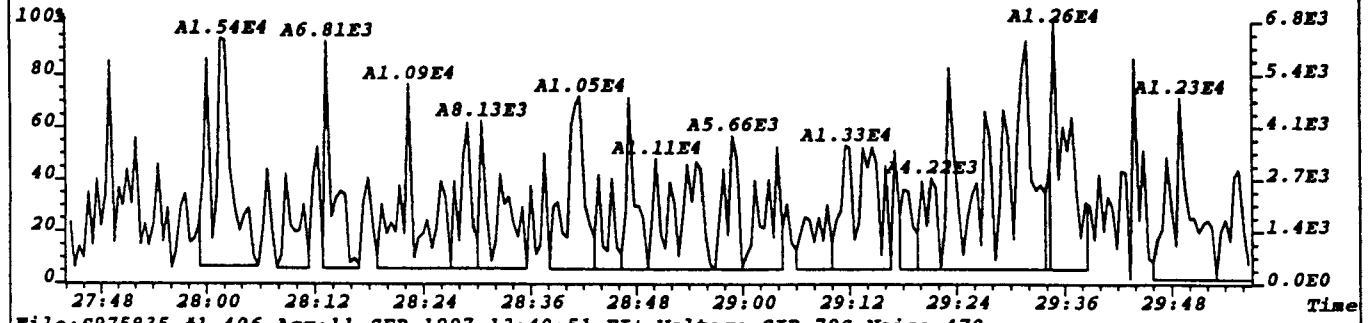
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



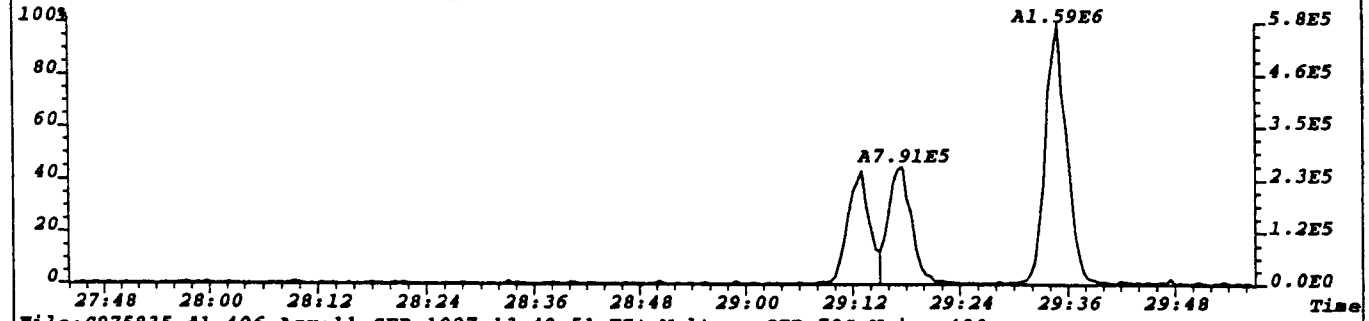
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:597
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2388.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



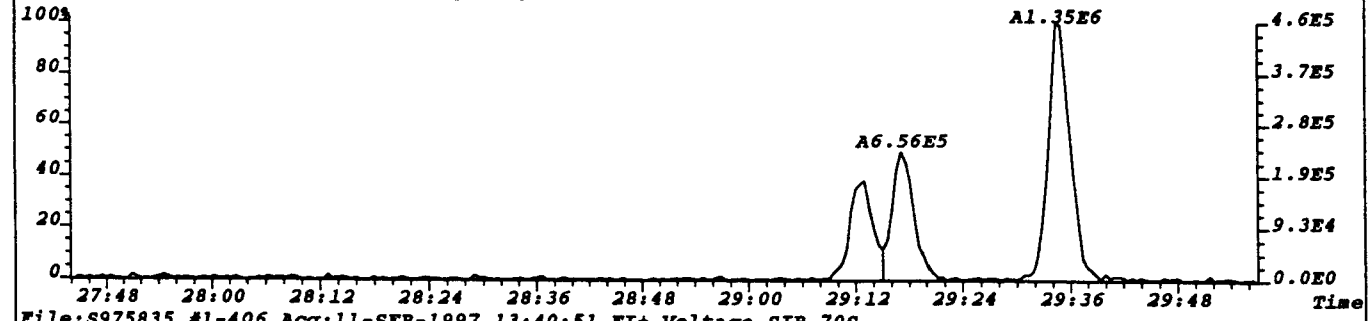
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:550
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2200.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



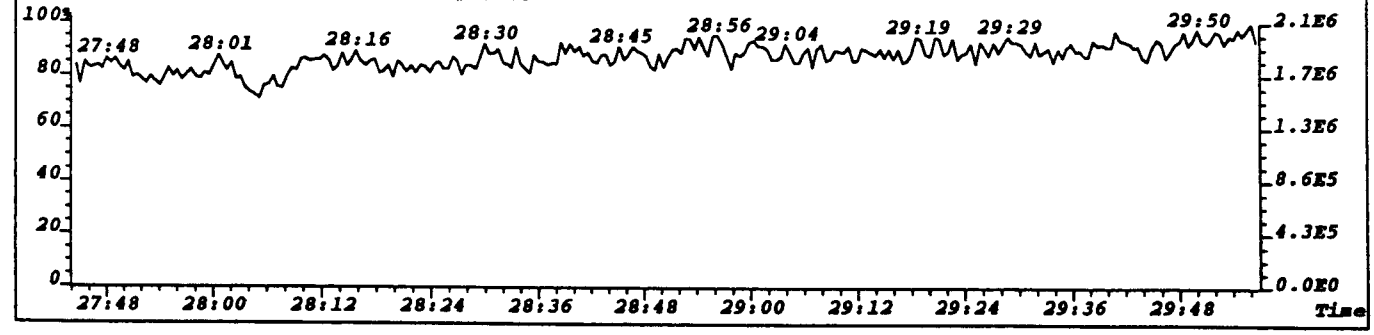
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:478
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1912.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



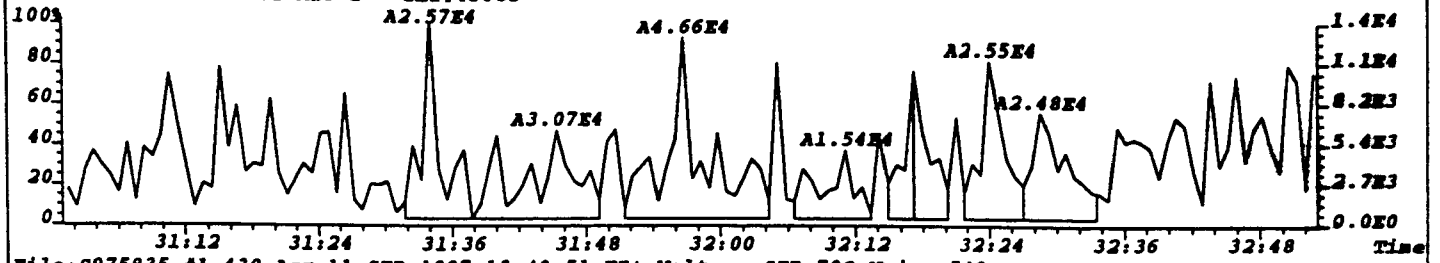
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:490
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1960.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



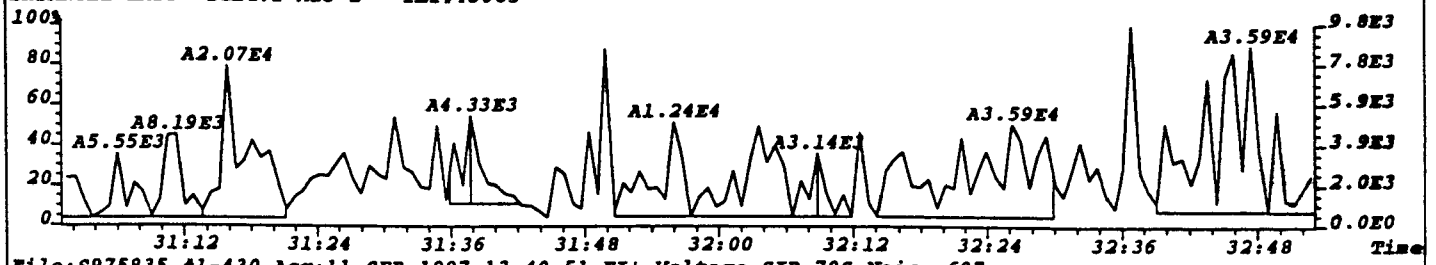
File:S975835 #1-406 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



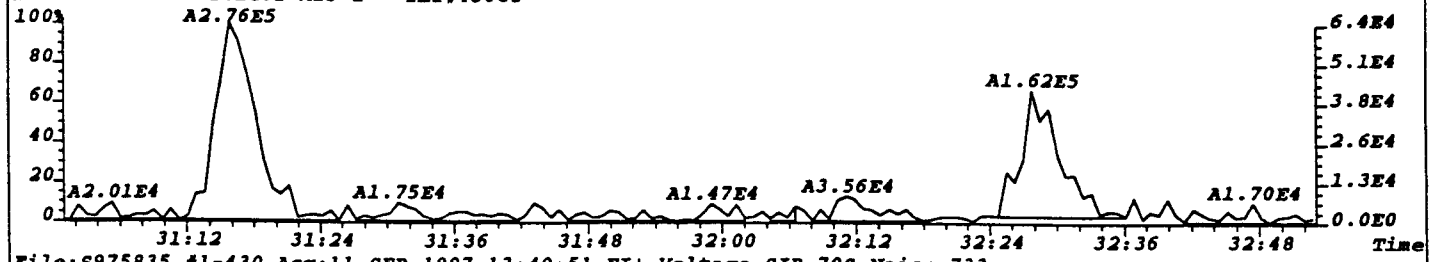
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:1628
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,6512.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



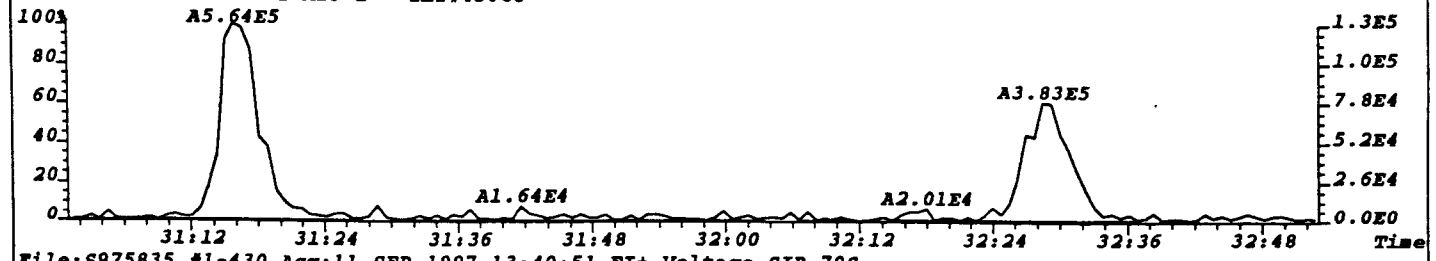
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:548
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2192.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



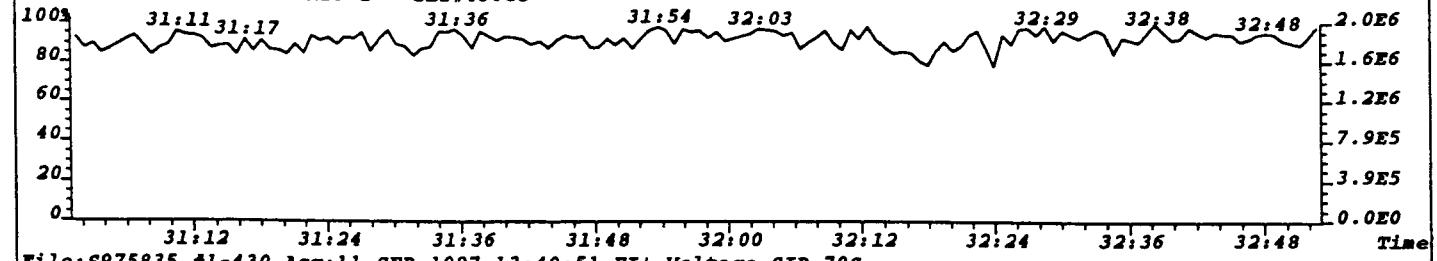
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:697
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2788.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



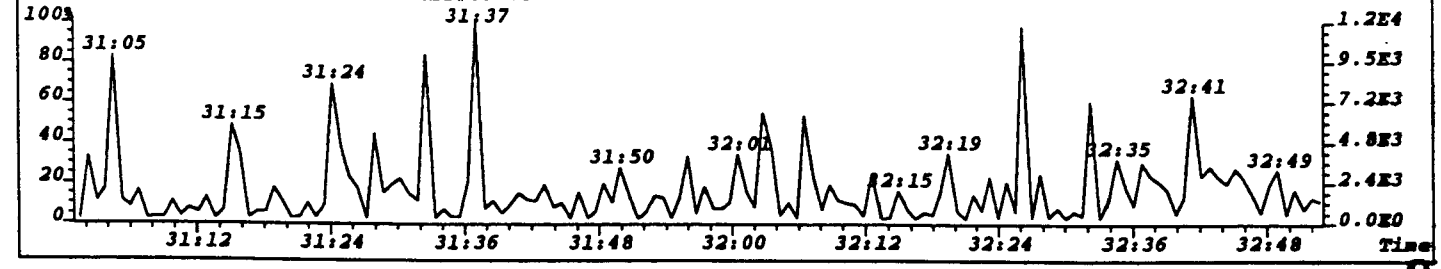
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:733
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2932.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

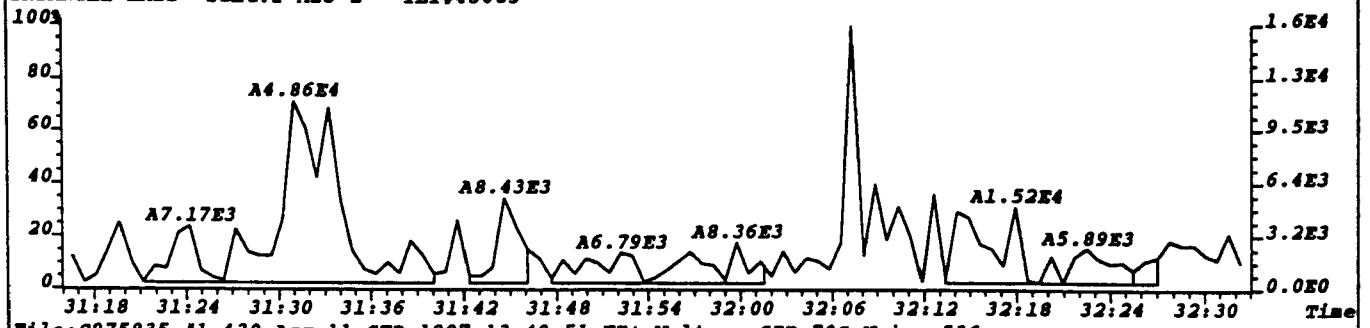


File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

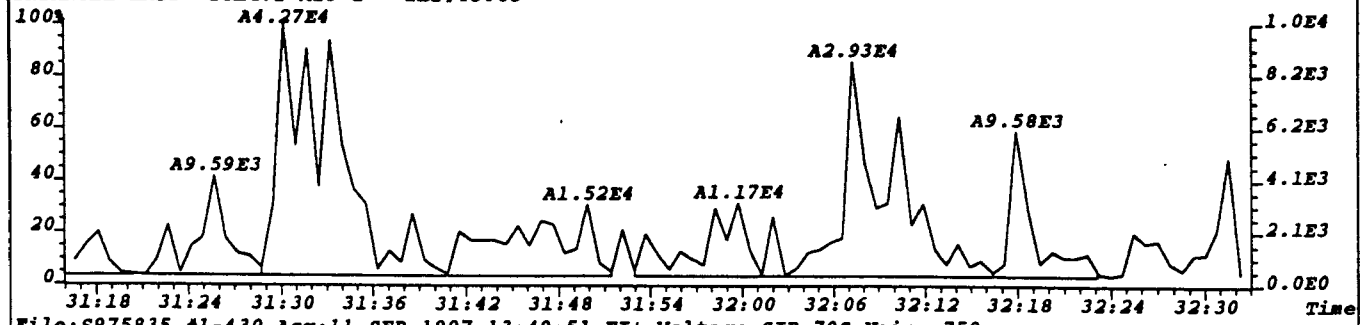


2

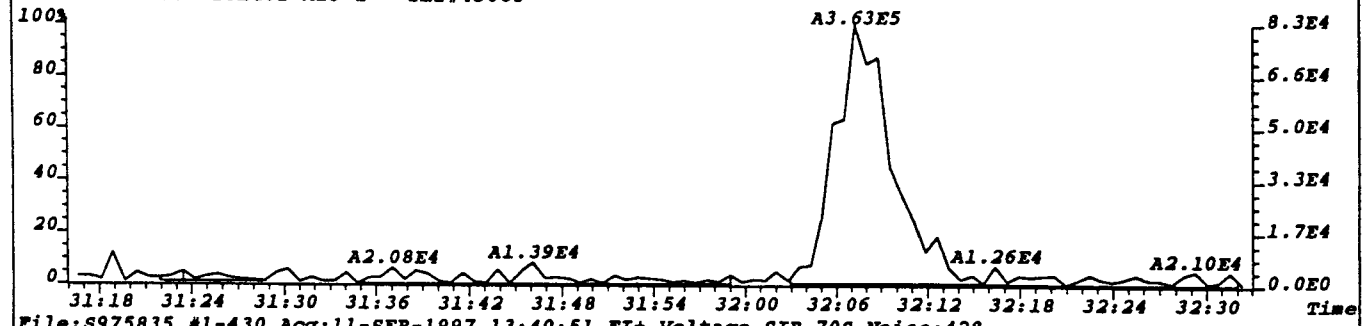
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:457
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1828.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



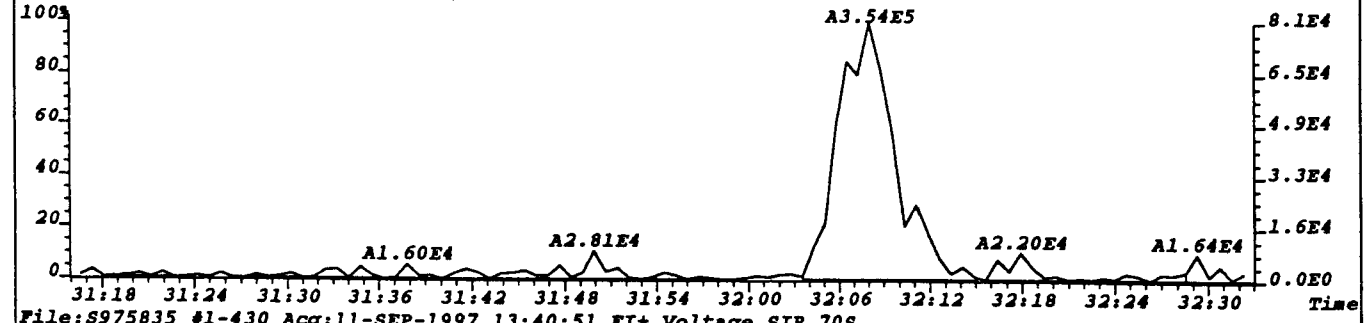
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:536
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



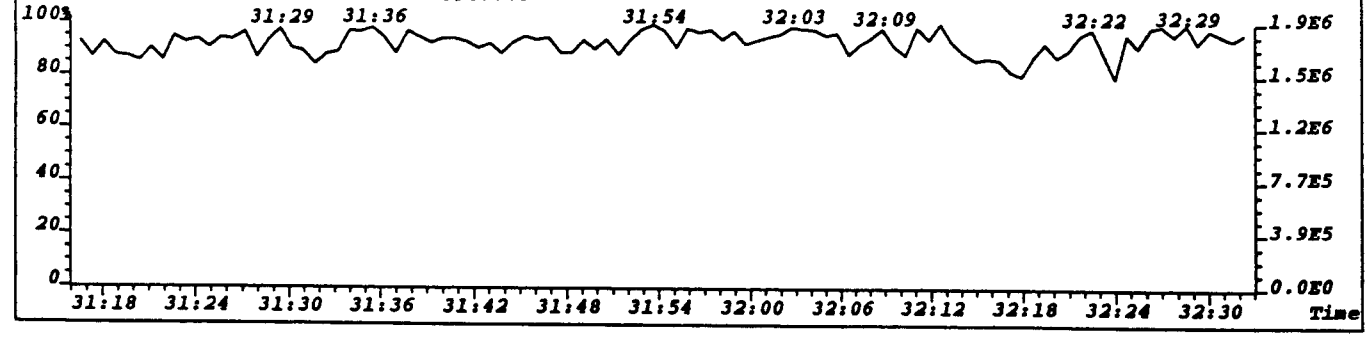
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:759
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3036.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



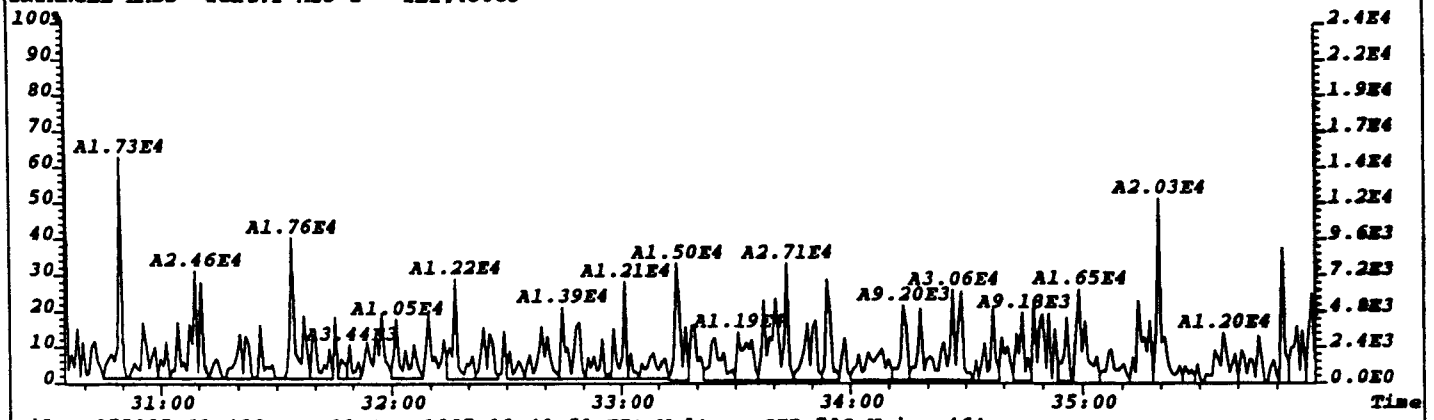
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:428
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1712.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



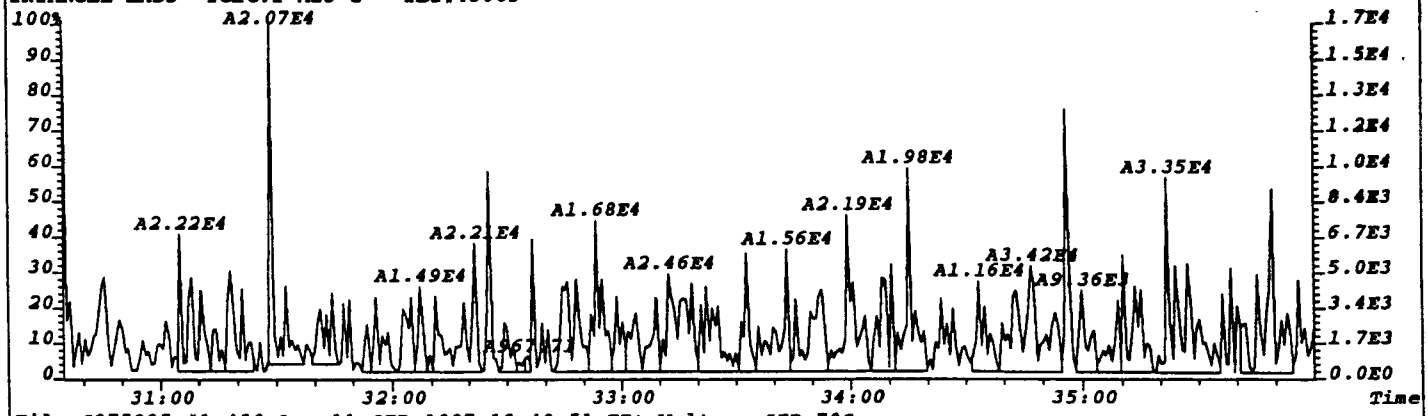
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



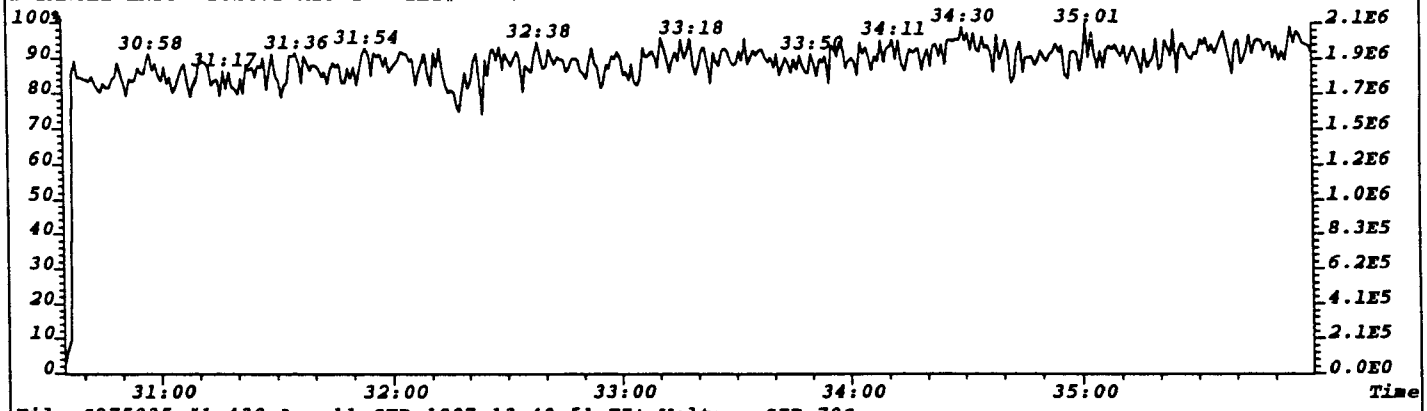
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:276
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



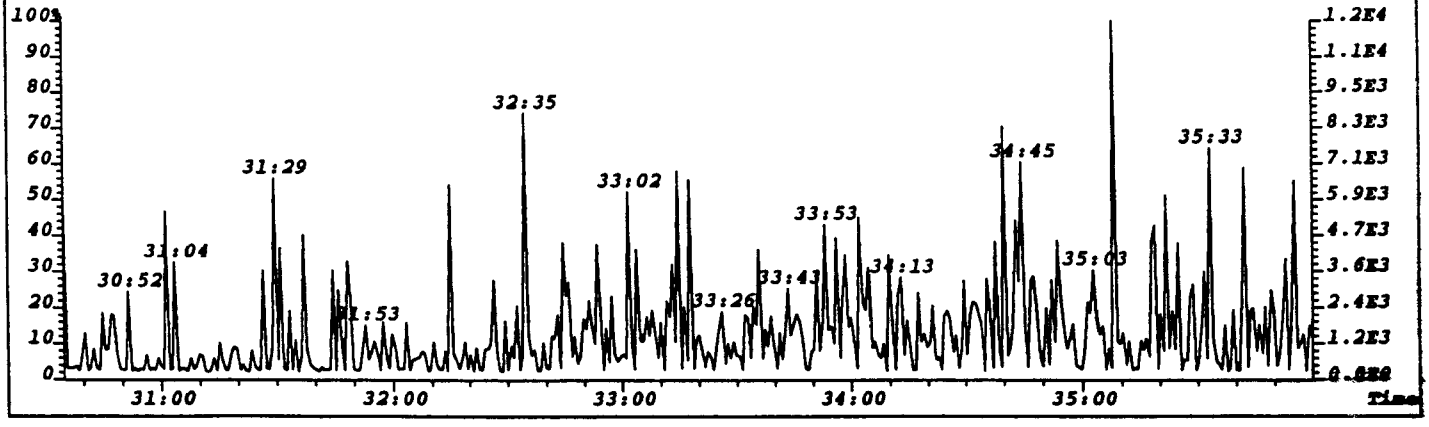
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:464
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1856.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

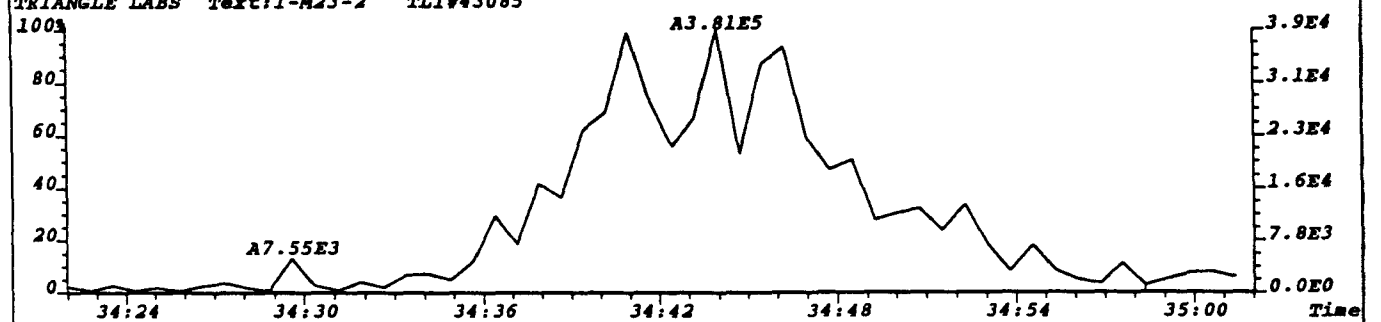


File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

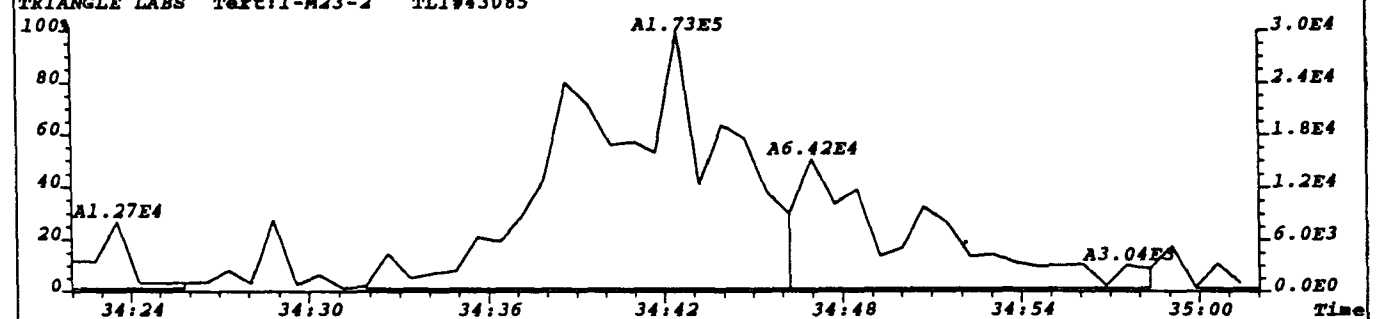


File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:342
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1368.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

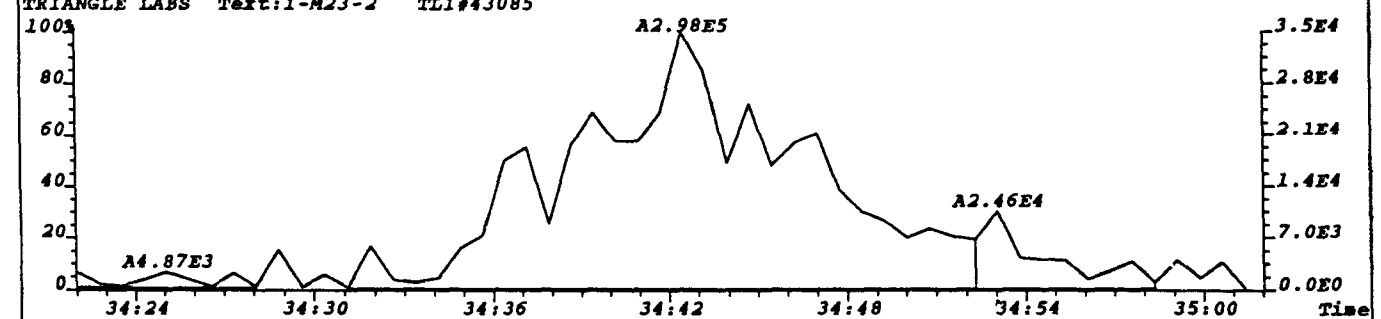
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:418
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1672.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



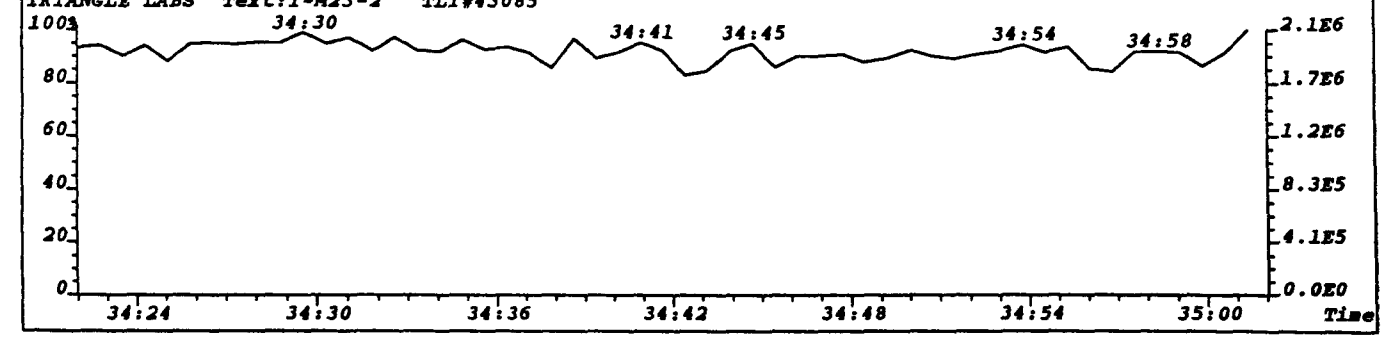
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:443
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1772.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085

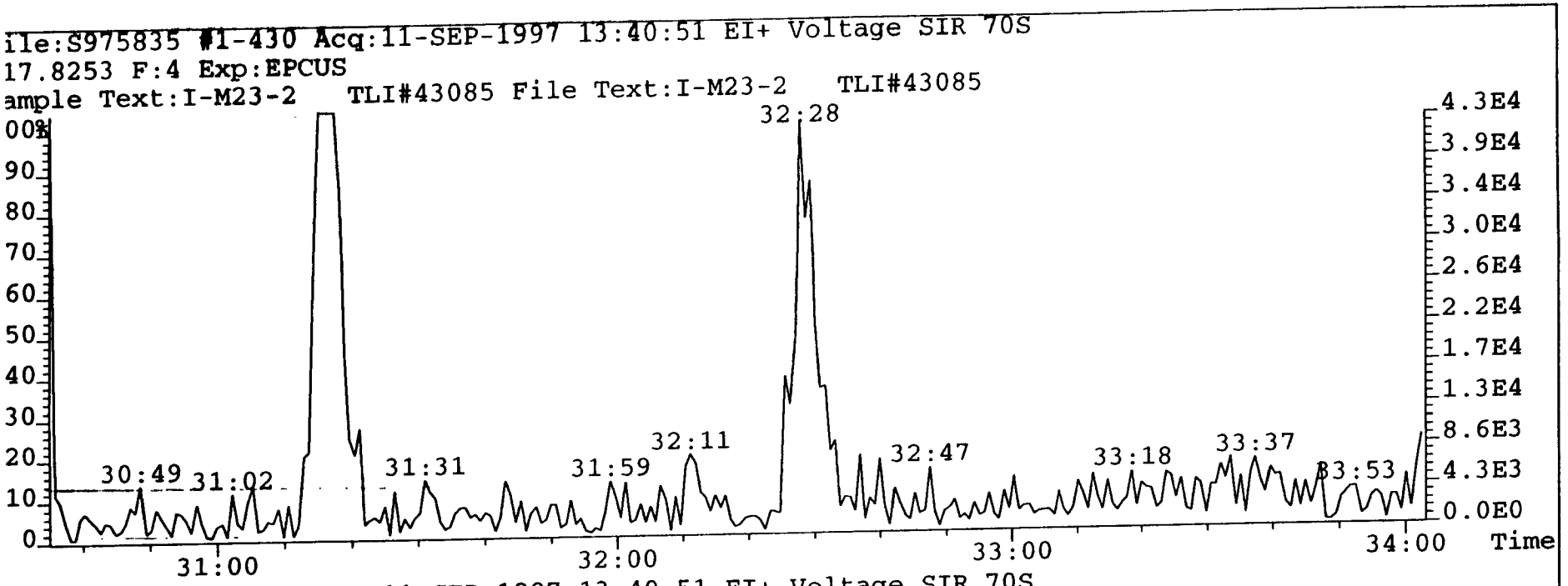


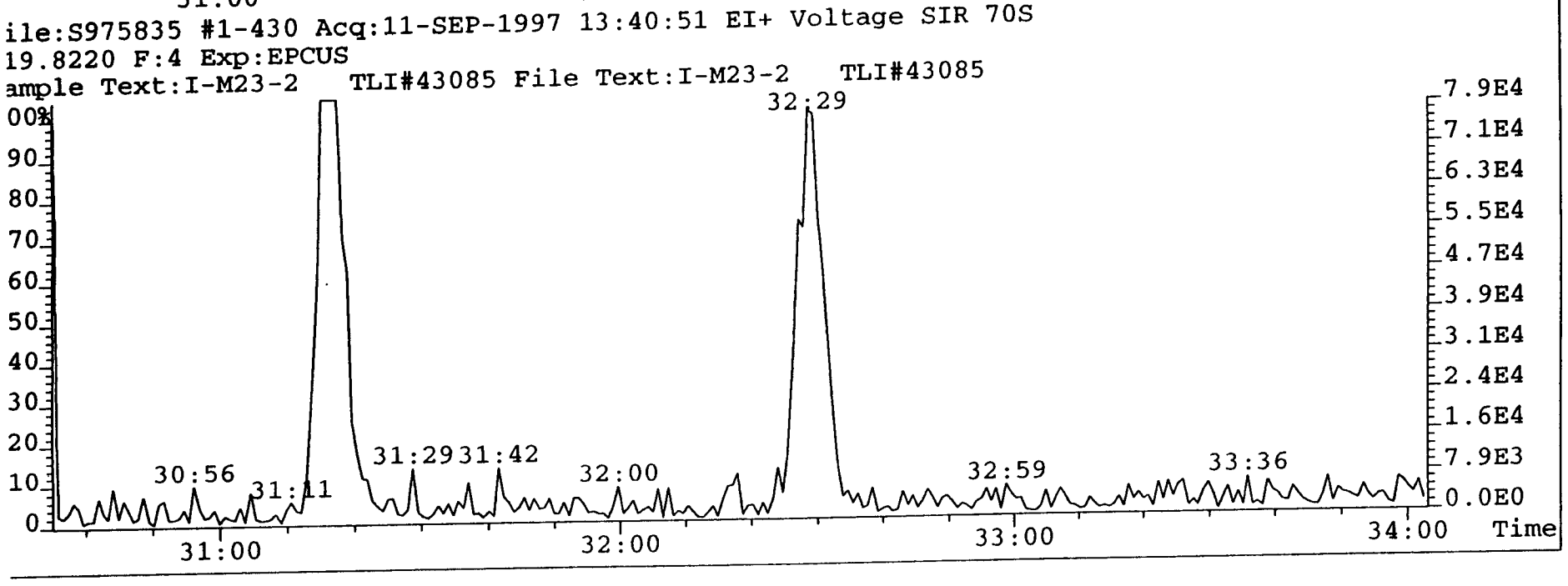
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S Noise:235
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,940.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



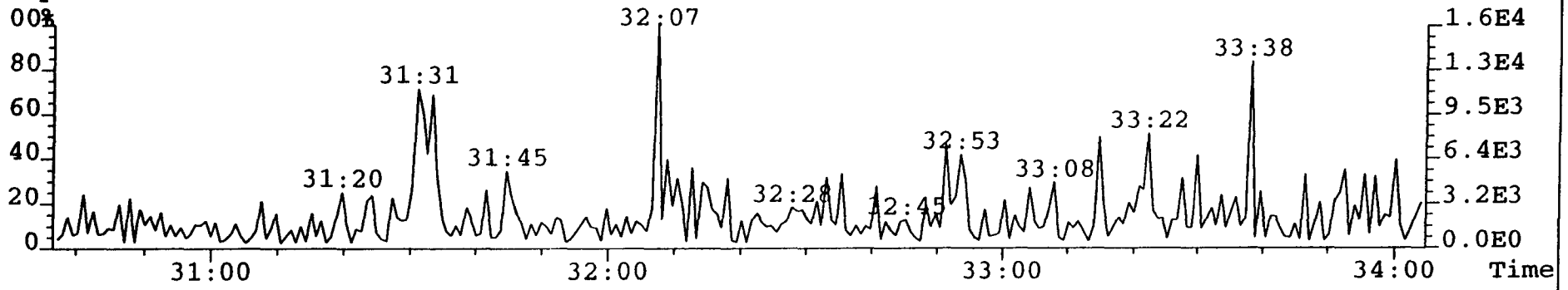
File:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-2 TLI#43085



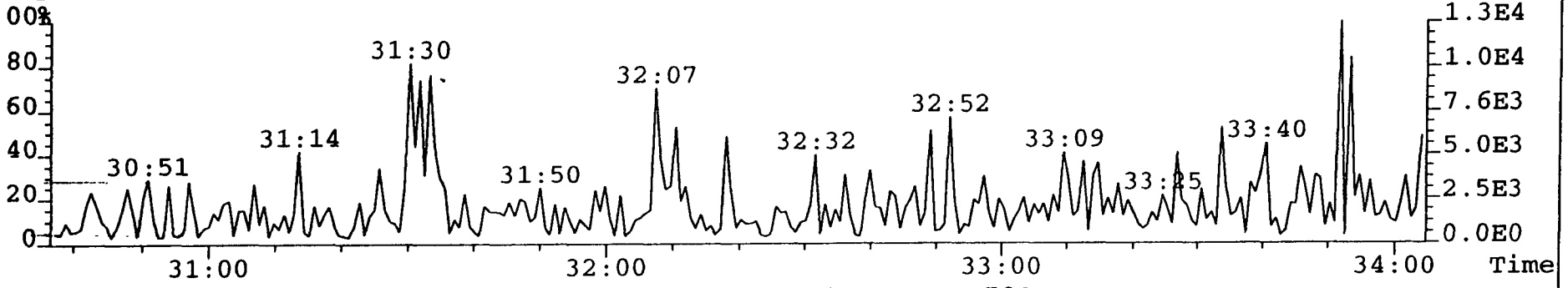

ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
17.8253 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
00%
90
80
70
60
50
40
30
20
10
0
30:49
31:02
31:31
31:59
32:11
32:28
32:47
33:18
33:37
33:53
31:00
32:00
33:00
34:00
Time
4.3E4
3.9E4
3.4E4
3.0E4
2.6E4
2.2E4
1.7E4
1.3E4
8.6E3
4.3E3
0.0E0


ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
19.8220 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
00%
90
80
70
60
50
40
30
20
10
0
30:56
31:11
31:29
31:42
32:00
32:29
32:59
33:36
31:00
32:00
33:00
34:00
Time
7.9E4
7.1E4
6.3E4
5.5E4
4.7E4
3.9E4
3.1E4
2.4E4
1.6E4
7.9E3
0.0E0

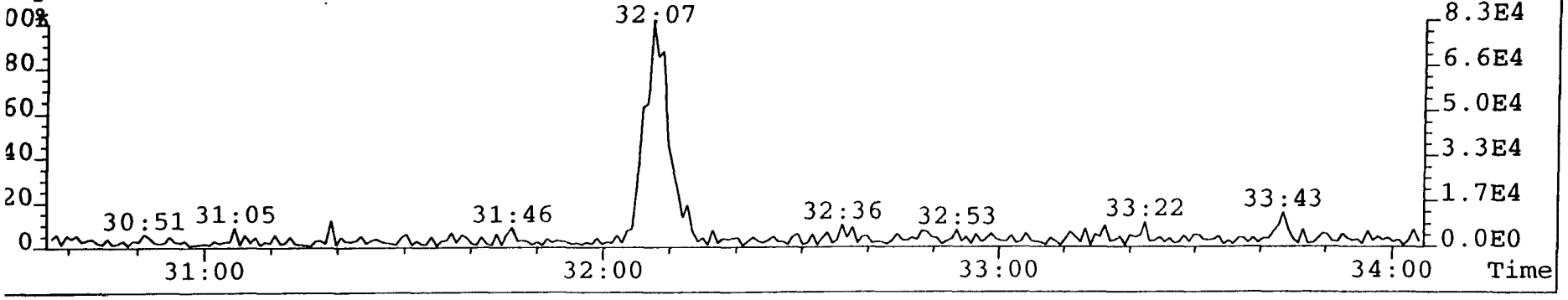
ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
23.7766 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



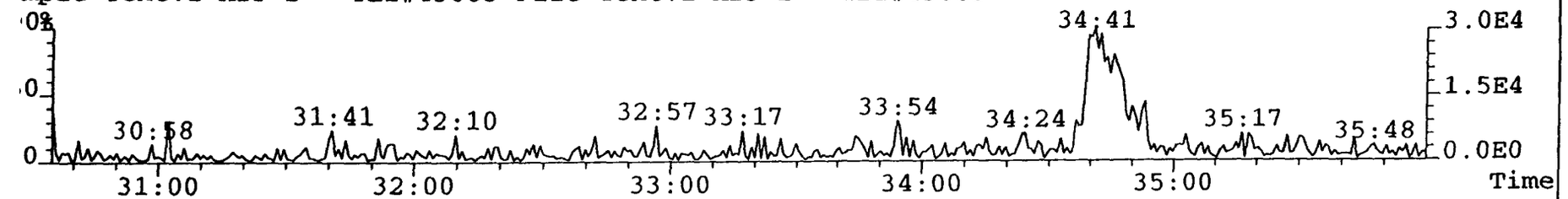
ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
25.7737 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



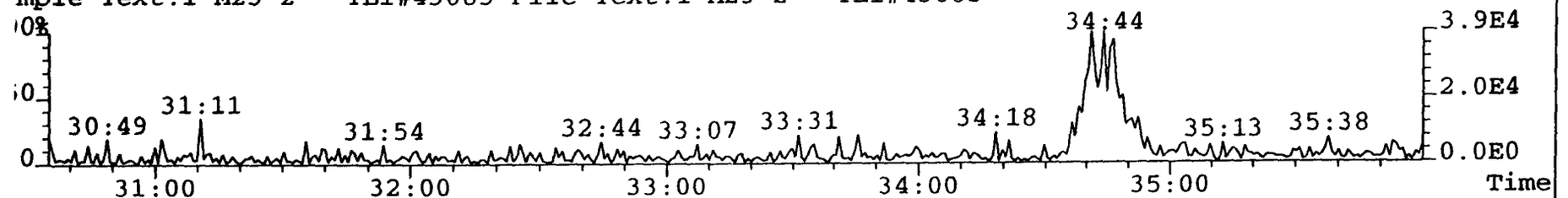
ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
35.8169 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
7.7377 F:4 Exp:EPCUS
mple Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
9.7348 F:4 Exp:EPCUS
mple Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
9.7779 F:4 Exp:EPCUS
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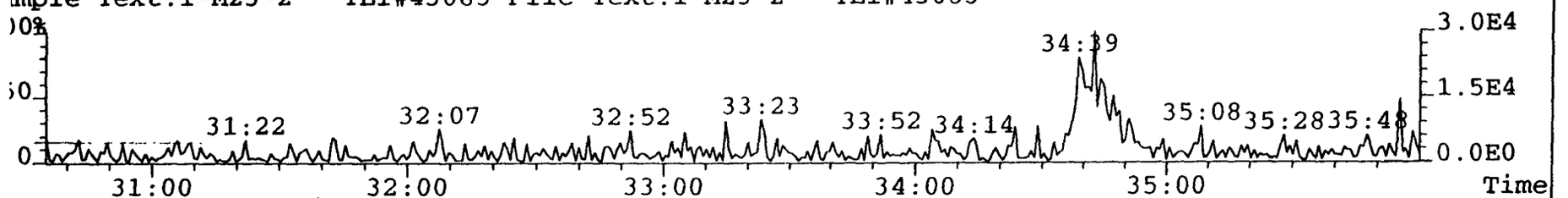

le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
1.7750 F:4 Exp:EPCUS
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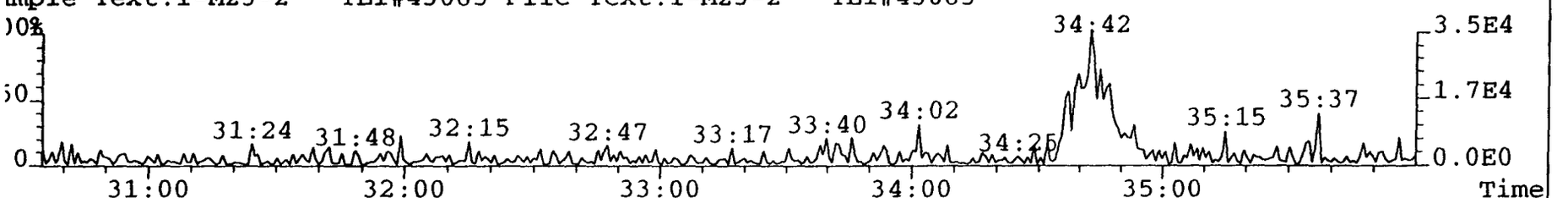
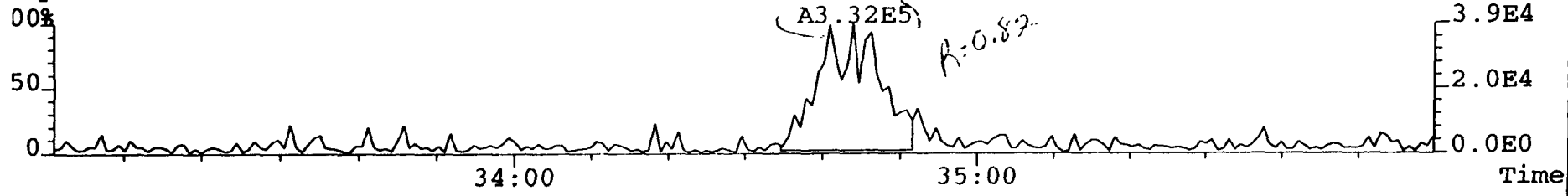


ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
57.7377 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085

ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
59.7348 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



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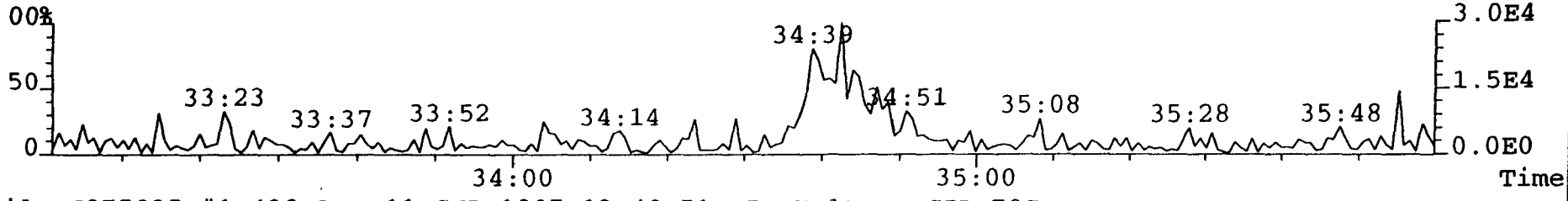
59.7779 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085



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71.7750 F:4 Exp:EPCUS
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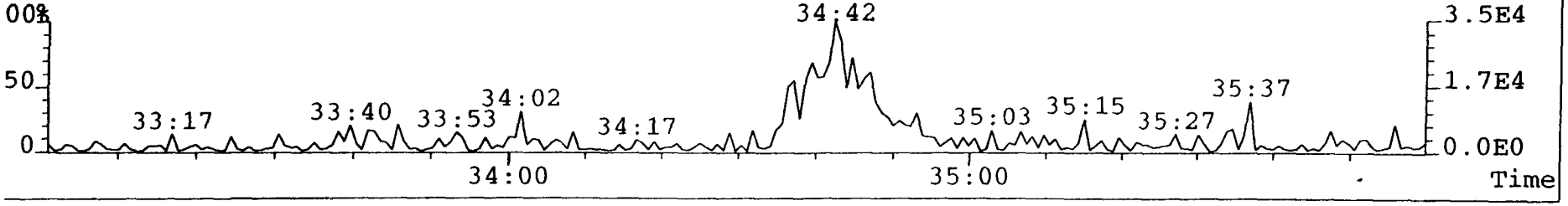
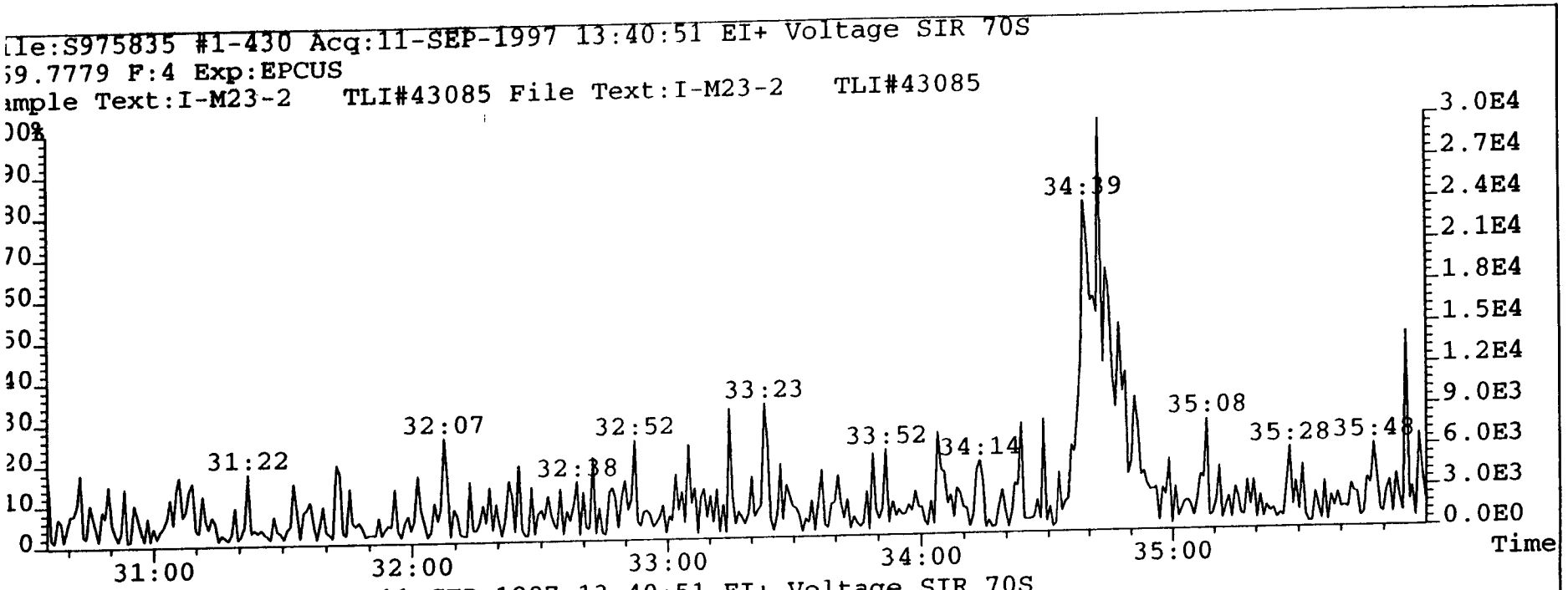
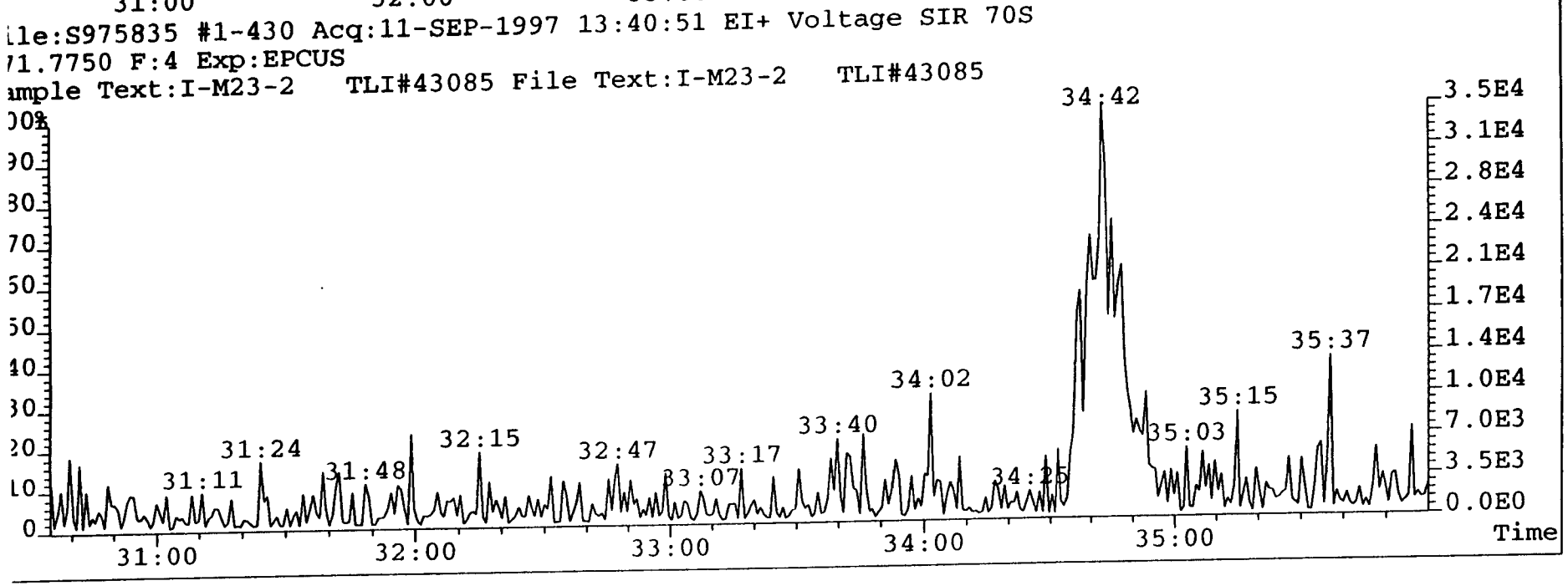
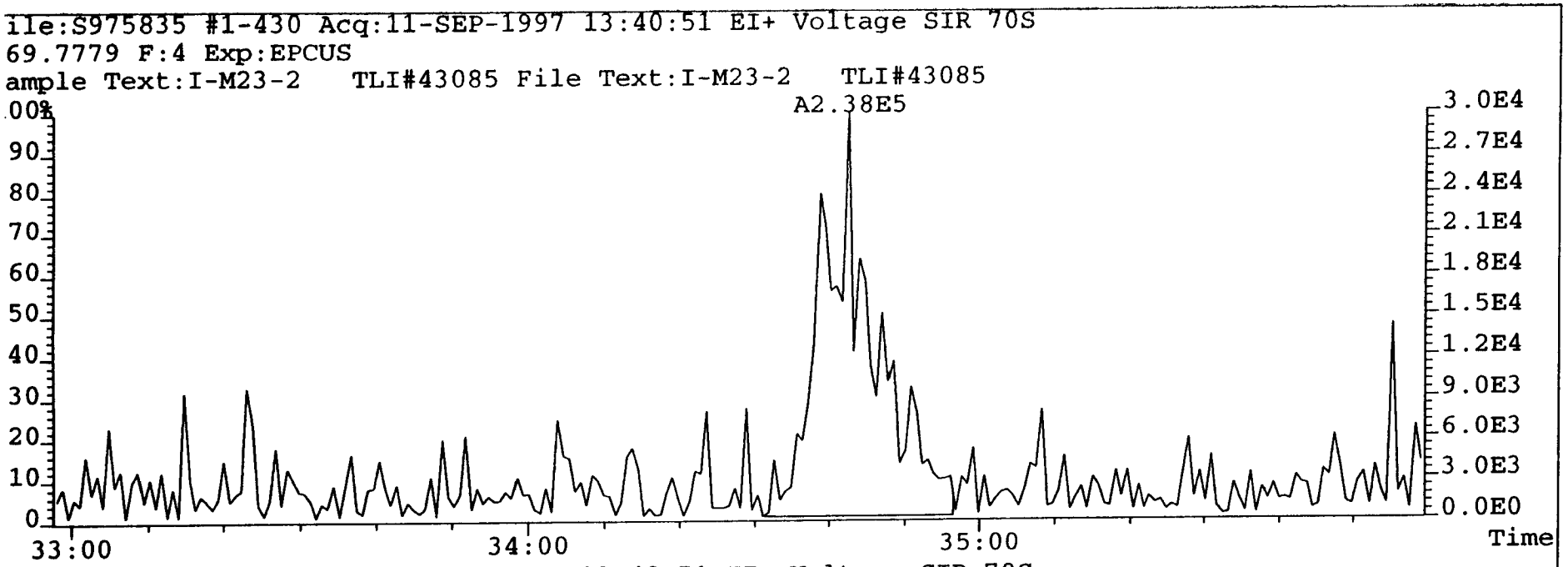



le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
9.7779 F:4 Exp:EPCUS
mple Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
31:22
32:07
32:38
32:52
33:23
33:52
34:14
34:39
35:08
35:28
35:48
31:00
32:00
33:00
34:00
35:00
Time
3.0E4
2.7E4
2.4E4
2.1E4
1.8E4
1.5E4
1.2E4
9.0E3
6.0E3
3.0E3
0.0E0


le:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
1.7750 F:4 Exp:EPCUS
mple Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
31:11
31:24
31:48
32:15
32:47
33:07
33:17
33:40
34:02
34:25
34:42
35:03
35:15
35:37
31:00
32:00
33:00
34:00
35:00
Time
3.5E4
3.1E4
2.8E4
2.4E4
2.1E4
1.7E4
1.4E4
1.0E4
7.0E3
3.5E3
0.0E0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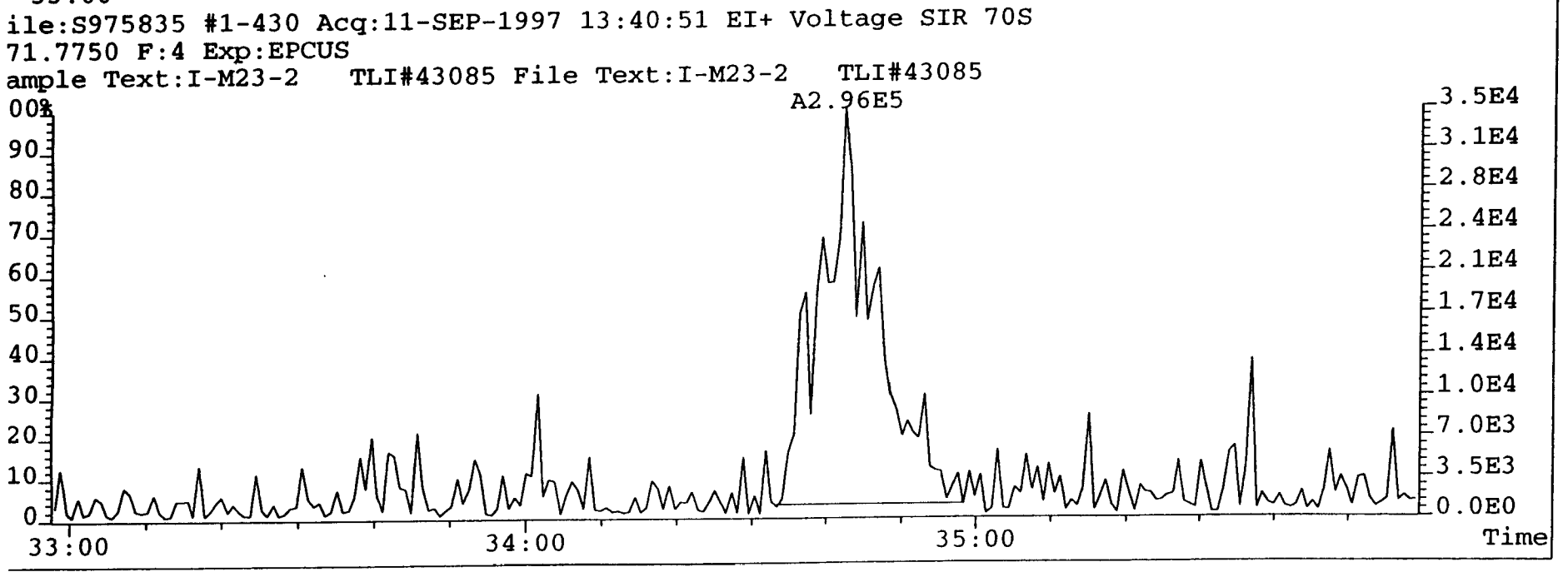
69.7779 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
A2.38E5
00%
90
80
70
60
50
40
30
20
10
0
3.0E4
2.7E4
2.4E4
2.1E4
1.8E4
1.5E4
1.2E4
9.0E3
6.0E3
3.0E3
0.0E0
33:00
34:00
35:00
Time


ile:S975835 #1-430 Acq:11-SEP-1997 13:40:51 EI+ Voltage SIR 70S
71.7750 F:4 Exp:EPCUS
ample Text:I-M23-2 TLI#43085 File Text:I-M23-2 TLI#43085
A2.96E5
00%
90
80
70
60
50
40
30
20
10
0
3.5E4
3.1E4
2.8E4
2.4E4
2.1E4
1.7E4
1.4E4
1.0E4
7.0E3
3.5E3
0.0E0
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: **43085**
Client Sample: **I-M23-3**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975843**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPX23704**
TLI ID:	**181-55-7ABD**	Date Extracted:	**09/04/97**	ICal:	**SF56117**
		Date Analyzed:	**09/11/97**	ConCal:	**S975839**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**S975815**	% Lipid:	**n/a**
GC Column:	**DB-5**	Analyst:	**KB**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.005				
1,2,3,7,8-PeCDD	ND	0.009				
1,2,3,4,7,8-HxCDD	ND	0.01				
1,2,3,6,7,8-HxCDD	ND	0.01				
1,2,3,7,8,9-HxCDD	ND	0.01				
1,2,3,4,6,7,8-HpCDD	0.14			1.07	32:09	B
1,2,3,4,6,7,8,9-OCDD	16.2			0.87	34:39	
2,3,7,8-TCDF	0.01			0.70	20:26	B
1,2,3,7,8-PeCDF	ND	0.005				
2,3,4,7,8-PeCDF	ND	0.005				
1,2,3,4,7,8-HxCDF	0.02			1.21	28:22	
1,2,3,6,7,8-HxCDF	ND	0.006				
2,3,4,6,7,8-HxCDF	EMPC		0.006			
1,2,3,7,8,9-HxCDF	ND	0.008				
1,2,3,4,6,7,8-HpCDF	0.04			1.02	31:15	B
1,2,3,4,7,8,9-HpCDF	ND	0.02				
1,2,3,4,6,7,8,9-OCDF	ND	0.05				

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.005		
Total PeCDD	ND		0.009		
Total HxCDD	0.02	1		0.05	
Total HpCDD	0.34	2			
Total TCDF	0.01	1		0.02	
Total PeCDF	EMPC			0.01	
Total HxCDF	0.03	2		0.05	C
Total HpCDF	0.04	1			

X237_PSR v2.00, LARS 6.10.0

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Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **I-M23-3** Analysis File: **S975843**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.5	63.3	40%-130%	0.76	20:24	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.3	58.5	40%-130%	0.80	21:13	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.3	56.9	40%-130%	1.50	24:42	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2.3	57.2	40%-130%	1.55	25:50	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.6	64.5	40%-130%	0.49	28:29	Q___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.3	58.0	40%-130%	1.14	29:12	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.4	35.3	25%-130%	0.42	31:14	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1.2	29.8	25%-130%	1.03	32:07	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	1.3	16.0	25%-130%	0.88	34:41	V___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.1	103	70%-140%		21:14	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.7	93.4	70%-140%	1.49	25:28	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.5	112	70%-140%	0.45	28:22	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	4.0	99.8	70%-140%	1.31	29:08	___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.0	75.7	70%-140%	0.39	32:27	___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.2	54.2	40%-130%	0.48	29:44	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.9	73.5	40%-130%	0.48	28:59	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	21:00	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.22	29:31	___

Data Reviewer: Sherrie 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 15:19 09/18/97

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 1.87

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975843B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF							0.65-0.89				0.818-1.101			
304-306		DC	NL		0:00	RO	0.21	0.83			0.000			
	D	DC	SN		17:23	RO	45.05	5.27			0.852			
	D	DC	SN		17:56	RO	57.19	5.12			0.879			
		DC	SN		18:51	RO	0.29	3.40			0.924			
		DC	SN		19:44	RO	0.24	1.59			0.967			
					19:56	RO	0.59	12.25	5.33	9.07	0.977			
		DC	SN		20:13	RO	1.94	2.80			0.991			
	M				20:26		0.70	18.65	7.65	11.00	1.002	2378-TCDF		AN
		DC	SN		21:40		0.69	2.76			1.062			
	D	DC	SN		22:19		0.85	9.84			1.094			
		DC	WH		22:39		0.71	3.82			1.110			
304-306				2	Peaks			30.90						
13C12-TCDF							0.65-0.89				0.951-1.049			
316-318		DC	NL		0:00		0.79	1.97			0.000			
		DC	WL		19:12	RO	1.45	4.90			0.941			
					19:55	RO	0.91	14.76	7.55	8.34	0.976			
					20:24		0.76	4,035.54	1,747.71	2,287.83	1.000	13C12-2378-TCDF	ISO	
		DC	SN		20:40	RO	0.10	4.44			1.013			
		DC	WH		21:36	RO	0.02	6.67			1.059			
		DC	WH		22:29	RO	0.32	8.14			1.102			
316-318				2	Peaks			4,050.30						

---------- Above: TCDF / TCDD Follows ----------

TCDD							0.65-0.89				0.851-1.058			
320-322		DC	NL		0:00	RO	0.61	0.85			0.000			
		DC	SN		18:12	RO	0.95	2.99			0.858			
		DC	SN		18:21	RO	0.32	2.74			0.865			
		DC	SN		18:36		0.70	1.65			0.877			
	D	DC	SN		18:48	RO	1.08	4.99			0.886			
		DC	SN		19:10	RO	3.87	1.10			0.903			
		DC	SN		19:30	RO	2.72	0.83			0.919			
	D	DC	SN		20:24	RO	3.10	4.96			0.962			
		DC	SN		20:49	RO	0.63	0.39			0.981			
		DC	SN		21:04	RO	0.52	2.80			0.993			
		DC	SN		21:22		0.69	1.45			1.007			
		DC	SN		22:04	RO	0.45	0.92			1.040			
		DC	WH		22:33	RO	2.09	1.13			1.063			
320-322				0	Peaks			0.00						
37Cl-TCDD											0.906-1.094			
328		DC	NL		0:00			0.28			0.000			

Compound/ M_Z....	QC	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
					19:39			7.51	7.51		0.926			
					21:14			2,615.91	2,615.91		1.001	37Cl-TCDD	SUR1	
					21:35			3.24	3.24		1.017			
					21:41			3.49	3.49		1.022			
328				4	Peaks			2,630.15						
13C12-TCDD						0.65-0.89					0.906-1.094			
332-334	DC	NL			0:00	RO	8.95	0.39			0.000			
					19:55	RO	1.52	7.89	6.76	4.46	0.939			
					21:00		0.80	4,836.79	2,156.40	2,680.39	0.990	13C12-1234-TCDD	RS1	
					21:13		0.80	3,017.80	1,343.17	1,674.63	1.000	13C12-2378-TCDD	IS1	
					21:34		0.84	31.45	14.34	17.11	1.016			
332-334				4	Peaks			7,893.93						

---------- Above: TCDD / PeCDF Follows ----------

Compound/ M_Z....	QC	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
PeCDF						1.32-1.78					0.905-1.077			
340-342	DC	NL			0:00	RO	0.80	0.07			0.000			
					22:37	RO	1.82	8.31	5.94	3.26	0.916			
	DC	SN			22:51	RO	2.54	2.22			0.925			
	DC	SN			23:25	RO	1.91	0.59			0.948			
D	DC	SN			23:49	RO	2.36	8.13			0.964			
	DC	SN			24:24		1.42	2.47			0.988			
	DC	SN			24:25	RO	2.43	1.53			0.989			
	DC	SN			24:44	RO	0.53	1.92			1.001	12378-PeCDF	AN	
	DC	SN			24:55	RO	4.35	1.10			1.009			
	DC	SN			25:00	RO	1.20	1.94			1.012			
	DC	SN			25:08	RO	1.10	0.54			1.018			
	DC	SN			25:19	RO	3.14	0.74			1.025			
	DC	SN			25:29	RO	0.95	2.83			1.032	23478-PeCDF	AN	
	DC	SN			25:38	RO	1.14	3.14			1.038			
	DC	SN			25:56		1.56	1.69			1.050			
	DC	SN			26:16	RO	0.91	0.49			1.063			
	DC	WH			26:58	RO	0.90	0.94			1.092			
340-342				1	Peak			8.31						
13C12-PeCDF						1.32-1.78					0.838-1.162			
352-354	DC	NL			0:00	RO	1.00	0.10			0.000			
	DC	SN			23:49	RO	2.33	3.90			0.964			
					24:20	RO	2.33	8.03	7.33	3.15	0.985			
					24:42		1.50	3,116.31	1,870.46	1,245.85	1.000	13C12-PeCDF 123	IS2	
	DC	SN			24:52	RO	3.27	4.97			1.007			
					25:28		1.49	2,822.10	1,689.29	1,132.81	1.031	13C12-PeCDF 234	SUR2	
	DC	SN			25:47	RO	7.09	1.43			1.044			
	DC	SN			25:52	RO	6.42	1.53			1.047			
	DC	SN			26:27	RO	2.07	4.82			1.071			
352-354				3	Peaks			5,946.44						

---------- Above: PeCDF / PeCDD Follows ----------

Compound/ M_Z....	QC	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
PeCDD						1.32-1.78					0.919-1.025			
356-358	DC	NL			0:00	RO	5.60	0.13			0.000			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		23:50	RO	1.23	1.84			0.923			
	DC	SN		23:58	RO	1.28	2.65			0.928			
	DC	SN		24:09	RO	0.45	1.00			0.935			
	DC	SN		24:31	RO	4.59	1.38			0.949			
	DC	SN		24:42	RO	4.00	3.39			0.956			
	DC	SN		25:15	RO	0.93	1.10			0.977			
	DC	SN		25:27	RO	18.10	0.51			0.985			
	DC	SN		25:44	RO	0.36	0.31			0.996			
	DC	SN		25:52		1.63	1.55			1.001	12378-PeCDD	AN	
	DC	SN		25:58	RO	5.94	0.46			1.005			
	DC	WH		26:43	RO	1.10	1.76			1.034			
356-358			0	Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370	DC	NL		0:00	RO	9.14	0.18			0.000			
				25:50		1.55	1,755.85	1,066.84	689.01	1.000	13C12-PeCDD 123	IS3	
				25:59		1.60	148.96	91.60	57.36	1.006			
368-370			2	Peaks			1,904.81						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.955-1.051			
374-376	DC	NL		0:00	RO	1.03	0.70			0.000			
				27:22	RO	1.50	5.38	3.59	2.40	0.961			
				27:31		1.33	12.08	6.89	5.19	0.966			Q
	DC	SN		27:41		1.22	1.44			0.972			
	DC	SN		27:48	RO	1.53	1.93			0.976			
				28:22		1.21	10.85	5.94	4.91	0.996	123478-HxCDF	AN	
	DC	SN		28:29	RO	1.49	3.54			1.000	123678-HxCDF	AN	
	DC	SN		28:37	RO	0.33	0.42			1.005			
	DC	SN		28:43	RO	2.26	0.43			1.008			
	DC	SN		28:48	RO	0.98	2.19			1.011			
MK				29:00	RO	1.45	3.74	2.42	1.67	1.018	234678-HxCDF	AN	
	DC	SN		29:12	RO	0.36	0.14			1.025			
	DC	SN		29:22	RO	3.63	0.36			1.031			
	DC	SN		29:34	RO	5.38	0.29			1.038			
	DC	SN		29:44	RO	1.01	1.41			1.044	123789-HxCDF	AN	
	DC	SN		29:49		1.41	1.64			1.047			
	DC	SN		29:56	RO	3.40	0.22			1.051			
	DC	WH		30:04	RO	1.75	0.27			1.056			
374-376			4	Peaks			32.05						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386	DC	NL		0:00	RO	0.32	2.22			0.000			
	DC	SN		27:30	RO	0.75	1.25			0.965			
				28:22		0.45	2,317.24	719.33	1,597.91	0.996	13C12-HxCDF 478	SUR3	
				28:29		0.49	2,162.06	706.30	1,455.76	1.000	13C12-HxCDF 678	IS4	Q
				28:59		0.48	2,280.64	735.67	1,544.97	1.018	13C12-HxCDF 234	ALT2	
	DC	SN		29:11	RO	0.99	2.13			1.025			
				29:44		0.48	1,461.67	473.75	987.92	1.044	13C12-HxCDF 789	ALT1	
384-386			4	Peaks			8,221.61						

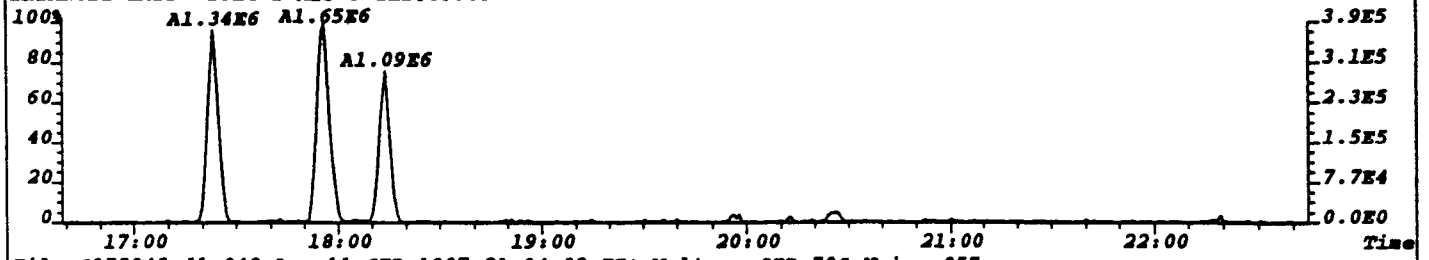
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.950-1.014			
390-392		DC	NL	0:00	RO	0.83	0.27			0.000			
				27:55		1.35	10.53	6.04	4.49	0.956			
		DC	SN	28:06	RO	0.77	0.18			0.962			
		DC	SN	28:11		1.27	0.34			0.965			
	K			28:22	RO	2.98	3.65	4.85	1.63	0.971			
		DC	SN	28:28	RO	3.57	1.86			0.975			
				28:37	RO	1.61	6.74	4.85	3.01	0.980			
		DC	SN	29:00	RO	2.66	2.93			0.993			
		DC	SN	29:13	RO	2.25	1.37			1.001	123678-HxCDD	AN	
		DC	SN	29:30	RO	2.47	2.67			1.010	123789-HxCDD	AN	
		DC	WH	29:44	RO	11.32	0.56			1.018			
390-392				3 Peaks			20.92						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404		DC	NL	0:00	RO	1.54	1.37			0.000			
		DC	SN	28:37	RO	1.66	3.52			0.980			
				29:08		1.31	1,559.21	884.19	675.02	0.998	13C12-HxCDD 478	SUR4	
				29:12		1.14	1,605.00	855.13	749.87	1.000	13C12-HxCDD 678	IS5	
				29:31		1.22	2,782.46	1,529.14	1,253.32	1.011	13C12-HxCDD 789	RS2	
		DC	SN	29:51	RO	1.99	2.17			1.022			
402-404				3 Peaks			5,946.67						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20						0.994-1.044			
408-410		DC	NL	0:00	RO	3.60	0.51			0.000			
				31:15		1.02	13.52	6.84	6.68	1.001	1234678-HpCDF	AN	
		DC	SN	31:38	RO	1.22	3.45			1.013			
		DC	SN	31:44	RO	1.75	1.12			1.016			
		DC	SN	31:54	RO	12.00	0.08			1.021			
		DC	SN	32:04	RO	3.83	0.47			1.027			
408-410				1 Peak			13.52						
13C12-HpCDF				0.37-0.51						0.936-1.128			
418-420		DC	NL	0:00	RO	2.33	0.39			0.000			
				31:14		0.42	871.85	258.15	613.70	1.000	13C12-HpCDF 678	IS6	
		DC	SN	32:07	RO	0.72	0.52			1.028			
				32:27		0.39	508.55	143.25	365.30	1.039	13C12-HpCDF 789	SUR5	
		DC	SN	32:41		0.45	1.64			1.046			
418-420				2 Peaks			1,380.40						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD				0.88-1.20						0.976-1.005			
424-426		DC	NL	0:00	RO	1.35	0.35			0.000			
		DC	WL	31:13	RO	2.15	3.37			0.972			
				31:31		1.04	37.00	18.84	18.16	0.981			
		DC	SN	31:51	RO	0.80	1.18			0.992			
				32:09		1.07	24.66	12.73	11.93	1.001	1234678-HpCDD	AN	

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
424-426			2 Peaks				61.66						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	6.36	0.29			0.000			
	DC	SN		31:28	RO	7.06	0.35			0.980			
				32:07		1.03	674.93	341.73	333.20	1.000	13C12-HpCDD	678	IS7
	DC	SN		32:24	RO	0.34	1.24			1.009			
436-438			1 Peak				674.93						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF				0.76-1.02						0.885-1.115			
442-444	DC	NL		0:00	RO	1.50	0.15			0.000			
	DC	SN		31:09		0.92	0.23			0.898			
	DC	SN		31:29		0.81	0.49			0.908			
	DC	SN		32:09	RO	1.24	0.72			0.927			
	DC	SN		32:23	RO	1.36	0.21			0.934			
	DC	SN		32:41	RO	1.92	0.23			0.942			
	DC	SN		33:03	RO	0.25	0.08			0.953			
	DC	SN		33:07	RO	1.15	0.25			0.955			
	DC	SN		33:15	RO	1.06	0.34			0.959			
	DC	SN		33:28	RO	0.32	0.13			0.965			
	DC	SN		33:32	RO	2.24	0.72			0.967			
	DC	SN		34:17	RO	2.25	0.60			0.988			
	DC	SN		34:34	RO	1.39	0.96			0.997			
	DC	SN		34:45	RO	5.36	0.47			1.002	OCDF		AN
	DC	SN		34:52	RO	0.44	0.66			1.005			
	DC	SN		35:07	RO	0.40	0.17			1.012			
	DC	SN		35:35	RO	8.38	0.15			1.026			
442-444			0 Peaks				0.00						
OCDD				0.76-1.02						0.885-1.115			
458-460	DC	NL		0:00		0.90	0.19			0.000			
				34:39		0.87	1,034.07	479.89	554.18	0.999	OCDD		AN
	DC	SN		35:07	RO	1.06	0.96			1.012			
458-460			1 Peak				1,034.07						
13C12-OCDD				0.76-1.02						0.994-1.004			
470-472	DC	NL		0:00	RO	1.63	0.15			0.000			
				34:41		0.88	460.83	216.17	244.66	1.000	13C12-OCDD		IS8
470-472			1 Peak				460.83						

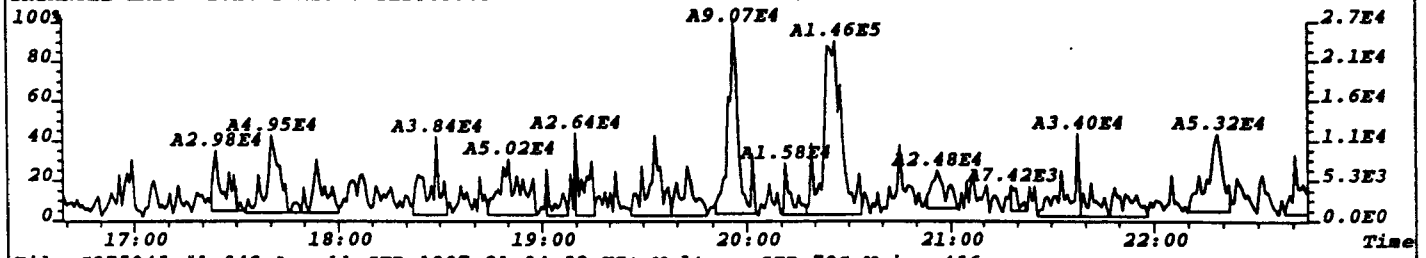
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

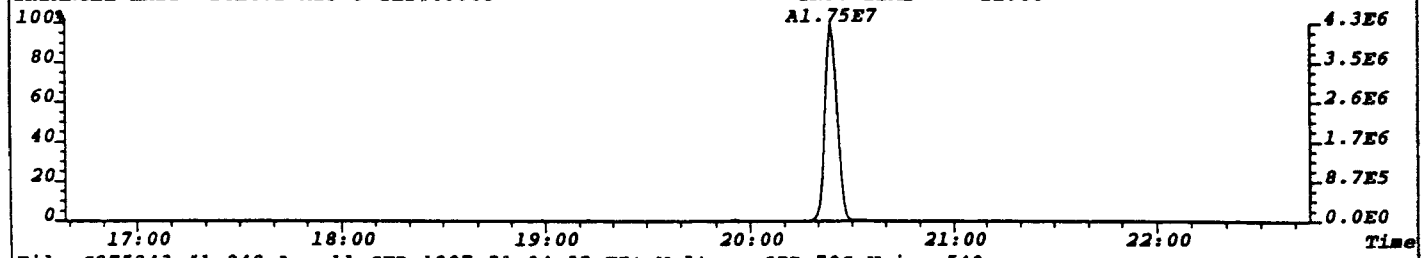
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:182
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,728.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



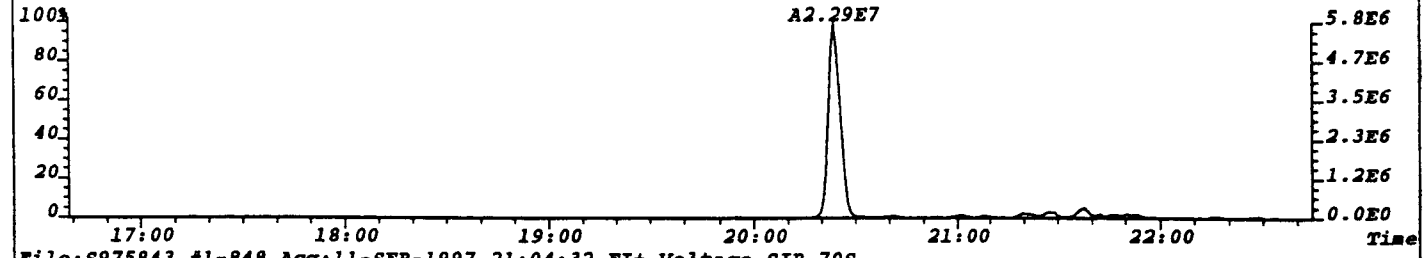
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:857
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,3428.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



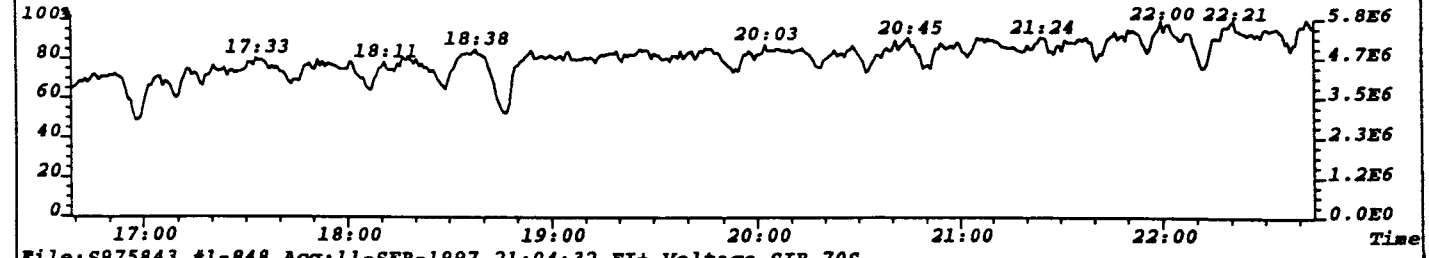
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:436
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1744.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



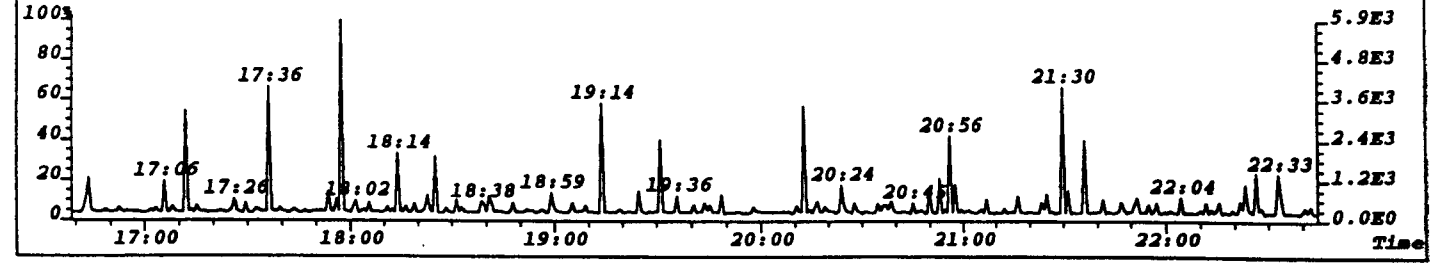
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:549
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2196.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



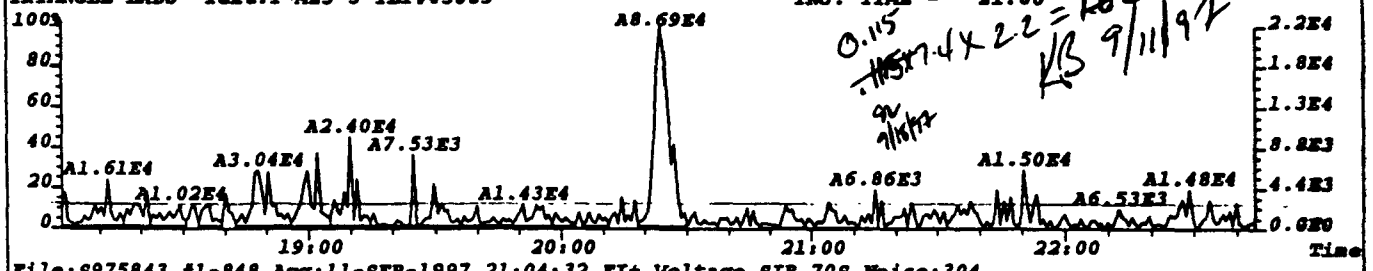
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



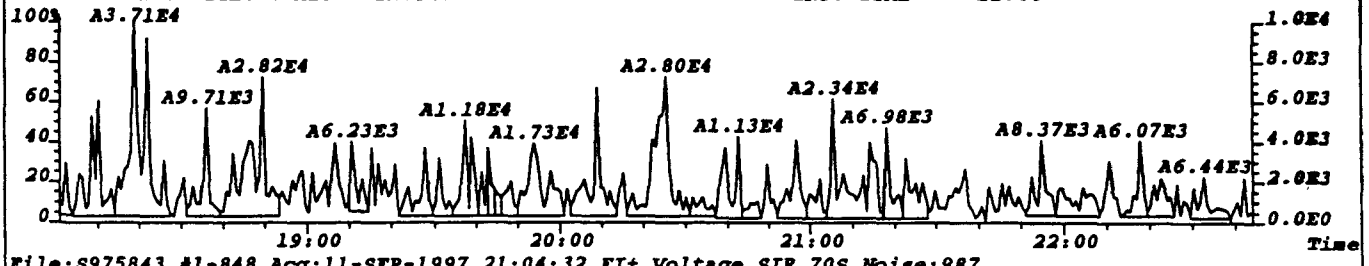
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



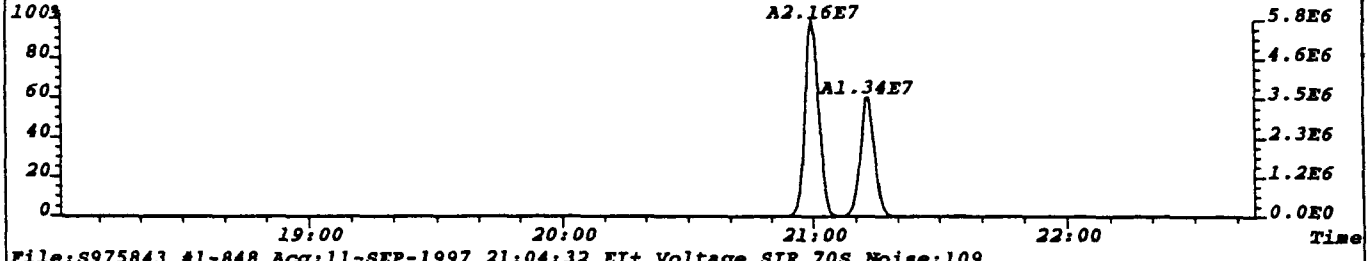
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:186
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,744.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



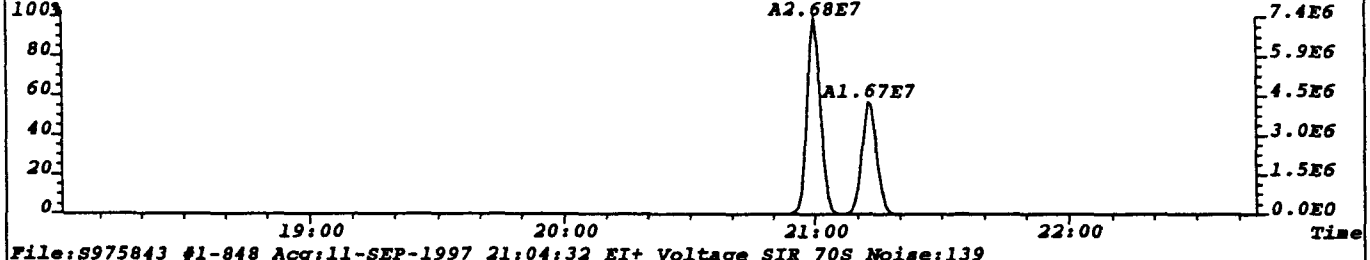
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:304
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



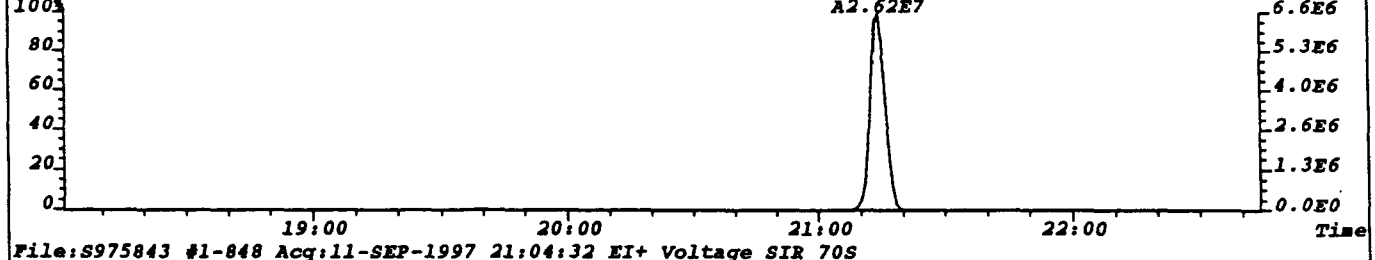
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:987
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3948.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



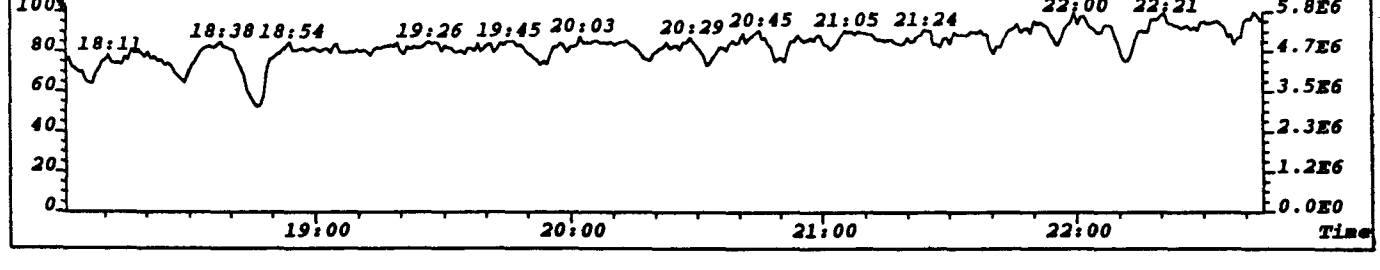
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:109
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,436.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



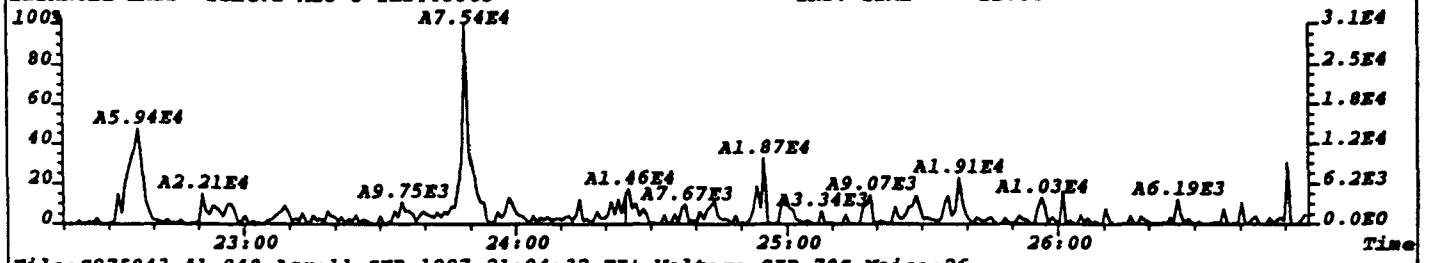
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:139
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,556.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



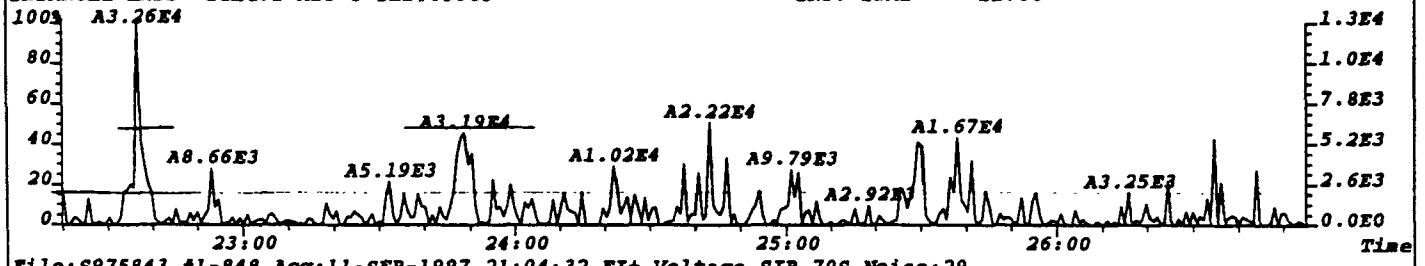
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



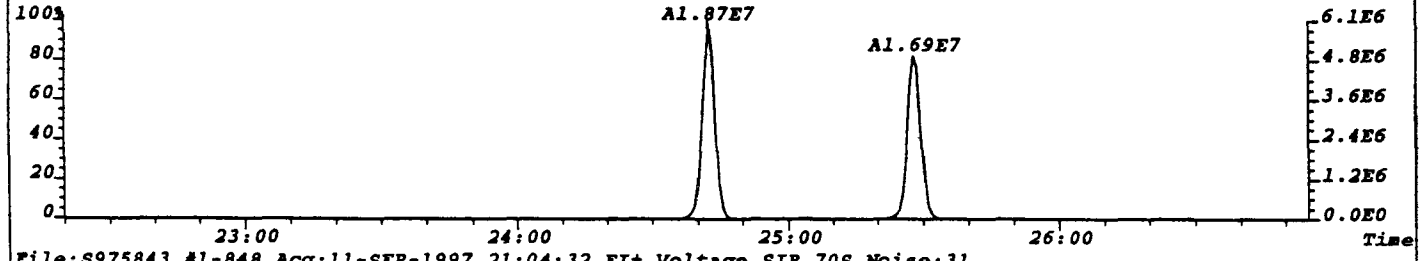
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:18
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,72.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



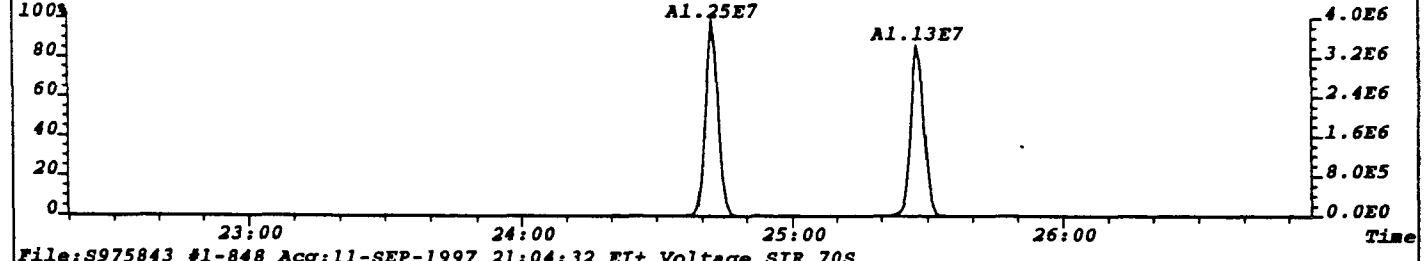
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:26
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



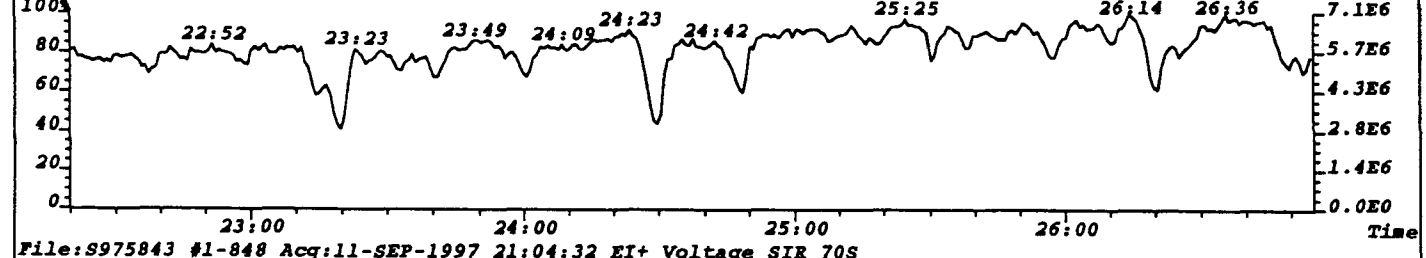
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:29
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



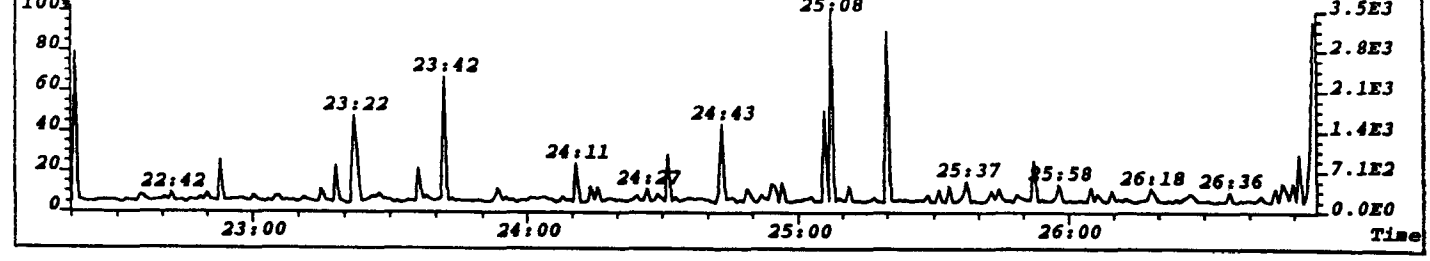
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:31
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



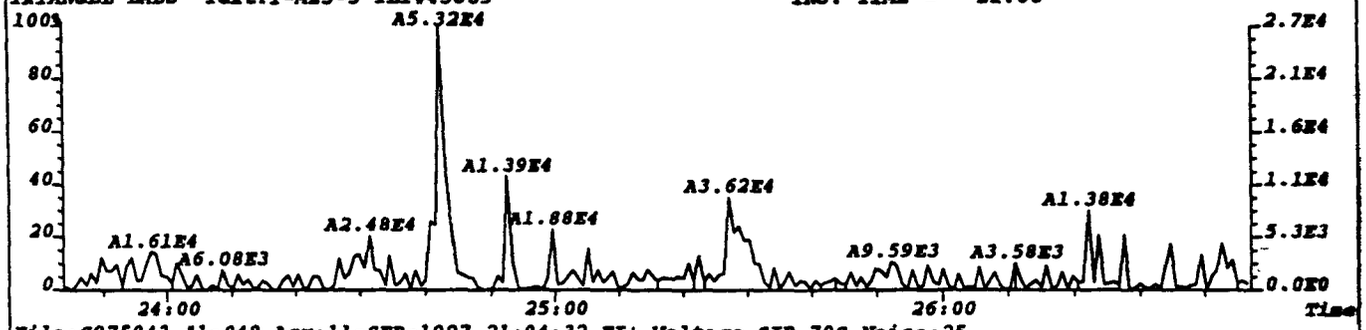
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



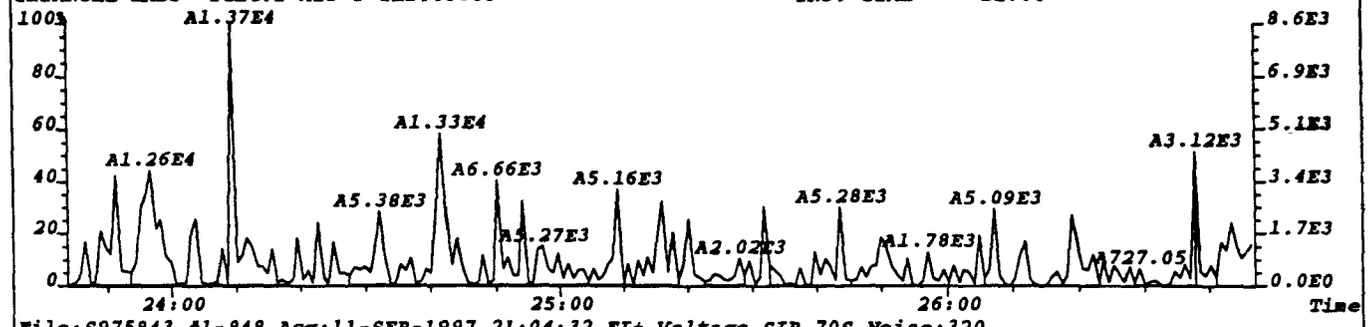
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



