United States
Environmental Protection
Agency

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

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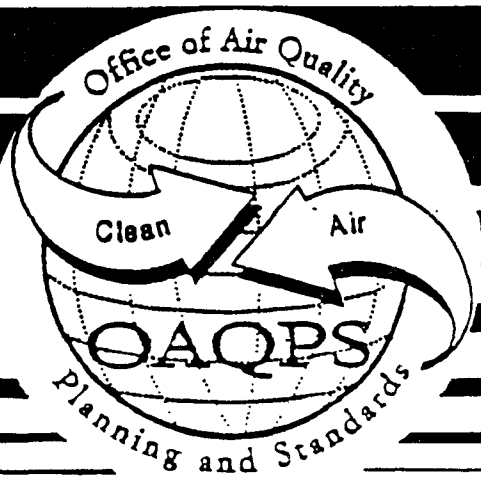
April 2000

Air

EPA

# Hot Mix Asphalt Plants
# Kiln Dryer Stack
# Manual Methods Testing

## Asphalt Plant A
## Clayton, North Carolina
## Volume 2 of 2



**FINAL REPORT**

# EMISSIONS TEST AT AN ASPHALT CONCRETE PRODUCTION PLANT: ASPHALT PLANT "A" - CLAYTON, NORTH CAROLINA

VOLUME II OF II
APPENDICES C - F

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

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September 1999
P:\1529\FINRPT\PLANT A

Submitted by

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# APPENDIX C

# ANALYTICAL DATA

Appendix C.1

Analytical Data

Method 5 Particulate Matter

PACIFIC ENVIRONMENTAL SERVICES, INC.

3708 Mayfair Street, Suite 202
Durham, North Carolina 27707
(919) 493-3536
Fax: (919) 493-7779

# BLANK ANALYTICAL DATA FORM

Plant ASPHALT PLANT "A"

Sample location –

Relative humidity –

Liquid level marked and container sealed _____

Density of acetone ($\rho_a$) 0.7899 g/ml g/ml

Blank volume ($V_a$) 348.2 ml

Date and time of wt 9/23/97 0830 Gross wt 98.5469 µg

Date and time of wt 9/23/97 1515 Gross wt 98.5473 µg

Average gross wt 98.5471 µg

Tare wt 98.5472 µg

Weight of blank ($m_{ab}$) (0.0001) µg

$$C_a = \frac{m_{ab}}{V_a \rho_a} = \frac{(\ 0\ )}{(348.2)\ (0.7899)} = 0.0000 \text{ µg/g}$$

Note: In no case should a blank residue greater than 0.01 mg/g (or 0.001% of the blank weight) be subtracted from the sample weight.

Filters Filter number _____

Date and time of wt _____ Gross wt _____ mg

Date and time of wt _____ Gross wt _____ mg

Average gross wt _____ mg

Tare wt _____ mg

Difference wt _____ mg

Note: Average difference must be less than ±5 mg or 2% of total sample weight whichever is greater.

Remarks _____

Signature of analyst _____

Signature of reviewer _____

PACIFIC ENVIRONMENTAL SERVICES, INC.

3708 Mayfair Street, Suite 202
Durham, North Carolina 27707
(919) 493-3536
Fax: (919) 493-7779

# SAMPLE ANALYTICAL DATA FORM

Plant Asphalt Plant "A" Run number S-29-0-1

Sample location Baghouse Outlet.

Relative humidity —

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-2 | |
| filter(s) | M97-003 M-1 | |

Acetone rinse container number Beaker No M-2

Acetone rinse volume ($V_{aw}$) 139.5 + 50 ml

Acetone blank residue concentration ($C_a$) 0.0000 µg/g

$W_a = C_a V_{aw} \rho_a$ = ( 0.0000 ) ( 189.5 ) ( 0.7899 ) = 0.0000 µg

Date and time of wt 9/18/97 1420 Gross wt 96.9954 µg

Date and time of wt 9/19/97 1600 Gross wt 96.9958 µg

Average gross wt 96.9956 µg

Tare wt 96.9392 µg

Less acetone blank wt ($W_a$) 0.0000 µg

Weight of particulate in acetone rinse ($m_a$) 0.0564 µg

Filter(s) container number M97-003 Beaker No M-1

Date and time of wt 9/22/97 1315 Gross wt 100.3147 µg

Date and time of wt 9/23/97 0830 Gross wt 100.3146 µg

Average gross wt 100.3147 µg

Filter M97-003 & Beaker No M-1 Tare wt 99.9212 µg

Weight of particulate on filter(s) ($m_f$) 0.3935 µg

Weight of particulate in acetone rinse 0.0564 µg

Total weight of particulate ($m_n$) 0.4499 µg

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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Durham, North Carolina 27707
(919) 493-3536
Fax: (919) 493-7779

# SAMPLE ANALYTICAL DATA FORM

Plant Asphalt Plant "A" Run number S-79-O-2
Sample location Baghouse Outlet
Relative humidity —
Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-5 | |
| filter(s) | M97-002 M-4 | |

Acetone rinse container number Becker No. M-5
Acetone rinse volume ($V_{aw}$) 50 + 103.1 ml
Acetone blank residue concentration ($C_a$) 0.0000 mg/g
$W_a = C_a V_{aw} \rho_a$ = ( 0.0000 ) ( 153.1 ) ( 0.7899 ) = 0.0000 mg
Date and time of wt 9/22/97 1315 Gross wt 96.8543 mg
Date and time of wt 9/23/97 0836 Gross wt 96.8540 mg
Average gross wt 96.8542 mg
Tare wt 96.8488 mg
Less acetone blank wt ($W_a$) 0.0000 mg
Weight of particulate in acetone rinse ($m_a$) 0.0054 mg
Filter(s) container number M97-002 Becker No. M-4
Date and time of wt 9/22/97 1315 Gross wt 102.8729 mg
Date and time of wt 9/23/97 0830 Gross wt 102.8729 mg
Average gross wt 102.8729 mg
( M97-002 & M-4 ) Tare wt 102.8161 mg
Weight of particulate on filter(s) ($m_f$) 0.0568 mg
Weight of particulate in acetone rinse 0.0054 mg
Total weight of particulate ($m_n$) 0.0622 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 "A" Run number S-79-0-3

Sample location Baghouse Outlet

Relative humidity —

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-7 | |
| filter(s) | M97-004 M-6 | |

Acetone rinse container number Beaker No. M-7

Acetone rinse volume ($V_{aw}$) 66.5 + 50 ml

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

$W_a = C_a V_{aw} \rho_a$ = ( 0.0000 ) ( 116.5 ) ( 0.7899 ) = 0.0000 mg

Date and time of wt 9/22/97 1315 Gross wt 99.5684 mg

Date and time of wt 9/23/97 0830 Gross wt 99.5686 mg

Average gross wt 99.5685 mg

Tare wt 99.5634 mg

Less acetone blank wt ($W_a$) 0.0000 mg

Weight of particulate in acetone rinse ($m_a$) 0.0051 mg

Filter(s) container number M97-004 Beaker No. M-6

Date and time of wt 9/22/97 1315 Gross wt 92.2885 mg

Date and time of wt 9/23/97 0830 Gross wt 92.2883 mg

Average gross wt 92.2884 mg

Filter M97-004 + Beaker M-6 Tare wt 92.2661 mg

Weight of particulate on filter(s) ($m_f$) 0.0223 mg

Weight of particulate in acetone rinse 0.0051 mg

Total weight of particulate ($m_n$) 0.0274 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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(919) 493-3535
Fax: (919) 493-7778

# SAMPLE ANALYTICAL DATA FORM

Plant Asphalt Plant "A" Run number S-29-0-4

Sample location Baghouse Outlet

Relative humidity –

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-9 | |
| filter(s) | M97.005 M-8 | |

Acetone rinse container number Becker No. M9

Acetone rinse volume ($V_{aw}$) 73.7 + 50 ml

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

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (123.7) (0.7899) = 0.0000 mg

Date and time of wt 9/23/97 1515 Gross wt 96.6792 mg

Date and time of wt 9/23/97 0830 Gross wt 96.6794 mg

Average gross wt 96.6793 mg

Tare wt 96.6740 mg

Less acetone blank wt ($W_a$) 0.0000 mg

Weight of particulate in acetone rinse ($m_a$) 0.0053 mg

Filter(s) container number Becker No M-8

Date and time of wt 9/23/97 1515 Gross wt 101.5388 mg

Date and time of wt 9/24/97 0900 Gross wt 101.5392 mg

Average gross wt 101.5390 mg

M97-005 & Becker M-8 Tare wt 101.5310 mg

Weight of particulate on filter(s) ($m_f$) 0.0080 mg

Weight of particulate in acetone rinse 0.0053 mg

Total weight of particulate ($m_n$) 0.0133 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 _____

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 "A" Run number S-29-I-1

Sample location Baghouse Inlet

Relative humidity –

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-11 | |
| filter(s) | MM7-001 M-10 | |

Acetone rinse container number Beaker No M-11

Acetone rinse volume ($V_{aw}$) 307.8 + 100 ml

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

$W_a = C_a V_{aw} \rho_a$ = (0.0000) (407.8) (0.7899) = 0.0000 mg

Date and time of wt 9/22/97 1315 Gross wt 133.2250 mg

Date and time of wt 9/23/97 0830 Gross wt 133.2250 mg

Average gross wt 133.2250 mg

Tare wt 100.9631 mg

Less acetone blank wt ($W_a$) 0.0000 mg

Weight of particulate in acetone rinse ($m_a$) 32.2619 mg

Filter(s) container number MM7-001 Beaker No M-10

Date and time of wt 9/22/97 1315 Gross wt 112.0534 mg

Date and time of wt 9/23/97 0830 Gross wt 112.0536 mg

Average gross wt 112.0535 mg

Filter No MM7-001 & Beaker M-10 Tare wt 100.9770 mg

Weight of particulate on filter(s) ($m_f$) 11.0765 mg

Weight of particulate in acetone rinse 32.2619 mg

Total weight of particulate ($m_n$) 43.3384 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 S-79-FB

Sample location —

Relative humidity —

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-15 | |
| filter(s) | M97-006 M-14 | |

Acetone rinse container number Beaker No M-15

Acetone rinse volume ($V_{aw}$) 43.7 +50 ml

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

$W_a = C_a V_{aw} \rho_a$ = ( 0.0000 ) ( 93.7 ) ( 0.7899 ) = 0.0000 mg

Date and time of wt 9/22/97 1315 Gross wt 102.5881 mg

Date and time of wt 9/23/97 0830 Gross wt 102.5877 mg

Average gross wt 102.5879 mg

Tare wt 102.5880 mg 0.0000 g

Less acetone blank wt ($W_a$) ~~( 0.0001 )~~ mg

Weight of particulate in acetone rinse ($m_a$) ( 0.0001 ) mg

Filter(s) container number Filter No M97-006 Beaker No M-14

Date and time of wt 9/18/97 1420 Gross wt 97.1303 mg

Date and time of wt 9/19/97 1600 Gross wt 97.1308 mg

Average gross wt 97.1306 mg

Filter M97-006 & Beaker M-14 Tare wt 97.1301 mg

Weight of particulate on filter(s) ($m_f$) 0.0005 mg

Weight of particulate in acetone rinse ( 0.0001 ) mg

Total weight of particulate ($m_n$) 0.0005 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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# SAMPLE ANALYTICAL DATA FORM

Plant Asphalt Plant "A" Run number S-29-RB

Sample location –

Relative humidity –

Density of acetone ($\rho_a$) 0.7899 g/ml

| Sample type | Sample identifiable | Liquid level marked and/or container sealed |
|---|---|---|
| Acetone rinse | M-18 | |
| filter(s) | M97-008 M-16 | |

Acetone rinse container number Becker No M-18

Acetone rinse volume ($V_{aw}$) 348.3 * ml

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

$W_a = C_a V_{aw} \rho_a$ = ( 0.0000 ) ( 348.3 ) ( 0.7899 ) = _____ mg

Date and time of wt 9/23/97 0830 Gross wt 98.5469 mg

Date and time of wt 9/23/97 1515 Gross wt 98.5473 mg

Average gross wt 98.5471 mg

Tare wt 98.5472 mg

Less acetone blank wt ($W_a$) – mg

Weight of particulate in acetone rinse ($m_a$) (0.0001) mg

Filter(s) container number Becker No. M-16

Date and time of wt 9/23/97 1515 Gross wt 97.8642 mg

Date and time of wt 9/24/97 0900 Gross wt 97.8641 mg

Average gross wt 97.8642 mg

Filter M97-008 & Becker No M-16 Tare wt 97.8649 mg

Weight of particulate on filter(s) ($m_f$) (0.0007) mg

Weight of particulate in acetone rinse (0.0001) mg

Total weight of particulate ($m_n$) 0.0000 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 _____

**METHOD 5**
**TARE WEIGHT**

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

| | | 0940 | 1640 | 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 | | 99.5269 | 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 | 103.6070 | 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 | | 99.6886 | 99.6882 | 99.6883 | | | | 99.6883 | |
| M-18 | | 98.5474 | 98.5466 | | | | | 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 | 101.8548 | | | | | 101.8551 | |

PACIFIC ENVIRONMENTAL SERVICES, INC.

## METHOD 5
## TARE WEIGHT

**Project Number:** 5413.004 **Item Weighed:** Filters

| | | 1100 ~~1100~~ | MT2026 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Date** | | 6/17/97 | 6/17/97 | | | | | | |
| **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)** |
| MW97-001 | | 0.3832 | 0.3831 | | | | 0.3832 | | |
| MW97-002 | | 0.3809 | 0.3807 | | | | 0.3808 | | |
| MW97-003 | | 0.3926 | 0.3923 | | | | 0.3925 | | |
| MW97-004 | | 0.3829 | 0.3826 | | | | 0.3829 | | |
| MW97-005 | | 0.3761 | 0.3758 | | | | 0.3760 | | |
| MW97-006 | | 0.3812 | 0.3810 | | | | 0.3811 | | |
| MW97-007 | | – | – | | | | – | | |
| MW97-008 | | 0.3825 | 0.3822 | | | | 0.3824 | | |
| MW97-009 | | 0.3804 | 0.3804 | | | | 0.3804 | | |
| MW97-010 | REA I-MW9-1 | 0.3801 | 0.3800 | | | | 0.3801 | | |
| MW97-011 | REA I-MW9-1 | 0.5073 | 0.5075 | | | | 0.5074 | | |
| MW97-012 | REA I-MW9-1 | 0.5124 | 0.5126 | | | | 0.5125 | | |
| MW97-013 | | 0.5051 | 0.5052 | | | | 0.5052 | | |
| MW97-014 | REA I-MW9-1 | 0.5079 | 0.5082 | | | | 0.5081 | | |
| MW97-015 | REA I-MW9-1 | 0.5175 | 0.5177 | | | | ~~0.5175~~ | 0.5176 CMC | |
| MW97-016 | | 0.5114 | 0.5117 | | | | 0.5116 | | |
| MW97-017 | | 0.4470 | 0.4467 | | | | 0.4469 | | |
| MW97-018 | | 0.4517 | 0.4516 | | | | 0.4517 | | |
| MW97-019 | | 0.4509 | 0.4509 | | | | 0.4509 | | |
| MW97-020 | | 0.4526 | 0.4524 | | | | 0.4525 | | |
| MW97-021 | | 0.4513 | 0.4512 | | | | 0.4513 | | |
| MW97-022 | | 0.4414 | 0.4415 | | | | 0.4415 | | |
| MW97-023 | | 0.4524 | 0.4521 | | | | 0.4523 | | |
| MW97-024 | | 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)** |
| MA97-025 | | 0.4493 | 0.4491 | | | | 0.4492 | | |
| MA97-026 | | 0.4489 | 0.4487 | | | | 0.4488 | | |
| MA97-027 | | 0.4447 | 0.4446 | | | | 0.4447 | | |
| MA97-028 | | 0.4556 | 0.4560 | | | | 0.4558 | | |
| MA97-029 | | 0.4549 | 0.4551 | | | | 0.4550 | | |

PACIFIC ENVIRONMENTAL SERVICES, INC.

**METHOD 5**
**FINAL WEIGHT**

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

| | | 1020 | 1040 | 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** | | MWM | MWM | MWM | MWM | MWM | | | |
| **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 *** | 16 | 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~~ 0.405 2 |
| 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-FB | 97.1303 | 97.1308 | | | | 97.1306 | 96.7490 | 0.3816 |
| M-15 | FH Rinse S-29-FB | 102.5881 | 102.5879 | 102.5881 | 102.5877 | | 102.5879 | 102.5880 | (0.0001) |
| M-16 | M97-008 S-29-RB | 97.8647 | 97.8638 | 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 | | 96.9443 | 96.9407 | 96.9418 | 96.9429 | | | |
| 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

| | | 0940 | 1035 | 0905 | 1025 | 0935 | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | | 9/24/97 | 9/24/97 | 9/25/97 | 9/25/97 | 9/26/97 | | | |
| R.H. (%) | | | 56 | 50 | 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 5-29-0-4 | 101.5392 | | | | | 101.5390 | | |
| M-16 | M97.008 5-29-RB | 97.8641 | | | | | 97.8642 | | |
| ~~M-R~~ | Fit 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 | | 103.6750 | 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 * | | | ~~235.5~~ | 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 11, 1997 |
| **Client ID:** | Pacific Environmental Services |
| **P.O. Number:** | 104-98-0019 & -0020 |
| **TLI Project Number:** | 43057 |

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Rev. 05/08/97

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## Overview

Seven M23 samples were received from Pacific Environmental Services at 19 °C in good condition on August 29, 1997 and were stored in a refrigerator at 4°C. One XAD trap for sample O-M23-RB was received without a chain-of-custody from Pacific Environmental Services at ambient temperature in good condition on September 5, 1997 and was stored in a refrigerator at 4°C. The results for sample O-M23-4 are not included in this data package. The remaining M23 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 sample 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 Blank, was prepared along with the samples.

## 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:*** None

***Mass Spectrometry:*** None

***Data Review:*** Sample O-M23-4 was lost during filtration. Therefore, it was scheduled for re-extraction. The results for this sample will be forwarded as soon as they are available.

The percent recoveries of the internal standards in sample O-M23-3 are elevated due to an insufficient amount of recovery standard added to this sample. However, the areas of the internal standards are not affected by the amount of recovery standard in the sample. Therefore, the concentrations of any analytes detected in sample O-M23-3 are not affected because they are calculated based upon the areas of the internal standards.

*Other Comments:* Any analytes found in the TLI 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,

$A_\sigma$ is the integrated current for the characteristic ions of the analyte,

$A_\beta$ is the integrated current of the characteristic ions of the corresponding internal standard,

$Q_\beta$ 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

$A_{\beta}$ is the integrated current of the characteristic ions of the corresponding internal standard,

$Q_{\beta}$ 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.,

Released by

Craig Myrick

Craig Myrick
Report Preparation Chemist

The total number of pages in the data package is : 263 .

# TRIANGLE LABORATORIES, INC.

## LIST OF CERTIFICATIONS AND ACCREDITATIONS

### ENVIRONMENTAL

**American Association for Laboratory Accreditation.** Expires July 31, 1997. 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, 1997. 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, 1997.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.



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

**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, 1997. 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 June 30, 1997 or sooner. ID #67851. BNAs and Volatiles. Dioxin in drinking water.

**State of New Mexico, Environment Department.** Expires July 31, 1997. 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 December 31, 1997. 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.

**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, 1997. 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, 2002. Permit No. S-4958. 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, 1997. 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.

**State of Wisconsin, Department of Natural Resources.** Expires June 30. 1997. 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 July 1997. 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.

# 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*

COPY of 8/29/97

## CHAIN OF CUSTODY

**Sampler's Signature:**

Company: PES, Inc. | Contact: Mike Maret

Address: 5001 S. Miami Blvd. | Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 | Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 | Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| Inlet | 8/19/97 | 9:15 | Composite | I-M23-1-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Inlet | 8/19/97 | ↓ | Composite | I-M23-1-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Inlet | 8.19.97 | ↓ | Composite | I-M23-1-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Inlet | 8.19.97 | ↓ | Composite | I-M23-1-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.19.97 | 9:15 | Composite | O-M23-1-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | ↓ | ↓ | Composite | O-M23-1-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | ↓ | ↓ | Composite | O-M23-1-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | ↓ | ↓ | Composite | O-M23-1-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.20.97 | 8:22 | Composite | O-M23-2-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | ↓ | ↓ | Composite | O-M23-2-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
| [signature] | 8/29/97 12:45 | | | | |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: ***Triangle Laboratories, Inc.***

**801 Capitola Drive**

**Durham, North Carolina 27713**

COPY 8/29/97

13

## CHAIN OF CUSTODY

**Sampler's Signature:**

Company: PES, Inc. | Contact: Mike Maret

Address: 5001 S. Miami Blvd. | Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 | Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 | Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| Outlet | 8.20.97 | 8:22 | Composite | O-M23-2-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | " | " | Composite | O-M23-2-IMP | 2 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.20.97 | 14:05 | Composite | O-M23-3-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | " | " | Composite | O-M23-3-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | " | " | Composite | O-M23-3-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | " | " | Composite | O-M23-3-IMP | 2 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| OUTLET | 8.19.97 | 1519 | Composite | O-M23-FB-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| OUTLET | " | " | Composite | O-M23-FB-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| OUTLET | " | " | Composite | O-M23-FB-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| OUTLET | " | " | Composite | O-M23-FB-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: [signature] | Date/Time: 8/29/97 12:45 | Received By: | Relinquished By: | Date/Time: | Received By: |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: **Triangle Laboratories, Inc.**
**801 Capitola Drive**
**Durham, North Carolina 27713**

COPY

CJ 8/29/97

**CHAIN OF CUSTODY**

**Sampler's Signature:**

Company: PES, Inc. Contact: Mike Maret

Address: 5001 S. Miami Blvd. Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| ~~Outlet~~ TOO | | | ~~Composite~~ | ~~O-M23-4-HCl~~ | | ~~18 Trace Metals Plus Hg~~ | HCl |
| Outlet | 8.21.97 | 7:41 | Composite | O-M23-4-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | " | " | Composite | O-M23-4-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | | | Composite | O-M23-4-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | | | Composite | O-M23-4-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
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| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| Relinquished By: [signature] | Date/Time: 8/29/97 12:45 | Received By: | Relinquished By: | Date/Time: | Received By: |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: *Triangle Laboratories, Inc.*

801 Capitola Drive

Durham, North Carolina 27713

COPY 8/29/97

15

## CHAIN OF CUSTODY

**Sampler's Signature:**

Company: PES, Inc. Contact: Mike Maret

Address: 5001 S. Miami Blvd. Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| | | | Composite | O-M23-RB-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD → NOT Present 8/29/97 |
| | | | Composite | O-M23-RB-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| | | | Composite | O-M23-RB-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| | | | Composite | O-M23-RB-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
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| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: [signature] | Date/Time: 8/29/97 12:45 | Received By: | Relinquished By: | Date/Time: | Received By: |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: ***Triangle Laboratories, Inc.***

**801 Capitola Drive**

**Durham, North Carolina 27713**

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

Custody Seal : Absent | Sample Seals: Absent | TLI Project Number 43057 | Book 181
Chain of Custody : Present | Container...: Intact | Client: PSC01 - PES, Inc.
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A | Date Received 08/29/97 By [signature] | Page 27
Ice Chest/Box ICE Temp 19.0 C | Carrier and Number FRANK PHOENIX

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 181-27-1A | I-M23-1-XAD<br>I-M23-1-XAD | XAD<br>C02 | | | LA 9/6/97 | | | | | | |
| 181-27-1B | I-M23-1-ACE/TOLUENE<br>I-M23-1-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-1C | I-M23-1-FILTER<br>I-M23-1-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-1D | I-M23-1-IMP<br>I-M23-1-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-2A | O-M23-1-XAD<br>O-M23-1-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-2B | O-M23-1-ACE/TOLUENE<br>O-M23-1-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-2C | O-M23-1-FILTER<br>O-M23-1-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-2D | O-M23-1-IMP<br>O-M23-1-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-3A | O-M23-2-XAD<br>O-M23-2-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-3B | O-M23-2-ACE/TOLUENE<br>O-M23-2-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-3C | O-M23-2-FILTER<br>O-M23-2-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-3D | O-M23-2-IMP<br>O-M23-2-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-3E | O-M23-2-IMP<br>O-M23-2-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-4A | O-M23-3-XAD<br>O-M23-3-XAD | XAD<br>C02 | | | | | USED | | | | |

Receiving Remarks: SAMPLES DELIVERED IN 3 BOXES AND 1 COOLER. ICE IN COOLER WAS WATER WHEN RECIEVED. SAMPLE O-M23-RB-XAD WAS NOT WITH SHIPMENT.

Archive Remarks:

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

| | | | |
|---|---|---|---|
| Custody Seal : Absent | Sample Seals: Absent | TLI Project Number 43057 | Book 181 |
| Chain of Custody : Present | Container...: Intact | Client: PSC01 - PES, Inc. | |
| Sample Tags : Absent | | | |
| Sample Tag Numbers: Not Listed on Chain of Custody | | Date Received 08/29/97 By [signature] | Page 27 |
| SMO Forms : N/A | | | |
| Ice Chest/Box ICE | Temp 19.0 C | Carrier and Number FRANK PHOENIX | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 181-27-4B | O-M23-3-ACE/TOLUENE | ACE/TOLUENE | 9-5-97 JSY | 9-5-97 JSY | LA 9/6/97 | USED | | | | | |
| | O-M23-3-ACE/TOLUENE | C02 | | | | | | | | | |
| 181-27-4C | O-M23-3-FILTER | FILTER | | | | | | | | | |
| | O-M23-3-FILTER | C02 | | | | | | | | | |
| 181-27-4D | O-M23-3-IMP | IMP | | | | | | | | | |
| | O-M23-3-IMP | C02 | | | | | | | | | |
| 181-27-4E | O-M23-3-IMP | IMP | | | | | | | | | |
| | O-M23-3-IMP | C02 | | | | | | | | | |
| 181-27-5A | O-M23-FB-XAD | XAD | | | | | | | | | |
| | O-M23-FB-XAD | C02 | | | | | | | | | |
| 181-27-5B | O-M23-FB-ACE/TOLUENE | ACE/TOLUENE | 9-5-97 JSY | 9-5-97 JSY | | USED | | | | | |
| | O-M23-FB-ACE/TOLUENE | C02 | | | | | | | | | |
| 181-27-5C | O-M23-FB-FILTER | FILTER | | | | | | | | | |
| | O-M23-FB-FILTER | C02 | | | | | | | | | |
| 181-27-5D | O-M23-FB-IMP | IMP | | | | | | | | | |
| | O-M23-FB-IMP | C02 | | | | | | | | | |
| 181-27-6A | O-M23-4-XAD | XAD | | | | | | | | | |
| | O-M23-4-XAD | C02 | | | | | | | | | |
| 181-27-6B | O-M23-4-ACE/TOLUENE | ACE/TOLUENE | 9-5-97 JSY | 9-5-97 JSY | | USED | | | | | |
| | O-M23-4-ACE/TOLUENE | C02 | | | | | | | | | |
| 181-27-6C | O-M23-4-FILTER | FILTER | | | | | | | | | |
| | O-M23-4-FILTER | C02 | | | | | | | | | |
| 181-27-6D | O-M23-4-IMP | IMP | | | | | | | | | |
| | O-M23-4-IMP | C02 | | | | | | | | | |
| 181-27-7A | O-M23-RB-ACE/TOLUENE | ACE/TOLUENE | 9-5-97 JSY | 9-5-97 JSY | | USED | | | | | |
| | O-M23-RB-ACE/TOLUENE | C02 | | | | | | | | | |
| 181-27-7B | O-M23-RB-FILTER | FILTER | | | | | | | | | |
| | O-M23-RB-FILTER | C02 | | | | | | | | | |

Receiving Remarks: SAMPLES DELIVERED IN 3 BOXES AND 1 COOLER. ICE IN COOLER WAS WATER WHEN RECIEVED. SAMPLE O-M23-RB-XAD WAS NOT WITH SHIPMENT.

Archive Remarks:

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

Custody Seal : Absent
Chain of Custody : Absent
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : Absent

Sample Seals: Absent
Container...: Intact

TLI Project Number 43113
Client: PES03 - Pacific Environmental Services

Book 181

Date Received 09/05/97 By

Page 83

NO COOLANT

Carrier and Number DEBBIE HAGE

| TLI Number.. ....Client Sample ID..... .....Matrix<br>mR/H:CPM. .....Client COC ID.....* 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 |
|---|---|---|---|---|---|---|---|---|---|
| 181-83-1 Reagent Blank Xad XAD<br>no C.O.C. * C01 | LA 9/6/97 | USED | | | | | | | |
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Receiving Remarks: Debbie Hage said this was a sample that Belonged to client.
No paperwork arrived with samples; CLIENT needs to provide a Chain of Custody with sample IDs matching the sample labels.

Archive Remarks:

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

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

| | | |
|---|---|---|
| TLI Proj#: 43057- | Samples: 7 | TurnAround.: 7 Day(s) |
| Prod Code: D23061 | Matrix.: M23Train | Hold Time..: 30 Day(s) |
| DetectLim: 0.05 ng | Type...: A | Start Date.: 09/05/97 |
| | Recvd..: 08/29/97 | Ship By....: 09/11/97 |
| | | DWL Due Dt.: 09/09/97 |

Analyte List.: tetra-octa PCDDs/PCDFs

Method.....: Method 23:Tetra-Octa (Tol Combined)
Client Proj..: ASPHALT PLANT "A"
Client.....: Pacific Environmental Services (PES03)

| | |
|---|---|
| P.O. No.....: 104-98-0019 & -0020 | Collect Dt/Tm: SeeCOC |
| Contact.....: Mike Maret | Phone.....: 919-941-0333 |
| Proj. Mgr....: Amy J. Boehm | Fax.....: 919-941-0234 |
| | Sample Origin: NC |

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

| | |
|---|---|
| Prep Project: 03804 | Prespike Standard: USF-CS |
| | Prespike Amount..: 4.0ng |
| | Extraction Exp...: 09/18/97 |

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

Reporting Format: Report Option II

See MILES for Instructions/Communications.

Completed by: _____ DATE: _____

Reviewed by: _____ DATE: 9/5/97 (PMGT0197)

TRIANGLE LABORATORIES OF RTP, INC.

PROJECT COMMUNICATION TRACKING FORM



TLI Project Number: 43057

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 |
|---|---|---|
| | | XAD - White |
| | | PSC01-PES, Inc.<br>I-M23-1-FILTER<br>Project: 43057<br>181-27-1C |
| | | 1 Filter · white with approx 6Cg of brown ash residue |
| | | PSC01-PES, Inc.<br>I-M23-1-XAD<br>Project: 43057<br>181-27-1A |
| | | gas smell |
| | | XAD - White |
| | | PSC01-PES, Inc.<br>O-M23-1-FILTER<br>Project: 43057<br>181-27-2C |
| | | 1 Filter - white / brown |
| | | PSC01-PES, Inc.<br>O-M23-1-XAD<br>Project: 43057<br>181-27-2A |
| | | gas smell |
| | | XAD - white |
| | | PSC01-PES, Inc.<br>O-M23-2-FILTER<br>Project: 43057<br>181-27-3C |
| | | 1 Filter white / brown |
| | | PSC01-PES, Inc.<br>O-M23-2-XAD<br>Project: 43057<br>181-27-3A |
| | | gas smell |

TRIANGLE LABORATORIES OF RTP, INC.

PROJECT COMMUNICATION TRACKING FORM



TLI Project Number: 43057

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.

| te | Name | Comment / Decision / Resolution / Action / Observation | |
|---|---|---|---|
| | | PSC01-PES, Inc.<br>O-M23-3-XAD<br>Project: 43057<br>181-27-4A | XAD - white |
| | | PSC01-PES, Inc.<br>O-M23-3-FILTER<br>Project: 43057<br>181-27-4C | 1 Filter - white/H brown<br>- gas smell |
| | | PSC01-PES, Inc.<br>O-M23-FB-XAD<br>Project: 43057<br>181-27-5A | XAD white |
| | | PSC01-PES, Inc.<br>O-M23-FB-FILTER<br>Project: 43057<br>181-27-5C | 1 Filter white |
| | | PSC01-PES, Inc.<br>O-M23-4-XAD<br>Project: 43057<br>181-27-6A | white - XAD |
| | | PSC01-PES, Inc.<br>O-M23-4-FILTER<br>Project: 43057<br>181-27-6C | 1 Filter - white with<br>H brown residue |
| | | PES03-Pacific Environmental Services<br>Reagent Blank Xad<br>Project: 43113<br>181-83-1 | 1 Filter white<br>XAD White |
| | | PSC01-PES, Inc.<br>O-M23-RB-FILTER<br>Project: 43057<br>181-27-7B | |

TRIANGLE LABORATORIES, INC.
Wet Lab MM5/PUF Observations
Project: 43057



22

| 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 | 03804 | ADKINS | 09/06 | 15:14 | F |
| 001 | | 181-27-1A-C | I-M23-1 | 1 | WHITE | WHITE/BRWN | WHITE | | GAS | 03804 | ADKINS | 09/06 | 15:14 | F |
| 002 | | 181-27-2A-C | O-M23-1 | 1 | WHITE | WHITE/BRWN | WHITE | | GAS | 03804 | ADKINS | 09/06 | 15:14 | F |
| 003 | | 181-27-3A-C | O-M23-2 | 1 | WHITE | WHITE/BRWN | WHITE | | GAS | 03804 | ADKINS | 09/06 | 15:14 | F |
| 004 | | 181-27-4A-C | O-M23-3 | 1 | WHITE | WHITE/BRWN | WHITE | | GAS | 03804 | ADKINS | 09/06 | 15:14 | F |
| 005 | | 181-27-5A-C | O-M23-FB | 1 | WHITE | WHITE | WHITE | | NONE | 03804 | ADKINS | 09/06 | 15:14 | F |
| 006 | | 181-27-6A-C | O-M23-4 | 1 | WHITE | WHITE/BRWN | WHITE | | GAS | 03804 | ADKINS | 09/06 | 15:14 | F |
| 007 | | 181-27-7AB& | O-M23-RB | 1 | WHITE | WHITE | WHITE | | NONE | 03804 | ADKINS | 09/06 | 15:16 | F |
| 008 | | TLI LCS | TLI LCS | 0 | WHITE | | | | NONE | | ADKINS | 09/06 | 15:14 | F |
| 009 | | TLI LCSD | TLI LCSD | 0 | WHITE | | | | NONE | | ADKINS | 09/06 | 15:14 | F |

*** End of Report ***

TRIANGLE LABORATORIES, INC. PAGE 1 OF 1

Dioxin Sample Preparation Tracking & Management Form

roject: 43057 Client: Pacific Environmental Services (PES03)

olvent(s)/Acid(s): Silver / _____ / _____ Method: Method 23:Tetra-Octa (Tcl Combined) Matrix: SO

ot Numbers: 97461 / _____ / _____ Extraction Date: 9/6/97

IS Spike: 40 µl conc: 0.1000 ng/µl

SS Spike: ____ µl conc: __.____ ng/µl

MS Spike: 0 µl conc: 0.0000 ng/µl

CS Spike: 0 µl conc: 0.0000 ng/µl

PR Spike: 20 µl conc: 0.01 ng/µl

| .crd | TLI / SAMPLE ID / CLIENT SAMPLE ID | GROSS WEIGHT Before | GROSS WEIGHT After | SAMPLE SIZE g / ml | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Chemist | | | | | LA | LA | GNM | | |
| Spike = | | | | | 5234I | 5233B | 5235 E | | |
| * ID | | | | | USF I | USF MX | USF-A | | |
| * Expir | | | | | 7/02/98 | 12/17/97 | 07/02/98 | __/__/__ | |
| * Date | | | | | 9/06/97 | 9/06/97 | 9/08/97 | __/__/__ | |
| * Time | | | | | 14:00 | 12:03 | 13:45 | __:__ | |
| * Conc. | | | | | 0.1 ng/µl | 0.01 ng/µl | 0.1 ng/µl | ____ ng/µl | |
| * Vol. | | | | | 40 µl | 40 µl | 40 µl | ____ µl | |
| 00 | TLI Blank / TLI M23 Blank | | | | L.C. | | MS | | Any Left yes/no |
| 01 | 181-27-1A-C / I-M23-1 | | | | L.C. | | MS | | Any Left yes/no |
| 02 | 181-27-2A-C / O-M23-1 | | | | L.C. | | MS | | Any Left yes/no |
| 03 | 181-27-3A-C / O-M23-2 | | | | L.C. | | MS | | Any Left yes/no |
| 04 | 181-27-4A-C / O-M23-3 | | | | L.C. | | MS | | Any Left yes/no |
| 05 | 181-27-5A-C / O-M23-FB | | | | L.C | | MS | | Any Left yes/no |
| 06 | 181-27-6A-C sample lost 9/10/97 / O-M23-4 | | 40 µl | | L.C. | | MS | | Any Left yes/no |
| 07 | 181-27-7AB& 181-83-1 / O-M23-RB | | | | L.C. | | MS | | Any Left yes/no |
| 08 | TLI LCS / TLI LCS | | | | L.C. | L.C. * | MS | | Any Left yes/no |
| 09 | TLI LCSD / TLI LCSD | | | | L.C. | L.C. * | MS | | Any Left yes/no |

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

Comments: (1) & (2) Acetone/Toluene Rinses had fine particles - they were filtered through Soxthimbles before Rotovaping 9/5/97

Initials: LA Date: 9/6/97

Initials of both SPIKER AND OBSERVER must be entered. XXXXX = Gross Weight not provided for WATER Samples.

REV 05/27/97 (PSTMP 7)

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43057

| Ext S#.crd and TLI Number | 1 | 2 | 4 | 6 | 3 | 5 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 000 TLI Blank | LA 9/16/97 | QUAL MS 9.8.97 | MS 9.8.97 | MS 9.8.97 | TMW 9-8-97 | TMW 9-8-97 | TMW 9-8-97 | LA 9/9/97 | 9/9/97 |
| 001 181-27-1A-C | | | | | | | | | |
| 002 181-27-2A-C | | | | | | | | | |
| 003 181-27-3A-C | | | | | | | | | |
| 004 181-27-4A-C | | | | | | | | | |
| 005 181-27-5A-C | | | | | | | | | |
| 006 181-27-6A-C | | | | TMW 9.8.97 | | | | | sample lost 40M 9/10/97 |
| 007 181-27-7AB& 181-83-1 | | | | MS 9.8.97 | | | | | |
| 008 TLI LCS | | | | TMW 9-8-97 | | | | | |
| 009 TLI LCSD | | | | | | | | | |

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 Diluti |
| (2) | SPIKE AFTER EXTRACTION | 9/6/97 14:50 9/7/97 06:30 LA |
| (3) | ADD TRIDECANE | |
| (4) | ROTOVAP | 40mL / (10mL) / (Dryness) |
| 5) | COMBINE | |
| (6) | DIVIDE / LIPID DETERMINATION | 20%/80% (50%/50%) 5mL/20mL Other_____ |
| (7) | SOLVENT EXCHANGE | A |
| (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: _____

Rev 06/24/97 (PSTMF 4

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43057

Transfer From: DWLH5 To: DMS5

| | Initials.. | Date..... | Time... |
|---|---|---|---|
| Released by: | JDH | 09/10/97 | 12:10 |
| Accepted by: | WDa | 9/10/97 | 14:36 |

| MILES.ID..... | | TLI_No..... | Cust.Id..... |
|---|---|---|---|
| 43057- | -000 | TLI Blank | TLI M23 Blank |
| 43057- | -001 | 181-27-1A-C | I-M23-1 |
| 43057- | -002 | 181-27-2A-C | O-M23-1 |
| 43057- | -003 | 181-27-3A-C | O-M23-2 |
| 43057- | -004 | 181-27-4A-C | O-M23-3 |
| 43057- | -005 | 181-27-5A-C | O-M23-FB |
| 43057- | -007 | 181-27-7AB& | O-M23-RB |
| 43057- | -008 | TLI LCS | TLI LCS |
| 43057- | -009 | 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: 43057

SAMPLE INFORMATION — RS Conc 20 µl ● 100.0 PG/µl

| S#.crd | TLI / SAMPLE ID / CLIENT SAMPLE ID | 1ST COLUMN GC/MS FILENAME / COLUMN: DB-5 | CONFIRM | 2ND COLUMN CONFIRM FILENAME / COLUMN: DB-225 | USF-RS VOLUME / SOLN ID | USF-RS INIT. / DATE | ANALYSIS COMMENTS |
|---|---|---|---|---|---|---|---|
| 000 | TLI Blank / TLI M23 Blank | s975808 | | x973081 | 20ul / 5296J | BJG / 9/10/97 | 16:00 |
| 001 | 181-27-1A-C / I-M23-1 | s975808 | N | 82 | | | |
| 002 | 181-27-2A-C / O-M23-1 | s975809 | N | 83 | | | |
| 003 | 181-27-3A-C / O-M23-2 | s975810 | N | p973845 | | | |
| 004 | 181-27-4A-C / O-M23-3 | s975811 | N | 4C | | | |
| 005 | 181-27-5A-C / O-M23-FB | s975816 | N | — | 20ul / 5296J | BJG / 9/10/97 | |
| 006 | 181-27-6A-C / O-M23-4 | sample lost 90% 9/10/97 | | | — | — | |
| 007 | 181-27-7AB& 181-83-1 / O-M23-RB | s975817 | N | p973847 | 20ul / 5296J | BJG / 9/10/97 | |
| 008 | TLI LCS / TLI LCS | s975818 | | — | | | |
| 009 | TLI LCSD / TLI LCSD | s975819 | | — | 20ul / 5296J | BJG / 9/10/97 | |

Comments: _____ Type: A

Spike File: SPX23704

Amt of Extract: 50%

REV 03/07/95 (RSTMF 6)

Triangle Laboratories, Inc.
Run Log

27

| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 705 | DB5 | 5711413 | 702 | 2.0 µl | EPCUS2 | EPCUS |

Signature

9/10/97
Date

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| ~~5975787~~ 87 | 9-10-97 | 01:01 | L13036A | 181-6-2 | 1 | GA075-SL-087-21.[illegible] | Auto | 7.3 EC | MD 9/9/97 | |
| ~~88~~ 88 | ↓ | 01:41 | | TLI LCS | 2 | TLI LCS | | 8.8 EC | | |
| ~~89~~ 89 | ↓ | 02:20 | | TLI LCSD | 3 | TLI LCSD | | 1.0 EC | | |
| ~~90~~ 90 | | 02:59 | L13096 | TLI Blank | 0 | TLI PUF Blank | | 6.4 EC | | |
| ~~91~~ 91 | | 03:39 | | 181-66-3 | 1 | FX DIO 03 970829 | | 1.0 EC | | |
| ~~92~~ 92 | ↓ | 04:18 | ↓ | 181-66-4 | 2 | FX DIO 04 970829 | ↓ | 1.0 EC | ↓ | |
| 5975793 | 9/10/97 | 5:38 | — | 4513 | — | 8290 CC5.0 | M-0 #3 | 7.1 EC | Ann 9/10/97 | Word Entry only Ann 9/10/97 |
| 5975794 | 9/10/97 | 6:41 | — | 4513 | — | 8290 CC 5.0 | M-0 #3 | 6.1 EC | Ann 9/10/97 | DSBC Ann 9/10/97 3rd Chromatography Tuned BJG Column [illegible] |
| 5975795 | 9/10/97 | 9:36 | — | 5170B | — | RTCHIC | RTCHIC | 12% | BJG 9/10/97 | 6000 BJG 9/10/97 |
| 5975796 | 9/10/97 | — | — | 4514G | — | M23 ConCal 50.0 | M-0 50.0 | — | BJG 9/10/97 | BJG NG 3rd Chromatography 9/10/97 |
| 5975797 | 9/10/97 | 12:08 | — | 4514G | | M23 ConCal 50.0 | M-0 50.0 | 7.8 EC | BJG 9/10/97 | 6000 BJG M23 ConCal 9/10/97 |
| 5975798 | 9/10/97 | 13:11 | — | 5170B | — | RTCHIC | RTCHIC | 12% | BJG 9/10/97 | 6000 BJG 9/10/97 |
| 5975799 | 9/10/97 | 14:06 | — | 5036 | — | MITI Concal #4 | 5036 | 1.7 EC | BJG 9/10/97 | 6000 BJG 9/10/97 |

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: 6:03 AM
ConCal Due: 00:08 (12:08 AM)

Triangle Laboratories, Inc.
Run Log

28

| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 705 | DBS | 5711413 | TD2 | 2.0ml | EPCUS2 | EPCUS |

Signature: [signature] Date: 9/10/97

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| 5975800 | 9/10/97 | 15:33 | 43107 | TLI BLANK | 0 | TLI M23 BLANK | AUTO | 5.5 E6 | BJG 9/10/97 | MITSUBISHI |
| 5975801 | | 1614 | | 181-77-1-4 | 1 | N-008-1-4=XIP-7027 | | 5.6 E6 | | |
| 5975802 | | 1654 | | TLI LCS | 2 | TLI LCS | | 5.6 E6 | | |
| 5975803 | 9/10/97 | 1733 | 43107 | TLI LCSD | 3 | TLI 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 | TLI Blank ~~43107~~ KB 9/10/97 | 0 | TLI 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 | TLI Blank ~~43057~~ KB 9/10/97 | 0 | TLI 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 | | 181-27-3A-C | 3 | O-M23-2 | | 4.8 E6 | | |
| 5975811 | ↓ | 2309 | ↓ | 181-27-4AC ↓ | 4 | O-M23-3 | ↓ | 9.4 E6 | ↓ | |
| 5975812 | 9/10/97 | 23:47 | — | 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)

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Page: _____

Triangle Laboratories, Inc.
Run Log

| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 705 | DB5 | 5711413 | T02 | 2.0 ml | EPCus2 | EPCW |

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

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| S975813 | 9.11.97 | 00:59 | — | 4514G | — | M23 Con Cal 50.0 | m-0 50 | — | Jm 9/11/97 | NG OCPD [illegible] 9.11.97 |
| S975814 | 9/11/97 | 2:02 | — | 4514G | — | 8290/M23 Con Cal 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 | 3.8 EG | Hrm 9/11/97 | QC deflections BJG 9/11/97 |
| 16 | ↓ | 3:44 | 43057 | 181-27-5AC | 5 | 0-M23-FB | | 4.0 EG | | |
| 17 | | 4:25 | | 181-27-7AB & [illegible] | 7 | 0-M23-RB | | 4.4 EG | | |
| 18 | | 5:04 | ↓ | LCS | 8 | LCS | | 3.5 EG | | fixed BJG 9/11/97 RO. 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 ES | | Retention times off BJG 9/11/97 (NG) |
| 21 | | 7:02 | | -2ABE | 2 | 0-M23-2 | | 1.6 ES | | Retention times off BJG 9/11/97 (NG) |
| 22 | | 7:42 | | -3ABE | 3 | 0-M23-3 | | 1.8 EG | | Retention times off BJG 9/11/97 (NG) |
| 23 | | | | -4ABD | 4 | 0-M23-FB | | | | DID |
| 24 | | | | -5ABD | 5 | I-M23-1 | | | | NOT BJG |
| S975825 | | | 43085 | 181-55-6ABD | 6 | I-M23-2 | Auto | | Hrm 9/11/97 | RUN 9/11/97 |

* 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 |
|---|---|---|---|---|---|---|
| 70X | DB225 | 6301112 | TTI | 2.0 ul | X-Conf TT | X-Conf TT |

Bernard J Glenn — Signature
9/10/97 — Date

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| X973062 | 9/10/97 | 9:00 | — | 4497D | — | TETRA Concl 5.0 | TETRA 5.0 | 4.3 E7 | BJG 9/10/97 | Good for begining BJG 9/10/97 |
| X973063 | 9/10/97 | 10:06 | — | 5296J | — | RS-100 | RS100 | 3.8 E7 | BJG 9/10/97 | Clean BJG 9/10/97 |
| X973064 | 9/10/97 | 12:02 | 42792r1 | TLI BLANK | 1 | TLI WATER BLANK | X8261 | 7.6 E6 | BJG 9/10/97 | SOURCE |
| X973065 | 9/10/97 | 12:51 | 42792r1 | 178-59-1B | 2 | G9708067-4 | X8261 | 2.0 E7 | BJG 9/10/97 | HEATER BJG 9/10/97 |
| X973066 | 9/10/97 | — | 42792r1 | 178-59-3B | 4 | G9708067-9 | X8261 | — | BJG 9/10/97 | BLOWN |
| X973067 | 9/10/97 | — | 42811r3 | 178-78-6 | 7 | Car-2-003 | X8261 | — | BJG 9/10/97 | RESHOOT |
| X973068 | 9-11-97 ~~9-10-97~~ | ~~10:59~~ 10:59 | — | 5170B | — | RTCHK | RTCHK | 12% | GG 9-11-97 | D STL Good BJG 9/11/97 |
| X973069 | 9/11/97 | 12:00 | — | 4497D | — | TETRA Concl 5.0 | TETRA 5.0 | 3.5 E7 | BJG 9/11/97 | Good BJG 9/11/97 |
| X973070 | 9/11/97 | 12:54 | — | 5296L | — | RS 100 | RS100 | 2.7 E7 | MC 9/11/97 | Clean BJG 9/11/97 |
| X973071 | 9/11/97 | 13:38 | 42999 | 180-68-7 ~~42999~~ BJG 9/11/97 | 7 | Run #16 Location 1 | X8261 | 12 E7 | BJG 9/11/97 | |
| X973072 | 9/11/97 | 14:19 | 43036B | 181-6-1A | 1 | GA075-WF-087-OUTFALL | X8261 | 8.7 E6 | BJG 9/11/97 | Added SUR monitor BJG 9/11/97 |
| X973073 | 9/11/97 | 15:00 | 42792r1 | TLI BLANK | 0 | TLI WATER BLANK | X8261 | 6.7 E6 | BJG 9/11/97 | Added SUR monitor BJG 9/11/97 |
| X973074 | 9/11/97 | 15:42 | 42792r1 | 178-59-1B ~~G9708067-4~~ | 1 | G9708067-4 | X8261 | 2.4 E7 | BJG 9/11/97 | Added SUR monitor BJG 9/11/97 |

* Transcribed from chromatographic data
** Dated initials required

(TE) BJG 9/11/97

ConCal Due: 21:00 (9:00 PM)
ConCal Due: 00:00 (12:00 AM) Midnight

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

Triangle Laboratories, Inc.
Run Log

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| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 70X | DB225 | 6301112 | TT1 | 2PLH | X-Conf-TT | X-Conf-TT |

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

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| X973075 | 9/11/97 | 15:42 | 42792-1 | 178-59-3B | 4 | G9708067-9 | X8261 | 2.4 E7 | MS 9/11/97 | Added Sud nonane BJG 9/11/97 |
| ~~X973076~~ | ~~9/11/97~~ | ~~16:34~~ | ~~42792-1~~ 42811-3 | ~~178-36-6~~ 178-78 | ~~7~~ | ~~CAR-2-003~~ | X8261 | 2.8 E7 | | ~~Not shot~~ overwritten |
| X973077 6 | 9/11/97 | 17:16 | 43064 | 181-34-1A | 2 | GTEC0897B | X8261 | 2.4 E7 | MS 9/11/97 | 6 µl nonane added; 3 µl solution shot |
| X973078 7 | 9/11/97 | 18:03 | 43064 | 181-34-2A | 3 | GTEC0897Y | X8261 | 2.2 E7 | MS 9/11/97 | |
| X973079 | 9/11/97 | 18:51 | 43064 | Clean-Up Blk | 4 | Clean-Up Blank | X8261 | 3.4 E7 | MS 9/11/97 | |
| X973079 | 9/11/97 | 19:34 | 43065B | 181-35-3 | 2 | 010-LAKE 8/28/97 | X8261 | 3.6 E7 | MS 9/11/97 | |
| X973080 | 9/11/97 | 20:26 | 43065B | 181-35-4 | 3 | 010B-QUARRY 8/28/97 | X8261 | 3.6 E7 | MS 9/11/97 | |
| X973081 | 9/11/97 | 21:07 | 43057 | TL1 Blank | 0 | TL1 M23 Blank | X8261 | 2.9 E7 | MS 9/11/97 | |
| X973082 | 9/11/97 | 21:48 | 43057 | 181-27-1AC | 1 | I-M23-1 | X8261 | 3.7 E6 | MS 9/11/97 | 6 µl nonane added 3 µl shot |
| X973083 | 9/11/97 | 22:34 | 43057 | 181-27-2AC | 2 | O-M23-1 | X8261 | 2.9 E7 | MS 9/11/97 | |
| X973084 | 9/11/97 | 23:23 | MSZE 9/11/97 ~~44~~ | 4497D | – | Tetra Canal 5.0 | Tetra 5.0 | 2.9 E7 | MS 9/11/97 | Good F+B |
| X973085 | 9/12/97 | 00:09 | — | 5170B | — | Retention Window Check | RTCHK | — | Jm 9/12/97 | NG >25% Jm 9.12.97 |
| X973086 | 9/12/97 | 01:03 | — | 5170B | — | " " " | RTCHK | — | Jm 9/12/97 | DS [illegible] NG >25% Jm 9.12.97 |

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: 00:00 (12:00 AM) M. [illegible]
ConCal Due: _____

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

Triangle Laboratories, Inc.
Run Log

32

| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 70X | DB225 | 6301112 | TT1 | 2.0 µL | X CONF-TT | X CONF-TT |

Glenn Graham — Signature
9-12-97 — Date

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| X973087 | 9-12-97 | 10:59 | — | 5170B | — | RTCHK | RTCHK | 16% | GG 9-12-97 | |
| X973088 | 9-12-97 | 13:06 | — | 4520C | — | TETRA CONCAL 5.0 | TETRA 5.0 | 4.0 E7 | GG 9-12-97 | |
| X973089 | 9-12-97 | | — | 5296L | — | R$100 | R SIVO | | GG 9-12-97 | |
| X973090 | 9-12-97 | | 43033 | 181-3-1A | 2 | 2801-001-3097 | X8261 | | GG 9-12-97 | |
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* Transcribed from chromatographic data
** Dated initials required

ConCal Due: _____
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 |
|---|---|---|---|---|---|---|
| ZOP | DB 225 | 6360413 | TH | 20ul | DB 225 | DB 225 |

Signature: [signature] Date: 9/12/97

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| P973842 | 9/12/97 | 10:13 | — | 5170B | – | RTCH1 | MCH | 14% | [illegible] 9/12/97 | |
| 1 43 | 1 | 11:04 | — | 4497D | — | TETRA CONCR 5.0 | TETRA 5.0 | 1.9 EC | 1 | GOOD [illegible] 9/12/97 |
| 1 44 | 1 | 11:59 | — | 5296L | – | RS-100 | RS-100 | 1.7 EC | 1 | |
| 1 45 | 1 | 12:45 | 43057 | 181-27-3AC | 3 | O-H23-2 | 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 | | | | | | | | | |
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* Transcribed from chromatographic data
** Dated initials required

ConCal Due: _____
ConCal Due: _____

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

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 27709-3485*
*Fax # 919-544-5491*

| Data File | S975807 | S975808 | S975809 | S975810 |
|---|---|---|---|---|
| Sample ID | TLI M23 Blank | I-M23-1 | O-M23-1 | O-M23-2 |
| Units | ng | ng | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 | 09/06/97 | 09/06/97 |
| Analysis Date | 09/10/97 | 09/10/97 | 09/10/97 | 09/10/97 |
| Instrument | S | S | S | S |
| Matrix | XAD | M23TRAIN | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet | Soxhlet | Soxhlet |
| Analytes | | | | |
| 2378-TCDD | (0.003) | {0.004} | (0.003) | (0.006) |
| 12378-PeCDD | (0.004) | 0.01 | (0.005) | (0.008) |
| 123478-HxCDD | (0.006) | 0.02 | (0.006) | (0.01) |
| 123678-HxCDD | (0.005) | 0.04 | 0.01 | {0.02} |
| 123789-HxCDD | (0.005) | 0.05 PR | 0.02 | (0.01) |
| 1234678-HpCDD | 0.03 | 0.72 | 0.06 B | {0.04} B |
| OCDD | {0.02} | 44.5 | 0.53 | 0.19 B |
| 2378-TCDF | 0.007 | 0.04 B | 0.02 B | 0.03 B |
| 12378-PeCDF | (0.003) | 0.008 | {0.006} | (0.006) |
| 23478-PeCDF | 0.007 | 0.02 B | {0.01} B | (0.006) |
| 123478-HxCDF | 0.03 | 0.06 PRB | 0.04 PRB | 0.04 B |
| 123678-HxCDF | {0.008} | 0.02 B | 0.01 B | 0.01 B |
| 234678-HxCDF | 0.01 | {0.02} PRB | 0.02 PRB | 0.02 PRB |
| 123789-HxCDF | (0.004) | 0.007 | (0.004) | (0.008) |
| 1234678-HpCDF | 0.04 | 0.12 PRB | {0.07} PRB | 0.07 PRB |
| 1234789-HpCDF | {0.01} | 0.04 B | 0.04 B | 0.02 B |
| OCDF | {0.02} | 0.16 B | 0.04 B | 0.06 B |
| TOTAL TCDD | 0.008 | 0.05 | 0.007 | 0.02 |
| TOTAL PeCDD | {0.01} | 0.07 | {0.04} | 0.03 |
| TOTAL HxCDD | 0.04 | 0.45 | 0.12 | 0.08 |
| TOTAL HpCDD | 0.03 | 1.6 | 0.10 | 0.04 |
| TOTAL TCDF | 0.01 | 0.14 | 0.03 | 0.04 |
| TOTAL PeCDF | 0.007 | 0.12 | 0.05 | (0.006) |
| TOTAL HxCDF | 0.05 | 0.19 | 0.12 | 0.11 |
| TOTAL HpCDF | 0.06 | 0.30 | 0.04 | 0.12 |
| Other Standards Percent Recovery Summary (% Rec) | | | | |
| 37Cl-TCDD | 98.6 | 97.6 | 96.1 | 98.8 |
| 13C12-PeCDF 234 | 93.3 | 93.2 | 86.1 | 85.1 |
| 13C12-HxCDF 478 | 90.4 | 94.6 | 87.3 | 92.1 |
| 13C12-HxCDD 478 | 82.3 | 88.0 | 81.0 | 91.9 |
| 13C12-HpCDF 789 | 75.1 | 83.6 | 88.7 | 84.9 |
| Other Standards Percent Recovery Summary (% Rec) | | | | |
| 13C12-HxCDF 789 | 80.9 | 91.3 | 58.1 | 54.3 |
| 13C12-HxCDF 234 | 95.7 | 99.0 | 61.4 | 62.0 |
| Internal Standards Percent Recovery Summary (% Rec) | | | | |
| 13C12-2378-TCDF | 90.5 | 98.5 | 69.4 | 62.4 |
| 13C12-2378-TCDD | 76.0 | 89.0 | 63.2 | 55.6 |
| 13C12-PeCDF 123 | 87.2 | 95.5 | 67.1 | 57.6 |
| 13C12-PeCDD 123 | 93.1 | 103 | 68.2 | 60.5 |

| Data File | S975807 | S975808 | S975809 | S975810 |
|---|---|---|---|---|
| Sample ID | TLI M23 Blank | I-M23-1 | O-M23-1 | O-M23-2 |
| Units | ng | ng | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 | 09/06/97 | 09/06/97 |
| Analysis Date | 09/10/97 | 09/10/97 | 09/10/97 | 09/10/97 |
| Instrument | S | S | S | S |
| Matrix | XAD | M23TRAIN | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet | Soxhlet | Soxhlet |
| Internal Standards | Percent Recovery Summary (% Rec) | | | |
| 13C12-HxCDF 678 | 102 | 102 | 68.8 | 65.7 |
| 13C12-HxCDD 678 | 87.2 | 93.6 | 65.4 | 58.8 |
| 13C12-HpCDF 678 | 78.9 | 71.1 | 42.3 | 41.3 |
| 13C12-HpCDD 678 | 80.2 | 78.3 | 50.4 | 44.9 |
| 13C12-OCDD | 55.7 | 60.5 | 36.0 | 27.5 |

| | | | |
|---|---|---|---|
| Data File | S975811 | S975816 | S975817 |
| Sample ID | O-M23-3 | O-M23-FB | O-M23-RB |
| Units | ng | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 | 09/06/97 |
| Analysis Date | 09/10/97 | 09/11/97 | 09/11/97 |
| Instrument | S | S | S |
| Matrix | M23TRAIN | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet | Soxhlet |
| Analytes | | | |
| 2378-TCDD | {0.003} | (0.01) | (0.004) |
| 12378-PeCDD | 0.005 | (0.01) | 0.01 |
| 123478-HxCDD | 0.008 | (0.01) | (0.006) |
| 123678-HxCDD | 0.02 | {0.02} | 0.02 |
| 123789-HxCDD | {0.01} PR | {0.02} PR | {0.02} PR |
| 1234678-HpCDD | 0.06 B | 0.06 B | 0.08 B |
| OCDD | 0.13 B | 0.11 B | 0.11 B |
| 2378-TCDF | 0.02 B | (0.006) | {0.006}B |
| 12378-PeCDF | 0.007 | {0.01} | {0.008} |
| 23478-PeCDF | 0.01 B | 0.03 B | 0.02 B |
| 123478-HxCDF | 0.06 PRB | 0.07 B | 0.06 PRB |
| 123678-HxCDF | 0.02 B | 0.03 B | 0.02 B |
| 234678-HxCDF | 0.02 PRB | 0.03 PRB | 0.03 PRB |
| 123789-HxCDF | (0.003) | (0.01) | 0.007 |
| 1234678-HpCDF | 0.09 PRB | {0.09} PRB | 0.11 B |
| 1234789-HpCDF | {0.03} B | 0.04 B | 0.04 B |
| OCDF | 0.06 B | 0.07 B | 0.06 B |
| TOTAL TCDD | 0.01 | {0.02} | {0.01} |
| TOTAL PeCDD | 0.03 | 0.02 | 0.05 |
| TOTAL HxCDD | 0.15 | 0.06 | 0.15 |
| TOTAL HpCDD | 0.06 | 0.06 | 0.13 |
| TOTAL TCDF | 0.03 | (0.006) | {0.006} |
| TOTAL PeCDF | 0.06 | 0.03 | 0.02 |
| TOTAL HxCDF | 0.17 | 0.13 | 0.18 |
| TOTAL HpCDF | 0.09 | 0.10 | 0.17 |
| Other Standards Percent Recovery Summary (% Rec) | | | |
| 37Cl-TCDD | 98.4 | 123 | 107 |
| 13C12-PeCDF 234 | 88.6 | 112 | 102 |
| 13C12-HxCDF 478 | 98.2 | 91.1 | 90.2 |
| 13C12-HxCDD 478 | 87.9 | 82.4 | 91.6 |
| 13C12-HpCDF 789 | 91.3 | 85.4 | 89.0 |
| Other Standards Percent Recovery Summary (% Rec) | | | |
| 13C12-HxCDF 789 | 120 | 32.2 V | 66.8 |
| 13C12-HxCDF 234 | 173 | 34.1 V | 76.9 |
| Internal Standards Percent Recovery Summary (% Rec) | | | |
| 13C12-2378-TCDF | 184 | 49.5 | 88.5 |
| 13C12-2378-TCDD | 163 | 34.3 V | 76.4 |
| 13C12-PeCDF 123 | 161 | 44.9 | 89.1 |
| 13C12-PeCDD 123 | 170 | 54.8 | 99.3 |

| | | | |
|---|---|---|---|
| Data File | S975811 | S975816 | S975817 |
| Sample ID | O-M23-3 | O-M23-FB | O-M23-RB |
| Units | ng | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 | 09/06/97 |
| Analysis Date | 09/10/97 | 09/11/97 | 09/11/97 |
| Instrument | S | S | S |
| Matrix | M23TRAIN | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet | Soxhlet |
| Internal Standards | Percent Recovery Summary (% Rec) | | |
| 13C12-HxCDF 678 | 187 | 34.7 V | 74.0 |
| 13C12-HxCDD 678 | 173 | 40.1 | 78.2 |
| 13C12-HpCDF 678 | 105 | 32.7 | 56.7 |
| 13C12-HpCDD 678 | 109 | 38.2 | 61.3 |
| 13C12-OCDD | 65.1 | 36.9 | 60.9 |

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

| Data File | X973081 | X973082 | X973083 | P973845 |
|---|---|---|---|---|
| Sample ID | TLI M23 Blank | I-M23-1 | O-M23-1 | O-M23-2 |
| Units | ng | ng | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 | 09/06/97 | 09/06/97 |
| Analysis Date | 09/11/97 | 09/11/97 | 09/11/97 | 09/12/97 |
| Instrument | X | X | X | P |
| Matrix | XAD | M23TRAIN | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet | Soxhlet | Soxhlet |
| Analytes | | | | |
| 2378-TCDF | 0.005 B | {0.02} B | {0.008}B | (0.02) |
| Internal Standards Percent Recovery Summary (% Rec) | | | | |
| 13C12-2378-TCDF | 72.6 | 73.7 | 59.8 | 52.4 |

| | | |
|---|---|---|
| Data File | P973846 | P973847 |
| Sample ID | O-M23-3 | O-M23-RB |
| Units | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 |
| Analysis Date | 09/12/97 | 09/12/97 |
| Instrument | P | P |
| Matrix | M23TRAIN | M23TRAIN |
| Extraction Type | Soxhlet | Soxhlet |
| Analytes | | |
| 2378-TCDF | 0.02 B | (0.01) |
| Internal Standards | Percent Recovery Summary (% Rec) | |
| 13C12-2378-TCDF | 148 | 67.7 |

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

## Pacific Environmental Services

TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: TLI M23 Blank — Analysis File: S975807

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | XAD | Date Received: | / / | Spike File: | SPX23704 |
| TLI ID: | TLI Blank | Date Extracted: | 09/06/97 | ICal: | SF56117 |
| | | Date Analyzed: | 09/10/97 | ConCal: | S975797 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % 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 | 0.003 | | | | — |
| 1,2,3,7,8-PeCDD | ND | 0.004 | | | | — |
| 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 | 0.03 | | | 1.14 | 32:02 | — |
| 1,2,3,4,6,7,8,9-OCDD | EMPC | | 0.02 | | | — |
| 2,3,7,8-TCDF | 0.007 | | | 0.68 | 20:25 | — |
| 1,2,3,7,8-PeCDF | ND | 0.003 | | | | — |
| 2,3,4,7,8-PeCDF | 0.007 | | | 1.76 | 25:30 | — |
| 1,2,3,4,7,8-HxCDF | 0.03 | | | 1.09 | 28:22 | — |
| 1,2,3,6,7,8-HxCDF | EMPC | | 0.008 | | | — |
| 2,3,4,6,7,8-HxCDF | 0.01 | | | 1.13 | 29:00 | — |
| 1,2,3,7,8,9-HxCDF | ND | 0.004 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | 0.04 | | | 0.96 | 31:11 | — |
| 1,2,3,4,7,8,9-HpCDF | EMPC | | 0.01 | | | — |
| 1,2,3,4,6,7,8,9-OCDF | EMPC | | 0.02 | | | — |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | 0.008 | 1 | | | — |
| Total PeCDD | EMPC | | | 0.01 | — |
| Total HxCDD | 0.04 | 1 | | 0.06 | — |
| Total HpCDD | 0.03 | 1 | | 0.05 | — |
| Total TCDF | 0.01 | 2 | | | — |
| Total PeCDF | 0.007 | 1 | | | — |
| Total HxCDF | 0.05 | 3 | | 0.08 | — |
| Total HpCDF | 0.06 | 3 | | 0.07 | — |





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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:55 09/11/97

A1

TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: TLI M23 Blank — Analysis File: S975807

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 3.6 | 90.5 | 40%-130% | 0.74 | 20:24 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 3.0 | 76.0 | 40%-130% | 0.78 | 21:13 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 3.5 | 87.2 | 40%-130% | 1.44 | 24:42 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 3.7 | 93.1 | 40%-130% | 1.52 | 25:51 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 4.1 | 102 | 40%-130% | 0.51 | 28:28 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 3.5 | 87.2 | 40%-130% | 1.22 | 29:12 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 3.2 | 78.9 | 25%-130% | 0.44 | 31:11 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 3.2 | 80.2 | 25%-130% | 1.06 | 32:02 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 4.5 | 55.7 | 25%-130% | 0.89 | 34:31 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 3.9 | 98.6 | 70%-140% | | 21:14 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 3.7 | 93.3 | 70%-140% | 1.46 | 25:29 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.6 | 90.4 | 70%-140% | 0.50 | 28:22 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.3 | 82.3 | 70%-140% | 1.21 | 29:06 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.0 | 75.1 | 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 | 3.2 | 80.9 | 40%-130% | 0.50 | 29:41 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 3.8 | 95.7 | 40%-130% | 0.50 | 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 | 1.24 | 29:29 | — |

Data Reviewer: _____ 09/11/97



X237_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: 14:55 09/11/97

Initial ....Date....

Data Review By: CM 9/11/97 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 S975807B.dbf
09/11/97 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 | | | | 0.823-1.104 | | | |
| 304-306 | | DC | NL | 0:00 | RO | 0.12 | 0.16 | | | 0.000 | | | |
| | | DC | SN | 16:57 | RO | 1.17 | 2.16 | | | 0.831 | | | |
| | | DC | SN | 17:57 | RO | 1.35 | 1.31 | | | 0.880 | | | |
| | | DC | SN | 18:07 | RO | 0.48 | 2.92 | | | 0.888 | | | |
| | D | D | SN | 18:53 | RO | 1.26 | 4.16 | | | 0.926 | | | |
| | D | D | SN | 19:30 | RO | 1.54 | 6.27 | | | 0.956 | | | |
| | D | D | SN | 19:44 | | 0.89 | 4.72 | | | 0.967 | | | |
| | | | | 19:55 | | 0.78 | 6.92 | 3.03 | 3.89 | 0.976 | | | |
| | | | | 20:25 | | 0.68 | 13.19 | 5.36 | 7.83 | 1.001 | 2378-TCDF | | AN |
| | D | D | SN | 22:20 | RO | 0.53 | 5.61 | | | 1.095 | | | |
| | | DC | WH | 22:44 | RO | 0.99 | 2.69 | | | 1.114 | | | |
| 304-306 | | | 2 Peaks | | | | 20.11 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.951-1.049 | | | |
| 316-318 | | DC | NL | 0:00 | RO | 5.57 | 0.12 | | | 0.000 | | | |
| | | DC | WL | 19:11 | | 0.72 | 37.82 | | | 0.940 | | | |
| | | | | 19:33 | RO | 0.90 | 6.32 | 3.23 | 3.57 | 0.958 | | | |
| | | | | 19:54 | | 0.73 | 26.14 | 11.03 | 15.11 | 0.975 | | | |
| | | | | 20:24 | | 0.74 | 5,711.00 | 2,422.50 | 3,288.50 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 20:54 | RO | 0.60 | 21.68 | 9.43 | 15.77 | 1.025 | | | |
| 316-318 | | | 4 Peaks | | | | 5,765.14 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | | | 0.65-0.89 | | | | 0.857-1.061 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 1.14 | 0.12 | | | 0.000 | | | |
| | | | | 18:16 | | 0.89 | 9.47 | 4.47 | 5.00 | 0.861 | | | |
| | D | D | SN | 18:44 | RO | 1.11 | 5.15 | | | 0.883 | | | |
| | | DC | SN | 19:15 | RO | 7.10 | 0.18 | | | 0.907 | | | |
| | | DC | SN | 19:55 | RO | 2.05 | 2.64 | | | 0.939 | | | |
| | | DC | SN | 20:21 | RO | 4.52 | 1.61 | | | 0.959 | | | |
| | | DC | SN | 20:36 | RO | 1.05 | 1.31 | | | 0.971 | | | |
| | | DC | SN | 21:01 | RO | 0.47 | 0.46 | | | 0.991 | | | |
| | | DC | SN | 21:16 | RO | 0.41 | 3.75 | | | 1.002 | 2378-TCDD | | AN |
| | | DC | SN | 21:39 | RO | 0.58 | 0.57 | | | 1.020 | | | |
| | | DC | SN | 22:03 | RO | 1.95 | 0.35 | | | 1.039 | | | |
| | | DC | SN | 22:07 | RO | 1.35 | 0.55 | | | 1.042 | | | |
| | | DC | SN | 22:19 | RO | 0.52 | 0.74 | | | 1.052 | | | |
| | | DC | WH | 22:37 | RO | 2.20 | 1.13 | | | 1.066 | | | |
| | | DC | WH | 22:44 | | 0.69 | 2.25 | | | 1.071 | | | |
| 320-322 | | | 1 Peak | | | | 9.47 | | | | | | |

| 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 | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 0.07 | | | 0.000 | | | |
| | | | | 19:40 | | | 17.32 | 17.32 | | 0.927 | | | |
| | | | | 21:14 | | | 3,223.15 | 3,223.15 | | 1.001 | 37Cl-TCDD | | SUR1 |
| 328 | | | 2 Peaks | | | | 3,240.47 | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 25.25 | 0.14 | | | 0.000 | | | |
| | | | | 19:52 | | 0.86 | 20.47 | 9.47 | 11.00 | 0.936 | | | |
| | | | | 21:00 | | 0.80 | 4,787.66 | 2,133.57 | 2,654.09 | 0.990 | 13C12-1234-TCDD | | RS1 |
| | | | | 21:13 | | 0.78 | 3,879.19 | 1,696.09 | 2,183.10 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 21:35 | RO | 0.92 | 57.53 | 29.78 | 32.50 | 1.017 | | | |
| | | | | 22:19 | RO | 3.23 | 3.75 | 6.85 | 2.12 | 1.052 | | | |
| 332-334 | | | 5 Peaks | | | | 8,748.60 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | | 1.32-1.78 | | | | 0.909-1.079 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 0.89 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 22:38 | RO | 1.21 | 3.54 | | | 0.916 | | | |
| | DC | SN | | 23:25 | RO | 0.07 | 0.10 | | | 0.948 | | | |
| D | D | SN | | 23:50 | RO | 1.28 | 10.18 | | | 0.965 | | | |
| | DC | SN | | 23:58 | RO | 3.19 | 2.14 | | | 0.970 | | | |
| | DC | SN | | 24:11 | | 1.57 | 4.19 | | | 0.979 | | | |
| | DC | SN | | 24:38 | RO | 2.33 | 3.72 | | | 0.997 | | | |
| | DC | SN | | 24:43 | RO | 2.64 | 4.11 | | | 1.001 | 12378-PeCDF | | AN |
| | DC | SN | | 24:53 | RO | 0.72 | 1.09 | | | 1.007 | | | |
| | DC | SN | | 24:56 | RO | 0.17 | 0.81 | | | 1.009 | | | |
| | | | | 25:30 | | 1.76 | 9.48 | 6.04 | 3.44 | 1.032 | 23478-PeCDF | | AN |
| | DC | SN | | 25:40 | RO | 2.76 | 4.21 | | | 1.039 | | | |
| | DC | SN | | 26:10 | RO | 0.87 | 0.95 | | | 1.059 | | | |
| | DC | SN | | 26:28 | RO | 1.30 | 2.88 | | | 1.072 | | | |
| 340-342 | | | 1 Peak | | | | 9.48 | | | | | | |
| 13C12-PeCDF | | | | | | 1.32-1.78 | | | | 0.838-1.162 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.00 | 0.13 | | | 0.000 | | | |
| | | | | 23:49 | | 1.46 | 62.35 | 36.99 | 25.36 | 0.964 | | | |
| | | | | 24:21 | RO | 1.26 | 22.00 | 13.37 | 10.60 | 0.986 | | | |
| | | | | 24:42 | | 1.44 | 4,731.50 | 2,794.06 | 1,937.44 | 1.000 | 13C12-PeCDF 123 | | IS2 |
| | | | | 24:53 | | 1.34 | 20.34 | 11.65 | 8.69 | 1.007 | | | |
| | | | | 25:01 | | 1.60 | 31.38 | 19.30 | 12.08 | 1.013 | | | |
| | | | | 25:29 | | 1.46 | 4,282.56 | 2,541.48 | 1,741.08 | 1.032 | 13C12-PeCDF 234 | | SUR2 |
| | | | | 26:28 | | 1.34 | 10.58 | 6.06 | 4.52 | 1.072 | | | |
| 352-354 | | | 7 Peaks | | | | 9,160.71 | | | | | | |
| ---------- Above: PeCDF / PeCDD Follows ---------- | | | | | | | | | | | | | |
| PeCDD | | | | | | 1.32-1.78 | | | | 0.921-1.026 | | | |
| 356-358 | DC | NL | | 0:00 | RO | 1.14 | 0.13 | | | 0.000 | | | |
| | | | | 23:58 | RO | 1.13 | 11.57 | 7.03 | 6.24 | 0.927 | | | |
| D | D | SN | | 24:44 | RO | 2.59 | 7.14 | | | 0.957 | | | |
| | DC | SN | | 24:54 | RO | 3.32 | 0.94 | | | 0.963 | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | D | SN | 25:04 | RO | 1.99 | 6.30 | | | 0.970 | | | |
| | | DC | SN | 25:23 | RO | 1.98 | 2.42 | | | 0.982 | | | |
| | | DC | SN | 25:33 | RO | 2.13 | 3.24 | | | 0.988 | | | |
| | | DC | SN | 25:52 | | 1.48 | 3.30 | | | 1.001 | 12378-PeCDD | | AN |
| | | DC | WH | 26:36 | RO | 1.85 | 1.50 | | | 1.029 | | | |
| 356-358 | | | 1 | Peak | | | 11.57 | | | | | | |
| 13C12-PeCDD | | | | 1.32-1.78 | | | | | | 0.845-1.155 | | | |
| 368-370 | | DC | NL | 0:00 | RO | 1.00 | 0.12 | | | 0.000 | | | |
| | | | | 25:51 | | 1.52 | 2,831.82 | 1,707.75 | 1,124.07 | 1.000 | 13C12-PeCDD 123 | | IS3 |
| | | | | 25:59 | | 1.57 | 274.19 | 167.61 | 106.58 | 1.005 | | | |
| 368-370 | | | 2 | Peaks | | | 3,106.01 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | 1.05-1.43 | | | | | | 0.957-1.053 | | | |
| 374-376 | | DC | NL | 0:00 | RO | 1.92 | 2.37 | | | 0.000 | | | |
| | | DC | WL | 27:13 | RO | 1.89 | 1.77 | | | 0.956 | | | |
| | | | | 27:22 | | 1.15 | 10.70 | 5.72 | 4.98 | 0.961 | | | |
| | | | | 27:32 | RO | 1.02 | 20.47 | 11.33 | 11.15 | 0.967 | | | |
| | D | D | SN | 27:50 | RO | 1.45 | 5.08 | | | 0.978 | | | |
| | | DC | SN | 28:00 | RO | 0.62 | 2.64 | | | 0.984 | | | |
| | | DC | SN | 28:04 | | 1.20 | 1.10 | | | 0.986 | | | |
| | M | | | 28:22 | | 1.09 | 28.80 | 15.00 | 13.80 | 0.996 | 123478-HxCDF | | AN |
| | M | | | 28:29 | RO | 1.47 | 11.42 | 7.51 | 5.10 | 1.001 | 123678-HxCDF | | AN |
| | D | D | SN | 28:36 | | 1.23 | 4.29 | | | 1.005 | | | |
| | | | | 29:00 | | 1.13 | 16.45 | 8.74 | 7.71 | 1.019 | 234678-HxCDF | | AN |
| | | DC | SN | 29:10 | RO | 0.25 | 0.51 | | | 1.025 | | | |
| | | DC | SN | 29:28 | RO | 0.45 | 1.10 | | | 1.035 | | | |
| | | DC | SN | 29:42 | RO | 1.76 | 2.60 | | | 1.043 | 123789-HxCDF | | AN |
| | D | D | SN | 29:48 | | 1.25 | 8.16 | | | 1.047 | | | |
| | | DC | SN | 29:53 | RO | 0.31 | 0.38 | | | 1.050 | | | |
| | | DC | SN | 29:58 | RO | 2.42 | 2.15 | | | 1.053 | | | |
| | | DC | WH | 30:03 | | 1.40 | 2.21 | | | 1.056 | | | |
| | | DC | WH | 30:08 | RO | 3.02 | 2.49 | | | 1.059 | | | |
| | | DC | WH | 30:17 | RO | 0.52 | 0.90 | | | 1.064 | | | |
| 374-376 | | | 5 | Peaks | | | 87.84 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.859-1.141 | | | |
| 384-386 | | DC | NL | 0:00 | | 0.56 | 4.28 | | | 0.000 | | | |
| | | | | 27:22 | RO | 0.61 | 8.29 | 3.37 | 5.49 | 0.961 | | | |
| | | | | 27:30 | | 0.49 | 20.48 | 6.72 | 13.76 | 0.966 | | | |
| | | | | 28:22 | | 0.50 | 3,106.44 | 1,035.27 | 2,071.17 | 0.996 | 13C12-HxCDF 478 | | SUR3 |
| | | | | 28:28 | | 0.51 | 3,584.38 | 1,213.22 | 2,371.16 | 1.000 | 13C12-HxCDF 678 | | IS4 |
| | | | | 28:46 | RO | 0.62 | 6.37 | 2.60 | 4.22 | 1.011 | | | |
| | | | | 28:59 | | 0.50 | 3,127.95 | 1,039.98 | 2,087.97 | 1.018 | 13C12-HxCDF 234 | | ALT2 |
| | | | | 29:41 | | 0.50 | 2,300.71 | 765.04 | 1,535.67 | 1.043 | 13C12-HxCDF 789 | | ALT1 |
| | | | | 29:56 | RO | 0.32 | 5.66 | 1.91 | 6.06 | 1.052 | | | |
| 384-386 | | | 8 | Peaks | | | 12,160.28 | | | | | | |
| ---------- Above: HxCDF / HxCDD 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HxCDD | | | | 1.05-1.43 | | | | | | 0.951-1.015 | | | |
| 390-392 | DC | NL | | 0:00 | | 1.34 | 1.94 | | | 0.000 | | | |
| | DC | SN | | 27:48 | RO | 0.68 | 1.63 | | | 0.952 | | | |
| | DC | SN | | 27:55 | | 1.23 | 4.12 | | | 0.956 | | | |
| | DC | SN | | 28:00 | RO | 1.02 | 0.79 | | | 0.959 | | | |
| | | | | 28:22 | | 1.08 | 26.87 | 13.95 | 12.92 | 0.971 | | | |
| | DC | SN | | 28:28 | RO | 3.23 | 2.37 | | | 0.975 | | | |
| | | | | 28:36 | RO | 0.88 | 12.36 | 6.84 | 7.80 | 0.979 | | | |
| | DC | SN | | 28:45 | | 1.41 | 0.99 | | | 0.985 | | | |
| | DC | SN | | 28:59 | RO | 3.64 | 2.04 | | | 0.993 | | | |
| | DC | SN | | 29:08 | RO | 0.44 | 1.30 | | | 0.998 | 123478-HxCDD | | AN |
| D | D | SN | | 29:12 | RO | 0.90 | 5.40 | | | 1.000 | 123678-HxCDD | | AN |
| | DC | SN | | 29:23 | RO | 5.21 | 0.65 | | | 1.006 | | | |
| D | D | SN | | 29:30 | | 1.13 | 9.23 | | | 1.010 | 123789-HxCDD | | AN |
| | DC | SN | | 29:37 | | 1.11 | 2.55 | | | 1.014 | | | |
| | DC | SN | | 29:39 | RO | 1.66 | 4.12 | | | 1.015 | | | |
| | DC | WH | | 29:52 | RO | 0.78 | 2.62 | | | 1.023 | | | |
| 390-392 | | | 2 | Peaks | | | 39.23 | | | | | | |
| 13C12-HxCDD | | | | 1.05-1.43 | | | | | | 0.966-1.034 | | | |
| 402-404 | DC | NL | | 0:00 | | 1.11 | 4.32 | | | 0.000 | | | |
| | | | | 28:35 | | 1.06 | 14.32 | 7.37 | 6.95 | 0.979 | | | |
| | DC | SN | | 28:53 | RO | 0.30 | 1.32 | | | 0.989 | | | |
| | | | | 29:06 | | 1.21 | 2,038.12 | 1,115.09 | 923.03 | 0.997 | 13C12-HxCDD 478 | | SUR4 |
| | | | | 29:12 | | 1.22 | 2,545.55 | 1,400.67 | 1,144.88 | 1.000 | 13C12-HxCDD 678 | | IS5 |
| | | | | 29:29 | | 1.24 | 2,932.97 | 1,622.47 | 1,310.50 | 1.010 | 13C12-HxCDD 789 | | RS2 |
| | DC | SN | | 29:39 | | 1.21 | 3.76 | | | 1.015 | | | |
| | | | | 29:43 | RO | 0.89 | 6.39 | 3.54 | 3.97 | 1.018 | | | |
| | | | | 29:48 | | 1.10 | 7.09 | 3.71 | 3.38 | 1.021 | | | |
| 402-404 | | | 6 | Peaks | | | 7,544.44 | | | | | | |

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

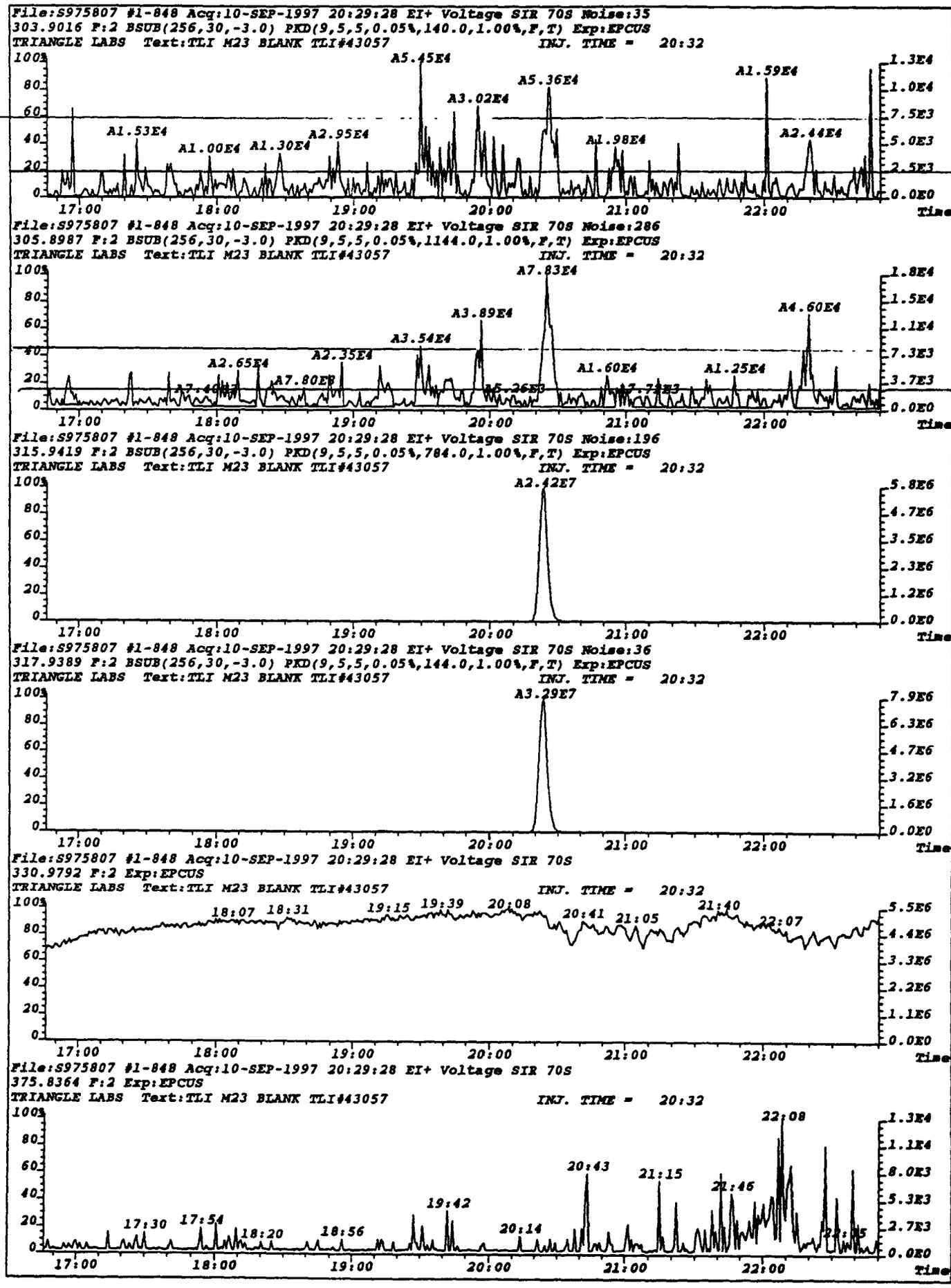
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HpCDF | | | | 0.88-1.20 | | | | | | 0.995-1.045 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 16.57 | 0.14 | | | 0.000 | | | |
| | | | | 31:11 | | 0.96 | 31.12 | 15.23 | 15.89 | 1.000 | 1234678-HpCDF | | AN |
| | | | | 31:25 | | 1.02 | 7.91 | 4.00 | 3.91 | 1.007 | | | |
| | | | | 31:31 | | 1.08 | 8.66 | 4.49 | 4.17 | 1.011 | | | |
| | DC | SN | | 31:41 | RO | 0.70 | 1.10 | | | 1.016 | | | |
| | DC | SN | | 31:51 | RO | 8.22 | 0.47 | | | 1.021 | | | |
| | DC | SN | | 32:03 | RO | 1.49 | 1.04 | | | 1.028 | | | |
| M | | | | 32:24 | RO | 1.30 | 6.04 | 3.84 | 2.96 | 1.039 | 1234789-HpCDF | | AN |
| | DC | WH | | 32:43 | RO | 2.70 | 1.08 | | | 1.049 | | | |
| | DC | WH | | 32:52 | RO | 3.88 | 0.86 | | | 1.054 | | | |
| 408-410 | | | 4 | Peaks | | | 53.73 | | | | | | |
| 13C12-HpCDF | | | | 0.37-0.51 | | | | | | 0.936-1.128 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 0.60 | 1.83 | | | 0.000 | | | |
| | | | | 31:11 | | 0.44 | 2,053.55 | 627.33 | 1,426.22 | 1.000 | 13C12-HpCDF 678 | | IS6 |
| | | | | 32:23 | | 0.43 | 1,189.64 | 360.12 | 829.52 | 1.038 | 13C12-HpCDF 789 | | SUR5 |
| 418-420 | | | 2 | Peaks | | | 3,243.19 | | | | | | |

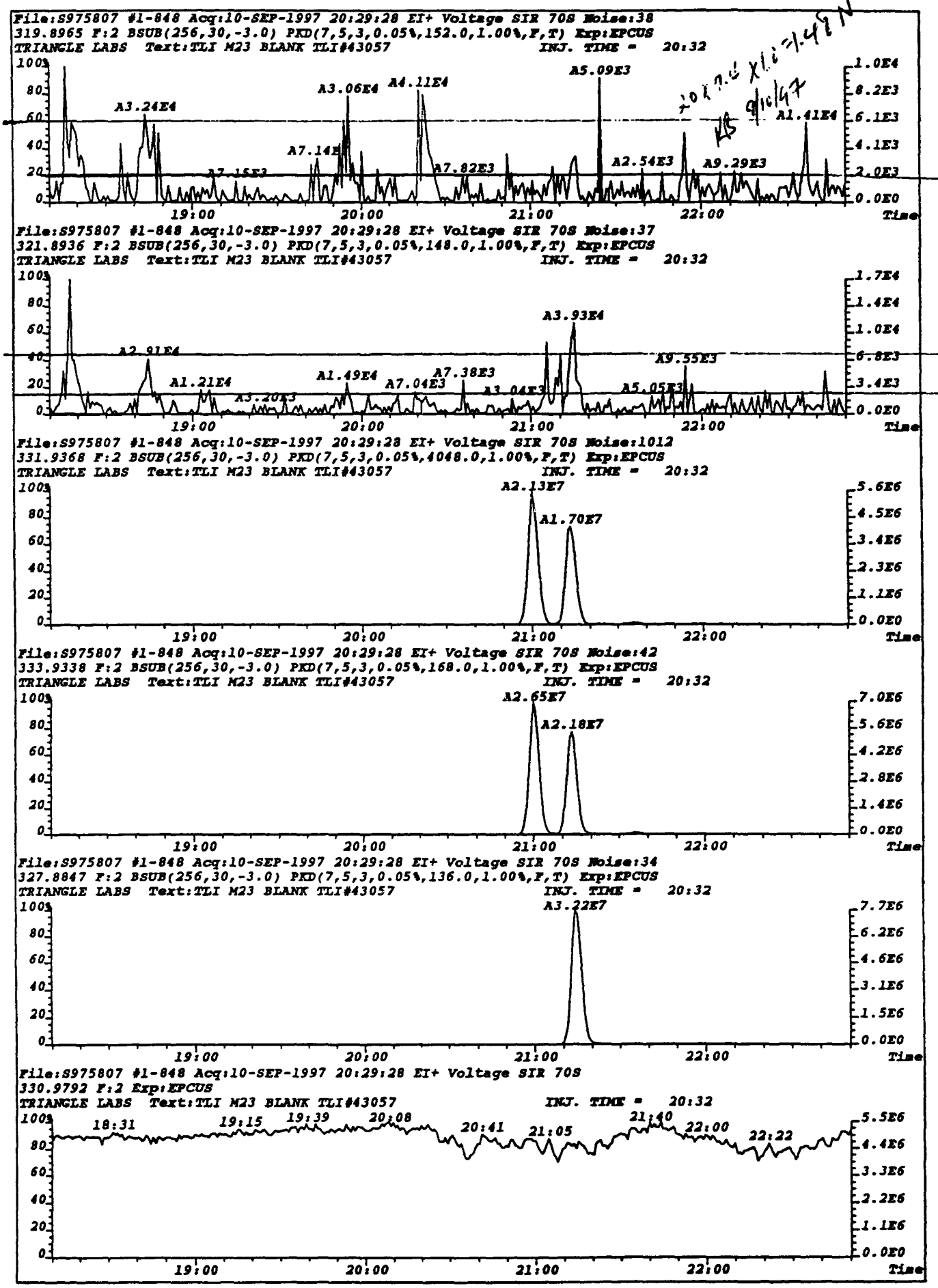
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | | |
| HpCDD | | | | | | 0.88-1.20 | | | | 0.977-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | RO | 0.19 | 0.14 | | | 0.000 | | | |
| | | | | 31:26 | RO | 1.39 | 9.24 | 6.28 | 4.53 | 0.981 | | | |
| | DC | SN | | 31:44 | RO | 0.29 | 0.35 | | | 0.991 | | | |
| M | | | | 32:02 | | 1.14 | 16.10 | 8.59 | 7.51 | 1.000 | 1234678-HpCDD | | AN |
| 424-426 | | | 2 | Peaks | | | 25.34 | | | | | | |
| 13C12-HpCDD | | | | | | 0.88-1.20 | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | | 0.90 | 3.07 | | | 0.000 | | | |
| | | | | 31:26 | | 1.10 | 6.35 | 3.32 | 3.03 | 0.981 | | | |
| | | | | 32:02 | | 1.06 | 1,916.64 | 984.58 | 932.06 | 1.000 | 13C12-HpCDD 678 | | IS7 |
| 436-438 | | | 2 | Peaks | | | 1,922.99 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | RO | 0.16 | 0.15 | | | 0.000 | | | |
| | DC | SN | | 31:11 | | 0.81 | 0.65 | | | 0.903 | | | |
| | DC | SN | | 31:13 | RO | 0.43 | 0.28 | | | 0.904 | | | |
| | DC | SN | | 31:20 | RO | 0.60 | 0.45 | | | 0.908 | | | |
| | DC | SN | | 31:49 | RO | 0.23 | 0.28 | | | 0.922 | | | |
| | DC | SN | | 32:04 | RO | 1.93 | 0.79 | | | 0.929 | | | |
| | DC | SN | | 32:12 | RO | 1.67 | 0.85 | | | 0.933 | | | |
| | DC | SN | | 32:19 | RO | 0.71 | 0.68 | | | 0.936 | | | |
| | DC | SN | | 32:27 | RO | 0.15 | 0.23 | | | 0.940 | | | |
| | DC | SN | | 32:59 | RO | 3.88 | 0.45 | | | 0.956 | | | |
| | DC | SN | | 33:12 | RO | 4.92 | 0.23 | | | 0.962 | | | |
| | DC | SN | | 33:37 | | 0.92 | 0.48 | | | 0.974 | | | |
| | DC | SN | | 33:40 | RO | 0.41 | 0.38 | | | 0.975 | | | |
| | DC | SN | | 33:49 | RO | 0.74 | 0.53 | | | 0.980 | | | |
| | DC | SN | | 34:05 | RO | 0.17 | 0.53 | | | 0.987 | | | |
| | DC | SN | | 34:23 | RO | 1.61 | 0.68 | | | 0.996 | | | |
| | DC | SN | | 34:27 | RO | 0.36 | 0.49 | | | 0.998 | | | |
| M | | | | 34:39 | RO | 1.03 | 7.09 | 3.86 | 3.75 | 1.004 | OCDF | | AN |
| | DC | SN | | 34:52 | RO | 0.13 | 0.38 | | | 1.010 | | | |
| | DC | SN | | 35:00 | RO | 0.58 | 1.78 | | | 1.014 | | | |
| | DC | SN | | 35:23 | RO | 0.67 | 0.76 | | | 1.025 | | | |
| | DC | SN | | 35:46 | RO | 1.13 | 1.66 | | | 1.036 | | | |
| 442-444 | | | 1 | Peak | | | 7.09 | | | | | | |
| OCDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | | 1.00 | 0.14 | | | 0.000 | | | |
| M | | | | 34:31 | RO | 0.60 | 5.52 | 2.60 | 4.33 | 1.000 | OCDD | | AN |
| | DC | SN | | 34:51 | RO | 0.44 | 0.57 | | | 1.010 | | | |
| | DC | SN | | 34:55 | RO | 0.09 | 0.36 | | | 1.012 | | | |
| 458-460 | | | 1 | Peak | | | 5.52 | | | | | | |
| 13C12-OCDD | | | | | | 0.76-1.02 | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | RO | 1.50 | 0.11 | | | 0.000 | | | |
| | | | | 34:31 | | 0.89 | 1,696.66 | 797.67 | 898.99 | 1.000 | 13C12-OCDD | | IS8 |

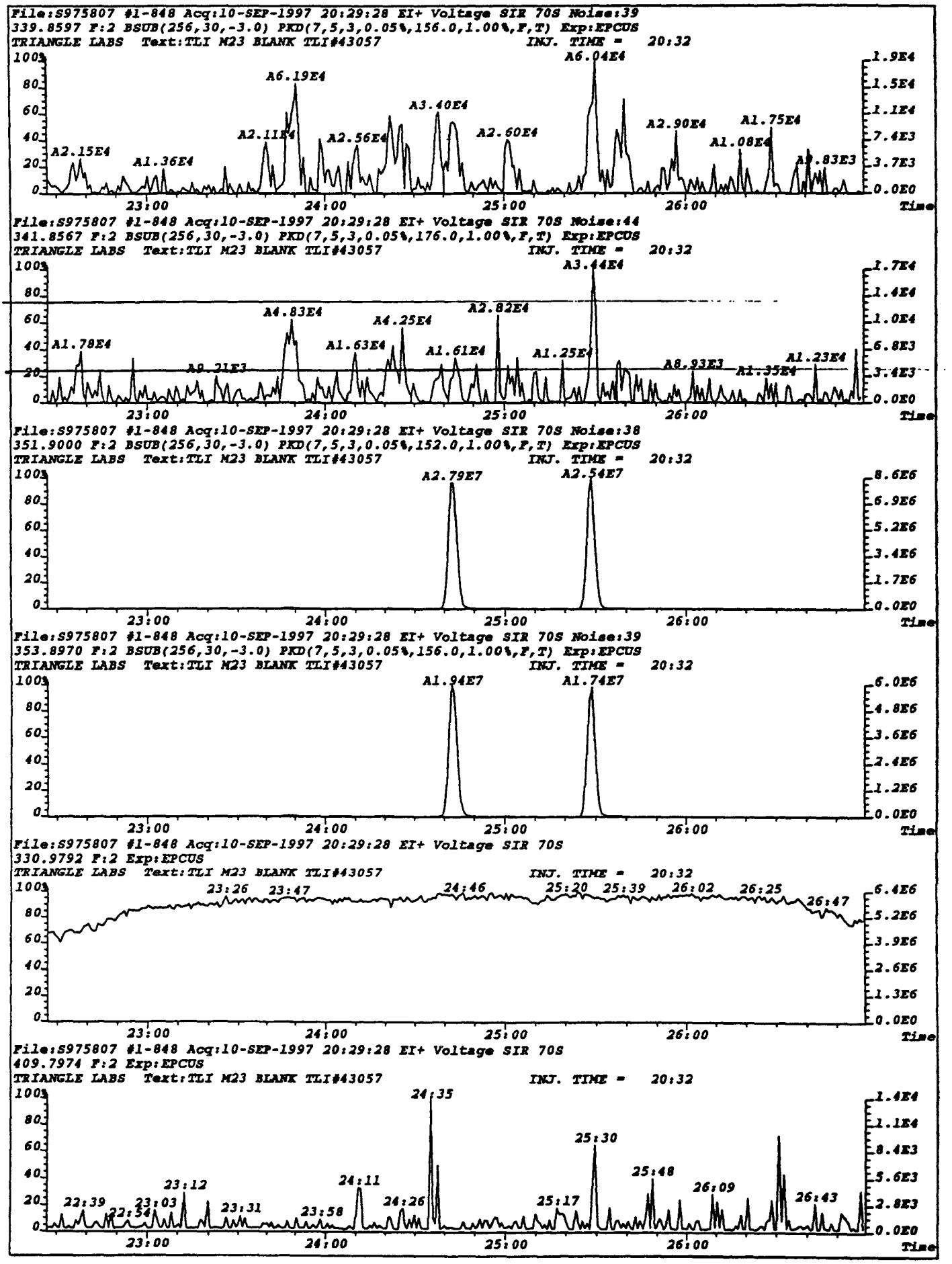
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | WH | | 34:53 | RO | 1.19 | 3.08 | | | 1.011 | | | |
| 470-472 | | | 1 Peak | | | | 1,696.66 | | | | | | |

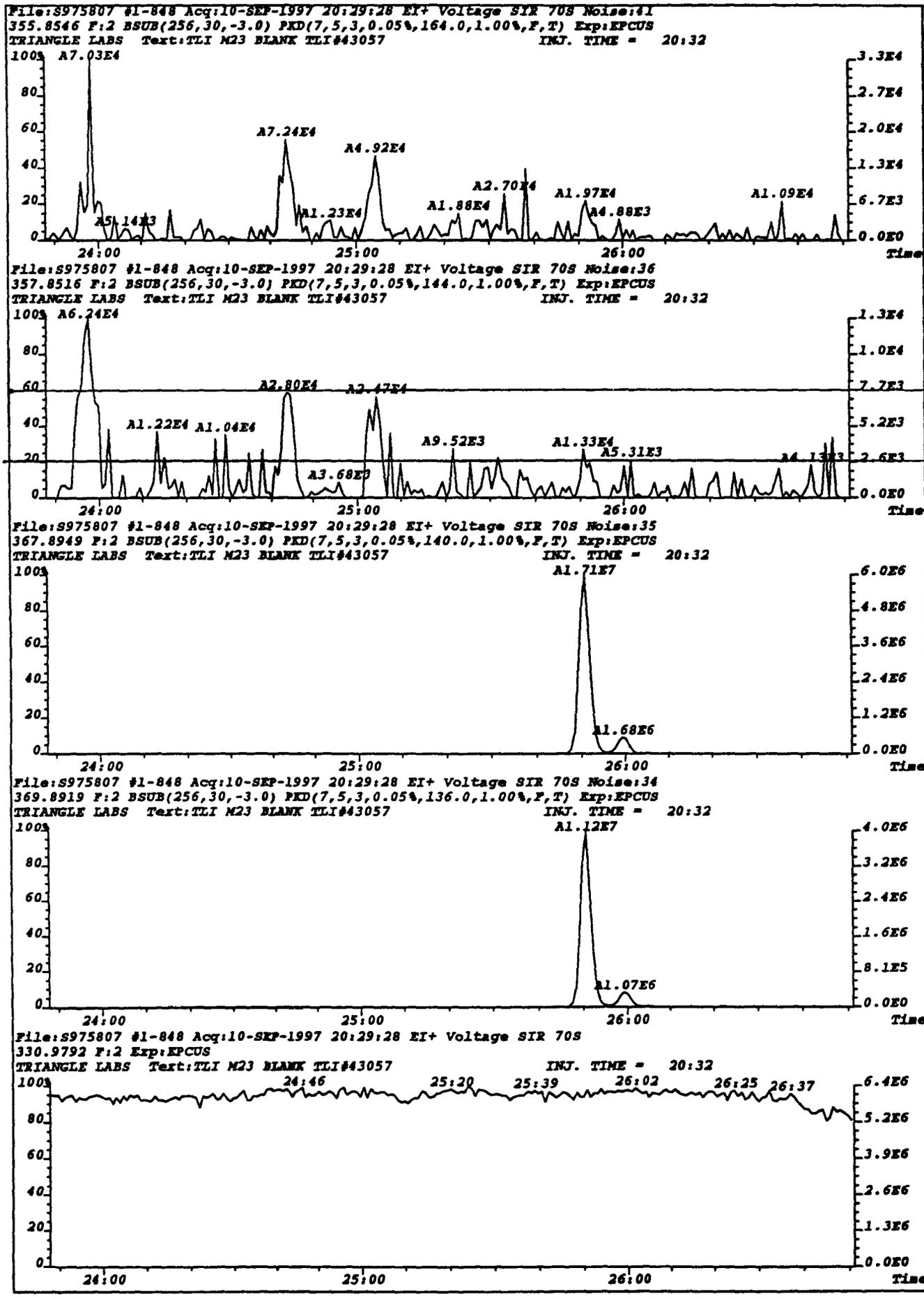
| Column Description..... | | "Why" Code Description..... | | QC Log Desc..... |
|---|---|---|---|---|
| M_Z | -Nominal Ion Mass(es) | WL-Below Retention Time Window | | A-Peak Added |
| ..RT. | -Retention Time (mm:ss) | WH-Above Retention Time Window | | K-Peak Kept |
| Rat.1 | -Ratio of M/M-2 Ions | 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 |

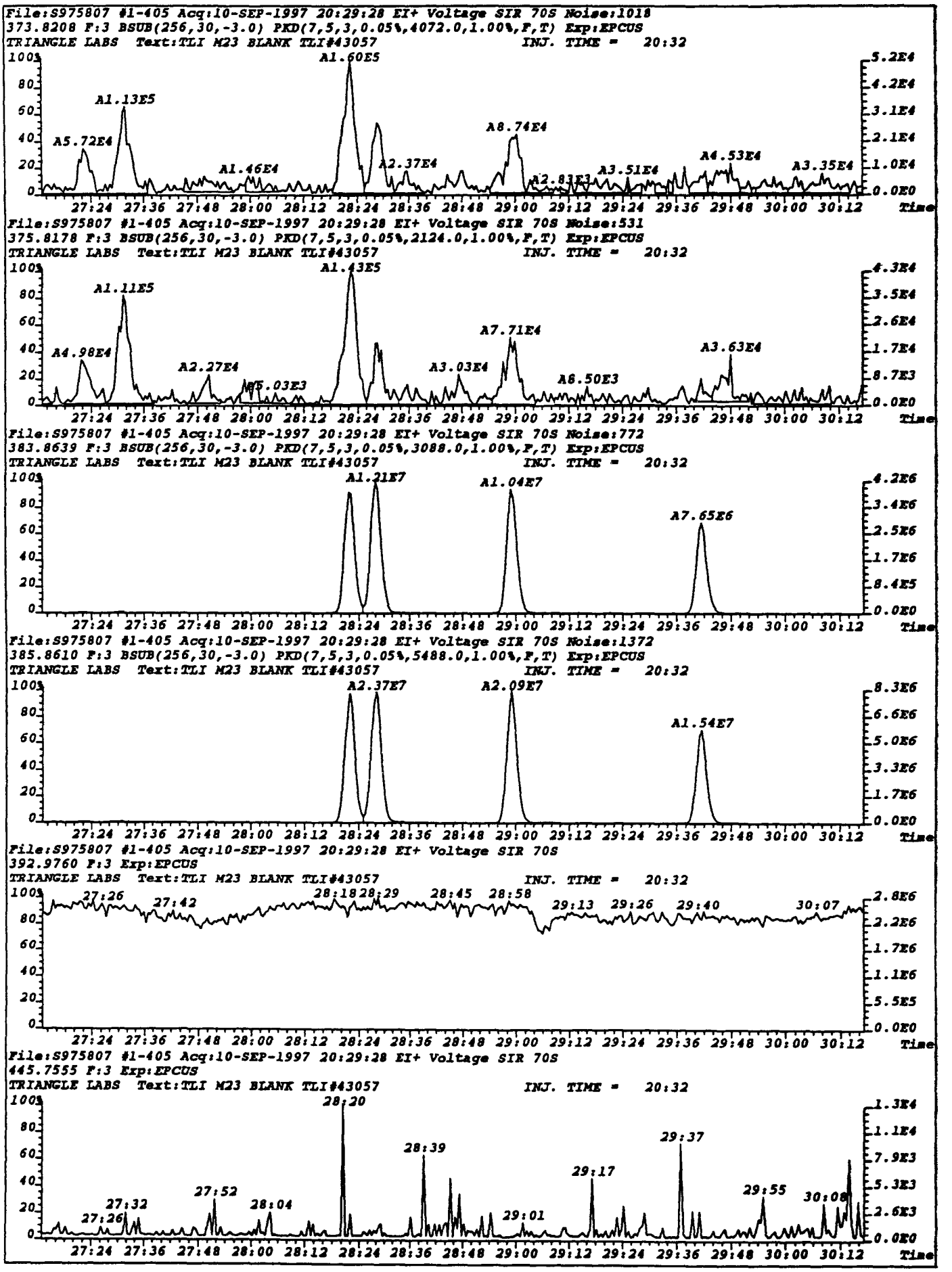
*** End of Report ***

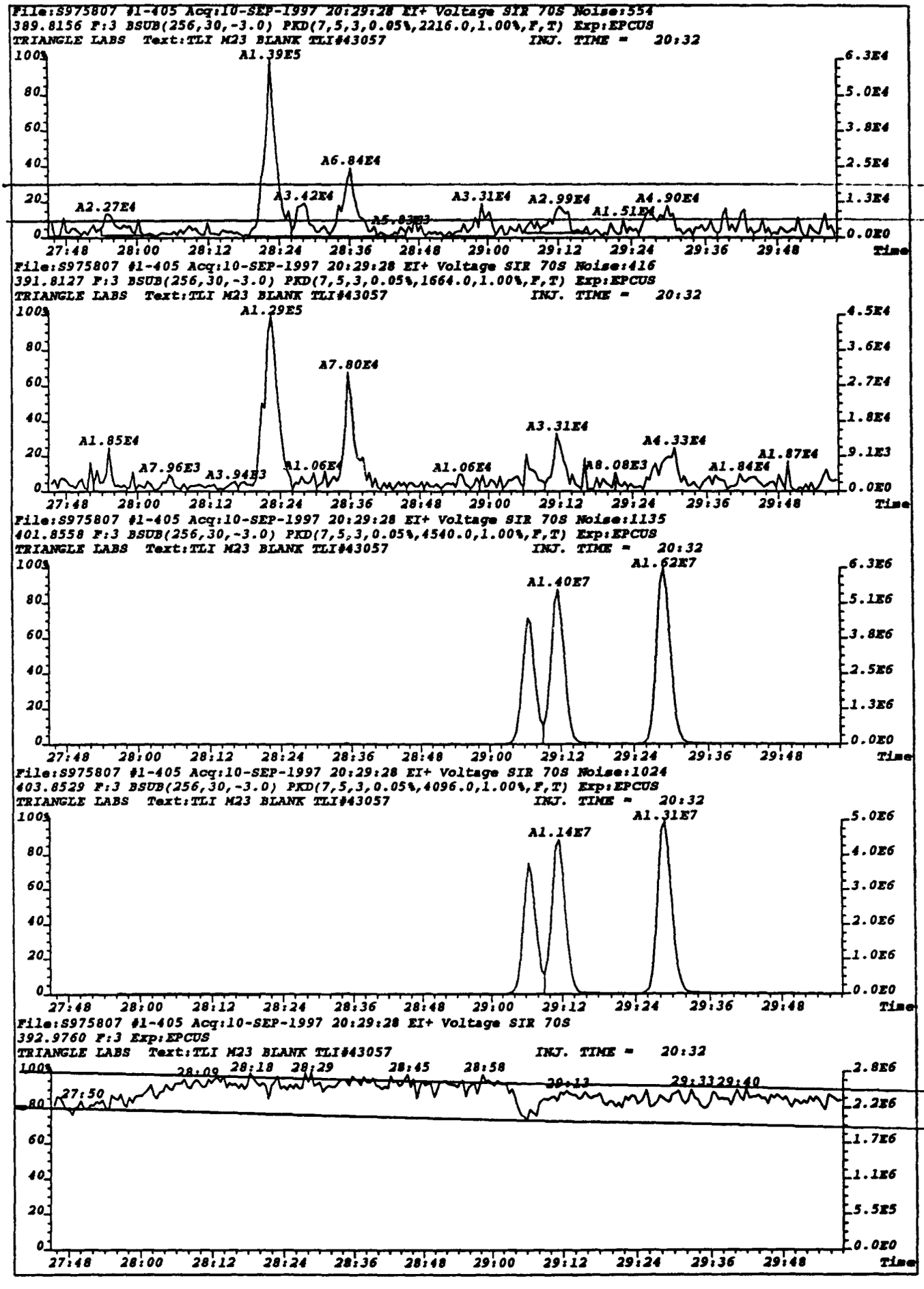

File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:35
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A5.45E4
A5.36E4
A3.02E4
A1.59E4
A1.53E4
A1.00E4
A1.30E4
A2.95E4
A1.98E4
A2.44E4
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:286
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A7.83E4
A3.89E4
A4.60E4
A3.54E4
A2.35E4
A2.65E4
A7.80E3
A1.60E4
A1.25E4
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:196
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,784.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A2.42E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:36
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A3.29E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
18:07 18:31 19:15 19:39 20:08 20:41 21:05 21:40 22:07
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
22:08
20:43
21:15
21:46
19:42
17:30 17:54 18:20 18:56 20:14
17:00 18:00 19:00 20:00 21:00 22:00 Time

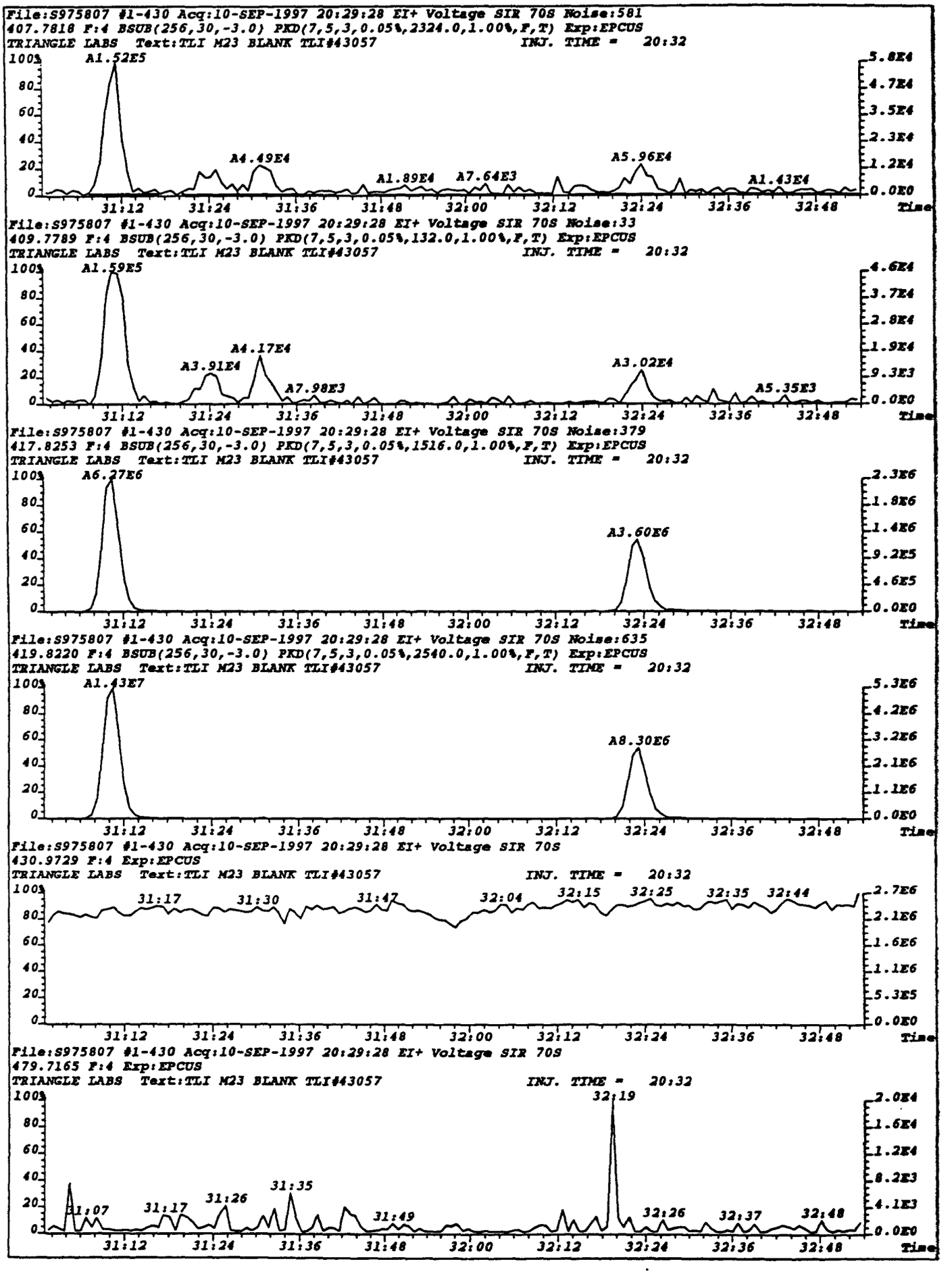

File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:38
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A3.24E4
A3.06E4
A4.11E4
A5.09E3
A7.14E3
A7.82E3
A2.54E3
A9.29E3
A1.41E4
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:37
321.8936 F:2 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#43057 INJ. TIME = 20:32
A3.93E4
A2.91E4
A1.21E4
A1.49E4
A7.04E3
A7.38E3
A9.55E3
A5.05E3
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:1012
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4048.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A2.13E7
A1.70E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:42
333.9338 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A2.65E7
A2.18E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:34
327.8847 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A3.22E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
18:31
19:15
19:39
20:08
20:41
21:05
21:40
22:00
22:22
19:00
20:00
21:00
22:00
Time


File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:39
339.8597 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#43057 INJ. TIME = 20:32
A2.15E4 A1.36E4 A6.19E4 A2.11E4 A2.56E4 A3.40E4 A2.60E4 A6.04E4 A2.90E4 A1.08E4 A1.75E4 A3.83E3
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:44
341.8567 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#43057 INJ. TIME = 20:32
A1.78E4 A9.21E3 A4.83E4 A1.63E4 A4.25E4 A1.61E4 A2.82E4 A1.25E4 A3.44E4 A8.93E3 A1.35E4 A1.23E4
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A2.79E7 A2.54E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.94E7 A1.74E7
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
23:26 23:47 24:46 25:20 25:39 26:02 26:25 26:47
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
22:39 22:54 23:03 23:12 23:31 23:58 24:11 24:26 24:35 25:17 25:30 25:48 26:09 26:43
23:00 24:00 25:00 26:00 Time


File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:41
355.8546 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#43057 INJ. TIME = 20:32
A7.03E4
A7.24E4
A4.92E4
A2.70E4
A1.97E4
A1.09E4
A1.88E4
A1.23E4
A4.88E3
A5.14E3
Time
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 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#43057 INJ. TIME = 20:32
A6.24E4
A2.80E4
A2.47E4
A1.22E4
A1.04E4
A9.52E3
A1.33E4
A5.31E3
A3.68E3
Time
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:35
367.8949 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.71E7
A1.68E6
Time
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 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 M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.12E7
A1.07E6
Time
File:S975807 #1-848 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
24:46
25:20
25:39
26:02
26:25
26:37
Time


File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:1018
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4072.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.60E5
A1.13E5
A5.72E4
A1.46E4
A2.37E4
A8.74E4
A2.83E3
A3.51E4
A4.53E4
A3.35E4
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:531
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.43E5
A1.11E5
A4.98E4
A2.27E4
A7.71E4
A3.03E4
A8.50E3
A3.63E4
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:772
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3088.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.21E7
A1.04E7
A7.65E6
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:1372
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5488.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A2.37E7
A2.09E7
A1.54E7
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
28:20
28:39
29:37
29:17
27:52
27:32
27:26
28:04
29:01
29:55
30:08
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12
Time


File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:554
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.39E5
A6.84E4
A3.42E4
A2.27E4
A3.31E4
A2.99E4
A4.90E4
A1.51E4
A5.83E3
Time
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:416
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1664.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.29E5
A7.80E4
A1.85E4
A7.96E3
A3.94E3
A1.06E4
A1.06E4
A3.31E4
A8.08E3
A4.33E4
A1.84E4
A1.87E4
Time
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:1135
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.62E7
A1.40E7
Time
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:1024
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4096.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.31E7
A1.14E7
Time
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
28:09
28:18
28:29
28:45
28:58
29:13
29:33
29:40
27:50
Time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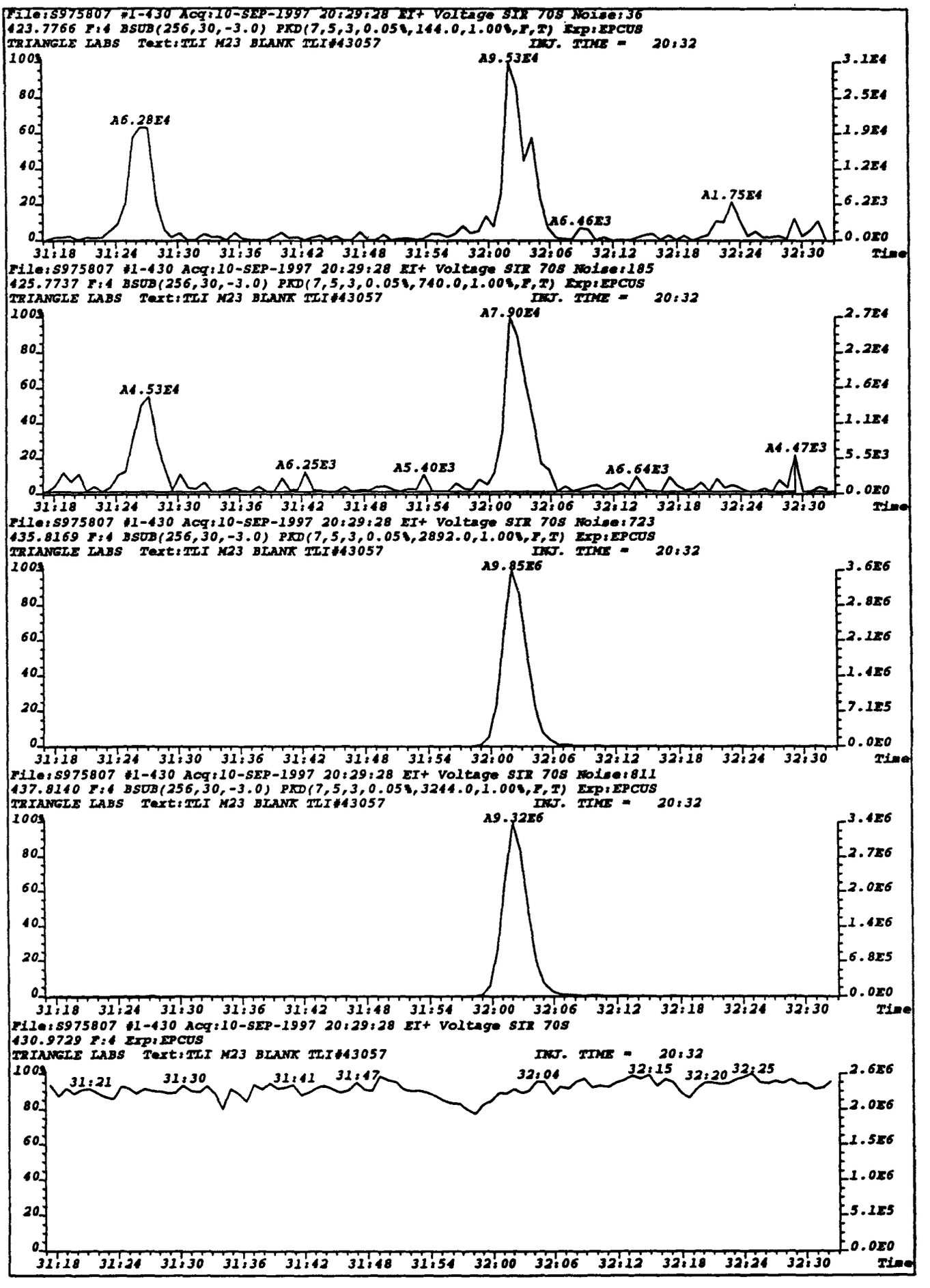
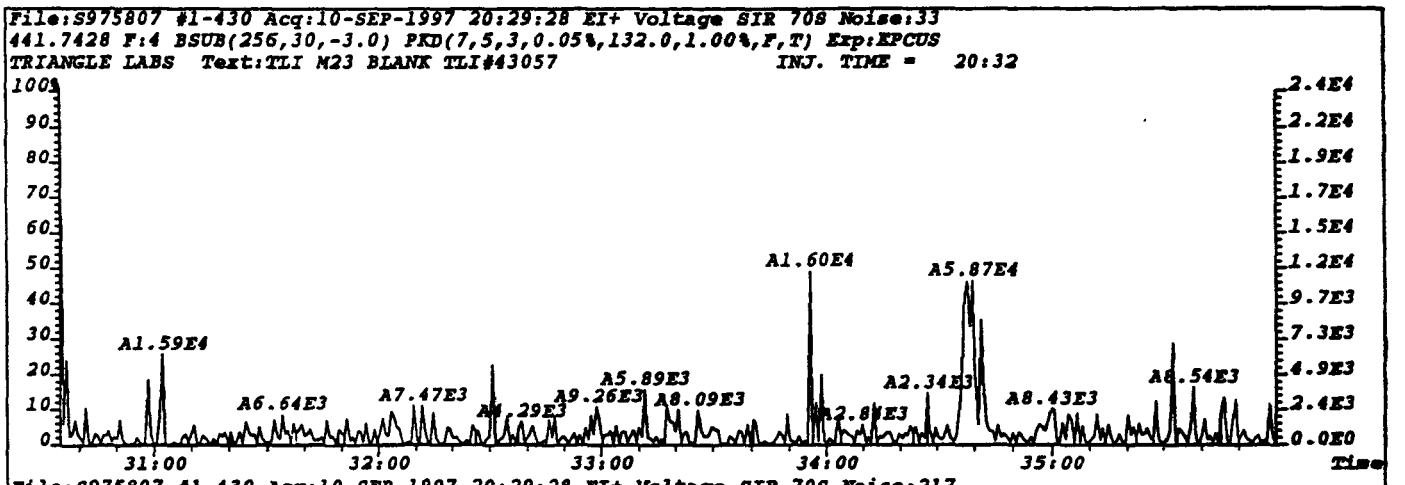
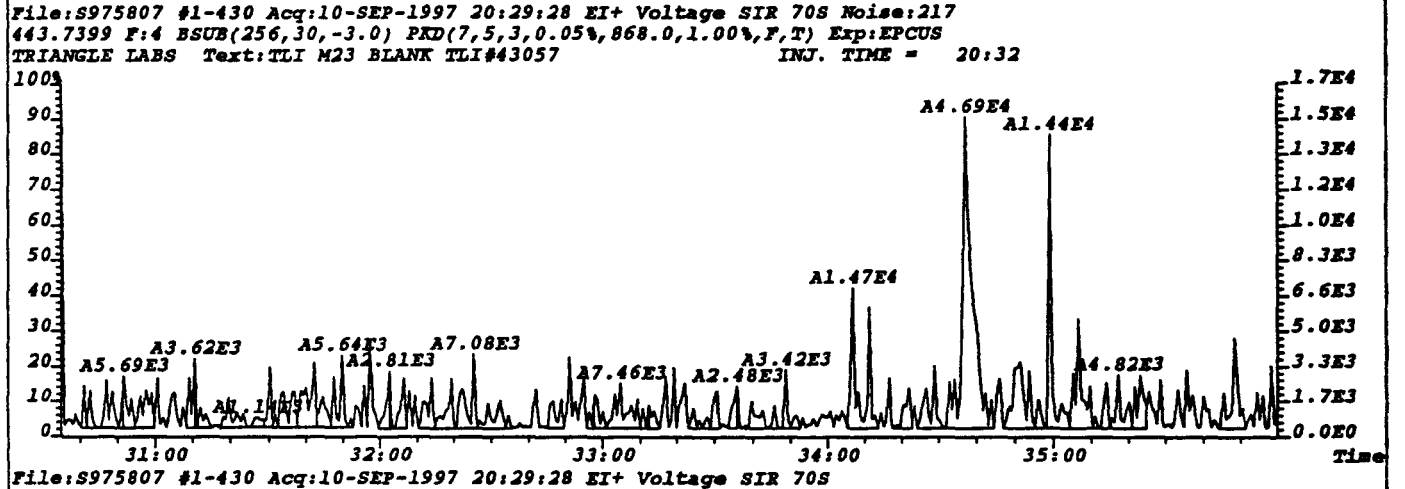
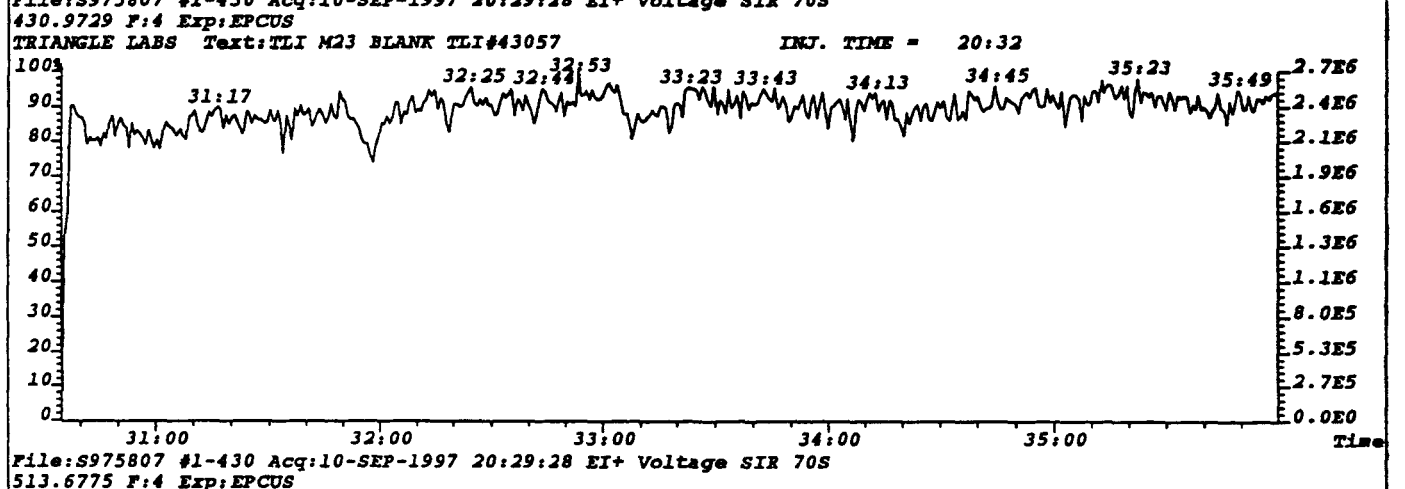
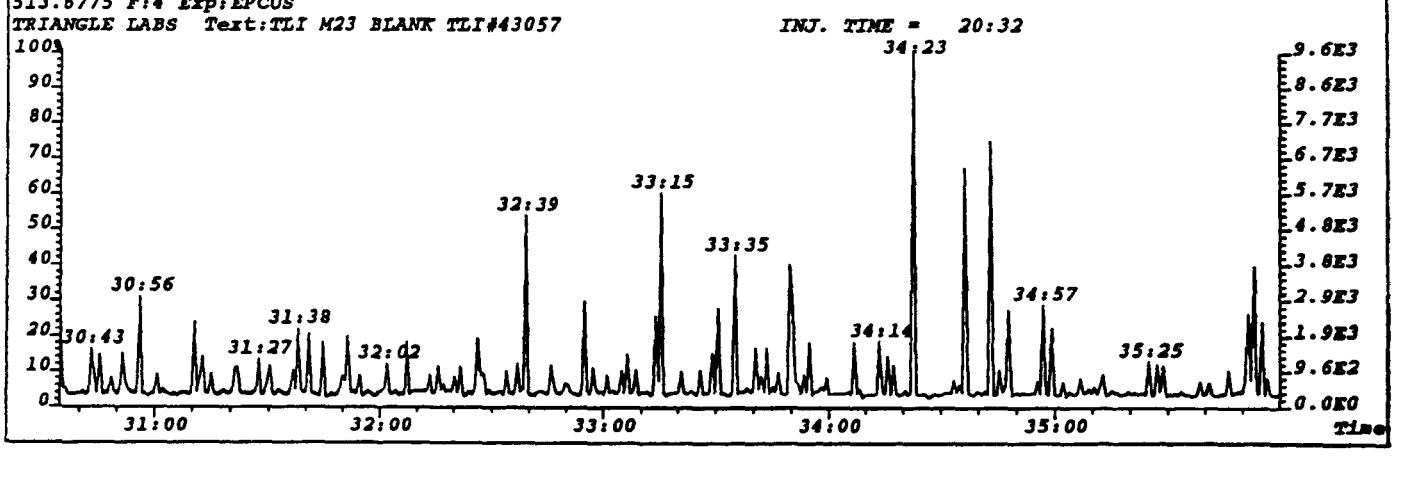
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2324.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.52E5
A4.49E4
A1.89E4
A7.64E3
A5.96E4
A1.43E4
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:33
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.59E5
A3.91E4
A4.17E4
A7.98E3
A3.02E4
A5.35E3
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:379
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1516.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A6.27E6
A3.60E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:635
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2540.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A1.43E7
A8.30E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
32:19
31:07
31:17
31:26
31:35
31:49
32:26
32:37
32:48
Time

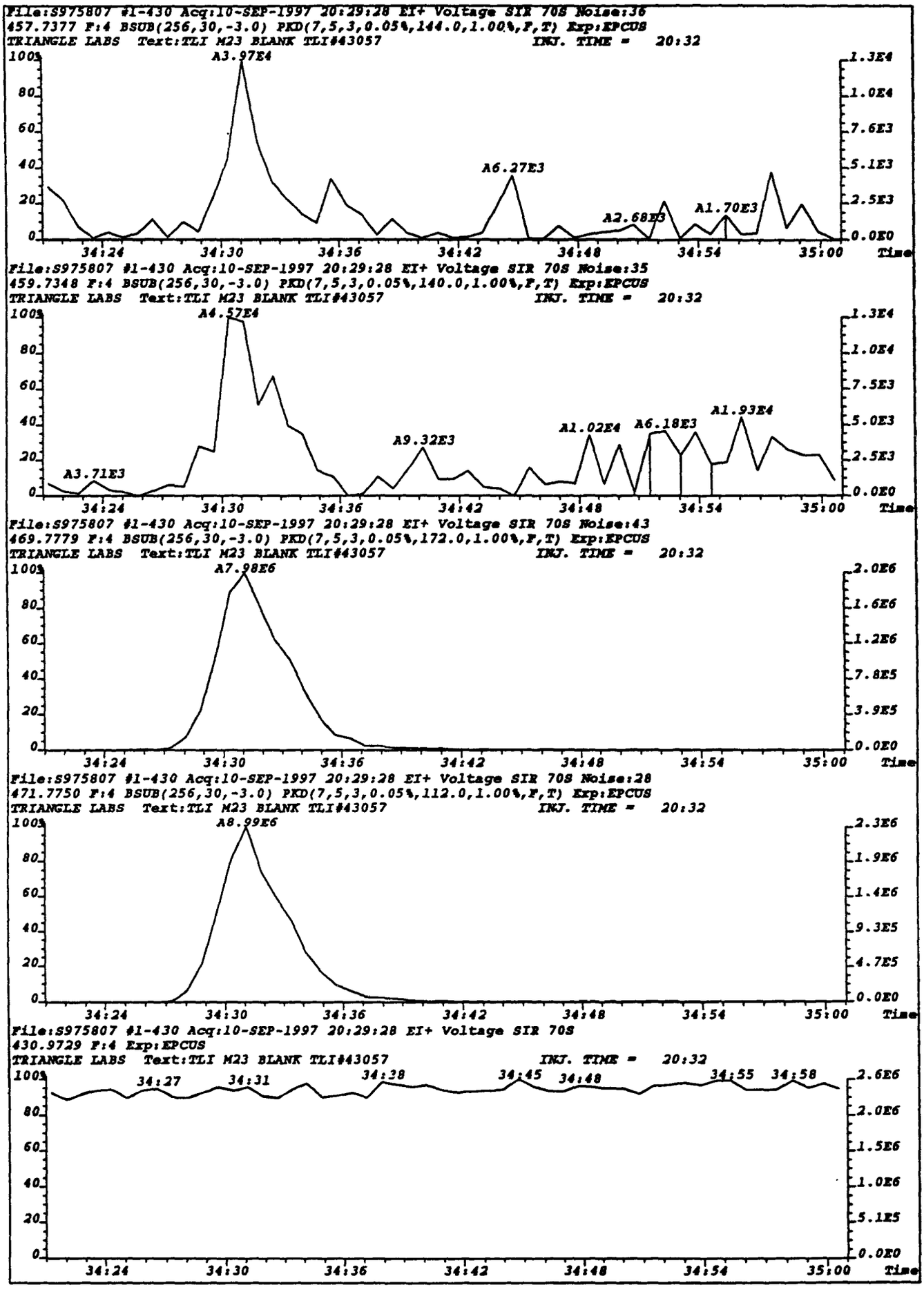

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:36
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A9.53E4
A6.28E4
A1.75E4
A6.46E3
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:185
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,740.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A7.90E4
A4.53E4
A6.25E3
A5.40E3
A6.64E3
A4.47E3
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:723
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2892.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A9.85E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:811
437.8140 F:4 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#43057 INJ. TIME = 20:32
A9.32E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
31:21
31:30
31:41
31:47
32:04
32:15
32:20
32:25
Time

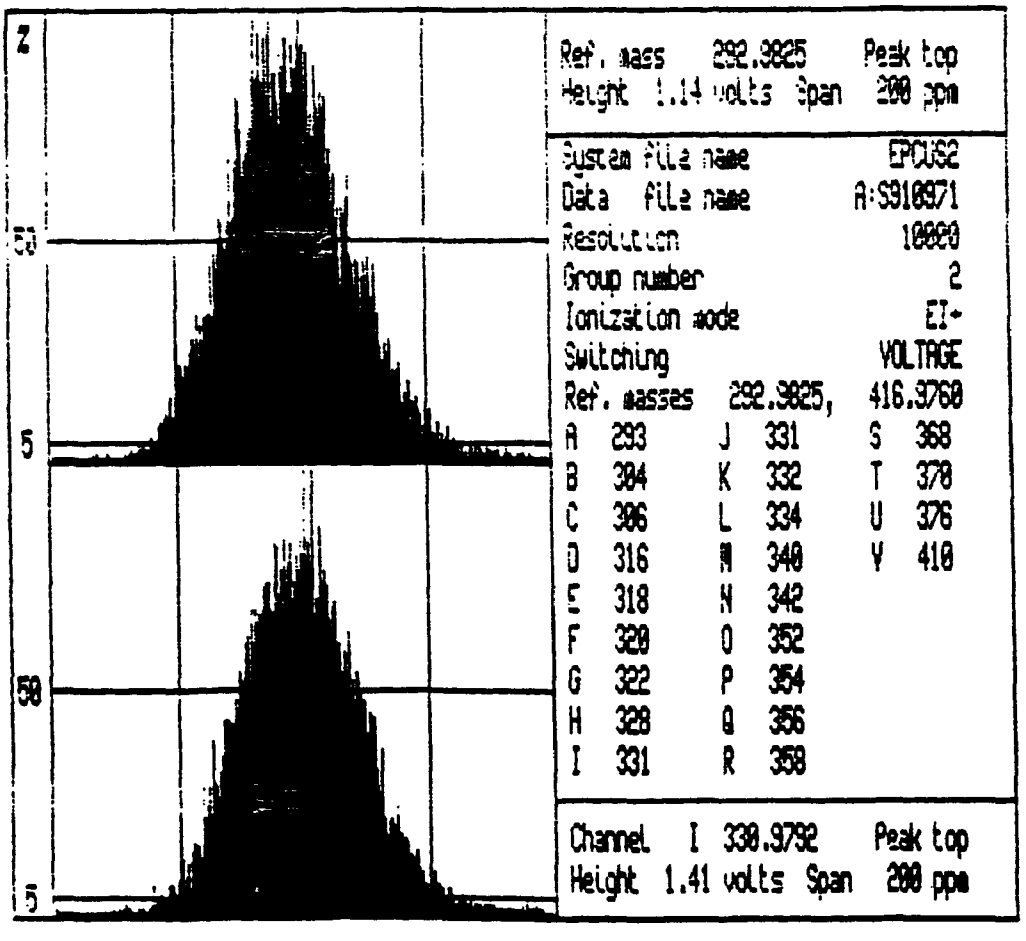

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:33
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32
A1.59E4
A6.64E3
A7.47E3
A9.26E3
A5.89E3
A8.09E3
A1.60E4
A5.87E4
A2.34E3
A8.43E3
A8.54E3
31:00
32:00
33:00
34:00
35:00
Time

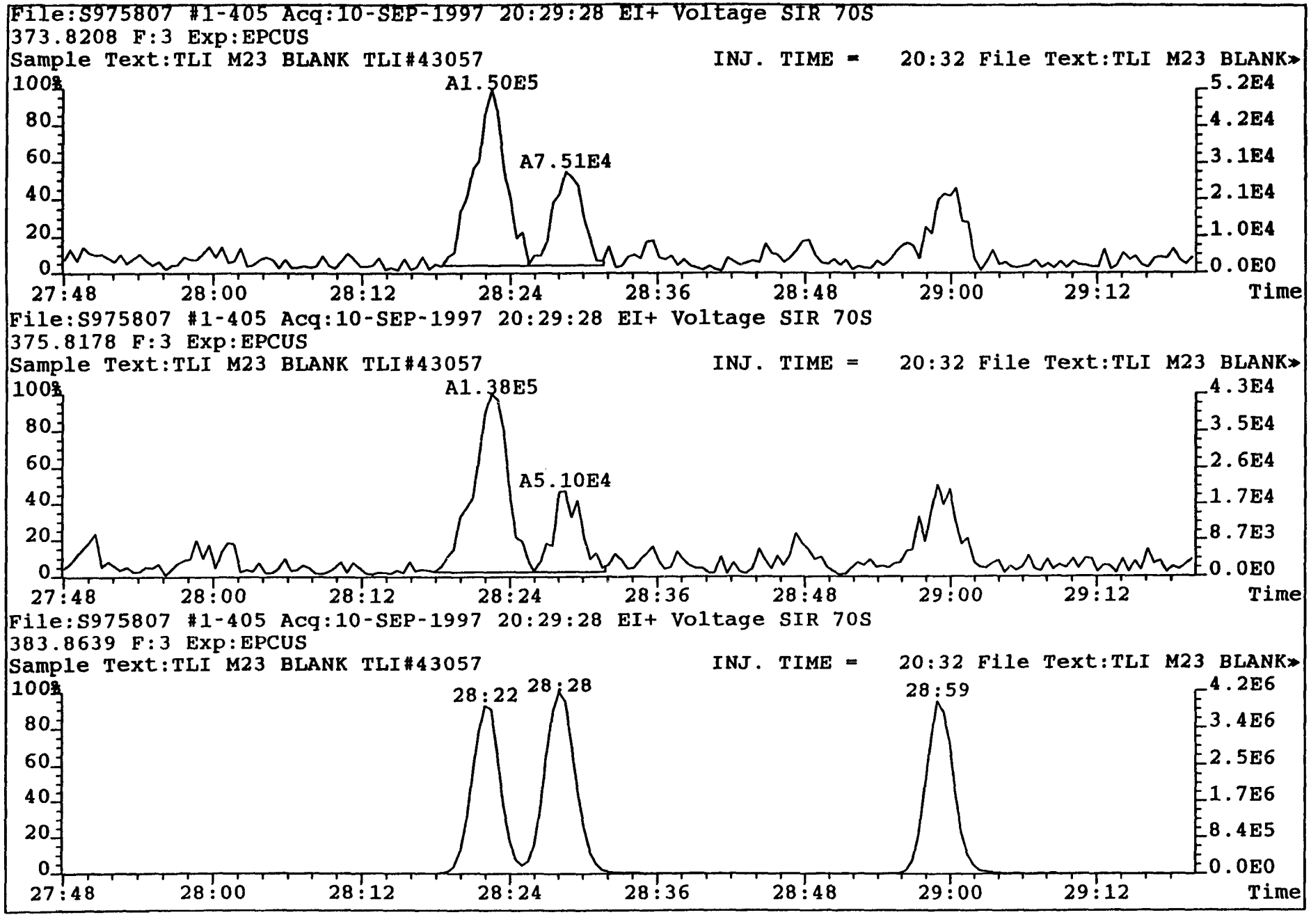

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:217
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,868.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32
A5.69E3
A3.62E3
A5.64E3
A2.81E3
A7.08E3
A7.46E3
A2.48E3
A3.42E3
A1.47E4
A4.69E4
A1.44E4
A4.82E3
31:00
32:00
33:00
34:00
35:00
Time

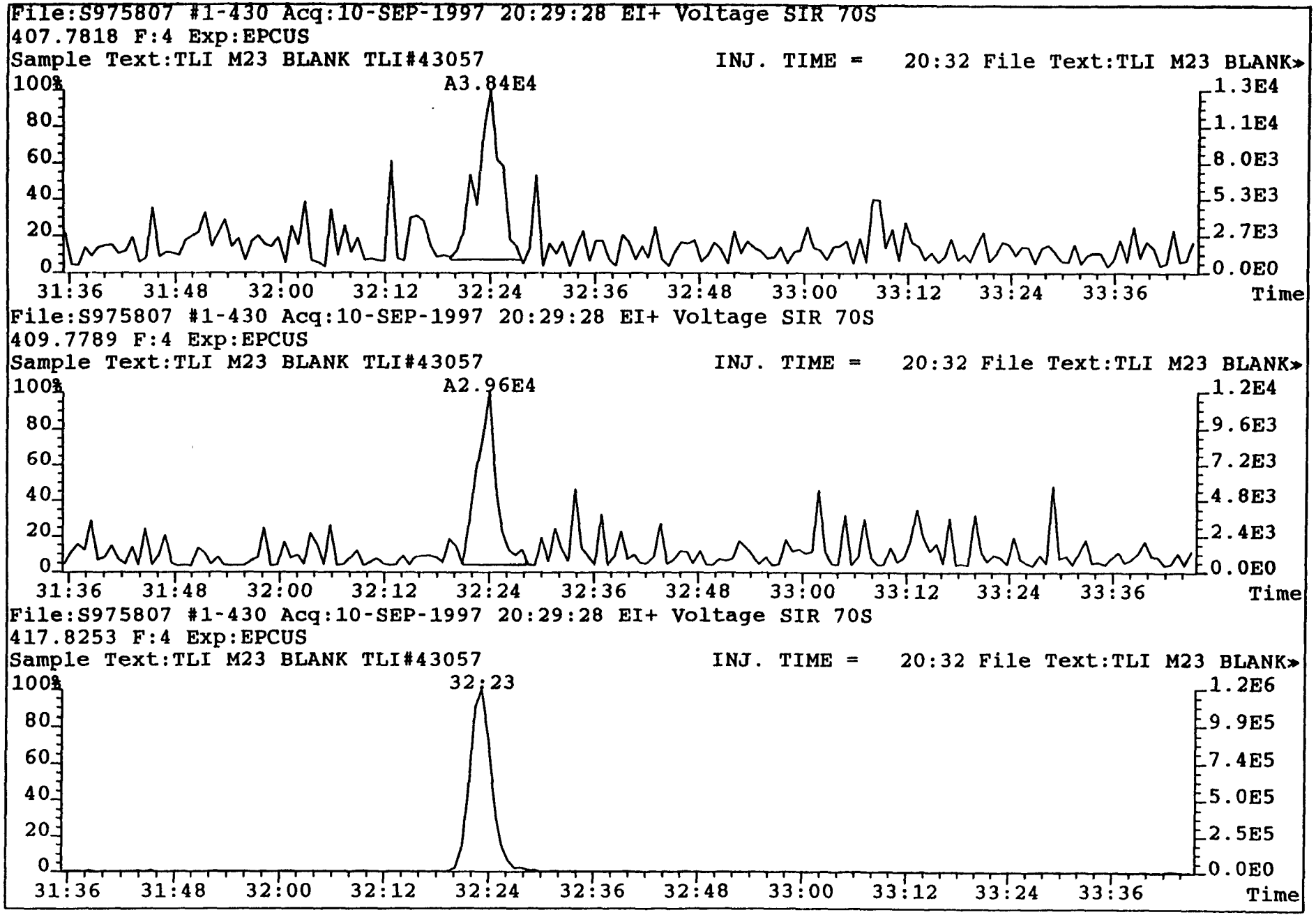

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32
31:17
32:25
32:53
33:23
33:43
34:13
34:45
35:23
35:49
31:00
32:00
33:00
34:00
35:00
Time

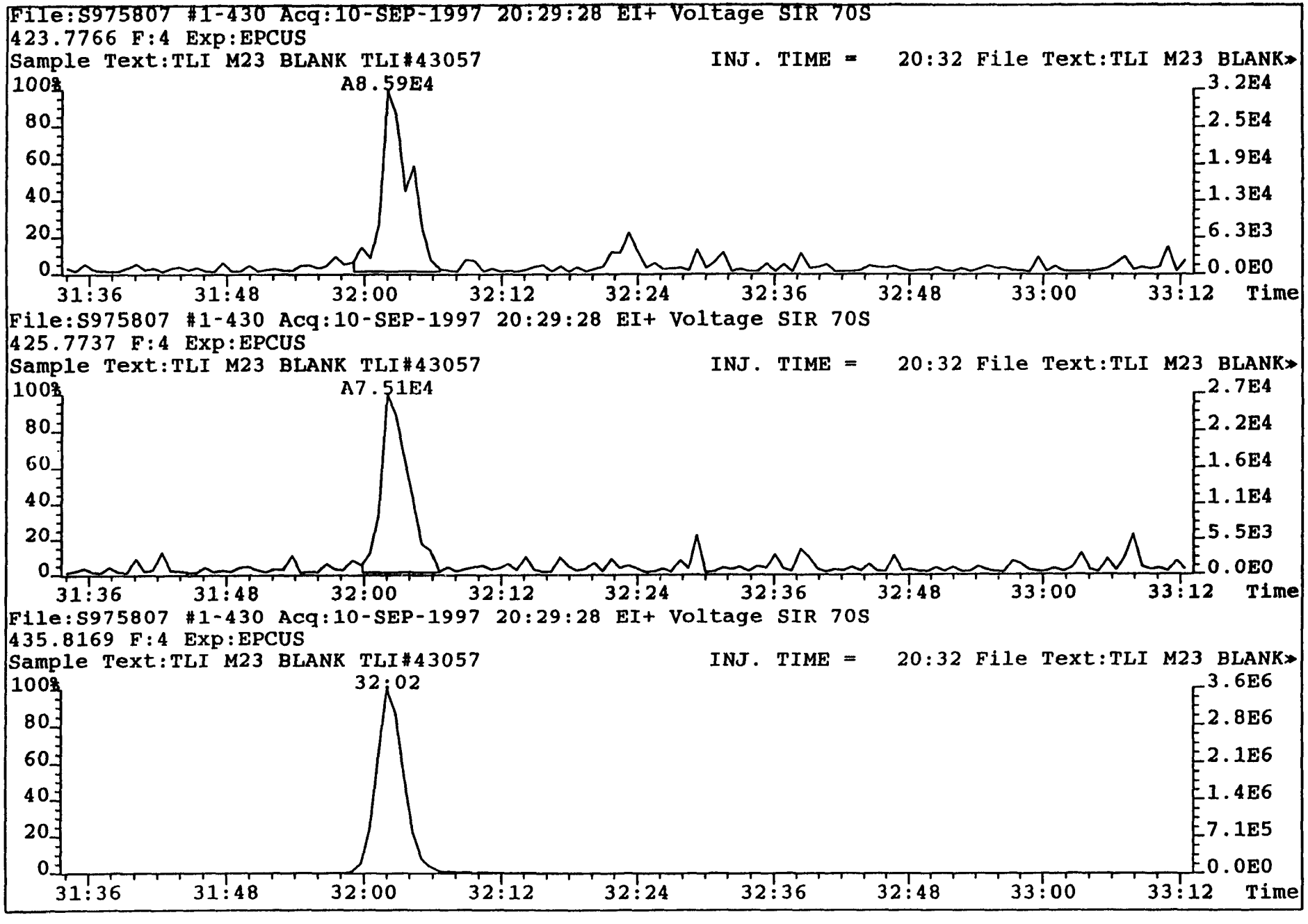

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32
30:43
30:56
31:27
31:38
32:02
32:39
33:15
33:35
34:14
34:23
34:57
35:25
31:00
32:00
33:00
34:00
35:00
Time

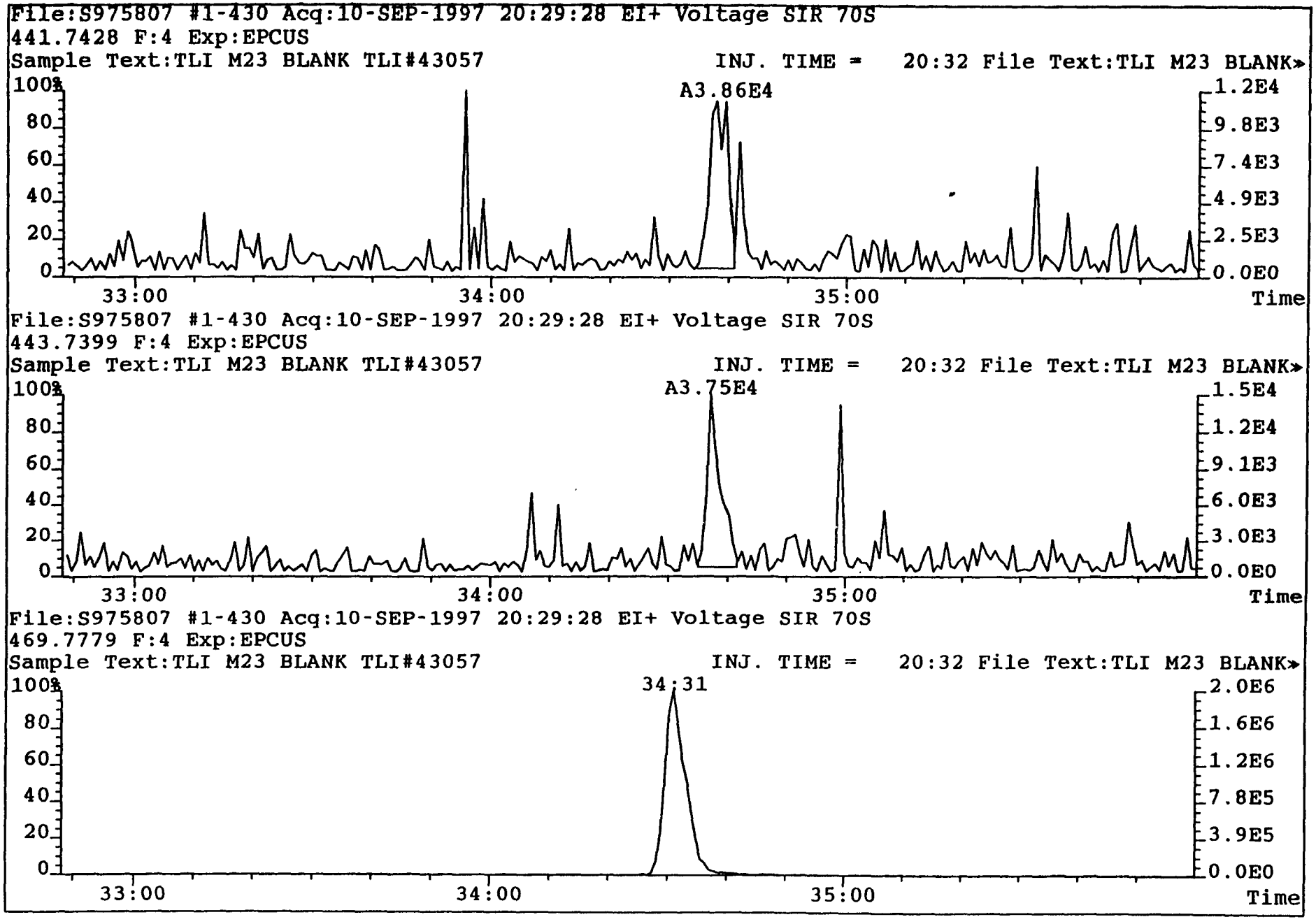

File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:36
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A3.97E4
A6.27E3
A2.68E3
A1.70E3
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 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#43057 INJ. TIME = 20:32
A4.57E4
A3.71E3
A9.32E3
A1.02E4
A6.18E3
A1.93E4
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:43
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A7.98E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S Noise:28
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
A8.99E6
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32
34:27
34:31
34:38
34:45
34:48
34:55
34:58
34:24
34:30
34:36
34:42
34:48
34:54
35:00
Time

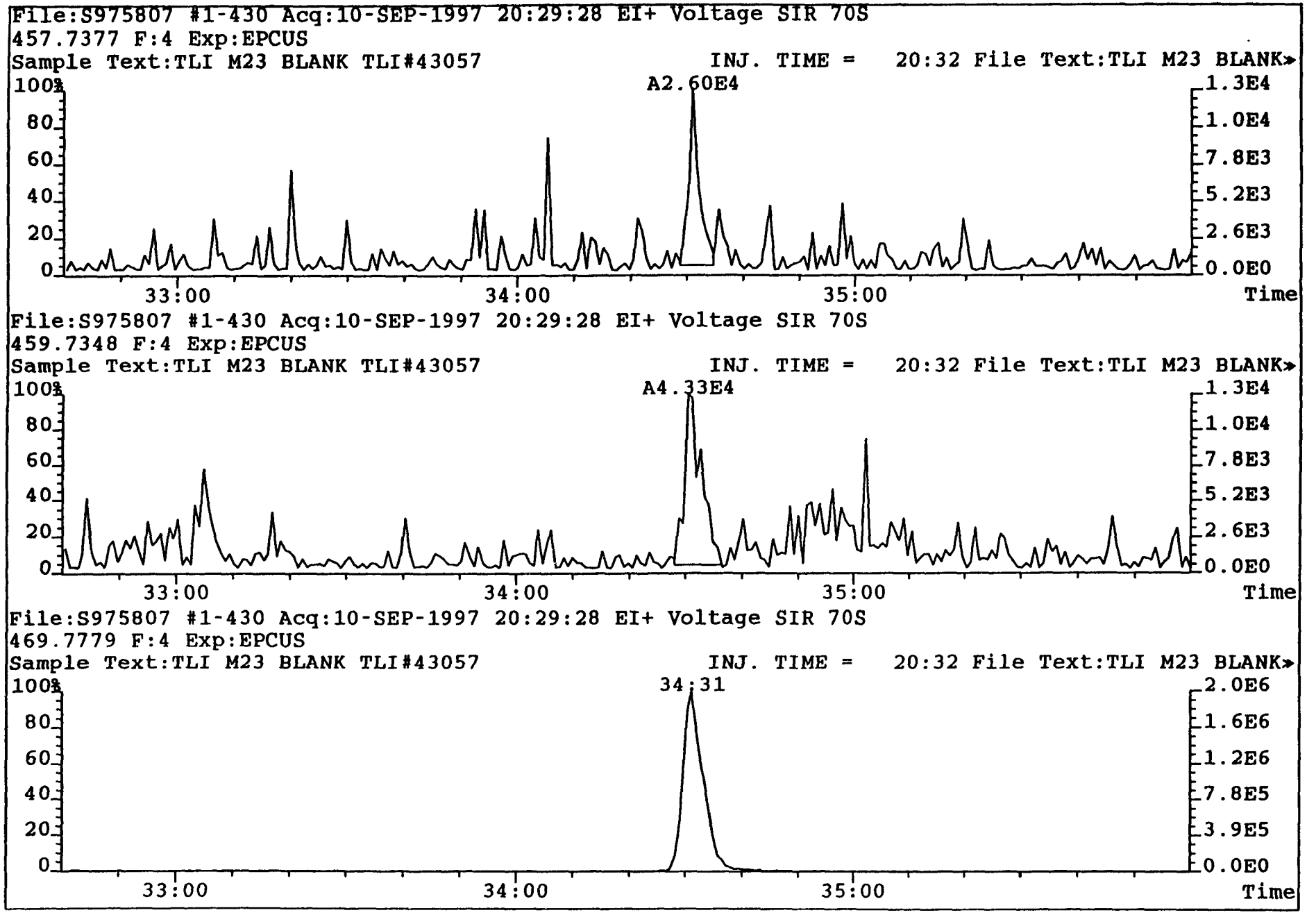

Z
50
5
50
5
Ref. mass 292.3825 Peak top
Height 1.14 volts Span 200 ppm
System file name EPCUS2
Data file name A:S910971
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.3825, 416.3760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Channel I 330.9792 Peak top
Height 1.41 volts Span 200 ppm


File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A1.50E5
A7.51E4
100%
80
60
40
20
0
5.2E4
4.2E4
3.1E4
2.1E4
1.0E4
0.0E0
27:48
28:00
28:12
28:24
28:36
28:48
29:00
29:12
Time
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A1.38E5
A5.10E4
4.3E4
3.5E4
2.6E4
1.7E4
8.7E3
0.0E0
File:S975807 #1-405 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
383.8639 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
28:22
28:28
28:59
4.2E6
3.4E6
2.5E6
1.7E6
8.4E5
0.0E0


File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A3.84E4
100%
80
60
40
20
0
1.3E4
1.1E4
8.0E3
5.3E3
2.7E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A2.96E4
100%
80
60
40
20
0
1.2E4
9.6E3
7.2E3
4.8E3
2.4E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
32:23
100%
80
60
40
20
0
1.2E6
9.9E5
7.4E5
5.0E5
2.5E5
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 Time


File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A8.59E4
100%
80
60
40
20
0
3.2E4
2.5E4
1.9E4
1.3E4
6.3E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A7.51E4
100%
80
60
40
20
0
2.7E4
2.2E4
1.6E4
1.1E4
5.5E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057 INJ. TIME = 20:32 File Text:TLI M23 BLANK»
32:02
100%
80
60
40
20
0
3.6E6
2.8E6
2.1E6
1.4E6
7.1E5
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 Time


File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
441.7428 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A3.86E4
100%
80
60
40
20
0
1.2E4
9.8E3
7.4E3
4.9E3
2.5E3
0.0E0
33:00
34:00
35:00
Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
443.7399 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
A3.75E4
100%
80
60
40
20
0
1.5E4
1.2E4
9.1E3
6.0E3
3.0E3
0.0E0
33:00
34:00
35:00
Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK»
34:31
100%
80
60
40
20
0
2.0E6
1.6E6
1.2E6
7.8E5
3.9E5
0.0E0
33:00
34:00
35:00
Time


File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
457.7377 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK
A2.60E4
100%
80
60
40
20
0
1.3E4
1.0E4
7.8E3
5.2E3
2.6E3
0.0E0
33:00
34:00
35:00
Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
459.7348 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK
A4.33E4
100%
80
60
40
20
0
1.3E4
1.0E4
7.8E3
5.2E3
2.6E3
0.0E0
33:00
34:00
35:00
Time
File:S975807 #1-430 Acq:10-SEP-1997 20:29:28 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057
INJ. TIME = 20:32 File Text:TLI M23 BLANK
34:31
100%
80
60
40
20
0
2.0E6
1.6E6
1.2E6
7.8E5
3.9E5
0.0E0
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: 43057 Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: TLI M23 Blank Analysis File: X973081

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | XAD | Date Received: | / / | Spike File: | SPC2NF04 |
| TLI ID: | TLI Blank | Date Extracted: | 09/06/97 | ICal: | XF24087 |
| | | Date Analyzed: | 09/11/97 | ConCal: | X973069 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | MS | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | 0.005 | | | 0.83 | 22:32 | B__ |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.9 | 72.6 | 40%-130% | 0.78 | 22:31 | ___ |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.80 | 21:30 | ___ |

Data Reviewer: _____ 09/12/97





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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:58 09/12/97

Initial , ....Date...

Data Review By: _____ _____ 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.

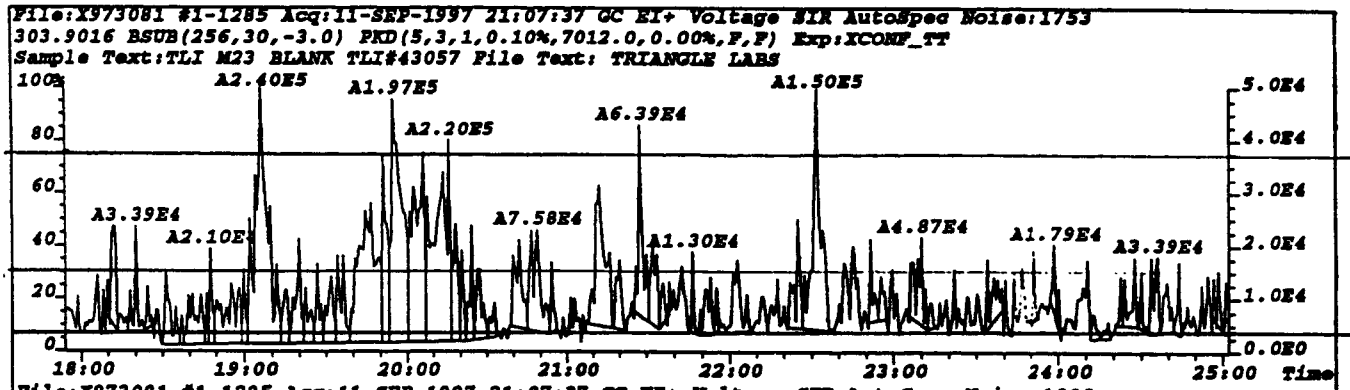
Page No. 1 Listing of X973081B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

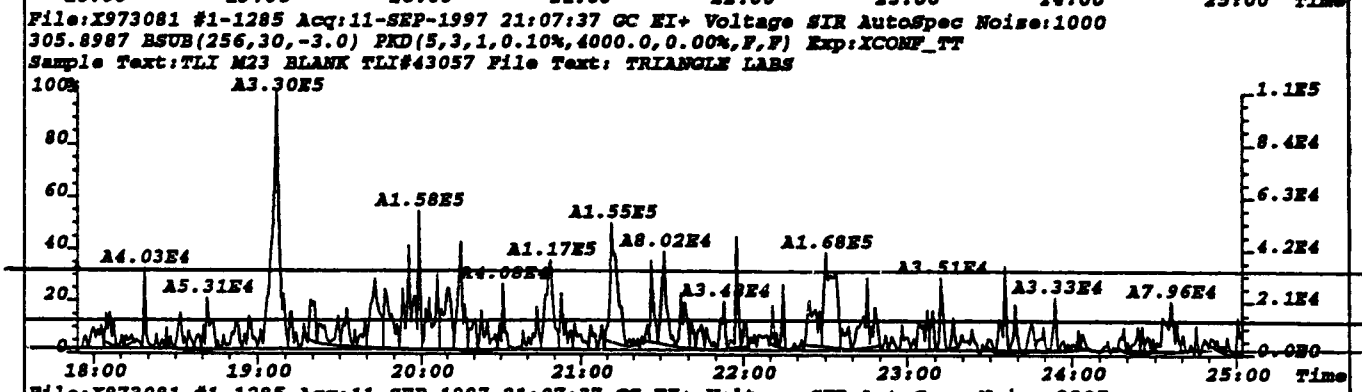
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | | | 0.65-0.89 | | | | 0.797-1.100 | | | |
| 304-306 | DC | NL | | 0:00 | RO | 1.76 | 3.54 | | | 0.000 | | | |
| | DC | SN | | 18:13 | RO | 5.21 | 1.49 | | | 0.809 | | | |
| | DC | SN | | 18:20 | | 0.84 | 7.42 | | | 0.814 | | | |
| | DC | SN | | 18:25 | RO | 2.53 | 0.60 | | | 0.818 | | | |
| | DC | SN | | 18:31 | RO | 1.04 | 5.82 | | | 0.822 | | | |
| | DC | SN | | 18:37 | RO | 0.56 | 1.20 | | | 0.827 | | | |
| | DC | SN | | 18:41 | | 0.79 | 9.48 | | | 0.830 | | | |
| | DC | SN | | 18:55 | RO | 2.07 | 5.61 | | | 0.840 | | | |
| | | | | 19:06 | | 0.73 | 57.04 | 24.05 | 32.99 | 0.848 | | | |
| | DC | SN | | 19:20 | RO | 1.23 | 6.05 | | | 0.859 | | | |
| | DC | SN | | 19:32 | | 0.87 | 6.89 | | | 0.868 | | | |
| | DC | SN | | 19:47 | RO | 2.52 | 13.45 | | | 0.879 | | | |
| | DC | SN | | 20:06 | RO | 1.92 | 15.35 | | | 0.893 | | | |
| | | | | 20:16 | RO | 2.13 | 18.23 | 21.97 | 10.30 | 0.900 | | | |
| | DC | SN | | 20:20 | RO | 0.61 | 4.80 | | | 0.903 | | | |
| | DC | SN | | 20:24 | RO | 0.57 | 6.11 | | | 0.906 | | | |
| | DC | SN | | 20:33 | RO | 0.33 | 3.10 | | | 0.913 | | | |
| | DC | SN | | 20:42 | RO | 1.39 | 6.62 | | | 0.919 | | | |
| | DC | SN | | 20:49 | | 0.65 | 19.28 | | | 0.925 | | | |
| | DC | SN | | 20:54 | RO | 0.36 | 3.59 | | | 0.928 | | | |
| | | | | 21:13 | | 0.76 | 27.16 | 11.70 | 15.46 | 0.942 | | | |
| | DC | SN | | 21:20 | RO | 3.46 | 1.50 | | | 0.947 | | | |
| | DC | SN | | 21:28 | RO | 1.31 | 8.66 | | | 0.953 | | | |
| | DC | SN | | 21:32 | RO | 0.48 | 8.92 | | | 0.956 | | | |
| | DC | SN | | 21:36 | RO | 0.27 | 3.03 | | | 0.959 | | | |
| | DC | SN | | 21:46 | RO | 0.38 | 2.99 | | | 0.967 | | | |
| | DC | SN | | 21:53 | | 0.85 | 6.44 | | | 0.972 | | | |
| | DC | SN | | 21:56 | RO | 0.07 | 0.87 | | | 0.974 | | | |
| | DC | SN | | 22:03 | RO | 2.73 | 2.99 | | | 0.979 | | | |
| | DC | SN | | 22:25 | RO | 0.60 | 9.47 | | | 0.996 | | | |
| M | | | | 22:32 | | 0.83 | 27.80 | 12.60 | 15.20 | 1.001 | 2378-TCDF | | AN |
| | DC | SN | | 23:10 | RO | 2.16 | 3.98 | | | 1.029 | | | |
| | DC | SN | | 23:13 | RO | 0.20 | 1.59 | | | 1.031 | | | |
| | DC | SN | | 23:34 | RO | 0.60 | 7.42 | | | 1.047 | | | |
| | DC | SN | | 23:51 | RO | 0.57 | 2.74 | | | 1.059 | | | |
| | DC | SN | | 24:18 | RO | 0.40 | 1.26 | | | 1.079 | | | |
| | DC | SN | | 24:28 | RO | 1.64 | 2.55 | | | 1.087 | | | |
| | DC | SN | | 24:36 | RO | 0.43 | 7.79 | | | 1.093 | | | |
| | DC | SN | | 24:40 | RO | 3.60 | 1.19 | | | 1.095 | | | |
| | DC | WH | | 24:58 | RO | 1.94 | 1.38 | | | 1.109 | | | |
| | DC | WH | | 25:01 | | 0.68 | 4.02 | | | 1.111 | | | |
| 304-306 | | | 4 | Peaks | | | 130.23 | | | | | | |

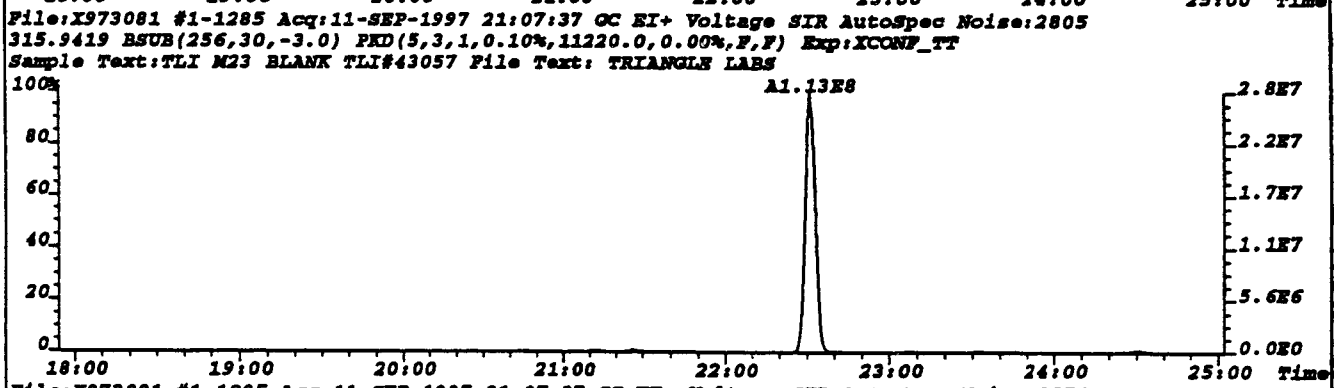
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.955-1.045 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 1.24 | 8.04 | | | 0.000 | | | |
| | DC | WL | | 21:11 | RO | 0.92 | 116.20 | | | 0.941 | | | |
| | DC | WL | | 21:26 | | 0.76 | 140.82 | | | 0.952 | | | |
| | | | | 22:31 | | 0.78 | 25,717.50 | 11,307.90 | 14,409.60 | 1.000 | 13C12-2378-TCDF | IS0 | |
| | | | | 23:06 | | 0.83 | 74.32 | 33.73 | 40.59 | 1.026 | | | |
| | DC | WH | | 24:31 | | 0.66 | 263.74 | | | 1.089 | | | |
| 316-318 | | | 2 | Peaks | | | 25,791.82 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| 13C12-TCDD | | | | 0.65-0.89 | | | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 2.13 | 6.73 | | | 0.000 | | | |
| | | | | 20:08 | RO | 1.01 | 97.12 | 55.52 | 54.87 | 0.948 | | | |
| | | | | 21:14 | | 0.77 | 20,642.36 | 8,983.46 | 11,658.90 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 21:30 | | 0.80 | 25,442.00 | 11,298.80 | 14,143.20 | 1.013 | 13C12-1234-TCDD | RS1 | |
| | | | | 22:10 | | 0.77 | 267.84 | 116.93 | 150.91 | 1.044 | | | |
| | DC | WH | | 23:50 | RO | 0.40 | 35.47 | | | 1.122 | | | |
| 332-334 | | | 4 | Peaks | | | 46,449.32 | | | | | | |

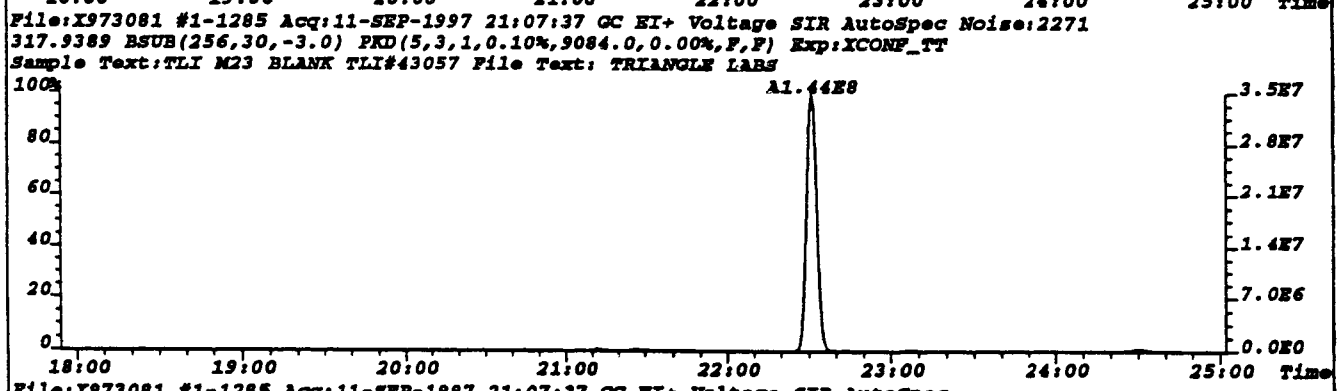
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

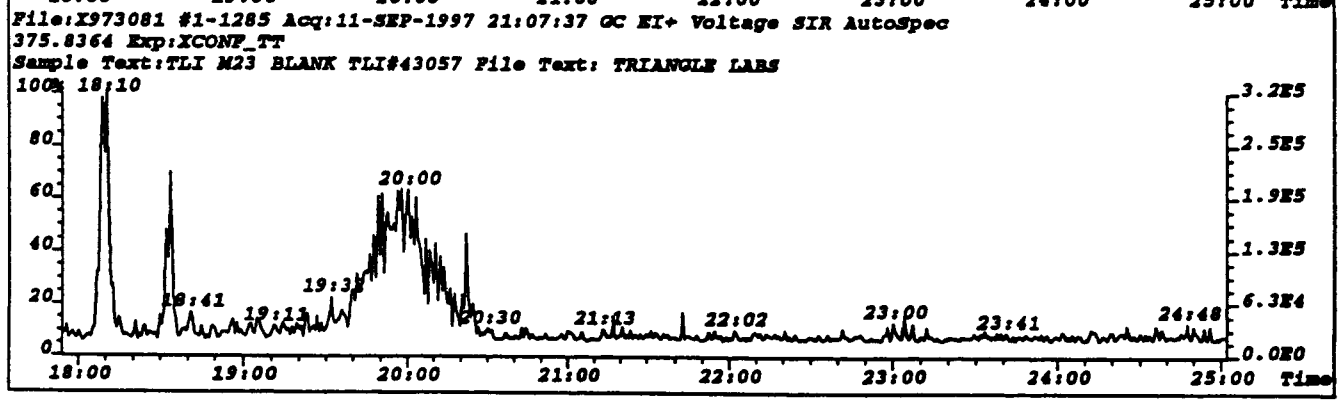
*** End of Report ***

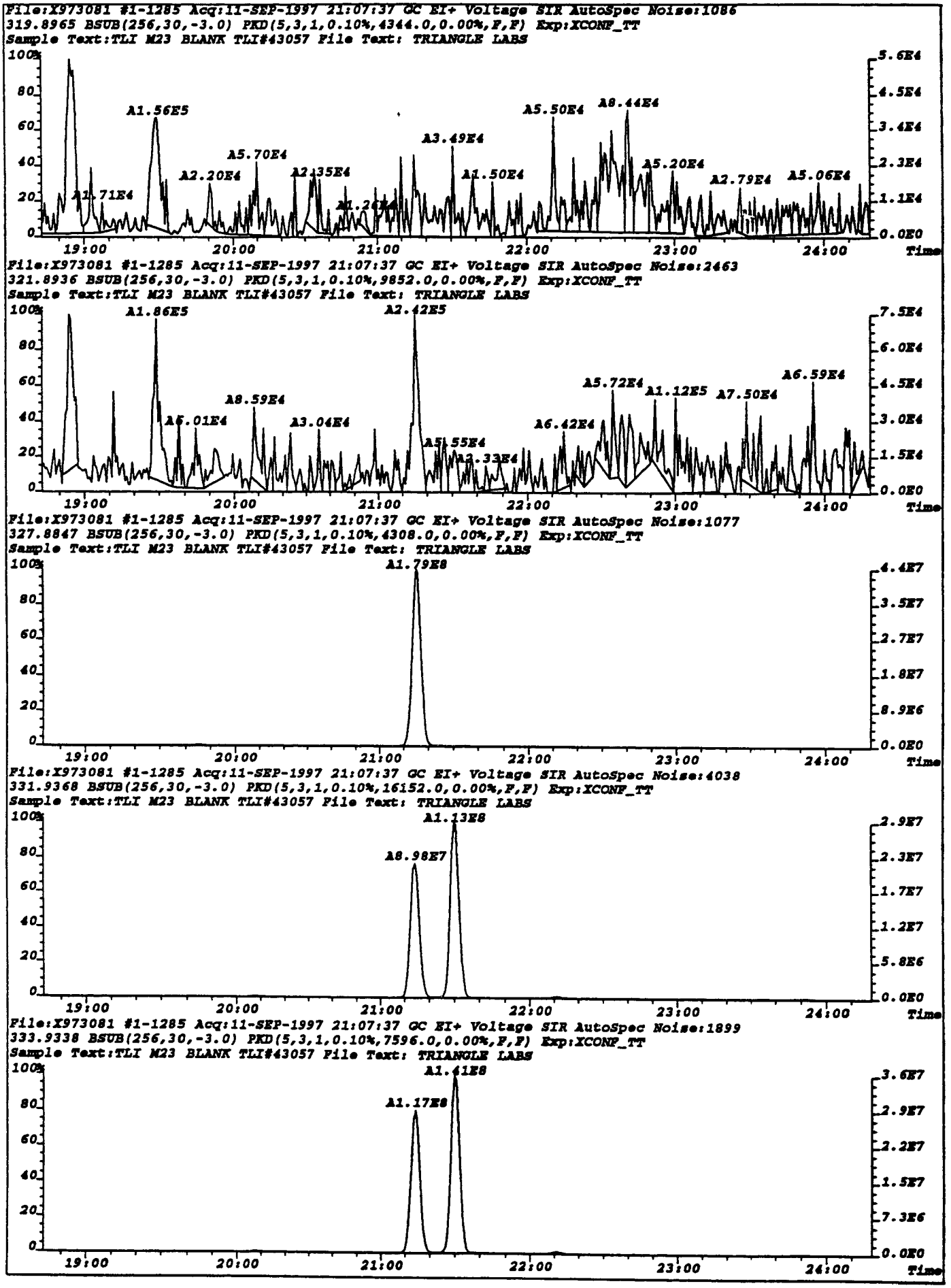

File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:1753
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,7012.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A2.40E5
A1.97E5
A2.20E5
A6.39E4
A1.50E5
A3.39E4
A2.10E4
A7.58E4
A1.30E4
A4.87E4
A1.79E4
A3.39E4
Time

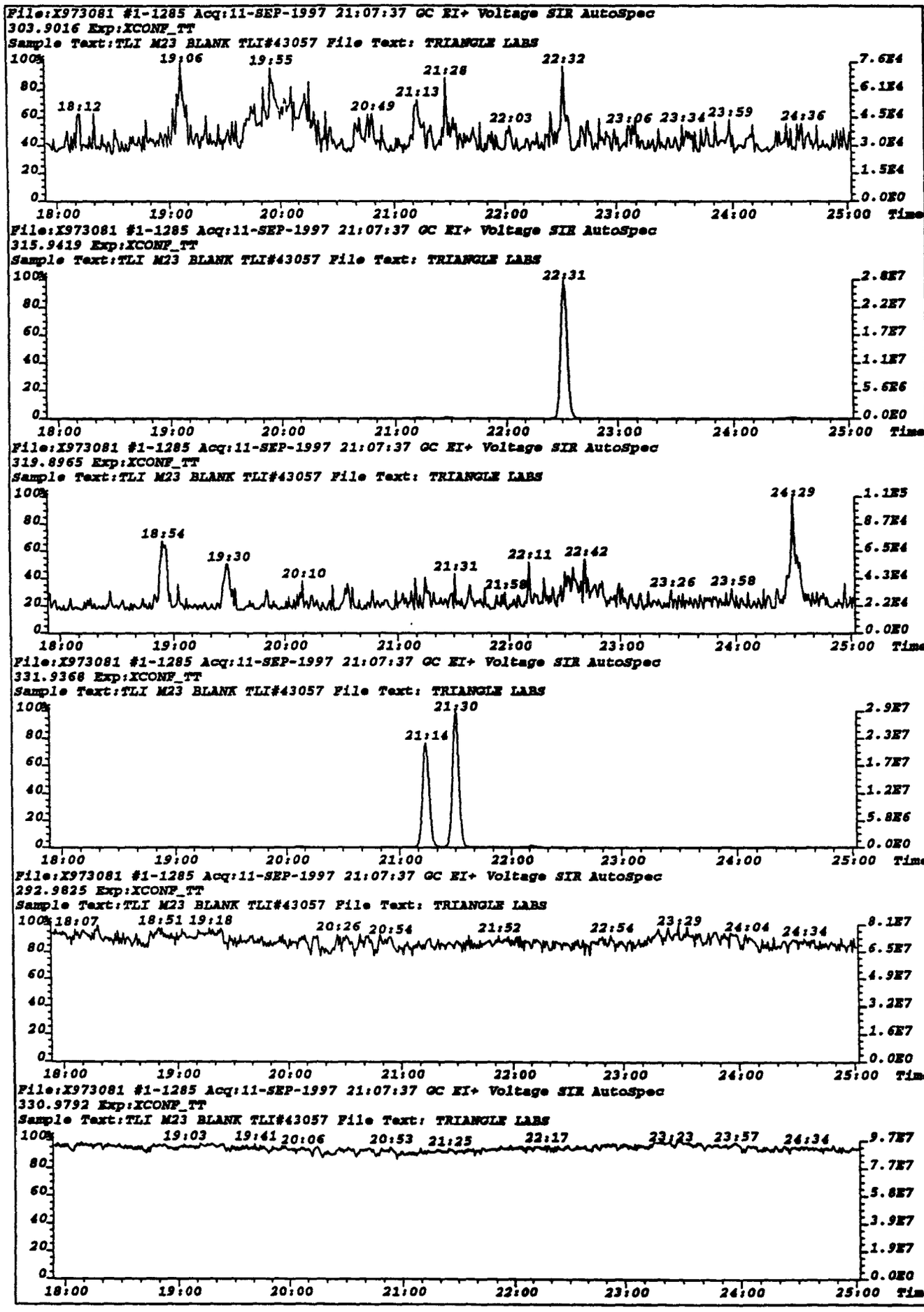

File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:1000
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4000.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A3.30E5
A1.58E5
A1.55E5
A1.17E5
A8.02E4
A1.68E5
A4.03E4
A5.31E4
A3.33E4
A7.96E4
Time

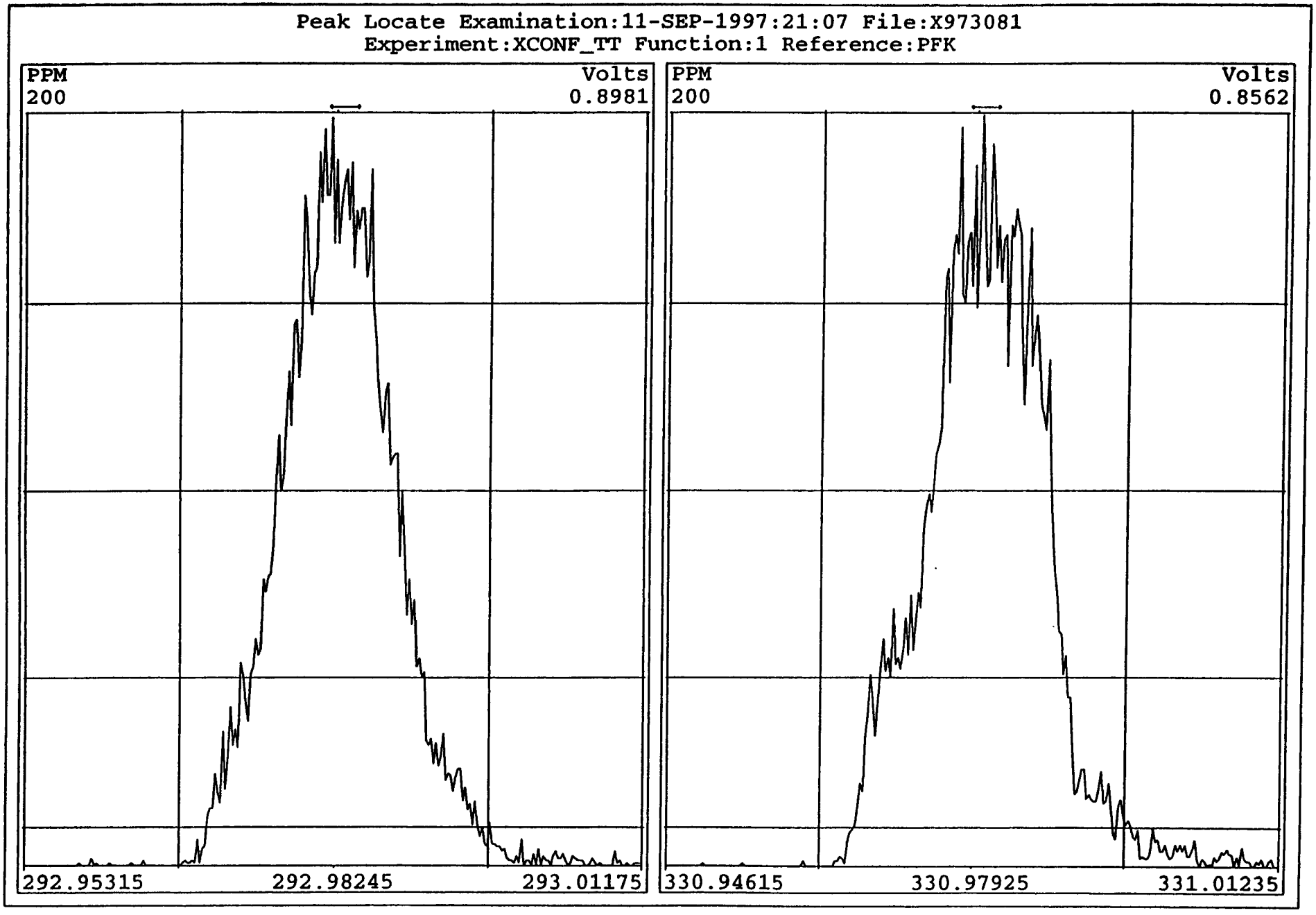

File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:2805
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,11220.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.13E8
Time

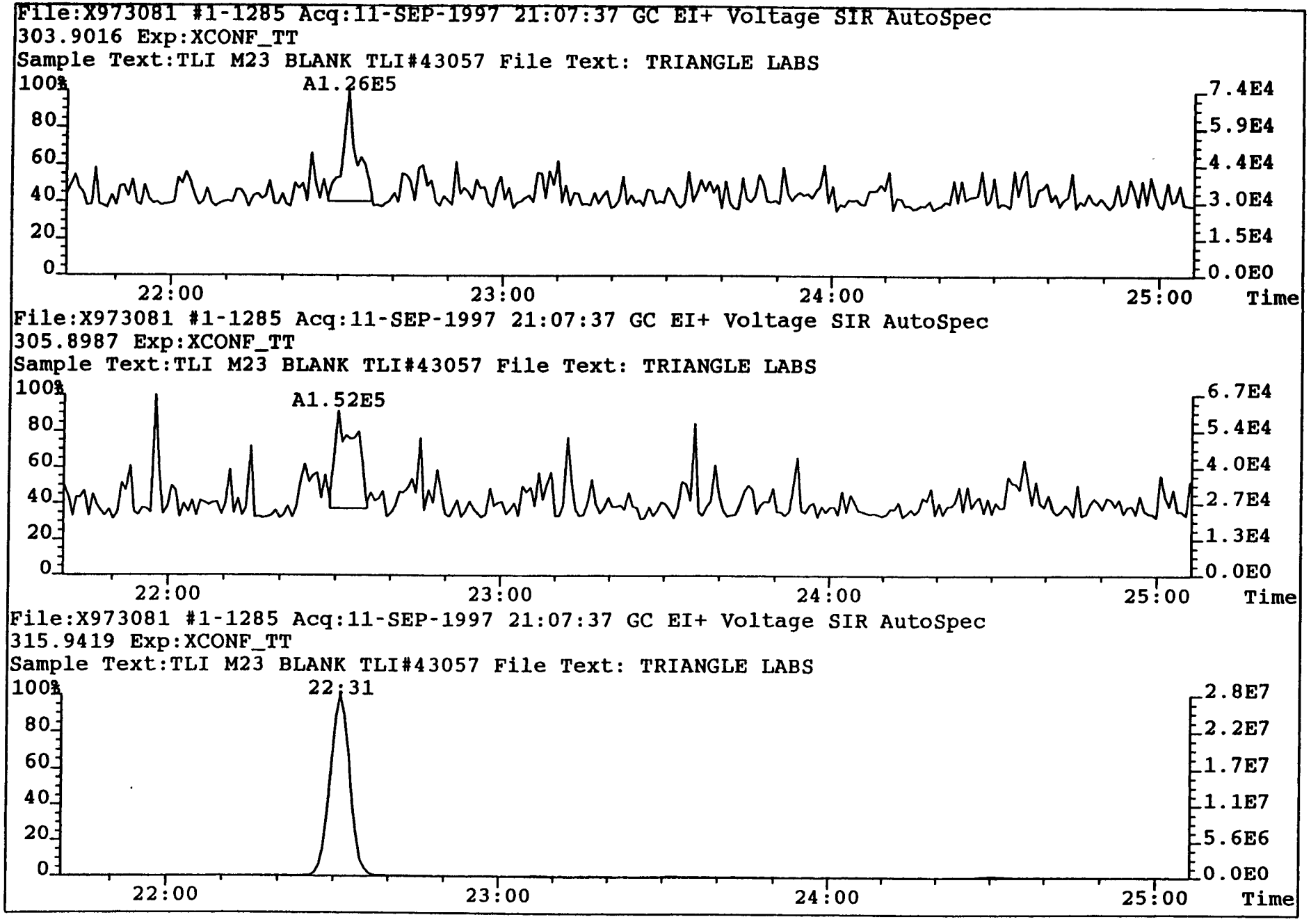

File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:2271
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,9084.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.44E8
Time


File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
375.8364 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
18:10
20:00
18:41
19:11
19:33
20:30
21:13
22:02
23:00
23:41
24:48
Time


File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:1086
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4344.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.56E5
A5.70E4
A2.20E4
A2.35E4
A3.49E4
A1.50E4
A5.50E4
A8.44E4
A5.20E4
A2.79E4
A5.06E4
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:2463
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,9852.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.86E5
A2.42E5
A8.59E4
A3.04E4
A5.72E4
A1.12E5
A7.50E4
A6.59E4
A6.42E4
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:1077
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4308.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.79E8
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:4038
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,16152.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.13E8
A8.98E7
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec Noise:1899
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,7596.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
A1.41E8
A1.17E8
19:00
20:00
21:00
22:00
23:00
24:00
Time


File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
18:12 19:06 19:55 20:49 21:13 21:28 22:03 22:32 23:06 23:34 23:59 24:36
7.6E4 6.1E4 4.5E4 3.0E4 1.5E4 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
22:31
2.8E7 2.2E7 1.7E7 1.1E7 5.6E6 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
319.8965 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
18:54 19:30 20:10 21:31 21:58 22:11 22:42 23:26 23:58 24:29
1.1E5 8.7E4 6.5E4 4.3E4 2.2E4 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
331.9368 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
21:14 21:30
2.9E7 2.3E7 1.7E7 1.2E7 5.8E6 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
292.9825 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
18:07 18:51 19:18 20:26 20:54 21:52 22:54 23:29 24:04 24:34
8.1E7 6.5E7 4.9E7 3.2E7 1.6E7 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
330.9792 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
19:03 19:41 20:06 20:53 21:25 22:17 23:23 23:57 24:34
9.7E7 7.7E7 5.8E7 3.9E7 1.9E7 0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time


Peak Locate Examination:11-SEP-1997:21:07 File:X973081
Experiment:XCONF_TT Function:1 Reference:PFK
PPM
200
Volts
0.8981
292.95315
292.98245
293.01175
PPM
200
Volts
0.8562
330.94615
330.97925
331.01235


File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
100%
A1.26E5
80
60
40
20
0
7.4E4
5.9E4
4.4E4
3.0E4
1.5E4
0.0E0
22:00
23:00
24:00
25:00
Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
305.8987 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
100%
A1.52E5
80
60
40
20
0
6.7E4
5.4E4
4.0E4
2.7E4
1.3E4
0.0E0
22:00
23:00
24:00
25:00
Time
File:X973081 #1-1285 Acq:11-SEP-1997 21:07:37 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:TLI M23 BLANK TLI#43057 File Text: TRIANGLE LABS
100%
22:31
80
60
40
20
0
2.8E7
2.2E7
1.7E7
1.1E7
5.6E6
0.0E0
22:00
23:00
24:00
25:00
Time

TLI Project: 43057
Client Sample: I-M23-1

# Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975808

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-1A-C | Date Extracted: | 09/06/97 | ICal: | SF56117 |
| | | Date Analyzed: | 09/10/97 | ConCal: | S975797 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % 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 | EMPC | | 0.004 | | | — |
| 1,2,3,7,8-PeCDD | 0.01 | | | 1.34 | 25:52 | — |
| 1,2,3,4,7,8-HxCDD | 0.02 | | | 1.42 | 29:08 | — |
| 1,2,3,6,7,8-HxCDD | 0.04 | | | 1.16 | 29:13 | — |
| 1,2,3,7,8,9-HxCDD | 0.05 | | | 1.09 | 29:30 | PR_ |
| 1,2,3,4,6,7,8-HpCDD | 0.72 | | | 0.98 | 32:04 | — |
| 1,2,3,4,6,7,8,9-OCDD | 44.5 | | | 0.87 | 34:33 | — |
| 2,3,7,8-TCDF | 0.04 | | | 0.75 | 20:26 | B_ |
| 1,2,3,7,8-PeCDF | 0.008 | | | 1.68 | 24:44 | — |
| 2,3,4,7,8-PeCDF | 0.02 | | | 1.46 | 25:30 | B_ |
| 1,2,3,4,7,8-HxCDF | 0.06 | | | 1.37 | 28:23 | PRB |
| 1,2,3,6,7,8-HxCDF | 0.02 | | | 1.32 | 28:29 | B_ |
| 2,3,4,6,7,8-HxCDF | EMPC | | 0.02 | | | PRB |
| 1,2,3,7,8,9-HxCDF | 0.007 | | | 1.40 | 29:42 | — |
| 1,2,3,4,6,7,8-HpCDF | 0.12 | | | 1.13 | 31:11 | PRB |
| 1,2,3,4,7,8,9-HpCDF | 0.04 | | | 0.97 | 32:24 | B_ |
| 1,2,3,4,6,7,8,9-OCDF | 0.16 | | | 0.90 | 34:39 | B_ |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | 0.05 | 4 | | 0.06 | — |
| Total PeCDD | 0.07 | 3 | | 0.21 | — |
| Total HxCDD | 0.45 | 7 | | | — |
| Total HpCDD | 1.6 | 2 | | | — |
| Total TCDF | 0.14 | 10 | | 0.17 | — |
| Total PeCDF | 0.12 | 5 | | 0.12 | — |
| Total HxCDF | 0.19 | 8 | | 0.23 | — |
| Total HpCDF | 0.30 | 4 | | | — |





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Printed: 14:56 09/11/97

TLI Project: 43057
Client Sample: I-M23-1

Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975808

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 3.9 | 98.5 | 40%-130% | 0.76 | 20:24 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 3.6 | 89.0 | 40%-130% | 0.79 | 21:13 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 3.8 | 95.5 | 40%-130% | 1.42 | 24:43 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 4.1 | 103 | 40%-130% | 1.49 | 25:51 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 4.1 | 102 | 40%-130% | 0.50 | 28:29 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 3.7 | 93.6 | 40%-130% | 1.24 | 29:12 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 2.8 | 71.1 | 25%-130% | 0.45 | 31:11 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 3.1 | 78.3 | 25%-130% | 1.03 | 32:03 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 4.8 | 60.5 | 25%-130% | 0.86 | 34:32 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 3.9 | 97.6 | 70%-140% | | 21:14 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 3.7 | 93.2 | 70%-140% | 1.45 | 25:29 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.8 | 94.6 | 70%-140% | 0.50 | 28:22 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.5 | 88.0 | 70%-140% | 1.20 | 29:07 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.3 | 83.6 | 70%-140% | 0.41 | 32:23 | — |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDF | 3.7 | 91.3 | 40%-130% | 0.50 | 29:42 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 4.0 | 99.0 | 40%-130% | 0.49 | 28:59 | — |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.80 | 21:01 | — |
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDD | 1.23 | 29:29 | — |

Data Reviewer: _____ 09/11/97



X237_PSR v2.00, LARS 6.10.04

**Triangle Laboratories, Inc.®**
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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:56 09/11/97

Initial ....Date....

