United States
Environmental Protection
Agency

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

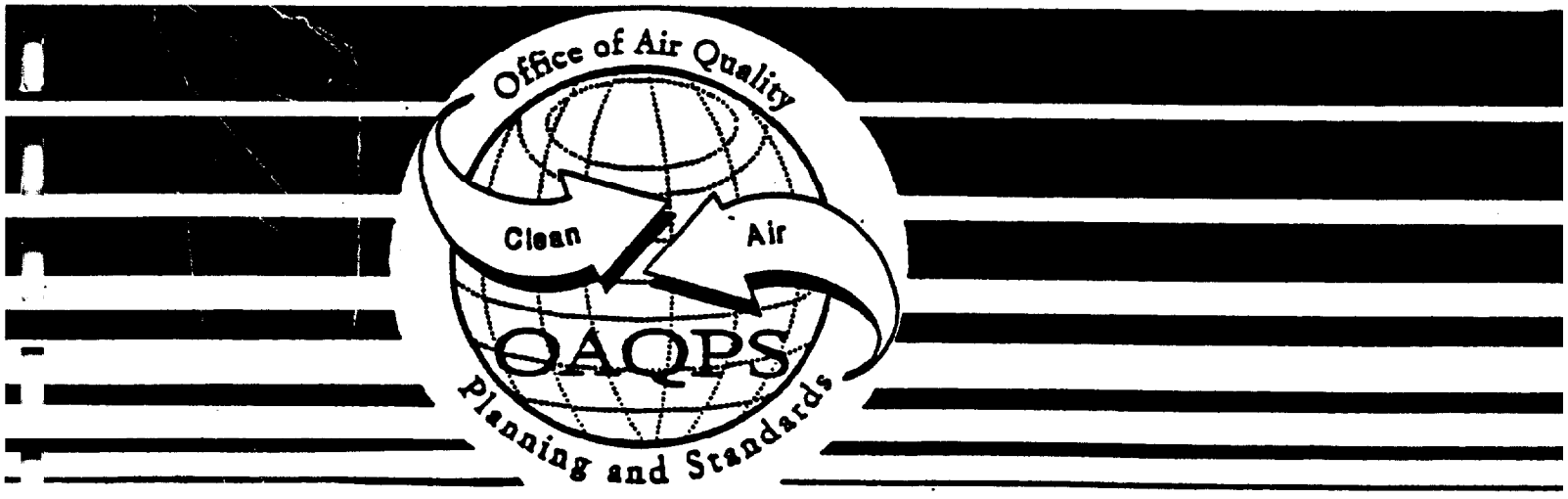
EPA-454/R-99-017B
June 1999

AIR

EPA

Final Report - Volume II of II

Iron and Steel Foundries Manual Emissions Testing of Cupola Baghouse at Waupaca Foundry in Tell City, Indiana



FINAL REPORT

IRON AND STEEL FOUNDRIES
MANUAL EMISSION TESTING
CUPOLA BAGHOUSE
WAUPACA FOUNDRY, TELL CITY, INDIANA

VOLUME II OF II
APPENDICES C - F

EPA Contract No. 68D70069
Work Assignment No. 2-08

Prepared for:

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SMAG, EMC, OAQPS
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

June 1999
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Submitted by

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ANALYTICAL DATA - DIOXINS/FURANS AND SEMIVOLATILE ORGANIC HAZARDOUS AIR POLLUTANTS

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Analytical Data - Dioxins/Furans

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 22, 1997
Client ID:	Pacific Environmental Services
P.O. Number:	S414.003
TLI Project Number:	43229

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Rev. 05/08/97

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Overview

Six M23 samples were received from Pacific Environmental Services at 5 °C in good condition on September 12, 1997 and were stored in a refrigerator at 4°C. The samples and any associated QC samples were extracted and analyzed according to procedures described in the Triangle Laboratories' Data User's Manual (Rev. 12/92-HK-2-AH-2/93). Any particular difficulties encountered during the 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: None

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

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

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

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

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

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

Detection Limits

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

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

Where:

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

2.5 is the minimum response required for a GC signal,

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

H is the height of the noise

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

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

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

W is the sample weight or volume

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

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

Data Flags

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

A **'B'** flag is used to indicate that an analyte has been detected in the laboratory method blank as well as in an associated field sample. The 'B' flag will be used only when the concentration of analyte found in the sample is less than 20 times that found in the associated blank. This flag denotes possible contribution of background laboratory contamination to the concentration or amount of that analyte detected in the field sample. Under Triangle Laboratories guidelines, a laboratory blank is acceptable if the tetra- through hepta-CDD/CDF levels are all below the target detection limits (TDLS) or if the contamination levels are less than 5% of the levels detected in the associated field samples. If these conditions are satisfied or if the blank is unable to be reextracted, the interpretation of the contamination levels relative to the samples should be as follows: 1) analyte quantitations should be considered valid if the level of blank contamination is less than five percent of the level detected in the field sample, 2) analyte quantitations should be considered estimated if the analyte level in the sample is five to twenty times the level of the analyte in the blank, or 3) analytes whose level in a sample is the same as or less than five times the level detected in the associated blank should be considered present likely due to laboratory contamination and not native to the sample.

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

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

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

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

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

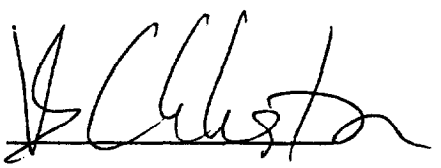
A **'U'** flag is used to indicate that a specific (2,3,7,8-substituted) isomer cannot be resolved from a large, coeluting interferent GC peak. The specific isomer is reported as not detected as a valid concentration/amount cannot be determined. The calculated detection limit, therefore, should be considered an underestimated value.

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

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

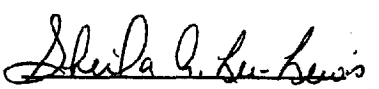
For Triangle Laboratories, Inc.,

Report Preparation



Vijay S. Chhabra
Report Preparation Chemist

Quality Control



Sheila Lee-Lewis
Report Preparation Chemist

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

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State of North Carolina, Department of 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, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

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

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

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

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

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

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

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

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

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

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

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

PHARMACEUTICAL

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

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

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

OTHER

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

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

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

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

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COPY

CLIENT CHAIN OF CUSTODY **SAMPLER'S SIGNATURE** _____ **P/Q 03898/0700003270**

From: Pacific Environmental Services
5001 S. Miami Blvd. Suite 300
RTP, NC 27709
Project: Tell City, IN

Contact: Frank Meadows
Phone: 919-941-0333
Fax: 919-941-0234
P.O.#: _____

(PES03 /AJB)

If the data will be reported to a state agency, which one? ____

Analysis Wanted: EPA Method 23 for Dioxins/Furans

Total Number of Containers: 23 sample fractions

Sample Name	Date	Time	Comp	Grab	Matrix	Sample Amt.						Remarks
FB1-23	9/8/97				Filter, XAD Ace./Toluene Rinse	3 fractions	X					See attached
Bo-23-1	9/9/97				Filter, XAD, Rinse, Condensate	4 fractions	X					PES Master log
Bo-23-2	9/10/97				Filter, XAD Rinse, Condensate	4 fractions	X					sheets -RL
Bo-23-3	9/10/97				Filter, XAD Rinse, Condensate	4 fractions	X					
FB2-23	9/11/97				Filter, XAD, Rinse	3 fractions	X					
Trip Blank	9/11/97				Filter, XAD, Acetone, Toluene, Type II H2O	5 fractions	X					

Relinquished By/Sign.	Date/Time	Received By/Sign.	Relinquished By/Sign.	Date/Time	Received By/Sign.
_____	9/11/97 1030	Arthur Daugherty	Arthur Daugherty	9-12-97	1432 Michael Fullbourne
Michael J. Fullbourne	9/12/97 16:28				

Received for Laboratory By/Signature	Date/Time
Melissa M. Lynch	9/12/97 1628

Send Samples to: **Triangle Laboratories, Inc.**
Attn: Sample Custodian
801 Capitola Drive
Durham, NC 27713 USA
Phone: (919) 544-5729 • Fax: (919) 544-5491

COPY [illegible] 9/13/97

PES

ANALYTICAL REQUEST AND CHAIN OF CUSTODY

PLANT: WAUPACA Foundry

PROJECT #: 5414.003

RECOVERY PERSON: R Kolde / Ben Elsass

SAMPLE TECHNICIAN: T. Abernathy / G. Gay

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	SAMPLE NAME	NUMBER OF CONTAINERS	EPA Method 23	For PCDDs/PCDFs	EPA Method 0010	For Semi Volatile	Organics						COMMENTS (Type of container, special preparation, special handling, etc.)
FB1-23	9/8/97	1600	FB1-23 (Field Blank)	3 XAD Filter Rinse	X										Yellow tape
FB1-0010	9/8/97	1600	(Field Blank) FB1-0010	3 XAD Filter Rinse			X								Samples = Method 23
BO-23-1	9/9/97	1600	Run No. 1 BO-23-1	4 Filter, Front ½ Rinse, XAD Condensate	X										
BO-0010-1	9/9/97	1700	BO-0010-1 Run No. 1	5 Filter, Front ½ Rinse, XAD, Back ½ Rinse, Cond			X								Green Tape
BO-23-2	9/10/97		BO-23-2 Run No. 2	4 Filter, Front ½ rinse, XAD condensate	X										Samples = Method 0010
BO-0010-2	9/10/97		BO-0010-2 Run No. 2	5 Filter, Front ½ rinse XAD, Condensate Back ½ rinse			X								
BO-23-3	9/10/97		BO-23-3 Run No. 3	4 Filter, XAD, Front ½ rinse Condensate	X										
BO-0010-3	9/10/97		BO-0010-3 Run No. 3	5 Filter, XAD, Front ½ rinse, Back ½ Rinse, Condensate			X								
~~Method 23~~															
FB2-23	9/11/97		FB2-23 Field Blank No. 2	3 XAD, Filter, Acetone/Toluene Rinse	X										
Method 23 Blank	9/11/97		Method 23 Blanks	5 XAD, Filter, Acetone, Toluene Type II H_2O	X										
Method 0010 Blanks	9/11/97		Method 0010 Blanks	3 Filter, XAD, Rinse			X								

RELINQUISHER'S NAME	DATE/TIME	RELINQUISHER'S SIGNATURE	SHIPPER'S NAME AND ID NUMBER
Ronald J. Kolde	9/11/97-1030	Ronald J Kolde	DEECO

RECEIVER'S NAME	DATE/TIME	RECEIVER'S SIGNATURE	
Arthur Dougherty	9/11/97-1030	[illegible]	Mike Milbourne 9/12/97 1628 Michael J Milbourne
Arthur Dougherty	9/11/97-1432	[illegible]	Karlin M. Lynch 9/12/97 1628 KML
Mike Milbourne	9/11/97-1432	Michael J Milbourne	

KM 9/13/97

METHOD 23 CDD/CDF SAMPLE RECOVERY DATA

Plant: WAUPACA FOUNDRY		Run No.: FB-23-1
Sample Date: 9/8/97	Filter No.(s): FB-23-1	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/8/97	XAD-2 Trap No.(s): FB-23-1	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	—	475.5	703.2	703.4	596.9	854.9	g
Initial wt.	—	475.5	703.2	703.4	596.9	854.9	g
Net wt.	—	0.0	0.0	0.0	0.0	0.0	g

Description

Train System: Method 23 TRAIN	
Probe: 7' GLASS	
Filter: Color - White	Loading - NONE
Impinger Contents: Clear	
Silica Gel: @Grams Used - 300	Color - Blue % Spent - 0
Condensate Observed In Front Half: NONE	

Recovered Sample Fractions

Filter Container No. 1	marked/sealed: BE
XAD Module Container No.: 2	marked/sealed: BE
Probe (FH) & Back Half Rinse (Toluene/Acetone) Container No.: 3	Liquid level marked/sealed: BE
Probe (FH) & Back Half Rinse (Toluene) Container No.: —	Liquid level marked/sealed: —
Impinger Contents Container No.: —	Liquid level marked/sealed: —
Impinger Rinse (Acetone/~~MeCl2~~ Toluene) Container No.: —	Liquid level marked/sealed: —

KM 9/3/97

METHOD 23 CDD/CDF SAMPLE RECOVERY DATA

Plant: WAUPACA FOUNDRY		Run No.: BD-23-1
Sample Date: 9/9/97	Filter No.(s): BD-23-1	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/9/97	XAD-2 Trap No.(s): BD-23-1	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	–	554.8	717.7	709.2	603.3	832.6	g
Initial wt.	–	494.0	719.5	711.5	599.2	806.9	g
Net wt.	–	60.8	-1.8	-2.3	4.1	25.7	g

Description

Train System: Method 23 TRAIN

Probe: 7' Glass

Filter: Color - Light TAN Loading - LIGHT

Impinger Contents: DI TYPE II H_2O

Silica Gel: @Grams Used - 300 Color - lt. blue % Spent - 80

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 7	marked/sealed: BS
XAD Module Container No.: 8	marked/sealed: BS
Probe (FH) & Back Half Rinse (Acetone) Container No.: 9	Liquid level — marked/sealed: BS
Probe (FH) & Back Half Rinse (Toluene) Container No.: 9	Liquid level — marked/sealed: BS
Impinger Contents Container No.: 10	Liquid level marked/sealed: BS
Impinger Rinse (Acetone/~~MeCl2~~ Toluene) Container No.: 9	Liquid level marked/sealed: BS

9/13/97

METHOD 23 CDD/CDF SAMPLE RECOVERY DATA

Plant: ALPACA FOUNDRY		Run No.: BD-23-2
Sample Date: 9/10/97	Filter No.(s): BD-23-2	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/10/97	XAD-2 Trap No.(s): BD-23-2	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	–	533.8	701.1	701.2	599.6	890.5	g
Initial wt.	–	475.5	703.2	703.4	596.9	854.9	g
Net wt.	=						g

Description

Train System: EPA Method 23

Probe: 7' Glass

Filter: Color - H. brown Loading - Light

Impinger Contents: Clear

Silica Gel: @Grams Used - 300 Color - H. blue % Spent - 50

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 16	marked/sealed: BE
XAD Module Container No.: 17	marked/sealed: BE
Probe (FH) & Back Half Rinse (Acetone) Container No.: 18	Liquid level marked/sealed: BE
Probe (FH) & Back Half Rinse (Toluene) Container No.: 18	Liquid level marked/sealed: BE
Impinger Contents Container No.: 19	Liquid level marked/sealed: BE
Impinger Rinse (Acetone/~~MeCl2~~ Toluene) Container No.: –	Liquid level marked/sealed: –

COPY KML 9/13/97

METHOD 23 CDD/CDF SAMPLE RECOVERY DATA

Plant: WAUPACA FOUNDRY		Run No.: BD-23-3
Sample Date: 9/10/97	Filter No.(s): BD-23-3	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/11/97	XAD-2 Trap No.(s): BD-23-3	
Sample Recovery Person: BE/LK		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	–						g
Initial wt.	–	495.4	729.9	725.5	601.8	816.1	g
Net wt.	–	549.7	728.4	723.5	602.8	898.4	g

Description

Train System: EPA METHOD 23 / BOX ID: N-5

Probe: 7' GLASS

Filter: Color - Tan Loading - Light

Impinger Contents: Type II Water

Silica Gel: @Grams Used - 300 Color - H. Blue % Spent - 60

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 25	marked/sealed: BE
XAD Module Container No.: 26	marked/sealed: BE
Probe (FH) & Back Half Rinse (Acetone) Container No.: 27	Liquid level marked/sealed: BE
Probe (FH) & Back Half Rinse (Toluene) Container No.: 27	Liquid level marked/sealed: BE
Impinger Contents Container No.: 28	Liquid level marked/sealed: BE
Impinger Rinse (Acetone/~~MeCl2~~ Toluene) Container No.: —	Liquid level marked/sealed: —

METHOD 23 CDD/CDF SAMPLE RECOVERY DATA

FB-23-2

Plant: WAUPACA Foundry		Run No.: ~~FB-2-23~~ DS
Sample Date: 9/11/97	Filter No.(s): FB2-23	Job No.: 5414.003
Sample Location: Field Blank at test site - Baghouse outlet		
Recovery Date: 9/11/97	XAD-2 Trap No.(s): FB2-23	
Sample Recovery Person: RKlek / B. Elsis		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	–						g
Initial wt.	–	476.9	702.4	707.6	599.6	870.4	g
Net wt.	–	476.9	702.3	707.5	599.6	870.2	g

Description

Train System: EPA Method 23

Probe: 7' Glass

Filter: Color - White Loading - None

Impinger Contents: Clear

Silica Gel: @Grams Used - 300 Color - Blue/White % Spent - 0

Condensate Observed In Front Half: None

Recovered Sample Fractions

Filter Container No. 34	marked/sealed: BE
XAD Module Container No.: 35	marked/sealed: BE
Probe (FH) & Back Half Rinse (Acetone) Container No.: 36	Liquid level marked/sealed: BE
Probe (FH) & Back Half Rinse (Toluene) Container No.: —	Liquid level marked/sealed: —
Impinger Contents Container No.: —	Liquid level marked/sealed: —
Impinger Rinse (Acetone/MeCl2) Container No.: —	Liquid level marked/sealed: —

PACIFIC ENVIRONMENTAL SERVICES, INC.

Project No.	Page of
5414.003	
Client: U.S. EPA - INAUPACA Foundry	
Location:	

Prepared By	Date	Checked By	Date	Sheet Title
R Kolb	9/9/97			Master Sample Log

① FB1-23 #1 Filter — Roof / Baghouse Outlet — 9/8/97
~~TARE: BE FINAL: BE~~ #2 XAD trap
TARE: 352.6 FINAL: 641.0 #3 Acetone / Toluene Rinse

② FB1-0010 #4 Filter — Roof / Baghouse Outlet — 9/8/97
~~TARE: BE FINAL: BE~~ #5 XAD trap
TARE: 353.0 FINAL: 743.8 #6 Methylene Chloride / Methanol Rinse

③ BO-23-1 #7 Filter — Baghouse Outlet — 9/9/97
#8 XAD trap
TARE: 356.9 FINAL: 682.3 #9 Acetone / Toluene Rinse
TARE: 166.4 FINAL: 227.2 #10 1st impinger Condensate

④ BO-0010-1 #11 Filter — Baghouse Outlet — 9/9/97
#12 XAD trap
TARE: 357.8 FINAL: 717.9 #13 Methylene Chloride / Methanol Rinse - Front ½
TARE: 166.2 FINAL: 332.7 #14 Methylene Chloride / Methanol Rinse - Back ½
TARE: 189.8 FINAL: 244.9 #15 1st impinger condensate

⑤ BO-23-2 #16 Filter — Baghouse Outlet — 9/10/97
#17 XAD trap
TARE: 357.0 FINAL: 729.4 #18 Methylene Acetone / Toluene Rinse
TARE: 191.3 FINAL: 248.1 #19 1st impinger condensate

⑥ BO-0010-2 #20 Filter — Baghouse Outlet — 9/10/97
#21 XAD trap
TARE: 352.3 FINAL: 759.9 #22 Methylene Chloride / Methanol Rinse - Front ½
TARE: 172.9 FINAL: 320.4 #23 Methylene chloride / Methanol Rinse - Back ½
TARE: 192.6 FINAL: 249.2 #24 1st. impinger Condensate

COPY Mail - 9/13/97

PACIFIC ENVIRONMENTAL SERVICES, INC.

Project No.	Page of
5414.003	
Client: U.S. EPA WAUPACA FOUNDRY	
Location:	

Prepared By	Date	Checked By	Date	Sheet Title
R Kolde	9/12/97			Master Sample Log

⑦ BO-23-3	#25	Filter	Baghouse Outlet	9/10/97
	#26	XAD trap		
Tare: 353.7 Final: 696.8	#27	Acetone/Toluene Rinse		
Tare: 269.8 Final: 323.7	#28	1st impinger condensate		
⑧ BO-0010-3	#29	Filter	Baghouse Outlet	9/10/97
	#30	XAD trap		
Tare: 352.8 Final: 718.5	#31	Methylene Chloride/Methanol Rinse - Front ½		
Tare: 267.8 Final: 434.9	#32	Methylene Chloride/Methanol Rinse Back ½		
Tare: 354.0 Final: 416.9	#33	1st impinger Condensate		
⑨ FB2-23	#34	Filter	Roof	9/11/97
	#35	XAD trap		
Tare: 267.3 Final: 636.1	#36	Acetone/Toluene Rinse		
⑩ Method 23 Blanks	#37	Filter Blank	Lab area	9/11/97
	#38	XAD trap Blank		
Tare: 267.2 Final: 574.0	#39	Acetone Blank		
Tare: 266.7 Final: 664.1	#40	Toluene Blank		
Tare: 266.9 Final: 764.9	#41	Type II Water Blank		
⑪ Method 0010 Blanks	#42	Filter Blank	Lab area	9/11/97
	#43	XAD trap Blank		
Tare: 358.6 Final: 890.5	#44	Methylene Chloride/Methanol Blank		
	#			

COPY MML 9/13/97

COPY

AIR QUALITY PREPARATION WORK ORDER FORM
TRIANGLE LABORATORIES, INC.

TLI Project Number: 03897 Due Date: 9/5/97

ORDER INFORMATION

Client/Company Name: Pacific Environmental
Project Manager: Amy Boehm
Client MILES Code: PES03
Quote Number: 07/3270

Order Date: 9/3/97
Client Project #: Iron + Steel
Client P.O. #: _____

MATERIALS NEEDED

____Filters
____3½"/9.0 cm
____4"/10.16 cm
____4½"/11.0 cm
____5"/12.5 cm
____Other _____

6 XAD traps
✓ Ball and Socket
____Socket and Socket
____Screw cap
____Other _____

____PUFs
Sandwich PUF: yes no
Ship PUFs in : jars sleeves

Filter Material: ____ Quartz ____ glass fiber other _____
Ship filter in: ____ one petri dish ____ separate petri dishes

SAMPLE PREPARATION INFORMATION

Preparer: [signature]
# of Laboratory Blanks: _____
XAD Resin Batch #: P-10
Pre-spike required: yes no
Intended Analysis: PCDD/PCDF HR-PAH HR-PCB LR-PAH SV Table 2
(Circle all applicable) Other: _____

Date: 9/5/97
Supplier: Supelco

	Dioxin	Organics
Spiker/Observer Initials:	GS / GL	/
Spiking Date:	9/5/97	/ /
Spiking Solution ID:	USF-C, -S 5236H	
Volumn Spiked (µL):	40	
Nominal Concentration:	0.1 µg/mL	µg/mL
Expiration Date:	12/27/97	/ /

PCDD/PCDF Surrogates		PAH-HRMS Surrogates		PCB-HRMS Surrogates	
$^{37}Cl_4$-2,3,7,8-TCDD	4 ng	Terphenyl-d_{14}	____ng	$^{13}C_{12}$-3,3',5,5'-TetraCB	____ng
$^{13}C_{12}$-2,3,4,7,8-PeCDF	↓ ng	Fluorene-d_{10}	____ng	$^{13}C_{12}$-2,2',4,5,5'-PentaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	↓ ng			$^{13}C_{12}$-2,2',3,4,4',5'-HexaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	↓ ng	PAH-LRMS Surrogates		$^{13}C_{12}$-2,2',3,3',5,5',6,6'-OctaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	↓ ng	Terphenyl-d_{14}	____µg		

SHIPPING INSTRUCTIONS

Ship to the Attention of Mike Maret
Mailing Address Pacific Environmental
Street Address
Will pick up
Phone Number ( ) 941 - 0333
Special Instructions: _____

Form Prepared by Deborah E Hage 9/3/97
Signature Date

Please return this form to Triangle Laboratories, Inc. with the samples.

SRVR1\QA\FORMS\AQUQO.FRM (4/11/96)

COPY AMB 9/3/97

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

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

Sample Seals: Absent
Container...: Intact

TLI Project Number 43229
Client: PES03 - Pacific Environmental Services

Book 183

Date Received 09/12/97 By

Carrier and Number MICHAEL MELBOURNE

Ice Chest ICE Temp 5.0 C

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
183-1-1A	FB1-23 #1 FB1-23	*	FILTER C01	9-14-97	9-14-97							
183-1-1B	FB1-23 #2 FB1-23	*	XAD C01		USED							
183-1-1C	FB1-23 #3 FB1-23	*	ACE/TOL RINSE C01									
183-1-2A	BO-23-1 #7 BO-23-1	*	FILTER C01									
183-1-2B	BO-23-1 #8 BO-23-1	*	XAD C01									
183-1-2C	BO-23-1 #9 BO-23-1	*	ACE/TOL RINSE C01									
183-1-2D	BO-23-1 #10 BO-23-1	*	1ST IMP CONDENSATE C01		↓							
183-1-3A	BO-23-2 #16 BO-23-2	*	FILTER C01									
183-1-3B	BO-23-2 #17 BO-23-2	*	XAD C01		USED							
183-1-3C	BO-23-2 #18 BO-23-2	*	ACE/TOL RINSE C01									
183-1-3D	BO-23-2 #19 BO-23-2	*	1ST IMP CONDENSATE C01		↓							
183-1-4A	BO-23-3 #25 BO-23-3	*	FILTER C01									
183-1-4B	BO-23-3 #26 BO-23-3	*	XAD C01		USED							
183-1-4C	BO-23-3 #27 BO-23-3	*	ACE/TOL RINSE C01									

Receiving Remarks:

Archive Remarks:

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

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

Sample Seals: Absent
Container...: Intact

TLI Project Number 43229
Client: PES03 - Pacific Environmental Services

Book 183

Date Received 09/12/97 By

Ice Chest ICE Temp 5.0 C

Carrier and Number MICHAEL MELBOURNE 1

TLI Number.. / T/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
33-1-4D	BO-23-3 #28 BO-23-3	*	1ST IMP CONDENSATE C01	9.14.97	9.14.97							
33-1-5A	FB2-23 #34 FB2-23	*	FILTER C01									
33-1-5B	FB2-23 #35 FB2-23	*	XAD C01									
33-1-5C	FB2-23 #36 FB2-23	*	ACE/TOL RINSE C01									
33-1-6A	FILTER BLANK #37 TRIP BLANK	*	FILTER C01									
33-1-6B	XAD TRAP BLANK #38 TRIP BLANK	*	XAD C01									
33-1-6C	ACETONE BLANK #39 TRIP BLANK	*	ACETONE BLANK C01									
33-1-6D	TOLUENE BLANK #40 TRIP BLANK	*	TOLUENE BLANK C01									
33-1-6E	TYPE II WATER BLANK #41 TRIP BLANK	*	TYPE II WATER BLANK C01									

XAD

Receiving Remarks:

Archive Remarks:

23

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

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

TLI Proj#: 43229-	Samples: 6	TurnAround.: 7 Day(s)
Prod Code: D23061	Matrix.: M23Train	Hold Time..: 0 Day(s)
DetectLim: 0.05 ng	Type...: A	Start Date.: 09/12/97
	Recvd..: 09/12/97	Ship By....: 09/18/97
		DWL Due Dt.: 09/16/97

Analyte List.: M23/Tetra-Octa

Method.....: Method 23:Tetra-Octa (Tol Combined)
Client Proj..: S414.003/WAUPACA Foundry
Client.....: Pacific Environmental Services (PES03)
P.O. No.....: S414.003 Collect Dt/Tm: 09/08/97
Contact.....: Frank Meadows Phone.....: 919-941-0333
Proj. Mgr....: Amy J. Boehm Fax.....: 919-941-0234
Sample Origin:

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

Prep Project: 03897
Prespike Standard: USD-C, USD-S
Prespike Amount..: 4.0ng

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

Reporting Format: Report Option II

See MILES for Instructions/Communications.

Completed by: _____ DATE: _____

Reviewed by: _____ DATE: 9/15/97 (PMGT0197)

PROJECT COMMUNICATION TRACKING FORM page ___ of ___

TLI Project Number: 4327

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			
		FILTER	XAD	GLASSJAR	RINSE
9-4-97	(1)	WHITE	WHITE DRY	WHITE DRY	LT YELLOW TINT
	(2)	BEIGE	MOIST	MOIST	
	(3)	BEIGE	↓	↓	↓
	(4)	BEIGE	↓	↓	↓
	(5)	WHITE	DRY	DRY	CLEAR, COLORLESS
	(6)	WHITE	↓ DRY	↓ DRY	↓ ↓

Triangle Laboratories, Inc.
TLI PROJECT# 03897
DATE 9/5/97 TLI BLANK
SPIKE 4.0ng USF-C & USF-S
SPIKER
PREPARER G.L.
PACIFIC ENV.

BLANK

ALL TRAPS FROM PREP PROJECT 03897
USED 30.0 GRAMS SUPELCO XAD LOT# P-935 FOR LCS AND LCSD

Date: 09/15/97
Time: 09:27

TRIANGLE LABORATORIES, INC.
Wet Lab MM5/PUF Observations
Project: 43229

PRDPERC v4.00
Page: 1

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	NA	NA	NA	NA	03897	HILLKT	09/15	09:24	F
001		183-1-1A-C	FB1-23	1	WHIUTE	WHITE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
002		183-1-2A-C	BO-23-1	1	WHITE	BEIGE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
003		183-1-3A-C	BO-23-2	1	WHITE	BEIGE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
004		183-1-4A-C	BO-23-3	1	WHITE	BEIGE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
005		183-1-5A-C	FB2-23	1	WHITE	WHITE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
006		183-1-6A-D	Trip Blank	1	WHITE	WHITE	WHITE	NA	NONE	03897	HILLKT	09/15	09:24	F
007		TLI LCS	TLI LCS	0	LOT P-935						HILLKT	09/15	09:24	F
008		TLI LCSD	TLI LCSD	0	LOT P-935						HILLKT	09/15	09:24	F

*** End of Report ***

TRIANGLE LABORATORIES, INC. PAGE 1 OF 1

Dioxin Sample Preparation Tracking & Management Form

Project: 43229 Client: Pacific Environmental Services (PES03)

Solvent(s)/Acid(s): Toluene / _____ / _____ Method: Method 23:Tetra-Octa (Tol Combined) Matrix: M23

Lot Numbers: 972118 / _____ / _____ Extraction Date: 09/14/97

IS Spike: 40 µl conc: 0.1000 ng/µl

SS Spike: ____ µl conc: __.____ ng/µl

MS Spike: 0 µl conc: 0.0000 ng/µl

LCS Spike: 0 µl conc: 0.0000 ng/µl

OPR Spike: 20 µl conc: 0.01 ng/µl

S#.crd	TLI / SAMPLE ID / CLIENT SAMPLE ID	GROSS WEIGHT Before	GROSS WEIGHT After	SAMPLE SIZE g / ml	KH / DSF-I / 5234K / 07/02/98 / 09/14/97 / 2:36 / 0.1 ng/µl / 40 µl	KH / DSF-MX / 5233E / 12/17/97 / 09/14/97 / 2:38 / 0.01 ng/µl / 40 µl LOADED	JS / DSF-A / 5235F / 7/2/98 / 9/16/97 / 17:15 / 0.1 ng/µl / 40 µl 9/16/97	____ / ____ / ____ / ____ / ____ / ____ ng/µl / ____ µl	Chemist / Spike # / * ID / * Expir / * Date / * Time / * Conc. / * Vol.
000	TLI Blank / TLI M23 Blank			1	BSP		TTM		Any Left yes/no
001	183-1-1A-C / FB1-23			1	BSP		TTM		Any Left yes/no
002	183-1-2A-C / BO-23-1			1	BSP		TTM		Any Left yes/no
03	183-1-3A-C / BO-23-2			1	BSP		TTM		Any Left yes/no
04	183-1-4A-C / BO-23-3			1	BSP		TTM		Any Left yes/no
05	183-1-5A-C / FB2-23			1	BSP		TTM		Any Left yes/no
06	183-1-6A-D / Trip Blank			1	BSP		TTM		Any Left yes/no
07	TLI LCS / TLI LCS			1	BSP	BSP	TTM		Any Left yes/no
008	TLI LCSD / TLI LCSD			1	BSP	BSP	TTM		Any Left yes/no
									Any Left yes/no

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

Comments: _____

_____

_____

_____ Initials: KH Date: 9/14/97

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

REV 05/27/97 (PSTMF 7)

TRIANGLE LABORATORIES, INC.

DIOXIN SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project No.: 43229

Ext S#.crd and TLI Number	1	2	4A	6	3	4B	7	8	9
000 TLI Blank	9-14-97	TMW 9-16-97	DB 9-16-97	DB 9-16-97	TMW 9-16-97	DB 9-16-97	DB 9-16-97	MH 9/17/97 JLE 9/17/97	9/17/97
001 183-1-1A-C	9-14-97								
002 183-1-2A-C									
003 183-1-3A-C									
004 183-1-4A-C									
005 183-1-5A-C									
006 183-1-6A-D									
007 TLI LCS									
008 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 1330 9/14/97 OFF 730A 9/15/97 Soxhlet / Jar / Sep Funnel / Steam Dist / Cont LL / ASE / Waste Dilution
2) SPIKE AFTER EXTRACTION	
3) ADD TRIDECANE	
4) ROTOVAP	40mL / 10mL / Dryness A B
~~5) COMBINE~~	
6) DIVIDE / LIPID DETERMINATION	20%/80% 50%/50% 5mL/20mL Other_____
7) SOLVENT EXCHANGE	
8) CLEANUP	DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
9) TRANSFER	
10) ADDITIONAL CLEANUP	Mod. DSP 260 / DSP 225 / DSP 115 / DSP 215 / DSP 267 / Other _____
11) FINAL TRANSFER	

Comments: _____

Rev 06/24/97 (PSTMF 4)

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43229

Transfer From: DWLH5 To: DMS5

	Initials..	Date.....	Time...
Released by:	JLE	9/17/97	20:00
Accepted by:	KB	9/17/97	21:00

MILES.ID.....		TLI_No.....	Cust.Id.....
43229-	-000	TLI Blank	TLI M23 Blank
43229-	-001	183-1-1A-C	FB1-23
43229-	-002	183-1-2A-C	BO-23-1
43229-	-003	183-1-3A-C	BO-23-2
43229-	-004	183-1-4A-C	BO-23-3
43229-	-005	183-1-5A-C	FB2-23
43229-	-006	183-1-6A-D	Trip Blank
43229-	-007	TLI LCS	TLI LCS
43229-	-008	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: 43229

SAMPLE INFORMATION

1ST COLUMN 2ND COLUMN

RS Conc 20 µl @ 100.0 PG/µl

S#.crd	TLI SAMPLE ID / CLIENT SAMPLE ID	GC/MS FILENAME COLUMN: DB5	CONFIRM	CONFIRM FILENAME COLUMN: DB-7	USF-RS VOLUME 20 µl SOLN ID 5296M	USF-RS INIT AB DATE 4/17/97	ANALYSIS COMMENTS
000	TLI Blank / TLI M23 Blank	T976373	—				
001	183-1-1A-C / FB1-23	74	N				
002	183-1-2A-C / BO-23-1	75	Y	P973984			
003	183-1-3A-C / BO-23-2	76	Y	P973985			
004	183-1-4A-C / BO-23-3	T976377	Y	P973986			
005	183-1-5A-C / FB2-23	78	N				
006	183-1-6A-D / Trip Blank	79	Y	P973987			
007	TLI LCS / TLI LCS	T976380	N				
008	TLI LCSD / TLI LCSD	T976381	N				

Comments: _____

Type: A

Spike File: SPX23704

Amt of Extract: 50%

REV 03/07/95 (PSTMF 6)

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70T	DB5	7440027	T02	2.0 µl	FPC452	EPLUS

Signature: [signature] Date: 9/18/97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
T976366	9/18/97	11:15	43197	Clem-4	5	Clem-4 D/A	Auto	8.9 ES	JHM 9/18/97	
67	"	12:04	42977 µl	180-48-1ABC	1	M23-R1		1.4 EL	LDL 9/18/97	
68	"	12:55	"	" -2AB	2	M23-R2		1.5 EC	"	
69	"	13:44	"	" -3AB	3	M23-R3		2.2 ES	"	
70	"	14:53	—	5170B	—	R+CHL	MCH		"	ES-C LDL 9/18/97
71	"	15:38	—	4514 G	—	M13 CONCEN SV	M-O HL		"	No Good
72	"	17:12	—	"	—	"	M-O #50	9.3 ES	KAS 9/18/97	Adjust Tune Good Beginning
T976373	"	18:27	43229	TLI Blank LL3229	0	TLI Blank	Auto	6.0 ES	"	
74	"	19:18	43229	183-1-1A-C	1	FB1-23		9.0 ES	KAS 9/18/97	
75	"	19:57	"	183-1-2A-C	2	BO-23-1		6.1 ES	"	
76	"	20:37	"	183-1-3A-C	3	BO-23-2		5.0 ES	"	
77	"	21:16	"	183-1-4A-C	4	BO-23-3		6.4 ES	"	
78	"	21:56	"	183-1-5A-C	5	FB2-23		6.8 ES	"	

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: ~~2-4~~ 14:54 (ES/MH 9/17/97)
ConCal Due: 5:12

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70T	DB5	744/0027	TOS	2.0 µl	EPC.057	EPC.03

Signature

9/18/97
Date

37

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
79	9/18/97	22:36	43229	193-1-6A-D ~~Flat Blank~~ 1995 9/18/97	6	Trip Blank	Auto	5.9 E5	KAS 9/18/97	
80	↓	23:15	↓	TH LCS	7	LCS	↓	4.0 E5	↓	
81	9/19/97	23:55	↓	TH LCSD	8	LCSD		2.1 E5		
82	9/19/97	0:35	43150	TH Blank	0	TH M23 Blank		4.3 E5		
83	↓	1:14	↓		1	A-M23-Run 1	↓	6.1 E5	↓	
T976384	↓	1:54	↓	192-21-2A-C	2	A-M23-Run 2	↓	4.6 E5	Hum 9/19/97	
85	↓	2:33	↓	192-21-3A-C	3	B-M23-Run 1	↓	4.7 E5	↓	
86	↓	3:13	↓	192-21-4A-C	4	B-M23-Run 2	↓	3.3 E5	↓	
87	↓	3:53	↓	192-21-5A-C	5	C-M23-Run 1	↓	4.4 E5	↓	
T976388	9/19/97	4:33	43150	192-21-6A-C	6	C-M23-Run 2	Auto	4.9 E5	Hum 9/19/97	~~DS&C Hum 9/19/97~~ IE Hum 9/19/97
T976389	9/19/97	5:31	-	51705	-	RTCMA	RTCMA	100%	Hum 9/19/97	DS&C Hum 9/19/97 Good Hum 9/19/97
T976390	9/19/97	6:15	-	45466	-	M23 CC 50	M-1 50	9.0 E5	Hum 9/19/97	Good Hum 9/19/97
T976391	↓	07:06	-	5216N	-	AS100	Auto	6.2 E5	Hum 9/19/97	

* Transcribed from chromatographic data
** Dated initials required

ConCal Due: 5:12 Am
ConCal Due: 11:11

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70P	DB225	G360413	~~2 Qual~~ TFI 2R Wa 9/19/97	2 Qual	DB 225	DB 225

Signature: [signature] Date: 9/19/97

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
P973981	9/19/97	1725	—	5170B	—	RT Chk	RT Chk	11%	ML 9/19/97	
P973982	9/19/97	1818	—	4497D	—	Tetra conical 5.0	Tetra 5.0	8.3 E5	↓	
P973983	9/19/97	1945	—	5296N	—	RS100	RS100	1.1 E6	↓	
P973984	9/19/97	2030	43229	183-1-2A-C	2	BO-23-1	P9171	1.3 E6	↓	
P973985	9/19/97	2118	↓	183-1-3A-C	3	BO-23-2	P9171	1.1 E6	↓	
P973986	9/19/97	2203	↓	183-1-4A-C	4	BO-23-3	P9171	1.4 E6	↓	
P973987	9/19/97	2249	↓	183-1-6A-D	6	Trip Blank	P9171	1.2 E6	↓	
P973988	9/19/97		43197	182-68-1	1	970224=EMCO/97342 DF	P9171		↓	

* 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 # 919-544-3491

Data File	T976373	T976374	T976375	T976376
Sample ID	TLI M23 Blank	FB1-23	BO-23-1	BO-23-2
Units	ng	ng	ng	ng
Extraction Date	09/14/97	09/14/97	09/14/97	09/14/97
Analysis Date	09/18/97	09/18/97	09/18/97	09/18/97
Instrument	T	T	T	T
Matrix	XAD	M23TRAIN	M23TRAIN	M23TRAIN
Extraction Type	Soxhlet	Soxhlet	Soxhlet	Soxhlet
Analytes				
2378-TCDD	(0.03)	(0.02)	0.23	0.54
12378-PeCDD	(0.04)	(0.04)	0.44	1.7
123478-HxCDD	(0.04)	(0.04)	{0.15}	0.74
123678-HxCDD	(0.04)	(0.04)	0.24	1.4
123789-HxCDD	(0.04)	(0.03)	0.32	1.9
1234678-HpCDD	(0.05)	(0.04)	0.38	2.1
OCDD	(0.06)	{0.02}	{0.11}	0.59
2378-TCDF	(0.02)	(0.02)	15.5	32.9
12378-PeCDF	(0.03)	(0.03)	3.1	9.5
23478-PeCDF	(0.03)	(0.03)	3.9	12.5
123478-HxCDF	(0.03)	(0.02)	2.9	13.2
123678-HxCDF	(0.02)	(0.02)	1.5	6.9
234678-HxCDF	(0.03)	(0.02)	0.93	4.8
123789-HxCDF	(0.03)	(0.03)	0.10	0.50
1234678-HpCDF	(0.03)	(0.02)	0.97	5.6
1234789-HpCDF	(0.05)	(0.04)	0.17	0.94
OCDF	(0.06)	(0.04)	{0.08}	0.41
TOTAL TCDD	(0.03)	(0.02)	7.0	20.1
TOTAL PeCDD	(0.04)	(0.04)	3.4	14.4
TOTAL HxCDD	(0.04)	(0.04)	2.8	15.2
TOTAL HpCDD	(0.05)	(0.04)	0.67	4.0
TOTAL TCDF	(0.02)	(0.02)	131	262
TOTAL PeCDF	(0.03)	(0.03)	57.6	175
TOTAL HxCDF	(0.03)	(0.02)	15.0	65.7
TOTAL HpCDF	(0.04)	(0.03)	1.6	9.3
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	94.1	101	95.5	94.9
13C12-PeCDF 234	105	106	102	100
13C12-HxCDF 478	96.1	96.4	104	103
13C12-HxCDD 478	94.8	111	84.6	90.7
13C12-HpCDF 789	87.0	108	96.7	116
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	53.6	70.2	62.2	69.5
13C12-HxCDF 234	61.4	69.5	66.3	63.8
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	48.2	51.0	52.4	60.1
13C12-2378-TCDD	46.3	51.0	47.3	48.4
13C12-PeCDF 123	40.6	40.5	44.9	48.5
13C12-PeCDD 123	43.9	45.1	49.3	47.3

Data File	T976373	T976374	T976375	T976376
Sample ID	TLI M23 Blank	FB1-23	BO-23-1	BO-23-2
Units	ng	ng	ng	ng
Extraction Date	09/14/97	09/14/97	09/14/97	09/14/97
Analysis Date	09/18/97	09/18/97	09/18/97	09/18/97
Instrument	T	T	T	T
Matrix	XAD	M23TRAIN	M23TRAIN	M23TRAIN
Extraction Type	Soxhlet	Soxhlet	Soxhlet	Soxhlet
Internal Standards	Percent Recovery Summary (% Rec)			
13C12-HxCDF 678	62.2	71.2	62.3	58.7
13C12-HxCDD 678	63.5	68.0	71.4	64.8
13C12-HpCDF 678	51.7	66.7	43.0	58.8
13C12-HpCDD 678	59.8	81.0	51.8	72.8
13C12-OCDD	55.1	82.4	48.2	70.5

Data File	T976377	T976378	T976379	
Sample ID	BO-23-3	FB2-23	Trip Blank	
Units	ng	ng	ng	
Extraction Date	09/14/97	09/14/97	09/14/97	
Analysis Date	09/18/97	09/18/97	09/18/97	
Instrument	T	T	T	
Matrix	M23TRAIN	M23TRAIN	M23TRAIN	
Extraction Type	Soxhlet	Soxhlet	Soxhlet	
Analytes				
2378-TCDD	0.73	{0.01}	{0.03}	
12378-PeCDD	2.5	{0.02}	{0.04}	
123478-HxCDD	1.1	{0.02}	{0.03}	
123678-HxCDD	2.2	{0.02}	{0.03}	
123789-HxCDD	2.5	{0.02}	{0.03}	
1234678-HpCDD	3.2	{0.02}	0.04	
OCDD	{0.57}	{0.02}	{0.05}	
2378-TCDF	48.1	{0.01}	{0.28}	
12378-PeCDF	13.8	{0.02}	{0.10}	
23478-PeCDF	18.8	{0.02}	0.17	
123478-HxCDF	18.6	{0.09}	0.16	
123678-HxCDF	9.0	0.04	0.07	
234678-HxCDF	7.0	{0.02}	{0.05}	
123789-HxCDF	0.75	{0.02}	{0.03}	
1234678-HpCDF	7.3	{0.05}	0.07	
1234789-HpCDF	1.3	{0.03}	{0.04}	
OCDF	0.65	{0.03}	{0.04}	
TOTAL TCDD	33.2	{0.01}	{0.03}	
TOTAL PeCDD	30.2	0.05	{0.20}	
TOTAL HxCDD	22.6	0.12	0.13	
TOTAL HpCDD	6.0	0.04	0.04	
TOTAL TCDF	336	{0.01}	1.1	
TOTAL PeCDF	260	0.22	1.4	
TOTAL HxCDF	94.4	0.23	0.63	
TOTAL HpCDF	12.7	{0.05}	0.07	
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	99.2	94.3	94.6	
13C12-PeCDF 234	111	106	104	
13C12-HxCDF 478	102	94.1	98.0	
13C12-HxCDD 478	88.7	81.7	83.8	
13C12-HpCDF 789	113	101	87.8	
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	70.8	68.2	61.8	
13C12-HxCDF 234	66.5	73.1	63.3	
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	64.4	53.6	49.6	
13C12-2378-TCDD	47.0	56.0	50.4	
13C12-PeCDF 123	43.5	44.1	39.8	V
13C12-PeCDD 123	43.3	47.4	43.3	RO

Data File	T976377	T976378	T976379
Sample ID	BO-23-3	FB2-23	Trip Blank
Units	ng	ng	ng
Extraction Date	09/14/97	09/14/97	09/14/97
Analysis Date	09/18/97	09/18/97	09/18/97
Instrument	T	T	T
Matrix	M23TRAIN	M23TRAIN	M23TRAIN
Extraction Type	Soxhlet	Soxhlet	Soxhlet
Internal Standards Percent Recovery Summary (% Rec)			
13C12-HxCDF 678	57.3	72.2	62.6
13C12-HxCDD 678	73.9	86.0	72.7
13C12-HpCDF 678	66.2	58.1	57.4
13C12-HpCDD 678	79.4	68.8	67.0
13C12-OCDD	77.0	67.4	67.5

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

Pacific Environmental Services

TLI Project: 43229 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: TLI M23 Blank — Analysis File: T976373

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLI ID:	TLI Blank	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.03				—
1,2,3,7,8-PeCDD	ND	0.04				—
1,2,3,4,7,8-HxCDD	ND	0.04				—
1,2,3,6,7,8-HxCDD	ND	0.04				—
1,2,3,7,8,9-HxCDD	ND	0.04				—
1,2,3,4,6,7,8-HpCDD	ND	0.05				—
1,2,3,4,6,7,8,9-OCDD	ND	0.06				—
2,3,7,8-TCDF	ND	0.02				—
1,2,3,7,8-PeCDF	ND	0.03				—
2,3,4,7,8-PeCDF	ND	0.03				—
1,2,3,4,7,8-HxCDF	ND	0.03				—
1,2,3,6,7,8-HxCDF	ND	0.02				—
2,3,4,6,7,8-HxCDF	ND	0.03				—
1,2,3,7,8,9-HxCDF	ND	0.03				—
1,2,3,4,6,7,8-HpCDF	ND	0.03				—
1,2,3,4,7,8,9-HpCDF	ND	0.05				—
1,2,3,4,6,7,8,9-OCDF	ND	0.06				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.03		—
Total PeCDD	ND		0.04		—
Total HxCDD	ND		0.04		—
Total HpCDD	ND		0.05		—
Total TCDF	ND		0.02		—
Total PeCDF	ND		0.03		—
Total HxCDF	ND		0.03		—
Total HpCDF	ND		0.04		—

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TLI Project: **43229** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI M23 Blank** Analysis File: **T976373**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	1.9	48.2	40%-130%	0.77	20:49	—
$^{13}C_{12}$-2,3,7,8-TCDD	1.9	46.3	40%-130%	0.76	21:36	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.6	40.6	40%-130%	1.60	25:02	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.8	43.9	40%-130%	1.44	26:09	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.5	62.2	40%-130%	0.49	28:44	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.5	63.5	40%-130%	1.23	29:27	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.1	51.7	25%-130%	0.41	31:25	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.4	59.8	25%-130%	0.98	32:15	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	4.4	55.1	25%-130%	0.92	34:45	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	94.1	70%-140%		21:38	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.2	105	70%-140%	1.55	25:47	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.8	96.1	70%-140%	0.50	28:38	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.8	94.8	70%-140%	1.23	29:22	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.5	87.0	70%-140%	0.43	32:37	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.1	53.6	40%-130%	0.49	29:57	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.5	61.4	40%-130%	0.50	29:15	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	21:24	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.25	29:44	—

Data Reviewer: VC 09/22/97

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: 01:16 09/22/97

Initial ....Date...

Data Review By: _____ ___/___/___ Calculated Noise Area: 0.85

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

Listing of T976373B.dbf
09/22/97 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						0.826-1.097			
304-306		DC	SN	18:25	RO	0.56	0.53			0.885			
	D	d	SN	20:51	RO	0.47	1.13			1.002	2378-TCDF		AN
		DC	SN	21:38	RO	1.93	0.50			1.039			
304-306			0	Peaks			0.00						
13C12-TCDF				0.65-0.89						0.952-1.048			
316-318		DC	WL	17:27	RO	1.03	0.57			0.838			
		DC	WL	19:41	RO	6.15	0.58			0.946			
				20:08	RO	1.05	1.36	0.81	0.77	0.967			
				20:22	RO	3.20	1.04	1.89	0.59	0.978			
				20:49		0.77	321.06	140.16	180.90	1.000	13C12-2378-TCDF		ISO
316-318			3	Peaks			323.46						
---------- Above: TCDF / TCDD Follows ----------													
TCDD				0.65-0.89						0.861-1.056			
320-322		DC	SN	18:41	RO	0.44	0.09			0.865			
		DC	SN	18:59		0.89	0.68			0.879			
	D	d	SN	19:47		0.73	1.37			0.916			
		DC	SN	20:21	RO	1.28	0.57			0.942			
		DC	SN	20:28	RO	0.91	0.60			0.948			
		DC	SN	21:27		0.89	0.51			0.993			
		DC	SN	21:36		0.66	0.48			1.000	2378-TCDD		AN
		DC	SN	21:54	RO	6.00	0.12			1.014			
		DC	SN	22:11	RO	1.21	0.25			1.027			
		DC	SN	22:20	RO	1.38	0.46			1.034			
		DC	WH	22:50	RO	1.08	0.42			1.057			
320-322			0	Peaks			0.00						
37Cl-TCDD										0.907-1.093			
328		DC	WL	18:39			0.19			0.863			
		DC	WL	18:56			0.58			0.877			
		DC	WL	19:02			0.37			0.881			
		DC	WL	19:35			0.32			0.907			
				20:08			0.92	0.92		0.932			
		DC	SN	20:32			0.05			0.951			
				20:43			0.56	0.56		0.959			
		DC	SN	20:57			0.22			0.970			
				21:14			0.93	0.93		0.983			
				21:38			223.75	223.75		1.002	37Cl-TCDD		SUR1
				22:03			1.15	1.15		1.021			
		DC	SN	22:22			0.19			1.035			
		DC	SN	23:13			0.20			1.075			

Compound/ M_Z....	QC.Log	Omit	Why	RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
328			5 Peaks				227.31						
13C12-TCDD						0.65-0.89				0.907-1.093			
332-334	DC	NL		0:00	RO	2.43	1.42			0.000			
	DC	WL		19:13	RO	2.89	0.99			0.890			
	DC	WL		19:21	RO	2.84	1.63			0.896			
				20:19	RO	1.07	2.35	1.42	1.33	0.941			
				21:02	RO	0.62	3.65	1.59	2.56	0.974			
				21:24		0.83	515.28	234.22	281.06	0.991	13C12-1234-TCDD	RS1	
				21:36		0.76	260.41	112.40	148.01	1.000	13C12-2378-TCDD	IS1	
				21:56	RO	1.08	8.69	5.30	4.91	1.015			
				22:06		0.77	3.85	1.67	2.18	1.023			
				22:22	RO	2.04	0.92	1.06	0.52	1.035			
				22:37	RO	0.36	2.09	0.91	2.55	1.047			
				22:49	RO	1.28	3.38	2.45	1.91	1.056			
				22:54	RO	5.30	1.19	3.55	0.67	1.060			
332-334			10 Peaks				801.81						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF						1.32-1.78				0.909-1.075			
340-342 D	d	SN		24:36		1.69	1.29			0.983			
	DC	SN		24:42	RO	0.96	0.36			0.987			
	DC	SN		24:55	RO	1.27	0.23			0.995			
	DC	SN		25:00		1.51	0.88			0.999	12378-PeCDF	AN	
	DC	SN		25:23	RO	0.27	0.72			1.014			
D	d	SN		25:27	RO	1.21	1.04			1.017			
	DC	SN		25:48	RO	0.63	0.49			1.031	23478-PeCDF	AN	
	DC	SN		26:07	RO	0.53	0.13			1.043			
	DC	SN		26:36	RO	0.54	0.25			1.063			
	DC	WH		27:02	RO	2.64	0.36			1.080			
	DC	WH		27:11	RO	0.43	0.21			1.086			
340-342			0 Peaks				0.00						
13C12-PeCDF						1.32-1.78				0.840-1.160			
352-354				24:09	RO	1.11	2.42	1.47	1.32	0.965			
				24:40	RO	1.05	1.48	0.90	0.86	0.985			
				25:02		1.60	257.92	158.82	99.10	1.000	13C12-PeCDF 123	IS2	
				25:12	RO	2.62	1.76	1.81	0.69	1.007			
				25:21		1.53	2.96	1.79	1.17	1.013			
	DC	SN		25:27	RO	2.45	0.56			1.017			
				25:47		1.55	274.66	166.84	107.82	1.030	13C12-PeCDF 234	SUR2	
				26:03	RO	0.72	1.15	0.70	0.97	1.041			
	DC	SN		26:11	RO	2.55	0.56			1.046			
	DC	SN		26:16	RO	0.23	0.35			1.049			
				26:45		1.58	1.34	0.82	0.52	1.069			
352-354			8 Peaks				543.69						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD						1.32-1.78				0.922-1.025			
356-358	DC	SN		24:59		1.47	0.79			0.955			

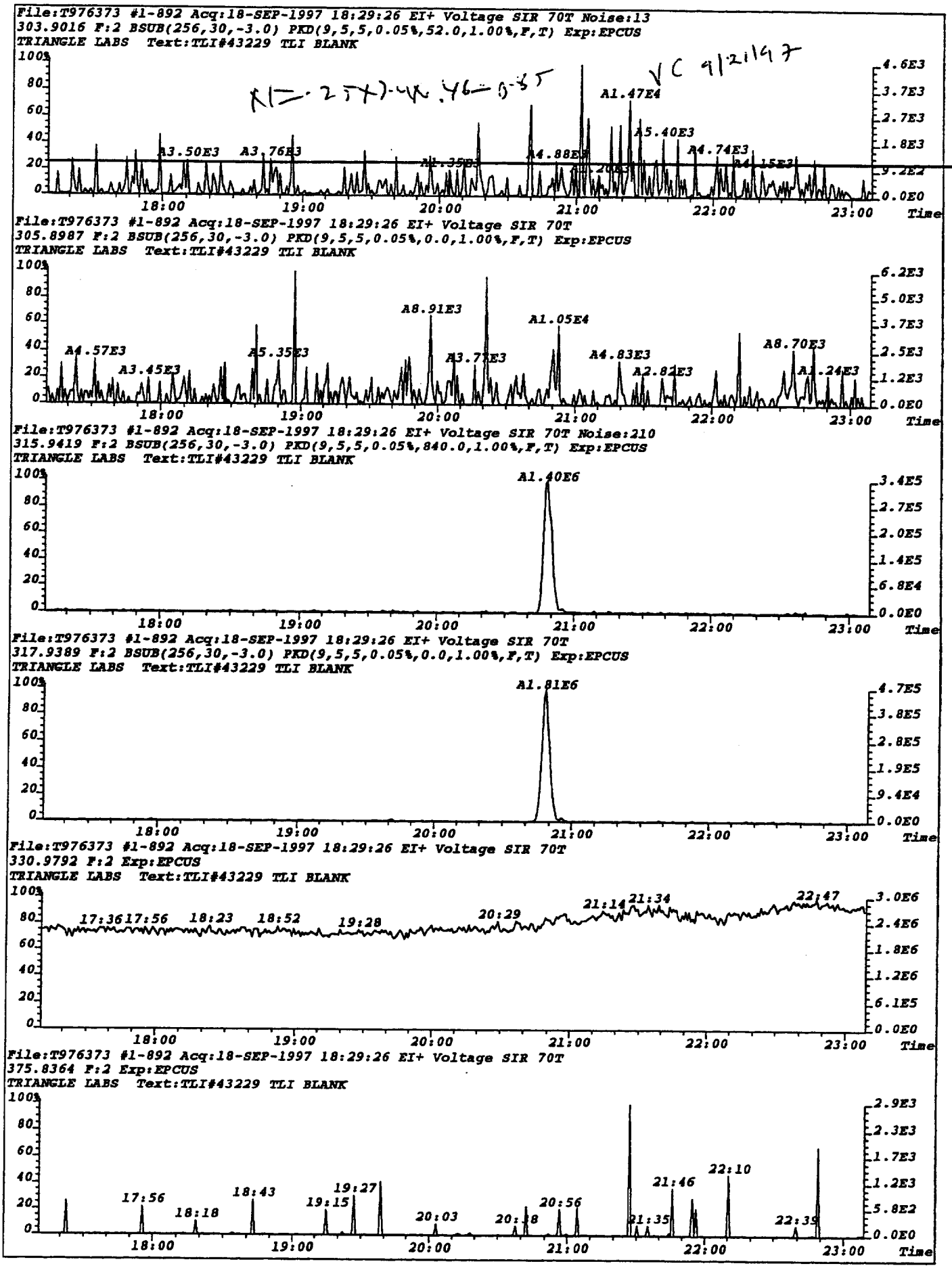
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		25:35	RO	2.14	0.74			0.978			
	DC	SN		25:50	RO	0.42	0.16			0.988			
	DC	SN		26:27	RO	4.75	0.20			1.011			
	DC	SN		26:40	RO	0.88	0.36			1.020			
	DC	WH		26:50	RO	1.13	0.30			1.026			
	DC	WH		27:09	RO	0.86	0.39			1.038			
356-358			0	Peaks			0.00						
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	SN		25:01	RO	0.23	0.13			0.957			
	DC	SN		25:11	RO	0.72	0.21			0.963			
				26:09		1.44	163.78	96.67	67.11	1.000	13C12-PeCDD 123	IS3	
				26:17		1.78	14.49	9.27	5.22	1.005			
	DC	SN		26:30	RO	0.95	0.33			1.013			
	DC	SN		26:48	RO	4.25	0.10			1.025			
368-370			2	Peaks			178.27						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	SN		27:35	RO	3.38	0.18			0.960			
	DC	SN		27:40	RO	5.00	0.07			0.963			
	DC	SN		27:51	RO	0.18	0.20			0.969			
	DC	SN		28:05	RO	3.42	0.27			0.977			
	DC	SN		28:35	RO	6.92	0.54			0.995			
	DC	SN		28:39	RO	0.94	0.79			0.997	123478-HxCDF	AN	
	DC	SN		28:49		1.27	0.84			1.003			
D	d	SN		29:09	RO	0.92	1.72			1.015			
D	d	SN		29:15	RO	1.04	1.07			1.018	234678-HxCDF	AN	
	DC	SN		29:28	RO	1.64	0.31			1.026			
	DC	SN		29:32	RO	0.60	0.11			1.028			
	DC	SN		29:45	RO	0.26	0.18			1.035			
D	d	SN		29:51	RO	0.64	1.07			1.039			
	DC	SN		30:07	RO	5.44	0.20			1.048			
	DC	WH		30:33	RO	4.33	0.07			1.063			
374-376			0	Peaks			0.00						
13C12-HxCDF				0.43-0.59						0.861-1.139			
384-386	DC	SN		28:28	RO	0.65	0.77			0.991			
				28:38		0.50	261.08	87.48	173.60	0.997	13C12-HxCDF 478	SUR3	
				28:44		0.49	291.08	95.27	195.81	1.000	13C12-HxCDF 678	IS4	
	DC	SN		28:58	RO	0.21	0.74			1.008			
	DC	SN		29:01	RO	0.13	0.27			1.010			
				29:15		0.50	272.92	91.41	181.51	1.018	13C12-HxCDF 234	ALT2	
	DC	SN		29:29	RO	0.79	0.71			1.026			
	DC	SN		29:33	RO	0.18	0.74			1.028			
	DC	SN		29:51	RO	0.40	0.86			1.039			
				29:57		0.49	193.89	64.18	129.71	1.042	13C12-HxCDF 789	ALT1	
	DC	SN		30:10	RO	0.11	0.36			1.050			
	DC	SN		30:22	RO	1.48	0.32			1.057			
384-386			4	Peaks			1,018.97						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.951-1.014			
390-392		DC	SN	28:02	RO	0.30	0.05			0.952			
		DC	SN	28:10	RO	0.70	0.13			0.956			
		DC	SN	28:23	RO	0.79	0.20			0.964			
		DC	SN	28:28	RO	0.69	0.16			0.967			
		DC	SN	28:37	RO	1.88	0.36			0.972			
		DC	SN	28:52	RO	0.31	0.27			0.980			
		DC	SN	29:06	RO	0.95	0.72			0.988			
	D	d	SN	29:15	RO	1.58	1.16			0.993			
	D	d	SN	29:21	RO	0.47	0.87			0.997	123478-HxCDD		AN
		DC	WH	30:03	RO	0.72	0.33			1.020			
		DC	WH	30:13		1.06	0.33			1.026			
390-392			0	Peaks			0.00						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404		DC	WL	28:01	RO	0.84	0.29			0.951			
		DC	WL	28:12	RO	1.76	0.94			0.958			
		DC	SN	28:27	RO	0.88	0.25			0.966			
		DC	SN	28:53	RO	1.86	0.63			0.981			
				28:53	RO	0.75	0.96	0.53	0.71	0.981			
		DC	SN	29:00	RO	1.53	0.85			0.985			
		DC	SN	29:10	RO	2.13	0.54			0.990			
				29:22		1.23	197.90	109.03	88.87	0.997	13C12-HxCDD 478		SUR4
				29:27		1.23	232.33	128.31	104.02	1.000	13C12-HxCDD 678		IS5
				29:44		1.25	387.98	215.86	172.12	1.010	13C12-HxCDD 789		RS2
				29:56	RO	0.71	3.03	1.68	2.36	1.016			
				30:04	RO	0.63	0.94	0.52	0.82	1.021			
402-404			6	Peaks			823.14						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20						0.994-1.042			
408-410		DC	WL	31:12	RO	4.18	0.22			0.993			
	D	d	SN	31:18	RO	1.70	1.10			0.996			
		DC	SN	31:26	RO	0.32	0.22			1.001	1234678-HpCDF		AN
		DC	SN	31:37	RO	2.50	0.45			1.006			
		DC	SN	32:13	RO	0.58	0.27			1.025			
		DC	SN	32:38	RO	0.10	0.22			1.039	1234789-HpCDF		AN
408-410			0	Peaks			0.00						
13C12-HpCDF				0.37-0.51						0.936-1.127			
418-420				31:25		0.41	164.60	47.94	116.66	1.000	13C12-HpCDF 678		IS6
				31:34	RO	1.06	1.61	1.19	1.12	1.005			
		DC	SN	31:41	RO	0.21	0.85			1.008			
		DC	SN	32:00	RO	0.94	0.46			1.019			
				32:37		0.43	113.01	34.13	78.88	1.038	13C12-HpCDF 789		SUR5
		DC	SN	32:59	RO	1.85	0.49			1.050			
418-420			3	Peaks			279.22						

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				0.976-1.005			
424-426	DC		SN	31:29		0.89	0.36			0.976			
	DC		SN	31:46	RO	1.71	0.14			0.985			
	DC		WH	32:39	RO	1.76	0.43			1.012			
424-426			0	Peaks			0.00						
13C12-HpCDD						0.88-1.20				0.969-1.031			
436-438	DC		SN	31:31		1.14	0.15			0.977			
	DC		SN	31:41	RO	4.13	0.16			0.982			
	DC		SN	32:08	RO	0.75	0.29			0.996			
				32:15		0.98	178.75	88.36	90.39	1.000	13C12-HpCDD	678	IS7
436-438			1	Peak			178.75						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF						0.76-1.02				0.885-1.115			
442-444	DC		SN	31:48	RO	0.34	0.21			0.915			
	DC		SN	32:34	RO	2.38	0.45			0.937			
	DC		SN	33:34	RO	0.64	0.30			0.966			
	DC		SN	34:04	RO	0.17	0.23			0.980			
	DC		SN	34:09	RO	0.30	0.21			0.983			
	DC		SN	34:19		0.80	0.27			0.988			
				34:48	RO	1.16	1.97	1.21	1.04	1.001			
	DC		SN	35:38	RO	0.50	0.06			1.025			
442-444			1	Peak			1.97						
13C12-OCDD						0.76-1.02				0.995-1.004			
470-472				34:45		0.92	257.37	123.10	134.27	1.000	13C12-OCDD		IS8
	DC		WH	34:55	RO	1.39	3.86			1.005			
	DC		WH	35:12	RO	1.29	0.32			1.013			
470-472			1	Peak			257.37						

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 ***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303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,52.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.47E4
A5.40E3
A4.74E3
A3.50E3
A3.76E3
A4.88E3
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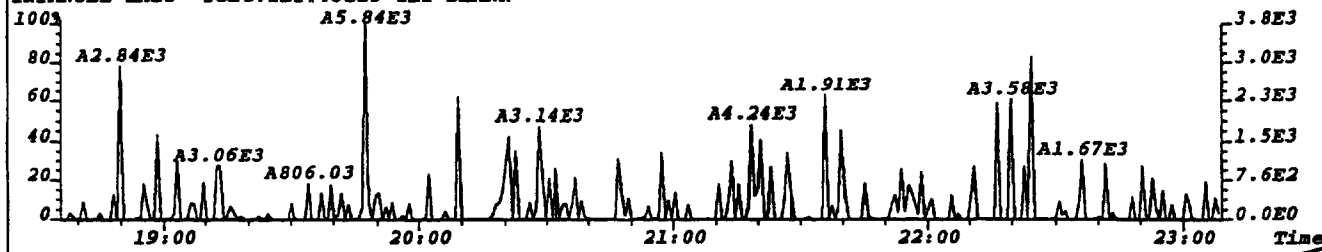
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A8.91E3
A1.05E4
A4.57E3
A5.35E3
A3.45E3
A4.83E3
A8.70E3
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:210
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,840.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.40E6
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.81E6
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
17:36 17:56 18:23 18:52 19:28 20:29 21:14 21:34 22:47
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
17:56 18:18 18:43 19:15 19:27 20:03 20:18 20:56 21:35 21:46 22:10 22:39
Time

File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK



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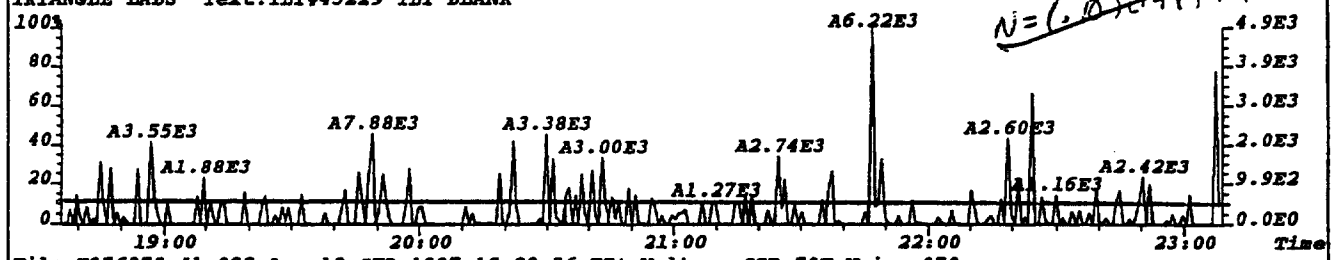

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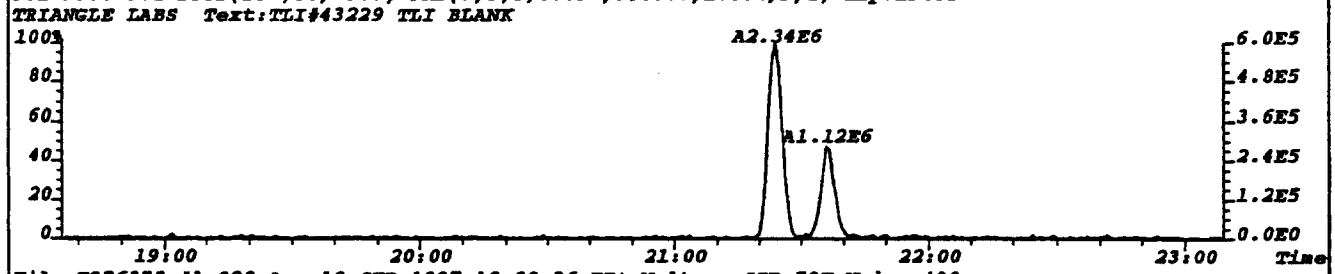
TRIANGLE LABS Text:TLI#43229 TLI BLANK



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333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1600.0,1.00%,F,T) Exp:EPCUS
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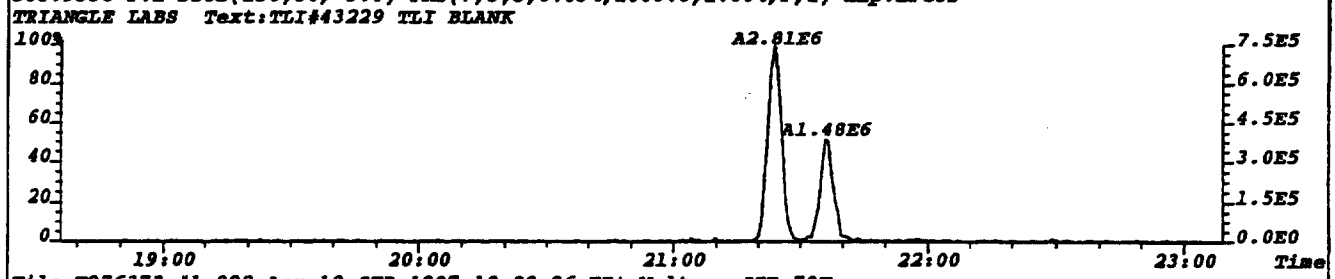

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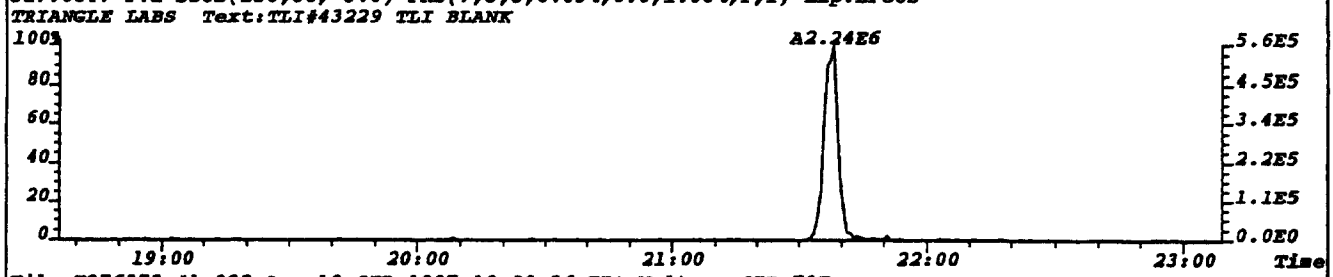
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK



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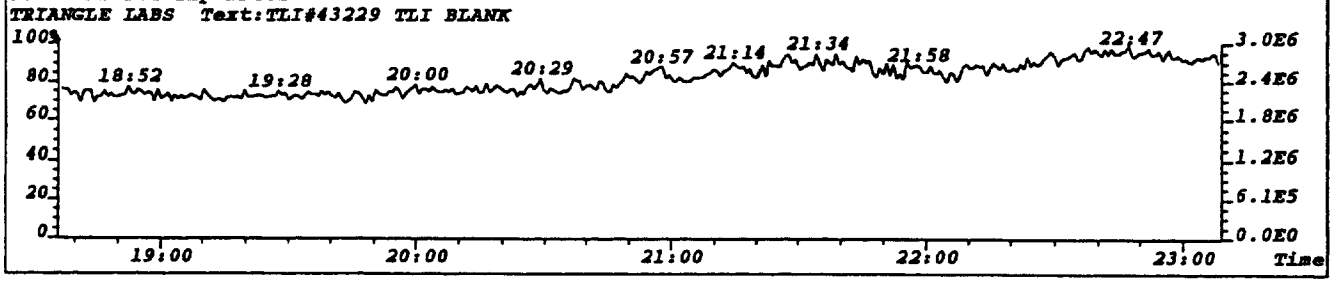
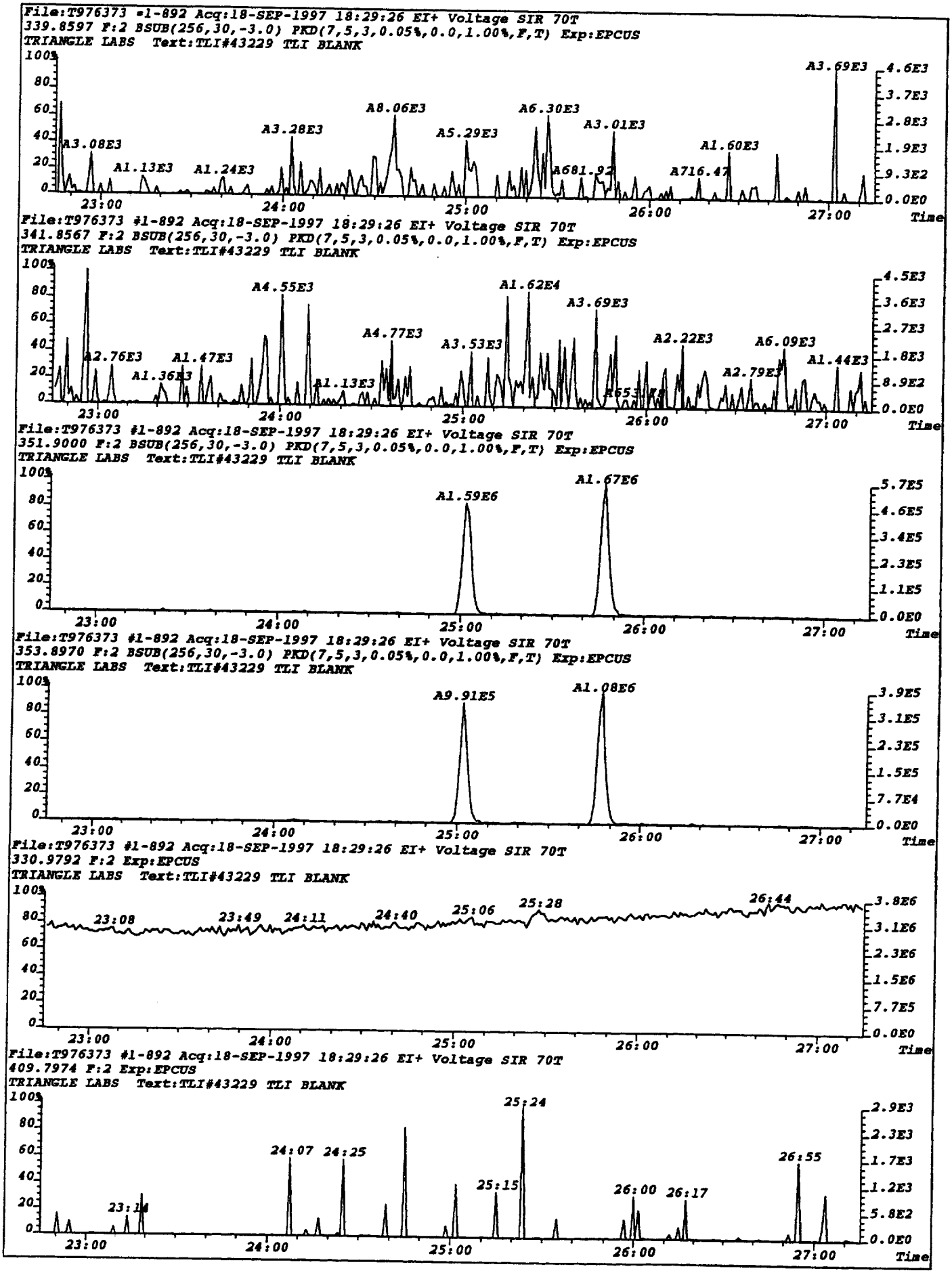
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK