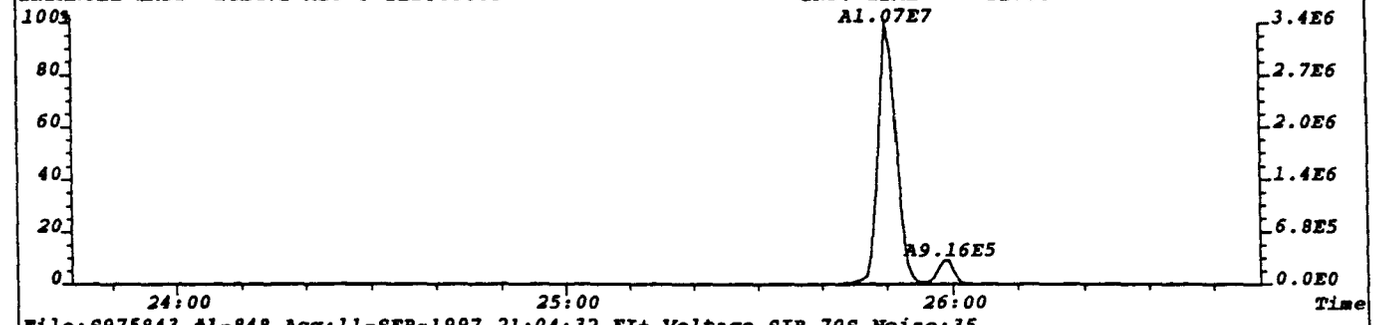
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:139
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,556.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



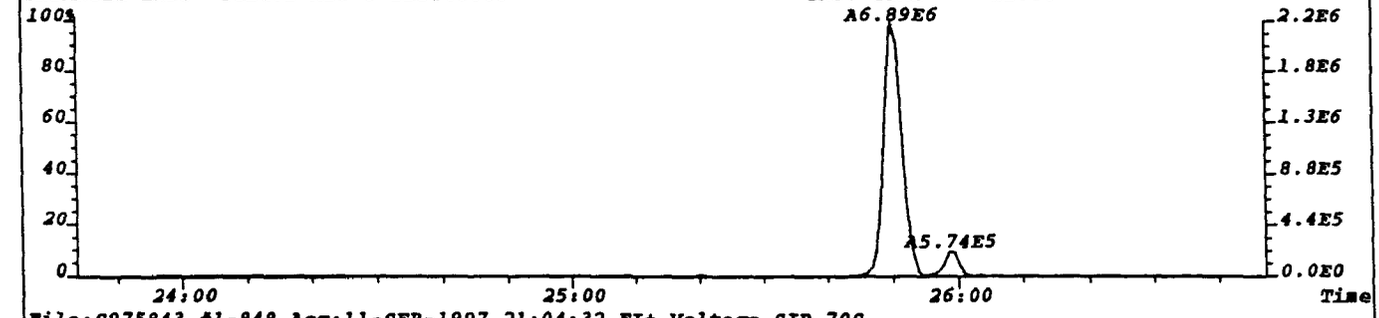
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:25
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,100.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



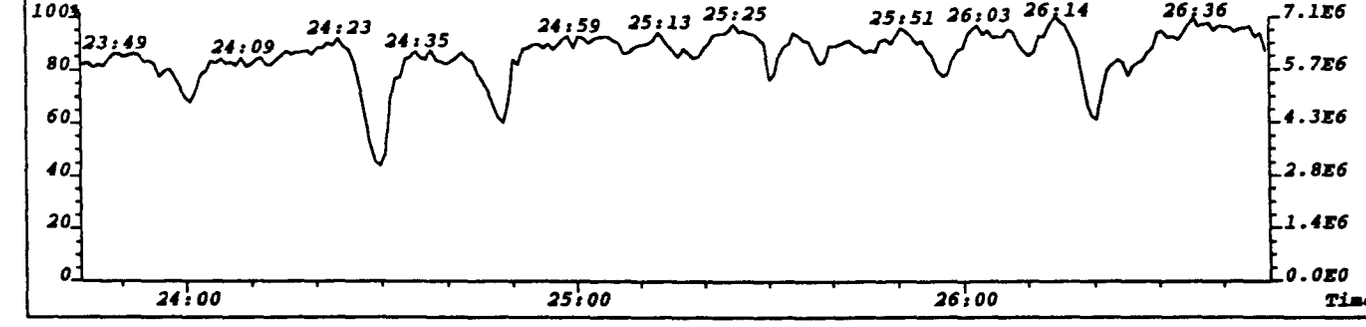
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:320
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1280.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



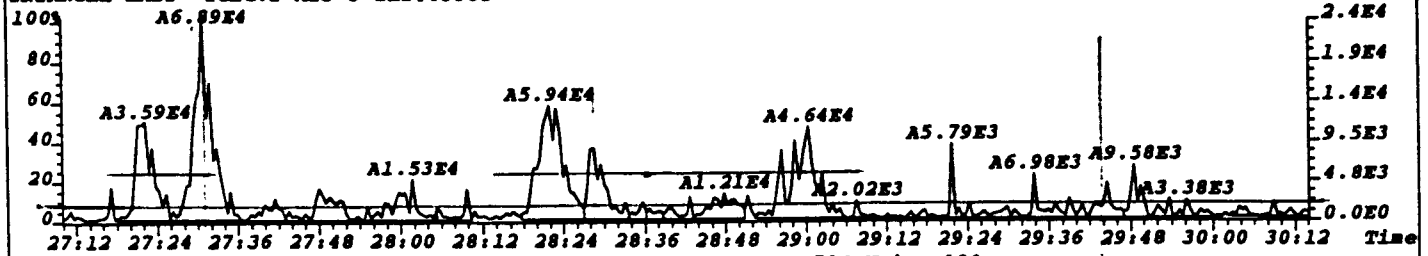
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:35
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



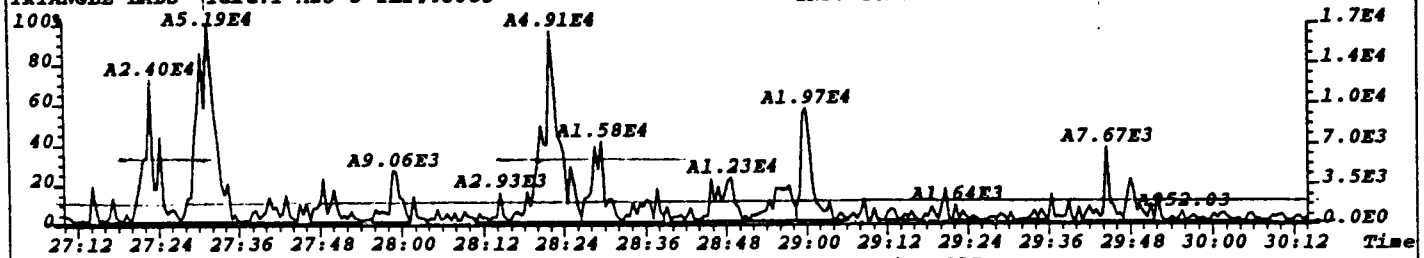
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



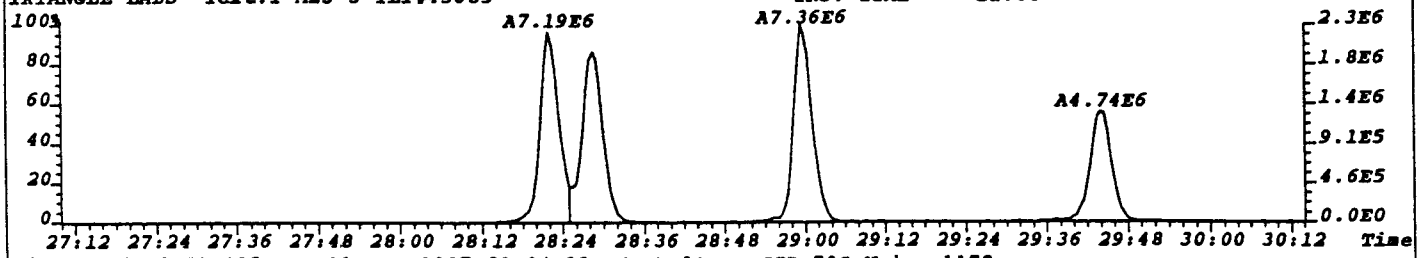
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:194
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,776.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



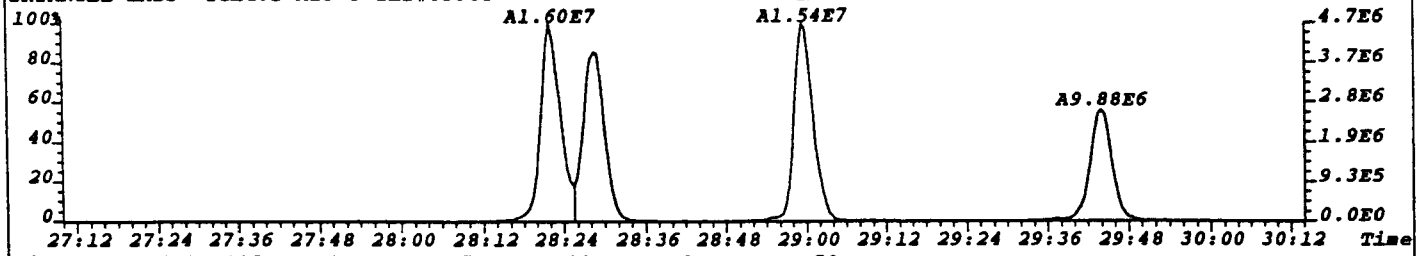
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:190
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,760.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



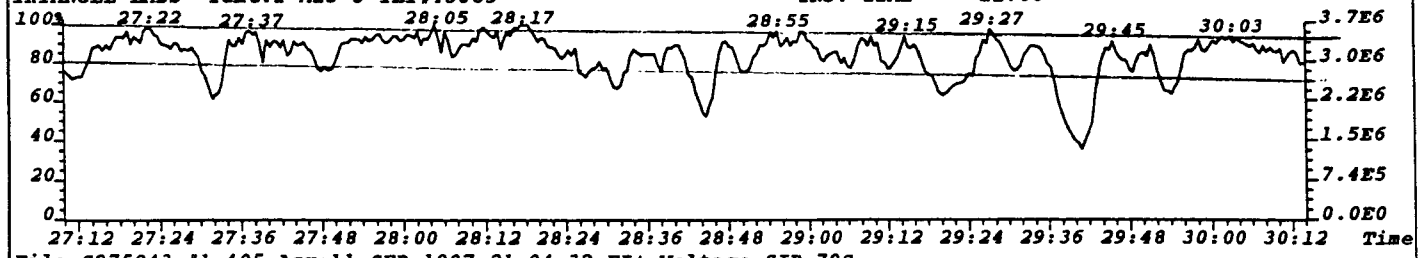
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:377
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1508.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



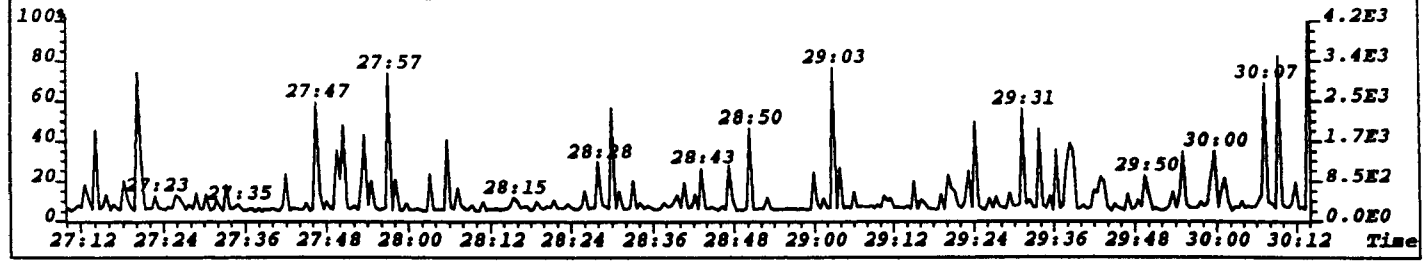
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:1172
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4688.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



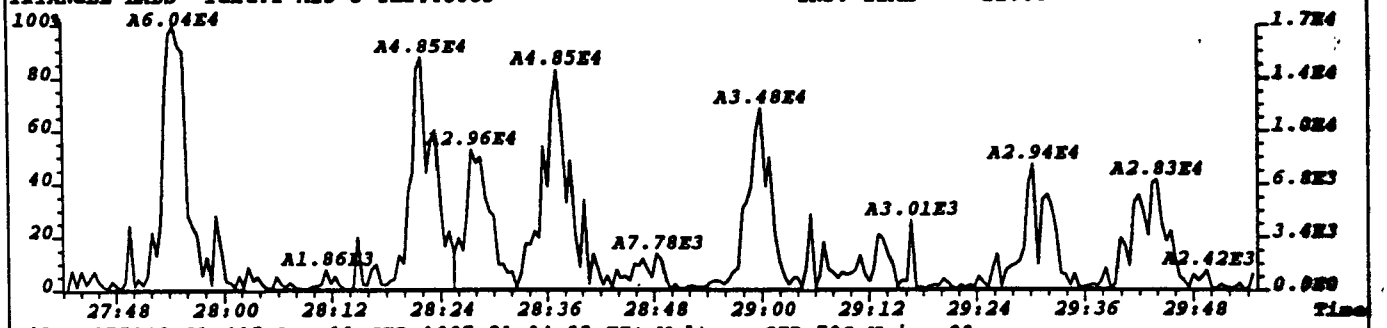
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



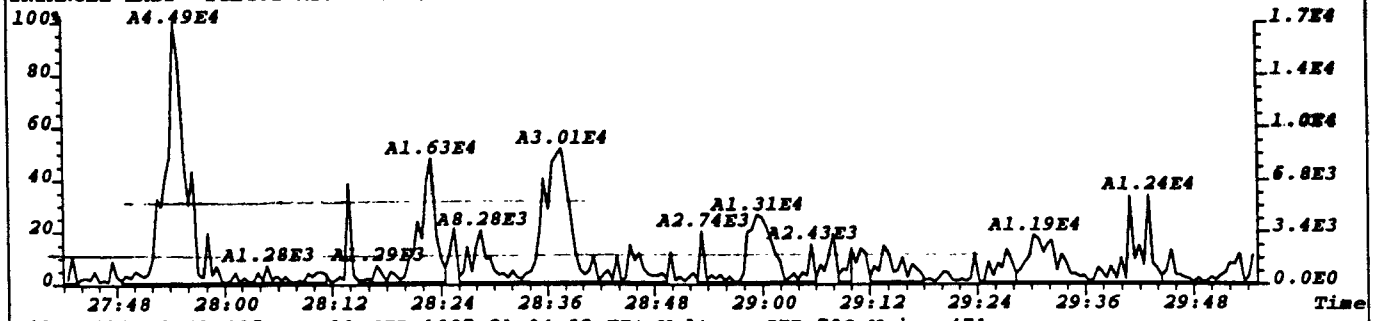
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



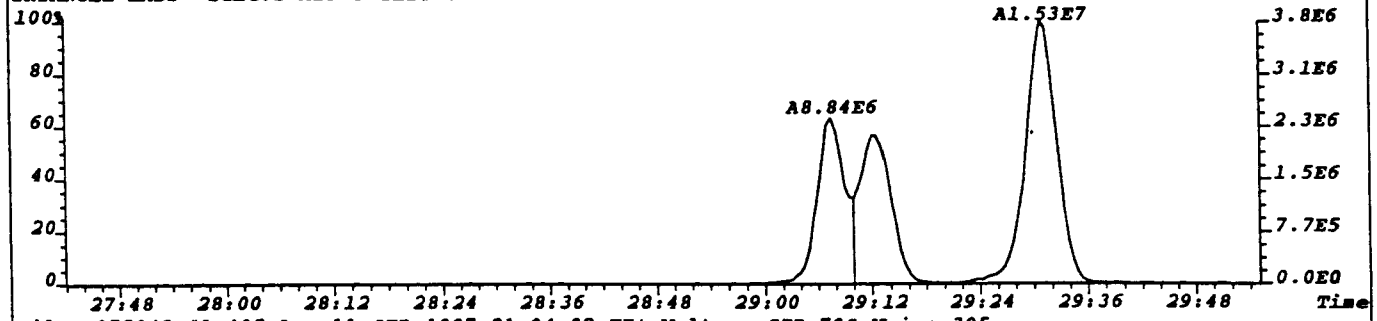
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:74
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,296.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



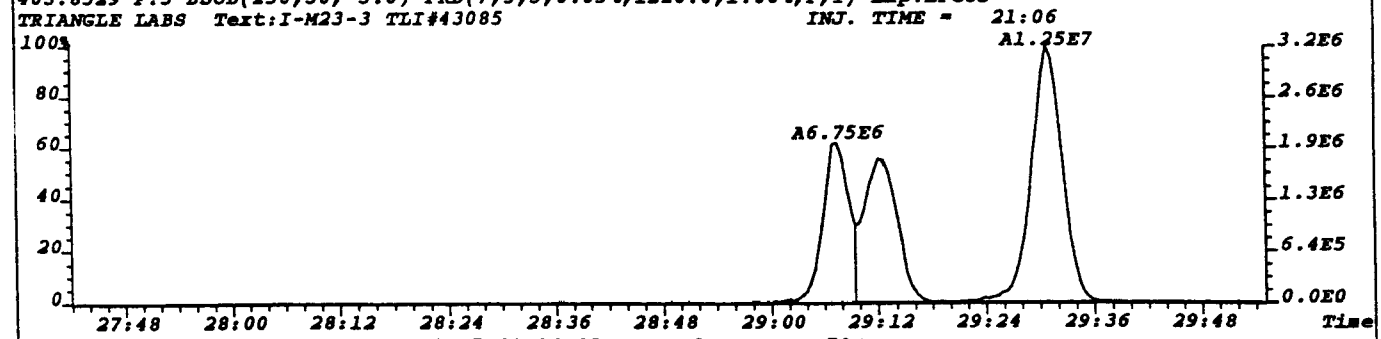
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:88
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,352.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



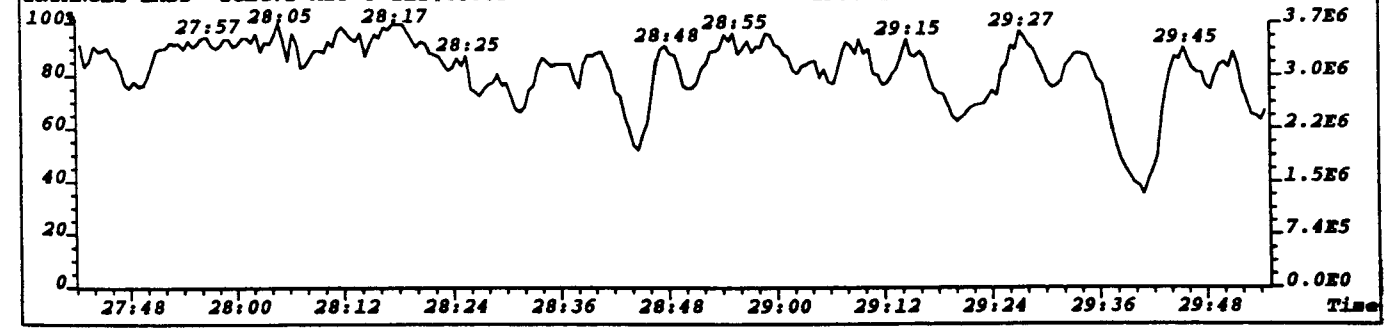
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:471
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1884.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



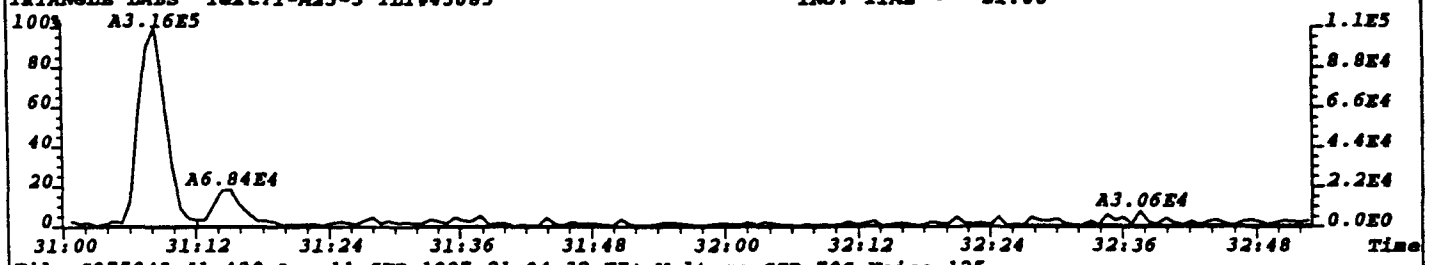
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:305
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1220.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



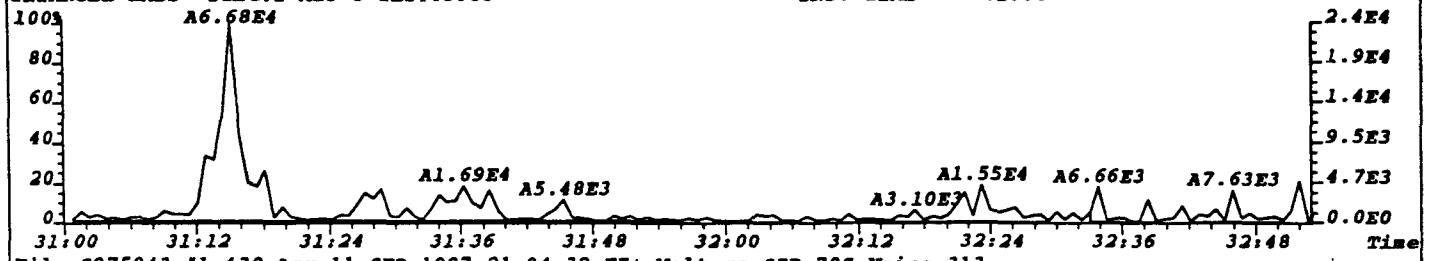
File:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



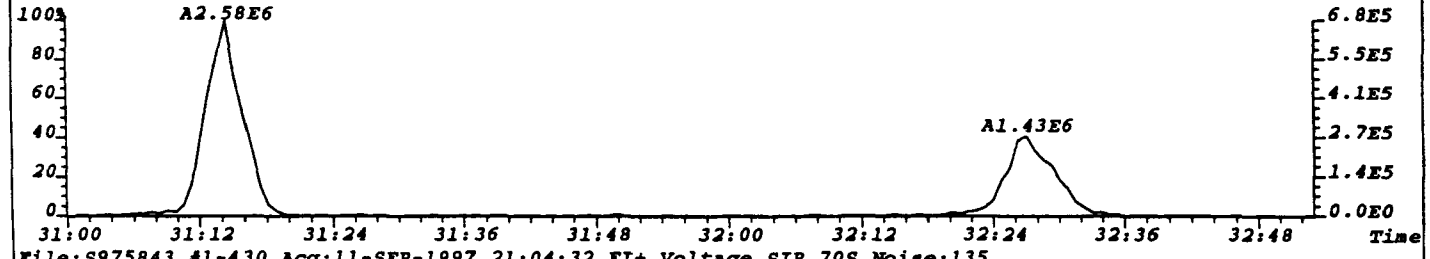
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:452
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1808.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



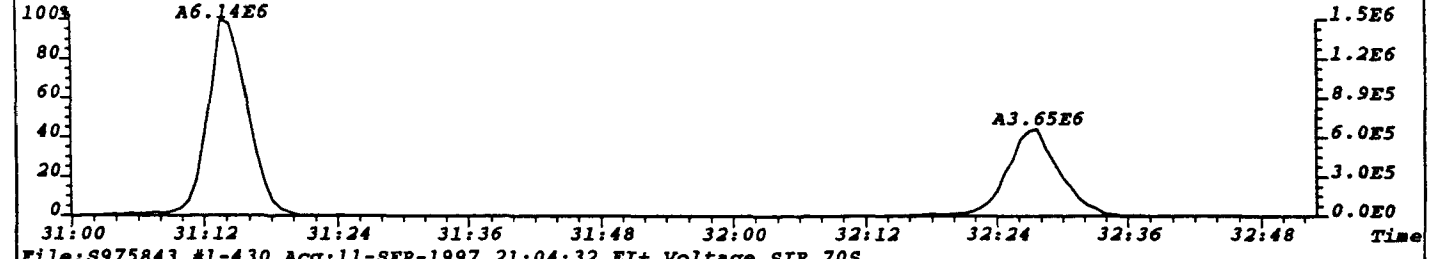
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:125
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,500.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



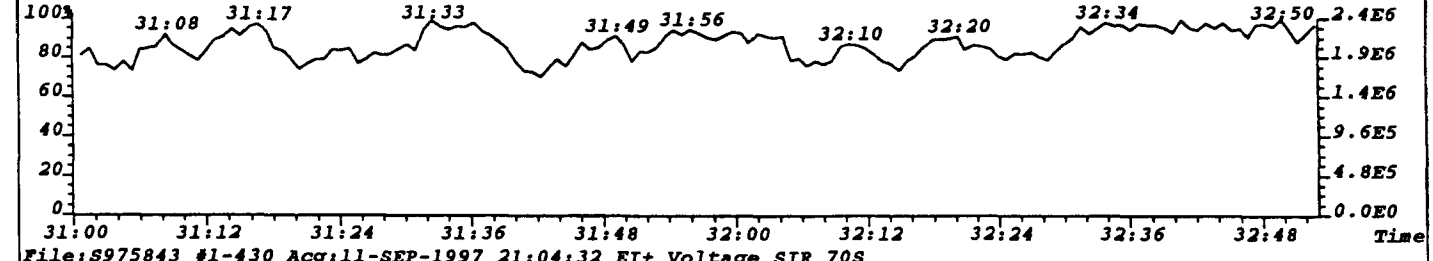
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:313
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



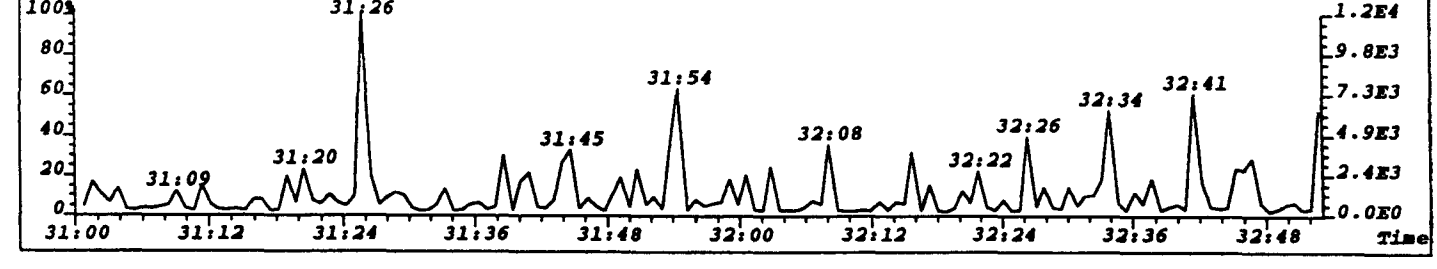
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:135
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



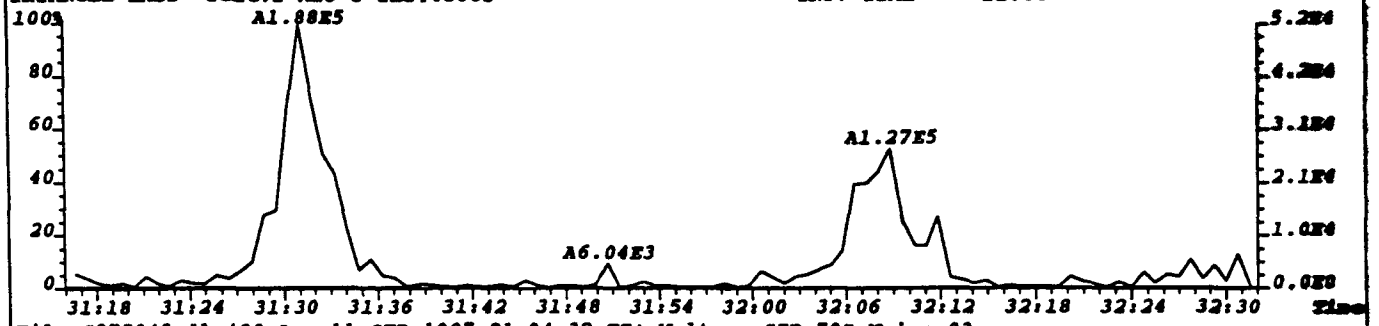
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



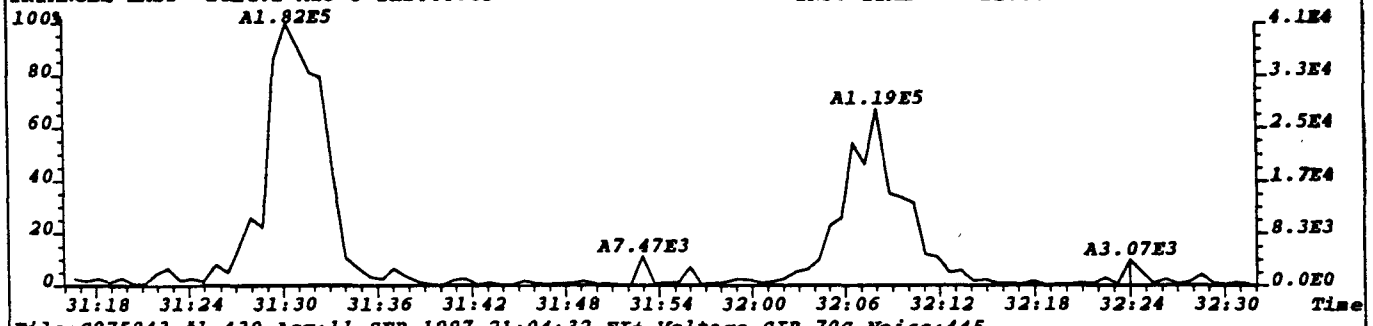
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



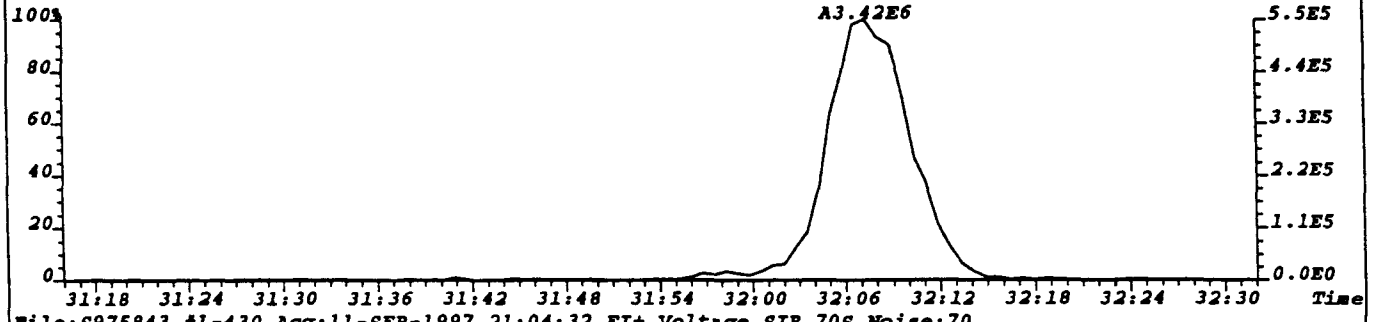
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:113
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,452.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



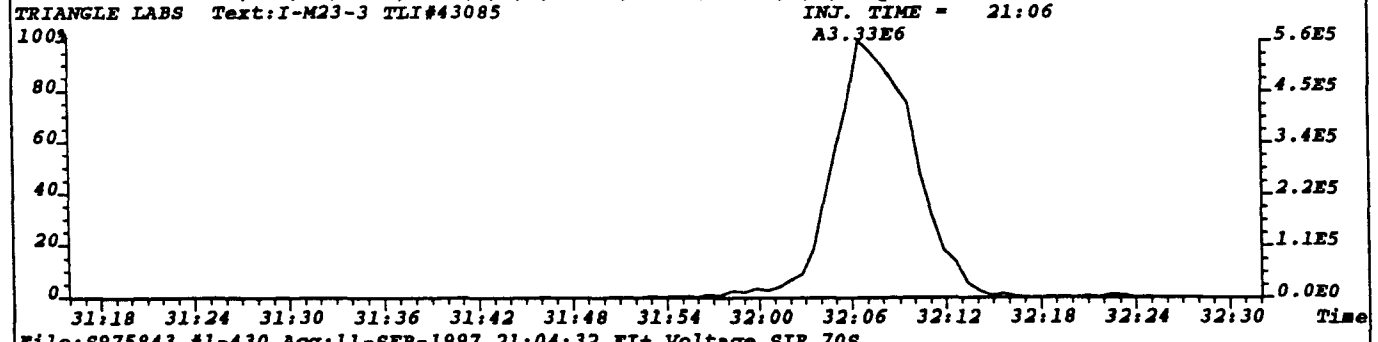
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:83
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



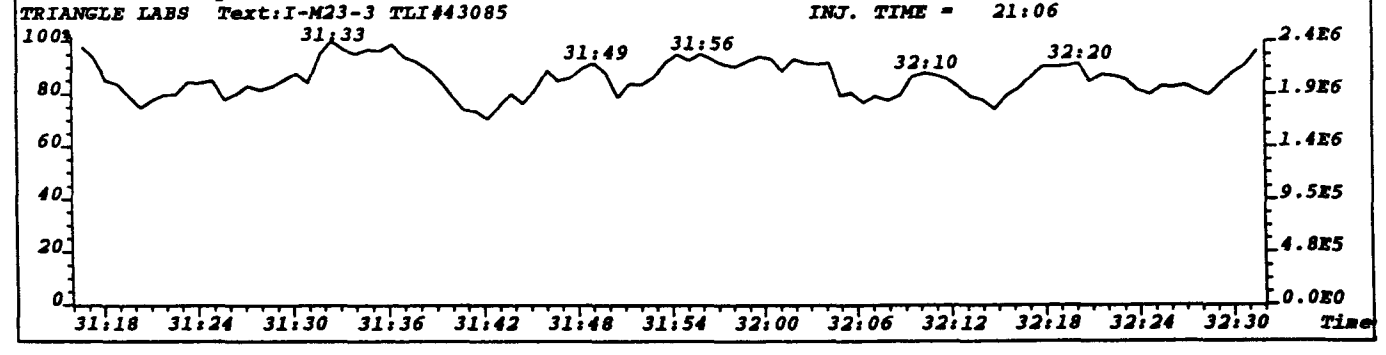
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:445
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1780.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



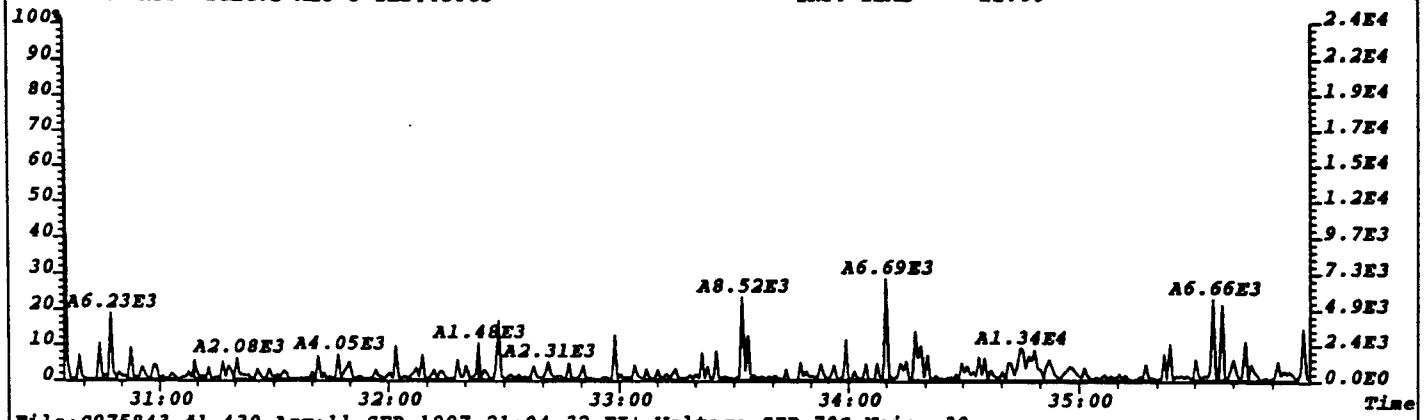
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:70
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,280.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



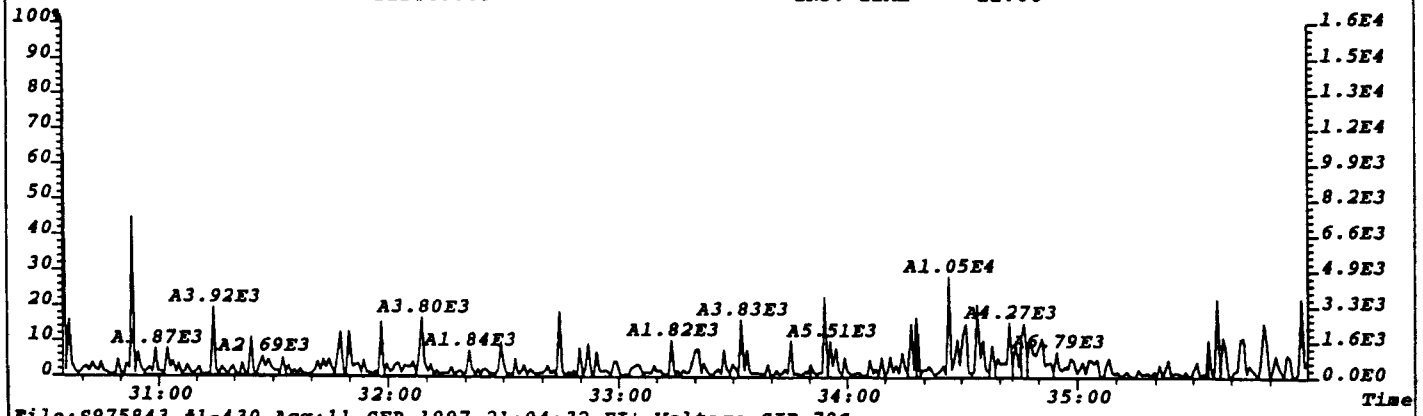
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



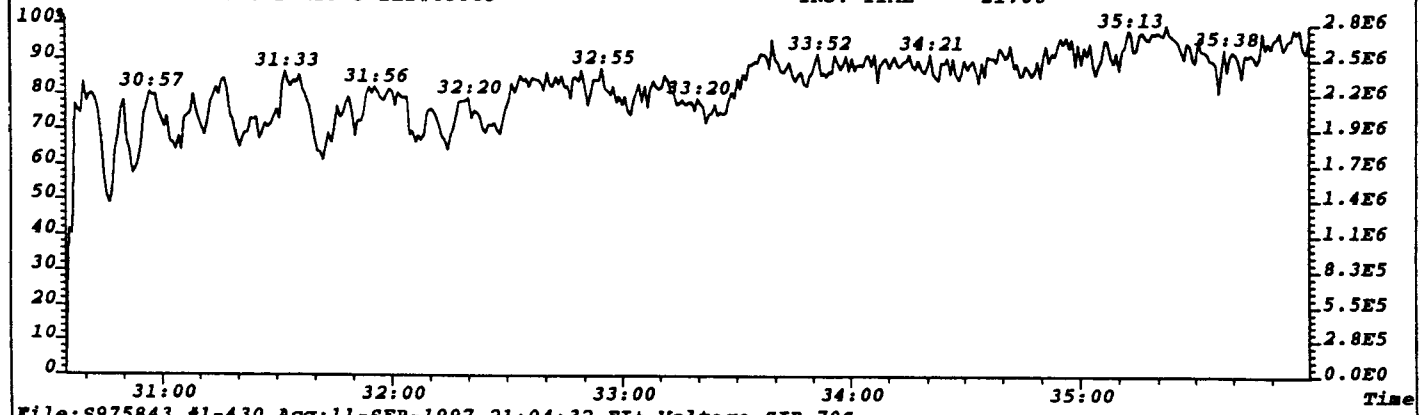
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:59
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



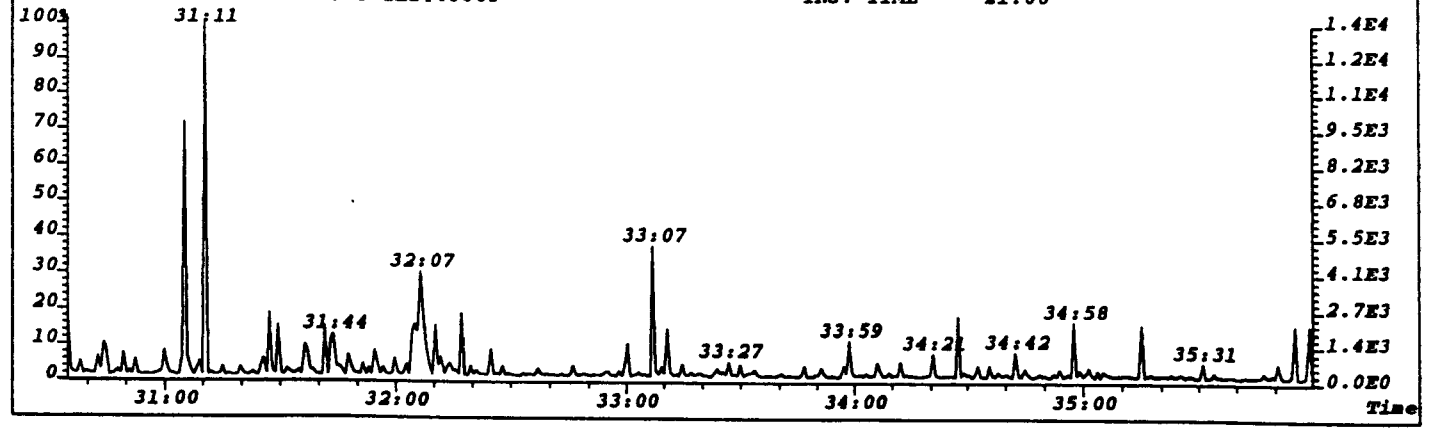
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:38
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



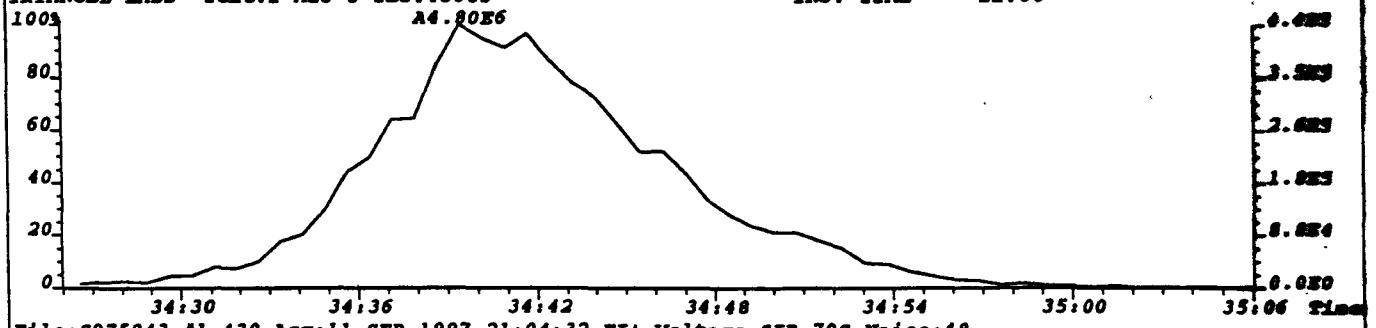
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



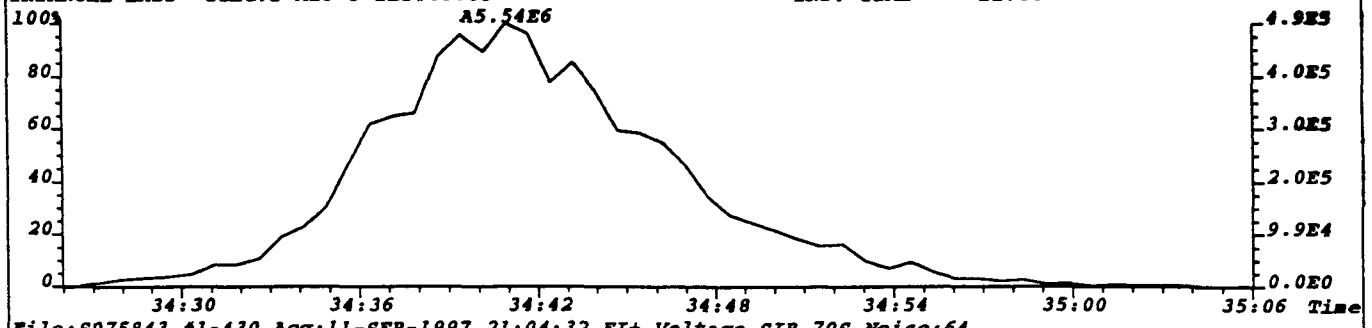
File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:43
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:48
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,192.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



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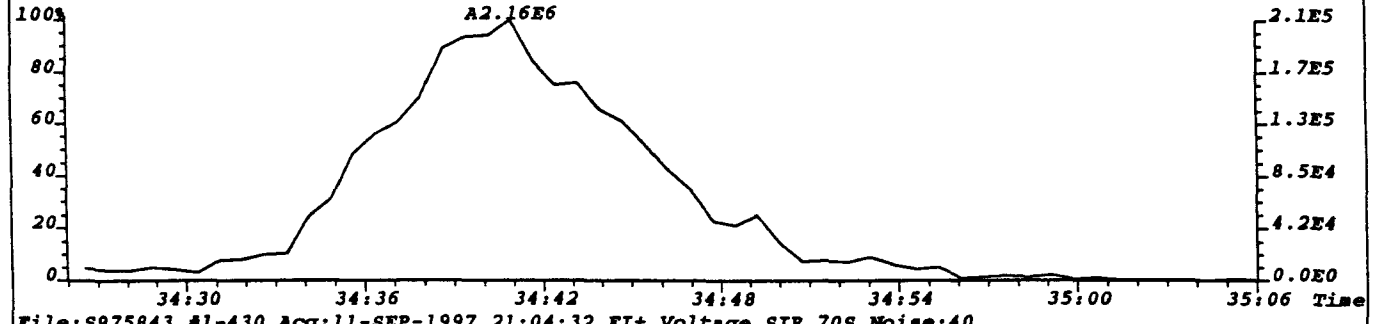
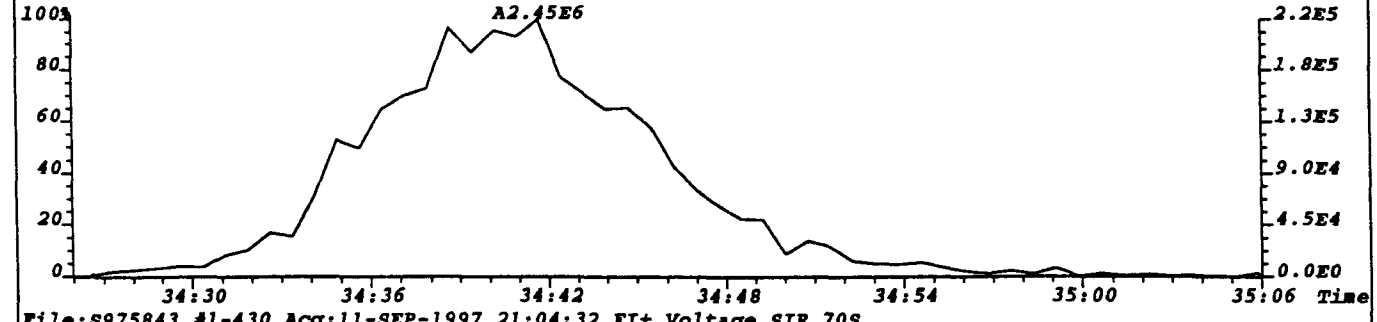
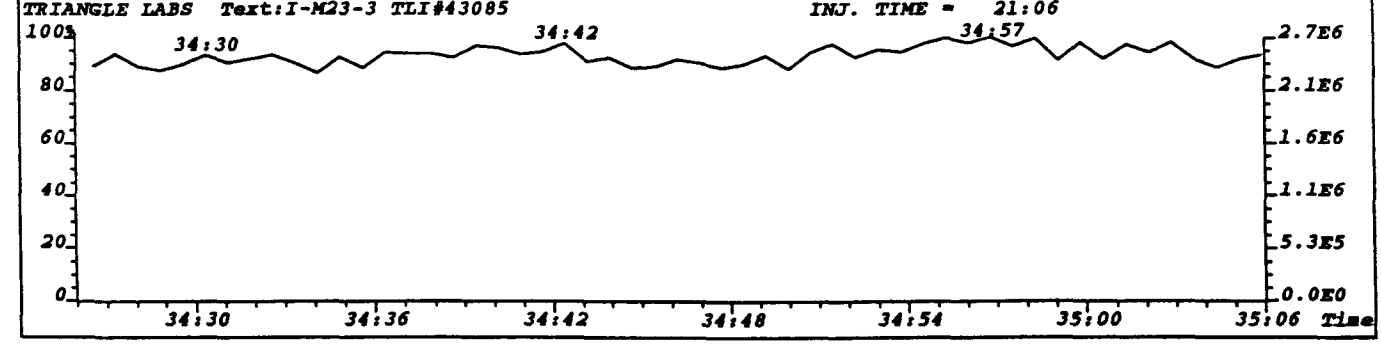
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,256.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06

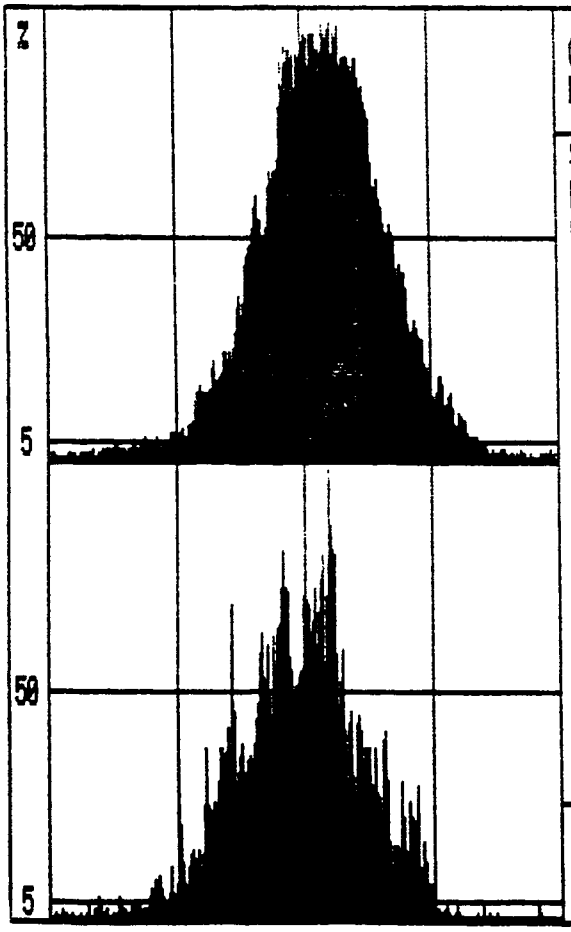


File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S Noise:40
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



File:S975843 #1-430 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-3 TLI#43085 INJ. TIME = 21:06



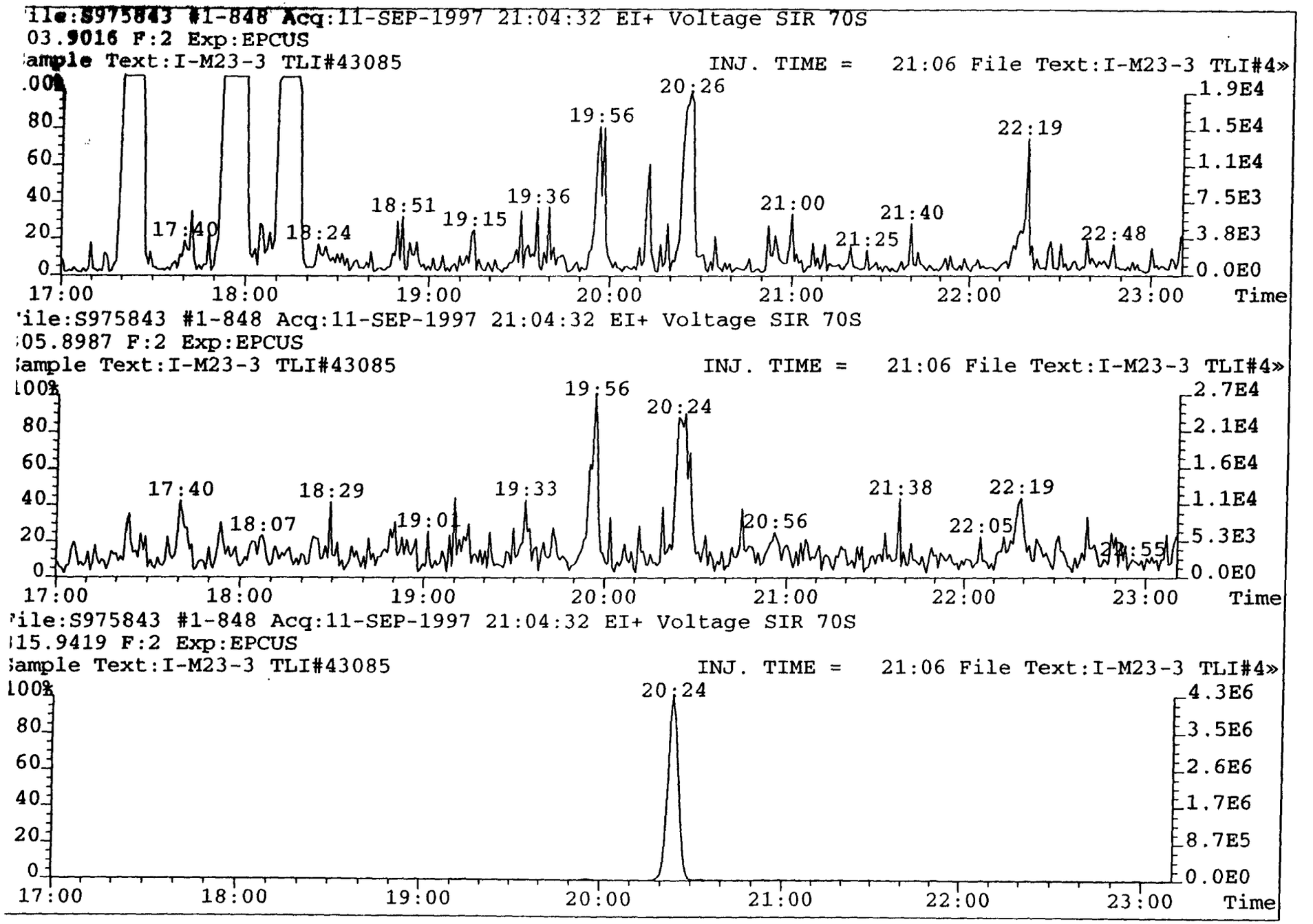


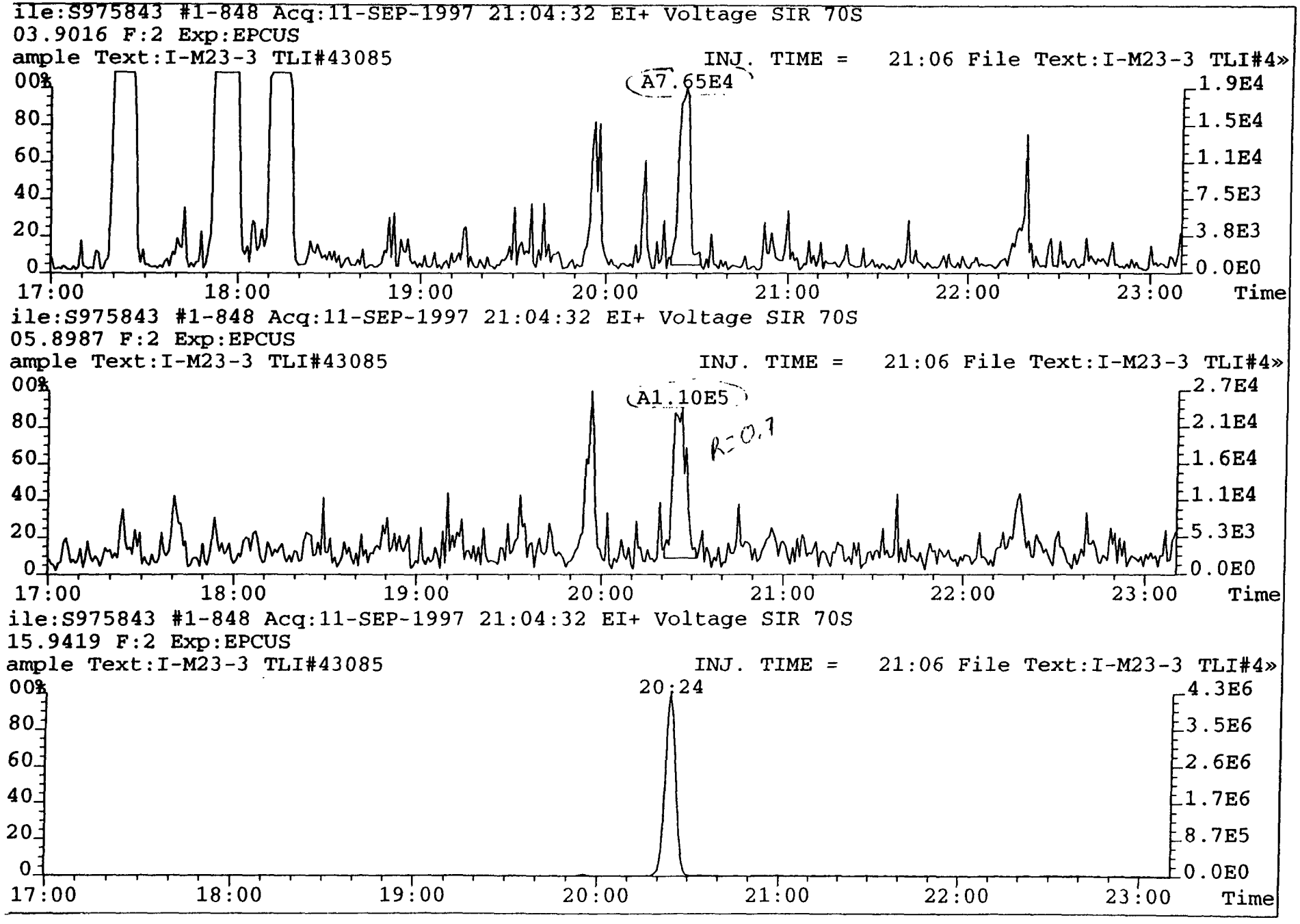
Channel I 330.9792 Peak top
Height 1.51 volts Span 200 ppm

System file name	EPCUS
Data file name	A:S975843
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

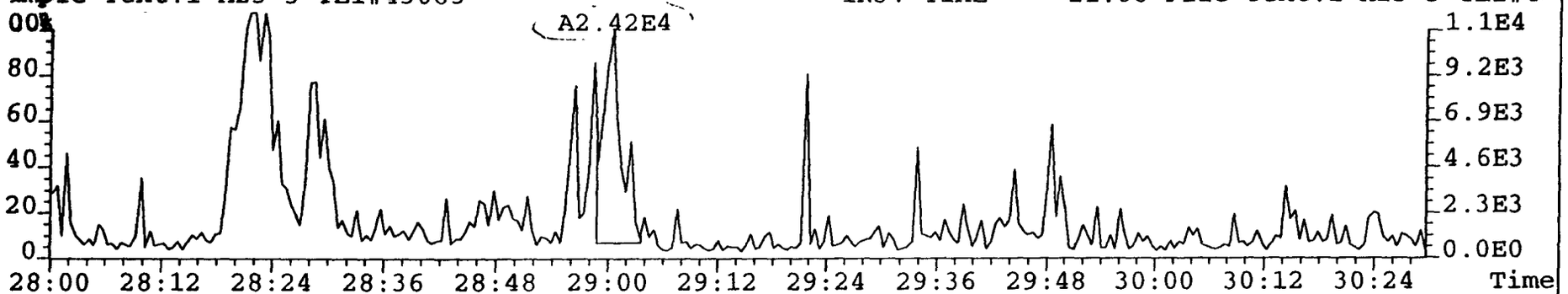
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .27 volts Span 200 ppm


File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
03.9016 F:2 Exp:EPCUS
Sample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
17:40
18:24
18:51
19:15
19:36
19:56
20:26
21:00
21:25
21:40
22:19
22:48
1.9E4
1.5E4
1.1E4
7.5E3
3.8E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
05.8987 F:2 Exp:EPCUS
Sample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
17:40
18:07
18:29
19:01
19:33
19:56
20:24
20:56
21:38
22:05
22:19
2.7E4
2.1E4
1.6E4
1.1E4
5.3E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
File:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
15.9419 F:2 Exp:EPCUS
Sample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
20:24
4.3E6
3.5E6
2.6E6
1.7E6
8.7E5
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time


ile:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
03.9016 F:2 Exp:EPCUS
ample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
A7.65E4
00%
80
60
40
20
0
1.9E4
1.5E4
1.1E4
7.5E3
3.8E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
ile:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
05.8987 F:2 Exp:EPCUS
ample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
A1.10E5
R=0.1
00%
80
60
40
20
0
2.7E4
2.1E4
1.6E4
1.1E4
5.3E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
ile:S975843 #1-848 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
15.9419 F:2 Exp:EPCUS
ample Text:I-M23-3 TLI#43085
INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»
20:24
00%
80
60
40
20
0
4.3E6
3.5E6
2.6E6
1.7E6
8.7E5
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time

ile:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
73.8208 F:3 Exp:EPCUS
ample Text:I-M23-3 TLI#43085 INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»



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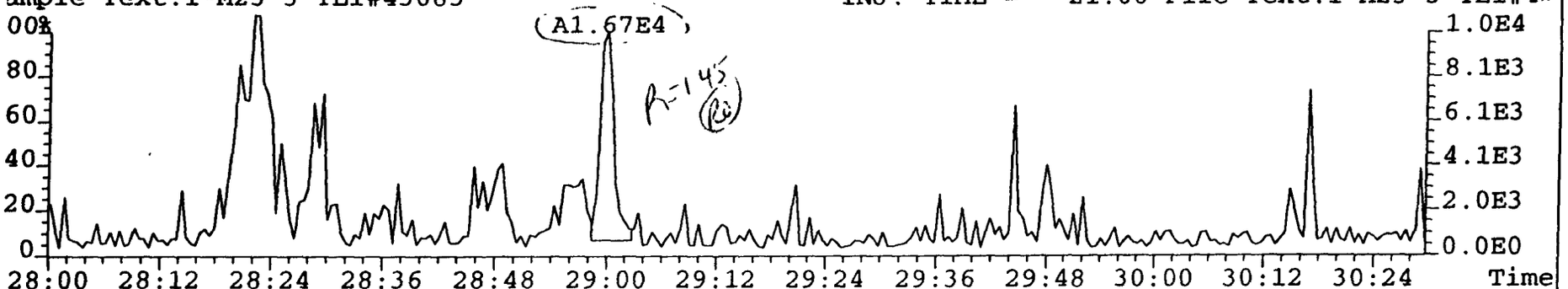
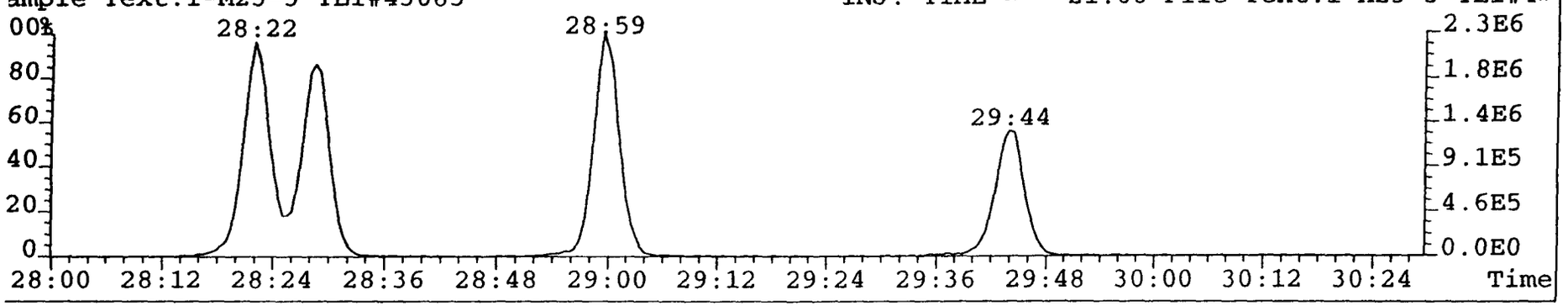
75.8178 F:3 Exp:EPCUS
ample Text:I-M23-3 TLI#43085 INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»



ile:S975843 #1-405 Acq:11-SEP-1997 21:04:32 EI+ Voltage SIR 70S
83.8639 F:3 Exp:EPCUS
ample Text:I-M23-3 TLI#43085 INJ. TIME = 21:06 File Text:I-M23-3 TLI#4»



Pacific Environmental Services

TLI Project: **43085**
Client Sample: **I-M23-3**

Method 23 TCDD/TCDF Analysis (DB-225)
Analysis File: **P973854**

Client Project:	**S413-004**				
Sample Matrix:	**M23Train**	Date Received:	**09/03/97**	Spike File:	**SPC2NF04**
TLI ID:	**181-55-7ABD**	Date Extracted:	**09/04/97**	ICal:	**PF22206**
		Date Analyzed:	**09/12/97**	ConCal:	**P973843**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**P973852**	% Lipid:	**n/a**
GC Column:	**DB-225**	Analyst:	**ML**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	ND	0.03				—

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.2	53.9	40%-130%	0.74	20:42	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	19:45	—

Data Reviewer: Sheehan 09/18/97

C2NF_PSR v2.00, LARS 6.10.04

Triangle Laboratories, Inc.®
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 15:53 09/18/97

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 1.29

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of P973854B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.786-1.096			
304-306		DC	NL	0:00		0.74	1.58			0.000			
		DC	SN	17:36	RO	0.56	0.80			0.850			
		DC	SN	19:26	RO	0.47	1.70			0.939			
		DC	SN	19:33	RO	0.29	0.57			0.944			
		DC	SN	20:13	RO	0.50	0.53			0.977			
		DC	SN	20:21		0.83	1.65			0.983			
	D	DC	SN	20:43		0.66	4.48			1.001	2378-TCDF		AN
		DC	SN	20:57	RO	1.45	1.31			1.012			
		DC	SN	21:37	RO	1.03	0.69			1.044			
		DC	SN	21:45		0.69	1.62			1.051			
		DC	SN	22:14	RO	0.27	0.67			1.074			
		DC	SN	22:25		0.77	0.94			1.083			
304-306			0	Peaks			0.00						
13C12-TCDF						0.65-0.89				0.952-1.048			
316-318		DC	NL	0:00	RO	1.04	2.00			0.000			
				20:42		0.74	479.31	203.80	275.51	1.000	13C12-2378-TCDF		ISO
		DC	SN	21:10	RO	1.25	0.50			1.023			
316-318			1	Peak			479.31						

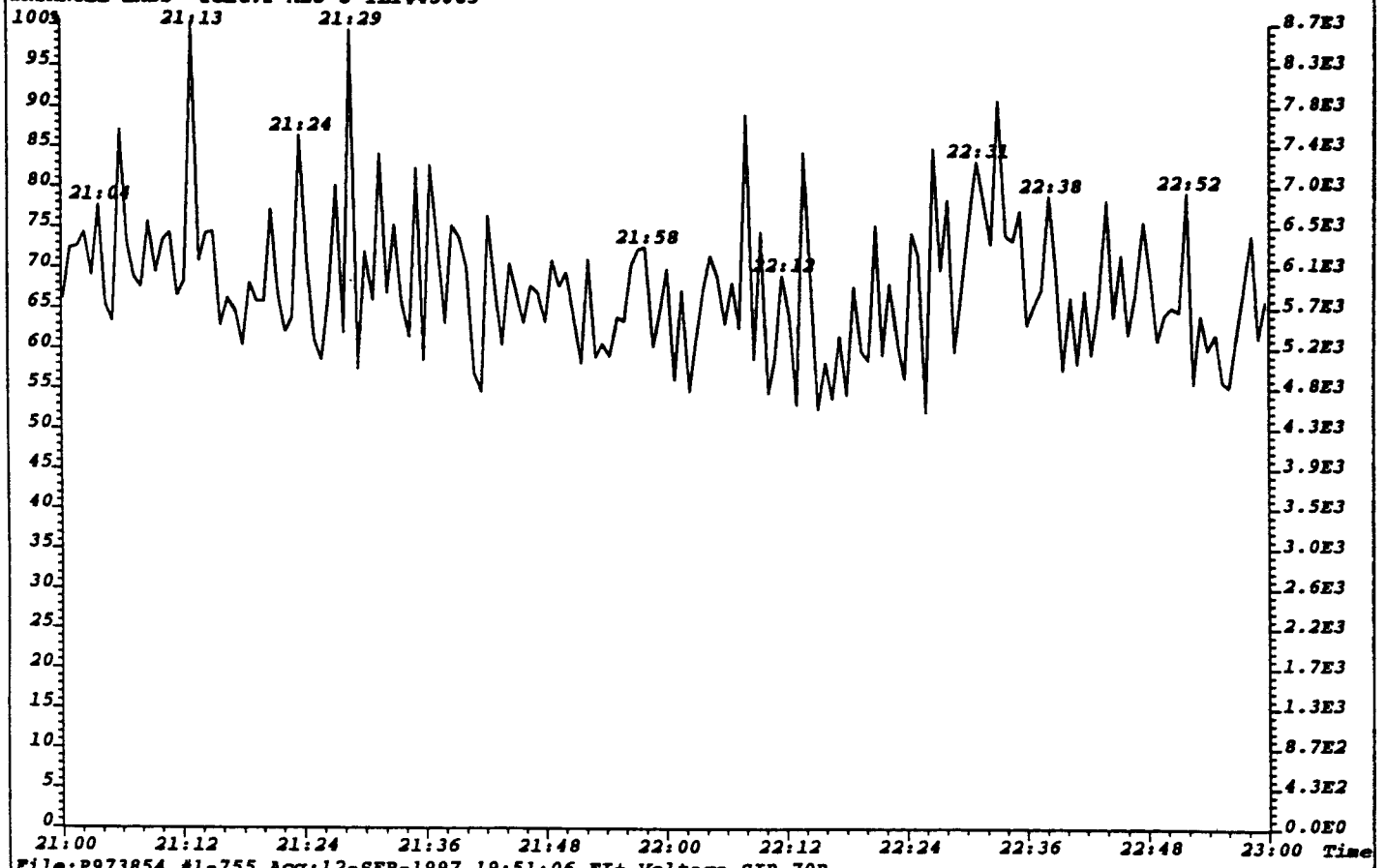
---------- Above: TCDF / TCDD Follows ----------

13C12-TCDD						0.65-0.89				0.897-1.103			
332-334		DC	NL	0:00	RO	1.45	2.04			0.000			
		DC	SN	18:27	RO	0.52	2.37			0.945			
				19:31		0.80	356.36	158.38	197.98	1.000	13C12-2378-TCDD		IS1
				19:45		0.80	640.64	285.36	355.28	1.012	13C12-1234-TCDD		RS1
		DC	SN	20:24	RO	0.62	3.36			1.045			
		DC	SN	21:03	RO	1.44	0.69			1.079			
		DC	SN	21:11	RO	2.44	0.32			1.085			
332-334			2	Peaks			997.00						

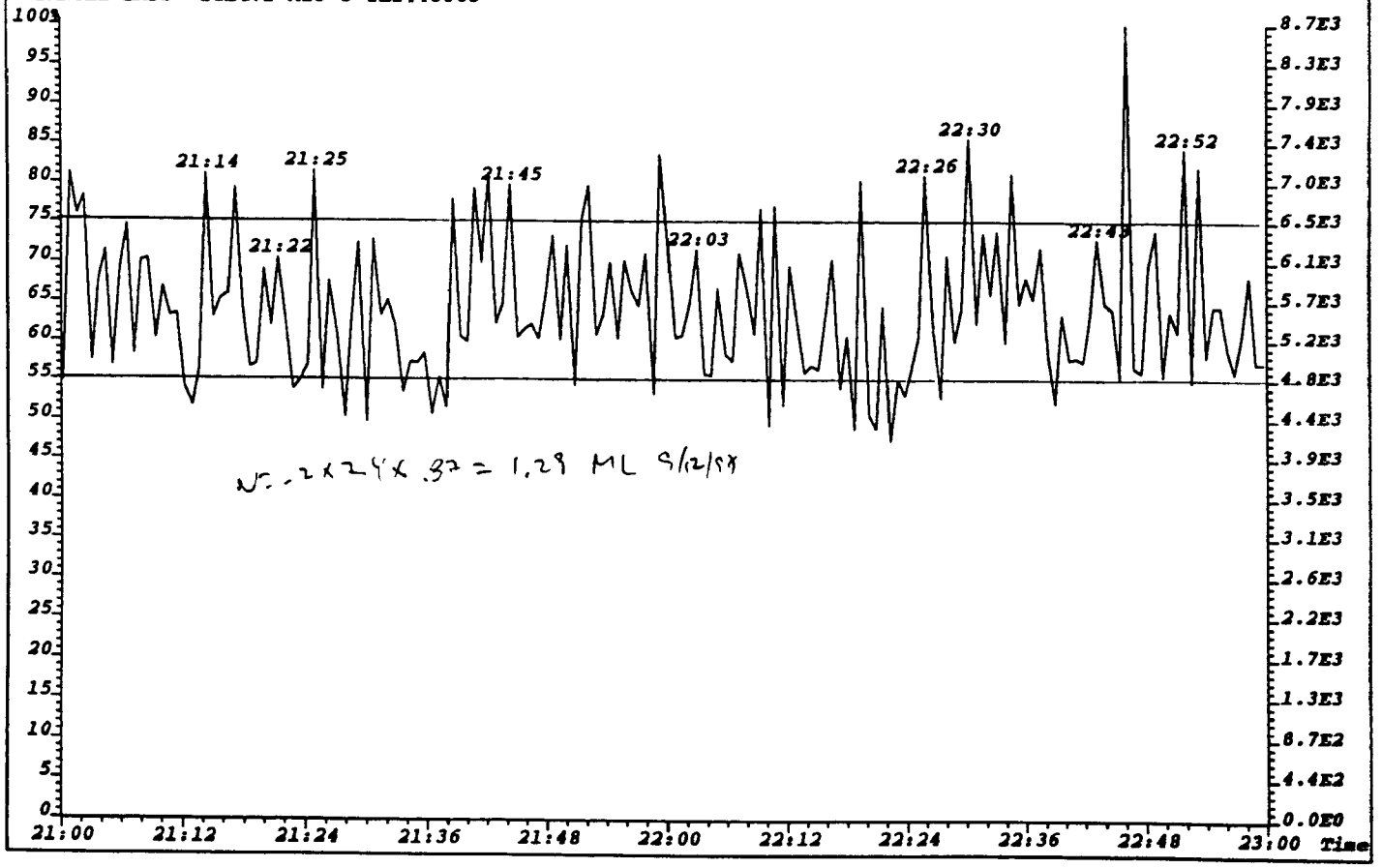
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

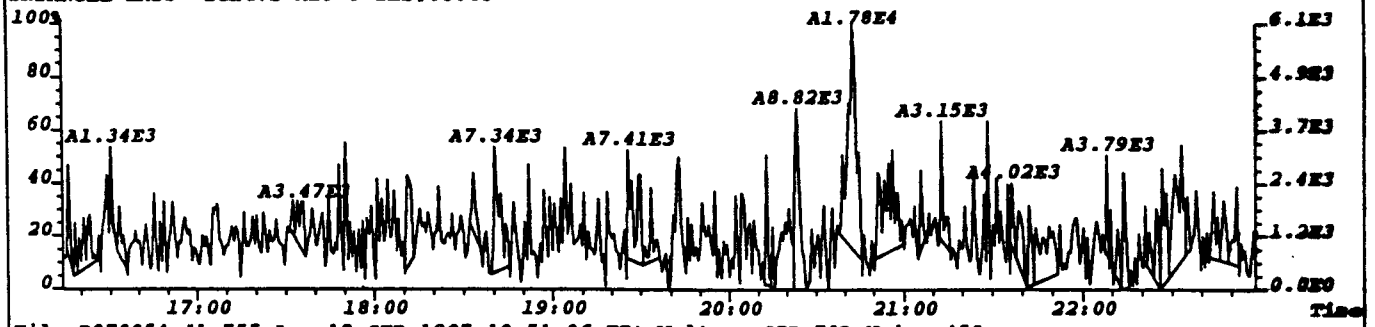
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



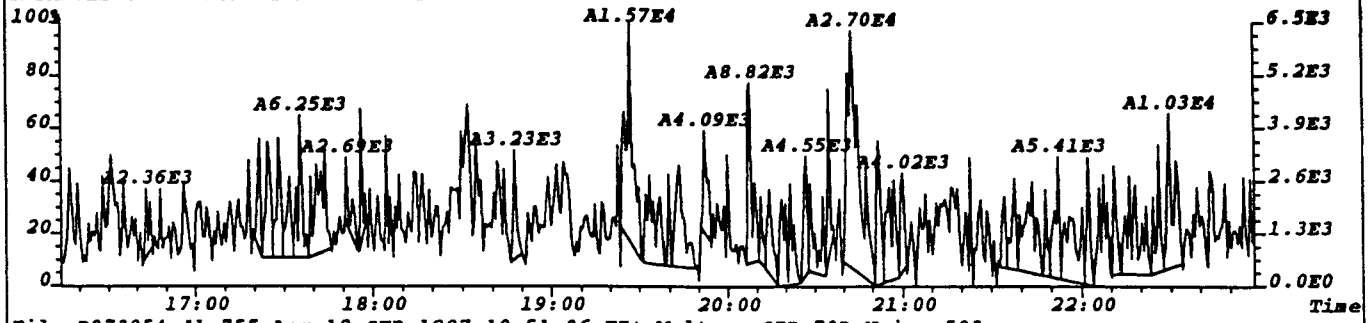
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



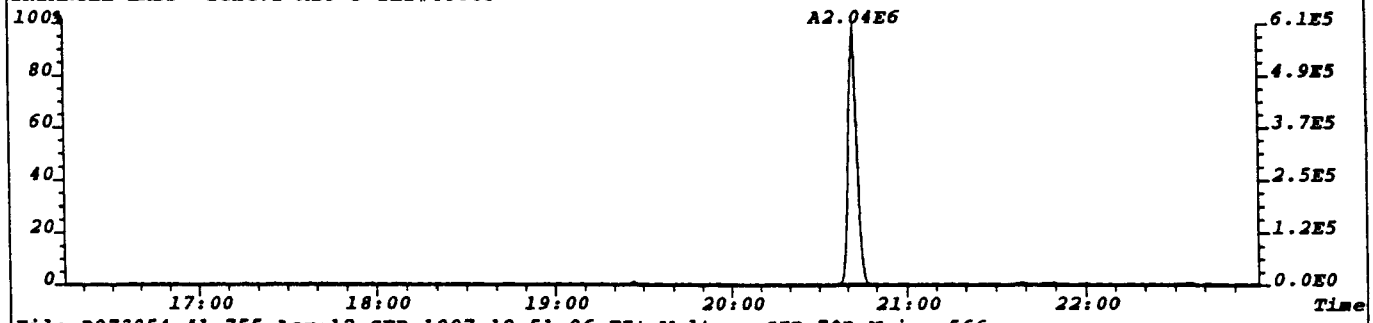
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:336
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1344.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



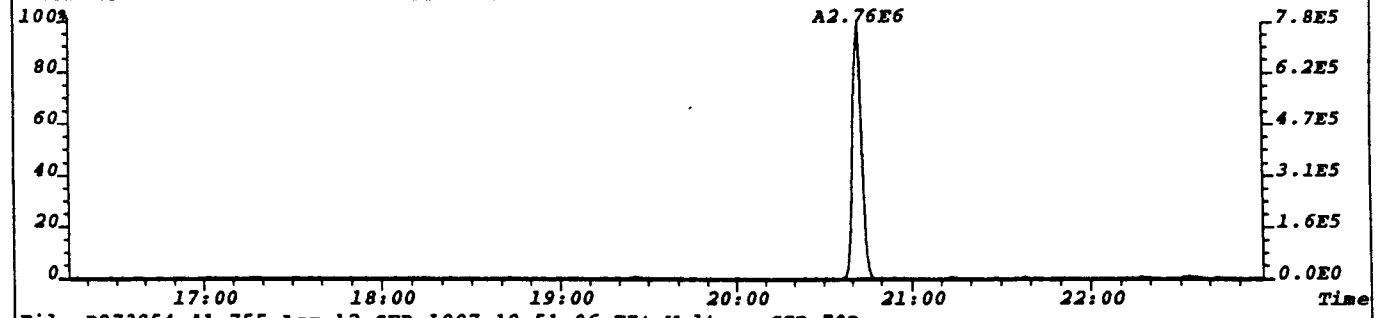
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:453
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1812.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



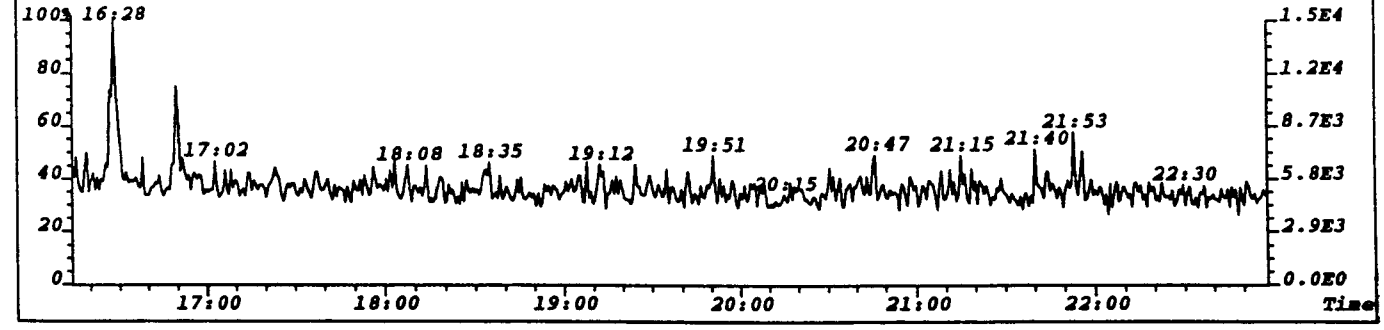
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:583
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2332.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



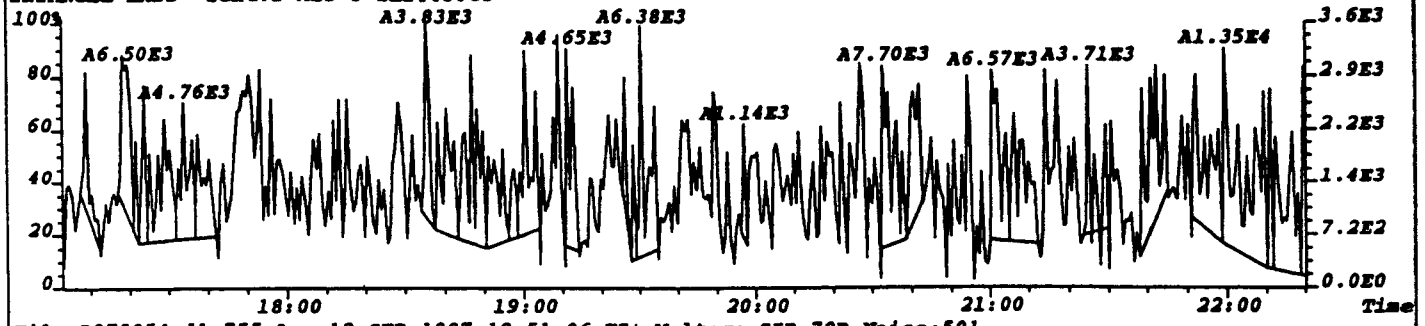
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:566
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2264.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:403
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1612.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:501
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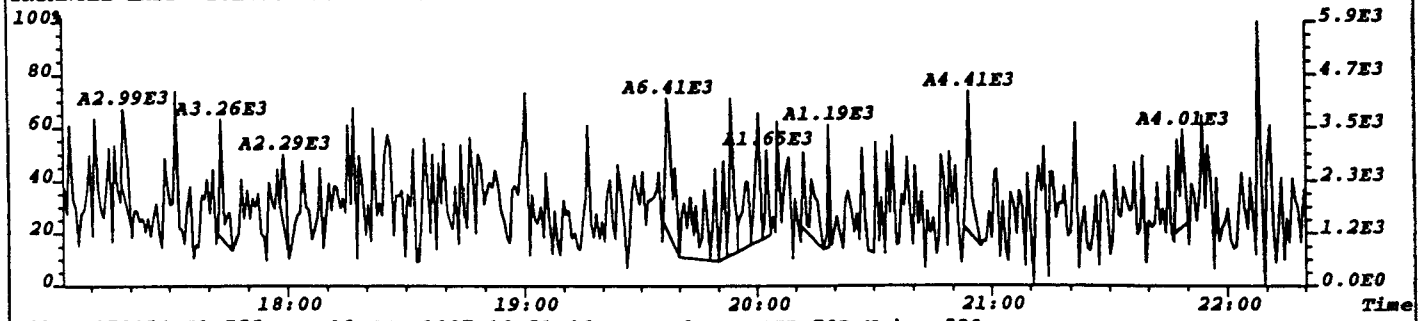
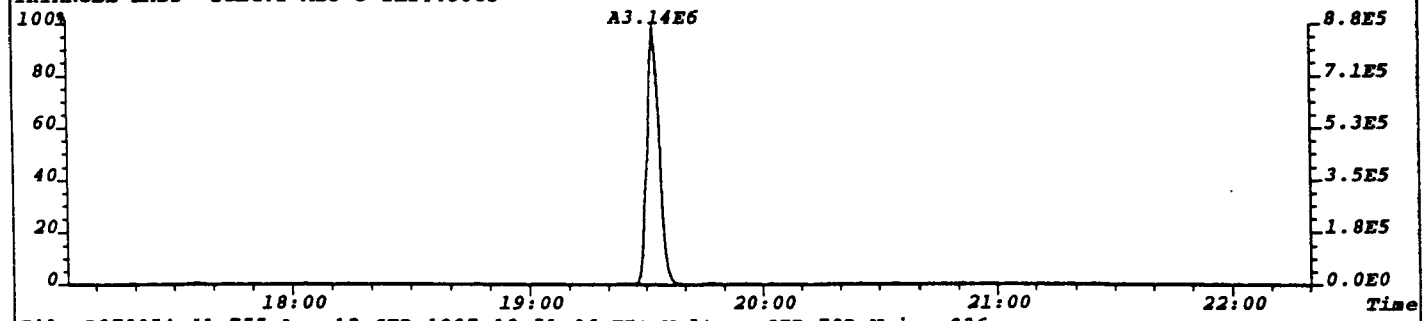
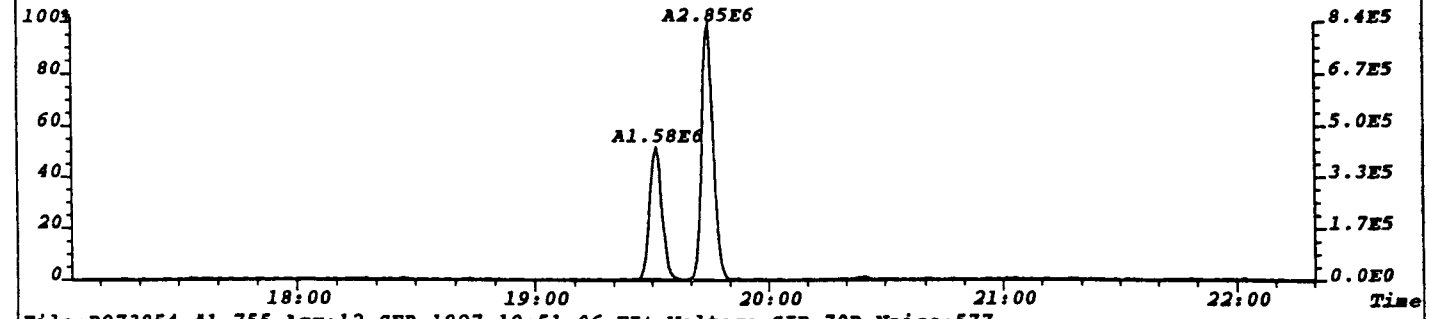
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:523
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2092.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P Noise:836
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3344.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



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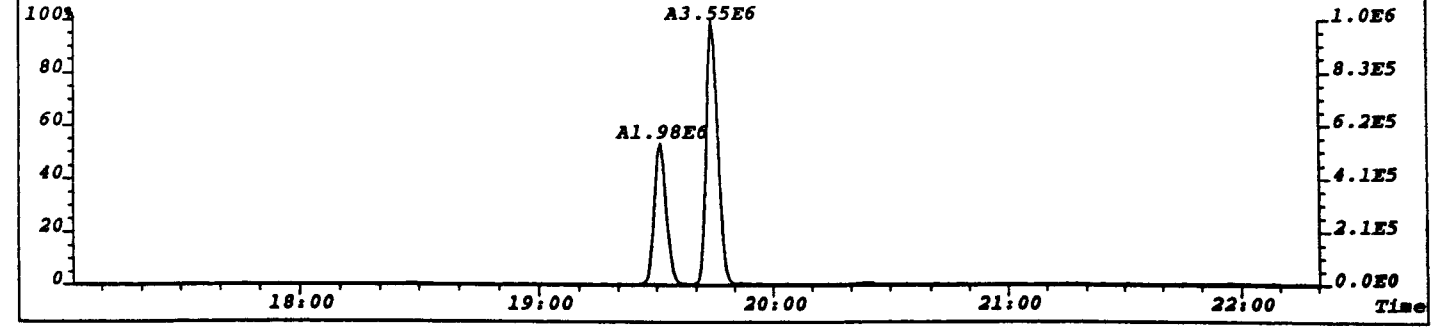
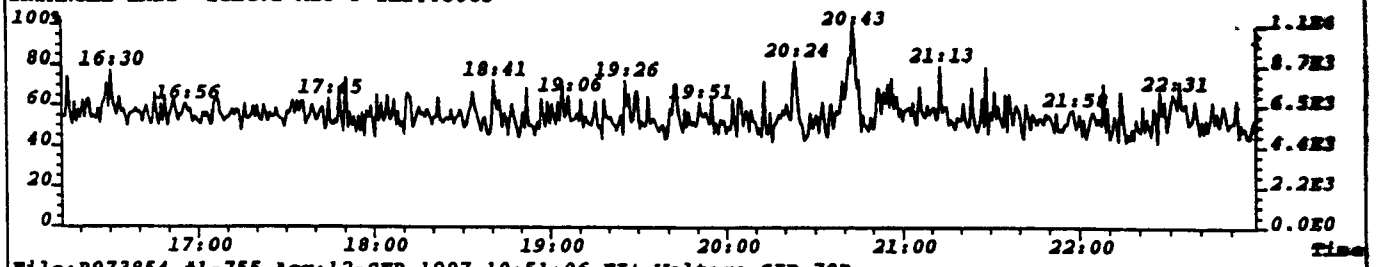
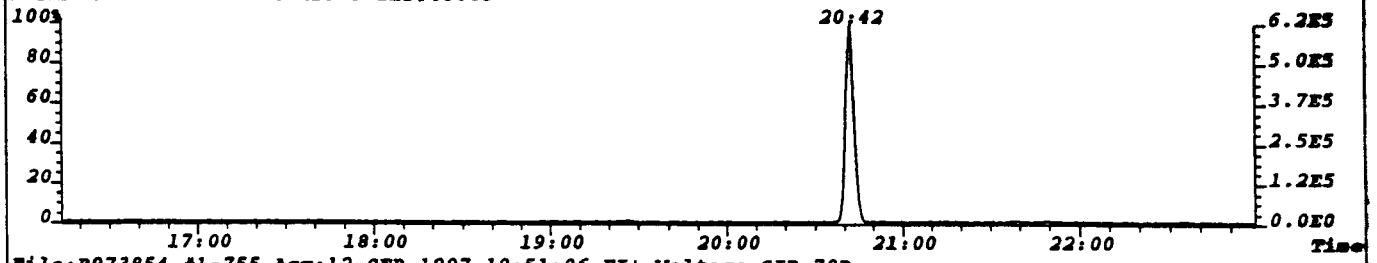
TRIANGLE LABS Text:I-M23-3 TLI#43085



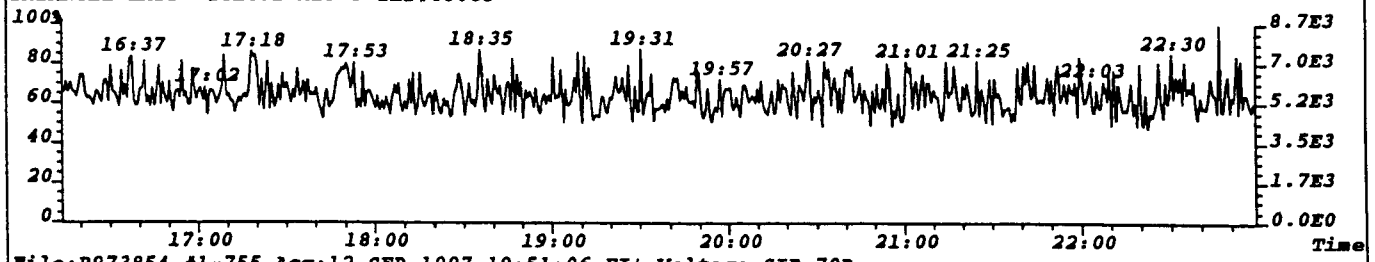
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



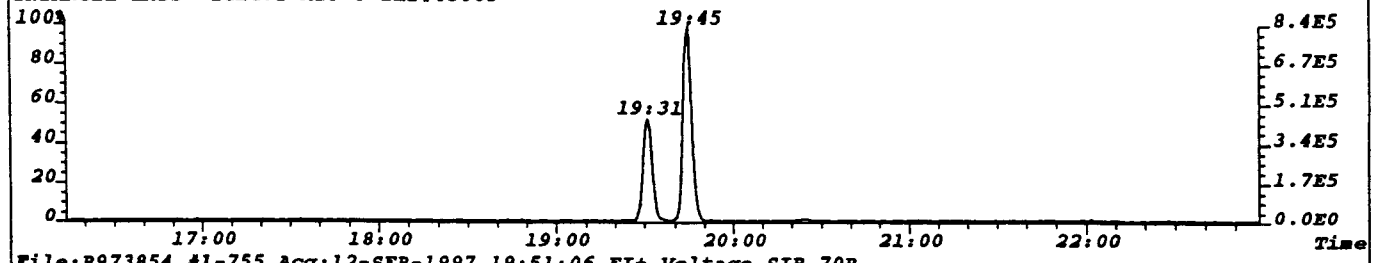
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



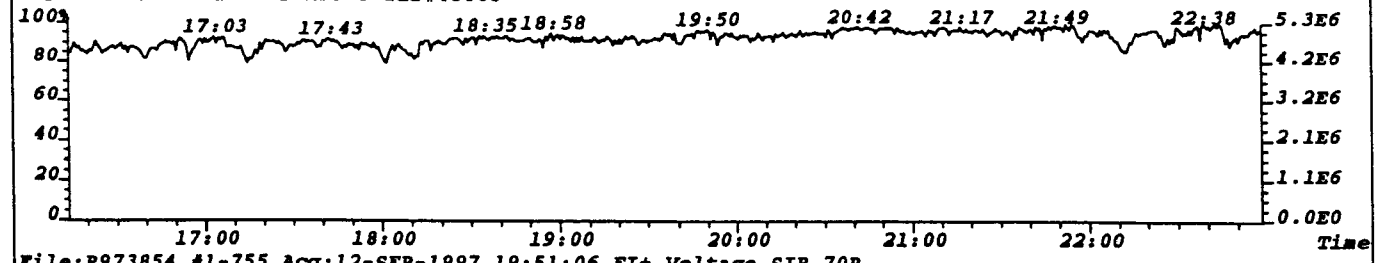
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



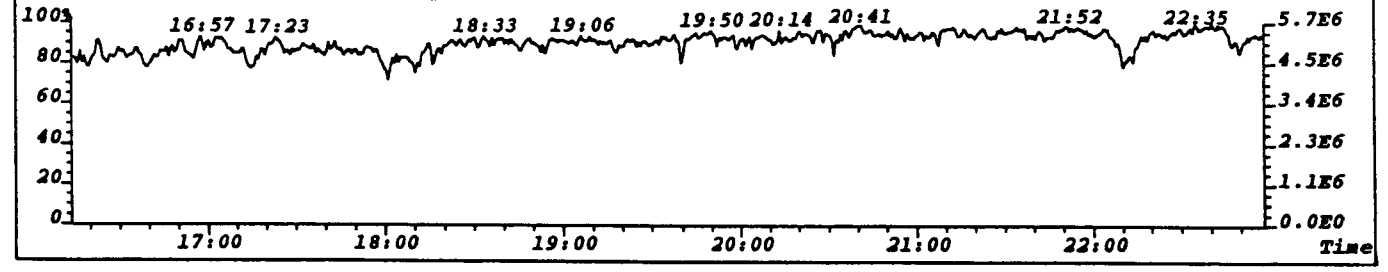
File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085

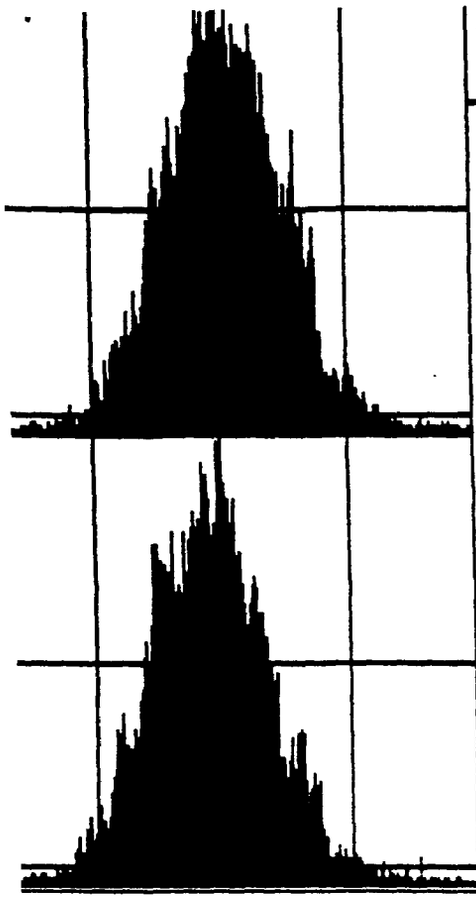


File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085



File:P973854 #1-755 Acq:12-SEP-1997 19:51:06 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:I-M23-3 TLI#43085





Ref. mass 292.9825 Peak top
Height .97 volts Span 200 ppm

System file name	D8225
Data file name	A:P973854
Resolution	10000
Group number	1
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 380.9761

A	292.9825	J	330.9792
B	303.9816	K	331.9368
C	305.8987	L	333.9338
D	315.9419	M	375.8364
E	317.9389		
F	319.8965		
G	321.8936		
H	327.8847		
I	330.9792		

Channel I 330.9792 Peak top
Height .98 volts Span 200 ppm

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **M23-RB** Analysis File: **S975844**

Client Project:	S413-004				
Sample Matrix:	M23Train	Date Received:	09/03/97	Spike File:	SPX23704
TLI ID:	181-55-8ABDE	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/11/97	ConCal:	S975839
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KB	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.004				___
1,2,3,7,8-PeCDD	ND	0.005				___
1,2,3,4,7,8-HxCDD	ND	0.005				___
1,2,3,6,7,8-HxCDD	0.006			1.08	29:11	___
1,2,3,7,8,9-HxCDD	0.007			1.41	29:28	___
1,2,3,4,6,7,8-HpCDD	0.03			1.10	32:04	B__
1,2,3,4,6,7,8,9-OCDD	0.05			0.91	34:42	B__
2,3,7,8-TCDF	ND	0.003				___
1,2,3,7,8-PeCDF	ND	0.004				___
2,3,4,7,8-PeCDF	EMPC		0.005			___
1,2,3,4,7,8-HxCDF	0.03			1.27	28:20	___
1,2,3,6,7,8-HxCDF	0.01			1.38	28:27	___
2,3,4,6,7,8-HxCDF	0.01			1.38	28:57	___
1,2,3,7,8,9-HxCDF	ND	0.003				___
1,2,3,4,6,7,8-HpCDF	0.05			1.13	31:12	B__
1,2,3,4,7,8,9-HpCDF	EMPC		0.008			___
1,2,3,4,6,7,8,9-OCDF	0.05			0.86	34:49	B__

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	EMPC			0.007	___
Total PeCDD	EMPC			0.01	___
Total HxCDD	0.01	2		0.06	___
Total HpCDD	0.04	2			___
Total TCDF	ND		0.003		___
Total PeCDF	0.007	1		0.01	___
Total HxCDF	0.07	5		0.08	___
Total HpCDF	0.07	3		0.08	___

X237_PSR v2.00, LARS 6.10.0

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Printed: 15:34 09/18/97

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **M23-RB** Analysis File: **S975844**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.7	68.5	40%-130%	0.75	20:18	—
$^{13}C_{12}$-2,3,7,8-TCDD	2.5	61.5	40%-130%	0.80	21:08	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.7	67.5	40%-130%	1.52	24:39	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2.8	69.2	40%-130%	1.54	25:48	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	3.0	75.6	40%-130%	0.47	28:25	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.8	69.2	40%-130%	1.23	29:10	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.4	60.9	25%-130%	0.42	31:11	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.7	66.8	25%-130%	1.04	32:04	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.8	60.2	25%-130%	0.86	34:42	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.2	105	70%-140%		21:09	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.8	95.0	70%-140%	1.45	25:26	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.6	89.0	70%-140%	0.47	28:19	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.5	87.7	70%-140%	1.21	29:05	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.9	97.8	70%-140%	0.42	32:25	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.0	75.8	40%-130%	0.47	29:40	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.2	79.3	40%-130%	0.47	28:57	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	20:55	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	29:27	—

Data Reviewer: Sherkewa 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 15:34 09/18/97

24E

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: 1.68

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975844B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.818-1.101			
304-306		DC	NL	0:00	RO	0.20	0.67			0.000			
		DC	SN	17:33	RO	0.44	1.54			0.865			
		DC	SN	18:14	RO	0.38	2.53			0.898			
	D	DC	SN	20:20		0.69	8.37			1.002	2378-TCDF		AN
	D	DC	SN	20:55	RO	0.45	6.71			1.030			
		DC	SN	21:45	RO	3.95	1.01			1.071			
		DC	SN	21:56	RO	0.29	1.61			1.080			
304-306			0	Peaks			0.00						
13C12-TCDF						0.65-0.89				0.951-1.049			
316-318		DC	NL	0:00		0.66	2.03			0.000			
		DC	WL	19:06		0.74	15.71			0.941			
				19:50		0.77	17.76	7.74	10.02	0.977			
				20:18		0.75	5,083.04	2,182.80	2,900.24	1.000	13C12-2378-TCDF		ISO
		DC	WH	21:50	RO	1.43	9.52			1.076			
316-318			2	Peaks			5,100.80						