Data Review By: CM 9/11/97 Calculated Noise Area: 2.89

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 S975808B.dbf
09/11/97 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 | | | | | | 0.823-1.104 | | | |
| 304-306 | | DC | NL | 0:00 | RO | 0.15 | 0.14 | | | 0.000 | | | |
| | K | | | 16:56 | | 0.75 | 6.90 | 2.95 | 3.95 | 0.830 | | | |
| | K | | | 17:23 | | 0.74 | 8.43 | 3.58 | 4.85 | 0.852 | | | |
| | | | | 17:40 | | 0.73 | 10.53 | 4.46 | 6.07 | 0.866 | | | |
| | | | | 18:04 | RO | 0.98 | 18.92 | 10.47 | 10.69 | 0.886 | | | |
| | | | | 18:27 | | 0.81 | 24.57 | 11.02 | 13.55 | 0.904 | | | |
| | A | | | 18:54 | | 0.88 | 30.00 | 14.00 | 16.00 | 0.926 | | | |
| | | | | 19:14 | | 0.68 | 25.49 | 10.35 | 15.14 | 0.943 | | | |
| | M | | | 19:43 | | 0.88 | 31.80 | 14.90 | 16.90 | 0.967 | | | |
| | | | | 19:58 | | 0.71 | 40.05 | 16.66 | 23.39 | 0.979 | | | |
| | | | | 20:12 | | 0.82 | 11.18 | 5.05 | 6.13 | 0.990 | | | |
| | | | | 20:26 | | 0.75 | 75.49 | 32.29 | 43.20 | 1.002 | 2378-TCDF | | AN |
| | | | | 20:55 | RO | 0.94 | 15.12 | 8.07 | 8.54 | 1.025 | | | |
| | | | | 21:09 | RO | 1.07 | 7.81 | 4.72 | 4.41 | 1.037 | | | |
| | | DC | SN | 21:43 | | 0.84 | 3.50 | | | 1.065 | | | |
| | | | | 22:20 | RO | 0.95 | 12.27 | 6.59 | 6.93 | 1.095 | | | |
| 304-306 | | | 14 | Peaks | | | 318.56 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.951-1.049 | | | |
| 316-318 | | DC | NL | 0:00 | | 0.75 | 2.05 | | | 0.000 | | | |
| | | DC | WL | 19:12 | | 0.66 | 21.11 | | | 0.941 | | | |
| | | | | 19:40 | | 0.66 | 32.43 | 12.88 | 19.55 | 0.964 | | | |
| | | | | 19:55 | RO | 0.50 | 26.32 | 11.45 | 23.12 | 0.976 | | | |
| | | | | 20:24 | | 0.76 | 6,033.07 | 2,601.46 | 3,431.61 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 20:54 | RO | 1.10 | 22.87 | 14.24 | 12.92 | 1.025 | | | |
| 316-318 | | | 4 | Peaks | | | 6,114.69 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | 0.65-0.89 | | | | | | 0.857-1.061 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 0.13 | 0.16 | | | 0.000 | | | |
| | | DC | WL | 18:10 | RO | 0.58 | 0.80 | | | 0.856 | | | |
| | | | | 18:18 | | 0.73 | 27.69 | 11.72 | 15.97 | 0.863 | | | |
| | | | | 18:45 | | 0.66 | 15.97 | 6.36 | 9.61 | 0.884 | | | |
| | K | | | 19:08 | | 0.81 | 6.74 | 3.02 | 3.72 | 0.902 | | | |
| | | DC | SN | 19:19 | | 0.71 | 0.82 | | | 0.910 | | | |
| | | DC | SN | 19:40 | RO | 0.53 | 1.36 | | | 0.927 | | | |
| | | DC | SN | 19:46 | RO | 0.23 | 0.46 | | | 0.932 | | | |
| | A | | | 19:53 | RO | 0.48 | 12.96 | 5.64 | 11.80 | 0.937 | | | |
| | | DC | SN | 20:05 | RO | 1.33 | 3.56 | | | 0.947 | | | |
| | | DC | SN | 20:46 | | 0.88 | 1.05 | | | 0.979 | | | |
| | MK | | | 20:57 | | 0.86 | 10.21 | 4.73 | 5.48 | 0.987 | | | |
| | M | | | 21:14 | RO | 0.37 | 5.63 | 2.45 | 6.57 | 1.001 | 2378-TCDD | | 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 | | 21:24 | RO | 0.14 | 1.63 | | | 1.009 | | | |
| K | | | | 21:37 | RO | 0.47 | 3.24 | 1.41 | 2.97 | 1.019 | | | |
| | DC | SN | | 22:03 | RO | 0.29 | 0.90 | | | 1.039 | | | |
| | DC | WH | | 22:39 | RO | 0.59 | 1.13 | | | 1.068 | | | |
| 320-322 | | | 7 Peaks | | | | 82.44 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 1.00 | | | 0.000 | | | |
| | DC | WL | | 18:36 | | | 671.91 | | | 0.877 | | | |
| | DC | WL | | 18:45 | | | 146.56 | | | 0.884 | | | |
| | | | | 19:41 | | | 18,140.50 | 18,140.50 | | 0.928 | | | |
| | | | | 21:14 | | | 3,630.46 | 3,630.46 | | 1.001 | 37Cl-TCDD | | SUR1 |
| | | | | 21:42 | | | 183.22 | 183.22 | | 1.023 | | | |
| 328 | | | 3 Peaks | | | | 21,954.18 | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 17.57 | 0.12 | | | 0.000 | | | |
| | | | | 19:54 | RO | 0.94 | 20.87 | 11.14 | 11.79 | 0.938 | | | |
| | | | | 21:01 | | 0.80 | 4,648.40 | 2,068.45 | 2,579.95 | 0.991 | 13C12-1234-TCDD | | RS1 |
| | | | | 21:13 | | 0.79 | 4,411.05 | 1,945.04 | 2,466.01 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 21:35 | | 0.76 | 69.35 | 29.97 | 39.38 | 1.017 | | | |
| 332-334 | | | 4 Peaks | | | | 9,149.67 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PeCDF | | | | | | 1.32-1.78 | | | | 0.909-1.079 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 0.78 | 0.12 | | | 0.000 | | | |
| | DC | SN | | 22:29 | RO | 1.04 | 1.92 | | | 0.910 | | | |
| | | | | 22:37 | | 1.56 | 40.44 | 24.67 | 15.77 | 0.915 | | | |
| | DC | SN | | 22:55 | RO | 0.16 | 0.54 | | | 0.927 | | | |
| | DC | SN | | 23:42 | RO | 1.13 | 5.05 | | | 0.959 | | | |
| | | | | 23:49 | | 1.48 | 53.70 | 32.09 | 21.61 | 0.964 | | | |
| | DC | SN | | 24:00 | | 1.74 | 8.97 | | | 0.971 | | | |
| D | D | SN | | 24:09 | | 1.43 | 9.00 | | | 0.977 | | | |
| A | | | | 24:21 | | 1.48 | 26.50 | 15.80 | 10.70 | 0.985 | | | |
| | DC | SN | | 24:38 | RO | 1.95 | 8.42 | | | 0.997 | | | |
| M | | | | 24:44 | | 1.68 | 10.65 | 6.68 | 3.97 | 1.001 | 12378-PeCDF | | AN |
| | DC | SN | | 24:53 | | 1.39 | 8.01 | | | 1.007 | | | |
| D | D | SN | | 25:04 | RO | 1.81 | 14.13 | | | 1.014 | | | |
| | | | | 25:30 | | 1.46 | 29.89 | 17.76 | 12.13 | 1.032 | 23478-PeCDF | | AN |
| | DC | SN | | 25:57 | RO | 0.72 | 2.73 | | | 1.050 | | | |
| | | | | 26:21 | RO | 1.09 | 11.91 | 7.24 | 6.64 | 1.066 | | | |
| | DC | SN | | 26:28 | | 1.60 | 6.22 | | | 1.071 | | | |
| | DC | SN | | 26:38 | RO | 0.42 | 1.86 | | | 1.078 | | | |
| | DC | WH | | 26:55 | | 1.36 | 3.82 | | | 1.089 | | | |
| 340-342 | | | 6 Peaks | | | | 173.09 | | | | | | |
| 13C12-PeCDF | | | | | | 1.32-1.78 | | | | 0.838-1.162 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.14 | 0.13 | | | 0.000 | | | |
| | | | | 23:49 | | 1.53 | 39.40 | 23.80 | 15.60 | 0.964 | | | |
| | | | | 24:21 | | 1.42 | 22.55 | 13.25 | 9.30 | 0.985 | | | |
| | | | | 24:43 | | 1.42 | 5,030.90 | 2,953.19 | 2,077.71 | 1.000 | 13C12-PeCDF 123 | | IS2 |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 25:02 | | 1.61 | 34.52 | 21.28 | 13.24 | 1.013 | | | |
| | | | | 25:29 | | 1.45 | 4,547.45 | 2,691.90 | 1,855.55 | 1.031 | 13C12-PeCDF 234 | SUR2 | |
| | DC | SN | | 26:27 | RO | 4.31 | 8.26 | | | 1.070 | | | |
| 352-354 | | | 5 Peaks | | | | 9,674.82 | | | | | | |
| ---------- Above: PeCDF / PeCDD Follows ---------- | | | | | | | | | | | | | |
| PeCDD | | | | 1.32-1.78 | | | | | | 0.921-1.026 | | | |
| 356-358 | DC | NL | | 0:00 | RO | 0.88 | 0.12 | | | 0.000 | | | |
| | | | | 23:58 | RO | 0.01 | 55.24 | 33.58 | 4,006.77 | 0.927 | | | |
| | | | | 24:11 | RO | 0.01 | 18.79 | 11.42 | 846.02 | 0.936 | | | |
| | | | | 24:27 | RO | 2.79 | 24.15 | 26.39 | 9.47 | 0.946 | | | |
| | | | | 24:44 | RO | 1.98 | 22.29 | 17.28 | 8.74 | 0.957 | | | |
| | | | | 25:04 | | 1.36 | 18.58 | 10.70 | 7.88 | 0.970 | | | |
| | | | | 25:18 | | 1.51 | 38.84 | 23.37 | 15.47 | 0.979 | | | |
| | | | | 25:32 | RO | 1.27 | 8.69 | 5.28 | 4.15 | 0.988 | | | |
| | | | | 25:52 | | 1.34 | 9.59 | 5.50 | 4.09 | 1.001 | 12378-PeCDD | AN | |
| 356-358 | | | 8 Peaks | | | | 196.17 | | | | | | |
| 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 | | 24:47 | RO | 0.62 | 3.88 | | | 0.959 | | | |
| | DC | SN | | 25:13 | RO | 0.82 | 2.81 | | | 0.975 | | | |
| | | | | 25:51 | | 1.49 | 3,028.25 | 1,813.06 | 1,215.19 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 26:00 | | 1.52 | 293.47 | 177.23 | 116.24 | 1.006 | | | |
| | DC | SN | | 26:19 | RO | 0.73 | 4.95 | | | 1.018 | | | |
| | | | | 26:51 | RO | 0.32 | 9.08 | 5.52 | 17.44 | 1.039 | | | |
| 368-370 | | | 3 Peaks | | | | 3,330.80 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | 1.05-1.43 | | | | | | 0.957-1.053 | | | |
| 374-376 | DC | NL | | 0:00 | | 1.30 | 2.00 | | | 0.000 | | | |
| | | | | 27:23 | RO | 1.52 | 19.47 | 13.20 | 8.69 | 0.961 | | | |
| | | | | 27:32 | | 1.37 | 62.51 | 36.14 | 26.37 | 0.967 | | | |
| | | | | 27:50 | | 1.24 | 9.10 | 5.04 | 4.06 | 0.977 | | | |
| | | | | 28:00 | | 1.29 | 31.54 | 17.77 | 13.77 | 0.983 | | | |
| | | | | 28:23 | | 1.37 | 75.02 | 43.35 | 31.67 | 0.996 | 123478-HxCDF | AN | PR |
| | | | | 28:29 | | 1.32 | 29.20 | 16.64 | 12.56 | 1.000 | 123678-HxCDF | AN | |
| | K | | | 28:36 | | 1.22 | 7.16 | 3.93 | 3.23 | 1.004 | | | |
| | | | | 28:46 | | 1.24 | 9.81 | 5.43 | 4.38 | 1.010 | | | |
| | A | | | 28:57 | RO | 0.99 | 7.55 | 4.18 | 4.23 | 1.016 | | | |
| | M | | | 28:59 | RO | 1.86 | 19.04 | 15.80 | 8.50 | 1.018 | 234678-HxCDF | AN | PR |
| | DC | SN | | 29:07 | RO | 1.45 | 1.34 | | | 1.022 | | | |
| | DC | SN | | 29:14 | RO | 3.90 | 0.87 | | | 1.026 | | | |
| | DC | SN | | 29:24 | RO | 0.57 | 1.01 | | | 1.032 | | | |
| | DC | SN | | 29:31 | RO | 11.93 | 0.31 | | | 1.036 | | | |
| | DC | SN | | 29:38 | RO | 7.38 | 0.72 | | | 1.040 | | | |
| | MK | | | 29:42 | | 1.40 | 7.57 | 4.42 | 3.15 | 1.043 | 123789-HxCDF | AN | |
| | M | | | 29:48 | RO | 1.61 | 11.47 | 8.24 | 5.12 | 1.046 | | | |
| | DC | SN | | 29:55 | RO | 3.55 | 1.05 | | | 1.050 | | | |
| | DC | WH | | 30:02 | RO | 0.73 | 1.03 | | | 1.054 | | | |

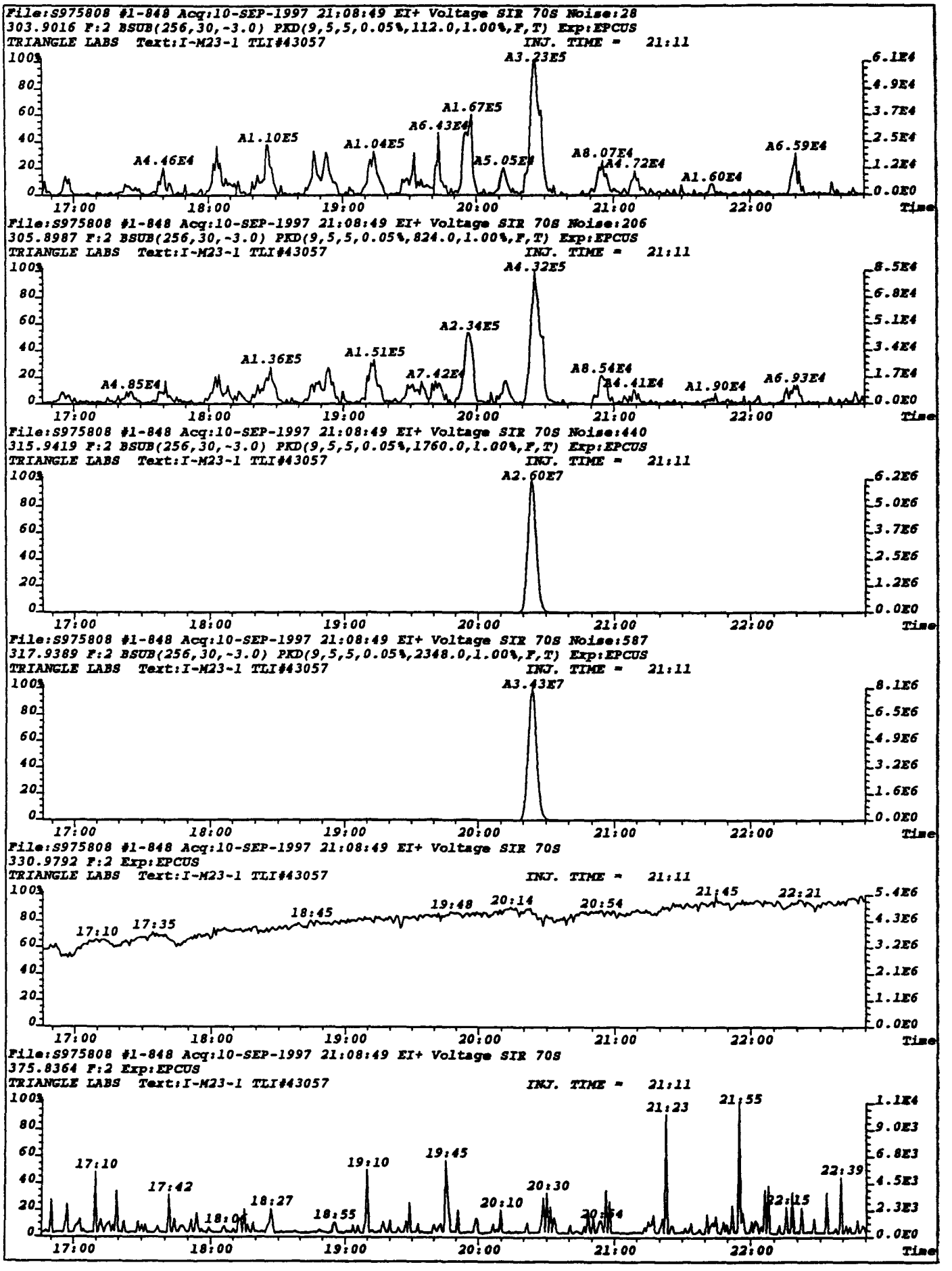
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | WH | | 30:16 | RO | 1.47 | 3.43 | | | 1.063 | | | |
| 374-376 | | 12 | Peaks | | | | 289.44 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.859-1.141 | | | |
| 384-386 | DC | NL | | 0:00 | RO | 0.98 | 3.47 | | | 0.000 | | | |
| | DC | SN | | 27:23 | | 0.53 | 6.19 | | | 0.961 | | | |
| | | | | 27:31 | | 0.51 | 16.32 | 5.54 | 10.78 | 0.966 | | | |
| | | | | 28:22 | | 0.50 | 3,532.36 | 1,175.53 | 2,356.83 | 0.996 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 28:29 | | 0.50 | 3,893.18 | 1,290.86 | 2,602.32 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | DC | SN | | 28:46 | RO | 1.19 | 2.67 | | | 1.010 | | | |
| | | | | 28:59 | | 0.49 | 3,490.34 | 1,154.25 | 2,336.09 | 1.018 | 13C12-HxCDF 234 | ALT2 | |
| | DC | SN | | 29:14 | RO | 0.88 | 2.07 | | | 1.026 | | | |
| | | | | 29:23 | RO | 1.74 | 7.19 | 8.30 | 4.76 | 1.032 | | | |
| | DC | SN | | 29:31 | RO | 0.89 | 4.27 | | | 1.036 | | | |
| | | | | 29:42 | | 0.50 | 2,799.07 | 931.12 | 1,867.95 | 1.043 | 13C12-HxCDF 789 | ALT1 | |
| 384-386 | | 6 | Peaks | | | | 13,738.46 | | | | | | |
| ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | | |
| HxCDD | | | | 1.05-1.43 | | | | | | 0.951-1.015 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 1.56 | 2.08 | | | 0.000 | | | |
| | | | | 27:55 | | 1.22 | 75.74 | 41.58 | 34.16 | 0.956 | | | |
| | | | | 28:23 | | 1.29 | 68.09 | 38.41 | 29.68 | 0.972 | | | |
| | DC | SN | | 28:28 | RO | 3.38 | 1.75 | | | 0.975 | | | |
| | | | | 28:36 | | 1.19 | 103.06 | 55.90 | 47.16 | 0.979 | | | |
| | | | | 28:45 | | 1.18 | 17.87 | 9.67 | 8.20 | 0.985 | | | |
| | DC | SN | | 28:53 | RO | 0.75 | 2.33 | | | 0.989 | | | |
| | | | | 29:08 | | 1.42 | 15.54 | 9.11 | 6.43 | 0.998 | 123478-HxCDD | AN | |
| | | | | 29:13 | | 1.16 | 29.95 | 16.07 | 13.88 | 1.001 | 123678-HxCDD | AN | |
| | | | | 29:30 | | 1.09 | 42.60 | 22.25 | 20.35 | 1.010 | 123789-HxCDD | AN | PR |
| | DC | WH | | 29:41 | RO | 0.85 | 5.18 | | | 1.017 | | | |
| 390-392 | | 7 | Peaks | | | | 352.85 | | | | | | |
| 13C12-HxCDD | | | | 1.05-1.43 | | | | | | 0.966-1.034 | | | |
| 402-404 | DC | NL | | 0:00 | RO | 0.82 | 1.45 | | | 0.000 | | | |
| | DC | WL | | 27:52 | RO | 0.66 | 2.96 | | | 0.954 | | | |
| | | | | 28:36 | | 1.23 | 12.52 | 6.91 | 5.61 | 0.979 | | | |
| | | | | 29:07 | | 1.20 | 2,521.18 | 1,375.41 | 1,145.77 | 0.997 | 13C12-HxCDD 478 | SUR4 | |
| | | | | 29:12 | | 1.24 | 2,943.73 | 1,628.34 | 1,315.39 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 29:29 | | 1.23 | 3,161.62 | 1,743.31 | 1,418.31 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| | | | | 29:41 | | 1.36 | 9.42 | 5.42 | 4.00 | 1.017 | | | |
| | DC | SN | | 29:48 | RO | 2.82 | 1.39 | | | 1.021 | | | |
| 402-404 | | 5 | Peaks | | | | 8,648.47 | | | | | | |
| ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | | |
| HpCDF | | | | 0.88-1.20 | | | | | | 0.995-1.045 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 1.64 | 3.51 | | | 0.000 | | | |
| M | | | | 31:11 | | 1.13 | 94.90 | 50.40 | 44.50 | 1.000 | 1234678-HpCDF | AN | PR |
| | | | | 31:24 | | 1.10 | 16.64 | 8.73 | 7.91 | 1.007 | | | |
| | | | | 31:33 | | 1.03 | 78.61 | 39.83 | 38.78 | 1.012 | | | |
| | DC | SN | | 31:51 | RO | 0.66 | 1.26 | | | 1.021 | | | |

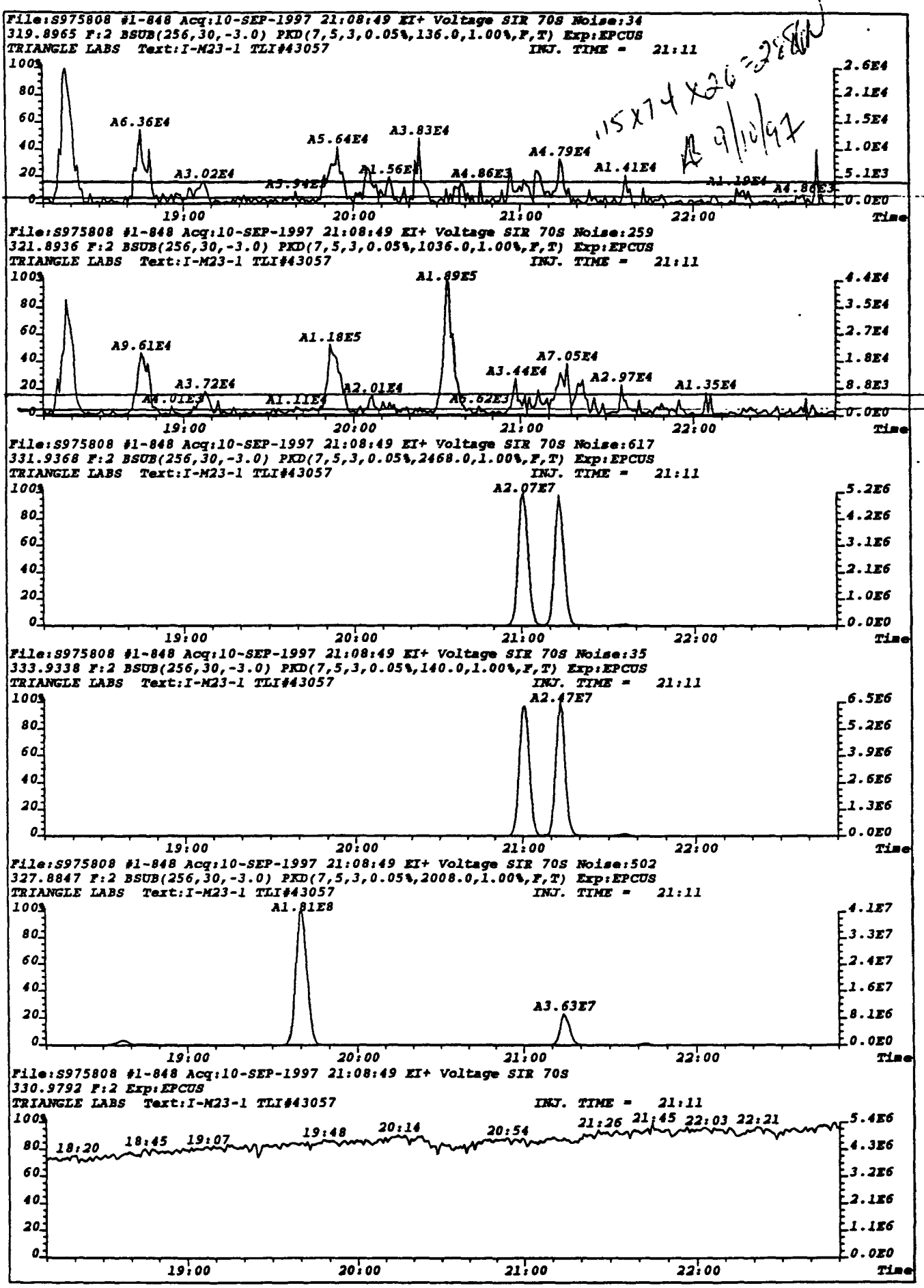
| Compound/ 4_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 31:58 | RO | 2.11 | 1.65 | | | 1.025 | | | |
| | | | | 32:24 | | 0.97 | 21.27 | 10.45 | 10.82 | 1.039 | 1234789-HpCDF | | AN |
| 408-410 | | | 4 Peaks | | | | 211.42 | | | | | | |
| 13C12-HpCDF | | | | 0.37-0.51 | | | | | | 0.936-1.128 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 0.82 | 2.10 | | | 0.000 | | | |
| | | | | 31:11 | | 0.45 | 1,994.27 | 614.76 | 1,379.51 | 1.000 | 13C12-HpCDF 678 | | IS6 |
| | | | | 32:23 | | 0.41 | 1,285.52 | 375.39 | 910.13 | 1.038 | 13C12-HpCDF 789 | | SUR5 |
| 418-420 | | | 2 Peaks | | | | 3,279.79 | | | | | | |
| | ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | |
| HpCDD | | | | 0.88-1.20 | | | | | | 0.977-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | RO | 1.74 | 3.35 | | | 0.000 | | | |
| | | | | 31:27 | | 0.96 | 463.72 | 227.09 | 236.63 | 0.981 | | | |
| | | | | 32:04 | | 0.98 | 385.95 | 190.80 | 195.15 | 1.001 | 1234678-HpCDD | | AN |
| 424-426 | | | 2 Peaks | | | | 849.67 | | | | | | |
| 13C12-HpCDD | | | | 0.88-1.20 | | | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | RO | 1.22 | 2.75 | | | 0.000 | | | |
| | | | | 32:03 | | 1.03 | 2,016.39 | 1,023.54 | 992.85 | 1.000 | 13C12-HpCDD 678 | | IS7 |
| 436-438 | | | 1 Peak | | | | 2,016.39 | | | | | | |
| | ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | |
| OCDF | | | | 0.76-1.02 | | | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | | 0.86 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 30:56 | RO | 3.00 | 0.34 | | | 0.896 | | | |
| | DC | SN | | 31:08 | RO | 0.36 | 0.45 | | | 0.902 | | | |
| | DC | SN | | 31:33 | RO | 7.31 | 0.25 | | | 0.914 | | | |
| | DC | SN | | 31:47 | RO | 4.29 | 0.13 | | | 0.920 | | | |
| | DC | SN | | 31:52 | RO | 0.52 | 0.91 | | | 0.923 | | | |
| | DC | SN | | 32:01 | RO | 0.38 | 0.42 | | | 0.927 | | | |
| | DC | SN | | 32:12 | RO | 1.04 | 0.87 | | | 0.932 | | | |
| | DC | SN | | 32:27 | RO | 1.41 | 0.42 | | | 0.940 | | | |
| | DC | SN | | 32:35 | RO | 0.23 | 0.25 | | | 0.944 | | | |
| | DC | SN | | 32:52 | RO | 1.16 | 1.46 | | | 0.952 | | | |
| | DC | SN | | 33:01 | | 0.97 | 1.40 | | | 0.956 | | | |
| | DC | SN | | 33:08 | RO | 0.13 | 0.19 | | | 0.959 | | | |
| | DC | SN | | 33:20 | RO | 2.16 | 1.63 | | | 0.965 | | | |
| | DC | SN | | 33:31 | RO | 1.15 | 1.23 | | | 0.971 | | | |
| | DC | SN | | 33:34 | RO | 0.58 | 0.68 | | | 0.972 | | | |
| | DC | SN | | 33:48 | RO | 2.41 | 0.51 | | | 0.979 | | | |
| M | | | | 34:39 | | 0.90 | 59.10 | 28.00 | 31.10 | 1.003 | OCDF | | AN |
| | DC | SN | | 34:55 | | 0.80 | 4.15 | | | 1.011 | | | |
| | DC | SN | | 35:04 | RO | 0.35 | 1.42 | | | 1.015 | | | |
| | DC | SN | | 35:15 | | 0.85 | 1.26 | | | 1.021 | | | |
| | DC | SN | | 35:26 | RO | 1.53 | 1.00 | | | 1.026 | | | |
| | DC | SN | | 35:48 | RO | 1.05 | 2.99 | | | 1.037 | | | |
| 442-444 | | | 1 Peak | | | | 59.10 | | | | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | | 0.86 | 0.13 | | | 0.000 | | | |
| | | | | 34:33 | | 0.87 | 12,207.19 | 5,681.55 | 6,525.64 | 1.000 | OCDD | | AN |
| 458-460 | | | 1 Peak | | | | 12,207.19 | | | | | | |
| 13C12-OCDD | | | | | | 0.76-1.02 | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | | | | 34:32 | | 0.86 | 1,984.37 | 920.29 | 1,064.08 | 1.000 | 13C12-OCDD | | IS8 |
| | DC | WH | | 34:55 | | 0.76 | 2.02 | | | 1.011 | | | |
| 470-472 | | | 1 Peak | | | | 1,984.37 | | | | | | |

| 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:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:28
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A3.23E5
A1.67E5
A6.43E4
A1.10E5
A1.04E5
A4.46E4
A5.05E4
A8.07E4
A4.72E4
A1.60E4
A6.59E4
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:206
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,824.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A4.32E5
A2.34E5
A1.36E5
A1.51E5
A4.85E4
A7.42E4
A8.54E4
A4.41E4
A1.90E4
A6.93E4
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:440
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1760.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.60E7
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:587
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2348.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A3.43E7
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
17:10
17:35
18:45
19:48
20:14
20:54
21:45
22:21
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
17:10
17:42
18:27
18:55
19:10
19:45
20:10
20:30
21:23
21:55
22:15
22:39
17:00
18:00
19:00
20:00
21:00
22:00
Time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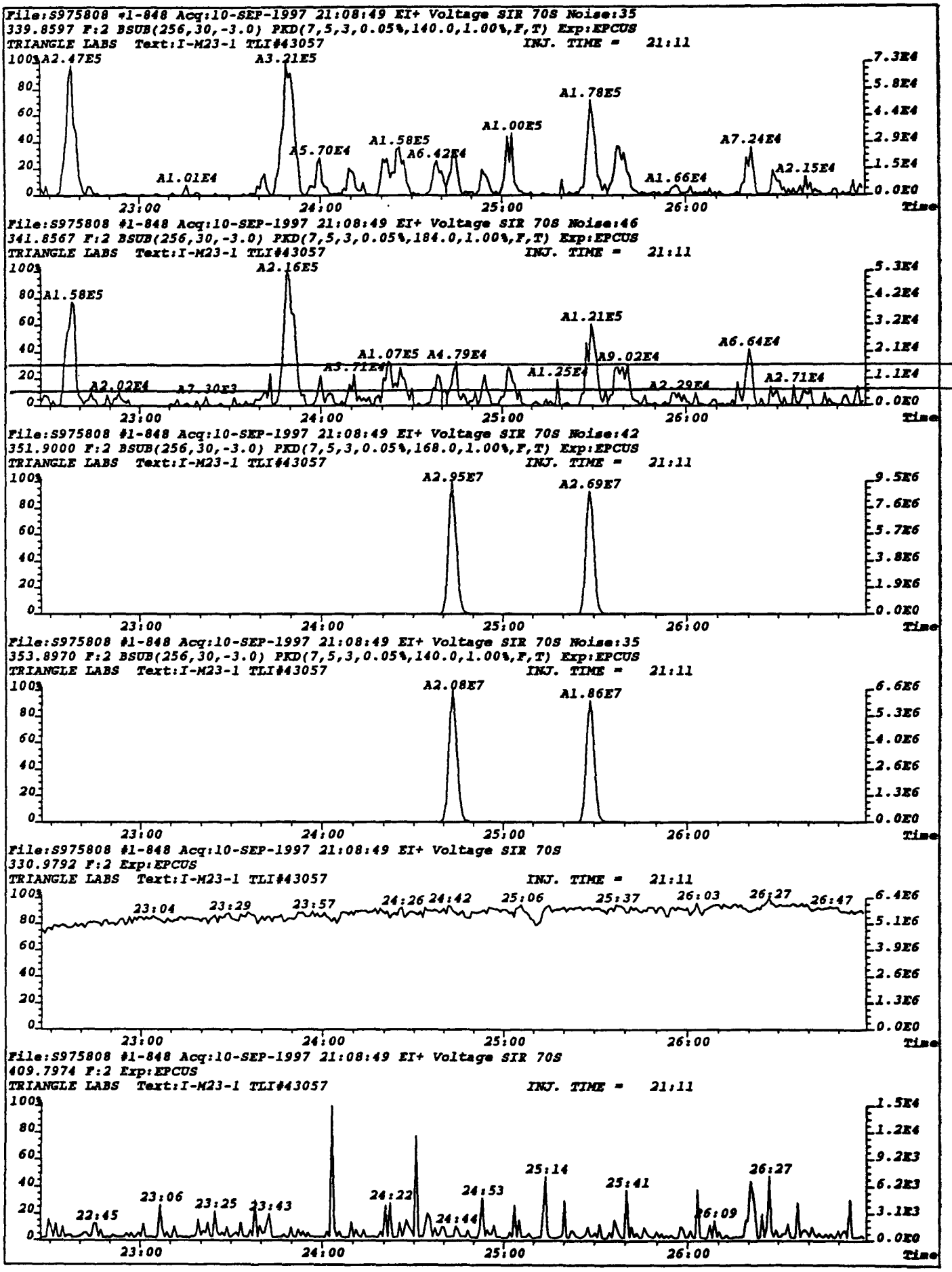
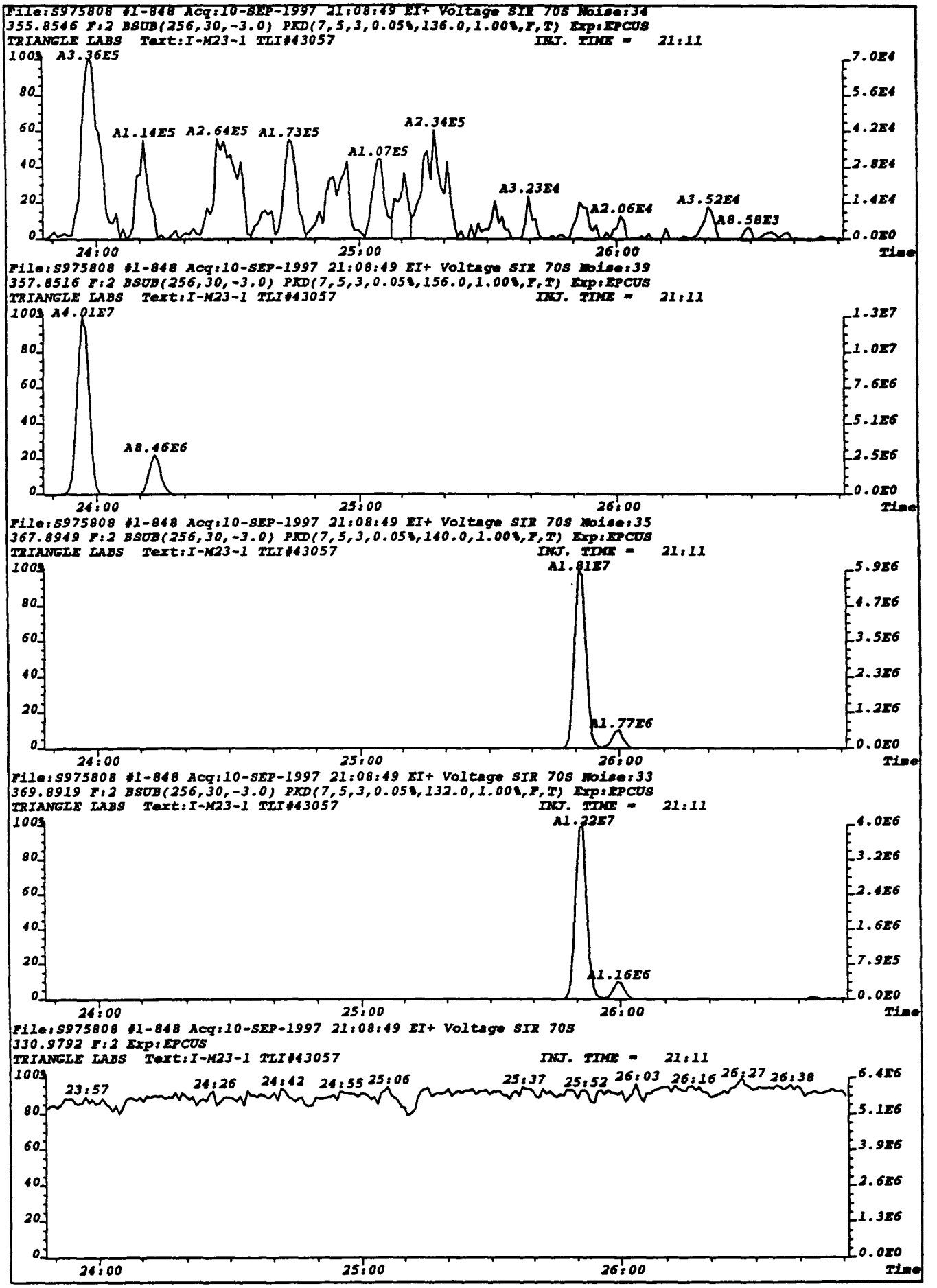
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A6.36E4
A3.02E4
A5.64E4
A3.83E4
A4.79E4
A1.41E4
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:259
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1036.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A1.89E5
A9.61E4
A1.18E5
A7.05E4
A3.44E4
A2.97E4
A3.72E4
A2.01E4
A1.35E4
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:617
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2468.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.07E7
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:35
333.9338 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#43057
INJ. TIME = 21:11
A2.47E7
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:502
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2008.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A1.81E8
A3.63E7
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
18:20
18:45
19:07
19:48
20:14
20:54
21:26
21:45
22:03
22:21
Time


File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 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-M23-1 TLI#43057
INJ. TIME = 21:11
A2.47E5
A3.21E5
A1.78E5
A1.00E5
A1.58E5
A5.70E4
A6.42E4
A1.01E4
A1.66E4
A7.24E4
A2.15E4
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:46
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.16E5
A1.58E5
A1.21E5
A6.64E4
A1.07E5
A4.79E4
A3.71E4
A9.02E4
A1.25E4
A2.02E4
A7.30E3
A2.29E4
A2.71E4
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:42
351.9000 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#43057
INJ. TIME = 21:11
A2.95E7
A2.69E7
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:35
353.8970 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#43057
INJ. TIME = 21:11
A2.08E7
A1.86E7
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
23:04
23:29
23:57
24:26
24:42
25:06
25:37
26:03
26:27
26:47
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
22:45
23:06
23:25
23:43
24:22
24:44
24:53
25:14
25:41
26:09
26:27
23:00
24:00
25:00
26:00
Time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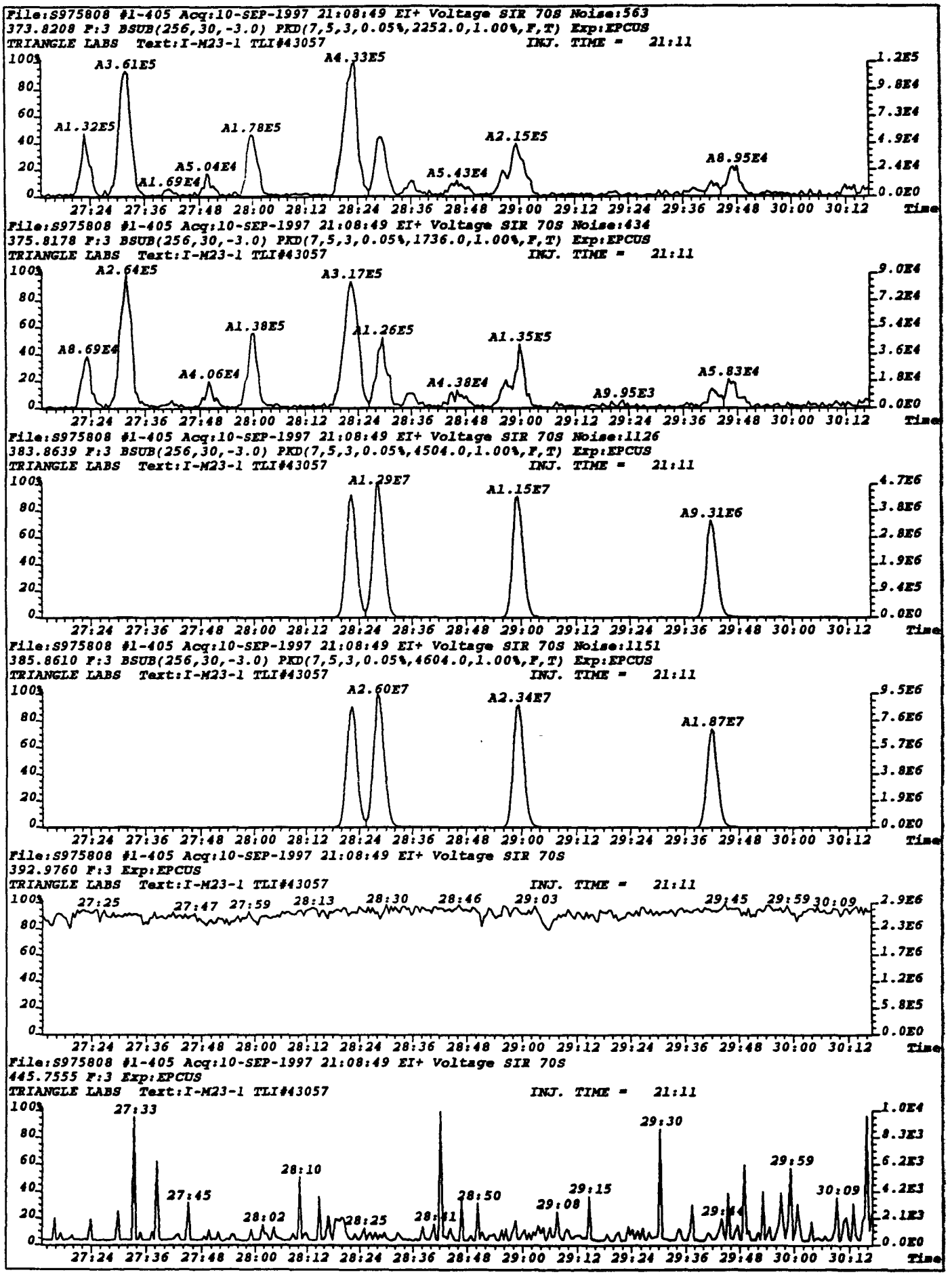
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A3.36E5
A1.14E5
A2.64E5
A1.73E5
A1.07E5
A2.34E5
A3.23E4
A2.06E4
A3.52E4
A8.58E3
24:00
25:00
26:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:39
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A4.01E7
A8.46E6
24:00
25:00
26:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:35
367.8949 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#43057
INJ. TIME = 21:11
A1.81E7
A1.77E6
24:00
25:00
26:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:33
369.8919 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-M23-1 TLI#43057
INJ. TIME = 21:11
A1.22E7
A1.16E6
24:00
25:00
26:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
23:57
24:26
24:42
24:55
25:06
25:37
25:52
26:03
26:16
26:27
26:38
24:00
25:00
26:00
Time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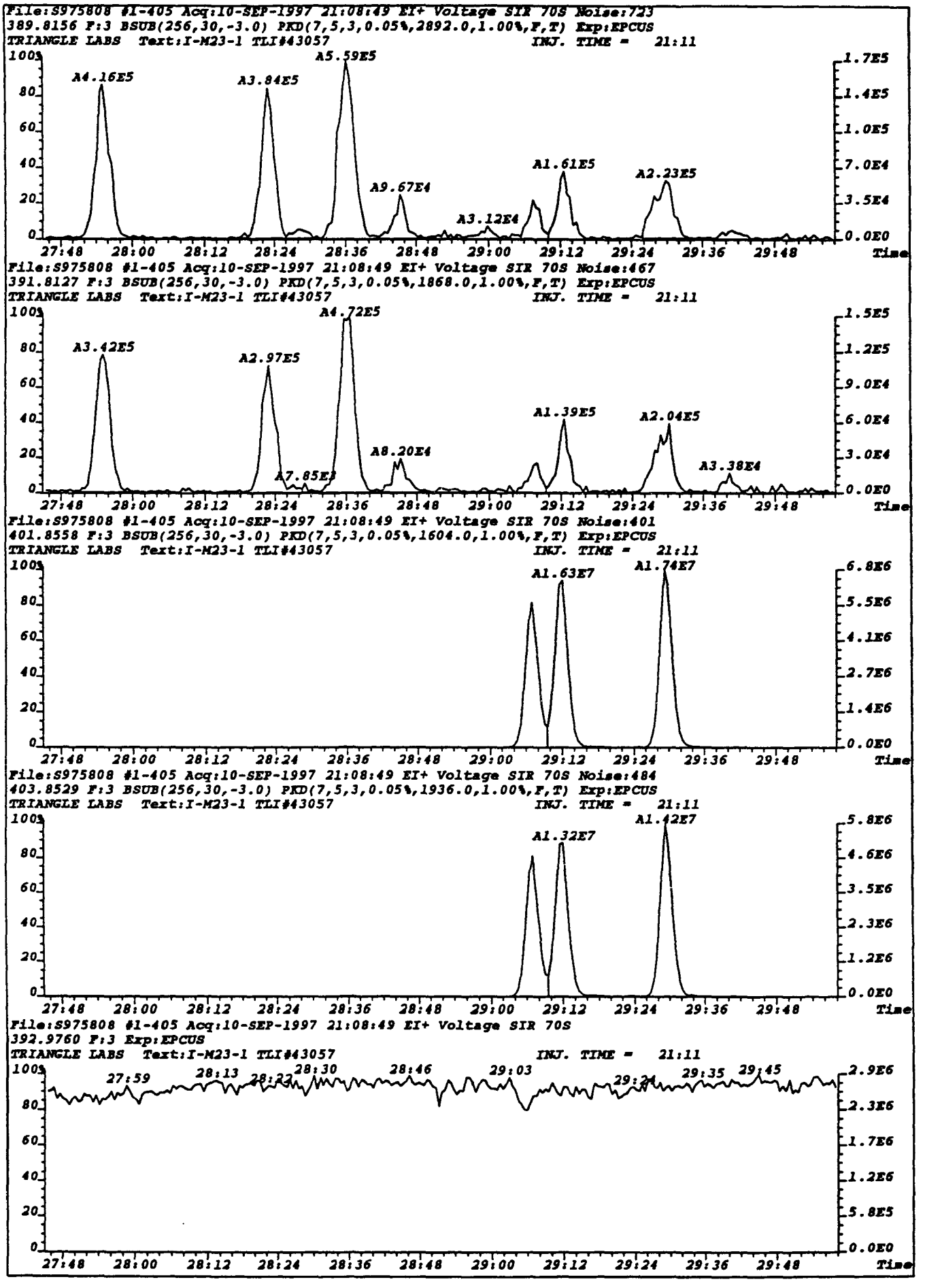
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2252.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A3.61E5
A4.33E5
A1.32E5
A1.78E5
A2.15E5
A8.95E4
A5.04E4
A1.69E4
A5.43E4
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:434
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1736.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A2.64E5
A3.17E5
A1.38E5
A1.26E5
A1.35E5
A8.69E4
A4.06E4
A4.38E4
A9.95E3
A5.83E4
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:1126
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4504.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A1.29E7
A1.15E7
A9.31E6
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:1151
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4604.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A2.60E7
A2.34E7
A1.87E7
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
27:33
29:30
28:10
29:59
27:45
28:50
29:15
29:08
28:02
28:25
30:09
Time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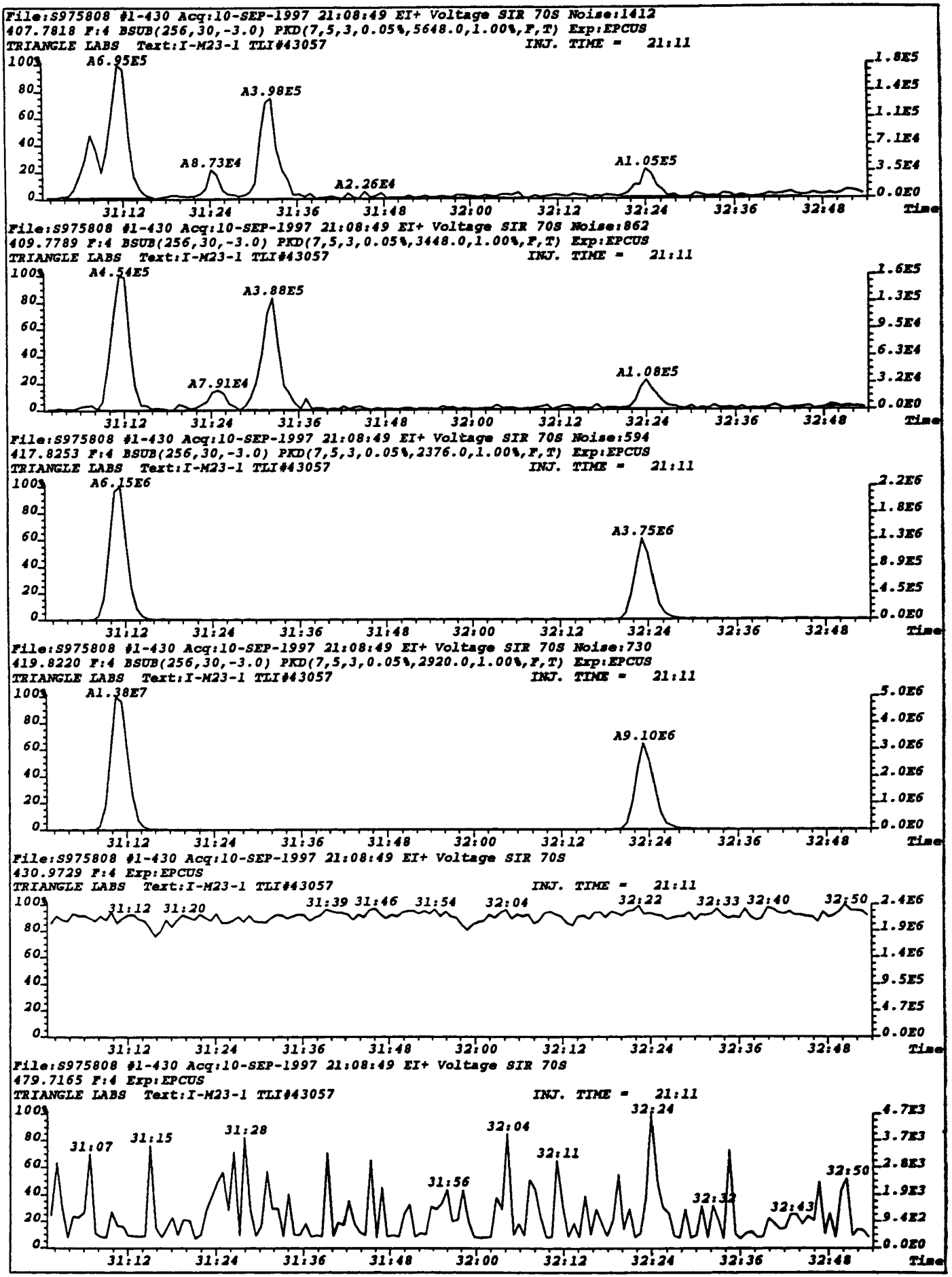
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2892.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A4.16E5
A3.84E5
A5.59E5
A9.67E4
A3.12E4
A1.61E5
A2.23E5
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:467
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1868.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A3.42E5
A2.97E5
A4.72E5
A7.85E3
A8.20E4
A1.39E5
A2.04E5
A3.38E4
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:401
401.8558 F:3 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#43057
INJ. TIME = 21:11
A1.63E7
A1.74E7
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:484
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1936.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A1.32E7
A1.42E7
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
27:59
28:13
28:30
28:46
29:03
29:35
29:45
Time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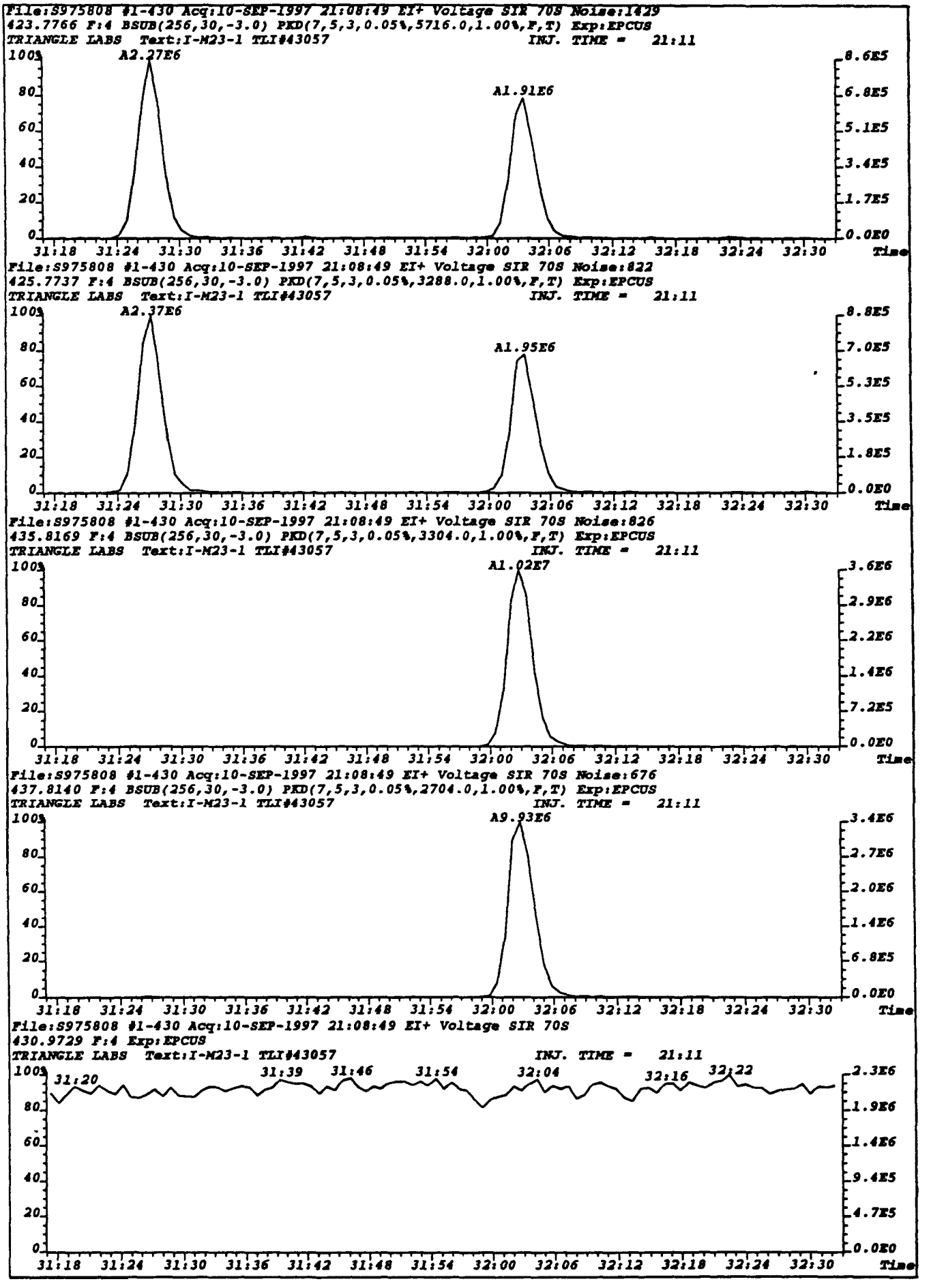
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5648.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A6.95E5
A3.98E5
A8.73E4
A2.26E4
A1.05E5
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:862
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3448.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A4.54E5
A3.88E5
A7.91E4
A1.08E5
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:594
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2376.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A6.15E6
A3.75E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:730
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2920.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
A1.38E7
A9.10E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057 INJ. TIME = 21:11
Time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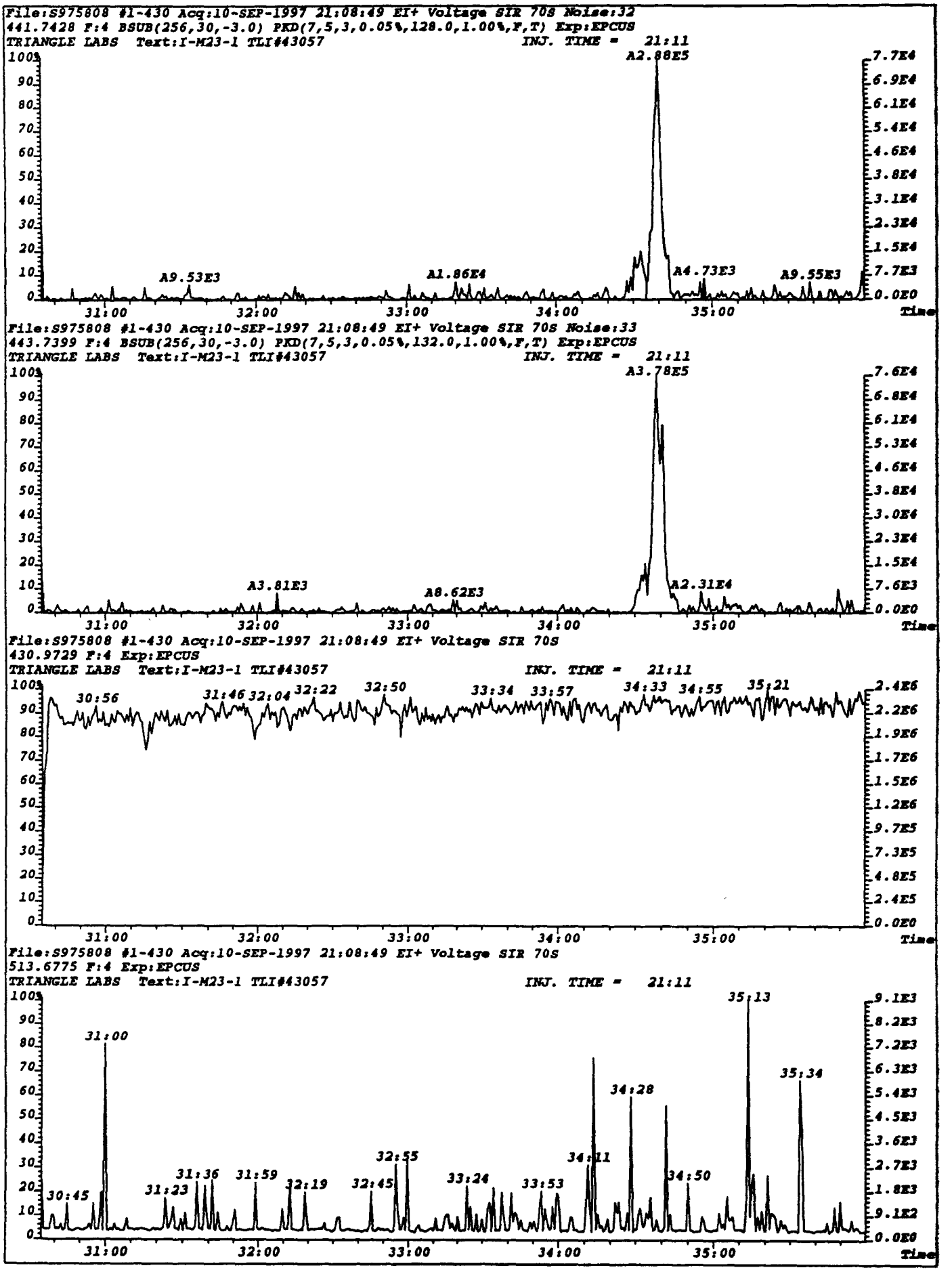
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5716.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.27E6
A1.91E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:822
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3288.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.37E6
A1.95E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:826
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3304.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A1.02E7
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:676
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2704.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A9.93E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
31:20
31:39
31:46
31:54
32:04
32:16
32:22
Time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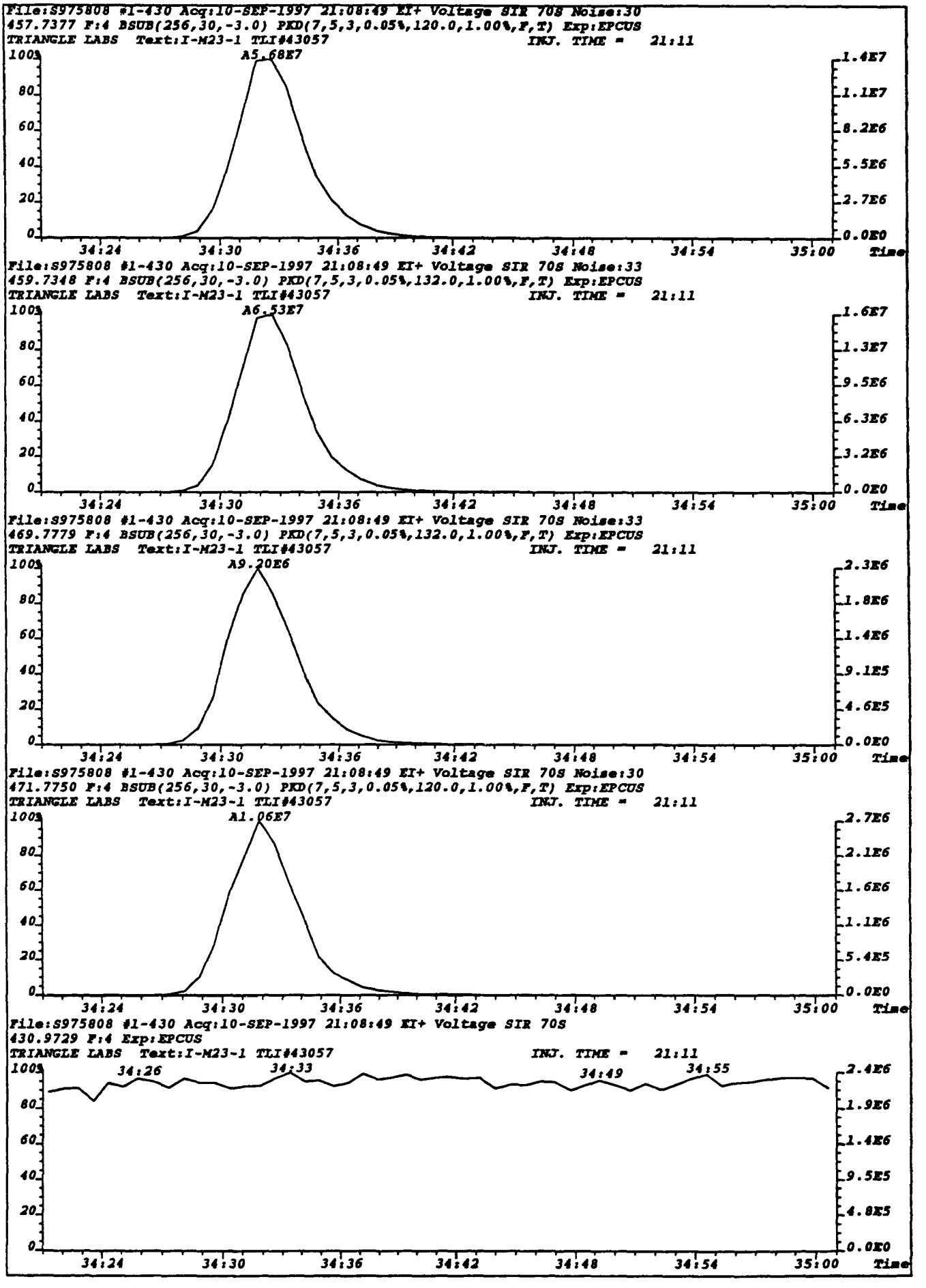
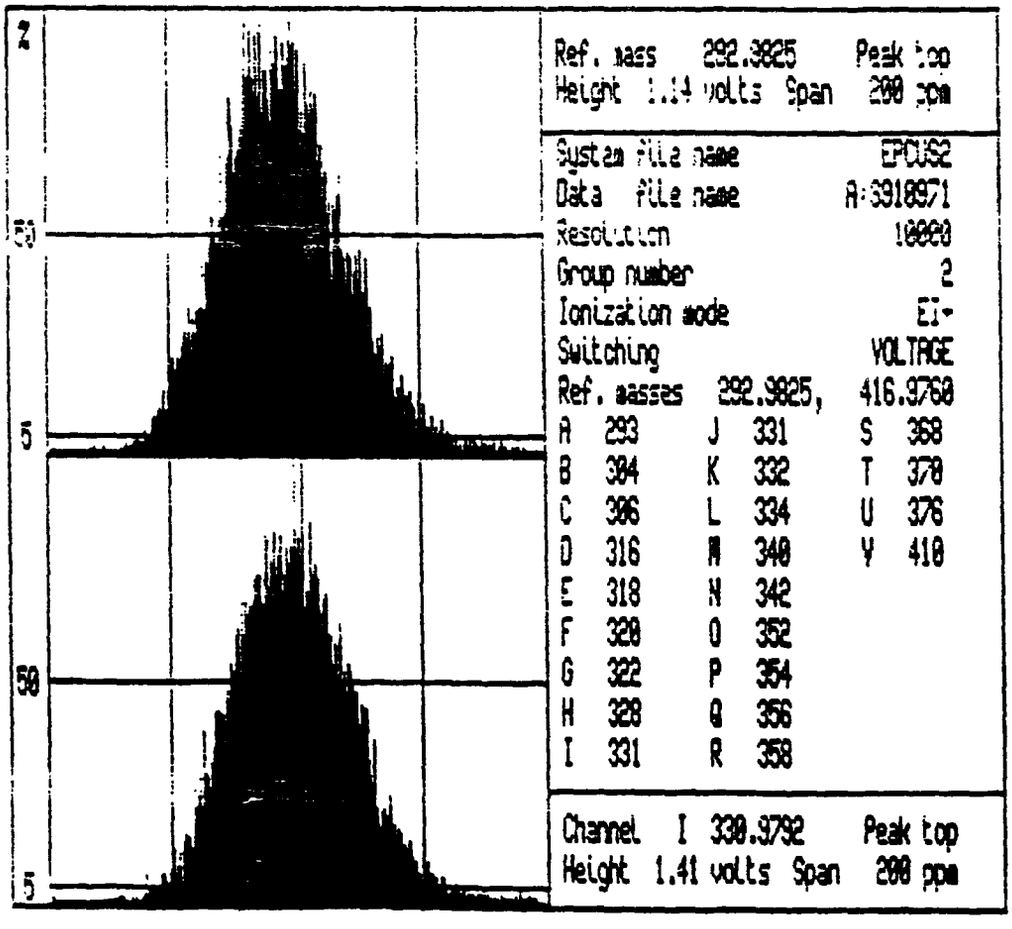
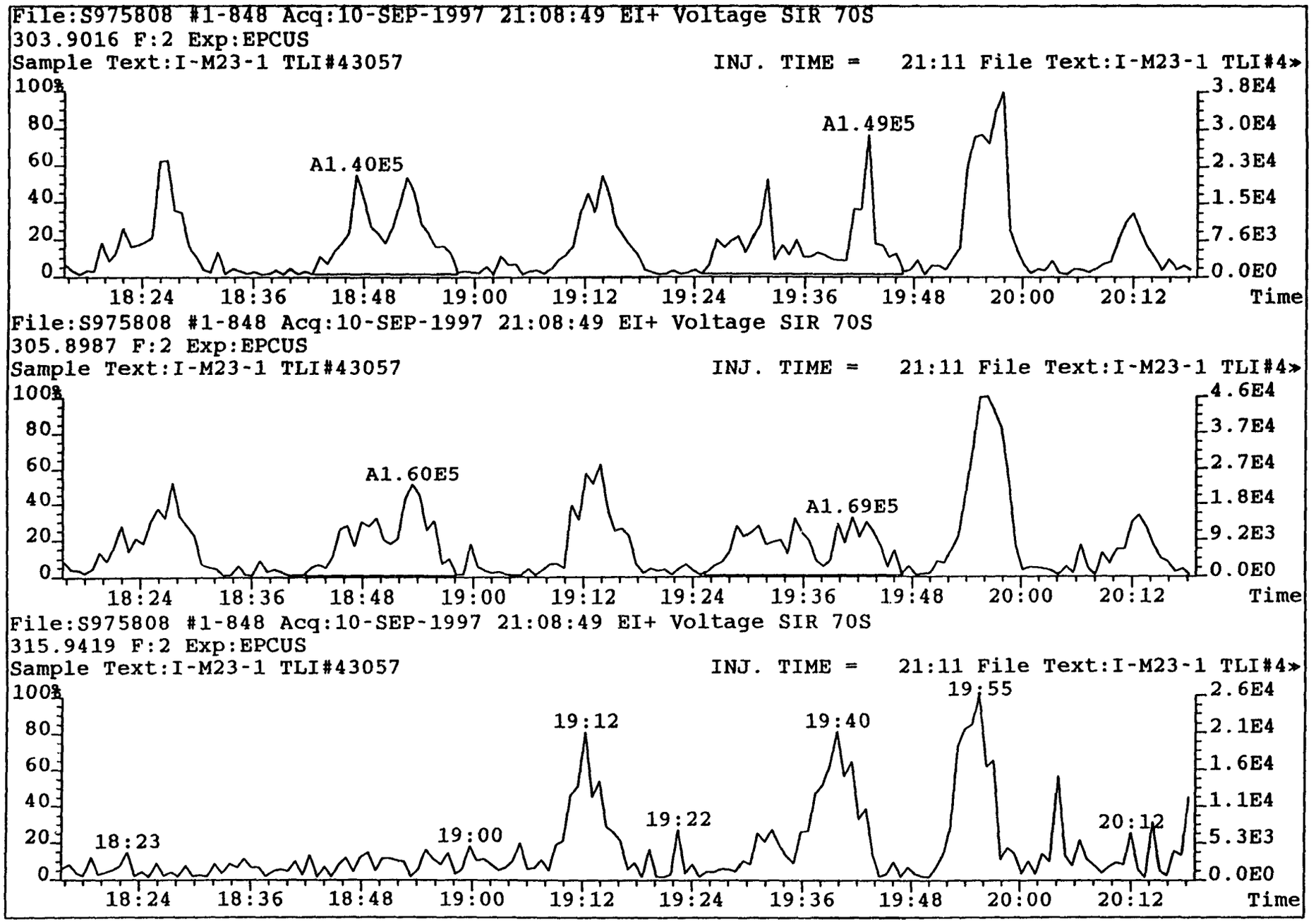
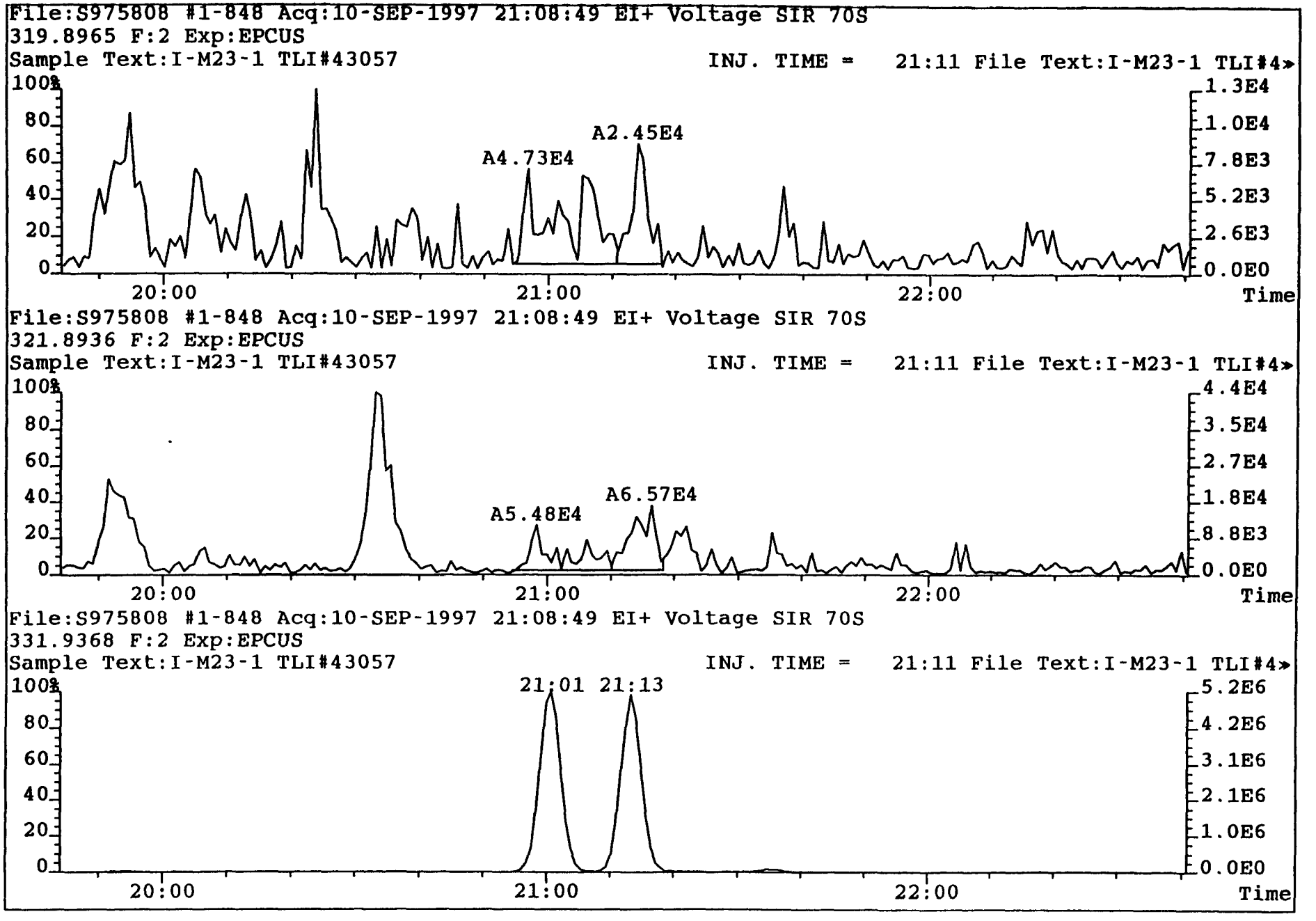
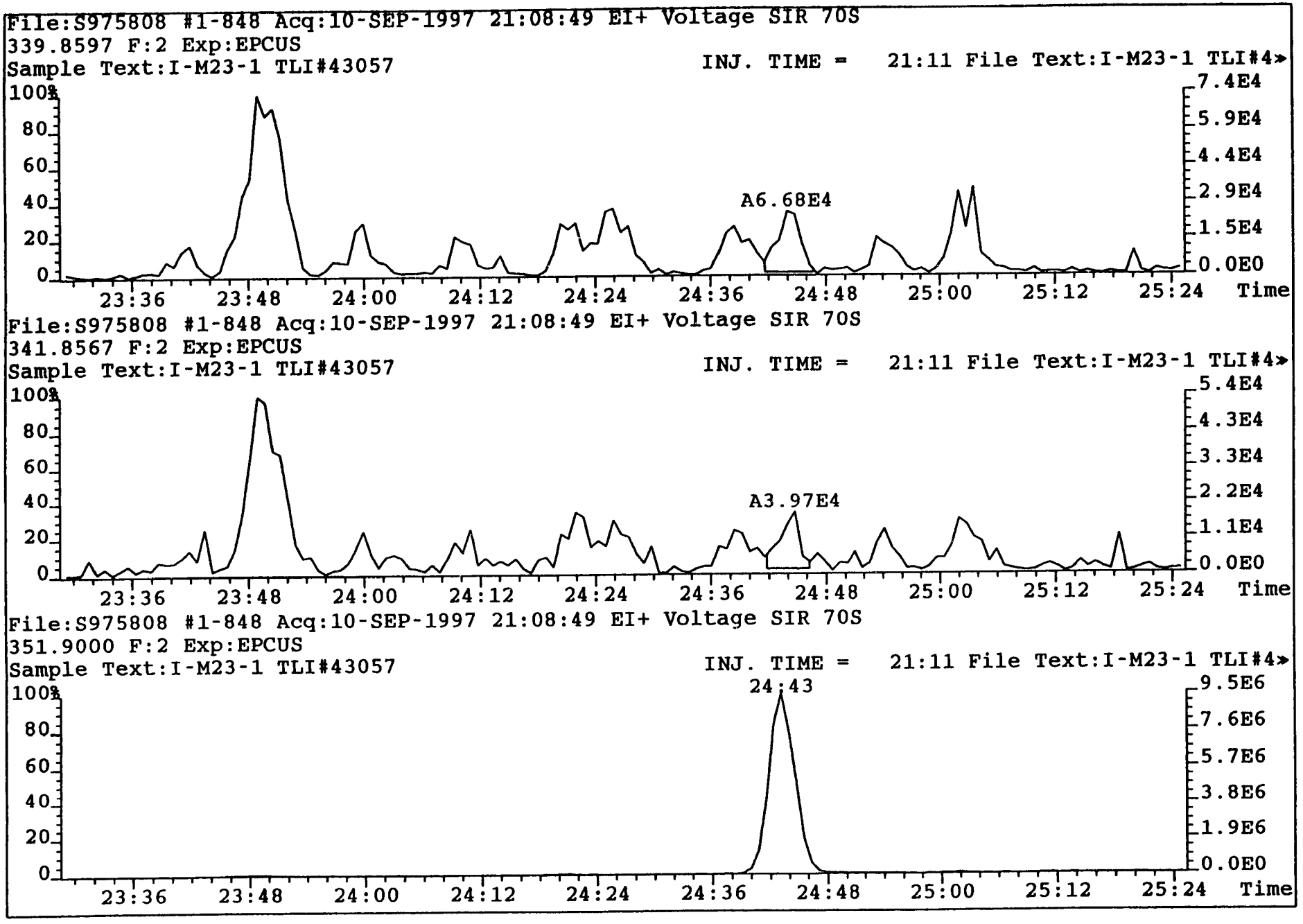
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A2.88E5
A9.53E3
A1.86E4
A4.73E3
A9.55E3
Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:33
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A3.78E5
A3.81E3
A8.62E3
A2.31E4
Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
30:56
31:46
32:04
32:22
32:50
33:34
33:57
34:33
34:55
35:21
Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
31:00
35:13
34:28
35:34
32:55
34:11
31:36
31:59
32:19
32:45
33:24
33:53
34:50
31:23
30:45
Time

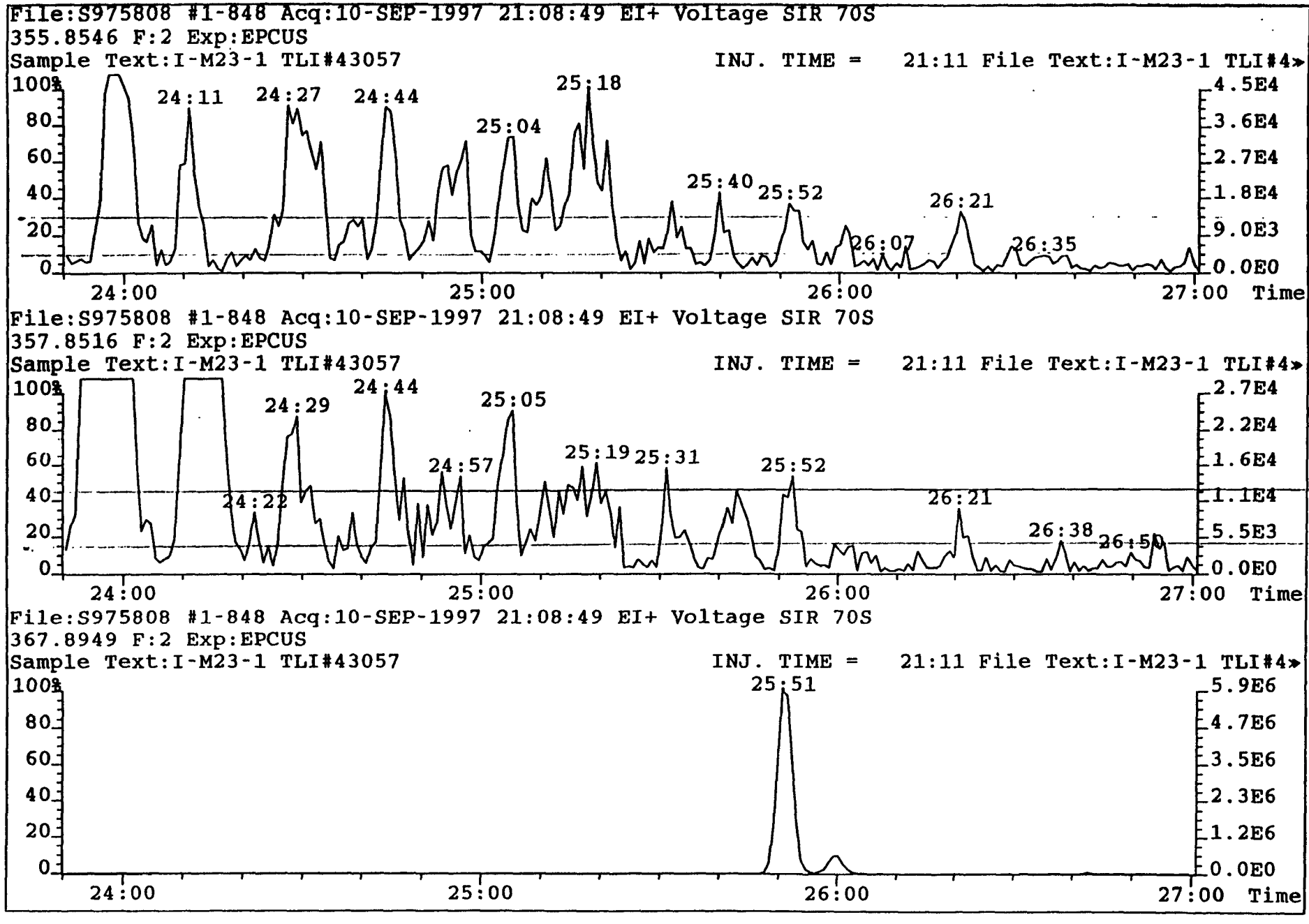

File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:30
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A5.68E7
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:33
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A6.53E7
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:33
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
A9.20E6
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S Noise:30
471.7750 F:4 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#43057
INJ. TIME = 21:11
A1.06E7
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:I-M23-1 TLI#43057
INJ. TIME = 21:11
34:26
34:33
34:49
34:55
100
80
60
40
20
0
34:24
34:30
34:36
34:42
34:48
34:54
35:00
Time
1.4E7
1.1E7
8.2E6
5.5E6
2.7E6
0.0E0
1.6E7
1.3E7
9.5E6
6.3E6
3.2E6
0.0E0
2.3E6
1.8E6
1.4E6
9.1E5
4.6E5
0.0E0
2.7E6
2.1E6
1.6E6
1.1E6
5.4E5
0.0E0
2.4E6
1.9E6
1.4E6
9.5E5
4.8E5
0.0E0

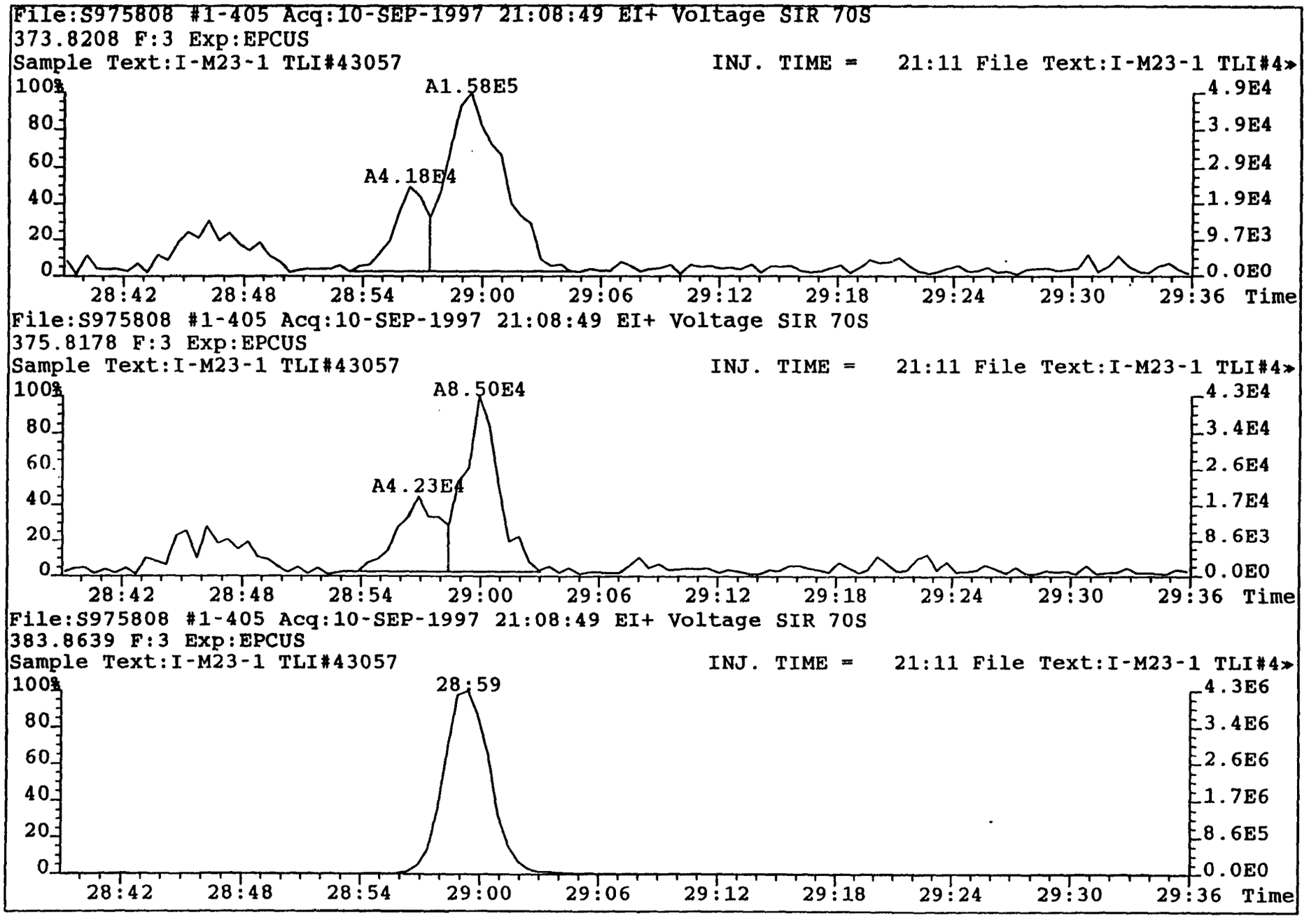

Z
50
5
50
5
Ref. mass 292.3825 Peak top
Height 1.14 volts Span 200 ppm
System file name EPOUS2
Data file name A:9318971
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.3825, 416.9768
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 Y 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Channel I 330.9792 Peak top
Height 1.41 volts Span 200 ppm

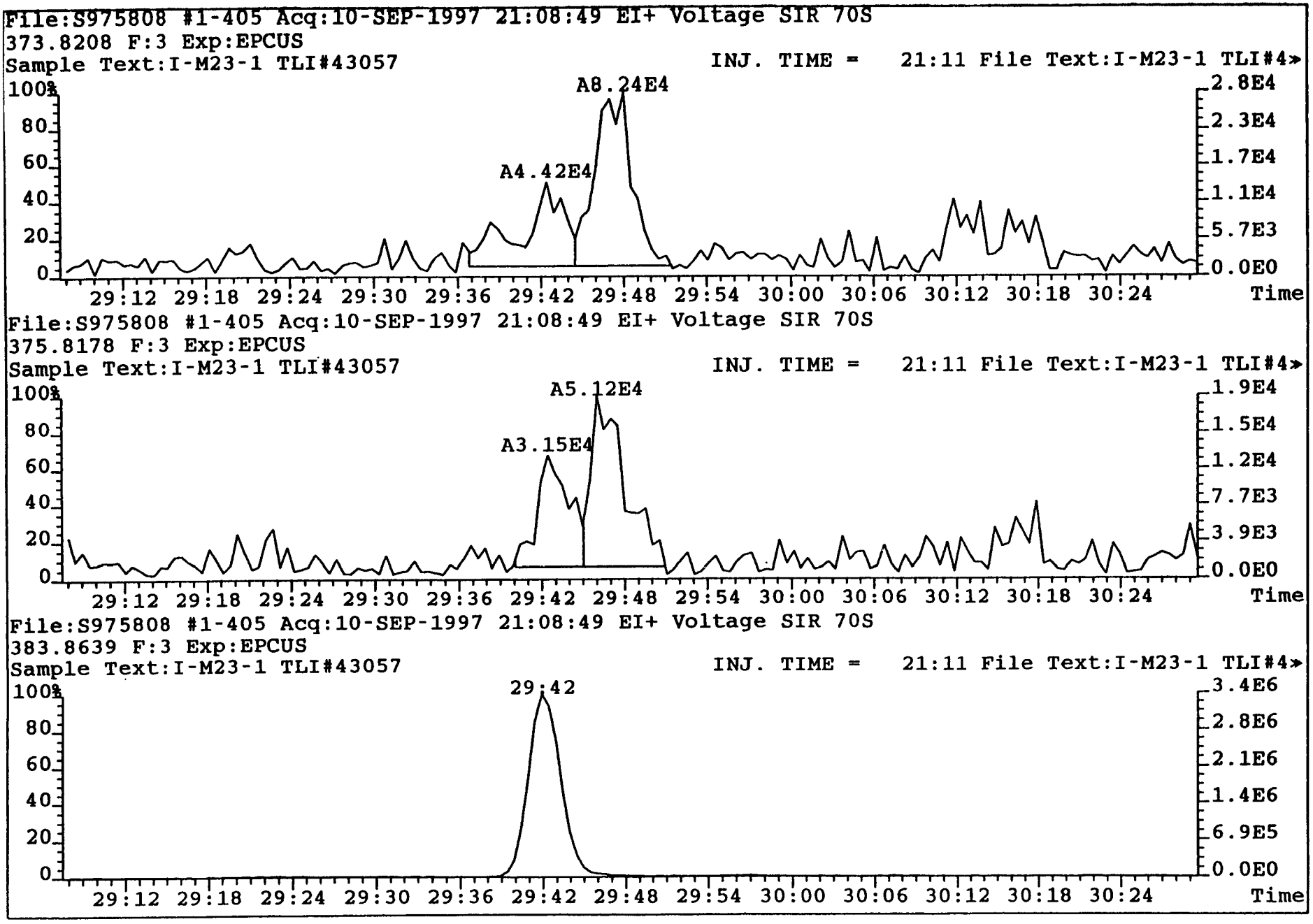

File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4»
A1.40E5
A1.49E5
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4»
A1.60E5
A1.69E5
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4»
18:23
19:00
19:12
19:22
19:40
19:55
20:12
Time

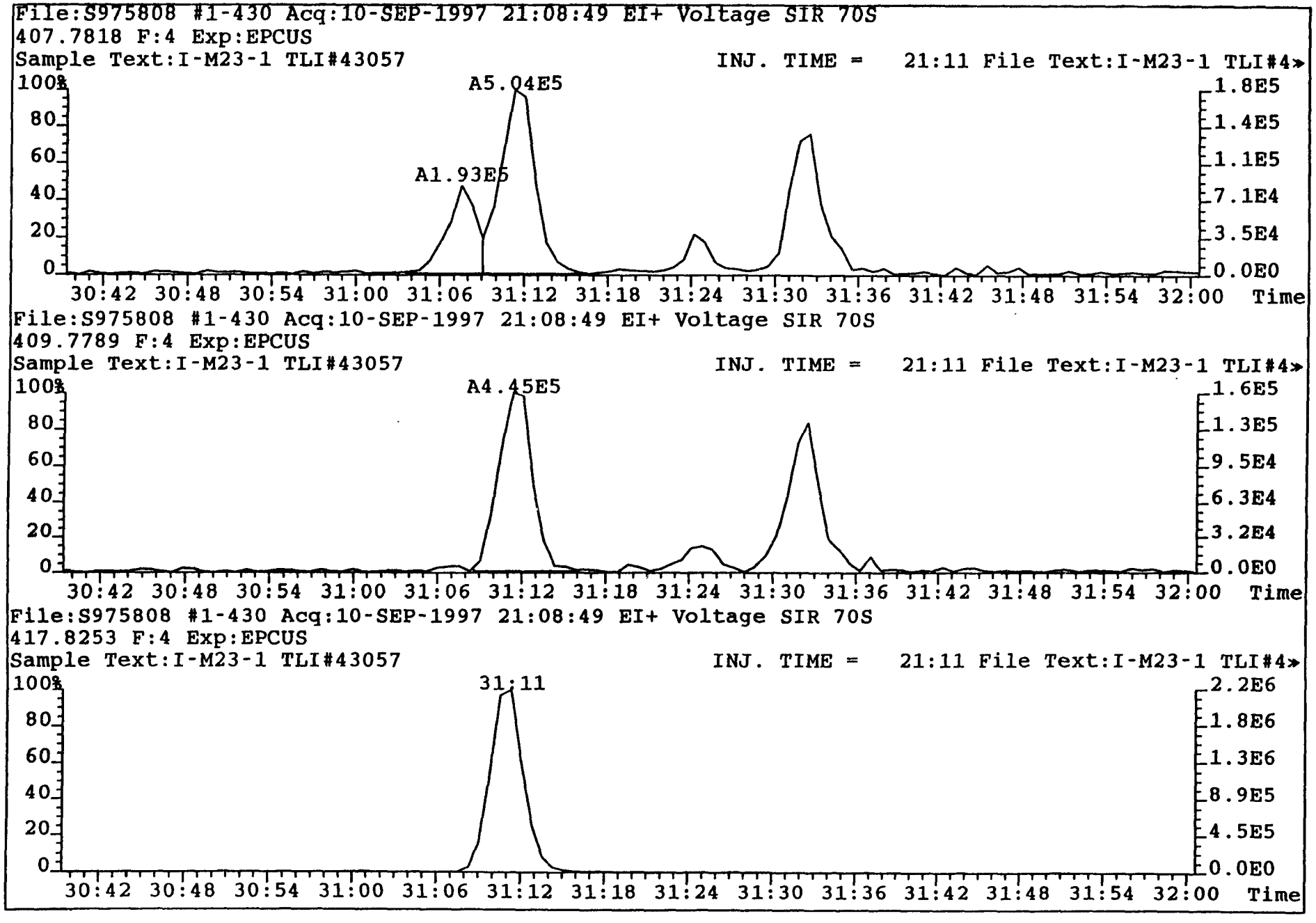

File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
319.8965 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A4.73E4
A2.45E4
20:00
21:00
22:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
321.8936 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A5.48E4
A6.57E4
20:00
21:00
22:00
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
331.9368 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
21:01 21:13
20:00
21:00
22:00
Time

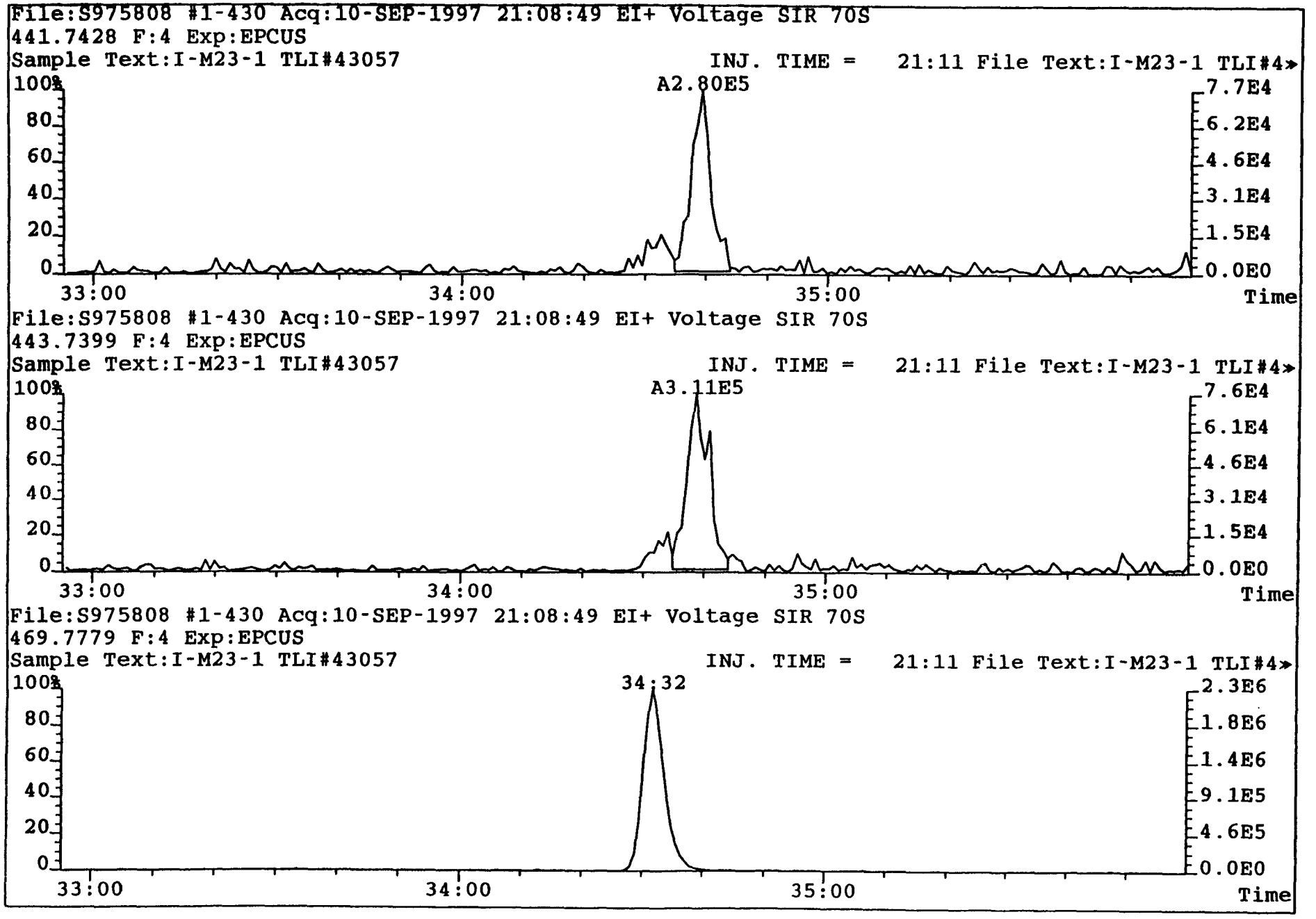

File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A6.68E4
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A3.97E4
Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
24:43
Time


File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
355.8546 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
24:11
24:27
24:44
25:04
25:18
25:40
25:52
26:07
26:21
26:35
4.5E4
3.6E4
2.7E4
1.8E4
9.0E3
0.0E0
24:00
25:00
26:00
27:00 Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
357.8516 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
24:22
24:29
24:44
24:57
25:05
25:19
25:31
25:52
26:21
26:38
26:50
2.7E4
2.2E4
1.6E4
1.1E4
5.5E3
0.0E0
24:00
25:00
26:00
27:00 Time
File:S975808 #1-848 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
367.8949 F:2 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
25:51
5.9E6
4.7E6
3.5E6
2.3E6
1.2E6
0.0E0
24:00
25:00
26:00
27:00 Time


File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A1.58E5
A4.18E4
100%
80
60
40
20
0
4.9E4
3.9E4
2.9E4
1.9E4
9.7E3
0.0E0
28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A8.50E4
A4.23E4
100%
80
60
40
20
0
4.3E4
3.4E4
2.6E4
1.7E4
8.6E3
0.0E0
28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
383.8639 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
28:59
100%
80
60
40
20
0
4.3E6
3.4E6
2.6E6
1.7E6
8.6E5
0.0E0
28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 Time


File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A8.24E4
A4.42E4
100%
80
60
40
20
0
2.8E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A5.12E4
A3.15E4
100%
80
60
40
20
0
1.9E4
1.5E4
1.2E4
7.7E3
3.9E3
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time
File:S975808 #1-405 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
383.8639 F:3 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
29:42
100%
80
60
40
20
0
3.4E6
2.8E6
2.1E6
1.4E6
6.9E5
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time


File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A5.04E5
A1.93E5
100%
80
60
40
20
0
1.8E5
1.4E5
1.1E5
7.1E4
3.5E4
0.0E0
30:42 30:48 30:54 31:00 31:06 31:12 31:18 31:24 31:30 31:36 31:42 31:48 31:54 32:00 Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A4.45E5
100%
80
60
40
20
0
1.6E5
1.3E5
9.5E4
6.3E4
3.2E4
0.0E0
30:42 30:48 30:54 31:00 31:06 31:12 31:18 31:24 31:30 31:36 31:42 31:48 31:54 32:00 Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
31:11
100%
80
60
40
20
0
2.2E6
1.8E6
1.3E6
8.9E5
4.5E5
0.0E0
30:42 30:48 30:54 31:00 31:06 31:12 31:18 31:24 31:30 31:36 31:42 31:48 31:54 32:00 Time


File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
441.7428 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A2.80E5
100%
80
60
40
20
0
7.7E4
6.2E4
4.6E4
3.1E4
1.5E4
0.0E0
33:00
34:00
35:00
Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
443.7399 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
A3.11E5
100%
80
60
40
20
0
7.6E4
6.1E4
4.6E4
3.1E4
1.5E4
0.0E0
33:00
34:00
35:00
Time
File:S975808 #1-430 Acq:10-SEP-1997 21:08:49 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:I-M23-1 TLI#43057
INJ. TIME = 21:11 File Text:I-M23-1 TLI#4
34:32
100%
80
60
40
20
0
2.3E6
1.8E6
1.4E6
9.1E5
4.6E5
0.0E0
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: 43057
Client Sample: I-M23-1

Method 23 TCDD/TCDF Analysis (DB-225)
Analysis File: X973082

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-1A-C | Date Extracted: | 09/06/97 | ICal: | XF24087 |
| | | Date Analyzed: | 09/11/97 | ConCal: | X973069 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | MS | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | EMPC | | 0.02 | | | B__ |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.9 | 73.7 | 40%-130% | 0.79 | 22:31 | ___ |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.76 | 21:30 | ___ |

Data Reviewer: _____ 09/12/97



C2NF_PSR v2.00, LARS 6.10.04

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801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:58 09/12/97

Initial ....Date...

Data Review By: [illegible] 9/12/97 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.

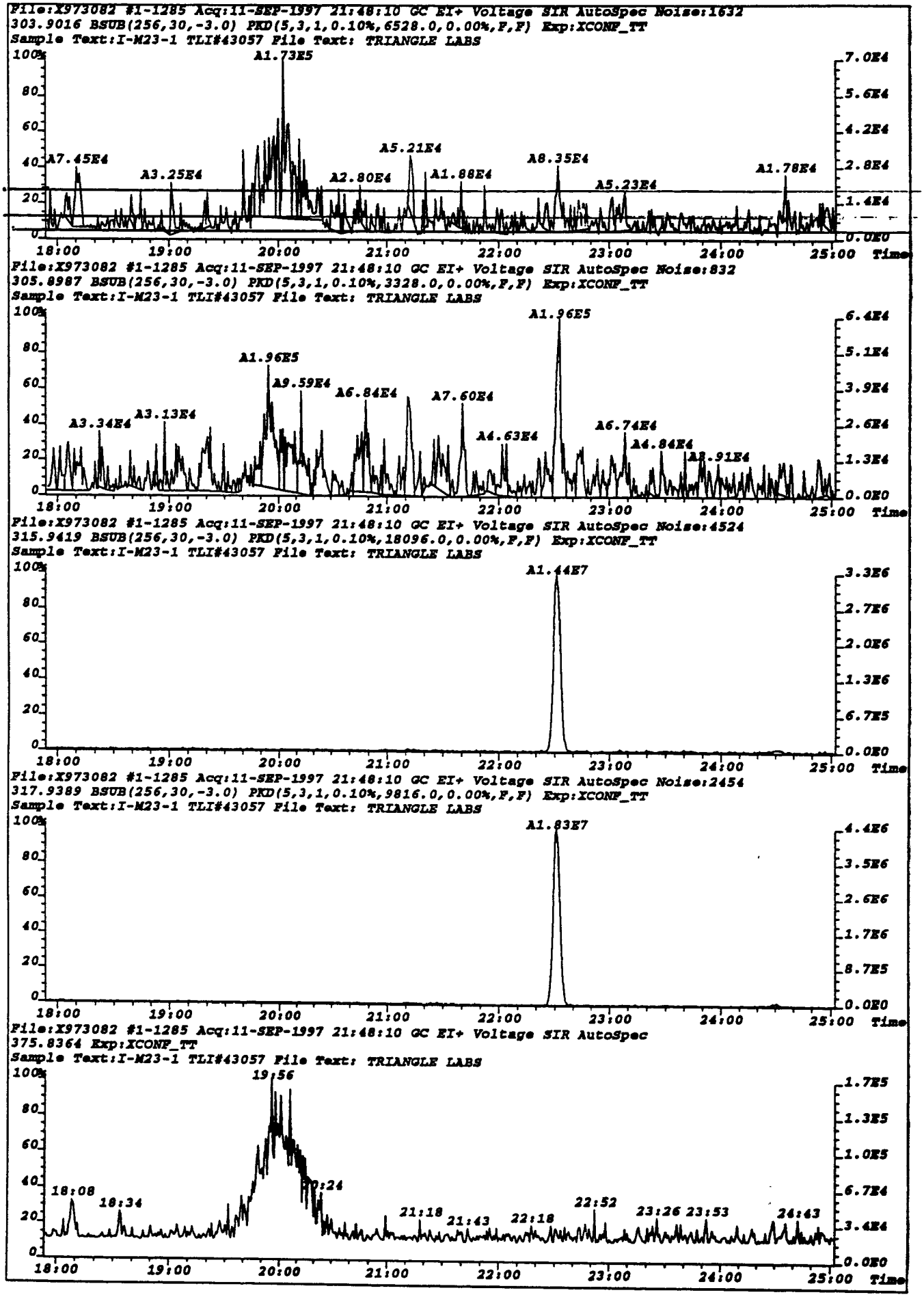
Page No. 1 Listing of X973082B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

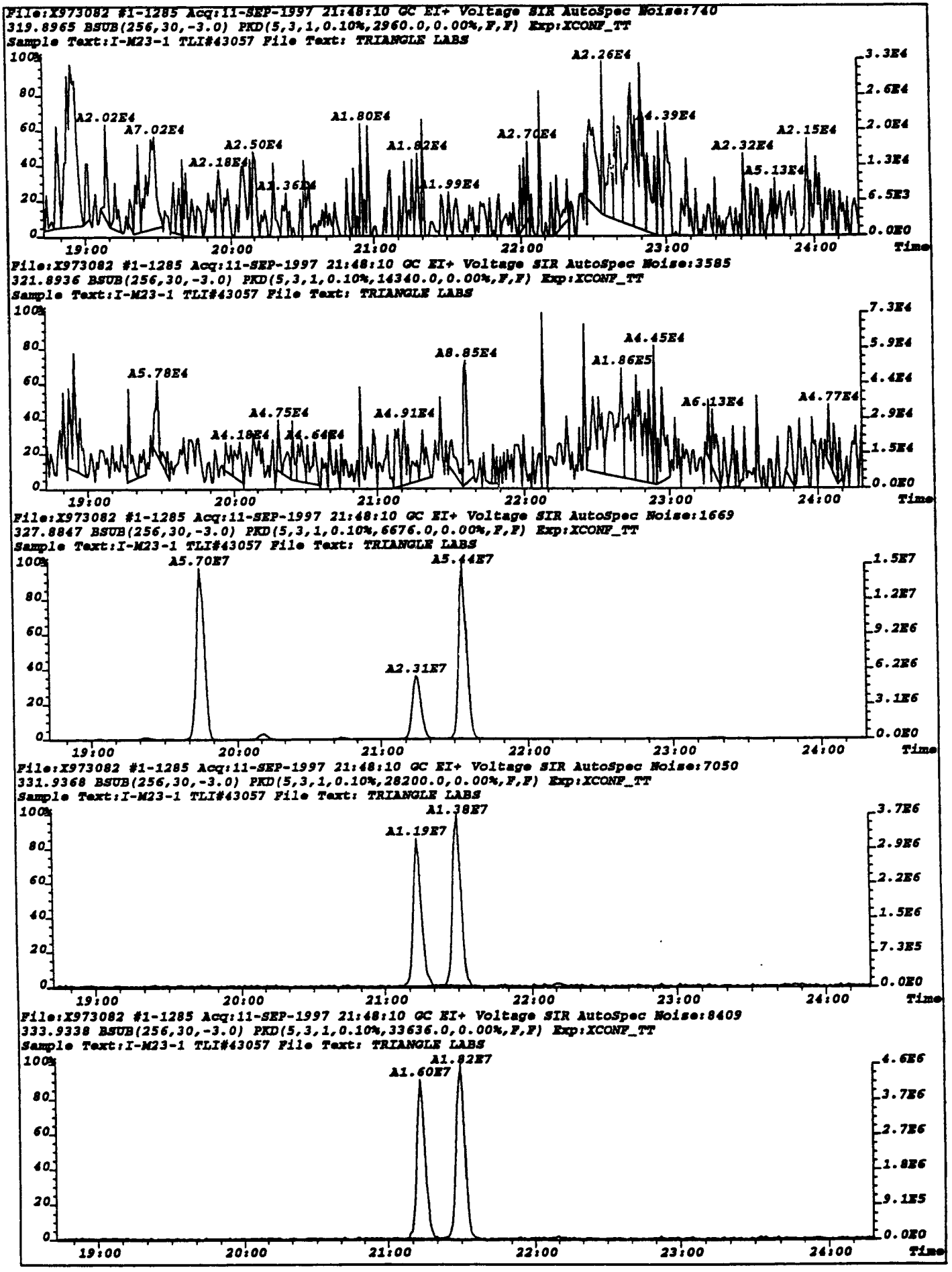
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | 0.65-0.89 | | | | | | 0.797-1.100 | | | |
| 304-306 | DC | NL | | 0:00 | RO | 1.96 | 2.94 | | | 0.000 | | | |
| | DC | SN | | 18:05 | RO | 0.62 | 5.98 | | | 0.803 | | | |
| | DC | SN | | 18:40 | | 0.83 | 3.32 | | | 0.829 | | | |
| | DC | SN | | 18:45 | RO | 3.63 | 1.13 | | | 0.833 | | | |
| | DC | SN | | 18:52 | | 0.85 | 2.26 | | | 0.838 | | | |
| | DC | SN | | 18:56 | RO | 0.24 | 1.72 | | | 0.841 | | | |
| | DC | SN | | 19:01 | RO | 0.47 | 7.47 | | | 0.845 | | | |
| | DC | SN | | 19:21 | RO | 0.23 | 5.56 | | | 0.859 | | | |
| | DC | SN | | 19:49 | RO | 1.59 | 6.14 | | | 0.880 | | | |
| | DC | SN | | 20:03 | RO | 3.71 | 8.25 | | | 0.890 | | | |
| | DC | SN | | 20:08 | RO | 0.43 | 10.67 | | | 0.894 | | | |
| | DC | SN | | 20:12 | RO | 0.31 | 6.74 | | | 0.897 | | | |
| | DC | SN | | 20:35 | RO | 5.61 | 1.45 | | | 0.914 | | | |
| | DC | SN | | 20:46 | RO | 0.39 | 6.44 | | | 0.922 | | | |
| | DC | SN | | 20:56 | RO | 0.97 | 5.08 | | | 0.930 | | | |
| | DC | SN | | 21:01 | RO | 0.11 | 0.92 | | | 0.933 | | | |
| | DC | SN | | 21:13 | RO | 0.48 | 11.98 | | | 0.942 | | | |
| | DC | SN | | 21:21 | RO | 4.18 | 0.97 | | | 0.948 | | | |
| | DC | SN | | 21:40 | RO | 0.25 | 4.32 | | | 0.962 | | | |
| | DC | SN | | 21:52 | RO | 3.16 | 1.24 | | | 0.971 | | | |
| | DC | SN | | 21:57 | RO | 0.12 | 0.64 | | | 0.975 | | | |
| | DC | SN | | 22:12 | | 0.82 | 3.63 | | | 0.986 | | | |
| | DC | SN | | 22:26 | RO | 0.47 | 4.71 | | | 0.996 | | | |
| MK | | | | 22:32 | RO | 0.36 | 14.53 | 6.32 | 17.40 | 1.001 | 2378-TCDF | | AN |
| | DC | SN | | 22:39 | RO | 0.26 | 1.88 | | | 1.006 | | | |
| | DC | SN | | 22:43 | | 0.78 | 11.26 | | | 1.009 | | | |
| | DC | SN | | 23:02 | RO | 0.44 | 6.46 | | | 1.023 | | | |
| | DC | SN | | 23:09 | | 0.78 | 11.97 | | | 1.028 | | | |
| | DC | SN | | 24:35 | RO | 0.47 | 4.09 | | | 1.092 | | | |
| | DC | WH | | 24:58 | RO | 2.27 | 1.84 | | | 1.109 | | | |
| 304-306 | | | 1 Peak | | | | 14.53 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.955-1.045 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 1.84 | 8.69 | | | 0.000 | | | |
| | DC | WL | | 18:03 | RO | 0.26 | 2.51 | | | 0.802 | | | |
| | DC | WL | | 18:07 | RO | 1.89 | 3.29 | | | 0.805 | | | |
| | DC | WL | | 18:28 | RO | 1.07 | 4.41 | | | 0.820 | | | |
| | DC | WL | | 18:31 | RO | 1.11 | 5.06 | | | 0.822 | | | |
| | DC | WL | | 19:28 | RO | 4.82 | 2.37 | | | 0.865 | | | |
| | DC | WL | | 21:11 | RO | 0.59 | 13.42 | | | 0.941 | | | |
| | DC | SN | | 21:48 | RO | 1.25 | 6.39 | | | 0.968 | | | |
| | DC | SN | | 22:17 | | 0.76 | 8.50 | | | 0.990 | | | |
| | | | | 22:31 | | 0.79 | 3,272.27 | 1,441.48 | 1,830.79 | 1.000 | 13C12-2378-TCDF | | ISO |

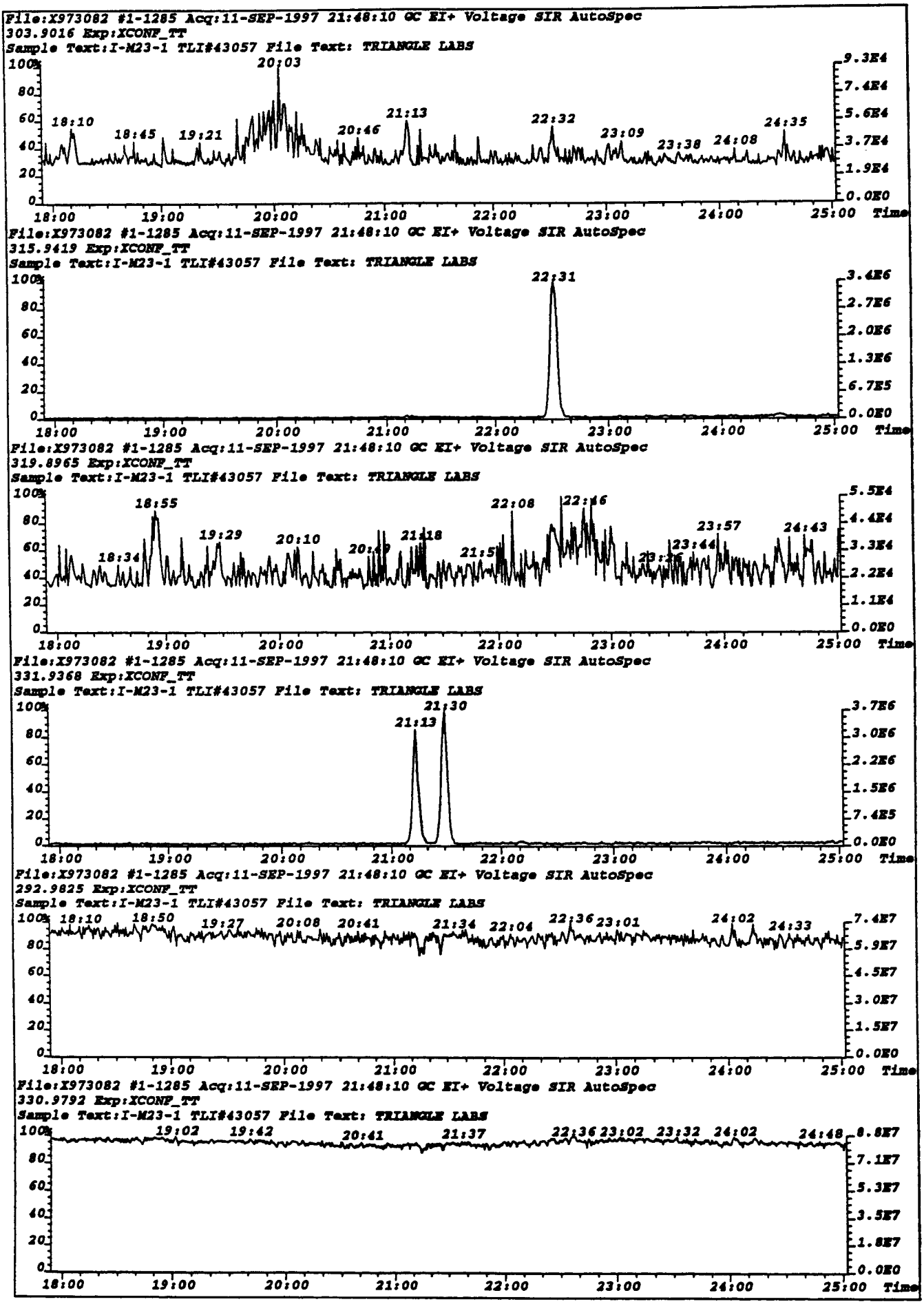
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 22:56 | RO | 1.45 | 3.72 | | | 1.019 | | | |
| | DC | SN | | 23:14 | RO | 0.45 | 4.78 | | | 1.032 | | | |
| | DC | WH | | 23:58 | RO | 1.51 | 5.86 | | | 1.064 | | | |
| | DC | WH | | 24:00 | RO | 3.94 | 2.21 | | | 1.066 | | | |
| | DC | WH | | 24:12 | RO | 1.21 | 12.83 | | | 1.075 | | | |
| | DC | WH | | 24:18 | | 0.87 | 9.69 | | | 1.079 | | | |
| | DC | WH | | 24:21 | | 0.87 | 14.15 | | | 1.081 | | | |
| | DC | WH | | 24:31 | RO | 1.39 | 69.76 | | | 1.089 | | | |
| | DC | WH | | 24:58 | RO | 5.37 | 2.41 | | | 1.109 | | | |
| 316-318 | | 1 Peak | | | | | 3,272.27 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | | 0.84 | 30.92 | | | 0.000 | | | |
| | | | | 21:13 | | 0.74 | 2,790.70 | 1,190.85 | 1,599.85 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 21:30 | | 0.76 | 3,190.90 | 1,375.74 | 1,815.16 | 1.013 | 13C12-1234-TCDD | RS1 | |
| | DC | SN | | 22:01 | RO | 1.55 | 13.81 | | | 1.038 | | | |
| | DC | SN | | 22:05 | RO | 1.83 | 11.47 | | | 1.041 | | | |
| | DC | WH | | 23:30 | RO | 1.41 | 8.87 | | | 1.108 | | | |
| 332-334 | | 2 Peaks | | | | | 5,981.60 | | | | | | |

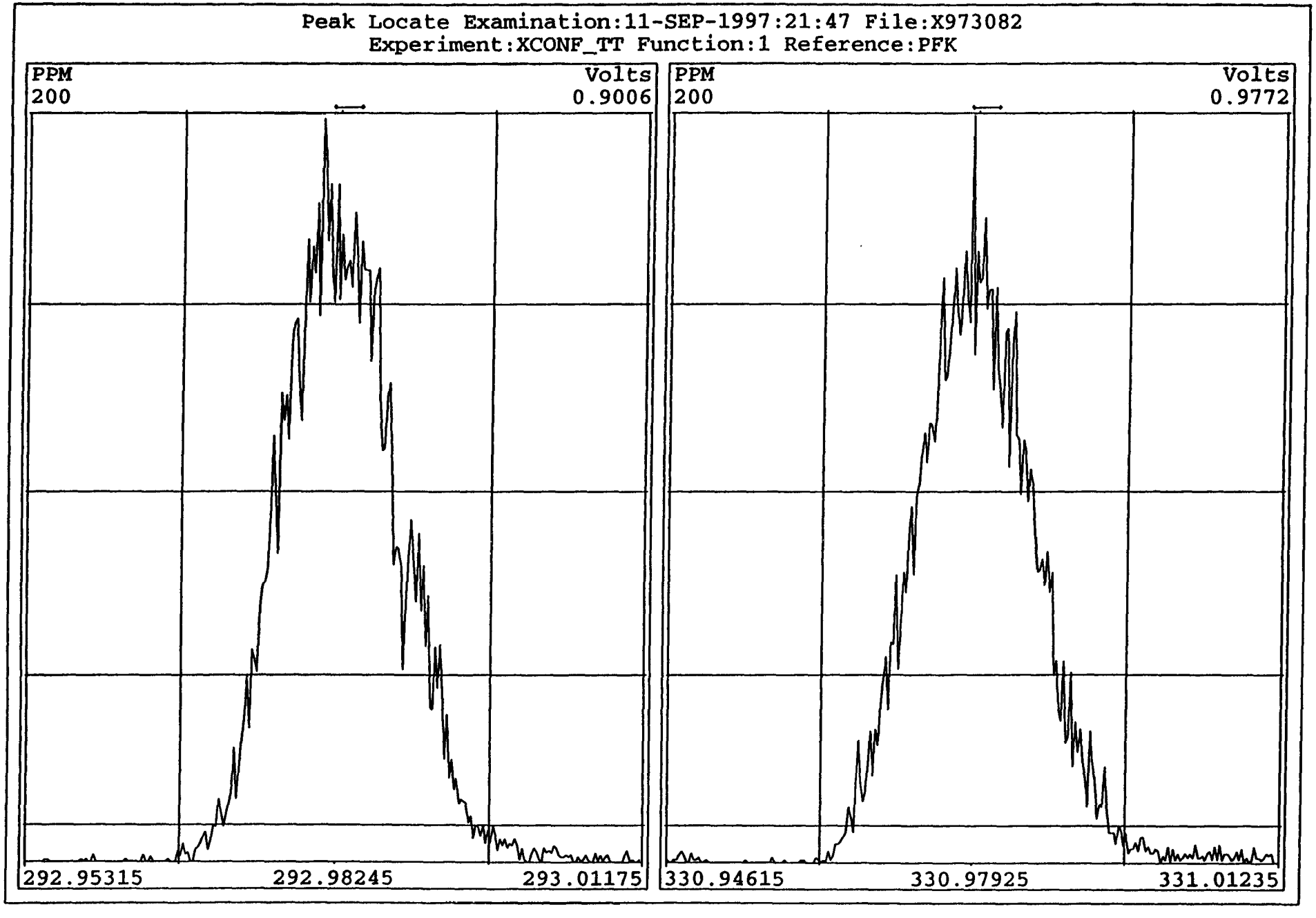
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

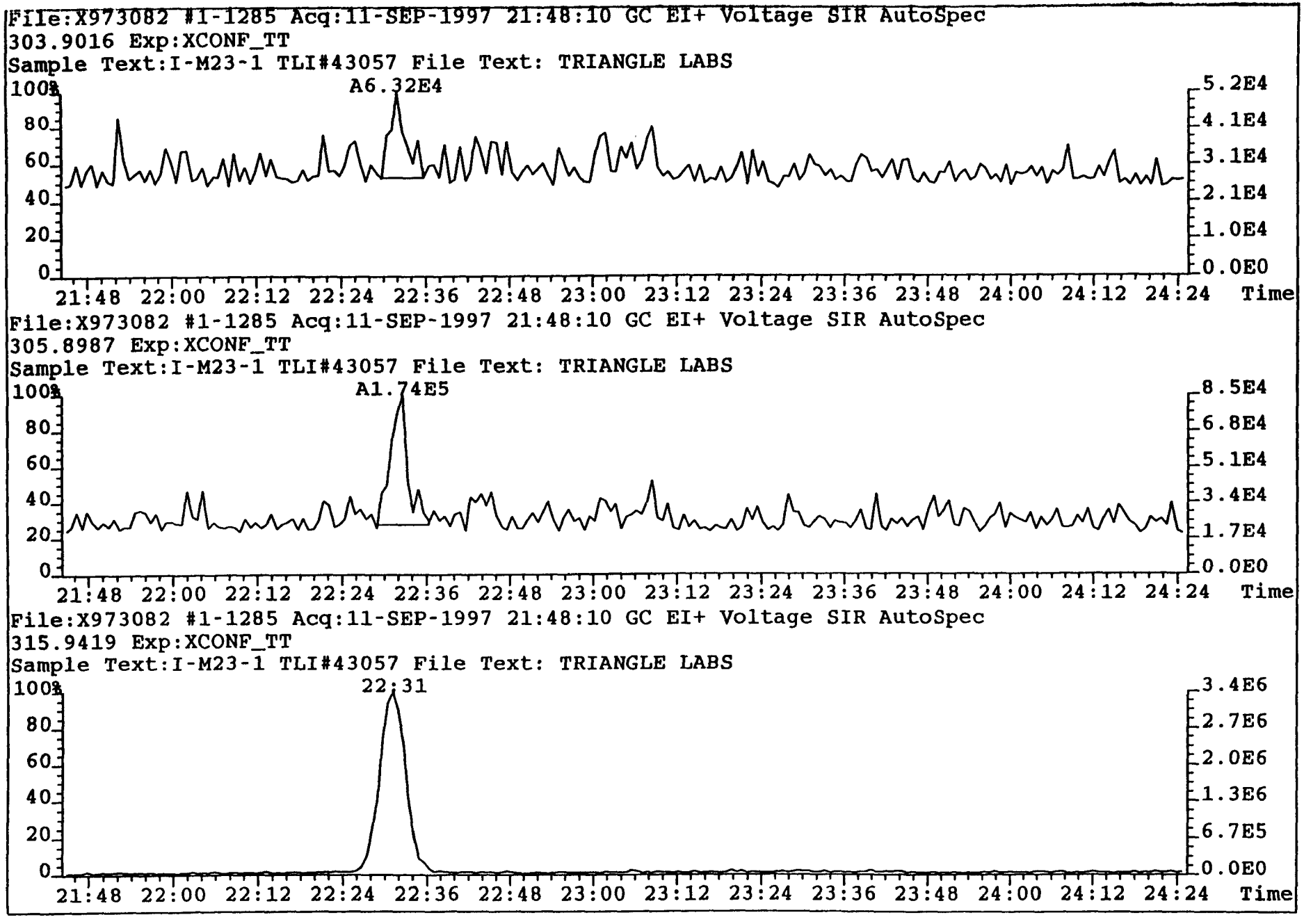
*** End of Report ***


File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:1632
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,6528.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.73E5
A7.45E4
A3.25E4
A2.80E4
A5.21E4
A1.88E4
A8.35E4
A5.23E4
A1.78E4
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:832
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3328.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.96E5
A3.34E4
A3.13E4
A1.96E5
A9.59E4
A6.84E4
A7.60E4
A4.63E4
A6.74E4
A4.84E4
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:4524
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,18096.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.44E7
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:2454
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,9816.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.83E7
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
375.8364 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
19:56
18:08
18:34
21:18
21:43
22:18
22:52
23:26
23:53
24:43
Time


File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:740
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2960.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A2.02E4
A7.02E4
A2.18E4
A2.50E4
A1.80E4
A1.82E4
A2.70E4
A2.26E4
A2.32E4
A2.15E4
A5.13E4
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:3585
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,14340.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A5.78E4
A4.75E4
A4.18E4
A4.64E4
A8.85E4
A4.91E4
A1.86E5
A4.45E4
A6.13E4
A4.77E4
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:1669
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,6676.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A5.70E7
A5.44E7
A2.31E7
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:7050
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,28200.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.38E7
A1.19E7
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec Noise:8409
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,33636.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.82E7
A1.60E7
Time


File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:10
18:45
19:21
20:03
20:46
21:13
22:32
23:09
23:38
24:08
24:35
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
22:31
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
319.8965 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:34
18:55
19:29
20:10
21:18
21:5
22:08
22:46
23:44
23:57
24:43
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
331.9368 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
21:13
21:30
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
292.9825 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:10
18:50
19:27
20:08
20:41
21:34
22:04
22:36
23:01
24:02
24:33
Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
330.9792 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
19:02
19:42
20:41
21:37
22:36
23:02
23:32
24:02
24:48
Time


Peak Locate Examination:11-SEP-1997:21:47 File:X973082
Experiment:XCONF_TT Function:1 Reference:PFK
PPM
200
Volts
0.9006
292.95315
292.98245
293.01175
PPM
200
Volts
0.9772
330.94615
330.97925
331.01235


File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A6.32E4
100%
80
60
40
20
0
5.2E4
4.1E4
3.1E4
2.1E4
1.0E4
0.0E0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24 Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
305.8987 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.74E5
100%
80
60
40
20
0
8.5E4
6.8E4
5.1E4
3.4E4
1.7E4
0.0E0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24 Time
File:X973082 #1-1285 Acq:11-SEP-1997 21:48:10 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:I-M23-1 TLI#43057 File Text: TRIANGLE LABS
22:31
100%
80
60
40
20
0
3.4E6
2.7E6
2.0E6
1.3E6
6.7E5
0.0E0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24 Time

TLI Project: 43057
Client Sample: O-M23-1

# Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975809

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-2A-C | Date Extracted: | 09/06/97 | ICal: | SF56117 |
| | | Date Analyzed: | 09/10/97 | ConCal: | S975797 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % 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 | 0.003 | | | | — |
| 1,2,3,7,8-PeCDD | ND | 0.005 | | | | — |
| 1,2,3,4,7,8-HxCDD | ND | 0.006 | | | | — |
| 1,2,3,6,7,8-HxCDD | 0.01 | | | 1.24 | 29:13 | — |
| 1,2,3,7,8,9-HxCDD | 0.02 | | | 1.29 | 29:30 | — |
| 1,2,3,4,6,7,8-HpCDD | 0.06 | | | 0.99 | 32:04 | B |
| 1,2,3,4,6,7,8,9-OCDD | 0.53 | | | 0.91 | 34:33 | — |
| 2,3,7,8-TCDF | 0.02 | | | 0.81 | 20:25 | B |
| 1,2,3,7,8-PeCDF | EMPC | | 0.006 | | | — |
| 2,3,4,7,8-PeCDF | EMPC | | 0.01 | | | B |
| 1,2,3,4,7,8-HxCDF | 0.04 | | | 1.32 | 28:23 | PRB |
| 1,2,3,6,7,8-HxCDF | 0.01 | | | 1.36 | 28:29 | B |
| 2,3,4,6,7,8-HxCDF | 0.02 | | | 1.33 | 29:00 | PRB |
| 1,2,3,7,8,9-HxCDF | ND | 0.004 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | EMPC | | 0.07 | | | PRB |
| 1,2,3,4,7,8,9-HpCDF | 0.04 | | | 1.17 | 32:24 | B |
| 1,2,3,4,6,7,8,9-OCDF | 0.04 | | | 0.80 | 34:41 | B |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | 0.007 | 1 | | 0.02 | — |
| Total PeCDD | EMPC | | | 0.04 | — |
| Total HxCDD | 0.12 | 5 | | | — |
| Total HpCDD | 0.10 | 2 | | | — |
| Total TCDF | 0.03 | 3 | | 0.04 | — |
| Total PeCDF | 0.05 | 4 | | 0.07 | — |
| Total HxCDF | 0.12 | 6 | | | — |
| Total HpCDF | 0.04 | 1 | | 0.15 | — |





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Printed: 14:56 09/11/97

TLI Project: 43057
Client Sample: O-M23-1

Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975809

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.8 | 69.4 | 40%-130% | 0.76 | 20:24 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 2.5 | 63.2 | 40%-130% | 0.78 | 21:13 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 2.7 | 67.1 | 40%-130% | 1.46 | 24:43 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 2.7 | 68.2 | 40%-130% | 1.50 | 25:52 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 2.8 | 68.8 | 40%-130% | 0.50 | 28:29 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 2.6 | 65.4 | 40%-130% | 1.24 | 29:12 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 1.7 | 42.3 | 25%-130% | 0.44 | 31:11 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 2.0 | 50.4 | 25%-130% | 1.05 | 32:03 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 2.9 | 36.0 | 25%-130% | 0.89 | 34:33 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 3.8 | 96.1 | 70%-140% | | 21:14 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 3.4 | 86.1 | 70%-140% | 1.45 | 25:30 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.5 | 87.3 | 70%-140% | 0.49 | 28:22 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.2 | 81.0 | 70%-140% | 1.22 | 29:07 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.5 | 88.7 | 70%-140% | 0.42 | 32:24 | — |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDF | 2.3 | 58.1 | 40%-130% | 0.49 | 29:42 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 2.5 | 61.4 | 40%-130% | 0.51 | 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 | 1.23 | 29:30 | — |

Data Reviewer: _____ 09/11/97



X237_PSR v2.00, LARS 6.10.04

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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:56 09/11/97

Initial ...Date...

Data Review By: [signature] 9/11/97 Calculated Noise Area: 1.22

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 S975809B.dbf
09/11/97 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 | | | | | | 0.823-1.104 | | | |
| 304-306 | | DC | NL | 0:00 | RO | 1.33 | 0.11 | | | 0.000 | | | |
| | | DC | SN | 16:54 | | 0.83 | 2.95 | | | 0.828 | | | |
| | | DC | SN | 17:16 | | 0.73 | 0.57 | | | 0.846 | | | |
| | | DC | SN | 17:26 | RO | 0.33 | 1.03 | | | 0.855 | | | |
| | D | D | SN | 17:41 | | 0.74 | 3.67 | | | 0.867 | | | |
| | D | D | SN | 18:29 | | 0.84 | 5.69 | | | 0.906 | | | |
| | D | D | SN | 19:15 | | 0.81 | 4.60 | | | 0.944 | | | |
| | | | | 19:31 | RO | 1.01 | 8.58 | 4.89 | 4.85 | 0.957 | | | |
| | | | | 19:57 | | 0.78 | 13.28 | 5.82 | 7.46 | 0.978 | | | |
| | | DC | SN | 20:12 | RO | 0.57 | 1.82 | | | 0.990 | | | |
| | | | | 20:25 | | 0.81 | 20.65 | 9.27 | 11.38 | 1.001 | 2378-TCDF | | AN |
| | D | D | SN | 20:56 | RO | 0.64 | 4.09 | | | 1.026 | | | |
| | | DC | SN | 21:44 | RO | 1.09 | 0.96 | | | 1.065 | | | |
| | | | | 22:20 | | 0.72 | 6.54 | 2.74 | 3.80 | 1.095 | | | |
| | | DC | WH | 22:50 | RO | 1.41 | 0.69 | | | 1.119 | | | |
| 304-306 | | | 4 | Peaks | | | 49.05 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.951-1.049 | | | |
| 316-318 | | DC | NL | 0:00 | RO | 1.00 | 0.12 | | | 0.000 | | | |
| | | DC | WL | 19:11 | RO | 0.99 | 7.19 | | | 0.940 | | | |
| | | | | 19:55 | | 0.73 | 23.80 | 10.08 | 13.72 | 0.976 | | | |
| | | | | 20:24 | | 0.76 | 4,405.97 | 1,897.60 | 2,508.37 | 1.000 | 13C12-2378-TCDF | | IS0 |
| | | | | 20:54 | | 0.67 | 22.67 | 9.13 | 13.54 | 1.025 | | | |
| 316-318 | | | 3 | Peaks | | | 4,452.44 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | 0.65-0.89 | | | | | | 0.857-1.061 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | A | | | 18:19 | RO | 0.56 | 8.99 | 3.91 | 6.94 | 0.863 | | | |
| | | | | 18:48 | RO | 0.90 | 6.74 | 3.43 | 3.81 | 0.886 | | | |
| | | DC | SN | 19:00 | RO | 1.14 | 0.50 | | | 0.896 | | | |
| | | DC | SN | 19:13 | RO | 0.51 | 0.53 | | | 0.906 | | | |
| | | DC | SN | 19:27 | | 0.87 | 0.58 | | | 0.917 | | | |
| | | DC | SN | 19:37 | RO | 0.51 | 0.41 | | | 0.925 | | | |
| | | | | 19:56 | | 0.78 | 6.67 | 2.93 | 3.74 | 0.940 | | | |
| | | DC | SN | 20:23 | RO | 3.57 | 1.43 | | | 0.961 | | | |
| | | DC | SN | 21:50 | RO | 1.74 | 0.41 | | | 1.029 | | | |
| | | DC | SN | 21:55 | RO | 2.96 | 0.46 | | | 1.033 | | | |
| | | DC | SN | 22:02 | RO | 8.50 | 0.07 | | | 1.038 | | | |
| | | DC | SN | 22:09 | RO | 1.38 | 0.28 | | | 1.044 | | | |
| | | DC | SN | 22:16 | | 0.66 | 0.48 | | | 1.049 | | | |
| | | DC | WH | 22:32 | RO | 2.63 | 0.48 | | | 1.062 | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320-322 | | | 3 Peaks | | | | 22.40 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.906-1.094 | | | |
| 328 | | DC | NL | 0:00 | | | 0.07 | | | 0.000 | | | |
| | | DC | WL | 18:38 | | | 1.02 | | | 0.878 | | | |
| | | | | 19:41 | | | 13.99 | 13.99 | | 0.928 | | | |
| | | | | 21:14 | | | 2,629.87 | 2,629.87 | | 1.001 | 37Cl-TCDD | | SUR1 |
| | | | | 21:26 | | | 5.05 | 5.05 | | 1.010 | | | |
| | | | | 21:33 | | | 5.28 | 5.28 | | 1.016 | | | |
| | | DC | SN | 21:41 | | | 1.24 | | | 1.022 | | | |
| | | | | 21:42 | | | 3.65 | 3.65 | | 1.023 | | | |
| 328 | | | 5 Peaks | | | | 2,657.84 | | | | | | |
| 13C12-TCDD | | | | | 0.65-0.89 | | | | | 0.906-1.094 | | | |
| 332-334 | | DC | NL | 0:00 | RO | 14.00 | 0.14 | | | 0.000 | | | |
| | | | | 19:54 | | 0.79 | 21.85 | 9.61 | 12.24 | 0.938 | | | |
| | | | | 20:39 | RO | 1.80 | 2.89 | 2.93 | 1.63 | 0.973 | | | |
| | | | | 21:00 | | 0.80 | 4,818.59 | 2,143.61 | 2,674.98 | 0.990 | 13C12-1234-TCDD | | RS1 |
| | | | | 21:13 | | 0.78 | 3,245.44 | 1,421.01 | 1,824.43 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 21:36 | | 0.83 | 56.81 | 25.81 | 31.00 | 1.018 | | | |
| | | DC | SN | 22:22 | | 0.79 | 3.12 | | | 1.054 | | | |
| 332-334 | | | 5 Peaks | | | | 8,145.58 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | 1.32-1.78 | | | | | 0.909-1.079 | | | |
| 340-342 | | DC | NL | 0:00 | RO | 1.00 | 0.12 | | | 0.000 | | | |
| | D | D | SN | 22:37 | RO | 1.20 | 5.43 | | | 0.915 | | | |
| | | DC | SN | 22:48 | | 1.76 | 0.47 | | | 0.922 | | | |
| | | DC | SN | 22:53 | RO | 4.36 | 0.36 | | | 0.926 | | | |
| | | DC | SN | 23:06 | RO | 0.14 | 0.23 | | | 0.935 | | | |
| | | DC | SN | 23:11 | RO | 0.56 | 0.31 | | | 0.938 | | | |
| | | | | 23:50 | | 1.56 | 15.18 | 9.25 | 5.93 | 0.964 | | | |
| | | | | 23:59 | | 1.53 | 7.33 | 4.43 | 2.90 | 0.970 | | | |
| | A | | | 24:27 | | 1.33 | 14.78 | 8.45 | 6.33 | 0.989 | | | |
| | M | | | 24:44 | RO | 1.88 | 6.27 | 4.62 | 2.46 | 1.001 | 12378-PeCDF | | AN |
| | D | D | SN | 25:02 | RO | 1.18 | 5.89 | | | 1.013 | | | |
| | M | | | 25:30 | RO | 1.11 | 9.28 | 5.64 | 5.06 | 1.032 | 23478-PeCDF | | AN |
| | | | | 25:39 | | 1.55 | 9.27 | 5.64 | 3.63 | 1.038 | | | |
| | | DC | SN | 25:57 | | 1.44 | 3.08 | | | 1.050 | | | |
| | | DC | SN | 26:05 | RO | 1.23 | 1.07 | | | 1.055 | | | |
| | | | | 26:21 | RO | 2.19 | 4.67 | 4.00 | 1.83 | 1.066 | | | |
| 340-342 | | | 7 Peaks | | | | 66.78 | | | | | | |
| 13C12-PeCDF | | | | | 1.32-1.78 | | | | | 0.838-1.162 | | | |
| 352-354 | | DC | NL | 0:00 | RO | 1.14 | 0.13 | | | 0.000 | | | |
| | | | | 23:48 | | 1.33 | 16.12 | 9.21 | 6.91 | 0.963 | | | |
| | | | | 24:22 | RO | 1.20 | 14.05 | 8.54 | 7.11 | 0.986 | | | |
| | | | | 24:43 | | 1.46 | 3,661.64 | 2,170.84 | 1,490.80 | 1.000 | 13C12-PeCDF 123 | | IS2 |
| | | | | 25:03 | | 1.40 | 24.31 | 14.18 | 10.13 | 1.013 | | | |
| | | | | 25:30 | | 1.45 | 3,058.59 | 1,808.68 | 1,249.91 | 1.032 | 13C12-PeCDF 234 | | SUR2 |
| | | | | 26:29 | RO | 2.22 | 7.85 | 6.84 | 3.08 | 1.071 | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 352-354 | | | 6 Peaks | | | | 6,782.56 | | | | | | |
| ---------- 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 | | | |
| | | | | 23:59 | RO | 0.54 | 7.73 | 4.70 | 8.71 | 0.927 | | | |
| | DC | SN | | 24:21 | RO | 2.37 | 0.89 | | | 0.941 | | | |
| | | | | 24:45 | RO | 1.84 | 9.72 | 7.00 | 3.81 | 0.957 | | | |
| | | | | 25:04 | RO | 2.55 | 5.74 | 5.74 | 2.25 | 0.969 | | | |
| | DC | SN | | 25:43 | RO | 0.24 | 0.28 | | | 0.994 | | | |
| | DC | SN | | 25:52 | | 1.41 | 3.67 | | | 1.000 | 12378-PeCDD | AN | |
| | DC | SN | | 26:21 | RO | 0.62 | 1.53 | | | 1.019 | | | |
| | DC | WH | | 26:39 | RO | 0.08 | 0.10 | | | 1.030 | | | |
| | DC | WH | | 26:47 | RO | 1.81 | 0.41 | | | 1.035 | | | |
| 356-358 | | | 3 Peaks | | | | 23.19 | | | | | | |
| 13C12-PeCDD | | | | | | 1.32-1.78 | | | | 0.845-1.155 | | | |
| 368-370 | DC | NL | | 0:00 | RO | 0.86 | 0.10 | | | 0.000 | | | |
| | | | | 25:52 | | 1.50 | 2,086.84 | 1,253.47 | 833.37 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 26:00 | | 1.46 | 204.01 | 121.24 | 82.77 | 1.005 | | | |
| 368-370 | | | 2 Peaks | | | | 2,290.85 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | | | 1.05-1.43 | | | | 0.957-1.053 | | | |
| 374-376 | DC | NL | | 0:00 | RO | 2.92 | 0.85 | | | 0.000 | | | |
| | | | | 27:24 | | 1.27 | 10.74 | 6.01 | 4.73 | 0.962 | | | |
| | | | | 27:32 | | 1.20 | 21.58 | 11.75 | 9.83 | 0.967 | | | |
| | DC | SN | | 27:41 | RO | 0.89 | 1.32 | | | 0.972 | | | |
| D | D | SN | | 27:49 | | 1.35 | 3.71 | | | 0.977 | | | |
| D | D | SN | | 27:58 | RO | 1.60 | 4.59 | | | 0.982 | | | |
| | | | | 28:23 | | 1.32 | 31.94 | 18.17 | 13.77 | 0.996 | 123478-HxCDF | AN | PR |
| | | | | 28:29 | | 1.36 | 15.18 | 8.76 | 6.42 | 1.000 | 123678-HxCDF | AN | |
| D | D | SN | | 28:35 | | 1.22 | 4.04 | | | 1.004 | | | |
| D | D | SN | | 28:47 | RO | 1.77 | 4.52 | | | 1.011 | | | |
| | | | | 29:00 | | 1.33 | 16.89 | 9.65 | 7.24 | 1.018 | 234678-HxCDF | AN | PR |
| | DC | SN | | 29:07 | | 1.06 | 0.99 | | | 1.022 | | | |
| | DC | SN | | 29:17 | RO | 3.00 | 0.18 | | | 1.028 | | | |
| | DC | SN | | 29:32 | RO | 1.85 | 1.03 | | | 1.037 | | | |
| | DC | SN | | 29:38 | RO | 2.87 | 0.52 | | | 1.040 | | | |
| | DC | SN | | 29:42 | RO | 2.77 | 1.46 | | | 1.043 | 123789-HxCDF | AN | |
| | | | | 29:49 | | 1.24 | 6.79 | 3.76 | 3.03 | 1.047 | | | |
| | DC | WH | | 30:00 | RO | 0.18 | 0.11 | | | 1.053 | | | |
| | DC | WH | | 30:13 | RO | 1.45 | 0.69 | | | 1.061 | | | |
| | DC | WH | | 30:18 | | 1.26 | 0.70 | | | 1.064 | | | |
| 374-376 | | | 6 Peaks | | | | 103.12 | | | | | | |
| 13C12-HxCDF | | | | | | 0.43-0.59 | | | | 0.859-1.141 | | | |
| 384-386 | DC | NL | | 0:00 | RO | 0.68 | 2.14 | | | 0.000 | | | |
| | DC | SN | | 27:31 | RO | 0.33 | 4.20 | | | 0.966 | | | |
| | | | | 28:22 | | 0.49 | 2,209.82 | 722.29 | 1,487.53 | 0.996 | 13C12-HxCDF 478 | SUR3 | |

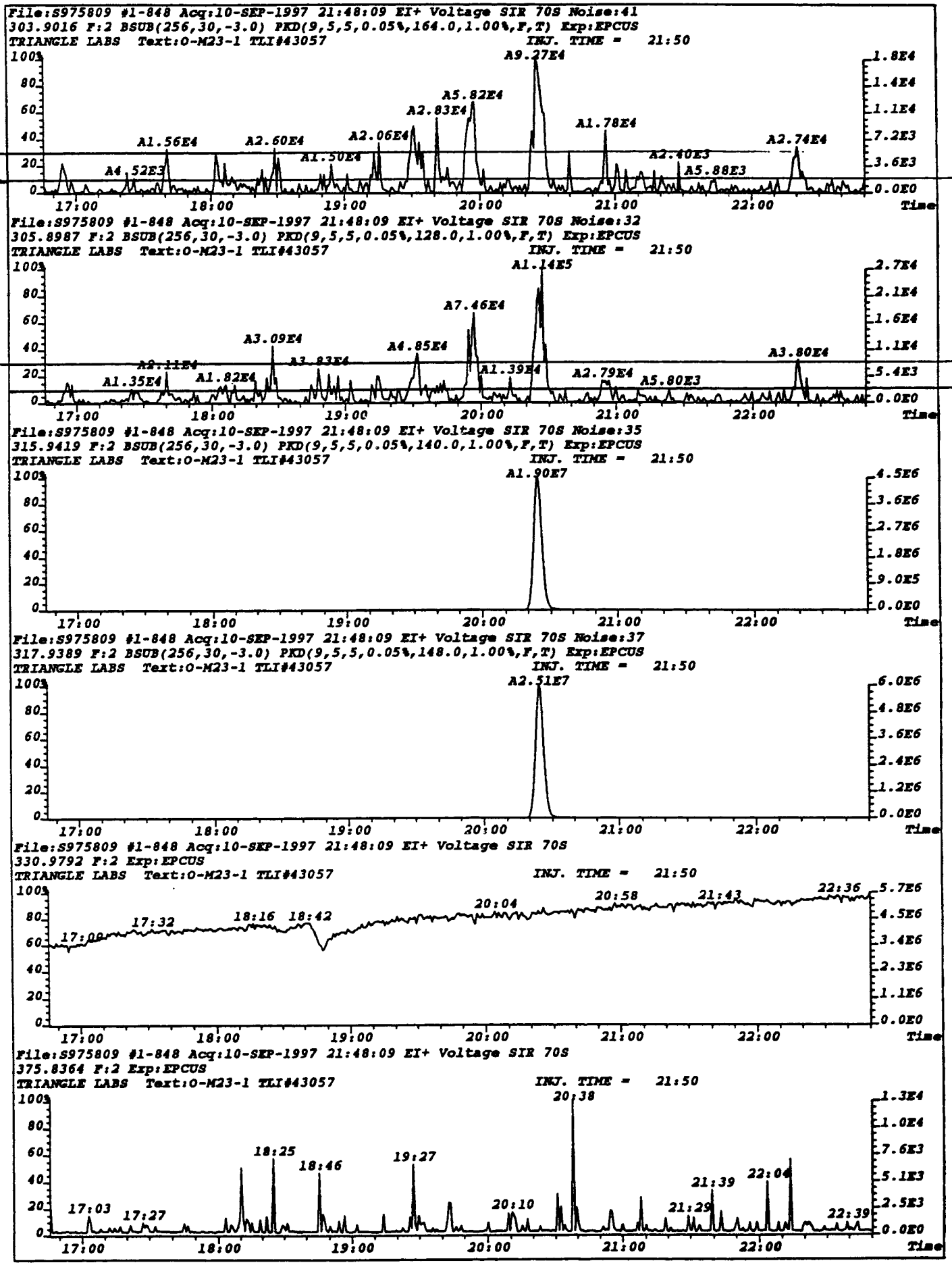
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 28:29 | | 0.50 | 2,639.14 | 876.59 | 1,762.55 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | DC | SN | | 28:45 | RO | 0.31 | 2.96 | | | 1.009 | | | |
| | | | | 28:59 | | 0.51 | 2,178.85 | 734.47 | 1,444.38 | 1.018 | 13C12-HxCDF 234 | ALT2 | |
| | DC | SN | | 29:30 | RO | 0.80 | 1.84 | | | 1.036 | | | |
| | | | | 29:42 | | 0.49 | 1,792.82 | 589.87 | 1,202.95 | 1.043 | 13C12-HxCDF 789 | ALT1 | |
| | | | | 29:56 | RO | 1.20 | 2.61 | 2.07 | 1.73 | 1.051 | | | |
| | DC | SN | | 30:17 | RO | 0.28 | 0.89 | | | 1.063 | | | |
| 384-386 | | | 5 | Peaks | | | 8,823.24 | | | | | | |
| ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | | |
| HxCDD | | | | | | 1.05-1.43 | | | | 0.951-1.015 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 0.19 | 0.16 | | | 0.000 | | | |
| | DC | WL | | 27:45 | RO | 0.29 | 0.18 | | | 0.950 | | | |
| | | | | 27:54 | | 1.21 | 5.95 | 3.26 | 2.69 | 0.955 | | | |
| | | | | 28:23 | | 1.13 | 30.36 | 16.11 | 14.25 | 0.972 | | | |
| | DC | SN | | 28:27 | RO | 2.59 | 1.79 | | | 0.974 | | | |
| | | | | 28:36 | | 1.20 | 14.79 | 8.06 | 6.73 | 0.979 | | | |
| | DC | SN | | 28:45 | RO | 1.94 | 1.61 | | | 0.985 | | | |
| | DC | SN | | 29:00 | RO | 7.03 | 0.74 | | | 0.993 | | | |
| D | D | SN | | 29:08 | | 1.22 | 3.48 | | | 0.998 | 123478-HxCDD | AN | |
| | | | | 29:13 | | 1.24 | 7.72 | 4.27 | 3.45 | 1.001 | 123678-HxCDD | AN | |
| | | | | 29:30 | | 1.29 | 9.13 | 5.14 | 3.99 | 1.010 | 123789-HxCDD | AN | |
| | DC | WH | | 29:59 | RO | 0.91 | 3.09 | | | 1.027 | | | |
| 390-392 | | | 5 | Peaks | | | 67.95 | | | | | | |
| 13C12-HxCDD | | | | | | 1.05-1.43 | | | | 0.966-1.034 | | | |
| 402-404 | DC | NL | | 0:00 | | 1.10 | 1.72 | | | 0.000 | | | |
| | | | | 28:36 | RO | 1.52 | 6.74 | 4.57 | 3.01 | 0.979 | | | |
| | | | | 29:07 | | 1.22 | 1,631.57 | 897.42 | 734.15 | 0.997 | 13C12-HxCDD 478 | SUR4 | |
| | | | | 29:12 | | 1.24 | 2,071.02 | 1,145.28 | 925.74 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 29:30 | | 1.23 | 3,184.06 | 1,756.61 | 1,427.45 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| | | | | 29:43 | RO | 1.44 | 8.98 | 5.76 | 4.01 | 1.018 | | | |
| | DC | SN | | 29:58 | RO | 3.40 | 2.15 | | | 1.026 | | | |
| 402-404 | | | 5 | Peaks | | | 6,902.37 | | | | | | |
| ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | | |
| HpCDF | | | | | | 0.88-1.20 | | | | 0.995-1.045 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 23.14 | 0.14 | | | 0.000 | | | |
| M | | | | 31:12 | RO | 1.39 | 31.62 | 21.60 | 15.50 | 1.001 | 1234678-HpCDF | AN | PR |
| | | | | 31:26 | RO | 1.47 | 7.02 | 5.05 | 3.44 | 1.008 | | | |
| | | | | 31:33 | RO | 1.22 | 10.02 | 6.01 | 4.91 | 1.012 | | | |
| | DC | SN | | 31:44 | RO | 2.33 | 0.67 | | | 1.018 | | | |
| | DC | SN | | 32:14 | RO | 1.78 | 0.73 | | | 1.034 | | | |
| | | | | 32:24 | | 1.17 | 12.93 | 6.98 | 5.95 | 1.039 | 1234789-HpCDF | AN | |
| | DC | WH | | 32:42 | RO | 6.03 | 0.73 | | | 1.049 | | | |
| | DC | WH | | 32:51 | RO | 2.00 | 1.04 | | | 1.053 | | | |
| 408-410 | | | 4 | Peaks | | | 61.59 | | | | | | |
| 13C12-HpCDF | | | | | | 0.37-0.51 | | | | 0.936-1.128 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 0.88 | 1.40 | | | 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 31:11 | | 0.44 | 1,194.47 | 365.70 | 828.77 | 1.000 | 13C12-HpCDF 678 | IS6 | |
| | DC | SN | | 31:29 | RO | 0.22 | 2.00 | | | 1.010 | | | |
| | | | | 32:24 | | 0.42 | 816.94 | 240.77 | 576.17 | 1.039 | 13C12-HpCDF 789 | SUR5 | |
| 418-420 | | | 2 | Peaks | | | 2,011.41 | | | | | | |
| ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | | |
| HpCDD | | | | | | 0.88-1.20 | | | | 0.977-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | | 1.00 | 0.14 | | | 0.000 | | | |
| | | | | 31:28 | | 1.09 | 16.15 | 8.43 | 7.72 | 0.982 | | | |
| | | | | 32:04 | | 0.99 | 19.94 | 9.90 | 10.04 | 1.001 | 1234678-HpCDD | AN | |
| | DC | WH | | 32:32 | RO | 2.00 | 0.27 | | | 1.015 | | | |
| 424-426 | | | 2 | Peaks | | | 36.09 | | | | | | |
| 13C12-HpCDD | | | | | | 0.88-1.20 | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | RO | 2.00 | 2.16 | | | 0.000 | | | |
| | DC | SN | | 31:26 | RO | 2.97 | 3.08 | | | 0.981 | | | |
| | | | | 32:03 | | 1.05 | 1,307.85 | 670.48 | 637.37 | 1.000 | 13C12-HpCDD 678 | IS7 | |
| 436-438 | | | 1 | Peak | | | 1,307.85 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | RO | 1.40 | 0.09 | | | 0.000 | | | |
| | DC | SN | | 30:43 | RO | 0.27 | 0.15 | | | 0.889 | | | |
| | DC | SN | | 31:07 | RO | 1.06 | 0.32 | | | 0.901 | | | |
| | DC | SN | | 31:35 | | 0.83 | 1.48 | | | 0.914 | | | |
| | DC | SN | | 31:51 | RO | 0.24 | 0.17 | | | 0.922 | | | |
| | DC | SN | | 32:13 | RO | 3.44 | 0.30 | | | 0.932 | | | |
| | DC | SN | | 32:18 | RO | 1.76 | 0.72 | | | 0.935 | | | |
| | DC | SN | | 32:51 | RO | 0.74 | 1.40 | | | 0.951 | | | |
| | DC | SN | | 32:58 | RO | 0.38 | 0.59 | | | 0.954 | | | |
| | DC | SN | | 33:33 | RO | 4.78 | 0.17 | | | 0.971 | | | |
| | DC | SN | | 33:59 | RO | 3.53 | 0.32 | | | 0.984 | | | |
| | DC | SN | | 34:08 | RO | 1.15 | 0.89 | | | 0.988 | | | |
| | DC | SN | | 34:11 | RO | 1.40 | 0.19 | | | 0.989 | | | |
| | DC | SN | | 34:21 | RO | 1.18 | 0.76 | | | 0.994 | | | |
| M | | | | 34:41 | | 0.80 | 9.20 | 4.10 | 5.10 | 1.004 | OCDF | | AN |
| | DC | SN | | 34:59 | RO | 0.18 | 0.66 | | | 1.013 | | | |
| | DC | SN | | 35:10 | RO | 2.52 | 0.40 | | | 1.018 | | | |
| | DC | SN | | 35:23 | RO | 1.35 | 1.42 | | | 1.024 | | | |
| | DC | SN | | 35:31 | RO | 0.71 | 0.72 | | | 1.028 | | | |
| | DC | SN | | 35:49 | RO | 0.74 | 0.30 | | | 1.037 | | | |
| 442-444 | | | 1 | Peak | | | 9.20 | | | | | | |
| OCDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | | 0.86 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 34:22 | RO | 2.17 | 0.45 | | | 0.995 | | | |
| | | | | 34:33 | | 0.91 | 86.40 | 41.23 | 45.17 | 1.000 | OCDD | | AN |
| | DC | SN | | 34:49 | RO | 1.49 | 0.96 | | | 1.008 | | | |
| 458-460 | | | 1 | Peak | | | 86.40 | | | | | | |

| 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 | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | RO | 9.50 | 0.11 | | | 0.000 | | | |
| | | | | 34:33 | | 0.89 | 1,190.52 | 560.85 | 629.67 | 1.000 | 13C12-OCDD | IS8 | |
| | DC | WH | | 34:52 | RO | 0.14 | 0.53 | | | 1.009 | | | |
| 470-472 | | | 1 Peak | | | | 1,190.52 | | | | | | |

| 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 ***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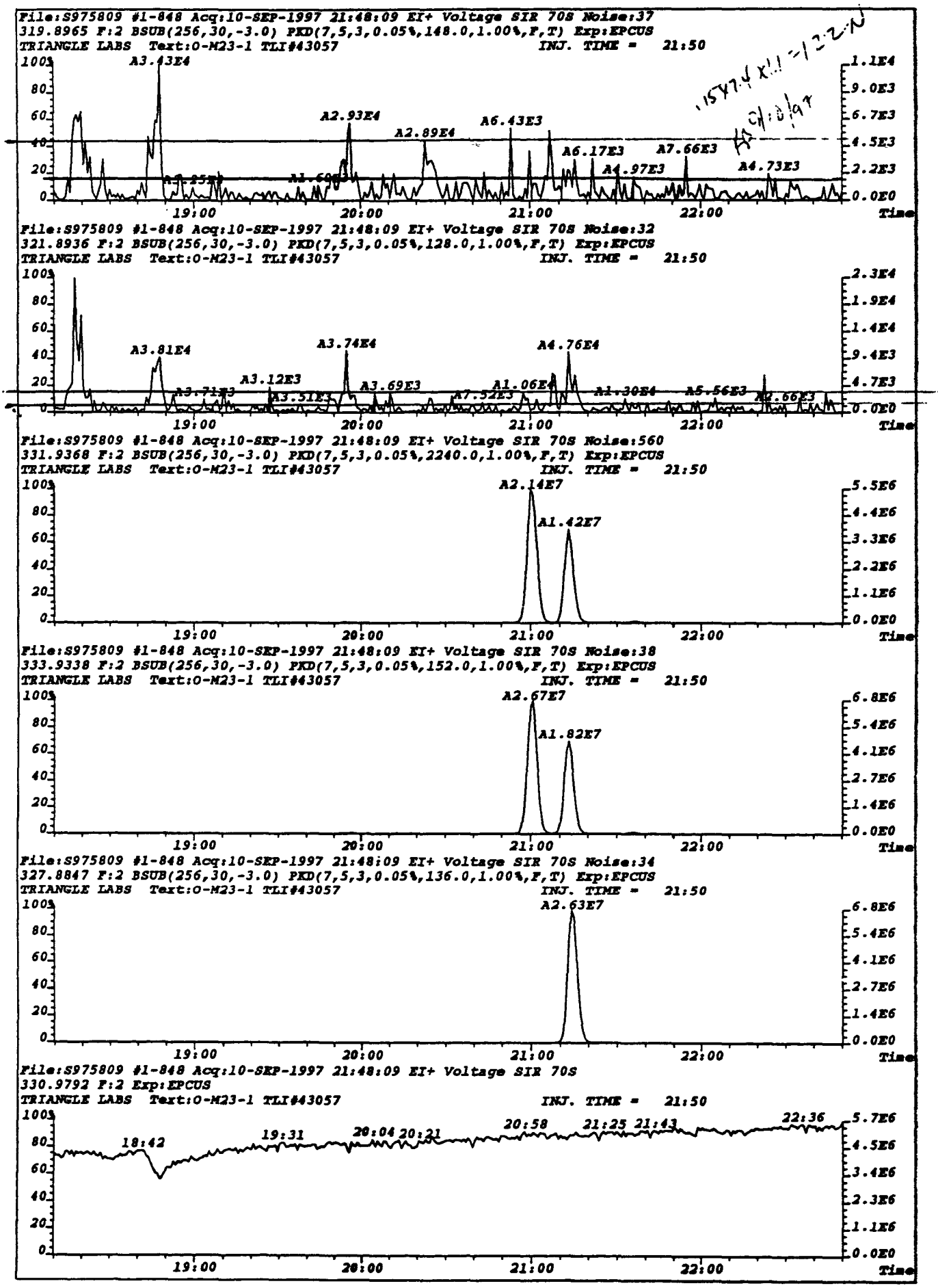
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A9.27E4
A5.82E4
A2.83E4
A2.06E4
A1.78E4
A1.56E4
A2.60E4
A1.50E4
A2.74E4
A2.40E3
A5.88E3
A4.52E3
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:32
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.14E5
A7.46E4
A3.09E4
A4.85E4
A3.80E4
A1.39E4
A2.79E4
A5.80E3
A1.35E4
A1.82E4
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:35
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.90E7
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:37
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A2.51E7
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
17:00
17:32
18:16
18:42
20:04
20:58
21:43
22:36
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
20:38
18:25
18:46
19:27
17:03
17:27
20:10
21:39
21:29
22:04
22:39
Time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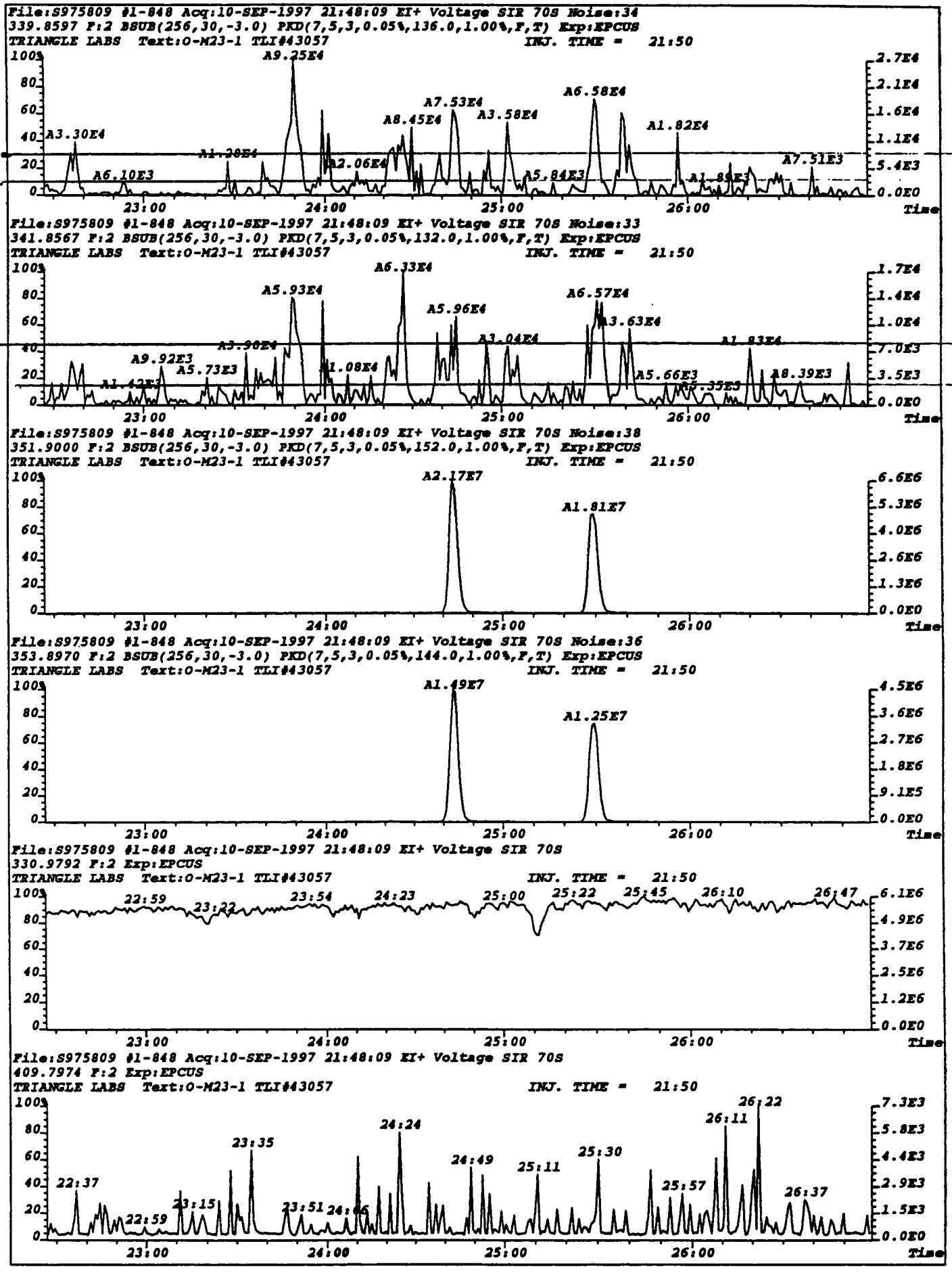
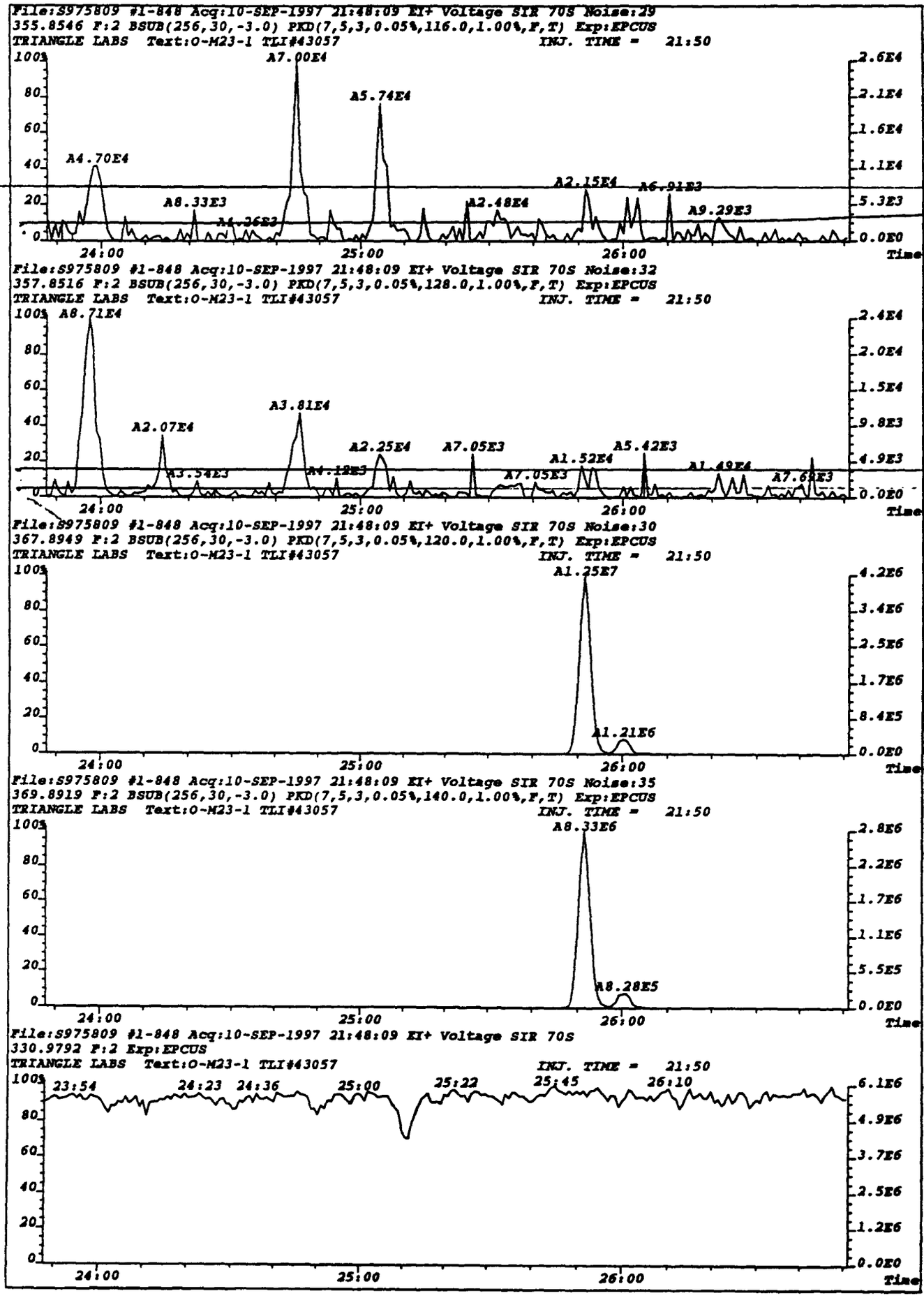
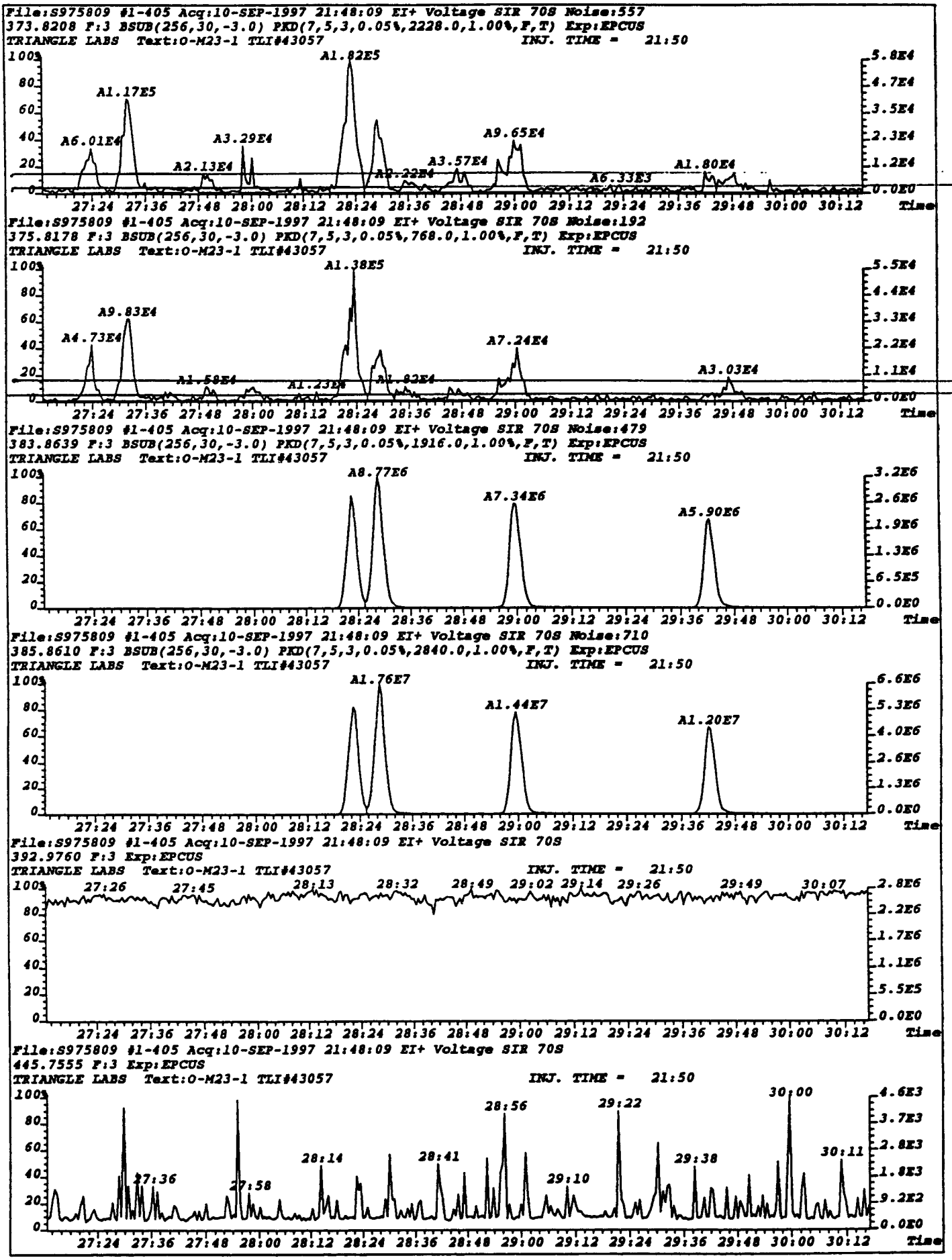
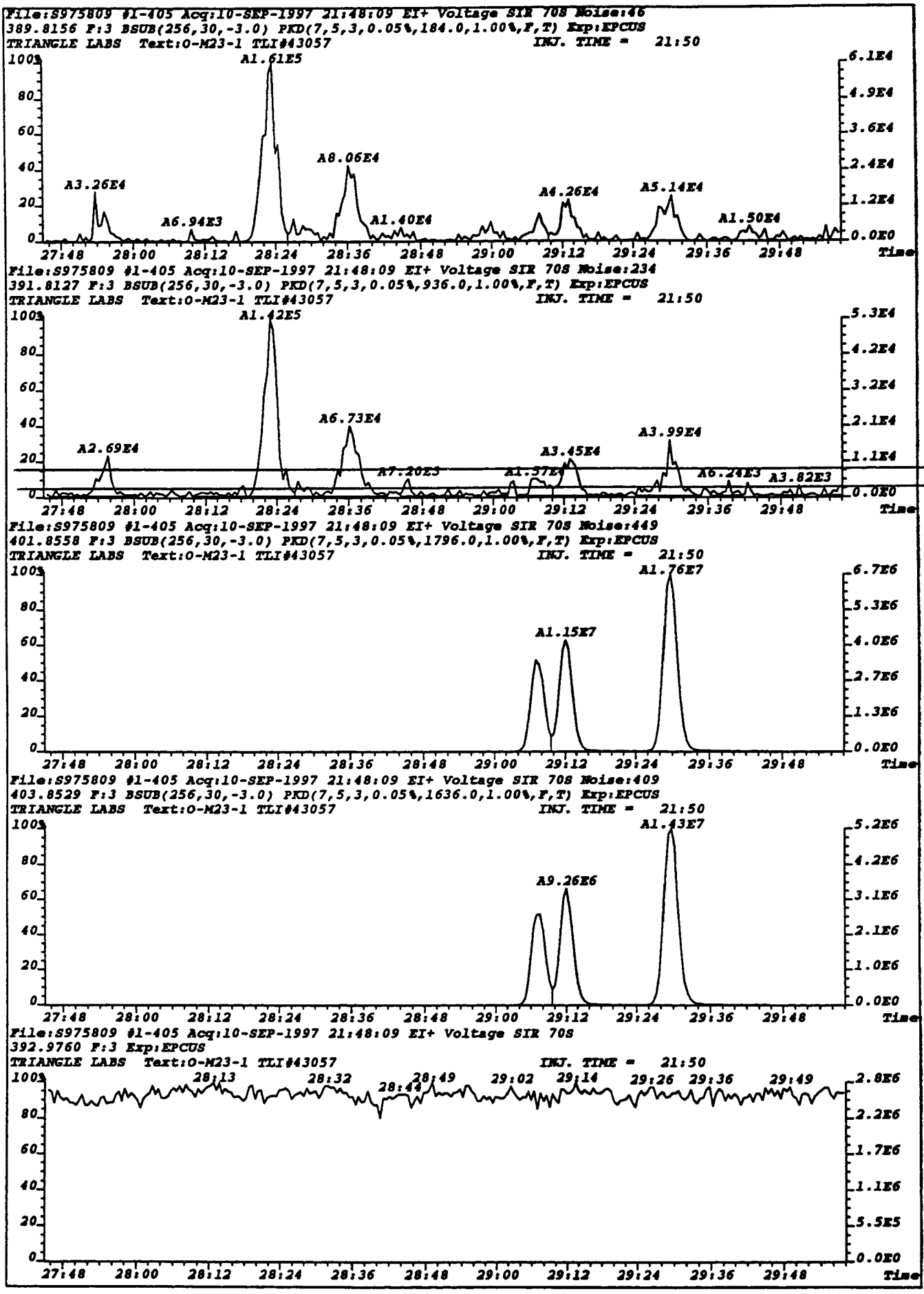
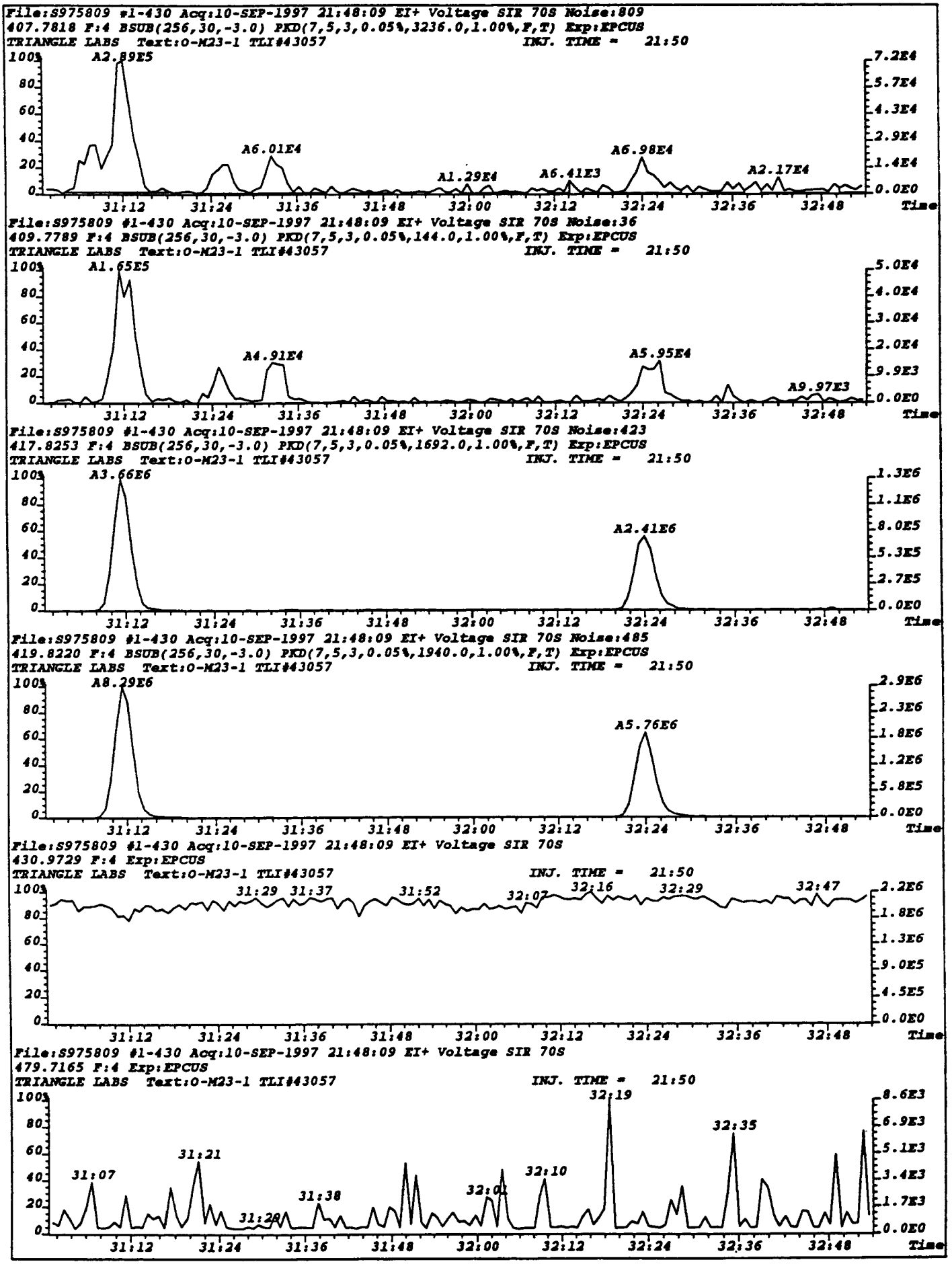
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A3.43E4
A2.93E4
A2.89E4
A6.43E3
A6.17E3
A7.66E3
A4.97E3
A4.73E3
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:32
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A3.81E4
A3.74E4
A4.76E4
A3.12E3
A3.69E3
A1.06E4
A1.30E4
A5.56E3
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:560
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A2.14E7
A1.42E7
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:38
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A2.67E7
A1.82E7
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:34
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A2.63E7
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
18:42
19:31
20:04
20:21
20:58
21:25
21:43
22:36
19:00
20:00
21:00
22:00
Time

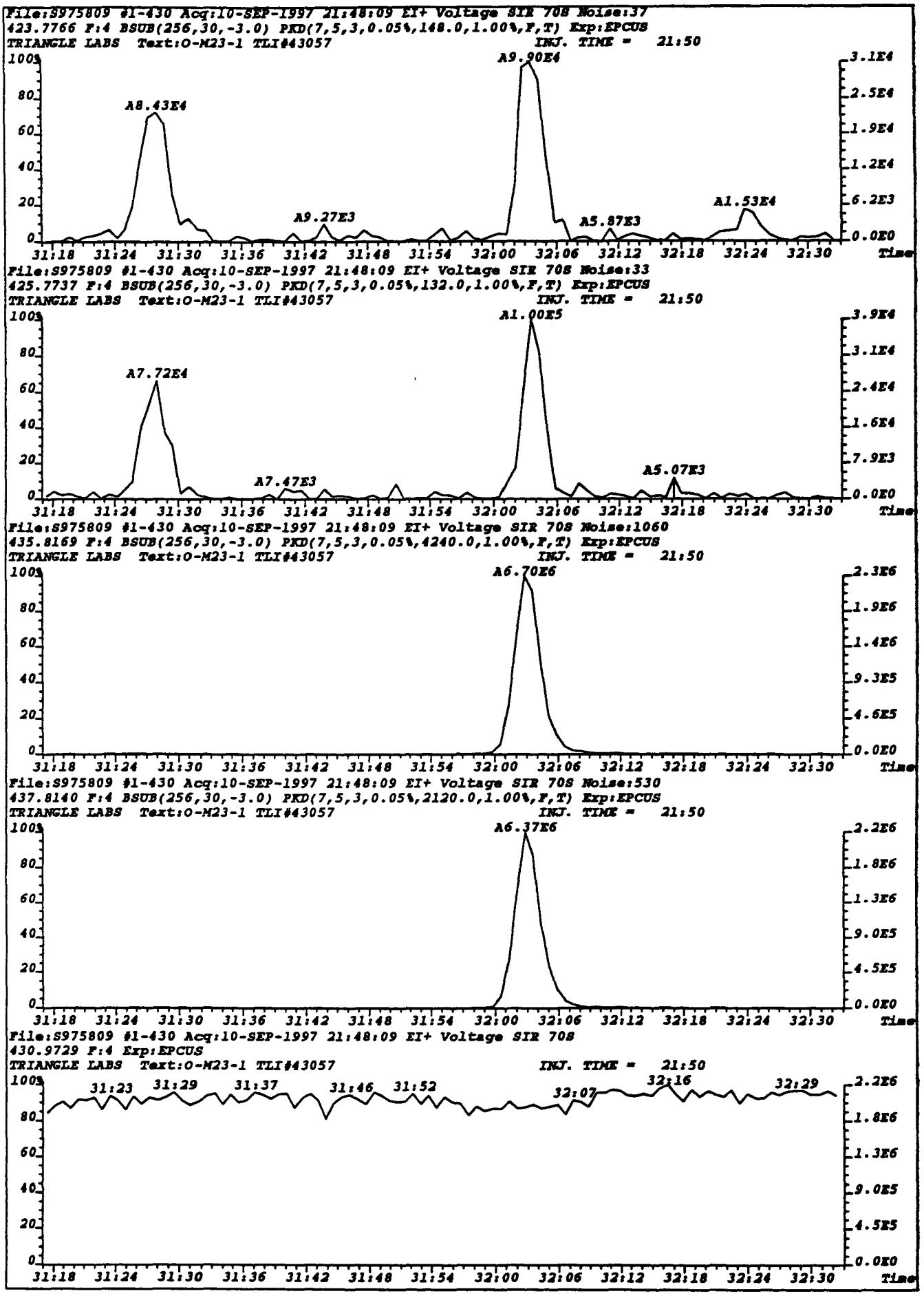

File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:34
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A9.25E4
A6.58E4
A7.53E4
A8.45E4
A3.58E4
A3.30E4
A1.82E4
A7.51E3
A6.10E3
A2.06E4
A5.84E3
23:00
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:33
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A6.33E4
A5.93E4
A6.57E4
A5.96E4
A3.63E4
A3.04E4
A9.92E3
A5.73E3
A1.08E4
A5.66E3
A8.39E3
23:00
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 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:O-M23-1 TLI#43057
INJ. TIME = 21:50
A2.17E7
A1.81E7
23:00
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:36
353.8970 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-M23-1 TLI#43057
INJ. TIME = 21:50
A1.49E7
A1.25E7
23:00
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
22:59
23:22
23:54
24:23
25:00
25:22
25:45
26:10
26:47
23:00
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
26:22
26:11
24:24
23:35
24:49
25:11
25:30
22:37
25:57
26:37
23:15
22:59
23:51
24:06
23:00
24:00
25:00
26:00
Time

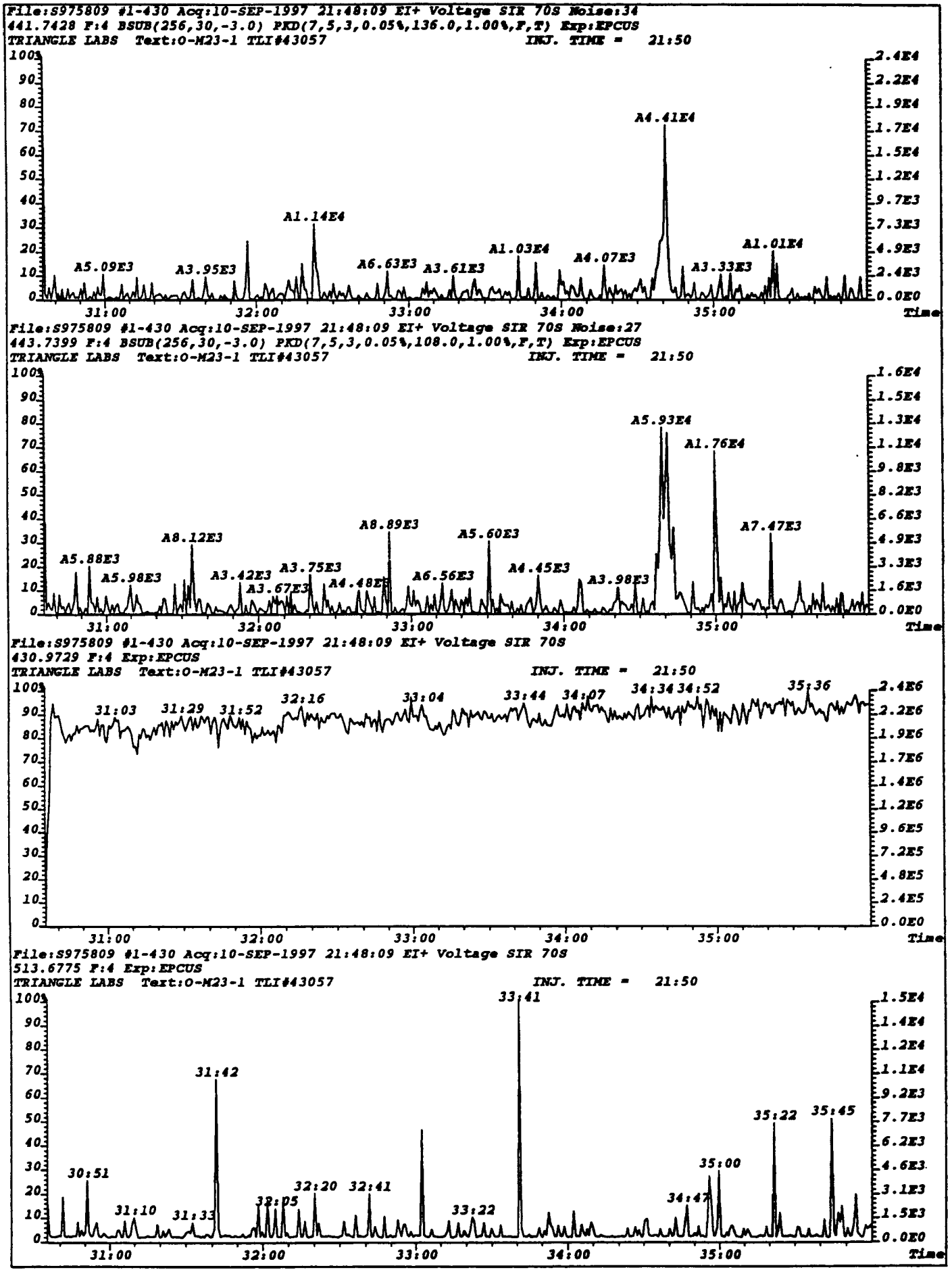

File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:29
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A7.00E4
A5.74E4
A4.70E4
A8.33E3
A2.48E4
A2.15E4
A6.91E3
A9.29E3
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:32
357.8516 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-M23-1 TLI#43057
INJ. TIME = 21:50
A8.71E4
A3.81E4
A2.07E4
A2.25E4
A7.05E3
A5.42E3
A1.52E4
A1.49E4
A3.54E3
A7.05E3
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:30
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.25E7
A1.21E6
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 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-M23-1 TLI#43057
INJ. TIME = 21:50
A8.33E6
A8.28E5
24:00
25:00
26:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
23:54
24:23
24:36
25:00
25:22
25:45
26:10
24:00
25:00
26:00
Time

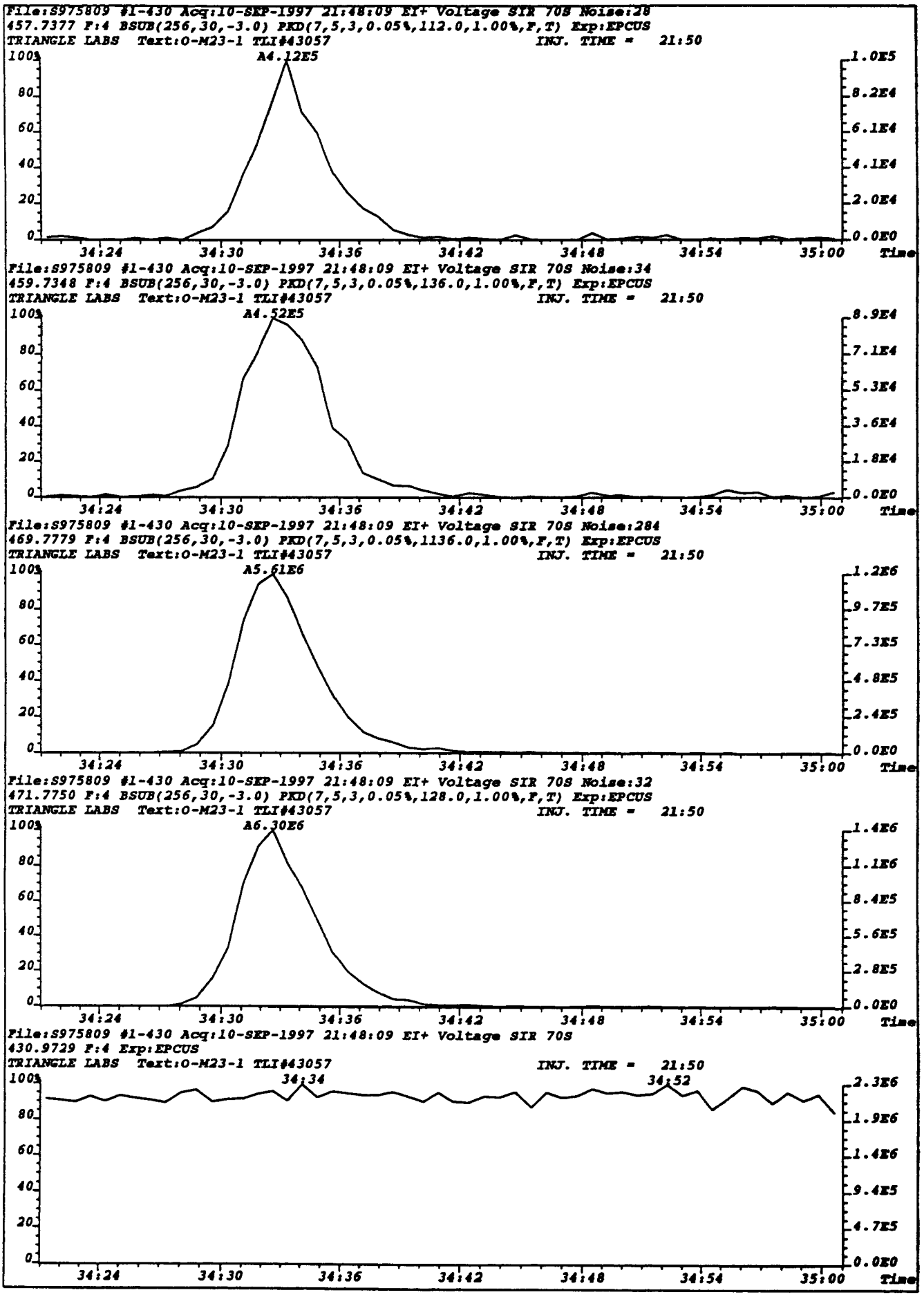

File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:557
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2228.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.82E5
A1.17E5
A6.01E4
A3.29E4
A2.13E4
A9.65E4
A3.57E4
A1.80E4
A6.33E3
Time
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:192
375.8178 F:3 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#43057
INJ. TIME = 21:50
A1.38E5
A9.83E4
A4.73E4
A7.24E4
A3.03E4
Time
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:479
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1916.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A8.77E6
A7.34E6
A5.90E6
Time
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:710
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2840.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.76E7
A1.44E7
A1.20E7
Time
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
Time
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
28:56
29:22
30:00
28:14
28:41
29:38
30:11
29:10
27:36
27:58
Time

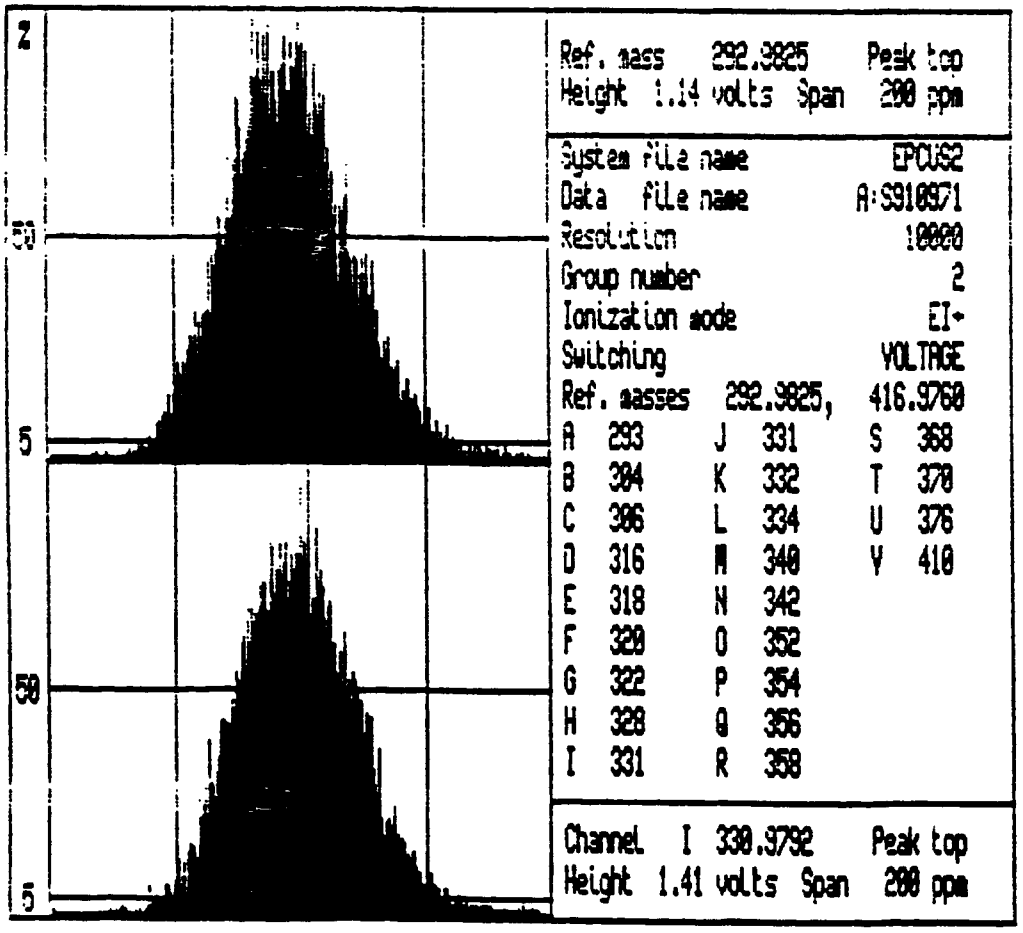

File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:46
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.61E5
A8.06E4
A3.26E4
A6.94E3
A1.40E4
A4.26E4
A5.14E4
A1.50E4
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:234
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,936.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.42E5
A6.73E4
A2.69E4
A7.20E3
A1.37E4
A3.45E4
A3.99E4
A6.24E3
A3.82E3
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:449
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1796.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.76E7
A1.15E7
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:409
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1636.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.43E7
A9.26E6
File:S975809 #1-405 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
28:13
28:32
28:44
28:49
29:02
29:14
29:26
29:36
29:49
27:48
28:00
28:12
28:24
28:36
28:48
29:00
29:12
29:24
29:36
29:48
Time

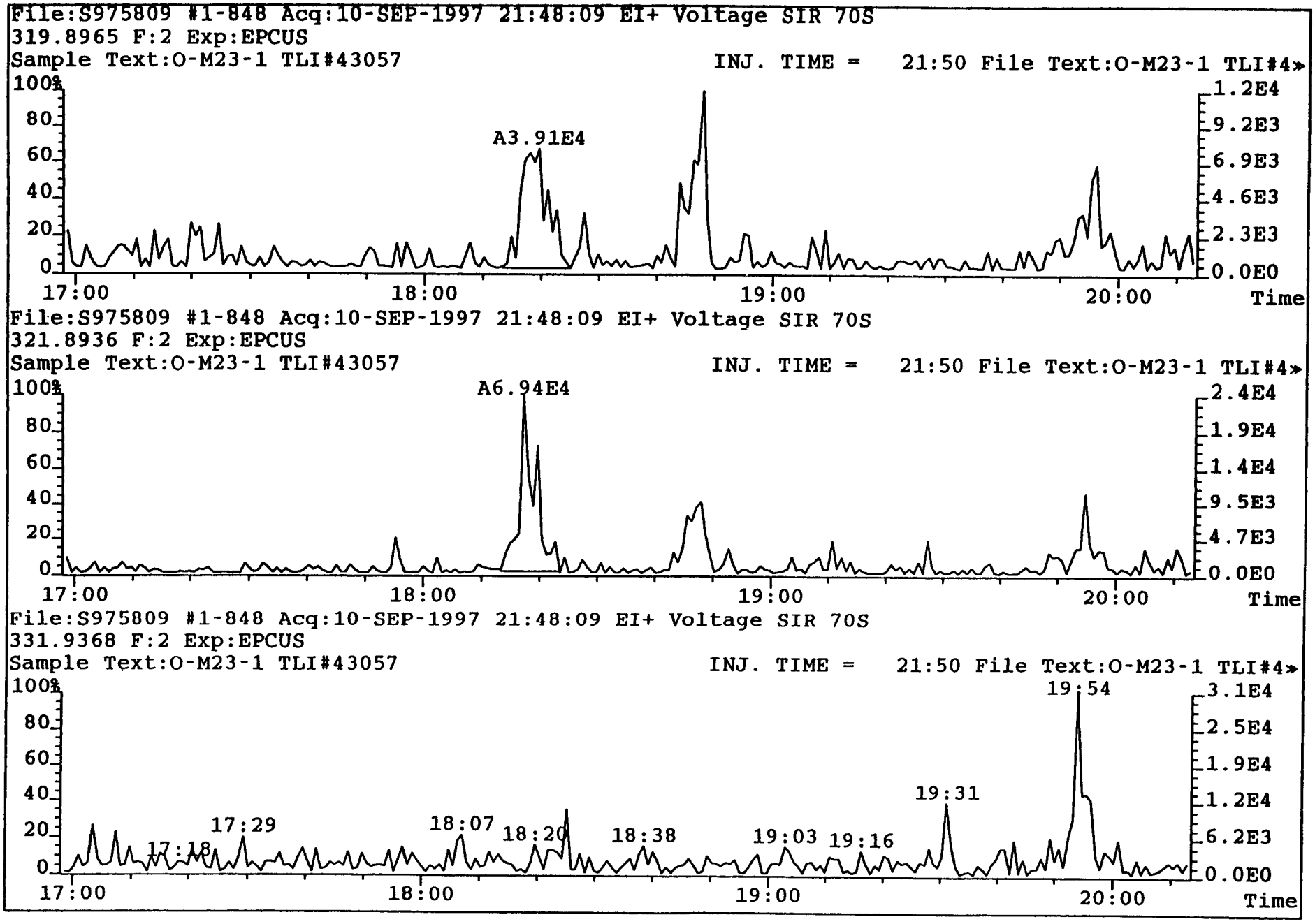

File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:809
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3236.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A2.89E5
A6.01E4
A1.29E4
A6.41E3
A6.98E4
A2.17E4
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:36
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A1.65E5
A4.91E4
A5.95E4
A9.97E3
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:423
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1692.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A3.66E6
A2.41E6
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:485
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1940.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A8.29E6
A5.76E6
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
31:29 31:37 31:52 32:07 32:16 32:29 32:47
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
31:07 31:21 31:28 31:38 32:01 32:10 32:19 32:35
31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 Time

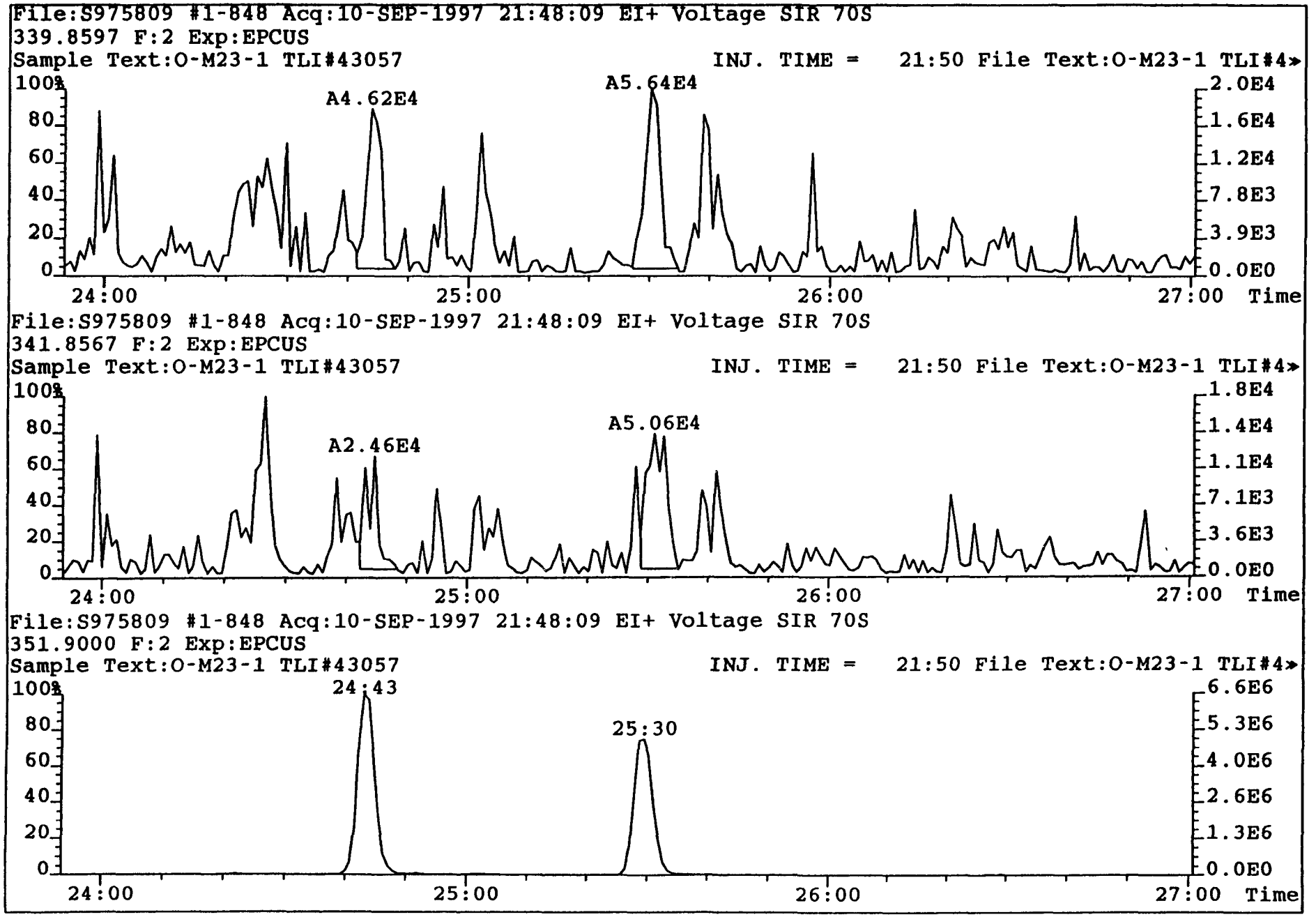

File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:37
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A9.90E4
A8.43E4
A9.27E3
A5.87E3
A1.53E4
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:33
425.7737 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-M23-1 TLI#43057
INJ. TIME = 21:50
A1.00E5
A7.72E4
A7.47E3
A5.07E3
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:1060
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4240.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A6.70E6
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:530
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A6.37E6
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
31:23
31:29
31:37
31:46
31:52
32:07
32:16
32:29
Time

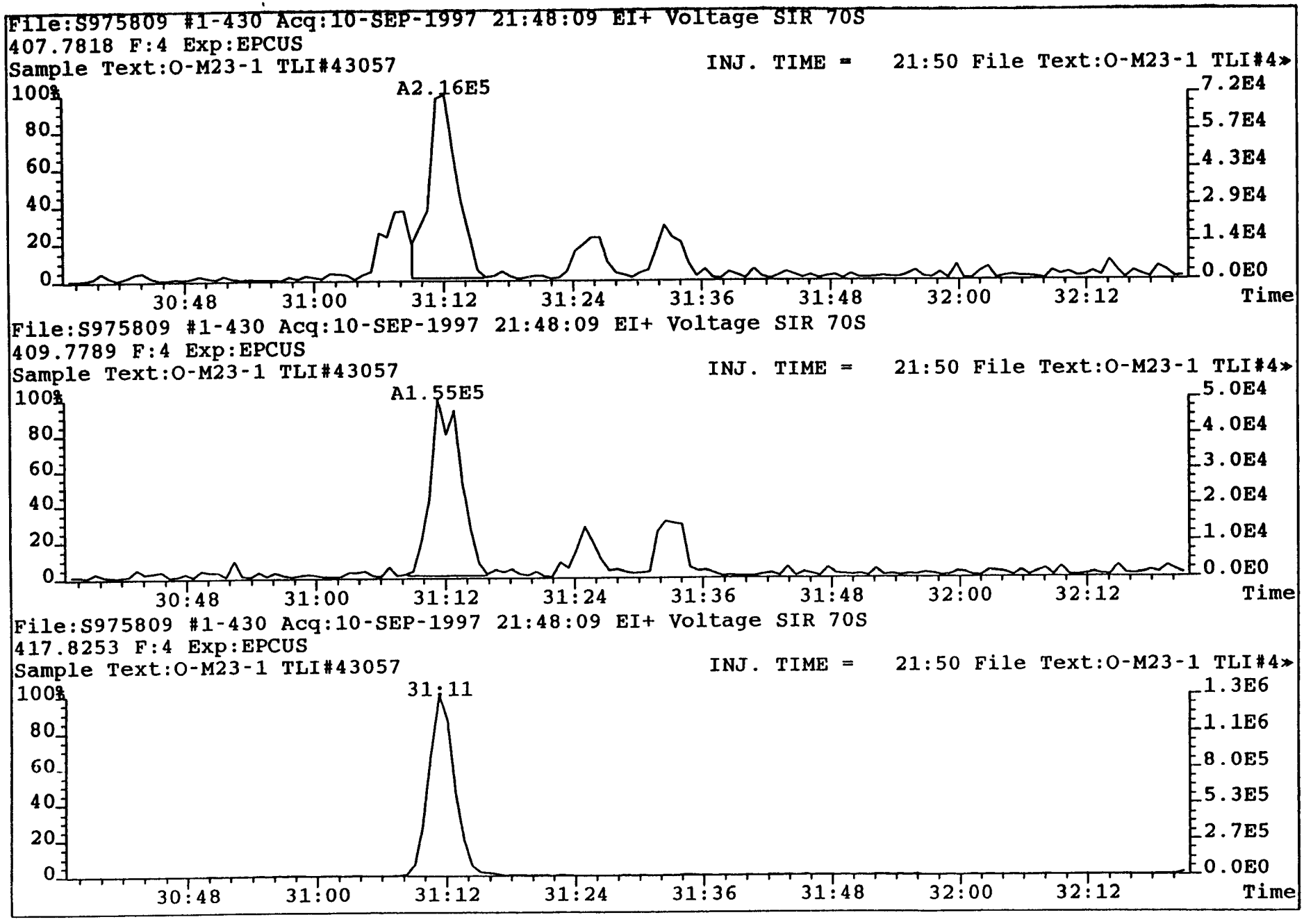

File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:34
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
A5.09E3
A3.95E3
A1.14E4
A6.63E3
A3.61E3
A1.03E4
A4.07E3
A4.41E4
A3.33E3
A1.01E4
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 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:O-M23-1 TLI#43057
INJ. TIME = 21:50
A5.88E3
A5.98E3
A8.12E3
A3.42E3
A3.67E3
A3.75E3
A4.48E3
A8.89E3
A6.56E3
A5.60E3
A4.45E3
A3.98E3
A5.93E4
A1.76E4
A7.47E3
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
31:03
31:29
31:52
32:16
33:04
33:44
34:07
34:34
34:52
35:36
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057
INJ. TIME = 21:50
30:51
31:10
31:33
31:42
32:05
32:20
32:41
33:22
33:41
34:47
35:00
35:22
35:45
31:00
32:00
33:00
34:00
35:00
Time

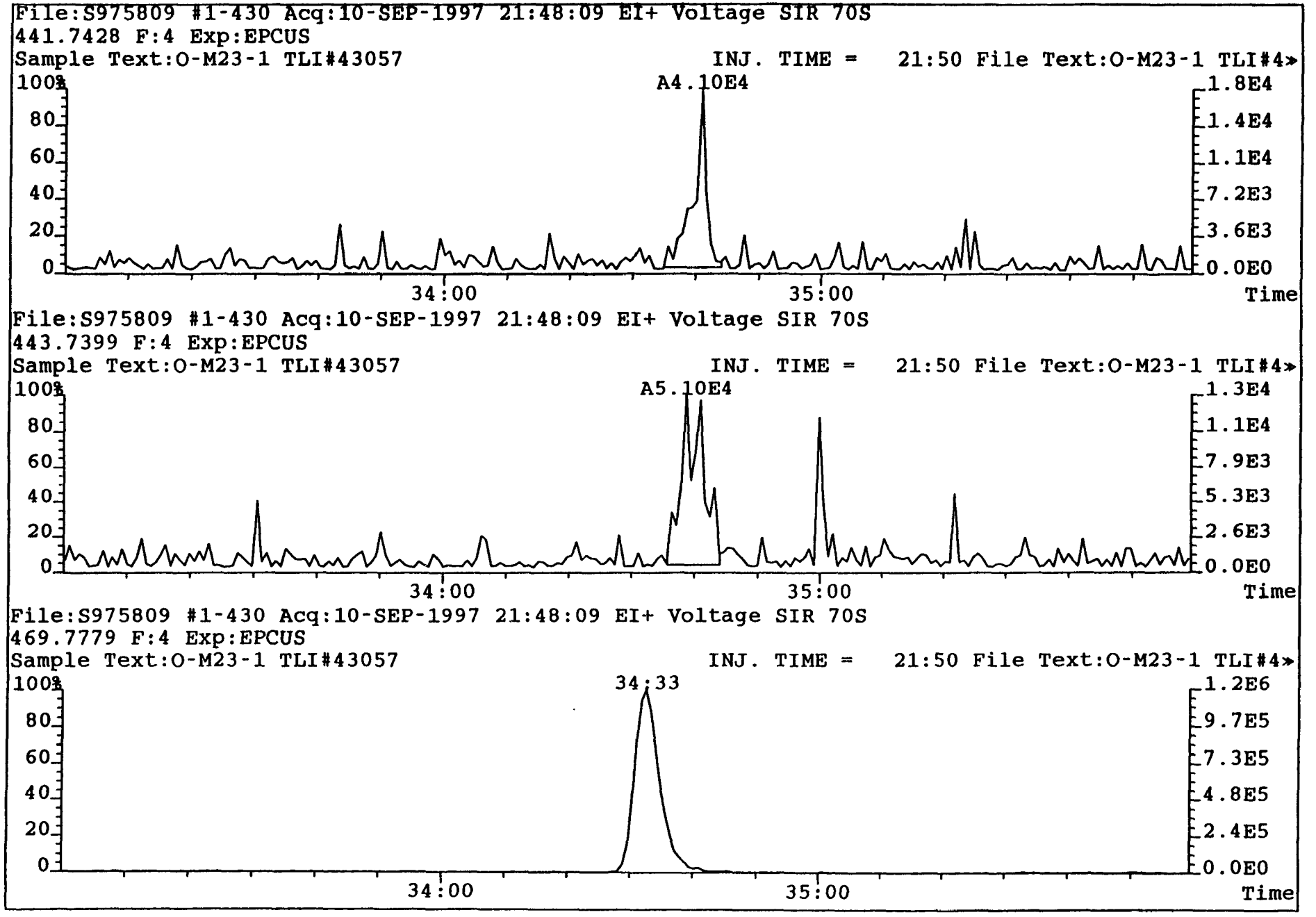

File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:28
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A4.12E5
1.0E5
8.2E4
6.1E4
4.1E4
2.0E4
0.0E0
34:24
34:30
34:36
34:42
34:48
34:54
35:00
Time
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:34
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A4.52E5
8.9E4
7.1E4
5.3E4
3.6E4
1.8E4
0.0E0
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:284
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
A5.61E6
1.2E6
9.7E5
7.3E5
4.8E5
2.4E5
0.0E0
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S Noise:32
471.7750 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-M23-1 TLI#43057 INJ. TIME = 21:50
A6.30E6
1.4E6
1.1E6
8.4E5
5.6E5
2.8E5
0.0E0
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-1 TLI#43057 INJ. TIME = 21:50
34:34
34:52
2.3E6
1.9E6
1.4E6
9.4E5
4.7E5
0.0E0


Z
50
5
50
5
Ref. mass 292.3825 Peak top
Height 1.14 volts Span 200 ppm
System file name EPCUS2
Data file name A:S910571
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.3825, 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
Channel I 330.9792 Peak top
Height 1.41 volts Span 200 ppm


File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
319.8965 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A3.91E4
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
321.8936 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A6.94E4
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
331.9368 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
17:18
17:29
18:07
18:20
18:38
19:03
19:16
19:31
19:54
Time


File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A4.62E4
A5.64E4
100%
80
60
40
20
0
2.0E4
1.6E4
1.2E4
7.8E3
3.9E3
0.0E0
24:00
25:00
26:00
27:00
Time
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A2.46E4
A5.06E4
1.8E4
1.4E4
1.1E4
7.1E3
3.6E3
0.0E0
File:S975809 #1-848 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
24:43
25:30
6.6E6
5.3E6
4.0E6
2.6E6
1.3E6
0.0E0


File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A2.16E5
100%
80
60
40
20
0
7.2E4
5.7E4
4.3E4
2.9E4
1.4E4
0.0E0
30:48
31:00
31:12
31:24
31:36
31:48
32:00
32:12
Time
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
A1.55E5
100%
80
60
40
20
0
5.0E4
4.0E4
3.0E4
2.0E4
1.0E4
0.0E0
30:48
31:00
31:12
31:24
31:36
31:48
32:00
32:12
Time
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4
31:11
100%
80
60
40
20
0
1.3E6
1.1E6
8.0E5
5.3E5
2.7E5
0.0E0
30:48
31:00
31:12
31:24
31:36
31:48
32:00
32:12
Time


File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
441.7428 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4»
A4.10E4
100%
80
60
40
20
0
1.8E4
1.4E4
1.1E4
7.2E3
3.6E3
0.0E0
34:00
35:00
Time
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
443.7399 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4»
A5.10E4
100%
80
60
40
20
0
1.3E4
1.1E4
7.9E3
5.3E3
2.6E3
0.0E0
34:00
35:00
Time
File:S975809 #1-430 Acq:10-SEP-1997 21:48:09 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:O-M23-1 TLI#43057
INJ. TIME = 21:50 File Text:O-M23-1 TLI#4»
34:33
100%
80
60
40
20
0
1.2E6
9.7E5
7.3E5
4.8E5
2.4E5
0.0E0
34:00
35:00
Time

## Pacific Environmental Services

TLI Project: 43057 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: O-M23-1 — Analysis File: X973083

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-2A-C | Date Extracted: | 09/06/97 | ICal: | XF24087 |
| | | Date Analyzed: | 09/11/97 | ConCal: | X973069 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | MS | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | EMPC | | 0.008 | | | B__ |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.4 | 59.8 | 40%-130% | 0.79 | 22:31 | ___ |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.79 | 21:30 | ___ |

Data Reviewer: _____ 09/12/97



C2NF_PSR v2.00, LABS 6.10.04

Triangle Laboratories, Inc.®
3301 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:59 09/12/97

Initial ....Date...

Data Review By: [illegible] 9/12/97 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.