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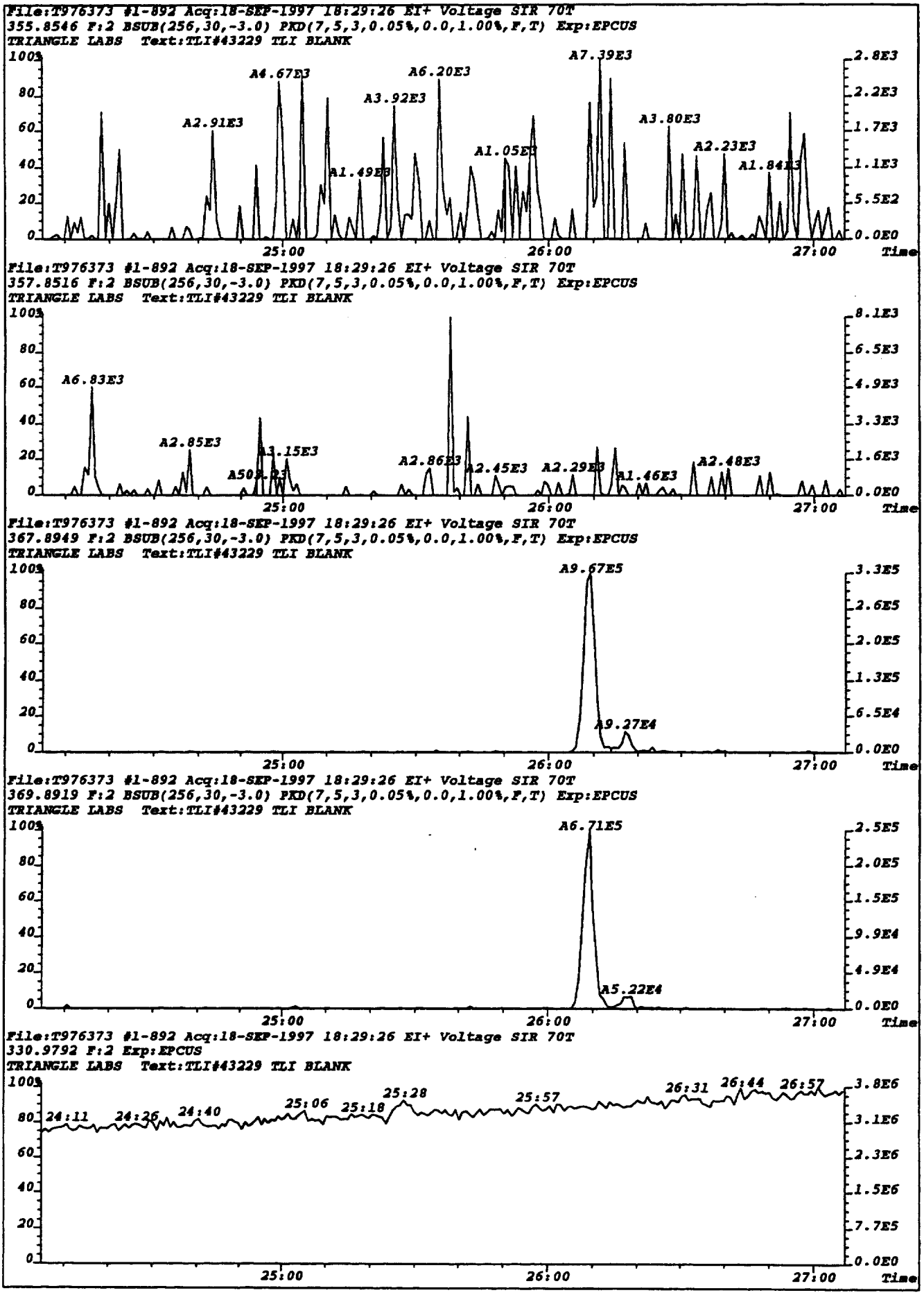
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A3.08E3
A1.13E3
A1.24E3
A3.28E3
A8.06E3
A5.29E3
A6.30E3
A681.92
A3.01E3
A716.47
A1.60E3
A3.69E3
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A2.76E3
A1.47E3
A1.36E3
A4.55E3
A1.13E3
A4.77E3
A3.53E3
A1.62E4
A3.69E3
A2.22E3
A6.09E3
A1.44E3
A2.79E3
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.59E6
A1.67E6
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A9.91E5
A1.08E6
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
23:08
23:49
24:11
24:40
25:06
25:28
26:44
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
23:14
24:07
24:25
25:15
25:24
26:00
26:17
26:55
23:00
24:00
25:00
26:00
27:00
Time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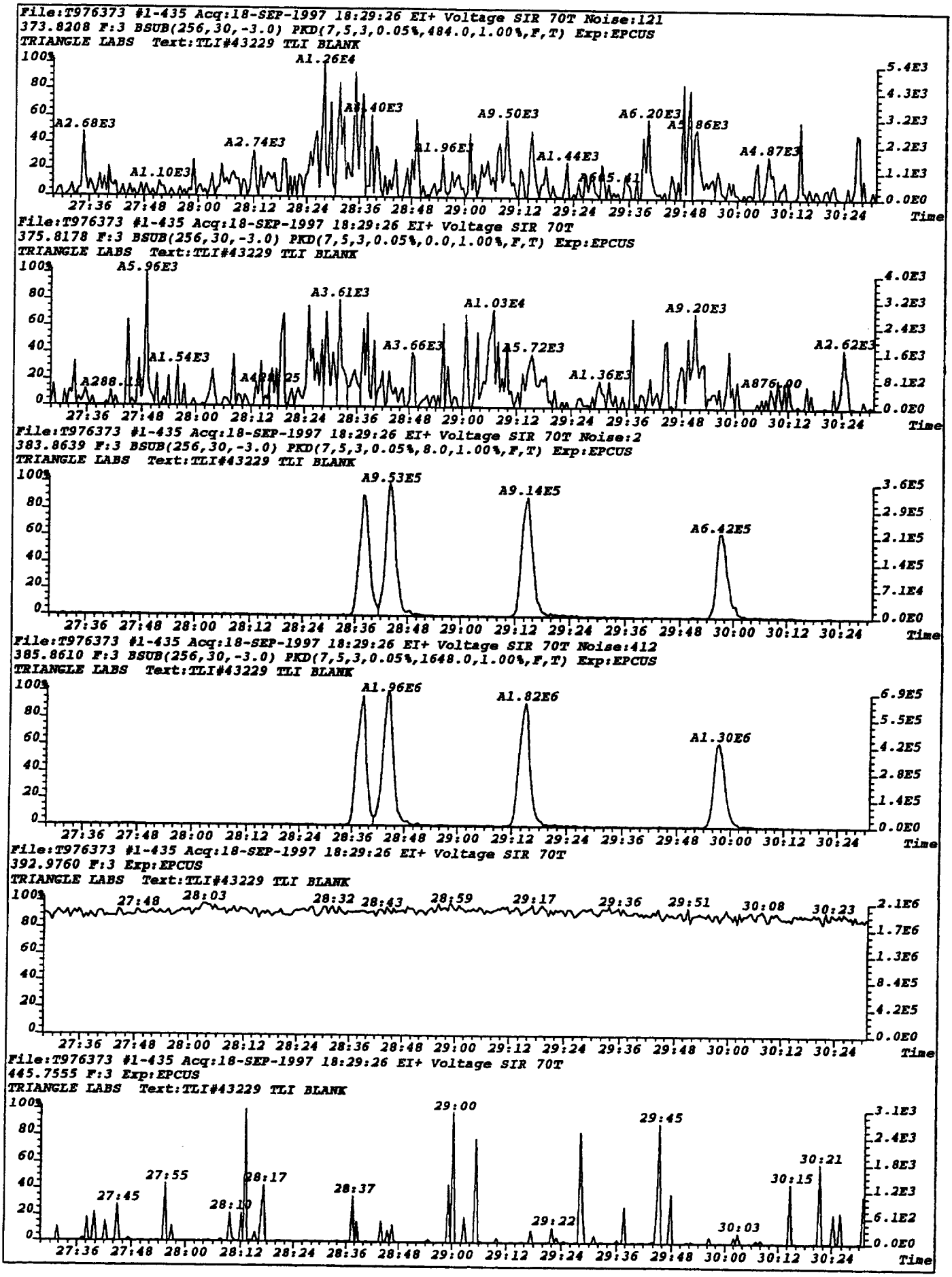
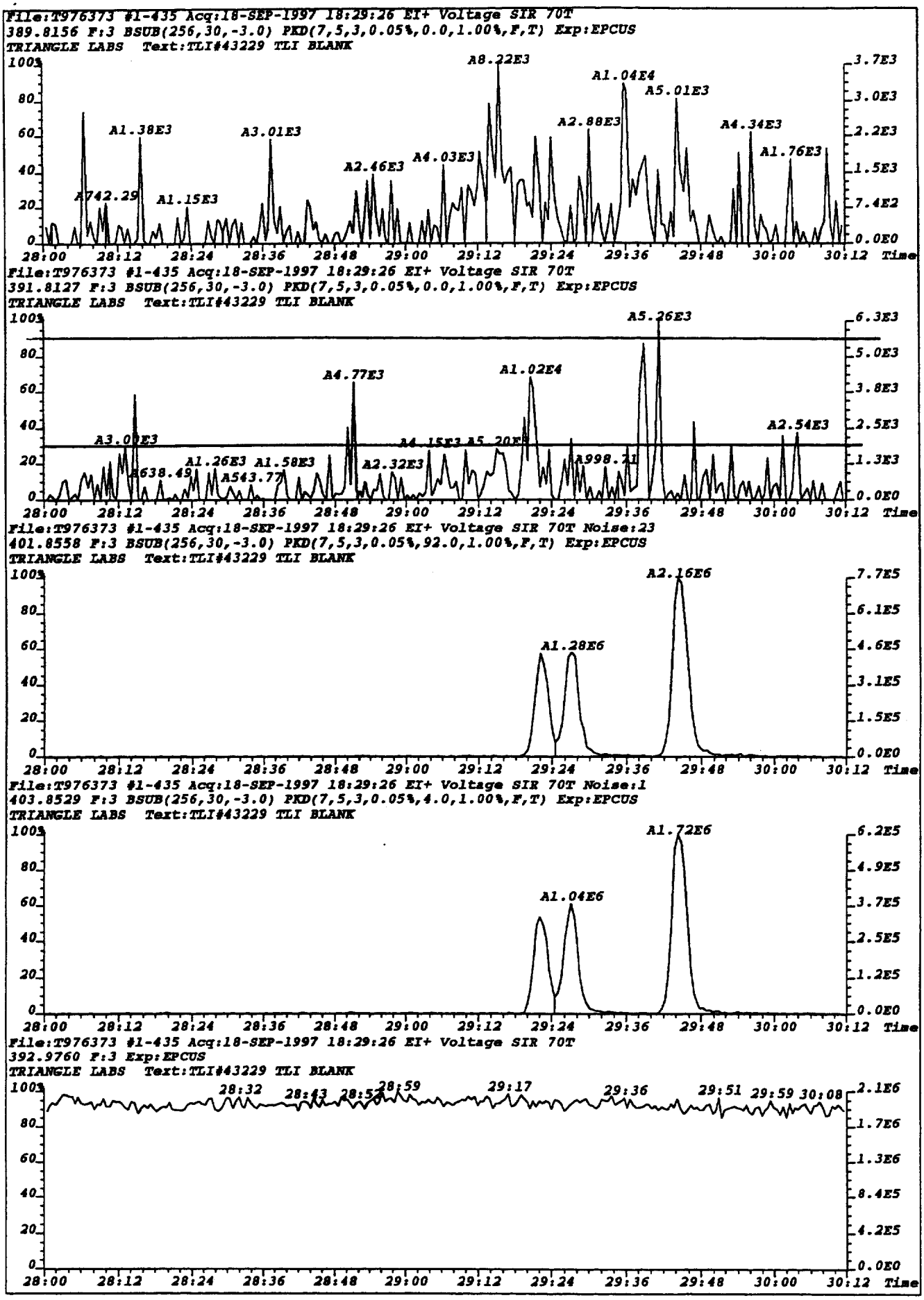
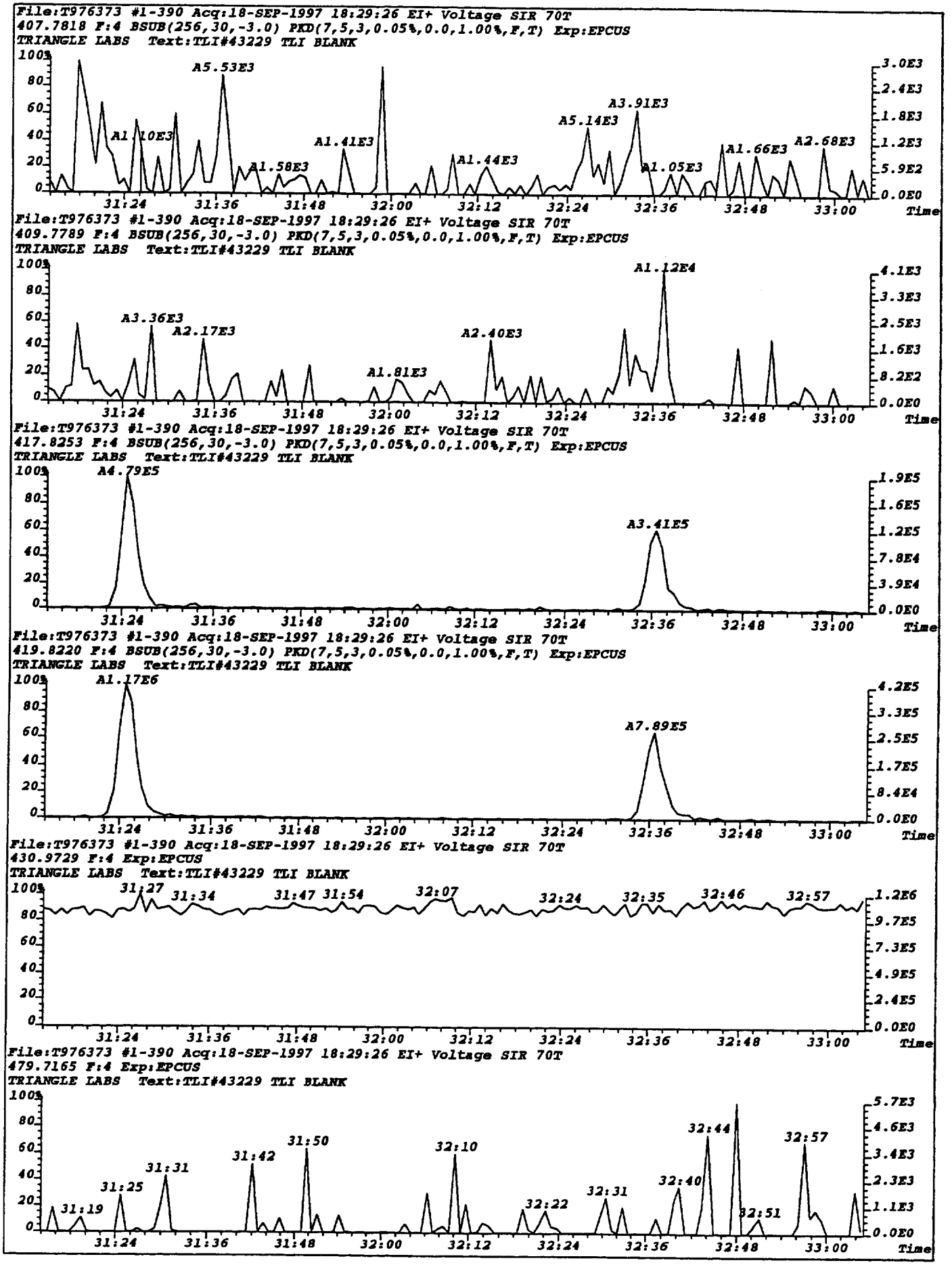
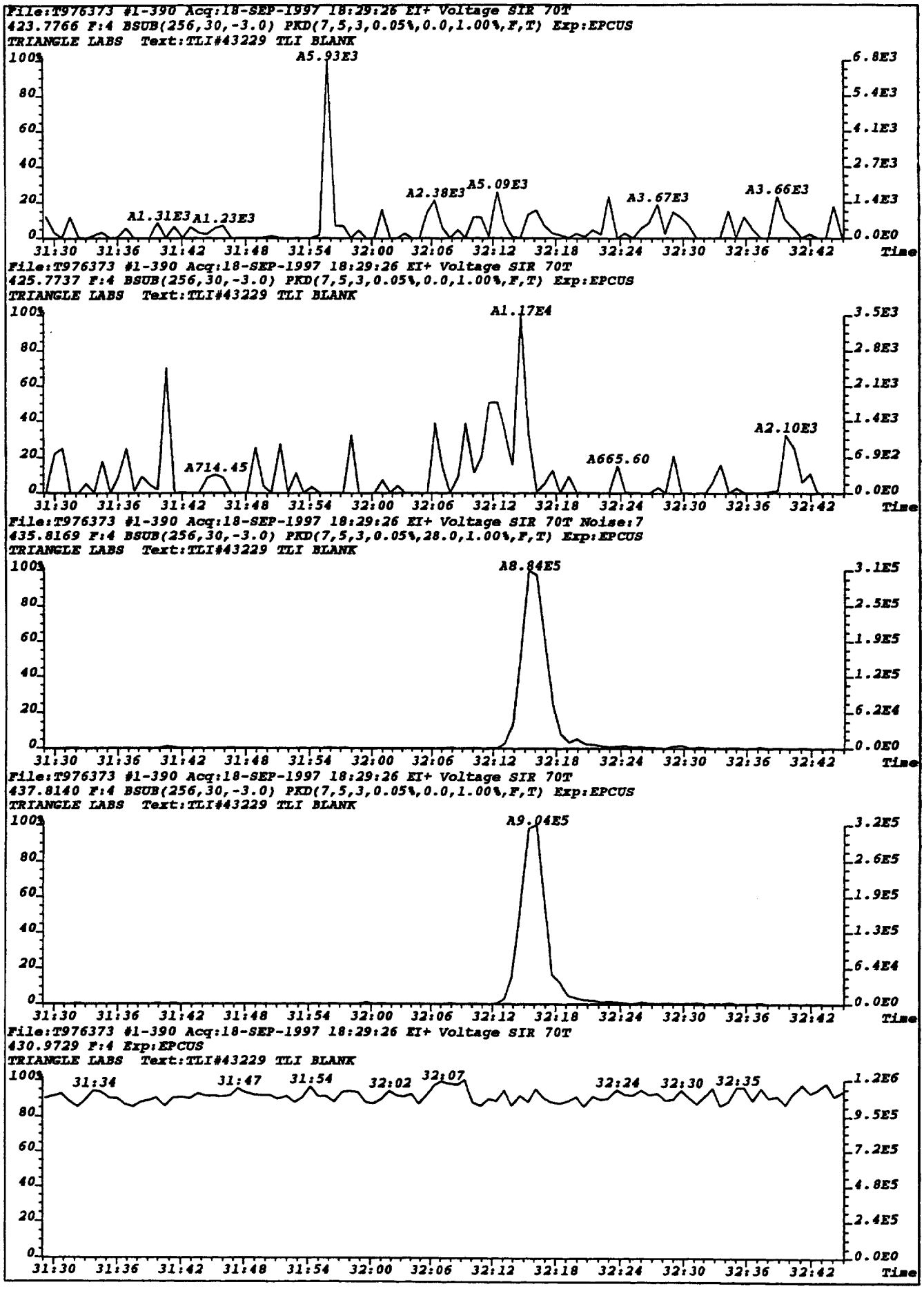
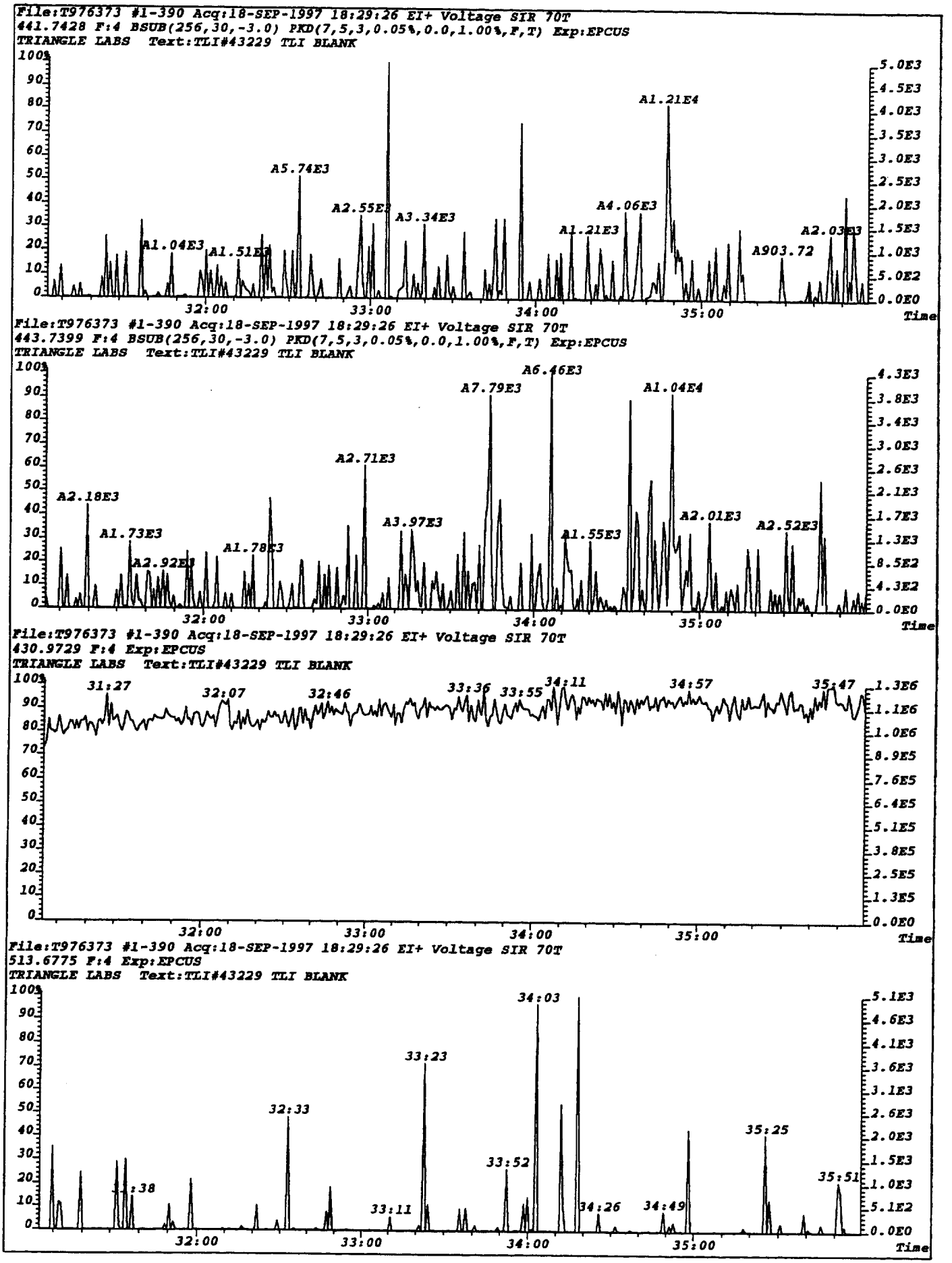
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A2.91E3
A4.67E3
A1.49E3
A3.92E3
A6.20E3
A1.05E3
A7.39E3
A3.80E3
A2.23E3
A1.84E3
25:00
26:00
27:00
Time
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A6.83E3
A2.85E3
A3.15E3
A2.86E3
A2.45E3
A2.29E3
A1.46E3
A2.48E3
25:00
26:00
27:00
Time
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A9.67E5
A9.27E4
25:00
26:00
27:00
Time
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A6.71E5
A5.22E4
25:00
26:00
27:00
Time
File:T976373 #1-892 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
24:11
24:26
24:40
25:06
25:18
25:28
25:57
26:31
26:44
26:57
25:00
26:00
27:00
Time

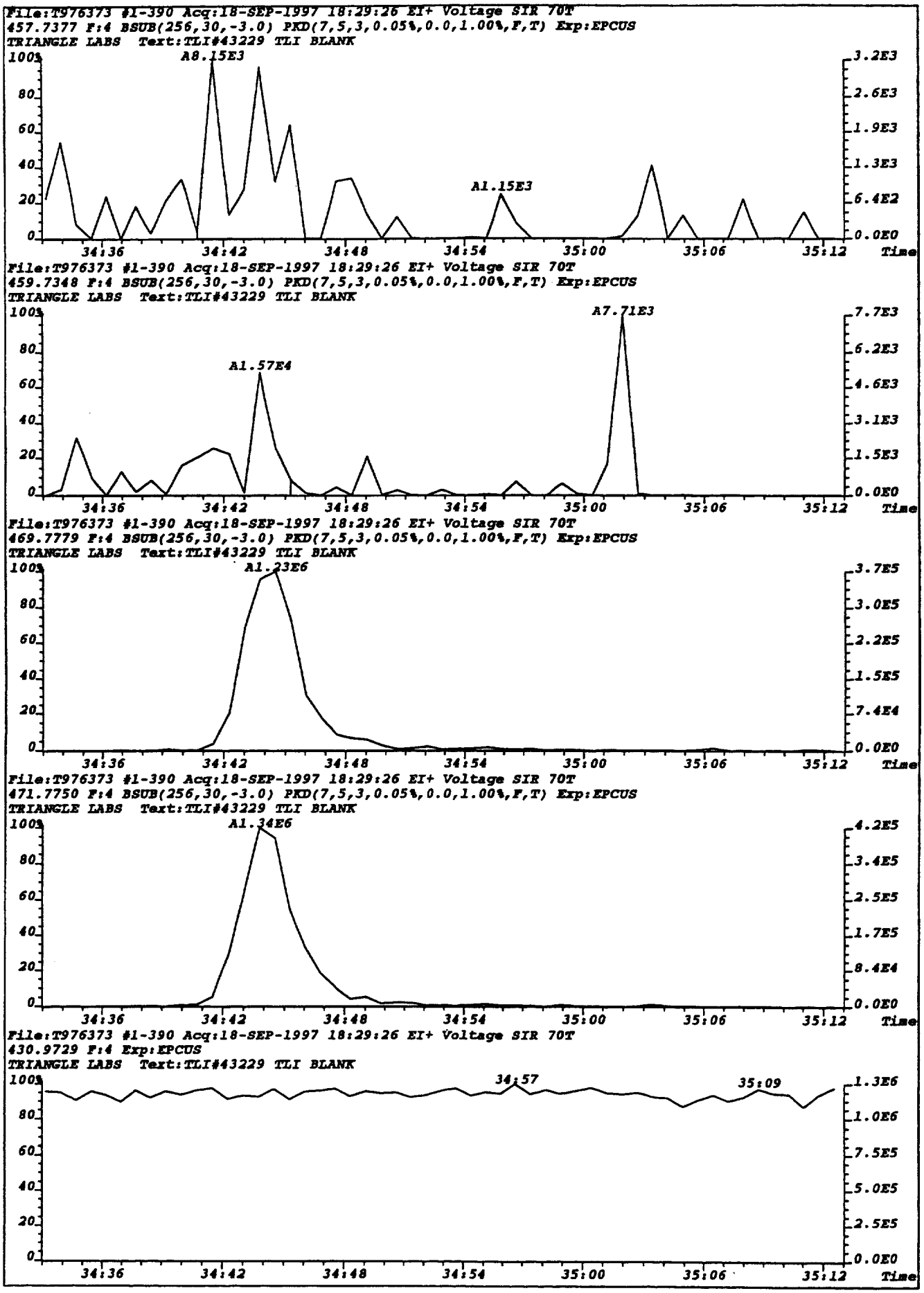

File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:121
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,484.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.26E4
A9.50E3
A6.20E3
A4.87E3
A2.74E3
A1.44E3
A1.10E3
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A5.96E3
A3.61E3
A1.03E4
A9.20E3
A3.66E3
A5.72E3
A2.62E3
A1.54E3
A1.36E3
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:2
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,8.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A9.53E5
A9.14E5
A6.42E5
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:412
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1648.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.96E6
A1.82E6
A1.30E6
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
29:00
29:45
30:21
27:55
28:17
28:37
27:45
30:15
29:22
30:03
Time

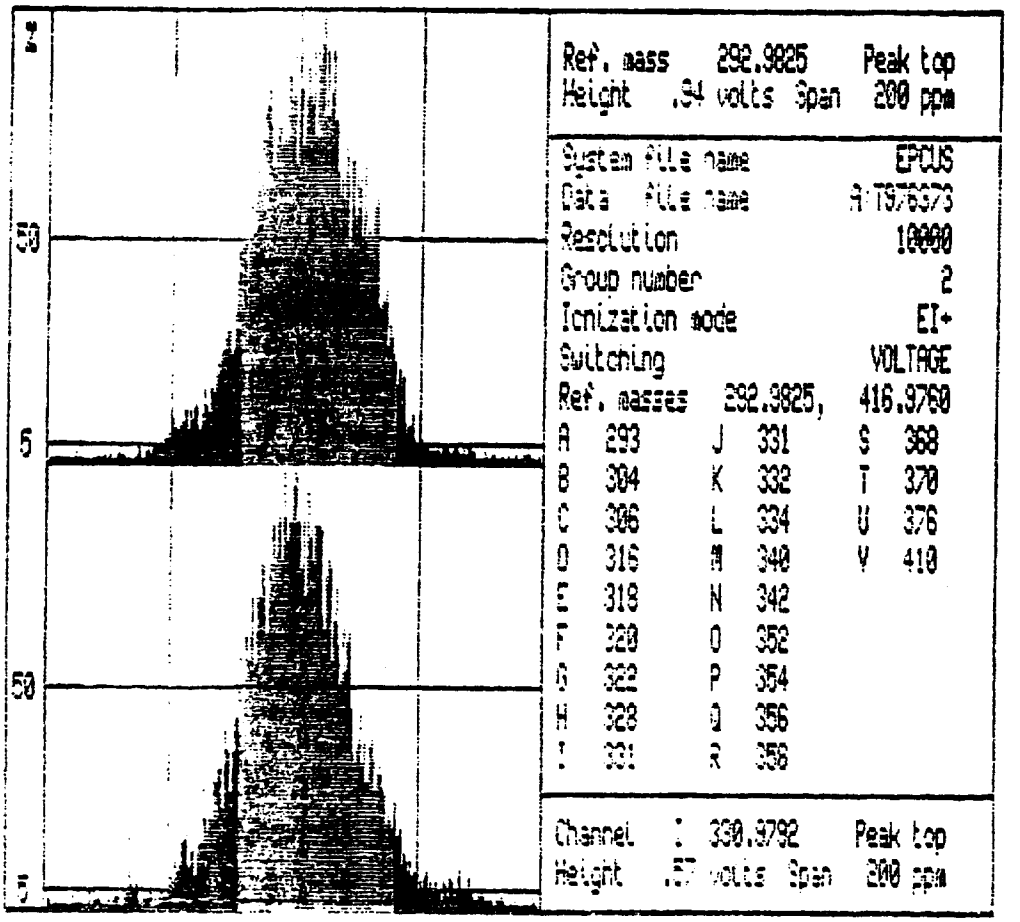

File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A8.22E3
A1.04E4
A5.01E3
A1.38E3
A3.01E3
A2.88E3
A4.34E3
A2.46E3
A4.03E3
A1.76E3
A742.29
A1.15E3
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A5.26E3
A4.77E3
A1.02E4
A3.00E3
A2.54E3
A1.26E3 A1.58E3
A2.32E3
A638.49
A543.77
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:23
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,92.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A2.16E6
A1.28E6
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:1
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.72E6
A1.04E6
Time
File:T976373 #1-435 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
28:32
28:43
28:52
28:59
29:17
29:36
29:51
29:59
30:08
Time

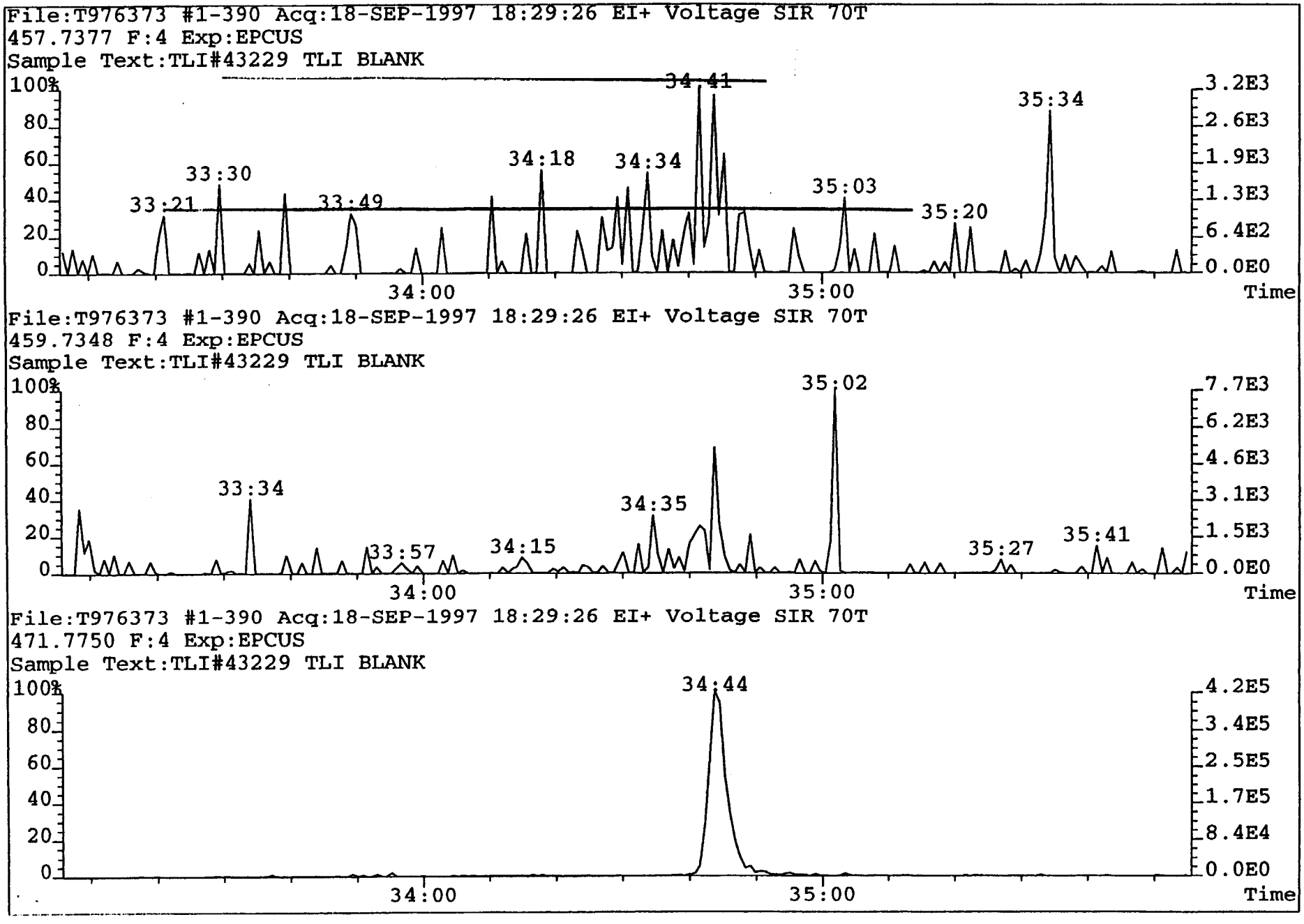

File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A5.53E3
A1.41E3
A1.58E3
A1.44E3
A5.14E3
A3.91E3
A1.05E3
A1.66E3
A2.68E3
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.12E4
A3.36E3
A2.17E3
A2.40E3
A1.81E3
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A4.79E5
A3.41E5
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.17E6
A7.89E5
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
31:27
31:34
31:47 31:54
32:07
32:24
32:35
32:46
32:57
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
31:19
31:25
31:31
31:42
31:50
32:10
32:22
32:31
32:40
32:44
32:51
32:57
Time


File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A5.93E3
A2.38E3
A5.09E3
A3.67E3
A3.66E3
A1.31E3
A1.23E3
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.17E4
A2.10E3
A714.45
A665.60
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T Noise:7
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,28.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A8.84E5
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A9.04E5
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
31:34
31:47
31:54
32:02
32:07
32:24
32:30
32:35
Time


File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.04E3
A1.51E3
A5.74E3
A2.55E3
A3.34E3
A1.21E3
A4.06E3
A1.21E4
A903.72
A2.03E3
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A2.18E3
A1.73E3
A2.92E3
A1.78E3
A2.71E3
A3.97E3
A7.79E3
A6.46E3
A1.55E3
A1.04E4
A2.01E3
A2.52E3
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
31:27
32:07
32:46
33:36
33:55
34:11
34:57
35:47
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
32:33
33:23
34:03
33:52
35:25
35:51
33:11
34:26
34:49
Time


File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A8.15E3
A1.15E3
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A7.71E3
A1.57E4
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.23E6
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
A1.34E6
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TLI BLANK
34:57
35:09
34:36
34:42
34:48
34:54
35:00
35:06
35:12
Time


50
5
50
5
Ref. mass 292.9825 Peak top
Height .94 volts Span 200 ppm
System file name EPCUS
Data file name A:TS76373
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.9825, 416.9769
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 1 330.9792 Peak top
Height .57 volts Span 200 ppm


File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 TLI BLANK
100%
80
60
40
20
0
34:41
35:34
33:30
34:18
34:34
33:21
33:49
35:03
35:20
3.2E3
2.6E3
1.9E3
1.3E3
6.4E2
0.0E0
34:00
35:00
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 TLI BLANK
100%
80
60
40
20
0
35:02
33:34
34:35
33:57
34:15
35:27
35:41
7.7E3
6.2E3
4.6E3
3.1E3
1.5E3
0.0E0
34:00
35:00
Time
File:T976373 #1-390 Acq:18-SEP-1997 18:29:26 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 TLI BLANK
100%
80
60
40
20
0
34:44
4.2E5
3.4E5
2.5E5
1.7E5
8.4E4
0.0E0
34:00
35:00
Time

TLI Project: 43229 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: FB1-23 — Analysis File: T976374

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-1A-C	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.02				—
1,2,3,7,8-PeCDD	ND	0.04				—
1,2,3,4,7,8-HxCDD	ND	0.04				—
1,2,3,6,7,8-HxCDD	ND	0.04				—
1,2,3,7,8,9-HxCDD	ND	0.03				—
1,2,3,4,6,7,8-HpCDD	ND	0.04				—
1,2,3,4,6,7,8,9-OCDD	EMPC		0.02			—
2,3,7,8-TCDF	ND	0.02				—
1,2,3,7,8-PeCDF	ND	0.03				—
2,3,4,7,8-PeCDF	ND	0.03				—
1,2,3,4,7,8-HxCDF	ND	0.02				—
1,2,3,6,7,8-HxCDF	ND	0.02				—
2,3,4,6,7,8-HxCDF	ND	0.02				—
1,2,3,7,8,9-HxCDF	ND	0.03				—
1,2,3,4,6,7,8-HpCDF	ND	0.02				—
1,2,3,4,7,8,9-HpCDF	ND	0.04				—
1,2,3,4,6,7,8,9-OCDF	ND	0.04				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.02		—
Total PeCDD	ND		0.04		—
Total HxCDD	ND		0.04		—
Total HpCDD	ND		0.04		—
Total TCDF	ND		0.02		—
Total PeCDF	ND		0.03		—
Total HxCDF	ND		0.02		—
Total HpCDF	ND		0.03		—

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Printed: 01:17 09/22/97

TLI Project: **43229** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **FB1-23** Analysis File: **T976374**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.0	51.0	40%-130%	0.74	20:47	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.0	51.0	40%-130%	0.84	21:34	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.6	40.5	40%-130%	1.54	25:01	___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.8	45.1	40%-130%	1.49	26:08	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.8	71.2	40%-130%	0.52	28:43	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.7	68.0	40%-130%	1.22	29:26	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.7	66.7	25%-130%	0.43	31:24	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.2	81.0	25%-130%	1.01	32:15	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	6.6	82.4	25%-130%	0.86	34:44	___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.0	101	70%-140%		21:36	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.2	106	70%-140%	1.45	25:46	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.9	96.4	70%-140%	0.51	28:37	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	4.4	111	70%-140%	1.18	29:21	___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.3	108	70%-140%	0.43	32:36	___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.8	70.2	40%-130%	0.50	29:56	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.8	69.5	40%-130%	0.49	29:14	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	21:22	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	29:43	___

Data Reviewer: VC 09/22/97

X237_PSR v2.00, LARS 6.10.04

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Initial ....Date..

Data Review By: VC 9/22/97 Calculated Noise Area: 1.23

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 T976374B.dbf
09/22/97 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						0.826-1.097			
304-306	DC	SN		18:10	RO	0.61	0.25			0.874			
	DC	SN		18:33	RO	5.12	0.30			0.893			
	DC	SN		19:37	RO	0.50	0.71			0.944			
D	d	SN		20:49	RO	0.49	2.18			1.002	2378-TCDF		AN
304-306		0	Peaks				0.00						
13C12-TCDF				0.65-0.89						0.952-1.048			
316-318	DC	WL		17:21	RO	1.15	0.85			0.835			
	DC	WL		18:29	RO	0.60	0.64			0.889			
	DC	WL		19:39		0.82	3.67			0.945			
				20:47		0.74	506.70	216.01	290.69	1.000	13C12-2378-TCDF		IS0
				21:16		0.79	3.76	1.66	2.10	1.023			
316-318		2	Peaks				510.46						
---------- Above: TCDF / TCDD Follows ----------													
TCDD				0.65-0.89						0.861-1.056			
320-322	DC	SN		19:55	RO	3.55	0.19			0.923			
	DC	SN		21:56	RO	0.10	0.09			1.017			
	DC	WH		22:51	RO	0.20	0.09			1.060			
	DC	WH		22:58	RO	0.23	0.18			1.065			
320-322		0	Peaks				0.00						
37Cl-TCDD										0.907-1.093			
328	DC	WL		18:41			0.52			0.866			
	DC	WL		19:10			0.44			0.889			
				19:41			0.81	0.81		0.913			
				20:07			4.43	4.43		0.933			
	DC	SN		20:21			0.18			0.944			
				21:36			395.01	395.01		1.002	37Cl-TCDD		SUR1
				21:56			0.92	0.92		1.017			
	DC	SN		22:34			0.44			1.046			
	DC	SN		22:45			0.19			1.055			
				22:57			0.60	0.60		1.064			
				23:12			0.82	0.82		1.076			
328		6	Peaks				402.59						
13C12-TCDD				0.65-0.89						0.907-1.093			
332-334	DC	NL		0:00	RO	3.97	1.13			0.000			
	DC	WL		18:45	RO	1.71	2.46			0.869			
	DC	WL		19:01	RO	1.63	2.18			0.882			
	DC	WL		19:25	RO	0.41	1.56			0.900			
				20:37	RO	1.06	2.19	1.31	1.24	0.956			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name	ID	Flags
	DC	SN		20:49	RO	10.17	0.85			0.965			
				20:56	RO	2.78	1.75	2.75	0.99	0.971			
				21:11	RO	13.82	1.20	9.40	0.68	0.982			
				21:22		0.80	768.29	340.80	427.49	0.991	13C12-1234-TCDD	RS1	
				21:34		0.84	427.68	195.74	231.94	1.000	13C12-2378-TCDD	IS1	
				21:56	RO	1.96	7.81	8.65	4.41	1.017			
				22:14	RO	2.43	2.27	3.11	1.28	1.031			
				22:24	RO	8.14	1.36	6.27	0.77	1.039			
				22:47	RO	5.78	1.20	3.93	0.68	1.056			
332-334			9 Peaks				1,213.75						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF				1.32-1.78						0.909-1.075			
340-342	DC	SN		23:52	RO	1.93	0.36			0.954			
	DC	SN		24:08	RO	0.37	0.61			0.965			
	DC	SN		25:03	RO	0.73	0.49			1.001	12378-PeCDF		AN
	DC	SN		25:10	RO	2.65	0.43			1.006			
	DC	SN		25:23	RO	0.11	0.12			1.015			
	DC	SN		26:12	RO	0.10	0.05			1.047			
	DC	SN		26:38		1.73	0.82			1.065			
	DC	WH		27:14		1.56	0.23			1.089			
340-342			0 Peaks				0.00						
13C12-PeCDF				1.32-1.78						0.840-1.160			
352-354				24:09	RO	1.03	2.85	1.73	1.68	0.965			
				25:01		1.54	383.43	232.59	150.84	1.000	13C12-PeCDF 123	IS2	
	DC	SN		25:23	RO	0.25	0.53			1.015			
				25:46		1.45	414.50	245.66	168.84	1.030	13C12-PeCDF 234	SUR2	
				26:45	RO	1.16	1.22	0.74	0.64	1.069			
352-354			4 Peaks				802.00						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD				1.32-1.78						0.922-1.025			
356-358	DC	SN		24:47	RO	0.30	0.10			0.948			
	DC	SN		25:02	RO	2.50	0.20			0.958			
	DC	SN		26:26	RO	1.25	0.33			1.011			
	DC	SN		26:36		1.67	0.32			1.018			
356-358			0 Peaks				0.00						
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	SN		24:22		1.60	0.13			0.932			
	DC	SN		25:07	RO	1.86	0.36			0.961			
				26:08		1.49	251.03	150.25	100.78	1.000	13C12-PeCDD 123	IS3	
				26:16		1.63	24.98	15.49	9.49	1.005			
368-370			2 Peaks				276.01						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	SN		27:27	RO	1.00	0.05			0.956			

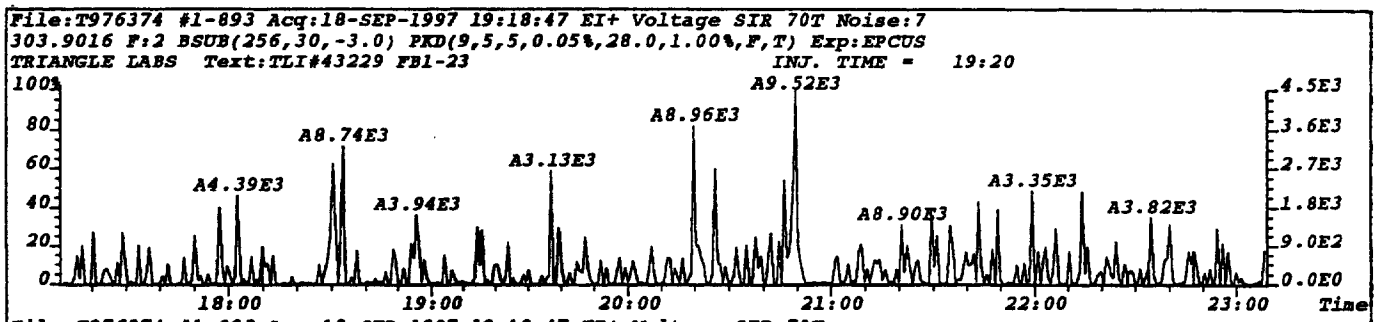
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		27:47	RO	1.80	0.45			0.967			
	DC	SN		27:49	RO	1.75	0.18			0.969			
	DC	SN		27:59	RO	6.40	0.11			0.974			
	DC	SN		28:09	RO	0.45	0.16			0.980			
	DC	SN		28:15	RO	1.00	0.20			0.984			
	DC	SN		28:34	RO	0.42	0.27			0.995			
	DC	SN		28:40	RO	2.96	0.52			0.998	123478-HxCDF	AN	
	DC	SN		28:54	RO	0.75	0.05			1.006			
	DC	SN		29:09	RO	0.77	0.18			1.015			
	DC	SN		29:15	RO	3.81	0.69			1.019	234678-HxCDF	AN	
	DC	SN		29:43	RO	0.71	0.18			1.035			
	DC	SN		29:52		1.08	0.25			1.040			
	DC	SN		29:56	RO	1.54	0.54			1.042	123789-HxCDF	AN	
	DC	WH		30:25	RO	0.67	0.07			1.059			
	DC	WH		30:32	RO	3.75	0.09			1.063			
374-376		0	Peaks				0.00						
13C12-HxCDF				0.43-0.59						0.861-1.139			
384-386				27:46		0.48	2.07	0.67	1.40	0.967			
	DC	SN		28:31	RO	0.68	0.42			0.993			
				28:37		0.51	417.32	140.96	276.36	0.997	13C12-HxCDF 478	SUR3	
				28:43		0.52	464.05	158.81	305.24	1.000	13C12-HxCDF 678	IS4	
				28:58	RO	0.71	2.42	1.14	1.60	1.009			
				29:04	RO	0.73	1.22	0.59	0.81	1.012			
				29:14		0.49	429.50	141.34	288.16	1.018	13C12-HxCDF 234	ALT2	
	DC	SN		29:45	RO	0.28	0.68			1.036			
				29:56		0.50	352.98	118.38	234.60	1.042	13C12-HxCDF 789	ALT1	
	DC	SN		30:17	RO	0.28	0.83			1.055			
384-386		7	Peaks				1,669.56						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD				1.05-1.43						0.951-1.014			
390-392	DC	SN		28:27	RO	0.25	0.07			0.967			
	DC	SN		28:38		1.19	0.68			0.973			
	DC	SN		28:44		1.09	0.48			0.976			
	DC	SN		28:51	RO	3.80	0.11			0.980			
	DC	SN		29:13	RO	2.00	0.29			0.993			
	DC	SN		29:20	RO	0.67	0.29			0.997	123478-HxCDD	AN	
	DC	SN		29:30	RO	0.21	0.14			1.002	123678-HxCDD	AN	
	DC	SN		29:38	RO	0.15	0.07			1.007			
	DC	SN		29:43		1.42	0.46			1.010	123789-HxCDD	AN	
	DC	WH		29:59	RO	0.64	0.13			1.019			
390-392		0	Peaks				0.00						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	WL		28:11		1.40	0.72			0.958			
	DC	SN		28:39	RO	3.69	0.36			0.973			
				28:49		1.28	1.46	0.82	0.64	0.979			
				29:21		1.18	344.72	186.47	158.25	0.997	13C12-HxCDD 478	SUR4	
				29:26		1.22	346.00	189.91	156.09	1.000	13C12-HxCDD 678	IS5	
				29:35	RO	0.55	2.35	1.30	2.36	1.005			

Compound/ M_Z....	QC.Log	Cmit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				29:43		1.20	539.87	293.92	245.95	1.010	13C12-HxCDD 789	RS2	
				29:53	RO	2.06	2.40	2.20	1.07	1.015			
				30:08	RO	0.94	1.07	0.59	0.63	1.024			
402-404			7	Peaks			1,237.87						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF						0.88-1.20				0.994-1.042			
408-410		DC	SN	31:22	RO	8.88	0.67			0.999	1234678-HpCDF	AN	
D		d	SN	32:35	RO	1.48	1.29			1.038	1234789-HpCDF	AN	
		DC	WH	32:51	RO	2.89	0.18			1.046			
408-410			0	Peaks			0.00						
13C12-HpCDF						0.37-0.51				0.936-1.127			
418-420				31:24		0.43	295.69	89.16	206.53	1.000	13C12-HpCDF 678	IS6	
				31:37	RO	1.19	1.08	0.89	0.75	1.007			
				32:36		0.43	252.61	76.46	176.15	1.038	13C12-HpCDF 789	SUR5	
418-420			3	Peaks			549.38						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD						0.88-1.20				0.976-1.005			
424-426		DC	WH	32:43	RO	1.42	0.24			1.014			
424-426			0	Peaks			0.00						
13C12-HpCDD						0.88-1.20				0.969-1.031			
436-438		DC	SN	31:35	RO	0.77	0.20			0.979			
				31:39	RO	1.41	1.18	0.82	0.58	0.981			
		DC	SN	32:06		0.94	0.70			0.995			
				32:15		1.01	336.68	169.16	167.52	1.000	13C12-HpCDD 678	IS7	
		DC	SN	32:36	RO	3.00	0.43			1.011			
436-438			2	Peaks			337.86						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF						0.76-1.02				0.885-1.115			
442-444		DC	SN	32:16	RO	1.63	0.45			0.929			
		DC	SN	33:06	RO	0.71	0.47			0.953			
		DC	SN	34:20	RO	0.30	0.40			0.988			
		DC	SN	34:35	RO	0.25	0.17			0.996			
		DC	SN	35:04	RO	1.64	0.26			1.010			
		DC	SN	35:18	RO	6.50	0.08			1.016			
442-444			0	Peaks			0.00						
OCDD						0.76-1.02				0.885-1.115			
458-460	AN			34:44	RO	1.75	1.15	1.07	0.61	1.000	OCDD	AN	
		DC	SN	35:02	RO	0.33	1.06			1.009			
458-460			1	Peak			1.15						
13C12-OCDD						0.76-1.02				0.995-1.004			
470-472				34:44		0.86	535.88	248.28	287.60	1.000	13C12-OCDD	IS8	
		DC	WH	34:57	RO	1.08	3.25			1.006			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
470-472			1 Peak				535.88						

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%,28.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
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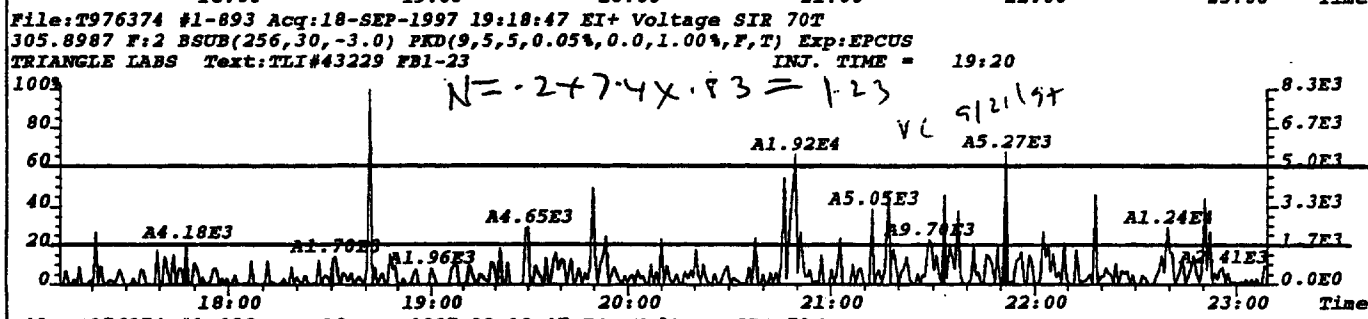
A3.35E3
A3.82E3
Time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INJ. TIME = 19:20
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VC 9/21/97
A4.18E3
A1.70E3
A1.96E3
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A5.05E3
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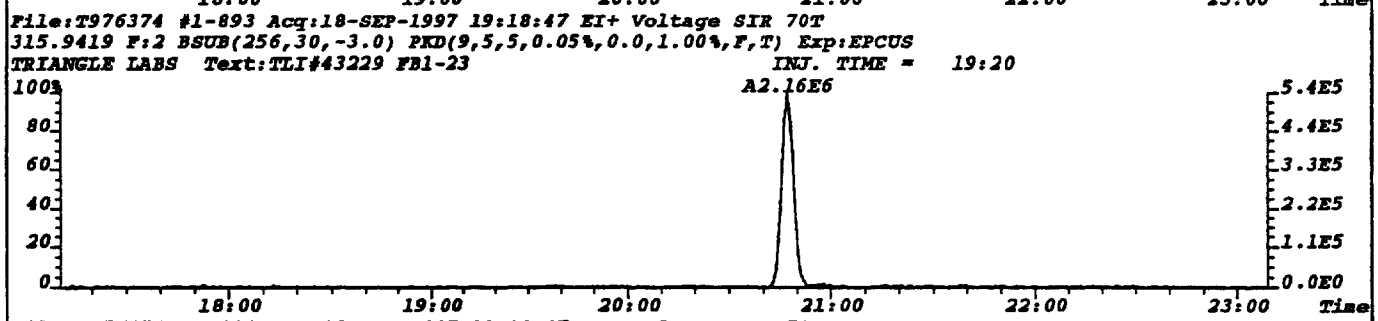
A1.24E4
A2.41E3
Time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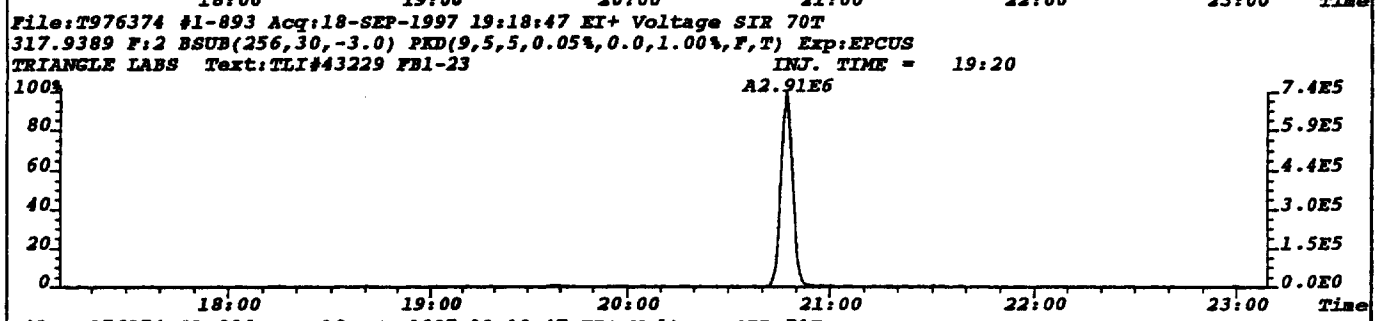
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.16E6
Time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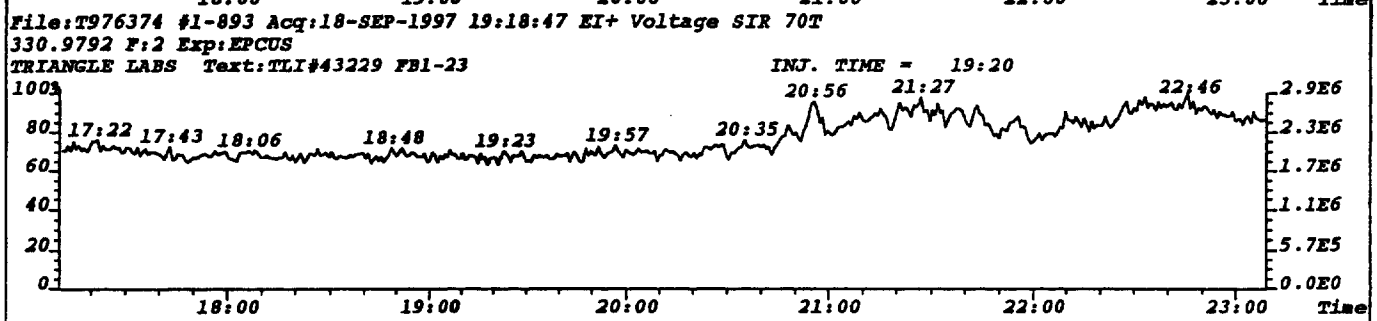
Time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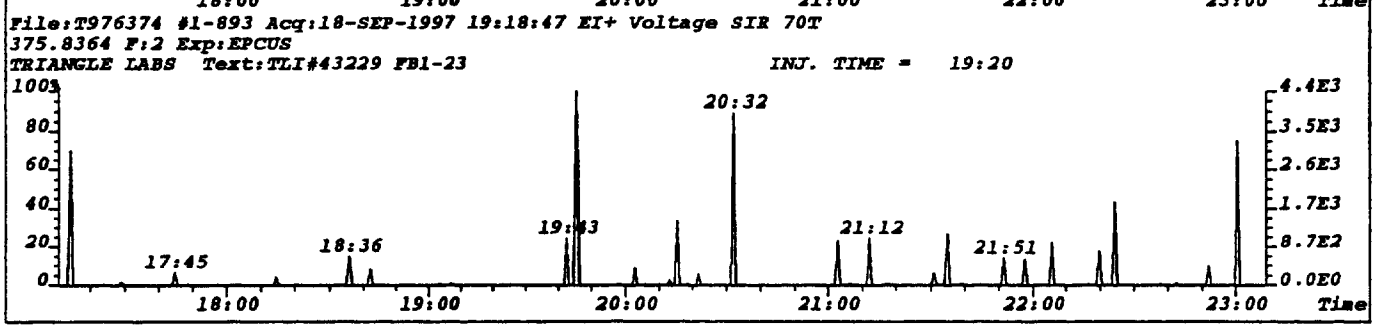
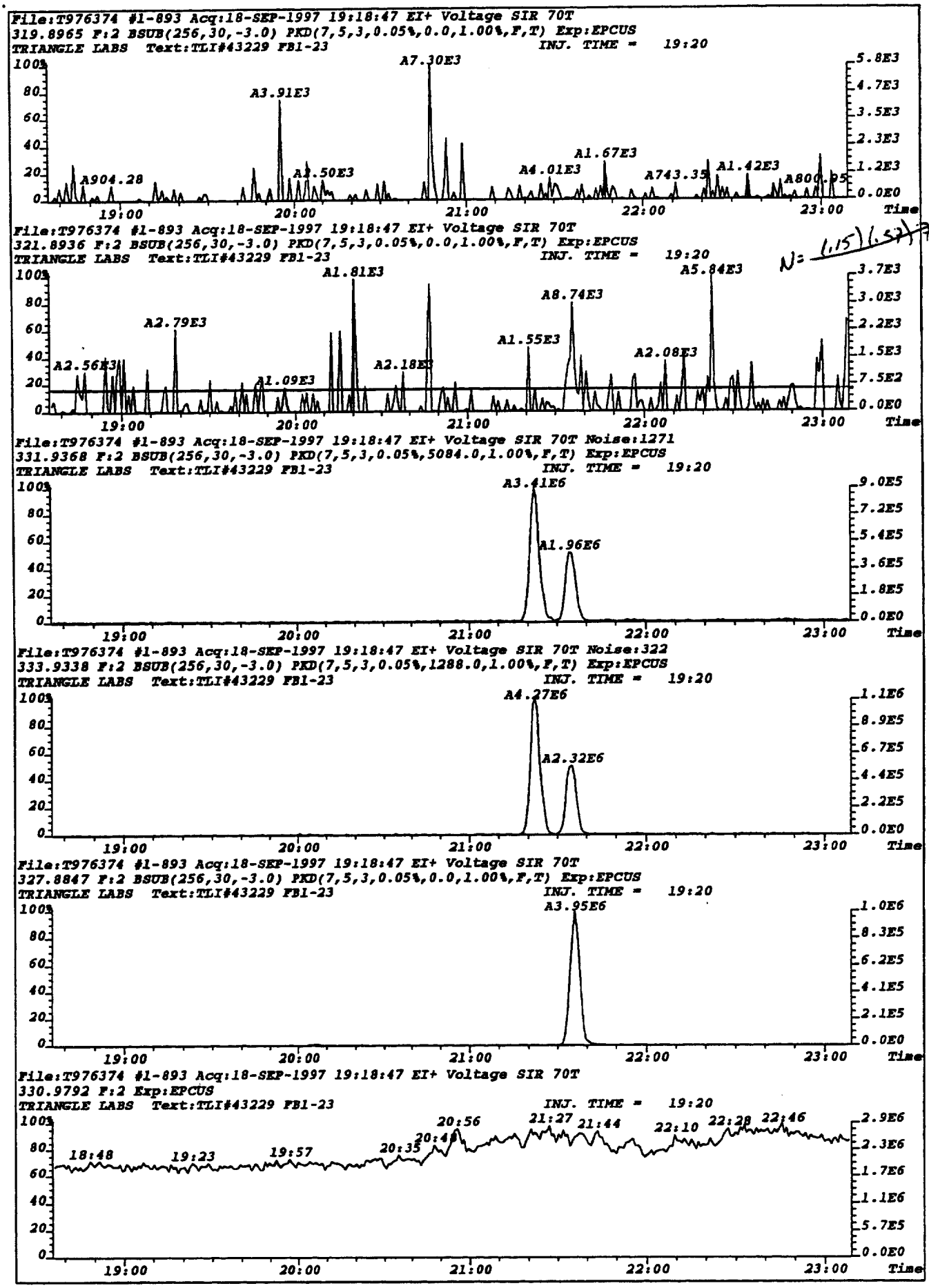
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
17:22
17:43
18:06
18:48
19:23
19:57
20:35
20:56
21:27
22:46
Time


File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
17:45
18:36
19:43
20:32
21:12
21:51
Time



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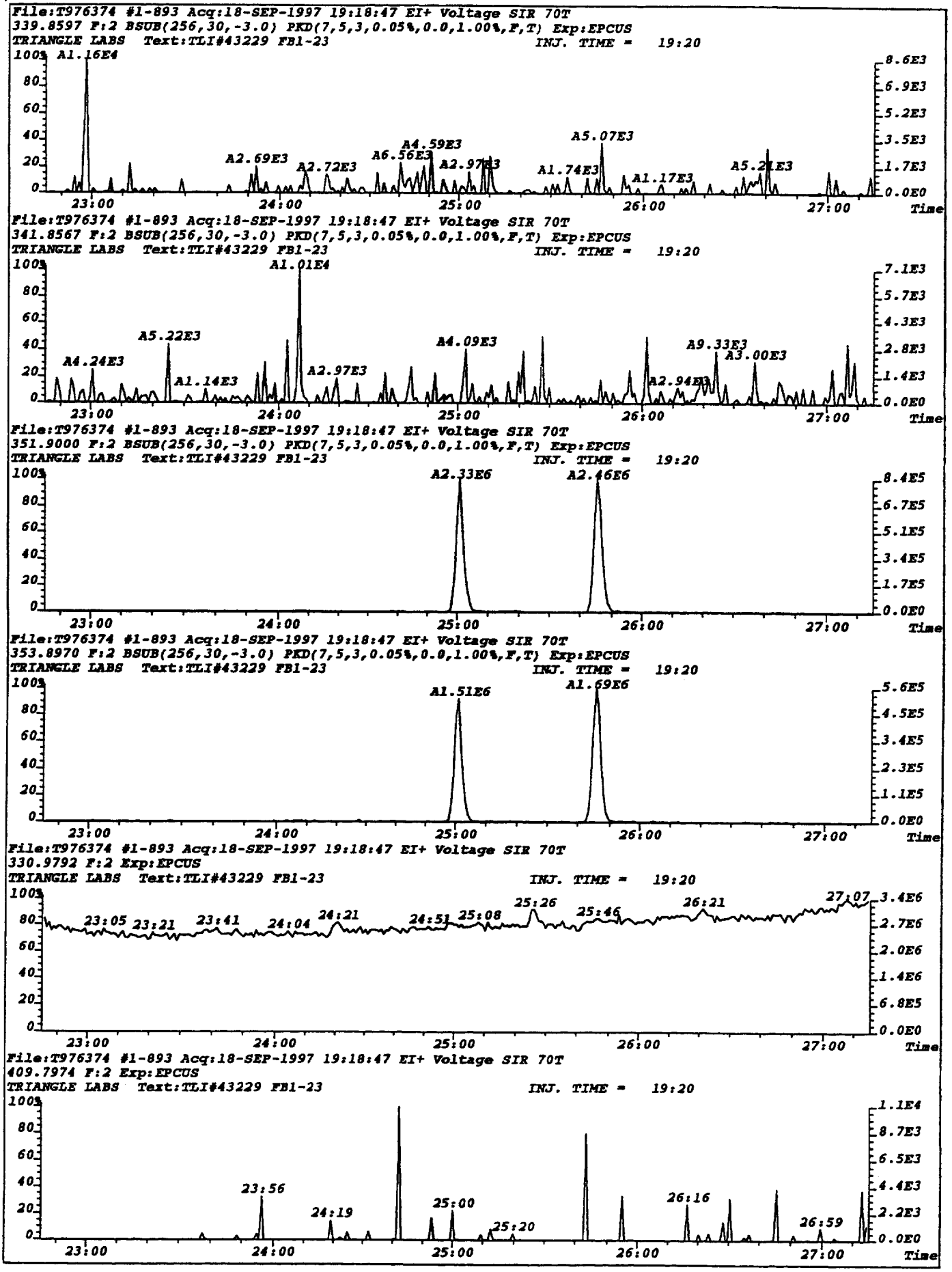
MAS 9/18/97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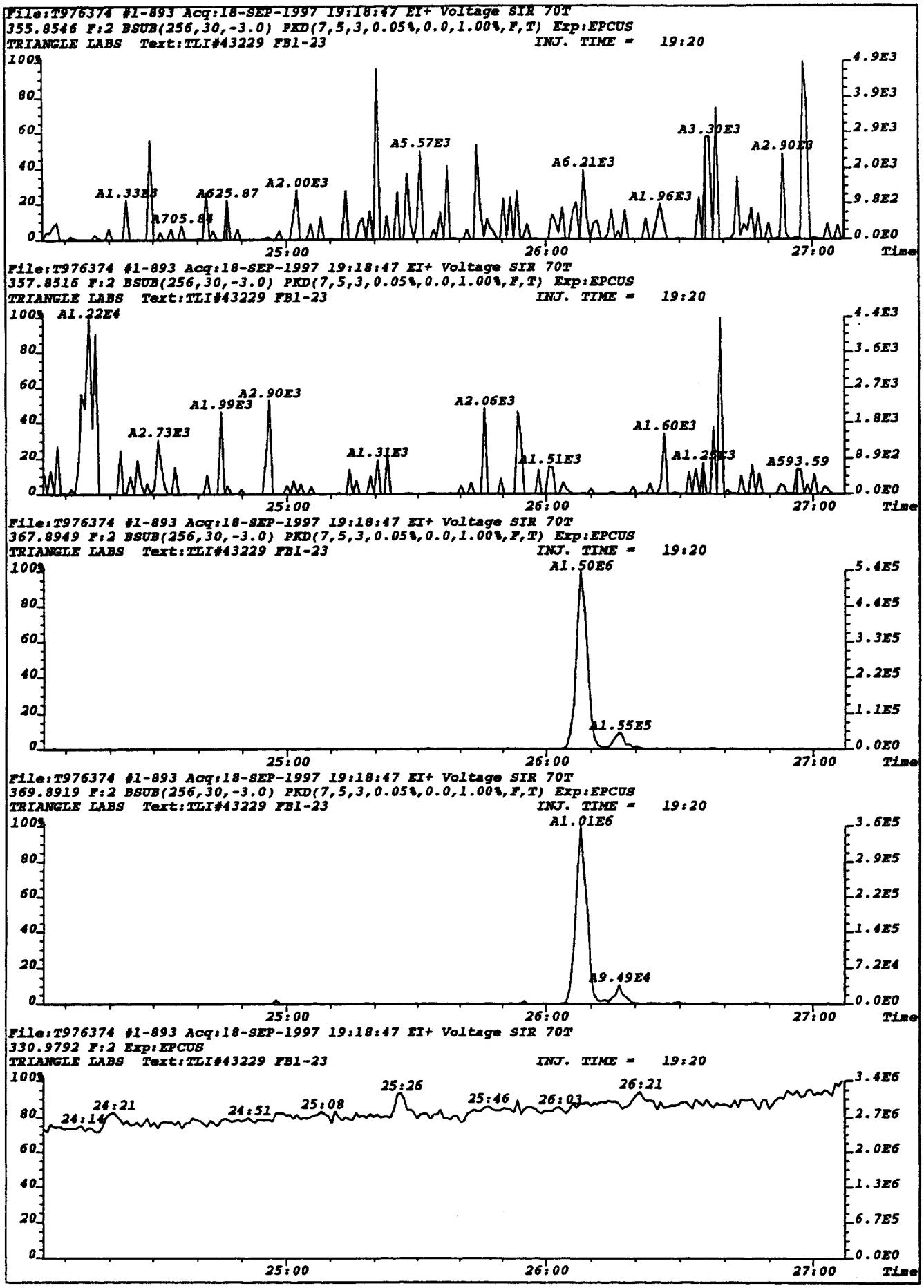
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.16E4
A2.69E3
A2.72E3
A6.56E3
A4.59E3
A2.97E3
A1.74E3
A5.07E3
A1.17E3
A5.21E3
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.01E4
A5.22E3
A4.24E3
A1.14E3
A2.97E3
A4.09E3
A2.94E3
A9.33E3
A3.00E3
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.33E6
A2.46E6
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.51E6
A1.69E6
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
23:05
23:21
23:41
24:04
24:21
24:51
25:08
25:26
25:46
26:21
27:07
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
23:56
24:19
25:00
25:20
26:16
26:59
Time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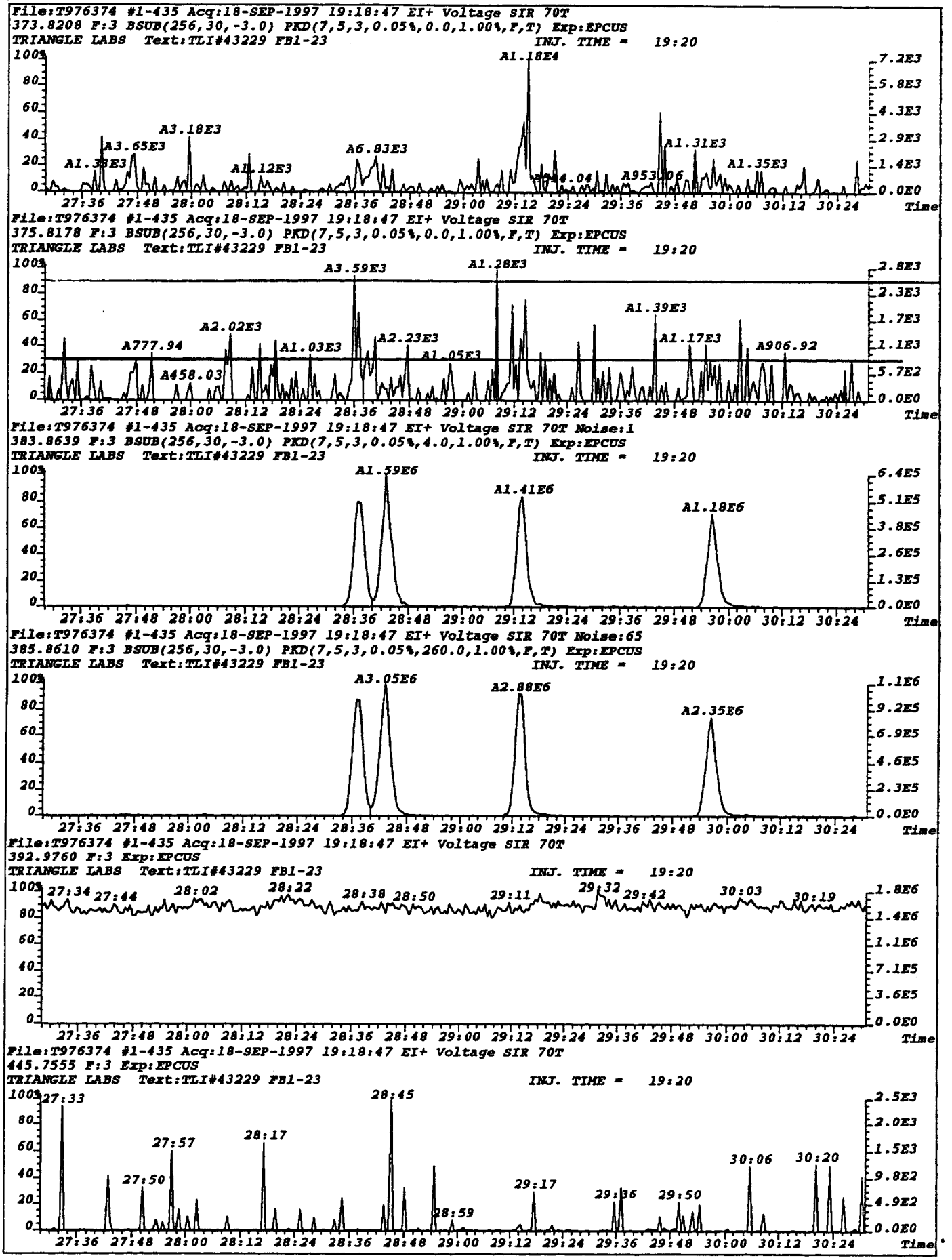
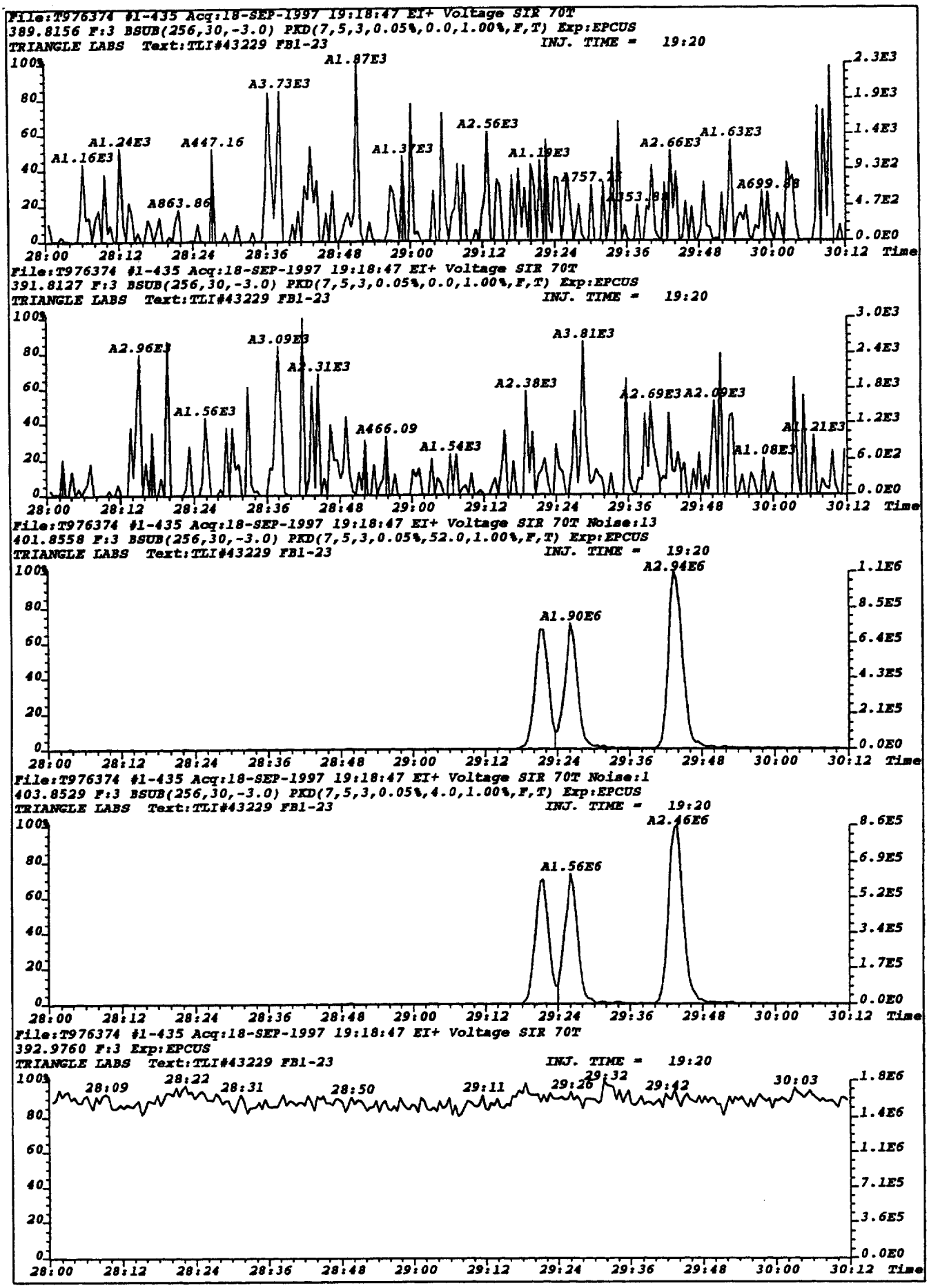
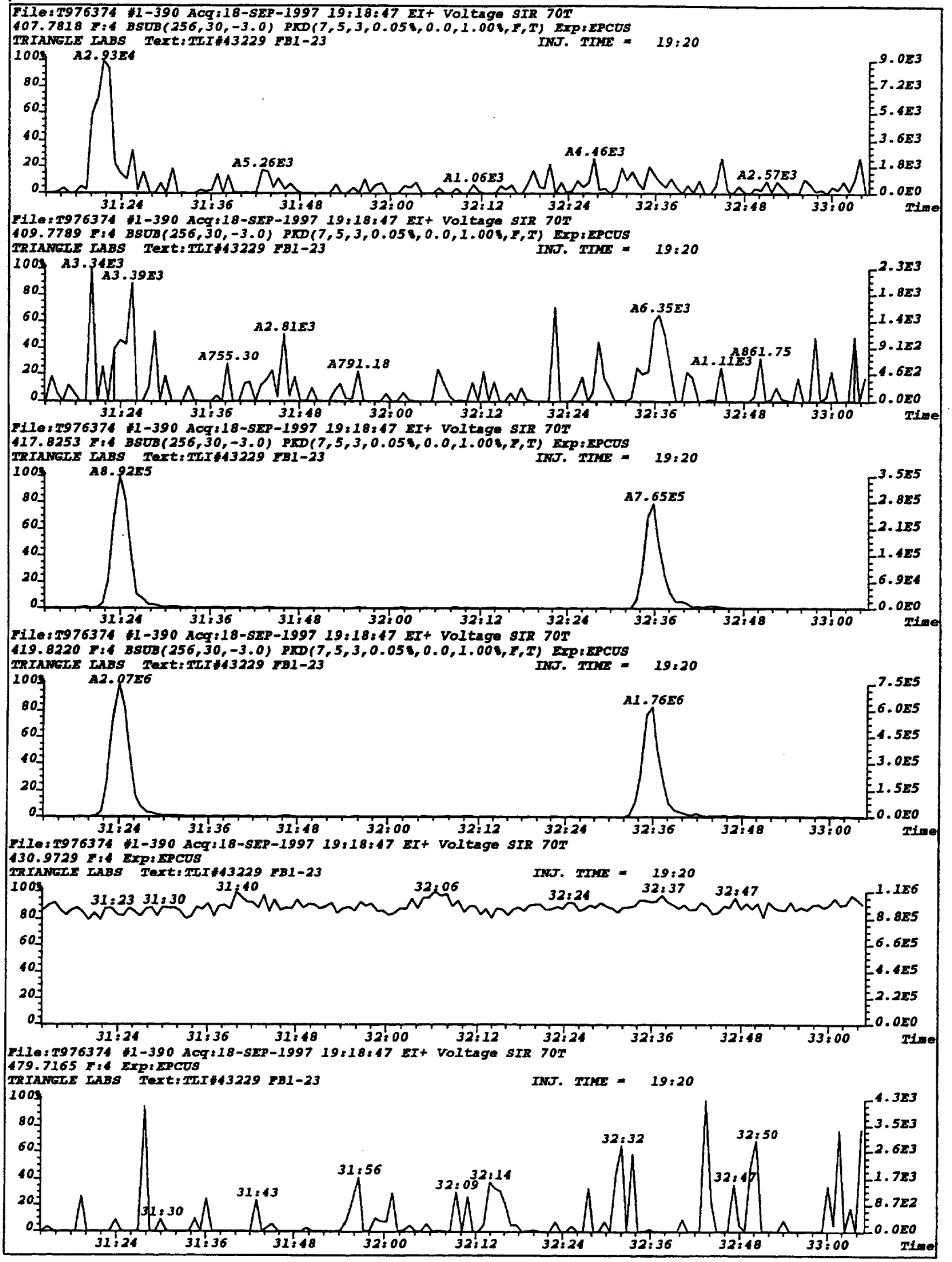
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.33E3
A625.87
A705.84
A2.00E3
A5.57E3
A6.21E3
A1.96E3
A3.30E3
A2.90E3
25:00
26:00
27:00
Time
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.22E4
A2.73E3
A1.99E3
A2.90E3
A1.31E3
A2.06E3
A1.51E3
A1.60E3
A1.28E3
A593.59
25:00
26:00
27:00
Time
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.50E6
A1.55E5
25:00
26:00
27:00
Time
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.01E6
A9.49E4
25:00
26:00
27:00
Time
File:T976374 #1-893 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
24:14
24:21
24:51
25:08
25:26
25:46
26:03
26:21
25:00
26:00
27:00
Time


File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A1.18E4
A3.65E3
A3.18E3
A6.83E3
A1.31E3
A1.35E3
A1.12E3
A953.06
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A3.59E3
A1.28E3
A1.39E3
A2.02E3
A777.94
A1.03E3
A2.23E3
A1.17E3
A906.92
A458.03
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T Noise:1
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A1.59E6
A1.41E6
A1.18E6
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T Noise:65
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,260.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A3.05E6
A2.88E6
A2.35E6
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
27:33
28:45
27:57
28:17
27:50
29:17
30:06
30:20
28:59
29:36
29:50
Time