---------- Above: TCDF / TCDD Follows ----------

TCDD						0.65-0.89				0.851-1.058			
320-322		DC	NL	0:00	RO	0.55	0.78			0.000			
		DC	SN	18:19	RO	0.44	1.26			0.867			
		DC	SN	18:29	RO	0.96	1.59			0.875			
		DC	SN	18:38	RO	1.51	2.99			0.882			
		DC	SN	18:49		0.80	2.64			0.890			
		DC	SN	19:52	RO	1.70	1.24			0.940			
				20:18	RO	2.56	8.04	11.63	4.54	0.961			
		DC	SN	20:32	RO	0.49	0.90			0.972			
		DC	SN	20:44	RO	1.06	0.85			0.981			
		DC	SN	21:00		0.71	3.14			0.994			
		DC	SN	21:27	RO	1.13	0.53			1.015			
		DC	SN	21:39	RO	0.90	0.89			1.024			
		DC	SN	21:49	RO	1.27	1.59			1.032			
		DC	SN	22:00	RO	0.28	0.64			1.041			
		DC	SN	22:19	RO	0.18	0.69			1.056			
		DC	WH	22:41	RO	1.52	0.96			1.073			
320-322			1	Peak			8.04						
37Cl-TCDD										0.906-1.094			
328		DC	NL	0:00			0.13			0.000			
				19:33			16.53	16.53		0.925			
				21:09			3,253.66	3,253.66		1.001	37Cl-TCDD		SUR1
328			2	Peaks			3,270.19						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-TCDD				0.65-0.89						0.906-1.094			
332-334	DC	NL		0:00	RO	8.97	0.53			0.000			
				20:55		0.81	5,629.73	2,525.03	3,104.70	0.990	13C12-1234-TCDD	RS1	
				21:08		0.80	3,690.72	1,638.66	2,052.06	1.000	13C12-2378-TCDD	IS1	
				21:31	RO	0.91	50.46	26.02	28.51	1.018			
				21:39	RO	4.09	5.06	11.71	2.86	1.024			
332-334				4 Peaks			9,375.97						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF				1.32-1.78						0.905-1.077			
340-342	DC	NL		0:00	RO	0.23	0.05			0.000			
	DC	SN		22:32	RO	1.23	2.93			0.914			
	DC	SN		23:09	RO	0.36	0.15			0.939			
	DC	SN		23:21	RO	0.47	0.28			0.947			
	DC	SN		23:32	RO	3.36	0.71			0.955			
				23:45		1.32	7.91	4.50	3.41	0.963			
	DC	SN		24:07	RO	1.15	1.04			0.978			
	DC	SN		24:27	RO	1.08	0.89			0.992			
	DC	SN		24:51	RO	0.52	0.81			1.008			
	DC	SN		24:59	RO	0.67	1.73			1.014			
	DC	SN		25:08	RO	0.37	0.31			1.020			
				25:26	RO	1.27	5.71	3.47	2.73	1.032	23478-PeCDF		AN
	DC	SN		25:39	RO	1.29	4.29			1.041			
	DC	SN		25:48	RO	0.28	0.16			1.047			
	DC	SN		26:02	RO	0.57	0.44			1.056			
	DC	SN		26:25		1.61	3.81			1.072			
340-342				2 Peaks			13.62						
13C12-PeCDF				1.32-1.78						0.838-1.162			
352-354	DC	NL		0:00	RO	0.33	0.07			0.000			
				23:45		1.55	27.12	16.47	10.65	0.963			
				24:16	RO	2.05	10.63	8.53	4.17	0.984			
				24:39		1.52	4,306.40	2,594.81	1,711.59	1.000	13C12-PeCDF 123	IS2	
				24:58	RO	2.09	14.89	12.18	5.84	1.013			
N				25:26		1.45	3,966.39	2,345.63	1,620.76	1.032	13C12-PeCDF 234	SUR2	
352-354				5 Peaks			8,325.43						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.919-1.025			
356-358	DC	NL		0:00	RO	6.00	0.10			0.000			
	DC	SN		23:47	RO	0.97	0.51			0.922			
	DC	SN		23:54	RO	1.31	3.22			0.926			
	DC	SN		24:27	RO	0.74	0.46			0.948			
				24:40	RO	4.04	6.63	10.51	2.60	0.956			
K				25:00	RO	1.85	3.93	2.85	1.54	0.969			
	DC	SN		25:26	RO	4.92	2.30			0.986			
	DC	SN		25:36	RO	0.15	0.10			0.992			
	DC	SN		25:59	RO	3.93	0.71			1.007			
	DC	SN		26:16	RO	0.46	1.17			1.018			
	DC	WH		26:36	RO	1.20	2.39			1.031			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
356-358			2 Peaks				10.56						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370	DC	NL		0:00	RO	5.78	0.23			0.000			
				25:48		1.54	2,474.64	1,501.04	973.60	1.000	13C12-PeCDD 123	IS3	
				25:56		1.50	226.54	135.79	90.75	1.005			
368-370			2 Peaks				2,701.18						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.955-1.051			
374-376	DC	NL		0:00		1.21	1.26			0.000			
				27:20		1.42	9.35	5.49	3.86	0.962			
				27:29		1.12	25.07	13.23	11.84	0.967			
	DC	SN		27:47		1.13	3.86			0.978			
	DC	SN		27:56	RO	0.61	2.11			0.983			
	DC	SN		28:12	RO	1.55	0.49			0.992			
				28:20		1.27	40.31	22.52	17.79	0.997	123478-HxCDF	AN	
				28:27		1.38	17.72	10.29	7.43	1.001	123678-HxCDF	AN	
	DC	SN		28:33	RO	1.45	3.05			1.005			
	DC	SN		28:46		1.43	4.82			1.012			
				28:57		1.38	19.27	11.17	8.10	1.019	234678-HxCDF	AN	
	DC	SN		29:05	RO	1.86	0.81			1.023			
	DC	SN		29:11	RO	0.87	0.61			1.027			
	DC	SN		29:25		1.31	0.37			1.035			
	DC	SN		29:30	RO	0.88	0.42			1.038			
	DC	SN		29:41	RO	2.16	1.39			1.045			
				29:46	RO	0.94	5.94	3.29	3.49	1.048			
	DC	WH		29:54	RO	0.32	0.16			1.052			
	DC	WH		30:07	RO	2.60	0.94			1.060			
	DC	WH		30:10	RO	0.90	0.33			1.062			
374-376			6 Peaks				117.66						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386	DC	NL		0:00		0.46	2.43			0.000			
	DC	SN		27:28	RO	0.25	6.69			0.967			
				28:19		0.47	4,097.03	1,310.17	2,786.86	0.996	13C12-HxCDF 478	SUR3	
				28:25		0.47	4,798.83	1,538.50	3,260.33	1.000	13C12-HxCDF 678	IS4	
				28:57		0.47	4,659.59	1,491.21	3,168.38	1.019	13C12-HxCDF 234	ALT2	
	DC	SN		29:08	RO	0.79	4.14			1.025			
				29:40		0.47	3,871.01	1,235.48	2,635.53	1.044	13C12-HxCDF 789	ALT1	
	DC	SN		29:52	RO	0.38	3.46			1.051			
384-386			4 Peaks				17,426.46						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.950-1.014			
390-392	DC	NL		0:00	RO	0.39	0.47			0.000			
	DC	SN		27:52		1.31	3.37			0.955			
	DC	SN		27:59	RO	3.75	0.09			0.959			
				28:20	RO	1.76	33.02	25.89	14.74	0.971			
K				28:25	RO	3.87	4.23	7.31	1.89	0.974			

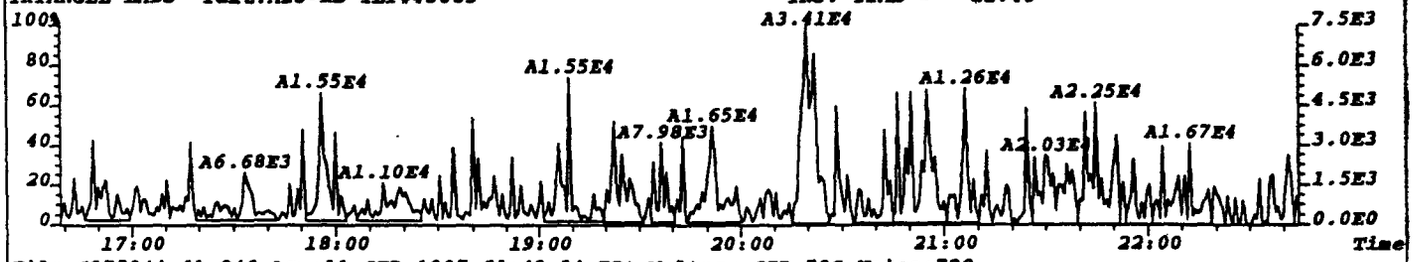
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				28:34	RO	1.56	11.80	8.21	5.27	0.979			
	DC	SN		28:42	RO	0.77	0.74			0.984			
	DC	SN		28:46	RO	0.39	0.25			0.986			
	DC	SN		28:57	RO	2.91	5.26			0.993			
	DC	SN		29:04	RO	0.45	0.94			0.997	123478-HxCDD	AN	
M				29:11		1.08	5.95	3.09	2.86	1.001	123678-HxCDD	AN	
	DC	SN		29:19		1.37	0.64			1.005			
				29:28		1.41	6.71	3.92	2.79	1.010	123789-HxCDD	AN	
	DC	WH		29:40	RO	2.80	4.88			1.017			
390-392			5	Peaks			61.71						
13C12-HxCDD				1.05-1.43					0.966-1.034				
402-404	DC	NL		0:00	RO	1.88	0.74			0.000			
				28:33		1.07	6.76	3.49	3.27	0.979			
				29:05		1.21	3,098.27	1,695.46	1,402.81	0.997	13C12-HxCDD 478	SUR4	
				29:10		1.23	3,631.09	2,004.04	1,627.05	1.000	13C12-HxCDD 678	IS5	
				29:27		1.20	5,271.85	2,875.69	2,396.16	1.010	13C12-HxCDD 789	RS2	
402-404			4	Peaks			12,007.97						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20					0.994-1.044				
408-410	DC	NL		0:00	RO	3.31	0.27			0.000			
M				31:12		1.13	57.30	30.40	26.90	1.001	1234678-HpCDF	AN	
				31:24		1.11	7.32	3.85	3.47	1.007			
				31:34		1.04	11.64	5.93	5.71	1.012			
AN				32:25	RO	1.28	6.69	4.19	3.28	1.040	1234789-HpCDF	AN	
	DC	WH		32:55	RO	12.54	0.27			1.056			
408-410			4	Peaks			82.95						
13C12-HpCDF				0.37-0.51					0.936-1.128				
418-420	DC	NL		0:00	RO	1.85	0.58			0.000			
				31:11		0.42	2,847.33	847.48	1,999.85	1.000	13C12-HpCDF 678	IS6	
				32:25		0.42	2,146.99	632.30	1,514.69	1.040	13C12-HpCDF 789	SUR5	
418-420			2	Peaks			4,994.32						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD				0.88-1.20					0.976-1.005				
424-426	DC	NL		0:00		1.13	0.17			0.000			
	DC	WL		31:11	RO	4.28	5.90			0.972			
				31:27		1.01	10.33	5.20	5.13	0.981			
	DC	SN		31:50		1.19	1.18			0.993			
				32:04		1.10	19.26	10.10	9.16	1.000	1234678-HpCDD	AN	
	DC	WH		32:25	RO	2.90	5.22			1.011			
424-426			2	Peaks			29.59						
13C12-HpCDD				0.88-1.20					0.969-1.031				
436-438	DC	NL		0:00	RO	1.57	1.00			0.000			
	DC	SN		31:26	RO	1.50	4.61			0.980			
				32:04		1.04	2,870.60	1,462.22	1,408.38	1.000	13C12-HpCDD 678	IS7	
436-438			1	Peak			2,870.60						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF						0.76-1.02				0.885-1.115			
442-444	DC	NL		0:00	RO	0.50	0.08			0.000			
	DC	SN		30:46	RO	2.46	0.25			0.887			
	DC	SN		31:07		1.00	0.42			0.897			
	DC	SN		31:26	RO	6.90	0.19			0.906			
	DC	SN		32:20	RO	1.05	0.83			0.932			
	DC	SN		32:27	RO	0.18	0.28			0.935			
	DC	SN		32:33	RO	1.35	0.32			0.938			
	DC	SN		32:47	RO	0.22	0.04			0.945			
	DC	SN		33:00	RO	0.61	0.76			0.951			
	DC	SN		33:21		0.94	0.35			0.961			
	DC	SN		33:41	RO	0.34	0.59			0.971			
	DC	SN		33:54	RO	0.34	0.81			0.977			
	DC	SN		34:02	RO	15.25	0.08			0.981			
	DC	SN		34:21	RO	4.00	0.21			0.990			
	DC	SN		34:29	RO	0.15	0.57			0.994			
				34:49		0.86	29.62	13.73	15.89	1.003	OCDF		AN
	DC	SN		35:05	RO	1.18	0.64			1.011			
	DC	SN		35:26	RO	0.20	0.21			1.021			
	DC	SN		35:56	RO	1.58	0.59			1.036			
442-444			1	Peak			29.62						
OCDD						0.76-1.02				0.885-1.115			
458-460	DC	NL		0:00		1.00	0.10			0.000			
	DC	SN		34:36	RO	1.21	3.16			0.997			
AN				34:42		0.91	22.10	10.50	11.60	1.000	OCDD		AN
	DC	SN		34:55	RO	1.81	0.79			1.006			
458-460			1	Peak			22.10						
13C12-OCDD						0.76-1.02				0.994-1.004			
470-472	DC	NL		0:00	RO	1.25	0.15			0.000			
				34:42		0.86	3,294.68	1,523.49	1,771.19	1.000	13C12-OCDD		IS8
470-472			1	Peak			3,294.68						

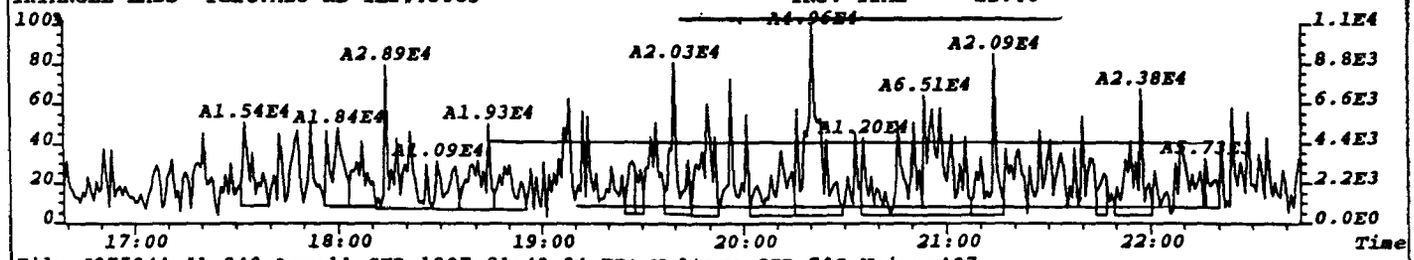
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

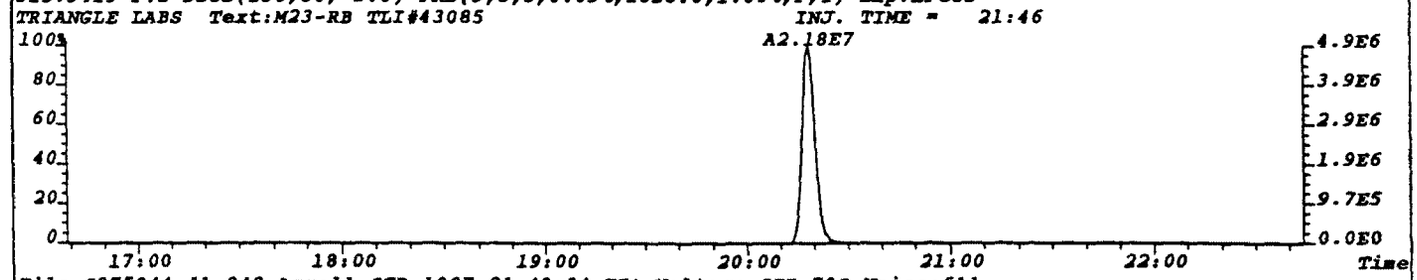
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:144
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,576.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



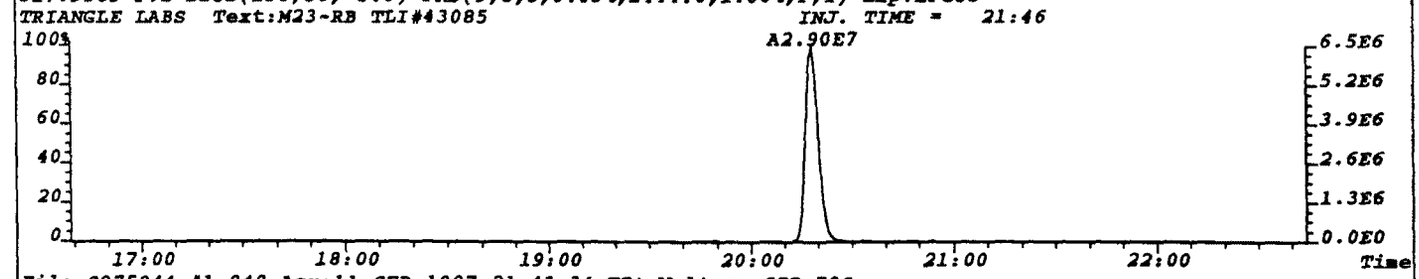
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:729
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2916.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



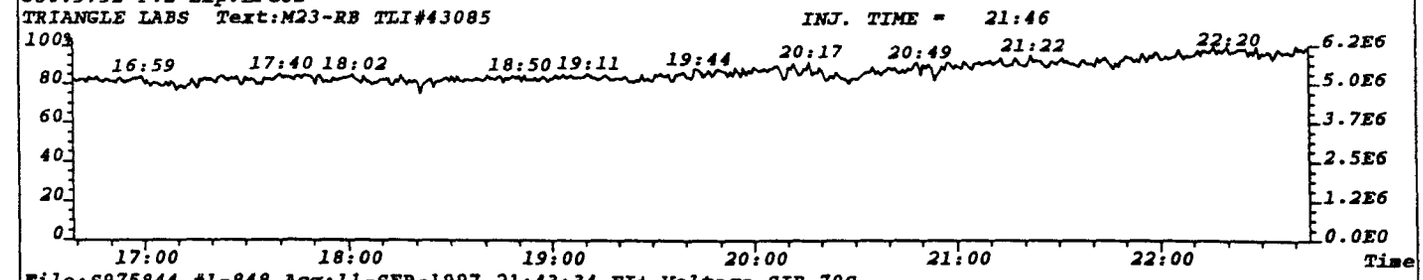
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:407
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1628.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



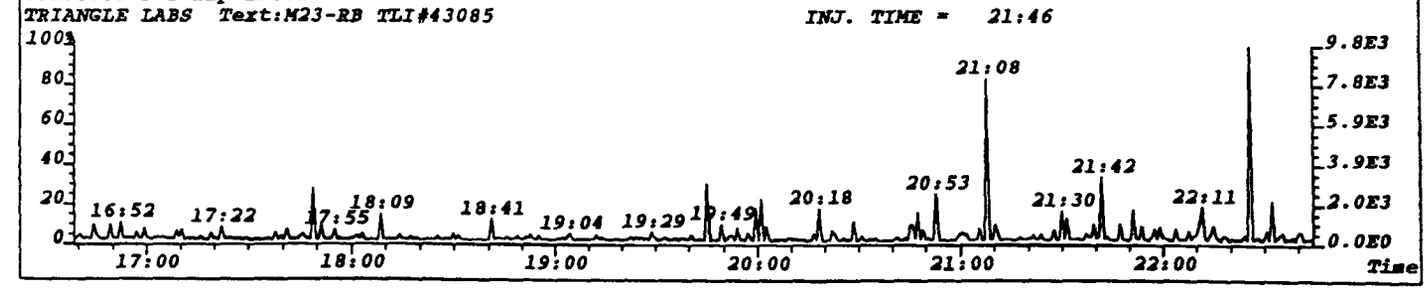
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:611
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2444.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



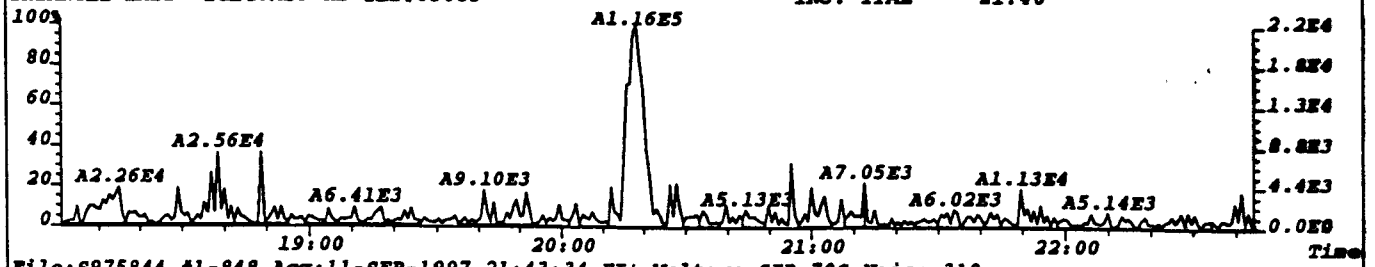
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



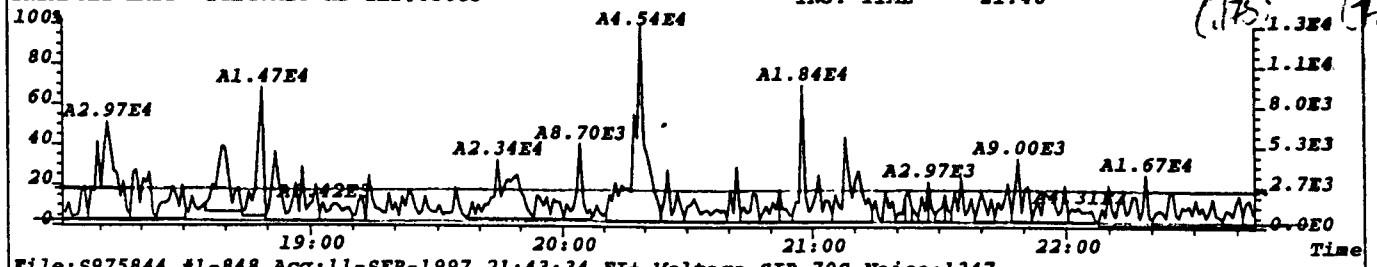
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



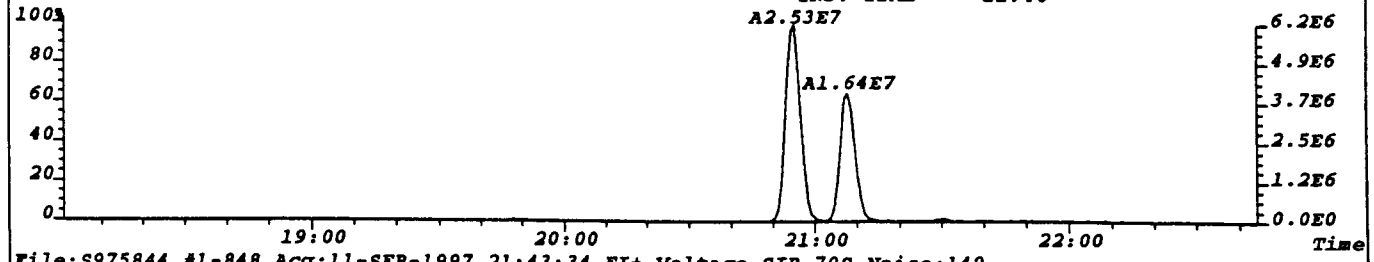
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:172
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,688.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



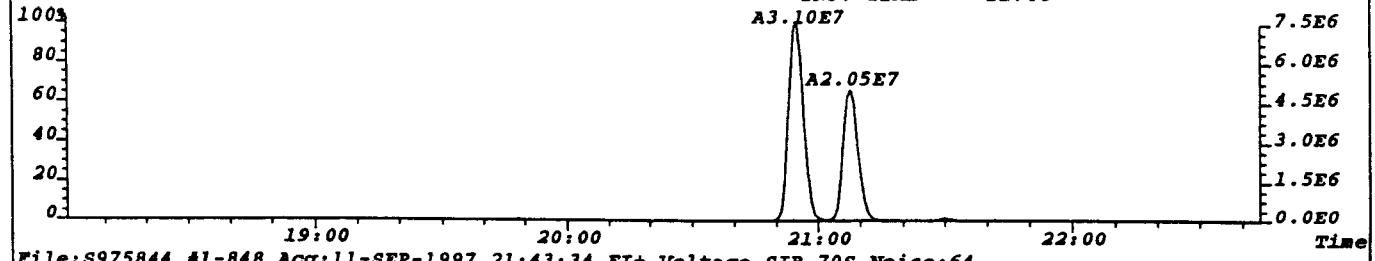
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:310
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



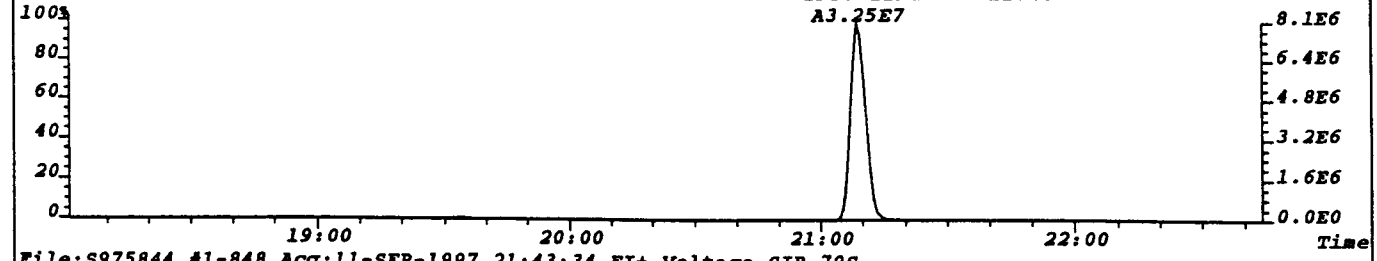
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:1347
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5388.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



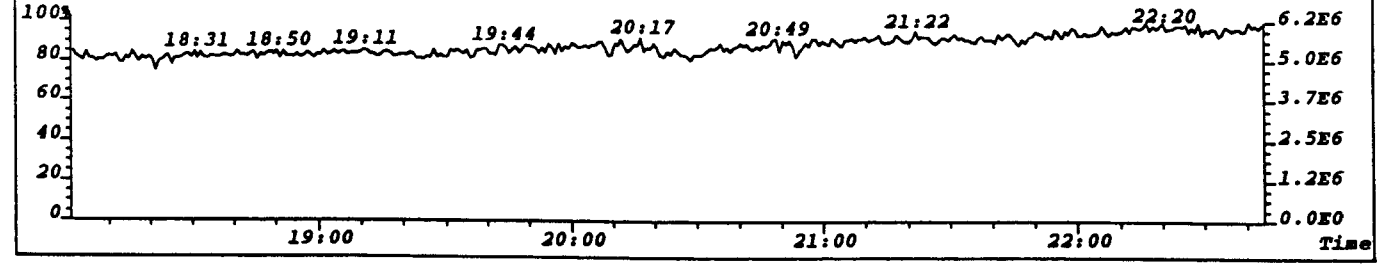
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:149
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,596.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



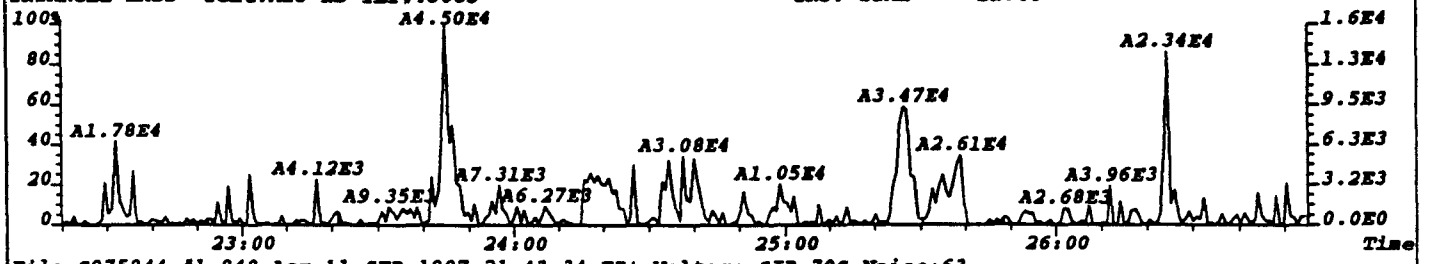
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:64
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,256.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



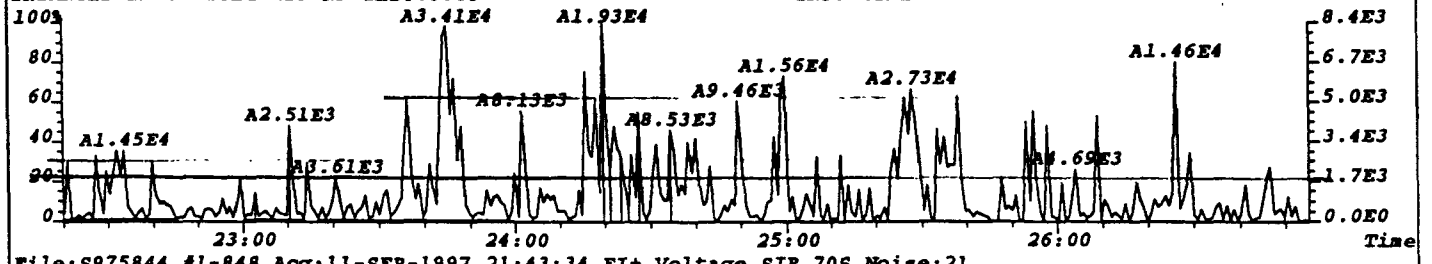
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



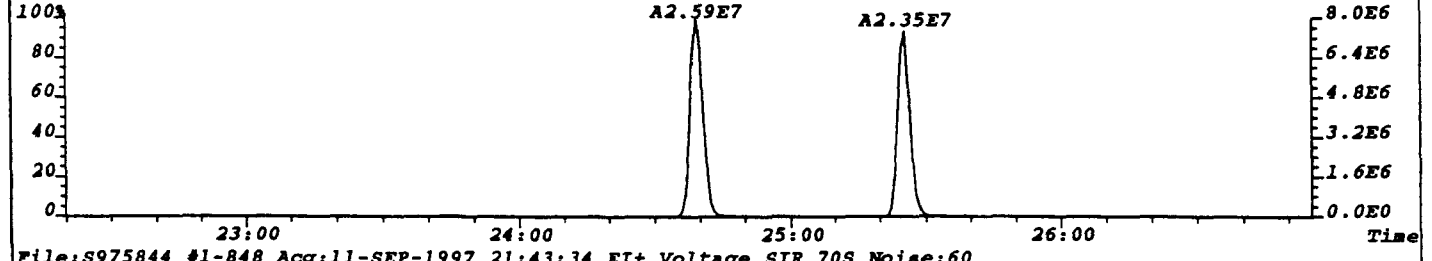
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:17
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,68.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



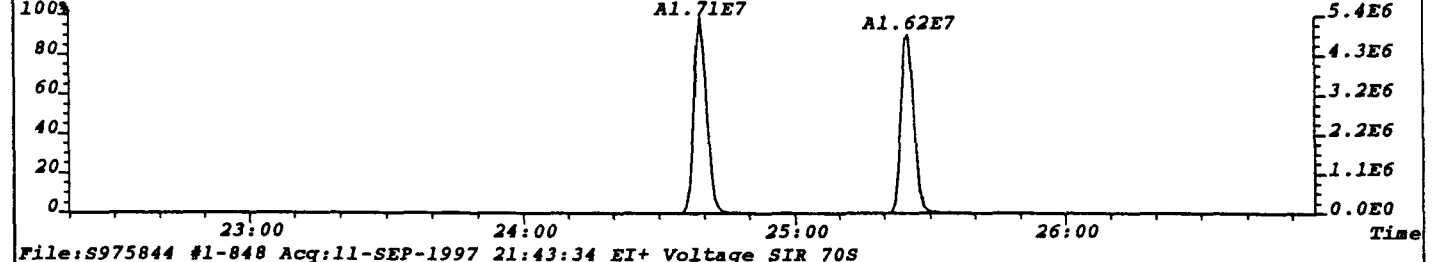
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:63
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



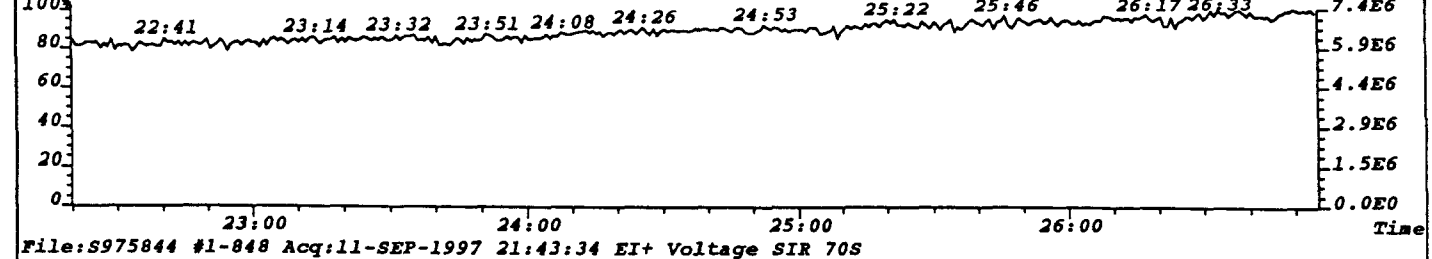
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:21
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,84.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



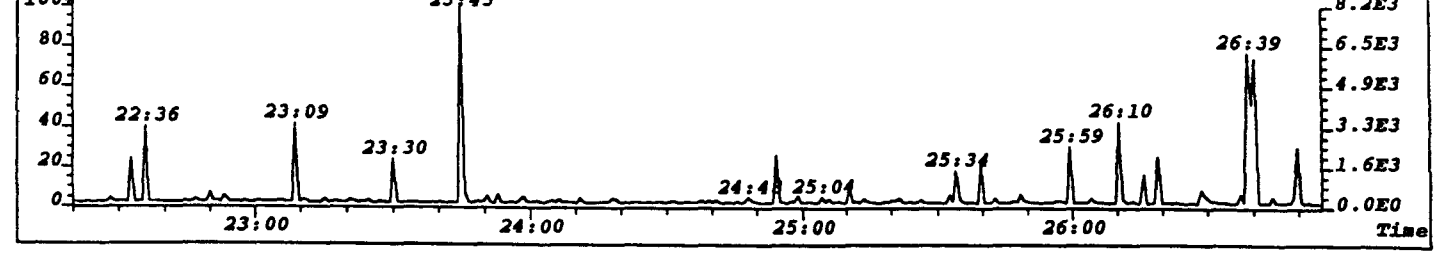
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:60
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



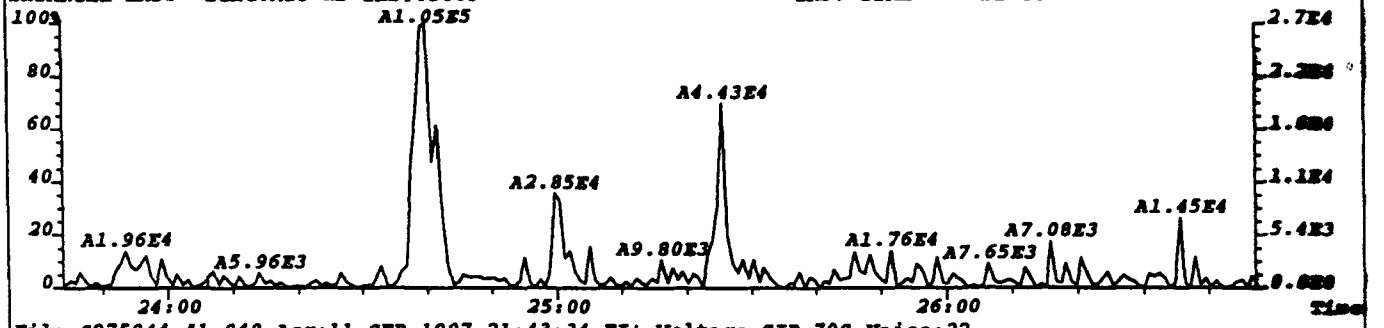
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



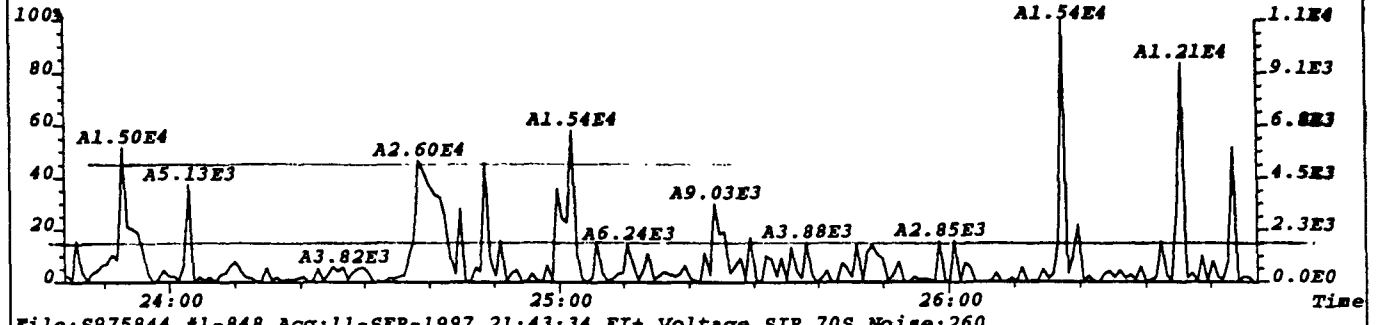
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



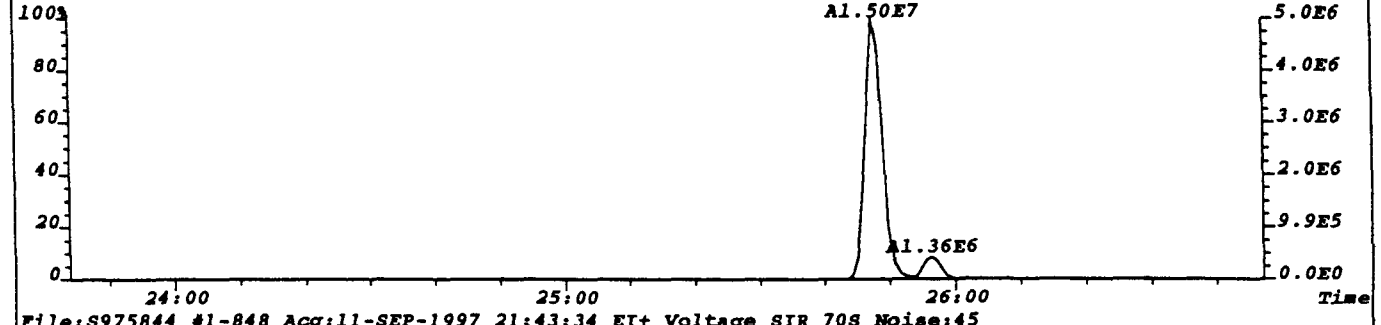
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:121
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,484.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



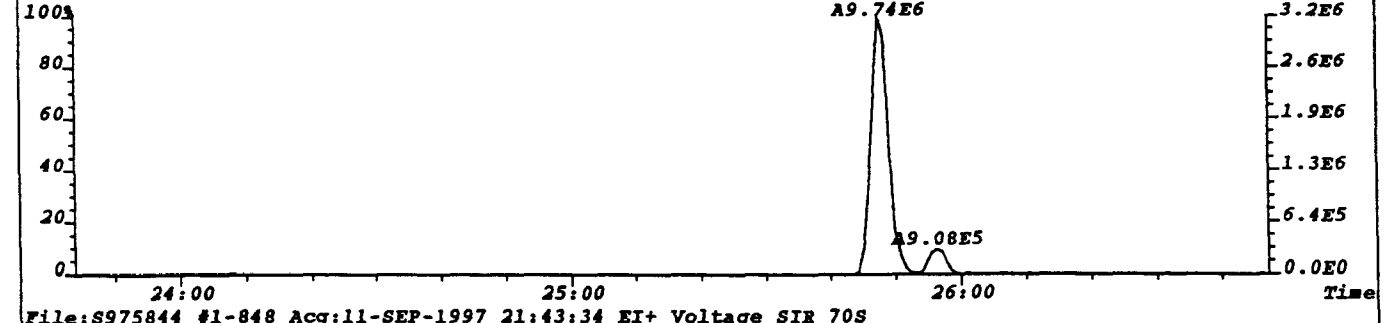
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:22
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,88.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



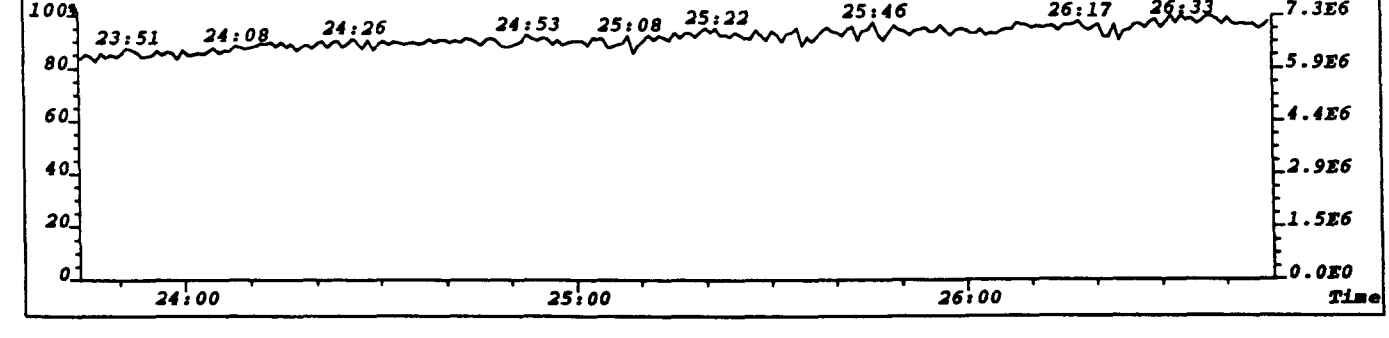
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:260
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1040.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



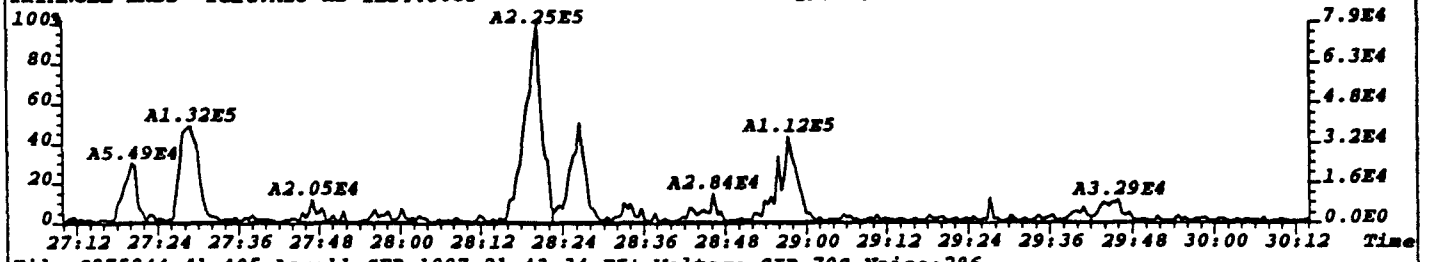
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:45
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



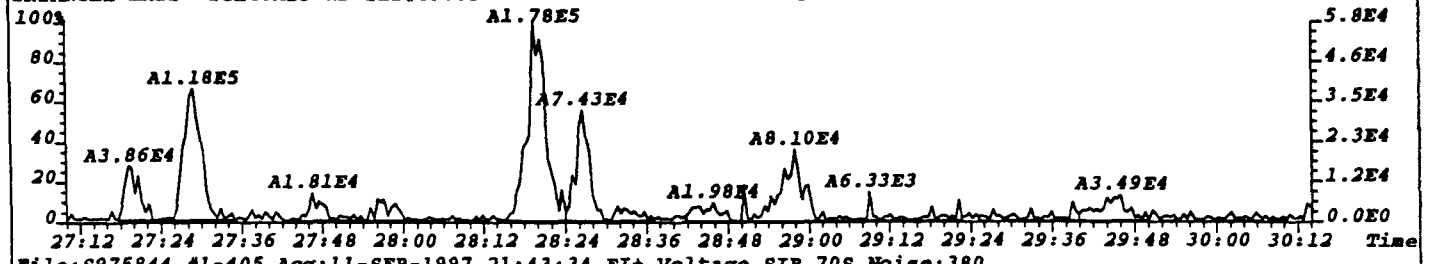
File:S975844 #1-848 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



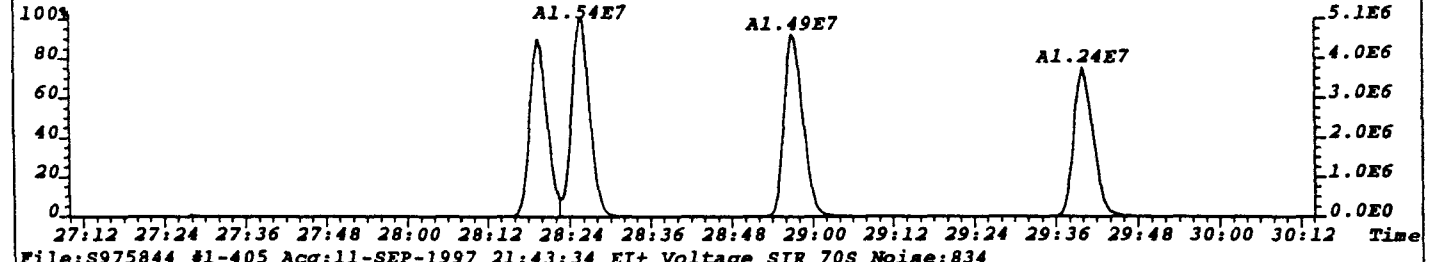
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:345
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1380.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



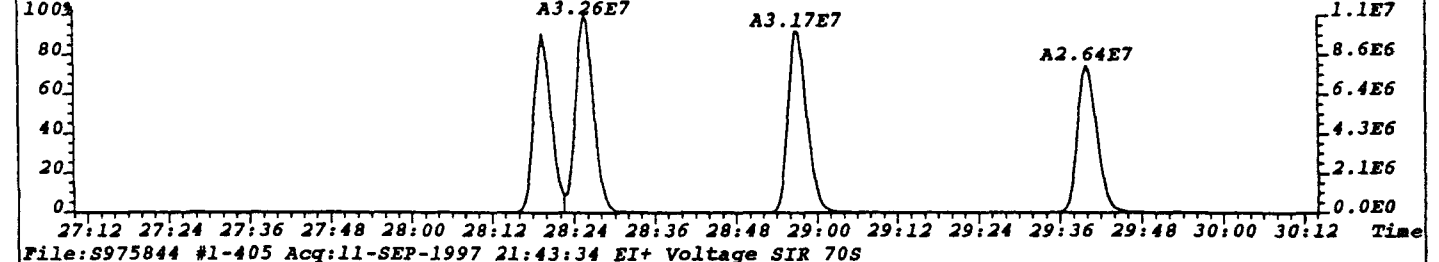
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:286
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



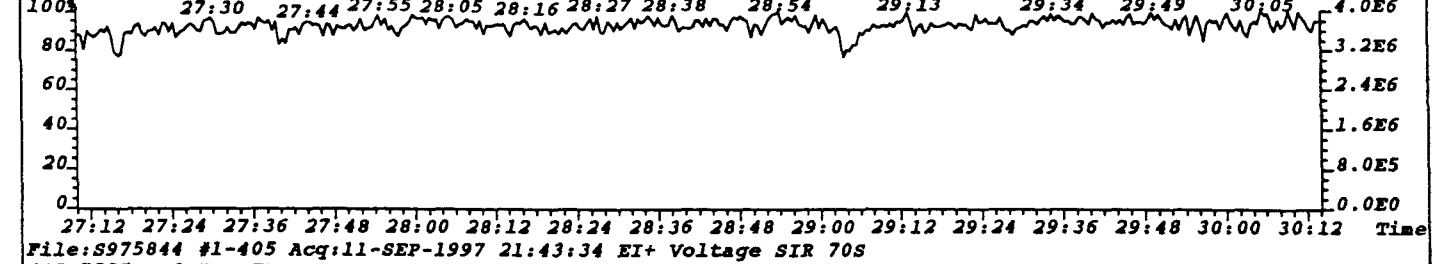
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:380
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1520.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



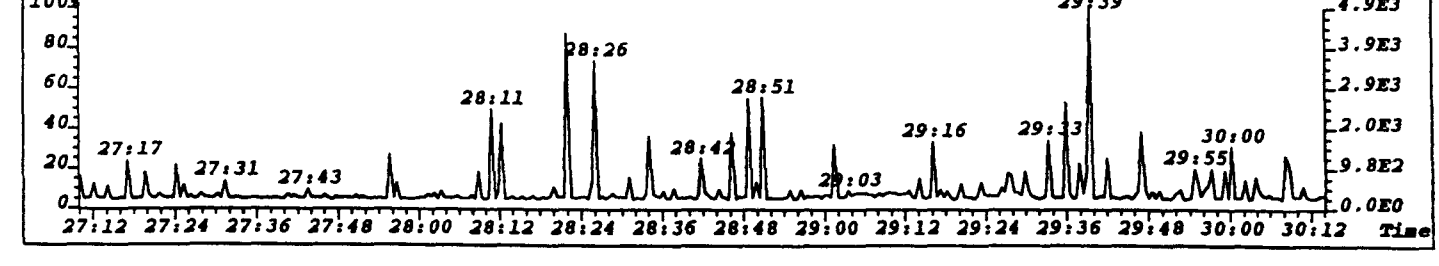
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:834
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3336.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



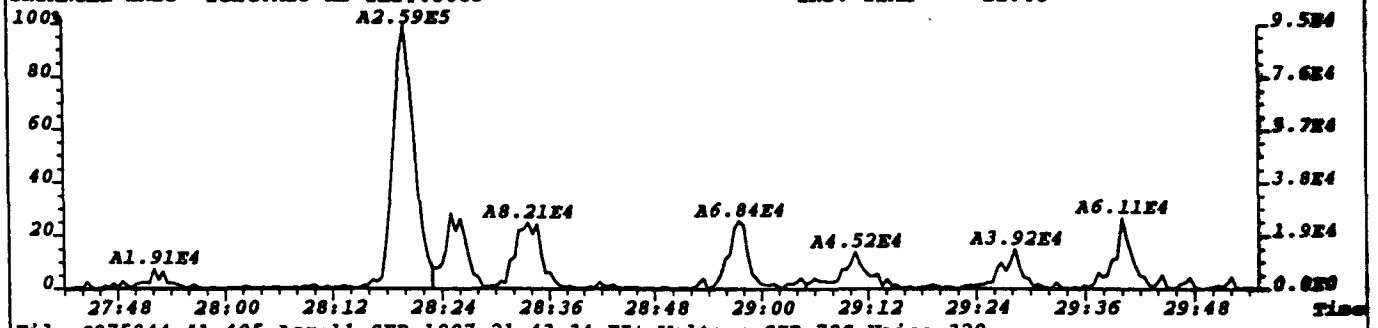
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



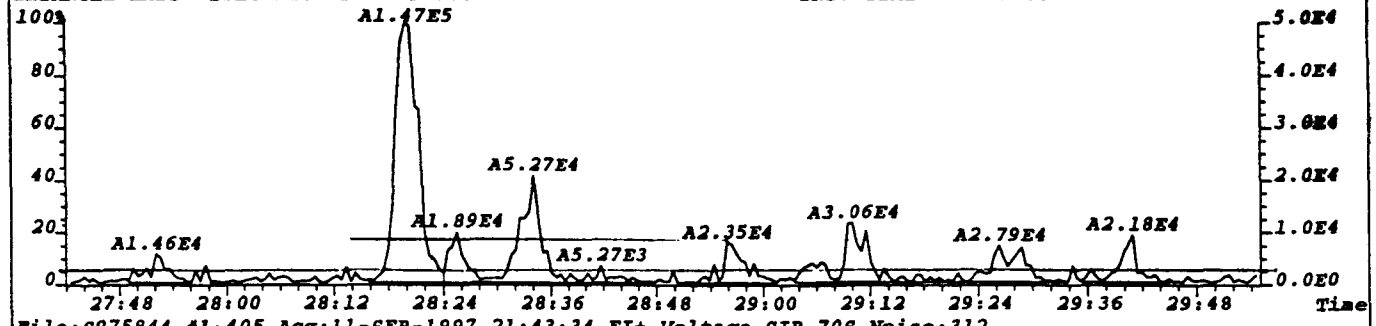
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



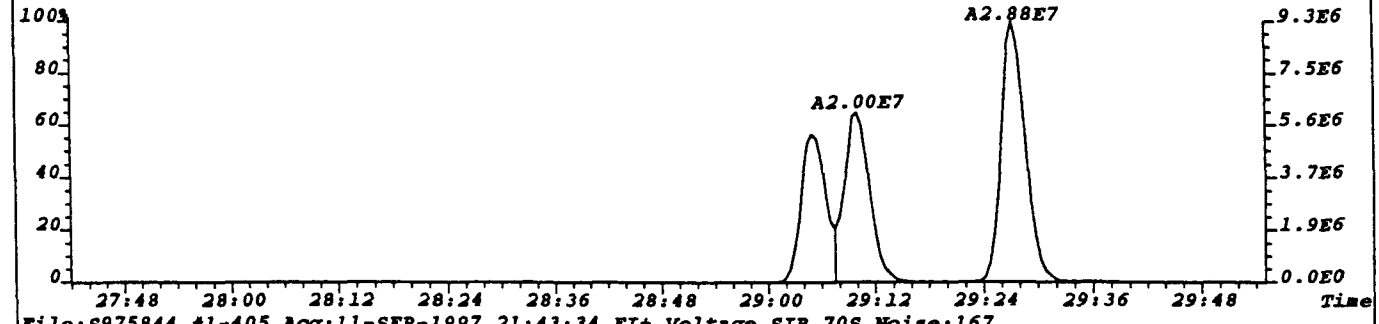
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:130
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,520.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



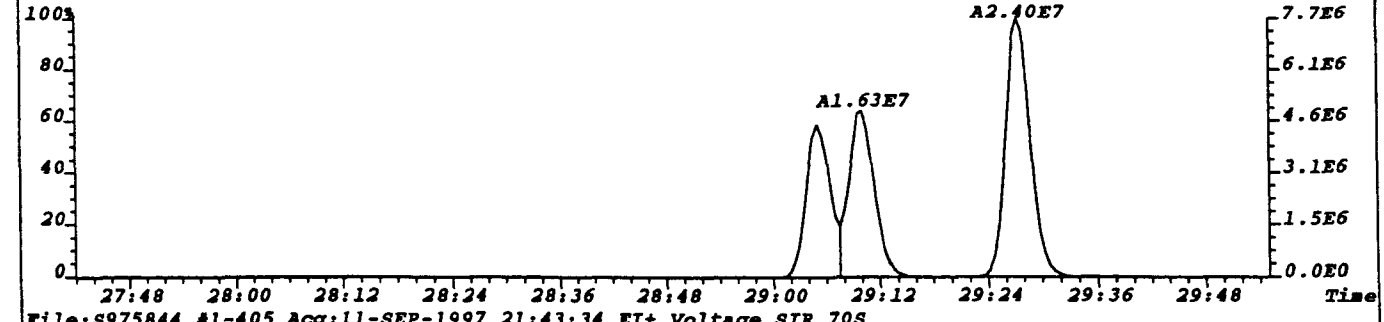
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:329
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1316.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



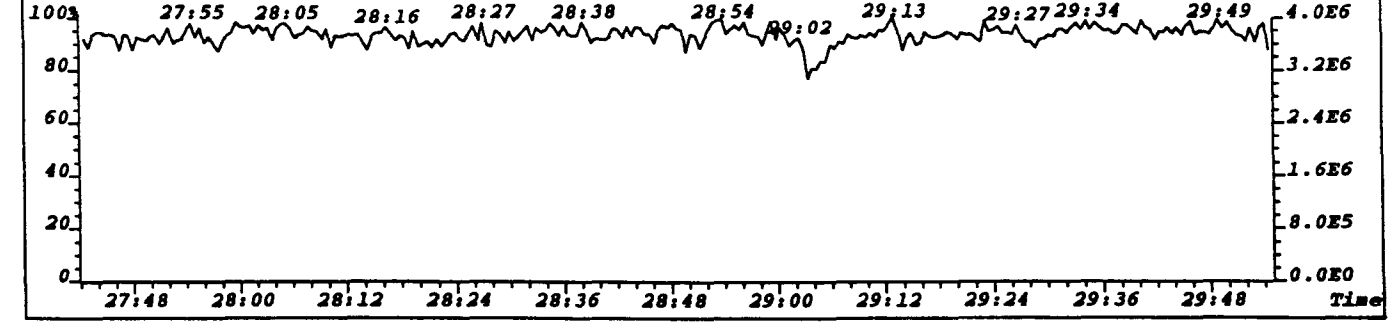
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:312
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1248.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



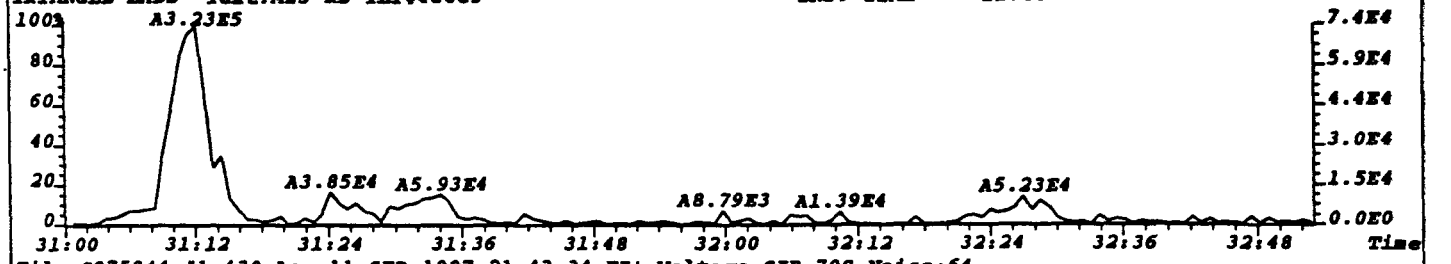
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:167
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,668.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



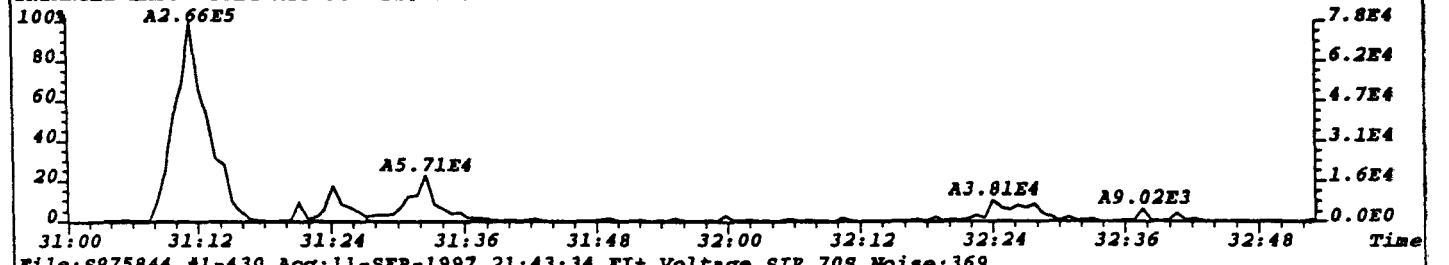
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



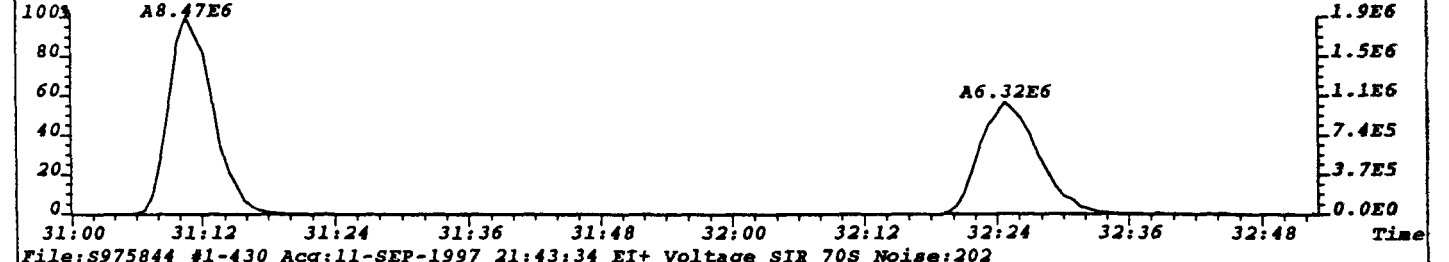
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:215
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,860.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



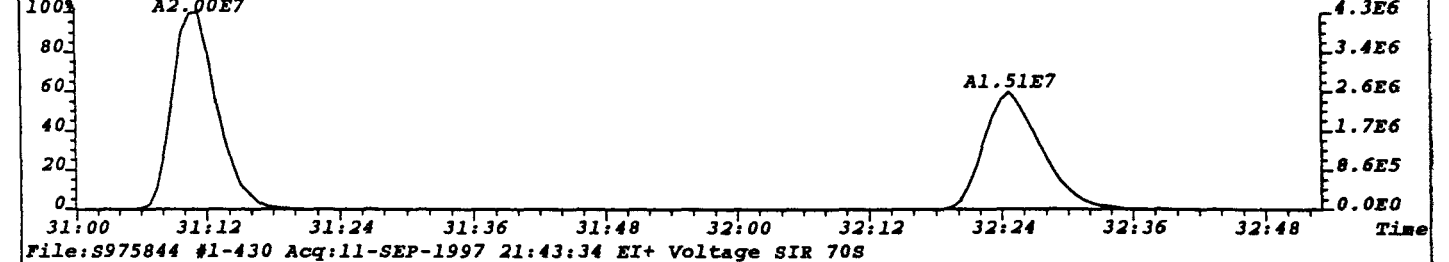
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:64
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,256.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



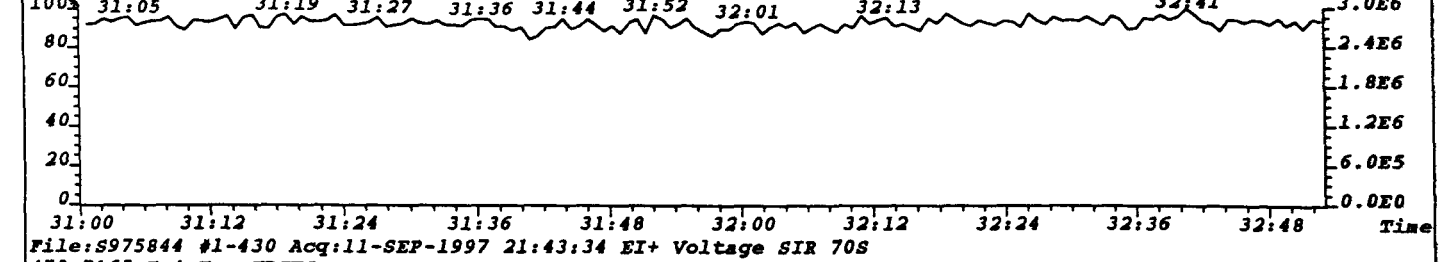
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:369
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1476.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



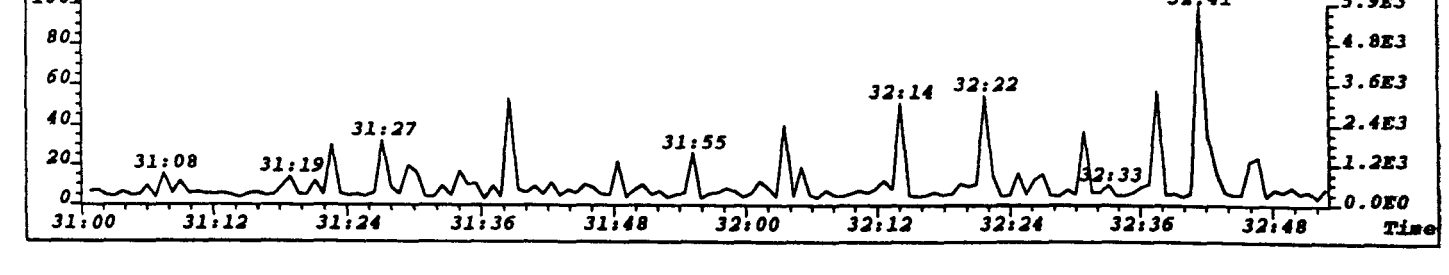
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:202
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,808.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



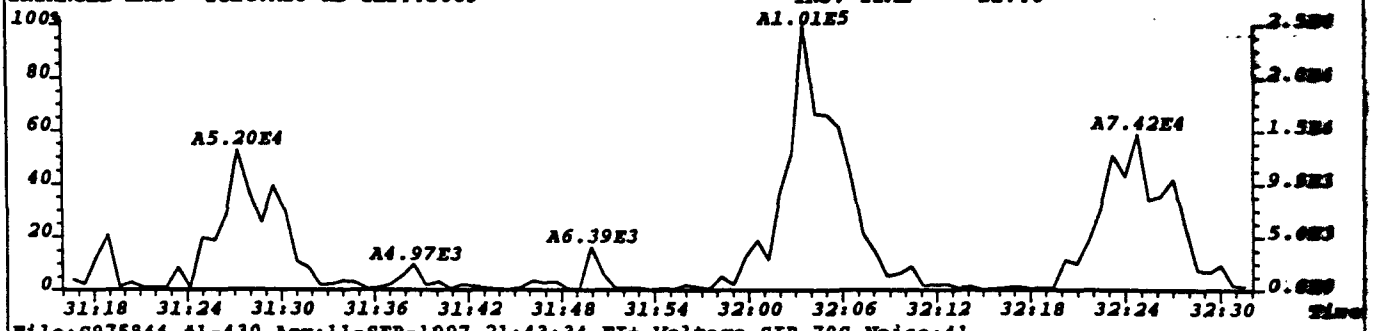
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



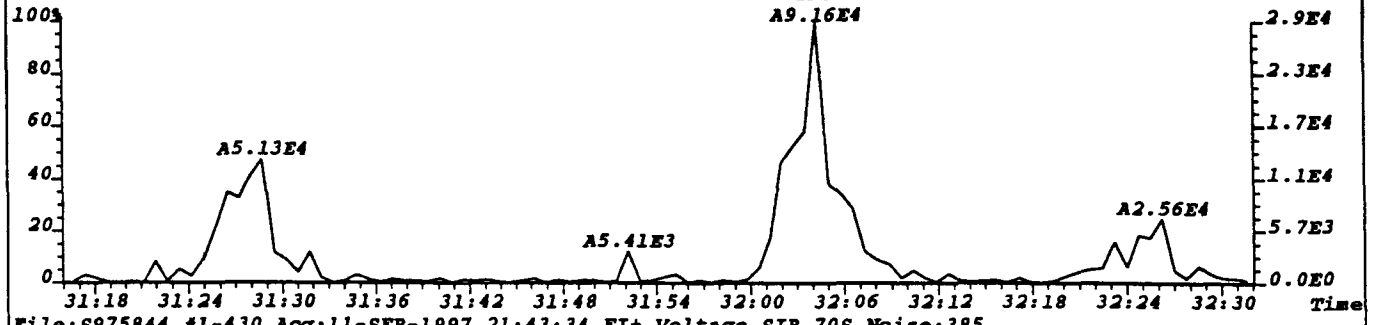
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



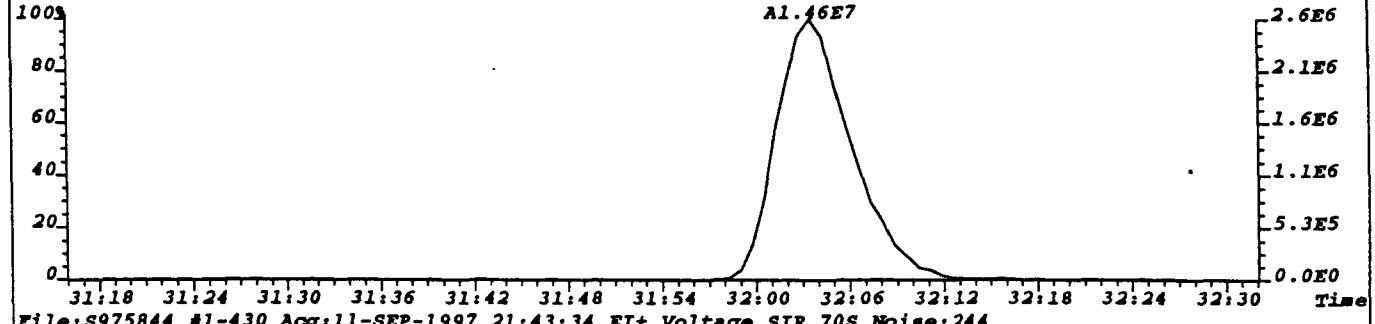
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:46
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



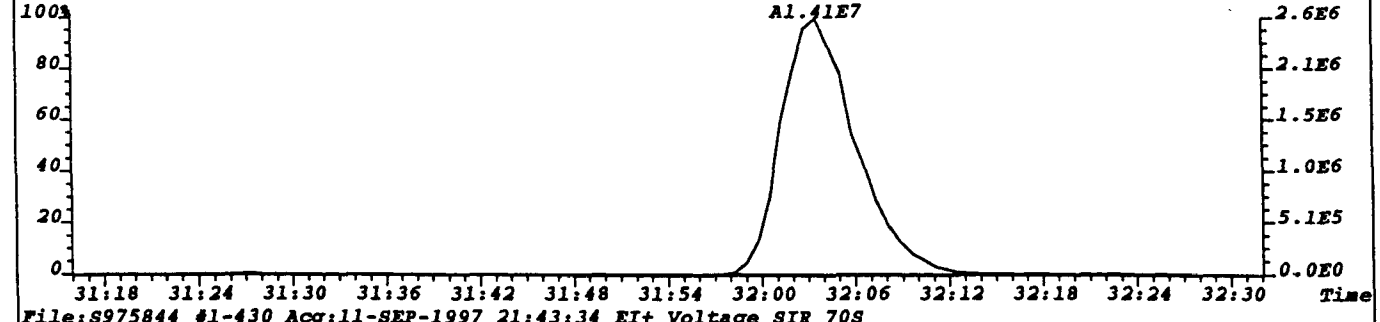
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:41
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



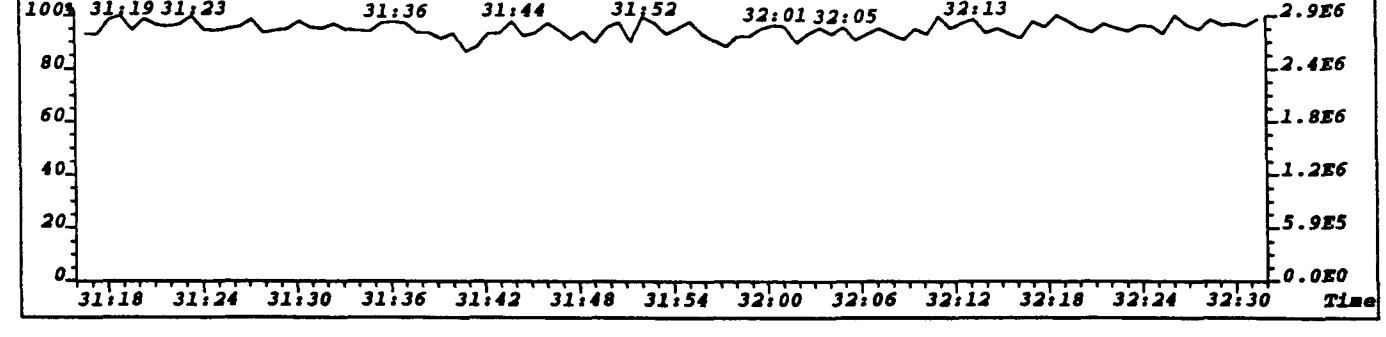
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:385
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



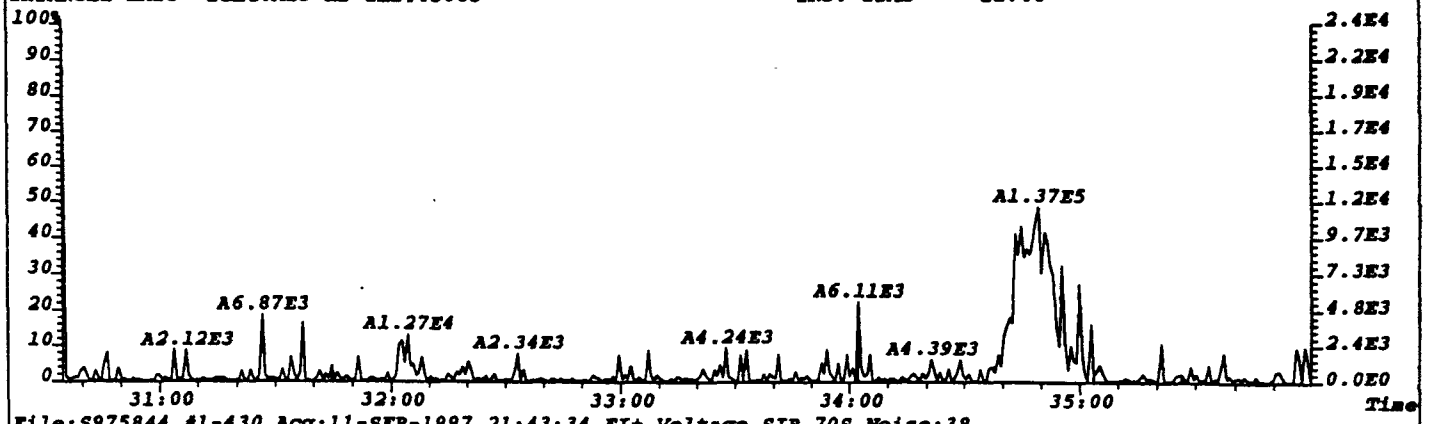
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:244
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,976.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



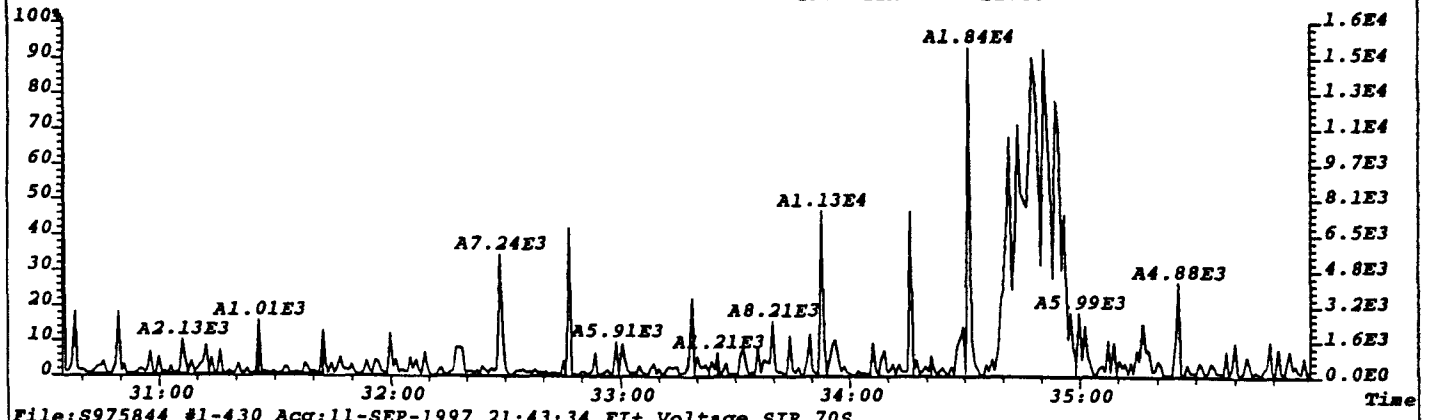
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



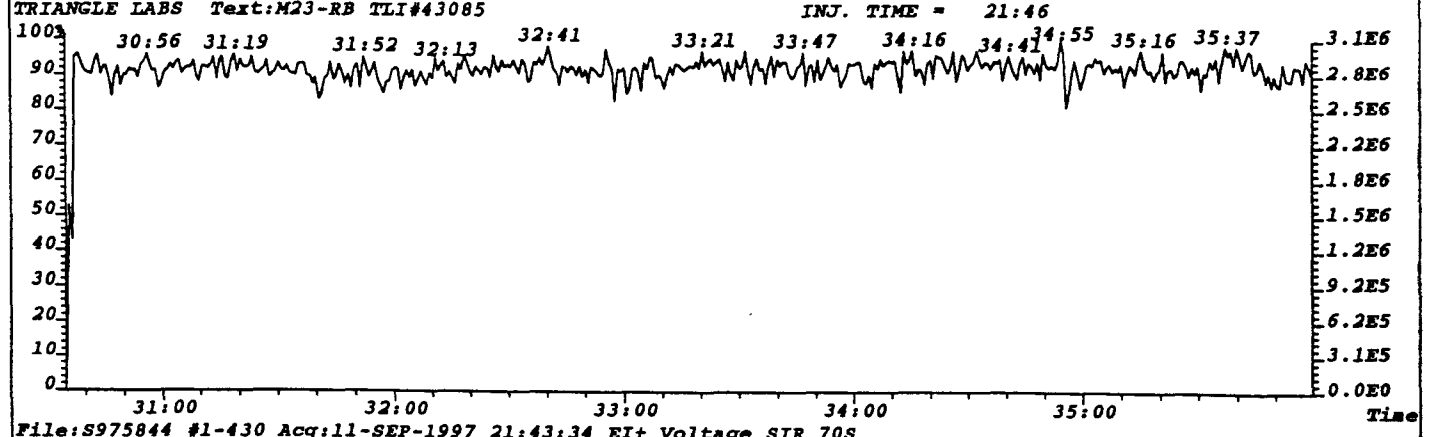
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:19
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,76.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



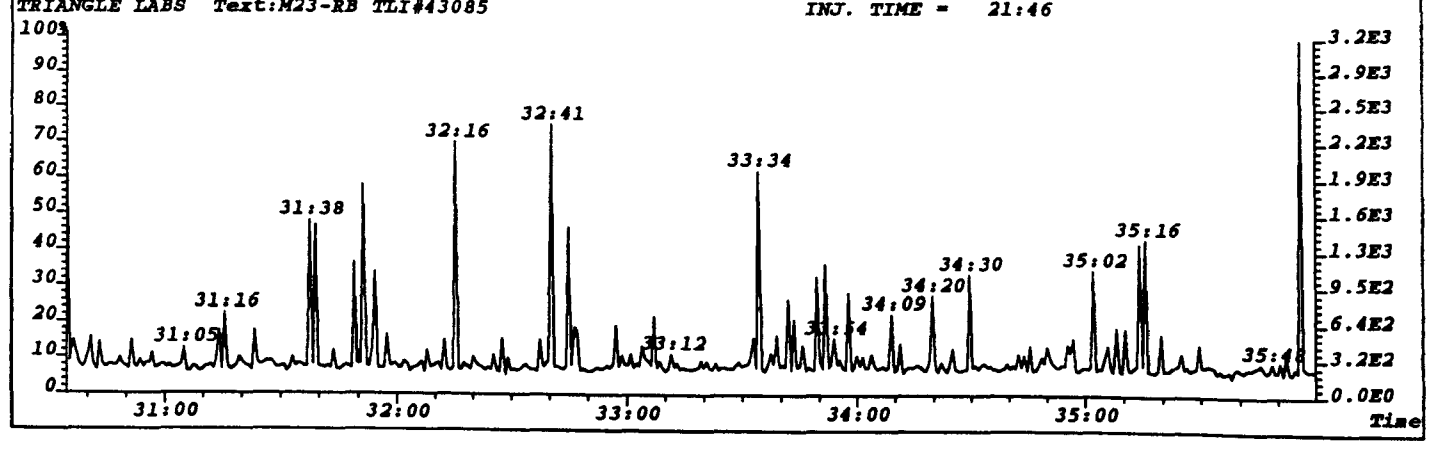
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:38
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



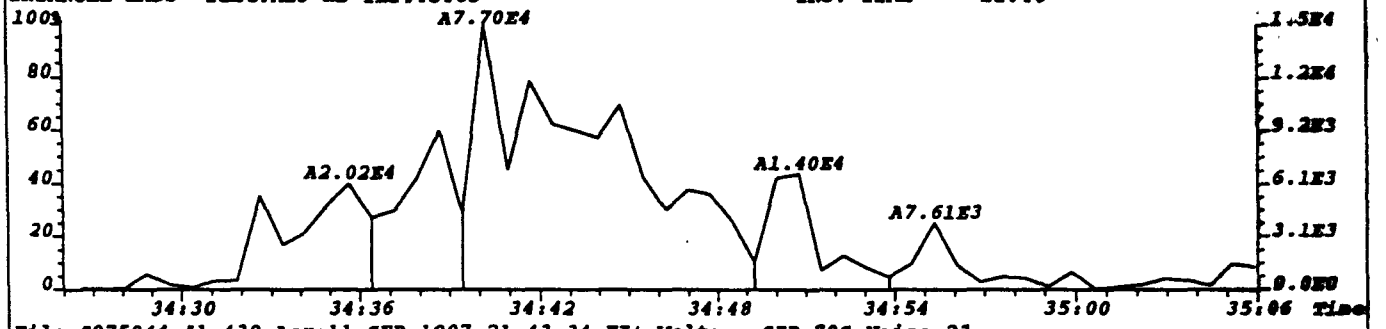
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46

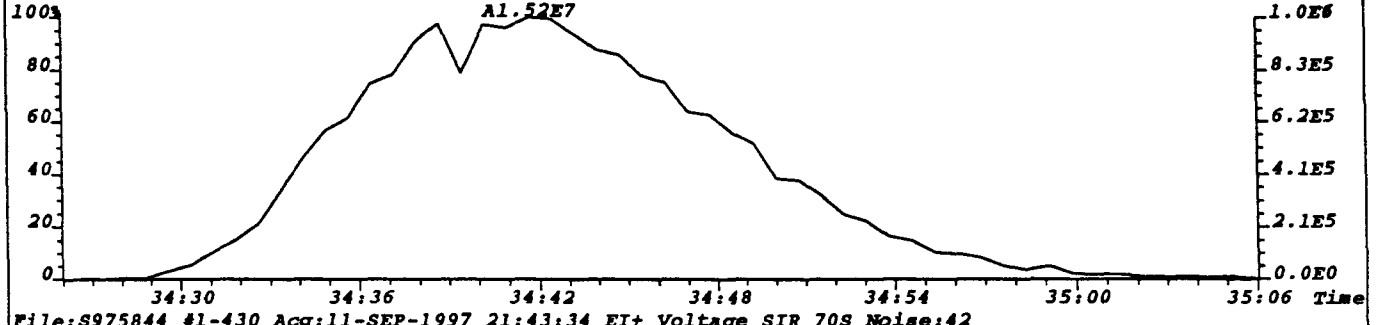


File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:23
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,92.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46

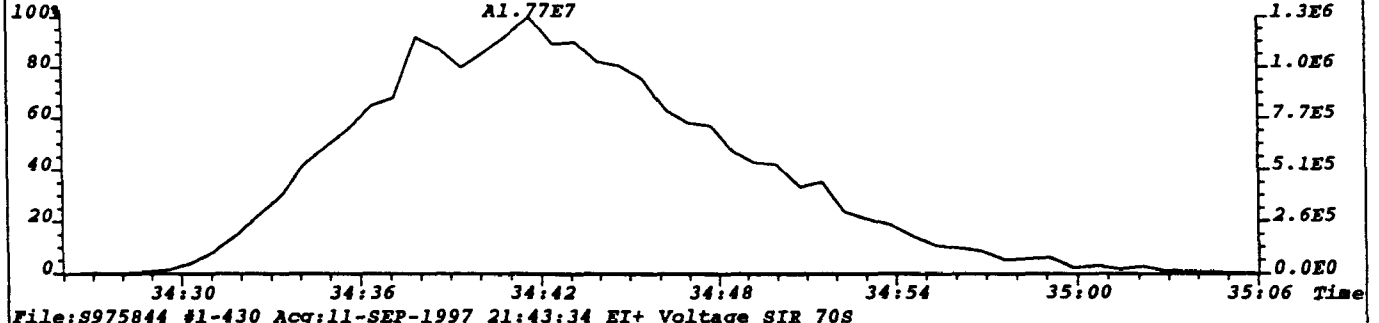


File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:23
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,92.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46

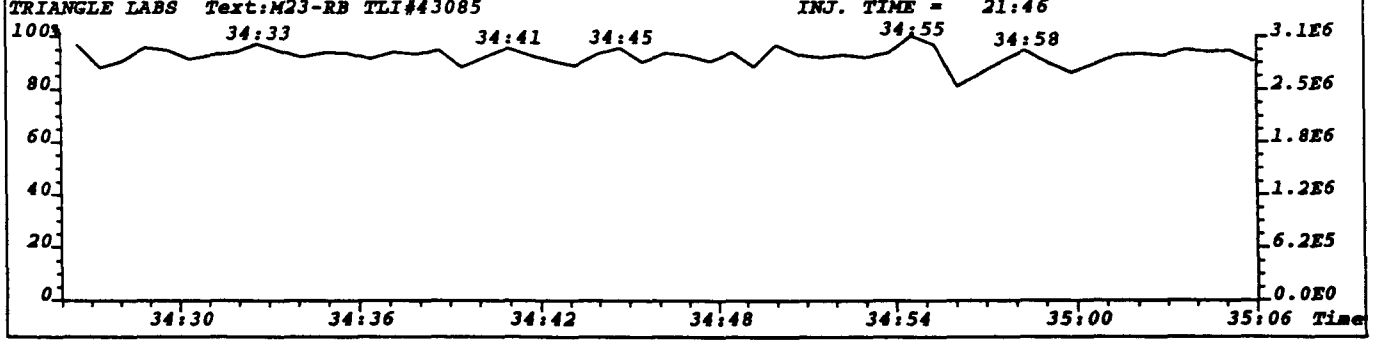
File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:51
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,204.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46

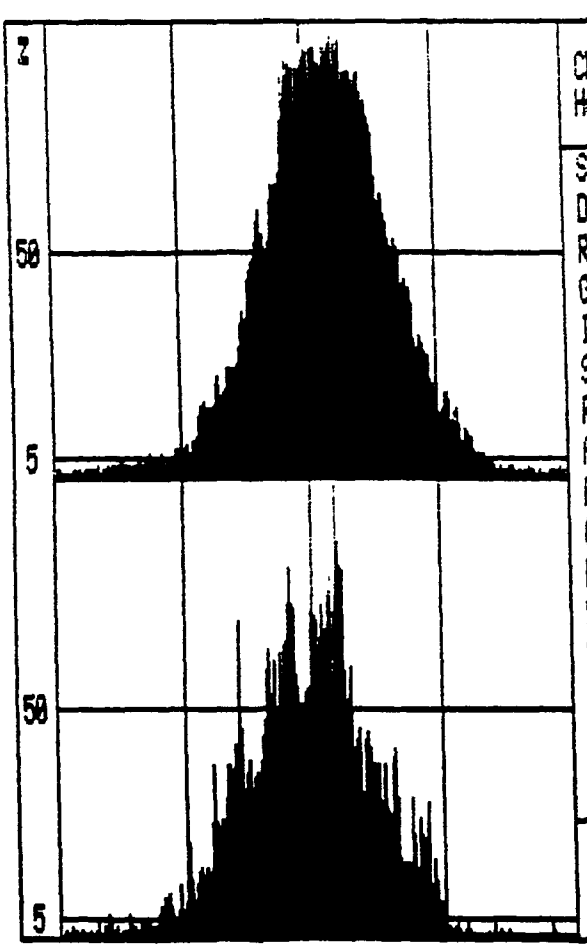


File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S Noise:42
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:M23-RB TLI#43085 INJ. TIME = 21:46



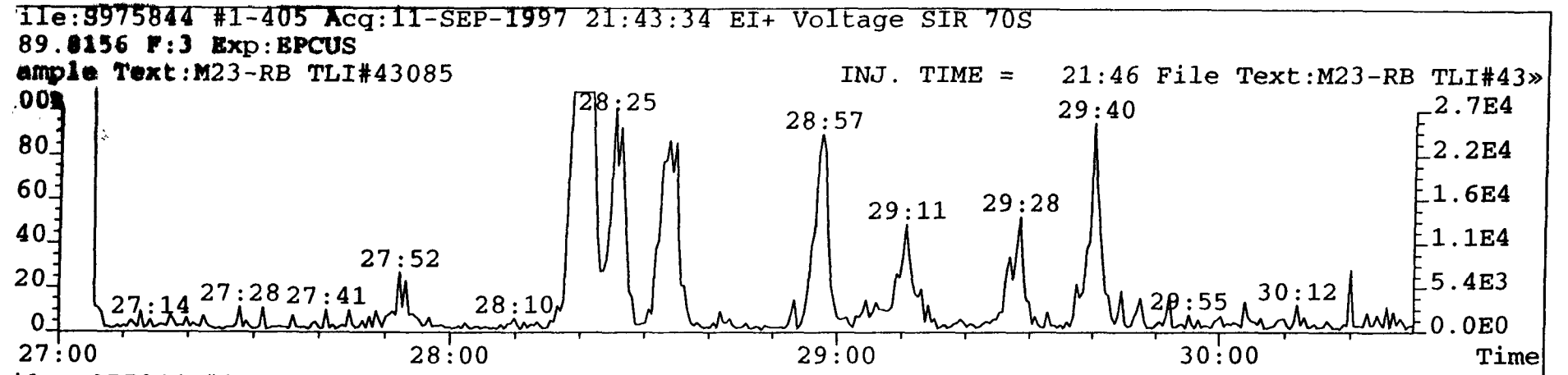


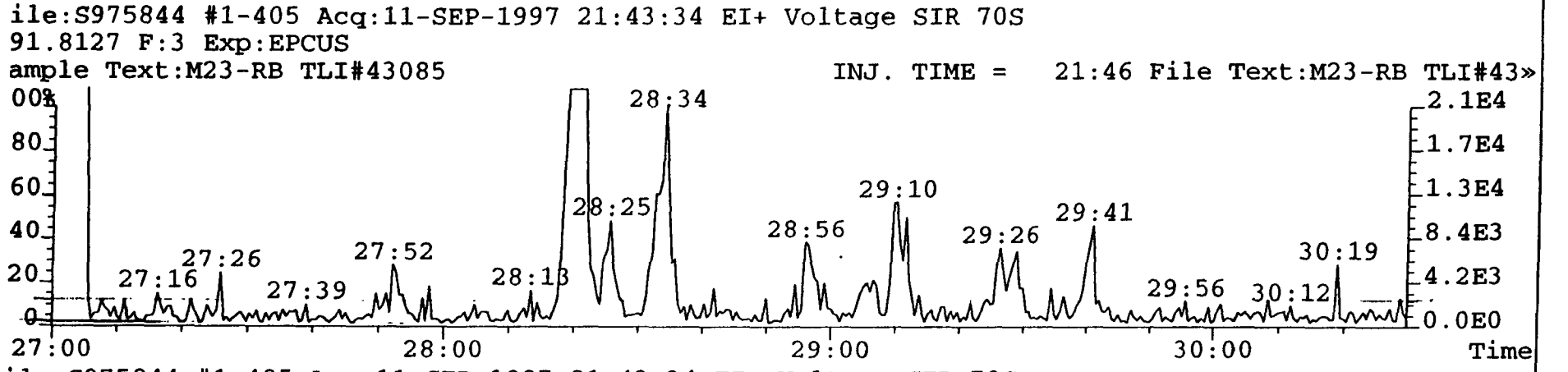
Channel I 330.9792 Peak top
Height 1.51 volts Span 200 ppm

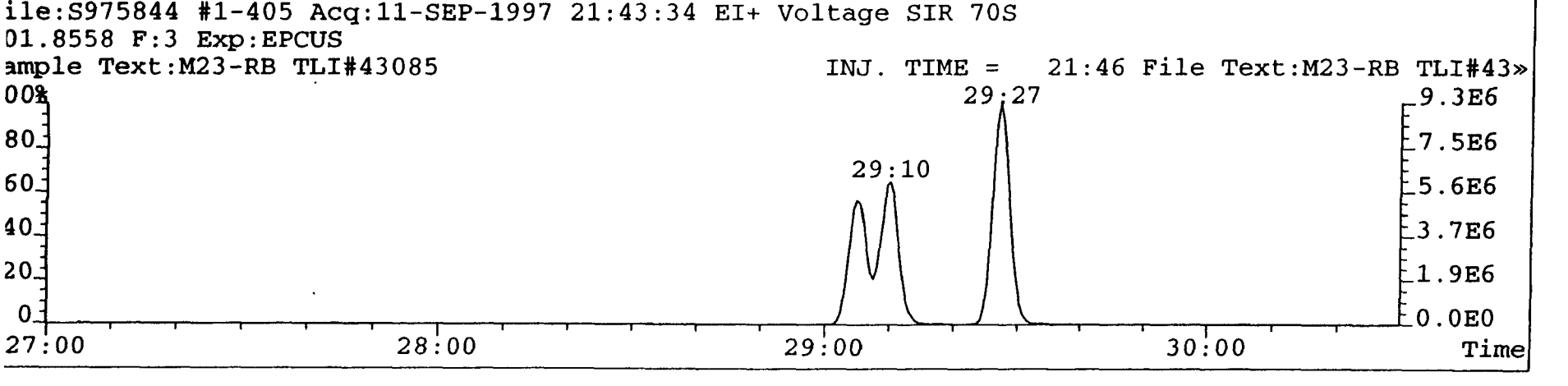
System file name	EPCUS
Data file name	A:S975843
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

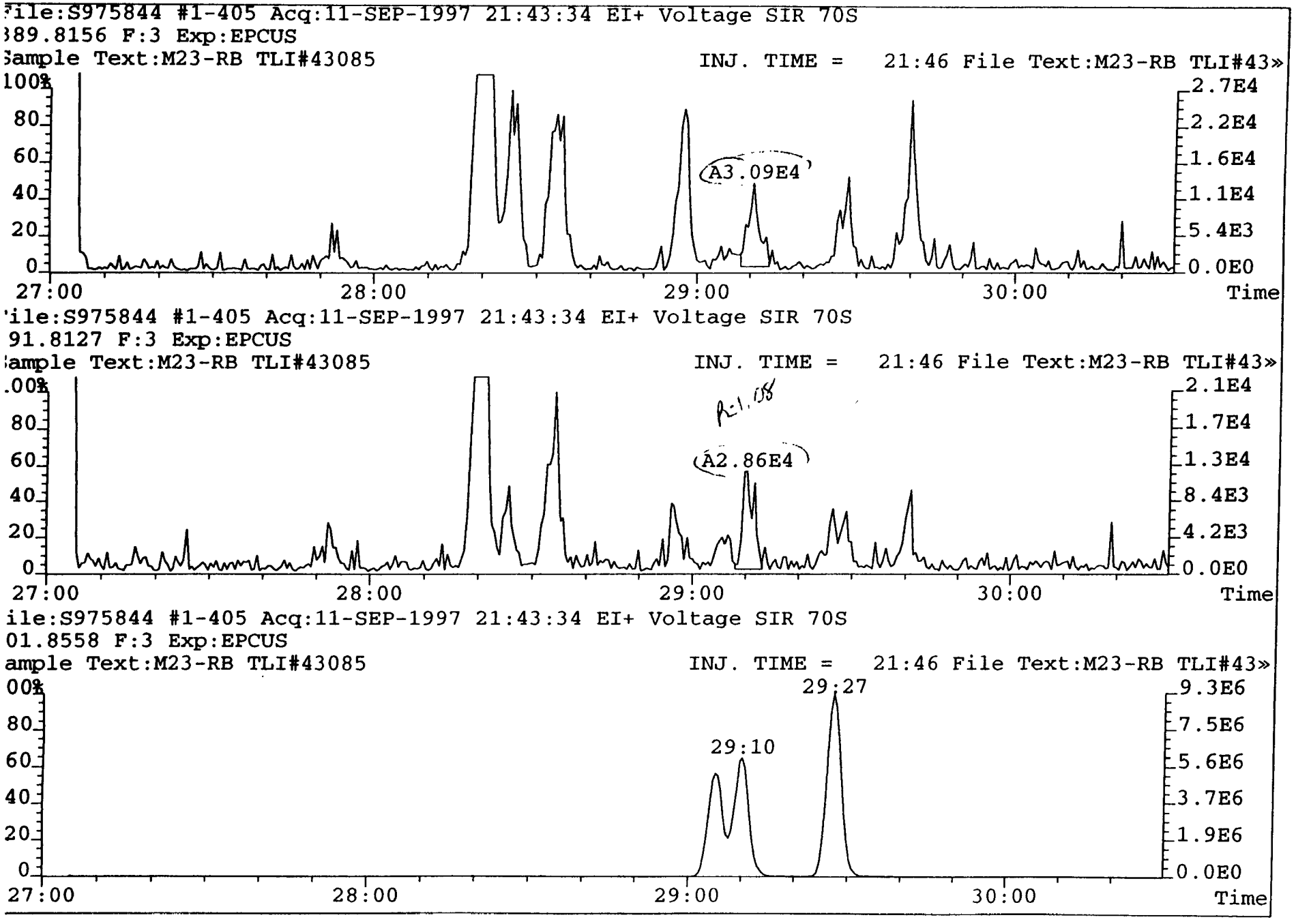
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

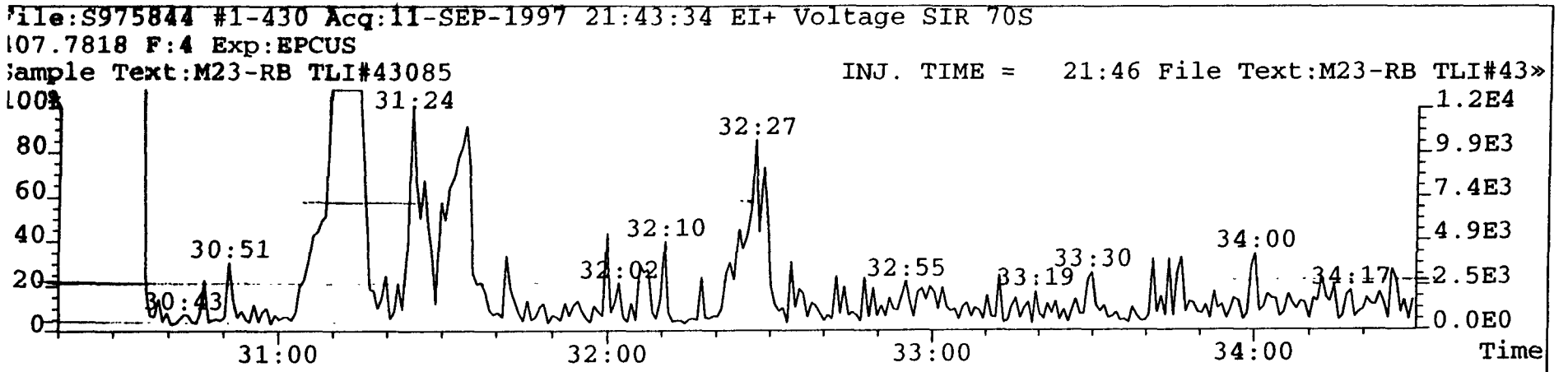
Ref. mass 416.9760 Peak top
Height .27 volts Span 200 ppm

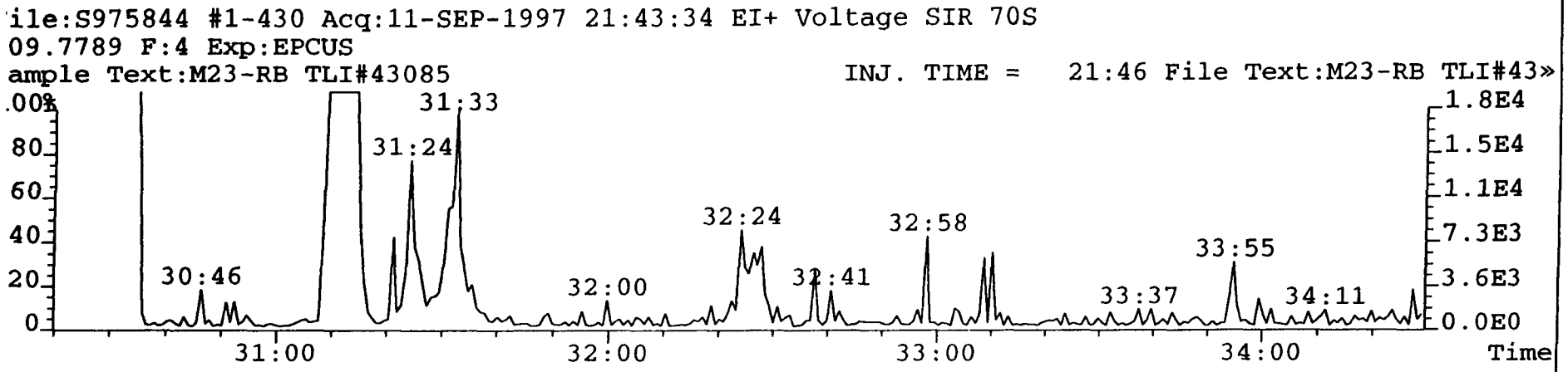

ile:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
89.8156 F:3 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
00%
80
60
40
20
0
27:14
27:28
27:41
27:52
28:10
28:25
28:57
29:11
29:28
29:40
29:55
30:12
2.7E4
2.2E4
1.6E4
1.1E4
5.4E3
0.0E0
27:00
28:00
29:00
30:00
Time

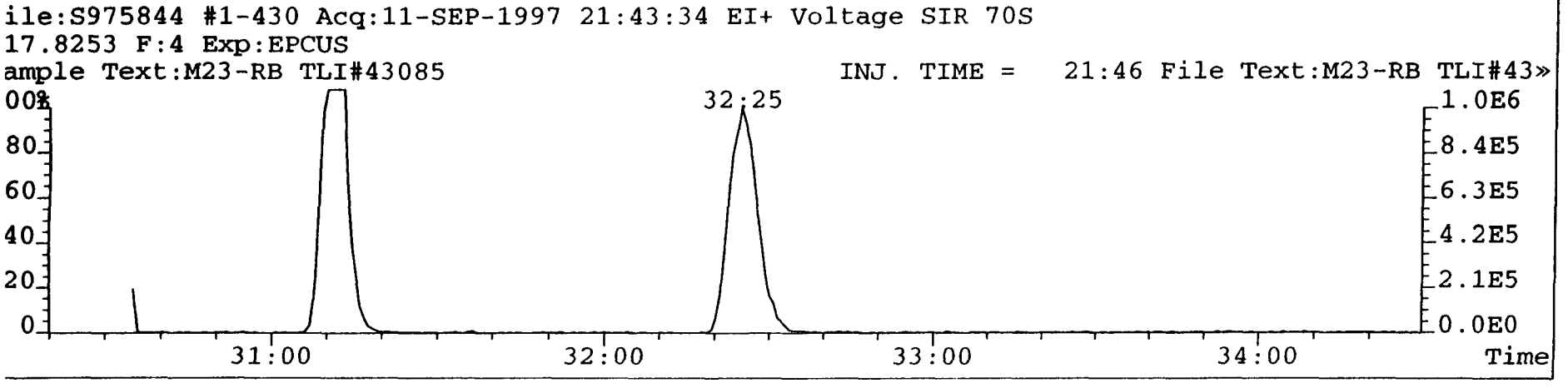

ile:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
91.8127 F:3 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
00%
80
60
40
20
0
27:16
27:26
27:39
27:52
28:13
28:25
28:34
28:56
29:10
29:26
29:41
29:56
30:12
30:19
2.1E4
1.7E4
1.3E4
8.4E3
4.2E3
0.0E0
27:00
28:00
29:00
30:00
Time

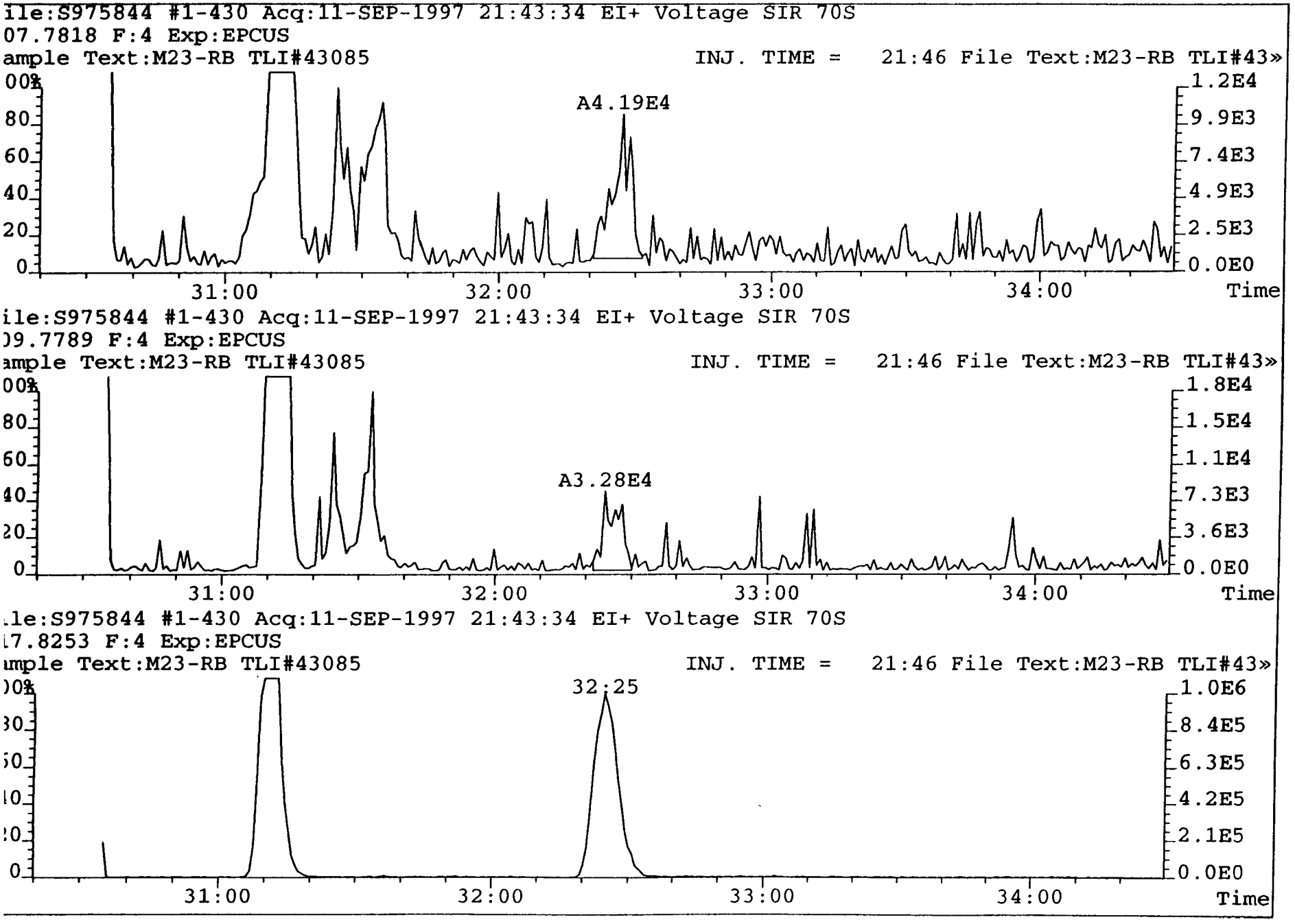

ile:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
01.8558 F:3 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
00%
80
60
40
20
0
29:10
29:27
9.3E6
7.5E6
5.6E6
3.7E6
1.9E6
0.0E0
27:00
28:00
29:00
30:00
Time

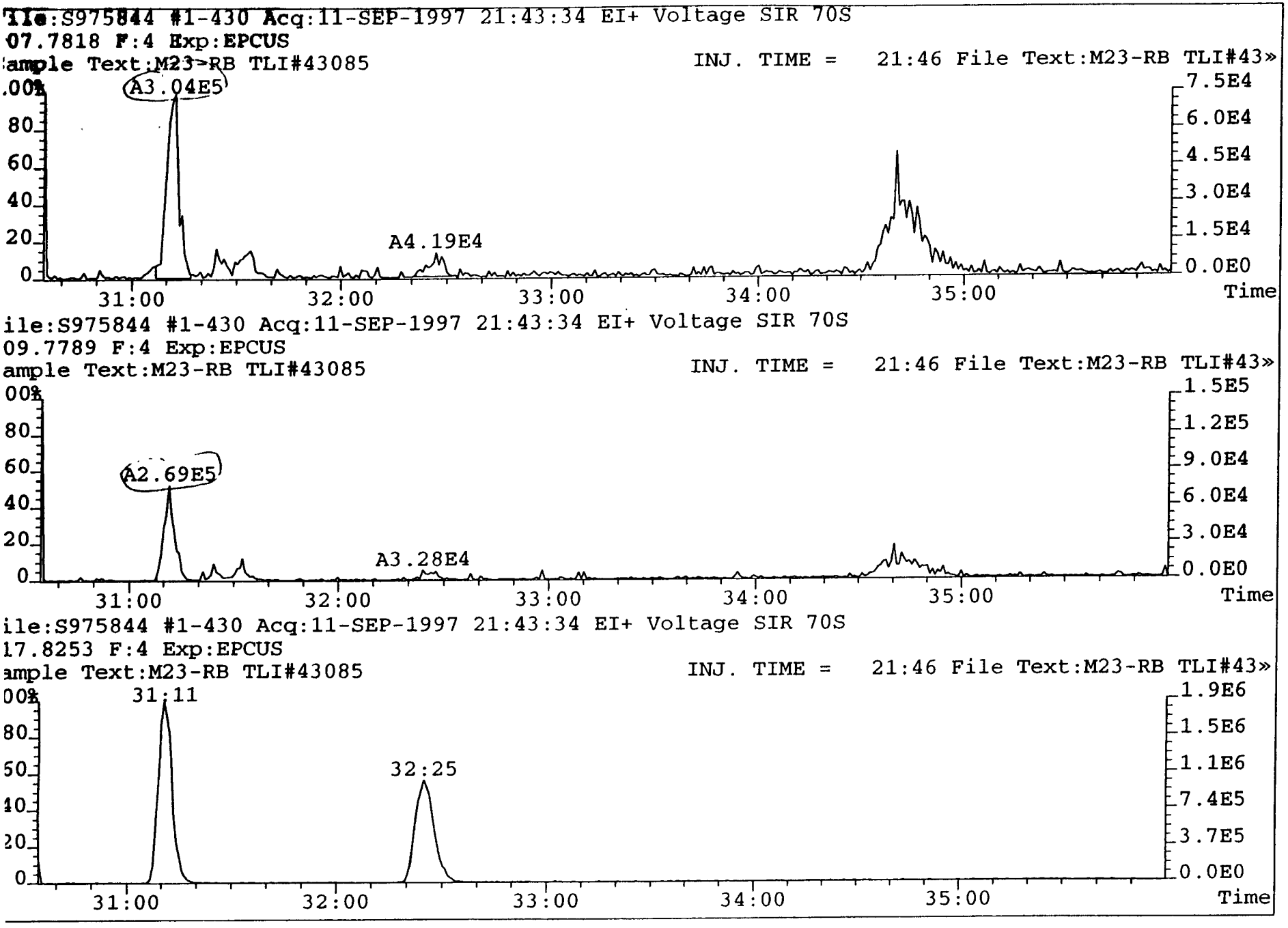

File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
389.8156 F:3 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
A3.09E4
2.7E4
2.2E4
1.6E4
1.1E4
5.4E3
0.0E0
27:00
28:00
29:00
30:00
Time
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
391.8127 F:3 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
R:1.08
A2.86E4
2.1E4
1.7E4
1.3E4
8.4E3
4.2E3
0.0E0
27:00
28:00
29:00
30:00
Time
File:S975844 #1-405 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
401.8558 F:3 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
29:10
29:27
9.3E6
7.5E6
5.6E6
3.7E6
1.9E6
0.0E0
27:00
28:00
29:00
30:00
Time