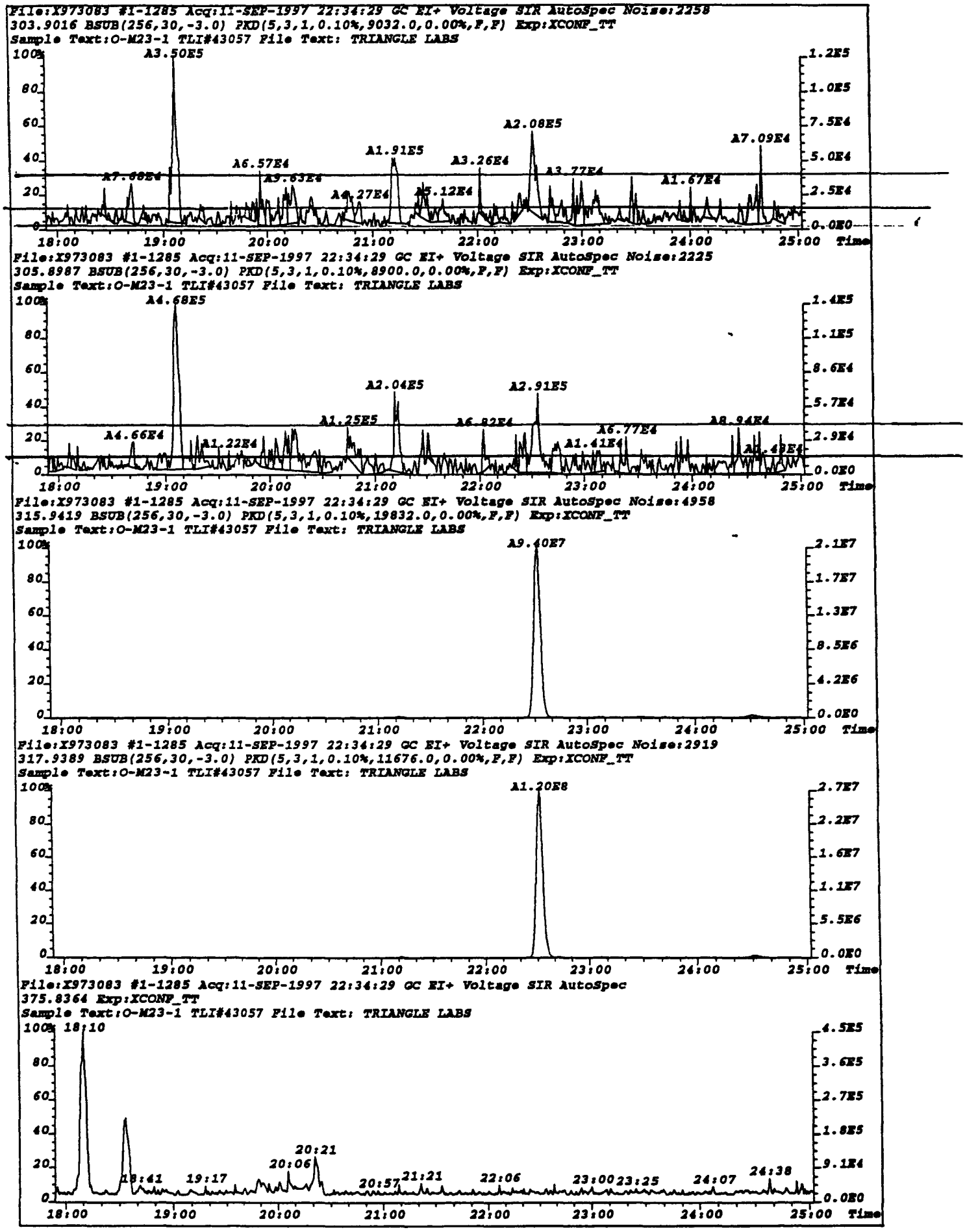
Page No. 1 Listing of X973083B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

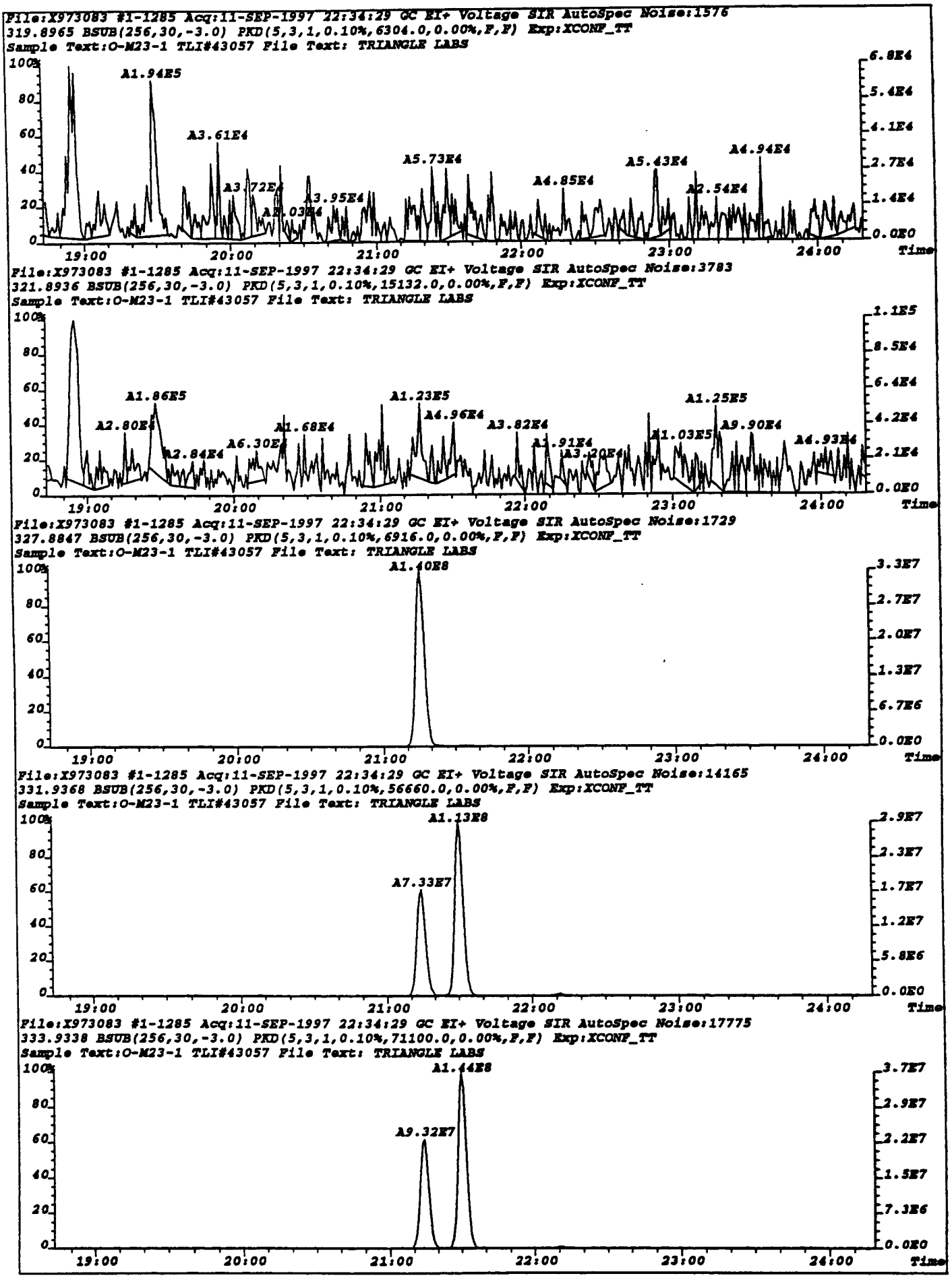
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | | | 0.65-0.89 | | | | 0.797-1.100 | | | |
| 304-306 | DC | NL | | 0:00 | RO | 1.02 | 7.88 | | | 0.000 | | | |
| | | | | 18:42 | RO | 1.65 | 8.25 | 7.68 | 4.66 | 0.830 | | | |
| | | | | 19:07 | | 0.75 | 81.84 | 35.02 | 46.82 | 0.849 | | | |
| | | | | 19:56 | RO | 1.59 | 7.31 | 6.57 | 4.13 | 0.885 | | | |
| | | | | 20:00 | RO | 1.43 | 5.31 | 4.29 | 3.00 | 0.888 | | | |
| | | | | 20:11 | | 0.71 | 14.69 | 6.11 | 8.58 | 0.896 | | | |
| | | | | 20:15 | | 0.75 | 22.50 | 9.63 | 12.87 | 0.899 | | | |
| | | | | 20:25 | RO | 0.15 | 3.31 | 1.44 | 9.61 | 0.907 | | | |
| | | | | 20:33 | RO | 0.42 | 4.37 | 1.90 | 4.51 | 0.913 | | | |
| | | | | 20:46 | RO | 0.58 | 16.67 | 7.25 | 12.50 | 0.922 | | | |
| | | | | 21:13 | RO | 0.93 | 36.16 | 19.07 | 20.43 | 0.942 | | | |
| | | | | 21:29 | RO | 2.97 | 4.12 | 6.93 | 2.33 | 0.954 | | | |
| | | | | 22:02 | RO | 0.48 | 7.49 | 3.26 | 6.82 | 0.979 | | | |
| | | | | 22:24 | RO | 0.38 | 7.93 | 3.45 | 9.14 | 0.995 | | | |
| | M | | | 22:32 | RO | 1.02 | 43.37 | 25.10 | 24.50 | 1.001 | 2378-TCDF | | AN |
| | | | | 22:49 | RO | 2.09 | 4.46 | 5.27 | 2.52 | 1.013 | | | |
| | | | | 22:55 | | 0.72 | 9.03 | 3.77 | 5.26 | 1.018 | | | |
| | | | | 23:00 | RO | 1.70 | 8.07 | 7.76 | 4.56 | 1.021 | | | |
| | | | | 23:08 | RO | 2.59 | 8.90 | 13.05 | 5.03 | 1.027 | | | |
| | DC | SN | | 23:22 | RO | 0.17 | 2.64 | | | 1.038 | | | |
| | | | | 23:28 | RO | 1.82 | 3.54 | 3.63 | 2.00 | 1.042 | | | |
| | | | | 23:31 | | 0.75 | 11.08 | 4.74 | 6.34 | 1.044 | | | |
| | DC | SN | | 23:37 | RO | 0.33 | 0.87 | | | 1.049 | | | |
| | | | | 23:54 | RO | 0.23 | 5.45 | 2.37 | 10.22 | 1.061 | | | |
| | DC | SN | | 24:09 | RO | 4.28 | 1.13 | | | 1.073 | | | |
| | | | | 24:27 | RO | 0.29 | 6.05 | 2.63 | 8.94 | 1.086 | | | |
| | | | | 24:37 | RO | 1.41 | 12.32 | 9.82 | 6.96 | 1.093 | | | |
| | | | | 24:39 | RO | 1.31 | 9.56 | 7.09 | 5.40 | 1.095 | | | |
| | DC | WH | | 24:49 | RO | 0.48 | 5.20 | | | 1.102 | | | |
| 304-306 | | | 24 Peaks | | | | 341.78 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.955-1.045 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 1.70 | 10.34 | | | 0.000 | | | |
| | DC | WL | | 20:20 | | 0.71 | 11.53 | | | 0.903 | | | |
| | DC | WL | | 20:43 | RO | 3.54 | 7.50 | | | 0.920 | | | |
| | DC | WL | | 21:12 | RO | 1.10 | 92.73 | | | 0.942 | | | |
| | DC | WL | | 21:29 | RO | 0.19 | 11.36 | | | 0.954 | | | |
| | | | | 22:31 | | 0.79 | 21,370.95 | 9,401.85 | 11,969.10 | 1.000 | 13C12-2378-TCDF | | IS0 |
| | | | | 22:42 | RO | 1.53 | 18.07 | 15.64 | 10.21 | 1.008 | | | |
| | | | | 23:09 | RO | 1.19 | 62.41 | 42.12 | 35.26 | 1.028 | | | |
| | DC | WH | | 23:43 | RO | 2.66 | 20.90 | | | 1.053 | | | |
| | DC | WH | | 23:53 | RO | 1.02 | 10.87 | | | 1.061 | | | |
| | DC | WH | | 24:30 | | 0.86 | 469.56 | | | 1.088 | | | |

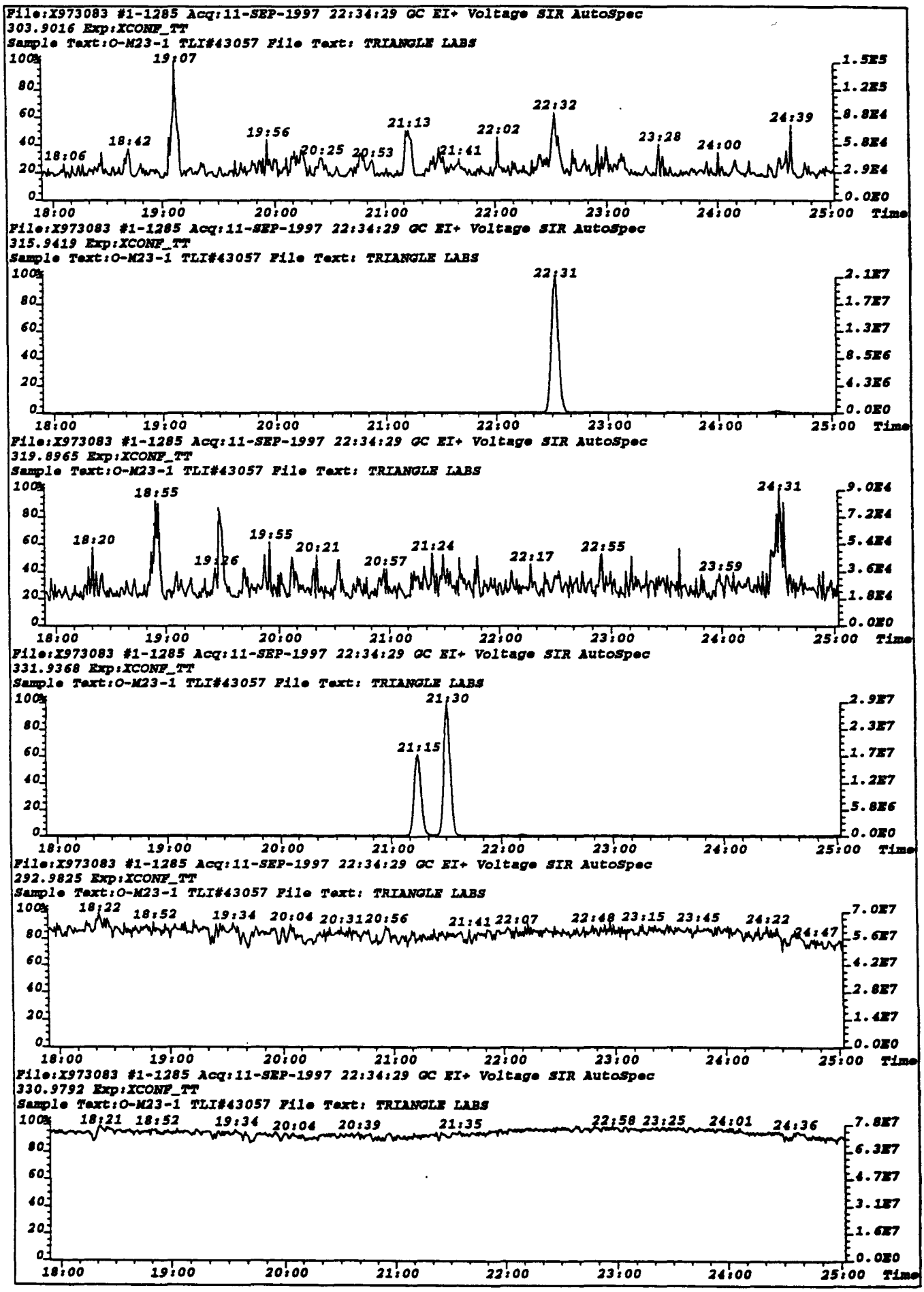
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 316-318 | | | 3 Peaks | | | | 21,451.43 | | | | | | |
| | ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | | DC | NL | 0:00 | | 0.80 | 63.88 | | | 0.000 | | | |
| | | | | 20:08 | RO | 0.96 | 75.01 | 40.76 | 42.38 | 0.947 | | | |
| | | | | 21:15 | | 0.79 | 16,649.95 | 7,331.99 | 9,317.96 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 21:30 | | 0.79 | 25,684.70 | 11,297.00 | 14,387.70 | 1.012 | 13C12-1234-TCDD | RS1 | |
| | | | | 22:11 | | 0.83 | 264.89 | 119.91 | 144.98 | 1.044 | | | |
| | | | | 22:28 | RO | 0.22 | 22.00 | 9.57 | 42.82 | 1.057 | | | |
| | | | | 22:40 | RO | 0.37 | 23.40 | 10.18 | 27.77 | 1.067 | | | |
| | | DC | WH | 23:49 | RO | 0.31 | 62.55 | | | 1.121 | | | |
| 332-334 | | | 6 Peaks | | | | 42,719.95 | | | | | | |

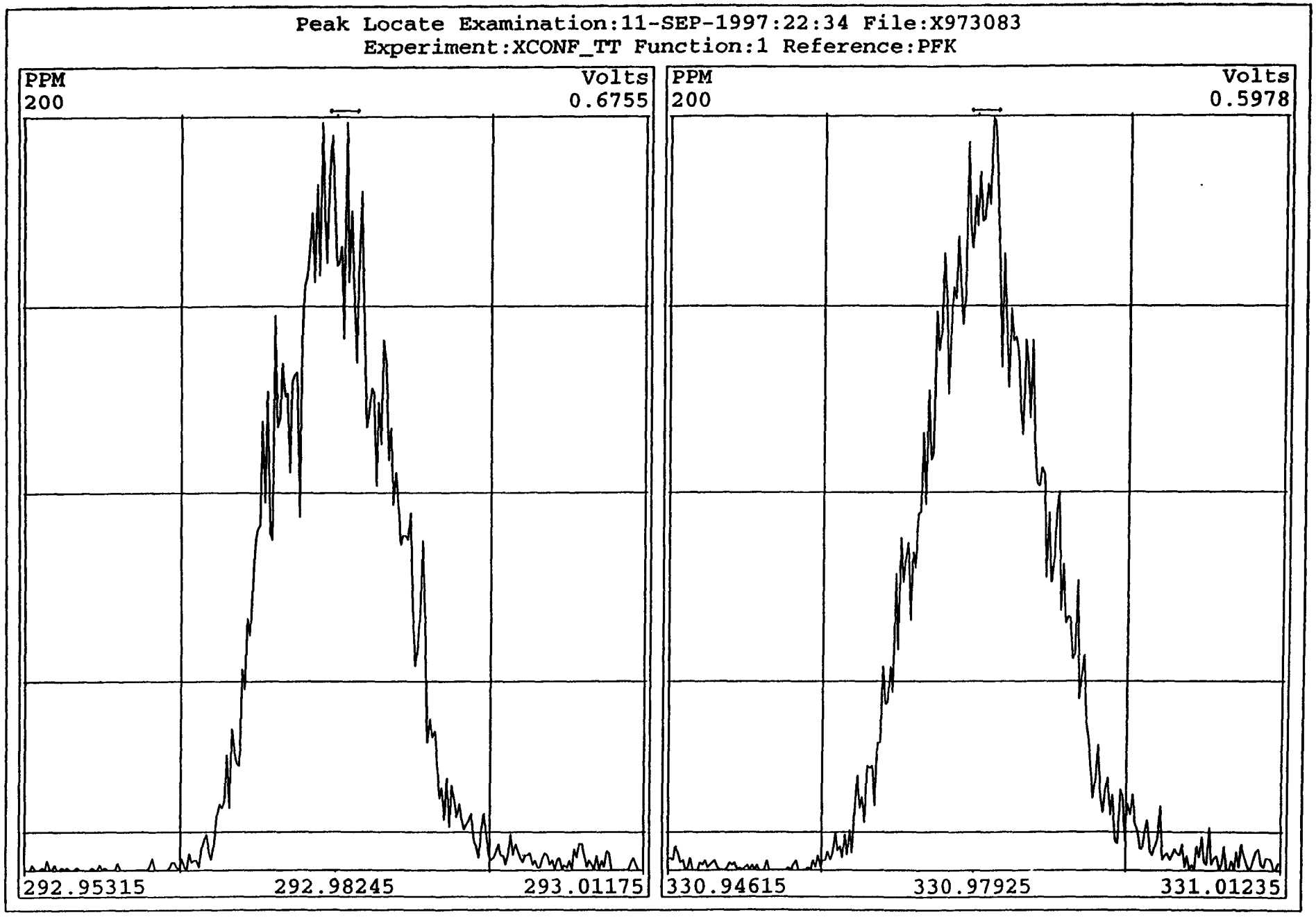
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

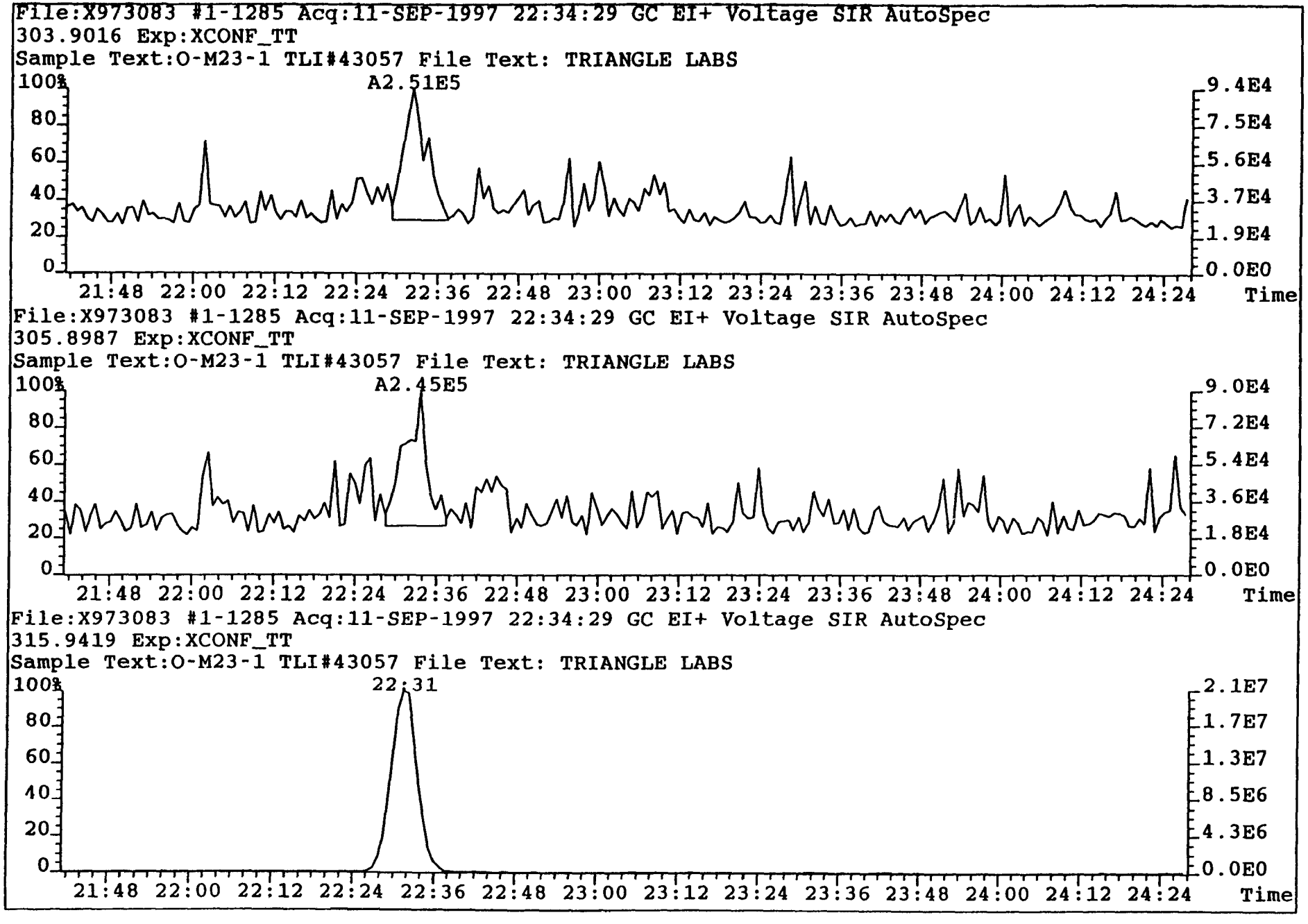
*** End of Report ***


File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:2258
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,9032.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A3.50E5
A2.08E5
A1.91E5
A7.09E4
A6.57E4
A3.26E4
A3.77E4
A1.67E4
A7.66E4
A9.63E4
A4.27E4
A5.12E4
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:2225
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,8900.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A4.68E5
A2.04E5
A2.91E5
A1.25E5
A6.82E4
A6.77E4
A8.94E4
A4.66E4
A1.22E4
A1.41E4
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:4958
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,19832.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A9.40E7
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:2919
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,11676.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.20E8
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
375.8364 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:10
20:21
20:06
19:41
19:17
20:57
21:21
22:06
23:00
23:25
24:07
24:38
18:00
19:00
20:00
21:00
22:00
23:00
24:00
25:00
Time


File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:1576
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,6304.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.94E5
A3.61E4
A5.73E4
A4.85E4
A5.43E4
A4.94E4
A2.54E4
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:3783
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,15132.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.86E5
A1.23E5
A1.25E5
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:1729
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,6916.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.40E8
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:14165
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,56660.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.13E8
A7.33E7
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec Noise:17775
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,71100.0,0.00%,F,F) Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
A1.44E8
A9.32E7
Time


File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
19:07
18:42
18:06
19:56
20:25
20:53
21:13
21:41
22:02
22:32
23:28
24:00
24:39
1.5E5
1.2E5
8.8E4
5.8E4
2.9E4
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
22:31
2.1E7
1.7E7
1.3E7
8.5E6
4.3E6
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
319.8965 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:55
18:20
19:26
19:55
20:21
20:57
21:24
22:17
22:55
23:59
24:31
9.0E4
7.2E4
5.4E4
3.6E4
1.8E4
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
331.9368 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
21:30
21:15
2.9E7
2.3E7
1.7E7
1.2E7
5.8E6
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
292.9825 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:22
18:52
19:34
20:04
20:31
20:56
21:41
22:07
22:48
23:15
23:45
24:22
24:47
7.0E7
5.6E7
4.2E7
2.8E7
1.4E7
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
330.9792 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
18:21
18:52
19:34
20:04
20:39
21:35
22:58
23:25
24:01
24:36
7.8E7
6.3E7
4.7E7
3.1E7
1.6E7
0.0E0
18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 Time


Peak Locate Examination:11-SEP-1997:22:34 File:X973083
Experiment:XCONF_TT Function:1 Reference:PFK
PPM
200
Volts
0.6755
292.95315
292.98245
293.01175
PPM
200
Volts
0.5978
330.94615
330.97925
331.01235


File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
303.9016 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
100%
A2.51E5
9.4E4
7.5E4
5.6E4
3.7E4
1.9E4
0.0E0
80
60
40
20
0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
305.8987 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
100%
A2.45E5
9.0E4
7.2E4
5.4E4
3.6E4
1.8E4
0.0E0
80
60
40
20
0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24
Time
File:X973083 #1-1285 Acq:11-SEP-1997 22:34:29 GC EI+ Voltage SIR AutoSpec
315.9419 Exp:XCONF_TT
Sample Text:O-M23-1 TLI#43057 File Text: TRIANGLE LABS
100%
22.31
2.1E7
1.7E7
1.3E7
8.5E6
4.3E6
0.0E0
80
60
40
20
0
21:48 22:00 22:12 22:24 22:36 22:48 23:00 23:12 23:24 23:36 23:48 24:00 24:12 24:24
Time

# Pacific Environmental Services

TLI Project: 43057
Client Sample: O-M23-2

## Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975810

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-3A-C | Date Extracted: | 09/06/97 | ICal: | SF56117 |
| | | Date Analyzed: | 09/10/97 | ConCal: | S975797 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % 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 | 0.006 | | | | — |
| 1,2,3,7,8-PeCDD | ND | 0.008 | | | | — |
| 1,2,3,4,7,8-HxCDD | ND | 0.01 | | | | — |
| 1,2,3,6,7,8-HxCDD | EMPC | | 0.02 | | | — |
| 1,2,3,7,8,9-HxCDD | ND | 0.01 | | | | — |
| 1,2,3,4,6,7,8-HpCDD | EMPC | | 0.04 | | | B |
| 1,2,3,4,6,7,8,9-OCDD | 0.19 | | | 0.90 | 34:34 | B |
| 2,3,7,8-TCDF | 0.03 | | | 0.79 | 20:27 | B |
| 1,2,3,7,8-PeCDF | ND | 0.006 | | | | — |
| 2,3,4,7,8-PeCDF | ND | 0.006 | | | | — |
| 1,2,3,4,7,8-HxCDF | 0.04 | | | 1.27 | 28:25 | B |
| 1,2,3,6,7,8-HxCDF | 0.01 | | | 1.21 | 28:32 | B |
| 2,3,4,6,7,8-HxCDF | 0.02 | | | 1.37 | 29:02 | PRB |
| 1,2,3,7,8,9-HxCDF | ND | 0.008 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | 0.07 | | | 0.88 | 31:14 | PRB |
| 1,2,3,4,7,8,9-HpCDF | 0.02 | | | 1.19 | 32:25 | B |
| 1,2,3,4,6,7,8,9-OCDF | 0.06 | | | 0.95 | 34:42 | B |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | 0.02 | 1 | | | — |
| Total PeCDD | 0.03 | 1 | | 0.06 | — |
| Total HxCDD | 0.08 | 1 | | 0.10 | — |
| Total HpCDD | 0.04 | 1 | | 0.08 | — |
| Total TCDF | 0.04 | 2 | | | — |
| Total PeCDF | ND | | 0.006 | | — |
| Total HxCDF | 0.11 | 5 | | | — |
| Total HpCDF | 0.12 | 3 | | | — |





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TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: O-M23-2 — Analysis File: S975810

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.5 | 62.4 | 40%-130% | 0.75 | 20:26 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 2.2 | 55.6 | 40%-130% | 0.81 | 21:16 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 2.3 | 57.6 | 40%-130% | 1.45 | 24:45 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 2.4 | 60.5 | 40%-130% | 1.55 | 25:54 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 2.6 | 65.7 | 40%-130% | 0.50 | 28:31 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 2.4 | 58.8 | 40%-130% | 1.24 | 29:14 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 1.7 | 41.3 | 25%-130% | 0.44 | 31:13 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 1.8 | 44.9 | 25%-130% | 1.05 | 32:04 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 2.2 | 27.5 | 25%-130% | 0.86 | 34:34 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 4.0 | 98.8 | 70%-140% | | 21:17 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 3.4 | 85.1 | 70%-140% | 1.43 | 25:33 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.7 | 92.1 | 70%-140% | 0.50 | 28:24 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.7 | 91.9 | 70%-140% | 1.23 | 29:09 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.4 | 84.9 | 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 | 2.2 | 54.3 | 40%-130% | 0.50 | 29:44 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 2.5 | 62.0 | 40%-130% | 0.49 | 29:01 | — |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.82 | 21:02 | — |
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDD | 1.22 | 29:31 | — |

Data Reviewer: _____ 09/11/97



X237_PSR v2.00, LARS 6.10.04

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Printed: 14:57 09/11/97

Initial ...Date...

Data Review By: CM 9/11/97 Calculated Noise Area: 1.67

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 S975810B.dbf
09/11/97 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 | | | | 0.823-1.104 | | | |
| 304-306 | | DC | NL | 0:00 | RO | 0.08 | 0.14 | | | 0.000 | | | |
| | D | D | SN | 16:59 | RO | 1.01 | 5.79 | | | 0.831 | | | |
| | D | D | SN | 17:28 | RO | 0.95 | 4.05 | | | 0.855 | | | |
| | D | D | SN | 17:43 | RO | 0.64 | 8.05 | | | 0.867 | | | |
| | D | D | SN | 18:09 | RO | 0.93 | 10.80 | | | 0.888 | | | |
| | D | D | SN | 18:31 | RO | 1.05 | 7.97 | | | 0.906 | | | |
| | D | D | SN | 18:56 | RO | 1.79 | 4.09 | | | 0.927 | | | |
| | D | D | SN | 19:16 | | 0.77 | 11.50 | | | 0.943 | | | |
| | D | D | SN | 19:36 | RO | 0.96 | 16.41 | | | 0.959 | | | |
| | D | D | SN | 19:44 | | 0.68 | 11.99 | | | 0.966 | | | |
| | A | | | 19:58 | | 0.65 | 16.82 | 6.62 | 10.20 | 0.977 | | | |
| | | | | 20:27 | | 0.79 | 31.20 | 13.81 | 17.39 | 1.001 | 2378-TCDF | AN | |
| | D | D | SN | 20:57 | RO | 0.54 | 4.94 | | | 1.025 | | | |
| | | DC | SN | 22:09 | RO | 1.26 | 1.91 | | | 1.084 | | | |
| 304-306 | | | 2 Peaks | | | | 48.02 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.951-1.049 | | | |
| 316-318 | | DC | NL | 0:00 | RO | 8.71 | 0.12 | | | 0.000 | | | |
| | | DC | WL | 19:16 | RO | 1.10 | 5.22 | | | 0.943 | | | |
| | | | | 19:57 | | 0.68 | 23.12 | 9.34 | 13.78 | 0.976 | | | |
| | | | | 20:26 | | 0.75 | 3,447.55 | 1,477.22 | 1,970.33 | 1.000 | 13C12-2378-TCDF | ISO | |
| | | | | 20:56 | | 0.78 | 17.22 | 7.52 | 9.70 | 1.024 | | | |
| 316-318 | | | 3 Peaks | | | | 3,487.89 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | | | 0.65-0.89 | | | | 0.857-1.061 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 1.00 | 0.14 | | | 0.000 | | | |
| | | DC | WL | 18:10 | RO | 0.57 | 0.67 | | | 0.854 | | | |
| | | | | 18:21 | | 0.71 | 14.55 | 6.05 | 8.50 | 0.863 | | | |
| | D | D | SN | 18:50 | | 0.67 | 6.41 | | | 0.886 | | | |
| | | DC | SN | 19:22 | | 0.82 | 0.31 | | | 0.911 | | | |
| | | DC | SN | 19:23 | RO | 1.41 | 0.60 | | | 0.911 | | | |
| | | DC | SN | 19:42 | RO | 1.28 | 0.64 | | | 0.926 | | | |
| | D | D | SN | 20:00 | RO | 0.98 | 4.64 | | | 0.940 | | | |
| | | DC | SN | 20:14 | | 0.78 | 2.15 | | | 0.951 | | | |
| | | DC | SN | 20:40 | RO | 1.32 | 1.61 | | | 0.972 | | | |
| | | DC | SN | 20:51 | RO | 1.20 | 0.44 | | | 0.980 | | | |
| | D | D | SN | 21:09 | RO | 0.93 | 4.71 | | | 0.995 | | | |
| | | DC | SN | 21:21 | RO | 0.26 | 0.85 | | | 1.004 | | | |
| | | DC | SN | 21:49 | RO | 0.30 | 0.46 | | | 1.026 | | | |
| | | DC | SN | 22:10 | RO | 0.31 | 0.78 | | | 1.042 | | | |
| | | DC | WH | 22:38 | | 0.85 | 3.31 | | | 1.064 | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320-322 | | | 1 Peak | | | | 14.55 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 0.07 | | | 0.000 | | | |
| | | | | 19:44 | | | 11.72 | 11.72 | | 0.928 | | | |
| | | | | 21:17 | | | 2,069.93 | 2,069.93 | | 1.001 | 37Cl-TCDD | | SUR1 |
| | | | | 21:25 | | | 8.38 | 8.38 | | 1.007 | | | |
| | | | | 21:45 | | | 3.53 | 3.53 | | 1.023 | | | |
| | DC | SN | | 21:55 | | | 1.48 | | | 1.031 | | | |
| | DC | SN | | 22:21 | | | 1.31 | | | 1.051 | | | |
| | DC | SN | | 22:29 | | | 1.57 | | | 1.057 | | | |
| 328 | | | 4 Peaks | | | | 2,093.56 | | | | | | |
| 13C12-TCDD | | | | | 0.65-0.89 | | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 18.33 | 0.11 | | | 0.000 | | | |
| | | | | 19:56 | RO | 0.90 | 11.93 | 6.08 | 6.74 | 0.937 | | | |
| | | | | 21:02 | | 0.82 | 4,190.27 | 1,890.11 | 2,300.16 | 0.989 | 13C12-1234-TCDD | | RS1 |
| | | | | 21:16 | | 0.81 | 2,484.18 | 1,109.29 | 1,374.89 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | DC | SN | | 21:29 | RO | 1.35 | 3.54 | | | 1.010 | | | |
| | | | | 21:38 | | 0.87 | 33.89 | 15.79 | 18.10 | 1.017 | | | |
| 332-334 | | | 4 Peaks | | | | 6,720.27 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | 1.32-1.78 | | | | | 0.909-1.079 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 1.14 | 0.13 | | | 0.000 | | | |
| D | D | SN | | 22:40 | RO | 1.06 | 8.29 | | | 0.916 | | | |
| | DC | SN | | 22:46 | RO | 0.45 | 1.09 | | | 0.920 | | | |
| | DC | SN | | 23:43 | | 1.67 | 3.15 | | | 0.958 | | | |
| D | D | SN | | 23:51 | | 1.58 | 14.48 | | | 0.964 | | | |
| D | D | SN | | 24:10 | RO | 0.84 | 3.52 | | | 0.976 | | | |
| D | D | SN | | 24:45 | | 1.55 | 6.96 | | | 1.000 | 12378-PeCDF | | AN |
| | DC | SN | | 25:04 | RO | 3.28 | 4.23 | | | 1.013 | | | |
| D | D | SN | | 25:34 | | 1.38 | 11.74 | | | 1.033 | 23478-PeCDF | | AN |
| | DC | SN | | 25:42 | RO | 1.80 | 4.31 | | | 1.038 | | | |
| | DC | SN | | 26:34 | | 1.60 | 4.24 | | | 1.073 | | | |
| | DC | SN | | 26:39 | RO | 1.06 | 2.75 | | | 1.077 | | | |
| 340-342 | | | 0 Peaks | | | | 0.00 | | | | | | |
| 13C12-PeCDF | | | | | 1.32-1.78 | | | | | 0.838-1.162 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.14 | 0.13 | | | 0.000 | | | |
| | | | | 23:50 | RO | 1.25 | 7.65 | 4.65 | 3.73 | 0.963 | | | |
| | | | | 24:23 | | 1.34 | 11.91 | 6.83 | 5.08 | 0.985 | | | |
| | | | | 24:45 | | 1.45 | 2,733.22 | 1,617.73 | 1,115.49 | 1.000 | 13C12-PeCDF 123 | | IS2 |
| | | | | 24:55 | | 1.61 | 11.42 | 7.04 | 4.38 | 1.007 | | | |
| | | | | 25:04 | RO | 1.14 | 14.89 | 9.05 | 7.92 | 1.013 | | | |
| | | | | 25:33 | | 1.43 | 2,257.14 | 1,330.15 | 926.99 | 1.032 | 13C12-PeCDF 234 | | SUR2 |
| | DC | SN | | 25:50 | | 1.37 | 3.01 | | | 1.044 | | | |
| | DC | SN | | 25:55 | | 1.50 | 3.03 | | | 1.047 | | | |
| | DC | SN | | 26:31 | RO | 2.54 | 4.62 | | | 1.071 | | | |
| | DC | SN | | 26:39 | RO | 1.00 | 1.51 | | | 1.077 | | | |
| 352-354 | | | 6 Peaks | | | | 5,036.23 | | | | | | |

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

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

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| eCDD | | | | | 1.32-1.78 | | | | 0.921-1.026 | | | |
| 56-358 | | DC | NL | 0:00 | RO | 0.71 | 0.08 | | | 0.000 | | |
| | A | | | 24:00 | RO | 0.72 | 14.08 | 8.56 | 11.90 | 0.927 | | |
| | | DC | SN | 24:18 | RO | 0.44 | 1.43 | | | 0.938 | | |
| | | DC | SN | 24:30 | RO | 2.24 | 1.94 | | | 0.946 | | |
| | | | | 24:47 | | 1.32 | 14.76 | 8.40 | 6.36 | 0.957 | | |
| | | DC | SN | 24:57 | RO | 0.51 | 1.56 | | | 0.963 | | |
| | D | D | SN | 25:06 | RO | 1.06 | 5.71 | | | 0.969 | | |
| | | DC | SN | 25:19 | RO | 0.61 | 1.32 | | | 0.977 | | |
| | | DC | SN | 25:56 | RO | 1.87 | 2.70 | | | 1.001 | 12378-PeCDD | AN |
| | | DC | SN | 26:24 | RO | 1.02 | 2.12 | | | 1.019 | | |
| | | DC | WH | 26:46 | RO | 1.12 | 2.47 | | | 1.033 | | |
| 56-358 | | | 2 | Peaks | | | 28.84 | | | | | |
| 3C12-PeCDD | | | | | 1.32-1.78 | | | | 0.845-1.155 | | | |
| 68-370 | | DC | NL | 0:00 | RO | 1.00 | 0.12 | | | 0.000 | | |
| | | DC | SN | 24:46 | | 1.53 | 3.04 | | | 0.956 | | |
| | | | | 25:54 | | 1.55 | 1,608.95 | 978.75 | 630.20 | 1.000 | 13C12-PeCDD 123 | IS3 |
| | | | | 26:03 | | 1.38 | 161.72 | 93.83 | 67.89 | 1.006 | | |
| | | DC | SN | 26:25 | RO | 1.23 | 3.49 | | | 1.020 | | |
| 168-370 | | | 2 | Peaks | | | 1,770.67 | | | | | |

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

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HxCDF | | | | | 1.05-1.43 | | | | 0.957-1.053 | | | |
| 374-376 | | DC | NL | 0:00 | | 1.19 | 4.49 | | | 0.000 | | |
| | | | | 27:25 | | 1.16 | 7.59 | 4.07 | 3.52 | 0.961 | | |
| | | | | 27:34 | | 1.25 | 16.00 | 8.88 | 7.12 | 0.967 | | |
| | M | | | 28:25 | | 1.27 | 20.56 | 11.50 | 9.06 | 0.996 | 123478-HxCDF | AN |
| | M | | | 28:32 | | 1.21 | 9.40 | 5.14 | 4.26 | 1.001 | 123678-HxCDF | AN |
| | | DC | SN | 28:39 | | 1.18 | 4.19 | | | 1.005 | | |
| | D | D | SN | 28:50 | RO | 0.72 | 4.81 | | | 1.011 | | |
| | M | | | 29:02 | | 1.37 | 9.00 | 5.21 | 3.79 | 1.018 | 234678-HxCDF | AN PR |
| | | DC | SN | 29:12 | RO | 3.08 | 0.85 | | | 1.024 | | |
| | D | D | SN | 29:48 | RO | 0.83 | 4.43 | | | 1.045 | 123789-HxCDF | AN |
| | | DC | SN | 29:53 | | 1.16 | 1.97 | | | 1.048 | | |
| | | DC | SN | 30:00 | RO | 0.53 | 2.67 | | | 1.052 | | |
| | | DC | WH | 30:15 | | 1.09 | 3.47 | | | 1.061 | | |
| 374-376 | | | 5 | Peaks | | | 62.55 | | | | | |
| 13C12-HxCDF | | | | | 0.43-0.59 | | | | 0.859-1.141 | | | |
| 384-386 | | DC | NL | 0:00 | RO | 0.89 | 3.17 | | | 0.000 | | |
| | | DC | SN | 28:11 | RO | 0.96 | 1.43 | | | 0.988 | | |
| | | | | 28:24 | | 0.50 | 1,591.97 | 532.51 | 1,059.46 | 0.996 | 13C12-HxCDF 478 | SUR3 |
| | | | | 28:31 | | 0.50 | 1,801.94 | 600.54 | 1,201.40 | 1.000 | 13C12-HxCDF 678 | IS4 |
| | | DC | SN | 28:40 | RO | 0.28 | 4.35 | | | 1.005 | | |
| | | DC | SN | 28:43 | RO | 1.72 | 1.75 | | | 1.007 | | |
| | | | | 29:01 | | 0.49 | 1,574.02 | 519.44 | 1,054.58 | 1.018 | 13C12-HxCDF 234 | ALT2 |
| | | | | 29:44 | | 0.50 | 1,197.58 | 400.47 | 797.11 | 1.043 | 13C12-HxCDF 789 | ALT1 |
| | | DC | SN | 30:09 | RO | 0.70 | 2.31 | | | 1.057 | | |

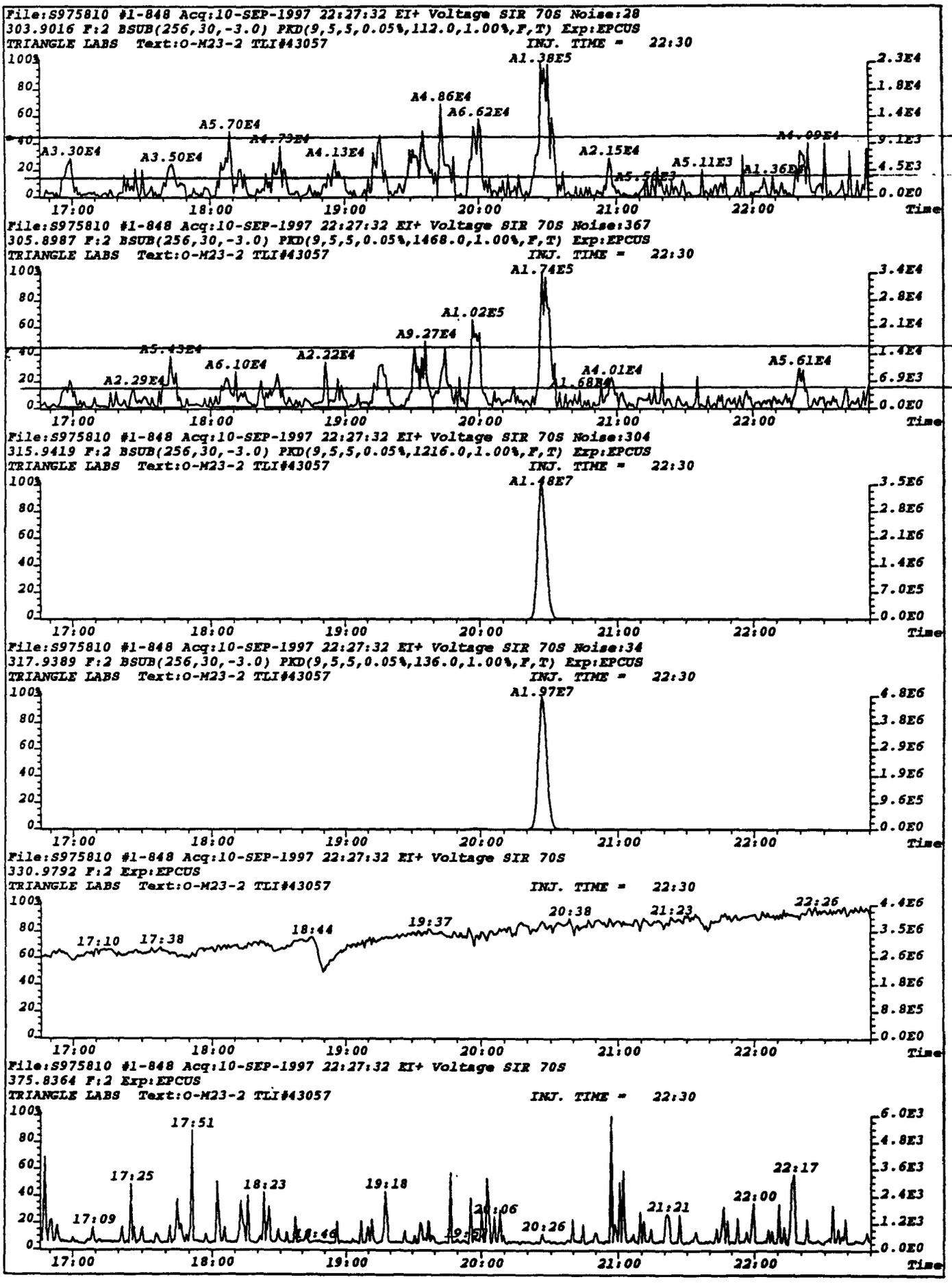
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 384-386 | | | 4 Peaks | | | | 6,165.51 | | | | | | |
| | ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | |
| HxCDD | | | | | | 1.05-1.43 | | | | 0.951-1.015 | | | |
| 390-392 | | DC | NL | 0:00 | RO | 1.63 | 1.50 | | | 0.000 | | | |
| | | DC | SN | 27:57 | RO | 1.57 | 4.03 | | | 0.956 | | | |
| | | DC | SN | 28:11 | RO | 4.05 | 0.43 | | | 0.964 | | | |
| | | DC | SN | 28:16 | RO | 0.85 | 0.63 | | | 0.967 | | | |
| | | | | 28:25 | | 1.23 | 29.72 | 16.41 | 13.31 | 0.972 | | | |
| | D | D | SN | 28:39 | | 1.34 | 10.90 | | | 0.980 | | | |
| | | DC | SN | 28:47 | RO | 1.02 | 2.11 | | | 0.985 | | | |
| | | DC | SN | 28:53 | | 1.17 | 0.91 | | | 0.988 | | | |
| | | DC | SN | 29:00 | | 1.37 | 2.58 | | | 0.992 | | | |
| | | DC | SN | 29:09 | | 1.33 | 4.06 | | | 0.997 | 123478-HxCDD | AN | |
| | M | | | 29:14 | RO | 0.95 | 6.41 | 3.55 | 3.72 | 1.000 | 123678-HxCDD | AN | |
| | D | D | SN | 29:32 | RO | 0.71 | 5.35 | | | 1.010 | 123789-HxCDD | AN | |
| | | DC | WH | 29:42 | RO | 3.86 | 1.25 | | | 1.016 | | | |
| | | DC | WH | 29:50 | RO | 0.74 | 1.86 | | | 1.021 | | | |
| 390-392 | | | 2 Peaks | | | | 36.13 | | | | | | |
| 13C12-HxCDD | | | | | | 1.05-1.43 | | | | 0.966-1.034 | | | |
| 402-404 | | DC | NL | 0:00 | RO | 0.88 | 1.26 | | | 0.000 | | | |
| | | | | 28:38 | | 1.13 | 7.89 | 4.18 | 3.71 | 0.979 | | | |
| | | DC | SN | 28:50 | RO | 0.66 | 1.77 | | | 0.986 | | | |
| | | | | 29:09 | | 1.23 | 1,191.87 | 657.77 | 534.10 | 0.997 | 13C12-HxCDD | 478 | SUR4 |
| | | | | 29:14 | | 1.24 | 1,332.37 | 737.61 | 594.76 | 1.000 | 13C12-HxCDD | 678 | IS5 |
| | | | | 29:31 | | 1.22 | 2,276.32 | 1,249.58 | 1,026.74 | 1.010 | 13C12-HxCDD | 789 | RS2 |
| 402-404 | | | 4 Peaks | | | | 4,808.45 | | | | | | |
| | ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | |
| HpCDF | | | | | | 0.88-1.20 | | | | 0.995-1.045 | | | |
| 408-410 | | DC | NL | 0:00 | RO | 1.55 | 1.90 | | | 0.000 | | | |
| | M | | | 31:14 | | 0.88 | 22.50 | 10.50 | 12.00 | 1.001 | 1234678-HpCDF | AN | PR |
| | | | | 31:26 | | 1.03 | 8.11 | 4.11 | 4.00 | 1.007 | | | |
| | D | D | SN | 31:34 | | 1.11 | 6.87 | | | 1.011 | | | |
| | M | | | 32:25 | | 1.19 | 4.98 | 2.71 | 2.27 | 1.038 | 1234789-HpCDF | AN | |
| | | DC | SN | 32:34 | RO | 1.48 | 1.57 | | | 1.043 | | | |
| | | DC | WH | 32:39 | | 0.96 | 1.92 | | | 1.046 | | | |
| | | DC | WH | 32:52 | | 1.15 | 4.22 | | | 1.053 | | | |
| 408-410 | | | 3 Peaks | | | | 35.59 | | | | | | |
| 13C12-HpCDF | | | | | | 0.37-0.51 | | | | 0.936-1.128 | | | |
| 418-420 | | DC | NL | 0:00 | RO | 0.91 | 1.47 | | | 0.000 | | | |
| | | | | 31:13 | | 0.44 | 834.38 | 254.39 | 579.99 | 1.000 | 13C12-HpCDF | 678 | IS6 |
| | | DC | SN | 31:33 | RO | 1.60 | 1.17 | | | 1.011 | | | |
| | | | | 32:25 | | 0.42 | 546.46 | 161.53 | 384.93 | 1.038 | 13C12-HpCDF | 789 | SUR5 |
| | | DC | SN | 32:51 | RO | 1.33 | 1.40 | | | 1.052 | | | |
| 418-420 | | | 2 Peaks | | | | 1,380.84 | | | | | | |

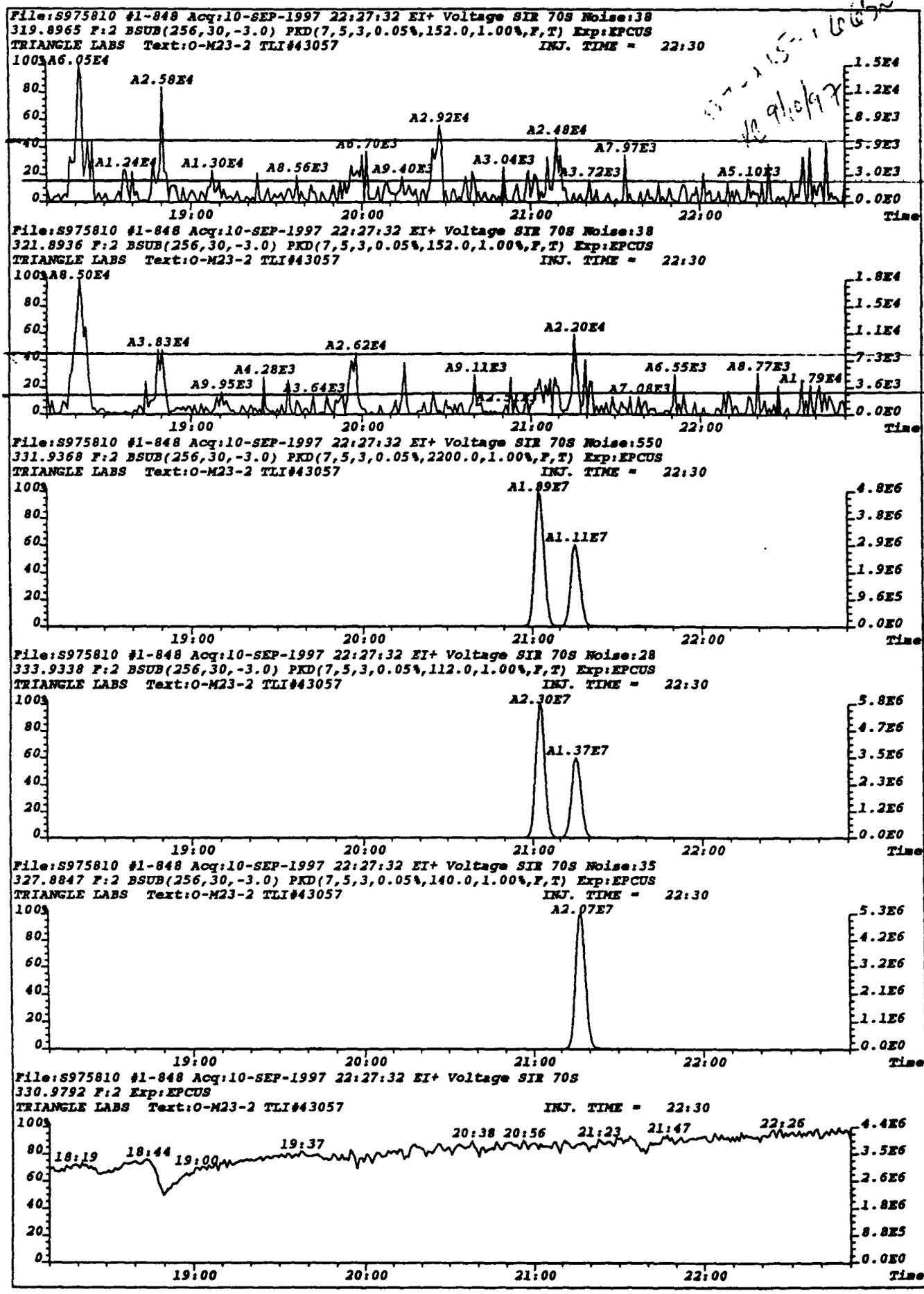
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | | |
| HpCDD | | | | | | 0.88-1.20 | | | | 0.977-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | RO | 1.30 | 1.16 | | | 0.000 | | | |
| | | | | 31:29 | | 1.05 | 9.61 | 4.92 | 4.69 | 0.982 | | | |
| | DC | SN | | 31:42 | RO | 2.92 | 0.75 | | | 0.989 | | | |
| M | | | | 32:05 | RO | 0.86 | 8.12 | 4.14 | 4.83 | 1.001 | 1234678-HpCDD | AN | |
| | DC | WH | | 32:17 | RO | 0.28 | 0.65 | | | 1.007 | | | |
| | DC | WH | | 32:29 | RO | 0.50 | 1.20 | | | 1.013 | | | |
| 424-426 | | | 2 Peaks | | | | 17.73 | | | | | | |
| 13C12-HpCDD | | | | | | 0.88-1.20 | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | | 1.16 | 1.38 | | | 0.000 | | | |
| | DC | SN | | 31:28 | RO | 0.26 | 1.04 | | | 0.981 | | | |
| | | | | 32:04 | | 1.05 | 833.58 | 427.57 | 406.01 | 1.000 | 13C12-HpCDD 678 | IS7 | |
| 436-438 | | | 1 Peak | | | | 833.58 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | RO | 1.29 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 31:26 | | 0.93 | 1.43 | | | 0.909 | | | |
| | DC | SN | | 31:36 | RO | 2.06 | 0.59 | | | 0.914 | | | |
| | DC | SN | | 31:56 | RO | 2.40 | 1.19 | | | 0.924 | | | |
| | DC | SN | | 32:12 | RO | 0.18 | 0.45 | | | 0.932 | | | |
| | DC | SN | | 32:22 | RO | 0.57 | 1.44 | | | 0.936 | | | |
| | DC | SN | | 32:50 | RO | 0.59 | 0.96 | | | 0.950 | | | |
| | DC | SN | | 33:17 | RO | 0.04 | 0.17 | | | 0.963 | | | |
| | DC | SN | | 33:24 | RO | 1.71 | 1.36 | | | 0.966 | | | |
| | DC | SN | | 33:30 | RO | 0.64 | 0.57 | | | 0.969 | | | |
| | DC | SN | | 33:43 | RO | 0.58 | 0.38 | | | 0.975 | | | |
| | DC | SN | | 34:00 | RO | 6.26 | 0.36 | | | 0.984 | | | |
| | DC | SN | | 34:29 | RO | 0.41 | 0.74 | | | 0.998 | | | |
| | | | | 34:42 | | 0.95 | 7.27 | 3.55 | 3.72 | 1.004 | OCDF | AN | |
| | DC | SN | | 35:01 | RO | 0.11 | 0.19 | | | 1.013 | | | |
| | DC | SN | | 35:25 | RO | 1.86 | 1.06 | | | 1.025 | | | |
| | DC | SN | | 35:34 | | 0.99 | 2.13 | | | 1.029 | | | |
| | DC | SN | | 35:55 | RO | 1.45 | 0.21 | | | 1.039 | | | |
| 442-444 | | | 1 Peak | | | | 7.27 | | | | | | |
| OCDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | | | | 34:34 | | 0.90 | 17.03 | 8.09 | 8.94 | 1.000 | OCDD | AN | |
| | DC | SN | | 34:58 | RO | 0.16 | 0.30 | | | 1.012 | | | |
| 458-460 | | | 1 Peak | | | | 17.03 | | | | | | |
| 13C12-OCDD | | | | | | 0.76-1.02 | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | RO | 0.67 | 0.08 | | | 0.000 | | | |
| | | | | 34:34 | | 0.86 | 650.55 | 301.53 | 349.02 | 1.000 | 13C12-OCDD | IS8 | |
| | DC | WH | | 35:04 | RO | 2.39 | 1.74 | | | 1.014 | | | |
| 470-472 | | | 1 Peak | | | | 650.55 | | | | | | |

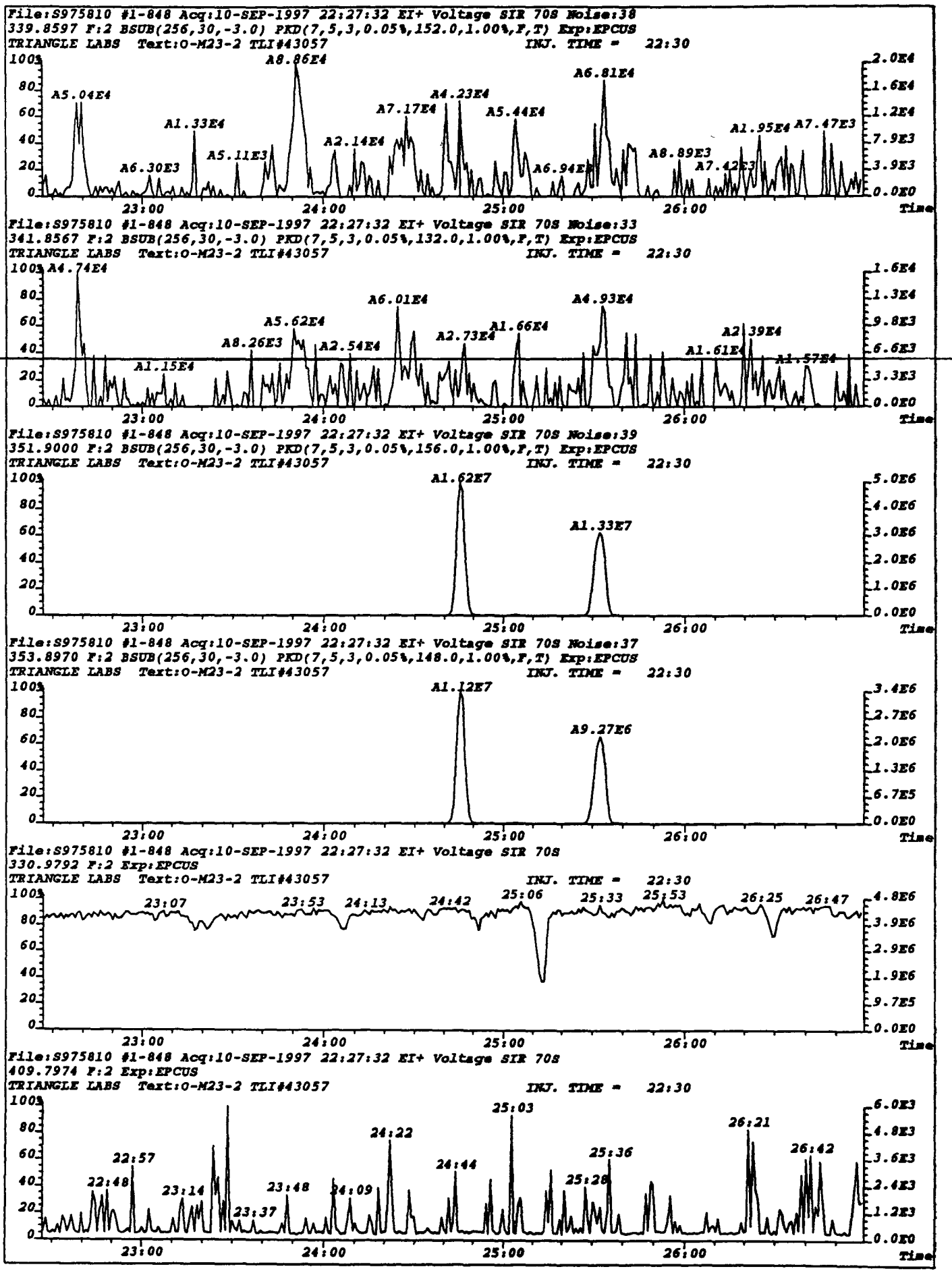
Compound/
M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID.. Flags.

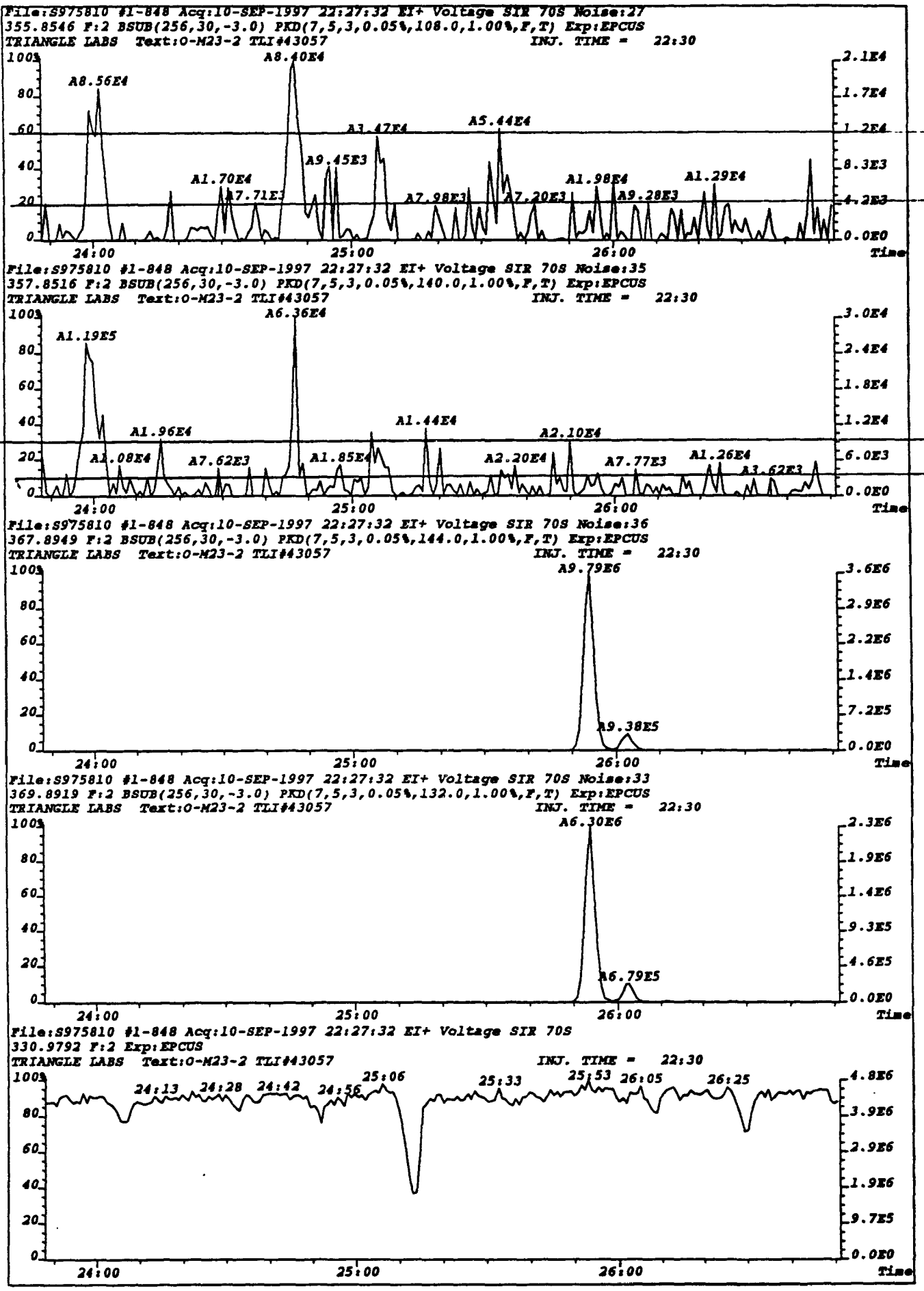
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:28
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.38E5
A4.86E4
A6.62E4
A5.70E4
A4.73E4
A4.13E4
A3.30E4
A3.50E4
A2.15E4
A5.11E3
A1.36E3
A4.09E4
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:367
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1468.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.74E5
A1.02E5
A9.27E4
A5.43E4
A6.10E4
A2.22E4
A2.29E4
A4.01E4
A5.61E4
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:304
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.48E7
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 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:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.97E7
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
17:10
17:38
18:44
19:37
20:38
21:23
22:26
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
17:09
17:25
17:51
18:23
19:18
20:06
20:26
21:21
22:00
22:17
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:38
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A6.05E4
A2.58E4
A2.92E4
A2.48E4
A7.97E3
A1.24E4
A1.30E4
A8.56E3
A9.40E3
A3.04E3
A3.72E3
A5.10E3
19:00
20:00
21:00
22:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:38
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A8.50E4
A3.83E4
A2.62E4
A2.20E4
A4.28E3
A9.95E3
A3.64E3
A9.11E3
A6.55E3
A8.77E3
A1.79E4
A7.08E3
19:00
20:00
21:00
22:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:550
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2200.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.89E7
A1.11E7
19:00
20:00
21:00
22:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:28
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A2.30E7
A1.37E7
19:00
20:00
21:00
22:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:35
327.8847 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-M23-2 TLI#43057
INJ. TIME = 22:30
A2.07E7
19:00
20:00
21:00
22:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
18:19
18:44
19:00
19:37
20:38
20:56
21:23
21:47
22:26
19:00
20:00
21:00
22:00
Time


File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:38
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A5.04E4
A6.30E3
A1.33E4
A5.11E3
A8.86E4
A2.14E4
A7.17E4
A4.23E4
A5.44E4
A6.94E3
A6.81E4
A8.89E3
A7.42E3
A1.95E4
A7.47E3
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:33
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A4.74E4
A1.15E4
A8.26E3
A5.62E4
A2.54E4
A6.01E4
A2.73E4
A1.66E4
A4.93E4
A1.61E4
A2.39E4
A1.57E4
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:39
351.9000 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-M23-2 TLI#43057 INJ. TIME = 22:30
A1.62E7
A1.33E7
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:37
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:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.12E7
A9.27E6
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
23:07
23:53
24:13
24:42
25:06
25:33
25:53
26:25
26:47
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
22:48
22:57
23:14
23:37
23:48
24:09
24:22
24:44
25:03
25:28
25:36
26:21
26:42
23:00
24:00
25:00
26:00
Time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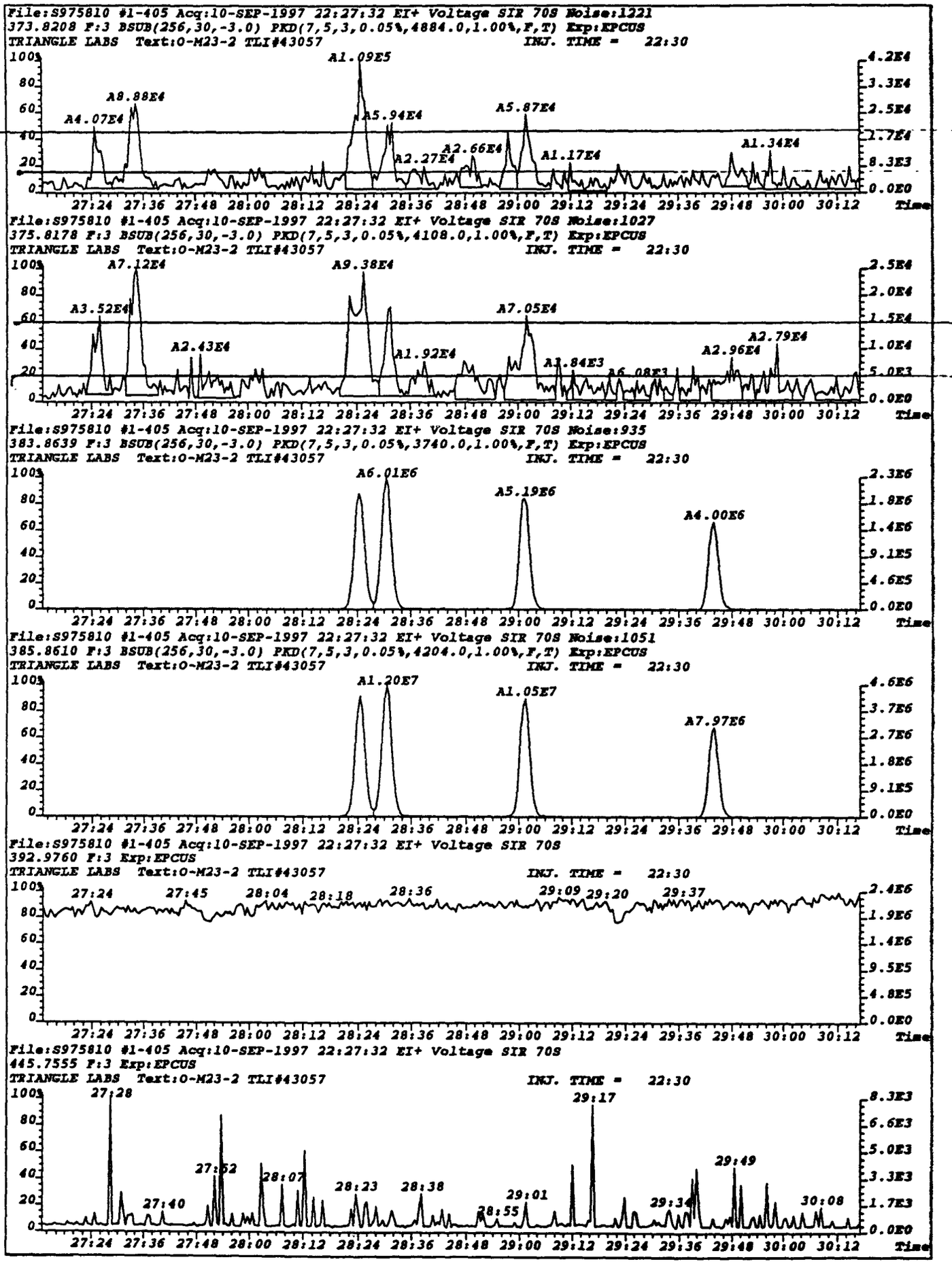
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A8.56E4
A8.40E4
A3.47E4
A5.44E4
A9.45E3
A1.70E4
A7.71E3
A7.98E3
A7.20E3
A1.98E4
A9.28E3
A1.29E4
24:00
25:00
26:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage 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:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.19E5
A6.36E4
A1.96E4
A1.08E4
A7.62E3
A1.85E4
A1.44E4
A2.10E4
A2.20E4
A7.77E3
A1.26E4
A3.62E3
24:00
25:00
26:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 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-M23-2 TLI#43057
INJ. TIME = 22:30
A9.79E6
A9.38E5
24:00
25:00
26:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:33
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A6.30E6
A6.79E5
24:00
25:00
26:00
Time
File:S975810 #1-848 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
24:13
24:28
24:42
24:56
25:06
25:33
25:53
26:05
26:25
24:00
25:00
26:00
Time


File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:1221
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4884.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.09E5
A8.88E4
A4.07E4
A5.94E4
A5.87E4
A2.66E4
A2.27E4
A1.17E4
A1.34E4
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:1027
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A7.12E4
A9.38E4
A3.52E4
A7.05E4
A2.43E4
A1.92E4
A2.96E4
A2.79E4
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:935
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3740.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A6.01E6
A5.19E6
A4.00E6
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:1051
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4204.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.20E7
A1.05E7
A7.97E6
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
27:24 27:45 28:04 28:18 28:36 29:09 29:20 29:37
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
27:28
29:17
27:52
28:07
29:49
28:23
28:38
29:01
27:40
28:55
29:34
30:08
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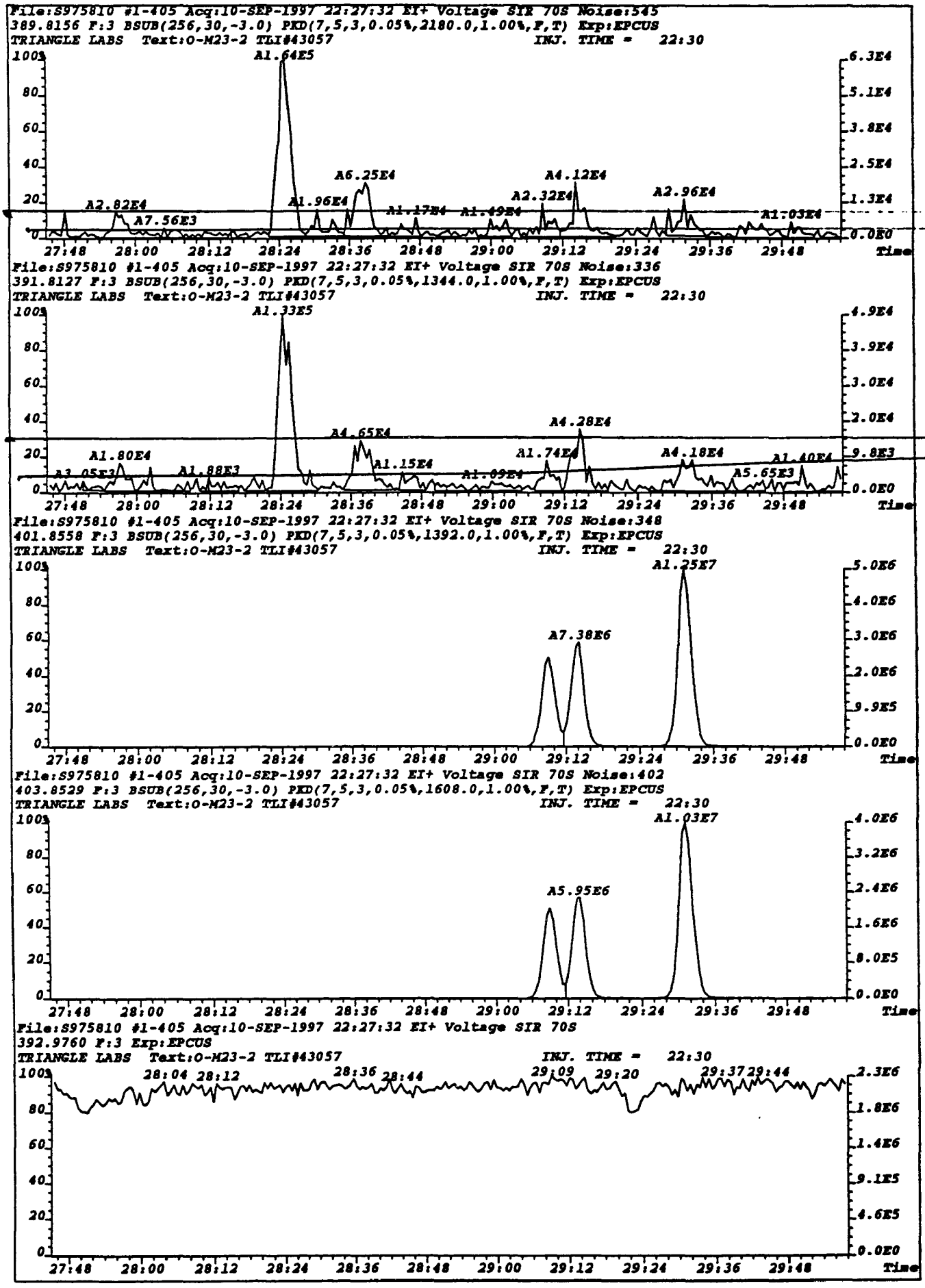
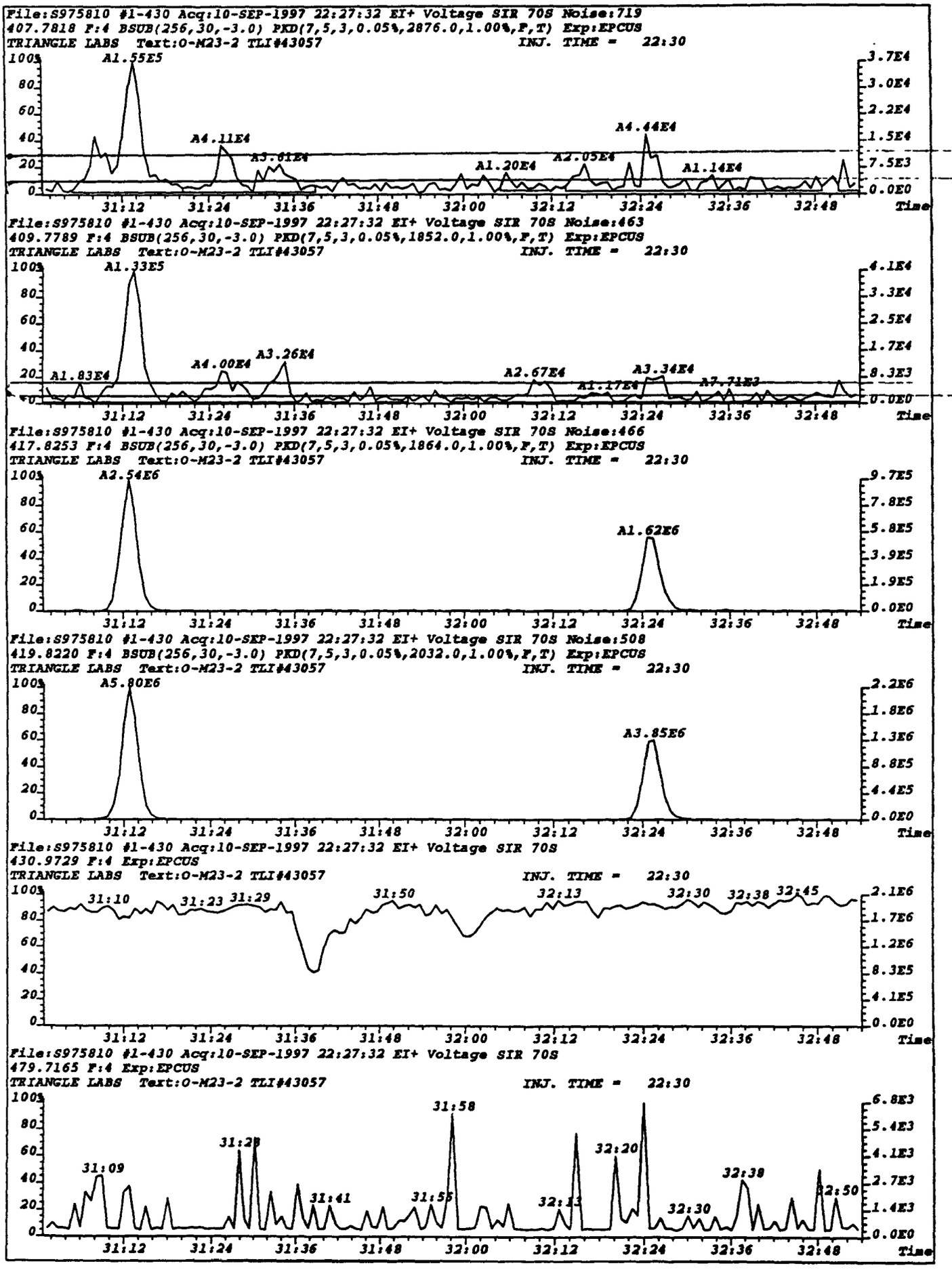
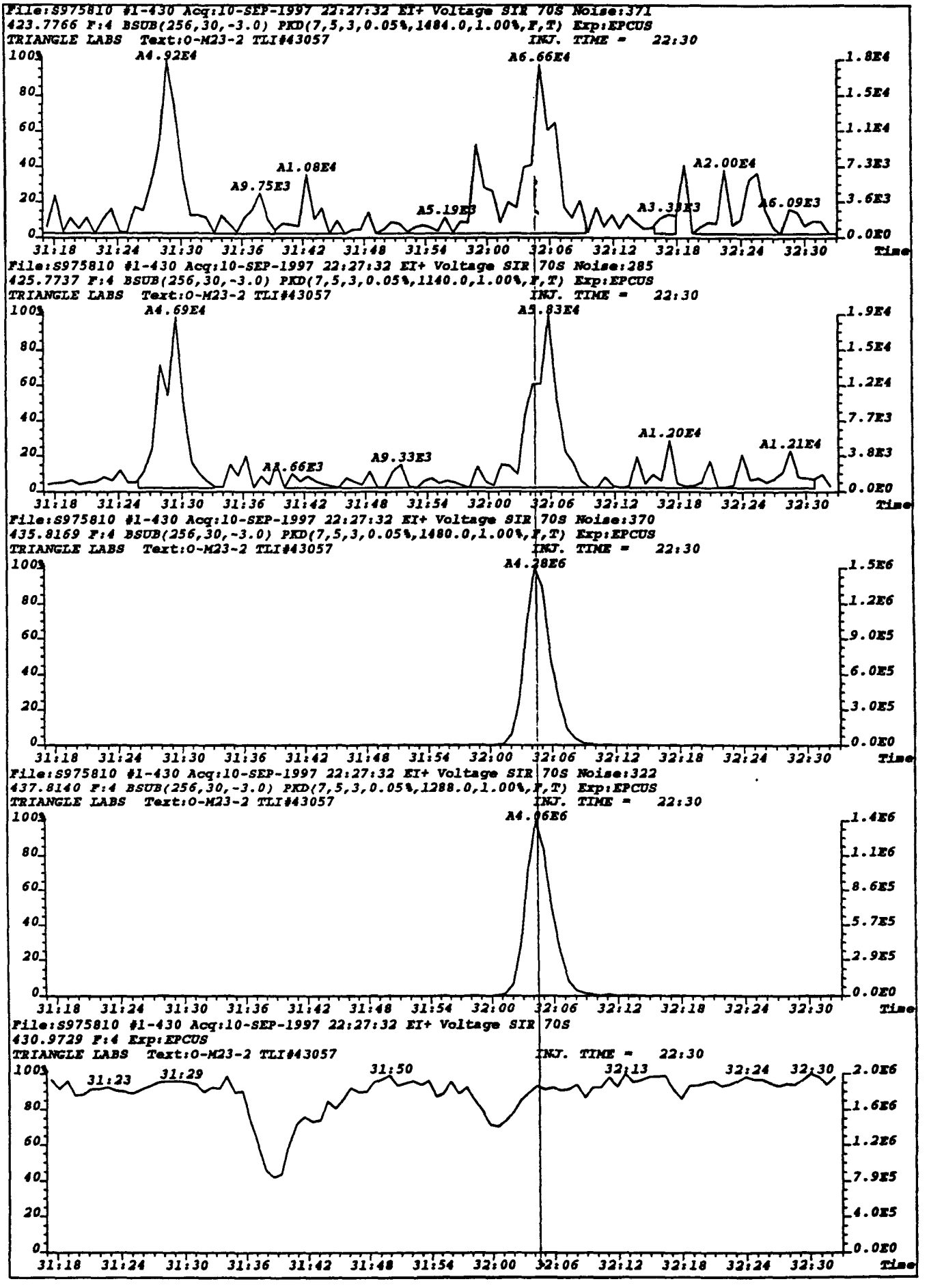
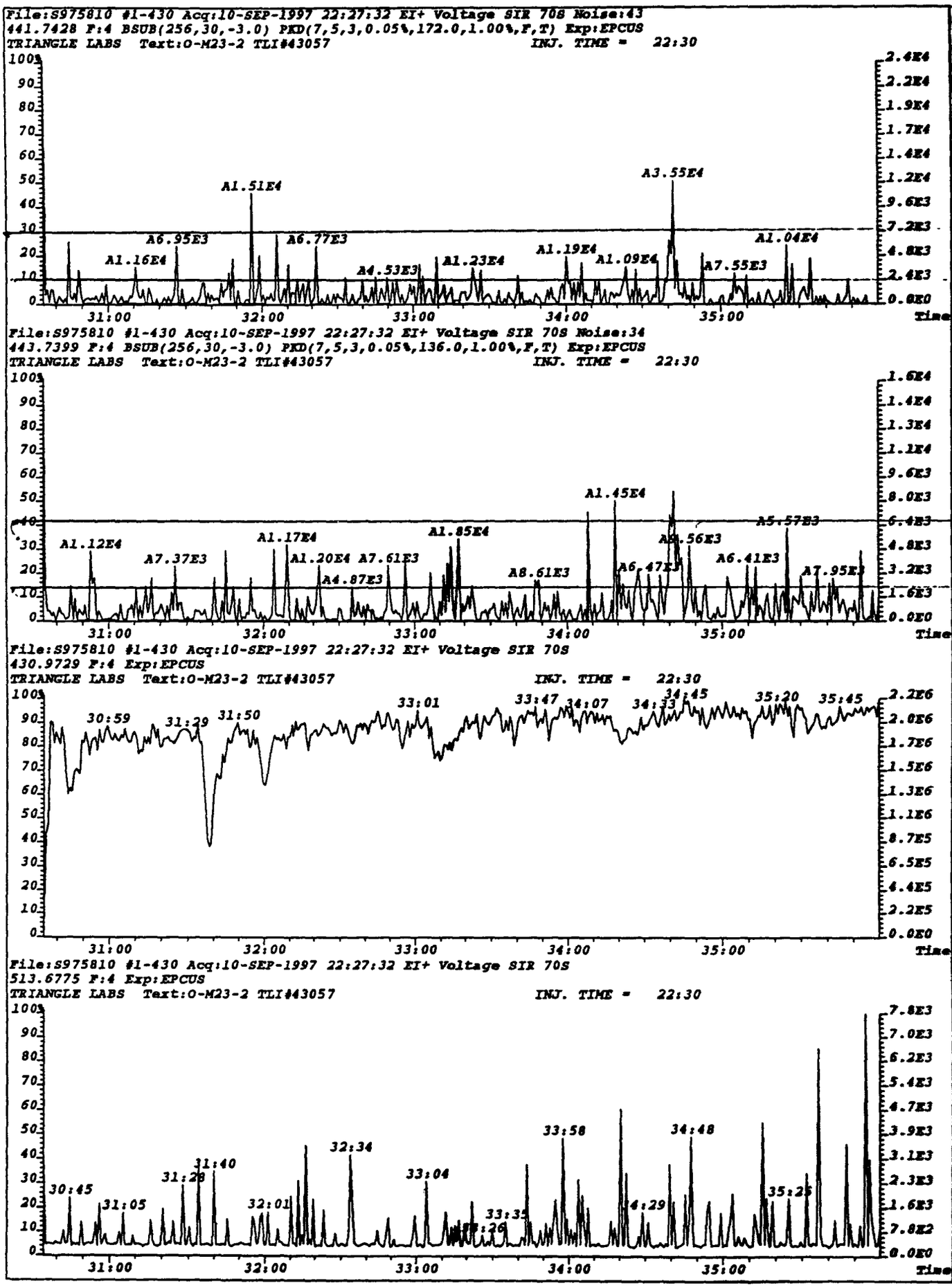

File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:545
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.64E5
A6.25E4
A4.12E4
A2.82E4
A1.96E4
A2.32E4
A2.96E4
A7.56E3
A1.03E4
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:336
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1344.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.33E5
A4.65E4
A4.28E4
A1.80E4
A1.74E4
A4.18E4
A1.88E3
A1.15E4
A5.65E3
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:348
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1392.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.25E7
A7.38E6
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:402
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1608.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.03E7
A5.95E6
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
28:04 28:12 28:36 28:44 29:09 29:20 29:37 29:44
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 Time


File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:719
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2876.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.55E5
A4.11E4
A3.61E4
A1.20E4
A2.05E4
A4.44E4
A1.14E4
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:463
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1852.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A1.33E5
A1.83E4
A4.00E4
A3.26E4
A2.67E4
A1.17E4
A3.34E4
A7.71E3
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:466
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1864.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A2.54E6
A1.62E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:508
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2032.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A5.80E6
A3.85E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
31:10
31:23
31:29
31:50
32:13
32:30
32:38
32:45
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
31:09
31:28
31:41
31:55
31:58
32:13
32:20
32:30
32:38
32:50
Time


File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:371
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1484.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A4.92E4
A6.66E4
A1.08E4
A9.75E3
A5.19E3
A2.00E4
A3.39E3
A6.09E3
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:285
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A4.69E4
A5.83E4
A1.20E4
A1.21E4
A9.33E3
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:370
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1480.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A4.28E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:322
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1288.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A4.06E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
31:23
31:29
31:50
32:13
32:24
32:30
Time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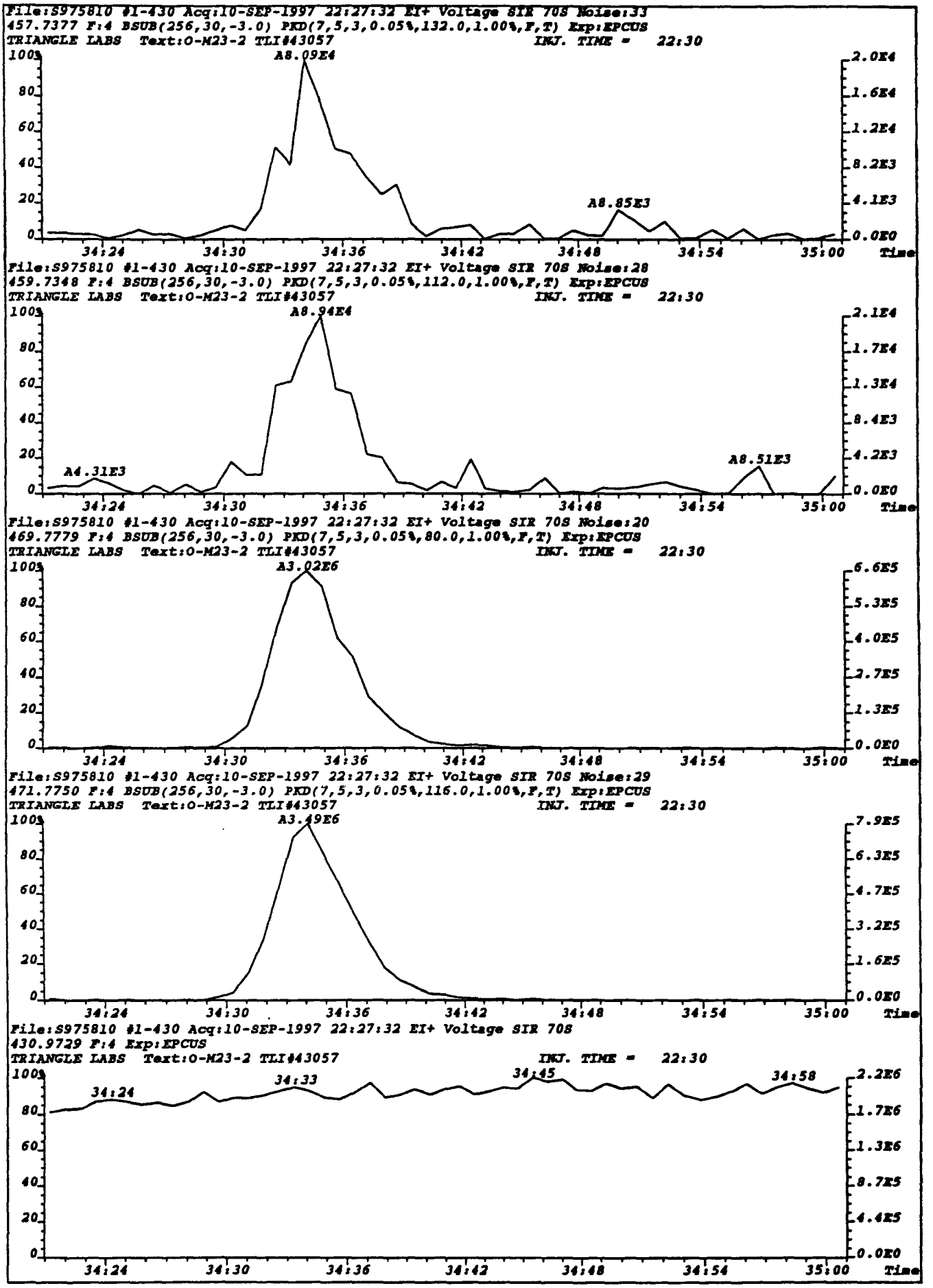
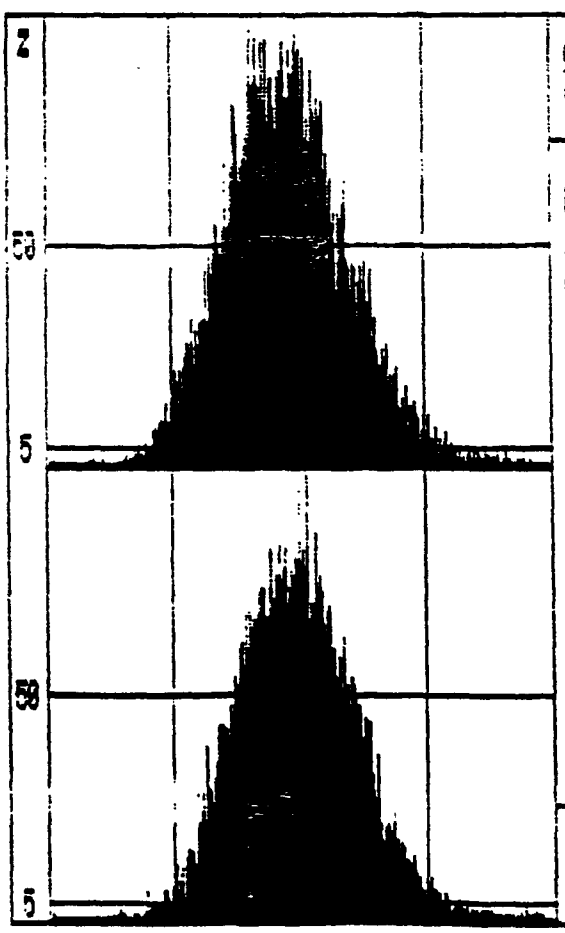
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,172.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.51E4
A3.55E4
A6.95E3
A6.77E3
A1.16E4
A4.53E3
A1.23E4
A1.19E4
A1.09E4
A7.55E3
A1.04E4
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:34
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
A1.45E4
A1.12E4
A7.37E3
A1.17E4
A1.20E4
A7.61E3
A1.85E4
A4.87E3
A8.61E3
A6.47E3
A6.41E3
A7.95E3
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
30:59
31:29
31:50
33:01
33:47
34:07
34:33
34:45
35:20
35:45
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057
INJ. TIME = 22:30
30:45
31:05
31:28
31:40
32:01
32:34
33:04
33:58
34:48
Time


File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:33
457.7377 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-M23-2 TLI#43057 INJ. TIME = 22:30
A8.09E4
A8.85E3
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:28
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A8.94E4
A4.31E3
A8.51E3
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:20
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,80.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
A3.02E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S Noise:29
471.7750 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-M23-2 TLI#43057 INJ. TIME = 22:30
A3.49E6
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-2 TLI#43057 INJ. TIME = 22:30
34:24
34:33
34:45
34:58
34:00
Time

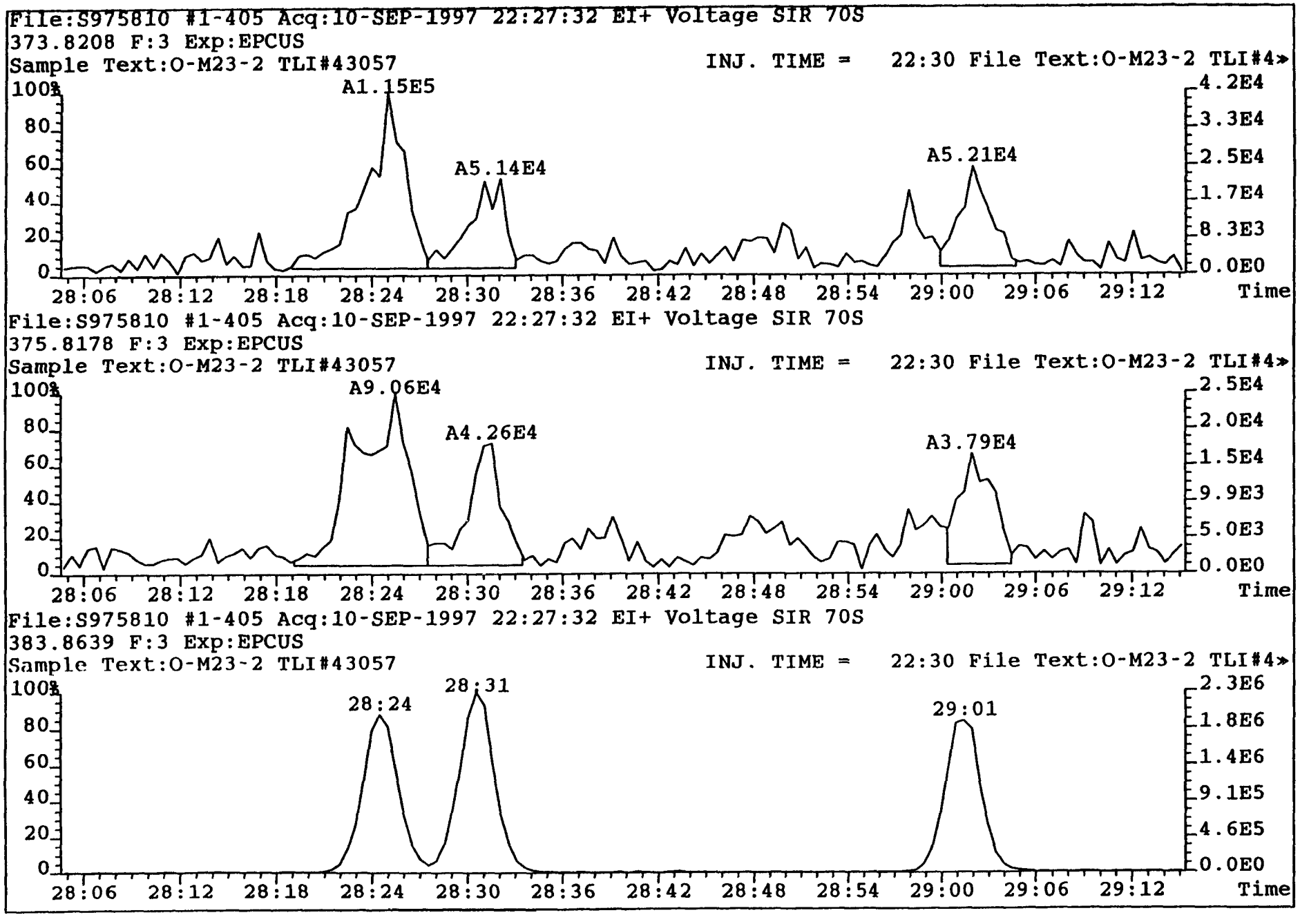


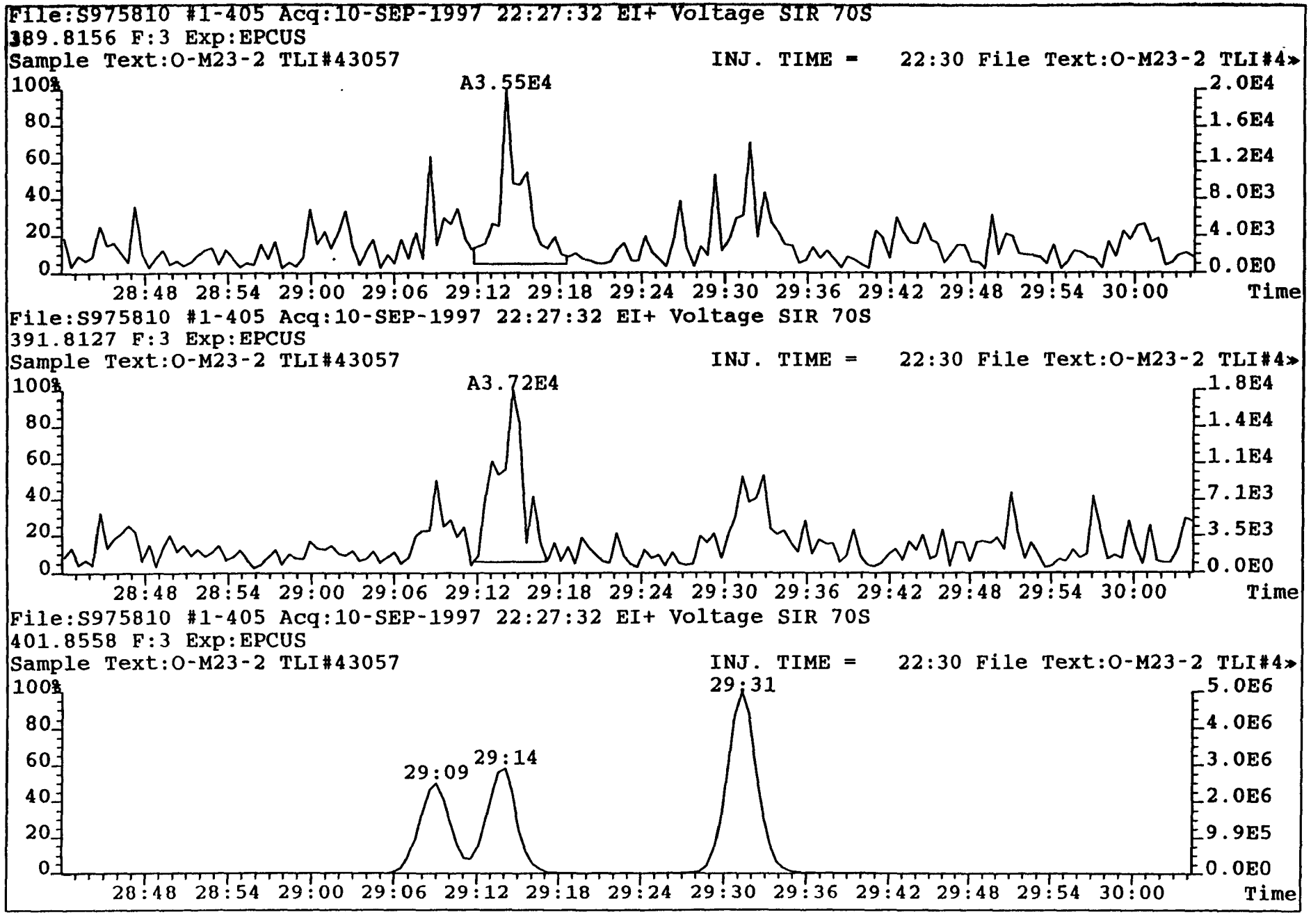

Ref. mass 292.3825 Peak top
Height 1.14 volts Span 200 ppm

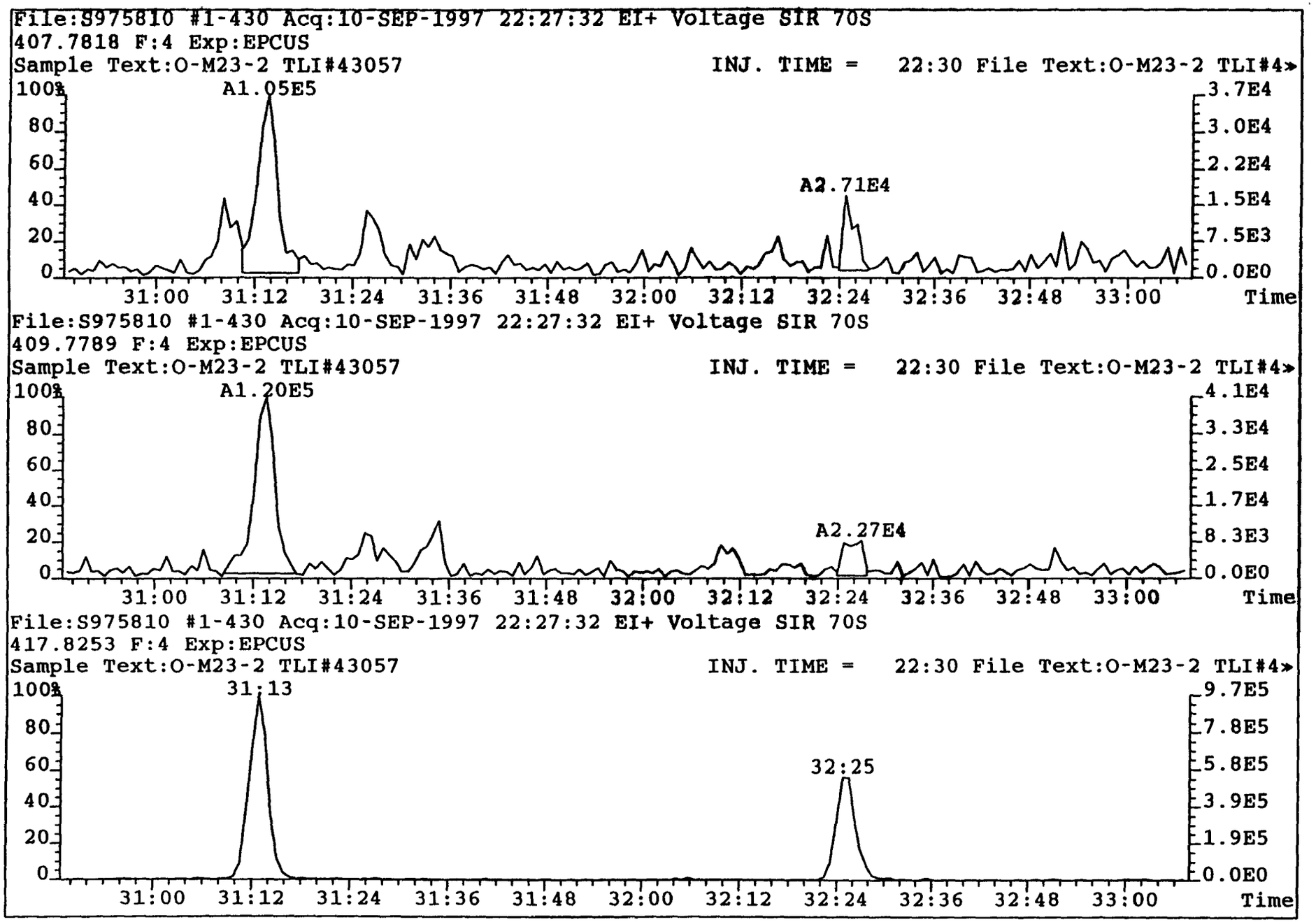
| | |
|---|---|
| System file name | EPOUS2 |
| Data file name | A:S910971 |
| Resolution | 10000 |
| Group number | 2 |
| Ionization mode | EI+ |
| Switching | VOLTAGE |
| Ref. masses | 292.3825, 416.3760 |

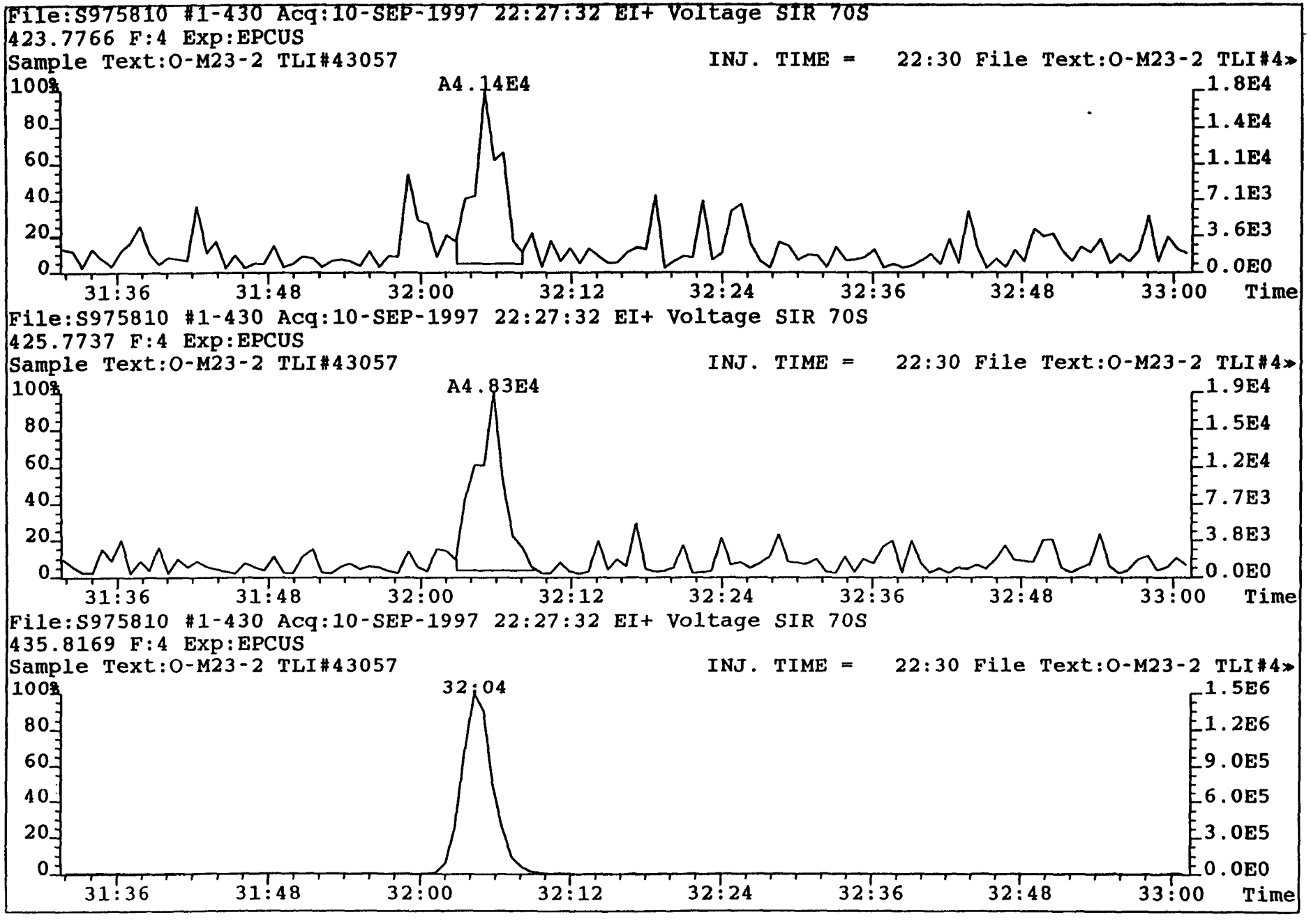
| | | | | | |
|---|---|---|---|---|---|
| A | 293 | J | 331 | S | 368 |
| B | 304 | K | 332 | T | 370 |
| C | 306 | L | 334 | U | 376 |
| D | 316 | M | 340 | V | 410 |
| E | 318 | N | 342 | | |
| F | 320 | O | 352 | | |
| G | 322 | P | 354 | | |
| H | 328 | Q | 356 | | |
| I | 331 | R | 358 | | |

Channel I 330.9792 Peak top
Height 1.41 volts Span 200 ppm


File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
A1.15E5
A5.14E4
A5.21E4
100%
80
60
40
20
0
4.2E4
3.3E4
2.5E4
1.7E4
8.3E3
0.0E0
28:06 28:12 28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
A9.06E4
A4.26E4
A3.79E4
100%
80
60
40
20
0
2.5E4
2.0E4
1.5E4
9.9E3
5.0E3
0.0E0
28:06 28:12 28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
383.8639 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
28:24
28:31
29:01
100%
80
60
40
20
0
2.3E6
1.8E6
1.4E6
9.1E5
4.6E5
0.0E0
28:06 28:12 28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 Time


File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
389.8156 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
A3.55E4
100%
80
60
40
20
0
2.0E4
1.6E4
1.2E4
8.0E3
4.0E3
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00
Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
391.8127 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
A3.72E4
100%
80
60
40
20
0
1.8E4
1.4E4
1.1E4
7.1E3
3.5E3
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00
Time
File:S975810 #1-405 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
401.8558 F:3 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
29:31
29:09
29:14
100%
80
60
40
20
0
5.0E6
4.0E6
3.0E6
2.0E6
9.9E5
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00
Time


File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
A1.05E5
A2.71E4
3.7E4
3.0E4
2.2E4
1.5E4
7.5E3
0.0E0
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
A1.20E5
A2.27E4
4.1E4
3.3E4
2.5E4
1.7E4
8.3E3
0.0E0
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4
31:13
32:25
9.7E5
7.8E5
5.8E5
3.9E5
1.9E5
0.0E0
Time


File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
A4.14E4
100%
80
60
40
20
0
1.8E4
1.4E4
1.1E4
7.1E3
3.6E3
0.0E0
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
A4.83E4
100%
80
60
40
20
0
1.9E4
1.5E4
1.2E4
7.7E3
3.8E3
0.0E0
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time
File:S975810 #1-430 Acq:10-SEP-1997 22:27:32 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:O-M23-2 TLI#43057
INJ. TIME = 22:30 File Text:O-M23-2 TLI#4»
32:04
100%
80
60
40
20
0
1.5E6
1.2E6
9.0E5
6.0E5
3.0E5
0.0E0
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time

# Pacific Environmental Services

TLI Project: 43057 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: O-M23-2 — Analysis File: **P973845**

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-3A-C | Date Extracted: | 09/06/97 | 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: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | WK | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | ND | 0.02 | | | | — |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.1 | 52.4 | 40%-130% | 0.76 | 20:42 | — |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.79 | 19:44 | — |

Data Reviewer: _____ 09/12/97





**Triangle Laboratories, Inc.®**
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 14:57 09/12/97

Initial ....Date...

Data Review By: A.D.A 9/12/97 Calculated Noise Area: 2.11

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 P973845B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

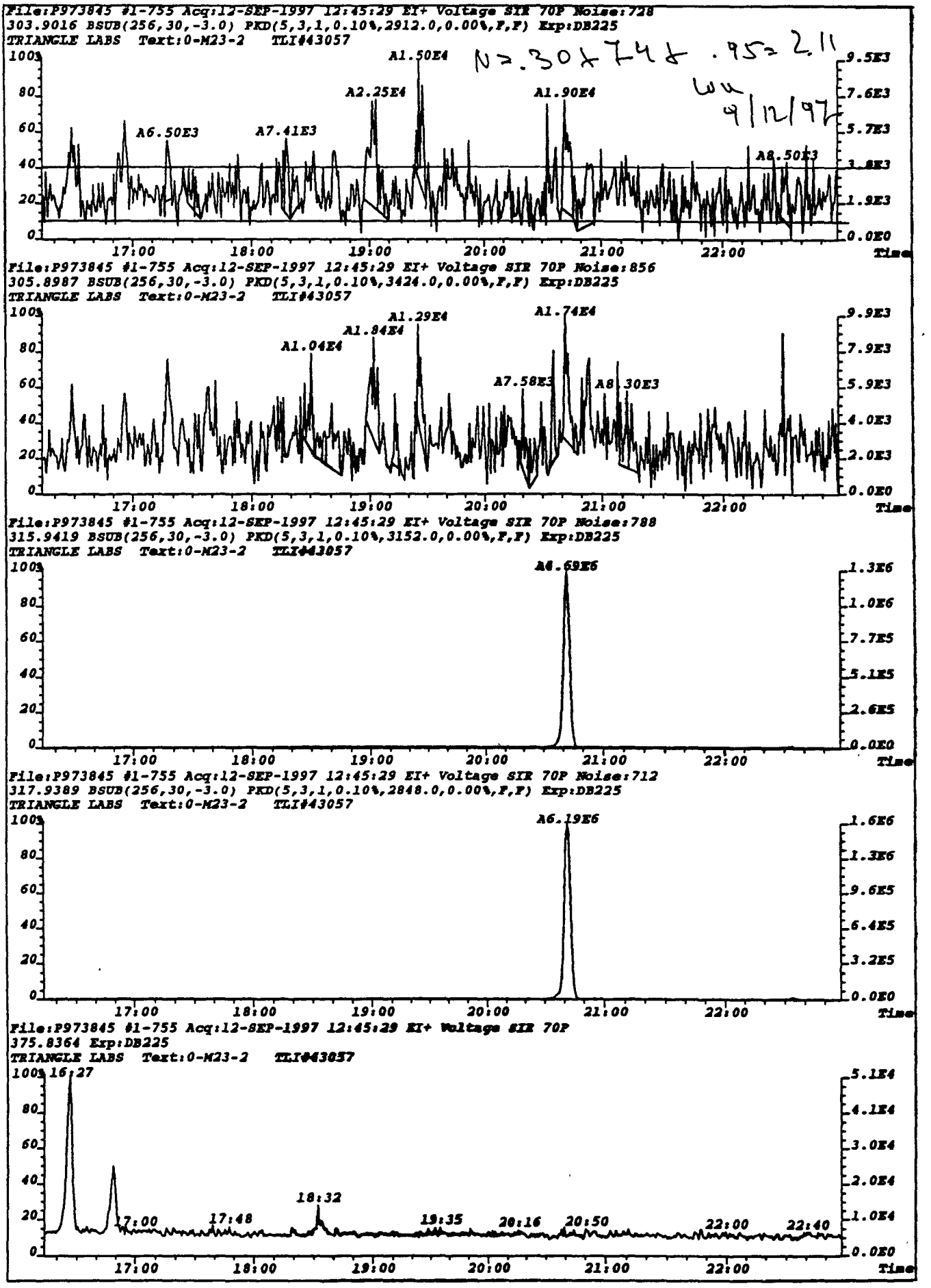
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | 0.65-0.89 | | | | | | 0.786-1.096 | | | |
| 304-306 | DC | NL | | 0:00 | | 0.85 | 3.17 | | | 0.000 | | | |
| | DC | SN | | 19:03 | RO | 1.22 | 3.26 | | | 0.920 | | | |
| | DC | SN | | 19:26 | RO | 1.16 | 2.28 | | | 0.939 | | | |
| | DC | SN | | 20:42 | RO | 1.09 | 3.08 | | | 1.000 | 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 | 1.11 | 2.51 | | | 0.000 | | | |
| | DC | WL | | 19:27 | RO | 1.01 | 4.18 | | | 0.940 | | | |
| | | | | 20:42 | | 0.76 | 1,088.09 | 469.12 | 618.97 | 1.000 | 13C12-2378-TCDF | | IS0 |
| | DC | SN | | 21:38 | | 0.78 | 1.98 | | | 1.045 | | | |
| | DC | WH | | 22:34 | RO | 0.29 | 3.79 | | | 1.090 | | | |
| 316-318 | | | 1 Peak | | | | 1,088.09 | | | | | | |

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

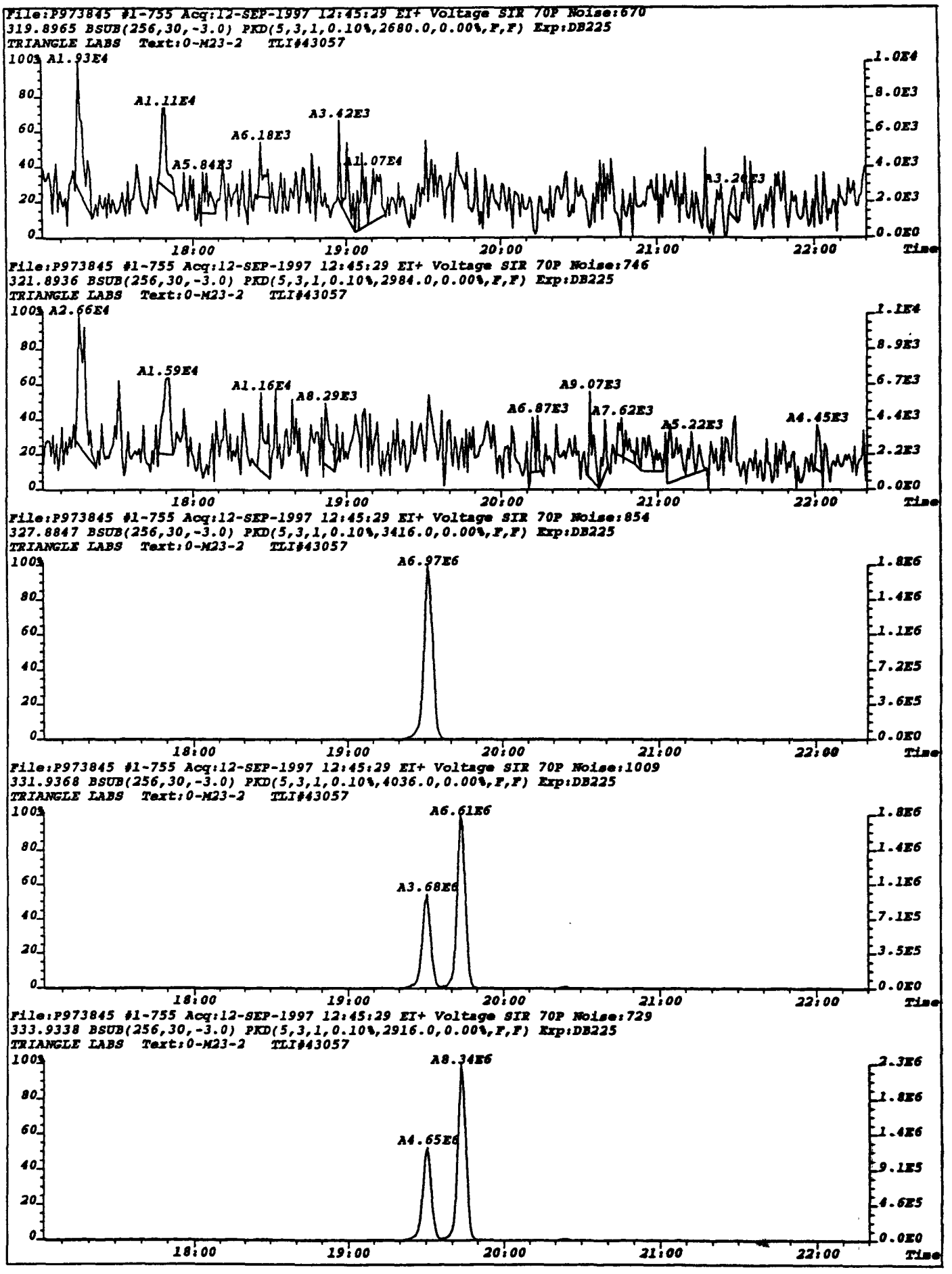
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13C12-TCDD | | | | 0.65-0.89 | | | | | | 0.897-1.103 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 1.38 | 2.58 | | | 0.000 | | | |
| | DC | SN | | 19:01 | RO | 1.48 | 1.95 | | | 0.974 | | | |
| | | | | 19:31 | | 0.79 | 832.51 | 367.79 | 464.72 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 19:44 | | 0.79 | 1,495.20 | 661.22 | 833.98 | 1.011 | 13C12-1234-TCDD | | RS1 |
| | | | | 20:24 | | 0.82 | 11.35 | 5.10 | 6.25 | 1.045 | | | |
| | DC | SN | | 20:29 | RO | 2.62 | 0.65 | | | 1.050 | | | |
| | DC | SN | | 20:58 | RO | 0.22 | 0.71 | | | 1.074 | | | |
| | DC | WH | | 21:45 | RO | 2.27 | 1.91 | | | 1.114 | | | |
| 332-334 | | | 3 Peaks | | | | 2,339.06 | | | | | | |

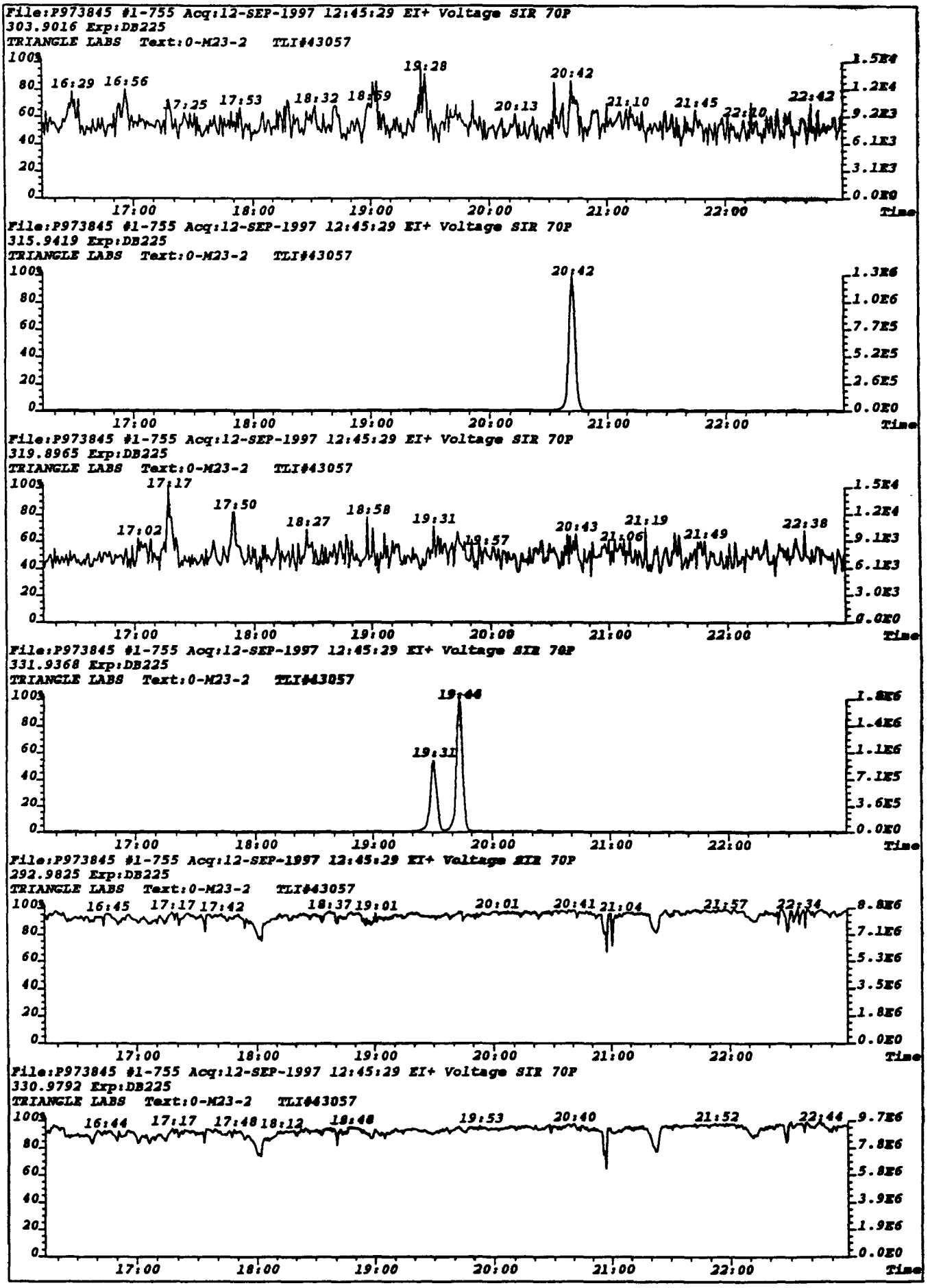
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

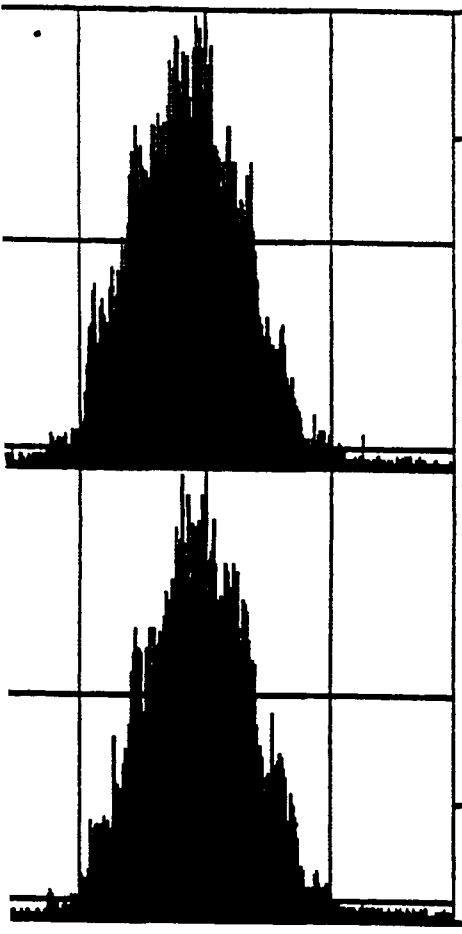
*** End of Report ***


File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:728
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2912.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A1.50E4
A2.25E4
A1.90E4
A6.50E3
A7.41E3
A8.50E3
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:856
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3424.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A1.04E4
A1.84E4
A1.29E4
A1.74E4
A7.58E3
A8.30E3
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:788
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3152.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A6.69E6
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:712
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2848.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A6.19E6
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
16:27
18:32
17:00
17:48
19:35
20:16
20:50
22:00
22:40
Time

164


File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:670
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2680.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A1.93E4
A1.11E4
A3.42E3
A6.18E3
A5.84E3
A1.07E4
18:00
19:00
20:00
21:00
22:00
Time
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:746
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2984.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A2.66E4
A1.59E4
A1.16E4
A8.29E3
A9.07E3
A6.87E3
A7.62E3
A5.22E3
A4.45E3
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:854
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3416.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A6.97E6
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:1009
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4036.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A6.61E6
A3.68E6
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P Noise:729
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2916.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
A8.34E6
A4.65E6


File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
16:29 16:56 17:25 17:53 18:32 18:59 19:28 20:13 20:42 21:10 21:45 22:42
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
20:42
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
17:02 17:17 17:50 18:27 18:58 19:31 19:57 20:43 21:06 21:19 21:49 22:38
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
19:31 19:44
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
16:45 17:17 17:42 18:37 19:01 20:01 20:41 21:04 21:57 22:34
File:P973845 #1-755 Acq:12-SEP-1997 12:45:29 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:0-M23-2 TLI#43057
16:44 17:17 17:48 18:12 18:48 19:53 20:40 21:52 22:44
17:00 18:00 19:00 20:00 21:00 22:00 Time



| | | | |
|---|---|---|---|
| Ref. mass | 292.9825 | Peak top | |
| Height | 1.33 volts | Span | 200 ppm |

| | |
|---|---|
| System file name | DB225 |
| Data file name | A:P973845 |
| 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 | 1.41 volts | Span | 200 ppm |

## Pacific Environmental Services

TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: O-M23-3 — Analysis File: S975811

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-4A-C | Date Extracted: | 09/06/97 | ICal: | SF56117 |
| | | Date Analyzed: | 09/10/97 | ConCal: | S975797 |
| Sample Size: | 1.000 | Dilution Factor: | n/a | % Moisture: | n/a |
| Dry Weight: | n/a | Blank File: | S975807 | % 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 | EMPC | | 0.003 | | | — |
| 1,2,3,7,8-PeCDD | 0.005 | | | 1.49 | 25:55 | — |
| 1,2,3,4,7,8-HxCDD | 0.008 | | | 1.10 | 29:11 | — |
| 1,2,3,6,7,8-HxCDD | 0.02 | | | 1.41 | 29:16 | — |
| 1,2,3,7,8,9-HxCDD | EMPC | | 0.01 | | | PR_ |
| 1,2,3,4,6,7,8-HpCDD | 0.06 | | | 1.05 | 32:07 | B_ |
| 1,2,3,4,6,7,8,9-OCDD | 0.13 | | | 0.80 | 34:36 | B_ |
| 2,3,7,8-TCDF | 0.02 | | | 0.73 | 20:28 | B_ |
| 1,2,3,7,8-PeCDF | 0.007 | | | 1.61 | 24:45 | — |
| 2,3,4,7,8-PeCDF | 0.01 | | | 1.32 | 25:31 | B_ |
| 1,2,3,4,7,8-HxCDF | 0.06 | | | 1.20 | 28:25 | PRB |
| 1,2,3,6,7,8-HxCDF | 0.02 | | | 1.14 | 28:32 | B_ |
| 2,3,4,6,7,8-HxCDF | 0.02 | | | 1.09 | 29:02 | PRB |
| 1,2,3,7,8,9-HxCDF | ND | 0.003 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | 0.09 | | | 1.00 | 31:16 | PRB |
| 1,2,3,4,7,8,9-HpCDF | EMPC | | 0.03 | | | B_ |
| 1,2,3,4,6,7,8,9-OCDF | 0.06 | | | 0.82 | 34:42 | B_ |

| Totals | Amt. (ng) | Number of Det. | EMPC | Flags |
|---|---|---|---|---|
| Total TCDD | 0.01 | 2 | 0.02 | — |
| Total PeCDD | 0.03 | 3 | 0.05 | — |
| Total HxCDD | 0.15 | 5 | 0.16 | — |
| Total HpCDD | 0.06 | 1 | 0.11 | — |
| Total TCDF | 0.03 | 3 | 0.04 | — |
| Total PeCDF | 0.06 | 6 | 0.07 | — |
| Total HxCDF | 0.17 | 7 | | — |
| Total HpCDF | 0.09 | 1 | 0.17 | — |





**Triangle Laboratories, Inc.®**
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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 08:18 09/12/97

TLI Project: 43057
Client Sample: O-M23-3

Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975811

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $C_{12}$-2,3,7,8-TCDF | 7.4 | 184 | 40%-130% | 0.76 | 20:25 | — |
| $C_{12}$-2,3,7,8-TCDD | 6.5 | 163 | 40%-130% | 0.80 | 21:15 | — |
| $C_{12}$-1,2,3,7,8-PeCDF | 6.4 | 161 | 40%-130% | 1.45 | 24:45 | — |
| $C_{12}$-1,2,3,7,8-PeCDD | 6.8 | 170 | 40%-130% | 1.50 | 25:53 | — |
| $C_{12}$-1,2,3,6,7,8-HxCDF | 7.5 | 187 | 40%-130% | 0.50 | 28:31 | — |
| $C_{12}$-1,2,3,6,7,8-HxCDD | 6.9 | 173 | 40%-130% | 1.22 | 29:14 | — |
| $C_{12}$-1,2,3,4,6,7,8-HpCDF | 4.2 | 105 | 25%-130% | 0.43 | 31:15 | — |
| $C_{12}$-1,2,3,4,6,7,8-HpCDD | 4.4 | 109 | 25%-130% | 1.08 | 32:07 | — |
| $C_{12}$-1,2,3,4,6,7,8,9-OCDD | 5.2 | 65.1 | 25%-130% | 0.88 | 34:35 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $Cl_4$-2,3,7,8-TCDD | 3.9 | 98.4 | 70%-140% | | 21:16 | — |
| $C_{12}$-2,3,4,7,8-PeCDF | 3.5 | 88.6 | 70%-140% | 1.45 | 25:31 | — |
| $C_{12}$-1,2,3,4,7,8-HxCDF | 3.9 | 98.2 | 70%-140% | 0.50 | 28:24 | — |
| $C_{12}$-1,2,3,4,7,8-HxCDD | 3.5 | 87.9 | 70%-140% | 1.25 | 29:10 | — |
| $C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.7 | 91.3 | 70%-140% | 0.40 | 32:27 | — |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $C_{12}$-1,2,3,7,8,9-HxCDF | 4.8 | 120 | 40%-130% | 0.50 | 29:44 | — |
| $C_{12}$-2,3,4,6,7,8-HxCDF | 6.9 | 173 | 40%-130% | 0.50 | 29:02 | — |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $C_{12}$-1,2,3,4-TCDD | 0.80 | 21:02 | — |
| $C_{12}$-1,2,3,7,8,9-HxCDD | 1.21 | 29:32 | — |

Data Reviewer: _____ 09/12/97



X237_PSR v2.00, LABS 6.10.04

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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 08:18 09/12/97

Initial ....Date...

Data Review By: CA 9/12/97 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 S975811B.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 | | | | | | 0.823-1.104 | | | |
| 304-306 | | DC | NL | 0:00 | RO | 1.14 | 0.12 | | | 0.000 | | | |
| | | DC | SN | 17:24 | RO | 1.84 | 0.80 | | | 0.852 | | | |
| | | DC | SN | 17:26 | RO | 2.19 | 2.00 | | | 0.854 | | | |
| | | DC | SN | 17:43 | RO | 0.48 | 4.71 | | | 0.868 | | | |
| | D | D | SN | 18:07 | | 0.89 | 7.30 | | | 0.887 | | | |
| | D | D | SN | 18:27 | RO | 1.01 | 12.55 | | | 0.904 | | | |
| | D | D | SN | 19:17 | | 0.68 | 14.25 | | | 0.944 | | | |
| | A | | | 19:34 | | 0.81 | 17.93 | 8.01 | 9.92 | 0.958 | | | |
| | M | | | 19:44 | | 0.72 | 10.72 | 4.47 | 6.25 | 0.967 | | | |
| | | | | 19:58 | RO | 0.95 | 35.86 | 19.29 | 20.26 | 0.978 | | | |
| | | DC | SN | 20:15 | | 0.77 | 6.36 | | | 0.992 | | | |
| | | | | 20:28 | | 0.73 | 65.40 | 27.55 | 37.85 | 1.002 | 2378-TCDF | | AN |
| | D | D | SN | 20:56 | RO | 1.00 | 9.77 | | | 1.025 | | | |
| | | | | 22:21 | RO | 0.90 | 17.13 | 8.67 | 9.68 | 1.095 | | | |
| | | DC | WH | 22:38 | | 0.88 | 2.76 | | | 1.109 | | | |
| 304-306 | | | 5 | Peaks | | | 147.04 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.951-1.049 | | | |
| 316-318 | | DC | NL | 0:00 | RO | 5.88 | 0.14 | | | 0.000 | | | |
| | | DC | WL | 19:15 | | 0.84 | 17.19 | | | 0.943 | | | |
| | | | | 19:57 | | 0.89 | 48.30 | 22.68 | 25.62 | 0.977 | | | |
| | | | | 20:25 | | 0.76 | 11,230.27 | 4,833.79 | 6,396.48 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 20:55 | RO | 1.11 | 35.82 | 22.46 | 20.24 | 1.024 | | | |
| 316-318 | | | 3 | Peaks | | | 11,314.39 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | 0.65-0.89 | | | | | | 0.857-1.061 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | | DC | WL | 18:08 | RO | 1.00 | 0.37 | | | 0.853 | | | |
| | | | | 18:22 | | 0.84 | 20.83 | 9.48 | 11.35 | 0.864 | | | |
| | | DC | SN | 18:40 | RO | 1.17 | 0.94 | | | 0.878 | | | |
| | | | | 18:51 | | 0.68 | 9.52 | 3.85 | 5.67 | 0.887 | | | |
| | D | D | SN | 19:55 | | 0.84 | 7.63 | | | 0.937 | | | |
| | | DC | SN | 20:14 | RO | 1.01 | 1.79 | | | 0.952 | | | |
| | | DC | SN | 20:26 | RO | 2.69 | 3.40 | | | 0.962 | | | |
| | | DC | SN | 20:40 | RO | 0.63 | 2.46 | | | 0.973 | | | |
| | | DC | SN | 20:47 | | 0.67 | 1.10 | | | 0.978 | | | |
| | | DC | SN | 21:00 | | 0.74 | 2.56 | | | 0.988 | | | |
| | | DC | SN | 21:08 | RO | 2.10 | 2.53 | | | 0.995 | | | |
| | MK | | | 21:17 | RO | 0.38 | 5.98 | 2.60 | 6.81 | 1.002 | 2378-TCDD | | AN |
| | | DC | SN | 21:36 | RO | 0.49 | 1.06 | | | 1.016 | | | |
| | | DC | SN | 22:24 | RO | 0.98 | 1.03 | | | 1.054 | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320-322 | | | 3 Peaks | | | | 36.33 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 0.06 | | | 0.000 | | | |
| | | | | 19:42 | | | 12.62 | 12.62 | | 0.927 | | | |
| | | | | 21:16 | | | 6,682.06 | 6,682.06 | | 1.001 | 37Cl-TCDD | | SUR1 |
| 328 | | | 2 Peaks | | | | 6,694.68 | | | | | | |
| 13C12-TCDD | | | | | 0.65-0.89 | | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 11.11 | 0.16 | | | 0.000 | | | |
| | | | | 19:55 | RO | 0.90 | 38.25 | 19.55 | 21.61 | 0.937 | | | |
| | | | | 21:02 | | 0.80 | 4,631.87 | 2,054.00 | 2,577.87 | 0.990 | 13C12-1234-TCDD | | RS1 |
| | | | | 21:15 | | 0.80 | 8,057.34 | 3,572.72 | 4,484.62 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 21:38 | RO | 0.93 | 115.35 | 60.39 | 65.17 | 1.018 | | | |
| 332-334 | | | 4 Peaks | | | | 12,842.81 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | 1.32-1.78 | | | | | 0.909-1.079 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 0.89 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 22:30 | RO | 0.68 | 1.84 | | | 0.909 | | | |
| | | | | 22:39 | | 1.64 | 15.92 | 9.89 | 6.03 | 0.915 | | | |
| | DC | SN | | 22:53 | RO | 0.30 | 0.41 | | | 0.925 | | | |
| | DC | SN | | 23:18 | RO | 0.61 | 0.72 | | | 0.941 | | | |
| D | D | SN | | 23:43 | RO | 1.25 | 8.67 | | | 0.958 | | | |
| | | | | 23:51 | | 1.34 | 41.00 | 23.45 | 17.55 | 0.964 | | | |
| D | D | SN | | 24:02 | | 1.40 | 8.29 | | | 0.971 | | | |
| D | D | SN | | 24:12 | | 1.36 | 7.91 | | | 0.978 | | | |
| A | | | | 24:25 | | 1.39 | 36.10 | 21.00 | 15.10 | 0.987 | | | |
| A | | | | 24:40 | RO | 1.92 | 13.92 | 10.50 | 5.46 | 0.997 | | | |
| AN | | | | 24:45 | | 1.61 | 16.68 | 10.30 | 6.38 | 1.000 | 12378-PeCDF | | AN |
| | DC | SN | | 24:57 | RO | 1.18 | 5.00 | | | 1.008 | | | |
| | | | | 25:04 | | 1.36 | 14.32 | 8.25 | 6.07 | 1.013 | | | |
| | | | | 25:31 | | 1.32 | 28.52 | 16.23 | 12.29 | 1.031 | 23478-PeCDF | | AN |
| D | D | SN | | 25:41 | | 1.51 | 15.93 | | | 1.038 | | | |
| | DC | SN | | 25:59 | RO | 0.67 | 3.69 | | | 1.050 | | | |
| D | D | SN | | 26:31 | RO | 2.18 | 8.13 | | | 1.071 | | | |
| | DC | SN | | 26:38 | RO | 1.04 | 1.25 | | | 1.076 | | | |
| 340-342 | | | 7 Peaks | | | | 166.46 | | | | | | |
| 13C12-PeCDF | | | | | 1.32-1.78 | | | | | 0.838-1.162 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.00 | 0.12 | | | 0.000 | | | |
| | | | | 23:51 | | 1.61 | 36.62 | 22.57 | 14.05 | 0.964 | | | |
| | | | | 24:23 | | 1.33 | 42.06 | 23.97 | 18.09 | 0.985 | | | |
| | | | | 24:45 | | 1.45 | 8,446.74 | 5,005.88 | 3,440.86 | 1.000 | 13C12-PeCDF 123 | | IS2 |
| | | | | 24:56 | RO | 0.93 | 27.98 | 17.01 | 18.20 | 1.007 | | | |
| | | | | 25:04 | | 1.36 | 55.81 | 32.18 | 23.63 | 1.013 | | | |
| | | | | 25:31 | | 1.45 | 7,255.87 | 4,294.07 | 2,961.80 | 1.031 | 13C12-PeCDF 234 | | SUR2 |
| | | | | 26:30 | | 1.49 | 15.15 | 9.06 | 6.09 | 1.071 | | | |
| 352-354 | | | 7 Peaks | | | | 15,880.23 | | | | | | |

| 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: PeCDF / PeCDD Follows ---------- | | | | | | | | | | | | | |
| PeCDD | | | | 1.32-1.78 | | | | | | 0.921-1.026 | | | |
| 356-358 | | DC | NL | 0:00 | | 1.33 | 0.14 | | | 0.000 | | | |
| | | | | 24:00 | RO | 0.75 | 18.34 | 11.15 | 14.78 | 0.927 | | | |
| | | DC | SN | 24:12 | | 1.41 | 1.66 | | | 0.935 | | | |
| | | DC | SN | 24:31 | RO | 2.13 | 1.58 | | | 0.947 | | | |
| | | | | 24:47 | | 1.51 | 26.98 | 16.21 | 10.77 | 0.958 | | | |
| | | DC | SN | 24:54 | RO | 1.04 | 2.47 | | | 0.962 | | | |
| | | | | 25:06 | | 1.59 | 19.78 | 12.15 | 7.63 | 0.970 | | | |
| | K | | | 25:55 | | 1.49 | 7.06 | 4.22 | 2.84 | 1.001 | 12378-PeCDD | AN | |
| | | DC | SN | 26:03 | RO | 0.90 | 2.29 | | | 1.006 | | | |
| | | DC | SN | 26:22 | RO | 0.96 | 3.24 | | | 1.019 | | | |
| 356-358 | | | 4 | Peaks | | | 72.16 | | | | | | |
| 13C12-PeCDD | | | | 1.32-1.78 | | | | | | 0.845-1.155 | | | |
| 368-370 | | DC | NL | 0:00 | RO | 1.17 | 0.12 | | | 0.000 | | | |
| | | DC | SN | 24:48 | | 1.38 | 5.26 | | | 0.958 | | | |
| | | | | 25:53 | | 1.50 | 4,994.81 | 2,999.63 | 1,995.18 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 26:02 | | 1.52 | 457.99 | 276.47 | 181.52 | 1.006 | | | |
| 368-370 | | | 2 | Peaks | | | 5,452.80 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | 1.05-1.43 | | | | | | 0.957-1.053 | | | |
| 374-376 | | DC | NL | 0:00 | RO | 1.87 | 2.60 | | | 0.000 | | | |
| | | | | 27:25 | | 1.18 | 29.45 | 15.93 | 13.52 | 0.961 | | | |
| | | | | 27:34 | | 1.15 | 60.86 | 32.57 | 28.29 | 0.967 | | | |
| | | | | 27:53 | | 1.31 | 12.18 | 6.91 | 5.27 | 0.978 | | | |
| | | | | 28:03 | | 1.31 | 9.11 | 5.17 | 3.94 | 0.984 | | | |
| | | | | 28:25 | | 1.20 | 87.48 | 47.75 | 39.73 | 0.996 | 123478-HxCDF | AN | PR |
| | | | | 28:32 | | 1.14 | 37.44 | 19.94 | 17.50 | 1.001 | 123678-HxCDF | AN | |
| | D | D | SN | 28:38 | | 1.42 | 9.37 | | | 1.004 | | | |
| | D | D | SN | 28:51 | | 1.19 | 11.62 | | | 1.012 | | | |
| | | | | 29:02 | | 1.09 | 38.17 | 19.94 | 18.23 | 1.018 | 234678-HxCDF | AN | PR |
| | | DC | SN | 29:10 | RO | 0.39 | 1.07 | | | 1.023 | | | |
| | D | D | SN | 29:51 | RO | 0.97 | 14.22 | | | 1.047 | | | |
| | | DC | WH | 30:10 | RO | 1.54 | 0.87 | | | 1.058 | | | |
| | | DC | WH | 30:12 | RO | 0.55 | 0.74 | | | 1.059 | | | |
| | | DC | WH | 30:17 | RO | 1.44 | 2.67 | | | 1.062 | | | |
| 374-376 | | | 7 | Peaks | | | 274.69 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.859-1.141 | | | |
| 384-386 | | DC | NL | 0:00 | RO | 0.29 | 1.66 | | | 0.000 | | | |
| | | | | 27:35 | | 0.47 | 11.85 | 3.79 | 8.06 | 0.967 | | | |
| | | | | 28:24 | | 0.50 | 4,748.79 | 1,587.75 | 3,161.04 | 0.996 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 28:31 | | 0.50 | 5,041.60 | 1,680.96 | 3,360.64 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | | | | 29:02 | | 0.50 | 4,322.80 | 1,442.18 | 2,880.62 | 1.018 | 13C12-HxCDF 234 | ALT2 | |
| | | | | 29:44 | | 0.50 | 2,605.10 | 863.60 | 1,741.50 | 1.043 | 13C12-HxCDF 789 | ALT1 | |
| 384-386 | | | 5 | Peaks | | | 16,730.14 | | | | | | |

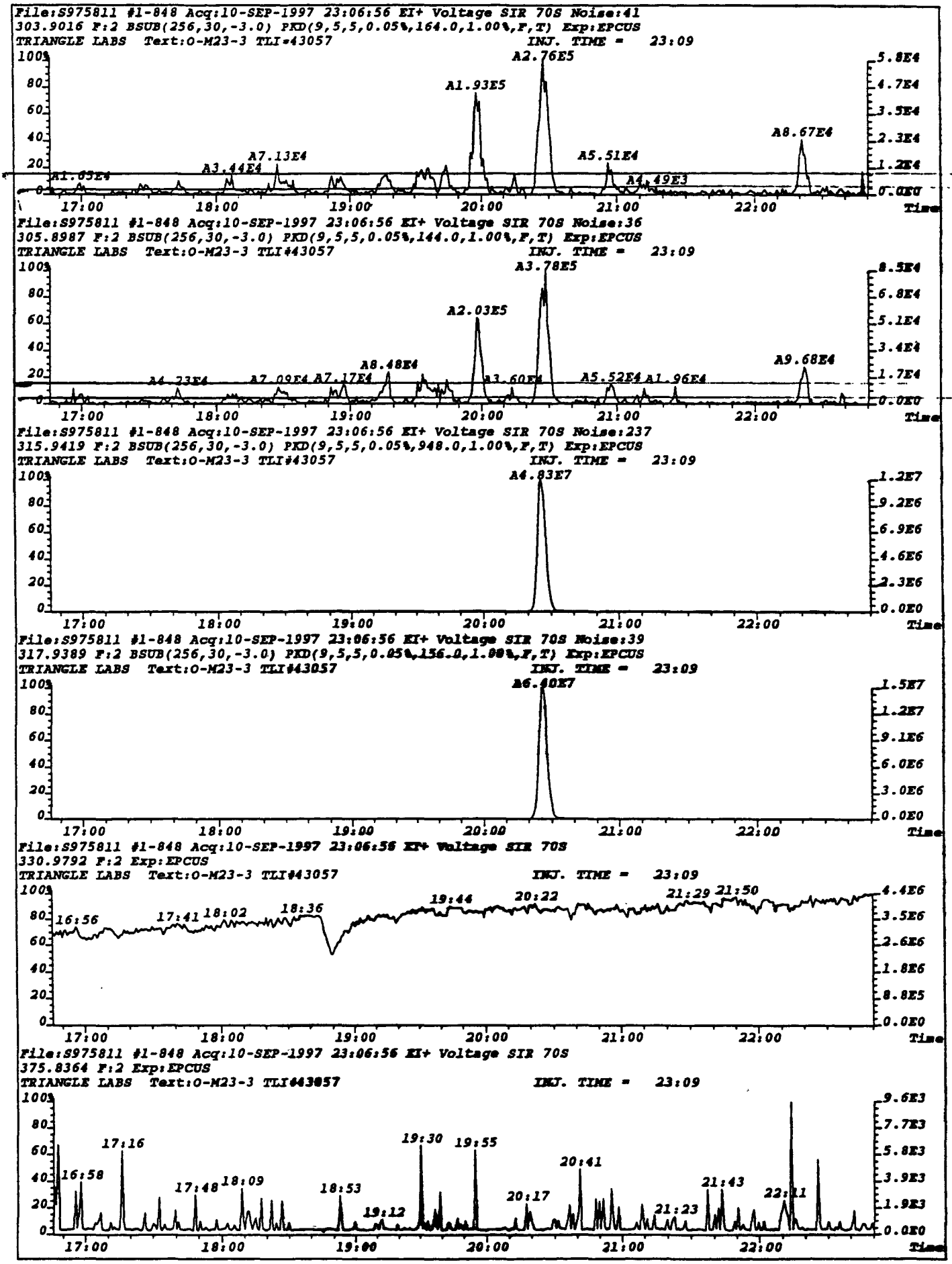
| Compound/ M_Z.... | QC.Log | Omit | Why | RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ---------- Above: HxCDF / HxCDD Followa ---------- | | | | | | | | | | | | | |
| HxCDD | | | | | | 1.05-1.43 | | | | 0.951-1.015 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 1.69 | 1.68 | | | 0.000 | | | |
| | DC | SN | | 27:49 | RO | 1.92 | 1.12 | | | 0.952 | | | |
| | | | | 27:57 | | 1.12 | 11.13 | 5.87 | 5.26 | 0.956 | | | |
| | DC | SN | | 28:05 | RO | 0.80 | 1.08 | | | 0.961 | | | |
| | DC | SN | | 28:14 | RO | 1.02 | 1.07 | | | 0.966 | | | |
| | | | | 28:25 | | 1.34 | 81.45 | 46.69 | 34.76 | 0.972 | | | |
| | | | | 28:39 | | 1.06 | 34.17 | 17.62 | 16.55 | 0.980 | | | |
| | | | | 29:11 | | 1.10 | 7.34 | 3.85 | 3.49 | 0.998 | 123478-HxCDD | AN | |
| | | | | 29:16 | | 1.41 | 18.22 | 10.65 | 7.57 | 1.001 | 123678-HxCDD | AN | |
| M | | | | 29:32 | RO | 0.93 | 15.50 | 8.58 | 9.20 | 1.010 | 123789-HxCDD | AN | PR |
| | DC | WH | | 29:51 | | 1.06 | 0.74 | | | 1.021 | | | |
| | DC | WH | | 29:56 | RO | 2.27 | 0.83 | | | 1.024 | | | |
| 390-392 | | | 6 | Peaks | | | 167.81 | | | | | | |
| 13C12-HxCDD | | | | | | 1.05-1.43 | | | | 0.966-1.034 | | | |
| 402-404 | DC | NL | | 0:00 | RO | 0.76 | 1.55 | | | 0.000 | | | |
| | | | | 28:38 | | 1.32 | 15.50 | 8.83 | 6.67 | 0.979 | | | |
| | | | | 29:10 | | 1.25 | 3,306.01 | 1,838.10 | 1,467.91 | 0.998 | 13C12-HxCDD 478 | SUR4 | |
| | | | | 29:14 | | 1.22 | 3,863.39 | 2,122.72 | 1,740.67 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 29:32 | | 1.21 | 2,240.36 | 1,225.15 | 1,015.21 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| | DC | SN | | 29:45 | RO | 0.21 | 0.83 | | | 1.018 | | | |
| | DC | SN | | 29:45 | | 1.07 | 3.39 | | | 1.018 | | | |
| 402-404 | | | 4 | Peaks | | | 9,425.26 | | | | | | |
| ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | | |
| HpCDF | | | | | | 0.88-1.20 | | | | 0.995-1.045 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 1.94 | 1.67 | | | 0.000 | | | |
| M | | | | 31:16 | | 1.00 | 70.60 | 35.30 | 35.30 | 1.001 | 1234678-HpCDF | AN | PR |
| | | | | 31:29 | RO | 1.30 | 14.99 | 9.52 | 7.35 | 1.007 | | | |
| | | | | 31:37 | RO | 1.21 | 22.73 | 13.53 | 11.14 | 1.012 | | | |
| | DC | SN | | 31:53 | RO | 1.22 | 1.29 | | | 1.020 | | | |
| M | | | | 32:29 | RO | 1.37 | 15.81 | 10.60 | 7.75 | 1.039 | 1234789-HpCDF | AN | |
| 408-410 | | | 4 | Peaks | | | 124.13 | | | | | | |
| 13C12-HpCDF | | | | | | 0.37-0.51 | | | | 0.936-1.128 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 1.14 | 1.31 | | | 0.000 | | | |
| | | | | 31:15 | | 0.43 | 2,076.79 | 620.98 | 1,455.81 | 1.000 | 13C12-HpCDF 678 | IS6 | |
| | DC | SN | | 31:34 | RO | 0.94 | 1.89 | | | 1.010 | | | |
| | | | | 32:27 | | 0.40 | 1,462.44 | 417.67 | 1,044.77 | 1.038 | 13C12-HpCDF 789 | SUR5 | |
| 418-420 | | | 2 | Peaks | | | 3,539.23 | | | | | | |
| ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | | |
| HpCDD | | | | | | 0.88-1.20 | | | | 0.977-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | | 1.00 | 0.12 | | | 0.000 | | | |
| | DC | WL | | 31:15 | RO | 2.83 | 3.28 | | | 0.973 | | | |
| | DC | SN | | 31:23 | | 1.00 | 1.52 | | | 0.977 | | | |
| | | | | 31:31 | RO | 0.78 | 24.26 | 12.37 | 15.89 | 0.981 | | | |

| 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 | | 31:49 | | 0.89 | 1.08 | | | 0.991 | | | |
| M | | | | 32:07 | | 1.05 | 33.60 | 17.20 | 16.40 | 1.000 | 1234678-HpCDD | | AN |
| | DC | WH | | 32:27 | RO | 2.44 | 3.12 | | | 1.010 | | | |
| 424-426 | | | 2 Peaks | | | | 57.86 | | | | | | |
| 13C12-HpCDD | | | | 0.88-1.20 | | | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | RO | 1.33 | 2.18 | | | 0.000 | | | |
| | DC | SN | | 31:31 | | 1.11 | 4.93 | | | 0.981 | | | |
| | | | | 32:07 | | 1.08 | 1,993.23 | 1,032.68 | 960.55 | 1.000 | 13C12-HpCDD 678 | | IS7 |
| | DC | SN | | 32:19 | RO | 0.79 | 3.02 | | | 1.006 | | | |
| 436-438 | | | 1 Peak | | | | 1,993.23 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | 0.76-1.02 | | | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | RO | 0.25 | 0.15 | | | 0.000 | | | |
| | DC | SN | | 30:45 | RO | 3.21 | 0.45 | | | 0.889 | | | |
| | DC | SN | | 31:01 | RO | 1.25 | 0.68 | | | 0.897 | | | |
| | DC | SN | | 31:16 | RO | 1.78 | 0.87 | | | 0.904 | | | |
| | DC | SN | | 31:40 | | 0.93 | 2.26 | | | 0.916 | | | |
| | DC | SN | | 31:49 | RO | 0.14 | 0.21 | | | 0.920 | | | |
| | DC | SN | | 32:00 | RO | 0.15 | 0.30 | | | 0.925 | | | |
| | DC | SN | | 32:16 | RO | 0.32 | 0.47 | | | 0.933 | | | |
| | DC | SN | | 32:44 | RO | 10.86 | 0.13 | | | 0.947 | | | |
| | DC | SN | | 33:01 | RO | 1.81 | 0.59 | | | 0.955 | | | |
| | DC | SN | | 33:17 | RO | 1.39 | 1.34 | | | 0.962 | | | |
| | DC | SN | | 33:59 | RO | 0.74 | 0.49 | | | 0.983 | | | |
| | DC | SN | | 34:24 | RO | 0.55 | 0.59 | | | 0.995 | | | |
| | DC | SN | | 34:29 | RO | 1.76 | 0.85 | | | 0.997 | | | |
| | | | | 34:42 | | 0.82 | 18.35 | 8.27 | 10.08 | 1.003 | OCDF | | AM |
| | DC | SN | | 34:56 | RO | 1.20 | 1.34 | | | 1.010 | | | |
| | DC | SN | | 35:20 | RO | 0.46 | 1.13 | | | 1.022 | | | |
| | DC | SN | | 35:35 | RO | 0.33 | 0.81 | | | 1.029 | | | |
| 442-444 | | | 1 Peak | | | | 18.35 | | | | | | |
| OCDD | | | | 0.76-1.02 | | | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | DC | SN | | 34:24 | RO | 1.34 | 1.06 | | | 0.995 | | | |
| | | | | 34:36 | | 0.80 | 26.24 | 11.70 | 14.54 | 1.000 | OCDD | | AN |
| | DC | SN | | 34:54 | RO | 2.15 | 0.25 | | | 1.009 | | | |
| 458-460 | | | 1 Peak | | | | 26.24 | | | | | | |
| 13C12-OCDD | | | | 0.76-1.02 | | | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | RO | 1.33 | 0.11 | | | 0.000 | | | |
| | | | | 34:35 | | 0.88 | 1,514.41 | 708.89 | 805.52 | 1.000 | 13C12-OCDD | | IS8 |
| | DC | WH | | 34:55 | RO | 0.51 | 1.44 | | | 1.010 | | | |
| 470-472 | | | 1 Peak | | | | 1,514.41 | | | | | | |

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 ***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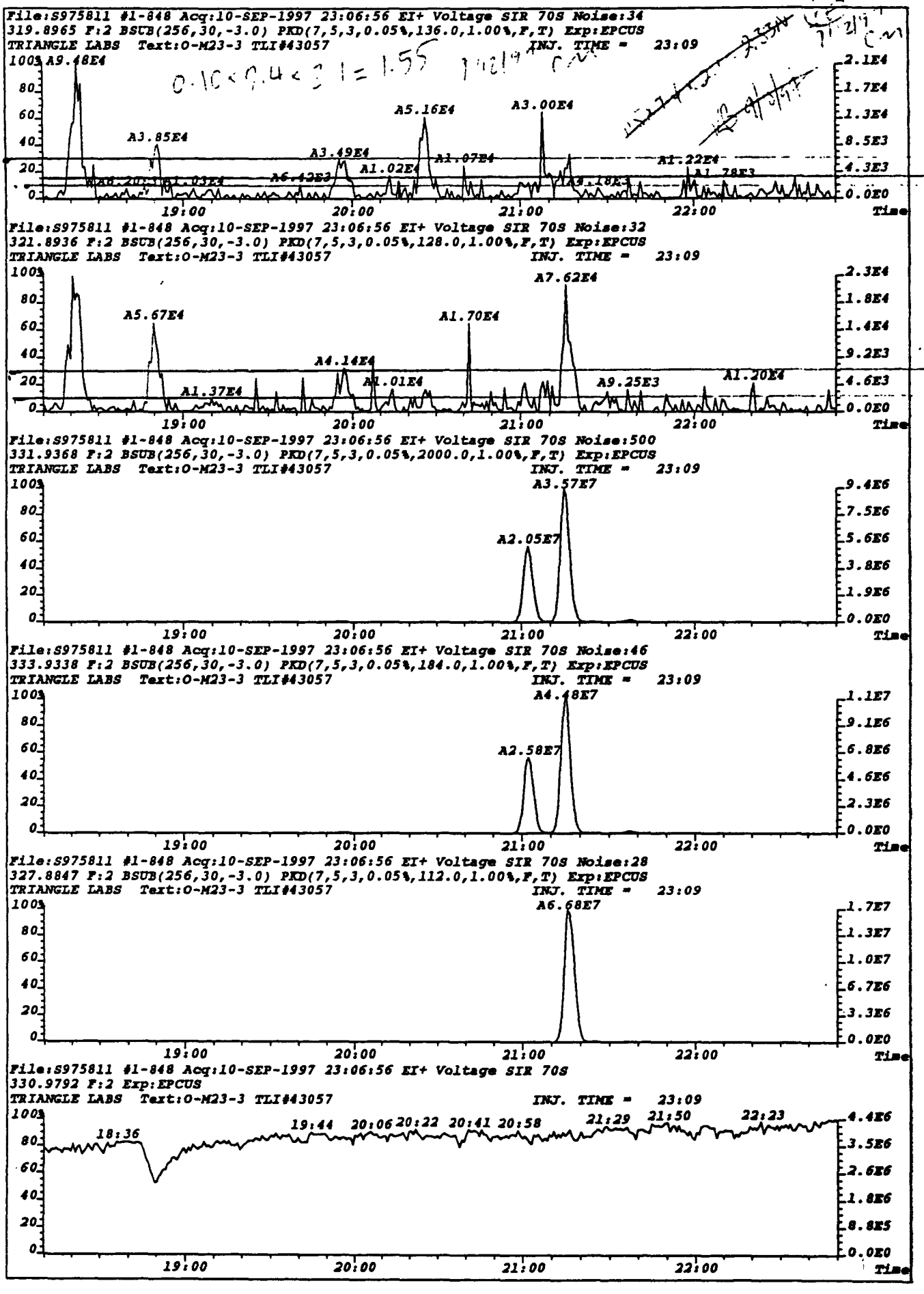
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A2.76E5
A1.93E5
A8.67E4
A7.13E4
A3.44E4
A5.51E4
A4.49E3
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:36
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.78E5
A2.03E5
A9.68E4
A8.48E4
A5.52E4
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:237
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,948.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A4.83E7
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:39
317.9389 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-M23-3 TLI#43057
INJ. TIME = 23:09
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
16:56
17:41
18:02
18:36
19:44
20:22
21:29
21:50
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
16:58
17:16
17:48
18:09
18:53
19:12
19:30
19:55
20:17
20:41
21:23
21:43
22:11
17:00
18:00
19:00
20:00
21:00
22:00
Time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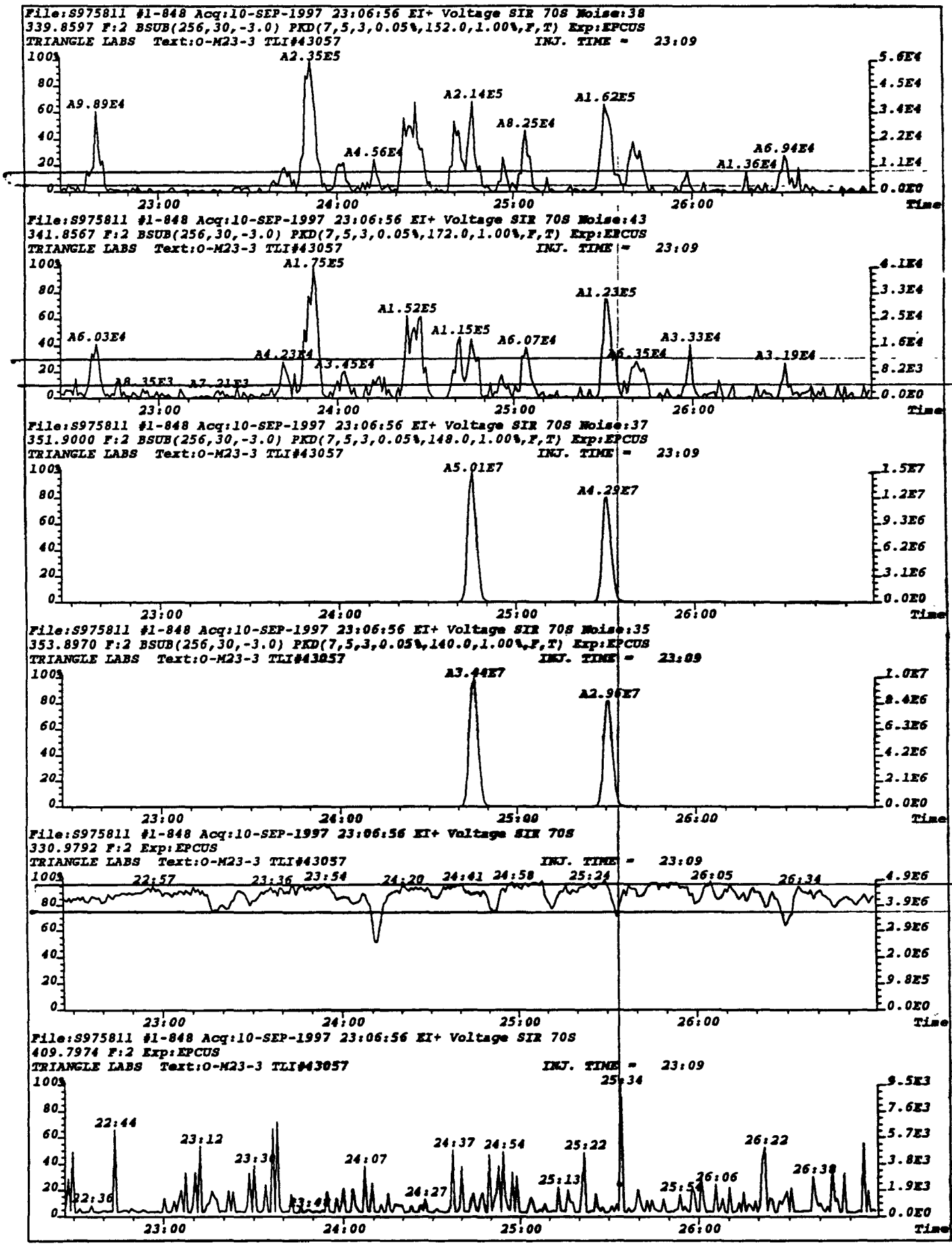
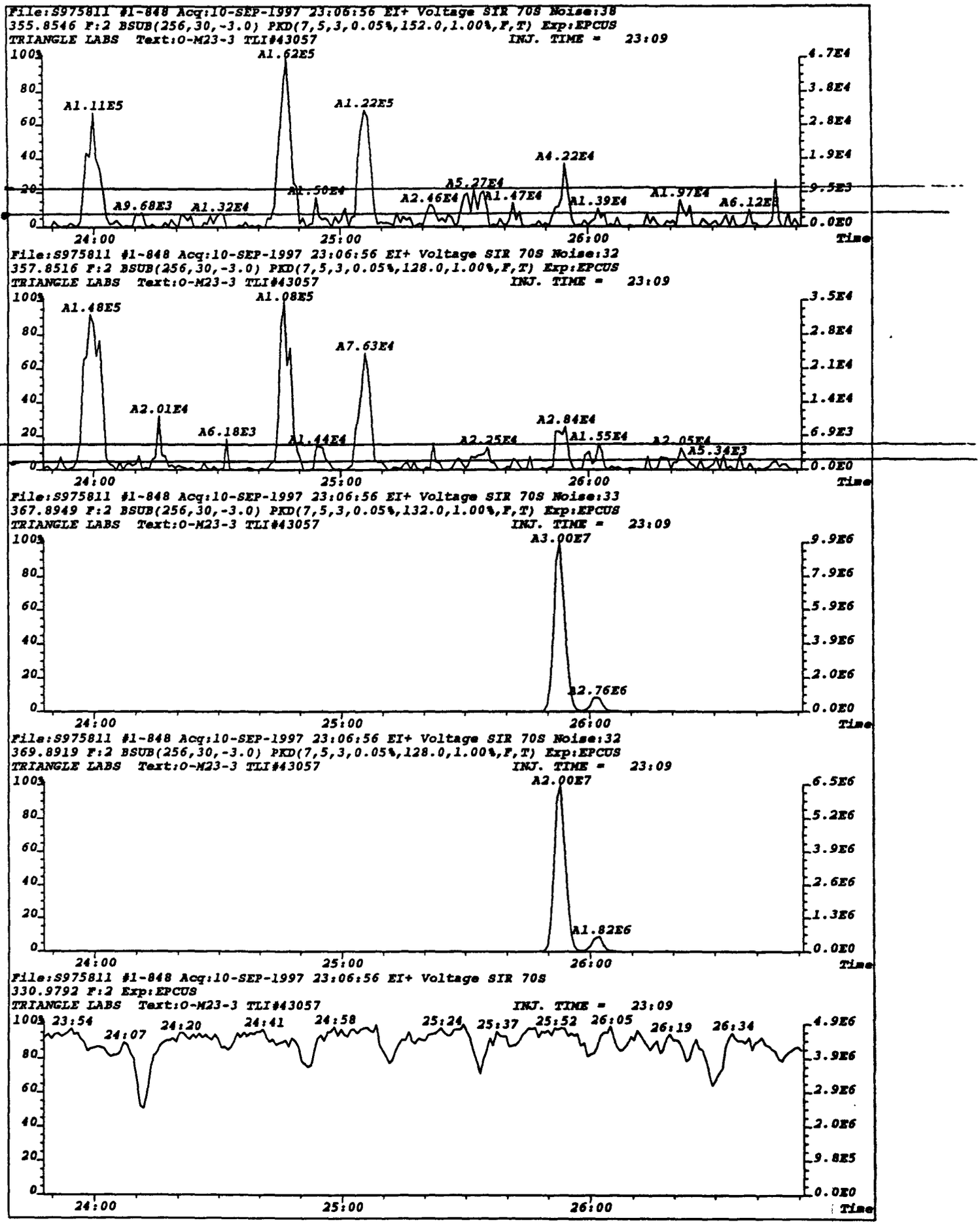
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A9.48E4
A3.85E4
A5.16E4
A3.00E4
A3.49E4
A1.02E4
A1.07E4
A1.22E4
A6.43E3
A9.18E3
A1.78E3
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:32
321.8936 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-M23-3 TLI#43057
INJ. TIME = 23:09
A7.62E4
A5.67E4
A1.70E4
A4.14E4
A1.01E4
A1.37E4
A9.25E3
A1.20E4
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:500
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2000.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.57E7
A2.05E7
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:46
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A4.48E7
A2.58E7
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:28
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A6.68E7
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
18:36
19:44
20:06
20:22
20:41
20:58
21:29
21:50
22:23
Time


File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:38
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
A9.89E4
A2.35E5
A4.56E4
A2.14E5
A8.25E4
A1.62E5
A1.36E4
A6.94E4
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:43
341.8567 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-M23-3 TLI#43057 INJ. TIME = 23:09
A6.03E4
A1.75E5
A4.23E4
A3.45E4
A1.52E5
A1.15E5
A6.07E4
A1.23E5
A3.33E4
A3.19E4
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:37
351.9000 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-M23-3 TLI#43057 INJ. TIME = 23:09
A5.01E7
A4.29E7
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:35
353.8970 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-M23-3 TLI#43057 INJ. TIME = 23:09
A3.44E7
A2.96E7
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
22:57
23:36
23:54
24:20
24:41
24:58
25:24
26:05
26:34
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
22:44
23:12
24:07
24:37
24:54
25:22
25:34
26:22
26:38
23:00
24:00
25:00
26:00
Time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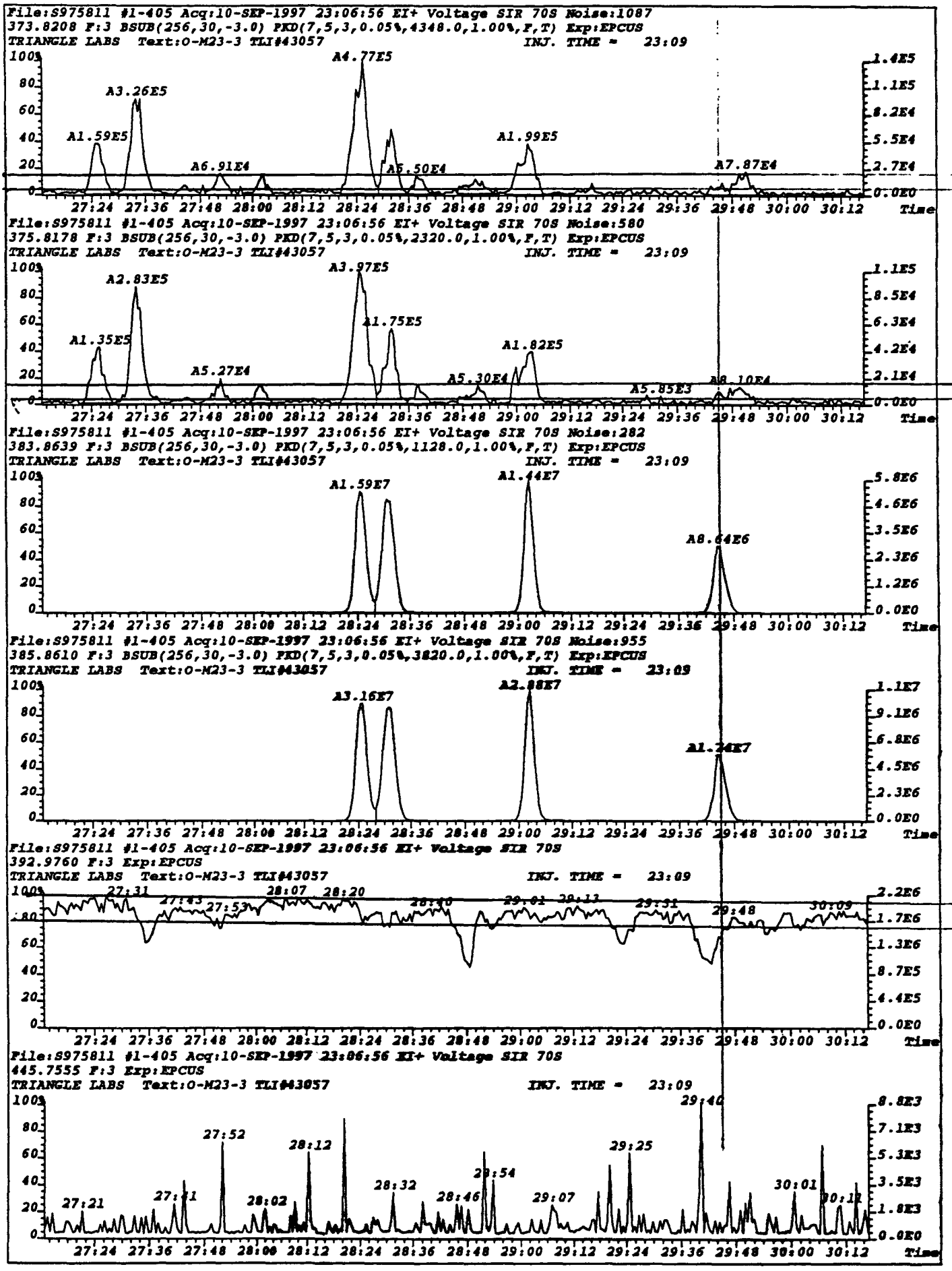
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.11E5
A1.62E5
A1.22E5
A4.22E4
A5.27E4
A2.46E4
A1.47E4
A1.39E4
A1.97E4
A6.12E3
A9.68E3
A1.32E4
24:00
25:00
26:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:32
357.8516 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-M23-3 TLI#43057
INJ. TIME = 23:09
A1.48E5
A1.08E5
A7.63E4
A2.01E4
A6.18E3
A1.44E4
A2.25E4
A2.84E4
A1.55E4
A5.34E3
24:00
25:00
26:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:33
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.00E7
A2.76E6
24:00
25:00
26:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:32
369.8919 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-M23-3 TLI#43057
INJ. TIME = 23:09
A2.00E7
A1.82E6
24:00
25:00
26:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
23:54
24:07
24:20
24:41
24:58
25:24
25:37
25:52
26:05
26:19
26:34
24:00
25:00
26:00
Time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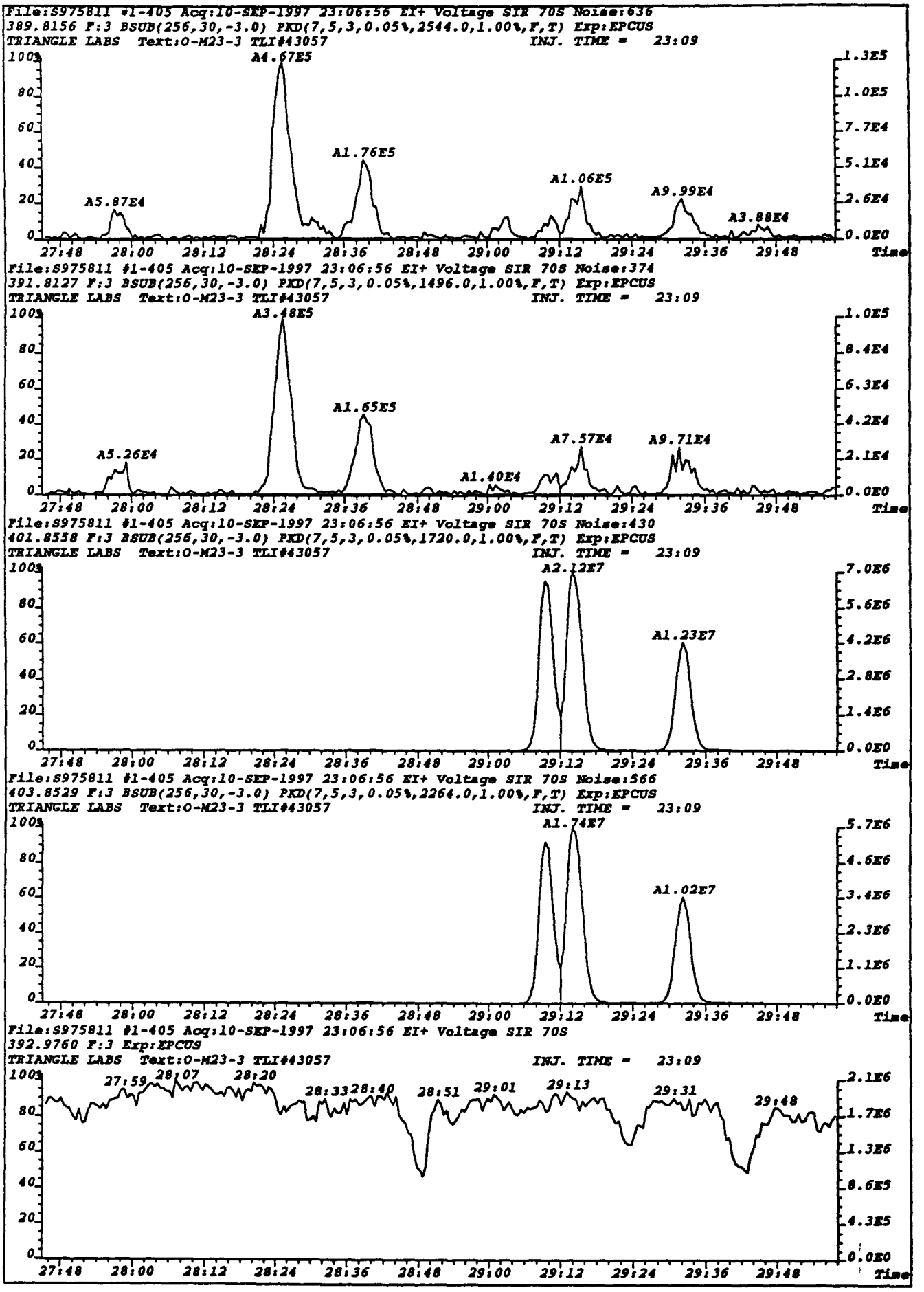
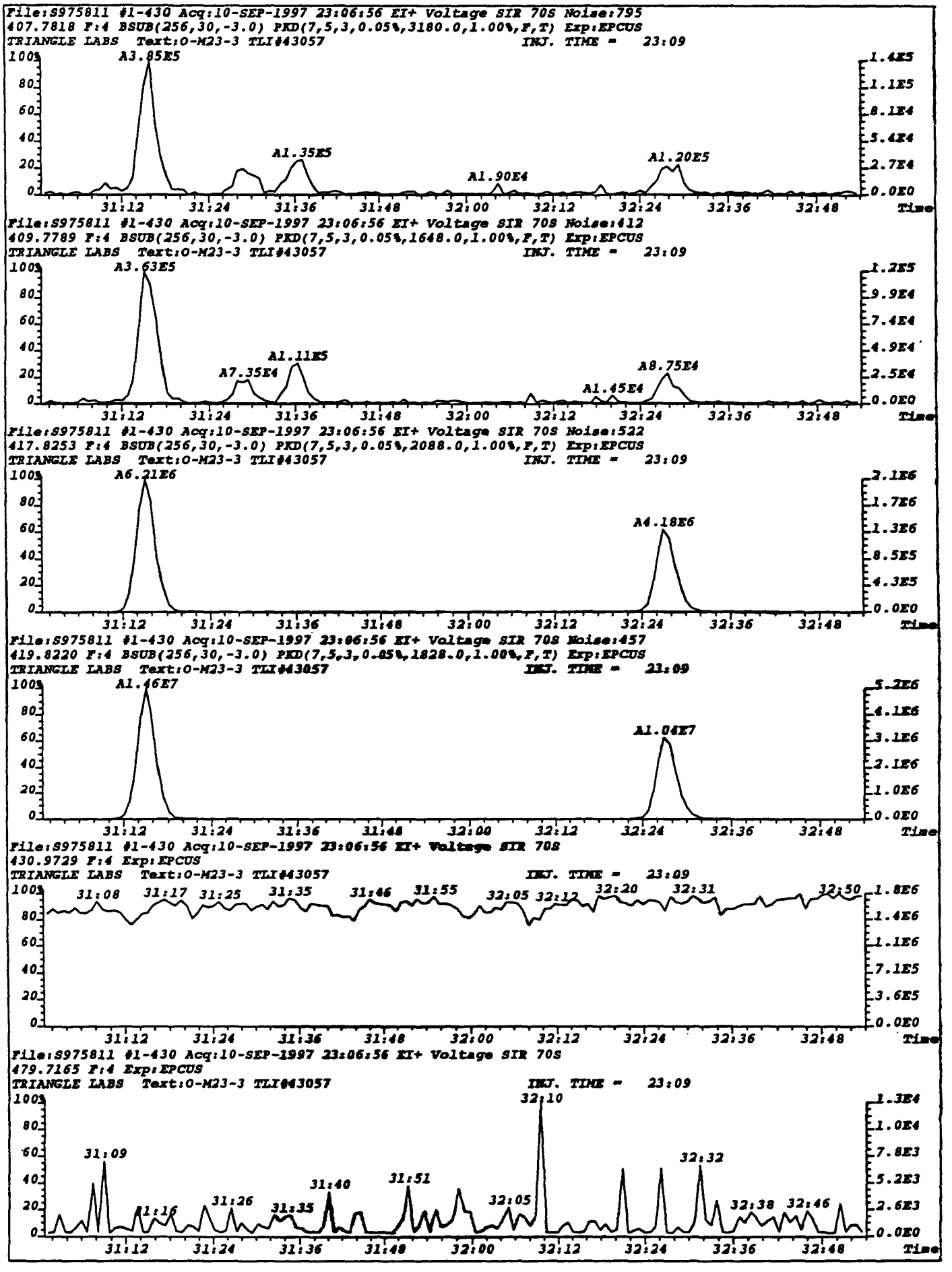
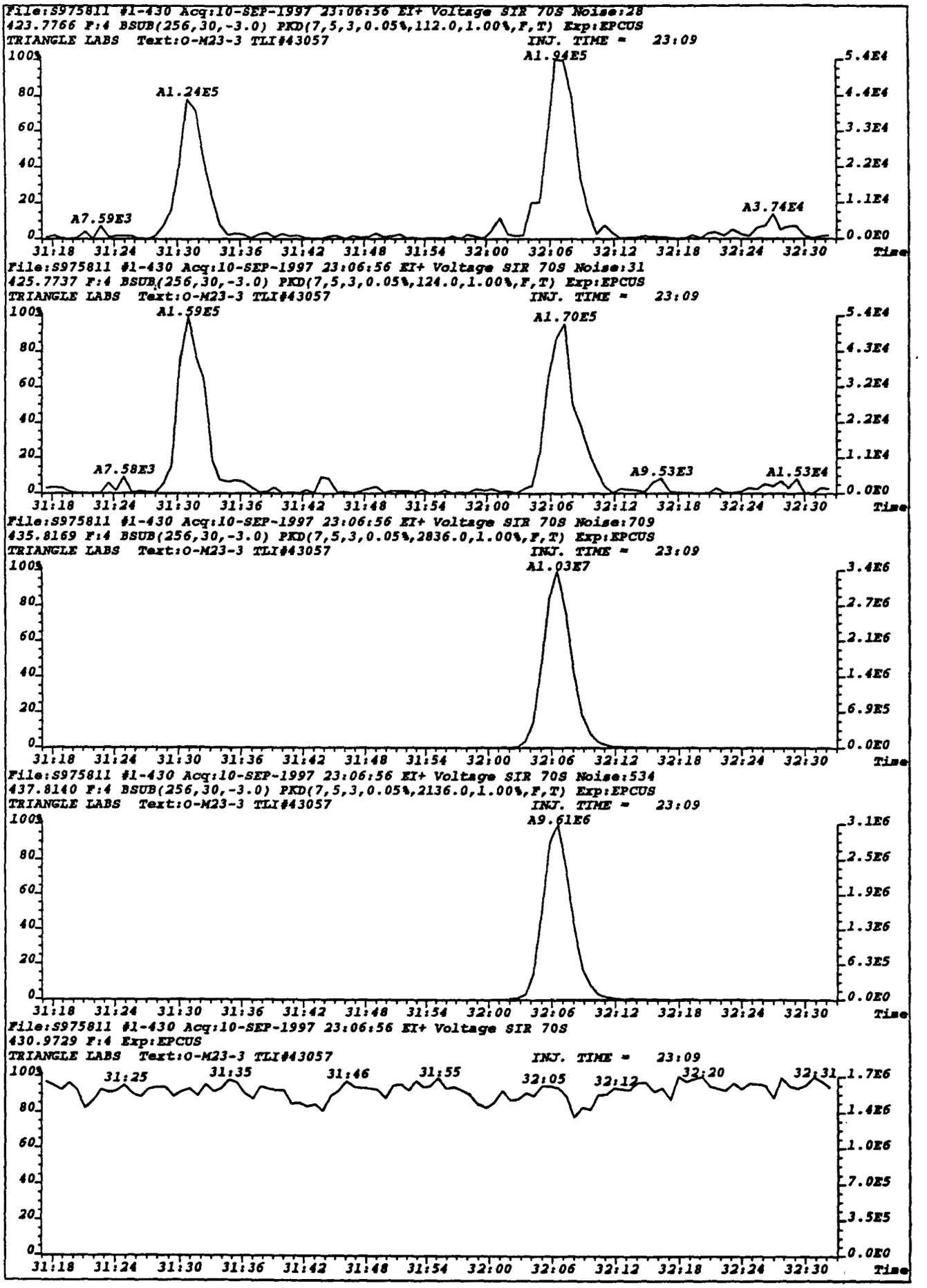
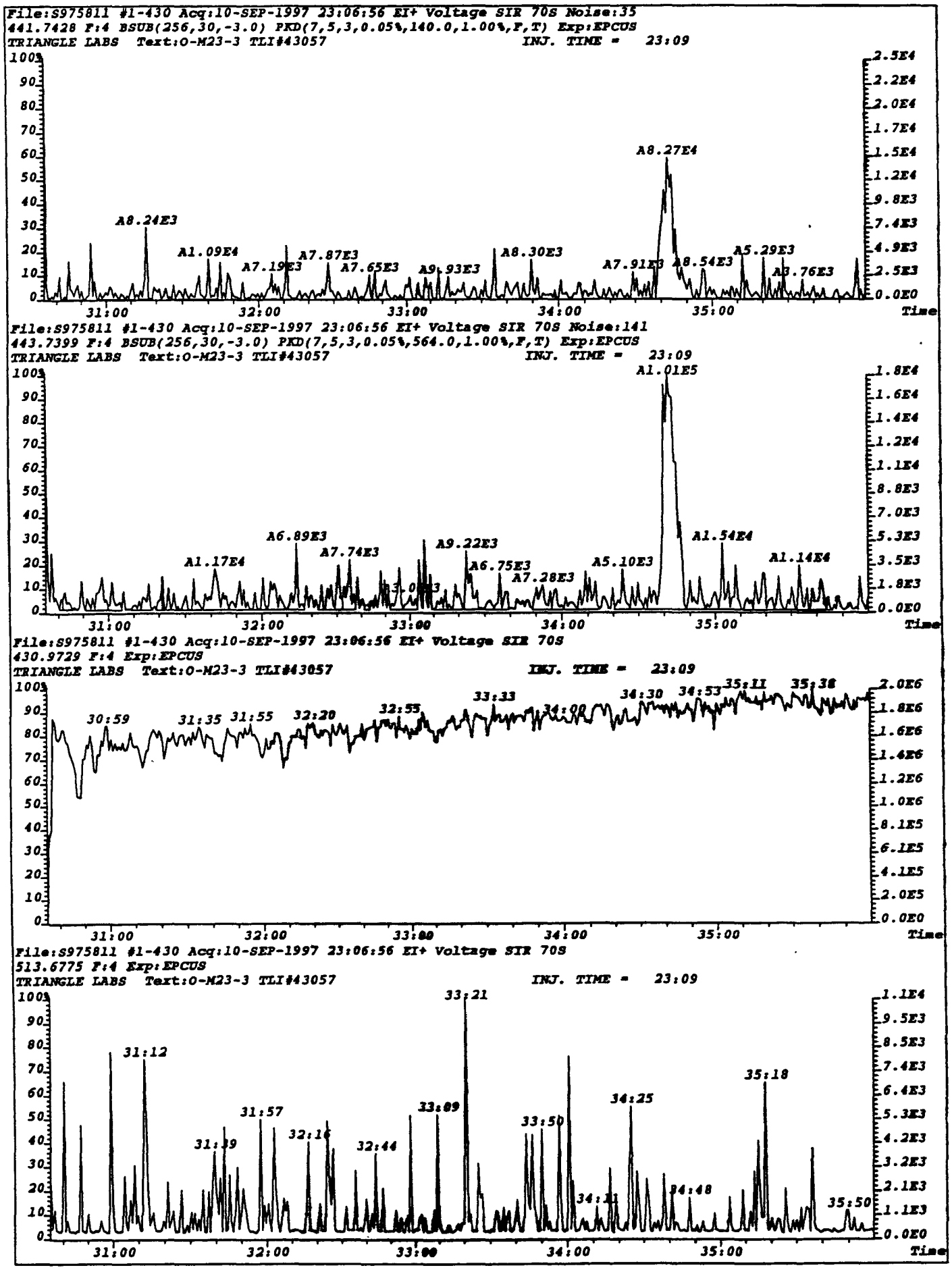
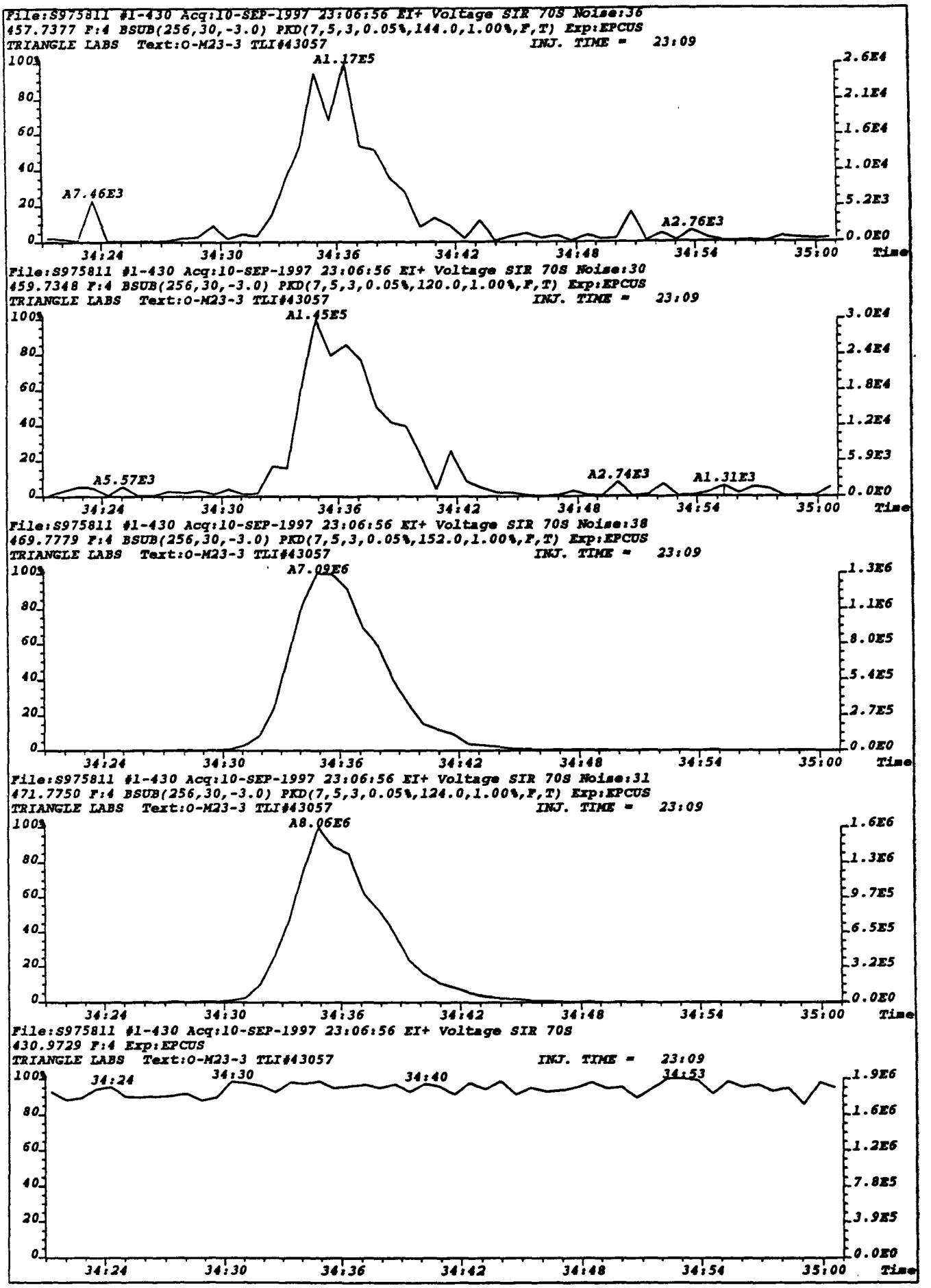
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4348.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A4.77E5
A3.26E5
A1.59E5
A6.91E4
A5.50E4
A1.99E5
A7.87E4
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:580
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2320.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.97E5
A2.83E5
A1.75E5
A1.35E5
A5.27E4
A1.82E5
A5.30E4
A5.85E3
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:282
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.59E7
A1.44E7
A8.64E6
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:955
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3820.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.16E7
A2.88E7
A1.24E7
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
27:31
27:43
27:53
28:07
28:20
28:40
29:01
29:13
29:31
29:48
30:09
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
27:52
28:12
29:40
29:25
28:32
29:54
27:21
27:41
28:02
28:46
29:07
30:01
30:12
27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12
Time

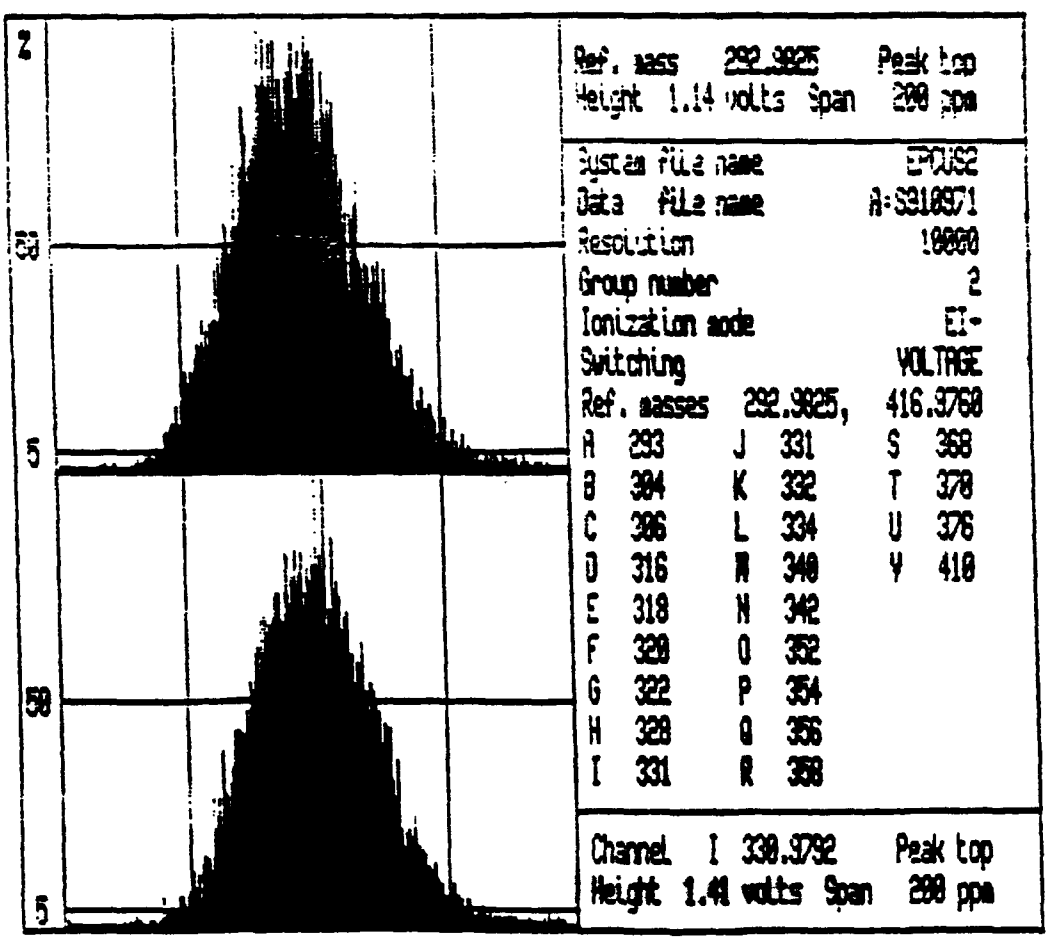

File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:636
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2544.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A4.67E5
A1.76E5
A1.06E5
A9.99E4
A5.87E4
A3.88E4
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:374
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1496.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A3.48E5
A1.65E5
A7.57E4
A9.71E4
A5.26E4
A1.40E4
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:430
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1720.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A2.12E7
A1.23E7
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:566
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2264.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.74E7
A1.02E7
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
27:59
28:07
28:20
28:33
28:40
28:51
29:01
29:13
29:31
29:48
27:48
28:00
28:12
28:24
28:36
28:48
29:00
29:12
29:24
29:36
29:48
Time

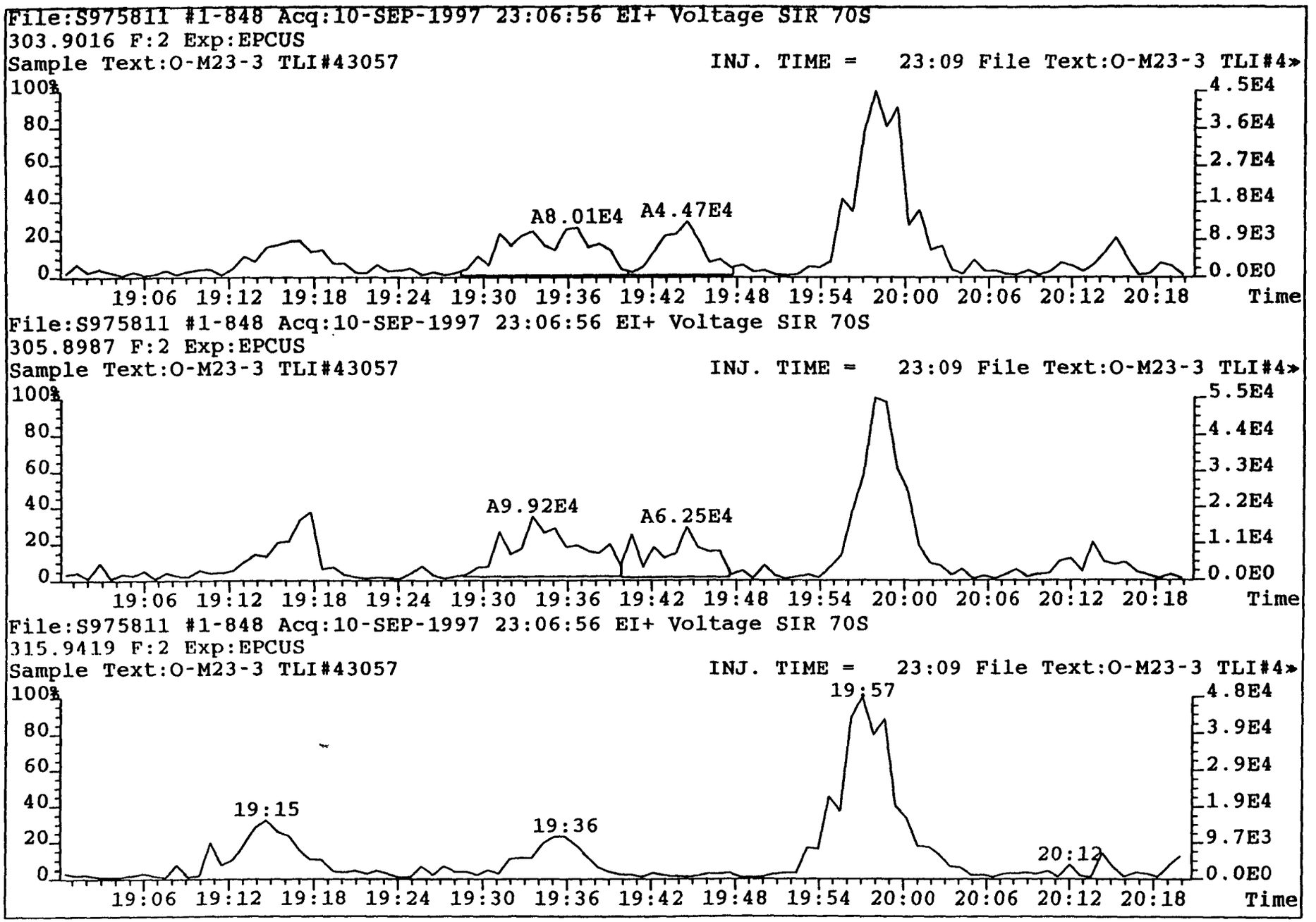

File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:795
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
A3.85E5
A1.35E5
A1.90E4
A1.20E5
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:412
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1648.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
A3.63E5
A7.35E4
A1.11E5
A1.45E4
A8.75E4
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:522
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2088.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
A6.21E6
A4.18E6
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:457
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1828.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
A1.46E7
A1.04E7
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057 INJ. TIME = 23:09
Time

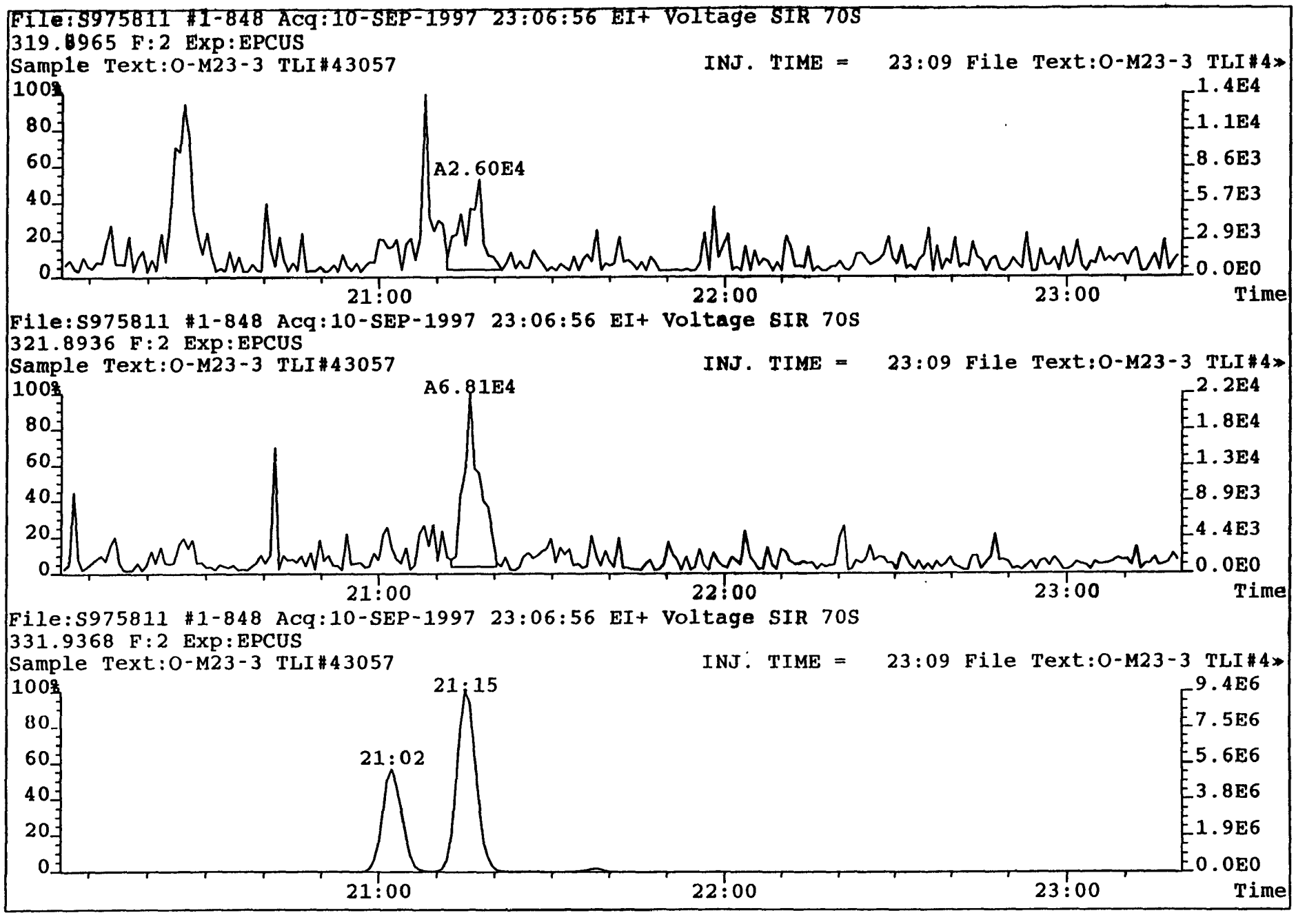

File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:28
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.24E5
A1.94E5
A7.59E3
A3.74E4
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:31
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.59E5
A1.70E5
A7.58E3
A9.53E3
A1.53E4
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:709
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2836.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.03E7
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:534
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A9.61E6
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
31:25
31:35
31:46
31:55
32:05
32:12
32:20
32:31
Time

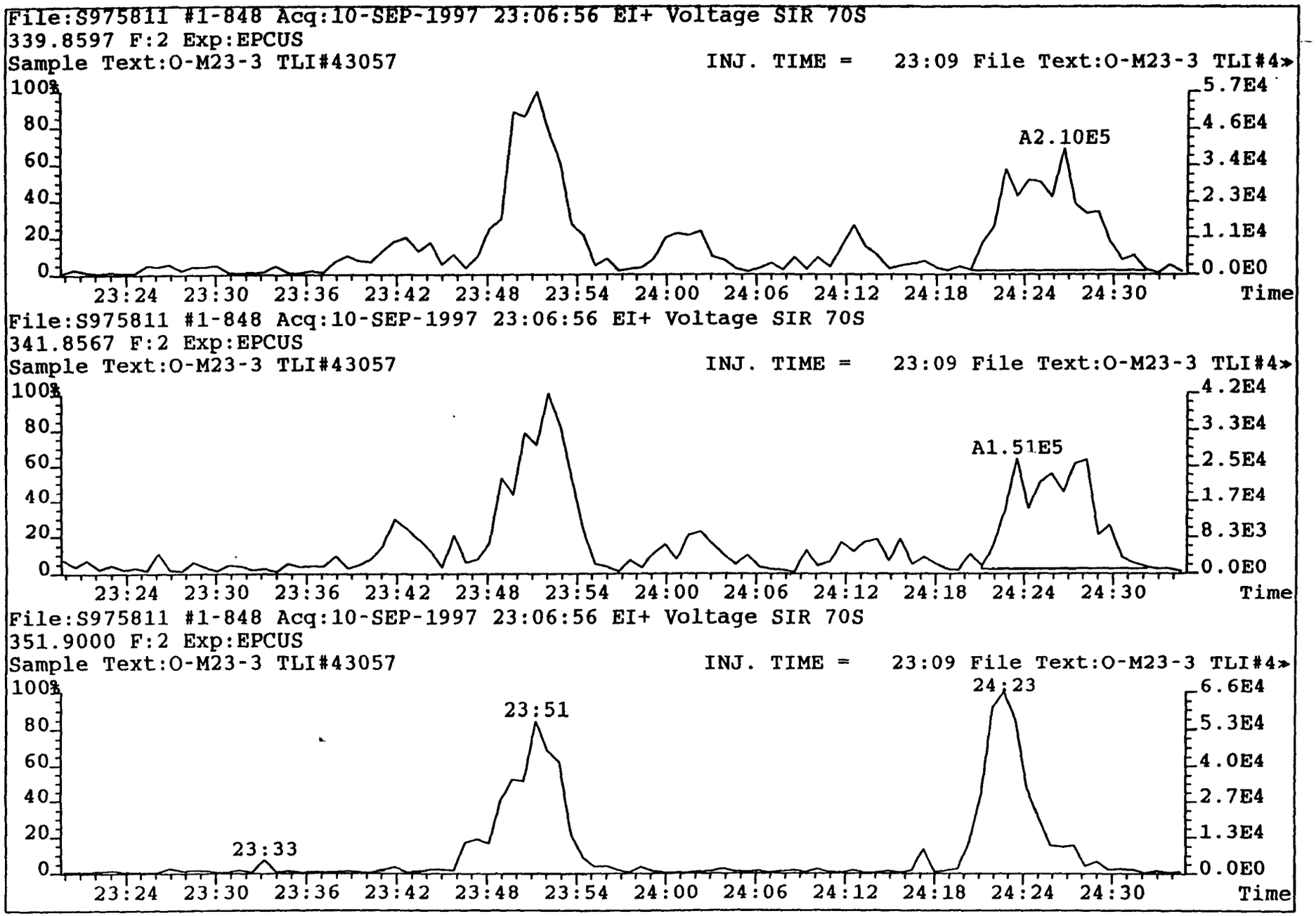

File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:35
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A8.27E4
A8.24E3
A1.09E4
A7.87E3
A7.19E3
A7.65E3
A9.93E3
A8.30E3
A7.91E3
A8.54E3
A5.29E3
A3.76E3
Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:141
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,564.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.01E5
A6.89E3
A7.74E3
A9.22E3
A1.17E4
A6.75E3
A7.28E3
A5.10E3
A1.54E4
A1.14E4
Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
30:59
31:35
31:55
32:20
32:55
33:33
34:00
34:30
34:53
35:11
35:38
Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
33:21
31:12
31:57
31:39
32:16
32:44
33:09
33:50
34:25
34:48
35:18
35:50
Time

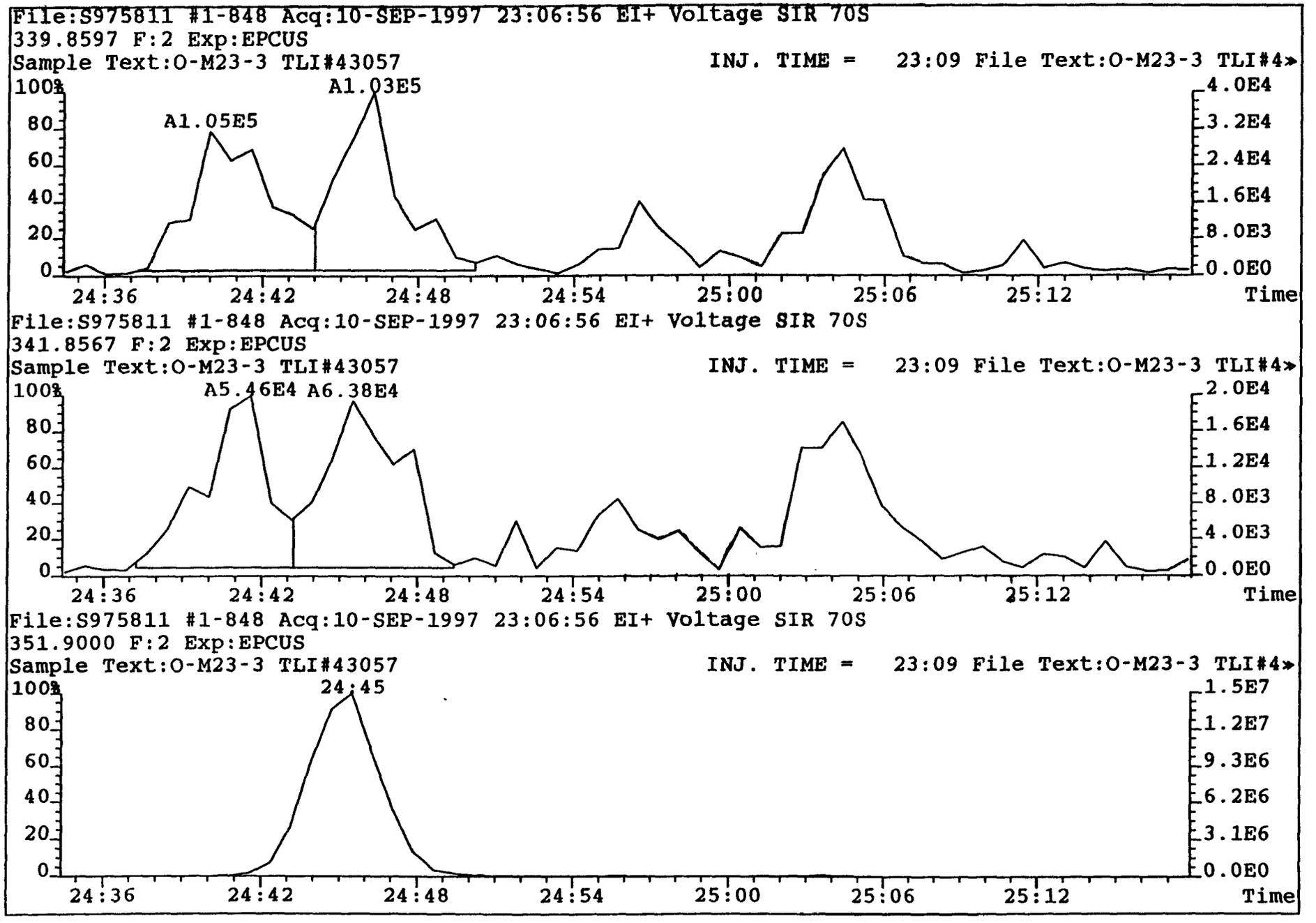

File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:36
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.17E5
A7.46E3
A2.76E3
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:30
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A1.45E5
A5.57E3
A2.74E3
A1.31E3
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:38
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A7.09E6
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S Noise:31
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
A8.06E6
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-3 TLI#43057
INJ. TIME = 23:09
Time

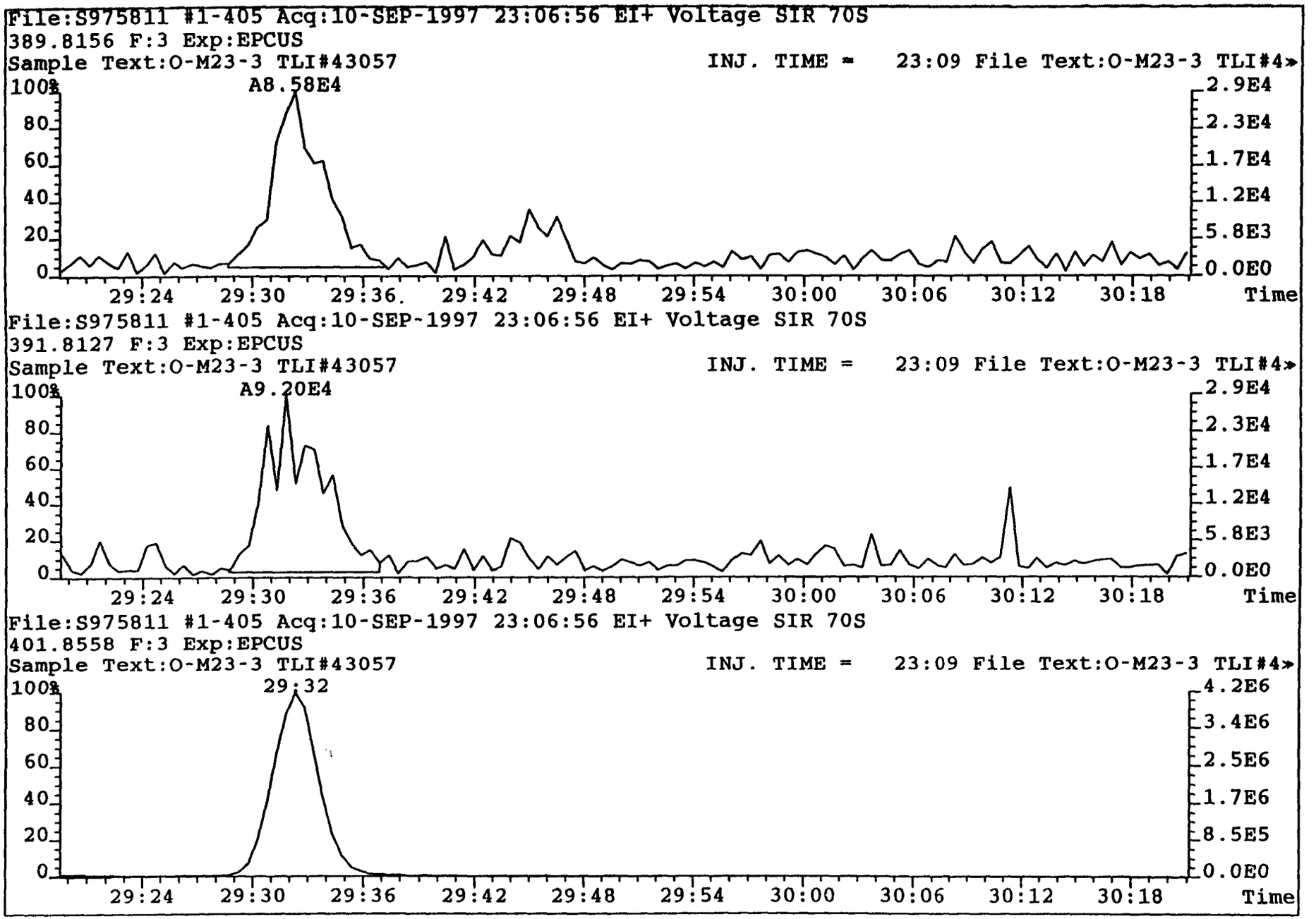

Z
50
5
50
5
Ref. mass 292.3825 Peak top
Height 1.14 volts Span 200 ppm
System file name EMOUS2
Data file name A:S310971
Resolution 10000
Group number 2
Ionization mode EI-
Switching VOLTAGE
Ref. masses 292.3825, 416.3760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Channel I 330.3792 Peak top
Height 1.41 volts Span 200 ppm

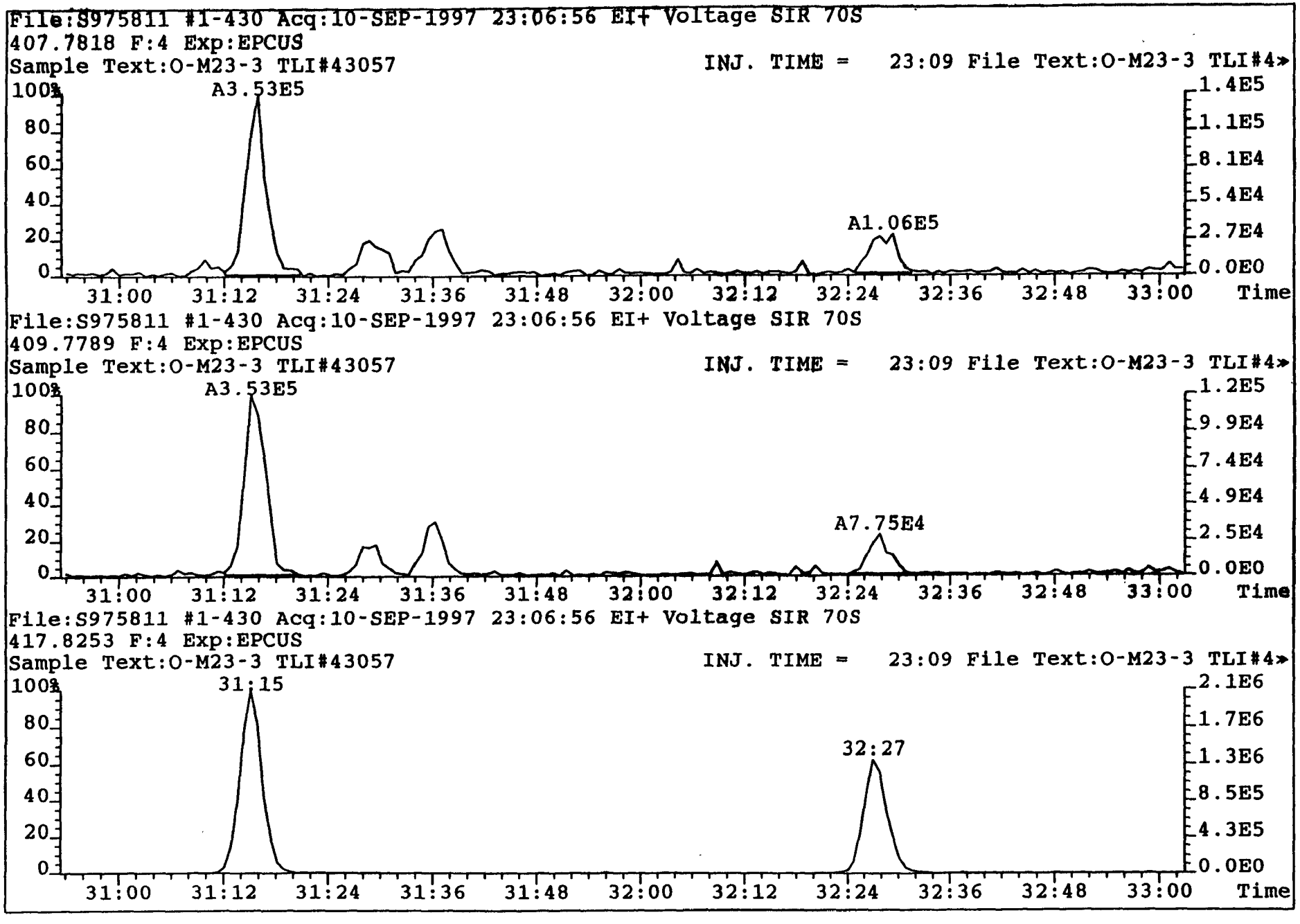

File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
80
60
40
20
0
A8.01E4
A4.47E4
4.5E4
3.6E4
2.7E4
1.8E4
8.9E3
0.0E0
19:06 19:12 19:18 19:24 19:30 19:36 19:42 19:48 19:54 20:00 20:06 20:12 20:18
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
80
60
40
20
0
A9.92E4
A6.25E4
5.5E4
4.4E4
3.3E4
2.2E4
1.1E4
0.0E0
19:06 19:12 19:18 19:24 19:30 19:36 19:42 19:48 19:54 20:00 20:06 20:12 20:18
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
80
60
40
20
0
19:15
19:36
19:57
20:12
4.8E4
3.9E4
2.9E4
1.9E4
9.7E3
0.0E0
19:06 19:12 19:18 19:24 19:30 19:36 19:42 19:48 19:54 20:00 20:06 20:12 20:18
Time

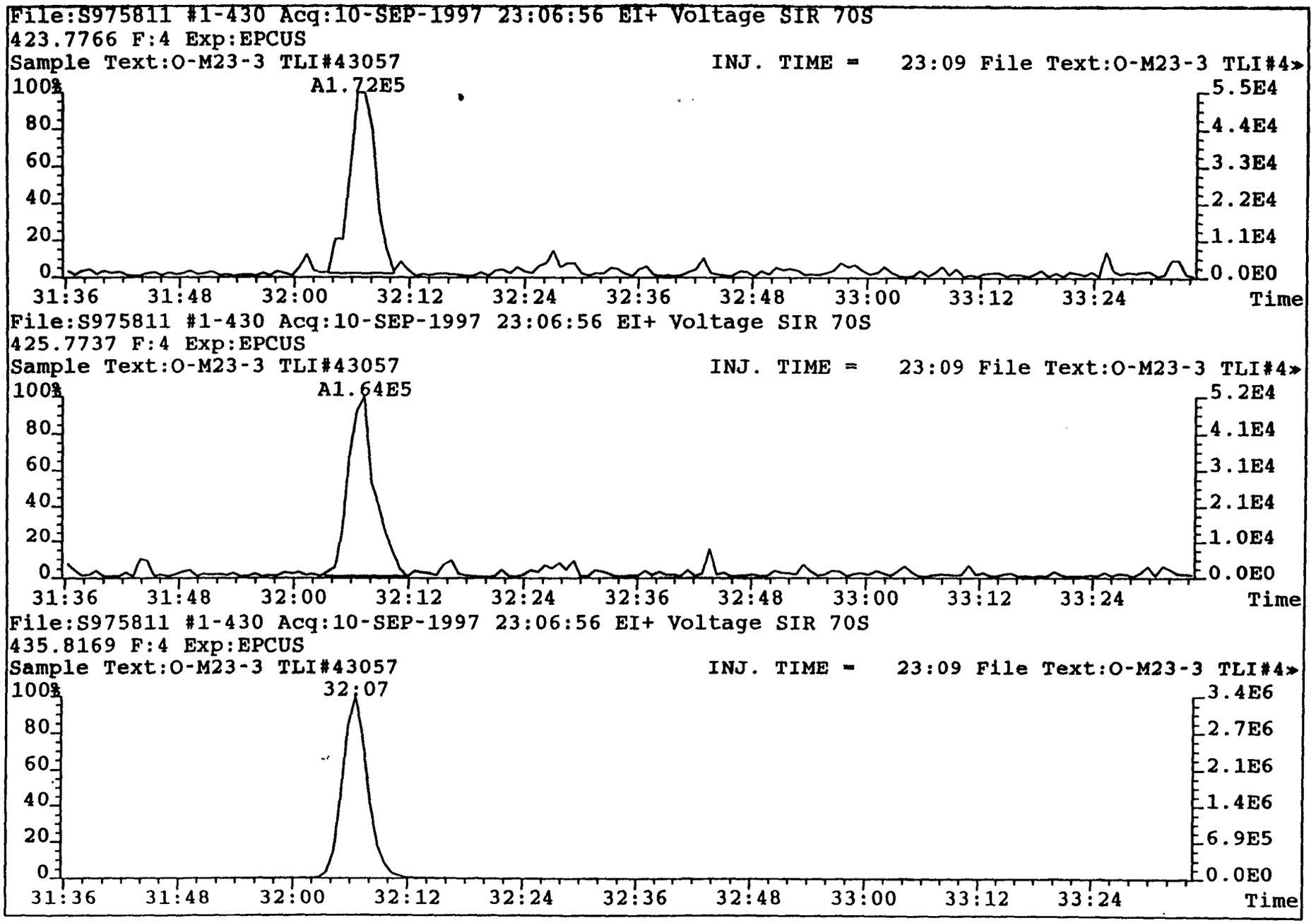

File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
319.8965 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
80
60
40
20
0
A2.60E4
1.4E4
1.1E4
8.6E3
5.7E3
2.9E3
0.0E0
21:00
22:00
23:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
321.8936 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
A6.81E4
2.2E4
1.8E4
1.3E4
8.9E3
4.4E3
0.0E0
21:00
22:00
23:00
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
331.9368 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
21:15
21:02
9.4E6
7.5E6
5.6E6
3.8E6
1.9E6
0.0E0
21:00
22:00
23:00
Time


File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A2.10E5
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A1.51E5
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
23:33
23:51
24:23
Time


File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A1.05E5
A1.03E5
100%
80
60
40
20
0
4.0E4
3.2E4
2.4E4
1.6E4
8.0E3
0.0E0
24:36
24:42
24:48
24:54
25:00
25:06
25:12
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A5.46E4
A6.38E4
100%
80
60
40
20
0
2.0E4
1.6E4
1.2E4
8.0E3
4.0E3
0.0E0
24:36
24:42
24:48
24:54
25:00
25:06
25:12
Time
File:S975811 #1-848 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
24:45
100%
80
60
40
20
0
1.5E7
1.2E7
9.3E6
6.2E6
3.1E6
0.0E0
24:36
24:42
24:48
24:54
25:00
25:06
25:12
Time


File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
389.8156 F:3 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
A8.58E4
80
60
40
20
0
2.9E4
2.3E4
1.7E4
1.2E4
5.8E3
0.0E0
29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 Time
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
391.8127 F:3 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
A9.20E4
80
60
40
20
0
2.9E4
2.3E4
1.7E4
1.2E4
5.8E3
0.0E0
29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 Time
File:S975811 #1-405 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
401.8558 F:3 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
29:32
80
60
40
20
0
4.2E6
3.4E6
2.5E6
1.7E6
8.5E5
0.0E0
29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 Time


File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A3.53E5
A1.06E5
1.4E5
1.1E5
8.1E4
5.4E4
2.7E4
0.0E0
31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
A3.53E5
A7.75E4
1.2E5
9.9E4
7.4E4
4.9E4
2.5E4
0.0E0
31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4
31:15
32:27
2.1E6
1.7E6
1.3E6
8.5E5
4.3E5
0.0E0
31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time


File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
A1.72E5
80
60
40
20
0
5.5E4
4.4E4
3.3E4
2.2E4
1.1E4
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24
Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
A1.64E5
80
60
40
20
0
5.2E4
4.1E4
3.1E4
2.1E4
1.0E4
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24
Time
File:S975811 #1-430 Acq:10-SEP-1997 23:06:56 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:O-M23-3 TLI#43057
INJ. TIME = 23:09 File Text:O-M23-3 TLI#4»
100%
32:07
80
60
40
20
0
3.4E6
2.7E6
2.1E6
1.4E6
6.9E5
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24
Time

# Pacific Environmental Services

TLI Project: 43057
Client Sample: O-M23-3

## Method 23 TCDD/TCDF Analysis (DB-225)
Analysis File: P973846

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-4A-C | Date Extracted: | 09/06/97 | 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: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | WK | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | 0.02 | | | 0.85 | 20:42 | B__ |

| Internal Standard | Amt. (ng)* | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 5.9 | 148 | 40%-130% | 0.77 | 20:40 | ___ |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.80 | 19:44 | ___ |

Data Reviewer: _____ 09/12/97



CZNF_PSR v2.00, LARS 6.10.04

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Printed: 14:57 09/12/97

Initial , ....Date...