File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.87E3
A3.73E3
A2.56E3
A1.24E3
A447.16
A1.16E3
A1.37E3
A1.19E3
A2.66E3
A1.63E3
A863.86
A757.25
A699.88
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A3.81E3
A3.09E3
A2.96E3
A2.31E3
A2.38E3
A2.69E3
A1.56E3
A466.09
A1.54E3
A1.08E3
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T Noise:13
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,52.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.94E6
A1.90E6
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T Noise:1
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.46E6
A1.56E6
File:T976374 #1-435 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
28:09
28:22
28:31
28:50
29:11
29:26
29:32
29:42
30:03
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:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A2.93E4
A5.26E3
A1.06E3
A4.46E3
A2.57E3
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A3.34E3
A3.39E3
A2.81E3
A755.30
A791.18
A6.35E3
A1.11E3
A861.75
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A8.92E5
A7.65E5
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
A2.07E6
A1.76E6
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
31:23 31:30
31:40
32:06
32:24
32:37
32:47
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23 INJ. TIME = 19:20
31:30
31:43
31:56
32:09
32:14
32:32
32:47
32:50
31:24
31:36
31:48
32:00
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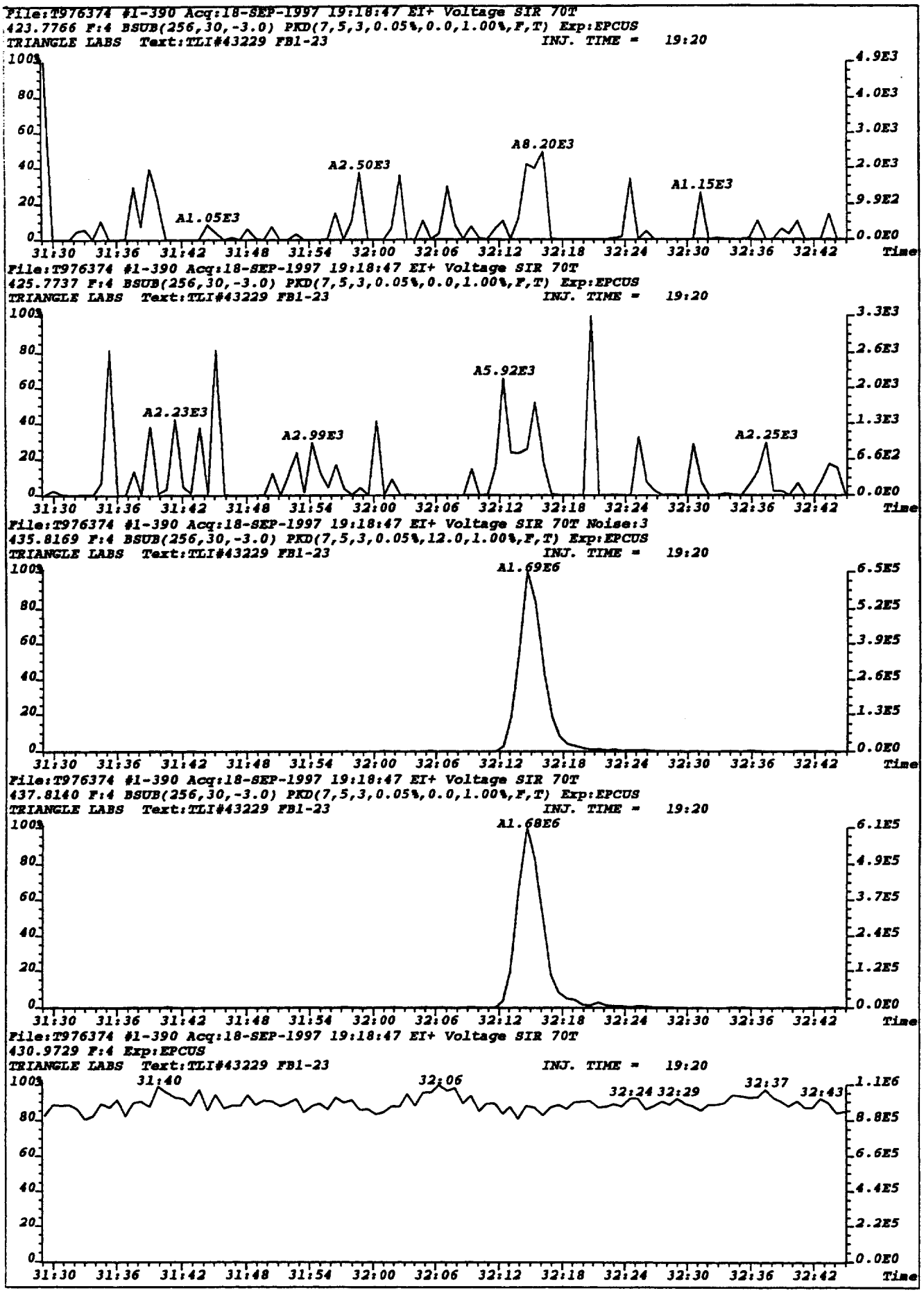
32:36
32:48
33:00
Time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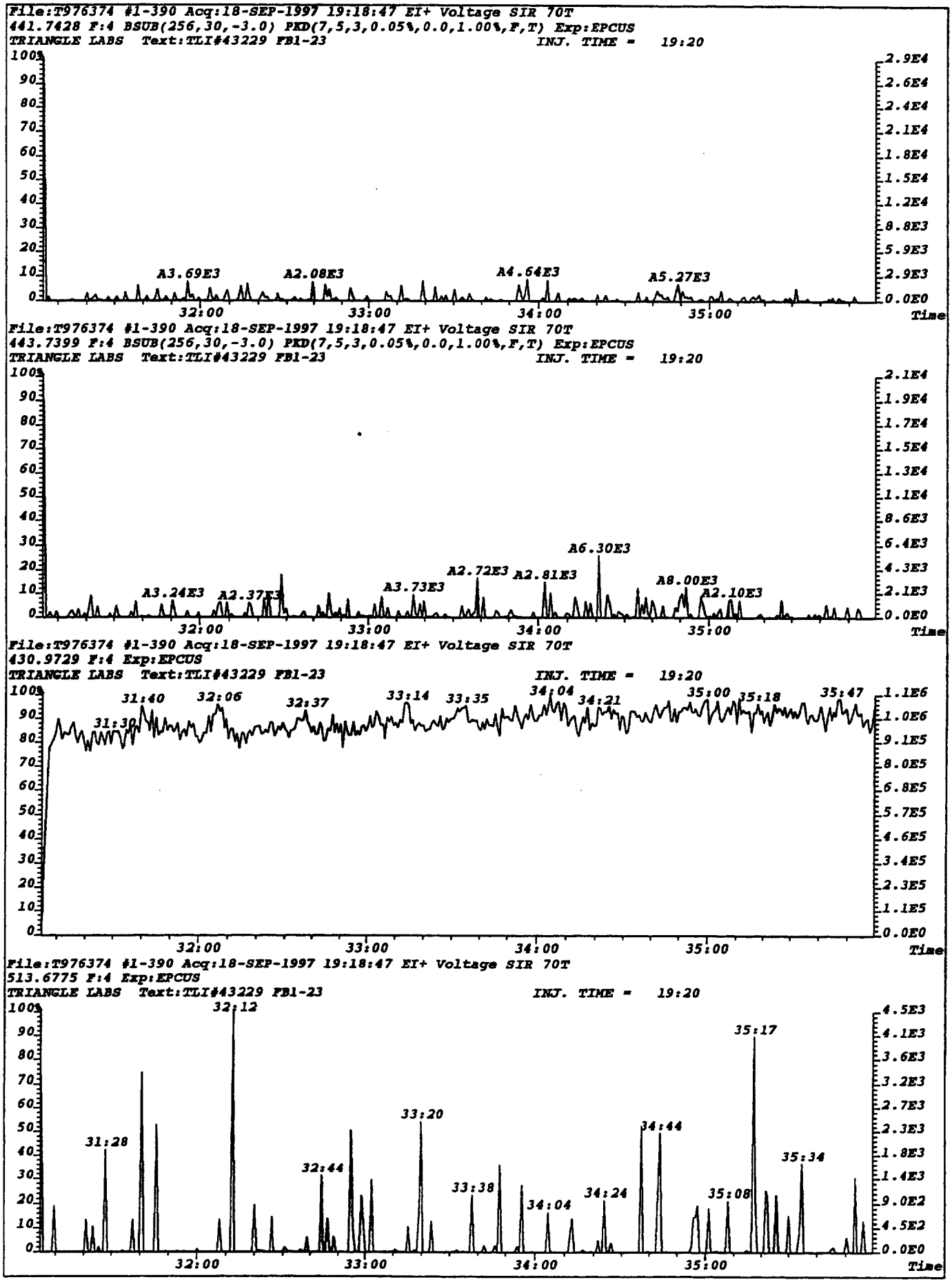
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.05E3
A2.50E3
A8.20E3
A1.15E3
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.23E3
A2.99E3
A5.92E3
A2.25E3
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T Noise:3
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,12.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.69E6
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.68E6
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
31:40
32:06
32:24
32:29
32:37
32:43
Time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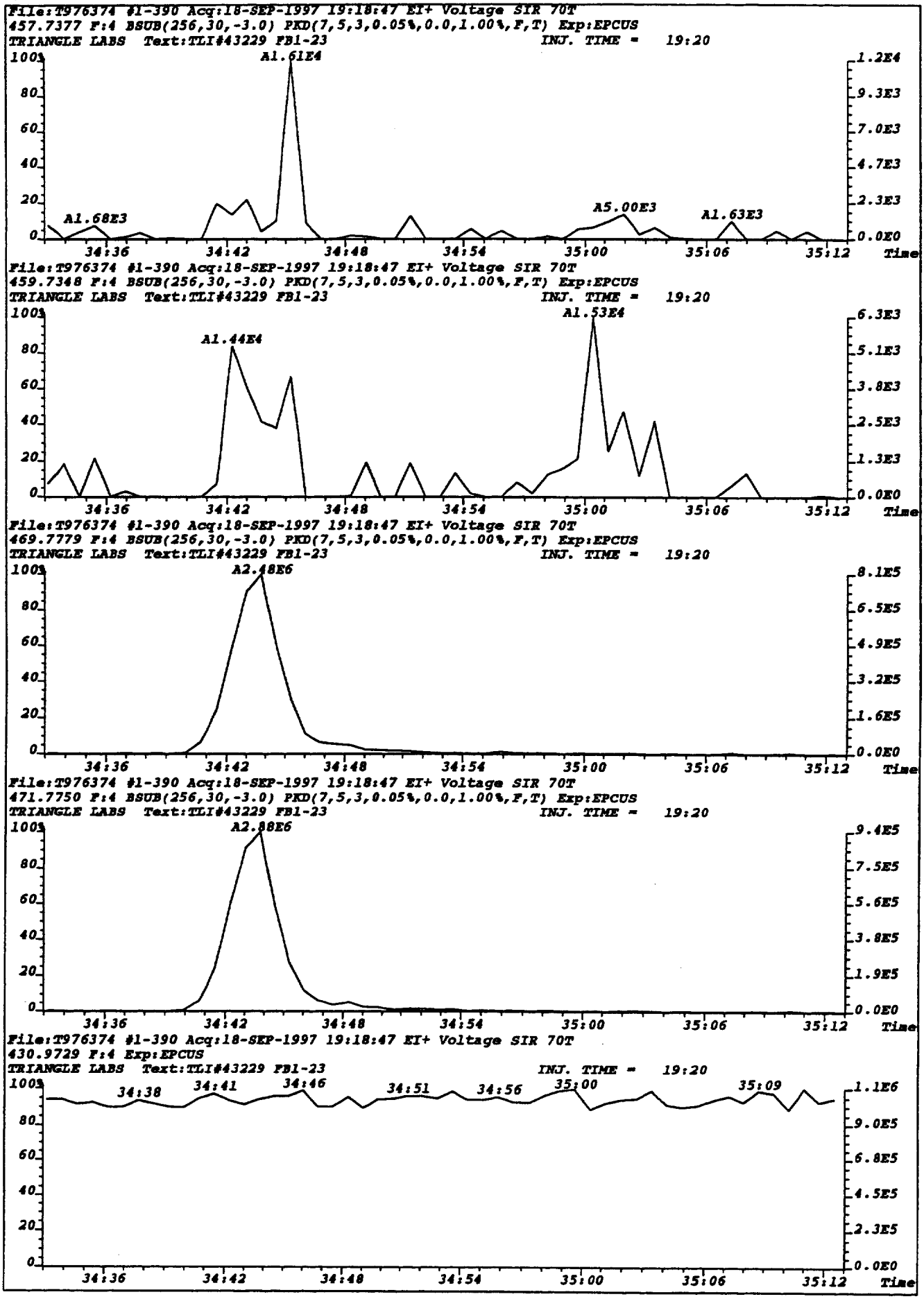
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A3.69E3
A2.08E3
A4.64E3
A5.27E3
Time
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A3.24E3
A2.37E3
A3.73E3
A2.72E3
A2.81E3
A6.30E3
A8.00E3
A2.10E3
Time
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
31:30
31:40
32:06
32:37
33:14
33:35
34:04
34:21
35:00
35:18
35:47
Time
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
31:28
32:12
32:44
33:20
33:38
34:04
34:24
34:44
35:08
35:17
35:34
Time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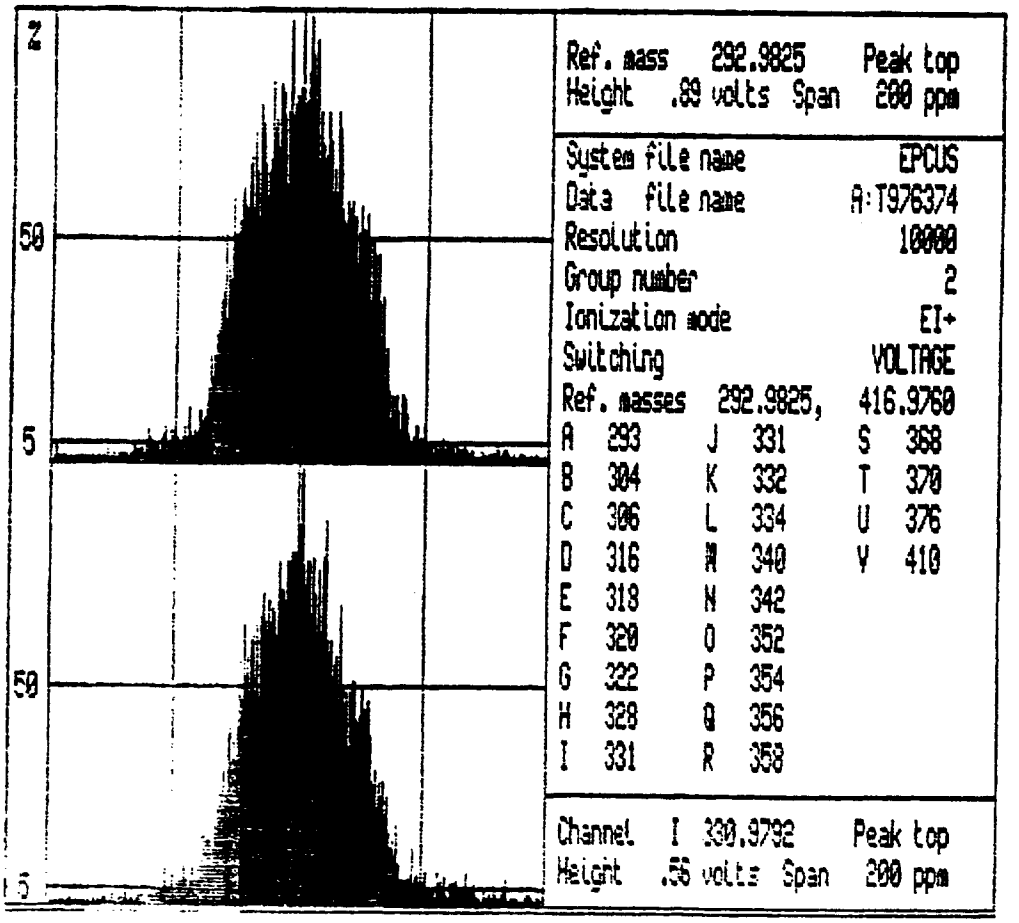
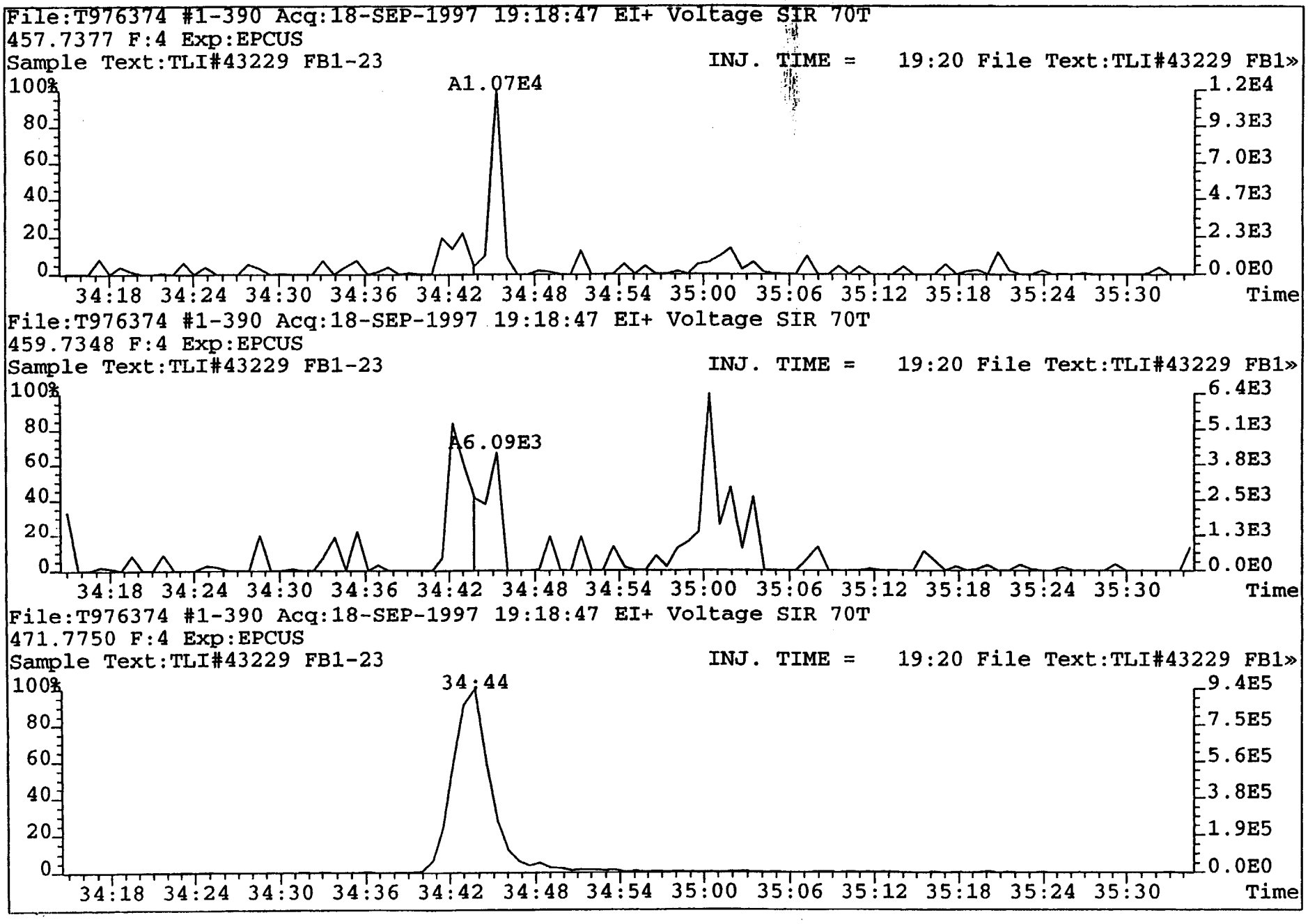
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.61E4
A1.68E3
A5.00E3
A1.63E3
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A1.53E4
A1.44E4
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.48E6
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
A2.88E6
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB1-23
INJ. TIME = 19:20
34:38
34:41
34:46
34:51
34:56
35:00
35:09
34:36
34:42
34:48
34:54
35:00
35:06
35:12
Time


Z
50
5
50
5
Ref. mass 292.9825 Peak top
Height .89 volts Span 200 ppm
System file name EPCUS
Data file name A:T976374
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 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 .56 volts Span 200 ppm


File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB1-23
INJ. TIME = 19:20 File Text:TLI#43229 FB1»
A1.07E4
100%
80
60
40
20
0
1.2E4
9.3E3
7.0E3
4.7E3
2.3E3
0.0E0
34:18 34:24 34:30 34:36 34:42 34:48 34:54 35:00 35:06 35:12 35:18 35:24 35:30
Time
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB1-23
INJ. TIME = 19:20 File Text:TLI#43229 FB1»
A6.09E3
100%
80
60
40
20
0
6.4E3
5.1E3
3.8E3
2.5E3
1.3E3
0.0E0
34:18 34:24 34:30 34:36 34:42 34:48 34:54 35:00 35:06 35:12 35:18 35:24 35:30
Time
File:T976374 #1-390 Acq:18-SEP-1997 19:18:47 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB1-23
INJ. TIME = 19:20 File Text:TLI#43229 FB1»
34:44
100%
80
60
40
20
0
9.4E5
7.5E5
5.6E5
3.8E5
1.9E5
0.0E0
34:18 34:24 34:30 34:36 34:42 34:48 34:54 35:00 35:06 35:12 35:18 35:24 35:30
Time

Pacific Environmental Services

TLI Project: 43229
Client Sample: BO-23-1

Method 23 PCDD/PCDF Analysis (a)
Analysis File: T976375

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-2A-C	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.23			0.72	21:35	—
1,2,3,7,8-PeCDD	0.44			1.67	26:08	—
1,2,3,4,7,8-HxCDD	EMPC		0.15			—
1,2,3,6,7,8-HxCDD	0.24			1.09	29:27	—
1,2,3,7,8,9-HxCDD	0.32			1.19	29:44	PR
1,2,3,4,6,7,8-HpCDD	0.38			1.02	32:15	—
1,2,3,4,6,7,8,9-OCDD	EMPC		0.11			—
2,3,7,8-TCDF	15.5			0.84	20:49	—
1,2,3,7,8-PeCDF	3.1			1.65	25:01	—
2,3,4,7,8-PeCDF	3.9			1.55	25:46	—
1,2,3,4,7,8-HxCDF	2.9			1.33	28:37	PR
1,2,3,6,7,8-HxCDF	1.5			1.24	28:43	—
2,3,4,6,7,8-HxCDF	0.93			1.24	29:14	PR
1,2,3,7,8,9-HxCDF	0.10			1.27	29:57	—
1,2,3,4,6,7,8-HpCDF	0.97			1.09	31:24	—
1,2,3,4,7,8,9-HpCDF	0.17			1.12	32:36	—
1,2,3,4,6,7,8,9-OCDF	EMPC		0.08			—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	7.0	11		7.7	—
Total PeCDD	3.4	7		6.3	—
Total HxCDD	2.8	6		2.9	—
Total HpCDD	0.67	2			—
Total TCDF	131	15			—
Total PeCDF	57.6	14		57.8	—
Total HxCDF	15.0	12			—
Total HpCDF	1.6	4			—

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Pacific Environmental Services

TLI Project: 43229
Client Sample: BO-23-1

Method 23 PCDD/PCDF Analysis (a)
Analysis File: T976375

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.1	52.4	40%-130%	0.73	20:46	
$^{13}C_{12}$-2,3,7,8-TCDD	1.9	47.3	40%-130%	0.87	21:34	
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.8	44.9	40%-130%	1.49	25:01	
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2.0	49.3	40%-130%	1.50	26:08	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.5	62.3	40%-130%	0.49	28:43	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.9	71.4	40%-130%	1.18	29:26	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.7	43.0	25%-130%	0.41	31:24	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.1	51.8	25%-130%	1.05	32:15	
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	3.9	48.2	25%-130%	0.80	34:43	

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	95.5	70%-140%		21:35	
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.1	102	70%-140%	1.42	25:46	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.2	104	70%-140%	0.50	28:37	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.4	84.6	70%-140%	1.20	29:21	
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.9	96.7	70%-140%	0.40	32:35	

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.5	62.2	40%-130%	0.50	29:56	
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.7	66.3	40%-130%	0.50	29:13	

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	21:22	
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.22	29:43	

Data Reviewer: VC 09/22/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 01:18 09/22/97

Initial ....Date...

Data Review By: [illegible] 9/23/97 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 T976375B.dbf
09/22/97 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						0.826-1.097			
304-306		DC	NL	0:00	RO	0.94	0.87			0.000			
				17:20		0.83	770.20	348.81	421.39	0.835			
				17:50		0.83	414.47	187.85	226.62	0.859			
				18:05		0.84	201.71	91.80	109.91	0.871			
				18:29		0.84	2,201.78	1,001.90	1,199.88	0.890			
				18:51		0.83	1,417.68	642.20	775.48	0.908			
				19:19		0.82	1,261.69	568.26	693.43	0.930			
				19:38		0.80	923.53	409.93	513.60	0.945			
	M			20:05		0.84	1,188.00	542.00	646.00	0.967			
				20:19		0.86	501.63	231.25	270.38	0.978			
				20:35		0.79	457.32	202.03	255.29	0.991			
				20:49		0.84	1,436.45	655.67	780.78	1.002	2378-TCDF		AN
				21:15		0.83	708.59	321.68	386.91	1.023			
				21:29		0.85	591.83	271.36	320.47	1.035			
				21:45		0.87	53.52	24.97	28.55	1.047			
				22:39		0.66	35.03	13.93	21.10	1.091			
		DC	WH	22:55	RO	0.63	13.17			1.104			
		DC	WH	23:12	RO	1.28	2.74			1.117			
304-306			15	Peaks			12,163.43						
13C12-TCDF				0.65-0.89						0.952-1.048			
316-318		DC	WL	18:22	RO	22.07	0.27			0.884			
				20:46		0.73	340.41	143.98	196.43	1.000	13C12-2378-TCDF		ISO
316-318			1	Peak			340.41						

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

TCDD				0.65-0.89						0.861-1.056			
320-322				18:44		0.78	123.75	54.12	69.63	0.869			
				19:12	RO	0.93	41.35	21.71	23.36	0.890			
				19:32		0.75	28.61	12.25	16.36	0.906			
				20:16		0.77	114.56	49.96	64.60	0.940			
	M			20:35		0.76	66.20	28.60	37.60	0.954			
				21:00		0.65	27.24	10.71	16.53	0.974			
				21:22		0.71	51.52	21.39	30.13	0.991			
				21:29		0.82	60.06	27.09	32.97	0.996			
				21:35		0.72	17.78	7.47	10.31	1.001	2378-TCDD		AN
				21:46		0.84	12.23	5.60	6.63	1.009			
				21:57		0.89	28.61	13.47	15.14	1.018			
				22:10		0.71	8.65	3.58	5.07	1.028			
				22:39	RO	0.64	6.00	2.61	4.07	1.050			
320-322			13	Peaks			586.56						

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										0.907-1.093			
328	DC	WL		19:03			8.80			0.883			
	DC	WL		19:13			13.90			0.891			
				20:05			582.12	582.12		0.931			
	DC	SN		20:19			1.01			0.942			
	DC	SN		20:59			0.80			0.973			
				21:35			226.26	226.26		1.001	37Cl-TCDD	SUR1	
	DC	SN		21:56			0.66			1.017			
				22:02			28.20	28.20		1.022			
	DC	SN		22:27			1.34			1.041			
	DC	SN		22:55			0.30			1.063			
328			3	Peaks			836.58						
13C12-TCDD					0.65-0.89					0.907-1.093			
332-334	DC	NL		0:00	RO	3.12	1.50			0.000			
				21:22		0.86	502.40	232.61	259.79	0.991	13C12-1234-TCDD	RS1	
				21:34		0.87	259.41	120.69	138.72	1.000	13C12-2378-TCDD	IS1	
	DC	SN		21:55	RO	2.75	4.09			1.016			
	DC	SN		22:14	RO	1.73	1.82			1.031			
	DC	SN		22:42	RO	1.48	3.29			1.053			
332-334			2	Peaks			761.81						

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

PeCDF					1.32-1.78					0.909-1.075			
340-342	DC	SN		22:46	RO	0.56	1.99			0.910			
				22:55		1.52	549.63	331.78	217.85	0.916			
	DC	SN		23:02	RO	0.96	3.42			0.921			
	DC	SN		23:12	RO	3.21	5.05			0.927			
				23:38	RO	2.27	8.19	7.28	3.21	0.945			
				23:58		1.57	346.12	211.58	134.54	0.958			
				24:07		1.50	1,472.33	883.58	588.75	0.964			
				24:17		1.49	311.30	186.26	125.04	0.971			
				24:32		1.65	151.94	94.57	57.37	0.981			
				24:44		1.52	332.00	200.09	131.91	0.989			
	A			24:55		1.33	79.60	45.40	34.20	0.996			
	M			25:01		1.65	233.00	145.00	88.00	1.000	12378-PeCDF	AN	
				25:11		1.64	164.12	101.89	62.23	1.007			
				25:20		1.62	199.41	123.27	76.14	1.013			
				25:46		1.55	306.49	186.14	120.35	1.030	23478-PeCDF	AN	
				25:54		1.54	241.79	146.67	95.12	1.035			
				26:14		1.69	18.84	11.83	7.01	1.049			
	K			26:37	RO	1.86	5.66	4.14	2.22	1.064			
				26:45		1.39	21.64	12.59	9.05	1.069			
	DC	WH		26:57	RO	0.99	2.14			1.077			
	DC	WH		27:08		1.48	1.19			1.085			
340-342			16	Peaks			4,442.06						
13C12-PeCDF					1.32-1.78					0.840-1.160			
352-354	DC	SN		22:50		1.36	1.11			0.913			
	DC	SN		24:40	RO	1.89	1.40			0.986			
				25:01		1.49	278.39	166.52	111.87	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.
	DC	SN		25:18	RO	0.50	1.63			1.011			
				25:46		1.42	290.01	170.24	119.77	1.030	13C12-PeCDF 234	SUR2	
	DC	SN		26:18		1.62	1.60			1.051			
	DC	SN		27:03	RO	1.02	0.76			1.081			
352-354			2	Peaks			568.40						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD				1.32-1.78						0.922-1.025			
356-358				24:16	RO	0.50	104.63	63.60	127.72	0.929			
				24:45		1.34	13.39	7.66	5.73	0.947			
				25:01		1.52	60.64	36.54	24.10	0.957			
				25:09		1.52	25.78	15.54	10.24	0.962			
				25:21	RO	1.29	36.33	22.08	17.16	0.970			
	M			25:37		1.51	34.70	20.90	13.80	0.980			
				25:49		1.45	18.35	10.86	7.49	0.988			
	A			26:00	RO	0.69	6.78	4.12	5.97	0.995			
				26:08		1.67	24.85	15.54	9.31	1.000	12378-PeCDD		AN
				26:16	RO	1.80	14.66	10.34	5.75	1.005			
				26:37		1.33	10.89	6.21	4.68	1.018			
356-358			11	Peaks			351.00						
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	SN		24:47	RO	0.32	0.25			0.948			
	DC	SN		25:30	RO	1.27	1.17			0.976			
	DC	SN		25:50	RO	1.00	0.54			0.989			
				26:08		1.50	179.33	107.50	71.83	1.000	13C12-PeCDD 123	IS3	
				26:15		1.36	20.02	11.52	8.50	1.004			
	DC	SN		26:59	RO	0.60	0.90			1.033			
368-370			2	Peaks			199.35						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	NL		0:00		1.39	1.17			0.000			
	DC	SN		27:29		1.33	0.91			0.957			
				27:38		1.35	111.63	64.08	47.55	0.962			
				27:46		1.31	450.66	255.25	195.41	0.967			
				27:56		1.38	48.81	28.34	20.47	0.973			
				28:05		1.23	63.21	34.84	28.37	0.978			
				28:14		1.31	22.51	12.76	9.75	0.983			
	DC	SN		28:24		1.26	1.67			0.989			
				28:37		1.33	231.58	131.99	99.59	0.997	123478-HxCDF		AN
				28:43		1.24	147.36	81.43	65.93	1.000	123678-HxCDF		AN
				28:50		1.35	31.62	18.18	13.44	1.004			
				29:01		1.26	64.03	35.67	28.36	1.010			
				29:14		1.24	75.42	41.73	33.69	1.018	234678-HxCDF		AN
	DC	SN		29:47	RO	1.00	0.61			1.037			
				29:57		1.27	7.48	4.18	3.30	1.043	123789-HxCDF		AN
				30:01		1.12	13.76	7.27	6.49	1.045			
	DC	WH		30:11	RO	0.20	0.25			1.051			
	DC	WH		30:17	RO	0.88	0.54			1.055			

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		30:22	RO	0.60	0.45			1.057			
	DC	WH		30:30		1.12	1.25			1.062			
374-376		12	Peaks				1,268.07						
13C12-HxCDF				0.43-0.59						0.861-1.139			
384-386	DC	NL		0:00		0.48	1.05			0.000			
	DC	SN		27:45	RO	0.70	1.30			0.966			
	DC	SN		27:53		0.50	0.18			0.971			
	DC	SN		28:27	RO	0.27	0.62			0.991			
				28:37		0.50	288.08	95.68	192.40	0.997	13C12-HxCDF 478	SUR3	
				28:43		0.49	296.75	98.03	198.72	1.000	13C12-HxCDF 678	IS4	
	DC	SN		28:51	RO	1.19	1.04			1.005			
	DC	SN		28:58	RO	0.09	0.36			1.009			
	DC	SN		29:08	RO	1.22	0.62			1.015			
				29:13		0.50	299.96	99.98	199.98	1.017	13C12-HxCDF 234	ALT2	
	DC	SN		29:23	RO	0.63	2.46			1.023			
	DC	SN		29:32	RO	0.70	0.92			1.028			
				29:56		0.50	228.94	75.91	153.03	1.042	13C12-HxCDF 789	ALT1	
	DC	SN		30:08	RO	0.69	0.72			1.049			
	DC	SN		30:15	RO	2.65	0.39			1.053			
	DC	SN		30:23	RO	1.51	0.62			1.058			
	DC	SN		30:28	RO	0.74	0.98			1.061			
384-386		4	Peaks				1,113.73						

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

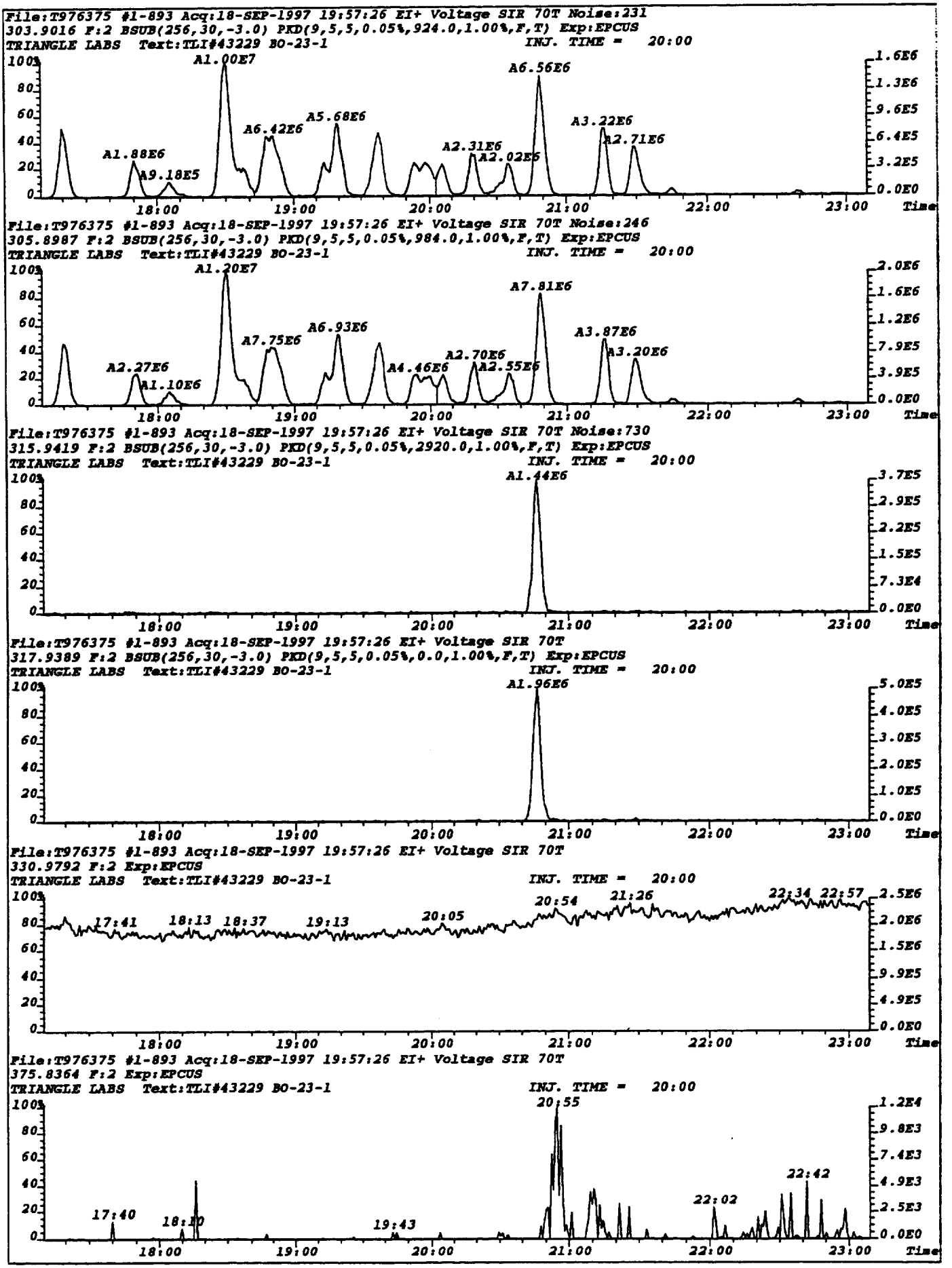
HxCDD				1.05-1.43						0.951-1.014			
390-392				28:09		1.15	26.80	14.36	12.44	0.956			
	DC	SN		28:21	RO	1.62	0.29			0.963			
				28:37		1.32	55.90	31.82	24.08	0.972			
				28:50		1.32	57.31	32.60	24.71	0.980			
K				28:59		1.21	5.24	2.87	2.37	0.985			
				29:21	RO	0.99	8.85	4.90	4.93	0.997	123478-HxCDD		AN
				29:27		1.09	15.90	8.28	7.62	1.001	123678-HxCDD		AN
				29:44		1.19	22.08	11.99	10.09	1.010	123789-HxCDD		AN
	DC	WH		29:54	RO	0.67	0.47			1.016			
	DC	WH		30:01	RO	0.54	0.45			1.020			
	DC	WH		30:09	RO	1.61	0.40			1.024			
	DC	WH		30:15	RO	0.79	0.60			1.028			
390-392		7	Peaks				192.08						
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	NL		0:00	RO	0.43	0.58			0.000			
	DC	WL		28:07	RO	0.38	0.54			0.955			
	DC	SN		28:50		1.09	2.32			0.980			
	DC	SN		29:13	RO	0.96	0.45			0.993			
				29:21		1.20	202.20	110.15	92.05	0.997	13C12-HxCDD 478	SUR4	
				29:26		1.18	265.85	143.98	121.87	1.000	13C12-HxCDD 678	IS5	
				29:43		1.22	394.83	217.20	177.63	1.010	13C12-HxCDD 789	RS2	
	DC	SN		30:03	RO	0.64	2.20			1.021			
	DC	SN		30:06	RO	0.35	0.74			1.023			
	DC	SN		30:12	RO	0.59	1.30			1.026			

Compound/ M_Z....	QC.Log	Omit	Why	RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
402-404			3 Peaks				862.88						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF						0.88-1.20				0.994-1.042			
408-410				31:24		1.09	59.82	31.23		28.59	1.000 1234678-HpCDF		AN
				31:37		1.09	14.03	7.33		6.70	1.007		
				31:44		0.91	10.29	4.91		5.38	1.011		
				32:36		1.12	6.70	3.54		3.16	1.038 1234789-HpCDF		AN
408-410			4 Peaks				90.84						
13C12-HpCDF						0.37-0.51				0.936-1.127			
418-420				31:24		0.41	139.35	40.49		98.86	1.000 13C12-HpCDF 678		IS6
				32:35		0.40	106.35	30.20		76.15	1.038 13C12-HpCDF 789		SUR5
418-420			2 Peaks				245.70						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD						0.88-1.20				0.976-1.005			
424-426				31:40		0.96	10.72	5.24		5.48	0.982		
				32:15		1.02	14.52	7.33		7.19	1.000 1234678-HpCDD		AN
424-426			2 Peaks				25.24						
13C12-HpCDD						0.88-1.20				0.969-1.031			
436-438	DC	SN	31:38	RO	0.77		0.45			0.981			
	DC	SN	32:02	RO	3.17		0.12			0.993			
			32:15		1.05		157.62	80.59		77.03	1.000 13C12-HpCDD 678		IS7
	DC	SN	32:28	RO	1.61		1.63			1.007			
436-438			1 Peak				157.62						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF						0.76-1.02				0.885-1.115			
442-444	DC	SN	32:27	RO	0.06		0.06			0.935			
	DC	SN	32:52	RO	0.47		0.30			0.947			
	DC	SN	33:32		0.84		0.81			0.966			
	DC	SN	34:25		0.77		0.23			0.991			
	DC	SN	34:39	RO	0.11		0.08			0.998			
K			34:51	RO	1.18		2.59	1.62		1.37	1.004 OCDF		AN
442-444			1 Peak				2.59						
OCDD						0.76-1.02				0.885-1.115			
458-460 K			34:43	RO	1.39		3.18	2.33		1.68	1.000 OCDD		AN
458-460			1 Peak				3.18						
13C12-OCDD						0.76-1.02				0.995-1.004			
470-472			34:43		0.80		228.98	101.50		127.48	1.000 13C12-OCDD		IS8
	DC	WH	35:01	RO	1.47		1.29			1.009			
	DC	WH	35:13	RO	0.24		0.25			1.014			
470-472			1 Peak				228.98						

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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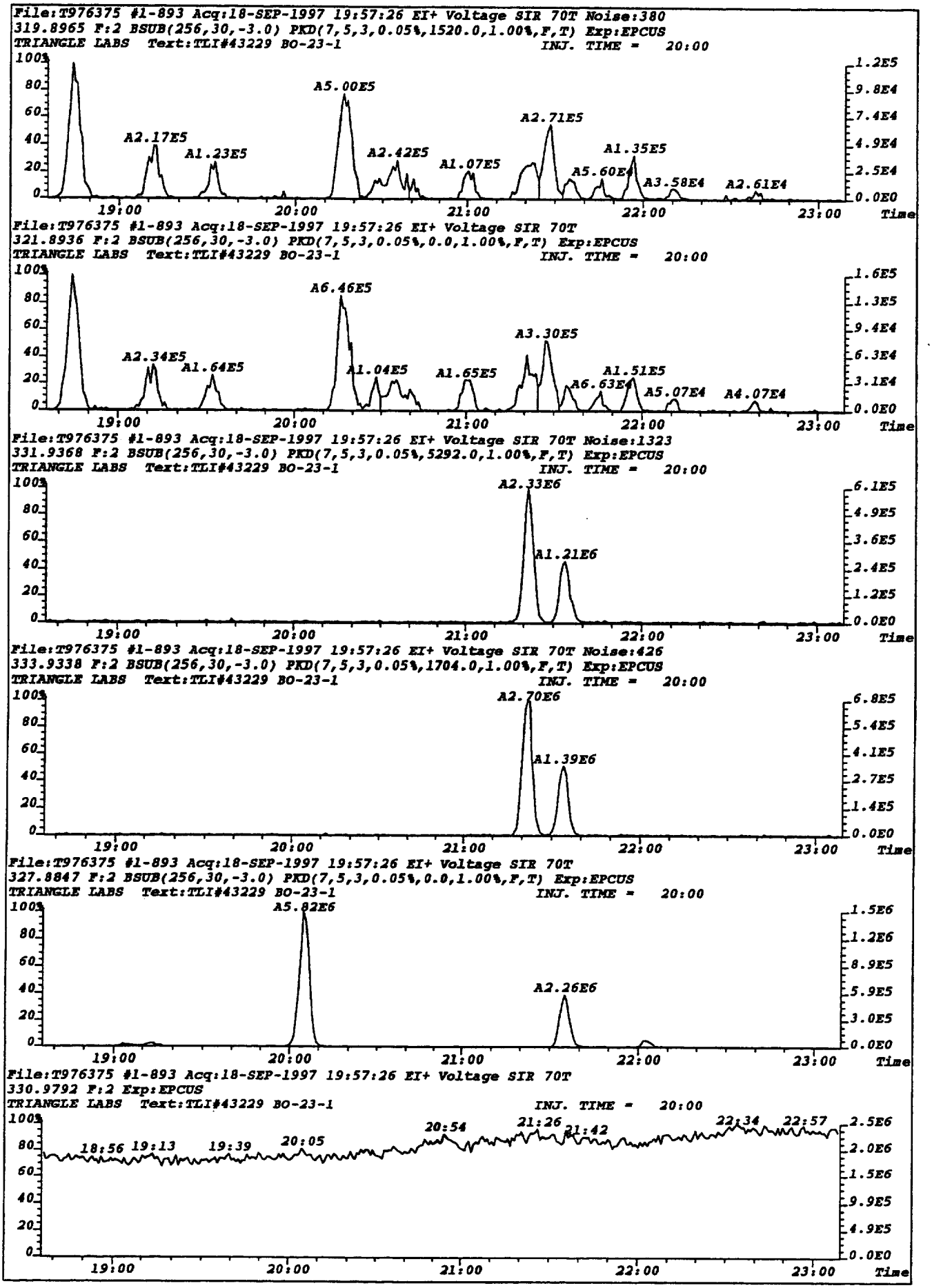
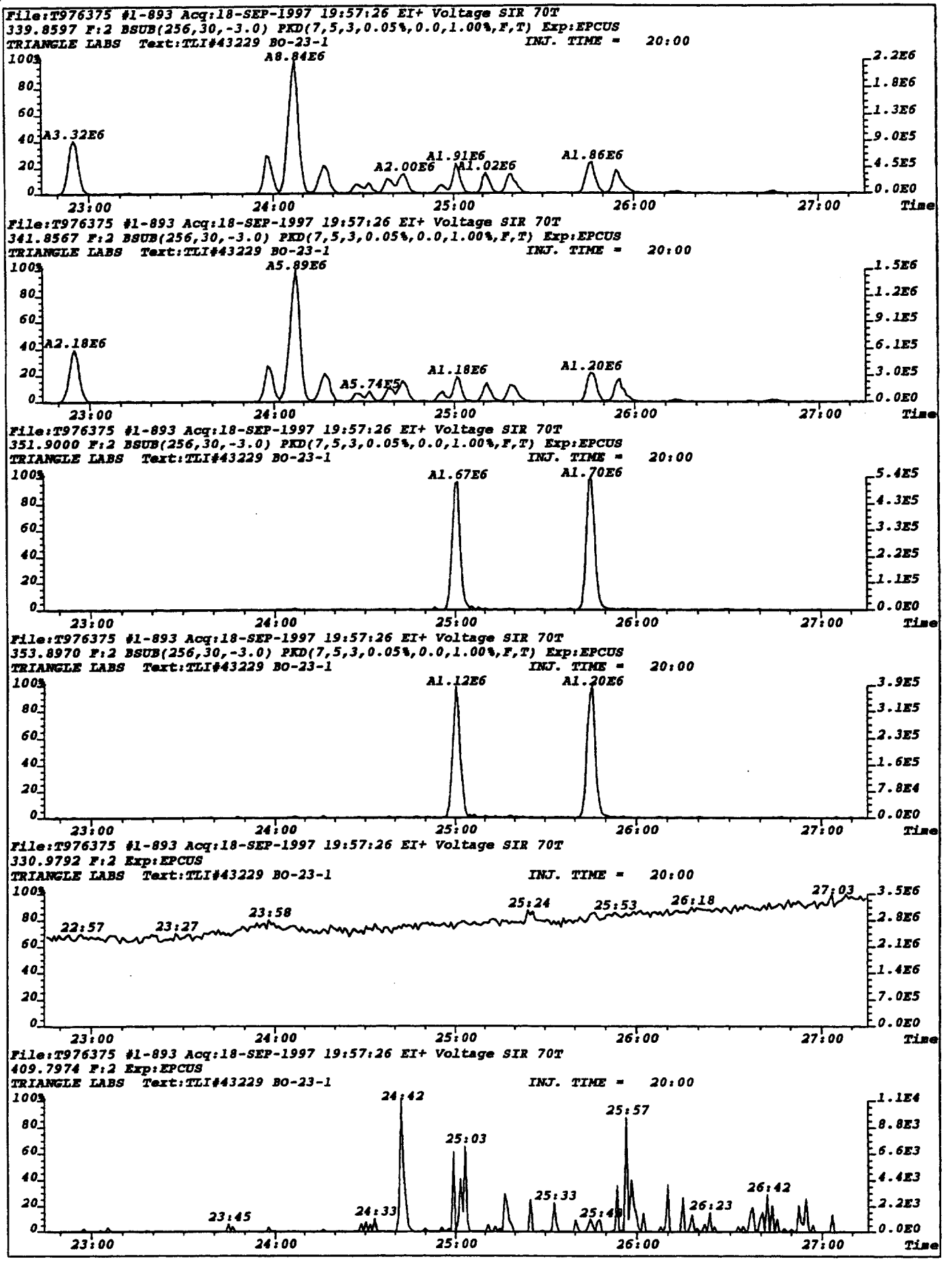
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,924.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.00E7
A6.56E6
A5.68E6
A6.42E6
A3.22E6
A2.71E6
A2.31E6
A2.02E6
A1.88E6
A9.18E5
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:246
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,984.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.20E7
A7.81E6
A6.93E6
A7.75E6
A3.87E6
A3.20E6
A2.70E6
A2.55E6
A4.46E6
A2.27E6
A1.10E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:730
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,2920.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.44E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.96E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
17:41
18:13
18:37
19:13
20:05
20:54
21:26
22:34
22:57
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
20:55
17:40
18:10
19:43
22:02
22:42
18:00
19:00
20:00
21:00
22:00
23:00
Time


File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:380
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1520.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.17E5
A1.23E5
A5.00E5
A2.42E5
A1.07E5
A2.71E5
A5.60E4
A1.35E5
A3.58E4
A2.61E4
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.34E5
A1.64E5
A6.46E5
A1.04E5
A1.65E5
A3.30E5
A6.63E4
A1.51E5
A5.07E4
A4.07E4
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:1323
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,5292.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.33E6
A1.21E6
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:426
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1704.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.70E6
A1.39E6
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A5.82E6
A2.26E6
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
18:56
19:13
19:39
20:05
20:54
21:26
21:42
22:34
22:57
Time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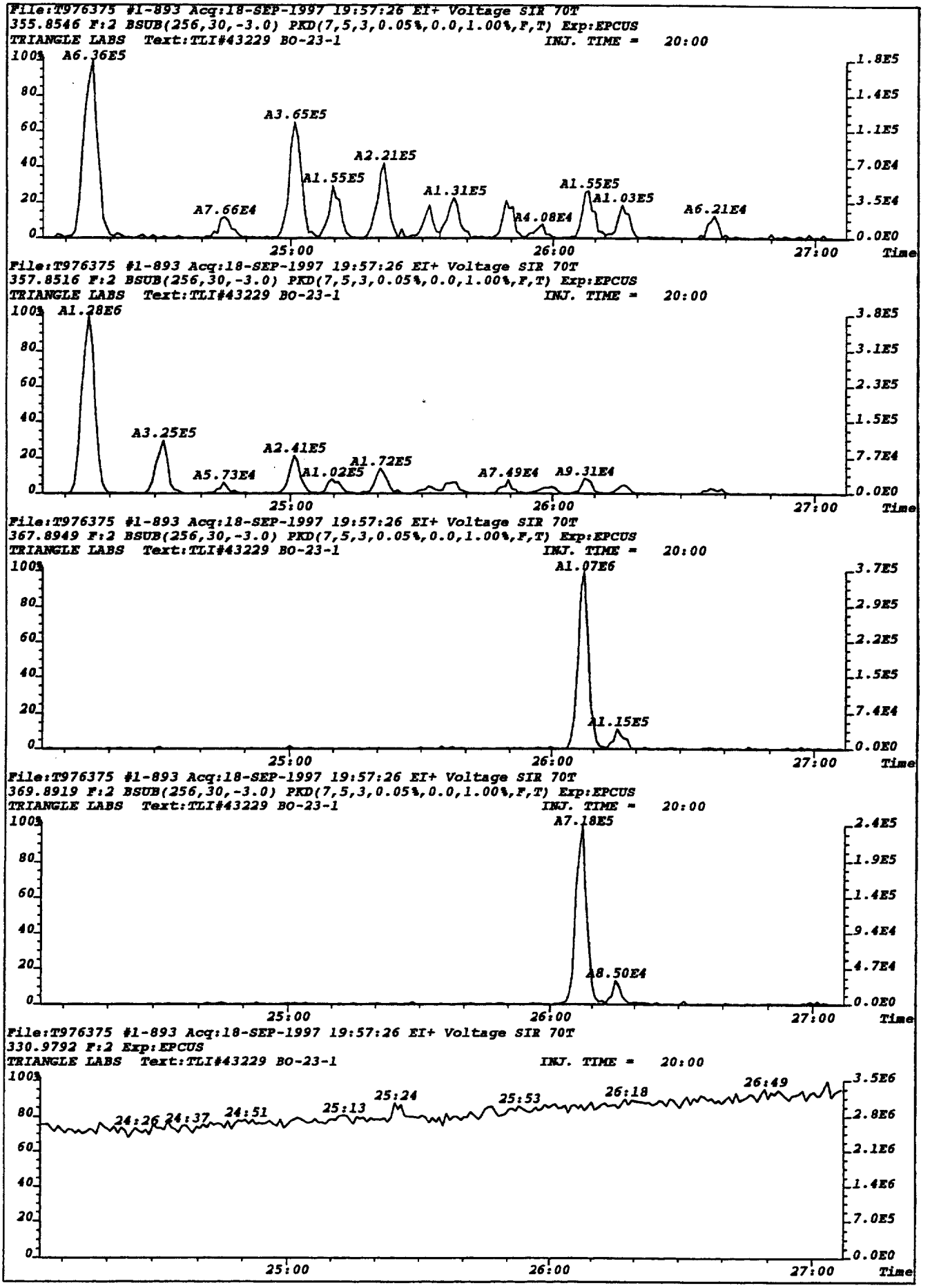
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
A8.84E6
A3.32E6
A2.00E6
A1.91E6
A1.02E6
A1.86E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
A5.89E6
A2.18E6
A5.74E5
A1.18E6
A1.20E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
A1.67E6
A1.70E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
A1.12E6
A1.20E6
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
22:57
23:27
23:58
25:24
25:53
26:18
27:03
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1 INJ. TIME = 20:00
24:42
25:57
25:03
25:33
23:45
24:33
26:42
26:23
23:00
24:00
25:00
26:00
27:00
Time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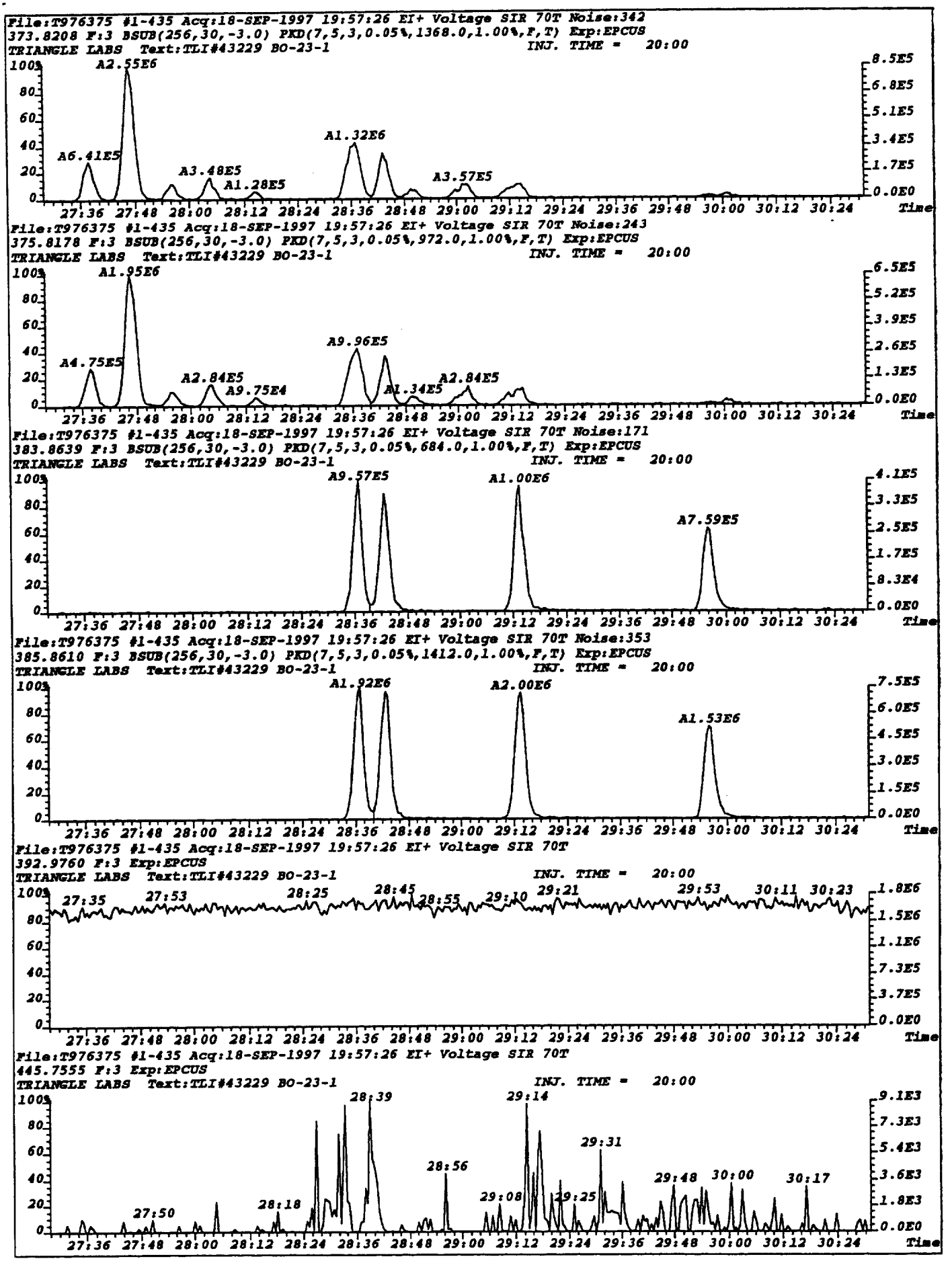
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A6.36E5
A3.65E5
A2.21E5
A1.55E5
A1.31E5
A1.55E5
A1.03E5
A7.66E4
A4.08E4
A6.21E4
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.28E6
A3.25E5
A2.41E5
A1.72E5
A5.73E4
A1.02E5
A7.49E4
A9.31E4
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.07E6
A1.15E5
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A7.18E5
A8.50E4
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
24:26
24:37
24:51
25:13
25:24
25:53
26:18
26:49
25:00
26:00
27:00
Time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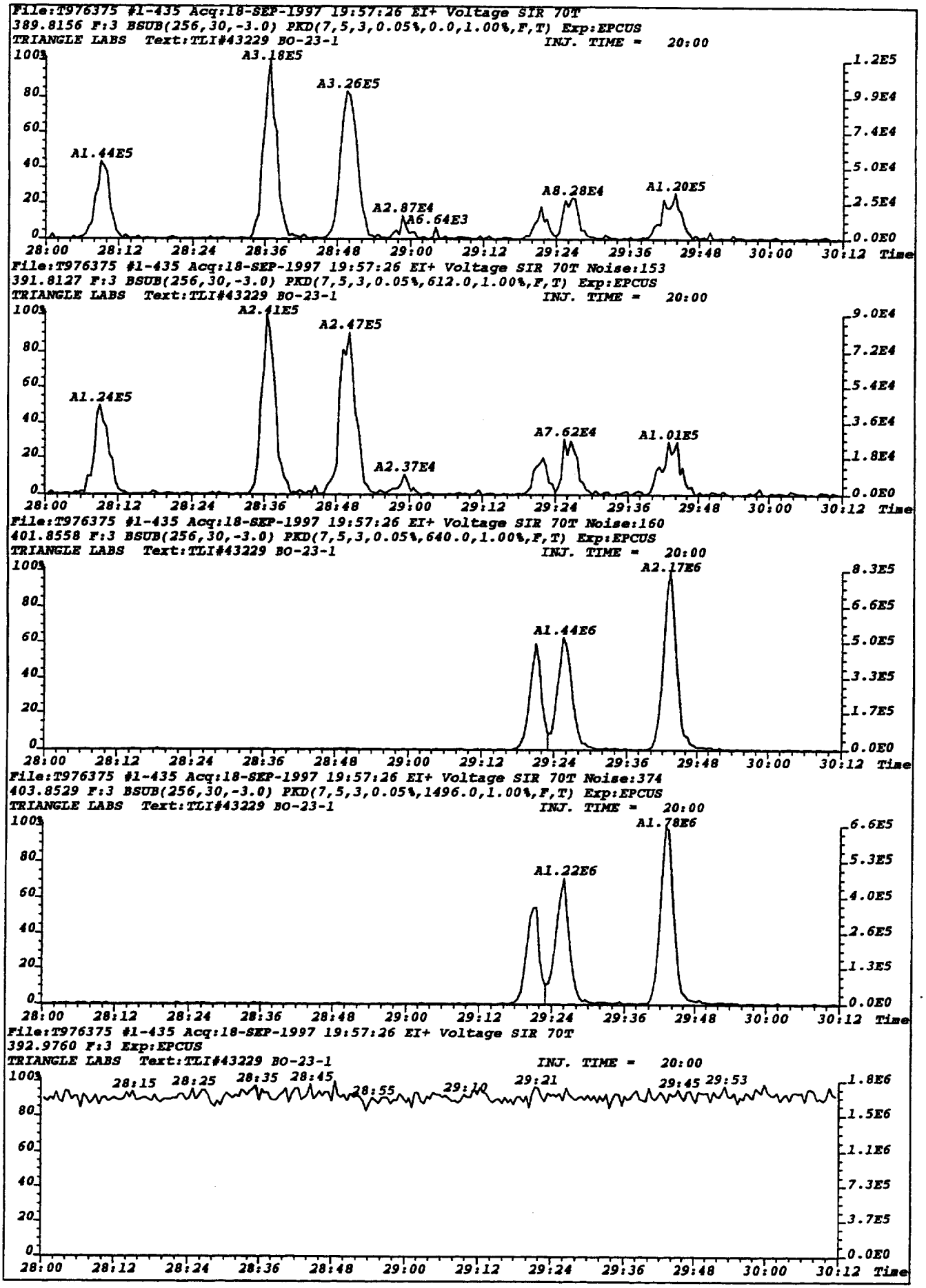
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1368.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.55E6
A6.41E5
A3.48E5
A1.28E5
A1.32E6
A3.57E5
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:243
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,972.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.95E6
A4.75E5
A2.84E5
A9.75E4
A9.96E5
A1.34E5
A2.84E5
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:171
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,684.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A9.57E5
A1.00E6
A7.59E5
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:353
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1412.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.92E6
A2.00E6
A1.53E6
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
27:35
27:53
28:25
28:45
28:55
29:10
29:21
29:53
30:11
30:23
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
28:39
29:14
29:31
28:56
27:50
28:18
29:08
29:25
29:48
30:00
30:17
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 30:24
Time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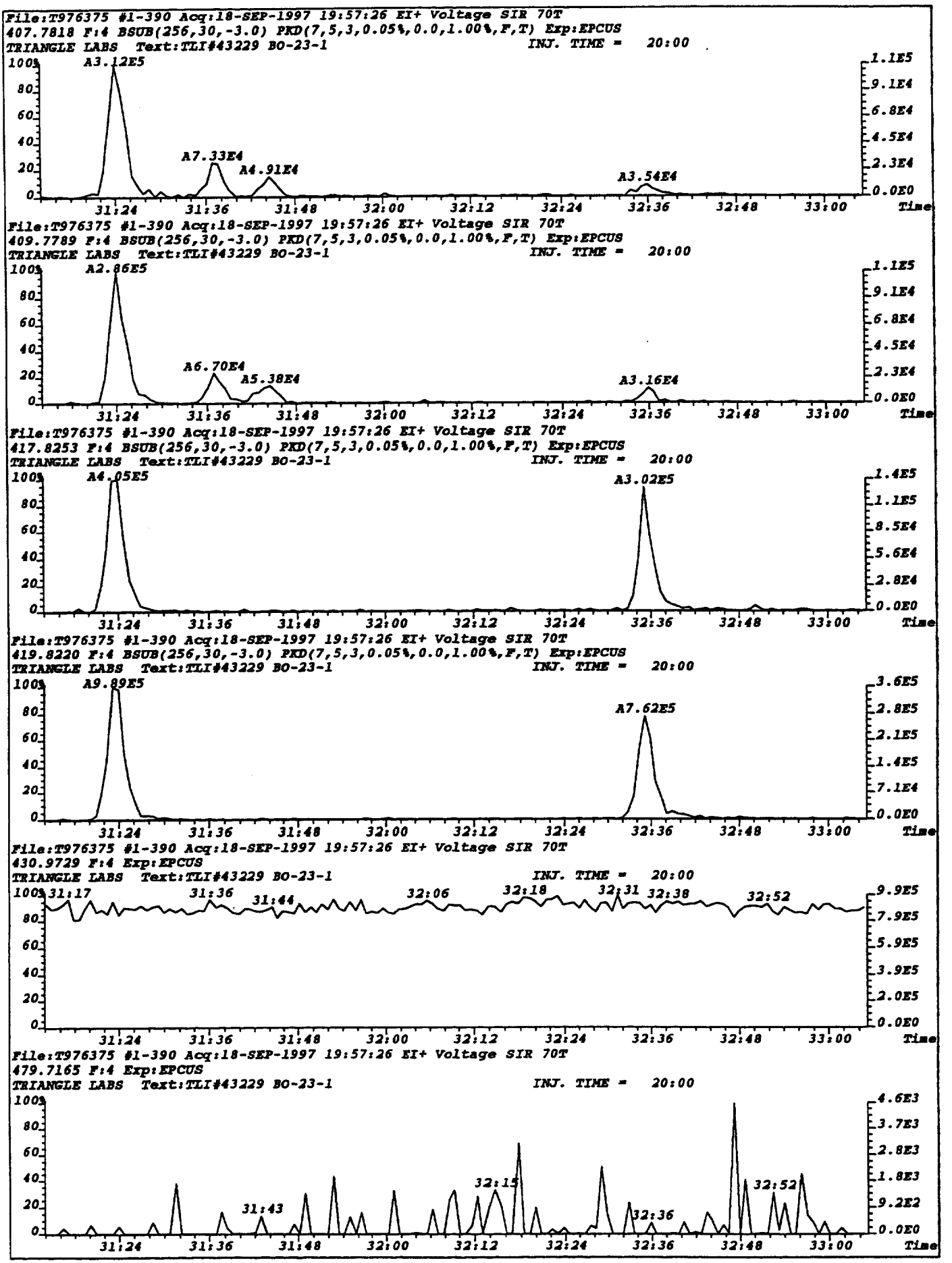
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.44E5
A3.18E5
A3.26E5
A2.87E4
A6.64E3
A8.28E4
A1.20E5
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:153
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,612.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.24E5
A2.41E5
A2.47E5
A2.37E4
A7.62E4
A1.01E5
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:160
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,640.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.44E6
A2.17E6
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:374
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1496.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.22E6
A1.78E6
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
28:15 28:25 28:35 28:45 28:55 29:10 29:21 29:45 29:53
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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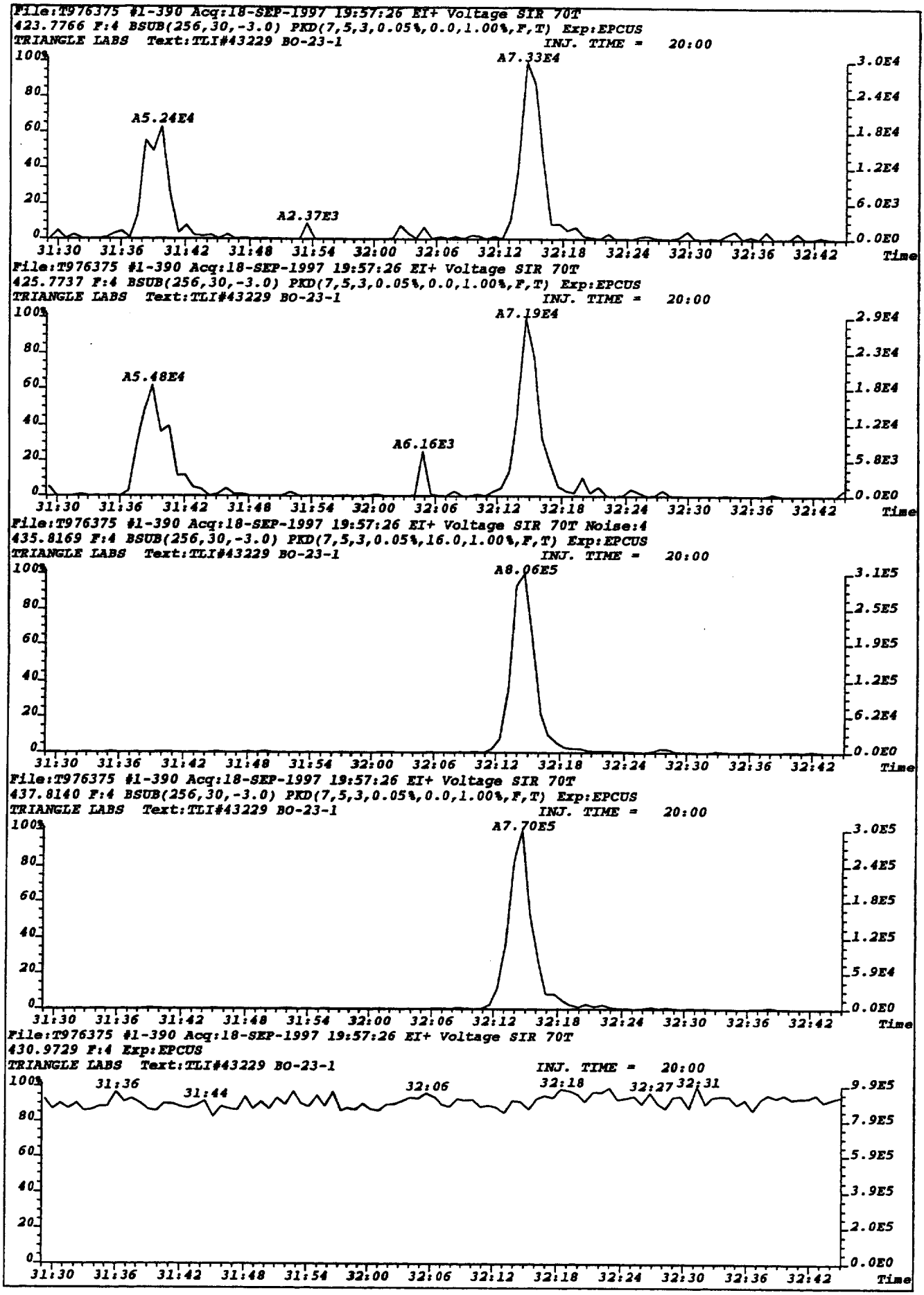
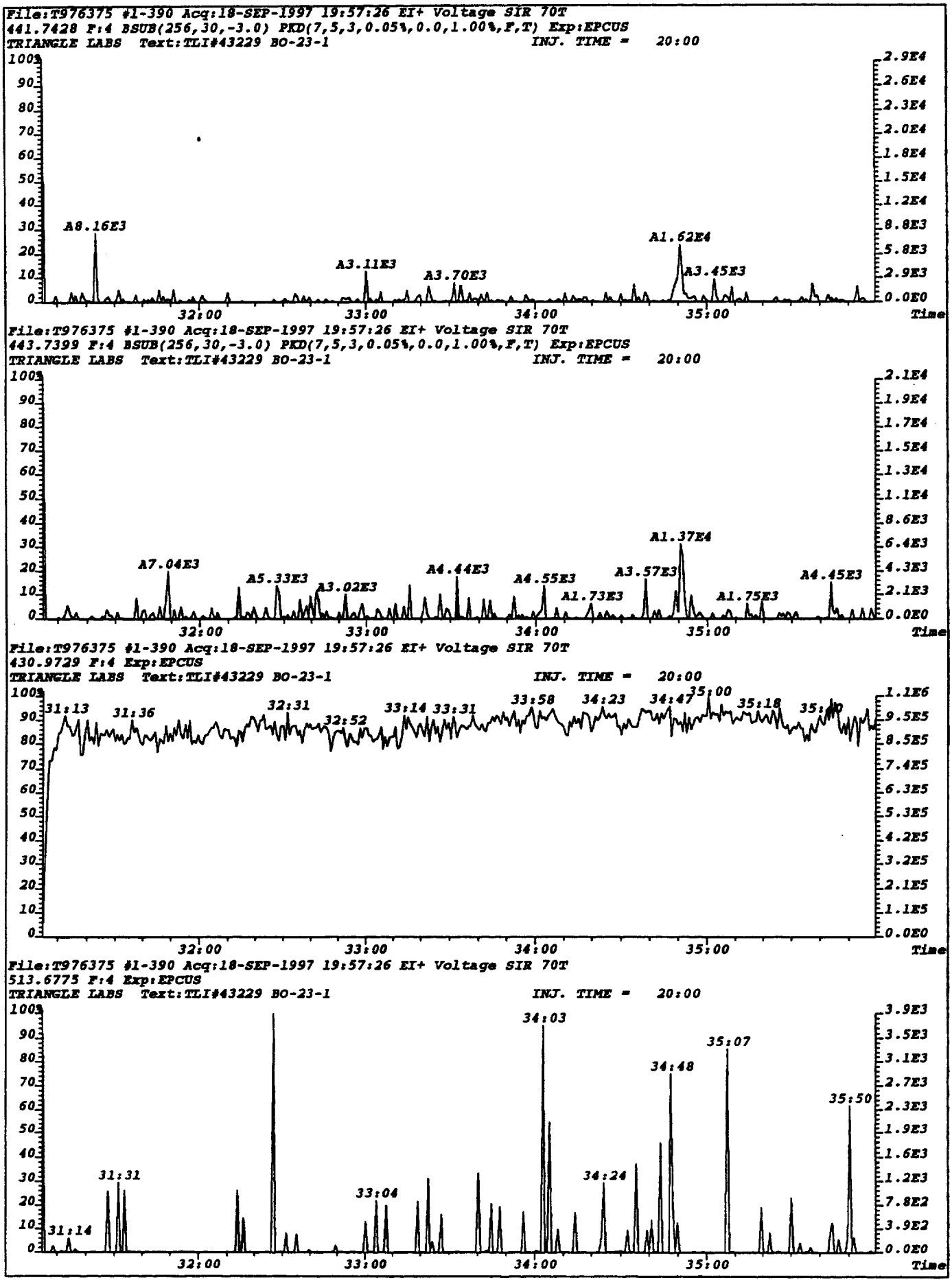
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A3.12E5
A7.33E4
A4.91E4
A3.54E4
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.86E5
A6.70E4
A5.38E4
A3.16E4
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A4.05E5
A3.02E5
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A9.89E5
A7.62E5
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
31:17
31:36
31:44
32:06
32:18
32:31
32:38
32:52
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
31:43
32:15
32:36
32:52
31:24
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time


File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A7.33E4
A5.24E4
A2.37E3
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A7.19E4
A5.48E4
A6.16E3
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T Noise:4
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,16.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A8.06E5
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A7.70E5
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
31:30 31:36 31:42 31:48 31:54 32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42 Time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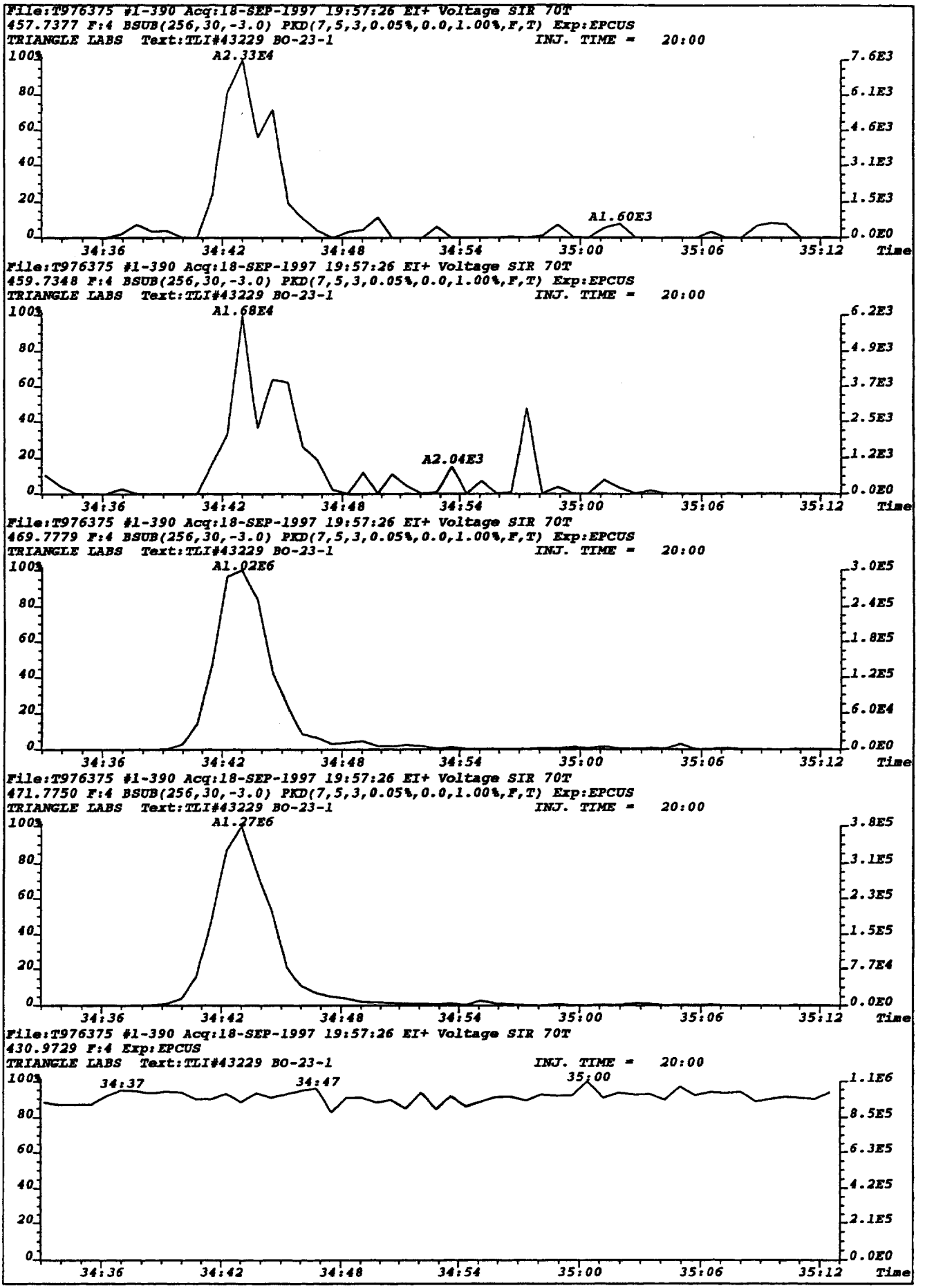
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A8.16E3
A3.11E3
A3.70E3
A1.62E4
A3.45E3
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A7.04E3
A5.33E3
A3.02E3
A4.44E3
A4.55E3
A1.73E3
A1.37E4
A3.57E3
A1.75E3
A4.45E3
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
31:13
31:36
32:31
32:52
33:14
33:31
33:58
34:23
34:47
35:00
35:18
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
31:14
31:31
33:04
34:03
34:24
34:48
35:07
35:50
Time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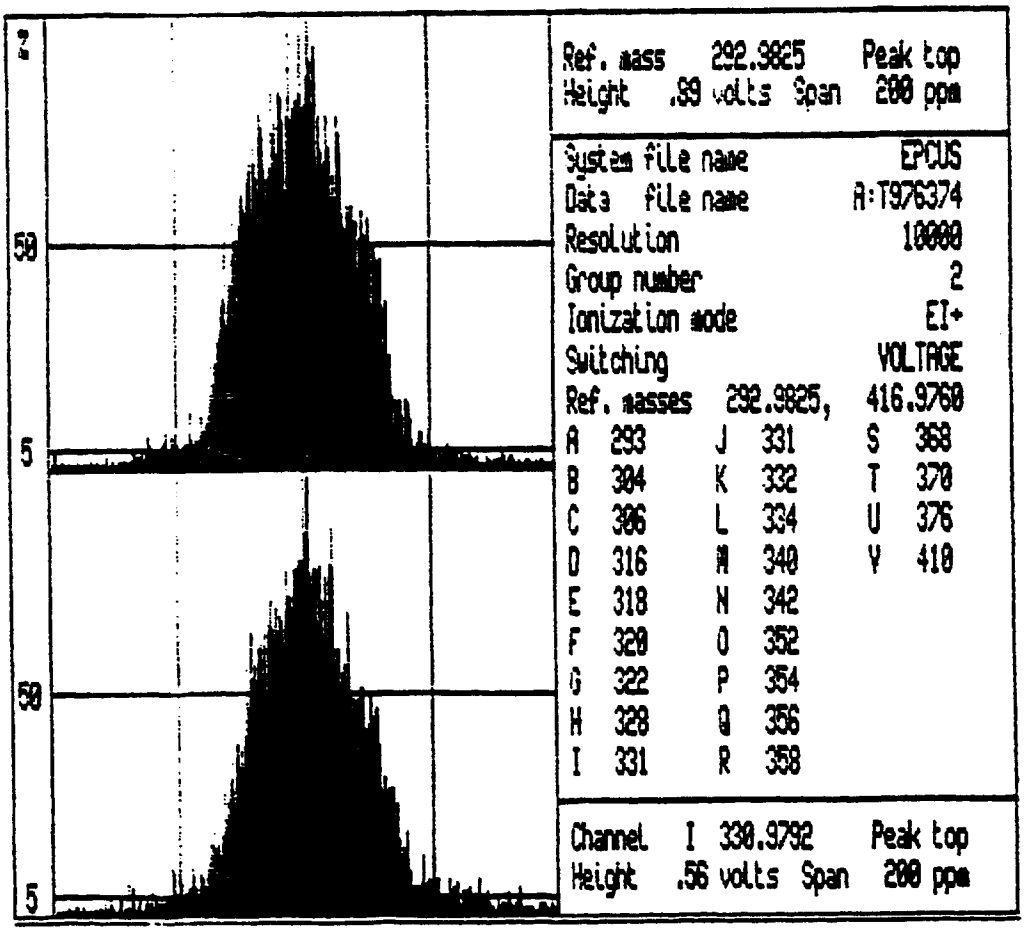
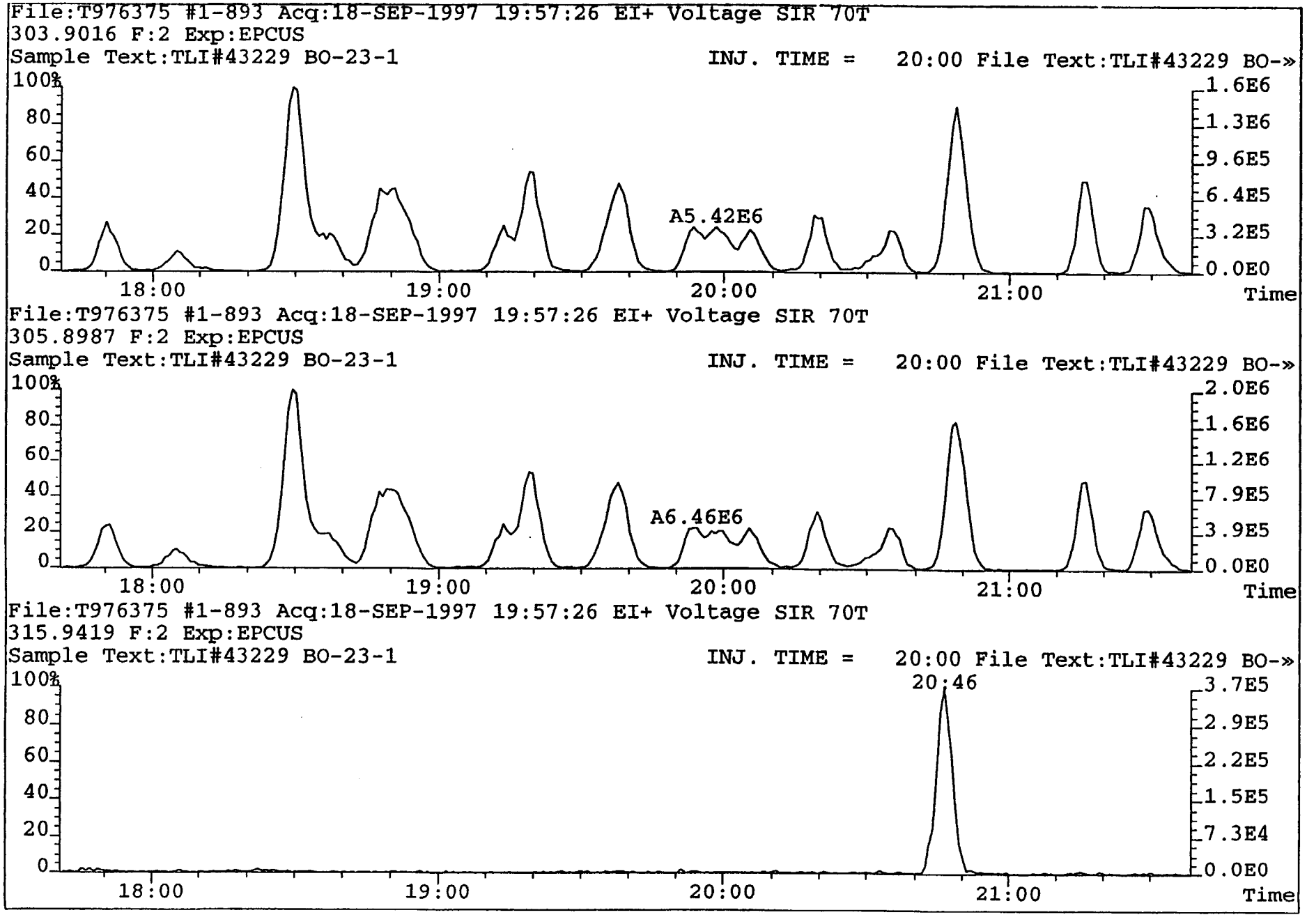
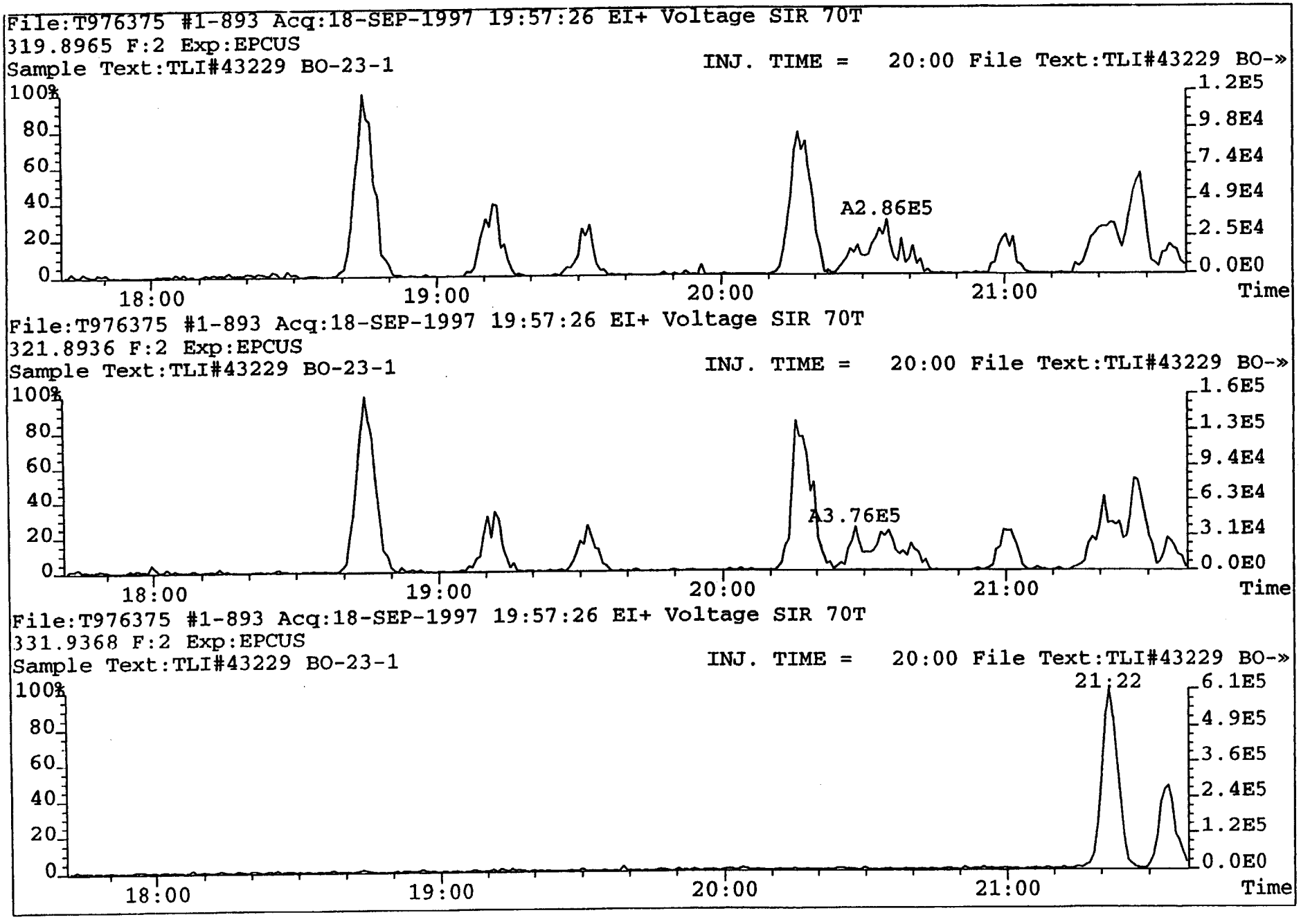
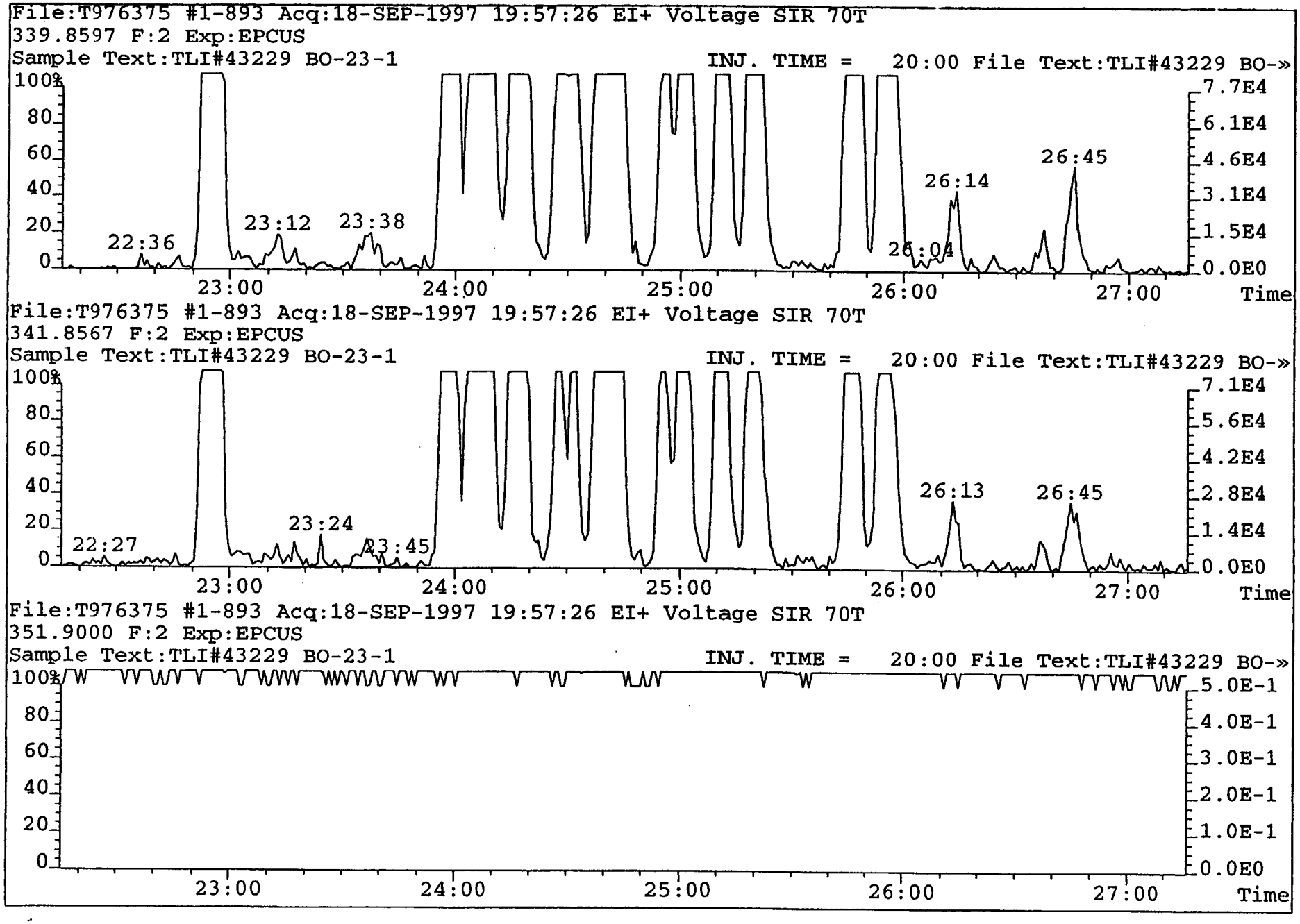
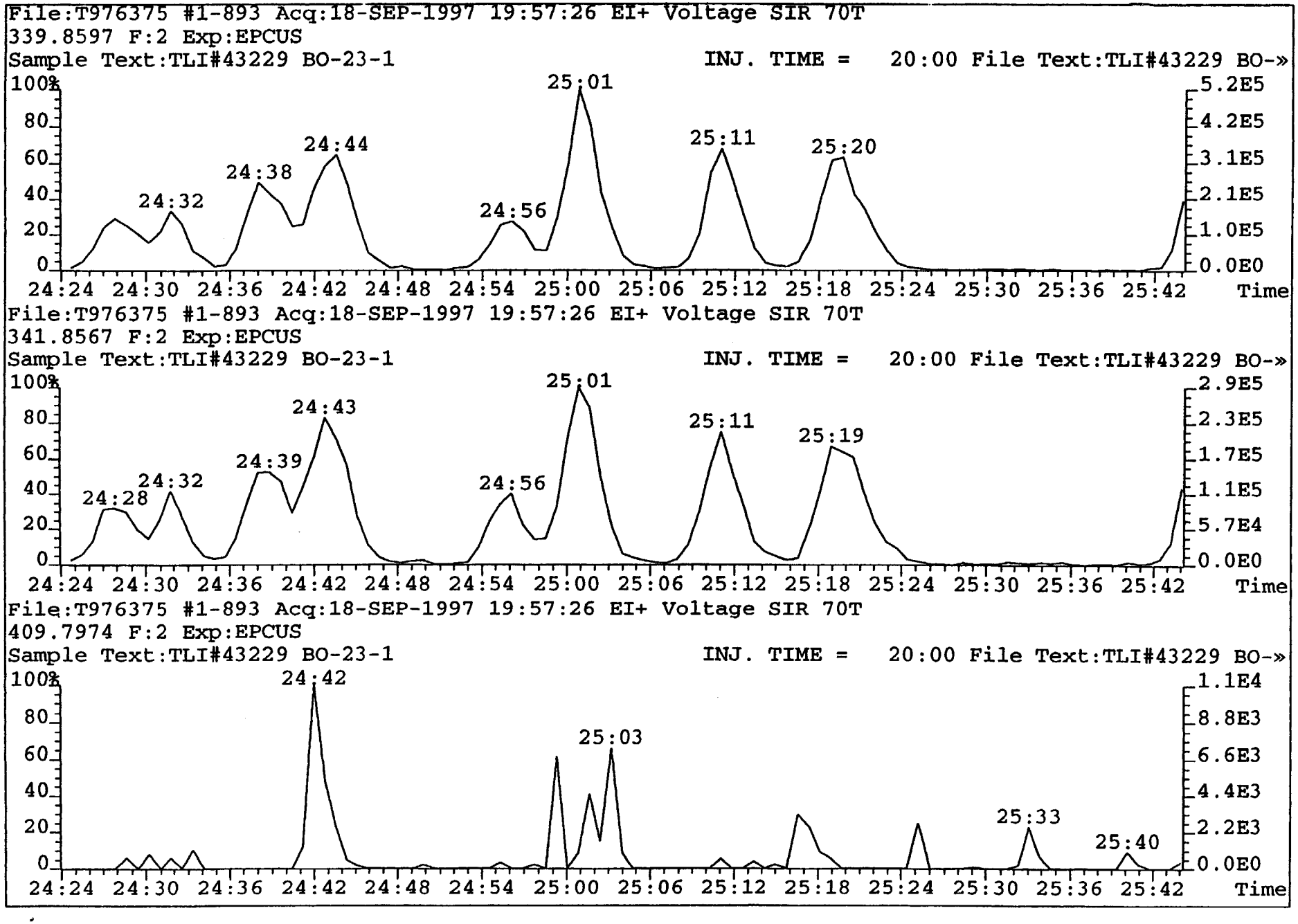
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A2.33E4
A1.60E3
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.68E4
A2.04E3
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.02E6
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
A1.27E6
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-1
INJ. TIME = 20:00
34:37
34:47
35:00
Time