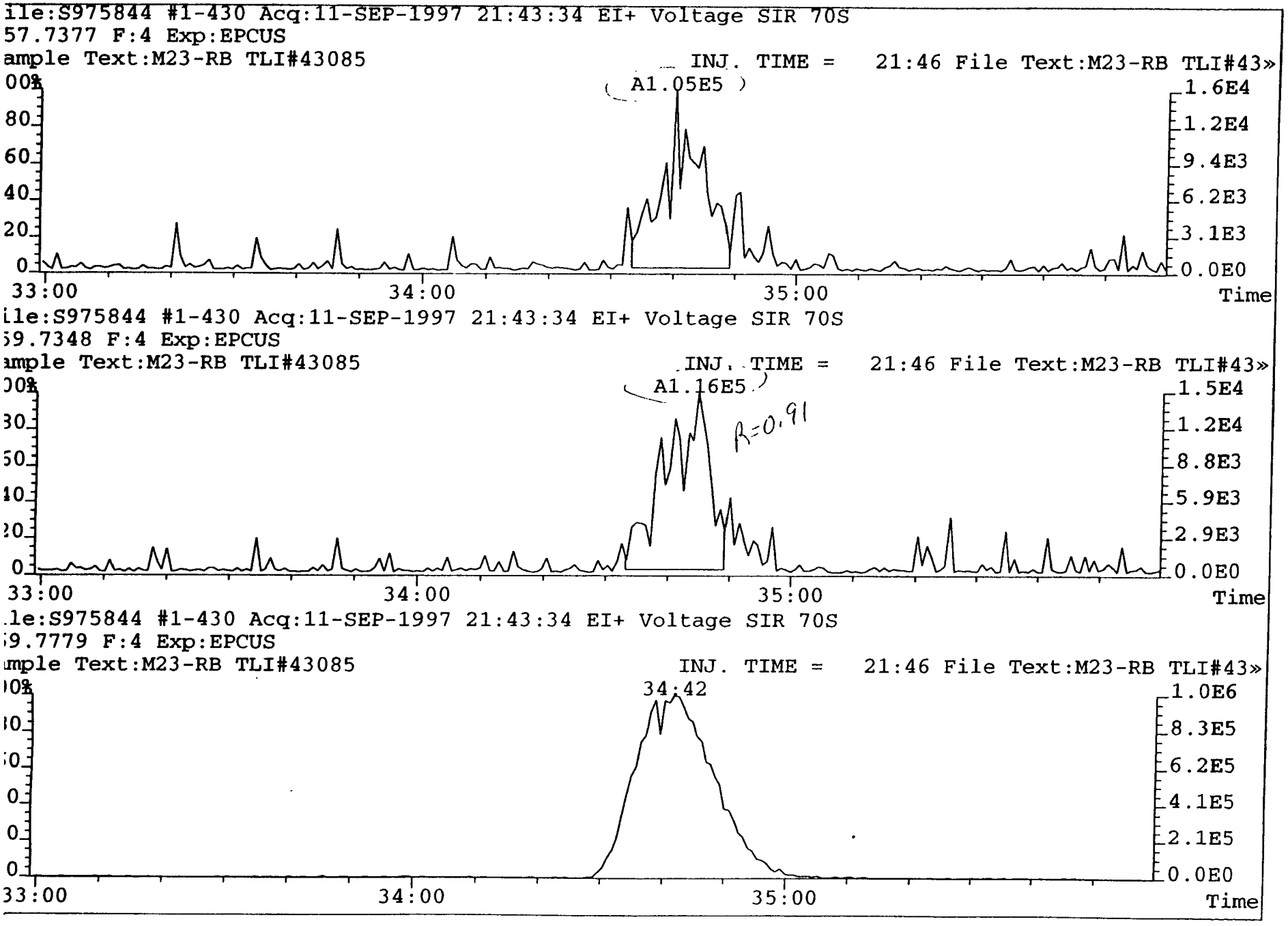

File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
107.7818 F:4 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
30:51
30:43
31:24
32:02
32:10
32:27
32:55
33:19
33:30
34:00
34:17
1.2E4
9.9E3
7.4E3
4.9E3
2.5E3
0.0E0
31:00
32:00
33:00
34:00
Time


File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
109.7789 F:4 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
30:46
31:24
31:33
32:00
32:24
32:41
32:58
33:37
33:55
34:11
1.8E4
1.5E4
1.1E4
7.3E3
3.6E3
0.0E0
31:00
32:00
33:00
34:00
Time


File:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
117.8253 F:4 Exp:EPCUS
Sample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
100%
80
60
40
20
0
32:25
1.0E6
8.4E5
6.3E5
4.2E5
2.1E5
0.0E0
31:00
32:00
33:00
34:00
Time


ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
07.7818 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A4.19E4
00%
80
60
40
20
0
1.2E4
9.9E3
7.4E3
4.9E3
2.5E3
0.0E0
31:00
32:00
33:00
34:00
Time
ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
09.7789 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A3.28E4
00%
80
60
40
20
0
1.8E4
1.5E4
1.1E4
7.3E3
3.6E3
0.0E0
31:00
32:00
33:00
34:00
Time
le:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
7.8253 F:4 Exp:EPCUS
mple Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
32:25
00%
30
60
10
20
0
1.0E6
8.4E5
6.3E5
4.2E5
2.1E5
0.0E0
31:00
32:00
33:00
34:00
Time


ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
07.7818 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A3.04E5
A4.19E4
7.5E4
6.0E4
4.5E4
3.0E4
1.5E4
0.0E0
31:00
32:00
33:00
34:00
35:00
Time
ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
09.7789 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A2.69E5
A3.28E4
1.5E5
1.2E5
9.0E4
6.0E4
3.0E4
0.0E0
31:00
32:00
33:00
34:00
35:00
Time
ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
17.8253 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
31:11
32:25
1.9E6
1.5E6
1.1E6
7.4E5
3.7E5
0.0E0
31:00
32:00
33:00
34:00
35:00
Time


ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
57.7377 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A1.05E5
1.6E4
1.2E4
9.4E3
6.2E3
3.1E3
0.0E0
33:00
34:00
35:00
Time
ile:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
59.7348 F:4 Exp:EPCUS
ample Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
A1.16E5
R=0.91
1.5E4
1.2E4
8.8E3
5.9E3
2.9E3
0.0E0
33:00
34:00
35:00
Time
le:S975844 #1-430 Acq:11-SEP-1997 21:43:34 EI+ Voltage SIR 70S
59.7779 F:4 Exp:EPCUS
mple Text:M23-RB TLI#43085
INJ. TIME = 21:46 File Text:M23-RB TLI#43»
34:42
1.0E6
8.3E5
6.2E5
4.1E5
2.1E5
0.0E0
33:00
34:00
35:00
Time

TLI Project: **43085**
Client Sample: **TLI LCSD**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975832**

Client Project:	S413-004				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLI ID:	TLI LCSD	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/11/97	ConCal:	S975814
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	BJG	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.36			0.78	21:13	___
1,2,3,7,8-PeCDD	1.9			1.64	25:51	___
1,2,3,4,7,8-HxCDD	1.7			1.24	29:07	___
1,2,3,6,7,8-HxCDD	1.8			1.23	29:12	___
1,2,3,7,8,9-HxCDD	1.9			1.24	29:29	___
1,2,3,4,6,7,8-HpCDD	1.8			1.04	32:04	___
1,2,3,4,6,7,8,9-OCDD	3.6			0.83	34:38	___
2,3,7,8-TCDF	0.37			0.82	20:23	___
1,2,3,7,8-PeCDF	1.9			1.52	24:42	___
2,3,4,7,8-PeCDF	1.9			1.53	25:29	___
1,2,3,4,7,8-HxCDF	1.7			1.29	28:22	___
1,2,3,6,7,8-HxCDF	1.8			1.29	28:29	___
2,3,4,6,7,8-HxCDF	1.7			1.28	28:59	___
1,2,3,7,8,9-HxCDF	1.8			1.32	29:42	___
1,2,3,4,6,7,8-HpCDF	1.8			1.09	31:12	___
1,2,3,4,7,8,9-HpCDF	1.6			1.09	32:25	___
1,2,3,4,6,7,8,9-OCDF	2.8			0.88	34:43	___

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.6	65.4	40%-130%	0.76	20:22	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.4	60.9	40%-130%	0.80	21:12	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.6	64.9	40%-130%	1.56	24:42	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2.7	66.7	40%-130%	1.48	25:50	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.9	72.8	40%-130%	0.50	28:28	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.8	70.3	40%-130%	1.24	29:12	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.5	62.5	25%-130%	0.42	31:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.7	67.1	25%-130%	0.99	32:04	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.8	60.2	25%-130%	0.87	34:38	___

X237_PSR v2.00, LARS 6.10.04

Triangle Laboratories, Inc.®
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Printed: 12:03 09/18/97

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI LCSD** Analysis File: **S975832**

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.0	75.4	40%-130%	0.51	29:41	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.1	77.5	40%-130%	0.50	28:59	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	20:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	29:29	—

Data Reviewer: Sue Lewis 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 12:03 09/18/97

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: n/a

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975832B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.820-1.101			
304-306	DC	NL		0:00	RO	1.25	0.14			0.000			
	DC	SN		16:48		0.86	1.56			0.825			
	DC	SN		18:03	RO	0.60	2.44			0.886			
	DC	SN		19:11		0.70	18.85			0.942			
	DC	SN		19:30	RO	1.09	3.19			0.957			
	DC	SN		19:54	RO	0.98	11.58			0.977			
	DC	SN		20:08	RO	0.27	0.55			0.989			
				20:23		0.82	461.06	207.61	253.45	1.001	2378-TCDF	AN	
	DC	SN		21:56	RO	0.35	0.64			1.077			
	DC	WH		22:42	RO	0.18	0.55			1.115			
304-306			1	Peak			461.06						
13C12-TCDF				0.65-0.89						0.951-1.049			
316-318	DC	NL		0:00	RO	15.20	0.09			0.000			
	DC	SN		19:32		0.69	6.32			0.959			
	DC	SN		19:52		0.77	18.60			0.975			
				20:22		0.76	4,035.05	1,746.44	2,288.61	1.000	13C12-2378-TCDF	ISO	
	DC	SN		20:53	RO	1.14	21.35			1.025			
316-318			1	Peak			4,035.05						

---------- Above: TCDF / TCDD Follows ----------

TCDD				0.65-0.89						0.853-1.059			
320-322	DC	NL		0:00	RO	1.33	0.11			0.000			
	DC	SN		18:37		0.73	0.76			0.878			
	DC	SN		18:42	RO	12.60	0.09			0.882			
	DC	SN		18:53	RO	2.80	0.35			0.891			
	DC	SN		19:08	RO	0.43	0.55			0.903			
	DC	SN		19:15		0.73	1.07			0.908			
	DC	SN		19:21	RO	0.25	0.34			0.913			
	DC	SN		19:55		0.75	2.13			0.939			
	DC	SN		20:22	RO	3.32	1.33			0.961			
	DC	SN		20:30		0.75	1.80			0.967			
	DC	SN		20:44		0.74	0.94			0.978			
	DC	SN		20:54	RO	1.90	0.51			0.986			
	DC	SN		21:00	RO	2.83	0.94			0.991			
				21:13		0.78	322.42	141.35	181.07	1.001	2378-TCDD	AN	
	DC	SN		21:48	RO	6.50	0.18			1.028			
	DC	SN		22:19	RO	0.43	0.92			1.053			
	DC	WH		22:38	RO	1.06	0.55			1.068			
	DC	WH		22:40	RO	0.27	0.57			1.069			
320-322			1	Peak			322.42						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-TCDD				0.65-0.89						0.906-1.094			
332-334	DC	NL		0:00	RO	24.67	0.16			0.000			
	DC	SN		19:52	RO	1.13	13.47			0.937			
	DC	SN		20:36	RO	2.05	2.35			0.972			
				20:59		0.80	4,680.21	2,079.73	2,600.48	0.990	13C12-1234-TCDD	RS1	
				21:12		0.80	3,036.35	1,350.47	1,685.88	1.000	13C12-2378-TCDD	IS1	
				21:33	RO	1.12	42.13	26.58	23.80	1.017			
	DC	SN		21:46	RO	1.38	3.95			1.027			
332-334			3	Peaks			7,758.69						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF				1.32-1.78						0.907-1.078			
340-342	DC	NL		0:00	RO	0.88	0.12			0.000			
	DC	SN		22:36	RO	0.81	2.07			0.915			
	DC	SN		23:49		1.33	22.22			0.964			
	DC	SN		24:21	RO	1.89	10.30			0.986			
				24:42		1.52	1,810.32	1,092.57	717.75	1.000	12378-PeCDF	AN	
	DC	SN		24:53	RO	1.11	10.22			1.007			
	DC	SN		25:01		1.59	27.22			1.013			
				25:29		1.53	1,823.25	1,103.61	719.64	1.032	23478-PeCDF	AN	
	DC	SN		26:08	RO	1.02	1.51			1.058			
	DC	SN		26:27	RO	0.56	3.88			1.071			
340-342			2	Peaks			3,633.57						
13C12-PeCDF				1.32-1.78						0.838-1.162			
352-354	DC	NL		0:00	RO	1.00	0.12			0.000			
	DC	SN		23:46	RO	1.15	11.53			0.962			
	DC	SN		24:20		1.40	14.07			0.985			
				24:42		1.56	3,441.27	2,098.74	1,342.53	1.000	13C12-PeCDF 123	IS2	
	DC	SN		24:59		1.74	14.25			1.011			
	DC	SN		25:22		1.50	3.08			1.027			
	DC	SN		25:28		1.48	29.96			1.031	13C12-PeCDF 234	SUR2	
	DC	SN		26:27	RO	0.95	8.95			1.071			
352-354			1	Peak			3,441.27						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD				1.32-1.78						0.921-1.026			
356-358	DC	NL		0:00	RO	0.86	0.10			0.000			
	DC	SN		23:57	RO	0.09	0.79			0.927			
	DC	SN		24:43	RO	1.97	2.63			0.957			
	DC	SN		24:52		1.38	3.97			0.963			
	DC	SN		25:04	RO	2.08	2.47			0.970			
	DC	SN		25:30	RO	1.91	0.82			0.987			
				25:51		1.64	1,165.51	724.15	441.36	1.001	12378-PeCDD	AN	
356-358			1	Peak			1,165.51						
13C12-PeCDD				1.32-1.78						0.845-1.155			
368-370	DC	NL		0:00	RO	0.86	0.10			0.000			
	DC	SN		24:43	RO	2.43	2.22			0.957			
				25:50		1.48	1,982.60	1,183.63	798.97	1.000	13C12-PeCDD 123	IS3	

Listing of S975832B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				25:59		1.50	180.79	108.57	72.22	1.006			
368-370				2 Peaks			2,163.39						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF						1.05-1.43				0.955-1.052			
374-376	DC	NL		0:00	RO	1.89	1.77			0.000			
	DC	SN		27:22	RO	1.53	4.26			0.961			
	DC	SN		27:30	RO	1.48	10.37			0.966			
	DC	SN		28:02	RO	2.02	1.30			0.985			
				28:22		1.29	1,561.66	878.60	683.06	0.996	123478-HxCDF		AN
				28:29		1.29	2,046.94	1,154.87	892.07	1.001	123678-HxCDF		AN
	DC	SN		28:44	RO	2.60	2.55			1.009			
	DC	SN		28:48	RO	1.72	2.02			1.012			
				28:59		1.28	1,541.86	865.45	676.41	1.018	234678-HxCDF		AN
	DC	SN		29:13	RO	0.80	2.67			1.026			
	DC	SN		29:16	RO	1.80	1.59			1.028			
	DC	SN		29:24	RO	1.65	1.90			1.033			
	DC	SN		29:30	RO	1.52	3.23			1.036			
				29:42		1.32	1,479.08	841.99	637.09	1.043	123789-HxCDF		AN
	DC	SN		29:54	RO	0.91	2.49			1.050			
374-376				4 Peaks			6,629.54						
13C12-HxCDF						0.43-0.59				0.859-1.141			
384-386	DC	NL		0:00		0.55	3.29			0.000			
	DC	SN		27:20	RO	0.29	2.61			0.960			
	DC	SN		27:30	RO	0.39	9.95			0.966			
				28:28		0.50	2,962.73	982.88	1,979.85	1.000	13C12-HxCDF 678		IS4
	DC	SN		28:42	RO	1.50	2.55			1.008			
				28:59		0.50	2,919.87	972.79	1,947.08	1.018	13C12-HxCDF 234		ALT2
	DC	SN		29:13	RO	0.64	3.70			1.026			
	DC	SN		29:16	RO	0.32	1.27			1.028			
	DC	SN		29:24	RO	0.74	1.31			1.033			
				29:41		0.51	2,468.56	831.41	1,637.15	1.043	13C12-HxCDF 789		ALT1
	DC	SN		29:58		0.55	2.28			1.053			
	DC	SN		30:01	RO	0.60	3.16			1.054			
384-386				3 Peaks			8,351.16						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD						1.05-1.43				0.950-1.015			
390-392	DC	NL		0:00	RO	1.49	1.32			0.000			
	DC	WL		27:44	RO	1.78	1.52			0.950			
	DC	SN		27:54	RO	0.87	1.61			0.955			
	DC	SN		28:04	RO	0.89	0.90			0.961			
	DC	SN		28:23	RO	0.85	3.09			0.972			
	DC	SN		28:29	RO	2.06	2.31			0.975			
	DC	SN		28:37	RO	1.56	5.64			0.980			
	DC	SN		28:42	RO	1.62	1.88			0.983			
	DC	SN		28:51	RO	3.15	0.60			0.988			
	DC	SN		28:58	RO	4.50	0.94			0.992			
				29:07		1.24	985.19	544.61	440.58	0.997	123478-HxCDD		AN

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				29:12		1.23	1,211.68	667.37	544.31	1.000	123678-HxCDD	AN	
				29:29		1.24	1,223.86	677.65	546.21	1.010	123789-HxCDD	AN	
	DC	SN		29:37	RO	2.42	3.11			1.014			
	DC	WH		29:43	RO	1.64	3.54			1.018			
	DC	WH		29:53	RO	0.31	0.87			1.023			
390-392			3	Peaks			3,420.73						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	NL		0:00	RO	0.87	3.34			0.000			
	DC	WL		27:54	RO	0.93	3.87			0.955			
	DC	SN		28:34		1.38	13.85			0.978			
				29:12		1.24	2,365.17	1,307.45	1,057.72	1.000	13C12-HxCDD 678	IS5	
				29:29		1.20	3,379.31	1,842.39	1,536.92	1.010	13C12-HxCDD 789	RS2	
	DC	SN		29:42	RO	5.96	1.28			1.017			
402-404			2	Peaks			5,744.48						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF				0.88-1.20						0.995-1.044			
408-410	DC	NL		0:00	RO	4.06	1.59			0.000			
				31:12		1.09	1,324.95	692.08	632.87	1.001	1234678-HpCDF	AN	
	DC	SN		31:32	RO	0.61	3.12			1.011			
				32:25		1.09	894.39	466.29	428.10	1.040	1234789-HpCDF	AN	
408-410			2	Peaks			2,219.34						
13C12-HpCDF				0.37-0.51						0.936-1.128			
418-420	DC	NL		0:00	RO	1.63	0.91			0.000			
				31:11		0.42	1,874.76	555.58	1,319.18	1.000	13C12-HpCDF 678	IS6	
	DC	SN		31:25	RO	0.58	5.08			1.007			
	DC	SN		31:48	RO	0.70	2.36			1.020			
	DC	SN		31:57	RO	1.06	1.44			1.025			
	DC	SN		32:29		0.39	5.55			1.042			
418-420			1	Peak			1,874.76						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD				0.88-1.20						0.976-1.006			
424-426	DC	NL		0:00	RO	2.74	0.86			0.000			
	DC	SN		31:26	RO	0.81	6.18			0.980			
				32:04		1.04	872.46	444.26	428.20	1.000	1234678-HpCDD	AN	
424-426			1	Peak			872.46						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00		0.98	2.57			0.000			
	DC	SN		31:27		0.92	4.25			0.981			
				32:04		0.99	1,846.97	920.88	926.09	1.000	13C12-HpCDD 678	IS7	
	DC	SN		32:18	RO	2.67	2.10			1.007			
436-438			1	Peak			1,846.97						

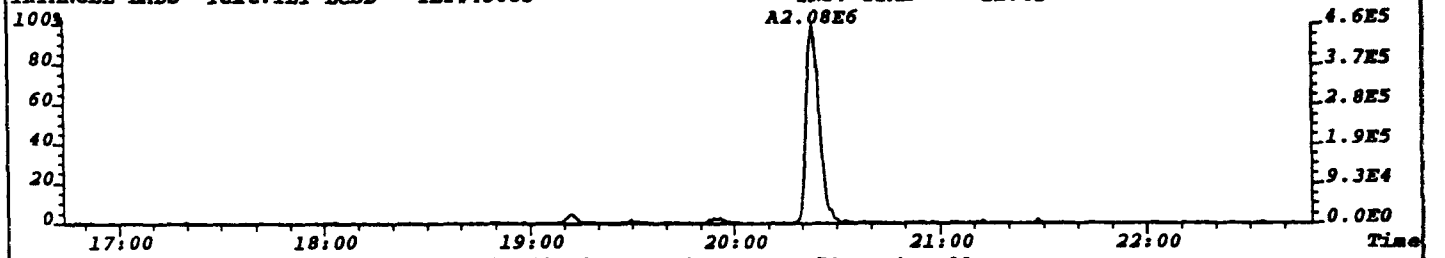
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
OCDF						0.76-1.02				0.884-1.116			
442-444	DC	NL		0:00	RO	0.15	0.17			0.000			
	DC	SN		31:49	RO	0.36	0.91			0.919			
	DC	SN		32:01		0.77	1.01			0.924			
	DC	SN		32:06	RO	1.62	0.70			0.927			
	DC	SN		32:22		0.97	0.61			0.935			
	DC	SN		32:32	RO	1.14	1.72			0.939			
	DC	SN		32:44	RO	1.10	0.76			0.945			
	DC	SN		32:57		0.86	2.18			0.951			
	DC	SN		33:08	RO	0.24	0.45			0.957			
	DC	SN		33:31	RO	0.39	0.47			0.968			
	DC	SN		33:35	RO	0.24	0.68			0.970			
	DC	SN		33:49	RO	0.30	0.30			0.976			
	DC	SN		34:21		0.78	1.57			0.992			
				34:43		0.88	1,117.27	523.96	593.31	1.002	OCDF		AN
	DC	SN		35:25	RO	1.62	1.49			1.023			
442-444			1	Peak			1,117.27						
OCDD						0.76-1.02				0.884-1.116			
458-460	DC	NL		0:00	RO	6.29	0.13			0.000			
	DC	SN		34:21	RO	0.75	1.83			0.992			
				34:38		0.83	1,049.26	475.04	574.22	1.000	OCDD		AN
458-460			1	Peak			1,049.26						
13C12-OCDD						0.76-1.02				0.995-1.005			
470-472	DC	NL		0:00	RO	9.71	0.13			0.000			
				34:38		0.87	2,111.51	983.01	1,128.50	1.000	13C12-OCDD		IS8
470-472			1	Peak			2,111.51						

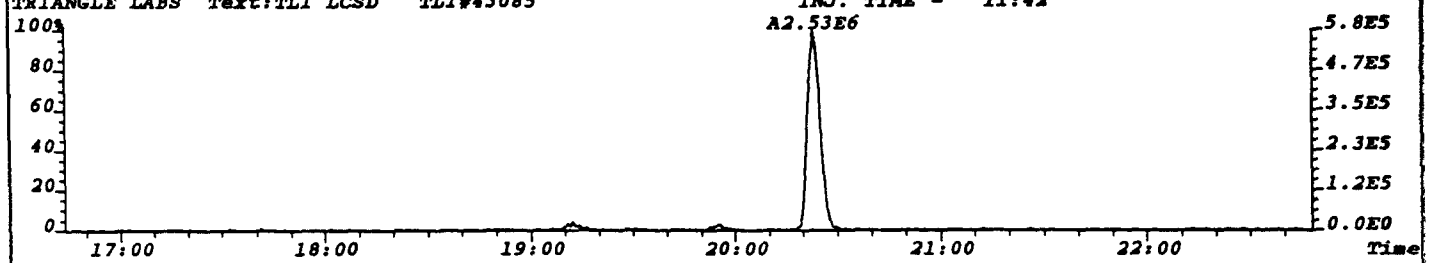
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

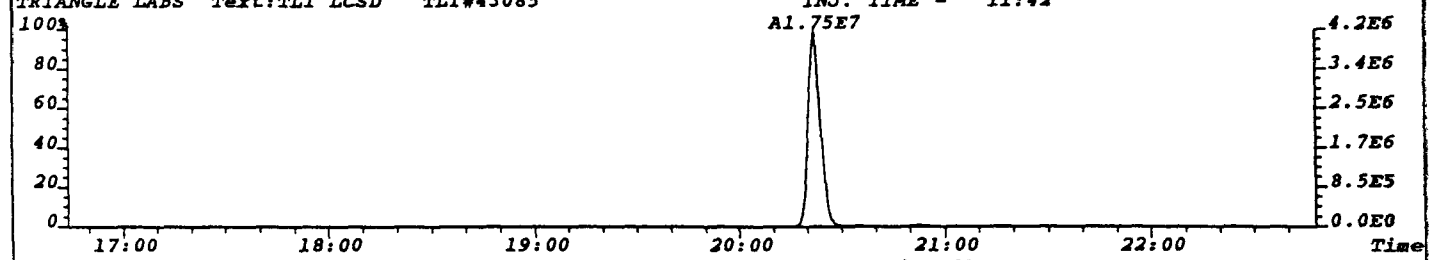
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:48
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,192.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



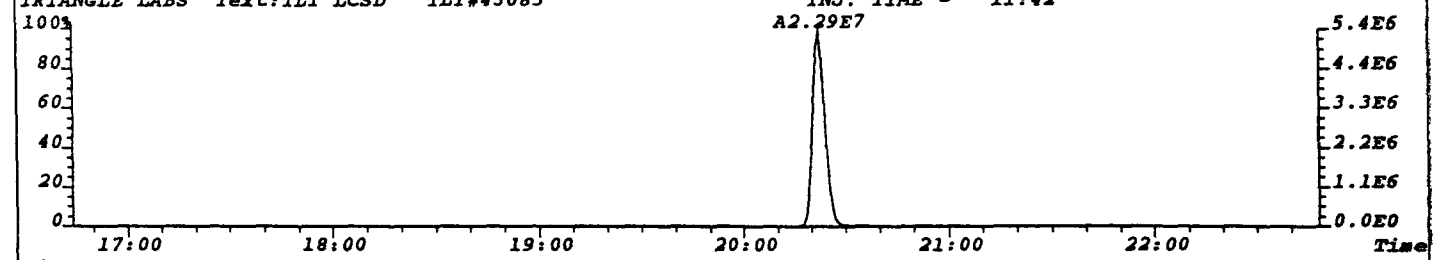
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:39
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



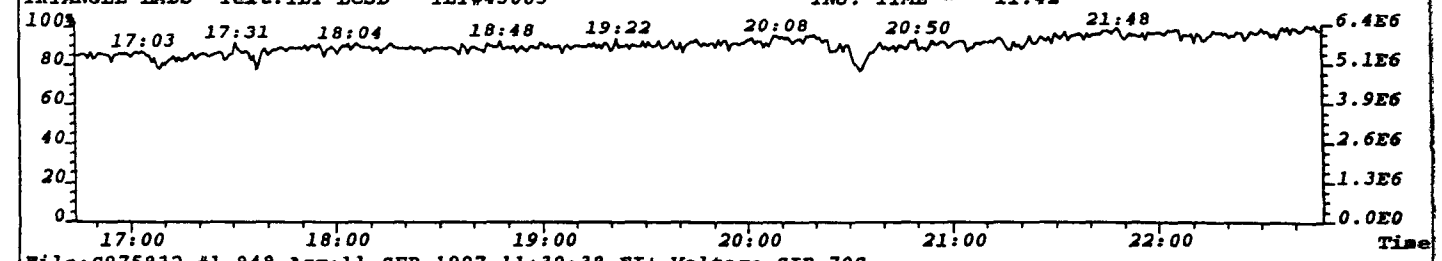
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:381
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1524.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



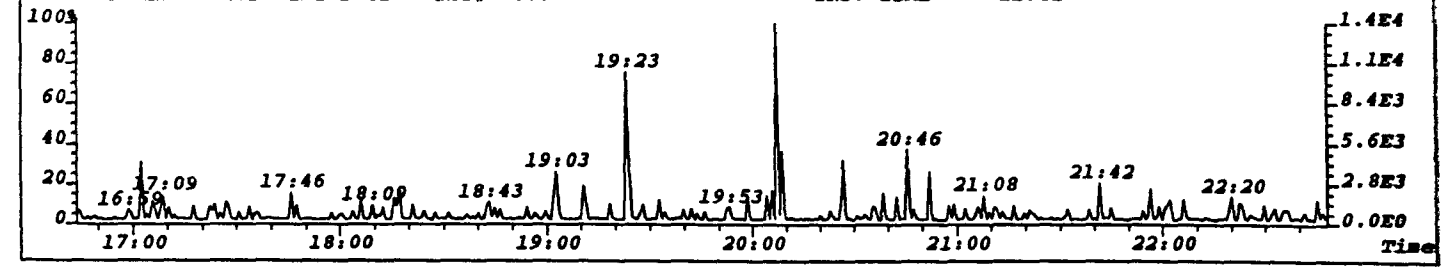
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:27
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



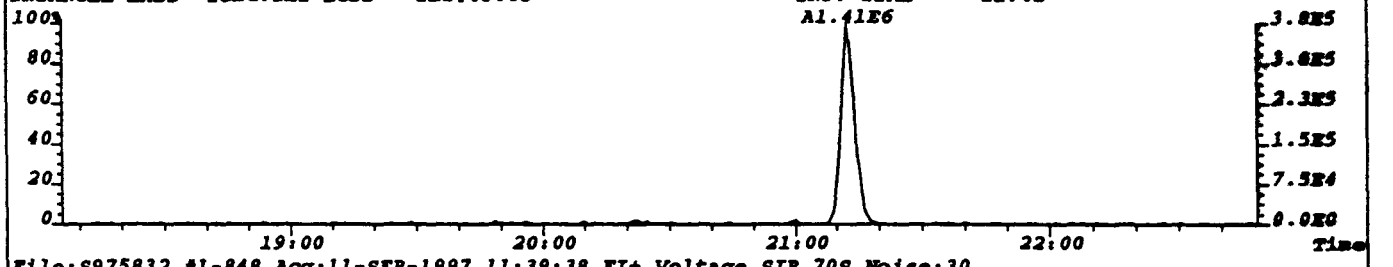
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



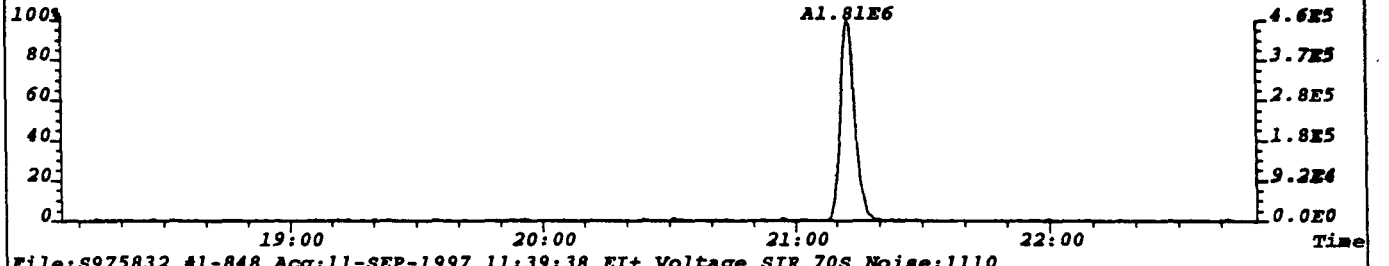
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



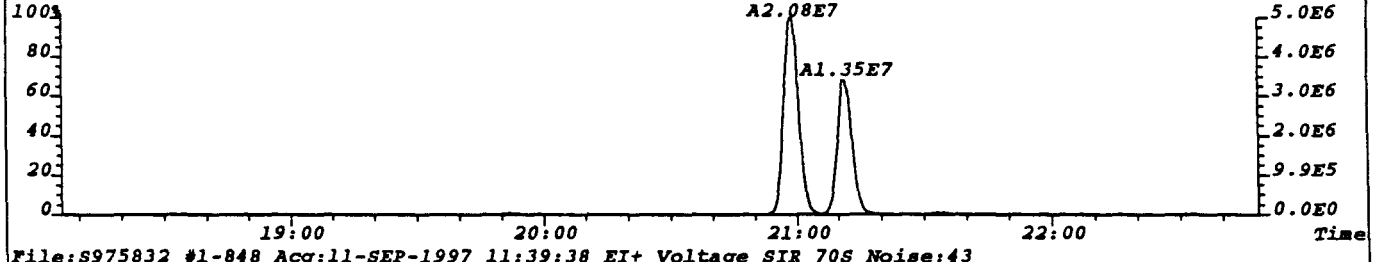
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:41
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



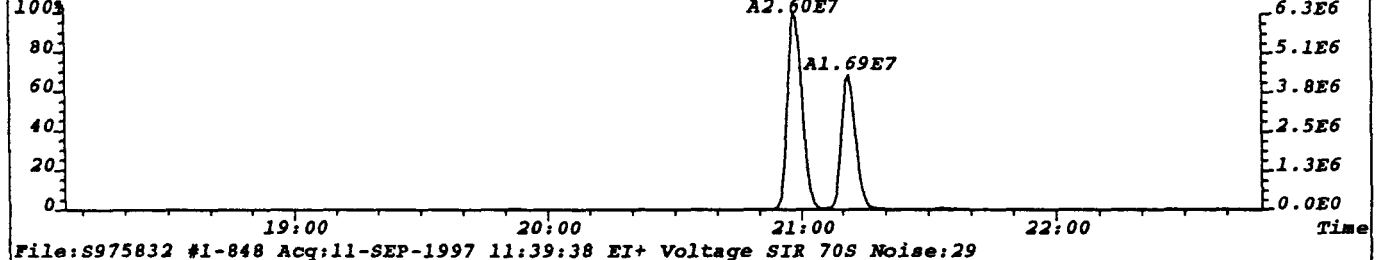
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:30
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



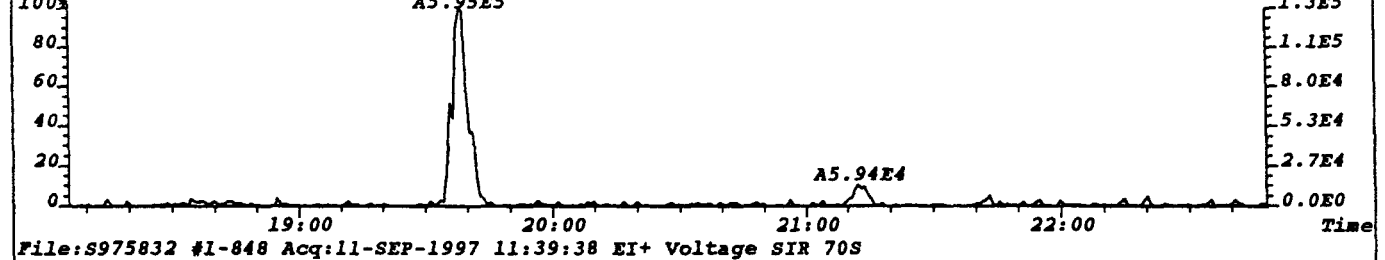
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:1110
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4440.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



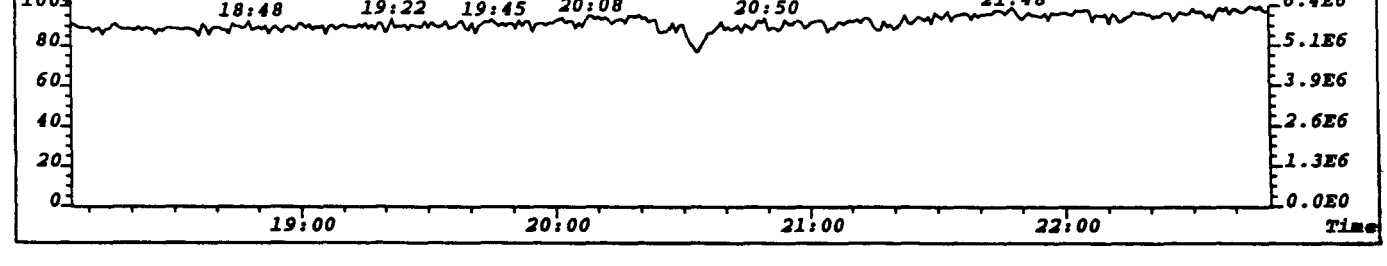
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:43
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



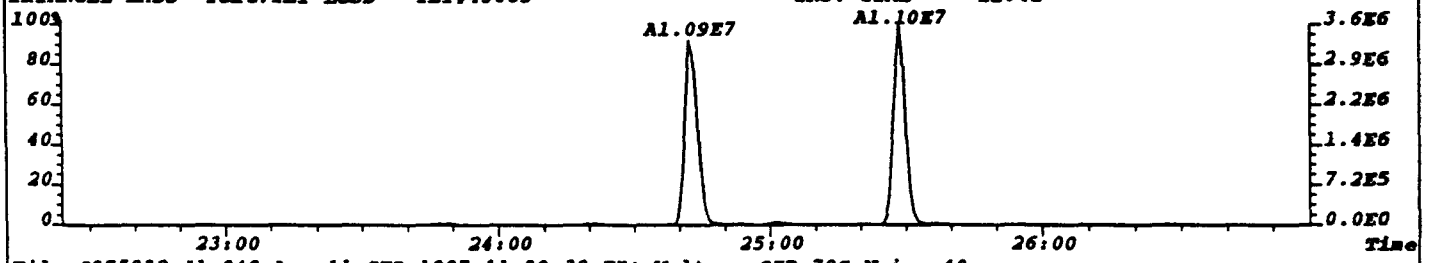
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:29
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



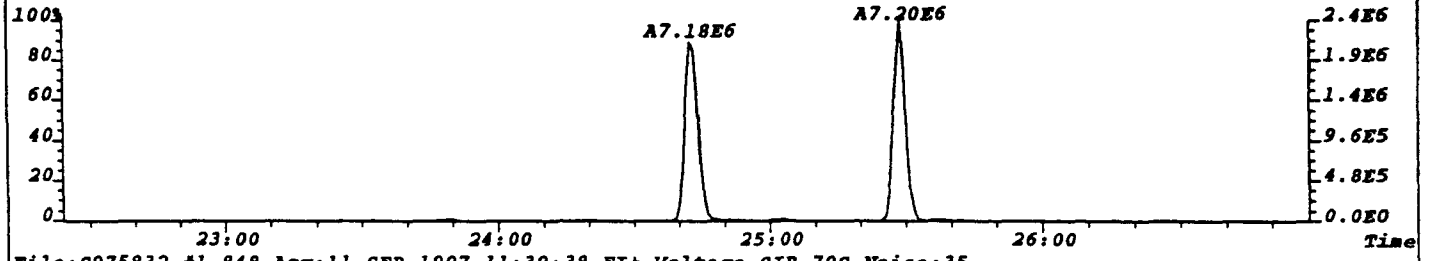
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



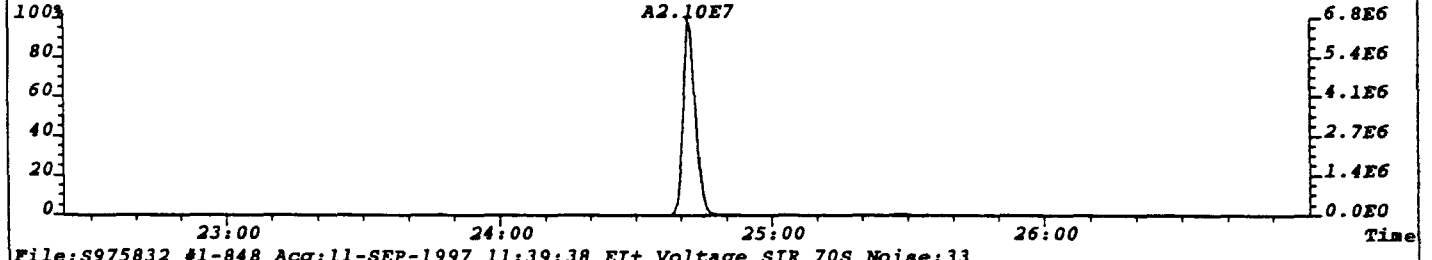
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:35
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



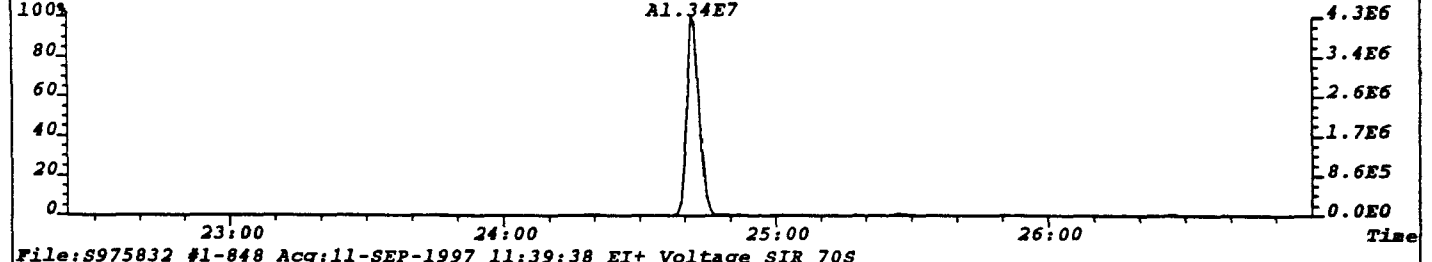
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:40
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



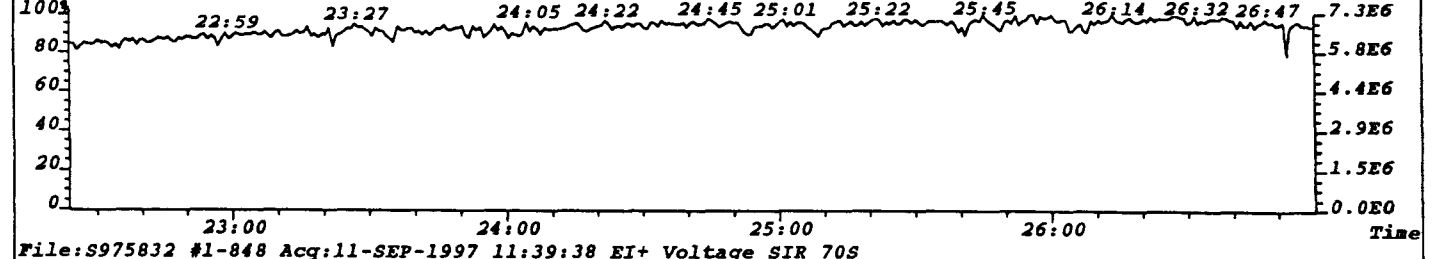
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:35
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



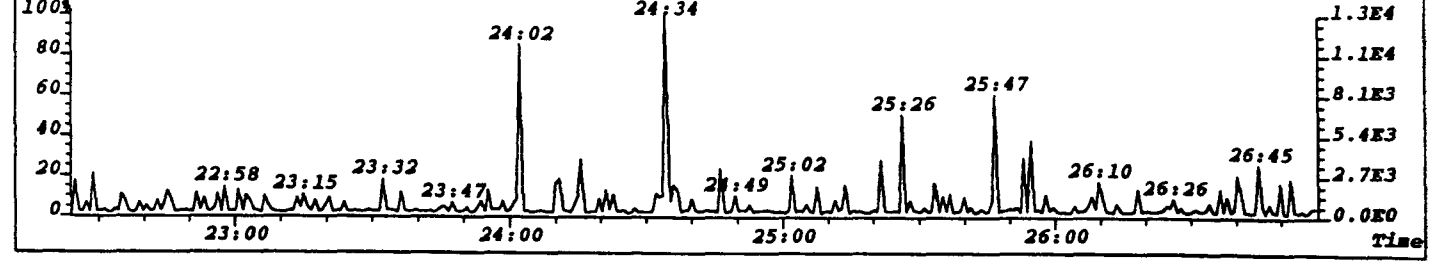
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:33
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



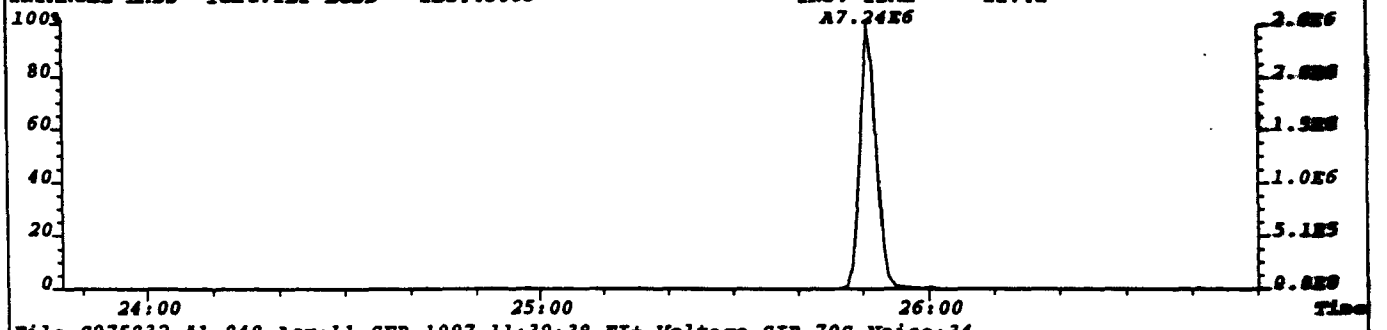
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



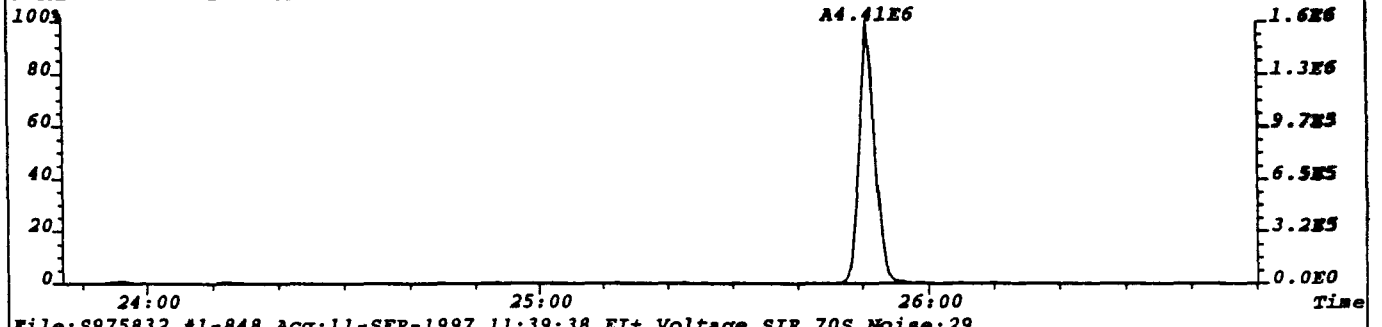
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



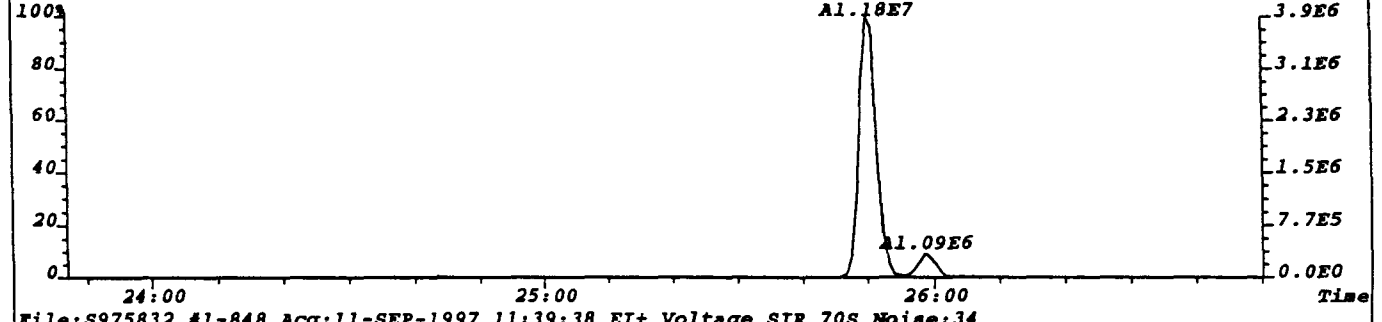
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:31
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



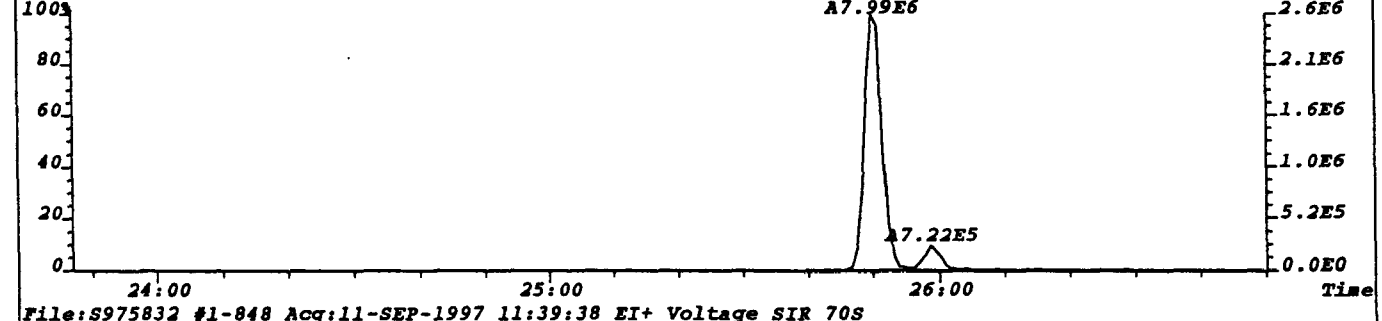
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:34
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



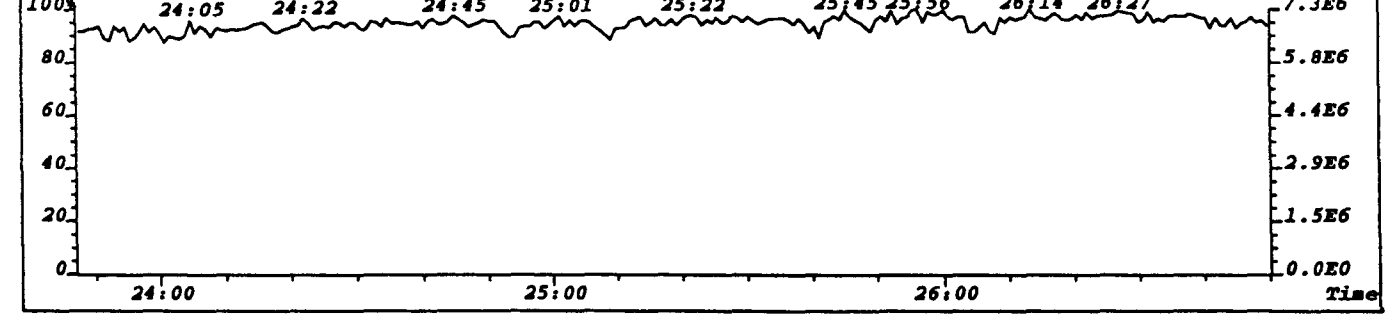
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:29
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



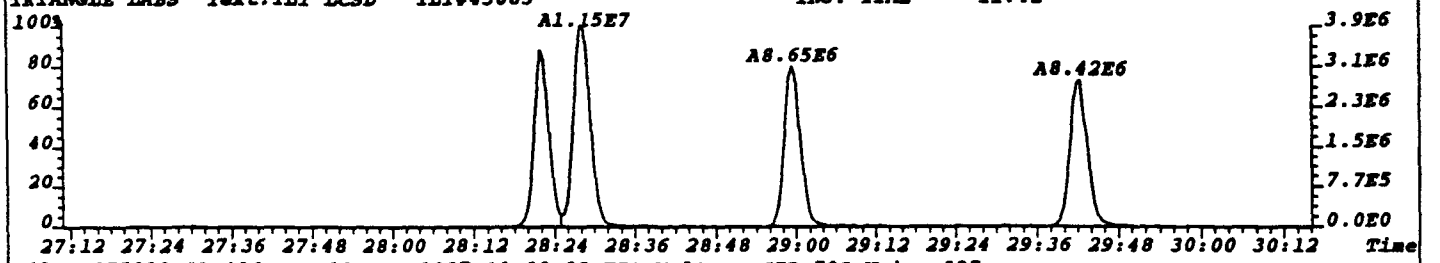
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:34
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



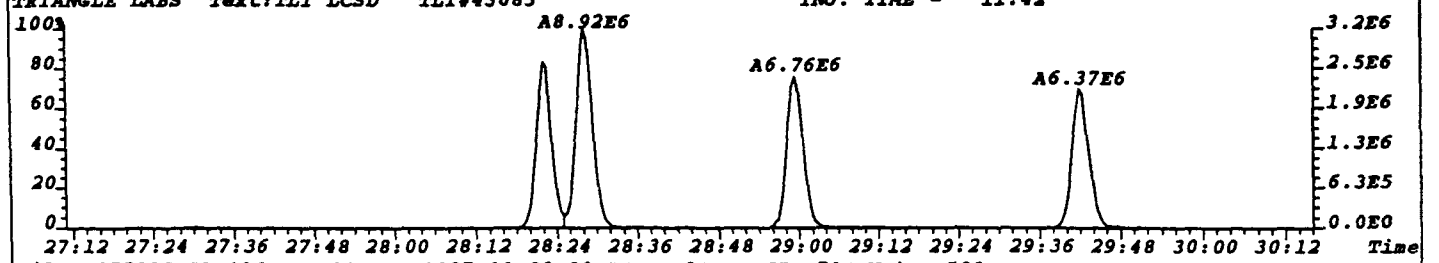
File:S975832 #1-848 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



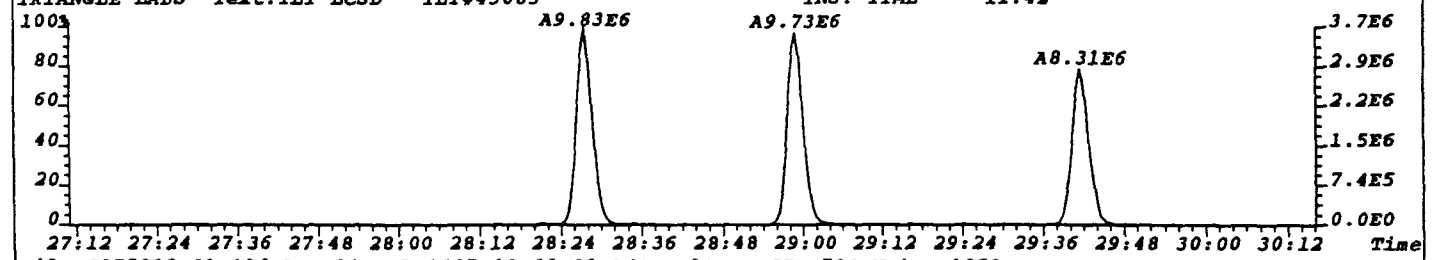
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:746
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2984.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



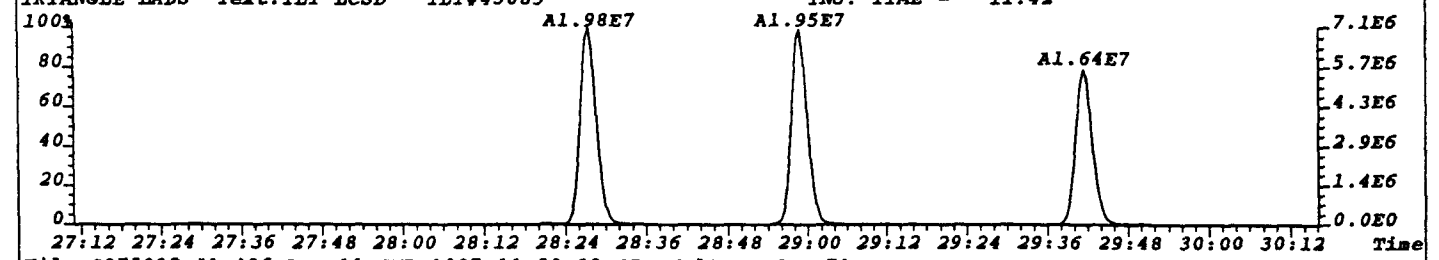
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:397
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1588.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



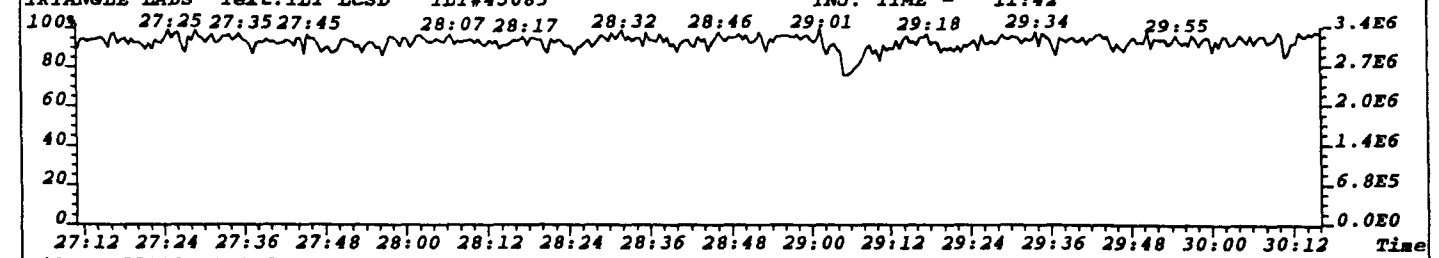
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:583
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



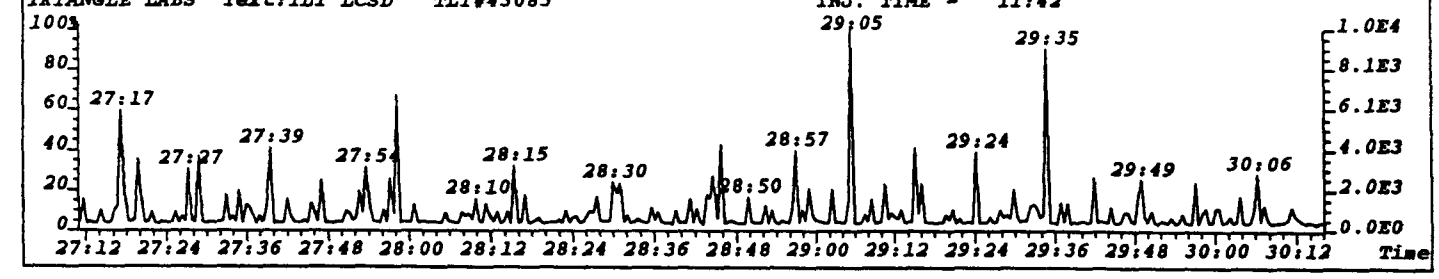
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:1059
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



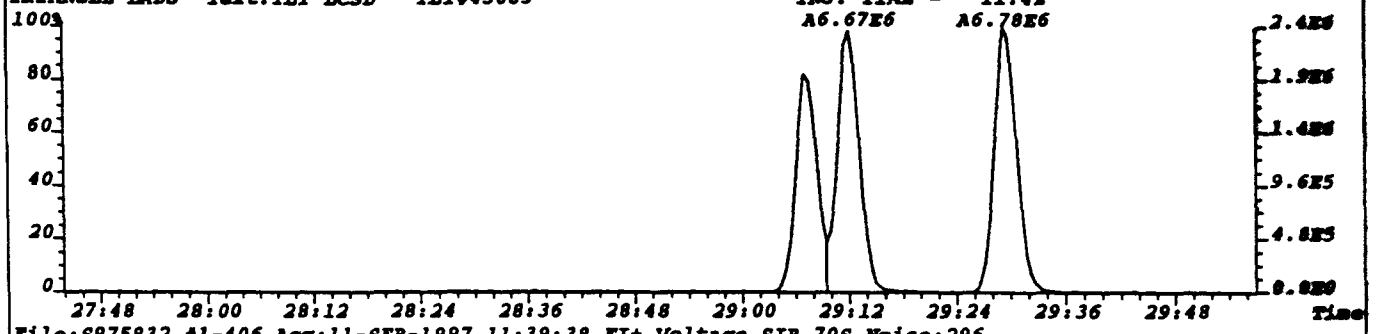
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



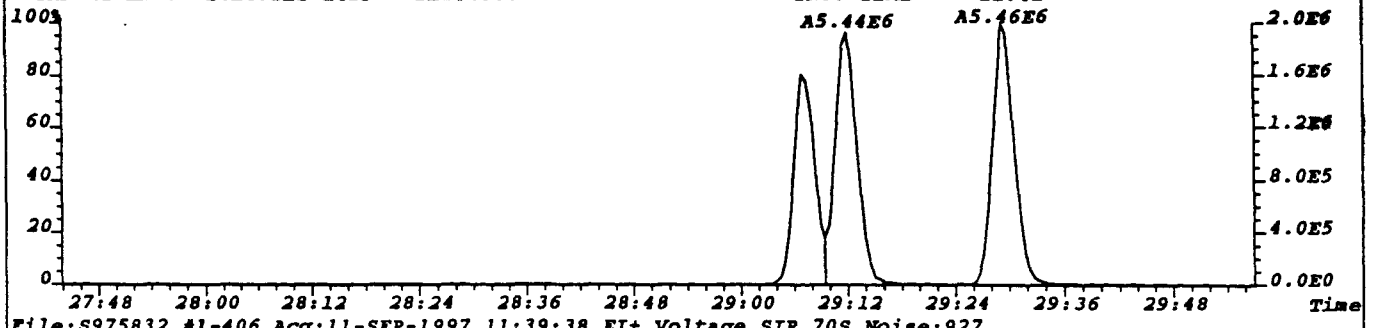
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



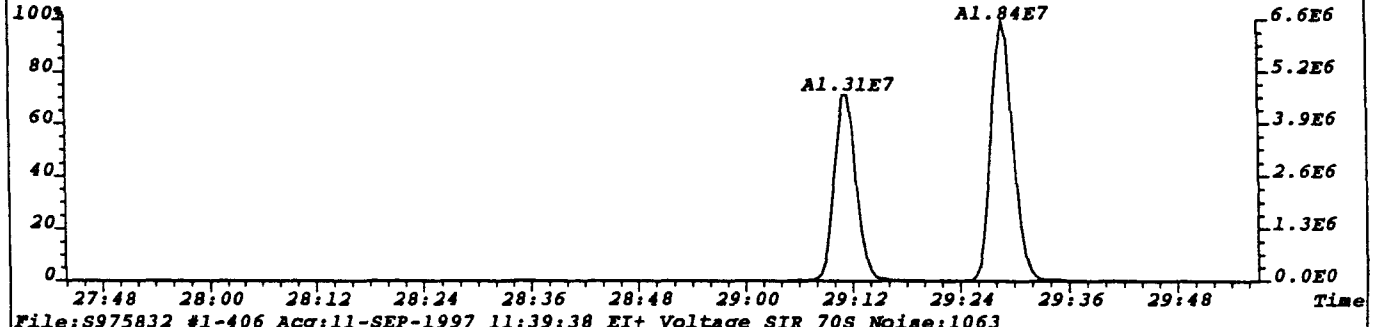
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:439
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1756.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



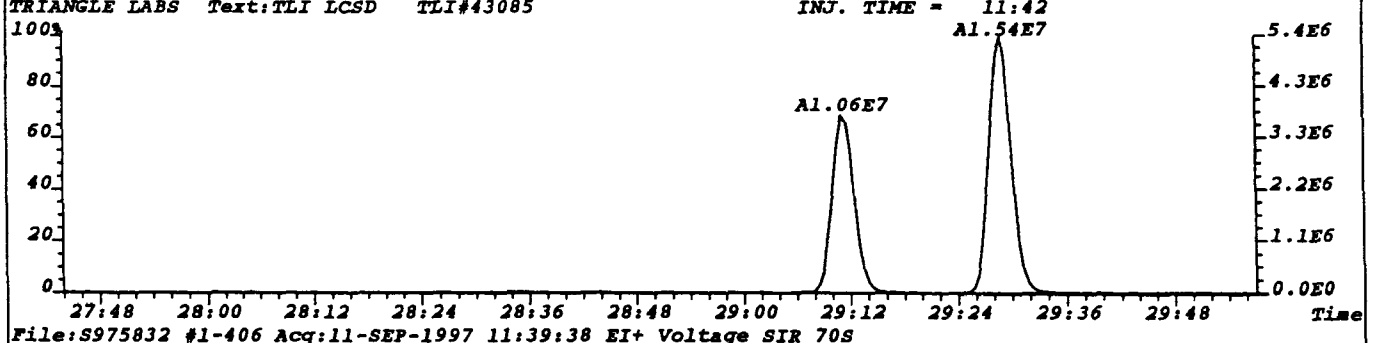
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:296
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



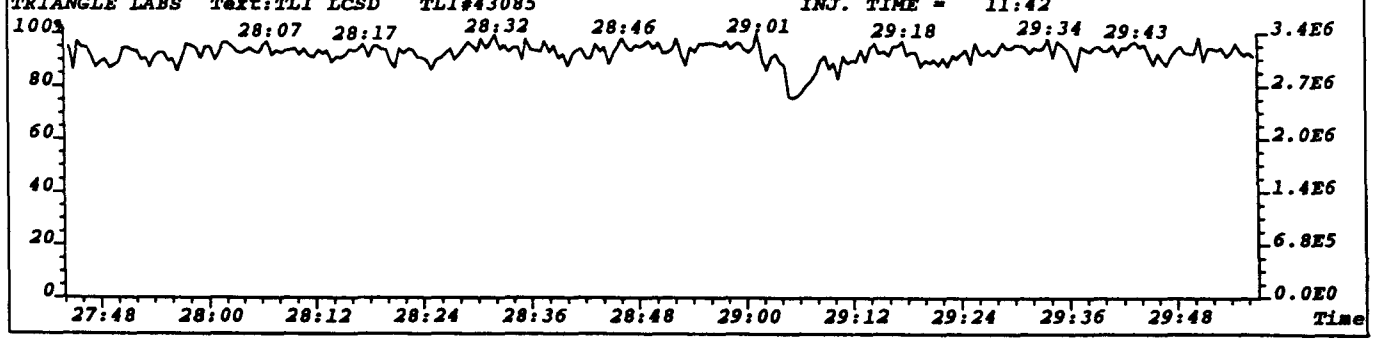
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:927
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3708.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



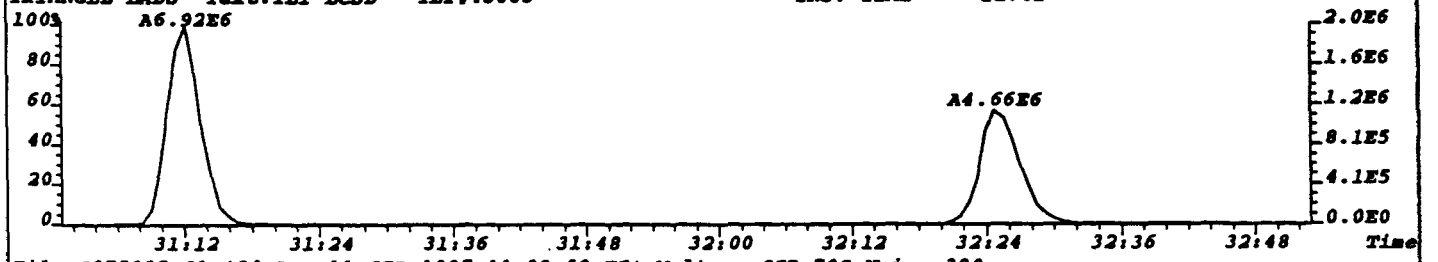
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:1063
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



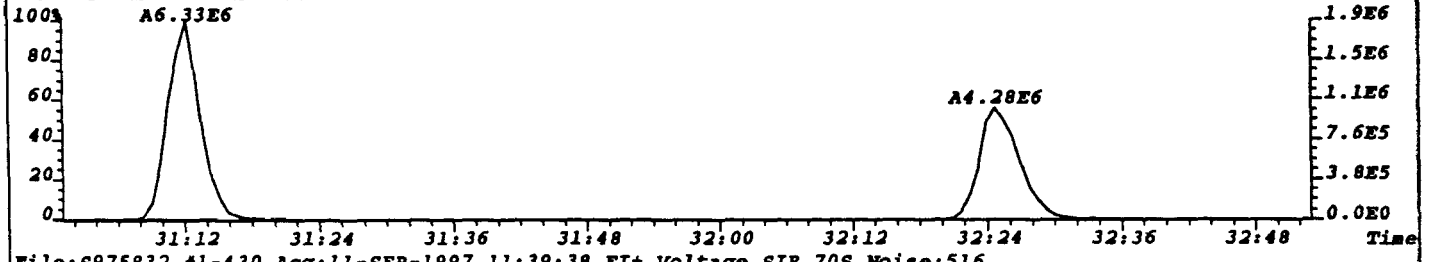
File:S975832 #1-406 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



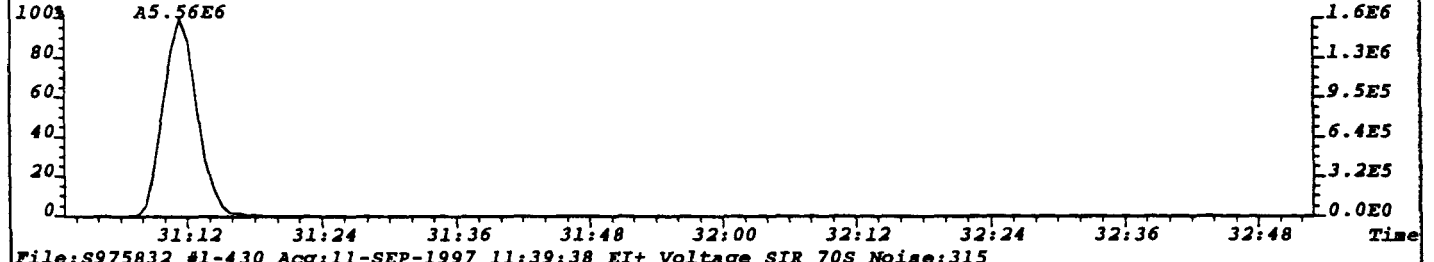
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:1585
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,6340.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



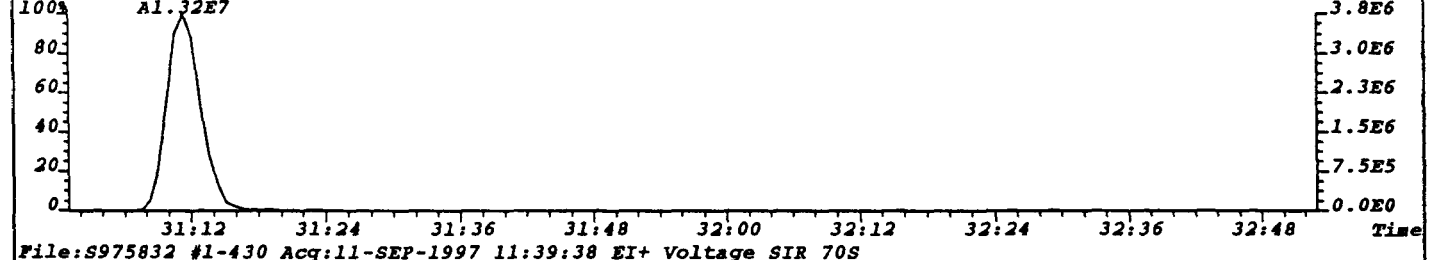
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:390
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1560.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



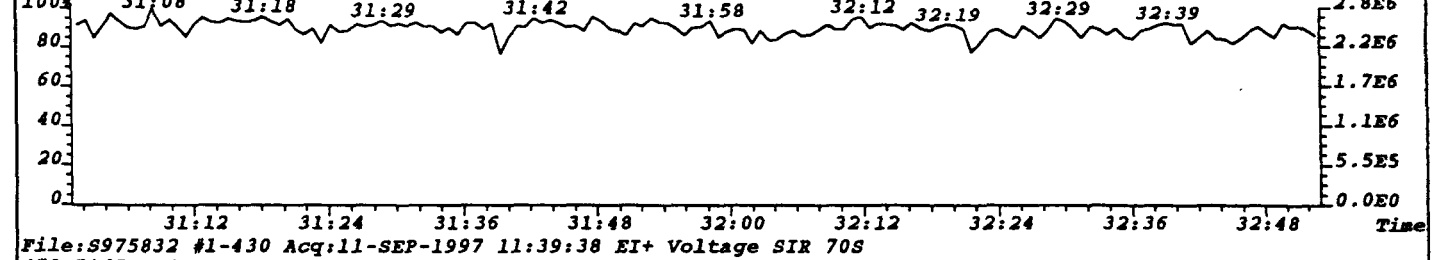
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:516
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2064.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



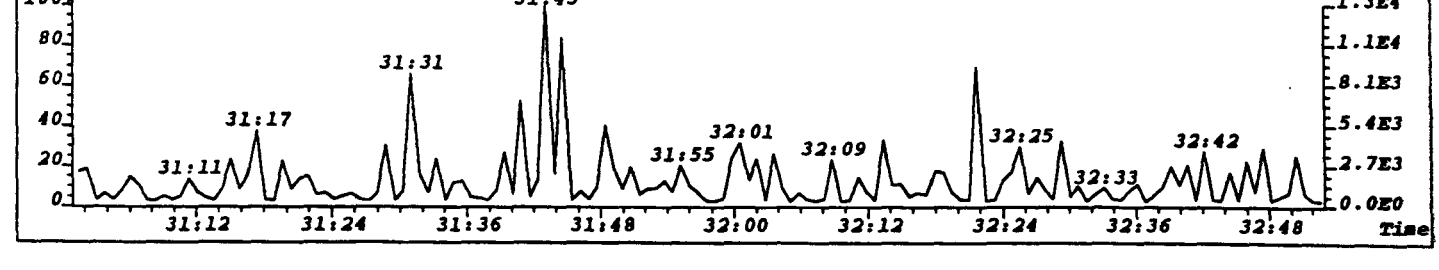
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:315
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



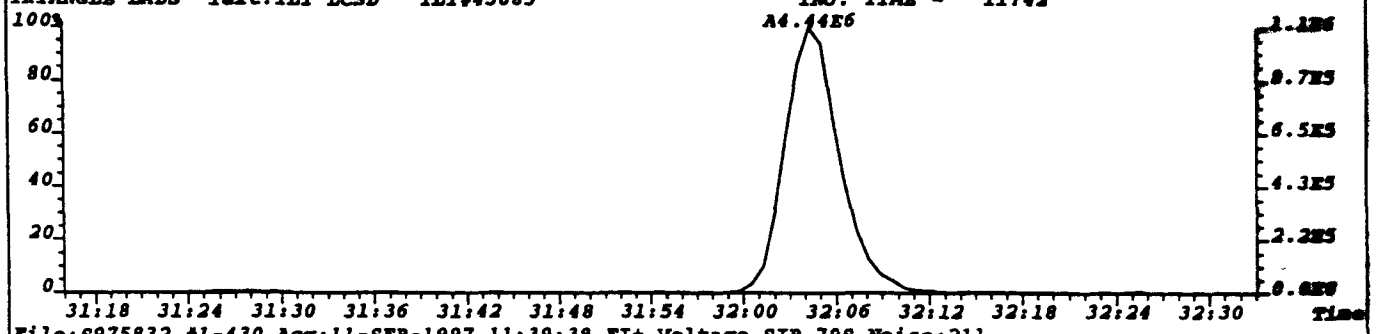
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



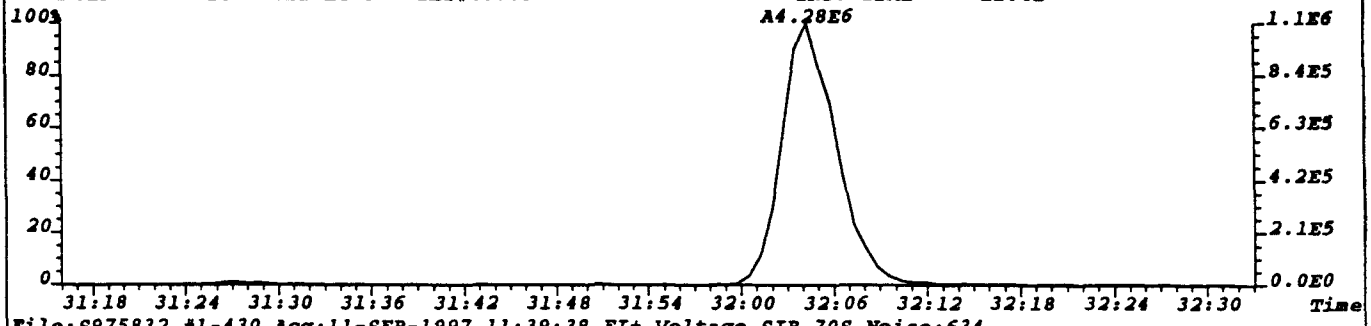
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



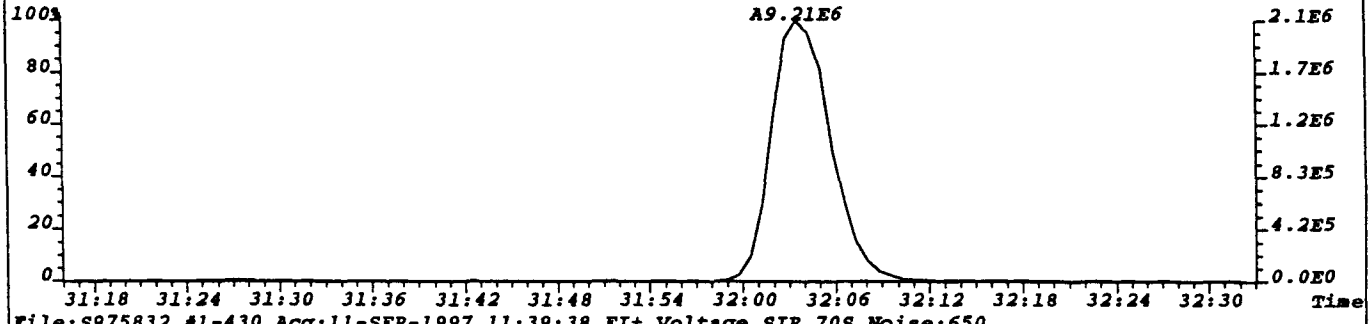
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:577
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2308.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



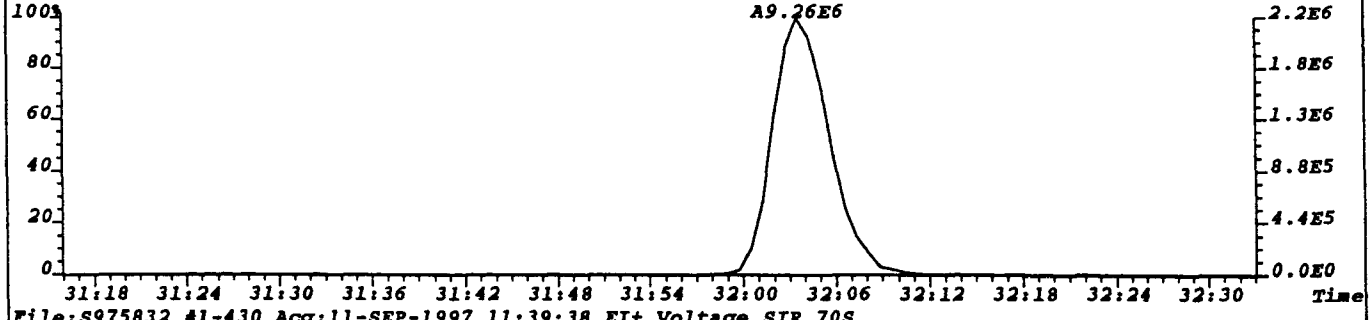
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:211
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,844.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



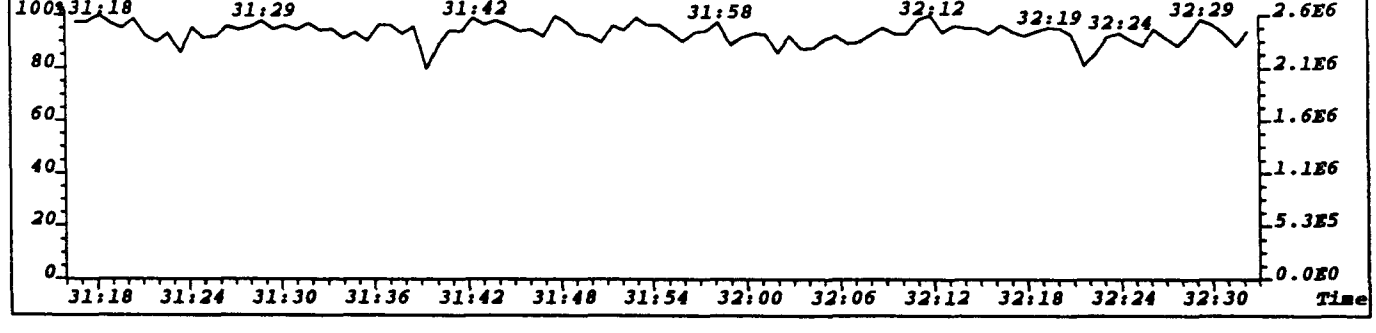
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:634
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2536.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



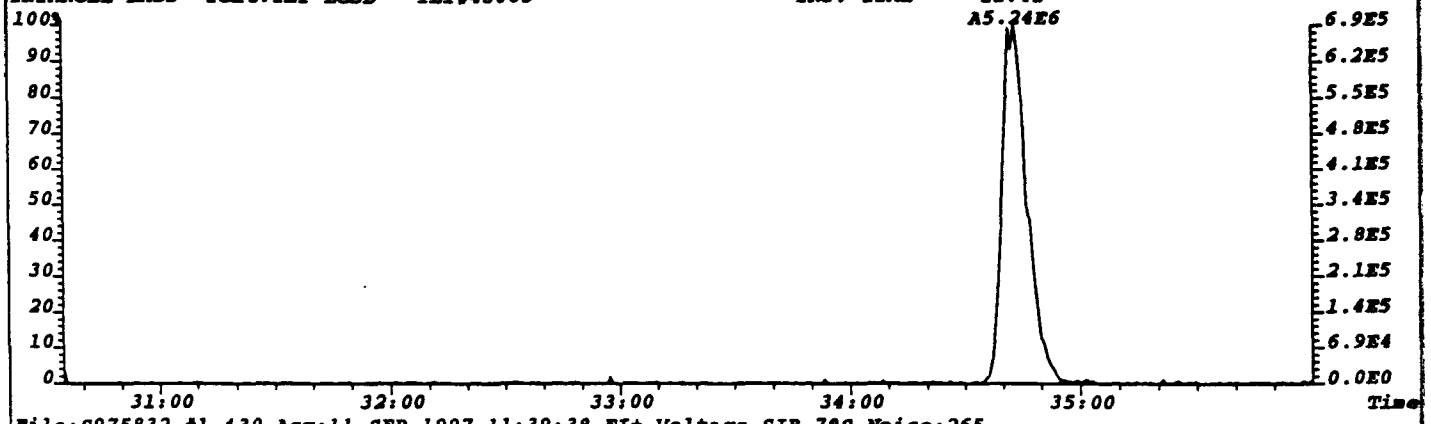
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:650
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2600.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



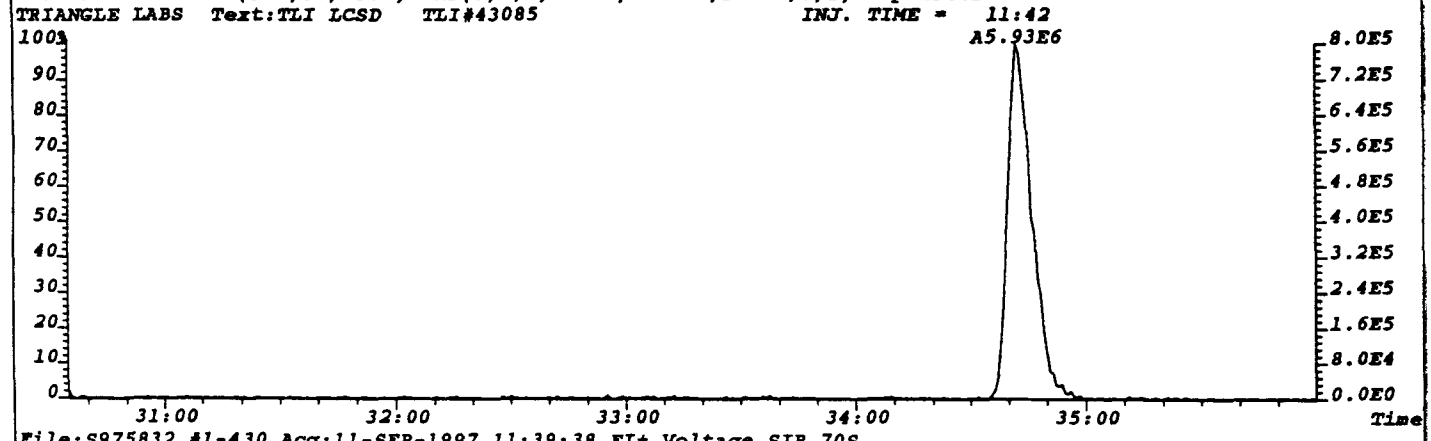
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



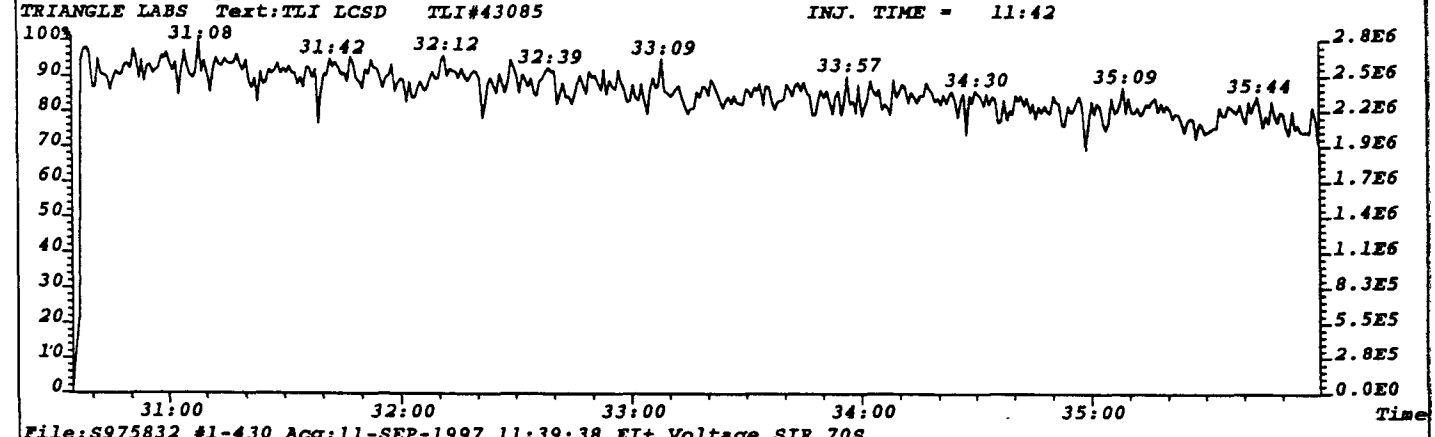
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:39
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



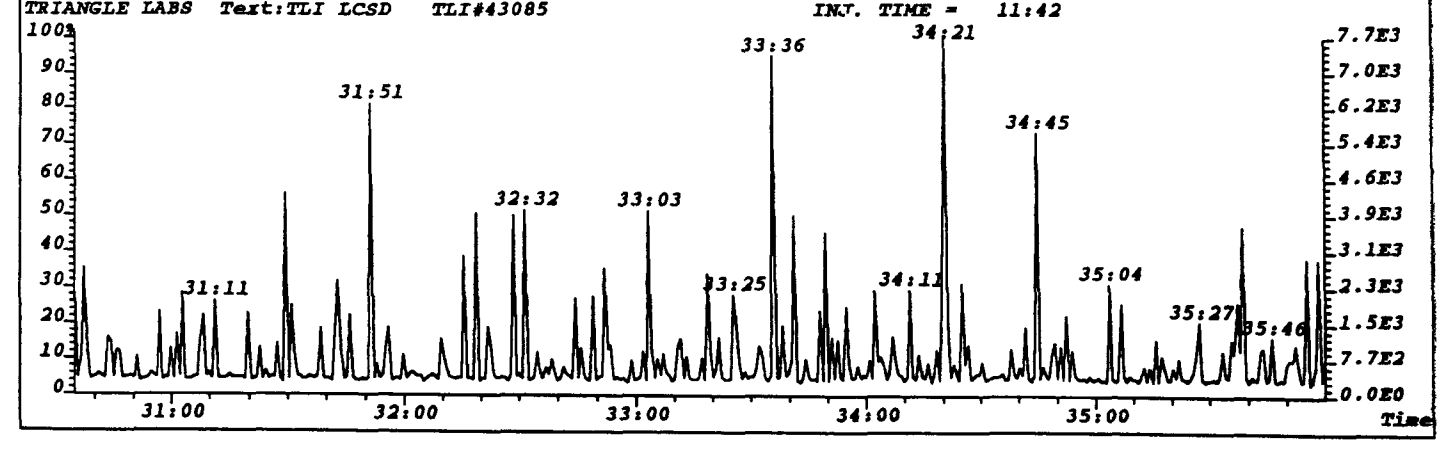
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:265
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1060.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



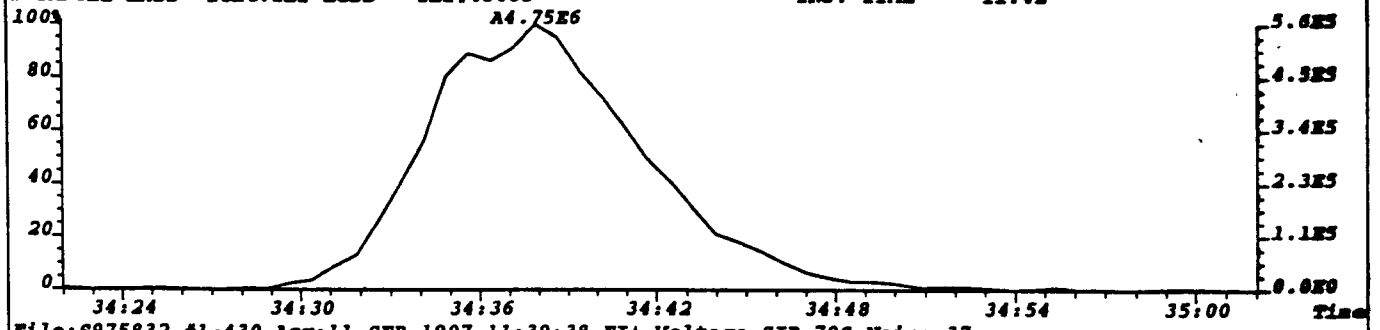
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



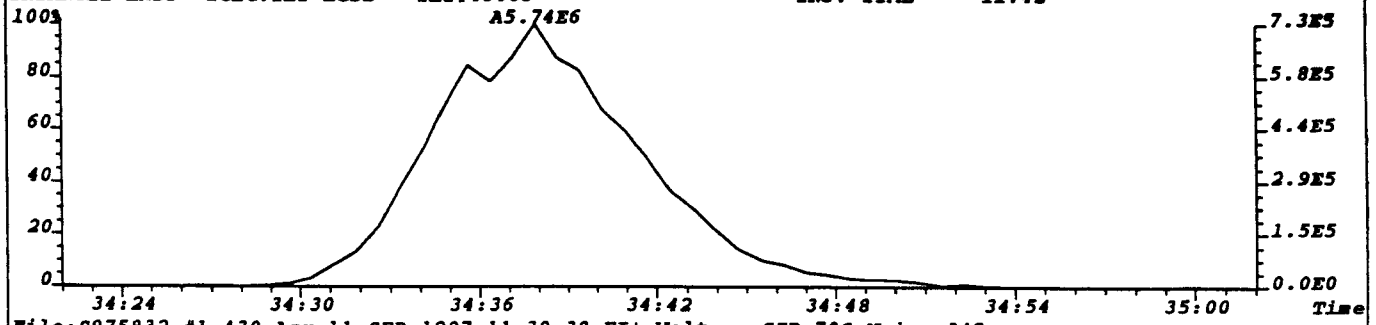
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



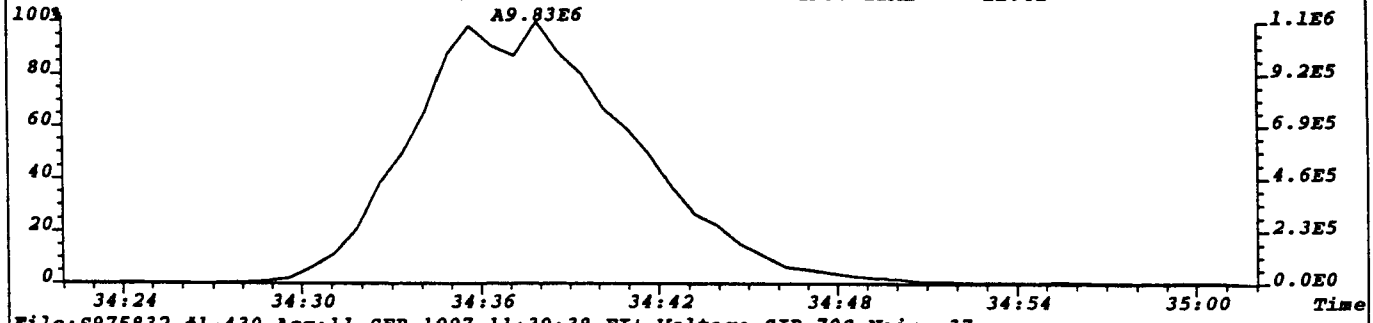
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:221
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,884.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



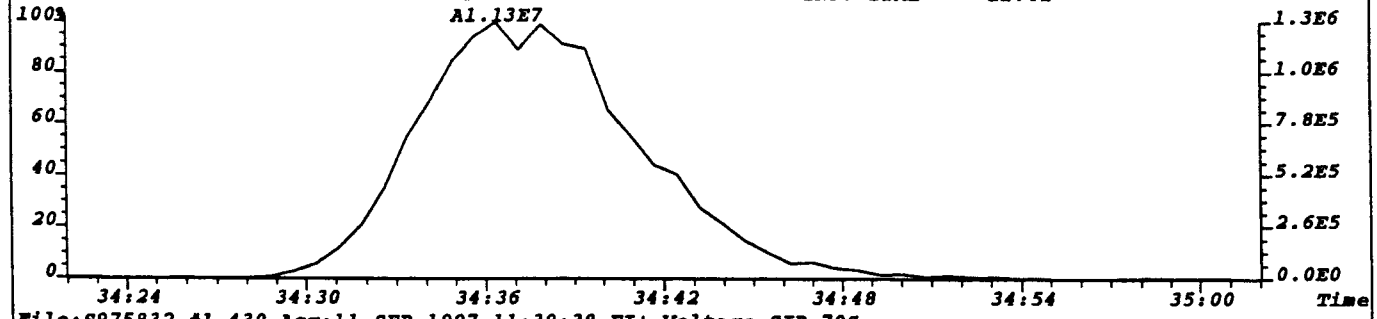
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:37
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



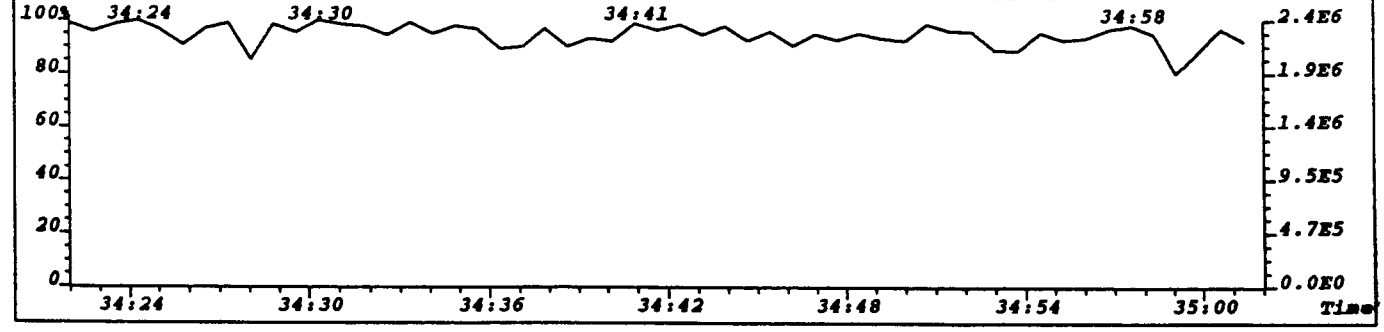
File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:342
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1368.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42

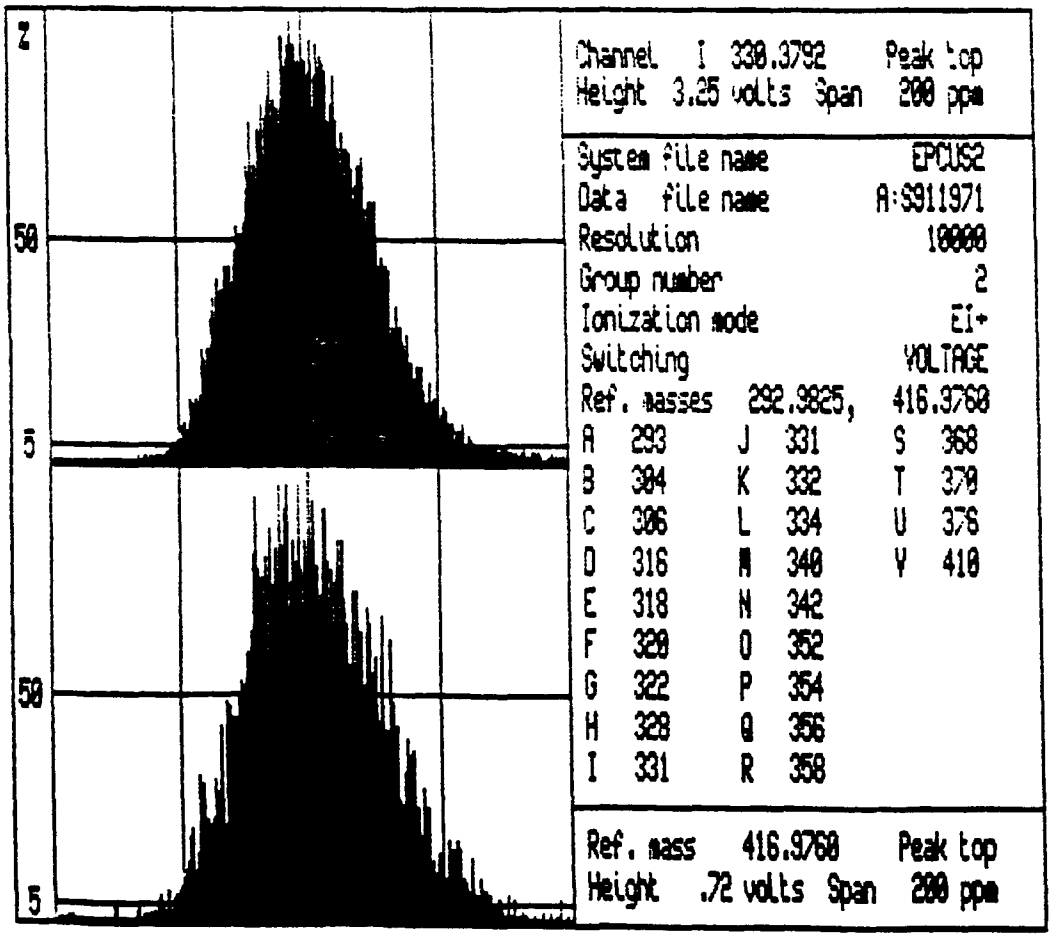


File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S Noise:37
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42



File:S975832 #1-430 Acq:11-SEP-1997 11:39:38 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCSD TLI#43085 INJ. TIME = 11:42




Z
50
5
50
5
Channel I 330.3792 Peak top
Height 3.25 volts Span 200 ppm
System file name EPCUS2
Data file name A:S911971
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.9825, 416.9760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Ref. mass 416.9760 Peak top
Height .72 volts Span 200 ppm

Pacific Environmental Services

TLI Project: **43085** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI LCS** Analysis File: **S975831**

Client Project:	S413-004				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLI ID:	TLI LCS	Date Extracted:	09/04/97	ICal:	SF56117
		Date Analyzed:	09/11/97	ConCal:	S975814
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture;	n/a
Dry Weight:	n/a	Blank File:	S975815	% Lipid:	n/a
GC Column:	DB-5	Analyst:	BJG	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.36			0.83	21:14	___
1,2,3,7,8-PeCDD	1.8			1.49	25:52	___
1,2,3,4,7,8-HxCDD	1.8			1.24	29:07	___
1,2,3,6,7,8-HxCDD	1.8			1.24	29:12	___
1,2,3,7,8,9-HxCDD	1.8			1.27	29:29	___
1,2,3,4,6,7,8-HpCDD	1.7			1.05	32:04	___
1,2,3,4,6,7,8,9-OCDD	3.4			0.84	34:37	___
2,3,7,8-TCDF	0.36			0.78	20:24	___
1,2,3,7,8-PeCDF	2.0			1.55	24:43	___
2,3,4,7,8-PeCDF	1.8			1.53	25:29	___
1,2,3,4,7,8-HxCDF	1.7			1.29	28:22	___
1,2,3,6,7,8-HxCDF	1.7			1.29	28:28	___
2,3,4,6,7,8-HxCDF	1.6			1.30	28:59	___
1,2,3,7,8,9-HxCDF	1.5			1.29	29:42	___
1,2,3,4,6,7,8-HpCDF	2.1			1.07	31:11	___
1,2,3,4,7,8,9-HpCDF	1.5			1.10	32:24	___
1,2,3,4,6,7,8,9-OCDF	2.7			0.89	34:42	___

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.6	64.9	40%-130%	0.76	20:23	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.5	62.6	40%-130%	0.82	21:13	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.6	65.3	40%-130%	1.52	24:42	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2.8	69.4	40%-130%	1.44	25:50	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.9	72.8	40%-130%	0.49	28:27	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.9	73.1	40%-130%	1.23	29:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.3	58.4	25%-130%	0.43	31:11	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.6	64.5	25%-130%	1.03	32:04	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.5	56.7	25%-130%	0.85	34:36	___

X237_PSR v2.00, LARS 6.10.0

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Printed: 12:02 09/10/97

Pacific Environmental Services

TLI Project: **43085**
Client Sample: **TLI LCS**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975831**

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.9	72.3	40%-130%	0.49	29:41	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.0	76.2	40%-130%	0.50	28:58	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	20:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.21	29:28	—

Data Reviewer: Sue Lewis 09/18/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 12:02 09/18/97

Initial ....Date...