Data Review By: RJM 9/12/97 Calculated Noise Area: n/a

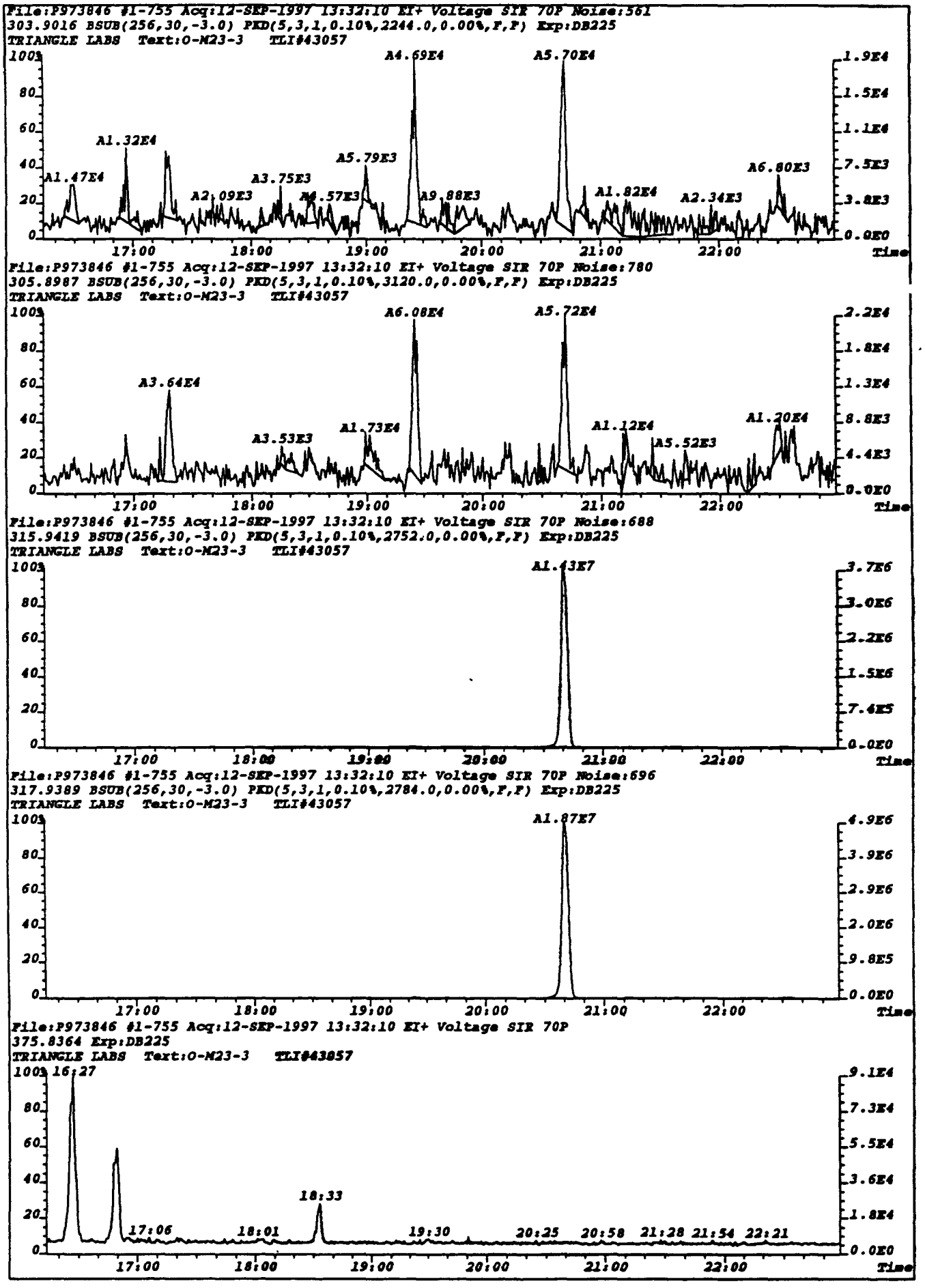
The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

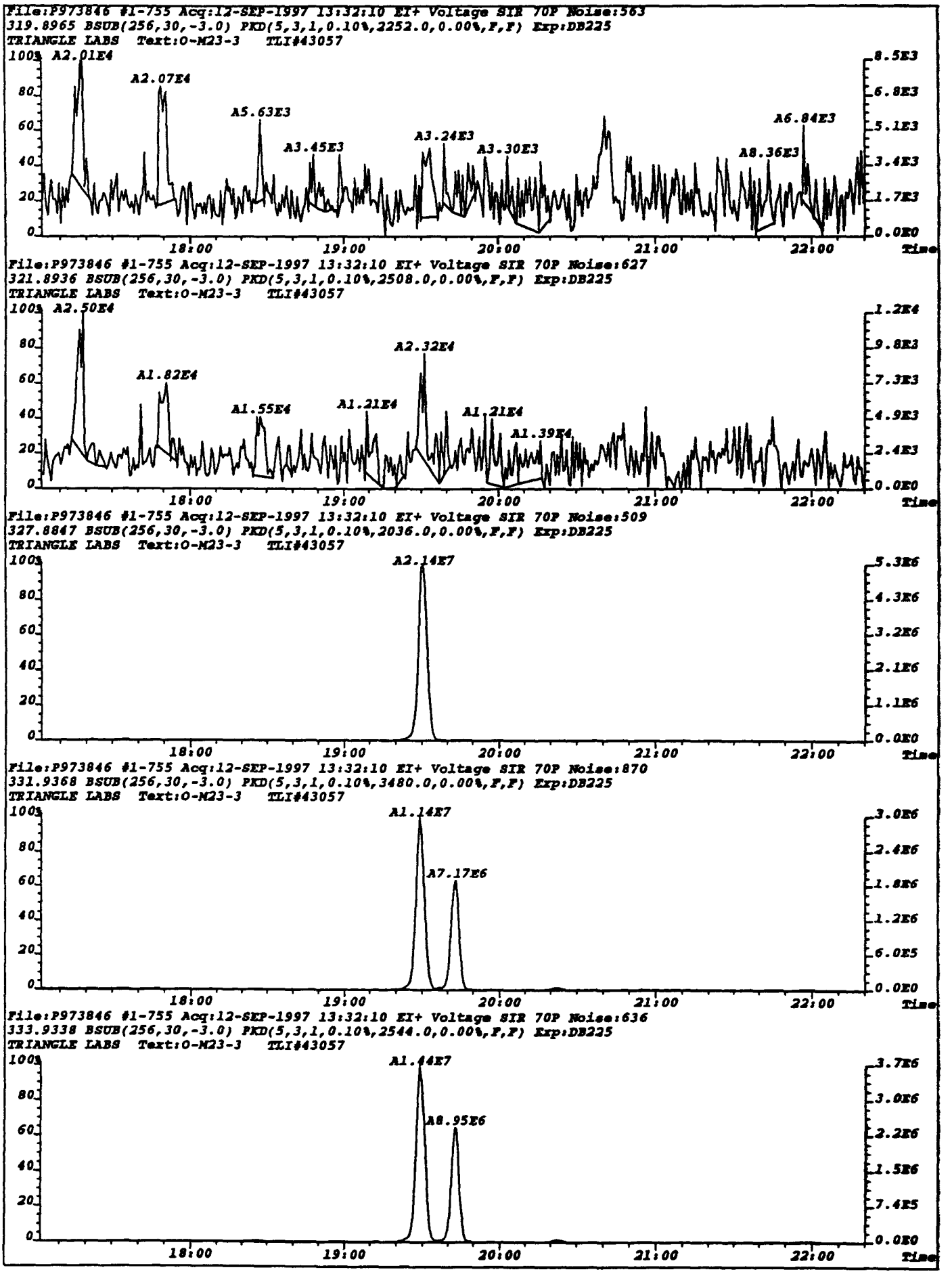
Page No. 1 Listing of P973846B.dbf
09/12/97 Matched GC Peaks / Ratio / Ret. Time

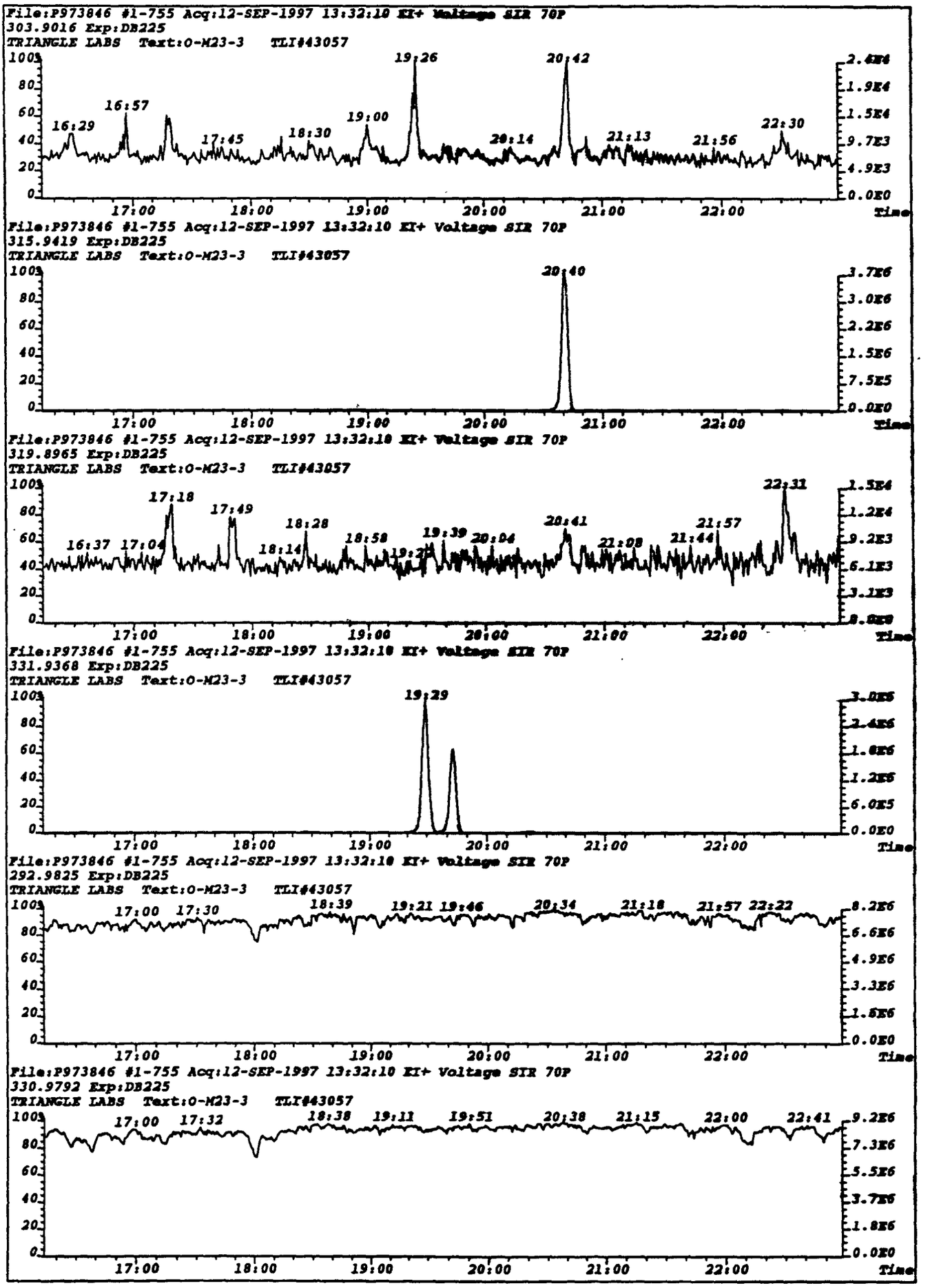
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | 0.65-0.89 | | | | | | 0.786-1.096 | | | |
| 304-306 | DC | NL | | 0:00 | | 0.72 | 2.68 | | | 0.000 | | | |
| | DC | SN | | 17:17 | RO | 0.58 | 4.85 | | | 0.836 | | | |
| | DC | SN | | 18:15 | RO | 1.06 | 0.62 | | | 0.883 | | | |
| | DC | SN | | 19:00 | RO | 0.34 | 1.33 | | | 0.919 | | | |
| | DC | SN | | 19:26 | | 0.77 | 10.77 | | | 0.940 | | | |
| MK | | | | 20:42 | | 0.85 | 13.00 | 5.98 | 7.02 | 1.002 | 2378-TCDF | | AN |
| | DC | SN | | 21:09 | | 0.71 | 1.92 | | | 1.023 | | | |
| | DC | SN | | 21:26 | RO | 0.92 | 0.69 | | | 1.037 | | | |
| | DC | SN | | 22:30 | RO | 0.57 | 1.56 | | | 1.089 | | | |
| 304-306 | | | 1 | Peak | | | 13.00 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.952-1.048 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 0.99 | 2.46 | | | 0.000 | | | |
| | DC | WL | | 19:24 | | 0.85 | 15.86 | | | 0.939 | | | |
| | | | | 20:40 | | 0.77 | 3,307.74 | 1,434.55 | 1,873.19 | 1.000 | 13C12-2378-TCDF | IS0 | |
| | DC | SN | | 21:13 | | 0.73 | 9.13 | | | 1.027 | | | |
| | DC | SN | | 21:37 | RO | 2.39 | 5.42 | | | 1.046 | | | |
| | DC | WH | | 22:31 | RO | 0.48 | 16.64 | | | 1.090 | | | |
| 316-318 | | | 1 | Peak | | | 3,307.74 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| 13C12-TCDD | | | | 0.65-0.89 | | | | | | 0.897-1.103 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 1.37 | 2.25 | | | 0.000 | | | |
| | DC | SN | | 18:26 | | 0.74 | 12.45 | | | 0.946 | | | |
| | | | | 19:29 | | 0.79 | 2,580.19 | 1,135.41 | 1,444.78 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 19:44 | | 0.80 | 1,612.66 | 717.25 | 895.41 | 1.013 | 13C12-1234-TCDD | RS1 | |
| | DC | SN | | 20:23 | | 0.81 | 34.52 | | | 1.046 | | | |
| | DC | WH | | 21:30 | RO | 0.60 | 1.70 | | | 1.104 | | | |
| | DC | WH | | 21:56 | RO | 0.94 | 16.37 | | | 1.126 | | | |
| 332-334 | | | 2 | Peaks | | | 4,192.85 | | | | | | |

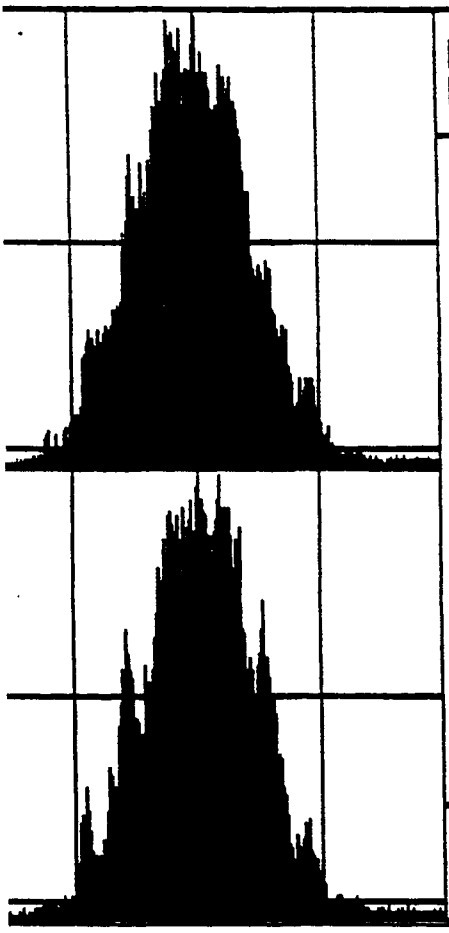
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:561
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2244.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A1.47E4
A1.32E4
A2.09E3
A3.75E3
A4.57E3
A5.79E3
A4.69E4
A9.88E3
A5.70E4
A1.82E4
A2.34E3
A6.80E3
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:780
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3120.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A3.64E4
A3.53E3
A1.73E4
A6.08E4
A5.72E4
A1.12E4
A5.52E3
A1.20E4
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:688
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2752.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A1.43E7
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:696
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2784.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A1.87E7
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
16:27
17:06
18:01
18:33
19:30
20:25
20:58
21:28
21:54
22:21


File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:563
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2252.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A2.01E4
A2.07E4
A5.63E3
A3.45E3
A3.24E3
A3.30E3
A8.36E3
A6.84E3
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:627
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2508.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A2.50E4
A1.82E4
A1.55E4
A1.21E4
A2.32E4
A1.21E4
A1.39E4
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:509
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2036.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A2.14E7
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:870
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3480.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A1.14E7
A7.17E6
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P Noise:636
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2544.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
A1.44E7
A8.95E6
18:00
19:00
20:00
21:00
22:00
Time


File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
16:29
16:57
17:45
18:30
19:00
19:26
20:14
20:42
21:13
21:56
22:30
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
20:40
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
16:37
17:04
17:18
17:49
18:14
18:28
18:58
19:39
20:04
20:41
21:08
21:44
21:57
22:31
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
19:29
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
17:00
17:30
18:39
19:21
19:46
20:34
21:18
21:57
22:22
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:O-M23-3 TLI#43057
17:00
17:32
18:38
19:11
19:51
20:38
21:15
22:00
22:41
17:00
18:00
19:00
20:00
21:00
22:00
Time

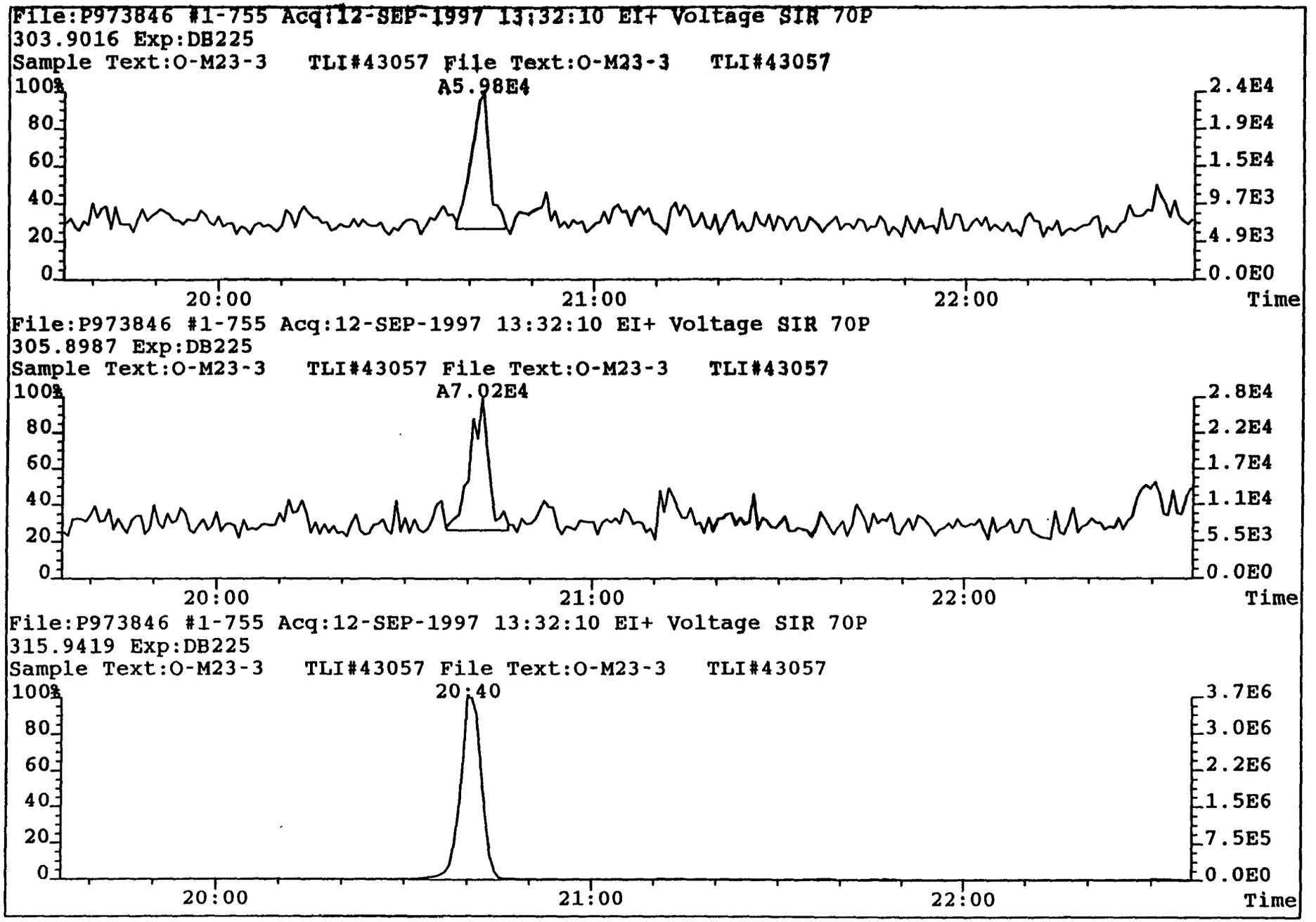


Ref. mass 292.9825 Peak top
Height 1.92 volts Span 200 ppm

| | |
|---|---|
| System file name | DB225 |
| Data file name | A:P973846 |
| 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 1.94 volts Span 200 ppm


File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
303.9016 Exp:DB225
Sample Text:O-M23-3 TLI#43057 File Text:O-M23-3 TLI#43057
A5.98E4
100%
80
60
40
20
0
2.4E4
1.9E4
1.5E4
9.7E3
4.9E3
0.0E0
20:00
21:00
22:00
Time
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
305.8987 Exp:DB225
Sample Text:O-M23-3 TLI#43057 File Text:O-M23-3 TLI#43057
A7.02E4
100%
80
60
40
20
0
2.8E4
2.2E4
1.7E4
1.1E4
5.5E3
0.0E0
20:00
21:00
22:00
Time
File:P973846 #1-755 Acq:12-SEP-1997 13:32:10 EI+ Voltage SIR 70P
315.9419 Exp:DB225
Sample Text:O-M23-3 TLI#43057 File Text:O-M23-3 TLI#43057
20:40
100%
80
60
40
20
0
3.7E6
3.0E6
2.2E6
1.5E6
7.5E5
0.0E0
20:00
21:00
22:00
Time

Pacific Environmental Services

TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: O-M23-FB — Analysis File: S975816

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-5A-C | Date Extracted: | 09/06/97 | 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: | S975807 | % 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 | 0.01 | | | | — |
| 1,2,3,7,8-PeCDD | ND | 0.01 | | | | — |
| 1,2,3,4,7,8-HxCDD | ND | 0.01 | | | | — |
| 1,2,3,6,7,8-HxCDD | EMPC | | 0.02 | | | — |
| 1,2,3,7,8,9-HxCDD | EMPC | | 0.02 | | | PR_ |
| 1,2,3,4,6,7,8-HpCDD | 0.06 | | | 1.02 | 32:03 | B_ |
| 1,2,3,4,6,7,8,9-OCDD | 0.11 | | | 0.86 | 34:33 | B_ |
| 2,3,7,8-TCDF | ND | 0.006 | | | | — |
| 1,2,3,7,8-PeCDF | EMPC | | 0.01 | | | — |
| 2,3,4,7,8-PeCDF | 0.03 | | | 1.49 | 25:28 | B_ |
| 1,2,3,4,7,8-HxCDF | 0.07 | | | 1.43 | 28:21 | B_ |
| 1,2,3,6,7,8-HxCDF | 0.03 | | | 1.10 | 28:28 | B_ |
| 2,3,4,6,7,8-HxCDF | 0.03 | | | 1.21 | 28:59 | PRB |
| 1,2,3,7,8,9-HxCDF | ND | 0.01 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | EMPC | | 0.09 | | | PRB |
| 1,2,3,4,7,8,9-HpCDF | 0.04 | | | 1.02 | 32:24 | B_ |
| 1,2,3,4,6,7,8,9-OCDF | 0.07 | | | 0.88 | 34:39 | B_ |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | EMPC | | | 0.02 | — |
| Total PeCDD | 0.02 | 1 | | 0.07 | — |
| Total HxCDD | 0.06 | 1 | | 0.13 | — |
| Total HpCDD | 0.06 | 1 | | 0.11 | — |
| Total TCDF | ND | | 0.006 | | — |
| Total PeCDF | 0.03 | 1 | | 0.04 | — |
| Total HxCDF | 0.13 | 3 | | 0.18 | — |
| Total HpCDF | 0.10 | 3 | | 0.18 | — |





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Printed: 14:58 09/11/97

TLI Project: 43057
Client Sample: O-M23-FB

Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975816

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.0 | 49.5 | 40%-130% | 0.75 | 20:22 | ___ |
| $^{13}C_{12}$-2,3,7,8-TCDD | 1.4 | 34.3 | 40%-130% | 0.80 | 21:11 | V___ |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 1.8 | 44.9 | 40%-130% | 1.65 | 24:42 | ___ |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 2.2 | 54.8 | 40%-130% | 1.45 | 25:50 | ___ |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 1.4 | 34.7 | 40%-130% | 0.48 | 28:28 | V___ |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 1.6 | 40.1 | 40%-130% | 1.14 | 29:11 | ___ |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 1.3 | 32.7 | 25%-130% | 0.42 | 31:10 | ___ |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 1.5 | 38.2 | 25%-130% | 0.98 | 32:02 | ___ |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 3.0 | 36.9 | 25%-130% | 0.81 | 34:32 | ___ |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 4.9 | 123 | 70%-140% | | 21:13 | ___ |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 4.5 | 112 | 70%-140% | 1.49 | 25:27 | ___ |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.6 | 91.1 | 70%-140% | 0.48 | 28:21 | ___ |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.3 | 82.4 | 70%-140% | 1.24 | 29:06 | ___ |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.4 | 85.4 | 70%-140% | 0.43 | 32:22 | ___ |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDF | 1.3 | 32.2 | 40%-130% | 0.49 | 29:41 | V___ |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 1.4 | 34.1 | 40%-130% | 0.49 | 28:58 | V___ |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.86 | 20:58 | ___ |
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDD | 1.18 | 29:28 | ___ |

Data Reviewer: _____ 09/11/97



X237_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: 14:58 09/11/97

Data Review By: Initial (M) Date 9/11/97 Calculated Noise Area: 1.67

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 S975816B.dbf
09/11/97 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 | | 0.67 | 1.12 | | | 0.000 | | | |
| | DC | SN | | 16:53 | RO | 0.63 | 1.59 | | | 0.829 | | | |
| | DC | SN | | 17:47 | RO | 0.46 | 0.83 | | | 0.873 | | | |
| | DC | SN | | 18:44 | RO | 1.58 | 1.38 | | | 0.920 | | | |
| | DC | SN | | 19:11 | RO | 1.03 | 3.65 | | | 0.942 | | | |
| | DC | SN | | 19:53 | RO | 0.55 | 3.03 | | | 0.976 | | | |
| D | D | SN | | 20:24 | | 0.77 | 6.03 | | | 1.002 | 2378-TCDF | AN | |
| | DC | SN | | 21:54 | | 0.65 | 2.58 | | | 1.075 | | | |
| 304-306 | | | 0 | Peaks | | | 0.00 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.951-1.049 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 0.14 | 0.16 | | | 0.000 | | | |
| | DC | WL | | 18:02 | RO | 0.23 | 1.06 | | | 0.885 | | | |
| | DC | WL | | 19:10 | RO | 0.58 | 7.36 | | | 0.941 | | | |
| | DC | WL | | 19:20 | RO | 0.58 | 2.41 | | | 0.949 | | | |
| | DC | SN | | 19:30 | | 0.69 | 3.05 | | | 0.957 | | | |
| | | | | 19:51 | | 0.76 | 12.39 | 5.36 | 7.03 | 0.975 | | | |
| | | | | 20:22 | | 0.75 | 2,231.29 | 953.97 | 1,277.32 | 1.000 | 13C12-2378-TCDF | ISO | |
| | DC | WH | | 21:41 | RO | 1.36 | 3.03 | | | 1.065 | | | |
| | DC | WH | | 22:40 | RO | 0.94 | 3.82 | | | 1.113 | | | |
| 316-318 | | | 2 | Peaks | | | 2,243.68 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| TCDD | | | | | | 0.65-0.89 | | | | 0.853-1.059 | | | |
| 320-322 | DC | NL | | 0:00 | RO | 5.25 | 0.14 | | | 0.000 | | | |
| | | | | 18:16 | RO | 0.90 | 5.93 | 3.02 | 3.35 | 0.862 | | | |
| | DC | SN | | 18:27 | RO | 0.36 | 0.62 | | | 0.871 | | | |
| | DC | SN | | 18:55 | RO | 0.23 | 0.32 | | | 0.893 | | | |
| | DC | SN | | 19:03 | RO | 0.91 | 2.12 | | | 0.899 | | | |
| | DC | SN | | 19:22 | | 0.66 | 1.11 | | | 0.914 | | | |
| | DC | SN | | 19:39 | RO | 3.07 | 0.50 | | | 0.928 | | | |
| | DC | SN | | 19:52 | RO | 0.57 | 1.93 | | | 0.938 | | | |
| | DC | SN | | 20:07 | RO | 1.95 | 1.12 | | | 0.950 | | | |
| | DC | SN | | 20:37 | RO | 0.98 | 1.06 | | | 0.973 | | | |
| | DC | SN | | 20:51 | RO | 0.59 | 0.39 | | | 0.984 | | | |
| | DC | SN | | 21:12 | RO | 0.33 | 1.75 | | | 1.001 | 2378-TCDD | AN | |
| | DC | SN | | 21:36 | RO | 0.50 | 1.40 | | | 1.020 | | | |
| | DC | SN | | 21:58 | RO | 0.52 | 0.90 | | | 1.037 | | | |
| | DC | SN | | 22:07 | RO | 1.16 | 0.34 | | | 1.044 | | | |
| | DC | SN | | 22:09 | RO | 1.98 | 0.99 | | | 1.046 | | | |
| 320-322 | | | 1 | Peak | | | 5.93 | | | | | | |

| 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 | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 0.09 | | | 0.000 | | | |
| | DC | WL | | 18:08 | | | 0.75 | | | 0.856 | | | |
| | DC | WL | | 18:35 | | | 2.67 | | | 0.877 | | | |
| | DC | WL | | 18:44 | | | 2.10 | | | 0.884 | | | |
| | | | | 19:39 | | | 70.71 | 70.71 | | 0.928 | | | |
| | DC | SN | | 20:14 | | | 0.59 | | | 0.955 | | | |
| | DC | SN | | 20:55 | | | 0.84 | | | 0.987 | | | |
| | | | | 21:13 | | | 1,299.45 | 1,299.45 | | 1.002 | 37Cl-TCDD | SUR1 | |
| | DC | SN | | 21:27 | | | 1.92 | | | 1.013 | | | |
| | DC | SN | | 21:32 | | | 1.97 | | | 1.017 | | | |
| | | | | 21:41 | | | 2.23 | 2.23 | | 1.024 | | | |
| | DC | SN | | 21:48 | | | 1.30 | | | 1.029 | | | |
| | DC | SN | | 22:05 | | | 1.38 | | | 1.042 | | | |
| | DC | SN | | 22:12 | | | 0.90 | | | 1.048 | | | |
| | DC | SN | | 22:31 | | | 1.27 | | | 1.063 | | | |
| | DC | SN | | 22:44 | | | 1.21 | | | 1.073 | | | |
| 328 | | 3 Peaks | | | | | 1,372.39 | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 22.13 | 0.14 | | | 0.000 | | | |
| | | | | 19:52 | RO | 0.90 | 6.97 | 3.53 | 3.94 | 0.938 | | | |
| | | | | 20:58 | | 0.86 | 3,420.53 | 1,580.25 | 1,840.28 | 0.990 | 13C12-1234-TCDD | RS1 | |
| | | | | 21:11 | | 0.80 | 1,251.49 | 555.65 | 695.84 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 21:35 | RO | 1.06 | 22.05 | 13.26 | 12.46 | 1.019 | | | |
| 332-334 | | 4 Peaks | | | | | 4,701.04 | | | | | | |

---------- Above: TCDD / PeCDF Hallows ----------

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PeCDF | | | | | | 1.32-1.78 | | | | 0.907-1.078 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 0.16 | 0.10 | | | 0.000 | | | |
| | DC | SN | | 22:35 | RO | 0.93 | 2.83 | | | 0.914 | | | |
| | DC | SN | | 22:42 | RO | 0.24 | 0.41 | | | 0.919 | | | |
| | DC | SN | | 23:11 | RO | 0.36 | 0.72 | | | 0.939 | | | |
| | DC | SN | | 23:58 | RO | 1.87 | 2.40 | | | 0.970 | | | |
| | DC | SN | | 24:11 | RO | 10.79 | 0.48 | | | 0.979 | | | |
| M | | | | 24:42 | RO | 0.95 | 5.45 | 3.31 | 3.49 | 1.000 | 12378-PeCDF | AN | |
| | DC | SN | | 24:53 | RO | 1.10 | 3.47 | | | 1.007 | | | |
| D | D | SN | | 25:02 | RO | 1.15 | 5.35 | | | 1.013 | | | |
| | DC | SN | | 25:15 | RO | 0.25 | 0.72 | | | 1.022 | | | |
| | | | | 25:28 | | 1.49 | 14.41 | 8.62 | 5.79 | 1.031 | 23478-PeCDF | AN | |
| | DC | SN | | 25:37 | RO | 1.95 | 5.10 | | | 1.037 | | | |
| | DC | SN | | 25:55 | RO | 3.02 | 1.43 | | | 1.049 | | | |
| | DC | SN | | 26:15 | RO | 3.90 | 1.22 | | | 1.063 | | | |
| | DC | SN | | 26:28 | RO | 0.77 | 2.37 | | | 1.072 | | | |
| | DC | WH | | 26:50 | RO | 0.70 | 1.66 | | | 1.086 | | | |
| | DC | WH | | 27:00 | RO | 1.15 | 1.55 | | | 1.093 | | | |
| 340-342 | | 2 Peaks | | | | | 19.86 | | | | | | |
| 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 | 8.61 | 5.78 | 3.83 | 0.964 | | | |

| )mpound/ _Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 24:20 | | 1.38 | 6.69 | 3.88 | 2.81 | 0.985 | | | |
| | | | | 24:42 | | 1.65 | 1,740.67 | 1,084.59 | 656.08 | 1.000 | 13C12-PeCDF 123 | IS2 | |
| | | | | 24:53 | RO | 1.81 | 12.93 | 9.18 | 5.07 | 1.007 | | | |
| | | | | 25:00 | | 1.55 | 13.81 | 8.39 | 5.42 | 1.012 | | | |
| | | | | 25:27 | | 1.49 | 1,897.18 | 1,135.82 | 761.36 | 1.030 | 13C12-PeCDF 234 | SUR2 | |
| | DC | SN | | 25:44 | RO | 2.86 | 3.75 | | | 1.042 | | | |
| | DC | SN | | 25:51 | RO | 1.16 | 3.04 | | | 1.047 | | | |
| | | | | 26:28 | RO | 0.92 | 5.71 | 3.47 | 3.79 | 1.072 | | | |
| 52-354 | | | 7 | Peaks | | | 3,686.60 | | | | | | |

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

| ıCDD | | | | | | 1.32-1.78 | | | | 0.921-1.026 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56-358 | DC | NL | | 0:00 | RO | 13.80 | 0.13 | | | 0.000 | | | |
| | | | | 23:58 | RO | 0.31 | 9.94 | 6.04 | 19.68 | 0.928 | | | |
| | DC | SN | | 24:27 | RO | 7.11 | 0.46 | | | 0.946 | | | |
| | | | | 24:44 | | 1.36 | 8.65 | 4.98 | 3.67 | 0.957 | | | |
| | DC | SN | | 24:50 | RO | 3.34 | 0.97 | | | 0.961 | | | |
| | | | | 25:04 | RO | 1.23 | 6.27 | 3.81 | 3.09 | 0.970 | | | |
| | DC | SN | | 25:17 | | 1.62 | 2.80 | | | 0.979 | | | |
| | DC | SN | | 25:31 | RO | 3.38 | 2.70 | | | 0.988 | | | |
| | DC | SN | | 25:50 | RO | 2.49 | 4.82 | | | 1.000 | 12378-PeCDD | AN | |
| | DC | SN | | 25:59 | RO | 3.11 | 0.94 | | | 1.006 | | | |
| | DC | SN | | 26:10 | RO | 0.88 | 0.86 | | | 1.013 | | | |
| | DC | WH | | 26:40 | RO | 1.01 | 1.45 | | | 1.032 | | | |
| 56-358 | | | 3 | Peaks | | | 24.86 | | | | | | |

| 3C12-PeCDD | | | | | | 1.32-1.78 | | | | 0.845-1.155 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58-370 | DC | NL | | 0:00 | RO | 1.29 | 0.15 | | | 0.000 | | | |
| | DC | SN | | 24:13 | RO | 1.95 | 1.50 | | | 0.937 | | | |
| | DC | SN | | 25:03 | RO | 0.62 | 1.63 | | | 0.970 | | | |
| | | | | 25:50 | | 1.45 | 1,189.98 | 703.40 | 486.58 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 25:59 | | 1.58 | 119.39 | 73.12 | 46.27 | 1.006 | | | |
| | DC | SN | | 26:08 | RO | 0.93 | 1.74 | | | 1.012 | | | |
| | DC | SN | | 26:14 | RO | 3.75 | 0.61 | | | 1.015 | | | |
| | DC | SN | | 26:23 | RO | 2.91 | 1.38 | | | 1.021 | | | |
| 58-370 | | | 2 | Peaks | | | 1,309.37 | | | | | | |

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

| ıCDF | | | | | | 1.05-1.43 | | | | 0.955-1.052 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74-376 | DC | NL | | 0:00 | RO | 1.86 | 1.57 | | | 0.000 | | | |
| | | | | 27:21 | RO | 1.48 | 8.49 | 5.60 | 3.79 | 0.961 | | | |
| | | | | 27:32 | RO | 1.46 | 18.66 | 12.19 | 8.33 | 0.967 | | | |
| | DC | SN | | 27:40 | RO | 1.04 | 1.73 | | | 0.972 | | | |
| D | D | SN | | 27:49 | | 1.31 | 5.06 | | | 0.977 | | | |
| | DC | SN | | 27:58 | | 1.32 | 4.36 | | | 0.982 | | | |
| | | | | 28:21 | | 1.43 | 32.67 | 19.24 | 13.43 | 0.996 | 123478-HxCDF | AN | |
| | | | | 28:28 | | 1.10 | 15.58 | 8.16 | 7.42 | 1.000 | 123678-HxCDF | AN | |
| D | D | SN | | 28:34 | | 1.18 | 4.65 | | | 1.004 | | | |
| D | D | SN | | 28:47 | RO | 0.79 | 4.17 | | | 1.011 | | | |
| | | | | 28:59 | | 1.21 | 16.81 | 9.22 | 7.59 | 1.018 | 234678-HxCDF | AN | PR |

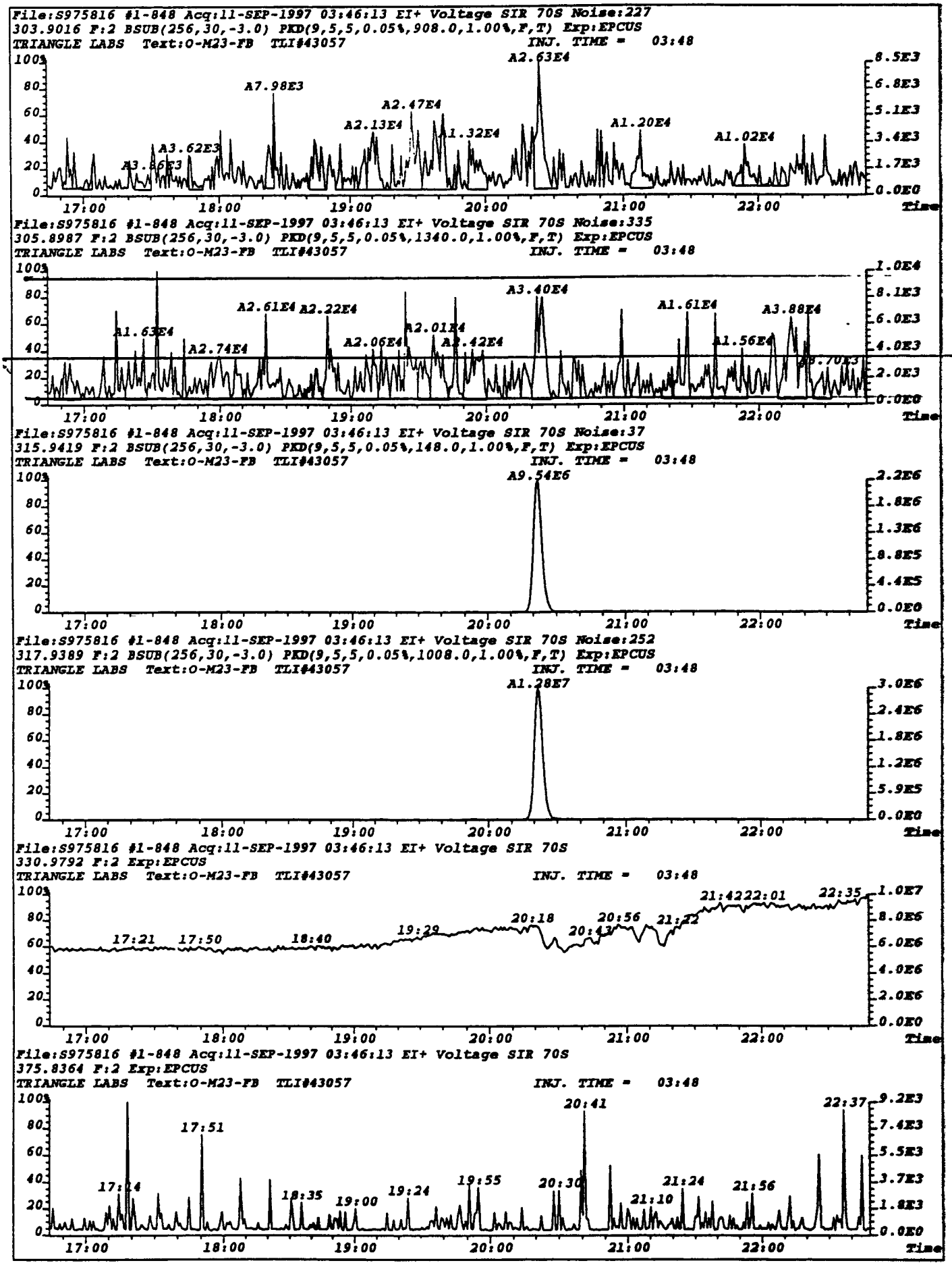
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 29:10 | | 1.14 | 1.39 | | | 1.025 | | | |
| | DC | SN | | 29:23 | RO | 6.40 | 0.67 | | | 1.032 | | | |
| | DC | SN | | 29:29 | RO | 3.24 | 0.47 | | | 1.036 | | | |
| | DC | SN | | 29:33 | RO | 3.42 | 0.27 | | | 1.038 | | | |
| D | D | SN | | 29:41 | | 1.24 | 6.64 | | | 1.043 | 123789-HxCDF | AN | |
| D | D | SN | | 29:46 | RO | 1.56 | 4.88 | | | 1.046 | | | |
| | DC | WH | | 30:02 | RO | 2.87 | 0.67 | | | 1.055 | | | |
| | DC | WH | | 30:05 | RO | 0.70 | 0.47 | | | 1.057 | | | |
| | DC | WH | | 30:09 | RO | 2.30 | 0.60 | | | 1.059 | | | |
| 374-376 | | | 5 | Peaks | | | 92.21 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.859-1.141 | | | |
| 384-386 | DC | NL | | 0:00 | RO | 0.37 | 2.78 | | | 0.000 | | | |
| | DC | SN | | 27:30 | RO | 0.41 | 4.91 | | | 0.966 | | | |
| | | | | 28:21 | | 0.48 | 1,360.71 | 441.73 | 918.98 | 0.996 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 28:28 | | 0.48 | 1,558.16 | 506.87 | 1,051.29 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | DC | SN | | 28:43 | RO | 0.94 | 2.22 | | | 1.009 | | | |
| | DC | SN | | 28:50 | RO | 0.38 | 1.69 | | | 1.013 | | | |
| | | | | 28:58 | | 0.49 | 1,420.56 | 467.71 | 952.85 | 1.018 | 13C12-HxCDF 234 | ALT2 | |
| | DC | SN | | 29:10 | RO | 1.35 | 1.65 | | | 1.025 | | | |
| | | | | 29:41 | | 0.49 | 1,164.20 | 383.10 | 781.10 | 1.043 | 13C12-HxCDF 789 | ALT1 | |
| | DC | SN | | 29:54 | RO | 1.00 | 2.49 | | | 1.050 | | | |
| | DC | SN | | 29:58 | RO | 2.07 | 1.56 | | | 1.053 | | | |
| | DC | SN | | 30:08 | | 0.58 | 2.27 | | | 1.059 | | | |
| 384-386 | | | 4 | Peaks | | | 5,503.63 | | | | | | |
| ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | | |
| HxCDD | | | | 1.05-1.43 | | | | | | 0.950-1.015 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 0.63 | 0.65 | | | 0.000 | | | |
| D | D | SN | | 27:55 | | 1.06 | 4.81 | | | 0.957 | | | |
| | DC | SN | | 28:00 | RO | 0.38 | 0.45 | | | 0.959 | | | |
| | DC | SN | | 28:03 | | 1.37 | 0.45 | | | 0.961 | | | |
| | DC | SN | | 28:08 | RO | 0.66 | 0.52 | | | 0.964 | | | |
| | DC | SN | | 28:15 | RO | 0.23 | 0.27 | | | 0.968 | | | |
| | | | | 28:21 | | 1.26 | 24.46 | 13.65 | 10.81 | 0.971 | | | |
| | DC | SN | | 28:26 | | 1.16 | 2.03 | | | 0.974 | | | |
| | | | | 28:35 | RO | 0.97 | 10.06 | 5.57 | 5.76 | 0.979 | | | |
| | DC | SN | | 28:43 | RO | 2.02 | 1.01 | | | 0.984 | | | |
| | DC | SN | | 28:51 | RO | 0.77 | 0.36 | | | 0.989 | | | |
| | DC | SN | | 28:54 | RO | 0.38 | 0.70 | | | 0.990 | | | |
| | DC | SN | | 29:06 | RO | 0.62 | 2.85 | | | 0.997 | 123478-HxCDD | AN | |
| M | | | | 29:11 | RO | 1.48 | 7.53 | 4.97 | 3.36 | 1.000 | 123678-HxCDD | AN | |
| | DC | SN | | 29:20 | RO | 0.06 | 0.07 | | | 1.005 | | | |
| M | | | | 29:29 | RO | 0.95 | 8.13 | 4.50 | 4.74 | 1.010 | 123789-HxCDD | AN | PR |
| | DC | WH | | 29:57 | RO | 3.29 | 0.63 | | | 1.026 | | | |
| 390-392 | | | 4 | Peaks | | | 50.18 | | | | | | |
| 13C12-HxCDD | | | | 1.05-1.43 | | | | | | 0.966-1.034 | | | |
| 402-404 | DC | NL | | 0:00 | RO | 0.52 | 0.79 | | | 0.000 | | | |
| | | | | 28:35 | | 1.35 | 5.84 | 3.36 | 2.48 | 0.979 | | | |
| | | | | 29:06 | | 1.24 | 1,192.66 | 659.69 | 532.97 | 0.997 | 13C12-HxCDD 478 | SUR4 | |

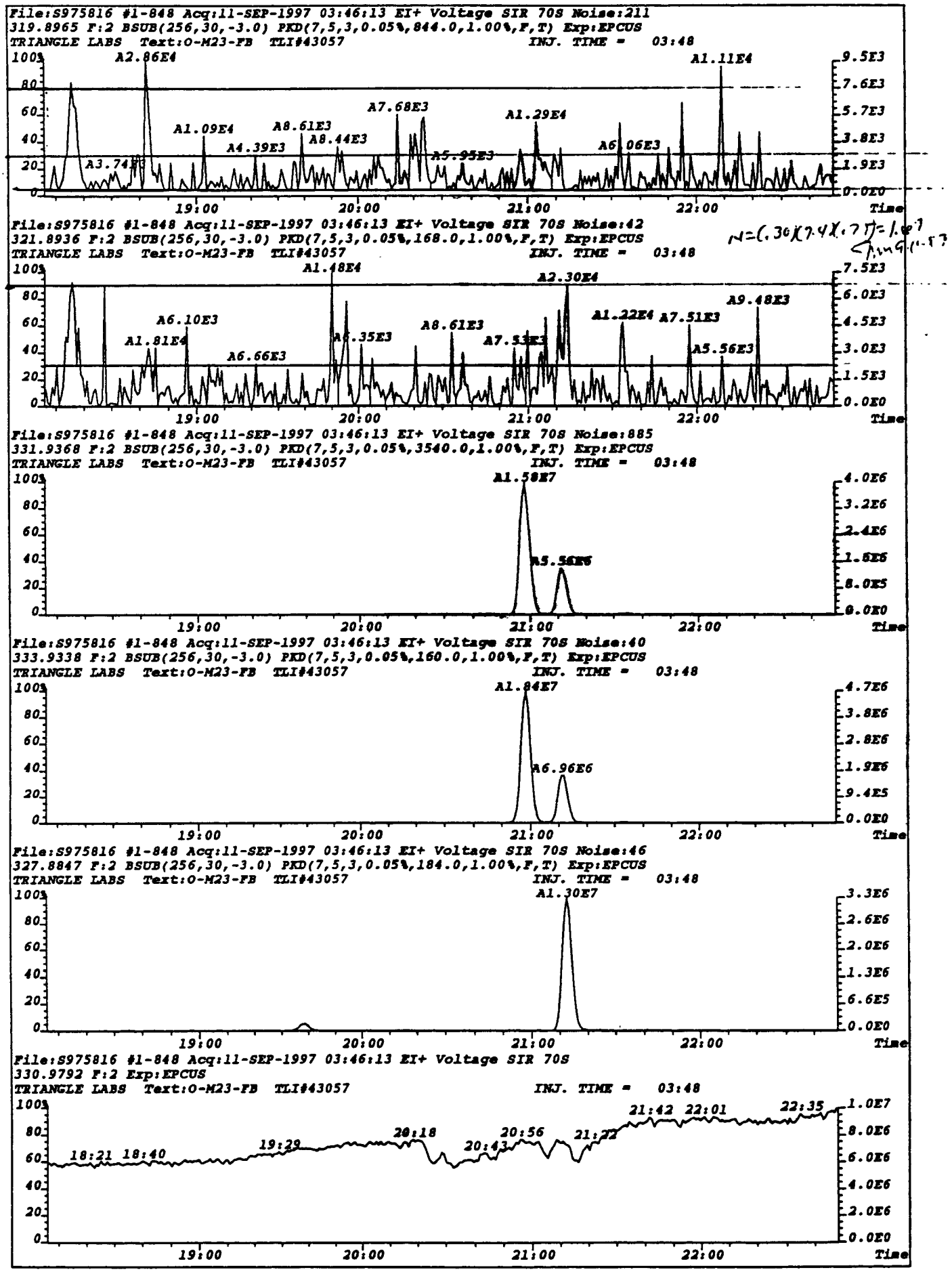
| mpound/ Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 29:11 | | 1.14 | 1,488.29 | 794.20 | 694.09 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 29:28 | | 1.18 | 3,734.26 | 2,022.59 | 1,711.67 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| | DC | SN | 29:43 | RO | 0.63 | 3.74 | | | 1.018 | | | | |
| 2-404 | | | 4 Peaks | | | 6,421.05 | | | | | | | |
| | | | ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | |
| CDF | | | | | | 0.88-1.20 | | | | 0.995-1.044 | | | |
| 8-410 | DC | NL | 0:00 | RO | 2.52 | 0.67 | | | 0.000 | | | | |
| M | | | 31:11 | RO | 1.32 | 35.70 | 23.10 | 17.50 | 1.001 | 1234678-HpCDF | | AN | PR |
| | | | 31:24 | | 1.14 | 10.15 | 5.41 | 4.74 | 1.007 | | | | |
| | | | 31:31 | | 1.00 | 10.97 | 5.48 | 5.49 | 1.011 | | | | |
| | DC | SN | 32:08 | RO | 3.45 | 0.45 | | | 1.031 | | | | |
| | | | 32:24 | | 1.02 | 13.14 | 6.62 | 6.52 | 1.040 | 1234789-HpCDF | | AN | |
| | DC | WH | 32:39 | RO | 3.94 | 0.71 | | | 1.048 | | | | |
| 8-410 | | | 4 Peaks | | | 69.96 | | | | | | | |
| C12-HpCDF | | | | | | 0.37-0.51 | | | | 0.936-1.128 | | | |
| 8-420 | DC | NL | 0:00 | RO | 1.42 | 0.96 | | | 0.000 | | | | |
| | | | 31:10 | | 0.42 | 1,082.87 | 322.74 | 760.13 | 1.000 | 13C12-HpCDF 678 | | IS6 | |
| | DC | SN | 32:02 | RO | 0.83 | 1.41 | | | 1.028 | | | | |
| | | | 32:22 | | 0.43 | 712.92 | 212.82 | 500.10 | 1.039 | 13C12-HpCDF 789 | | SUR5 | |
| | DC | SN | 32:39 | RO | 1.71 | 1.68 | | | 1.048 | | | | |
| | DC | SN | 32:48 | | 0.47 | 2.77 | | | 1.052 | | | | |
| 8-420 | | | 2 Peaks | | | 1,795.79 | | | | | | | |
| | | | ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | |
| CDD | | | | | | 0.88-1.20 | | | | 0.976-1.006 | | | |
| 4-426 | DC | NL | 0:00 | RO | 0.81 | 0.69 | | | 0.000 | | | | |
| | DC | SN | 31:17 | RO | 0.32 | 0.57 | | | 0.977 | | | | |
| | | | 31:26 | RO | 1.29 | 13.16 | 8.29 | 6.45 | 0.981 | | | | |
| | DC | SN | 31:51 | RO | 3.44 | 0.51 | | | 0.994 | | | | |
| M | | | 32:03 | | 1.02 | 20.03 | 10.10 | 9.93 | 1.001 | 1234678-HpCDD | | AN | |
| 4-426 | | | 2 Peaks | | | 33.19 | | | | | | | |
| C12-HpCDD | | | | | | 0.88-1.20 | | | | 0.969-1.031 | | | |
| 6-438 | DC | NL | 0:00 | | 1.00 | 3.24 | | | 0.000 | | | | |
| | | | 32:02 | | 0.98 | 1,162.82 | 574.07 | 588.75 | 1.000 | 13C12-HpCDD 678 | | IS7 | |
| 6-438 | | | 1 Peak | | | 1,162.82 | | | | | | | |
| | | | ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | |
| DF | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 2-444 | DC | NL | 0:00 | | 1.00 | 0.12 | | | 0.000 | | | | |
| | DC | SN | 30:55 | RO | 0.22 | 0.47 | | | 0.895 | | | | |
| | DC | SN | 31:13 | RO | 0.22 | 0.68 | | | 0.904 | | | | |
| | DC | SN | 31:17 | RO | 3.50 | 0.45 | | | 0.906 | | | | |
| | DC | SN | 31:29 | RO | 1.63 | 1.17 | | | 0.912 | | | | |
| | DC | SN | 31:48 | RO | 1.89 | 1.02 | | | 0.921 | | | | |
| | DC | SN | 32:16 | RO | 2.46 | 1.30 | | | 0.934 | | | | |
| | DC | SN | 32:25 | | 1.00 | 0.84 | | | 0.939 | | | | |

| 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 | | 32:36 | RO | 0.54 | 0.28 | | | 0.944 | | | |
| | DC | SN | | 32:52 | | 0.96 | 1.37 | | | 0.952 | | | |
| | DC | SN | | 33:00 | RO | 0.71 | 0.74 | | | 0.956 | | | |
| | DC | SN | | 33:04 | RO | 0.74 | 1.23 | | | 0.958 | | | |
| | DC | SN | | 33:10 | RO | 0.40 | 1.04 | | | 0.960 | | | |
| | DC | SN | | 33:47 | RO | 0.38 | 0.79 | | | 0.978 | | | |
| | DC | SN | | 34:15 | RO | 1.49 | 1.19 | | | 0.992 | | | |
| | | | | 34:39 | | 0.88 | 19.66 | 9.19 | 10.47 | 1.003 | OCDF | | AN |
| | DC | SN | | 34:55 | RO | 8.43 | 0.57 | | | 1.011 | | | |
| | DC | SN | | 35:13 | RO | 0.23 | 0.30 | | | 1.020 | | | |
| | DC | SN | | 35:30 | RO | 1.65 | 0.49 | | | 1.028 | | | |
| 442-444 | | 1 | Peak | | | | 19.66 | | | | | | |
| OCDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 458-460 | DC | NL | | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | | | | 34:33 | | 0.86 | 22.70 | 10.48 | 12.22 | 1.000 | OCDD | | AN |
| | DC | SN | | 34:59 | RO | 0.48 | 1.78 | | | 1.013 | | | |
| 458-460 | | 1 | Peak | | | | 22.70 | | | | | | |
| 13C12-OCDD | | | | | | 0.76-1.02 | | | | 0.995-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | | 1.00 | 0.16 | | | 0.000 | | | |
| | | | | 34:32 | | 0.81 | 1,430.19 | 638.80 | 791.39 | 1.000 | 13C12-OCDD | | IS8 |
| 470-472 | | 1 | Peak | | | | 1,430.19 | | | | | | |

| 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:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:227
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,908.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A2.63E4
A7.98E3
A2.47E4
A2.13E4
A1.32E4
A1.20E4
A1.02E4
A3.62E3
A3.86E3
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:335
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1340.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A3.40E4
A2.61E4
A2.22E4
A1.61E4
A3.88E4
A1.63E4
A2.74E4
A2.06E4
A2.01E4
A2.42E4
A1.56E4
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:37
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A9.54E6
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:252
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1008.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.28E7
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
17:21
17:50
18:40
19:29
20:18
20:43
20:56
21:22
21:42
22:01
22:35
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
17:14
17:51
18:35
19:00
19:24
19:55
20:30
20:41
21:10
21:24
21:56
22:37
17:00
18:00
19:00
20:00
21:00
22:00
Time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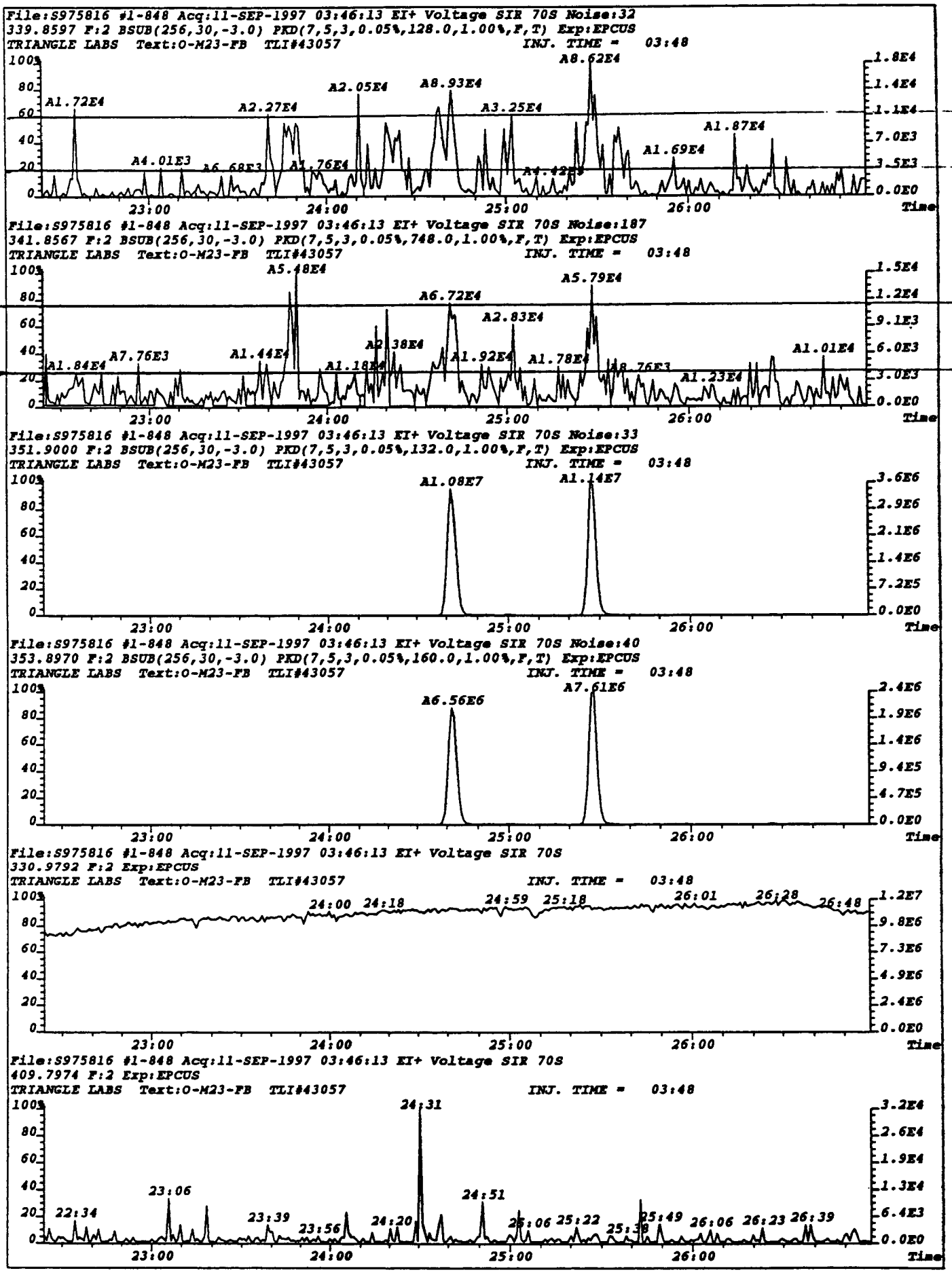
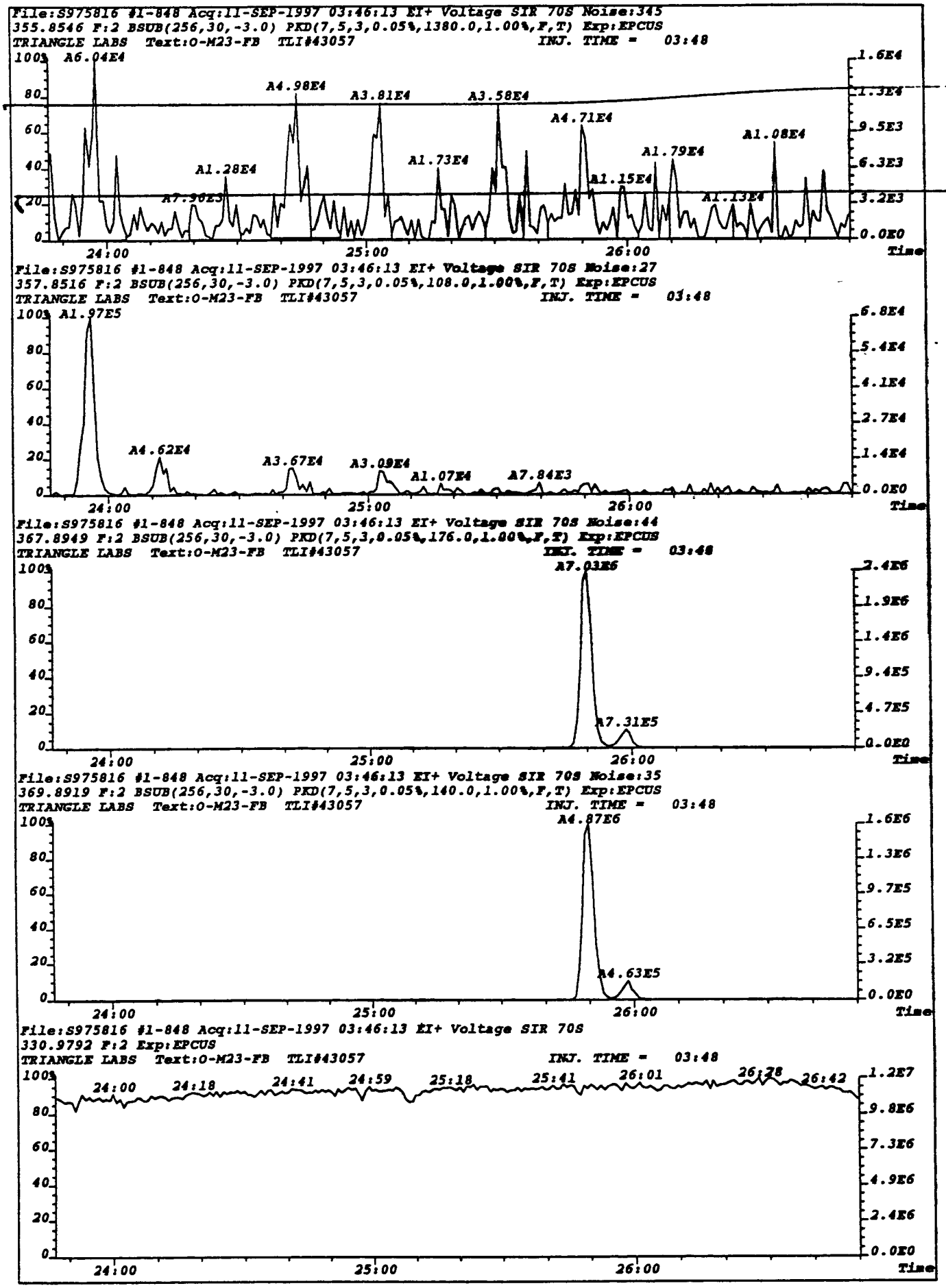
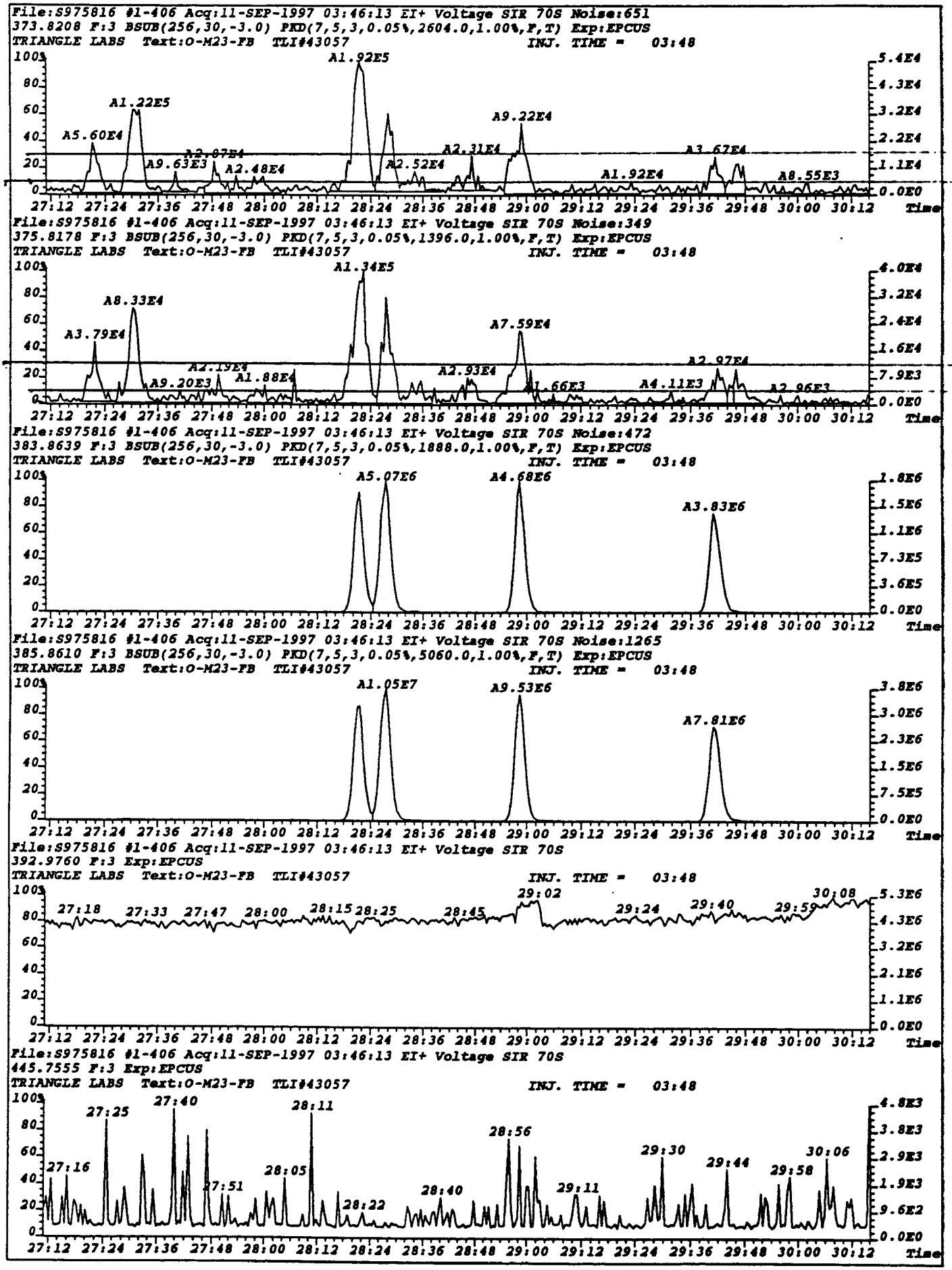
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,844.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A2.86E4
A1.09E4
A4.39E3
A8.61E3
A8.44E3
A7.68E3
A5.95E3
A1.29E4
A6.06E3
A1.11E4
A3.74E3
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:42
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.48E4
A2.30E4
A6.10E3
A1.81E4
A6.66E3
A8.61E3
A1.22E4
A7.51E3
A9.48E3
A5.56E3
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:885
331.9368 F:2 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#43057 INJ. TIME = 03:48
A1.58E7
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:40
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.84E7
A6.96E6
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:46
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.30E7
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
18:21 18:40 19:29 20:18 20:43 20:56 21:22 21:42 22:01 22:35
19:00 20:00 21:00 22:00 Time


File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:32
339.8597 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#43057 INJ. TIME = 03:48
A1.72E4
A4.01E3
A2.27E4
A2.05E4
A8.93E4
A3.25E4
A8.62E4
A1.87E4
A1.69E4
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:187
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,748.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.84E4
A7.76E3
A5.48E4
A1.44E4
A6.72E4
A2.83E4
A5.79E4
A1.01E4
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:33
351.9000 F:2 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#43057 INJ. TIME = 03:48
A1.08E7
A1.14E7
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:40
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A6.56E6
A7.61E6
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
24:00 24:18 24:59 25:18 26:01 26:28 26:48
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
24:31
23:06
24:51
22:34
23:39
23:56
24:20
25:06
25:22
25:49
26:06
26:23
26:39
Time


File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:345
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1380.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A6.04E4
A4.98E4
A3.81E4
A3.58E4
A4.71E4
A1.08E4
A1.79E4
A1.28E4
A1.73E4
A1.15E4
A7.30E3
A1.13E4
24:00
25:00
26:00
Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:27
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.97E5
A4.62E4
A3.67E4
A3.09E4
A1.07E4
A7.84E3
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:44
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,176.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A7.03E6
A7.31E5
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 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#43057
INJ. TIME = 03:48
A4.87E6
A4.63E5
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
24:00
24:18
24:41
24:59
25:18
25:41
26:01
26:28
26:42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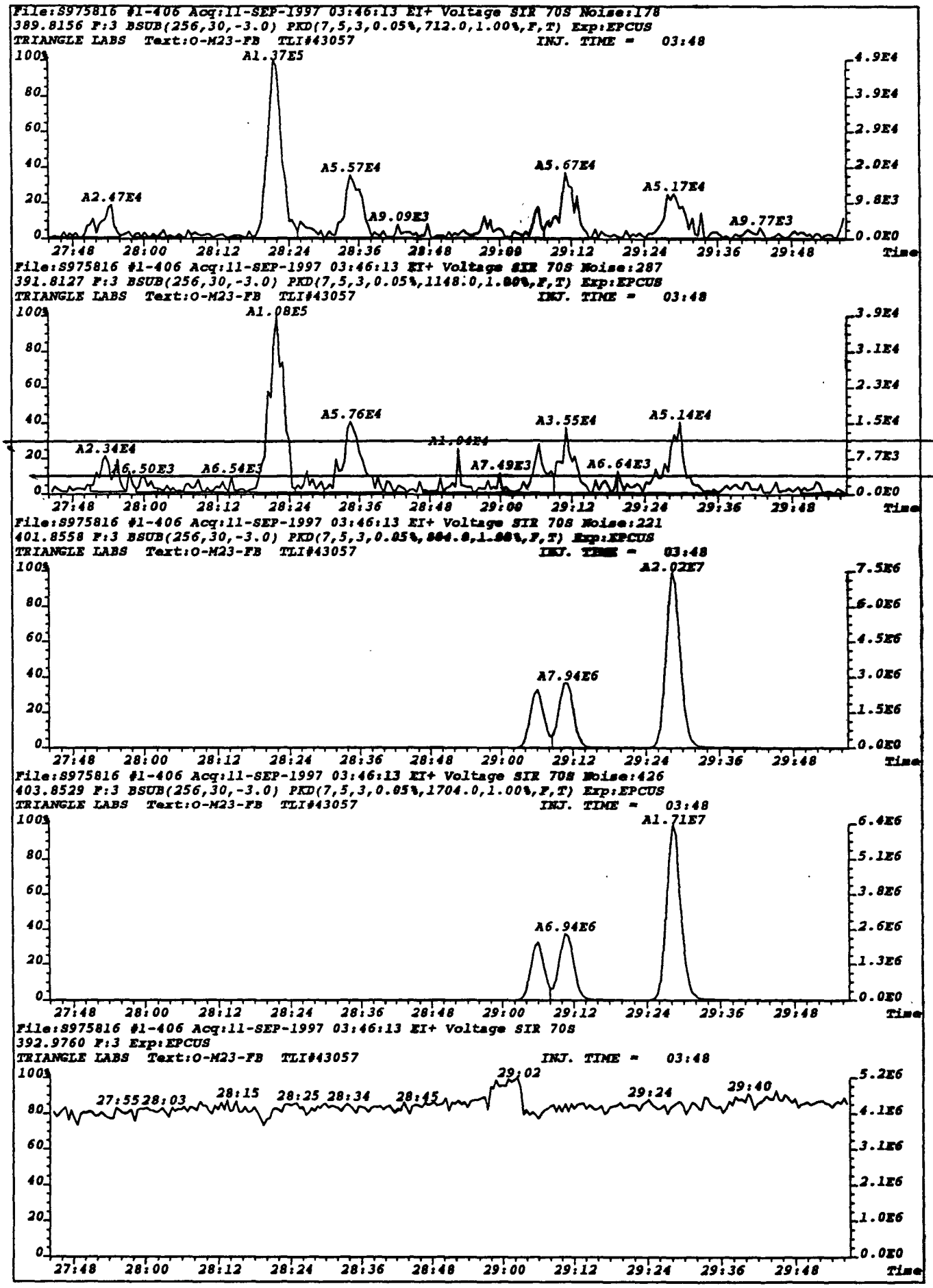
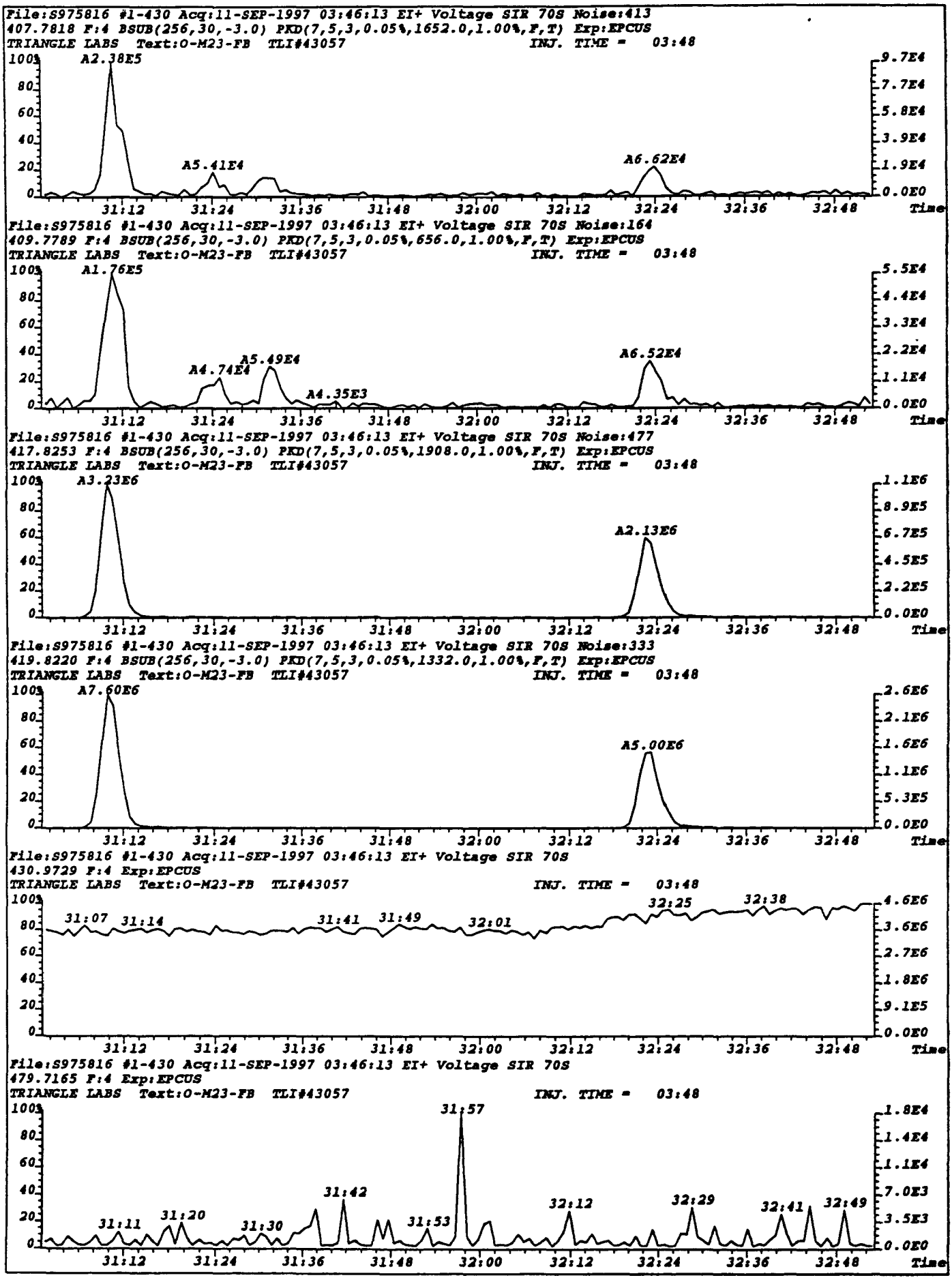
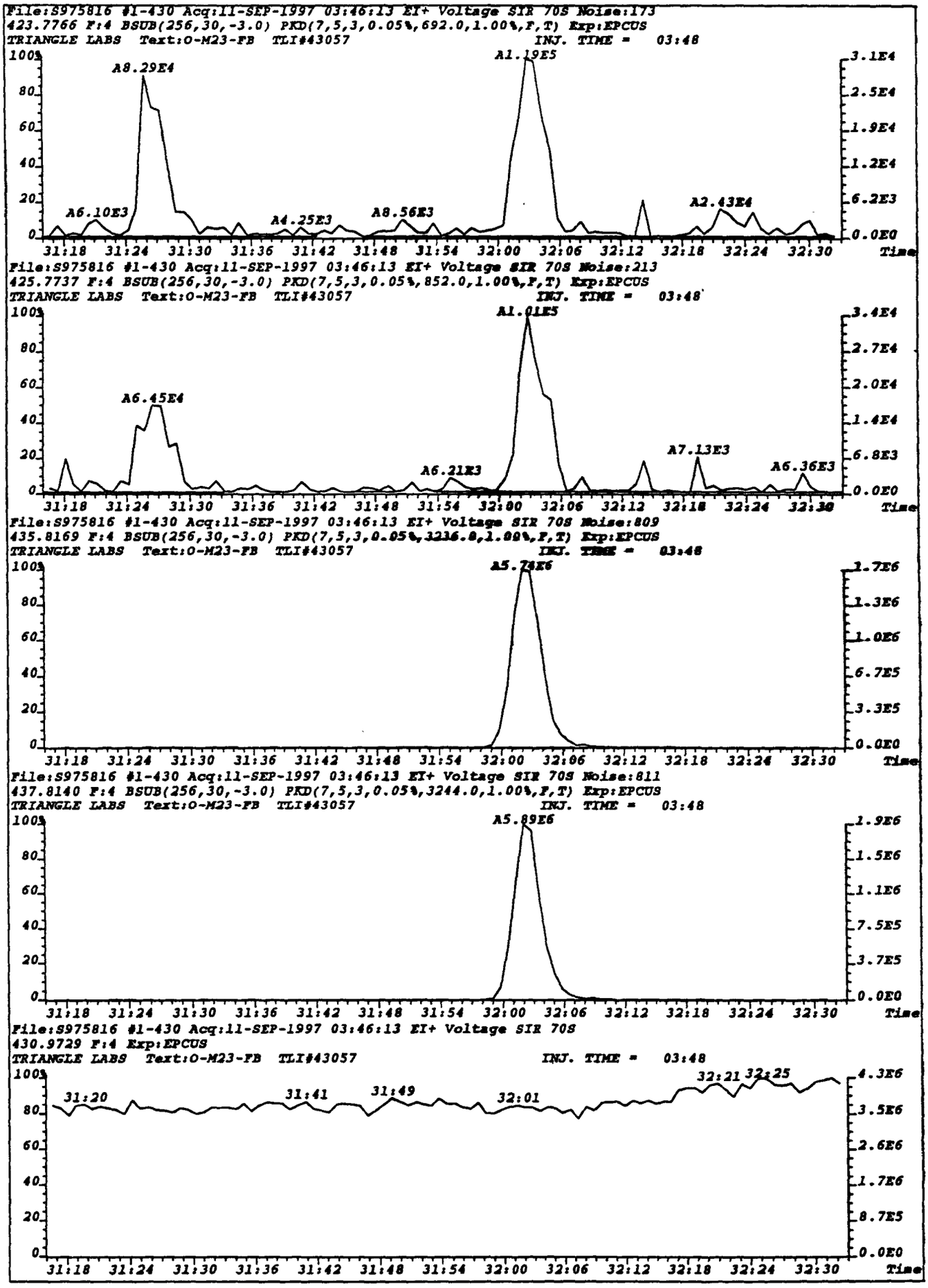
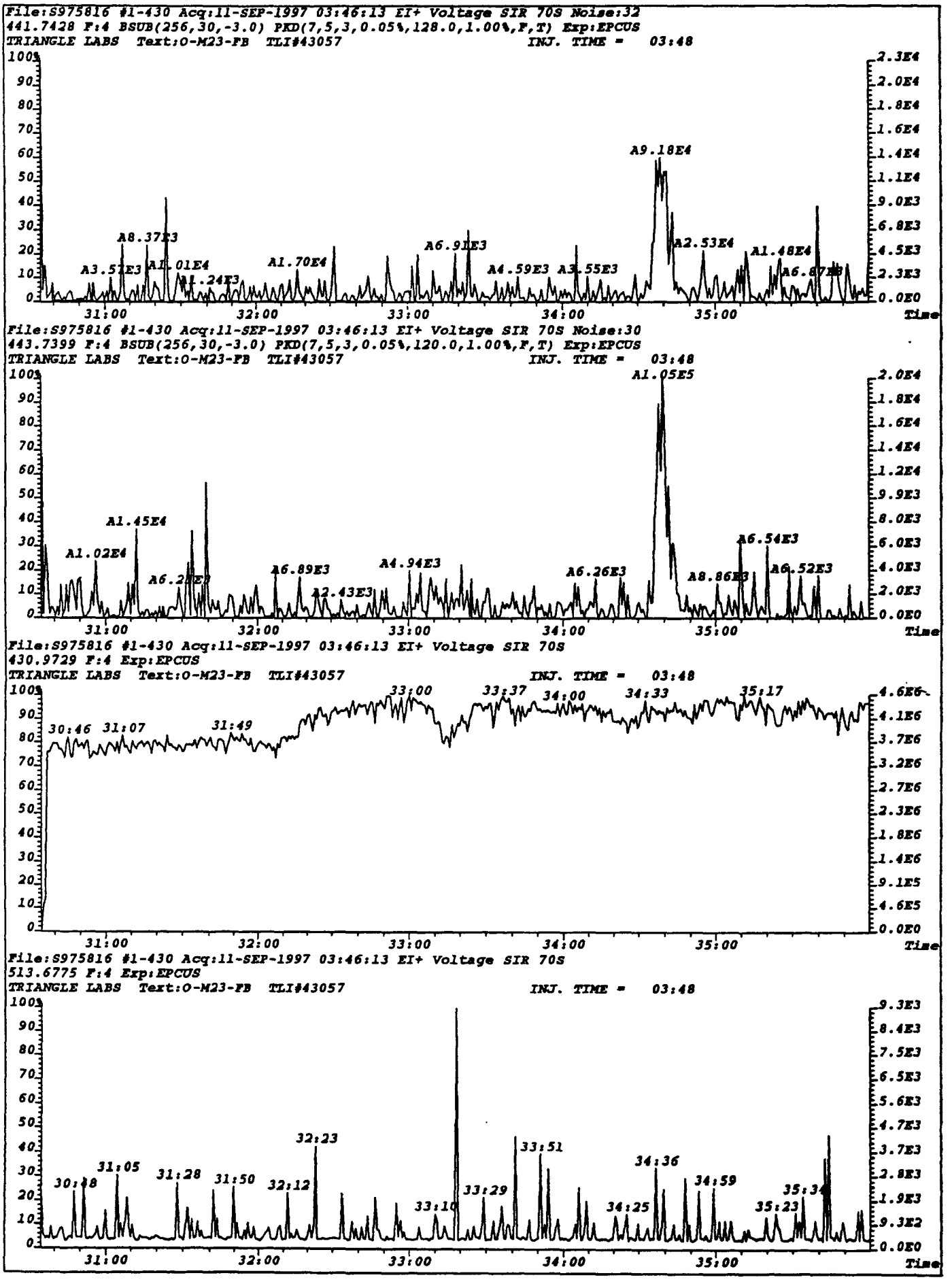
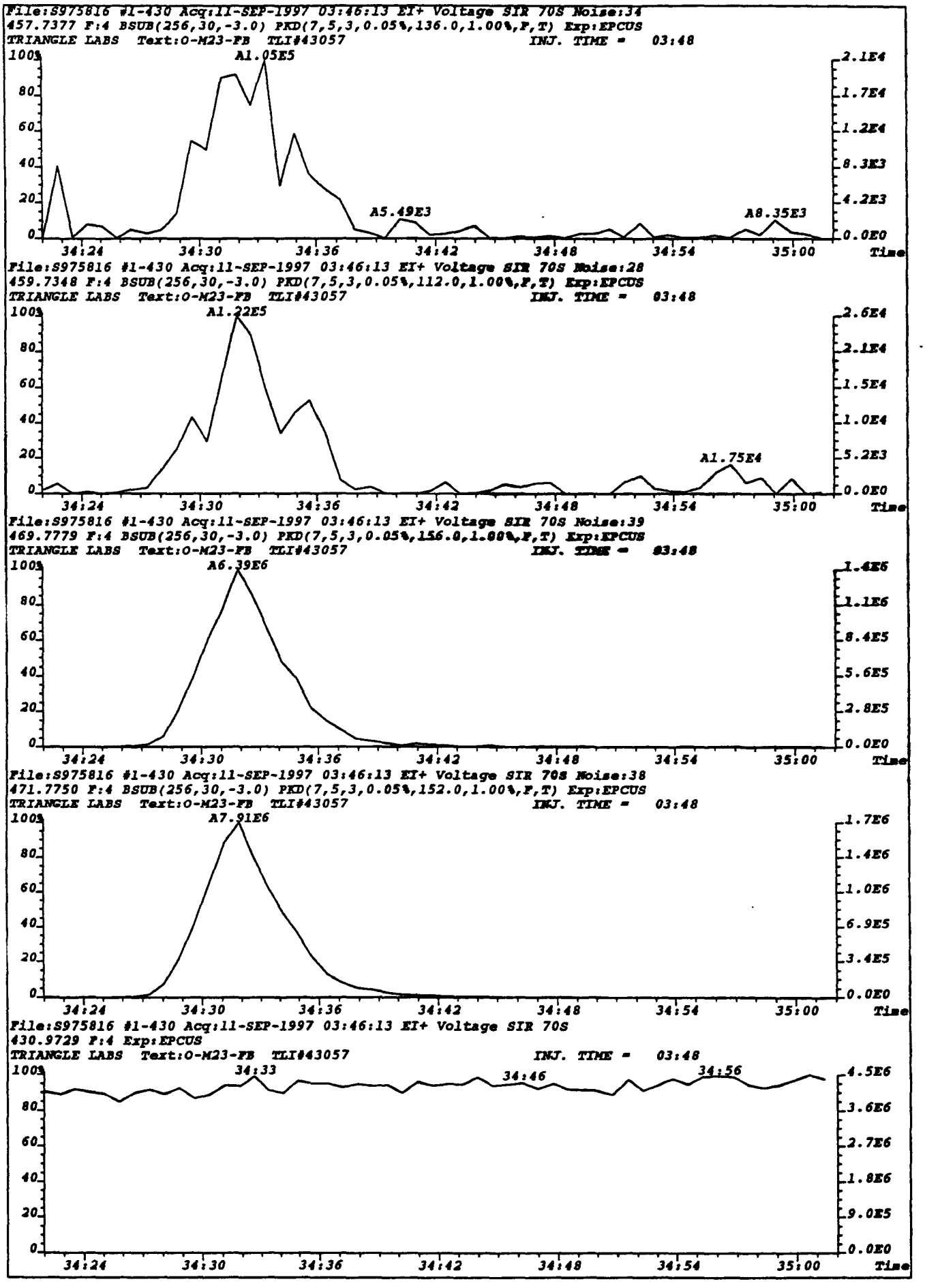
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2604.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.92E5
A1.22E5
A5.60E4
A9.22E4
A2.31E4
A3.67E4
A9.63E3
A2.48E4
A2.52E4
A1.92E4
A8.55E3
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:349
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1396.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.34E5
A8.33E4
A3.79E4
A7.59E4
A2.97E4
A2.19E4
A1.88E4
A2.93E4
A4.11E3
A9.20E3
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:472
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1888.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A5.07E6
A4.68E6
A3.83E6
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:1265
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5060.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.05E7
A9.53E6
A7.81E6
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
27:18 27:33 27:47 28:00 28:15 28:25 28:45 29:02 29:24 29:40 29:59 30:08
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
27:16 27:25 27:40 27:51 28:05 28:11 28:22 28:40 28:56 29:11 29:30 29:44 29:58 30:06
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time

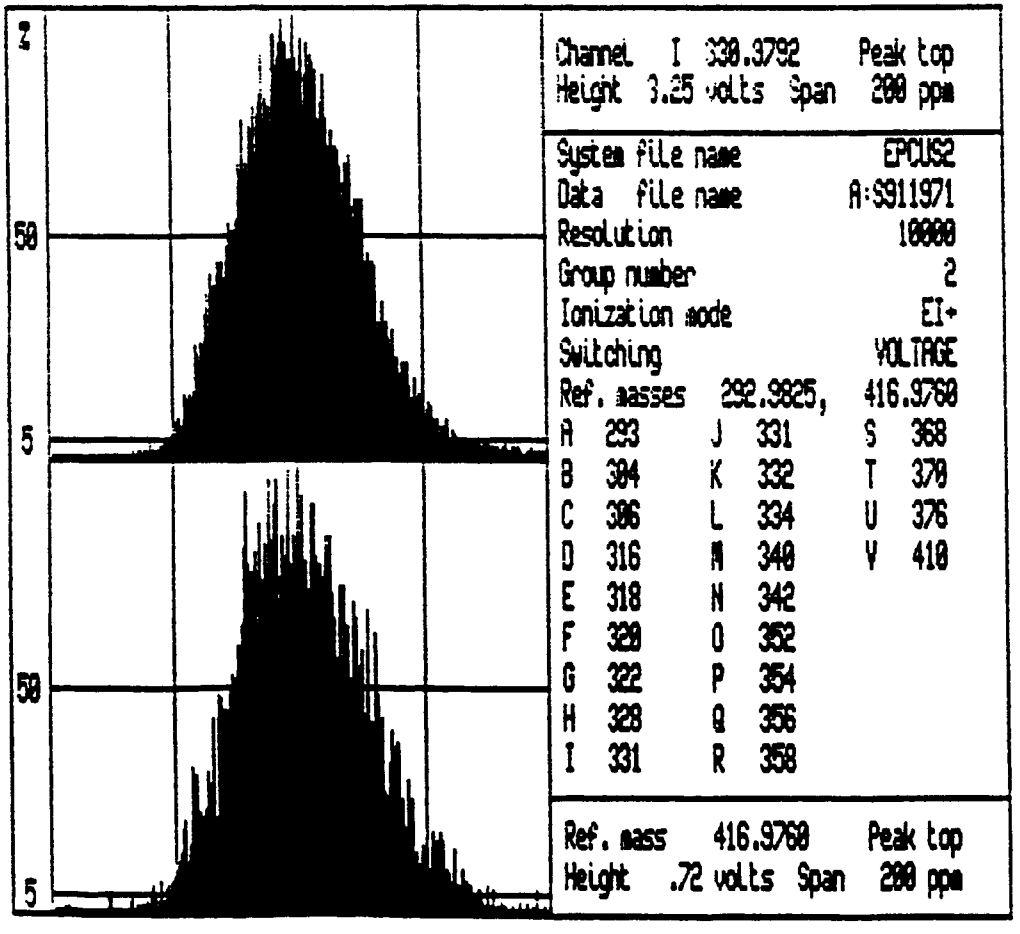

File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:178
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,712.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.37E5
A5.57E4
A5.67E4
A5.17E4
A2.47E4
A9.09E3
A9.77E3
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:287
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.08E5
A5.76E4
A3.55E4
A5.14E4
A2.34E4
A6.50E3
A6.54E3
A7.49E3
A6.64E3
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:221
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,804.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A2.02E7
A7.94E6
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:426
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1704.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.71E7
A6.94E6
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
29:02
Time

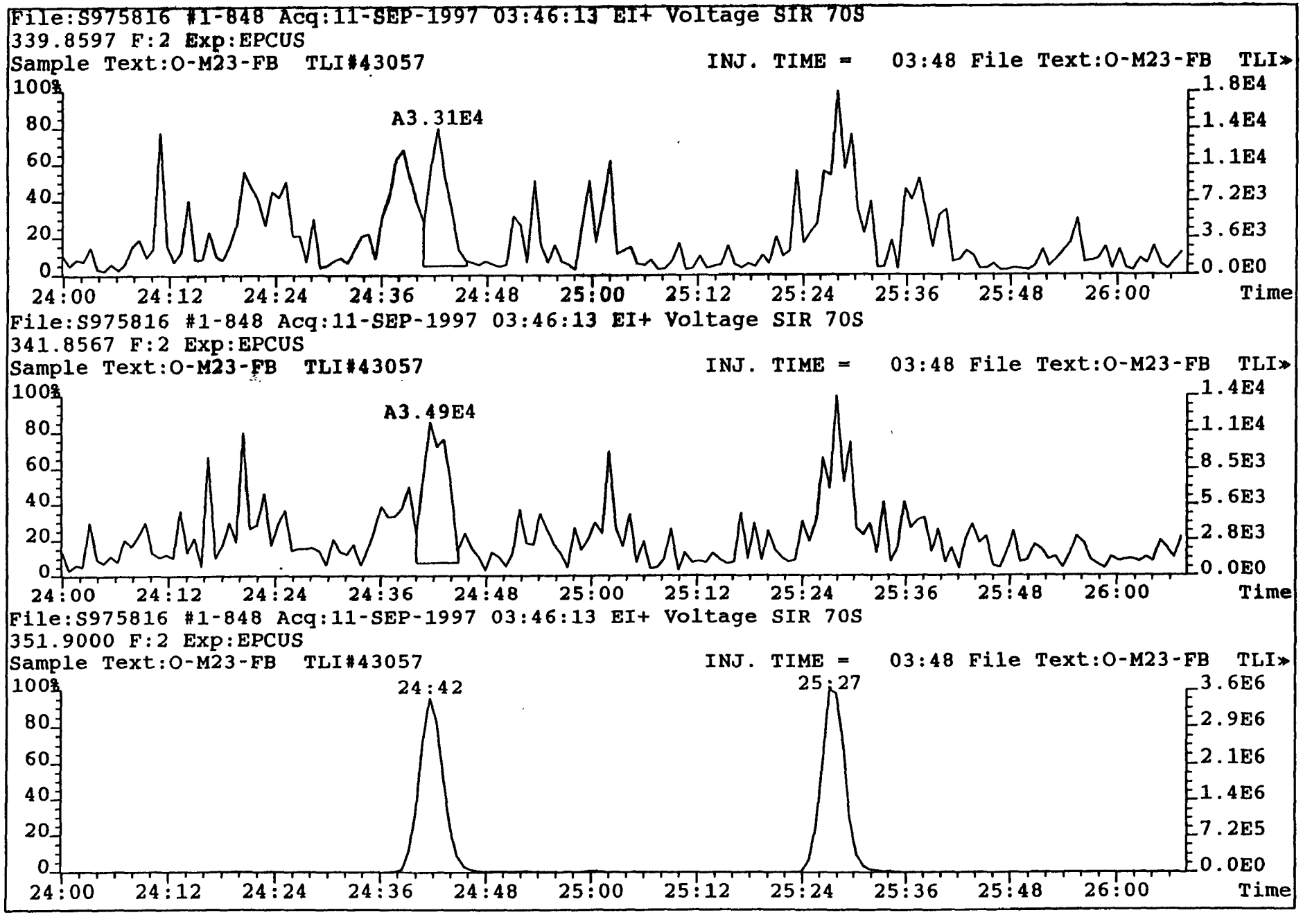

File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:413
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1652.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A2.38E5
A5.41E4
A6.62E4
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:164
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,656.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.76E5
A4.74E4
A5.49E4
A4.35E3
A6.52E4
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:477
417.8253 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-FB TLI#43057 INJ. TIME = 03:48
A3.23E6
A2.13E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:333
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A7.60E6
A5.00E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
31:07
31:14
31:41
31:49
32:01
32:25
32:38
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
31:11
31:20
31:30
31:42
31:53
31:57
32:12
32:29
32:41
32:49
Time

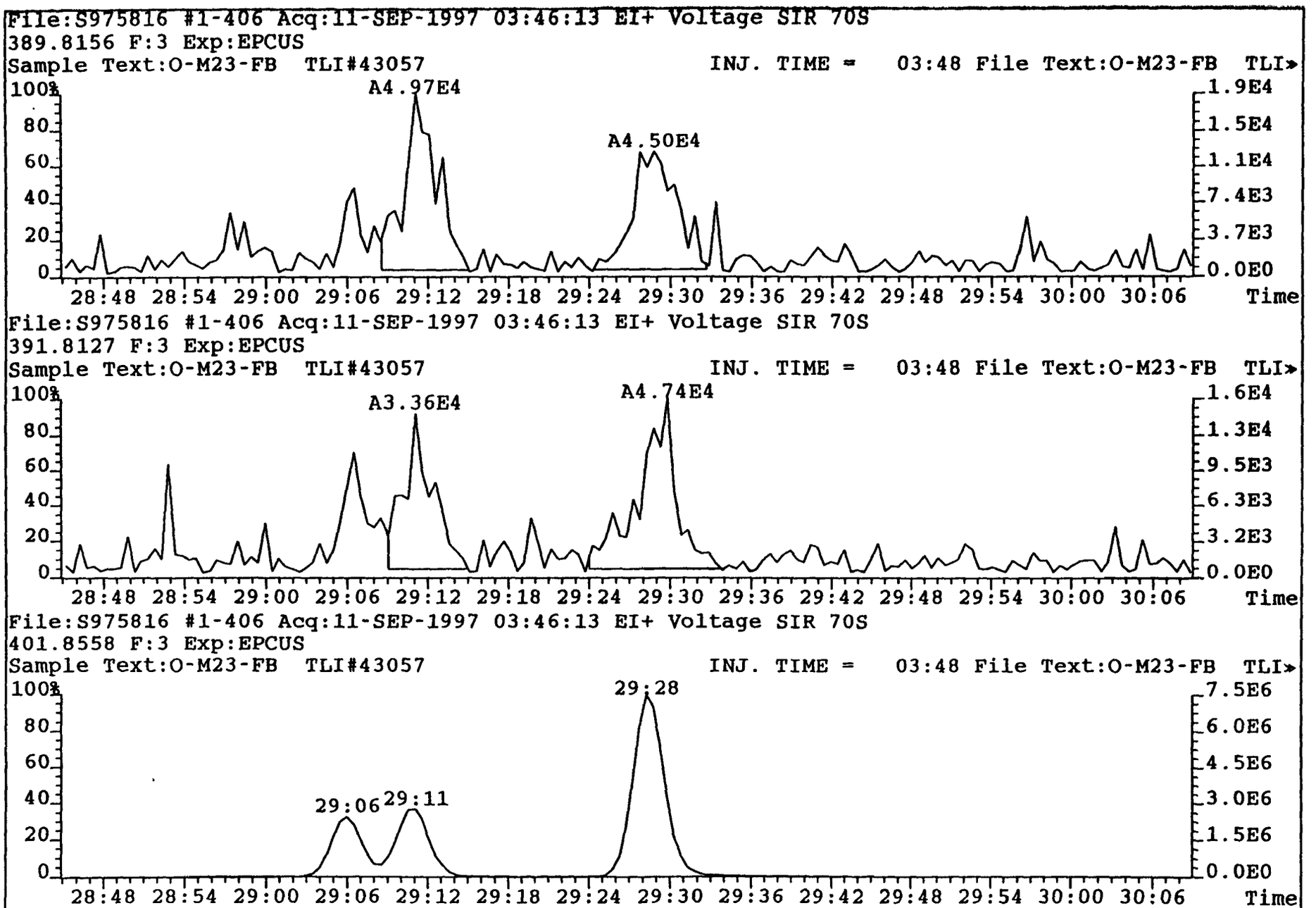

File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:173
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,692.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A8.29E4
A1.19E5
A6.10E3
A4.25E3
A8.56E3
A2.43E4
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ 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-FB TLI#43057
INJ. TIME = 03:48
A1.01E5
A6.45E4
A6.21E3
A7.13E3
A6.36E3
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:809
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3216.8,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A5.74E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:811
437.8140 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-FB TLI#43057
INJ. TIME = 03:48
A5.89E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
31:20
31:41
31:49
32:01
32:21
32:25
Time

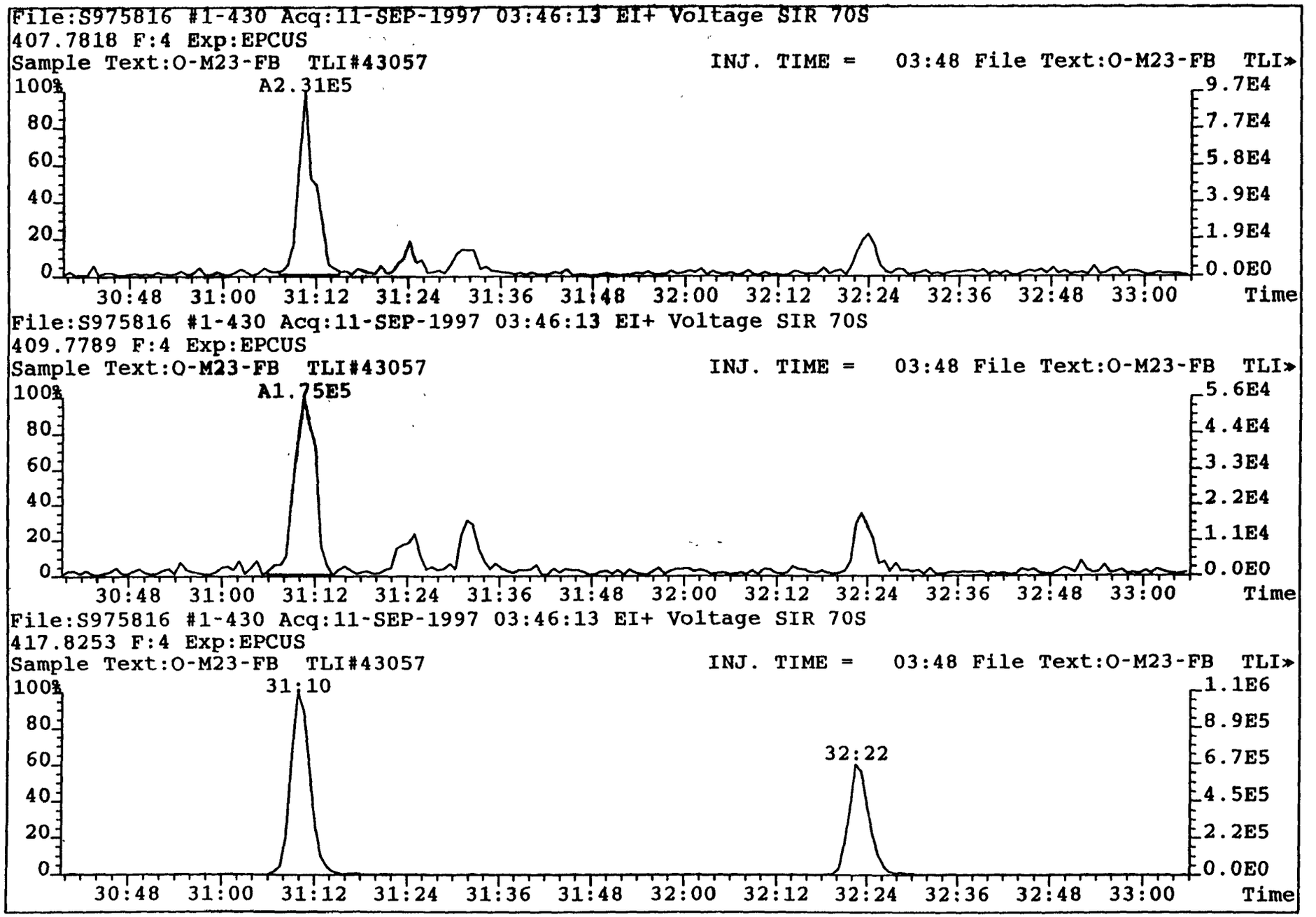

File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:32
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A9.18E4
A8.37E3
A3.51E3
A1.01E4
A1.70E4
A6.91E3
A4.59E3
A3.55E3
A2.53E4
A1.48E4
31:00
32:00
33:00
34:00
35:00
Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:30
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
A1.05E5
A1.45E4
A1.02E4
A6.89E3
A4.94E3
A2.43E3
A6.26E3
A8.86E3
A6.54E3
A6.52E3
31:00
32:00
33:00
34:00
35:00
Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
30:46
31:07
31:49
33:00
33:37
34:00
34:33
35:17
31:00
32:00
33:00
34:00
35:00
Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057 INJ. TIME = 03:48
30:18
31:05
31:28
31:50
32:12
32:23
33:10
33:29
33:51
34:25
34:36
34:59
35:23
31:00
32:00
33:00
34:00
35:00
Time

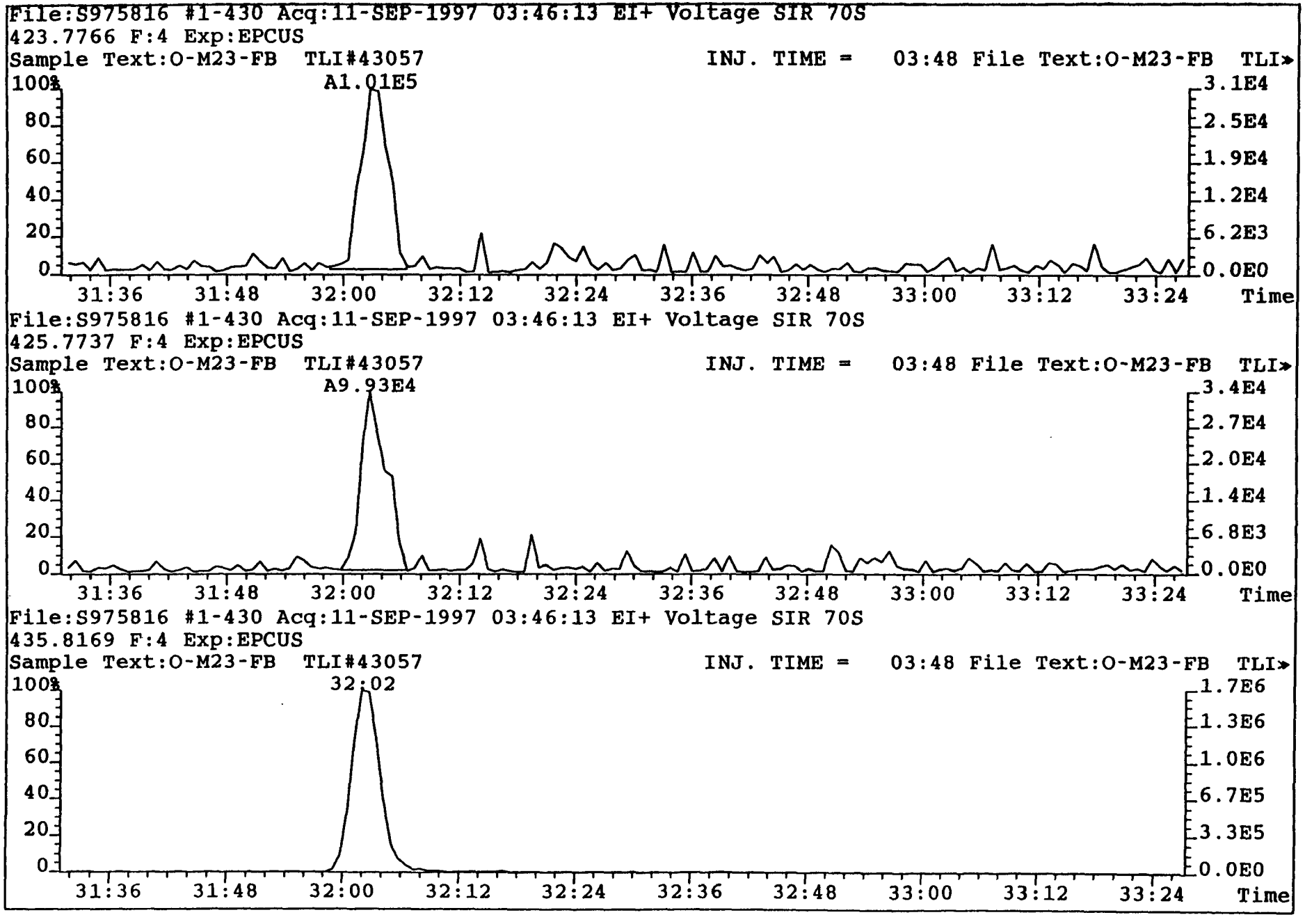

File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:34
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.05E5
A5.49E3
A8.35E3
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:28
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A1.22E5
A1.75E4
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:39
469.7779 F:4 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#43057
INJ. TIME = 03:48
A6.39E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S Noise:38
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
A7.91E6
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-FB TLI#43057
INJ. TIME = 03:48
34:33
34:46
34:56
34:24
34:30
34:36
34:42
34:48
34:54
35:00
Time


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, 416.9768
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 416.9768 Peak top
Height .72 volts Span 200 ppm


File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
A3.31E4
100%
80
60
40
20
0
1.8E4
1.4E4
1.1E4
7.2E3
3.6E3
0.0E0
24:00 24:12 24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
A3.49E4
100%
80
60
40
20
0
1.4E4
1.1E4
8.5E3
5.6E3
2.8E3
0.0E0
24:00 24:12 24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 Time
File:S975816 #1-848 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
24:42
25:27
100%
80
60
40
20
0
3.6E6
2.9E6
2.1E6
1.4E6
7.2E5
0.0E0
24:00 24:12 24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 Time


File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
389.8156 F:3 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
A4.97E4
A4.50E4
100%
80
60
40
20
0
1.9E4
1.5E4
1.1E4
7.4E3
3.7E3
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
391.8127 F:3 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
A3.36E4
A4.74E4
100%
80
60
40
20
0
1.6E4
1.3E4
9.5E3
6.3E3
3.2E3
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06
Time
File:S975816 #1-406 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
401.8558 F:3 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI»
29:28
29:06
29:11
100%
80
60
40
20
0
7.5E6
6.0E6
4.5E6
3.0E6
1.5E6
0.0E0
28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06
Time


File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
A2.31E5
100%
80
60
40
20
0
9.7E4
7.7E4
5.8E4
3.9E4
1.9E4
0.0E0
30:48 31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00
Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
A1.75E5
100%
80
60
40
20
0
5.6E4
4.4E4
3.3E4
2.2E4
1.1E4
0.0E0
30:48 31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00
Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
31:10
32:22
100%
80
60
40
20
0
1.1E6
8.9E5
6.7E5
4.5E5
2.2E5
0.0E0
30:48 31:00 31:12 31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00
Time


File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
A1.01E5
100%
80
60
40
20
0
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
A9.93E4
100%
80
60
40
20
0
3.4E4
2.7E4
2.0E4
1.4E4
6.8E3
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 Time
File:S975816 #1-430 Acq:11-SEP-1997 03:46:13 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:O-M23-FB TLI#43057
INJ. TIME = 03:48 File Text:O-M23-FB TLI
32:02
100%
80
60
40
20
0
1.7E6
1.3E6
1.0E6
6.7E5
3.3E5
0.0E0
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 Time

## Pacific Environmental Services

TLI Project: 43057 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: O-M23-RB — Analysis File: S975817

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-7AB&* | Date Extracted: | 09/06/97 | 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: | S975807 | % 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 | 0.004 | | | | ___ |
| 1,2,3,7,8-PeCDD | 0.01 | | | 1.70 | 25:51 | ___ |
| 1,2,3,4,7,8-HxCDD | ND | 0.006 | | | | ___ |
| 1,2,3,6,7,8-HxCDD | 0.02 | | | 1.16 | 29:11 | ___ |
| 1,2,3,7,8,9-HxCDD | EMPC | | 0.02 | | | PR_ |
| 1,2,3,4,6,7,8-HpCDD | 0.08 | | | 1.09 | 32:02 | B__ |
| 1,2,3,4,6,7,8,9-OCDD | 0.11 | | | 0.94 | 34:32 | B__ |
| 2,3,7,8-TCDF | EMPC | | 0.006 | | | B__ |
| 1,2,3,7,8-PeCDF | EMPC | | 0.008 | | | ___ |
| 2,3,4,7,8-PeCDF | 0.02 | | | 1.54 | 25:27 | B__ |
| 1,2,3,4,7,8-HxCDF | 0.06 | | | 1.25 | 28:20 | PRB |
| 1,2,3,6,7,8-HxCDF | 0.02 | | | 1.19 | 28:28 | B__ |
| 2,3,4,6,7,8-HxCDF | 0.03 | | | 1.20 | 28:58 | PRB |
| 1,2,3,7,8,9-HxCDF | 0.007 | | | 1.33 | 29:41 | ___ |
| 1,2,3,4,6,7,8-HpCDF | 0.11 | | | 0.99 | 31:11 | B__ |
| 1,2,3,4,7,8,9-HpCDF | 0.04 | | | 1.03 | 32:22 | B__ |
| 1,2,3,4,6,7,8,9-OCDF | 0.06 | | | 0.83 | 34:40 | B__ |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | EMPC | | | 0.01 | ___ |
| Total PeCDD | 0.05 | 3 | | 0.06 | ___ |
| Total HxCDD | 0.15 | 4 | | 0.16 | ___ |
| Total HpCDD | 0.13 | 2 | | | ___ |
| Total TCDF | EMPC | | | 0.006 | ___ |
| Total PeCDF | 0.02 | 1 | | 0.05 | ___ |
| Total HxCDF | 0.18 | 6 | | 0.20 | ___ |
| Total HpCDF | 0.17 | 3 | | 0.20 | ___ |





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Printed: 08:18 09/12/97

TLI Project: 43057
Client Sample: O-M23-RB

Method 23 PCDD/PCDF Analysis (a)
Analysis File: S975817

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 3.5 | 88.5 | 40%-130% | 0.75 | 20:21 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 3.1 | 76.4 | 40%-130% | 0.82 | 21:10 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 3.6 | 89.1 | 40%-130% | 1.46 | 24:41 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 4.0 | 99.3 | 40%-130% | 1.55 | 25:49 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 3.0 | 74.0 | 40%-130% | 0.46 | 28:27 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 3.1 | 78.2 | 40%-130% | 1.22 | 29:11 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 2.3 | 56.7 | 25%-130% | 0.43 | 31:10 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 2.5 | 61.3 | 25%-130% | 1.01 | 32:01 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 4.9 | 60.9 | 25%-130% | 0.79 | 34:32 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 4.3 | 107 | 70%-140% | | 21:12 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 4.1 | 102 | 70%-140% | 1.49 | 25:27 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.6 | 90.2 | 70%-140% | 0.48 | 28:20 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.7 | 91.6 | 70%-140% | 1.22 | 29:05 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.6 | 89.0 | 70%-140% | 0.44 | 32:22 | — |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDF | 2.7 | 66.8 | 40%-130% | 0.46 | 29:40 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 3.1 | 76.9 | 40%-130% | 0.48 | 28:58 | — |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.88 | 20:58 | — |
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDD | 1.20 | 29:28 | — |

**Quality Control Notes:**
181-83-1

Date Received (181-83-1): 09/05/97

Data Reviewer: _____ 09/12/97



X237_PSR v2.00, LARS 6.10.04

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801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 08:18 09/12/97

Initial ....Date...

Data Review By: [illegible] 9/12/97 Calculated Noise Area: 1.44

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 S975817B.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 | | | | | | 0.820-1.101 | | | |
| 304-306 | DC | NL | | 0:00 | RO | 0.11 | 0.18 | | | 0.000 | | | |
| | DC | SN | | 16:51 | RO | 4.04 | 0.48 | | | 0.828 | | | |
| | DC | SN | | 18:00 | RO | 0.18 | 0.94 | | | 0.885 | | | |
| | DC | SN | | 18:26 | RO | 1.27 | 3.29 | | | 0.906 | | | |
| | DC | SN | | 19:13 | RO | 0.57 | 3.13 | | | 0.944 | | | |
| D | D | SN | | 19:31 | | 0.80 | 5.63 | | | 0.959 | | | |
| M | | | | 20:23 | RO | 0.61 | 8.94 | 3.89 | 6.42 | 1.002 | 2378-TCDF | | AN |
| | DC | SN | | 20:36 | RO | 0.13 | 0.25 | | | 1.012 | | | |
| | DC | SN | | 20:52 | RO | 0.18 | 0.85 | | | 1.025 | | | |
| | DC | SN | | 21:07 | RO | 0.36 | 2.87 | | | 1.038 | | | |
| | DC | SN | | 22:18 | RO | 1.58 | 2.34 | | | 1.096 | | | |
| 304-306 | | | 1 | Peak | | | 8.94 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.951-1.049 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 0.13 | 0.21 | | | 0.000 | | | |
| | DC | WL | | 19:10 | | 0.88 | 25.07 | | | 0.942 | | | |
| | | | | 19:30 | | 0.65 | 6.98 | 2.74 | 4.24 | 0.958 | | | |
| | | | | 19:53 | | 0.81 | 20.74 | 9.29 | 11.45 | 0.977 | | | |
| | | | | 20:21 | | 0.75 | 4,446.87 | 1,900.95 | 2,545.92 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 20:51 | | 0.78 | 26.08 | 11.39 | 14.69 | 1.025 | | | |
| 316-318 | | | 4 | Peaks | | | 4,500.67 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | 0.65-0.89 | | | | | | 0.853-1.059 | | | |
| 320-322 | DC | NL | | 0:00 | RO | 1.50 | 0.11 | | | 0.000 | | | |
| | | | | 18:16 | RO | 1.02 | 10.51 | 6.08 | 5.94 | 0.863 | | | |
| | DC | SN | | 18:24 | | 0.66 | 0.83 | | | 0.869 | | | |
| D | D | SN | | 18:43 | | 0.83 | 7.86 | | | 0.884 | | | |
| | DC | SN | | 18:59 | RO | 1.80 | 0.71 | | | 0.897 | | | |
| | DC | SN | | 19:03 | RO | 1.55 | 0.90 | | | 0.900 | | | |
| | DC | SN | | 19:10 | RO | 0.24 | 0.44 | | | 0.906 | | | |
| | DC | SN | | 19:16 | RO | 2.40 | 0.44 | | | 0.910 | | | |
| | DC | SN | | 19:26 | | 0.78 | 0.48 | | | 0.918 | | | |
| | DC | SN | | 19:36 | RO | 0.27 | 0.48 | | | 0.926 | | | |
| | DC | SN | | 19:52 | | 0.87 | 4.08 | | | 0.939 | | | |
| | DC | SN | | 20:06 | RO | 2.69 | 0.74 | | | 0.950 | | | |
| | DC | SN | | 20:37 | RO | 4.22 | 0.41 | | | 0.974 | | | |
| | DC | SN | | 20:42 | RO | 1.32 | 1.36 | | | 0.978 | | | |
| | DC | SN | | 20:54 | RO | 0.44 | 1.13 | | | 0.987 | | | |
| | DC | SN | | 21:05 | RO | 1.38 | 2.41 | | | 0.996 | | | |
| | DC | SN | | 21:13 | RO | 0.42 | 3.49 | | | 1.002 | 2378-TCDD | | AN |
| | DC | SN | | 21:24 | RO | 2.04 | 0.80 | | | 1.011 | | | |

| 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 | | 21:30 | RO | 1.00 | 0.50 | | | 1.016 | | | |
| | DC | SN | | 21:56 | | 0.84 | 1.23 | | | 1.036 | | | |
| | DC | SN | | 22:22 | RO | 0.33 | 0.57 | | | 1.057 | | | |
| | DC | WH | | 22:34 | RO | 1.11 | 0.94 | | | 1.066 | | | |
| 320-322 | | 1 | Peak | | | | 10.51 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.906-1.094 | | | |
| 328 | DC | NL | | 0:00 | | | 0.06 | | | 0.000 | | | |
| | | | | 19:38 | | | 9.52 | 9.52 | | 0.928 | | | |
| | | | | 21:12 | | | 2,813.25 | 2,813.25 | | 1.002 | 37Cl-TCDD | SUR1 | |
| | | | | 21:31 | | | 2.95 | 2.95 | | 1.017 | | | |
| | DC | SN | | 21:38 | | | 1.79 | | | 1.022 | | | |
| | DC | SN | | 22:01 | | | 1.15 | | | 1.040 | | | |
| 328 | | 3 | Peaks | | | | 2,825.72 | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.906-1.094 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 25.00 | 0.12 | | | 0.000 | | | |
| | | | | 19:52 | | 0.75 | 18.99 | 8.11 | 10.88 | 0.939 | | | |
| | | | | 20:58 | | 0.88 | 3,814.33 | 1,789.34 | 2,024.99 | 0.991 | 13C12-1234-TCDD | RS1 | |
| | | | | 21:10 | | 0.82 | 3,105.96 | 1,398.93 | 1,707.03 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 21:32 | RO | 1.25 | 49.12 | 34.58 | 27.75 | 1.017 | | | |
| 332-334 | | 4 | Peaks | | | | 6,988.40 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | | 1.32-1.78 | | | | 0.907-1.078 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 0.14 | 0.13 | | | 0.000 | | | |
| | DC | SN | | 22:35 | RO | 1.96 | 5.10 | | | 0.915 | | | |
| | DC | SN | | 22:48 | RO | 0.31 | 0.36 | | | 0.924 | | | |
| | DC | SN | | 23:00 | RO | 0.60 | 1.96 | | | 0.932 | | | |
| | DC | SN | | 23:16 | RO | 0.43 | 0.94 | | | 0.943 | | | |
| D | D | SN | | 23:39 | RO | 0.81 | 5.05 | | | 0.958 | | | |
| A | | | | 23:48 | RO | 1.81 | 17.44 | 12.40 | 6.84 | 0.964 | | | |
| D | D | SN | | 23:57 | RO | 1.16 | 4.80 | | | 0.970 | | | |
| | DC | SN | | 24:09 | RO | 3.34 | 1.20 | | | 0.978 | | | |
| M | | | | 24:42 | RO | 1.23 | 8.46 | 5.14 | 4.17 | 1.001 | 12378-PeCDF | AN | |
| | DC | SN | | 24:54 | RO | 0.75 | 2.80 | | | 1.009 | | | |
| D | D | SN | | 25:00 | | 1.32 | 11.43 | | | 1.013 | | | |
| | | | | 25:27 | | 1.54 | 21.27 | 12.91 | 8.36 | 1.031 | 23478-PeCDF | AN | |
| | | | | 25:38 | RO | 1.05 | 9.84 | 5.98 | 5.70 | 1.038 | | | |
| | DC | SN | | 25:48 | RO | 0.58 | 0.79 | | | 1.045 | | | |
| | DC | SN | | 25:55 | RO | 0.58 | 2.68 | | | 1.050 | | | |
| | DC | SN | | 26:06 | RO | 0.89 | 1.12 | | | 1.057 | | | |
| D | D | SN | | 26:28 | RO | 0.95 | 5.68 | | | 1.072 | | | |
| | DC | WH | | 26:54 | | 1.38 | 1.38 | | | 1.090 | | | |
| 340-342 | | 4 | Peaks | | | | 57.01 | | | | | | |
| 13C12-PeCDF | | | | | | 1.32-1.78 | | | | 0.838-1.162 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.13 | 0.15 | | | 0.000 | | | |
| | | | | 23:47 | RO | 1.29 | 39.27 | 23.87 | 18.48 | 0.964 | | | |
| | | | | 24:20 | | 1.75 | 20.78 | 13.23 | 7.55 | 0.986 | | | |
| | | | | 24:41 | | 1.46 | 3,850.99 | 2,284.48 | 1,566.51 | 1.000 | 13C12-PeCDF 123 | IS2 | |

| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 24:59 | | 1.38 | 34.61 | 20.09 | 14.52 | 1.012 | | | |
| | | | | 25:27 | | 1.49 | 3,791.96 | 2,267.29 | 1,524.67 | 1.031 | 13C12-PeCDF 234 | SUR2 | |
| | | | | 25:49 | RO | 0.82 | 5.73 | 3.48 | 4.25 | 1.046 | | | |
| | DC | SN | | 25:55 | RO | 1.89 | 4.69 | | | 1.050 | | | |
| | DC | SN | | 26:06 | RO | 1.09 | 3.64 | | | 1.057 | | | |
| | | | | 26:27 | RO | 0.89 | 10.53 | 6.40 | 7.23 | 1.072 | | | |
| 352-354 | | | 7 | Peaks | | | 7,753.87 | | | | | | |
| ---------- Above: PeCDF / PeCDD Follows ---------- | | | | | | | | | | | | | |
| PeCDD | | | | | | 1.32-1.78 | | | | 0.921-1.026 | | | |
| 356-358 | DC | NL | | 0:00 | RO | 14.29 | 0.18 | | | 0.000 | | | |
| | | | | 23:57 | | 1.41 | 13.85 | 8.11 | 5.74 | 0.928 | | | |
| | DC | SN | | 24:08 | RO | 9.81 | 0.41 | | | 0.935 | | | |
| | DC | SN | | 24:17 | RO | 3.21 | 0.61 | | | 0.941 | | | |
| | | | | 24:42 | | 1.47 | 15.46 | 9.21 | 6.25 | 0.957 | | | |
| | DC | SN | | 24:52 | RO | 1.21 | 2.78 | | | 0.963 | | | |
| | | | | 25:04 | RO | 2.22 | 9.44 | 8.23 | 3.70 | 0.971 | | | |
| | DC | SN | | 25:13 | RO | 8.85 | 0.69 | | | 0.977 | | | |
| | DC | SN | | 25:22 | | 1.35 | 2.37 | | | 0.983 | | | |
| | DC | SN | | 25:31 | RO | 2.80 | 2.98 | | | 0.988 | | | |
| | DC | SN | | 25:39 | RO | 1.12 | 2.39 | | | 0.994 | | | |
| | | | | 25:51 | | 1.70 | 7.21 | 4.54 | 2.67 | 1.001 | 12378-PeCDD | AN | |
| | DC | SN | | 26:05 | RO | 0.51 | 1.35 | | | 1.010 | | | |
| | DC | WH | | 26:47 | RO | 4.84 | 0.79 | | | 1.037 | | | |
| 356-358 | | | 4 | Peaks | | | 45.96 | | | | | | |
| 13C12-PeCDD | | | | | | 1.32-1.78 | | | | 0.845-1.155 | | | |
| 368-370 | DC | NL | | 0:00 | | 1.43 | 0.17 | | | 0.000 | | | |
| | DC | SN | | 24:41 | RO | 0.78 | 2.24 | | | 0.956 | | | |
| | | | | 25:49 | | 1.55 | 2,405.29 | 1,463.62 | 941.67 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 25:58 | | 1.60 | 228.84 | 140.66 | 88.18 | 1.006 | | | |
| | DC | SN | | 26:08 | RO | 2.39 | 4.82 | | | 1.012 | | | |
| 368-370 | | | 2 | Peaks | | | 2,634.13 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | | | 1.05-1.43 | | | | 0.955-1.052 | | | |
| 374-376 | DC | NL | | 0:00 | RO | 2.82 | 1.34 | | | 0.000 | | | |
| | | | | 27:21 | | 1.10 | 19.50 | 10.20 | 9.30 | 0.961 | | | |
| | | | | 27:30 | | 1.21 | 40.31 | 22.07 | 18.24 | 0.967 | | | |
| | DC | SN | | 27:38 | RO | 0.93 | 2.69 | | | 0.971 | | | |
| D | D | SN | | 27:49 | | 1.15 | 8.35 | | | 0.978 | | | |
| | DC | SN | | 27:59 | RO | 0.40 | 1.90 | | | 0.984 | | | |
| | | | | 28:20 | | 1.25 | 60.57 | 33.66 | 26.91 | 0.996 | 123478-HxCDF | AN | PR |
| | | | | 28:28 | | 1.19 | 30.75 | 16.69 | 14.06 | 1.001 | 123678-HxCDF | AN | |
| D | D | SN | | 28:34 | | 1.26 | 8.31 | | | 1.004 | | | |
| D | D | SN | | 28:47 | | 1.32 | 10.54 | | | 1.012 | | | |
| | | | | 28:58 | | 1.20 | 28.41 | 15.50 | 12.91 | 1.018 | 234678-HxCDF | AN | PR |
| | DC | SN | | 29:06 | RO | 3.03 | 0.69 | | | 1.023 | | | |
| | DC | SN | | 29:10 | RO | 2.41 | 0.87 | | | 1.025 | | | |
| | DC | SN | | 29:17 | RO | 0.40 | 0.45 | | | 1.029 | | | |

| ompound/ _Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 29:28 | RO | 0.82 | 0.76 | | | 1.036 | | | |
| | | | | 29:41 | | 1.33 | 6.37 | 3.64 | 2.73 | 1.043 | 123789-HxCDF | AN | |
| | | | | 29:46 | RO | 1.49 | 13.08 | 8.70 | 5.84 | 1.046 | | | |
| | DC | SN | | 29:53 | RO | 2.29 | 1.01 | | | 1.050 | | | |
| | DC | WH | | 30:01 | RO | 0.80 | 0.72 | | | 1.055 | | | |
| | DC | WH | | 30:12 | RO | 1.62 | 0.65 | | | 1.062 | | | |
| 74-376 | | | 7 | Peaks | | | 198.99 | | | | | | |
| 3C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.859-1.141 | | | |
| 84-386 | DC | NL | | 0:00 | RO | 1.22 | 1.86 | | | 0.000 | | | |
| | DC | SN | | 27:20 | RO | 0.40 | 6.01 | | | 0.961 | | | |
| | | | | 27:28 | RO | 0.66 | 15.89 | 6.94 | 10.52 | 0.965 | | | |
| | | | | 28:20 | | 0.48 | 2,718.04 | 884.25 | 1,833.79 | 0.996 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 28:27 | | 0.46 | 3,143.19 | 997.30 | 2,145.89 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | DC | SN | | 28:41 | RO | 0.71 | 4.79 | | | 1.008 | | | |
| | DC | SN | | 28:44 | RO | 0.26 | 4.47 | | | 1.010 | | | |
| | | | | 28:58 | | 0.48 | 3,022.43 | 985.40 | 2,037.03 | 1.018 | 13C12-HxCDF 234 | ALT2 | |
| | | | | 29:40 | | 0.46 | 2,284.00 | 715.21 | 1,568.79 | 1.043 | 13C12-HxCDF 789 | ALT1 | |
| | DC | SN | | 29:57 | RO | 0.26 | 0.89 | | | 1.053 | | | |
| 84-386 | | | 5 | Peaks | | | 11,183.55 | | | | | | |

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

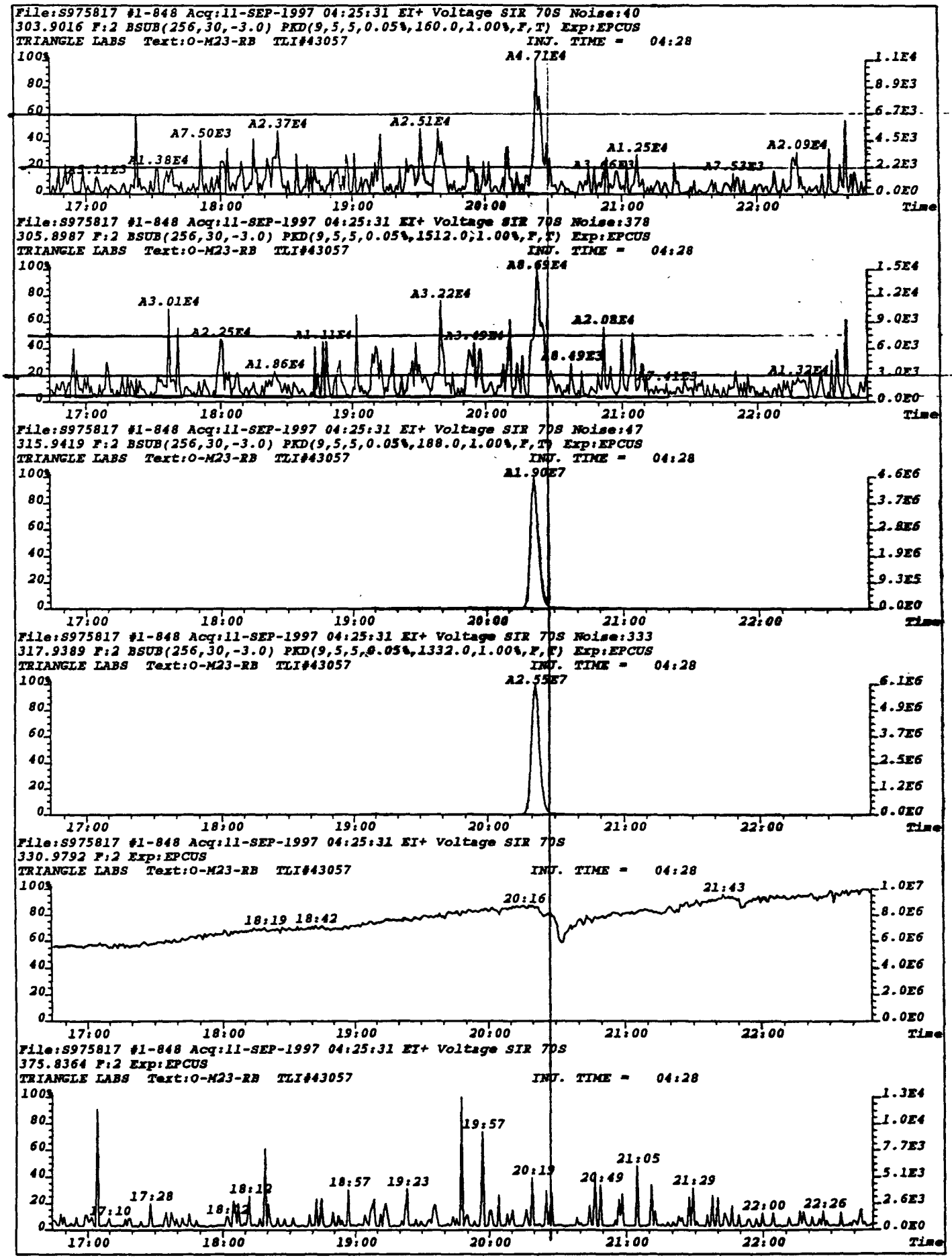
| xCDD | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1.05-1.43 | | | | | | 0.950-1.015 | | | |
| 90-392 | DC | NL | | 0:00 | RO | 0.64 | 0.78 | | | 0.000 | | | |
| | DC | SN | | 27:46 | RO | 1.48 | 0.56 | | | 0.951 | | | |
| | | | | 27:53 | | 1.15 | 8.05 | 4.30 | 3.75 | 0.955 | | | |
| | DC | SN | | 28:04 | RO | 0.88 | 0.63 | | | 0.962 | | | |
| | DC | SN | | 28:09 | RO | 1.00 | 0.49 | | | 0.965 | | | |
| | | | | 28:21 | | 1.21 | 56.45 | 30.92 | 25.53 | 0.971 | | | |
| | | | | 28:35 | | 1.23 | 26.65 | 14.70 | 11.95 | 0.979 | | | |
| | DC | SN | | 28:57 | RO | 1.49 | 2.60 | | | 0.992 | | | |
| D | D | SN | | 29:06 | RO | 0.91 | 5.08 | | | 0.997 | 123478-HxCDD | AN | |
| | | | | 29:11 | | 1.16 | 16.17 | 8.67 | 7.50 | 1.000 | 123678-HxCDD | AN | |
| | DC | SN | | 29:18 | RO | 0.89 | 1.01 | | | 1.004 | | | |
| M | | | | 29:28 | RO | 0.92 | 12.14 | 6.72 | 7.32 | 1.010 | 123789-HxCDD | AN | PR |
| | DC | SN | | 29:35 | RO | 0.26 | 0.36 | | | 1.014 | | | |
| | DC | WH | | 29:40 | RO | 1.71 | 1.86 | | | 1.017 | | | |
| | DC | WH | | 29:50 | RO | 0.22 | 0.25 | | | 1.022 | | | |
| | DC | WH | | 29:52 | RO | 0.17 | 0.34 | | | 1.023 | | | |
| 90-392 | | | 5 | Peaks | | | 119.46 | | | | | | |
| 3C12-HxCDD | | | | 1.05-1.43 | | | | | | 0.966-1.034 | | | |
| 02-404 | DC | NL | | 0:00 | RO | 0.92 | 1.19 | | | 0.000 | | | |
| | | | | 28:35 | | 1.11 | 11.12 | 5.84 | 5.28 | 0.979 | | | |
| | | | | 29:05 | | 1.22 | 2,448.25 | 1,343.08 | 1,105.17 | 0.997 | 13C12-HxCDD 478 | SUR4 | |
| | | | | 29:11 | | 1.22 | 2,745.61 | 1,511.31 | 1,234.30 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 29:28 | | 1.20 | 3,527.42 | 1,926.48 | 1,600.94 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| | | | | 29:39 | RO | 0.77 | 6.34 | 3.51 | 4.56 | 1.016 | | | |
| | DC | SN | | 29:43 | | 1.10 | 4.63 | | | 1.018 | | | |
| | DC | SN | | 29:46 | RO | 2.32 | 2.49 | | | 1.020 | | | |
| 02-404 | | | 5 | Peaks | | | 8,738.74 | | | | | | |

| 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: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | | |
| HpCDF | | | | 0.88-1.20 | | | | | | 0.995-1.044 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 1.47 | 1.16 | | | 0.000 | | | |
| | DC | SN | | 31:02 | RO | 0.32 | 1.22 | | | 0.996 | | | |
| | | | | 31:11 | | 0.99 | 73.54 | 36.50 | 37.04 | 1.001 | 1234678-HpCDF | | AN |
| | | | | 31:23 | | 1.02 | 13.17 | 6.64 | 6.53 | 1.007 | | | |
| | | | | 31:32 | RO | 1.30 | 17.75 | 11.35 | 8.70 | 1.012 | | | |
| | | | | 32:22 | | 1.03 | 20.51 | 10.43 | 10.08 | 1.039 | 1234789-HpCDF | | AN |
| 408-410 | | | 4 | Peaks | | | 124.97 | | | | | | |
| 13C12-HpCDF | | | | 0.37-0.51 | | | | | | 0.936-1.128 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 1.37 | 1.12 | | | 0.000 | | | |
| | | | | 31:10 | | 0.43 | 1,772.47 | 535.60 | 1,236.87 | 1.000 | 13C12-HpCDF 678 | | IS6 |
| | | | | 31:27 | RO | 0.90 | 4.18 | 2.60 | 2.90 | 1.009 | | | |
| | DC | SN | | 32:03 | RO | 0.94 | 2.45 | | | 1.028 | | | |
| | | | | 32:22 | | 0.44 | 1,215.65 | 370.55 | 845.10 | 1.039 | 13C12-HpCDF 789 | | SUR5 |
| | DC | SN | | 32:46 | RO | 0.24 | 1.41 | | | 1.051 | | | |
| 418-420 | | | 3 | Peaks | | | 2,992.30 | | | | | | |
| ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | | |
| HpCDD | | | | 0.88-1.20 | | | | | | 0.976-1.006 | | | |
| 424-426 | DC | NL | | 0:00 | | 1.00 | 0.14 | | | 0.000 | | | |
| | | | | 31:26 | | 1.10 | 21.45 | 11.22 | 10.23 | 0.982 | | | |
| | DC | SN | | 31:38 | RO | 4.08 | 0.27 | | | 0.988 | | | |
| | DC | SN | | 31:48 | RO | 2.07 | 0.31 | | | 0.993 | | | |
| | | | | 32:02 | | 1.09 | 39.68 | 20.66 | 19.02 | 1.001 | 1234678-HpCDD | | AN |
| | DC | WH | | 32:16 | RO | 1.59 | 0.55 | | | 1.008 | | | |
| | DC | WH | | 32:22 | RO | 2.29 | 1.43 | | | 1.011 | | | |
| 424-426 | | | 2 | Peaks | | | 61.13 | | | | | | |
| 13C12-HpCDD | | | | 0.88-1.20 | | | | | | 0.969-1.031 | | | |
| 436-438 | DC | NL | | 0:00 | RO | 1.69 | 3.06 | | | 0.000 | | | |
| | | | | 31:26 | RO | 1.29 | 5.41 | 3.42 | 2.65 | 0.982 | | | |
| | | | | 32:01 | | 1.01 | 1,762.45 | 884.29 | 878.16 | 1.000 | 13C12-HpCDD 678 | | IS7 |
| 436-438 | | | 2 | Peaks | | | 1,767.86 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | 0.76-1.02 | | | | | | 0.884-1.116 | | | |
| 442-444 | DC | NL | | 0:00 | RO | 0.18 | 0.17 | | | 0.000 | | | |
| | DC | SN | | 30:50 | RO | 1.59 | 1.49 | | | 0.893 | | | |
| | DC | SN | | 31:05 | RO | 0.51 | 0.59 | | | 0.900 | | | |
| | DC | SN | | 31:18 | RO | 2.16 | 0.36 | | | 0.906 | | | |
| | DC | SN | | 32:02 | | 0.85 | 0.87 | | | 0.928 | | | |
| | DC | SN | | 32:10 | RO | 1.30 | 0.70 | | | 0.931 | | | |
| | DC | SN | | 33:40 | RO | 1.62 | 0.85 | | | 0.975 | | | |
| | DC | SN | | 33:59 | RO | 0.67 | 1.38 | | | 0.984 | | | |
| | DC | SN | | 34:25 | RO | 0.08 | 0.42 | | | 0.997 | | | |
| | | | | 34:40 | | 0.83 | 24.70 | 11.18 | 13.52 | 1.004 | OCDF | | AN |
| | DC | SN | | 35:33 | RO | 1.77 | 1.15 | | | 1.029 | | | |

| ompound/ _Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 35:52 | RO | 0.65 | 1.21 | | | 1.039 | | | |
| 42-444 | | 1 | Peak | | | | 24.70 | | | | | | |
| CDD | | | | | | 0.76-1.02 | | | | 0.884-1.116 | | | |
| 58-460 | DC | NL | | 0:00 | | 1.00 | 0.14 | | | 0.000 | | | |
| | | | | 34:32 | | 0.94 | 33.29 | 16.12 | 17.17 | 1.000 | OCDD | | AN |
| | DC | SN | | 34:59 | RO | 1.25 | 1.00 | | | 1.013 | | | |
| 58-460 | | 1 | Peak | | | | 33.29 | | | | | | |
| .3C12-OCDD | | | | | | 0.76-1.02 | | | | 0.995-1.005 | | | |
| 70-472 | DC | NL | | 0:00 | RO | 1.17 | 0.11 | | | 0.000 | | | |
| | | | | 34:32 | | 0.79 | 2,228.58 | 986.97 | 1,241.61 | 1.000 | 13C12-OCDD | | IS8 |
| | DC | WH | | 34:52 | RO | 0.36 | 2.19 | | | 1.010 | | | |
| 70-472 | | 1 | Peak | | | | 2,228.58 | | | | | | |

| olumn Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| _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 |
| at.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise Level | D-Peak Deleted |
| K -RO=Ratio Outside Limits | <M-Below Method Detection Limit | T-Time Changed |
| el.RT-Relative Retention Time | NL-Channel Specific Noise Level | M-Peak Area Changed |
| | | N-Name Changed |
| | | E-Ether Interference |

*** End of Report ***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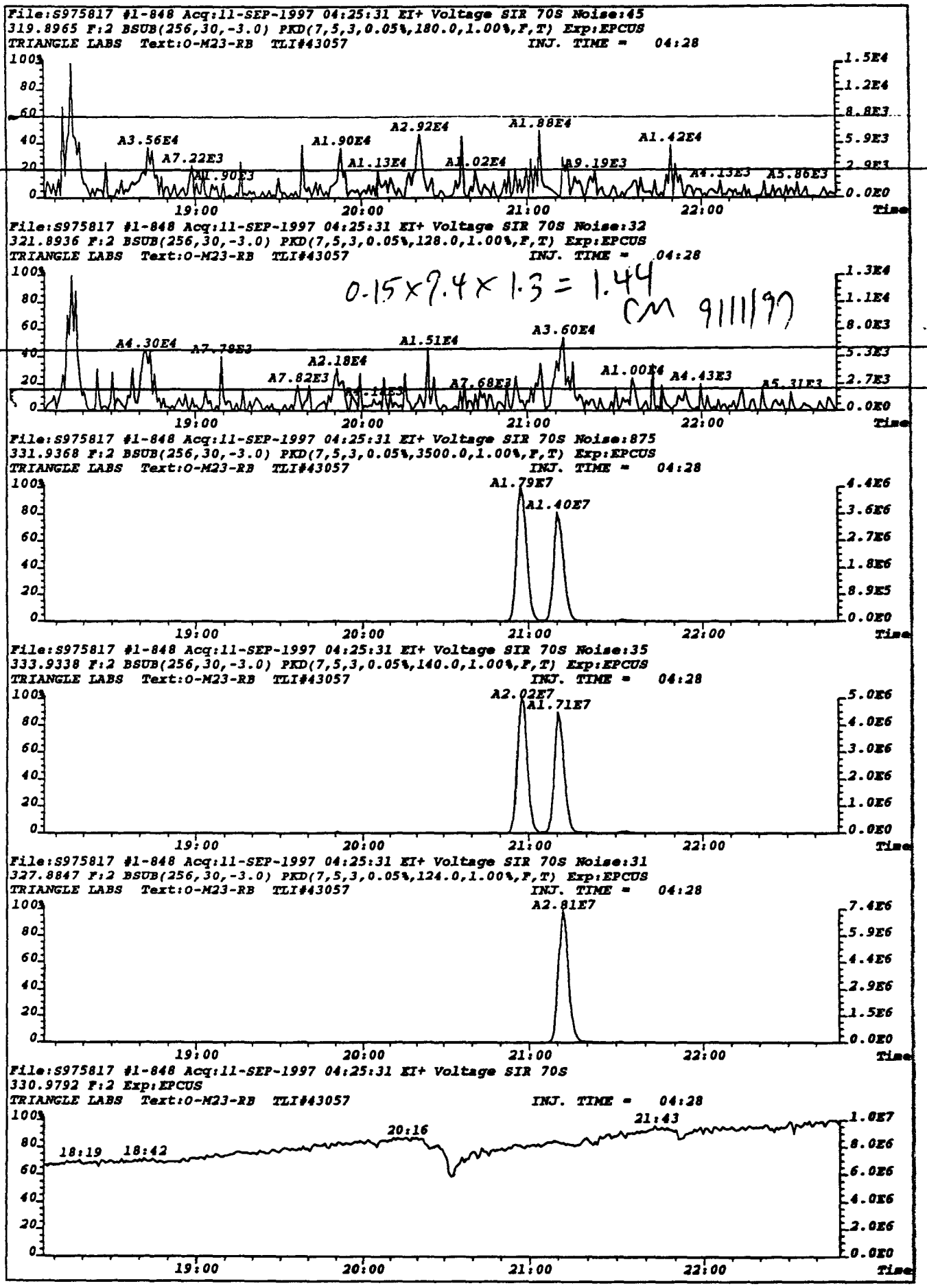
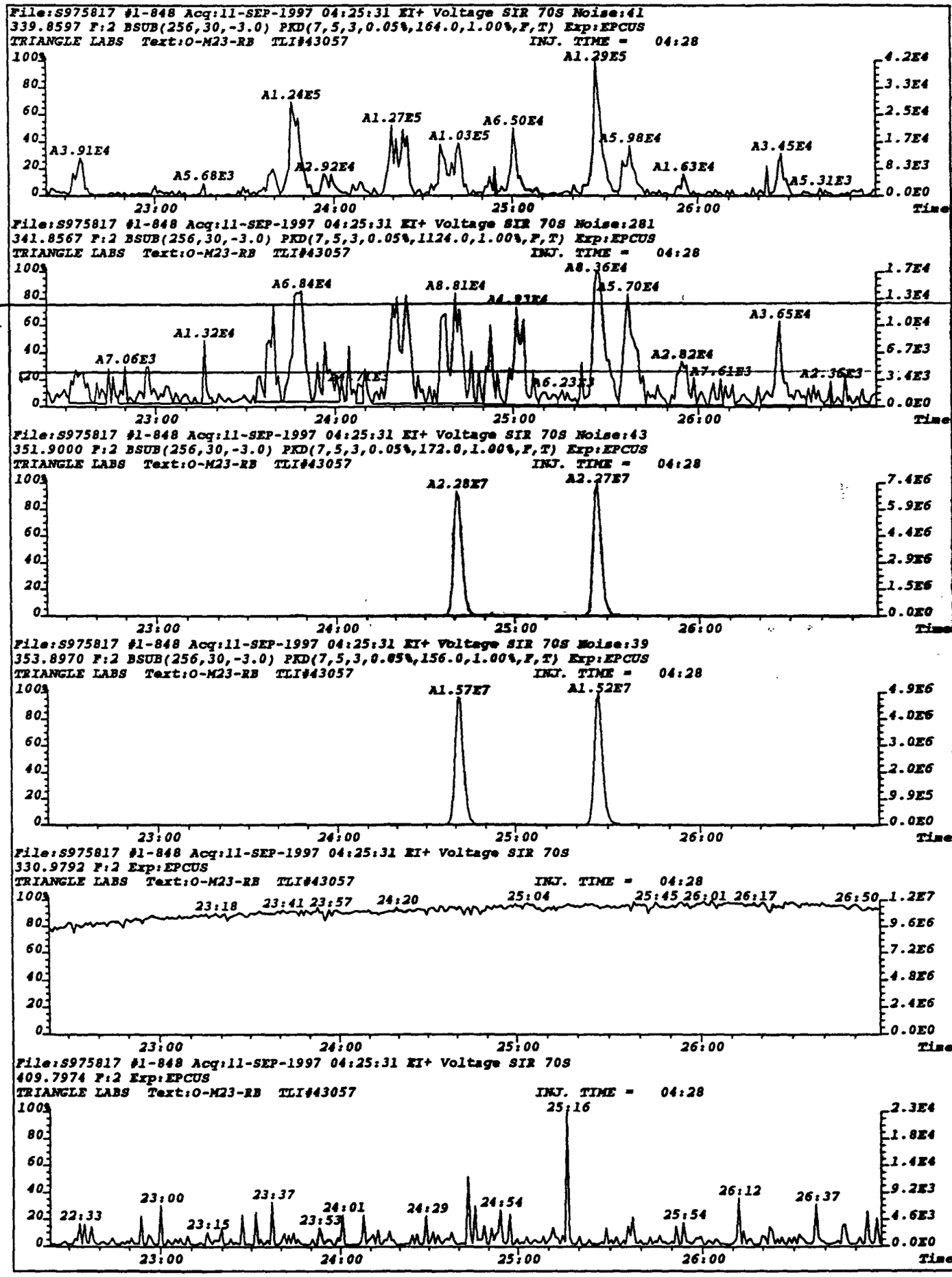
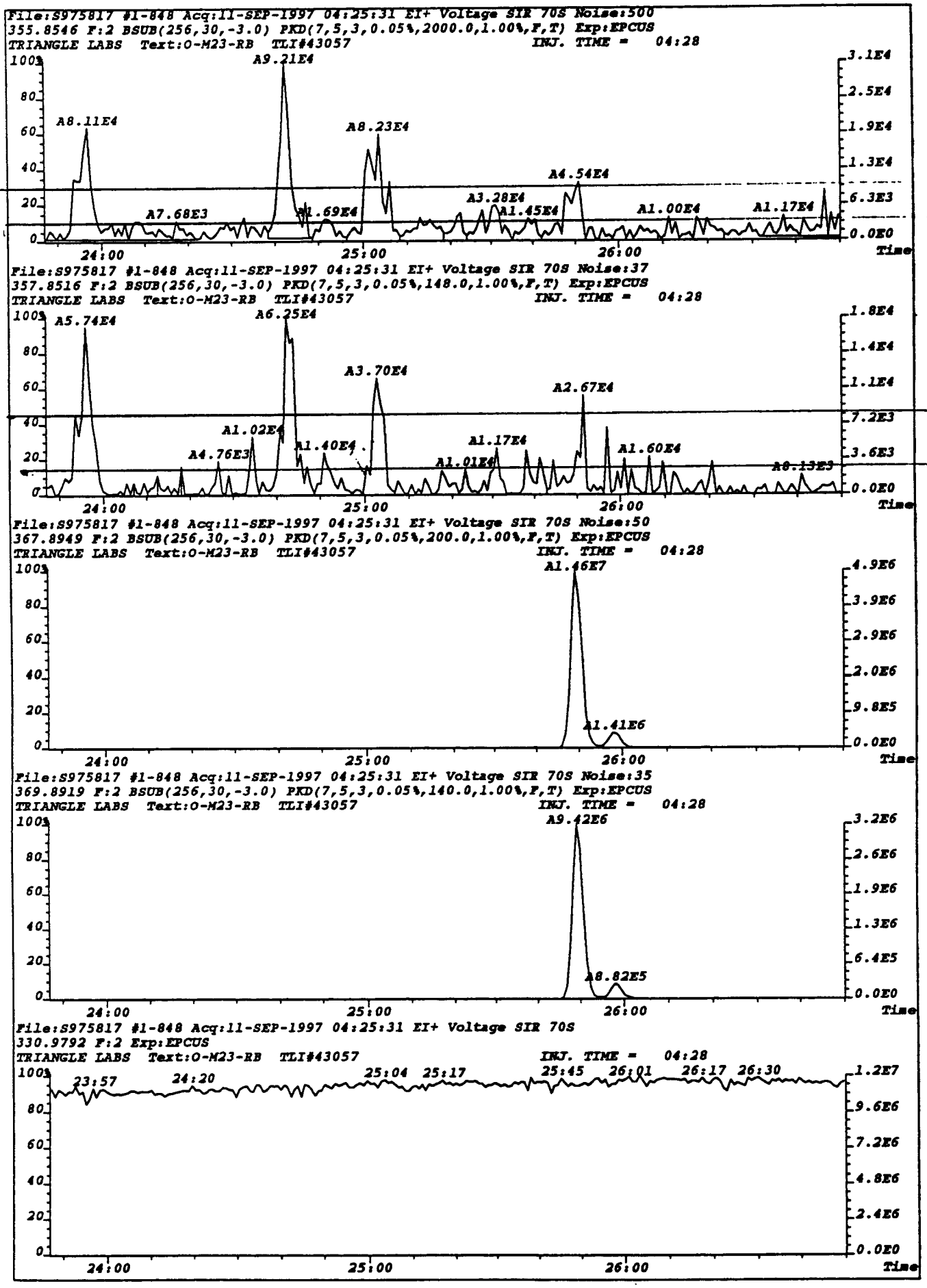
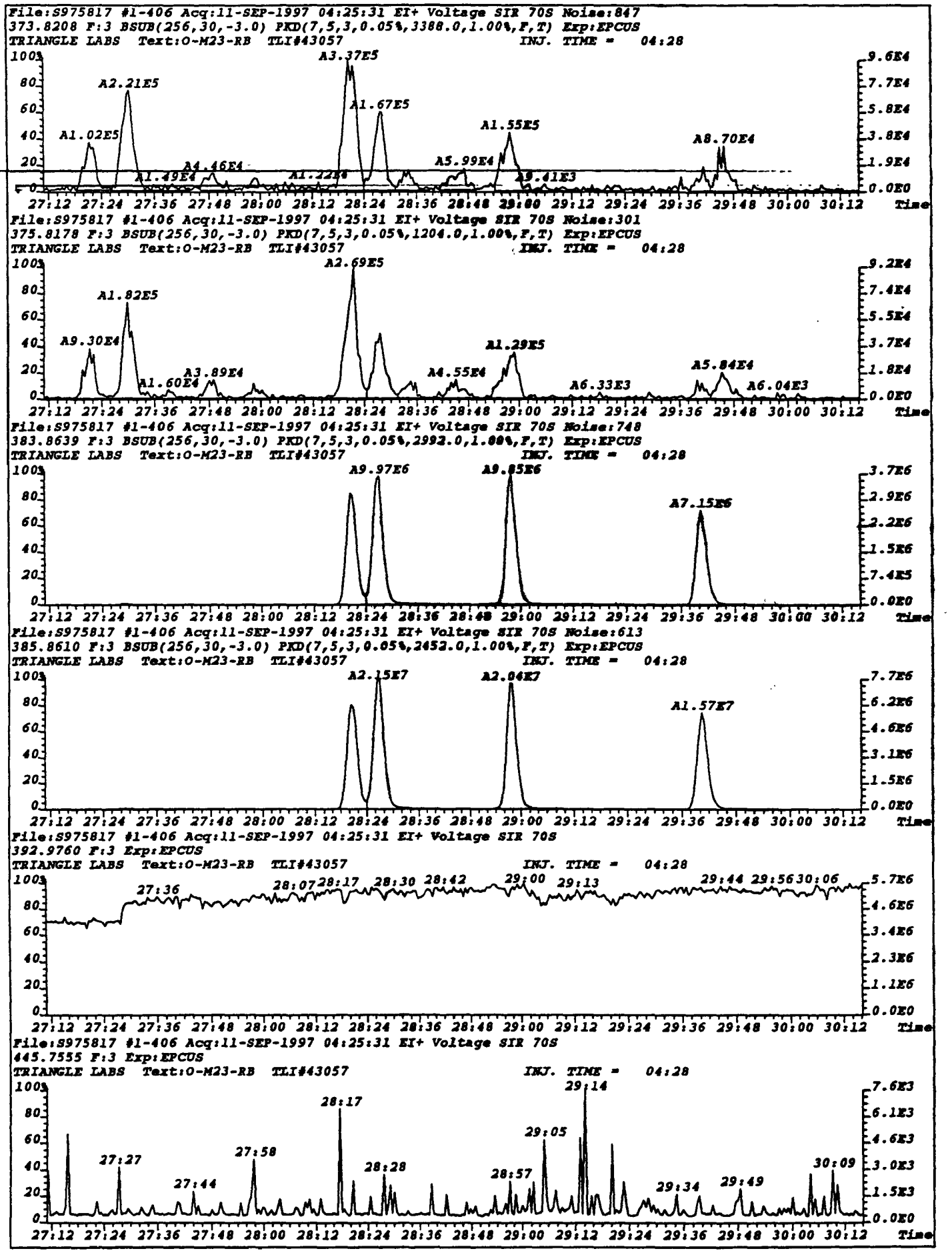
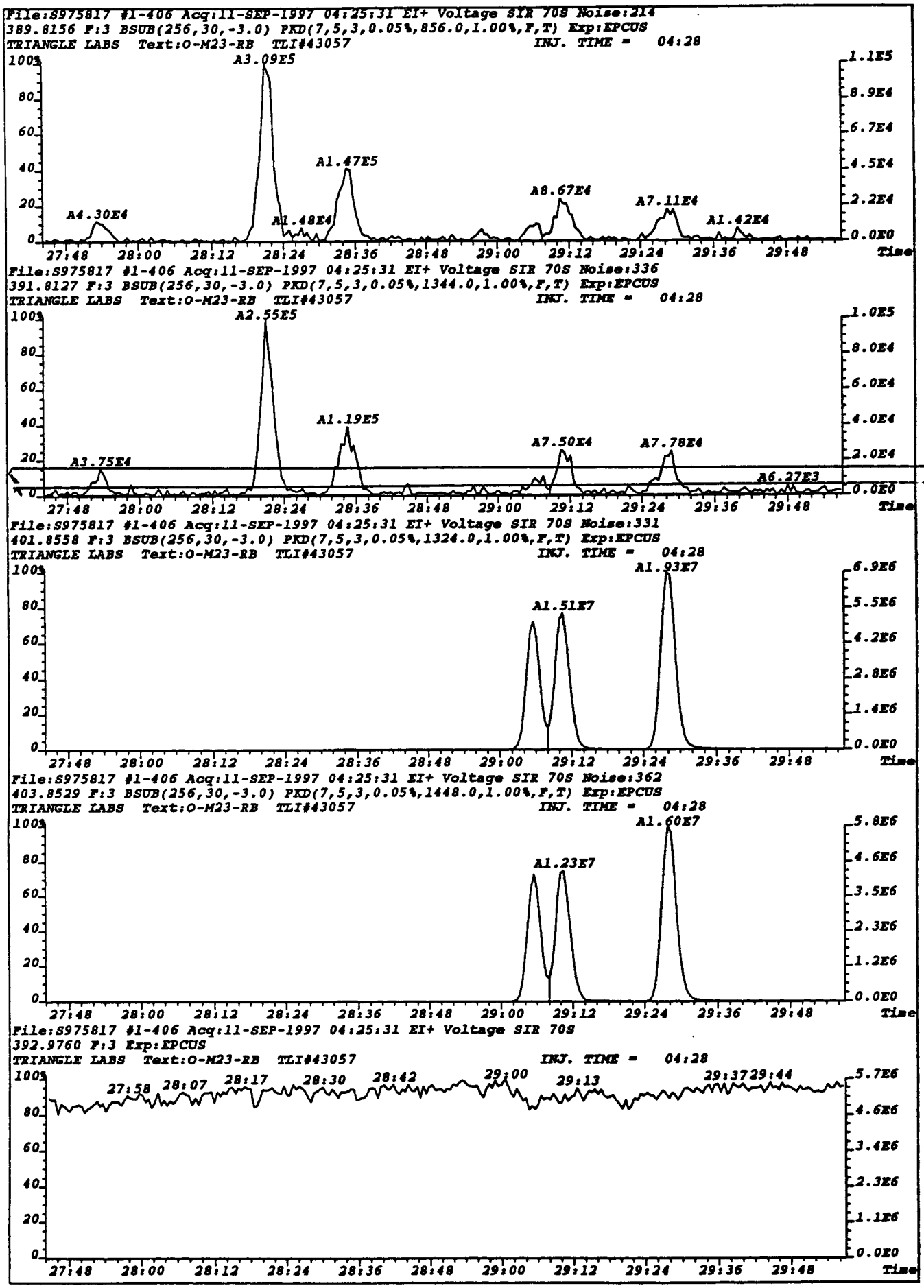
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A4.71E4
A7.50E3
A2.37E4
A2.51E4
A1.38E4
A1.25E4
A2.09E4
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:378
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1512.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A3.01E4
A2.25E4
A1.86E4
A3.22E4
A2.08E4
A1.32E4
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:47
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,188.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.90E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:333
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A2.55E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
18:19
18:42
20:16
21:43
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
17:10
17:28
18:12
18:57
19:23
19:57
20:19
20:49
21:05
21:29
22:00
22:26
17:00
18:00
19:00
20:00
21:00
22:00
Time

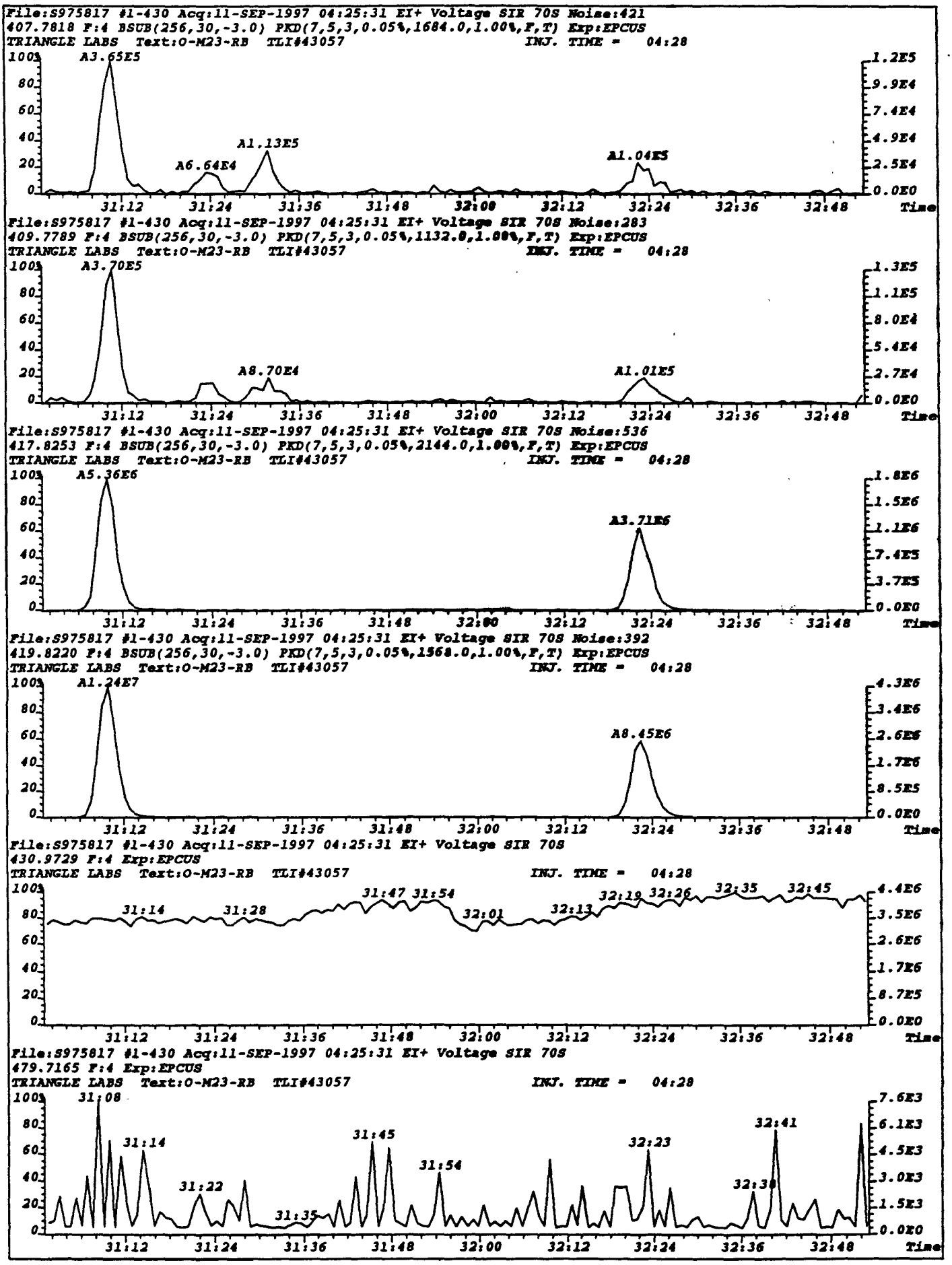

File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:45
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,180.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A3.56E4
A7.22E3
A1.90E4
A2.92E4
A1.13E4
A1.88E4
A1.42E4
A9.19E3
A4.13E3
A5.86E3
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:32
321.8936 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-RB TLI#43057
INJ. TIME = 04:28
0.15×9.4×1.3 = 1.44
CM 9/11/97
A4.30E4
A7.78E3
A2.18E4
A7.82E3
A1.51E4
A3.60E4
A7.68E3
A1.00E4
A4.43E3
A5.31E3
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:875
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3500.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.79E7
A1.40E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:35
333.9338 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-RB TLI#43057
INJ. TIME = 04:28
A2.02E7
A1.71E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 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-RB TLI#43057
INJ. TIME = 04:28
A2.81E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
18:19
18:42
20:16
21:43
19:00
20:00
21:00
22:00
Time

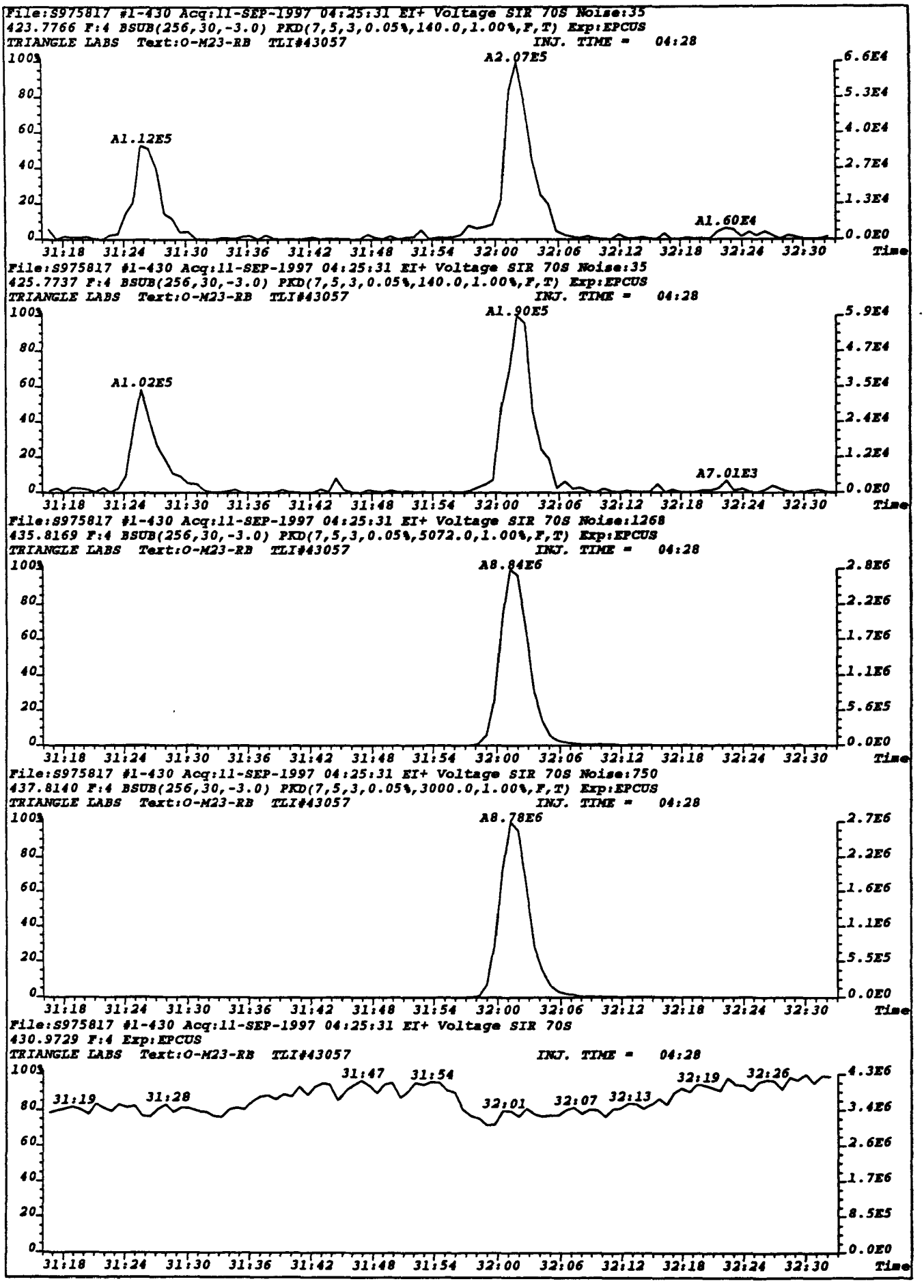

File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:41
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A3.91E4
A5.68E3
A1.24E5
A2.92E4
A1.27E5
A1.03E5
A6.50E4
A1.29E5
A5.98E4
A1.63E4
A3.45E4
A5.31E3
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:281
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A7.06E3
A1.32E4
A6.84E4
A8.81E4
A8.36E4
A5.70E4
A2.82E4
A3.65E4
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:43
351.9000 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-RB TLI#43057
INJ. TIME = 04:28
A2.28E7
A2.27E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 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-RB TLI#43057
INJ. TIME = 04:28
A1.57E7
A1.52E7
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
23:18
23:41
23:57
24:20
25:04
25:45
26:01
26:17
26:50
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
22:33
23:00
23:15
23:37
23:53
24:01
24:29
24:54
25:16
25:54
26:12
26:37
23:00
24:00
25:00
26:00
Time

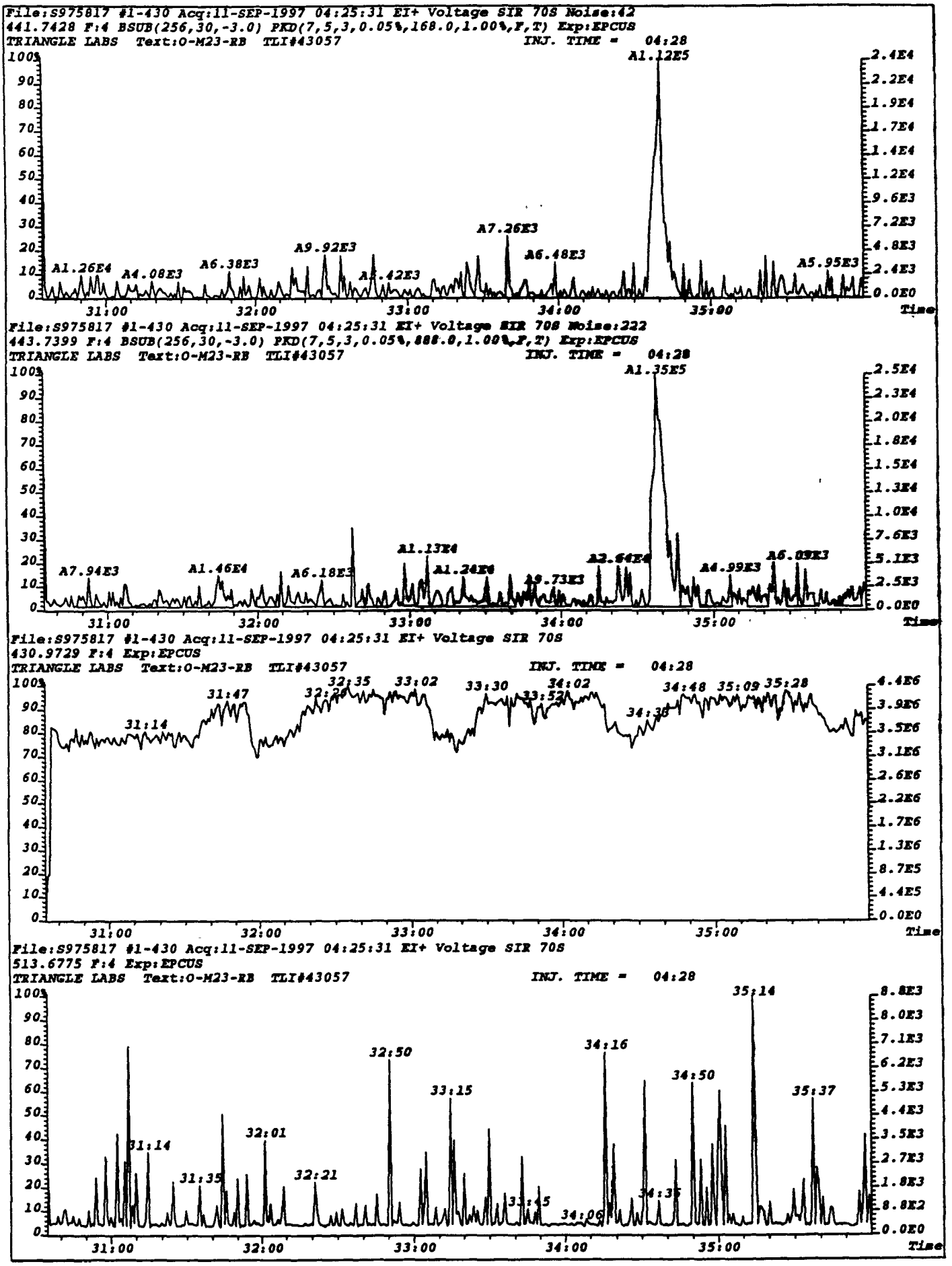

File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:500
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2000.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A9.21E4
A8.11E4
A8.23E4
A4.54E4
A3.28E4
A1.45E4
A1.00E4
A1.17E4
A7.68E3
A1.69E4
3.1E4
2.5E4
1.9E4
1.3E4
6.3E3
0.0E0
Time
24:00
25:00
26:00
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 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-RB TLI#43057
INJ. TIME = 04:28
A5.74E4
A6.25E4
A3.70E4
A2.67E4
A1.02E4
A1.40E4
A1.17E4
A1.60E4
A4.76E3
A1.01E4
A8.13E3
1.8E4
1.4E4
1.1E4
7.2E3
3.6E3
0.0E0
Time
24:00
25:00
26:00
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:50
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,200.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.46E7
A1.41E6
4.9E6
3.9E6
2.9E6
2.0E6
9.8E5
0.0E0
Time
24:00
25:00
26:00
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 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-RB TLI#43057
INJ. TIME = 04:28
A9.42E6
A8.82E5
3.2E6
2.6E6
1.9E6
1.3E6
6.4E5
0.0E0
Time
24:00
25:00
26:00
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
23:57
24:20
25:04
25:17
25:45
26:01
26:17
26:30
1.2E7
9.6E6
7.2E6
4.8E6
2.4E6
0.0E0
Time
24:00
25:00
26:00

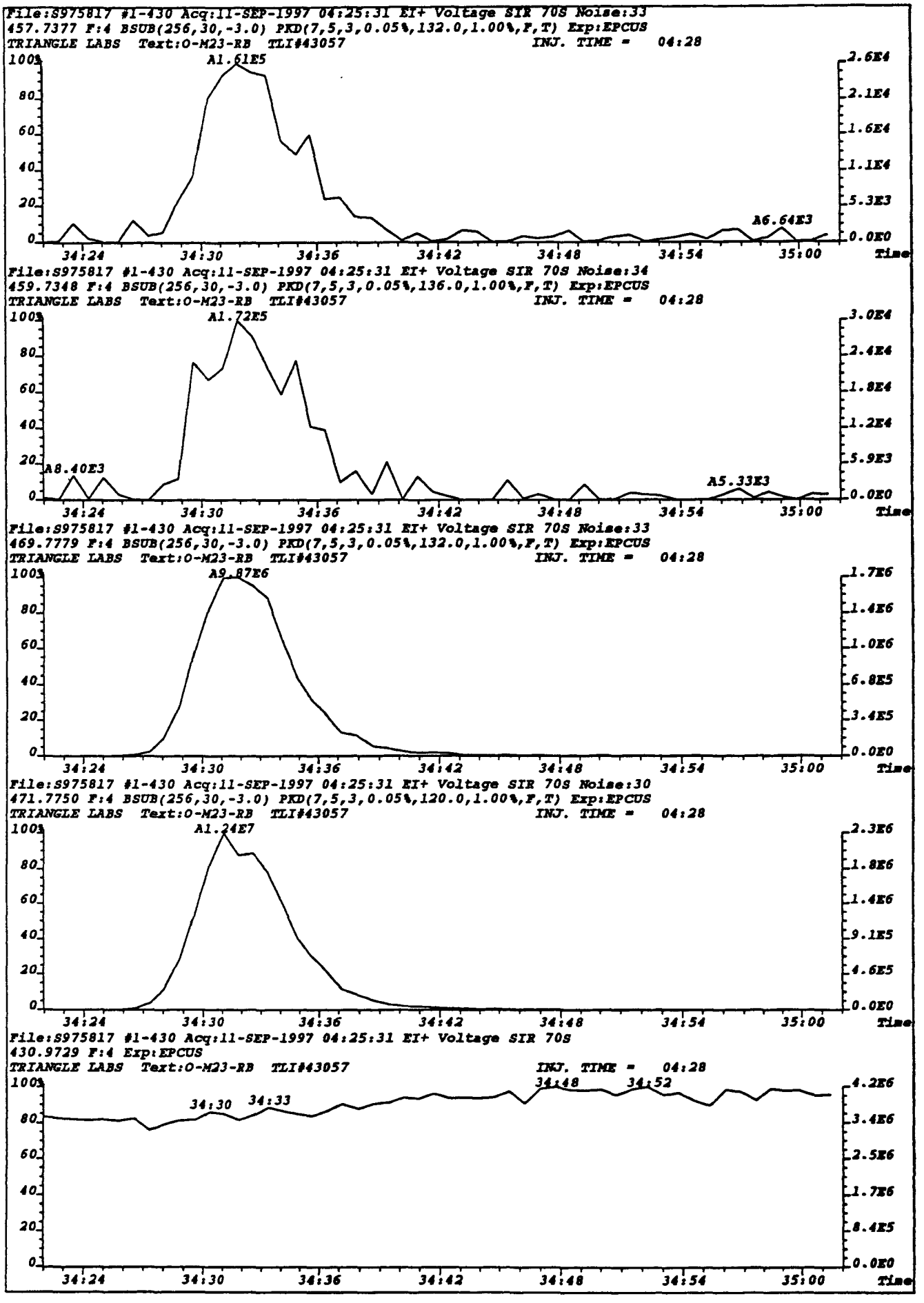

File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:847
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3388.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A3.37E5
A2.21E5
A1.67E5
A1.55E5
A1.02E5
A8.70E4
A5.99E4
A4.46E4
A1.49E4
A1.22E4
A9.41E3
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:301
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1204.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A2.69E5
A1.82E5
A9.30E4
A1.29E5
A5.84E4
A3.89E4
A4.55E4
A1.60E4
A6.33E3
A6.04E3
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:748
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2992.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A9.97E6
A9.85E6
A7.15E6
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:613
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2452.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A2.15E7
A2.04E7
A1.57E7
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
27:36
28:07
28:17
28:30
28:42
29:00
29:13
29:44
29:56
30:06
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
28:17
29:14
29:05
27:27
27:58
28:28
28:57
27:44
29:34
29:49
30:09
27:12 27:24 27:36 27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time

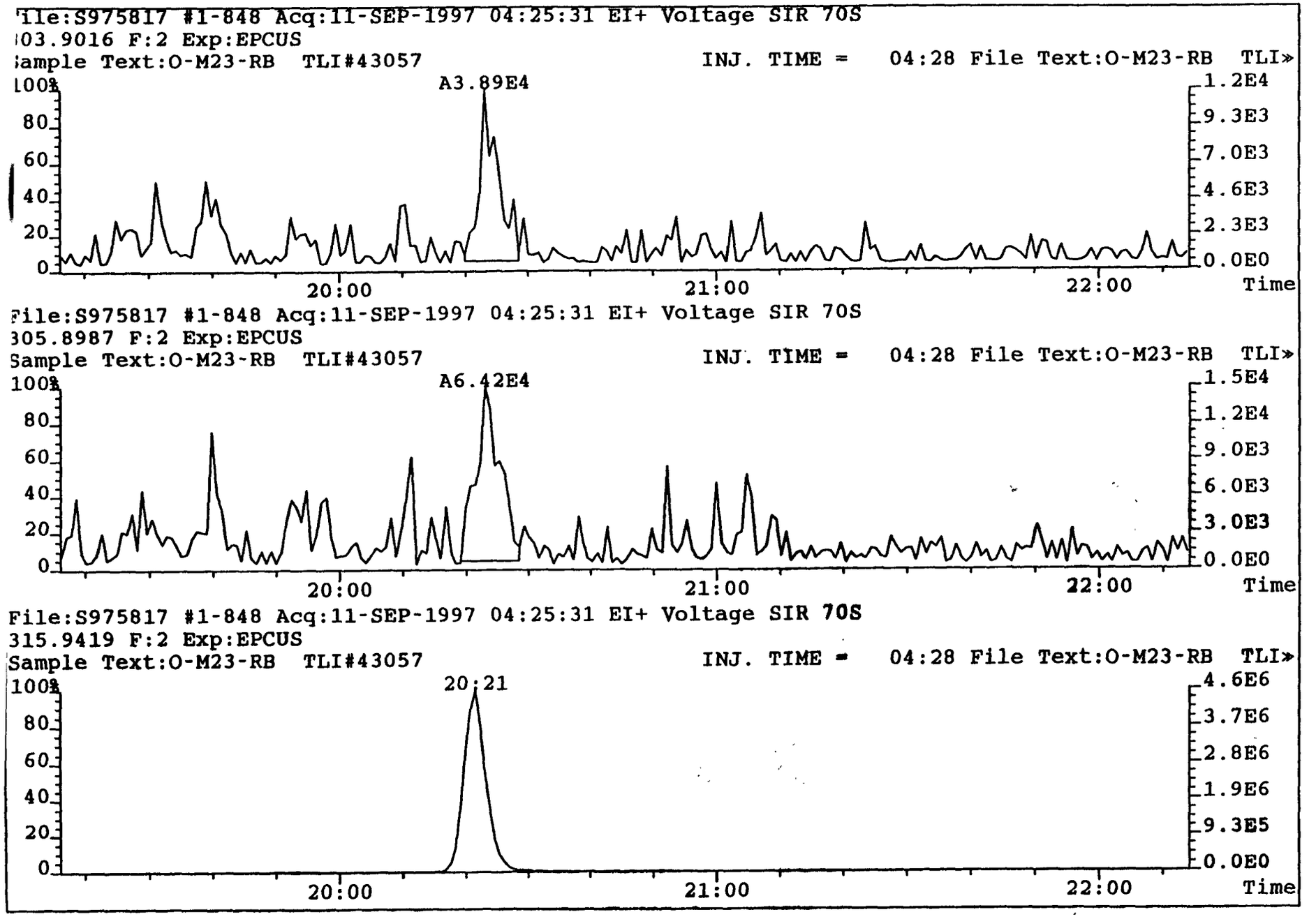

File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:214
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,856.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A3.09E5
A1.47E5
A8.67E4
A7.11E4
A4.30E4
A1.48E4
A1.42E4
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:336
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1344.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A2.55E5
A1.19E5
A7.50E4
A7.78E4
A3.75E4
A6.27E3
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:331
401.8558 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-RB TLI#43057
INJ. TIME = 04:28
A1.93E7
A1.51E7
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:362
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1448.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.60E7
A1.23E7
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
27:58 28:07 28:17 28:30 28:42 29:00 29:13 29:37 29:44
27:48 28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48
Time

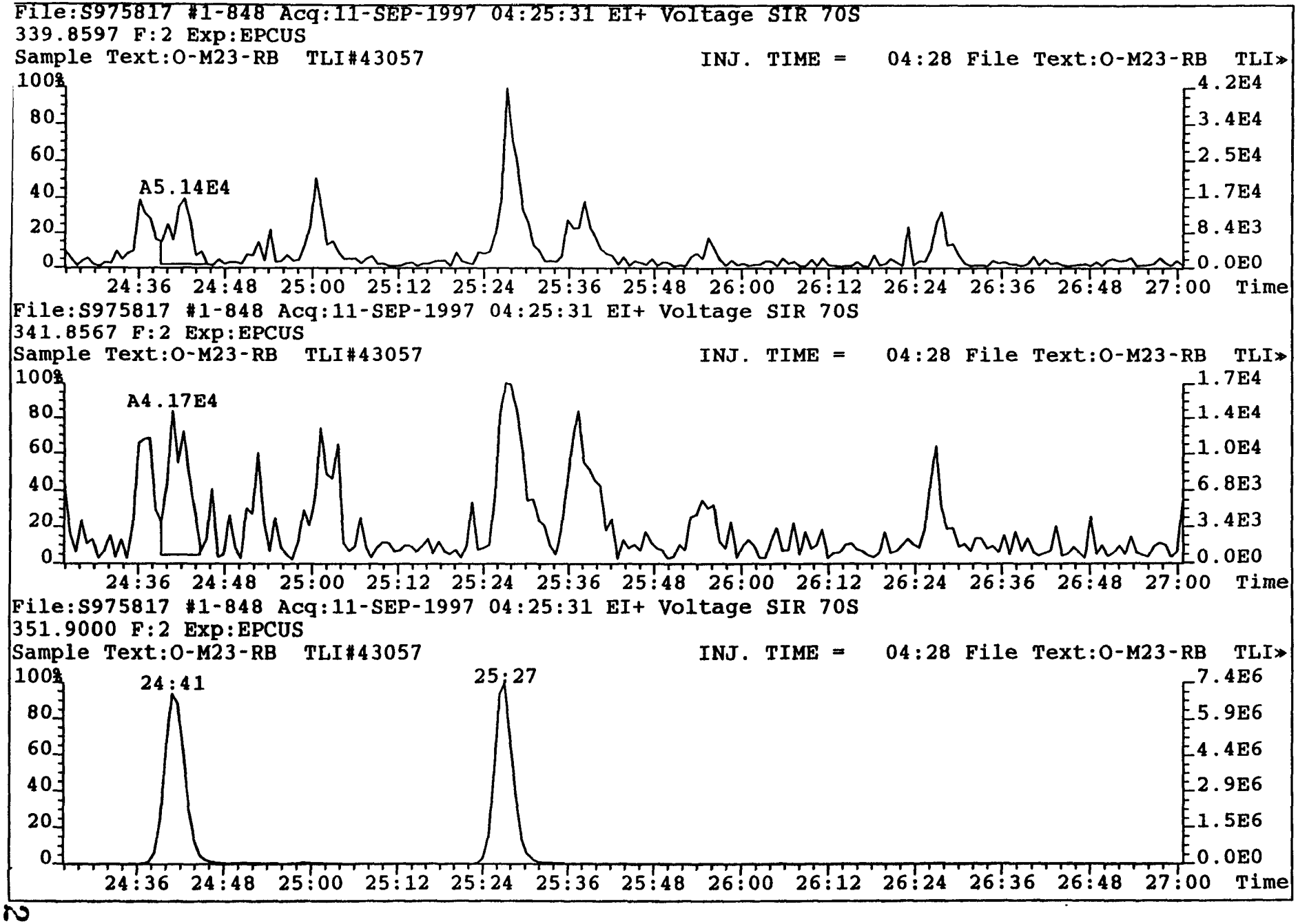

File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:421
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1684.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A3.65E5
A6.64E4
A1.13E5
A1.04E5
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:283
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A3.70E5
A8.70E4
A1.01E5
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:536
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2144.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A5.36E6
A3.71E6
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:392
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1568.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
A1.24E7
A8.45E6
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
31:14
31:28
31:47 31:54
32:01
32:13
32:19 32:26
32:35
32:45
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057 INJ. TIME = 04:28
31:08
31:14
31:22
31:35
31:45
31:54
32:23
32:38
32:41
31:12
31:24
31:36
31:48
32:00
32:12
32:24
32:36
32:48
Time

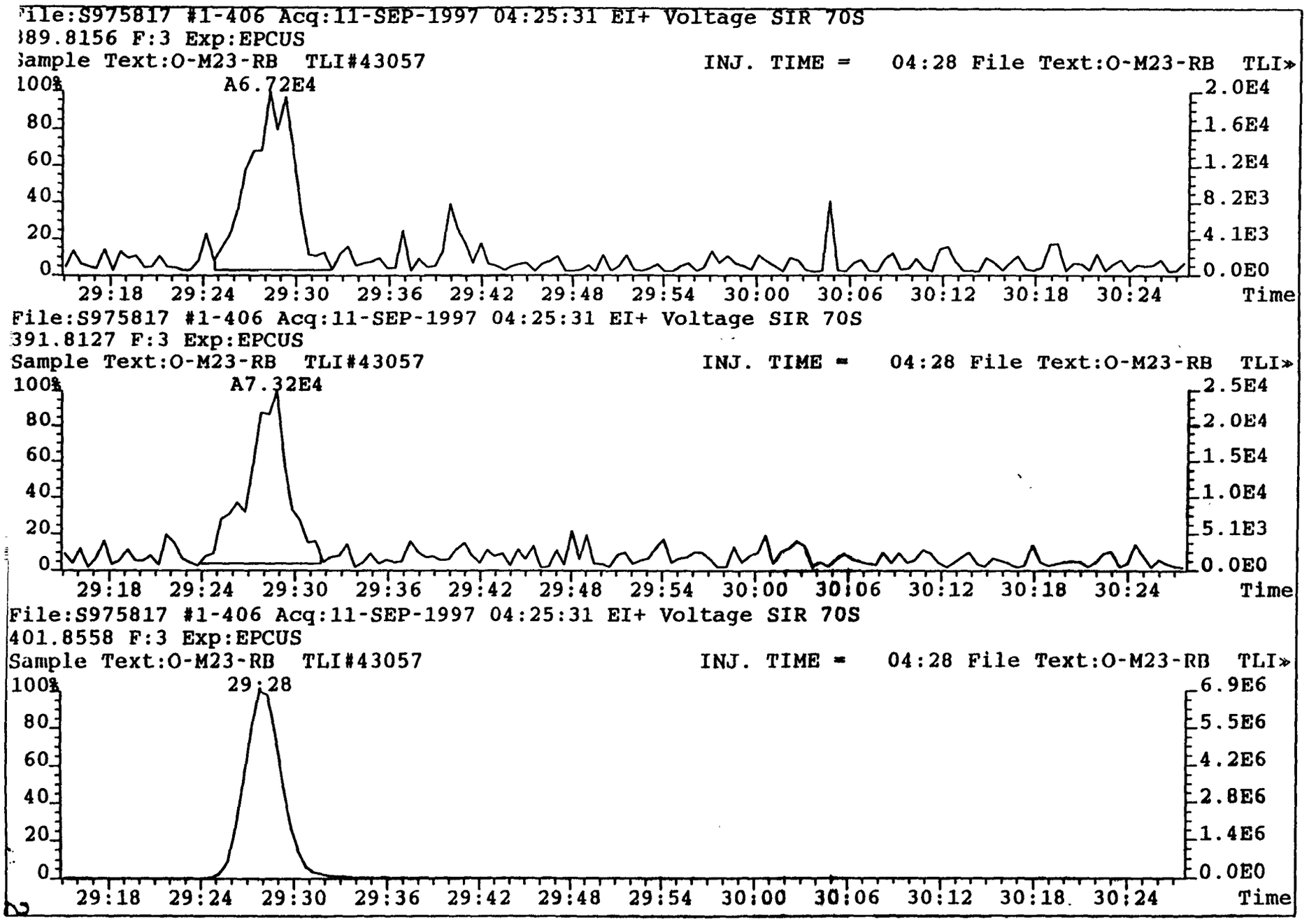

File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:35
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A2.07E5
A1.12E5
A1.60E4
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:35
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.90E5
A1.02E5
A7.01E3
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:1268
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5072.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A8.84E6
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:750
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3000.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A8.78E6
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
31:19
31:28
31:47
31:54
32:01
32:07
32:13
32:19
32:26
Time


File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:42
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.12E5
A1.26E4
A4.08E3
A6.38E3
A9.92E3
A7.26E3
A6.48E3
A5.95E3
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:222
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,888.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.35E5
A7.94E3
A1.46E4
A6.18E3
A1.13E4
A1.24E4
A2.64E4
A4.99E3
A6.09E3
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
31:14
31:47
32:35
33:02
33:30
34:02
34:48
35:09
35:28
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
31:14
31:35
32:01
32:21
32:50
33:15
34:16
34:50
35:14
35:37
31:00
32:00
33:00
34:00
35:00
Time


File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:33
457.7377 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-RB TLI#43057
INJ. TIME = 04:28
A1.61E5
A6.64E3
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:34
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.72E5
A8.40E3
A5.33E3
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:33
469.7779 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-RB TLI#43057
INJ. TIME = 04:28
A9.87E6
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S Noise:30
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
A1.24E7
File:S975817 #1-430 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-RB TLI#43057
INJ. TIME = 04:28
34:30
34:33
34:48
34:52
34:24
34:30
34:36
34:42
34:48
34:54
35:00
Time


File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
A3.89E4
100%
80
60
40
20
0
1.2E4
9.3E3
7.0E3
4.6E3
2.3E3
0.0E0
20:00
21:00
22:00
Time
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
A6.42E4
100%
80
60
40
20
0
1.5E4
1.2E4
9.0E3
6.0E3
3.0E3
0.0E0
20:00
21:00
22:00
Time
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
20:21
100%
80
60
40
20
0
4.6E6
3.7E6
2.8E6
1.9E6
9.3E5
0.0E0
20:00
21:00
22:00
Time


File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
A5.14E4
100%
80
60
40
20
0
4.2E4
3.4E4
2.5E4
1.7E4
8.4E3
0.0E0
24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 Time
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
A4.17E4
100%
80
60
40
20
0
1.7E4
1.4E4
1.0E4
6.8E3
3.4E3
0.0E0
24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 Time
File:S975817 #1-848 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057
INJ. TIME = 04:28 File Text:O-M23-RB TLI»
24:41
25:27
100%
80
60
40
20
0
7.4E6
5.9E6
4.4E6
2.9E6
1.5E6
0.0E0
24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 Time


File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
389.8156 F:3 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057 INJ. TIME = 04:28 File Text:O-M23-RB TLI»
100%
A6.72E4
80
60
40
20
0
2.0E4
1.6E4
1.2E4
8.2E3
4.1E3
0.0E0
29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
391.8127 F:3 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057 INJ. TIME = 04:28 File Text:O-M23-RB TLI»
100%
A7.32E4
80
60
40
20
0
2.5E4
2.0E4
1.5E4
1.0E4
5.1E3
0.0E0
29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time
File:S975817 #1-406 Acq:11-SEP-1997 04:25:31 EI+ Voltage SIR 70S
401.8558 F:3 Exp:EPCUS
Sample Text:O-M23-RB TLI#43057 INJ. TIME = 04:28 File Text:O-M23-RB TLI»
100%
29:28
80
60
40
20
0
6.9E6
5.5E6
4.2E6
2.8E6
1.4E6
0.0E0
29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24
Time

# Pacific Environmental Services

TLI Project: 43057 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **O-M23-RB** — Analysis File: **P973847**

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-7AB&* | Date Extracted: | 09/06/97 | 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: | S975807 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | WK | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | ND | 0.01 | | | | — |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.7 | 67.7 | 40%-130% | 0.76 | 20:39 | — |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.80 | 19:41 | — |

**Quality Control Notes:**
* 181-83-1

Date Received (181-83-1): 09/05/97

Data Reviewer: _____ 09/12/97



C2NF_FSR 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: 15:07 09/12/97

Initial ....Date...