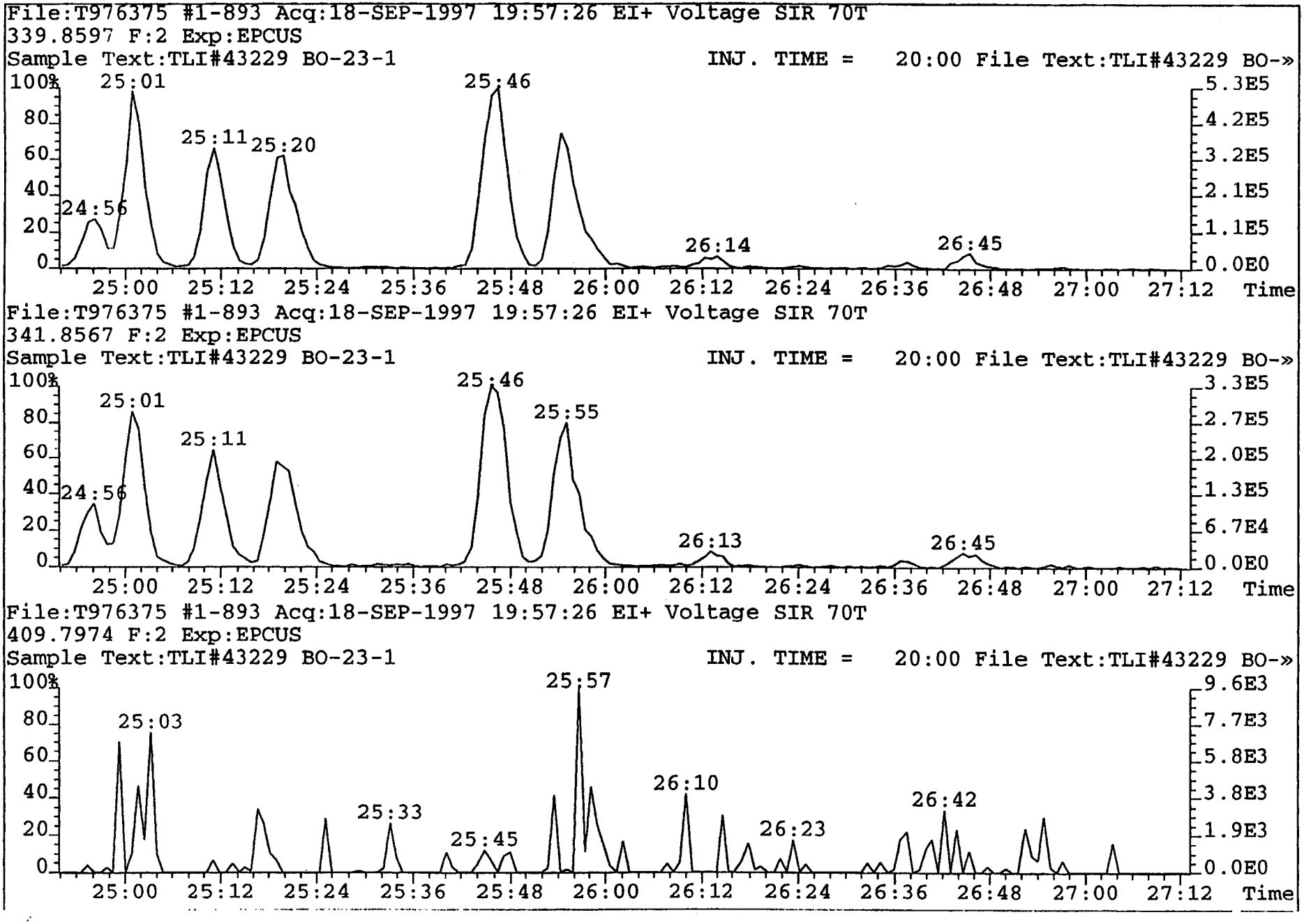

%
50
5
50
5
Ref. mass 292.9825 Peak top
Height .89 volts Span 200 ppm
System file name EPCUS
Data file name A:T976374
Resolution 10000
Group number 2
Ionization mode EI+
Switching VOLTAGE
Ref. masses 292.9825, 416.9760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Channel I 330.9792 Peak top
Height .56 volts Span 200 ppm

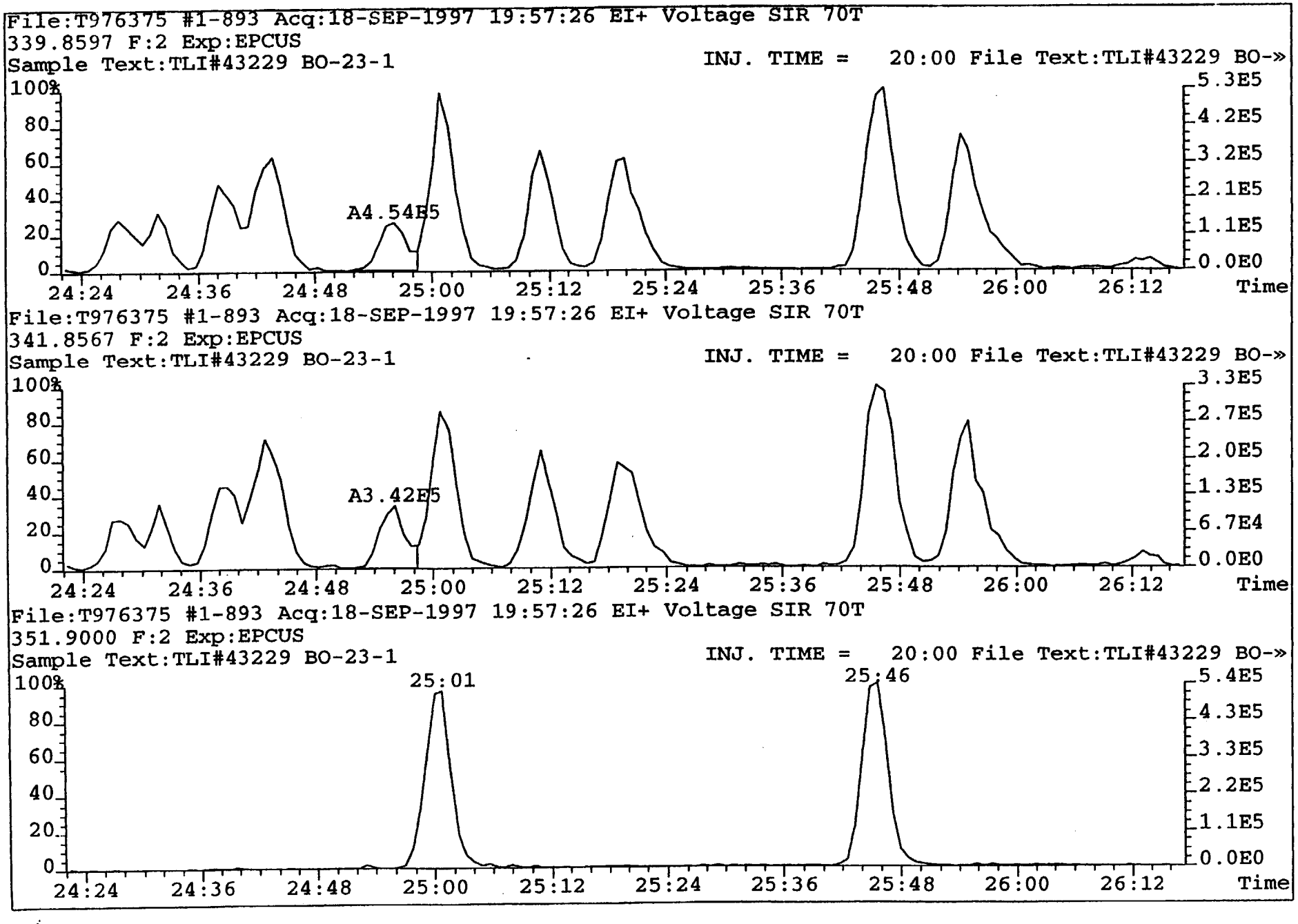

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
303.9016 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO->
100%
80
60
40
20
0
A5.42E6
1.6E6
1.3E6
9.6E5
6.4E5
3.2E5
0.0E0
18:00
19:00
20:00
21:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
305.8987 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO->
100%
80
60
40
20
0
A6.46E6
2.0E6
1.6E6
1.2E6
7.9E5
3.9E5
0.0E0
18:00
19:00
20:00
21:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
315.9419 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO->
100%
80
60
40
20
0
20:46
3.7E5
2.9E5
2.2E5
1.5E5
7.3E4
0.0E0
18:00
19:00
20:00
21:00
Time

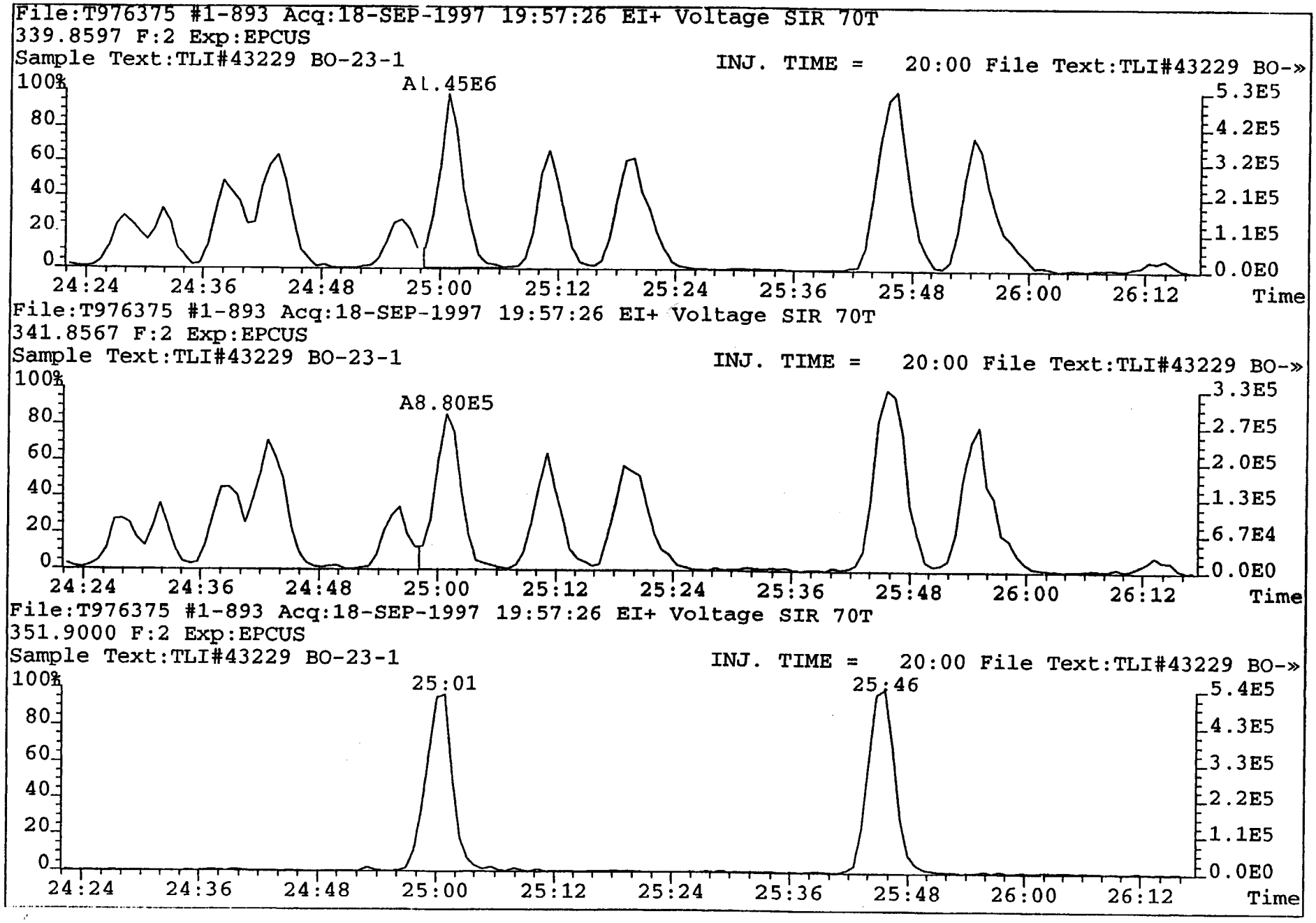

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
319.8965 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
1.2E5
9.8E4
7.4E4
4.9E4
2.5E4
0.0E0
A2.86E5
18:00
19:00
20:00
21:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
321.8936 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
1.6E5
1.3E5
9.4E4
6.3E4
3.1E4
0.0E0
A3.76E5
18:00
19:00
20:00
21:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
331.9368 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
21:22
100%
80
60
40
20
0
6.1E5
4.9E5
3.6E5
2.4E5
1.2E5
0.0E0
18:00
19:00
20:00
21:00
Time

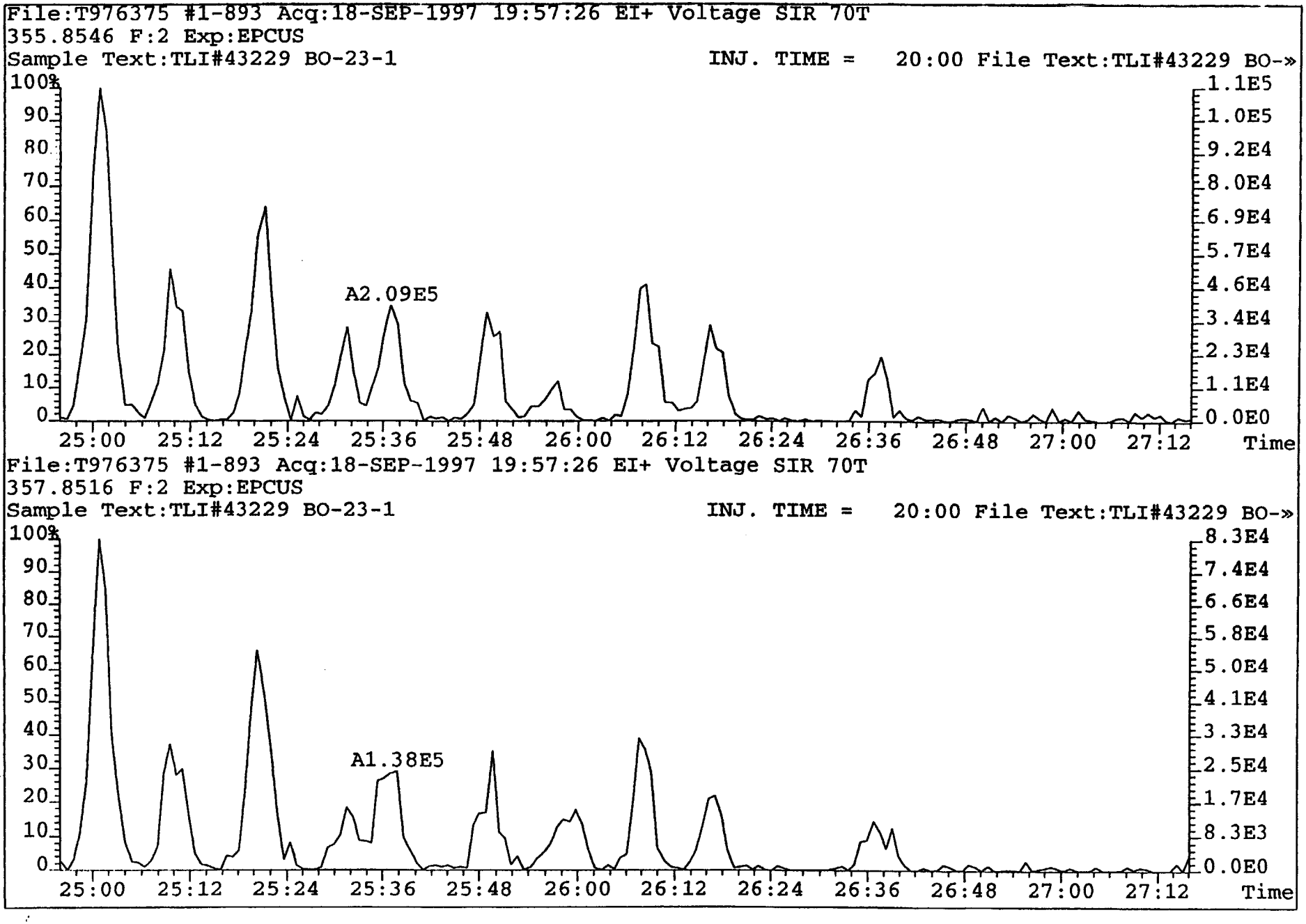

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
7.7E4
6.1E4
4.6E4
3.1E4
1.5E4
0.0E0
22:36
23:12
23:38
26:04
26:14
26:45
23:00
24:00
25:00
26:00
27:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
7.1E4
5.6E4
4.2E4
2.8E4
1.4E4
0.0E0
22:27
23:24
23:45
26:13
26:45
23:00
24:00
25:00
26:00
27:00
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
351.9000 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
5.0E-1
4.0E-1
3.0E-1
2.0E-1
1.0E-1
0.0E0
23:00
24:00
25:00
26:00
27:00
Time

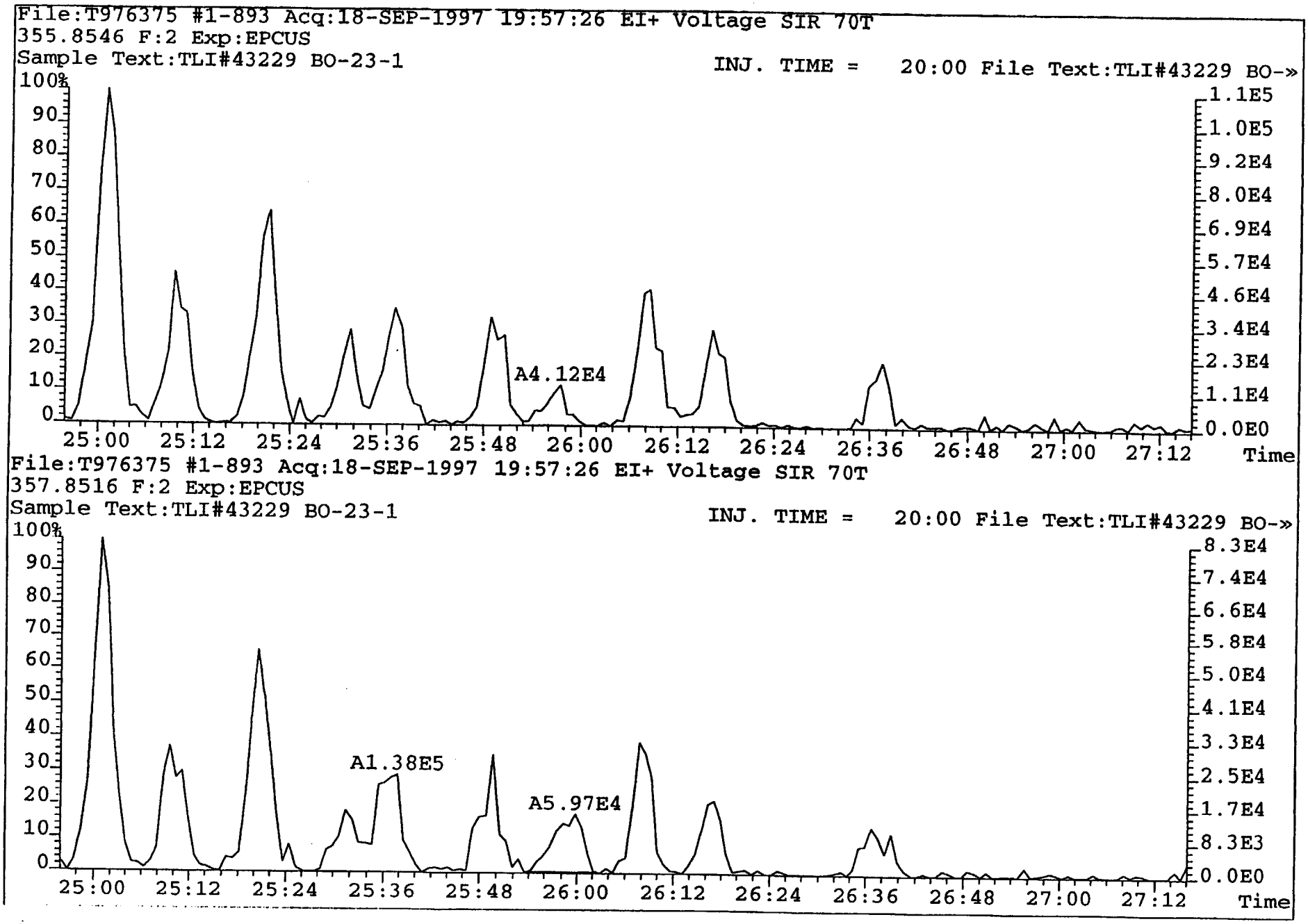

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
24:32
24:38
24:44
24:56
25:01
25:11
25:20
5.2E5
4.2E5
3.1E5
2.1E5
1.0E5
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36 25:42 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
24:28
24:32
24:39
24:43
24:56
25:01
25:11
25:19
2.9E5
2.3E5
1.7E5
1.1E5
5.7E4
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36 25:42 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
24:42
25:03
25:33
25:40
1.1E4
8.8E3
6.6E3
4.4E3
2.2E3
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36 25:42 Time

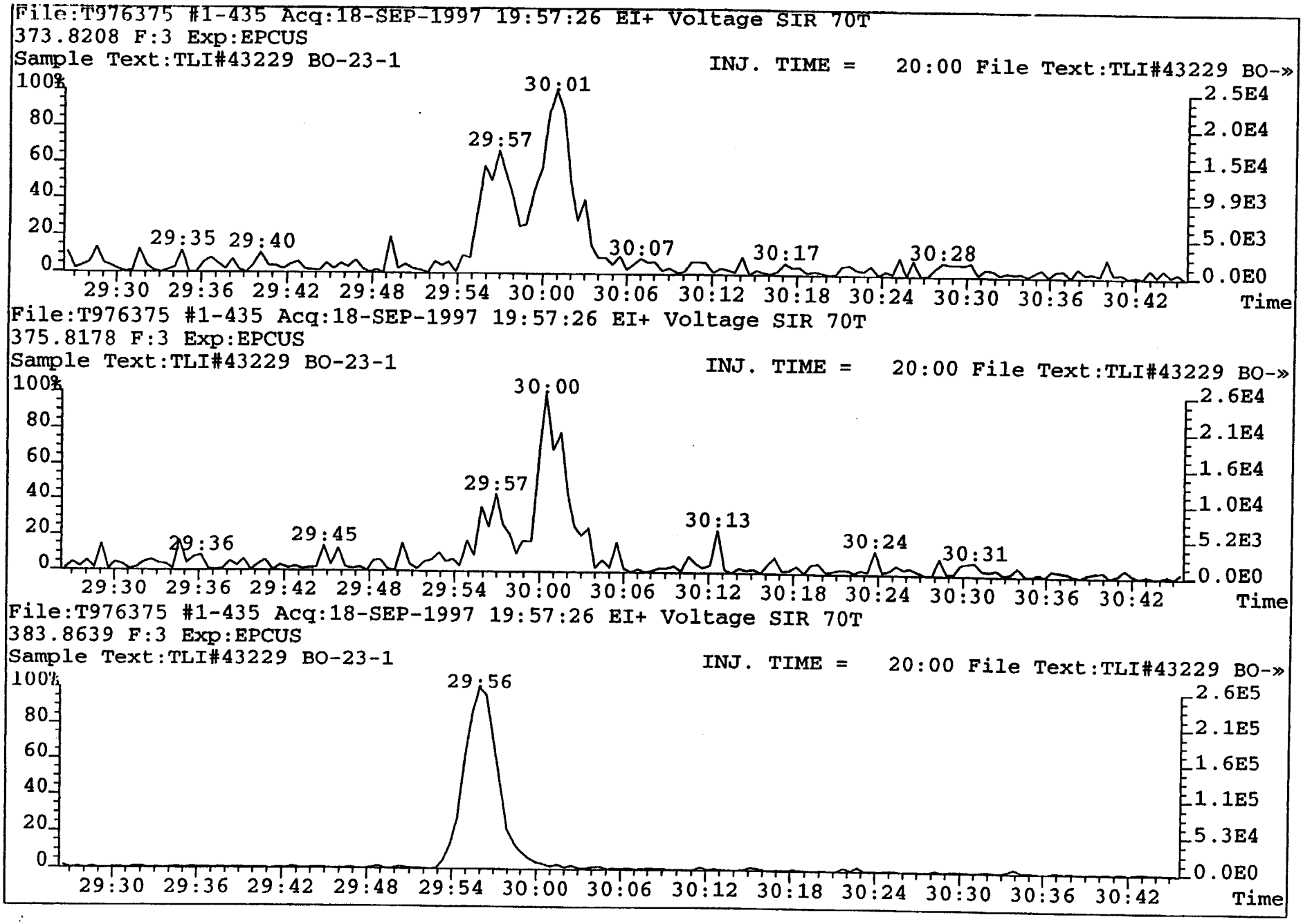

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
25:01
25:46
25:11
25:20
24:56
26:14
26:45
5.3E5
4.2E5
3.2E5
2.1E5
1.1E5
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
25:46
25:01
25:55
25:11
24:56
26:13
26:45
3.3E5
2.7E5
2.0E5
1.3E5
6.7E4
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
25:57
25:03
26:10
26:42
25:33
26:23
25:45
9.6E3
7.7E3
5.8E3
3.8E3
1.9E3
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 Time

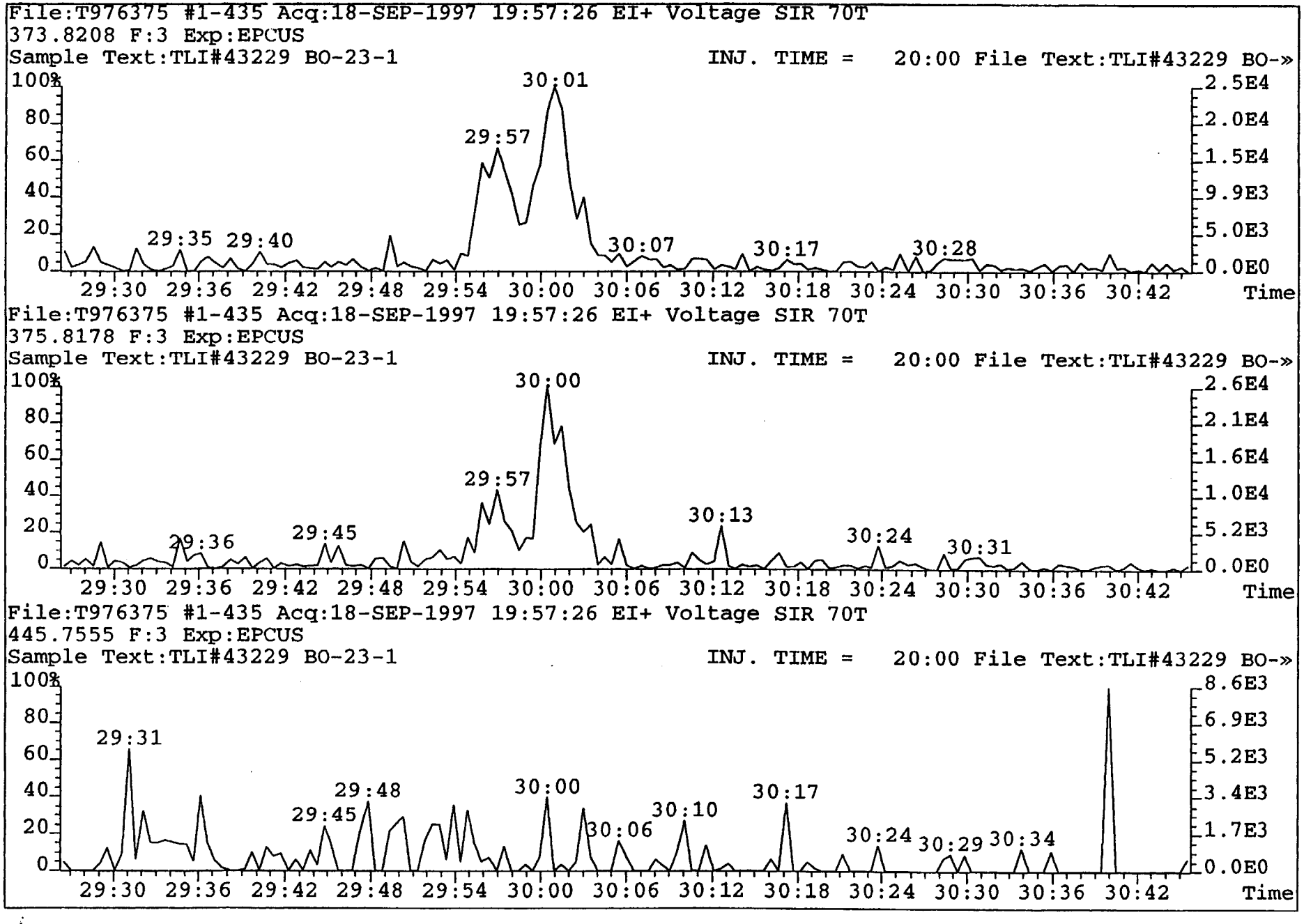

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A4.54E5
5.3E5
4.2E5
3.2E5
2.1E5
1.1E5
0.0E0
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A3.42E5
3.3E5
2.7E5
2.0E5
1.3E5
6.7E4
0.0E0
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
351.9000 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
25:01
25:46
5.4E5
4.3E5
3.3E5
2.2E5
1.1E5
0.0E0
Time
100%
80
60
40
20
0
24:24
24:36
24:48
25:00
25:12
25:24
25:36
25:48
26:00
26:12

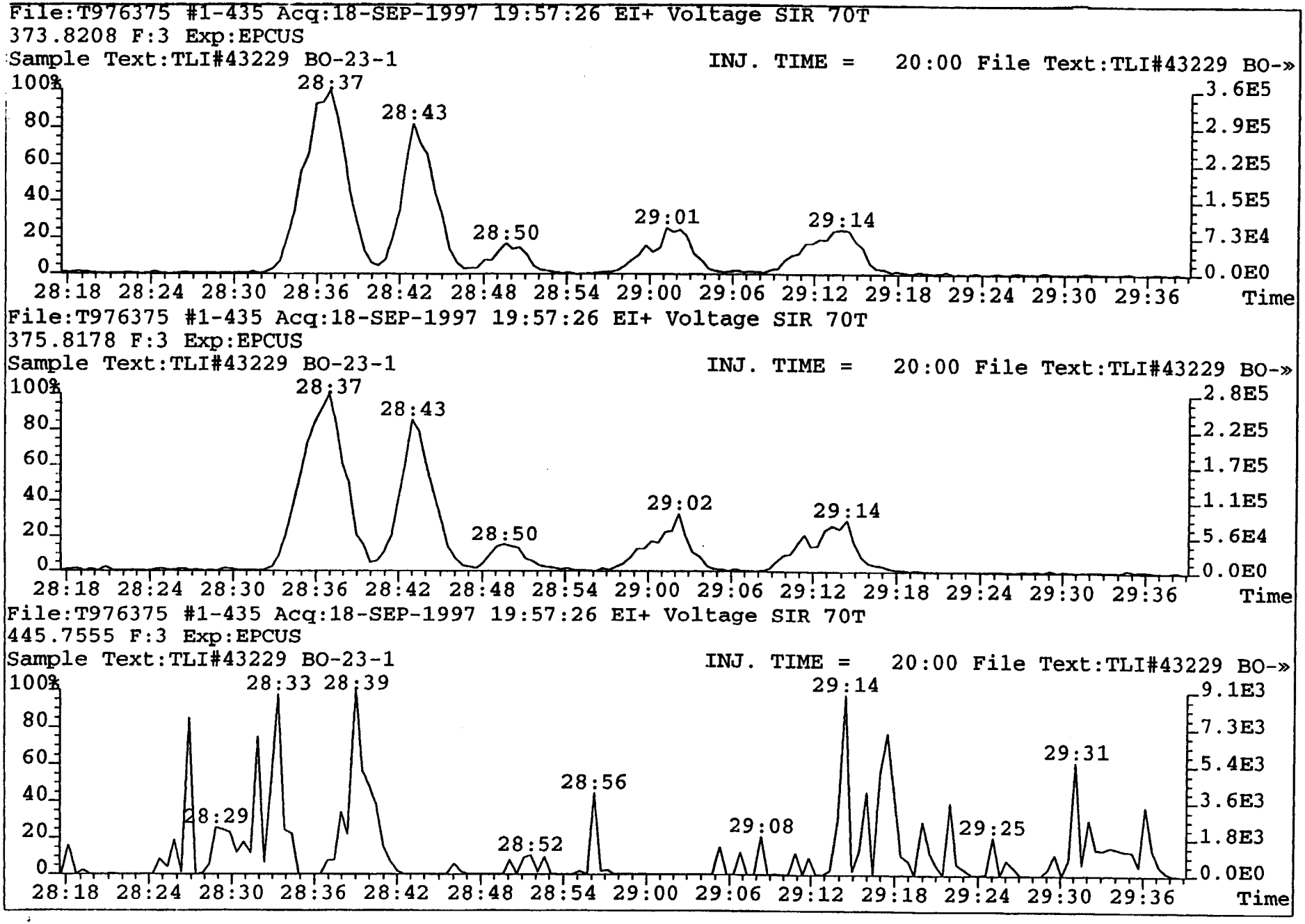

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A1.45E6
100%
80
60
40
20
0
5.3E5
4.2E5
3.2E5
2.1E5
1.1E5
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A8.80E5
100%
80
60
40
20
0
3.3E5
2.7E5
2.0E5
1.3E5
6.7E4
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
351.9000 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
25:01
25:46
100%
80
60
40
20
0
5.4E5
4.3E5
3.3E5
2.2E5
1.1E5
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 Time

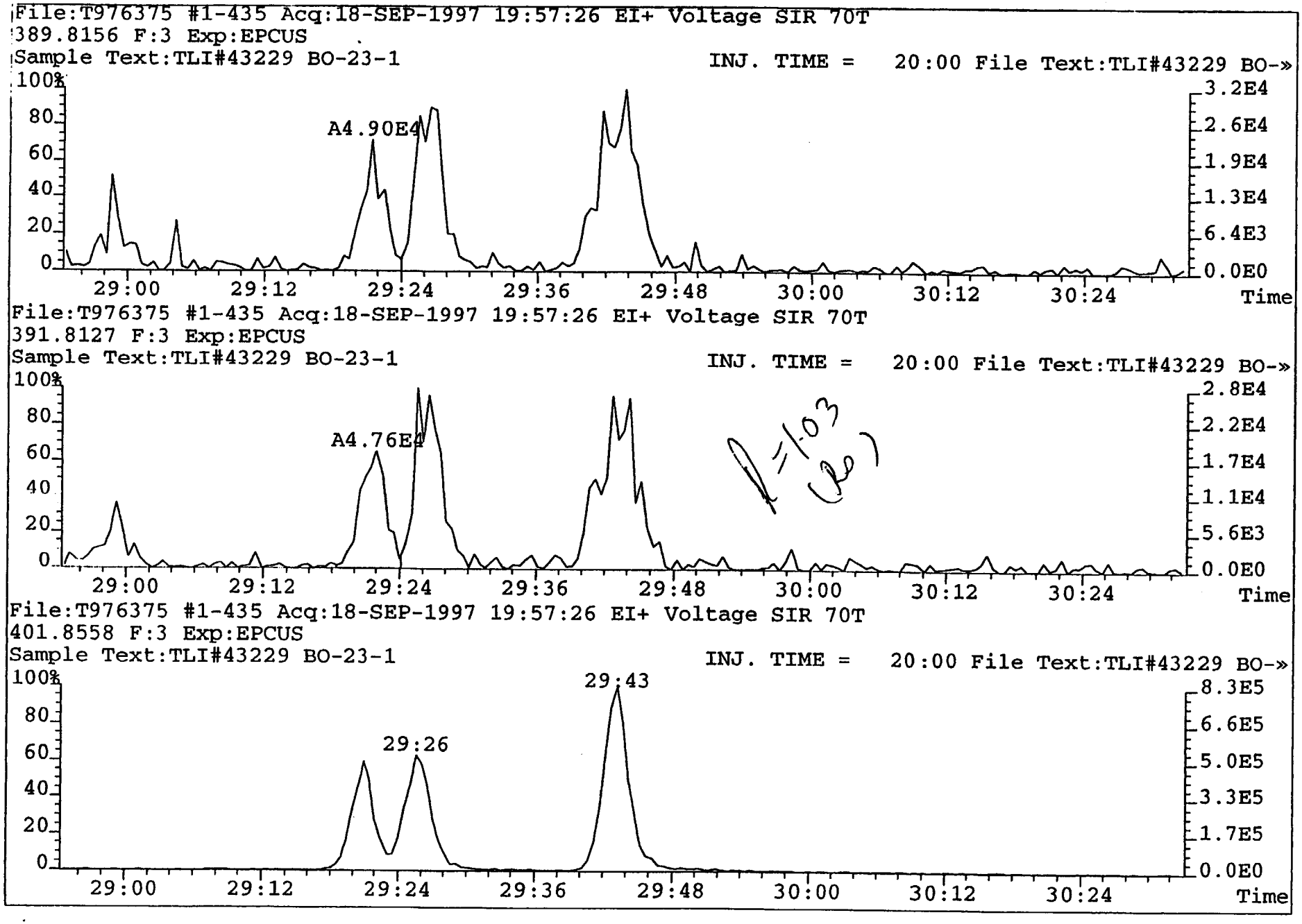

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A2.09E5
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A1.38E5
Time

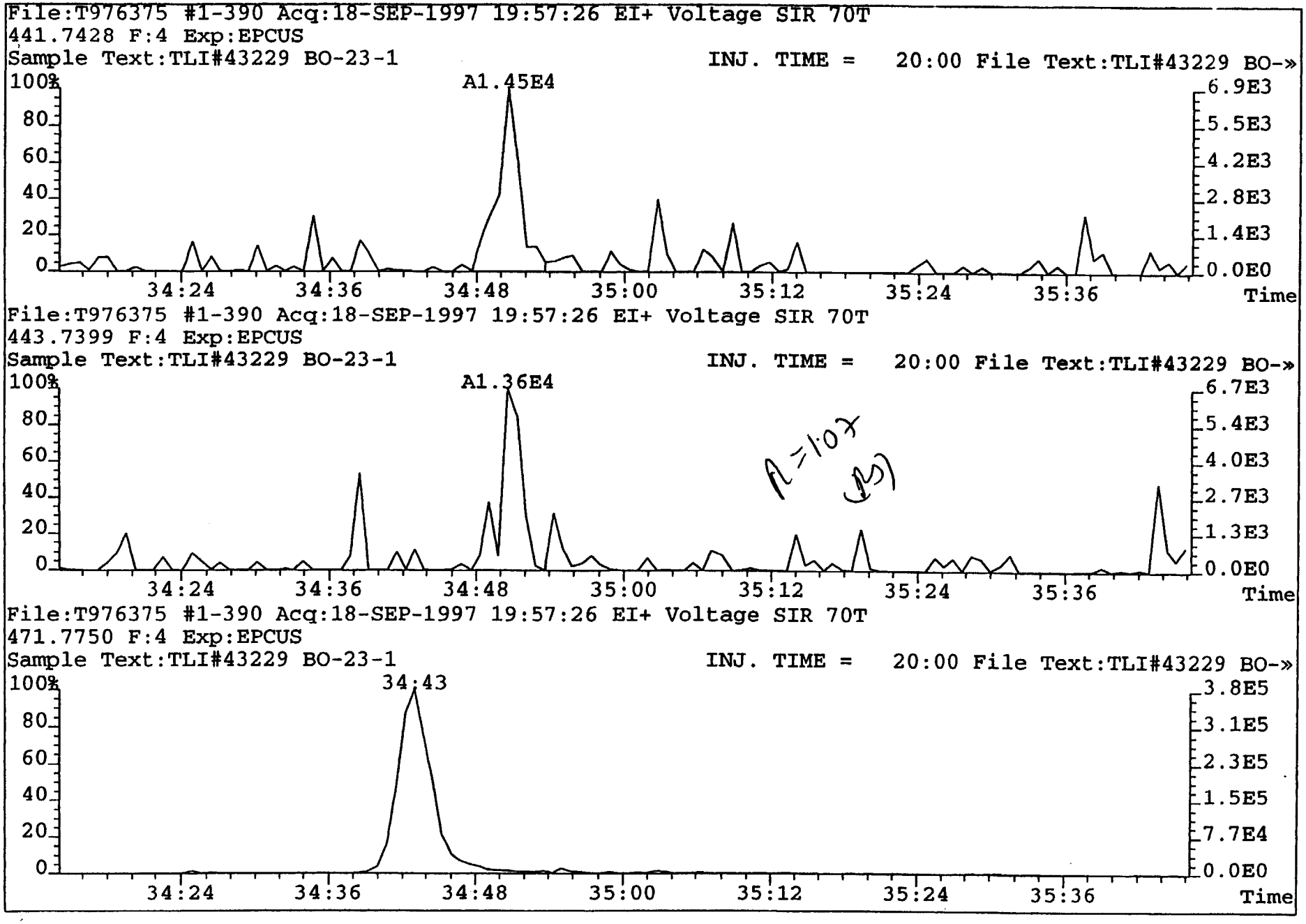

File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
90
80
70
60
50
40
30
20
10
0
A4.12E4
1.1E5
1.0E5
9.2E4
8.0E4
6.9E4
5.7E4
4.6E4
3.4E4
2.3E4
1.1E4
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12
Time
File:T976375 #1-893 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
90
80
70
60
50
40
30
20
10
0
A1.38E5
A5.97E4
8.3E4
7.4E4
6.6E4
5.8E4
5.0E4
4.1E4
3.3E4
2.5E4
1.7E4
8.3E3
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12
Time

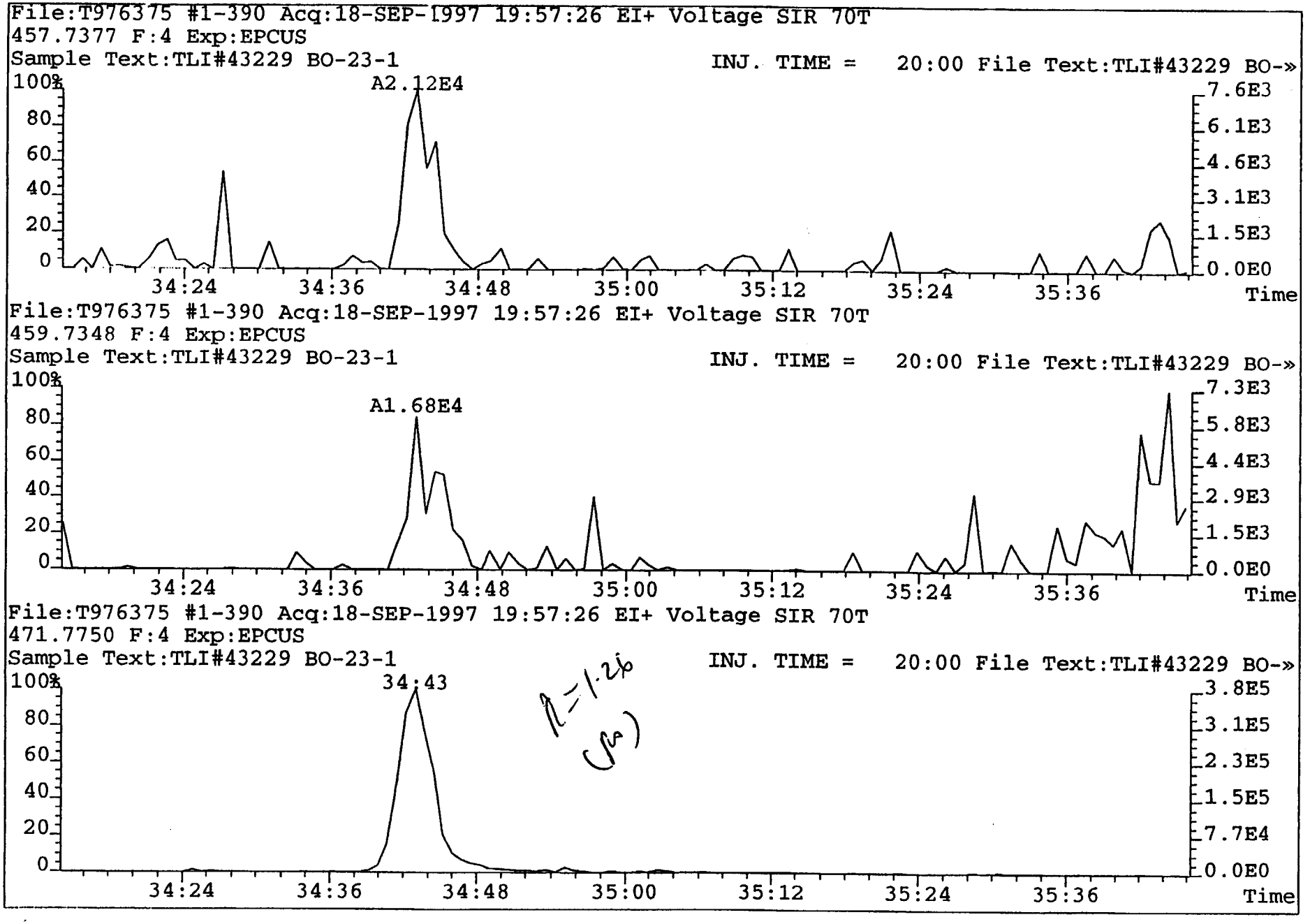

File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
30:01
29:57
29:35 29:40
30:07
30:17
30:28
2.5E4
2.0E4
1.5E4
9.9E3
5.0E3
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
30:00
29:57
29:36
29:45
30:13
30:24
30:31
2.6E4
2.1E4
1.6E4
1.0E4
5.2E3
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
383.8639 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:56
2.6E5
2.1E5
1.6E5
1.1E5
5.3E4
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time


File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
30:01
29:57
29:35 29:40
30:07
30:17
30:28
2.5E4
2.0E4
1.5E4
9.9E3
5.0E3
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
30:00
29:57
30:13
29:36
29:45
30:24
30:31
2.6E4
2.1E4
1.6E4
1.0E4
5.2E3
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:31
29:48
29:45
30:00
30:06
30:10
30:17
30:24
30:29
30:34
8.6E3
6.9E3
5.2E3
3.4E3
1.7E3
0.0E0
29:30 29:36 29:42 29:48 29:54 30:00 30:06 30:12 30:18 30:24 30:30 30:36 30:42
Time


File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
28:37
28:43
28:50
29:01
29:14
3.6E5
2.9E5
2.2E5
1.5E5
7.3E4
0.0E0
28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
28:37
28:43
28:50
29:02
29:14
2.8E5
2.2E5
1.7E5
1.1E5
5.6E4
0.0E0
28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
28:33 28:39
28:29
28:52
28:56
29:08
29:14
29:25
29:31
9.1E3
7.3E3
5.4E3
3.6E3
1.8E3
0.0E0
28:18 28:24 28:30 28:36 28:42 28:48 28:54 29:00 29:06 29:12 29:18 29:24 29:30 29:36
Time


File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
389.8156 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A4.90E4
3.2E4
2.6E4
1.9E4
1.3E4
6.4E3
0.0E0
29:00
29:12
29:24
29:36
29:48
30:00
30:12
30:24
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
391.8127 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A4.76E4
2.8E4
2.2E4
1.7E4
1.1E4
5.6E3
0.0E0
29:00
29:12
29:24
29:36
29:48
30:00
30:12
30:24
Time
File:T976375 #1-435 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
401.8558 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:26
29:43
8.3E5
6.6E5
5.0E5
3.3E5
1.7E5
0.0E0
29:00
29:12
29:24
29:36
29:48
30:00
30:12
30:24
Time


File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
441.7428 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A1.45E4
100%
80
60
40
20
0
6.9E3
5.5E3
4.2E3
2.8E3
1.4E3
0.0E0
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
443.7399 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A1.36E4
100%
80
60
40
20
0
6.7E3
5.4E3
4.0E3
2.7E3
1.3E3
0.0E0
A=10%
(B)
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
34:43
100%
80
60
40
20
0
3.8E5
3.1E5
2.3E5
1.5E5
7.7E4
0.0E0
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time


File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A2.12E4
100%
80
60
40
20
0
7.6E3
6.1E3
4.6E3
3.1E3
1.5E3
0.0E0
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
A1.68E4
7.3E3
5.8E3
4.4E3
2.9E3
1.5E3
0.0E0
File:T976375 #1-390 Acq:18-SEP-1997 19:57:26 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-1
INJ. TIME = 20:00 File Text:TLI#43229 BO-»
34:43
3.8E5
3.1E5
2.3E5
1.5E5
7.7E4
0.0E0

Pacific Environmental Services

TLI Project: **43229** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **BO-23-1** Analysis File: **P973984**

Client Project:	**S414.003/WAUPACA Foundry**				
Sample Matrix:	**M23TRAIN**	Date Received:	**09/12/97**	Spike File:	**SPC2NF04**
TLI ID:	**183-1-2A-C**	Date Extracted:	**09/14/97**	ICal:	**PF22206**
		Date Analyzed:	**09/19/97**	ConCal:	**P973982**
Sample Size:	**1.000**	Dilution Factor:	**n/a**	% Moisture:	**n/a**
Dry Weight:	**n/a**	Blank File:	**T976373**	% Lipid:	**n/a**
GC Column:	**DB-225**	Analyst:	**ML**	% Solids:	**n/a**

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	3.5			0.76	20:33	___

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.0	48.9	40%-130%	0.76	20:31	___

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	19:34	___

Data Reviewer: _____ 09/22/97

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: 02:09 09/22/97

Initial ....Date...

Data Review By: JLC 9/22/97 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 P973984B.dbf
09/22/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.786-1.095			
304-306	DC	NL		0:00	RO	0.64	2.02			0.000			
				16:18		0.82	1,410.69	637.21	773.48	0.794			
				16:33	RO	1.07	15.26	9.21	8.62	0.807			
				16:47	RO	2.03	9.74	11.15	5.50	0.818			
				16:52		0.88	32.39	15.14	17.25	0.822			
				17:15		0.77	1,935.93	839.22	1,096.71	0.841			
				17:22		0.79	1,153.31	508.86	644.45	0.846			
				17:30		0.78	1,575.78	691.99	883.79	0.853			
				17:40		0.76	1,153.53	496.70	656.83	0.861			
				17:55		0.77	821.51	358.21	463.30	0.873			
				18:05		0.77	1,162.68	507.23	655.45	0.881			
				18:11		0.72	434.03	181.36	252.67	0.886			
				18:22		0.78	2,653.83	1,165.37	1,488.46	0.895			
				18:32		0.83	654.13	295.91	358.22	0.903			
	DC	SN		18:41	RO	2.15	0.81			0.911			
				18:51		0.76	2,244.41	971.64	1,272.77	0.919			
				19:02	RO	1.06	9.12	5.45	5.15	0.928			
				19:08	RO	0.63	22.60	9.83	15.71	0.933			
				19:16		0.78	1,124.25	491.26	632.99	0.939			
				19:31		0.76	992.12	429.35	562.77	0.951			
				19:42		0.77	925.52	404.02	521.50	0.960			
				19:54		0.78	109.96	48.26	61.70	0.970			
				20:04		0.76	705.65	305.76	399.89	0.978			
				20:26		0.77	623.53	271.00	352.53	0.996			
				20:33		0.76	660.78	285.30	375.48	1.002	2378-TCDF		AN
				20:44		0.80	486.40	216.02	270.38	1.011			
				20:57		0.76	580.61	250.05	330.56	1.021			
				21:04		0.83	1,101.77	498.19	603.58	1.027			
				21:14		0.73	13.40	5.66	7.74	1.035			
				21:43		0.74	807.74	344.44	463.30	1.058			
				22:20		0.77	55.89	24.23	31.66	1.089			
	DC	WH		22:48	RO	0.94	2.16			1.111			
304-306			29	Peaks			23,476.56						
13C12-TCDF				0.65-0.89						0.951-1.049			
316-318	DC	NL		0:00	RO	1.27	2.87			0.000			
	DC	WL		17:25	RO	7.36	0.19			0.849			
	DC	WL		19:16	RO	3.24	1.31			0.939			
				20:31		0.76	726.48	314.54	411.94	1.000	13C12-2378-TCDF		ISO
	DC	WH		22:22	RO	0.63	4.53			1.090			
316-318			1	Peak			726.48						

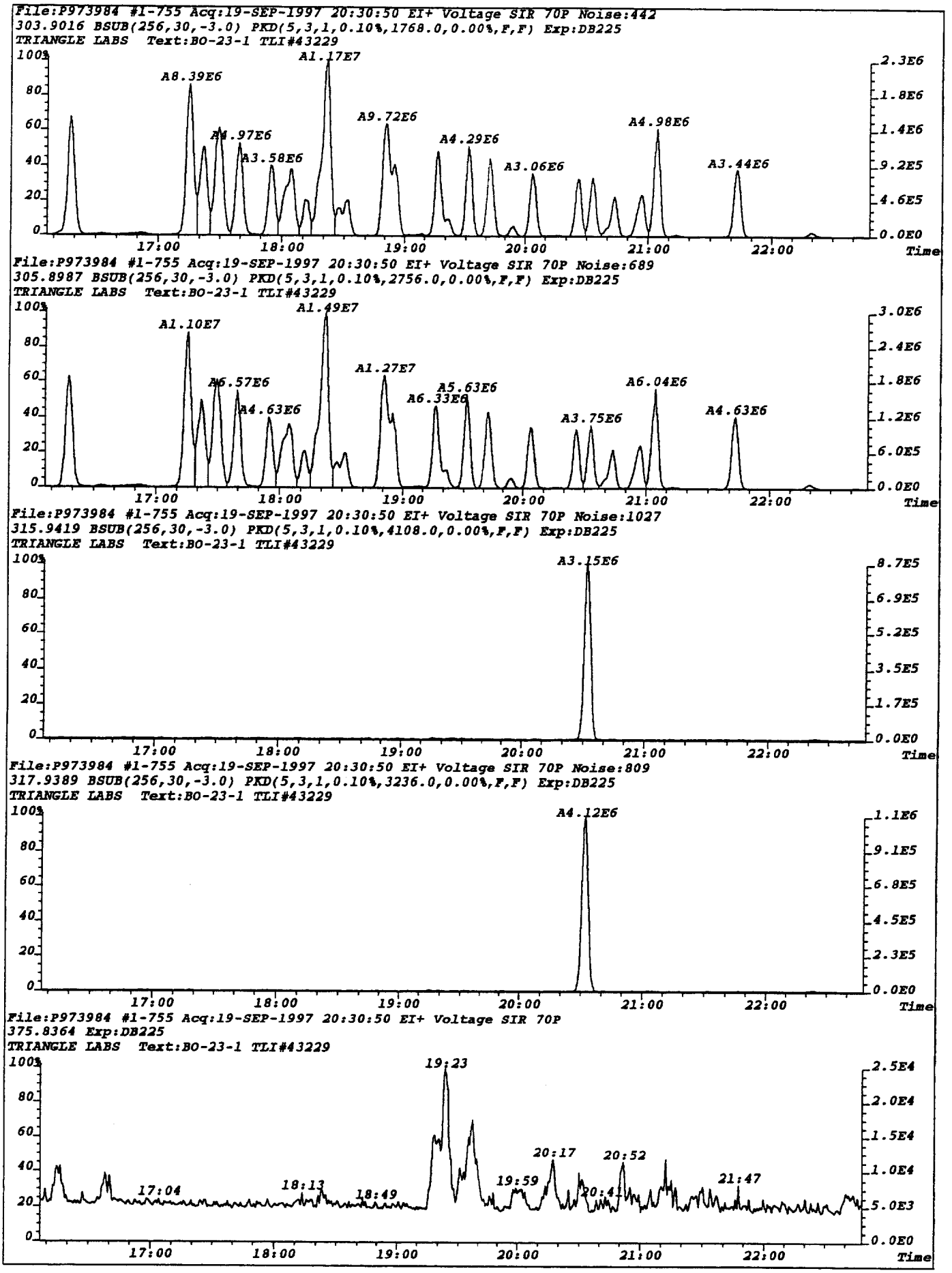
Compound/
M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID.. Flags.

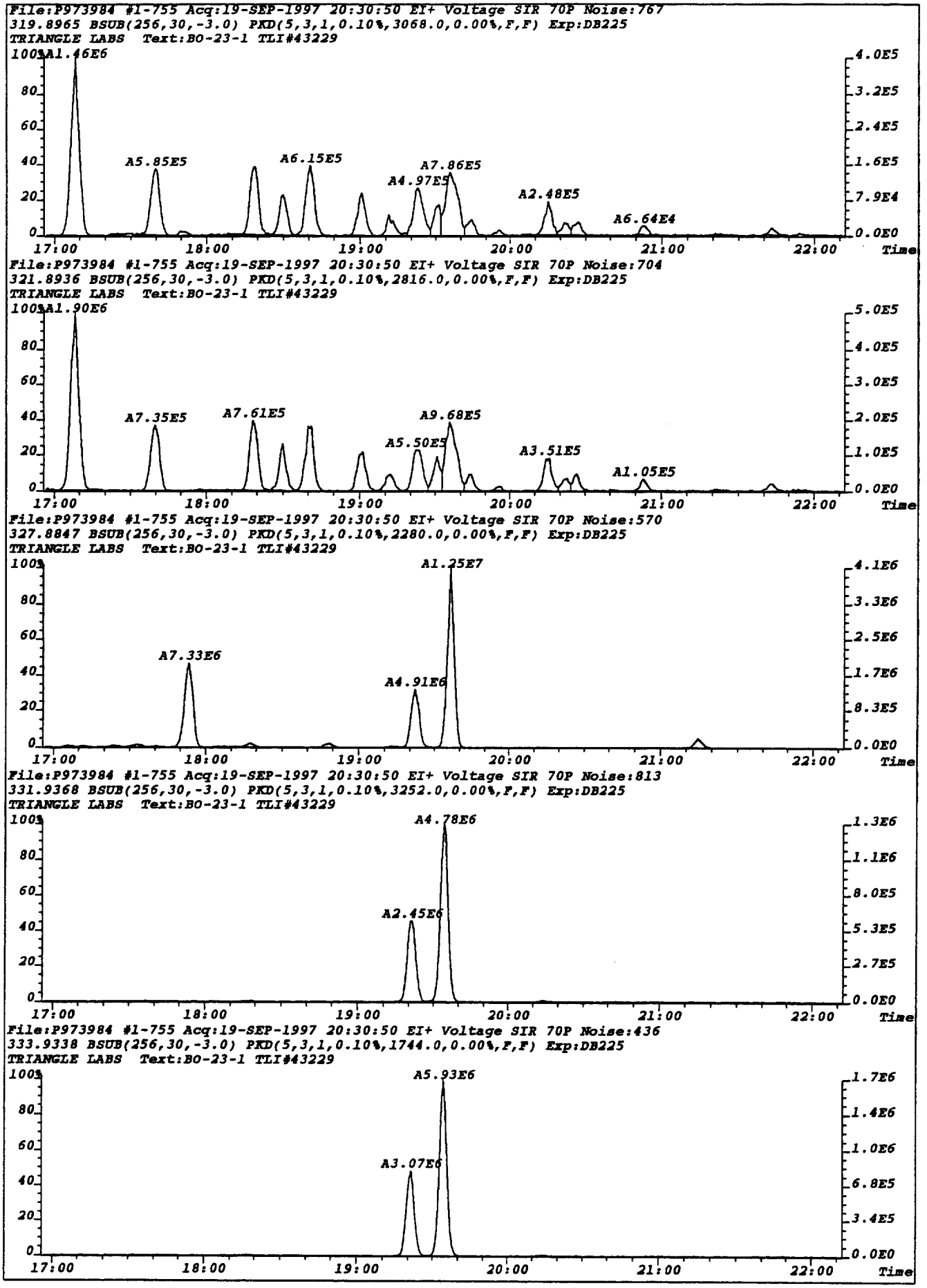
---------- Above: TCDF / TCDD Follows ----------

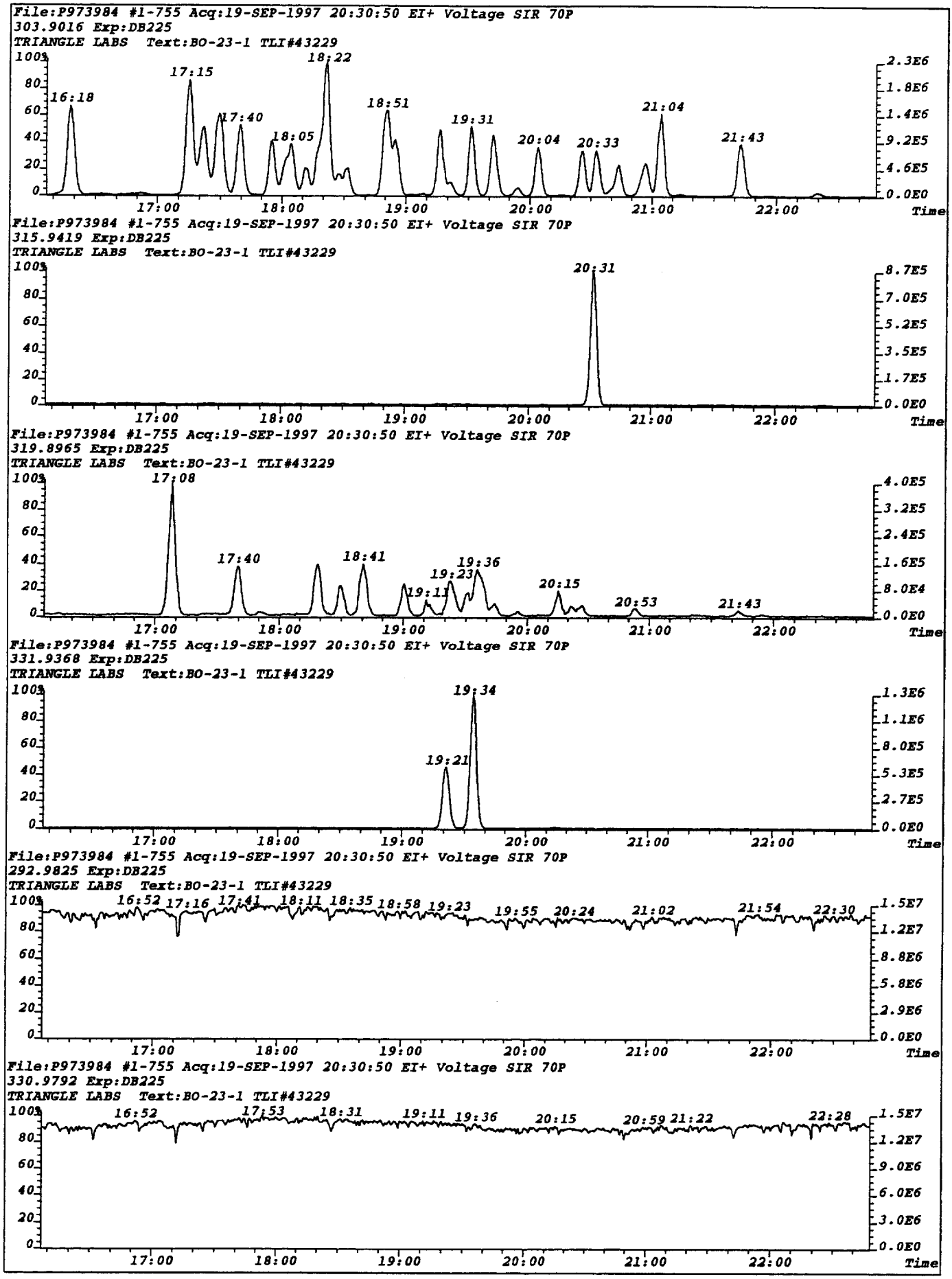
13C12-TCDD				0.65-0.89				0.897-1.103		
332-334	DC	NL	0:00	RO 1.87	1.54			0.000		
			19:21	0.80	551.75	244.55	307.20	1.000	13C12-2378-TCDD	IS1
			19:34	0.81	1,070.91	477.97	592.94	1.011	13C12-1234-TCDD	RS1
			20:14	RO 0.62	6.11	2.66	4.28	1.046		
	DC	WH	21:53	0.71	1.37			1.131		
332-334			3 Peaks		1,628.77					

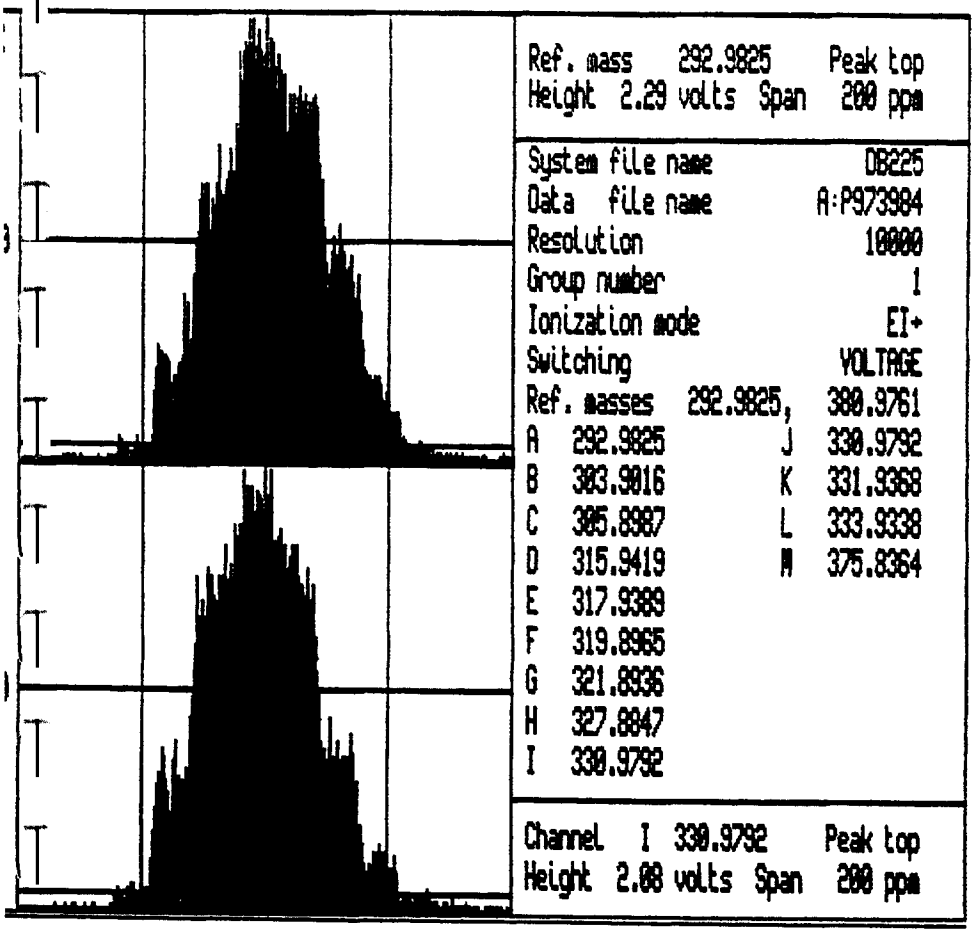
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	NL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside 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:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:442
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1768.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A8.39E6
A1.17E7
A4.97E6
A3.58E6
A9.72E6
A4.29E6
A3.06E6
A4.98E6
A3.44E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:689
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2756.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A1.10E7
A1.49E7
A6.57E6
A4.63E6
A1.27E7
A6.33E6
A5.63E6
A3.75E6
A6.04E6
A4.63E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:1027
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4108.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A3.15E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:809
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3236.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A4.12E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
19:23
17:04
18:13
18:49
19:59
20:17
20:41
20:52
21:47
Time


File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:767
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3068.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A1.46E6
A5.85E5
A6.15E5
A7.86E5
A4.97E5
A2.48E5
A6.64E4
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:704
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2816.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A1.90E6
A7.35E5
A7.61E5
A9.68E5
A5.50E5
A3.51E5
A1.05E5
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:570
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2280.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A1.25E7
A7.33E6
A4.91E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:813
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3252.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A4.78E6
A2.45E6
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P Noise:436
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1744.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
A5.93E6
A3.07E6
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
16:18
17:15
17:40
18:05
18:22
18:51
19:31
20:04
20:33
21:04
21:43
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
20:31
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
17:08
17:40
18:41
19:11
19:23
19:36
20:15
20:53
21:43
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
19:21
19:34
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
16:52
17:16
17:41
18:11
18:35
18:58
19:23
19:55
20:24
21:02
21:54
22:30
File:P973984 #1-755 Acq:19-SEP-1997 20:30:50 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:BO-23-1 TLI#43229
16:52
17:53
18:31
19:11
19:36
20:15
20:59
21:22
22:28
Time



Ref. mass 292.9825 Peak top
Height 2.29 volts Span 200 ppm

System file name	DB225
Data file name	A:P973984
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 2.00 volts Span 200 ppm

Pacific Environmental Services

TLI Project: 43229 — Method 23 PCDD/PCDF Analysis (a)
Client Sample: BO-23-2 — Analysis File: T976376

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-3A-C	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.54			0.75	21:34	—
1,2,3,7,8-PeCDD	1.7			1.53	26:08	—
1,2,3,4,7,8-HxCDD	0.74			1.16	29:21	—
1,2,3,6,7,8-HxCDD	1.4			1.21	29:26	—
1,2,3,7,8,9-HxCDD	1.9			1.25	29:43	PR
1,2,3,4,6,7,8-HpCDD	2.1			1.09	32:15	—
1,2,3,4,6,7,8,9-OCDD	0.59			0.96	34:43	—
2,3,7,8-TCDF	32.9			0.82	20:48	—
1,2,3,7,8-PeCDF	9.5			1.49	25:00	—
2,3,4,7,8-PeCDF	12.5			1.50	25:45	—
1,2,3,4,7,8-HxCDF	13.2			1.32	28:36	PR
1,2,3,6,7,8-HxCDF	6.9			1.28	28:43	—
2,3,4,6,7,8-HxCDF	4.8			1.32	29:13	PR
1,2,3,7,8,9-HxCDF	0.50			1.22	29:56	—
1,2,3,4,6,7,8-HpCDF	5.6			1.09	31:24	—
1,2,3,4,7,8,9-HpCDF	0.94			1.09	32:35	—
1,2,3,4,6,7,8,9-OCDF	0.41			0.81	34:50	—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	20.1	14			—
Total PeCDD	14.4	7		25.3	—
Total HxCDD	15.2	7			—
Total HpCDD	4.0	2			—
Total TCDF	262	13		264	—
Total PeCDF	175	14		176	—
Total HxCDF	65.7	12			—
Total HpCDF	9.3	4			—

X237_PSR v2.00, LARS 6.10.04

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Printed: 01:52 09/22/97

TLI Project: 43229
Client Sample: BO-23-2

Method 23 PCDD/PCDF Analysis (a)
Analysis File: T976376

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.4	60.1	40%-130%	0.73	20:45	—
$^{13}C_{12}$-2,3,7,8-TCDD	1.9	48.4	40%-130%	0.85	21:33	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.9	48.5	40%-130%	1.48	24:59	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.9	47.3	40%-130%	1.46	26:07	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.3	58.7	40%-130%	0.50	28:42	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.6	64.8	40%-130%	1.25	29:25	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.4	58.8	25%-130%	0.41	31:23	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.9	72.8	25%-130%	1.01	32:14	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	5.6	70.5	25%-130%	0.81	34:42	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	94.9	70%-140%		21:34	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.0	100	70%-140%	1.46	25:44	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.1	103	70%-140%	0.48	28:36	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.6	90.7	70%-140%	1.21	29:20	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.6	116	70%-140%	0.44	32:34	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.8	69.5	40%-130%	0.48	29:55	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.6	63.8	40%-130%	0.49	29:13	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	21:21	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	29:42	—

Data Reviewer: VC 09/22/97

X237_PSR v2.00. LARS 6.10.04

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Printed: 01:52 09/22/97

Initial ....Date...