Data Review By: SL 9/18/97 Calculated Noise Area: n/a

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S975831B.dbf
09/18/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.	Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF					0.65-0.89						0.820-1.101			
304-306	DC	NL			0:00	RO	1.14	0.12			0.000			
	DC	SN			16:55	RO	1.10	0.92			0.830			
	DC	SN			18:53		0.68	2.35			0.926			
					19:15		0.87	44.31	20.57	23.74	0.944			
	DC	SN			19:30	RO	1.09	4.07			0.957			
	DC	SN			19:55		0.66	19.67			0.977			
					20:24		0.78	436.34	190.91	245.43	1.001	2378-TCDF		AN
	DC	SN			21:55	RO	6.53	0.30			1.075			
	DC	SN			22:15	RO	0.24	1.54			1.092			
	DC	WH			22:41	RO	0.46	1.79			1.113			
304-306					2 Peaks			480.65						
13C12-TCDF					0.65-0.89						0.951-1.049			
316-318	DC	NL			0:00	RO	20.00	0.11			0.000			
	DC	WL			18:04	RO	1.19	3.63			0.886			
	DC	SN			19:31	RO	1.02	8.30			0.957			
	DC	SN			19:55		0.79	23.27			0.977			
					20:23		0.76	3,872.82	1,677.61	2,195.21	1.000	13C12-2378-TCDF		ISO
					20:53	RO	0.95	26.36	14.17	14.89	1.025			
	DC	WH			21:43	RO	1.55	3.27			1.065			
316-318					2 Peaks			3,899.18						

---------- Above: TCDF / TCDD Follows ----------

TCDD					0.65-0.89						0.853-1.059			
320-322	DC	NL			0:00		0.75	0.14			0.000			
	DC	SN			18:08	RO	1.18	0.78			0.855			
	DC	SN			18:17		0.84	1.34			0.862			
	DC	SN			18:52	RO	0.32	0.41			0.889			
	DC	SN			19:17		0.74	1.08			0.909			
	DC	SN			19:32	RO	1.38	0.46			0.921			
	DC	SN			19:53	RO	0.29	2.51			0.937			
	DC	SN			20:51	RO	2.71	0.50			0.983			
	DC	SN			21:00		0.83	1.90			0.990			
					21:14		0.83	321.68	145.74	175.94	1.001	2378-TCDD		AN
	DC	SN			21:46	RO	0.13	0.71			1.026			
	DC	SN			22:19		0.69	1.42			1.052			
	DC	WH			22:29	RO	1.63	0.90			1.060			
	DC	WH			22:34	RO	1.16	0.80			1.064			
	DC	WH			22:48	RO	2.02	0.83			1.075			
320-322					1 Peak			321.68						

Listing of S975831B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-TCDD						0.65-0.89				0.906-1.094			
332-334	DC	NL		0:00	RO	41.00	0.11			0.000			
	DC	SN		19:54	RO	1.09	15.06			0.938			
				20:59		0.80	4,527.59	2,013.14	2,514.45	0.989	13C12-1234-TCDD	RS1	
				21:13		0.82	3,018.86	1,360.65	1,658.21	1.000	13C12-2378-TCDD	IS1	
				21:35	RO	0.98	48.73	27.07	27.53	1.017			
332-334			3	Peaks			7,595.18						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF						1.32-1.78				0.907-1.078			
340-342	DC	NL		0:00	RO	1.00	0.12			0.000			
	DC	SN		23:21	RO	0.36	1.18			0.945			
				23:50		1.69	57.61	36.16	21.45	0.965			
				24:21	RO	1.29	31.72	19.28	14.99	0.986			
				24:43		1.55	1,871.54	1,137.04	734.50	1.001	12378-PeCDF	AN	
	DC	SN		25:01	RO	1.81	18.92			1.013			
	DC	SN		25:21		1.61	1.28			1.026			
				25:29		1.53	1,701.84	1,028.85	672.99	1.032	23478-PeCDF	AN	
	DC	SN		26:27	RO	1.08	5.92			1.071			
340-342			4	Peaks			3,662.71						
13C12-PeCDF						1.32-1.78				0.838-1.162			
352-354	DC	NL		0:00	RO	1.00	0.13			0.000			
				23:46		1.63	33.25	20.62	12.63	0.962			
	DC	SN		24:20	RO	1.07	12.27			0.985			
				24:42		1.52	3,350.64	2,023.45	1,327.19	1.000	13C12-PeCDF 123	IS2	
	DC	SN		25:00	RO	1.17	13.93			1.012			
	DC	SN		25:29		1.73	29.76			1.032	13C12-PeCDF 234	SUR2	
	DC	SN		25:50	RO	0.38	2.12			1.046			
	DC	SN		26:26		1.64	8.98			1.070			
352-354			2	Peaks			3,383.89						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD						1.32-1.78				0.921-1.026			
356-358	DC	NL		0:00	RO	3.71	0.18			0.000			
	DC	SN		23:55	RO	0.12	1.12			0.926			
	DC	SN		24:14		1.34	2.50			0.938			
	DC	SN		24:30	RO	2.44	0.99			0.948			
	DC	SN		24:44	RO	2.27	4.46			0.957			
	DC	SN		24:52	RO	1.30	5.30			0.963			
	DC	SN		25:03	RO	0.91	3.98			0.970			
	DC	SN		25:29	RO	13.40	0.26			0.986			
				25:52		1.49	1,148.66	687.54	461.12	1.001	12378-PeCDD	AN	
	DC	SN		26:04	RO	1.19	2.42			1.009			
	DC	WH		26:49	RO	1.84	1.91			1.038			
356-358			1	Peak			1,148.66						
13C12-PeCDD						1.32-1.78				0.845-1.155			
368-370	DC	NL		0:00	RO	0.67	0.10			0.000			
	DC	SN		24:43		1.60	5.96			0.957			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				25:50		1.44	1,995.19	1,178.84	816.35	1.000	13C12-PeCDD 123	IS3	
				25:59		1.46	191.37	113.72	77.65	1.006			
368-370				2 Peaks			2,186.56						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.955-1.052			
374-376		DC	NL	0:00		1.35	3.17			0.000			
		DC	SN	27:23	RO	1.51	11.13			0.963			
		DC	SN	27:30		1.25	25.51			0.967			
				28:22		1.29	1,377.64	775.40	602.24	0.997	123478-HxCDF	AN	
				28:28		1.29	1,761.25	990.49	770.76	1.001	123678-HxCDF	AN	
		DC	SN	28:40		1.13	3.82			1.008			
				28:59		1.30	1,326.00	748.24	577.76	1.019	234678-HxCDF	AN	
		DC	SN	29:09	RO	0.91	2.26			1.025			
				29:42		1.29	1,126.66	634.74	491.92	1.044	123789-HxCDF	AN	
		DC	WH	30:03	RO	1.58	1.93			1.056			
374-376				4 Peaks			5,591.55						
13C12-HxCDF				0.43-0.59						0.859-1.141			
384-386		DC	NL	0:00	RO	0.90	2.64			0.000			
		DC	SN	27:21		0.50	15.07			0.961			
				27:30		0.58	36.40	13.29	23.11	0.967			
				28:27		0.49	2,657.14	873.82	1,783.32	1.000	13C12-HxCDF 678	IS4	
		DC	SN	28:45	RO	1.65	1.65			1.011			
				28:58		0.50	2,573.38	853.16	1,720.22	1.018	13C12-HxCDF 234	ALT2	
		DC	SN	29:26	RO	0.21	2.46			1.035			
		DC	SN	29:33	RO	0.41	2.61			1.039			
				29:41		0.49	2,122.29	702.08	1,420.21	1.043	13C12-HxCDF 789	ALT1	
		DC	SN	29:53	RO	0.23	2.64			1.050			
384-386				4 Peaks			7,389.21						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.950-1.015			
390-392		DC	NL	0:00	RO	1.00	1.97			0.000			
		DC	SN	28:21	RO	2.22	1.77			0.971			
		DC	SN	28:36		1.33	5.97			0.980			
		DC	SN	28:40		1.07	1.14			0.982			
		DC	SN	28:47	RO	2.00	1.30			0.986			
				29:07		1.24	918.94	508.80	410.14	0.998	123478-HxCDD	AN	
				29:12		1.24	1,111.83	615.10	496.73	1.001	123678-HxCDD	AN	
				29:29		1.27	1,074.04	599.89	474.15	1.010	123789-HxCDD	AN	
		DC	WH	29:39	RO	12.48	0.65			1.016			
		DC	WH	29:49	RO	2.02	2.15			1.022			
390-392				3 Peaks			3,104.81						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404		DC	NL	0:00		1.15	3.80			0.000			
		DC	SN	28:12		1.32	2.09			0.966			
		DC	SN	28:35	RO	1.01	15.39			0.979			
				29:11		1.23	2,203.22	1,214.42	988.80	1.000	13C12-HxCDD 678	IS5	

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				29:28		1.21	3,029.99	1,661.33	1,368.66	1.010	13C12-HxCDD	789	RS2
402-404				2 Peaks			5,233.21						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF						0.88-1.20				0.995-1.044			
408-410	DC	NL	0:00	RO	1.86	3.00				0.000			
			31:11		1.07	1,250.71	645.54	605.17		1.000	1234678-HpCDF		AN
	DC	SN	31:31	RO	0.55	5.12				1.011			
			32:24		1.10	717.99	376.42	341.57		1.039	1234789-HpCDF		AN
	DC	WH	32:45	RO	0.74	1.59				1.050			
408-410			2 Peaks			1,968.70							
13C12-HpCDF						0.37-0.51				0.936-1.128			
418-420	DC	NL	0:00	RO	1.11	1.37				0.000			
			31:11		0.43	1,570.80	471.35	1,099.45		1.000	13C12-HpCDF	678	IS6
418-420			1 Peak			1,570.80							

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD						0.88-1.20				0.976-1.006			
424-426	DC	NL	0:00	RO	1.24	1.77				0.000			
	DC	SN	31:26	RO	0.84	7.75				0.980			
			32:04		1.05	724.96	370.95	354.01		1.000	1234678-HpCDD		AN
	DC	WH	32:16	RO	0.65	1.73				1.006			
424-426			1 Peak			724.96							
13C12-HpCDD						0.88-1.20				0.969-1.031			
436-438	DC	NL	0:00		1.08	3.27				0.000			
	DC	SN	31:26	RO	1.39	12.12				0.980			
			32:04		1.03	1,592.57	809.60	782.97		1.000	13C12-HpCDD	678	IS7
436-438			1 Peak			1,592.57							

---------- Above: HpCDD / Octa-CDD and CDF Follows ----------

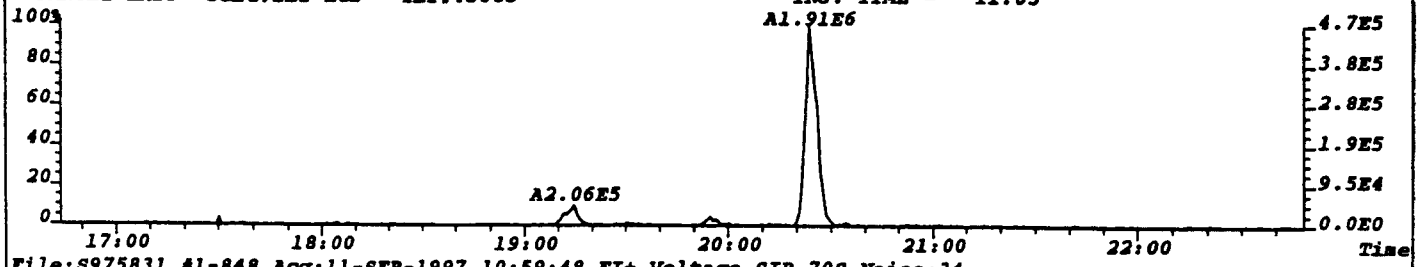
OCDF						0.76-1.02				0.884-1.116			
442-444	DC	NL	0:00	RO	9.80	0.09				0.000			
	DC	SN	31:11	RO	1.42	1.47				0.901			
	DC	SN	31:44	RO	0.56	0.62				0.917			
	DC	SN	32:50	RO	0.21	0.59				0.949			
	DC	SN	33:34	RO	0.51	1.40				0.970			
	DC	SN	33:49	RO	1.09	1.74				0.977			
	DC	SN	34:13	RO	1.39	1.42				0.989			
			34:42		0.89	914.71	431.72	482.99		1.003	OCDF		AN
	DC	SN	35:07	RO	1.16	1.85				1.015			
	DC	SN	35:28	RO	2.46	0.53				1.025			
442-444			1 Peak			914.71							
OCDD						0.76-1.02				0.884-1.116			
458-460	DC	NL	0:00	RO	6.00	0.13				0.000			
			34:37		0.84	848.38	386.63	461.75		1.000	OCDD		AN
458-460			1 Peak			848.38							

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-OCDD						0.76-1.02				0.995-1.005			
470-472	DC	NL		0:00	RO	2.17	0.79			0.000			
	DC	WL		34:22	RO	1.06	3.36			0.993			
				34:36		0.85	1,782.44	820.90	961.54	1.000	13C12-OCDD	IS8	
470-472			1	Peak			1,782.44						

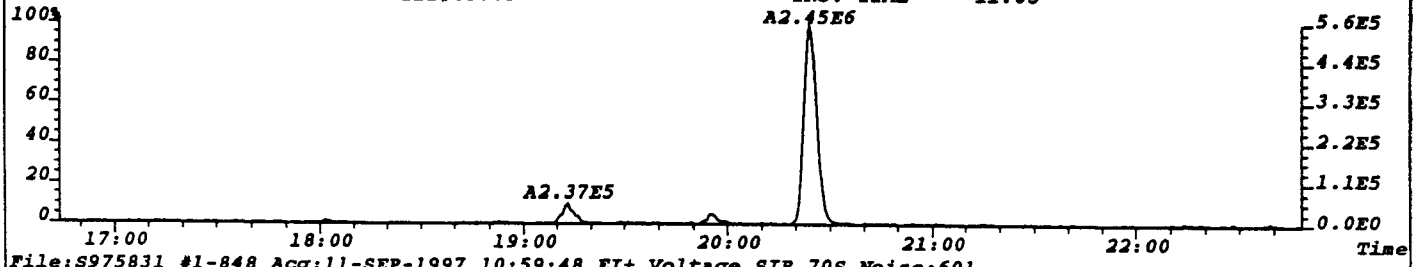
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		E-Ether Interference

*** End of Report ***

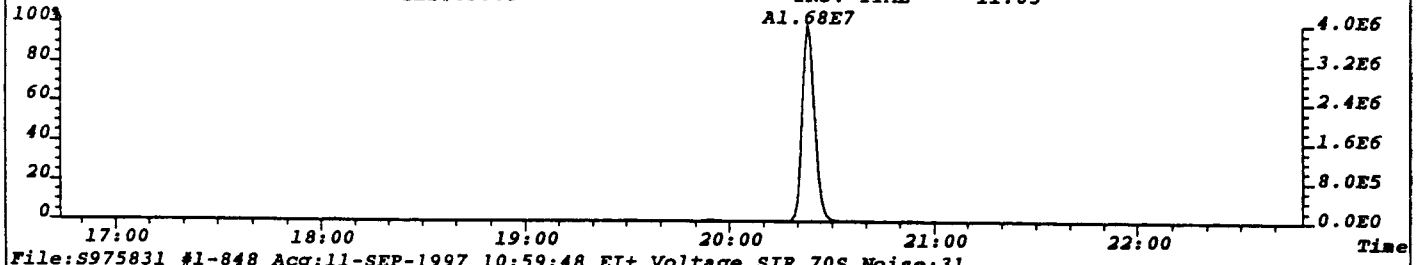
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:38
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



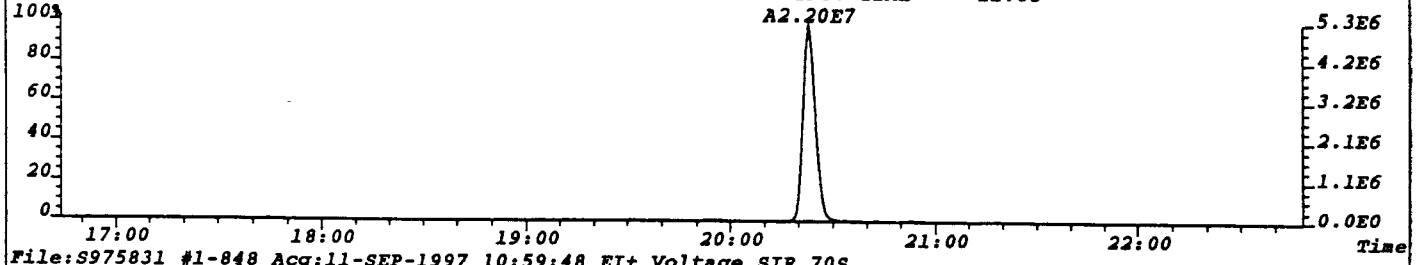
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:34
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



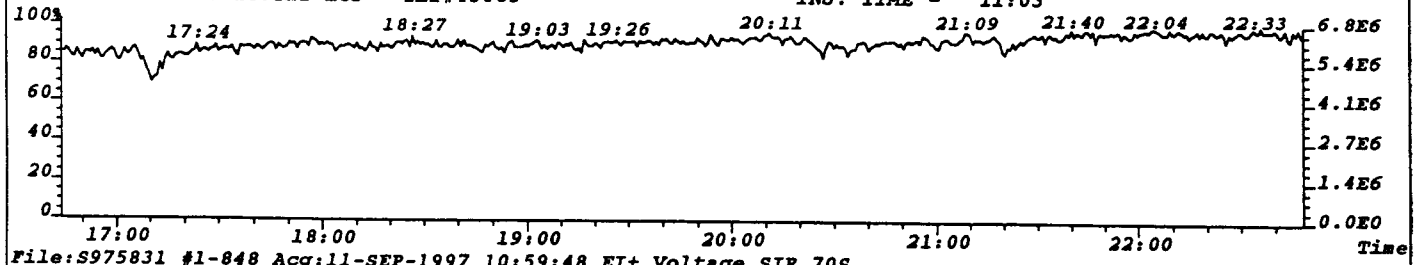
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:601
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2404.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



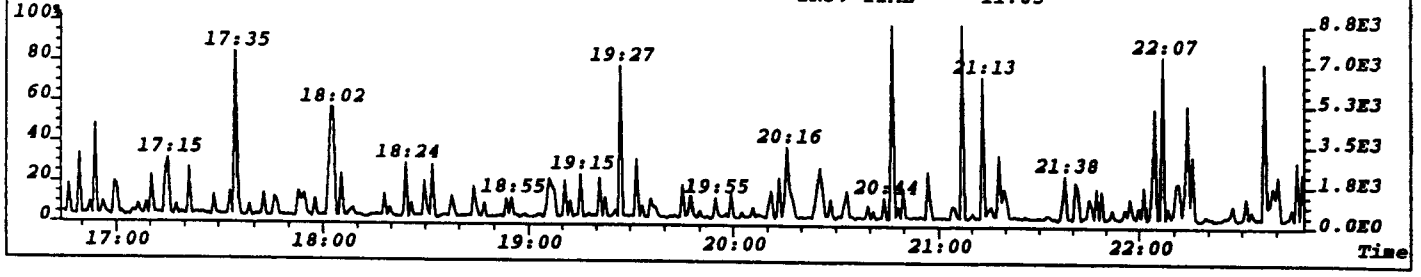
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:31
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



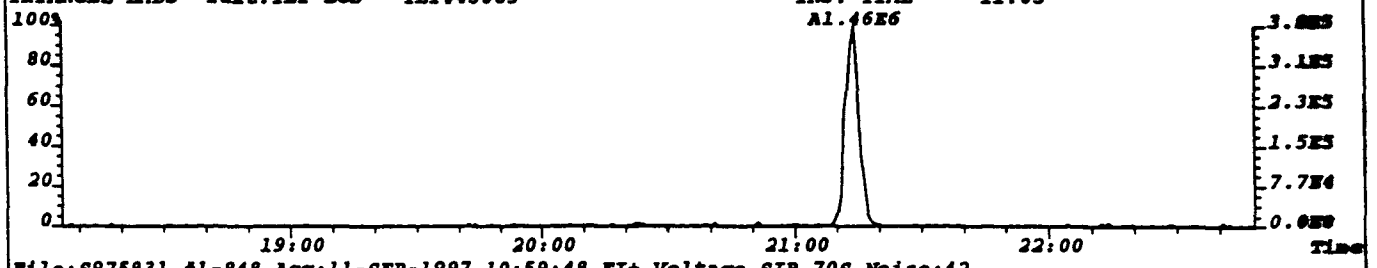
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



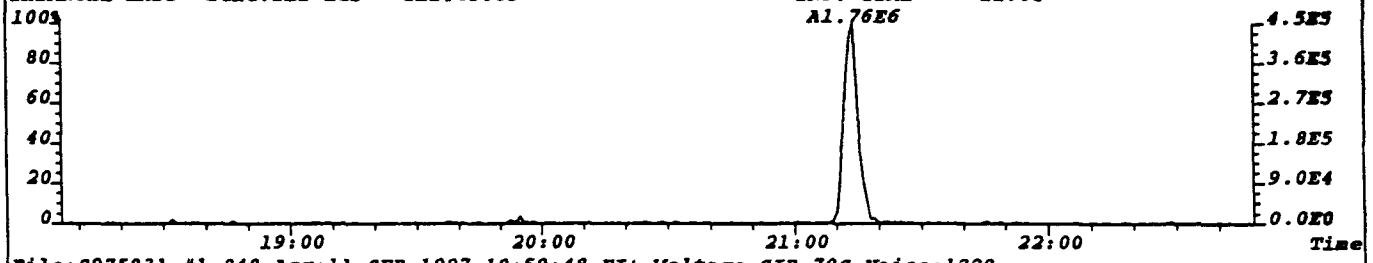
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



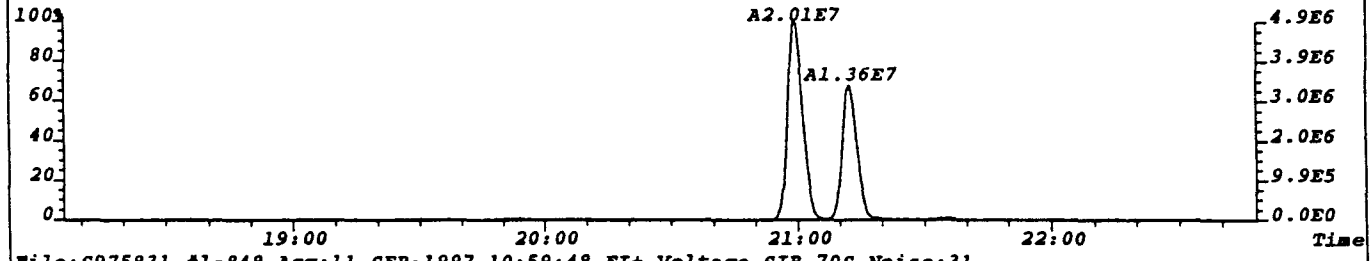
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:32
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



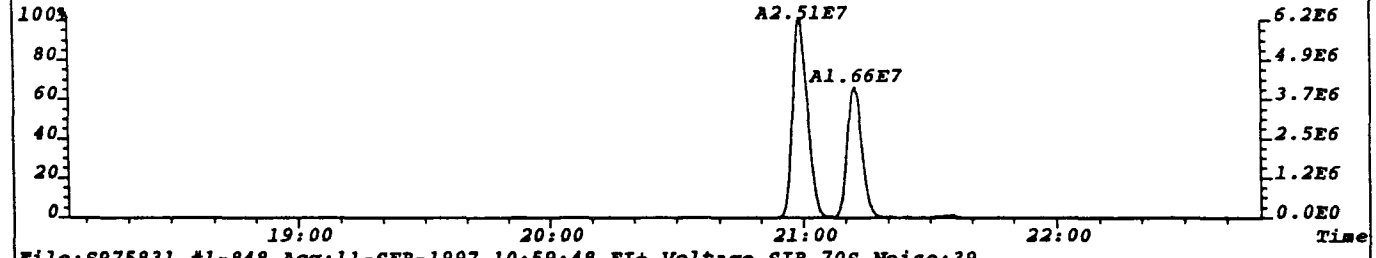
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:42
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



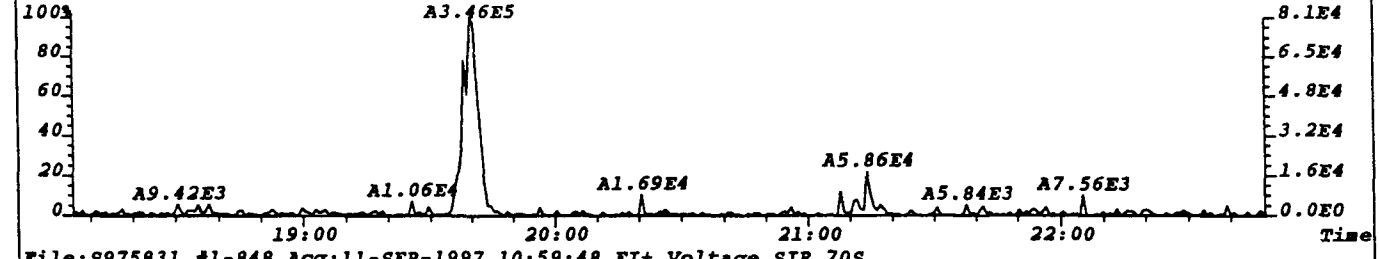
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:1229
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4916.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



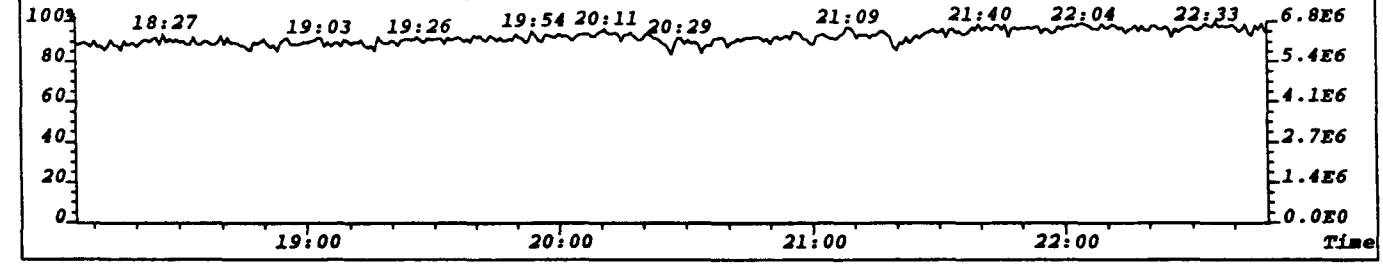
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:31
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



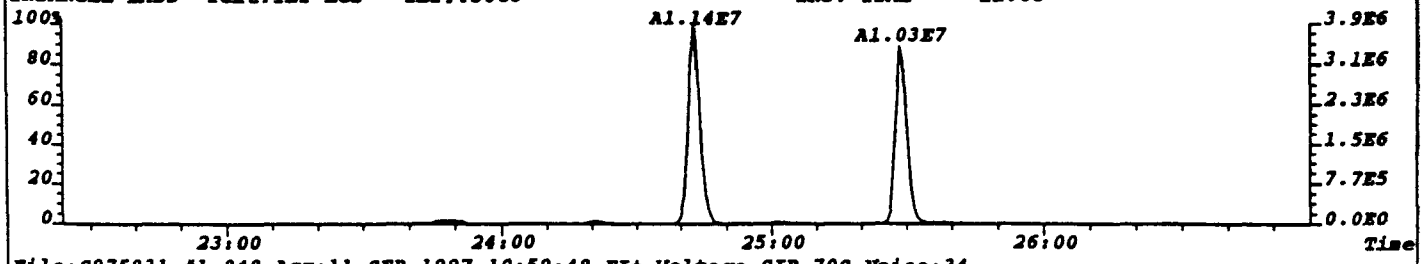
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:39
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



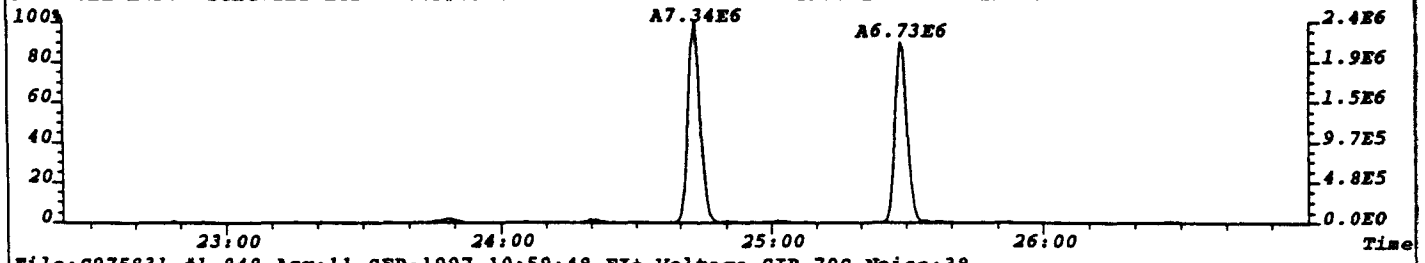
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



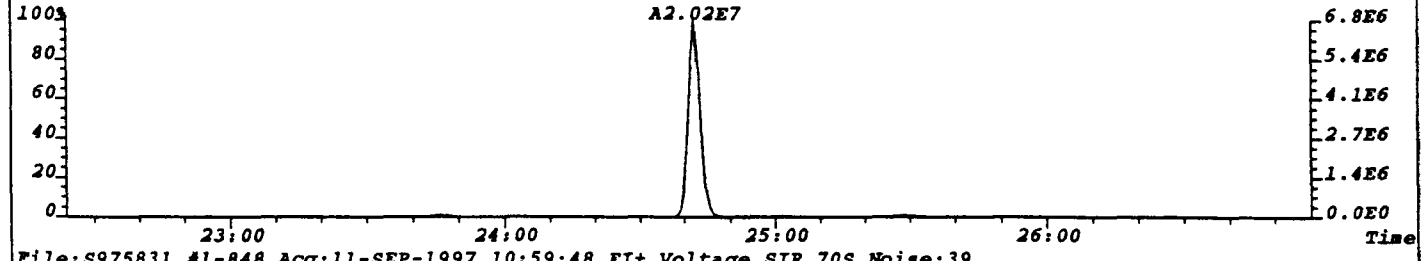
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:35
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



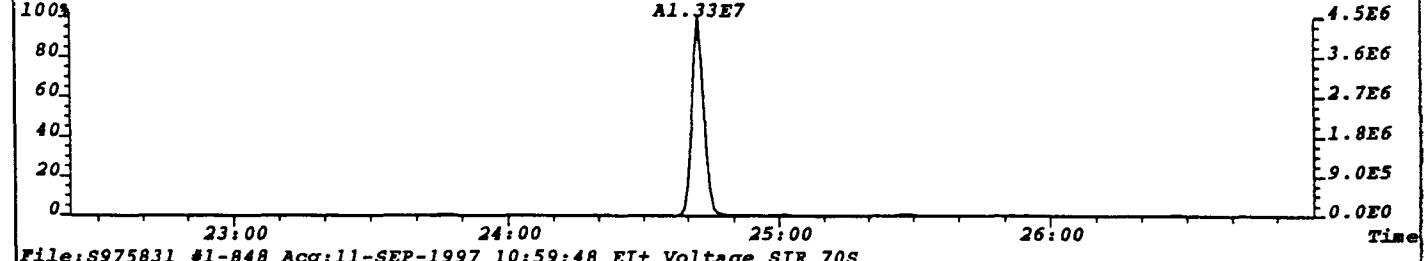
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:34
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



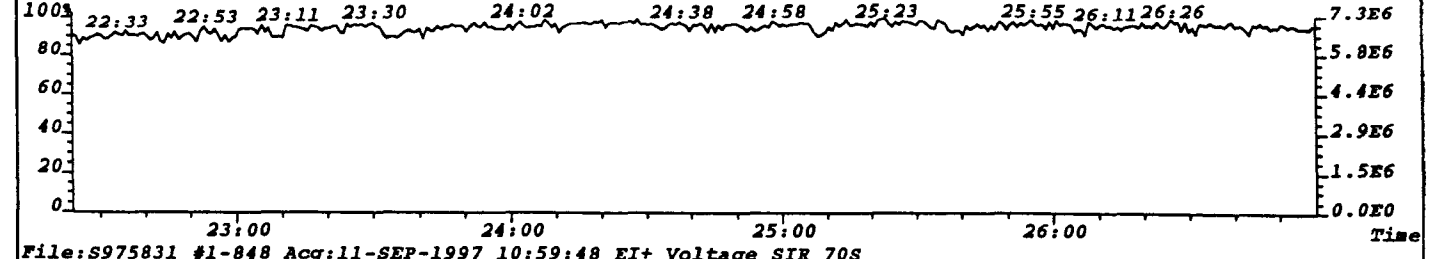
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:38
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



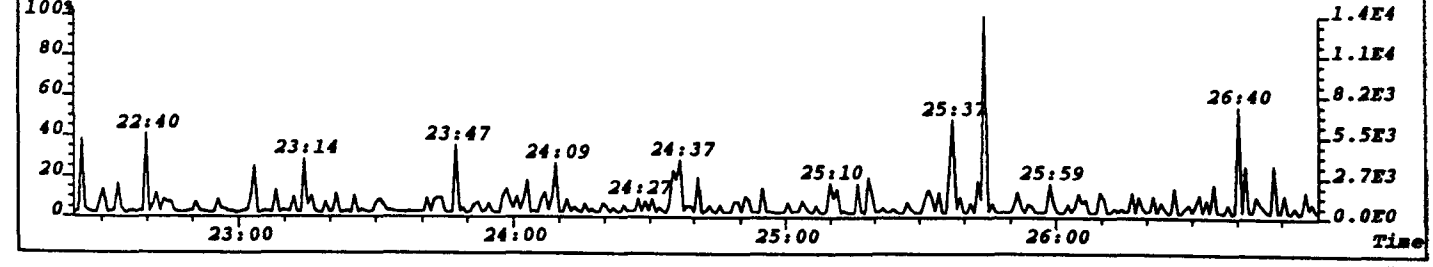
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:39
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



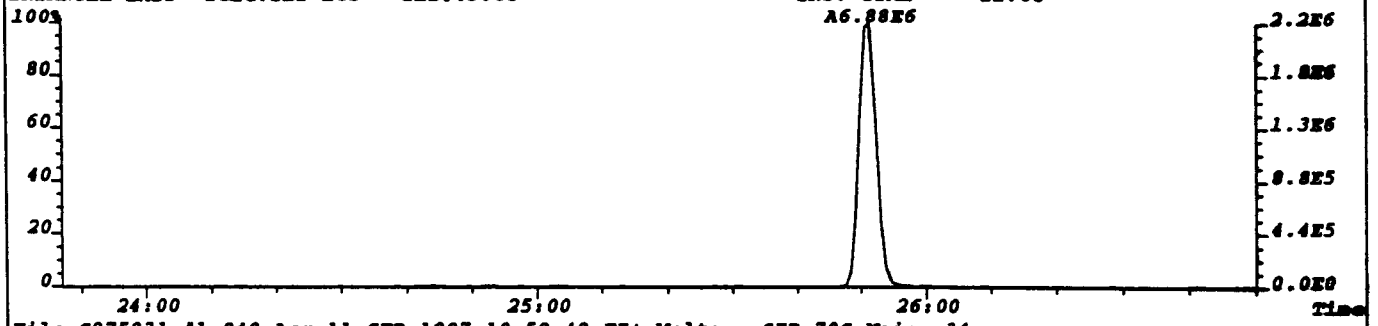
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



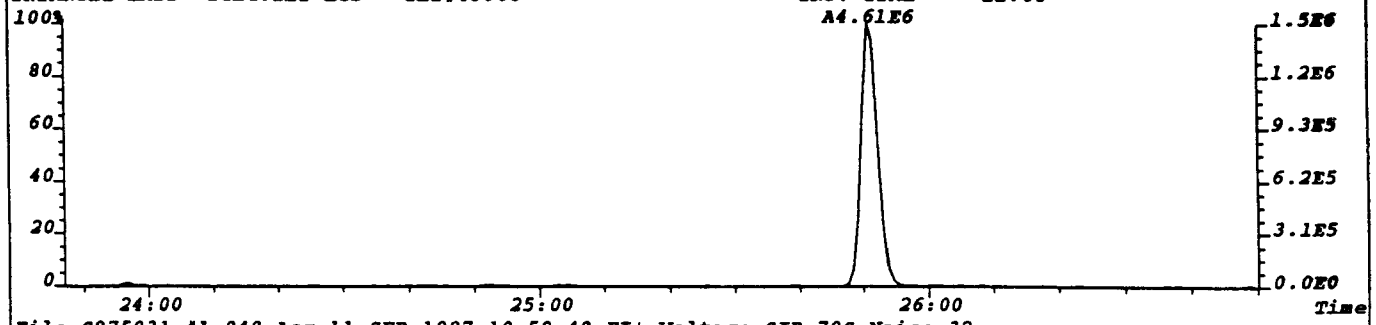
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



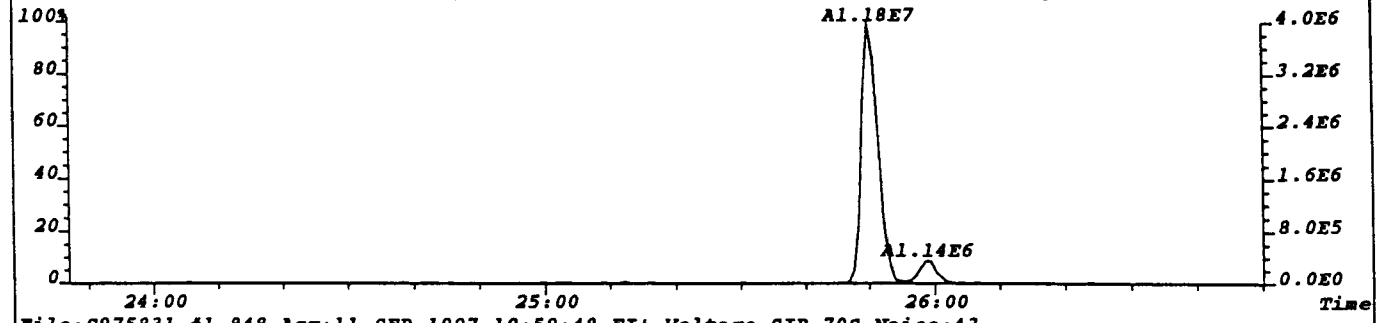
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:132
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,528.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



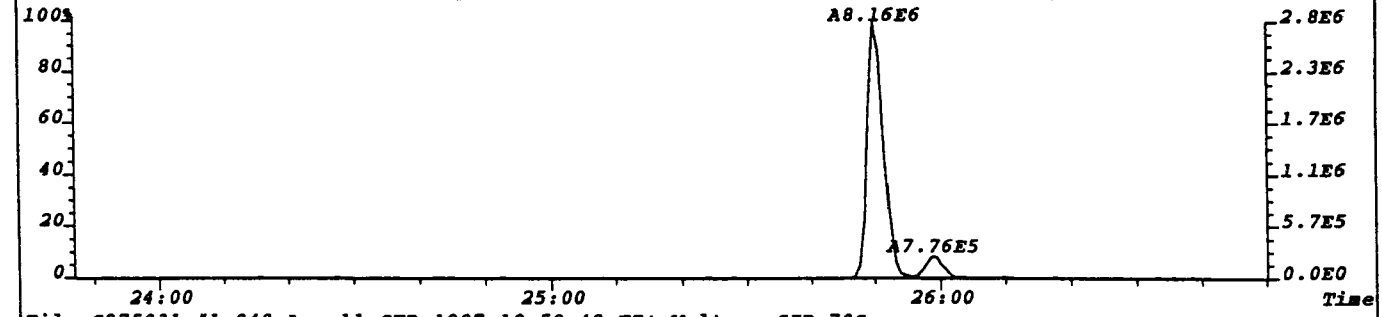
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:34
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



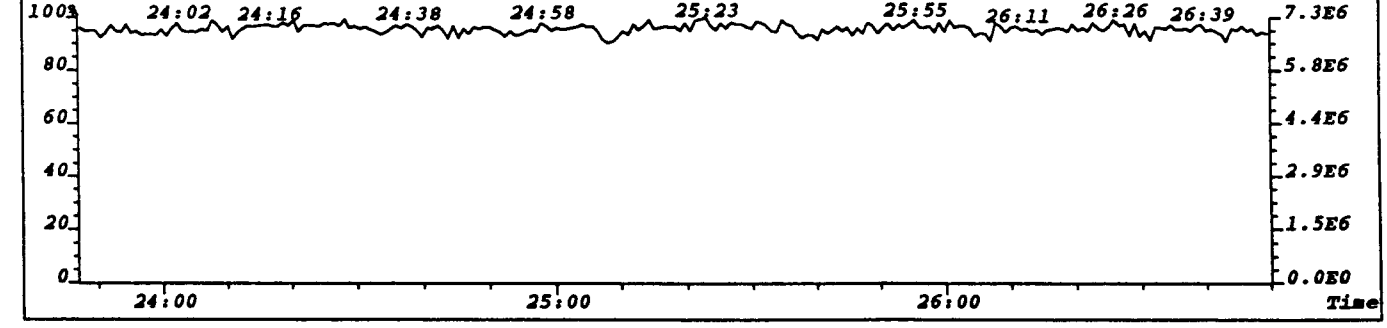
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:32
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



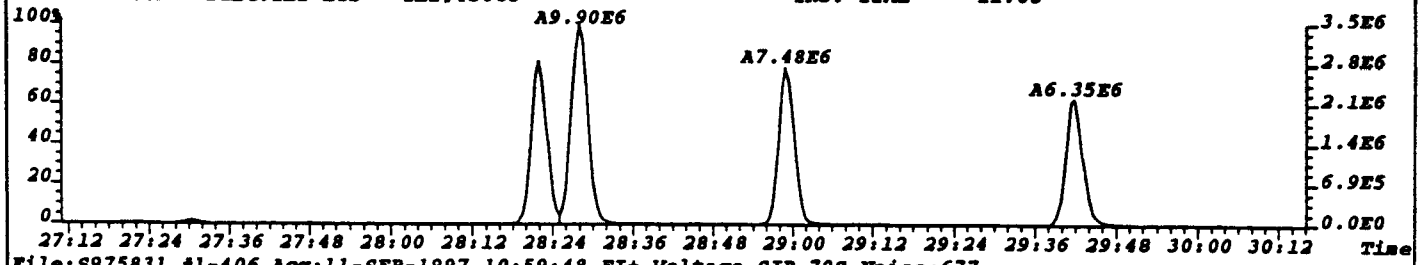
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:43
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



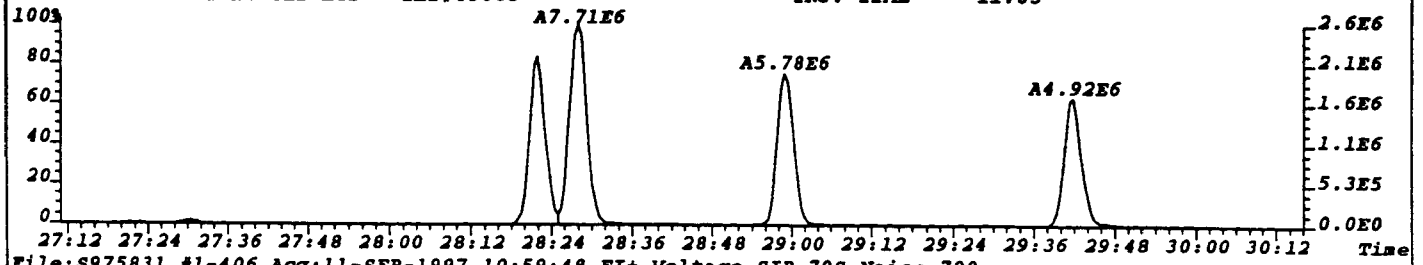
File:S975831 #1-848 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



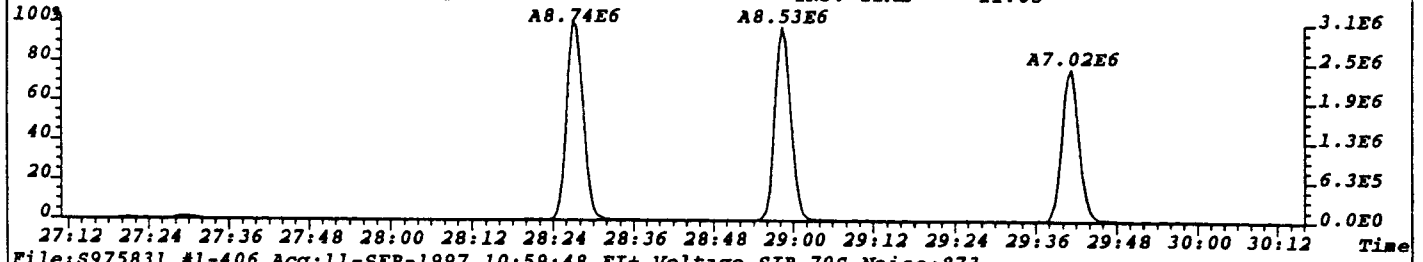
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:908
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3632.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



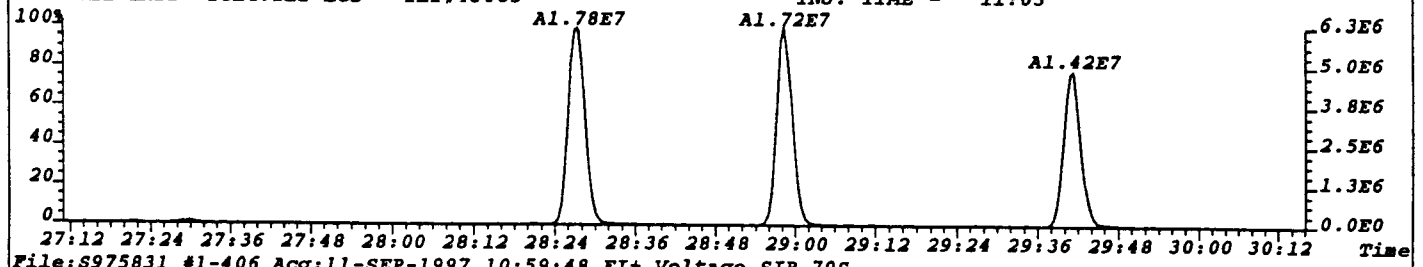
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:677
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2708.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



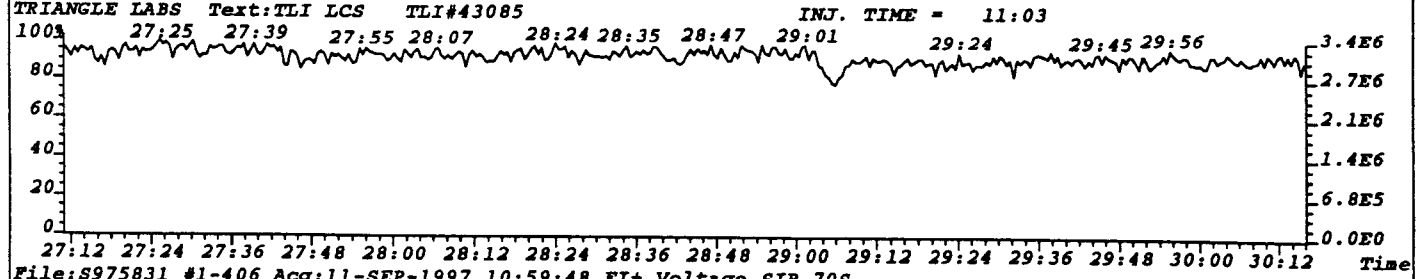
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:790
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



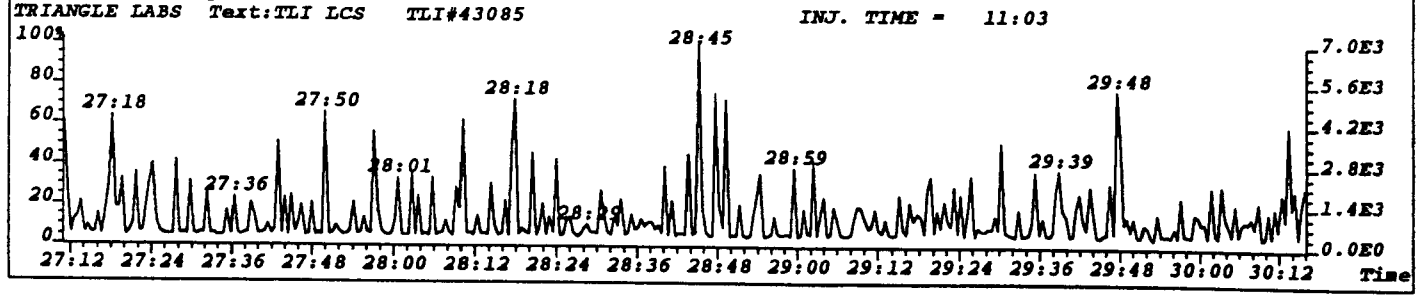
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:873
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3492.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



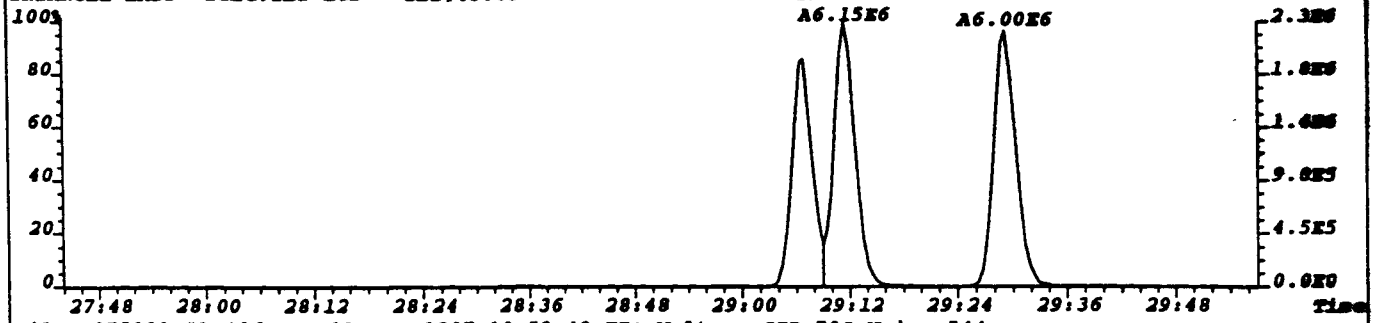
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



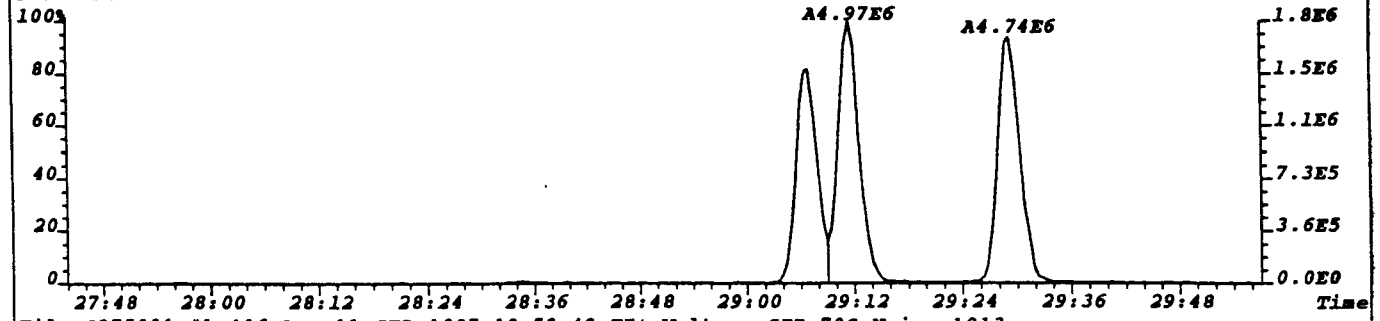
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



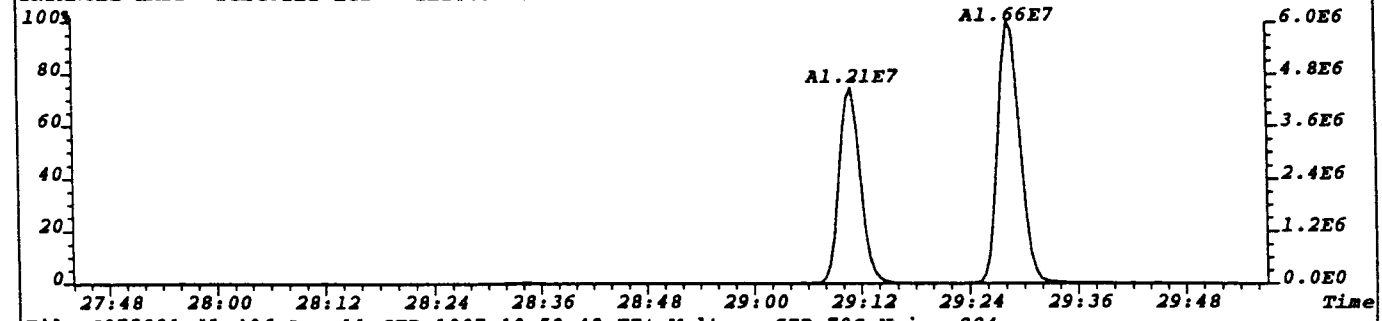
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:545
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



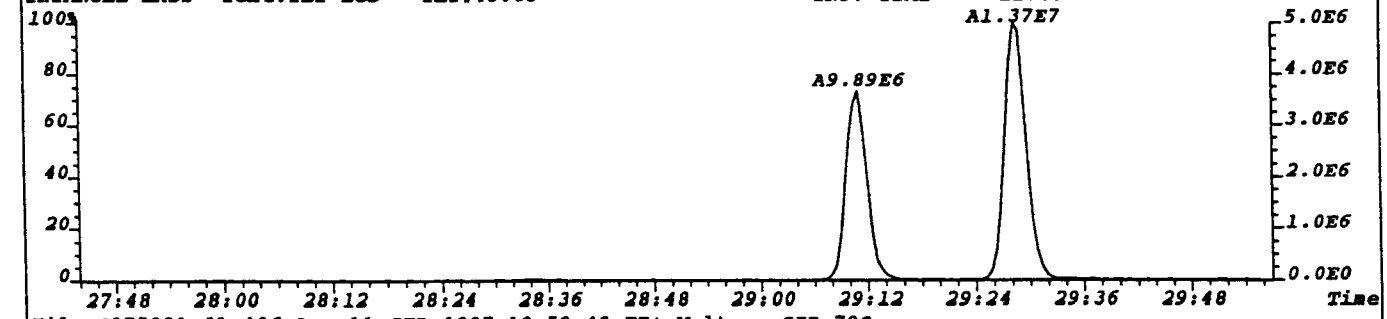
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:544
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2176.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



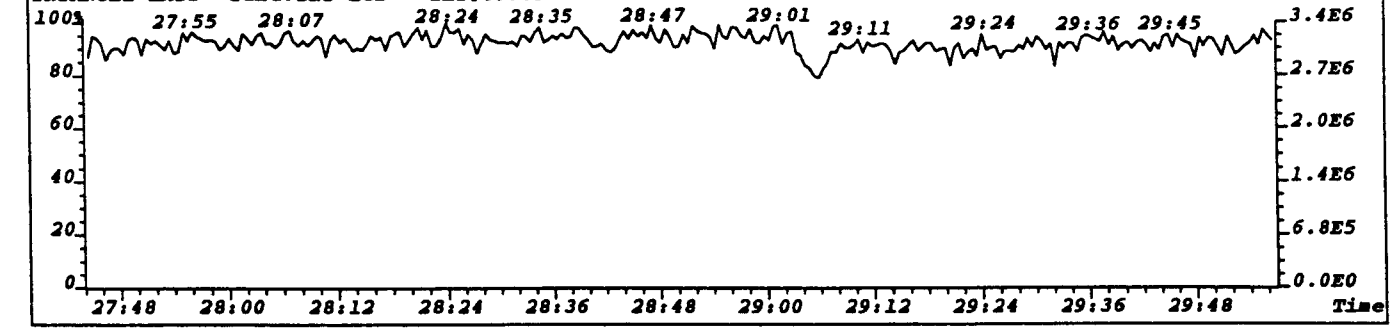
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:1013
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4052.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



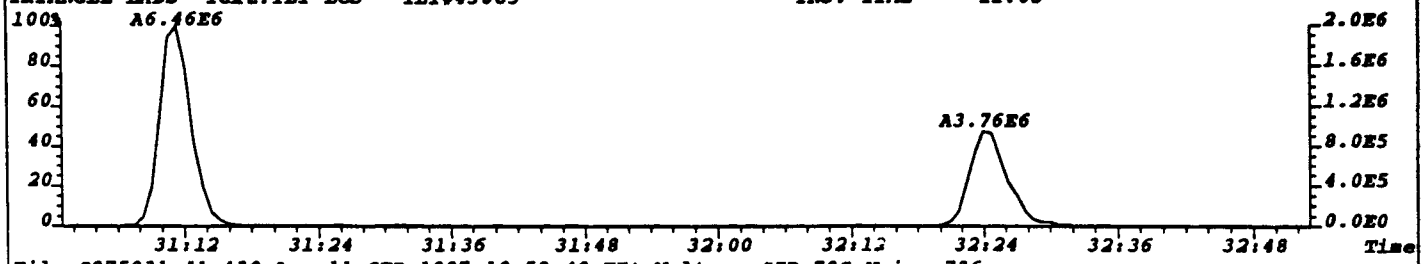
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:884
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3536.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



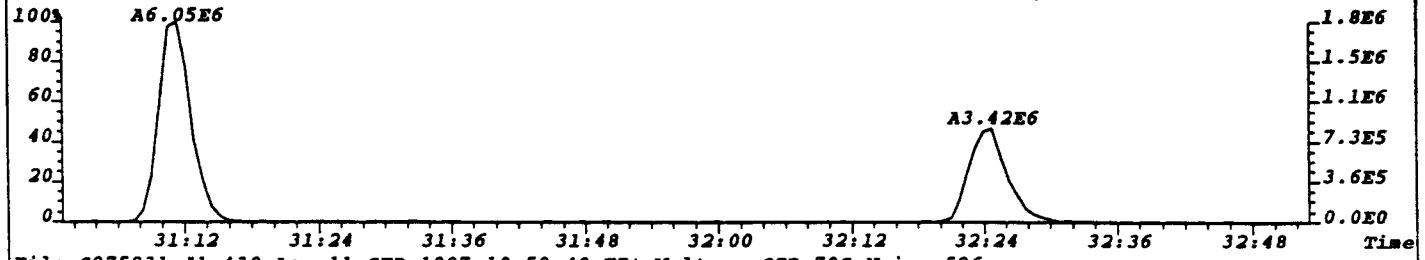
File:S975831 #1-406 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



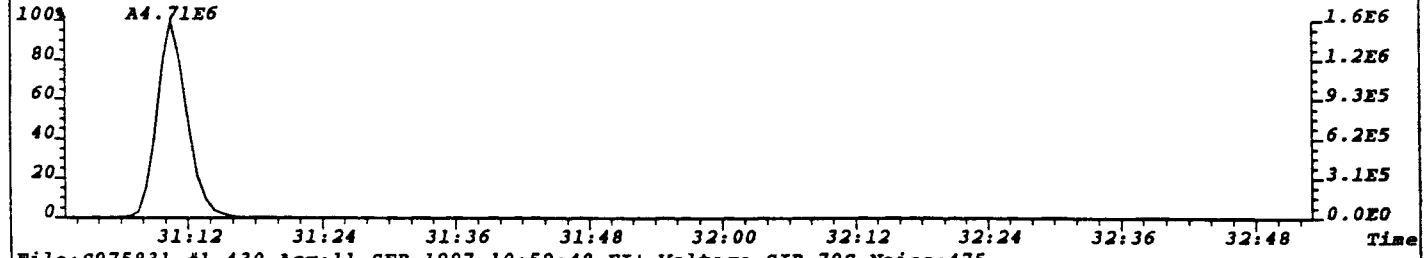
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:1367
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5468.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



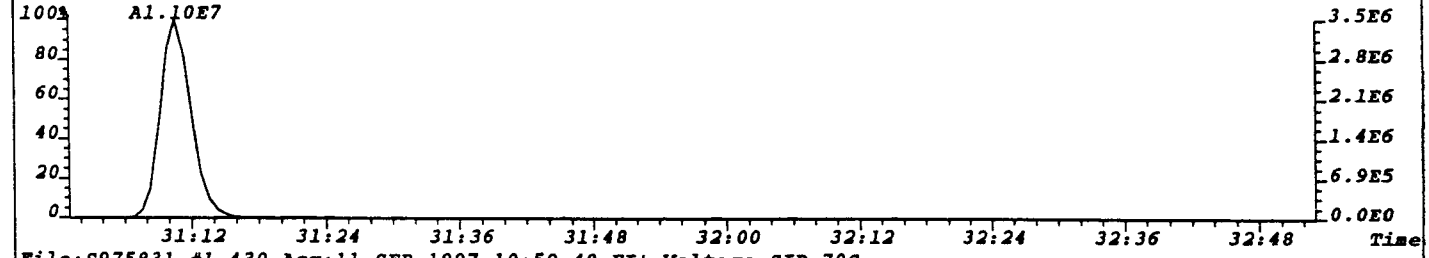
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:736
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2944.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



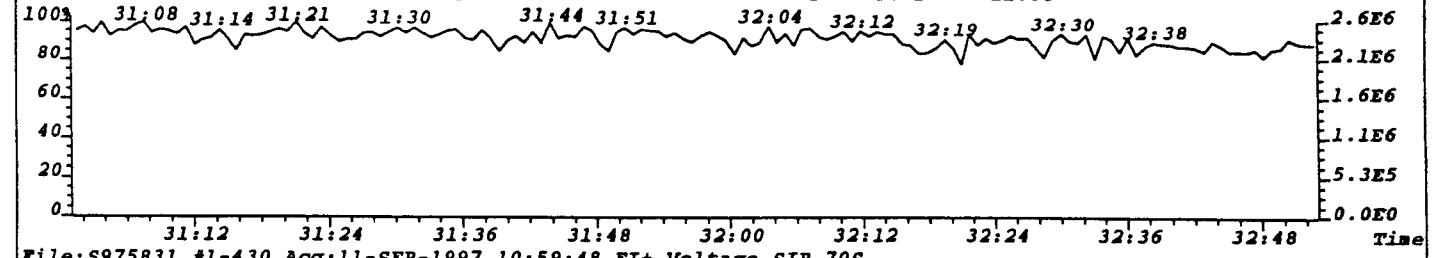
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:526
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



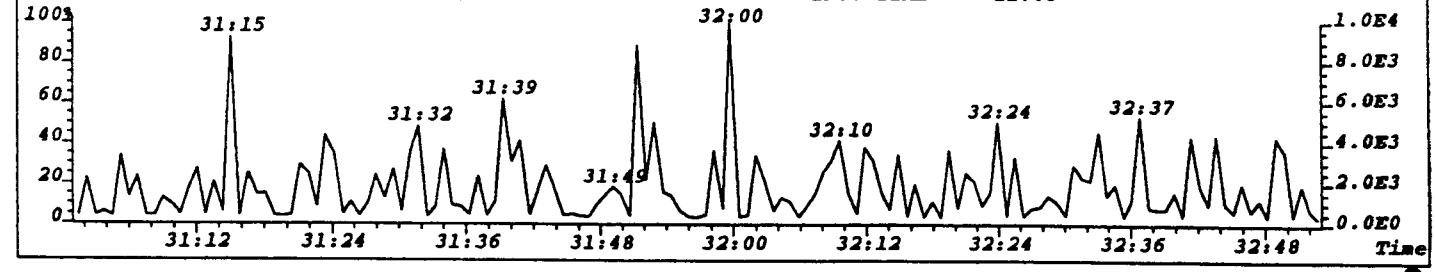
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:475
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1900.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



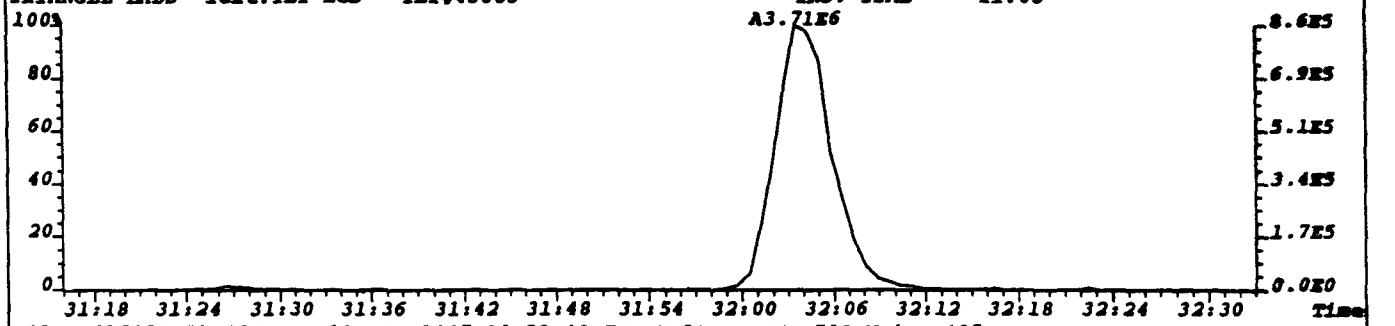
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



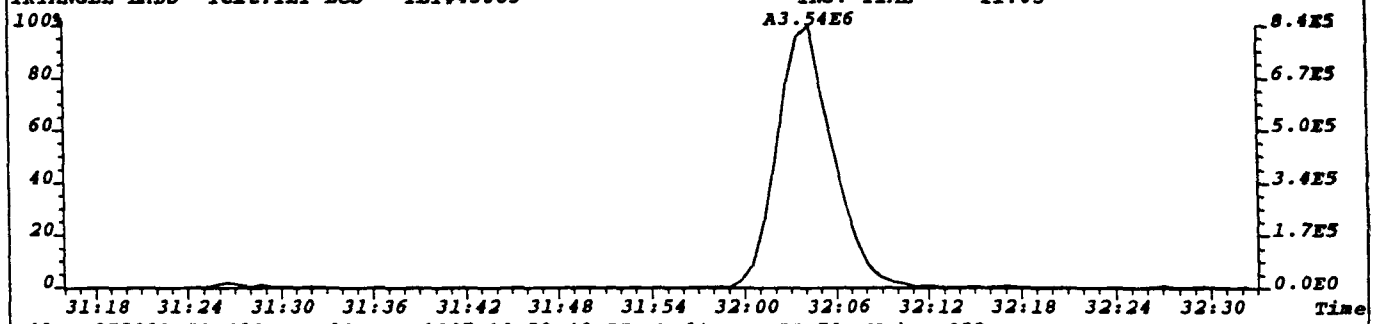
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



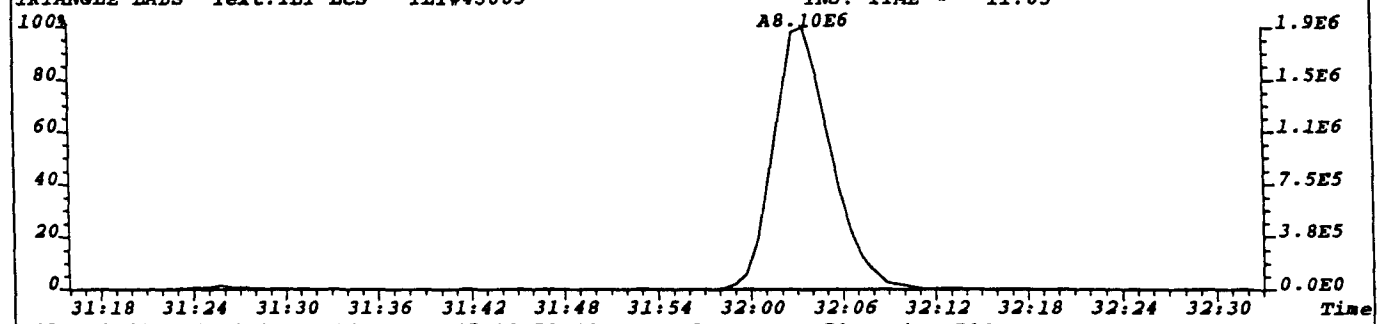
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:542
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



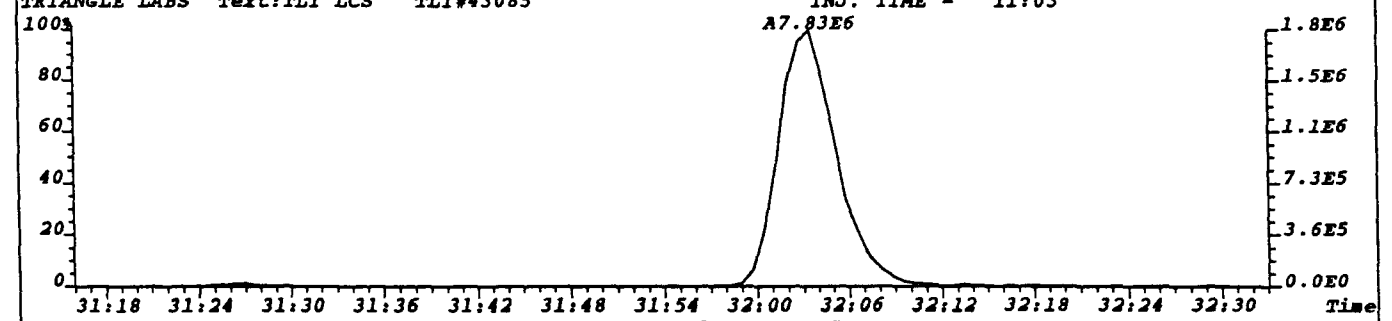
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:435
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1740.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



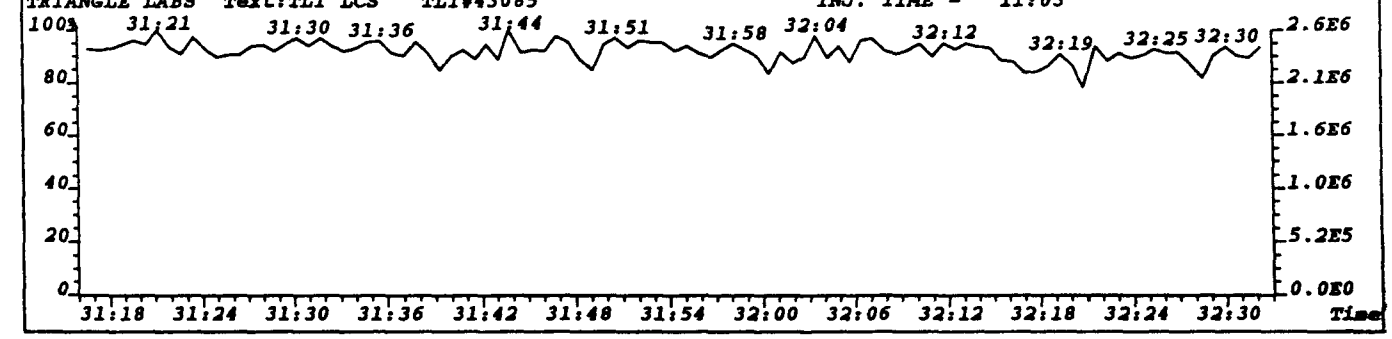
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:852
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3408.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



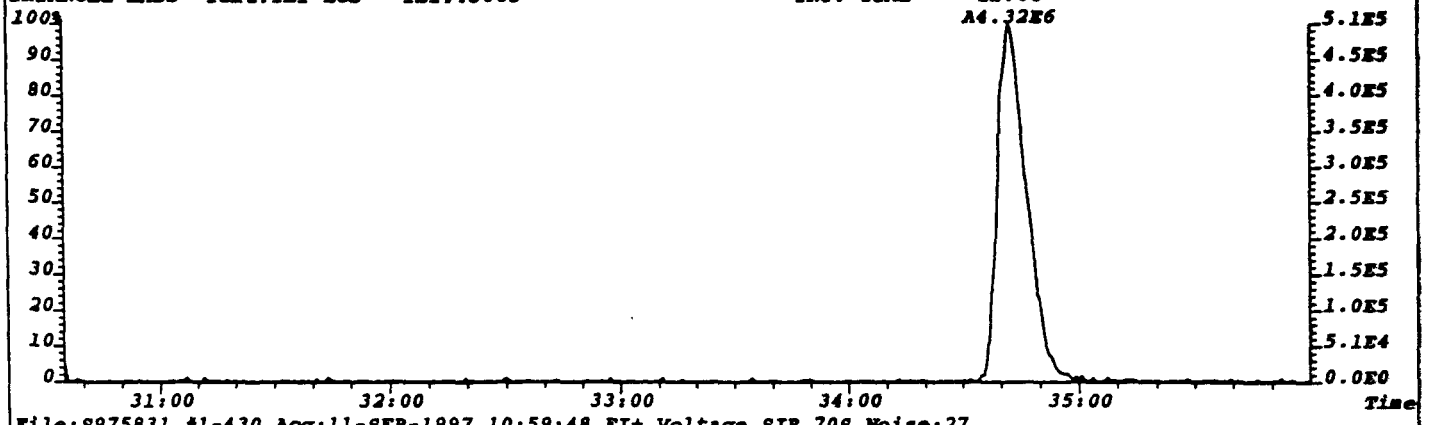
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:786
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



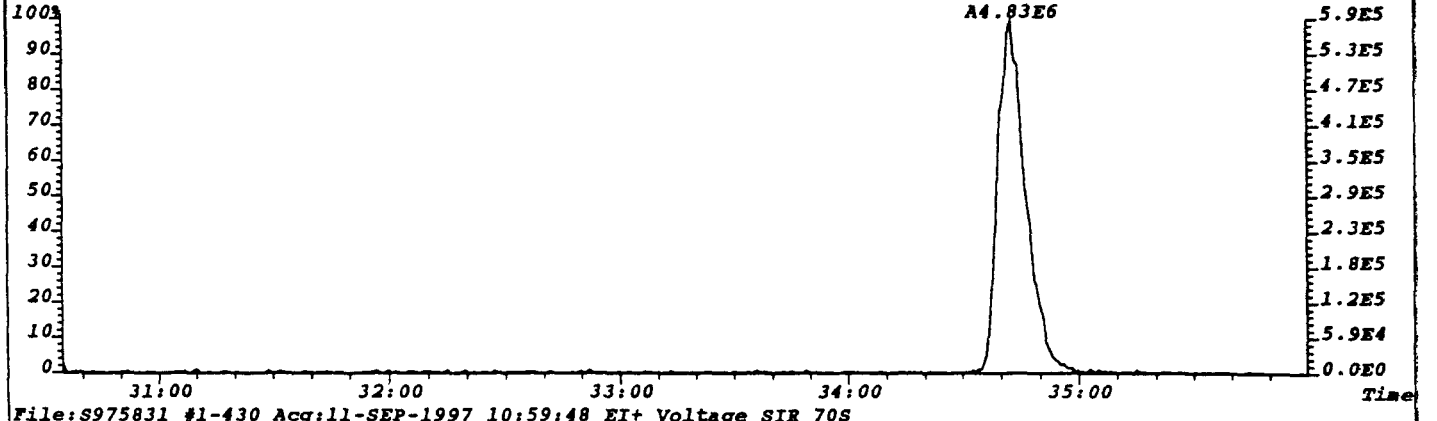
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



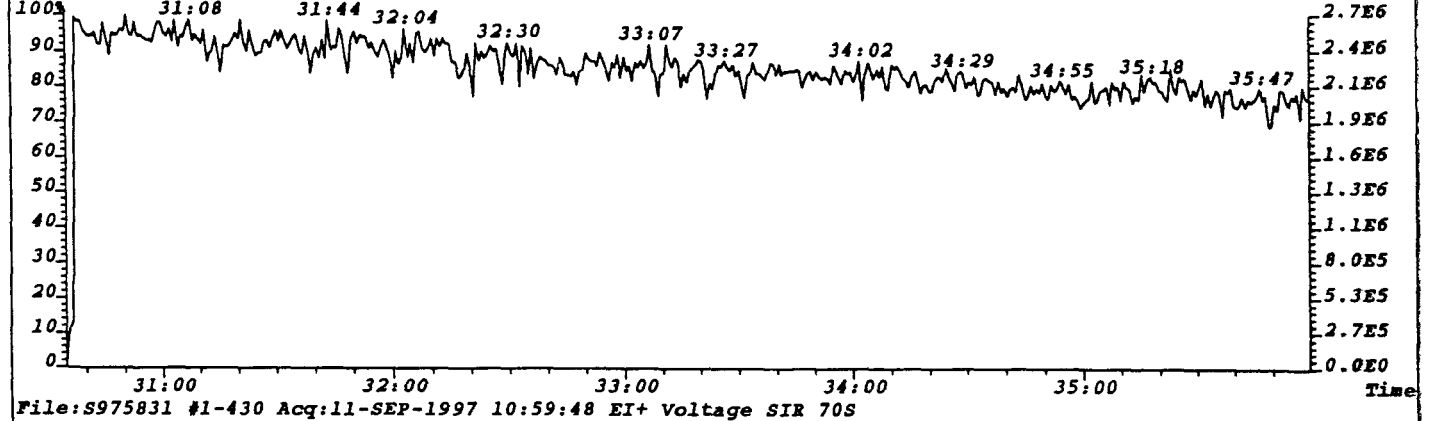
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:243
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,972.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



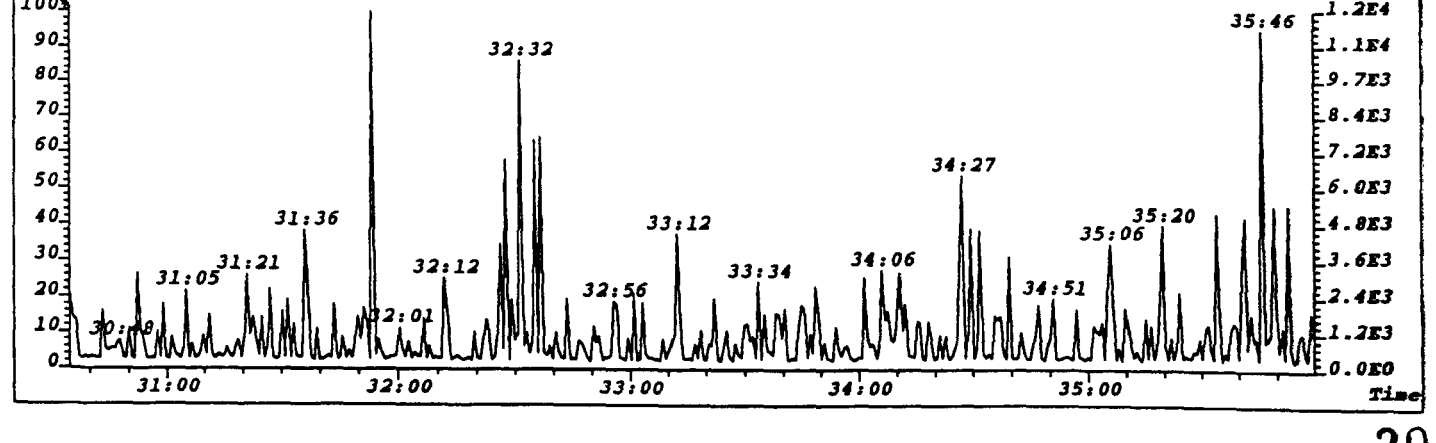
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:27
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



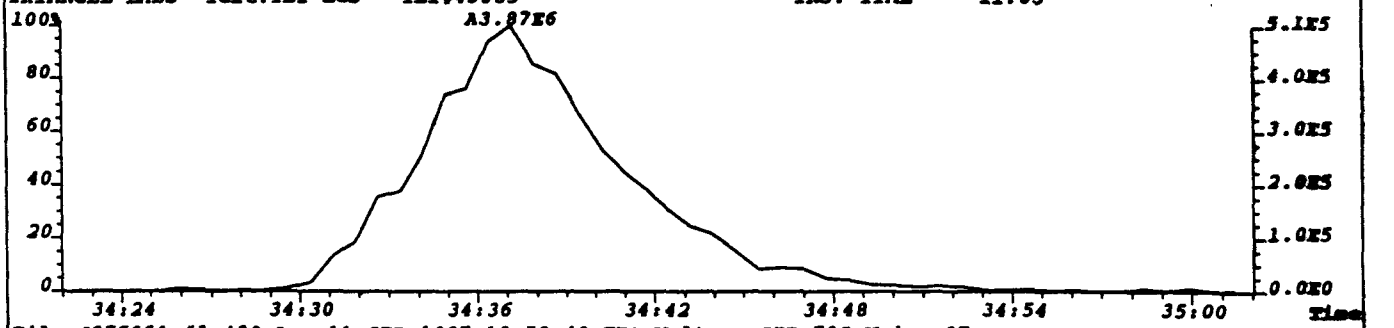
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



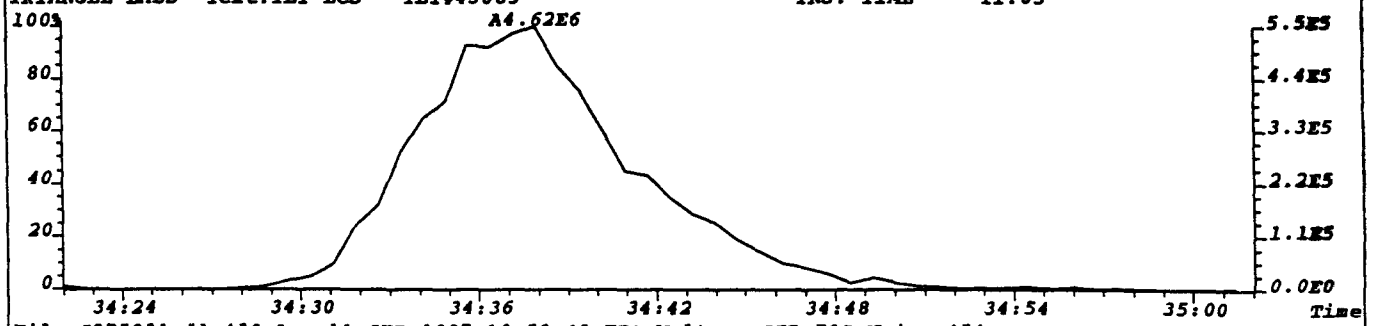
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



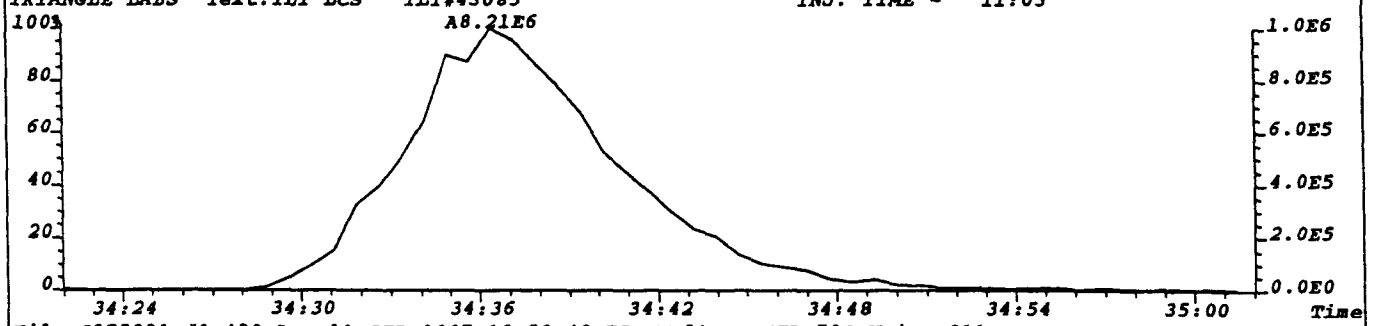
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:210
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,840.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



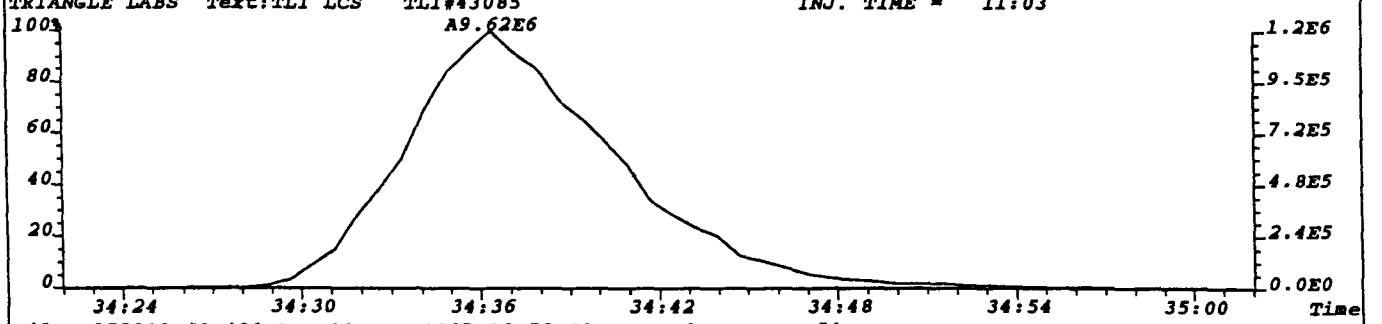
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:37
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



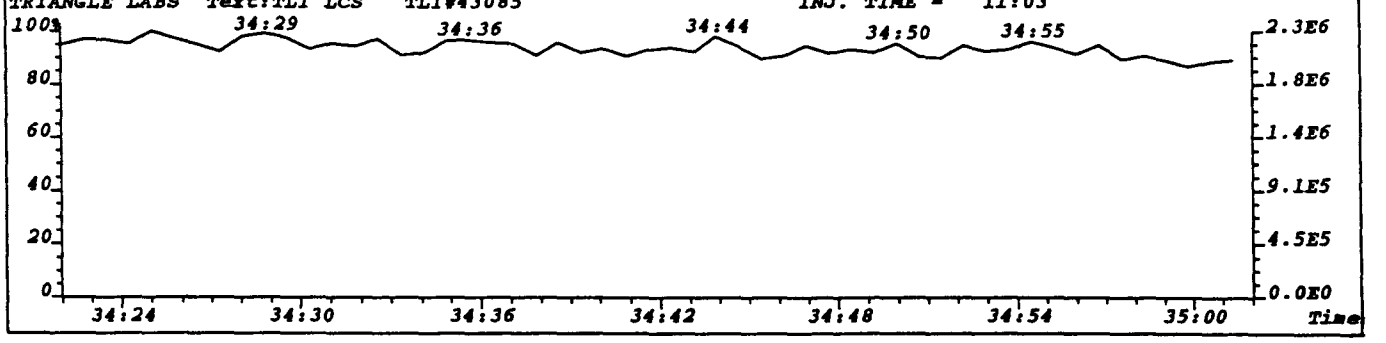
File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:454
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1816.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03

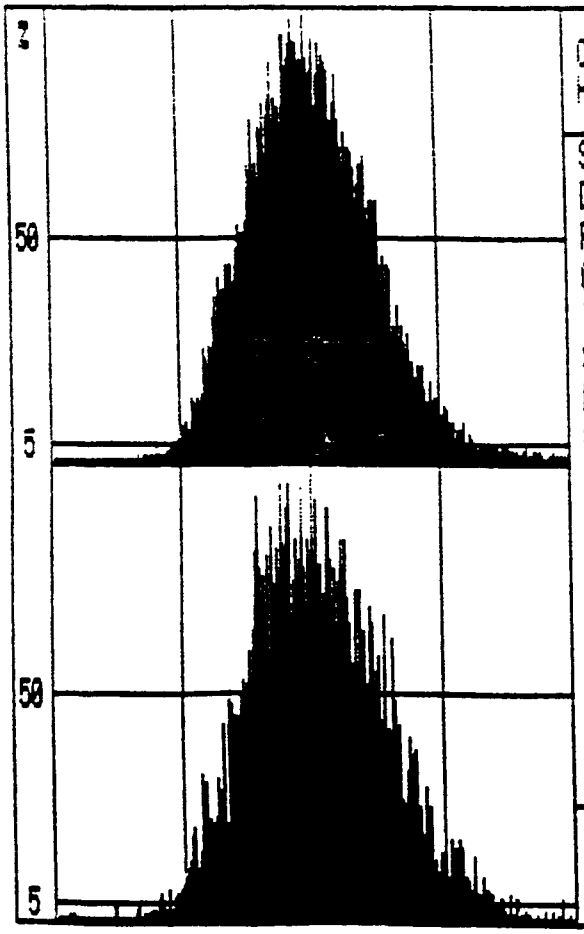


File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S Noise:211
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,844.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03



File:S975831 #1-430 Acq:11-SEP-1997 10:59:48 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI LCS TLI#43085 INJ. TIME = 11:03





Channel I 330.3792 Peak top
Height 3.25 volts Span 200 ppm

System file name	EPCUS2
Data file name	A:S911971
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .72 volts Span 200 ppm

CALIBRATION DATA

Triangle Laboratories, Inc.
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729
P.O. Box 13485
Research Triangle Park, NC 27709-346
Fax # 919-544-5491

Date: 09/12/97

TRIANGLE LABORATORIES, INC.

Continuing Calibration for S975861

Analysis Date....: 09/12/97 Method.....: M237
Operator.....: ML Instrument..: S
Init Calibration.: SF56117 Std.Conc....: 50.00
ICal Date.....: 06/10/97

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		1:34 15:34			2.087	-2.087	100.0%
Total MCDD	0.000		2:19 16:19			1.625	-1.625	100.0%
Total DCDF	0.000		8:34 16:34			0.687	-0.687	100.0%
Total DCDD	0.000		9:19 17:19			1.326	-1.326	100.0%
Total TriCDF	0.000		12:34 19:34			1.082	-1.082	100.0%
Total TriCDD	0.000		14:19 20:19			0.933	-0.933	100.0%
2378-TCDF	1.182	0.81	18:05 23:33	21:35	1.0008	1.251	-0.069	-5.5%
TOTAL TCDF	1.182	0.81				1.251	-0.069	-5.5%
2378-TCDD	1.078	0.79	19:31 23:32	22:20	1.0007	1.191	-0.113	-9.5%
TOTAL TCDD	1.078	0.79				1.191	-0.113	-9.5%
12378-PeCDF	1.051	1.53	23:27 27:30	25:38	1.0007	1.111	-0.060	-5.4%
23478-PeCDF	1.100	1.52		26:22	1.0293	1.115	-0.015	-1.4%
TOTAL PeCDF	1.075	1.52				1.113	-0.038	-3.4%
12378-PeCDD	1.210	1.59	24:45 27:22	26:43	1.0000	1.256	-0.046	-3.7%
TOTAL PeCDD	1.210	1.59				1.256	-0.046	-3.7%
123478-HxCDF	1.070	1.33	28:02 30:42	29:09	0.9971	1.215	-0.145	-11.9%
123678-HxCDF	1.354	1.31		29:15	1.0006	1.574	-0.220	-14.0%
234678-HxCDF	1.059	1.32		29:45	1.0177	1.247	-0.188	-15.1%
123789-HxCDF	0.981	1.34		30:27	1.0416	1.105	-0.124	-11.2%
TOTAL HxCDF	1.116	1.33				1.285	-0.169	-13.1%
123478-HxCDD	0.908	1.25	28:32 30:23	29:52	0.9972	0.953	-0.045	-4.7%
123678-HxCDD	1.059	1.25		29:57	1.0000	1.133	-0.074	-6.6%

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Continuing Calibration for S975861

123789-HxCDD	1.090	1.25		30:14	1.0095	1.091	-0.001	-0.1%
TOTAL HxCDD	1.019	1.25				1.059	-0.040	-3.8%
1234678-HpCDF	1.503	1.03	31:44 33:15	31:54	1.0000	1.543	-0.040	-2.6%
1234789-HpCDF	1.267	1.03		33:05	1.0371	1.184	0.083	7.0%
TOTAL HpCDF	1.385	1.03				1.363	0.022	1.6%
1234678-HpCDD	0.934	1.00	31:59 32:54	32:44	1.0000	1.068	-0.134	-12.6%
TOTAL HpCDD	0.934	1.00				1.068	-0.134	-12.6%
OCDF	1.597	0.86	31:16 39:16	35:25	1.0043	1.493	0.104	7.0%
OCDD	1.040	0.85	31:16 39:16	35:17	1.0005	1.105	-0.065	-5.9%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.842		20:19 24:19	22:20	1.0007	0.843	-0.001	-0.1%
13C12-PeCDF 234	0.975	1.54	21:37 29:37	26:21	1.0286	0.970	0.005	0.5%
13C12-HxCDF 478	0.934	0.50		29:09	0.9971	0.959	-0.025	-2.6%
13C12-HxCDF 234	0.903	0.49		29:44	1.0171	0.926	-0.023	-2.5%
13C12-HxCDF 789	0.789	0.49		30:27	1.0416	0.805	-0.016	-2.0%
13C12-HxCDD 478	0.950	1.21		29:52	0.9972	0.973	-0.023	-2.4%
13C12-HpCDF 789	0.830	0.42	29:54 35:54	33:04	1.0366	0.771	0.059	7.6%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.488	0.76	20:34 22:34	21:34	1.0000	1.318	0.170	12.9%
13C12-2378-TCDD	1.131	0.80	20:19 24:19	22:19	1.0000	1.066	0.065	6.1%
13C12-PeCDF 123	1.302	1.53	21:37 29:37	25:37	1.0000	1.133	0.169	14.9%
13C12-PeCDD 123	0.780	1.52	22:43 30:43	26:43	1.0000	0.635	0.145	22.9%
13C12-HxCDF 678	1.171	0.50	25:14 33:14	29:14	1.0000	1.204	-0.033	-2.7%
13C12-HxCDD 678	0.934	1.21	28:57 30:57	29:57	1.0000	0.995	-0.061	-6.1%

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Continuing Calibration for S975861

13C12-HpCDF 678	0.831	0.42	29:54 35:54	31:54	1.0000	0.887	-0.056	-6.3%
13C12-HpCDD 678	0.786	1.10	31:44 33:44	32:44	1.0000	0.815	-0.029	-3.5%
13C12-OCDD	0.453	0.94	35:07 35:27	35:16	1.0000	0.519	-0.066	-12.6%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.81		22:08	0.9918	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.21		30:14	1.0095	1.000	0.000	0.0%

QC Front End Check: 1.4500

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Continuing Calibration for S975839

Analysis Date....: 09/11/97 Method.....: M237
Operator.....: KAS Instrument..: S
Init Calibration.: SF56117 Std.Conc....: 50.00
ICal Date.....: 06/10/97 Related CCal: S975778

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		0:21 14:21			2.087	-2.087	100.0%
Total MCDD	0.000		1:10 15:10			1.625	-1.625	100.0%
Total DCDF	0.000		7:21 15:21			0.687	-0.687	100.0%
Total DCDD	0.000		8:10 16:10			1.326	-1.326	100.0%
Total TriCDF	0.000		11:21 18:21			1.082	-1.082	100.0%
Total TriCDD	0.000		13:10 19:10			0.933	-0.933	100.0%
2378-TCDF	1.207	0.83	16:39 22:24	20:22	1.0008	1.251	-0.044	-3.5%
TOTAL TCDF	1.207	0.83				1.251	-0.044	-3.5%
2378-TCDD	1.189	0.78	18:01 22:24	21:12	1.0016	1.191	-0.002	-0.2%
TOTAL TCDD	1.189	0.78				1.191	-0.002	-0.2%
12378-PeCDF	1.124	1.53	22:20 26:35	24:42	1.0007	1.111	0.013	1.1%
23478-PeCDF	1.147	1.52		25:27	1.0311	1.115	0.032	2.9%
TOTAL PeCDF	1.136	1.53				1.113	0.023	2.0%
12378-PeCDD	1.282	1.59	23:44 26:27	25:50	1.0006	1.256	0.026	2.1%
TOTAL PeCDD	1.282	1.59				1.256	0.026	2.1%
123478-HxCDF	1.145	1.29	27:10 29:54	28:21	0.9965	1.215	-0.070	-5.8%
123678-HxCDF	1.490	1.30		28:27	1.0000	1.574	-0.084	-5.3%
234678-HxCDF	1.117	1.30		28:58	1.0182	1.247	-0.130	-10.4%
123789-HxCDF	1.028	1.31		29:41	1.0434	1.105	-0.077	-7.0%
TOTAL HxCDF	1.195	1.30				1.285	-0.090	-7.0%
123478-HxCDD	0.896	1.21	27:42 29:35	29:06	0.9977	0.953	-0.057	-6.0%
123678-HxCDD	1.056	1.23		29:11	1.0006	1.133	-0.077	-6.8%

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Continuing Calibration for S975839

123789-HxCDD	1.039	1.24		29:28	1.0103	1.091	-0.052	-4.8%
TOTAL HxCDD	0.997	1.23				1.059	-0.062	-5.9%
1234678-HpCDF	1.482	1.06	31:00 32:33	31:11	1.0000	1.543	-0.061	-4.0%
1234789-HpCDF	1.168	1.07		32:24	1.0390	1.184	-0.016	-1.3%
TOTAL HpCDF	1.325	1.07				1.363	-0.038	-2.8%
1234678-HpCDD	1.047	1.05	31:16 32:12	32:03	1.0005	1.068	-0.021	-1.9%
TOTAL HpCDD	1.047	1.05				1.068	-0.021	-1.9%
OCDF	1.498	0.89	30:38 38:38	34:44	1.0029	1.493	0.005	0.3%
OCDD	1.055	0.86	30:38 38:38	34:37	0.9995	1.105	-0.050	-4.5%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.968		19:10 23:10	21:12	1.0016	0.843	0.125	14.8%
13C12-PeCDF 234	0.963	1.56	20:41 28:41	25:26	1.0304	0.970	-0.007	-0.7%
13C12-HxCDF 478	0.946	0.50		28:20	0.9959	0.959	-0.013	-1.4%
13C12-HxCDF 234	0.875	0.49		28:57	1.0176	0.926	-0.051	-5.5%
13C12-HxCDF 789	0.770	0.49		29:40	1.0428	0.805	-0.035	-4.3%
13C12-HxCDD 478	0.905	1.21		29:05	0.9971	0.973	-0.068	-7.0%
13C12-HpCDF 789	0.778	0.42	29:11 35:11	32:23	1.0385	0.771	0.007	0.9%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.526	0.76	19:21 21:21	20:21	1.0000	1.318	0.208	15.8%
13C12-2378-TCDD	1.045	0.80	19:10 23:10	21:10	1.0000	1.066	-0.021	-1.9%
13C12-PeCDF 123	1.054	1.53	20:41 28:41	24:41	1.0000	1.133	-0.079	-7.0%
13C12-PeCDD 123	0.556	1.45	21:49 29:49	25:49	1.0000	0.635	-0.079	-12.5%
13C12-HxCDF 678	1.419	0.51	24:27 32:27	28:27	1.0000	1.204	0.215	17.9%
13C12-HxCDD 678	1.032	1.23	28:10 30:10	29:10	1.0000	0.995	0.037	3.7%

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Continuing Calibration for S975839

13C12-HpCDF 678	0.880	0.43	29:11 35:11	31:11	1.0000	0.887	-0.007	-0.8%
13C12-HpCDD 678	0.713	1.00	31:02 33:02	32:02	1.0000	0.815	-0.102	-12.6%
13C12-OCDD	0.456	0.87	34:26 34:46	34:38	1.0000	0.519	-0.063	-12.2%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.81		20:58	0.9906	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.23		29:28	1.0103	1.000	0.000	0.0%

QC Front End Check: 1.7362

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Continuing Calibration for S975814

Analysis Date....: 09/11/97 Method.....: M237
Operator.....: JM Instrument..: S
Init Calibration.: SF56117 Std.Conc....: 50.00
ICal Date.....: 06/10/97 Related CCal: S975778

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		0:24 14:24			2.087	-2.087	100.0%
Total MCDD	0.000		1:13 15:13			1.625	-1.625	100.0%
Total DCDF	0.000		7:24 15:24			0.687	-0.687	100.0%
Total DCDD	0.000		8:13 16:13			1.326	-1.326	100.0%
Total TriCDF	0.000		11:24 18:24			1.082	-1.082	100.0%
Total TriCDD	0.000		13:13 19:13			0.933	-0.933	100.0%
2378-TCDF	1.118	0.80	16:44 22:28	20:25	1.0008	1.251	-0.133	-10.6%
TOTAL TCDF	1.118	0.80				1.251	-0.133	-10.6%
2378-TCDD	1.146	0.80	18:06 22:28	21:14	1.0008	1.191	-0.045	-3.8%
TOTAL TCDD	1.146	0.80				1.191	-0.045	-3.8%
12378-PeCDF	1.093	1.53	22:24 26:38	24:43	1.0007	1.111	-0.018	-1.6%
23478-PeCDF	1.143	1.50		25:29	1.0317	1.115	0.028	2.5%
TOTAL PeCDF	1.118	1.51				1.113	0.005	0.5%
12378-PeCDD	1.209	1.59	23:47 26:30	25:52	1.0013	1.256	-0.047	-3.7%
TOTAL PeCDD	1.209	1.59				1.256	-0.047	-3.7%
123478-HxCDF	1.097	1.28	27:11 29:56	28:22	0.9965	1.215	-0.118	-9.7%
123678-HxCDF	1.379	1.29		28:28	1.0000	1.574	-0.195	-12.4%
234678-HxCDF	1.073	1.27		28:59	1.0181	1.247	-0.174	-13.9%
123789-HxCDF	0.977	1.29		29:41	1.0427	1.105	-0.128	-11.6%
TOTAL HxCDF	1.132	1.28				1.285	-0.153	-11.9%
123478-HxCDD	0.855	1.23	27:44 29:37	29:07	0.9977	0.953	-0.098	-10.3%
123678-HxCDD	1.058	1.24		29:12	1.0006	1.133	-0.075	-6.6%

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123789-HxCDD	1.052	1.24		29:29	1.0103	1.091	-0.039	-3.5%
TOTAL HxCDD	0.989	1.24				1.059	-0.070	-6.7%
1234678-HpCDF	1.384	1.04	31:01 32:33	31:11	1.0000	1.543	-0.159	-10.3%
1234789-HpCDF	1.094	1.05		32:23	1.0385	1.184	-0.090	-7.6%
TOTAL HpCDF	1.239	1.04				1.363	-0.124	-9.1%
1234678-HpCDD	1.001	1.03	31:16 32:13	32:03	1.0005	1.068	-0.067	-6.3%
TOTAL HpCDD	1.001	1.03				1.068	-0.067	-6.3%
OCDF	1.470	0.88	30:32 38:32	34:39	1.0034	1.493	-0.023	-1.5%
OCDD	1.049	0.90	30:32 38:32	34:32	1.0000	1.105	-0.056	-5.1%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.972		19:13 23:13	21:13	1.0000	0.843	0.129	15.3%
13C12-PeCDF 234	1.014	1.54	20:42 28:42	25:28	1.0310	0.970	0.044	4.5%
13C12-HxCDF 478	0.955	0.50		28:21	0.9959	0.959	-0.004	-0.4%
13C12-HxCDF 234	0.886	0.49		28:58	1.0176	0.926	-0.040	-4.3%
13C12-HxCDF 789	0.798	0.49		29:41	1.0427	0.805	-0.007	-0.8%
13C12-HxCDD 478	0.897	1.22		29:06	0.9971	0.973	-0.076	-7.8%
13C12-HpCDF 789	0.787	0.43	29:11 35:11	32:22	1.0379	0.771	0.016	2.1%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.554	0.74	19:24 21:24	20:24	1.0000	1.318	0.236	17.9%
13C12-2378-TCDD	1.110	0.78	19:13 23:13	21:13	1.0000	1.066	0.044	4.2%
13C12-PeCDF 123	1.243	1.52	20:42 28:42	24:42	1.0000	1.133	0.110	9.7%
13C12-PeCDD 123	0.713	1.58	21:50 29:50	25:50	1.0000	0.635	0.078	12.3%
13C12-HxCDF 678	1.294	0.50	24:28 32:28	28:28	1.0000	1.204	0.090	7.5%
13C12-HxCDD 678	0.964	1.22	28:11 30:11	29:11	1.0000	0.995	-0.031	-3.1%

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Continuing Calibration for S975814

13C12-HpCDF 678	0.876	0.45	29:11 35:11	31:11	1.0000	0.887	-0.011	-1.3%
13C12-HpCDD 678	0.782	1.06	31:02 33:02	32:02	1.0000	0.815	-0.033	-4.1%
13C12-OCDD	0.434	0.84	34:22 34:42	34:32	1.0000	0.519	-0.085	-16.3%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.83		21:00	0.9898	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.22		29:29	1.0103	1.000	0.000	0.0%

QC Front End Check: 1.6171

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Continuing Calibration for P973843

Analysis Date....: 09/12/97 Method.....: C2NF
Operator.....: WK Instrument..: P
Init Calibration.: PF22206 Std.Conc....: 5.00
ICal Date.....: 02/20/96
Analysis Time....: 11:04 GC Column...: DB-225

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
2378-TCDF	0.964	0.76	16:14 22:38	20:40	1.0008	1.040	-0.076	-7.3%
TOTAL TCDF	0.964	0.76				1.040	-0.076	-7.3%
2378-TCDD	1.001	0.75	17:03 22:00	19:28	1.0009	0.992	0.009	0.9%
TOTAL TCDD	1.001	0.75				0.992	0.009	0.9%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.937		17:27 21:27	19:28	1.0009	1.014	-0.077	-7.6%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.201	0.77	19:39 21:39	20:39	1.0000	1.388	-0.187	-13.5%
13C12-2378-TCDD	1.006	0.79	17:27 21:27	19:27	1.0000	1.067	-0.061	-5.7%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.82		19:41	1.0120	1.000	0.000	0.0%

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Printed: 11:46 09/12/97

ate: 09/13/97 TRIANGLE LABORATORIES OF RTP, INC.

Continuing Calibration for P973859

nalysis Date....: 09/13/97 Method.....: C2NF
perator.....: JM Instrument..: P
nit Calibration.: PF22206 Std.Conc....: 5.00
Cal Date.....: 02/20/96
nalysis Time....: 10:24 GC Column...: DB-225

nalyte Summary

ame	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
378-TCDF	0.949	0.76	16:14 22:37	20:40	1.0008	1.040	-0.091	-8.7%
OTAL TCDF	0.949	0.76				1.040	-0.091	-8.7%
378-TCDD	1.077	0.86	17:02 22:00	19:28	1.0017	0.992	0.085	8.5%
OTAL TCDD	1.077	0.86				0.992	0.085	8.5%

ther Standard Summary

ame	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
7Cl-TCDD	0.928		17:26 21:26	19:28	1.0017	1.014	-0.086	-8.5%

nternal Standard Summary

ame	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
3C12-2378-TCDF	1.265	0.77	19:39 21:39	20:39	1.0000	1.388	-0.123	-8.9%
3C12-2378-TCDD	0.984	0.79	17:26 21:26	19:26	1.0000	1.067	-0.083	-7.8%

ecovery Standard Summary

ame	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
3C12-1234-TCDD	1.000	0.81		19:40	1.0120	1.000	0.000	0.0%

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Printed: 11:22 09/13/97

Initial Calibration Summary for Pr22206

Analysis Date....: 02/20/96 Method.....: C2NF
Instrument.....: P GC Column...: DB-225

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
2378-TCDF	1.040	0.109	10%	21:32	14:31	25:31	0.767		10
TOTAL TCDF	1.040	0.109	10%				0.767		10
2378-TCDD	0.992	0.101	10%	20:12	16:11	24:11	0.782		10
TOTAL TCDD	0.992	0.101	10%				0.782		10

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37Cl-TCDD	1.014	0.048	5%	20:12	18:11	22:11			10

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.388	0.062	4%	21:31	20:31	22:31	0.758		10
13C12-2378-TCDD	1.067	0.036	3%	20:11	18:11	22:11	0.786		10

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	20:27			0.794		10

*** End of Report ***

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Analysis Date....: 06/10/97 Method.....: M237
Instrument.....: S

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
Total MCDF	2.087	0.000	0%	8:15	0:01	13:43	2.931		1
Total MCDD	1.625	0.000	0%	8:42	0:34	14:34	2.827		1
Total DCDF	0.687	0.000	0%	10:38	6:43	14:43	5.965		1
Total DCDD	1.326	0.000	0%	11:09	7:34	15:34	1.609		1
Total TriCDF	1.082	0.000	0%	13:59	10:43	17:43	1.025		1
Total TriCDD	0.933	0.000	0%	14:03	12:34	18:34	1.064		1
2378-TCDF	1.251	0.116	9%	19:43	15:43	23:43	0.799		5
TOTAL TCDF	1.251	0.116	9%				0.799		5
2378-TCDD	1.191	0.231	19%	20:36	16:34	24:34	0.772		5
TOTAL TCDD	1.191	0.231	19%				0.772		5
12378-PeCDF	1.111	0.082	7%	24:12	20:11	28:11	1.552		5
23478-PeCDF	1.115	0.061	5%	24:59			1.470		5
TOTAL PeCDF	1.113	0.069	6%				1.509		5
12378-PeCDD	1.256	0.113	9%	25:22	21:21	29:21	1.526		5
TOTAL PeCDD	1.256	0.113	9%				1.526		5
123478-HxCDF	1.215	0.064	5%	27:55	24:01	32:01	1.247		5
123678-HxCDF	1.574	0.099	6%	28:01			1.260		5
234678-HxCDF	1.247	0.069	6%	28:32			1.243		5
123789-HxCDF	1.105	0.060	5%	29:15			1.246		5
TOTAL HxCDF	1.285	0.062	5%				1.249		5
123478-HxCDD	0.953	0.067	7%	28:41	24:45	32:45	1.265		5
123678-HxCDD	1.133	0.070	6%	28:46			1.251		5
123789-HxCDD	1.091	0.067	6%	29:03			1.233		5
TOTAL HxCDD	1.059	0.067	6%				1.249		5
1234678-HpCDF	1.543	0.103	7%	30:45	26:45	34:45	1.034		5
1234789-HpCDF	1.184	0.100	8%	31:57			1.080		5
TOTAL HpCDF	1.363	0.095	7%				1.053		5
1234678-HpCDD	1.068	0.089	8%	31:37	27:36	35:36	0.993		5
TOTAL HpCDD	1.068	0.089	8%				0.993		5
OCDF	1.493	0.131	9%	34:09	30:02	38:02	0.876		5
OCDD	1.105	0.066	6%	34:03	30:02	38:02	0.902		5

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37Cl-TCDD	0.843	0.038	5%	20:36	18:34	22:34			5
13C12-PeCDF 234	0.970	0.030	3%	24:58	22:11	26:11	1.470		5
13C12-HxCDF 478	0.959	0.042	4%	27:55			0.518		5
13C12-HxCDF 234	0.926	0.021	2%	28:32			0.517		5
13C12-HxCDF 789	0.805	0.044	5%	29:15			0.519		5
13C12-HxCDD 478	0.973	0.027	3%	28:40			1.241		5
13C12-HpCDF 789	0.771	0.049	6%	31:57	28:45	34:45	0.424		5

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.318	0.065	5%	19:43	18:43	20:43	0.734		5
13C12-2378-TCDD	1.066	0.020	2%	20:34	18:34	22:34	0.802		5
13C12-PeCDF 123	1.133	0.051	5%	24:11	20:11	28:11	1.447		5

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13C12-PeCDD 123	0.635	0.082	13%	25:21	21:21	29:21	1.461		5
13C12-HxCDF 678	1.204	0.073	6%	28:01	24:01	32:01	0.522		5
13C12-HxCDD 678	0.995	0.017	2%	28:45	27:45	29:45	1.240		5
13C12-HpCDF 678	0.887	0.046	5%	30:45	28:45	34:45	0.429		5
13C12-HpCDD 678	0.815	0.077	9%	31:36	30:36	32:36	1.019		5
13C12-OCDD	0.519	0.080	15%	34:02	32:02	36:02	0.866		5

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	20:21			0.811		5
13C12-HxCDD 789	1.000	0.000	0%	29:02			1.231		5

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Appendix C.3

Analytical Data

Method 29 Multiple Metals

TRIANGLE LABS

CASE NARRATIVE

Analysis of Samples for the Presence of Trace Metals

Method 29 April 1996 Rev.