Data Review By: AFC 9/12/97 Calculated Noise Area: 2.07

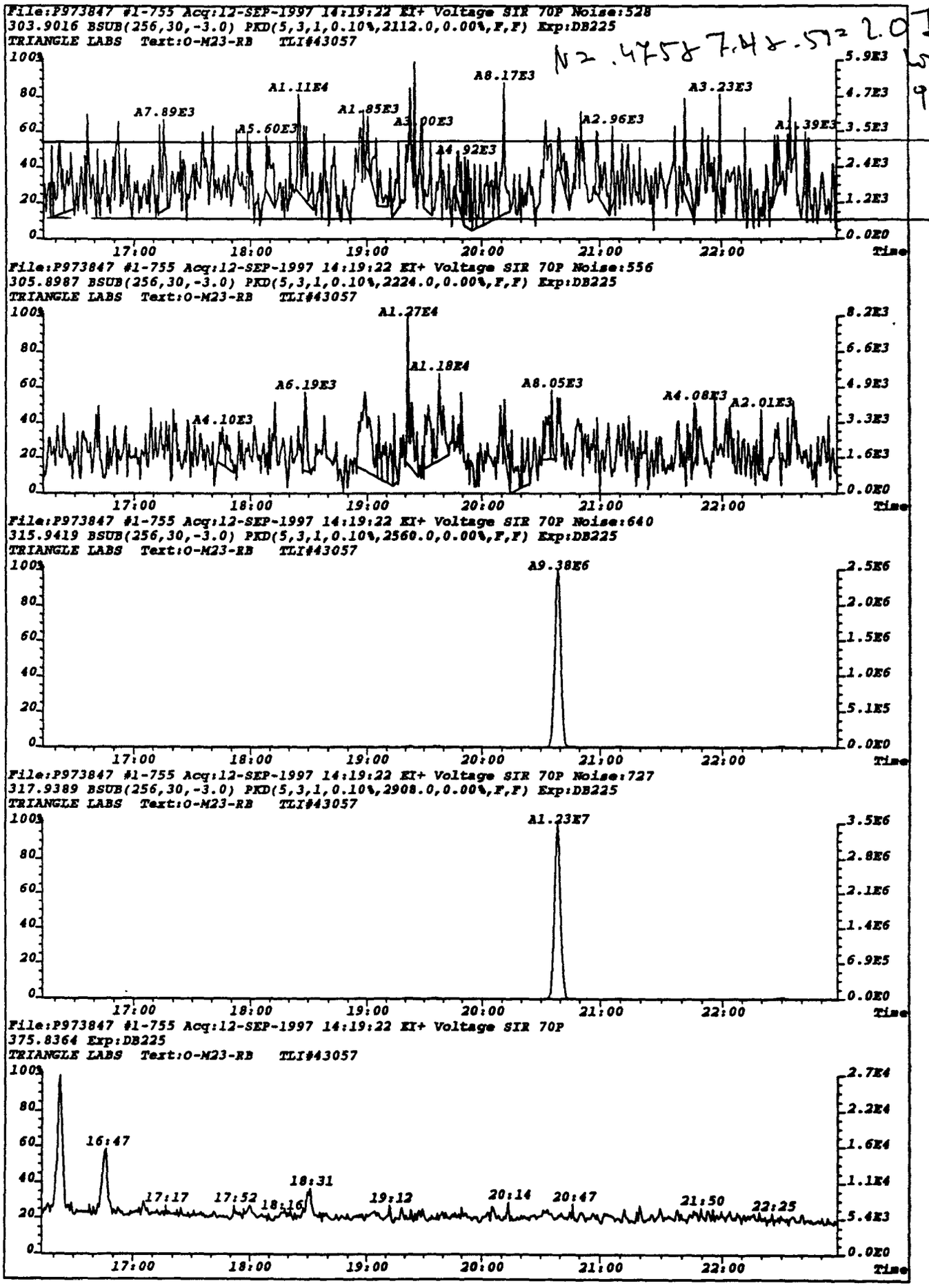
The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of P973847B.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 | RO | 0.95 | 1.96 | | | 0.000 | | | |
| | DC | SN | | 19:01 | RO | 0.09 | 0.44 | | | 0.921 | | | |
| | DC | SN | | 19:05 | RO | 1.12 | 0.58 | | | 0.924 | | | |
| | DC | SN | | 19:16 | RO | 1.09 | 0.60 | | | 0.933 | | | |
| | DC | SN | | 19:33 | RO | 0.47 | 0.83 | | | 0.947 | | | |
| | DC | SN | | 20:11 | RO | 1.95 | 0.74 | | | 0.977 | | | |
| 304-306 | | | 0 Peaks | | | | 0.00 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.952-1.048 | | | |
| 316-318 | DC | NL | | 0:00 | | 0.88 | 2.73 | | | 0.000 | | | |
| | DC | WL | | 19:22 | | 0.69 | 9.53 | | | 0.938 | | | |
| | DC | WL | | 19:38 | | 0.69 | 13.11 | | | 0.951 | | | |
| | | | | 20:39 | | 0.76 | 2,170.73 | 937.74 | 1,232.99 | 1.000 | 13C12-2378-TCDF | IS8 | |
| | DC | SN | | 21:11 | RO | 2.07 | 3.82 | | | 1.026 | | | |
| | DC | WH | | 22:31 | | 0.78 | 18.93 | | | 1.090 | | | |
| 316-318 | | | 1 Peak | | | | 2,170.73 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.897-1.103 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 1.93 | 1.77 | | | 0.000 | | | |
| | | | | 18:23 | RO | 0.62 | 7.54 | 3.28 | 5.25 | 0.945 | | | |
| | | | | 19:27 | | 0.80 | 1,683.09 | 749.83 | 933.26 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 19:41 | | 0.80 | 2,308.84 | 1,029.03 | 1,279.81 | 1.012 | 13C12-1234-TCDD | RS1 | |
| | | | | 20:20 | | 0.85 | 21.44 | 9.82 | 11.62 | 1.045 | | | |
| | DC | WH | | 21:54 | RO | 2.40 | 2.14 | | | 1.126 | | | |
| 332-334 | | | 4 Peaks | | | | 4,020.91 | | | | | | |

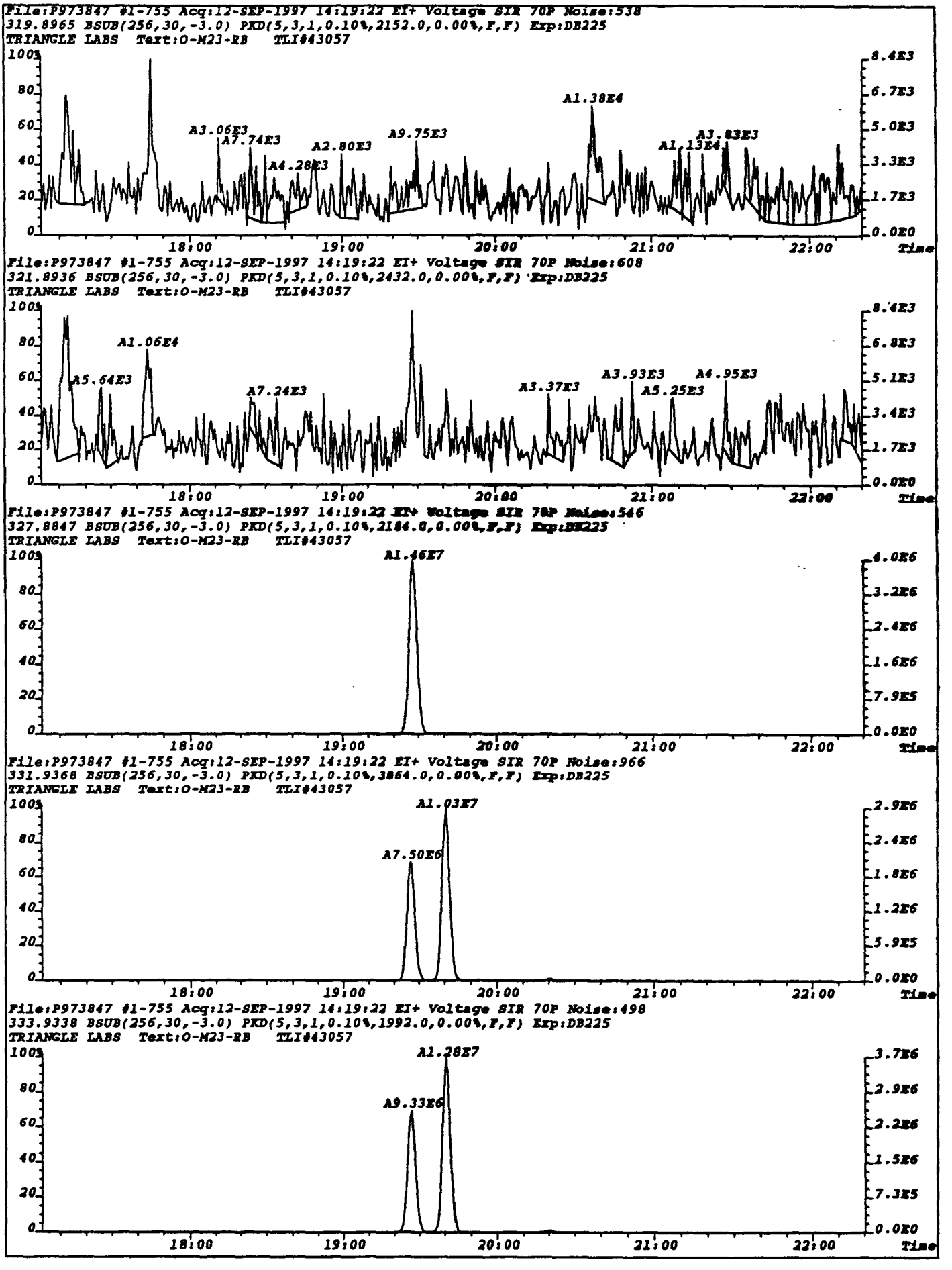
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

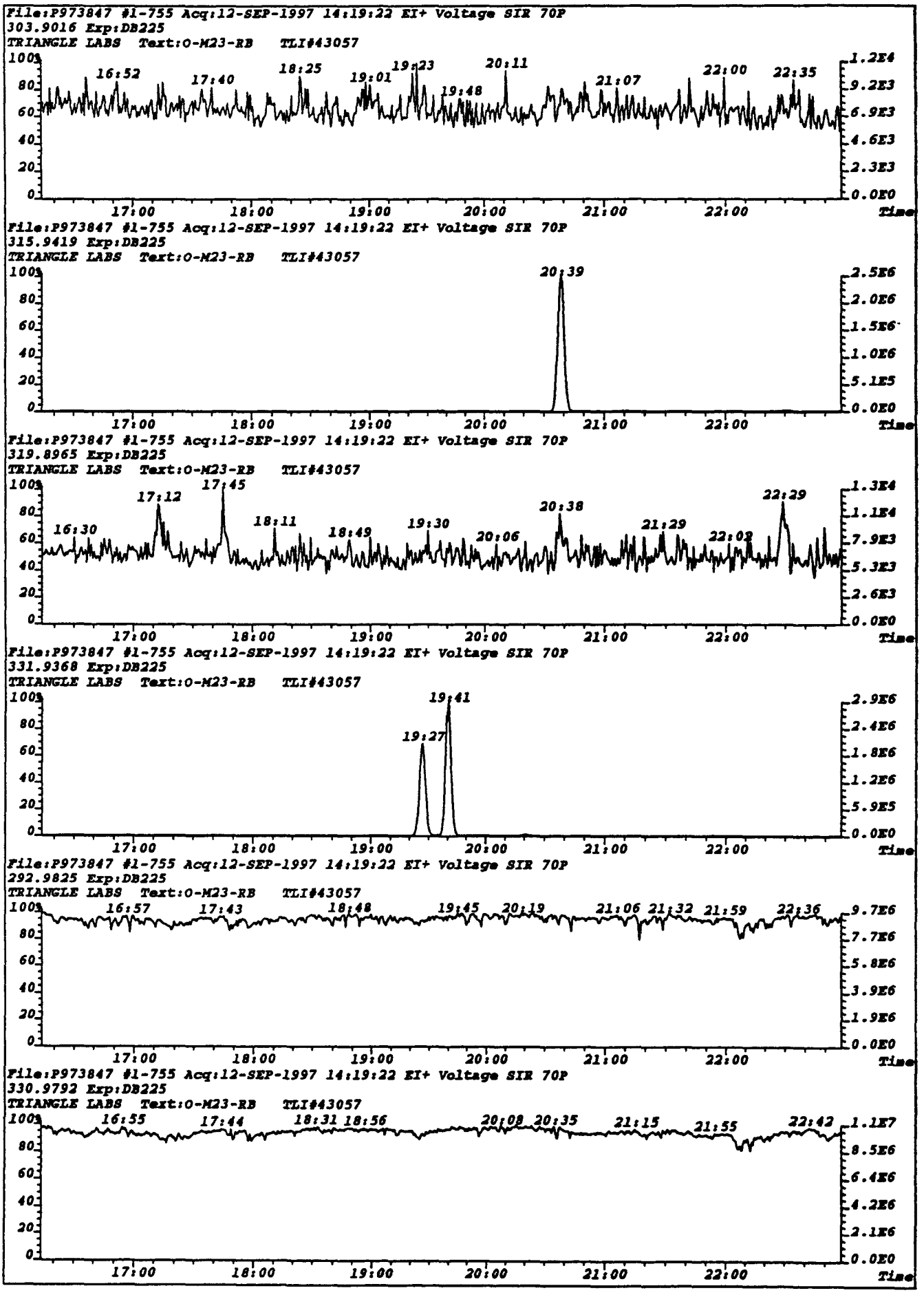
*** End of Report ***

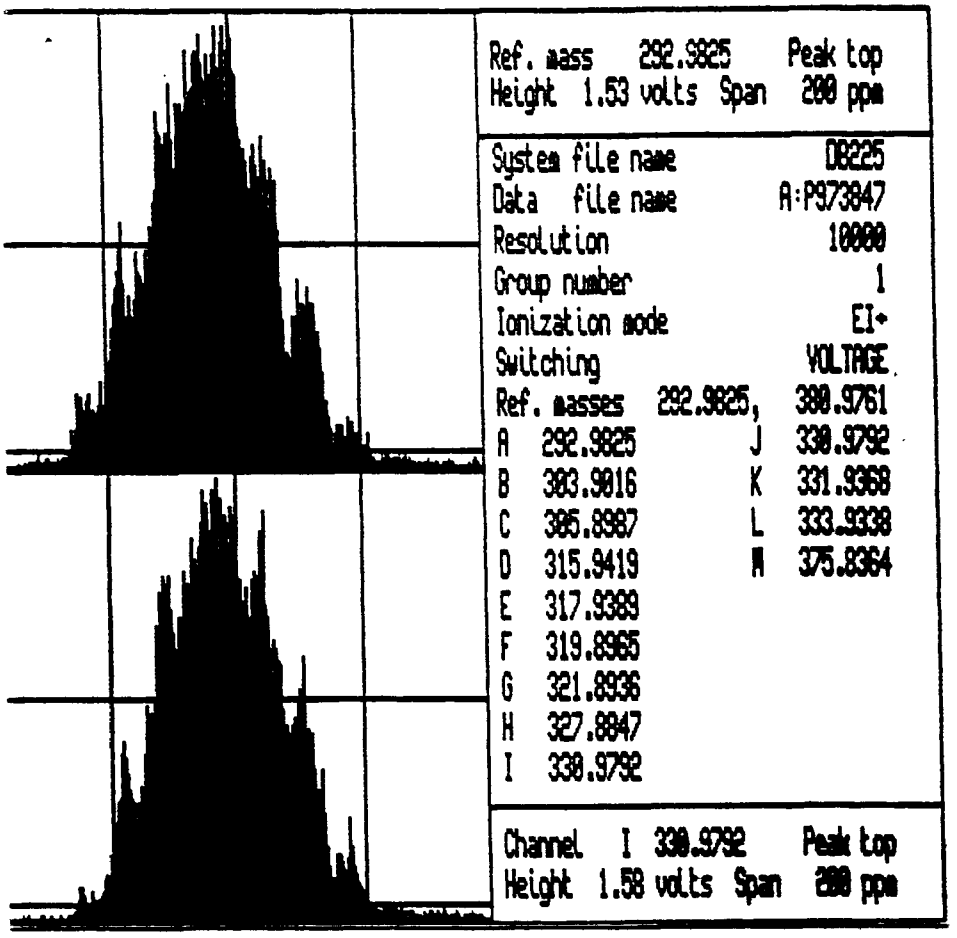



N2 .4758 7.48 -.57 = 2.01

9/14/97


File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P Noise:538
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2152.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
A3.06E3
A7.74E3
A4.28E3
A2.80E3
A9.75E3
A1.38E4
A1.13E4
A3.83E3
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P Noise:608
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2432.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
A5.64E3
A1.06E4
A7.24E3
A3.37E3
A3.93E3
A5.25E3
A4.95E3
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P Noise:546
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2186.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
A1.46E7
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P Noise:966
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3864.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
A1.03E7
A7.50E6
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P Noise:498
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1992.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
A1.28E7
A9.33E6
Time


File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
16:52
17:40
18:25
19:01
19:23
19:48
20:11
21:07
22:00
22:35
1.2E4
9.2E3
6.9E3
4.6E3
2.3E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
20:39
2.5E6
2.0E6
1.5E6
1.0E6
5.1E5
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
16:30
17:12
17:45
18:11
18:49
19:30
20:06
20:38
21:29
22:02
22:29
1.3E4
1.1E4
7.9E3
5.3E3
2.6E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
19:27
19:41
2.9E6
2.4E6
1.8E6
1.2E6
5.9E5
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
16:57
17:43
18:48
19:45
20:19
21:06
21:32
21:59
22:36
9.7E6
7.7E6
5.8E6
3.9E6
1.9E6
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time
File:P973847 #1-755 Acq:12-SEP-1997 14:19:22 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:O-M23-RB TLI#43057
16:55
17:44
18:31
18:56
20:08
20:35
21:15
21:55
22:42
1.1E7
8.5E6
6.4E6
4.2E6
2.1E6
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
Time



Ref. mass 292.9825 Peak top
Height 1.53 volts Span 200 ppm

| | |
|---|---|
| System file name | D8225 |
| Data file name | A:P973847 |
| 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 1.58 volts Span 200 ppm

TRIANGLE LABS

# CALIBRATION DATA

*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*

TRIANGLE LABORATORIES OF RTP, INC. Date: 02/20/96

Initial Calibration Summary for PF22206

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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TRIANGLE LABORATORIES, INC. Date: 06/10/97
Initial Calibration Summary for SFS-[illegible]

Analysis Date.....: 06/10/97 Method.....: M23[illegible]
Instrument.....: S

| Analytes | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| Total HCDF | 2.087 | 0.000 | 0% | 8:15 | 0:01 | 13:43 | 2.931 | | 1 |
| Total HCDD | 1.625 | 0.000 | 0% | 8:42 | 0:34 | 14:34 | 2.827 | | 1 |
| Total OCDF | 0.687 | 0.000 | 0% | 10:38 | 6:43 | 14:43 | 5.965 | | 1 |
| Total OCDD | 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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Initial Calibration Summary for SF56117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 | 1.522 | | 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 | 1.429 | | 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 |

*** End of Report ***



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TRIANGLE LABORATORIES, INC. Date: 04/09/97

Initial Calibration Summary for XF24087

Analysis Date....: 04/08/97 Method.....: CDNF

Instrument.....: X GC Column...: DB-225

| Analytes | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| 2378-TCDF | 0.967 | 0.044 | 5% | 21:49 | 14:49 | 25:49 | 0.779 | | 10 |
| TOTAL TCDF | 0.967 | 0.044 | 5% | | | | 0.779 | | 10 |
| 2378-TCDD | 1.095 | 0.097 | 9% | 20:37 | 16:36 | 24:36 | 0.793 | | 10 |
| TOTAL TCDD | 1.095 | 0.097 | 9% | | | | 0.793 | | 10 |

| Other Standards | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| 37Cl-TCDD | 1.018 | 0.047 | 5% | 20:37 | 18:36 | 22:36 | | | 10 |

| Internal Standards | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| 13C12-2378-TCDF | 1.392 | 0.071 | 5% | 21:49 | 20:49 | 22:49 | 0.787 | | 10 |
| 13C12-2378-TCDD | 1.105 | 0.037 | 3% | 20:36 | 18:36 | 22:36 | 0.783 | | 10 |

| Recovery Standards | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| 13C12-1234-TCDD | 1.000 | 0.000 | 0% | 20:50 | | | 0.796 | | 10 |

*** End of Report ***



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Printed: 02:46 04/09/97

Date: 09/12/97 TRIANGLE LABORATORIES OF RTP, INC.

Continuing Calibration for P973843

Analysis Date....: 09/12/97 Method.....: CONF

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

252

Date 9/10/97 TRIANGLE LABORATORIES, INC.

Continuing Calibration for S97[illegible]

Analysis Date ..: 09/10/97 Method.....: M23[illegible]

Operator..... ....: BJG 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 | | 0:23<br>14:23 | | | 2.087 | -2.087 | 100.0% |
| Total MCDD | 0.000 | | 1:12<br>15:12 | | | 1.625 | -1.625 | 100.0% |
| Total DCDF | 0.000 | | 7:23<br>15:23 | | | 0.687 | -0.687 | 100.0% |
| Total DCDD | 0.000 | | 8:12<br>16:12 | | | 1.326 | -1.326 | 100.0% |
| Total TriCDF | 0.000 | | 11:23<br>18:23 | | | 1.082 | -1.082 | 100.0% |
| Total TriCDD | 0.000 | | 13:12<br>19:12 | | | 0.933 | -0.933 | 100.0% |
| 2378-TCDF | 1.150 | 0.81 | 16:46<br>22:30 | 20:24 | 1.0008 | 1.251 | -0.101 | -8.1% |
| TOTAL TCDF | 1.150 | 0.81 | | | | 1.251 | -0.101 | -8.1% |
| 2378-TCDD | 1.191 | 0.78 | 18:10<br>22:30 | 21:13 | 1.0008 | 1.191 | 0.000 | 0.0% |
| TOTAL TCDD | 1.191 | 0.78 | | | | 1.191 | 0.000 | 0.0% |
| 12378-PeCDF | 1.091 | 1.54 | 22:27<br>26:39 | 24:43 | 1.0007 | 1.111 | -0.020 | -1.8% |
| 23478-PeCDF | 1.133 | 1.52 | | 25:29 | 1.0317 | 1.115 | 0.018 | 1.7% |
| TOTAL PeCDF | 1.112 | 1.53 | | | | 1.113 | -0.001 | -0.1% |
| 12378-PeCDD | 1.229 | 1.58 | 23:48<br>26:31 | 25:52 | 1.0006 | 1.256 | -0.027 | -2.2% |
| TOTAL PeCDD | 1.229 | 1.58 | | | | 1.256 | -0.027 | -2.2% |
| 123478-HxCDF | 0.997 | 1.25 | 27:13<br>29:57 | 28:22 | 0.9971 | 1.215 | -0.218 | -17.9% |
| 123678-HxCDF | 1.240 | 1.26 | | 28:28 | 1.0006 | 1.574 | -0.334 | -21.2% |
| 234678-HxCDF | 0.966 | 1.28 | | 28:59 | 1.0187 | 1.247 | -0.281 | -22.5% |
| 123789-HxCDF | 0.889 | 1.26 | | 29:42 | 1.0439 | 1.105 | -0.216 | -19.6% |
| TOTAL HxCDF | 1.023 | 1.26 | | | | 1.285 | -0.262 | -20.4% |
| 123478-HxCDD | 0.942 | 1.21 | 27:45<br>29:38 | 29:07 | 0.9977 | 0.953 | -0.011 | -1.1% |
| 123678-HxCDD | 1.080 | 1.20 | | 29:12 | 1.0006 | 1.133 | -0.053 | -4.7% |



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Printed: 14:20 09/10/97

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 123789-HxCDD | 1.062 | 1.19 | | 29:31 | 1.0109 | 1.091 | -0.029 | -2.6% |
| TOTAL HxCDD | 1.028 | 1.20 | | | | 1.059 | -0.031 | -2.9% |
| 1234678-HpCDF | 1.504 | 1.08 | 31:11<br>32:34 | 31:10 | 1.0000 | 1.543 | -0.039 | -2.5% |
| 1234789-HpCDF | 1.157 | 1.06 | | 32:23 | 1.0390 | 1.184 | -0.027 | -2.3% |
| TOTAL HpCDF | 1.331 | 1.07 | | | | 1.363 | -0.032 | -2.4% |
| 1234678-HpCDD | 0.992 | 1.01 | 31:17<br>32:13 | 32:02 | 1.0000 | 1.068 | -0.076 | -7.1% |
| TOTAL HpCDD | 0.992 | 1.01 | | | | 1.068 | -0.076 | -7.1% |
| OCDF | 1.433 | 0.93 | 30:30<br>38:30 | 34:38 | 1.0039 | 1.493 | -0.060 | -4.0% |
| OCDD | 1.042 | 0.84 | 30:30<br>38:30 | 34:31 | 1.0005 | 1.105 | -0.063 | -5.7% |

Other Standard Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 37Cl-TCDD | 0.955 | | 19:12<br>23:12 | 21:13 | 1.0008 | 0.843 | 0.112 | 13.2% |
| 13C12-PeCDF 234 | 0.992 | 1.47 | 20:42<br>28:42 | 25:28 | 1.0310 | 0.970 | 0.022 | 2.3% |
| 13C12-HxCDF 478 | 0.982 | 0.46 | | 28:21 | 0.9965 | 0.959 | 0.023 | 2.4% |
| 13C12-HxCDF 234 | 0.906 | 0.47 | | 28:58 | 1.0182 | 0.926 | -0.020 | -2.1% |
| 13C12-HxCDF 789 | 0.776 | 0.44 | | 29:41 | 1.0434 | 0.805 | -0.029 | -3.7% |
| 13C12-HxCDD 478 | 1.010 | 1.20 | | 29:06 | 0.9971 | 0.973 | 0.037 | 3.8% |
| 13C12-HpCDF 789 | 0.811 | 0.42 | 29:10<br>35:10 | 32:22 | 1.0385 | 0.771 | 0.040 | 5.2% |

Internal Standard Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 13C12-2378-TCDF | 1.464 | 0.76 | 19:23<br>21:23 | 20:23 | 1.0000 | 1.318 | 0.146 | 11.1% |
| 13C12-2378-TCDD | 1.086 | 0.81 | 19:12<br>23:12 | 21:12 | 1.0000 | 1.066 | 0.020 | 1.9% |
| 13C12-PeCDF 123 | 1.228 | 1.44 | 20:42<br>28:42 | 24:42 | 1.0000 | 1.133 | 0.095 | 8.4% |
| 13C12-PeCDD 123 | 0.746 | 1.51 | 21:51<br>29:51 | 25:51 | 1.0000 | 0.635 | 0.111 | 17.6% |
| 13C12-HxCDF 678 | 1.243 | 0.47 | 24:27<br>32:27 | 28:27 | 1.0000 | 1.204 | 0.039 | 3.3% |
| 13C12-HxCDD 678 | 0.970 | 1.20 | 28:11<br>30:11 | 29:11 | 1.0000 | 0.995 | -0.025 | -2.5% |



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Continuing Calibration for S975797

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ¦C12-HpCDF 678 | 0.750 | 0.44 | 29:10<br>35:10 | 31:10 | 1.0000 | 0.887 | -0.137 | -15.5% |
| ¦C12-HpCDD 678 | 0.736 | 1.02 | 31:02<br>33:02 | 32:02 | 1.0000 | 0.815 | -0.029 | -3.5% |
| ¦C12-OCDD | 0.446 | 0.89 | 34:21<br>34:41 | 34:30 | 1.0000 | 0.519 | -0.073 | -14.0% |

| ¦ecovery Standard Summary<br>¦ame | RF | Ratio<br>1&2 | RT<br>Lo/High | RT | Rel. RT | ICal<br>RF | Delta<br>RF | %D |
|---|---|---|---|---|---|---|---|---|
| ¦C12-1234-TCDD | 1.000 | 0.80 | | 20:59 | 0.9898 | 1.000 | 0.000 | 0.0% |
| ¦C12-HxCDD 789 | 1.000 | 1.22 | | 29:29 | 1.0103 | 1.000 | 0.000 | 0.0% |

QC Front End Check: 1.5494



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Date: 09/11/97 TRIANGLE LABORATORIES, INC.

Continuing Calibration for S975814

Analysis Date....: 09/11/97 Method.....: M237
Operator.....: JM Instrument..: S
Init Calibration.: SFS6117 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<br>14:24 | | | 2.087 | -2.087 | 100.0% |
| Total MCDD | 0.000 | | 1:13<br>15:13 | | | 1.625 | -1.625 | 100.0% |
| Total DCDF | 0.000 | | 7:24<br>15:24 | | | 0.687 | -0.687 | 100.0% |
| Total DCDD | 0.000 | | 8:13<br>16:13 | | | 1.326 | -1.326 | 100.0% |
| Total TriCDF | 0.000 | | 11:24<br>18:24 | | | 1.082 | -1.082 | 100.0% |
| Total TriCDD | 0.000 | | 13:13<br>19:13 | | | 0.933 | -0.933 | 100.0% |
| 2378-TCDF | 1.118 | 0.80 | 16:44<br>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<br>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<br>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<br>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<br>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<br>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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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3789-HxCDD | 1.052 | 1.24 | | 29:29 | 1.0103 | 1.091 | -0.039 | -3.5% |
| TAL HxCDD | 0.989 | 1.24 | | | | 1.059 | -0.070 | -6.7% |
| 34678-HpCDF | 1.384 | 1.04 | 31:01<br>32:33 | 31:11 | 1.0000 | 1.543 | -0.159 | -10.3% |
| 34789-HpCDF | 1.094 | 1.05 | | 32:23 | 1.0385 | 1.184 | -0.090 | -7.6% |
| TAL HpCDF | 1.239 | 1.04 | | | | 1.363 | -0.124 | -9.1% |
| 34678-HpCDD | 1.001 | 1.03 | 31:16<br>32:13 | 32:03 | 1.0005 | 1.068 | -0.067 | -6.3% |
| TAL HpCDD | 1.001 | 1.03 | | | | 1.068 | -0.067 | -6.3% |
| DF | 1.470 | 0.88 | 30:32<br>38:32 | 34:39 | 1.0034 | 1.493 | -0.023 | -1.5% |
| DD | 1.049 | 0.90 | 30:32<br>38:32 | 34:32 | 1.0000 | 1.105 | -0.056 | -5.1% |

her Standard Summary

| me | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| Cl-TCDD | 0.972 | | 19:13<br>23:13 | 21:13 | 1.0000 | 0.843 | 0.129 | 15.3% |
| C12-PeCDF 234 | 1.014 | 1.54 | 20:42<br>28:42 | 25:28 | 1.0310 | 0.970 | 0.044 | 4.5% |
| C12-HxCDF 478 | 0.955 | 0.50 | | 28:21 | 0.9959 | 0.959 | -0.004 | -0.4% |
| C12-HxCDF 234 | 0.886 | 0.49 | | 28:58 | 1.0176 | 0.926 | -0.040 | -4.3% |
| C12-HxCDF 789 | 0.798 | 0.49 | | 29:41 | 1.0427 | 0.805 | -0.007 | -0.8% |
| C12-HxCDD 478 | 0.897 | 1.22 | | 29:06 | 0.9971 | 0.973 | -0.076 | -7.8% |
| C12-HpCDF 789 | 0.787 | 0.43 | 29:11<br>35:11 | 32:22 | 1.0379 | 0.771 | 0.016 | 2.1% |

ternal Standard Summary

| me | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| C12-2378-TCDF | 1.554 | 0.74 | 19:24<br>21:24 | 20:24 | 1.0000 | 1.318 | 0.236 | 17.9% |
| C12-2378-TCDD | 1.110 | 0.78 | 19:13<br>23:13 | 21:13 | 1.0000 | 1.066 | 0.044 | 4.2% |
| C12-PeCDF 123 | 1.243 | 1.52 | 20:42<br>28:42 | 24:42 | 1.0000 | 1.133 | 0.110 | 9.7% |
| C12-PeCDD 123 | 0.713 | 1.58 | 21:50<br>29:50 | 25:50 | 1.0000 | 0.635 | 0.078 | 12.3% |
| C12-HxCDF 678 | 1.294 | 0.50 | 24:28<br>32:28 | 28:28 | 1.0000 | 1.204 | 0.090 | 7.5% |
| C12-HxCDD 678 | 0.964 | 1.22 | 28:11<br>30:11 | 29:11 | 1.0000 | 0.995 | -0.031 | -3.1% |



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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 13C12-HpCDF 678 | 0.876 | 0.45 | 29:11<br>35:11 | 31:11 | 1.0000 | 0.887 | -0.011 | -1.3% |
| 13C12-HpCDD 678 | 0.782 | 1.06 | 31:02<br>33:02 | 32:02 | 1.0000 | 0.815 | -0.033 | -4.1% |
| 13C12-OCDD | 0.434 | 0.84 | 34:22<br>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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Date: 09.11/97 TRIANGLE LABORATORIES, INC.

Continuing Calibration for X973069

Analysis Date....: 09/11/97 Method.....: C2NF

Operator.....: BJG Instrument..: X

Init Calibration.: XF24087 Std.Conc....: 5.00

ICal Date.....: 04/08/97

Analysis Time....: 12:00 GC Column...: DB-225

Analyte Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 2378-TCDF | 1.051 | 0.81 | 17:54 24:42 | 22:29 | 1.0015 | 0.967 | 0.084 | 8.7% |
| TOTAL TCDF | 1.051 | 0.81 | | | | 0.967 | 0.084 | 8.7% |
| 2378-TCDD | 1.079 | 0.78 | 18:43 23:58 | 21:12 | 1.0016 | 1.095 | -0.016 | -1.4% |
| TOTAL TCDD | 1.079 | 0.78 | | | | 1.095 | -0.016 | -1.4% |

Other Standard Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 37Cl-TCDD | 0.967 | | 19:10 23:10 | 21:12 | 1.0016 | 1.018 | -0.051 | -5.0% |

Internal Standard Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 13C12-2378-TCDF | 1.285 | 0.80 | 21:27 23:27 | 22:27 | 1.0000 | 1.392 | -0.107 | -7.7% |
| 13C12-2378-TCDD | 1.000 | 0.78 | 19:10 23:10 | 21:10 | 1.0000 | 1.105 | -0.105 | -9.5% |

Recovery Standard Summary

| Name | RF | Ratio 1&2 | RT Lo/High | RT | Rel. RT | ICal RF | Delta RF | %D |
|---|---|---|---|---|---|---|---|---|
| 13C12-1234-TCDD | 1.000 | 0.78 | | 21:27 | 1.0134 | 1.000 | 0.000 | 0.0% |



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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 11, 1997 |
| **Client ID:** | Pacific Environmental Services |
| **P.O. Number:** | 104-98-0019 & -0020 |
| **TLI Project Number:** | 43057r1 |

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Rev. 05/08/97

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*Fax # 919-544-5491*

## Overview

Seven M23 samples were received from Pacific Environmental Services in good condition on August 29, 1997 at 19 °C. One XAD trap for sample O-M23-RB was received from Pacific Environmental Services without a chain-of-custody in good condition on September 5, 1997 at ambient temperature. The samples were stored in a refrigerator at 4°C until the time of extraction. The M23 samples and associated QC sample 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.

## 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:*** None

***Mass Spectrometry:*** The archived extracts of samples O-M23-4 and the method blank were processed through normal cleanup procedures because sample O-M23-4 was destroyed in the wet laboratory during filtration.

***Data Review:*** None

***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,

$A_\sigma$ is the integrated current for the characteristic ions of the analyte,

$A_\beta$ is the integrated current of the characteristic ions of the corresponding internal standard,

$Q_\beta$ 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:

JA JMH 9/13/97

$DL_{(\sigma)}$ 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

$A_\beta$ is the integrated current of the characteristic ions of the corresponding internal standard,

$Q_\beta$ 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.,

Released by Final Quality Control Chemist

Sheila A. Lee-Lewis
Report Preparation Chemist

The total number of pages in the data package is : 103

105 SMC 9/18/97

# TRIANGLE LABORATORIES, INC.

## LIST OF CERTIFICATIONS AND ACCREDITATIONS

### ENVIRONMENTAL

**American Association for Laboratory Accreditation.** Expires July 31, 1997. 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, 1997. 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, 1997.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.



*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*

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

**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, 1997. 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 June 30, 1997 or sooner. ID #67851. BNAs and Volatiles. Dioxin in drinking water.

**State of New Mexico, Environment Department.** Expires July 31, 1997. 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 December 31, 1997. 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.

**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, 1997. 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, 2002. Permit No. S-4958. 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, 1997. 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.

**State of Wisconsin, Department of Natural Resources.** Expires June 30, 1997. 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 July 1997. 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 27709-348*
*Fax # 919-544-5491*

COPY of 8/29/97

11

## CHAIN OF CUSTODY

**Sampler's Signature:**

Company: PES, Inc. Contact: Mike Maret

Address: 5001 S. Miami Blvd. Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 Fax #: 919-941-0234

**Comments:**

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| Inlet | 8/19/97 | 9:15 | Composite | I-M23-1-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Inlet | 8/19/97 | ↓ | Composite | I-M23-1-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Inlet | 8.19.97 | ↓ | Composite | I-M23-1-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Inlet | 8.19.97 | ↓ | Composite | I-M23-1-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.19.97 | 9:15 | Composite | O-M23-1-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | ↓ | ↓ | Composite | O-M23-1-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | ↓ | ↓ | Composite | O-M23-1-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | ↓ | ↓ | Composite | O-M23-1-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.20.97 | 8:22 | Composite | O-M23-2-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | ↓ | ↓ | Composite | O-M23-2-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
| [signature] | 8/29/97 12:45 | | | | |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: ***Triangle Laboratories, Inc.***

**801 Capitola Drive**

**Durham, North Carolina 27713**

COPY of 8/29/97

## CHAIN OF CUSTODY

Sampler's Signature:

Company: PES, Inc. Contact: Mike Maret

Address: 5001 S. Miami Blvd. Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| Outlet | 8.20.97 | 8:22 | Composite | O-M23-2-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | " | " | Composite | O-M23-2-IMP | 2 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| Outlet | 8.20.97 | 14:05 | Composite | O-M23-3-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | " | " | Composite | O-M23-3-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | " | " | Composite | O-M23-3-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | " | " | Composite | O-M23-3-IMP | 2 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| OUTLET | 8.19.97 | 1519 | Composite | O-M23-FB-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| OUTLET | " | " | Composite | O-M23-FB-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| OUTLET | " | " | Composite | O-M23-FB-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| OUTLET | " | " | Composite | O-M23-FB-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: [signature] | Date/Time: 8/29/97 12:45 | Received By: | Relinquished By: | Date/Time: | Received By: |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: *Triangle Laboratories, Inc.*
801 Capitola Drive
Durham, North Carolina 27713

COPY

CJ 8/29/97

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## CHAIN OF CUSTODY

Sampler's Signature:

Company: PES, Inc. | Contact: Mike Maret

Address: 5001 S. Miami Blvd. | Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 | Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 | Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| ~~Outlet~~ | | | ~~Composite~~ | ~~O-M23-4-HCl~~ | | ~~16 Trace Metals Plus Hg~~ | ~~HCl~~ |
| Outlet | 8.21.97 | 7:41 | Composite | O-M23-4-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD |
| Outlet | " | " | Composite | O-M23-4-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| Outlet | " | " | Composite | O-M23-4-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| Outlet | " | " | Composite | O-M23-4-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished By: [signature] | Date/Time: 8/29/97 12:45 | Received By: | Relinquished By: | Date/Time: | Received By: |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 12:45

Send Samples To: ***Triangle Laboratories, Inc.***

**801 Capitola Drive**

**Durham, North Carolina 27713**

COPY 8/29/97

14

## CHAIN OF CUSTODY

Sampler's Signature:

Company: PES, Inc. Contact: Mike Maret

Address: 5001 S. Miami Blvd. Project Name: ASPHALT PLANT "A"

RTP, NC 27709-2077 Project Location: Garner, NC

P.O. #:

Phone #: 919-941-0333 Fax #: 919-941-0234

Comments:

| Location Sampled: | Date: | Time: | Grab or Comp.: | Field Sample I.D.#: | # of Cont. | Analysis Required: | Remarks: |
|---|---|---|---|---|---|---|---|
| | | | Composite | O-M23-RB-XAD | 1 | Poly-chlorinated Dioxin/Furans | XAD → NOT Present 8/29 |
| | | | Composite | O-M23-RB-Ace/Toluene | 1 | Poly-chlorinated Dioxin/Furans | Ace/Toluene |
| | | | Composite | O-M23-RB-Filter | 1 | Poly-chlorinated Dioxin/Furans | Filter |
| | | | Composite | O-M23-RB-IMP | 1 | Poly-chlorinated Dioxin/Furans | ARCHIVE |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
|---|---|---|---|---|---|
| Relinquished By: | Date/Time: | Received By: | Relinquished By: | Date/Time: | Received By: |
| [signature] | 8/29/97 17:45 | | | | |

Received for Laboratory By/Signature: [signature]

Date/Time: 8/29/97 17:45

Send Samples To: **Triangle Laboratories, Inc.**
801 Capitola Drive
Durham, North Carolina 27713

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

Custody Seal : Absent | Sample Seals: Absent
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 43057
Client: PSC01 - PES, Inc.

Book 181 | Page 27

Date Received 08/29/97 By

Ice Chest/Box ICE Temp 19.0 C

Carrier and Number FRANK PHOENIX

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 181-27-1A | I-M23-1-XAD<br>I-M23-1-XAD | XAD<br>C02 | | | LA 9/6/97 | | | | | | |
| 181-27-1B | I-M23-1-ACE/TOLUENE<br>I-M23-1-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-1C | I-M23-1-FILTER<br>I-M23-1-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-1D | I-M23-1-IMP<br>I-M23-1-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-2A | O-M23-1-XAD<br>O-M23-1-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-2B | O-M23-1-ACE/TOLUENE<br>O-M23-1-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-2C | O-M23-1-FILTER<br>O-M23-1-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-2D | O-M23-1-IMP<br>O-M23-1-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-3A | O-M23-2-XAD<br>O-M23-2-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-3B | O-M23-2-ACE/TOLUENE<br>O-M23-2-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-3C | O-M23-2-FILTER<br>O-M23-2-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-3D | O-M23-2-IMP<br>O-M23-2-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-3E | O-M23-2-IMP<br>O-M23-2-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-4A | O-M23-3-XAD<br>O-M23-3-XAD | XAD<br>C02 | | | | | USED | | | | |

Receiving Remarks: SAMPLES DELIVERED IN 3 BOXES AND 1 COOLER. ICE IN COOLER WAS WATER WHEN RECIEVED. SAMPLE O-M23-RB-XAD WAS NOT WITH SHIPMENT.

Archive Remarks:

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

Custody Seal : Absent | Sample Seals: Absent
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 43057
Client: PSC01 - PES, Inc.

Book 181

Date Received 08/29/97 | By [signature] | Page 27

Ice Chest/Box ICE | Temp 19.0 C | Carrier and Number FRANK PHOENIX

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 181-27-4B | O-M23-3-ACE/TOLUENE<br>O-M23-3-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | LA 9/6/97 | USED | | | | | |
| 181-27-4C | O-M23-3-FILTER<br>O-M23-3-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-4D | O-M23-3-IMP<br>O-M23-3-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-4E | O-M23-3-IMP<br>O-M23-3-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-5A | O-M23-FB-XAD<br>O-M23-FB-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-5B | O-M23-FB-ACE/TOLUENE<br>O-M23-FB-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | USED | | | | | |
| 181-27-5C | O-M23-FB-FILTER<br>O-M23-FB-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-5D | O-M23-FB-IMP<br>O-M23-FB-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-6A | O-M23-4-XAD<br>O-M23-4-XAD | XAD<br>C02 | | | | | | | | | |
| 181-27-6B | O-M23-4-ACE/TOLUENE<br>O-M23-4-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-6C | O-M23-4-FILTER<br>O-M23-4-FILTER | FILTER<br>C02 | | | | | | | | | |
| 181-27-6D | O-M23-4-IMP<br>O-M23-4-IMP | IMP<br>C02 | | | | | | | | | |
| 181-27-7A | O-M23-RB-ACE/TOLUENE<br>O-M23-RB-ACE/TOLUENE | ACE/TOLUENE<br>C02 | 9-5-97 JSY | 9-5-97 JSY | | | USED | | | | |
| 181-27-7B | O-M23-RB-FILTER<br>O-M23-RB-FILTER | FILTER<br>C02 | | | | | | | | | |

Receiving Remarks: SAMPLES DELIVERED IN 3 BOXES AND 1 COOLER. ICE IN COOLER WAS WATER WHEN RECIEVED. SAMPLE O-M23-RB-XAD WAS NOT WITH SHIPMENT.

Archive Remarks:

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

Custody Seal : Absent
Chain of Custody : Absent
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : Absent

Sample Seals: Absent
Container...: Intact

TLI Project Number 43113
Client: PES03 - Pacific Environmental Services

Book 181

Date Received 09/05/97 By

Page 83

NO COOLANT

Carrier and Number DEBBIE HAGE

| TLI Number.. ....Client Sample ID..... .....Matrix<br>mR/H:CPM. .....Client COC ID.....* 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 |
|---|---|---|---|---|---|---|---|---|---|
| 181-83-1 Reagent Blank Xad XAD<br>no C.O.C. * C01 | LA 9/16/97 | USED | | | | | | | |

Receiving Remarks: Debbie Hage said this was a sample that Belonged to client.
No paperwork arrived with samples; CLIENT needs to provide a Chain of Custody with sample IDs matching the sample labels.

Archive Remarks:

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

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

| | | |
|---|---|---|
| TLI Proj#: 43057-r1 | Samples: 1 | TurnAround.: 7 Day(s) |
| Prod Code: D23061 | Matrix.: M23Train | Hold Time..: 30 Day(s) |
| DetectLim: 0.05 ng | Type...: A | Start Date.: 09/05/97 |
| | Recvd..: 08/29/97 | Ship By....: 09/11/97 lm 9/10/97 |
| | | DWL Due Dt.: ~~09/09/97~~ ASAP |

Analyte List.: tetra-octa PCDDs/PCDFs

Method.....: Method 23:Tetra-Octa (Tol Combined)
Client Proj..: ASPHALT PLANT "A"
Client.....: Pacific Environmental Services (PES03)

| | |
|---|---|
| P.O. No.....: 104-98-0019 & -0020 | Collect Dt/Tm: SeeCOC |
| Contact.....: Mike Maret | Phone.....: 919-941-0333 |
| Proj. Mgr....: Amy J. Boehm | Fax.....: 919-941-0234 |
| | Sample Origin: NC |

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

| | |
|---|---|
| Prep Project: 03804 | Prespike Standard: USF-CS |
| | Prespike Amount..: 4.0ng |
| | Extraction Exp...: 09/18/97 |

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

Reporting Format: Report Option II

See MILES for Instructions/Communications.

Completed by: lm DATE: 9/10/97

Reviewed by: walter mays DATE: 9/10/97 (PMGT0197)

PROJECT COMMUNICATION TRACKING FORM page 1 of 2

TLI Project Number: 43057

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.

| Name | Comment / Decision / Resolution / Action / Observation |
|---|---|
| PSC01-PES, Inc.<br>I-M23-1-FILTER<br>Project:43057<br>181-27-1C | XAD-White<br>1 Filter white with approx 60g of brown ash residue |
| PSC01-PES, Inc.<br>I-M23-1-XAD<br>Project:43057<br>181-27-1A | gas smell |
| PSC01-PES, Inc.<br>O-M23-1-FILTER<br>Project:43057<br>181-27-2C | XAD-White<br>1 Filter - white/brown |
| PSC01-PES, Inc.<br>O-M23-1-XAD<br>Project:43057<br>181-27-2A | gas smell |
| PSC01-PES, Inc.<br>O-M23-2-FILTER<br>Project:43057<br>181-27-3C | XAD-white<br>1 Filter white/brown |
| PSC01-PES, Inc.<br>O-M23-2-XAD<br>Project:43057<br>181-27-3A | gas smell |

TLI Project Number: 43057

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 |
|---|---|---|
| | | PSC01-PES, Inc.<br>O-M23-3-XAD<br>Project: 43057<br>181-27-4A — XAD - White |
| | | PSC01-PES, Inc.<br>O-M23-3-FILTER<br>Project: 43057<br>181-27-4C — 1 Filter - white/lt brown - gas smell |
| | | PSC01-PES, Inc.<br>O-M23-FB-XAD<br>Project: 43057<br>181-27-5A — XAD White |
| | | PSC01-PES, Inc.<br>O-M23-FB-FILTER<br>Project: 43057<br>181-27-5C — 1 Filter white |
| | | PSC01-PES, Inc.<br>O-M23-4-XAD<br>Project: 43057<br>181-27-6A — White - XAD |
| | | PSC01-PES, Inc.<br>O-M23-4-FILTER<br>Project: 43057<br>181-27-6C — 1 Filter - white with lt brown residue |
| | | PES03-Pacific Environmental Services<br>Reagent Blank Xad<br>Project: 43113<br>181-83-1 — 1 Filter white |
| | | PSC01-PES, Inc.<br>O-M23-RB-FILTER<br>Project: 43057<br>181-27-7B — XAD White |

TRIANGLE LABORATORIES, INC. PAGE 1 OF 1

Dioxin Sample Preparation Tracking & Management Form

ject: 43057 Client: Pacific Environmental Services (PES03)

vent(s)/Acid(s): Toluene / _____ / _____ Method: Method 23:Tetra-Octa (Tol Combined) Matrix: XAD Filters

Numbers: 974861 / _____ / _____ Extraction Date: 9/6/97

Spike: 40 µl conc: 0.1000 ng/µl
Spike: ____ µl conc: __.____ ng/µl
Spike: 0 µl conc: 0.0000 ng/µl
Spike: 0 µl conc: 0.0000 ng/µl
Spike: 20 µl conc: 0.01 ng/µl

| rd | TLI / SAMPLE ID / CLIENT SAMPLE ID | GROSS WEIGHT Before | GROSS WEIGHT After | SAMPLE SIZE g / ml | LA | LA | AM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 5234I | 5233B | 5235 E | | Chemist |
| | | | | | USF I | USF MW | USF-A | | Spike # |
| | | | | | 7/02/98 | 12/17/97 | 07/02/98 | __/__/__ | * ID |
| | | | | | 9/06/97 | 9/06/97 | 9/08/97 | __/__/__ | * Expir |
| | | | | | 14:00 | 14:03 | 13:45 | __:__ | * Date |
| | | | | | 0.1 ng/µl | 0.01 ng/µl | 0.1 ng/µl | ____ ng/µl | * Time |
| | | | | | 40 µl | 40 µl | 40 µl | ____ µl | * Conc. |
| | | | | | | | | | * Vol. |
| | TLI Blank / TLI M23 Blank | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-1A-C / I-M23-1 | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-2A-C / O-M23-1 | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-3A-C / O-M23-2 | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-4A-C / O-M23-3 | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-5A-C / O-M23-FB | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-6A-C / O-M23-4 | | | | L.C. | | MS | | Any Left (yes/no) |
| | 181-27-7AB& 181-83-1 / O-M23-RB | | | | L.C. | | MS | | Any Left (yes/no) |
| | TLI LCS / TLI LCS | | | | L.C. | L.C. * | MS | | Any Left (yes/no) |
| | TLI LCSD / TLI LCSD | | | | L.C. | L.C. * | MS | | Any Left (yes/no) |

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

ments: (1) & (2) Acetone/Toluene Rinses had fine particles - they were filtered through thimbles before Rotovaping 9/5/97

Initials: LA Date: 9/6/97

ials of both SPIKER AND OBSERVER must be entered. XXXXX = Gross Weight not provided for WATER Samples.

REV 05/27/97 (PSTMP 7)

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43057

| Ext S#.crd and TLI Number | 1 | 2 | 4A | 6 | 3 | 4B | 7 | 8A | 9 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 000 TLI Blank | LA 9/6/97 | 9/8 MS 9.8.97 | MS 9.8.97 | MS 9.8.97 | TMW 9-8-97 | TMW 9-8-97 | TMW 9-8-97 | NH CPA 9/9/97 | 9/9/97 | | |
| 001 181-27-1A-C | | | | | | | | | | | |
| 002 181-27-2A-C | | | | | | | | | | | |
| 003 181-27-3A-C | | | | | | | | | | | |
| 004 181-27-4A-C | | | | | | | | | | | |
| 005 181-27-5A-C | | | | | | | | | | | |
| 006 181-27-6A-C | | | | TMW 9-8-97 | | | | | | | |
| 007 181-27-7AB& 181-83-1 | | | | MS 9.8.97 | | | | | | | |
| 008 TLI LCS | | | | TMW 9-8-97 | | | | | | | |
| 009 TLI LCSD | | | | | | | | | 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 | 9/6/97 9/7/97 LA |
| 3) | ADD TRIDECANE | 14:30 06:30 |
| 4) | ROTOVAP | 40mL / 10mL A / Dryness B |
| 5) | COMBINE | |
| 6) | DIVIDE / LIPID DETERMINATION | 20%/80% 50%/50% 5mL/20mL Other_____ |
| 7) | SOLVENT EXCHANGE A | |
| 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: _____

Rev 06/24/97 (PSTMF 4)

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43057 r1

| S#.crd and Number | 3 | 4 | 7 | 3A | 9 |
|---|---|---|---|---|---|
| 000 Blank | L.C 9-10-97 | J.L. | JL | MH 9/11/97 | 9/11/97 |
| 006 -27-6A-C | ↓ | ↓ | ↓ | ↓ | ↓ |
| | | 9/10/97 | 9/10/97 | 30R | |

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) |
|---|---|
| EXTRACTION | ON__ OFF__ Soxhlet / Jar / Sep Funnel / Steam Dist / Cont LL / ASE / Waste Dilution |
| SPIKE AFTER EXTRACTION | |
| ADD TRIDECANE | |
| ROTOVAP | 40mL / 10mL / Dryness |
| COMBINE | |
| DIVIDE / LIPID DETERMINATION | 20%/80% 50%/50% 5mL/20mL Other_____ |
| SOLVENT EXCHANGE | |
| CLEANUP | (A) Double Column (DSP 260) / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____ |
| TRANSFER | |
| ADDITIONAL CLEANUP | Mod. DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____ |
| FINAL TRANSFER | |

Comments: _____

Rev 06/24/97 (PSTMF 4)

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43057-r1

Transfer From: DWLH5 To: DMS5

| | Initials.. | Date..... | Time... |
|---|---|---|---|
| Released by: | JR | 9/11/97 | 11:45 |
| Accepted by: | Jm | 9/12/97 | 12:35 |

| MILES.ID..... | TLI_No..... | Cust.Id..... |
|---|---|---|
| 43057-r1 -000 | TLI Blank | TLI M23 Blank |
| 43057-r1 -006 | 181-27-6A-C | O-M23-4 |

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: 43057r1

| | SAMPLE INFORMATION | | | | | | RS Conc |
|---|---|---|---|---|---|---|---|
| | 1ST COLUMN | | 2ND COLUMN | | | | 20 µl @ 100.0 PG/µl |
| crd | TLI / SAMPLE ID / CLIENT SAMPLE ID | GC/MS FILENAME COLUMN: DB-5 | CONFIRM | CONFIRM FILENAME COLUMN: DB-225 | USF-RS VOLUME 20µl SOLN ID 57462 | USF-RS INIT. MW DATE 9/14/2 | ANALYSIS COMMENTS |
| | TLI Blank / TLI M23 Blank | 5975364 | | PR73648 | ↓ | ↓ | |
| | 181-27-6A-C / O-M23-4 | 5975365 | Y | 49 | ↓ | ↓ | |

Comments: _____

Type: A

Spike File: SPX23704

Amt of Extract: 50%

REV 03/07/95 (PSTMF 6)

Triangle Laboratories, Inc.
Run Log

26

| Instrument ID | Column Type | Column ID | Plot Name | Inj. Vol. | Acquisition | G/C |
|---|---|---|---|---|---|---|
| 705 | DB5 | 7458551 | TO2 | 2.0 µL | EPCUS2 | EPCUS |

Glenn Graham — Signature
ie GG 9-12-97 — Date

| 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 | — | 4514G | — | Concal 50.0 | M-O 4.5 | 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-O 5 | 6.8 E6 | ML 9-12-97 | Good |
| S975862 | 9-12-97 | 2220 | — | 5413 | — | 8290 Concal 5.0 | M-O 23 | 6.2 E6 | ML 9/12/97 | Good |
| S975863 | 9-12-97 | 2306 | 42979r1 | Tli Blank | 0 | Tli M23 Blank | S9121 | 4.9 E6 | ML 9/12/97 | |
| S975864 | 9-13-97 | 00:14 | 43057r1 | Tli Blank | 0 | Tli 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 E5 | | |
| S975867 | | 02:12 | | 181-55-2ABE | 2 | O-M23-2 | | 2.4 E5 | | |
| S975868 | | 02:52 | | 181-55-3ABE | 3 | O-M23-3 | | 1.1 E6 | | 10µl of nonane added. |
| S975869 | | 03:31 | 43054A | Tli Blank | 0 | Tli Solid Blank | | 8.1 E4 | | |
| S975870 | | 04:11 | | 181-24-1 | 1 | ME050-SL-087-PRIM.SL | | 9.3 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

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 |
|---|---|---|---|---|---|---|
| ZOP | DB 225 | 6360413 | TM | 20ul | DB 225 | DB 225 |

Signature: [signature] Date: 9/12/97

| Filename | Date* | Time* | Project # | Sample# | No. | Client Sample ID | Syr | 332 | Operator/Date | Comments** |
|---|---|---|---|---|---|---|---|---|---|---|
| P973842 | 9/12/97 | 10:13 | — | 5170B | – | RTCH1 | RTCH | 14% | [illegible] 9/12/97 | |
| 1 43 | 1 | 11:04 | — | 4497D | – | TETRA CONCR 5.0 | TETRA 5.0 | 1.9 E6 | 1 | Good [illegible] 9/12/9 |
| 1 44 | 1 | 11:59 | — | 5296L | – | RS-100 | RS-100 | 1.7 E6 | 1 | clean [illegible] 9/12/9 |
| 1 45 | 1 | 12:45 | 43057 | 181-27-3AC | 3 | O-M23-2 | P9081 | 1.9 E6 | 1 | |
| 1 46 | 1 | 13:32 | 1 | 1 -4AC | 4 | 1 -3 | 1 | 3.0 E6 | 1 | |
| 1 47 | 1 | 14:19 | 1 | 1 -7AC 181-83-1 | 7 | 1 -RB | 1 | 2.9 E6 | 1 | |
| 1 48 | 1 | 15:06 | 43057 or 1 | TLI BLANK | 0 | TLI M23 BLANK | 1 | 2.0 E6 | 1 | |
| 1 49 | 1 | 1553 | 1 | 181-27-6AC | 6 | O-M23-4 | 1 | 1.5 [illegible] | 1 | |
| P973850 | 9/12/97 | 1642 | 43085 | 181-55 | 3 | O-M23-3 | ↓ | 9.1 E5 | BB 9/12/97 | |
| P973851 | 9/12/97 | 1731 | 43085 | 181-55-4ABD | 4 | O-M23-FB | ↓ | 7.4 E5 | ML 9/12/97 | |
| P973852 | 9/12/97 | | 43085 | TLI Blank | 0 | TLI M23 Blank | ↓ | | ML 9/12/97 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: _____
ConCal Due: _____

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

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 27709-34
Fax # 919-544-5491

| Data File | S975864 | S975865 |
|---|---|---|
| Sample ID | TLI M23 Blank | O-M23-4 |
| Units | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 |
| Analysis Date | 09/13/97 | 09/13/97 |
| Instrument | S | S |
| Matrix | XAD | M23TRAIN |
| Extraction Type | | |
| Analytes | | |
| 2378-TCDD | (0.004) | (0.004) |
| 12378-PeCDD | (0.005) | (0.005) |
| 123478-HxCDD | (0.006) | (0.006) |
| 123678-HxCDD | (0.005) | 0.01 |
| 123789-HxCDD | (0.005) | (0.005) |
| 1234678-HpCDD | 0.03 | {0.04} B |
| OCDD | 0.04 | 0.09 B |
| 2378-TCDF | 0.008 | 0.02 B |
| 12378-PeCDF | (0.004) | (0.003) |
| 23478-PeCDF | {0.007} | {0.01} B |
| 123478-HxCDF | 0.03 | 0.03 B |
| 123678-HxCDF | 0.01 | 0.01 B |
| 234678-HxCDF | 0.02 | 0.02 B |
| 123789-HxCDF | (0.004) | (0.004) |
| 1234678-HpCDF | 0.05 | 0.05 B |
| 1234789-HpCDF | 0.02 | 0.02 B |
| OCDF | 0.03 | 0.05 B |
| TOTAL TCDD | 0.009 | {0.007} |
| TOTAL PeCDD | {0.03} | 0.01 |
| TOTAL HxCDD | 0.05 | 0.07 |
| TOTAL HpCDD | 0.06 | {0.07} |
| TOTAL TCDF | 0.008 | 0.03 |
| TOTAL PeCDF | {0.007} | 0.01 |
| TOTAL HxCDF | 0.08 | 0.09 |
| TOTAL HpCDF | 0.08 | 0.09 |
| Other Standards Percent Recovery Summary (% Rec) | | |
| 37Cl-TCDD | 105 | 106 |
| 13C12-PeCDF 234 | 87.7 | 93.4 |
| 13C12-HxCDF 478 | 93.9 | 97.6 |
| 13C12-HxCDD 478 | 89.6 | 85.9 |
| 13C12-HpCDF 789 | 107 | 98.7 |
| Other Standards Percent Recovery Summary (% Rec) | | |
| 13C12-HxCDF 789 | 97.3 | 117 |
| 13C12-HxCDF 234 | 84.8 | 107 |
| Internal Standards Percent Recovery Summary (% Rec) | | |
| 13C12-2378-TCDF | 92.5 | 120 |
| 13C12-2378-TCDD | 80.9 | 98.7 |
| 13C12-PeCDF 123 | 92.4 | 107 |
| 13C12-PeCDD 123 | 100 | 112 |

| Data File | S975864 | S975865 |
|---|---|---|
| Sample ID | TLI M23 Blank | O-M23-4 |
| Units | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 |
| Analysis Date | 09/13/97 | 09/13/97 |
| Instrument | S | S |
| Matrix | XAD | M23TRAIN |
| Extraction Type | | |

| Internal Standards | Percent Recovery | Summary (% Rec) |
|---|---|---|
| 13C12-HxCDF 678 | 92.8 | 113 |
| 13C12-HxCDD 678 | 83.6 | 103 |
| 13C12-HpCDF 678 | 72.2 | 88.5 |
| 13C12-HpCDD 678 | 85.0 | 90.1 |
| 13C12-OCDD | 67.5 | 68.8 |

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

| | | |
|---|---|---|
| Data File | P973848 | P973849 |
| Sample ID | TLI M23 Blank | O-M23-4 |
| Units | ng | ng |
| Extraction Date | 09/06/97 | 09/06/97 |
| Analysis Date | 09/12/97 | 09/12/97 |
| Instrument | P | P |
| Matrix | XAD | M23TRAIN |
| Extraction Type | | |
| Analytes | | |
| 2378-TCDF | (0.008) | (0.01) |
| Internal Standards Percent Recovery Summary (% Rec) | | |
| 13C12-2378-TCDF | 72.7 | 104 |

(Detection Limit).

# Pacific Environmental Services

TLI Project: **43057r1** — Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI M23 Blank** — Analysis File: **S975864**

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | XAD | Date Received: | / / | Spike File: | SPX23704 |
| TLI ID: | TLI Blank | Date Extracted: | 09/06/97 | 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: | S975864 | % 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 | 0.004 | | | | — |
| 1,2,3,7,8-PeCDD | ND | 0.005 | | | | — |
| 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 | 0.03 | | | 1.08 | 32:45 | — |
| 1,2,3,4,6,7,8,9-OCDD | 0.04 | | | 0.93 | 35:18 | — |
| 2,3,7,8-TCDF | 0.008 | | | 0.78 | 21:35 | — |
| 1,2,3,7,8-PeCDF | ND | 0.004 | | | | — |
| 2,3,4,7,8-PeCDF | EMPC | | 0.007 | | | — |
| 1,2,3,4,7,8-HxCDF | 0.03 | | | 1.25 | 29:11 | — |
| 1,2,3,6,7,8-HxCDF | 0.01 | | | 1.22 | 29:16 | — |
| 2,3,4,6,7,8-HxCDF | 0.02 | | | 1.18 | 29:46 | PR |
| 1,2,3,7,8,9-HxCDF | ND | 0.004 | | | | — |
| 1,2,3,4,6,7,8-HpCDF | 0.05 | | | 1.12 | 31:55 | — |
| 1,2,3,4,7,8,9-HpCDF | 0.02 | | | 1.14 | 33:06 | — |
| 1,2,3,4,6,7,8,9-OCDF | 0.03 | | | 0.88 | 35:25 | — |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | 0.009 | 1 | | | — |
| Total PeCDD | EMPC | | | 0.03 | — |
| Total HxCDD | 0.05 | 2 | | | — |
| Total HpCDD | 0.06 | 2 | | | — |
| Total TCDF | 0.008 | 1 | | | — |
| Total PeCDF | EMPC | | | 0.007 | — |
| Total HxCDF | 0.08 | 6 | | | — |
| Total HpCDF | 0.08 | 3 | | 0.10 | — |





**Triangle Laboratories, Inc.®**
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

TLI Project: 43057r1 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: TLI M23 Blank — Analysis File: S975864

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $C_{12}$-2,3,7,8-TCDF | 3.7 | 92.5 | 40%-130% | 0.77 | 21:35 | |
| $C_{12}$-2,3,7,8-TCDD | 3.2 | 80.9 | 40%-130% | 0.78 | 22:20 | |
| $C_{12}$-1,2,3,7,8-PeCDF | 3.7 | 92.4 | 40%-130% | 1.44 | 25:40 | |
| $C_{12}$-1,2,3,7,8-PeCDD | 4.0 | 100 | 40%-130% | 1.48 | 26:44 | |
| $C_{12}$-1,2,3,6,7,8-HxCDF | 3.7 | 92.8 | 40%-130% | 0.51 | 29:16 | |
| $C_{12}$-1,2,3,6,7,8-HxCDD | 3.3 | 83.6 | 40%-130% | 1.23 | 29:58 | |
| $C_{12}$-1,2,3,4,6,7,8-HpCDF | 2.9 | 72.2 | 25%-130% | 0.44 | 31:54 | |
| $C_{12}$-1,2,3,4,6,7,8-HpCDD | 3.4 | 85.0 | 25%-130% | 1.02 | 32:44 | |
| $C_{12}$-1,2,3,4,6,7,8,9-OCDD | 5.4 | 67.5 | 25%-130% | 0.92 | 35:17 | |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $Cl_4$-2,3,7,8-TCDD | 4.2 | 105 | 70%-140% | | 22:22 | |
| $C_{12}$-2,3,4,7,8-PeCDF | 3.5 | 87.7 | 70%-140% | 1.42 | 26:23 | |
| $C_{12}$-1,2,3,4,7,8-HxCDF | 3.8 | 93.9 | 70%-140% | 0.51 | 29:10 | |
| $C_{12}$-1,2,3,4,7,8-HxCDD | 3.6 | 89.6 | 70%-140% | 1.21 | 29:53 | |
| $C_{12}$-1,2,3,4,7,8,9-HpCDF | 4.3 | 107 | 70%-140% | 0.41 | 33:05 | |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $C_{12}$-1,2,3,7,8,9-HxCDF | 3.9 | 97.3 | 40%-130% | 0.51 | 30:28 | |
| $C_{12}$-2,3,4,6,7,8-HxCDF | 3.4 | 84.8 | 40%-130% | 0.50 | 29:46 | |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $C_{12}$-1,2,3,4-TCDD | 0.81 | 22:09 | |
| $C_{12}$-1,2,3,7,8,9-HxCDD | 1.22 | 30:15 | |

Data Reviewer: _____ 09/14/97



X237_PSR v2.00, LARS 6.10.04

Triangle Laboratories, Inc.®
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Printed: 17:42 09/14/97

Initial ....Date...

Data Review By: JC 9/14/97 Calculated Noise Area: 2.04

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 S975864B.dbf
09/14/97 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 | 0.31 | 0.37 | | | 0.000 | | | |
| | DC | SN | | 19:27 | RO | 0.60 | 3.86 | | | 0.901 | | | |
| | DC | SN | | 19:49 | RO | 0.64 | 3.70 | | | 0.918 | | | |
| | DC | SN | | 20:07 | RO | 1.80 | 1.63 | | | 0.932 | | | |
| | DC | SN | | 20:31 | RO | 0.63 | 4.25 | | | 0.951 | | | |
| D | d | SN | | 20:47 | | 0.87 | 6.05 | | | 0.963 | | | |
| D | d | SN | | 21:09 | | 0.71 | 7.79 | | | 0.980 | | | |
| | DC | SN | | 21:25 | RO | 0.36 | 1.72 | | | 0.992 | | | |
| | | | | 21:35 | | 0.78 | 14.82 | 6.50 | 8.32 | 1.000 | 2378-TCDF | | AN |
| | DC | SN | | 23:22 | RO | 0.42 | 4.46 | | | 1.083 | | | |
| 304-306 | | 1 | Peak | | | | 14.82 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.954-1.046 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 0.91 | 1.13 | | | 0.000 | | | |
| | DC | WL | | 20:31 | | 0.65 | 35.70 | | | 0.951 | | | |
| | | | | 21:09 | | 0.72 | 26.06 | 10.91 | 15.15 | 0.980 | | | |
| | | | | 21:35 | | 0.77 | 5,889.86 | 2,569.27 | 3,320.59 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 22:03 | RO | 1.13 | 19.45 | 12.38 | 10.99 | 1.022 | | | |
| 316-318 | | 3 | Peaks | | | | 5,935.37 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| TCDD | | | | 0.65-0.89 | | | | | | 0.875-1.055 | | | |
| 320-322 | DC | NL | | 0:00 | RO | 1.13 | 0.27 | | | 0.000 | | | |
| | | | | 19:41 | | 0.85 | 10.98 | 5.06 | 5.92 | 0.881 | | | |
| D | d | SN | | 20:05 | | 0.83 | 8.33 | | | 0.899 | | | |
| | DC | SN | | 20:36 | RO | 1.90 | 0.69 | | | 0.922 | | | |
| | DC | SN | | 21:23 | RO | 1.78 | 1.15 | | | 0.957 | | | |
| | DC | SN | | 22:09 | RO | 1.74 | 1.49 | | | 0.992 | | | |
| | DC | SN | | 22:14 | | 0.88 | 3.32 | | | 0.996 | | | |
| | DC | SN | | 22:23 | RO | 0.35 | 2.67 | | | 1.002 | 2378-TCDD | | AN |
| | DC | SN | | 22:37 | RO | 0.92 | 1.95 | | | 1.013 | | | |
| | DC | SN | | 22:48 | RO | 1.24 | 0.60 | | | 1.021 | | | |
| | DC | SN | | 22:59 | | 0.82 | 2.02 | | | 1.029 | | | |
| | DC | SN | | 23:10 | RO | 0.62 | 0.71 | | | 1.037 | | | |
| | DC | SN | | 23:18 | | 0.70 | 2.29 | | | 1.043 | | | |
| | DC | WH | | 23:36 | RO | 0.32 | 0.46 | | | 1.057 | | | |
| | DC | WH | | 23:36 | RO | 1.54 | 0.50 | | | 1.057 | | | |
| 320-322 | | 1 | Peak | | | | 10.98 | | | | | | |
| 37Cl-TCDD | | | | | | | | | | 0.910-1.090 | | | |
| 328 | DC | NL | | 0:00 | | | 0.43 | | | 0.000 | | | |
| | | | | 20:57 | | | 7.76 | 7.76 | | 0.938 | | | |

| Compound. I_Z.. | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22:22 | | | 3,679.73 | 3,679.73 | | 1.001 | 37Cl-TCDD | SUR1 | |
| 328 | | | 2 | Peaks | | | 3,687.49 | | | | | | |
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.910-1.090 | | | |
| 332-334 | | DC | NL | 0:00 | RO | 3.15 | 0.73 | | | 0.000 | | | |
| | | | | 21:07 | RO | 1.00 | 22.53 | 12.71 | 12.73 | 0.946 | | | |
| | | | | 22:09 | | 0.81 | 4,831.26 | 2,158.80 | 2,672.46 | 0.992 | 13C12-1234-TCDD | RS1 | |
| | | | | 22:20 | | 0.78 | 4,164.20 | 1,825.02 | 2,339.18 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 22:41 | RO | 0.94 | 53.79 | 28.64 | 30.39 | 1.016 | | | |
| 332-334 | | | 4 | Peaks | | | 9,071.78 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PeCDF | | | | | | 1.32-1.78 | | | | 0.915-1.074 | | | |
| 340-342 | | DC | NL | 0:00 | RO | 0.59 | 0.33 | | | 0.000 | | | |
| | | DC | SN | 23:39 | RO | 0.61 | 2.01 | | | 0.921 | | | |
| | | DC | SN | 24:20 | | 1.47 | 4.70 | | | 0.948 | | | |
| | | DC | SN | 24:40 | RO | 0.57 | 1.84 | | | 0.961 | | | |
| | D | d | SN | 25:17 | | 1.66 | 10.94 | | | 0.985 | | | |
| | | DC | SN | 25:41 | | 1.64 | 5.20 | | | 1.001 | 12378-PeCDF | AN | |
| | | DC | SN | 25:58 | RO | 0.49 | 2.70 | | | 1.012 | | | |
| | D | d | SN | 26:13 | | 1.71 | 7.66 | | | 1.021 | | | |
| | M | | | 26:23 | RO | 1.12 | 10.28 | 6.25 | 5.60 | 1.028 | 23478-PeCDF | AN | |
| | | DC | SN | 26:51 | | 1.47 | 3.06 | | | 1.046 | | | |
| | | DC | SN | 27:21 | RO | 0.70 | 2.88 | | | 1.066 | | | |
| | | DC | WH | 27:49 | RO | 0.28 | 0.39 | | | 1.084 | | | |
| 340-342 | | | 1 | Peak | | | 10.28 | | | | | | |
| 13C12-PeCDF | | | | | | 1.32-1.78 | | | | 0.844-1.156 | | | |
| 52-354 | | DC | NL | 0:00 | RO | 0.82 | 0.23 | | | 0.000 | | | |
| | | | | 24:47 | | 1.61 | 61.90 | 38.19 | 23.71 | 0.966 | | | |
| | | | | 25:17 | | 1.45 | 27.10 | 16.06 | 11.04 | 0.985 | | | |
| | | | | 25:40 | | 1.44 | 5,059.33 | 2,983.33 | 2,076.00 | 1.000 | 13C12-PeCDF 123 | IS2 | |
| | | | | 25:49 | | 1.35 | 16.10 | 9.25 | 6.85 | 1.006 | | | |
| | | | | 25:57 | | 1.43 | 29.14 | 17.16 | 11.98 | 1.011 | | | |
| | | | | 26:13 | | 1.64 | 27.67 | 17.20 | 10.47 | 1.021 | | | |
| | | | | 26:23 | | 1.42 | 4,305.66 | 2,528.87 | 1,776.79 | 1.028 | 13C12-PeCDF 234 | SUR2 | |
| | | | | 27:20 | | 1.33 | 17.65 | 10.09 | 7.56 | 1.065 | | | |
| 52-354 | | | 8 | Peaks | | | 9,544.55 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| eCDD | | | | | | 1.32-1.78 | | | | 0.926-1.024 | | | |
| 56-358 | | DC | NL | 0:00 | RO | 1.10 | 0.18 | | | 0.000 | | | |
| | | | | 24:56 | RO | 1.26 | 7.77 | 4.72 | 3.76 | 0.933 | | | |
| | | | | 25:40 | RO | 1.15 | 8.87 | 5.39 | 4.68 | 0.960 | | | |
| | | | | 25:59 | RO | 1.89 | 7.91 | 5.87 | 3.10 | 0.972 | | | |
| | | | | 26:13 | RO | 3.65 | 8.98 | 12.84 | 3.52 | 0.981 | | | |
| | | DC | SN | 26:46 | RO | 0.78 | 2.98 | | | 1.001 | 12378-PeCDD | AN | |
| | | DC | SN | 26:58 | RO | 1.10 | 0.92 | | | 1.009 | | | |
| | | DC | SN | 27:12 | RO | 0.62 | 1.15 | | | 1.017 | | | |
| | | DC | SN | 27:23 | | 1.35 | 1.08 | | | 1.024 | | | |

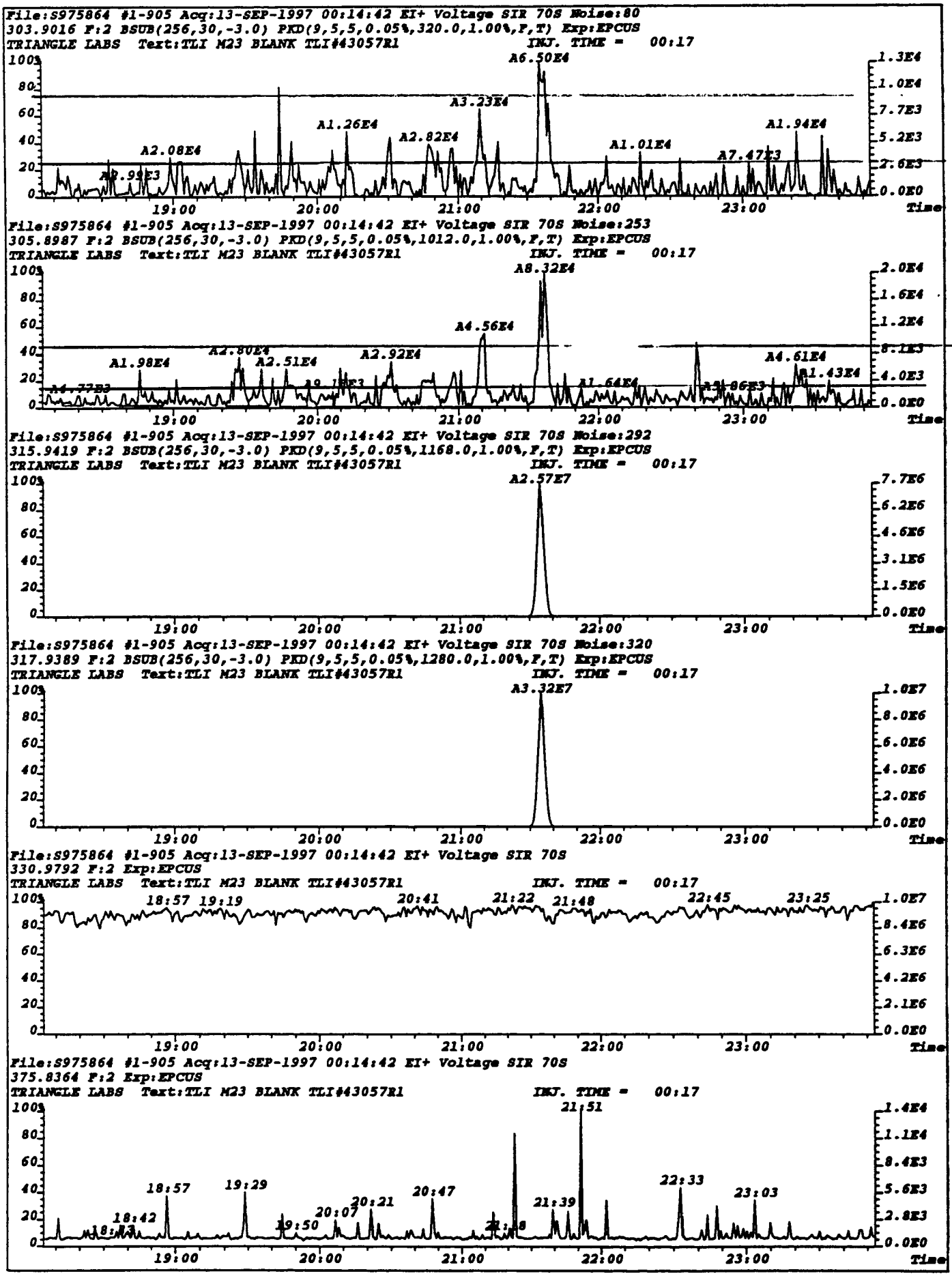
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | | SH | 27:40 | RO | 2.61 | 0.97 | | | 1.035 | | | |
| 356-358 | | | 4 Peaks | | | | 33.53 | | | | | | |
| 13C12-PeCDD | | | | 1.32-1.78 | | | | | | 0.850-1.150 | | | |
| 368-370 | DC | NL | | 0:00 | RO | 1.00 | 0.21 | | | 0.000 | | | |
| | DC | SN | | 25:27 | RO | 2.73 | 3.16 | | | 0.952 | | | |
| | | | | 25:39 | RO | 1.01 | 4.77 | 2.90 | 2.86 | 0.959 | | | |
| | | | | 26:13 | RO | 4.16 | 14.31 | 23.32 | 5.61 | 0.981 | | | |
| | | | | 26:44 | | 1.48 | 3,079.17 | 1,839.82 | 1,239.35 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 26:52 | | 1.53 | 269.84 | 162.99 | 106.85 | 1.005 | | | |
| 368-370 | | | 4 Peaks | | | | 3,368.09 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | 1.05-1.43 | | | | | | 0.959-1.050 | | | |
| 374-376 | DC | NL | | 0:00 | | 1.32 | 2.20 | | | 0.000 | | | |
| | | | | 28:12 | | 1.13 | 10.81 | 5.73 | 5.08 | 0.964 | | | |
| | | | | 28:21 | | 1.34 | 23.59 | 13.52 | 10.07 | 0.969 | | | |
| D | d | SN | | 28:39 | | 1.23 | 5.75 | | | 0.979 | | | |
| | DC | SN | | 28:49 | RO | 0.99 | 3.20 | | | 0.985 | | | |
| | | | | 29:11 | | 1.25 | 40.06 | 22.27 | 17.79 | 0.997 | 123478-HxCDF | AN | |
| | | | | 29:16 | | 1.22 | 17.32 | 9.53 | 7.79 | 1.000 | 123678-HxCDF | AN | |
| | DC | SN | | 29:22 | | 1.26 | 5.15 | | | 1.003 | | | |
| D | d | SN | | 29:36 | RO | 0.92 | 7.33 | | | 1.011 | | | |
| | | | | 29:46 | | 1.18 | 23.53 | 12.73 | 10.80 | 1.017 | 234678-HxCDF | AN | |
| | DC | SN | | 30:27 | RO | 0.94 | 3.40 | | | 1.040 | | | |
| | | | | 30:33 | | 1.07 | 8.69 | 4.50 | 4.19 | 1.044 | | | |
| | DC | SN | | 30:38 | RO | 0.48 | 0.54 | | | 1.047 | | | |
| 374-376 | | | 6 Peaks | | | | 124.00 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.863-1.137 | | | |
| 384-386 | DC | NL | | 0:00 | RO | 0.78 | 2.64 | | | 0.000 | | | |
| | | | | 28:11 | RO | 0.92 | 7.23 | 4.39 | 4.79 | 0.963 | | | |
| | | | | 28:20 | | 0.50 | 25.63 | 8.56 | 17.07 | 0.968 | | | |
| | | | | 29:10 | | 0.51 | 4,188.09 | 1,409.02 | 2,779.07 | 0.997 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 29:16 | | 0.51 | 4,653.33 | 1,563.55 | 3,089.78 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | | | | 29:46 | | 0.50 | 3,937.59 | 1,315.35 | 2,622.24 | 1.017 | 13C12-HxCDF 234 | ALT2 | |
| | DC | SN | | 29:53 | | 0.54 | 4.56 | | | 1.021 | | | |
| | | | | 30:28 | | 0.51 | 3,926.39 | 1,322.93 | 2,603.46 | 1.041 | 13C12-HxCDF 789 | ALT1 | |
| 384-386 | | | 6 Peaks | | | | 16,738.26 | | | | | | |
| ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | | |
| HxCDD | | | | 1.05-1.43 | | | | | | 0.953-1.014 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 0.74 | 1.32 | | | 0.000 | | | |
| | DC | SN | | 28:38 | RO | 0.40 | 0.52 | | | 0.956 | | | |
| D | d | SN | | 28:43 | | 1.06 | 6.20 | | | 0.958 | | | |
| | | | | 29:10 | | 1.39 | 34.81 | 20.22 | 14.59 | 0.973 | | | |
| | | | | 29:22 | | 1.25 | 15.31 | 8.51 | 6.80 | 0.980 | | | |
| | DC | SN | | 29:29 | RO | 0.31 | 0.69 | | | 0.984 | | | |
| | DC | SN | | 29:45 | | 1.40 | 4.83 | | | 0.993 | | | |
| | DC | SN | | 29:54 | RO | 0.83 | 3.69 | | | 0.998 | 123478-HxCDD | AN | |

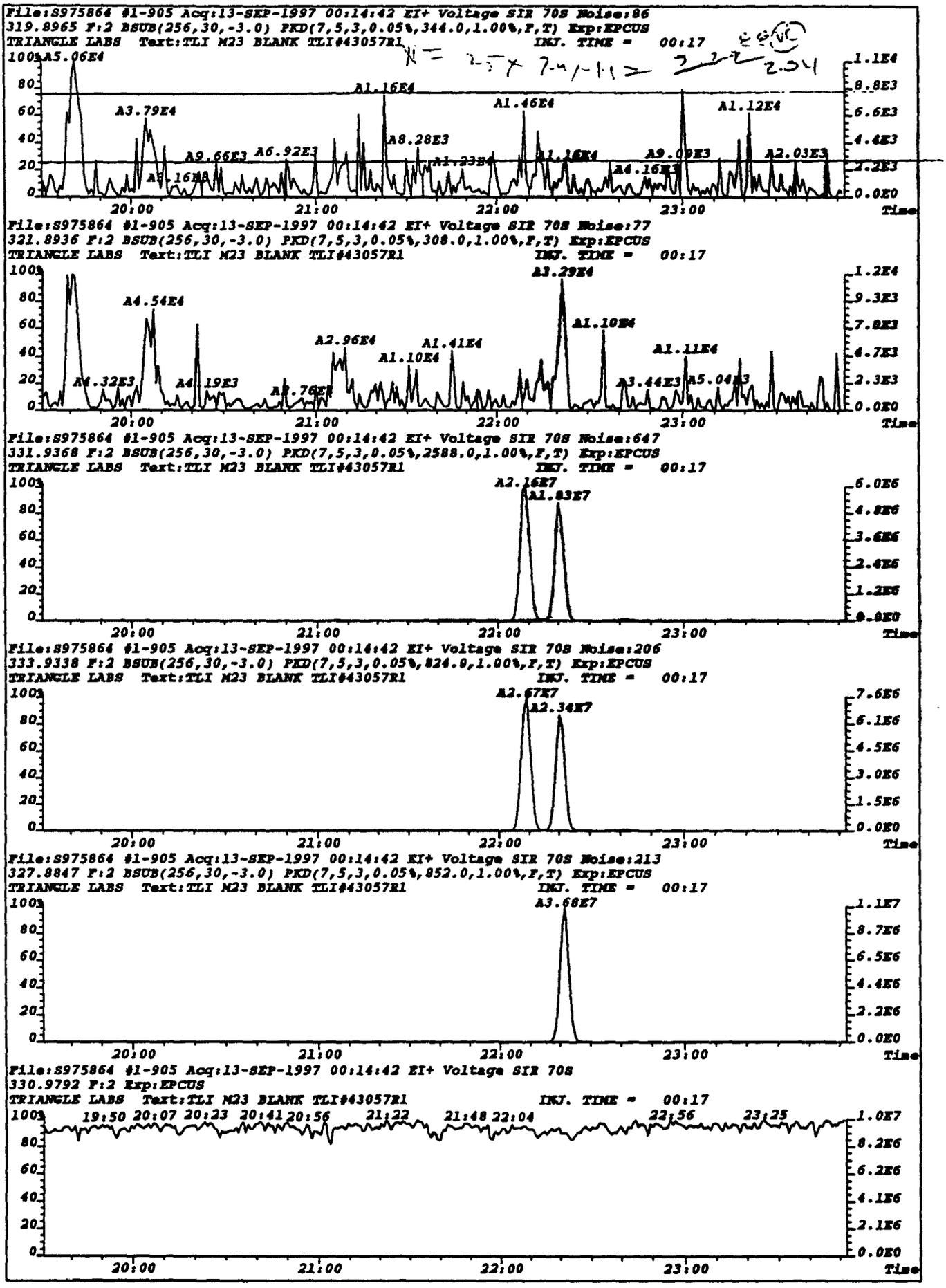
| pound/ ..... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | I.. | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | d | SN | 29:58 | RO | 1.50 | 8.27 | | | 1.000 | 123678-HxCDD | | |
| | | DC | SN | 30:08 | RO | 0.57 | 0.81 | | | 1.006 | | | |
| | D | d | SN | 30:15 | RO | 1.00 | 8.00 | | | 1.009 | 123789-HxCDD | | |
| | | DC | WH | 30:40 | RO | 0.68 | 1.07 | | | 1.023 | | | |
| )-392 | | | 2 | Peaks | | | 50.12 | | | | | | |
| :12-HxCDD | | | | 1.05-1.43 | | | | | | 0.967-1.033 | | | |
| -404 | | DC | NL | 0:00 | RO | 1.68 | 3.18 | | | 0.000 | | | |
| | | | | 29:23 | | 1.20 | 21.19 | 11.58 | 9.61 | 0.981 | | | |
| | | | | 29:53 | | 1.21 | 3,018.32 | 1,655.53 | 1,362.79 | 0.997 | 13C12-HxCDD 478 | | SUR4 |
| | | | | 29:58 | | 1.23 | 3,463.09 | 1,908.78 | 1,554.31 | 1.000 | 13C12-HxCDD 678 | | IS5 |
| | | | | 30:15 | | 1.22 | 4,165.65 | 2,290.18 | 1,875.47 | 1.009 | 13C12-HxCDD 789 | | RS2 |
| -404 | | | 4 | Peaks | | | 10,668.25 | | | | | | |
| | ---------- Above: HxCDD / HpCDF Follows ---------- | | | | | | | | | | | | |
| :DF | | | | 0.88-1.20 | | | | | | 0.995-1.042 | | | |
| -410 | | DC | NL | 0:00 | RO | 0.73 | 2.10 | | | 0.000 | | | |
| | | | | 31:55 | | 1.12 | 51.95 | 27.50 | 24.45 | 1.001 | 1234678-HpCDF | | AN |
| | | | | 32:08 | | 0.95 | 15.04 | 7.32 | 7.72 | 1.007 | | | |
| | | | | 32:15 | RO | 0.79 | 18.32 | 9.34 | 11.76 | 1.011 | | | |
| | D | d | nh | 32:26 | RO | 1.66 | 5.37 | | | 1.017 | | | |
| | | DC | SN | 32:50 | RO | 2.45 | 1.67 | | | 1.029 | | | |
| | M | | | 33:06 | | 1.14 | 12.40 | 6.60 | 5.80 | 1.038 | 1234789-HpCDF | | AN |
| | | DC | WH | 33:23 | | 1.05 | 0.88 | | | 1.046 | | | |
| | | DC | WH | 33:35 | RO | 1.29 | 3.10 | | | 1.053 | | | |
| -410 | | | 4 | Peaks | | | 97.71 | | | | | | |
| :12-HpCDF | | | | 0.37-0.51 | | | | | | 0.937-1.125 | | | |
| -420 | | DC | NL | 0:00 | RO | 1.31 | 1.44 | | | 0.000 | | | |
| | | | | 31:54 | | 0.44 | 2,668.37 | 811.03 | 1,857.34 | 1.000 | 13C12-HpCDF 678 | | IS6 |
| | | | | 32:05 | RO | 0.30 | 8.28 | 2.53 | 8.41 | 1.006 | | | |
| | | | | 32:15 | | 0.46 | 22.93 | 7.19 | 15.74 | 1.011 | | | |
| | | | | 32:19 | | 0.39 | 18.35 | 5.19 | 13.16 | 1.013 | | | |
| | | | | 33:05 | | 0.41 | 2,205.62 | 645.09 | 1,560.53 | 1.037 | 13C12-HpCDF 789 | | SUR5 |
| -420 | | | 5 | Peaks | | | 4,923.55 | | | | | | |
| | ---------- Above: HpCDF / HpCDD Follows ---------- | | | | | | | | | | | | |
| DD | | | | 0.88-1.20 | | | | | | 0.977-1.005 | | | |
| -426 | | DC | NL | 0:00 | RO | 1.88 | 1.49 | | | 0.000 | | | |
| | M | | | 32:09 | | 1.14 | 18.75 | 10.00 | 8.75 | 0.982 | | | |
| | D | d | nh | 32:17 | RO | 1.76 | 8.51 | | | 0.986 | | | |
| | M | | | 32:45 | | 1.08 | 25.60 | 13.30 | 12.30 | 1.001 | 1234678-HpCDD | | AN |
| | | DC | WH | 33:05 | RO | 1.63 | 4.06 | | | 1.011 | | | |
| -426 | | | 2 | Peaks | | | 44.35 | | | | | | |
| 12-HpCDD | | | | 0.88-1.20 | | | | | | 0.969-1.031 | | | |
| -438 | | DC | NL | 0:00 | RO | 0.61 | 2.37 | | | 0.000 | | | |
| | | | | 32:09 | RO | 1.28 | 26.07 | 16.32 | 12.78 | 0.982 | | | |
| | | | | 32:44 | | 1.02 | 2,884.79 | 1,457.94 | 1,426.85 | 1.000 | 13C12-HpCDD 678 | | IS7 |
| -438 | | | 2 | Peaks | | | 2,910.86 | | | | | | |

| 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 | | | | 0.887-1.113 | | | |
| 442-444 | DC | NL | | 0:00 | | 0.88 | 1.24 | | | 0.000 | | | |
| | DC | SN | | 31:50 | RO | 0.37 | 0.89 | | | 0.902 | | | |
| | DC | SN | | 32:07 | RO | 1.05 | 1.98 | | | 0.910 | | | |
| | DC | SN | | 32:18 | RO | 3.65 | 0.59 | | | 0.915 | | | |
| | DC | SN | | 33:40 | RO | 1.03 | 1.97 | | | 0.954 | | | |
| | DC | SN | | 33:55 | RO | 1.38 | 1.23 | | | 0.961 | | | |
| | DC | SN | | 33:58 | | 0.80 | 1.42 | | | 0.963 | | | |
| | DC | SN | | 34:23 | RO | 1.12 | 1.30 | | | 0.974 | | | |
| | DC | SN | | 34:52 | RO | 0.10 | 2.06 | | | 0.988 | | | |
| M | | | | 35:25 | | 0.88 | 18.00 | 8.44 | 9.56 | 1.004 | OCDF | | AN |
| 442-444 | | | 1 | Peak | | | 18.00 | | | | | | |
| OCDD | | | | | | 0.76-1.02 | | | | 0.887-1.113 | | | |
| 458-460 | DC | NL | | 0:00 | RO | 0.19 | 0.28 | | | 0.000 | | | |
| M | | | | 35:18 | | 0.93 | 16.45 | 7.91 | 8.54 | 1.000 | OCDD | | AN |
| | DC | SN | | 35:39 | RO | 0.52 | 0.91 | | | 1.010 | | | |
| 458-460 | | | 1 | Peak | | | 16.45 | | | | | | |
| 13C12-OCDD | | | | | | 0.76-1.02 | | | | 0.996-1.005 | | | |
| 470-472 | DC | NL | | 0:00 | | 0.92 | 0.25 | | | 0.000 | | | |
| | | | | 35:17 | | 0.92 | 2,916.92 | 1,399.27 | 1,517.65 | 1.000 | 13C12-OCDD | | ISR |
| 470-472 | | | 1 | Peak | | | 2,916.92 | | | | | | |

| 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:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:80
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,320.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A6.50E4
A3.23E4
A1.26E4
A2.82E4
A2.08E4
A1.01E4
A1.94E4
A7.47E3
A2.99E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:253
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1012.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A8.32E4
A4.56E4
A1.98E4
A2.80E4
A2.51E4
A2.92E4
A4.61E4
A1.43E4
A1.64E4
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:292
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.57E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:320
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1280.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A3.32E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
18:57 19:19
20:41
21:22
21:48
22:45
23:25
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
21:51
18:57
19:29
20:47
22:33
23:03
18:42
20:07
20:21
21:39
19:50
19:00
20:00
21:00
22:00
23:00
Time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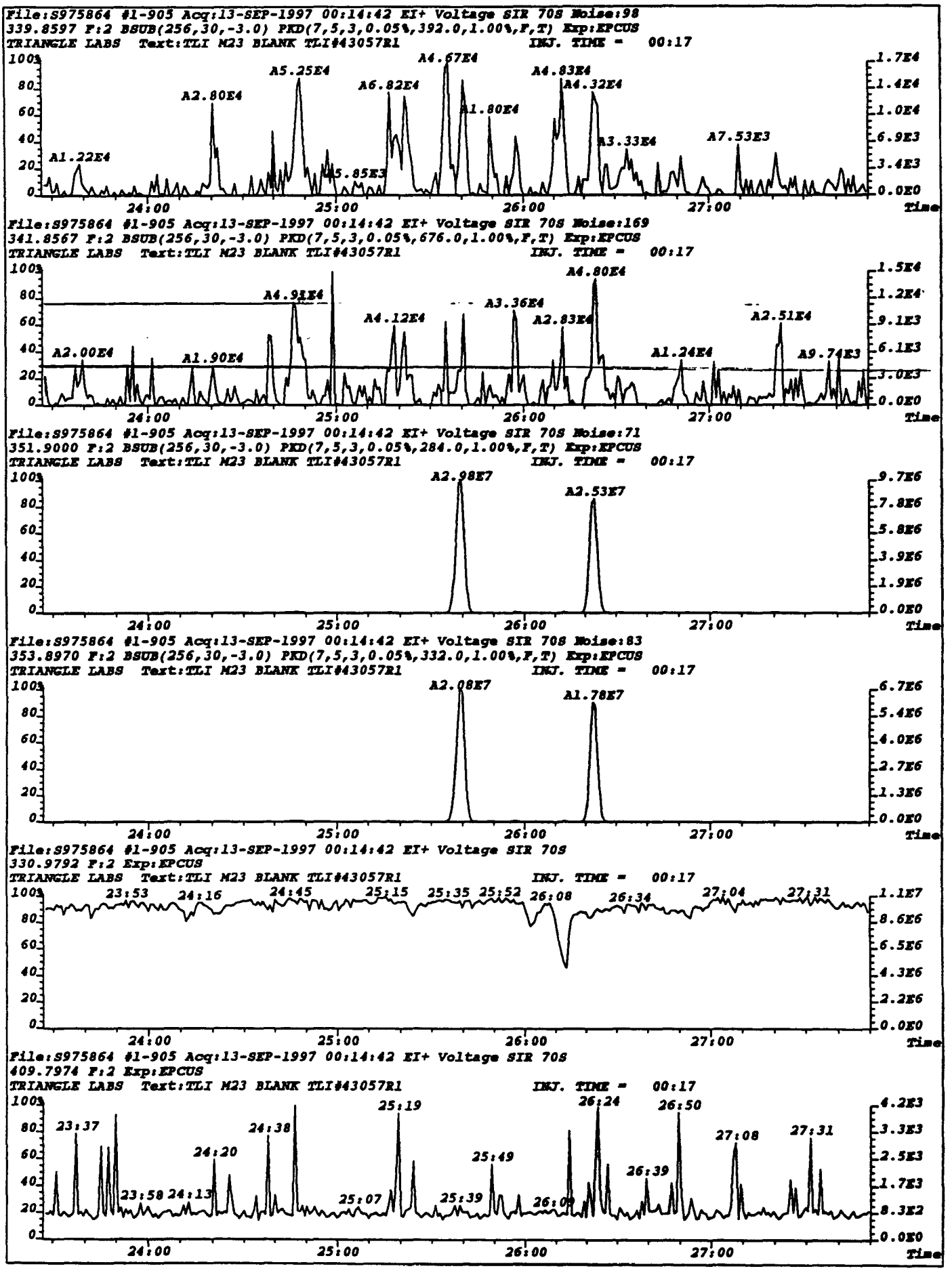
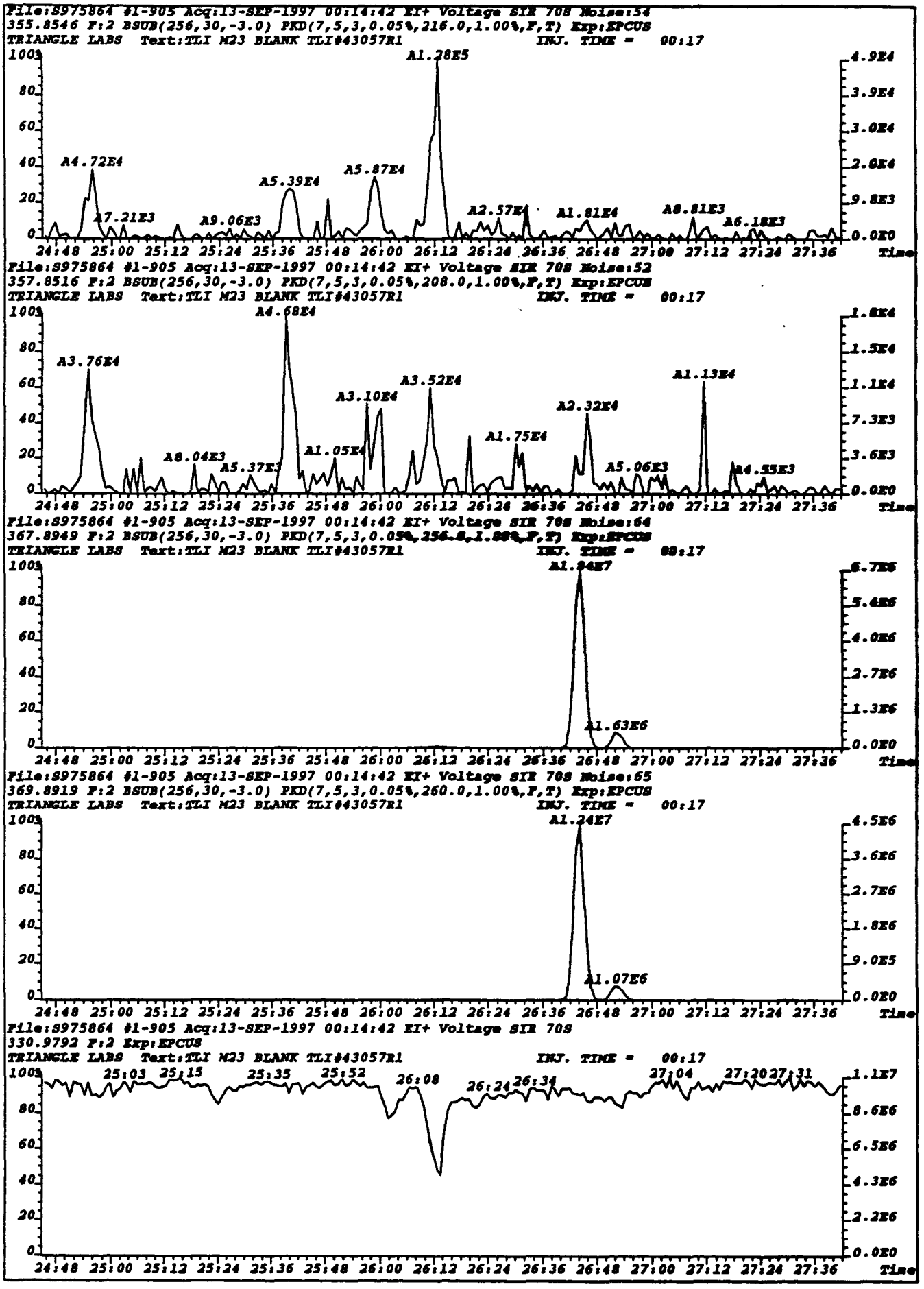
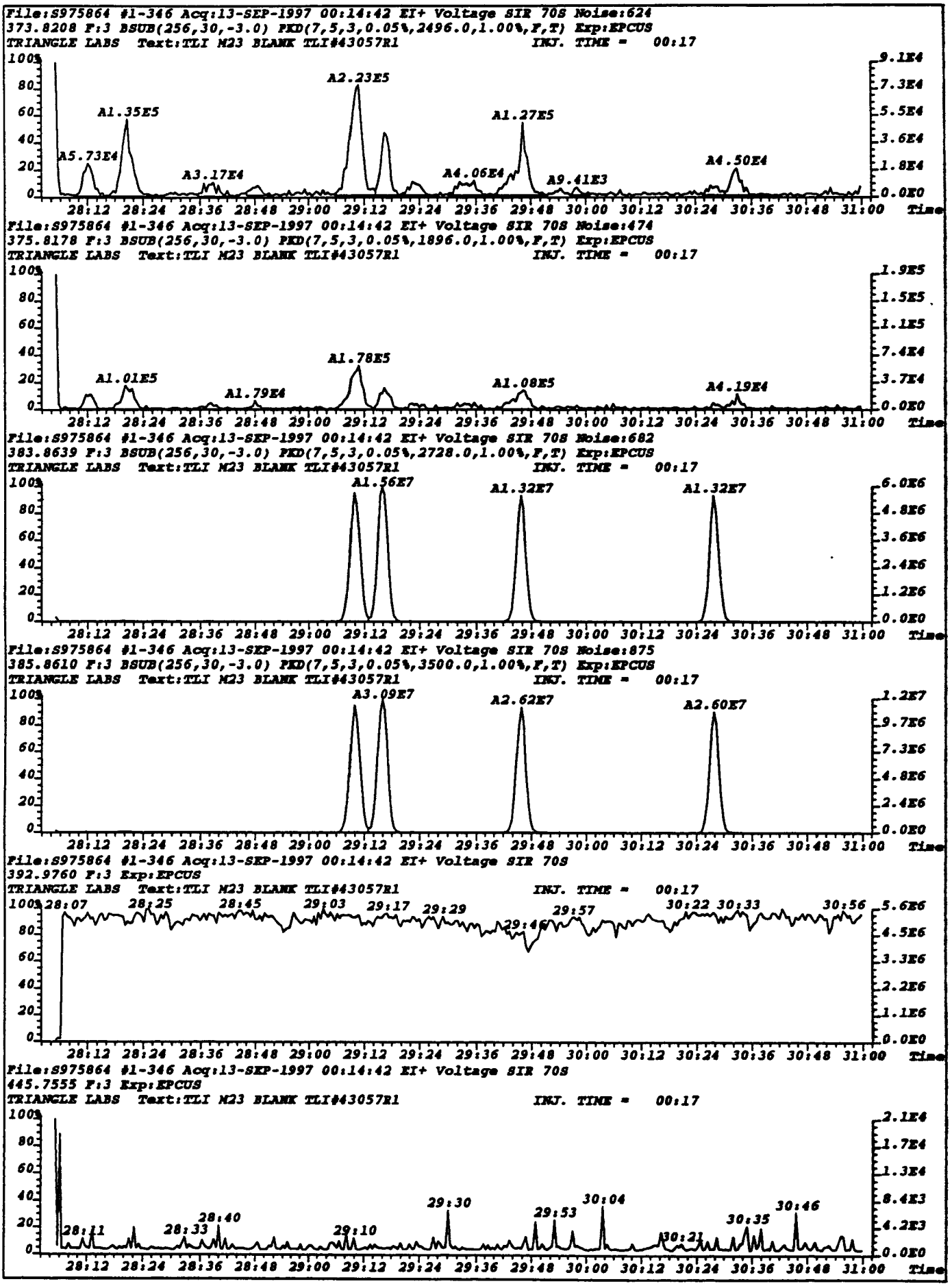
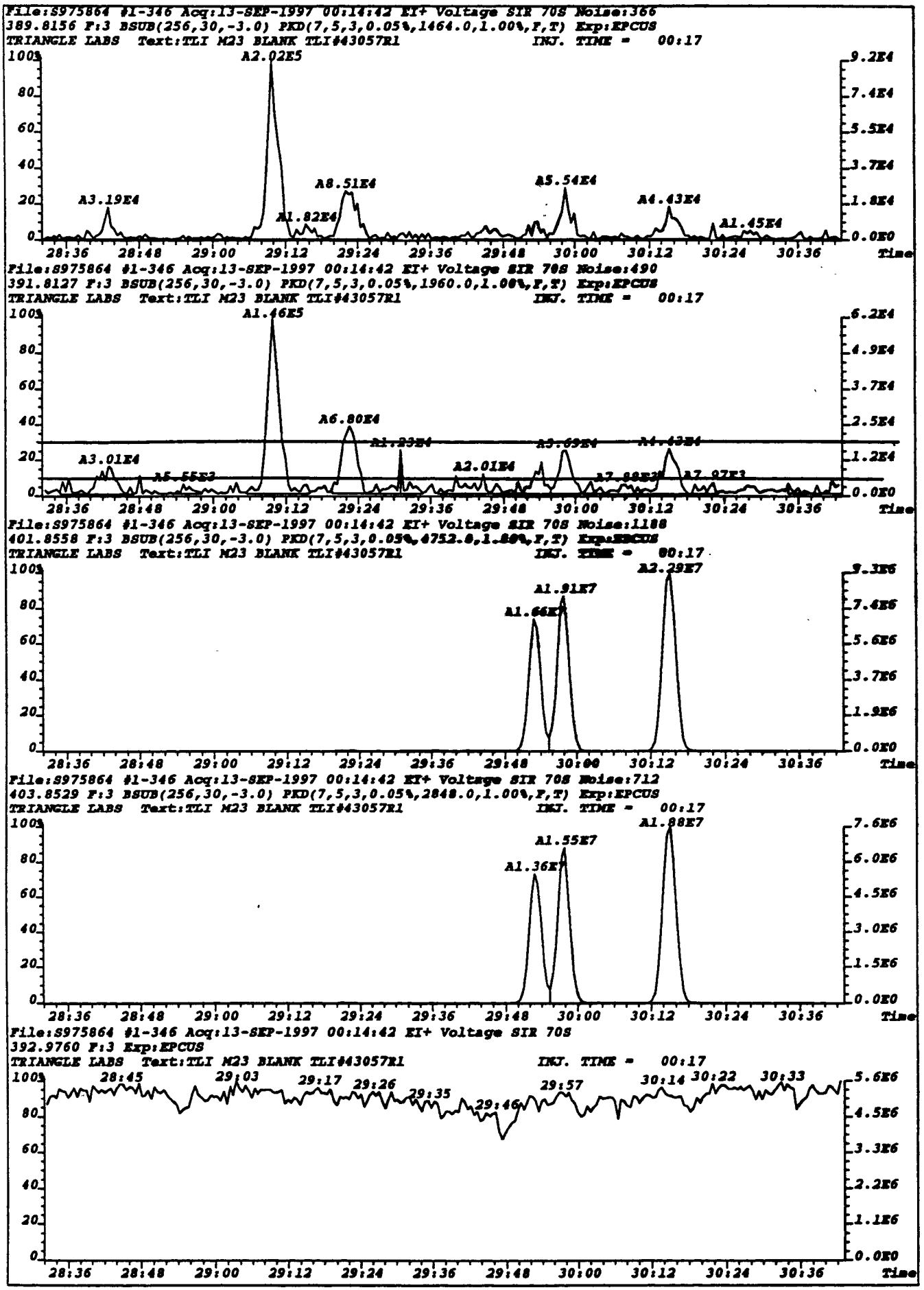
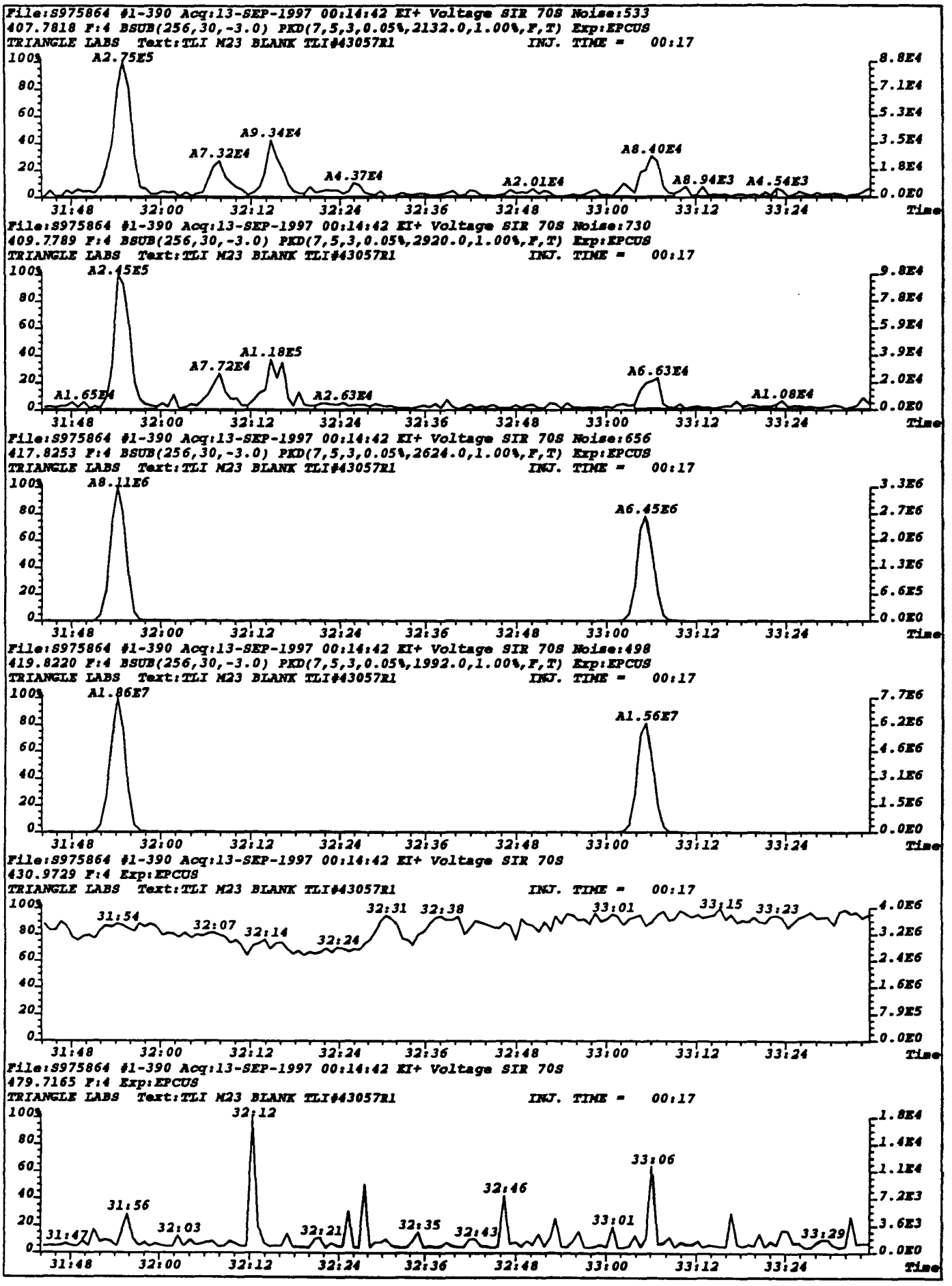
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,344.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A5.06E4
A3.79E4
A1.16E4
A1.46E4
A1.12E4
A9.66E3
A6.92E3
A8.28E3
A1.23E4
A1.16E4
A9.09E3
A2.03E3
A4.16E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:77
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,308.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A3.29E4
A4.54E4
A2.96E4
A1.41E4
A1.10E4
A1.10E4
A1.11E4
A4.32E3
A4.19E3
A3.44E3
A5.04E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:647
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2588.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.16E7
A1.83E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:206
333.9338 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#43057R1 INJ. TIME = 00:17
A2.67E7
A2.34E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:213
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,852.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A3.68E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
19:50 20:07 20:23 20:41 20:56 21:22 21:48 22:04 22:56 23:25
20:00 21:00 22:00 23:00 Time

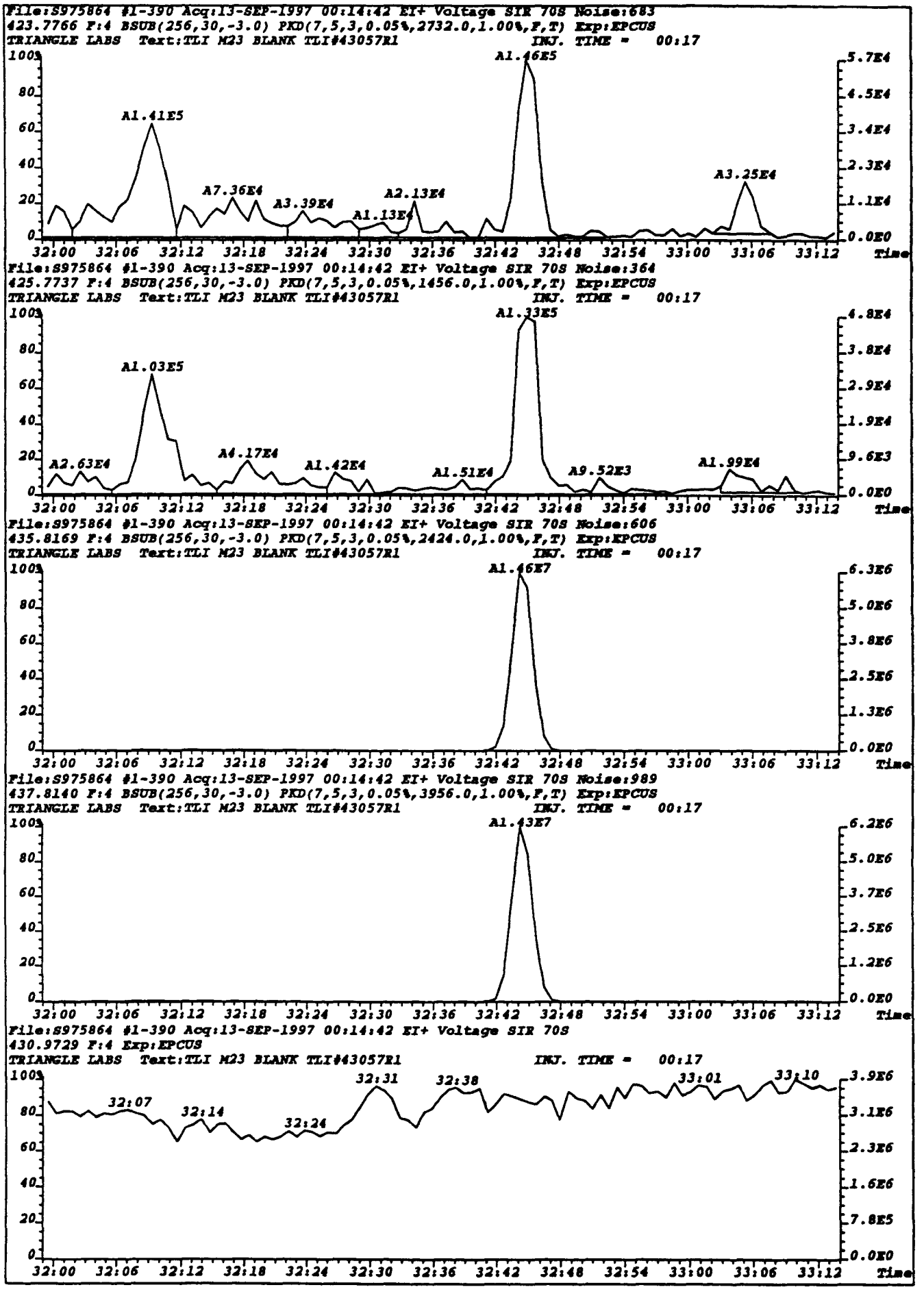

File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:98
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,392.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.22E4
A2.80E4
A5.25E4
A5.85E3
A6.82E4
A4.67E4
A1.80E4
A4.83E4
A4.32E4
A3.33E4
A7.53E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:169
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,676.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.00E4
A1.90E4
A4.91E4
A4.12E4
A3.36E4
A2.83E4
A4.80E4
A1.24E4
A2.51E4
A9.74E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:71
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,284.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.98E7
A2.53E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:83
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.08E7
A1.78E7
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
23:53
24:16
24:45
25:15
25:35
25:52
26:08
26:34
27:04
27:31
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
23:37
23:58
24:13
24:20
24:38
25:07
25:19
25:39
25:49
26:09
26:24
26:39
26:50
27:08
27:31
24:00
25:00
26:00
27:00
Time

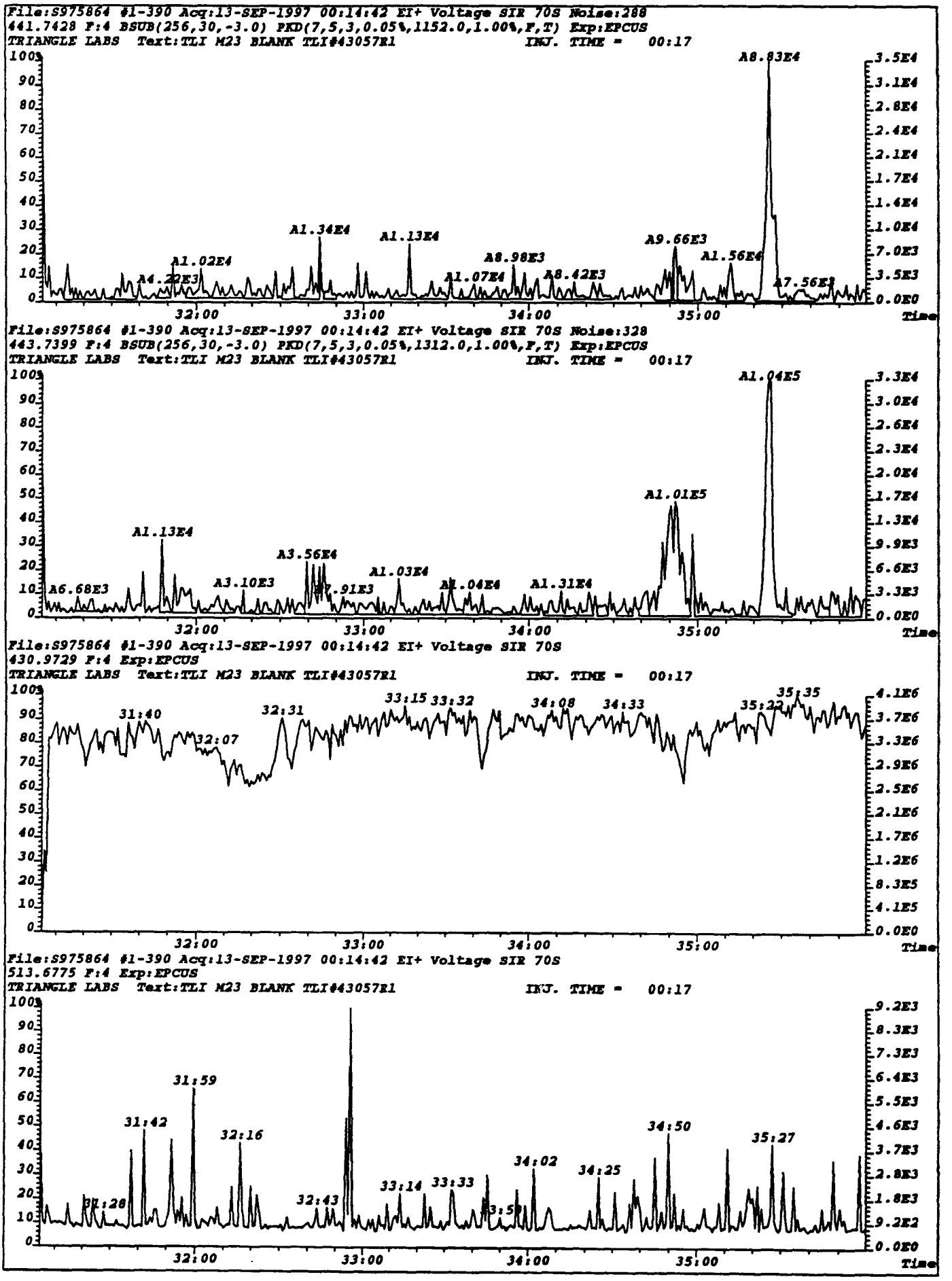

File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 708 Noise:54
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,216.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.28E5
A4.72E4
A5.39E4
A5.87E4
A7.21E3
A9.06E3
A2.57E4
A1.81E4
A8.81E3
A6.18E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 708 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:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A4.68E4
A3.76E4
A3.52E4
A3.10E4
A1.13E4
A2.32E4
A1.75E4
A8.04E3
A5.37E3
A1.05E4
A5.06E3
A4.55E3
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 708 Noise:64
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,256.8,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.84E7
A1.63E6
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 708 Noise:65
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.24E7
A1.07E6
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 708
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
25:03 25:15 25:35 25:52 26:08 26:24 26:34 27:04 27:20 27:31
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time

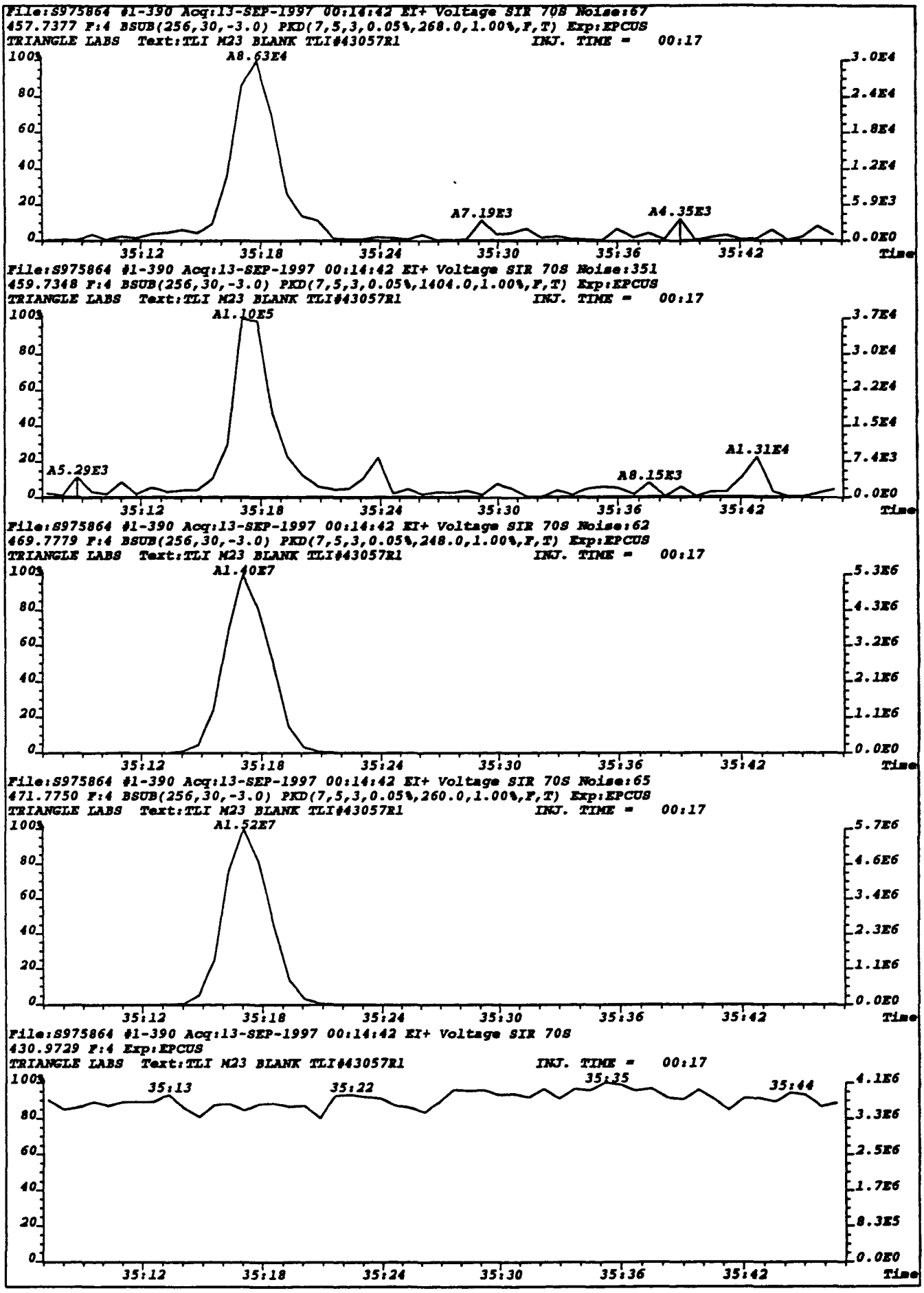

File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:624
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2496.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A5.73E4
A1.35E5
A3.17E4
A2.23E5
A4.06E4
A1.27E5
A9.41E3
A4.50E4
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:474
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1896.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.01E5
A1.79E4
A1.78E5
A1.08E5
A4.19E4
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:682
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2728.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.56E7
A1.32E7
A1.32E7
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:875
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3500.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A3.09E7
A2.62E7
A2.60E7
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
28:07
28:25
28:45
29:03
29:17
29:29
29:46
29:57
30:22
30:33
30:56
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
28:11
28:33
28:40
29:10
29:30
29:53
30:04
30:21
30:35
30:46
28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 30:24 30:36 30:48 31:00 Time

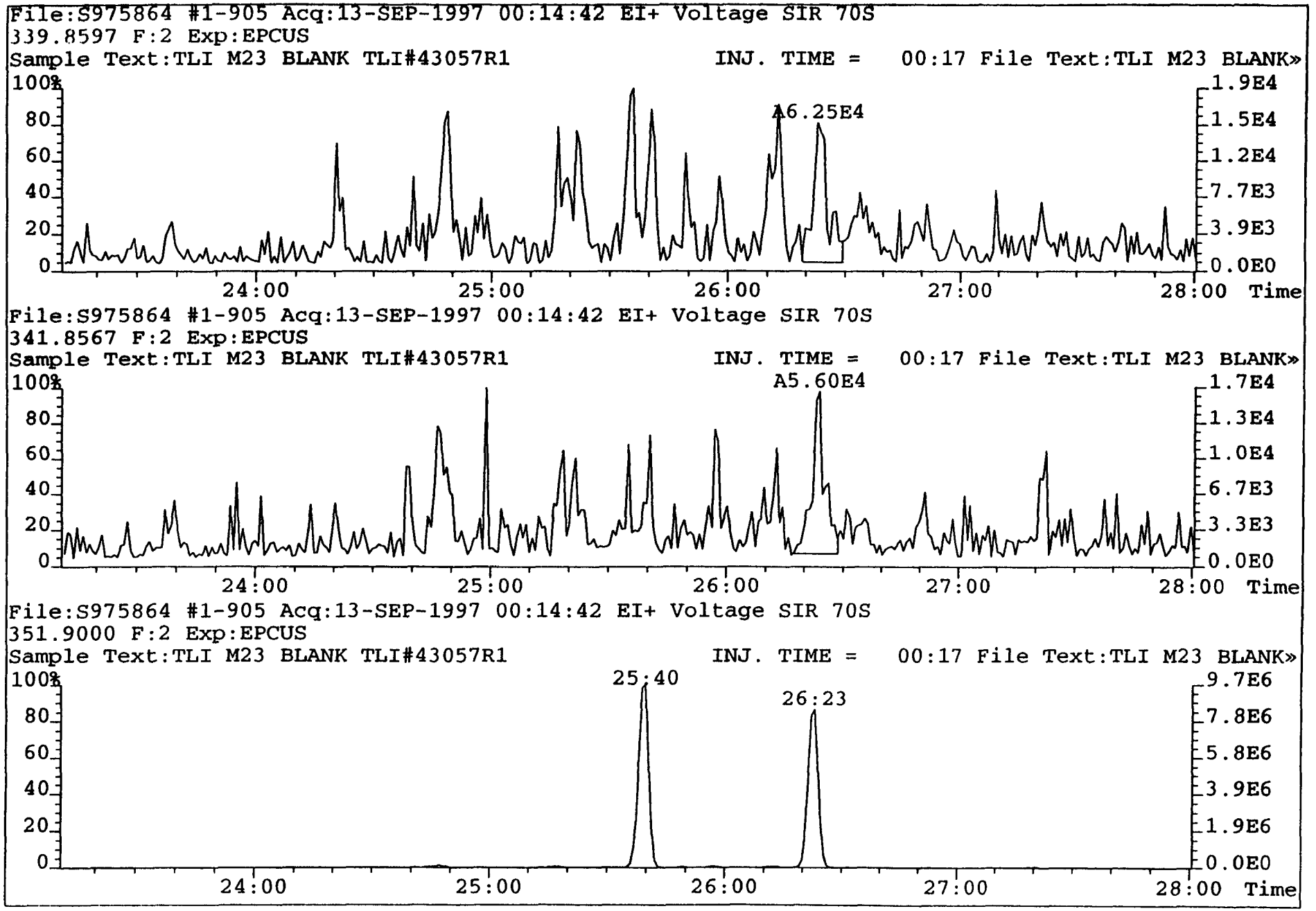

File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:366
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1464.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.02E5
A8.51E4
A5.54E4
A3.19E4
A4.43E4
A1.82E4
A1.45E4
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:490
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1960.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.46E5
A6.80E4
A3.01E4
A2.01E4
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:1188
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A2.29E7
A1.91E7
A1.66E7
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:712
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2848.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.88E7
A1.55E7
A1.36E7
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
28:45
29:03
29:17
29:26
29:35
29:46
29:57
30:14
30:22
30:33
28:36
28:48
29:00
29:12
29:24
29:36
29:48
30:00
30:12
30:24
30:36
Time

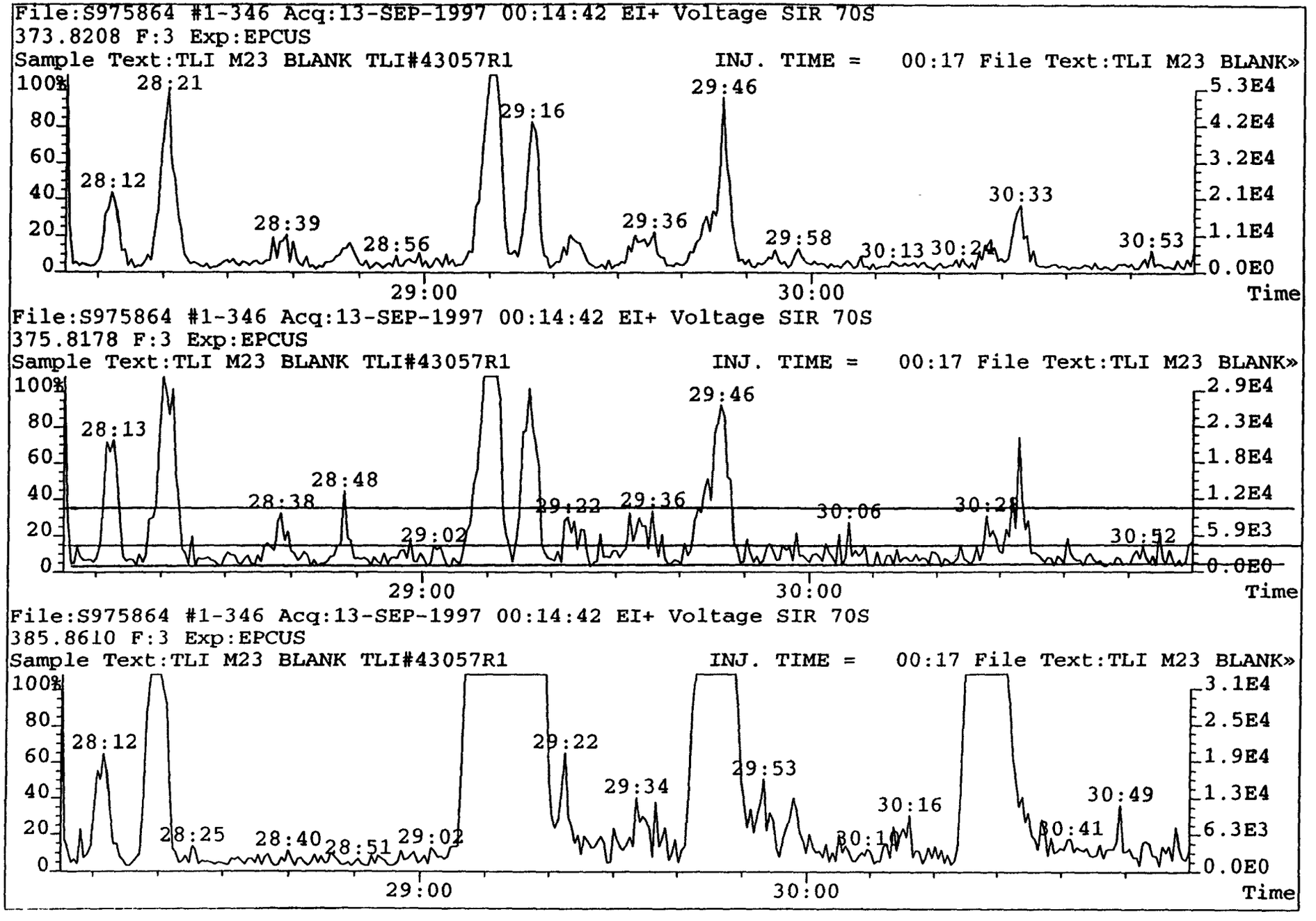

File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:533
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.75E5
A9.34E4
A7.32E4
A4.37E4
A2.01E4
A8.40E4
A8.94E3
A4.54E3
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:730
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2920.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A2.45E5
A1.18E5
A7.72E4
A1.65E4
A2.63E4
A6.63E4
A1.08E4
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:656
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2624.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A8.11E6
A6.45E6
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:498
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1992.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.86E7
A1.56E7
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
31:54
32:07
32:14
32:24
32:31
32:38
33:01
33:15
33:23
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
32:12
31:56
31:47
32:03
32:21
32:35
32:43
32:46
33:01
33:06
33:29
31:48
32:00
32:12
32:24
32:36
32:48
33:00
33:12
33:24
Time

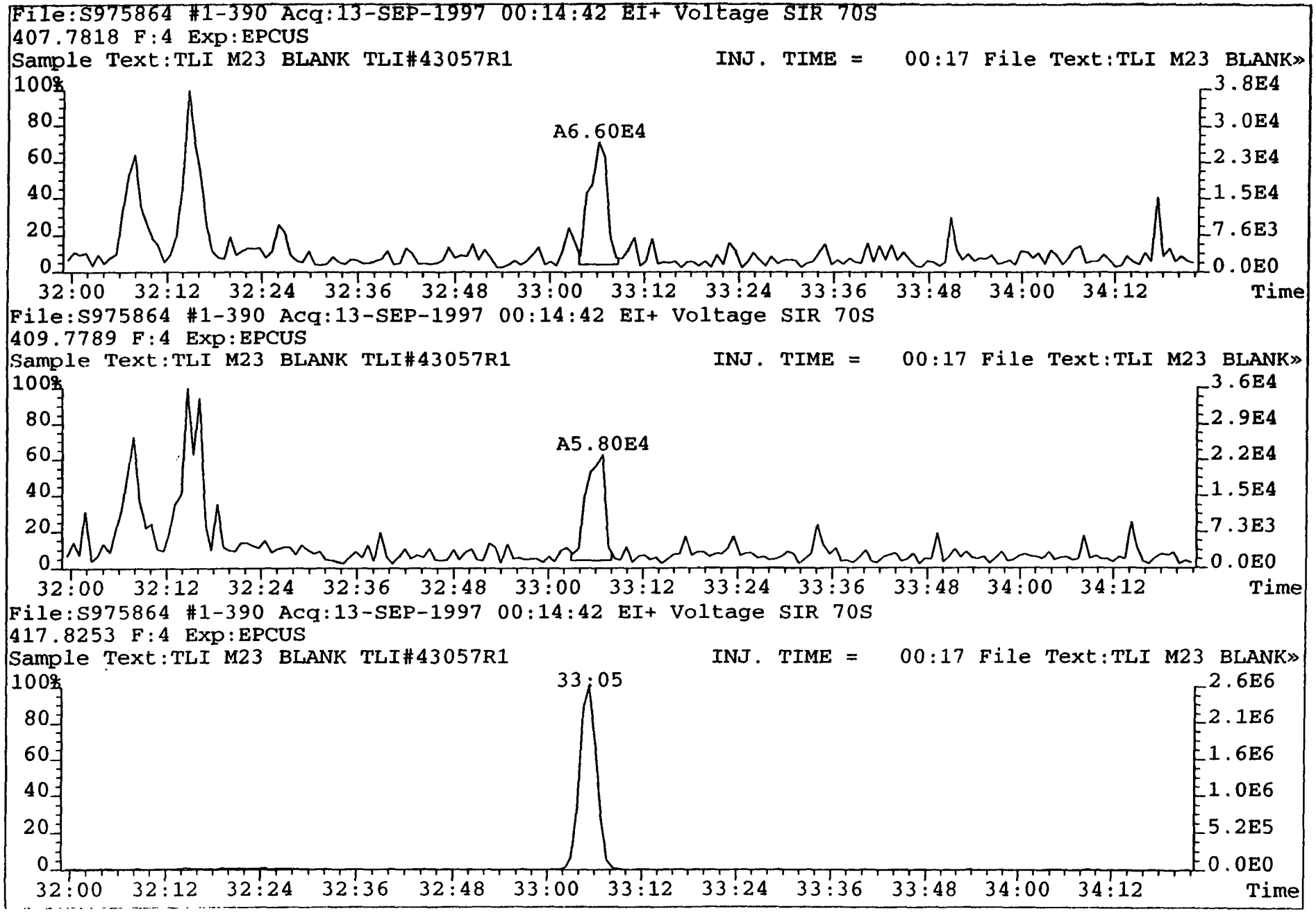

File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:683
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2732.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.46E5
A1.41E5
A7.36E4
A3.39E4
A2.13E4
A1.13E4
A3.25E4
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:364
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1456.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.33E5
A1.03E5
A2.63E4
A4.17E4
A1.42E4
A1.51E4
A9.52E3
A1.99E4
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:606
435.8169 F:4 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#43057R1 INJ. TIME = 00:17
A1.46E7
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:989
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3956.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.43E7
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
32:07
32:14
32:24
32:31
32:38
33:01
33:10
32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42 32:48 32:54 33:00 33:06 33:12 Time

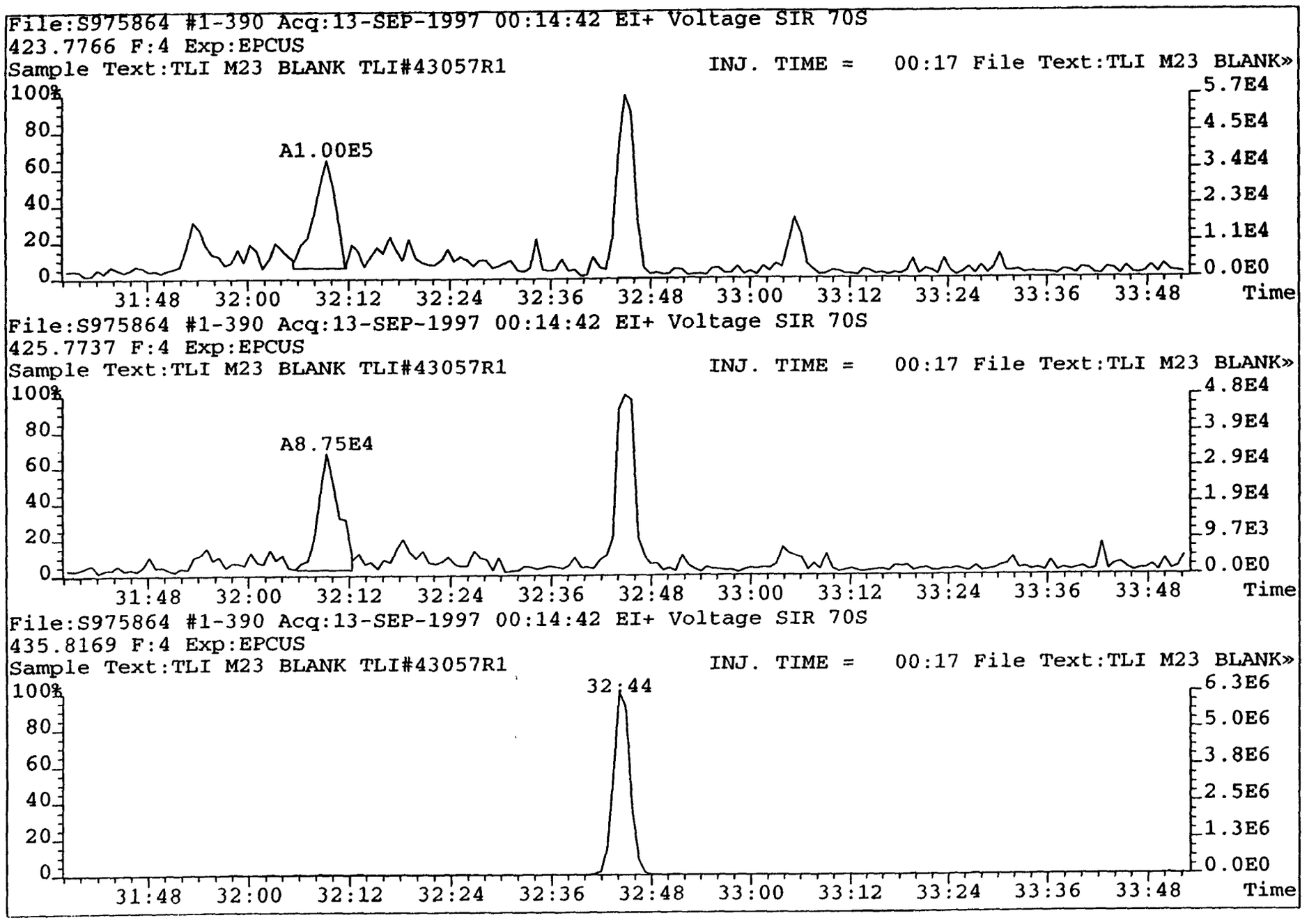

File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:288
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A8.83E4
A1.34E4
A1.13E4
A1.02E4
A9.66E3
A8.98E3
A1.56E4
A4.22E3
A1.07E4
A8.42E3
A7.56E3
32:00
33:00
34:00
35:00
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:328
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1312.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.04E5
A1.01E5
A1.13E4
A3.56E4
A1.03E4
A6.68E3
A3.10E3
A1.04E4
A1.31E4
32:00
33:00
34:00
35:00
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
31:40
32:31
33:15
33:32
34:08
34:33
35:22
35:35
32:07
32:00
33:00
34:00
35:00
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
31:59
31:42
32:16
34:50
35:27
34:02
34:25
33:14
33:33
32:43
32:00
33:00
34:00
35:00
Time

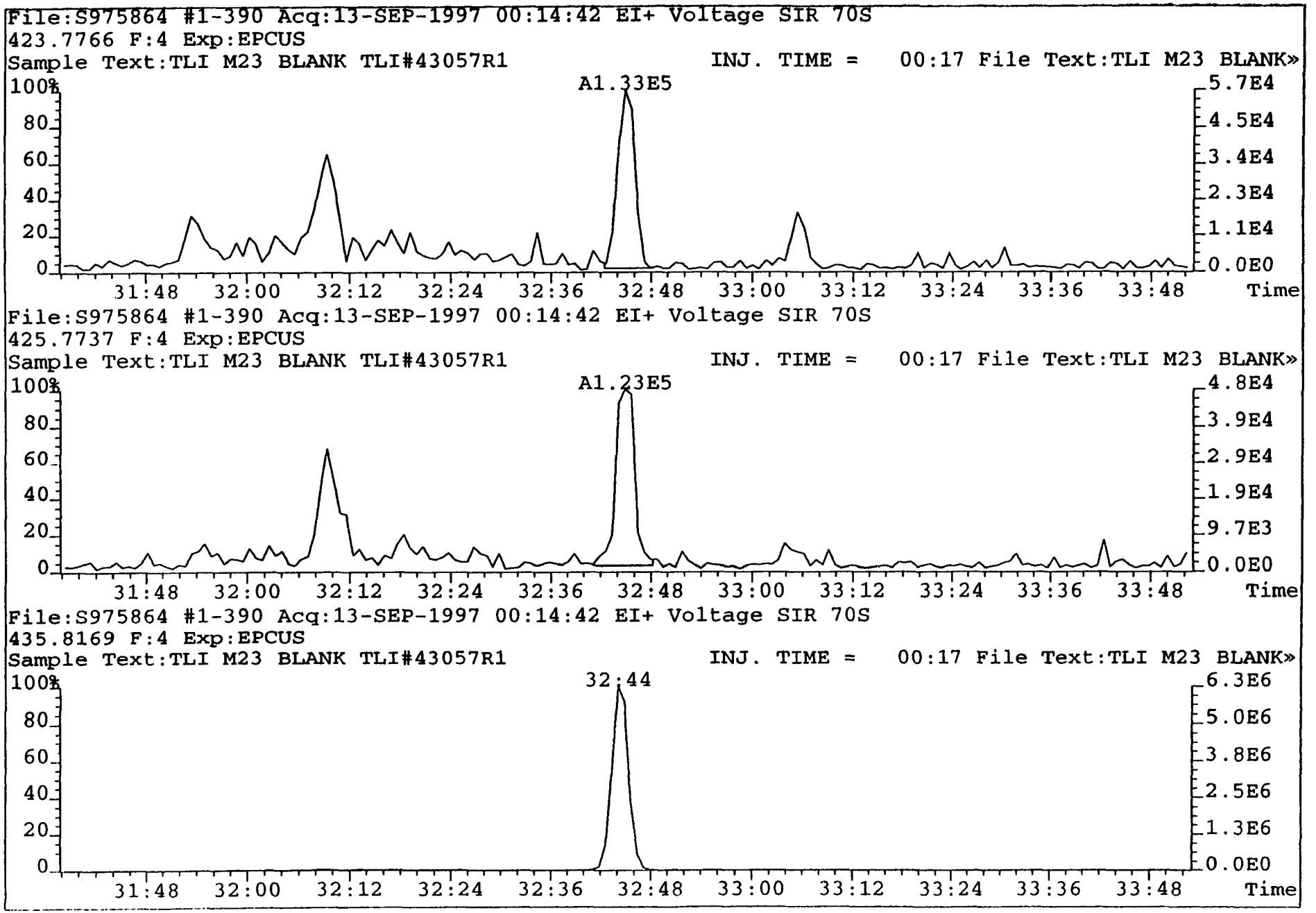

File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:67
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,268.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A8.63E4
A7.19E3
A4.35E3
3.0E4
2.4E4
1.8E4
1.2E4
5.9E3
0.0E0
35:12
35:18
35:24
35:30
35:36
35:42
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:351
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1404.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.10E5
A5.29E3
A8.15E3
A1.31E4
3.7E4
3.0E4
2.2E4
1.5E4
7.4E3
0.0E0
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:62
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,248.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.40E7
5.3E6
4.3E6
3.2E6
2.1E6
1.1E6
0.0E0
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S Noise:65
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
A1.52E7
5.7E6
4.6E6
3.4E6
2.3E6
1.1E6
0.0E0
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1 INJ. TIME = 00:17
35:13
35:22
35:35
35:44
4.1E6
3.3E6
2.5E6
1.7E6
8.3E5
0.0E0

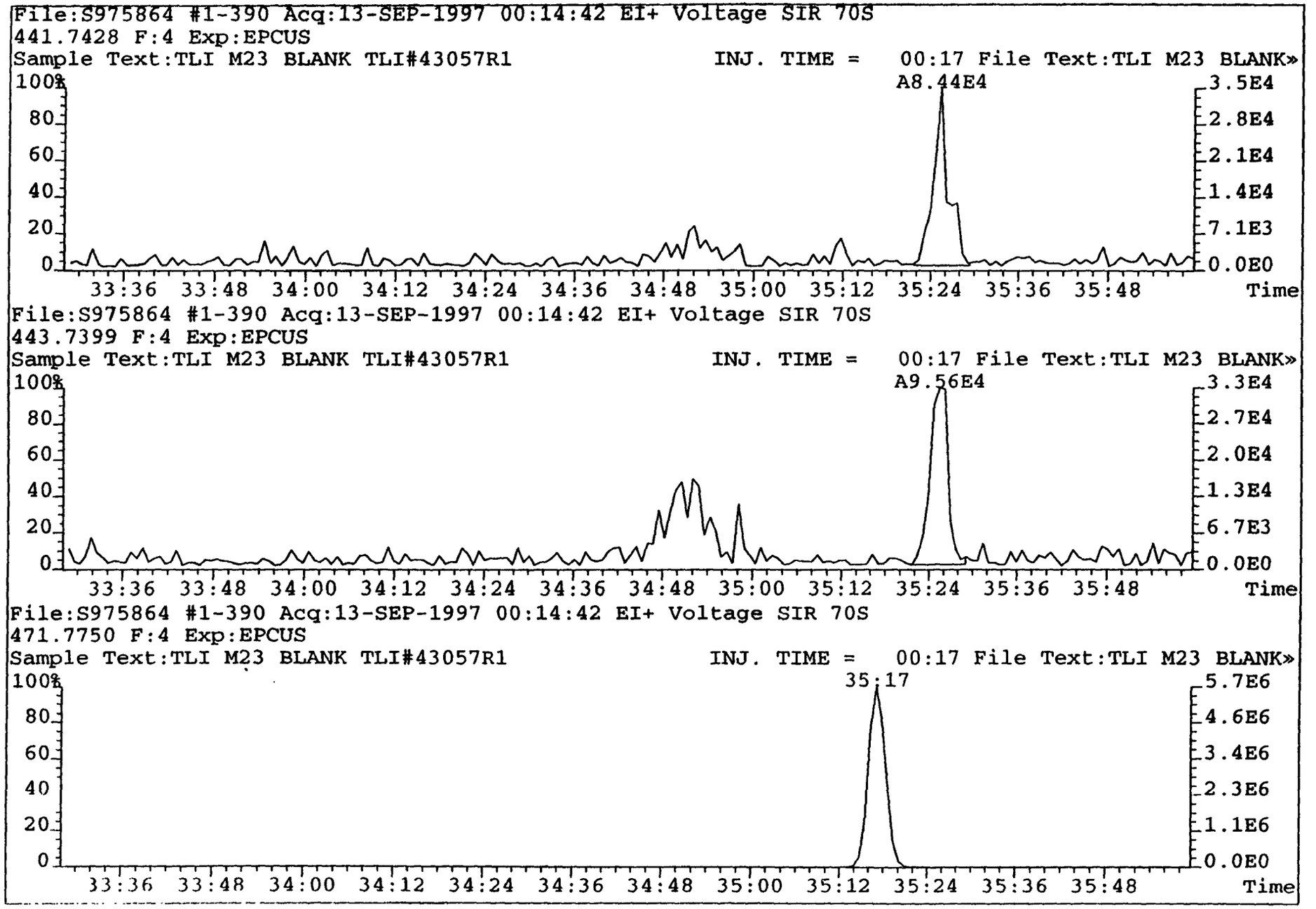

File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A6.25E4
100%
80
60
40
20
0
1.9E4
1.5E4
1.2E4
7.7E3
3.9E3
0.0E0
24:00
25:00
26:00
27:00
28:00
Time
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A5.60E4
100%
80
60
40
20
0
1.7E4
1.3E4
1.0E4
6.7E3
3.3E3
0.0E0
24:00
25:00
26:00
27:00
28:00
Time
File:S975864 #1-905 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
25:40
26:23
100%
80
60
40
20
0
9.7E6
7.8E6
5.8E6
3.9E6
1.9E6
0.0E0
24:00
25:00
26:00
27:00
28:00
Time

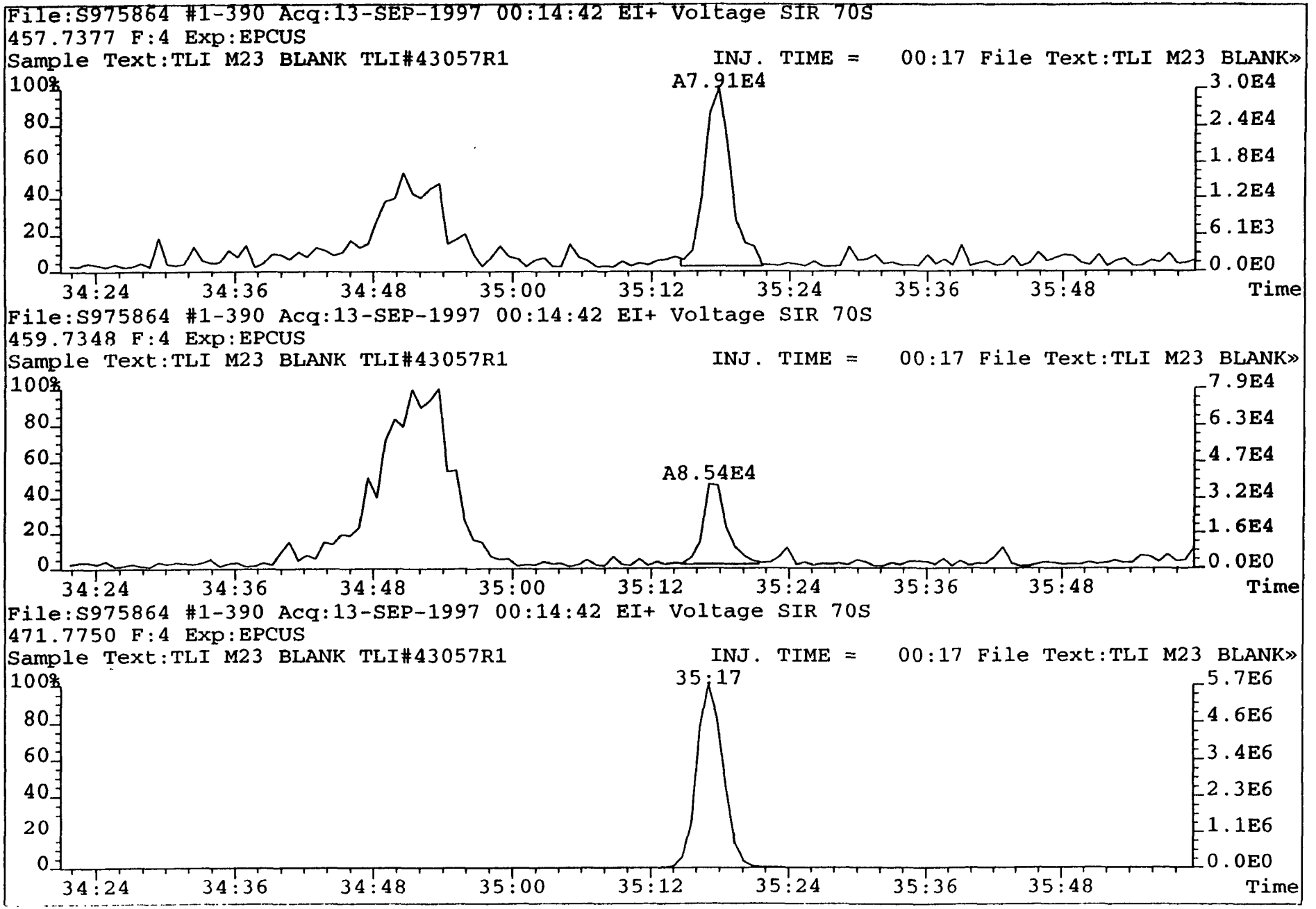

File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
100%
80
60
40
20
0
28:21
28:12
28:39
28:56
29:16
29:46
29:36
29:58
30:13
30:24
30:33
30:53
5.3E4
4.2E4
3.2E4
2.1E4
1.1E4
0.0E0
29:00
30:00
Time
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
100%
80
60
40
20
0
28:13
28:38
28:48
29:02
29:22
29:36
29:46
30:06
30:28
30:52
2.9E4
2.3E4
1.8E4
1.2E4
5.9E3
0.0E0
29:00
30:00
Time
File:S975864 #1-346 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
385.8610 F:3 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
100%
80
60
40
20
0
28:12
28:25
28:40
28:51
29:02
29:22
29:34
29:53
30:16
30:41
30:49
3.1E4
2.5E4
1.9E4
1.3E4
6.3E3
0.0E0
29:00
30:00
Time


File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A6.60E4
100%
80
60
40
20
0
3.8E4
3.0E4
2.3E4
1.5E4
7.6E3
0.0E0
32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A5.80E4
100%
80
60
40
20
0
3.6E4
2.9E4
2.2E4
1.5E4
7.3E3
0.0E0
32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
33:05
100%
80
60
40
20
0
2.6E6
2.1E6
1.6E6
1.0E6
5.2E5
0.0E0
32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12
Time


File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A1.00E5
5.7E4
4.5E4
3.4E4
2.3E4
1.1E4
0.0E0
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A8.75E4
4.8E4
3.9E4
2.9E4
1.9E4
9.7E3
0.0E0
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
32:44
6.3E6
5.0E6
3.8E6
2.5E6
1.3E6
0.0E0
Time
100%
80
60
40
20
0
31:48
32:00
32:12
32:24
32:36
32:48
33:00
33:12
33:24
33:36
33:48


File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A1.33E5
100%
80
60
40
20
0
5.7E4
4.5E4
3.4E4
2.3E4
1.1E4
0.0E0
31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A1.23E5
100%
80
60
40
20
0
4.8E4
3.9E4
2.9E4
1.9E4
9.7E3
0.0E0
31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
32:44
100%
80
60
40
20
0
6.3E6
5.0E6
3.8E6
2.5E6
1.3E6
0.0E0
31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 Time


File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
441.7428 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A8.44E4
100%
80
60
40
20
0
3.5E4
2.8E4
2.1E4
1.4E4
7.1E3
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
443.7399 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A9.56E4
100%
80
60
40
20
0
3.3E4
2.7E4
2.0E4
1.3E4
6.7E3
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
471.7750 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
35:17
100%
80
60
40
20
0
5.7E6
4.6E6
3.4E6
2.3E6
1.1E6
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time


File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
457.7377 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A7.91E4
100%
80
60
40
20
0
3.0E4
2.4E4
1.8E4
1.2E4
6.1E3
0.0E0
34:24
34:36
34:48
35:00
35:12
35:24
35:36
35:48
Time
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
459.7348 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
A8.54E4
7.9E4
6.3E4
4.7E4
3.2E4
1.6E4
0.0E0
File:S975864 #1-390 Acq:13-SEP-1997 00:14:42 EI+ Voltage SIR 70S
471.7750 F:4 Exp:EPCUS
Sample Text:TLI M23 BLANK TLI#43057R1
INJ. TIME = 00:17 File Text:TLI M23 BLANK»
35:17
5.7E6
4.6E6
3.4E6
2.3E6
1.1E6
0.0E0

# Pacific Environmental Services

TLI Project: 43057r1 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: TLI M23 Blank — Analysis File: P973848

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | XAD | Date Received: | / / | Spike File: | SPC2NF04 |
| TLI ID: | TLI Blank | Date Extracted: | 09/06/97 | 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: | P973848 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | WK | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | ND | 0.008 | | | | — |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 2.9 | 72.7 | 40%-130% | 0.76 | 20:40 | — |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.81 | 19:42 | — |

Data Reviewer: VC 09/14/97



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: 17:54 09/14/97

Initial ....Date...

ata Review By: NC 9/14/97 Calculated Noise Area: 1.37

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



| ompound/ L_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDF | | | | | | 0.65-0.89 | | | | 0.786-1.096 | | | |
| 04-306 | DC | NL | | 0:00 | | 0.68 | 1.86 | | | 0.000 | | | |
| | DC | SN | | 19:23 | RO | 0.42 | 2.18 | | | 0.938 | | | |
| | DC | SN | | 20:14 | RO | 1.49 | 1.01 | | | 0.979 | | | |
| | DC | SN | | 20:17 | RO | 0.34 | 0.53 | | | 0.981 | | | |
| | DC | SN | | 20:20 | RO | 0.56 | 0.44 | | | 0.984 | | | |
| | DC | SN | | 20:50 | | 0.77 | 0.83 | | | 1.008 | | | |
| | DC | SN | | 20:52 | | 0.68 | 1.34 | | | 1.010 | | | |
| | DC | SN | | 21:04 | RO | 1.43 | 1.72 | | | 1.019 | | | |
| 04-306 | | | 0 | Peaks | | | 0.00 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.952-1.048 | | | |
| 16-318 | DC | NL | | 0:00 | | 0.89 | 2.49 | | | 0.000 | | | |
| | DC | WL | | 18:57 | | 0.88 | 1.52 | | | 0.917 | | | |
| | DC | WL | | 19:23 | | 0.75 | 9.49 | | | 0.938 | | | |
| | DC | WL | | 19:38 | RO | 1.64 | 5.95 | | | 0.950 | | | |
| | | | | 20:40 | | 0.76 | 1,683.28 | 729.00 | 954.28 | 1.000 | 13C12-2378-TCDF | IS0 | |
| | | | | 21:12 | | 0.82 | 5.27 | 2.38 | 2.89 | 1.026 | | | |
| | DC | SN | | 21:38 | RO | 2.91 | 1.54 | | | 1.047 | | | |
| | DC | WH | | 22:32 | | 0.73 | 12.08 | | | 1.090 | | | |
| 316-318 | | | 2 | Peaks | | | 1,688.55 | | | | | | |

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

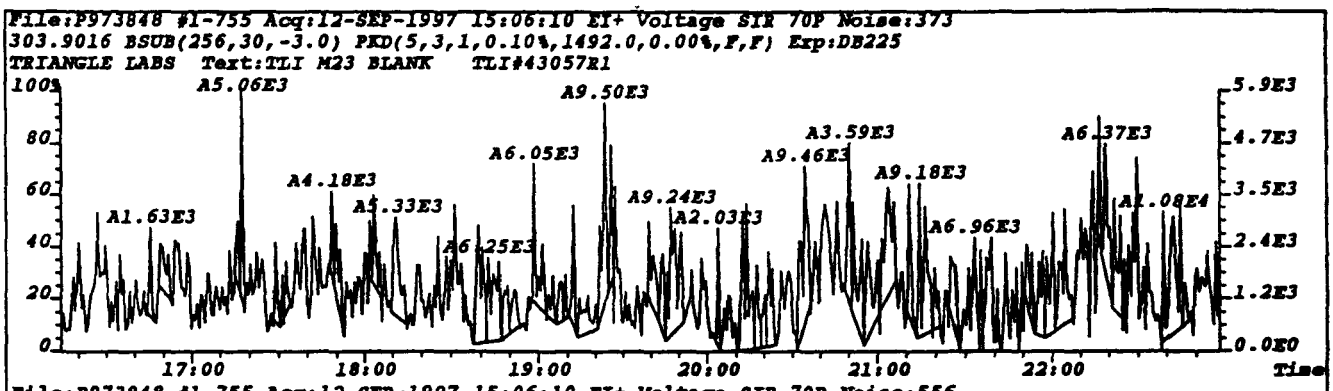
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13C12-TCDD | | | | | | 0.65-0.89 | | | | 0.897-1.103 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 1.87 | 1.72 | | | 0.000 | | | |
| | DC | SN | | 17:32 | RO | 2.59 | 0.51 | | | 0.901 | | | |
| | DC | SN | | 18:26 | RO | 0.39 | 3.56 | | | 0.947 | | | |
| | | | | 19:28 | | 0.79 | 1,370.66 | 605.30 | 765.36 | 1.000 | 13C12-2378-TCDD | IS1 | |
| | | | | 19:42 | | 0.81 | 1,668.46 | 744.76 | 923.70 | 1.012 | 13C12-1234-TCDD | RS1 | |
| | | | | 20:22 | | 0.82 | 16.80 | 7.58 | 9.22 | 1.046 | | | |
| | DC | WH | | 21:34 | RO | 2.58 | 0.58 | | | 1.108 | | | |
| | DC | WH | | 21:45 | RO | 0.43 | 1.08 | | | 1.117 | | | |
| | DC | WH | | 21:55 | | 0.80 | 3.76 | | | 1.126 | | | |
| 332-334 | | | 3 | Peaks | | | 3,055.92 | | | | | | |

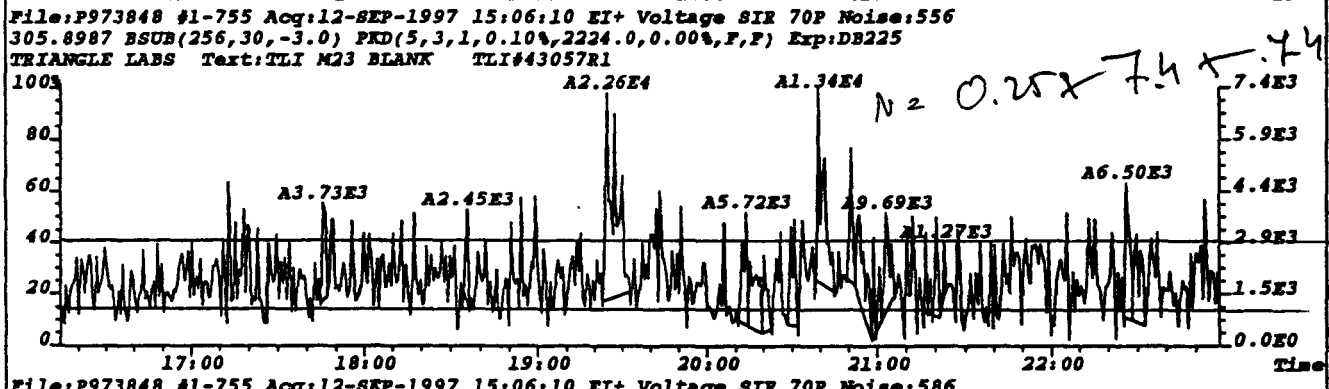
Compound

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

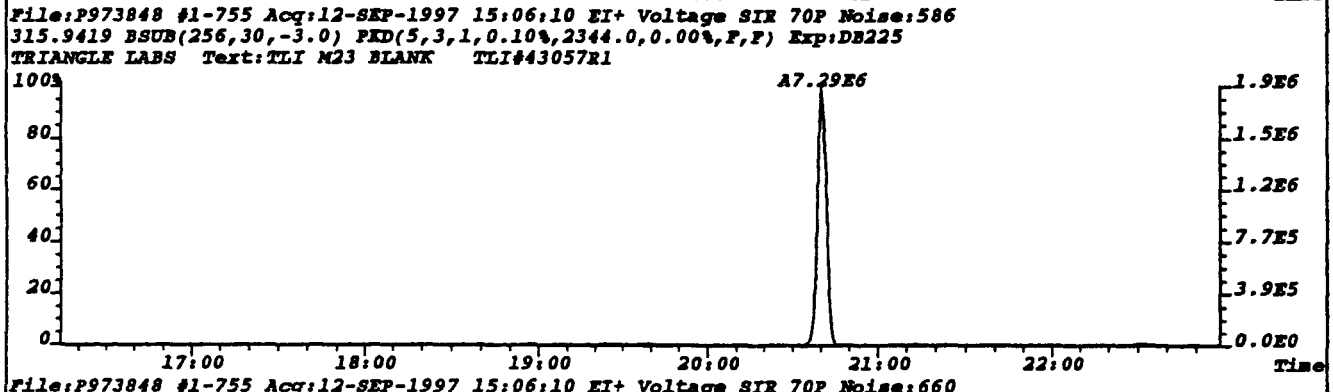
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

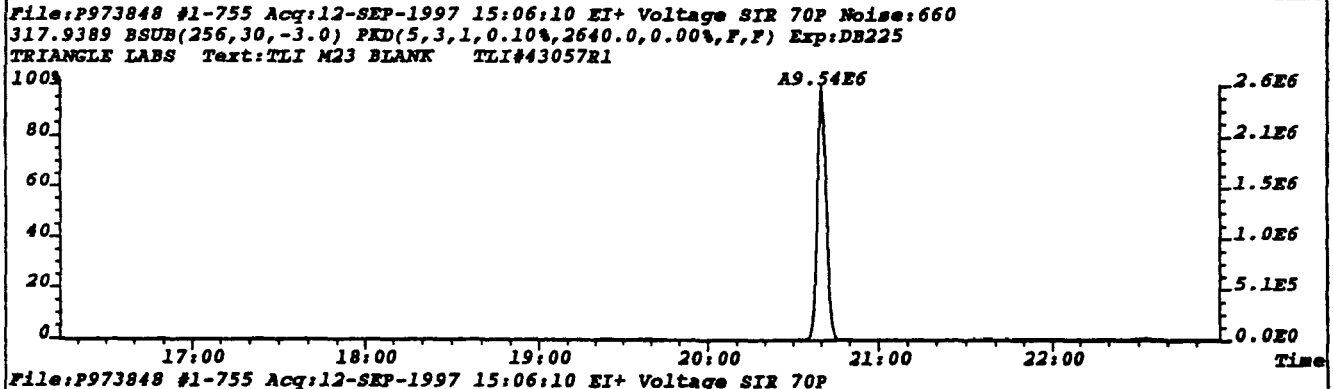
*** End of Report ***

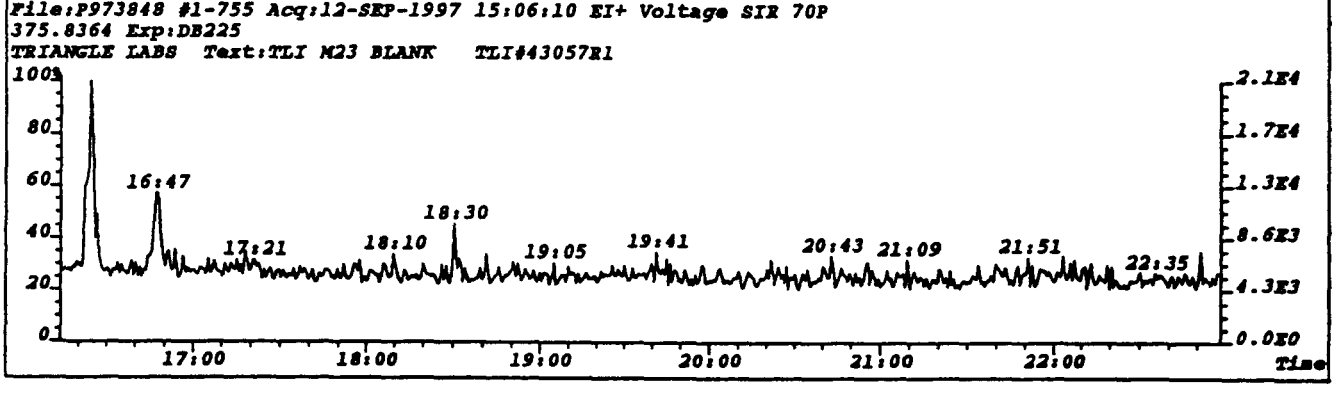


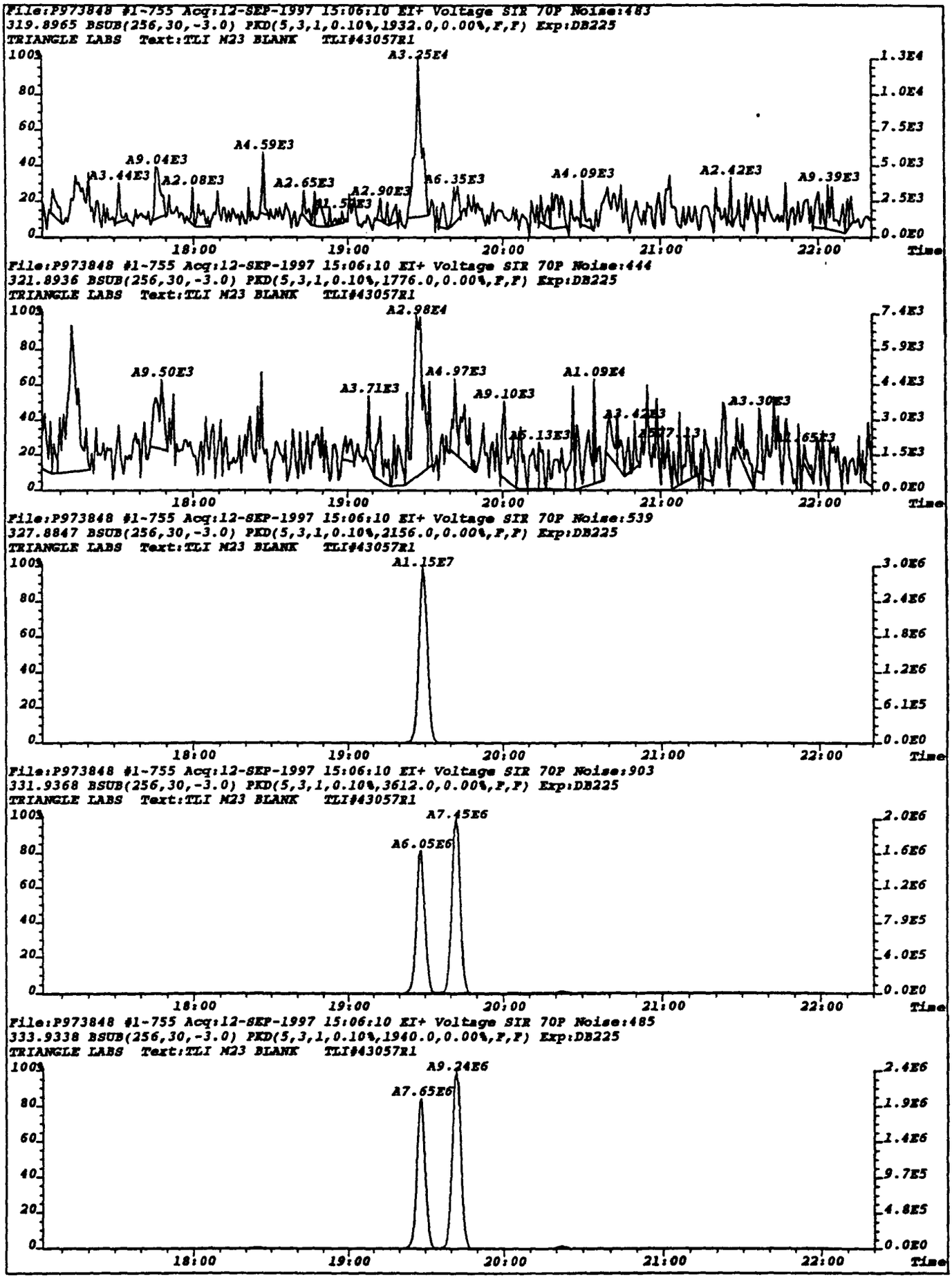



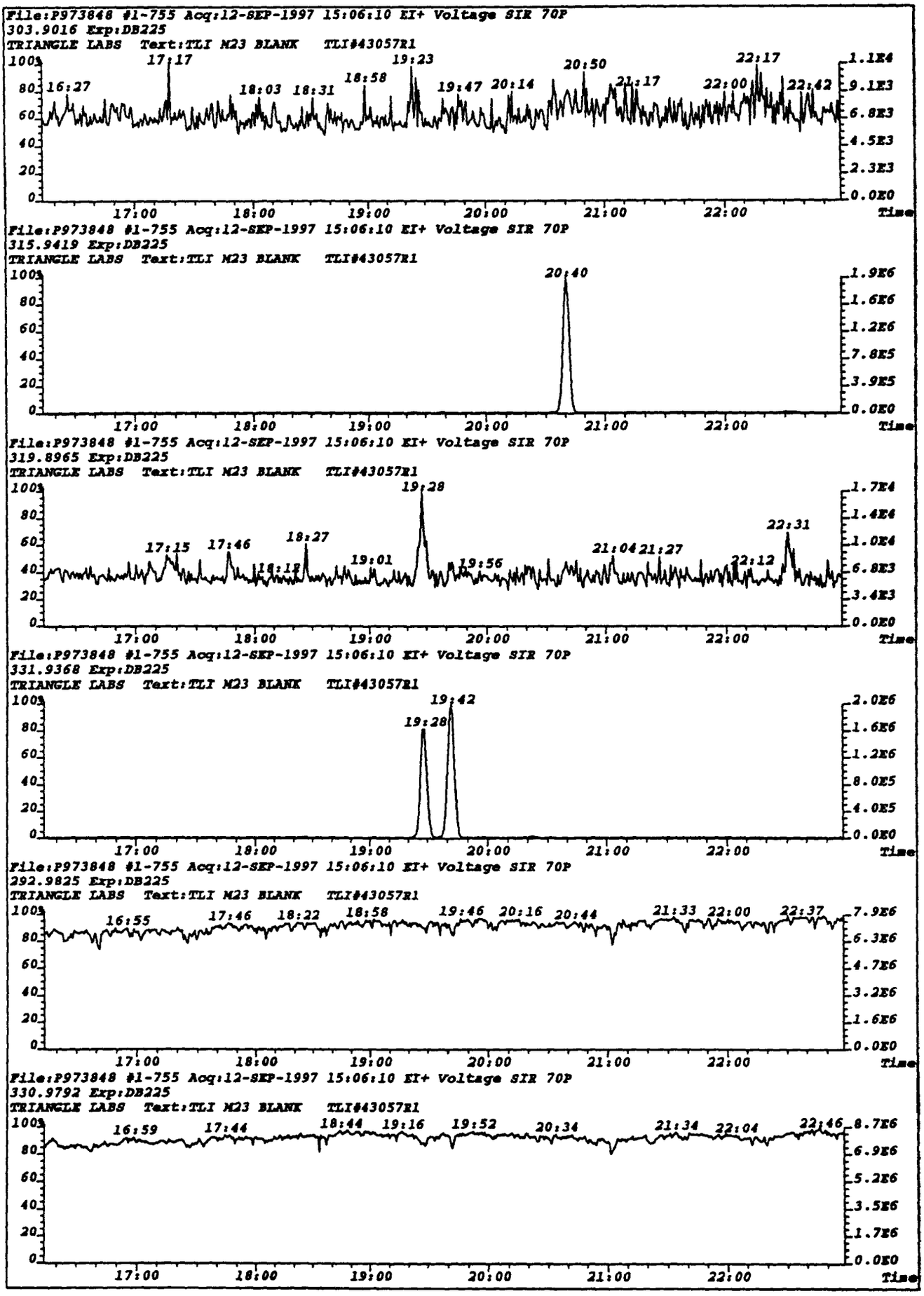

N = 0.25 x 7.4 x .74 = 1.37
wb
9/12/97




File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P Noise:483
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1932.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A3.25E4
A9.04E3
A4.59E3
A3.44E3
A2.08E3
A2.65E3
A2.90E3
A6.35E3
A4.09E3
A2.42E3
A9.39E3
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P Noise:444
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1776.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A2.98E4
A9.50E3
A4.97E3
A3.71E3
A1.09E4
A9.10E3
A3.30E3
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P Noise:539
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2156.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A1.15E7
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P Noise:903
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3612.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A7.45E6
A6.05E6
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P Noise:485
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1940.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
A9.24E6
A7.65E6
18:00
19:00
20:00
21:00
22:00
Time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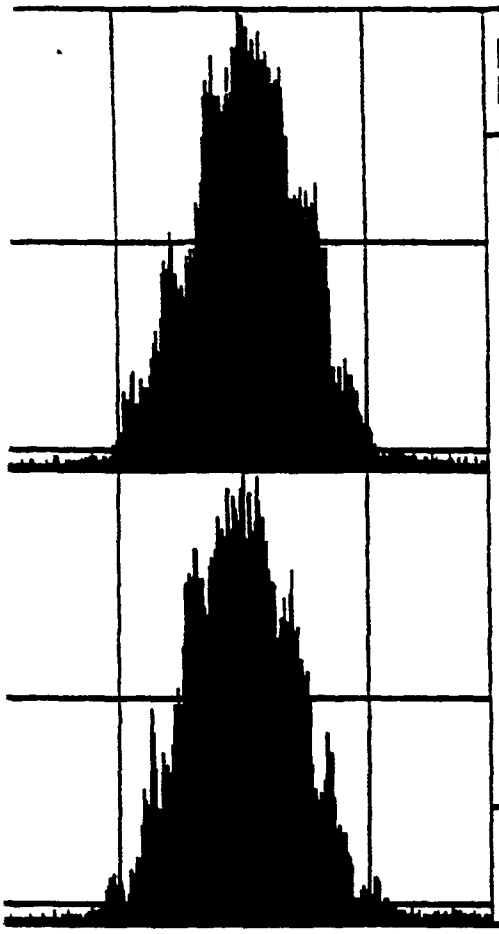
303.9016 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
16:27 17:17 18:03 18:31 18:58 19:23 19:47 20:14 20:50 21:17 22:00 22:17 22:42
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
20:40
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
17:15 17:46 18:27 19:01 19:28 19:56 21:04 21:27 22:12 22:31
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
19:28 19:42
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
16:55 17:46 18:22 18:58 19:46 20:16 20:44 21:33 22:00 22:37
File:P973848 #1-755 Acq:12-SEP-1997 15:06:10 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:TLI M23 BLANK TLI#43057R1
16:59 17:44 18:44 19:16 19:52 20:34 21:34 22:04 22:46
17:00 18:00 19:00 20:00 21:00 22:00 Time



Ref. mass 292.9825 Peak top
Height 1.18 volts Span 200 ppm

| | |
|---|---|
| System file name | DB225 |
| Data file name | A:P973848 |
| 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 1.15 volts Span 200 ppm

# Pacific Environmental Services

TLI Project: **43057r1** — Method 23 PCDD/PCDF Analysis (a)
Client Sample: **O-M23-4** — Analysis File: **S975865**

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPX23704 |
| TLI ID: | 181-27-6A-C | Date Extracted: | 09/06/97 | 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: | S975864 | % 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 | 0.004 | | | | |
| 1,2,3,7,8-PeCDD | ND | 0.005 | | | | |
| 1,2,3,4,7,8-HxCDD | ND | 0.006 | | | | |
| 1,2,3,6,7,8-HxCDD | 0.01 | | | 1.27 | 30:00 | |
| 1,2,3,7,8,9-HxCDD | ND | 0.005 | | | | |
| 1,2,3,4,6,7,8-HpCDD | EMPC | | 0.04 | | | B |
| 1,2,3,4,6,7,8,9-OCDD | 0.09 | | | 0.93 | 35:22 | B |
| 2,3,7,8-TCDF | 0.02 | | | 0.85 | 21:39 | B |
| 1,2,3,7,8-PeCDF | ND | 0.003 | | | | |
| 2,3,4,7,8-PeCDF | EMPC | | 0.01 | | | B |
| 1,2,3,4,7,8-HxCDF | 0.03 | | | 1.25 | 29:12 | B |
| 1,2,3,6,7,8-HxCDF | 0.01 | | | 1.33 | 29:19 | B |
| 2,3,4,6,7,8-HxCDF | 0.02 | | | 1.24 | 29:48 | B, JA |
| 1,2,3,7,8,9-HxCDF | ND | 0.004 | | | | |
| 1,2,3,4,6,7,8-HpCDF | 0.05 | | | 0.99 | 31:58 | B |
| 1,2,3,4,7,8,9-HpCDF | 0.02 | | | 1.05 | 33:09 | B |
| 1,2,3,4,6,7,8,9-OCDF | 0.05 | | | 1.00 | 35:29 | B |

| Totals | Amt. (ng) | Number | DL | EMPC | Flags |
|---|---|---|---|---|---|
| Total TCDD | EMPC | | | 0.007 | |
| Total PeCDD | 0.01 | 1 | | 0.02 | |
| Total HxCDD | 0.07 | 3 | | | |
| Total HpCDD | EMPC | | | 0.07 | |
| Total TCDF | 0.03 | 3 | | | |
| Total PeCDF | 0.01 | 1 | | 0.02 | |
| Total HxCDF | 0.09 | 5 | | 0.10 | |
| Total HpCDF | 0.09 | 3 | | 0.10 | |





**Triangle Laboratories, Inc.®**
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

TLI Project: **43057r1**
Client Sample: **O-M23-4**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **S975865**

| Internal Standards | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 4.8 | 120 | 40%-130% | 0.76 | 21:37 | — |
| $^{13}C_{12}$-2,3,7,8-TCDD | 3.9 | 98.7 | 40%-130% | 0.79 | 22:23 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDF | 4.3 | 107 | 40%-130% | 1.46 | 25:41 | — |
| $^{13}C_{12}$-1,2,3,7,8-PeCDD | 4.5 | 112 | 40%-130% | 1.55 | 26:45 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDF | 4.5 | 113 | 40%-130% | 0.51 | 29:18 | — |
| $^{13}C_{12}$-1,2,3,6,7,8-HxCDD | 4.1 | 103 | 40%-130% | 1.24 | 29:59 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF | 3.5 | 88.5 | 25%-130% | 0.42 | 31:57 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD | 3.6 | 90.1 | 25%-130% | 1.03 | 32:48 | — |
| $^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD | 5.5 | 68.8 | 25%-130% | 0.92 | 35:22 | — |

| Surrogate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{37}Cl_4$-2,3,7,8-TCDD | 4.3 | 106 | 70%-140% | | 22:23 | — |
| $^{13}C_{12}$-2,3,4,7,8-PeCDF | 3.7 | 93.4 | 70%-140% | 1.44 | 26:24 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDF | 3.9 | 97.6 | 70%-140% | 0.50 | 29:12 | — |
| $^{13}C_{12}$-1,2,3,4,7,8-HxCDD | 3.4 | 85.9 | 70%-140% | 1.26 | 29:55 | — |
| $^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF | 3.9 | 98.7 | 70%-140% | 0.42 | 33:08 | — |

| Alternate Standards (Type A) | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDF | 4.7 | 117 | 40%-130% | 0.51 | 30:29 | — |
| $^{13}C_{12}$-2,3,4,6,7,8-HxCDF | 4.3 | 107 | 40%-130% | 0.51 | 29:47 | — |

| Recovery Standards | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.81 | 22:11 | — |
| $^{13}C_{12}$-1,2,3,7,8,9-HxCDD | 1.24 | 30:17 | — |

Data Reviewer: _____ 09/14/97



X237_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: 17:51 09/14/97

Initial ....Date...