Data Review By: VC 9/22/97 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 T976376B.dbf
09/22/97 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					0.826-1.097				
304-306	DC	NL		0:00	RO	1.39	0.78			0.000			
				17:19		0.82	1,296.89	583.22	713.67	0.835			
				17:50		0.83	738.54	335.73	402.81	0.859			
				18:04		0.83	368.51	167.60	200.91	0.871			
				18:29		0.82	3,784.88	1,701.86	2,083.02	0.891			
				18:48		0.84	2,351.75	1,075.51	1,276.24	0.906			
				19:19		0.84	2,120.92	966.75	1,154.17	0.931			
				19:37		0.85	1,695.38	776.61	918.77	0.945			
				19:53		0.86	2,063.72	954.80	1,108.92	0.958			
				20:19		0.82	826.39	373.36	453.03	0.979			
				20:34		0.84	757.29	345.77	411.52	0.991			
				20:48		0.82	2,666.91	1,201.90	1,465.01	1.002	2378-TCDF		AN
				21:14		0.84	1,279.78	586.09	693.69	1.023			
				21:29		0.81	1,334.84	598.70	736.14	1.035			
				21:44	RO	0.98	74.27	40.98	41.96	1.047			
				22:38	RO	0.93	56.59	29.84	31.97	1.091			
	DC	WH		22:55		0.89	37.50			1.104			
304-306			15	Peaks			21,416.66						
13C12-TCDF				0.65-0.89					0.952-1.048				
316-318	DC	WL		18:52	RO	2.72	0.69			0.909			
				20:45		0.73	297.65	125.24	172.41	1.000	13C12-2378-TCDF		ISO
	DC	SN		21:32	RO	0.22	0.87			1.038			
316-318			1	Peak			297.65						
---------- Above: TCDF / TCDD Follows ----------													
TCDD				0.65-0.89					0.861-1.056				
320-322				18:44		0.77	298.04	129.82	168.22	0.869			
				19:11		0.70	115.53	47.52	68.01	0.890			
				19:31		0.86	76.36	35.28	41.08	0.906			
				20:17		0.79	209.43	92.34	117.09	0.941			
				20:28		0.82	43.99	19.76	24.23	0.950			
				20:34		0.83	90.83	41.18	49.65	0.954			
				21:00		0.75	61.08	26.26	34.82	0.974			
				21:18		0.76	67.17	29.03	38.14	0.988			
				21:28		0.72	91.89	38.48	53.41	0.996			
				21:34		0.75	32.28	13.86	18.42	1.001	2378-TCDD		AN
				21:44		0.82	20.37	9.17	11.20	1.009			
				21:56		0.81	65.10	29.22	35.88	1.018			
				22:10		0.68	16.61	6.70	9.91	1.029			
	DC	SN		22:21		0.65	0.33			1.037			
				22:38		0.76	13.79	5.94	7.85	1.050			

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			14 Peaks				1,202.47						
37Cl-TCDD										0.907-1.093			
328	DC	WL		18:47			1.40			0.872			
	DC	WL		19:04			6.28			0.885			
	DC	WL		19:13			4.74			0.892			
	DC	WL		19:32			0.70			0.906			
	DC	SN		19:55			0.32			0.924			
				20:04			124.74	124.74		0.931			
	DC	SN		20:21			0.72			0.944			
	DC	SN		20:28			0.23			0.950			
	DC	SN		20:47			0.24			0.964			
	DC	SN		21:10			0.06			0.982			
	DC	SN		21:19			0.37			0.989			
				21:34			175.50	175.50		1.001	37Cl-TCDD	SUR1	
	DC	SN		21:45			0.58			1.009			
				22:01			30.53	30.53		1.022			
	DC	SN		22:32			0.17			1.046			
	DC	SN		23:01			0.13			1.068			
	DC	SN		23:10			0.45			1.075			
328			3 Peaks				330.77						
13C12-TCDD					0.65-0.89					0.907-1.093			
332-334	DC	NL		0:00	RO	4.11	0.97			0.000			
	DC	WL		18:42	RO	0.52	2.07			0.868			
	DC	WL		19:00	RO	2.51	0.83			0.882			
	DC	WL		19:13	RO	0.92	1.12			0.892			
	DC	SN		19:39		0.73	2.53			0.912			
	DC	SN		20:18	RO	1.87	1.93			0.942			
	DC	SN		20:35	RO	2.99	1.70			0.955			
				21:21		0.85	383.15	176.49	206.66	0.991	13C12-1234-TCDD	RS1	
				21:33		0.85	202.49	93.27	109.22	1.000	13C12-2378-TCDD	IS1	
				21:52	RO	1.42	5.77	4.64	3.26	1.015			
	DC	SN		22:10	RO	2.83	0.71			1.029			
	DC	SN		22:17		0.86	4.12			1.034			
332-334			3 Peaks				591.41						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF					1.32-1.78					0.909-1.075			
340-342				22:54		1.52	1,214.02	732.85	481.17	0.917			
				23:11	RO	1.83	18.59	13.31	7.29	0.928			
				23:35	RO	1.99	20.32	15.87	7.97	0.944			
				23:57		1.49	789.67	472.30	317.37	0.959			
				24:07		1.52	3,717.91	2,241.50	1,476.41	0.965			
				24:17		1.51	774.91	466.66	308.25	0.972			
				24:31		1.56	339.00	206.41	132.59	0.981			
				24:43		1.52	849.59	512.98	336.61	0.989			
	A			24:55		1.53	193.30	117.00	76.30	0.997			
	M			25:00		1.49	592.00	354.00	238.00	1.001	12378-PeCDF	AN	
				25:10		1.53	430.39	260.35	170.04	1.007			
				25:18		1.50	518.32	311.08	207.24	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.
				25:45		1.50	802.23	481.23	321.00	1.031	23478-PeCDF	AN	
				25:53		1.53	734.80	444.40	290.40	1.036			
				26:12		1.41	36.76	21.48	15.28	1.049			
				26:45		1.58	63.67	39.01	24.66	1.071			
	DC	WH	26:56	RO		0.97	3.18			1.078			
340-342			16 Peaks				11,095.48						
13C12-PeCDF				1.32-1.78						0.840-1.160			
352-354	DC	SN	23:41	RO		10.13	0.41			0.948			
	DC	SN	23:55	RO		0.15	0.07			0.957			
	DC	SN	24:07	RO		2.49	3.03			0.965			
	DC	SN	24:35	RO		2.38	1.35			0.984			
			24:59			1.48	228.97	136.52	92.45	1.000	13C12-PeCDF 123	IS2	
	DC	SN	25:17	RO		0.75	1.61			1.012			
			25:44			1.46	234.19	138.82	95.37	1.030	13C12-PeCDF 234	SUR2	
	DC	SN	26:02	RO		4.48	0.64			1.042			
	DC	SN	26:11	RO		1.07	1.02			1.048			
	DC	SN	26:28	RO		2.27	2.17			1.059			
	DC	SN	26:42	RO		1.30	1.20			1.069			
	DC	SN	26:53	RO		1.95	0.51			1.076			
352-354			2 Peaks				463.16						

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

~~24:44~~ ~~145~~ ~~57~~ (EE) sr 9/22/97

PeCDD				1.32-1.78						0.922-1.025			
356-358			24:14	RO		1.14	293.30	178.28	156.78	0.928			
			24:44			1.60	37.76	23.22	14.54	0.947			
			25:00			1.54	185.88	112.57	73.31	0.957			
			25:09			1.71	75.52	47.61	27.91	0.963			
			25:20			1.56	148.15	90.31	57.84	0.970			
	M		25:36	RO		1.80	107.61	75.80	42.20	0.980			
			25:49	RO		1.93	27.59	20.91	10.82	0.989			
			25:56	RO		0.91	16.39	9.96	10.94	0.993			
			26:08			1.53	69.65	42.17	27.48	1.001	12378-PeCDD	AN	
			26:15			1.50	38.46	23.06	15.40	1.005			
			26:36			1.50	37.30	22.36	14.94	1.019			
356-358			11 Peaks				1,037.61						
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	SN	25:01	RO		0.90	0.58			0.958			
	DC	SN	25:18	RO		5.43	0.18			0.969			
	DC	SN	25:28	RO		8.60	0.13			0.975			
			26:07			1.46	131.18	77.83	53.35	1.000	13C12-PeCDD 123	IS3	
			26:16			1.55	12.15	7.39	4.76	1.006			
368-370			2 Peaks				143.33						

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

HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	NL	0:00			1.15	4.36			0.000			
			27:37			1.34	389.11	222.58	166.53	0.962			
			27:46			1.27	1,529.47	856.61	672.86	0.967			

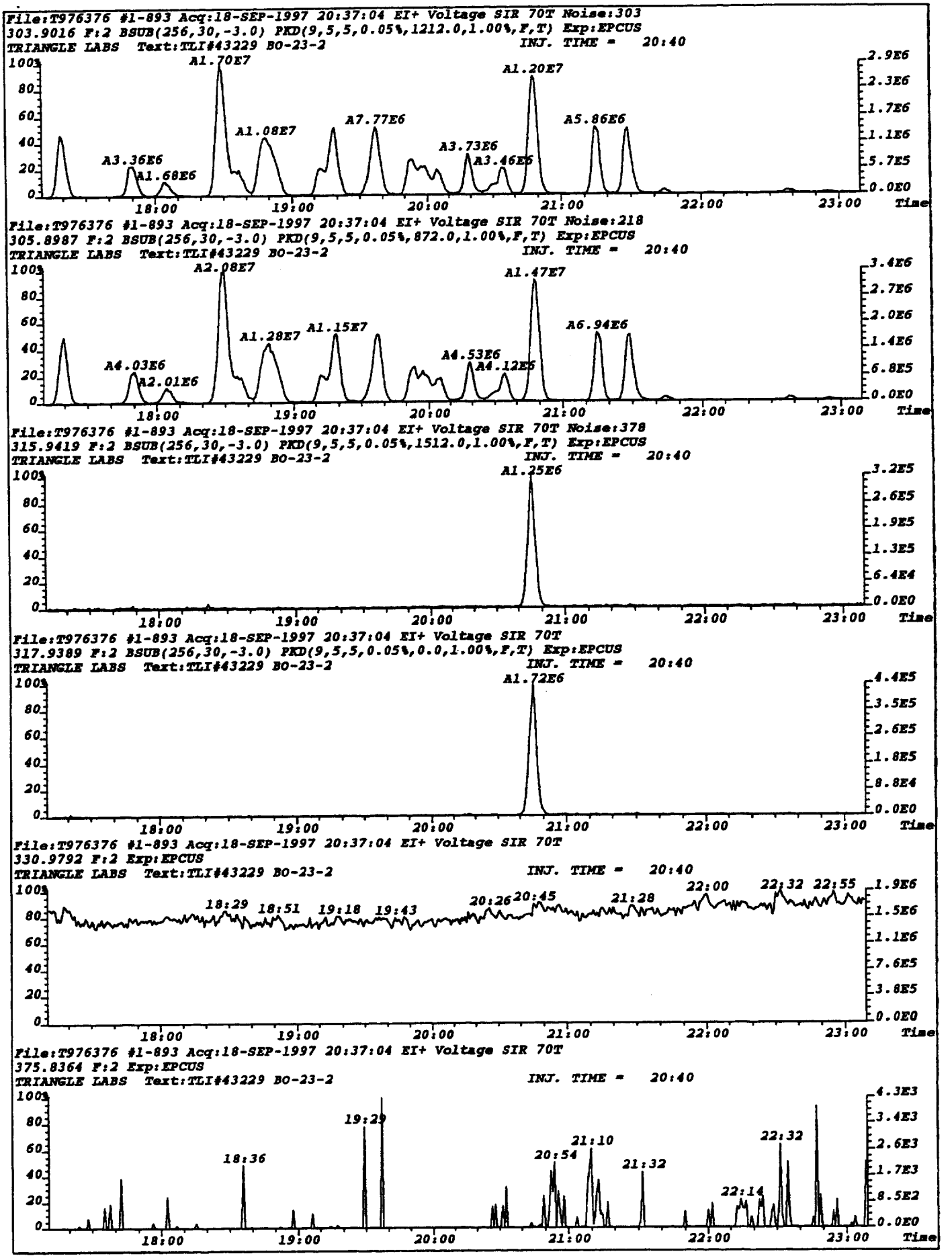
Compound/ M_Z....	QC.Log	Limit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID	Flags
				27:55		1.38	166.43	96.48	69.95	0.973			
				28:04		1.31	209.23	118.84	90.39	0.978			
				28:14		1.42	70.35	41.22	29.13	0.984			
	DC	SN		28:23		1.39	3.56			0.989			
				28:36		1.32	869.56	494.08	375.48	0.997	123478-HxCDF		AN
				28:43		1.28	564.50	317.39	247.11	1.001	123678-HxCDF		AN
				28:49		1.26	103.66	57.89	45.77	1.004			
				29:01		1.29	234.27	132.08	102.19	1.011			
				29:13		1.32	317.37	180.28	137.09	1.018	234678-HxCDF		AN
				29:56		1.22	29.96	16.47	13.49	1.043	123789-HxCDF		AN
				30:00		1.37	61.54	35.55	25.99	1.045			
374-376			12	Peaks			4,545.45						
13C12-HxCDF						0.43-0.59				0.861-1.139			
384-386	DC	NL		0:00	RO	4.00	0.23			0.000			
	DC	SN		27:44	RO	0.40	1.07			0.966			
	DC	SN		28:07	RO	2.71	0.21			0.980			
	DC	SN		28:19		0.50	0.33			0.987			
				28:36		0.48	233.27	75.52	157.75	0.997	13C12-HxCDF 478		SUR3
				28:42		0.50	242.54	81.25	161.29	1.000	13C12-HxCDF 678		IS4
	DC	SN		29:00	RO	0.74	1.10			1.010			
	DC	SN		29:07	RO	0.68	0.86			1.015			
				29:13		0.49	250.06	82.37	167.69	1.018	13C12-HxCDF 234		ALT2
	DC	SN		29:20	RO	0.37	1.92			1.022			
	DC	SN		29:30	RO	1.61	0.62			1.028			
	DC	SN		29:37	RO	1.27	1.33			1.032			
	DC	SN		29:46	RO	1.00	0.56			1.037			
				29:55		0.48	221.48	72.12	149.36	1.042	13C12-HxCDF 789		ALT1
	DC	SN		30:06	RO	0.18	0.89			1.049			
	DC	SN		30:14	RO	0.89	0.53			1.053			
	DC	SN		30:17	RO	0.83	0.71			1.055			
	DC	SN		30:30	RO	1.47	0.29			1.063			
384-386			4	Peaks			947.35						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD						1.05-1.43				0.951-1.014			
390-392	DC	NL		0:00	RO	0.72	0.51			0.000			
	DC	SN		28:01	RO	2.24	1.66			0.952			
				28:09		1.27	106.60	59.58	47.02	0.957			
	DC	SN		28:17	RO	1.57	0.16			0.961			
				28:36		1.25	201.92	112.14	89.78	0.972			
				28:49		1.18	242.50	131.44	111.06	0.980			
				28:58		1.09	19.79	10.32	9.47	0.985			
	DC	SN		29:07		1.26	0.43			0.990			
				29:21		1.16	35.39	19.01	16.38	0.998	123478-HxCDD		AN
				29:26		1.21	72.67	39.85	32.82	1.001	123678-HxCDD		AN
	DC	SN		29:33	RO	2.95	0.87			1.005			
				29:43		1.25	104.99	58.24	46.75	1.010	123789-HxCDD		AN
	DC	WH		29:52		1.35	1.08			1.015			
	DC	WH		30:12		1.15	0.43			1.027			
390-392			7	Peaks			783.86						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	WL		28:09	RO	0.49	0.54			0.957			
	DC	WL		28:21	RO	1.56	0.36			0.964			
	DC	WL		28:24	RO	3.33	0.27			0.965			
	DC	SN		28:49	RO	2.69	0.72			0.980			
				29:20		1.21	170.45	93.20	77.25	0.997	13C12-HxCDD	478	SUR4
				29:25		1.25	209.00	115.94	93.06	1.000	13C12-HxCDD	678	IS5
				29:42		1.20	342.09	186.41	155.68	1.010	13C12-HxCDD	789	RS2
	DC	SN		29:54	RO	0.67	0.74			1.016			
	DC	SN		30:14		1.23	0.98			1.028			
402-404				3 Peaks			721.54						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20						0.994-1.042			
408-410				31:24		1.09	409.50	214.03	195.47	1.001	1234678-HpCDF		AN
				31:37		0.94	99.08	47.98	51.10	1.007			
				31:44		1.03	65.75	33.31	32.44	1.011			
				32:35		1.09	44.03	22.97	21.06	1.038	1234789-HpCDF		AN
	DC	WH		32:55	RO	0.69	1.10			1.049			
	DC	WH		33:03	RO	4.91	0.45			1.053			
408-410				4 Peaks			618.36						
13C12-HpCDF				0.37-0.51						0.936-1.127			
418-420				31:23		0.41	165.13	47.72	117.41	1.000	13C12-HpCDF	678	IS6
	DC	SN		31:38	RO	0.26	0.72			1.008			
	DC	SN		32:18	RO	0.23	1.18			1.029			
				32:34		0.44	150.69	45.98	104.71	1.038	13C12-HpCDF	789	SUR5
	DC	SN		32:58	RO	0.62	1.37			1.050			
418-420				2 Peaks			315.82						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD				0.88-1.20						0.976-1.005			
424-426				31:38		0.93	88.45	42.65	45.80	0.981			
	DC	SN		32:03		0.96	0.47			0.994			
				32:15		1.09	97.53	50.77	46.76	1.001	1234678-HpCDD		AN
	DC	WH		32:34		0.92	0.46			1.010			
424-426				2 Peaks			185.98						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438				32:14		1.01	191.71	96.36	95.35	1.000	13C12-HpCDD	678	IS7
	DC	SN		32:40	RO	1.64	0.29			1.013			
	DC	SN		32:43	RO	0.57	0.24			1.015			
436-438				1 Peak			191.71						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF				0.76-1.02						0.885-1.115			
442-444	DC	SN		31:44	RO	2.12	0.62			0.915			
	DC	SN		32:18	RO	1.49	0.93			0.931			
	DC	SN		33:31	RO	0.47	1.06			0.966			

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		33:48	RO	0.50	0.25			0.974			
	DC	SN		34:11	RO	2.67	0.17			0.985			
	DC	SN		34:23	RO	0.42	0.17			0.991			
				34:50		0.81	17.64	7.89	9.75	1.004	OCDF		AN
	DC	SN		35:21	RO	0.44	0.08			1.019			
442-444		1	Peak				17.64						
OCDD						0.76-1.02				0.885-1.115			
458-460	DC	SN		34:33	RO	0.11	0.13			0.996			
				34:43		0.96	21.61	10.59	11.02	1.000	OCDD		AN
	DC	SN		35:02	RO	4.30	0.19			1.010			
458-460		1	Peak				21.61						
13C12-OCDD						0.76-1.02				0.995-1.004			
470-472				34:42		0.81	290.40	130.16	160.24	1.000	13C12-OCDD		IS8
	DC	WH		34:56	RO	2.03	1.68			1.007			
470-472		1	Peak				290.40						

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

*** End of Report ***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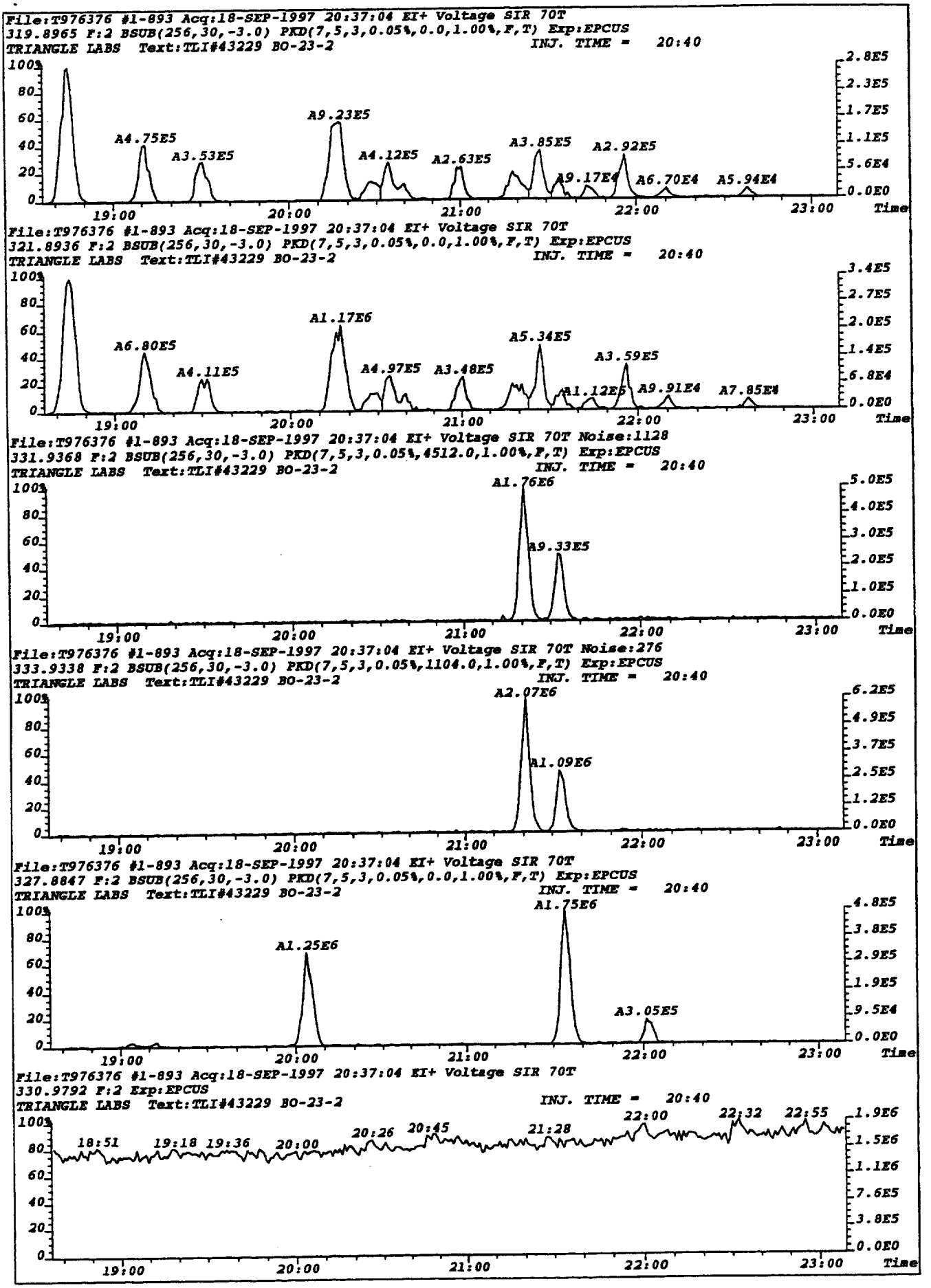
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1212.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.70E7
A1.20E7
A7.77E6
A5.86E6
A1.08E7
A3.73E6
A3.36E6
A3.46E6
A1.68E6
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:218
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,872.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A2.08E7
A1.47E7
A1.15E7
A6.94E6
A1.28E7
A4.53E6
A4.03E6
A4.12E6
A2.01E6
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:378
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1512.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.25E6
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.72E6
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
18:29
18:51
19:18
19:43
20:26
20:45
21:28
22:00
22:32
22:55
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
18:36
19:29
20:54
21:10
21:32
22:14
22:32
18:00
19:00
20:00
21:00
22:00
23:00
Time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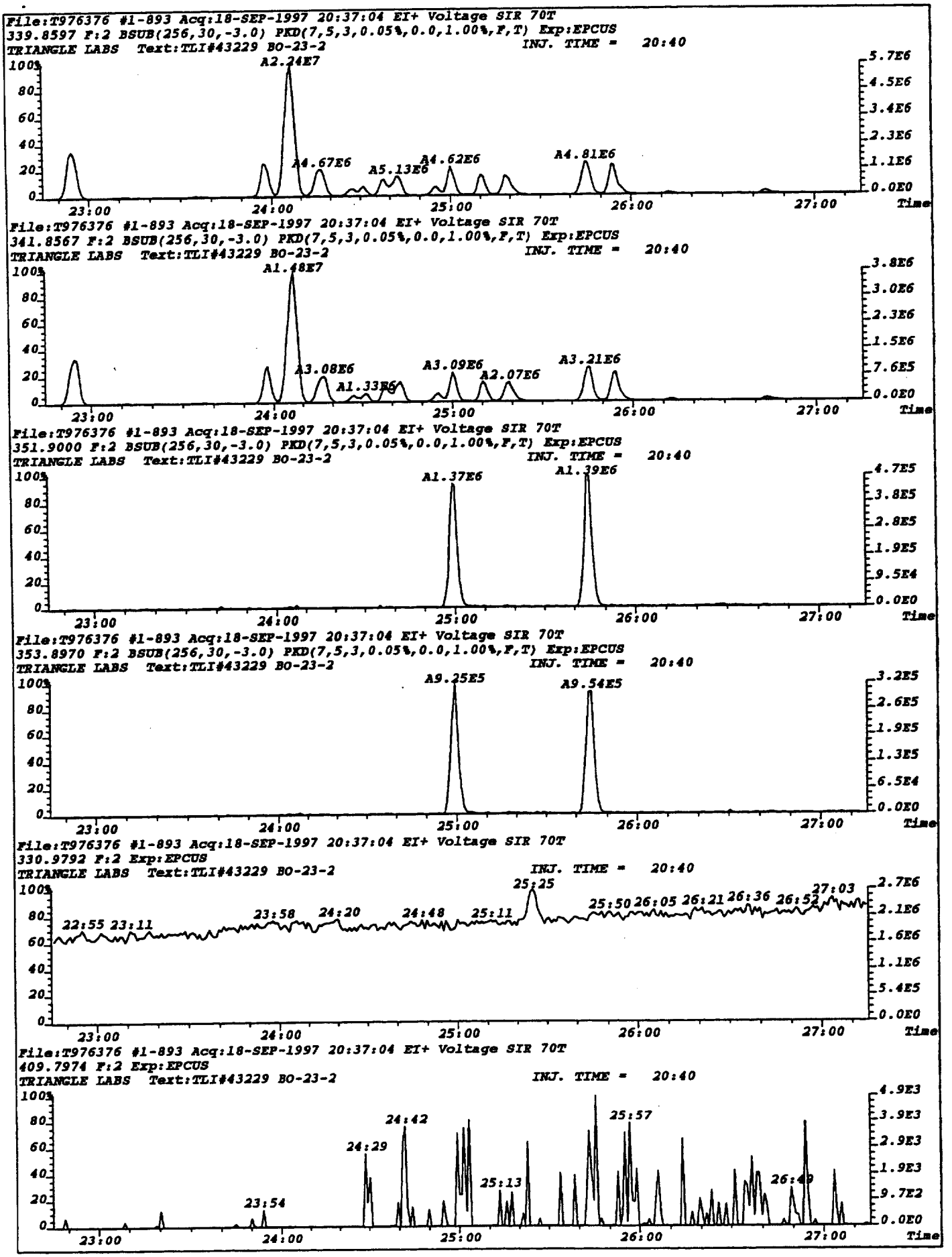
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A4.75E5
A3.53E5
A9.23E5
A4.12E5
A2.63E5
A3.85E5
A9.17E4
A2.92E5
A6.70E4
A5.94E4
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A6.80E5
A4.11E5
A1.17E6
A4.97E5
A3.48E5
A5.34E5
A1.12E5
A3.59E5
A9.91E4
A7.85E4
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:1128
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4512.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.76E6
A9.33E5
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:276
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A2.07E6
A1.09E6
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.25E6
A1.75E6
A3.05E5
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
18:51
19:18
19:36
20:00
20:26
20:45
21:28
22:00
22:32
22:55
19:00
20:00
21:00
22:00
23:00
Time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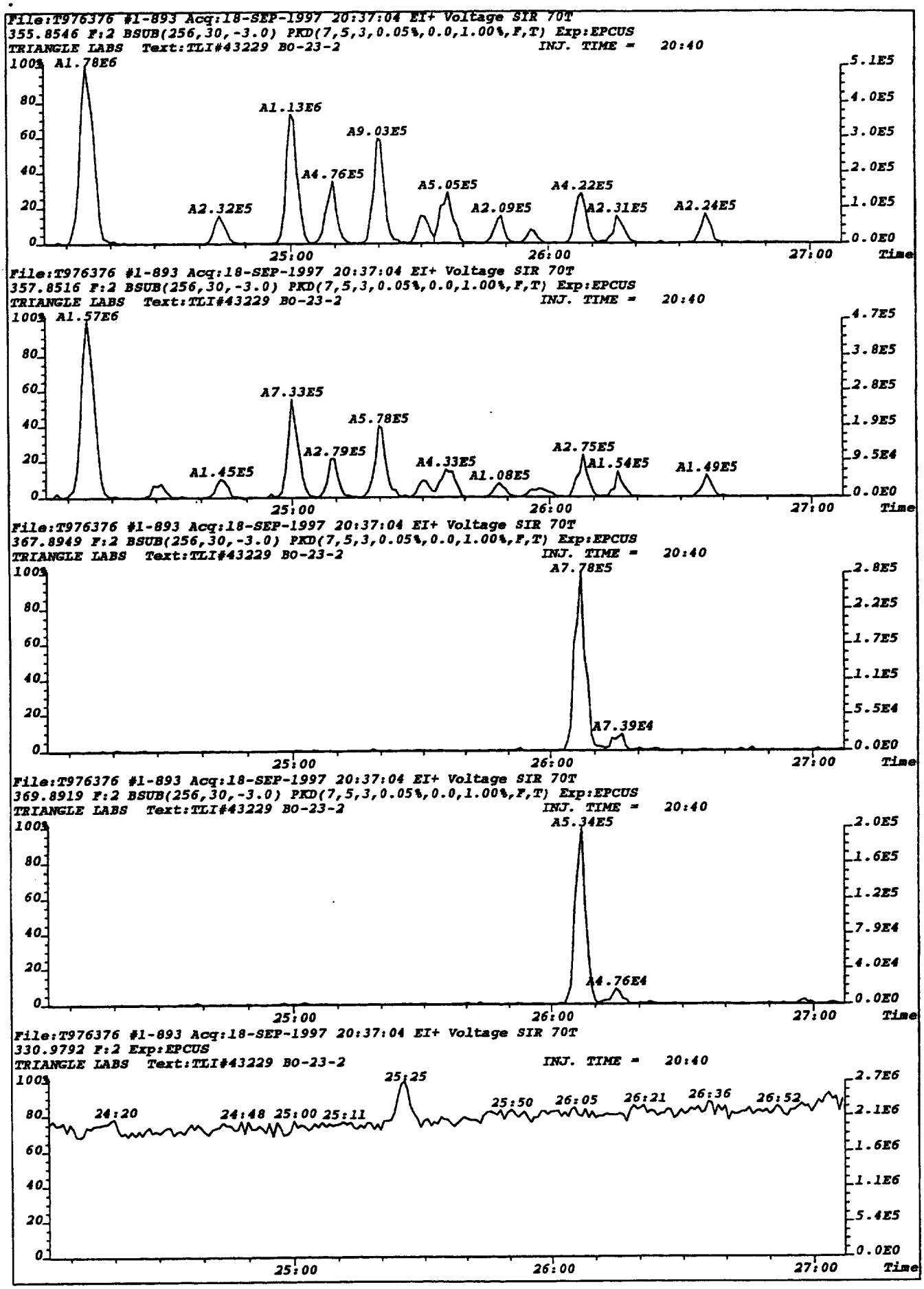
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A2.24E7
A4.67E6
A5.13E6
A4.62E6
A4.81E6
5.7E6
4.5E6
3.4E6
2.3E6
1.1E6
0.0E0
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.48E7
A3.08E6
A1.33E6
A3.09E6
A2.07E6
A3.21E6
3.8E6
3.0E6
2.3E6
1.5E6
7.6E5
0.0E0
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.37E6
A1.39E6
4.7E5
3.8E5
2.8E5
1.9E5
9.5E4
0.0E0
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A9.25E5
A9.54E5
3.2E5
2.6E5
1.9E5
1.3E5
6.5E4
0.0E0
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
22:55 23:11
23:58
24:20
24:48
25:11
25:25
25:50 26:05 26:21 26:36 26:52
27:03
2.7E6
2.1E6
1.6E6
1.1E6
5.4E5
0.0E0
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
23:54
24:29
24:42
25:13
25:57
26:49
4.9E3
3.9E3
2.9E3
1.9E3
9.7E2
0.0E0
Time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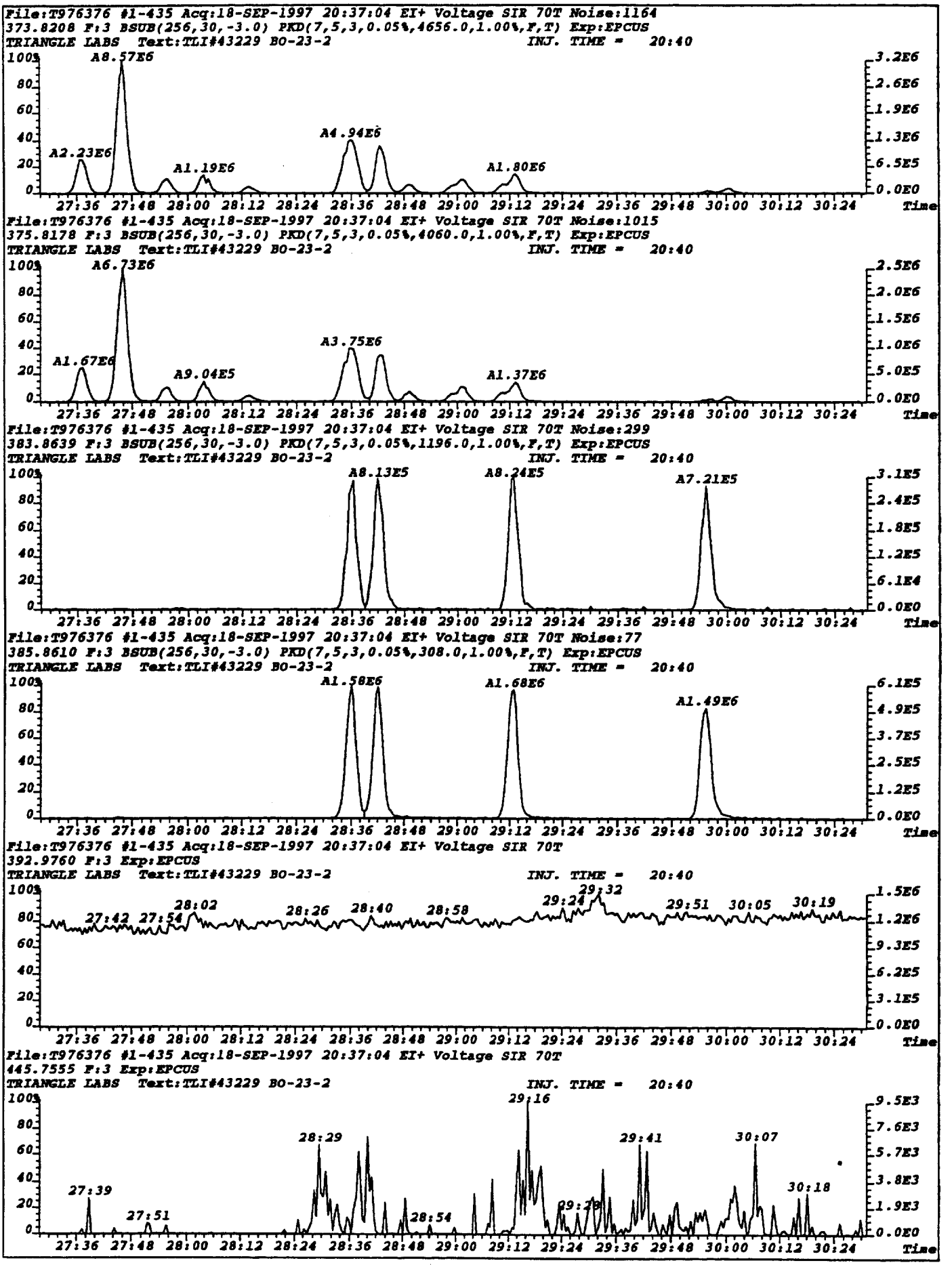
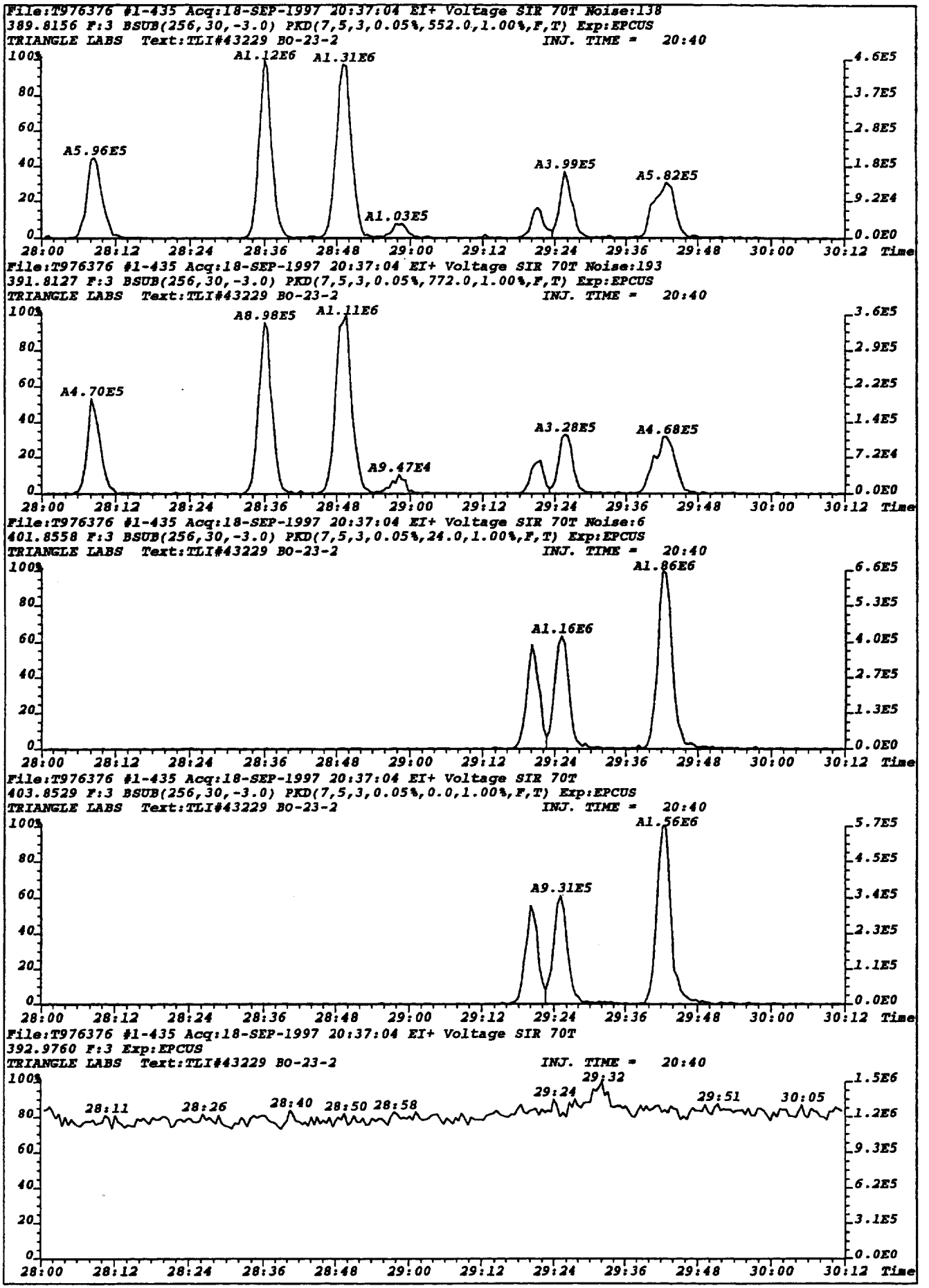
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.78E6
A1.13E6
A9.03E5
A4.76E5
A5.05E5
A4.22E5
A2.32E5
A2.09E5
A2.31E5
A2.24E5
5.1E5
4.0E5
3.0E5
2.0E5
1.0E5
0.0E0
25:00
26:00
27:00
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.57E6
A7.33E5
A5.78E5
A2.79E5
A2.75E5
A4.33E5
A1.54E5
A1.45E5
A1.08E5
A1.49E5
4.7E5
3.8E5
2.8E5
1.9E5
9.5E4
0.0E0
25:00
26:00
27:00
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A7.78E5
A7.39E4
2.8E5
2.2E5
1.7E5
1.1E5
5.5E4
0.0E0
25:00
26:00
27:00
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A5.34E5
A4.76E4
2.0E5
1.6E5
1.2E5
7.9E4
4.0E4
0.0E0
25:00
26:00
27:00
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
25:25
24:20
24:48
25:00
25:11
25:50
26:05
26:21
26:36
26:52
2.7E6
2.1E6
1.6E6
1.1E6
5.4E5
0.0E0
25:00
26:00
27:00
Time


File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:1164
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4656.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A8.57E6
A2.23E6
A1.19E6
A4.94E6
A1.80E6
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:1015
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4060.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A6.73E6
A1.67E6
A9.04E5
A3.75E6
A1.37E6
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:299
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1196.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A8.13E5
A8.24E5
A7.21E5
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:77
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,308.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A1.58E6
A1.68E6
A1.49E6
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
27:42 27:54 28:02 28:26 28:40 28:58 29:24 29:32 29:51 30:05 30:19
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
27:39 27:51 28:29 28:54 29:16 29:41 30:07 30:18
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 30:24
Time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389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,552.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.12E6
A1.31E6
A5.96E5
A3.99E5
A5.82E5
A1.03E5
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:193
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,772.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A8.98E5
A1.11E6
A4.70E5
A3.28E5
A4.68E5
A9.47E4
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:6
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,24.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.86E6
A1.16E6
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.56E6
A9.31E5
File:T976376 #1-435 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
29:32
29:24
28:11
28:26
28:40
28:50
28:58
29:51
30:05
28:00
28:12
28:24
28:36
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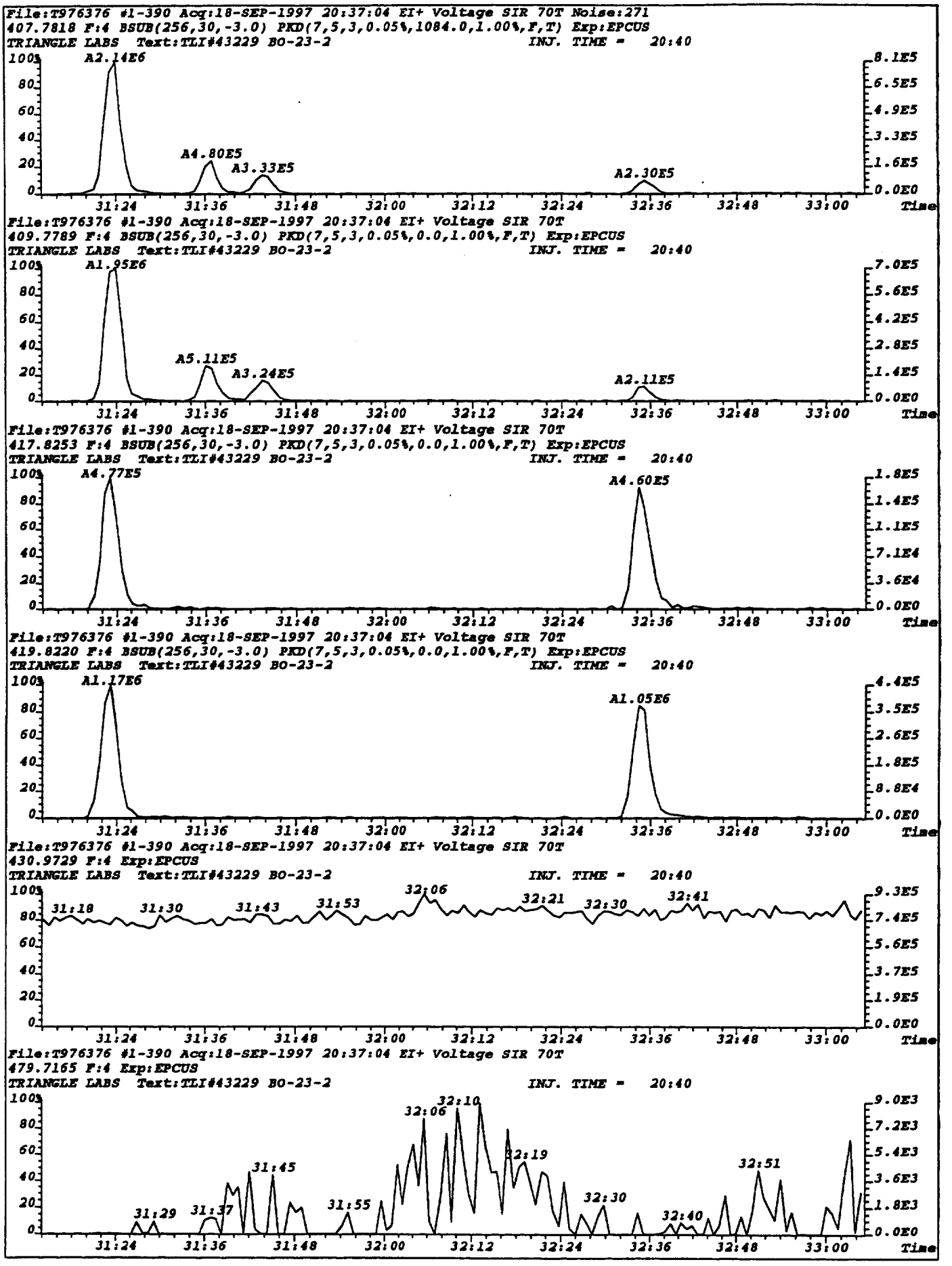
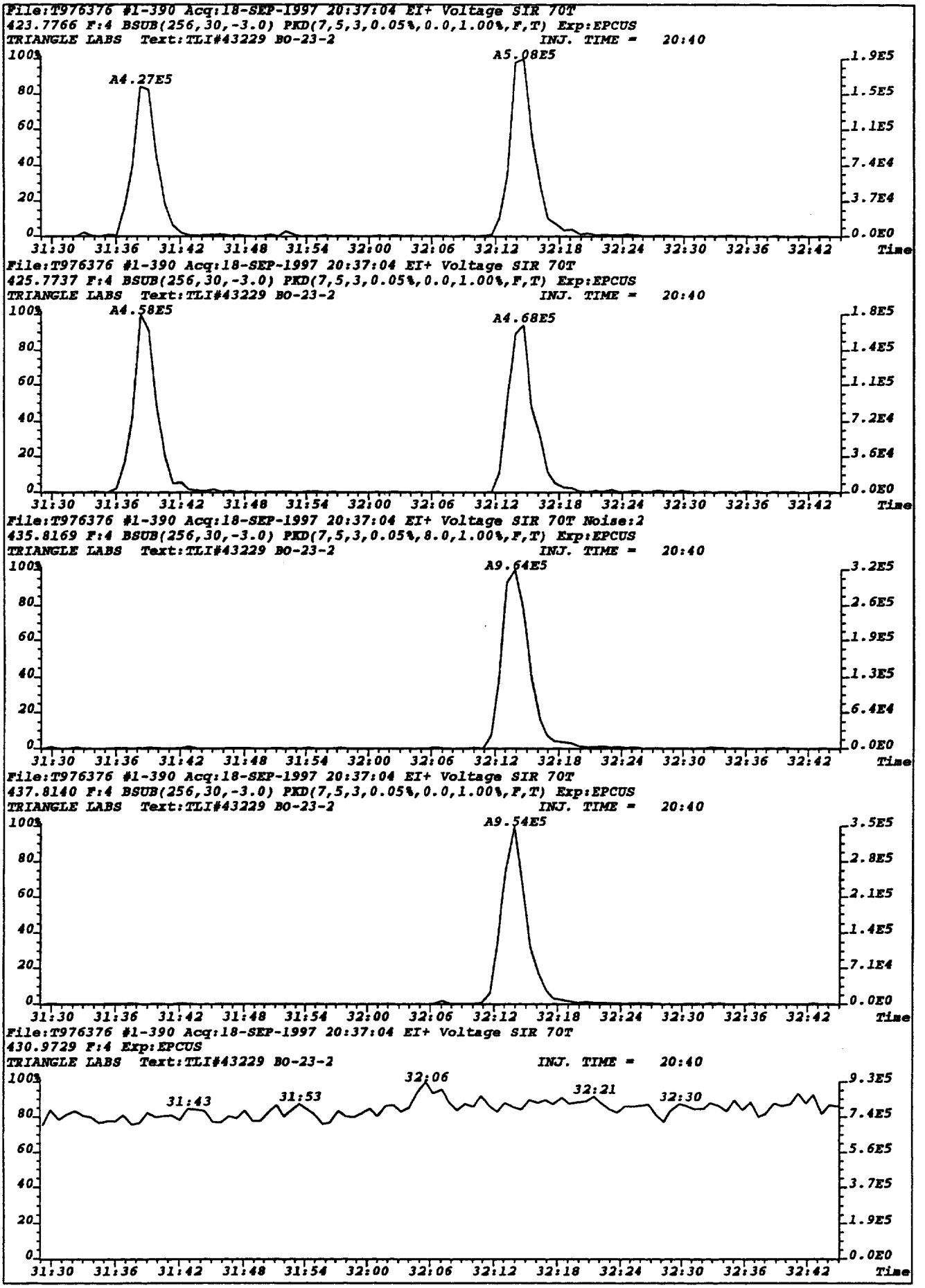
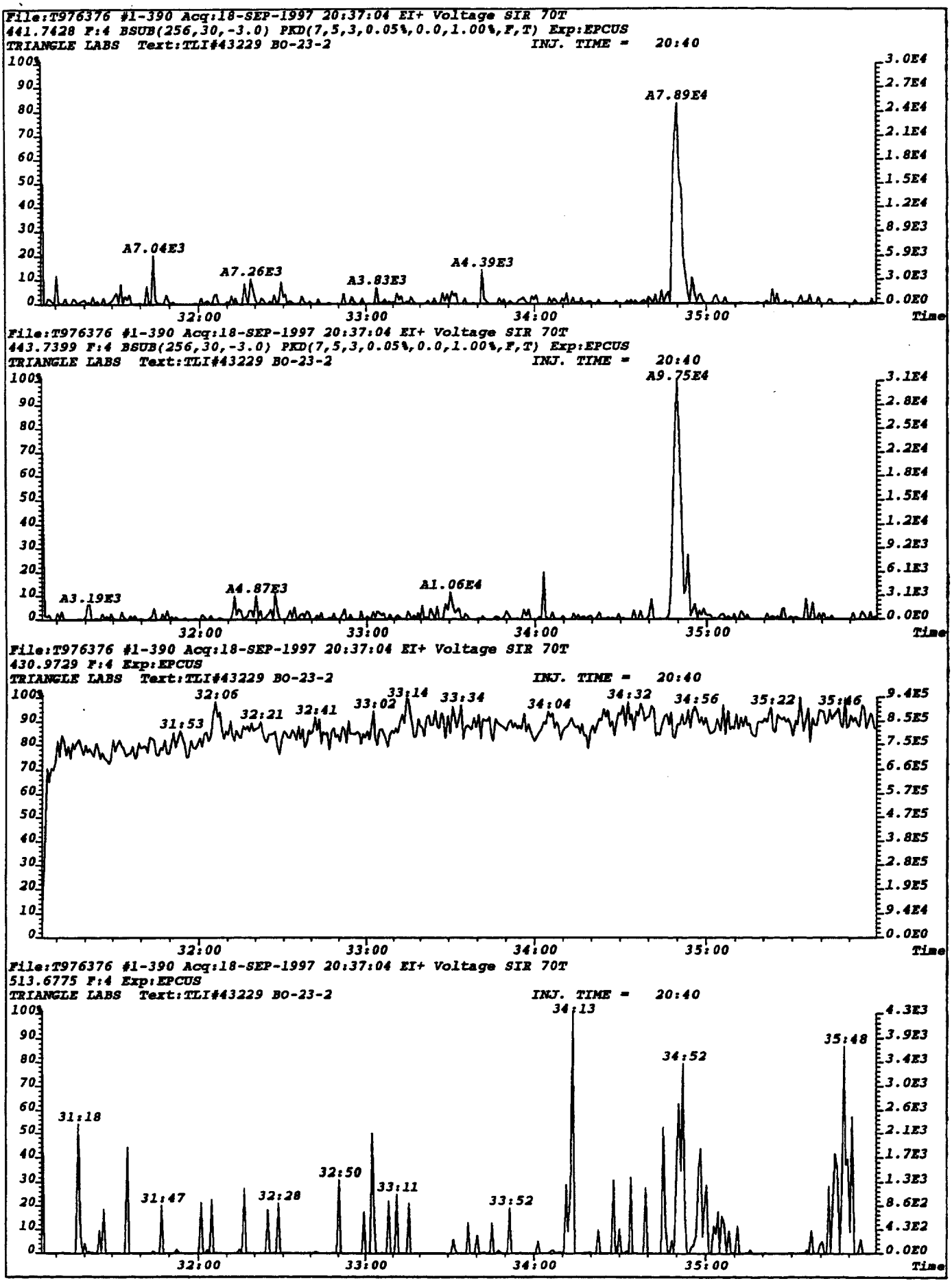
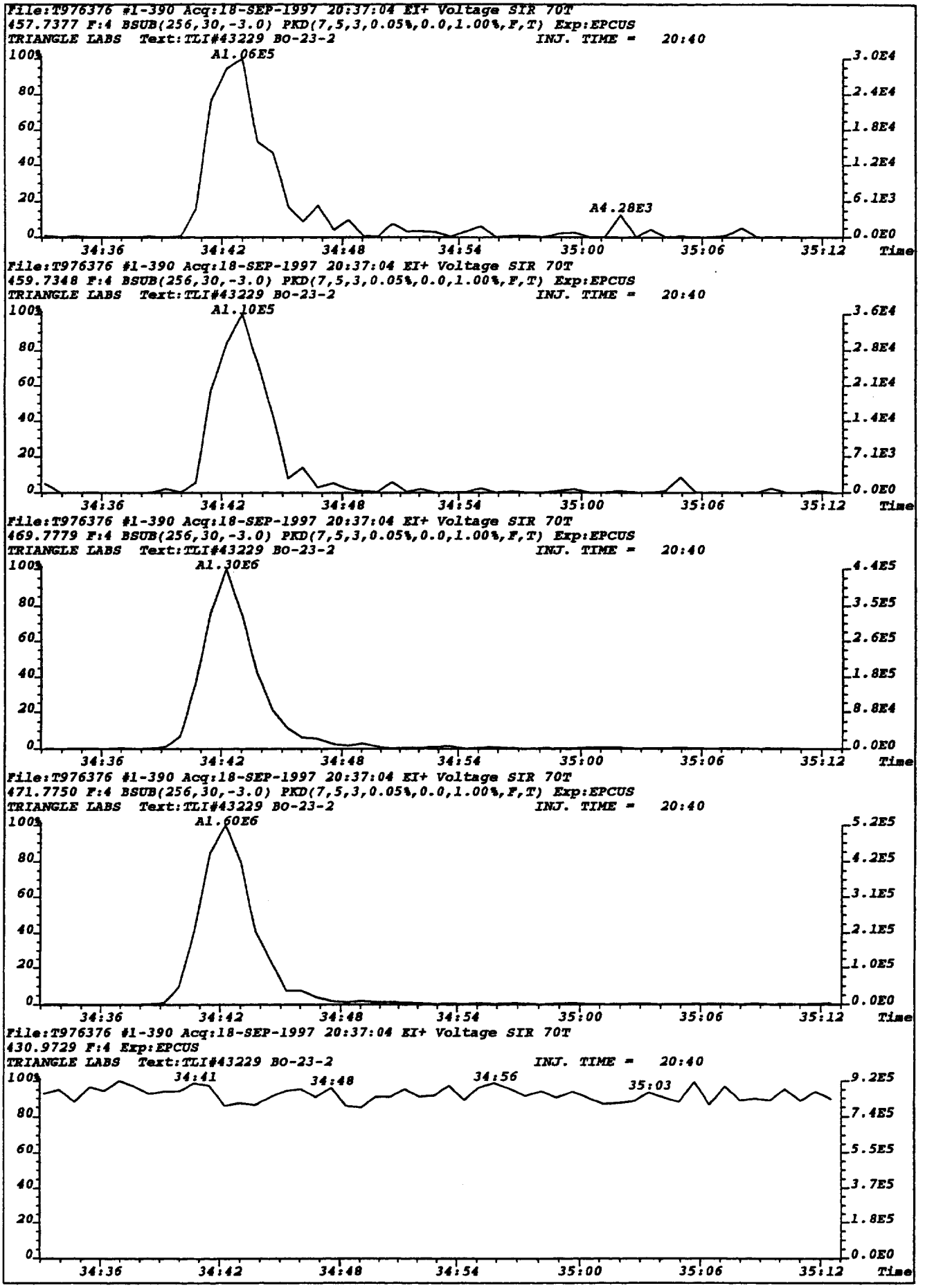
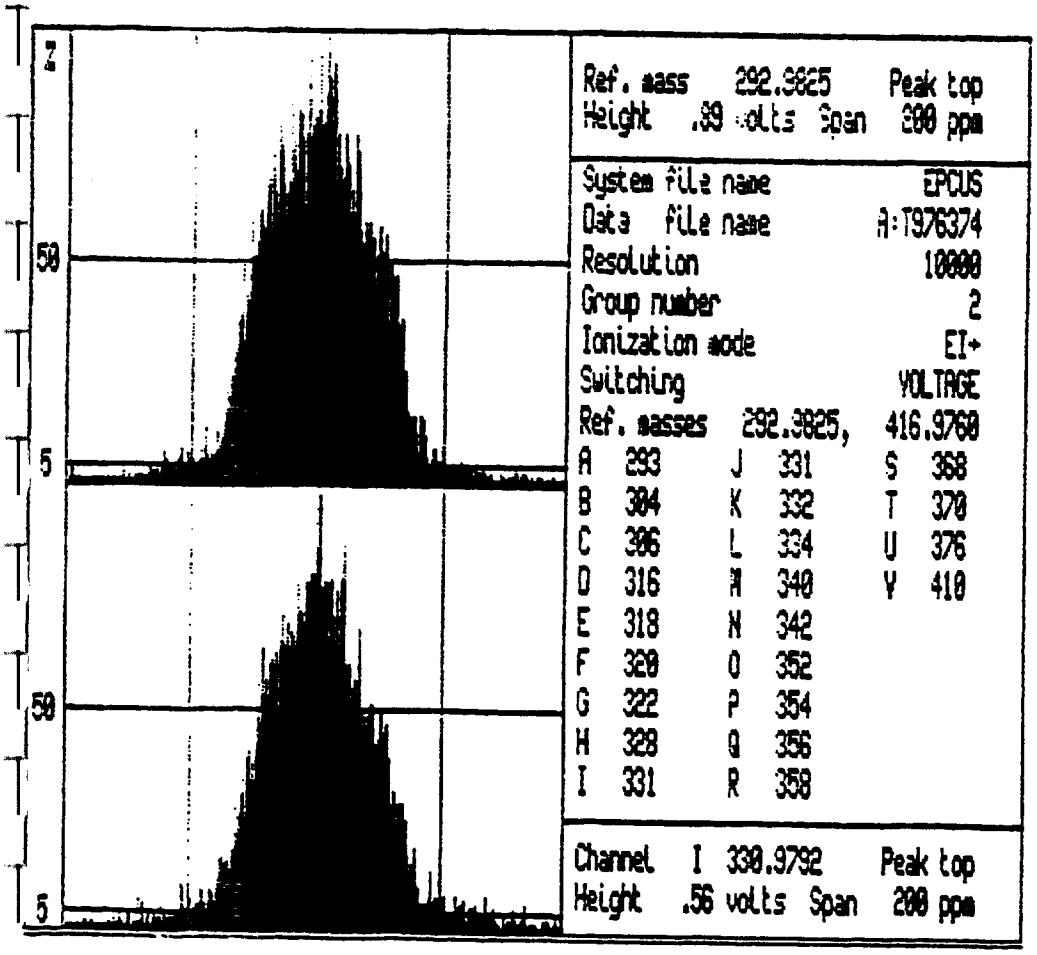
29:00
29:12
29:24
29:36
29:48
30:00
30:12
Time

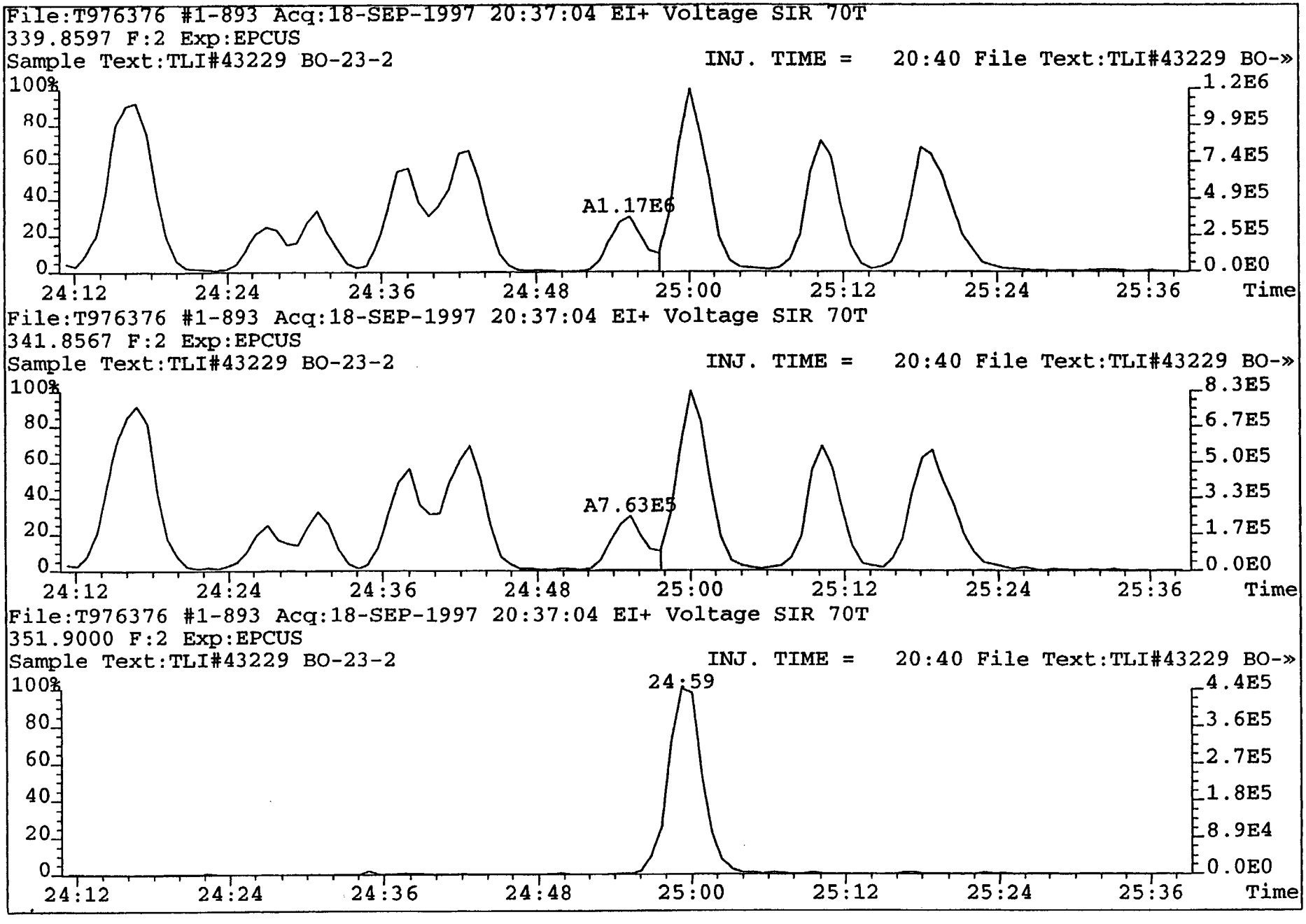

File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:271
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1084.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A2.14E6
A4.80E5
A3.33E5
A2.30E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A1.95E6
A5.11E5
A3.24E5
A2.11E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A4.77E5
A4.60E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
A1.17E6
A1.05E6
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
31:18
31:30
31:43
31:53
32:06
32:21
32:30
32:41
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2 INJ. TIME = 20:40
31:29
31:37
31:45
31:55
32:06
32:10
32:19
32:30
32:40
32:51
31:24
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time

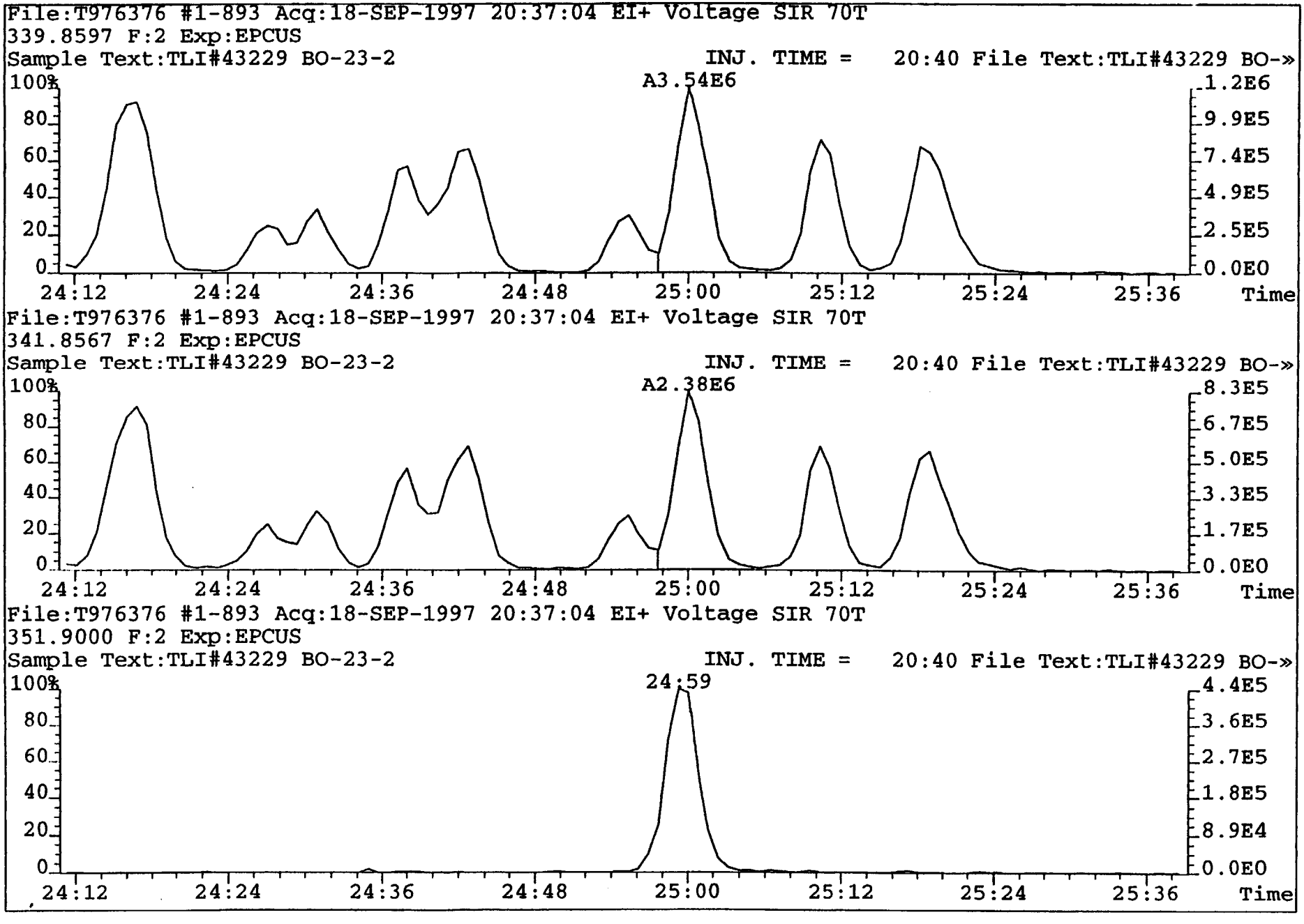

File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A4.27E5
A5.08E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A4.58E5
A4.68E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T Noise:2
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,8.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A9.64E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A9.54E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
31:43
31:53
32:06
32:21
32:30
31:30 31:36 31:42 31:48 31:54 32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42
Time

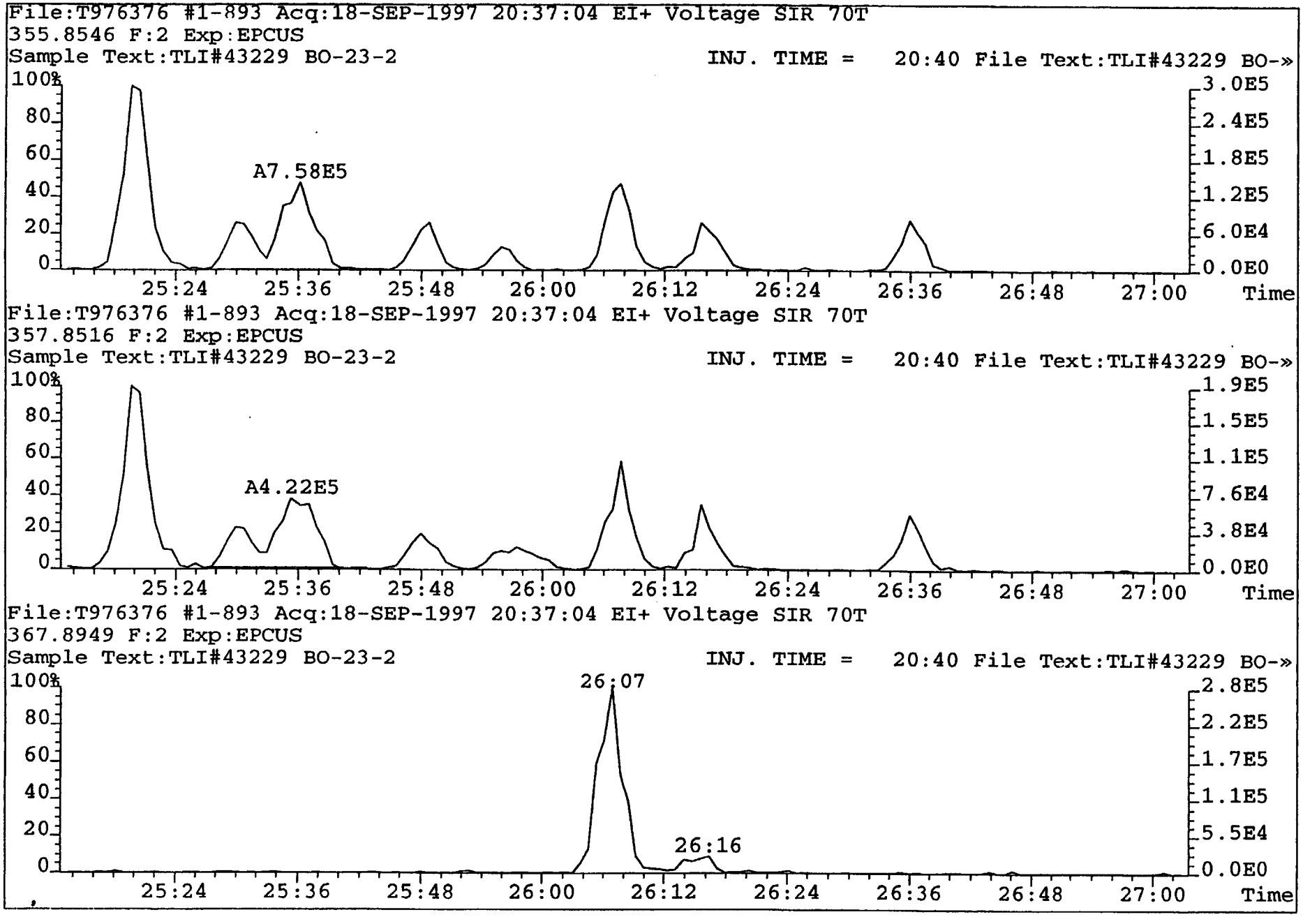

File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A7.89E4
A7.04E3
A7.26E3
A3.83E3
A4.39E3
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A9.75E4
A3.19E3
A4.87E3
A1.06E4
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
31:53
32:06
32:21
32:41
33:02
33:14
33:34
34:04
34:32
34:56
35:22
35:46
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
34:13
35:48
34:52
31:18
31:47
32:28
32:50
33:11
33:52
32:00
33:00
34:00
35:00
Time


File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.06E5
A4.28E3
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.10E5
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.30E6
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
A1.60E6
File:T976376 #1-390 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-2
INJ. TIME = 20:40
34:41
34:48
34:56
35:03
34:36
34:42
34:48
34:54
35:00
35:06
35:12
Time


Z
50
5
50
5
Ref. mass 292.3825 Peak top
Height .39 volts Span 200 ppm
System file name EPCUS
Data file name A:T976374
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 .56 volts Span 200 ppm


File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A1.17E6
1.2E6
9.9E5
7.4E5
4.9E5
2.5E5
0.0E0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A7.63E5
8.3E5
6.7E5
5.0E5
3.3E5
1.7E5
0.0E0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
351.9000 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
24:59
4.4E5
3.6E5
2.7E5
1.8E5
8.9E4
0.0E0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time


File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
A3.54E6
1.2E6
9.9E5
7.4E5
4.9E5
2.5E5
0.0E0
80
60
40
20
0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
A2.38E6
8.3E5
6.7E5
5.0E5
3.3E5
1.7E5
0.0E0
80
60
40
20
0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
351.9000 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
100%
24:59
4.4E5
3.6E5
2.7E5
1.8E5
8.9E4
0.0E0
80
60
40
20
0
24:12
24:24
24:36
24:48
25:00
25:12
25:24
25:36
Time


File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
A7.58E5
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
A4.22E5
Time
File:T976376 #1-893 Acq:18-SEP-1997 20:37:04 EI+ Voltage SIR 70T
367.8949 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-2
INJ. TIME = 20:40 File Text:TLI#43229 BO-»
26:07
26:16
Time

Pacific Environmental Services

TLI Project: 43229 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: BO-23-2 — Analysis File: P973985

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPC2NF04
TLI ID:	183-1-3A-C	Date Extracted:	09/14/97	ICal:	PF22206
		Date Analyzed:	09/19/97	ConCal:	P973982
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-225	Analyst:	ML	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	6.8			0.77	20:31	___

Internal Standard	Amt. (ng)	%Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	1.9	48.4	40%-130%	0.78	20:31	___

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	19:33	___

Data Reviewer: VC 09/22/97

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: 02:10 09/22/97

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.