Client:	Pacific Environmental Services
TLI Project Number:	43411
Date:	November 1, 1997

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Rev. 07-May-97

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Overview

Six train samples and a blank train sample were analyzed for silver (Ag), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), manganese (Mn), nickel (Ni), phosphorus (P), lead (Pb), antimony (Sb), selenium (Se), thallium (Tl), zinc (Zn), and mercury (Hg). For all analyses, the samples and associated QC samples were prepared and analyzed following the guidelines of Method 29 April 1996 Rev. Results reported relate only to the items tested.

QC Remarks

The release of this set of data by Triangle Laboratories, Inc. was authorized by the Quality Control Chemist who has reviewed each sample data package individually following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effects of these deviations upon the validity and reliability of the results. Specific QC issues associated with this particular project are:

Sample Receipt:

Coolant not req'd

Seven train samples were received ~~without coolant~~ on September 26, 1997 in good condition. The sample I-M29-2-BHAR was received, but this sample was not listed on the client's chain-of-custody.

Sample Preparation:

Laboratory documentation of the sample preparation is included in the data package.

Instrumentation:

Silver (Ag), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), manganese (Mn), nickel (Ni), phosphorus (P), lead (Pb), antimony (Sb), selenium (Se), and zinc (Zn) concentrations were determined by Inductively Coupled Plasma Emission Spectroscopy (ICP).

Thallium (Tl) concentrations were analyzed by Graphite Furnace Atomic Absorption (GFAA).

Mercury (Hg) concentrations were determined by Cold Vapor Atomic Absorption (CVAA).

The linear range for the instrument TJA 61E Trace Analyzer was based on four standards and a blank, which established a correlation coefficient value greater than or equal to 0.995. A calibration curve, based on a blank and one standard, is established for each analytical run, followed by a check high standard and an initial calibration verification (ICV). The check high standard does not deviate from the calibration curve by more than 5%. In addition, continuing calibration verifications (CCVs) are performed throughout the analytical run.

A Reporting Detection Limit (RDL) is used instead of an Instrument Detection Limit (IDL). The spectrometer and atomic absorption instruments can achieve low detection limits between 0.2-8 ppb levels for many analytes. Triangle Labs is using RDL values of 1-10 times the IDL as detection limits for reporting purposes.

Data Review:

All analytes found in the method blank (MB) are detected at a level equal to or less than the respective Reporting Detection Limits (RDLs) except for Ni. The following guidelines may be used to assess analyte concentrations relative to the method blank: 1. Analyte quantitations should be considered valid if the level of blank contamination is less than five percent of the level detected in the field sample, 2. Analyte quantitations should be considered estimated if the analyte level in the sample is five to twenty times the level of the analyte in the blank, or 3. Analytes whose level in a sample is the same as or less than five times the level detected in the associated blank should be considered present likely due to laboratory contamination and not native to the sample. Please note that the Ni results that are near the RDL should be considered biased high.

The laboratory control sample (LCS) for Ni and Tl demonstrated percent recoveries outside the QC criteria of 80-120 percent. Please note that the sample results should be considered biased high for Ni and biased low for Tl. No sample was available for a second preparation.

All samples were received outside of the 28 day sampling to analysis holding time for Hg, therefore the holding time for Hg could not be met. All samples were analyzed within the six month sampling to analysis holding time for all other requested analytes.

The sample IDs on the client chain-of-custody did not match with the IDs on the sample containers. The sample IDs on TLI's chain-of-custody matches the IDs on the sample containers. The sample IDs on the Hg spreadsheets for the KMnO4 and HCl containers do not have the addition description added in order to alleviate redundancy.

The concentrations for Tl demonstrated high negative numbers for the samples analyzed by ICP, therefore the samples were analyzed by GFAA in order to obtain better results. A duplicate analysis is not reported for elements analyzed by GFAA. The GFAA instrument analyzes two separate aliquots of the sample and averages the values for a final result. These two analyses agree within a RPD of 20% or a second run is done for that sample. The ICP instrument analyzes one continuous aliquot three times and averages the values for a final result. The ICP does not take two separate aliquots, therefore a DA is performed.

The serial dilution results for Cr for the sample O-M29-1-FHACE,FHAR,FILTER FH demonstrated a RPD outside the QC control criteria of 10.0 percent, which indicates the presence of an amount of interferents specific to this analyte in the native sample matrix. Please note that the post-digestion spike (PDS) for Cr demonstrated a percent recovery within QC criteria, which indicates no significant amount of interfences specific to this analyte in the native sample matrix. Also note that this sample should be considered biased low for Cr due to matrix interferences.

The post-digestion spike (PDS) for Co for the sample O-M29-1-FHACE,FHAR,FILTER FH demonstrated a percent recovery outside the QC criteria, which may indicate significant matrix effects specific to this analyte in the native sample matrix. Please note that this sample should be considered biased low for Co due to matrix interferences.

The recoveries for the post-digestion spike (PDS) are not reported for Ba and Mn for sample O-M29-1-FHACE,FHAR,FILTER FH. The spike concentrations added were insignificant in comparison to the levels of these analytes present in the native sample.

The pre-digestion spike (MS) and the pre-digestion spike duplicate (MSD) for Hg for the samples O-M29-1-HNO3 BH, O-M29-2-HNO3 BH, I-M29-1-HNO3 BH, I-M29-2-HNO3 BH, and I-M29-3-HNO3 BH demonstrated percent recoveries outside the QC criteria, which may indicate significant matrix effects specific to this analyte in the native sample matrix. Please note that samples O-M29-1-HNO3 BH, O-M29-2-HNO3 BH and I-M29-1-HNO3 BH should be considered biased low due to matrix interferences. Also note that samples I-M29-2-HNO3 BH and I-M29-3-HNO3 BH should be considered biased high due to matrix interferences.

QC requirements:

The duplicate analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the original and/or duplicate sample are not at least ten times the respective RDLs. The RPDs for these analyses are indicated by or "<RDL" in the Analyte Summary Reports.

For duplicate analyses which are valid qualifiers, the quality control RPD is ± 20.0 percent. If RPDs are outside this range, interferences are suspected.

The serial dilution analyses for analytes analyzed by GFAA cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are not at least five times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

The serial dilution analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are less than ten times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For serial dilution analyses which are valid qualifiers, the quality control RPD is ± 10.0 percent. If RPDs are outside this range, interferences are suspected.

The quality control range for percent recoveries of laboratory control spiked samples is 80-120.

The quality control range for percent recoveries of spiked samples is 75-125. If recoveries are outside this range, a matrix effect is suspected.

If the analyte concentrations analyzed by GFAA in the native samples are less than five times the respective RDLs, or if valid serial dilution analyses demonstrate RPDs outside the ten percent quality control range, the percent recoveries of post-digestion spiked samples is 75-125. If recoveries are outside this range, all matrix-related samples are analyzed by the Method of Standard Additions (MSA). The MSA analysis for each sample is reported only if the correlation coefficient value is at least 0.995.

By our interpretation, the analytical data in this project are valid based on the guidelines of Method 29 April 1996 Rev. Any specific QC concerns or problems have been discussed in the QC REMARKS section with emphasis on their effect on the data. Should Pacific Environmental Services have any questions or comments regarding this data package, please feel free to contact Project Scientist, Rose West, at (919) 544-5729 ext.270.

For Triangle Laboratories, Inc.,

Report Preparation	Quality Control
Linda F. Jones	Terry P. Roach
Report Preparation Chemist	Report Preparation Chemist

The total number of pages in this data package is: ~~175~~ 177

TRIANGLE LABS

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

American Association for Laboratory Accreditation. Accredidation pending. Certificate Number 0226-01. Accreditation for technical competence in Environmental Testing.(Including Waste Water, Sol/Haz Waste, Pulp/Paper, and Air Matrices) Parameters are AOX/TOX, and Dioxin/Furan. Method 1613 for Drinking Water.

State of Alabama, Department of Environmental Management. Expires December 31, 1997. Laboratory I.D. # 40950. Dioxin in drinking water.

State of Alaska, Department of Environmental Conservation. Expires December 21, 1997. Certificate number OS-00397. Dioxin in drinking water.

State of Arizona, Department of Health Services. Expires May 26, 1998. Certificate #AZ0423. Drinking Water for Dioxin, Dioxin in WW and S/H Waste.

State of Arkansas, Department of Pollution Control and Ecology. Expires February 18, 1998. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furan; AOX/TOX.

State of California, Department of Health Services. Expires August 31, 1999. Certificate #1922. Selected Metals in Waste Water; Volatiles, Semi-volatiles, and Dioxin/furan in WW and Sol/Haz Waste. Dioxin in drinking water.

State of Connecticut, Department of Health Services. Recertification pending. Registration # PH-0117. Dioxin in drinking water.

Delaware Health and Social Services. Expires December 31, 1997. Certificate #NC 140. Dioxin in drinking water.

Florida Department of Health and Rehabilitative Services. Expires June 30, 1998.Dioxin in DW. Drinking Water ID HRS# 87424. Metals, Extractable Organics (GC/MS), Pesticides/PCB's (GC) and Volatiles (GC/MS) in Environmental Samples. Environmental water ID HRS# E87411.

Hawaii Department of Health. Expires March 1, 1998. Dioxin in drinking water. "Accepted" status for regulatory purposes .

Revised 10/28/97 RM

Printed 10/29/97

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Research Triangle Park, NC 27709-348
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Idaho Department of Health and Welfare. Expires November 30, 1997. Dioxin in drinking water.

State of Kansas, Department of Health and Environment. Expires January 31, 1998. Environmental Analyses/Non potable Water and Solid and Hazardous Waste. Method 1613 for drinking water. ID #'s - Drinking water and/or pollution control - E-215. Solid or Hazardous Waste - E-1209.

Commonwealth of Kentucky, Department for Environmental Protection. Expires December 31, 1997. ID#90060. Dioxin in drinking water.

Maryland Department of Health and Mental Hygiene. Expires September 30, 1998. Certification #235. Drinking water by Method 1613A.

State of Michigan, Department of Public Health. Expires June 3, 1998. Drinking water by Method 1613.

Mississippi State Department of Health. No expiration date.. Dioxin in drinking water.

Montana Department of Health and Environmental Services. Expires December 31, 1997. Dioxin in drinking water.

State of New Jersey, Department of Environmental Protection and Energy. Extended by state. Temporary certificate until December 31, 1997. ID #67851. BNAs and Volatiles. Dioxin in drinking water.

State of New Mexico, Environment Department. Recertification pending. Dioxin in drinking water.

New York State Department of Health. Expires April 1, 1998. ID #11026. Environmental Analyses of non-potable Water, Solid and Hazardous Waste. Method 1613 in DW.

State of North Carolina, Department of Environment Health and Natural Resources Expires August 31, 1999. Certificate # 37751. Dioxin in drinking water.

State of North Carolina, Department of Environment, Health, and Natural Resources, Division of Environmental Management. Expires December 31, 1997. Certificate # 485. Metals, pesticides & PCBs, semi-volatiles and volatiles; TCLP.

North Dakota State Department of Health and Consolidated Laboratories. Expires December 31, 1997. Certificate # R-076. Effective October 4, 1993. Dioxin in drinking water.

Revised 10/28/97 RM

Printed 10/29/97

Oklahoma Department of Environmental Quality. Expires August 31, 1998. Laboratory #9612. Dioxin by 1613A, 8290 and 8280.

State of South Carolina, Department of Health and Environmental Control. Expires April 1, 1998. Certificate number #99040001 (drinking water). Expires August 31, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

State of Tennessee. Department of Environment and Conservation. Expires February 5, 1999. ID #02992. Method 1613 Drinking water only.

U.S. Department of Agriculture Soil Permit. Expires September 30, 2001. Permit No. S-3790. Under the authority of the Federal Plant Pest Act, permission is granted to receive foreign soil samples for use in laboratory analysis.

U.S. Army Corps of Engineers. Expires November 30, 1997. Validated to perform methods 8280 & 8290 for Lockbourne Landfill Site Investigation, Defense Distribution Depot Projects, and assorted projects for the USACE North Pacific Division Laboratory.

U.S. EPA Region V. Expires November 14, 1999. Dioxin in drinking water.

U.S. EPA Region VIII, for the State of Wyoming. Expires November 13, 1997. Dioxin in drinking water.

State of Utah, Department of Health. Expires December 31, 1997. Certificate Number E-166. Certification for the following parameters: Semi-Volatiles and Volatiles under RCRA; Volatiles under Clean Water Act; Dioxin/furans by Method 8280; Drinking water for Dioxin by Method 1613; Metals including Mercury and Microwave Digestion.

Commonwealth of Virginia, Department of General Services, Division of Consolidated Laboratory Services. Expires June 30, 1998. ID # 00341. Dioxin in drinking water.

State of Washington, Department of Ecology. Expires September 11, 1998. Lab Accreditation Number C067. Scope of Accreditation applies to water analyses for Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans, BNA Extr (Semivolatile) Organics and Purgeable (Volatile) Organics.

State of Washington, Department of Health. Expires April 30, 1998. Dioxin in drinking water. Lab I.D. 129

State of West Virginia, Department of Health. Expires December 31, 1997. Certificate No. 9923(C). Dioxin in drinking water.

Revised 10/28/97 RM

Printed 10/29/97

State of Wisconsin, Department of Natural Resources. Expires August 31, 1998. Laboratory ID Number 999869530. Certification for the following categories of Organics: Purgeable, Base/Neutral, Acid, PCBs, and Dioxin. Expires November 14, 1999. Laboratory ID 999869530. Dioxin in drinking water.

PHARMACEUTICAL

Drug Enforcement Agency (DEA). Expires November 30, 1997. Registration number RT01195835. Controlled substance registration for schedules 1,2,3,3N,4,5.

N.C. Department of Human Resources. Expires October 31, 1998. Registration number NC-PT 0000 0031. North Carolina controlled substances registration. Application submitted for renewal.

Food & Drug Administration (FDA) Registration. Expires June 1998. ID #'s 001500 1053481. Annual registration of drug establishment. Annual registration of drug establishment.

OTHER

Clinical Laboratory Improvement Amendments (CLIA) Registration. Expires May 30, 1999. ID # 34D0705123. Department of Health & Human Services, Health Care Financing Administration.

U.S. EPA Large Quantity Hazardous Waste Generator. No expiration date. EPA ID #NCD982156879. Permit indicates that the laboratory is a large generator of hazardous waste.

North Carolina Radioactive Materials License. Expires April 30 1998. License No. 032-0954-1. License authorizes the licensee to receive, acquire, own, possess, transfer, import and use such radioactive materials as designated.

North Carolina General License for Radiation Protection. No. expiration date. License No. 032-875-OG. The general license applies only to radioactive material contained in devices which have been manufactured and labeled in accordance with specific requirements.

ABBREVIATIONS

BH = Back Half
CCB = Continuing Calibration Blank
CCV = Continuing Calibration Verification
CHECK HS = Check High Standard
D = DUP = Analytical Duplicate (Prepared Duplicate)
DA = Duplicate Analysis
FH = Front Half
FV = Final Digestate Volume
ICB = Initial Calibration Blank
ICV = Initial Calibration Verification
ICSAB = Interference Check Solution (Solution AB)
I = Initial
F = Final
Solution AB contains common interferents in addition to the analyte of interest.
IDL = Instrument Detection Limit
L = Serial Dilution
LCS = Laboratory Control Spike Sample
MB = Method Blank
MPV = Mercury Preparation Volume
MS = Pre-digestion Spike
MSD = Pre-digestion Spike Duplicate
N/A = Not Applicable
N/Av = Not Available
N/V = Not Valid
PDS = Post-digestion Spike
%REC = Percent Recovery
RDL = Reporting Detection Limit
RPD = Relative Percent Difference
T = Analytical Triplicate (Prepared Triplicate; for Hg analysis by Method 7471 only)
TV = Total Sample Volume
< = Analyte concentration in the sample is less than the respective RDL

STANDARD CONCENTRATIONS
for the TJA 61E TRACE ANALYZER

Analyte	Units	High Std	ICV/CCV	ICSAB	RDL	Wavelength
Ag	ppb	1000	500	500	1	3280
As	ppb	1000	500	500	5	1890
Al	ppb	1000	500	500000	50	3082
B	ppb	1000	500	500	7	2496
Ba	ppb	1000	500	500	2	4934
Be	ppb	1000	500	500	1	3130
Ca	ppb	1000	500	500000	60	3179
Cd	ppb	1000	500	500	1	2265
Ce	ppb	1000	500	500	3	4186
Co	ppb	1000	500	500	1	2286
Cr	ppb	1000	500	500	2	2677
Cu	ppb	1000	500	500	2	3247
Fe	ppb	1000	500	200000	40	2714
K	ppb	10000	5000	19000	220	7664
Li	ppb	1000	500	500	1	6706
Mg	ppb	1000	500	500000	30	2790
Mn	ppb	1000	500	500	2	2576
Mo	ppb	1000	500	500	2	2020
Na	ppb	10000	5000	5000	300	3302
Ni	ppb	1000	500	500	3	2316
P	ppb	1000	500	500	30	2149
Pb	ppb	1000	500	500	2	2203
Sb	ppb	1000	500	500	4	2068
Se	ppb	1000	500	500	3	1960
Sn	ppb	1000	500	500	13	1899
Sr	ppb	1000	500	650	1	4215
Ti	ppb	1000	500	500	8	3349
Tl	ppb	1000	500	500	5	1908
V	ppb	1000	500	500	2	2924
Zn	ppb	1000	500	500	12	2062

Note: Use this reference page to review the raw data from the TJA 61E Trace Analyzer.

This page includes the standard concentrations for the check high standard, initial calibration verification (ICV), continuing calibration verification (CCV), and the interference check solution (ICSAB). In addition the reporting detection limit (RDL) and wavelength are reported for each analyte.

Revision Date: 15-Jul-96

CALCULATIONS FOR AIR SAMPLES

RESULTS FOR TRACE METALS (except mercury):

$$\text{RESULT in } \mu g \text{ (Front Half)} = \frac{\mu g/L * FV\ (mL) * DF}{1000\ mL/L}$$

$$\text{RESULT in } \mu g \text{ (Back Half \& Impingers)} = \frac{\mu g/L * TV\ (mL) * FV\ (mL) * DF}{mL\ used * 1000\ mL/L}$$

FV = final volume in mL
TV = total volume in mL
DF = Dilution Factor

The RESULTS for combined Front Half & Back Half samples use the same calculation as the Back Half & impinger samples.

RESULTS FOR MERCURY (Hg):

RESULT in µg (Front Half) = µg/L * (mL FV/mL aliquot) * MPV * DF

RESULT in µg (Back Half & Impingers) = µg/L * (mL TV/mL aliquot) * MPV * DF

MPV = mercury preparation volume = 0.1 L

%REC (Percent Recovery) for MS/MSD Hg spikes:

$$\%REC = \frac{\text{spike sample results - original sample results}}{\text{true spike sample results}} * 100$$

NOTE: Original sample results less than the RDL are not used in calulations.

%REC (Percent Recovery) for PDS:

$$\%REC = \frac{\text{Spike sample } \mu g/L \text{ conc. - original sample } \mu g/L \text{ conc.}}{\text{spike conc. } (\mu g/L)} * 100$$

%REC (Percent Recovery) for LCS/LCSD:

$$\%REC = \frac{\text{Spike sample } \mu g/L \text{ conc.}}{\text{spike conc. } (\mu g/L)} * 100$$

RPDs:

$$RPD = \frac{|\text{Result 2 - Result 1}|}{(\text{Result 2 + Result 1})/2} * 100$$

Rev. 2-Oct-96

Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-1-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-84-1ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	2.411	N/A	N/A	100	1	0.241
As	-0.017	N/A	N/A	100	1	< 0.500
Ba	539.788	N/A	N/A	100	1	54.0
Be	-0.158	N/A	N/A	100	1	< 0.100
Cd	-3.194	N/A	N/A	100	1	< 0.100
Co	-32.448	N/A	N/A	100	1	< 0.100
Cr	125.993	N/A	N/A	100	1	12.6
Cu	71.253	N/A	N/A	100	1	7.13
Mn	677.158	N/A	N/A	100	1	67.7
Ni	59.056	N/A	N/A	100	1	5.91
P	505.792	N/A	N/A	100	1	50.6
Pb	30.749	N/A	N/A	100	1	3.07
Sb	38.440	N/A	N/A	100	1	3.84
Se	46.739	N/A	N/A	100	1	4.67
Tl	1.600	N/A	N/A	100	1	< 0.200
Zn	214.073	N/A	N/A	100	1	21.4

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-1-FHACE,FHAR,FILTER FH L
TLI Sample ID:	184-84-1ABC FH L
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.821	N/A	N/A	100	5	< 0.500
As	2.538	N/A	N/A	100	5	< 2.50
Ba	111.725	N/A	N/A	100	5	55.9
Be	0.010	N/A	N/A	100	5	< 0.500
Cd	-0.554	N/A	N/A	100	5	< 0.500
Co	-6.660	N/A	N/A	100	5	< 0.500
Cr	32.500	N/A	N/A	100	5	16.3
Cu	14.199	N/A	N/A	100	5	7.10
Mn	144.188	N/A	N/A	100	5	72.1
Ni	13.322	N/A	N/A	100	5	6.66
P	110.290	N/A	N/A	100	5	55.1
Pb	7.605	N/A	N/A	100	5	3.80
Sb	11.527	N/A	N/A	100	5	5.76
Se	10.881	N/A	N/A	100	5	5.44
Tl	-0.400	N/A	N/A	100	5	< 1.00
Zn	46.879	N/A	N/A	100	5	23.4

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-1-HNO3 BH
TLI Sample ID:	184-84-1DE BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	1.302	1940	1840	100	1	0.137
As	-2.625	1940	1840	100	1	< 0.527
Ba	8.541	1940	1840	100	1	0.901
Be	-0.012	1940	1840	100	1	< 0.105
Cd	4.544	1940	1840	100	1	0.479
Co	-0.340	1940	1840	100	1	< 0.105
Cr	5.779	1940	1840	100	1	0.609
Cu	20.497	1940	1840	100	1	2.16
Mn	22.235	1940	1840	100	1	2.34
Ni	32.856	1940	1840	100	1	3.46
P	562.480	1940	1840	100	1	59.3
Pb	51.852	1940	1840	100	1	5.47
Sb	1.411	1940	1840	100	1	< 0.422
Se	9.124	1940	1840	100	1	0.962
Tl	0.200	1940	1840	100	1	< 0.211
Zn	217.420	1940	1840	100	1	22.9

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-1-HNO3 BH L
TLI Sample ID:	184-84-1DE BH L
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.153	1940	1840	100	5	< 0.527
As	-2.144	1940	1840	100	5	< 2.64
Ba	1.564	1940	1840	100	5	< 1.05
Be	-0.016	1940	1840	100	5	< 0.527
Cd	0.940	1940	1840	100	5	< 0.527
Co	-0.489	1940	1840	100	5	< 0.527
Cr	1.401	1940	1840	100	5	< 1.05
Cu	3.143	1940	1840	100	5	1.66
Mn	3.694	1940	1840	100	5	1.95
Ni	5.411	1940	1840	100	5	2.85
P	108.558	1940	1840	100	5	57.2
Pb	11.312	1940	1840	100	5	5.96
Sb	0.320	1940	1840	100	5	< 2.11
Se	0.079	1940	1840	100	5	< 1.58
Tl	0.500	1940	1840	100	5	< 1.05
Zn	44.302	1940	1840	100	5	23.4

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-2-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-84-2ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	2.154	N/A	N/A	100	1	0.215
As	2.119	N/A	N/A	100	1	< 0.500
Ba	401.536	N/A	N/A	100	1	40.2
Be	-0.235	N/A	N/A	100	1	< 0.100
Cd	1.741	N/A	N/A	100	1	0.174
Co	-23.080	N/A	N/A	100	1	< 0.100
Cr	104.724	N/A	N/A	100	1	10.5
Cu	57.339	N/A	N/A	100	1	5.73
Mn	633.126	N/A	N/A	100	1	63.3
Ni	50.162	N/A	N/A	100	1	5.02
P	463.845	N/A	N/A	100	1	46.4
Pb	24.095	N/A	N/A	100	1	2.41
Sb	38.476	N/A	N/A	100	1	3.85
Se	37.508	N/A	N/A	100	1	3.75
Tl	0.600	N/A	N/A	100	1	< 0.200
Zn	183.228	N/A	N/A	100	1	18.3

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-2-FHACE,FHAR,FILTER FH DA
TLI Sample ID:	184-84-2ABC FH DA
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	2.187	N/A	N/A	100	1	0.219
As	-2.546	N/A	N/A	100	1	< 0.500
Ba	401.409	N/A	N/A	100	1	40.1
Be	-0.310	N/A	N/A	100	1	< 0.100
Cd	0.762	N/A	N/A	100	1	< 0.100
Co	-25.496	N/A	N/A	100	1	< 0.100
Cr	104.896	N/A	N/A	100	1	10.5
Cu	58.095	N/A	N/A	100	1	5.81
Mn	630.072	N/A	N/A	100	1	63.0
Ni	50.148	N/A	N/A	100	1	5.01
P	444.771	N/A	N/A	100	1	44.5
Pb	21.354	N/A	N/A	100	1	2.14
Sb	32.953	N/A	N/A	100	1	3.30
Se	39.887	N/A	N/A	100	1	3.99
Tl	N/A	N/A	N/A	N/A	N/A	N/A
Zn	181.032	N/A	N/A	100	1	18.1

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-2-HNO3 BH
TLI Sample ID:	184-84-2DE BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.635	1910	1810	100	1	< 0.106
As	-3.373	1910	1810	100	1	< 0.528
Ba	7.088	1910	1810	100	1	0.748
Be	-0.003	1910	1810	100	1	< 0.106
Cd	1.921	1910	1810	100	1	0.203
Co	-0.164	1910	1810	100	1	< 0.106
Cr	5.627	1910	1810	100	1	0.594
Cu	13.779	1910	1810	100	1	1.45
Mn	110.581	1910	1810	100	1	11.7
Ni	14.447	1910	1810	100	1	1.52
P	660.558	1910	1810	100	1	69.7
Pb	28.585	1910	1810	100	1	3.02
Sb	0.257	1910	1810	100	1	< 0.422
Se	6.474	1910	1810	100	1	0.683
Tl	0.800	1910	1810	100	1	< 0.211
Zn	73.430	1910	1810	100	1	7.75

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-2-HNO3 BH DA
TLI Sample ID:	184-84-2DE BH DA
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	-1.000	1910	1810	100	1	< 0.106
As	-2.338	1910	1810	100	1	< 0.528
Ba	6.838	1910	1810	100	1	0.722
Be	-0.058	1910	1810	100	1	< 0.106
Cd	1.709	1910	1810	100	1	0.180
Co	-1.009	1910	1810	100	1	< 0.106
Cr	4.196	1910	1810	100	1	0.443
Cu	12.233	1910	1810	100	1	1.29
Mn	109.478	1910	1810	100	1	11.6
Ni	13.690	1910	1810	100	1	1.44
P	650.906	1910	1810	100	1	68.7
Pb	28.606	1910	1810	100	1	3.02
Sb	-5.254	1910	1810	100	1	< 0.422
Se	7.037	1910	1810	100	1	0.743
Tl	N/A	N/A	N/A	N/A	N/A	N/A
Zn	71.752	1910	1810	100	1	7.57

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-3-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-84-3ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.873	N/A	N/A	100	1	< 0.100
As	3.733	N/A	N/A	100	1	< 0.500
Ba	692.085	N/A	N/A	100	1	69.2
Be	-0.489	N/A	N/A	100	1	< 0.100
Cd	-1.272	N/A	N/A	100	1	< 0.100
Co	-17.019	N/A	N/A	100	1	< 0.100
Cr	117.209	N/A	N/A	100	1	11.7
Cu	103.925	N/A	N/A	100	1	10.4
Mn	1075.564	N/A	N/A	100	1	108
Ni	63.151	N/A	N/A	100	1	6.32
P	762.477	N/A	N/A	100	1	76.2
Pb	31.982	N/A	N/A	100	1	3.20
Sb	39.115	N/A	N/A	100	1	3.91
Se	39.481	N/A	N/A	100	1	3.95
Tl	-0.900	N/A	N/A	100	1	< 0.200
Zn	248.755	N/A	N/A	100	1	24.9

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-3-HNO3 BH
TLI Sample ID:	184-84-3DE BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.472	1530	1430	100	1	< 0.107
As	-4.540	1530	1430	100	1	< 0.535
Ba	6.268	1530	1430	100	1	0.671
Be	-0.046	1530	1430	100	1	< 0.107
Cd	1.830	1530	1430	100	1	0.196
Co	-1.202	1530	1430	100	1	< 0.107
Cr	8.405	1530	1430	100	1	0.899
Cu	42.971	1530	1430	100	1	4.60
Mn	77.676	1530	1430	100	1	8.31
Ni	16.960	1530	1430	100	1	1.81
P	645.299	1530	1430	100	1	69.0
Pb	26.987	1530	1430	100	1	2.89
Sb	0.675	1530	1430	100	1	< 0.428
Se	9.011	1530	1430	100	1	0.964
Tl	0.900	1530	1430	100	1	< 0.214
Zn	73.823	1530	1430	100	1	7.90

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	I-M29-1-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-84-4ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	11.971	N/A	N/A	100	1	1.20
As	50.286	N/A	N/A	100	1	5.03
Ba	10818.790	N/A	N/A	100	1	1080
Be	-39.185	N/A	N/A	100	1	< 0.100
Cd	200.137	N/A	N/A	100	1	20.0
Co	631.576	N/A	N/A	100	1	63.2
Cr	953.666	N/A	N/A	100	1	95.4
Cu	6107.147	N/A	N/A	100	1	611
Mn	24721.447	N/A	N/A	100	1	2470
Ni	574.107	N/A	N/A	100	1	57.4
P	42128.582	N/A	N/A	100	1	4210
Pb	804.716	N/A	N/A	100	1	80.5
Sb	-2.931	N/A	N/A	100	1	< 0.400
Se	-254.506	N/A	N/A	100	1	< 0.300
Tl	60.800	N/A	N/A	100	2	12.2
Zn	7400.913	N/A	N/A	100	1	740

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	I-M29-1-HNO3 BH
TLI Sample ID:	184-84-4D BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	-0.554	750	650	100	1	< 0.115
As	-5.631	750	650	100	1	< 0.577
Ba	4.733	750	650	100	1	0.546
Be	-0.096	750	650	100	1	< 0.115
Cd	1.898	750	650	100	1	0.219
Co	-1.351	750	650	100	1	< 0.115
Cr	3.620	750	650	100	1	0.418
Cu	13.739	750	650	100	1	1.59
Mn	12.341	750	650	100	1	1.42
Ni	13.553	750	650	100	1	1.56
P	345.681	750	650	100	1	39.9
Pb	41.442	750	650	100	1	4.78
Sb	-3.091	750	650	100	1	< 0.462
Se	1.140	750	650	100	1	< 0.346
Tl	0.100	750	650	100	1	< 0.231
Zn	185.580	750	650	100	1	21.4

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-FB,FHACE,FHAR,2-FILTER 8/27/97 FH
TLI Sample ID:	184-84-5ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	1.546	N/A	N/A	100	1	0.155
As	3.166	N/A	N/A	100	1	< 0.500
Ba	124.105	N/A	N/A	100	1	12.4
Be	0.620	N/A	N/A	100	1	< 0.100
Cd	-4.483	N/A	N/A	100	1	< 0.100
Co	-31.070	N/A	N/A	100	1	< 0.100
Cr	106.758	N/A	N/A	100	1	10.7
Cu	46.528	N/A	N/A	100	1	4.65
Mn	377.059	N/A	N/A	100	1	37.7
Ni	48.807	N/A	N/A	100	1	4.88
P	289.196	N/A	N/A	100	1	28.9
Pb	-7.469	N/A	N/A	100	1	< 0.200
Sb	47.662	N/A	N/A	100	1	4.77
Se	41.838	N/A	N/A	100	1	4.18
Tl	-0.600	N/A	N/A	100	1	< 0.200
Zn	101.157	N/A	N/A	100	1	10.1

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	O-M29-FB-FHAR,HNO3 BH
TLI Sample ID:	184-84-5BD BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	2.048	75	75	100	1	0.205
As	-2.730	75	75	100	1	< 0.500
Ba	0.709	75	75	100	1	< 0.200
Be	-0.041	75	75	100	1	< 0.100
Cd	0.216	75	75	100	1	< 0.100
Co	-0.925	75	75	100	1	< 0.100
Cr	0.846	75	75	100	1	< 0.200
Cu	2.565	75	75	100	1	0.256
Mn	4.555	75	75	100	1	0.456
Ni	5.815	75	75	100	1	0.582
P	-10.251	75	75	100	1	< 3.00
Pb	3.934	75	75	100	1	0.393
Sb	0.598	75	75	100	1	< 0.400
Se	-2.147	75	75	100	1	< 0.300
Tl	0.700	75	75	100	1	< 0.200
Zn	12.577	75	75	100	1	1.26

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	I-M29-2-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-84-6ABC FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	10.016	N/A	N/A	100	1	1.00
As	38.155	N/A	N/A	100	1	3.82
Ba	9226.019	N/A	N/A	100	1	923
Be	-18.610	N/A	N/A	100	1	< 0.100
Cd	142.849	N/A	N/A	100	1	14.3
Co	550.989	N/A	N/A	100	1	55.1
Cr	872.942	N/A	N/A	100	1	87.3
Cu	6548.149	N/A	N/A	100	1	655
Mn	23324.377	N/A	N/A	100	1	2330
Ni	555.005	N/A	N/A	100	1	55.5
P	38028.563	N/A	N/A	100	1	3800
Pb	779.071	N/A	N/A	100	1	77.9
Sb	-25.276	N/A	N/A	100	1	< 0.400
Se	-179.306	N/A	N/A	100	1	< 0.300
Tl	85.800	N/A	N/A	100	1	8.58
Zn	6658.945	N/A	N/A	100	1	666

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Sample Report

Client Sample ID:	I-M29-2-HNO3 BH
TLI Sample ID:	184-84-6D BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.446	1000	900	100	1	< 0.111
As	-1.309	1000	900	100	1	< 0.556
Ba	11.693	1000	900	100	1	1.30
Be	-0.062	1000	900	100	1	< 0.111
Cd	3.081	1000	900	100	1	0.342
Co	0.488	1000	900	100	1	< 0.111
Cr	9.077	1000	900	100	1	1.01
Cu	48.382	1000	900	100	1	5.38
Mn	52.124	1000	900	100	1	5.79
Ni	26.162	1000	900	100	1	2.91
P	667.446	1000	900	100	1	74.2
Pb	46.649	1000	900	100	1	5.18
Sb	-0.448	1000	900	100	1	< 0.444
Se	3.567	1000	900	100	1	0.396
Tl	-0.200	1000	900	100	1	< 0.222
Zn	150.872	1000	900	100	1	16.8

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	I-M29-3-FHACE,FHAR,FILTER,FH CATCH FH
TLI Sample ID:	184-84-7ABCD FH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	6.711	N/A	N/A	100	1	0.671
As	49.132	N/A	N/A	100	1	4.91
Ba	7308.835	N/A	N/A	100	1	731
Be	-11.747	N/A	N/A	100	1	< 0.100
Cd	94.863	N/A	N/A	100	1	9.49
Co	454.762	N/A	N/A	100	1	45.5
Cr	756.238	N/A	N/A	100	1	75.6
Cu	6031.224	N/A	N/A	100	1	603
Mn	22375.820	N/A	N/A	100	1	2240
Ni	463.733	N/A	N/A	100	1	46.4
P	48808.512	N/A	N/A	100	1	4880
Pb	778.832	N/A	N/A	100	1	77.9
Sb	-1.819	N/A	N/A	100	1	< 0.400
Se	-92.400	N/A	N/A	100	1	< 0.300
Tl	20.800	N/A	N/A	100	1	2.08
Zn	5198.991	N/A	N/A	100	1	520

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Client: **Pacific Environmental Services**
Project Number: **43411**

Sample Report

Client Sample ID:	I-M29-3-HNO3 BH
TLI Sample ID:	184-84-7EF BH
Date Received:	September 26, 1997
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	-0.107	1100	1000	100	1	< 0.110
As	-3.043	1100	1000	100	1	< 0.550
Ba	28.773	1100	1000	100	1	3.17
Be	-0.035	1100	1000	100	1	< 0.110
Cd	2.943	1100	1000	100	1	0.324
Co	0.034	1100	1000	100	1	< 0.110
Cr	11.196	1100	1000	100	1	1.23
Cu	38.729	1100	1000	100	1	4.26
Mn	95.115	1100	1000	100	1	10.5
Ni	35.373	1100	1000	100	1	3.89
P	1181.695	1100	1000	100	1	130
Pb	43.604	1100	1000	100	1	4.80
Sb	-0.121	1100	1000	100	1	< 0.440
Se	0.198	1100	1000	100	1	< 0.330
Tl	0.000	1100	1000	100	1	< 0.220
Zn	298.429	1100	1000	100	1	32.8

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Client: **Pacific Environmental Services**
Project Number: 43411

QA: Serial Dilution

Client Sample ID:	O-M29-1-FHACE,FHAR,FILTER FH	O-M29-1-FHACE,FHAR,FILTER FH L
TLI Sample ID:	184-84-1ABC FH	184-84-1ABC FH L
Date Prepared:	October 14-16, 1997	October 14-16, 1997
Date Analyzed:	October 20, 1997	October 20, 1997
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
Ag	0.241	2.411	< 0.500	0.821	<RDL
As	< 0.500	-0.017	< 2.50	2.538	<RDL
Ba	54.0	539.788	55.9	111.725	3.46%
Be	< 0.100	-0.158	< 0.500	0.010	<RDL
Cd	< 0.100	-3.194	< 0.500	-0.554	<RDL
Co	< 0.100	-32.448	< 0.500	-6.660	<RDL
Cr	12.6	125.993	16.3	32.500	25.6%
Cu	7.13	71.253	7.10	14.199	<RDL
Mn	67.7	677.158	72.1	144.188	6.29%
Ni	5.91	59.056	6.66	13.322	<RDL
P	50.6	505.792	55.1	110.290	<RDL
Pb	3.07	30.749	3.80	7.605	<RDL
Sb	3.84	38.440	5.76	11.527	<RDL
Se	4.67	46.739	5.44	10.881	<RDL
Tl	< 0.200	1.600	< 1.00	-0.400	<RDL
Zn	21.4	214.073	23.4	46.879	<RDL

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Client: **Pacific Environmental Services**
Project Number: 43411

QA: Serial Dilution

Client Sample ID:	O-M29-1-HNO3 BH	O-M29-1-HNO3 BH L
TLI Sample ID:	184-84-1DE BH	184-84-1DE BH L
Date Prepared:	October 14-16, 1997	October 14-16, 1997
Date Analyzed:	October 20, 1997	October 20, 1997
Matrix:	Air	Air

	Native Sample		Serial Dilution		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
Ag	0.137	1.302	< 0.527	0.153	<RDL
As	< 0.527	-2.625	< 2.64	-2.144	<RDL
Ba	0.901	8.541	< 1.05	1.564	<RDL
Be	< 0.105	-0.012	< 0.527	-0.016	<RDL
Cd	0.479	4.544	< 0.527	0.940	<RDL
Co	< 0.105	-0.340	< 0.527	-0.489	<RDL
Cr	0.609	5.779	< 1.05	1.401	<RDL
Cu	2.16	20.497	1.66	3.143	<RDL
Mn	2.34	22.235	1.95	3.694	<RDL
Ni	3.46	32.856	2.85	5.411	<RDL
P	59.3	562.480	57.2	108.558	<RDL
Pb	5.47	51.852	5.96	11.312	<RDL
Sb	< 0.422	1.411	< 2.11	0.320	<RDL
Se	0.962	9.124	< 1.58	0.079	<RDL
Tl	< 0.211	0.200	< 1.05	0.500	<RDL
Zn	22.9	217.420	23.4	44.302	<RDL

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Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Duplicate

Client Sample ID:	O-M29-2-FHACE,FHAR,FILTER FH	O-M29-2-FHACE,FHAR,FILTER FH DA
TLI Sample ID:	184-84-2ABC FH	184-84-2ABC FH DA
Date Prepared:	October 14-16, 1997	October 14-16, 1997
Date Analyzed:	October 20, 1997	October 20, 1997
Matrix:	Air	Air

	Sample		Duplicate		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
Ag	0.215	2.154	0.219	2.187	<RDL
As	< 0.500	2.119	< 0.500	-2.546	<RDL
Ba	40.2	401.536	40.1	401.409	0.249%
Be	< 0.100	-0.235	< 0.100	-0.310	<RDL
Cd	0.174	1.741	< 0.100	0.762	<RDL
Co	< 0.100	-23.080	< 0.100	-25.496	<RDL
Cr	10.5	104.724	10.5	104.896	0.000%
Cu	5.73	57.339	5.81	58.095	1.39%
Mn	63.3	633.126	63.0	630.072	0.475%
Ni	5.02	50.162	5.01	50.148	0.199%
P	46.4	463.845	44.5	444.771	4.18%
Pb	2.41	24.095	2.14	21.354	11.9%
Sb	3.85	38.476	3.30	32.953	<RDL
Se	3.75	37.508	3.99	39.887	6.20%
Tl	< 0.20	0.600	N/A	N/A	N/A
Zn	18.3	183.228	18.1	181.032	1.10%

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Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Duplicate

Client Sample ID:	O-M29-2-HNO3 BH	O-M29-2-HNO3 BH DA
TLI Sample ID:	184-84-2DE BH	184-84-2DE BH DA
Date Prepared:	October 14-16, 1997	October 14-16, 1997
Date Analyzed:	October 20, 1997	October 20, 1997
Matrix:	Air	Air

	Sample		Duplicate		
Analyte	Total ug Result	ug/L Conc.	Total ug Result	ug/L Conc.	RPD
Ag	< 0.106	0.635	< 0.106	-1.000	<RDL
As	< 0.528	-3.373	< 0.528	-2.338	<RDL
Ba	0.748	7.088	0.722	6.838	<RDL
Be	< 0.106	-0.003	< 0.106	-0.058	<RDL
Cd	0.203	1.921	0.18	1.709	<RDL
Co	< 0.106	-0.164	< 0.106	-1.009	<RDL
Cr	0.594	5.627	0.443	4.196	<RDL
Cu	1.45	13.779	1.29	12.233	<RDL
Mn	11.7	110.581	11.6	109.478	0.858%
Ni	1.52	14.447	1.44	13.690	<RDL
P	69.7	660.558	68.7	650.906	1.45%
Pb	3.02	28.585	3.02	28.606	0.000%
Sb	< 0.422	0.257	< 0.422	-5.254	<RDL
Se	0.683	6.474	0.743	7.037	<RDL
Tl	< 0.211	0.800	N/A	N/A	N/A
Zn	7.75	73.430	7.57	71.752	<RDL

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Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	O-M29-1-FHACE,FHAR,FILTER FH PDS	
TLI Sample ID:	184-84-1ABC FH PDS	
Date Prepared:	October 14-16, 1997	
Date Analyzed:	October 20, 1997	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
Ag	42.33	50	80%				---
As	47.28	50	95%				---
Ba	575.52	50	Spike Low				---
Be	44.63	50	89%				---
Cd	43.53	50	87%				---
Co	17.32	50	35%				---
Cr	172.26	50	93%				---
Cu	118.97	50	95%				---
Mn	709.59	50	Spike Low				---
Ni	105.88	50	94%				---
P	1391.02	1000	89%				---
Pb	75.53	50	90%				---
Sb	95.35	50	114%				---
Se	85.76	50	78%				---
Tl	20.40	25	82%				---
Zn	397.21	200	92%				---

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Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	O-M29-1-HNO3 BH PDS	
TLI Sample ID:	184-84-1DE BH PDS	
Date Prepared:	October 14-16, 1997	
Date Analyzed:	October 20, 1997	
Matrix:	Air	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
Ag	42.65	50	83%				---
As	42.89	50	86%				---
Ba	58.97	50	101%				---
Be	46.31	50	93%				---
Cd	51.82	50	95%				---
Co	47.41	50	95%				---
Cr	52.63	50	94%				---
Cu	68.63	50	96%				---
Mn	63.17	50	82%				---
Ni	79.71	50	94%				---
P	1419.02	1000	86%				---
Pb	96.36	50	89%				---
Sb	45.56	50	91%				---
Se	50.52	50	83%				---
Tl	21.90	25	88%				---
Zn	389.40	200	86%				---

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Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Method Blank

TLI Sample ID:	43411 MB
Date Prepared:	October 14-16, 1997
Date Analyzed:	October 20, 1997
Matrix:	N/A

	Method Blank		
Analyte	Recovered Amount (ug/L)	Detection Limit (ug/L)	Pass or Fail
Ag	-0.31	1	Pass
As	-0.83	5	Pass
Ba	0.08	2	Pass
Be	-0.01	1	Pass
Cd	0.03	1	Pass
Co	-0.32	1	Pass
Cr	0.26	2	Pass
Cu	0.73	2	Pass
Mn	0.39	2	Pass
Ni	10.14	3	Fail
P	-5.19	30	Pass
Pb	0.71	2	Pass
Sb	-0.06	4	Pass
Se	0.50	3	Pass
Tl	-1.30	2	Pass
Zn	2.79	12	Pass
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Printed: 01-Nov-97 at 03:11 PM

Client: **Pacific Environmental Services**
Project Number: **43411**

QA: Lab Control Spikes

TLI Sample ID:	43411 LCS	
Date Prepared:	October 14-16, 1997	
Date Analyzed:	October 20, 1997	
Matrix:	N/A	

	Lab Control Spike			Lab Control Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
Ag	42.95	50	86%				---
As	44.95	50	90%				---
Ba	46.80	50	94%				---
Be	45.78	50	92%				---
Cd	46.59	50	93%				---
Co	46.65	50	93%				---
Cr	47.19	50	94%				---
Cu	47.89	50	96%				---
Mn	47.50	50	95%				---
Ni	65.43	50	131%				---
P	908.82	1000	91%				---
Pb	45.94	50	92%				---
Sb	46.51	50	93%				---
Se	46.39	50	93%				---
Tl	36.40	50	73%				---
Zn	194.41	200	97%				---

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Client: Pacific Environmental Services
Project Number: 43377

Sample Report

Client Sample ID:	O-M29-RB-FHACE,FHAR,FILTER FH
TLI Sample ID:	184-50-6ABC FH
Date Received:	September 24, 1997
Date Prepared:	October 10-14, 1997
Date Analyzed:	October 16,20,21 & 22, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	2.705	N/A	N/A	100	1	0.270
As	3.407	N/A	N/A	100	1	< 0.500
Ba	43.292	N/A	N/A	100	1	4.33
Be	-0.112	N/A	N/A	100	1	< 0.100
Cd	-6.215	N/A	N/A	100	1	< 0.100
Co	-29.571	N/A	N/A	100	1	< 0.100
Cr	93.294	N/A	N/A	100	1	9.33
Cu	10.580	N/A	N/A	100	1	1.06
Mn	9.109	N/A	N/A	100	1	0.911
Ni	46.803	N/A	N/A	100	1	4.68
P	17.600	N/A	N/A	100	1	< 3.00
Pb	-12.883	N/A	N/A	100	1	< 0.200
Sb	41.765	N/A	N/A	100	1	4.18
Se	43.531	N/A	N/A	100	1	4.35
Tl	-3.00	N/A	N/A	100	1	< 0.200
Zn	25.989	N/A	N/A	100	1	2.60

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Client: Pacific Environmental Services
Project Number: 43377

Sample Report

Client Sample ID:	O-M29-RB-HNO3 BH
TLI Sample ID:	184-50-6BD BH
Date Received:	September 24, 1997
Date Prepared:	October 10-14, 1997
Date Analyzed:	October 16,20,21 & 22, 1997
Matrix:	Air

Analyte	Conc. (ug/L)	mL Total Vol.	mL Used	mL Final Vol.	Dilution Factor	Total ug Result
Ag	0.061	300	300	100	1	< 0.100
As	-8.994	300	300	100	1	< 0.500
Ba	3.256	300	300	100	1	0.326
Be	-0.044	300	300	100	1	< 0.100
Cd	-0.536	300	300	100	1	< 0.100
Co	-1.619	300	300	100	1	< 0.100
Cr	2.217	300	300	100	1	0.222
Cu	14.381	300	300	100	1	1.44
Mn	346.891	300	300	100	1	34.7
Ni	6.056	300	300	100	1	0.606
P	553.359	300	300	100	1	55.3
Pb	2.647	300	300	100	1	0.265
Sb	1.642	300	300	100	1	< 0.400
Se	-0.017	300	300	100	1	< 0.300
Tl	-1.50	300	300	100	1	< 0.200
Zn	20.330	300	300	100	1	2.03

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Printed: 03-Nov-97 at 01:08 PM

lient: Pacific Environmental Services
roject Number: 43411

ample Report

te Received:	September 26, 1997
te Prepared:	October 14-20, 1997
te Analyzed:	October 20-22, 1997
TA FILE:	AB826, AB827 & AB828
trix:	Air

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method:	29
Instrument: P E Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

nt Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	Dilt. FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
M29-1-FHACE,FHAR,FILTER FH	184-84-1ABC	0.022	N/A	100	5	1	< 0.400	–	–	–
M29-1-FHACE,FHAR,FILTER FH D	184-84-1ABC D	0.006	N/A	100	5	1	< 0.400	< 0.400	–	–
M29-1-HNO3 BH	184-84-1DE	0.016	1940	N/A	5	1	< 7.76	–	–	–
M29-1-HNO3 BH D	184-84-1DE D	0.020	1940	N/A	5	1	< 7.76	< 7.76	–	–
M29-1-BHAR HNO3	184-84-1F	0.019	110	N/A	5	1	< 0.440	–	–	–
M29-1-BHAR HNO3 D	184-84-1F D	0.012	110	N/A	5	1	< 0.440	< 0.440	–	–
M29-1-KMnO4	184-84-1G	0.070	450	N/A	5	1	< 1.80	–	–	–
M29-1-KMnO4 D	184-84-1G D	0.072	450	N/A	5	1	< 1.80	< 1.80	–	–
M29-1-HCl	184-84-1H	0.011	89	N/A	5	1	< 0.356	–	–	–
M29-1-HCl D	184-84-1H D	0.002	89	N/A	5	1	< 0.356	< 0.356	–	–
M29-2-FHACE,FHAR,FILTER FH	184-84-2ABC	0.006	N/A	100	5	1	< 0.400	–	–	–
M29-2-FHACE,FHAR,FILTER FH D	184-84-2ABC D	-0.002	N/A	100	5	1	< 0.400	< 0.400	–	–
M29-2-HNO3 BH	184-84-2DE	0.019	1910	N/A	5	1	< 7.64	–	–	–
M29-2-HNO3 BH D	184-84-2DE D	0.019	1910	N/A	5	1	< 7.64	< 7.64	–	–
M29-2-BHAR HNO3	184-84-2F	0.000	90	N/A	5	1	< 0.360	–	–	–
M29-2-BHAR HNO3 D	184-84-2F D	0.000	90	N/A	5	1	< 0.360	< 0.360	–	–
M29-2-KMnO4	184-84-2G	0.033	455	N/A	5	1	< 1.82	–	–	–
M29-2-KMnO4 D	184-84-2G D	0.093	455	N/A	5	1	< 1.82	< 1.82	–	–
M29-2-HCl	184-84-2H	0.019	46	N/A	5	1	< 0.184	–	–	–
M29-2-HCl D	184-84-2H D	0.014	46	N/A	5	1	< 0.184	< 0.184	–	–
M29-3-FHACE,FHAR,FILTER FH	184-84-3ABC	0.009	N/A	100	5	1	< 0.400	–	–	–
M29-3-FHACE,FHAR,FILTER FH D	184-84-3ABC D	0.008	N/A	100	5	1	< 0.400	< 0.400	–	–
M29-3-HNO3 BH	184-84-3DE	0.025	1530	N/A	5	1	< 6.12	–	–	–
M29-3-HNO3 BH D	184-84-3DE D	0.014	1530	N/A	5	1	< 6.12	< 6.12	–	–
M29-3-BHAR HNO3	184-84-3F	0.012	85	N/A	5	1	< 0.340	–	–	–
M29-3-BHAR HNO3 D	184-84-3F D	0.006	85	N/A	5	1	< 0.340	< 0.340	–	–
M29-3-KMnO4	184-84-3G	0.107	265	N/A	5	1	< 1.06	–	–	–
M29-3-KMnO4 D	184-84-3G D	0.106	265	N/A	5	1	< 1.06	< 1.06	–	–
M29-3-HCl	184-84-3H	0.016	50	N/A	5	1	< 0.200	–	–	–
M29-3-HCl D	184-84-3H D	0.019	50	N/A	5	1	< 0.200	< 0.200	–	–

Client: Pacific Environmental Services
Project Number: 43411

Sample Report

Date Received:	September 26, 1997
Date Prepared:	October 14-20, 1997
Date Analyzed:	October 20-22, 1997
DATA FILE:	AB826, AB827 & AB828
Matrix:	Air

ANALYTE:	Hg
ug/L RDL:	0.2
Analysis Method:	29
Instrument:	P E Zeeman 5100
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
I-M29-1-FHACE,FHAR,FILTER FH	184-84-4ABC	0.059	N/A	100	5	1	< 0.400	–	–	–
I-M29-1-FHACE,FHAR,FILTER FH D	184-84-4ABC D	0.062	N/A	100	5	1	< 0.400	< 0.400	–	–
I-M29-1-HNO3 BH	184-84-4D	0.026	750	N/A	5	1	< 3.00	–	–	–
I-M29-1-HNO3 BH D	184-84-4D D	0.016	750	N/A	5	1	< 3.00	< 3.00	–	–
I-M29-1-KMnO4	184-84-4E	0.061	335	N/A	5	1	< 1.34	–	–	–
I-M29-1-KMnO4 D	184-84-4E D	0.048	335	N/A	5	1	< 1.34	< 1.34	–	–
I-M29-1-HCl	184-84-4F	0.011	49	N/A	5	1	< 0.196	–	–	–
I-M29-1-HCl D	184-84-4F D	0.012	49	N/A	5	1	< 0.196	< 0.196	–	–
O-M29-FB-FHACE,FHAR,2-FILTER 8/27/97 FH	184-84-5ABC	0.005	N/A	100	5	1	< 0.400	–	–	–
O-M29-FB-FHACE,FHAR,2-FILTER 8/27/97 FH D	184-84-5ABC D	0.002	N/A	100	5	1	< 0.400	< 0.400	–	–
O-M29-FB-FHAR,HNO3 BH	184-84-5BD	0.050	75	N/A	5	1	< 0.300	–	–	–
O-M29-FB-FHAR,HNO3 BH D	184-84-5BD D	0.033	75	N/A	5	1	< 0.300	< 0.300	–	–
O-M29-FB-BHAR HNO3	184-84-5E	0.041	75	N/A	5	1	< 0.300	–	–	–
O-M29-FB-BHAR HNO3 D	184-84-5E D	0.036	75	N/A	5	1	< 0.300	< 0.300	–	–
O-M29-FB-KMnO4	184-84-5F	0.030	400	N/A	5	1	< 1.60	–	–	–
O-M29-FB-KMnO4 D	184-84-5F D	0.025	400	N/A	5	1	< 1.60	< 1.60	–	–
O-M29-FB-HCl	184-84-5GF	0.044	50	N/A	5	1	< 0.200	–	–	–
O-M29-FB-HCl D	184-84-5GF D	0.041	50	N/A	5	1	< 0.200	< 0.200	–	–
I-M29-2-FHACE,FHAR,FILTER FH	184-84-6ABC	0.081	N/A	100	5	1	< 0.400	–	–	–
I-M29-2-FHACE,FHAR,FILTER FH D	184-84-6ABC D	0.078	N/A	100	5	1	< 0.400	< 0.400	–	–
I-M29-2-HNO3 BH	184-84-6D	0.044	1000	N/A	5	1	< 4.00	–	–	–
I-M29-2-HNO3 BH D	184-84-6D D	0.039	1000	N/A	5	1	< 4.00	< 4.00	–	–
I-M29-2-BHAR HNO3	184-84-6G	0.034	75	N/A	5	1	< 0.300	–	–	–
I-M29-2-BHAR HNO3 D	184-84-6G D	-0.003	75	N/A	5	1	< 0.300	< 0.300	–	–
I-M29-2-KMnO4	184-84-6E	0.138	300	N/A	5	1	< 1.20	–	–	–
I-M29-2-KMnO4 D	184-84-6E D	0.127	300	N/A	5	1	< 1.20	< 1.20	–	–
I-M29-2-HCl	184-84-6F	-0.003	63	N/A	5	1	< 0.252	–	–	–
I-M29-2-HCl D	184-84-6F D	0.003	63	N/A	5	1	< 0.252	< 0.252	–	–

ient: Pacific Environmental Services
oject Number: 43411

ample Report

e Received:	September 26, 1997
e Prepared:	October 14-20, 1997
e Analyzed:	October 20-22, 1997
TA FILE:	AB826, AB827 & AB828
rix:	Air

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method:	29
Instrument: P E Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

nt Sample ID	TI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg RESULT	RPD	%REC
29-3-FHACE,FHAR,FILTER,FH CATCH FH	184-84-7ABCD	0.031	N/A	100	5	1	< 0.400	--	--	--
29-3-FHACE,FHAR,FILTER,FH CATCH FH D	184-84-7ABCD D	0.018	N/A	100	5	1	< 0.400	< 0.400	--	--
29-3-HNO3 BH	184-84-7EF	0.044	1100	N/A	5	1	< 4.40	--	--	--
29-3-HNO3 BH D	184-84-7EF D	0.036	1100	N/A	5	1	< 4.40	< 4.40	--	--
29-3-BHAR HNO3	184-84-7G	0.000	105	N/A	5	1	< 0.420	--	--	--
29-3-BHAR HNO3 D	184-84-7G D	-0.018	105	N/A	5	1	< 0.420	< 0.420	--	--
29-3-KMnO4	184-84-7H	0.148	235	N/A	5	1	< 0.940	--	--	--
29-3-KMnO4 D	184-84-7H D	0.112	235	N/A	5	1	< 0.940	< 0.940	--	--
29-3-HCl	184-84-7H	0.148	100	N/A	5	1	< 0.400	--	--	--
29-3-HCl D	184-84-7H D	0.112	100	N/A	5	1	< 0.400	< 0.400	--	--
129-1-HNO3 BH MS	184-84-1DE MS	2.521	1940	N/A	5	1	98	--	--	50%
129-1-HNO3 BH MSD	184-84-1DE MSD	2.532	1940	N/A	5	1	98	98	0.44%	51%
129-2-HNO3 BH MS	184-84-2DE MS	2.922	1910	N/A	5	1	112	--	--	58%
129-2-HNO3 BH MSD	184-84-2DE MSD	2.720	1910	N/A	5	1	104	108	7.16%	54%
29-1-HNO3 BH MS	184-84-4D MS	2.599	750	N/A	5	1	39.0	--	--	52%
29-1-HNO3 BH MSD	184-84-4D MSD	2.631	750	N/A	5	1	39.5	39.2	1.22%	53%
129-FB-FHAR,HNO3 BH MS	184-84-5BD MS	4.926	75	N/A	5	1	7.39	--	--	99%
129-FB-FHAR,HNO3 BH MSD	184-84-5BD MSD	5.092	75	N/A	5	1	7.64	7.51	3.31%	102%
9-2-HNO3 BH MS	184-84-6D MS	8.142	1000	N/A	5	1	163	--	--	163%
9-2-HNO3 BH MSD	184-84-6D MSD	7.947	1000	N/A	5	1	159	161	2.42%	159%
9-3-HNO3 BH MS	184-84-7EF MS	8.442	1100	N/A	5	1	186	--	--	169%
9-3-HNO3 BH MSD	184-84-7EF MSD	8.587	1100	N/A	5	1	189	187	1.70%	172%
29-1-HNO3 BH MS	True Spike MS	5	1940	N/A	5	1	194	--	--	--
29-1-HNO3 BH MSD	True Spike MSD	5	1940	N/A	5	1	194	--	--	--
29-2-HNO3 BH MS	True Spike MS	5	1910	N/A	5	1	191	--	--	--
29-2-HNO3 BH MSD	True Spike MSD	5	1910	N/A	5	1	191	--	--	--
9-1-HNO3 BH MS	True Spike MS	5	750	N/A	5	1	75.0	--	--	--
9-1-HNO3 BH MSD	True Spike MSD	5	750	N/A	5	1	75.0	--	--	--
29-FB-FHAR,HNO3 BH MS	True Spike MS	5	75	N/A	5	1	7.50	--	--	--
29-FB-FHAR,HNO3 BH MSD	True Spike MSD	5	75	N/A	5	1	7.50	--	--	--
9-2-HNO3 BH MS	True Spike MS	5	1000	N/A	5	1	100	--	--	--
9-2-HNO3 BH MSD	True Spike MSD	5	1000	N/A	5	1	100	--	--	--

Client: Pacific Environmental Services
Project Number: 43411

Sample Report

Date Received:	September 26, 1997
Date Prepared:	October 14-20, 1997
Date Analyzed:	October 20-22, 1997
DATA FILE:	AB826, AB827 & AB828
Matrix:	Air

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method:	29
Instrument: P E Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

Client Sample ID	TLI SAMPID	ug/L CONC	ml TV	ml FV	ml Aliquot	DIL FACTOR	Total ug RESULT	Avg. RESULT	RPD	%REC
I-M29-3-HNO3 BH MS	True Spike MS	5	1100	N/A	5	1	110	--	--	--
I-M29-3-HNO3 BH MSD	True Spike MSD	5	1100	N/A	5	1	110	--	--	--
Method Blank	43411 MB1	0.006	--	--	--	--	--	--	--	--
Method Blank D	43411 MBD1	0.008	--	--	--	--	--	--	--	--
LCS	43411 LCS1	5.006	--	--	--	--	--	--	--	100%
LCS D	43411 LCS1 D	4.900	--	--	--	--	--	--	--	98%
Method Blank	43411 MB2	0.005	--	--	--	--	--	--	--	--
Method Blank D	43411 MBD2	-0.010	--	--	--	--	--	--	--	--
LCS	43411 LCS2	5.325	--	--	--	--	--	--	--	107%
LCS D	43411 LCS2 D	5.473	--	--	--	--	--	--	--	109%
Method Blank	43411 MB3	0.036	--	--	--	--	--	--	--	--
Method Blank D	43411 MBD3	0.022	--	--	--	--	--	--	--	--
LCS	43411 LCS3	5.001	--	--	--	--	--	--	--	100%
LCS D	43411 LCS3 D	4.846	--	--	--	--	--	--	--	97%

Triangle Laboratories, Inc.
801 Capitola Drive * Durham, North Carolina 27713
Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 01-Nov-97 at 03:20 PM

PACIFIC ENVIRONMENTAL SERVICES, INC.

COPY

5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Chain of Custody Record

Project Num: s413-004

Project Name: US EPA EMC Asphalt Cement, ASPHALT PLANT "B"

Samplers: Dickerson, McDonald, Thompson, Dougherty, Hamilton

Date	Time	Field Sample ID	Sample Description	MM	Hg						Remarks
8/27/97	1600	O-M29-1-FHACE	FH Acetone Rinse - Beaker No. M-22	•	•						
8/27/97	1600	O-M29-1-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/27/97	1600	O-M29-1-Filter	Filter M97-013 - Beaker No. M-23	•	•						
8/27/97	1600	O-M29-1-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 1/2
8/27/97	1600	O-M29-1-HNO4	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 2/2
8/27/97	1600	O-M29-1-BHAR	BH 0.1 N HNO3 Rinse	•	•						
8/27/97	1600	O-M29-1-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/27/97	1600	O-M29-1-HCl	8N HCl Rinse		•						
8/28/97	1300	O-M29-2-FHACE	FH Acetone Rinse - Beaker No. M-24	•	•						
8/28/97	1300	O-M29-2-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/28/97	1300	O-M29-2-Filter	Filter M97-019	•	•						Petri Disk
8/28/97	1300	O-M29-2-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 1/2
8/28/97	1300	O-M29-2-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 2/2
8/28/97	1300	O-M29-2-BHAR	BH 0.1 N HNO3 Rinse	•	•						
8/28/97	1300	O-M29-2-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/28/97	1300	O-M29-2-HCl	8N HCl Rinse		•						
8/29/97	1315	O-M29-3-FHACE	FH Acetone Rinse - Beaker No. W-10	•	•						
8/29/97	1315	O-M29-3-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/29/97	1315	O-M29-3-Filter	Filter M97-004 - Beaker No. W-11	•	•						
8/29/97	1315	O-M29-3-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 1/2
8/29/97	1315	O-M29-3-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 2/2
8/29/97	1315	O-M29-3-BHAR	BH 0.1 N HNO3 Rinse	•	•						
8/29/97	1315	O-M29-3-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/29/97	1315	O-M29-3-HCl	8N HCl Rinse		•						
8/27/97	1300	I-M29-1-FHACE	FH Acetone Rinse - Beaker No. M-12	•	•						

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Chain of Custody Record

Project Num: s413-004

Project Name: US EPA EMC Asphalt Cement, ASPHALT PLANT "B"

Samplers: Dickerson, McDonald, Thompson, Dougherty, Hamilton

Date	Time	Field Sample ID	Sample Description	MM	Hg						Remarks
8/27/97	1300	I-M29-1-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/27/97	1300	I-M29-1-Filter	Beaker No. M-3	•	•						Filters M010, 011, 012, 014, 015
8/27/97	1300	I-M29-1-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 1/2
8/27/97	1300	I-M29-1-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/27/97	1300	I-M29-1-HCl	8N HCl Rinse		•						
8/27/97	0900	O-M29-FB-FHACE	FH Acetone Rinse - Beaker No. W-12	•	•						
8/27/97	0900	O-M29-FB-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/27/97	0900	O-M29-FB-Filter	Filter M97-017	•	•						Petri Dish
8/27/97	0900	O-M29-FB-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						
8/27/97	0900	O-M29-FB-BHAR	BH 0.1 N HNO3 Rinse	•	•						
8/27/97	0900	O-M29-FB-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/27/97	0900	O-M29-FB-HCl	8N HCl Rinse		•						
8/28/97	1500	I-M29-2-FHACE	FH Acetone Rinse - Beaker No. M-19	•	•						
8/28/97	1500	I-M29-2-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/28/97	1500	I-M29-2-Filter	Filter No. 97-016, 1002 - Beaker No. M-17	•	•						
8/28/97	1500	I-M29-2-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						
8/28/97	1500	I-M29-2-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•						
8/28/97	1500	I-M29-2-HCl	8N HCl Solution		•						
8/29/97	1530	I-M29-3-FHACE	FH Acetone Rinse - Beaker No. M-21	•	•						
8/29/97	1530	I-M29-3-FHAR	FH 0.1 N HNO3 Rinse	•	•						
8/29/97	1530	I-M29-3-Filter	Filter M97-0010 - Beaker No. M-20	•	•						
8/29/97	1530	I-M29-3-FH Catch	Front Half Catch	•	•						Zip-lock Bag
8/29/97	1530	I-M29-3-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 1/2
8/29/97	1530	I-M29-3-HNO3	5% HNO3 / 10% H2O2 Absorbing Solution	•	•						Bottle 2/2
8/29/97	1530	I-M29-3-BHAR	BH 0.1 N HNO3 Rinse	•	•						

PACIFIC ENVIRONMENTAL SERVICES, INC.

5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Chain of Custody Record

Project Num	Project Name	Analysis Requested							Remarks
s413-004	ASPHALT PLANT "B" US EPA EMC Asphalt Cement, REA [illegible]								
Samplers: Dickerson, McDonald, Thompson, Dougherty, Hamilton									
Date	Time	Field Sample ID	Sample Description	MM	Hg				
8/29/97	1530	I-M29-3-KMnO4	10% H2SO4 / 4% KMnO4 Absorbing Sol.		•				
8/29/97	1530	I-M29-3-HCl	8N HCl Solution		•				

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received by. (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time 9/26/97 1630	Received for lab by: (Signature)	REMARKS		

9/26/97
16:38

Page:_____ of _____

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COPY 4/5 7/46/97

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

TLI Project Number 43411
Client: PES03 - Pacific Environmental Services

Date Received 09/26/97 By J. Tuerotte

Carrier and Number HAND DELIVERED

Ice Chest/Box NO COOLANT

Book 184 Page 84

TLI Number.. mR/H:CPM.	Client Sample ID..... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
184-84-1A	O-M29-1-FHACE O-M29-1-FHACE	FH ACE RNS METALS LAB									
184-84-1B	O-M29-1-FHAR O-M29-1-FHAR	FH 0.1N HNO3 METALS LAB									
184-84-1C	O-M29-1-FILTER O-M29-1-FILTER	FILTER METALS LAB									
184-84-1D	O-M29-1-HNO3 O-M29-1-HNO3	5% HNO3/10% H202 METALS LAB									
184-84-1E	O-M29-1-HNO3 O-M29-1-~~HNO4~~ HNO3	5% HNO3/10% H202 METALS LAB									
184-84-1F	O-M29-1-BHAR O-M29-1-BHAR	BH 0.1N HNO3 RNS METALS LAB									
184-84-1G	O-M29-1-KMNO4 O-M29-1-KMNO4	10% H2SO4/4%KMNO4 METALS LAB									
184-84-1H	O-M29-1-HCL O-M29-1-HCL	8N HCl METALS LAB									
184-84-2A	O-M29-2-FHACE O-M29-2-FHACE	FH ACE RNS METALS LAB									
184-84-2B	O-M29-2-FHAR O-M29-2-FHAR	FH 0.1N HNO3 METALS LAB									
184-84-2C	O-M29-2-FILTER O-M29-2-FILTER	FILTER METALS LAB									
184-84-2D	O-M29-2-HNO3 O-M29-2-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-2E	O-M29-2-HNO3 O-M29-2-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-2F	O-M29-2-BHAR O-M29-2-BHAR	BH 0.1HNO3 RNS METALS LAB									

Receiving Remarks: I-M29-2-BHAR was not on COC but was received. Sample O-M29-FB-FILTER is marked O-M29-2-FILTER but has the date 8/27/97 which is the same as the COC.

Archive Remarks:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

TLI Project Number 43411
Client: PES03 - Pacific Environmental Services

Date Received 09/26/97 By J Guerette

Ice Chest/Box NO COOLANT

Carrier and Number HAND DELIVERED

Book 184 Page 84

TLI Number.. mR/H:CPM.	Client Sample ID..... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
184-84-2G	O-M29-2-KMNO4 O-M29-2-KMNO4	10% H2SO4/4%KMNO4 METALS LAB									
184-84-2H	O-M29-2-HCL O-M29-2-HCL	8N HCL METALS LAB									
184-84-3A	O-M29-3-FHACE O-M29-3-FHACE	FH ACE RNS METALS LAB									
184-84-3B	O-M29-3-FHAR O-M29-3-FHAR	FH 0.1N HNO3 METALS LAB									
184-84-3C	O-M29-3-FILTER O-M29-3-FILTER	FILTER METALS LAB									
184-84-3D	O-M29-3-HNO3 O-M29-3-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-3E	O-M29-3-HNO3 O-M29-3-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-3F	O-M29-3-BHAR O-M29-3-BHAR	BH 0.1N HNO3 METALS LAB									
184-84-3G	O-M29-3-KMNO4 O-M29-3-KMNO4	10%H2SO4/4%KMNO4 METALS LAB									
184-84-3H	O-M29-3-HCL O-M29-3-HCL	8N HCl METALS LAB									
184-84-4A	I-M29-1-FHACE I-M29-1-FHACE	FH ACE RNS METALS LAB									
184-84-4B	I-M29-1-FHAR I-M29-1-FHAR	FH 0.1N HNO3 METALS LAB									
184-84-4C	I-M29-1-FILTER I-M29-1-FILTER	FILTER METALS LAB									
184-84-4D	I-M29-1-HNO3 I-M29-1-HNO3	5%HNO3/10%H2O2 METALS LAB									

Receiving Remarks: I-M29-2-BHAR was not on COC but was received. Sample 0-M29-FB-FILTER is marked 0-M29-2-FILTER but has the date 8/27/97 which is the same as the COC.

Archive Remarks:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

TLI Project Number 43411
Client: PES03 - Pacific Environmental Services

Date Received 09/26/97 By [illegible]

Carrier and Number HAND DELIVERED

Ice Chest/Box NO COOLANT

Book 184 Page 84

TLI Number.. mR/H:CPM.	Client Sample ID.... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
184-84-4E	I-M29-1-KMNO4 I-M29-1-KMNO4	10%H2SO4/4%KMNO4 METALS LAB									
184-84-4F	I-M29-1-HCL I-M29-1-HCL	8N HCL METALS LAB									
184-84-5A	O-M29-FB-FHACE O-M29-FB-FHACE	FH ACE RNS METALS LAB									
184-84-5B	O-M29-FB-FHAR O-M29-FB-FHAR	FH 0.1HNO3 METALS LAB									
184-84-5C	O-M29-2-FILTER 8/27/97 O-M29-FB-FILTER	FILTER METALS LAB									
184-84-5D	O-M29-FB-HNO3 O-M29-FB-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-5E	O-M29-FB-BHAR O-M29-FB-BHAR	BH 0.1N HNO3 METALS LAB									
184-84-5F	O-M29-FB-KMNO4 O-M29-FB-KMNO4	10%H2SO4/4%KMNO4 METALS LAB									
184-84-5G	O-M29-FB-HCL O-M29-FB-HCL	8N HCl METALS LAB									
184-84-6A	I-M29-2-FHACE I-M29-2-FHACE	FH ACE RNS METALS LAB									
184-84-6B	I-M29-2-FHAR I-M29-2-FHAR	FH 0.1HNO3 METALS LAB									
184-84-6C	I-M29-2-FILTER I-M29-2-FILTER	FILTER METALS LAB									
184-84-6D	I-M29-2-HNO3 I-M29-2-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-6E	I-M29-2-KMNO4 I-M29-2-KMNO4	10%H2SO4/4%KMNO4 METALS LAB									

Receiving Remarks: I-M29-2-BHAR was not on COC but was received. Sample O-M29-FB-FILTER is marked C-M29-2-FILTER but has the date 8/27/97 which is the same as the COC.

Archive Remarks:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

TLI Project Number 43411
Client: PES03 - Pacific Environmental Services

Date Received 09/26/97 By J Fuente

Ice Chest/Box NO COOLANT

Carrier and Number HAND DELIVERED

Book 184 Page 84

TLI Number.. mR/H:CPM.	Client Sample ID.. Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
184-84-6F	I-M29-2-HCL I-M29-2-HCL	8N HCL METALS LAB									
184-84-6G	I-M29-2-BHAR [Not Listed-Client COC] *	BH 0.1N HNO3 METALS LAB									
184-84-7A	I-M29-3-FHACE I-M29-3-FHACE	FH ACE RNS METALS LAB									
184-84-7B	I-M29-3-FHAR I-M29-3-FHAR	FH 0.1HNO3 METALS LAB									
184-84-7C	I-M29-3-FILTER I-M29-3-FILTER	FILTER METALS LAB									
184-84-7D	I-M29-3-FH CATCH I-M29-3-FH CATCH	FRONT HALF CATCH METALS LAB									
184-84-7E	I-M29-3-HNO3 I-M29-3-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-7F	I-M29-3-HNO3 I-M29-3-HNO3	5%HNO3/10%H2O2 METALS LAB									
184-84-7G	I-M29-3-BHAR I-M29-3-BHAR	BH 0.1N HNO3 METALS LAB									
184-84-7H	I-M29-3-KMNO4 I-M29-3-KMNO4	10% H2SO4/4% KMNO4 METALS LAB									
184-84-7I	I-M29-3-HCL I-M29-3-HCL	8N HCL SOLN METALS LAB									

Receiving Remarks: I-M29-2-BHAR was not on COC but was received. Sample 0-M29-FB-FILTER is marked 0-M29-2-FILTER but has the date 8/27/97 which is the same as the COC.

Archive Remarks:

oject # 4/32/11

lent: Pacific Environmental Services

ate/Int.: DSE 10/13/97

ent Run# O-M29-1

Triangle Laboratories of RTP

(919) 544-5729

Analytes			
ICP	GFAA	FLAA	CVAA
Ag Mn As Ni Ba P Be Pb Cd Sb Co Se Cr Tl Cu Zn			Hg.

CONT # (1)

Filler
e: G or Q

label 184-84-1C

CONT # (2)

Acetone Rinse

label 184-84-1A

Volume DRY

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE, Date 10/16/97

wave dig conc. HF conc. HNO3 — Int DSE, Date 10/16/97

CONT # (3)

HNO3 Rinse

label 184-84-1B

Volume 63

Reduce volume to 20 ml on holplate — Int SF, Date 10-14-97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/16/97

label 184-84-1C,A,B

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls — Int DSE, Date 10/16/97

label 184-84-1C,A,B

Volume 100 ML

For Metal

184-84-1C,A,B
el
Int DSE
ume 100 Date 10/16/97

st digest spike on FH for GFAA))

For Hg

label 184-84-1CAB
Int DSE
Volume 100 ml Date 10/19/97

Allquot A: 5 mL

(No spike required)

BH Post dig. spk.

CONT # (4)

184-84-1D = 980 mls
184-84-1E = 960 mls

Back Half Impinger

label 184-84-1D,1E

Volume 1940 = TV

For Metals

label 184-84-1D,1E
Volume 1840

For Hg

label 184-84-1D,1E
Volume 100

Reduce Volume to 20 mL on Holplate — Int. SF, Date 10-14-97

Holplate dig with HNO3 and H202 — Int. SRB, Date 10/16/97

Add 500 uL Sc — Int. ____, Date ____

Dilute to 100 mls — Int. DSE, Date 10/16/97

184-84-1DE
label ____ Int DSE
Volume 100 Date 10/16/97

(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # (5A) HNO3

label 184-84-1F
Volume 110 ml
Allquot A 5
Allquot B 5
Int DSE
Date 10/19/97

CONT # (5B) KMNO4

label 184-84-1G
Volume 450 ml
Allquot A 5
Allquot B 5
Int DSE
Date 10/19/97

CONT # (5C) HCl

label 184-84-1H
Volume 89 ml
Allquot A 5
Allquot B 5
Int DSE
Date 10/19/97

(Duplicate Analysis of Eac

Sample

184-84-1D,E
label ____ Int DSE
Volume 100 Date 10/19/97
Allquot A: 5
Allquot B: 5

Spike
(1 BH Hg Spike required)

184-84-1DE
label ____ Int DSE
Volume 100 Date 10/19/97
Allquot A: 5
Allquot B: 5

spk 5 ml of 100 ppb — Int DSE
final spk conc. added 5 ppb — Date 10/19/97

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials:

lent: PES03

ate/Int.:

lent Run# 0-M29-2

Triangle Laboratories of RTP

(919) 544-5729

ICP	GFAA	FLAA	CVAA

CONT # 1

Filter
e: G or Q

label 184-84-2C

CONT # 2

Acetone Rinse

label 184-84-2A

Volume DRY

CONT # 3

HNO3 Rinse

label 184-84-2B

Volume 51

CONT # 4

Back Half Impinger

184-84-2D = 940 mls

184-84-2E = 970 mls

label 184-84-2D,2E

Volume 1910 = TV

For Metals: label 184-84-2D,2E, Volume 1810

For Hg: label 184-84-2D,2E, Volume 100

Hg Impingers

CONT # 5A — HNO3

label 184-84-2F
Volume 90 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/16/97

CONT # 5B — KMNO4

label 184-84-2G
Volume 455 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/16/97

CONT # 5C — HCl

label 184-84-2H
Volume 46 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/16/97

(Duplicate Analysis of Eac

~~Desiccate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE, Date 10/16/97

Reduce volume to 20 ml on hotplate — Int SF, Date 10-14-97

wave dig conc. HF conc. HNO3 — Int DSE, Date 10/16/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/16/97

label 184-84-2C,A,B

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE, Date 10/16/97

label 184-84-2C,A,B

Volume 100 ML

Reduce Volume to 20 mL on Hotplate — Int. SF, Date 10-14-97

Hotplate dig with HNO3 and H202 — Int. SFB, Date 10/16/97

Add 500 uL Sc — Int. [illegible], Date

Dilute to 100 mls — Int. DSE, Date 10/16/97

Sample: 184-84-2DE, Int DSE, Volume 100, Date 10/19/97

Aliquot A: 5

Aliquot B: 5

Spike (1 DH Hg Spike required): label 184-84-2DE, Int DSE, Volume 100, Date 10/19/97

Aliquot A: 5

Aliquot B: 5

spk 5 ml of 100 ppb, Int DSE, final spk conc. added 5 ppb, Date 10/19/97

For Metal: 184-84-2C,A,B, Int DSE, Volume 100, Date 10/16/97

(1 digest spike on FH for GFAA))

For Hg: label 184-84-2C,A,B, Int DSE, Volume 100 ml, Date 10/19/97

Aliquot A: 5 mL

(No spike required)

Aliquot B: 5 mL

DH Post dig. spk. ___ ppb (Instrument spiked)

184-84-2D,E, label ____, Int DSE, Volume 100, Date 10/16/97

(One post digestion spk on DH for GFAA)

FH & DH Serial dilution performed

___ ml to ___ ml FV + ___ uL Sc

Initials: _____

Date:

roject # 43411

llent: _____

ate/Int.: _____

llent Run# D-M29-3

Triangle Laboratories of RTP

(919) 544-5729

Analyles

ICP	GFAA	FLAA	CVAA

CONT # 1

Filter
pe: G or Q

label 184-84-3C

CONT # 2

Acetone Rinse

label 184-84-3A

Volume DRY

~~Desiccate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE — Date 10/16/97

CONT # 3

HNO3 Rinse

label 184-84-3B

Volume 92

Reduce volume to 20 ml on hotplate — Int SF — Date 10-14-97

CONT # 4

184-84-3D = 900 mls

184-84-3E = 630 mls

Back Half Impinger

label 184-84-3D,3E

Volume 1530 = TV

For Metals: label 184-84-3D,3E — Volume 1430

For Hg: label 184-84-3D,3E — Volume 100

Hg Impingers

CONT # 5A — HNO3

label 184-84-3F

Volume 85 ml

Aliquot A 5

Aliquot B 5

Int DSE

Date 10/19/97

CONT # 5B — KMNO4

label 184-84-3G

Volume 265 ml

Aliquot A 5

Aliquot B 5

Int DSE

Date 10/19/97

CONT # 5C — HCl

label 184-84-3H

Volume 50 ml

Aliquot A 5

Aliquot B 5

Int DSE

Date 10/19/97

(Duplicate Analysis of Eac

Microwave dig — Int DSE — conc. HF, conc. HNO3 — Date 10/16/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE — Date 10/16/97

label 184-84-3C,A,B

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE — Date 10/16/97

label 184-84-3C,A,B

Volume ____ ML

For Metal

label 184-84-3C,A,B — Int DSE

Volume 100 — Date 10/16/97

(1 FH digest spike on FH for GFAA))

For Hg

label 184-84-3C,A,B — Int DSE

Volume 100 ml — Date 10/16/97

Reduce Volume to 20 mL on Hotplate — Int. SF — Date 10-14-97

Hotplate dig with HNO3 and H202 — Int. DSE — Date 10/16/97

Add 500 uL Sc — Int. ____ — Date ____

Dilute to 100 mls — Int. DSE — Date 10/16/97

Sample

Spike (1 BH Hg Spike required)

184-84-3DE — label ____ — Int DSE — Volume 100 — Date 10/19/97

Aliquot A: 5

Aliquot B: 5

label ____ — Int ____ — Volume ____ — Date ____

Aliquot A: ____

Aliquot B: ____

spk ____ ml of ____ ppb — Int ____

final spk conc. added ____ ppb — Date ____

BH Post dig. spk.

Aliquot A: 5 mL

(No spike required)

184-84-3DE — label ____ — Int DSE — Volume 100 — Date 10/16/97

(One post digestion spk on BH for GFAA)

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials: _____

llent: _____

ate/Int.: _____

lent Run# I-M29-I

Triangle Laboratories of RTP

(919) 544-5729

ICP	GFAA	FLAA	CVAA

CONT # 1

Filter
pe: G or Q

abel 184-84-4C

CONT # 2

Acetone Rinse

label 184-84-4A

Volume DRY with lab of mud.

CONT # 3

HNO3 Rinse

label 184-84-4B

Volume 150

CONT # 4

Back Half Impinger

label 184-84-4D

Volume 750

For Metals: label 184-84-4D, Volume 650

For Hg: label 184-84-4D, Volume 100

Hg Impingers

CONT # 5A — HNO3

~~label ____~~
~~Volume ____ ml~~
~~Aliquot A ____~~
~~Aliquot B ____~~
~~Int ____~~
~~Date ____~~

CONT # 5B — KMNO4

label 184-84-4E
Volume 335 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/19/97

CONT # 5C — HCl

abel 184-84-4F
Volume 49 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/19/97

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE, Date 10/16/97

Total of 2 Separate runs 10/14/97

Reduce volume to 20 ml on holplate — Int SF, Date 10-14-97

wave dig conc. HF conc. HNO3 — Int DSE, Date 10/16/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/16/97

label 184-84-4C, A, B

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE, Date 10/16/97

label 184-84-4C, A, B

Volume 100 ML

Reduce Volume to 20 mL on Holplate — Int. SF, Date 10-14-97

Holplate dig with HNO3 and H202 — Int. SRB, Date 10/16/97

Add 500 uL Sc — Int. ____, Date ____

Dilute to 100 mls — Int. DSE, Date 10/16/97

label 184-84-4D, Int DSE, Volume 100, Date 10/16/97

(Duplicate Analysis of Eac

Sample

Spike (1 ml Hg Spike required)

label 184-84-4D, Int DSE, Volume 100, Date 10/19/97

Aliquot A: 5

Aliquot B: 5

label 184-84-4D, Int DSE, Volume 100, Date 10/19/97

Aliquot A: 5

Aliquot B: 5

spk 5 ml of 100 ppb, Int DSE

final spk conc. added 5 ppb, Date 10/19/97

For Metal

184-84-4C,A,B
l ____ Int DSE
me 100 Date 10/16/97

l digest spike on FH for GFAA))

For Hg

184-84-4C,AB
label ____ Int DSE
Volume 100 ml Date 10/19/97

Aliquot A: 5 mL
(No spike required)
Aliquot B: 5 mL

BH Post dig. spk.
____ ppb (Instrument spiked)

184-84-4D
label ____ Int DSE
Volume 100 Date 10/16/97

(One post digestion spk on BH for GFAA)

FH & BH Serial dilution performed
____ ml to ____ ml FV + ____ uL Sc
Initials: _____

oject # 43411

lent:

ate/Int.:

ent Run# 0-M29-FBlank

Triangle Laboratories of RTP
(919) 544-5729

Analytes			
ICP	GFAA	FLAA	CVAA

CONT # 1
Filter
e: G or Q
label 184-84-5C

CONT # 2
Acetone Rinse
label 184-84-5A
Volume DRY

CONT # 3 use 5B=34
HNO3 Rinse
label 184-84-5B
Volume 59

CONT # 4 use 5B=25 5D=50
Back Half Impinger
label 184-84-5D
Volume 410 = TV

Hg Impingers

CONT # 5A
HNO3
label 184-84-5E
Volume 75 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/19/97

CONT # 5B
KMNO4
label 184-84-5F
Volume 400 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/19/97

CONT # 5C
HCl
label 184-84-5G
Volume 50 ml
Aliquot A 5
Aliquot B 5
Int DSE
Date 10/19/97

(Duplicate Analysis of Eac

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE, Date 10/16/97

Reduce volume to 20 ml on hotplate — Int SE, Date 10-14-97

wave dig conc. HF conc. HNO3 — Int DSE, Date 10/16/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/16/97
label 184-84-5C, A,B

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls — Int DSE, Date 10/16/97
label 184-84-5C,A,B
Volume 100 ML

For Metals: label 184-84-5D, Volume 75
For Hg: label ____, Volume ____

Reduce Volume to 20 mL on Hotplate — Int. SE, Date 10/14/97

Hotplate dig with HNO3 and H202 — Int. SRB, Date 10/16/97

Add 500 uL Sc — Int. ____, Date ____

Dilute to 100 mls — Int. DSE, Date 10/16/97

Sample
184-84-5BD
label ____ Int DSE
Volume 100 Date 10/19/97
Aliquot A: 5
Aliquot B: 5

Spike
(1 BH Hg Spike required)
184-84
label ____ Int ____
Volume ____ Date ____
Aliquot A: 5
Aliquot B: 5
spk ____ ml of ____ ppb — Int ____
final spk conc. added ____ ppb — Date ____

r Metal
184-84-5A,B
l ____ Int DSE
me 100 Date 10/16/97
l digest spike on FH for GFAA))

For Hg
label 184-84-5ABC Int SRB
Volume 100 ml Date 10/20/97

label 184-84-5BD DSE
Volume 100 Date 10/16/97
(One post digestion spk on BH for GFAA)

BH Post dig. spk.
Aliquot A: 5 mL
(No spike required)

FH & BH Serial dilution performed
____ ml to ____ ml FV + ____ uL Sc
Initials:

:llent: _____

ate/Int.: _____

llent Run# I-M29-2

Triangle Laboratories of RTP

(919) 544-5729

ICP	GFAA	FLAA	CVAA

CONT # 1

Filter
pe: G or Q

abel 184-84-6C

CONT # 2

Acetone Rinse

label 184-84-6A

Volume DRY

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE — Date 10/16/97

Total of 4 Spike runs!

owave dig: conc. HF conc. HNO3 — Int DSE — Date 10/16/97 ~~184-84-6 DSE 10/16/97~~

CONT # 3

HNO3 Rinse

label 184-84-6B

Volume 140

Reduce volume to 20 ml on holplate — Int SF — Date 10-14-97

Microwave dig with conc. HF and conc. HNO3 — Int DSE — Date 10/16/97

label 184-84-6C,A,B

CONT # 4

Back Half Impinger

label 184-84-6D

Volume 1000

For Metals: label 184-84-6D, Volume 900

For Hg: label 184-84-6D, Volume 100

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE — Date 10/17/97

label 184-84-6ABC

Volume 100 ML

For Metal: label 184-84-6C,A,B; Int DSE; Volume 100; Date 10/17/97

For Hg: label 184-84-6ABC; Int SRB; Volume 100ml; Date 10/20/97

Post digest spike on FH for GFAA))

BH Post dig. spk. 5 ppb (Instrument spiked)

Allquot A: 5 mL

(No spike required)

Allquot B: 5 mL

Reduce Volume to 20 mL on Holplate — Int. SF — Date 10-14-97

Holplate dig with HNO3 and H202 — Int. SRB — Date 10/16/97

Add 500 uL Sc — Int. ____ — Date ____

Dilute to 100 mls — Int. DSE — Date 10/16/97

label 184-84-6D; Int DSE; Volume 100; Date 10/16/97

(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # 5A — HNO3

label 184-84-6G; Volume 75 ml; Allquot A 5; Allquot B 5; Int SRB; Date 10/20/97

CONT # 5B — KMNO4

label 184-84-6E; Volume 300 ml; Allquot A 5; Allquot B 5; Int SRB; Date 10/20/97

CONT # 5C — HCl

label 184-84-6F; Volume 63 ml; Allquot A 5; Allquot B 5; Int SRB; Date 10/20/97

(Duplicate Analysis of Ea

Sample: label 184-84-6D; Int SRB; Volume 100; Date 10/20/97; Allquot A: 5; Allquot B: 5

Spike (1 BH Hg Spike required): label 184-84-6D; Int SRB; Volume 100; Date 10/20/97; Allquot A: 5; Allquot B: 5

spk 5 ml of 100 ppb; final spk conc. added 5 ppb — Int SRB — Date 10/20/97

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials: _____

Date:

roject # 43411

:llent:

ate/Int.:

llent Run# I-M29-3

Triangle Laboratories of RTP

(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

CONT # 1 — Filter pe: G or Q
label 184-84-7C
abel 184-84-7D

CONT # 2 — Acetone Rinse
label 184-84-7A
Volume DRY

CONT # 3 — HNO3 Rinse
label 184-84-7B
Volume 100

CONT # 4 — Back Half Impinger
184-84-7E = 150 mls
184-84-7F = 350 mls
label 184-84-7E, F
Volume 1100

Hg Impingers

CONT # 5A — HNO3
label 184-84-7G
Volume 105 ml
Aliquot A 5
Aliquot B 5
Int SRB
Date 10/20/97

CONT # 5B — KMNO4
label 184-84-7H
Volume 235 ml
Aliquot A 5
Aliquot B 5
Int SRB
Date 10/20/97

CONT # 5C — HCl
label 184-84-7I
Volume 100 ml
Aliquot A 5
Aliquot B 5
Int SRB
Date 10/20/9

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE — Date 10/16/97

Total of 4 Separate runs

owave dig: conc. HF, conc. HNO3 — Int DSE — Date 10/16/97

Reduce volume to 20 ml on hotplate — Int SF — Date 10-14-97

Microwave dig with conc. HF and conc. HNO3 — Int DSE — Date 10/16/97

label 184-84-7C, A, B

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE — Date 10/17/97

label 184-84-7C, A, B
Volume 100 ML

For Metals
184-84-7C, A, B
label
Int DSE
lume 100 Date 10/17/97
ost digest spike on FH for GFAA))

For Hg
label 184-84-7ABC
Int SRB
Volume 100 ml Date 10/20/97

Bl post dig. spk.

Aliquot A: 5 mL

For Metals
label 184-84-7G, 7F
Volume 100

For Hg
label 184-84-7E, F
Volume 100

Reduce Volume to 20 mL on Hotplate — Int. SF — Date 10-14-97

Hotplate dig with HNO3 and H2O2 — Int. SRB — Date 10/16/97

Add 500 uL Sc — Int. — Date

Dilute to 100 mls — Int. DSE — Date 10/16/97

184-84-7E, F
label — Int DSE
Volume 100 Date 10/16/97

(One post digestion spk on BH for GFAA)

(Duplicate Analysis of Ea

Sample
label 184-84-7EF
Int SRB
Volume 100 Date 10/20/97
Aliquot A: 5
Aliquot B: 5

Spike
(1 BH Hg Spike required)
label 184-84-7EF
Int SRB
Volume 100 Date 10/20/97
Aliquot A: 5
Aliquot B: 5
spk 5 ml of 100 ppb — Int SRB
final spk conc. added 5 ppb — Date 10/20/97

FH & BH Serial dilution performed
___ ml to ___ ml FV + ___ uL Sc

INORGANICS SPIKE LOG

DATE	PROJECT # SAMPLE IDs	ANALYTE	ORIGINAL STANDARD #	ORIGINAL STANDARD CONC. (PPM)	SPIKE SAMPLE (µL) / FINAL VOLUME (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
1/26/97	42906-LCS	*	3-001-9	*	1000/100	*	DSE	SF
3/27/97	42775A-LCS	*	3-001-9	*	1000/100	*	SRB	SF
	178-42-2A MS						↓	↓
	178-42-2A MSD							
5/28/97	42050D-LCS	*	3-013-3	*	1000/100	*	DSE	SRB
	171-10-3MS						↓	↓
	171-10-3MSD							
8/28/97	43021-LCS	*	3-013-3	*	1000/100	*	DSE	SRB
	180-90-1A MS						↓	↓
	180-90-1A MSD							
8/29/97	42050D-LCS	Sr	2-112-7	1000	5/100	50	SRB	MR
	171-10-3MS						↓	↓
	171-10-3MSD							
16/97	43028D-LCS	*	3-013-3	*	1000/100	*	DSE	BHR
	181-72-1-3+ 180-97-13-15 MS						↓	↓
	181-72-1-3+ 180-97-13-15 MSD							
[illegible]	[illegible] LCS	*	3-013-4	*	1000/100	*	SRB	DSE
		P	2-120-2	1000	100/100	1000	↓	↓

TLI # 43411

*** SEE SPIKE LOG**

EXP date	Element	Standard ID	Orig. Std. (ppm)	Spike(uL) Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard Spike(uL) FVol(100ml)	conc (ppb)	combined total
2/1/98	Ag	2-115-4	100	5000	5	1000	50	
9/1/98	As	3-010-10	100	5000	5	1000	50	
2/1/98	Al	2-115-4	100	5000	5	1000	50	
9/1/98	Al	3-010-7	10000	950	95	1000	950	1000
2/1/98	B	2-115-4	100	5000	5	1000	50	
2/1/98	Ba	2-115-4	100	5000	5	1000	50	
9/1/98	Be	3-010-10	100	5000	5	1000	50	
9/1/98	Ca	3-010-10	100	5000	5	1000	50	
9/1/98	Ca	3-012-7	10000	950	95	1000	950	1000
9/1/98	Cd	3-010-10	100	5000	5	1000	50	
9/1/98	Co	3-010-10	100	5000	5	1000	50	
9/1/98	Cr	3-010-10	100	5000	5	1000	50	
9/1/98	Cu	3-010-10	100	5000	5	1000	50	
9/1/98	Fe	3-010-10	100	5000	5	1000	50	
9/1/98	Fe	3-012-6	10000	950	95	1000	950	1000
2/1/98	K	2-115-4	1000	5000	50	1000	500	
9/1/98	K	3-012-5	10000	1500	150	1000	1500	2000
9/1/98	Mg	3-010-10	100	5000	5	1000	50	
8/1/98	Mg	3-010-8	10000	950	95	1000	950	1000
9/1/98	Mn	3-010-10	100	5000	5	1000	50	
9/1/98	Mo	3-010-10	100	5000	5	1000	50	
2/1/98	Na	2-115-4	100	5000	5	1000	50	
8/1/98	Na	3-010-9	10000	1950	195	1000	1950	2000
9/1/98	Ni	3-010-10	100	5000	5	1000	50	
9/1/98	Pb	3-010-10	100	5000	5	1000	50	
9/1/98	Sb	3-010-10	100	5000	5	1000	50	
9/1/98	Se	3-010-10	100	5000	5	1000	50	
9/1/98	Ti	3-010-10	100	5000	5	1000	50	
9/1/98	Tl	3-010-10	100	5000	5	1000	50	
9/1/98	V	3-010-10	100	5000	5	1000	50	
9/1/98	Zn	3-010-10	100	5000	5	1000	50	
8/1/98	Zn	3-010-6	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

****Spike seperately**

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
[redacted]	[redacted]	[redacted]	[redacted]
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	350	35000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-013-4
EXP: 11/26/97

Spiked by:
Predigestion- SRB 10/16/97

Postdigestion-

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43411

Transfer From: IWLM To: IA I

	Initials..	Date.....	Time...
Released by:	DSE	10/17/97	14:00
Accepted by:	MKA	10/17/97	20:00

MILES.ID.....		TLI_No.....	Cust.Id.....
43411-	-000	TLI Blank	TLI Method Blank
43411-	-001	184-84-1A	O-M29-1-FHACE
43411-	-002	184-84-1B	O-M29-1-FHAR
43411-	-003	184-84-1C	O-M29-1-FILTER
43411-	-004	184-84-1D	O-M29-1-HNO3
43411-	-005	184-84-1E	O-M29-1-HNO3
43411-	-006	184-84-1F	O-M29-1-BHAR
43411-	-007	184-84-1G	O-M29-1-KMNO4
43411-	-008	184-84-1H	O-M29-1-HCL
43411-	-009	184-84-2A	O-M29-2-FHACE
43411-	-010	184-84-2B	O-M29-2-FHAR
43411-	-011	184-84-2C	O-M29-2-FILTER
43411-	-012	184-84-2D	O-M29-2-HNO3
43411-	-013	184-84-2E	O-M29-2-HNO3
43411-	-014	184-84-2F	O-M29-2-BHAR
43411-	-015	184-84-2G	O-M29-2-KMNO4
43411-	-016	184-84-2H	O-M29-2-HCL
43411-	-017	184-84-3A	O-M29-3-FHACE
43411-	-018	184-84-3B	O-M29-3-FHAR
43411-	-019	184-84-3C	O-M29-3-FILTER
43411-	-020	184-84-3D	O-M29-3-HNO3
43411-	-021	184-84-3E	O-M29-3-HNO3
43411-	-022	184-84-3F	O-M29-3-BHAR
43411-	-023	184-84-3G	O-M29-3-KMNO4
43411-	-024	184-84-3H	O-M29-3-HCL
43411-	-025	184-84-4A	I-M29-1-FHACE
43411-	-026	184-84-4B	I-M29-1-FHAR
43411-	-027	184-84-4C	I-M29-1-FILTER
43411-	-028	184-84-4D	I-M29-1-HNO3
43411-	-029	184-84-4E	I-M29-1-KMNO4

XfrCOC (Rev 11/01/94)

ditional comments or instructions:

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43411

Transfer From: IWLM To: IA I

	Initials..	Date.....	Time...
Released by:	DSE	10/17/97	14:00
Accepted by:	MWH	10/17/97	20:00

MILES.ID.....		TLI_No.....	Cust.Id.....
43411-	-030	184-84-4F	I-M29-1-HCL -
43411-	-031	184-84-5A	O-M29-FB-FHACE
43411-	-032	184-84-5B	O-M29-FB-FHAR
43411-	-033	184-84-5C	O-M29-2-FILTER 8/27/97
43411-	-034	184-84-5D	O-M29-FB-HNO3
43411-	-035	184-84-5E	O-M29-FB-BHAR
43411-	-036	184-84-5F	O-M29-FB-KMNO4
43411-	-037	184-84-5G	O-M29-FB-HCL
43411-	-038	184-84-6A	I-M29-2-FHACE
43411-	-039	184-84-6B	I-M29-2-FHAR
43411-	-040	184-84-6C	I-M29-2-FILTER
43411-	-041	184-84-6D	I-M29-2-HNO3
43411-	-042	184-84-6E	I-M29-2-KMNO4
43411-	-043	184-84-6F	I-M29-2-HCL
43411-	-044	184-84-6G	I-M29-2-BHAR
43411-	-045	184-84-7A	I-M29-3-FHACE
43411-	-046	184-84-7B	I-M29-3-FHAR
43411-	-047	184-84-7C	I-M29-3-FILTER
43411-	-048	184-84-7D	I-M29-3-FH CATCH
43411-	-049	184-84-7E	I-M29-3-HNO3
43411-	-050	184-84-7F	I-M29-3-HNO3
43411-	-051	184-84-7G	I-M29-3-BHAR
43411-	-052	184-84-7H	I-M29-3-KMNO4
43411-	-053	184-84-7I	I-M29-3-HCL
43411-	-054	LCS	Lab Control Spike

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

Date	Project & Sample ID	Analyte	Std ID	Std. conc ppm	Spike vol / sample vol ml/ml	Spike conc ppb	Initials
10/16/97	43377	↓	3-013-3	↓	100/10	↓	MEH
	184-50-1 BEC PDS	P	2-112-4	100	100/10	↓	MEH
	184-50-1C PDS	↓	↓	↓	↓	↓	↓
10/19/97	43239	↓	3-013-3	↓	100/10	↓	MEH
	183-11-5 PDS	↓	↓	↓	↓	↓	↓
10/19/97	42011 Cnl	↓	3-013-3	↓	100/10	↓	MEH
	170-70-3 PDS	↓	↓	↓	↓	↓	↓
10/19/97	43438	↓	3-013-3	↓	100/10	↓	MEH
	185-12-1 PDS	↓	↓	↓	↓	↓	↓
10/20/97	43411	↓	3-013-3	↓	100/10	↓	MEH
	184-84-1 BEC PDS	P	2-112-4	100	100/10	(1000) ↓	
	184-84-1C PDS	↓	↓	↓	↓	↓	↓

* SEE SPIKE LOG

EXP date	Element	Standard ID	Spiking Standard Preparation: Orig. Std. (ppm)	Spike(uL) Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) FVol(100ml)	conc (ppb)	combined total
2/1/98	Ag	2-115-4	100	5000	5	1000	50	
9/1/98	As	3-010-10	100	5000	5	1000	50	
2/1/98	Al	2-115-4	100	5000	5	1000	50	
9/1/98	Al	3-010-7	10000	950	95	1000	950	1000
2/1/98	B	2-115-4	100	5000	5	1000	50	
2/1/98	Ba	2-115-4	100	5000	5	1000	50	
9/1/98	Be	3-010-10	100	5000	5	1000	50	
9/1/98	Ca	3-010-10	100	5000	5	1000	50	
9/1/98	Ca	3-012-7	10000	950	95	1000	950	1000
9/1/98	Cd	3-010-10	100	5000	5	1000	50	
9/1/98	Co	3-010-10	100	5000	5	1000	50	
9/1/98	Cr	3-010-10	100	5000	5	1000	50	
9/1/98	Cu	3-010-10	100	5000	5	1000	50	
9/1/98	Fe	3-010-10	100	5000	5	1000	50	
9/1/98	Fe	3-012-6	10000	950	95	1000	950	1000
2/1/98	K	2-115-4	1000	5000	50	1000	500	
9/1/98	K	3-012-5	10000	1500	150	1000	1500	2000
9/1/98	Mg	3-010-10	100	5000	5	1000	50	
8/1/98	Mg	3-010-8	10000	950	95	1000	950	1000
9/1/98	Mn	3-010-10	100	5000	5	1000	50	
9/1/98	Mo	3-010-10	100	5000	5	1000	50	
2/1/98	Na	2-115-4	100	5000	5	1000	50	
8/1/98	Na	3-010-9	10000	1950	195	1000	1950	2000
9/1/98	Ni	3-010-10	100	5000	5	1000	50	
9/1/98	Pb	3-010-10	100	5000	5	1000	50	
9/1/98	Sb	3-010-10	100	5000	5	1000	50	
9/1/98	Se	3-010-10	100	5000	5	1000	50	
9/1/98	Ti	3-010-10	100	5000	5	1000	50	
9/1/98	Tl	3-010-10	100	5000	5	1000	50	
9/1/98	V	3-010-10	100	5000	5	1000	50	
9/1/98	Zn	3-010-10	100	5000	5	1000	50	
8/1/98	Zn	3-010-6	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	350	35000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-013-3
EXP: 11/26/97

Spiked by:
Predigestion-

Postdigestion- MKB 10/20/97

	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	STD1-BLANK	101997	TRIANGL2	10/20/97	00:38		Y	IR
2	STD1-BLANK	101997	TRIANGL2	10/20/97	00:48		X	IR
3	STD3	101997	TRIANGL2	10/20/97	00:53		Y	IR
4	STD3	101997	TRIANGL2	10/20/97	00:58	DKH	Q	CONC
5	STD1-BLANK	101997	TRIANGL2	10/20/97	01:24		Y	IR
6	STD1-BLANK	101997	TRIANGL2	10/20/97	01:37		X	IR
7	STD1-BLANK	101997	TRIANGL2	10/20/97	01:47		Y	IR
8	STD3	101997	TRIANGL2	10/20/97	01:49		X	IR
9	STD3	101997	TRIANGL2	10/20/97	01:54	DKH	Q	CONC
0	STD1-BLANK	101997	TRIANGL2	10/20/97	02:09		X	IR
1	STD1-BLANK	101997	TRIANGL2	10/20/97	02:34		Y	IR
2	STD3	101997	TRIANGL2	10/20/97	02:38		X	IR
3	STD3	101997	TRIANGL2	10/20/97	02:43	DKH	Q	CONC
4	CHECK LO	101997	TRIANGL2	10/20/97	02:48	DKH	Q	CONC
5	ICV/CCV	101997	TRIANGL2	10/20/97	02:52	DKH	Q	CONC
6	ICB/CCB	101997	TRIANGL2	10/20/97	02:57	DKH	Q	CONC
7	ICB/CCB	101997	TRIANGL2	10/20/97	03:03	DKH	Q	CONC
8	ICB/CCB	101997	TRIANGL2	10/20/97	03:09	DKH	Q	CONC
9	ICSAB	101997	TRIANGL2	10/20/97	03:14	DKH	Q	CONC
0	43411 MB	101997	TRIANGL2	10/20/97	03:29	DKH	S	CONC
1	43411 LCS	101997	TRIANGL2	10/20/97	03:33	DKH	S	CONC
2	184-84-1ABC	101997	TRIANGL2	10/20/97	03:38	DKH	S	CONC
3	184-84-1ABC PDS	101997	TRIANGL2	10/20/97	03:43	DKH	S	CONC
4	184-84-1ABC L	101997	TRIANGL2	10/20/97	03:47	DKH	S	CONC
5	184-84-2ABC	101997	TRIANGL2	10/20/97	03:52	DKH	S	CONC
6	184-84-2ABC DA	101997	TRIANGL2	10/20/97	03:57	DKH	S	CONC
7	184-84-3ABC	101997	TRIANGL2	10/20/97	04:01	DKH	S	CONC
8	184-84-4ABC	101997	TRIANGL2	10/20/97	04:06	DKH	S	CONC
9	184-84-5ABC	101997	TRIANGL2	10/20/97	04:11	DKH	S	CONC
0	184-84-5ABC	101997	TRIANGL2	10/20/97	04:17	DKH	S	CONC
1	ICV/CCV	101997	TRIANGL2	10/20/97	04:21	DKH	Q	CONC
2	ICB/CCB	101997	TRIANGL2	10/20/97	04:27	DKH	Q	CONC
3	184-84-6ABC	101997	TRIANGL2	10/20/97	04:33	DKH	S	CONC
4	184-84-7ABC D 10-31-97	101997	TRIANGL2	10/20/97	04:38	DKH	S	CONC
5	184-84-1DF	101997	TRIANGL2	10/20/97	04:42	DKH	S	CONC
6	184-84-1DF PDS	101997	TRIANGL2	10/20/97	04:47	DKH	S	CONC
7	184-84-1DF L	101997	TRIANGL2	10/20/97	04:52	DKH	S	CONC
8	184-84-2DF	101997	TRIANGL2	10/20/97	04:56	DKH	S	CONC
9	184-84-2DF DA	101997	TRIANGL2	10/20/97	05:01	DKH	S	CONC
0	184-84-3DF	101997	TRIANGL2	10/20/97	05:06	DKH	S	CONC
1	184-84-4D	101997	TRIANGL2	10/20/97	05:10	DKH	S	CONC
2	184-84-5BD	101997	TRIANGL2	10/20/97	05:15	DKH	S	CONC
3	ICV/CCV	101997	TRIANGL2	10/20/97	05:20	DKH	Q	CONC
4	ICB/CCB	101997	TRIANGL2	10/20/97	05:25	DKH	Q	CONC
5	184-84-6D	101997	TRIANGL2	10/20/97	05:31	DKH	S	CONC
6	184-84-7EF	101997	TRIANGL2	10/20/97	05:36	DKH	S	CONC
7	184-50-7D	101997	TRIANGL2	10/20/97	06:05		S	CONC
8	ICV/CCV	101997	TRIANGL2	10/20/97	06:09	DKH	Q	CONC
9	ICB/CCB	101997	TRIANGL2	10/20/97	06:17	DKH	Q	CONC
0	ICSAB	101997	TRIANGL2	10/20/97	06:23	DKH	Q	CONC

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43411

Client: Pacific Environmental Services (PES03)

Sample Information

Method: 7470

Solvent/Acids(): HNO3/H2SO4

Extraction Date: 10/19/97

Lot: 117D50 / 317020

Hg.