Data Review By: JC 9/14/97 Calculated Noise Area: 2.22

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 S975865B.dbf
09/14/97 Matched GC Peaks / Ratio / Ret. Time

| Compound/ 4_Z.... | QC.Log | Cmit | 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 | 1.00 | 0.23 | | | 0.000 | | | |
| | | DC | SN | 18:18 | RO | 0.54 | 3.65 | | | 0.847 | | | |
| | | DC | SN | 18:35 | | 0.67 | 1.84 | | | 0.860 | | | |
| | | DC | SN | 20:33 | RO | 0.55 | 5.33 | | | 0.951 | | | |
| | D | d | SN | 20:53 | RO | 1.13 | 7.24 | | | 0.966 | | | |
| | | | | 21:12 | | 0.84 | 28.09 | 12.84 | 15.25 | 0.981 | | | |
| | | DC | SN | 21:28 | RO | 0.52 | 3.72 | | | 0.993 | | | |
| | | | | 21:39 | | 0.85 | 39.70 | 18.25 | 21.45 | 1.002 | 2378-TCDF | | AN |
| | D | d | SN | 22:04 | RO | 1.05 | 6.05 | | | 1.021 | | | |
| | | DC | SN | 22:22 | RO | 0.37 | 1.95 | | | 1.035 | | | |
| | A | | | 23:22 | | 0.66 | 13.66 | 5.45 | 8.21 | 1.081 | | | |
| 304-306 | | | 3 | Peaks | | | 81.45 | | | | | | |
| 13C12-TCDF | | | | | | 0.65-0.89 | | | | 0.954-1.046 | | | |
| 316-318 | | DC | NL | 0:00 | RO | 0.39 | 0.34 | | | 0.000 | | | |
| | | | | 21:11 | | 0.72 | 34.00 | 14.26 | 19.74 | 0.980 | | | |
| | | | | 21:37 | | 0.76 | 7,668.11 | 3,317.31 | 4,350.80 | 1.000 | 13C12-2378-TCDF | | ISO |
| | | | | 22:05 | | 0.76 | 29.48 | 12.75 | 16.73 | 1.022 | | | |
| 316-318 | | | 3 | Peaks | | | 7,731.59 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDD | | | | | | 0.65-0.89 | | | | 0.875-1.055 | | | |
| 320-322 | | DC | NL | 0:00 | RO | 2.21 | 0.34 | | | 0.000 | | | |
| | | DC | WL | 19:31 | RO | 1.26 | 1.03 | | | 0.872 | | | |
| | | | | 19:45 | RO | 1.04 | 10.34 | 6.08 | 5.84 | 0.882 | | | |
| | D | d | SN | 20:15 | RO | 0.60 | 6.53 | | | 0.905 | | | |
| | | DC | SN | 20:25 | RO | 1.41 | 2.60 | | | 0.912 | | | |
| | | DC | SN | 20:54 | RO | 0.41 | 0.69 | | | 0.934 | | | |
| | D | d | SN | 21:10 | | 0.83 | 6.92 | | | 0.946 | | | |
| | | DC | SN | 21:22 | | 0.76 | 2.32 | | | 0.955 | | | |
| | | DC | SN | 21:29 | RO | 1.35 | 1.49 | | | 0.960 | | | |
| | | DC | SN | 21:37 | RO | 2.09 | 2.07 | | | 0.966 | | | |
| | | DC | SN | 21:49 | RO | 0.59 | 2.34 | | | 0.975 | | | |
| | | DC | SN | 22:04 | RO | 2.35 | 0.60 | | | 0.986 | | | |
| | D | d | SN | 22:17 | RO | 0.91 | 5.42 | | | 0.996 | | | |
| | | DC | SN | 22:36 | RO | 1.38 | 1.03 | | | 1.010 | | | |
| | | DC | SN | 22:41 | RO | 0.38 | 0.71 | | | 1.013 | | | |
| | | DC | SN | 22:49 | | 0.67 | 1.05 | | | 1.019 | | | |
| | | DC | SN | 23:03 | RO | 0.13 | 0.46 | | | 1.030 | | | |
| | | DC | SN | 23:15 | RO | 1.10 | 2.23 | | | 1.039 | | | |
| 320-322 | | | 1 | Peak | | | 10.34 | | | | | | |

| Compound/ M_Z.... | QC.Log | Omit | Why | RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37Cl-TCDD | | | | | | | | | | 0.910-1.090 | | | |
| 328 | DC | NL | | 0:00 | | | 0.47 | | | 0.000 | | | |
| | | | | 22:23 | | | 4,561.50 | 4,561.50 | | 1.000 | 37Cl-TCDD | | SUR1 |
| 328 | | | 1 Peak | | | | 4,561.50 | | | | | | |
| 13C12-TCDD | | | | | 0.65-0.89 | | | | | 0.910-1.090 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 4.09 | 0.57 | | | 0.000 | | | |
| | | | | 21:09 | RO | 1.08 | 20.87 | 12.71 | 11.79 | 0.945 | | | |
| | | | | 22:11 | | 0.81 | 4,829.18 | 2,166.73 | 2,662.45 | 0.991 | 13C12-1234-TCDD | | RS1 |
| | | | | 22:23 | | 0.79 | 5,081.62 | 2,248.91 | 2,832.71 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 22:43 | | 0.86 | 75.34 | 34.92 | 40.42 | 1.015 | | | |
| 332-334 | | | 4 Peaks | | | | 10,007.01 | | | | | | |
| ---------- Above: TCDD / PeCDF Follows ---------- | | | | | | | | | | | | | |
| PeCDF | | | | | 1.32-1.78 | | | | | 0.915-1.074 | | | |
| 340-342 | DC | NL | | 0:00 | RO | 1.03 | 0.61 | | | 0.000 | | | |
| | DC | SN | | 23:40 | RO | 2.79 | 5.94 | | | 0.921 | | | |
| | DC | SN | | 23:57 | RO | 0.66 | 1.37 | | | 0.933 | | | |
| | DC | SN | | 24:35 | RO | 0.97 | 1.88 | | | 0.957 | | | |
| | DC | SN | | 24:42 | RO | 1.23 | 4.01 | | | 0.962 | | | |
| | | | | 24:47 | | 1.52 | 15.41 | 9.30 | 6.11 | 0.965 | | | |
| | DC | SN | | 25:09 | | 1.57 | 6.31 | | | 0.979 | | | |
| | DC | SN | | 25:24 | RO | 5.98 | 4.13 | | | 0.989 | | | |
| | DC | SN | | 25:50 | RO | 2.23 | 3.80 | | | 1.006 | | | |
| | DC | SN | | 25:58 | RO | 2.09 | 5.92 | | | 1.011 | | | |
| | DC | SN | | 26:09 | RO | 3.57 | 1.17 | | | 1.018 | | | |
| M | | | | 26:25 | RO | 1.83 | 17.01 | 12.20 | 6.67 | 1.029 | 23478-PeCDF | | AN |
| | DC | SN | | 26:50 | RO | 1.02 | 4.08 | | | 1.045 | | | |
| | DC | SN | | 27:04 | RO | 3.06 | 1.73 | | | 1.054 | | | |
| | DC | SN | | 27:31 | RO | 0.77 | 1.30 | | | 1.071 | | | |
| | DC | WH | | 27:47 | RO | 0.39 | 0.71 | | | 1.082 | | | |
| 340-342 | | | 2 Peaks | | | | 32.42 | | | | | | |
| 13C12-PeCDF | | | | | 1.32-1.78 | | | | | 0.844-1.156 | | | |
| 352-354 | DC | NL | | 0:00 | RO | 1.00 | 0.23 | | | 0.000 | | | |
| | | | | 24:49 | | 1.60 | 21.77 | 13.39 | 8.38 | 0.966 | | | |
| | | | | 25:18 | RO | 1.90 | 25.09 | 18.71 | 9.84 | 0.985 | | | |
| | | | | 25:41 | | 1.46 | 5,880.80 | 3,488.97 | 2,391.83 | 1.000 | 13C12-PeCDF 123 | | IS2 |
| | | | | 25:50 | | 1.54 | 20.34 | 12.33 | 8.01 | 1.006 | | | |
| | | | | 25:58 | | 1.53 | 32.07 | 19.38 | 12.69 | 1.011 | | | |
| | | | | 26:24 | | 1.44 | 5,329.39 | 3,141.80 | 2,187.59 | 1.028 | 13C12-PeCDF 234 | | SUR2 |
| | | | | 27:22 | RO | 1.02 | 11.86 | 7.21 | 7.08 | 1.066 | | | |
| 352-354 | | | 7 Peaks | | | | 11,321.32 | | | | | | |
| ---------- Above: PeCDF / PeCDD Follows ---------- | | | | | | | | | | | | | |
| PeCDD | | | | | 1.32-1.78 | | | | | 0.926-1.024 | | | |
| 356-358 | DC | NL | | 0:00 | RO | 0.83 | 0.16 | | | 0.000 | | | |
| | DC | WL | | 24:44 | RO | 6.00 | 0.31 | | | 0.925 | | | |
| | | | | 24:56 | RO | 1.28 | 7.86 | 4.78 | 3.74 | 0.932 | | | |
| | DC | SN | | 25:15 | RO | 2.84 | 0.48 | | | 0.944 | | | |

| 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 | | 25:30 | RO | 0.87 | 0.76 | | | 0.953 | | | |
| | | | | 25:41 | | 1.71 | 12.35 | 7.80 | 4.55 | 0.960 | | | |
| K | | | | 25:59 | RO | 1.94 | 5.89 | 4.47 | 2.31 | 0.971 | | | |
| | DC | SN | | 26:28 | RO | 4.73 | 2.04 | | | 0.989 | | | |
| | DC | SN | | 26:36 | RO | 0.48 | 1.10 | | | 0.994 | | | |
| | DC | SN | | 26:46 | RO | 2.18 | 3.19 | | | 1.001 | 12378-PeCDD | AN | |
| | DC | SN | | 26:54 | RO | 2.68 | 1.12 | | | 1.006 | | | |
| | DC | SN | | 27:07 | RO | 1.02 | 0.89 | | | 1.014 | | | |
| | DC | WH | | 27:30 | RO | 0.75 | 1.05 | | | 1.028 | | | |
| 356-358 | | | 3 | Peaks | | | 26.10 | | | | | | |
| 13C12-PeCDD | | | | 1.32-1.78 | | | | | | 0.850-1.150 | | | |
| 368-370 | DC | NL | | 0:00 | RO | 0.83 | 0.16 | | | 0.000 | | | |
| | DC | SN | | 26:28 | RO | 1.27 | 3.06 | | | 0.989 | | | |
| | | | | 26:45 | | 1.55 | 3,437.52 | 2,090.64 | 1,346.88 | 1.000 | 13C12-PeCDD 123 | IS3 | |
| | | | | 26:54 | | 1.55 | 274.11 | 166.48 | 107.63 | 1.006 | | | |
| 368-370 | | | 2 | Peaks | | | 3,711.63 | | | | | | |
| ---------- Above: PeCDD / HxCDF Follows ---------- | | | | | | | | | | | | | |
| HxCDF | | | | 1.05-1.43 | | | | | | 0.959-1.050 | | | |
| 374-376 | DC | NL | | 0:00 | | 1.21 | 2.54 | | | 0.000 | | | |
| | | | | 28:14 | | 1.21 | 15.56 | 8.51 | 7.05 | 0.964 | | | |
| | | | | 28:22 | | 1.34 | 35.02 | 20.04 | 14.98 | 0.968 | | | |
| D | d | SN | | 28:39 | RO | 0.95 | 6.02 | | | 0.978 | | | |
| | DC | SN | | 28:49 | RO | 0.77 | 4.21 | | | 0.984 | | | |
| | DC | SN | | 28:59 | RO | 5.85 | 0.45 | | | 0.989 | | | |
| | | | | 29:12 | | 1.25 | 50.54 | 28.07 | 22.47 | 0.997 | 123478-HxCDF | AN | |
| | | | | 29:19 | | 1.33 | 23.99 | 13.68 | 10.31 | 1.001 | 123678-HxCDF | AN | |
| | DC | SN | | 29:25 | RO | 1.81 | 4.88 | | | 1.004 | | | |
| D | d | SN | | 29:36 | RO | 1.44 | 10.12 | | | 1.010 | | | |
| | | | | 29:48 | | 1.24 | 28.71 | 15.88 | 12.83 | 1.017 | 234678-HxCDF | AN | |
| | DC | SN | | 29:56 | RO | 2.02 | 1.10 | | | 1.022 | | | |
| | DC | SN | | 30:08 | RO | 0.24 | 0.51 | | | 1.028 | | | |
| | DC | SN | | 30:31 | RO | 0.77 | 3.97 | | | 1.042 | 123789-HxCDF | AN | |
| | | | | 30:34 | RO | 1.01 | 9.10 | 5.04 | 4.97 | 1.043 | | | |
| | DC | SN | | 30:37 | RO | 0.79 | 1.45 | | | 1.045 | | | |
| 374-376 | | | 6 | Peaks | | | 162.92 | | | | | | |
| 13C12-HxCDF | | | | 0.43-0.59 | | | | | | 0.863-1.137 | | | |
| 384-386 | DC | NL | | 0:00 | RO | 1.00 | 2.49 | | | 0.000 | | | |
| | | | | 28:21 | | 0.56 | 8.55 | 3.07 | 5.48 | 0.968 | | | |
| | | | | 29:12 | | 0.50 | 4,955.40 | 1,656.35 | 3,299.05 | 0.997 | 13C12-HxCDF 478 | SUR3 | |
| | | | | 29:18 | | 0.51 | 5,294.90 | 1,782.26 | 3,512.64 | 1.000 | 13C12-HxCDF 678 | IS4 | |
| | DC | SN | | 29:34 | RO | 0.26 | 2.58 | | | 1.009 | | | |
| | | | | 29:47 | | 0.51 | 4,637.69 | 1,563.79 | 3,073.90 | 1.016 | 13C12-HxCDF 234 | ALT2 | |
| N | | | | 30:29 | | 0.51 | 4,428.48 | 1,493.87 | 2,934.61 | 1.040 | 13C12-HxCDF 789 | ALT1 | |
| 384-386 | | | 5 | Peaks | | | 19,325.02 | | | | | | |
| ---------- Above: HxCDF / HxCDD Follows ---------- | | | | | | | | | | | | | |

| Compound/ M_2.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HxCDD | | | | 1.05-1.43 | | | | | | 0.953-1.014 | | | |
| 390-392 | DC | NL | | 0:00 | RO | 0.90 | 1.79 | | | 0.000 | | | |
| | DC | SN | | 28:45 | RO | 0.66 | 4.50 | | | 0.959 | | | |
| | DC | SN | | 28:50 | RO | 0.27 | 0.38 | | | 0.962 | | | |
| | DC | SN | | 29:00 | RO | 5.35 | 0.83 | | | 0.967 | | | |
| | | | | 29:12 | | 1.30 | 41.69 | 23.54 | 18.15 | 0.974 | | | |
| | DC | SN | | 29:17 | RO | 1.76 | 3.09 | | | 0.977 | | | |
| | | | | 29:25 | | 1.27 | 20.79 | 11.63 | 9.16 | 0.981 | | | |
| | DC | SN | | 29:56 | RO | 0.59 | 3.50 | | | 0.998 | 123478-HxCDD | AN | |
| | | | | 30:00 | | 1.27 | 12.73 | 7.11 | 5.62 | 1.001 | 123678-HxCDD | AN | |
| D | d | SN | | 30:17 | | 1.18 | 10.77 | | | 1.010 | 123789-HxCDD | AN | |
| | DC | WH | | 30:30 | RO | 1.01 | 2.01 | | | 1.017 | | | |
| | DC | WH | | 30:38 | RO | 0.42 | 0.54 | | | 1.022 | | | |
| 390-392 | | | 3 | Peaks | | | 75.21 | | | | | | |
| 13C12-HxCDD | | | | 1.05-1.43 | | | | | | 0.967-1.033 | | | |
| 402-404 | DC | NL | | 0:00 | | 1.08 | 3.28 | | | 0.000 | | | |
| | | | | 29:24 | | 1.10 | 14.96 | 7.82 | 7.14 | 0.981 | | | |
| | | | | 29:55 | | 1.26 | 3,341.80 | 1,862.50 | 1,479.30 | 0.998 | 13C12-HxCDD 478 | SUR4 | |
| | | | | 29:59 | | 1.24 | 3,998.61 | 2,212.03 | 1,786.58 | 1.000 | 13C12-HxCDD 678 | IS5 | |
| | | | | 30:17 | | 1.24 | 3,896.41 | 2,157.96 | 1,738.45 | 1.010 | 13C12-HxCDD 789 | RS2 | |
| 402-404 | | | 4 | Peaks | | | 11,251.78 | | | | | | |

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

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HpCDF | | | | 0.88-1.20 | | | | | | 0.995-1.042 | | | |
| 408-410 | DC | NL | | 0:00 | RO | 1.56 | 4.08 | | | 0.000 | | | |
| | | | | 31:58 | | 0.99 | 57.69 | 28.69 | 29.00 | 1.001 | 1234678-HpCDF | AN | |
| | | | | 32:11 | RO | 1.42 | 13.73 | 9.55 | 6.73 | 1.007 | | | |
| | | | | 32:18 | | 0.92 | 18.53 | 8.88 | 9.65 | 1.011 | | | |
| | DC | SN | | 32:51 | RO | 0.69 | 3.96 | | | 1.028 | | | |
| M | | | | 33:09 | | 1.05 | 19.72 | 10.10 | 9.62 | 1.038 | 1234789-HpCDF | AN | |
| | DC | WH | | 33:20 | RO | 0.26 | 3.24 | | | 1.043 | | | |
| 408-410 | | | 4 | Peaks | | | 109.67 | | | | | | |
| 13C12-HpCDF | | | | 0.37-0.51 | | | | | | 0.937-1.125 | | | |
| 418-420 | DC | NL | | 0:00 | RO | 1.39 | 3.12 | | | 0.000 | | | |
| | | | | 31:57 | | 0.42 | 3,058.65 | 906.47 | 2,152.18 | 1.000 | 13C12-HpCDF 678 | IS6 | |
| | | | | 32:30 | RO | 0.25 | 14.27 | 4.36 | 17.37 | 1.017 | | | |
| | | | | 32:46 | RO | 2.72 | 6.84 | 12.91 | 4.75 | 1.026 | | | |
| | | | | 33:08 | | 0.42 | 2,327.94 | 685.97 | 1,641.97 | 1.037 | 13C12-HpCDF 789 | SUR5 | |
| | | | | 33:20 | RO | 0.18 | 68.69 | 20.99 | 118.75 | 1.043 | | | |
| 418-420 | | | 5 | Peaks | | | 5,476.39 | | | | | | |

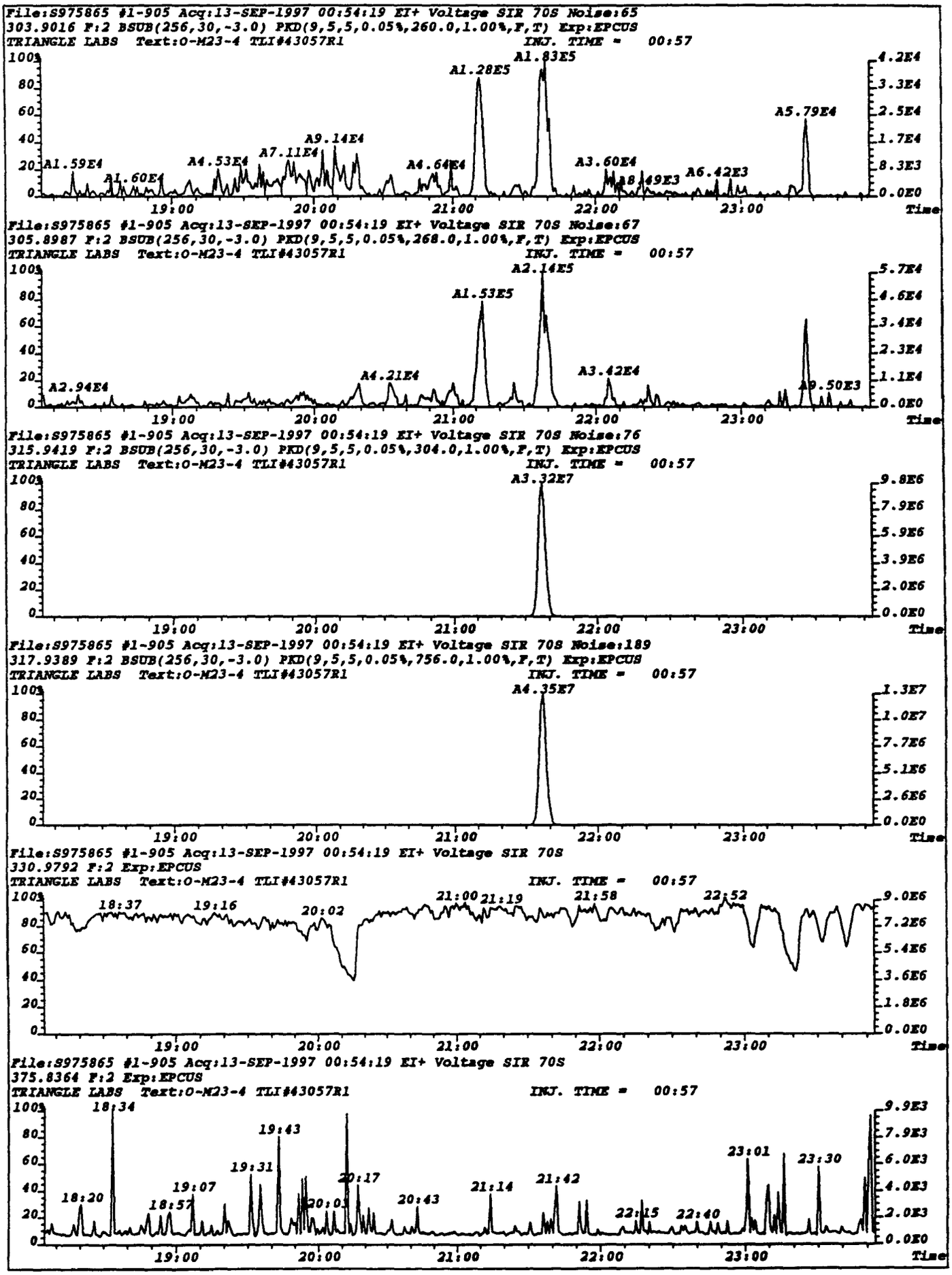
---------- Above: HpCDF / HpCDD Follows ----------

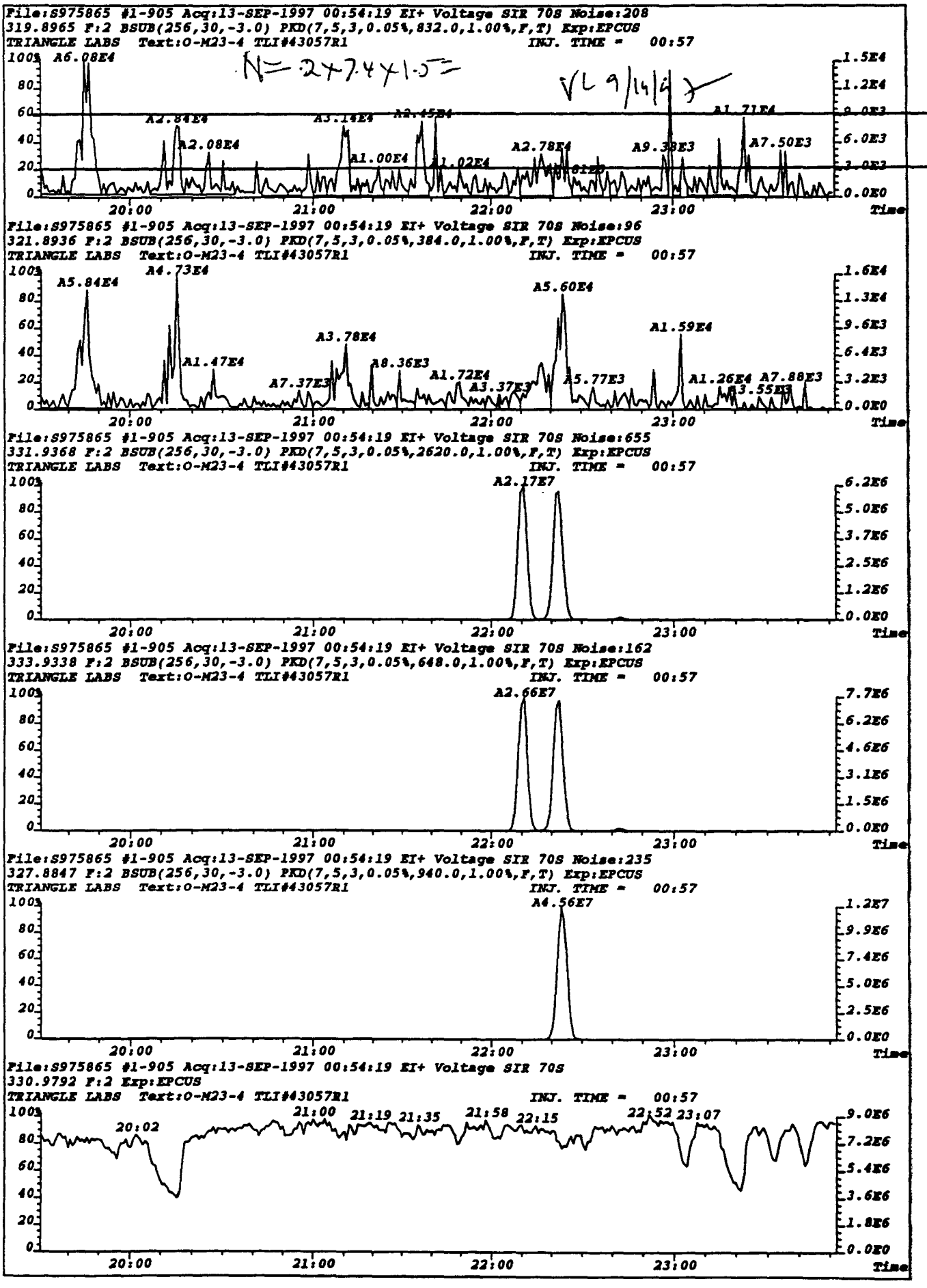
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HpCDD | | | | 0.88-1.20 | | | | | | 0.977-1.005 | | | |
| 424-426 | DC | NL | | 0:00 | RO | 2.13 | 4.22 | | | 0.000 | | | |
| M | | | | 32:12 | RO | 1.54 | 19.26 | 14.50 | 9.44 | 0.982 | | | |
| M | | | | 32:48 | RO | 1.23 | 32.44 | 19.60 | 15.90 | 1.000 | 1234678-HpCDD | AN | |
| | DC | WH | | 32:59 | RO | 6.14 | 5.20 | | | 1.006 | | | |
| | DC | WH | | 33:14 | RO | 5.99 | 4.32 | | | 1.013 | | | |

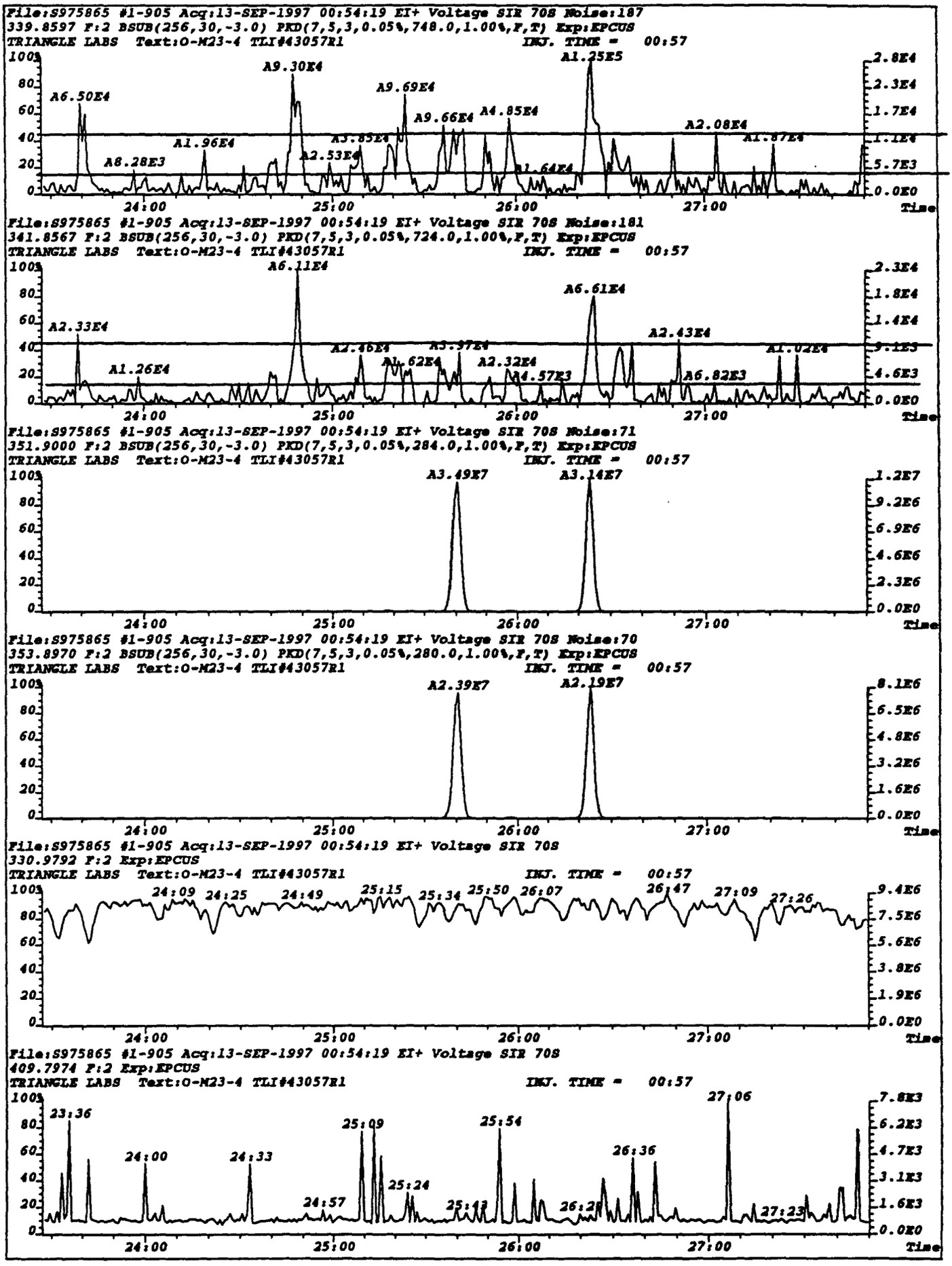
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 424-426 | | | 2 Peaks | | | | 51.70 | | | | | | |
| 13C12-HpCDD | | | | 0.88-1.20 | | | | | | 0.969-1.031 | | | |
| 436-438 | | DC | NL | 0:00 | | 1.13 | 1.51 | | | 0.000 | | | |
| | | | | 32:12 | RO | 0.77 | 5.77 | 2.94 | 3.83 | 0.982 | | | |
| | | | | 32:48 | | 1.03 | 2,861.43 | 1,452.51 | 1,408.92 | 1.000 | 13C12-HpCDD | 678 | IS7 |
| 436-438 | | | 2 Peaks | | | | 2,867.20 | | | | | | |
| ---------- Above: HpCDD / Octa-CDD and CDF Follows ---------- | | | | | | | | | | | | | |
| OCDF | | | | 0.76-1.02 | | | | | | 0.887-1.113 | | | |
| 442-444 | | DC | NL | 0:00 | RO | 0.60 | 0.74 | | | 0.000 | | | |
| | | DC | WL | 31:20 | RO | 0.38 | 0.85 | | | 0.886 | | | |
| | | DC | SN | 31:40 | RO | 0.33 | 0.62 | | | 0.895 | | | |
| | | DC | SN | 31:54 | RO | 0.11 | 0.32 | | | 0.902 | | | |
| | | DC | SN | 32:27 | RO | 0.37 | 0.62 | | | 0.918 | | | |
| | | DC | SN | 32:40 | RO | 0.51 | 0.89 | | | 0.924 | | | |
| | | DC | SN | 33:29 | RO | 2.28 | 0.76 | | | 0.947 | | | |
| | | DC | SN | 33:59 | RO | 0.69 | 0.66 | | | 0.961 | | | |
| | | DC | SN | 34:41 | | 0.96 | 1.80 | | | 0.981 | | | |
| | M | | | 35:29 | | 1.00 | 23.40 | 11.70 | 11.70 | 1.003 | OCDF | | AN |
| | | DC | SN | 35:39 | RO | 1.18 | 1.74 | | | 1.008 | | | |
| | | DC | SN | 35:52 | | 0.91 | 1.62 | | | 1.014 | | | |
| 442-444 | | | 1 Peak | | | | 23.40 | | | | | | |
| OCDD | | | | 0.76-1.02 | | | | | | 0.887-1.113 | | | |
| 458-460 | | DC | NL | 0:00 | RO | 1.25 | 0.30 | | | 0.000 | | | |
| | | DC | SN | 35:09 | | 0.95 | 1.07 | | | 0.994 | | | |
| | M | | | 35:22 | | 0.93 | 33.80 | 16.30 | 17.50 | 1.000 | OCDD | | AN |
| | | DC | SN | 35:34 | RO | 3.30 | 0.43 | | | 1.006 | | | |
| | | DC | SN | 35:41 | RO | 0.44 | 0.51 | | | 1.009 | | | |
| | | DC | SN | 35:47 | RO | 1.09 | 1.66 | | | 1.012 | | | |
| 458-460 | | | 1 Peak | | | | 33.80 | | | | | | |
| 13C12-OCDD | | | | 0.76-1.02 | | | | | | 0.996-1.005 | | | |
| 470-472 | | DC | NL | 0:00 | RO | 1.20 | 0.19 | | | 0.000 | | | |
| | | | | 35:22 | | 0.92 | 2,782.87 | 1,335.35 | 1,447.52 | 1.000 | 13C12-OCDD | | IS8 |
| 470-472 | | | 1 Peak | | | | 2,782.87 | | | | | | |

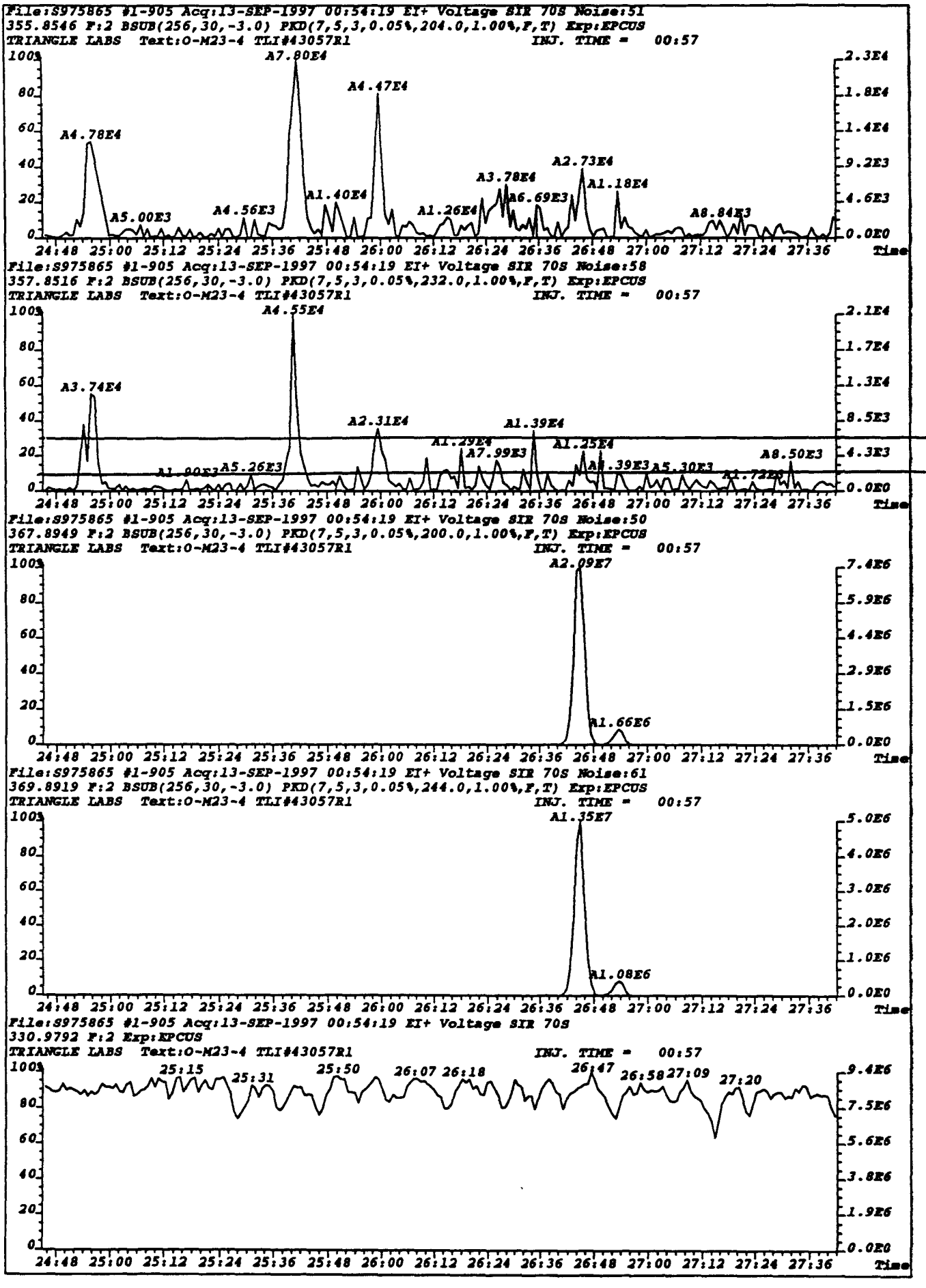
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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 |

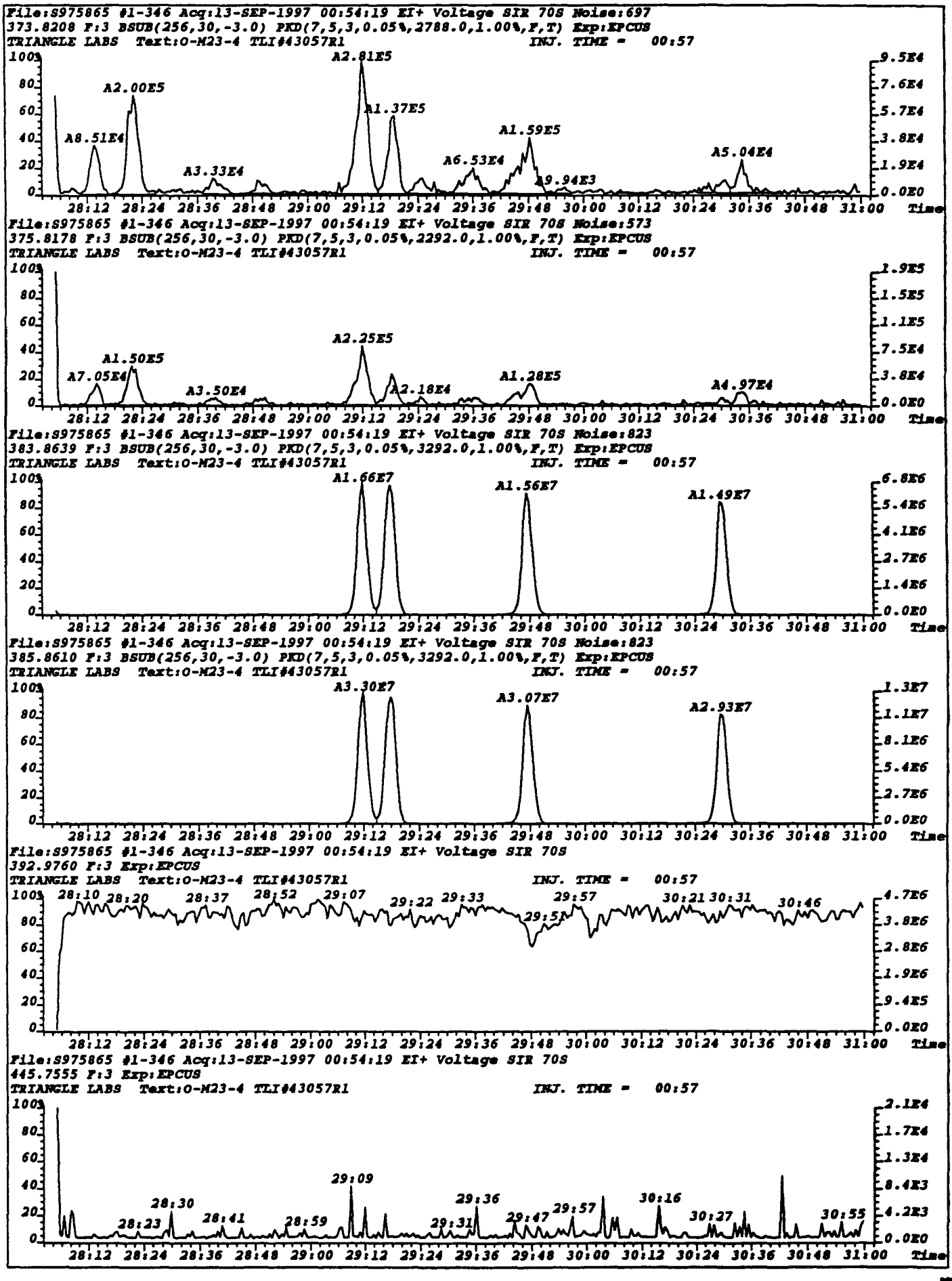
*** End of Report ***

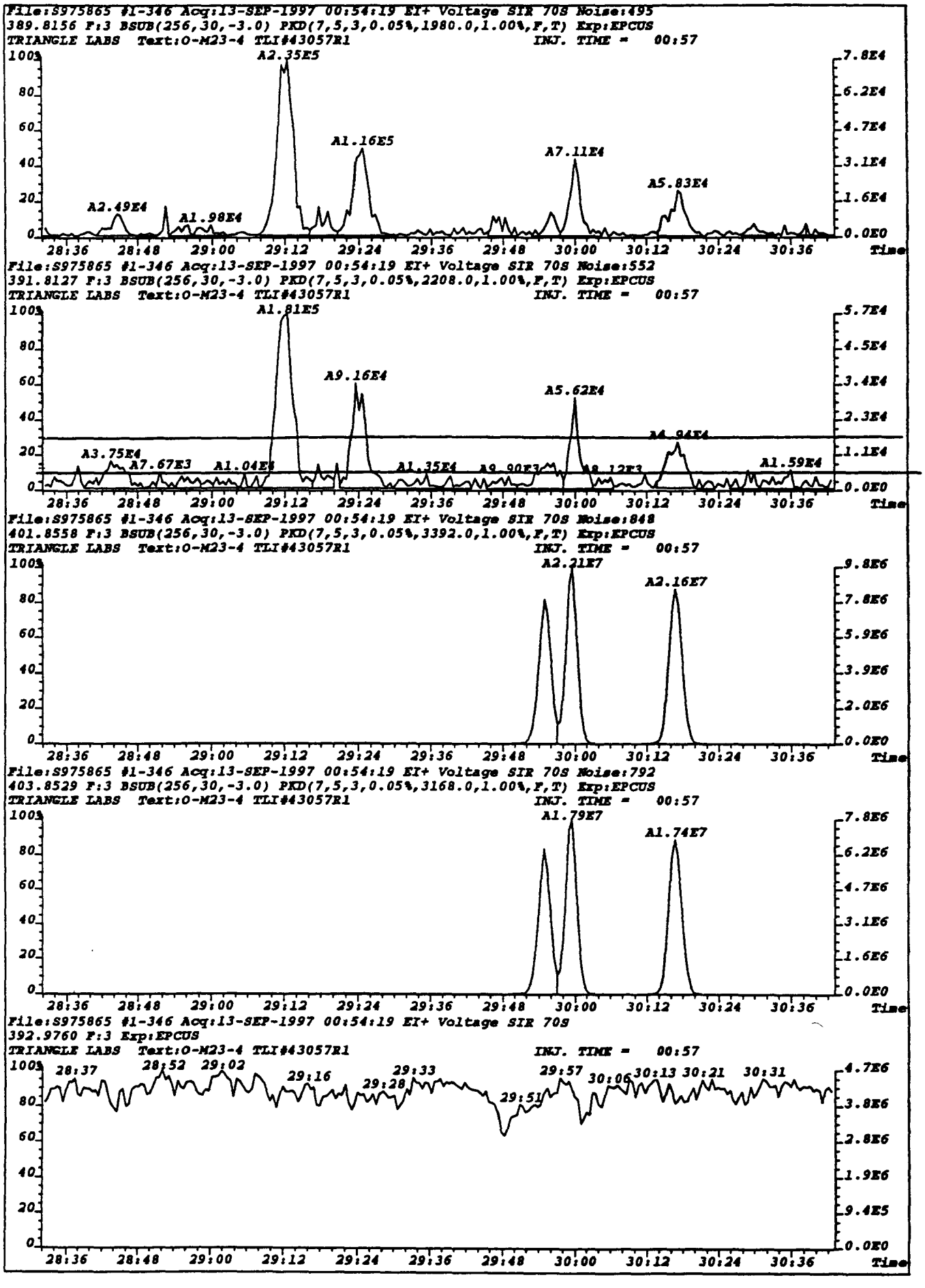

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:65
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.59E4
A1.60E4
A4.53E4
A7.11E4
A9.14E4
A4.64E4
A1.28E5
A1.83E5
A3.60E4
A6.42E3
A5.79E4
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 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-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.94E4
A4.21E4
A1.53E5
A2.14E5
A3.42E4
A9.50E3
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:76
315.9419 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-M23-4 TLI#43057R1
INJ. TIME = 00:57
A3.32E7
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:189
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,756.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A4.35E7
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
18:37
19:16
20:02
21:00
21:19
21:58
22:52
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
18:34
18:20
18:57
19:07
19:31
19:43
20:03
20:17
20:43
21:14
21:42
22:15
22:40
23:01
23:30
Time

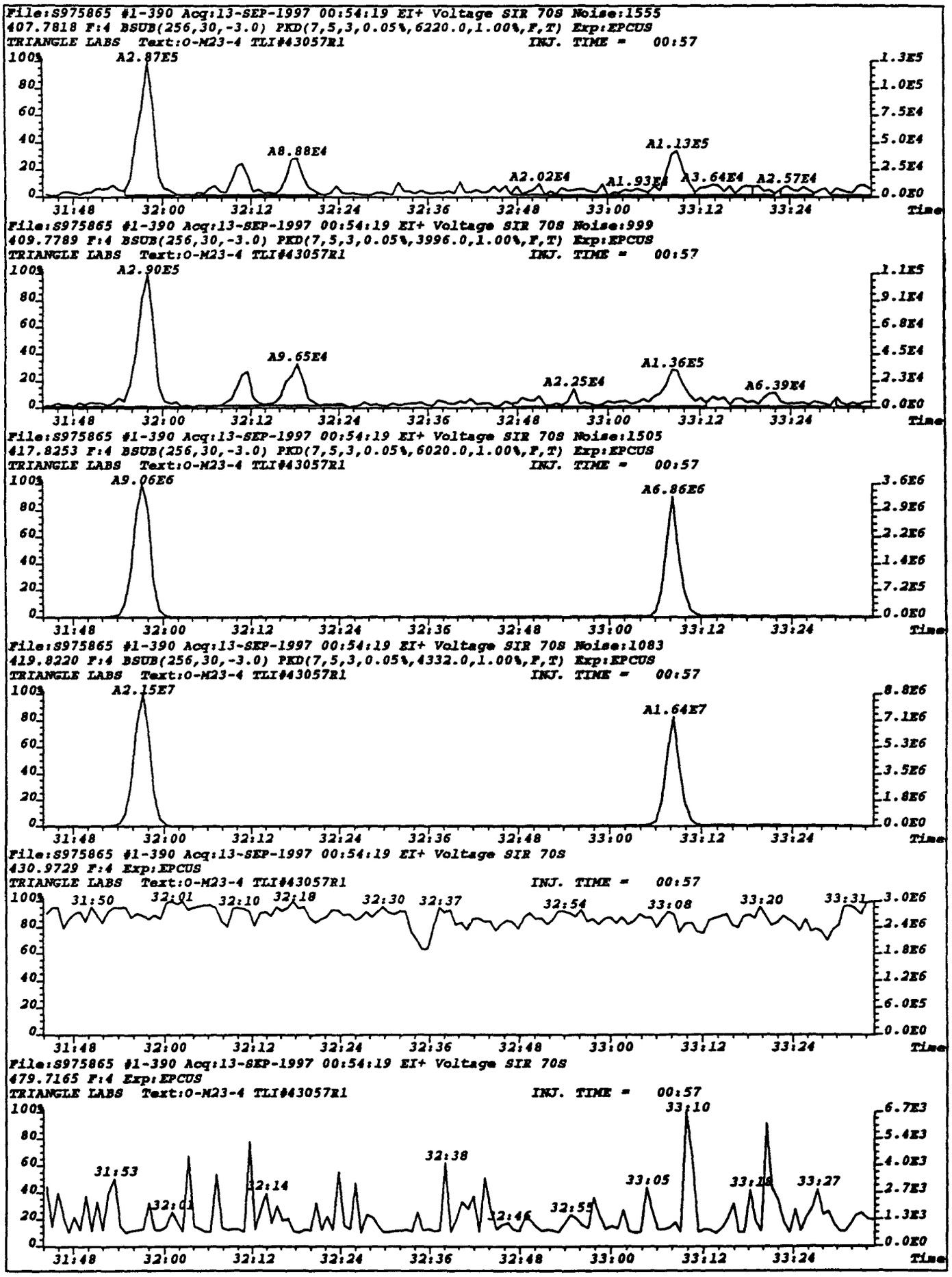

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:208
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,832.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A6.08E4
A2.84E4
A2.08E4
A3.14E4
A1.00E4
A2.78E4
A9.38E3
A7.50E3
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:96
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,384.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A5.84E4
A4.73E4
A1.47E4
A3.78E4
A8.36E3
A7.37E3
A1.72E4
A3.37E3
A5.60E4
A5.77E3
A1.59E4
A1.26E4
A7.88E3
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:655
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2620.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.17E7
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:162
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,648.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.66E7
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:235
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,940.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A4.56E7
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
20:02
21:00
21:19
21:35
21:58
22:15
22:52
23:07
20:00
21:00
22:00
23:00
Time

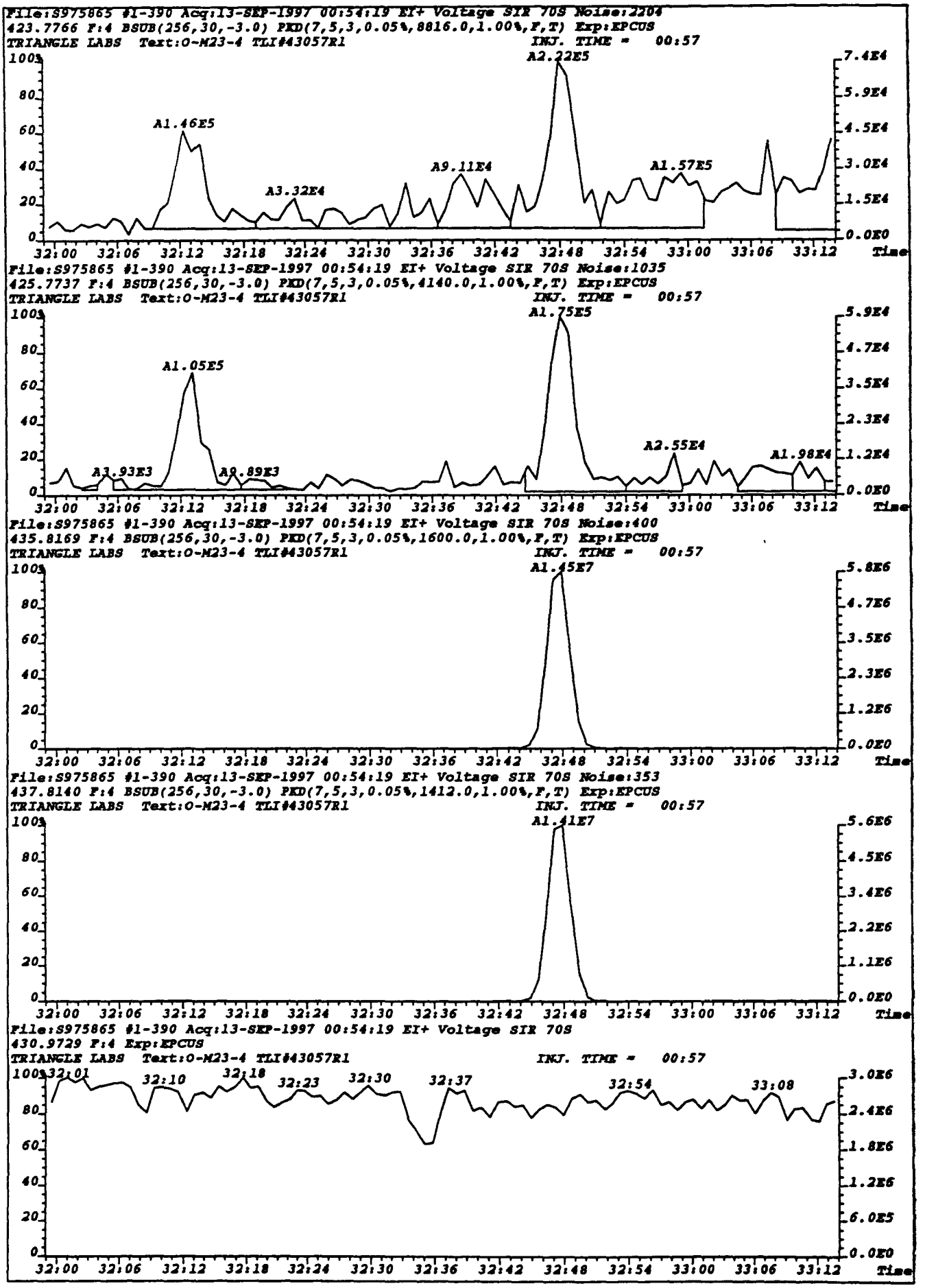

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS Noise:187
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,748.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A6.50E4
A9.30E4
A9.69E4
A1.25E5
A9.66E4
A4.85E4
A2.08E4
A1.96E4
A8.28E3
A2.53E4
A1.64E4
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS Noise:181
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,724.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A6.11E4
A6.61E4
A2.33E4
A2.43E4
A1.26E4
A2.32E4
A4.57E3
A6.82E3
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS Noise:71
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,284.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A3.49E7
A3.14E7
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS Noise:70
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,280.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A2.39E7
A2.19E7
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
24:09
24:25
24:49
25:15
25:34
25:50
26:07
26:47
27:09
27:26
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 7OS
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
23:36
24:00
24:33
24:57
25:09
25:24
25:54
26:36
27:06
27:23
24:00
25:00
26:00
27:00
Time


File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:51
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,204.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A7.80E4
A4.47E4
A4.78E4
A2.73E4
A3.78E4
A1.18E4
A1.40E4
A6.69E3
A5.00E3
A4.56E3
A1.26E4
A8.84E3
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:58
357.8516 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-M23-4 TLI#43057R1
INJ. TIME = 00:57
A4.55E4
A3.74E4
A2.31E4
A1.39E4
A1.29E4
A7.99E3
A1.25E4
A8.50E3
A5.26E3
A5.30E3
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:50
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,200.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.09E7
A1.66E6
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:61
369.8919 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-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.35E7
A1.08E6
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
25:15
25:31
25:50
26:07
26:18
26:47
26:58
27:09
27:20
24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 27:24 27:36 Time


File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:697
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2788.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A2.81E5
A2.00E5
A1.37E5
A8.51E4
A1.59E5
A5.04E4
A6.53E4
A3.33E4
A9.94E3
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:573
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2292.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A2.25E5
A1.50E5
A7.05E4
A1.28E5
A4.97E4
A3.50E4
A2.18E4
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:823
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3292.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A1.66E7
A1.56E7
A1.49E7
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:823
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3292.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
A3.30E7
A3.07E7
A2.93E7
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
28:10 28:20 28:37 28:52 29:07 29:22 29:33 29:51 29:57 30:21 30:31 30:46
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1 INJ. TIME = 00:57
29:09
28:30
28:23
28:41
28:59
29:31
29:36
29:47
29:57
30:16
30:27
30:55
28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 30:24 30:36 30:48 31:00 Time


File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:495
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1980.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.35E5
A1.16E5
A7.11E4
A5.83E4
A2.49E4
A1.98E4
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:552
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.81E5
A9.16E4
A5.62E4
A3.75E4
A7.67E3
A1.04E4
A1.35E4
A1.59E4
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:848
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3392.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.21E7
A2.16E7
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:792
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3168.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.79E7
A1.74E7
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:1555
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,6220.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.87E5
A8.88E4
A2.02E4
A1.93E4
A1.13E5
A3.64E4
A2.57E4
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:999
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3996.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.90E5
A9.65E4
A2.25E4
A1.36E5
A6.39E4
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:1505
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,6020.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A9.06E6
A6.86E6
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:1083
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4332.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A2.15E7
A1.64E7
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
31:50
32:01
32:10
32:18
32:30
32:37
32:54
33:08
33:20
33:31
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
31:53
32:01
32:14
32:38
32:46
32:55
33:05
33:10
33:18
33:27
31:48
32:00
32:12
32:24
32:36
32:48
33:00
33:12
33:24
Time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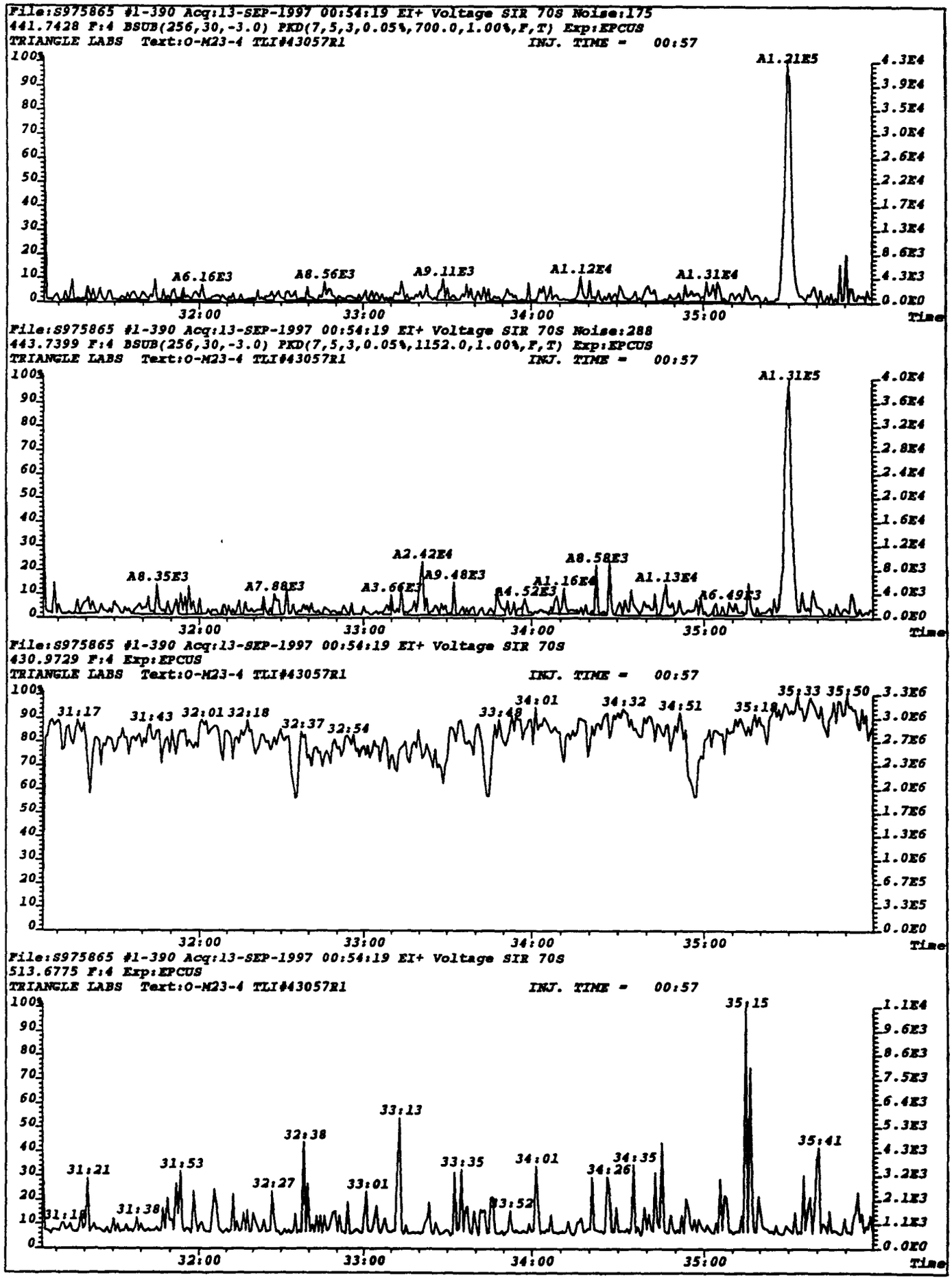
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,8816.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.46E5
A3.32E4
A9.11E4
A2.22E5
A1.57E5
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:1035
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4140.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.05E5
A3.93E3
A9.89E3
A1.75E5
A2.55E4
A1.98E4
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:400
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1600.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.45E7
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:353
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1412.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.41E7
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
32:01
32:10
32:18
32:23
32:30
32:37
32:54
33:08
32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42 32:48 32:54 33:00 33:06 33:12 Time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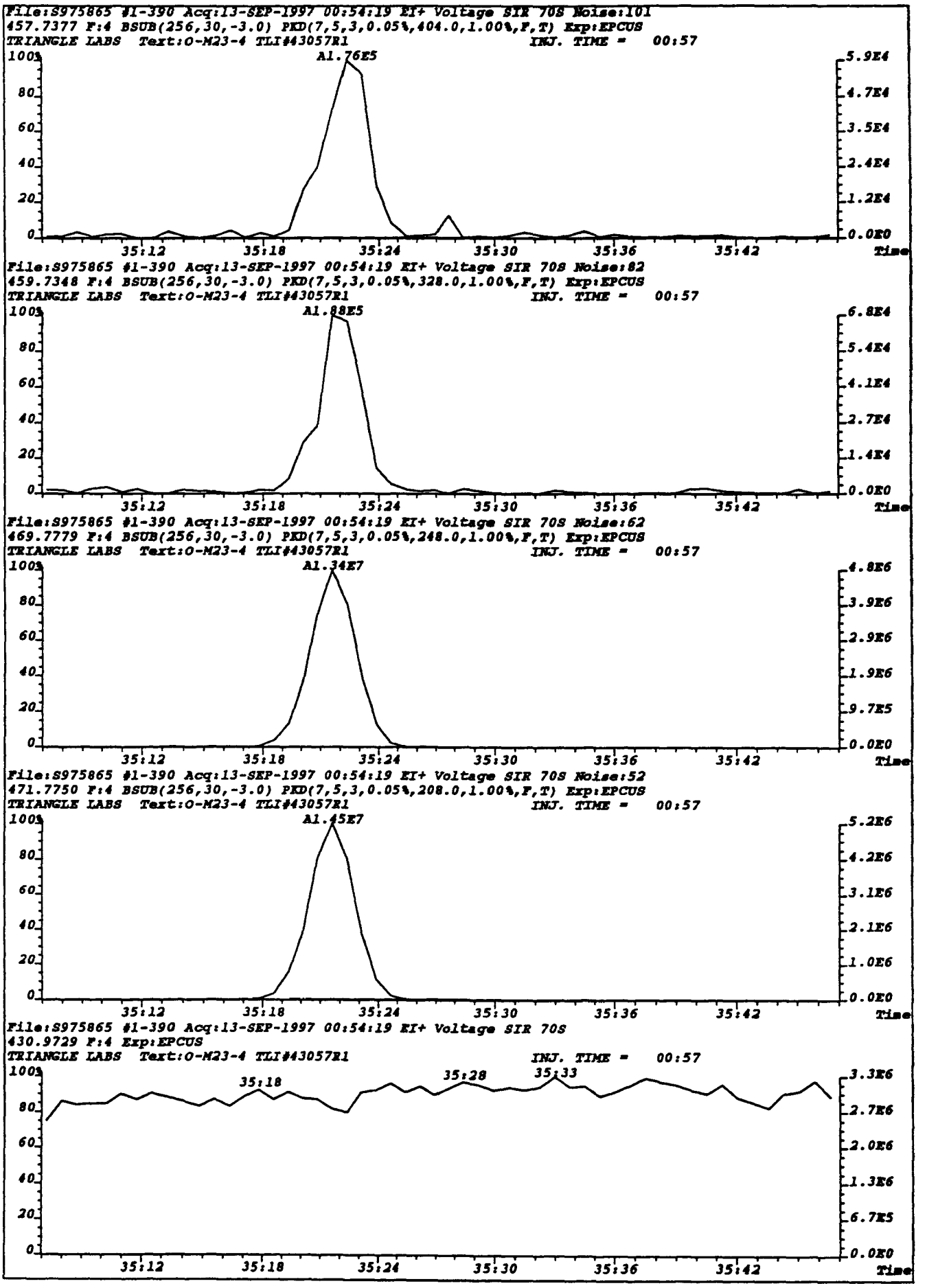
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,700.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.21E5
A6.16E3
A8.56E3
A9.11E3
A1.12E4
A1.31E4
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:288
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.31E5
A8.35E3
A7.88E3
A2.42E4
A9.48E3
A8.58E3
A1.13E4
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
31:17
31:43
32:01
32:18
32:37
32:54
33:48
34:01
34:32
34:51
35:33
35:50
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
35:15
33:13
32:38
31:21
31:53
32:27
33:01
33:35
34:01
34:26
34:35
35:41
31:38
33:52
32:00
33:00
34:00
35:00
Time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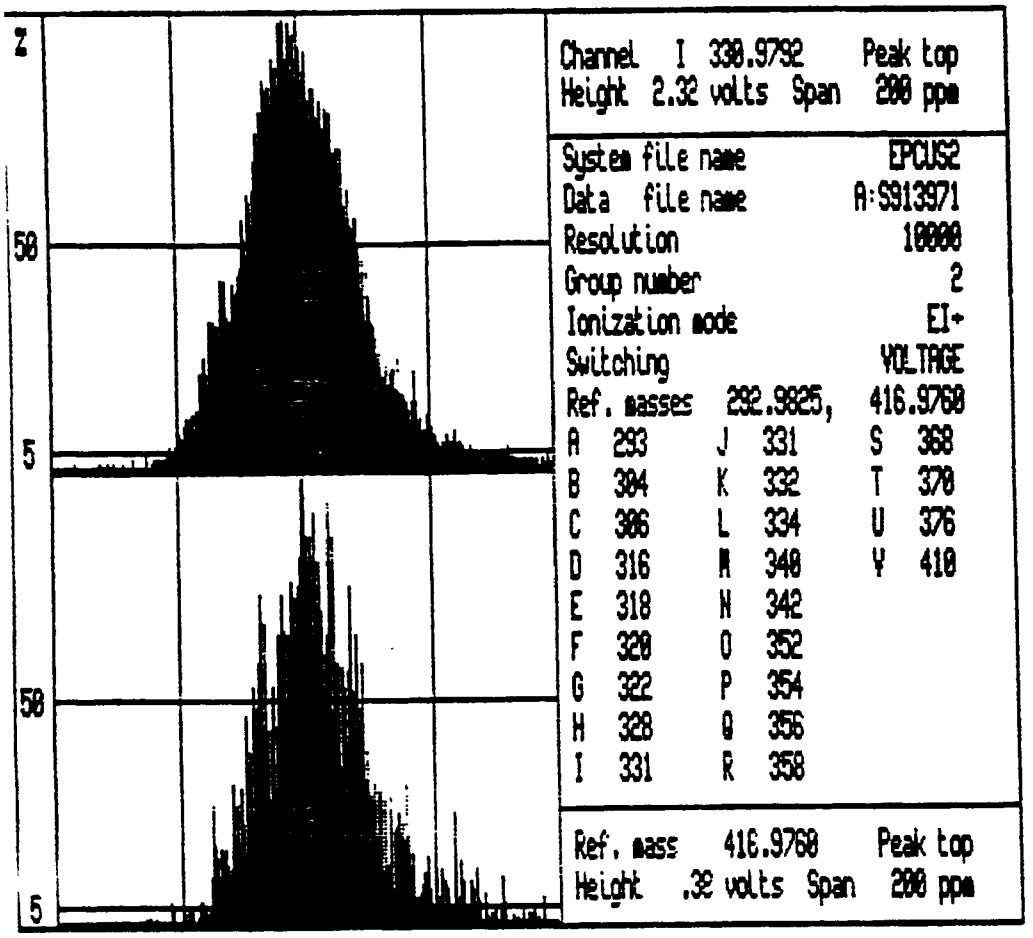
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,404.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.76E5
5.9E4
4.7E4
3.5E4
2.4E4
1.2E4
0.0E0
35:12
35:18
35:24
35:30
35:36
35:42
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:82
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,328.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.88E5
6.8E4
5.4E4
4.1E4
2.7E4
1.4E4
0.0E0
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:62
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,248.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.34E7
4.8E6
3.9E6
2.9E6
1.9E6
9.7E5
0.0E0
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S Noise:52
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,208.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
A1.45E7
5.2E6
4.2E6
3.1E6
2.1E6
1.0E6
0.0E0
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57
35:18
35:28
35:33
3.3E6
2.7E6
2.0E6
1.3E6
6.7E5
0.0E0




Channel I 330.9792 Peak top
Height 2.32 volts Span 200 ppm

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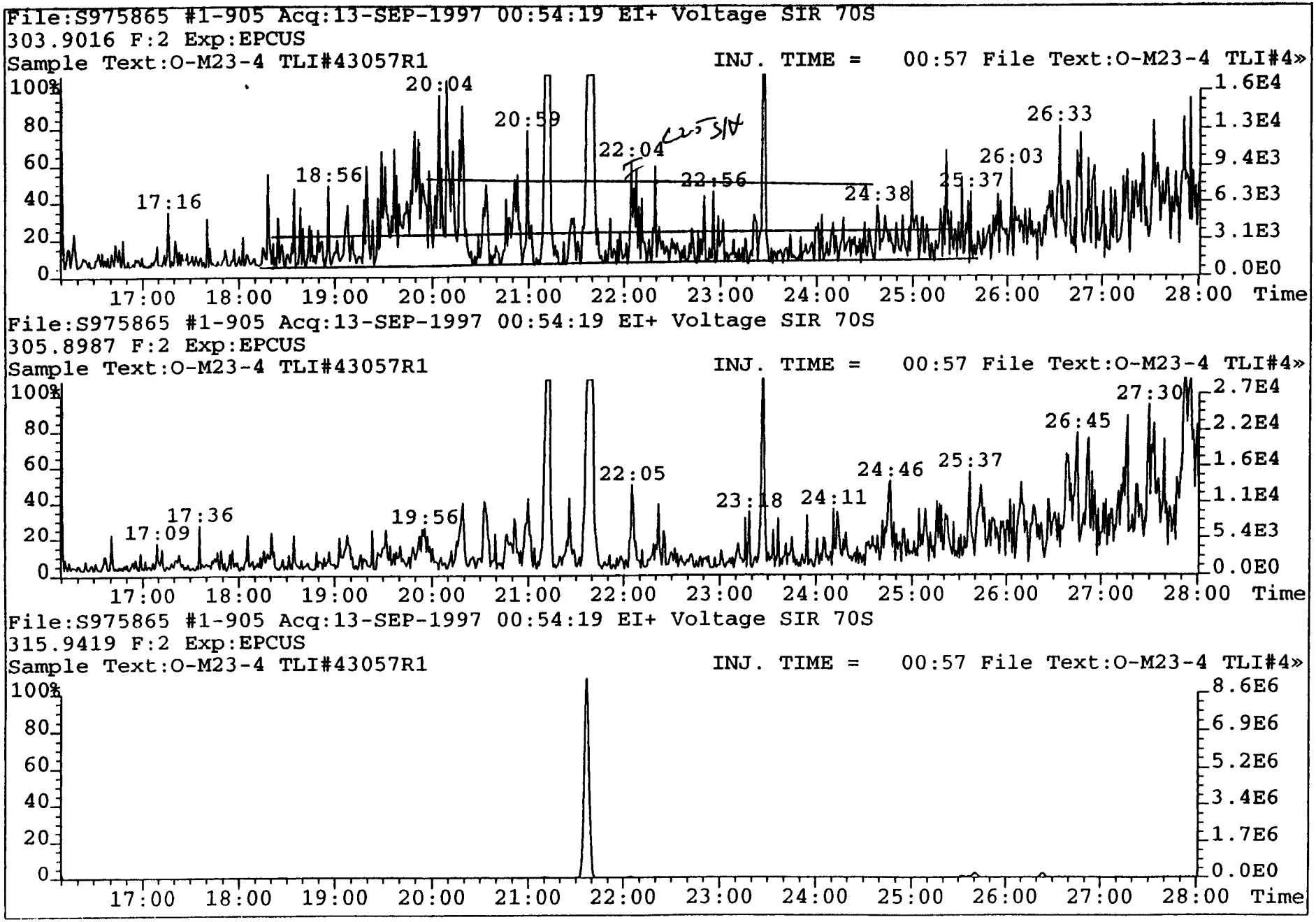
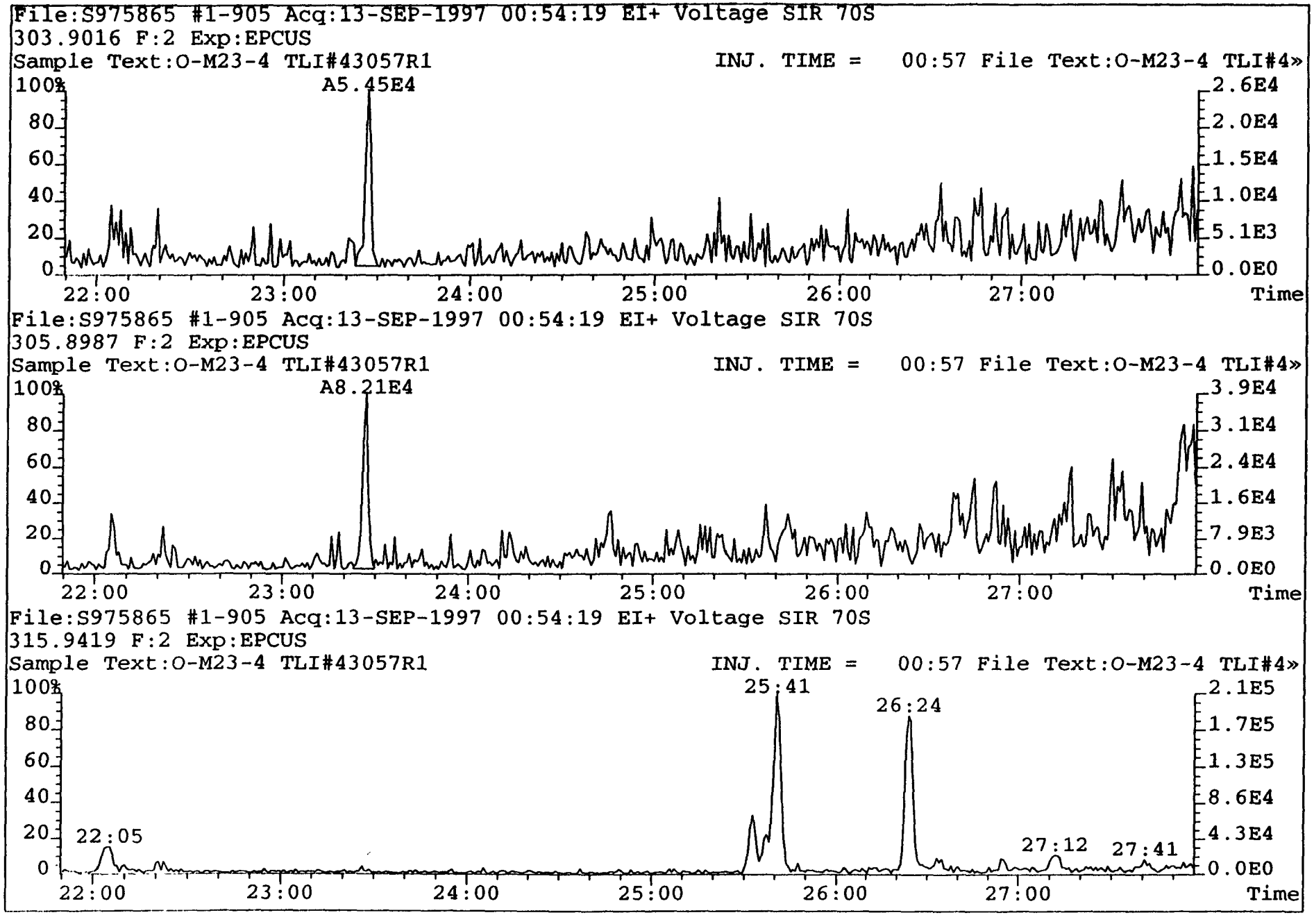
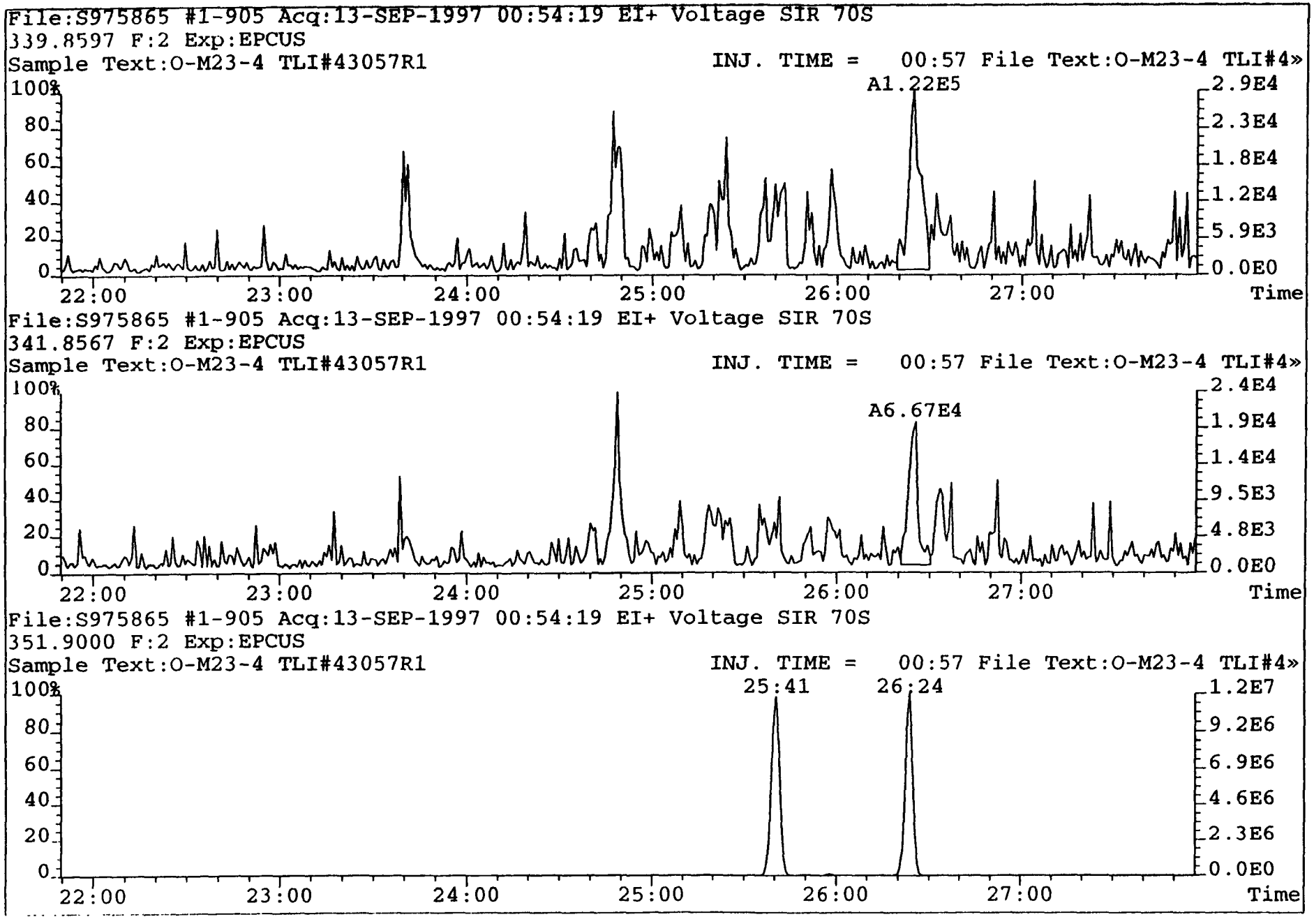
| System file name | EPCUS2 |
| Data file name | A:S913971 |
| Resolution | 10000 |
| Group number | 2 |
| Ionization mode | EI+ |
| Switching | VOLTAGE |
| Ref. masses | 292.9825, 416.9760 |

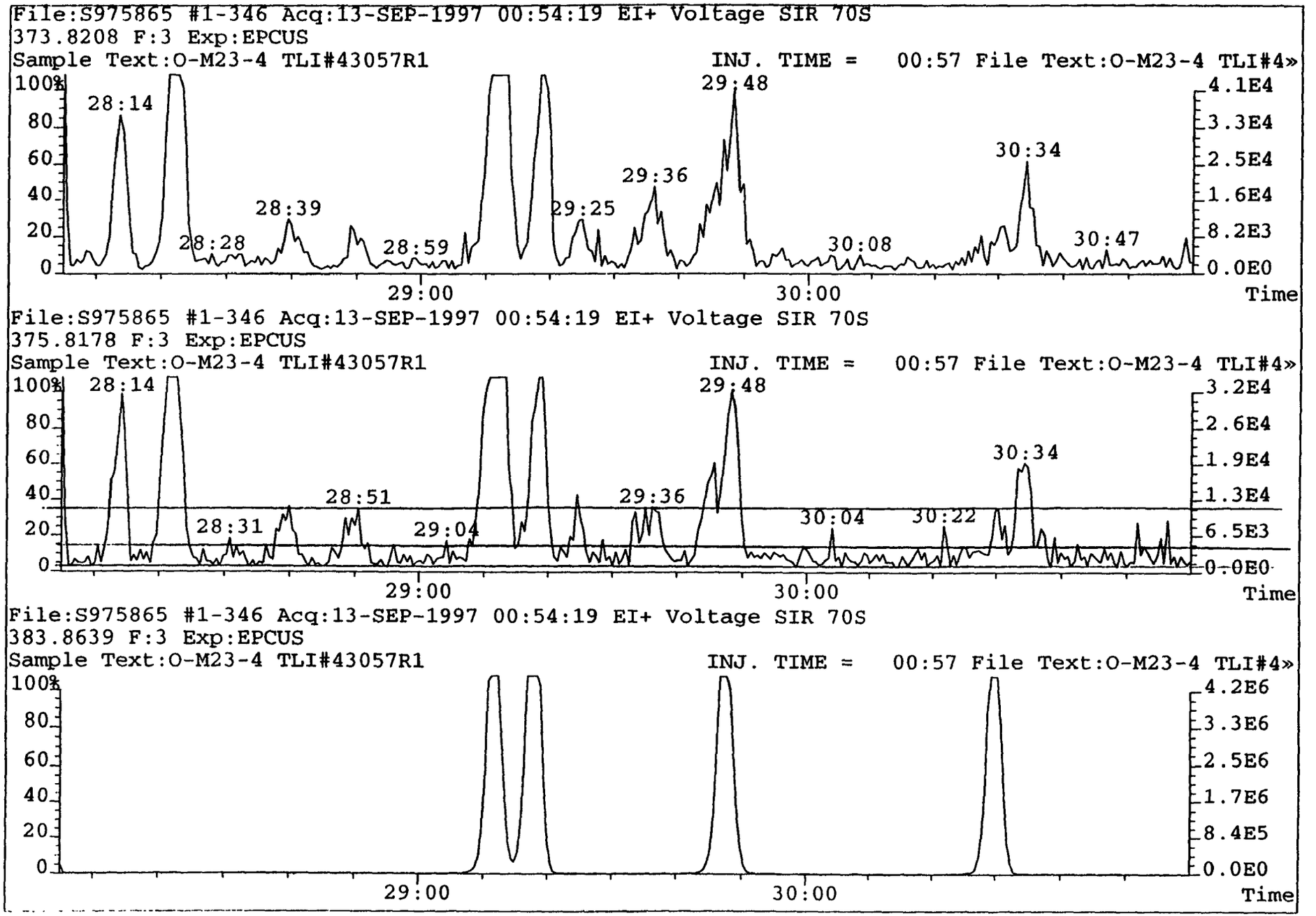
| | | | | | |
|---|---|---|---|---|---|
| A | 293 | J | 331 | S | 368 |
| B | 304 | K | 332 | T | 370 |
| C | 306 | L | 334 | U | 376 |
| D | 316 | M | 340 | V | 410 |
| E | 318 | N | 342 | | |
| F | 320 | O | 352 | | |
| G | 322 | P | 354 | | |
| H | 328 | Q | 356 | | |
| I | 331 | R | 358 | | |

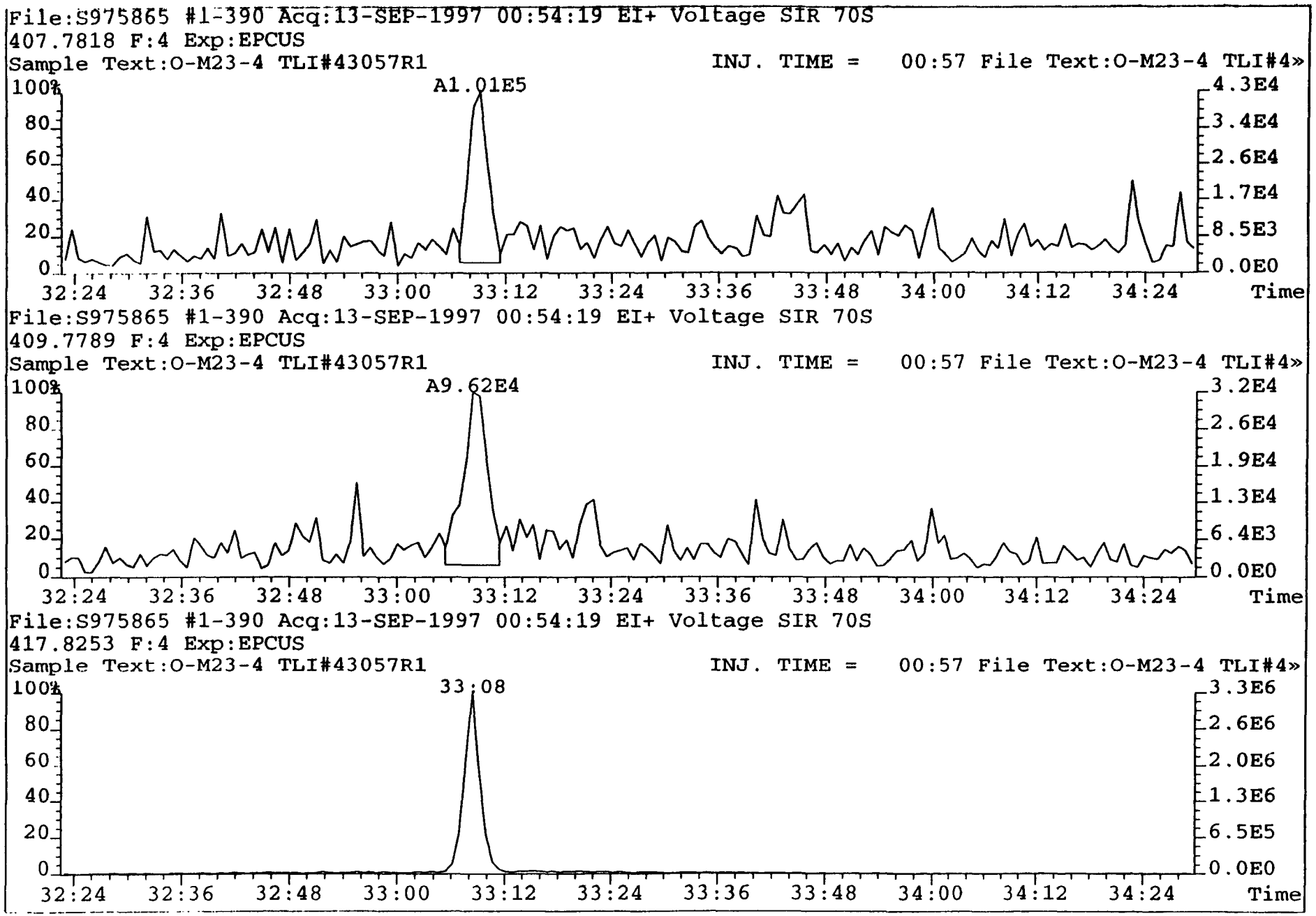
Ref. mass 416.9760 Peak top
Height .32 volts Span 200 ppm

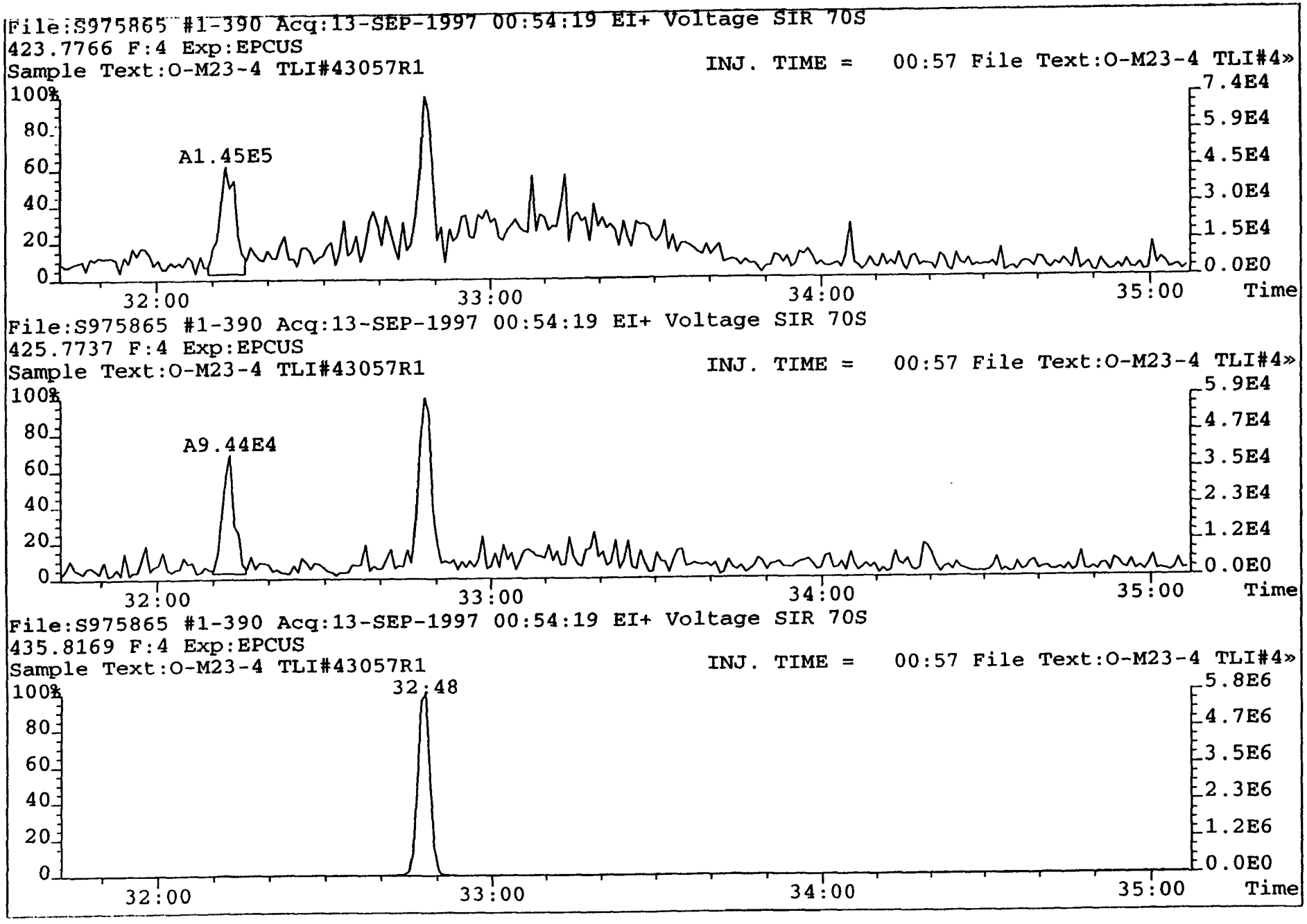

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
17:16
18:56
20:04
20:59
22:04
22:56
24:38
25:37
26:03
26:33
1.6E4
1.3E4
9.4E3
6.3E3
3.1E3
0.0E0
17:00 18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00 27:00 28:00 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
17:09
17:36
19:56
22:05
23:18
24:11
24:46
25:37
26:45
27:30
2.7E4
2.2E4
1.6E4
1.1E4
5.4E3
0.0E0
17:00 18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00 27:00 28:00 Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
8.6E6
6.9E6
5.2E6
3.4E6
1.7E6
0.0E0
17:00 18:00 19:00 20:00 21:00 22:00 23:00 24:00 25:00 26:00 27:00 28:00 Time

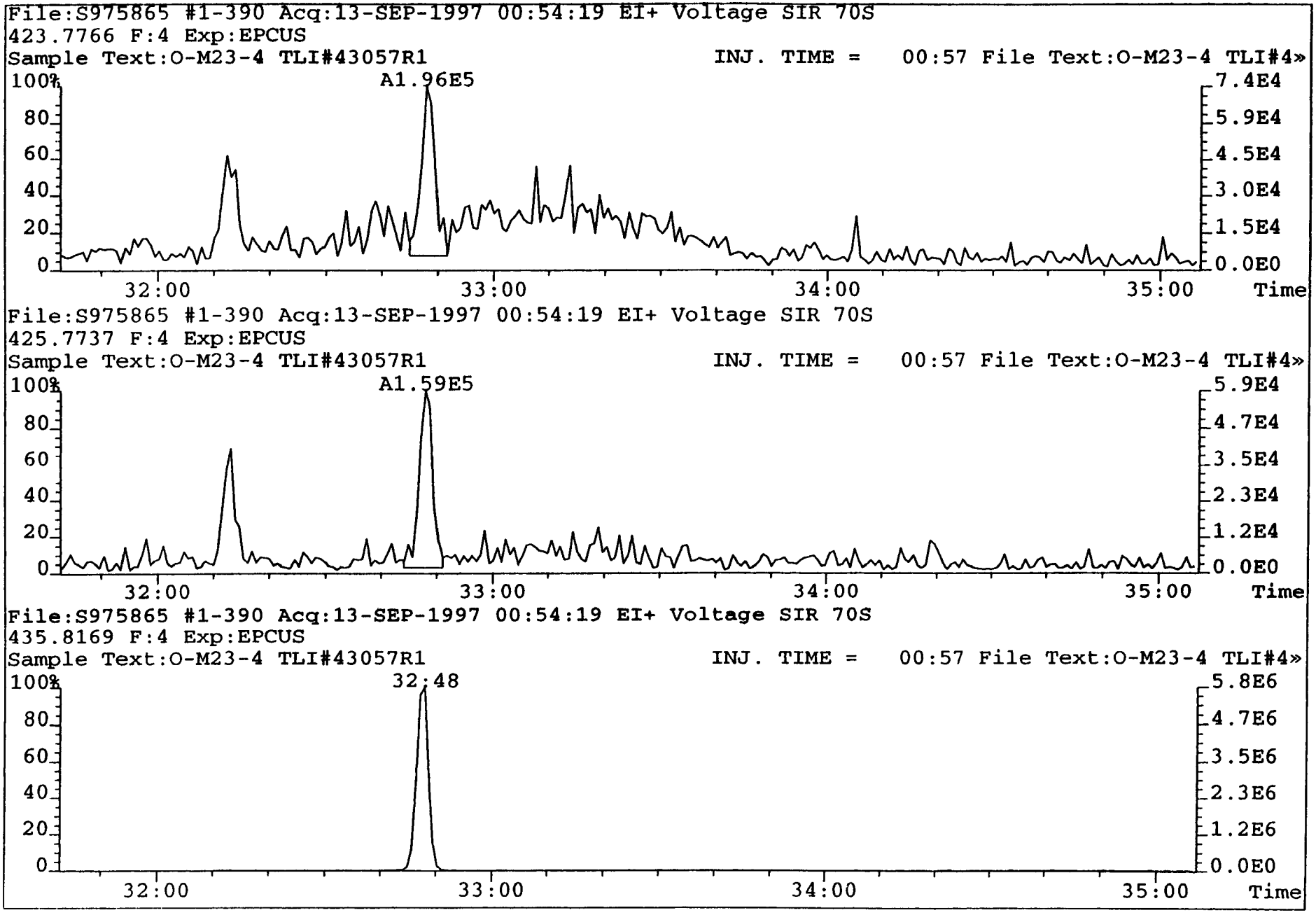

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
303.9016 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A5.45E4
100%
80
60
40
20
0
2.6E4
2.0E4
1.5E4
1.0E4
5.1E3
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
305.8987 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A8.21E4
100%
80
60
40
20
0
3.9E4
3.1E4
2.4E4
1.6E4
7.9E3
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
315.9419 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
25:41
26:24
22:05
27:12
27:41
100%
80
60
40
20
0
2.1E5
1.7E5
1.3E5
8.6E4
4.3E4
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time

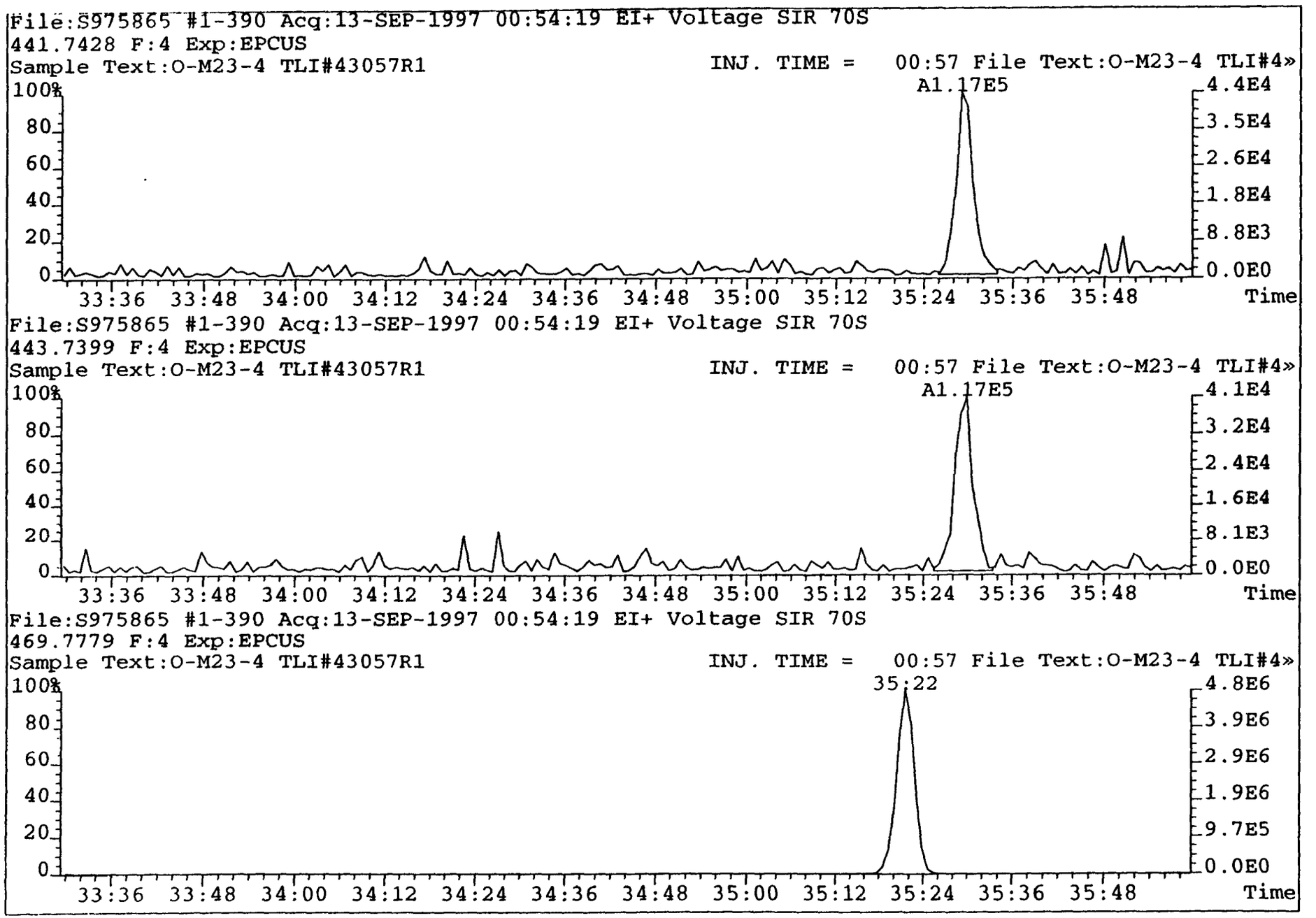

File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
339.8597 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.22E5
100%
80
60
40
20
0
2.9E4
2.3E4
1.8E4
1.2E4
5.9E3
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
341.8567 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A6.67E4
100%
80
60
40
20
0
2.4E4
1.9E4
1.4E4
9.5E3
4.8E3
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time
File:S975865 #1-905 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
351.9000 F:2 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
25:41
26:24
100%
80
60
40
20
0
1.2E7
9.2E6
6.9E6
4.6E6
2.3E6
0.0E0
22:00
23:00
24:00
25:00
26:00
27:00
Time

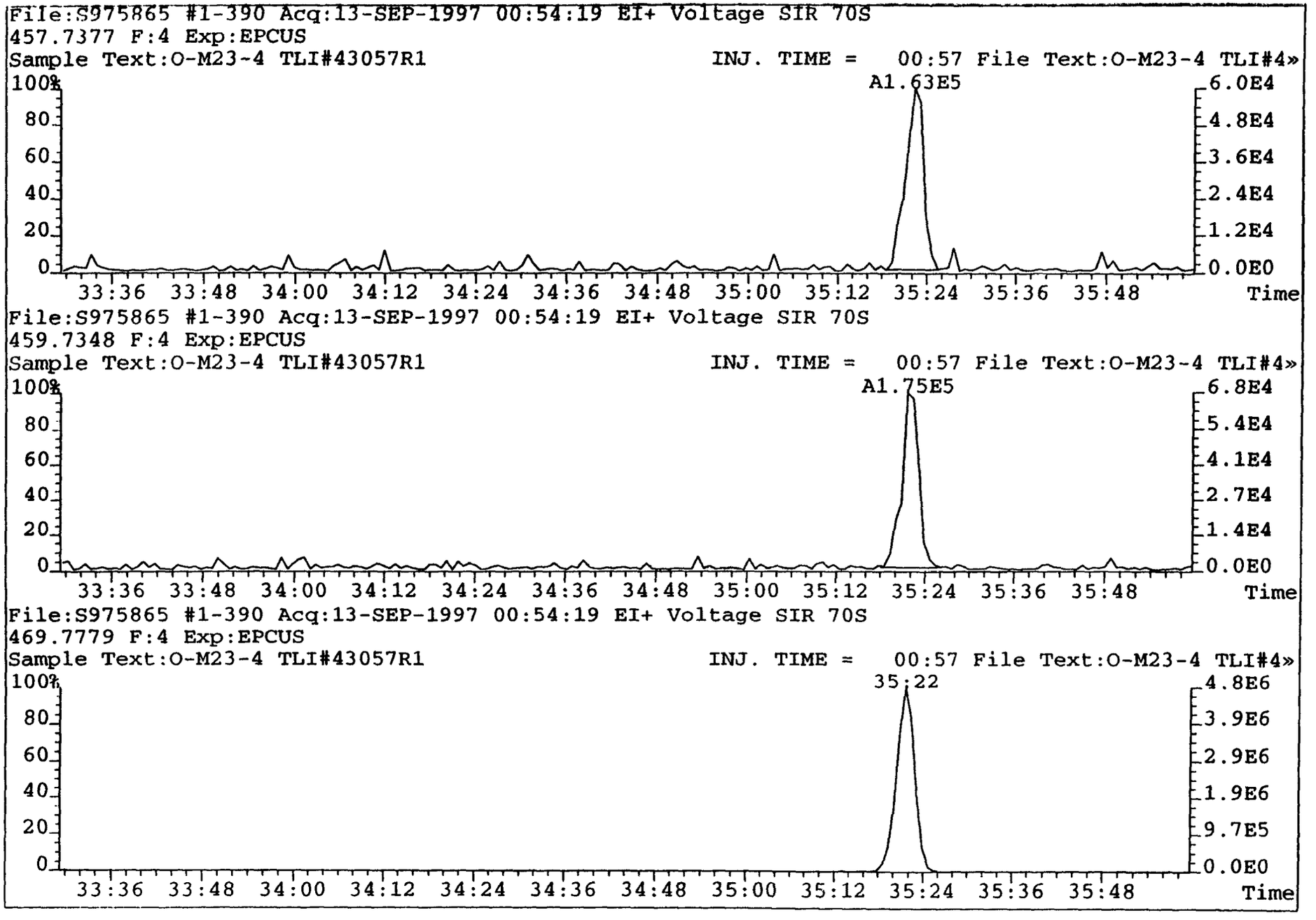

File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
373.8208 F:3 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
80
60
40
20
0
28:14
28:28
28:39
28:59
29:25
29:36
29:48
30:08
30:34
30:47
4.1E4
3.3E4
2.5E4
1.6E4
8.2E3
0.0E0
29:00
30:00
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
375.8178 F:3 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
80
60
40
20
0
28:14
28:31
28:51
29:04
29:36
29:48
30:04
30:22
30:34
3.2E4
2.6E4
1.9E4
1.3E4
6.5E3
0.0E0
29:00
30:00
Time
File:S975865 #1-346 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
383.8639 F:3 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
80
60
40
20
0
4.2E6
3.3E6
2.5E6
1.7E6
8.4E5
0.0E0
29:00
30:00
Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
407.7818 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.01E5
100%
80
60
40
20
0
4.3E4
3.4E4
2.6E4
1.7E4
8.5E3
0.0E0
32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12 34:24 Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
409.7789 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A9.62E4
100%
80
60
40
20
0
3.2E4
2.6E4
1.9E4
1.3E4
6.4E3
0.0E0
32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12 34:24 Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
417.8253 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
33:08
100%
80
60
40
20
0
3.3E6
2.6E6
2.0E6
1.3E6
6.5E5
0.0E0
32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 34:12 34:24 Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.45E5
7.4E4
5.9E4
4.5E4
3.0E4
1.5E4
0.0E0
100%
80
60
40
20
0
32:00
33:00
34:00
35:00
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A9.44E4
5.9E4
4.7E4
3.5E4
2.3E4
1.2E4
0.0E0
100%
80
60
40
20
0
32:00
33:00
34:00
35:00
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
32:48
5.8E6
4.7E6
3.5E6
2.3E6
1.2E6
0.0E0
100%
80
60
40
20
0
32:00
33:00
34:00
35:00
Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
423.7766 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
A1.96E5
80
60
40
20
0
7.4E4
5.9E4
4.5E4
3.0E4
1.5E4
0.0E0
32:00
33:00
34:00
35:00
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
425.7737 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
A1.59E5
80
60
40
20
0
5.9E4
4.7E4
3.5E4
2.3E4
1.2E4
0.0E0
32:00
33:00
34:00
35:00
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
435.8169 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
100%
32:48
80
60
40
20
0
5.8E6
4.7E6
3.5E6
2.3E6
1.2E6
0.0E0
32:00
33:00
34:00
35:00
Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
441.7428 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.17E5
100%
80
60
40
20
0
4.4E4
3.5E4
2.6E4
1.8E4
8.8E3
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
443.7399 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.17E5
100%
80
60
40
20
0
4.1E4
3.2E4
2.4E4
1.6E4
8.1E3
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
35:22
100%
80
60
40
20
0
4.8E6
3.9E6
2.9E6
1.9E6
9.7E5
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time


File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
457.7377 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.63E5
100%
80
60
40
20
0
6.0E4
4.8E4
3.6E4
2.4E4
1.2E4
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
459.7348 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
A1.75E5
100%
80
60
40
20
0
6.8E4
5.4E4
4.1E4
2.7E4
1.4E4
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time
File:S975865 #1-390 Acq:13-SEP-1997 00:54:19 EI+ Voltage SIR 70S
469.7779 F:4 Exp:EPCUS
Sample Text:O-M23-4 TLI#43057R1
INJ. TIME = 00:57 File Text:O-M23-4 TLI#4»
35:22
100%
80
60
40
20
0
4.8E6
3.9E6
2.9E6
1.9E6
9.7E5
0.0E0
33:36 33:48 34:00 34:12 34:24 34:36 34:48 35:00 35:12 35:24 35:36 35:48
Time

# Pacific Environmental Services

TLI Project: 43057r1 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: O-M23-4 — Analysis File: P973849

| | | | | | |
|---|---|---|---|---|---|
| Client Project: | ASPHALT PLANT "A" | | | | |
| Sample Matrix: | M23TRAIN | Date Received: | 08/29/97 | Spike File: | SPC2NF04 |
| TLI ID: | 181-27-6A-C | Date Extracted: | 09/06/97 | 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: | P973848 | % Lipid: | n/a |
| GC Column: | DB-225 | Analyst: | WK | % Solids: | n/a |

| Analytes | Amt. (ng) | DL | EMPC | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| 2,3,7,8-TCDF | ND | 0.01 | | | | — |

| Internal Standard | Amt. (ng) | % Recovery | QC Limits | Ratio | RT | Flags |
|---|---|---|---|---|---|---|
| $^{13}C_{12}$-2,3,7,8-TCDF | 4.1 | 104 | 40%-130% | 0.76 | 20:42 | — |

| Recovery Standard | Ratio | RT | Flags |
|---|---|---|---|
| $^{13}C_{12}$-1,2,3,4-TCDD | 0.81 | 19:47 | — |

Data Reviewer: _____ 09/14/97



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: 17:55 09/14/97

Initial ....Date...

Data Review By: VC 9/14/97 Calculated Noise Area: 2.55

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

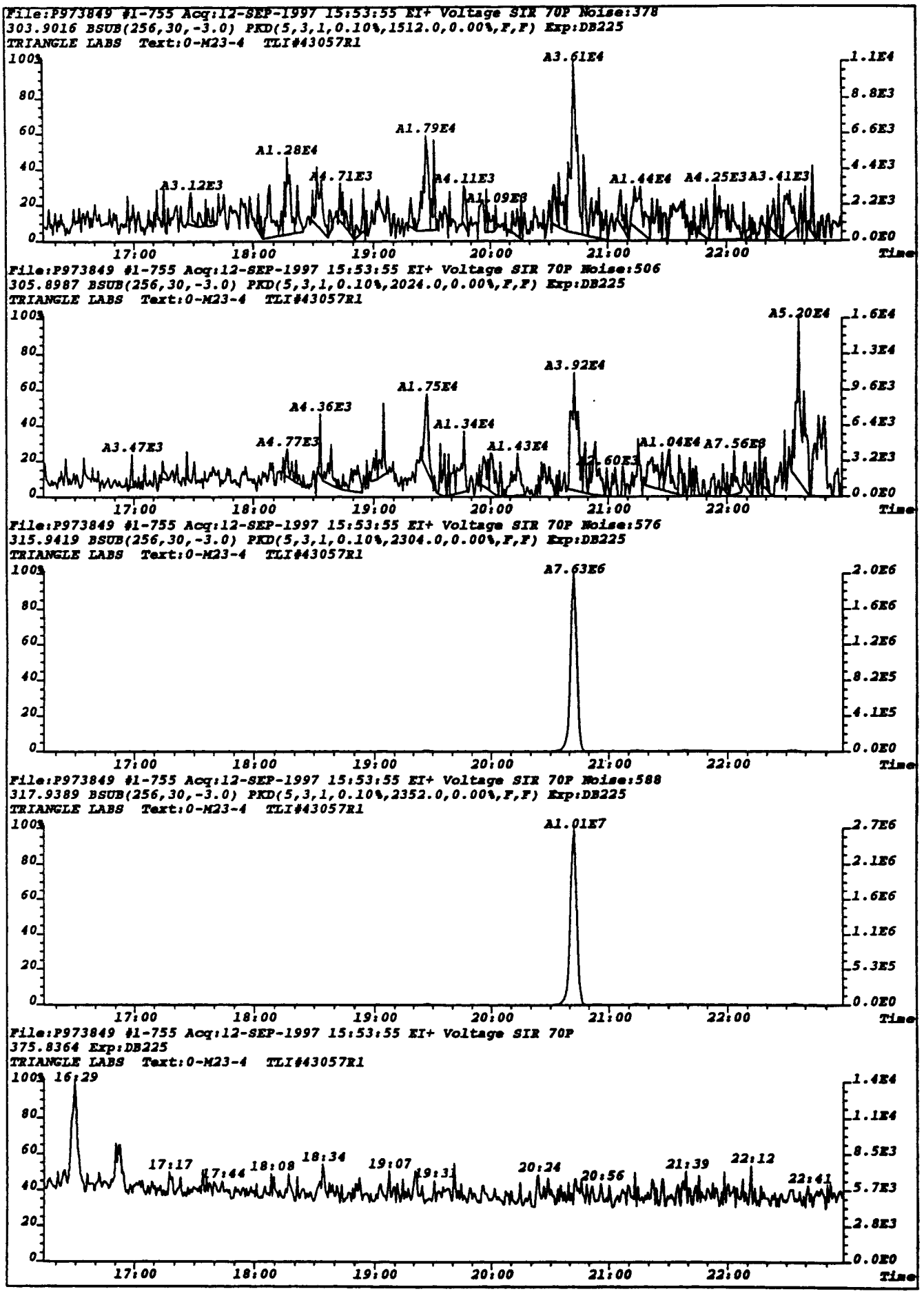
Page No. 1 Listing of P973849B.dbf
09/14/97 Matched GC Peaks / Ratio / Ret. Time

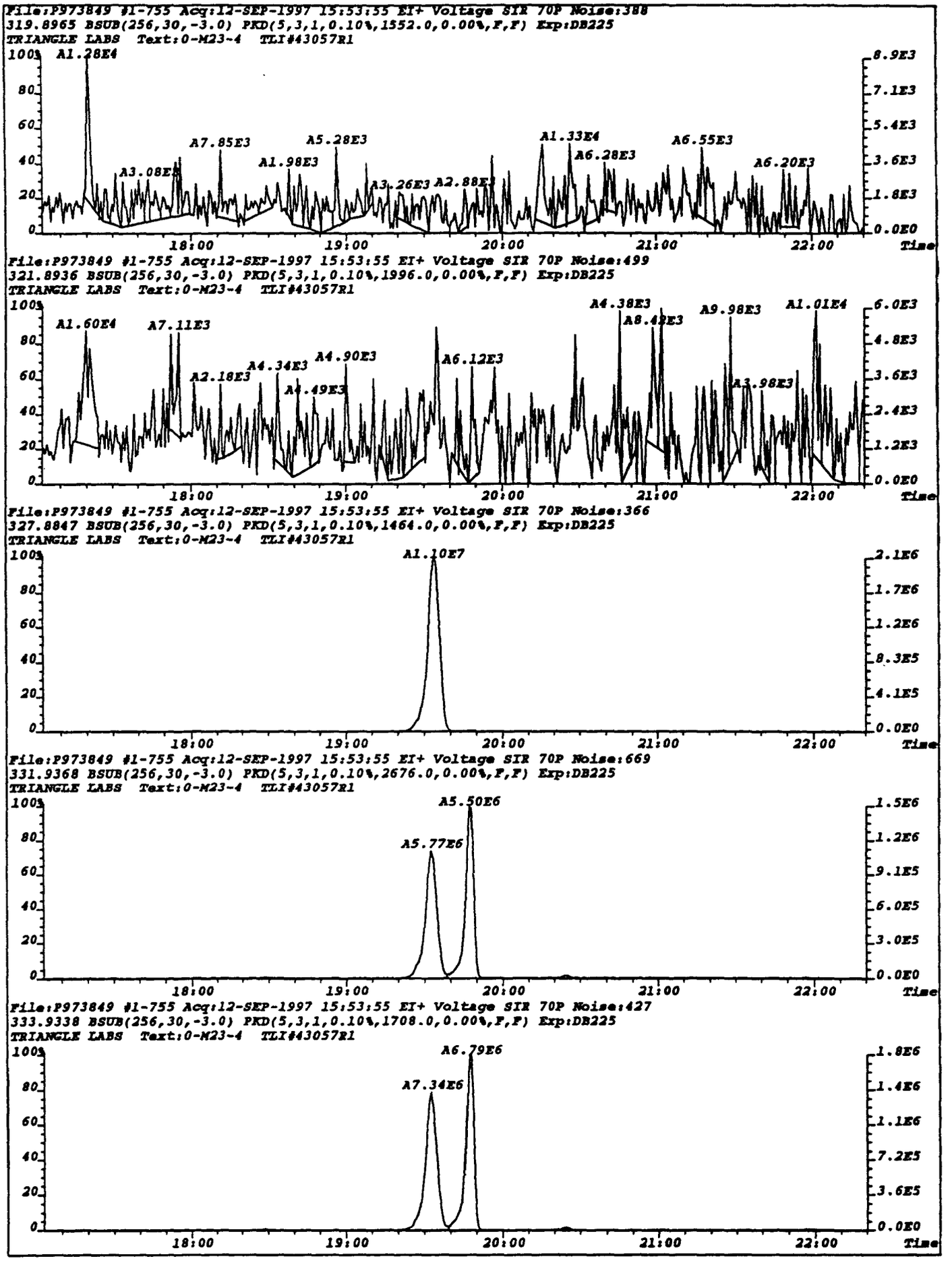
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCDF | | | | 0.65-0.89 | | | | | | 0.786-1.096 | | | |
| 304-306 | DC | NL | | 0:00 | | 0.75 | 1.77 | | | 0.000 | | | |
| | DC | SN | | 18:17 | RO | 2.67 | 0.85 | | | 0.883 | | | |
| | DC | SN | | 18:22 | RO | 1.31 | 0.57 | | | 0.887 | | | |
| | DC | SN | | 18:32 | RO | 2.68 | 0.78 | | | 0.895 | | | |
| | DC | SN | | 18:38 | RO | 0.22 | 0.44 | | | 0.900 | | | |
| | DC | SN | | 18:43 | RO | 2.04 | 0.41 | | | 0.904 | | | |
| | DC | SN | | 18:51 | RO | 0.13 | 0.28 | | | 0.911 | | | |
| | DC | SN | | 19:27 | RO | 1.02 | 3.10 | | | 0.940 | | | |
| | DC | SN | | 19:46 | RO | 0.31 | 0.94 | | | 0.955 | | | |
| | DC | SN | | 19:58 | RO | 0.29 | 0.46 | | | 0.965 | | | |
| | DC | SN | | 19:59 | RO | 0.27 | 0.60 | | | 0.965 | | | |
| | DC | SN | | 20:03 | RO | 0.39 | 0.25 | | | 0.969 | | | |
| | DC | SN | | 20:14 | RO | 0.24 | 0.80 | | | 0.977 | | | |
| D | d | SN | | 20:43 | RO | 0.92 | 6.94 | | | 1.001 | 2378-TCDF | | AN |
| | DC | SN | | 20:48 | RO | 1.11 | 1.15 | | | 1.005 | | | |
| | DC | SN | | 20:56 | RO | 0.61 | 2.32 | | | 1.011 | | | |
| | DC | SN | | 20:59 | RO | 1.46 | 0.46 | | | 1.014 | | | |
| | DC | SN | | 21:22 | RO | 0.64 | 1.86 | | | 1.032 | | | |
| | DC | SN | | 21:28 | | 0.85 | 0.72 | | | 1.037 | | | |
| | DC | SN | | 21:50 | RO | 3.11 | 0.34 | | | 1.055 | | | |
| | DC | SN | | 21:57 | RO | 4.88 | 0.57 | | | 1.060 | | | |
| | DC | SN | | 22:12 | RO | 0.28 | 0.34 | | | 1.072 | | | |
| 304-306 | | | 0 | Peaks | | | 0.00 | | | | | | |
| 13C12-TCDF | | | | 0.65-0.89 | | | | | | 0.952-1.048 | | | |
| 316-318 | DC | NL | | 0:00 | RO | 0.97 | 2.09 | | | 0.000 | | | |
| | DC | WL | | 19:01 | RO | 1.25 | 1.15 | | | 0.919 | | | |
| | DC | WL | | 19:26 | | 0.78 | 6.21 | | | 0.939 | | | |
| | DC | SN | | 20:17 | RO | 3.24 | 0.65 | | | 0.980 | | | |
| | | | | 20:42 | | 0.76 | 1,768.72 | 763.37 | 1,005.35 | 1.000 | 13C12-2378-TCDF | | ISO |
| | DC | SN | | 20:52 | RO | 0.26 | 1.38 | | | 1.008 | | | |
| | DC | SN | | 21:02 | RO | 0.63 | 0.90 | | | 1.016 | | | |
| | | | | 21:14 | RO | 1.11 | 5.45 | 3.43 | 3.08 | 1.026 | | | |
| | DC | WH | | 22:35 | | 0.85 | 14.24 | | | 1.091 | | | |
| 316-318 | | | 2 | Peaks | | | 1,774.17 | | | | | | |
| ---------- Above: TCDF / TCDD Follows ---------- | | | | | | | | | | | | | |
| 13C12-TCDD | | | | 0.65-0.89 | | | | | | 0.897-1.103 | | | |
| 332-334 | DC | NL | | 0:00 | RO | 1.58 | 1.50 | | | 0.000 | | | |
| | | | | 18:28 | | 0.67 | 5.39 | 2.16 | 3.23 | 0.945 | | | |
| | | | | 19:33 | | 0.79 | 1,310.93 | 576.92 | 734.01 | 1.000 | 13C12-2378-TCDD | | IS1 |
| | | | | 19:47 | | 0.81 | 1,229.21 | 550.46 | 678.75 | 1.012 | 13C12-1234-TCDD | | RS1 |

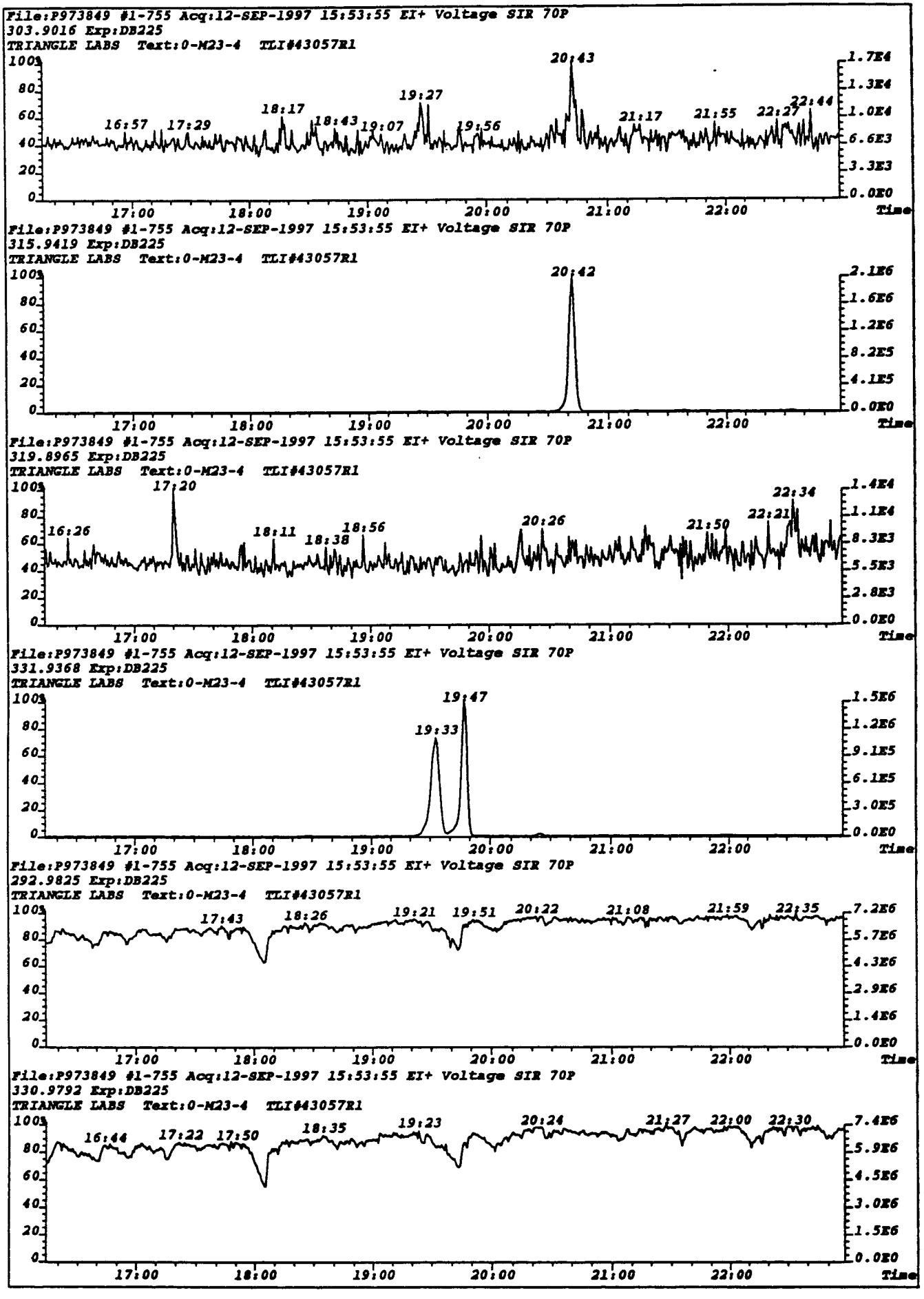
| Compound/ M_Z.... | QC.Log | Omit | Why | ..RT. | OK | Ratio | Total.Area... | Area.Peak.1.. | Area.Peak.2.. | Rel.RT | Compound.Name.. | ID.. | Flags. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DC | SN | | 19:55 | RO | 1.02 | 1.65 | | | 1.019 | | | |
| | DC | SN | | 20:01 | RO | 0.34 | 0.53 | | | 1.024 | | | |
| | | | | 20:25 | RO | 0.93 | 16.78 | 8.78 | 9.48 | 1.044 | | | |
| | DC | SN | | 20:57 | RO | 0.36 | 1.72 | | | 1.072 | | | |
| | DC | SN | | 21:08 | RO | 0.62 | 0.78 | | | 1.081 | | | |
| | DC | SN | | 21:13 | | 0.73 | 1.75 | | | 1.085 | | | |
| | DC | SN | | 21:17 | RO | 1.37 | 0.81 | | | 1.089 | | | |
| | DC | WH | | 21:42 | RO | 3.11 | 0.48 | | | 1.110 | | | |
| | DC | WH | | 21:57 | | 0.68 | 9.31 | | | 1.123 | | | |
| 332-334 | | | 4 Peaks | | | | 2,562.31 | | | | | | |

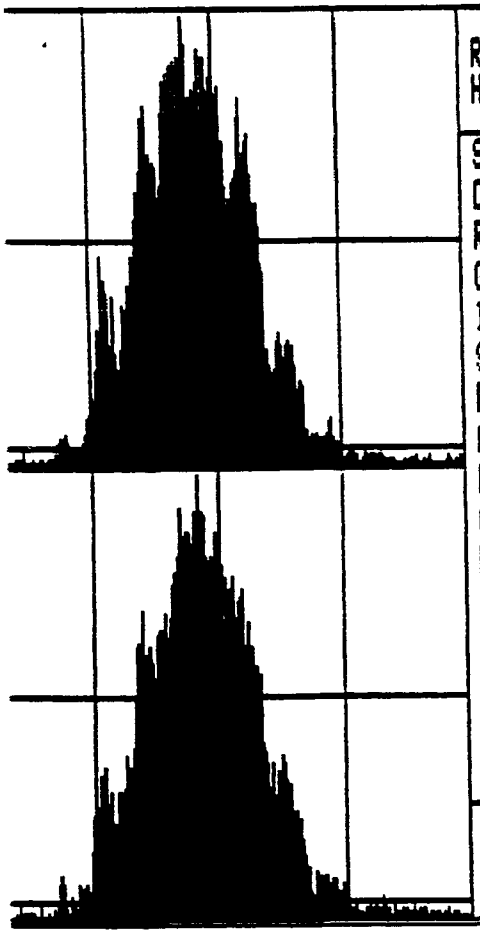
| Column Description..... | "Why" Code Description..... | QC Log Desc..... |
|---|---|---|
| M_Z -Nominal Ion Mass(es) | WL-Below Retention Time Window | A-Peak Added |
| ..RT. -Retention Time (mm:ss) | WH-Above Retention Time Window | K-Peak Kept |
| Rat.1 -Ratio of M/M+2 Ions | SN-Below Signal to Noise 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:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:378
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1512.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A3.61E4
A1.79E4
A1.28E4
A3.12E3
A4.71E3
A4.11E3
A1.09E3
A1.44E4
A4.25E3
A3.41E3
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:506
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2024.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A5.20E4
A3.92E4
A1.75E4
A4.36E3
A1.34E4
A3.47E3
A4.77E3
A1.43E4
A1.04E4
A7.56E3
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:576
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2304.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A7.63E6
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:588
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2352.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A1.01E7
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
16:29
17:17
17:44
18:08
18:34
19:07
19:31
20:24
20:56
21:39
22:12
22:41
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:388
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1552.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A1.28E4
A7.85E3
A5.28E3
A1.98E3
A3.08E3
A3.26E3
A2.88E3
A1.33E4
A6.28E3
A6.55E3
A6.20E3
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:499
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1996.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A1.60E4
A7.11E3
A2.18E3
A4.34E3
A4.49E3
A4.90E3
A6.12E3
A4.38E3
A8.42E3
A9.98E3
A3.98E3
A1.01E4
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:366
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1464.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A1.10E7
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:669
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2676.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A5.50E6
A5.77E6
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P Noise:427
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1708.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
A6.79E6
A7.34E6
18:00
19:00
20:00
21:00
22:00
Time


File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
20:43
19:27
18:17
16:57
17:29
18:43
19:07
19:56
21:17
21:55
22:27
22:44
1.7E4
1.3E4
1.0E4
6.6E3
3.3E3
0.0E0
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
20:42
2.1E6
1.6E6
1.2E6
8.2E5
4.1E5
0.0E0
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
17:20
16:26
18:11
18:38
18:56
20:26
21:50
22:21
22:34
1.4E4
1.1E4
8.3E3
5.5E3
2.8E3
0.0E0
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
19:47
19:33
1.5E6
1.2E6
9.1E5
6.1E5
3.0E5
0.0E0
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
17:43
18:26
19:21
19:51
20:22
21:08
21:59
22:35
7.2E6
5.7E6
4.3E6
2.9E6
1.4E6
0.0E0
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:0-M23-4 TLI#43057R1
16:44
17:22
17:50
18:35
19:23
20:24
21:27
22:00
22:30
7.4E6
5.9E6
4.5E6
3.0E6
1.5E6
0.0E0
Time

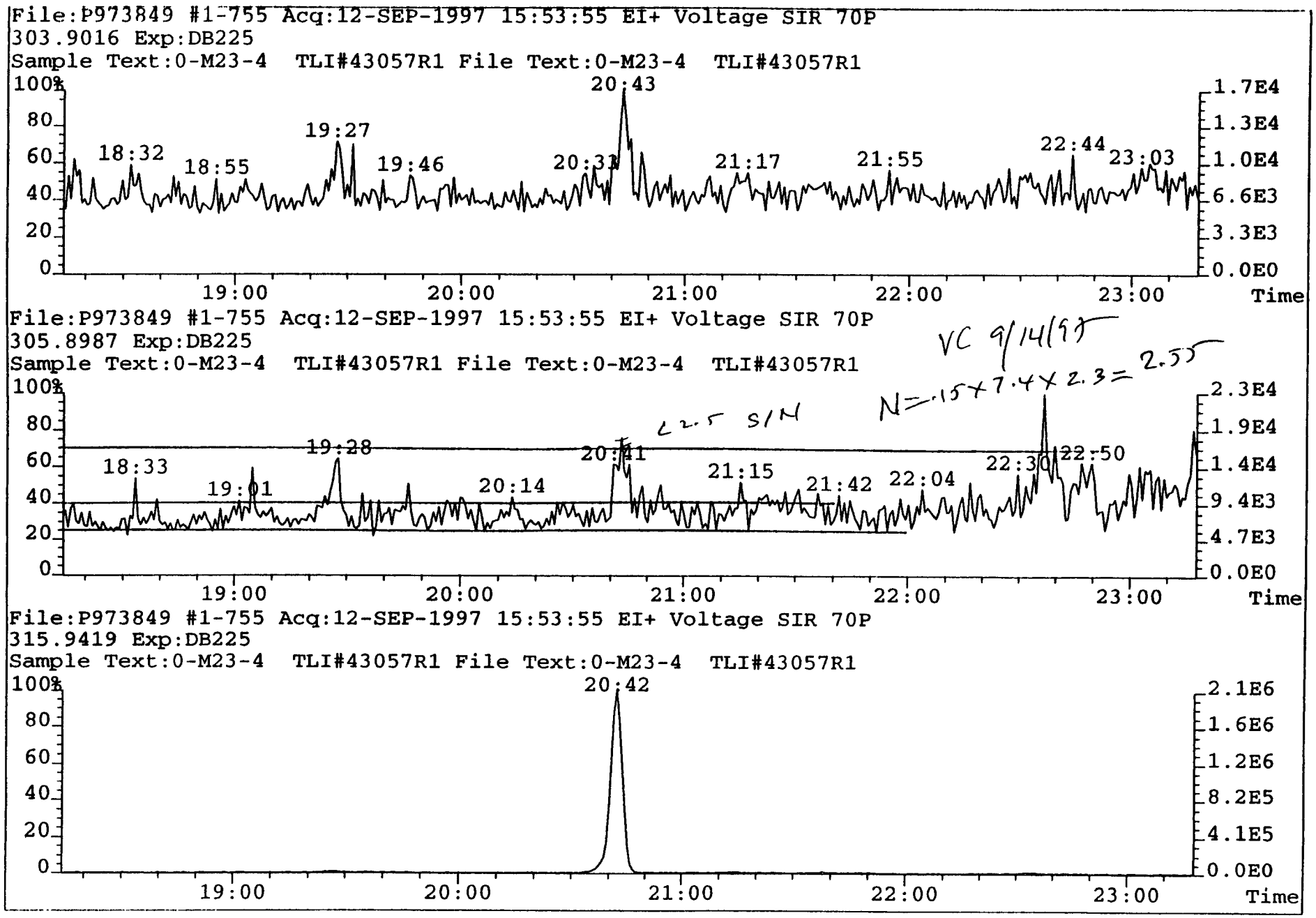


Ref. mass 292.9825 Peak top
Height 1.14 volts Span 200 ppm

| | |
|---|---|
| System file name | DB225 |
| Data file name | A:P973049 |
| 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 1.12 volts Span 200 ppm


File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
303.9016 Exp:DB225
Sample Text:0-M23-4 TLI#43057R1 File Text:0-M23-4 TLI#43057R1
100%
80
60
40
20
0
18:32
18:55
19:27
19:46
20:43
21:17
21:55
22:44
23:03
1.7E4
1.3E4
1.0E4
6.6E3
3.3E3
0.0E0
19:00
20:00
21:00
22:00
23:00
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
305.8987 Exp:DB225
Sample Text:0-M23-4 TLI#43057R1 File Text:0-M23-4 TLI#43057R1
VC 9/14/97
N=.15+7.4+2.3=2.55
2.5 S/N
100%
80
60
40
20
0
18:33
19:01
19:28
20:14
20:41
21:15
21:42
22:04
22:30
22:50
2.3E4
1.9E4
1.4E4
9.4E3
4.7E3
0.0E0
19:00
20:00
21:00
22:00
23:00
Time
File:P973849 #1-755 Acq:12-SEP-1997 15:53:55 EI+ Voltage SIR 70P
315.9419 Exp:DB225
Sample Text:0-M23-4 TLI#43057R1 File Text:0-M23-4 TLI#43057R1
100%
80
60
40
20
0
20:42
2.1E6
1.6E6
1.2E6
8.2E5
4.1E5
0.0E0
19:00
20:00
21:00
22:00
23:00
Time

# CALIBRATION DATA

*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*

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% |



Triangle Laboratories, Inc.® Analytical Services Division
3201 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 11:46 09/12/97

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<br>15:34 | | | 2.087 | -2.087 | 100.0% |
| Total MCDD | 0.000 | | 2:19<br>16:19 | | | 1.625 | -1.625 | 100.0% |
| Total DCDF | 0.000 | | 8:34<br>16:34 | | | 0.687 | -0.687 | 100.0% |
| Total DCDD | 0.000 | | 9:19<br>17:19 | | | 1.326 | -1.326 | 100.0% |
| Total TriCDF | 0.000 | | 12:34<br>19:34 | | | 1.082 | -1.082 | 100.0% |
| Total TriCDD | 0.000 | | 14:19<br>20:19 | | | 0.933 | -0.933 | 100.0% |
| 2378-TCDF | 1.182 | 0.81 | 18:05<br>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<br>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<br>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<br>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<br>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<br>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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801 Capitola Drive • Durham, North Carolina 27713
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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 23789-HxCDD | 1.090 | 1.25 | | 30:14 | 1.0095 | 1.091 | -0.001 | -0.1% |
| OTAL HxCDD | 1.019 | 1.25 | | | | 1.059 | -0.040 | -3.8% |
| 234678-HpCDF | 1.503 | 1.03 | 31:44<br>33:15 | 31:54 | 1.0000 | 1.543 | -0.040 | -2.6% |
| 234789-HpCDF | 1.267 | 1.03 | | 33:05 | 1.0371 | 1.184 | 0.083 | 7.0% |
| OTAL HpCDF | 1.385 | 1.03 | | | | 1.363 | 0.022 | 1.6% |
| 234678-HpCDD | 0.934 | 1.00 | 31:59<br>32:54 | 32:44 | 1.0000 | 1.068 | -0.134 | -12.6% |
| OTAL HpCDD | 0.934 | 1.00 | | | | 1.068 | -0.134 | -12.6% |
| CDF | 1.597 | 0.86 | 31:16<br>39:16 | 35:25 | 1.0043 | 1.493 | 0.104 | 7.0% |
| CDD | 1.040 | 0.85 | 31:16<br>39:16 | 35:17 | 1.0005 | 1.105 | -0.065 | -5.9% |

| ther Standard Summary<br>ame | RF | Ratio<br>1&2 | RT<br>Lo/High | RT | Rel. RT | ICal<br>RF | Delta<br>RF | %D |
|---|---|---|---|---|---|---|---|---|
| 7Cl-TCDD | 0.842 | | 20:19<br>24:19 | 22:20 | 1.0007 | 0.843 | -0.001 | -0.1% |
| 3C12-PeCDF 234 | 0.975 | 1.54 | 21:37<br>29:37 | 26:21 | 1.0286 | 0.970 | 0.005 | 0.5% |
| 3C12-HxCDF 478 | 0.934 | 0.50 | | 29:09 | 0.9971 | 0.959 | -0.025 | -2.6% |
| 3C12-HxCDF 234 | 0.903 | 0.49 | | 29:44 | 1.0171 | 0.926 | -0.023 | -2.5% |
| 3C12-HxCDF 789 | 0.789 | 0.49 | | 30:27 | 1.0416 | 0.805 | -0.016 | -2.0% |
| 3C12-HxCDD 478 | 0.950 | 1.21 | | 29:52 | 0.9972 | 0.973 | -0.023 | -2.4% |
| 3C12-HpCDF 789 | 0.830 | 0.42 | 29:54<br>35:54 | 33:04 | 1.0366 | 0.771 | 0.059 | 7.6% |

| nternal Standard Summary<br>ame | RF | Ratio<br>1&2 | RT<br>Lo/High | RT | Rel. RT | ICal<br>RF | Delta<br>RF | %D |
|---|---|---|---|---|---|---|---|---|
| 3C12-2378-TCDF | 1.488 | 0.76 | 20:34<br>22:34 | 21:34 | 1.0000 | 1.318 | 0.170 | 12.9% |
| 3C12-2378-TCDD | 1.131 | 0.80 | 20:19<br>24:19 | 22:19 | 1.0000 | 1.066 | 0.065 | 6.1% |
| 3C12-PeCDF 123 | 1.302 | 1.53 | 21:37<br>29:37 | 25:37 | 1.0000 | 1.133 | 0.169 | 14.9% |
| 3C12-PeCDD 123 | 0.780 | 1.52 | 22:43<br>30:43 | 26:43 | 1.0000 | 0.635 | 0.145 | 22.9% |
| 3C12-HxCDF 678 | 1.171 | 0.50 | 25:14<br>33:14 | 29:14 | 1.0000 | 1.204 | -0.033 | -2.7% |
| 3C12-HxCDD 678 | 0.934 | 1.21 | 28:57<br>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<br>35:54 | 31:54 | 1.0000 | 0.887 | -0.056 | -6.3% |
| 13C12-HpCDD 678 | 0.786 | 1.10 | 31:44<br>33:44 | 32:44 | 1.0000 | 0.815 | -0.029 | -3.5% |
| 13C12-OCDD | 0.453 | 0.94 | 35:07<br>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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TRIANGLE LABORATORIES, INC. Date: 06/10/97
Initial Calibration Summary for SF5117

nalysis Date....: 06/10/97 Method.....: M237
nstrument.....: S

| nalytes | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| otal MCDF | 2.087 | 0.000 | 0% | 8:15 | 0:01 | 13:43 | 2.931 | | 1 |
| otal MCDD | 1.625 | 0.000 | 0% | 8:42 | 0:34 | 14:34 | 2.827 | | 1 |
| otal DCDF | 0.687 | 0.000 | 0% | 10:38 | 6:43 | 14:43 | 5.965 | | 1 |
| otal DCDD | 1.326 | 0.000 | 0% | 11:09 | 7:34 | 15:34 | 1.609 | | 1 |
| otal TriCDF | 1.082 | 0.000 | 0% | 13:59 | 10:43 | 17:43 | 1.025 | | 1 |
| otal TriCDD | 0.933 | 0.000 | 0% | 14:03 | 12:34 | 19:34 | 1.064 | | 1 |
| 378-TCDF | 1.251 | 0.116 | 9% | 19:43 | 15:43 | 23:43 | 0.799 | | 5 |
| OTAL TCDF | 1.251 | 0.116 | 9% | | | | 0.799 | | 5 |
| 378-TCDD | 1.191 | 0.231 | 19% | 20:36 | 16:34 | 24:34 | 0.772 | | 5 |
| OTAL TCDD | 1.191 | 0.231 | 19% | | | | 0.772 | | 5 |
| 2378-PeCDF | 1.111 | 0.082 | 7% | 24:12 | 20:11 | 28:11 | 1.552 | | 5 |
| 3478-PeCDF | 1.115 | 0.061 | 5% | 24:59 | | | 1.470 | | 5 |
| OTAL PeCDF | 1.113 | 0.069 | 6% | | | | 1.509 | | 5 |
| 2378-PeCDD | 1.256 | 0.113 | 9% | 25:22 | 21:21 | 29:21 | 1.526 | | 5 |
| OTAL PeCDD | 1.256 | 0.113 | 9% | | | | 1.526 | | 5 |
| 23478-HxCDF | 1.215 | 0.064 | 5% | 27:55 | 24:01 | 32:01 | 1.247 | | 5 |
| 13678-HxCDF | 1.574 | 0.099 | 6% | 28:01 | | | 1.260 | | 5 |
| 34678-HxCDF | 1.247 | 0.069 | 6% | 28:32 | | | 1.243 | | 5 |
| 13789-HxCDF | 1.105 | 0.060 | 5% | 29:15 | | | 1.246 | | 5 |
| OTAL HxCDF | 1.285 | 0.062 | 5% | | | | 1.249 | | 5 |
| 13478-HxCDD | 0.953 | 0.067 | 7% | 28:41 | 24:45 | 32:45 | 1.265 | | 5 |
| 13678-HxCDD | 1.133 | 0.070 | 6% | 28:46 | | | 1.251 | | 5 |
| 13789-HxCDD | 1.091 | 0.067 | 6% | 29:03 | | | 1.233 | | 5 |
| OTAL HxCDD | 1.059 | 0.067 | 6% | | | | 1.249 | | 5 |
| 234678-HpCDF | 1.543 | 0.103 | 7% | 30:45 | 26:45 | 34:45 | 1.034 | | 5 |
| 234789-HpCDF | 1.184 | 0.100 | 8% | 31:57 | | | 1.080 | | 5 |
| OTAL HpCDF | 1.363 | 0.095 | 7% | | | | 1.053 | | 5 |
| 234678-HpCDD | 1.068 | 0.089 | 8% | 31:37 | 27:36 | 35:36 | 0.993 | | 5 |
| OTAL HpCDD | 1.068 | 0.089 | 8% | | | | 0.993 | | 5 |
| DF | 1.493 | 0.131 | 9% | 34:09 | 30:02 | 38:02 | 0.876 | | 5 |
| DD | 1.105 | 0.066 | 6% | 34:03 | 30:02 | 38:02 | 0.902 | | 5 |

| her Standards | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| C1-TCDD | 0.843 | 0.038 | 5% | 20:36 | 18:34 | 22:34 | | | 5 |
| C12-PeCDF 234 | 0.970 | 0.030 | 3% | 24:58 | 22:11 | 26:11 | 1.470 | | 5 |
| C12-HxCDF 478 | 0.959 | 0.042 | 4% | 27:55 | | | 0.518 | | 5 |
| C12-HxCDF 234 | 0.926 | 0.021 | 2% | 28:32 | | | 0.517 | | 5 |
| C12-HxCDF 789 | 0.805 | 0.044 | 5% | 29:15 | | | 0.519 | | 5 |
| C12-HxCDD 478 | 0.973 | 0.027 | 3% | 28:40 | | | 1.241 | | 5 |
| C12-HpCDF 789 | 0.771 | 0.049 | 6% | 31:57 | 28:45 | 34:45 | 0.424 | | 5 |

| ternal Standards | RF | SD | %RSD | RT | RT/LO | RT/HI | Ratio1 | Ratio2 | N |
|---|---|---|---|---|---|---|---|---|---|
| C12-2378-TCDF | 1.318 | 0.065 | 5% | 19:43 | 18:43 | 20:43 | 0.734 | | 5 |
| C12-2378-TCDD | 1.066 | 0.020 | 2% | 20:34 | 18:34 | 22:34 | 0.802 | | 5 |
| C12-PeCDF 123 | 1.133 | 0.051 | 5% | 24:11 | 20:11 | 28:11 | 1.447 | | 5 |



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Printed: 09:49 06/10/97

Initial Calibration Summary for SF56117

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 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 |

*** End of Report ***



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TRIANGLE LABORATORIES OF RTP. INC. Date: 02.20/96

Initial Calibration Summary for PF22206

Analysis Date....: 02/20/96 Method.....: CONF

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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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:** | 43377 |
| **Date:** | November 3, 1997 |

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Rev. 07-May-97

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*Fax # 919-544-5491*

## 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:*

Seven train samples were received at 22$^0$C on September 24, 1997 in good condition. The samples arrived without coolant, which resulted in the high temperature. Sample O-M29-FB-HCl was listed on the client's chain-of-custody, but was not received. The project was processed without this sample.

### *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 Pb. 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 Pb results that are near the RDL should be considered biased low.

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 post-digestion spike (PDS) for Tl for the sample O-M29-1-FHACE,FHAR,FILTER FH demonstrated a percent recovery outside the QC criteria of 75-125 percent. This result for the front half post-digestion spike (PDS) indicates significant matrix effects specific to this analyte in the native sample matrix. The interference QC analysis is not reported (i.e. MS, MSD, PDS, and serial dilution) for this analyte for the front half samples since the Method of Standard Additions (MSA) was performed. The MSA results are reported if the correlation coefficient value is at least 0.995. The MSA results were reported for all of the front half samples except sample I-M29-1-FHACE,FHAR,FILTER FH. This sample was analyzed two times and the correlation coefficients for both runs were less than 0.995, therefore the results for this sample were taken from ICP.

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 serial dilution results for Mn,P, Pb, and Zn for the sample O-M29-1-FHACE,FHAR,FILTER FH demonstrated RPDs slightly outside the QC control criteria of 10.0 percent, which does not indicate the presence of a significant amount of interferents specific to these analytes in the native sample matrix. Please note that the post-digestion spike (PDS) for Pb and P demonstrated percent recoveries within QC criteria, which indicates no significant amount of interfences specific to these analytes in the native sample matrix.

The post-digestion spike (PDS) for Be and Pb for the sample O-M29-1-FHACE,FHAR,FILTER FH and for Mn for sample O-M29-1-HNO3 BH demonstrated percent recoveries outside the QC criteria. These results may indicate significant matrix effects specific to these analytes in the native sample matrix. Please note that sample O-M29-1-FHACE,FHAR,FILTER FH should be considered biased low for Be and Pb due to matrix interferences. Also note that sample O-M29-1-HNO3 BH should be considered biased low for Mn due to matrix interferences.

The post-digestion spike (PDS) for Ag, P, and Se for the sample O-M29-1-FHACE,FHAR,FILTER FH and As for sample O-M29-1-HNO3 BH demonstrated percent recoveries slightly outside the QC criteria, but does not indicate any significant matrix effects specific to these analytes in the native sample matrix.

The recoveries for the post-digestion spike (PDS) are not reported for Ba, Mn and Zn 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-M29-3-HNO3 BH, and O-M29-4-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 these samples should be considered biased low for Hg 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

Linda F. Jones
Report Preparation Chemist

Quality Control

Terry P. Roach
Report Preparation Chemist

The total number of pages in this data package is: ~~198~~ 199

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 .



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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.

**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.

**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.

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# 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:

$$\%REC = \frac{\text{Spike sample µg/L conc. - original sample µg/L conc.}}{\text{spike conc. (µg/L)}} * 100$$

## %REC (Percent Recovery) for LCS/LCSD:

$$\%REC = \frac{\text{Spike sample µg/L conc.}}{\text{spike conc. (µg/L)}} * 100$$

**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:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-1-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-1ABC 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 | -0.509 | N/A | N/A | 100 | 1 | < 0.1 |
| As | 26.614 | N/A | N/A | 100 | 1 | 2.66 |
| Ba | 2210.242 | N/A | N/A | 100 | 1 | 221 |
| Be | -9.136 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | 2.179 | N/A | N/A | 100 | 1 | 0.218 |
| Co | 18.249 | N/A | N/A | 100 | 1 | 1.820 |
| Cr | 147.007 | N/A | N/A | 100 | 1 | 14.7 |
| Cu | 173.186 | N/A | N/A | 100 | 1 | 17.3 |
| Mn | 2033.351 | N/A | N/A | 100 | 1 | 203 |
| Ni | 72.575 | N/A | N/A | 100 | 1 | 7.26 |
| P | 3317.880 | N/A | N/A | 100 | 1 | 332 |
| Pb | 197.328 | N/A | N/A | 100 | 1 | 19.7 |
| Sb | 44.560 | N/A | N/A | 100 | 1 | 4.46 |
| Se | 43.871 | N/A | N/A | 100 | 1 | 4.39 |
| Tl | 1.400 | N/A | N/A | 100 | 1 | < 0.200 |
| Zn | 1144.375 | N/A | N/A | 100 | 1 | 114 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-1-FHACE,FHAR,FILTER FH L |
| TLI Sample ID: | 184-50-1ABC FH L |
| 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 | -0.444 | N/A | N/A | 100 | 5 | < 0.500 |
| As | 3.164 | N/A | N/A | 100 | 5 | < 2.50 |
| Ba | 484.810 | N/A | N/A | 100 | 5 | 242 |
| Be | -1.931 | N/A | N/A | 100 | 5 | < 0.500 |
| Cd | 0.372 | N/A | N/A | 100 | 5 | < 0.500 |
| Co | 3.906 | N/A | N/A | 100 | 5 | 1.95 |
| Cr | 36.485 | N/A | N/A | 100 | 5 | 18.2 |
| Cu | 36.293 | N/A | N/A | 100 | 5 | 18.1 |
| Mn | 451.437 | N/A | N/A | 100 | 5 | 226 |
| Ni | 17.447 | N/A | N/A | 100 | 5 | 8.72 |
| P | 769.575 | N/A | N/A | 100 | 5 | 385 |
| Pb | 45.976 | N/A | N/A | 100 | 5 | 23.0 |
| Sb | 9.814 | N/A | N/A | 100 | 5 | 4.91 |
| Se | 10.801 | N/A | N/A | 100 | 5 | 5.40 |
| Tl | N/A | N/A | N/A | N/A | N/A | N/A |
| Zn | 260.071 | N/A | N/A | 100 | 5 | 130 |

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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-1-HNO3 BH |
| TLI Sample ID: | 184-50-1D 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 | 0.277 | 954 | 854 | 100 | 1 | < 0.112 |
| As | -2.638 | 954 | 854 | 100 | 1 | < 0.559 |
| Ba | 20.506 | 954 | 854 | 100 | 1 | 2.29 |
| Be | -0.125 | 954 | 854 | 100 | 1 | < 0.112 |
| Cd | 5.845 | 954 | 854 | 100 | 1 | 0.653 |
| Co | -2.288 | 954 | 854 | 100 | 1 | < 0.112 |
| Cr | 11.391 | 954 | 854 | 100 | 1 | 1.27 |
| Cu | 22.134 | 954 | 854 | 100 | 1 | 2.47 |
| Mn | 45.093 | 954 | 854 | 100 | 1 | 5.04 |
| Ni | 16.338 | 954 | 854 | 100 | 1 | 1.83 |
| P | 620.845 | 954 | 854 | 100 | 1 | 69.4 |
| Pb | 63.809 | 954 | 854 | 100 | 1 | 7.13 |
| Sb | 3.419 | 954 | 854 | 100 | 1 | < 0.447 |
| Se | 5.132 | 954 | 854 | 100 | 1 | 0.573 |
| Tl | -0.50 | 954 | 854 | 100 | 1 | < 0.223 |
| Zn | 280.848 | 954 | 854 | 100 | 1 | 31.4 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-1-HNO3 BH L |
| TLI Sample ID: | 184-50-1D BH L |
| 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 | -0.090 | 954 | 854 | 100 | 5 | < 0.559 |
| As | -1.821 | 954 | 854 | 100 | 5 | < 2.79 |
| Ba | 2.332 | 954 | 854 | 100 | 5 | 1.30 |
| Be | -0.050 | 954 | 854 | 100 | 5 | < 0.559 |
| Cd | 1.419 | 954 | 854 | 100 | 5 | 0.793 |
| Co | -0.174 | 954 | 854 | 100 | 5 | < 0.559 |
| Cr | 1.220 | 954 | 854 | 100 | 5 | < 1.12 |
| Cu | 3.320 | 954 | 854 | 100 | 5 | 1.85 |
| Mn | 4.133 | 954 | 854 | 100 | 5 | 2.31 |
| Ni | 2.951 | 954 | 854 | 100 | 5 | < 1.68 |
| P | 131.717 | 954 | 854 | 100 | 5 | 73.6 |
| Pb | 12.379 | 954 | 854 | 100 | 5 | 6.91 |
| Sb | -0.995 | 954 | 854 | 100 | 5 | < 2.23 |
| Se | 1.379 | 954 | 854 | 100 | 5 | < 1.68 |
| Tl | -0.90 | 954 | 854 | 100 | 5 | < 1.12 |
| Zn | 58.600 | 954 | 854 | 100 | 5 | 32.7 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-2-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-2ABC 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 | 1.729 | N/A | N/A | 100 | 1 | 0.173 |
| As | 5.922 | N/A | N/A | 100 | 1 | 0.592 |
| Ba | 510.774 | N/A | N/A | 100 | 1 | 51.1 |
| Be | -1.516 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | 21.333 | N/A | N/A | 100 | 1 | 2.13 |
| Co | -18.808 | N/A | N/A | 100 | 1 | < 0.1 |
| Cr | 99.655 | N/A | N/A | 100 | 1 | 9.97 |
| Cu | 44.251 | N/A | N/A | 100 | 1 | 4.43 |
| Mn | 333.693 | N/A | N/A | 100 | 1 | 33.4 |
| Ni | 60.858 | N/A | N/A | 100 | 1 | 6.09 |
| P | 603.530 | N/A | N/A | 100 | 1 | 60.4 |
| Pb | 57.817 | N/A | N/A | 100 | 1 | 5.78 |
| Sb | 41.463 | N/A | N/A | 100 | 1 | 4.15 |
| Se | 39.586 | N/A | N/A | 100 | 1 | 3.96 |
| Tl | 2.100 | N/A | N/A | 100 | 1 | 0.210 |
| Zn | 466.631 | N/A | N/A | 100 | 1 | 46.7 |

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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-2-FHACE,FHAR,FILTER FH DA |
| TLI Sample ID: | 184-50-2ABC FH DA |
| 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 | 1.879 | N/A | N/A | 100 | 1 | 0.188 |
| As | 9.131 | N/A | N/A | 100 | 1 | 0.913 |
| Ba | 508.461 | N/A | N/A | 100 | 1 | 50.8 |
| Be | -1.543 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | 21.142 | N/A | N/A | 100 | 1 | 2.11 |
| Co | -19.059 | N/A | N/A | 100 | 1 | < 0.100 |
| Cr | 100.776 | N/A | N/A | 100 | 1 | 10.1 |
| Cu | 43.699 | N/A | N/A | 100 | 1 | 4.37 |
| Mn | 333.777 | N/A | N/A | 100 | 1 | 33.4 |
| Ni | 61.462 | N/A | N/A | 100 | 1 | 6.15 |
| P | 595.276 | N/A | N/A | 100 | 1 | 59.5 |
| Pb | 55.996 | N/A | N/A | 100 | 1 | 5.60 |
| Sb | 42.580 | N/A | N/A | 100 | 1 | 4.26 |
| Se | 40.579 | N/A | N/A | 100 | 1 | 4.06 |
| Tl | N/A | N/A | N/A | N/A | N/A | N/A |
| Zn | 467.375 | N/A | N/A | 100 | 1 | 46.7 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-2-HNO3 BH |
| TLI Sample ID: | 184-50-2DE 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 | 0.568 | 1645 | 1545 | 100 | 1 | < 0.106 |
| As | -7.156 | 1645 | 1545 | 100 | 1 | < 0.532 |
| Ba | 8.581 | 1645 | 1545 | 100 | 1 | 0.914 |
| Be | -0.007 | 1645 | 1545 | 100 | 1 | < 0.106 |
| Cd | 0.848 | 1645 | 1545 | 100 | 1 | < 0.106 |
| Co | -1.476 | 1645 | 1545 | 100 | 1 | < 0.106 |
| Cr | 4.083 | 1645 | 1545 | 100 | 1 | 0.435 |
| Cu | 19.038 | 1645 | 1545 | 100 | 1 | 2.03 |
| Mn | 15.930 | 1645 | 1545 | 100 | 1 | 1.70 |
| Ni | 7.948 | 1645 | 1545 | 100 | 1 | 0.846 |
| P | 547.642 | 1645 | 1545 | 100 | 1 | 58.3 |
| Pb | 23.644 | 1645 | 1545 | 100 | 1 | 2.52 |
| Sb | 0.771 | 1645 | 1545 | 100 | 1 | < 0.426 |
| Se | 3.153 | 1645 | 1545 | 100 | 1 | 0.336 |
| Tl | -0.10 | 1645 | 1545 | 100 | 1 | < 0.213 |
| Zn | 146.490 | 1645 | 1545 | 100 | 1 | 15.6 |

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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29--HNO3 BH DA |
| TLI Sample ID: | 184-50-2DE BH DA |
| 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 | -0.003 | 1645 | 1545 | 100 | 1 | < 0.106 |
| As | -8.639 | 1645 | 1545 | 100 | 1 | < 0.532 |
| Ba | 8.590 | 1645 | 1545 | 100 | 1 | 0.915 |
| Be | -0.054 | 1645 | 1545 | 100 | 1 | < 0.106 |
| Cd | 1.010 | 1645 | 1545 | 100 | 1 | 0.108 |
| Co | -1.200 | 1645 | 1545 | 100 | 1 | < 0.106 |
| Cr | 4.012 | 1645 | 1545 | 100 | 1 | 0.427 |
| Cu | 18.268 | 1645 | 1545 | 100 | 1 | 1.94 |
| Mn | 16.004 | 1645 | 1545 | 100 | 1 | 1.70 |
| Ni | 8.008 | 1645 | 1545 | 100 | 1 | 0.853 |
| P | 541.735 | 1645 | 1545 | 100 | 1 | 57.7 |
| Pb | 23.731 | 1645 | 1545 | 100 | 1 | 2.53 |
| Sb | 1.277 | 1645 | 1545 | 100 | 1 | < 0.426 |
| Se | 1.535 | 1645 | 1545 | 100 | 1 | < 0.319 |
| Tl | N/A | N/A | N/A | N/A | N/A | N/A |
| Zn | 147.369 | 1645 | 1545 | 100 | 1 | 15.7 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-3-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-3ABC 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 | 8.915 | N/A | N/A | 100 | 1 | 0.892 |
| As | 7.679 | N/A | N/A | 100 | 1 | 0.768 |
| Ba | 213.783 | N/A | N/A | 100 | 1 | 21.4 |
| Be | -0.601 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | -0.976 | N/A | N/A | 100 | 1 | < 0.100 |
| Co | -15.077 | N/A | N/A | 100 | 1 | < 0.100 |
| Cr | 78.480 | N/A | N/A | 100 | 1 | 7.85 |
| Cu | 32.218 | N/A | N/A | 100 | 1 | 3.22 |
| Mn | 142.085 | N/A | N/A | 100 | 1 | 14.2 |
| Ni | 43.197 | N/A | N/A | 100 | 1 | 4.32 |
| P | 258.320 | N/A | N/A | 100 | 1 | 25.8 |
| Pb | 31.038 | N/A | N/A | 100 | 1 | 3.10 |
| Sb | 33.494 | N/A | N/A | 100 | 1 | 3.35 |
| Se | 30.059 | N/A | N/A | 100 | 1 | 3.01 |
| Tl | 2.30 | N/A | N/A | 100 | 1 | 0.230 |
| Zn | 202.846 | N/A | N/A | 100 | 1 | 20.3 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-3-HNO3 BH |
| TLI Sample ID: | 184-50-3DE 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 | 0.191 | 1130 | 1030 | 100 | 1 | < 0.110 |
| As | -7.223 | 1130 | 1030 | 100 | 1 | < 0.549 |
| Ba | 11.257 | 1130 | 1030 | 100 | 1 | 1.23 |
| Be | -0.054 | 1130 | 1030 | 100 | 1 | < 0.110 |
| Cd | 16.442 | 1130 | 1030 | 100 | 1 | 1.80 |
| Co | -0.577 | 1130 | 1030 | 100 | 1 | < 0.110 |
| Cr | 6.680 | 1130 | 1030 | 100 | 1 | 0.733 |
| Cu | 52.085 | 1130 | 1030 | 100 | 1 | 5.71 |
| Mn | 17.223 | 1130 | 1030 | 100 | 1 | 1.89 |
| Ni | 34.806 | 1130 | 1030 | 100 | 1 | 3.82 |
| P | 747.814 | 1130 | 1030 | 100 | 1 | 82.0 |
| Pb | 964.422 | 1130 | 1030 | 100 | 1 | 106 |
| Sb | -0.531 | 1130 | 1030 | 100 | 1 | < 0.439 |
| Se | 86.488 | 1130 | 1030 | 100 | 1 | 9.49 |
| Tl | 1.50 | 1130 | 1030 | 100 | 1 | < 0.219 |
| Zn | 192.074 | 1130 | 1030 | 100 | 1 | 21.1 |

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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-4-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-4ABC 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 | 2.082 | N/A | N/A | 100 | 1 | 0.208 |
| As | 4.111 | N/A | N/A | 100 | 1 | < 0.500 |
| Ba | 139.273 | N/A | N/A | 100 | 1 | 13.9 |
| Be | -0.365 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | -2.418 | N/A | N/A | 100 | 1 | < 0.100 |
| Co | -16.291 | N/A | N/A | 100 | 1 | < 0.100 |
| Cr | 64.361 | N/A | N/A | 100 | 1 | 6.44 |
| Cu | 21.367 | N/A | N/A | 100 | 1 | 2.14 |
| Mn | 204.413 | N/A | N/A | 100 | 1 | 20.4 |
| Ni | 28.942 | N/A | N/A | 100 | 1 | 2.89 |
| P | 142.275 | N/A | N/A | 100 | 1 | 14.2 |
| Pb | 6.657 | N/A | N/A | 100 | 1 | 0.666 |
| Sb | 27.323 | N/A | N/A | 100 | 1 | 2.73 |
| Se | 24.357 | N/A | N/A | 100 | 1 | 2.44 |
| Tl | -1.00 | N/A | N/A | 100 | 1 | < 0.200 |
| Zn | 160.507 | N/A | N/A | 100 | 1 | 16.1 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-4-HNO3 BH |
| TLI Sample ID: | 184-50-4DE 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 | 0.311 | 1105 | 1005 | 100 | 1 | < 0.110 |
| As | -6.866 | 1105 | 1005 | 100 | 1 | < 0.550 |
| Ba | 5.349 | 1105 | 1005 | 100 | 1 | 0.588 |
| Be | -0.016 | 1105 | 1005 | 100 | 1 | < 0.110 |
| Cd | 0.131 | 1105 | 1005 | 100 | 1 | < 0.110 |
| Co | -1.780 | 1105 | 1005 | 100 | 1 | < 0.110 |
| Cr | 2.399 | 1105 | 1005 | 100 | 1 | 0.264 |
| Cu | 11.289 | 1105 | 1005 | 100 | 1 | 1.24 |
| Mn | 491.453 | 1105 | 1005 | 100 | 1 | 54.0 |
| Ni | 8.884 | 1105 | 1005 | 100 | 1 | 0.977 |
| P | 555.480 | 1105 | 1005 | 100 | 1 | 61.1 |
| Pb | 12.479 | 1105 | 1005 | 100 | 1 | 1.37 |
| Sb | -1.163 | 1105 | 1005 | 100 | 1 | < 0.440 |
| Se | 0.932 | 1105 | 1005 | 100 | 1 | < 0.330 |
| Tl | 0.80 | 1105 | 1005 | 100 | 1 | < 0.220 |
| Zn | 94.302 | 1105 | 1005 | 100 | 1 | 10.4 |

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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | O-M29-FB-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-5ABC 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 | 1.066 | N/A | N/A | 100 | 1 | 0.107 |
| As | 6.275 | N/A | N/A | 100 | 1 | 0.627 |
| Ba | 46.626 | N/A | N/A | 100 | 1 | 4.66 |
| Be | -0.052 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | -6.656 | N/A | N/A | 100 | 1 | < 0.100 |
| Co | -31.577 | N/A | N/A | 100 | 1 | < 0.100 |
| Cr | 94.985 | N/A | N/A | 100 | 1 | 9.50 |
| Cu | 10.522 | N/A | N/A | 100 | 1 | 1.05 |
| Mn | 10.861 | N/A | N/A | 100 | 1 | 1.09 |
| Ni | 48.171 | N/A | N/A | 100 | 1 | 4.82 |
| P | 0.201 | N/A | N/A | 100 | 1 | < 3.00 |
| Pb | -20.784 | N/A | N/A | 100 | 1 | < 0.200 |
| Sb | 49.090 | N/A | N/A | 100 | 1 | 4.91 |
| Se | 42.696 | N/A | N/A | 100 | 1 | 4.27 |
| Tl | 1.20 | N/A | N/A | 100 | 1 | < 0.200 |
| Zn | 30.196 | N/A | N/A | 100 | 1 | 3.02 |

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**Project Number:** **43377**

# Sample Report

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|---|---|
| Client Sample ID: | O-M29-FB-HNO3 BH |
| TLI Sample ID: | 184-50-5BD 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 | -0.084 | 150 | 150 | 100 | 1 | < 0.100 |
| As | -5.436 | 150 | 150 | 100 | 1 | < 0.500 |
| Ba | 2.368 | 150 | 150 | 100 | 1 | 0.237 |
| Be | -0.037 | 150 | 150 | 100 | 1 | < 0.100 |
| Cd | 1.295 | 150 | 150 | 100 | 1 | 0.130 |
| Co | -0.835 | 150 | 150 | 100 | 1 | < 0.100 |
| Cr | 3.764 | 150 | 150 | 100 | 1 | 0.376 |
| Cu | 6.244 | 150 | 150 | 100 | 1 | 0.624 |
| Mn | 71.682 | 150 | 150 | 100 | 1 | 7.17 |
| Ni | 2.070 | 150 | 150 | 100 | 1 | < 0.300 |
| P | 120.688 | 150 | 150 | 100 | 1 | 12.1 |
| Pb | 65.879 | 150 | 150 | 100 | 1 | 6.59 |
| Sb | 0.971 | 150 | 150 | 100 | 1 | < 0.400 |
| Se | 4.210 | 150 | 150 | 100 | 1 | 0.421 |
| Tl | -2.80 | 150 | 150 | 100 | 1 | < 0.200 |
| Zn | 29.576 | 150 | 150 | 100 | 1 | 2.96 |

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**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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**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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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | I-M29-1-FHACE,FHAR,FILTER FH |
| TLI Sample ID: | 184-50-7ABC 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 | -15.487 | N/A | N/A | 100 | 1 | < 0.100 |
| As | 152.097 | N/A | N/A | 100 | 1 | 15.2 |
| Ba | 6171.882 | N/A | N/A | 100 | 1 | 617 |
| Be | -35.757 | N/A | N/A | 100 | 1 | < 0.100 |
| Cd | 60.007 | N/A | N/A | 100 | 1 | 6.00 |
| Co | 265.325 | N/A | N/A | 100 | 1 | 26.5 |
| Cr | 358.682 | N/A | N/A | 100 | 1 | 35.9 |
| Cu | 1251.144 | N/A | N/A | 100 | 1 | 125 |
| Mn | 11640.313 | N/A | N/A | 100 | 1 | 1160 |
| Ni | 160.800 | N/A | N/A | 100 | 1 | 16.1 |
| P | 34933.355 | N/A | N/A | 100 | 1 | 3490 |
| Pb | 450.776 | N/A | N/A | 100 | 1 | 45.1 |
| Sb | -2.294 | N/A | N/A | 100 | 1 | < 0.400 |
| Se | -55.967 | N/A | N/A | 100 | 1 | < 0.300 |
| Tl | 29.038 | N/A | N/A | 100 | 1 | 2.90 |
| Zn | 5032.940 | N/A | N/A | 100 | 1 | 503 |

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**Project Number:** **43377**

# Sample Report

| | |
|---|---|
| Client Sample ID: | I-M29-1-HNO3 BH |
| TLI Sample ID: | 184-50-7D 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 | 0.376 | 435 | 335 | 100 | 1 | < 0.130 |
| As | -2.937 | 435 | 335 | 100 | 1 | < 0.649 |
| Ba | 4.655 | 435 | 335 | 100 | 1 | 0.604 |
| Be | -0.012 | 435 | 335 | 100 | 1 | < 0.130 |
| Cd | 5.279 | 435 | 335 | 100 | 1 | 0.686 |
| Co | -1.085 | 435 | 335 | 100 | 1 | < 0.130 |
| Cr | 6.758 | 435 | 335 | 100 | 1 | 0.878 |
| Cu | 7.221 | 435 | 335 | 100 | 1 | 0.938 |
| Mn | 109.380 | 435 | 335 | 100 | 1 | 14.2 |
| Ni | 7.742 | 435 | 335 | 100 | 1 | 1.01 |
| P | 447.197 | 435 | 335 | 100 | 1 | 58.1 |
| Pb | 42.647 | 435 | 335 | 100 | 1 | 5.54 |
| Sb | -0.046 | 435 | 335 | 100 | 1 | < 0.519 |
| Se | 7.465 | 435 | 335 | 100 | 1 | 0.969 |
| Tl | 0.40 | 435 | 335 | 100 | 1 | < 0.26 |
| Zn | 163.332 | 435 | 335 | 100 | 1 | 21.2 |

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**Client:** **Pacific Environmental Services**
**Project Number: 43377**

# QA: Serial Dilution

| | | |
|---|---|---|
| Client Sample ID: | O-M29-1-FHACE,FHAR,FILTER FH | O-M29-1-FHACE,FHAR,FILTER FH L |
| TLI Sample ID: | 184-50-1ABC FH | 184-50-1ABC FH L |
| Date Prepared: | October 10-14, 1997 | October 10-14, 1997 |
| Date Analyzed: | October 16,20,21 & 22, 1997 | October 16,20,21 & 22, 1997 |
| Matrix: | Air | Air |

| | Native Sample | | Serial Dilution | | |
|---|---|---|---|---|---|
| Analyte | Total ug Result | ug/L Conc. | Total ug Result | ug/L Conc. | RPD |
| Ag | < 0.100 | -0.509 | < 0.500 | -0.444 | <RDL |
| As | 2.66 | 26.614 | < 2.50 | 3.164 | <RDL |
| Ba | 221 | 2210.242 | 242 | 484.810 | 9.07% |
| Be | < 0.100 | -9.136 | < 0.500 | -1.931 | <RDL |
| Cd | 0.218 | 2.179 | < 0.500 | 0.372 | <RDL |
| Co | 1.82 | 18.249 | 1.95 | 3.906 | <RDL |
| Cr | 14.7 | 147.007 | 18.2 | 36.485 | 21.3% |
| Cu | 17.3 | 173.186 | 18.1 | 36.293 | 4.52% |
| Mn | 203 | 2033.351 | 226 | 451.437 | 10.7% |
| Ni | 7.26 | 72.575 | 8.72 | 17.447 | <RDL |
| P | 332 | 3317.880 | 385 | 769.575 | 14.8% |
| Pb | 19.7 | 197.328 | 23.0 | 45.976 | 15.5% |
| Sb | 4.46 | 44.560 | 4.91 | 9.814 | <RDL |
| Se | 4.39 | 43.871 | 5.40 | 10.801 | <RDL |
| Tl | < 0.200 | 1.400 | N/A | N/A | N/A |
| Zn | 114 | 1144.375 | 130 | 260.071 | 13.1% |
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**Client:** **Pacific Environmental Services**
**Project Number: 43377**

# QA: Serial Dilution

| | | |
|---|---|---|
| Client Sample ID: | O-M29-1-HNO3 BH | O-M29-1-HNO3 BH L |
| TLI Sample ID: | 184-50-1D BH | 184-50-1D BH L |
| Date Prepared: | October 10-14, 1997 | October 10-14, 1997 |
| Date Analyzed: | October 16,20,21 & 22, 1997 | October 16,20,21 & 22, 1997 |
| Matrix: | Air | Air |

| | Native Sample | | Serial Dilution | | |
|---|---|---|---|---|---|
| Analyte | Total ug Result | ug/L Conc. | Total ug Result | ug/L Conc. | RPD |
| Ag | < 0.112 | 0.277 | < 0.559 | -0.090 | <RDL |
| As | < 0.559 | -2.638 | < 2.79 | -1.821 | <RDL |
| Ba | 2.29 | 20.506 | 1.30 | 2.332 | <RDL |
| Be | < 0.112 | -0.125 | < 0.559 | -0.050 | <RDL |
| Cd | 0.653 | 5.845 | 0.793 | 1.419 | <RDL |
| Co | < 0.112 | -2.288 | < 0.559 | -0.174 | <RDL |
| Cr | 1.27 | 11.391 | < 1.12 | 1.220 | <RDL |
| Cu | 2.47 | 22.134 | 1.85 | 3.320 | <RDL |
| Mn | 5.04 | 45.093 | 2.31 | 4.133 | <RDL |
| Ni | 1.83 | 16.338 | < 1.68 | 2.951 | <RDL |
| P | 69.4 | 620.845 | 73.6 | 131.717 | <RDL |
| Pb | 7.13 | 63.809 | 6.91 | 12.379 | <RDL |
| Sb | < 0.447 | 3.419 | < 2.23 | -0.995 | <RDL |
| Se | 0.573 | 5.132 | < 1.68 | 1.379 | <RDL |
| Tl | < 0.223 | -0.500 | < 1.12 | -0.900 | <RDL |
| Zn | 31.4 | 280.848 | 32.7 | 58.600 | <RDL |
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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# QA: Duplicate

| | | |
|---|---|---|
| Client Sample ID: | O-M29-2-FHACE,FHAR,FILTER FH | O-M29-2-FHACE,FHAR,FILTER FH DA |
| TLI Sample ID: | 184-50-2ABC FH | 184-50-2ABC FH DA |
| Date Prepared: | October 10-14, 1997 | October 10-14, 1997 |
| Date Analyzed: | October 16,20,21 & 22, 1997 | October 16,20,21 & 22, 1997 |
| Matrix: | Air | Air |

| | Sample | | Duplicate | | |
|---|---|---|---|---|---|
| Analyte | Total ug Result | ug/L Conc. | Total ug Result | ug/L Conc. | RPD |
| Ag | 0.173 | 1.729 | 0.188 | 1.879 | <RDL |
| As | 0.592 | 5.922 | 0.913 | 9.131 | <RDL |
| Ba | 51.1 | 510.774 | 50.8 | 508.461 | 0.589% |
| Be | < 0.100 | -1.516 | < 0.100 | -1.543 | <RDL |
| Cd | 2.13 | 21.333 | 2.11 | 21.142 | 0.943% |
| Co | < 0.100 | -18.808 | < 0.100 | -19.059 | <RDL |
| Cr | 9.97 | 99.655 | 10.1 | 100.776 | 1.30% |
| Cu | 4.43 | 44.251 | 4.37 | 43.699 | 1.36% |
| Mn | 33.4 | 333.693 | 33.4 | 333.777 | 0.000% |
| Ni | 6.09 | 60.858 | 6.15 | 61.462 | 0.980% |
| P | 60.4 | 603.530 | 59.5 | 595.276 | 1.50% |
| Pb | 5.78 | 57.817 | 5.60 | 55.996 | 3.16% |
| Sb | 4.15 | 41.463 | 4.26 | 42.580 | 2.62% |
| Se | 3.96 | 39.586 | 4.06 | 40.579 | 2.49% |
| Tl | 0.210 | 2.100 | N/A | N/A | N/A |
| Zn | 46.7 | 466.631 | 46.7 | 467.375 | 0.000% |
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**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# QA: Duplicate

| | | |
|---|---|---|
| Client Sample ID: | O-M29-2-HNO3 BH | O-M29--HNO3 BH DA |
| TLI Sample ID: | 184-50-2DE BH | 184-50-2DE BH DA |
| Date Prepared: | October 10-14, 1997 | October 10-14, 1997 |
| Date Analyzed: | October 16,20,21 & 22, 1997 | October 16,20,21 & 22, 1997 |
| Matrix: | Air | Air |

| | Sample | | Duplicate | | |
|---|---|---|---|---|---|
| Analyte | Total ug Result | ug/L Conc. | Total ug Result | ug/L Conc. | RPD |
| Ag | < 0.106 | 0.568 | < 0.106 | -0.003 | <RDL |
| As | < 0.532 | -7.156 | < 0.532 | -8.639 | <RDL |
| Ba | 0.914 | 8.581 | 0.915 | 8.590 | <RDL |
| Be | < 0.106 | -0.007 | < 0.106 | -0.054 | <RDL |
| Cd | < 0.106 | 0.848 | 0.108 | 1.010 | <RDL |
| Co | < 0.106 | -1.476 | < 0.106 | -1.200 | <RDL |
| Cr | 0.435 | 4.083 | 0.427 | 4.012 | <RDL |
| Cu | 2.03 | 19.038 | 1.94 | 18.268 | <RDL |
| Mn | 1.70 | 15.930 | 1.70 | 16.004 | <RDL |
| Ni | 0.846 | 7.948 | 0.853 | 8.008 | <RDL |
| P | 58.3 | 547.642 | 57.7 | 541.735 | 1.03% |
| Pb | 2.52 | 23.644 | 2.53 | 23.731 | 0.396% |
| Sb | < 0.426 | 0.771 | < 0.426 | 1.277 | <RDL |
| Se | 0.336 | 3.153 | < 0.319 | 1.535 | <RDL |
| Tl | < 0.213 | -0.100 | N/A | N/A | N/A |
| Zn | 15.6 | 146.490 | 15.7 | 147.369 | 0.639% |
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Triangle Laboratories, Inc.
801 Capitola Drive * Durham, NC 27713
Tele: (919) 544-5729 * Fax: (919) 544-5491

P 03-Nov-97 at 01:10 PM

**Client: Pacific Environmental Services**
**Project Number: 43377**

# QA: Matrix Spikes (Post-Digestion)

| | | |
|---|---|---|
| Client Sample ID: | O-M29-1-FHACE,FHAR,FILTER FH PDS | |
| TLI Sample ID: | 184-50-1ABC FH PDS | |
| Date Prepared: | October 10-14, 1997 | |
| Date Analyzed: | October 16,20,21 & 22, 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 | 37.13 | 50 | 74% | | | | --- |
| As | 66.21 | 50 | 79% | | | | --- |
| Ba | 2207.64 | 50 | Spike Low | | | | --- |
| Be | 31.50 | 50 | 63% | | | | --- |
| Cd | 44.31 | 50 | 84% | | | | --- |
| Co | 60.73 | 50 | 85% | | | | --- |
| Cr | 187.14 | 50 | 80% | | | | --- |
| Cu | 216.04 | 50 | 86% | | | | --- |
| Mn | 2026.71 | 50 | Spike Low | | | | --- |
| Ni | 112.31 | 50 | 79% | | | | --- |
| P | 4053.51 | 1000 | 74% | | | | --- |
| Pb | 231.32 | 50 | 68% | | | | --- |
| Sb | 83.39 | 50 | 78% | | | | --- |
| Se | 80.62 | 50 | 74% | | | | --- |
| Tl | N/A | N/A | N/A | | | | --- |
| Zn | 1289.01 | 200 | Spike Low | | | | --- |
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Triangle Laboratories, Inc.
801 Capitola Drive * Durham, NC 27713
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Printed: 03-Nov-97 at 02:17 PM

**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# QA: Matrix Spikes (Post-Digestion)

| | | |
|---|---|---|
| Client Sample ID: | O-M29-1-HNO3 BH PDS | |
| TLI Sample ID: | 184-50-1D BH PDS | |
| Date Prepared: | October 10-14, 1997 | |
| Date Analyzed: | October 16,20,21 & 22, 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 | 41.57 | 50 | 83% | | | | --- |
| As | 36.64 | 50 | 73% | | | | --- |
| Ba | 60.46 | 50 | 80% | | | | --- |
| Be | 45.63 | 50 | 91% | | | | --- |
| Cd | 52.79 | 50 | 94% | | | | --- |
| Co | 46.23 | 50 | 92% | | | | --- |
| Cr | 55.26 | 50 | 88% | | | | --- |
| Cu | 69.47 | 50 | 95% | | | | --- |
| Mn | 68.47 | 50 | 47% | | | | --- |
| Ni | 61.19 | 50 | 90% | | | | --- |
| P | 1409.02 | 1000 | 79% | | | | --- |
| Pb | 108.50 | 50 | 89% | | | | --- |
| Sb | 47.69 | 50 | 95% | | | | --- |
| Se | 46.09 | 50 | 82% | | | | --- |
| Tl | 20.6 | 25 | 82% | | | | --- |
| Zn | 456.69 | 200 | 88% | | | | --- |
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Triangle Laboratories, Inc.
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Printed: 03-Nov-97 at 01:10 PM

**Client:** **Pacific Environmental Services**
**Project Number:** **43377**

# QA: Method Blank

| | |
|---|---|
| TLI Sample ID: | 43377 MB |
| Date Prepared: | October 10-14, 1997 |
| Date Analyzed: | October 16,20,21 & 22, 1997 |
| Matrix: | N/A |

| | Method Blank | | |
|---|---|---|---|
| Analyte | Recovered Amount (ug/L) | Detection Limit (ug/L) | Pass or Fail |
| Ag | -0.13 | 1 | Pass |
| As | -2.09 | 5 | Pass |
| Ba | 0.20 | 2 | Pass |
| Be | 0.01 | 1 | Pass |
| Cd | -0.44 | 1 | Pass |
| Co | -0.19 | 1 | Pass |
| Cr | -1.08 | 2 | Pass |
| Cu | 0.22 | 2 | Pass |
| Mn | -0.19 | 2 | Pass |
| Ni | -1.00 | 3 | Pass |
| P | -0.70 | 30 | Pass |
| Pb | -2.82 | 2 | Fail |
| Sb | -1.10 | 4 | Pass |
| Se | -1.14 | 3 | Pass |
| Tl | -0.10 | 2 | Pass |
| Zn | 7.27 | 12 | Pass |
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Triangle Laboratories, Inc.
801 Capitola Drive * Durham, NC 2771
Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 03-Nov-97 at 01:10 PM

**Client: Pacific Environmental Services**
**Project Number: 43377**

# QA: Lab Control Spikes

| | | |
|---|---|---|
| TLI Sample ID: | 43377 LCS | |
| Date Prepared: | October 10-14, 1997 | |
| Date Analyzed: | October 16,20,21 & 22, 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 | 45.11 | 50 | 90% | | | | --- |
| As | 45.25 | 50 | 90% | | | | --- |
| Ba | 49.05 | 50 | 98% | | | | --- |
| Be | 47.58 | 50 | 95% | | | | --- |
| Cd | 48.64 | 50 | 97% | | | | --- |
| Co | 49.24 | 50 | 98% | | | | --- |
| Cr | 48.24 | 50 | 96% | | | | --- |
| Cu | 49.07 | 50 | 98% | | | | --- |
| Mn | 48.63 | 50 | 97% | | | | --- |
| Ni | 47.19 | 50 | 94% | | | | --- |
| P | 981.55 | 1000 | 98% | | | | --- |
| Pb | 46.89 | 50 | 94% | | | | --- |
| Sb | 48.51 | 50 | 97% | | | | --- |
| Se | 47.66 | 50 | 95% | | | | --- |
| Tl | 45.00 | 50 | 90% | | | | --- |
| Zn | 199.45 | 200 | 100% | | | | --- |
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Triangle Laboratories, Inc.
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Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 03-Nov-97 at 01:10 PM

**Client:** **Pacific Environmental Services**
**Project Number:** 43377

# Sample Report



| | |
|---|---|
| Date Received: | September 24, 1997 |
| Date Prepared: | October 10-20, 1997 |
| Date Analyzed: | October 21-22, 1997 |
| DATA FILE: | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| O-M29-1-FHACE,FHAR,FILTER FH | 184-50-1ABC | 0.034 | N/A | 100 | 5 | 1 | < 0.400 | -- | -- | -- |
| O-M29-1-FHACE,FHAR,FILTER FH D | 184-50-1ABC D | 0.005 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | -- | -- |
| O-M29-1-HNO3 BH | 184-50-1D | 0.034 | 954 | N/A | 5 | 1 | < 3.82 | -- | -- | -- |
| O-M29-1-HNO3 BH D | 184-50-1D D | 0.036 | 954 | N/A | 5 | 1 | < 3.82 | < 3.82 | -- | -- |
| O-M29-1-BHAR HNO3 | 184-50-1E | -0.005 | 37 | N/A | 5 | 1 | < 0.148 | -- | -- | -- |
| O-M29-1-BHAR HNO3 D | 184-50-1E D | -0.005 | 37 | N/A | 5 | 1 | < 0.148 | < 0.148 | -- | -- |
| O-M29-1-KMnO4 | 184-50-1F | 0.307 | 345 | N/A | 5 | 1 | 2.12 | -- | -- | -- |
| O-M29-1-KMnO4 D | 184-50-1F D | 0.328 | 345 | N/A | 5 | 1 | 2.26 | 2.19 | -- | -- |
| O-M29-1-HCl | 184-50-1G | 0.016 | 50 | N/A | 5 | 1 | < 0.200 | -- | -- | -- |
| O-M29-1-HCl D | 184-50-1G D | 0.010 | 50 | N/A | 5 | 1 | < 0.200 | < 0.200 | -- | -- |
| O-M29-2-FHACE,FHAR,FILTER FH | 184-50-2ABC | 0.008 | N/A | 100 | 5 | 1 | < 0.400 | -- | -- | -- |
| O-M29-2-FHACE,FHAR,FILTER FH D | 184-50-2ABC D | -0.008 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | -- | -- |
| O-M29-2-HNO3 BH | 184-50-2DE | 0.034 | 1645 | N/A | 5 | 1 | < 6.58 | -- | -- | -- |
| O-M29-2-HNO3 BH D | 184-50-2DE D | 0.023 | 1645 | N/A | 5 | 1 | < 6.58 | < 6.58 | -- | -- |
| O-M29-2-BHAR HNO3 | 184-50-2F | -0.018 | 35 | N/A | 5 | 1 | < 0.140 | -- | -- | -- |
| O-M29-2-BHAR HNO3 D | 184-50-2F D | -0.016 | 35 | N/A | 5 | 1 | < 0.140 | < 0.140 | -- | -- |
| O-M29-2-KMnO4 | 184-50-2G | 0.299 | 405 | N/A | 5 | 1 | 2.42 | -- | -- | -- |
| O-M29-2-KMnO4 D | 184-50-2G D | 0.302 | 405 | N/A | 5 | 1 | 2.45 | 2.43 | -- | -- |
| O-M29-2-HCl | 184-50-2H | -0.021 | 95 | N/A | 5 | 1 | < 0.380 | -- | -- | -- |
| O-M29-2-HCl D | 184-50-2H D | -0.018 | 95 | N/A | 5 | 1 | < 0.380 | < 0.380 | -- | -- |
| O-M29-3-FHACE,FHAR,FILTER FH | 184-50-3ABC | 0.000 | N/A | 100 | 5 | 1 | < 0.400 | -- | -- | -- |
| O-M29-3-FHACE,FHAR,FILTER FH D | 184-50-3ABC D | 0.003 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | -- | -- |
| O-M29-3-HNO3 BH | 184-50-3DE | 0.549 | 1130 | N/A | 5 | 1 | 12.4 | -- | -- | -- |
| O-M29-3-HNO3 BH D | 184-50-3DE D | 0.554 | 1130 | N/A | 5 | 1 | 12.5 | 12.5 | -- | -- |
| O-M29-3-BHAR HNO3 | 184-50-3F | -0.003 | 57 | N/A | 5 | 1 | < 0.228 | -- | -- | -- |
| O-M29-3-BHAR HNO3 D | 184-50-3F D | -0.018 | 57 | N/A | 5 | 1 | < 0.228 | < 0.228 | -- | -- |
| O-M29-3-KMnO4 | 184-50-3G | 0.442 | 330 | N/A | 5 | 1 | 2.92 | -- | -- | -- |
| O-M29-3-KMnO4 D | 184-50-3G D | 0.463 | 330 | N/A | 5 | 1 | 3.06 | 2.99 | -- | -- |
| O-M29-3-HCl | 184-50-3H | 0.070 | 95 | N/A | 5 | 1 | < 0.380 | -- | -- | -- |
| O-M29-3-HCl D | 184-50-3H D | 0.060 | 95 | N/A | 5 | 1 | < 0.380 | < 0.380 | -- | -- |

**Client:** Pacific Environmental Services
**Project Number:** 43377

# Sample Report



| | |
|---|---|
| Date Received: | September 24, 1997 |
| Date Prepared: | October 10-20, 1997 |
| Date Analyzed: | October 21-22, 1997 |
| DATA FILE: | 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 SAMP ID | ug/L CONC | ml TV | ml FV | ml Aliquot | DIL FACTOR | Total ug RESULT | Avg. RESULT | RPD | %REC |
|---|---|---|---|---|---|---|---|---|---|---|
| O-M29-4-FHACE,FHAR,FILTER FH | 184-50-4ABC | -0.003 | N/A | 100 | 5 | 1 | < 0.400 | – | – | – |
| O-M29-4-FHACE,FHAR,FILTER FH D | 184-50-4ABC D | -0.016 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | – | – |
| O-M29-4-HNO3 BH | 184-50-4DE | 0.026 | 1105 | N/A | 5 | 1 | < 4.42 | – | – | – |
| O-M29-4-HNO3 BH D | 184-50-4DE D | 0.029 | 1105 | N/A | 5 | 1 | < 4.42 | < 4.42 | – | – |
| O-M29-4-BHAR HNO3 | 184-50-4F | 0.018 | 56 | N/A | 5 | 1 | < 0.224 | – | – | – |
| O-M29-4-BHAR HNO3 D | 184-50-4F D | 0.000 | 56 | N/A | 5 | 1 | < 0.224 | < 0.224 | – | – |
| O-M29-4-KMnO4 | 184-50-4G | 0.299 | 350 | N/A | 5 | 1 | 2.09 | – | – | – |
| O-M29-4-KMnO4 D | 184-50-4G D | 0.297 | 350 | N/A | 5 | 1 | 2.08 | 2.09 | – | – |
| O-M29-4-HCl | 184-50-4H | 0.010 | 61 | N/A | 5 | 1 | < 0.244 | – | – | – |
| O-M29-4-HCl D | 184-50-4H D | 0.005 | 61 | N/A | 5 | 1 | < 0.244 | < 0.244 | – | – |
| O-M29-FB-FHACE,FHAR,FILTER FH | 184-50-5ABC | -0.003 | N/A | 100 | 5 | 1 | < 0.400 | – | – | – |
| O-M29-FB-FHACE,FHAR,FILTER FH D | 184-50-5ABC D | -0.010 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | – | – |
| O-M29-FB-FHAR,HNO3 BH | 184-50-5BD | -0.016 | 150 | N/A | 5 | 1 | < 0.60 | – | – | – |
| O-M29-FB-FHAR,HNO3 BH D | 184-50-5BD D | -0.005 | 150 | N/A | 5 | 1 | < 0.60 | < 0.60 | – | – |
| O-M29-FB-BHAR HNO3 | 184-50-5E | -0.013 | 56 | N/A | 5 | 1 | < 0.224 | – | – | – |
| O-M29-FB-BHAR HNO3 D | 184-50-5E D | -0.013 | 56 | N/A | 5 | 1 | < 0.224 | < 0.224 | – | – |
| O-M29-FB-KMnO4 | 184-50-5F | -0.018 | 155 | N/A | 5 | 1 | < 0.62 | – | – | – |
| O-M29-FB-KMnO4 D | 184-50-5F D | -0.016 | 155 | N/A | 5 | 1 | < 0.62 | < 0.62 | – | – |
| O-M29-RB-FHACE,FHAR,FILTER FH | 184-50-6ABC | -0.016 | N/A | 100 | 5 | 1 | < 0.400 | – | – | – |
| O-M29-RB-FHACE,FHAR,FILTER FH D | 184-50-6ABC D | -0.003 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | – | – |
| O-M29-RB-FHAR,HNO3 BH | 184-50-6BD | 0.066 | 300 | N/A | 5 | 1 | < 1.20 | – | – | – |
| O-M29-RB-FHAR,HNO3 BH D | 184-50-6BD D | 0.083 | 300 | N/A | 5 | 1 | < 1.20 | < 1.20 | – | – |
| O-M29-RB-FHAR HNO3 | 184-50-6B | 0.033 | 100 | N/A | 5 | 1 | < 0.400 | – | – | – |
| O-M29-RB-FHAR HNO3 D | 184-50-6B D | 0.011 | 100 | N/A | 5 | 1 | < 0.400 | < 0.400 | – | – |
| O-M29-RB-KMnO4 | 184-50-6E | 0.019 | 290 | N/A | 5 | 1 | < 1.16 | – | – | – |
| O-M29-RB-KMnO4 D | 184-50-6E D | 0.028 | 290 | N/A | 5 | 1 | < 1.16 | < 1.16 | – | – |
| O-M29-RB-HCl | 184-50-6FE | 0.025 | 94 | N/A | 5 | 1 | < 0.376 | – | – | – |
| O-M29-RB-HCl D | 184-50-6FE D | 0.017 | 94 | N/A | 5 | 1 | < 0.376 | < 0.376 | – | – |

**Client:** Pacific Environmental Services
**Project Number:** 43377

# Sample Report



| | |
|---|---|
| Date Received: | September 24, 1997 |
| Date Prepared: | October 10-20, 1997 |
| Date Analyzed: | October 21-22, 1997 |
| DATA FILE: | 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 | 184-50-7ABC | 0.075 | N/A | 100 | 5 | 1 | < 0.400 | – | – | -- |
| I-M29-1-FHACE,FHAR,FILTER FH D | 184-50-7ABC D | 0.063 | N/A | 100 | 5 | 1 | < 0.400 | < 0.400 | – | -- |
| I-M29-1-FHAR,HNO3 BH | 184-50-7D | 0.166 | 435 | N/A | 5 | 1 | < 1.74 | – | – | -- |
| I-M29-1-FHAR,HNO3 BH D | 184-50-7D D | 0.144 | 435 | N/A | 5 | 1 | < 1.74 | < 1.74 | – | -- |
| I-M29-1-FHAR HNO3 | 184-50-7E | 0.022 | 85 | N/A | 5 | 1 | < 0.340 | – | – | -- |
| I-M29-1-FHAR HNO3 D | 184-50-7E D | 0.011 | 85 | N/A | 5 | 1 | < 0.340 | < 0.340 | – | -- |
| I-M29-1-KMnO4 | 184-50-7F | 0.075 | 275 | N/A | 5 | 1 | < 1.10 | – | – | -- |
| I-M29-1-KMnO4 D | 184-50-7F D | 0.072 | 275 | N/A | 5 | 1 | < 1.10 | < 1.10 | – | -- |
| O-M29-1-HNO3 BH MS | 184-50-1D MS | 8.522 | 954 | N/A | 5 | 1 | 163 | – | – | 170% |
| O-M29-1-HNO3 BH MSD | 184-50-1D MSD | 8.504 | 954 | N/A | 5 | 1 | 162 | 162 | 0.211% | 170% |
| O-M29-3-HNO3 BH MS | 184-50-3DE MS | 8.403 | 1130 | N/A | 5 | 1 | 190 | – | – | 168% |
| O-M29-3-HNO3 BH MSD | 184-50-3DE MSD | 7.976 | 1130 | N/A | 5 | 1 | 180 | 185 | 5.21% | 160% |
| O-M29-4-HNO3 BH MS | 184-50-4DE MS | 7.750 | 1105 | N/A | 5 | 1 | 171 | – | – | 155% |
| O-M29-4-HNO3 BH MSD | 184-50-4DE MSD | 7.575 | 1105 | N/A | 5 | 1 | 167.4 | 169 | 2.28% | 152% |
| O-M29-RB-FHAR,HNO3 BH MS | 184-50-6BD MS | 4.937 | 300 | N/A | 5 | 1 | 29.6 | – | – | 99% |
| O-M29-RB-FHAR,HNO3 BH MSD | 184-50-6BD MSD | 5.227 | 300 | N/A | 5 | 1 | 31.4 | 30.5 | 5.71% | 105% |
| I-M29-1-FHAR,HNO3 BH MS | 184-50-7D MS | 4.424 | 435 | N/A | 5 | 1 | 38.5 | – | – | 88% |
| I-M29-1-FHAR,HNO3 BH MSD | 184-50-7D MSD | 5.125 | 435 | N/A | 5 | 1 | 44.6 | 41.5 | 14.7% | 103% |
| O-M29-1-HNO3 BH MS | True Spike MS | 5 | 954 | N/A | 5 | 1 | 95.4 | – | – | -- |
| O-M29-1-HNO3 BH MSD | True Spike MS | 5 | 954 | N/A | 5 | 1 | 95.4 | – | – | -- |
| O-M29-3-HNO3 BH MS | True Spike MS | 5 | 1130 | N/A | 5 | 1 | 113 | – | – | -- |
| O-M29-3-HNO3 BH MSD | True Spike MS | 5 | 1130 | N/A | 5 | 1 | 113 | – | – | -- |
| O-M29-4-HNO3 BH MS | True Spike MS | 5 | 1105 | N/A | 5 | 1 | 111 | – | – | -- |
| O-M29-4-HNO3 BH MSD | True Spike MS | 5 | 1105 | N/A | 5 | 1 | 111 | – | – | -- |
| O-M29-RB-FHAR,HNO3 BH MS | True Spike MS | 5 | 300 | N/A | 5 | 1 | 30.0 | – | – | -- |
| O-M29-RB-FHAR,HNO3 BH MSD | True Spike MS | 5 | 300 | N/A | 5 | 1 | 30.0 | – | – | -- |
| I-M29-1-FHAR,HNO3 BH MS | True Spike MS | 5 | 435 | N/A | 5 | 1 | 43.5 | – | – | -- |
| I-M29-1-FHAR,HNO3 BH MSD | True Spike MS | 5 | 435 | N/A | 5 | 1 | 43.5 | – | – | -- |

**Client:** **Pacific Environmental Services**
**Project Number:** 43377

# Sample Report



| | |
|---|---|
| Date Received: | September 24, 1997 |
| Date Prepared: | October 10-20, 1997 |
| Date Analyzed: | October 21-22, 1997 |
| DATA FILE: | 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-FHAR,HNO3 BH MS | True Spike MS | 5 | 435 | N/A | 5 | 1 | 43.5 | -- | -- | -- |
| I-M29-1-FHAR,HNO3 BH MSD | True Spike MS | 5 | 435 | N/A | 5 | 1 | 43.5 | -- | -- | -- |
| Method Blank | 43377 MB1 | -0.008 | -- | -- | -- | -- | -- | -- | -- | -- |
| Method Blank D | 43377 MB1 D | -0.016 | -- | -- | -- | -- | -- | -- | -- | -- |
| LCS | 43377 LCS1 | 5.278 | -- | -- | -- | -- | -- | -- | -- | 106% |
| LCSD | 43377 LCS1 D | 5.018 | -- | -- | -- | -- | -- | -- | -- | 100% |
| Method Blank | 43377 MB2 | 0.003 | -- | -- | -- | -- | -- | -- | -- | -- |
| Method Blank D | 43377 MB2 D | -0.003 | -- | -- | -- | -- | -- | -- | -- | -- |
| LCS | 43377 LCS2 | 4.981 | -- | -- | -- | -- | -- | -- | -- | 100% |
| LCSD | 43377 LCS2 D | 4.733 | -- | -- | -- | -- | -- | -- | -- | 95% |

Triangle Laboratories, Inc.
301 Capitola Drive * Durham, North Carolina 27713
Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 05-Nov-97 at 04:27 PM

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

COPY KMM 9/25/97

## Chain of Custody Record

| Project Numb | Project Name | Analysis Requested | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| s413-004 | PLANT "A" US EPA EMC Asphalt Cement, | | | | | | | | |
| Samplers: Abernathy, Dickerson, Gay | | | | | | | | | |
| Date | Time | Field Sample ID | Sample Description | MM | Hg | | | | | | |
| 8/19/97 | 1104 | O-M29-1-FHACE | FH Acetone Rinse - Beaker No. M-2 | • | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-FHAR | FH 0.1 N HNO3 Rinse | • | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-Filter | Filter M97-003 - Beaker No. M-1 | • | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | • | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-BHAR | BH 0.1 N HNO3 Rinse | • | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | • | | | | | | |
| 8/19/97 | 1104 | O-M29-1-HCl | 8N HCl Rinse | | • | | | | | | |
| 8/20/97 | 0822 | O-M29-2-FHACE | FH Acetone Rinse - Beaker No. M-5 | • | • | | | | | | |
| 8/20/97 | 0822 | O-M29-2-FHAR | FH 0.1 N HNO3 Rinse | • | • | | | | | | |
| 8/20/97 | 0822 | O-M29-2-Filter | Filter M97-002 - Beaker No. M-4 | • | • | | | | | | |
| 8/20/97 | 0822 | O-M29-2-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | • | • | | | | | | Bottle 1/2 |
| 8/20/97 | 0822 | O-M29-2-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | • | • | | | | | | Bottle 2/2 |
| 8/20/97 | 0822 | O-M29-2-BHAR | BH 0.1 N HNO3 Rinse | • | • | | | | | | |
| 8/20/97 | 0822 | O-M29-2-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | • | | | | | | |
| 8/20/97 | 1405 | O-M29-2-HCl | 8N HCl Rinse | | • | | | | | | |
| 8/20/97 | 1405 | O-M29-3-FHACE | FH Acetone Rinse - Beaker No. M-7 | • | • | | | | | | |
| 8/20/97 | 1405 | O-M29-3-FHAR | FH 0.1 N HNO3 Rinse | • | • | | | | | | |
| 8/20/97 | 1405 | O-M29-3-Filter | Filter M97-004 - Beaker No. M-6 | • | • | | | | | | |

| 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 | Received for lab by: (Signature) | REMARKS | | |
| | 9/29/97 1435 | Kelli M. Lynch | | | |

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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 Numb | Project Name | Analysis Requested | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| s413-004 | US EPA EMC Asphalt Cement, PLANT "A" | | | | | | | | |
| Samplers: Abernathy, Dickerson, Gay | | | | | | | | | |
| Date | Time | Field Sample ID | Sample Description | MM | Hg | | | | | | |
| 8/20/97 | 1405 | Q-M29-3-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | | Bottle 1/2 |
| 8/20/97 | 1405 | O-M29-3-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | | Bottle 2/2 |
| 8/20/97 | 1405 | O-M29-3-BHAR | BH 0.1 N HNO3 Rinse | | | | | | | | |
| 8/20/97 | 1405 | O-M29-3-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | | | | | | | |
| 8/20/97 | 1405 | O-M29-3-HCl | 8N HCl Rinse | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-FHACE | FH Acetone Rinse - Beaker No. M-9 | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-FHAR | FH 0.1 N HNO3 Rinse | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-Filter | Filter M97-005 - Beaker No. M-8 | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | | Bottle 1/2 |
| 8/22/97 | 0741 | O-M29-4-HNO4 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | | Bottle 2/2 |
| 8/21/97 | 0740 | O-M29-4-BHAR | BH 0.1 N HNO3 Rinse | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | | | | | | | |
| 8/21/97 | 0740 | O-M29-4-HCl | 8N HCl Rinse | | | | | | | | |
| 8/20/97 | | O-M29-FB-FHACE | FH Acetone Rinse - Beaker No. M-15 | | | | | | | | |
| 8/20/97 | | O-M29-FB-FHAR | FH 0.1 N HNO3 Rinse | | | | | | | | |
| 8/20/97 | | O-M29-FB-Filter | Filter M97-006 - Beaker No. M-14 | | | | | | | | |
| 8/20/97 | | O-M29-FB-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | | |
| 8/20/97 | | O-M29-FB-BHAR | BH 0.1 N HNO3 Rinse | | | | | | | | |

| 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 | Received for lab by: (Signature) | REMARKS | | |
| | 9/24/97 1430 | | | | |

Page: 1 of 3

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 Numb | Project Name | Analysis Requested | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| s413-004 | US EPA EMC Asphalt Cement, PLANT "A" | | | | | | | | |
| Samplers: Abernathy, Dickerson, Gay | | MM | Hg | | | | | | |
| Date | Time | Field Sample ID | Sample Description | | | | | | | |
| 8/20/97 | | O-M29-FB-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | | | | | | |
| 8/20/97 | | O-M29-FB-HCl | 8N HCl Rinse | | | | | | | |
| 8/21/97 | | O-M29-RB-FHACE | FH Acetone Rinse - Beaker No. M-18 | | | | | | | |
| 8/21/97 | | O-M29-RB-FHAR | FH 0.1 N HNO3 Rinse | | | | | | | |
| 8/21/97 | | O-M29-RB-Filter | Filter No. 97-001 - Beaker No. M-16 | | | | | | | |
| 8/21/97 | | O-M29-RB-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | |
| 8/21/97 | | O-M29-RB-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | | | | | | |
| 8/21/97 | | O-M29-RB-HCl | 8N HCl Solution | | | | | | | |
| 8/19/97 | | I-M29-1-FHACE | FH Acetone Rinse - Beaker No. M-11 | | | | | | | |
| 8/19/97 | | I-M29-1-FHAR | FH 0.1 N HNO3 Rinse | | | | | | | |
| 8/19/97 | | I-M29-1-Filter | Filter M97-0010 - Beaker No. M-10 | | | | | | | |
| 8/19/97 | | I-M29-1-HNO3 | 5% HNO3 / 10% H2O2 Absorbing Solution | | | | | | | |
| 8/19/97 | | I-M29-1-BHAR | BH 0.1 N HNO3 Rinse | | | | | | | |
| 8/19/97 | | I-M29-1-KMnO4 | 10% H2SO4 / 4% KMnO4 Absorbing Sol. | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

| 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) |
| | 9/24/97 1430 | | | | |

3/5

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 43377
Client: PES03 - Pacific Environmental Services

Book 184

Date Received 09/24/97 By Kristi M. Lynch

Page 50

Ice Chest NO COOLANT Temp 20.0 C

Carrier and Number HAND DELIVERED

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 184-50-1A | O-M29-1-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-1-FHACE | METALS LAB | | | | | | | | | |
| 184-50-1B | O-M29-1-FHAR | FH .1N HNO3 | | | | | | | | | |
| | O-M29-1-FHAR | METALS LAB | | | | | | | | | |
| 184-50-1C | O-M29-1-FILTER | FILTER | | | | | | | | | |
| | O-M29-1-FILTER | METALS LAB | | | | | | | | | |
| 184-50-1D | O-M29-1-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-1-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-1E | O-M29-1-BHAR | BH HNO3 | | | | | | | | | |
| | O-M29-1-BHAR | METALS LAB | | | | | | | | | |
| 184-50-1F | O-M29-1-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-1-KMNO4 | METALS LAB | | | | | | | | | |
| 184-50-1G | O-M29-1-HCL | 8N HCL | | | | | | | | | |
| | O-M29-1-HCL | METALS LAB | | | | | | | | | |
| 184-50-2A | O-M29-2-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-2-FHACE | METALS LAB | | | | | | | | | |
| 184-50-2B | O-M29-2-FHAR | FH .1N HNO3 | | | | | | | | | |
| | O-M29-2-FHAR | METALS LAB | | | | | | | | | |
| 184-50-2C | O-M29-2-FILTER | FILTER | | | | | | | | | |
| | O-M29-2-FILTER | METALS LAB | | | | | | | | | |
| 184-50-2D | O-M29-2-HNO3 | HNO3/H202 | | | | | | | | | |
| | O-M29-2-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-2E | O-M29-2-HN03 | HNO3/H202 | | | | | | | | | |
| | O-M29-2-HN03 | METALS LAB | | | | | | | | | |
| 184-50-2F | O-M29-2-BHAR | BH HNO3 | | | | | | | | | |
| | O-M29-2-BHAR | METALS LAB | | | | | | | | | |
| 184-50-2G | O-M29-2-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-2-KMNO4 | METALS LAB | | | | | | | | | |

Receiving Remarks: NO COOLANT WAS WITH SAMPLES. COC LISTED SAMPLE O-M29-FB-HCL BUT SAMPLE WAS NOT RECEIVED.

Archive Remarks:

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

Custody Seal : Absent | Sample Seals: Absent | TLI Project Number 43377 | Book
Chain of Custody : Present | Container...: Intact | Client: PES03 - Pacific Environmental Services | 184
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A | Date Received 09/24/97 | By Kelly M. Smoke

Ice Chest NO COOLANT Temp 20.0 C | Carrier and Number HAND DELIVERED | 50

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 184-50-2H | 0-M29-2-HCL | 8N HCL | | | | | | | | | |
| | 0-M29-2-HCL | METALS LAB | | | | | | | | | |
| 184-50-3A | O-M29-3-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-3-FHACE | METALS LAB | | | | | | | | | |
| 184-50-3B | O-M29-3-FHAR | FH .1N HNO3 | | | | | | | | | |
| | O-M29-3-FHAR | METALS LAB | | | | | | | | | |
| 184-50-3C | O-M29-3-FILTER | FILTER | | | | | | | | | |
| | O-M29-3-FILTER | METALS LAB | | | | | | | | | |
| 184-50-3D | O-M29-3-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-3-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-3E | O-M29-3-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-3-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-3F | O-M29-3-BHAR | BH HNO3 | | | | | | | | | |
| | O-M29-3-BHAR | METALS LAB | | | | | | | | | |
| 184-50-3G | O-M29-3-KMN04 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-3-KMN04 | METALS LAB | | | | | | | | | |
| 184-50-3H | O-M29-3-HCL | 8N HCL | | | | | | | | | |
| | O-M29-3-HCL | METALS LAB | | | | | | | | | |
| 184-50-4A | O-M29-4-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-4-FHACE | METALS LAB | | | | | | | | | |
| 184-50-4B | O-M29-4-FHAR | FH .1N HNO3 | | | | | | | | | |
| | O-M29-4-FHAR | METALS LAB | | | | | | | | | |
| 184-50-4C | O-M29-4-FILTER | FILTER | | | | | | | | | |
| | O-M29-4-FILTER | METALS LAB | | | | | | | | | |
| 184-50-4D | O-M29-4-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-4-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-4E | O-M29-4-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-4-HNO4 * | METALS LAB | | | | | | | | | |

Receiving Remarks: NO COOLANT WAS WITH SAMPLES. COC LISTED SAMPLE O-M29-FB-HCL BUT SAMPLE WAS NOT RECEIVED.

Archive Remarks:

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

Custody Seal : Absent | Sample Seals: Absent
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 43377
Client: PES03 - Pacific Environmental Services

Book 184

Date Received 09/24/97 By [signature] Page 50

Ice Chest NO COOLANT Temp 20.0 C

Carrier and Number HAND DELIVERED

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 184-50-4F | O-M29-4-BHAR | BH HNO3 | | | | | | | | | |
| | O-M29-4-BHAR | METALS LAB | | | | | | | | | |
| 184-50-4G | O-M29-4-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-4-KMNO4 | METALS LAB | | | | | | | | | |
| 184-50-4H | O-M29-4-HCL | 8N HCL | | | | | | | | | |
| | O-M29-4-HCL | METALS LAB | | | | | | | | | |
| 184-50-5A | O-M29-FB-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-FB-FHACE | METALS LAB | | | | | | | | | |
| 184-50-5B | O-M29-FB-FHAR | FH .1N HNO3 | | | | | | | | | |
| | O-M29-FB-FHAR | METALS LAB | | | | | | | | | |
| 184-50-5C | O-M29-FB-FILTER | FILTER | | | | | | | | | |
| | O-M29-FB-FILTER | METALS LAB | | | | | | | | | |
| 184-50-5D | O-M29-FB-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-FB-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-5E | O-M29-FB-BHAR | BH HNO3 | | | | | | | | | |
| | O-M29-FB-BHAR | METALS LAB | | | | | | | | | |
| 184-50-5F | O-M29-FB-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-FB-KMNO4 | METALS LAB | | | | | | | | | |
| 184-50-6A | O-M29-RB-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | O-M29-RB-FHACE | METALS LAB | | | | | | | | | |
| 184-50-6B | O-M29-RB-FHAR | FH .1 HNO3 | | | | | | | | | |
| | O-M29-RB-FHAR | METALS LAB | | | | | | | | | |
| 184-50-6C | O-M29-RB-FILTER | FILTER | | | | | | | | | |
| | O-M29-RB-FILTER | METALS LAB | | | | | | | | | |
| 184-50-6D | O-M29-RB-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | O-M29-RB-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-6E | O-M29-RB-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | O-M29-RB-KMNO4 | METALS LAB | | | | | | | | | |

Receiving Remarks: NO COOLANT WAS WITH SAMPLES. COC LISTED SAMPLE O-M29-FB-HCL BUT SAMPLE WAS NOT RECEIVED.

Archive Remarks:

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

| | | | |
|---|---|---|---|
| Custody Seal : Absent | Sample Seals: Absent | TLI Project Number 43377 | Book |
| Chain of Custody : Present | Container...: Intact | Client: PES03 - Pacific Environmental Services | 184 |
| Sample Tags : Absent | | | |
| Sample Tag Numbers: Not Listed on Chain of Custody | | | |
| SMO Forms : N/A | | Date Received 09/24/97 By | Page |
| Ice Chest NO COOLANT Temp 20.0 C | | Carrier and Number HAND DELIVERED | 50 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 184-50-6F | O-M29-RB-HCL | 8N HCL | | | | | | | | | |
| | O-M29-RB-HCL | METALS LAB | | | | | | | | | |
| 184-50-7A | I-M29-1-FHACE | FH ACETONE RINSE | | | | | | | | | |
| | I-M29-1-FHACE | METALS LAB | | | | | | | | | |
| 184-50-7B | I-M29-1-FHAR | FH .1N HNO3 | | | | | | | | | |
| | I-M29-1-FHAR | METALS LAB | | | | | | | | | |
| 184-50-7C | I-M29-1-FILTER | FILTER | | | | | | | | | |
| | I-M29-1-FILTER | METALS LAB | | | | | | | | | |
| 184-50-7D | I-M29-1-HNO3 | HNO3/H2O2 | | | | | | | | | |
| | I-M29-1-HNO3 | METALS LAB | | | | | | | | | |
| 184-50-7E | I-M29-1-BHAR | BH HNO3 | | | | | | | | | |
| | I-M29-1-BHAR | METALS LAB | | | | | | | | | |
| 184-50-7F | I-M29-1-KMNO4 | H2SO4/KMNO4 | | | | | | | | | |
| | I-M29-1-KMNO4 | METALS LAB | | | | | | | | | |

Receiving Remarks: NO COOLANT WAS WITH SAMPLES. COC LISTED SAMPLE O-M29-FB-HCL BUT SAMPLE WAS NOT RECEIVED.

Archive Remarks:

Project # 43377

Client: Pacific Environmental Services

Date/Int.: 10/8/97 DSE

Client Run# O-M29-1

Triangle Laboratories of RTP
(919) 544-5729

Analytes

| ICP | GFAA | FLAA | CVAA |
|---|---|---|---|
| Ag Ni<br>As P<br>Ba Pb<br>Be Sb<br>Cd Se<br>Co Tl<br>Cr Zn<br>Mn Cu | | | Hg |

CONT # 1

Filter
Type: G or Q

label 184-50-1C

Dessicate to dryness and redissolve in 10ml con HNO3 — Int DSE, Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/14/97

label 184-50-1C,A,B

Microwave dig with conc. HF conc. HNO3 — Int DSE, Date 10/14/97

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls — Int DSE, Date 10/14/97

label 184-50-1C,A,B

Volume 100 ML

For Metal

label 184-50-1C,A,B Int DSE

Volume 100 Date 10/14/97

(post digest spike on FH for GFAA))

FH & BH Post dig. spk.

_____ppb (Instruct spiked)

Aliquot A: 5 mL

(No spike required)

Aliquot B: 5 mL

For Hg

label 184-50-1ABC Int SRB

Volume 100 ml Date 10/20/97

CONT # 2

Acetone Rinse

label 184-50-1A

Volume DRY

CONT # 3

HNO3 Rinse

label 184-50-1B

Volume 120 mls

Reduce volume to 20 ml on hotplate — Int SF, Date 10-10-97

CONT # 4

Back Half Impinger

label 184-50-1D

Volume 954 mls

For Metals

label 184-50-1D

Volume 854

Reduce Volume to 20 ml. on Hotplate — Int. SF, Date 10-10-97

Hotplate dig with HNO3 and H2O2 — Int. DSE, Date 10/14/97

Add 500 uL Sc — Int. _____, Date _____

Dilute to 100 mls — Int. DSE, Date 10/14/97

label 184-50-1D Int DSE

Volume 100 Date 10/14/97

(One post digestion spk on BH for GFAA)

For Hg

label 184-50-1D Int SRB

Volume 100 Date 10/20/97

Sample

Aliquot A: 5

Aliquot B: 5

Spike
(1 BH Hg Spike required)

label 184-50-1D 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

Hg Impingers

CONT # 5A — HNO3

label 184-50-1E

Volume 37 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5B — KMNO4

label 184-50-1F

Volume 345 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5C — HCl

label 184-50-1G

Volume 50 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

(Duplicate Analysis of Eac

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials: _____

Date: _____

roject # 43377

:llent: _____

ate/Int.: _____

llent Run# O-M29-2

# Triangle Laboratories of RTP

(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

CONT # 1 — Filter pe: G or Q — label 184-50-2C

CONT # 2 — Acetone Rinse — label 184-50-2A — Volume DRY

CONT # 3 — HNO3 Rinse — label 184-50-2B — Volume 91 mls

CONT # 4 — Back Half Impinger — label 184-50-2D/E — Volume 1645 = TV

2D = 940 mls
2E = 705 mls

Hg Impingers

CONT # 5A — HNO3 — label 184-50-2F — Volume 35 ml — Aliquot A 5 — Aliquot B 5 — Int SRB — Date 10/20/97

CONT # 5B — KMNO4 — label 184-50-2G — Volume 405 ml — Aliquot A 5 — Aliquot B 5 — Int SRB — Date 10/20/97

CONT # 5C — HCl — label 184-50-2 — Volume 95 ml — Aliquot A 5 — Aliquot B 5 — Int SRB — Date 10/20/

(Duplicate Analysis of Ea

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int OSE — Date 10/14/97

Reduce volume to 20 ml on hotplate — Int SF — Date 10-10-97

owave dig n conc. HF conc. HNO3 — Int OSE — Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 — Int OSE — Date 10/14/97 — label 184-50-2C,A,B

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls — Int OSE — Date 10/14/97 — label 184-50-2C,A,B — Volume 100 ML

For Metal — label 184-50-2C,A,B — Int OSE — Volume 100 — Date 10/14/97

For Hg — label 184-50-2ABC — Int SRB — Volume 100 ml — Date 10/20/97

(post digest spike on FH for GFAA))

& BH Post dig. spk.

Aliquot A: 5 mL

(No spike required)

For Metals — label 184-50-2D/E — Volume 1545

For Hg — label 184-50-2DE — Volume 100

Reduce Volume to 20 mL on Hotplate — Int. SF — Date 10-10-97

Hotplate dig with HNO3 and H202 — Int. OSE — Date 10/14/97

~~Add 500 uL Sc~~ — Int. ____ — Date ____

Dilute to 100 mls — Int. OSE — Date 10/14/97

label 184-50-2D/E — Int OSE — Volume 100 — Date 10/14/97

(One post digestion spk on BH for GFAA)

Sample — label 184-50-2DE — Int SRB — Volume 100 — Date 10/20/97 — Aliquot A: 5 — Aliquot B: 5

Spike (1 BH Hg Spike required) — label ____ — Int ____ — Volume ____ — Date ____ — Aliquot A: ____ — Aliquot B: ____

spk ____ ml of ____ ppb — Int ____

final spk conc. added ____ ppb — Date ____

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials: _____

Project # 43377

Client:

Date/Int.:

Client Run # 0-M29-3

# Triangle Laboratories of RTP

(919) 544-5729

Analytes: ICP · GFAA · FLAA · CVAA

CONT # 1

Filter
Type: G or Q

label 184-50-3C

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3 — Int DSE, Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/14/97

label 184-50-3C,A,B

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls — Int DSE, Date 10/14/97

label 184-50-3C,A,B

Volume 100 ML

For Metal

label 184-50-3C,A,B Int DSE

Volume 100 Date 10/14/97

post digest spike on FH for GFAA))

For Hg

label 184-50-3ABC Int SRB

Volume 100 ml Date 10/20/97

FH & BH Post dig. spk.