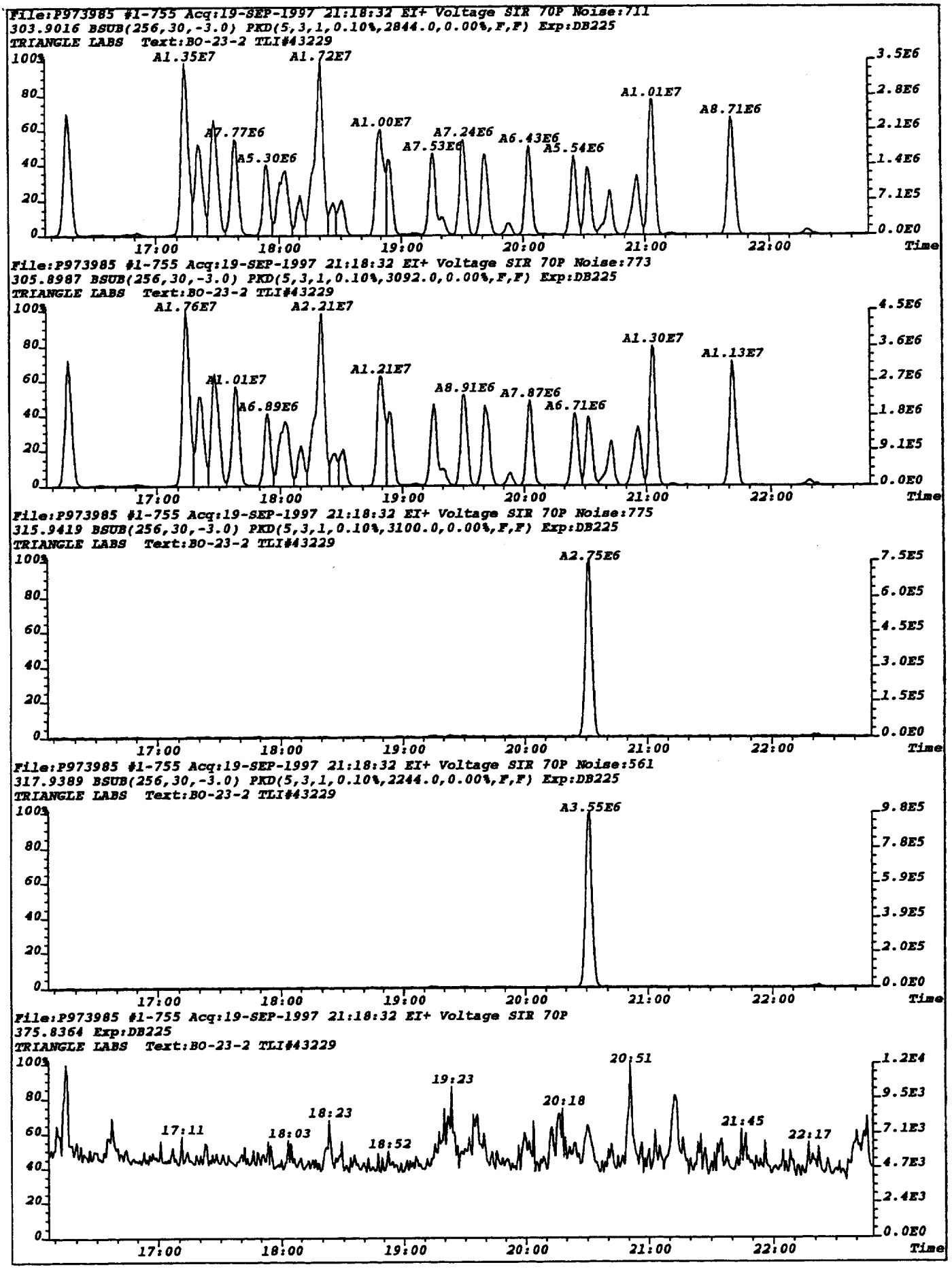
Page No. 1 Listing of P973985B.dbf
09/22/97 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.786-1.095			
304-306	DC	NL		0:00	RO	0.92	2.74			0.000			
				16:17		0.79	2,082.99	920.61	1,162.38	0.794			
				16:33	RO	1.11	25.40	15.92	14.35	0.807			
				16:42	RO	0.63	4.80	2.09	3.30	0.814			
				16:51		0.65	59.34	23.37	35.97	0.821			
				17:14		0.77	3,108.58	1,351.82	1,756.76	0.840			
				17:20		0.80	1,849.96	820.43	1,029.53	0.845			
				17:28		0.80	2,295.58	1,017.92	1,277.66	0.851			
				17:38		0.77	1,790.51	777.04	1,013.47	0.859			
				17:54		0.77	1,219.48	530.23	689.25	0.872			
				18:03		0.78	1,798.44	786.89	1,011.55	0.880			
				18:10		0.77	702.04	306.00	396.04	0.885			
				18:20		0.78	3,928.30	1,721.51	2,206.79	0.894			
				18:26		0.65	506.92	198.91	308.01	0.898			
				18:30		0.87	613.61	286.17	327.44	0.902			
	DC	SN		18:39		0.81	2.15			0.909			
				18:50		0.83	2,205.38	999.72	1,205.66	0.918			
				18:53		0.69	1,208.89	492.49	716.40	0.920			
				19:07		0.70	61.20	25.28	35.92	0.932			
				19:16		0.79	1,708.01	753.08	954.93	0.939			
				19:31		0.81	1,614.76	723.93	890.83	0.951			
				19:41		0.79	1,506.20	664.26	841.94	0.959			
				19:53		0.78	195.25	85.57	109.68	0.969			
				20:03		0.82	1,430.61	643.11	787.50	0.977			
				20:11	RO	0.52	6.39	2.78	5.31	0.984			
				20:15		0.74	9.05	3.86	5.19	0.987			
				20:25		0.83	1,225.12	554.36	670.76	0.995			
				20:31		0.77	1,106.76	482.67	624.09	1.000	2378-TCDF		AN
				20:42		0.79	851.88	376.40	475.48	1.009			
				20:56		0.77	1,133.56	493.94	639.62	1.020			
				21:03		0.78	2,309.90	1,014.50	1,295.40	1.026			
				21:13		0.72	21.47	9.01	12.46	1.034			
	DC	SN		21:19	RO	0.43	2.41			1.039			
				21:42		0.77	2,004.78	871.11	1,133.67	1.058			
	DC	SN		21:56	RO	0.50	1.63			1.069			
				22:19		0.77	96.57	42.05	54.52	1.088			
	DC	WH		22:48	RO	1.21	3.79			1.111			
304-306			32	Peaks			38,681.73						
13C12-TCDF				0.65-0.89						0.951-1.049			
316-318	DC	NL		0:00	RO	1.38	1.98			0.000			
	DC	WL		19:15	RO	1.07	3.66			0.938			
				20:31		0.78	629.63	275.07	354.56	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		21:02	RO	1.43	0.90			1.025			
	DC	SN		21:07	RO	1.03	1.29			1.029			
	DC	SN		21:29	RO	1.84	0.57			1.047			
	DC	WH		21:39	RO	2.37	0.34			1.055			
	DC	WH		22:22		0.87	5.15			1.090			
316-318			1 Peak				629.63						
---------- Above: TCDF / TCDD Follows ----------													
13C12-TCDD						0.65-0.89				0.897-1.103			
332-334	DC	NL		0:00	RO	2.27	1.17			0.000			
	DC	SN		17:40		0.78	1.14			0.914			
	DC	SN		18:18	RO	0.31	0.83			0.947			
				19:20		0.82	472.72	212.59	260.13	1.000	13C12-2378-TCDD	IS1	
				19:33		0.81	936.97	418.99	517.98	1.011	13C12-1234-TCDD	RS1	
	DC	SN		19:59	RO	1.83	0.71			1.034			
				20:14	RO	0.98	6.71	3.72	3.79	1.047			
	DC	SN		21:16	RO	1.54	0.23			1.100			
	DC	WH		21:57	RO	3.40	0.27			1.135			
	DC	WH		22:08	RO	1.48	0.55			1.145			
332-334			3 Peaks				1,416.40						

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

*** End of Report ***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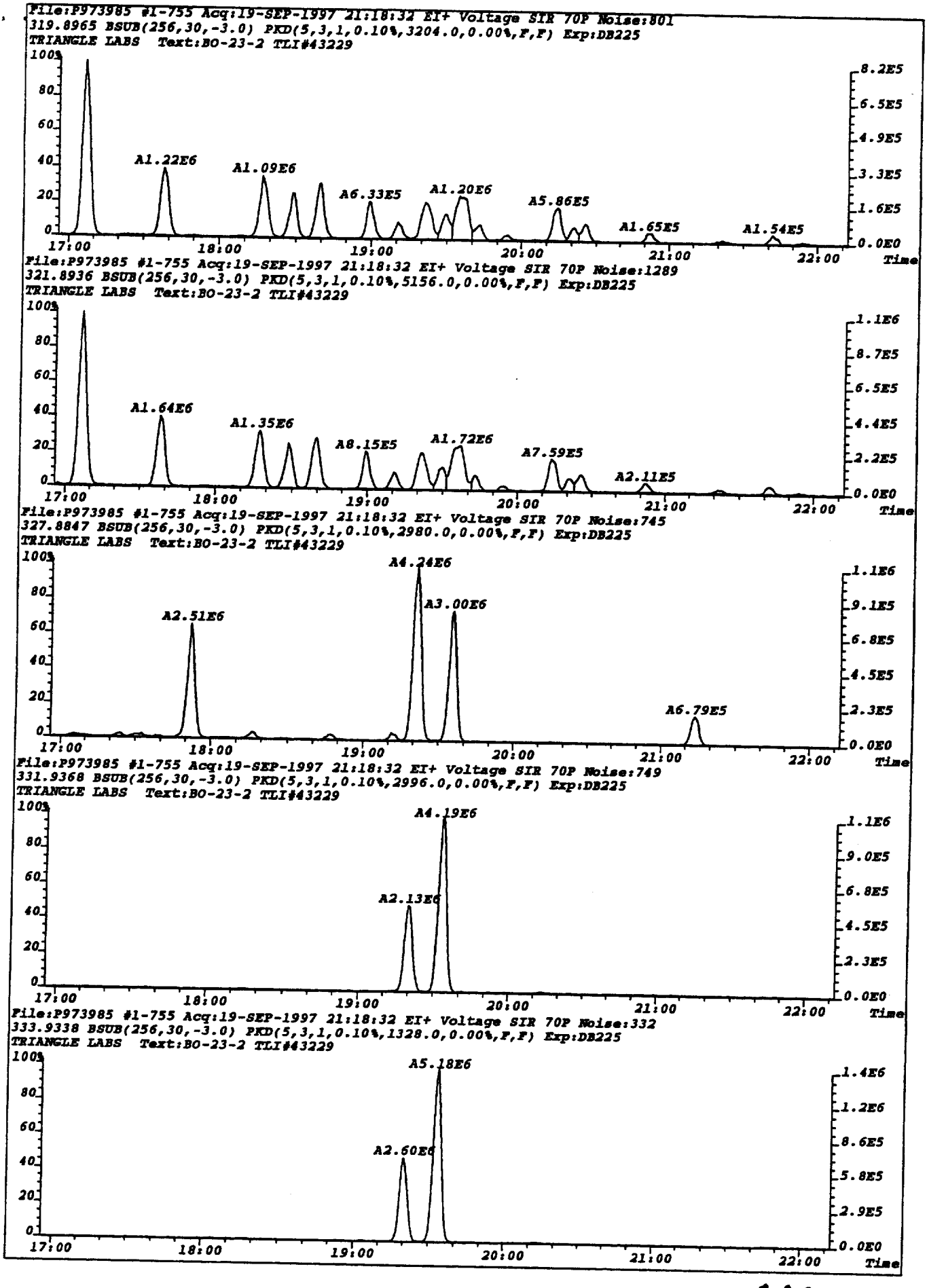
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2844.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A1.35E7
A1.72E7
A7.77E6
A5.30E6
A1.00E7
A7.53E6
A7.24E6
A6.43E6
A5.54E6
A1.01E7
A8.71E6
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:773
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3092.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A1.76E7
A2.21E7
A1.01E7
A6.89E6
A1.21E7
A8.91E6
A7.87E6
A6.71E6
A1.30E7
A1.13E7
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:775
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3100.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A2.75E6
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:561
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2244.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A3.55E6
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
17:11
18:03
18:23
18:52
19:23
20:18
20:51
21:45
22:17
Time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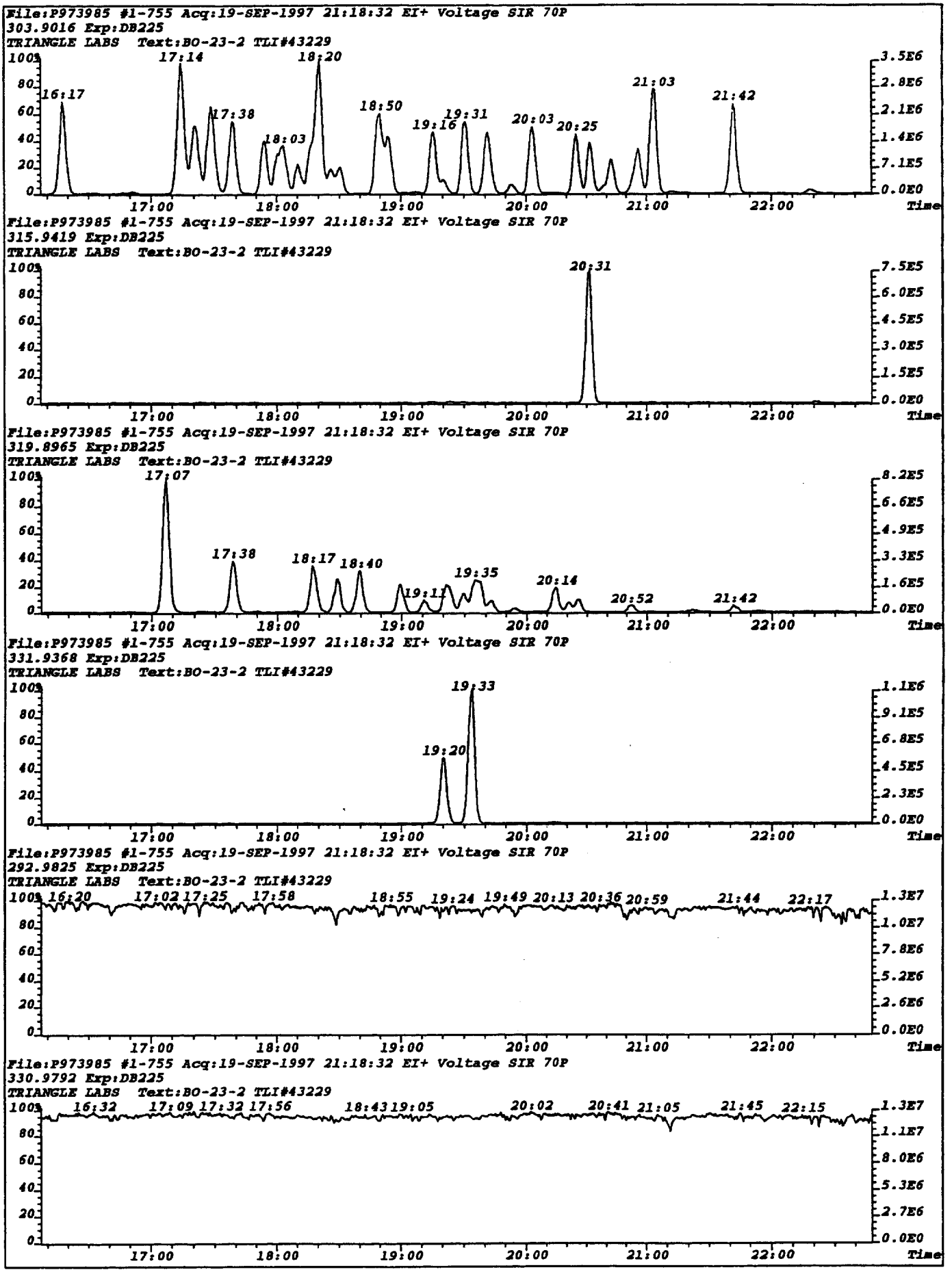
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3204.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A1.22E6
A1.09E6
A6.33E5
A1.20E6
A5.86E5
A1.65E5
A1.54E5
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:1289
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,5156.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A1.64E6
A1.35E6
A8.15E5
A1.72E6
A7.59E5
A2.11E5
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:745
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2980.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A2.51E6
A4.24E6
A3.00E6
A6.79E5
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:749
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2996.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A4.19E6
A2.13E6
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P Noise:332
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1328.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
A5.18E6
A2.60E6
17:00
18:00
19:00
20:00
21:00
22:00
Time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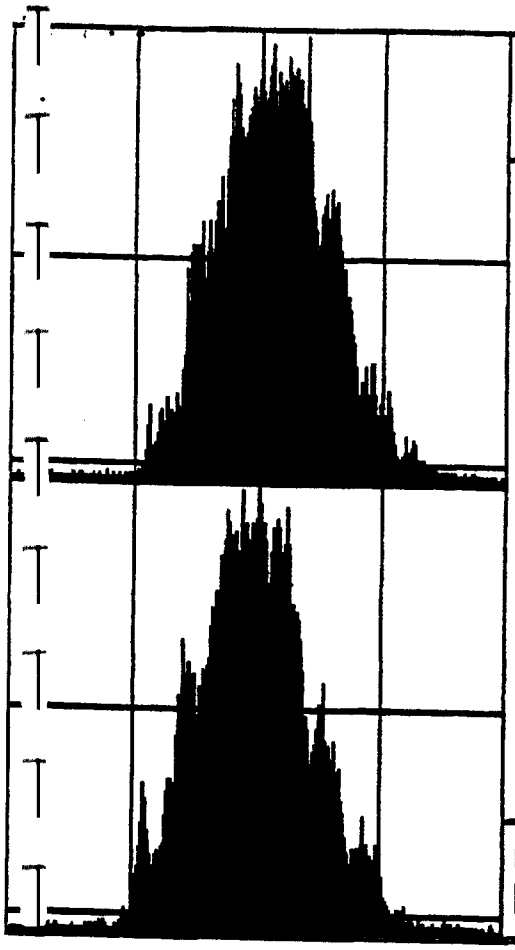
303.9016 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
16:17
17:14
17:38
18:03
18:20
18:50
19:16
19:31
20:03
20:25
21:03
21:42
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
20:31
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
17:07
17:38
18:17
18:40
19:11
19:35
20:14
20:52
21:42
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
19:20
19:33
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
16:20
17:02
17:25
17:58
18:55
19:24
19:49
20:13
20:36
20:59
21:44
22:17
File:P973985 #1-755 Acq:19-SEP-1997 21:18:32 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:BO-23-2 TLI#43229
16:32
17:09
17:32
17:56
18:43
19:05
20:02
20:41
21:05
21:45
22:15
17:00
18:00
19:00
20:00
21:00
22:00
Time



Ref. mass 292.9825 Peak top
Height 2.10 volts Span 200 ppm

System file name	DB225
Data file name	A:P973005
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 1.95 volts Span 200 ppm

Pacific Environmental Services

TLI Project: 43229
Client Sample: BO-23-3

Method 23 PCDD/PCDF Analysis (a)
Analysis File: T976377

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-4A-C	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.73			0.81	21:35	—
1,2,3,7,8-PeCDD	2.5			1.64	26:08	—
1,2,3,4,7,8-HxCDD	1.1			1.27	29:21	—
1,2,3,6,7,8-HxCDD	2.2			1.18	29:27	—
1,2,3,7,8,9-HxCDD	2.5			1.19	29:43	PR
1,2,3,4,6,7,8-HpCDD	3.2			1.02	32:15	—
1,2,3,4,6,7,8,9-OCDD	EMPC		0.57			—
2,3,7,8-TCDF	48.1			0.82	20:49	—
1,2,3,7,8-PeCDF	13.8			1.55	25:00	—
2,3,4,7,8-PeCDF	18.8			1.54	25:46	—
1,2,3,4,7,8-HxCDF	18.6			1.29	28:36	PR
1,2,3,6,7,8-HxCDF	9.0			1.29	28:43	—
2,3,4,6,7,8-HxCDF	7.0			1.28	29:14	PR
1,2,3,7,8,9-HxCDF	0.75			1.13	29:56	—
1,2,3,4,6,7,8-HpCDF	7.3			1.04	31:24	—
1,2,3,4,7,8,9-HpCDF	1.3			1.17	32:35	—
1,2,3,4,6,7,8,9-OCDF	0.65			0.92	34:51	—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	33.2	11		34.0	—
Total PeCDD	30.2	9		45.3	—
Total HxCDD	22.6	7			—
Total HpCDD	6.0	2			—
Total TCDF	336	17			—
Total PeCDF	260	15		261	—
Total HxCDF	94.4	12			—
Total HpCDF	12.7	4			—

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Printed: 01:53 09/22/97

TLI Project: 43229
Client Sample: BO-23-3

Method 23 PCDD/PCDF Analysis (a)
Analysis File: T976377

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.6	64.4	40%-130%	0.78	20:46	—
$^{13}C_{12}$-2,3,7,8-TCDD	1.9	47.0	40%-130%	0.80	21:33	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.7	43.5	40%-130%	1.54	25:00	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.7	43.3	40%-130%	1.65	26:07	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.3	57.3	40%-130%	0.51	28:43	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.0	73.9	40%-130%	1.15	29:26	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.6	66.2	25%-130%	0.42	31:23	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.2	79.4	25%-130%	1.02	32:15	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	6.2	77.0	25%-130%	0.83	34:43	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	4.0	99.2	70%-140%		21:34	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.5	111	70%-140%	1.58	25:45	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	4.1	102	70%-140%	0.52	28:36	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.5	88.7	70%-140%	1.22	29:20	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.5	113	70%-140%	0.46	32:35	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.8	70.8	40%-130%	0.50	29:55	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.7	66.5	40%-130%	0.49	29:13	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	21:21	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	29:43	—

Data Reviewer: VC 09/22/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 01:53 09/22/97

Initial ....Date...

Data Review By: VC 9/22/97 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 T976377B.dbf
09/22/97 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				0.826-1.097			
304-306				17:20.		0.82	1,924.37	869.65	1,054.72	0.835			
				17:49.		0.85	1,146.22	525.30	620.92	0.858			
				18:04.		0.81	623.34	278.78	344.56	0.870			
				18:29.		0.83	6,530.25	2,958.93	3,571.32	0.890			
				18:48.		0.83	4,066.75	1,840.67	2,226.08	0.905			
				19:19.		0.82	3,998.46	1,796.33	2,202.13	0.930			
				19:37.		0.83	2,919.24	1,326.78	1,592.46	0.945			
				19:53.		0.82	2,621.59	1,183.69	1,437.90	0.957			
				20:05.		0.81	1,461.37	652.04	809.33	0.967			
				20:19.		0.84	1,694.45	773.56	920.89	0.978			
				20:34.		0.84	1,508.92	687.80	821.12	0.990			
				20:49.		0.82	5,651.19	2,540.57	3,110.62	1.002	2378-TCDF		AN
				21:15.		0.81	2,534.43	1,137.68	1,396.75	1.023			
				21:29.		0.83	2,486.50	1,129.89	1,356.61	1.035			
				21:44.		0.84	177.37	81.15	96.22	1.047			
				21:54.		0.84	15.55	7.08	8.47	1.055			
				22:38.		0.81	129.00	57.86	71.14	1.090			
	DC	WH	22:55	RO	1.07		43.26			1.104			
304-306			17 Peaks				39,489.00						
13C12-TCDF						0.65-0.89				0.952-1.048			
316-318	DC	NL	0:00	RO	3.28		1.08			0.000			
	DC	WL	17:44	RO	11.09		1.17			0.854			
			20:46		0.78		431.32	188.61	242.71	1.000	13C12-2378-TCDF		ISO
			21:29	RO	0.90		10.62	5.38	6.00	1.035			
	DC	WH	22:22	RO	1.48		0.78			1.077			
	DC	WH	22:43	RO	1.03		1.70			1.094			
316-318			2 Peaks				441.94						
---------- Above: TCDF / TCDD Follows ----------													
TCDD						0.65-0.89				0.861-1.056			
320-322	DC	NL	0:00	RO	1.70		1.36			0.000			
			18:44.		0.74		712.08	303.48	408.60	0.869			
			19:10.		0.79		266.14	117.71	148.43	0.889			
			19:31.		0.77		152.02	66.20	85.82	0.906			
			20:16.		0.75		420.99	180.87	240.12	0.940			
M			20:34.		0.77		272.00	118.00	154.00	0.954			
			21:00.		0.77		131.71	57.39	74.32	0.974			
			21:22.		0.82		190.01	85.86	104.15	0.991			
			21:27.		0.78		235.48	102.83	132.65	0.995			
			21:35.		0.81		57.60	25.84	31.76	1.002	2378-TCDD		AN
			21:44.		0.69		49.71	20.30	29.41	1.009			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				21:56		0.78	121.36	53.37	67.99	1.018			
				22:10	RO	0.94	31.63	16.81	17.87	1.029			
				22:39	RO	0.61	26.89	11.70	19.17	1.051			
	DC	WH		22:56	RO	0.42	0.60			1.064			
320-322			13 Peaks				2,667.62						
37Cl-TCDD										0.907-1.093			
328	DC	WL		18:44			4.54			0.869			
	DC	WL		19:04			35.12			0.885			
	DC	WL		19:12			24.57			0.891			
	DC	WL		19:32			0.63			0.906			
				20:05			1,153.04	1,153.04		0.932			
				20:19			2.75	2.75		0.943			
	DC	SN		20:28			1.30			0.950			
	DC	SN		20:36			1.10			0.956			
				21:00			2.86	2.86		0.974			
				21:34			240.70	240.70		1.001	37Cl-TCDD		SUR1
	DC	SN		21:50			0.67			1.013			
				22:02			96.03	96.03		1.022			
	DC	SN		23:02			1.17			1.069			
328			5 Peaks				1,495.38						
13C12-TCDD						0.65-0.89				0.907-1.093			
332-334	DC	NL		0:00	RO	2.55	1.68			0.000			
	DC	WL		18:39	RO	12.72	0.44			0.865			
	DC	WL		19:11		0.85	2.98			0.890			
	DC	WL		19:28	RO	2.65	0.65			0.903			
	DC	SN		19:54		0.89	2.61			0.923			
	DC	SN		20:08	RO	1.62	2.00			0.934			
	DC	SN		20:17	RO	3.22	0.96			0.941			
	DC	SN		20:28	RO	1.84	2.85			0.950			
	DC	SN		20:40	RO	2.50	2.07			0.959			
	DC	SN		20:45	RO	6.14	0.89			0.963			
	DC	SN		21:02	RO	1.82	2.42			0.976			
				21:21		0.86	518.04	239.48	278.56	0.991	13C12-1234-TCDD		RS1
				21:33		0.80	265.79	118.03	147.76	1.000	13C12-2378-TCDD		IS1
				21:54	RO	1.61	5.22	4.75	2.95	1.016			
332-334			3 Peaks				789.05						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF						1.32-1.78				0.909-1.075			
340-342				22:54		1.57	2,069.63	1,262.89	806.74	0.916			
				23:13		1.40	45.22	26.37	18.85	0.929			
				23:36	RO	1.16	36.51	22.19	19.09	0.944			
				23:58		1.51	1,372.33	824.87	547.46	0.959			
				24:07		1.51	6,777.92	4,074.47	2,703.45	0.965			
				24:17		1.52	1,375.96	830.27	545.69	0.971			
				24:31		1.51	648.01	389.46	258.55	0.981			
				24:43		1.52	1,627.72	981.04	646.68	0.989			
	A			24:55		1.56	336.00	205.00	131.00	0.997			
	M			25:00		1.55	1,039.00	631.00	408.00	1.000	12378-PeCDF		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.
				25:11		1.56	725.38	441.62	283.76	1.007			
				25:19		1.54	909.39	550.69	358.70	1.013			
				25:46		1.54	1,463.69	886.42	577.27	1.031	23478-PeCDF		AN
				25:54		1.54	1,369.11	830.86	538.25	1.036			
				26:13		1.51	82.24	49.54	32.70	1.049			
				26:44		1.43	117.39	69.18	48.21	1.069			
	DC	WH		26:56	RO	0.99	5.15			1.077			
340-342			16 Peaks				19,995.50						
13C12-PeCDF					1.32-1.78					0.840-1.160			
352-354	DC	SN		22:52	RO	2.12	1.99			0.915			
	DC	SN		23:16		1.40	2.06			0.931			
	DC	SN		23:23	RO	3.84	0.79			0.935			
	DC	SN		23:45	RO	5.64	0.92			0.950			
	DC	SN		24:07	RO	2.75	3.49			0.965			
	DC	SN		24:20	RO	0.49	1.07			0.973			
				25:00		1.54	277.66	168.48	109.18	1.000	13C12-PeCDF 123		IS2
				25:45		1.58	315.09	192.89	122.20	1.030	13C12-PeCDF 234		SUR2
	DC	SN		26:03	RO	44.38	1.33			1.042			
	DC	SN		26:10	RO	3.62	1.35			1.047			
	DC	SN		26:17	RO	8.69	1.40			1.051			
	DC	SN		26:52	RO	4.46	1.38			1.075			
	DC	SN		27:10	RO	0.21	0.12			1.087			
352-354			2 Peaks				592.75						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD					1.32-1.78					0.922-1.025			
356-358				24:15	RO	0.96	728.20	442.63	461.14	0.929			
	DC	SN		24:32	RO	0.01	0.51			0.939			
				24:44		1.37	72.51	41.88	30.63	0.947			
				25:01		1.56	455.80	277.65	178.15	0.958			
				25:09		1.56	129.86	79.05	50.81	0.963			
				25:20		1.57	307.10	187.76	119.34	0.970			
				25:35		1.58	212.95	130.40	82.55	0.980			
				25:49		1.51	88.41	53.17	35.24	0.989			
				25:57	RO	1.00	40.36	24.53	24.45	0.994			
				26:08		1.64	128.05	79.52	48.53	1.001	12378-PeCDD		AN
				26:16		1.60	71.24	43.86	27.38	1.006			
				26:36		1.69	66.57	41.82	24.75	1.019			
	DC	WH		27:08	RO	1.00	0.54			1.039			
356-358			11 Peaks				2,301.05						
13C12-PeCDD					1.32-1.78					0.847-1.153			
368-370	DC	SN		24:45	RO	3.22	0.23			0.948			
	DC	SN		25:28	RO	0.90	1.84			0.975			
	DC	SN		25:39		1.46	3.15			0.982			
	DC	SN		25:48	RO	0.82	1.60			0.988			
	DC	SN		25:57	RO	0.63	1.22			0.994			
				26:07		1.65	162.29	101.10	61.19	1.000	13C12-PeCDD 123		IS3
				26:15		1.46	16.69	9.91	6.78	1.005			
				26:59	RO	0.42	6.65	4.04	9.60	1.033			

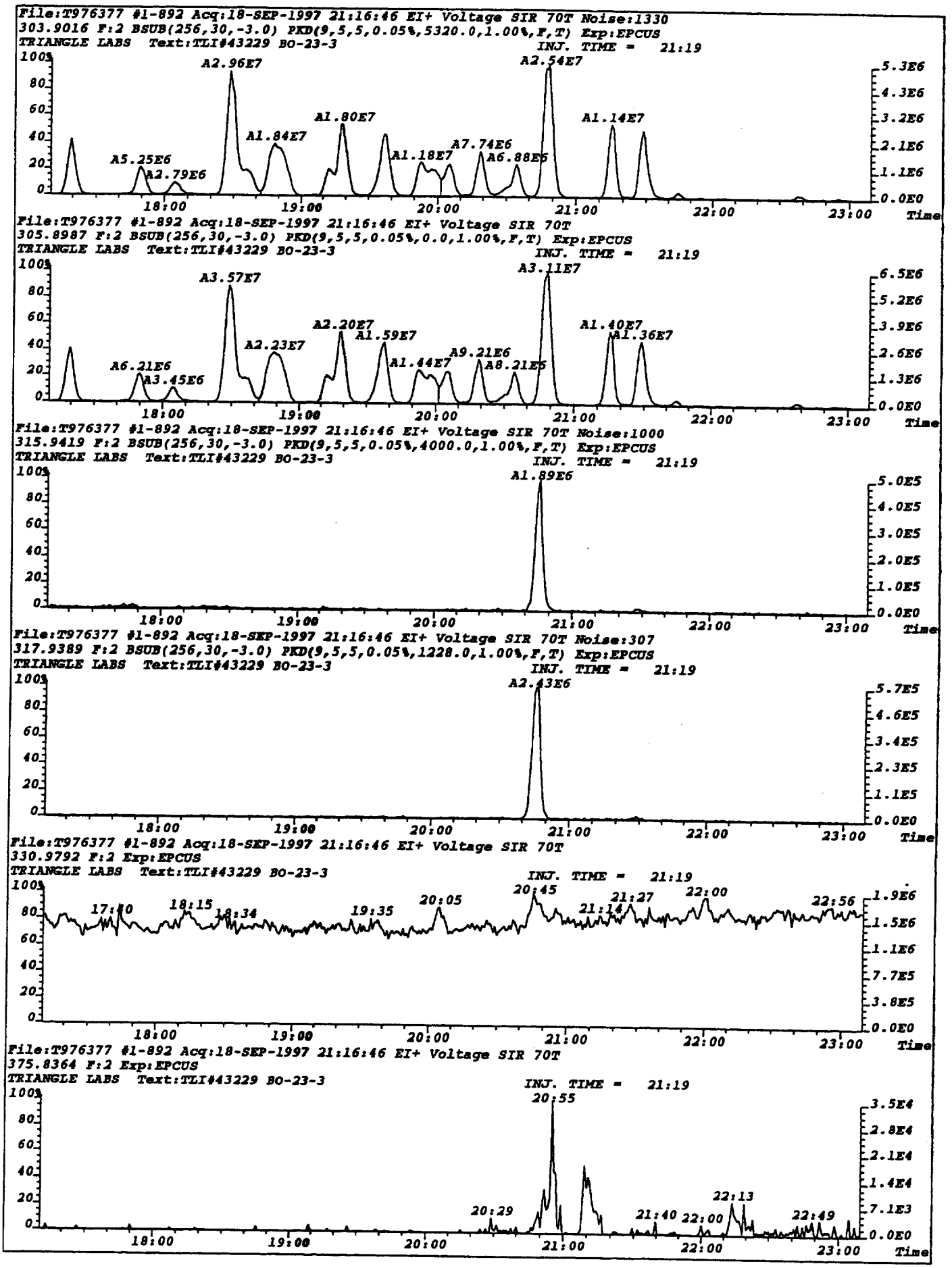
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
368-370				3 Peaks			185.63						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF						1.05-1.43				0.956-1.050			
374-376	DC	NL		0:00	RO	2.72	4.68			0.000			
				27:37		1.31	662.05	375.69	286.36	0.962			
				27:46		1.30	2,722.52	1,537.51	1,185.01	0.967			
				27:55		1.31	291.01	165.05	125.96	0.972			
				28:04		1.26	451.79	251.89	199.90	0.977			
				28:14		1.32	151.26	86.12	65.14	0.983			
				28:36		1.29	1,530.59	863.58	667.01	0.996	123478-HxCDF		AN
				28:43		1.29	923.02	519.86	403.16	1.000	123678-HxCDF		AN
				28:50		1.24	187.38	103.86	83.52	1.004			
				29:02		1.27	436.18	244.24	191.94	1.011			
				29:14		1.28	579.28	325.04	254.24	1.018	234678-HxCDF		AN
				29:56		1.13	55.67	29.49	26.18	1.042	123789-HxCDF		AN
				30:00		1.30	118.06	66.82	51.24	1.045			
374-376				12 Peaks			8,108.81						
13C12-HxCDF						0.43-0.59				0.861-1.139			
384-386	DC	NL		0:00	RO	2.28	1.03			0.000			
	DC	SN		27:33	RO	3.56	0.24			0.959			
	DC	SN		27:45	RO	0.16	0.21			0.966			
	DC	SN		28:12	RO	0.96	0.80			0.982			
				28:36		0.52	287.59	98.00	189.59	0.996	13C12-HxCDF 478		SUR3
				28:43		0.51	301.75	101.52	200.23	1.000	13C12-HxCDF 678		IS4
	DC	SN		29:01	RO	1.06	3.49			1.010			
				29:13		0.49	332.49	110.05	222.44	1.017	13C12-HxCDF 234		ALT2
	DC	SN		29:36		0.47	5.16			1.031			
	DC	SN		29:43	RO	0.40	2.75			1.035			
				29:55		0.50	287.82	96.52	191.30	1.042	13C12-HxCDF 789		ALT1
384-386				4 Peaks			1,209.65						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD						1.05-1.43				0.951-1.014			
390-392	DC	NL		0:00	RO	1.47	1.48			0.000			
	DC	SN		27:59		1.22	2.62			0.951			
				28:09		1.22	214.61	117.99	96.62	0.956			
	DC	SN		28:16	RO	1.02	0.85			0.960			
	DC	SN		28:27	RO	2.00	0.36			0.967			
	DC	SN		28:29	RO	0.88	0.83			0.968			
				28:37		1.27	527.51	295.41	232.10	0.972			
				28:50		1.22	467.87	257.26	210.61	0.980			
				28:59		1.22	39.28	21.58	17.70	0.985			
	DC	SN		29:14	RO	4.29	0.47			0.993			
				29:21		1.27	77.01	43.01	34.00	0.997	123478-HxCDD		AN
				29:27		1.18	169.87	91.81	78.06	1.001	123678-HxCDD		AN
				29:43		1.19	197.14	107.24	89.90	1.010	123789-HxCDD		AN
390-392				7 Peaks			1,693.29						

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-HxCDD				1.05-1.43						0.966-1.034			
402-404	DC	WL		28:00	RO	2.62	1.19			0.951			
	DC	SN		28:55	RO	1.62	0.29			0.982			
	DC	SN		29:01	RO	0.80	0.22			0.986			
	DC	SN		29:04	RO	0.54	0.34			0.988			
	DC	SN		29:14	RO	1.02	0.89			0.993			
				29:20		1.22	242.61	133.48	109.13	0.997	13C12-HxCDD 478		SUR4
				29:26		1.15	304.11	162.63	141.48	1.000	13C12-HxCDD 678		IS5
				29:43		1.20	436.30	237.74	198.56	1.010	13C12-HxCDD 789		RS2
	DC	SN		29:57	RO	1.02	1.88			1.018			
	DC	SN		30:01	RO	0.81	0.76			1.020			
	DC	SN		30:09	RO	0.86	1.84			1.024			
	DC	SN		30:13	RO	0.56	1.77			1.027			
402-404				3 Peaks			983.02						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF				0.88-1.20						0.994-1.042			
408-410	DC	NL		0:00	RO	1.78	1.18			0.000			
				31:24		1.04	765.76	390.13	375.63	1.001	1234678-HpCDF		AN
				31:37		1.08	193.43	100.25	93.18	1.007			
				31:44		1.07	151.42	78.10	73.32	1.011			
	DC	SN		32:16	RO	0.20	0.51			1.028			
				32:35		1.17	88.58	47.69	40.89	1.038	1234789-HpCDF		AN
408-410				4 Peaks			1,199.19						
13C12-HpCDF				0.37-0.51						0.936-1.127			
418-420				31:23		0.42	237.21	69.83	167.38	1.000	13C12-HpCDF 678		IS6
	DC	SN		31:42	RO	0.71	0.85			1.010			
	DC	SN		32:06	RO	0.65	1.12			1.023			
	DC	SN		32:20	RO	0.55	2.79			1.030			
				32:35		0.46	212.23	67.04	145.19	1.038	13C12-HpCDF 789		SUR5
418-420				2 Peaks			449.44						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD				0.88-1.20						0.976-1.005			
424-426				31:39		1.02	180.61	91.20	89.41	0.981			
	DC	SN		32:00	RO	4.95	0.45			0.992			
				32:15		1.02	203.25	102.71	100.54	1.000	1234678-HpCDD		AN
424-426				2 Peaks			383.86						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	SN		31:29	RO	2.28	0.73			0.976			
	DC	SN		31:44	RO	0.38	1.24			0.984			
				32:15		1.02	266.86	134.67	132.19	1.000	13C12-HpCDD 678		IS7
436-438				1 Peak			266.86						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF				0.76-1.02						0.885-1.115			
442-444	DC	SN		32:03	RO	1.40	0.28			0.923			

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		32:08	RO	4.00	0.32			0.926			
	DC	SN		32:52		0.91	0.61			0.947			
	DC	SN		33:02	RO	2.40	0.19			0.952			
	DC	SN		33:30	RO	0.46	3.82			0.965			
	DC	SN		33:51	RO	0.35	0.32			0.975			
	DC	SN		34:21	RO	2.33	0.17			0.989			
				34:51		0.92	38.96	18.71	20.25	1.004	OCDF		AN
	DC	SN		35:44	RO	0.64	0.19			1.029			
442-444		1	Peak				38.96						
OCDD				0.76-1.02						0.885-1.115			
458-460				34:43	RO	0.73	29.16	13.73	18.89	1.000	OCDD		AN
458-460		1	Peak				29.16						
13C12-OCDD				0.76-1.02						0.995-1.004			
470-472	DC	SN		34:33	RO	0.56	0.51			0.995			
				34:43		0.83	404.55	183.05	221.50	1.000	13C12-OCDD		IS8
	DC	WH		34:57	RO	0.55	2.70			1.007			
470-472		1	Peak				404.55						

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%,5320.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.96E7
A2.54E7
A1.80E7
A1.84E7
A1.14E7
A5.25E6
A2.79E6
A1.18E7
A7.74E6
A6.88E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A3.57E7
A3.11E7
A2.20E7
A1.59E7
A1.40E7
A1.36E7
A2.23E7
A6.21E6
A3.45E6
A1.44E7
A9.21E6
A8.21E6
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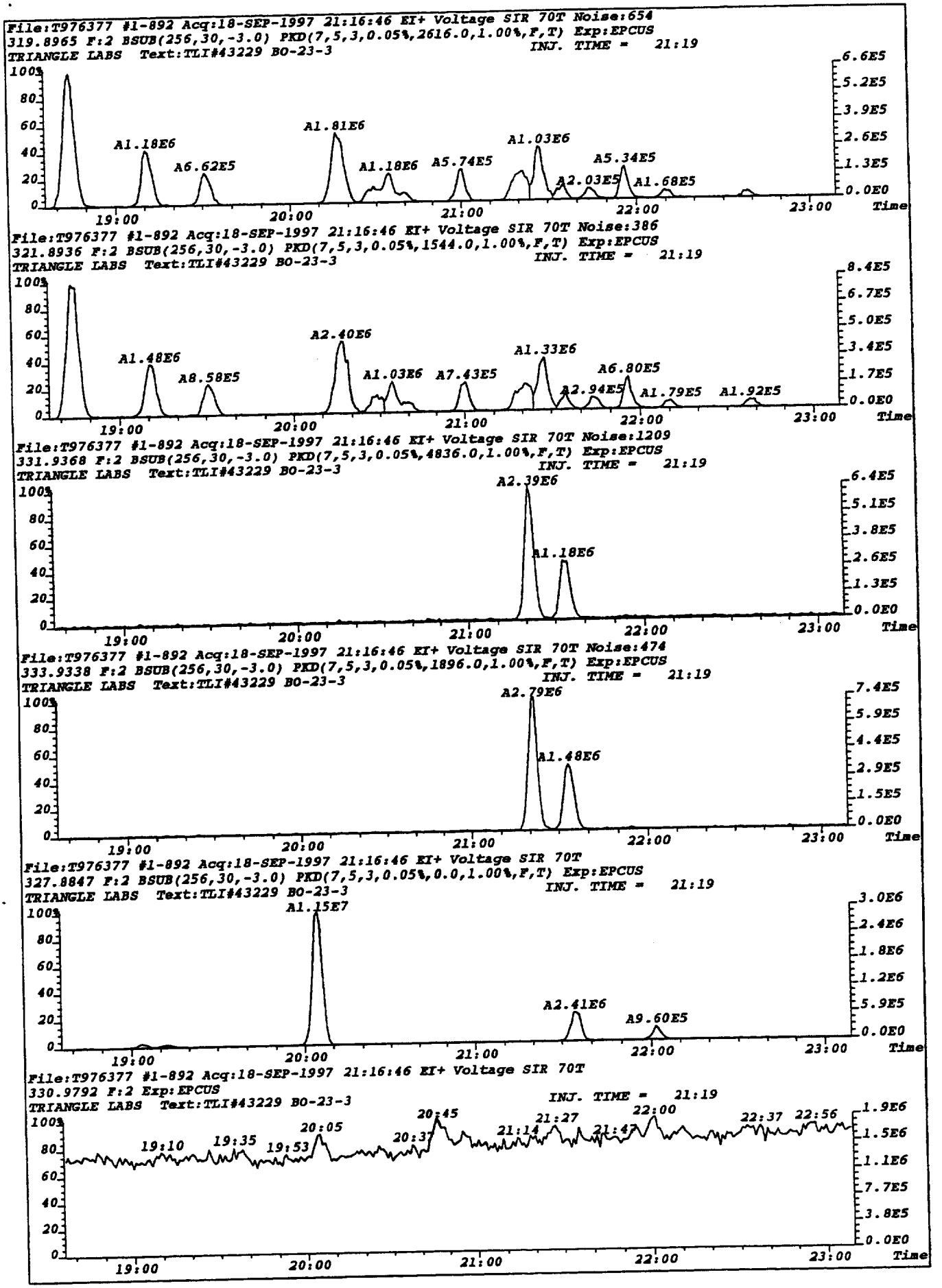
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,4000.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.89E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:307
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,1228.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.43E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
17:40
18:15
18:34
19:35
20:05
20:45
21:14
21:27
22:00
22:56
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
20:55
20:29
21:40
22:00
22:13
22:49
18:00
19:00
20:00
21:00
22:00
23:00
Time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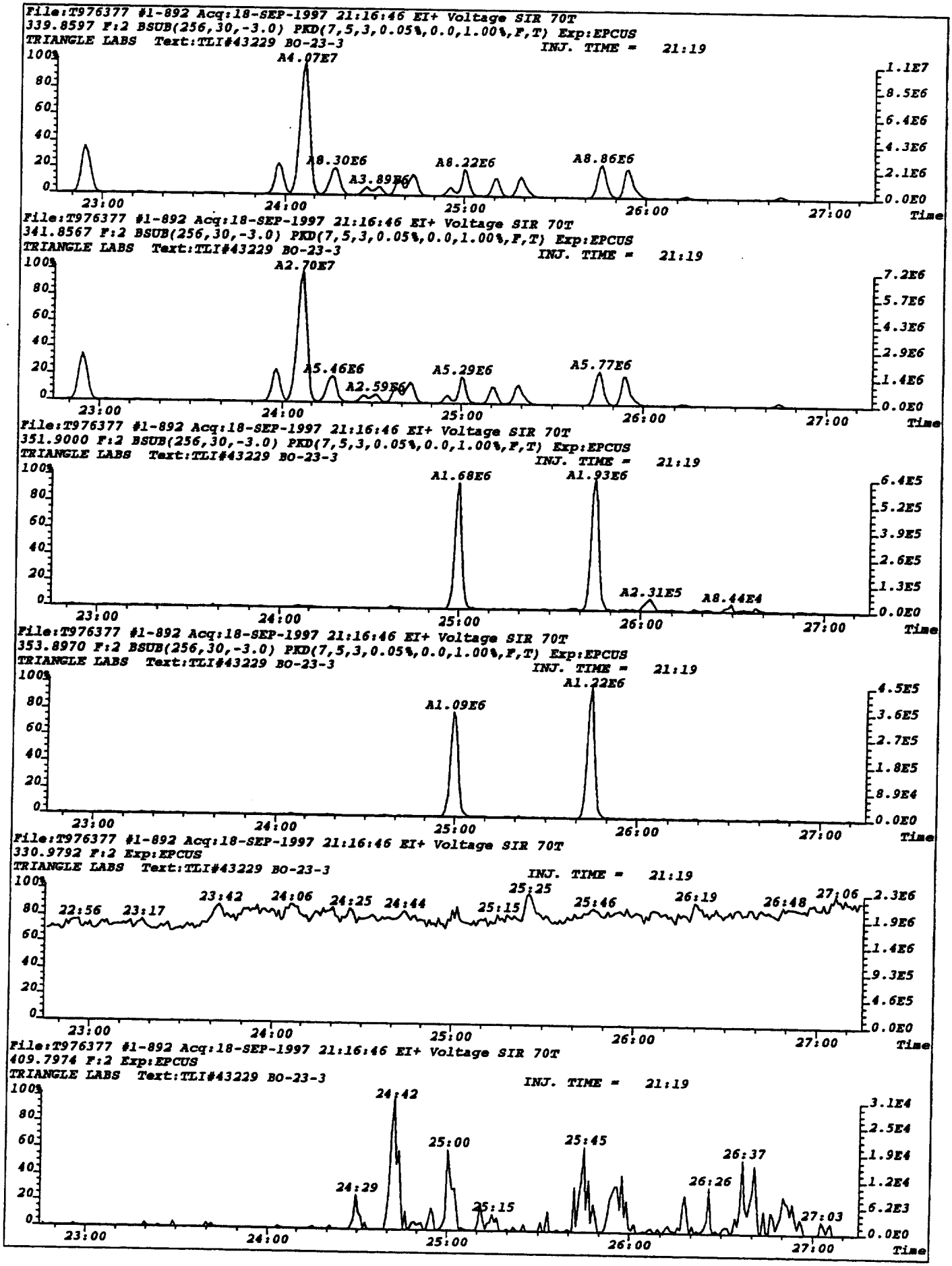
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2616.0,1.00%,F,T) Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
A1.18E6
A6.62E5
A1.81E6
A1.18E6
A5.74E5
A1.03E6
A2.03E5
A5.34E5
A1.68E5
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:386
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1544.0,1.00%,F,T) Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
A1.48E6
A8.58E5
A2.40E6
A1.03E6
A7.43E5
A1.33E6
A2.94E5
A6.80E5
A1.79E5
A1.92E5
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:1209
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4836.0,1.00%,F,T) Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
A2.39E6
A1.18E6
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:474
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1896.0,1.00%,F,T) Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
A2.79E6
A1.48E6
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
A1.15E7
A2.41E6
A9.60E5
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
INJ. TIME = 21:19
TRIANGLE LABS Text:TLI#43229 BO-23-3
19:10
19:35
19:53
20:05
20:37
20:45
21:14
21:27
21:47
22:00
22:37
22:56
Time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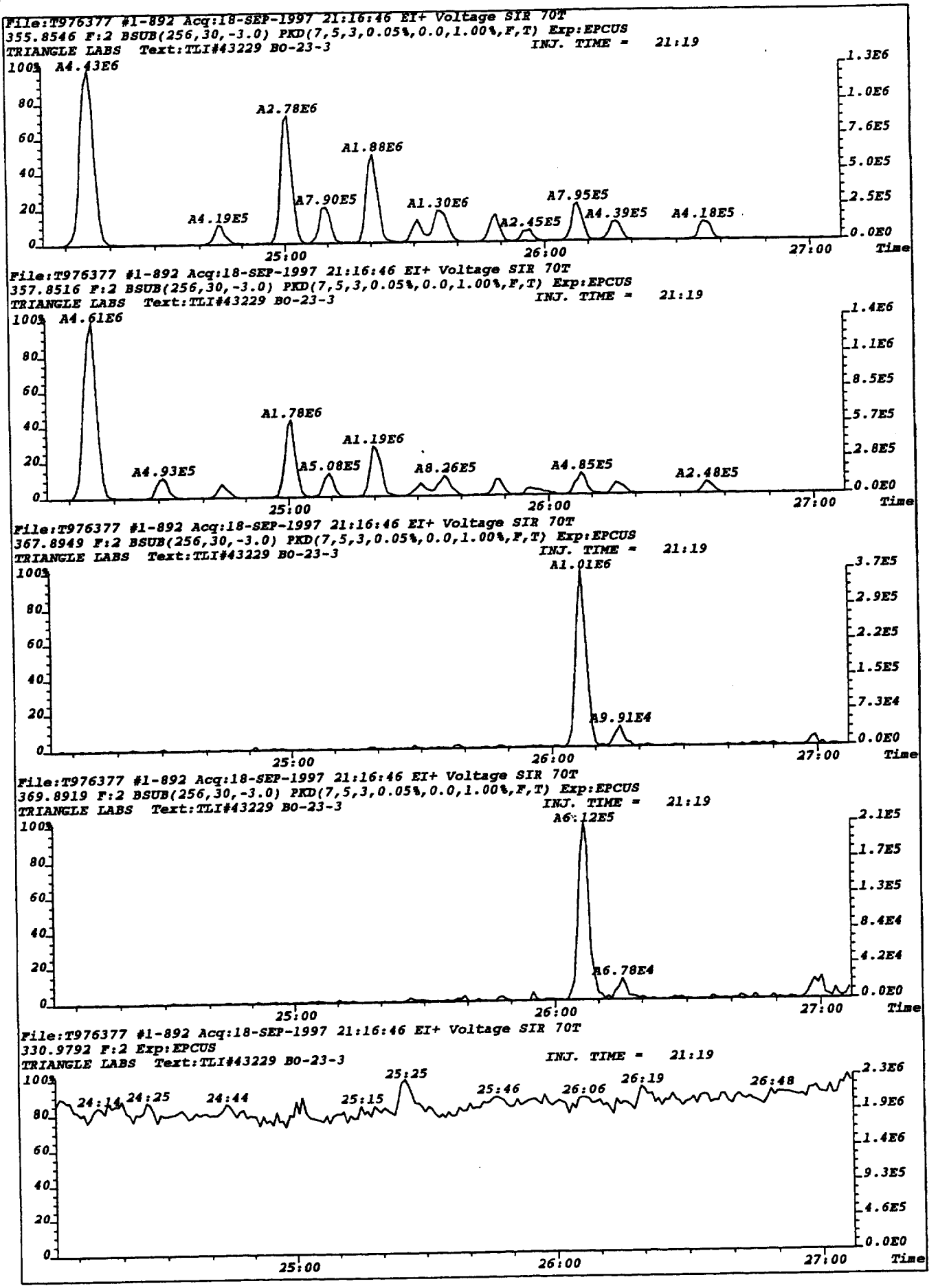
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A4.07E7
A8.30E6
A3.89E6
A8.22E6
A8.86E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.70E7
A5.46E6
A2.59E6
A5.29E6
A5.77E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.68E6
A1.93E6
A2.31E5
A8.44E4
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.09E6
A1.22E6
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
22:56
23:17
23:42
24:06
24:25
24:44
25:15
25:25
25:46
26:19
26:48
27:06
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
24:29
24:42
25:00
25:15
25:45
26:26
26:37
27:03
Time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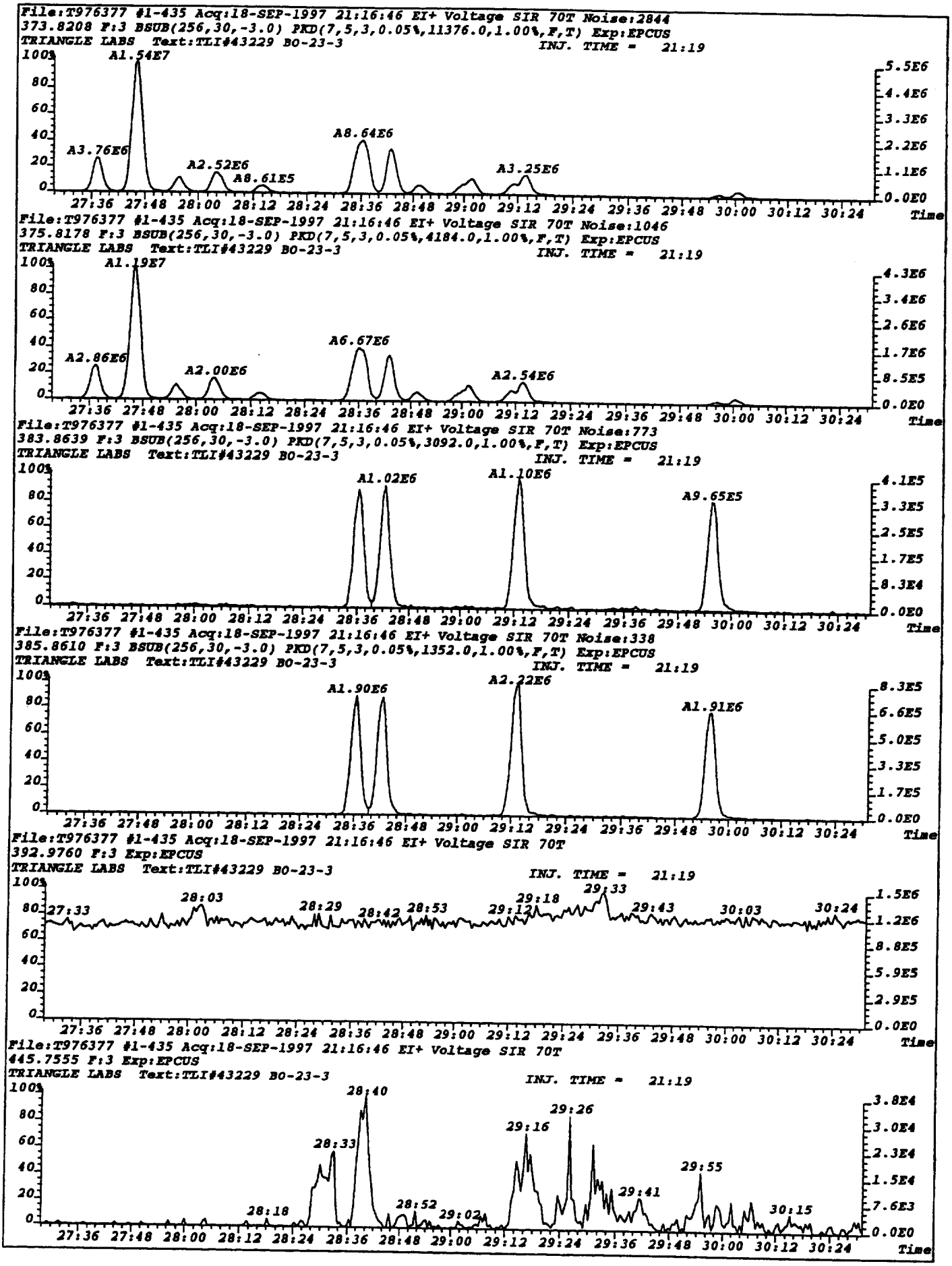
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A4.43E6
A2.78E6
A1.88E6
A4.19E5
A7.90E5
A1.30E6
A2.45E5
A7.95E5
A4.39E5
A4.18E5
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A4.61E6
A1.78E6
A1.19E6
A4.93E5
A5.08E5
A8.26E5
A4.85E5
A2.48E5
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.01E6
A9.91E4
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A6.12E5
A6.78E4
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
24:14
24:25
24:44
25:15
25:25
25:46
26:06
26:19
26:48
25:00
26:00
27:00
Time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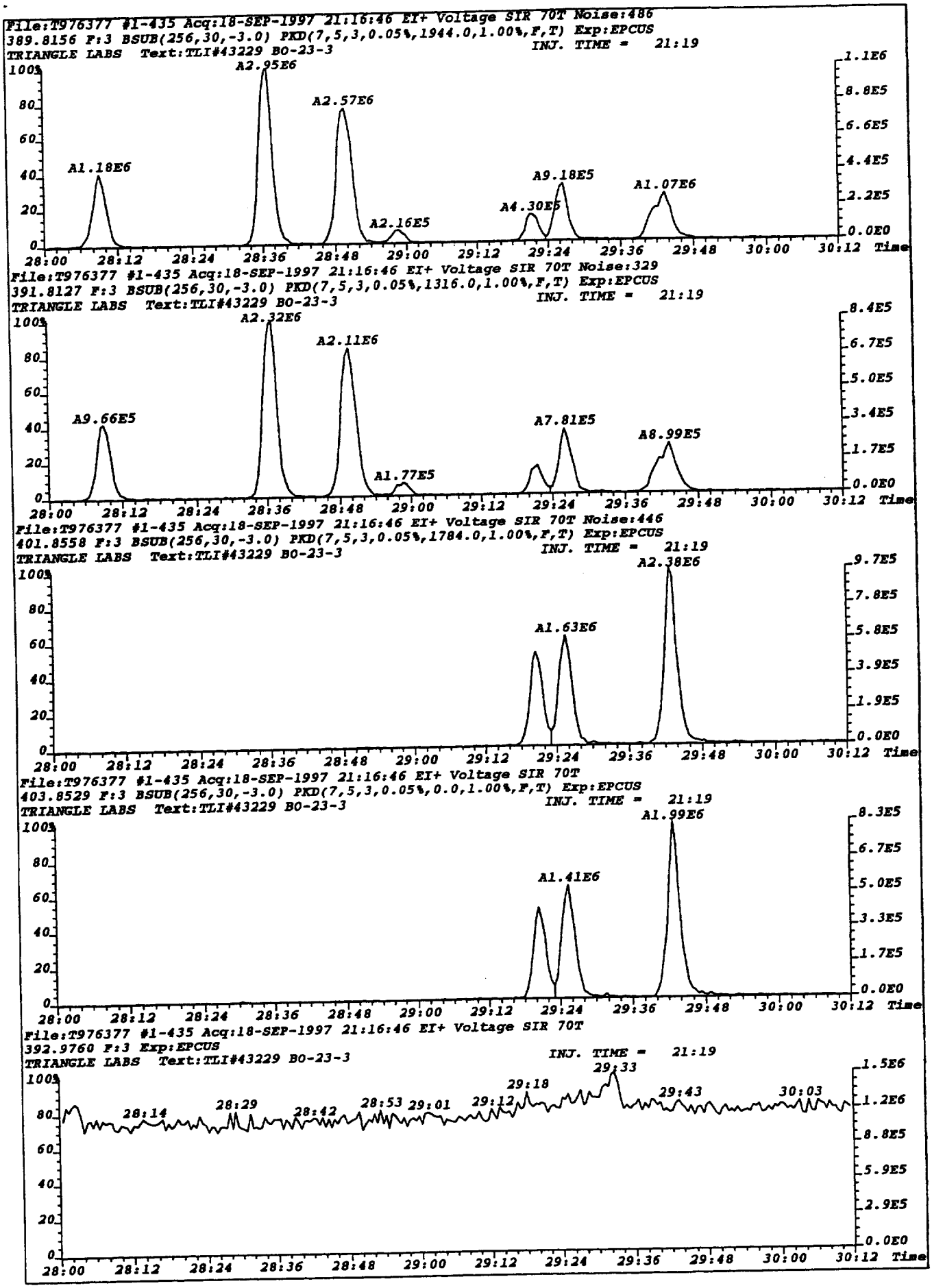
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,11376.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.54E7
A3.76E6
A2.52E6
A8.61E5
A8.64E6
A3.25E6
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:1046
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4184.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.19E7
A2.86E6
A2.00E6
A6.67E6
A2.54E6
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:773
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3092.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.02E6
A1.10E6
A9.65E5
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:338
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1352.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.90E6
A2.22E6
A1.91E6
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
Time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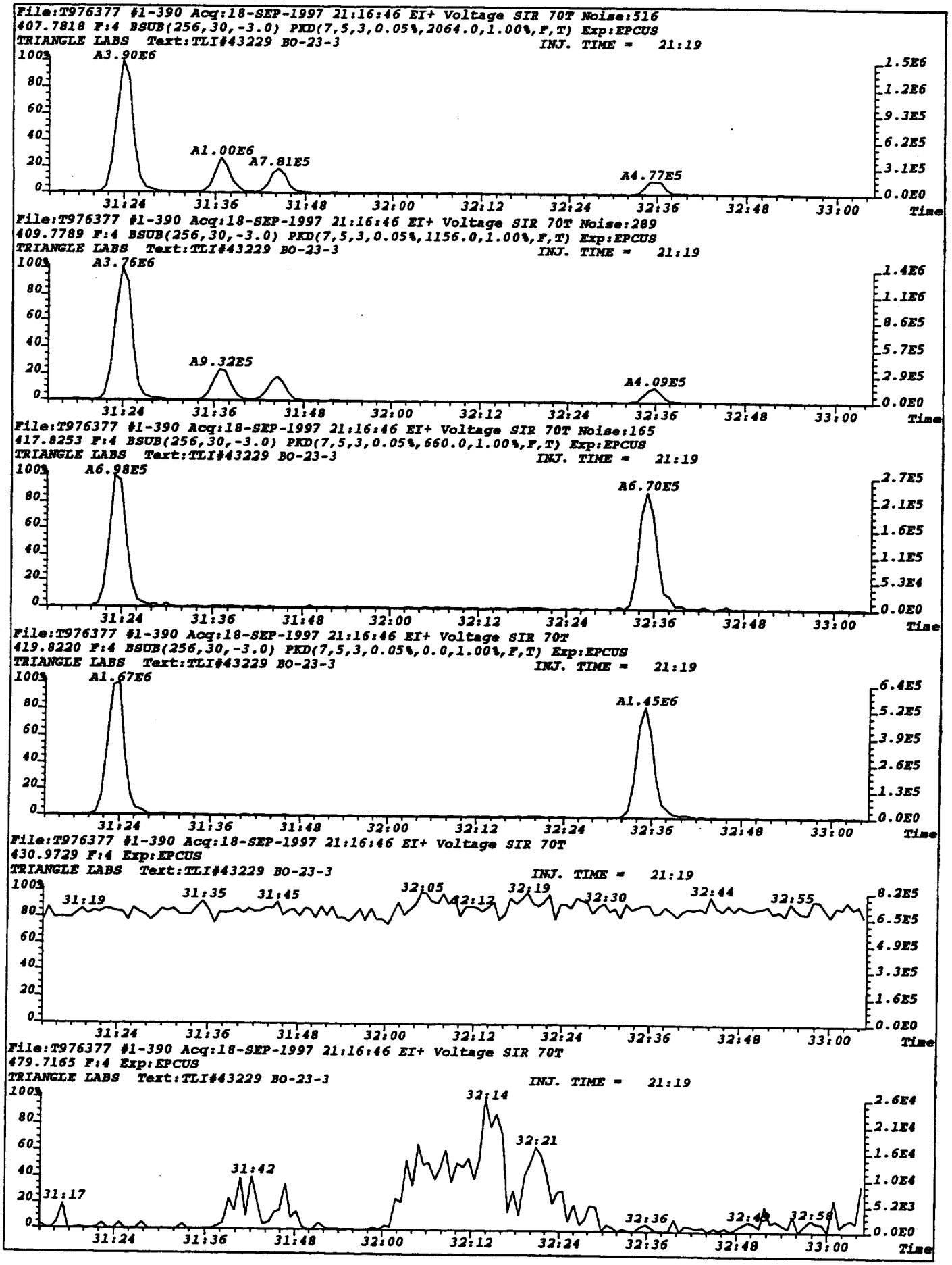
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1944.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.95E6
A2.57E6
A1.18E6
A9.18E5
A1.07E6
A4.30E5
A2.16E5
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:329
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1316.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.32E6
A2.11E6
A9.66E5
A7.81E5
A8.99E5
A1.77E5
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:446
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1784.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.38E6
A1.63E6
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.99E6
A1.41E6
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
28:14
28:29
28:42
28:53
29:01
29:12
29:18
29:33
29:43
30:03
Time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407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2064.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A3.90E6
A1.00E6
A7.81E5
A4.77E5
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:289
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A3.76E6
A9.32E5
A4.09E5
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:165
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,660.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A6.98E5
A6.70E5
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.67E6
A1.45E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
31:19
31:35
31:45
32:05
32:12
32:19
32:30
32:44
32:55
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
31:17
31:42
32:14
32:21
32:36
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32:48
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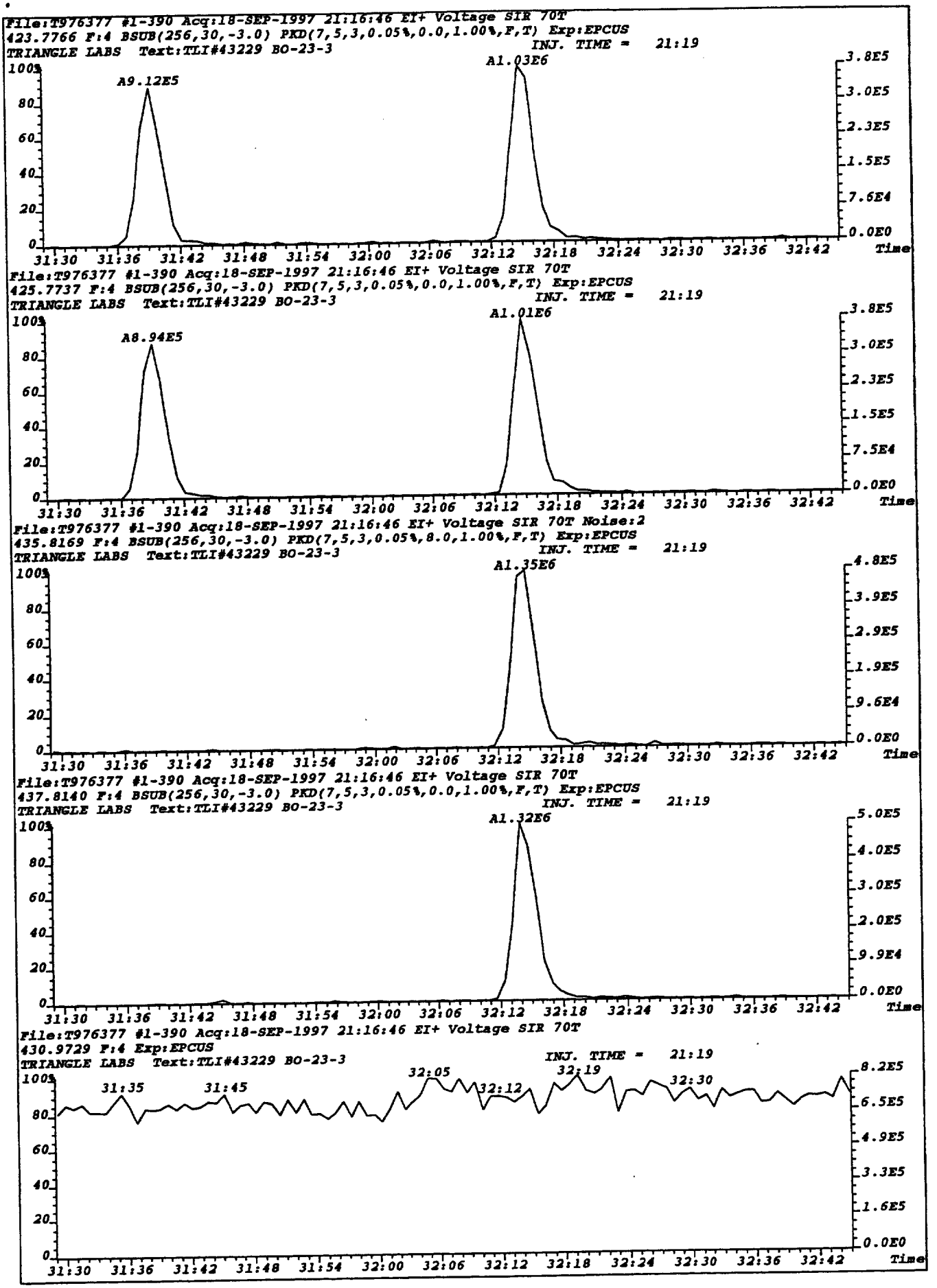
Time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423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A9.12E5
A1.03E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A8.94E5
A1.01E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T Noise:2
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,8.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.35E6
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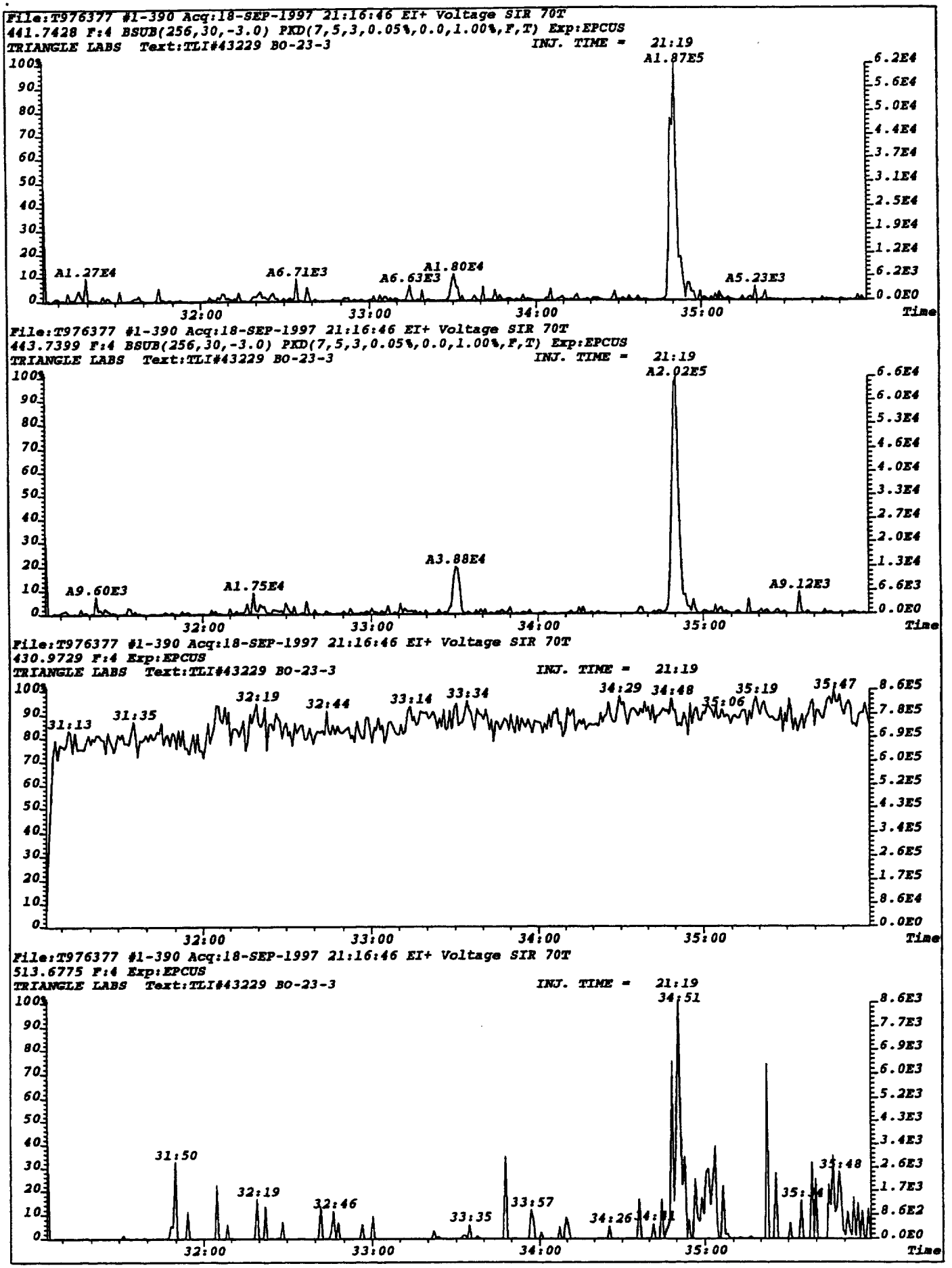
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.32E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
31:35
31:45
32:05
32:12
32:19
32:30
Time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441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.87E5
A1.27E4
A6.71E3
A6.63E3
A1.80E4
A5.23E3
Time
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.02E5
A9.60E3
A1.75E4
A3.88E4
A9.12E3
Time
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
31:13
31:35
32:19
32:44
33:14
33:34
34:29
34:48
35:06
35:19
35:47
Time
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
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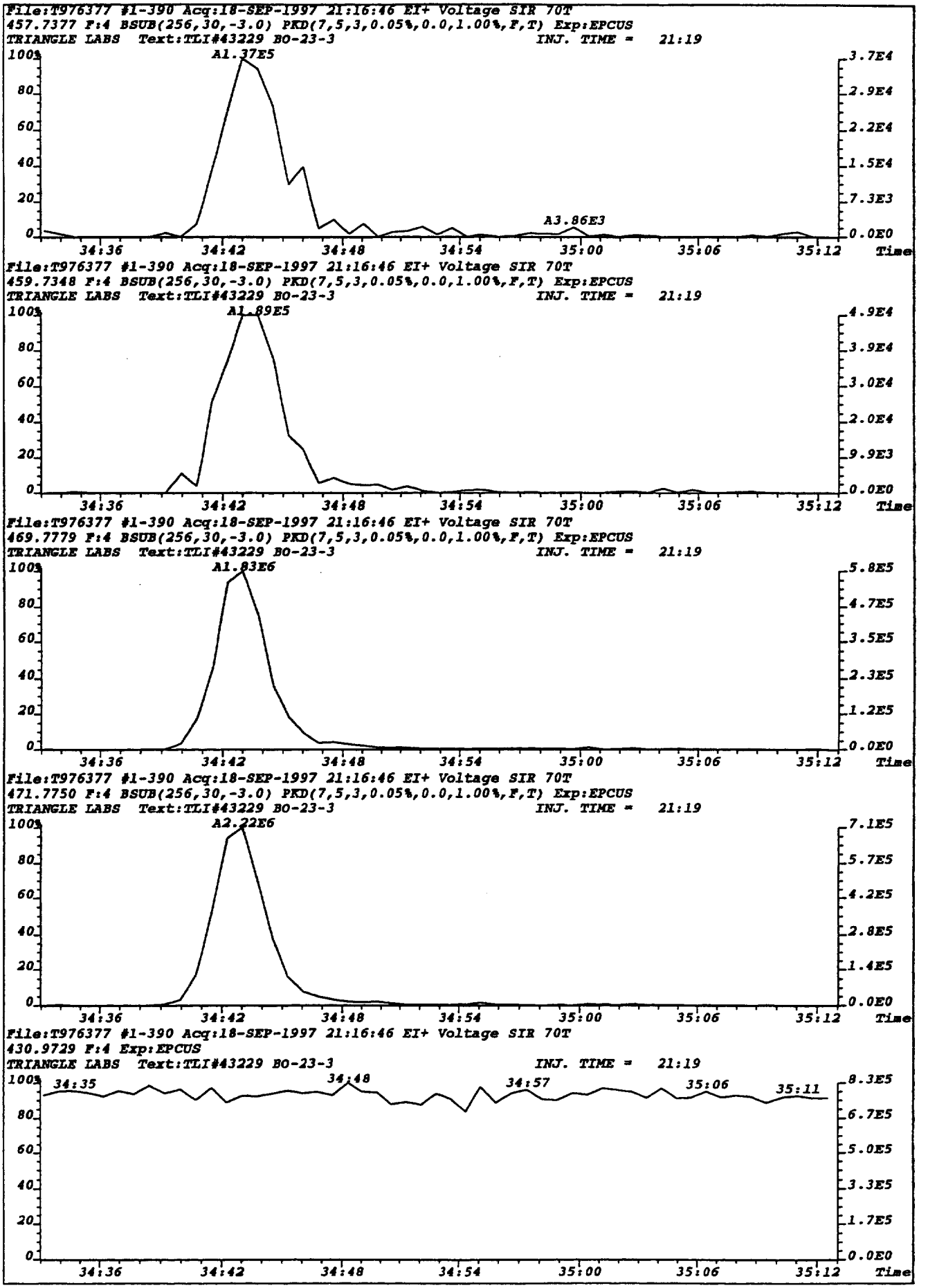
Time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457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.37E5
A3.86E3
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.89E5
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A1.83E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
A2.22E6
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 BO-23-3
INJ. TIME = 21:19
34:35
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35:06
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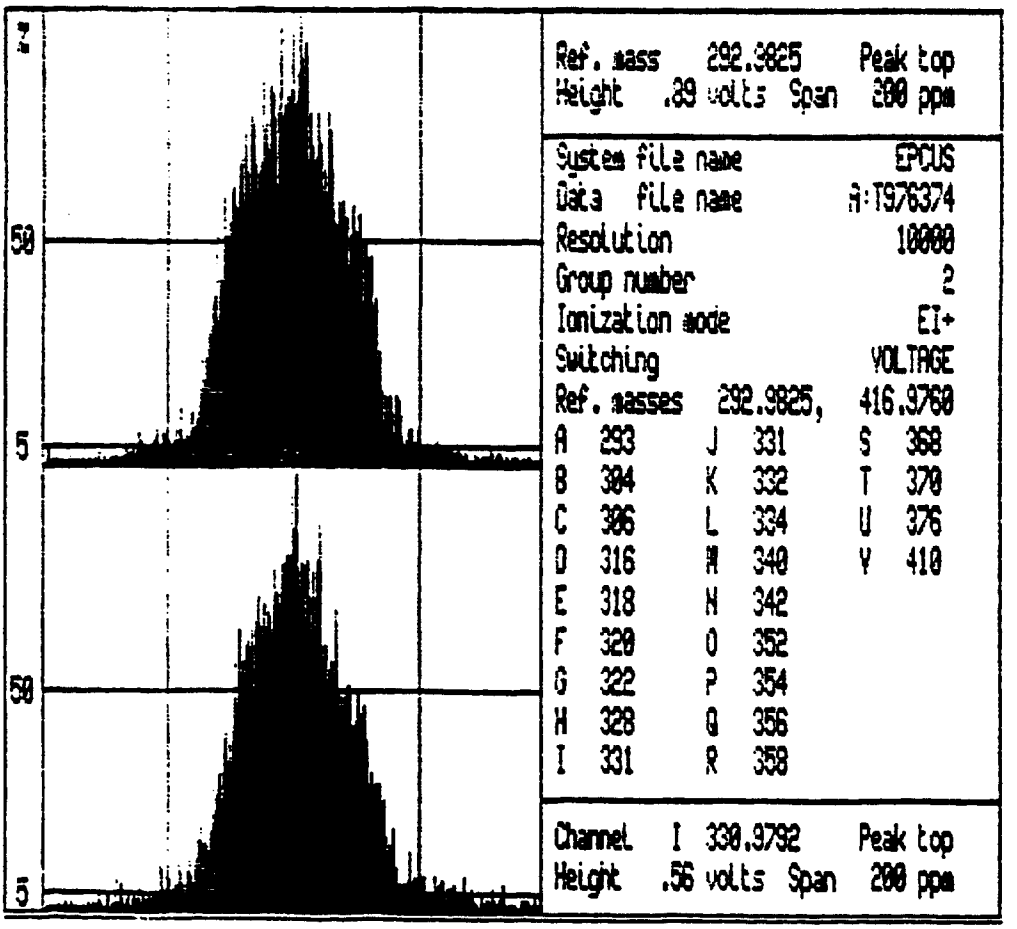
34:54
35:00
35:06
35:12
Time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50
5
50
5
Ref. mass 292.3825 Peak top
Height .89 volts Span 200 ppm
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Data file name A:T976374
Resolution 10000
Group number 2
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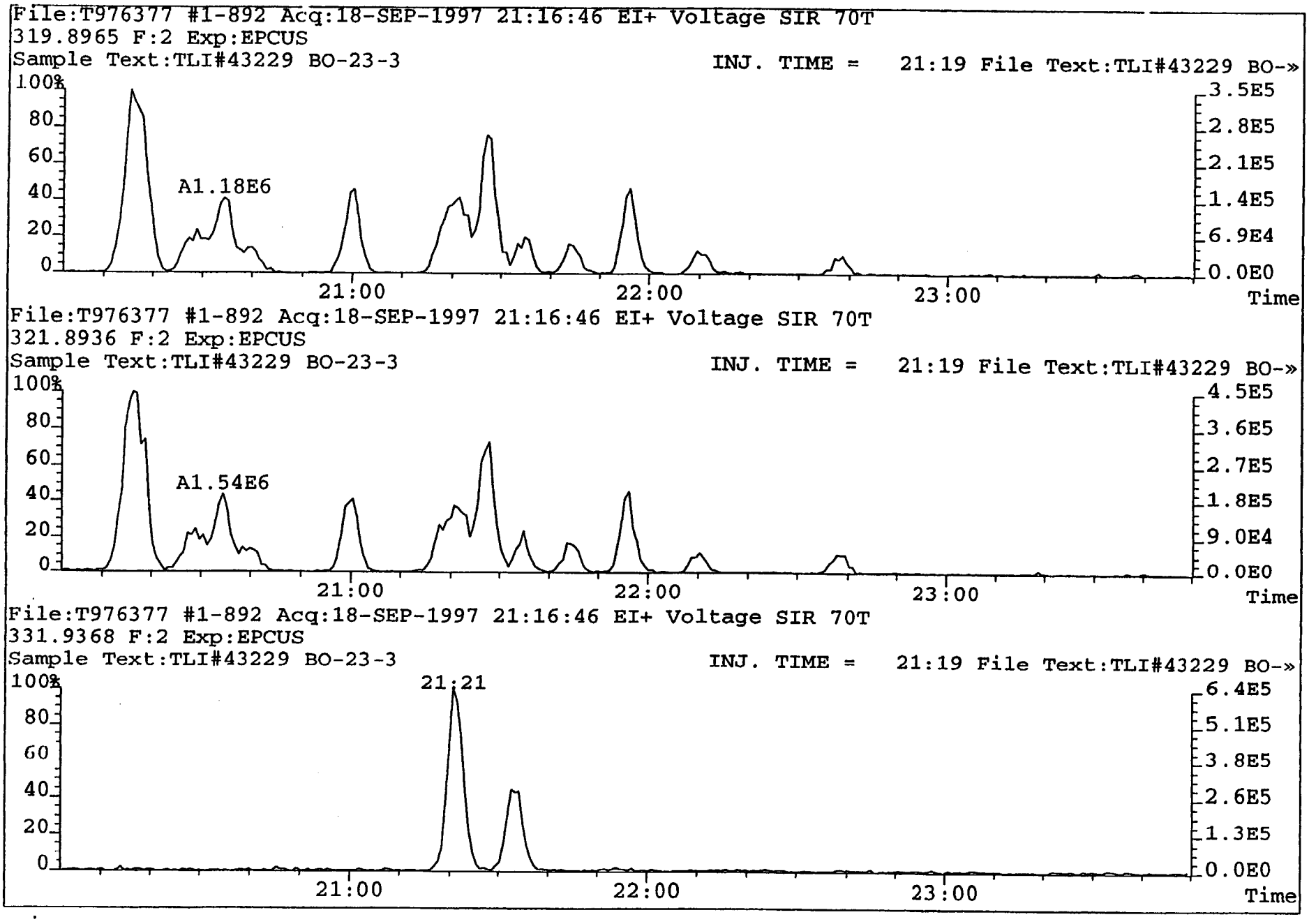
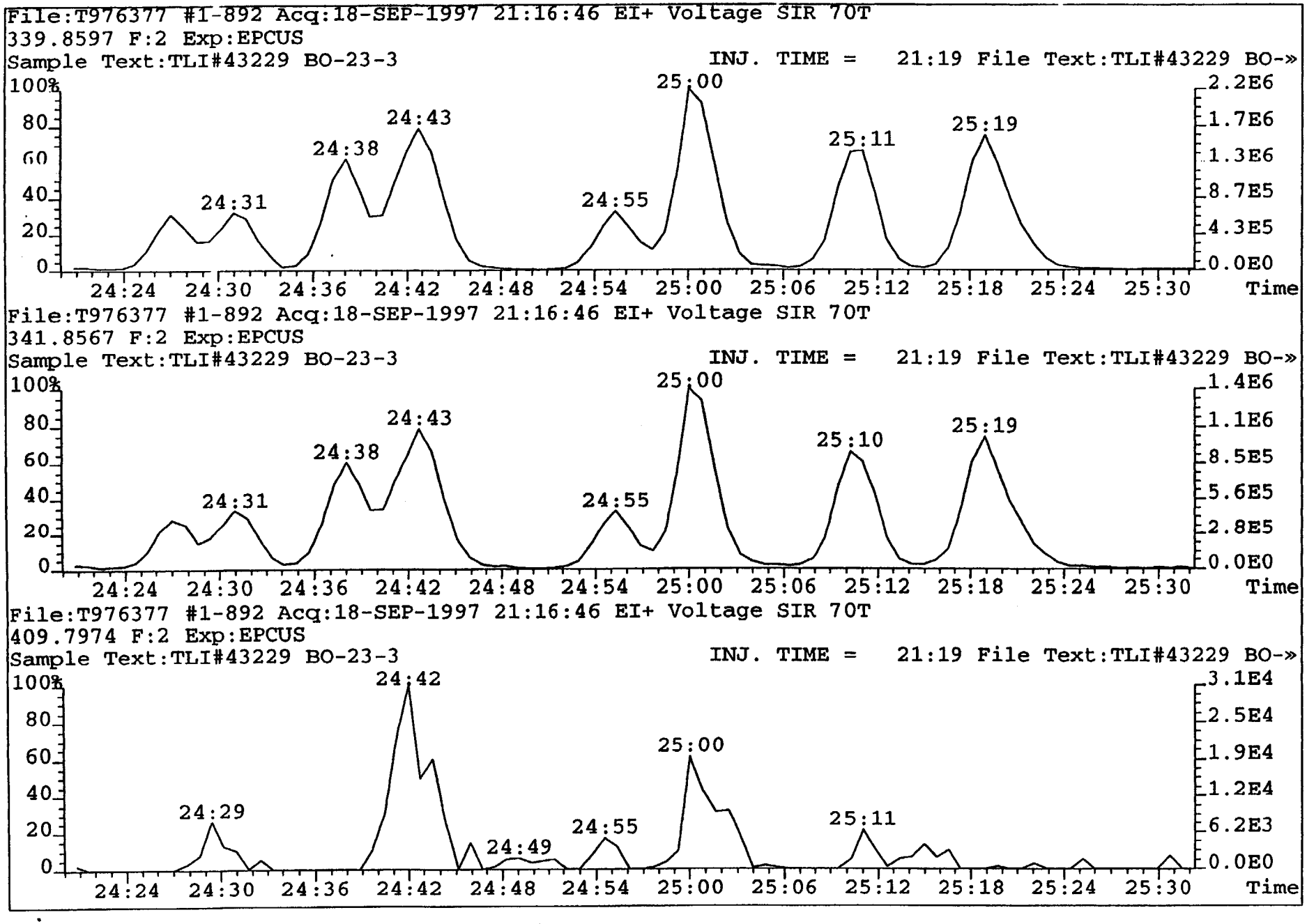
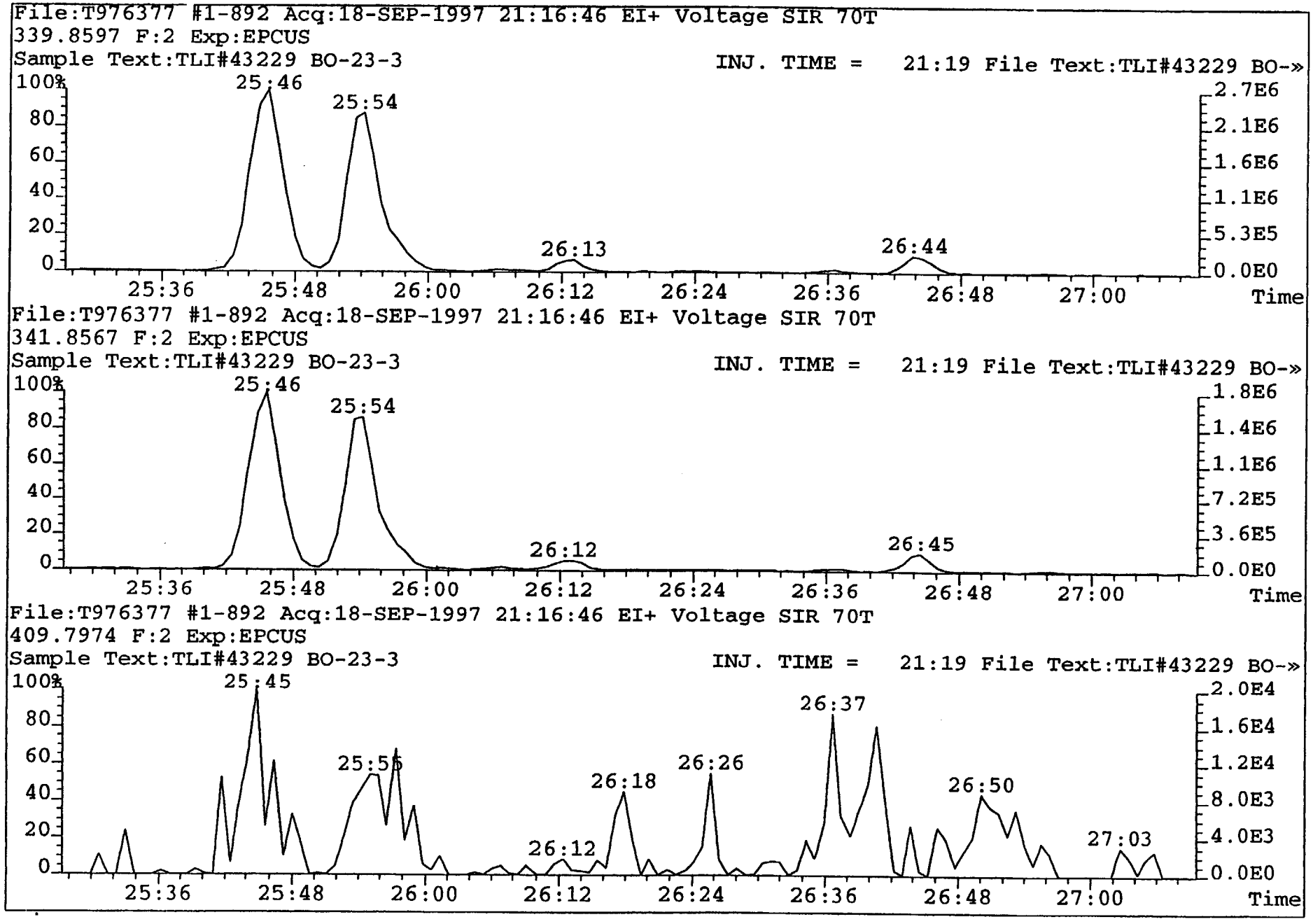
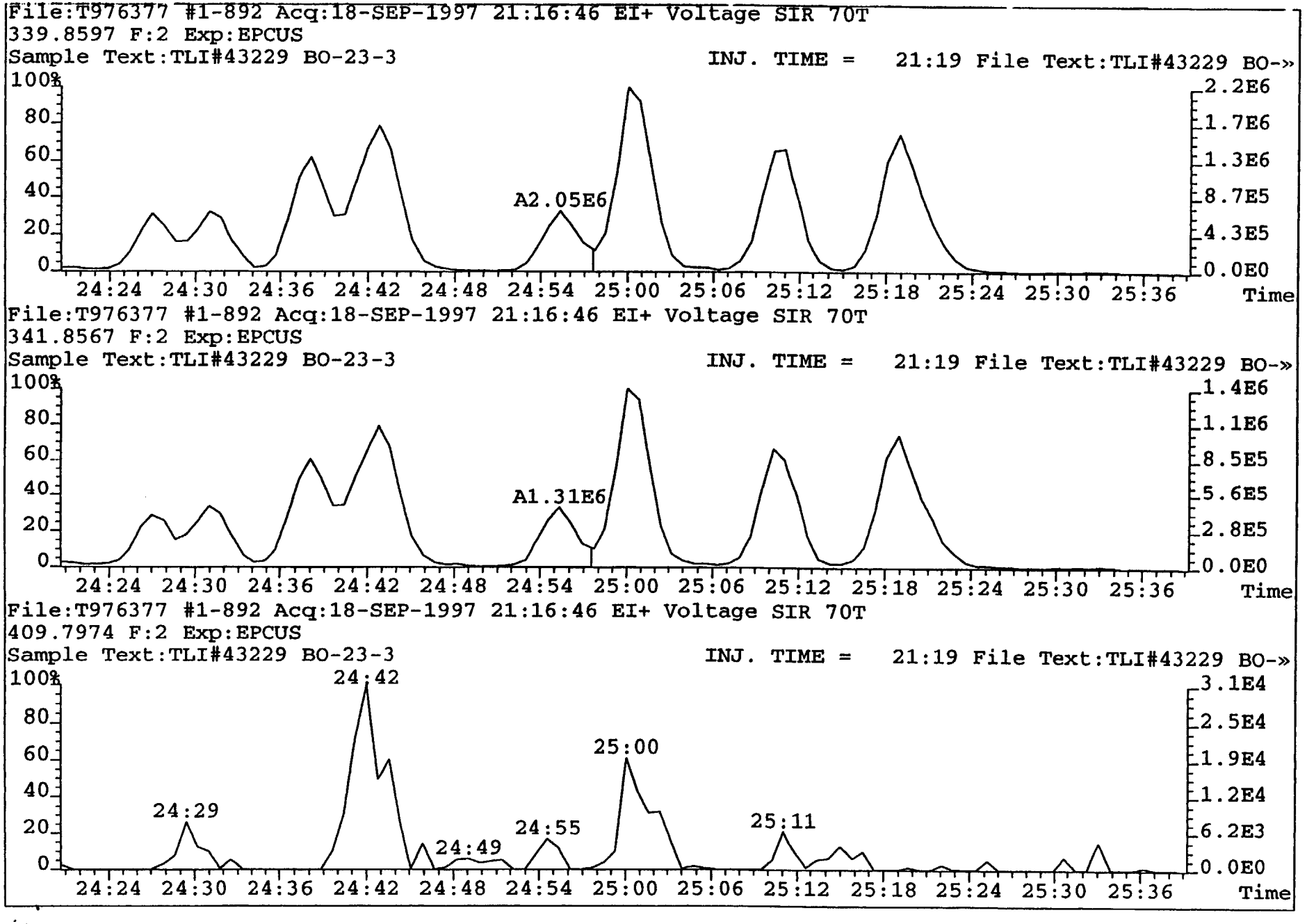
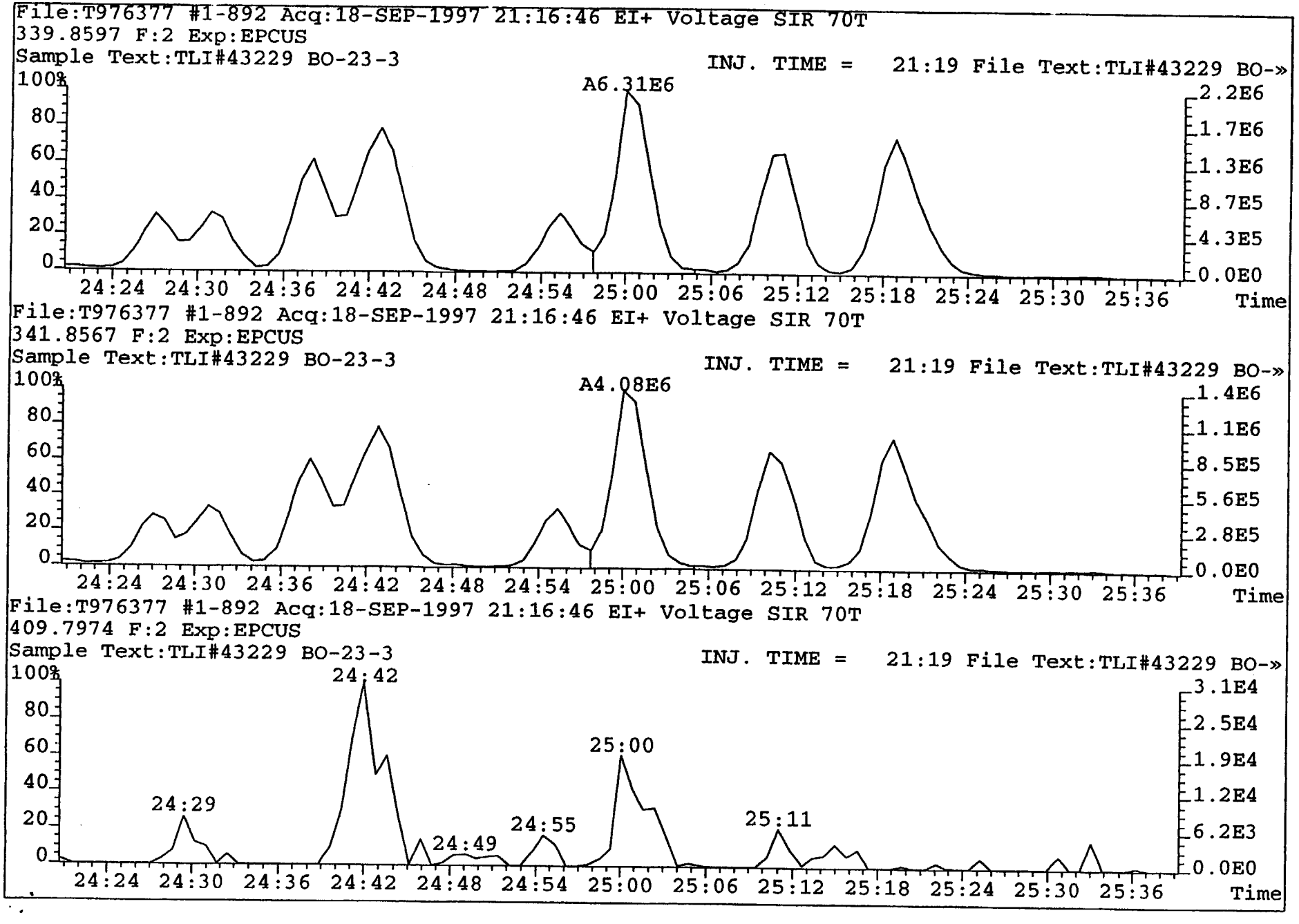
Switching VOLTAGE
Ref. masses 292.9825, 416.9760
A 293 J 331 S 368
B 304 K 332 T 370
C 306 L 334 U 376
D 316 M 340 V 410
E 318 N 342
F 320 O 352
G 322 P 354
H 328 Q 356
I 331 R 358
Channel I 330.9792 Peak top
Height .56 volts Span 200 ppm