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Extraction Date __/__/__	__/__/__	__/__/__	__/__/__	__/__/__
000		TLI Blank / TLI Method Blank	NA / NA	100 / 100		DSE 10/19/97				
		TLI Blank Dup								
001		184-84-1A / O-M29-1-FHACE								
002		184-84-1B / O-M29-1-FHAR								
003		184-84-1C AB / O-M29-1-FILTER	5 / 5	100 / 100		DSE 10/19/97				
		184-84-1CAB Dup								
004		184-84-1DE / O-M29-1-HNO3	5 / 5	100 / 100		DSE 10/19/97				
		184-84-1DE Dup								
005		184-84-1E / O-M29-1-HNO3								
006		184-84-1F / O-M29-1-BHAR	5 / 5	100 / 100		DSE 10/19/97				
		184-84-1F Dup								
007		184-84-1G / O-M29-1-KMNO4	5 / 5	100 / 100		DSE 10/19/97				
		184-84-1G Dup								
008		184-84-1H / O-M29-1-HCL	5 / 5	100 / 100		DSE 10/19/97				
		184-84-1H Dup								
009		184-84-2A / O-M29-2-FHACE								
010		184-84-2B / O-M29-2-FHAR								
011		184-84-2C AB / O-M29-2-FILTER	5 / 5	100 / 100		DSE 10/19/97				
		184-84-2CAB Dup								
012		184-84-2DE / O-M29-2-HNO3	5 / 5	100 / 100		DSE 10/19/97				
		184-84-2DE Dup								

Comments: See HGSL-1, Spike Log p. 68

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

ject: 43411 Client: Pacific Environmental Services (PES03)

Sample Information

od: 7470 Extraction Date: 10/19/97

vent/Acids(): HNO3/H2SO4 Lot: 117050 / 317020

Hg

TLI / SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Extraction Date __/__/__	__/__/__	__/__/__	__/__/__	__/__/__
184-84-2E O-M29-2-HNO3								
184-84-2F O-M29-2-BHAR	5	100		DSE 10/19/97				
184-84-2F Dup	5	100						
184-84-2G O-M29-2-KMNO4	5	100		DSE 10/19/97				
184-84-2G Dup	5	100						
184-84-2H O-M29-2-HCL	5	100		DSE 10/19/97				
184-84-2H Dup	5	100						
184-84-3A O-M29-3-FHACE								
184-84-3B O-M29-3-FHAR								
184-84-3CAB O-M29-3-FILTER	5	100		DSE 10/19/97				
184-84-3CAB Dup	5	100						
184-84-3DE O-M29-3-HNO3	5	100		DSE 10/19/97				
184-84-3DE Dup	5	100						
184-84-3E O-M29-3-HNO3								
184-84-3F O-M29-3-BHAR	5	100		DSE 10/19/97				
184-84-3F Dup	5	100						
184-84-3G O-M29-3-KMNO4	5	100		DSE 10/19/97				
184-84-3G Dup	5	100						
184-84-3H O-M29-3-HCL	5	100		DSE 10/19/97				
184-84-3H Dup	5	100						
184-84-4A I-M29-1-FHACE								

ents: See pg 1 of 5

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43411 Client: Pacific Environmental Services (PES03)

Sample Information

Method: 7470 Extraction Date: 10/19/97 Hg.

Solvent/Acids(): HNO_3/H_2SO_4 Lot: 117050 / 317020

Sample #	crd	TLI SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt g / Vol ml	Final Volume ml	Extraction Date					
026		184-84-4B I-M29-1-FHAR								
027		184-84-4CAB I-M29-1-FILTER	5	100	DSE 10/19/97					
		184-84-4CAB Dup	5	100						
028		184-84-4D I-M29-1-HNO3	5	100	DSE 10/19/97					
		184-84-4D Dup	5	100						
029		184-84-4E I-M29-1-KMNO4	5	100	DSE 10/19/97					
		184-84-4E Dup	5	100						
030		184-84-4F I-M29-1-HCL	5	100	DSE 10/19/97					
		184-84-4F Dup	5	100						
031		184-84-5A O-M29-FB-FHACE								
032		184-84-5BD O-M29-FB-FHAR	5	100	DSE 10/19/97					
		184-84-5BD Dup	5	100						
033		184-84-5CAB O-M29-2-FILTER 8/27/97	5	100	DSE 10/19/97					
		184-84-5CAB Dup	5	100						
034		184-84-5D O-M29-FB-HNO3								
035		184-84-5E O-M29-FB-BHAR	5	100	DSE 10/19/97					
		184-84-5E Dup	5	100						
036		184-84-5F O-M29-FB-KMNO4	5	100	DSE 10/19/97					
		184-84-5F Dup	5	100						
037		184-84-5GF O-M29-FB-HCL	5	100	DSE 10/19/97					
		184-84-5GF Dup	5	100						
038		184-84-6ABCD I-M29-2-FHACE	5	100	SRB 10/20/97					
		184-84-6ABCD	5	100						

Comments: See page 1 of 5

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

ject: 43411 Client: Pacific Environmental Services (PES03)

Sample Information

hod: 7470 Extraction Date: __/__/__

vent/Acids(): ~~HNO3~~ | ~~H2SO4~~ Lot: 11205 | 317020

Hg

le rd	TLI / SAMPLE ID / CLIENT / SAMPLE ID	Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Extraction Date __/__/__	__/__/__	__/__/__	__/__/__	__/__/__
	184-84-6B I-M29-2-FHAR								
	~~184-84-6C~~ AB EE ④ SRB 10/20/97 ~~184-84-6CAB Dup~~ I-M29-2-FILTER		~~100~~ ~~100~~						
	184-84-6D 184-84-6D Dup I-M29-2-HNO3	5 / 5	100 / 100		SRB 10/20/97				
	184-84-6E 184-84-6E Dup I-M29-2-KMNO4	5 / 5	100 / 100						
	184-84-6F 184-84-6F Dup I-M29-2-HCL	5 / 5	100 / 100						
	184-84-6G 184-84-6G Dup I-M29-2-BHAR	5 / 5	100 / 100						
	184-84-7A BCD 184-84-7ABCD D I-M29-3-FHACE	5 / 5	100 / 100		SRB 10/20/97				
	184-84-7B I-M29-3-FHAR								
	~~184-84-7C~~ DAB EE SRB ④ 10/20/97 ~~184-84-7CDAB~~ I-M29-3-FILTER		~~100~~ ~~100~~						
	184-84-7D I-M29-3-FH CATCH								
	184-84-7E F 184-84-7EF I-M29-3-HNO3	5 / 5	100 / 100		SRB 10/20/97				
	184-84-7F I-M29-3-HNO3								
	184-84-7G 184-84-7G I-M29-3-BHAR	5 / 5	100 / 100		SRB 10/20/97				

ents: See page 1 of 5

REV 07/26/93 (PSTMP 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43411

Client: Pacific Environmental Services (PES03)

Method: 7470

Solvent/Acids(): HNO_3 / H_2SO_4

Extraction Date: 10/19/97

Lot: 117050 / 317020

Sample Information

Sample crd	TLI SAMPLE ID / CLIENT SAMPLE ID		Sample Wgt g	Sample Vol ml	Final Volume ml	Extraction Date				
052	184-84-7H	I-M29-3-KMNO4	5		100	SRB 10/20/97				
	184-84-7H Dup		5		100					
053	184-84-7I	I-M29-3-HCL	5		100					
	184-84-7I Dup		5		100					
054	LCS	Lab Control Spike	N/A		100	RSE 10/19/97				
	LCSD		N/A		100					
	184-84-1DE MS		5		100	RSE 10/19/97				
	184-84-1DE MSD		5		100					
	184-84-2DE MS		5		100	RSE 10/19/97				
	184-84-2DE MSD		5		100					
	184-84-4D MS		5		100	RSE 10/19/97				
	184-84-4D MSD		5		100					
	43411 LCS 2		N/A		100	SRB 10/20/97				
	43411 LCS 2D		N/A		100					
	184-84-6D MS		5		100					
	184-84-6D MSD		5		100					
	184-84-7EF MS		5		100					
	184-84-7EF MSD		5		100					
Reprep	43411 MB3		N/A		100	SRB 10/21/97				
	43411 MB3 D		N/A		100					
Reprep	43411 LCS3		N/A		100					
	43411 LCS3D		N/A		100					
Reprep	184-84-5BD		5		100					
	184-84-5BD D		5		100					
Reprep	184-84-5E		5		100	SRB 10/21/97				
	184-84-5E D		5		100					

Comments: See page 1 of 5

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

ject: 43411 Client: Pacific Environmental Services (PES03)

Sample Information

od: 7470 Extraction Date: __/__/__

vent/Acids(): HNO3 | H2SO4 Lot: 117050 | 317020

Hg

TLI / SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt / Vol g / ml	Final Volume ml	__/__/__	Extraction Date __/__/__	__/__/__	__/__/__	__/__/__	__/__/__
TLI Blank								
TLI Method Blank								
184-84-5F	5	100		SRB 10/21/97				
184-84-5F D	5	100						
184-84-5GF	5	100		SRB 10/21/97				
184-84-5GF D	5	100						

ents: See page 1 of 5

REV 07/26/93 (PSTMF 7)

MERCURY SPIKE LOG

DATE	PROJECT # SAMPLE IDs	ORIGINAL SPIKE CONC. (Hg)	STANDARD # WORKING STANDARD PREPARED FROM	SPIKE AMOUNT (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
10/8/97	43411 LCS LCSD	0.1 ppm	3-022-8	5	5	DSE	SF
	184-84-1DE MS 184-84-1DEMSD	↓	↓	↓	↓	↓	↓
	184-84-2DEMS 184-84-2DEMSD	↓	↓	↓	↓	↓	↓
	184-84-4DMS 184-84-4DMSD	↓	↓	↓	↓	↓	↓
10/20/97	43411 LCS 2 LCS 2D	0.1 ppm	3-023-1	5	5	SRB	DSE
	184-84-6D MS 184-84-6D MSD	↓	↓	↓	↓	↓	↓
	184-84-7EF MS 184-84-7EF MSD	↓	↓	↓	↓	↓	↓
10/20/97	43377 LCS1 LCS1D	0.1 ppm	3-023-1	5	5	SRB	DSE
	184-50-1D MS 184-50-1D MSD	↓	↓	↓	↓	↓	↓
	184-50-3DE MS 184-50-3DEMSD	↓	↓	↓	↓	↓	↓
	184-50-4DE MS 184-50-4DEMSD	↓	↓	↓	↓	↓	↓
10/21/97	43411 LCS3 LCS3D	0.1 ppm	3-023-5	5	5	SRB	DSE
	184-84-5BD MS 184-84-5BD MSD	↓	↓	↓	↓	↓	↓
10/21/97	42011Cr1 LCS LCSD	0.1 ppm	3-023-5	5	5	SRB	DSE
	170-70-3MS 170-70-3MSD	↓	↓	↓	↓	↓	↓
10/21/97	43377 LCS2 LCS2D	0.1 ppm	3-023-5	5	5	SRB	DSE
	184-50-6BD MS 184-50-6BDMSD	↓	↓	↓	↓	↓	↓
	184-50-7D MS 184-50-7D MSD	↓	↓	↓	↓	↓	↓

Autosampler Report Table: HA462 Mon 10-20-97 06:51:52 AM Page 1

PKH 10/20/97

Table Name: HA462 Autosampler Type: TYPE TJA
Sample Positions: 170/192 QC Positions: 13/19 # Sets: 1
Base Station location is rack -1, pos. -1.

-- Racks ---

Rack #	Type	Usage	#Pos Left	Analyses/Pos
1	Aux (1) Rack	STD/QC/BLANK	13	10
2	Sample (16mm)	Samples	26	1
3	Sample (16mm)	Samples	48	1
4	Sample (16mm)	Samples	48	1
5	Sample (16mm)	Samples	48	1

- Sample Sets ---

Set#	Type	Prepare?	Description	Method	#Pos	Rack#	StartPos
1	Normal	No	43411	TRIHAL2	22	2	1

* 43377

* Contains sample 184-50-7D for 43377.
PKH 10/20/97

- Preparation Info ---

Set#	Operator	Notebook#	Final	Dil Factor

Samples Prepared

Set #1

Set	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	STD3	-NA-	2	Standard 1-61-4P
1	1	2	STD1-BLANK	-NA-	1	Standard
1	1	3	ICSAB	-NA-	2	QC Standard 1-61-6P
1	1	4	CHECK 10	-NA-	1	QC Standard
1	1	5	ICV/CCV	-NA-	4	QC Standard 1-61-5P
1	1	6	ICB/CCB	-NA-	4	QC Standard
(19	Not Used)					

PKH 10/19/97

Set #2

Set	Row	Col	Sample Name	Set #	#Used	Type
1	1	1	43411 MB	1	-NA-	Sample
1	1	2	43411 LCS	1	-NA-	Sample
1	1	3	184-84-1ABC	1	-NA-	Sample
1	1	4	184-84-1ABC DUS	1	-NA-	Sample
1	1	5	184-84-1ABC L	1	-NA-	Sample
1	1	6	184-84-2ABC	1	-NA-	Sample
1	1	7	184-84-2ABC DA	1	-NA-	Sample
1	1	8	184-84-3ABC	1	-NA-	Sample
1	1	9	184-84-4ABC	1	-NA-	Sample
1	1	10	184-84-5ABC	1	-NA-	Sample
1	1	11	184-84-6ABC	1	-NA-	Sample
1	1	12	184-84-7ABCD * 10-31-97 CC	1	-NA-	Sample
1	2	1	184-84-1DE	1	-NA-	Sample
1	2	2	184-84-1DE DUS	1	-NA-	Sample
1	2	3	184-84-1DE L	1	-NA-	Sample

Rack #2

Pos	Row	Col	Sample Name	Set #	#Used	Type
16	2	4	184-84-20F	1	-NA-	Sample
17	2	5	184-84-20F DA	1	-NA-	Sample
18	2	6	184-84-30F	1	-NA-	Sample
19	2	7	184-84-40	1	-NA-	Sample
20	2	8	184-84-50D	1	-NA-	Sample
21	2	9	184-84-60	1	-NA-	Sample
22	2	10	184-84-7FF	1	-NA-	Sample
(23.. 48	Not Used)					

Rack #3

Pos	Row	Col	Sample Name	Set #	#Used	Type
(1 ..48	Not Used)					

Rack #4

Pos	Row	Col	Sample Name	Set #	#Used	Type
(1	48	Not Used)				

Rack #5

Pos	Row	Col	Sample Name	Set #	#Used	Type
(1	48	Not Used)				

ethod: TRIANGL2 Sample Name: STD1-BLANK Operator:
un Time: 10/20/97 02:34 Filename: 101997
ode: IR Type: Y Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.:

lems	Ag3280	Al3082	As1890	B 2496	Ba4934	Be3130
nits	count	count	count	count	count	count
/ge	-.00005	.00175	- 00025	00053	00016	.00015
ev	00018	00003	00016	.00007	0	0
SD	324 493	1 92741	64 7338	14.799	5.83794	3.00637

ems	Ca3179	Cd2265	Ca4186	Co2286	Cr2677	Cu3247
nits	count	count	count	count	count	count
/ge	00077	- 00011	-.00015	-.00013	- 00012	.00305
ev	0	.00019	.00043	.00005	.00002	.00006
SD	4196	169 969	276 427	38 9774	20 5118	2.00201

ems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
nits	count	count	count	count	count	count
ge	.00005	7.53193	.14862	.00007	.00002	.00005
ev	00001	.03932	.00073	.00006	0	0
SD	36.7786	.5221	.49205	78.2225	17.4372	19.3551

ems	Na3302	Ni2316	P 2149	2203-1	2203-2	Sb2068
nits	count	count	count	count	count	count
ge	00288	- 00183	-.00099	0007	00003	.00031
ev	.00185	.00034	.00002	00017	.00011	.00004
SD	64 1328	18.7786	2 33707	25 1502	307 289	15 2916

ems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
nits	count	count	count	count	count	count
ge	- 00491	.00187	- 00043	.00014	00008	- 00042
ev	00058	00033	00002	00001	00011	00002
SD	7 75111	17 6317	6 08648	8 357	132.664	6.83943

ems	V 2924	Zn3072	Si2881
nits	count	count	count
ge	-.00052	0	02469
ev	.00001	0	.0004
SD	2 6048	631.559	1.64285

Method: TRIANGL2 Sample Name: STD3 Operator:
Run Time: 10/20/97 02:38 Filename: 101997
Mode: IR Type: X Corr Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	count	count	count	count	count	count
Avge	42951	.01757	.0559	.17083	.29967	.3191
SDev	.00188	.00012	00055	.00151	.00142	.00285
%RSD	43819	72464	1.00079	88584	.4763	.89544

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	count	count	count	count	count	count
Avge	.02979	1.16012	.12545	12851	.18007	1752
SDev	00027	00945	00078	00111	0016	00013
%RSD	76907	81485	.62375	.87038	.89392	07961

Elems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
Units	count	count	count	count	count	count
Avge	00506	22 8985	13.3095	.0238	15667	09006
SDev	.00006	.13666	.06544	00011	.0012	.00089
%RSD	1 22096	59682	49173	.46229	76807	99213

Elems	Na3302	Ni2316	P 2149	2203-1	2203-2	Sb2068
Units	count	count	count	count	count	count
Avge	.18664	.41579	.02492	.23202	.10364	.13048
SDev	00144	.00321	.00015	.00161	.00128	.00103
%RSD	.77628	.77304	.62627	.69755	1.23524	.79634

Elems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
Units	count	count	count	count	count	count
Avge	29726	16957	14125	90854	1 78231	.03555
SDev	.00188	.00227	.00134	.005	.00816	.001
%RSD	63477	1 34306	95018	55051	63644	2 83301

Elems	V 2924	Zn2062	Si2881	Pb2203	Se1960
Units	count	count	count		
Avge	04404	13754	.5023		
SDev	00032	0014	00051		
%RSD	74319	1 02232	10304		

ethod: TRIANGL2 Sample Name: STD3 Operator: DKH
n Time: 10/20/97 02:43 Filename: 101997
de: CONC Type: Q Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

ems	Ad3280	Al3082	As1890	B_2496	Ba4934	Be3130
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	996.8	999.7	998.2	1013.	1001.	998.0
ev	2.451	7.16	.6164	2.352	.614	2.751
SD	.2459	.7162	.0617	.2322	.0613	.2756

ems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1001	1002	1001.	1002.	1001.	999.5
ev	1.699	1.713	1.951	2.245	2.438	4.02
SD	1697	1709	1949	.224	.2436	.4022

ems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
its	ppb	ppm	ppb	ppb	ppb	ppb
ge	1005	10.46	1040	1003.	1000	1005.
ev	1.719	[illegible]	1.999	2.091	1.761	1.499
SD	1.714	.1048	.4715	.2084	.1761	.149

ems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
its	ppm	ppb	ppb	ppb	ppb	ppb
ge	10.22	1005.	992.6	994.2	989.8	1004
ev	.1834	1.144	2.915	13.09	19.77	.5386
SD	1.794	1138	2937	1.317	1.998	.0536

ems	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	992.7	992.5	1002.	998.8	1000.	1034.
ev	13.69	24.42	2.265	.667	1.423	13
SD	1.379	2.461	.2261	.0668	.1423	1.258

ems	V_2924	Zn2062	Si2881	Pb2203	Se1960
its	ppb	ppb	ppb	ppb	ppb
ge	1002	1000	10000.	991.2	992.6
ev	1.884	3.755	47.53	10.63	12.71
SD	1881	3754	4752	1.073	1.281

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/20/97 02:52 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID : Cust. Smpl ID : Cust. ID.: 43411

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	503.7	497.4	510.3	508.5	503.8	505.6
SDev	2.998	5.265	1.771	.82	.9946	1.469
%RSD	.5952	1.059	.3471	.1613	.1379	.2905

Elems	Cd3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	506.3	505.5	503.3	504.5	505.2	503.3
SDev	1.398	1.315	1.503	1.077	1.547	2.322
%RSD	.2761	.2602	.2987	.2136	.3061	.4614

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	522.9	5.008	495.6	506.9	504.0	503.0
SDev	5.68	.198	15.86	1.956	1.197	1.576
%RSD	1.086	3.954	3.2	.3858	.2375	.3132

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	4.993	507.4	505.1	512.0	508.3	502.4
SDev	.1653	1.78	7.985	.3717	19.37	4.196
%RSD	3.311	.3509	1.581	.0726	3.81	.8352

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	514.8	511.3	509.5	512.5	507.9	501.0
SDev	4.238	21.88	13.01	13.51	2.346	.9362
%RSD	.8231	4.278	2.552	2.638	.4665	.1869

Elems	Tl3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	501.4	512.4	503.6	505.1	5044.
SDev	.9426	15.04	1.38	2.305	19.68
%RSD	.188	2.934	.2741	.4563	.3902

ethod: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
n Time: 10/20/97 02:57 Filename: 101997
ode: CONC Type: Q — Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

lems	Ag3280	Al3082	As1890	B 2496	Ba4934	Be3130
nits	ppb	ppb	ppb	ppb	ppb	ppb
vge	- 1735	-5.811	1 192	8.720	-.0120	-.0320
dev	402	3.288	1.525	2.985	.0617	.0137
RSD	231 6	56.58	127.9	34 23	513.9	42.79

ems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
nits	ppb	ppb	ppb	ppb	ppb	ppb
vge	9259	0783	-1 139	- 1719	1478	- 8467
dev	1 053	[illegible]	988	[illegible]	3938	9876
SD	111.8	79 67	25 31	386 5	266 4	69 43

ems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
nits	ppm	ppm	ppb	ppm	ppb	ppb
vge	-5.554	0797	1857	-3 469	0181	1 168
dev	9.133	.0223	0351	3 018	.0231	.6304
SD	164 4	30 62	18 9	87	127.4	53.95

ems	Na3302	Ni2316	P 2149	2203-1	2203-2	Sb2068
nits	ppm	ppb	ppb	ppb	ppb	ppb
vge	.0447	.4972	2.041	1.735	.0268	1.898
dev	.0515	5008	6453	1.871	1.135	1.578
SD	115	100.7	31.56	107 8	4236	83.14

ems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
nits	ppb	ppb	ppb	ppb	ppb	ppb
vge	- 3487	1 347	5957	7787	.3233	.0013
dev	8807	2.524	3347	1.975	1.28	.0289
SD	252.6	188 2	56 19	253.6	395.8	2178

ems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
nits	ppb	ppb	ppb	ppb	ppb
vge	- 1024	48 551	5940	- 0219	-3 055
dev	1978	4 878	5697	1889	13 76
SD	193 3	57 05	95 9	862	450 4

Method: TRIAHG12 Sample Name: ICB/CCB Operator: OKH
Run Time: 10/20/97 03:03 Filename: 101997
Mode: CUBC Type: U Corr. Factor: 1.00000
Lab ID: Cust Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2221	-3.678	.0696	2.468	-.0089	-.0133
SDev	1611	3.804	1.593	.8468	.0311	.0339
%RSD	72.51	103.4	2288	34.32	349.8	255.7

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1113	-.0435	-.0023	.0059	1712	-.5088
SDev	.3358	.11	3.004	.371	.5479	.4993
%RSD	301.8	252.8	453.6	563	320	87.77

Elems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mn2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	1.163	.0187	.0405	-2.102	-.0211	-.0177
SDev	3.836	.0281	.0558	[illegible]	.0181	[illegible]
%RSD	333.1	150.2	137.7	115.5	84.71	3463

Elems	Na3302	Ni3166	P 2149	[illegible]	[illegible]	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	.0762	.0617	7.717	2.554	-.5674	.2100
SDev	.0479	.2071	5.95	3.996	3.047	2.294
%RSD	62.87	335.9	82.44	156.5	537	1059

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.195	-2.295	.4719	.1756	-.4727	.0059
SDev	3.879	3.175	1.371	2.334	.4895	.0168
%RSD	75.7	138.3	290.5	1329	103.6	283.2

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	-.0504	05.304	.4599	-.1179	-3.202
SDev	.0672	4.211	.4404	.2772	3.439
%RSD	133.2	79.4	95.75	235.1	107.4

thod: [R1ANGL2 Sample Name: ICB/CCB Operator: DKH
n Time: 10/20/97 03:09 Filename: 101997
da: CUBIC Type: Q Corr Factor: 1.00000
h ID — Cust Smpl ID Cust ID : 43411

ems	Al3080	Al3082	As1890	B 2496	Ba4934	Be3130
its	ppb	ppb	ppb	ppb	ppb	ppb
ne	.0927	- 1024	.0053	.9844	.0678	-.0192
ev	.5361	4.777	.6625	.4981	.0099	.0392
SD	578	4.64	12.540	50.59	14.57	203.5

ems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
its	ppb	ppb	ppb	ppb	ppb	ppb
ne	.5086	.0567	1.377	-.1144	.5188	-.0714
ev	.4261	.1304	.629	.2136	.3834	.6319
SD	83.78	230	45.68	186.7	73.9	884.5

ems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
its	ppb	ppm	ppb	ppb	ppb	ppb
ne	4.817	- .0050	- .0034	2.899	.0160	- .0634
ev	3.712	.0119	.026	6.288	.0143	.5304
SD	77.07	395.7	769.0	216.9	89.63	837

ems	Na3302	Ni2316	P 2149	Pb2203-1	Pb2203-2	Sb2068
its	ppm	ppb	ppb	ppb	ppb	ppb
ne	.0859	.5124	.9855	.5028	- .7179	.8071
ev	.11	.578	.955	1.988	7.336	1.429
SD	129.1	73.11	32.86	395.5	102.2	178.1

ems	Se1960	Se2060	Sr2070	Se1960	Sn1899	Sr4215
its	ppb	ppb	ppb	ppb	ppb	ppb
ne	.5315	1.143	- .3114	.9392	- .7503	.0229
ev	1.457	1.095	.8019	1.065	1.368	.0333
SD	274.1	89.7	257.5	113.4	182.4	145.5

ems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
its	ppb	ppb	ppb	ppb	ppb
ne	.1295	.4138	.5028	.0210	-10.60
ev	.1235	1.767	.426	.1789	9.072
SD	95.38	426.9	84.72	851	85.61

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 10/20/97 03:14 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID: Cust. ID.: 43411

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	532.7	514100.	518.1	515.4	509.9	486.5
SDev	7049	1439	6.113	2.926	5178	1.457
%RSD	1.327	.98	1.18	.5677	1015	.2994

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	452300	463.9	491.6	459.9	473.0	524.0
SDev	1160	.966	1.822	1.181	1.547	1.779
%RSD	.2564	.2082	.3707	.2567	.3271	.3395

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	171500.	026.15	609.2	528800.	449.0	496.9
SDev	283.4	.0898	2.652	526.1	1.076	2.026
%RSD	.1652	.3434	.4352	.0995	.2396	.4078

Elems	Na3302	Ni2316	P_2149	Pb2203-1	Pb2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	5.574	450.3	500.9	507.2	466.1	505.6
SDev	.0607	.6123	33.4	13.61	9.595	11.71
%RSD	1.09	.136	6.669	2.683	2.059	2.316

Elems	Se1960-1	Se1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	530.8	527.8	479.8	528.8	496.8	502.[illegible]
SDev	12.19	12.55	5.148	4.31	9.848	1.615
%RSD	2.296	2.377	1.073	.8152	1.987	.0321

Elems	Tl3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	491.9	506.3	488.3	439.1	5490
SDev	.6456	14.66	1.108	1.92	5.319
%RSD	.1313	2.895	.2268	.4372	.0969

'hod: TRIANGL2 Sample Name: 43411 MR Operator: DKH
Time: 10/20/97 03:29 Filename: 101997
le: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 43411

ms	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	1- 3072	1- 8322	1 0830	1-.0078	1.0293	1-.3205
v	4633	1.912	0044	.0111	0523	2716
D	150 8	229 8	5.267	142-	178.6	84 74

ms	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	1 262	1 7256	1.3903	10 14	1-5 195	1 7098
v	5607	278	0118	4096	5 594	1671
D	137.6	38 32	3 02	4 039	102 2	23 54

ms	Sb2068	Se1960	Tl1908	Zn2062
ts	ppb	ppb	ppb	ppb
e	1- 0619	1.4985	1 6378	2 789
v	2622	2 279	1.702	.1799
D	423 5	457 2	260.9	6 45

Method: TRIANGL2 Sample Name: 43411 LCS Operator: DKH
Run Time: 10/20/97 03:33 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	42.95	44.95	46.80	45.78	46.59	46.65
SDev	.364	1.466	.0518	.0392	.1362	.3389
%RSD	.8474	3.261	.1106	.0857	.2924	.7265

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	47.19	47.89	47.50	65.43	908.8	45.94
SDev	.2267	.4539	.0623	.1269	12.09	.3575
%RSD	.4805	.9477	.1312	.1939	1.33	.7782

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	46.51	46.39	48.99	194.4
SDev	2.976	.7771	1.075	.9058
%RSD	6.397	1.675	2.197	.4659

Method: IR14061? Sample Name: 184-84-1ABC Operator: DXH
Run time: 10/20/97 03:38 Filename: 101997
Mode: FDNC Type: S Corr-Factor: 1.00000
Lab ID: Cust. Smpl. ID: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.411	1-.0166	539.8	1-.1580	1-3.194	1-32.45
SDev	.9053	2.544	.6261	.0749	.6939	2.469
%RSD	37.55	15340	.116	47.39	21.72	7.61

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P.2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	126.0	71.25	677.2	59.06	505.8	30.75
SDev	1.278	.3587	3.859	2.041	22.52	1.741
%RSD	1.014	.5035	.5698	3.456	4.453	5.661

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	38.44	46.74	1-30.65	714.1
SDev	1.6	2.177	8.495	2.11
%RSD	4.162	4.657	27.71	.9856

Method: TRIANGL2 Sample Name: 184-84-1A8C POS Operator: OKH
Run Time: 10/20/97 03:43 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	32.43	47.98	575.5	44.63	43.53	17.32
Sdev	1036	6.530	1.254	20	.8509	2.343
%RSD	.9559	13.82	.2179	.493	1.955	13.53

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	172.3	119.0	709.6	105.9	1391.	75.53
Sdev	8119	4906	2.798	7592	20.29	1.788
%RSD	.4713	.4124	.3238	.7171	1.459	2.367

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	95.35	85.76	29.85	397.2
Sdev	8.079	2.795	2.065	3.034
%RSD	8.474	3.259	6.919	.7639

thod: TRIANGL2 Sample Name: 184-84-1ARC 1 Operator: DKH
n Time: 10/20/97 03:47 Filename: 101997
de: CONC Type: S Corr. Factor: 1.00000
b ID.: Cust. Smpl. ID.: Cust. ID.: 43411

ems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1.8206	12.538	111.7	1.0096	1-.5538	1-6.060
av	.271	.9428	59	.088	.0838	.1307
SD	33.02	37.15	5281	917.1	15.14	1.963

ems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	32.50	14.20	144.[illegible]	[illegible]	110.3	7.605
av	8104	.6917	.4311	.5843	4.701	1.709
SD	[illegible]	4.871	[illegible]366	4.378	4.263	22.47

ems	Sb2068	Sn1960	Tl1908	Zn2062
its	ppb	ppb	ppb	ppb
ge	11.55	10.88	1-7.700	46.88
av	3.125	.5987	1.967	.524
SD	27.09	5.475	25.55	1.118

Method: TRIANGL2 Sample Name: 184-84-2ABC Operator: OKH
Run Time: 10/20/97 03:52 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.154	L2.119	401.5	L-.2350	1.741	L-23.08
SDev	.0758	6.35	.4583	.0223	.5889	1.369
%RSD	3.517	299.6	.114L	9.483	33.83	5.93

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	104.7	57.34	633.1	50.16	463.8	24.09
SDev	.5693	.9633	2.465	1.449	8.71	2.3
%RSD	.5436	1.68	.3893	2.889	1.878	9.544

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	38.48	37.51	L-26.49	183.2
SDev	2.49	1.381	2.617	2.057
%RSD	6.116	3.691	9.945	1.1[illegible]

ethod: TRIANGLE Sample Name: 184-84-2880 DA Operator: DXH
un Time: 10/20/97 03:57 Filename: 101997
ode: CUNC Type: S Corr Factor: 1.00000
ab ID: Cust Smpl ID: Cust ID.: 43411

Items	Ba3780	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Ave	7.187	1-1.546	401.4	1-.3100	1.7623	1-25.50
Dev	.338	2.537	4212	.0606	.8887	2.049
RSD	15.46	99.64	.1049	19.54	116.6	8.038

Items	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Ave	104.9	58.09	630.1	50.15	444.8	21.35
Dev	4237	6704	1.12	.7475	26.19	4.37
RSD	.4039	1.154	.1778	1.491	5.889	20.46

Items	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Ave	32.95	39.89	1-32.13	181.0
Dev	5.34	1.224	7.31	.495
RSD	16.2	3.07	22.75	.2734

Method: TRIANGL2 Sample Name: 184-84-3ABC Operator: DKH
Run Time: 10/20/97 04:01 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID : Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.8734	13.733	692.1	1-4895	1-1.272	1-17.02
SDev	.1423	4.685	1.538	.0773	.49	1.566
%RSD	16.29	125.5	.2223	15.8	38.52	9.204

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	117.2	10[illegible].9	1076	63.15	762.5	31.98
SDev	9.698	.3019	6.259	.3018	18.59	1.959
%RSD	.8274	.2905	.5819	.4779	2.438	6.125

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	39.11	39.48	1-19.59	248.8
SDev	5.679	.7709	6.623	2.924
%RSD	14.52	1.952	33.8	1.175

:hod: TRIANGLE Sample Name: 184-84-4ABC Operator: DKH
Time: 10/20/97 04:06 Filename: 101007
de: CONC Type: S Corr. Factor: 1.00000
ID : Cust. Smpl. ID.: Cust. ID.: 43411

ms	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
ts	ppb	ppb	ppb	ppb	ppb	ppb
ie	11.97	50.29	10820.	1-39.19	200.1	631.6
v	.2934	14.4	30.18	2.406	3.962	1.26
D	2.451	28.64	.279	6.141	1.98	.1994

ms	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
ts	ppb	ppb	ppb	ppb	ppb	ppb
ie	953.7	6107	21790.	534.1	12130	804.7
v	6116	11.61	408.3	7798	60.2	2.263
D	.0883	6814	1.651	1358	.1429	2819

ms	Sb3068	Se1960	Tl1908	Zn2062
ts	ppb	ppb	ppb	ppb
ie	1-2.931	1-254.5	47.11	7401
v	34.86	3.363	23.33	32.12
D	1189	1.322	49.52	4341

Method: TRIANGL2 Sample Name: 184-84-5A8C Operator: DKH
Run Time: 10/20/97 04:11 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.546	L3.166	124.1	L.o199	L-4.483	L-31.07
SDev	1.809	5.15	115.9	1.078	.3825	7.36
%RSD	117	162.7	93.42	173.9	8.532	23.o9

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	106.8	46.53	377.1	48.81	289.2	L-7.469
SDev	12.27	50.43	o09.4	o.924	4o8.7	3.474
%RSD	11.5	108.4	161.6	14.19	162.1	46.52

Elems	Sb20o8	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	[illegible]	41.84	L-35.58	101.[illegible]
SDev	5.848	1.519	14.18	110.3
%RSD	[illegible]	3.o32	5o.o	109.1

ethod: IRIAN612 Sample Name: 184-84-5ABC Operator: DSH
un time: 10/20/97 04:17 Filename: 101997
ode: CUNC Type: S Corr Factor: 1.00000
ar ID: Cust Smpl ID: Cust ID: 43411

Item	Ag2280	As1890	Ba4934	Be3130	Cd2265	Ca2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	1.8083	1-.3521	55.52	1.0426	1-4.108	1-34.54
Dev	.5516	2.189	.1298	.0396	.4652	1.683
RSD	68.24	621.8-	.2337	92.99	11.32	4.871

Item	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avg	100.3	16.90	17.50	45.05	19.138	1-5.028
Dev	3449	1.43	.5998	1.01	16.99	.9844
RSD	.3439	8.463	3.427	2.242	185.9	19.58

Item	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avg	46.92	40.48	1-25.70	36.07
Dev	5.953	2.978	6.642	.7095
RSD	12.69	7.356	25.85	1.967

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/20/97 04:21 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	502.9	495.9	509.0	532.9	509.5	504.8
SDev	1.593	2.521	1.504	20.68	.8612	1.809
%RSD	.3167	1.519	.2954	3.881	.169	.3581

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	498.7	506.5	506.4	506.1	509.5	506.1
SDev	3.838	3.023	4.282	2.693	2.346	2.119
%RSD	.7696	.5968	.8455	.532	.4605	.4186

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	539.3	4.953	499.9	501.0	496.6	504.9
SDev	30.63	.1458	13.96	13.14	1.284	3.702
%RSD	5.679	2.944	2.792	2.624	.2585	.7332

Elems	Na3302	Ni2316	P 2149	2203-1	2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	4.982	508.9	507.6	507.2	519.1	501.1
SDev	.1514	2.628	10.25	10.46	15.51	5.733
%RSD	3.039	.5164	2.019	2.062	2.988	1.144

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	501.4	515.7	515.1	509.6	496.7	503.1
SDev	8.204	20.53	12.41	15.14	2.316	.5268
%RSD	1.636	3.985	2.42	2.971	.4663	.1047

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	491.1	506.7	505.4	504.5	036500
SDev	1.45	10.26	1.106	4.042	3713
%RSD	.2953	2.026	.2188	.8013	10.17

thod: TRIANGLE Sample Name: ICB/CCB Operator: DKH
n Time: 10/20/97 04:27 Filename: 101997
de: CONC Type: Q — Corr. Factor: 1.00000
b ID.: Cust. Smpl. ID.: Cust. ID.: 43411

ems	Ag3280	Al3082	As1890	B 2496	Ba4934	Be3130
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	.2444	-1.104	.8468	64.48	.2341	.2485
ev	1.482	4.935	1.79[illegible]	3.905	.2044	.2476
SD	606.4	447.1[illegible]	211.6	6.057	87.32	99.64

ems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1.031	.3896	-.3917	-.4435	1.133	-.3975
ev	.146	.1817	1.[illegible]	.4693	.5588	.6875
SD	14.16	16.64	1.05	105.8	49.5	158.2

ems	Fe2714	K 7664	La3709*	Mg2790	Mn2576	Mo2020
its	ppb	ppm	ppb	ppb	ppb	ppb
ge	-3.247	.0251	.4390	-3.914	.2216	.8116
ev	7.307	.0176	.2533	3.299	.2505	.3564
SD	225.1	70.1	57.69	84.3	113	43.91

ems	Na3302	Ni2316	P 2149	Pb203-1	Pb203-2	Sb2068
its	ppm	ppb	ppb	ppb	ppb	ppb
ge	.0157	.7505	-.1184	1.387	-.5901	1.280
ev	.3821	1.057	6.419	1.937	1.867	.8589
SD	2430	140.8	5423	139.7	316.4	67.09

ems	Se196-1	Se196-2	Pb2203	Se1960	Sn1899	Sr4215
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1.218	-1.721	.0681	-.7425	-.9249	.2630
ev	1.306	.815	.785	.3985	.6176	.2335
SD	107.2	47.34	115.2	53.67	66.78	88.78

ems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
its	ppb	ppb	ppb	ppb	ppb
ge	.1656	-.476	.7337	0.767	u14950
ev	.2182	2.257	.3227	.5394	828.4
SD	149.9	91.18	44.05	7020	5.54

Method: TRIANGL2 Sample Name: 184-84-oABC Operator: DKH
Run Time: 10/20/97 04:33 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID: Cust Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10.02	38.16	9226	L-18.61	142.8	551.0
SDev	.7677	8.342	58.46	.3362	8.794	3.075
%RSD	7.664	21.86	.6337	1.807	6.156	.5581

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	872.9	6548	23320.	555.0	38030.	779.1
SDev	4.478	179.9	1100	3.849	120	11.89
%RSD	.513	2.748	4.717	.6935	.3155	1.526

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	L-[illegible].28	L-179.3	50.68	.0659
SDev	16.85	16.05	10.85	123.5
%RSD	[illegible]	8.953	35.38	1.853

Method: 1B1ABG12 Sample Name: 184-84-7ABCD 10-31-97 Operator: DKH
Run Time: 10/20/97 04:38 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID : Cust Smpl ID : Cust ID : 43411

Items	As3780	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	6.711	49.13	7309	1-11.75	94.86	454.8
Dev	1.714	9.863	30.76	2.266	4.162	7.318
RSD	25.54	20.08	.4209	19.29	4.388	1.609

Items	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	756.2	6031.	22380.	463.7	48810.	778.8
Dev	10.74	95.93	901.3	7.126	386	29.78
RSD	1.42	1.591	4.028	1.537	.7909	3.824

Items	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	1-1.819	1-92.40	54.76	5199.
Dev	19.97	23.88	29.53	132
RSD	1098	25.85	46.62	2.539

Method: TRIANGL2 Sample Name: 184-84-1DE Operator: DKH
Run Time: 10/20/97 04:42 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID : Cust. Smpl ID.: Cust. ID.: 43411

Items	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.302	1-2.625	8.541	L-.0122	4.544	L-.5404
Sdev	2.518	1.423	.2816	.0128	.3997	1.404
%RSD	193.4	54.[illegible]	11.49	.251	8.795	412.3

Items	Cr2677	Cu3247	Mn2576	Ni2316	V.2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	5.779	20.50	22.23	32.86	562.5	51.85
Sdev	1.673	.7832	8.066	1.078	2.678	1.156
%RSD	28.95	3.821	36.27	3.281	.476	2.229

Items	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	11.411	9.124	1-8.068	217.4
Sdev	4.035	2.249	2.997	2.525
%RSD	286	24.64	37.15	1.161

thod: TRIANGL2 Sample Name: 184-84-1DF PDS Operator: DKH
n Time: 10/20/97 04:47 Filename: 101997
de: CONC Type: S Corr. Factor: 1.00000
b ID.: Cust. Smpl. ID.: Cust. ID.: 43411

ems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
its	ppb	ppb	ppb	ppb	ppb	ppb
ne	42.65	42.89	58.97	46.31	51.82	47.41
ev	2.694	1.43	.2732	.0452	.307	.6256
SD	6.317	3.335	.4634	.0976	.5923	1.32

ems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
its	ppb	ppb	ppb	ppb	ppb	ppb
ne	52.63	68.63	63.17	79.71	1419	96.36
ev	1.704	2.039	.78	.8506	12.79	00.8
SD	2.287	2.921	.4401	1.067	.9015	.6879

ems	Sb2068	Se1960	Tl1908	Zn2062
its	ppb	ppb	ppb	ppb
ne	45.56	50.52	45.84	389.4
ev	3.025	.8631	2.925	.9352
SD	6.64	1.708	6.381	.2402

Method: TRIANGLE Sample Name: 184-84-10E L Operator: OKH
Run Time: 10/20/97 04:52 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID : Cust. Smpl ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L.1532	L-2.144	L1.564	L-.0160	L.9402	L-.4886
SDev	.3921	2.1	.2212	.0433	.2746	.9288
%RSD	256	97.95	14.14	270.6	29.21	190.1

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P_2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	11.401	3.143	3.694	5.411	108.6	11.31
SDev	.7993	.8935	.5542	1.485	6.173	.2462
%RSD	57.06	28.43	15	27.45	5.687	2.177

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	L.3198	L.0793	L-7.206	11.30
SDev	[illegible]	[illegible]	2.141	[illegible]
%RSD	1586	1551	[illegible]	[illegible]

Method: 1R18N612 Sample Name: 184-84-20F Operator: DKH
n Time: 10/20/97 04:56 Filename: 101997
da: CUNC Type: S Corr. Factor: 1.00000
h ID: Cust Sampl. ID: Cust ID.: 43411

ams	As1280	As1890	Ba4934	Be3130	Cd2265	Co2286
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1.0340	1-3.373	7.088	1-.0028	1.921	1-.1642
av	.4097	.766	.1278	.0355	.0911	.4237
SD	64.57	22.71	1.804	1281	4.744	258

ams	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	5.627	13.78	110.6	14.45	660.6	28.59
av	.2323	.6916	.6832	.4779	1.415	2.072
SD	4.129	5.019	.6178	3.308	.2142	7.249

ams	Sb2068	Se1960	Tl1908	Zn2062
its	ppb	ppb	ppb	ppb
ge	1.2565	6.474	1-7.166	73.43
av	1.345	2.441	2.709	4764
SD	524.5	37.7	37.81	6488

Method: TRIANGL2 Sample Name: 184-84-20E DA Operator: DKH
Run Time: 10/20/97 05:01 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-1.000	L-2.338	6.838	L-.0584	1.709	L-1.009
SDev	2.589	6.269	6.263	1.375	.8713	2.478
%RSD	258.8	26.82	91.6	235.3	51	245.7

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	4.196	12.23	109.5	13.69	650.9	28.61
SDev	2.986	3.241	1.75	2.258	38.56	1.769
%RSD	71.15	26.49	1.598	16.49	4.387	6.184

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	L-5.254	7.037	L-5.593	71.75
SDev	8.927	1.939	1.115	2.616
%RSD	169.9	27.55	19.94	3.646

ethod: TRIANGL2 Sample Name: 184-84-3DE Operator: DKH
un Time: 10/20/97 05:06 Filename: 101997
ode: CONC Type: S Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

lems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
nits	ppb	ppb	ppb	ppb	ppb	ppb
vge	1.4722	1-4.540	6.268	1-.0459	1.830	1-1.202
Dev	.8536	1.591	.1796	.0175	.094	.7142
RSD	180.8	35.04	2.866	38.07	5.136	59.44

lems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
nits	ppb	ppb	ppb	ppb	ppb	ppb
vge	8.105	42.97	17.68	16.96	645.3	26.99
Dev	.9365	.4871	.5613	.8774	4.518	1.894
RSD	11.11	1.134	3.152	5.173	.7001	7.018

lems	Sb2068	Se1960	Tl1908	Zn3072
nits	ppb	ppb	ppb	ppb
vge	1.6754	9.011	1-7.459	33.82
Dev	1.699	2.344	1.988	.339
RSD	251.6	26.01	26.65	.4592

Method: TRPANGL2 Sample Name: 184-84-40 Operator: DKH
Run Time: 10/20/97 05:10 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID : Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	L-.5542	L-5.631	4.733	L-.0962	1.898	L-1.351
SDev	1.703	1.538	.1898	.0347	.2746	.8122
%RSD	307.3	27.31	4.011	36.06	14.47	60.12

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.620	13.74	12.34	13.55	345.7	41.44
SDev	1.007	1.28	.2644	.7961	6.567	1.499
%RSD	27.83	9.314	2.143	5.874	1.9	3.617

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	L-3.091	11.140	L-6.843	185.6
SDev	2.396	1.641	2.292	3.303
%RSD	77.52	14.73	33.46	1.78

thod: IR160613 Sample Name: 184-84-580 Operator: DKH
n Time: 10/20/97 05:15 Filename: 101997
da: CUUC — Type: S Corr Factor: 1.00000
b ID Cust Smpl ID : Cust. ID : 43411

ms	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
its	ppb	ppb	ppb	ppb	ppb	ppb
ia	2.048	L-2.730	L.7086	L-.0408	1.2164	L-.9254
v	2.035	2.076	.3415	.0902	.2859	1.498
SD	99-28	76.06	48.2	221.1	132.1	161.9

ms	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
ts	ppb	ppb	ppb	ppb	ppb	ppb
ia	L.8461	2.565	4.555	5.815	L-10.25	3.934
v	1.686	2.01	.286	1.361	13.2	1.988
SD	199.3	78.36	6.28	23.41	128.7	50.52

ms	Sb2068	Se1960	Tl1908	Zn2062
ts	ppb	ppb	ppb	ppb
ia	1.5982	L-2.147	L-3.722	12.58
v	5.984	.2323	4.122	.9692
D	1000	10.82	110.8	7.706

Method: TRIANGL2 Sample Name: ICV/CCV Operator: OKH
Run Time: 10/20/97 05:20 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust ID : 43411

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	517.7	492.3	515.2	525.0	513.0	509.8
SDev	7.404	15.11	3.662	4.166	3.589	5.309
%RSD	1.444	3.069	.7108	.7936	.6997	1.041

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	500.3	508.2	503.4	509.2	508.6	507.8
SDev	6.229	5.483	5.453	4.988	6.127	7.027
%RSD	1.245	1.079	1.083	.9796	1.205	1.384

Elems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	523.2	5.496	0558.7	498.1	501.4	503.7
SDev	28.01	.5171	51.33	10.95	4.06	2.76
%RSD	5.353	9.408	9.188	2.199	.8097	.5479

Elems	Na3302	Ni2316	P 2149	2203-1	2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	5.187	509.1	508.5	499.4	498.6	500.5
SDev	.4924	4.753	10.16	10.55	16.27	2.739
%RSD	9.490	.9336	1.998	2.072	3.263	.5473

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	497.1	495.1	498.9	496.0	502.0	506.1
SDev	3.749	15.47	11.79	11.55	3.746	2.15
%RSD	.7541	3.124	2.364	2.329	.7463	.484

Elems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	488.1	510.8	506.9	503.9	05821
SDev	2.369	4.226	3.419	9.604	152.6
%RSD	.4855	.8273	.6745	1.906	2.621

thod: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
n Time: 10/20/97 05:25 Filename: 101997
de: CONC Type: Q Corr. Factor: -1.00000
b ID.: Cust. Sampl. ID.: Cust. ID.: 43411

ems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	- .3952	-1.276	2.986	11.90	- .0195	-.0007
ev	3.116	6.456	1.18	2.449	2569	.0379
SD	788.3	506.1	39.52	20.58	1314 -	5457

ems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	-1.119	.0287	-1.595	- .4239	- .1946	-.9239
ev	.223	.3756	2.918	1.114	1.204	1.12[illegible]
SD	198.6	1305	184.8	262.7	619	171.6

ems	[illegible]	K 2664	Li6707	Mg2790	Mn2576	Mo2020
its	ppb	ppm	ppb	ppb	ppb	ppb
ge	-8.297	-.1985	.1638	-3.935	- .0309	.4270
ev	29.37	.2833	.5687	13.26	.1444	.4655
SD	354	142.7	347.2	337	466.2	109

ems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
its	ppm	ppb	ppb	ppb	ppb	ppb
ge	- .1113	.1746	4.099	-1.325	-.4244	-1.503
ev	.9216	1.046	6.775	12.02	7.333	3.33
SD	828.3	598.8	165.3	907	1728	221.5

ems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	- .7955	.6464	-.7243	.1663	-1.097	-.0120
ev	4.487	3.483	2.088	.8744	.6076	.1223
SD	564	538.8	288.3	525.9	55.4	1016

ems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
its	ppb	ppb	ppb	ppb	ppm
ge	- .0818	3.856	.1736	.2429	0288.8
ev	.4805	3.409	1.056	4.453	84.37
SD	587.[illegible]	88.41	607.9	179.2	29.21

Method: TRIANGL2 Sample Name: 184-84-60 Operator: DKH
Run Time: 10/20/97 05:31 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	1.4456	L-1.309	11.69	L-.0621	3.081	L.4882
SDev	.1495	1.874	.0658	.043	.1118	.0534
%RSD	33.55	143.1	.5624	69.24	3.63	10.93

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	9.077	48.38	52.12	26.16	667.4	46.65
SDev	.4667	1.513	.2723	.9215	4.274	.8658
%RSD	5.142	3.126	.5225	3.522	.6403	1.856

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	L-4.478	3.561	L-.8602	156.9
SDev	1.789	2.125	.892	1.361
%RSD	399.3	59.38	336.7	.8018

thod: 181AUG12 Sample Name: 184-84-7FF Operator: DKH
n Time: 10/20/97 05:36 Filename: 101997
de: CONC Type: S Corr. Factor: 1.00000
h ID: Cust. Sampl ID : _ Cust. ID.: 4341

ms	Be3280	Be1890	B34944	Be3130	Cd2265	Co2286
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	1.1070	1-3.043	28.77	1-.0352	2.943	1.0336
av	.8232	1.877	.1202	.0265	.1771	.9164
SD	769.3	61.67	.4176	75.16	6.019	2724

ms	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
its	ppb	ppb	ppb	ppb	ppb	ppb
ge	11.20	38.73	95.12	35.37	1182.	43.60
av	9274	.633	.2202	.8733	3.647	.8947
SD	8.283	1.634	.2315	2.469	.3087	2.052

ms	Sb2068	Se1960	Tl1908	Zn2062
its	ppb	ppb	ppb	ppb
ge	1-.1209	1.1976	1-6.282	298.4
v	899	2.445	3.19	1.759
D	738	1237	50.78	.5893

Method: TRIANGL2 Sample Name: 184-50-70 Operator:
Run Time: 10/20/97 06:05 Filename: 101997
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	As1890	Ba4934	Be3130	Cd2265	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	[illegible]	[illegible]	4.655	[illegible].0121	5.279	[illegible]-1.085
SDev	.6119	2.461	.0565	.0586	.0311	.5686
%RSD	[illegible]	83.8	1.214	484.[illegible]	.5885	52.39

Elems	Cr2677	Cu3247	Mn2576	Ni2316	P 2149	Pb2203
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	[illegible].758	7.221	109.4	7.742	447.2	42.65
SDev	.5762	.5265	.5844	.7187	2.932	.4862
%RSD	8.526	7.29	.3515	9.283	.6557	1.14

Elems	Sb2068	Se1960	Tl1908	Zn2062
Units	ppb	ppb	ppb	ppb
Avge	[illegible]-.0461	7.465	[illegible]-6.667	163.3
SDev	1.986	1.411	3.501	1.675
%RSD	4308	18.9	52.51	1.025

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/20/97 06:09 Filename: 101997
Mode: CONC Type: U Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.: 43411

Elems	Ag3280	Al3082	As1890	B 2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	515.5	505.1	508.2	512.4	506.5	504.5
Dev	2.609	14.09	4.616	1.421	1.437	4.544
%RSD	.506	2.789	.9083	.2774	.2836	.9007

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	498.9	500.2	498.5	506.3	505.7	510.0
Dev	1.709	1.584	2.148	2.901	1.533	3.615
%RSD	.3425	.2165	.4309	.573	.3032	.7089

Elems	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	516.5	5.269	538.9	502.2	500.0	501.1
Dev	12.12	.2711	20.39	5.631	2.726	3.804
%RSD	2.346	5.144	3.765	1.129	.5451	.759

Elems	Na3302	Ni2316	P 2149	Pb2203-1	Pb2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	5.264	503.9	506.5	501.1	510.2	499.3
Dev	.4491	1.877	5.058	5.469	5.667	2.094
%RSD	8.531	.3724	.9985	1.091	.1111	.4193

Elems	Se1960-1	Se1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	495.4	508.2	507.2	504.0	495.3	502.5
Dev	7.969	4.55	2.164	5.632	2.256	2
%RSD	1.608	.8954	.4268	1.118	.4555	.3979

Elems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	487.6	506.1	504.1	498.0	5092
Dev	4.[illegible]	11.86	1.069	5.751	63.8
%RSD	.507	2.341	.4105	1.155	1.223

Method: TPIAMG12 Sample Name: ICB/CCB Operator: DKH
Run time: 10/20/97 06:17 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID: Cust. Smpl ID: Cust ID.: 43411

Elems	Ag3280	Al3082	As1890	B 2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.3542	-.5698	.8032	6.283	.1427	.1775
SDev	5844	3 135	.3593	.4852	1627	.2517
%RSD	165	550.2	44.73	7.724	114	141.8

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	7677	2130	-1 543	0687	.3013	- 3605
SDev	9725	1861	3 532	2555	.3698	376
%RSD	365.7	87 38	231 5	371 8	122 7	104 3

Elems	Fe2714	K 7664	La4202	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	-5 030	0086	7637	-1 [illegible]	.2413	9594
SDev	[illegible]	[illegible]	[illegible]	5 675	[illegible]	[illegible]
%RSD	[illegible]	855 1	[illegible]	146 7	[illegible]	141 9

Elems	Na3302	Ni2316	P 1149	[illegible]	[illegible]	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	0593	1 [illegible]78	- 4086	3 [illegible]27	-1 543	[illegible] 229
SDev	1179	4165	7.139	3.819	2.071	2.598
%RSD	199	37 58	1747	118 3	136 2	116.6

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3 835	-1.386	0891	.3525	.4687	.1842
SDev	3 157	8052	5634	1 192	.865	234
%RSD	82.33	58 1	953.1	338	184.5	127.1

Elems	Ti3349	Tl1908	V 2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	1148	4.066	1 080	.4050	8155 4
SDev	.1339	1.454	4349	.1001	5.502
%RSD	116.6	35 76	40 28	24 71	3.541

Method: [illegible] Sample Name: USGR Operator: DRH
Run time: 10/20/97 06:23 Filename: [illegible]
Mode: [illegible] Type: U Corr. Factor: 1.00000
Lab ID Cust. Smpl. ID.: Cust. ID: 43411

Items	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	[illegible]	[illegible]	524.7	533.7	520.2	183.8
Sdev	[illegible]	4070	4.197	1.935	2.825	4.798
%RSD	[illegible]	7721	7998	3626	5431	.9917

Items	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	447000	440.4	493.0	461.1	472.6	539.9
Sdev	7103	5.642	4.98	4.999	6.476	6.501
%RSD	1.589	1.226	1.01	1.084	1.37	1.204

Items	Fe2714	K 7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	174800	829.65	704.0	531200	445.1	500.2
Sdev	1564	1.364	38.43	9908	4.127	1.2
%RSD	.8947	1.601	5.459	5475	[illegible]	.2399

Items	Na3302	Ni2316	P 2149	[illegible]	[illegible]	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	[illegible]	446.7	545.6	[illegible]	[illegible]	[illegible]
Sdev	[illegible]	1.007	19.33	[illegible]	[illegible]	7.491
%RSD	[illegible]	[illegible]	3.511	[illegible]	[illegible]	1.117

Items	[illegible]	[illegible]	Rb2202	[illegible]	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	519.5	551.6	473.1	577.6	495.3	508.9
Sdev	12.42	11.6	10.84	4.851	1.598	1.47
%RSD	2.392	2.183	2.292	.9194	.3227	.289

Items	Ti3349	Tl1908	V 2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	481.7	524.5	492.2	430.7	5681
Sdev	2.212	7.741	3.941	8.13	27.68
RSD	.4592	1.476	.8006	1.888	.4873

Autosampler Loading Map
Element File: TL.GEC

ID/Weight File: EB172.IDW

SRB 10/31/97

Loc.	Concentration	Solutions
0		Calib. Blank / Diluent / ICB / CCB
1	50.0 ug/L	Stock 1-63-3P
2	100.0 ug/L	Stock / Recovery Stock 1-63-4P
4		ICV=30ug/L 1-63-5P
5		CCV=60ug/L 1-63-6P
6		CHECK LO
7		43411 MB
8		43411 LCS
9		184-84-1ABC
10		184-84-1ABC L
11		184-84-2ABC
12		184-84-3ABC
13		184-84-4ABC
14		184-84-5ABC
15		184-84-6ABC
16		184-84-7ABCD
17		184-84-1DE
18		184-84-1DE L
19		184-84-2DE
20		184-84-3DE
21		184-84-4D
22		184-84-5BD
23		184-84-6D
24		184-84-7EF
39		Modifier 1

SRB 10/31/97

Element File: TL.GEL
Element: Tl

Analyst: HOLSTE

SRB 10/31/97

Print Data: Main+Suppl.
Print: Calib. Curve

Peak Storage: 1 Repl./Sample

INSTRUMENT: 4100 ZL
Wavelength: 276.8 Peak
Signal Type: Zeeman AA
Read Time: 5.0
Sample Replicates: 2
Standard Replicates: 2

Technique: HGA
Slit: 0.70 Low
Signal Measurement: Peak Area
Read Delay: 0.0

Version: 7.30
BOC Time: 2

Spike Replicates: Same as Sample

CALIBRATION:

Solutions	ID	Conc	Location	Volume	Diluent Volume	Modifier #1	Modifier #2
Calib. Blank	STD BLK	----------	0	20	5	5	
Standard 1	STD1=25ug/L	25.0	1	10	15	5	
Standard 2	STD2=50ug/L	50.0	1	20	5	5	
Standard 3	STD3=100ug/L	100.0	2	20	5	5	
Reslope Std.	50ug/L	50.0	1	20	5	5	
Samples	----------	----------	--------	20	5	5	

Diluent Location: 0
Modifier #1 Location: 39
Modifier #2 Location:
Calibration Units: ug/L
Sample Units: ug/L
Calibration Type: Linear

Furnace Time/Temperature Program:

Step	Temp	Ramp	Hold	Gas Flow	Read	Gas Type
1	110	5	30	250		Norm
2	130	1	35	250		Norm
3	700	5	20	250		Norm
4	1600	0	5	0	*	Norm
5	2500	1	5	250		Norm

Injection Temp: 20
Pipette Speed: 85%
Extraction System: On

SEQUENCE:

Step Action and Parameters
1 Pipet diluent + modifier 1 + spike + sample/std
2 Run HGA steps 1 to End

CHECKS:
Recalibration Type: Reslope
Locations: None

Conc. Above Calibration Action: Dilute & Reanalyze After 1 Rep
Alternate Sample Volumes (uL): 5,2,1
Run Alternate Volume Blanks: Yes

If %RSD > 20.0 and Concentration > 1.7 then Retry 1 times
Check %RSD on: Samples + Standards + Spikes + QC Samples

Recovery Measurements:
uL of 100 ug/L Standard at Location 2 Gives 25.0 ug/L
Measure Recovery on Samples: 9,10,17,18
Add to QC Samples: Yes
% Recovery Limits: 75 to 125

QC:

#	A/S Loc.	QC Sample ID	Conc. Limits Lower	Upper	After Calib	Periodic Check	At End	Count As Sample
1	4	ICV=30ug/L	27.0	33.0				
2	0	ICB	-2.0	2.0				
3	5	CCV=60ug/L	48.0	72.0		X	X	
4	0	CCB	-2.0	2.0		X	X	

Run Periodic QC Samples: Every 10

Out of Limit Action: Reslope and Rerun Samples

Matrix Check Calculations:

% Difference for Dupls: No Locations:

% Recovery for Spike: No Locations: Conc:

```
)ate: 10/31/97                Time: 05:41                    Slit: 0.70 L
)ata File: EB172.DAT          ID/Wt File: EB172.IDW          Lamp Current: 0
'echnique: HGA                Calib. Type: Nonlinear         Energy: 49
-----------------------------------------------------------------------------
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
'l    ID: STD BLK             Seq. No.: 00001    A/S Pos.: 0     Date: 10/31/97

:L dispensed: 5 from 0, 5 from 39, 20 from 0
!eplicate  1                              Time: 05:43
'eak Area (A-s): -0.000                   Peak Height (A): 0.007
:ackground Pk Area (A-s): 0.001           Background Pk Height (A): 0.007
lank Corrected Pk Area (A-s): 0.000
.oncentration (ug/L  ): 0.1

L dispensed: 5 from 0, 5 from 39, 20 from 0
eplicate  2 (Peak Stored)                 Time: 05:46
eak Area (A-s): -0.001                    Peak Height (A): 0.007
ackground Pk Area (A-s): 0.001            Background Pk Height (A): 0.008
lank Corrected Pk Area (A-s): -0.001
oncentration (ug/L  ): -0.5

ean Conc  (ug/L  ):        -0.2          SD: 0.38                RSD(%): 175.09

uto-zero performed.

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l     ID: STD1=25ug/L         Seq. No.: 00002    A/S Pos.: 1     Date: 10/31/97

L dispensed: 15 from 0, 5 from 39, 10 from 1
eplicate  1                               Time: 05:49
eak Area (A-s): 0.035                     Peak Height (A): 0.046
ackground Pk Area (A-s): 0.022            Background Pk Height (A): 0.025
lank Corrected Pk Area (A-s): 0.036
oncentration (ug/L  ): 23.1

L dispensed: 15 from 0, 5 from 39, 10 from 1
eplicate  2 (Peak Stored)                 Time: 05:52
eak Area (A-s): 0.034                     Peak Height (A): 0.043
ackground Pk Area (A-s): 0.021            Background Pk Height (A): 0.026
lank Corrected Pk Area (A-s): 0.034
oncentration (ug/L  ): 22.3

ean Conc  (ug/L  ):        22.7          SD: 0.57                RSD(%): 2.49

tandard number 1 applied.  [25.0]
orrelation coefficient: 1.00000           Slope: 0.0014

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l     ID: STD2=50ug/L         Seq. No.: 00003    A/S Pos.: 1     Date: 10/31/97

_ dispensed: 5 from 0, 5 from 39, 20 from 1
eplicate  1                               Time: 05:55
eak Area (A-s): 0.077                     Peak Height (A): 0.087
ackground Pk Area (A-s): 0.041            Background Pk Height (A): 0.053
lank Corrected Pk Area (A-s): 0.078
oncentration (ug/L  ): 55.6
```

Peak Area (A-s): 0.076 Peak Height (A): 0.088
Background Pk Area (A-s): 0.043 Background Pk Height (A): 0.048
Blank Corrected Pk Area (A-s): 0.077
Concentration (ug/L): 54.8

Mean Conc (ug/L): 55.2 SD: 0.61 RSD(%): 1.11

Standard number 2 applied. [50.0]
Correlation coefficient: 1.00000 Slope: 0.0013

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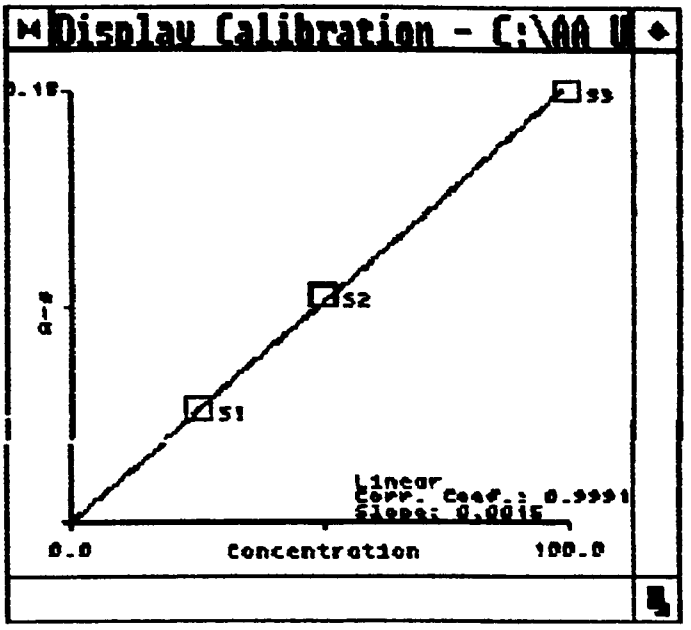
L dispensed: 15 from 0, 5 from 39, 10 from 1
eplicate 1 Time: 06:08
'eak Area (A-s): 0.037 Peak Height (A): 0.041
ackground Pk Area (A-s): 0.018 Background Pk Height (A): 0.024
lank Corrected Pk Area (A-s): 0.038
oncentration (ug/L): 25.5

L dispensed: 15 from 0, 5 from 39, 10 from 1
eplicate 2 (Peak Stored) Time: 06:11
eak Area (A-s): 0.037 Peak Height (A): 0.042
ackground Pk Area (A-s): 0.018 Background Pk Height (A): 0.023
lank Corrected Pk Area (A-s): 0.038
oncentration (ug/L): 25.6

ean Conc (ug/L): 25.5 SD: 0.09 RSD(%): 0.36

tandard number 1 applied. [25.0]
orrelation coefficient: 0.99910 Slope: 0.0015


Display Calibration - C:\AA
0.10
S3
S2
S1
Linear
Corr. Coef.: 0.9991
Slope: 0.0015
0.0
Concentration
100.0

```
ate: 10/31/97                    Time: 06:19                    Slit: 0.70 L
ata File: EB172.DAT              ID/Wt File: EB172.IDW          Lamp Current: 0
echnique: HGA                    Calib. Type: Linear            Energy: 52
-----------------------------------------------------------------------------
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1     ID: ICV=30ug/L          Seq. No.: 00006    A/S Pos.: 4     Date: 10/31/97

_ dispensed: 5 from 0, 5 from 39, 20 from 4
eplicate  1                              Time: 06:22
eak Area (A-s): 0.042                    Peak Height (A): 0.049
ackground Pk Area (A-s): 0.026           Background Pk Height (A): 0.030
lank Corrected Pk Area (A-s): 0.043
oncentration (ug/L  ): 28.6

_ dispensed: 5 from 0, 5 from 39, 20 from 4
eplicate  2 (Peak Stored)                Time: 06:25
eak Area (A-s): 0.050                    Peak Height (A): 0.058
ackground Pk Area (A-s): 0.027           Background Pk Height (A): 0.033
lank Corrected Pk Area (A-s): 0.051
oncentration (ug/L  ): 34.0

ean Conc  (ug/L  ):        31.3         SD: 3.83                RSD(%): 12.22

C sample is within range 27.0 - 33.0

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l     ID: ICB                 Seq. No.: 00007    A/S Pos.: 0     Date: 10/31/97

. dispensed: 5 from 0, 5 from 39, 20 from 0
eplicate  1                              Time: 06:28
eak Area (A-s): -0.004                   Peak Height (A): 0.005
ackground Pk Area (A-s): 0.003           Background Pk Height (A): 0.009
ank Corrected Pk Area (A-s): -0.003
oncentration (ug/L  ): -1.9

. dispensed: 5 from 0, 5 from 39, 20 from 0
eplicate  2 (Peak Stored)                Time: 06:31
eak Area (A-s): -0.003                   Peak Height (A): 0.007
ackground Pk Area (A-s): 0.002           Background Pk Height (A): 0.006
ank Corrected Pk Area (A-s): -0.002
oncentration (ug/L  ): -1.4

ean Conc  (ug/L  ):        -1.7         SD: 0.39                RSD(%): 23.52

C sample is within range -2.0 - 2.0

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.     ID: CHECK LO            Seq. No.: 00008    A/S Pos.: 6     Date: 10/31/97

. dispensed: 5 from 0, 5 from 39, 20 from 6
plicate  1                               Time: 06:34
ak Area (A-s): 0.005                     Peak Height (A): 0.015
ckground Pk Area (A-s): 0.006            Background Pk Height (A): 0.010
ank Corrected Pk Area (A-s): 0.006
ncentration (ug/L  ): 3.9

. dispensed: 5 from 0, 5 from 39, 20 from 6
```

Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.007
Concentration (ug/L): 4.5

Mean Conc (ug/L): 4.2 SD: 0.46 RSD(%): 10.84

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plicate 2 (Peak Stored) Time: 06:55
ak Area (A-s): 0.052 Peak Height (A): 0.060
ckground Pk Area (A-s): 0.033 Background Pk Height (A): 0.034
ank Corrected Pk Area (A-s): 0.053
ncentration (ug/L): 35.3

an Conc (ug/L): 36.4 SD: 1.50 RSD(%): 4.14

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Peak Area (A-s): -0.001 Peak Height (A): 0.007
Background Pk Area (A-s): 0.002 Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L): 0.0

Mean Conc (ug/L): -0.4 SD: 0.65 RSD(%): 150.55

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eak Area (A-s): -0.001 Peak Height (A): 0.009
ackground Pk Area (A-s): 0.003 Background Pk Height (A): 0.009
lank Corrected Pk Area (A-s): -0.001
oncentration (ug/L): -0.4

ean Conc (ug/L): -0.9 SD: 0.69 RSD(%): 77.18

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QC sample is within range -2.0 - 2.0

Weight File: AB826.IDW Analyst: D.STREETER-EDWARDS
ple Volume: 100 mL Nominal Weight: 1.0 g

Hg.

oc.	Sample ID	Weight	Dilution
0	ST BLANK		
1	STD1=0.2ug/L		
2	STD2=0.5ug/L		
3	STD3=1.0ug/L		
4	STD4=2.0ug/L		
5	STD5=5.0ug/L		
6	STD6=10.0ug/L		
7	ICV=4.0ug/L		
8	ICB		
9	CHECK LO		
0	43411 MB1		
1	43411 MB1 D		
2	43411 LCS1		
3	43411 LCS1D		
4	184-84-1CAB		
5	184-84-1CAB D		
6	184-84-1DE		
7	184-84-1DE D		
8	184-84-1DE MS		
9	184-84-1DE MSD		
0	CCV1=6.0ug/L		
1	CCB1		
2	184-84-1F		
3	184-84-1F D		
4	184-84-1G		
5	184-84-1G D		
6	184-84-1H		
7	184-84-1H D		
8	184-84-2CAB		
9	184-84-2CAB D		
0	184-84-2F		
1	184-84-2F D		
2	CCV2=6.0ug/L		
3	CCB2		
4	184-84-2DE		
5	184-84-2DE D		
6	184-84-2DE MS		
7	184-84-2DE MSD		
8	184-84-2G		
9	184-84-2G D		
0	184-84-2H		
1	184-84-2H D		
2	184-84-3CAB		
3	184-84-3CAB D		
4	CCV3=6.0ug/L		
5	CCB3		
6	184-84-3DE		
	184-84-3DE D		
	184-84-3F		
	184-84-3F D		
	184-84-3G		
	184-84-3G D		
	184-84-3H		
	184-84-3H D		

3-023-3 RSE 10/20/97

3-022-8 RSE 10/20/97

3-022-8 RSE 10/20/97

3-022-8 RSE 10/20/97

3-022-8 RSE 10/20/97

Hg.

Loc.	Sample ID	Weight	Dilution
54	184-84-4CAB		
55	184-84-4CAB D		
56	CCV4=6.0ug/L → 3-022-8 DSE 10/20/97		
57	CCB4		
58	184-84-4D		
59	184-84-4D D		
60	184-84-4D MS		
61	184-84-4D MSD		
62	184-84-4E		
63	184-84-4E D		
64	184-84-4F		
65	184-84-4F D		
66	184-84-5CAB		
67	184-84-5CAB D		
68	CCV5=6.0ug/L → 3-022-8 DSE 10/20/97		
69	CCB5		
70	184-84-5BD		
71	184-84-5BD D		
72	184-84-5E		
73	184-84-5E D		
74	184-84-5F		
75	184-84-5F D		
76	184-84-5GF		
77	184-84-5GF D		
78	CCV6=6.0ug/L		
79	CCB6		

will be Re-run due to CCV6.

Hg.

ıent File: HG_.MEL
ıent: Hg2 Analyst: D STREETER-EDWARDS
ıt Data: Main+Suppl. Peak Storage: None
ıt: Calib. Curve
rks:
.NDARDS= 3-023-3
3-022-8

RUMENT: 5100 Technique: MHS Version: 7.01
length: 253.7 Peak Slit: 0.7 Low
al Type: AA Signal Measurement: Peak Height (5)
Time: 30.0 Read Delay: 1.0 BOC Time: 2
le Replicates: 1
dard Replicates: 1

E:
e Type: Air Flame Sensor: On
ant Flow: 10.0 L/min Fuel Flow: 2.0 L/min

BRATION:

utions	ID	Conc
b. Blank	STD BLK	----------
dard 1	STD 1	0.200
dard 2	STD 2	0.500
dard 3	STD 3	1.000
dard 4	STD 4	2.000
dard 5	STD 5	5.000
dard 6	STD 6	10.000

ibration Units: ug/L Sample Units: ug/L
ibration Type: Linear

---

ix Check Calculations:
fference for Dupls: No Locations:
covery for Spike: No Locations: Conc:

```
--------------------------------------------------------------------------------
Element File: HG_.MEL        Element: Hg2                Wavelength: 253.7
Date: 10/20/97               Time: 12:48                 Slit: 0.7 L
Data File: AB826.DAT         ID/Wt File: AB826.IDW       Lamp Current: 0
Technique: MHS               Calib. Type: Linear         Energy: 71
Remark 1: STANDARDS= 3-023-3
Remark 2: QC= 3-022-8
--------------------------------------------------------------------------------
********************************************************************************

Hg2   ID: ST BLANK           Seq. No.: 00001    A/S Pos.: --    Date: 10/20/97

Replicate  1                          Time: 12:4°
Peak Area (A-s): 0.007                Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L  ): -0.002

Auto-zero performed.

********************************************************************************

Hg2   ID: STD1=0.2ug/L       Seq. No.: 00002    A/S Pos.: --    Date: 10/20/97

Replicate  1                          Time: 12:53
Peak Area (A-s): 0.329                Peak Height (A): 0.014
Blank Corrected Pk Height (A): 0.014
Concentration (ug/L  ): 0.228

Standard number 1 applied.  [0.200]
Correlation coefficient: 1.00000      Slope: 0.0712

********************************************************************************

Hg2   ID: STD2=0.5ug/L       Seq. No.: 00003    A/S Pos.: --    Date: 10/20/97

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 12:54
Peak Area (A-s): 0.794                Peak Height (A): 0.034
Blank Corrected Pk Height (A): 0.034
Concentration (ug/L  ): 0.476

Standard number 2 applied.  [0.500]
Correlation coefficient: 0.99904      Slope: 0.0683

********************************************************************************

Hg2   ID: STD3=1.0ug/L       Seq. No.: 00004    A/S Pos.: --    Date: 10/20/97

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 12:55
Peak Area (A-s): 1.584                Peak Height (A): 0.068
Blank Corrected Pk Height (A): 0.068
Concentration (ug/L  ): 0.991

Standard number 3 applied.  [1.000]
Correlation coefficient: 0.99984      Slope: 0.0679

********************************************************************************

Hg2   ID: STD4=2.0ug/L       Seq. No.: 00005    A/S Pos.: --    Date: 10/20/97

Sample abs. is greater than that of the largest standard.
Replicate  1                          Time: 12:57
Peak Area (A-s): 3.128                Peak Height (A): 0.136
```

entration (ug/L): 2.009

dard number 4 applied. [2.000]
elation coefficient: 0.99997 Slope: 0.0681

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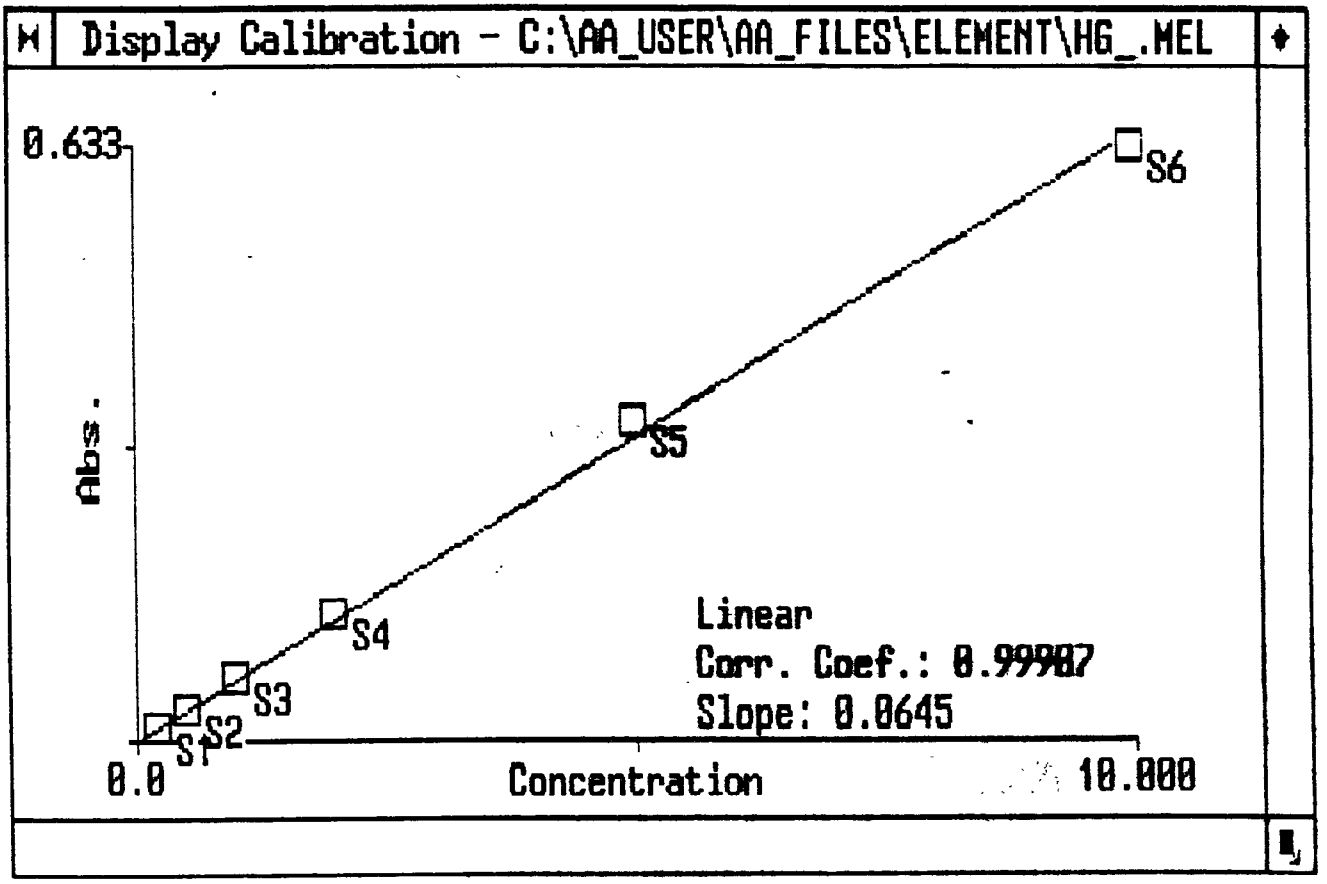
Element File: HG_.MEL
Date: 10/20/97
Data File: A8826.DAT
Technique: MHS
Remark 1: STANDARDS= 3-023-3
Remark 2: QC= 3-022-8

Element: Hg2
Time: 13:00
ID/Wt File: A8826.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.7 L
Lamp Current: 0
Energy: 71



Hg
DSE 10/20/97

---

ment File: HG_.MEL Element: Hg2 Wavelength: 253.7
e: 10/20/97 Time: 13:03 Slit: 0.7 L
a File: AB826.DAT ID/Wt File: AB826.IDW Lamp Current: 0
hnique: MHS Calib. Type: Linear Energy: 71
ark 1: STANDARDS= 3-023-3
ark 2: QC= 3-022-8

ID: ICV=4.0ug/L Seq. No.: 00008 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:06
k Area (A-s): 6.250 Peak Height (A): 0.266
nk Corrected Pk Height (A): 0.266
centration (ug/L): 4.123

ID: ICB Seq. No.: 00009 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:08
Area (A-s): 0.023 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L): 0.017

ID: CHECK LO Seq. No.: 00010 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:09
Area (A-s): 0.338 Peak Height (A): 0.014
nk Corrected Pk Height (A): 0.014
centration (ug/L): 0.224

ID: 43411 MB1 Seq. No.: 00011 A/S Pos.: -- Date: 10/20/97

icate 1 Time: 13:12
Area (A-s): 0.006 Peak Height (A): 0.000
k Corrected Pk Height (A): 0.000
entration (ug/L): 0.006

ID: 43411 MB1 D Seq. No.: 00012 A/S Pos.: -- Date: 10/20/97

icate 1 Time: 13:13
Area (A-s): 0.011 Peak Height (A): 0.000
k Corrected Pk Height (A): 0.000
entration (ug/L): 0.006

ID: 43411 LCS1 Seq. No.: 00013 A/S Pos.: -- Date: 10/20/97

icate 1 Time: 13:14
Area (A-s): 4.411 Peak Height (A): 0.185
Corrected Pk Height (A): 0.185
entration (ug/L): 2.868

EE
DSE
10/20/97

Power Problems with lamp.

ID: 43411 LCS1D Seq. No.: 00014 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:16
Peak Area (A-s): 0.149 Peak Height (A): 0.009
Blank Corrected Pk Height (A): 0.009
Concentration (ug/L): 0.140

EE DSE 10/20/97 Power problem with lamp.

Hg2 ID: 43411 LCS1 Seq. No.: 00015 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:22
Peak Area (A-s): 7.518 Peak Height (A): 0.323
Blank Corrected Pk Height (A): 0.323
Concentration (ug/L): 5.006

Hg2 ID: 43411 LCS1D Seq. No.: 00016 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:23
Peak Area (A-s): 0.274 Peak Height (A): 0.014
Blank Corrected Pk Height (A): 0.014
Concentration (ug/L): 0.215

EE DSE 10/20/97 Power Fluenciation. DSE 10/20/97

Hg2 ID: 43411 LCS1D Seq. No.: 00017 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:30
Peak Area (A-s): 0.166 Peak Height (A): 0.008
Blank Corrected Pk Height (A): 0.008
Concentration (ug/L): 0.120

Hg2 ID: ~~43411 LCS1 EE DSE 10/20/97~~ ~~CCV1=6.0ug/L~~ EE DSE 10/20/97 CCV1=6.0ug/L Seq. No.: 00018 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:34
Peak Area (A-s): 8.571 Peak Height (A): 0.359
Blank Corrected Pk Height (A): 0.359
Concentration (ug/L): 5.563

This was a check test to find problem with lamp. CCV1 was ran. DSE 10/20/97

Hg2 ID: 43411 LCS1D Seq. No.: 00019 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:44
Peak Area (A-s): 7.427 Peak Height (A): 0.316
Blank Corrected Pk Height (A): 0.316
Concentration (ug/L): 4.900

Hg2 ID: 184-84-~~1CAB~~ ABC EE 10-31-97 Seq. No.: 00020 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:45
Peak Area (A-s): 0.026 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.022

Hg2 ID: 184-84-~~1CAB~~ ABC D EE 10-31-97 Seq. No.: 00021 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:46
Peak Area (A-s): 0.011 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

? ID: 184-84-1DE Seq. No.: 00022 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:47
k Area (A-s): 0.027 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L): 0.016

ID: 184-84-1DE D Seq. No.: 00023 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:48
k Area (A-s): 0.022 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L): 0.020

ID: 184-84-1DE MS Seq. No.: 00024 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:50
k Area (A-s): 4.055 Peak Height (A): 0.163
nk Corrected Pk Height (A): 0.163
centration (ug/L): 2.521

ID: 184-84-1DE MSD Seq. No.: 00025 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:51
k Area (A-s): 3.961 Peak Height (A): 0.163
nk Corrected Pk Height (A): 0.163
centration (ug/L): 2.532

ID: CCV1=6.0ug/L Seq. No.: 00026 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:52
k Area (A-s): 0.114 Peak Height (A): 0.004
nk Corrected Pk Height (A): 0.004
centration (ug/L): 0.064

EE
DSE
10/20/97

ID: CCV1=6.0ug/L Seq. No.: 00027 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:53
k Area (A-s): 8.003 Peak Height (A): 0.336
nk Corrected Pk Height (A): 0.336
centration (ug/L): 5.216

ID: CCB1 Seq. No.: 00028 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 13:55
Area (A-s): 0.019 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L): 0.016

Hg2 ID: 184-84-1F Seq. No.: 00029 A/S Pos.: -- Date: 10/20/97

Replicate 1 Time: 13:56
Peak Area (A-s): 0.025 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.019

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k Area (A-s): -0.001 Peak Height (A): -0.000
nk Corrected Pk Height (A): -0.000
centration (ug/L): -0.002

ID: 184-84-2F Seq. No.: 00037 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:04
k Area (A-s): -0.001 Peak Height (A): 0.000
nk Corrected Pk Height (A): 0.000
centration (ug/L): 0.000

ID: 184-84-2F D Seq. No.: 00038 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:06
k Area (A-s): 0.000 Peak Height (A): 0.000
nk Corrected Pk Height (A): 0.000
centration (ug/L): 0.000

ID: CCV2=6.0ug/L Seq. No.: 00039 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:06
k Area (A-s): 0.295 Peak Height (A): 0.017
nk Corrected Pk Height (A): 0.017
centration (ug/L): 0.263

EE
DSE
10/20/97

ID: ~~CCB2 EE~~ CCV2=6.0ug/L
DSE
10/20/97 Seq. No.: 00040 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:08
k Area (A-s): 8.437 Peak Height (A): 0.354
nk Corrected Pk Height (A): 0.354
centration (ug/L): 5.493

ID: ~~184-84-2DE EE~~ CCB2
DSE
10/20/97 Seq. No.: 00041 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:10
k Area (A-s): 0.014 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L): 0.012

ID: 184-84-2DE Seq. No.: 00042 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:14
Area (A-s): 0.030 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L): 0.019

ID: 184-84-2DE D Seq. No.: 00043 A/S Pos.: -- Date: 10/20/97

licate 1 Time: 14:15
Area (A-s): 0.031 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
centration (ug/L): 0.019

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10-31-97ec

icate 1 Time: 14:22
Area (A-s): 0.008 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L): 0.008

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Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.107

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2 . ID: 184-84-4D Seq. No.: 00066 A/S Pos.: -- Date: 10/20/97

plicate 1 Time: 14:39
ak Area (A-s): 0.045 Peak Height (A): 0.002
ank Corrected Pk Height (A): 0.002
ncentration (ug/L): 0.026

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Replicate 1 Time: 14:46
Peak Area (A-s): 0.006 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.012

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Replicate 1 Time: 15:17
Peak Area (A-s): 5.836 Peak Height (A): 0.263
Blank Corrected Pk Height (A): 0.263
Concentration (ug/L): 4.073

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Weight File: A8827.IDW Analyst: D.STREETER-EDWARDS
Sample Volume: 100 mL Nominal Weight: 1.0 g

Hg.

Loc.	Sample ID	Weight	Dilution
0	ST BLK		
1	STD1=0.2ug/L		
2	STD2=0.5ug/L		
3	STD3=1.0ug/L		
4	STD4=2.0ug/L		
5	STD5=5.0ug/L		
6	STD6=10.0ug/L		
7	ICV=4.0ug/L		
8	ICB		
9	CHECK LO		
0	43411 MB2		
1	43411 MB2D		
2	43411 LCS2		
3	43411 LCS2D		
4	184-84-6CAB		
5	184-84-6CAB D		
6	184-84-6D		
7	184-84-6D D		
8	184-84-6D MS		
9	184-84-6D MSD		
0	CCV7=6.0ug/L		
1	CCB		
2	184-84-6G		
3	184-84-6G D		
4	184-84-6E		
5	184-84-6E D		
6	184-84-6F		
7	184-84-6F D		
8	184-84-7CDAB		
9	184-84-7CDAB D		
0	184-84-7G		
1	184-84-7G D		
2	CCV8=6.0ug/L		
3	CCB		
4	184-84-7EF		
5	184-84-7EF D		
6	184-84-7EF MS		
7	184-84-7EF MSD		
8	184-84-7H		
9	184-84-7H D		
0	184-84-7I		
1	184-84-7I D		
2	CCV9=6.0ug/L		
3	43377 MB1		
4	43377 MB1 D		
5	43377 LCS1		
6	43377 LCS1D		
7	184-50-1CAB		
8	184-50-1CAB D		
	184-50-1D		
	184-50-1D D		
	184-50-1D MS		
	184-50-1D MSD		
	CCV1=6.0ug/L		

3-023-5 DSE 10/21/97

3-023-6 DSE 10/21/97

3-023-6 DSE 10/21/97

3-023-6 DSE 10/21/97

3-023-6 DSE 10/21/97

3-023-6 DSE 10/21/97

Hg

Loc.	Sample ID	Weight	Dilution
54	CCB		
55	184-50-1E		
56	184-50-1E D		
57	184-50-1F		
58	184-50-1F D		
59	184-50-1G		
60	184-50-1G D		
61	184-50-2CAB		
62	184-50-2CAB D		
63	184-50-2DE		
64	184-50-2DE D		
65	CCV2=6.0ug/L — 3-023-6 DSE 10/21/97		
66	CCB		
67	184-50-2F		
68	184-50-2F D		
69	184-50-2G		
70	184-50-2G D		
71	184-50-2H		
72	184-50-2H D		
73	184-50-3DE		
74	184-50-3DE D		
75	184-50-3DE MS		
76	184-50-3DE MSD		
77	CCV3=6.0ug/L — 3-023-6 DSE 10/21/97		
78	CCB		
79	184-50-3CAB		
80	184-50-3CAB D		
81	184-50-3F		
82	184-50-3F D		
83	184-50-3G		
84	184-50-3G D		
85	184-50-3H		
86	184-50-3H D		
87	184-50-4CAB		
88	184-50-4CAB D		
89	CCV4=6.0ug/L — 3-023-6 DSE 10/21/97		
90	CCB		
91	184-50-4DE		
92	184-50-4DE D		
93	184-50-4DE MS		
94	184-50-4DE MSD		
95	184-50-4F		
96	184-50-4F D		
97	184-50-4G		
98	184-50-4G D		
99	184-50-4H		
100	184-50-4H D		
101	CCV5=6.0ug/L — 3-023-6 DSE 10/21/97		
102	CCB		
103	184-50-5CAB		
104	184-50-5CAB D		
105	184-50-5BD		
106	184-50-5BD D		
107	184-50-5E		
108	184-50-5E D		
109	184-50-5F		

ic.	Sample ID	Weight	Dilution
0	184-50-5F D		
1	184-50-6CAB		
2	184-50-6CAB D		
3	CCV6=6.0ug/L		
4	CC8		

—3-023-6 DSE 10/21/97

Hg.

Element: Hg2 Analyst: D STREETER-EDWARDS
Print Data: Main+Suppl. Peak Storage: None
Print: Calib. Curve
Remarks:
STANDARDS= 3-023-5
QC= 3-023-4,6

Hg

INSTRUMENT: 5100 Technique: MHS Version: 7.01
Wavelength: 253.7 Peak Slit: 0.7 Low
Signal Type: AA Signal Measurement: Peak Height (5)
Read Time: 30.0 Read Delay: 1.0 BOC Time: 2
Sample Replicates: 1
Standard Replicates: 1

FLAME:
Flame Type: Air Flame Sensor: On
Oxidant Flow: 10.0 L/min Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L Sample Units: ug/L
Calibration Type: Linear

QC:
Matrix Check Calculations:
% Difference for Dupls: No Locations:
% Recovery for Spike: No Locations: Conc:

ent File: HG_.MEL Element: Hg Wavelength: 253.7
: 10/21/97 Time: 10:09 Slit: 0.7 L
File: AB827.DAT ID/Wt File: AB827.IDW Lamp Current: 0
nique: MHS Calib. Type: Linear Energy: 71
rk 1: STANDARDS= 3-023-5
rk 2: QC= 3-023-4, 6 DSE 10/21/97

ID: ST BLK Seq. No.: 00003 A/S Pos.: -- Date: 10/21/97

icate 1 Time: 10:10
Area (A-s): -0.004 Peak Height (A): -0.000
k Corrected Pk Height (A): -0.000
entration (ug/L): -0.003

-zero performed.

ID: STD1=0.2ug/L Seq. No.: 00004 A/S Pos.: -- Date: 10/21/97

icate 1 Time: 10:11
Area (A-s): 0.170 Peak Height (A): 0.007
k Corrected Pk Height (A): 0.007
entration (ug/L): 0.107

dard number 1 applied. [0.200]
elation coefficient: 1.00000 Slope: 0.0346

ID: STD2=0.5ug/L Seq. No.: 00005 A/S Pos.: -- Date: 10/21/97

le abs. is greater than that of the largest standard.
icate 1 Time: 10:12
Area (A-s): 0.395 Peak Height (A): 0.018
k Corrected Pk Height (A): 0.018
entration (ug/L): 0.525

dard number 2 applied. [0.500]
elation coefficient: 0.99914 Slope: 0.0361

ID: STD3=1.0ug/L Seq. No.: 00006 A/S Pos.: -- Date: 10/21/97

le abs. is greater than that of the largest standard.
icate 1 Time: 10:13
Area (A-s): 0.878 Peak Height (A): 0.039
k Corrected Pk Height (A): 0.039
entration (ug/L): 1.073

dard number 3 applied. [1.000]
elation coefficient: 0.99824 Slope: 0.0382

ID: STD4=2.0ug/L Seq. No.: 00007 A/S Pos.: -- Date: 10/21/97

e abs. is greater than that of the largest standard.
cate 1 Time: 10:15
Area (A-s): 1.761 Peak Height (A): 0.074

Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 10/21/97 Time: 10:09 Slit: 0.7 L
Data File: AB827.DAT ID/Wt File: AB827.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 71
Remark 1: STANDARDS= 3-023-5
Remark 2: QC= 3-023-4, 6 DSE 10/21/97

Hg2 ID: ST BLK Seq. No.: 00003 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:10
Peak Area (A-s): -0.004 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Auto-zero performed.