_____ppb (Instrument spiked)

Aliquot A: 5 ml

(No spike required)

Aliquot B: 5 ml

CONT # 2

Acetone Rinse

label 184-50-3A

Volume DRY

Reduce volume to 20 ml on hotplate — Int SE, Date 10-10-97

CONT # 3

HNO3 Rinse

label 184-50-3B

Volume 76 mls

CONT # 4

Back Half Impinger

label 184-50-3D/E

Volume 1130 = FV

3D = 925 mls

3E = 205 mls

For Metals

label 184-50-3D,E

Volume 1030

Reduce Volume to 20 ml. on Hotplate — Int. SF, Date 10-10-97

Hotplate dig with HNO3 and H202 — Int. DSE, Date 10/14/97

Add 500 uL Sc — Int. ____, Date ____

Dilute to 100 mls — Int. DSE, Date 10/14/97

label 184-50-3D,E Int DSE

Volume 102 Date 10/14/97

(One post digestion spk on BH for GFAA)

For Hg

label 184-50-3DE

Volume 100

Sample

label 184-50-3DE Int SRB

Volume 100 Date 10/20/97

Aliquot A: 5

Aliquot B: 5

Spike

(1 Dilute Hg Spike required)

label 184-50-3DE 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

Hg Impingers

CONT # 5A — HNO3

label 184-50-3F

Volume 57 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5B — KMNO4

label 184-50-3G

Volume 330 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5C — HCl

label 184-50-3H

Volume 95 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/9

(Duplicate Analysis of Eac

FH & BH Serial dilution performed

____ ml to ____ ml FV + ____ uL Sc

Initials: _____

Date: _____

Project # 43377

Client:

Date/Int.:

Client Run# 0-M29-4

# Triangle Laboratories of RTP

(919) 544-5729

Analytes

| ICP | GFAA | FLAA | CVAA |
|---|---|---|---|
| | | | |

CONT # 1

Filter Type: G or Q

label 184-50-4C

Dessicate to dryness and redissolve in 10ml con HNO3 Int CSE Date 10/14/97

Microwave dig: conc. HF conc. HNO3 Int CSE Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 Int CSE Date 10/14/97

label 184-50-4C,A,B

Combine digestates

Front Half Digestate

Add 500 uL Sc

Dilute to 100 mls Int CSE Date 10/14/97

label 184-50-4C,A,B

Volume 100 ML

For Metal

label 184-50-4C,A,B Int CSE

Volume 100 Date 10/14/97

post digest spike on FH for GFAA))

& BH Post dig. spk.

ppb (instrument spiked)

CONT # 2

Acetone Rinse

label 184-50-4A

Volume DRY

Reduce volume to 20 ml on hotplate Int SF Date 10-10-97

CONT # 3

HNO3 Rinse

label 184-50-4B

Volume 63 mls

CONT # 4

Back Half Impinger

4D = 990 mls

4E = 115 mls

label 184-50-4D,E

Volume 1105 = TV

For Metals

label 184-50-4D,E

Volume 1005

Reduce Volume to 20 ml on Hotplate Int SF Date 10-10-97

Hotplate dig with HNO3 and H202 Int CSE Date 10/14/97

Add 500 uL Sc Int. Date

Dilute to 100 mls Int CSE Date 10/14/97

For Hg

label 184-50-4D,E Int CSE

Volume 100 Date 10/14/97

(One post digestion spk on BH for GFAA)

For Hg

label 184-50-4ABC Int SRB

Volume 100 ml Date 10/20/97

Aliquot A: 5 mL

(No spike required)

Hg Impingers

CONT # 5A HNO3

label 184-50-4F

Volume 56 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5B KMNO4

label 184-50-4G

Volume 350 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5C HCl

label 184-50-4H

Volume 61 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20

(Duplicate Analysis of Ea

Sample

label 184-50-4DE Int SRB

Volume 100 Date 10/20/97

Aliquot A: 5

Aliquot B: 5

Spike

(1 BH Hg Spike required)

label 184-50-4DE Int SRB

Volume 100 Date 10/20/97

Aliquot A: 5

Aliquot B: 5

spk 5 ml of 162 ppb Int SRB

final spk conc. added 5 ppb Date 10/20/

FH & BH Serial dilution performed

___ ml to ___ ml FV + ___ uL Sc

Initials: ___

Project # 43377

Client:

Date/Int.:

Client Run # 0-M-29 F. Blank

# Triangle Laboratories of RTP

(919) 544-5729

Analytes

| ICP | GFAA | FLAA | CVAA |
|---|---|---|---|
| | | | |

CONT # 1

Filter type: G or Q

label 184-50-5C

Dessicate to dryness and redissolve in 10ml con HNO3 Int OSE Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 Int OSE Date 10/14/97

label 184-50-5C,A,B

Microwave dig with conc. HF conc. HNO3 Int OSE Date 10/14/97

Combine digestates

Front Half Digestate

Add ~~500~~ uL Sc

Dilute to 100 mls Int OSE Date 10/14/97

label 184-50-5C,A,B

Volume 100 ML

For Metal

label 184-50-5C,A,B Int OSE

Volume 100 Date 10/14/97

(Digest spike on FH for GFAA))

For Hg

label 184-50-5ABC Int SRB

Volume 100 ml Date 10/20/97

& BH Post dig. spk.

_____ppb (Instrument spiked)

Aliquot A: 5 mL

(No spike required)

Aliquot B: 5 mL

CONT # 2

Acetone Rinse

label 184-50-5A

Volume DRY

CONT # 3

HNO3 Rinse

used: 57 mls of 5B

label 184-50-5B

Volume 107mls=TV

Reduce volume to 20 ml on hotplate Int SE Date 10-14-97

Reduce Volume to 20 mL on Hotplate Int. SE Date 10-14-97

Hotplate dig with HNO3 and H202 Int. OSE Date 10/14/97

Add 500 uL Sc Int. _____ Date _____

Dilute to 100 mls Int. OSE Date 10/14/97

184-50-5B,D

label _____ Int OSE

Volume 100 Date 10/14/97

(One post digestion spk on BH for GFAA)

CONT # 4

Back Half Impinger

used: 5B = 50 mls, 5D = 100 mls

label 184-50-5D

Volume 255mls=TV

For Metals

label 184-50-5B,D

Volume 150 mls

For Hg

label _____

Volume _____

CONT # 5A

HNO3

label 184-50-5E

Volume 56 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5B

KMNO4

label 184-50-5F

Volume 155 ml

Aliquot A 5

Aliquot B 5

Int SRB

Date 10/20/97

CONT # 5C

HCl

label _____

Volume _____ ml

Aliquot A _____

Aliquot B _____

Int _____

Date _____

Hg Impingers

(Duplicate Analysis of Eac

Sample

label 184-50-5BD Int SRB

Volume 100 Date 10/20/97

Aliquot A: 5

Aliquot B: 5

Spike

(1 BH Hg Spike required)

label _____ Int _____

Volume _____ Date _____

Aliquot A: _____

Aliquot B: _____

spk _____ ml of _____ ppb Int _____

final spk conc. added _____ ppb Date _____

FH & BH Serial dilution performed

_____ ml to _____ ml FV + _____ uL Sc

Initials: _____

Date:

oject # 43377

lient:

ate/Int.:

lient Run# 0-M29-R.Blank

# Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

CONT # 1 — Filter
pe: G or Q
abel 184-50-6C

CONT # 2 — Acetone Rinse
label 184-50-6A
Volume DRY

Dessicate to dryness and redissolve in 10ml con HNO3 — Int DSE, Date 10/14/97

owave dig: Int DSE
conc. HF
conc. HNO3 Date 10/14/97

Reduce volume to 20 ml on hotplate — Int DSE, Date 10/14/97

Microwave dig with conc. HF and conc. HNO3 — Int DSE, Date 10/14/97
label 184-50-6C,A,B

Combine digestates

Front Half Digestate

Add ~~500~~ uL SE

Dilute to 100 mls — Int DSE, Date 10/14/97
label 184-50-6C,A,B
Volume 100 ML

r Metal
184-50-6C,A,B
abel ____ Int DSE
olume 100 Date 10/14/97
post digest spike on FH for GFAA))

For Hg
label 184-50-6ABC Int SRB
Volume 100 ml Date 10/20/97

& BH Post dig. spk.
Aliquot A: 5 ml
(No spike required)

CONT # 3 — HNO3 Rinse (used 6B = 175mls)
label 184-50-6B
Volume 375mls

CONT # 4 — Back Half Impinger (used 6B = 100mls, 6D = 200 mls)
label 184-50-6D
Volume 320mls

For Metals / For Hg
label 184-50-6B,D / label ____
Volume 300mls / Volume ____

Reduce Volume to 20 mL on Hotplate — Int. SE, Date 10-10-97

Hotplate dig with HNO3 and H202 — Int. DSE, Date 10/14/97

Add 500 uL Sc — Int. ____, Date ____

Dilute to 100 mls — Int. DSE, Date 10/14/97

184-50-6B,D
label ____ Int DSE
Volume 100 Date 10/14/97
(One post digestion spk on BH for GFAA)

Hg Impingers

CONT # 5A — HNO3
label 184-50-6B Int SRB
Volume 100 ml Date 10/21/97
Aliquot A 5
Aliquot B 5

CONT # 5B — KMNO4
label 184-50-6E Int SRB
Volume 240 ml Date 10/21/97
Aliquot A 5
Aliquot B 5

CONT # 5C — HCl
label 184-50-6F Int SRB
Volume 94 ml Date 10/21/97
Aliquot A 5
Aliquot B 5
(Duplicate Analysis of Ea

Sample
label 184-50-6BD Int SRB
Volume 100 Date 10/21/97
Aliquot A: 5
Aliquot B: 5

Spike
(1 BH Hg Spike required)
label 184-50-6BD Int SRB
Volume 100 Date 10/21/97
Aliquot A: 5
Aliquot B: 5
spk 5 ml of 100 ppb Int SRB
final spk conc. added 5 ppb Date 10/21/97

FH & BH Serial dilution performed
____ ml to ____ ml FV + ____ uL Sc
Initials: ____

Project # 43371

Client:

Date/Int.:

Client Run# T-M29-1

# Triangle Laboratories of RTP
(919) 544-5729

Analytes: ICP | GFAA | FLAA | CVAA

CONT # 1
Filter
Type: G or Q
label 184-50-7C

CONT # 2
Acetone Rinse
label 184-50-7A
Volume DRY

CONT # 3
HNO3 Rinse
label 184-50-7B
Volume 98 mls

CONT # 4
Back Half Impinger
label 184-50-7D
Volume 435

Hg Impingers

CONT # 5A
HNO3
label 184-50-7E
Volume 85 ml
Aliquot A 5
Aliquot B 5
Int SRB
Date 10/21/97

CONT # 5B
KMNO4
label 184-50-7F
Volume 275 ml
Aliquot A 5
Aliquot B 5
Int SRB
Date 10/21/97

CONT # 5C
HCl
label ____
Volume ____ ml
Aliquot A ____
Aliquot B ____
Int ____
Date ____

(Duplicate Analysis of Eac

~~Dessicate to dryness and~~ redissolve in 10ml con HNO3
Int DSE
Date 10/14/97

Reduce volume to 20 ml on hotplate
Int SF
Date 10-10-97

Microwave dig with conc. HF and conc. HNO3
Int DSE
Date 10/14/97
label 184-50-7C,A,B

Microwave dig
h conc. HF
conc. HNO3
Int DSE
Date 10/14/97

Combine digestates

Front Half Digestate

Add 500 uL Sc
Int DSE
Date 10/14/97

Dilute to 100 mls
label 184-50-7C,A,B
Volume 100 ML

For Metals
label 184-50-7D
Volume 335

For Hg
label 184-50-7D
Volume 100

Reduce Volume to 20 ml. on Hotplate
Int. SF
Date 10-10-97

Hotplate dig with HNO3 and H202
Int. DSE
Date 10/14/97

Add 500 uL Sc
Int. ____
Date ____

Dilute to 100 mls
Int. DSE
Date 10/14/97

Sample
label 184-50-7D
Int SRB
Volume 100
Date 10/20/97
Aliquot A: 5
Aliquot B: 5

Spike
(1 BH Hg Spike required)
label 184-50-7D
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 10/21/97

For Metal
label 184-50-7C,A,B
Int DSE
Volume 100
Date 10/14/97
(post digest spike on FH for GFAA))

For Hg
label 184-50-7ABC
Int SRB
Volume 100 ml
Date 10/21/97
Aliquot A: 5 ml
(No spike required)
Aliquot B: 5 mL

label 184-50-7D
Int DSE
Volume 100
Date 10/14/97
(One post digestion spk on BH for GFAA)

& BH Post dig. spk.
____ ppb (Instrument spiked)

FH & BH Serial dilution performed
____ ml to ____ ml FV + ____ uL Sc
Initials: ____
Date:

# 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 |
|---|---|---|---|---|---|---|---|---|
| 10/13/97 | 43339-C LCS | * | 3-013-4 | * | 1000/100 | * | DSE | SF |
| | 184-12-2BMS | | | | | | ↓ | ↓ |
| | 184-12-2B MSD | | | | | | ↓ | ↓ |
| | | | | | | | | |
| 10/14/97 | 43478-LCS | * | 3-013-4 | * | 250/50 | * | SRB | SF |
| | 185-52-2MS | | | | | | ↓ | ↓ |
| | 185-52-2MSD | | | | | | ↓ | ↓ |
| | | | | | | | | |
| 10/14/97 | 43482B-LCS | * | 3-013-4 | * | 1000/100 | * | SRB | J.L.S |
| | 185-56-1CMS | | | | | | ↓ | ↓ |
| | 185-56-1CMSD | | | | | | ↓ | ↓ |
| | | | | | | | | |
| 10/14/97 | 43482E-LCS | * | 3-013-4 | * | 1000/100 | * | SRB | SF |
| | 185-56-2-4 MS | | | | | | ↓ | ↓ |
| | 185-56-2-4 MSD | | | | | | ↓ | ↓ |
| | | | | | | | | |
| 10/14/97 | 43536-LCS | * | 3-013-4 | * | 250/50 | * | SRB | DSE |
| | 186-11-2MS | | | | | | ↓ | ↓ |
| | 186-11-2MSD | | | | | | ↓ | ↓ |
| | | | | | | | | |
| 10/14/97 | 43377-LCS | * | 3-013-4 | * | 1000/100 | * | DSE | SRB |
| | | P | 2-120-2 | 1000 | 100/100 | 1000 | ↓ | ↓ |
| | | | | | | | | |

TLI # 43377

## * SEE SPIKE LOG

| | Spiking Standard Preparation | | | | | SPIKING *from Spiking Standard* | | |
|---|---|---|---|---|---|---|---|---|
| EXP date | Element | Standard ID | Ong. Std. (ppm) | Spike(uL) Fvol(100mL) | conc (ppm) | 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 | Ong 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 3-013-4***
***EXP: 11/26/97***

***Spiked by:***
Predigestion- D. Sheeler-Edwards 10/14/97

Postdigestion-

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43377

Transfer From: IWLM To: IA I

| | Initials.. | Date..... | Time... |
|---|---|---|---|
| Released by: | DSE | 10/14/97 | 19:15 |
| Accepted by: | MKH | 10/14/97 | 21:45 |

| MILES.ID..... | | TLI_No..... | Cust.Id..... |
|---|---|---|---|
| 43377- | -000 | TLI Blank | TLI Method Blank |
| 43377- | -001 | 184-50-1A | O-M29-1-FHACE |
| 43377- | -002 | 184-50-1B | O-M29-1-FHAR |
| 43377- | -003 | 184-50-1C | O-M29-1-FILTER |
| 43377- | -004 | 184-50-1D | O-M29-1-HNO3 |
| 43377- | -005 | 184-50-1E | O-M29-1-BHAR |
| 43377- | -006 | 184-50-1F | O-M29-1-KMNO4 |
| 43377- | -007 | 184-50-1G | O-M29-1-HCL |
| 43377- | -008 | 184-50-2A | O-M29-2-FHACE |
| 43377- | -009 | 184-50-2B | O-M29-2-FHAR |
| 43377- | -010 | 184-50-2C | O-M29-2-FILTER |
| 43377- | -011 | 184-50-2D | O-M29-2-HNO3 |
| 43377- | -012 | 184-50-2E | O-M29-2-HN03 |
| 43377- | -013 | 184-50-2F | O-M29-2-BHAR |
| 43377- | -014 | 184-50-2G | 0-M29-2-KMNO4 |
| 43377- | -015 | 184-50-2H | 0-M29-2-HCL |
| 43377- | -016 | 184-50-3A | O-M29-3-FHACE |
| 43377- | -017 | 184-50-3B | O-M29-3-FHAR |
| 43377- | -018 | 184-50-3C | O-M29-3-FILTER |
| 43377- | -019 | 184-50-3D | O-M29-3-HNO3 |
| 43377- | -020 | 184-50-3E | O-M29-3-HNO3 |
| 43377- | -021 | 184-50-3F | O-M29-3-BHAR |
| 43377- | -022 | 184-50-3G | O-M29-3-KMN04 |
| 43377- | -023 | 184-50-3H | O-M29-3-HCL |
| 43377- | -024 | 184-50-4A | O-M29-4-FHACE |
| 43377- | -025 | 184-50-4B | O-M29-4-FHAR |
| 43377- | -026 | 184-50-4C | O-M29-4-FILTER |
| 43377- | -027 | 184-50-4D | O-M29-4-HNO3 |
| 43377- | -028 | 184-50-4E | O-M29-4-HNO3 |
| 43377- | -029 | 184-50-4F | O-M29-4-BHAR |

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43377

Transfer From: IWLM To: IA I

| | Initials.. | Date..... | Time... |
|---|---|---|---|
| Released by: | [illegible] | 10/14/97 | 19:15 |
| Accepted by: | MLM | 10/14/97 | 21:45 |

| MILES.ID..... | | TLI_No..... | Cust.Id..... |
|---|---|---|---|
| 43377- | -030 | 184-50-4G | O-M29-4-KMNO4 |
| 43377- | -031 | 184-50-4H | O-M29-4-HCL |
| 43377- | -032 | 184-50-5A | O-M29-FB-FHACE |
| 43377- | -033 | 184-50-5B | O-M29-FB-FHAR |
| 43377- | -034 | 184-50-5C | O-M29-FB-FILTER |
| 43377- | -035 | 184-50-5D | O-M29-FB-HNO3 |
| 43377- | -036 | 184-50-5E | O-M29-FB-BHAR |
| 43377- | -037 | 184-50-5F | O-M29-FB-KMNO4 |
| 43377- | -039 | 184-50-6A | O-M29-RB-FHACE |
| 43377- | -040 | 184-50-6B | 0-M29-RB-FHAR |
| 43377- | -041 | 184-50-6C | O-M29-RB-FILTER |
| 43377- | -042 | 184-50-6D | O-M29-RB-HNO3 |
| 43377- | -043 | 184-50-6E | O-M29-RB-KMNO4 |
| 43377- | -044 | 184-50-6F | O-M29-RB-HCL |
| 43377- | -045 | 184-50-7A | I-M29-1-FHACE |
| 43377- | -046 | 184-50-7B | I-M29-1-FHAR |
| 43377- | -047 | 184-50-7C | I-M29-1-FILTER |
| 43377- | -048 | 184-50-7D | I-M29-1-HNO3 |
| 43377- | -049 | 184-50-7E | I-M29-1-BHAR |
| 43377- | -050 | 184-50-7F | I-M29-1-KMNO4 |
| 43377- | -051 | 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 | ↓ | MCH |
| | 184-50-1ABC PDS | P | 2-112-4 | 100 | 100/10 | ↓ | MCH |
| | 184-50-1C PDS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 10/19/97 | 43239 | ↓ | 3-013-3 | ↓ | 100/10 | ↓ | MCH |
| | 183-11-5 PDS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 10/19/97 | 42011 Cnl | ↓ | 3-013-3 | ↓ | 100/10 | ↓ | MCH |
| | 170-70-3 PDS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 10/14/97 | 43438 | ↓ | 3-013-3 | ↓ | 100/10 | ↓ | MCH |
| | 185-12-1 PDS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 10/20/97 | 43411 | ↓ | 3-013-3 | ↓ | 100/10 | ↓ | MCH |
| | 184-84-1ABC PDS | P | 2-112-4 | 100 | 100/10 | (1000) ↓ | ↓ |
| | 184-84-1DE PDS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |

78.

43377

* SEE SPIKE LOG

| EXP date | Element | Spiking Standard Preparation: Standard ID | Orig. Std. (ppm) | Spike(uL) Fval(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 | 3-010-8 | 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) Fval(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- 10/16/97 DKH

| # | Sample Name | File | Method | Date | Time | OpID | Type | Mode |
|---|---|---|---|---|---|---|---|---|
| 1 | STD1 BLANK | 101997 | TRIANGL2 | 10/20/97 | 00:38 | | V | IP |
| 2 | STD1-BLANK | 101997 | TRIANGL2 | 10/20/97 | 00:48 | | A | IR |
| 3 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 00:53 | | V | IP |
| 4 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 00:58 | DKH | U | CONC |
| 5 | STD1-BLANK | 101997 | TRIANGL2 | 10/20/97 | 01:24 | | V | IP |
| 6 | STD1 BLANK | 101997 | TRIANGL2 | 10/20/97 | 01:37 | | A | IR |
| 7 | STD1 BLANK | 101997 | TRIANGL2 | 10/20/97 | 01:47 | | V | IP |
| 8 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 01:59 | | A | IR |
| 9 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 02:04 | DKH | U | CONC |
| 10 | STD1 BLANK | 101997 | TRIANGL2 | 10/20/97 | 02:09 | | A | IR |
| 11 | STD1 BLANK | 101997 | TRIANGL2 | 10/20/97 | 02:34 | | V | IP |
| 12 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 02:38 | | A | IR |
| 13 | STD2 | 101997 | TRIANGL2 | 10/20/97 | 02:43 | DKH | U | CONC |
| 14 | CHECK STD | 101997 | TRIANGL2 | 10/20/97 | 02:48 | DKH | U | CONC |
| 15 | TCV/CCV | 101997 | TRIANGL2 | 10/20/97 | 02:52 | DKH | U | CONC |
| 16 | TCB/CCB | 101997 | TRIANGL2 | 10/20/97 | 02:57 | DKH | U | CONC |
| 17 | TCB/CCB | 101997 | TRIANGL2 | 10/20/97 | 03:03 | DKH | U | CONC |
| 18 | TCB/CCB | 101997 | TRIANGL2 | 10/20/97 | 03:09 | DKH | U | CONC |
| 19 | TCSAB | 101997 | TRIANGL2 | 10/20/97 | 03:14 | DKH | U | CONC |
| 20 | 43411 MB | 101997 | TRIANGL2 | 10/20/97 | 03:29 | DKH | S | CONC |
| 21 | 47411 LCS | 101997 | TRIANGL2 | 10/20/97 | 03:33 | DKH | S | CONC |
| 22 | 184-84-1480 | 101997 | TRIANGL2 | 10/20/97 | 03:38 | DKH | S | CONC |
| 23 | 184-84-1480 DUP | 101997 | TRIANGL2 | 10/20/97 | 03:43 | DKH | S | CONC |
| 24 | 184-84-1480 I | 101997 | TRIANGL2 | 10/20/97 | 03:47 | DKH | S | CONC |
| 25 | 184-84-2480 | 101997 | TRIANGL2 | 10/20/97 | 03:52 | DKH | S | CONC |
| 26 | 184-84-2480 DUP | 101997 | TRIANGL2 | 10/20/97 | 03:57 | DKH | S | CONC |
| 27 | 184-84-3480 | 101997 | TRIANGL2 | 10/20/97 | 04:01 | DKH | S | CONC |
| 28 | 184-84-3480 | 101997 | TRIANGL2 | 10/20/97 | 04:06 | DKH | S | CONC |
| 29 | 184-84-5480 | 101997 | TRIANGL2 | 10/20/97 | 04:11 | DKH | S | CONC |
| 30 | 184-84-5480 | 101997 | TRIANGL2 | 10/20/97 | 04:16 | DKH | S | CONC |
| 31 | 184-84-6480 | 101997 | TRIANGL2 | 10/20/97 | 04:21 | DKH | S | CONC |
| 32 | 184-84-6480 | 101997 | TRIANGL2 | 10/20/97 | 04:26 | DKH | S | CONC |
| 33 | 184-84-6480 DUP | 101997 | TRIANGL2 | 10/20/97 | 04:32 | DKH | S | CONC |
| 34 | 184-84-7480 | 101997 | TRIANGL2 | 10/20/97 | 04:37 | DKH | S | CONC |
| 35 | 184-84-7480 DUP | 101997 | TRIANGL2 | 10/20/97 | 04:42 | DKH | S | CONC |
| 36 | 184-84-8480 | 101997 | TRIANGL2 | 10/20/97 | 04:47 | DKH | S | CONC |
| 37 | 184-84-8480 I | 101997 | TRIANGL2 | 10/20/97 | 04:52 | DKH | S | CONC |
| 38 | 184-84-9480 | 101997 | TRIANGL2 | 10/20/97 | 04:56 | DKH | S | CONC |
| 39 | 184-84-9480 DUP | 101997 | TRIANGL2 | 10/20/97 | 05:01 | DKH | S | CONC |
| 40 | 184-84-5480 | 101997 | TRIANGL2 | 10/20/97 | 05:06 | DKH | S | CONC |
| 41 | 184-84-40 | 101997 | TRIANGL2 | 10/20/97 | 05:10 | DKH | S | CONC |
| 42 | 184-84-5480 | 101997 | TRIANGL2 | 10/20/97 | 05:15 | DKH | S | CONC |
| 43 | TCV/CCV | 101997 | TRIANGL2 | 10/20/97 | 05:20 | DKH | U | CONC |
| 44 | TCB/CCB | 101997 | TRIANGL2 | 10/20/97 | 05:25 | DKH | U | CONC |
| 45 | 184-84-40 | 101997 | TRIANGL2 | 10/20/97 | 05:31 | DKH | S | CONC |
| 46 | 184-84-FFF | 101997 | TRIANGL2 | 10/20/97 | 05:36 | DKH | S | CONC |
| 47 | 184-50-20 | 101997 | TRIANGL2 | 10/20/97 | 06:05 | | S | CONC |
| 48 | TCV/CCV | 101997 | TRIANGL2 | 10/20/97 | 06:09 | DKH | U | CONC |
| 49 | TCB/CCB | 101997 | TRIANGL2 | 10/20/97 | 06:17 | DKH | U | CONC |
| 50 | TCSAB | 101997 | TRIANGL2 | 10/20/97 | 06:23 | DKH | U | CONC |

| # | Sample Name | File | Method | Date | Time | OpID | Type | Mode |
|---|---|---|---|---|---|---|---|---|
| 1 | STD1-BLANK | 101697 | TRIANGL2 | 10/16/97 | 05:22 | | Y | IP |
| 2 | STD3 | 101697 | TRIANGL2 | 10/16/97 | 05:26 | | Y | IP |
| 3 | STD5 | 101697 | TRIANGL2 | 10/16/97 | 05:31 | DKH | Q | CONC |
| 4 | CHECK STD | 101697 | TRIANGL2 | 10/16/97 | 05:35 | DKH | Q | CONC |
| 5 | ICV/CCV | 101697 | TRIANGL2 | 10/16/97 | 05:39 | DKH | Q | CONC |
| 6 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 05:38 | DKH | Q | CONC |
| 7 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 06:09 | DKH | Q | CONC |
| 8 | ICSAB | 101697 | TRIANGL2 | 10/16/97 | 06:14 | DKH | Q | CONC |
| 9 | 43377 MB | 101697 | TRIANGL2 | 10/16/97 | 06:27 | DKH | S | CONC |
| 10 | 43377 LCS | 101697 | TRIANGL2 | 10/16/97 | 06:31 | DKH | S | CONC |
| 11 | 184-50-1ABC | 101697 | TRIANGL2 | 10/16/97 | 06:35 | DKH | S | CONC |
| 12 | 184-50-1ABC DUP | 101697 | TRIANGL2 | 10/16/97 | 06:40 | DKH | S | CONC |
| 13 | 184-50-1ABC L | 101697 | TRIANGL2 | 10/16/97 | 06:44 | DKH | S | CONC |
| 14 | 184-50-2ABC | 101697 | TRIANGL2 | 10/16/97 | 06:48 | DKH | S | CONC |
| 15 | 184-50-2ABC DA | 101697 | TRIANGL2 | 10/16/97 | 06:53 | DKH | S | CONC |
| 16 | 184-50-3ABC | 101697 | TRIANGL2 | 10/16/97 | 06:57 | DKH | S | CONC |
| 17 | 184-50-4ABC | 101697 | TRIANGL2 | 10/16/97 | 07:01 | DKH | S | CONC |
| 18 | 184-50-5ABC | 101697 | TRIANGL2 | 10/16/97 | 07:06 | DKH | S | CONC |
| 19 | ICV/CCV | 101697 | TRIANGL2 | 10/16/97 | 07:10 | DKH | Q | CONC |
| 20 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 07:46 | DKH | Q | CONC |
| 21 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 07:52 | DKH | Q | CONC |
| 22 | 184-50-6ABC | 101697 | TRIANGL2 | 10/16/97 | 07:57 | DKH | S | CONC |
| 23 | 184-50-7ABC | 101697 | TRIANGL2 | 10/16/97 | 08:02 | DKH | S | CONC |
| 24 | 184-50-1D | 101697 | TRIANGL2 | 10/16/97 | 08:06 | DKH | S | CONC |
| 25 | 184-50-~~1B~~ 1D POS | 101697 | TRIANGL2 | 10/16/97 | 08:10 | DKH | S | CONC |
| 26 | 184-50-~~2B~~ 1D L | 101697 | TRIANGL2 | 10/16/97 | 08:14 | DKH | S | CONC |
| 27 | 184-50-~~2B DA~~ 2D | 101697 | TRIANGL2 | 10/16/97 | 08:56 | DKH | S | CONC |
| 28 | 184-50-~~2B~~ 2D DA | 101697 | TRIANGL2 | 10/16/97 | 09:00 | DKH | S | CONC |
| 29 | 184-50-~~3B~~ 3D | 101697 | TRIANGL2 | 10/16/97 | 09:04 | DKH | S | CONC |
| 30 | ICV/CCV | 101697 | TRIANGL2 | 10/16/97 | 09:09 | DKH | Q | CONC |
| 31 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 09:35 | DKH | Q | CONC |
| 32 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 09:41 | DKH | Q | CONC |
| 33 | 184-50-~~3C~~ 4D | 101697 | TRIANGL2 | 10/16/97 | 09:46 | DKH | S | CONC |
| 34 | 184-50-~~4B~~ 5D | 101697 | TRIANGL2 | 10/16/97 | 09:51 | DKH | S | CONC |
| 35 | 184-50-~~5B~~ 6D | 101697 | TRIANGL2 | 10/16/97 | 09:55 | DKH | S | CONC |
| 36 | ICV/CCV | 101697 | TRIANGL2 | 10/16/97 | 09:59 | DKH | Q | CONC |
| 37 | ICV/CCV | 101697 | TRIANGL2 | 10/16/97 | 12:11 | DKH | Q | CONC |
| 38 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 12:32 | DKH | Q | CONC |
| 39 | ICB/CCB | 101697 | TRIANGL2 | 10/16/97 | 13:13 | DKH | Q | CONC |
| 40 | ICSAB | 101697 | TRIANGL2 | 10/16/97 | 13:22 | DKH | Q | CONC |

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43377 Client: Pacific Environmental Services (PES03)

Method: 7470 Extraction Date: / / Sample Information IN0107 version 5 was used for digestion. SRB 10/21/97 Hg.

Solvent/Acids(): $HNO_3/H_2SO_4$ Lot: 117050 | 317020

| Sample # | crd | TLI SAMPLE ID / CLIENT SAMPLE ID | Sample Wgt / Vol g / ml | Final Volume ml | Extraction Date / / | / / | / / | / / | / / | / / |
|---|---|---|---|---|---|---|---|---|---|---|
| 000 | | TLI Blank / TLI Method Blank | N/A / N/A | 100 | SRB 10/20/97 | | | | | |
| | | TLI BlankDup | | | | | | | | |
| 001 | | 184-50-1A O-M29-1-FHACE | | | | | | | | |
| 002 | | 184-50-1B O-M29-1-FHAR | | | | | | | | |
| 003 | | 184-50-1CAB O-M29-1-FILTER | 5 / 5 | | SRB 10/20/97 | | | | | |
| | | 184-50-1CABDup | | | | | | | | |
| 004 | | 184-50-1D O-M29-1-HNO3 | 5 / 5 | | | | | | | |
| | | 184-50-1D Dup | | | | | | | | |
| 005 | | 184-50-1E O-M29-1-BHAR | 5 / 5 | | | | | | | |
| | | 184-50-1E Dup | | | | | | | | |
| 006 | | 184-50-1F O-M29-1-KMNO4 | 5 / 5 | | | | | | | |
| | | 184-50-1F Dup | | | | | | | | |
| 007 | | 184-50-1G O-M29-1-HCL | 5 / 5 | | SRB 10/20/97 | | | | | |
| | | 184-50-1G Dup | | | | | | | | |
| 008 | | 184-50-2A O-M29-2-FHACE | | | | | | | | |
| 009 | | 184-50-2B O-M29-2-FHAR | | | | | | | | |
| 010 | | 184-50-2CAB O-M29-2-FILTER | 5 / 5 | | SRB 10/20/97 | | | | | |
| | | 184-50-2CABDup | | | | | | | | |
| 011 | | 184-50-2DE O-M29-2-HNO3 | 5 / 5 | | SRB 10/20/97 | | | | | |
| | | 184-50-2DE Dup | | | | | | | | |
| 012 | | 184-50-2E O-M29-2-HN03 | | | | | | | | |

Comments: See HGSL-1, Spike Log p. 68

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43377 Client: Pacific Environmental Services (PES03)

Method: 7470 Extraction Date: __/__/__ Hg

Solvent/Acids(): ~~HNO3 | H2SO4~~ Lot: 117056 | 317020

Sample Information

| Sample crd | TLI SAMPLE ID / CLIENT SAMPLE ID | Sample Wgt / Vol g / ml | Final Volume ml | Extraction Date __/__/__ | __/__/__ | __/__/__ | __/__/__ | __/__/__ | __/__/__ |
|---|---|---|---|---|---|---|---|---|---|
| 13 | 184-50-2F / 184-50-2F Dup / O-M29-2-BHAR | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 14 | 184-50-2G / 184-50-2G Dup / O-M29-2-KMNO4 | 5 / 5 | 100 | ↓ | | | | | |
| 15 | 184-50-2H / 184-50-2H Dup / O-M29-2-HCL | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 16 | 184-50-3A / O-M29-3-FHACE | | | | | | | | |
| 17 | 184-50-3B / O-M29-3-FHAR | | | | | | | | |
| 18 | 184-50-3C AB / 184-50-3C AB Dup / O-M29-3-FILTER | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 19 | 184-50-3D E / 184-50-3E Dup / O-M29-3-HNO3 | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 20 | 184-50-3E D MS / 184-50-3ED MS / O-M29-3-HNO3 | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 21 | 184-50-3F EE SRB 10/20/97 / 184-50-3 2F Dup / O-M29-3-BHAR | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 22 | 184-50-3G / 184-50-3G Dup / O-M29-3-KMN04 | 5 / 5 | 100 | ↓ | | | | | |
| 23 | 184-50-3H / 184-50-3H Dup / O-M29-3-HCL | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 24 | 184-50-4A / O-M29-4-FHACE | | | | | | | | |
| 25 | 184-50-4B / O-M29-4-FHAR | | | | | | | | |

Comments: See Page 1 of 4

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43377 Client: Pacific Environmental Services (PES03)

Sample Information

Method: 7470 Extraction Date: __/__/__

Solvent/Acids(): HNO3/H2SO4 Lot: 117050,317020

#09

| Sample # | crd | TLI / SAMPLE ID / CLIENT SAMPLE ID | | Sample Wgt / Vol g / ml | Final Volume ml | Extraction Date __/__/__ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 026 | | 184-50-4CAB | O-M29-4-FILTER | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-4CABDup | | | | | | | | | |
| 027 | | 184-50-4DE | O-M29-4-HNO3 | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-4DE Dup | | | | | | | | | |
| 028 | | 184-50-4ED MS | O-M29-4-HNO3 | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-4ED MSD | | | | | | | | | |
| 029 | | 184-50-4F | O-M29-4-BHAR | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-4F | | | | | | | | | |
| 030 | | 184-50-4G | O-M29-4-KMNO4 | 5/5 | 100 | ↓ | | | | | |
| | | 184-50-4G Dup | | | | | | | | | |
| 031 | | 184-50-4H | O-M29-4-HCL | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-4H Dup | | | | | | | | | |
| 032 | | 184-50-5A | O-M29-FB-FHACE | | | | | | | | |
| 033 | | 184-50-5BD | O-M29-FB-FHAR | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-5BD | | | | | | | | | |
| 034 | | 184-50-5CAB | O-M29-FB-FILTER | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-5CAB | | | | | | | | | |
| 035 | | 184-50-5D | O-M29-FB-HNO3 | | | | | | | | |
| | | 184-50- | | | | | | | | | |
| 036 | | 184-50-5E | O-M29-FB-BHAR | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-5E | | | | | | | | | |
| 037 | | 184-50-5F | O-M29-FB-KMNO4 | 5/5 | 100 | SRB 10/20/97 | | | | | |
| | | 184-50-5F | | | | | | | | | |
| 039 | | 184-50-6A | O-M29-RB-FHACE | | | | | | | | |

Comments: See page 1 of 4

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43377 Client: Pacific Environmental Services (PES03)

Method: 7470 Sample Information Hg

Solvent/Acids(): HNO3/H2SO4 Extraction Date: __/__/__ Lot: 117050/317020

| Sample # crd | TLI / SAMPLE ID / CLIENT SAMPLE ID | Sample Wgt / Vol g / ml | Final Volume ml | Extraction Date __/__/__ | __/__/__ | __/__/__ | __/__/__ | __/__/__ | __/__/__ |
|---|---|---|---|---|---|---|---|---|---|
| 040 | 184-50-6BD<br>184-50-6BD O-M29-RB-FHAR | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 041 | 184-50-6CAB<br>184-50-6CAB Dup O-M29-RB-FILTER | 5 / 5 | 100 | SRB 10/20/97 | | | | | |
| 042 | 184-50-6DB MS<br>184-50-6DB MSD O-M29-RB-HNO3 | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 043 | 184-50-6E<br>184-50-6E Dup O-M29-RB-KMNO4 | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 044 | 184-50-6FE<br>184-50-6FE Dup O-M29-RB-HCL | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 045 | 184-50-7A<br>I-M29-1-FHACE | | | | | | | | |
| 046 | 184-50-7B<br>I-M29-1-FHAR | | | | | | | | |
| 047 | 184-50-7CAB<br>184-50-7CAB I-M29-1-FILTER | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 048 | 184-50-7D<br>184-50-7D Dup I-M29-1-HNO3 | 5 / 5 | 100 | | | | | | |
| 049 | 184-50-7E<br>184-50-7E Dup I-M29-1-BHAR | 5 / 5 | 100 | | | | | | |
| 050 | 184-50-7F<br>184-50-7F Dup I-M29-1-KMNO4 | 5 / 5 | 100 | SRB 10/21/97 | | | | | |
| 051 | LCS 1<br>LCSD 1 Lab Control Spike | N/A / N/A | 100 | SRB 10/20/97 | | | | | |
| | 184-50-1D MS<br>184-50-1D MSD | 5 / 5 | 100 | SRB 10/20/97 | | | | | |

Comments: See pg. 1 of 4

REV 07/26/93 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43377 Client: Pacific Environmental Services (PES03)

Sample Information

Method: 7470 Extraction Date: / /

Solvent/Acids(): HNO3/H2SO4 Lot: 117050/317020

Hg

| Sample # | TLI / SAMPLE ID / CLIENT SAMPLE ID | Sample Wgt / Vol g / ml | Final Volume ml | Extraction Date |
|---|---|---|---|---|
| | TLI Blank 2 | N/A | 100 | SRB 10/21/97 |
| 000 | MB 2 TLI Method Blank | N/A | 100 | |
| | 43377 LCS2 | N/A | 100 | SRB 10/21/97 |
| | 43377 LCS 2 D | N/A | 100 | |
| | 184-50-7D MS | 5 | 100 | SRB 10/21/97 |
| | 184-50-7D MSD | 5 | 100 | |

Comments: See page 1 of 4

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 LCS1 LCSD | 0.1 ppm | 3-022-8 | 5 | 5 | DSE | SF |
| | 184-84-1DE MS | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| | 184-84-1DE MSD | | | | | | |
| | 184-84-2DE MS | | | | | | |
| | 184-84-2DE MSD | | | | | | |
| | 184-84-4D MS | | | | | | |
| | 184-84-4D MSD | | | | | | |
| | | | | | | | |
| 10/20/97 | 43411 LCS2 LCS2D | 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 | | | | | | |
| | 184-50-3DE MSD | | | | | | |
| | 184-50-4DE MS | | | | | | |
| | 184-50-4DE MSD | | | | | | |
| | | | | | | | |
| 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 | 42011Cn1 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 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| | 184-50-6BD MSD | | | | | | |
| | 184-50-7D MS | | | | | | |
| | 184-50-7D MSD | | | | | | |
| | | | | | | | |

AutoSampler Report  Table: HA460  Fri 10-17-97 07:23:18 PM  page

MKH 10/17/97

Table Name: HA460  Autosampler Type: TYPE TJA
Sample Positions: 170/192  QC Positions: 13/19  # Sets: 1
Rinse Station location is rack -1 pos. -1.

--- Racks ---

| Rack # | Type | Usage | #Pos Left | Analyses/Pos |
|---|---|---|---|---|
| 1 | Qnty (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 | 43377 | TRIANGL2 | 22 | 2 | 1 |

--- Preparation Info ---

| Set# | Uptake | Uptake#2 | Final | Dil.Factor |
|---|---|---|---|---|

No Samples Prepared

Rack #1

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | STD3 | -NA- | 2 | Standard |
| 2 | 1 | 2 | STD1-BLANK | -NA- | 1 | Standard |
| 3 | 1 | 3 | LCSAR | -NA- | 2 | QC Standard |
| 4 | 1 | 4 | CHECK LO | -NA- | 1 | QC Standard |
| 5 | 1 | 5 | ICV/CCV | -NA- | 4 | QC Standard |
| 6 | 1 | 6 | ICB/CCB | -NA- | 4 | QC Standard |
| 7...19 | Not Used) | | | | | |

1-G1-4P
1-G1-6P
1-G1-5P

MKH 10/16/97

Rack #2

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 43377 MB | 1 | -NA- | Sample |
| 2 | 1 | 2 | 43377 LCS | 1 | -NA- | Sample |
| 3 | 1 | 3 | 184-50-1A8C | 1 | -NA- | Sample |
| 4 | 1 | 4 | 184-50-1A8C PDS | 1 | -NA- | Sample |
| 5 | 1 | 5 | 184-50-1A8C L | 1 | -NA- | Sample |
| 6 | 1 | 6 | 184-50-2ARC | 1 | -NA- | Sample |
| 7 | 1 | 7 | 184-50-2A8C DA | 1 | -NA- | Sample |
| 8 | 1 | 8 | 184-50-3ARC | 1 | -NA- | Sample |
| 9 | 1 | 9 | 184-50-4ARC | 1 | -NA- | Sample |
| 10 | 1 | 10 | 184-50-5ARC | 1 | -NA- | Sample |
| 11 | 1 | 11 | 184-50-6ARC | 1 | -NA- | Sample |
| 12 | 1 | 12 | 184-50-7ARC | 1 | -NA- | Sample |
| 13 | 2 | 1 | 184-50-1D | 1 | -NA- | Sample |
| 14 | 2 | 2 | 184-50-1D L | 1 | -NA- | Sample |
| 15 | 2 | 3 | 184-50-2D [illegible] | 1 | -NA- | Sample |

Rack #2

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 16 | 2 | 4 | 184-50-20E0A | 1 | -NA- | Sample |
| 17 | 2 | 5 | 184-50-30E | 1 | -NA- | Sample |
| 18 | 2 | 6 | 184-50-40E | 1 | -NA- | Sample |
| 19 | 2 | 7 | 184-50-50E BD | 1 | -NA- | Sample |
| 20 | 2 | 8 | 184-50-60E BD | 1 | -NA- | Sample |
| 21 | 2 | 9 | 184-50-70 | 1 | -NA- | Sample |
| 22 | 2 | 10 | Empty 1 | 1 | -NA- | -NA- |
| 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) | | | | |

Method: TRIANGL2 Sample Name: STD1-BLANK Operator:
Run Time: 10/16/97 05:22 Filename: 101697
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 | 0 | .0031 | -.00019 | .00794 | .00055 | .00025 |
| SDev | .0001 | .00001 | .00008 | .00031 | .00001 | 0 |
| %RSD | 3635.78 | .52885 | 42.0003 | 4.00744 | 2.42782 | 2.21217 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .00046 | .00022 | -.00015 | -.00016 | .00006 | .00308 |
| SDev | 0 | .00013 | .00009 | .00002 | .00005 | .00002 |
| %RSD | 1.57036 | 58.8653 | 64.6794 | 15.5198 | 80.7159 | .7618 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .0001 | 4.5752 | .08311 | .00008 | .0001 | -.00001 |
| SDev | .00003 | .01151 | .00015 | .00004 | .00001 | .00002 |
| %RSD | 36.0564 | .25173 | .18524 | 50.8319 | 11.5987 | 186.243 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .00353 | -.00146 | -.00102 | .00169 | .00033 | .00054 |
| SDev | .00172 | .00016 | .0002 | .00035 | .00008 | .00005 |
| %RSD | 48.8019 | 11.173 | 20.1455 | 20.7044 | 25.2899 | 9.7444 |

| Elems | 1960-1 | 1960-2 | Sn1899 | Sr4215 | Ti3349 | Tl1908 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | -.00577 | .00224 | -.00059 | .00026 | .00015 | -.00057 |
| SDev | .00101 | .0003 | .00012 | 0 | .00001 | .00006 |
| %RSD | 17.5492 | 13.7567 | 21.21 | 2.09433 | 9.73981 | 12.1448 |

| Elems | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|
| Units | count | count | count |
| Avge | -.00048 | -.00001 | .02278 |
| SDev | .00001 | 0 | .00012 |
| %RSD | 2.38296 | 33.0362 | .53122 |

Method: TRIANGL2 Sample Name: STD3 Operator:
Run Time: 10/16/97 05:26 Filename: 101697
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 | .43916 | .01877 | .05497 | .18437 | .30583 | .29617 |
| SDev | .00071 | .00009 | .00004 | .00027 | .0002 | .00032 |
| %RSD | .16361 | .52664 | .08152 | .15163 | .06854 | .10884 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .02564 | 1.03084 | .12172 | .11502 | .16301 | .18883 |
| SDev | .00002 | .00167 | .00009 | .0001 | .00013 | .00055 |
| %RSD | .10205 | .16276 | .07497 | .09089 | .08115 | .293 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .00458 | 19.5824 | 12.9 | .02237 | .14267 | .08458 |
| SDev | .00001 | .09441 | .06776 | .00002 | .00004 | .00017 |
| %RSD | .31172 | .48216 | .5253 | .10176 | .02922 | .21088 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .18151 | .38502 | .0236 | .19632 | .09785 | .12637 |
| SDev | .0018 | .00052 | .00014 | .00061 | .00004 | .00007 |
| %RSD | .99529 | .13628 | .60403 | .3121 | .04131 | .05785 |

| Elems | 1960-1 | 1960-2 | Sn1899 | Sr4215 | Ti3349 | Tl1908 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .28236 | .16701 | .12576 | .90196 | 1.21944 | .03222 |
| SDev | .00184 | .00052 | .0002 | .00136 | .0001 | .00111 |
| %RSD | .65206 | .31513 | .16687 | .15151 | .00873 | 3.45781 |

| Elems | V_2924 | Zn2062 | Si2881 | Pb2203 | Se1960 |
|---|---|---|---|---|---|
| Units | count | count | count | | |
| Avge | .04245 | .11347 | .49173 | | |
| SDev | .00001 | .00032 | .00093 | | |
| %RSD | .02552 | .29071 | .19002 | | |

Method: TRIANGL2 Sample Name: STD3 Operator: DKH
Run Time: 10/16/97 05:31 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 992.5 | 995.9 | 1001. | 996.5 | 999.6 | 996.5 |
| SDev | 2.427 | 2.887 | 4.038 | 1.381 | 1.158 | 1.055 |
| %RSD | .2445 | .2899 | .4033 | .1386 | .1158 | .1059 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 999.0 | 1002. | 1001. | 999.3 | 998.0 | 996.1 |
| SDev | 1.354 | 2.02 | .8085 | .6837 | .6912 | 1.467 |
| %RSD | .1355 | .2017 | .0808 | .0684 | .0693 | .1472 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 992.3 | 9.940 | 996.4 | 995.0 | 997.4 | 1002. |
| SDev | 4.737 | .0333 | 4.144 | 4.884 | .5499 | 2.378 |
| %RSD | .4774 | .3355 | .4159 | .4909 | .0551 | .2374 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 10.07 | 1001. | 1003. | 1001. | 1003. | 1001. |
| SDev | .0643 | 5.343 | 9.268 | .7707 | 2.273 | 1.868 |
| %RSD | .6383 | .5338 | .9236 | .077 | .2266 | .1867 |

| Elems | 1960-1 | 1960-2 | Sn1899 | Sr4215 | Ti3349 | Tl1908 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1005. | 1005. | 1001. | 994.0 | 997.3 | 1026. |
| SDev | 4.737 | 6.572 | 2.47 | 1.111 | .5543 | 1.741 |
| %RSD | .4714 | .6537 | .2467 | .1118 | .0556 | .1698 |

| Elems | V_2924 | Zn2062 | Si2881 | Pb2203 | Se1960 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 998.3 | 1002. | 9987. | 1002. | 1005. |
| SDev | 1.45 | 2.799 | 9.863 | 1.507 | 2.897 |
| %RSD | .1453 | .2793 | .0988 | .1504 | .2882 |

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/16/97 05:39 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 497.2 | 491.6 | 496.4 | 488.6 | 500.2 | 493.3 |
| SDev | .6174 | 1.613 | .4728 | .339 | .6356 | .4983 |
| %RSD | .1242 | .3282 | .0952 | .0694 | .1271 | .101 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 495.4 | 494.7 | 496.0 | 494.9 | 495.4 | 496.7 |
| SDev | .9225 | .3475 | .4688 | .7794 | .724 | 1.165 |
| %RSD | .1862 | .0703 | .0945 | .1575 | .1461 | .2345 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 498.4 | 4.804 | 472.3 | 491.6 | 494.7 | 495.7 |
| SDev | 10.32 | .0177 | 2.856 | .5662 | .3527 | 1.441 |
| %RSD | 2.071 | .3679 | .6047 | .1152 | .0713 | .2907 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.770 | 494.1 | 492.4 | 492.5 | 495.1 | 492.8 |
| SDev | .0447 | .22 | 10.29 | 1.085 | 2.392 | 2.136 |
| %RSD | .9369 | .0445 | 2.09 | .2203 | .4831 | .4335 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 487.9 | 488.7 | 494.2 | 488.4 | 500.7 | 494.4 |
| SDev | 2.505 | 3.151 | 1.883 | 1.379 | 1.226 | .3327 |
| %RSD | .5134 | .6448 | .3809 | .2824 | .2449 | .0673 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 494.3 | 496.4 | 496.2 | 494.5 | 4978. |
| SDev | .3491 | 13.91 | .2308 | .9458 | 2.399 |
| %RSD | .0706 | 2.803 | .0465 | .1913 | .0482 |

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: DKH
Run Time: 10/16/97 05:48  Filename: 101697
Mode: CONC  Type: Q  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .0251 | -.1468 | -2.552 | -16.08 | .1743 | .1860 |
| SDev | .1606 | 2.597 | .7463 | .6816 | .0548 | .068 |
| %RSD | 639.1 | 1769 | 29.24 | 4.238 | 31.42 | 36.58 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.1737 | .0078 | .9314 | -.0482 | -1.020 | -.1595 |
| SDev | .5635 | .0481 | .3562 | .3383 | .3341 | .2928 |
| %RSD | 324.4 | 616.9 | 38.24 | 702.2 | 32.74 | 183.6 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -16.83 | .0225 | .2375 | -.5152 | -.1621 | 1.030 |
| SDev | 4.537 | .0229 | .003 | 1.067 | .0676 | .774 |
| %RSD | 26.96 | 102.1 | 1.264 | 207.1 | 41.7 | 75.18 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0087 | -1.752 | -2.711 | .0122 | -.7678 | -1.563 |
| SDev | .1181 | .4109 | 6.839 | 1.914 | .4029 | .449 |
| %RSD | 1351 | 23.45 | 252.3 | 15660 | 52.48 | 28.72 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -1.449 | -2.202 | -.5081 | -1.951 | .2185 | .1648 |
| SDev | 3.985 | .6536 | .8916 | .9322 | .2898 | .0437 |
| %RSD | 274.9 | 29.69 | 175.5 | 47.77 | 132.6 | 26.54 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | .1199 | Q5.732 | .0692 | .1459 | 32.17 |
| SDev | .0913 | 2.911 | .2807 | .0658 | 2.27 |
| %RSD | 76.15 | 50.79 | 405.8 | 45.06 | 7.056 |

Baseline. Reanalyzed DKH 11/2/97

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/16/97 06:09 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0760 | -3.872 | -2.786 | -20.81 | .0148 | -.0132 |
| SDev | .3345 | 3.324 | 2.026 | .5299 | .0051 | .0079 |
| %RSD | 439.9 | 85.84 | 72.74 | 2.546 | 34.37 | 59.77 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .6572 | -.1600 | 1.590 | .0673 | -.9291 | -.2390 |
| SDev | .546 | .0568 | 2.161 | .3247 | .1488 | .3005 |
| %RSD | 83.08 | 35.52 | 135.9 | 482.5 | 16.01 | 125.7 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -6.333 | .0188 | .0503 | -1.393 | -.2993 | .1903 |
| SDev | 4.799 | .007 | .0079 | 1.208 | .0598 | .0328 |
| %RSD | 75.78 | 37.43 | 15.8 | 86.69 | 19.99 | 17.21 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0474 | -1.111 | 1.067 | -1.100 | .0093 | -.5879 |
| SDev | .0327 | .337 | 5.132 | .2984 | 1.257 | 2.165 |
| %RSD | 68.98 | 30.35 | 481 | 27.13 | 13560 | 368.2 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.8490 | .8577 | -.3602 | .2893 | .6021 | .0061 |
| SDev | 3.533 | 2.373 | .7454 | 2.744 | 1.647 | .017 |
| %RSD | 416.1 | 276.7 | 207 | 948.4 | 273.6 | 277.8 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0337 | 3.651 | -.1191 | .0471 | 14.98 |
| SDev | .0638 | 1.679 | .0716 | .4796 | 2.328 |
| %RSD | 189.3 | 45.99 | 60.15 | 1019 | 15.54 |

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 10/16/97 06:14 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 541.0 | 519700. | 521.1 | 509.7 | 526.4 | 493.7 |
| SDev | .2529 | 1508 | 3.499 | .3806 | .3111 | 1.055 |
| %RSD | .0467 | .2902 | .6714 | .0747 | .0591 | .2137 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 458700. | 477.6 | 507.8 | 480.6 | 485.1 | 550.2 |
| SDev | 269.9 | .7423 | .8153 | 1.472 | 1.05 | .3259 |
| %RSD | .0588 | .1554 | .1606 | .3062 | .2165 | .0592 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 178200. | Q26.11 | 644.8 | 537000. | 465.6 | 503.8 |
| SDev | 188.2 | .0261 | .1787 | 465.2 | .7978 | 3.635 |
| %RSD | .1056 | .0999 | .0277 | .0866 | .1714 | .7216 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 5.721 | 462.1 | 543.4 | 511.4 | 476.7 | 513.9 |
| SDev | .129 | 1.291 | 6.619 | 1.496 | 2.666 | 4.053 |
| %RSD | 2.255 | .2795 | 1.218 | .2925 | .5592 | .7886 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 535.8 | 523.0 | 488.3 | 527.3 | 512.3 | 514.9 |
| SDev | 3.956 | 2.464 | 2.012 | 2.045 | 4.743 | .2951 |
| %RSD | .7383 | .4711 | .4121 | .3879 | .9258 | .0573 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 503.5 | 509.5 | 498.7 | 452.7 | 5527. |
| SDev | .4079 | 17.96 | .2738 | .7735 | .7959 |
| %RSD | .081 | 3.525 | .0549 | .1709 | .0144 |

Method: TRIANGL2 Sample Name: 43377 MB Operator: DKH
Run Time: 10/16/97 06:27 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.1281 | L-2.091 | L.2038 | L.0090 | L-.4397 | L-.1883 |
| SDev | .3852 | 1.579 | .031 | .0191 | .1182 | .343 |
| %RSD | 300.6 | 75.51 | 15.19 | 210.9 | 26.88 | 182.1 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-1.083 | L-.1912 | L-.9993 | L-.7028 | L-2.822 | L-1.104 |
| SDev | .3166 | .0211 | .5802 | 2.372 | 1.206 | .8904 |
| %RSD | 29.22 | 11.05 | 58.06 | 337.5 | 42.75 | 80.63 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L-1.137 | 5.643 | 7.273 | L.2200 |
| SDev | 1.702 | .6505 | .3766 | .0934 |
| %RSD | 149.7 | 11.53 | 5.179 | 42.45 |

Method: TRIANGL2  Sample Name: 43377 LCS  Operator: DKH
Run Time: 10/16/97 06:31  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 45.11 | 45.25 | 49.05 | 47.58 | 48.64 | 49.24 |
| SDev | .2231 | 1.785 | .0139 | .1316 | .2661 | .491 |
| %RSD | .4946 | 3.944 | .0284 | .2766 | .547 | .9973 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 48.24 | 48.63 | 47.19 | 981.6 | 46.89 | 48.51 |
| SDev | .2651 | .1117 | .3361 | 3.672 | 1.369 | 3.475 |
| %RSD | .5495 | .2297 | .7123 | .3741 | 2.92 | 7.163 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 47.66 | 54.36 | 199.4 | 49.07 |
| SDev | .9626 | 4.224 | .5208 | .1811 |
| %RSD | 2.02 | 7.77 | .2611 | .3691 |

Method: TRIANGL2 Sample Name: 184-50-1ABC Operator: DKH
Run Time: 10/16/97 06:35 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.5093 | 26.61 | 2210. | L-9.136 | 2.179 | 18.25 |
| SDev | .3573 | 2.85 | 4.926 | .1027 | .0807 | .3458 |
| %RSD | 70.16 | 10.71 | .2229 | 1.125 | 3.703 | 1.895 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 147.0 | 2033. | 72.58 | 3318. | 197.3 | 44.56 |
| SDev | .5588 | 3.064 | 1.588 | 2.661 | 3.371 | 3.312 |
| %RSD | .3801 | .1507 | 2.188 | .0802 | 1.708 | 7.432 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 43.87 | L-5.140 | 1144. | 173.2 |
| SDev | 1.692 | 3.599 | 7.068 | .7243 |
| %RSD | 3.858 | 70.02 | .6177 | .4182 |

Method: TRIANGL2 Sample Name: 184-50-1ABC PDS Operator: DKH
Run Time: 10/16/97 06:40 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 37.13 | 66.21 | 2208. | 31.50 | 44.31 | 60.73 |
| SDev | .3988 | 3.431 | 14.45 | .3373 | .2775 | .4396 |
| %RSD | 1.074 | 5.182 | .6547 | 1.071 | .6263 | .7238 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 187.1 | 2027. | 112.3 | 4054. | 231.3 | 83.39 |
| SDev | 1.437 | 14.98 | .574 | 37.71 | .7707 | 2.303 |
| %RSD | .7677 | .7391 | .5111 | .9302 | .3332 | 2.762 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 80.62 | 41.25 | 1289. | 216.0 |
| SDev | 1.987 | 4.864 | 11.44 | 1.288 |
| %RSD | 2.465 | 11.79 | .8875 | .5961 |

Method: TRIANGL2  Sample Name: 184-50-1ABC L  Operator: DKH
Run Time: 10/16/97 06:44  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.4440 | L3.164 | 484.8 | L-1.931 | L.3724 | 3.906 |
| SDev | .322 | 3.221 | 2.054 | .0161 | .0955 | .0837 |
| %RSD | 72.51 | 101.8 | .4237 | .8347 | 25.63 | 2.143 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 36.48 | 451.4 | 17.45 | 769.6 | 45.98 | 9.814 |
| SDev | .1875 | 1.55 | .7885 | 12.57 | .9132 | 2.429 |
| %RSD | .514 | .3433 | 4.52 | 1.633 | 1.986 | 24.75 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 10.80 | L-1.273 | 260.1 | 36.29 |
| SDev | .6753 | 2.955 | 1.207 | .0141 |
| %RSD | 6.252 | 232.2 | .4642 | .0389 |

Method: TRIANGL2  Sample Name: 184-50-2ABC  Operator: DKH
Run Time: 10/16/97 06:48  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.729 | 5.922 | 510.8 | L-1.516 | 21.33 | L-18.81 |
| SDev | .231 | 5.592 | 1.262 | .0114 | .4776 | .3065 |
| %RSD | 13.36 | 94.42 | .247 | .7539 | 2.239 | 1.63 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 99.66 | 333.7 | 60.86 | 603.5 | 57.82 | 41.46 |
| SDev | .7343 | .5725 | .6265 | 7.819 | 2.963 | 2.143 |
| %RSD | .7369 | .1716 | 1.029 | 1.295 | 5.125 | 5.167 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 39.59 | L-20.75 | 466.6 | 44.25 |
| SDev | 2.103 | 4.068 | 1.658 | .3904 |
| %RSD | 5.314 | 19.6 | .3554 | .8823 |

Method: TRIANGL2 Sample Name: 184-50-2ABC DA Operator: DKH
Run Time: 10/16/97 06:53 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.879 | 9.131 | 508.5 | L-1.543 | 21.14 | L-19.06 |
| SDev | .1626 | 1.536 | .6701 | .018 | .2932 | .1298 |
| %RSD | 8.655 | 16.82 | .1318 | 1.169 | 1.387 | .6813 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 100.8 | 333.8 | 61.46 | 595.3 | 56.00 | 42.58 |
| SDev | .6976 | .1168 | .2091 | 5.056 | 4.94 | 2.367 |
| %RSD | .6922 | .035 | .3402 | .8494 | 8.822 | 5.558 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 40.58 | L-22.75 | 467.4 | 43.70 |
| SDev | 1.369 | 3.279 | 2.011 | .1365 |
| %RSD | 3.374 | 14.42 | .4304 | .3123 |

Method: TRIANGL2 Sample Name: 184-50-3ABC Operator: DKH
Run Time: 10/16/97 06:57 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 8.915 | 7.679 | 213.8 | L-.6011 | L-.9755 | L-15.08 |
| SDev | .1884 | 2.083 | .1277 | .0096 | .3475 | .4523 |
| %RSD | 2.113 | 27.13 | .0597 | 1.597 | 35.62 | 3 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 78.48 | 142.1 | 43.20 | 258.3 | 31.04 | 33.49 |
| SDev | .0716 | .2221 | .5583 | 3.008 | 1.936 | 1.467 |
| %RSD | .0912 | .1563 | 1.292 | 1.165 | 6.237 | 4.379 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 30.06 | L-18.14 | 202.8 | 32.22 |
| SDev | 2.758 | .807 | .1254 | .1674 |
| %RSD | 9.174 | 4.45 | .0618 | .5197 |

Method: TRIANGL2 Sample Name: 184-50-4ABC Operator: DKH
Run Time: 10/16/97 07:01 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 2.082 | L4.111 | 139.3 | L-.3650 | L-2.418 | L-16.29 |
| SDev | .3145 | .9489 | .3593 | .014 | .0784 | .181 |
| %RSD | 15.11 | 23.08 | .258 | 3.836 | 3.242 | 1.111 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 64.36 | 204.4 | 28.94 | 142.3 | 6.657 | 27.32 |
| SDev | 1.317 | .4675 | 1.379 | 4.509 | 2.292 | 2.046 |
| %RSD | 2.046 | .2287 | 4.766 | 3.169 | 34.42 | 7.49 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 24.36 | L-18.91 | 160.5 | 21.37 |
| SDev | 1.049 | 2.389 | .5637 | .469 |
| %RSD | 4.306 | 12.63 | .3512 | 2.195 |

Method: TRIANGL2 Sample Name: 184-50-5ABC Operator: DKH
Run Time: 10/16/97 07:06 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.066 | 6.275 | 46.63 | L-.0519 | L-6.656 | L-31.58 |
| SDev | .1497 | 4.046 | .113 | .0165 | .1467 | .2198 |
| %RSD | 14.05 | 64.48 | .2423 | 31.73 | 2.203 | .6961 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 94.99 | 10.86 | 48.17 | L.2013 | L-20.78 | 49.09 |
| SDev | .4271 | .0346 | .3339 | 9.721 | .6739 | 1.36 |
| %RSD | .4496 | .3188 | .6932 | 4828 | 3.243 | 2.771 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 42.70 | L-28.34 | 30.20 | 10.52 |
| SDev | .6499 | 5.619 | .5619 | .1553 |
| %RSD | 1.522 | 19.82 | 1.861 | 1.476 |

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/16/97 07:10 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 497.6 | 480.4 | 497.4 | 1432. | 497.5 | 492.5 |
| SDev | 1.296 | 4.595 | .8585 | 309.7 | 1.178 | 1.776 |
| %RSD | .2604 | .9565 | .1726 | 21.62 | .2368 | .3606 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 495.3 | 490.4 | 496.7 | 493.1 | 502.8 | 493.8 |
| SDev | 1.154 | 1.266 | 1.79 | 1.344 | 1.048 | 1.2 |
| %RSD | .233 | .2582 | .3604 | .2727 | .2084 | .2429 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 497.8 | 4.972 | 482.6 | 483.5 | 493.5 | 496.9 |
| SDev | 2.846 | .1091 | 9.826 | 4.639 | 1.056 | 2.046 |
| %RSD | .5717 | 2.195 | 2.036 | .9596 | .2141 | .4117 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.848 | 494.5 | 493.2 | 476.8 | 485.5 | 494.8 |
| SDev | .0281 | 1.15 | 6.169 | 2.054 | 3.223 | 3.576 |
| %RSD | .5799 | .2326 | 1.251 | .4309 | .6637 | .7228 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 481.9 | 484.5 | 482.6 | 483.6 | 490.0 | 494.1 |
| SDev | 4.544 | 2.786 | 1.525 | 1.43 | 2.134 | 1.144 |
| %RSD | .9428 | .575 | .3161 | .2956 | .4355 | .2315 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 491.8 | 493.0 | 496.4 | 495.5 | Q120100. |
| SDev | 1.006 | 8.102 | 1.576 | .5795 | 12690 |
| %RSD | .2047 | 1.643 | .3176 | .117 | 10.56 |

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: DKH
Run Time: 10/16/97 07:46  Filename: 101697
Mode: CONC  Type: Q  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .0533 | -8.541 | -1.340 | 1907. | -.0269 | -.0517 |
| SDev | .5781 | 6.096 | .2432 | 194.5 | .0699 | .0198 |
| %RSD | 1085 | 71.38 | 18.15 | 10.2 | 259.4 | 38.3 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .7147 | -.3193 | .8197 | Q-1.014 | 1.244 | -.4342 |
| SDev | .907 | .0626 | .4866 | .5074 | .748 | .3392 |
| %RSD | 126.9 | 19.59 | 59.37 | 50.03 | 60.13 | 78.13 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -11.40 | .0045 | -.0035 | -.9826 | -.3995 | .6451 |
| SDev | 6.564 | .0222 | .0453 | 3.155 | .0642 | .5139 |
| %RSD | 57.57 | 490.5 | 1308 | 321.1 | 16.08 | 79.65 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0050 | .0805 | 2.006 | -1.232 | -.7516 | .5050 |
| SDev | .1447 | .9777 | 4.174 | 7.372 | 3.896 | 1.575 |
| %RSD | 2897 | 1215 | 208.1 | 598.5 | 518.3 | 311.8 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 3.012 | -.6267 | -.9115 | .5850 | -1.230 | -.0048 |
| SDev | 1.688 | 1.426 | .4417 | 1.225 | 1.1 | .0368 |
| %RSD | 56.03 | 227.6 | 48.46 | 209.4 | 89.46 | 774.9 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0553 | .4464 | .3645 | -.0630 | Q40110. |
| SDev | .1514 | 2.371 | .6429 | .3788 | 6602 |
| %RSD | 273.7 | 531.1 | 176.4 | 600.9 | 16.46 |

Baseline variation reanalyzed next 11/2/97

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: DKH
Run Time: 10/16/97 07:52  Filename: 101697
Mode: CONC  Type: Q  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.2417 | -5.727 | -1.300 | 1884. | -.0146 | -.0323 |
| SDev | .1502 | 1.172 | .8748 | 169.2 | .0456 | .0263 |
| %RSD | 62.12 | 20.46 | 67.27 | 8.982 | 311.2 | 81.42 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .5311 | -.3609 | .3116 | -.5385 | .1090 | -.2913 |
| SDev | .6907 | .0259 | .8719 | .171 | .4543 | .0451 |
| %RSD | 130.1 | 7.184 | 279.8 | 31.76 | 416.7 | 15.48 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -7.667 | -.0065 | -.0156 | -.2903 | -.3527 | .4612 |
| SDev | 5.091 | .0216 | .0346 | 1.237 | .0684 | .323 |
| %RSD | 66.4 | 334 | 221.9 | 426 | 19.4 | 70.04 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0037 | -.3360 | 2.354 | -.3383 | -1.221 | -1.019 |
| SDev | .0559 | .2058 | 2.648 | 4.367 | .6342 | 2.344 |
| %RSD | 1493 | 61.24 | 112.5 | 1291 | 51.93 | 230.1 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 3.228 | -.3380 | -.9271 | .8494 | .3410 | -.0071 |
| SDev | 2.628 | .8337 | 1.031 | .5572 | 1.272 | .0196 |
| %RSD | 81.42 | 246.7 | 111.2 | 65.6 | 373.1 | 277.3 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0109 | 2.425 | .2912 | -.0449 | Q21790. |
| SDev | .0591 | .5094 | .5035 | .3956 | 2608 |
| %RSD | 540.7 | 21.01 | 172.9 | 880.5 | 11.97 |

Method: TRIANGL2 Sample Name: 184-50-6ABC Operator: DKH
Run Time: 10/16/97 07:57 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 2.705 | L3.407 | 43.29 | L-.1124 | L-6.215 | L-29.57 |
| SDev | .348 | 1.285 | .0223 | .0227 | .1688 | .2123 |
| %RSD | 12.86 | 37.71 | .0516 | 20.18 | 2.717 | .7179 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 93.29 | 9.109 | 46.80 | L17.60 | L-12.88 | 41.76 |
| SDev | .2013 | .0325 | .2785 | 7.247 | .9772 | 3.694 |
| %RSD | .2157 | .3564 | .5951 | 41.18 | 7.586 | 8.844 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 43.53 | L-27.42 | 25.99 | 10.58 |
| SDev | 1.23 | 3.657 | .4895 | .4742 |
| %RSD | 2.825 | 13.34 | 1.884 | 4.482 |

Method: TRIANGL2 Sample Name: 184-50-7ABC Operator: DKH
Run Time: 10/16/97 08:02 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-15.49 | 152.1 | 6172. | L-35.76 | 60.01 | 265.3 |
| SDev | .9335 | 6.111 | 5.206 | .8206 | 1.304 | .9946 |
| %RSD | 6.028 | 4.018 | .0844 | 2.295 | 2.173 | .3749 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 358.7 | 11640. | 160.8 | 34930. | 450.8 | L-2.294 |
| SDev | 1.837 | 125 | .9667 | 123.5 | 4.528 | 14.75 |
| %RSD | .512 | 1.074 | .6012 | .3535 | 1.004 | 643.1 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L-55.97 | 29.04 | 5033. | 1251. |
| SDev | .4454 | 12.16 | 50.46 | 6.183 |
| %RSD | .7958 | 41.88 | 1.003 | .4942 |

Method: TRIANGL2 Sample Name: 184-50-1D Operator: DKH
Run Time: 10/16/97 08:06 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L.2766 | L-2.638 | 20.51 | L-.1251 | 5.845 | L-2.288 |
| SDev | .2345 | 1.093 | 2.731 | .0185 | .185 | .3883 |
| %RSD | 84.78 | 41.45 | 13.32 | 14.76 | 3.164 | 16.97 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 11.39 | 45.09 | 16.34 | 620.8 | 63.81 | L3.419 |
| SDev | .9235 | 7.084 | .285 | 11.34 | .7614 | .2362 |
| %RSD | 8.107 | 15.71 | 1.744 | 1.826 | 1.193 | 6.907 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 5.132 | L-8.268 | 280.8 | 22.13 |
| SDev | .7446 | 3.42 | 2.001 | .6451 |
| %RSD | 14.51 | 41.37 | .7124 | 2.914 |

1D PDS CE DKH 11/2/97

Method: TRIANGL2  Sample Name: 184-50-~~1D L~~  Operator: DKH
Run Time: 10/16/97 08:10  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 41.57 | 36.64 | 60.46 | 45.63 | 52.79 | 46.23 |
| SDev | .2792 | 1.116 | 1.695 | .1066 | .2122 | .2617 |
| %RSD | .6716 | 3.047 | 2.804 | .2336 | .402 | .5661 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 55.26 | 68.47 | 61.19 | 1409. | 108.5 | 47.69 |
| SDev | .4554 | 4.15 | .4983 | 13.14 | 1.194 | 2.649 |
| %RSD | .8241 | 6.061 | .8144 | .9325 | 1.1 | 5.555 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 46.09 | 41.51 | 456.7 | 69.47 |
| SDev | 1.599 | 3.872 | 1.063 | .3598 |
| %RSD | 3.469 | 9.327 | .2327 | .5179 |

Method: TRIANGL2  Sample Name: 184-50-~~20~~ 10 L EE DKH 11/2/97  Operator: DKH
Run Time: 10/16/97 08:14  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.0897 | L-1.821 | 2.332 | L-.0501 | 1.419 | L-.1740 |
| SDev | .0648 | .896 | .4586 | .02 | .0807 | .2324 |
| %RSD | 72.25 | 49.2 | 19.67 | 39.9 | 5.688 | 133.6 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L1.220 | 4.133 | L2.951 | 131.7 | 12.38 | L-.9951 |
| SDev | .4425 | 1.078 | .2926 | 2.713 | 1.461 | .6884 |
| %RSD | 36.28 | 26.09 | 9.914 | 2.059 | 11.8 | 69.18 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L1.379 | L1.796 | 58.60 | 3.320 |
| SDev | 1.16 | 2.134 | 1.027 | .1675 |
| %RSD | 84.13 | 118.8 | 1.753 | 5.045 |

2DE ee-MKH 11/2/97

Method: TRIANGL2 Sample Name: 184-50 ~~2D DA~~ Operator: DKH
Run Time: 10/16/97 08:56 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L.5679 | L-7.156 | 8.581 | L-.0070 | L.8481 | L-1.476 |
| SDev | .6026 | .8904 | .0121 | .0531 | .0828 | .1998 |
| %RSD | 106.1 | 12.44 | .1407 | 754.6 | 9.766 | 13.54 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.083 | 15.93 | 7.948 | 547.6 | 23.64 | L.7714 |
| SDev | .4408 | .0612 | .6847 | 5.055 | .388 | 1.848 |
| %RSD | 10.8 | .3843 | 8.615 | .9231 | 1.641 | 239.6 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 3.153 | L-6.818 | 146.5 | 19.04 |
| SDev | 3.032 | 3.024 | 1.604 | .7372 |
| %RSD | 96.15 | 44.35 | 1.095 | 3.872 |

20E0A

Method: TRIANGL2 Sample Name: 184-50-~~30~~ CC NKA 11/12/97 Operator: DKH
Run Time: 10/16/97 09:00 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.0033 | L-8.639 | 8.590 | L-.0542 | 1.010 | L-1.200 |
| SDev | .4743 | 2.526 | .0349 | .0032 | .1699 | .1727 |
| %RSD | 14540 | 29.24 | .4062 | 5.994 | 16.82 | 14.4 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.012 | 16.00 | 8.008 | 541.7 | 23.73 | L1.277 |
| SDev | .2092 | .0218 | .4832 | 2.227 | .8123 | 1.673 |
| %RSD | 5.216 | .1363 | 6.034 | .411 | 3.423 | 131 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L1.535 | L-8.808 | 147.4 | 18.27 |
| SDev | 1.975 | 2.69 | .2439 | .2617 |
| %RSD | 128.7 | 30.55 | .1655 | 1.432 |

Method: TRIANGL2 Sample Name: 184-50-4D 30E ee DKH 11/21/97 Operator: DKH
Run Time: 10/16/97 09:04 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L.1911 | L-7.223 | 11.26 | L-.0539 | 16.44 | L-.5769 |
| SDev | .1505 | 2.258 | .0357 | .0202 | .2015 | .2555 |
| %RSD | 78.76 | 31.26 | .317 | 37.46 | 1.225 | 44.29 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 6.680 | 17.22 | 34.81 | 747.8 | 964.4 | L-.5307 |
| SDev | .3669 | .0706 | .7899 | 4.429 | 2.741 | .6234 |
| %RSD | 5.493 | .4099 | 2.27 | .5922 | .2843 | 117.5 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 86.49 | L-5.127 | 192.1 | 52.09 |
| SDev | 1.669 | 2.937 | .6433 | .3094 |
| %RSD | 1.93 | 57.29 | .3349 | .5941 |

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/16/97 09:09 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 499.2 | 475.2 | 499.3 | 2149. | 503.9 | 486.6 |
| SDev | 3.819 | 13.69 | 15.74 | 81.88 | 2.32 | 1.029 |
| %RSD | .765 | 2.881 | 3.152 | 3.811 | .4604 | .2115 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 482.2 | 486.7 | 496.2 | 486.7 | 487.2 | 487.7 |
| SDev | 8.614 | 3.548 | 6.679 | 4.786 | 6.891 | 5.337 |
| %RSD | 1.786 | .7291 | 1.346 | .9832 | 1.415 | 1.094 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 452.6 | 5.116 | 496.1 | 466.6 | 484.0 | 487.6 |
| SDev | 71.05 | .1044 | 6.834 | 33.91 | 3.577 | 1.686 |
| %RSD | 15.7 | 2.04 | 1.378 | 7.268 | .7391 | .3457 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.938 | 484.9 | 482.5 | 470.1 | 490.0 | 493.9 |
| SDev | .0967 | 8.103 | 23.23 | 15.77 | 3.984 | 3.688 |
| %RSD | 1.958 | 1.671 | 4.814 | 3.354 | .8132 | .7467 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 468.2 | 483.2 | 483.4 | 478.2 | 501.2 | 492.8 |
| SDev | 22.64 | 4.008 | 7.907 | 4.894 | 23.64 | 2.359 |
| %RSD | 4.835 | .8296 | 1.636 | 1.023 | 4.716 | .4787 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 485.2 | 501.9 | 490.1 | 485.1 | Q7971. |
| SDev | 4.465 | 17.69 | 2.037 | 2.417 | 272.6 |
| %RSD | .9203 | 3.524 | .4156 | .4981 | 3.42 |

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/16/97 09:35 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .1502 | -1.521 | -.9882 | 950.4 | .0421 | -.0092 |
| SDev | .3132 | 4.124 | 1.361 | 39.14 | .0283 | .0405 |
| %RSD | 208.6 | 271.1 | 137.7 | 4.118 | 67.18 | 438.9 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.5445 | -.2155 | 1.001 | -.0770 | -.8534 | -1.613 |
| SDev | .7426 | .2165 | .4289 | .1903 | .3149 | .2463 |
| %RSD | 136.4 | 100.4 | 42.83 | 247 | 36.9 | 15.27 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -14.15 | -.0262 | .0035 | -1.332 | -.3542 | .8031 |
| SDev | 10.29 | .0258 | .0483 | 2.343 | .0286 | .5252 |
| %RSD | 72.74 | 98.57 | 1394 | 175.9 | 8.064 | 65.4 |

Baseline
DKH 11/2/97

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0387 | -.8098 | 6.223 | .1146 | -1.624 | -2.656 |
| SDev | .0963 | .454 | 2.934 | .258 | 2.436 | .6835 |
| %RSD | 248.7 | 56.07 | 47.14 | 225.2 | 150 | 25.74 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.043 | -3.656 | -1.045 | -2.091 | 1.023 | -.0007 |
| SDev | .957 | 4.068 | 1.551 | 2.71 | .5067 | .0236 |
| %RSD | 91.74 | 111.3 | 148.4 | 129.6 | 49.55 | 3490 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0544 | Q5.106 | .8394 | .0111 | Q1699. |
| SDev | .0798 | 3.369 | .4161 | .3295 | 156.7 |
| %RSD | 146.8 | 65.99 | 49.57 | 2957 | 9.223 |

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/16/97 09:41 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.1087 | -.7477 | -2.236 | 944.4 | .0551 | -.0248 |
| SDev | .2618 | 3.542 | 2.037 | 25.6 | .0229 | .0222 |
| %RSD | 240.8 | 473.7 | 91.1 | 2.71 | 41.53 | 89.67 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.3562 | -.2554 | -.5108 | -.0309 | -.9233 | -1.471 |
| SDev | .267 | .1898 | .5058 | .3512 | .3306 | .2529 |
| %RSD | 74.94 | 74.31 | 99.02 | 1135 | 35.81 | 17.19 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -13.84 | -.0342 | -.0052 | -.7875 | -.3458 | .8655 |
| SDev | 6.1 | .0205 | .039 | 1.658 | .0465 | .3214 |
| %RSD | 44.07 | 59.96 | 750.6 | 210.6 | 13.44 | 37.13 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0350 | -.5282 | -.8495 | -1.145 | -.3056 | -.2238 |
| SDev | .0291 | .5848 | 4.378 | 1.302 | .8154 | .2366 |
| %RSD | 83.22 | 110.7 | 515.4 | 113.6 | 266.8 | 105.7 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.861 | -1.886 | -.5852 | -.6382 | .6340 | .0110 |
| SDev | .6219 | 1.779 | .9445 | .9812 | 1.144 | .0072 |
| %RSD | 33.42 | 94.34 | 161.4 | 153.7 | 180.4 | 65.82 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0894 | 2.843 | .7315 | .0786 | Q1234. |
| SDev | .0373 | 1.955 | .4703 | .2427 | 42.21 |
| %RSD | 41.72 | 68.77 | 64.29 | 309 | 3.422 |

4DE

Method: TRIANGL2 Sample Name: 184-50-~~5D~~ ← MCH 11/2/97 Operator: DKH
Run Time: 10/16/97 09:46 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L.3115 | L-6.866 | 5.349 | L-.0157 | L.1314 | L-1.780 |
| SDev | .4234 | .4176 | .0566 | .0227 | .1903 | .5384 |
| %RSD | 135.9 | 6.083 | 1.058 | 144.5 | 144.8 | 30.25 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 2.399 | 491.5 | 8.884 | 555.5 | 12.48 | L-1.163 |
| SDev | .2792 | 3.037 | .5823 | 2.613 | .6875 | 2.856 |
| %RSD | 11.64 | .6179 | 6.555 | .4705 | 5.509 | 245.6 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L.9315 | L-2.512 | 94.30 | 11.29 |
| SDev | .7501 | 6.04 | 1.396 | .3558 |
| %RSD | 80.52 | 240.5 | 1.48 | 3.152 |

Method: TRIANGL2  Sample Name: 184-50-~~00~~ SD  Operator: DKH
Run Time: 10/16/97 09:51  Filename: 101697
Mode: CONC  Type: S  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L-.0839 | L-5.436 | 2.368 | L-.0372 | 1.295 | L-.8354 |
| SDev | .2512 | 1.249 | .0238 | .02 | .1503 | .1079 |
| %RSD | 299.5 | 22.97 | 1.005 | 53.88 | 11.61 | 12.92 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 3.764 | 71.68 | L2.070 | 120.7 | 65.88 | L.9706 |
| SDev | .105 | .0245 | .1183 | 2.985 | .775 | 2.807 |
| %RSD | 2.79 | .0342 | 5.715 | 2.473 | 1.176 | 289.2 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 4.210 | L-1.944 | 29.58 | 6.244 |
| SDev | 2.228 | 4.813 | .5408 | .1993 |
| %RSD | 52.92 | 247.6 | 1.829 | 3.192 |

B
GD 8-11-3-97 EE

Method: TRIANGL2 Sample Name: 184-50-~~7D~~ EE DKH 11/12/97 Operator: DKH
Run Time: 10/16/97 09:55 Filename: 101697
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | L.0610 | L-8.994 | 3.256 | L-.0435 | L-.5364 | L-1.619 |
| SDev | .5059 | 1.325 | .0253 | .0074 | .0302 | .1431 |
| %RSD | 829.2 | 14.73 | .7777 | 17.01 | 5.626 | 8.842 |

| Elems | Cr2677 | Mn2576 | Ni2316 | P_2149 | Pb2203 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 2.217 | 346.9 | 6.056 | 553.4 | 2.647 | L1.642 |
| SDev | .163 | .2669 | .503 | 7.161 | .517 | 1.483 |
| %RSD | 7.351 | .0769 | 8.305 | 1.294 | 19.53 | 90.32 |

| Elems | Se1960 | Tl1908 | Zn2062 | Cu3247 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | L-.0174 | L-6.710 | 20.33 | 14.38 |
| SDev | 1.462 | 1.841 | .2184 | .3131 |
| %RSD | 8428 | 27.43 | 1.075 | 2.177 |

Method: TRIANGL2  Sample Name: ICV/CCV  Operator: DKH
Run Time: 10/16/97 09:59  Filename: 101697
Mode: CONC  Type: Q  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | Q.0289 | Q-157.8 | Q-.2775 | 195.7 | Q.0976 | Q-.7472 |
| SDev | .2048 | 1.047 | .5037 | 9.615 | .0335 | .0087 |
| %RSD | 709.6 | .6637 | 181.5 | 4.913 | 34.34 | 1.166 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | Q13.58 | Q-.2812 | 1.721 | Q.7068 | Q-.3631 | Q-13.65 |
| SDev | .4391 | .04 | .1489 | .1939 | .1889 | .0581 |
| %RSD | 3.234 | 14.22 | 8.651 | 27.43 | 52.03 | .4254 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | Q-6.893 | Q.7476 | Q1.465 | Q-.7281 | Q-.3683 | Q.2414 |
| SDev | 3.949 | .0538 | .1054 | .8972 | .1343 | .1598 |
| %RSD | 57.29 | 7.201 | 7.192 | 123.2 | 36.47 | 66.18 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | Q.2460 | Q.7523 | Q16.36 | -5.639 | -1.913 | Q-2.677 |
| SDev | .1276 | .2237 | 1.239 | 2.215 | .5583 | .7508 |
| %RSD | 51.87 | 29.74 | 7.573 | 39.29 | 29.18 | 28.05 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 7.261 | -6.855 | Q-3.154 | Q-2.154 | Q1.646 | Q.0357 |
| SDev | 3.582 | 1.993 | .6018 | .4271 | .7386 | .0067 |
| %RSD | 49.33 | 29.08 | 19.08 | 19.82 | 44.87 | 18.84 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | Q.3552 | Q10.69 | Q9.521 | Q.1164 | Q19.24 |
| SDev | .3145 | 1.227 | .217 | .2914 | 48.69 |
| %RSD | 88.56 | 11.47 | 2.279 | 250.3 | 253.1 |

Cup empty
MCA 11/24/97

Method: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Run Time: 10/16/97 12:11 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 496.5 | 496.4 | 497.1 | 589.7 | 521.8 | 483.1 |
| SDev | 2.094 | 10.12 | 2.756 | 5.924 | .7044 | 1.928 |
| %RSD | .4218 | 2.038 | .5544 | 1.005 | .135 | .3992 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 477.3 | 491.6 | 507.1 | 487.0 | 487.5 | 498.8 |
| SDev | 1.576 | .9373 | 1.745 | .9028 | 1.381 | 3.083 |
| %RSD | .3302 | .1907 | .344 | .1854 | .2833 | .618 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 478.3 | 5.313 | 517.9 | 478.8 | 488.1 | 486.0 |
| SDev | 5.517 | .0461 | 2.416 | 1.865 | 1.115 | 3.467 |
| %RSD | 1.154 | .8676 | .4664 | .3895 | .2285 | .7132 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 5.314 | 489.8 | 499.4 | 479.1 | 484.2 | 494.4 |
| SDev | .1463 | 1.218 | 2.861 | 3.115 | 2.795 | 2.634 |
| %RSD | 2.754 | .2487 | .5729 | .6501 | .5773 | .5328 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 499.8 | 496.9 | 482.5 | 497.9 | 489.3 | 505.4 |
| SDev | 6.374 | 3.053 | .9208 | 2.98 | 2.196 | .6817 |
| %RSD | 1.275 | .6143 | .1909 | .5986 | .4488 | .1349 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 496.0 | 475.9 | 490.0 | 476.9 | 4965. |
| SDev | .5585 | 30.42 | 1.034 | 2.736 | 25.12 |
| %RSD | .1126 | 6.391 | .2111 | .5736 | .506 |

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: DKH
Run Time: 10/16/97 12:32  Filename: 101697
Mode: CONC  Type: Q  Corr. Factor: 1.00000
Lab ID.: 4377  Cust. Smpl. ID.:  Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0211 | 2.899 | -1.641 | 64.04 | .1805 | .0874 |
| SDev | .5304 | 6.708 | .2973 | 4.644 | .0282 | .0407 |
| %RSD | 2512 | 231.4 | 18.12 | 7.251 | 15.6 | 46.61 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.8989 | -.1870 | 1.192 | .4192 | -1.059 | -1.597 |
| SDev | .6572 | .0928 | .8145 | .1148 | .0471 | .3766 |
| %RSD | 73.11 | 49.62 | 68.33 | 27.4 | 4.444 | 23.58 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -14.64 | -.1313 | -.1855 | -1.358 | -.2783 | .6601 |
| SDev | 2.611 | .0146 | .0227 | 1.257 | .0504 | .3691 |
| %RSD | 17.84 | 11.13 | 12.22 | 92.54 | 18.12 | 55.91 |

Baseline DKH 11/2/97

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0587 | -.3710 | 6.871 | -1.392 | -1.881 | -2.321 |
| SDev | .186 | .5011 | 7.798 | 2.056 | 1.06 | 1.109 |
| %RSD | 316.9 | 135.1 | 113.5 | 147.7 | 56.36 | 47.78 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 2.528 | -2.544 | -1.718 | -.8550 | .7120 | .0851 |
| SDev | 3.378 | 1.409 | .267 | .1885 | 1.157 | .0079 |
| %RSD | 133.6 | 55.37 | 15.54 | 22.05 | 162.5 | 9.293 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | .0736 | 05.661 | .8681 | .1856 | 56.57 |
| SDev | .0634 | 1.711 | .4693 | .1994 | 4.884 |
| %RSD | 86.18 | 30.23 | 54.06 | 107.4 | 8.634 |

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/16/97 13:13 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0448 | -11.86 | -.0733 | 32.74 | .0667 | -.0583 |
| SDev | .1076 | 5.503 | 1.112 | 3.657 | .0209 | .0233 |
| %RSD | 240 | 46.39 | 1516 | 11.17 | 31.36 | 39.99 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .1563 | -.2877 | -.4351 | -.0631 | -1.310 | -1.093 |
| SDev | .5672 | .1993 | 1.134 | .1759 | .379 | .3509 |
| %RSD | 362.9 | 69.26 | 260.6 | 278.8 | 28.94 | 32.1 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -15.56 | -.1034 | -.2063 | -3.506 | -.3785 | .3155 |
| SDev | 4.357 | .038 | .0807 | 1.121 | .0222 | .2953 |
| %RSD | 28 | 36.76 | 39.14 | 31.97 | 5.861 | 93.59 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | -.0362 | -.2369 | .0303 | -.4790 | -.8080 | -1.452 |
| SDev | .0437 | .4007 | 3.413 | 1.431 | 1.298 | 2.125 |
| %RSD | 120.8 | 169.2 | 11270 | 298.9 | 160.6 | 146.4 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 4.483 | -3.490 | -.6984 | -.8349 | 1.179 | -.0038 |
| SDev | .3989 | 1.281 | .6201 | .9805 | .4081 | .0097 |
| %RSD | 8.898 | 36.69 | 88.78 | 117.4 | 34.62 | 256.3 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.1327 | Q5.342 | -.0945 | .2525 | 43.88 |
| SDev | .0587 | 1.912 | .2961 | .4279 | 1.668 |
| %RSD | 44.24 | 35.79 | 313.4 | 169.5 | 3.802 |

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 10/16/97 13:22 Filename: 101697
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID.: 4377 Cust. Smpl. ID.: Cust. ID.: 4377D

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 546.6 | 518700. | 526.9 | 567.1 | 544.1 | 489.4 |
| SDev | .6686 | 2500 | 5.399 | 5.794 | 1.932 | 1.355 |
| %RSD | .1223 | .482 | 1.025 | 1.022 | .3552 | .277 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 448800. | 475.3 | 512.3 | 476.7 | 479.2 | 554.2 |
| SDev | 1293 | .7837 | .7578 | 1.65 | 1.823 | 3.371 |
| %RSD | .2881 | .1649 | .1479 | .3462 | .3804 | .6082 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 177800. | Q27.72 | 678.7 | 531000. | 461.0 | 501.7 |
| SDev | 173.2 | .2547 | 4.585 | 169.7 | .9409 | 1.681 |
| %RSD | .0974 | .9189 | .6756 | .032 | .2041 | .335 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | Q6.138 | 458.4 | 543.7 | 513.0 | 471.9 | 517.0 |
| SDev | .1359 | .3339 | 14.5 | 6.568 | 10.72 | 5.742 |
| %RSD | 2.215 | .0728 | 2.667 | 1.28 | 2.271 | 1.111 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 552.9 | 522.7 | 485.6 | 532.7 | 513.7 | 523.0 |
| SDev | 18.88 | 8.605 | 5.122 | 2.276 | 4.282 | 1.604 |
| %RSD | 3.416 | 1.646 | 1.055 | .4273 | .8334 | .3067 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 504.1 | 499.1 | 494.6 | 442.5 | 5534. |
| SDev | .3431 | 26.04 | 2.004 | 2.676 | 9.408 |
| %RSD | .0681 | 5.218 | .4052 | .6049 | .17 |

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
Rinse 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 | TRIANGL2 | 22 | 2 | 1 |

* 43377

* Contains sample 184-50-7D for 43377. PKH 10/20/97

--- Preparation Info ---

| Set# | Dilute | Dilute#? | Final | Dil Factor |
|---|---|---|---|---|

No Samples Prepared

Rack #1

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | STD3 | -NA- | 2 | Standard 1-61-4P |
| 2 | 1 | 2 | STD1-BLANK | -NA- | 1 | Standard |
| 3 | 1 | 3 | ICSAB | -NA- | 2 | QC Standard 1-61-6P |
| 4 | 1 | 4 | CHECK LO | -NA- | 1 | QC Standard |
| 5 | 1 | 5 | ICV/CCV | -NA- | 4 | QC Standard 1-61-5P |
| 6 | 1 | 6 | ICB/CCB | -NA- | 4 | QC Standard |

17, 19 Not Used)

PKH 10/19/97

Rack #2

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 43411 MB | 1 | -NA- | Sample |
| 2 | 1 | 2 | 43411 LCS | 1 | -NA- | Sample |
| 3 | 1 | 3 | 184-84-1ABC | 1 | -NA- | Sample |
| 4 | 1 | 4 | 184-84-1ABC PDS | 1 | -NA- | Sample |
| 5 | 1 | 5 | 184-84-1ABC L | 1 | -NA- | Sample |
| 6 | 1 | 6 | 184-84-2ABC | 1 | -NA- | Sample |
| 7 | 1 | 7 | 184-84-2ABC DA | 1 | -NA- | Sample |
| 8 | 1 | 8 | 184-84-3ABC | 1 | -NA- | Sample |
| 9 | 1 | 9 | 184-84-4ABC | 1 | -NA- | Sample |
| 10 | 1 | 10 | 184-84-5ABC | 1 | -NA- | Sample |
| 11 | 1 | 11 | 184-84-6ABC | 1 | -NA- | Sample |
| 12 | 1 | 12 | 184-84-7ABC | 1 | -NA- | Sample |
| 13 | 2 | 1 | 184-84-1DE | 1 | -NA- | Sample |
| 14 | 2 | 2 | 184-84-1DE PDS | 1 | -NA- | Sample |
| 15 | 2 | 3 | 184-84-1DE L | 1 | -NA- | Sample |

Rack #2

| Pos | Row | Col | Sample Name | Set # | #Used | Type |
|---|---|---|---|---|---|---|
| 16 | 2 | 4 | 184-84-20E | 1 | -NA- | Sample |
| 17 | 2 | 5 | 184-84-20E DA | 1 | -NA- | Sample |
| 18 | 2 | 6 | 184-84-30F | 1 | -NA- | Sample |
| 19 | 2 | 7 | 184-84-4D | 1 | -NA- | Sample |
| 20 | 2 | 8 | 184-84-58D | 1 | -NA- | Sample |
| 21 | 2 | 9 | 184-84-6D | 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) | | | | |

Method: TRIANGL2 Sample Name: STD1-BLANK Operator:
Run Time: 10/20/97 02:34 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 | -.00005 | .00175 | -.00025 | .00053 | .00016 | .00015 |
| SDev | .00018 | 00003 | .00016 | .00007 | 0 | 0 |
| %RSD | 324 493 | 1.92741 | 64.7338 | 14.799 | 5.83794 | 3.00637 |

| Elems | Ca3179_ | Cd2265 | Co4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | 00077 | -.00011 | -.00015 | -.00013 | - 00012 | .00305 |
| SDev | 0 | .00019 | .00043 | .00005 | .00002 | .00006 |
| %RSD | .4196 | 169 969 | 276 427 | 38.9774 | 20.5118 | 2.00201 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mn2020 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .00005 | 7 53193 | .14862 | .00007 | .00002 | .00005 |
| SDev | 00001 | .03932 | .00073 | .00006 | 0 | 0 |
| %RSD | 36.7786 | .5221 | .49205 | 78.2225 | 17.4372 | 19.3551 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | 00288 | - 00183 | -.00099 | .0007 | 00003 | .00031 |
| SDev | .00185 | .00034 | .00002 | .00017 | .00011 | .00004 |
| %RSD | 64 1328 | 18.7786 | 2 33707 | 25 1502 | 307 289 | 15 2916 |

| Elems | 1960-1 | 1960-2 | Sn1899 | Sr4215 | Ti3349 | Tl1908 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | - 00491 | 00187 | - 00043 | .00014 | 00008 | - 00042 |
| SDev | 00038 | 00033 | 00002 | 00001 | 00011 | 00002 |
| %RSD | 7 75111 | 17 6317 | 6 08648 | 8 357 | 132.664 | 6.83943 |

| Elems | V 2924 | Zn2062 | Si2881 |
|---|---|---|---|
| Units | count | count | count |
| Avge | -.00052 | 0 | .02469 |
| SDev | .00001 | 0 | .0004 |
| %RSD | 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 | .1759 |
| SDev | .00022 | .00945 | .00078 | .00111 | .0016 | .00013 |
| %RSD | .76907 | .81485 | .62275 | .87038 | .89392 | .07961 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn257a | Mo2020 |
|---|---|---|---|---|---|---|
| Units | count | count | count | count | count | count |
| Avge | .00506 | 22.8985 | 13.3093 | .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 | 1.28231 | .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 | | |

Method: TRIANGL2 Sample Name: STD3 Operator: DKH
Run Time: 10/20/97 02:43 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 | 996.8 | 999.7 | 998.2 | 1013. | 1001. | 998.0 |
| SDev | 2.451 | 7.16 | .6164 | 2.352 | .614 | 2.751 |
| %RSD | .2459 | .7162 | .0617 | .2322 | .0613 | .2756 |

| Elems | Ca3179_ | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1001 | 1002 | 1001. | 1002. | 1001. | 999.5 |
| SDev | 1.699 | 1.713 | 1.951 | 2.245 | 2.438 | 4.02 |
| %RSD | .1697 | .1709 | .1949 | .224 | .2436 | .4022 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 1005 | 10.46 | 1040. | 1003. | 1000 | 1005 |
| SDev | 1.914 | .0423 | 4.929 | 2.091 | 1.761 | 1.499 |
| %RSD | .1904 | .4048 | .4741 | .2084 | .1761 | .149 |

| Elems | Na5892 | Ni2316 | P_2149 | Pb203-1 | Pb203-2 | Sb20nm |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 10.22 | 1005 | 992.6 | 994.2 | 989.8 | 1004. |
| SDev | .1834 | 1.144 | 2.915 | 13.09 | 19.77 | .5386 |
| %RSD | 1.794 | .1138 | .2937 | 1.317 | 1.998 | .0536 |

| Elems | Se196-1 | Se196-2 | Sn1899 | Sr4215 | Ti3349 | Tl1908 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 992.7 | 992.5 | 1002. | 998.8 | 1000. | 1034. |
| SDev | 13.69 | 24.42 | 2.265 | .667 | 1.423 | 13 |
| %RSD | 1.379 | 2.461 | .2261 | .0668 | .1423 | 1.258 |

| Elems | V_2924 | Zn2062 | Si2881 | Pb2203 | Se1960 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | 1002 | 1000 | 10000 | 991.2 | 992.6 |
| SDev | 1.884 | 3.755 | 47.53 | 10.63 | 12.71 |
| %RSD | .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 | .6946 | 1.469 |
| %RSD | .5952 | 1.059 | .3471 | .1613 | .1379 | .2905 |

| Elems | Ca3179_ | 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 | 502.9 | 501.0 |
| SDev | 4.238 | 21.88 | 13.01 | 13.31 | 2.346 | .9362 |
| %RSD | .8231 | 4.278 | 2.552 | 2.598 | .4665 | .1869 |

| Elems | Ti3349 | 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 |

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: OKH
Run Time: 10/20/97 02:57  Filename: 101997
Mode: CONC  Type: 0  Corr. Factor: 1.00000
Lab ID.:  Cust. Smpl. ID.:  Cust. ID.: 43411

Conf not used

OK 11-31-97

| Elems | Ag3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.1735 | -5.811 | 1.192 | 8.720 | -.0120 | -.0320 |
| SDev | .402 | 3.288 | 1.525 | 2.985 | .0617 | .0137 |
| %RSD | 231.6 | 56.58 | 127.9 | 34.23 | 513.9 | 42.79 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 9259 | 0783 | -1.139 | -.1719 | 1478 | -.8462 |
| SDev | 1.035 | 0674 | 2886 | 0644 | 3938 | .5876 |
| %RSD | 111.8 | 79.67 | 25.34 | 386.5 | 266.4 | 69.43 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn257a | Mn2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -5.554 | 0727 | 1857 | -3.469 | 0181 | 1.168 |
| SDev | 9.133 | .0223 | 0351 | 3.018 | .0231 | .6304 |
| %RSD | 164.4 | 30.62 | 18.9 | 87 | 127.4 | 53.95 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0447 | .4972 | 2.044 | 1.735 | .0268 | 1.898 |
| SDev | .0515 | 5008 | .6453 | 1.871 | 1.135 | 1.578 |
| %RSD | 115 | 100.7 | 31.56 | 107.8 | 4236 | 83.14 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.3487 | 1.342 | 5957 | .7787 | .3233 | 0013 |
| SDev | 8807 | 2.524 | .3347 | 1.975 | 1.28 | .0289 |
| %RSD | 252.6 | 188.2 | 56.19 | 253.6 | 395.8 | 2178 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | -.1074 | 08.451 | 5940 | -.0219 | -3.055 |
| SDev | 1978 | 4.878 | 5697 | 1889 | 13.76 |
| %RSD | 193.3 | 57.05 | 95.9 | 862 | 450.4 |

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/20/97 03:03 Filename: 101997
Mode: CONC Type: Q Corr. Factor: 1.00000
Lab ID : Cust. Smpl. ID.: Cust. ID.: 43411

DMF 11-2-97

| 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 | -.6623 | .0659 | .1712 | -.5688 |
| 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 | 1.165 | .0187 | .0405 | -2.102 | -.0214 | -.0177 |
| SDev | 3.876 | .0281 | .0558 | 2.477 | .0181 | .0142 |
| %RSD | 333.1 | 150.7 | 137.7 | 115.5 | 84.71 | 3463 |

| Elems | Na3302 | Ni231o | P_2149 | 7203-1 | 7203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0762 | .0617 | 7.217 | 2.554 | -.5674 | .2166 |
| 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 | 5.125 | -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 | 85.304 | .4599 | -.1179 | -3.202 |
| SDev | .0672 | 4.211 | .4404 | .2772 | 3.439 |
| %RSD | 133.2 | 79.4 | 95.75 | 235.1 | 107.4 |

Method: TRIANGL2  Sample Name: ICB/CCB  Operator: DKH
Run Time: 10/20/97 03:09  Filename: 101997
Mode: CONC  Type: 0  Corr. Factor: 1.00000
Lab ID.:  Cust Smpl. ID.:  Cust. ID.: 43411

| Elems | Ba3280 | Al3082 | As1890 | B_2496 | Ba4934 | Be3130 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .0927 | - 1024 | .0053 | .9844 | .0678 | -.0192 |
| SDev | .5361 | 4.777 | .6625 | .4981 | .0099 | .0392 |
| %RSD | 578 | 4664 | 12540 | 50.59 | 14.57 | 203.5 |

| Elems | Ca3179_ | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | .5086 | .0567 | 1.377 | -.1144 | .5188 | -.0714 |
| SDev | 4261 | .1304 | .629 | .2136 | 3834 | .6319 |
| %RSD | 83.78 | 230 | 45.68 | 186.7 | 73.9 | 884.5 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | 4 817 | - 0030 | - 0034 | 2 899 | .0160 | - 0634 |
| SDev | 3 712 | 0119 | .026 | 6 288 | .0143 | .5304 |
| %RSD | 77 07 | 395 7 | 769 6 | 216.9 | 89 63 | 837 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 0859 | .5174 | 9 855 | 5028 | - 7179 | 8024 |
| SDev | 11 | 4784 | 2 253 | 1 988 | 7336 | 1 479 |
| %RSD | 128 1 | 73 11 | 22 86 | 395 5 | 102.2 | 178.1 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 5315 | 1 143 | -.3114 | 9392 | -.7503 | 0229 |
| SDev | 1 457 | 1 025 | 8019 | 1 065 | 1 368 | .0333 |
| %RSD | 274 1 | 89 7 | 257.5 | 113 4 | 182.4 | 145 5 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | .1295 | .4138 | .5028 | .0210 | -10 60 |
| SDev | 1235 | 1.767 | .426 | .1789 | 9 072 |
| %RSD | 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 | 1323 | .28 | 1.18 | .5677 | .1015 | .2994 |

| Elems | Ca3179_ | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 452600 | 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. | 926.15 | 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 | 2203-1 | 2203-2 | 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 | 11.31 |
| %RSD | 1.09 | 136 | 6.669 | 2.683 | 2.059 | 2.316 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 530.8 | 527.8 | 479.8 | 528.8 | 496.8 | 502.7 |
| Sdev | 13.19 | 12.55 | 5.148 | 4.31 | 4.848 | 1613 |
| %RSD | 2.496 | 2.377 | 1.073 | .8152 | 1.987 | .0321 |

| Elems | Ti3349 | 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 |

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 | 495.2 | 509.0 | 532.9 | 509.5 | 504.8 |
| SDev | 1.593 | 7.521 | 1.504 | 20.68 | .8612 | 1.808 |
| %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 | 513.7 | 515.1 | 509.6 | 496.7 | 503.1 |
| SDev | 8.984 | 20.53 | 12.43 | 15.14 | 2.314 | .5268 |
| %RSD | 1.636 | 3.995 | 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 |

Method: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Run Time: 10/20/97 04:27 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 | 2444 | -1.104 | .8468 | 64.48 | .2341 | .2485 |
| SDev | 1.482 | 4.935 | 1.792 | 3.905 | .2044 | .2476 |
| %RSD | 606.4 | 447.1 | 211.6 | 6.057 | 87.32 | 99.64 |

| Elems | Ca3179_ | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -1.031 | .3896 | -.3917 | -.4435 | 1.133 | -.4975 |
| SDev | .146 | .1817 | 4.7[illegible] | .4693 | .5588 | .6875 |
| %RSD | 14.16 | 46.64 | 1205 | 105.8 | 49.3 | 138.2 |

| Elems | Fe2714 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | -3.247 | .0251 | .4390 | -3.914 | .2216 | .8116 |
| SDev | 7.307 | .0176 | .2533 | 3.299 | .2505 | .3564 |
| %RSD | 225.1 | 70.1 | 57.69 | 84.3 | 113 | 43.91 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0157 | .7505 | -.1184 | 1.387 | -.5901 | 1.280 |
| SDev | .3821 | 1.057 | 6.419 | 1.937 | 1.867 | .8589 |
| %RSD | 2430 | 140.8 | 5423 | 139.7 | 316.4 | 67.09 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.218 | -1.721 | .0681 | -.7425 | -.9249 | .2630 |
| SDev | 1.306 | .815 | .785 | .3985 | .6176 | .2335 |
| %RSD | 107.2 | 47.34 | 1152 | 53.67 | 66.78 | 88.78 |

| Elems | Ti3349 | Tl1908 | V_2924 | Zn2062 | Si2881 |
|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb |
| Avge | .1656 | 2.476 | .7337 | .0267 | 814950 |
| SDev | .2482 | 2.257 | .32[illegible] | .5394 | 828.4 |
| %RSD | 149.9 | 91.18 | 44.05 | 2020 | 5.54 |

lethod: TRIANGL2 Sample Name: 184-50-70 Operator:
un Time: 10/20/97 06:05 Filename: 101997
lode: CONC Type: S Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.:

| Items | Ag3280 | As1890 | Ba4934 | Be3130 | Cd2265 | Co2286 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 1.3763 | 1-2.937 | 4.655 | 1-.0121 | 5.279 | 1-1.085 |
| SDev | .6119 | 2.461 | .0565 | .0586 | .0311 | .5686 |
| %RSD | 1e2.6 | 83.8 | 1.214 | 484.2 | .5885 | 52.39 |

| Items | Cr2677 | Cu3247 | Mn2576 | Ni2316 | P 2149 | Pb2203 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 8.758 | 7.221 | 109.4 | 7.742 | 447.2 | 42.65 |
| SDev | .5762 | .5265 | .3844 | .7187 | 2.932 | .4862 |
| %RSD | 8.526 | 7.29 | .3515 | 9.283 | .6557 | 1.14 |

| Items | Sb2068 | Se1960 | Tl1908 | Zn2062 |
|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb |
| Avge | 1-.0401 | 7.465 | 1-6.007 | 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: 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 | 515.5 | 505.1 | 508.2 | 512.4 | 506.5 | 504.5 |
| SDev | 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 |
| SDev | 1.709 | 4.584 | 2.348 | 2.901 | 1.533 | 3.615 |
| %RSD | .3425 | .9165 | .4709 | .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 |
| SDev | 12.12 | .2711 | 20.29 | 5.671 | 2.726 | 3.804 |
| %RSD | 2.346 | 5.144 | 3.765 | 1.129 | .5451 | .759 |

| Elems | Na3302 | Ni2316 | P 2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 5.264 | 503.9 | 506.5 | 501.1 | 510.2 | 499.3 |
| SDev | .4491 | 1.877 | 5.058 | 5.469 | .5667 | 2.094 |
| %RSD | 8.531 | .3724 | .9985 | 1.091 | .1111 | .4193 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 495.4 | 508.2 | 507.2 | 504.0 | 495.3 | 502.5 |
| SDev | 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 | 506.4 | 504.1 | 498.0 | 5297 |
| SDev | [illegible] | 11.86 | 2.069 | 5.751 | 64.8 |
| %RSD | .507 | 2.341 | .4105 | 1.155 | 1.223 |

Method: TRIANGL2 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 | 7.721 | 114 | 141.8 |

| Elems | Ca3179 | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | -.2677 | 2130 | -1.543 | 0687 | .3013 | -.3605 |
| SDev | 9725 | 1861 | 3.572 | 2555 | .3698 | 376 |
| %RSD | [illegible] | 87.38 | 231.5 | 371.8 | 122.7 | 104.3 |

| Elems | Fe2711 | K_7664 | Li6707 | Mg2790 | Mn2576 | Mo2020 |
|---|---|---|---|---|---|---|
| Units | ppb | ppm | ppb | ppb | ppb | ppb |
| Avge | [illegible] | .0086 | [illegible] | -1.[illegible] | [illegible] | .2594 |
| SDev | [illegible] | .0745 | [illegible] | 5.625 | [illegible] | [illegible] |
| %RSD | [illegible] | 865.4 | [illegible] | 446.[illegible] | [illegible] | 141.9 |

| Elems | [illegible] | [illegible] | P_2149 | 2203-1 | 2203- | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | .0593 | 1.[illegible]78 | -.4086 | 3.227 | -1.523 | -[illegible].229 |
| SDev | 1179 | 4165 | 7.139 | 3.819 | 2.074 | 2.598 |
| %RSD | 199 | 32.58 | 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 | .0591 | .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 | 4155.4 |
| SDev | 1339 | 1.454 | 4349 | .1001 | 5.502 |
| %RSD | 116.6 | 35.76 | 40.28 | 24.71 | 3.541 |

Method: TRIANGL2 Sample Name: ICSAB Operator: DKH
Run Time: 10/20/97 06:23 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 | 547.2 | 527200 | 524.7 | 533.7 | 520.2 | 483.8 |
| SDev | .92 | 4070 | 4.197 | 1.935 | 2.825 | 4.798 |
| %RSD | 1681 | 7721 | 7998 | .3626 | 5431 | .9917 |

| Elems | Ca3179- | Cd2265 | Ce4186 | Co2286 | Cr2677 | Cu3247 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 447000. | 460.4 | 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 |

| Elems | 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 | 2908 | 4.127 | 1.2 |
| %RSD | 8947 | 4.601 | 5.459 | 5475 | 9273 | 2399 |

| Elems | Na3302 | Ni2316 | P_2149 | 2203-1 | 2203-2 | Sb2068 |
|---|---|---|---|---|---|---|
| Units | ppm | ppb | ppb | ppb | ppb | ppb |
| Avge | 86.341 | 446.7 | 545.6 | 494.[illegible] | 46[illegible].5 | 519.2 |
| SDev | 3034 | 4.007 | 19.[illegible] | 1[illegible].87 | 10.29 | 7.494 |
| %RSD | 4.78 | 8969 | 3.544 | 2.603 | 2.224 | 1.443 |

| Elems | 1960-1 | 1960-2 | Pb2203 | Se1960 | Sn1899 | Sr4215 |
|---|---|---|---|---|---|---|
| Units | ppb | ppb | ppb | ppb | ppb | ppb |
| Avge | 519.5 | 531.6 | 473.1 | 527.6 | 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 |

| Elems | 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 |

Element File: TL.GEL  ID/Weight File: EB169.IDW

| Loc. | Concentration | Solutions |
|---|---|---|
| 0 | | Calib. Blank / Diluent / ICB / CCB |
| 1 | 50.0 ug/L | Stock 1-62-1P |
| 2 | 100.0 ug/L | Stock / Recovery Stock 1-62-2P |
| 4 | | ICV=30ug/L 1-62-3P |
| 5 | | CCV=60ug/L 1-62-4P |
| 6 | | CHECK LO |
| 7 | | 43377 MB |
| 8 | | 43377 LCS |
| 9 | | 184-50-1ABC |
| 10 | | 184-50-1ABC L |
| 11 | | 184-50-2ABC |
| 12 | | 184-50-3ABC |
| 13 | | 184-50-4ABC |
| 14 | | 184-50-5ABC |
| 15 | | 184-50-6ABC |
| 16 | | 184-50-7ABC |
| 17 | | 184-50-1D |
| 18 | | 184-50-1D L |
| 19 | | 184-50-2DE |
| 20 | | 184-50-3DE |
| 21 | | 184-50-4DE |
| 22 | | 184-50-5DE |
| 23 | | 184-50-6DE |
| 24 | | 184-50-7DE |
| 39 | | Modifier 1 |

MKH 10/20/97

MSAs will be analyzed.

MKH 10/21/97

All passing except 7ABC!

MKH 10/22/97

Element: Tl
Print Data: Main+Suppl.
Print: Calib. Curve

Analyst: HOLSTE
Peak Storage: 1 Repl./Sample

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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
Spike Replicates: Same as Sample

Version: 7.30
BOC Time: 2

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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: Nonlinear

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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

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SEQUENCE:

| Step | Action and Parameters |
|---|---|
| 1 | Pipet diluent + modifier 1 + spike + sample/std |
| 2 | Run HGA steps 1 to End |

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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:
5 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 | Conc. Limits 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 | | |
| 4 | 0 | CCB | -2.0 | 2.0 | | 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:

```
Element File: TL.GEL          Element: Tl                  Wavelength: 276.8
Date: 10/20/97                Time: 03:06                  Slit: 0.70 L
Data File: EB169.DAT          ID/Wt File: EB169.IDW        Lamp Current: 0
Technique: HGA                Calib. Type: Nonlinear       Energy: 43
```

Tl ID: STD BLK Seq. No.: 00001 A/S Pos.: 0 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0

Tl ID: STD BLK Seq. No.: 00002 A/S Pos.: 0 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate 1 Time: 03:10
Peak Area (A-s): -0.000 Peak Height (A): 0.010
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L ): 1.1

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate 2 (Peak Stored) Time: 03:13
Peak Area (A-s): 0.000 Peak Height (A): 0.008
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L ): 1.4

Mean Conc (ug/L ): 1.3 SD: 0.20 RSD(%): 15.91

Auto-zero performed.

Tl ID: STD1=25ug/L Seq. No.: 00003 A/S Pos.: 1 Date: 10/20/97

uL dispensed: 15 from 0, 5 from 39, 10 from 1
Replicate 1 Time: 03:16
Peak Area (A-s): 0.038 Peak Height (A): 0.054
Background Pk Area (A-s): 0.020 Background Pk Height (A): 0.029
Blank Corrected Pk Area (A-s): 0.038
Concentration (ug/L ): 26.7

uL dispensed: 15 from 0, 5 from 39, 10 from 1
Replicate 2 (Peak Stored) Time: 03:19
Peak Area (A-s): 0.029 Peak Height (A): 0.050
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.031
Blank Corrected Pk Area (A-s): 0.029
Concentration (ug/L ): 20.2

Mean Conc (ug/L ): 23.4 SD: 4.54 RSD(%): 19.35

Standard number 1 applied. [25.0]
Correlation coefficient: 1.00000 Slope: 0.0014

Tl ID: STD2=50ug/L Seq. No.: 00004 A/S Pos.: 1 Date: 10/20/9

uL dispensed: 5 from 0, 5 from 39, 20 from 1
Replicate 1 Time: 03:22
Peak Area (A-s): 0.073 Peak Height (A): 0.102

Blank Corrected Pk Area (A-s): 0.073
Concentration (ug/L ): 53.8

uL dispensed: 5 from 0, 5 from 39, 20 from 1
Replicate 2 (Peak Stored) Time: 03:25
Peak Area (A-s): 0.069 Peak Height (A): 0.099
Background Pk Area (A-s): 0.039 Background Pk Height (A): 0.057
Blank Corrected Pk Area (A-s): 0.069
Concentration (ug/L ): 50.7

Mean Conc (ug/L ): 52.3 SD: 2.15 RSD(%): 4.12

Standard number 2 applied. [50.0]
Correlation coefficient: 1.00000 Slope: 0.0013

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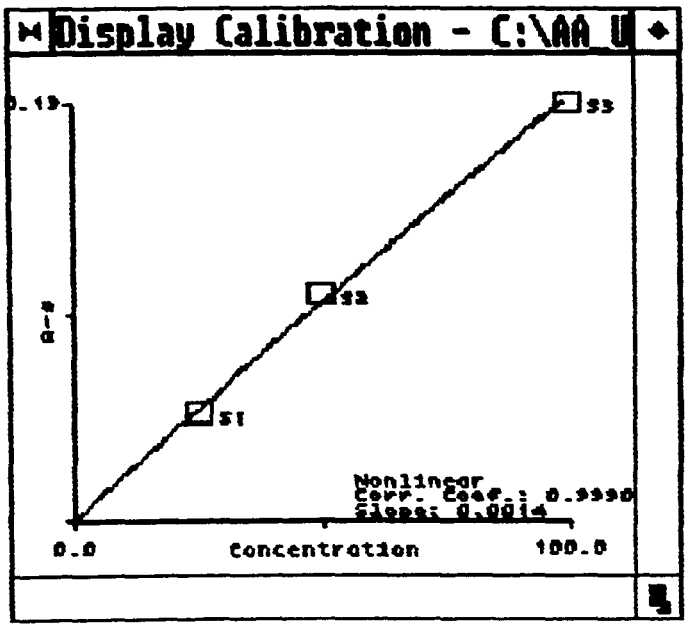
Display Calibration - C:\AA
S3
S2
S1
Nonlinear
Concentration
0.0
100.0

```
Element File: TL.GEL          Element: Tl                  Wavelength: 276.8
Date: 10/20/97                Time: 03:33                  Slit: 0.70 L
Data File: EB169.DAT          ID/Wt File: EB169.IDW        Lamp Current: 0
Technique: HGA                Calib. Type: Nonlinear       Energy: 47
--------------------------------------------------------------------------------

Tl    ID: ICB                 Seq. No.: 00006   A/S Pos.: 0    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0

Tl    ID: ICV=30ug/L          Seq. No.: 00007   A/S Pos.: 4    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 4
Replicate  1                          Time: 03:36
Peak Area (A-s): 0.042                Peak Height (A): 0.063
Background Pk Area (A-s): 0.028       Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.042
Concentration (ug/L  ): 30.7

uL dispensed: 5 from 0, 5 from 39, 20 from 4
Replicate  2 (Peak Stored)            Time: 03:39
Peak Area (A-s): 0.038                Peak Height (A): 0.063
Background Pk Area (A-s): 0.029       Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.038
Concentration (ug/L  ): 27.4

Mean Conc  (ug/L  ):      29.0        SD: 2.32          RSD(%): 7.98

QC sample is within range 27.0 - 33.0

Tl    ID: ICB                 Seq. No.: 00008   A/S Pos.: 0    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0

Tl    ID: ICB                 Seq. No.: 00009   A/S Pos.: 0    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0

Tl    ID: ICB                 Seq. No.: 00010   A/S Pos.: 0    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  1                          Time: 03:48
Peak Area (A-s): 0.001                Peak Height (A): 0.009
Background Pk Area (A-s): 0.004       Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L  ): 0.6

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  2 (Peak Stored)            Time: 03:51
Peak Area (A-s): -0.002               Peak Height (A): 0.009
Background Pk Area (A-s): 0.005       Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L  ): -1.8

Mean Conc  (ug/L  ):      -0.6        SD: 1.65          RSD(%): 280.61

QC sample is within range -2.0 - 2.0
```

```
T1    ID: CHECK LO          Seq. No.: 00011    A/S Pos.: 6     Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 6
Replicate  1                              Time: 03:54
Peak Area (A-s): 0.006                    Peak Height (A): 0.018
Background Pk Area (A-s): 0.009           Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.006
Concentration (ug/L  ): 4.0

uL dispensed: 5 from 0, 5 from 39, 20 from 6
Replicate  2 (Peak Stored)                Time: 03:57
Peak Area (A-s): 0.007                    Peak Height (A): 0.015
Background Pk Area (A-s): 0.006           Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): 0.007
Concentration (ug/L  ): 5.0

Mean Conc (ug/L  ):       4.5       SD: 0.72              RSD(%): 15.94

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T1    ID: 43377 MB          Seq. No.: 00012    A/S Pos.: 7     Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 7
Replicate  1                              Time: 03:59
Peak Area (A-s): -0.001                   Peak Height (A): 0.010
Background Pk Area (A-s): 0.004           Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L  ): -0.8

uL dispensed: 5 from 0, 5 from 39, 20 from 7
Replicate  2 (Peak Stored)                Time: 04:02
Peak Area (A-s): 0.001                    Peak Height (A): 0.011
Background Pk Area (A-s): 0.004           Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L  ): 0.6

Mean Conc  (ug/L  ):      -0.1       SD: 0.99              RSD(%): 992.74

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T1    ID: 43377 LCS         Seq. No.: 00013    A/S Pos.: 8     Date: 10/20/9

uL dispensed: 5 from 0, 5 from 39, 20 from 8
Replicate  1                              Time: 04:05
Peak Area (A-s): 0.060                    Peak Height (A): 0.080
Background Pk Area (A-s): 0.036           Background Pk Height (A): 0.053
Blank Corrected Pk Area (A-s): 0.060
Concentration (ug/L  ): 43.5

uL dispensed: 5 from 0, 5 from 39, 20 from 8
Replicate  2 (Peak Stored)                Time: 04:08
Peak Area (A-s): 0.064                    Peak Height (A): 0.093
Background Pk Area (A-s): 0.040           Background Pk Height (A): 0.053
Blank Corrected Pk Area (A-s): 0.064
Concentration (ug/L  ): 46.5

Mean Conc  (ug/L  ):      45.0       SD: 2.12              RSD(%): 4.70
```

Tl ID: 184-50-1ABC Seq. No.: 00014 A/S Pos.: 9 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 9
Replicate 1 Time: 04:11
Peak Area (A-s): 0.003 Peak Height (A): 0.012
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L ): 2.4

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Not used
11-2-97

uL dispensed: 5 from 0, 5 from 39, 20 from 9
Replicate 2 (Peak Stored) Time: 04:14
Peak Area (A-s): 0.005 Peak Height (A): 0.013
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): 0.005
Concentration (ug/L ): 3.4

Mean Conc (ug/L ): 2.9 SD: 0.76 RSD(%): 26.29

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T1.    ID: 184-50-1ABC L          Seq. No.: 00017    A/S Pos.: 10    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 10
Replicate  1                              Time: 04:29
Peak Area (A-s): -0.002                   Peak Height (A): 0.010
Background Pk Area (A-s): 0.005           Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L  ): -1.4

uL dispensed: 5 from 0, 5 from 39, 20 from 10
Replicate  2 (Peak Stored)                Time: 04:32
Peak Area (A-s): -0.000                   Peak Height (A): 0.011
Background Pk Area (A-s): 0.002           Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L  ): -0.1

Mean Conc (ug/L  ):        -0.7           SD: 0.91                  RSD(%): 123.57

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1.    ID: 184-50-3ABC          Seq. No.: 00020    A/S Pos.: 12    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 12
Replicate  1                                  Time: 04:46
Peak Area (A-s): 0.001                        Peak Height (A): 0.010
Background Pk Area (A-s): 0.004               Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L  ): 0.9

uL dispensed: 5 from 0, 5 from 39, 20 from 12
Replicate  2 (Peak Stored)                    Time: 04:49
Peak Area (A-s): 0.004                        Peak Height (A): 0.009
Background Pk Area (A-s): 0.001               Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L  ): 2.9

Mean Conc (ug/L  ):        1.9        SD: 1.37                RSD(%): 71.50

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1     ID: 184-50-3ABC          Seq. No.: 00021    A/S Pos.: 12    Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 12
Replicate  1                                  Time: 04:52
Peak Area (A-s): -0.000                       Peak Height (A): 0.009
Background Pk Area (A-s): -0.001              Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L  ): -0.1

uL dispensed: 5 from 0, 5 from 39, 20 from 12
Replicate  2 (Peak Stored)                    Time: 04:55
Peak Area (A-s): -0.000                       Peak Height (A): 0.010
Background Pk Area (A-s): -0.003              Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L  ): -0.1

Mean Conc  (ug/L  ):       -0.1        SD: 0.02                RSD(%): 21.76

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1     ID: CCV=60ug/L           Seq. No.: 00022    A/S Pos.: 5     Date: 10/20/97

L dispensed: 5 from 0, 5 from 39, 20 from 5
eplicate  1                                   Time: 04:58
eak Area (A-s): 0.094                         Peak Height (A): 0.143
ackground Pk Area (A-s): 0.048                Background Pk Height (A): 0.079
lank Corrected Pk Area (A-s): 0.094
oncentration (ug/L  ): 69.5

uL dispensed: 5 from 0, 5 from 39, 20 from 5
Replicate  2 (Peak Stored)                    Time: 05:01
Peak Area (A-s): 0.087                        Peak Height (A): 0.136
Background Pk Area (A-s): 0.052               Background Pk Height (A): 0.082
Blank Corrected Pk Area (A-s): 0.087
Concentration (ug/L  ): 64.1

Mean Conc  (ug/L  ):       66.8        SD: 3.83                RSD(%): 5.73

QC sample is within range 48.0 - 72.0
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T1.    ID: CCB                  Seq. No.: 00023    A/S Pos.: 0      Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  1                              Time: 05:04
Peak Area (A-s): 0.001                    Peak Height (A): 0.009
Background Pk Area (A-s): -0.002          Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L  ): 0.5

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  2 (Peak Stored)                Time: 05:07
Peak Area (A-s): -0.002                   Peak Height (A): 0.009
Background Pk Area (A-s): -0.000          Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L  ): -1.3

Mean Conc (ug/L  ):       -0.4        SD: 1.25              RSD(%): 333.44

QC sample is within range -2.0 - 2.0

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T1     ID: 184-50-4ABC          Seq. No.: 00024    A/S Pos.: 13     Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 13
Replicate  1                              Time: 05:10
Peak Area (A-s): -0.002                   Peak Height (A): 0.009
Background Pk Area (A-s): -0.001          Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L  ): -1.5

uL dispensed: 5 from 0, 5 from 39, 20 from 13
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T1     ID: CCB                  Seq. No.: 00025    A/S Pos.: 0      Date: 10/20/9

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  1                              Time: 05:15
Peak Area (A-s): -0.002                   Peak Height (A): 0.011
Background Pk Area (A-s): 0.002           Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.003
Concentration (ug/L  ): -1.8

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  2 (Peak Stored)                Time: 05:18
Peak Area (A-s): 0.000                    Peak Height (A): 0.011
Background Pk Area (A-s): -0.004          Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L  ): -0.0

Mean Conc  (ug/L  ):      -0.9        SD: 1.26              RSD(%): 141.21

QC sample is within range -2.0 - 2.0

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T1     ID: 184-50-4ABC          Seq. No.: 00026    A/S Pos.: 13     Date: 10/20/9

uL dispensed: 5 from 0, 5 from 39, 20 from 13
Replicate  1                              Time: 05:21
Peak Area (A-s): -0.000                   Peak Height (A): 0.010
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Background Pk Area (A-s): 0.002          Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.000
Concentration (ug/L  ): -0.2

uL dispensed: 5 from 0, 5 from 39, 20 from 13
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T1 ID: 184-50-1D POS 11-2-97 EC Seq. No.: 00033 A/S Pos.: 17 Date: 10/20/97

uL dispensed: 5 from 39, 5 from 2, 20 from 17
Replicate 1 Time: 06:04
Peak Area (A-s): 0.028 Peak Height (A): 0.064
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.050
Blank Corrected Pk Area (A-s): 0.028
Concentration (ug/L ): 20.4

uL dispensed: 5 from 39, 5 from 2, 20 from 17
Replicate 2 (Peak Stored) Time: 06:07
Peak Area (A-s): 0.029 Peak Height (A): 0.056
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.029
Concentration (ug/L ): 20.8

Mean Conc (ug/L ): 20.6 SD: 0.25 RSD(%): 1.23

Recovery is 84.6% 2.4 11-2-97 EC

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T1.    ID: 184-50-1D L  N R    Seq. No.: 00036    A/S Pos.: 18    Date: 10/20/97
                                                    11-2-97
uL dispensed: 5 from 39, 5 from 2, 20 from 18
Replicate  1                              Time: 06:22
Peak Area (A-s): 0.038                    Peak Height (A): 0.069
Background Pk Area (A-s): 0.018           Background Pk Height (A): 0.047
Blank Corrected Pk Area (A-s): 0.038
Concentration (ug/L  ): 27.2

uL dispensed: 5 from 39, 5 from 2, 20 from 18
Replicate  2 (Peak Stored)                Time: 06:25
Peak Area (A-s): 0.032                    Peak Height (A): 0.061
Background Pk Area (A-s): 0.022           Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.032
Concentration (ug/L  ): 23.2

Mean Conc (ug/L  ):       25.2        SD: 2.81              RSD(%): 11.18

Recovery is 104.2%

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T1    ID: CCV=60ug/L          Seq. No.: 00037    A/S Pos.: 5     Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 5
Replicate  1                              Time: 06:28
Peak Area (A-s): 0.077                    Peak Height (A): 0.150
Background Pk Area (A-s): 0.050           Background Pk Height (A): 0.096
Blank Corrected Pk Area (A-s): 0.077
Concentration (ug/L  ): 56.6

uL dispensed: 5 from 0, 5 from 39, 20 from 5
Replicate  2 (Peak Stored)                Time: 06:31
Peak Area (A-s): 0.082                    Peak Height (A): 0.147
Background Pk Area (A-s): 0.048           Background Pk Height (A): 0.093
Blank Corrected Pk Area (A-s): 0.082
Concentration (ug/L  ): 60.6

Mean Conc  (ug/L  ):      58.6        SD: 2.85              RSD(%): 4.86

QC sample is within range 48.0 - 72.0

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T1    ID: CCB                 Seq. No.: 00038    A/S Pos.: 0     Date: 10/20/9

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  1                              Time: 06:34
Peak Area (A-s): -0.001                   Peak Height (A): 0.012
Background Pk Area (A-s): 0.002           Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L  ): -0.5

uL dispensed: 5 from 0, 5 from 39, 20 from 0
Replicate  2 (Peak Stored)                Time: 06:36
Peak Area (A-s): 0.002                    Peak Height (A): 0.012
Background Pk Area (A-s): 0.001           Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L  ): 1.2
```

QC sample is within range -2.0 - 2.0

T1 ID: 184-50-2DE 11-2-97 ec Seq. No.: 00039 A/S Pos.: 19 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 19
Replicate 1 Time: 06:39
Peak Area (A-s): 0.000 Peak Height (A): 0.010
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.000
Concentration (ug/L ): 0.3

uL dispensed: 5 from 0, 5 from 39, 20 from 19
Replicate 2 (Peak Stored) Time: 06:42
Peak Area (A-s): -0.001 Peak Height (A): 0.010
Background Pk Area (A-s): 0.016 Background Pk Height (A): 0.035
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L ): -0.5

Mean Conc (ug/L ): -0.1 SD: 0.59 RSD(%): 494.97

T1 ID: 184-50-3DE 11-2-97 ec Seq. No.: 00040 A/S Pos.: 20 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 20
Replicate 1 Time: 06:45
Peak Area (A-s): 0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.028
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L ): 0.9

uL dispensed: 5 from 0, 5 from 39, 20 from 20
Replicate 2 (Peak Stored) Time: 06:48
Peak Area (A-s): 0.003 Peak Height (A): 0.010
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.026
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L ): 2.2

Mean Conc (ug/L ): 1.5 SD: 0.94 RSD(%): 60.83

T1 ID: 184-50-4DE 11-2-97 ec Seq. No.: 00041 A/S Pos.: 21 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 21
Replicate 1 Time: 06:51
Peak Area (A-s): 0.003 Peak Height (A): 0.010
Background Pk Area (A-s): 0.011 Background Pk Height (A): 0.027
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L ): 2.1

uL dispensed: 5 from 0, 5 from 39, 20 from 21
Replicate 2 (Peak Stored) Time: 06:54
Peak Area (A-s): -0.001 Peak Height (A): 0.011
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L ): -0.4

Mean Conc (ug/L ): 0.6 SD: 1.66 RSD(%): 282.84

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Blank Corrected Pk Area (A-s): -0.006
Concentration (ug/L ): -4.1

Mean Conc (ug/L ): -2.8 SD: 1.85 RSD(%): 65.02

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T1 ID: 184-50-6D Seq. No.: 00046 A/S Pos.: 23 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 23
Replicate 1 Time: 07:17
Peak Area (A-s): -0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L ): -0.9

uL dispensed: 5 from 0, 5 from 39, 20 from 23
Replicate 2 (Peak Stored) Time: 07:20
Peak Area (A-s): -0.003 Peak Height (A): 0.010
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.009
Blank Corrected Pk Area (A-s): -0.003
Concentration (ug/L ): -2.1

Mean Conc (ug/L ): -1.5 SD: 0.80 RSD(%): 53.81

---

T1 ID: 184-50-7D Seq. No.: 00047 A/S Pos.: 24 Date: 10/20/97

uL dispensed: 5 from 0, 5 from 39, 20 from 24
Replicate 1 Time: 07:23
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L ): 1.2

uL dispensed: 5 from 0, 5 from 39, 20 from 24
Replicate 2 (Peak Stored) Time: 07:26
Peak Area (A-s): -0.001 Peak Height (A): 0.008
Background Pk Area (A-s): 0.005 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): -0.001
Concentration (ug/L ): -0.4

Mean Conc (ug/L ): 0.4 SD: 1.12 RSD(%): 270.75

---

T1 ID: CCV=60ug/L Seq. No.: 00048 A/S Pos.: 5 Date: 10/21/97

uL dispensed: 5 from 0, 5 from 39, 20 from 5
Replicate 1 Time: 00:57
Peak Area (A-s): 0.074 Peak Height (A): 0.132
Background Pk Area (A-s): 0.052 Background Pk Height (A): 0.086
Blank Corrected Pk Area (A-s): 0.074
Concentration (ug/L ): 54.5

uL dispensed: 5 from 0, 5 from 39, 20 from 5
Replicate 2 (Peak Stored) Time: 01:00
Peak Area (A-s): 0.078 Peak Height (A): 0.134
Background Pk Area (A-s): 0.055 Background Pk Height (A): 0.085
Blank Corrected Pk Area (A-s): 0.078

Concentration (ug/L ): 57.2

Mean Conc (ug/L ): 55.8 SD: 1.96 RSD(%): 3.50

QC sample is within range 48.0 - 72.0

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Autosampler Loading Map
Element File: TL_MSA.GEL ID/Weight File: EB170.IDW

MKB 10/22/97

| Loc. | Concentration | Solutions |
|---|---|---|
| 0 | | Calib. Blank / Diluent |
| 1 | 50.0 ug/L | Stock 1-62-1P |
| 2 | 100.0 ug/L | Stock 1-62-2P |
| 6 | | CHECK LO |
| 7 | | 43377 MB |
| 8 | | 43377 LCS |
| 9 | | 184-50-1ABC |
| 10 | | 184-50 1ABC L |
| 11 | | 184-50-2ABC |
| 12 | | 184-50-3ABC |
| 13 | | 184-50-4ABC |
| 14 | | 184-50-5ABC |
| 15 | | 184-50-6ABC |
| 16 | | 184-50-7ABC |
| 17 | | 184-50-1D |
| 18 | | 184-50-1D L |
| 19 | | 184-50-2DE |
| 20 | | 184-50-3DE |
| 21 | | 184-50-4DE |
| 22 | | 184-50-5D |
| 23 | | 184-50-6D |
| 24 | | 184-50-7D |
| 39 | | Modifier 1 |

MKB 10/21/97

MSAs analyzed

All pass except 7ABC!

DKH 10/22/97

~11.29 cc

Element File: TL_MSA.GEL
Element: Tl
Analyst: HOLSTE
Print Data: Main+Suppl.
Peak Storage: 1 Repl./Sample
Print: Calib. Curve

---

INSTRUMENT: 4100 ZL
Technique: HGA
Version: 7.30
Wavelength: 276.8 Peak
Slit: 0.70 Low
Signal Type: Zeeman AA
Signal Measurement: Peak Area
Read Time: 4.0
Read Delay: 0.0
BOC Time: 2
Sample Replicates: 2
Standard Replicates: 2
Spike Replicates: Same as Sample

---

CALIBRATION:

| Solutions | ID | Conc | Location | Volume | Diluent Volume | Modifier #1 | Modifier #2 |
|---|---|---|---|---|---|---|---|
| Calib. Blank | AUTO ZERO | ---------- | 0 | 10 | 10 | 5 | |
| Standard 1 | ADD 1 50 ug/L | 50.0 | 1 | 10 | | 5 | |
| Standard 2 | ADD 2 100ug/L | 100.0 | 2 | 10 | | 5 | |
| Samples | ---------- | ---------- | -------- | 10 | 10 | 5 | |

Diluent Location: 0
Modifier #1 Location: 39
Modifier #2 Location:
Calibration Units: ug/L
Sample Units: ug/L
Calibration Type: Meth. of Add.

---

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: 80%  Extraction System: On

---

SEQUENCE:

| Step | Action and Parameters |
|---|---|
| 1 | Pipet diluent + modifier 1 + spike + sample/std |
| 2 | Run HGA steps 1 to End |

---

CHECKS:
Additions Preparation: Automated
Periodic Autozero Locations: All Samples

If %RSD > 20.0  and Concentration > 1.7  then Retry 1 times
Check %RSD on: Samples

---

QC:
Matrix Check Calculations:
% Difference for Dupls: No  Locations:
% Recovery for Spike: No  Locations:  Conc:

```
Element File: TL_MSA.GEL      Element: Tl                    Wavelength: 276.8
Date: 10/21/97                Time: 02:51                    Slit: 0.70 L
Data File: EB170.DAT          ID/Wt File: EB170.IDW          Lamp Current: 0
Technique: HGA                Calib. Type: Meth. of Add.     Energy: 40
```

Tl ID: AUTO ZERO Seq. No.: 00001 A/S Pos.: 0 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 02:54
Peak Area (A-s): 0.003 Peak Height (A): 0.013
Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.005

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 2 (Peak Stored) Time: 02:57
Peak Area (A-s): -0.001 Peak Height (A): 0.009
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.000

Mean Pk Area (A-s): 0.003 SD: 0.0032 RSD(%): 125.64

Auto-zero performed.

Tl ID: 184-50-1ABC Seq. No.: 00002 A/S Pos.: 9 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 9
Replicate 1 Time: 03:00
Peak Area (A-s): 0.002 Peak Height (A): 0.009
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.002

uL dispensed: 10 from 0, 5 from 39, 10 from 9
Replicate 2 (Peak Stored) Time: 03:02
Peak Area (A-s): 0.001 Peak Height (A): 0.015
Background Pk Area (A-s): 0.005 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.000

Mean Pk Area (A-s): 0.001 SD: 0.0012 RSD(%): 134.79

Tl ID: ADD 1 50 ug/L Seq. No.: 00003 A/S Pos.: 9 Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 9
Replicate 1 Time: 03:06
Peak Area (A-s): 0.035 Peak Height (A): 0.077
Background Pk Area (A-s): 0.027 Background Pk Height (A): 0.055
Blank Corrected Pk Area (A-s): 0.034

uL dispensed: 5 from 39, 10 from 1, 10 from 9
Replicate 2 (Peak Stored) Time: 03:09
Peak Area (A-s): 0.034 Peak Height (A): 0.085
Background Pk Area (A-s): 0.026 Background Pk Height (A): 0.059
Blank Corrected Pk Area (A-s): 0.034

Mean Pk Area (A-s): 0.034 SD: 0.0003 RSD(%): 0.88

Tl ID: ADD 2 100ug/L Seq. No.: 00004 A/S Pos.: 9 Date: 10/21/97

Replicate 1 Time: 03:12
Peak Area (A-s): 0.067 Peak Height (A): 0.137
Background Pk Area (A-s): 0.045 Background Pk Height (A): 0.093
Blank Corrected Pk Area (A-s): 0.067

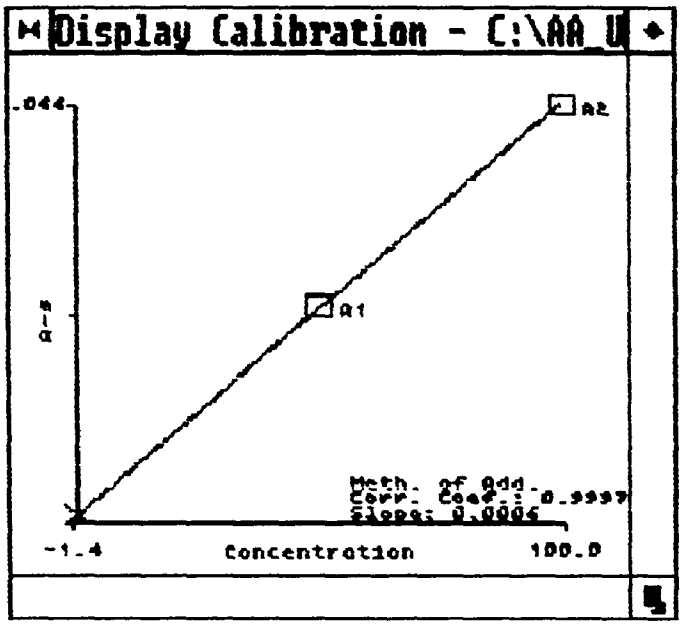
uL dispensed: 5 from 39, 10 from 2, 10 from 9
Replicate 2 (Peak Stored) Time: 03:15
Peak Area (A-s): 0.065 Peak Height (A): 0.143
Background Pk Area (A-s): 0.046 Background Pk Height (A): 0.095
Blank Corrected Pk Area (A-s): 0.064

Mean Pk Area (A-s): 0.066 SD: 0.0015 RSD(%): 2.35

T1 ID: 184-50-1ABC Seq. No.: 00002 A/S Pos.: 9 Date: 10/21/97

Concentration (ug/L ): 1.4

Correlation coefficient: 0.99973 Slope: 0.0006




T1 ID: AUTO ZERO Seq. No.: 00005 A/S Pos.: 0 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0

T1 ID: AUTO ZERO Seq. No.: 00006 A/S Pos.: 0 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0

T1 ID: AUTO ZERO Seq. No.: 00007 A/S Pos.: 0 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 03:22
Peak Area (A-s): 0.000 Peak Height (A): 0.000
Background Pk Area (A-s): 0.000 Background Pk Height (A): 0.000
Blank Corrected Pk Area (A-s): -0.001

```
Replicate  2 (Peak Stored)              Time: 03:25
Peak Area (A-s): -0.002                 Peak Height (A): 0.005
Background Pk Area (A-s): 0.003         Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.002

Mean Pk Area (A-s):      -0.002         SD: 0.0012              RSD(%): 74.42

Auto-zero performed.

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T1     ID: 184-50-2ABC          Seq. No.: 00008    A/S Pos.: 11    Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 11
Replicate  1                            Time: 03:28
Peak Area (A-s): 0.000                  Peak Height (A): 0.008
Background Pk Area (A-s): 0.003         Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 11
Replicate  2 (Peak Stored)              Time: 03:31
Peak Area (A-s): -0.000                 Peak Height (A): 0.007
Background Pk Area (A-s): 0.003         Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): 0.001

Mean Pk Area (A-s):       0.001         SD: 0.0005              RSD(%): 50.24

T1     ID: ADD 1 50 ug/L        Seq. No.: 00009    A/S Pos.: 11    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 11
Replicate  1                            Time: 03:34
Peak Area (A-s): 0.035                  Peak Height (A): 0.067
Background Pk Area (A-s): 0.021         Background Pk Height (A): 0.041
Blank Corrected Pk Area (A-s): 0.036

uL dispensed: 5 from 39, 10 from 1, 10 from 11
Replicate  2 (Peak Stored)              Time: 03:37
Peak Area (A-s): 0.041                  Peak Height (A): 0.080
Background Pk Area (A-s): 0.024         Background Pk Height (A): 0.050
Blank Corrected Pk Area (A-s): 0.041

Mean Pk Area (A-s):       0.039         SD: 0.0039              RSD(%): 10.16

T1     ID: ADD 2 100ug/L        Seq. No.: 00010    A/S Pos.: 11    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 2, 10 from 11
Replicate  1                            Time: 03:40
Peak Area (A-s): 0.063                  Peak Height (A): 0.126
Background Pk Area (A-s): 0.043         Background Pk Height (A): 0.074
Blank Corrected Pk Area (A-s): 0.064

uL dispensed: 5 from 39, 10 from 2, 10 from 11
Replicate  2 (Peak Stored)              Time: 03:43
Peak Area (A-s): 0.066                  Peak Height (A): 0.124
Background Pk Area (A-s): 0.042         Background Pk Height (A): 0.076
Blank Corrected Pk Area (A-s): 0.067

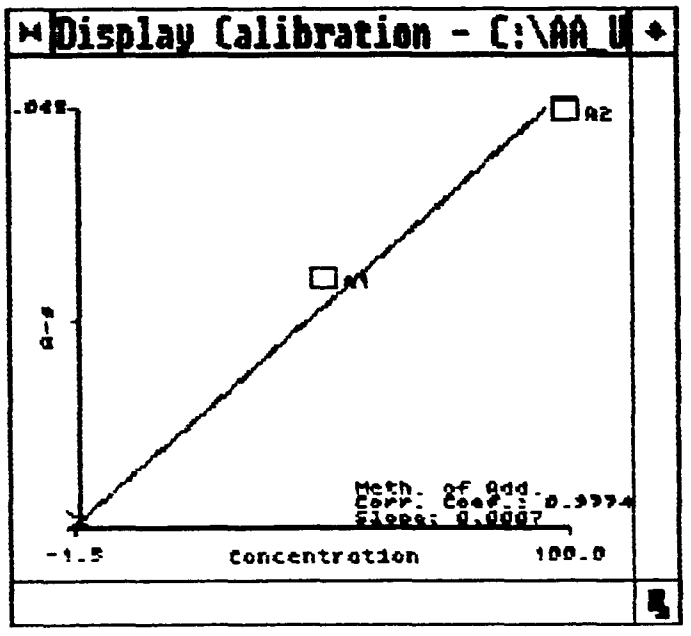
Mean Pk Area (A-s):       0.065         SD: 0.0020              RSD(%): 3.13
```

DKH 10/22/97

Tl ID: 184-50-2ABC Seq. No.: 00008 A/S Pos.: 11 Date: 10/21/97

Concentration (ug/L ): 1.5

Correlation coefficient: 0.97741 Slope: 0.0007

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Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.007
Blank Corrected Pk Area (A-s): 0.002

Mean Pk Area (A-s): 0.002 SD: 0.0009 RSD(%): 54.83

T1 ID: ADD 1 50 ug/L Seq. No.: 00013 A/S Pos.: 12 Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 12
Replicate 1 Time: 03:58
Peak Area (A-s): 0.037 Peak Height (A): 0.069
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.039

uL dispensed: 5 from 39, 10 from 1, 10 from 12
Replicate 2 (Peak Stored) Time: 04:01
Peak Area (A-s): 0.038 Peak Height (A): 0.068
Background Pk Area (A-s): 0.025 Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.040

Mean Pk Area (A-s): 0.039 SD: 0.0006 RSD(%): 1.64

T1 ID: ADD 2 100ug/L Seq. No.: 00014 A/S Pos.: 12 Date: 10/21/97

uL dispensed: 5 from 39, 10 from 2, 10 from 12
Replicate 1 Time: 04:04
Peak Area (A-s): 0.075 Peak Height (A): 0.133
Background Pk Area (A-s): 0.046 Background Pk Height (A): 0.079
Blank Corrected Pk Area (A-s): 0.077

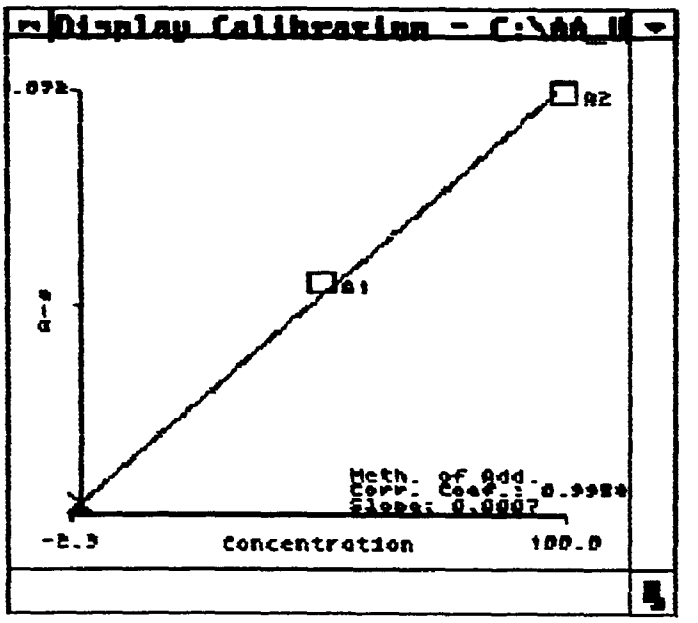
uL dispensed: 5 from 39, 10 from 2, 10 from 12
Replicate 2 (Peak Stored) Time: 04:07
Peak Area (A-s): 0.065 Peak Height (A): 0.115
Background Pk Area (A-s): 0.043 Background Pk Height (A): 0.069
lank Corrected Pk Area (A-s): 0.067

Mean Pk Area (A-s): 0.072 SD: 0.0073 RSD(%): 10.10

T1 ID: 184-50-3ABC Seq. No.: 00012 A/S Pos.: 12 Date: 10/21/97

Concentration (ug/L ): 2.3

Correlation coefficient: 0.99581 Slope: 0.0007


Display Calibration - C:\AA_II
.092
A2
A1
Meth. of Add.
Corr. Coef.: 0.9984
Slope: 0.0007
-2.5
Concentration
100.0

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uL dispensed: 5 from 39, 10 from 1, 10 from 13
Replicate 2 (Peak Stored) Time: 04:41
Peak Area (A-s): 0.000 Peak Height (A): 0.007
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
Blank Corrected Pk Area (A-s): 0.000

Mean Pk Area (A-s): -0.001 SD: 0.0010 RSD(%): 151.33

T1 ID: ADD 1 50 ug/L Seq. No.: 00018 A/S Pos.: 13 Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 13
Replicate 1 Time: 04:44
Peak Area (A-s): 0.033 Peak Height (A): 0.061
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.033

uL dispensed: 5 from 39, 10 from 1, 10 from 13
Replicate 2 (Peak Stored) Time: 04:47
Peak Area (A-s): 0.033 Peak Height (A): 0.059
Background Pk Area (A-s): 0.023 Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.033

Mean Pk Area (A-s): 0.033 SD: 0.0004 RSD(%): 1.16

T1 ID: ADD 2 100ug/L Seq. No.: 00019 A/S Pos.: 13 Date: 10/21/97

uL dispensed: 5 from 39, 10 from 2, 10 from 13
Replicate 1 Time: 04:50
Peak Area (A-s): 0.064 Peak Height (A): 0.115
Background Pk Area (A-s): 0.041 Background Pk Height (A): 0.070
Blank Corrected Pk Area (A-s): 0.064

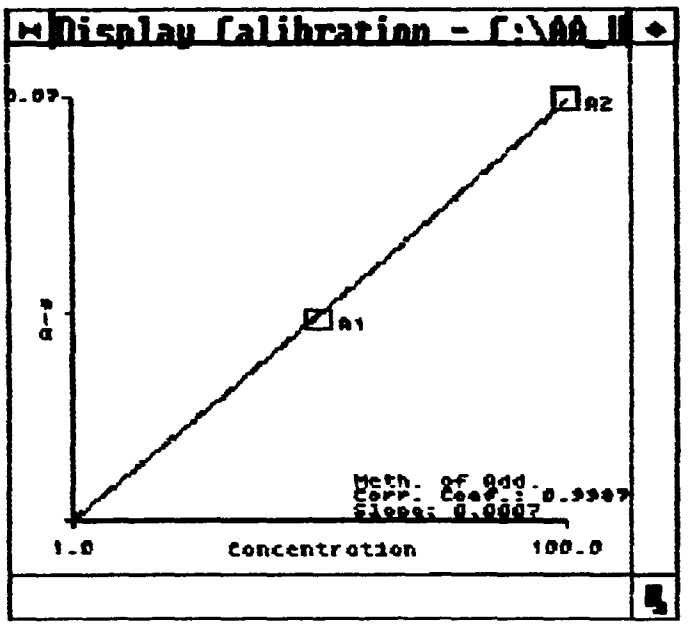
uL dispensed: 5 from 39, 10 from 2, 10 from 13
Replicate 2 (Peak Stored) Time: 04:53
Peak Area (A-s): 0.074 Peak Height (A): 0.129
Background Pk Area (A-s): 0.046 Background Pk Height (A): 0.076
Blank Corrected Pk Area (A-s): 0.074

Mean Pk Area (A-s): 0.069 SD: 0.0073 RSD(%): 10.60

T1 ID: 184-50-4ABC Seq. No.: 00017 A/S Pos.: 13 Date: 10/21/97

Concentration (ug/L ): -1.0

Correlation coefficient: 0.99874 Slope: 0.0007


Display Calibration - C:\00
A2
A1
Meth. of Add
Concentration
1.0
100.0

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```
Peak Area (A-s): -0.001                    Peak Height (A): 0.005
Background Pk Area (A-s): 0.003            Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 14
Replicate  2 (Peak Stored)                 Time: 05:11
Peak Area (A-s): -0.001                    Peak Height (A): 0.008
Background Pk Area (A-s): 0.002            Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

Mean Pk Area (A-s):       0.001            SD: 0.0001              RSD(%): 13.20

T1    ID: ADD 1 50 ug/L       Seq. No.: 00024    A/S Pos.: 14    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 14
Replicate  1                               Time: 05:14
Peak Area (A-s): 0.037                     Peak Height (A): 0.061
Background Pk Area (A-s): 0.024            Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.039

uL dispensed: 5 from 39, 10 from 1, 10 from 14
Replicate  2 (Peak Stored)                 Time: 05:17
Peak Area (A-s): 0.037                     Peak Height (A): 0.066
Background Pk Area (A-s): 0.023            Background Pk Height (A): 0.038
Blank Corrected Pk Area (A-s): 0.039

Mean Pk Area (A-s):       0.039            SD: 0.0002              RSD(%): 0.56

T1    ID: ADD 2 100ug/L       Seq. No.: 00025    A/S Pos.: 14    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 2, 10 from 14
Replicate  1                               Time: 05:20
Peak Area (A-s): 0.065                     Peak Height (A): 0.114
Background Pk Area (A-s): 0.041            Background Pk Height (A): 0.066
Blank Corrected Pk Area (A-s): 0.067

uL dispensed: 5 from 39, 10 from 2, 10 from 14
Replicate  2 (Peak Stored)                 Time: 05:23
Peak Area (A-s): 0.072                     Peak Height (A): 0.124
Background Pk Area (A-s): 0.046            Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.074

Mean Pk Area (A-s):       0.070            SD: 0.0046              RSD(%): 6.61

T1    ID: 184-50-5ABC         Seq. No.: 00023    A/S Pos.: 14    Date: 10/21/97

Concentration (ug/L  ): 1.4

Correlation coefficient: 0.99408           Slope: 0.0007
```

MKA 10/22/97

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T1    ID: AUTO ZERO          Seq. No.: 00026    A/S Pos.: 0     Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate  1                              Time: 23:11
Peak Area (A-s): 0.000                    Peak Height (A): 0.007
Background Pk Area (A-s): 0.003           Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.002

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate  2 (Peak Stored)                Time: 23:14
Peak Area (A-s): -0.001                   Peak Height (A): 0.008
Background Pk Area (A-s): 0.004           Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

Mean Pk Area (A-s):      0.001            SD: 0.0005              RSD(%): 36.64

Auto-zero performed.

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T1    ID: 184-50-2ABC        Seq. No.: 00027    A/S Pos.: 11    Date: 10/21/9

uL dispensed: 10 from 0, 5 from 39, 10 from 11
Replicate  1                              Time: 23:17
Peak Area (A-s): 0.001                    Peak Height (A): 0.007
Background Pk Area (A-s): 0.002           Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 11
Replicate  2 (Peak Stored)                Time: 23:20
Peak Area (A-s): 0.002                    Peak Height (A): 0.006
Background Pk Area (A-s): 0.001           Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.002

Mean Pk Area (A-s):      0.002            SD: 0.0012              RSD(%): 74.18

T1    ID: ADD 1 50 ug/L      Seq. No.: 00028    A/S Pos.: 11    Date: 10/21/9

uL dispensed: 5 from 39, 10 from 1, 10 from 11
Replicate  1                              Time: 23:23
Peak Area (A-s): 0.039                    Peak Height (A): 0.086
Background Pk Area (A-s): 0.025           Background Pk Height (A): 0.053
Blank Corrected Pk Area (A-s): 0.039

uL dispensed: 5 from 39, 10 from 1, 10 from 11
Replicate  2 (Peak Stored)                Time: 23:26
Peak Area (A-s): 0.039                    Peak Height (A): 0.082
Background Pk Area (A-s): 0.026           Background Pk Height (A): 0.050
Blank Corrected Pk Area (A-s): 0.039

Mean Pk Area (A-s):      0.039            SD: 0.0002              RSD(%): 0.55

T1    ID: ADD 2 100ug/L      Seq. No.: 00029    A/S Pos.: 11    Date: 10/21/

uL dispensed: 5 from 39, 10 from 2, 10 from 11
Replicate  1                              Time: 23:29
Peak Area (A-s): 0.076                    Peak Height (A): 0.156
Background Pk Area (A-s): 0.048           Background Pk Height (A): 0.092
Blank Corrected Pk Area (A-s): 0.076
```
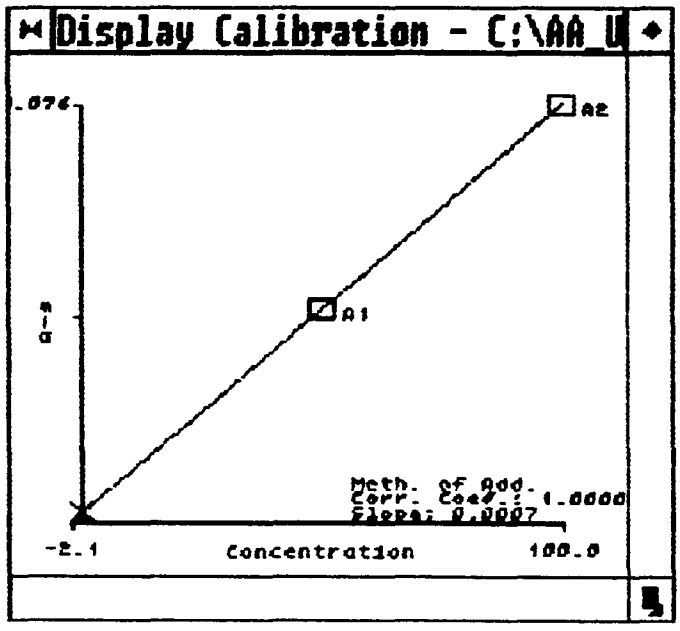

Replicate 2 (Peak Stored) Time: 23:32
Peak Area (A-s): 0.076 Peak Height (A): 0.162
Background Pk Area (A-s): 0.048 Background Pk Height (A): 0.093
Blank Corrected Pk Area (A-s): 0.076

Mean Pk Area (A-s): 0.076 SD: 0.0002 RSD(%): 0.26

T1 ID: 184-50-2ABC Seq. No.: 00027 A/S Pos.: 11 Date: 10/21/97

Concentration (ug/L ): 2.1

Correlation coefficient: 1.00000 Slope: 0.0007




T1 ID: AUTO ZERO Seq. No.: 00030 A/S Pos.: 0 Date: 10/21/97

L dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 23:35
Peak Area (A-s): -0.002 Peak Height (A): 0.006
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.002

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 2 (Peak Stored) Time: 23:38
Peak Area (A-s): -0.001 Peak Height (A): 0.006
Background Pk Area (A-s): 0.005 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.001

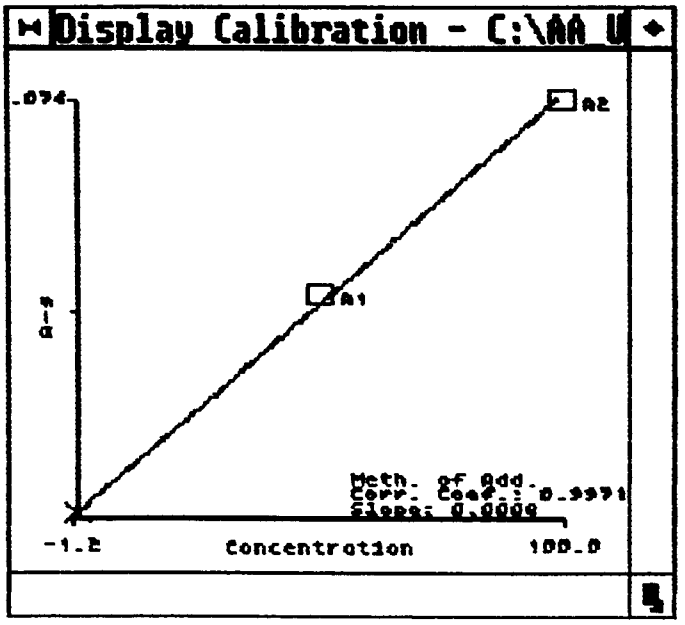
Mean Pk Area (A-s): -0.001 SD: 0.0003 RSD(%): 22.26

Auto-zero performed.

T1 ID: 184-50-5ABC Seq. No.: 00031 A/S Pos.: 14 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 14

```
Peak Area (A-s): -0.003                 Peak Height (A): 0.007
Background Pk Area (A-s): 0.005         Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): -0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 14
Replicate  2 (Peak Stored)              Time: 23:44
Peak Area (A-s): 0.001                  Peak Height (A): 0.006
Background Pk Area (A-s): 0.002         Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): 0.003

Mean Pk Area (A-s):       0.001         SD: 0.0030              RSD(%): 334.08

T1     ID: ADD 1 50 ug/L       Seq. No.: 00032    A/S Pos.: 14    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 1, 10 from 14
Replicate  1                            Time: 23:47
Peak Area (A-s): 0.039                  Peak Height (A): 0.066
Background Pk Area (A-s): 0.023         Background Pk Height (A): 0.039
Blank Corrected Pk Area (A-s): 0.041

uL dispensed: 5 from 39, 10 from 1, 10 from 14
Replicate  2 (Peak Stored)              Time: 23:50
Peak Area (A-s): 0.039                  Peak Height (A): 0.066
Background Pk Area (A-s): 0.025         Background Pk Height (A): 0.040
Blank Corrected Pk Area (A-s): 0.040

Mean Pk Area (A-s):       0.040         SD: 0.0003              RSD(%): 0.68

T1     ID: ADD 2 100ug/L       Seq. No.: 00033    A/S Pos.: 14    Date: 10/21/97

uL dispensed: 5 from 39, 10 from 2, 10 from 14
Replicate  1                            Time: 23:53
Peak Area (A-s): 0.074                  Peak Height (A): 0.132
Background Pk Area (A-s): 0.044         Background Pk Height (A): 0.074
Blank Corrected Pk Area (A-s): 0.076

uL dispensed: 5 from 39, 10 from 2, 10 from 14
Replicate  2 (Peak Stored)              Time: 23:56
Peak Area (A-s): 0.074                  Peak Height (A): 0.127
Background Pk Area (A-s): 0.043         Background Pk Height (A): 0.073
Blank Corrected Pk Area (A-s): 0.075

Mean Pk Area (A-s):       0.076         SD: 0.0006              RSD(%): 0.81

T1     ID: 184-50-5ABC         Seq. No.: 00031    A/S Pos.: 14    Date: 10/21/97

Concentration (ug/L  ): 1.2

Correlation coefficient: 0.99714        Slope: 0.0008
```




T1 ID: AUTO ZERO Seq. No.: 00034 A/S Pos.: 0 Date: 10/21/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 1 Time: 23:59
Peak Area (A-s): -0.001 Peak Height (A): 0.005
Background Pk Area (A-s): 0.002 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): 0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate 2 (Peak Stored) Time: 00:02
Peak Area (A-s): 0.002 Peak Height (A): 0.008
Background Pk Area (A-s): -0.001 Background Pk Height (A): 0.010
Blank Corrected Pk Area (A-s): 0.004

Mean Pk Area (A-s): 0.002 SD: 0.0023 RSD(%): 94.89

Auto-zero performed.

T1 ID: 184-50-6ABC Seq. No.: 00035 A/S Pos.: 15 Date: 10/22/97

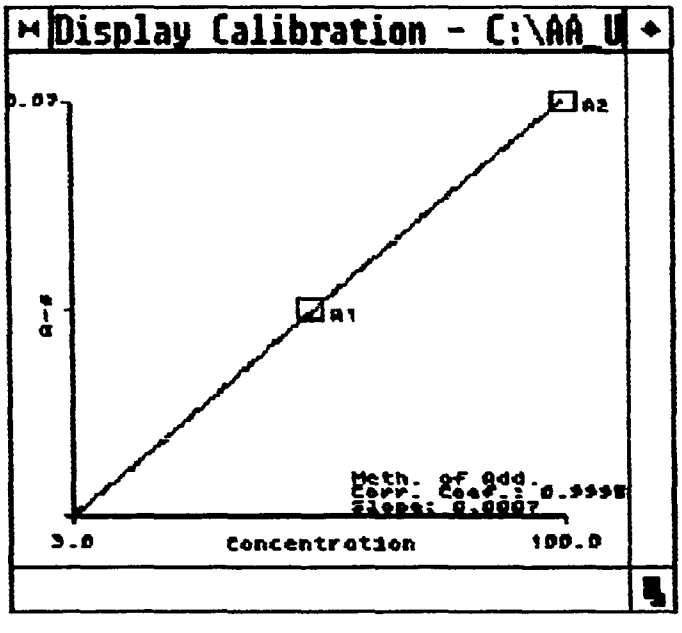
uL dispensed: 10 from 0, 5 from 39, 10 from 15
Replicate 1 Time: 00:04
Peak Area (A-s): -0.002 Peak Height (A): 0.005
Background Pk Area (A-s): 0.004 Background Pk Height (A): 0.008
Blank Corrected Pk Area (A-s): -0.003

uL dispensed: 10 from 0, 5 from 39, 10 from 15
Replicate 2 (Peak Stored) Time: 00:07
Peak Area (A-s): -0.000 Peak Height (A): 0.006
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.006
Blank Corrected Pk Area (A-s): -0.001

Mean Pk Area (A-s): -0.002 SD: 0.0013 RSD(%): 61.11

T1 ID: ADD 1 50 ug/L Seq. No.: 00036 A/S Pos.: 15 Date: 10/22/97

```
Replicate  1                              Time: 00:10
Peak Area (A-s): 0.035                    Peak Height (A): 0.066
Background Pk Area (A-s): 0.025           Background Pk Height (A): 0.042
Blank Corrected Pk Area (A-s): 0.034

uL dispensed: 5 from 39, 10 from 1, 10 from 15
Replicate  2 (Peak Stored)                Time: 00:13
Peak Area (A-s): 0.037                    Peak Height (A): 0.067
Background Pk Area (A-s): 0.023           Background Pk Height (A): 0.038
Blank Corrected Pk Area (A-s): 0.036

Mean Pk Area (A-s):       0.035           SD: 0.0014                RSD(%): 3.88

T1     ID: ADD 2 100ug/L       Seq. No.: 00037    A/S Pos.: 15     Date: 10/22/97

uL dispensed: 5 from 39, 10 from 2, 10 from 15
Replicate  1                              Time: 00:16
Peak Area (A-s): 0.070                    Peak Height (A): 0.125
Background Pk Area (A-s): 0.044           Background Pk Height (A): 0.075
Blank Corrected Pk Area (A-s): 0.069

uL dispensed: 5 from 39, 10 from 2, 10 from 15
Replicate  2 (Peak Stored)                Time: 00:19
Peak Area (A-s): 0.072                    Peak Height (A): 0.135
Background Pk Area (A-s): 0.044           Background Pk Height (A): 0.077
Blank Corrected Pk Area (A-s): 0.072

Mean Pk Area (A-s):       0.070           SD: 0.0020                RSD(%): 2.90

T1     ID: 184-50-6ABC         Seq. No.: 00035    A/S Pos.: 15     Date: 10/22/97

Concentration (ug/L  ): -3.0

Correlation coefficient: 0.99954          Slope: 0.0007
```



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T1     ID: AUTO ZERO          Seq. No.: 00038    A/S Pos.: 0     Date: 10/22/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
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T1     ID: AUTO ZERO          Seq. No.: 00039    A/S Pos.: 0     Date: 10/22/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
T1     ID: AUTO ZERO          Seq. No.: 00040    A/S Pos.: 0     Date: 10/22/97

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate  1                              Time: 00:45
Peak Area (A-s): 0.000                    Peak Height (A): 0.000
Background Pk Area (A-s): 0.000           Background Pk Height (A): 0.000
Blank Corrected Pk Area (A-s): -0.001

uL dispensed: 10 from 0, 5 from 39, 10 from 0
Replicate  2 (Peak Stored)                Time: 00:48
Peak Area (A-s): 0.001                    Peak Height (A): 0.014
Background Pk Area (A-s): 0.005           Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): -0.000

Mean Pk Area (A-s):      -0.001           SD: 0.0005              RSD(%): 93.94

Auto-zero performed.

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T1     ID: 184-50-7ABC        Seq. No.: 00041    A/S Pos.: 16    Date: 10/22/97

uL dispensed: 10 from 0, 5 from 39, 10 from 16
Replicate  1                              Time: 00:50
Peak Area (A-s): 0.015                    Peak Height (A): 0.047
Background Pk Area (A-s): 0.449           Background Pk Height (A): 0.496
Blank Corrected Pk Area (A-s): 0.015

uL dispensed: 10 from 0, 5 from 39, 10 from 16
Replicate  2 (Peak Stored)                Time: 00:53
Peak Area (A-s): 0.020                    Peak Height (A): 0.107
Background Pk Area (A-s): 0.710           Background Pk Height (A): 0.844
Blank Corrected Pk Area (A-s): 0.020

Mean Pk Area (A-s):       0.017           SD: 0.0033              RSD(%): 19.17

T1     ID: ADD 1 50 ug/L      Seq. No.: 00042    A/S Pos.: 16    Date: 10/22/97

uL dispensed: 5 from 39, 10 from 1, 10 from 16
Replicate  1                              Time: 00:56
Peak Area (A-s): 0.024                    Peak Height (A): 0.056
Background Pk Area (A-s): 0.901           Background Pk Height (A): 1.201
Blank Corrected Pk Area (A-s): 0.023

uL dispensed: 5 from 39, 10 from 1, 10 from 16
Replicate  2 (Peak Stored)                Time: 00:59
Peak Area (A-s): 0.026                    Peak Height (A): 0.068
Background Pk Area (A-s): 1.050           Background Pk Height (A): 1.623
Blank Corrected Pk Area (A-s): 0.025

Mean Pk Area (A-s):       0.024           SD: 0.0015              RSD(%): 6.34
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DRA 10/22/97

uL dispensed: 5 from 39, 10 from 2, 10 from 16
Replicate 1 Time: 01:02
Peak Area (A-s): 0.026 Peak Height (A): 0.071
Background Pk Area (A-s): 0.962 Background Pk Height (A): 1.406
Blank Corrected Pk Area (A-s): 0.026

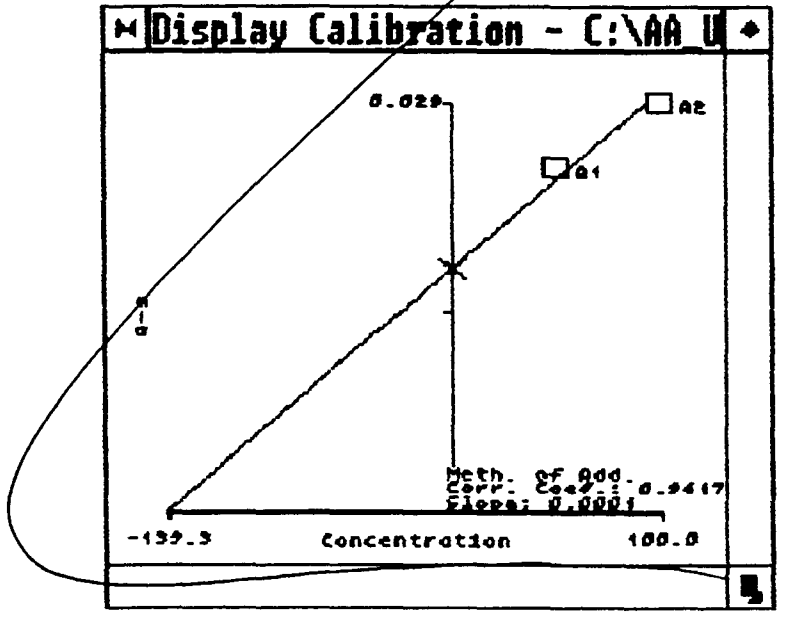
uL dispensed: 5 from 39, 10 from 2, 10 from 16
Replicate 2 (Peak Stored) Time: 01:05
Peak Area (A-s): 0.032 Peak Height (A): 0.109
Background Pk Area (A-s): 0.872 Background Pk Height (A): 1.269
Blank Corrected Pk Area (A-s): 0.032

Mean Pk Area (A-s): 0.029 SD: 0.0040 RSD(%): 13.78

T1 ID: 184-50-7ABC Seq. No.: 00041 A/S Pos.: 16 Date: 10/22/97

Concentration (ug/L ): 139.3

Correlation coefficient: 0.96177 Slope: 0.0001




MCM 10/22/97

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Auto-zero performed.

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T1 ID: 184-50-7ABC Seq. No.: 00045 A/S Pos.: 16 Date: 10/22/97

uL dispensed: 10 from 0, 5 from 39, 10 from 16
Replicate 1 Time: 01:33
Peak Area (A-s): 0.024 Peak Height (A): 0.058
Background Pk Area (A-s): 0.500 Background Pk Height (A): 0.568
Blank Corrected Pk Area (A-s): 0.025

uL dispensed: 10 from 0, 5 from 39, 10 from 16
Replicate 2 (Peak Stored) Time: 01:36
Peak Area (A-s): 0.020 Peak Height (A): 0.107
Background Pk Area (A-s): 0.716 Background Pk Height (A): 1.071
Blank Corrected Pk Area (A-s): 0.021

Mean Pk Area (A-s): 0.023 SD: 0.0027 RSD(%): 11.63

T1 ID: ADD 1 50 ug/L Seq. No.: 00046 A/S Pos.: 16 Date: 10/22/97

uL dispensed: 5 from 39, 10 from 1, 10 from 16
Replicate 1 Time: 01:39
Peak Area (A-s): 0.024 Peak Height (A): 0.087
Background Pk Area (A-s): 0.776 Background Pk Height (A): 1.151
Blank Corrected Pk Area (A-s): 0.025

uL dispensed: 5 from 39, 10 from 1, 10 from 16
Replicate 2 (Peak Stored) Time: 01:42
Peak Area (A-s): 0.025 Peak Height (A): 0.118
Background Pk Area (A-s): 0.633 Background Pk Height (A): 0.858
Blank Corrected Pk Area (A-s): 0.026

Mean Pk Area (A-s): 0.025 SD: 0.0005 RSD(%): 1.83

T1 ID: ADD 2 100ug/L Seq. No.: 00047 A/S Pos.: 16 Date: 10/22/97

uL dispensed: 5 from 39, 10 from 2, 10 from 16
Replicate 1 Time: 01:45
Peak Area (A-s): 0.034 Peak Height (A): 0.138
Background Pk Area (A-s): 0.638 Background Pk Height (A): 0.846
Blank Corrected Pk Area (A-s): 0.035

uL dispensed: 5 from 39, 10 from 2, 10 from 16
Replicate 2 (Peak Stored) Time: 01:48
Peak Area (A-s): 0.033 Peak Height (A): 0.120
Background Pk Area (A-s): 0.647 Background Pk Height (A): 0.837
Blank Corrected Pk Area (A-s): 0.034

Mean Pk Area (A-s): 0.034 SD: 0.0008 RSD(%): 2.36

Expansion )100 is not allowed. No calibration has occurred.
T1 ID: 184-50-7ABC Seq. No.: 00045 A/S Pos.: 16 Date: 10/22/97

Concentration (ug/L ): --------

N/V 10/22/97
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

ID/Weight File: A6827.IDW  Analyst: D.STREETER-EDWARDS
Sample Volume: 100 mL  Nominal Weight: 1.0 g

| 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 LC | | |
| 10 | 43411 MB2 | | |
| 11 | 43411 MB2D | | |
| 12 | 43411 LCS2 | | |
| 13 | 43411 LCS2D | | |
| 14 | 184-84-6CAB | | |
| 15 | 184-84-6CAB D | | |
| 16 | 184-84-6D | | |
| 17 | 184-84-6D D | | |
| 18 | 184-84-6D MS | | |
| 19 | 184-84-6D MSD | | |
| 20 | CCV7=6.0ug/L | | |
| 21 | CCB | | |
| 22 | 184-84-6G | | |
| 23 | 184-84-6G D | | |
| 24 | 184-84-6E | | |
| 25 | 184-84-6E D | | |
| 26 | 184-84-6F | | |
| 27 | 184-84-6F D | | |
| 28 | 184-84-7CDAB | | |
| 29 | 184-84-7CDAB D | | |
| 30 | 184-84-7G | | |
| 31 | 184-84-7G D | | |
| 32 | CCV8=6.0ug/L | | |
| 33 | CCB | | |
| 34 | 184-84-7EF | | |
| 35 | 184-84-7EF D | | |
| 36 | 184-84-7EF MS | | |
| 37 | 184-84-7EF MSD | | |
| 38 | 184-84-7H | | |
| 39 | 184-84-7H D | | |
| 40 | 184-84-7I | | |
| 41 | 184-84-7I D | | |
| 42 | CCV9=6.0ug/L | | |
| 43 | 43377 MB1 | | |
| 44 | 43377 MB1 D | | |
| 45 | 43377 LCS1 | | |
| 46 | 43377 LCS1D | | |
| 47 | 184-50-1CAB | | |
| 48 | 184-50-1CAB D | | |
| 49 | 184-50-1D | | |
| 50 | 184-50-1D D | | |
| 51 | 184-50-1D MS | | |
| 52 | 184-50-1D MSD | | |
| 53 | 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.

| Lot. | 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 | 184-50-2CAE | | |
| 62 | 184-50-2CAE D | | |
| 63 | 184-50-2DE | | |
| 64 | 184-50-2DE D | | |
| 65 | CCV2=6.0ug/L | | |
| 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 | | |
| 78 | CCB | | |
| 79 | 184-50-3CAE | | |
| 80 | 184-50-3CAE 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 | 184-50-4CAE | | |
| 88 | 184-50-4CAE D | | |
| 89 | CCV4=6.0ug/L | | |
| 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 | | |
| 102 | CCB | | |
| 103 | 184-50-5CAE | | |
| 104 | 184-50-5CAE D | | |
| 105 | 184-50-5BD | | |
| 106 | 184-50-5BE D | | |
| 107 | 184-50-5E | | |
| 108 | 184-50-5E D | | |
| 109 | 184-50-5F | | |

Hg

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

| Loc. | Sample ID | Weight | Dilution |
|---|---|---|---|
| 110 | 184-50-5F D | | |
| 111 | 184-50-6CAB | | |
| 112 | 184-50-6CAB D | | |
| 113 | CCV6=6.0ug/L | | |
| 114 | CCB | | |

—3-083-6 DSE 10/21/97

Hg.

.ement: Hg2 Analyst: D STREETER-EDWARDS
'int Data: Main+Suppl. Peak Storage: None
'int: Calib. Curve
emarks:
STANDARDS= 3-023-5
QC= 3-023-4,6

Hg

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NSTRUMENT: 5100 Technique: MHS Version: 7.01
avelength: 253.7 Peak Slit: 0.7 Low
ignal Type: AA Signal Measurement: Peak Height (5)
ead Time: 30.0 Read Delay: 1.0 BOC Time: 2
mple Replicates: 1
tandard Replicates: 1

---

AME:
lame Type: Air Flame Sensor: On
xidant Flow: 10.0 L/min Fuel Flow: 2.0 L/min

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ALIBRATION:

| Solutions | ID | Conc |
|---|---|---|
| alib. Blank | STD BLK | |
| tandard 1 | STD 1 | 0.200 |
| tandard 2 | STD 2 | 0.500 |
| tandard 3 | STD 3 | 1.000 |
| tandard 4 | STD 4 | 2.000 |
| tandard 5 | STD 5 | 5.000 |
| tandard 6 | STD 6 | 10.000 |

Calibration Units: ug/L Sample Units: ug/L
Calibration Type: Linear

---

Check Calculations:
Reference for Dupls: No Locations:
Recovery for Spike: No Locations: Conc:

```
-----------------------------------------------------------------------------
Element File: HG_.MEL        Element: Hg2                 Wavelength: 253.7
Date: 10/21/97               Time: 10:04                  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= 3-023-4,4 DSE 10/21/97
-----------------------------------------------------------------------------
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Hg2   ID: Seq. 00001        Seq. No.: 00001    A/S Pos.: --    Date: 10/21/97

Replicate  1                          Time: 10:05
Peak Area (A-s): -0.035               Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L  ): -0.014

Auto-zero performed.