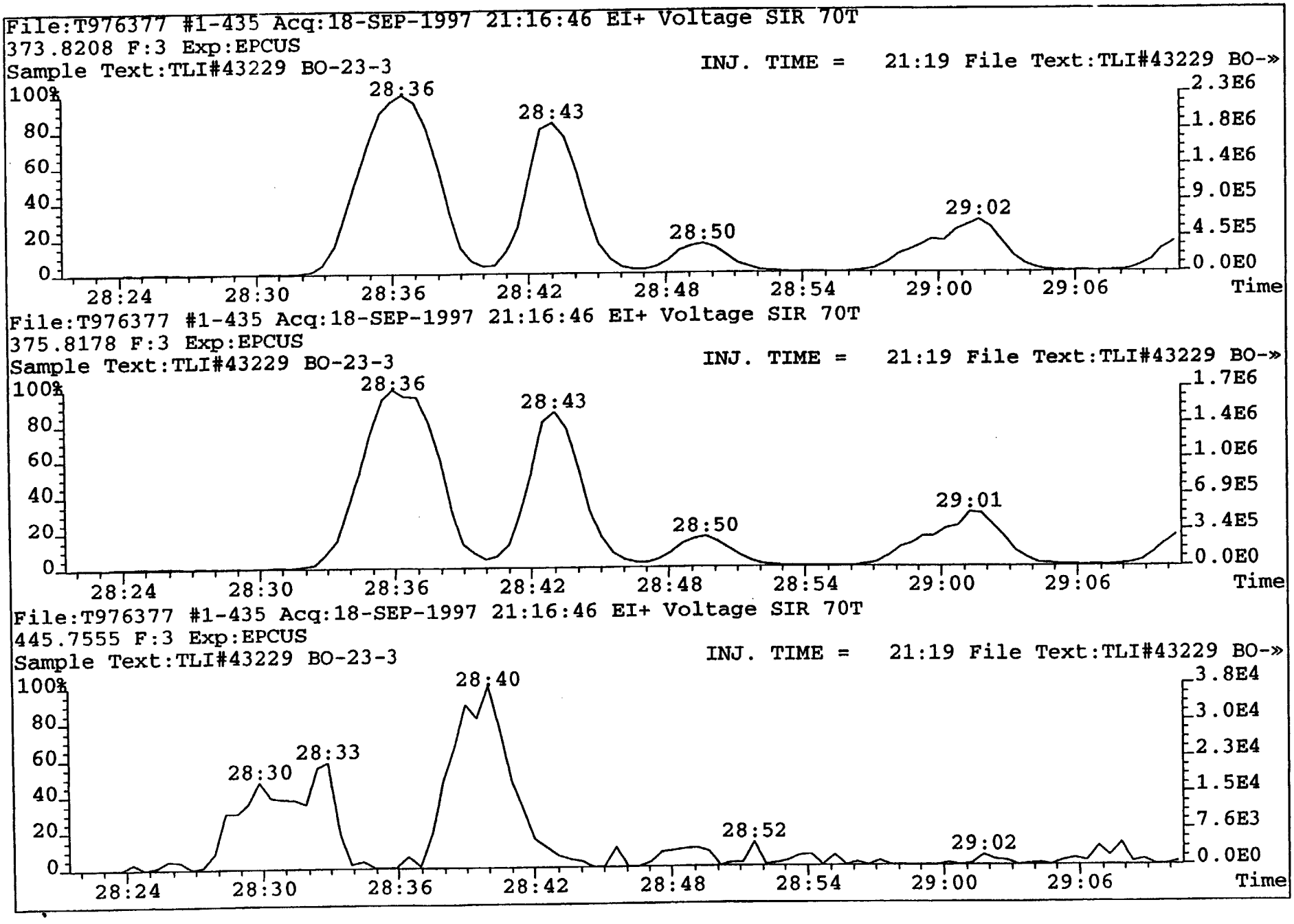

File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
319.8965 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A1.18E6
3.5E5
2.8E5
2.1E5
1.4E5
6.9E4
0.0E0
21:00
22:00
23:00
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
321.8936 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A1.54E6
4.5E5
3.6E5
2.7E5
1.8E5
9.0E4
0.0E0
21:00
22:00
23:00
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
331.9368 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
21:21
6.4E5
5.1E5
3.8E5
2.6E5
1.3E5
0.0E0
21:00
22:00
23:00
Time

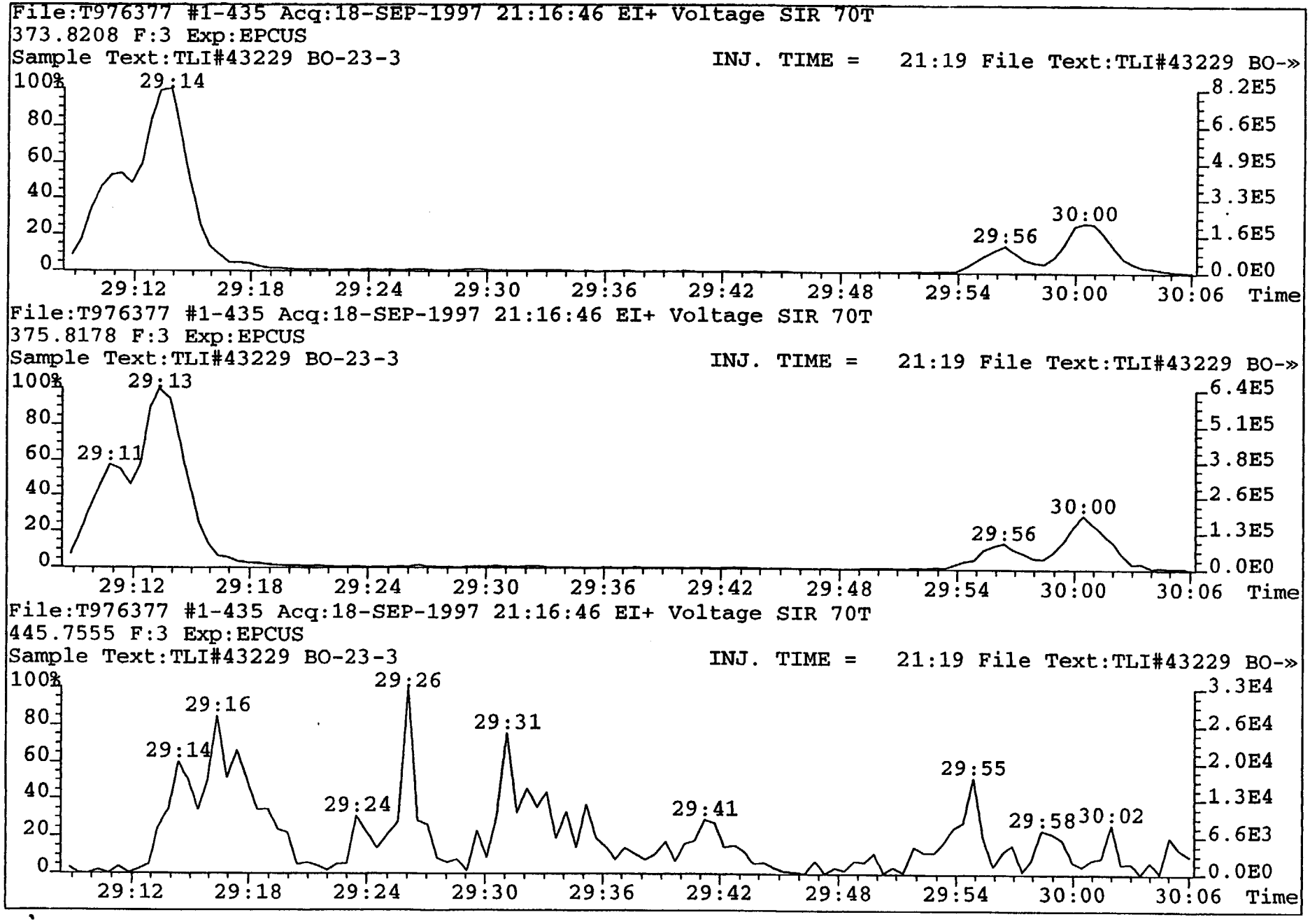

File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
24:31
24:38
24:43
24:55
25:00
25:11
25:19
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
24:31
24:38
24:43
24:55
25:00
25:10
25:19
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
24:29
24:42
24:49
24:55
25:00
25:11
Time

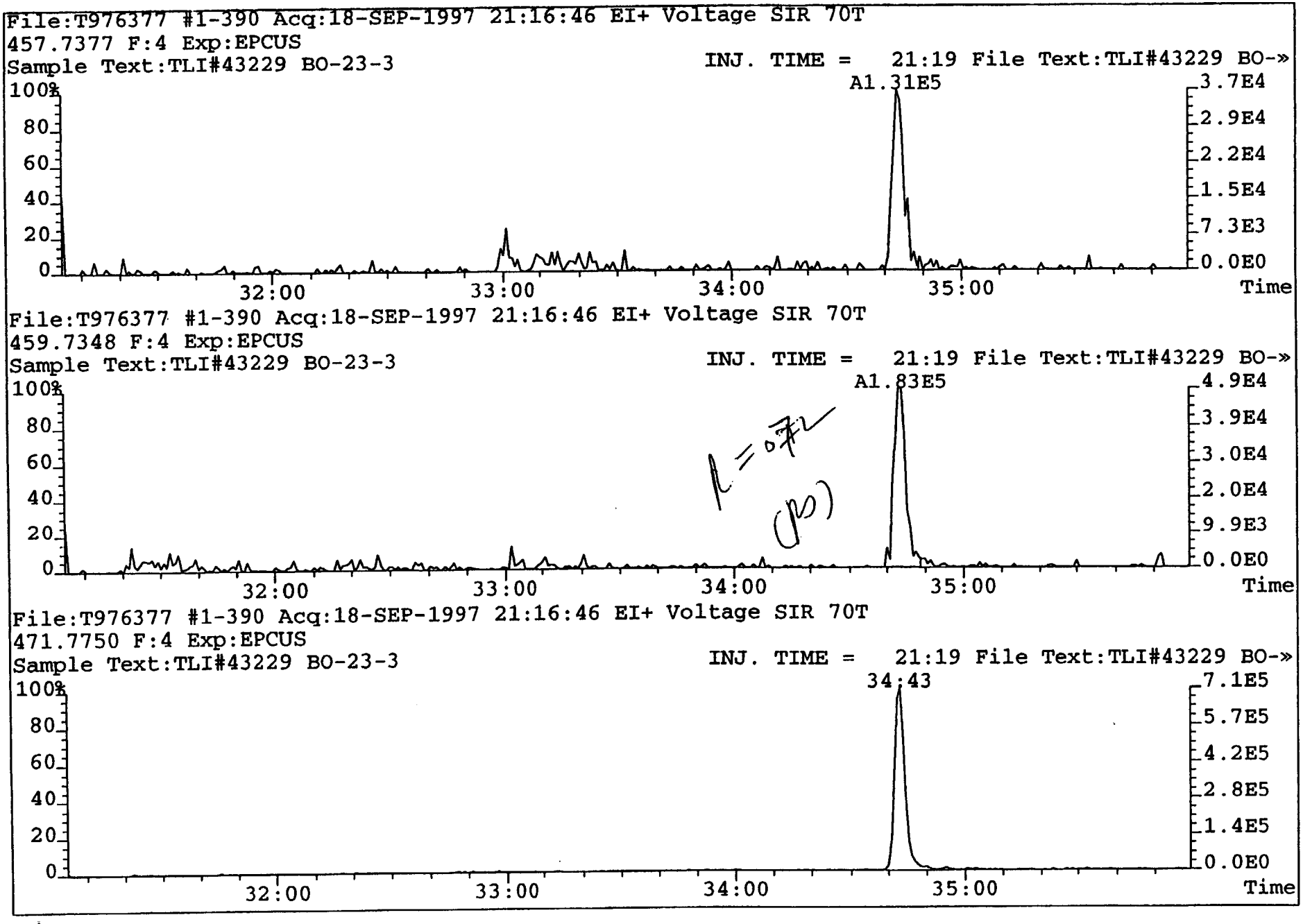

File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO->
25:46
25:54
26:13
26:44
2.7E6
2.1E6
1.6E6
1.1E6
5.3E5
0.0E0
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO->
25:46
25:54
26:12
26:45
1.8E6
1.4E6
1.1E6
7.2E5
3.6E5
0.0E0
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO->
25:45
25:56
26:12
26:18
26:26
26:37
26:50
27:03
2.0E4
1.6E4
1.2E4
8.0E3
4.0E3
0.0E0
Time
100%
80
60
40
20
0
25:36
25:48
26:00
26:12
26:24
26:36
26:48
27:00


File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A2.05E6
2.2E6
1.7E6
1.3E6
8.7E5
4.3E5
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
A1.31E6
1.4E6
1.1E6
8.5E5
5.6E5
2.8E5
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
24:42
24:29
24:49
24:55
25:00
25:11
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time


File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
A6.31E6
100%
80
60
40
20
0
2.2E6
1.7E6
1.3E6
8.7E5
4.3E5
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
A4.08E6
100%
80
60
40
20
0
1.4E6
1.1E6
8.5E5
5.6E5
2.8E5
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time
File:T976377 #1-892 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
24:42
25:00
24:29
24:49
24:55
25:11
80
60
40
20
0
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
24:24 24:30 24:36 24:42 24:48 24:54 25:00 25:06 25:12 25:18 25:24 25:30 25:36
Time


File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
28:36
28:43
28:50
29:02
2.3E6
1.8E6
1.4E6
9.0E5
4.5E5
0.0E0
Time
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
28:36
28:43
28:50
29:01
1.7E6
1.4E6
1.0E6
6.9E5
3.4E5
0.0E0
Time
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
28:30
28:33
28:40
28:52
29:02
3.8E4
3.0E4
2.3E4
1.5E4
7.6E3
0.0E0
Time
100%
80
60
40
20
0
28:24
28:30
28:36
28:42
28:48
28:54
29:00
29:06


File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:14
29:56
30:00
8.2E5
6.6E5
4.9E5
3.3E5
1.6E5
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 Time
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:13
29:11
29:56
30:00
6.4E5
5.1E5
3.8E5
2.6E5
1.3E5
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 Time
File:T976377 #1-435 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
100%
80
60
40
20
0
29:26
29:16
29:14
29:31
29:24
29:41
29:55
29:58
30:02
3.3E4
2.6E4
2.0E4
1.3E4
6.6E3
0.0E0
29:12 29:18 29:24 29:30 29:36 29:42 29:48 29:54 30:00 30:06 Time


File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
A1.31E5
100%
80
60
40
20
0
3.7E4
2.9E4
2.2E4
1.5E4
7.3E3
0.0E0
32:00
33:00
34:00
35:00
Time
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
A1.83E5
100%
80
60
40
20
0
4.9E4
3.9E4
3.0E4
2.0E4
9.9E3
0.0E0
32:00
33:00
34:00
35:00
Time
File:T976377 #1-390 Acq:18-SEP-1997 21:16:46 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 BO-23-3
INJ. TIME = 21:19 File Text:TLI#43229 BO-»
34:43
100%
80
60
40
20
0
7.1E5
5.7E5
4.2E5
2.8E5
1.4E5
0.0E0
32:00
33:00
34:00
35:00
Time

Pacific Environmental Services

TLI Project: 43229
Client Sample: BO-23-3

Method 23 TCDD/TCDF Analysis (DB-225)
Analysis File: P973986

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPC2NF04
TLI ID:	183-1-4A-C	Date Extracted:	09/14/97	ICal:	PF22206
		Date Analyzed:	09/19/97	ConCal:	P973982
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-225	Analyst:	ML	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	11.2			0.76	20:32	___

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	1.9	46.3	40%-130%	0.76	20:31	___

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	19:33	___

Data Reviewer: VC 09/22/97

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: 02:10 09/22/97

Initial ....Date...

Data Review By: [signature] 9/22/97 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.

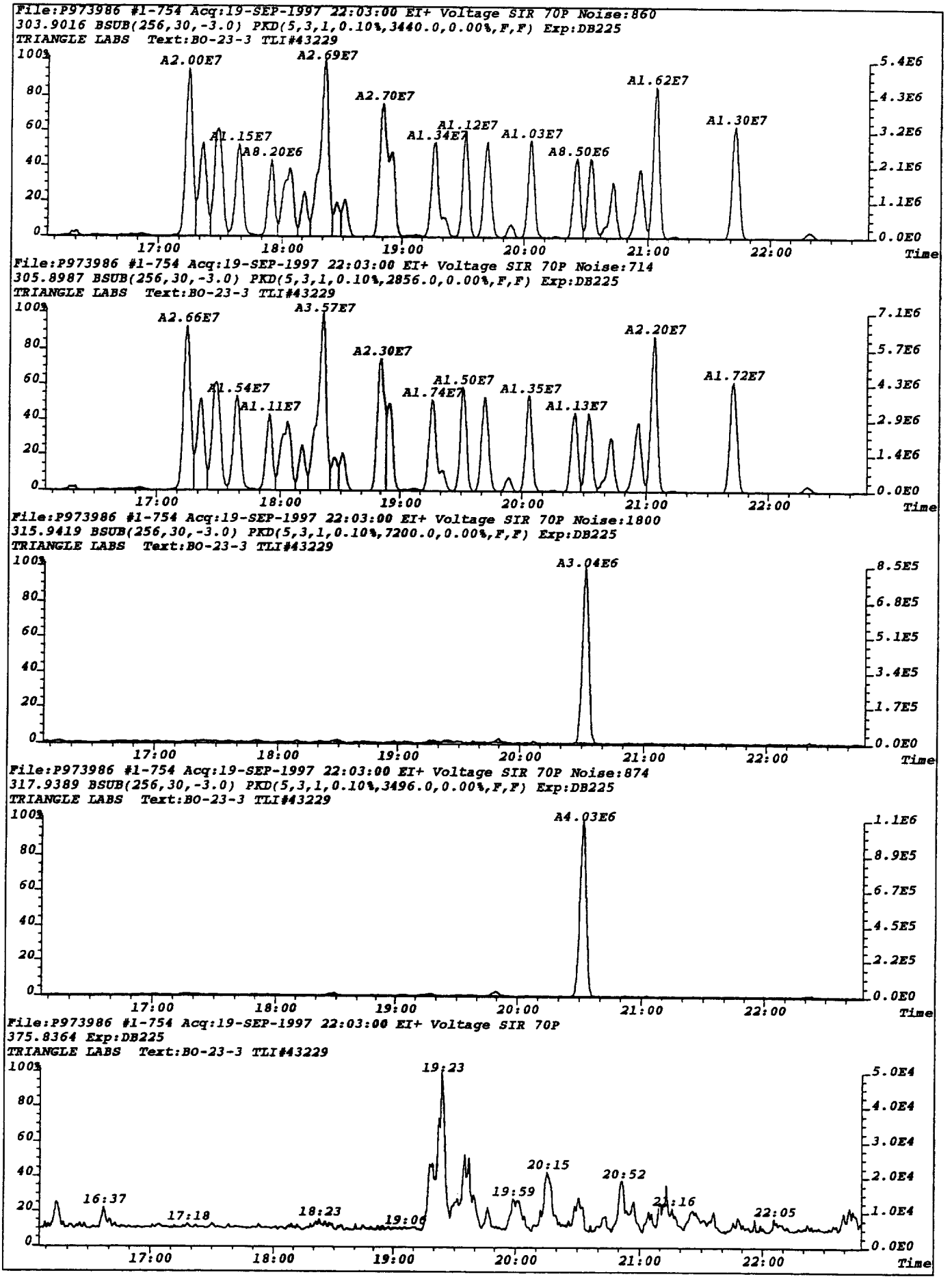
Page No. 1 Listing of P973986B.dbf
09/22/97 Matched GC Peaks / Ratio / Ret. Time

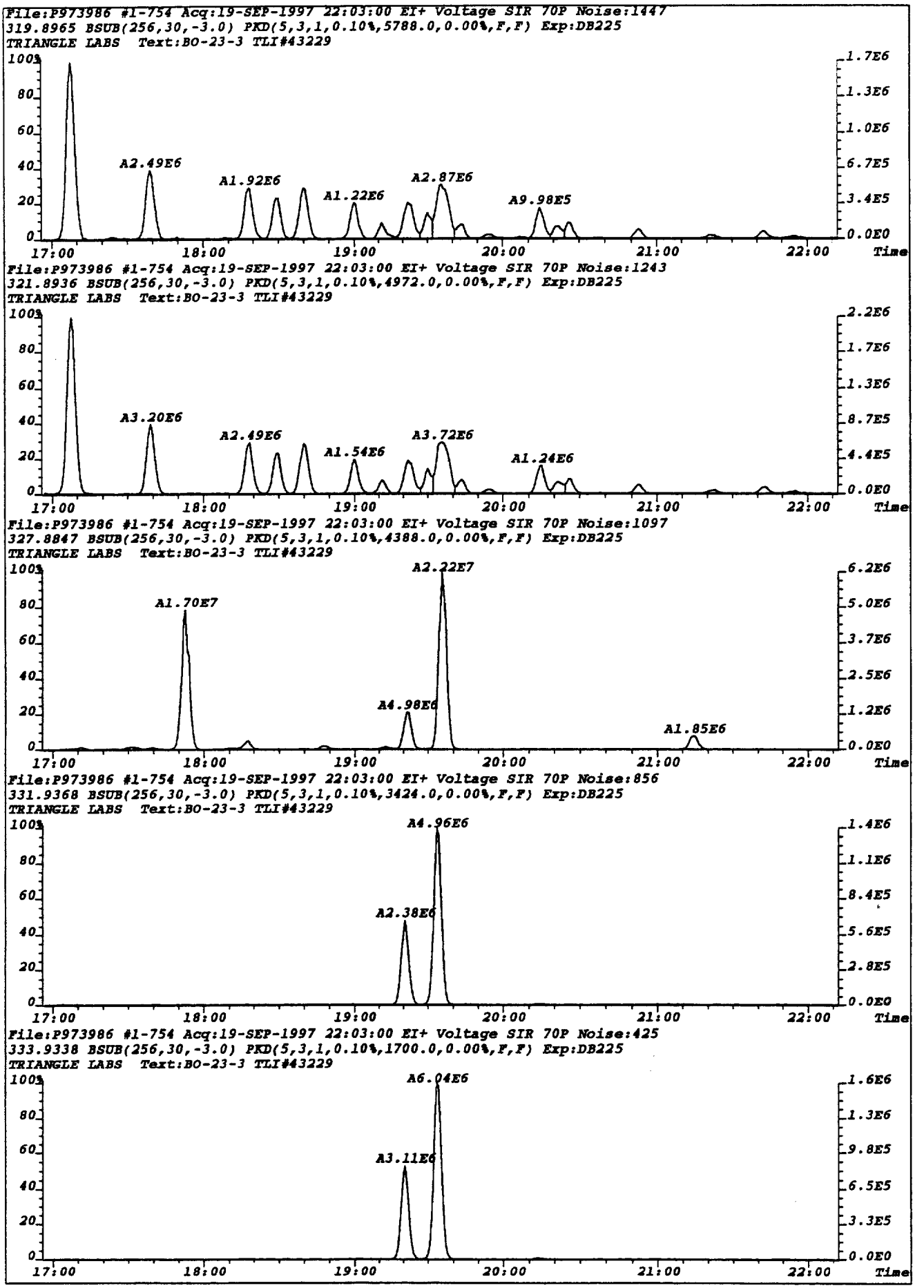
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF						0.65-0.89				0.786-1.095			
304-306	DC	NL		0:00	RO	1.20	2.53			0.000			
				16:20	RO	0.99	106.87	59.68	60.38	0.796			
				16:35	RO	0.47	13.68	5.95	12.67	0.808			
				16:42	RO	1.06	19.61	11.80	11.08	0.814			
				16:52	RO	0.48	71.28	31.01	64.43	0.822			
				17:15		0.75	4,666.43	2,004.07	2,662.36	0.841			
				17:22		0.79	2,776.78	1,226.65	1,550.13	0.846			
				17:29		0.73	3,635.89	1,531.85	2,104.04	0.852			
				17:39		0.74	2,690.75	1,146.67	1,544.08	0.860			
				17:55		0.74	1,931.41	819.51	1,111.90	0.873			
				18:03		0.75	2,878.49	1,232.87	1,645.62	0.880			
				18:11		0.75	1,204.95	517.47	687.48	0.886			
				18:21		0.75	6,253.08	2,687.89	3,565.19	0.894			
				18:27		0.76	834.84	359.80	475.04	0.899			
				18:30		0.77	879.12	381.36	497.76	0.902			
				18:41		0.70	3.76	1.55	2.21	0.911			
				18:50	RO	1.17	4,076.22	2,698.62	2,302.95	0.918			
				19:07		0.72	96.97	40.44	56.53	0.932			
				19:16		0.77	3,071.96	1,335.13	1,736.83	0.939			
				19:31		0.75	2,617.11	1,121.59	1,495.52	0.951			
				19:42		0.75	2,721.58	1,166.78	1,554.80	0.960			
				19:54		0.71	330.06	137.14	192.92	0.970			
				20:03		0.76	2,377.04	1,025.32	1,351.72	0.977			
				20:15	RO	0.46	17.61	7.66	16.64	0.987			
				20:26		0.76	1,975.20	850.00	1,125.20	0.996			
				20:32		0.76	2,049.47	888.18	1,161.29	1.001	2378-TCDF		AN
				20:43		0.74	1,543.18	657.55	885.63	1.010			
				20:56		0.75	2,022.56	867.15	1,155.41	1.020			
				21:04		0.73	3,821.31	1,617.50	2,203.81	1.027			
				21:14	RO	0.93	28.11	14.84	15.88	1.035			
	DC	SN		21:19		0.65	1.29			1.039			
				21:42		0.76	3,020.54	1,302.95	1,717.59	1.058			
				22:19		0.77	171.39	74.48	96.91	1.088			
	DC	WH		22:42	RO	1.03	3.91			1.106			
304-306			31 Peaks				57,907.25						
13C12-TCDF						0.65-0.89				0.951-1.049			
316-318	DC	NL		0:00	RO	2.06	3.10			0.000			
	DC	WL		18:30	RO	0.43	5.63			0.902			
	DC	WL		19:16	RO	0.56	8.94			0.939			
				19:37	RO	1.03	4.25	2.46	2.40	0.956			
				19:50	RO	0.39	9.45	4.11	10.64	0.967			
				20:31		0.76	706.72	304.10	402.62	1.000	13C12-2378-TCDF		ISO

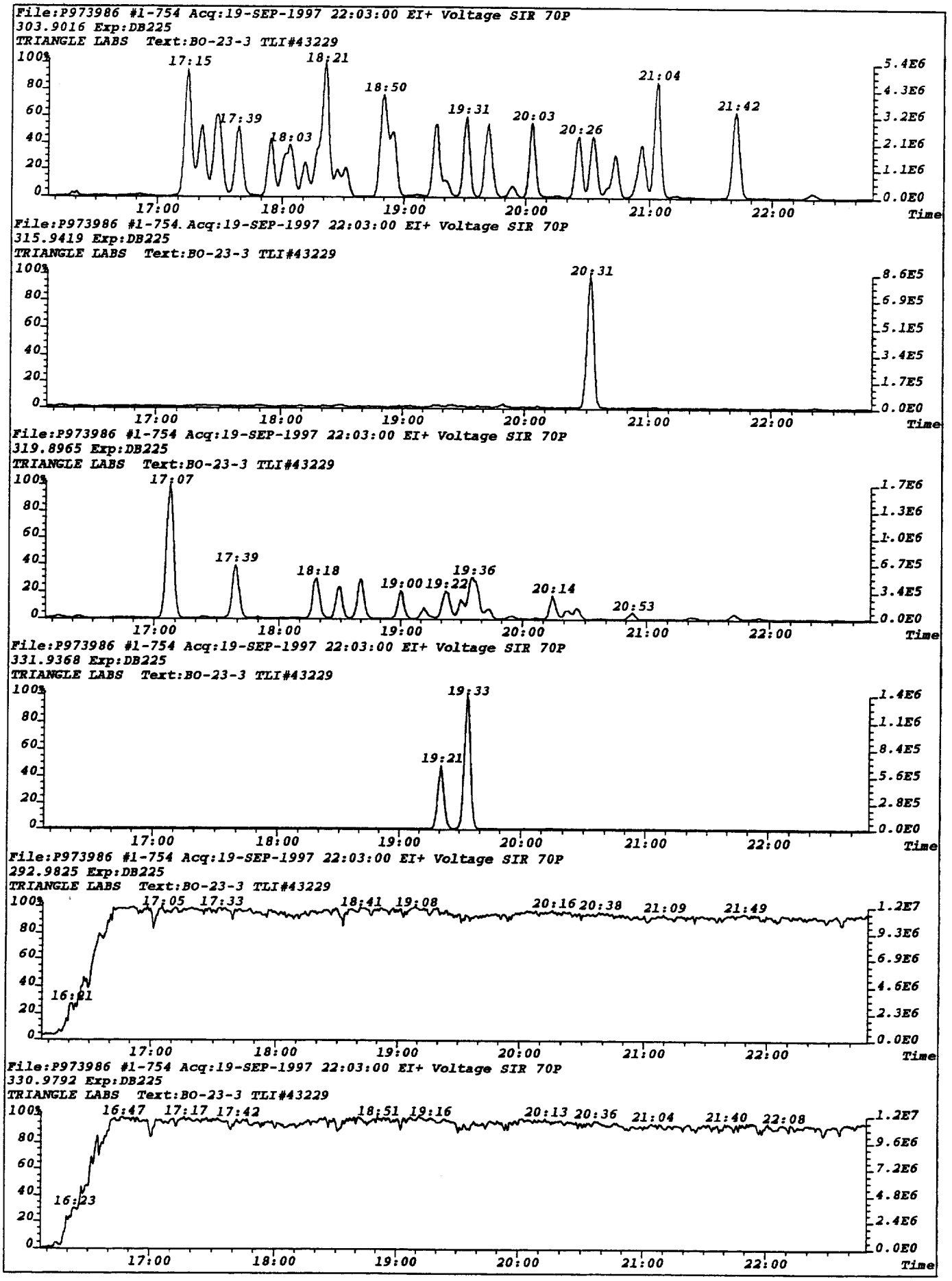
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
316-318			3 Peaks				720.42						
				---------- Above: TCDF / TCDD Follows ----------									
13C12-TCDD						0.65-0.89				0.897-1.103			
332-334	DC	NL		0:00	RO	2.01	1.50			0.000			
				19:21		0.77	549.74	238.45	311.29	1.000	13C12-2378-TCDD	IS1	
				19:33		0.82	1,099.78	495.78	604.00	1.010	13C12-1234-TCDD	RS1	
	DC	WH		21:32	RO	0.51	0.90			1.113			
332-334			2 Peaks				1,649.52						

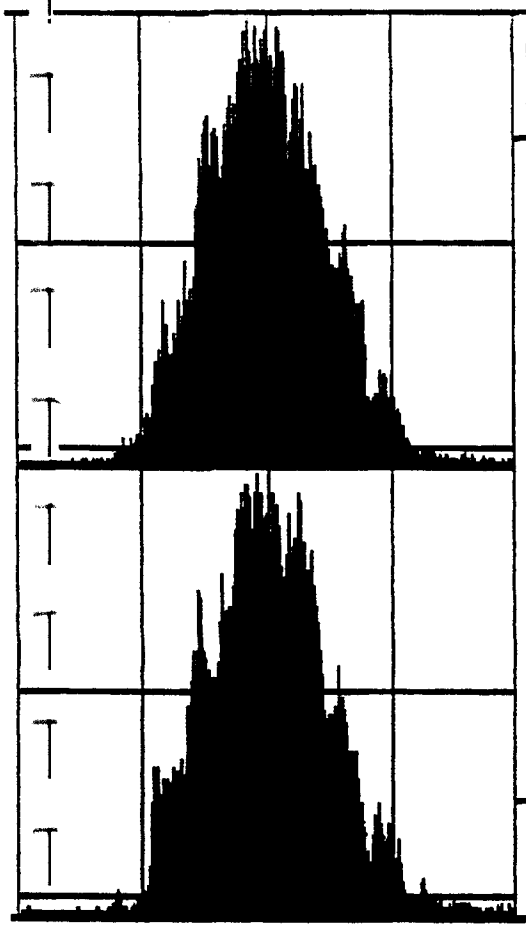
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside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


File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:860
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3440.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A2.00E7
A2.69E7
A2.70E7
A1.62E7
A1.30E7
A1.15E7
A8.20E6
A1.34E7
A1.12E7
A1.03E7
A8.50E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:714
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2856.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A2.66E7
A3.57E7
A2.30E7
A2.20E7
A1.72E7
A1.54E7
A1.11E7
A1.74E7
A1.50E7
A1.35E7
A1.13E7
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:1800
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,7200.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A3.04E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:874
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3496.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A4.03E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
19:23
20:15
20:52
16:37
17:18
18:23
19:59
21:16
22:05
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:1447
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,5788.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A2.49E6
A1.92E6
A1.22E6
A2.87E6
A9.98E5
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:1243
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4972.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A3.20E6
A2.49E6
A1.54E6
A3.72E6
A1.24E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:1097
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,4388.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A1.70E7
A2.22E7
A4.98E6
A1.85E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:856
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,3424.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A4.96E6
A2.38E6
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P Noise:425
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1700.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
A6.04E6
A3.11E6
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
17:15
17:39
18:03
18:21
18:50
19:31
20:03
20:26
21:04
21:42
5.4E6
4.3E6
3.2E6
2.1E6
1.1E6
0.0E0
Time
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
20:31
8.6E5
6.9E5
5.1E5
3.4E5
1.7E5
0.0E0
Time
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
17:07
17:39
18:18
19:00
19:22
19:36
20:14
20:53
1.7E6
1.3E6
1.0E6
6.7E5
3.4E5
0.0E0
Time
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
19:21
19:33
1.4E6
1.1E6
8.4E5
5.6E5
2.8E5
0.0E0
Time
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
16:21
17:05
17:33
18:41
19:08
20:16
20:38
21:09
21:49
1.2E7
9.3E6
6.9E6
4.6E6
2.3E6
0.0E0
Time
File:P973986 #1-754 Acq:19-SEP-1997 22:03:00 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:BO-23-3 TLI#43229
16:23
16:47
17:17
17:42
18:51
19:16
20:13
20:36
21:04
21:40
22:08
1.2E7
9.6E6
7.2E6
4.8E6
2.4E6
0.0E0
Time



Ref. mass 292.9825 Peak top
Height 2.00 volts Span 200 ppm

System file name	DB225
Data file name	A:P973986
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 1.85 volts Span 200 ppm

Pacific Environmental Services

TLI Project: **43229**
Client Sample: **FB2-23**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **T976378**

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-5A-C	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% 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	0.02				—
1,2,3,4,7,8-HxCDD	ND	0.02				—
1,2,3,6,7,8-HxCDD	ND	0.02				—
1,2,3,7,8,9-HxCDD	ND	0.02				—
1,2,3,4,6,7,8-HpCDD	EMPC		0.02			—
1,2,3,4,6,7,8,9-OCDD	EMPC		0.02			—
2,3,7,8-TCDF	ND	0.01				—
1,2,3,7,8-PeCDF	ND	0.02				—
2,3,4,7,8-PeCDF	ND	0.02				—
1,2,3,4,7,8-HxCDF	EMPC		0.09			—
1,2,3,6,7,8-HxCDF	0.04			1.29	28:44	—
2,3,4,6,7,8-HxCDF	ND	0.02				—
1,2,3,7,8,9-HxCDF	ND	0.02				—
1,2,3,4,6,7,8-HpCDF	EMPC		0.05			—
1,2,3,4,7,8,9-HpCDF	ND	0.03				—
1,2,3,4,6,7,8,9-OCDF	ND	0.03				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.01		—
Total PeCDD	0.05	1			—
Total HxCDD	0.12	3			—
Total HpCDD	0.04	1		0.06	—
Total TCDF	ND		0.01		—
Total PeCDF	0.22	1			—
Total HxCDF	0.23	3		0.35	—
Total HpCDF	EMPC			0.05	—

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Printed: 16:55 09/22/97

Pacific Environmental Services

TLI Project: **43229**
Client Sample: **FB2-23**

Method 23 PCDD/PCDF Analysis (a)
Analysis File: **T976378**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.1	53.6	40%-130%	0.78	20:46	—
$^{13}C_{12}$-2,3,7,8-TCDD	2.2	56.0	40%-130%	0.78	21:34	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.8	44.1	40%-130%	1.56	25:01	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.9	47.4	40%-130%	1.56	26:08	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.9	72.2	40%-130%	0.51	28:44	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.4	86.0	40%-130%	1.20	29:26	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.3	58.1	25%-130%	0.42	31:24	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.8	68.8	25%-130%	1.05	32:15	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	5.4	67.4	25%-130%	0.85	34:44	—

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	94.3	70%-140%		21:36	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.3	106	70%-140%	1.46	25:46	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.8	94.1	70%-140%	0.51	28:37	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.3	81.7	70%-140%	1.16	29:21	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	4.0	101	70%-140%	0.41	32:36	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.7	68.2	40%-130%	0.49	29:57	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.9	73.1	40%-130%	0.52	29:14	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	21:22	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.23	29:44	—

Data Reviewer: _____ 09/22/97

X237_PSR v2.00, LARS 6.10.04

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Printed: 16:55 09/22/97

Initial ....Date...

Data Review By: SL 9/22/97 Calculated Noise Area: 0.62

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 T976378B.dbf
09/22/97 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				0.826-1.097			
304-306	D	DC	SN	17:51	RO	0.58	3.31			0.860			
		DC	SN	18:07	RO	0.52	1.52			0.872			
	D	DC	SN	18:50	RO	1.18	4.51			0.907			
	D	DC	SN	19:20	RO	1.06	7.01			0.931			
	D	DC	SN	19:39	RO	1.38	6.74			0.946			
	D	DC	SN	20:02	RO	0.48	2.90			0.965			
	D	DC	SN	20:35		0.68	4.05			0.991			
	D	DC	SN	21:16	RO	0.48	6.37			1.024			
	D	DC	SN	21:30	RO	0.63	10.44			1.035			
	D	DC	SN	22:40	RO	1.27	1.58			1.091			
304-306			0 Peaks				0.00						
13C12-TCDF						0.65-0.89				0.952-1.048			
316-318		DC	WL	18:44	RO	4.56	0.28			0.902			
		DC	WL	19:02	RO	1.45	0.67			0.917			
		DC	WL	19:15	RO	4.00	0.37			0.927			
		DC	WL	19:39	RO	0.63	1.20			0.946			
				20:46		0.78	414.99	181.85	233.14	1.000	13C12-2378-TCDF	ISO	
316-318			1 Peak				414.99						
---------- Above: TCDF / TCDD Follows ----------													
TCDD						0.65-0.89				0.861-1.056			
320-322		DC	SN	20:26		0.89	0.34			0.947			
		DC	SN	20:43		0.83	0.22			0.961			
		DC	SN	22:18	RO	2.11	0.16			1.034			
		DC	SN	22:47	RO	0.24	0.30			1.056			
320-322			0 Peaks				0.00						
37Cl-TCDD										0.907-1.093			
328		DC	WL	19:07			0.39			0.886			
		DC	WL	19:21			0.11			0.897			
		DC	SN	19:47			0.23			0.917			
				20:06			3.35	3.35		0.932			
		DC	SN	20:19			0.28			0.942			
		DC	SN	20:44			0.16			0.961			
		DC	SN	21:09			0.22			0.981			
		DC	SN	21:10			0.25			0.981			
		DC	SN	21:20			0.24			0.989			
				21:36			315.44	315.44		1.002	37Cl-TCDD	SUR1	
		DC	SN	21:54			0.61			1.015			
				22:03			0.87	0.87		1.022			
		DC	SN	22:11			0.76			1.029			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				22:17			0.79	0.79		1.033			
	DC	SN		22:24			0.32			1.039			
	DC	SN		22:45			0.47			1.055			
	DC	SN		23:01			0.17			1.067			
328			4	Peaks			320.45						
13C12-TCDD				0.65-0.89						0.907-1.093			
332-334	DC	NL		0:00	RO	2.51	1.22			0.000			
	DC	WL		18:44	RO	7.16	0.80			0.869			
	DC	WL		19:23	RO	1.76	1.10			0.899			
	DC	WL		19:25	RO	14.63	0.34			0.900			
				19:54	RO	1.38	1.70	1.32	0.96	0.923			
				20:03		0.74	1.90	0.81	1.09	0.930			
	DC	SN		20:16	RO	7.37	1.35			0.940			
				20:25	RO	1.07	1.66	1.01	0.94	0.947			
	DC	SN		20:50	RO	1.42	1.06			0.966			
	DC	SN		21:01	RO	3.12	1.03			0.974			
				21:22		0.86	599.39	276.44	322.95	0.991	13C12-1234-TCDD	RS1	
				21:34		0.78	366.37	161.02	205.35	1.000	13C12-2378-TCDD	IS1	
				21:58	RO	1.10	7.52	4.68	4.25	1.019			
	DC	SN		22:13	RO	5.12	0.92			1.030			
				22:32	RO	1.48	2.02	1.69	1.14	1.045			
				22:38	RO	4.48	1.61	4.08	0.91	1.049			
332-334			8	Peaks			982.17						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF				1.32-1.78						0.909-1.075			
340-342 D	DC	SN		22:56	RO	1.17	5.86			0.917			
	DC	SN		23:34		1.75	0.33			0.942			
				24:07		1.41	20.06	11.73	8.33	0.964			
D	DC	SN		24:18	RO	1.02	2.42			0.971			
D	DC	SN		24:33	RO	0.53	1.37			0.981			
D	DC	SN		24:44	RO	1.11	5.56			0.989			
D	DC			25:01	RO	2.66	4.39			1.000	12378-PeCDF	AN	
D	DC	SN		25:13	RO	0.95	2.71			1.008			
D	DC	SN		25:20	RO	2.39	3.57			1.013			
D	DC	SN		25:54	RO	1.83	7.78			1.035			
	DC	SN		26:54	RO	0.74	0.38			1.075			
	DC	WH		27:09	RO	0.22	0.20			1.085			
340-342			1	Peak			20.06						
13C12-PeCDF				1.32-1.78						0.840-1.160			
352-354				24:07		1.45	2.84	1.68	1.16	0.964			
				24:39	RO	1.15	1.51	0.92	0.80	0.985			
				25:01		1.56	325.94	198.75	127.19	1.000	13C12-PeCDF 123	IS2	
				25:17	RO	1.03	2.35	1.43	1.39	1.011			
				25:46		1.46	352.94	209.54	143.40	1.030	13C12-PeCDF 234	SUR2	
	DC	SN		26:10	RO	2.41	0.43			1.046			
	DC	SN		26:45	RO	2.90	1.02			1.069			
	DC	SN		26:59	RO	0.97	0.59			1.079			
352-354			5	Peaks			685.58						

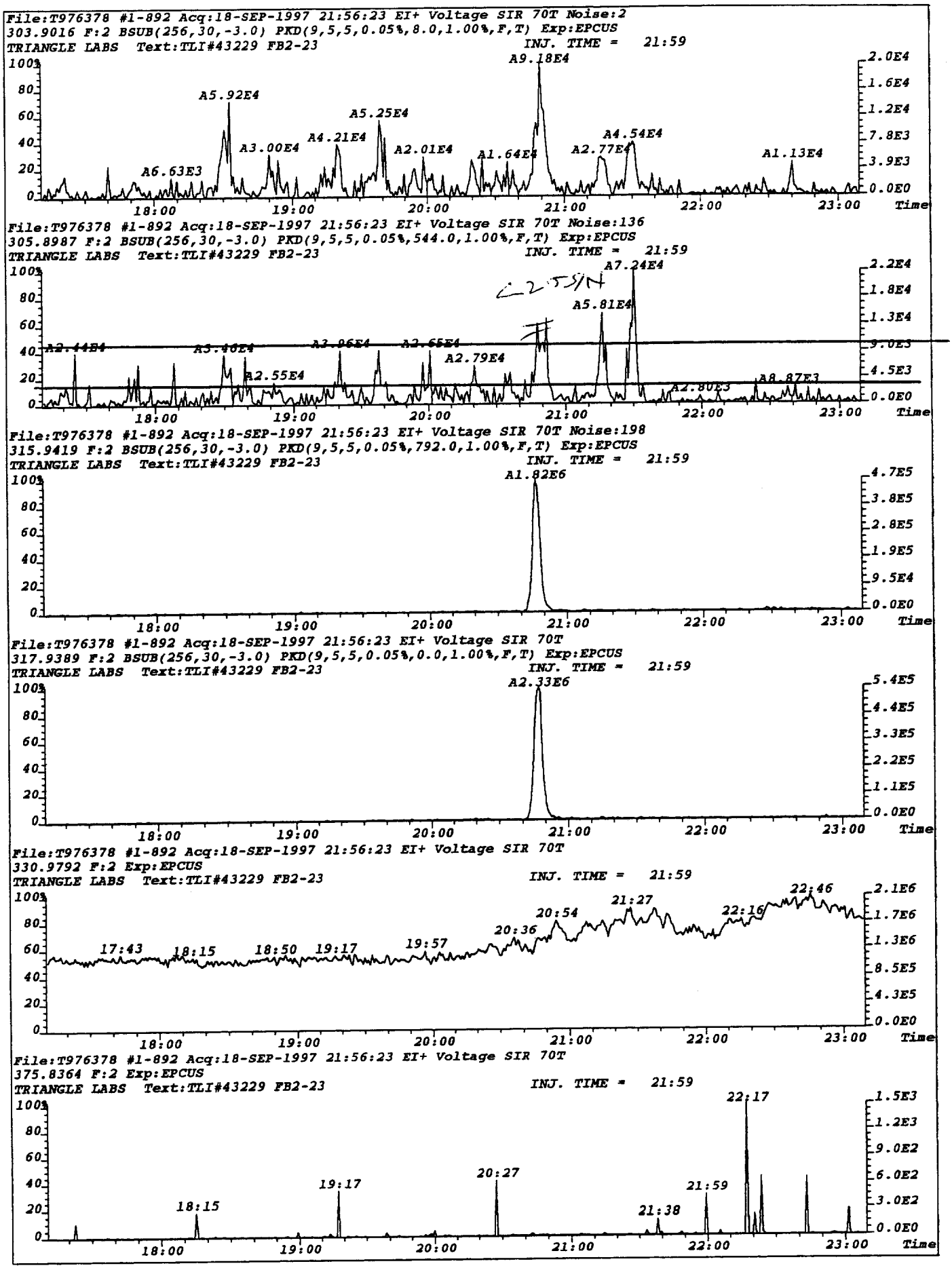
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD				1.32-1.78						0.922-1.025			
356-358				24:16		1.44	3.25	1.92	1.33	0.929			
	DC	SN		24:46	RO	0.70	0.46			0.948			
	DC	SN		25:21		1.44	1.34			0.970			
	DC	SN		25:39	RO	1.80	1.15			0.982			
	DC	SN		25:57	RO	8.92	0.31			0.993			
	DC	SN		26:08	RO	2.40	0.77			1.000	12378-PeCDD		AN
356-358				1 Peak			3.25						
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	SN		24:37	RO	0.79	0.18			0.942			
				26:08		1.56	205.72	125.47	80.25	1.000	13C12-PeCDD 123	IS3	
				26:17	RO	1.19	18.44	11.21	9.42	1.006			
	DC	SN		26:30	RO	0.88	0.81			1.014			
368-370				2 Peaks			224.16						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	NL		0:00	RO	0.77	0.49			0.000			
				27:38		1.41	4.84	2.83	2.01	0.962			
				27:47		1.20	14.19	7.73	6.46	0.967			
	DC	SN		27:57	RO	0.51	1.07			0.973			
				28:06	RO	1.03	2.94	1.63	1.58	0.978			
	DC	SN		28:14	RO	1.83	0.90			0.983			
	DC	SN		28:31	RO	1.67	0.47			0.992			
				28:37	RO	1.84	8.98	7.37	4.01	0.996	123478-HxCDF		AN
				28:44		1.29	5.37	3.03	2.34	1.000	123678-HxCDF		AN
	DC	SN		28:51	RO	2.37	1.16			1.004			
D	d	SN		29:01	RO	0.99	1.81			1.010			
D	d	SN		29:14	RO	1.61	4.39			1.017	234678-HxCDF		AN
	DC	SN		29:42	RO	0.43	0.11			1.034			
	DC	SN		29:47	RO	0.96	0.45			1.037			
	DC	SN		29:56	RO	1.84	0.56			1.042	123789-HxCDF		AN
	DC	SN		30:01	RO	1.89	0.60			1.045			
374-376				5 Peaks			36.32						
13C12-HxCDF				0.43-0.59						0.861-1.139			
384-386	DC	SN		27:46	RO	0.34	0.98			0.966			
				28:37		0.51	318.30	107.22	211.08	0.996	13C12-HxCDF 478	SUR3	
				28:44		0.51	362.47	121.67	240.80	1.000	13C12-HxCDF 678	IS4	
	DC	SN		28:57	RO	0.20	0.38			1.008			
	DC	SN		29:01	RO	0.65	0.77			1.010			
				29:14		0.52	348.07	119.23	228.84	1.017	13C12-HxCDF 234	ALT2	
				29:20	RO	0.73	2.67	1.30	1.77	1.021			
	DC	SN		29:27	RO	0.37	1.30			1.025			
	DC	SN		29:27	RO	0.41	1.30			1.025			
	DC	SN		29:34	RO	0.25	0.95			1.029			
	DC	SN		29:44	RO	0.25	0.44			1.035			
				29:57		0.49	264.37	87.11	177.26	1.042	13C12-HxCDF 789	ALT1	

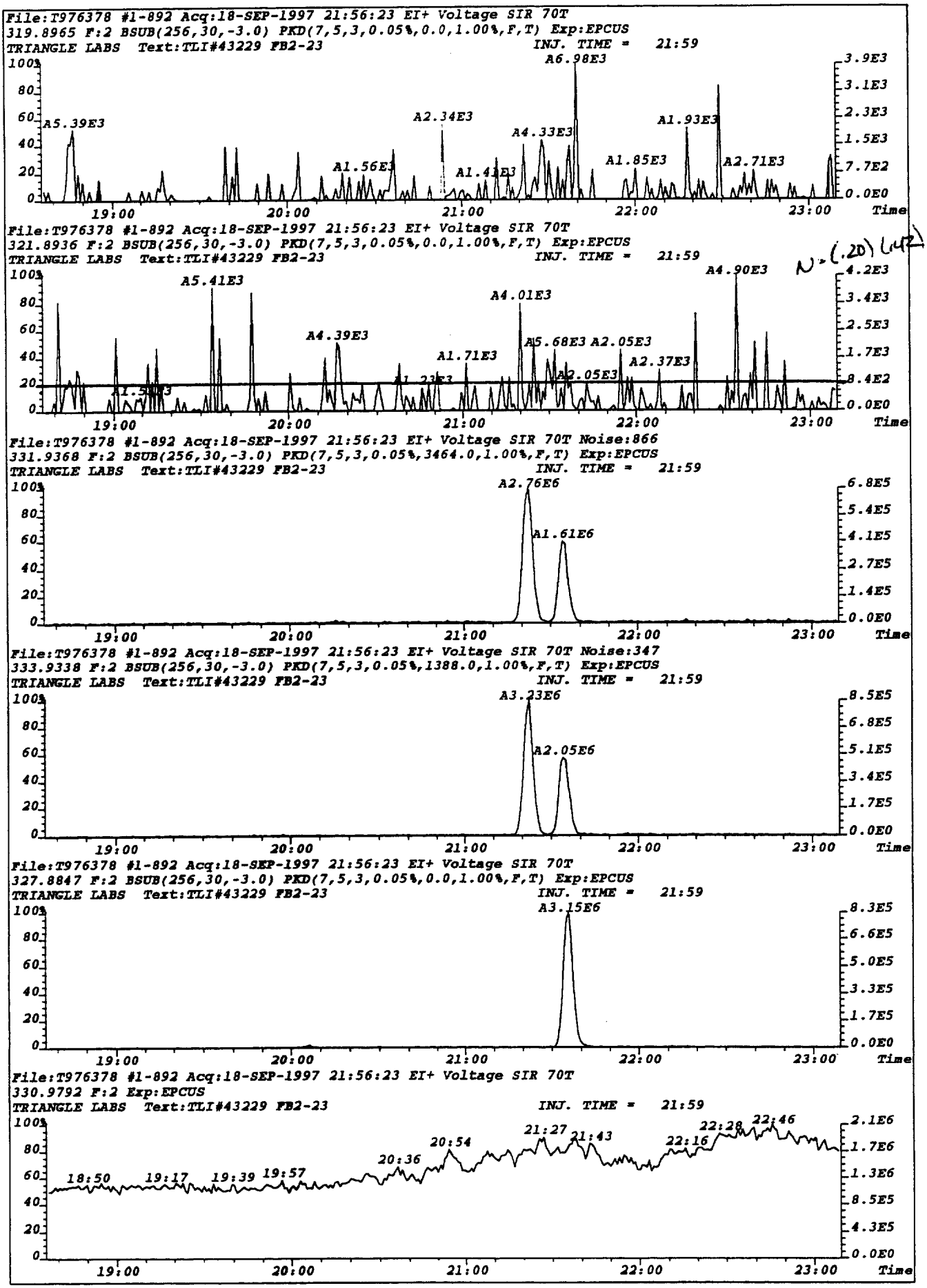
Compound/ M_Z....	QC.Log	Omit	Why	RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		30:14	RO	2.07	0.23			1.052			
	DC	SN		30:24	RO	0.24	0.33			1.058			
	DC	SN		30:26	RO	3.10	0.15			1.059			
384-386				5 Peaks			1,295.88						
	---------- Above: HxCDF / HxCDD Follows ----------												
HxCDD						1.05-1.43				0.951-1.014			
390-392				28:12		1.21	2.41	1.32	1.09	0.958			
	DC	SN		28:23		1.17	0.39			0.964			
				28:38		1.16	4.16	2.23	1.93	0.973			
	DC	SN		28:44	RO	0.71	0.36			0.976			
				28:49		1.17	3.52	1.90	1.62	0.979			
	DC	SN		29:20	RO	0.48	0.49			0.997	123478-HxCDD		AN
	DC	SN		29:28	RO	1.69	1.59			1.001	123678-HxCDD		AN
	DC	SN		29:34	RO	3.25	0.36			1.005			
D	d	SN		29:44		1.24	2.02			1.010	123789-HxCDD		AN
390-392				3 Peaks			10.09						
13C12-HxCDD						1.05-1.43				0.966-1.034			
402-404	DC	WL		28:08	RO	3.10	0.45			0.956			
	DC	WL		28:23	RO	0.72	0.33			0.964			
	DC	SN		28:49	RO	3.58	0.43			0.979			
	DC	SN		29:11	RO	0.65	0.63			0.992			
				29:21		1.16	247.78	132.89	114.89	0.997	13C12-HxCDD 478		SUR4
				29:26		1.20	337.18	183.74	153.44	1.000	13C12-HxCDD 678		IS5
				29:44		1.23	415.72	229.53	186.19	1.010	13C12-HxCDD 789		RS2
				29:57	RO	0.92	2.40	1.33	1.45	1.018			
	DC	SN		30:05	RO	0.80	0.65			1.022			
	DC	SN		30:14	RO	0.36	0.49			1.027			
402-404				4 Peaks			1,003.08						
	---------- Above: HxCDD / HpCDF Follows ----------												
HpCDF						0.88-1.20				0.994-1.042			
408-410				31:25	RO	1.29	4.18	2.64	2.05	1.001	1234678-HpCDF		AN
	DC	SN		31:59		1.20	0.33			1.019			
	DC	SN		32:15	RO	1.44	0.55			1.027			
	DC	SN		32:27	RO	5.69	0.27			1.033			
	DC	WH		32:59	RO	2.86	0.45			1.050			
408-410				1 Peak			4.18						
13C12-HpCDF						0.37-0.51				0.936-1.127			
418-420				31:24		0.42	198.38	58.88	139.50	1.000	13C12-HpCDF 678		IS6
	DC	SN		31:45	RO	0.80	1.07			1.011			
	DC	SN		31:53	RO	0.56	0.62			1.015			
				32:36		0.41	157.57	46.15	111.42	1.038	13C12-HpCDF 789		SUR5
	DC	SN		33:02	RO	0.09	0.20			1.052			
418-420				2 Peaks			355.95						
	---------- Above: HpCDF / HpCDD 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.
HpCDD				0.88-1.20						0.976-1.005			
424-426				31:39		0.89	1.95	0.92	1.03	0.981			
MK				32:16	RO	0.60	1.02	0.52	0.87	1.001	1234678-HpCDD	AN	
424-426			2 Peaks				2.97						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	SN		31:40	RO	0.13	0.16			0.982			
				32:15		1.05	220.07	112.82	107.25	1.000	13C12-HpCDD 678	IS7	
436-438			1 Peak				220.07						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF				0.76-1.02						0.885-1.115			
442-444	DC	SN		31:39		0.88	0.30			0.911			
	DC	SN		32:47	RO	0.75	0.19			0.944			
	DC	SN		33:29	RO	1.64	0.21			0.964			
	DC	SN		34:48		0.94	0.64			1.002	OCDF	AN	
442-444			0 Peaks				0.00						
OCDD				0.76-1.02						0.885-1.115			
458-460 K				34:45	RO	0.41	0.83	0.39	0.94	1.000	OCDD	AN	
458-460			1 Peak				0.83						
13C12-OCDD				0.76-1.02						0.995-1.004			
470-472				34:44		0.85	337.30	155.26	182.04	1.000	13C12-OCDD	IS8	
470-472			1 Peak				337.30						

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:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:2
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,8.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A9.18E4
A5.92E4
A5.25E4
A4.54E4
A4.21E4
A3.00E4
A2.01E4
A1.64E4
A2.77E4
A1.13E4
A6.63E3
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:136
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,544.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A7.24E4
A5.81E4
A2.79E4
A2.55E4
A2.80E3
A8.87E3
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:198
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,792.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.82E6
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.33E6
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
17:43
18:15
18:50
19:17
19:57
20:36
20:54
21:27
22:16
22:46
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
18:15
19:17
20:27
21:38
21:59
22:17
18:00
19:00
20:00
21:00
22:00
23:00
Time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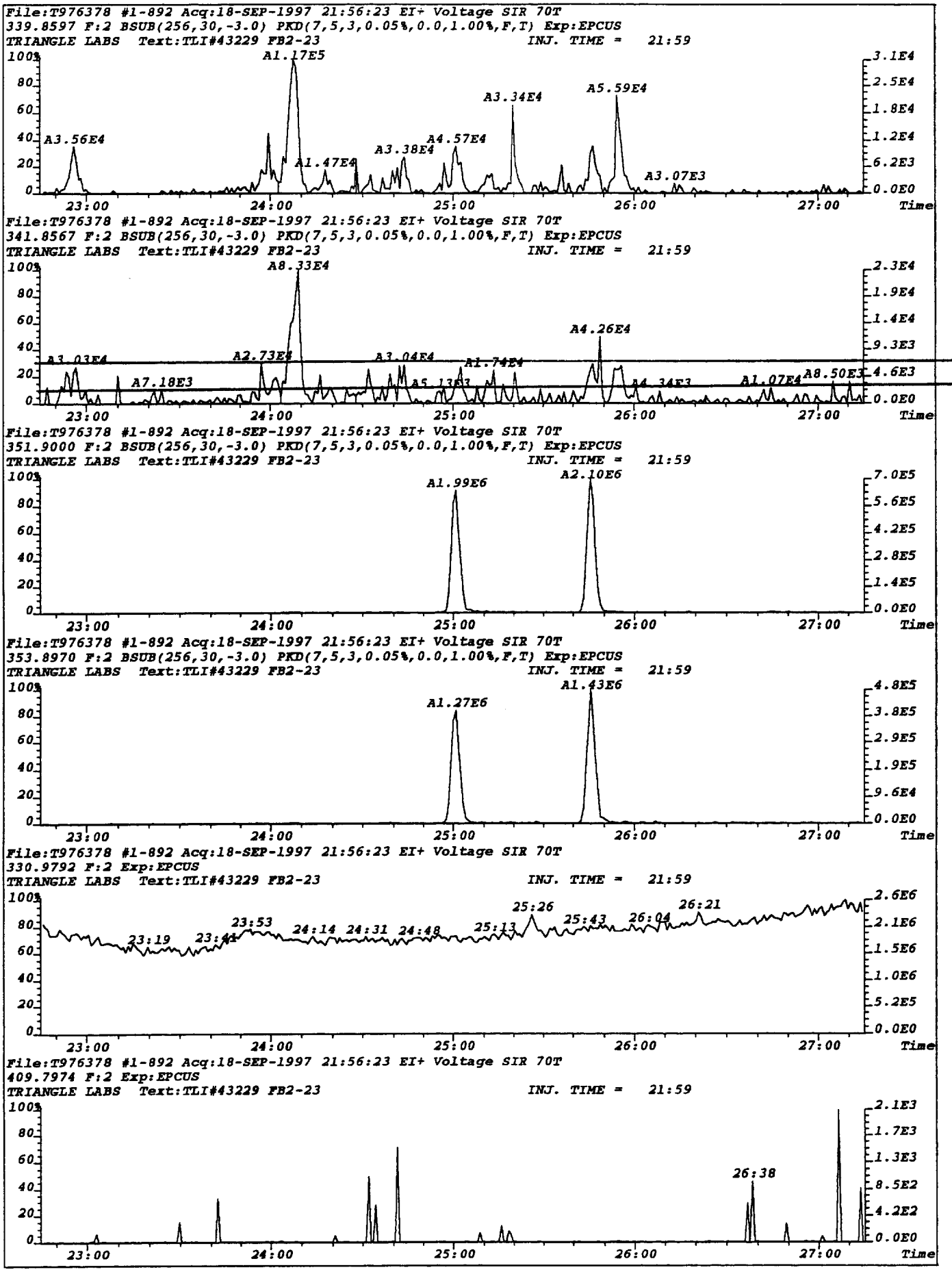
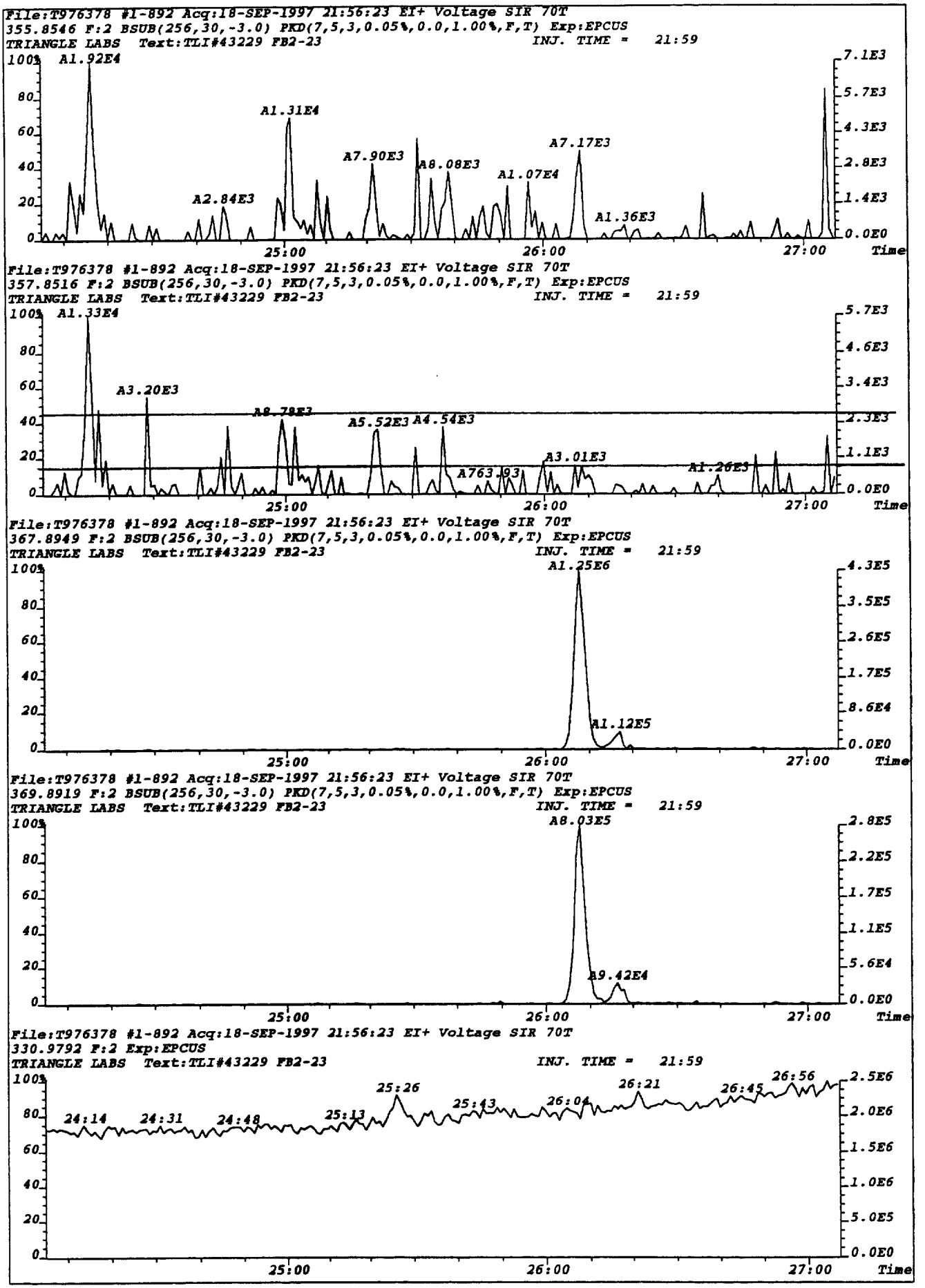
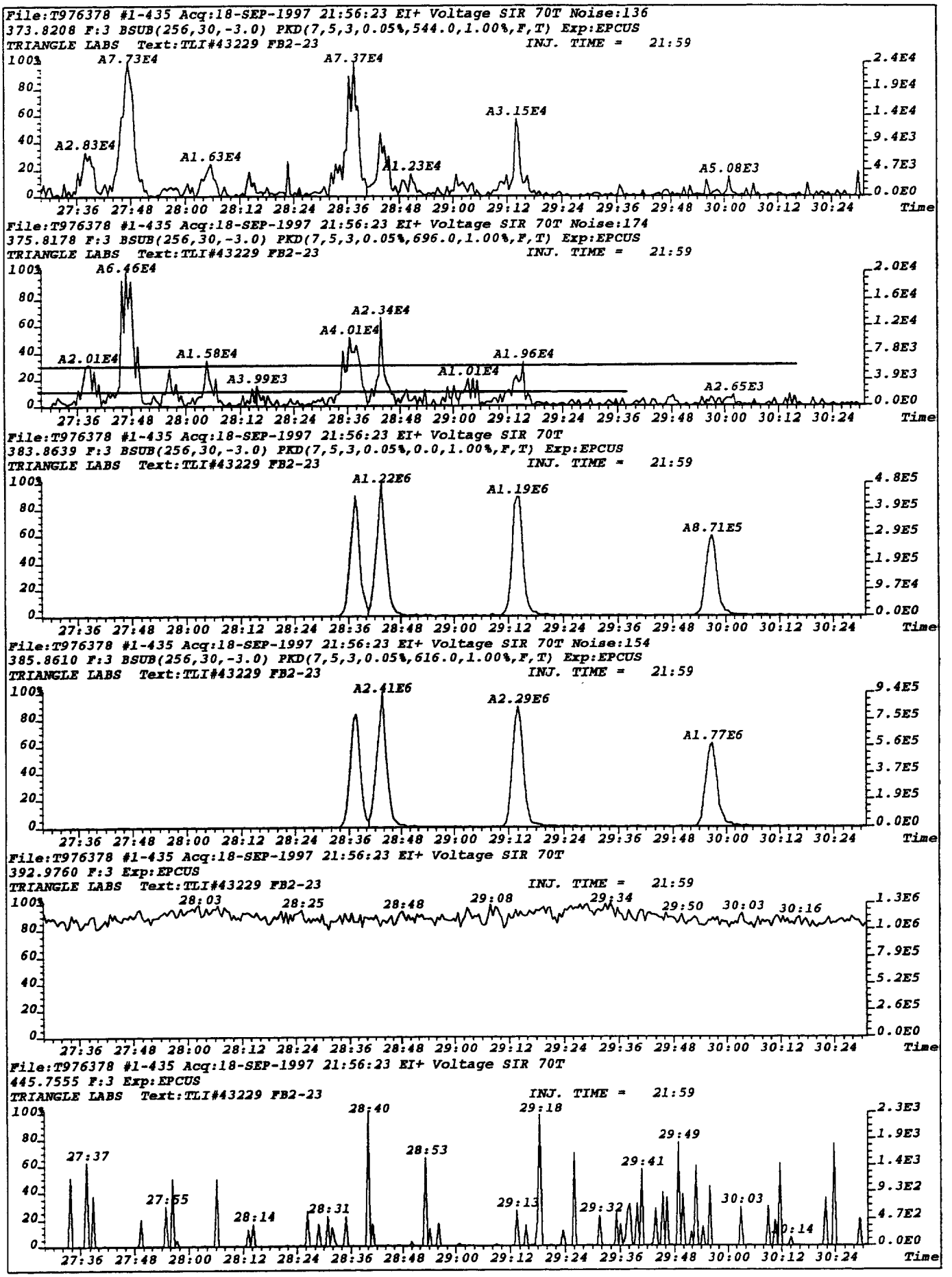
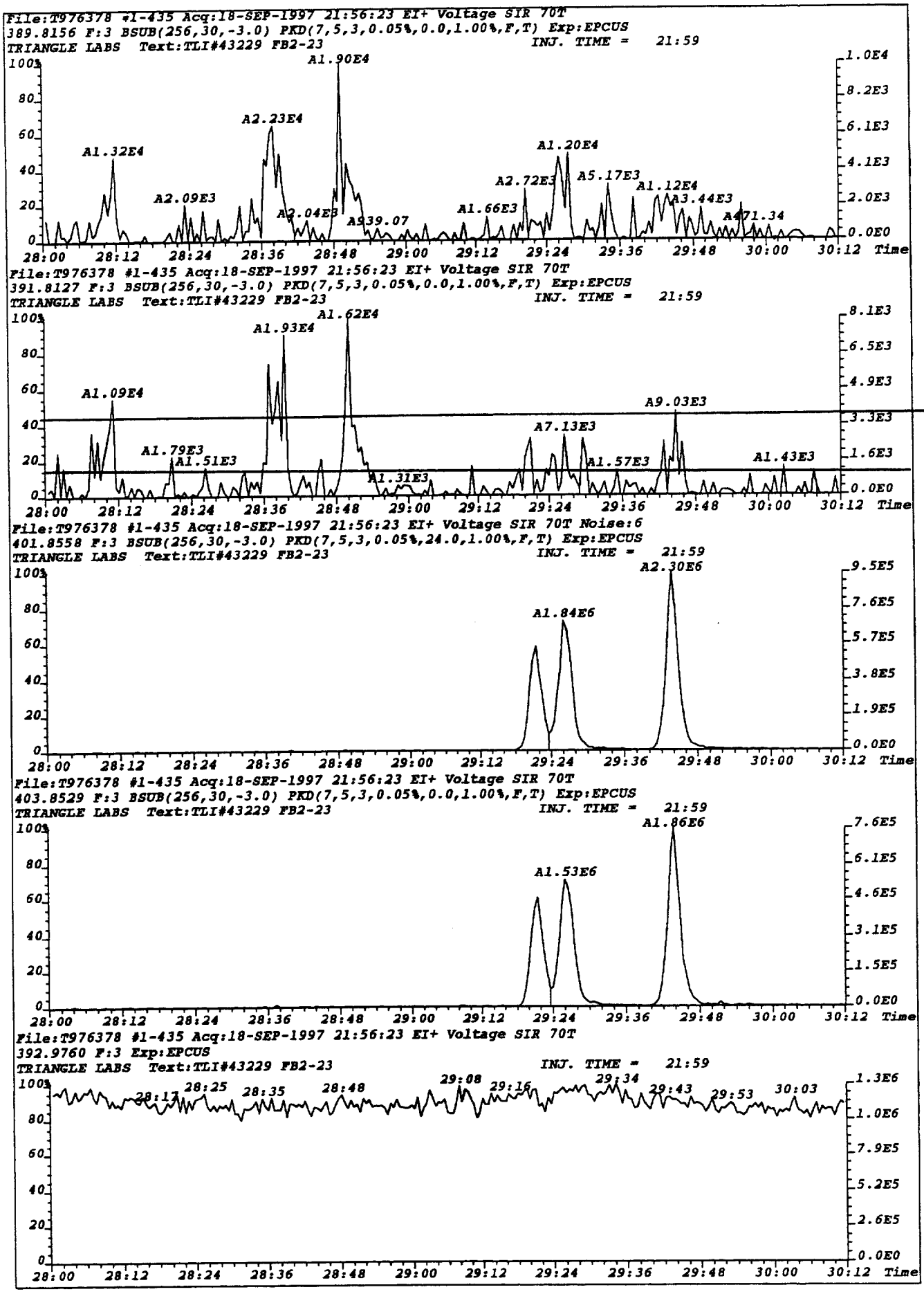
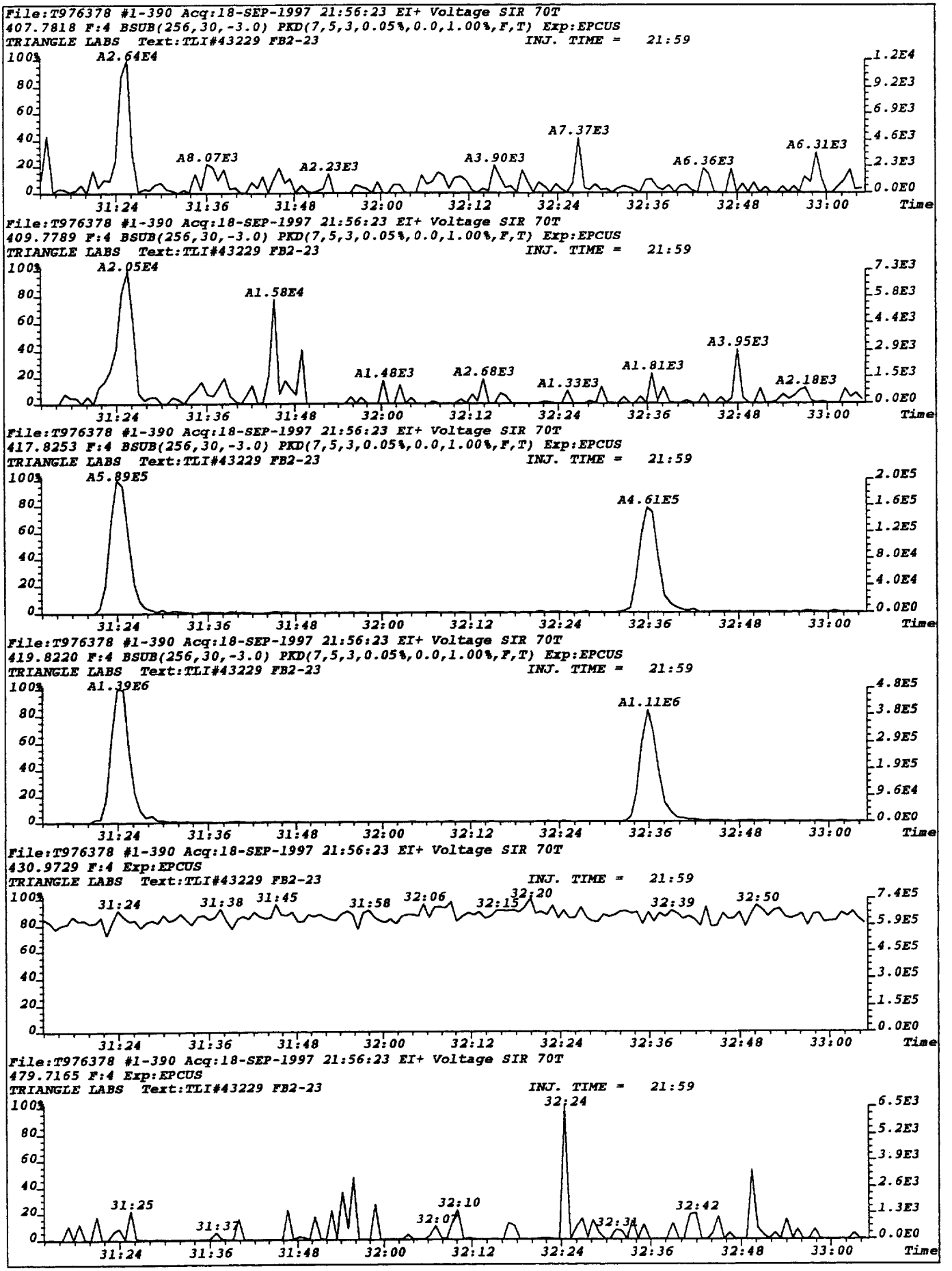
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A6.98E3
A5.39E3
A2.34E3
A4.33E3
A1.93E3
A1.56E3
A1.41E3
A1.85E3
A2.71E3
3.9E3
3.1E3
2.3E3
1.5E3
7.7E2
0.0E0
19:00
20:00
21:00
22:00
23:00
Time
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A4.90E3
A5.41E3
A4.01E3
A4.39E3
A5.68E3
A2.05E3
A1.71E3
A2.37E3
A2.05E3
4.2E3
3.4E3
2.5E3
1.7E3
8.4E2
0.0E0
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:866
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,3464.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.76E6
A1.61E6
6.8E5
5.4E5
4.1E5
2.7E5
1.4E5
0.0E0
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:347
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1388.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A3.23E6
A2.05E6
8.5E5
6.8E5
5.1E5
3.4E5
1.7E5
0.0E0
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A3.15E6
8.3E5
6.6E5
5.0E5
3.3E5
1.7E5
0.0E0
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
18:50
19:17
19:39
19:57
20:36
20:54
21:27
21:43
22:16
22:28
22:46
2.1E6
1.7E6
1.3E6
8.5E5
4.3E5
0.0E0