Hg2 ID: STD1=0.2ug/L Seq. No.: 00004 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:11
Peak Area (A-s): 0.170 Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L): 0.107

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000 Slope: 0.0346

Hg2 ID: STD2=0.5ug/L Seq. No.: 00005 A/S Pos.: -- Date: 10/21/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:12
Peak Area (A-s): 0.395 Peak Height (A): 0.018
Blank Corrected Pk Height (A): 0.018
Concentration (ug/L): 0.525

Standard number 2 applied. [0.500]
Correlation coefficient: 0.99914 Slope: 0.036

Hg2 ID: STD3=1.0ug/L Seq. No.: 00006 A/S Pos.: -- Date: 10/21/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:13
Peak Area (A-s): 0.878 Peak Height (A): 0.039
Blank Corrected Pk Height (A): 0.039
Concentration (ug/L): 1.073

Standard number 3 applied. [1.000]
Correlation coefficient: 0.99824 Slope: 0.0382

Hg2 ID: STD4=2.0ug/L Seq. No.: 00007 A/S Pos.: -- Date: 10/21/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:15
Peak Area (A-s): 1.761 Peak Height (A): 0.074

k Corrected Pk Height (A): 0.074
entration (ug/L): 1.943

dard number 4 applied. [2.000]
elation coefficient: 0.99947 Slope: 0.0373

ID: STD5=5.0ug/L Seq. No.: 00008 A/S Pos.: -- Date: 10/21/97

le abs. is greater than that of the largest standard.
icate 1 Time: 10:16
Area (A-s): 4.444 Peak Height (A): 0.190
k Corrected Pk Height (A): 0.190
entration (ug/L): 5.088

dard number 5 applied. [5.000]
elation coefficient: 0.99989 Slope: 0.0379

ID: STD6=10.0ug/L Seq. No.: 00009 A/S Pos.: -- Date: 10/21/97

.e abs. is greater than that of the largest standard.
.cate 1 Time: 10:17
Area (A-s): 8.952 Peak Height (A): 0.388
: Corrected Pk Height (A): 0.388
entration (ug/L): 10.231

dard number 6 applied. [10.000]
elation coefficient: 0.99989 Slope: 0.0386

Blank Corrected Pk Height (A): 0.074
Concentration (ug/L): 1.943

Standard number 4 applied. [2.000]
Correlation coefficient: 0.99947 Slope: 0.0373

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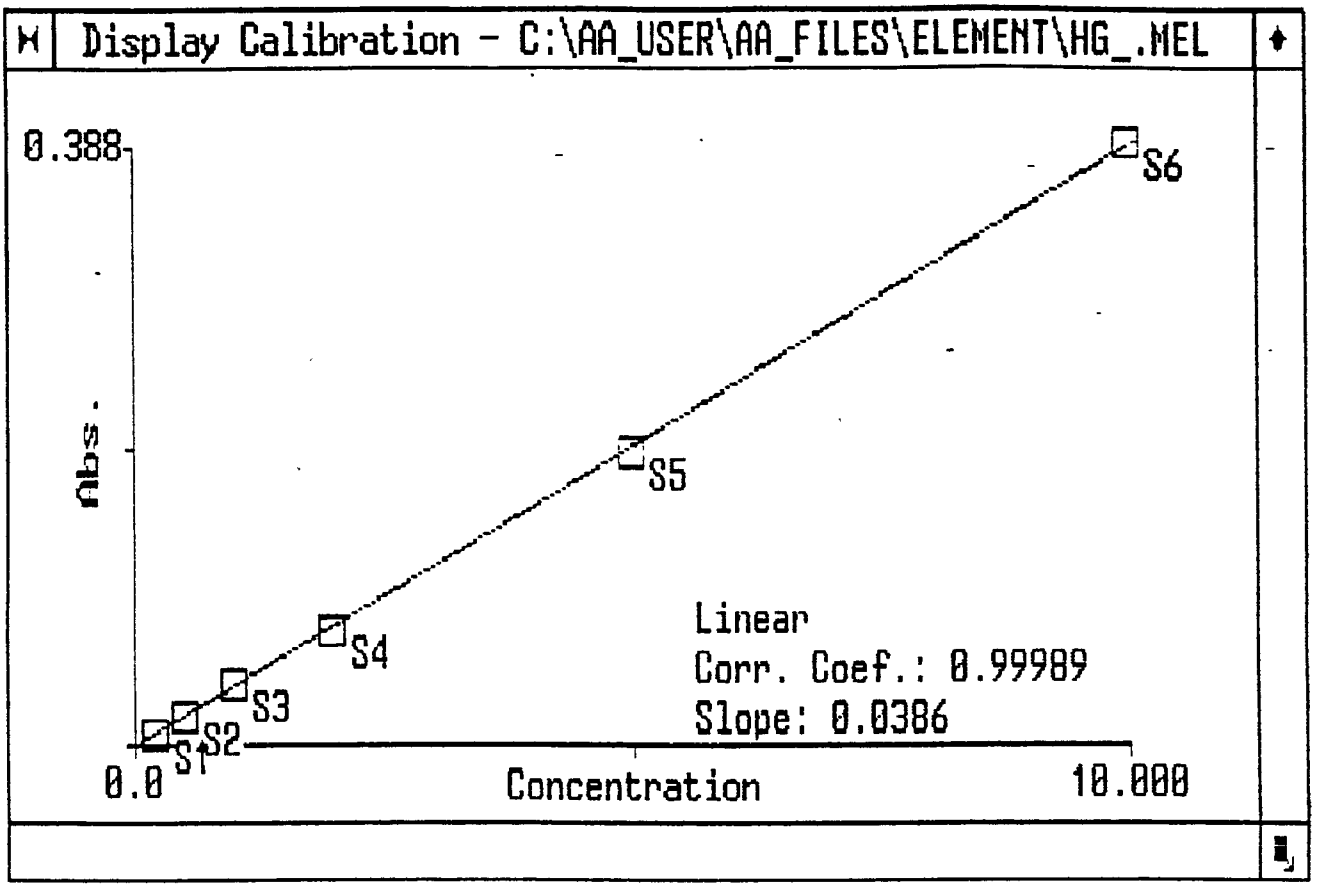
ent File: HG_.MEL	Element: Hg2	Wavelength: 253.7
: 10/21/97	Time: 10:18	Slit: 0.7 L
File: A8827.DAT	ID/Wt File: A8827.IDW	Lamp Current: 0
nique: MHS	Calib. Type: Linear	Energy: 71

rk 1: STANDARDS= 3-023-5

rk 2: QC= 3-023-4, LaDOSE 10/21/97



Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 10/21/97 Time: 10:19 Slit: 0.7 L
Data File: A8827.DAT ID/Wt File: A8827.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 71
Remark 1: STANDARDS= 3-023-5
Remark 2: QC= 3-023-4,6 DSE 10/21/97

Hg2 ID: ICV=4.0ug/L Seq. No.: 00010 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:21
Peak Area (A-s): 3.520 Peak Height (A): 0.152
Blank Corrected Pk Height (A): 0.152
Concentration (ug/L): 3.941

Hg2 ID: ICB Seq. No.: 00011 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:23
Peak Area (A-s): 0.008 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.005

Hg2 ID: CHECK LO Seq. No.: 00012 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:24
Peak Area (A-s): 0.163 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.166

Hg2 ID: 43411 MB2 Seq. No.: 00013 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:26
Peak Area (A-s): -0.003 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L): 0.005

Hg2 ID: 43411 MB2D Seq. No.: 00014 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:27
Peak Area (A-s): -0.006 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.010

Hg2 ID: 43411 LCS2 Seq. No.: 00015 A/S Pos.: -- Date: 10/21/97 DSE 10/21/97

Replicate 1 Time: 10:29
Peak Area (A-s): 7.352 Peak Height (A): 0.321
Blank Corrected Pk Height (A): 0.321
Concentration (ug/L): 8.317

Hg2 ID: 43411 LCS2 Seq. No.: 00016 A/S Pos.: -- Date: 10/21/97

icate 1 Time: 10:36
Area (A-s): 4.685 Peak Height (A): 0.205
Corrected Pk Height (A): 0.205
entration (ug/L): 5.325

ID: 43411 LCS2D Seq. No.: 00017 A/S Pos.: -- Date: 10/21/97

EE
DSE
10/21/97

.cate 1 Time: 10:37
Area (A-s): 7.480 Peak Height (A): 0.323
Corrected Pk Height (A): 0.323
entration (ug/L): 8.377

ID: 43411 LCS2D Seq. No.: 00018 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:41
Area (A-s): 4.775 Peak Height (A): 0.211
Corrected Pk Height (A): 0.211
ntration (ug/L): 5.473

ID: 184-84-6~~CAB~~ ABC 10-31-97 EE Seq. No.: 00019 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:43
Area (A-s): 0.085 Peak Height (A): 0.003
Corrected Pk Height (A): 0.003
ntration (ug/L): 0.081

ID: 184-84-6~~CAB~~ ABC D 10-31-97 EE Seq. No.: 00020 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:44
Area (A-s): 0.078 Peak Height (A): 0.003
Corrected Pk Height (A): 0.003
ntration (ug/L): 0.076

ID: 184-84-6D Seq. No.: 00021 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:45
Area (A-s): 0.050 Peak Height (A): 0.002
Corrected Pk Height (A): 0.002
ntration (ug/L): 0.044

ID: 184-84-6D D Seq. No.: 00022 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:46
Area (A-s): 0.042 Peak Height (A): 0.002
Corrected Pk Height (A): 0.002
ntration (ug/L): 0.039

ID: 184-84-6D MS Seq. No.: 00023 A/S Pos.: -- Date: 10/21/97

cate 1 Time: 10:47
Area (A-s): 7.446 Peak Height (A): 0.314
Corrected Pk Height (A): 0.314

Concentration (ug/L): 0.142

Hg2 ID: 184-84-6D MSD Seq. No.: 00024 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:49
Peak Area (A-s): 7.277 Peak Height (A): 0.306
Blank Corrected Pk Height (A): 0.306
Concentration (ug/L): 7.947

Hg2 ID: CCV7=6.0ug/L Seq. No.: 00025 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:51
Peak Area (A-s): 5.168 Peak Height (A): 0.220
Blank Corrected Pk Height (A): 0.220
Concentration (ug/L): 5.715

Hg2 ID: CCB Seq. No.: 00026 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:52
Peak Area (A-s): 0.026 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.018

Hg2 ID: 184-84-6G Seq. No.: 00027 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:53
Peak Area (A-s): 0.032 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.034

Hg2 ID: 184-84-6G D Seq. No.: 00028 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:55
Peak Area (A-s): -0.002 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L): -0.003

Hg2 ID: 184-84-6E Seq. No.: 00029 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:56
Peak Area (A-s): 0.132 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.138

Hg2 ID: 184-84-6E D Seq. No.: 00030 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 10:56
Peak Area (A-s): 0.123 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L): 0.127

ID: 184-84-6F Seq. No.: 00031 A/S Pos.: -- Date: 10/21/97

licate 1 Time: 10:57
k Area (A-s): 0.001 Peak Height (A): -0.000
nk Corrected Pk Height (A): -0.000
:entration (ug/L): -0.003

ID: 184-84-6F D Seq. No.: 00032 A/S Pos.: -- Date: 10/21/97

:icate 1 Time: 10:59
: Area (A-s): 0.002 Peak Height (A): 0.000
ık Corrected Pk Height (A): 0.000
:entration (ug/L): 0.003

ID: 184-84-7~~CDAB~~ ABCD Seq. No.: 00033 A/S Pos.: -- Date: 10/21/97
10-31-97 EE

icate 1 Time: 11:00
Area (A-s): 0.030 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L): 0.031

ID: 184-84-7~~CDAB~~ ABCD D Seq. No.: 00034 A/S Pos.: -- Date: 10/21/97
10-31-97 EE

icate 1 Time: 11:01
Area (A-s): 0.028 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L): 0.018

ID: 184-84-7G Seq. No.: 00035 A/S Pos.: -- Date: 10/21/97

icate 1 Time: 11:02
Area (A-s): -0.005 Peak Height (A): 0.000
k Corrected Pk Height (A): 0.000
entration (ug/L): 0.000

ID: 184-84-7G D Seq. No.: 00036 A/S Pos.: -- Date: 10/21/97

icate 1 Time: 11:05
Area (A-s): -0.024 Peak Height (A): -0.001
k Corrected Pk Height (A): -0.001
entration (ug/L): -0.018

ID: CCV8=6.0ug/L Seq. No.: 00037 A/S Pos.: -- Date: 10/21/97

.cate 1 Time: 11:06
Area (A-s): 4.679 Peak Height (A): 0.200
Corrected Pk Height (A): 0.200
ntration (ug/L): 5.187

ID: CCB Seq. No.: 00038 A/S Pos.: -- Date: 10/21/97

Peak Area (A-s): 0.027 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.021

Hg2 ID: 184-84-7EF Seq. No.: 00039 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:21
Peak Area (A-s): 0.046 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.044

Hg2 ID: 184-84-7EF D Seq. No.: 00040 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:22
Peak Area (A-s): 0.039 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.036

Hg2 ID: 184-84-7EF MS Seq. No.: 00041 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:23
Peak Area (A-s): 7.762 Peak Height (A): 0.326
Blank Corrected Pk Height (A): 0.326
Concentration (ug/L): 8.442

Hg2 ID: 184-84-7EF MSD Seq. No.: 00042 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:24
Peak Area (A-s): 7.774 Peak Height (A): 0.331
Blank Corrected Pk Height (A): 0.331
Concentration (ug/L): 8.587

Hg2 ID: 184-84-7H Seq. No.: 00043 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:25
Peak Area (A-s): 0.141 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L): 0.148

Hg2 ID: 184-84-7H D Seq. No.: 00044 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:26
Peak Area (A-s): 0.108 Peak Height (A): 0.004
Blank Corrected Pk Height (A): 0.004
Concentration (ug/L): 0.112

Hg2 ID: 184-84-7I Seq. No.: 00045 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:27
Peak Area (A-s): 0.009 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000

0.003 <10-31-11 mg/L

2 ID: 184-84-7I D Seq. No.: 00046 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:28
ak Area (A-s): 0.004 Peak Height (A): 0.000
ank Corrected Pk Height (A): 0.000
ncentration (ug/L): 0.003

---

2 ID: CCV9=6.0ug/L Seq. No.: 00047 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:29
ak Area (A-s): 5.101 Peak Height (A): 0.216
ank Corrected Pk Height (A): 0.216
ncentration (ug/L): 5.609

---

2 ID: CCB Seq. No.: 00048 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:33
ak Area (A-s): -0.011 Peak Height (A): -0.001
ank Corrected Pk Height (A): -0.001
ncentration (ug/L): -0.013

---

2 ID: 43377 MB1 Seq. No.: 00049 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:34
ak Area (A-s): -0.005 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000
ncentration (ug/L): -0.008

---

2 ID: 43377 MB1 D Seq. No.: 00050 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:35
ak Area (A-s): -0.011 Peak Height (A): -0.001
ank Corrected Pk Height (A): -0.001
ncentration (ug/L): -0.016

---

2 ID: 43377 LCS1 Seq. No.: 00051 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 12:36
ak Area (A-s): 7.457 Peak Height (A): 0.322
ank Corrected Pk Height (A): 0.322
ncentration (ug/L): 8.340

EE
DSG 10/21/97

ID: 43377 LCS1 Seq. No.: 00052 A/S Pos.: -- Date: 10/21/97

licate 1 Time: 12:41
k Area (A-s): 4.712 Peak Height (A): 0.204
nk Corrected Pk Height (A): 0.204
centration (ug/L): 5.278

Hg.

ID/Weight File: A8828.IDW Analyst: D.STREETER-EDWARDS
Sample Volume: 100 mL Nominal Weight: 1.0 g

Loc.	Sample ID	Weight	Dilution
0	ST BLANK		
1	STD1=0.2ug/L		
2	STD2=0.5ug/L		
3	STD3=1.0ug/L		
4	STD4=2.0ug/L		
5	STD5=5.0ug/L		
6	STD6=10.0ug/L		
7	ICV=4.0ug/L		
8	ICB		
9	CHECK LO		
10	43377 MB2		
11	43377 MB2D		
12	43377 LCS		
13	43377 LCSD		
14	184-50-6B		
15	184-50-6B D		
16	184-50-6BD		
17	184-50-6BD D		
18	184-50-6BD MS		
19	184-50-6BD MSD		
20	CCV7=6.0ug/L		
21	CCB		
22	184-50-6E		
23	184-50-6E D		
24	184-50-6FE		
25	184-50-6FE D		
26	184-50-7CAB		
27	184-50-7CAB D		
28	184-50-7E		
29	184-50-7E D		
30	184-50-7F		
31	184-50-7F D		
32	CCV8=6.0ug/L		
33	CCB		
34	184-50-7D		
35	184-50-7D D		
36	184-50-7D MS		
37	184-50-7D MSD		
38	CCV9=6.0ug/L		
39	CCB		
40	42011 Cnl MB		
41	42011 Cnl MBD		
42	42011 LCS		
43	42011 LCSD		
44	170-70-3		
45	170-70-3 D		
46	170-70-3 MS		
47	170-70-3 MSD		
48	CCV=6.0ug/L		
49	CCB		
50	43411 MB3		
51	43411 MB3 D		
52	43411 LCS3		
53	43411 LCS3D		

3-023-7 DSE 10/22/97

3-023-8 DSE 10/22/97

3-023-8 DSE 10/22/97

3-023-8 DSE 10/22/97

3-023-8 DSE 10/22/97

3-023-8 DSE 10/22/97

Hg

)c.	Sample ID	Weight	Dilution
54	184-84-5BD		
55	184-84-5BD D		
56	184-84-5BD MS		
57	184-84-5BD MSD		
58	CCV10=6.0ug/L	—3-023-8 DSE 10/22/97	
59	CCB		
60	184-84-5E		
61	184-84-5E D		
62	184-84-5F		
63	184-84-5F D		
64	184-84-5GF		
65	184-84-5GF D		
66	CCV11=6.0ug/L	-3-023-8 DSE 10/22/97	
67	CCB		

Hg

Element File: HG_.MEL
Element: Hg2 Analyst: D STREETER-EDWARDS
Print Data: Main+Suppl. Peak Storage: None
Print: Calib. Curve
Remarks:
STANDARDS= 3-023-7
QC= 3-023-8

INSTRUMENT: 5100 Technique: MHS Version: 7.01
Wavelength: 253.7 Peak Slit: 0.7 Low
Signal Type: AA Signal Measurement: Peak Height (5)
Read Time: 30.0 Read Delay: 1.0 BOC Time: 2
Sample Replicates: 1
Standard Replicates: 1

FLAME:
Flame Type: Air Flame Sensor: On
Oxidant Flow: 10.0 L/min Fuel Flow: 2.0 L/min

CALIBRATION:

Solutions	ID	Conc
Calib. Blank	STD BLK	----------
Standard 1	STD 1	0.200
Standard 2	STD 2	0.500
Standard 3	STD 3	1.000
Standard 4	STD 4	2.000
Standard 5	STD 5	5.000
Standard 6	STD 6	10.000

Calibration Units: ug/L Sample Units: ug/L
Calibration Type: Linear

QC:
Matrix Check Calculations:
% Difference for Dupls: No Locations:
% Recovery for Spike: No Locations: Conc:

D.SE Hg
10/22/97

---

ment File: HG_.MEL Element: Hg2 Wavelength: 253.7
e: 10/22/97 Time: 09:46 Slit: 0.7 L
a File: A8828.DAT ID/Wt File: A8828.IDW Lamp Current: 0
hnique: MHS Calib. Type: Linear Energy: 71
ark 1: STANDARDS= 3-023-7
ark 2: QC= 3-023-8

~~~~~~

ID: Seq. 00001 Seq. No.: 00001 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 09:46
Area (A-s): 0.290 Peak Height (A): 0.012
k Corrected Pk Height (A): 0.012

-zero performed.

~~~~~~

ID: Seq. 00002 Seq. No.: 00002 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 09:47
Area (A-s): 0.020 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001

-zero performed.

Hg

Element File: HG_.MEL Element: Hg2 Wavelength: 253.7
Date: 10/22/97 Time: 09:48 Slit: 0.7 L
Data File: A8828.DAT ID/Wt File: A8828.IDW Lamp Current: 0
Technique: MHS Calib. Type: Linear Energy: 71
Remark 1: STANDARDS= 3-023-7
Remark 2: QC= 3-023-8

Hg2 ID: ST BLANK Seq. No.: 00003 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 09:50
Peak Area (A-s): -0.000 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000

Auto-zero performed.

Hg2 ID: STD1=0.2ug/L Seq. No.: 00004 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 09:52
Peak Area (A-s): 0.162 Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007

Standard number 1 applied. [0.200]
Correlation coefficient: 1.00000 Slope: 0.0331

Hg2 ID: STD2=0.5ug/L Seq. No.: 00005 A/S Pos.: -- Date: 10/22/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:53
Peak Area (A-s): 0.429 Peak Height (A): 0.018
Blank Corrected Pk Height (A): 0.018
Concentration (ug/L): 0.548

Hg2 ID: STD3=1.0ug/L Seq. No.: 00006 A/S Pos.: -- Date: 10/22/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 09:54
Peak Area (A-s): 0.886 Peak Height (A): 0.038
Blank Corrected Pk Height (A): 0.038
Concentration (ug/L): 1.145

Hg2 ID: STD2=0.5ug/L Seq. No.: 00007 A/S Pos.: -- Date: 10/22/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:01
Peak Area (A-s): 0.470 Peak Height (A): 0.021
Blank Corrected Pk Height (A): 0.021
Concentration (ug/L): 0.621

Standard number 2 applied. [0.500]
Correlation coefficient: 0.98455 Slope: 0.0402

33
DSF
10/22/97
Didn't accept Data. (Re-run.)

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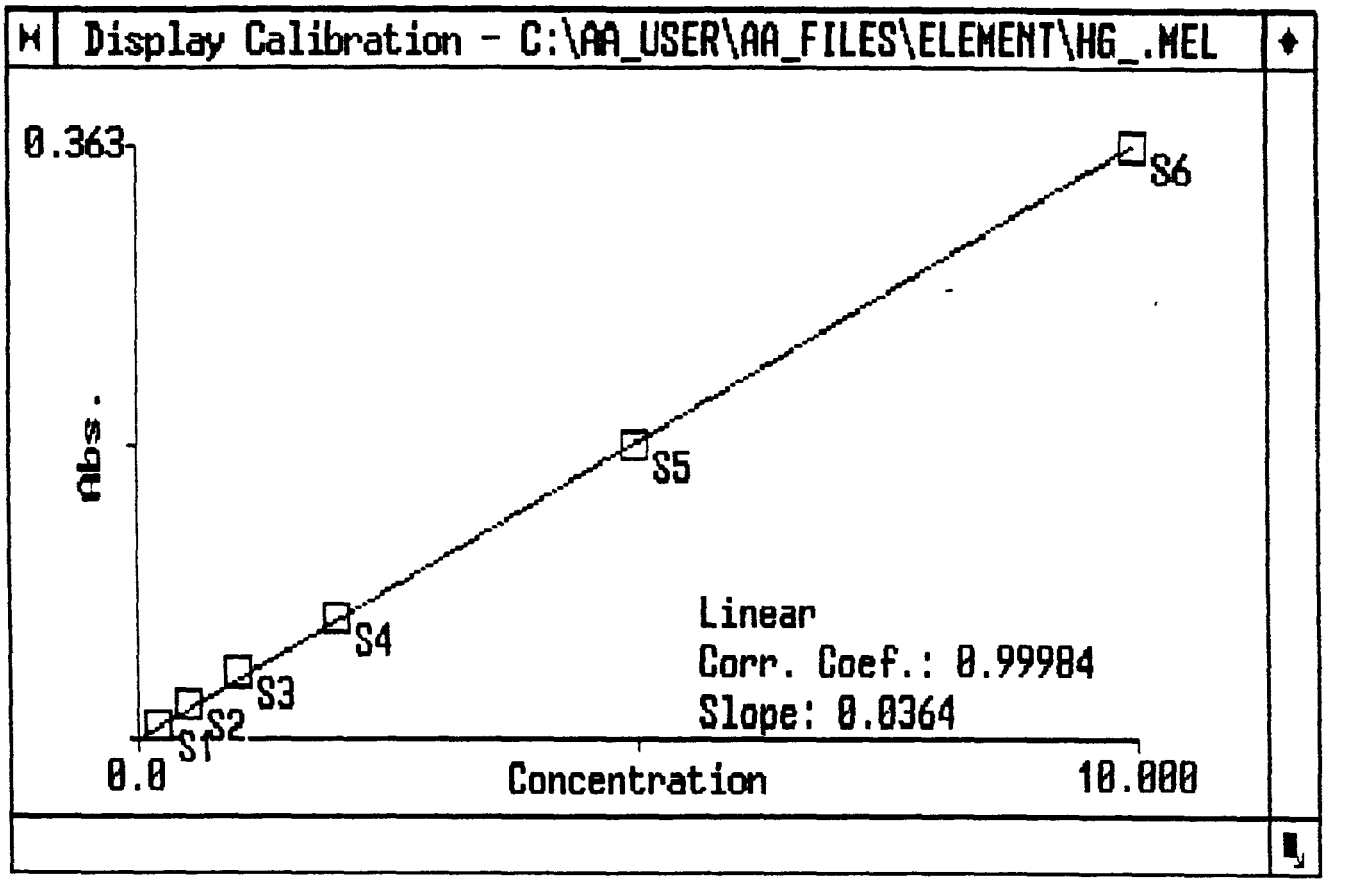
Hg

Element File: HG_.MEL	Element: Hg2	Wavelength: 253.7
Date: 10/22/97	Time: 10:07	Slit: 0.7 L
Data File: AB828.DAT	ID/Wt File: AB828.IDW	Lamp Current: 0
Technique: MHS	Calib. Type: Linear	Energy: 71

Remark 1: STANDARDS= 3-023-7
Remark 2: QC= 3-023-8



~~~~~~

ID: ICV=4.0ug/L Seq. No.: 00012 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:12
(Area (A-s): 3.522 Peak Height (A): 0.150
ık Corrected Pk Height (A): 0.150
:entration (ug/L): 4.137

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ID: ICB Seq. No.: 00013 A/S Pos.: -- Date: 10/22/97

.icate 1 Time: 10:13
: Area (A-s): 0.014 Peak Height (A): 0.000
ık Corrected Pk Height (A): 0.000
:entration (ug/L): 0.003

~~~~~~

ID: CHECK LO Seq. No.: 00014 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:15
. Area (A-s): 0.173 Peak Height (A): 0.007
ık Corrected Pk Height (A): 0.007
:entration (ug/L): 0.199

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ID: 43377 MB2 Seq. No.: 00015 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:18
. Area (A-s): 0.003 Peak Height (A): 0.000
ık Corrected Pk Height (A): 0.000
entration (ug/L): 0.003

~~~~~~

ID: 43377 MB2D Seq. No.: 00016 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:19
Area (A-s): 0.005 Peak Height (A): -0.000
ık Corrected Pk Height (A): -0.000
entration (ug/L): -0.003

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ID: 43377 LCS Seq. No.: 00017 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:20
Area (A-s): 4.228 Peak Height (A): 0.181
k Corrected Pk Height (A): 0.181
entration (ug/L): 4.981

~~~~~~

ID: 43377 LCSD Seq. No.: 00018 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:22
Area (A-s): 4.003 Peak Height (A): 0.172
k Corrected Pk Height (A): 0.172
entration (ug/L): 4.733

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ID: 184-50-6B Seq. No.: 00019 A/S Pos.: -- Date: 10/22/97

Concentration (ug/L): 4.948

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Hg2 ID: 170-70-3 Seq. No.: 00049 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:57
Peak Area (A-s): 0.042 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.041

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Hg2 ID: 170-70-3 D Seq. No.: 00050 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:59
Peak Area (A-s): 0.036 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.041

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Hg2 ID: 170-70-3 MS Seq. No.: 00051 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 11:00
Peak Area (A-s): 3.664 Peak Height (A): 0.169
Blank Corrected Pk Height (A): 0.169
Concentration (ug/L): 4.658

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Hg2 ID: 170-70-3 MSD Seq. No.: 00052 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 11:01
Peak Area (A-s): 3.993 Peak Height (A): 0.182
Blank Corrected Pk Height (A): 0.182
Concentration (ug/L): 5.020

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Hg2 ID: CCV=6.0ug/L Seq. No.: 00053 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 11:02
Peak Area (A-s): 4.798 Peak Height (A): 0.228
Blank Corrected Pk Height (A): 0.228
Concentration (ug/L): 6.278

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Hg2 ID: CCB Seq. No.: 00054 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 11:04
Peak Area (A-s): 0.039 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L): 0.044

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Hg2 ID: 43411 MB3 Seq. No.: 00055 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 11:05
Peak Area (A-s): 0.036 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L): 0.036
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Replicate 1 Time: 11:13
Peak Area (A-s): 5.201 Peak Height (A): 0.246
Blank Corrected Pk Height (A): 0.246
Concentration (ug/L): 6.775

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ncentration (ug/L): 0.041

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APPENDIX D

COMPUTER SUMMARIES

Appendix D.1

Computer Summaries

Baghouse Inlet - Method 23 & 29

Summary of Stack Gas Parameters and Test Results
ASPHALT PLANT "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Inlet

	RUN NUMBER RUN DATE RUN TIME	R-M23-I-1 8/27/97 0940-1227	R-M23-I-2 8/28/97 0908-1428	R-M23-I-3 8/29/97 0818-1413	Average of 1st and 2nd Test Run
	MEASURED DATA				
γ	Meter Box Correction Factor	1.021	1.021	1.021	1.021
ΔH	Avg Meter Orifice Pressure, in. H_2O	1.21	0.286	0.396	0.75
P_{bar}	Barometric Pressure, inches Hg	29.80	29.60	29.60	29.70
V_m	Sample Volume, ft^3	58.263	53.015	83.709	55.639
T_m	Average Meter Temperature, °F	96	96	93	96
P_{static}	Stack Static Pressure, inches H_2O	-1.8	-1.8	-1.8	-1.8
T_s	Average Stack Temperature, °F	308	306	290	307
V_{lc}	Condensate Collected, ml	510.5	414.9	393.0	462.7
CO_2	Carbon Dioxide content, % by volume	5.2	5.2	4.0	5.2
O_2	Oxygen content, % by volume	13.8	13.1	15.2	13.5
N_2	Nitrogen content, % by volume	81.0	81.7	80.8	81.4
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
$\Delta p^{1/2}$	Average Square Root Dp, (in. $H_2O)^{1/2}$	0.6901	0.6755	0.7133	0.6828
Θ	Sample Run Duration, minutes	96	170	240	133
D_n	Nozzle Diameter, inches	0.257	0.194	0.194	0.226
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.00036	0.00021	0.00021	0.00028
$V_{m(std)}$	Standard Meter Volume, dscf	56.399	50.885	80.735	53.642
$V_{m(std)}$	Standard Meter Volume, dscm	1.597	1.441	2.286	1.519
P_s	Stack Pressure, inches Hg	29.67	29.47	29.47	29.57
B_{ws}	Moisture, % by volume	29.9	27.7	18.6	28.8
V_{wstd}	Standard Water Vapor Volume, ft^3	24.029	19.529	18.499	21.779
$1-B_{ws}$	Dry Mole Fraction	0.701	0.723	0.814	0.712
M_d	Molecular Weight (d.b.), lb/lb•mole	29.38	29.36	29.25	29.37
M_s	Molecular Weight (w.b.), lb/lb•mole	25.98	26.21	27.15	26.09
V_s	Stack Gas Velocity, ft/s	49.5	48.3	49.6	48.9
A	Stack Area, ft^2	16.20	16.20	16.20	16.20
Q_a	Stack Gas Volumetric flow, acfm	48,074	46,957	48,211	47,515
Q_s	Stack Gas Volumetric flow, dscfm	22,981	23,027	27,178	23,004
$Q_{s(cmm)}$	Stack Gas Volumetric flow, dscmm	650.7	652.1	769.6	651.4
I	Isokinetic Sampling Ratio, %	115.0	102.6	97.7	108.8

Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "B" - Cary, North Carolina

US EPA Test Method 23 - PCDD / PCDF

Baghouse Inlet

	RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1227	0908-1428	0818-1413	Test run
	EMISSIONS DATA				
	DIOXINS:				
	2378 TCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total TCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	12378 PeCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PeCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	123478 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	123678 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "8" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Inlet

	RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1227	0908-1428	0818-1413	Test Run
	EMISSIONS DATA -Continued				
	DIOXINS - Continued				
	123789 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total HxCDD				
(ng)	Catch, ng	ND	ND	0.0200	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	0.00875	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	0.404	ND
	1234678 HpCDD				
(ng)	Catch, ng	ND	ND	0.140	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	0.0612	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	2.83	ND
	Total HpCDD				
(ng)	Catch, ng	{0.350}	ND	0.340	{0.175}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.219}	ND	0.149	{0.110}
(µg/hr)	Emission Rate, µg/hr	{8.56}	ND	6.87	{4.28}
	12346789 OCDD				
(ng)	Catch, ng	9.70	8.20	16.2	8.95
(ng/dscm)	Concentration, ng/dscm, as measured	6.07	5.69	7.09	5.88
(µg/hr)	Emission Rate, µg/hr	237	223	327	230
	Total PCDD				
(ng)	Catch, ng	{10.1}	8.20	16.6	{9.13}
(ng/dscm)	Concentration, ng/dscm, as measured	{6.29}	5.69	7.24	{5.99}
(µg/hr)	Emission Rate, µg/hr	{246}	223	334	{234}

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
ASPHALT PLANT "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Inlet

	RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1227	0908-1428	0818-1413	Test Run
	EMISSIONS DATA - Continued				
	FURANS				
	2378 TCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total TCDF				
(ng)	Catch, ng	{0.180}	0.170	0.0100	{0.175}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.113}	0.118	0.00437	{0.115}
(µg/hr)	Emission Rate, µg/hr	{4.40}	4.62	0.202	{4.51}
	12378 PeCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	23478 PeCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PeCDF				
(ng)	Catch, ng	0.470	0.330	{0.0100}	0.400
(ng/dscm)	Concentration, ng/dscm, as measured	0.294	0.229	{0.00437}	0.262
(µg/hr)	Emission Rate, µg/hr	11.5	8.96	{0.202}	10.2
	123478 HxCDF				
(ng)	Catch, ng	ND	ND	0.0200	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	0.00875	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	0.404	ND

( ) Not Detected. Value shown is the detection limit for that sample.
{ } Estimated Maximum Possible Concentration.

ASPHALT PLANT "B" - **Cary, North Carolina**
US EPA Test Method 23 - PCDD / PCDF
Baghouse Inlet

	RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1227	0908-1428	0818-1413	Test run
	EMISSIONS DATA - Continued				
	Furans - Continued				
	123678 HxCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	234678 HxCDF				
(ng)	Catch, ng	ND	ND	{0.00600}	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	{0.00262}	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	{0.121}	ND
	123789 HxCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total HxCDF				
(ng)	Catch, ng	ND	ND	0.0300	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	0.0131	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	0.606	ND
	1234678 HpCDF				
(ng)	Catch, ng	ND	ND	0.0400	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	0.0175	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	0.808	ND
	1234789 HpCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND

( ) Not Detected. Value shown is the detection limit for that sample.
{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
ASPHALT PLANT "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Inlet

	RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1227	0908-1428	0818-1413	Test run
	EMISSIONS DATA - Continued				
	Furans - Continued				
	Total HpCDF				
(ng)	Catch, ng	ND	{0.260}	0.0400	{0.130}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.180}	0.0175	{0.0902}
(µg/hr)	Emission Rate, µg/hr	ND	{7.06}	0.808	{3.53}
	12346789 OCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PCDF				
(ng)	Catch, ng	{0.650}	{0.760}	{0.0900}	{0.705}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.407}	{0.527}	{0.0394}	{0.467}
(µg/hr)	Emission Rate, µg/hr	{15.9}	{20.6}	{1.82}	{18.3}
	Total PCDD + PCDF				
(ng)	Catch, ng	{10.7}	{8.96}	{16.7}	{9.83}
(ng/dscm)	Concentration, ng/dscm, as measured	{6.70}	{6.22}	{7.28}	{6.46}
(µg/hr)	Emission Rate, µg/hr	{262}	{243}	{336}	{252}

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

PCDD/PCDF Corrected Stack Gas Concentrations and 2378 TCDD Toxic Equivalent Concentrations
ASPHALT PLANT "A" - Garner, North Carolina
US EPA Test Method 23 - PCDD/PCDF
Baghouse Inlet

	CONCENTRATION (ng/dscmm, adjusted to 7% O2)				2378-TCDD	2378 TOXIC EQUIVALENCIES (ng/dscmm, adjusted to 7% O2)			
RUN NUMBER	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average	Toxic	R-M23-I-1	R-M23-I-2	R-M23-I-3	Average
RUN DATE	08/27/97	08/28/97	08/29/97	of 1st & 2nd	Equivalent	8/27/97	8/28/97	8/29/97	of 1st & 2nd
RUN TIME	0940-1227	0908-1428	0818-1413	Run	Factor	0940-1227	0908-1428	0818-1413	Run
DIOXINS:									
2378 TCDD	ND	ND	ND	ND	1.000	ND	ND	ND	ND
Total TCDD	ND	ND	ND	ND		-			
12378 PeCDD	ND	ND	ND	ND	0.500	ND	ND	ND	ND
Total PeCDD	ND	ND	ND	ND					
123478 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123678 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123789 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
Total HxCDD	ND	ND	0.0213	ND					
1234678 HpCDD	ND	ND	0.149	ND	0.010	ND	ND	0.001	ND
Total HpCDD	{0.429}	ND	0.363	{0.215}					
12346789 OCDD	11.9	10.1	17.3	11.0	0.001	0.0119	0.0101	0.0173	0.0110
Total PCDD	{12.3}	10.1	17.7	{11.2}		0.0119	0.0101	0.0188	0.0110
FURANS:									
2378 TCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
Total TCDF	{0.221}	0.210	0.0107	{0.215}					
12378 PeCDF	ND	ND	ND	ND	0.050	ND	ND	ND	ND
23478 PeCDF	ND	ND	ND	ND	0.500	ND	ND	ND	ND
Total PeCDF	0.576	0.408	{0.0107}	0.492					
123478 HxCDF	ND	ND	0.021	ND	0.100	ND	ND	0.00213	ND
123678 HxCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
234678 HxCDF	ND	ND	{0.00640}	ND	0.100	ND	ND	{0.000640}	ND
123789 HxCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
Total HxCDF	ND	ND	0.0320	ND					
1234678 HpCDF	ND	ND	0.0427	ND	0.010	ND	ND	0.000427	ND
1234789 HpCDF	ND	ND	ND	ND	0.010	ND	ND	ND	ND
Total HpCDF	ND	{0.322}	0.0427	{0.161}					
12346789 OCDF	ND	ND	ND	ND	0.001	ND	ND	ND	ND
Total PCDF	{0.797}	{0.940}	{0.0960}	{0.868}		ND	ND	{0.00320}	ND
Total PCDD + PCDF	{13.1}	{11.1}	{17 8}	{12.1}		0.0119	0.0101	{0.0220}	0.0110

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing · ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Inlet

	RUN NUMBER	***R-M29-I-1***	***R-M29-I-2***	***R-M29-I-3***	***Average of***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2nd***
	RUN TIME	***~1000-~1200***	***1019-1427***	***0819-1403***	***Test Runs***
	MEASURED DATA				
γ	Meter Box Correction Factor	1.016	1.016	1.016	1.016
ΔH	Avg Meter Orifice Pressure, in. H_2O	1.24	0.298	0.400	0.771
P_{bar}	Barometric Pressure, inches Hg	29.80	29.60	29.60	29.700
V_m	Sample Volume, ft^3	52.232	64.379	85.398	58.306
T_m	Average Meter Temperature, °F	101	102	96	101.622
P_{static}	Stack Static Pressure, inches H_2O	-1.8	-1.8	-1.8	-1.800
T_s	Average Stack Temperature, °F	304	309	289	306.083
V_{lc}	Condensate Collected, ml	422.5	485.0	403.9	453.750
CO_2	Carbon Dioxide content, % by volume	4.6	5.2	4.0	4.900
O_2	Oxygen content, % by volume	14.2	13.1	15.2	13.650
N_2	Nitrogen content, % by volume	81.2	81.7	80.8	81.450
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.840
$\Delta p^{1/2}$	Average Square Root Δp, (in. $H_2O)^{1/2}$	0.6972	0.6977	0.7185	0.697
Θ	Sample Run Duration, minutes	87	200	240	143.500
D_n	Nozzle Diameter, inches	0.256	0.194	0.196	0.225
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000357	0.000205	0.000210	0.000281
$V_{m(std)\ cf}$	Standard Meter Volume, ft^3	49.883	60.783	81.522	55.333
$V_{m(std)\ cm}$	Standard Meter Volume, m^3	1.413	1.721	2.308	1.567
Q_m	Average Sampling Rate, dscfm	0.573	0.304	0.340	0.439
P_s	Stack Pressure, inches Hg	29.67	29.47	29.47	29.57
B_{ws}	Moisture, % by volume	28.5	27.3	18.9	27.9
V_{wstd}	Standard Water Vapor Volume, ft^3	19.887	22.829	19.012	21.358
$1-B_{ws}$	Dry Mole Fraction	0.715	0.727	0.811	0.721
M_d	Molecular Weight (d.b.), lb/lb•mole	29.30	29.36	29.25	29.33
M_s	Molecular Weight (w.b.), lb/lb•mole	26.08	26.26	27.12	26.17
V_s	Stack Gas Velocity, ft/s	49.7	49.9	49.9	49.8
A	Stack Area, ft^2	16.20	16.20	16.20	16.20
Q_a	Stack Gas Volumetric flow, acfm	48,345	48,535	48,550	48,440
$Q_{s\ cfm}$	Stack Gas Volumetric flow, dscfm	23,687	23,865	27,325	23,776
$Q_{s\ cmm}$	Stack Gas Volumetric flow, dscmm	671	676	774	673
I	Isokinetic Sampling Ratio, %	109.7	100.5	96.1	105.1

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Inlet

	RUN NUMBER	***R-M29-I-1***	***R-M29-I-2***	***R-M29-I-3***	***Average of***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2nd***
	RUN TIME	***~1000-~1200***	***1019-1427***	***0819-1403***	***Test Runs***
	EMISSIONS DATA				
	Particulate Matter				
g	Target Catch, g	136.3	269.2	405.5	202.8
gr/dscf	Concentration, gr/dscf	42.2	68.3	76.8	55.3
gr/dscf at 7%	Concentration, gr/dscf at 7% O2	87.5	121.8	187.2	104.6
g/dscm	Concentration, g/dscm	96.5	156.4	175.7	126.4
g/dscm at 7%	Concentration, g/dscm at 7% O2	200	279	428	239
lb/hr	Emission Rate, lb/hr	8,561	13,981	17,979	11,271
kg/hr	Emission Rate, kg/hr	3,883	6,342	8,155	5,113
	Antimony				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Arsenic				
µg	Target Catch, µg	5.03	3.82	4.91	4.43
µg/dscm	Concentration, µg/dscm	3.56	2.22	2.13	2.89
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	7.39	3.96	5.19	5.67
g/hr	Emission Rate, g/hr	0.1433	0.0900	0.0987	0.117
	Barium				
µg	Target Catch, µg	1,081	924	734	1,002
µg/dscm	Concentration, µg/dscm	765	537	318	651
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	1,587	957	776	1,272
g/hr	Emission Rate, g/hr	30.8	21.8	14.8	26.3
	Beryllium				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Cadmium				
µg	Target Catch, µg	20.2	14.6	9.81	17.4
µg/dscm	Concentration, µg/dscm	14.3	8.51	4.25	11.4
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	29.7	15.2	10.4	22.4
g/hr	Emission Rate, g/hr	0.576	0.345	0.197	0.460

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Inlet

	RUN NUMBER	***R-M29-I-1***	***R-M29-I-2***	***R-M29-I-3***	***Average of***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2nd***
	RUN TIME	***~1000-~1200***	***1019-1427***	***0819-1403***	***Test Runs***
	EMISSIONS DATA - Continued				
	Chromium				
µg	Target Catch, µg	95.8	88.3	76.8	92.1
µg/dscm	Concentration, µg/dscm	67.8	51.3	33.3	59.6
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	141	91.4	81.2	116
g/hr	Emission Rate, g/hr	2.73	2.08	1.55	2.41
	Colbalt				
µg	Target Catch, µg	63.2	55.1	45.5	59.2
µg/dscm	Concentration, µg/dscm	44.7	32.0	19.7	38.4
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	92.8	57.0	48.1	74.9
g/hr	Emission Rate, g/hr	1.80	1.30	0.915	1.55
	Copper				
µg	Target Catch, µg	613	660	607	636
µg/dscm	Concentration, µg/dscm	434	384	263	409
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	900	684	641	792
g/hr	Emission Rate, g/hr	17.5	15.6	12.2	16.5
	Lead				
µg	Target Catch, µg	85.3	83.1	82.7	84.2
µg/dscm	Concentration, µg/dscm	60.4	48.3	35.8	54.3
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	125	86.0	87.4	106
g/hr	Emission Rate, g/hr	2.43	1.96	1.66	2.19
	Manganese				
µg	Target Catch, µg	2,471	2,336	2,251	2,404
µg/dscm	Concentration, µg/dscm	1,750	1,357	975	1,553
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	3,630	2,418	2,377	3,024
g/hr	Emission Rate, g/hr	70.4	55.0	45.3	62.7
	Mercury				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "3"

US EPA Test Method 29 - Multiple Metals

Baghouse Inlet

	RUN NUMBER	***R-M29-I-1***	***R-M29-I-2***	***R-M29-I-3***	***Average o***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2***
	RUN TIME	***~1000-~1200***	***1019-1427***	***0819-1403***	***Test Run***
	EMISSIONS DATA - Continued				
	Nickel				
µg	Target Catch, µg	59.0	58.4	50.3	5
µg/dscm	Concentration, µg/dscm	44.7	33.9	21.8	3
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	86.6	60.5	53.1	7
g/hr	Emission Rate, g/hr	1.68	1.38	1.01	1
	Phosphorus				
µg	Target Catch, µg	4,250	3,874	5,010	4,0
µg/dscm	Concentration, µg/dscm	3,009	2,251	2,170	2,6
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	6,242	4,011	5,292	5,1
g/hr	Emission Rate, g/hr	121	91.3	101	1
	Silver				
µg	Target Catch, µg	1.20	1.00	0.671	1.
µg/dscm	Concentration, µg/dscm	0.850	0.581	0.291	0.7
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	1.76	1.04	0.709	1.4
g/hr	Emission Rate, g/hr	0.0342	0.0236	0.0135	0.028
	Selenium				
µg	Target Catch, µg	ND	0.396	ND	0.19
µg/dscm	Concentration, µg/dscm	ND	0.230	ND	0.11
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	0.410	ND	0.20
g/hr	Emission Rate, g/hr	ND	0.00933	ND	0.0046
	Thallium				
µg	Target Catch, µg	12.2	8.58	2.08	10.3
µg/dscm	Concentration, µg/dscm	8.64	4.98	0.901	6.81
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	17.9	8.88	2.20	13.4
g/hr	Emission Rate, g/hr	0.348	0.202	0.0418	0.275
	Zinc				
µg	Target Catch, µg	761	683	553	722
µg/dscm	Concentration, µg/dscm	539	397	239	468
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	1,118	707	584	913
g/hr	Emission Rate, g/hr	21.7	16.1	11.1	18.9

Appendix D.2

Computer Summaries

Baghouse Outlet - Method 9, 23 & 29

Date: 8/29/97
Start Time: 0923
Stop Time: 1023

Baghouse Outlet
Run Number: O-M9-3B

Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,
0.25	NA	12.25	1.46	24.25	1.30	36.25	1.04	48.25	0.42
0.50	NA	12.50	1.46	24.50	1.30	36.50	1.04	48.50	0.42
0.75	NA	12.75	1.46	24.75	1.52	36.75	1.04	48.75	0.21
1.00	NA	13.00	1.67	25.00	1.52	37.00	1.04	49.00	0.21
1.25	NA	13.25	1.67	25.25	1.52	37.25	1.25	49.25	0.21
1.50	NA	13.50	1.46	25.50	1.52	37.50	1.25	49.50	0.21
1.75	NA	13.75	1.46	25.75	1.96	37.75	1.25	49.75	0.22
2.00	NA	14.00	1.67	26.00	1.52	38.00	1.46	50.00	0.23
2.25	NA	14.25	1.46	26.25	1.52	38.25	1.25	50.25	0.23
2.50	NA	14.50	1.46	26.50	1.30	38.50	1.25	50.50	0.23
2.75	NA	14.75	1.46	26.75	1.09	38.75	1.25	50.75	0.23
3.00	NA	15.00	1.46	27.00	1.09	39.00	1.25	51.00	0.23
3.25	NA	15.25	1.67	27.25	1.09	39.25	1.25	51.25	0.23
3.50	NA	15.50	1.67	27.50	0.65	39.50	1.25	51.50	0.45
3.75	NA	15.75	1.88	27.75	0.65	39.75	1.25	51.75	0.23
4.00	NA	16.00	2.08	28.00	0.65	40.00	1.25	52.00	0.23
4.25	NA	16.25	2.08	28.25	0.68	40.25	0.83	52.25	0.45
4.50	NA	16.50	1.88	28.50	0.68	40.50	0.83	52.50	0.45
4.75	NA	16.75	1.88	28.75	0.68	40.75	1.04	52.75	0.45
5.00	NA	17.00	1.88	29.00	0.68	41.00	1.25	53.00	0.45
5.25	NA	17.25	1.46	29.25	0.68	41.25	1.04	53.25	0.45
5.50	NA	17.50	1.46	29.50	0.68	41.50	1.04	53.50	0.68
5.75	NA	17.75	1.46	29.75	0.65	41.75	1.04	53.75	0.91
6.00	**1.25**	**18.00**	**1.46**	**30.00**	**0.65**	**42.00**	**0.83**	**54.00**	**0.91**
6.25	1.46	18.25	1.30	30.25	0.65	42.25	0.83	54.25	1.36
6.50	1.46	18.50	1.30	30.50	0.65	42.50	0.83	54.50	1.36
6.75	1.46	18.75	1.30	30.75	0.43	42.75	1.04	54.75	1.36
7.00	1.25	19.00	1.09	31.00	0.43	43.00	1.04	55.00	1.36
7.25	1.04	19.25	1.09	31.25	0.43	43.25	0.83	55.25	1.36
7.50	1.25	19.50	1.09	31.50	0.43	43.50	0.83	55.50	1.36
7.75	1.25	19.75	1.09	31.75	0.00	43.75	0.83	55.75	1.30
8.00	1.25	20.00	1.30	32.00	0.00	44.00	0.63	56.00	1.25
8.25	1.25	20.25	1.30	32.25	0.22	44.25	0.63	56.25	1.25
8.50	1.25	20.50	1.52	32.50	0.22	44.50	0.63	56.50	1.25
8.75	1.25	20.75	1.74	32.75	0.22	44.75	0.63	56.75	NA*
9.00	1.25	21.00	1.74	33.00	0.22	45.00	0.63	57.00	NA*
9.25	1.25	21.25	1.52	33.25	0.22	45.25	0.63	57.25	NA*
9.50	1.25	21.50	1.96	33.50	0.22	45.50	0.63	57.50	NA*
9.75	1.25	21.75	1.52	33.75	0.22	45.75	0.83	57.75	NA*
10.00	1.25	22.00	1.30	34.00	0.22	46.00	0.83	58.00	NA*
10.25	1.04	22.25	1.30	34.25	0.63	46.25	0.83	58.25	NA*
10.50	1.25	22.50	1.30	34.50	0.63	46.50	0.83	58.50	NA*
10.75	1.25	22.75	1.30	34.75	0.63	46.75	0.63	58.75	NA*
11.00	1.25	23.00	1.30	35.00	0.63	47.00	0.42	59.00	NA*
11.25	1.67	23.25	1.30	35.25	0.83	47.25	0.42	59.25	NA*
11.50	1.67	23.50	1.30	35.50	0.83	47.50	0.42	59.50	NA*
11.75	1.67	23.75	1.36	35.75	0.83	47.75	0.42	59.75	NA*
12.00	**1.46**	**24.00**	**1.36**	**36.00**	**1.04**	**48.00**	**0.42**	**60.00**	NA*

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.46
HIGHEST SIX-MINUTE ROLLING AVERAGE = 2.08
AVERAGE OPACITY DURING RUN = 0.98

* Due to fugitive emission obstructions, a number of readings could not be made. Running averages included the time lapses so that the net run time was shortened. NA indicates that for the time period, an average is Not Applicable.

Date: 8/29/97
Start Time: 1033
Stop Time: 1133

Baghouse Outlet
Run Number: O-M9-3C

Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,
0.25	NA	12.25	1.82	24.25	0.65	36.25	0.43	48.25	0.43
0.50	NA	12.50	1.82	24.50	0.65	36.50	0.43	48.50	0.22
0.75	NA	12.75	1.59	24.75	0.65	36.75	0.43	48.75	0.22
1.00	NA	13.00	1.59	25.00	0.65	37.00	0.43	49.00	0.43
1.25	NA	13.25	1.59	25.25	0.65	37.25	0.43	49.25	0.43
1.50	NA	13.50	1.59	25.50	0.22	37.50	0.43	49.50	0.65
1.75	NA	13.75	1.36	25.75	0.22	37.75	0.43	49.75	0.65
2.00	NA	14.00	1.14	26.00	0.22	38.00	0.43	50.00	0.65
2.25	NA	14.25	0.91	26.25	0.43	38.25	0.43	50.25	0.68
2.50	NA	14.50	0.91	26.50	0.22	38.50	0.43	50.50	0.68
2.75	NA	14.75	0.68	26.75	0.22	38.75	0.43	50.75	0.68
3.00	NA	15.00	0.68	27.00	0.22	39.00	0.22	51.00	1.14
3.25	NA	15.25	0.68	27.25	0.22	39.25	0.22	51.25	1.14
3.50	NA	15.50	0.68	27.50	0.22	39.50	0.22	51.50	1.14
3.75	NA	15.75	1.14	27.75	0.22	39.75	0.22	51.75	1.14
4.00	NA	16.00	1.14	28.00	0.43	40.00	0.22	52.00	1.14
4.25	NA	16.25	1.14	28.25	0.43	40.25	0.22	52.25	0.91
4.50	NA	16.50	0.91	28.50	0.43	40.50	0.65	52.50	0.91
4.75	NA	16.75	0.91	28.75	0.43	40.75	0.65	52.75	0.91
5.00	NA	17.00	0.95	29.00	0.43	41.00	0.63	53.00	0 91
5.25	NA	17.25	1.00	29.25	0.65	41.25	0.63	53.25	0.87
5.50	NA	17.50	0.75	29.50	0.63	41.50	0.63	53.50	0.87
5 75	NA	17.75	0.95	29.75	0.63	41.75	0.63	53.75	1.09
6.00	**0.63**	**18.00**	**0.91**	**30.00**	**0.63**	**42.00**	**0.63**	**54.00**	**1.09**
6.25	0.42	18.25	0.91	30.25	0.63	42.25	0.63	54.25	1.09
6.50	0.42	18.50	0.91	30.50	0.63	42.50	0.83	54.50	1.09
6.75	0.63	18 75	0.91	30:75	0.63	42.75	0.83	54.75	1.09
7.00	0.63	19.00	0.91	31.00	0.63	43.00	0.83	55.00	0.87
7.25	0.63	19.25	0.91	31.25	0.63	43.25	0.83	55.25	0.87
7.50	0.63	19.50	1.36	31.50	0.63	43.50	0.83	55.50	0.65
7.75	0.83	19.75	1.36	31.75	0.63	43.75	0.83	55.75	0.65
8.00	1.04	20.00	1.36	32.00	0.63	44.00	0.83	56.00	0.65
8.25	1.25	20.25	1.36	32.25	0.42	44.25	0.83	56.25	0.63
8.50	1.04	20.50	1.59	32.50	0.42	44.50	0.83	56.50	0.63
8.75	1.25	20.75	1.59	32.75	0.42	44.75	0.83	56.75	0.63
9.00	1.25	21.00	1.59	33.00	0.63	45.00	0.83	57.00	0.21
9.25	1.46	21.25	1.36	33.25	0.63	45.25	0.83	57.25	0.21
9.50	1.46	21.50	1.36	33.50	0.83	45.50	0.63	57.50	0.21
9.75	1.46	21.75	0.91	33.75	0.83	45.75	0.63	57.75	0.21
10.00	1.46	22.00	0.91	34.00	0.63	46.00	0.63	58.00	0.21
10.25	1.46	22.25	0.91	34.25	0.63	46.25	0.83	58.25	0.42
10.50	1.67	22.50	0.91	34.50	0.63	46.50	0.42	58.50	0.42
10.75	1.67	22.75	0.91	34.75	0.63	46.75	0.42	58.75	0.42
11.00	1.67	23.00	0.87	35.00	0.65	47.00	0.42	59.00	0.42
11.25	1.67	23.25	0.83	35.25	0.43	47.25	0.43	59.25	0.63
11.50	1.88	23.50	0.87	35.50	0.43	47.50	0.43	59.50	0.63
11.75	1.74	23.75	0.65	35.75	0.43	47.75	0.43	59.75	0.42
12.00	**1.82**	**24.00**	**0.65**	**36.00**	**0.43**	**48.00**	**0.43**	**60.00**	**NA***

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.82 AVERAGE OPACITY DURING RUN = 0.75
HIGHEST SIX-MINUTE ROLLING AVERAGE = 1.88

* Due to fugitive emission obstructions, a number of readings could not be made. Running averages included the time lapses so that the net run time was shortened. NA indicates that for the time period, an average is Not Applicable.

Date: 8/29/97
Start Time: 1143
Stop Time: 1243

Baghouse Outlet
Run Number: O-M9-3D

Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,	Net Run Time, minutes	six-minute rolling averages percent opacity,
0.25	NA	12.25	0.23	24.25	1.19	36.25	1.09	48.25	2.29
0.50	NA	12.50	0.23	24.50	1.19	36.50	1.09	48.50	2.08
0.75	NA	12.75	0.23	24.75	1.19	36.75	1.30	48.75	1.88
1.00	NA	13.00	0.23	25.00	1.19	37.00	1.30	49.00	1.88
1.25	NA	13.25	0.23	25.25	1.19	37.25	0.91	49.25	1.88
1.50	NA	13.50	0.23	25.50	1.14	37.50	0.71	49.50	1.88
1.75	NA	13.75	0.23	25.75	1.14	37.75	0.71	49.75	1.67
2.00	NA	14.00	0.23	26.00	1.14	38.00	0.75	50.00	1.67
2.25	NA	14.25	0.00	26.25	0.91	38.25	0.79	50.25	1.46
2.50	NA	14.50	0.00	26.50	0.87	38.50	0.79	50.50	1.88
2.75	NA	14.75	0.00	26.75	0.87	38.75	0.79	50.75	1.88
3.00	NA	15.00	0.00	27.00	0.87	39.00	0.79	51.00	1.46
3.25	NA	15.25	0.00	27.25	0.87	39.25	0.28	51.25	1.46
3.50	NA	15.50	0.00	27.50	0.87	39.50	0.28	51.50	1.04
3.75	NA	15.75	0.00	27.75	0.83	39.75	0.56	51.75	1.04
4.00	NA	16.00	0.00	28.00	0.42	40.00	0.56	52.00	1.04
4.25	NA	16.25	0.21	28.25	0.21	40.25	0.56	52.25	1.04
4.50	NA	16.50	0.21	28.50	0.21	40.50	0.56	52.50	0.83
4 75	NA	16.75	0.42	28.75	0.21	40.75	1.11	52.75	0.83
5.00	NA	17.00	0.42	29.00	0.21	41.00	1.11	53.00	0.83
5.25	NA	17.25	0.42	29.25	0.21	41.25	1.11	53.25	0.83
5.50	NA	17.50	0.42	29.50	0.22	41.50	1.39	53.50	0.83
5.75	NA	17.75	0.42	29.75	0.22	41.75	1.39	53.75	0.83
6.00	**0.50**	**18.00**	**0.42**	**30.00**	**0.22**	**42.00**	**1.67**	**54.00**	**0.83**
6.25	0.50	18 25	0.63	30.25	0.00	42.25	1.67	54.25	0.63
6.50	0.50	18.50	0.63	30.50	0.00	42.50	1.94	54.50	0.63
6.75	0.48	18.75	0.63	30.75	0.00	42.75	2.22	54.75	0.42
7.00	0.48	19.00	0.63	31.00	0.00	43.00	2.11	55.00	0.42
7.25	0.24	19 25	0.63	31.25	0.45	43.25	2.00	55.25	0.42
7.50	0.24	19.50	0.65	31.50	0.68	43.50	1.90	55.50	0.42
7.75	0.23	19.75	0.65	31.75	0.68	43.75	2.14	55.75	0.42
8.00	0.23	20.00	0.65	32.00	0.68	44.00	2.05	56.00	0.42
8.25	0.43	20.25	0.87	32.25	0.68	44.25	2.17	56.25	0.42
8.50	0.42	20.50	0.91	32.50	0.68	44.50	2.17	56.50	0.00
8.75	0.43	20.75	0.91	32.75	0.68	44.75	2.17	56.75	0.00
9.00	0.45	21.00	0.91	33.00	0.68	45.00	2.61	57.00	0.00
9.25	0.45	21.25	0.91	33.25	1.14	45.25	2.50	57.25	0.00
9 50	0.45	21.50	0.91	33.50	1.14	45.50	2.92	57.50	0.00
9.75	0.45	21.75	0.95	33.75	1.14	45.75	2.71	57.75	0.00
10.00	0.45	22.00	1.43	34.00	1.14	46.00	2.71	58.00	0.00
10.25	0.45	22.25	1.43	34.25	1.14	46.25	2.71	58.25	0.00
10.50	0.45	22.50	1.43	34.50	1.14	46.50	2.92	58.50	0.00
10.75	0.23	22.75	1.19	34.75	1.14	46.75	2.50	58.75	0.00
11.00	0.23	23.00	1.19	35.00	1.14	47.00	2.50	59.00	0.00
11.25	0.23	23.25	1.19	35.25	1.14	47.25	2.50	59.25	0.00
11.50	0.23	23.50	1.19	35.50	1.09	47.50	2.29	59.50	0.00
11.75	0.23	23.75	1.19	35.75	1.09	47.75	2.29	59.75	0.00
12.00	**0.23**	**24.00**	**1.19**	**36.00**	**1.09**	**48.00**	**2.08**	**60.00**	**0.00**

HIGHEST SIX-MINUTE BLOCK AVERAGE = 2.08
HIGHEST SIX-MINUTE ROLLING AVERAGE = 2.92
AVERAGE OPACITY DURING RUN = 0.81

* Due to fugitive emission obstructions, a number of readings could not be made. Running averages included the time lapses so that the net run time was shortened. NA indicates that for the time period, an average is Not Applicable.

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "8" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Outlet

	RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1516	0746-1229	0809-1236	Test Run
	MEASURED DATA				
γ	Meter Box Correction Factor	0.982	0.982	0.982	0.982
ΔH	Avg Meter Orifice Pressure, in. H_2O	3.04	2.69	2.86	2.87
P_{bar}	Barometric Pressure, inches Hg	29.80	29.60	29.60	29.70
V_m	Sample Volume, ft^3	226.829	208.171	226.098	217.5
T_m	Average Meter Temperature, °F	111	97	98	103.8
P_{static}	Stack Static Pressure, inches H_2O	-1.5	-1.4	-1.3	-1.45
T_s	Average Stack Temperature, °F	283	287	268	285.0
V_{lc}	Condensate Collected, ml	2083.3	1620.9	1087.4	1852.1
CO_2	Carbon Dioxide content, % by volume	4.0	4.9	3.0	4.45
O_2	Oxygen content, % by volume	15.0	13.6	16.3	14.3
N_2	Nitrogen content, % by volume	81.0	81.5	80.7	81.25
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
$\Delta p^{1/2}$	Average Square Root Dp, (in. $H_2O)^{1/2}$	1.0260	1.0561	1.0760	1.0410
Θ	Sample Run Duration, minutes	240	240	240	240.0
D_n	Nozzle Diameter, inches	0.256	0.256	0.251	0.256
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000357	0.000357	0.000344	0.000357
$V_{m(std)}$	Standard Meter Volume, dscf	206.781	192.849	209.298	199.815
$V_{m(std)}$	Standard Meter Volume, dscm	5.855	5.461	5.927	5.658
P_s	Stack Pressure, inches Hg	29.69	29.50	29.50	29.59
B_{ws}	Moisture, % by volume	32.2	28.3	19.6	30.3
V_{wstd}	Standard Water Vapor Volume, ft^3	98.061	76.296	51.184	87.178
$1-B_{ws}$	Dry Mole Fraction	0.678	0.717	0.804	0.697
M_d	Molecular Weight (d.b.), lb/lb•mole	29.24	29.33	29.13	29.28
M_s	Molecular Weight (w.b.), lb/lb•mole	25.62	26.12	26.94	25.87
V_s	Stack Gas Velocity, ft/s	72.8	74.7	74.0	73.7
A	Stack Area, ft^2	11.23	11.23	11.23	11.23
Q_a	Stack Gas Volumetric flow, acfm	49,075	50,303	49,832	49,689
Q_s	Stack Gas Volumetric flow, dscfm	23,450	25,122	28,612	24,286
$Q_{s(cmm)}$	Stack Gas Volumetric flow, dscmm	664.0	711.4	810.2	687.7
I	Isokinetic Sampling Ratio, %	115.5	100.5	99.6	108.0

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Outlet

	RUN NUMBER	*R-M23-O-1*	*R-M23-O-2*	*R-M23-O-3*	*Average of*
	RUN DATE	*8/27/97*	*8/28/97*	*8/29/97*	*1st and 2nd*
	RUN TIME	*0940-1516*	*0746-1229*	*0809-1236*	*Test Run*
	EMISSIONS DATA				
	DIOXINS:				
	2378 TCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total TCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	12378 PeCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PeCDD				
(ng)	Catch, ng	{0.530}	{1.00}	ND	{0.765}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.0905}	{0.183}	ND	{0.137}
(µg/hr)	Emission Rate, µg/hr	{3.61}	{7.82}	ND	{5.71}
	123478 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	123678 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND

( ) Not Detected. Value shown is the detection limit for that sample.
{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Outlet

	RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1516	0746-1229	0809-1236	Test Run
	EMISSIONS DATA -Continued				
	DIOXINS - Continued				
	123789 HxCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total HxCDD				
(ng)	Catch, ng	ND	0.440	ND	0.220
(ng/dscm)	Concentration, ng/dscm, as measured	ND	0.0806	ND	0.040
(µg/hr)	Emission Rate, µg/hr	ND	3.44	ND	1.720
	1234678 HpCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total HpCDD				
(ng)	Catch, ng	ND	{1.00}	ND	{0.500}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.183}	ND	{0.0916}
(µg/hr)	Emission Rate, µg/hr	ND	{7.82}	ND	{3.91}
	12346789 OCDD				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PCDD				
(ng)	Catch, ng	{0.530}	{2.44}	0.00	{1.49}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.0905}	{0.447}	0.00	{0.269}
(µg/hr)	Emission Rate, µg/hr	{3.61}	{19.1}	0.00	{11.3}

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "8" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Outlet

	RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1516	0746-1229	0809-1236	Test Run
	EMISSIONS DATA - Continued				
	FURANS				
	2378 TCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total TCDF				
(ng)	Catch, ng	0.150	ND	ND	0.075
(ng/dscm)	Concentration, ng/dscm, as measured	0.0256	ND	ND	0.013
(µg/hr)	Emission Rate, µg/hr	1.02	ND	ND	0.510
	12378 PeCDF				
(ng)	Catch, ng	ND	{0.240}	ND	{0.120}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.0439}	ND	{0.0220}
(µg/hr)	Emission Rate, µg/hr	ND	{1.88}	ND	{0.938}
	23478 PeCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PeCDF				
(ng)	Catch, ng	ND	{0.410}	{0.0200}	{0.205}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.0751}	{0.00337}	{0.0375}
(µg/hr)	Emission Rate, µg/hr	ND	{3.20}	{0.164}	{1.60}
	123478 HxCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results
Asphalt Plant "B" - Cary, North Carolina
US EPA Test Method 23 - PCDD / PCDF
Baghouse Outlet

	RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1516	0746-1229	0809-1236	Test Run
	EMISSIONS DATA - Continued				
	Furans - Continued				
	123678 HxCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	234678 HxCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	123789 HxCDF				
(ng)	Catch, ng	ND	{0.240}	ND	{0.120}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.0439}	ND	{0.0220}
(µg/hr)	Emission Rate, µg/hr	ND	{1.88}	ND	{0.938}
	Total HxCDF				
(ng)	Catch, ng	ND	{0.460}	ND	{0.230}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.0842}	ND	{0.0421}
(µg/hr)	Emission Rate, µg/hr	ND	{3.60}	ND	{1.80}
	1234678 HpCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	1234789 HpCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND

( ) Not Detected. Value shown is the detection limit for that sample.
{ } Estimated Maximum Possible Concentration.

Summary of Stack Gas Parameters and Test Results

Asphalt Plant "B" - Cary, North Carolina

US EPA Test Method 23 - PCDD / PCDF

Baghouse Outlet

	RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
	RUN DATE	8/27/97	8/28/97	8/29/97	1st and 2nd
	RUN TIME	0940-1516	0746-1229	0809-1236	Test Run
	EMISSIONS DATA - Continued				
	Furans - Continued				
	Total HpCDF				
(ng)	Catch, ng	ND	{0.366}	ND	{0.180}
(ng/dscm)	Concentration, ng/dscm, as measured	ND	{0.0659}	ND	{0.0330}
(µg/hr)	Emission Rate, µg/hr	ND	{2.81}	ND	{1.41}
	12346789 OCDF				
(ng)	Catch, ng	ND	ND	ND	ND
(ng/dscm)	Concentration, ng/dscm, as measured	ND	ND	ND	ND
(µg/hr)	Emission Rate, µg/hr	ND	ND	ND	ND
	Total PCDF				
(ng)	Catch, ng	0.150	{1.23}	{0.0200}	{0.690}
(ng/dscm)	Concentration, ng/dscm, as measured	0.0256	{0.225}	{0.00337}	{0.125}
(µg/hr)	Emission Rate, µg/hr	1.02	{9.61}	{0.164}	{5.32}
	Total PCDD + PCDF				
(ng)	Catch, ng	{0.680}	{3.67}	{0.0200}	{2.18}
(ng/dscm)	Concentration, ng/dscm, as measured	{0.116}	{0.672}	{0.00337}	{0.394}
(µg/hr)	Emission Rate, µg/hr	{4.63}	{28.7}	{0.164}	{16.7}

( ) Not Detected. Value shown is the detection limit for that sample.

{ } Estimated Maximum Possible Concentration.

PCDD/PCDF Corrected Stack Gas Concentrations and 2378 TCDD Toxic Equivalent Concentrations
ASPHALT PLANT "B" - Cary, North Carolina
US EPA Test Method 23 - CDD/CDF
Baghouse Outlet

	CONCENTRATION (ng/dscm, adjusted to 7% O2)				2378-TCDD	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7% O2)			
RUN NUMBER	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of	Toxic	R-M23-O-1	R-M23-O-2	R-M23-O-3	Average of
RUN DATE	08/27/97	08/28/97	08/29/97	1st and 2nd	Equivalent	8/27/97	8/28/97	8/29/97	1st and 2
RUN TIME	0940-1516	0746-1229	0809-1236	Test Run	Factor	0940-1516	0746-1229	0809-1236	Test Run
DIOXINS:									
2378 TCDD	ND	ND	ND	ND	1.000	ND	ND	ND	ND
Total TCDD	ND	ND	ND	ND					
12378 PeCDD	ND	ND	ND	ND	0.500	ND	ND	ND	ND
Total PeCDD	{0.213}	{0.349}	ND	{0.281}					
123478 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123678 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123789 HxCDD	ND	ND	ND	ND	0.100	ND	ND	ND	ND
Total HxCDD	ND	0.153	ND	0.0767					
1234678 HpCDD	ND	ND	ND	ND	0.010	ND	ND	ND	ND
Total HpCDD	ND	{0.349}	ND	{0.174}					
12346789 OCDD	ND	ND	ND	ND	0 001	ND	ND	ND	ND
Total PCDD	{0.213}	{0.851}	0.00	{0.532}		ND	ND	ND	ND
FURANS:									
2378 TCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
Total TCDF	0.060	ND	ND	0.0302					
12378 PeCDF	ND	{0.0837}	ND	{0.0418}	0.050	ND	{0.00418}	ND	{0.002
23478 PeCDF	ND	ND	ND	ND	0.500	ND	ND	ND	ND
Total PeCDF	ND	{0.143}	{0.0102}	{0.0715}					
123478 HxCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123678 HxCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
234678 HxCDF	ND	ND	ND	ND	0.100	ND	ND	ND	ND
123789 HxCDF	ND	{0.0837}	ND	{0.0418}	0.100	ND	{0.00837}	ND	{0.004
Total HxCDF	ND	{0.160}	ND	{0.0802}					
1234678 HpCDF	ND	ND	ND	ND	0.010	ND	ND	ND	ND
1234789 HpCDF	ND	ND	ND	ND	0.010	ND	ND	ND	ND
Total HpCDF	ND	{0 126}	ND	{0.0628}					
12346789 OCDF	ND	ND	ND	ND	0.001	ND	ND	ND	ND
Total PCDF	0.0604	{0.429}	{0.0102}	{0.245}		ND	{0.0126}	ND	{0.006
Total PCDD+PCDF	{0.274}	{1.28}	{0.0102}	{0.777}		ND	{0.0126}	ND	{0.006

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing · ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Outlet

	RUN NUMBER	***R-M29-O-1***	***R-M29-O-2***	***R-M29-O-3***	***Average of***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2nd***
	RUN TIME	***0940-1516***	***0746-1229***	***0809-1236***	***Test Runs***
	MEASURED DATA				
γ	Meter Box Correction Factor	0.965	0.965	0.965	0.965
ΔH	Avg Meter Orifice Pressure, in. H_2O	2.96	2.14	2.80	2.55
P_{bar}	Barometric Pressure, inches Hg	29.80	29.60	29.60	29.70
V_m	Sample Volume, ft^3	237.264	200.329	227.316	218.797
T_m	Average Meter Temperature, °F	109	97	100	103
P_{static}	Stack Static Pressure, inches H_2O	-0.42	-0.4	-0.42	-0.41
T_s	Average Stack Temperature, °F	289	292	274	291
V_{lc}	Condensate Collected, ml	1632.0	1484.6	1147.1	1558.3
CO_2	Carbon Dioxide content, % by volume	4.0	4.9	3.0	4.5
O_2	Oxygen content, % by volume	15.0	13.6	16.3	14.3
N_2	Nitrogen content, % by volume	81.0	81.5	80.7	81.3
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
$\Delta p^{1/2}$	Average Square Root Δp, (in. $H_2O)^{1/2}$	1.0773	1.0386	1.0852	1.0580
Θ	Sample Run Duration, minutes	240	240	240	240
D_n	Nozzle Diameter, inches	0.252	0.252	0.252	0.252
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000346	0.000346	0.000346	0.000346
$V_{m(std)\,cf}$	Standard Meter Volume, ft^3	213.024	182.236	205.914	197.630
$V_{m(std)\,cm}$	Standard Meter Volume, m^3	6.032	5.160	5.831	5.596
Q_m	Average Sampling Rate, dscfm	0.888	0.759	0.858	0.823
P_s	Stack Pressure, inches Hg	29.77	29.57	29.57	29.67
B_{ws}	Moisture, % by volume	26.5	27.7	20.8	27.1
V_{wstd}	Standard Water Vapor Volume, ft^3	76.818	69.880	53.994	73.349
$1-B_{ws}$	Dry Mole Fraction	0.735	0.723	0.792	0.729
M_d	Molecular Weight (d.b.), lb/lb•mole	29.24	29.33	29.13	29.28
M_s	Molecular Weight (w.b.), lb/lb•mole	26.26	26.19	26.82	26.22
V_s	Stack Gas Velocity, ft/s	75.7	73.5	75.0	74.6
A	Stack Area, ft^2	11.23	11.23	11.23	11.23
Q_a	Stack Gas Volumetric flow, acfm	51,035	49,516	50,521	50,276
$Q_{s\,cfm}$	Stack Gas Volumetric flow, dscfm	26,285	24,833	28,440	25,559
$Q_{s\,cmm}$	Stack Gas Volumetric flow, dscmm	744	703	805	724
I	Isokinetic Sampling Ratio, %	109.5	99.2	97.8	104.3

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Outlet

	RUN NUMBER	***R-M29-O-1***	***R-M29-O-2***	***R-M29-O-3***	***Average of***
	RUN DATE	***8/27/97***	***8/28/97***	***8/29/97***	***1st and 2nd***
	RUN TIME	***0940-1516***	***0746-1229***	***0809-1236***	***Test Runs***
	EMISSIONS DATA				
	Particulate Matter				
g	Target Catch, g	0.1148	0.0982	0.1766	0.1065
gr/dscf	Concentration, gr/dscf	0.00832	0.00832	0.01324	0.0083
gr/dscf at 7%	Concentration, gr/dscf at 7% O2	0.0196	0.0158	0.0400	0.0177
g/dscm	Concentration, g/dscm	0.0190	0.0190	0.0303	0.0190
g/dscm at 7%	Concentration, g/dscm at 7% O2	0.0448	0.0362	0.0915	0.0405
lb/hr	Emission Rate, lb/hr	1.87	1.77	3.23	1.82
kg/hr	Emission Rate, kg/hr	0.850	0.803	1.463	0.8264
	Antimony				
µg	Target Catch, µg	3.84	3.58	3.91	3.71
µg/dscm	Concentration, µg/dscm	0.637	0.693	0.671	0.665
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	1.50	1.32	2.03	1.41
g/hr	Emission Rate, g/hr	0.0284	0.0292	0.0324	0.0288
	Arsenic				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Barium				
µg	Target Catch, µg	54.9	40.9	69.9	47.9
µg/dscm	Concentration, µg/dscm	9.10	7.92	12.0	8.51
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	21.4	15.1	36.2	18.3
g/hr	Emission Rate, g/hr	0.406	0.334	0.579	0.370
	Beryllium				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Cadmium				
µg	Target Catch, µg	0.479	0.366	0.196	0.422
µg/dscm	Concentration, µg/dscm	0.0794	0.0708	0.0336	0.0751
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	0.187	0.135	0.102	0.161
g/hr	Emission Rate, g/hr	0.00355	0.00299	0.00162	0.00327

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing · ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Outlet

	RUN NUMBER	*R-M29-O-1*	*R-M29-O-2*	*R-M29-O-3*	*Average of*
	RUN DATE	*8/27/97*	*8/28/97*	*8/29/97*	*1st and 2nd*
	RUN TIME	*0940-1516*	*0746-1229*	*0809-1236*	*Test Runs*
	EMISSIONS DATA - Continued				
	Chromium				
µg	Target Catch, µg	13.2	11.0	12.6	12.1
µg/dscm	Concentration, µg/dscm	2.19	2.14	2.16	2.16
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	5.16	4.07	6.53	4.61
g/hr	Emission Rate, g/hr	0.0978	0.0901	0.104	0.0939
	Colbalt				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Copper				
µg	Target Catch, µg	9.29	7.14	15.0	8.2
µg/dscm	Concentration, µg/dscm	1.54	1.38	2.57	1.46
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	3.63	2.63	7.77	3.13
g/hr	Emission Rate, g/hr	0.0688	0.0584	0.124	0.0636
	Lead				
µg	Target Catch, µg	8.54	5.30	6.09	6.92
µg/dscm	Concentration, µg/dscm	1.42	1.03	1.04	1.22
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	3.34	1.95	3.16	2.64
g/hr	Emission Rate, g/hr	0.0632	0.0433	0.0505	0.0533
	Manganese				
µg	Target Catch, µg	70.0	74.8	116.3	72.4
µg/dscm	Concentration, µg/dscm	11.6	14.5	19.9	13.1
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	27.4	27.6	60.3	27.5
g/hr	Emission Rate, g/hr	0.519	0.612	0.964	0.565
	Mercury				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND

Summary of Stack Gas Parameters and Test Results

US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "B"

US EPA Test Method 29 - Multiple Metals

Baghouse Outlet

	RUN NUMBER	*R-M29-O-1*	*R-M29-O-2*	*R-M29-O-3*	*Average of*
	RUN DATE	*8/27/97*	*8/28/97*	*8/29/97*	*1st and 2nd*
	RUN TIME	*0940-1516*	*0746-1229*	*0809-1236*	*Test Runs*
	EMISSIONS DATA - Continued				
	Nickel				
µg	Target Catch, µg	9.37	6.50	8.13	7.93
µg/dscm	Concentration, µg/dscm	1.55	1.26	1.39	1.41
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	3.66	2.40	4.21	3.03
g/hr	Emission Rate, g/hr	0.0694	0.0531	0.0674	0.0612
	Phosphorus				
µg	Target Catch, µg	110	115	145	112
µg/dscm	Concentration, µg/dscm	18.2	22.2	24.9	20.2
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	42.9	42.3	75.2	42.6
g/hr	Emission Rate, g/hr	0.814	0.937	1.20	0.876
	Silver				
µg	Target Catch, µg	0.378	0.217	ND	0.298
µg/dscm	Concentration, µg/dscm	0.0627	0.0421	ND	0.0524
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	0.148	0.080	ND	0.114
g/hr	Emission Rate, g/hr	0.00280	0.00177	ND	0.00229
	Selenium				
µg	Target Catch, µg	5.63	4.58	4.91	2.29
µg/dscm	Concentration, µg/dscm	0.934	0.888	0.843	0.911
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	2.20	1.69	2.55	1.95
g/hr	Emission Rate, g/hr	0.0417	0.0375	0.0407	0.0396
	Thallium				
µg	Target Catch, µg	ND	ND	ND	ND
µg/dscm	Concentration, µg/dscm	ND	ND	ND	ND
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	ND	ND	ND	ND
g/hr	Emission Rate, g/hr	ND	ND	ND	ND
	Zinc				
µg	Target Catch, µg	44.3	25.9	32.8	35.1
µg/dscm	Concentration, µg/dscm	7.34	5.01	5.63	6.18
µg/dscm at 7%	Concentration, µg/dscm at 7% O2	17.3	9.54	17.0	13.4
g/hr	Emission Rate, g/hr	0.328	0.211	0.272	0.270

APPENDIX E

QA/QC DATA AND CERTIFICATIONS

TEMPERATURE SENSOR CALIBRATION FORM

Temperature Sensor No. S1A-4 **Sensor Type** K - T/C **Length** 6" - Gooseneck
Ambient Temp. °F 72 **Barometric Pressure, "Hg** 29.98
Reference Temp. Sensor: ASTM 3F

Date	Ref. Point No.	Temp. Source	Temp. °F		Temp. Diff. %	Within Limits Y/N	Calibrated By
			Ref. Sensor	Test Sensor			
10/21/97	1	ice water	(497) 37	(496) 36	0.20	Y	MDM
10/21/97	2	amb. air	(532) 72	(535) 75	-0.56	Y	MDM
10/21/97	3	D water.	(679) 210	(669) 209	0.15	Y	MDM
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

$$\% \text{ Temp. Diff} = \frac{(\text{Ref. Temp} + 460) - (\text{Test Temp.} + 460)}{(\text{Ref. Temp.} + 460)} \times 100 \leq 1.5\ \%$$

TEMPERATURE SENSOR CALIBRATION FORM

Temperature Sensor No. RT-11 **Sensor Type** K T/C **Length** 6" (Geosack)
Ambient Temp. °F 72 **Barometric Pressure, "Hg** 29.98
Reference Temp. Sensor: ASTM 3F

Date	Ref. Point No.	Temp. Source	Temp. °F		Temp. Diff. %	Within Limits Y/N	Calibrated By
			Ref. Sensor	Test Sensor			
10/21/97	1	ice water	36	35			
10/21/97	2	amb. air	72	74			
10/21/97	3	boiling water	210	210			
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

$$\% \text{ Temp. Diff} = \frac{(\text{Ref. Temp} + 460) - (\text{Test Temp.} + 460)}{(\text{Ref. Temp.} + 460)} \times 100 \leq 1.5\ \%$$

TEMPERATURE SENSOR CALIBRATION FORM

Temperature Sensor No. RT-20 **Sensor Type** K T/C **Length** 4'
Ambient Temp. °F 72° **Barometric Pressure, "Hg** 24.98
Reference Temp. Sensor: ASTM - 3F

Date	Ref. Point No.	Temp. Source	Temp. °F		Temp. Diff. %	Within Limits Y/N	Calibrated By
			Ref. Sensor	Test Sensor			
10/21/97	1	ice water	(492) 32	(493) 33	-0.20	Y	mdm
10/21/97	2	c.w. tcy	(534) 74	(532) 72	0.37	Y	mdm
10/21/97	3	b. water	(672) 212	(671) 211	0.15	Y	mdm
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

$$\% \text{ Temp. Diff} = \frac{(\text{Ref. Temp} + 460) - (\text{Test Temp.} + 460)}{(\text{Ref. Temp.} + 460)} \times 100 \leq 1.5\ \%$$

TEMPERATURE SENSOR CALIBRATION FORM

Temperature Sensor No. RT-3 **Sensor Type** K-T/c · **Length** ~~4"~~ 4'
Ambient Temp. °F 70 **Barometric Pressure, "Hg** 30.04
Reference Temp. Sensor: ASTM-3F

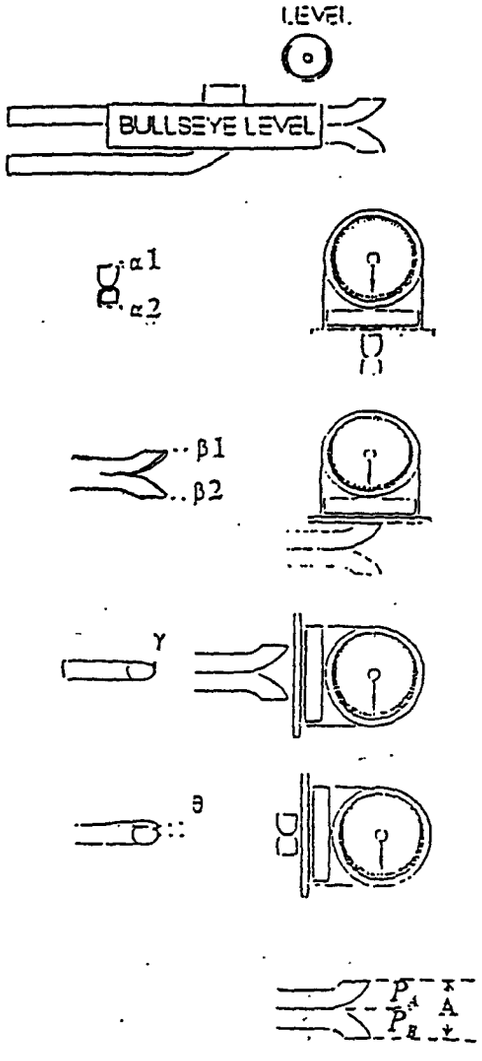
Date	Ref. Point No.	Temp. Source	Temp. °F		Temp. Diff. %	Within Limits Y/N	Calibrated By
			Ref. Sensor	Test Sensor			
9/18/97	1	ice bath	41	41	0	Y	MDM
9/18/97	2	w bath	72	72	0	Y	MDM
9/18/97	3	b. water.	210	212	-0.30	Y	MDM
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						
	1						
	2						
	3						

$$\%\ Temp.\ Diff = \frac{(Ref.\ Temp + 460) - (Test\ Temp. + 460)}{(Ref.\ Temp. + 460)} \times 100 \leq 1.5\ \%$$

DEECO

Probe or Pitot No. Deeco 5B

Pitot Tube Inspection



Date	8/16/97
Tube Assembly Level?	Yes
Ports Damaged?	No
$-10° < \alpha 1 < +10°$	2°
$-10° < \alpha 2 < +10°$	-1°
$-5° < \beta 1 < +5°$	2
$-5° < \beta 2 < +5°$	0
γ	-1°
θ	.5°
A	.990
$Z = A \sin \gamma \leq 0.125"$	-.017
$W = A \sin\theta \leq 0.031"$	.009
$P_A =$	.49
$P_B =$	.50
Tube Diameter (D_T) =	.383
$P_A = P_B \pm (0.063)$	.49+.01=.50
$1.05 x D_T \leq P \leq 1.50 x D_T$	.402 ≤ .50 ≤ .575

Thermocouple Calibration

Type of Reference Thermometer Mercury in Glass Date 8/16/97

Barometric Pressure 29.88 inHg Ambient Temperature 93 °F

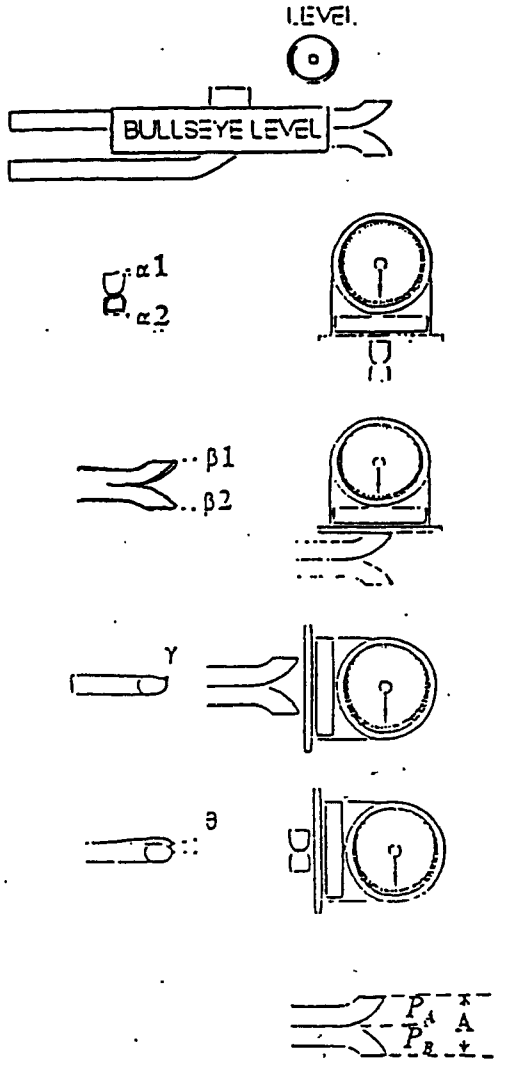
Source	Reference Temperature	Thermocouple Temperature	Absolute Temperature Difference[1]
Ambient	93	99	-.011
Ice bath	36	39	-.006
Hot Water	136	136	0

[1] $\frac{(Ref.\ Temp., °F + 460) - (Thermocouple Temp., °F + 460)}{(Ref.\ Temp., °F + 460)}$

DEECO

Probe or Pitot No. Deeco 5C

Pitot Tube Inspection



Date	8/16/97
Tube Assembly Level?	Yes
Ports Damaged?	No
$-10° < \alpha 1 < +10°$	2½°
$-10° < \alpha 2 < +10°$	-2½°
$-5° < \beta 1 < +5°$	1°
$-5° < \beta 2 < +5°$	-1°
γ	2½°
θ	0°
A	1.013
$Z = A \sin \gamma \leq 0.125"$	.044
$W = A \sin\theta \leq 0.031"$	0
$P_A =$	.55
$P_B =$	.58
Tube Diameter (D_T) =	.370
$P_A = P_B \pm (0.063)$	.55+.02=.58
$1.05xD_T \leq P \leq 1.50xD_T$	.385 ≤ .55 ≤ .555

Thermocouple Calibration

Type of Reference Thermometer Mercury in Glass Date 8/16/97

Barometric Pressure 29.88 inHg Ambient Temperature 102 °F

Source	Reference Temperature	Thermocouple Temperature	Absolute Temperature Difference[1]
Hot Water	168	169	-.002
Ambient	102	101	.002
Ice Water	38	38	0

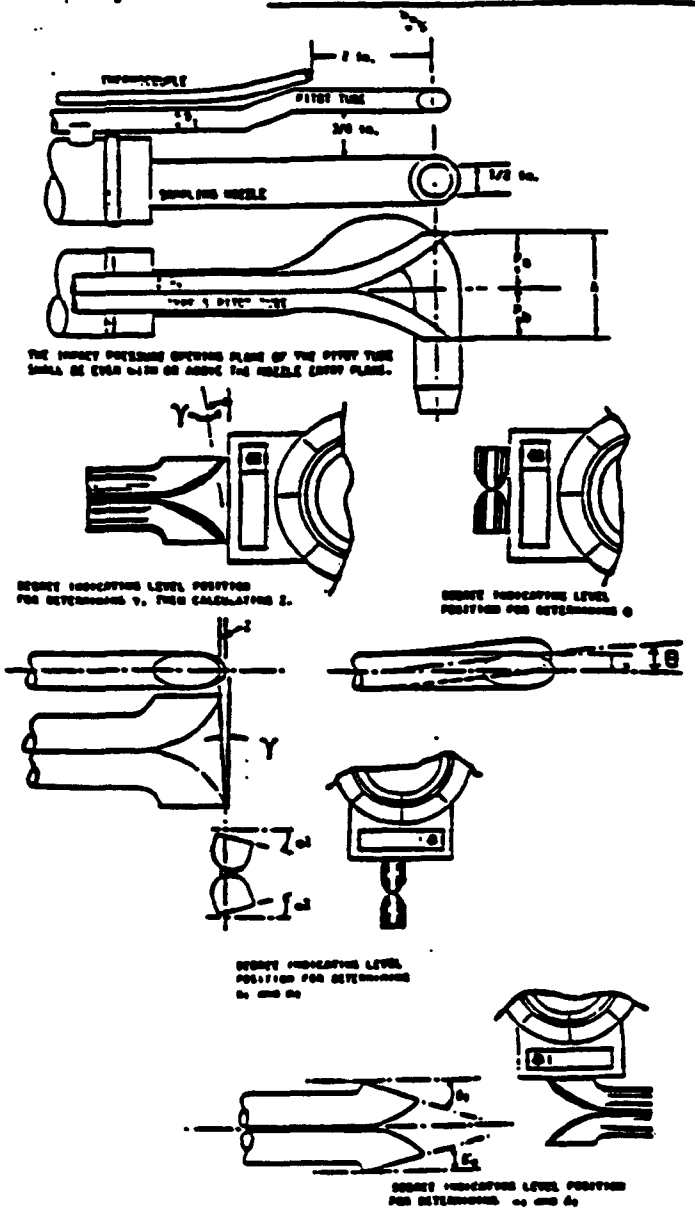
[1] $\frac{(Ref.\ Temp., °F + 460) - (ThermocoupleTemp., °F + 460)}{(Ref.\ Temp., °F + 460)}$

Inspection Data Sheet

Company Name: PES

Pre-sample Date _____

Post Sample Date 10-13-97



	level?	YES
	obstructions?	NO
	damaged?	NO
	$-10° < \alpha_1 < +10°$	2°
	$-10° < \alpha_2 < +10°$	1°
	$-5° < \beta_1 < +5°$	0°
	$-5° < \beta_2 < +5°$	1°
	γ	.5
	θ	0
	A	1.0065
	$1.05\ D_t < P_a < 1.5\ D_t$ (.376, .503, .376)	YES
	$1.05\ D_t < P_b < 1.5\ D_t$ (.375, .503, .375)	YES
	$3/16" \leq D_t \leq 3/8"$	YES
	$A \tan \gamma < 0.125"$	.00872
	$A \tan \theta < 0.03125"$	.0
	$P_a = P_b \pm 0.063"$	YES

Comments: _____

Pitot tube/probe number RP-20 meets or exceeds all specifications criteria and/or applicable design features* and is hereby assigned a pitot tube calibration factor of 0.84.

Signature [signature]

Date 10-13-97

*See 40 CFR 60, Vol. 42, No. 160, Method 2. Verify the minimum 2 inch setback of the thermocouple and the minimum 3/4 inch separation between the pitot tube and the nozzle as shown at the top of this page.

Date	05-Aug-97	Meter Box Number	M5-4
Calibrated By	B Palm	Initials	BPalm
Number of Runs	5		

REFERENCE TEST METER

Meter Y 1.016

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
Vw, init	907.127	912.875	918.694	924.597	930.307	0
Vw, fin	912.513	918.262	924.06	929.999	936.958	0
Vw, total	5.386	5.387	5.366	5.402	6.651	0
Pb	29.80	29.80	29.80	29.80	29.80	29.80
tw	84	84	84	84	85	0
Tw+460	544	544	544	544	545	460

DRY GAS METER

Previous Y 1.024

Vm, init	653.019	658.758	664.577	670.486	676.205	0
Vm, fin	658.402	664.147	669.948	675.901	682.864	0
Vm, total	5.383	5.389	5.371	5.415	6.659	0
Tdii	85	88	89	92	93	0
Tdif	89	93	97	100	104	0
Tdoi	82	84	86	88	88	0
Tdof	84	86	87	88	89	0
Td,avg	85	87.75	89.75	92	93.5	0
Td+460	545	547.75	549.75	552	553.5	460
Time, min	13	9	8	7	7	0
Time, sec	30	30	0	0	0	0
Time Total	13.50	9.50	8.00	7.00	7.00	0.00
dH	0.50	1.00	1.50	2.00	3.00	4.00

CALIBRATION RESULTS

Y	1.017	1.020	1.022	1.023	1.023	0.000
dH@	1.764	1.740	1.861	1.869	1.854	0.000
Y tolerence from avg *	0.00	0.00	-0.00	-0.00	-0.00	1.02
dH@ tol. from avg **	0.05	0.08	-0.04	-0.05	-0.04	1.82

AVERAGE Y 1.021

AVERAGE dH@ 1.818

Y error (vs prior Y) *** -0.3%

* must be no greater than +/- 0.02

** must be no greater than +/- 0.20

*** must be no greater than +/- 5%

Date	31-Oct-97	Meter Box Number	M5-4
Calibrated By	Richard	Initials	RWH
Number of Runs	3		

REFERENCE TEST METER

Meter Y 1.016

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5
Vw, init	643.779	652.614	662.945	0	0
Vw, fin	652.1	662.322	670.381	0	0
Vw, total	8.321	9.708	7.436	0	0
Pb	29.87	29.87	29.87	29.87	29.87
tw	61	62	62	0	0
Tw+460	521	522	522	460	460

DRY GAS METER

Previous Y 1.021

Vm, init	790.367	799.004	809.171	0	0
Vm, fin	798.501	808.556	816.506	0	0
Vm, total	8.134	9.552	7.335	0	0
Tdii	63	70	75	0	0
Tdif	76	84	85	0	0
Tdoi	61	64	67	0	0
Tdof	64	67	69	0	0
Td,avg	66	71.25	74	0	0
Td+460	526	531.25	534	460	460
Time, min	12	12	8	0	0
Time, sec	20	7	31	0	0
Time Total	12.33	12.12	8.52	0.00	0.00
dH	1.50	2.00	2.50	2.00	3.00

CALIBRATION RESULTS

Y	1.045	1.046	1.047	0.000	0.000
dH@	1.760	1.661	1.740	0.000	0.000
Y tolerence from avg *	0.00	0.00	-0.00	1.05	1.05
dH@ tol. from avg **	-0.04	0.06	-0.02	1.72	1.72
AVERAGE Y	1.046				
AVERAGE dH@	1.720				
Y error (vs prior Y) ***	2.5%				

* must be no greater than +/- 0.02
** must be no greater than +/- 0.20
*** must be no greater than +/- 5%

Orifice:

front leak check	Y
back leak check	Y

Date	05-Aug-97	Meter Box Number	M5-9
Calibrated By	B Palm	Initials	BP
Number of Runs	5		

REFERENCE TEST METER

Meter Y 1.016

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
Vw, init	873.304	878.537	883.95	891.057	899.221	0
Vw, fin	878.349	883.6	890.707	897.317	905.513	0
Vw, total	5.045	5.063	6.757	6.26	6.292	0
Pb	29.80	29.80	29.80	29.80	29.80	29.80
tw	79.5	80.5	81	81.5	82	0
Tw+460	539.5	540.5	541	541.5	542	460

DRY GAS METER

Previous Y 0.996

Vm, init	717.968	723.215	728.855	735.791	743.976	0
Vm, fin	723.025	728.297	735.436	742.073	750.282	0
Vm, total	5.057	5.082	6.781	6.282	6.306	0
Tdii	79	82	85	87	88	0
Tdif	84	87	89	91	92	0
Tdoi	78	81	83	84	85	0
Tdof	80	82	84	85	86	0
Td,avg	80.25	83	85.25	86.75	87.75	0
Td+460	540.25	543	545.25	546.75	547.75	460
Time, min	12	9	10	8	6	0
Time, sec	30	0	0	0	30	0
Time Total	12.50	9.00	10.00	8.00	6.50	0.00
dH	0.50	1.00	1.50	2.00	3.00	4.00

CALIBRATION RESULTS

Y	1.014	1.014	1.017	1.017	1.017	0.000
dH@	1.708	1.757	1.823	1.813	1.777	0.000
Y tolerence from avg *	0.00	0.00	-0.00	-0.00	-0.00	0.00
dH@ tol. from avg **	0.07	0.02	-0.05	-0.04	-0.00	0.00

AVERAGE Y 1.016
AVERAGE dH@ 1.776

Y error (vs prior Y) *** 2.0%

* must be no greater than +/- 0.02
** must be no greater than +/- 0.20
*** must be no greater than +/- 5%

Orifice:
front leak check X
back leak check X

Date	03-Sep-97	Meter Box Number	M5-9
Calibrated By	M MILBOURNE	Initials	MJM
Number of Runs	3		

REFERENCE TEST METER

Meter Y 1.016

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5
Vw, init	368.4	373.864	379.247	0	0
Vw, fin	373.864	379.247	384.346	0	0
Vw, total	5.464	5.383	5.099	0	0
Pb	29.77	29.77	29.77	29.77	29.77
tw	84	83.5	83	0	0
Tw+460	544	543.5	543	460	460

DRY GAS METER

Previous Y 1.016

Vm, init	335.123	340.601	346	0	0
Vm, fin	340.601	346	351.11	0	0
Vm, total	5.478	5.399	5.11	0	0
Tdii	86	86	85	0	0
Tdif	86	85	85	0	0
Tdoi	86	86	85	0	0
Tdof	86	85	85	0	0
Td,avg	86	85.5	85	0	0
Td+460	546	545.5	545	460	460
Time, min	15	14	14	0	0
Time, sec	0	48	0	0	0
Time Total	15.00	14.80	14.00	0.00	0.00
dH	0.40	0.40	0.40	2.00	3.00

CALIBRATION RESULTS

Y	1.016	1.016	1.017	0.000	0.000
dH@	1.685	1.689	1.683	0.000	-0.000
Y tolerence from avg *	0.00	0.00	-0.00	1.02	1.02
dH@ tol. from avg **	0.00	-0.00	0.00	1.69	1.69
AVERAGE Y	1.016				
AVERAGE dH@	1.686				
Y error (vs prior Y) ***	0.0%				

* must be no greater than +/- 0.02
** must be no greater than +/- 0.20
*** must be no greater than +/- 5%

Orifice:

front leak check	Y
back leak check	Y

DRY GAS METER AND ORIFICE CALIBRATION

CONTROL BOX NO MB-10 BAROMETRIC PRESS. 29.50 IN. HG.

DATE: 12MAR97 PERFORMED BY : R. GEPHART

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
Hd ("H2O)	0.50	0.75	1.00	1.50	2.00	4.00
INITIAL WTM	744.467	758.780	770.733	783.592	795.766	809.495
FINAL WTM	757.734	770.224	782.364	795.014	807.315	822.785
INITIAL DGM	653.193	668.257	680.852	694.428	707.301	721.813
FINAL DGM	667.139	680.310	693.138	706.511	719.509	735.856
TEMP. WTM (F)	73.0	74.0	74.0	74.0	74.0	74.0
TEMP. DGM (F)	81.0	84.0	86.0	87.0	88.0	89.0
TEST TIME (MIN.)	32.4	23.1	20.5	16.5	14.5	12.0

****

NET VOLUME WT	13.267	11.444	11.631	11.422	11.549	13.290
NET VOLUME DG	13.946	12.053	12.286	12.083	12.208	14.043
Y	0.964	0.965	0.966	0.965	0.966	0.963
H@	1.683	1.721	1.743	1.754	1.763	1.820

****

AVERAGE Y = 0.965

ACCEPTABLE Y RANGE = 0.945 TO 0.985

AVERAGE H@ = 1.747

ACCEPTABLE dH@ RANGE = 1.547 TO 1.947

Y = (Vw x Pb x (Td + 460)) / (Vd (Pb + (dHd / 13.6)) x (Tw + 460)

H@ = 0.0317 x Hd / (Pb (Td + 460)) x ((Tw + 460) x time) / Vw)^2

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Posttest Dry Gas Meter Calibration Form (English Units)

Pretest Calibration Factor	0.965
System Vacuum Setting, (in Hg)	6
Reference Meter Correction Factor	1.004

Date: 8/22/97 P_{bar}, in Hg 29.90 Calibrator: GG Meter Box No. MB-10

ΔH = 1.9

		Dry Gas Meter								
Trial	Duration (min)	Initial (ft³)	Final (ft³)	Net (ft³)	Initial, Inlet (°F)	Final, Inle (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	Final, Outlet (°F)	Avg. Outlet (°F)
1	15	168.592	180.101	11.509	90	90	90	90	90	90
2	15	181.101	191.728	10.627	90	90	90	90	90	90
3	15	191.728	203.498	11.77	90	90	90	90	90	90

	Reference Meter						Meter Box Correction Factor	Reference Orifice Press
	Gas Volume			Meter Temperature				
Trial	Initial (ft³)	Final (ft³)	Net (ft³)	Initial (°F)	Final (°F)	Avg. (°F)	γ	$\Delta H_@$ (in. H2O)
1	347.479	358.341	10.862	80	80	80	0.961	2.04
2	358.341	369.176	10.835	80	80	80	1.038	2.05
3	369.176	380.031	10.855	80	80	80	0.939	2.05

AVERAGE	0.979
% Change	-1.4

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Central Park Wes
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Research Triangle Park, North Carolina 27709-207
(919) 941-0333 FAX: (919) 941-023

Initial Dry Gas Meter Calibration Form (English Units)

Date: 8/19/97 P_{bar}, in Hg 30.20 Calibrator: T. McDonald Meter Box No. RMB-11

ΔH = 0.5		Dry Gas Meter								
	Trial Duration	Gas Volume			Meter Temperatures					
Trial	(min)	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial, Inlet (°F)	Final, Inlet (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	inal, Outle (°F)	Avg. Ou (°F)
1	15	231.840	237.828	5.988	81	81	81	78	78	78
2	15	237.828	243.880	6.052	82	79	80.5	80	78	79
3	15			0.000			#DIV/0!			#DIV/(

	Reference Meter						Meter Box Correction Factor	Reference Orifice Press
	Gas Volume			Meter Temperature				
Trial	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial (°F)	Final (°F)	Avg. (°F)	γ	$\Delta H_@$ (in. H_2O)
1	257.881	263.67	5.789	78	79	78.5	0.967	1.91
2	263.670	269.541	5.871	76	76	76	0.976	1.84
3			0.000			#DIV/0!	#DIV/0!	#DIV/0!

ΔH = 1.8		Dry Gas Meter								
	Trial Duration	Gas Volume			Meter Temperatures					
Trial	(min)	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial, Inlet (°F)	Final, Inlet (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	inal, Outle (°F)	Avg. O (°F
1	10	244.055	251.377	7.322	85	80	82.5	79	79	79
2	10	251.377	258.770	7.393	84	84	84	79	79	79
3				0.000			#DIV/0!			#DIV

	Reference Meter						Meter Box Correction Factor	Reference Orifice Press
	Gas Volume			Meter Temperature				
Trial	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial (°F)	Final (°F)	Avg. (°F)	γ	$\Delta H_@$ (in. H_2O)
1	269.71	276.902	7.192	76	76	76	0.987	1.96
2	276.902	284.146	7.244	76	76	76	0.986	1.93
3			0.000			#DIV/0!	#DIV/0!	#DIV/0!

ΔH = 3.0		Dry Gas Meter								
	Trial Duration	Gas Volume			Meter Temperatures					
Trial	(min)	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial, Inlet (°F)	Final, Inlet (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	inal, Outle (°F)	Avg. (
1	10	258.770	268.038	9.268	88	83	85.5	80	79	7
2	10	268.038	277.350	9.312	90	86	88	81	80	8
3				0.000			#DIV/0!			#D

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Posttest Dry Gas Meter Calibration Form (English Units)

Meter Box No.	MB-11	Date:	10/13/97
Dry Gas Meter No.		Calibrated by:	MAD
Orifice Manometer Setting, dH (in w.c.	2.5	Barometric Pressure, in. Hg	29.83
System Vacuum Setting, (in Hg)	2.5	Pretest Calibration Factor	0.987

		Dry Gas Meter								
	Trial	Gas Volume			Meter Temperatures					
Trial	Duration (min)	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial, Inlet (°F)	Final, Inle (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	Final, Outlet (°F)	Avg. Outlet (°F)
1	6.5	56.145	61.57	5.425	75	78	76.5	74	79	75
2	7.5	61.57	67.712	6.142	78	78	78	76	78	77
3	6	67.712	72.705	4.993	83	87	85	77	75	76

	Reference Meter						Meter Box Correction Factor	Reference Orifice Press Delta-H@
	Gas Volume			Meter Temperature				
Trial	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial (°F)	Final (°F)	Avg. (°F)	γ	(in. H2O)
1	45.604	51.088	5.484	78	79	78.5	1.007	2.01
2	51.088	57.3	6.212	79	79	79	1.010	2.09
3	57.3	62.309	5.009	79	80	79.5	1.007	2.05

AVERAGE:	1.0080	2.049
% Change:	2.13%	

PACIFIC ENVIRONMENTAL SERVICES, INC.

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Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Posttest Dry Gas Meter Calibration Form (English Units)

Reference Meter Calibration Factor 1.004
System Vacuum Setting, (in Hg) 7

Pretest Calibration Factor 0.987

Date: 8/22/97 P_{bar}, in Hg 29.90 Calibrator: GG Meter Box No. RMB-11

ΔH = 1.9

		Dry Gas Meter								
Trial	Duration (min)	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial, Inlet (°F)	Final, Inle (°F)	Avg. Inlet (°F)	Initial, Outlet (°F)	Final, Outlet (°F)	Avg. Outlet (°F)
1	15	993.836	1005.384	11.548	92	92	92	92	92	92
2	15	1005.384	1016.948	11.564	92	92	92	92	92	92
3	15	1016.948	1028.471	11.523	94	94	94	94	94	94

	Reference Meter						Meter Box Correction Factor	Reference Orifice Press
	Gas Volume			Meter Temperature				
Trial	Initial (ft^3)	Final (ft^3)	Net (ft^3)	Initial (°F)	Final (°F)	Avg. (°F)	γ	$\Delta H_@$ (in. H2O)
1	409.91	420.904	10.994	80	80	80	0.973	1.99
2	420.904	431.874	10.97	80	80	80	0.969	2.00
3	431.874	442.814	10.94	80	80	80	0.973	2.00

[redacted]

VISIBLE EMISSIONS EVALUATOR

This is to certify that

David Goshaw

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

President	257158 Certificate Number
Vice President	Raleigh, North Carolina Location
David B. Savage, Jr. Program Manager	March 12, 1997 Date of Issue

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APPENDIX F

FIELD TESTING PARTICIPANTS

FIELD TESTING PARTICIPANTS

Name	Affiliation	Responsibility
Michael Toney	USEPA, Emission Measurement Center	Work Assignment Manager
Mike Maret	Pacific Environmental Services, Inc..	Project Manager
Marc Hamilton Tommy Thompson Arthur Daughtery Allen Bass Barry Rayfield Jay Morgan David Goshaw	DEECO[a] DEECO[a] DEECO[a] DEECO[a] DEECO[a] DEECO DEECO[a]	Site Leader/Console Operator Site Leader/Console Operator Console Operator Console Operator Sample Recovery Sample Recovery Visible Emissions Observer
Tom McDonald Mike Dickerson	Atlantic Technical Services, Inc.[a] Atlantic Technical Services, Inc.[a]	Console operator Console operator

[a] Subcontractor to Pacific Environmental Services, Inc.