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Hg2   ID: Seq. 00002        Seq. No.: 00002    A/S Pos.: --    Date: 10/21/97

Replicate  1                          Time: 10:07
Peak Area (A-s): 0.022                Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L  ): 0.012

Auto-zero performed.
```

```
ement File: HG_.MEL        Element: Hg2                 Wavelength: 253.7
te: 10/21/97               Time: 10:09                  Slit: 0.7 L
ta File: AB827.DAT         ID/Wt File: AB827.IDW        Lamp Current: 0
chnique: MHS               Calib. Type: Linear          Energy: 71
mark 1: STANDARDS= 3-023-5
mark 2: QC= 3-023-4, 6 DSE
```

2 ID: ST BLK Seq. No.: 00003 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 10:10
ak Area (A-s): -0.004 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000
ncentration (ug/L ): -0.003

to-zero performed.

2 ID: STD1=0.2ug/L Seq. No.: 00004 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 10:11
ak Area (A-s): 0.170 Peak Height (A): 0.007
ank Corrected Pk Height (A): 0.007
ncentration (ug/L ): 0.107

andard number 1 applied. [0.200]
rrelation coefficient: 1.00000 Slope: 0.0346

2 ID: STD2=0.5ug/L Seq. No.: 00005 A/S Pos.: -- Date: 10/21/97

role abs. is greater than that of the largest standard.
...cate 1 Time: 10:12
ak Area (A-s): 1.395 Peak Height (A): 0.018
ank Corrected Pk Height (A): 0.018
ncentration (ug/L ): 0.525

andard number 2 applied. [0.500]
rrelation coefficient: 0.99914 Slope: 0.0361

2 ID: STD3=1.0ug/L Seq. No.: 00006 A/S Pos.: -- Date: 10/21/97

mple abs. is greater than that of the largest standard.
plicate 1 Time: 10:13
ak Area (A-s): 0.872 Peak Height (A): 0.039
ank Corrected Pk Height (A): 0.039
ncentration (ug/L ): 1.073

andard number 3 applied. [1.000]
rrelation coefficient: 0.99824 Slope: 0.0382

2 ID: STD4=2.0ug/L Seq. No.: 00007 A/S Pos.: -- Date: 10/21/97

mple abs. is greater than that of the largest standard.
plicate 1 Time: 10:15
ak Area (A-s): 1.761 Peak Height (A): 0.074

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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Hg2 ID: STD5=5.0ug/L Seq. No.: 00008 A/S Pos.: -- Date: 10/21/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:16
Peak Area (A-s): 4.444 Peak Height (A): 0.190
Blank Corrected Pk Height (A): 0.190
Concentration (ug/L ): 5.088

Standard number 5 applied. [5.000]
Correlation coefficient: 0.99989 Slope: 0.037

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Hg2 ID: STD6=10.0ug/L Seq. No.: 00009 A/S Pos.: -- Date: 10/21/97

Sample abs. is greater than that of the largest standard.
Replicate 1 Time: 10:17
Peak Area (A-s): 8.952 Peak Height (A): 0.388
Blank Corrected Pk Height (A): 0.388
Concentration (ug/L ): 10.231

Standard number 6 applied. [10.000]
Correlation coefficient: 0.99999 Slope: 0.038

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ement File: HG_.MEL  Element: Hg2  Wavelength: 253.7
te: 10/21/97  Time: 10:18  Slit: 0.7 L
ta File: AB827.DAT  ID/Wt File: AB827.IDW  Lamp Current: 0
chnique: MHS  Calib. Type: Linear  Energy: 71
mark 1: STANDARDS= 3-023-5
mark 2: QC= 3-023-4, DSE 10/24/97

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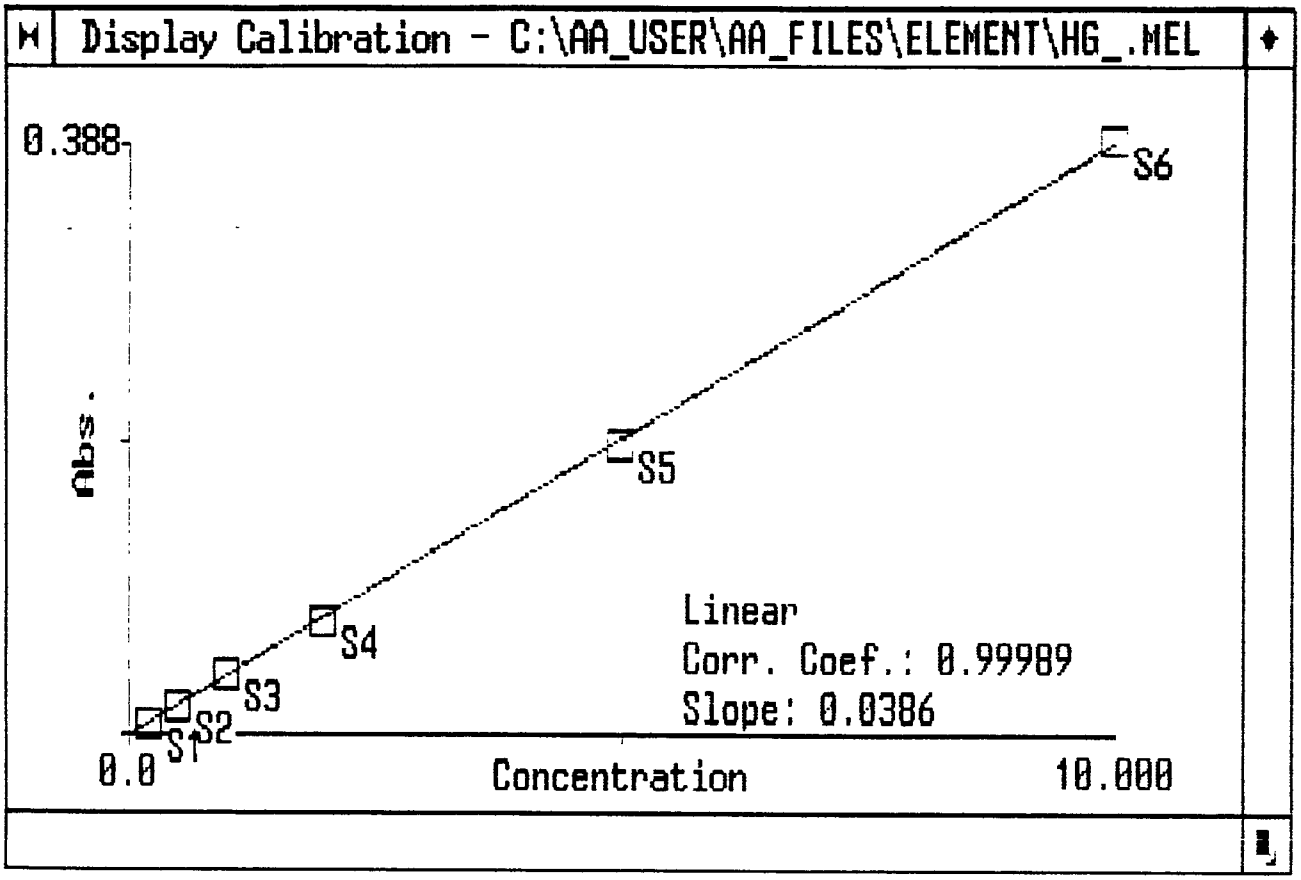

Element File: HG_.MEL  Element: Hg2  Wavelength: 253.7
Date: 10/21/97  Time: 10:19  Slit: 0.7 L
Data File: A8827.DAT  ID/Wt File: A8827.IDW  Lamp Current: 0
Technique: MHS  Calib. Type: Linear  Energy: 71
Remark 1: STANDARDS= 3-023-5
Remark 2: QC= 3-023-4,6 DSE 10/21/97

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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

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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

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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 ): 0.186

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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

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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

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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

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Hg2 ID: 43411 LCS2  Seq. No.: 00016  A/S Pos.: --  Date: 10/21/97

g2 ID: 184-84-7I D Seq. No.: 00046 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:28
eak Area (A-s): 0.004 Peak Height (A): 0.000
lank Corrected Pk Height (A): 0.000
oncentration (ug/L ): 0.003

g2 ID: CCV9=6.0ug/L Seq. No.: 00047 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:29
eak Area (A-s): 5.101 Peak Height (A): 0.216
lank Corrected Pk Height (A): 0.216
oncentration (ug/L ): 5.609

g2 ID: CCB Seq. No.: 00048 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:33
eak Area (A-s): -0.011 Peak Height (A): -0.001
lank Corrected Pk Height (A): -0.001
oncentration (ug/L ): -0.013

g2 ID: 43377 MB1 Seq. No.: 00049 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:34
eak Area (A-s): -0.005 Peak Height (A): -0.000
lank Corrected Pk Height (A): -0.000
oncentration (ug/L ): -0.005

:2 ID: 43377 MB1 D Seq. No.: 00050 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:35
eak Area (A-s): -0.011 Peak Height (A): -0.001
lank Corrected Pk Height (A): -0.001
oncentration (ug/L ): -0.016

:2 ID: 43377 LCS1 Seq. No.: 00051 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:36
eak Area (A-s): 7.457 Peak Height (A): 0.322
lank Corrected Pk Height (A): 0.322
oncentration (ug/L ): 8.340

EE
DSC 10/21/97

g2 ID: 43377 LCS1 Seq. No.: 00052 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:41
eak Area (A-s): 4.712 Peak Height (A): 0.204
lank Corrected Pk Height (A): 0.204
oncentration (ug/L ): 5.278

Hg2 ID: [illegible] Seq. No.: [illegible] A/S Pos.: [illegible] Date: 10/21/[illegible]

Replicate 1 Time: 12:42
Peak Area (A-s): 4.594 Peak Height (A): 0.194
Blank Corrected Pk Height (A): 0.194
Concentration (ug/L ): 5.018

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Hg2 ID: 184-50-1CAB ~~w-3-97~~ AQC Seq. No.: 00054 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:43
Peak Area (A-s): 0.031 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.034

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Hg2 ID: 184-50-1CAB D AQC Seq. No.: 00055 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:44
Peak Area (A-s): 0.014 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.005

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Hg2 ID: 184-50-1D Seq. No.: 00056 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:45
Peak Area (A-s): 0.033 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.034

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Hg2 ID: 184-50-1D D Seq. No.: 00057 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:46
Peak Area (A-s): 0.040 Peak Height (A): 0.00[illegible]
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.036

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Hg2 ID: 184-50-1D MS Seq. No.: 00058 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:47
Peak Area (A-s): 7.79[illegible] Peak Height (A): 0.32[illegible]
Blank Corrected Pk Height (A): 0.329
Concentration (ug/L ): 8.522

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Hg2 ID: 184-50-1D MSD Seq. No.: 00059 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 12:48
Peak Area (A-s): 7.729 Peak Height (A): 0.328
Blank Corrected Pk Height (A): 0.328
Concentration (ug/L ): 8.504

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Hg2 ID: CCV1=6.0ug/L Seq. No.: 00060 A/S Pos.: -- Date: 10/21/97
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lank Corrected Pk Height (A): 0.231
oncentration (ug/L ): 5.981

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g2 ID: CCB Seq. No.: 00061 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:50
eak Area (A-s): 0.043 Peak Height (A): 0.002
lank Corrected Pk Height (A): 0.002
oncentration (ug/L ): 0.044

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g2 ID: 184-50-1E Seq. No.: 00062 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:52
eak Area (A-s): 0.003 Peak Height (A): -0.000
lank Corrected Pk Height (A): -0.000
oncentration (ug/L ): -0.005

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g2 ID: 184-50-1E D Seq. No.: 00063 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:53
eak Area (A-s): -0.002 Peak Height (A): -0.000
lank Corrected Pk Height (A): -0.000
oncentration (ug/L ): -0.005

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g2 ID: 184-50-1F Seq. No.: 00064 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:54
eak Area (A-s): 0.287 Peak Height (A): 0.012
lank Corrected Pk Height (A): 0.012
oncentration (ug/L ): 0.307

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g2 ID: 184-50-1F D Seq. No.: 00065 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:55
eak Area (A-s): 0.293 Peak Height (A): 0.013
lank Corrected Pk Height (A): 0.013
oncentration (ug/L ): 0.328

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g2 ID: 184-50-1G Seq. No.: 00066 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:56
eak Area (A-s): 0.023 Peak Height (A): 0.001
lank Corrected Pk Height (A): 0.001
oncentration (ug/L ): 0.016

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g2 ID: 184-50-1G D Seq. No.: 00067 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 12:57
eak Area (A-s): 0.021 Peak Height (A): 0.000
lank Corrected Pk Height (A): 0.000
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Hg2 ID: 184-50-2CAB Seq. No.: 00068 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 12:58
Peak Area (A-s): 0.001 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.008

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Hg2 ID: 184-50-2CAB D Seq. No.: 00069 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 12:59
Peak Area (A-s): -0.002 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L ): -0.008

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Hg2 ID: 184-50-2DE Seq. No.: 00070 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 13:00
Peak Area (A-s): 0.037 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.034

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Hg2 ID: 184-50-2DE D Seq. No.: 00071 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 13:01
Peak Area (A-s): 0.027 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.025

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Hg2 ID: CCV2=5.0ug/L Seq. No.: 00072 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 13:02
Peak Area (A-s): 5.44e Peak Height (A): 0.231
Blank Corrected Pk Height (A): 0.231
Concentration (ug/L ): 5.001

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Hg2 ID: CCB Seq. No.: 00073 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 13:03
Peak Area (A-s): 0.015 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.008

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Hg2 ID: 184-50-2F Seq. No.: 00074 A/S Pos.: -- Date: 10/21/9

Replicate 1 Time: 13:04
Peak Area (A-s): -0.013 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.018

plicate 1 Time: 13:05
ak Area (A-s): -0.012 Peak Height (A): -0.001
ank Corrected Pk Height (A): -0.001
ncentration (ug/L ): -0.016

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2 ID: 184-50-2G Seq. No.: 00076 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:06
ak Area (A-s): 0.275 Peak Height (A): 0.012
ank Corrected Pk Height (A): 0.012
ncentration (ug/L ): 0.299

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2 ID: 184-50-2G D Seq. No.: 00077 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:07
ak Area (A-s): 0.283 Peak Height (A): 0.012
ank Corrected Pk Height (A): 0.012
ncentration (ug/L ): 0.302

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2 ID: 184-50-2H Seq. No.: 00078 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:08
ak Area (A-s): -0.012 Peak Height (A): -0.00
ank Corrected Pk Height (A): -0.001
ncentration (ug/L ): -0.021

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2 ID: 184-50-2H D Seq. No.: 00079 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:09
ak Area (A-s): -0.014 Peak Height (A): -0.001
ank Corrected Pk Height (A): -0.001
ncentration (ug/L ): -0.018

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2 ID: 184-50-3DE Seq. No.: 00080 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:10
ak Area (A-s): 0.502 Peak Height (A): 0.021
ank Corrected Pk Height (A): 0.021
ncentration (ug/L ): 0.549

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2 ID: 184-50-3DE D Seq. No.: 00081 A/S Pos.: -- Date: 10/21/9

plicate 1 Time: 13:11
ak Area (A-s): 0.509 Peak Height (A): 0.021
ank Corrected Pk Height (A): 0.021
ncentration (ug/L ): 0.554

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2 ID: 184-50-3DE MS Seq. No.: 00082 A/S Pos.: -- Date: 10/21/9



plicate 1 Time: 13:12

Concentration (ug/L ): 8.403

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Hg2 ID: 184-50-3DE MSD Seq. No.: 00083 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:13
Peak Area (A-s): 7.202 Peak Height (A): 0.308
Blank Corrected Pk Height (A): 0.308
Concentration (ug/L ): 7.976

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Hg2 ID: CCV3=6.0ug/L Seq. No.: 00084 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:14
Peak Area (A-s): 5.583 Peak Height (A): 0.239
Blank Corrected Pk Height (A): 0.239
Concentration (ug/L ): 6.189

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Hg2 ID: CCB Seq. No.: 00085 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:15
Peak Area (A-s): 0.053 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L ): 0.047

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Hg2 ID: 184-50-3C~~AE~~ ABC 10-3-97 EE Seq. No.: 00086 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:16
Peak Area (A-s): 0.005 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.000

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Hg2 ID: 184-50-3C~~AE~~ 0 ABC 10-3-97 EE Seq. No.: 00087 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:17
Peak Area (A-s): 0.001 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.003

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Hg2 ID: 184-50-3F Seq. No.: 00088 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:18
Peak Area (A-s): -0.010 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L ): -0.003

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Hg2 ID: 184-50-3F D Seq. No.: 00089 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:19
Peak Area (A-s): -0.010 Peak Height (A): -0.00.
Blank Corrected Pk Height (A): -0.001



Concentration (ug/L ): -0.018

g2 ID: 184-50-3G Seq. No.: 00090 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 13:21
eak Area (A-s): 0.411 Peak Height (A): 0.017
lank Corrected Pk Height (A): 0.017
oncentration (ug/L ): 0.442

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g2 ID: 184-50-3G D Seq. No.: 00091 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 13:22
eak Area (A-s): 0.441 Peak Height (A): 0.018
lank Corrected Pk Height (A): 0.018
oncentration (ug/L ): 0.463

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g2 ID: 184-50-3H Seq. No.: 00092 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 13:23
eak Area (A-s): 0.060 Peak Height (A): 0.003
lank Corrected Pk Height (A): 0.003
oncentration (ug/L ): 0.070

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g2 ID: 184-50-3H D Seq. No.: 00093 A/S Pos.: -- Date: 10/21/97

eplicate 1 Time: 13:24
eak Area (A-s): 0.063 Peak Height (A): 0.002
lank Corrected Pk Height (A): 0.002
oncentration (ug/L ): 0.060

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ABC
1 ID: 184-50-4[illegible] Seq. No.: 00094 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:25
ak Area (A-s): -0.009 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000
ncentration (ug/L ): -0.003

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2 ID: 184-50-4[illegible] D Seq. No.: 00095 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:26
ak Area (A-s): -0.014 Peak Height (A): -0.001
ank Corrected Pk Height (A): -0.001
ncentration (ug/L ): -0.016

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12 ID: CCV4=6.0ug/L Seq. No.: 00096 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:27
ak Area (A-s): 5.489 Peak Height (A): 0.236
ank Corrected Pk Height (A): 0.236
ncentration (ug/L ): 6.121

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2 ID: CCB Seq. No.: 00097 A/S Pos.: -- Date: 10/21/97
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Peak Area (A-s): 0.036 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.029

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Hg2 ID: 184-50-4DE Seq. No.: 00098 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:30
Peak Area (A-s): 0.022 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.026

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Hg2 ID: 184-50-4DE D Seq. No.: 00099 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:31
Peak Area (A-s): 0.039 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.029

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Hg2 ID: 184-50-4DE MS Seq. No.: 00100 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:32
Peak Area (A-s): 6.972 Peak Height (A): 0.299
Blank Corrected Pk Height (A): 0.299
Concentration (ug/L ): 7.750

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Hg2 ID: 184-50-4DE MSD Seq. No.: 00101 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:33
Peak Area (A-s): 6.812 Peak Height (A): 0.292
Blank Corrected Pk Height (A): 0.292
Concentration (ug/L ): 7.573

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Hg2 ID: 184-50-4F Seq. No.: 00102 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:35
Peak Area (A-s): 0.013 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.018

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Hg2 ID: 184-50-4F D Seq. No.: 00103 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:36
Peak Area (A-s): -0.005 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.000

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Hg2 ID: 184-50-4G Seq. No.: 00104 A/S Pos.: -- Date: 10/21/97



Replicate 1 Time: 13:37
Peak Area (A-s): 0.271 Peak Height (A): 0.012

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2 ID: 184-50-4G D Seq. No.: 00105 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:38
ak Area (A-s): 0.279 Peak Height (A): 0.011
ank Corrected Pk Height (A): 0.011
ncentration (ug/L ): 0.297

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12 ID: 184-50-4H Seq. No.: 00106 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:39
ak Area (A-s): 0.015 Peak Height (A): 0.000
ank Corrected Pk Height (A): 0.000
ncentration (ug/L ): 0.010

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12 ID: 184-50-4H D Seq. No.: 00107 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:40
ak Area (A-s): 0.013 Peak Height (A): 0.000
ank Corrected Pk Height (A): 0.000
ncentration (ug/L ): 0.005

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2 ID: CCV5=6.0ug/L Seq. No.: 00108 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:41
ak Area (A-s): 5.527 Peak Height (A): 0.237
ank Corrected Pk Height (A): 0.237
ncentration (ug/L ): 6.158

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2 ID: CCB Seq. No.: 00109 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:42
ak Area (A-s): 0.038 Peak Height (A): 0.001
ank Corrected Pk Height (A): 0.001
ncentration (ug/L ): 0.034

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2 ID: 184-50-5 ABC 11-3-97 EC Seq. No.: 00110 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:43
ak Area (A-s): -0.003 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000
ncentration (ug/L ): -0.003

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2 ID: 184-50-5 ABC D 11-3-97 EC Seq. No.: 00111 A/S Pos.: -- Date: 10/21/97

plicate 1 Time: 13:44
ak Area (A-s): -0.007 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000

ncentration (ug/L ): -0.010

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Replicate 1 Time: 13:45
Peak Area (A-s): -0.009 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.016

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Hg2 ID: 184-50-5BD D Seq. No.: 00113 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:46
Peak Area (A-s): -0.005 Peak Height (A): -0.000
Blank Corrected Pk Height (A): -0.000
Concentration (ug/L ): -0.005

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Hg2 ID: 184-50-5E Seq. No.: 00114 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:47
Peak Area (A-s): -0.014 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.013

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Hg2 ID: 184-50-5E D Seq. No.: 00115 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:48
Peak Area (A-s): -0.014 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.013

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Hg2 ID: 184-50-5F Seq. No.: 00116 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:49
Peak Area (A-s): -0.014 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.018

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Hg2 ID: 184-50-5F D Seq. No.: 00117 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:50
Peak Area (A-s): -0.012 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.016

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Hg2 ID: 184-50-6~~CAE~~ ABC 11-3-97 cc Seq. No.: 00118 A/S Pos.: -- Date: 10/21/97

Replicate 1 Time: 13:51
Peak Area (A-s): -0.013 Peak Height (A): -0.001
Blank Corrected Pk Height (A): -0.001
Concentration (ug/L ): -0.016

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Hg2 ID: 184-50-6~~CAE~~ ABC 11-3-97 cc D Seq. No.: 00119 A/S Pos.: -- Date: 10/21/97
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

lank Corrected Pk Height (A): -0.000
oncentration (ug/L ): -0.003

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

g2 ID: CCV6=6.0ug/L Seq. No.: 00120 A/S Pos.: -- Date: 10/21/9

eplicate 1 Time: 13:53
eak Area (A-s): 5.608 Peak Height (A): 0.244
lank Corrected Pk Height (A): 0.244
oncentration (ug/L ): 6.332

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

g2 ID: CCB Seq. No.: 00121 A/S Pos.: -- Date: 10/21/9

eplicate 1 Time: 13:54
'eak Area (A-s): 0.008 Peak Height (A): -0.000
lank Corrected Pk Height (A): -0.000
oncentration (ug/L ): -0.003

ID/Weight File: A8828.IDW  Analyst: D.STREETER-EDWARDS
Sample Volume: 100 mL  Nominal Weight: 1.0 g

Hg.

| 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

| .oc. | 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 | | |
| 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 | | |
| 67 | CCB | | |

— 3-023-8 RSE 10/22/97

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

---

lement File: HG_.MEL  Element: Hg2  Wavelength: 253.7
ate: 10/22/97  Time: 09:46  Slit: 0.7 L
ata File: A8828.DAT  ID/Wt File: A8828.IDW  Lamp Current: 0
echnique: MHS  Calib. Type: Linear  Energy: 71
emark 1: STANDARDS= 3-023-7
emark 2: QC= 3-023-8

---

g2  ID: Seq. 00001  Seq. No.: 00001  A/S Pos.: --  Date: 10/22/97

eplicate 1  Time: 09:46
eak Area (A-s): 0.290  Peak Height (A): 0.012
lank Corrected Pk Height (A): 0.012

uto-zero performed.

---

ID: Seq. 00002  Seq. No.: 00002  A/S Pos.: --  Date: 10/22/97

eplicate 1  Time: 09:47
eak Area (A-s): 0.020  Peak Height (A): 0.001
lank Corrected Pk Height (A): 0.001

uto-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

EE DSE 10/22/97 Didn't accept Data. (Re-run.)

---

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

---

)2 ID: STD3=1.0ug/L Seq. No.: 00008 A/S Pos.: -- Date: 10/22/97

imple abs. is greater than that of the largest standard.
:plicate 1 Time: 10:02
:ak Area (A-s): 0.913 Peak Height (A): 0.041
lank Corrected Pk Height (A): 0.041
)ncentration (ug/L ): 1.020

:andard number 3 applied. [1.000]
)rrelation coefficient: 0.99775 Slope: 0.0409

---

)2 ID: STD4=2.0ug/L Seq. No.: 00009 A/S Pos.: -- Date: 10/22/97

imple abs. is greater than that of the largest standard.
:licate 1 Time: 10:03
:- Area (A-s): 1.700 Peak Height (A): 0.073
.ank Corrected Pk Height (A): 0.073
)ncentration (ug/L ): 1.798

:andard number 4 applied. [2.000]
)rrelation coefficient: 0.99647 Slope: 0.0378

---

)2 ID: STD5=5.0ug/L Seq. No.: 00010 A/S Pos.: -- Date: 10/22/97

imple abs. is greater than that of the largest standard.
:olicate 1 Time: 10:05
:- Area (A-s): 4.214 Peak Height (A): 0.180
ank Corrected Pk Height (A): 0.180
)ncentration (ug/L ): 4.768

:andard number 5 applied. [5.000]
)rrelation coefficient: 0.99923 Slope: 0.0364

---

)2 ID: STD6=10.0ug/L Seq. No.: 00011 A/S Pos.: -- Date: 10/22/97

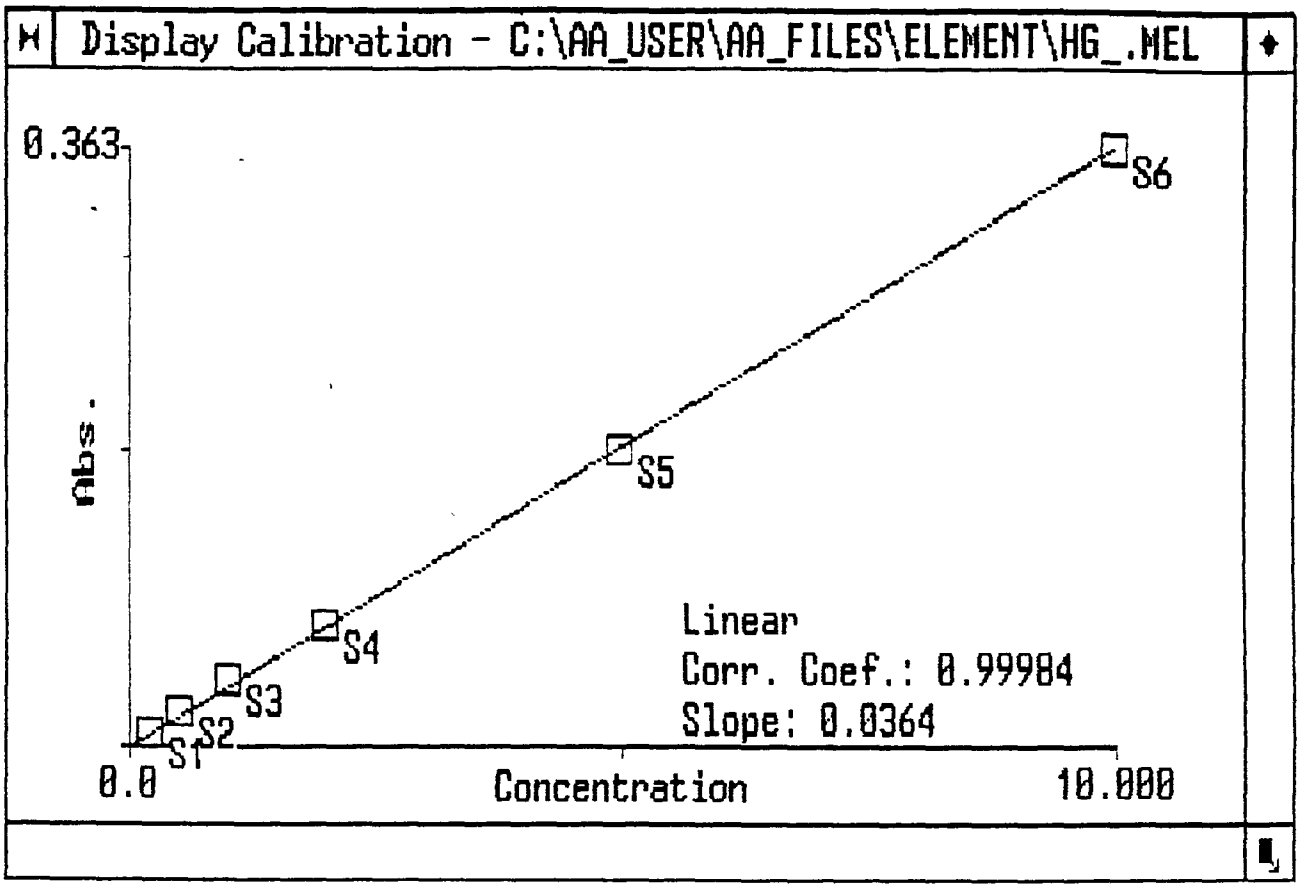
imple abs. is greater than that of the largest standard.
:plicate 1 Time: 10:06
:ak Area (A-s): 8.381 Peak Height (A): 0.363
lank Corrected Pk Height (A): 0.363
)ncentration (ug/L ): 9.993

tandard number 6 applied. [10.000]
)rrelation coefficient: 0.99984 Slope: 0.0364

Hg

| | | |
|---|---|---|
| Element File: HG_.MEL | Element: Hg2 | Wavelength: 253.7 |
| Date: 10/22/97 | Time: 10:07 | 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: ICV=4.0ug/L        Seq. No.: 00012    A/S Pos.: --    Date: 10/22/97

Replicate  1                          Time: 10:12
Peak Area (A-s): 3.522                Peak Height (A): 0.150
Blank Corrected Pk Height (A): 0.150
Concentration (ug/L  ): 4.137

Hg2   ID: ICB                Seq. No.: 00013    A/S Pos.: --    Date: 10/22/97

Replicate  1                          Time: 10:13
Peak Area (A-s): 0.014                Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L  ): 0.003

Hg2   ID: CHECK LD           Seq. No.: 00014    A/S Pos.: --    Date: 10/22/97

Replicate  1                          Time: 10:15
Peak Area (A-s): 0.173                Peak Height (A): 0.007
Blank Corrected Pk Height (A): 0.007
Concentration (ug/L  ): 0.199

Hg2   ID: 43377 MB2          Seq. No.: 00015    A/S Pos.: --    Date: 10/22/97

Replicate  1                          Time: 10:18
Peak Area (A-s): 0.003                Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L  ): 0.003

g2   ID: 43377 MB2D          Seq. No.: 00016    A/S Pos.: --    Date: 10/22/97

eplicate  1                           Time: 10:19
eak Area (A-s): 0.005                 Peak Height (A): -0.000
ank Corrected Pk Height (A): -0.000
ncentration (ug/L  ): -0.003

2   ID: 43377 LCS            Seq. No.: 00017    A/S Pos.: --    Date: 10/22/97

plicate  1                            Time: 10:20
ak Area (A-s): 4.228                  Peak Height (A): 0.181
ank Corrected Pk Height (A): 0.181
ncentration (ug/L  ): 4.981

?   ID: 43377 LCSD           Seq. No.: 00018    A/S Pos.: --    Date: 10/22/97

licate  1                             Time: 10:22
k Area (A-s): 4.003                   Peak Height (A): 0.172
nk Corrected Pk Height (A): 0.172
centration (ug/L  ): 4.733

   ID: 184-50-68             Seq. No.: 00019    A/S Pos.: --    Date: 10/22/97
```

Replicate 1 Time: 10:23
Peak Area (A-s): 0.031 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.033

---

Hg2 ID: 184-50-6B D Seq. No.: 00020 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:24
Peak Area (A-s): 0.011 Peak Height (A): 0.000
Blank Corrected Pk Height (A): 0.000
Concentration (ug/L ): 0.011

---

Hg2 ID: 184-50-6BD- Seq. No.: 00021 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:25
Peak Area (A-s): 0.065 Peak Height (A): 0.002
Blank Corrected Pk Height (A): 0.002
Concentration (ug/L ): 0.066

---

Hg2 ID: 184-50-6BD D Sec. No.: 00022 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:26
Peak Area (A-s): 0.059 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L ): 0.083

---

Hg2 ID: 184-50-6BD MS Seq. No.: 00023 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:27
Peak Area (A-s): 4.199 Peak Height (A): 0.179
Blank Corrected Pk Height (A): 0.179
Concentration (ug/L ): 4.937

---

Hg2 ID: 184-50-6BD MSD Seq. No.: 00024 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:29
Peak Area (A-s): 4.372 Peak Height (A): 0.190
Blank Corrected Pk Height (A): 0.190
Concentration (ug/L ): 5.227

---

Hg2 ID: CCV7=6.0ug/L Seq. No.: 00025 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:30
Peak Area (A-s): 5.185 Peak Height (A): 0.227
Blank Corrected Pk Height (A): 0.227
Concentration (ug/L ): 6.231

---

Hg2 ID: CCB Seq. No.: 00026 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:31
Peak Area (A-s): 0.030 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001

ntration (ug/L ): 0.019

---

ID: 184-50-6E Seq. No.: 00027 A/S Pos.: -- _ Date: 10/22/97

.cate 1 Time: 10:32
Area (A-s): 0.015 Peak Height (A): 0.001
: Corrected Pk Height (A): 0.001
:ntration (ug/L ): 0.019

---

ID: 184-50-6E D Seq. No.: 00028 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:34
Area (A-s): 0.017 Peak Height (A): 0.001
( Corrected Pk Height (A): 0.001
entration (ug/L ): 0.028

---

ID: 184-50-6FE Seq. No.: 00029 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:34
Area (A-s): 0.015 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L ): 0.025

---

ID: 184-50-6FE D Seq. No.: 00030 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:35
Area (A-s): 0.020 Peak Height (A): 0.001
k Corrected Pk Height (A): 0.001
entration (ug/L ): 0.017

---

ID: 184-50-7CAB Seq. No.: 00031 A/S Pos.: -- Date: 10/22/97

icate 1 Time: 10:37
Area (A-s): 0.065 Peak Height (A): 0.003
k Corrected Pk Height (A): 0.003
entration (ug/L ): 0.075

---

ID: 184-50-7CAB D Seq. No.: 00032 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:38
( Area (A-s): 0.064 Peak Height (A): 0.002
nk Corrected Pk Height (A): 0.002
centration (ug/L ): 0.063

---

ID: 184-50-7E Seq. No.: 00033 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:39
( Area (A-s): 0.021 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L ): 0.022

g2 ID: 184-50-7E D_ Seq. No.: 00034 A/S Pos.: -- Date: 10/22/97

eplicate 1 Time: 10:40
eak Area (A-s): 0.014 Peak Height (A): 0.000
lank Corrected Pk Height (A): 0.000
oncentration (ug/L ): 0.011

---

lg2 ID: 184-50-7F Seq. No.: 00035 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:41
Peak Area (A-s): 0.060 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L ): 0.075

---

Hg2 ID: 184-50-7F D Seq. No.: 00036 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:42
Peak Area (A-s): 0.071 Peak Height (A): 0.003
Blank Corrected Pk Height (A): 0.003
Concentration (ug/L ): 0.072

---

Hg2 ID: CCV8=6.0ug/L Seq. No.: 00037 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:43
Peak Area (A-s): 4.596 Peak Height (A): 0.210
Blank Corrected Pk Height (A): 0.210
Concentration (ug/L ): 5.776

---

Hg2 ID: CC8 Seq. No.: 00038 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:44
Peak Area (A-s): 0.034 Peak Height (A): 0.001
Blank Corrected Pk Height (A): 0.001
Concentration (ug/L ): 0.039

---

Hg2 ID: 184-50-7D Seq. No.: 00039 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:45
Peak Area (A-s): 0.147 Peak Height (A): 0.006
Blank Corrected Pk Height (A): 0.006
Concentration (ug/L ): 0.166

---

Hg2 ID: 184-50-7D D Seq. No.: 00040 A/S Pos.: -- Date: 10/22/97

Replicate 1 Time: 10:46
Peak Area (A-s): 0.130 Peak Height (A): 0.005
Blank Corrected Pk Height (A): 0.005
Concentration (ug/L ): 0.144

---

Hg2 ID: 184-50-7D MS Seq. No.: 00041 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:48
( Area (A-s): 3.349 Peak Height (A): 0.161
ık Corrected Pk Height (A): 0.161
centration (ug/L ): 4.424

---

ID: 184-50-7D MSD Seq. No.: 00042 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:49
k Area (A-s): 4.134 Peak Height (A): 0.186
nk Corrected Pk Height (A): 0.186
centration (ug/L ): 5.125

---

ID: CCV9=6.0ug/L Seq. No.: 00043 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:50
k Area (A-s): 4.599 Peak Height (A): 0.221
nk Corrected Pk Height (A): 0.221
centration (ug/L ): 6.082

---

ID: CC8 Seq. No.: 00044 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:51
k Area (A-s): 0.040 Peak Height (A): 0.002
nk Corrected Pk Height (A): 0.002
centration (ug/L ): 0.044

---

ID: 42011 Cn1 MB Seq. No.: 00045 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:53
k Area (A-s): 0.037 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L ): 0.033

---

ID: 42011 Cn1 MBD Seq. No.: 00046 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:53
k Area (A-s): 0.028 Peak Height (A): 0.001
nk Corrected Pk Height (A): 0.001
centration (ug/L ): 0.030

---

ID: 42011 LCS Seq. No.: 00047 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:55
ak Area (A-s): 3.791 Peak Height (A): 0.178
ank Corrected Pk Height (A): 0.178
ncentration (ug/L ): 4.901

---

ID: 42011 LCSD Seq. No.: 00048 A/S Pos.: -- Date: 10/22/97

licate 1 Time: 10:56
ak Area (A-s): 3.851 Peak Height (A): 0.180
ank Corrected Pk Height (A): 0.180

# APPENDIX D

# COMPUTER SUMMARIES

Appendix D.1

Computer Summaries

Baghouse Inlet - Method 23 & 29

## Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | MEASURED DATA | |
| $\gamma$ | Meter Box Correction Factor | 1.021 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 1.93 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.90 |
| $V_m$ | Sample Volume, $ft^3$ | 11.116 |
| $T_m$ | Average Meter Temperature, °F | 90 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -2.5 |
| $T_s$ | Average Stack Temperature, °F | 230 |
| $V_{lc}$ | Condensate Collected, ml | 84.0 |
| $CO_2$ | Carbon Dioxide content, % by volume | 5.3 |
| $O_2$ | Oxygen content, % by volume | 13.1 |
| $N_2$ | Nitrogen content, % by volume | 81.6 |
| $C_p$ | Pitot Tube Coefficient | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.5927 |
| $\Theta$ | Sample Run Duration, minutes | 20 |
| $D_n$ | Nozzle Diameter, inches | 0.312 |
| | CALCULATED DATA | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.00053 |
| $V_{m(std)}$ | Standard Meter Volume, dscf | 10.940 |
| $V_{m(std)}$ | Standard Meter Volume, dscm | 0.310 |
| $P_s$ | Stack Pressure, inches Hg | 29.72 |
| $B_{ws}$ | Moisture, % by volume | 26.5 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 141.2 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 3.954 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.735 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 29.37 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 26.35 |
| $V_s$ | Stack Gas Velocity, ft/s | 39.9 |
| A | Stack Area, $ft^2$ | 12.57 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 30,119 |
| $Q_s$ | Stack Gas Volumetric flow, dscfm | 16,819 |
| $Q_{s(cmm)}$ | Stack Gas Volumetric flow, dscmm | 476.3 |
| I | Isokinetic Sampling Ratio, % | 77.0 |

## Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA | |
| | DIOXINS: | |
| | 2378 TCDD | |
| (ng) | Catch, ng | {0.004} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0129} |
| (µg/hr) | Emission Rate, µg/hr | {0.369} |
| | Total TCDD | |
| (ng) | Catch, ng | 0.05 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.161 |
| (µg/hr) | Emission Rate, µg/hr | 4.61 |
| | 12378 PeCDD | |
| (ng) | Catch, ng | 0.005 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0161 |
| (µg/hr) | Emission Rate, µg/hr | 0.461 |
| | Total PeCDD | |
| (ng) | Catch, ng | 0.07 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.226 |
| (µg/hr) | Emission Rate, µg/hr | 6.46 |
| | 123478 HxCDD | |
| (ng) | Catch, ng | 0.02 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0646 |
| (µg/hr) | Emission Rate, µg/hr | 1.84 |
| | 123678 HxCDD | |
| (ng) | Catch, ng | 0.04 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.129 |
| (µg/hr) | Emission Rate, µg/hr | 3.69 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA -Continued | |
| | DIOXINS - Continued | |
| | 123789 HxCDD | |
| (ng) | Catch, ng | 0.05 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.161 |
| (µg/hr) | Emission Rate, µg/hr | 4.61 |
| | Total HxCDD | |
| (ng) | Catch, ng | 0.45 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 1.45 |
| (µg/hr) | Emission Rate, µg/hr | 41.5 |
| | 1234678 HpCDD | |
| (ng) | Catch, ng | 0.72 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 2.32 |
| (µg/hr) | Emission Rate, µg/hr | 66.4 |
| | Total HpCDD | |
| (ng) | Catch, ng | 1.6 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 5.16 |
| (µg/hr) | Emission Rate, µg/hr | 148 |
| | 12346789 OCDD | |
| (ng) | Catch, ng | 44.5 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 144 |
| (µg/hr) | Emission Rate, µg/hr | 4,105 |
| | Total PCDD | |
| (ng) | Catch, ng | 46.67 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 151 |
| (µg/hr) | Emission Rate, µg/hr | 4,305 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA - Continued | |
| | FURANS | |
| | 2378 TCDF | |
| (ng) | Catch, ng | {0.02} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0646} |
| (µg/hr) | Emission Rate, µg/hr | {1.84} |
| | Total TCDF | |
| (ng) | Catch, ng | 0.14 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.452 |
| (µg/hr) | Emission Rate, µg/hr | 12.9 |
| | 12378 PeCDF | |
| (ng) | Catch, ng | 0.008 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0258 |
| (µg/hr) | Emission Rate, µg/hr | 0.738 |
| | 23478 PeCDF | |
| (ng) | Catch, ng | 0.02 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0646 |
| (µg/hr) | Emission Rate, µg/hr | 1.84 |
| | Total PeCDF | |
| (ng) | Catch, ng | 0.12 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.387 |
| (µg/hr) | Emission Rate, µg/hr | 11.1 |
| | 123478 HxCDF | |
| (ng) | Catch, ng | 0.06 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.194 |
| (µg/hr) | Emission Rate, µg/hr | 5.53 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA - Continued | |
| | Furans - Continued | |
| | 123678 HxCDF | |
| (ng) | Catch, ng | 0.02 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0646 |
| (µg/hr) | Emission Rate, µg/hr | 1.84 |
| | 234678 HxCDF | |
| (ng) | Catch, ng | {0.02} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0646} |
| (µg/hr) | Emission Rate, µg/hr | {1.84} |
| | 123789 HxCDF | |
| (ng) | Catch, ng | 0.007 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0226 |
| (µg/hr) | Emission Rate, µg/hr | 0.646 |
| | Total HxCDF | |
| (ng) | Catch, ng | 0.19 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.613 |
| (µg/hr) | Emission Rate, µg/hr | 17.5 |
| | 1234678 HpCDF | |
| (ng) | Catch, ng | 0.12 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.387 |
| (µg/hr) | Emission Rate, µg/hr | 11.1 |
| | 1234789 HpCDF | |
| (ng) | Catch, ng | 0.04 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.129 |
| (µg/hr) | Emission Rate, µg/hr | 3.69 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Inlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA - Continued | |
| | Furans - Continued | |
| | Total HpCDF | |
| (ng) | Catch, ng | 0.30 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.968 |
| (µg/hr) | Emission Rate, µg/hr | 27.7 |
| | 12346789 OCDF | |
| (ng) | Catch, ng | 0.16 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.516 |
| (µg/hr) | Emission Rate, µg/hr | 14.8 |
| | Total PCDF | |
| (ng) | Catch, ng | 0.910 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 2.94 |
| (µg/hr) | Emission Rate, µg/hr | 83.9 |
| | Total PCDD + PCDF | |
| (ng) | Catch, ng | 47.6 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 154 |
| (µg/hr) | Emission Rate, µg/hr | 4,389 |

( ) 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 Toxic Equivalent Factor | 2378 TOXIC EQUIVALENCIES (ng/dscmm, adjusted to 7% O2) |
|---|---|---|---|
| RUN NUMBER | S-M23-I-1 | | S-M23-I-1 |
| RUN DATE | 08/19/97 | | 8/19/97 |
| RUN TIME | 0915-1010 | | 0915-1010 |
| **DIOXINS:** | | | |
| 2378 TCDD | {0.0230} | 1.000 | {0.0230} |
| Total TCDD | 0.288 | | |
| 12378 PeCDD | 0.0288 | 0.500 | 0.0144 |
| Total PeCDD | 0.403 | | |
| 123478 HxCDD | 0.115 | 0.100 | 0.0115 |
| 123678 HxCDD | 0.230 | 0.100 | 0.0230 |
| 123789 HxCDD | 0.288 | 0.100 | 0.0288 |
| Total HxCDD | 2.59 | | |
| 1234678 HpCDD | 4.14 | 0.010 | 0.0414 |
| Total HpCDD | 9.20 | | |
| 12346789 OCDD | 256 | 0.001 | 0.256 |
| Total PCDD | 268 | | {0.398} |
| **FURANS:** | | | |
| 2378 TCDF | {0.115} | 0.100 | {0.0115} |
| Total TCDF | 0.805 | | |
| 12378 PeCDF | 0.0460 | 0.050 | 0.00230 |
| 23478 PeCDF | 0.115 | 0.500 | 0.0575 |
| Total PeCDF | 0.690 | | |
| 123478 HxCDF | 0.345 | 0.100 | 0.0345 |
| 123678 HxCDF | 0.115 | 0.100 | 0.0115 |
| 234678 HxCDF | {0.115} | 0.100 | {0.0115} |
| 123789 HxCDF | 0.0403 | 0.100 | 0.00403 |
| Total HxCDF | 1.09 | | |
| 1234678 HpCDF | 0.690 | 0.010 | 0.00690 |
| 1234789 HpCDF | 0.230 | 0.010 | 0.00230 |
| Total HpCDF | 1.73 | | |
| 12346789 OCDF | 0.920 | 0.001 | 0.000920 |
| Total PCDF | 5.23 | | 0.120 |
| Total PCDD + PCDF | 274 | | 0.518 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing -** ASPHALT PLANT "A"

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Inlet**



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | MEASURED DATA | |
| $\gamma$ | Meter Box Correction Factor | 1.016 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 1.10 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.90 |
| $V_m$ | Sample Volume, $ft^3$ | 10.780 |
| $T_m$ | Average Meter Temperature, °F | 92 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -2.5 |
| $T_s$ | Average Stack Temperature, °F | 230 |
| $V_{lc}$ | Condensate Collected, ml | 78.8 |
| $CO_2$ | Carbon Dioxide content, % by volume | 5.3 |
| $O_2$ | Oxygen content, % by volume | 13.1 |
| $N_2$ | Nitrogen content, % by volume | 81.6 |
| $C_p$ | Pitot Tube Coefficient | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.4682 |
| $\Theta$ | Sample Run Duration, minutes | 20 |
| $D_n$ | Nozzle Diameter, inches | 0.311 |
| | CALCULATED DATA | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.000527 |
| $V_{m(std)\,cf}$ | Standard Meter Volume, $ft^3$ | 10.491 |
| $V_{m(std)\,cm}$ | Standard Meter Volume, $m^3$ | 0.297 |
| $Q_m$ | Average Sampling Rate, dscfm | 0.525 |
| $P_s$ | Stack Pressure, inches Hg | 29.72 |
| $B_{ws}$ | Moisture, % by volume | 26.1 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 141.2 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 3.709 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.739 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 29.37 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 26.40 |
| $V_s$ | Stack Gas Velocity, ft/s | 31.5 |
| A | Stack Area, $ft^2$ | 12.57 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 23,773 |
| $Q_{s\,cfm}$ | Stack Gas Volumetric flow, dscfm | 13,353 |
| $Q_{s\,cmm}$ | Stack Gas Volumetric flow, dscmm | 378 |
| I | Isokinetic Sampling Ratio, % | 93.6 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Inlet**



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA | |
| | Particulate Matter | |
| g | Target Catch, g | 43.3384 |
| gr/dscf | Concentration, gr/dscf | 63.7 |
| gr/dscf at 7% | Concentration, gr/dscf at 7% O2 | 114 |
| g/dscm | Concentration, g/dscm | 146 |
| g/dscm at 7% | Concentration, g/dscm at 7% O2 | 260 |
| lb/hr | Emission Rate, lb/hr | 7,296 |
| kg/hr | Emission Rate, kg/hr | 3,310 |
| | Antimony | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | Arsenic | |
| µg | Target Catch, µg | 15.2 |
| µg/dscm | Concentration, µg/dscm | 51.2 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 91.2 |
| g/hr | Emission Rate, g/hr | 1.16 |
| | Barium | |
| µg | Target Catch, µg | 613.0 |
| µg/dscm | Concentration, µg/dscm | 2,063 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 3,677 |
| g/hr | Emission Rate, g/hr | 46 8 |
| | Beryllium | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | Cadmium | |
| µg | Target Catch, µg | 6.69 |
| µg/dscm | Concentration, µg/dscm | 22.5 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 40.1 |
| g/hr | Emission Rate, g/hr | 0.511 |

**Summary of Stack Gas Parameters and Test Results**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**
**US EPA Test Method 29 - Multiple Metals**
**Baghouse Inlet**


| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA - Continued | |
| | Chromium | |
| µg | Target Catch, µg | 27.2 |
| µg/dscm | Concentration, µg/dscm | 91.7 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 163 |
| g/hr | Emission Rate, g/hr | 2.08 |
| | Colbalt | |
| µg | Target Catch, µg | 26.5 |
| µg/dscm | Concentration, µg/dscm | 89.2 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 159 |
| g/hr | Emission Rate, g/hr | 2.02 |
| | Copper | |
| µg | Target Catch, µg | 124 |
| µg/dscm | Concentration, µg/dscm | 417 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 743 |
| g/hr | Emission Rate, g/hr | 9.46 |
| | Lead | |
| µg | Target Catch, µg | 50.4 |
| µg/dscm | Concentration, µg/dscm | 170 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 302 |
| g/hr | Emission Rate, g/hr | 3.85 |
| | Manganese | |
| µg | Target Catch, µg | 1,172 |
| µg/dscm | Concentration, µg/dscm | 3,946 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 7,032 |
| g/hr | Emission Rate, g/hr | 89.5 |
| | Mercury | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |

**Summary of Stack Gas Parameters and Test Results**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**
**US EPA Test Method 29 - Multiple Metals**
**Baghouse Inlet**


| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-I-1*** |
| | ***RUN DATE*** | ***8/19/97*** |
| | ***RUN TIME*** | ***0915-1010*** |
| | EMISSIONS DATA - Continued | |
| | Nickel | |
| µg | Target Catch, µg | 11.8 |
| µg/dscm | Concentration, µg/dscm | 39.8 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 70.9 |
| g/hr | Emission Rate, g/hr | 0.903 |
| | Phosphorus | |
| µg | Target Catch, µg | 3,545 |
| µg/dscm | Concentration, µg/dscm | 11,934 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 21,267 |
| g/hr | Emission Rate, g/hr | 271 |
| | Silver | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | Selenium | |
| µg | Target Catch, µg | 0.969 |
| µg/dscm | Concentration, µg/dscm | 3.26 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 5.81 |
| g/hr | Emission Rate, g/hr | 0.0740 |
| | Thallium | |
| µg | Target Catch, µg | 2.90 |
| µg/dscm | Concentration, µg/dscm | 9.76 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 17.4 |
| g/hr | Emission Rate, g/hr | 0.221 |
| | Zinc | |
| µg | Target Catch, µg | 520.5 |
| µg/dscm | Concentration, µg/dscm | 1,752 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 3,123 |
| g/hr | Emission Rate, g/hr | 39.8 |

Appendix D.2

Computer Summaries

Baghouse Outlet - Method 9, 23 & 29

Visible Emission Observation Summary

Baghouse Outlet

| Run Number | S-M9-O-1A | O-M9-1B | O-M9-1C | O-M9-1D |
|---|---|---|---|---|
| Date | 8/19/97 | 8/19/97 | 8/19/97 | 8/19/97 |
| Start Time | 0918 | 1107 | 1304 | 1412 |
| Stop Time | 1106 | 1207 | 1404 | 1512 |
| Percent Opacity | | | | |
| Average for entire run | 1.29 | 0.82 | 2.76 | 3.73 |
| Highest single reading | 15 | 10 | 10 | 10 |
| Highest six-minute block average | 2.92 | 1.46 | 3.61 | 6.25 |
| Highest six-minute rolling average | 3.54 | 1.67 | 3.75 | 6.46 |

Date: 8/19/97
Start Time: 0918
Stop Time: 1106

Baghouse Outlet
Run Number: O-M9-1A

| 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 | 3.13 | 24.25 | 1.46 | 36.25 | 1.04 | 48.25 | 0.83 |
| 0.50 | NA | 12.50 | 2.92 | 24.50 | 1.46 | 36.50 | 1.04 | 48.50 | 0.63 |
| 0.75 | NA | 12.75 | 2.92 | 24.75 | 1.46 | 36.75 | 1.04 | 48.75 | 0.63 |
| 1.00 | NA | 13.00 | 2.92 | 25.00 | 1.46 | 37.00 | 1.04 | 49.00 | 0.63 |
| 1.25 | NA | 13.25 | 2.71 | 25.25 | 1.67 | 37.25 | 1.04 | 49.25 | 0.63 |
| 1.50 | NA | 13.50 | 2.29 | 25.50 | 1.67 | 37.50 | 1.04 | 49.50 | 0.63 |
| 1.75 | NA | 13.75 | 2.29 | 25.75 | 1.46 | 37.75 | 0.83 | 49.75 | 0.63 |
| 2.00 | NA | 14.00 | 2.29 | 26.00 | 1.46 | 38.00 | 1.04 | 50.00 | 0.63 |
| 2.25 | NA | 14.25 | 2.50 | 26.25 | 1.46 | 38.25 | 1.04 | 50.25 | 0.63 |
| 2.50 | NA | 14.50 | 2.08 | 26.50 | 1.46 | 38.50 | 0.83 | 50.50 | 0.42 |
| 2.75 | NA | 14.75 | 2.08 | 26.75 | 1.46 | 38.75 | 0.83 | 50.75 | 0.63 |
| 3.00 | NA | 15.00 | 1.88 | 27.00 | 1.25 | 39.00 | 0.63 | 51.00 | 0.42 |
| 3.25 | NA | 15.25 | 1.67 | 27.25 | 0.83 | 39.25 | 0.63 | 51.25 | 0.42 |
| 3.50 | NA | 15.50 | 1.46 | 27.50 | 0.63 | 39.50 | 0.63 | 51.50 | 0.63 |
| 3.75 | NA | 15.75 | 1.46 | 27.75 | 0.63 | 39.75 | 0.42 | 51.75 | 0.63 |
| 4.00 | NA | 16.00 | 1.46 | 28.00 | 0.83 | 40.00 | 0.42 | 52.00 | 0.42 |
| 4.25 | NA | 16.25 | 1.46 | 28.25 | 1.04 | 40.25 | 0.42 | 52.25 | 0.42 |
| 4.50 | NA | 16.50 | 1.46 | 28.50 | 1.04 | 40.50 | 0.63 | 52.50 | 0.42 |
| 4.75 | NA | 16.75 | 1.25 | 28.75 | 0.83 | 40.75 | 0.63 | 52.75 | 0.42 |
| 5.00 | NA | 17.00 | 1.46 | 29.00 | 0.83 | 41.00 | 0.63 | 53.00 | 0.42 |
| 5.25 | NA | 17.25 | 1.46 | 29.25 | 0.83 | 41.25 | 0.63 | 53.25 | 0.42 |
| 5.50 | NA | 17.50 | 1.67 | 29.50 | 1.04 | 41.50 | 0.63 | 53.50 | 0.42 |
| 5.75 | NA | 17.75 | 1.67 | 29.75 | 1.04 | 41.75 | 0.63 | 53.75 | 0.42 |
| 6.00 | 1.88 | 18.00 | 1.67 | 30.00 | 1.04 | 42.00 | 0.42 | 54.00 | 0.42 |
| 6.25 | 1.67 | 18.25 | 1.46 | 30.25 | 1.25 | 42.25 | 0.42 | 54.25 | 0.42 |
| 6.50 | 1.88 | 18.50 | 1.46 | 30.50 | 1.25 | 42.50 | 0.63 | 54.50 | 0.63 |
| 6.75 | 1.67 | 18.75 | 1.46 | 30.75 | 1.25 | 42.75 | 0.63 | 54.75 | 0.63 |
| 7.00 | 1.88 | 19.00 | 1.25 | 31.00 | 1.25 | 43.00 | 0.63 | 55.00 | 0.63 |
| 7.25 | 2.08 | 19.25 | 1.25 | 31.25 | 1.04 | 43.25 | 0.63 | 55.25 | 0.83 |
| 7.50 | 2.50 | 19.50 | 1.25 | 31.50 | 1.04 | 43.50 | 0.63 | 55.50 | 1.04 |
| 7.75 | 2.50 | 19.75 | 1.46 | 31.75 | 1.25 | 43.75 | 0.63 | 55.75 | 1.04 |
| 8.00 | 2.50 | 20.00 | 1.25 | 32.00 | 1.25 | 44.00 | 0.42 | 56.00 | 1.04 |
| 8.25 | 2.50 | 20.25 | 1.25 | 32.25 | 1.04 | 44.25 | 0.42 | 56.25 | 1.04 |
| 8.50 | 3.13 | 20.50 | 1.04 | 32.50 | 1.25 | 44.50 | 0.63 | 56.50 | 1.04 |
| 8.75 | 2.92 | 20.75 | 1.04 | 32.75 | 1.25 | 44.75 | 0.63 | 56.75 | 0.83 |
| 9.00 | 2.92 | 21.00 | 1.25 | 33.00 | 1.46 | 45.00 | 0.83 | 57.00 | 0.83 |
| 9.25 | 3.13 | 21.25 | 1.67 | 33.25 | 1.46 | 45.25 | 0.83 | 57.25 | 0.83 |
| 9.50 | 3.33 | 21.50 | 1.88 | 33.50 | 1.46 | 45.50 | 0.83 | 57.50 | 0.83 |
| 9.75 | 3.54 | 21.75 | 1.67 | 33.75 | 1.67 | 45.75 | 0.83 | 57.75 | 0.83 |
| 10.00 | 3.33 | 22.00 | 1.67 | 34.00 | 1.46 | 46.00 | 1.04 | 58.00 | 0.83 |
| 10.25 | 3.13 | 22.25 | 1.67 | 34.25 | 1.25 | 46.25 | 1.04 | 58.25 | 0.83 |
| 10.50 | 3.13 | 22.50 | 1.67 | 34.50 | 1.25 | 46.50 | 0.83 | 58.50 | 0.83 |
| 10.75 | 3.13 | 22.75 | 1.88 | 34.75 | 1.25 | 46.75 | 0.83 | 58.75 | 0.83 |
| 11.00 | 3.13 | 23.00 | 1.67 | 35.00 | 1.25 | 47.00 | 0.83 | 59.00 | 0.83 |
| 11.25 | 3.13 | 23.25 | 1.67 | 35.25 | 1.25 | 47.25 | 0.83 | 59.25 | 0.83 |
| 11.50 | 3.13 | 23.50 | 1.46 | 35.50 | 1.04 | 47.50 | 0.83 | 59.50 | NA* |
| 11.75 | 2.92 | 23.75 | 1.46 | 35.75 | 1.04 | 47.75 | 0.83 | 59.75 | NA* |
| 12.00 | 2.92 | 24.00 | 1.46 | 36.00 | 1.25 | 48.00 | 0.83 | 60.00 | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 2.92
AVERAGE OPACITY DURING RUN = 1.29
HIGHEST SIX-MINUTE ROLLING AVERAGE = 3.54

* 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: 8/19/97
Start Time: 1107
Stop Time: 1207

Baghouse Outlet
Run Number: O-M9-1B

| 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 | 0.83 | 24.25 | 0.63 | 36.25 | 0.21 | 48.25 | 0.63 |
| 0.50 | NA | 12.50 | 1.04 | 24.50 | 0.63 | 36.50 | 0.21 | 48.50 | 0.63 |
| 0.75 | NA | 12.75 | 1.04 | 24.75 | 0.63 | 36.75 | 0.21 | 48.75 | 0.83 |
| 1.00 | NA | 13.00 | 1.04 | 25.00 | 0.42 | 37.00 | 0.21 | 49.00 | 0.83 |
| 1.25 | NA | 13.25 | 1.04 | 25.25 | 0.42 | 37.25 | 0.63 | 49.25 | 0.83 |
| 1.50 | NA | 13.50 | 1.04 | 25.50 | 0.42 | 37.50 | 0.63 | 49.50 | 0.83 |
| 1.75 | NA | 13.75 | 1.04 | 25.75 | 0.42 | 37.75 | 0.83 | 49.75 | 0.83 |
| 2.00 | NA | 14.00 | 1.04 | 26.00 | 0.63 | 38.00 | 0.83 | 50.00 | 1.04 |
| 2.25 | NA | 14.25 | 1.04 | 26.25 | 0.63 | 38.25 | 1.04 | 50.25 | 1.04 |
| 2.50 | NA | 14.50 | 1.04 | 26.50 | 0.63 | 38.50 | 1.04 | 50.50 | 1.04 |
| 2.75 | NA | 14.75 | 1.04 | 26.75 | 0.63 | 38.75 | 1.04 | 50.75 | 1.04 |
| 3.00 | NA | 15.00 | 1.04 | 27.00 | 0.63 | 39.00 | 1.04 | 51.00 | 0.83 |
| 3.25 | NA | 15.25 | 1.25 | 27.25 | 0.42 | 39.25 | 1.04 | 51.25 | 0.83 |
| 3.50 | NA | 15.50 | 1.04 | 27.50 | 0.42 | 39.50 | 1.04 | 51.50 | 0.83 |
| 3.75 | NA | 15.75 | 1.04 | 27.75 | 0.42 | 39.75 | 1.04 | 51.75 | 0.83 |
| 4.00 | NA | 16.00 | 1.04 | 28.00 | 0.42 | 40.00 | 1.04 | 52.00 | 1.04 |
| 4.25 | NA | 16.25 | 1.04 | 28.25 | 0.42 | 40.25 | 1.04 | 52.25 | 1.04 |
| 4.50 | NA | 16.50 | 0.83 | 28.50 | 0.42 | 40.50 | 1.04 | 52.50 | 0.83 |
| 4.75 | NA | 16.75 | 0.83 | 28.75 | 0.42 | 40.75 | 1.25 | 52.75 | 0.83 |
| 5.00 | NA | 17.00 | 0.83 | 29.00 | 0.63 | 41.00 | 1.46 | 53.00 | 0.63 |
| 5.25 | NA | 17.25 | 0.63 | 29.25 | 0.63 | 41.25 | 1.46 | 53.25 | 0.63 |
| 5.50 | NA | 17.50 | 0.63 | 29.50 | 0.63 | 41.50 | 1.46 | 53.50 | 0.63 |
| 5.75 | NA | 17.75 | 0.63 | 29.75 | 0.63 | 41.75 | 1.46 | 53.75 | 0.63 |
| **6.00** | **1.25** | **18.00** | **0.63** | **30.00** | **0.42** | **42.00** | **1.46** | **54.00** | **0.83** |
| 6.25 | 1.04 | 18.25 | 0.63 | 30.25 | 0.63 | 42.25 | 1.67 | 54.25 | 0.83 |
| 6.50 | 1.04 | 18.50 | 0.42 | 30.50 | 0.63 | 42.50 | 1.67 | 54.50 | 1.04 |
| 6.75 | 1.04 | 18.75 | 0.42 | 30.75 | 0.63 | 42.75 | 1.67 | 54.75 | 0.83 |
| 7.00 | 1.04 | 19.00 | 0.63 | 31.00 | 0.63 | 43.00 | 1.67 | 55.00 | 0.83 |
| 7.25 | 1.04 | 19.25 | 0.63 | 31.25 | 0.63 | 43.25 | 1.25 | 55.25 | 0.83 |
| 7.50 | 1.04 | 19.50 | 0.63 | 31.50 | 0.63 | 43.50 | 1.25 | 55.50 | 1.04 |
| 7.75 | 1.04 | 19.75 | 0.63 | 31.75 | 0.63 | 43.75 | 1.04 | 55.75 | 1.04 |
| 8.00 | 1.04 | 20.00 | 0.63 | 32.00 | 0.42 | 44.00 | 1.04 | 56.00 | 0.83 |
| 8.25 | 1.04 | 20.25 | 0.63 | 32.25 | 0.42 | 44.25 | 0.83 | 56.25 | 0.83 |
| 8.50 | 1.04 | 20.50 | 0.63 | 32.50 | 0.42 | 44.50 | 0.83 | 56.50 | 0.83 |
| 8.75 | 0.83 | 20.75 | 0.63 | 32.75 | 0.42 | 44.75 | 0.83 | 56.75 | NA* |
| 9.00 | 0.83 | 21.00 | 0.63 | 33.00 | 0.42 | 45.00 | 1.04 | 57.00 | NA* |
| 9.25 | 0.83 | 21.25 | 0.63 | 33.25 | 0.42 | 45.25 | 1.04 | 57.25 | NA* |
| 9.50 | 0.83 | 21.50 | 0.63 | 33.50 | 0.63 | 45.50 | 0.83 | 57.50 | NA* |
| 9.75 | 0.63 | 21.75 | 0.63 | 33.75 | 0.63 | 45.75 | 0.83 | 57.75 | NA* |
| 10.00 | 0.42 | 22.00 | 0.63 | 34.00 | 0.63 | 46.00 | 0.83 | 58.00 | NA* |
| 10.25 | 0.42 | 22.25 | 0.63 | 34.25 | 0.63 | 46.25 | 0.83 | 58.25 | NA* |
| 10.50 | 0.63 | 22.50 | 0.63 | 34.50 | 0.63 | 46.50 | 1.04 | 58.50 | NA* |
| 10.75 | 0.83 | 22.75 | 0.42 | 34.75 | 0.63 | 46.75 | 0.83 | 58.75 | NA* |
| 11.00 | 0.83 | 23.00 | 0.42 | 35.00 | 0.42 | 47.00 | 0.83 | 59.00 | NA* |
| 11.25 | 0.83 | 23.25 | 0.42 | 35.25 | 0.42 | 47.25 | 0.83 | 59.25 | NA* |
| 11.50 | 0.83 | 23.50 | 0.42 | 35.50 | 0.42 | 47.50 | 0.83 | 59.50 | NA* |
| 11.75 | 0.83 | 23.75 | 0.42 | 35.75 | 0.42 | 47.75 | 0.83 | 59.75 | NA* |
| **12.00** | **0.83** | **24.00** | **0.63** | **36.00** | **0.42** | **48.00** | **0.83** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.46
AVERAGE OPACITY DURING RUN = 0.82
HIGHEST SIX-MINUTE ROLLING AVERAGE = 1.67

* 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: 8/19/97

Start Time: 1304 Baghouse Outlet

Stop Time: 1404 Run Number: O-M9-1C

| 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 | 1.67 | 24.25 | 2.71 | 36.25 | 3.54 | 48.25 | 2.92 |
| 0.50 | NA | 12.50 | 1.88 | 24.50 | 2.50 | 36.50 | 3.33 | 48.50 | 2.71 |
| 0.75 | NA | 12.75 | 1.88 | 24.75 | 2.29 | 36.75 | 3.33 | 48.75 | 2.71 |
| 1.00 | NA | 13.00 | 2.08 | 25.00 | 2.29 | 37.00 | 3.33 | 49.00 | 2.50 |
| 1.25 | NA | 13.25 | 2.08 | 25.25 | 2.29 | 37.25 | 3.13 | 49.25 | 2.50 |
| 1.50 | NA | 13.50 | 1.88 | 25.50 | 2.29 | 37.50 | 3.33 | 49.50 | 2.71 |
| 1.75 | NA | 13.75 | 2.08 | 25.75 | 2.08 | 37.75 | 3.54 | 49.75 | 2.71 |
| 2.00 | NA | 14.00 | 2.08 | 26.00 | 2.29 | 38.00 | 3.75 | 50.00 | 2.50 |
| 2.25 | NA | 14.25 | 2.08 | 26.25 | 2.29 | 38.25 | 3.54 | 50.25 | 2.29 |
| 2.50 | NA | 14.50 | 2.08 | 26.50 | 2.50 | 38.50 | 3.54 | 50.50 | 2.29 |
| 2.75 | NA | 14.75 | 1.88 | 26.75 | 2.50 | 38.75 | 3.54 | 50.75 | 2.50 |
| 3.00 | NA | 15.00 | 1.88 | 27.00 | 2.71 | 39.00 | 3.54 | 51.00 | 2.50 |
| 3.25 | NA | 15.25 | 2.08 | 27.25 | 2.92 | 39.25 | 3.54 | 51.25 | 2.92 |
| 3.50 | NA | 15.50 | 1.88 | 27.50 | 2.71 | 39.50 | 3.54 | 51.50 | 2.92 |
| 3.75 | NA | 15.75 | 1.88 | 27.75 | 2.50 | 39.75 | 3.54 | 51.75 | 2.71 |
| 4.00 | NA | 16.00 | 1.88 | 28.00 | 2.50 | 40.00 | 3.33 | 52.00 | 2.92 |
| 4.25 | NA | 16.25 | 1.88 | 28.25 | 2.50 | 40.25 | 3.13 | 52.25 | 2.92 |
| 4.50 | NA | 16.50 | 2.08 | 28.50 | 2.50 | 40.50 | 3.13 | 52.50 | 3.13 |
| 4.75 | NA | 16.75 | 2.29 | 28.75 | 2.50 | 40.75 | 3.13 | 52.75 | NA* |
| 5.00 | NA | 17.00 | 2.29 | 29.00 | 2.50 | 41.00 | 3.13 | 53.00 | NA* |
| 5.25 | NA | 17.25 | 2.29 | 29.25 | 2.50 | 41.25 | 3.33 | 53.25 | NA* |
| 5.50 | NA | 17.50 | 2.50 | 29.50 | 2.50 | 41.50 | 3.13 | 53.50 | NA* |
| 5.75 | NA | 17.75 | 2.50 | 29.75 | 2.29 | 41.75 | 2.92 | 53.75 | NA* |
| **6.00** | **2.50** | **18.00** | **2.50** | **30.00** | **2.71** | **42.00** | **2.71** | **54.00** | **NA*** |
| 6.25 | 2.29 | 18.25 | 2.71 | 30.25 | 2.71 | 42.25 | 2.71 | 54.25 | NA* |
| 6.50 | 2.29 | 18.50 | 2.71 | 30.50 | 2.92 | 42.50 | 2.92 | 54.50 | NA* |
| 6.75 | 2.29 | 18.75 | 2.92 | 30.75 | 3.13 | 42.75 | 2.92 | 54.75 | NA* |
| 7.00 | 2.08 | 19.00 | 2.71 | 31.00 | 3.33 | 43.00 | 2.92 | 55.00 | NA* |
| 7.25 | 1.88 | 19.25 | 2.71 | 31.25 | 3.54 | 43.25 | 3.13 | 55.25 | NA* |
| 7.50 | 2.08 | 19.50 | 2.92 | 31.50 | 3.33 | 43.50 | 2.92 | 55.50 | NA* |
| 7.75 | 1.88 | 19.75 | 2.92 | 31.75 | 3.54 | 43.75 | 2.71 | 55.75 | NA* |
| 8.00 | 1.88 | 20.00 | 2.92 | 32.00 | 3.33 | 44.00 | 2.71 | 56.00 | NA* |
| 8.25 | 1.46 | 20.25 | 2.92 | 32.25 | 3.54 | 44.25 | 2.92 | 56.25 | NA* |
| 8.50 | 1.46 | 20.50 | 2.71 | 32.50 | 3.54 | 44.50 | 2.92 | 56.50 | NA* |
| 8.75 | 1.67 | 20.75 | 2.92 | 32.75 | 3.33 | 44.75 | 2.92 | 56.75 | NA* |
| 9.00 | 1.67 | 21.00 | 3.13 | 33.00 | 2.92 | 45.00 | 3.13 | 57.00 | NA* |
| 9.25 | 1.67 | 21.25 | 2.92 | 33.25 | 2.92 | 45.25 | 2.92 | 57.25 | NA* |
| 9.50 | 1.88 | 21.50 | 3.13 | 33.50 | 2.92 | 45.50 | 3.13 | 57.50 | NA* |
| 9.75 | 1.67 | 21.75 | 3.33 | 33.75 | 3.13 | 45.75 | 3.13 | 57.75 | NA* |
| 10.00 | 1.88 | 22.00 | 3.13 | 34.00 | 3.33 | 46.00 | 3.13 | 58.00 | NA* |
| 10.25 | 1.88 | 22.25 | 3.13 | 34.25 | 3.33 | 46.25 | 3.33 | 58.25 | NA* |
| 10.50 | 2.08 | 22.50 | 2.71 | 34.50 | 3.54 | 46.50 | 3.13 | 58.50 | NA* |
| 10.75 | 1.88 | 22.75 | 2.50 | 34.75 | 3.54 | 46.75 | 3.33 | 58.75 | NA* |
| 11.00 | 1.88 | 23.00 | 2.50 | 35.00 | 3.54 | 47.00 | 3.33 | 59.00 | NA* |
| 11.25 | 1.67 | 23.25 | 2.71 | 35.25 | 3.33 | 47.25 | 3.13 | 59.25 | NA* |
| 11.50 | 1.67 | 23.50 | 2.71 | 35.50 | 3.33 | 47.50 | 3.33 | 59.50 | NA* |
| 11.75 | 1.88 | 23.75 | 2.71 | 35.75 | 3.75 | 47.75 | 3.13 | 59.75 | NA* |
| **12.00** | **1.67** | **24.00** | **2.71** | **36.00** | **3.54** | **48.00** | **3.13** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 3.61 AVERAGE OPACITY DURING RUN = 2.76

HIGHEST SIX-MINUTE ROLLING AVERAGE = 3.75

* 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: 8/19/97
Start Time: 1412
Stop Time: 1512

Baghouse Outlet
Run Number: O-M9-1D

| 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 | 3.54 | 24.25 | 3.54 | 36.25 | 2.50 | 48.25 | 6.25 |
| 0.50 | NA | 12.50 | 3.33 | 24.50 | 3.54 | 36.50 | 2.29 | 48.50 | 6.25 |
| 0.75 | NA | 12.75 | 3.33 | 24.75 | 3.33 | 36.75 | 2.29 | 48.75 | 6.25 |
| 1.00 | NA | 13.00 | 3.33 | 25.00 | 3.13 | 37.00 | 2.29 | 49.00 | 6.25 |
| 1.25 | NA | 13.25 | 3.54 | 25.25 | 3.13 | 37.25 | 2.29 | 49.25 | 6.25 |
| 1.50 | NA | 13.50 | 3.33 | 25.50 | 2.92 | 37.50 | 2.29 | 49.50 | 6.04 |
| 1.75 | NA | 13.75 | 3.54 | 25.75 | 3.13 | 37.75 | 2.50 | 49.75 | 5.83 |
| 2.00 | NA | 14.00 | 3.54 | 26.00 | 3.13 | 38.00 | 2.50 | 50.00 | 5.63 |
| 2.25 | NA | 14.25 | 3.33 | 26.25 | 3.33 | 38.25 | 2.50 | 50.25 | 5.42 |
| 2.50 | NA | 14.50 | 3.54 | 26.50 | 3.33 | 38.50 | 2.50 | 50.50 | 5.42 |
| 2.75 | NA | 14.75 | 3.33 | 26.75 | 3.54 | 38.75 | 2.50 | 50.75 | 5.42 |
| 3.00 | NA | 15.00 | 3.33 | 27.00 | 3.54 | 39.00 | 2.50 | 51.00 | 5.42 |
| 3.25 | NA | 15.25 | 3.54 | 27.25 | 3.13 | 39.25 | 2.71 | 51.25 | 5.21 |
| 3.50 | NA | 15.50 | 3.75 | 27.50 | 3.13 | 39.50 | 2.71 | 51.50 | 5.00 |
| 3.75 | NA | 15.75 | 3.96 | 27.75 | 3.13 | 39.75 | 2.92 | 51.75 | 4.79 |
| 4.00 | NA | 16.00 | 3.75 | 28.00 | 3.13 | 40.00 | 2.92 | 52.00 | 4.58 |
| 4.25 | NA | 16.25 | 3.96 | 28.25 | 3.13 | 40.25 | 2.71 | 52.25 | NA* |
| 4.50 | NA | 16.50 | 3.75 | 28.50 | 3.13 | 40.50 | 2.92 | 52.50 | NA* |
| 4.75 | NA | 16.75 | 3.75 | 28.75 | 3.13 | 40.75 | 3.13 | 52.75 | NA* |
| 5.00 | NA | 17.00 | 3.75 | 29.00 | 3.54 | 41.00 | 3.13 | 53.00 | NA* |
| 5.25 | NA | 17.25 | 3.75 | 29.25 | 3.54 | 41.25 | 3.13 | 53.25 | NA* |
| 5.50 | NA | 17.50 | 3.75 | 29.50 | 3.33 | 41.50 | 3.13 | 53.50 | NA* |
| 5.75 | NA | 17.75 | 3.75 | 29.75 | 3.54 | 41.75 | 3.33 | 53.75 | NA* |
| **6.00** | **2.29** | **18.00** | **3.75** | **30.00** | **3.75** | **42.00** | **3.54** | **54.00** | **NA*** |
| 6.25 | 2.29 | 18.25 | 3.75 | 30.25 | 3.75 | 42.25 | 3.75 | 54.25 | NA* |
| 6.50 | 2.29 | 18.50 | 3.96 | 30.50 | 3.75 | 42.50 | 3.96 | 54.50 | NA* |
| 6.75 | 2.50 | 18.75 | 3.96 | 30.75 | 3.96 | 42.75 | 3.96 | 54.75 | NA* |
| 7.00 | 2.29 | 19.00 | 4.17 | 31.00 | 4.17 | 43.00 | 3.96 | 55.00 | NA* |
| 7.25 | 2.08 | 19.25 | 4.17 | 31.25 | 4.17 | 43.25 | 3.96 | 55.25 | NA* |
| 7.50 | 2.29 | 19.50 | 4.38 | 31.50 | 4.38 | 43.50 | 4.17 | 55.50 | NA* |
| 7.75 | 2.29 | 19.75 | 4.17 | 31.75 | 4.17 | 43.75 | 4.38 | 55.75 | NA* |
| 8.00 | 2.29 | 20.00 | 4.17 | 32.00 | 4.17 | 44.00 | 4.58 | 56.00 | NA* |
| 8.25 | 2.50 | 20.25 | 4.17 | 32.25 | 4.17 | 44.25 | 4.79 | 56.25 | NA* |
| 8.50 | 2.29 | 20.50 | 4.17 | 32.50 | 3.96 | 44.50 | 5.00 | 56.50 | NA* |
| 8.75 | 2.50 | 20.75 | 4.17 | 32.75 | 3.96 | 44.75 | 5.00 | 56.75 | NA* |
| 9.00 | 2.29 | 21.00 | 4.17 | 33.00 | 3.75 | 45.00 | 5.21 | 57.00 | NA* |
| 9.25 | 2.29 | 21.25 | 4.38 | 33.25 | 3.75 | 45.25 | 5.21 | 57.25 | NA* |
| 9.50 | 2.08 | 21.50 | 4.38 | 33.50 | 3.54 | 45.50 | 5.63 | 57.50 | NA* |
| 9.75 | 2.29 | 21.75 | 3.96 | 33.75 | 3.54 | 45.75 | 5.63 | 57.75 | NA* |
| 10.00 | 2.50 | 22.00 | 4.17 | 34.00 | 3.54 | 46.00 | 5.83 | 58.00 | NA* |
| 10.25 | 2.29 | 22.25 | 4.17 | 34.25 | 3.54 | 46.25 | 6.25 | 58.25 | NA* |
| 10.50 | 2.29 | 22.50 | 4.17 | 34.50 | 3.54 | 46.50 | 6.25 | 58.50 | NA* |
| 10.75 | 2.50 | 22.75 | 4.17 | 34.75 | 3.33 | 46.75 | 6.25 | 58.75 | NA* |
| 11.00 | 2.71 | 23.00 | 3.96 | 35.00 | 2.92 | 47.00 | 6.46 | 59.00 | NA* |
| 11.25 | 2.92 | 23.25 | 3.96 | 35.25 | 2.92 | 47.25 | 6.46 | 59.25 | NA* |
| 11.50 | 3.13 | 23.50 | 3.96 | 35.50 | 3.13 | 47.50 | 6.46 | 59.50 | NA* |
| 11.75 | 3.33 | 23.75 | 3.75 | 35.75 | 2.92 | 47.75 | 6.46 | 59.75 | NA* |
| **12.00** | **3.54** | **24.00** | **3.54** | **36.00** | **2.71** | **48.00** | **6.25** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 6.25
HIGHEST SIX-MINUTE ROLLING AVERAGE = 6.46

AVERAGE OPACITY DURING RUN = 3.73

* 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.

## Visible Emission Observation Summary

Baghouse Outlet

| Run Number | O-M9-2A | O-M9-2B | O-M9-2C | O-M9-2D |
|---|---|---|---|---|
| Date | 8/20/97 | 8/20/97 | 8/20/97 | 8/20/97 |
| Start Time | 0824 | 0930 | 1035 | 1140 |
| Stop Time | 0924 | 1030 | 1135 | 1240 |
| | | | | |
| Percent Opacity | | | | |
| Average for entire run | 0.80 | 1.19 | 1.54 | 1.29 |
| Highest single reading | 10 | 15 | 20 | 15 |
| Highest six-minute block average | 1.36 | 2.39 | 2.95 | 2.62 |
| Highest six-minute rolling average | 1.59 | 2.83 | 3.70 | 2.75 |

Date: 8/20/97
Start Time: 0824
Stop Time: 0924

Baghouse Outlet
Run Number: O-M9-2A

| 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 | 0.42 | 24.25 | 0.42 | 36.25 | 1.14 | 48.25 | 1.43 |
| 0.50 | NA | 12.50 | 0.42 | 24.50 | 0.42 | 36.50 | 0.91 | 48.50 | 1.50 |
| 0.75 | NA | 12.75 | 0.63 | 24.75 | 0.42 | 36.75 | 1.14 | 48.75 | 1.50 |
| 1.00 | NA | 13.00 | 0.63 | 25.00 | 0.63 | 37.00 | 1.14 | 49.00 | 1.50 |
| 1.25 | NA | 13.25 | 0.83 | 25.25 | 0.63 | 37.25 | 1.30 | 49.25 | 1.50 |
| 1.50 | NA | 13.50 | 0.83 | 25.50 | 0.63 | 37.50 | 1.36 | 49.50 | 1.50 |
| 1.75 | NA | 13.75 | 0.87 | 25.75 | 0.63 | 37.75 | 1.30 | 49.75 | 1.50 |
| 2.00 | NA | 14.00 | 0.87 | 26.00 | 0.63 | 38.00 | 1.52 | 50.00 | 1.25 |
| 2.25 | NA | 14.25 | 0.91 | 26.25 | 0.63 | 38.25 | 1.52 | 50.25 | 1.50 |
| 2.50 | NA | 14.50 | 0.91 | 26.50 | 0.63 | 38.50 | 1.59 | 50.50 | 1.50 |
| 2.75 | NA | 14.75 | 0.91 | 26.75 | 0.83 | 38.75 | 1.43 | 50.75 | 1.25 |
| 3.00 | NA | 15.00 | 0.91 | 27.00 | 0.63 | 39.00 | 1.43 | 51.00 | 1.00 |
| 3.25 | NA | 15.25 | 0.68 | 27.25 | 0.63 | 39.25 | 1.43 | 51.25 | 0.50 |
| 3.50 | NA | 15.50 | 0.68 | 27.50 | 0.63 | 39.50 | 1.43 | 51.50 | 0.50 |
| 3.75 | NA | 15.75 | 0.68 | 27.75 | 0.63 | 39.75 | 1.19 | 51.75 | 0.53 |
| 4.00 | NA | 16.00 | 0.68 | 28.00 | 0.63 | 40.00 | 1.19 | 52.00 | 0.53 |
| 4.25 | NA | 16.25 | 0.68 | 28.25 | 0.43 | 40.25 | 0.95 | 52.25 | 0.53 |
| 4.50 | NA | 16.50 | 0.45 | 28.50 | 0.45 | 40.50 | 1.19 | 52.50 | 0.26 |
| 4.75 | NA | 16.75 | 0.68 | 28.75 | 0.45 | 40.75 | 1.43 | 52.75 | 0.26 |
| 5.00 | NA | 17.00 | 0.68 | 29.00 | 0.48 | 41.00 | 1.43 | 53.00 | 0.26 |
| 5.25 | NA | 17.25 | 0.68 | 29.25 | 0.50 | 41.25 | 1.43 | 53.25 | 0.28 |
| 5.50 | NA | 17.50 | 0.68 | 29.50 | 0.50 | 41.50 | 1.43 | 53.50 | 0.28 |
| 5.75 | NA | 17.75 | 0.68 | 29.75 | 0.50 | 41.75 | 1.43 | 53.75 | 0.26 |
| **6.00** | **0.83** | **18.00** | **0.68** | **30.00** | **0.75** | **42.00** | **1.19** | **54.00** | **0.26** |
| 6.25 | 0.83 | 18.25 | 0.68 | 30.25 | 0.79 | 42.25 | 1.19 | 54.25 | 0.25 |
| 6.50 | 0.83 | 18.50 | 0.68 | 30.50 | 1.05 | 42.50 | 1.19 | 54.50 | 0.24 |
| 6.75 | 0.83 | 18.75 | 0.45 | 30.75 | 1.05 | 42.75 | 0.95 | 54.75 | 0.24 |
| 7.00 | 0.83 | 19.00 | 0.45 | 31.00 | 0.79 | 43.00 | 0.95 | 55.00 | 0.24 |
| 7.25 | 0.83 | 19.25 | 0.23 | 31.25 | 0.83 | 43.25 | 0.71 | 55.25 | 0.48 |
| 7.50 | 0.83 | 19.50 | 0.23 | 31.50 | 0.83 | 43.50 | 0.68 | 55.50 | 0.48 |
| 7.75 | 0.83 | 19.75 | 0.22 | 31.75 | 0.88 | 43.75 | 0.68 | 55.75 | 0.50 |
| 8.00 | 0.63 | 20.00 | 0.22 | 32.00 | 0.88 | 44.00 | 0.68 | 56.00 | 0.50 |
| 8.25 | 0.63 | 20.25 | 0.21 | 32.25 | 0.88 | 44.25 | 0.68 | 56.25 | 0.25 |
| 8.50 | 0.63 | 20.50 | 0.21 | 32.50 | 0.88 | 44.50 | 0.65 | 56.50 | 0.25 |
| 8.75 | 0.42 | 20.75 | 0.21 | 32.75 | 0.88 | 44.75 | 0.83 | 56.75 | 0.25 |
| 9.00 | 0.42 | 21.00 | 0.42 | 33.00 | 0.88 | 45.00 | 1.04 | 57.00 | 0.50 |
| 9.25 | 0.63 | 21.25 | 0.42 | 33.25 | 0.88 | 45.25 | 1.46 | 57.25 | 0.50 |
| 9.50 | 0.63 | 21.50 | 0.42 | 33.50 | 0.88 | 45.50 | 1.46 | 57.50 | 0.50 |
| 9.75 | 0.63 | 21.75 | 0.42 | 33.75 | 1.18 | 45.75 | 1.46 | 57.75 | 0.71 |
| 10.00 | 0.63 | 22.00 | 0.42 | 34.00 | 1.18 | 46.00 | 1.46 | 58.00 | 0.71 |
| 10.25 | 0.42 | 22.25 | 0.63 | 34.25 | 1.39 | 46.25 | 1.46 | 58.25 | 0.71 |
| 10.50 | 0.42 | 22.50 | 0.63 | 34.50 | 1.32 | 46.50 | 1.46 | 58.50 | 0.71 |
| 10.75 | 0.42 | 22.75 | 0.42 | 34.75 | 1.32 | 46.75 | 1.25 | 58.75 | 0.95 |
| 11.00 | 0.42 | 23.00 | 0.42 | 35.00 | 1.25 | 47.00 | 1.25 | 59.00 | 0.95 |
| 11.25 | 0.42 | 23.25 | 0.42 | 35.25 | 1.19 | 47.25 | 1.25 | 59.25 | 0.91 |
| 11.50 | 0.42 | 23.50 | 0.42 | 35.50 | 1.19 | 47.50 | 1.30 | 59.50 | NA* |
| 11.75 | 0.42 | 23.75 | 0.42 | 35.75 | 1.19 | 47.75 | 1.36 | 59.75 | NA* |
| **12.00** | **0.42** | **24.00** | **0.42** | **36.00** | **1.19** | **48.00** | **1.36** | **60.00** | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.36
HIGHEST SIX-MINUTE ROLLING AVERAGE = 1.59
AVERAGE OPACITY DURING RUN = 0.80

* 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: 8/20/97

Start Time: 0930

Stop Time: 1030

Baghouse Outlet

Run Number: O-M9-2B

| 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 | 0.24 | 24.25 | 0.91 | 36.25 | 1.30 | 48.25 | 2.39 |
| 0.50 | NA | 12.50 | 0.24 | 24.50 | 0.68 | 36.50 | 1.52 | 48.50 | 2.05 |
| 0.75 | NA | 12.75 | 0.24 | 24.75 | 0.68 | 36.75 | 1.52 | 48.75 | 2.27 |
| 1.00 | NA | 13.00 | 0.24 | 25.00 | 0.68 | 37.00 | 1.09 | 49.00 | 2.73 |
| 1.25 | NA | 13.25 | 0.24 | 25.25 | 0.68 | 37.25 | 1.74 | 49.25 | 2.73 |
| 1.50 | NA | 13.50 | 0.24 | 25.50 | 0.68 | 37.50 | 1.52 | 49.50 | 2.73 |
| 1.75 | NA | 13.75 | 0.24 | 25.75 | 0.68 | 37.75 | 1.52 | 49.75 | 2.61 |
| 2.00 | NA | 14.00 | 0.24 | 26.00 | 0.68 | 38.00 | 1.52 | 50.00 | 2.83 |
| 2.25 | NA | 14.25 | 0.25 | 26.25 | 0.68 | 38.25 | 1.52 | 50.25 | 2.61 |
| 2.50 | NA | 14.50 | 0.25 | 26.50 | 0.23 | 38.50 | 1.52 | 50.50 | 2.39 |
| 2.75 | NA | 14.75 | 0.50 | 26.75 | 0.23 | 38.75 | 1.52 | 50.75 | 2.39 |
| 3.00 | NA | 15.00 | 0.50 | 27.00 | 0.22 | 39.00 | 1.52 | 51.00 | 2.17 |
| 3.25 | NA | 15.25 | 0.25 | 27.25 | 0.22 | 39.25 | 1.52 | 51.25 | 2.17 |
| 3.50 | NA | 15.50 | 0.25 | 27.50 | 0.22 | 39.50 | 1.52 | 51.50 | 2.17 |
| 3.75 | NA | 15.75 | 0.25 | 27.75 | 0.22 | 39.75 | 1.30 | 51.75 | 2.39 |
| 4.00 | NA | 16.00 | 0.25 | 28.00 | 0.22 | 40.00 | 1.30 | 52.00 | 2.39 |
| 4.25 | NA | 16.25 | 0.50 | 28.25 | 0.22 | 40.25 | 1.30 | 52.25 | 1.96 |
| 4.50 | NA | 16.50 | 0.50 | 28.50 | 0.22 | 40.50 | 1.30 | 52.50 | 1.96 |
| 4.75 | NA | 16.75 | 0.48 | 28.75 | 0.22 | 40.75 | 1.30 | 52.75 | 1.96 |
| 5.00 | NA | 17.00 | 0.45 | 29.00 | 0.22 | 41.00 | 1.30 | 53.00 | 1.96 |
| 5.25 | NA | 17.25 | 0.45 | 29.25 | 0.22 | 41.25 | 1.30 | 53.25 | 2.17 |
| 5.50 | NA | 17.50 | 0.45 | 29.50 | 0.22 | 41.50 | 1.30 | 53.50 | 2.17 |
| 5.75 | NA | 17.75 | 0.45 | 29.75 | 0.22 | 41.75 | 0.87 | 53.75 | 2.17 |
| **6.00** | **1.09** | **18.00** | **0.45** | **30.00** | **0.22** | **42.00** | **0.83** | **54.00** | **2.17** |
| 6.25 | 1.09 | 18.25 | 0.45 | 30.25 | 0.22 | 42.25 | 0.83 | 54.25 | 2.17 |
| 6.50 | 1.09 | 18.50 | 0.68 | 30.50 | 0.22 | 42.50 | 1.04 | 54.50 | 2.08 |
| 6.75 | 1.09 | 18.75 | 0.68 | 30.75 | 0.22 | 42.75 | 1.04 | 54.75 | 1.88 |
| 7.00 | 1.09 | 19.00 | 0.68 | 31.00 | 0.65 | 43.00 | 1.04 | 55.00 | 1.46 |
| 7.25 | 1.09 | 19.25 | 0.68 | 31.25 | 0.65 | 43.25 | 0.42 | 55.25 | 1.46 |
| 7.50 | 1.09 | 19.50 | 0.68 | 31.50 | 0.87 | 43.50 | 0.83 | 55.50 | 1.04 |
| 7.75 | 0.87 | 19.75 | 0.68 | 31.75 | 0.87 | 43.75 | 0.87 | 55.75 | 1.04 |
| 8.00 | 0.87 | 20.00 | 0.68 | 32.00 | 0.87 | 44.00 | 0.87 | 56.00 | 1.04 |
| 8.25 | 0.83 | 20.25 | 0.65 | 32.25 | 0.87 | 44.25 | 1.09 | 56.25 | 1.04 |
| 8.50 | 0.83 | 20.50 | 1.09 | 32.50 | 0.87 | 44.50 | 1.52 | 56.50 | 0.83 |
| 8.75 | 0.83 | 20.75 | 0.87 | 32.75 | 0.87 | 44.75 | 1.52 | 56.75 | NA* |
| 9.00 | 0.83 | 21.00 | 0.91 | 33.00 | 0.87 | 45.00 | 1.74 | 57.00 | NA* |
| 9.25 | 1.04 | 21.25 | 0.91 | 33.25 | 0.87 | 45.25 | 1.74 | 57.25 | NA* |
| 9.50 | 1.04 | 21.50 | 0.91 | 33.50 | 0.87 | 45.50 | 1.74 | 57.50 | NA* |
| 9.75 | 1.04 | 21.75 | 0.91 | 33.75 | 1.09 | 45.75 | 1.74 | 57.75 | NA* |
| 10.00 | 1.04 | 22.00 | 0.91 | 34.00 | 1.09 | 46.00 | 1.74 | 58.00 | NA* |
| 10.25 | 1.04 | 22.25 | 0.68 | 34.25 | 1.09 | 46.25 | 2.17 | 58.25 | NA* |
| 10.50 | 0.87 | 22.50 | 0.65 | 34.50 | 1.09 | 46.50 | 2.17 | 58.50 | NA* |
| 10.75 | 0.91 | 22.75 | 0.65 | 34.75 | 1.09 | 46.75 | 2.17 | 58.75 | NA* |
| 11.00 | 0.48 | 23.00 | 0.65 | 35.00 | 1.09 | 47.00 | 2.39 | 59.00 | NA* |
| 11.25 | 0.48 | 23.25 | 0.65 | 35.25 | 1.09 | 47.25 | 2.39 | 59.25 | NA* |
| 11.50 | 0.48 | 23.50 | 0.65 | 35.50 | 1.09 | 47.50 | 2.39 | 59.50 | NA* |
| 11.75 | 0.48 | 23.75 | 0.65 | 35.75 | 1.52 | 47.75 | 2.39 | 59.75 | NA* |
| **12.00** | **0.24** | **24.00** | **0.87** | **36.00** | **1.36** | **48.00** | **2.39** | **60.00** | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 2.39 AVERAGE OPACITY DURING RUN = 1.19

HIGHEST SIX-MINUTE ROLLING AVERAGE = 2.83

* 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: 8/20/97
Start Time: 1035
Stop Time: 1135

Baghouse Outlet
Run Number: O-M9-2C

| 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 | 1.67 | 24.25 | 1.43 | 36.25 | 2.27 | 48.25 | 1.58 |
| 0.50 | NA | 12.50 | 1.67 | 24.50 | 1.43 | 36.50 | 2.27 | 48.50 | 1.58 |
| 0.75 | NA | 12.75 | 1.67 | 24.75 | 1.19 | 36.75 | 2.27 | 48.75 | 1.32 |
| 1.00 | NA | 13.00 | 0.95 | 25.00 | 1.19 | 37.00 | 2.38 | 49.00 | 1.32 |
| 1.25 | NA | 13.25 | 0.95 | 25.25 | 0.71 | 37.25 | 2.38 | 49.25 | 1.32 |
| 1.50 | NA | 13.50 | 0.91 | 25.50 | 0.71 | 37.50 | 1.90 | 49.50 | 1.32 |
| 1.75 | NA | 13.75 | 1.14 | 25.75 | 0.75 | 37.75 | 1.90 | 49.75 | 0.53 |
| 2.00 | NA | 14.00 | 1.09 | 26.00 | 1.00 | 38.00 | 0.95 | 50.00 | 0.79 |
| 2.25 | NA | 14.25 | 1.14 | 26.25 | 1.00 | 38.25 | 1.43 | 50.25 | 1.00 |
| 2.50 | NA | 14.50 | 1.14 | 26.50 | 1.00 | 38.50 | 1.36 | 50.50 | 1.43 |
| 2.75 | NA | 14.75 | 1.14 | 26.75 | 1.00 | 38.75 | 1.36 | 50.75 | 1.67 |
| 3.00 | NA | 15.00 | 1.14 | 27.00 | 0.50 | 39.00 | 1.36 | 51.00 | 1.67 |
| 3.25 | NA | 15.25 | 1.14 | 27.25 | 0.75 | 39.25 | 1.36 | 51.25 | 1.67 |
| 3.50 | NA | 15.50 | 1.14 | 27.50 | 0.71 | 39.50 | 0.91 | 51.50 | 1.67 |
| 3.75 | NA | 15.75 | 0.68 | 27.75 | 0.68 | 39.75 | 1.14 | 51.75 | 1.59 |
| 4.00 | NA | 16.00 | 0.68 | 28.00 | 1.14 | 40.00 | 0.91 | 52.00 | 1.52 |
| 4.25 | NA | 16.25 | 0.68 | 28.25 | 1.14 | 40.25 | 0.91 | 52.25 | 1.52 |
| 4.50 | NA | 16.50 | 0.45 | 28.50 | 1.14 | 40.50 | 0.68 | 52.50 | 1.52 |
| 4.75 | NA | 16.75 | 0.45 | 28.75 | 1.59 | 40.75 | 1.14 | 52.75 | 1.46 |
| 5.00 | NA | 17.00 | 0.45 | 29.00 | 1.59 | 41.00 | 1.14 | 53.00 | 1.52 |
| 5.25 | NA | 17.25 | 0.43 | 29.25 | 1.59 | 41.25 | 1.14 | 53.25 | 1.52 |
| 5.50 | NA | 17.50 | 0.43 | 29.50 | 2.05 | 41.50 | 1.09 | 53.50 | 1.52 |
| 5.75 | NA | 17.75 | 0.45 | 29.75 | 1.82 | 41.75 | 1.09 | 53.75 | 1.09 |
| **6.00** | **2.06** | **18.00** | **0.45** | **30.00** | **1.82** | **42.00** | **1.09** | **54.00** | **1.14** |
| 6.25 | 2.06 | 18.25 | 0.48 | 30.25 | 2.39 | 42.25 | 1.14 | 54.25 | 1.14 |
| 6.50 | 1.76 | 18.50 | 0.48 | 30.50 | 2.39 | 42.50 | 1.14 | 54.50 | 1.14 |
| 6.75 | 1.67 | 18.75 | 0.71 | 30.75 | 2.39 | 42.75 | 1.36 | 54.75 | 1.19 |
| 7.00 | 2.50 | 19.00 | 0.71 | 31.00 | 2.39 | 43.00 | 1.30 | 55.00 | 1.19 |
| 7.25 | 2.37 | 19.25 | 1.19 | 31.25 | 2.39 | 43.25 | 1.30 | 55.25 | 1.19 |
| 7.50 | 2.50 | 19.50 | 1.19 | 31.50 | 2.83 | 43.50 | 1.30 | 55.50 | 1.19 |
| 7.75 | 2.50 | 19.75 | 0.95 | 31.75 | 2.71 | 43.75 | 1.96 | 55.75 | 1.19 |
| 8.00 | 2.06 | 20.00 | 0.95 | 32.00 | 3.33 | 44.00 | 1.96 | 56.00 | 1.00 |
| 8.25 | 2.06 | 20.25 | 0 91 | 32.25 | 3.33 | 44.25 | 1.59 | 56.25 | 0.75 |
| 8.50 | 1.94 | 20.50 | 0.91 | 32.50 | 3.48 | 44.50 | 1.67 | 56.50 | 1.00 |
| 8.75 | 1.84 | 20.75 | 0.91 | 32.75 | 3.48 | 44.75 | 1.67 | 56.75 | 0.75 |
| 9.00 | 1.75 | 21.00 | 1.36 | 33.00 | 3.48 | 45.00 | 1.67 | 57.00 | 0.75 |
| 9.25 | 1.67 | 21.25 | 1.36 | 33.25 | 3.26 | 45.25 | 1.67 | 57.25 | 0.75 |
| 9.50 | 1.67 | 21.50 | 1.43 | 33.50 | 3.70 | 45.50 | 1.67 | 57.50 | 0.75 |
| 9.75 | 2.38 | 21.75 | 1.25 | 33.75 | 3.70 | 45.75 | 1.50 | 57.75 | 0.75 |
| 10.00 | 1.67 | 22.00 | 1.25 | 34.00 | 3.48 | 46.00 | 1.58 | 58.00 | 0.79 |
| 10.25 | 1.67 | 22.25 | 1.25 | 34.25 | 3.48 | 46.25 | 1.58 | 58.25 | 0.79 |
| 10.50 | 1.90 | 22.50 | 1.25 | 34.50 | 3.70 | 46.50 | 1.58 | 58.50 | 0.79 |
| 10.75 | 1.67 | 22.75 | 1.25 | 34.75 | 3.26 | 46.75 | 1.11 | 58.75 | 0.83 |
| 11.00 | 1.67 | 23.00 | 1.25 | 35.00 | 3.26 | 47.00 | 1.11 | 59.00 | 0.79 |
| 11.25 | 1.75 | 23.25 | 1.25 | 35.25 | 3.26 | 47.25 | 1.11 | 59.25 | 0.79 |
| 11.50 | 1.67 | 23.50 | 1.25 | 35.50 | 2.95 | 47.50 | 1.11 | 59.50 | 1.32 |
| 11.75 | 1.67 | 23.75 | 1.43 | 35.75 | 2.95 | 47.75 | 1.67 | 59.75 | 1.32 |
| **12.00** | **1.67** | **24.00** | **1.43** | **36.00** | **2.95** | **48.00** | **1.67** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 2.95
HIGHEST SIX-MINUTE ROLLING AVERAGE = 3.70
AVERAGE OPACITY DURING RUN = 1.54

* 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: 8/20/97
Start Time: 1140
Stop Time: 1240

Baghouse Outlet
Run Number: O-M9-2D

| 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 | 0.50 | 24.25 | 2.62 | 36.25 | 1.82 | 48.25 | 1.36 |
| 0.50 | NA | 12.50 | 0.50 | 24.50 | 2.62 | 36.50 | 1.82 | 48.50 | 1.43 |
| 0.75 | NA | 12.75 | 0.50 | 24.75 | 2.62 | 36.75 | 1.82 | 48.75 | 1.19 |
| 1.00 | NA | 13.00 | 0.50 | 25.00 | 2.62 | 37.00 | 1.82 | 49.00 | 1.19 |
| 1.25 | NA | 13.25 | 0.75 | 25.25 | 2.62 | 37.25 | 1.74 | 49.25 | 1.19 |
| 1.50 | NA | 13.50 | 0.75 | 25.50 | 2.62 | 37.50 | 1.74 | 49.50 | 1.19 |
| 1.75 | NA | 13.75 | 0.75 | 25.75 | 2.62 | 37.75 | 1.09 | 49.75 | 1.25 |
| 2.00 | NA | 14.00 | 0.75 | 26.00 | 2.75 | 38.00 | 0.87 | 50.00 | 0.75 |
| 2.25 | NA | 14.25 | 0.75 | 26.25 | 2.62 | 38.25 | 1.52 | 50.25 | 0.25 |
| 2.50 | NA | 14.50 | 1.50 | 26.50 | 2.73 | 38.50 | 1.52 | 50.50 | 0.25 |
| 2.75 | NA | 14.75 | 1.50 | 26.75 | 2.50 | 38.75 | 2.17 | 50.75 | 0.25 |
| 3.00 | NA | 15.00 | 1.43 | 27.00 | 2.50 | 39.00 | 2.27 | 51.00 | 0.25 |
| 3.25 | NA | 15.25 | 1.50 | 27.25 | 2.50 | 39.25 | 2.27 | 51.25 | 0.25 |
| 3.50 | NA | 15.50 | 1.43 | 27.50 | 2.50 | 39.50 | 2.27 | 51.50 | 0.25 |
| 3.75 | NA | 15.75 | 1.43 | 27.75 | 2.62 | 39.75 | 2.27 | 51.75 | 0.25 |
| 4.00 | NA | 16.00 | 1.43 | 28.00 | 2.50 | 40.00 | 2.27 | 52.00 | 0.25 |
| 4.25 | NA | 16.25 | 1.50 | 28.25 | 2.50 | 40.25 | 2.27 | 52.25 | 0.00 |
| 4.50 | NA | 16.50 | 1.75 | 28.50 | 2.50 | 40.50 | 2.27 | 52.50 | 0.00 |
| 4.75 | NA | 16.75 | 2.00 | 28.75 | 2.50 | 40.75 | 2.05 | 52.75 | 0.00 |
| 5.00 | NA | 17.00 | 1.90 | 29.00 | 1.82 | 41.00 | 2.05 | 53.00 | 0.00 |
| 5.25 | NA | 17.25 | 1.90 | 29.25 | 1.90 | 41.25 | 2.27 | 53.25 | 0.23 |
| 5.50 | NA | 17.50 | 2.38 | 29.50 | 2.14 | 41.50 | 2.27 | 53.50 | 0.23 |
| 5.75 | NA | 17.75 | 2.38 | 29.75 | 1.67 | 41.75 | 2.27 | 53.75 | 0.68 |
| **6.00** | **0.56** | **18.00** | **2.38** | **30.00** | **1.00** | **42.00** | **1.59** | **54.00** | **0.68** |
| 6.25 | 0.83 | 18.25 | 2.38 | 30.25 | 1.00 | 42.25 | 1.59 | 54.25 | 0.68 |
| 6.50 | 0.83 | 18.50 | 2.38 | 30.50 | 1.00 | 42.50 | 1.59 | 54.50 | 0.65 |
| 6.75 | 0.79 | 18.75 | 2.38 | 30.75 | 1.00 | 42.75 | 1.82 | 54.75 | 0.65 |
| 7.00 | 0.79 | 19.00 | 2.38 | 31.00 | 1.00 | 43.00 | 1.82 | 55.00 | 0.65 |
| 7.25 | 0.79 | 19.25 | 2.14 | 31.25 | 1.05 | 43.25 | 1.82 | 55.25 | 0.65 |
| 7.50 | 0.75 | 19.50 | 2.14 | 31.50 | 1.05 | 43.50 | 1.82 | 55.50 | 0.65 |
| 7.75 | 0.71 | 19.75 | 2.14 | 31.75 | 1.84 | 43.75 | 1.82 | 55.75 | 0.63 |
| 8.00 | 0.71 | 20.00 | 2.14 | 32.00 | 2.00 | 44.00 | 2.27 | 56.00 | 0.63 |
| 8.25 | 0.71 | 20.25 | 2.25 | 32.25 | 2.00 | 44.25 | 2.05 | 56.25 | 0.63 |
| 8.50 | 0.71 | 20.50 | 1.58 | 32.50 | 1.75 | 44.50 | 2.05 | 56.50 | 0.63 |
| 8.75 | 1.19 | 20.75 | 1.32 | 32.75 | 1.75 | 44.75 | 1.36 | 56.75 | 0.63 |
| 9.00 | 1.19 | 21.00 | 1.32 | 33.00 | 1.75 | 45.00 | 1.30 | 57.00 | 0.63 |
| 9.25 | 1.19 | 21.25 | 1.25 | 33.25 | 1.75 | 45.25 | 1.30 | 57.25 | 0.63 |
| 9.50 | 1.19 | 21.50 | 1.25 | 33.50 | 1.75 | 45.50 | 1.30 | 57.50 | 0.63 |
| 9.75 | 1.19 | 21.75 | 1.25 | 33.75 | 1.67 | 45.75 | 1.30 | 57.75 | 0.63 |
| 10.00 | 1.19 | 22.00 | 1.25 | 34.00 | 1.67 | 46.00 | 1.30 | 58.00 | 0.63 |
| 10.25 | 1.19 | 22.25 | 1.19 | 34.25 | 1.67 | 46.25 | 1.52 | 58.25 | 0.63 |
| 10.50 | 1.19 | 22.50 | 0.95 | 34.50 | 1.67 | 46.50 | 1.59 | 58.50 | 0.63 |
| 10.75 | 1.19 | 22.75 | 0.71 | 34.75 | 1.90 | 46.75 | 1.59 | 58.75 | 0.63 |
| 11.00 | 1.25 | 23.00 | 1.43 | 35.00 | 1.90 | 47.00 | 1.59 | 59.00 | 0.63 |
| 11.25 | 0.75 | 23.25 | 1.43 | 35.25 | 1.82 | 47.25 | 1.43 | 59.25 | 0.42 |
| 11.50 | 0.75 | 23.50 | 1.43 | 35.50 | 1.19 | 47.50 | 1.36 | 59.50 | 0.43 |
| 11.75 | 0.75 | 23.75 | 1.90 | 35.75 | 1.19 | 47.75 | 1.36 | 59.75 | 0.00 |
| **12.00** | **0.75** | **24.00** | **2.62** | **36.00** | **1.82** | **48.00** | **1.36** | **60.00** | **0.00** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 2.62 AVERAGE OPACITY DURING RUN = 1.29
HIGHEST SIX-MINUTE ROLLING AVERAGE = 2.75

* 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.

Visible Emission Observation Summary

Baghouse Outlet

| Run Number | O-M9-3A | O-M9-3B | O-M9-1C | O-M9-3D |
|---|---|---|---|---|
| Date | 8/20/97 | 8/20/97 | 8/20/97 | 8/20/97 |
| Start Time | 1405 | 1510 | 1615 | 1722 |
| Stop Time | 1505 | 1610 | 1720 | 1742 |
| | | | | |
| Percent Opacity | | | | |
| Average for entire run | 1.02 | 1.02 | 0.68 | 0.06 |
| Highest single reading | 15 | 15 | 10 | 5 |
| Highest six-minute block average | 1.67 | 1.59 | 1.67 | 0.22 |
| Highest six-minute rolling average | 2.17 | 1.67 | 1.94 | 0.42 |

Date: 8/20/97
Start Time: 1405
Stop Time: 1505

Baghouse Outlet
Run Number: O-M9-3A

| 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 | 1.59 | 24.25 | 1.09 | 36.25 | 0.65 | 48.25 | 1.09 |
| 0.50 | NA | 12.50 | 1.59 | 24.50 | 1.30 | 36.50 | 0.65 | 48.50 | 1.09 |
| 0.75 | NA | 12.75 | 1.59 | 24.75 | 1.30 | 36.75 | 0.65 | 48.75 | 0.87 |
| 1.00 | NA | 13.00 | 1.59 | 25.00 | 1.30 | 37.00 | 0.68 | 49.00 | 0.83 |
| 1.25 | NA | 13.25 | 1.59 | 25.25 | 1.09 | 37.25 | 1.36 | 49.25 | 0.87 |
| 1.50 | NA | 13.50 | 1.59 | 25.50 | 1.09 | 37.50 | 1.36 | 49.50 | 0.87 |
| 1.75 | NA | 13.75 | 2.05 | 25.75 | 1.09 | 37.75 | 1.82 | 49.75 | 0.43 |
| 2.00 | NA | 14.00 | 2.05 | 26.00 | 1.09 | 38.00 | 1.82 | 50.00 | 0.43 |
| 2.25 | NA | 14.25 | 2.05 | 26.25 | 1.09 | 38.25 | 1.82 | 50.25 | 0.43 |
| 2.50 | NA | 14.50 | 2.05 | 26.50 | 1.04 | 38.50 | 1.82 | 50.50 | 0.22 |
| 2.75 | NA | 14.75 | 1.82 | 26.75 | 1.25 | 38.75 | 1.82 | 50.75 | 0.22 |
| 3.00 | NA | 15.00 | 2.17 | 27.00 | 0.83 | 39.00 | 1.82 | 51.00 | 0.23 |
| 3.25 | NA | 15.25 | 2.17 | 27.25 | 0.83 | 39.25 | 1.82 | 51.25 | 0.23 |
| 3.50 | NA | 15.50 | 1.96 | 27.50 | 0.83 | 39.50 | 1.59 | 51.50 | 0.23 |
| 3.75 | NA | 15.75 | 1.96 | 27.75 | 0.63 | 39.75 | 1.59 | 51.75 | 0.23 |
| 4.00 | NA | 16.00 | 2.05 | 28.00 | 0.63 | 40.00 | 1.59 | 52.00 | 0.23 |
| 4.25 | NA | 16.25 | 2.05 | 28.25 | 0.63 | 40.25 | 1.14 | 52.25 | 0.45 |
| 4.50 | NA | 16.50 | 1.67 | 28.50 | 1.04 | 40.50 | 1.14 | 52.50 | 0.45 |
| 4.75 | NA | 16.75 | 1.59 | 28.75 | 1.04 | 40.75 | 1.19 | 52.75 | 0.45 |
| 5.00 | NA | 17.00 | 1.59 | 29.00 | 1.04 | 41.00 | 1.19 | 53.00 | 0.45 |
| 5.25 | NA | 17.25 | 1.67 | 29.25 | 1.04 | 41.25 | 1.19 | 53.25 | 0.45 |
| 5.50 | NA | 17.50 | 2.14 | 29.50 | 1.04 | 41.50 | 1.19 | 53.50 | 0.68 |
| 5.75 | NA | 17.75 | 2.14 | 29.75 | 1.04 | 41.75 | 1.19 | 53.75 | 0.68 |
| **6.00** | **0.65** | **18.00** | **1.67** | **30.00** | **0.83** | **42.00** | **1.19** | **54.00** | **0.91** |
| 6.25 | 0.68 | 18.25 | 1.67 | 30.25 | 0.83 | 42.25 | 1.14 | 54.25 | 0.68 |
| 6.50 | 0.68 | 18.50 | 1.67 | 30.50 | 0.63 | 42.50 | 1.14 | 54.50 | 0.68 |
| 6.75 | 0.68 | 18.75 | 1.67 | 30.75 | 0.63 | 42.75 | 1.36 | 54.75 | 1.14 |
| 7.00 | 0.68 | 19.00 | 1.67 | 31.00 | 0.63 | 43.00 | 1.36 | 55.00 | 1.14 |
| 7.25 | 0.68 | 19.25 | 1.90 | 31.25 | 0.63 | 43.25 | 0.68 | 55.25 | 1.14 |
| 7.50 | 0.68 | 19.50 | 1.90 | 31.50 | 0.63 | 43.50 | 0.68 | 55.50 | 1.14 |
| 7.75 | 0.87 | 19.75 | 1.19 | 31.75 | 0.63 | 43.75 | 0.68 | 55.75 | 1.14 |
| 8.00 | 0.65 | 20.00 | 1.19 | 32.00 | 0.63 | 44.00 | 0.68 | 56.00 | 1.14 |
| 8.25 | 0.65 | 20.25 | 1.19 | 32.25 | 0.63 | 44.25 | 0.68 | 56.25 | 1.14 |
| 8.50 | 0.65 | 20.50 | 1.25 | 32.50 | 0.63 | 44.50 | 0.91 | 56.50 | 1.14 |
| 8.75 | 0.87 | 20.75 | 1.25 | 32.75 | 0.42 | 44.75 | 0.91 | 56.75 | 1.14 |
| 9.00 | 0.91 | 21.00 | 1.25 | 33.00 | 0.42 | 45.00 | 0.91 | 57.00 | 1.09 |
| 9.25 | 0.68 | 21.25 | 1.25 | 33.25 | 0.42 | 45.25 | 0.91 | 57.25 | 1.30 |
| 9.50 | 0.91 | 21.50 | 1.25 | 33.50 | 0.63 | 45.50 | 0.91 | 57.50 | 1.30 |
| 9.75 | 0.91 | 21.75 | 1.50 | 33.75 | 0.63 | 45.75 | 0.91 | 57.75 | 1.30 |
| 10.00 | 0.91 | 22.00 | 1.43 | 34.00 | 0.63 | 46.00 | 0.91 | 58.00 | 1.30 |
| 10.25 | 0.91 | 22.25 | 1.43 | 34.25 | 1.04 | 46.25 | 0.91 | 58.25 | 1.09 |
| 10.50 | 1.36 | 22.50 | 1.36 | 34.50 | 0.63 | 46.50 | 0.91 | 58.50 | 1.09 |
| 10.75 | 1.43 | 22.75 | 1.36 | 34.75 | 0.63 | 46.75 | 0.87 | 58.75 | 1.09 |
| 11.00 | 1.43 | 23.00 | 1.36 | 35.00 | 0.63 | 47.00 | 0.87 | 59.00 | 1.09 |
| 11.25 | 1.43 | 23.25 | 1.30 | 35.25 | 0.63 | 47.25 | 0.87 | 59.25 | 1.09 |
| 11.50 | 1.19 | 23.50 | 0.87 | 35.50 | 0.63 | 47.50 | 0.87 | 59.50 | NA* |
| 11.75 | 1.19 | 23.75 | 0.87 | 35.75 | 0.63 | 47.75 | 0.87 | 59.75 | NA* |
| **12.00** | **1.67** | **24.00** | **1.09** | **36.00** | **0.63** | **48.00** | **0.87** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.67
AVERAGE OPACITY DURING RUN = 1.02
HIGHEST SIX-MINUTE ROLLING AVERAGE = 2.17

* 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: 8/20/97
Start Time: 1510
Stop Time: 1610

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 | 1.05 | 24.25 | 1.30 | 36.25 | 0.95 | 48.25 | 1.00 |
| 0.50 | NA | 12.50 | 1.11 | 24.50 | 1.25 | 36.50 | 0.95 | 48.50 | 1.00 |
| 0.75 | NA | 12.75 | 1.11 | 24.75 | 0.63 | 36.75 | 0.95 | 48.75 | 1.00 |
| 1.00 | NA | 13.00 | 1.39 | 25.00 | 0.63 | 37.00 | 0.95 | 49.00 | 1.00 |
| 1.25 | NA | 13.25 | 1.39 | 25.25 | 0.63 | 37.25 | 0.95 | 49.25 | 0.94 |
| 1.50 | NA | 13.50 | 1.11 | 25.50 | 1.04 | 37.50 | 0.95 | 49.50 | 1.47 |
| 1.75 | NA | 13.75 | 1.11 | 25.75 | 1.09 | 37.75 | 0.95 | 49.75 | 1.39 |
| 2.00 | NA | 14.00 | 1.11 | 26.00 | 1.14 | 38.00 | 0.95 | 50.00 | 1.32 |
| 2.25 | NA | 14.25 | 1.39 | 26.25 | 1.19 | 38.25 | 0.95 | 50.25 | 1.25 |
| 2.50 | NA | 14.50 | 1.39 | 26.50 | 1.25 | 38.50 | 0.91 | 50.50 | 1.25 |
| 2.75 | NA | 14.75 | 1.39 | 26.75 | 1.32 | 38.75 | 0.91 | 50.75 | 1.25 |
| 3.00 | NA | 15.00 | 1.39 | 27.00 | 1.39 | 39.00 | 0.91 | 51.00 | 1.25 |
| 3.25 | NA | 15.25 | 1.32 | 27.25 | 1.11 | 39.25 | 1.09 | 51.25 | 1.25 |
| 3.50 | NA | 15.50 | 1.32 | 27.50 | 0.83 | 39.50 | 1.09 | 51.50 | 1.25 |
| 3.75 | NA | 15.75 | 1.32 | 27.75 | 0.83 | 39.75 | 0.87 | 51.75 | 1.25 |
| 4.00 | NA | 16.00 | 1.32 | 28.00 | 0.83 | 40.00 | 0.87 | 52.00 | 1.00 |
| 4.25 | NA | 16.25 | 1.32 | 28.25 | 0.83 | 40.25 | 0.87 | 52.25 | 1.00 |
| 4.50 | NA | 16.50 | 1.32 | 28.50 | 0.83 | 40.50 | 0.87 | 52.50 | 1.00 |
| 4.75 | NA | 16.75 | 0.79 | 28.75 | 0.83 | 40.75 | 0.65 | 52.75 | 0.95 |
| 5.00 | NA | 17.00 | 0.79 | 29.00 | 0.88 | 41.00 | 0.65 | 53.00 | 0.95 |
| 5.25 | NA | 17.25 | 0.79 | 29.25 | 0.88 | 41.25 | 0.63 | 53.25 | 1.14 |
| 5.50 | NA | 17.50 | 0.83 | 29.50 | 0.94 | 41.50 | 0.42 | 53.50 | 1.09 |
| 5.75 | NA | 17.75 | 0.88 | 29.75 | 0.94 | 41.75 | 0.21 | 53.75 | 1.09 |
| **6.00** | **1.59** | **18.00** | **0.88** | **30.00** | **0.94** | **42.00** | **0.63** | **54.00** | **0.68** |
| 6.25 | 1.59 | 18.25 | 0.83 | 30.25 | 0.94 | 42.25 | 0.63 | 54.25 | 0.71 |
| 6.50 | 1.36 | 18.50 | 0.83 | 30.50 | 0.94 | 42.50 | 0.63 | 54.50 | 0.71 |
| 6.75 | 1.43 | 18.75 | 1.58 | 30.75 | 0.94 | 42.75 | 0.63 | 54.75 | 0.71 |
| 7.00 | 1.43 | 19.00 | 1.32 | 31.00 | 0.94 | 43.00 | 0.63 | 55.00 | 0.95 |
| 7.25 | 0.95 | 19.25 | 1.32 | 31.25 | 0.94 | 43.25 | 0.65 | 55.25 | 1.00 |
| 7.50 | 1.14 | 19.50 | 1.32 | 31.50 | 0.31 | 43.50 | 0.68 | 55.50 | 0.50 |
| 7.75 | 1.14 | 19.75 | 1.32 | 31.75 | 0.29 | 43.75 | 0.71 | 55.75 | 0.50 |
| 8.00 | 0.95 | 20.00 | 1.25 | 32.00 | 0.28 | 44.00 | 0.75 | 56.00 | 0.50 |
| 8.25 | 0.95 | 20.25 | 1.00 | 32.25 | 0.26 | 44.25 | 0.79 | 56.25 | 0.50 |
| 8.50 | 0.95 | 20.50 | 1.00 | 32.50 | 0.26 | 44.50 | 0.83 | 56.50 | 0.48 |
| 8.75 | 0.95 | 20.75 | 1.00 | 32.75 | 0.25 | 44.75 | 0.83 | 56.75 | NA* |
| 9.00 | 0.50 | 21.00 | 0.95 | 33.00 | 0.24 | 45.00 | 0.83 | 57.00 | NA* |
| 9.25 | 0.53 | 21.25 | 1.19 | 33.25 | 0.25 | 45.25 | 0.56 | 57.25 | NA* |
| 9.50 | 0.53 | 21.50 | 1.67 | 33.50 | 0.00 | 45.50 | 0.56 | 57.50 | NA* |
| 9.75 | 0.53 | 21.75 | 1.67 | 33.75 | 0.25 | 45.75 | 0.56 | 57.75 | NA* |
| 10.00 | 0.50 | 22.00 | 1.67 | 34.00 | 0.25 | 46.00 | 0.83 | 58.00 | NA* |
| 10.25 | 0.50 | 22.25 | 1.67 | 34.25 | 0.25 | 46.25 | 0.83 | 58.25 | NA* |
| 10.50 | 0.50 | 22.50 | 1.67 | 34.50 | 0.25 | 46.50 | 0.83 | 58.50 | NA* |
| 10.75 | 0.75 | 22.75 | 1.67 | 34.75 | 0.50 | 46.75 | 0.88 | 58.75 | NA* |
| 11.00 | 0.75 | 23.00 | 1.67 | 35.00 | 0.48 | 47.00 | 0.88 | 59.00 | NA* |
| 11.25 | 1.00 | 23.25 | 1.43 | 35.25 | 0.50 | 47.25 | 0.94 | 59.25 | NA* |
| 11.50 | 1.00 | 23.50 | 1.36 | 35.50 | 0.71 | 47.50 | 1.00 | 59.50 | NA* |
| 11.75 | 1.00 | 23.75 | 1.30 | 35.75 | 0.95 | 47.75 | 1.00 | 59.75 | NA* |
| **12.00** | **1.00** | **24.00** | **1.30** | **36.00** | **0.95** | **48.00** | **1.00** | **60.00** | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.59 AVERAGE OPACITY DURING RUN = 1.02
HIGHEST SIX-MINUTE ROLLING AVERAGE = 1.67

* 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: 8/20/97

Start Time: 1615

Stop Time: 1720

Baghouse Outlet

Run Number: O-M9-1C

| 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 | 0.68 | 24.25 | 0.63 | 36.25 | 0.22 | 48.25 | 0.75 |
| 0.50 | NA | 12.50 | 0.68 | 24.50 | 0.63 | 36.50 | 0.22 | 48.50 | 0.75 |
| 0.75 | NA | 12.75 | 0.68 | 24.75 | 0.83 | 36.75 | 0.23 | 48.75 | 0.75 |
| 1.00 | NA | 13.00 | 0.68 | 25.00 | 0.83 | 37.00 | 0.24 | 49.00 | 0.79 |
| 1.25 | NA | 13.25 | 0.45 | 25.25 | 0.83 | 37.25 | 0.25 | 49.25 | 0.79 |
| 1.50 | NA | 13.50 | 0.48 | 25.50 | 0.83 | 37.50 | 0.25 | 49.50 | 0.79 |
| 1.75 | NA | 13.75 | 0.50 | 25.75 | 0.83 | 37.75 | 0.25 | 49.75 | 0.79 |
| 2.00 | NA | 14.00 | 0.50 | 26.00 | 0.83 | 38.00 | 0.25 | 50.00 | 0.79 |
| 2.25 | NA | 14.25 | 0.50 | 26.25 | 0.87 | 38.25 | 0.75 | 50.25 | 0.79 |
| 2.50 | NA | 14.50 | 0.48 | 26.50 | 0.87 | 38.50 | 0.75 | 50.50 | 0.79 |
| 2.75 | NA | 14.75 | 0.50 | 26.75 | 1.09 | 38.75 | 0.75 | 50.75 | 1.05 |
| 3.00 | NA | 15.00 | 1.00 | 27.00 | 1.09 | 39.00 | 1.25 | 51.00 | 1.05 |
| 3.25 | NA | 15.25 | 1.00 | 27.25 | 1.09 | 39.25 | 1.25 | 51.25 | 1.05 |
| 3.50 | NA | 15.50 | 1.00 | 27.50 | 1.09 | 39.50 | 1.25 | 51.50 | 1.05 |
| 3.75 | NA | 15.75 | 1.00 | 27.75 | 1.09 | 39.75 | 1.25 | 51.75 | 1.32 |
| 4.00 | NA | 16.00 | 1.00 | 28.00 | 0.65 | 40.00 | 1.25 | 52.00 | 1.32 |
| 4.25 | NA | 16.25 | 1.00 | 28.25 | 0.65 | 40.25 | 1.75 | 52.25 | 1.32 |
| 4.50 | NA | 16.50 | 1.00 | 28.50 | 0.65 | 40.50 | 1.84 | 52.50 | 1.32 |
| 4.75 | NA | 16.75 | 1.00 | 28.75 | 0.65 | 40.75 | 1.94 | 52.75 | 1.25 |
| 5.00 | NA | 17.00 | 1.05 | 29.00 | 0.87 | 41.00 | 1.84 | 53.00 | 0.75 |
| 5.25 | NA | 17.25 | 0.79 | 29.25 | 0.87 | 41.25 | 1.67 | 53.25 | 0.50 |
| 5.50 | NA | 17.50 | 0.79 | 29.50 | 0.87 | 41.50 | 1.67 | 53.50 | 0.48 |
| 5.75 | NA | 17.75 | 0.83 | 29.75 | 0.87 | 41.75 | 1.67 | 53.75 | 0.48 |
| **6.00** | **0.56** | **18.00** | **0.59** | **30.00** | **0.91** | **42.00** | **1.67** | **54.00** | **0.48** |
| 6.25 | 0.56 | 18.25 | 0.63 | 30.25 | 0.91 | 42.25 | 1.67 | 54.25 | 0.48 |
| 6.50 | 0.56 | 18.50 | 0.94 | 30.50 | 0.68 | 42.50 | 1.67 | 54.50 | 0.48 |
| 6.75 | 0.56 | 18.75 | 0.94 | 30.75 | 0.45 | 42.75 | 1.58 | 54.75 | 0.48 |
| 7.00 | 0.53 | 19.00 | 0.94 | 31.00 | 0.45 | 43.00 | 1.50 | 55.00 | 0.45 |
| 7.25 | 0.79 | 19.25 | 0.94 | 31.25 | 0.45 | 43.25 | 1.43 | 55.25 | 0.45 |
| 7.50 | 0.75 | 19.50 | 0.88 | 31.50 | 0.45 | 43.50 | 1.50 | 55.50 | 0.65 |
| 7.75 | 0.75 | 19.75 | 0.83 | 31.75 | 0.45 | 43.75 | 1.58 | 55.75 | 0.63 |
| 8.00 | 0.79 | 20.00 | 0.79 | 32.00 | 0.45 | 44.00 | 1.58 | 56.00 | 0.63 |
| 8.25 | 0.79 | 20.25 | 0.79 | 32.25 | 0.43 | 44.25 | 1.05 | 56.25 | 0.63 |
| 8.50 | 0.56 | 20.50 | 0.79 | 32.50 | 0.43 | 44.50 | 1.05 | 56.50 | 0.63 |
| 8.75 | 0.56 | 20.75 | 0.75 | 32.75 | 0.22 | 44.75 | 1.05 | 56.75 | 0.42 |
| 9.00 | 0.56 | 21.00 | 0.25 | 33.00 | 0.22 | 45.00 | 0.53 | 57.00 | 0.42 |
| 9.25 | 0.56 | 21.25 | 0.25 | 33.25 | 0.22 | 45.25 | 0.53 | 57.25 | 0.42 |
| 9.50 | 0.56 | 21.50 | 0.25 | 33.50 | 0.22 | 45.50 | 0.53 | 57.50 | 0.43 |
| 9.75 | 0.53 | 21.75 | 0.25 | 33.75 | 0.22 | 45.75 | 0.53 | 57.75 | 0.22 |
| 10.00 | 0.50 | 22.00 | 0.75 | 34.00 | 0.22 | 46.00 | 0.53 | 58.00 | 0.22 |
| 10.25 | 0.50 | 22.25 | 0.75 | 34.25 | 0.22 | 46.25 | 0.00 | 58.25 | 0.23 |
| 10.50 | 0.50 | 22.50 | 0.75 | 34.50 | 0.22 | 46.50 | 0.00 | 58.50 | 0.23 |
| 10.75 | 0.48 | 22.75 | 0.75 | 34.75 | 0.22 | 46.75 | 0.00 | 58.75 | 0.23 |
| 11.00 | 0.48 | 23.00 | 0.71 | 35.00 | 0.00 | 47.00 | 0.50 | 59.00 | 0.23 |
| 11.25 | 0.71 | 23.25 | 0.71 | 35.25 | 0.23 | 47.25 | 0.71 | 59.25 | 0.23 |
| 11.50 | 0.68 | 23.50 | 0.71 | 35.50 | 0.23 | 47.50 | 0.75 | 59.50 | 0.45 |
| 11.75 | 0.45 | 23.75 | 0.68 | 35.75 | 0.23 | 47.75 | 0.75 | 59.75 | 0.45 |
| **12.00** | **0.68** | **24.00** | **0.65** | **36.00** | **0.22** | **48.00** | **0.75** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 1.67 AVERAGE OPACITY DURING RUN = 0.68

HIGHEST SIX-MINUTE ROLLING AVERAGE = 1.94

* 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: 8/20/97
Start Time: 1722
Stop Time: 1742

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 | 0.21 | 24.25 | 0.00 | 36.25 | 0.00 | 48.25 | 0.00 |
| 0.50 | NA | 12.50 | 0.21 | 24.50 | 0.00 | 36.50 | 0.00 | 48.50 | 0.00 |
| 0.75 | NA | 12.75 | 0.21 | 24.75 | 0.00 | 36.75 | 0.00 | 48.75 | 0.00 |
| 1.00 | NA | 13.00 | 0.21 | 25.00 | 0.00 | 37.00 | 0.00 | 49.00 | 0.00 |
| 1.25 | NA | 13.25 | 0.42 | 25.25 | 0.00 | 37.25 | 0.00 | 49.25 | 0.00 |
| 1.50 | NA | 13.50 | 0.42 | 25.50 | 0.00 | 37.50 | 0.00 | 49.50 | 0.00 |
| 1.75 | NA | 13.75 | 0.42 | 25.75 | 0.00 | 37.75 | 0.00 | 49.75 | 0.00 |
| 2.00 | NA | 14.00 | 0.42 | 26.00 | 0.00 | 38.00 | 0.00 | 50.00 | 0.00 |
| 2.25 | NA | 14.25 | 0.42 | 26.25 | 0.00 | 38.25 | 0.00 | 50.25 | 0.00 |
| 2.50 | NA | 14.50 | 0.42 | 26.50 | 0.00 | 38.50 | 0.00 | 50.50 | 0.00 |
| 2.75 | NA | 14.75 | 0.42 | 26.75 | 0.00 | 38.75 | 0.00 | 50.75 | 0.00 |
| 3.00 | NA | 15.00 | 0.42 | 27.00 | 0.00 | 39.00 | 0.00 | 51.00 | 0.00 |
| 3.25 | NA | 15.25 | 0.42 | 27.25 | 0.00 | 39.25 | 0.00 | 51.25 | 0.00 |
| 3.50 | NA | 15.50 | 0.21 | 27.50 | 0.00 | 39.50 | 0.00 | 51.50 | 0.00 |
| 3.75 | NA | 15.75 | 0.21 | 27.75 | 0.00 | 39.75 | 0.00 | 51.75 | 0.00 |
| 4.00 | NA | 16.00 | 0.21 | 28.00 | 0.00 | 40.00 | 0.00 | 52.00 | 0.00 |
| 4.25 | NA | 16.25 | 0.21 | 28.25 | 0.00 | 40.25 | 0.00 | 52.25 | 0.00 |
| 4.50 | NA | 16.50 | 0.21 | 28.50 | 0.00 | 40.50 | 0.00 | 52.50 | 0.00 |
| 4.75 | NA | 16.75 | 0.21 | 28.75 | 0.00 | 40.75 | 0.00 | 52.75 | 0.00 |
| 5.00 | NA | 17.00 | 0.22 | 29.00 | 0.00 | 41.00 | 0.00 | 53.00 | 0.00 |
| 5.25 | NA | 17.25 | 0.22 | 29.25 | 0.00 | 41.25 | 0.00 | 53.25 | 0.00 |
| 5.50 | NA | 17.50 | 0.22 | 29.50 | 0.00 | 41.50 | 0.00 | 53.50 | 0.00 |
| 5.75 | NA | 17.75 | 0.22 | 29.75 | 0.00 | 41.75 | 0.00 | 53.75 | 0.00 |
| **6.00** | **0.21** | **18.00** | **0.22** | **30.00** | **0.00** | **42.00** | **0.00** | **54.00** | **0.00** |
| 6.25 | 0.21 | 18.25 | 0.22 | 30.25 | 0.00 | 42.25 | 0.00 | 54.25 | 0.00 |
| 6.50 | 0.21 | 18.50 | 0.22 | 30.50 | 0.00 | 42.50 | 0.00 | 54.50 | 0.00 |
| 6.75 | 0.21 | 18.75 | 0.22 | 30.75 | 0.00 | 42.75 | 0.00 | 54.75 | 0.00 |
| 7.00 | 0.21 | 19.00 | 0.22 | 31.00 | 0.00 | 43.00 | 0.00 | 55.00 | 0.00 |
| 7.25 | 0.21 | 19.25 | 0.00 | 31.25 | 0.00 | 43.25 | 0.00 | 55.25 | 0.00 |
| 7.50 | 0.21 | 19.50 | 0.00 | 31.50 | 0.00 | 43.50 | 0.00 | 55.50 | 0.00 |
| 7.75 | 0.21 | 19.75 | 0.00 | 31.75 | 0.00 | 43.75 | 0.00 | 55.75 | 0.00 |
| 8.00 | 0.21 | 20.00 | 0.00 | 32.00 | 0.00 | 44.00 | 0.00 | 56.00 | 0.00 |
| 8.25 | 0.21 | 20.25 | 0.00 | 32.25 | 0.00 | 44.25 | 0.00 | 56.25 | 0.00 |
| 8.50 | 0.21 | 20.50 | 0.00 | 32.50 | 0.00 | 44.50 | 0.00 | 56.50 | 0.00 |
| 8.75 | 0.21 | 20.75 | 0.00 | 32.75 | 0.00 | 44.75 | 0.00 | 56.75 | 0.00 |
| 9.00 | 0.21 | 21.00 | 0.00 | 33.00 | 0.00 | 45.00 | 0.00 | 57.00 | 0.00 |
| 9.25 | 0.21 | 21.25 | 0.00 | 33.25 | 0.00 | 45.25 | 0.00 | 57.25 | 0.00 |
| 9.50 | 0.42 | 21.50 | 0.00 | 33.50 | 0.00 | 45.50 | 0.00 | 57.50 | 0.00 |
| 9.75 | 0.42 | 21.75 | 0.00 | 33.75 | 0.00 | 45.75 | 0.00 | 57.75 | 0.00 |
| 10.00 | 0.42 | 22.00 | 0.00 | 34.00 | 0.00 | 46.00 | 0.00 | 58.00 | 0.00 |
| 10.25 | 0.42 | 22.25 | 0.00 | 34.25 | 0.00 | 46.25 | 0.00 | 58.25 | 0.00 |
| 10.50 | 0.42 | 22.50 | 0.00 | 34.50 | 0.00 | 46.50 | 0.00 | 58.50 | 0.00 |
| 10.75 | 0.42 | 22.75 | 0.00 | 34.75 | 0.00 | 46.75 | 0.00 | 58.75 | 0.00 |
| 11.00 | 0.42 | 23.00 | 0.00 | 35.00 | 0.00 | 47.00 | 0.00 | 59.00 | 0.00 |
| 11.25 | 0.42 | 23.25 | 0.00 | 35.25 | 0.00 | 47.25 | 0.00 | 59.25 | 0.00 |
| 11.50 | 0.42 | 23.50 | 0.00 | 35.50 | 0.00 | 47.50 | 0.00 | 59.50 | 0.00 |
| 11.75 | 0.42 | 23.75 | 0.00 | 35.75 | 0.00 | 47.75 | 0.00 | 59.75 | 0.00 |
| **12.00** | **0.21** | **24.00** | **0.00** | **36.00** | **0.00** | **48.00** | **0.00** | **60.00** | **0.00** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 0.22
HIGHEST SIX-MINUTE ROLLING AVERAGE = 0.42
AVERAGE OPACITY DURING RUN = 0.06

* 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.

Visible Emission Observation Summary

Baghouse Outlet

| Run Number | O-M9-4A | O-M9-4B | O-M9-4C | O-M9-4D |
|---|---|---|---|---|
| Date | 8/21/97 | 8/21/97 | 8/21/97 | 8/21/97 |
| Start Time | 0741 | 0848 | 0953 | 1058 |
| Stop Time | 0841 | 0948 | 1053 | 1158 |
| | | | | |
| Percent Opacity | | | | |
| Average for entire run | 0.15 | 0.17 | 0.13 | 0.10 |
| Highest single reading | 5 | 5 | 5 | 5 |
| Highest six-minute block average | 0.42 | 0.42 | 0.21 | 0.21 |
| Highest six-minute rolling average | 0.42 | 0.42 | 0.42 | 0.22 |

Date: 8/21/97
Start Time: 0741
Stop Time: 0841

Baghouse Outlet
Run Number: O-M9-4A

| 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 | 0.00 | 24.25 | 0.21 | 36.25 | 0.21 | 48.25 | 0.42 |
| 0.50 | NA | 12.50 | 0.00 | 24.50 | 0.21 | 36.50 | 0.21 | 48.50 | 0.42 |
| 0.75 | NA | 12.75 | 0.00 | 24.75 | 0.21 | 36.75 | 0.21 | 48.75 | 0.42 |
| 1.00 | NA | 13.00 | 0.00 | 25.00 | 0.00 | 37.00 | 0.21 | 49.00 | 0.42 |
| 1.25 | NA | 13.25 | 0.00 | 25.25 | 0.00 | 37.25 | 0.21 | 49.25 | 0.42 |
| 1.50 | NA | 13.50 | 0.00 | 25.50 | 0.00 | 37.50 | 0.21 | 49.50 | 0.42 |
| 1.75 | NA | 13.75 | 0.00 | 25.75 | 0.00 | 37.75 | 0.21 | 49.75 | 0.42 |
| 2.00 | NA | 14.00 | 0.00 | 26.00 | 0.00 | 38.00 | 0.42 | 50.00 | 0.42 |
| 2.25 | NA | 14.25 | 0.00 | 26.25 | 0.00 | 38.25 | 0.42 | 50.25 | 0.42 |
| 2.50 | NA | 14.50 | 0.00 | 26.50 | 0.00 | 38.50 | 0.42 | 50.50 | 0.42 |
| 2.75 | NA | 14.75 | 0.00 | 26.75 | 0.00 | 38.75 | 0.42 | 50.75 | 0.42 |
| 3.00 | NA | 15.00 | 0.00 | 27.00 | 0.00 | 39.00 | 0.42 | 51.00 | 0.42 |
| 3.25 | NA | 15.25 | 0.00 | 27.25 | 0.00 | 39.25 | 0.42 | 51.25 | 0.42 |
| 3.50 | NA | 15.50 | 0.00 | 27.50 | 0.00 | 39.50 | 0.42 | 51.50 | 0.21 |
| 3.75 | NA | 15.75 | 0.00 | 27.75 | 0.00 | 39.75 | 0.42 | 51.75 | 0.21 |
| 4.00 | NA | 16.00 | 0.00 | 28.00 | 0.00 | 40.00 | 0.42 | 52.00 | 0.21 |
| 4.25 | NA | 16.25 | 0.00 | 28.25 | 0.00 | 40.25 | 0.42 | 52.25 | 0.21 |
| 4.50 | NA | 16.50 | 0.00 | 28.50 | 0.00 | 40.50 | 0.42 | 52.50 | 0.21 |
| 4.75 | NA | 16.75 | 0.00 | 28.75 | 0.00 | 40.75 | 0.42 | 52.75 | 0.21 |
| 5.00 | NA | 17.00 | 0.00 | 29.00 | 0.00 | 41.00 | 0.42 | 53.00 | 0.21 |
| 5.25 | NA | 17.25 | 0.00 | 29.25 | 0.00 | 41.25 | 0.42 | 53.25 | 0.21 |
| 5.50 | NA | 17.50 | 0.00 | 29.50 | 0.00 | 41.50 | 0.42 | 53.50 | 0.00 |
| 5.75 | NA | 17.75 | 0.00 | 29.75 | 0.00 | 41.75 | 0.21 | 53.75 | 0.00 |
| **6.00** | **0.21** | **18.00** | **0.00** | **30.00** | **0.00** | **42.00** | **0.21** | **54.00** | **0.00** |
| 6.25 | 0.21 | 18.25 | 0.00 | 30.25 | 0.00 | 42.25 | 0.21 | 54.25 | 0.00 |
| 6.50 | 0.21 | 18.50 | 0.00 | 30.50 | 0.00 | 42.50 | 0.21 | 54.50 | 0.00 |
| 6.75 | 0.21 | 18.75 | 0.00 | 30.75 | 0.00 | 42.75 | 0.21 | 54.75 | 0.00 |
| 7.00 | 0.21 | 19.00 | 0.21 | 31.00 | 0.00 | 43.00 | 0.21 | 55.00 | 0.00 |
| 7.25 | 0.21 | 19.25 | 0.21 | 31.25 | 0.00 | 43.25 | 0.21 | 55.25 | 0.00 |
| 7.50 | 0.21 | 19.50 | 0.21 | 31.50 | 0.00 | 43.50 | 0.21 | 55.50 | 0.00 |
| 7.75 | 0.21 | 19.75 | 0.21 | 31.75 | 0.00 | 43.75 | 0.21 | 55.75 | 0.00 |
| 8.00 | 0.21 | 20.00 | 0.21 | 32.00 | 0.00 | 44.00 | 0.00 | 56.00 | 0.00 |
| 8.25 | 0.21 | 20.25 | 0.21 | 32.25 | 0.00 | 44.25 | 0.00 | 56.25 | 0.00 |
| 8.50 | 0.21 | 20.50 | 0.21 | 32.50 | 0.00 | 44.50 | 0.00 | 56.50 | 0.00 |
| 8.75 | 0.21 | 20.75 | 0.21 | 32.75 | 0.00 | 44.75 | 0.00 | 56.75 | 0.00 |
| 9.00 | 0.21 | 21.00 | 0.21 | 33.00 | 0.00 | 45.00 | 0.00 | 57.00 | 0.00 |
| 9.25 | 0.21 | 21.25 | 0.21 | 33.25 | 0.00 | 45.25 | 0.00 | 57.25 | 0.21 |
| 9.50 | 0.22 | 21.50 | 0.21 | 33.50 | 0.00 | 45.50 | 0.21 | 57.50 | 0.21 |
| 9.75 | 0.22 | 21.75 | 0.21 | 33.75 | 0.00 | 45.75 | 0.21 | 57.75 | 0.21 |
| 10.00 | 0.22 | 22.00 | 0.21 | 34.00 | 0.00 | 46.00 | 0.21 | 58.00 | 0.21 |
| 10.25 | 0.22 | 22.25 | 0.21 | 34.25 | 0.00 | 46.25 | 0.21 | 58.25 | 0.21 |
| 10.50 | 0.22 | 22.50 | 0.21 | 34.50 | 0.00 | 46.50 | 0.21 | 58.50 | 0.21 |
| 10.75 | 0.00 | 22.75 | 0.21 | 34.75 | 0.00 | 46.75 | 0.21 | 58.75 | 0.21 |
| 11.00 | 0.00 | 23.00 | 0.21 | 35.00 | 0.00 | 47.00 | 0.21 | 59.00 | 0.21 |
| 11.25 | 0.00 | 23.25 | 0.21 | 35.25 | 0.00 | 47.25 | 0.21 | 59.25 | 0.21 |
| 11.50 | 0.00 | 23.50 | 0.21 | 35.50 | 0.00 | 47.50 | 0.42 | 59.50 | NA* |
| 11.75 | 0.00 | 23.75 | 0.21 | 35.75 | 0.21 | 47.75 | 0.42 | 59.75 | NA* |
| **12.00** | **0.00** | **24.00** | **0.21** | **36.00** | **0.21** | **48.00** | **0.42** | **60.00** | **NA*** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 0.42
AVERAGE OPACITY DURING RUN = 0.15
HIGHEST SIX-MINUTE ROLLING AVERAGE = 0.42

* 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: 8/21/97
Start Time: 0848
Stop Time: 0948

Baghouse Outlet
Run Number: O-M9-4B

| 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 | 0.00 | 24.25 | 0.42 | 36.25 | 0.21 | 48.25 | 0.21 |
| 0.50 | NA | 12.50 | 0.00 | 24.50 | 0.42 | 36.50 | 0.21 | 48.50 | 0.21 |
| 0.75 | NA | 12.75 | 0.00 | 24.75 | 0.42 | 36.75 | 0.21 | 48.75 | 0.21 |
| 1.00 | NA | 13.00 | 0.00 | 25.00 | 0.42 | 37.00 | 0.21 | 49.00 | 0.21 |
| 1.25 | NA | 13.25 | 0.00 | 25.25 | 0.42 | 37.25 | 0.00 | 49.25 | 0.21 |
| 1.50 | NA | 13.50 | 0.00 | 25.50 | 0.42 | 37.50 | 0.00 | 49.50 | 0.21 |
| 1.75 | NA | 13.75 | 0.00 | 25.75 | 0.42 | 37.75 | 0.00 | 49.75 | 0.21 |
| 2.00 | NA | 14.00 | 0.00 | 26.00 | 0.42 | 38.00 | 0.00 | 50.00 | 0.21 |
| 2.25 | NA | 14.25 | 0.00 | 26.25 | 0.42 | 38.25 | 0.00 | 50.25 | 0.21 |
| 2.50 | NA | 14.50 | 0.00 | 26.50 | 0.42 | 38.50 | 0.00 | 50.50 | 0.21 |
| 2.75 | NA | 14.75 | 0.00 | 26.75 | 0.42 | 38.75 | 0.00 | 50.75 | 0.21 |
| 3.00 | NA | 15.00 | 0.00 | 27.00 | 0.42 | 39.00 | 0.00 | 51.00 | 0.21 |
| 3.25 | NA | 15.25 | 0.00 | 27.25 | 0.42 | 39.25 | 0.00 | 51.25 | 0.21 |
| 3.50 | NA | 15.50 | 0.00 | 27.50 | 0.42 | 39.50 | 0.00 | 51.50 | 0.21 |
| 3.75 | NA | 15.75 | 0.00 | 27.75 | 0.42 | 39.75 | 0.00 | 51.75 | 0.21 |
| 4.00 | NA | 16.00 | 0.00 | 28.00 | 0.42 | 40.00 | 0.00 | 52.00 | 0.42 |
| 4.25 | NA | 16.25 | 0.00 | 28.25 | 0.42 | 40.25 | 0.00 | 52.25 | 0.42 |
| 4.50 | NA | 16.50 | 0.00 | 28.50 | 0.21 | 40.50 | 0.00 | 52.50 | 0.42 |
| 4.75 | NA | 16.75 | 0.00 | 28.75 | 0.21 | 40.75 | 0.00 | 52.75 | 0.42 |
| 5.00 | NA | 17.00 | 0.00 | 29.00 | 0.21 | 41.00 | 0.00 | 53.00 | 0.21 |
| 5.25 | NA | 17.25 | 0.00 | 29.25 | 0.21 | 41.25 | 0.00 | 53.25 | 0.21 |
| 5.50 | NA | 17.50 | 0.00 | 29.50 | 0.21 | 41.50 | 0.00 | 53.50 | 0.21 |
| 5.75 | NA | 17.75 | 0.00 | 29.75 | 0.21 | 41.75 | 0.00 | 53.75 | 0.21 |
| **6.00** | **0.42** | **18.00** | **0.00** | **30.00** | **0.00** | **42.00** | **0.00** | **54.00** | **0.21** |
| 6.25 | 0.42 | 18.25 | 0.00 | 30.25 | 0.21 | 42.25 | 0.00 | 54.25 | 0.21 |
| 6.50 | 0.42 | 18.50 | 0.00 | 30.50 | 0.21 | 42.50 | 0.00 | 54.50 | 0.21 |
| 6.75 | 0.42 | 18.75 | 0.00 | 30.75 | 0.21 | 42.75 | 0.00 | 54.75 | 0.21 |
| 7.00 | 0.42 | 19.00 | 0.00 | 31.00 | 0.21 | 43.00 | 0.00 | 55.00 | 0.21 |
| 7.25 | 0.42 | 19.25 | 0.00 | 31.25 | 0.42 | 43.25 | 0.00 | 55.25 | 0.21 |
| 7.50 | 0.42 | 19.50 | 0.00 | 31.50 | 0.42 | 43.50 | 0.00 | 55.50 | 0.21 |
| 7.75 | 0.21 | 19.75 | 0.00 | 31.75 | 0.42 | 43.75 | 0.00 | 55.75 | 0.21 |
| 8.00 | 0.21 | 20.00 | 0.00 | 32.00 | 0.42 | 44.00 | 0.00 | 56.00 | 0.21 |
| 8.25 | 0.21 | 20.25 | 0.00 | 32.25 | 0.42 | 44.25 | 0.00 | 56.25 | 0.21 |
| 8.50 | 0.21 | 20.50 | 0.00 | 32.50 | 0.42 | 44.50 | 0.00 | 56.50 | 0.21 |
| 8.75 | 0.21 | 20.75 | 0.00 | 32.75 | 0.42 | 44.75 | 0.00 | 56.75 | NA* |
| 9.00 | 0.21 | 21.00 | 0.00 | 33.00 | 0.42 | 45.00 | 0.00 | 57.00 | NA* |
| 9.25 | 0.21 | 21.25 | 0.00 | 33.25 | 0.42 | 45.25 | 0.00 | 57.25 | NA* |
| 9.50 | 0.21 | 21.50 | 0.00 | 33.50 | 0.42 | 45.50 | 0.00 | 57.50 | NA* |
| 9.75 | 0.21 | 21.75 | 0.00 | 33.75 | 0.42 | 45.75 | 0.00 | 57.75 | NA* |
| 10.00 | 0.21 | 22.00 | 0.00 | 34.00 | 0.42 | 46.00 | 0.00 | 58.00 | NA* |
| 10.25 | 0.21 | 22.25 | 0.00 | 34.25 | 0.42 | 46.25 | 0.00 | 58.25 | NA* |
| 10.50 | 0.21 | 22.50 | 0.21 | 34.50 | 0.42 | 46.50 | 0.00 | 58.50 | NA* |
| 10.75 | 0.21 | 22.75 | 0.21 | 34.75 | 0.42 | 46.75 | 0.00 | 58.75 | NA* |
| 11.00 | 0.21 | 23.00 | 0.21 | 35.00 | 0.42 | 47.00 | 0.21 | 59.00 | NA* |
| 11.25 | 0.21 | 23.25 | 0.21 | 35.25 | 0.42 | 47.25 | 0.21 | 59.25 | NA* |
| 11.50 | 0.00 | 23.50 | 0.21 | 35.50 | 0.42 | 47.50 | 0.21 | 59.50 | NA* |
| 11.75 | 0.00 | 23.75 | 0.21 | 35.75 | 0.42 | 47.75 | 0.21 | 59.75 | NA* |
| **12.00** | **0.00** | **24.00** | **0.42** | **36.00** | **0.42** | **48.00** | **0.21** | **60.00** | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 0.42 AVERAGE OPACITY DURING RUN = 0.17
HIGHEST SIX-MINUTE ROLLING AVERAGE = 0.42

* 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: 8/21/97
Start Time: 0953
Stop Time: 1053

Baghouse Outlet
Run Number: O-M9-4C

| 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 | 0.21 | 24.25 | 0.00 | 36.25 | 0.21 | 48.25 | 0.21 |
| 0.50 | NA | 12.50 | 0.21 | 24.50 | 0.00 | 36.50 | 0.21 | 48.50 | 0.21 |
| 0.75 | NA | 12.75 | 0.21 | 24.75 | 0.00 | 36.75 | 0.21 | 48.75 | 0.21 |
| 1.00 | NA | 13.00 | 0.21 | 25.00 | 0.00 | 37.00 | 0.21 | 49.00 | 0.21 |
| 1.25 | NA | 13.25 | 0.21 | 25.25 | 0.00 | 37.25 | 0.21 | 49.25 | 0.21 |
| 1.50 | NA | 13.50 | 0.21 | 25.50 | 0.00 | 37.50 | 0.21 | 49.50 | 0.21 |
| 1.75 | NA | 13.75 | 0.21 | 25.75 | 0.00 | 37.75 | 0.21 | 49.75 | 0.21 |
| 2.00 | NA | 14.00 | 0.21 | 26.00 | 0.00 | 38.00 | 0.21 | 50.00 | 0.21 |
| 2.25 | NA | 14.25 | 0.21 | 26.25 | 0.00 | 38.25 | 0.21 | 50.25 | 0.21 |
| 2.50 | NA | 14.50 | 0.21 | 26.50 | 0.00 | 38.50 | 0.21 | 50.50 | 0.21 |
| 2.75 | NA | 14.75 | 0.21 | 26.75 | 0.00 | 38.75 | 0.21 | 50.75 | 0.21 |
| 3.00 | NA | 15.00 | 0.21 | 27.00 | 0.00 | 39.00 | 0.21 | 51.00 | 0.21 |
| 3.25 | NA | 15.25 | 0.21 | 27.25 | 0.00 | 39.25 | 0.21 | 51.25 | 0.21 |
| 3.50 | NA | 15.50 | 0.21 | 27.50 | 0.00 | 39.50 | 0.21 | 51.50 | 0.21 |
| 3.75 | NA | 15.75 | 0.21 | 27.75 | 0.00 | 39.75 | 0.21 | 51.75 | 0.21 |
| 4.00 | NA | 16.00 | 0.21 | 28.00 | 0.00 | 40.00 | 0.21 | 52.00 | 0.21 |
| 4.25 | NA | 16.25 | 0.21 | 28.25 | 0.00 | 40.25 | 0.21 | 52.25 | 0.21 |
| 4.50 | NA | 16.50 | 0.21 | 28.50 | 0.00 | 40.50 | 0.21 | 52.50 | 0.21 |
| 4.75 | NA | 16.75 | 0.00 | 28.75 | 0.00 | 40.75 | 0.42 | 52.75 | 0.21 |
| 5.00 | NA | 17.00 | 0.00 | 29.00 | 0.00 | 41.00 | 0.21 | 53.00 | 0.21 |
| 5.25 | NA | 17.25 | 0.00 | 29.25 | 0.00 | 41.25 | 0.21 | 53.25 | 0.21 |
| 5.50 | NA | 17.50 | 0.00 | 29.50 | 0.00 | 41.50 | 0.21 | 53.50 | 0.00 |
| 5.75 | NA | 17.75 | 0.00 | 29.75 | 0.00 | 41.75 | 0.21 | 53.75 | 0.21 |
| 6.00 | 0.21 | 18.00 | 0.00 | 30.00 | 0.00 | 42.00 | 0.21 | 54.00 | 0.21 |
| 6.25 | 0.21 | 18.25 | 0.00 | 30.25 | 0.00 | 42.25 | 0.21 | 54.25 | 0.21 |
| 6.50 | 0.21 | 18.50 | 0.00 | 30.50 | 0.00 | 42.50 | 0.21 | 54.50 | 0.21 |
| 6.75 | 0.21 | 18.75 | 0.00 | 30.75 | 0.00 | 42.75 | 0.21 | 54.75 | 0.21 |
| 7.00 | 0.21 | 19.00 | 0.00 | 31.00 | 0.00 | 43.00 | 0.21 | 55.00 | 0.21 |
| 7.25 | 0.21 | 19.25 | 0.00 | 31.25 | 0.00 | 43.25 | 0.21 | 55.25 | 0.21 |
| 7.50 | 0.21 | 19.50 | 0.00 | 31.50 | 0.00 | 43.50 | 0.21 | 55.50 | 0.21 |
| 7.75 | 0.21 | 19.75 | 0.00 | 31.75 | 0.00 | 43.75 | 0.21 | 55.75 | 0.21 |
| 8.00 | 0.00 | 20.00 | 0.00 | 32.00 | 0.00 | 44.00 | 0.21 | 56.00 | 0.21 |
| 8.25 | 0.00 | 20.25 | 0.00 | 32.25 | 0.00 | 44.25 | 0.21 | 56.25 | 0.21 |
| 8.50 | 0.00 | 20.50 | 0.00 | 32.50 | 0.00 | 44.50 | 0.21 | 56.50 | 0.21 |
| 8.75 | 0.00 | 20.75 | 0.00 | 32.75 | 0.00 | 44.75 | 0.21 | 56.75 | 0.21 |
| 9.00 | 0.00 | 21.00 | 0.00 | 33.00 | 0.00 | 45.00 | 0.21 | 57.00 | 0.21 |
| 9.25 | 0.00 | 21.25 | 0.00 | 33.25 | 0.00 | 45.25 | 0.21 | 57.25 | 0.21 |
| 9.50 | 0.00 | 21.50 | 0.00 | 33.50 | 0.00 | 45.50 | 0.21 | 57.50 | 0.21 |
| 9.75 | 0.00 | 21.75 | 0.00 | 33.75 | 0.00 | 45.75 | 0.21 | 57.75 | 0.21 |
| 10.00 | 0.00 | 22.00 | 0.00 | 34.00 | 0.00 | 46.00 | 0.21 | 58.00 | 0.21 |
| 10.25 | 0.00 | 22.25 | 0.00 | 34.25 | 0.00 | 46.25 | 0.21 | 58.25 | 0.21 |
| 10.50 | 0.00 | 22.50 | 0.00 | 34.50 | 0.00 | 46.50 | 0.21 | 58.50 | 0.21 |
| 10.75 | 0.21 | 22.75 | 0.00 | 34.75 | 0.00 | 46.75 | 0.00 | 58.75 | 0.21 |
| 11.00 | 0.21 | 23.00 | 0.00 | 35.00 | 0.21 | 47.00 | 0.00 | 59.00 | 0.21 |
| 11.25 | 0.21 | 23.25 | 0.00 | 35.25 | 0.21 | 47.25 | 0.00 | 59.25 | 0.21 |
| 11.50 | 0.21 | 23.50 | 0.00 | 35.50 | 0.21 | 47.50 | 0.21 | 59.50 | 0.21 |
| 11.75 | 0.21 | 23.75 | 0.00 | 35.75 | 0.21 | 47.75 | 0.21 | 59.75 | 0.00 |
| 12.00 | 0.21 | 24.00 | 0.00 | 36.00 | 0.21 | 48.00 | 0.21 | 60.00 | NA* |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 0.21
HIGHEST SIX-MINUTE ROLLING AVERAGE = 0.42
AVERAGE OPACITY DURING RUN = 0.13

* 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: 8/21/97
Start Time: 1058
Stop Time: 1158

Baghouse Outlet
Run Number: O-M9-4D

| 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 | 0.00 | 24.25 | 0.21 | 36.25 | 0.00 | 48.25 | 0.00 |
| 0.50 | NA | 12.50 | 0.00 | 24.50 | 0.21 | 36.50 | 0.00 | 48.50 | 0.00 |
| 0.75 | NA | 12.75 | 0.00 | 24.75 | 0.21 | 36.75 | 0.00 | 48.75 | 0.00 |
| 1.00 | NA | 13.00 | 0.21 | 25.00 | 0.21 | 37.00 | 0.00 | 49.00 | 0.00 |
| 1.25 | NA | 13.25 | 0.21 | 25.25 | 0.21 | 37.25 | 0.00 | 49.25 | 0.00 |
| 1.50 | NA | 13.50 | 0.21 | 25.50 | 0.21 | 37.50 | 0.00 | 49.50 | 0.00 |
| 1.75 | NA | 13.75 | 0.21 | 25.75 | 0.00 | 37.75 | 0.00 | 49.75 | 0.00 |
| 2.00 | NA | 14.00 | 0.21 | 26.00 | 0.00 | 38.00 | 0.00 | 50.00 | 0.00 |
| 2.25 | NA | 14.25 | 0.21 | 26.25 | 0.00 | 38.25 | 0.00 | 50.25 | 0.00 |
| 2.50 | NA | 14.50 | 0.21 | 26.50 | 0.00 | 38.50 | 0.00 | 50.50 | 0.00 |
| 2.75 | NA | 14.75 | 0.21 | 26.75 | 0.00 | 38.75 | 0.00 | 50.75 | 0.00 |
| 3.00 | NA | 15.00 | 0.21 | 27.00 | 0.00 | 39.00 | 0.00 | 51.00 | 0.00 |
| 3.25 | NA | 15.25 | 0.21 | 27.25 | 0.00 | 39.25 | 0.00 | 51.25 | 0.00 |
| 3.50 | NA | 15.50 | 0.21 | 27.50 | 0.00 | 39.50 | 0.00 | 51.50 | 0.00 |
| 3.75 | NA | 15.75 | 0.21 | 27.75 | 0.00 | 39.75 | 0.00 | 51.75 | 0.00 |
| 4.00 | NA | 16.00 | 0.21 | 28.00 | 0.00 | 40.00 | 0.00 | 52.00 | 0.00 |
| 4.25 | NA | 16.25 | 0.21 | 28.25 | 0.00 | 40.25 | 0.00 | 52.25 | 0.00 |
| 4.50 | NA | 16.50 | 0.21 | 28.50 | 0.00 | 40.50 | 0.00 | 52.50 | 0.00 |
| 4.75 | NA | 16.75 | 0.21 | 28.75 | 0.00 | 40.75 | 0.00 | 52.75 | 0.00 |
| 5.00 | NA | 17.00 | 0.21 | 29.00 | 0.00 | 41.00 | 0.00 | 53.00 | 0.00 |
| 5.25 | NA | 17.25 | 0.21 | 29.25 | 0.00 | 41.25 | 0.00 | 53.25 | 0.21 |
| 5.50 | NA | 17.50 | 0.21 | 29.50 | 0.00 | 41.50 | 0.21 | 53.50 | 0.21 |
| 5.75 | NA | 17.75 | 0.21 | 29.75 | 0.00 | 41.75 | 0.21 | 53.75 | 0.21 |
| **6.00** | **0.21** | **18.00** | **0.21** | **30.00** | **0.00** | **42.00** | **0.21** | **54.00** | **0.21** |
| 6.25 | 0.21 | 18.25 | 0.21 | 30.25 | 0.00 | 42.25 | 0.21 | 54.25 | 0.21 |
| 6.50 | 0.21 | 18.50 | 0.21 | 30.50 | 0.00 | 42.50 | 0.21 | 54.50 | 0.21 |
| 6.75 | 0.21 | 18.75 | 0.21 | 30.75 | 0.00 | 42.75 | 0.21 | 54.75 | 0.21 |
| 7.00 | 0.21 | 19.00 | 0.00 | 31.00 | 0.00 | 43.00 | 0.21 | 55.00 | 0.21 |
| 7.25 | 0.21 | 19.25 | 0.00 | 31.25 | 0.00 | 43.25 | 0.21 | 55.25 | 0.21 |
| 7.50 | 0.21 | 19.50 | 0.00 | 31.50 | 0.00 | 43.50 | 0.21 | 55.50 | 0.21 |
| 7.75 | 0.21 | 19.75 | 0.21 | 31.75 | 0.00 | 43.75 | 0.21 | 55.75 | 0.21 |
| 8.00 | 0.21 | 20.00 | 0.21 | 32.00 | 0.00 | 44.00 | 0.21 | 56.00 | 0.21 |
| 8.25 | 0.21 | 20.25 | 0.21 | 32.25 | 0.00 | 44.25 | 0.22 | 56.25 | 0.21 |
| 8.50 | 0.21 | 20.50 | 0.21 | 32.50 | 0.00 | 44.50 | 0.22 | 56.50 | 0.21 |
| 8.75 | 0.21 | 20.75 | 0.21 | 32.75 | 0.00 | 44.75 | 0.22 | 56.75 | 0.21 |
| 9.00 | 0.21 | 21.00 | 0.21 | 33.00 | 0.00 | 45.00 | 0.22 | 57.00 | 0.21 |
| 9.25 | 0.21 | 21.25 | 0.21 | 33.25 | 0.00 | 45.25 | 0.22 | 57.25 | 0.21 |
| 9.50 | 0.21 | 21.50 | 0.21 | 33.50 | 0.00 | 45.50 | 0.22 | 57.50 | 0.21 |
| 9.75 | 0.00 | 21.75 | 0.21 | 33.75 | 0.00 | 45.75 | 0.22 | 57.75 | 0.21 |
| 10.00 | 0.00 | 22.00 | 0.21 | 34.00 | 0.00 | 46.00 | 0.22 | 58.00 | 0.21 |
| 10.25 | 0.00 | 22.25 | 0.21 | 34.25 | 0.00 | 46.25 | 0.22 | 58.25 | 0.21 |
| 10.50 | 0.00 | 22.50 | 0.21 | 34.50 | 0.00 | 46.50 | 0.22 | 58.50 | 0.21 |
| 10.75 | 0.00 | 22.75 | 0.21 | 34.75 | 0.00 | 46.75 | 0.22 | 58.75 | 0.21 |
| 11.00 | 0.00 | 23.00 | 0.21 | 35.00 | 0.00 | 47.00 | 0.22 | 59.00 | 0.21 |
| 11.25 | 0.00 | 23.25 | 0.21 | 35.25 | 0.00 | 47.25 | 0.22 | 59.25 | 0.00 |
| 11.50 | 0.00 | 23.50 | 0.21 | 35.50 | 0.00 | 47.50 | 0.00 | 59.50 | 0.00 |
| 11.75 | 0.00 | 23.75 | 0.21 | 35.75 | 0.00 | 47.75 | 0.00 | 59.75 | 0.00 |
| **12.00** | **0.00** | **24.00** | **0.21** | **36.00** | **0.00** | **48.00** | **0.00** | **60.00** | **0.00** |

HIGHEST SIX-MINUTE BLOCK AVERAGE = 0.21 AVERAGE OPACITY DURING RUN = 0.10

HIGHEST SIX-MINUTE ROLLING AVERAGE = 0.22

* 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**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**
**US EPA Test Method 23 - PCDD / PCDF**
**Baghouse Outlet**


| | *RUN NUMBER* | *S-M23-O-1* | *S-M23-O-2* | *S-M23-O-3* | |
|---|---|---|---|---|---|
| | *RUN DATE* | *8/19/97* | *8/20/97* | *8/20/97* | *Average* |
| | *RUN TIME* | *0915-1456* | *0822-1240* | *1405-1730* | |
| | MEASURED DATA | | | | |
| $\gamma$ | Meter Box Correction Factor | 0.987 | 0.987 | 0.987 | 0.987 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 1.29 | 2.82 | 2.50 | 2.20 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.90 | 29.80 | 29.80 | 30.40 |
| $V_m$ | Sample Volume, $ft^3$ | 138.502 | 199.873 | 162.107 | 166.827 |
| $T_m$ | Average Meter Temperature, °F | 115 | 102 | 109 | 109 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -0.22 | -0.25 | -0.25 | -0.24 |
| $T_s$ | Average Stack Temperature, °F | 185 | 223 | 209 | 206 |
| $V_{lc}$ | Condensate Collected, ml | 601.6 | 1253.1 | 912.4 | 922.4 |
| $CO_2$ | Carbon Dioxide content, % by volume | 5.3 | 5.5 | 5.1 | 5.3 |
| $O_2$ | Oxygen content, % by volume | 13.1 | 13.1 | 13.1 | 13.1 |
| $N_2$ | Nitrogen content, % by volume | 81.6 | 81.4 | 81.8 | 81.6 |
| $C_p$ | Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.6897 | 0.9039 | 0.8429 | 0.8122 |
| $\Theta$ | Sample Run Duration, minutes | 240 | 240 | 200 | 227 |
| $D_n$ | Nozzle Diameter, inches | 0.240 | 0.251 | 0.251 | 0.247 |
| | CALCULATED DATA | | | | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.00031 | 0.00034 | 0.00034 | 0.00033 |
| $V_{m(std)}$ | Standard Meter Volume, dscf | 125.786 | 185.768 | 148.617 | 153.390 |
| $V_{m(std)}$ | Standard Meter Volume, dscm | 3.562 | 5.260 | 4.208 | 4.344 |
| $P_s$ | Stack Pressure, inches Hg | 29.88 | 29.78 | 29.78 | 29.82 |
| $B_{ws}$ | Moisture, % by volume | 18.4 | 24.1 | 22.4 | 21.6 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 56.9 | NA | 93.9 | 75.4 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 28.317 | 58.983 | 42.947 | 43.416 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.816 | 0.759 | 0.776 | 0.784 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 29.37 | 29.40 | 29.34 | 29.37 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 27.28 | 26.66 | 26.80 | 26.91 |
| $V_s$ | Stack Gas Velocity, ft/s | 44.1 | 60.2 | 55.4 | 53.2 |
| A | Stack Area, $ft^2$ | 11.46 | 11.46 | 11.46 | 11.46 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 30,291 | 41,402 | 38,097 | 36,596 |
| $Q_s$ | Stack Gas Volumetric flow, dscfm | 20,210 | 24,166 | 23,222 | 22,533 |
| $Q_{s(cmm)}$ | Stack Gas Volumetric flow, dscmm | 572.3 | 684.3 | 657.6 | 638.1 |
| I | Isokinetic Sampling Ratio, % | 94.6 | 106.8 | 106.7 | 102.7 |

## Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
|---|---|---|---|---|---|
| | RUN DATE | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| | RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | |
| | EMISSIONS DATA | | | | |
| | DIOXINS: | | | | |
| | 2378 TCDD | | | | |
| (ng) | Catch, ng | ND | ND | {0.003} | {0.00100} |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND | ND | {0.000713} | {0.000238} |
| (µg/hr) | Emission Rate, µg/hr | ND | ND | {0.0281} | {0.00938} |
| | Total TCDD | | | | |
| (ng) | Catch, ng | 0.007 | 0.02 | 0.01 | 0.0123 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00197 | 0.00380 | 0.00238 | 0.00271 |
| (µg/hr) | Emission Rate, µg/hr | 0.0675 | 0.156 | 0.0938 | 0.106 |
| | 12378 PeCDD | | | | |
| (ng) | Catch, ng | ND | ND | 0.005 | 0.00167 |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND | ND | 0.00119 | 0.000396 |
| (µg/hr) | Emission Rate, µg/hr | ND | ND | 0.0469 | 0.0156 |
| | Total PeCDD | | | | |
| (ng) | Catch, ng | {0.040} | 0.030 | 0.030 | {0.0333} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0112} | 0.00570 | 0.00713 | {0.00802} |
| (µg/hr) | Emission Rate, µg/hr | {0.386} | 0.234 | 0.281 | {0.300} |
| | 123478 HxCDD | | | | |
| (ng) | Catch, ng | ND | ND | 0.008 | 0.00267 |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND | ND | 0.00190 | 0.000634 |
| (µg/hr) | Emission Rate, µg/hr | ND | ND | 0.0750 | 0.0250 |
| | 123678 HxCDD | | | | |
| (ng) | Catch, ng | 0.010 | {0.020} | 0.020 | {0.0167} |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00281 | {0.00380} | 0.00475 | {0.00379} |
| (µg/hr) | Emission Rate, µg/hr | 0.0964 | {0.156} | 0.188 | {0.147} |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
|---|---|---|---|---|---|
| | RUN DATE | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| | RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | |
| | EMISSIONS DATA -Continued | | | | |
| | DIOXINS - Continued | | | | |
| | 123789 HxCDD | | | | |
| (ng) | Catch, ng | 0.020 | ND | {0.010} | {0.0100} |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00562 | ND | {0.00238} | {0.00266} |
| (µg/hr) | Emission Rate, µg/hr | 0.193 | ND | {0.0938} | {0.0955} |
| | Total HxCDD | | | | |
| (ng) | Catch, ng | 0.120 | 0.080 | 0.150 | 0.117 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0337 | 0.0152 | 0.0356 | 0.0282 |
| (µg/hr) | Emission Rate, µg/hr | 1.16 | 0.624 | 1.41 | 1.06 |
| | 1234678 HpCDD | | | | |
| (ng) | Catch, ng | 0.060 | {0.040} | 0.060 | {0.0533} |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0168 | {0.00760} | 0.0143 | {0.0129} |
| (µg/hr) | Emission Rate, µg/hr | 0.578 | {0.312} | 0.563 | {0.484} |
| | Total HpCDD | | | | |
| (ng) | Catch, ng | 0.100 | 0.040 | 0.060 | 0.0667 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0281 | 0.00760 | 0.0143 | 0.0166 |
| (µg/hr) | Emission Rate, µg/hr | 0.964 | 0.312 | 0.563 | 0.613 |
| | 12346789 OCDD | | | | |
| (ng) | Catch, ng | 0.530 | 0.190 | 0.130 | 0.283 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.149 | 0.0361 | 0.0309 | 0.0719 |
| (µg/hr) | Emission Rate, µg/hr | 5.11 | 1.48 | 1.22 | 2.60 |
| | Total PCDD | | | | |
| (ng) | Catch, ng | {0.797} | 0.360 | 0.380 | {0.512} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.224} | 0.0684 | 0.0903 | {0.127} |
| (µg/hr) | Emission Rate, µg/hr | {7.68} | 2.81 | 3.56 | {4.69} |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
|---|---|---|---|---|---|
| | RUN DATE | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| | RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | |
| | EMISSIONS DATA - Continued | | | | |
| | FURANS | | | | |
| | 2378 TCDF | | | | |
| (ng) | Catch, ng | {0.008} | ND | 0.020 | {0.00933} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00225} | ND | 0.00475 | {0.00233} |
| (µg/hr) | Emission Rate, µg/hr | {0.0771} | ND | 0.188 | {0.0882} |
| | Total TCDF | | | | |
| (ng) | Catch, ng | 0.030 | 0.040 | 0.030 | 0.0333 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00842 | 0.00760 | 0.00713 | 0.00772 |
| (µg/hr) | Emission Rate, µg/hr | 0.289 | 0.312 | 0.281 | 0.294 |
| | 12378 PeCDF | | | | |
| (ng) | Catch, ng | {0.006} | ND | 0.007 | {0.00433} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00168} | ND | 0.00166 | {0.00112} |
| (µg/hr) | Emission Rate, µg/hr | {0.0578} | ND | 0.0656 | {0.0412} |
| | 23478 PeCDF | | | | |
| (ng) | Catch, ng | {0.010} | ND | 0.010 | {0.00667} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00281} | ND | 0.00238 | {0.00173} |
| (µg/hr) | Emission Rate, µg/hr | {0.0964} | ND | 0.0938 | {0.0634} |
| | Total PeCDF | | | | |
| (ng) | Catch, ng | 0.050 | ND | 0.060 | 0.0367 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0140 | ND | 0.0143 | 0.00943 |
| (µg/hr) | Emission Rate, µg/hr | 0.482 | ND | 0.563 | 0.348 |
| | 123478 HxCDF | | | | |
| (ng) | Catch, ng | 0.040 | 0.040 | 0.060 | 0.0467 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0112 | 0.00760 | 0.0143 | 0.0110 |
| (µg/hr) | Emission Rate, µg/hr | 0.386 | 0.312 | 0.563 | 0.420 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
|---|---|---|---|---|---|
| | RUN DATE | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| | RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | |
| | EMISSIONS DATA - Continued | | | | |
| | Furans - Continued | | | | |
| | 123678 HxCDF | | | | |
| (ng) | Catch, ng | 0.010 | 0.010 | 0.020 | 0.0133 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00281 | 0.00190 | 0.00475 | 0.00315 |
| (µg/hr) | Emission Rate, µg/hr | 0.0964 | 0.0781 | 0.188 | 0.121 |
| | 234678 HxCDF | | | | |
| (ng) | Catch, ng | 0.020 | 0.020 | 0.020 | 0.0200 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00562 | 0.00380 | 0.00475 | 0.00472 |
| (µg/hr) | Emission Rate, µg/hr | 0.193 | 0.156 | 0.188 | 0.179 |
| | 123789 HxCDF | | | | |
| (ng) | Catch, ng | ND | ND | ND | 0.0 |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND | ND | ND | 0.0 |
| (µg/hr) | Emission Rate, µg/hr | ND | ND | ND | 0.0 |
| | Total HxCDF | | | | |
| (ng) | Catch, ng | 0.120 | 0.110 | 0.170 | 0.133 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0337 | 0.0209 | 0.0404 | 0.0317 |
| (µg/hr) | Emission Rate, µg/hr | 1.16 | 0.859 | 1.59 | 1.20 |
| | 1234678 HpCDF | | | | |
| (ng) | Catch, ng | {0.070} | 0.070 | 0.090 | {0.0767} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0197} | 0.0133 | 0.0214 | {0.0181} |
| (µg/hr) | Emission Rate, µg/hr | {0.675} | 0.546 | 0.844 | {0.688} |
| | 1234789 HpCDF | | | | |
| (ng) | Catch, ng | 0.040 | 0.020 | {0.030} | {0.0300} |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0112 | 0.00380 | {0.00713} | {0.00739} |
| (µg/hr) | Emission Rate, µg/hr | 0.386 | 0.156 | {0.281} | {0.274} |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
|---|---|---|---|---|---|
| | RUN DATE | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| | RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | |
| | EMISSIONS DATA - Continued | | | | |
| | Furans - Continued | | | | |
| | Total HpCDF | | | | |
| (ng) | Catch, ng | 0.040 | 0.120 | 0.090 | 0.0833 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0112 | 0.0228 | 0.0214 | 0.0185 |
| (µg/hr) | Emission Rate, µg/hr | 0.386 | 0.937 | 0.844 | 0.722 |
| | 12346789 OCDF | | | | |
| (ng) | Catch, ng | 0.040 | 0.060 | 0.060 | 0.0533 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0112 | 0.0114 | 0.0143 | 0.0123 |
| (µg/hr) | Emission Rate, µg/hr | 0.386 | 0.468 | 0.563 | 0.472 |
| | Total PCDF | | | | |
| (ng) | Catch, ng | 0.280 | 0.330 | 0.410 | 0.340 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0786 | 0.0627 | 0.0974 | 0.0796 |
| (µg/hr) | Emission Rate, µg/hr | 2.70 | 2.58 | 3.84 | 3.04 |
| | Total PCDD + PCDF | | | | |
| (ng) | Catch, ng | {1.08} | 0.690 | 0.790 | {0.852} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.302} | 0.131 | 0.188 | {0.207} |
| (µg/hr) | Emission Rate, µg/hr | {10.4} | 5.39 | 7.41 | {7.72} |

( ) 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 Outlet**

| | CONCENTRATION (ng/dscmm, adjusted to 7% O2) | | | | 2378-TCDD | 2378 TOXIC EQUIVALENCIES (ng/dscmm, adjusted to 7% O2) | | | |
|---|---|---|---|---|---|---|---|---|---|
| RUN NUMBER | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | | Toxic | S-M23-O-1 | S-M23-O-2 | S-M23-O-3 | |
| RUN DATE | 08/19/97 | 08/20/97 | 08/20/97 | Average | Equivalent | 8/19/97 | 8/20/97 | 8/20/97 | Average |
| RUN TIME | 0915-1456 | 0822-1240 | 1405-1730 | | Factor | 0915-1456 | 0822-1240 | 1405-1730 | |
| **DIOXINS:** | | | | | | | | | |
| 2378 TCDD | ND | ND | {0.00127} | {0.000423} | 1.000 | ND | ND | {0.00127} | {0.000423} |
| Total TCDD | 0.00350 | 0.00678 | 0.00423 | 0.00484 | | | | | |
| 12378 PeCDD | ND | ND | 0.00212 | 0.000706 | 0.500 | ND | ND | 0.00106 | 0.000353 |
| Total PeCDD | {0.0200} | 0.0102 | 0.0127 | {0.0143} | | | | | |
| 123478 HxCDD | ND | ND | 0.00339 | 0.00113 | 0.100 | ND | ND | 0.000339 | 0.000113 |
| 123678 HxCDD | 0.00500 | {0.00678} | 0.00847 | {0.00675} | 0.100 | 0.000500 | {0.000678} | 0.000847 | {0.000675} |
| 123789 HxCDD | 0.0100 | ND | {0.00423} | {0.00475} | 0.100 | 0.00100 | ND | {0.000423} | {0.000475} |
| Total HxCDD | 0.0600 | 0.0271 | 0.0635 | 0.0502 | | | | | |
| 1234678 HpCDD | 0.0300 | {0.0136} | 0.0254 | {0.0230} | 0.010 | 0.000300 | {0.000136} | 0.000254 | {0.000230} |
| Total HpCDD | 0.0500 | 0.0136 | 0.0254 | 0.0297 | | | | | |
| 12346789 OCDD | 0.265 | 0.0644 | 0.0550 | 0.128 | 0.001 | 0.000265 | 0.0000644 | 0.0000550 | 0.000128 |
| Total PCDD | {0.399} | 0.122 | 0.161 | {0.227} | | 0.00207 | {0.000877} | {0.00425} | {0.00240} |
| **FURANS:** | | | | | | | | | |
| 2378 TCDF | {0.00400} | ND | 0.00847 | {0.00416} | 0.100 | {0.000400} | ND | 0.000847 | {0.000416} |
| Total TCDF | 0.0150 | 0.0136 | 0.0127 | 0.0138 | | | | | |
| 12378 PeCDF | {0.00300} | ND | 0.00296 | {0.00199} | 0.050 | {0.000150} | ND | 0.000148 | {0.0000994} |
| 23478 PeCDF | {0.00500} | ND | 0.00423 | {0.00308} | 0.500 | {0.00250} | ND | 0.00212 | {0.00154} |
| Total PeCDF | 0.0250 | ND | 0.0254 | 0.0168 | | | | | |
| 123478 HxCDF | 0.0200 | 0.0136 | 0.0254 | 0.0197 | 0.100 | 0.00200 | 0.00136 | 0.00254 | 0.001966 |
| 123678 HxCDF | 0.00500 | 0.00339 | 0.00847 | 0.00562 | 0.100 | 0.000500 | 0.000339 | 0.000847 | 0.000562 |
| 234678 HxCDF | 0.0100 | 0.00678 | 0.00847 | 0.00842 | 0.100 | 0.00100 | 0.000678 | 0.000847 | 0.000842 |
| 123789 HxCDF | ND | ND | ND | 0.0 | 0.100 | ND | ND | ND | 0.00 |
| Total HxCDF | 0.0600 | 0.0373 | 0.0720 | 0.0564 | | | | | |
| 1234678 HpCDF | {0.0350} | 0.0237 | 0.0381 | {0.0323} | 0.010 | {0.000350} | 0.000237 | 0.000381 | {0.000323} |
| 1234789 HpCDF | 0.0200 | 0.00678 | {0.0127} | {0.0132} | 0.010 | 0.000200 | 0.0000678 | {0.000127} | {0.000132} |
| Total HpCDF | 0.0200 | 0.0407 | 0.0381 | 0.0329 | | | | | |
| 12346789 OCDF | 0.0200 | 0.0203 | 0.0254 | 0.0219 | 0.001 | 0.0000200 | 0.0000203 | 0.0000254 | 0.0000219 |
| Total PCDF | 0.140 | 0.112 | 0.174 | 0.142 | | {0.00712} | 0.00270 | {0.00788} | {0.00590} |
| Total PCDD + PCDF | {0.539} | 0.234 | 0.335 | {0.369} | | {0.00919} | {0.00357} | {0.0121} | {0.00830} |

## Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M23-O-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | MEASURED DATA | |
| $\gamma$ | Meter Box Correction Factor | 0.987 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 2.37 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.70 |
| $V_m$ | Sample Volume, $ft^3$ | 179.969 |
| $T_m$ | Average Meter Temperature, °F | 105 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -0.25 |
| $T_s$ | Average Stack Temperature, °F | 180 |
| $V_{lc}$ | Condensate Collected, ml | 819.1 |
| $CO_2$ | Carbon Dioxide content, % by volume | 3.2 |
| $O_2$ | Oxygen content, % by volume | 10.8 |
| $N_2$ | Nitrogen content, % by volume | 86.0 |
| $C_p$ | Pitot Tube Coefficient | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.8374 |
| $\Theta$ | Sample Run Duration, minutes | 240 |
| $D_n$ | Nozzle Diameter, inches | 0.251 |
| | CALCULATED DATA | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.000344 |
| $V_{m(std)}$ | Standard Meter Volume, dscf | 165.621 |
| $V_{m(std)}$ | Standard Meter Volume, dscm | 4.690 |
| $P_s$ | Stack Pressure, inches Hg | 29.68 |
| $B_{ws}$ | Moisture, % by volume | 18.9 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 51.1 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 38.555 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.811 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 28.94 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 26.88 |
| $V_s$ | Stack Gas Velocity, ft/s | 53.8 |
| A | Stack Area, $ft^2$ | 11.46 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 37,027 |
| $Q_s$ | Stack Gas Volumetric flow, dscfm | 24,580 |
| $Q_{s(cmm)}$ | Stack Gas Volumetric flow, dscmm | 696.0 |
| I | Isokinetic Sampling Ratio, % | 93.7 |

## Summary of Stack Gas Parameters and Test Results

ASPHALT PLANT "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***O-M23-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | EMISSIONS DATA | |
| | DIOXINS: | |
| | 2378 TCDD | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | Total TCDD | |
| (ng) | Catch, ng | {0.007} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00149} |
| (µg/hr) | Emission Rate, µg/hr | {0.0623} |
| | 12378 PeCDD | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | Total PeCDD | |
| (ng) | Catch, ng | 0.010 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00213 |
| (µg/hr) | Emission Rate, µg/hr | 0.0890 |
| | 123478 HxCDD | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | 123678 HxCDD | |
| (ng) | Catch, ng | 0.010 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00213 |
| (µg/hr) | Emission Rate, µg/hr | 0.0890 |

( ) 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 "A"*

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***O-M23-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | EMISSIONS DATA -Continued | |
| | DIOXINS - Continued | |
| | 123789 HxCDD | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | Total HxCDD | |
| (ng) | Catch, ng | 0.070 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0149 |
| (µg/hr) | Emission Rate, µg/hr | 0.623 |
| | 1234678 HpCDD | |
| (ng) | Catch, ng | {0.040} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00853} |
| (µg/hr) | Emission Rate, µg/hr | {0.356} |
| | Total HpCDD | |
| (ng) | Catch, ng | {0.070} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0149} |
| (µg/hr) | Emission Rate, µg/hr | {0.623} |
| | 12346789 OCDD | |
| (ng) | Catch, ng | 0.090 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0192 |
| (µg/hr) | Emission Rate, µg/hr | 0.801 |
| | Total PCDD | |
| (ng) | Catch, ng | {0.247} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.0527} |
| (µg/hr) | Emission Rate, µg/hr | {2.20} |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***O-M23-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | EMISSIONS DATA - Continued | |
| | FURANS | |
| | 2378 TCDF | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | Total TCDF | |
| (ng) | Catch, ng | 0.030 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00640 |
| (µg/hr) | Emission Rate, µg/hr | 0.267 |
| | 12378 PeCDF | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | 23478 PeCDF | |
| (ng) | Catch, ng | {0.010} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.00213} |
| (µg/hr) | Emission Rate, µg/hr | {0.0890} |
| | Total PeCDF | |
| (ng) | Catch, ng | 0.010 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00213 |
| (µg/hr) | Emission Rate, µg/hr | 0.0890 |
| | 123478 HxCDF | |
| (ng) | Catch, ng | 0.030 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00640 |
| (µg/hr) | Emission Rate, µg/hr | 0.267 |

( ) 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 "A"

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***O-M23-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | EMISSIONS DATA - Continued | |
| | Furans - Continued | |
| | 123678 HxCDF | |
| (ng) | Catch, ng | 0.010 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00213 |
| (µg/hr) | Emission Rate, µg/hr | 0.0890 |
| | 234678 HxCDF | |
| (ng) | Catch, ng | 0.020 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00426 |
| (µg/hr) | Emission Rate, µg/hr | 0.178 |
| | 123789 HxCDF | |
| (ng) | Catch, ng | ND |
| (ng/dscm) | Concentration, ng/dscm, as measured | ND |
| (µg/hr) | Emission Rate, µg/hr | ND |
| | Total HxCDF | |
| (ng) | Catch, ng | 0.090 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0192 |
| (µg/hr) | Emission Rate, µg/hr | 0.801 |
| | 1234678 HpCDF | |
| (ng) | Catch, ng | 0.050 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0107 |
| (µg/hr) | Emission Rate, µg/hr | 0.445 |
| | 1234789 HpCDF | |
| (ng) | Catch, ng | 0.020 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.00426 |
| (µg/hr) | Emission Rate, µg/hr | 0.178 |

( ) 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 "A"*

## US EPA Test Method 23 - PCDD / PCDF

## Baghouse Outlet



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***O-M23-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1148*** |
| | EMISSIONS DATA - Continued | |
| | Furans - Continued | |
| | Total HpCDF | |
| (ng) | Catch, ng | 0.090 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0192 |
| (µg/hr) | Emission Rate, µg/hr | 0.801 |
| | 12346789 OCDF | |
| (ng) | Catch, ng | 0.050 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0107 |
| (µg/hr) | Emission Rate, µg/hr | 0.445 |
| | Total PCDF | |
| (ng) | Catch, ng | 0.270 |
| (ng/dscm) | Concentration, ng/dscm, as measured | 0.0576 |
| (µg/hr) | Emission Rate, µg/hr | 2.40 |
| | Total PCDD + PCDF | |
| (ng) | Catch, ng | {0.517} |
| (ng/dscm) | Concentration, ng/dscm, as measured | {0.110} |
| (µg/hr) | Emission Rate, µg/hr | {4.60} |

( ) 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 Outlet**

| | CONCENTRATION (ng/dscmm, adjusted to 7% O2) | 2378-TCDD Toxic Equivalent Factor | 2378 TOXIC EQUIVALENCIES (ng/dscmm, adjusted to 7% O2) |
|---|---|---|---|
| RUN NUMBER | S-M23-O-4 | | S-M23-O-4 |
| RUN DATE | 08/21/97 | | 8/21/97 |
| RUN TIME | 0741-1148 | | 0741-1148 |
| **DIOXINS:** | | | |
| 2378 TCDD | ND | 1.000 | ND |
| Total TCDD | {0.00205} | | |
| 12378 PeCDD | ND | 0.500 | ND |
| Total PeCDD | 0.00293 | | |
| 123478 HxCDD | ND | 0.100 | ND |
| 123678 HxCDD | 0.00293 | 0.100 | 0.000293 |
| 123789 HxCDD | ND | 0.100 | ND |
| Total HxCDD | 0.0205 | | |
| 1234678 HpCDD | {0.0117} | 0.010 | {0.000117} |
| Total HpCDD | {0.0205} | | |
| 12346789 OCDD | 0.0264 | 0.001 | 0.0000264 |
| Total PCDD | {0.0725} | | {0.000437} |
| **FURANS:** | | | |
| 2378 TCDF | ND | 0.100 | ND |
| Total TCDF | 0.00880 | | |
| 12378 PeCDF | ND | 0.050 | ND |
| 23478 PeCDF | {0.00293} | 0.500 | {0.00147} |
| Total PeCDF | 0.00293 | | |
| 123478 HxCDF | 0.00880 | 0.100 | 0.000880 |
| 123678 HxCDF | 0.00293 | 0.100 | 0.000293 |
| 234678 HxCDF | 0.00587 | 0.100 | 0.000587 |
| 123789 HxCDF | ND | 0.100 | ND |
| Total HxCDF | 0.0264 | | |
| 1234678 HpCDF | 0.0147 | 0.010 | 0.000147 |
| 1234789 HpCDF | 0.00587 | 0.010 | 0.0000587 |
| Total HpCDF | 0.0264 | | |
| 12346789 OCDF | 0.0147 | 0.001 | 0.0000147 |
| Total PCDF | 0.0792 | | {0.00345} |
| Total PCDD + PCDF | {0.152} | | {0.00389} |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Outlet**



| | ***RUN NUMBER*** | ***S-M29-O-1*** | ***S-M29-O-2*** | ***S-M29-O-3*** | |
|---|---|---|---|---|---|
| | ***RUN DATE*** | ***8/19/97*** | ***8/20/97*** | ***8/20/97*** | ***Average*** |
| | ***RUN TIME*** | ***0915-1454*** | ***0822-1240*** | ***1405-1735*** | |
| | MEASURED DATA | | | | |
| $\gamma$ | Meter Box Correction Factor | 0.965 | 0.965 | 0.965 | 0.965 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 1.76 | 2.57 | 2.05 | 2.13 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.90 | 29.80 | 29.80 | 29.83 |
| $V_m$ | Sample Volume, $ft^3$ | 170.576 | 216.899 | 159.831 | 182.435 |
| $T_m$ | Average Meter Temperature, °F | 104 | 96 | 104 | 101 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -0.25 | -0.25 | -0.25 | -0.25 |
| $T_s$ | Average Stack Temperature, °F | 179 | 222 | 207 | 203 |
| $V_{lc}$ | Condensate Collected, ml | 691.0 | 993.1 | 978.8 | 887.6 |
| $CO_2$ | Carbon Dioxide content, % by volume | 5.3 | 5.5 | 5.1 | 5.3 |
| $O_2$ | Oxygen content, % by volume | 13.1 | 13.1 | 13.1 | 13.1 |
| $N_2$ | Nitrogen content, % by volume | 81.6 | 81.4 | 81.8 | 81.6 |
| $C_p$ | Pitot Tube Coefficient | 0.84 | 0.84 | 0.84 | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.7558 | 0.9285 | 0.8233 | 0.8359 |
| $\Theta$ | Sample Run Duration, minutes | 240 | 240 | 200 | 227 |
| $D_n$ | Nozzle Diameter, inches | 0.251 | 0.253 | 0.253 | 0.252 |
| | CALCULATED DATA | | | | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.000344 | 0.000349 | 0.000349 | 0.000347 |
| $V_{m(std)\,cf}$ | Standard Meter Volume, $ft^3$ | 154.579 | 199.270 | 144.561 | 166.137 |
| $V_{m(std)\,cm}$ | Standard Meter Volume, $m^3$ | 4.377 | 5.643 | 4.094 | 4.704 |
| $Q_m$ | Average Sampling Rate, dscfm | 0.644 | 0.830 | 0.723 | 0.732 |
| $P_s$ | Stack Pressure, inches Hg | 29.88 | 29.78 | 29.78 | 29.81 |
| $B_{ws}$ | Moisture, % by volume | 17.4 | 19.0 | 24.2 | 20.2 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 49.5 | 122.4 | 91.1 | 87.7 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 32.525 | 46.745 | 46.072 | 41.781 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.826 | 0.810 | 0.758 | 0.798 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 29.37 | 29.40 | 29.34 | 29.37 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 27.40 | 27.24 | 26.60 | 27.08 |
| $V_s$ | Stack Gas Velocity, ft/s | 47.9 | 61.1 | 54.3 | 54.4 |
| A | Stack Area, $ft^2$ | 11.46 | 11.46 | 11.46 | 11.46 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 32,964 | 42,043 | 37,305 | 37,437 |
| $Q_{s\,cfm}$ | Stack Gas Volumetric flow, dscfm | 22,478 | 26,229 | 22,276 | 23,661 |
| $Q_{s\,cmm}$ | Stack Gas Volumetric flow, dscmm | 637 | 743 | 631 | 670 |
| I | Isokinetic Sampling Ratio, % | 95.6 | 103.9 | 106.5 | 102.0 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Outlet**



| | ***RUN NUMBER*** | ***S-M29-O-1*** | ***S-M29-O-2*** | ***S-M29-O-3*** | |
|---|---|---|---|---|---|
| | ***RUN DATE*** | ***8/19/97*** | ***8/20/97*** | ***8/20/97*** | ***Average*** |
| | ***RUN TIME*** | ***0915-1454*** | ***0822-1240*** | ***1405-1735*** | |
| | EMISSIONS DATA | | | | |
| | <u>Particulate Matter</u> | | | | |
| g | Target Catch, g | 0.4499 | 0.0622 | 0.0274 | 0.1798 |
| gr/dscf | Concentration, gr/dscf | 0.0449 | 0.00482 | 0.00292 | 0.0176 |
| gr/dscf at 7% | Concentration, gr/dscf at 7% O2 | 0.0800 | 0.00858 | 0.00521 | 0.0313 |
| g/dscm | Concentration, g/dscm | 0.103 | 0.0110 | 0.00669 | 0.0402 |
| g/dscm at 7% | Concentration, g/dscm at 7% O2 | 0.183 | 0.0196 | 0.0119 | 0.0716 |
| lb/hr | Emission Rate, lb/hr | 8.65 | 1.08 | 0.558 | 3.43 |
| kg/hr | Emission Rate, kg/hr | 3.93 | 0.491 | 0.253 | 1.56 |
| | <u>Antimony</u> | | | | |
| µg | Target Catch, µg | 0.280 | 0.0300 | 0.0 | 0.103 |
| µg/dscm | Concentration, µg/dscm | 0.0640 | 0.00532 | 0.0 | 0.0231 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.114 | 0.00947 | 0.0 | 0.0412 |
| g/hr | Emission Rate, g/hr | 0.00244 | 0.000237 | 0.0 | 0.000893 |
| | <u>Arsenic</u> | | | | |
| µg | Target Catch, µg | 2.66 | 0.750 | 0.770 | 1.39 |
| µg/dscm | Concentration, µg/dscm | 0.608 | 0.133 | 0.188 | 0.310 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 1.08 | 0.237 | 0.335 | 0.552 |
| g/hr | Emission Rate, g/hr | 0.0232 | 0.00592 | 0.00712 | 0.0121 |
| | <u>Barium</u> | | | | |
| µg | Target Catch, µg | 219 | 47.2 | 18.0 | 94.6 |
| µg/dscm | Concentration, µg/dscm | 49.9 | 8.37 | 4.39 | 20.9 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 89.0 | 14.9 | 7.82 | 37.2 |
| g/hr | Emission Rate, g/hr | 1.91 | 0.373 | 0.166 | 0.815 |
| | <u>Beryllium</u> | | | | |
| 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 |
| | <u>Cadmium</u> | | | | |
| µg | Target Catch, µg | 0.870 | 2.23 | 1.80 | 1.63 |
| µg/dscm | Concentration, µg/dscm | 0.199 | 0.395 | 0.440 | 0.345 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.354 | 0.704 | 0.784 | 0.614 |
| g/hr | Emission Rate, g/hr | 0.00759 | 0.0176 | 0.0166 | 0.0139 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Outlet**



| | ***RUN NUMBER*** | ***S-M29-O-1*** | ***S-M29-O-2*** | ***S-M29-O-3*** | |
|---|---|---|---|---|---|
| | ***RUN DATE*** | ***8/19/97*** | ***8/20/97*** | ***8/20/97*** | ***Average*** |
| | ***RUN TIME*** | ***0915-1454*** | ***0822-1240*** | ***1405-1735*** | |
| | EMISSIONS DATA - Continued | | | | |
| | Chromium | | | | |
| µg | Target Catch, µg | 6.42 | 0.910 | 0.510 | 2.61 |
| µg/dscm | Concentration, µg/dscm | 1.47 | 0.161 | 0.125 | 0.584 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 2.61 | 0.287 | 0.222 | 1.04 |
| g/hr | Emission Rate, g/hr | 0.0560 | 0.00719 | 0.00472 | 0.0226 |
| | Colbalt | | | | |
| µg | Target Catch, µg | 1.82 | ND | ND | 0.607 |
| µg/dscm | Concentration, µg/dscm | 0.416 | ND | ND | 0.139 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.741 | ND | ND | 0.247 |
| g/hr | Emission Rate, g/hr | 0.0159 | ND | ND | 0.00529 |
| | Copper | | | | |
| µg | Target Catch, µg | 17.7 | 4.33 | 6.87 | 9.6 |
| µg/dscm | Concentration, µg/dscm | 4.05 | 0.77 | 1.68 | 2.16 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 7.21 | 1.37 | 2.99 | 3.86 |
| g/hr | Emission Rate, g/hr | 0.155 | 0.0342 | 0.0635 | 0.0841 |
| | Lead | | | | |
| µg | Target Catch, µg | 26.6 | 7.95 | 109 | 47.8 |
| µg/dscm | Concentration, µg/dscm | 6.07 | 1.41 | 26.6 | 11.4 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 10.8 | 2.51 | 47.4 | 20.2 |
| g/hr | Emission Rate, g/hr | 0.232 | 0.0628 | 1.01 | 0.434 |
| | Manganese | | | | |
| µg | Target Catch, µg | 206 | 33.2 | 14.2 | 84.5 |
| µg/dscm | Concentration, µg/dscm | 47.1 | 5.88 | 3.46 | 18.8 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 83.9 | 10.5 | 6.17 | 33.5 |
| g/hr | Emission Rate, g/hr | 1.80 | 0.262 | 0.131 | 0.731 |
| | Mercury | | | | |
| µg | Target Catch, µg | 2.19 | 2.43 | 15.5 | 6.70 |
| µg/dscm | Concentration, µg/dscm | 0.500 | 0.431 | 3.78 | 1.57 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.892 | 0.767 | 6.74 | 2.80 |
| g/hr | Emission Rate, g/hr | 0.0191 | 0.0192 | 0.143 | 0.0605 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Outlet**



| | ***RUN NUMBER*** | ***S-M29-O-1*** | ***S-M29-O-2*** | ***S-M29-O-3*** | |
|---|---|---|---|---|---|
| | ***RUN DATE*** | ***8/19/97*** | ***8/20/97*** | ***8/20/97*** | ***Average*** |
| | ***RUN TIME*** | ***0915-1454*** | ***0822-1240*** | ***1405-1735*** | |
| | EMISSIONS DATA - Continued | | | | |
| | Nickel | | | | |
| µg | Target Catch, µg | 3.80 | 1.68 | 3.21 | 2.90 |
| µg/dscm | Concentration, µg/dscm | 0.868 | 0.298 | 0.784 | 0.650 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 1.55 | 0.53 | 1.40 | 1.16 |
| g/hr | Emission Rate, g/hr | 0.0332 | 0.0133 | 0.0297 | 0.0254 |
| | Phosphorus | | | | |
| µg | Target Catch, µg | 398 | 115 | 104 | 206 |
| µg/dscm | Concentration, µg/dscm | 90.9 | 20.4 | 25.3 | 45.5 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 162 | 36.3 | 45.1 | 81.2 |
| g/hr | Emission Rate, g/hr | 3.47 | 0.909 | 0.959 | 1.78 |
| | Silver | | | | |
| µg | Target Catch, µg | ND | ND | 0.620 | 0.207 |
| µg/dscm | Concentration, µg/dscm | ND | ND | 0.151 | 0.0505 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND | ND | 0.270 | 0.0900 |
| g/hr | Emission Rate, g/hr | ND | ND | 0.00573 | 0.00191 |
| | Selenium | | | | |
| µg | Target Catch, µg | 0.610 | 0.340 | 9.49 | 3.48 |
| µg/dscm | Concentration, µg/dscm | 0.139 | 0.0603 | 2.32 | 0.84 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.248 | 0.107 | 4.13 | 1.50 |
| g/hr | Emission Rate, g/hr | 0.00532 | 0.00269 | 0.0877 | 0.0319 |
| | Thallium | | | | |
| µg | Target Catch, µg | ND | 0.21 | 0.23 | 0.147 |
| µg/dscm | Concentration, µg/dscm | ND | 0.0372 | 0.0562 | 0.0311 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND | 0.0663 | 0.100 | 0.0555 |
| g/hr | Emission Rate, g/hr | ND | 0.00166 | 0.00213 | 0.00126 |
| | Zinc | | | | |
| µg | Target Catch, µg | 141 | 58.8 | 37.8 | 79.2 |
| µg/dscm | Concentration, µg/dscm | 32.3 | 10.4 | 9.22 | 17.3 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 57.5 | 18.6 | 16.4 | 30.8 |
| g/hr | Emission Rate, g/hr | 1.23 | 0.464 | 0.349 | 0.682 |

**Summary of Stack Gas Parameters and Test Results**

**US EPA EMC Asphalt Concrete Emissions Testing** ASPHALT PLANT "A"

**US EPA Test Method 29 - Multiple Metals**

**Baghouse Outlet**



| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-O-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1153*** |
| | MEASURED DATA | |
| $\gamma$ | Meter Box Correction Factor | 0.965 |
| $\Delta H$ | Avg Meter Orifice Pressure, in. $H_2O$ | 2.00 |
| $P_{bar}$ | Barometric Pressure, inches Hg | 29.70 |
| $V_m$ | Sample Volume, $ft^3$ | 186.221 |
| $T_m$ | Average Meter Temperature, °F | 102 |
| $P_{static}$ | Stack Static Pressure, inches $H_2O$ | -0.25 |
| $T_s$ | Average Stack Temperature, °F | 180 |
| $V_{lc}$ | Condensate Collected, ml | 821.4 |
| $CO_2$ | Carbon Dioxide content, % by volume | 3.2 |
| $O_2$ | Oxygen content, % by volume | 10.8 |
| $N_2$ | Nitrogen content, % by volume | 86.0 |
| $C_p$ | Pitot Tube Coefficient | 0.84 |
| $\Delta p^{1/2}$ | Average Square Root $\Delta p$, $(in. H_2O)^{1/2}$ | 0.8239 |
| $\Theta$ | Sample Run Duration, minutes | 240 |
| $D_n$ | Nozzle Diameter, inches | 0.253 |
| | CALCULATED DATA | |
| $A_n$ | Nozzle Area, $ft^2$ | 0.000349 |
| $V_{m(std)\,cf}$ | Standard Meter Volume, $ft^3$ | 168.390 |
| $V_{m(std)\,cm}$ | Standard Meter Volume, $m^3$ | 4.768 |
| $Q_m$ | Average Sampling Rate, dscfm | 0.702 |
| $P_s$ | Stack Pressure, inches Hg | 29.68 |
| $B_{ws}$ | Moisture, % by volume | 18.7 |
| $B_{ws(sat)}$ | Moisture (at saturation), % by volume | 51.1 |
| $V_{wstd}$ | Standard Water Vapor Volume, $ft^3$ | 38.663 |
| $1-B_{ws}$ | Dry Mole Fraction | 0.813 |
| $M_d$ | Molecular Weight (d.b.), lb/lb•mole | 28.94 |
| $M_s$ | Molecular Weight (w.b.), lb/lb•mole | 26.90 |
| $V_s$ | Stack Gas Velocity, ft/s | 53.0 |
| A | Stack Area, $ft^2$ | 11.46 |
| $Q_a$ | Stack Gas Volumetric flow, acfm | 36,415 |
| $Q_{s\,cfm}$ | Stack Gas Volumetric flow, dscfm | 24,240 |
| $Q_{s\,cmm}$ | Stack Gas Volumetric flow, dscmm | 686 |
| I | Isokinetic Sampling Ratio, % | 95.0 |

**Summary of Stack Gas Parameters and Test Results**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**
**US EPA Test Method 29 - Multiple Metals**
**Baghouse Outlet**


| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-O-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1153*** |
| | EMISSIONS DATA | |
| | Particulate Matter | |
| g | Target Catch, g | 0.0133 |
| gr/dscf | Concentration, gr/dscf | 0.00122 |
| gr/dscf at 7% | Concentration, gr/dscf at 7% O2 | 0.00168 |
| g/dscm | Concentration, g/dscm | 0.00279 |
| g/dscm at 7% | Concentration, g/dscm at 7% O2 | 0.00384 |
| lb/hr | Emission Rate, lb/hr | 0.253 |
| kg/hr | Emission Rate, kg/hr | 0.115 |
| | Antimony | |
| µg | Target Catch, µg | 0.0 |
| µg/dscm | Concentration, µg/dscm | 0.0 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.0 |
| g/hr | Emission Rate, g/hr | 0.0 |
| | Arsenic | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | Barium | |
| µg | Target Catch, µg | 9.83 |
| µg/dscm | Concentration, µg/dscm | 2.06 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 2.84 |
| g/hr | Emission Rate, g/hr | 0.0849 |
| | Beryllium | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | Cadmium | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |

**Summary of Stack Gas Parameters and Test Results**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHACT PLANT "A"**
**US EPA Test Method 29 - Multiple Metals**
**Baghouse Outlet**


| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-O-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1153*** |
| | EMISSIONS DATA - Continued | |
| | <u>Chromium</u> | |
| µg | Target Catch, µg | 0.0420 |
| µg/dscm | Concentration, µg/dscm | 0.00881 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.0121 |
| g/hr | Emission Rate, g/hr | 0.000363 |
| | <u>Colbalt</u> | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | <u>Copper</u> | |
| µg | Target Catch, µg | 1.32 |
| µg/dscm | Concentration, µg/dscm | 0.277 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.381 |
| g/hr | Emission Rate, g/hr | 0.0114 |
| | <u>Lead</u> | |
| µg | Target Catch, µg | 1.77 |
| µg/dscm | Concentration, µg/dscm | 0.371 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.511 |
| g/hr | Emission Rate, g/hr | 0.0153 |
| | <u>Manganese</u> | |
| µg | Target Catch, µg | 70.79 |
| µg/dscm | Concentration, µg/dscm | 14.8 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 20.4 |
| g/hr | Emission Rate, g/hr | 0.611 |
| | <u>Mercury</u> | |
| µg | Target Catch, µg | 2.09 |
| µg/dscm | Concentration, µg/dscm | 0.438 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.603 |
| g/hr | Emission Rate, g/hr | 0.0181 |

**Summary of Stack Gas Parameters and Test Results**
**US EPA EMC Asphalt Concrete Emissions Testing - ASPHALT PLANT "A"**
**US EPA Test Method 29 - Multiple Metals**
**Baghouse Outlet**


| | | |
|---|---|---|
| | ***RUN NUMBER*** | ***S-M29-O-4*** |
| | ***RUN DATE*** | ***8/21/97*** |
| | ***RUN TIME*** | ***0741-1153*** |
| | EMISSIONS DATA - Continued | |
| | <u>Nickel</u> | |
| µg | Target Catch, µg | 0.371 |
| µg/dscm | Concentration, µg/dscm | 0.0778 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.107 |
| g/hr | Emission Rate, g/hr | 0.00320 |
| | <u>Phosphorus</u> | |
| µg | Target Catch, µg | 72.25 |
| µg/dscm | Concentration, µg/dscm | 15.2 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 20.9 |
| g/hr | Emission Rate, g/hr | 0.624 |
| | <u>Silver</u> | |
| µg | Target Catch, µg | 0.0 |
| µg/dscm | Concentration, µg/dscm | 0.0 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.0 |
| g/hr | Emission Rate, g/hr | 0.0 |
| | <u>Selenium</u> | |
| µg | Target Catch, µg | 0.0 |
| µg/dscm | Concentration, µg/dscm | 0.0 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 0.0 |
| g/hr | Emission Rate, g/hr | 0.0 |
| | <u>Thallium</u> | |
| µg | Target Catch, µg | ND |
| µg/dscm | Concentration, µg/dscm | ND |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | ND |
| g/hr | Emission Rate, g/hr | ND |
| | <u>Zinc</u> | |
| µg | Target Catch, µg | 22.9 |
| µg/dscm | Concentration, µg/dscm | 4.80 |
| µg/dscm at 7% | Concentration, µg/dscm at 7% O2 | 6.61 |
| g/hr | Emission Rate, g/hr | 0.198 |

## Method 29 Analytical Results (ug) and Blank Corrections

## ST Wooten

## Outlet

"A" (1.4xAreaFilter), ug: 9.90

| | Front H RBlank Mfhb | Back H RBlank Mbhb | Front H O-M29-1 Mfh | Back H O-M29-1 Mbh | Blank Adjusted Front H | Blank Adjusted Back H | O-M29-1 Adjusted Mt | Front H O-M29-2 Avg Mfh | Back H O-M29-2 Avg Mbh | Blank Adjusted Front H | Blank Adjusted Back H | O-M29-2 A Adjusted Mt | Front H O-M29-3 Mfh | Back H O-M29-3 Mbh | Blank Adjusted Front H | Blank Adjusted Back H | O-M29-3 Adjusted Mt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony (Sb) | 4.18 | <.4 | 4.46 | 0 | 0.28 | 0.000 | **0.28** | 4.205 | 0 | 0.03 | 0.000 | **0.03** | 3.35 | 0 | (0.83) | 0.000 | **0.00** |
| Arsenic (As) | < 0.5 | < 0.5 | 2.66 | 0 | 2.660 | 0.000 | **2.66** | 0.7525 | 0 | 0.75 | 0.000 | **0.75** | 0.768 | 0 | 0.77 | 0.000 | **0.77** |
| Barium (Ba) | 4.33 | 0.326 | 221 | 2.29 | 216.67 | 1.964 | **218.63** | 50.95 | 0.9145 | 46.62 | 0.589 | **47.21** | 21.4 | 1.23 | 17.07 | 0.904 | **17.97** |
| Beryllium (Be) | <.1 | < 0.1 | 0 | 0 | 0.00 | 0.000 | **ND** | 0 | 0 | 0.00 | 0.000 | **ND** | 0 | 0 | 0.00 | 0.000 | **ND** |
| Cadmium (Cd) | <.1 | < 0.1 | 0.218 | 0.653 | 0.22 | 0.653 | **0.87** | 2.12 | 0.108 | 2.12 | 0.108 | **2.23** | 0 | 1.8 | 0.00 | 1.800 | **1.80** |
| Chromium (Cr) | 9.33 | 0.222 | 14.7 | 1.27 | 5.37 | 1.048 | **6.42** | 10.035 | 0.431 | 0.71 | 0.209 | **0.91** | 7.85 | 0.733 | (1.48) | 0.511 | **0.51** |
| Colbalt (Co) | <.1 | < 0.1 | 1.82 | 0 | 1.82 | 0.000 | **1.82** | 0 | 0 | 0.00 | 0.000 | **ND** | 0 | 0 | 0.00 | 0.000 | **ND** |
| Copper (Cu) | 1.06 | 1.44 | 17.3 | 2.47 | 16.24 | 1.470 | **17.71** | 4.4 | 1.985 | 3.34 | 0.985 | **4.33** | 3.22 | 5.71 | 2.16 | 4.710 | **6.87** |
| Lead (Pb) | <.2 | 0.265 | 19.7 | 7.13 | 19.70 | 6.865 | **26.57** | 5.69 | 2.525 | 5.69 | 2.260 | **7.95** | 3.1 | 106 | 3.10 | 105.735 | **108.84** |
| anganese (Mn | 0.911 | 34.7 | 203 | 5.04 | 202.09 | 4.040 | **206.13** | 33.4 | 1.7 | 32.49 | 0.700 | **33.19** | 14.2 | 1.89 | 13.29 | 0.890 | **14.18** |
| Mercury (Hg) | < 0.4 | < 1.2 | 0 | 2.19 | | | **2.19** | 0 | 2.43 | | | **2.43** | 0 | 15.49 | | | **15.49** |
| Nickel (Ni) | 4.68 | 0.606 | 7.26 | 1.83 | 2.58 | 1.224 | **3.80** | 6.12 | 0.8495 | 1.44 | 0.244 | **1.68** | 4.32 | 3.82 | (0.36) | 3.214 | **3.21** |
| Phosphorus (P) | <3 | 55.3 | 332 | 69.4 | 332.00 | 65.930 | **397.93** | 59.95 | 58 | 59.95 | 55.100 | **115.05** | 25.8 | 82 | 25.80 | 77.900 | **103.70** |
| Selenium (Se) | 4.35 | < 0.3 | 4.39 | 0.573 | 0.04 | 0.573 | **0.61** | 4.01 | 0.336 | (0.34) | 0.336 | **0.34** | 3.01 | 9.49 | (1.34) | 9.490 | **9.49** |
| Silver (Ag) | 0.27 | <.1 | 0 | 0 | (0.27) | 0.000 | **ND** | 0.1805 | 0 | (0.09) | 0.000 | **0.00** | 0.892 | 0 | 0.62 | 0.000 | **0.62** |
| Thallium (Tl) | < 0.2 | < 0.2 | 0 | 0 | 0.00 | 0.000 | **ND** | 0.21 | 0 | 0.21 | 0.000 | **0.21** | 0.23 | 0 | 0.23 | 0.000 | **0.23** |
| Zinc (Zn) | 2.6 | 2.03 | 114 | 31.4 | 111.40 | 29.830 | **141.23** | 46.7 | 15.65 | 44.10 | 14.650 | **58.75** | 20.3 | 21.1 | 17.70 | 20.045 | **37.75** |

**Front Half Blank to be used:** If Mfhb < A, use Mfhb = Mfhb
If Mfhb > A, use Mfhb = A if A is > the lesser of Mfhb or 5% of Mfh
If A is not (is <), use Mfhb = the lesser of Mfhb or 5% of Mfh

**Back Half Blank to be used:** If Mbhb < I, use Mbhb = Mbhb
If Mbhb > I, use Mfhb = I if I is > the lesser of Mbhb or 5% of Mbh
If I is not (is <), use Mbhb = the lesser of Mbhb or 5% of Mbh

**Total Catch = Mt = (Mfh - Mfhb) + (Mbh - Mbhb)** Note that if Mfhb or Mbhb is > catch, a 0 is used (no negative catches allowed)

**Mercury:** If (Hgfhb + Hgbhb) <= 0.6, use (Hgfhb + Hgbhb)
If (Hgfhb + Hgbhb) > 0.6, use (Hgfhb + Hgbhb) = 0.6 if 0.6 is > the lesser of (Hgfhb+Hgbhb) or 5% of (Hgfh+Hgbh)
If 0.6 is not (is <), use (Hgfhb+Hgbhb) = the lesser of (Hgfhb+Hgbhb) or 5% of (Hgfh+Hgbh)

**Total Hg Catch = Hgt = (Hgfh - Hgfhb) + (Hgbh - Hgbhb)**

## Method 29 Analytical Results (ug) and Blank Corrections
## Outlet & Inlet

Filter Diameter, $in^2$ 3

Volume Rinse

| | Front H RBlank Mfhb | Back H RBlank Mbhb | Front H O-M29-4 Mfh | Back H O-M29-4 Mbh | Catch Values Used Front H | Catch Values Used Back H | | Front H I-M29-1 Mfh | Back H I-M29-1 Mbh | Catch Values Used Front H | Catch Values Used Back H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 4.18 | <.4 | 2.73 | 0 | 2.73 | 0 | 2.73 | 0 | 0 | 0 | 0 | 0.00 |
| Arsenic | < 0.5 | < 0.5 | 0 | 0 | 0 | 0 | 0.00 | 15.2 | 0 | 15.2 | 0 | 15.20 |
| Barium | 4.33 | 0.326 | 13.9 | 0.588 | 13.9 | 0.588 | 14.49 | 617 | 0.604 | 617 | 0.604 | 617.60 |
| Beryllium | <.1 | < 0.1 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 0 | 0.00 |
| Cadmium | <.1 | < 0.1 | 0 | 0 | 0 | 0 | 0.00 | 6 | 0.686 | 6 | 0.686 | 6.69 |
| Chromium | 9.33 | 0.222 | 6.44 | 0.264 | 6.44 | 0.264 | 6.70 | 35.9 | 0.878 | 35.9 | 0.878 | 36.78 |
| Colbalt | <.1 | < 0.1 | 0 | 0 | 0 | 0 | 0.00 | 26.5 | 0 | 26.5 | 0 | 26.50 |
| Copper | 1.06 | 1.44 | 2.14 | 1.24 | 2.14 | 1.24 | 3.38 | 125 | 0.938 | 125 | 0.938 | 125.94 |
| Lead | <.2 | 0.265 | 0.666 | 1.37 | 0.666 | 1.37 | 2.04 | 45.1 | 5.54 | 45.1 | 5.54 | 50.64 |
| Manganese | 0.911 | 34.7 | 20.4 | 54 | 20.4 | 54 | 74.40 | 1160 | 14.2 | 1160 | 14.2 | 1174.20 |
| Mercury | < 0.4 | < 1.2 | 0 | 2.09 | 0 | 2.09 | 2.09 | 0 | < 1.74 | 0 | 0 | 0.00 |
| Nickel | 4.68 | 0.606 | 2.89 | 0.977 | 2.89 | 0.977 | 3.87 | 16.1 | 1.01 | 16.1 | 1.01 | 17.11 |
| Phosphorus | <3 | 55.3 | 14.2 | 61.1 | 14.2 | 61.1 | 75.30 | 3490 | 58.1 | 3490 | 58.1 | 3548.10 |
| Selenium | 4.35 | < 0.3 | 2.44 | 0 | 2.44 | 0 | 2.44 | 0 | 0.969 | 0 | 0.969 | 0.97 |
| Silver | 0.27 | <.1 | 0.208 | 0 | 0.208 | 0 | 0.208 | 0 | 0 | 0 | 0 | 0.00 |
| Thallium | < 0.2 | < 0.2 | 0 | 0 | 0 | 0 | 0.00 | 2.9 | 0 | 2.9 | 0 | 2.90 |
| Zinc | 2.6 | 2.03 | 16.1 | 10.4 | 16.1 | 10.4 | 26.50 | 503 | 21.2 | 503 | 21.2 | 524.20 |

# APPENDIX E

# QA/QC DATA AND CERTIFICATIONS

# TEMPERATURE SENSOR CALIBRATION FORM

**Temperature Sensor No.** S1-4 **Sensor Type** K - T/C **Length** 6" - Gasket
**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 | Boiling 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" (Gaskets)
**Ambient Temp. °F** 72 **Barometric Pressure, "Hg** 29.68
**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. tap | (534) 74 | (532) 72 | 0.37 | Y | mdm |
| 10/21/97 | 3 | b. water | (673) 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

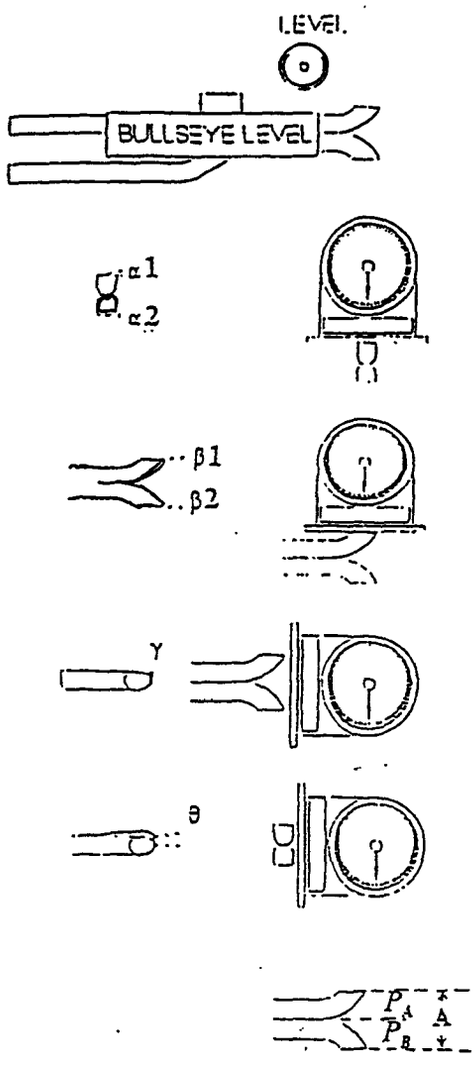
| Date | Ref. Point No. | Temp. Source | Temp. °F | | Temp. Diff. % | Within Limits Y/N | Calibrated By |
|---|---|---|---|---|---|---|---|
| | | | Ref. Sensor | Test Sensor | | | |
| 9/18/97 | 1 | ice bath | 41 | 41 | 0 | Y | mdm |
| 9/18/97 | 2 | w bath | 72 | 72 | 0 | Y | mdm |
| 9/18/97 | 3 | b. water | 210 | 212 | -0.30 | Y | mdm |
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 1 | | | | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |

$$\% \text{ Temp. Diff} = \frac{(\text{Ref. Temp} + 460) - (\text{Test Temp.} + 460)}{(\text{Ref. Temp.} + 460)} \times 100 \leq 1.5\ \%$$

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 |
| $\gamma$ | -1° |
| $\theta$ | .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 |
| $1.05 \times D_T \leq P \leq 1.50 \times D_T$ | .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

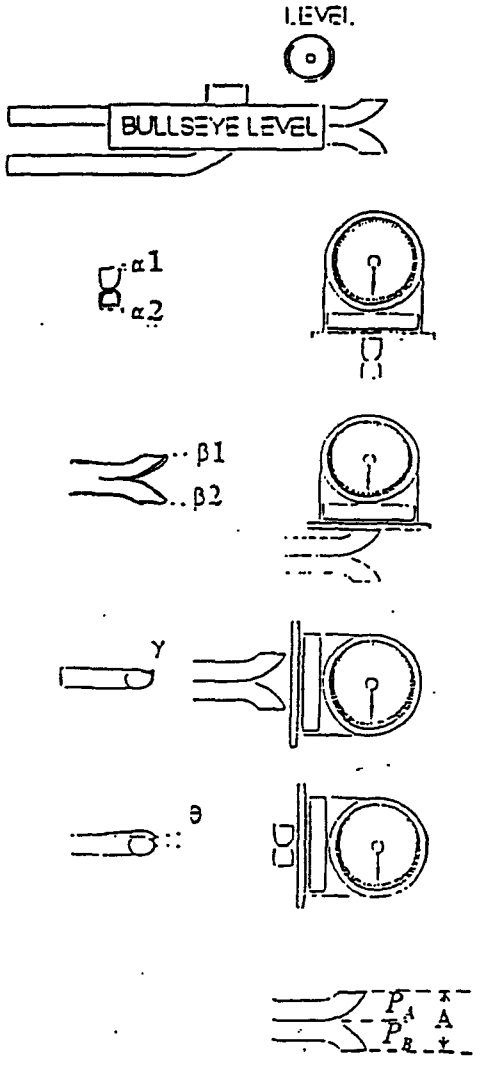
| Source | Reference Temperature | Thermocouple Temperature | Absolute Temperature Difference[1] |
|---|---|---|---|
| Ambient | 93 | 99 | -.011 |
| Ice bath | 36 | 39 | -.006 |
| Hot Water | 136 | 136 | 0 |

[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° |
| $\gamma$ | 2½° |
| $\theta$ | 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 |
| $1.05 \times D_T \leq P \leq 1.50 \times D_T$ | .385 ≤ .55 ≤ .555 |

## Thermocouple Calibration

Type of Reference Thermometer Mercury in Glass  Date 8/16/97

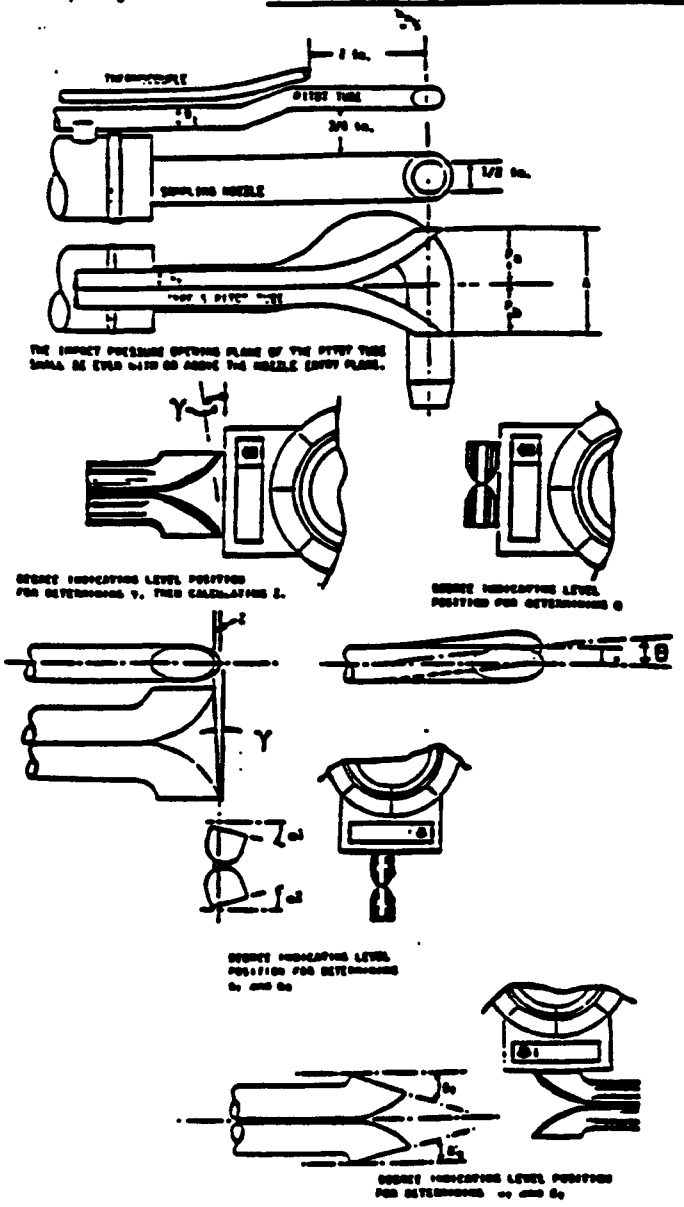
Barometric Pressure 29.88 inHg  Ambient Temperature 102 °F

| Source | Reference Temperature | Thermocouple Temperature | Absolute Temperature Difference[1] |
|---|---|---|---|
| Hot Water | 168 | 169 | -.002 |
| Ambient | 102 | 101 | .002 |
| Ice Water | 38 | 38 | 0 |

[1] *(Ref. Temp., °F + 460) - (ThermocoupleTemp., °F + 460)*

# Example of S-Type Pitot Tube Inspection Data Sheet

Company Name: PES



| | | Pre-sample | Post Sample |
|---|---|---|---|
| | | Date _____ | 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° |
| | $\gamma$ | | .5 |
| | $\theta$ | | 0 |
| | A | | 1.0065 |
| | $1.05\ D_t^{.376} < P_a^{.503} < 1.5\ D_t^{.376}$ | | YES |
| | $1.05\ D_t^{.375} < P_b^{.503} < 1.5\ D_t^{.375}$ | | 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 _____

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 | 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 | 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 | RWBJ |
| 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 | 728.655 | 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 | 76 | 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

$$Y = (Vw \times Pb \times (Td + 460)) / (Vd (Pb + (dHd / 13.6)) \times (Tw + 460)$$

$$H@ = 0.0317 \times Hd / (Pb (Td + 460)) \times ((Tw + 460) \times time) / Vw)^2$$

PACIFIC ENVIRONMENTAL SERVICES, INC.

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(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 ($ft^3$) | 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 | 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 ($ft^3$) | Final ($ft^3$) | Net ($ft^3$) | 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 |

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# 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 | Gas Volume | | | Meter Temperatures | | | | | |
| | Duration | Initial | Final | Net | Initial, Inlet | Final, Inlet | Avg. Inlet | Initial, Outlet | inal, Outle | Avg. Outlet |
| Trial | (min) | ($ft^3$) | ($ft^3$) | ($ft^3$) | (°F) | (°F) | (°F) | (°F) | (°F) | (°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/0! |

| | Reference Meter | | | | | | Meter Box | Reference |
|---|---|---|---|---|---|---|---|---|
| | Gas Volume | | | Meter Temperature | | | Correction | Orifice Press |
| | Initial | Final | Net | Initial | Final | Avg. | Factor | $\Delta H_@$ |
| Trial | ($ft^3$) | ($ft^3$) | ($ft^3$) | (°F) | (°F) | (°F) | γ | (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 | Gas Volume | | | Meter Temperatures | | | | | |
| | Duration | Initial | Final | Net | Initial, Inlet | Final, Inlet | Avg. Inlet | Initial, Outlet | inal, Outle | Avg. Outlet |
| Trial | (min) | ($ft^3$) | ($ft^3$) | ($ft^3$) | (°F) | (°F) | (°F) | (°F) | (°F) | (°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/0! |

| | Reference Meter | | | | | | Meter Box | Reference |
|---|---|---|---|---|---|---|---|---|
| | Gas Volume | | | Meter Temperature | | | Correction | Orifice Press |
| | Initial | Final | Net | Initial | Final | Avg. | Factor | $\Delta H_@$ |
| Trial | ($ft^3$) | ($ft^3$) | ($ft^3$) | (°F) | (°F) | (°F) | γ | (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 | Gas Volume | | | Meter Temperatures | | | | | |
| | Duration | Initial | Final | Net | Initial, Inlet | Final, Inlet | Avg. Inlet | Initial, Outlet | inal, Outle | Avg. Outlet |
| Trial | (min) | ($ft^3$) | ($ft^3$) | ($ft^3$) | (°F) | (°F) | (°F) | (°F) | (°F) | (°F) |
| 1 | 10 | 258.770 | 268.038 | 9.268 | 88 | 83 | 85.5 | 80 | 79 | 79.5 |
| 2 | 10 | 268.038 | 277.350 | 9.312 | 90 | 86 | 88 | 81 | 80 | 80.5 |
| 3 | | | | 0.000 | | | #DIV/0! | | | #DIV/0! |

| | 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) | $\gamma$ | (in. $H_2O$) |
| 1 | 284.146 | 293.382 | 9.236 | 76 | 75 | 75.5 | 1.002 | 1.98 |
| 2 | 293.382 | 302.640 | 9.258 | 76 | 76 | 76 | 1.002 | 1.97 |
| 3 | | | 0.000 | | | #DIV/0! | #DIV/0! | #DIV/0! |

libration Results

| $\Delta H$ | $\gamma$ | $\Delta H_@$ |
|---|---|---|
| 0.50 | 0.972 | 1.873 |
| 1.80 | 0.986 | 1.946 |
| 3.0 | 1.002 | 1.97 |

| | |
|---|---|
| Meter Box Calibration Factor | 0.987 |
| Meter Box Reference Orifice Pressure | 1.93 |

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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 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Gas Volume | | | Meter Temperatures | | | | | |
| Trial | 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) | $\gamma$ | (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% | |

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# 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 |

# 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

# 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 |
| Troy Abernathy | Pacific Environmental Services, Inc. | Sample Recovery |
| Gary Gay | Pacific Environmental Services, Inc. | Site Leader/Console Operator |
| Marc Hamilton | DEECO | Site Leader/Console Operator |
| Arthur Daughtery | DEECO[a] | Console Operator |
| Allen Bass | DEECO[a] | Console Operator |
| Barry Rayfield | DEECO[a] | Sample Recovery |
| David Goshaw | DEECO | Visible Emissions Observer |
| Tom McDonald | Atlantic Technical Services, Inc. | Console Operator |
| Mike Dickerson | Atlantic Technical Services, Inc. | Console Operator |

[a] Subcontractor to Pacific Environmental Services, Inc.

# TECHNICAL REPORT DATA

Please read instructions on the reverse before completing

| | | |
|---|---|---|
| 1. REPORT NO. EPA-454/R-[redacted] 00-003B | 2. | 3. RECIPIENT'S ACCESSION NO. |
| 4. TITLE AND SUBTITLE<br>Final Report - Volume II of II, Emissions Test at an Asphalt Concrete Production Plant: Asphalt Plant "A" - Clayton, North Carolina | | 5. REPORT DATE [redacted] April 2000<br>6. PERFORMING ORGANIZATION CODE |
| 7 AUTHOR(S)<br>Michael D. Maret<br>Franklin Meadows | | 8. PERFORMING ORGANIZATION REPORT NO. |
| 9 PERFORMING ORGANIZATION NAME AND ADDRESS<br>Pacific Environmental Services, Inc.<br>Post Office Box 12077<br>Research Triangle Park, North Carolina 27709-2077 | | 10. PROGRAM ELEMENT NO.<br>11. CONTRACT/GRANT NO<br>68-D-70069 |
| 12. SPONSORING AGENCY NAME AND ADDRESS<br>U.S. Environmental Protection Agency<br>Office of Air Quality Planning and Standards<br>Emissions, Monitoring and Analysis Division<br>Research Triangle Park, North Carolina 27711 | | 13. TYPE OF REPORT AND PERIOD COVERED<br>Final<br>14. SPONSORING AGENCY CODE<br>EPA/200/04 |

15. SUPPLEMENTARY NOTES

16 ABSTRACT

The United States Environmental Protection Agency (EPA) is investigating the asphalt concrete production source category to identify and quantify emissions of hazardous air pollutants (HAPs) from rotary aggregate dryers. There are two types of rotary drum dryers in use at asphalt concrete production plants; parallel flow, wherein the direction of travel of the drying aggregate is in the same direction of travel of the the burner exhaust gases, and counter flow, wherein the aggregate and exhaust gas flows are opposite to each other. Plant "A" , Clayton, North Carolina was identified and selected by EPA as the host facility at which to obtain data on air emissions from a counter flow continuous drum mix process that utilized a baghouse for control of air emissions.

The primary objective of the testing program was to obtain data on controlled and uncontrolled emissions of polychlorinated dibenzo-*p* -dioxins (PCDDs or "dioxins") and polychlorinated dibenzofurans (PCDFs or "furans"), particulate matter (PM), and metallic HAP and non-HAP compounds. Testing of uncontrolled emissions was deleted from the scope of work because the high particulate grain loading at the inlet to the baghouse exceeded the sampling capacity of the Method 23 and Method 29 sampling trains. A secondary objective was to observe and record plume opacity form the baghouse The data will be used by the EPA's Emission Standards Division to determine whether HAPs are emitted at levels that would justify regulation under the Maximum Achievable Control Technology (MACT) program.

During the testing program another EPA contractor monitored and recorded process and emission control system operating parameters, and prepared Section 3.0, Process Description, of this report

This volume (Volume II) is comprised of 704 pages and consists of Appendices: C (Analytical Data), D (Computer Summaries), E (QA/QC Data and Certifications), and F (Field Testing Participants).

17. KEY WORDS AND DOCUMENT ANALYSIS

| a. DESCRIPTIONS | b. IDENTIFIERS/OPEN ENDED TERMS | c. COASTI Field/Group |
|---|---|---|
| Baghouse<br>Dioxins/Furans<br>Emission Measurements<br>Hazardous Air Pollutants<br>Metals<br>Particulate Matter<br>Volatile Organic Hazardous Air Pollutants | | |

| | | |
|---|---|---|
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