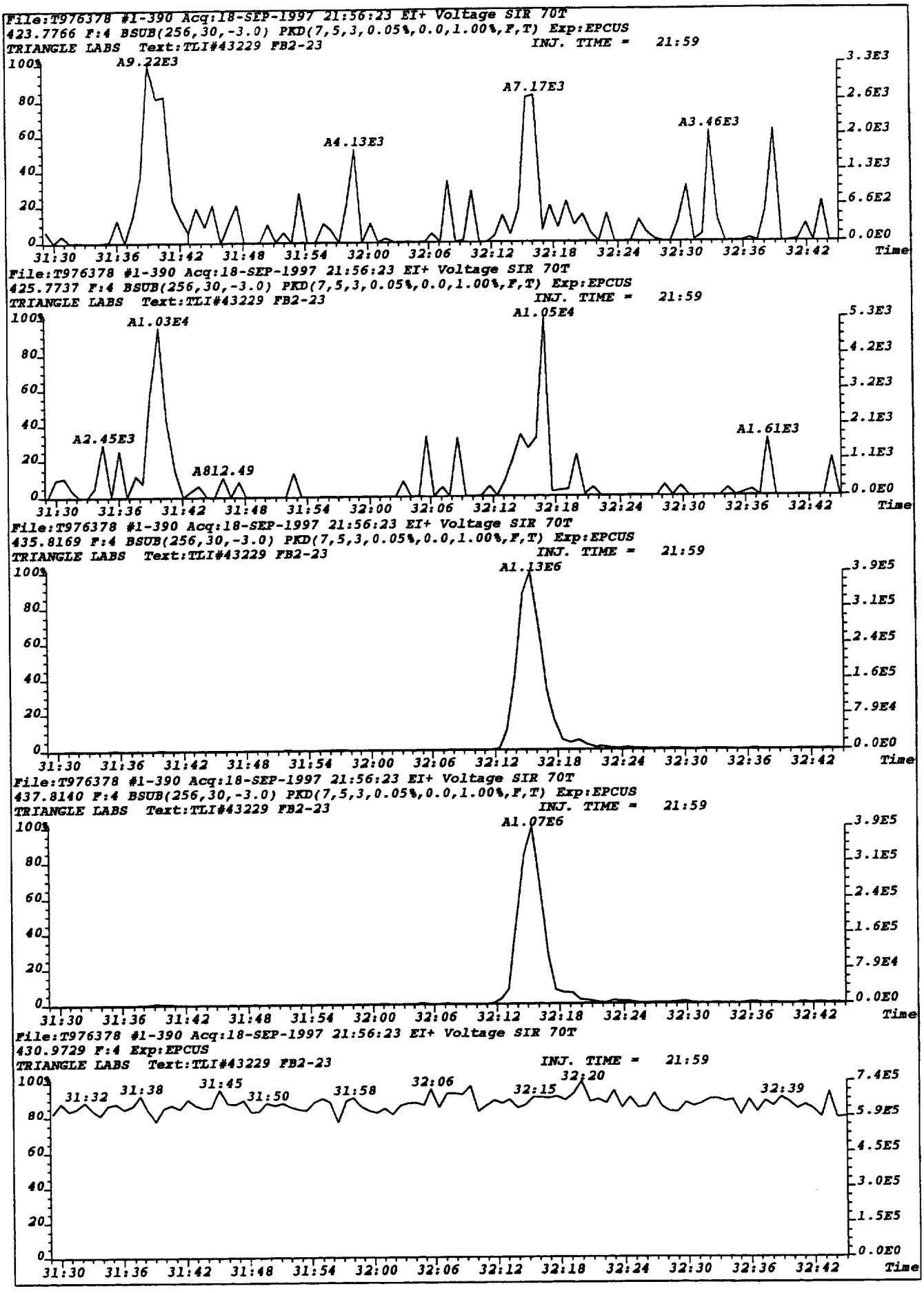

File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
339.8597 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.17E5
A3.56E4
A1.47E4
A3.38E4
A4.57E4
A3.34E4
A5.59E4
A3.07E3
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
341.8567 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A8.33E4
A2.73E4
A3.04E4
A1.74E4
A4.26E4
A7.18E3
A1.07E4
A8.50E3
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
351.9000 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.99E6
A2.10E6
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
353.8970 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.27E6
A1.43E6
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
23:19
23:41
23:53
24:14
24:31
24:48
25:13
25:26
25:43
26:04
26:21
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
26:38
23:00
24:00
25:00
26:00
27:00
Time

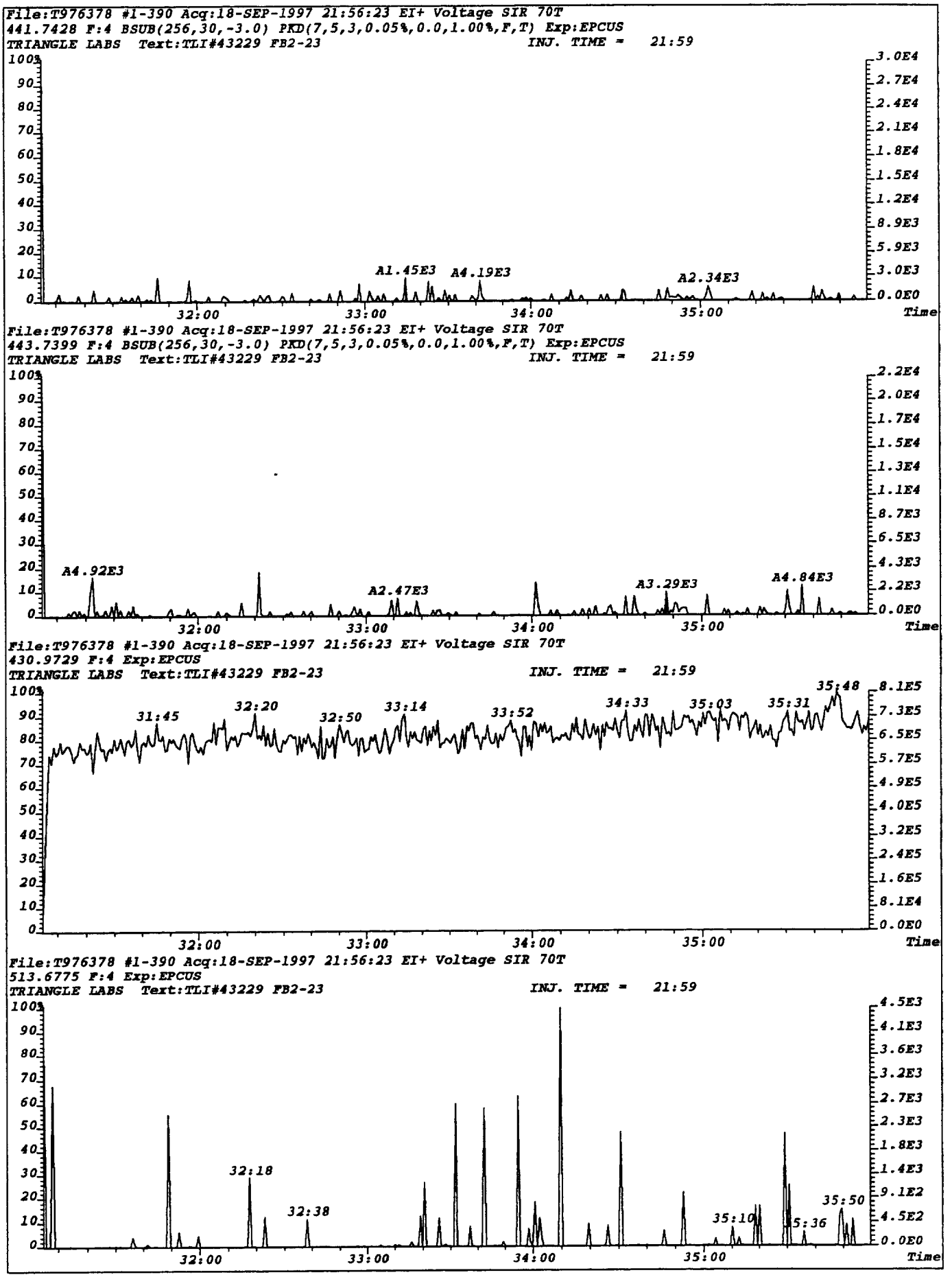

File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.92E4
A1.31E4
A7.90E3
A8.08E3
A1.07E4
A7.17E3
A2.84E3
A1.36E3
7.1E3
5.7E3
4.3E3
2.8E3
1.4E3
0.0E0
25:00
26:00
27:00
Time
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
357.8516 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.33E4
A3.20E3
A5.52E3
A4.54E3
A3.01E3
A763.93
A1.26E3
5.7E3
4.6E3
3.4E3
2.3E3
1.1E3
0.0E0
25:00
26:00
27:00
Time
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
367.8949 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.25E6
A1.12E5
4.3E5
3.5E5
2.6E5
1.7E5
8.6E4
0.0E0
25:00
26:00
27:00
Time
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A8.03E5
A9.42E4
2.8E5
2.2E5
1.7E5
1.1E5
5.6E4
0.0E0
25:00
26:00
27:00
Time
File:T976378 #1-892 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
24:14
24:31
24:48
25:13
25:26
25:43
26:04
26:21
26:45
26:56
2.5E6
2.0E6
1.5E6
1.0E6
5.0E5
0.0E0
25:00
26:00
27:00
Time

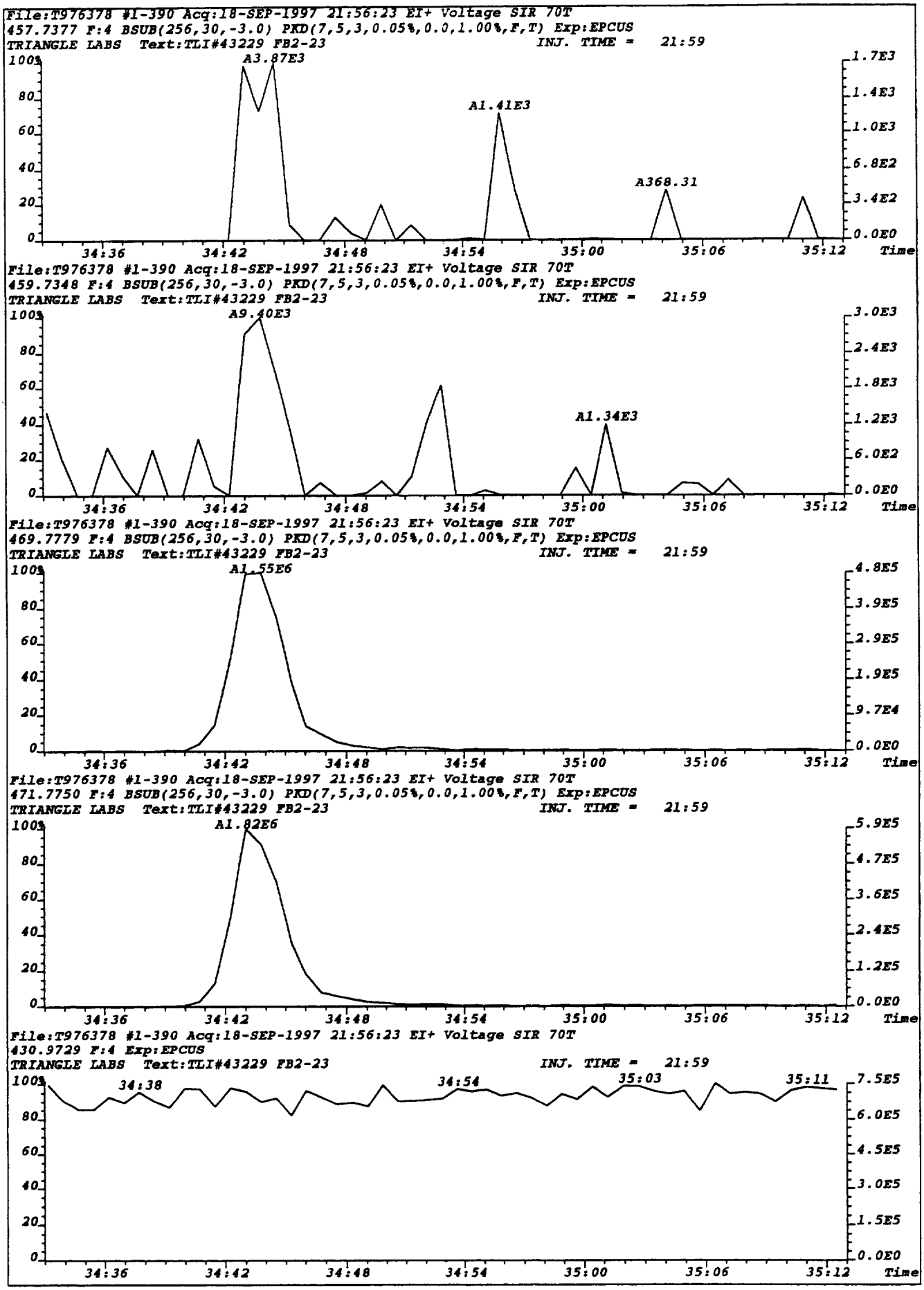

File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:136
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,544.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A7.73E4
A7.37E4
A3.15E4
A2.83E4
A1.63E4
A1.23E4
A5.08E3
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:174
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,696.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A6.46E4
A2.34E4
A4.01E4
A2.01E4
A1.58E4
A1.96E4
A3.99E3
A1.01E4
A2.65E3
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.22E6
A1.19E6
A8.71E5
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:154
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,616.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.41E6
A2.29E6
A1.77E6
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
28:03
28:25
28:48
29:08
29:34
29:50
30:03
30:16
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
28:40
29:18
27:37
28:53
29:49
29:41
27:55
28:14
28:31
29:13
29:32
30:03
30:14
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 30:24
Time

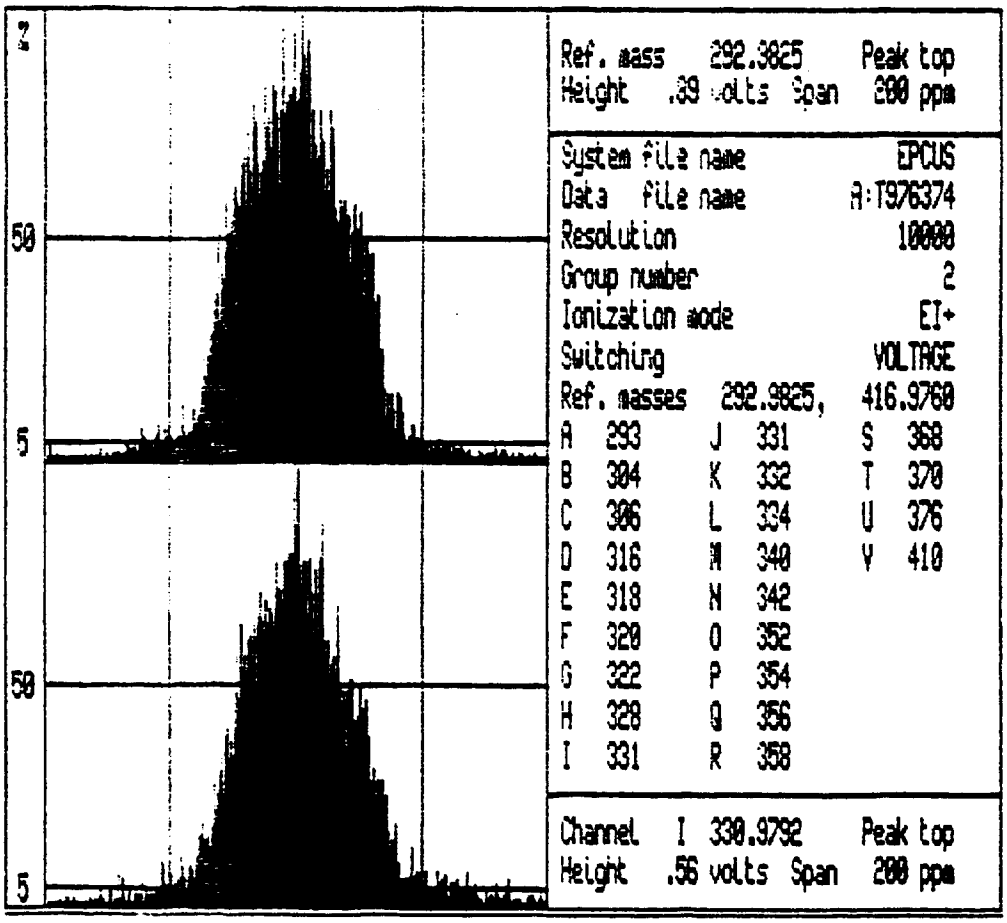

File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.90E4
A2.23E4
A1.32E4
A1.20E4
A2.72E3
A5.17E3
A1.12E4
A2.09E3
A2.04E3
A939.07
A1.66E3
A3.44E3
A471.34
28:00 28:12 28:24 28:36 28:48 29:00 29:12 29:24 29:36 29:48 30:00 30:12 Time
File:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.62E4
A1.93E4
A1.09E4
A9.03E3
A7.13E3
A1.79E3
A1.51E3
A1.57E3
A1.43E3
A1.31E3
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:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T Noise:6
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,24.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.30E6
A1.84E6
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:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.86E6
A1.53E6
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:T976378 #1-435 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
28:17 28:25 28:35 28:48 29:08 29:16 29:34 29:43 29:53 30:03
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

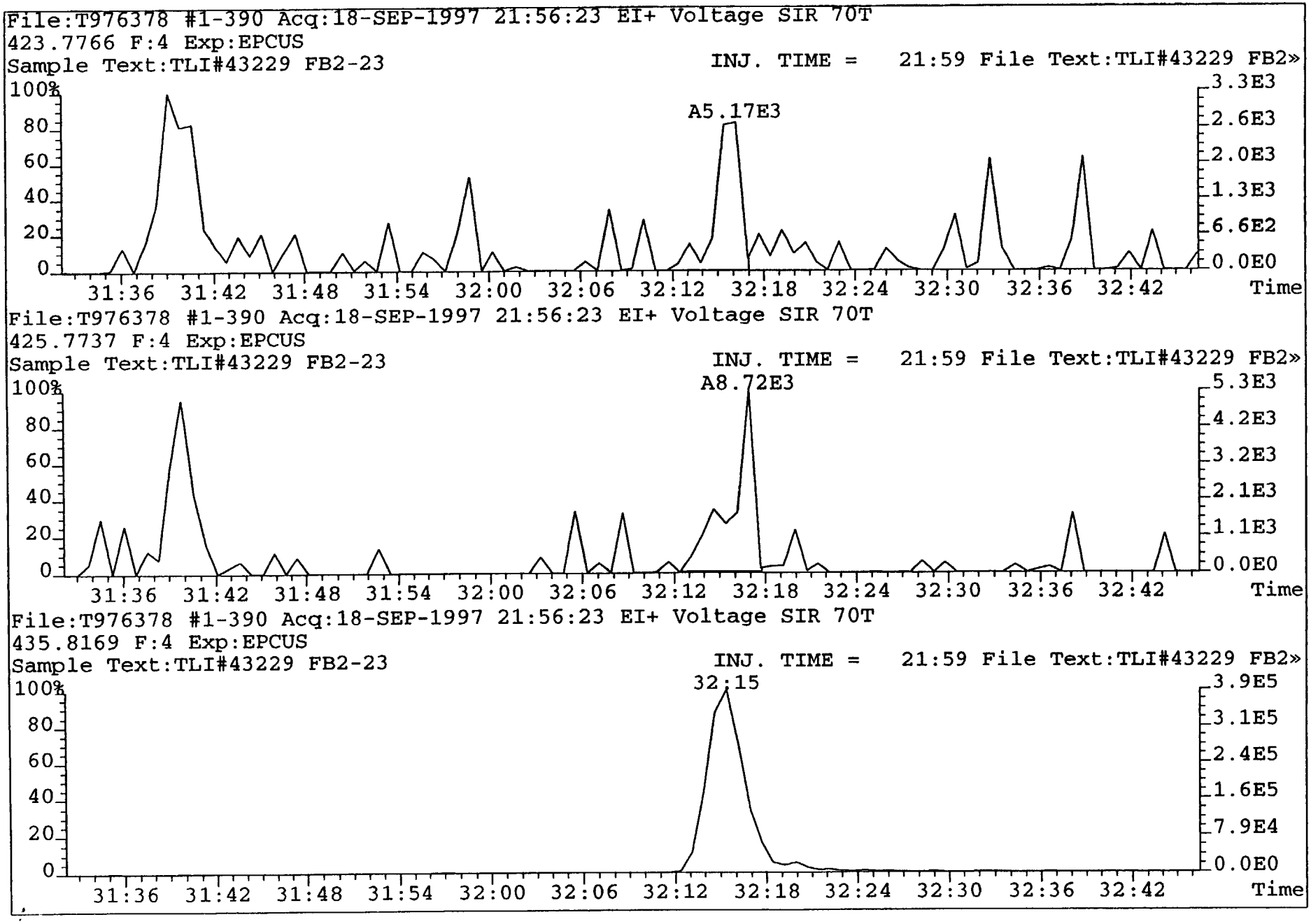

File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.64E4
A8.07E3
A2.23E3
A3.90E3
A7.37E3
A6.36E3
A6.31E3
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A2.05E4
A1.58E4
A1.48E3
A2.68E3
A1.33E3
A1.81E3
A3.95E3
A2.18E3
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A5.89E5
A4.61E5
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.39E6
A1.11E6
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
32:24
Time

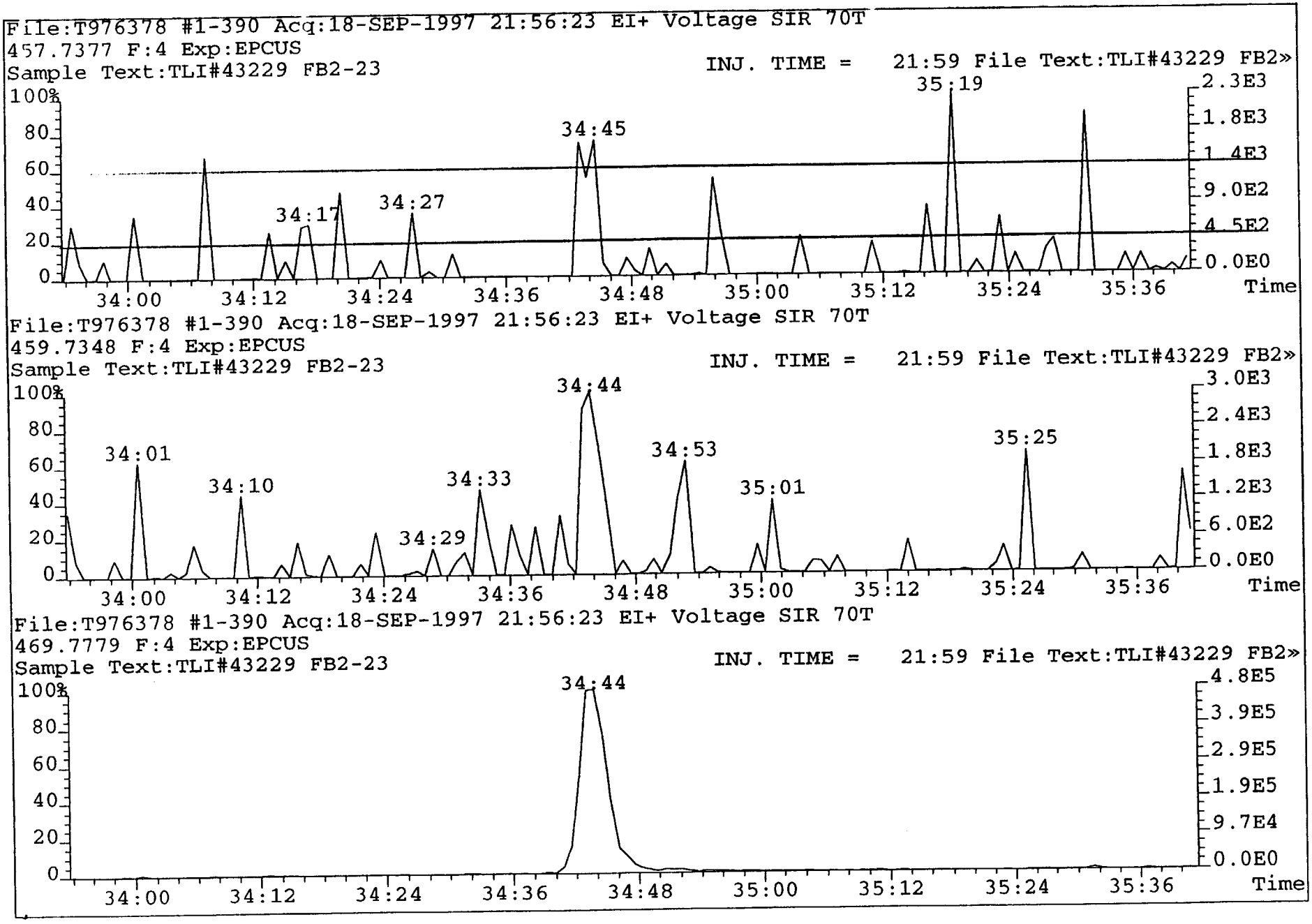

File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
423.7766 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A9.22E3
A4.13E3
A7.17E3
A3.46E3
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
425.7737 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.03E4
A1.05E4
A2.45E3
A812.49
A1.61E3
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.13E6
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.07E6
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
31:32
31:38
31:45
31:50
31:58
32:06
32:15
32:20
32:39
Time

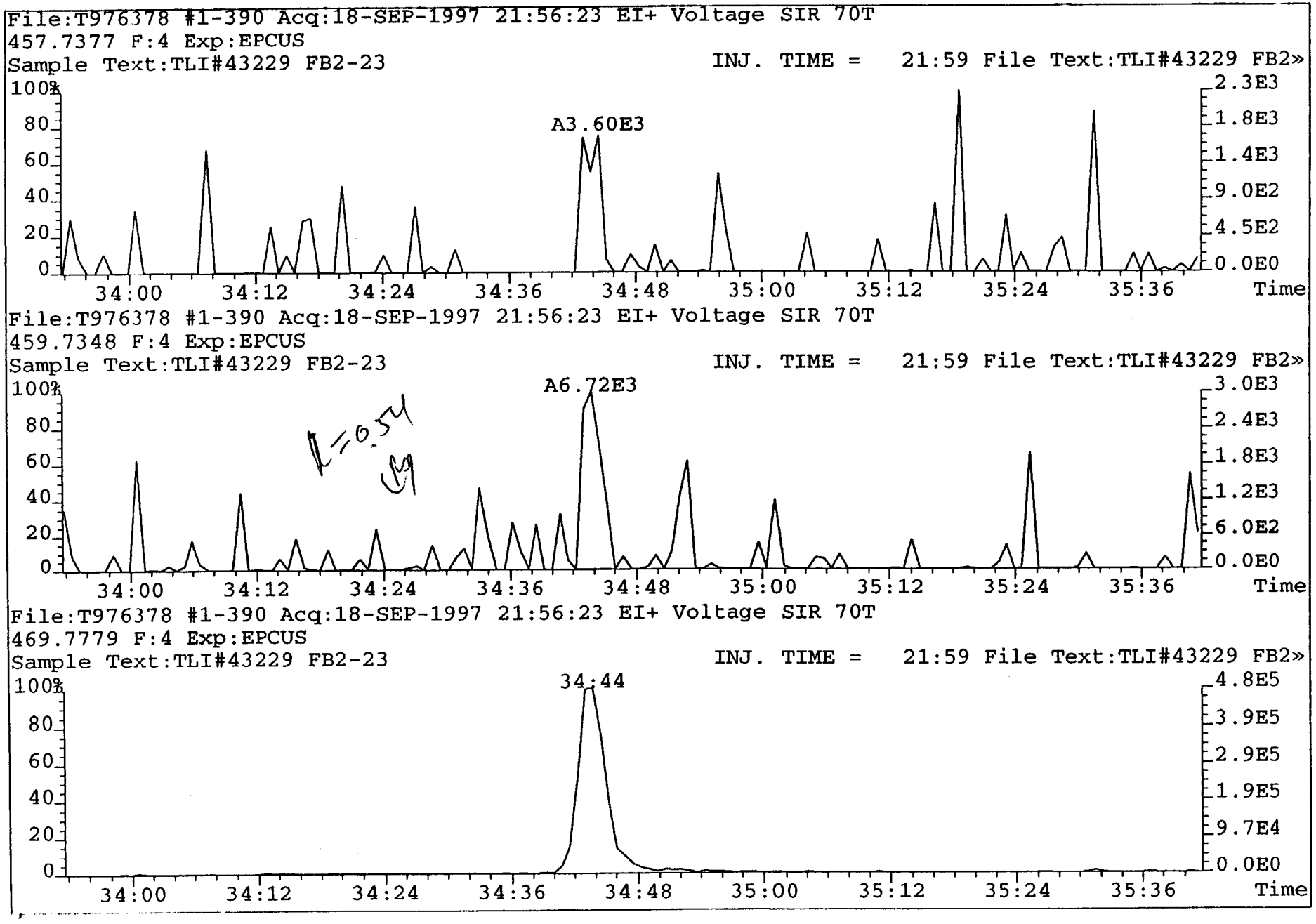

File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.45E3
A4.19E3
A2.34E3
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A4.92E3
A2.47E3
A3.29E3
A4.84E3
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
31:45
32:20
32:50
33:14
33:52
34:33
35:03
35:31
35:48
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
32:18
32:38
35:10
35:36
35:50
Time


File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
457.7377 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A3.87E3
A1.41E3
A368.31
1.7E3
1.4E3
1.0E3
6.8E2
3.4E2
0.0E0
34:36
34:42
34:48
34:54
35:00
35:06
35:12
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
459.7348 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A9.40E3
A1.34E3
3.0E3
2.4E3
1.8E3
1.2E3
6.0E2
0.0E0
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.55E6
4.8E5
3.9E5
2.9E5
1.9E5
9.7E4
0.0E0
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
471.7750 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,0.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
A1.82E6
5.9E5
4.7E5
3.6E5
2.4E5
1.2E5
0.0E0
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 FB2-23
INJ. TIME = 21:59
34:38
34:54
35:03
35:11
7.5E5
6.0E5
4.5E5
3.0E5
1.5E5
0.0E0


%
50
5
50
5
Ref. mass 292.3825 Peak top
Height .39 volts Span 200 ppm
System file name EPCUS
Data file name A:T976374
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 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 .56 volts Span 200 ppm


File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
423.7766 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
A5.17E3
100%
80
60
40
20
0
3.3E3
2.6E3
2.0E3
1.3E3
6.6E2
0.0E0
31:36 31:42 31:48 31:54 32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
425.7737 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
A8.72E3
100%
80
60
40
20
0
5.3E3
4.2E3
3.2E3
2.1E3
1.1E3
0.0E0
31:36 31:42 31:48 31:54 32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
435.8169 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
32:15
100%
80
60
40
20
0
3.9E5
3.1E5
2.4E5
1.6E5
7.9E4
0.0E0
31:36 31:42 31:48 31:54 32:00 32:06 32:12 32:18 32:24 32:30 32:36 32:42
Time


File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
100%
80
60
40
20
0
34:17
34:27
34:45
35:19
2.3E3
1.8E3
1.4E3
9.0E2
4.5E2
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
100%
80
60
40
20
0
34:01
34:10
34:29
34:33
34:44
34:53
35:01
35:25
3.0E3
2.4E3
1.8E3
1.2E3
6.0E2
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
469.7779 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
100%
80
60
40
20
0
34:44
4.8E5
3.9E5
2.9E5
1.9E5
9.7E4
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time


File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
A3.60E3
100%
80
60
40
20
0
2.3E3
1.8E3
1.4E3
9.0E2
4.5E2
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
A6.72E3
100%
80
60
40
20
0
3.0E3
2.4E3
1.8E3
1.2E3
6.0E2
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time
File:T976378 #1-390 Acq:18-SEP-1997 21:56:23 EI+ Voltage SIR 70T
469.7779 F:4 Exp:EPCUS
Sample Text:TLI#43229 FB2-23
INJ. TIME = 21:59 File Text:TLI#43229 FB2»
34:44
100%
80
60
40
20
0
4.8E5
3.9E5
2.9E5
1.9E5
9.7E4
0.0E0
34:00
34:12
34:24
34:36
34:48
35:00
35:12
35:24
35:36
Time

Pacific Environmental Services

TLI Project: **43229** — Method 23 PCDD/PCDF Analysis (a)
Client Sample: **Trip Blank** — Analysis File: **T976379**

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPX23704
TLI ID:	183-1-6A-D	Date Extracted:	09/14/97	ICal:	TF53286
		Date Analyzed:	09/18/97	ConCal:	T976372
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-5	Analyst:	KAS	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.03				—
1,2,3,7,8-PeCDD	EMPC		0.04			—
1,2,3,4,7,8-HxCDD	ND	0.03				—
1,2,3,6,7,8-HxCDD	ND	0.03				—
1,2,3,7,8,9-HxCDD	ND	0.03				—
1,2,3,4,6,7,8-HpCDD	0.04			1.18	32:15	—
1,2,3,4,6,7,8,9-OCDD	ND	0.05				—
2,3,7,8-TCDF	EMPC		0.28			—
1,2,3,7,8-PeCDF	EMPC		0.10			—
2,3,4,7,8-PeCDF	0.17			1.53	25:46	—
1,2,3,4,7,8-HxCDF	0.16			1.10	28:36	—
1,2,3,6,7,8-HxCDF	0.07			1.41	28:43	—
2,3,4,6,7,8-HxCDF	EMPC		0.05			—
1,2,3,7,8,9-HxCDF	ND	0.03				—
1,2,3,4,6,7,8-HpCDF	0.07			1.10	31:24	—
1,2,3,4,7,8,9-HpCDF	ND	0.04				—
1,2,3,4,6,7,8,9-OCDF	ND	0.04				—

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	ND		0.03		—
Total PeCDD	EMPC			0.20	—
Total HxCDD	0.13	2			—
Total HpCDD	0.04	1		0.06	—
Total TCDF	1.1	7		1.6	—
Total PeCDF	1.4	7		1.9	—
Total HxCDF	0.63	7		0.69	—
Total HpCDF	0.07	1			—

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Printed: 17:03 09/22/97

TLI Project: 43229 Method 23 PCDD/PCDF Analysis (a)
Client Sample: **Trip Blank** Analysis File: **T976379**

Internal Standards	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.0	49.6	40%-130%	0.77	20:45	___
$^{13}C_{12}$-2,3,7,8-TCDD	2.0	50.4	40%-130%	0.77	21:33	___
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.6	39.8	40%-130%	1.47	25:00	V___
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1.7	43.3	40%-130%	1.31	26:07	RO___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.5	62.6	40%-130%	0.50	28:43	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.9	72.7	40%-130%	1.24	29:26	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.3	57.4	25%-130%	0.45	31:23	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2.7	67.0	25%-130%	1.01	32:15	___
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	5.4	67.5	25%-130%	0.82	34:43	___

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.8	94.6	70%-140%		21:35	___
$^{13}C_{12}$-2,3,4,7,8-PeCDF	4.2	104	70%-140%	1.49	25:46	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.9	98.0	70%-140%	0.50	28:36	___
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.4	83.8	70%-140%	1.21	29:20	___
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.5	87.8	70%-140%	0.43	32:35	___

Alternate Standards (Type A)	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2.5	61.8	40%-130%	0.50	29:56	___
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2.5	63.3	40%-130%	0.48	29:13	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	21:22	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.18	29:43	___

Data Reviewer: _____ 09/22/97

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Printed: 17:03 09/22/97

Initial ....Date...

Data Review By: _____ 9/__/__ Calculated Noise Area: 0.93

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

Page No. 1 Listing of T976379B.dbf
09/22/97 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						0.826-1.097			
304-306		DC	NL	0:00	RO	1.38	0.14			0.000			
A				17:19		0.83	7.35	3.34	4.01	0.835			
K				17:51		0.80	5.90	2.62	3.28	0.860			
D		DC	SN	18:03	RO	1.26	2.02			0.870			
				18:29		0.80	25.69	11.43	14.26	0.891			
A				18:50		0.72	15.27	6.37	8.90	0.908			
				19:18		0.73	15.57	6.59	8.98	0.930			
				19:39	RO	1.08	12.50	7.63	7.06	0.947			
D		d	SN	19:54	RO	1.26	5.58			0.959			
				20:18	RO	0.61	8.46	3.68	6.01	0.978			
D		d	SN	20:34	RO	1.24	6.69			0.991			
				20:48	RO	0.96	26.82	14.47	15.15	1.002	2378-TCDF		AN
				21:15		0.82	15.68	7.08	8.60	1.024			
				21:29		0.86	18.92	8.74	10.18	1.035			
		DC	SN	21:44	RO	0.17	0.51			1.047			
		DC	SN	21:55	RO	0.61	0.78			1.056			
		DC	WH	23:03	RO	1.40	0.92			1.111			
304-306		10	Peaks				152.16						
13C12-TCDF				0.65-0.89						0.952-1.048			
316-318		DC	NL	0:00		0.88	0.15			0.000			
		DC	WL	17:43	RO	2.73	0.39			0.854			
		DC	WL	18:05	RO	3.08	0.44			0.871			
		DC	WL	18:50		0.68	0.64			0.908			
		DC	SN	19:57	RO	0.46	0.55			0.961			
				20:45		0.77	356.87	154.82	202.05	1.000	13C12-2378-TCDF		ISO
		DC	SN	21:44	RO	1.68	1.73			1.047			
316-318		1	Peak				356.87						

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

TCDD				0.65-0.89						0.861-1.056			
320-322		DC	NL	0:00	RO	1.40	0.09			0.000			
D		d	SN	18:45		0.76	3.84			0.870			
		DC	SN	19:12		0.85	1.09			0.891			
		DC	SN	19:55	RO	0.15	0.16			0.924			
		DC	SN	20:18		0.75	1.68			0.942			
		DC	SN	21:07	RO	7.75	0.07			0.980			
		DC	SN	21:14	RO	6.67	0.05			0.985			
		DC	SN	21:20	RO	1.29	0.67			0.990			
		DC	SN	21:26		0.86	1.71			0.995			
		DC	SN	21:41		0.82	0.31			1.006			
		DC	SN	22:10		0.82	0.89			1.029			

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		22:17		0.79	0.25			1.034			
	DC	SN		22:29	RO	0.17	0.05			1.043			
	DC	SN		22:37	RO	2.43	0.41			1.049			
	DC	WH		22:50	RO	0.22	0.64			1.060			
320-322		0	Peaks				0.00						
37Cl-TCDD										0.907-1.093			
328	DC	NL		0:00			0.07			0.000			
	DC	WL		18:33			0.36			0.861			
	DC	WL		18:47			0.15			0.872			
	DC	WL		19:00			0.22			0.882			
	DC	WL		19:02			0.31			0.883			
	DC	WL		19:15			0.44			0.893			
	DC	WL		19:32			0.31			0.906			
	DC	SN		19:43			0.25			0.915			
				20:05			3.01	3.01		0.932			
	DC	SN		20:33			0.11			0.954			
	DC	SN		20:54			0.65			0.970			
	DC	SN		21:11			0.77			0.983			
				21:35			264.49	264.49		1.002	37Cl-TCDD		SUR1
	DC	SN		21:48			0.78			1.012			
				22:02			1.06	1.06		1.022			
	DC	SN		22:28			0.40			1.043			
	DC	SN		22:39			0.73			1.051			
	DC	SN		22:58			0.32			1.066			
	DC	SN		23:06			0.23			1.072			
328		3	Peaks				268.56						
13C12-TCDD						0.65-0.89				0.907-1.093			
332-334	DC	NL		0:00	RO	3.36	1.17			0.000			
	DC	WL		18:37	RO	3.31	1.20			0.864			
	DC	WL		18:45	RO	1.05	2.30			0.870			
	DC	SN		19:37	RO	3.91	0.81			0.910			
	DC	SN		19:44	RO	2.72	1.68			0.916			
	DC	SN		19:54		0.80	1.26			0.923			
				20:12		0.78	2.31	1.01	1.30	0.937			
				20:18	RO	3.02	2.18	3.71	1.23	0.942			
				20:36	RO	1.60	1.86	1.68	1.05	0.956			
				21:22		0.85	556.59	255.48	301.11	0.991	13C12-1234-TCDD		RS1
				21:33		0.77	306.30	133.52	172.78	1.000	13C12-2378-TCDD		IS1
				21:56	RO	1.33	6.04	4.53	3.41	1.018			
				22:17	RO	1.77	2.80	2.79	1.58	1.034			
	DC	SN		22:46	RO	9.67	1.12			1.056			
332-334		7	Peaks				878.08						
---------- Above: TCDD / PeCDF Follows ----------													
PeCDF						1.32-1.78				0.909-1.075			
340-342	DC	NL		0:00	RO	1.00	0.13			0.000			
				22:54		1.33	16.55	9.46	7.09	0.916			
	DC	SN		23:05		1.36	0.33			0.923			
	DC	SN		23:08	RO	1.09	0.39			0.925			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
		DC	SN	23:29	RO	1.13	0.56			0.939			
		DC	SN	23:39	RO	0.61	0.33			0.946			
		DC	SN	23:48	RO	0.71	0.58			0.952			
				23:59		1.43	12.10	7.12	4.98	0.959			
				24:07		1.57	44.41	27.10	17.31	0.965			
				24:18	RO	1.15	8.83	5.37	4.65	0.972			
				24:27		1.40	5.16	3.01	2.15	0.978			
	A			24:40	RO	1.99	9.54	7.46	3.74	0.987			
	M			25:01	RO	1.31	7.70	4.68	3.56	1.001	12378-PeCDF		AN
				25:11		1.55	5.58	3.39	2.19	1.007			
				25:19		1.36	9.95	5.73	4.22	1.013			
		DC	SN	25:39	RO	0.93	0.64			1.026			
				25:46		1.53	13.03	7.87	5.16	1.031	23478-PeCDF		AN
				25:55	RO	1.28	10.86	6.60	5.17	1.037			
		DC	SN	26:01	RO	1.22	0.92			1.041			
		DC	SN	26:12		1.72	1.28			1.048			
	D	d	SN	26:45	RO	0.76	1.88			1.070			
340-342			11	Peaks			143.71						
13C12-PeCDF					1.32-1.78					0.840-1.160			
352-354		DC	NL	0:00	RO	0.88	0.12			0.000			
		DC	SN	23:30	RO	0.19	0.18			0.940			
				24:05	RO	1.31	4.61	2.80	2.13	0.963			
		DC	SN	24:18	RO	0.44	0.31			0.972			
		DC	SN	24:37	RO	1.14	1.07			0.985			
				25:00		1.47	273.30	162.79	110.51	1.000	13C12-PeCDF 123		IS2
				25:18	RO	0.91	2.39	1.45	1.59	1.012			
		DC	SN	25:34	RO	1.20	0.69			1.023			
				25:46		1.49	290.34	173.60	116.74	1.031	13C12-PeCDF 234		SUR2
				26:06	RO	1.01	2.04	1.24	1.23	1.044			
		DC	SN	26:30	RO	0.55	0.43			1.060			
		DC	SN	26:45	RO	0.36	0.59			1.070			
		DC	SN	26:53		1.52	1.16			1.075			
352-354			5	Peaks			572.68						
---------- Above: PeCDF / PeCDD Follows ----------													
PeCDD					1.32-1.78					0.922-1.025			
356-358		DC	NL	0:00	RO	1.00	0.10			0.000			
	A			24:14	RO	0.80	4.24	2.58	3.23	0.928			
		DC	SN	24:34	RO	0.19	0.15			0.941			
	K			25:02	RO	2.01	2.09	1.65	0.82	0.959			
		DC	SN	25:10	RO	2.51	0.89			0.964			
				25:19	RO	1.26	2.39	1.45	1.15	0.969			
		DC	SN	25:31	RO	2.64	0.99			0.977			
		DC	SN	25:41		1.67	0.72			0.983			
	K			26:08	RO	2.45	2.12	2.03	0.83	1.001	12378-PeCDD		AN
		DC	SN	26:17	RO	3.69	0.97			1.006			
		DC	SN	26:28	RO	3.75	0.31			1.013			
		DC	SN	26:37	RO	0.52	0.48			1.019			
		DC	WH	26:53	RO	0.63	0.20			1.029			
356-358			4	Peaks			10.84						

Compound/ M_Z....	QC.Log	Cmit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
13C12-PeCDD				1.32-1.78						0.847-1.153			
368-370	DC	NL		0:00	RO	0.88	0.12			0.000			
	DC	SN		25:10	RO	0.94	0.54			0.964			
	DC	SN		25:31	RO	0.92	0.56			0.977			
				26:07	RO	1.31	174.62	106.14	81.23	1.000	13C12-PeCDD 123	IS3	
				26:15		1.75	16.91	10.75	6.16	1.005			
	DC	SN		26:38	RO	4.31	0.41			1.020			
	DC	SN		26:58	RO	0.87	0.66			1.033			
368-370			2	Peaks			191.53						
---------- Above: PeCDD / HxCDF Follows ----------													
HxCDF				1.05-1.43						0.956-1.050			
374-376	DC	NL		0:00		1.20	0.11			0.000			
				27:37		1.22	6.07	3.33	2.74	0.962			
				27:47		1.21	21.65	11.87	9.78	0.967			
				27:56		1.05	2.38	1.22	1.16	0.973			
				28:04		1.32	3.69	2.10	1.59	0.977			
	DC	SN		28:26	RO	4.18	0.38			0.990			
				28:36		1.10	14.50	7.61	6.89	0.996	123478-HxCDF	AN	
				28:43		1.41	8.46	4.95	3.51	1.000	123678-HxCDF	AN	
	DC	SN		28:49	RO	1.58	1.77			1.003			
				29:02		1.37	4.12	2.38	1.74	1.011			
				29:13	RO	1.63	4.79	3.48	2.14	1.017	234678-HxCDF	AN	
	DC	SN		29:21	RO	2.29	0.16			1.022			
	DC	SN		29:29	RO	0.84	0.29			1.027			
	DC	SN		29:34	RO	3.43	0.16			1.030			
	DC	SN		29:44	RO	0.72	0.23			1.035			
	DC	SN		29:46		1.14	0.15			1.037			
	DC	SN		29:55		1.08	0.83			1.042	123789-HxCDF	AN	
	DC	SN		30:00	RO	2.50	0.81			1.045			
	DC	WH		30:12		1.08	0.27			1.052			
	DC	WH		30:22	RO	0.22	0.04			1.057			
374-376			8	Peaks			65.66						
13C12-HxCDF				0.43-0.59						0.861-1.139			
384-386	DC	NL		0:00	RO	0.10	0.18			0.000			
	DC	SN		27:37	RO	0.37	0.65			0.962			
	DC	SN		27:45		0.51	2.90			0.966			
	DC	SN		27:52	RO	1.65	0.26			0.970			
	DC	SN		28:08	RO	0.92	0.59			0.980			
				28:36		0.50	307.16	102.43	204.73	0.996	13C12-HxCDF 478	SUR3	
				28:43		0.50	335.80	111.39	224.41	1.000	13C12-HxCDF 678	IS4	
	DC	SN		28:59	RO	0.76	1.21			1.009			
				29:13		0.48	322.47	104.74	217.73	1.017	13C12-HxCDF 234	ALT2	
	DC	SN		29:25	RO	2.06	0.94			1.024			
	DC	SN		29:38	RO	0.76	1.68			1.032			
	DC	SN		29:49	RO	0.07	0.09			1.038			
				29:56		0.50	256.08	85.26	170.82	1.042	13C12-HxCDF 789	ALT1	
	DC	SN		30:05	RO	2.94	0.51			1.048			
	DC	SN		30:13	RO	2.51	0.59			1.052			
	DC	SN		30:26	RO	1.31	0.54			1.060			

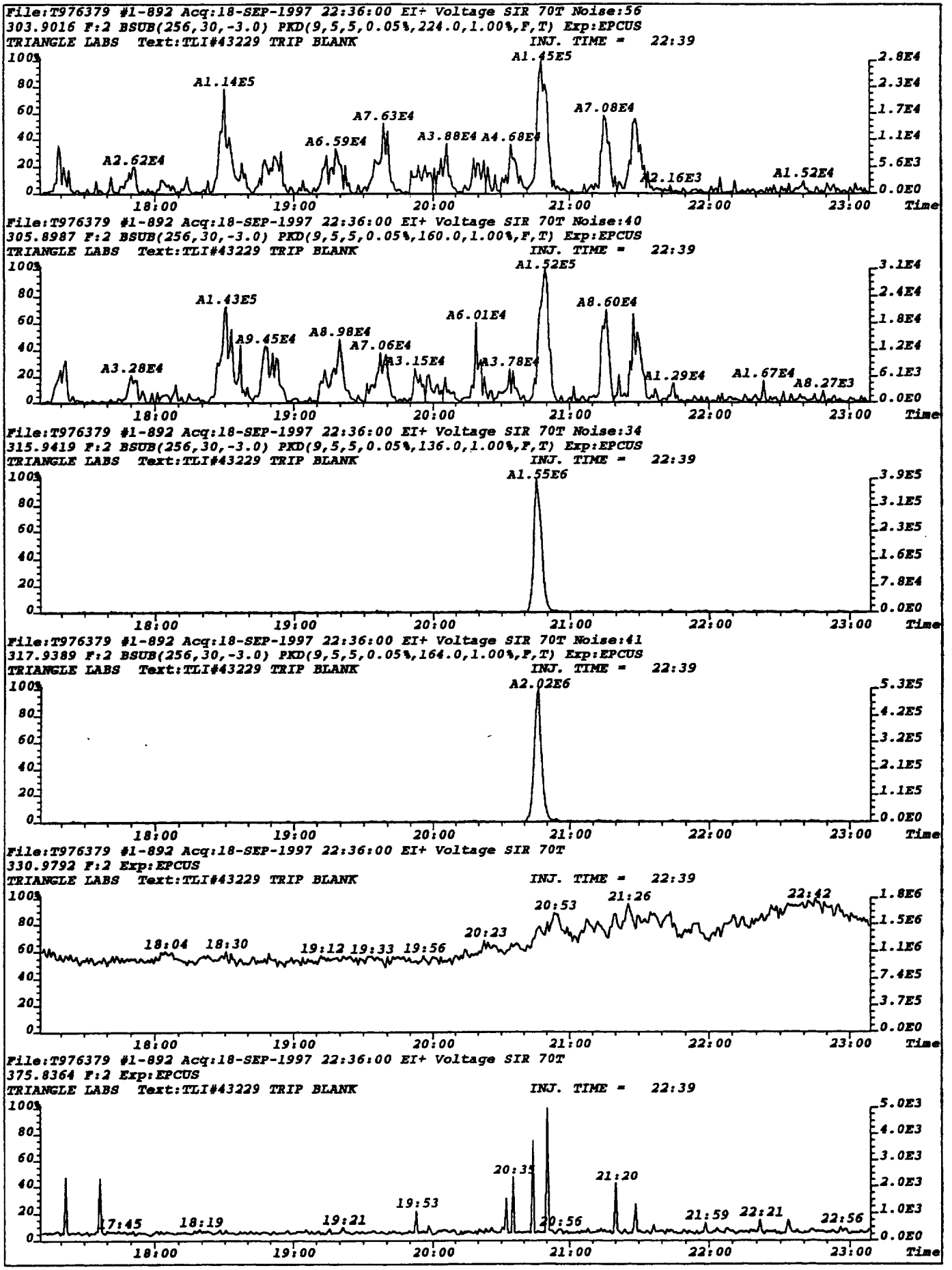
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
384-386			4 Peaks				1,221.51						
---------- Above: HxCDF / HxCDD Follows ----------													
HxCDD						1.05-1.43				0.951-1.014			
390-392	DC	NL	0:00	RO	0.63		0.09			0.000			
	DC	SN	28:02	RO	1.50		0.40			0.952			
	DC	SN	28:10	RO	1.49		1.59			0.957			
	DC	SN	28:17	RO	5.56		0.20			0.961			
	DC	SN	28:24	RO	0.56		0.33			0.965			
			28:37		1.28		4.79	2.69	2.10	0.972			
	DC	SN	28:44	RO	2.29		0.31			0.976			
			28:51		1.28		4.72	2.65	2.07	0.980			
	DC	SN	28:59	RO	1.70		0.83			0.985			
	DC	SN	29:05	RO	0.24		0.09			0.988			
	DC	SN	29:13	RO	1.00		0.45			0.993			
	DC	SN	29:21	RO	0.92		0.83			0.997	123478-HxCDD		AN
	DC	SN	29:27	RO	0.79		1.41			1.001	123678-HxCDD		AN
	DC	SN	29:47	RO	0.78		0.13			1.012			
	DC	WH	29:56	RO	0.67		0.18			1.017			
	DC	WH	30:02	RO	0.38		0.05			1.020			
	DC	WH	30:06	RO	0.50		0.13			1.023			
	DC	WH	30:12		1.17		0.26			1.026			
390-392			2 Peaks				9.51						
13C12-HxCDD						1.05-1.43				0.966-1.034			
402-404	DC	NL	0:00	RO	5.00		0.18			0.000			
	DC	WL	28:02	RO	4.50		0.13			0.952			
	DC	WL	28:07	RO	0.74		0.51			0.955			
	DC	WL	28:11	RO	3.21		0.31			0.958			
	DC	WL	28:23	RO	5.42		0.27			0.964			
	DC	SN	28:30	RO	0.37		0.20			0.968			
	DC	SN	28:32		1.38		0.31			0.969			
	DC	SN	28:36		1.11		0.40			0.972			
	DC	SN	28:43		1.36		0.78			0.976			
	DC	SN	29:02		1.24		1.21			0.986			
			29:20		1.21		229.60	125.86	103.74	0.997	13C12-HxCDD 478		SUR4
			29:26		1.24		304.83	168.87	135.96	1.000	13C12-HxCDD 678		IS5
			29:43		1.18		444.57	240.48	204.09	1.010	13C12-HxCDD 789		RS2
			29:56	RO	0.86		2.64	1.46	1.70	1.017			
	DC	SN	30:02	RO	9.70		0.45			1.020			
	DC	SN	30:13	RO	1.60		0.78			1.027			
402-404			4 Peaks				981.64						
---------- Above: HxCDD / HpCDF Follows ----------													
HpCDF						0.88-1.20				0.994-1.042			
408-410	DC	NL	0:00	RO	0.71		0.10			0.000			
			31:24		1.10		6.73	3.52	3.21	1.001	1234678-HpCDF		AN
	DC	SN	31:36	RO	1.22		1.55			1.007			
	DC	SN	31:45		0.98		1.21			1.012			
	DC	SN	32:10	RO	0.41		0.29			1.025			

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
	DC	SN		32:15	RO	2.26	0.55			1.028			
	DC	SN		32:31	RO	0.80	0.71			1.036			
	DC	WH		32:56	RO	2.76	0.59			1.049			
408-410		1	Peak				6.73						
13C12-HpCDF				0.37-0.51						0.936-1.127			
418-420	DC	NL		0:00	RO	1.20	0.07			0.000			
				31:23		0.45	209.34	65.02	144.32	1.000	13C12-HpCDF 678		IS6
	DC	SN		31:54	RO	2.40	0.14			1.016			
	DC	SN		32:07	RO	0.99	1.01			1.023			
	DC	SN		32:20	RO	2.00	0.17			1.030			
				32:35		0.43	144.95	43.75	101.20	1.038	13C12-HpCDF 789		SUR5
	DC	SN		33:02		0.40	1.71			1.053			
418-420		2	Peaks				354.29						
---------- Above: HpCDF / HpCDD Follows ----------													
HpCDD				0.88-1.20						0.976-1.005			
424-426	DC	NL		0:00		1.00	0.14			0.000			
K				31:38	RO	0.71	1.47	0.75	1.05	0.981			
	DC	SN		31:54		1.13	0.81			0.989			
MK				32:15		1.18	2.01	1.09	0.92	1.000	1234678-HpCDD		AN
	DC	SN		32:19	RO	1.56	0.18			1.002			
	DC	WH		32:31	RO	1.45	0.22			1.008			
	DC	WH		32:46	RO	0.57	0.26			1.016			
424-426		2	Peaks				3.48						
13C12-HpCDD				0.88-1.20						0.969-1.031			
436-438	DC	NL		0:00	RO	0.75	0.12			0.000			
	DC	SN		31:39	RO	0.59	0.80			0.981			
	DC	SN		31:55	RO	2.50	0.53			0.990			
				32:15		1.01	229.24	115.08	114.16	1.000	13C12-HpCDD 678		IS7
436-438		1	Peak				229.24						
---------- Above: HpCDD / Octa-CDD and CDF Follows ----------													
OCDF				0.76-1.02						0.885-1.115			
442-444	DC	NL		0:00		1.00	0.12			0.000			
	DC	SN		31:48	RO	0.29	0.11			0.916			
	DC	SN		32:29	RO	0.08	0.04			0.936			
	DC	SN		32:38	RO	0.23	0.15			0.940			
	DC	SN		32:59	RO	0.40	0.13			0.950			
	DC	SN		33:17	RO	6.11	0.17			0.959			
	DC	SN		33:36	RO	4.40	0.09			0.968			
	DC	SN		33:47	RO	0.23	0.19			0.973			
	DC	SN		34:00	RO	2.43	0.26			0.979			
	DC	SN		34:08	RO	0.35	0.40			0.983			
	DC	SN		34:20	RO	0.45	0.19			0.989			
	DC	SN		34:43	RO	0.43	0.45			1.000			
	DC	SN		34:48	RO	1.09	0.42			1.002	OCDF		AN
	DC	SN		35:15	RO	0.45	0.55			1.015			
	DC	SN		35:26	RO	0.25	0.19			1.021			

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		35:39	RO	0.49	0.36			1.027			
	DC	SN		35:49	RO	0.50	0.13			1.032			
442-444		0	Peaks				0.00						
OCDD				0.76-1.02						0.885-1.115			
458-460	DC	NL		0:00		0.86	0.13			0.000			
	DC	SN		34:38	RO	21.33	0.06			0.998			
	DC	SN		34:56	RO	1.06	0.59			1.006			
	DC	SN		35:02	RO	0.02	0.04			1.009			
458-460		0	Peaks				0.00						
13C12-OCDD				0.76-1.02						0.995-1.004			
470-472	DC	NL		0:00		0.86	0.13			0.000			
				34:43		0.82	361.14	162.91	198.23	1.000	13C12-OCDD	IS8	
470-472		1	Peak				361.14						

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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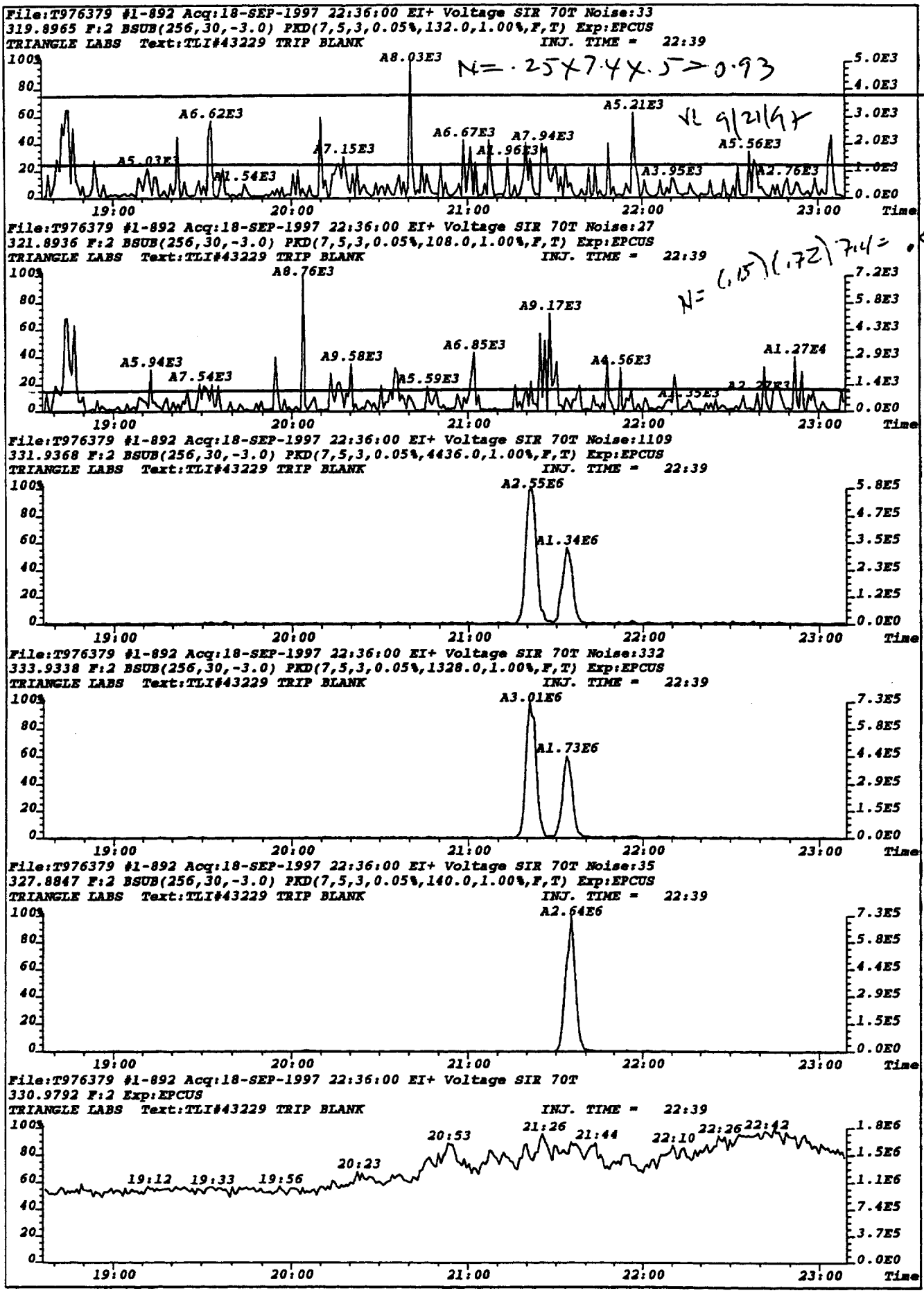
303.9016 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,224.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.45E5
A1.14E5
A7.63E4
A7.08E4
A6.59E4
A3.88E4
A4.68E4
A2.62E4
A2.16E3
A1.52E4
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:40
305.8987 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.52E5
A1.43E5
A8.60E4
A6.01E4
A8.98E4
A9.45E4
A7.06E4
A3.15E4
A3.78E4
A3.28E4
A1.29E4
A1.67E4
A8.27E3
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:34
315.9419 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,136.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.55E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:41
317.9389 F:2 BSUB(256,30,-3.0) PKD(9,5,5,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.02E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
18:04
18:30
19:12
19:33
19:56
20:23
20:53
21:26
22:42
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
375.8364 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
17:45
18:19
19:21
19:53
20:35
20:56
21:20
21:59
22:21
22:56
18:00
19:00
20:00
21:00
22:00
23:00
Time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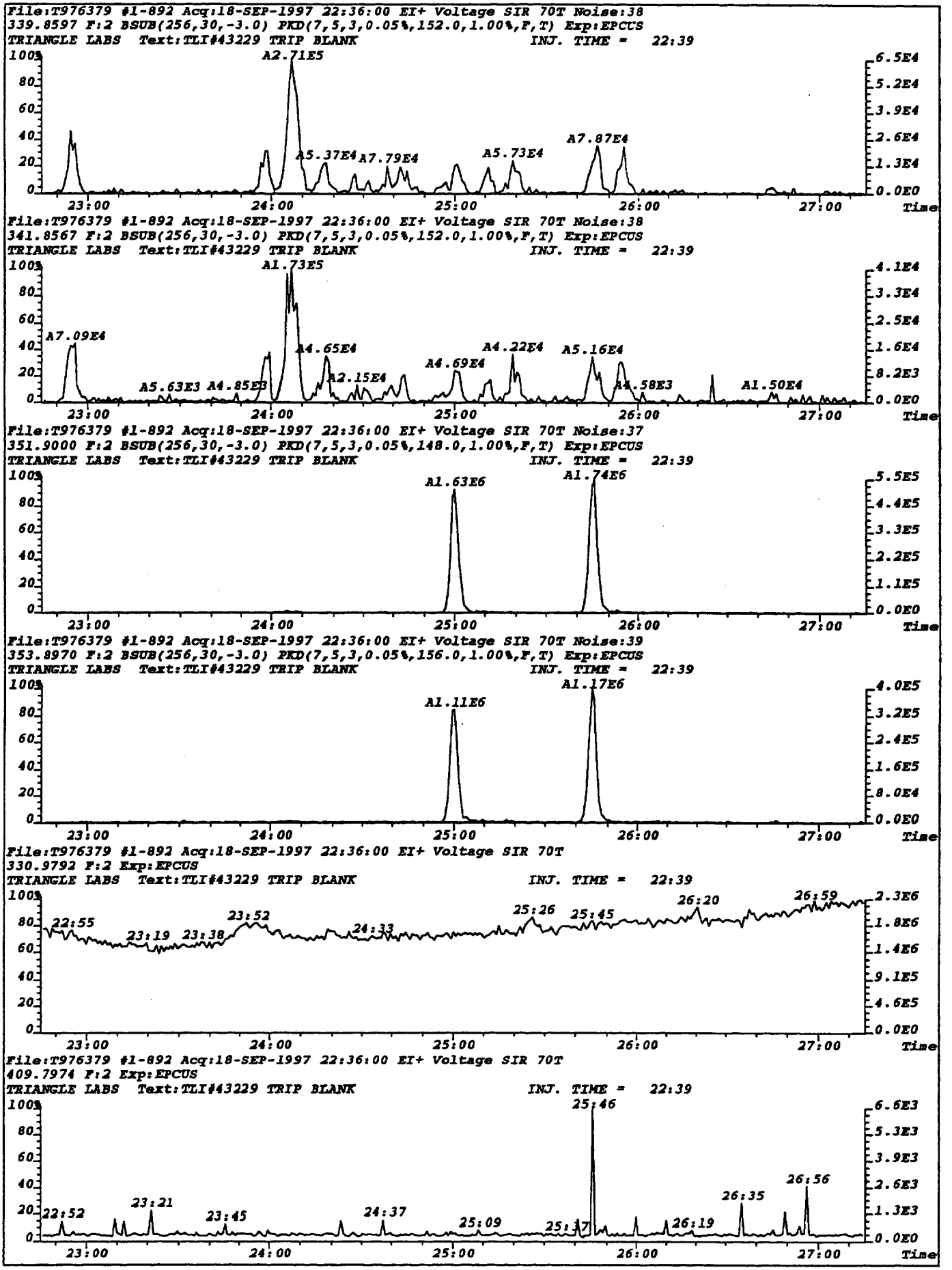
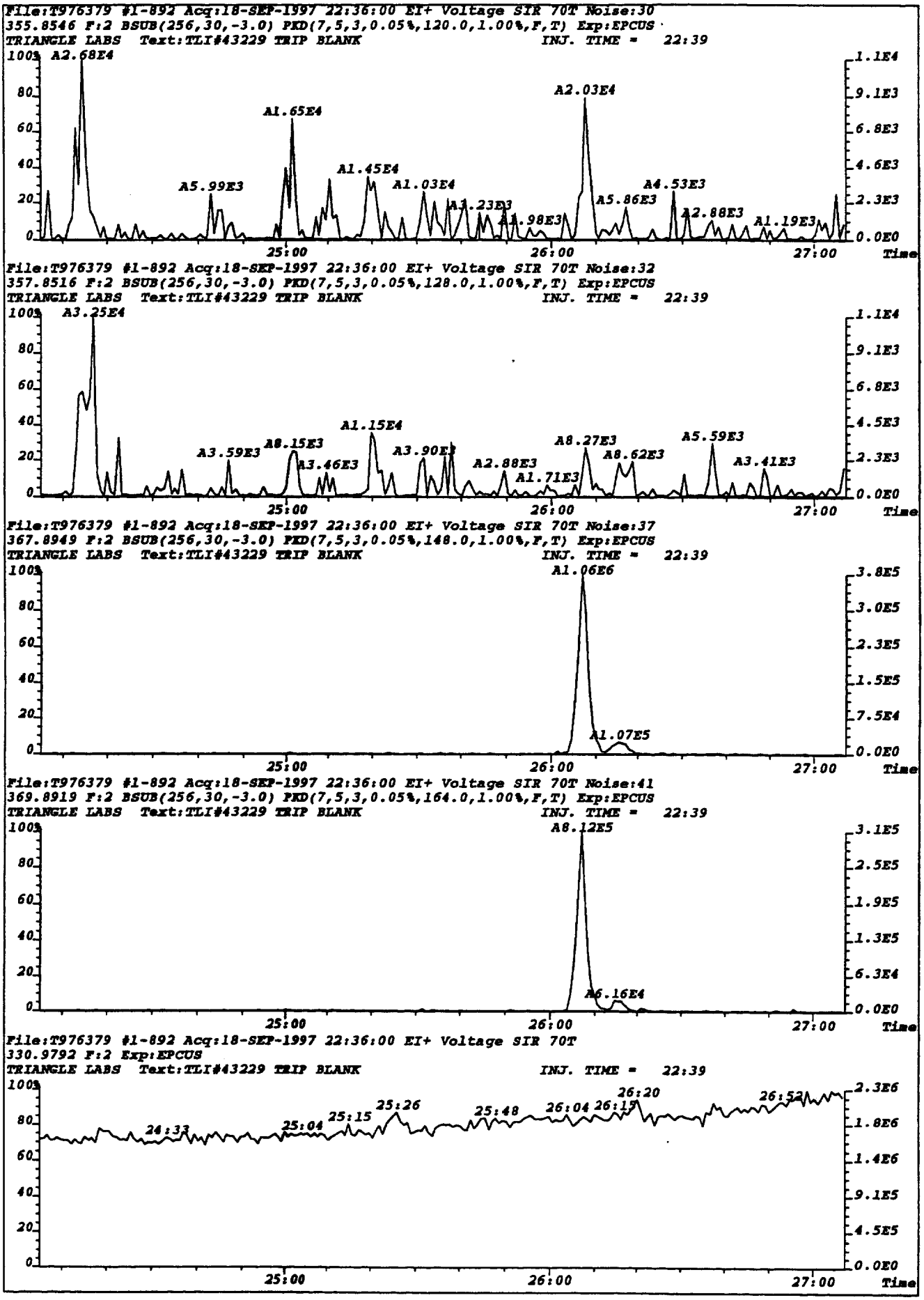
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A8.03E3
A6.62E3
A5.21E3
A6.67E3
A7.94E3
A5.56E3
A7.15E3
A3.95E3
A2.76E3
N=.25X7.4X.5>0.93
VL 9/21/97
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:27
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A8.76E3
A9.17E3
A6.85E3
A5.94E3
A9.58E3
A4.56E3
A1.27E4
A7.54E3
A5.59E3
N= (.15)(.72)7.4 = .80
KAS 9/18/97
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:1109
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,4436.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.55E6
A1.34E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:332
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1328.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A3.01E6
A1.73E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.64E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
19:12
19:33
19:56
20:23
20:53
21:26
21:44
22:10
22:26
22:42
19:00
20:00
21:00
22:00
23:00
Time


File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.71E5
A5.37E4
A7.79E4
A5.73E4
A7.87E4
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:38
341.8567 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#43229 TRIP BLANK
INJ. TIME = 22:39
A1.73E5
A7.09E4
A5.63E3
A4.85E3
A4.65E4
A2.15E4
A4.69E4
A4.22E4
A5.16E4
A4.58E3
A1.50E4
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.63E6
A1.74E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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#43229 TRIP BLANK
INJ. TIME = 22:39
A1.11E6
A1.17E6
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
22:55
23:19
23:38
23:52
24:33
25:26
25:45
26:20
26:59
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
409.7974 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
22:52
23:21
23:45
24:37
25:09
25:17
25:46
26:19
26:35
26:56
23:00
24:00
25:00
26:00
27:00
Time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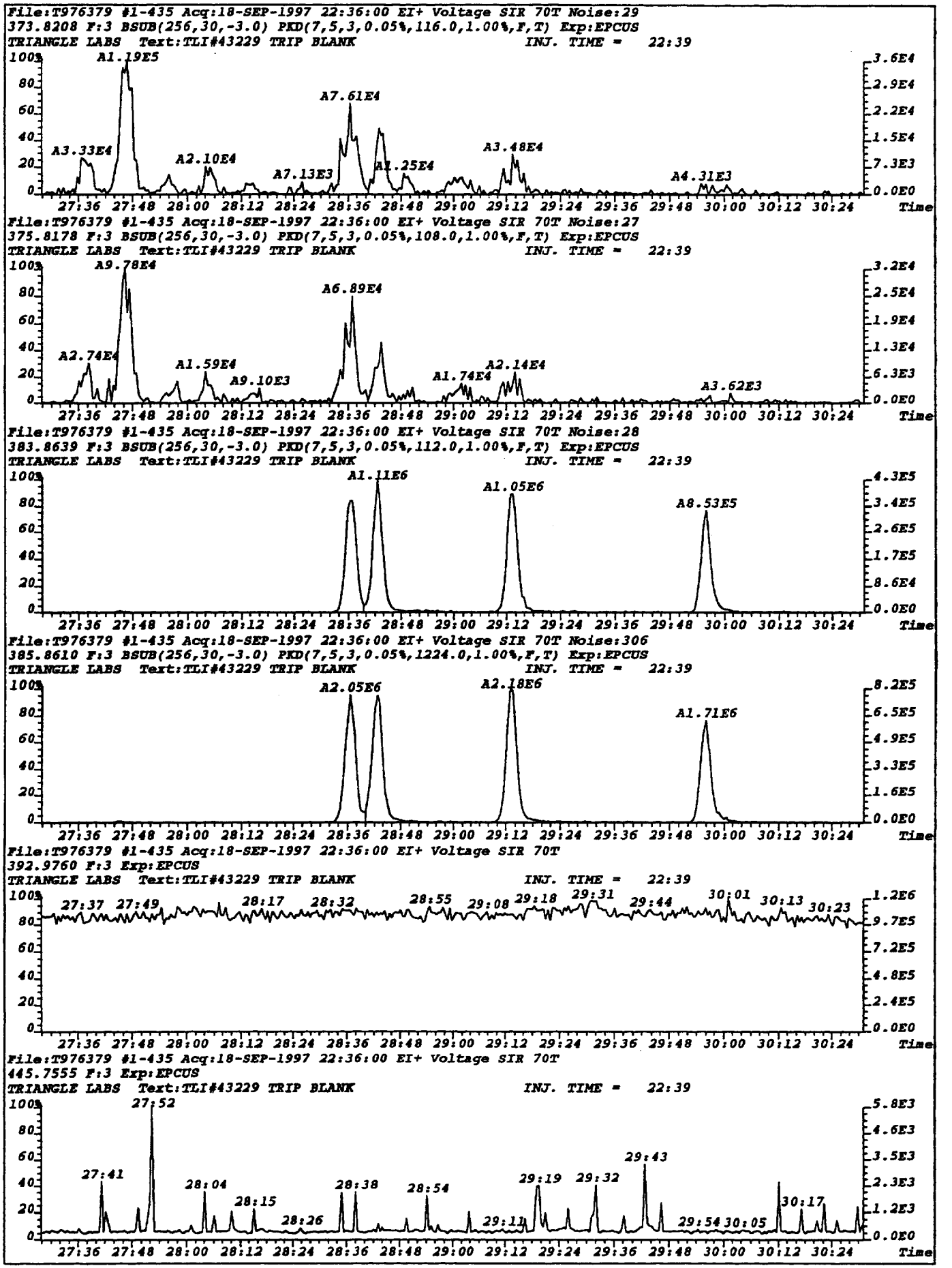
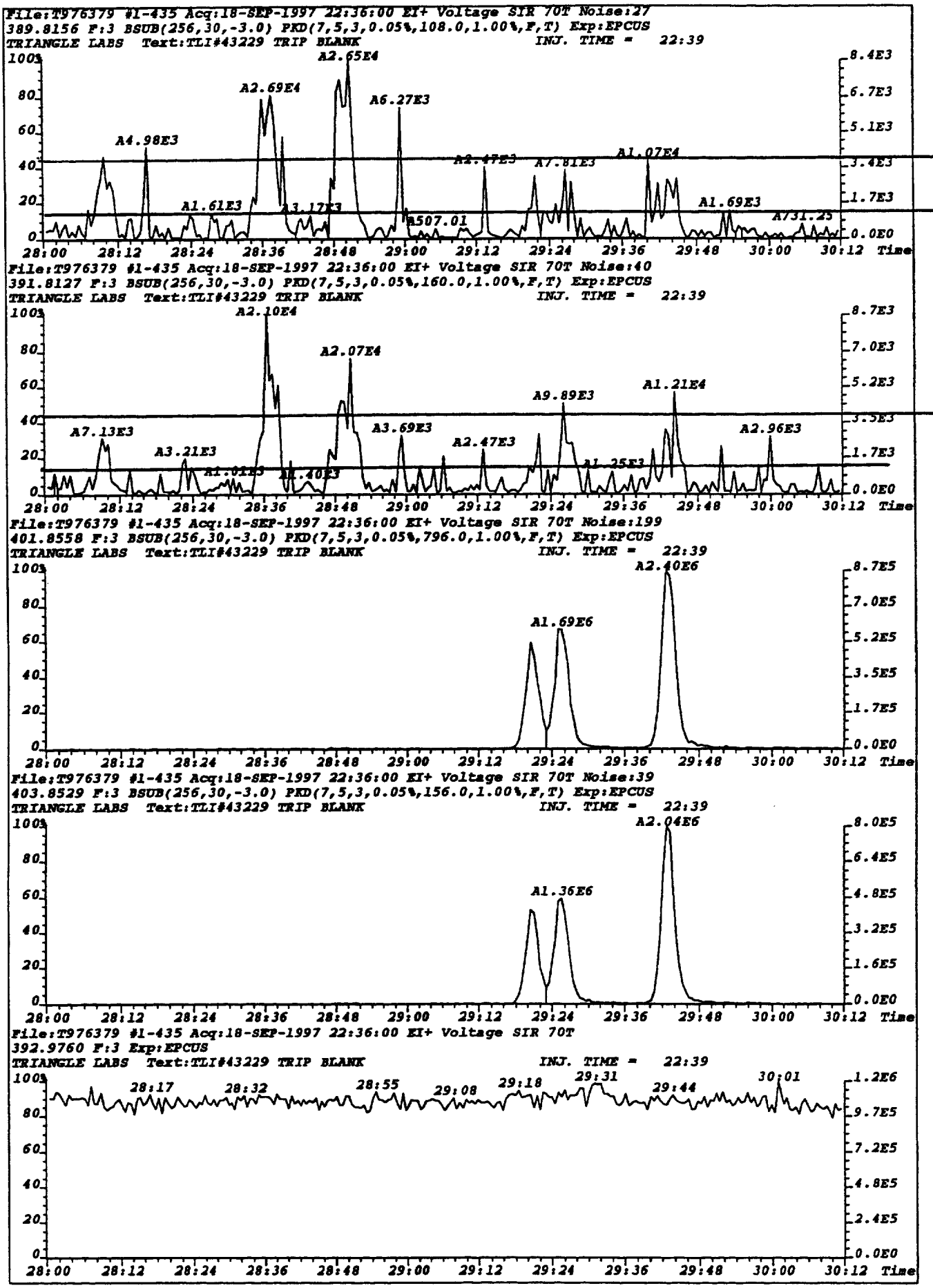
355.8546 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.68E4
A1.65E4
A2.03E4
A5.99E3
A1.45E4
A1.03E4
A4.53E3
A5.86E3
A2.88E3
A1.19E3
25:00
26:00
27:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:32
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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A3.25E4
A1.15E4
A3.59E3
A8.15E3
A3.46E3
A3.90E3
A2.88E3
A1.71E3
A8.27E3
A8.62E3
A5.59E3
A3.41E3
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:37
367.8949 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#43229 TRIP BLANK
INJ. TIME = 22:39
A1.06E6
A1.07E5
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:41
369.8919 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,164.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A8.12E5
A6.16E4
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
330.9792 F:2 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
24:33
25:04
25:15
25:26
25:48
26:04
26:15
26:20
26:52


File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:29
373.8208 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
A1.19E5
A7.61E4
A3.33E4
A2.10E4
A7.13E3
A1.25E4
A3.48E4
A4.31E3
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:27
375.8178 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
A9.78E4
A6.89E4
A2.74E4
A1.59E4
A9.10E3
A1.74E4
A2.14E4
A3.62E3
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:28
383.8639 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,112.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
A1.11E6
A1.05E6
A8.53E5
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:306
385.8610 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1224.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
A2.05E6
A2.18E6
A1.71E6
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
445.7555 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK INJ. TIME = 22:39
27:52
27:41
28:04
28:15
28:26
28:38
28:54
29:19
29:32
29:43
30:17
Time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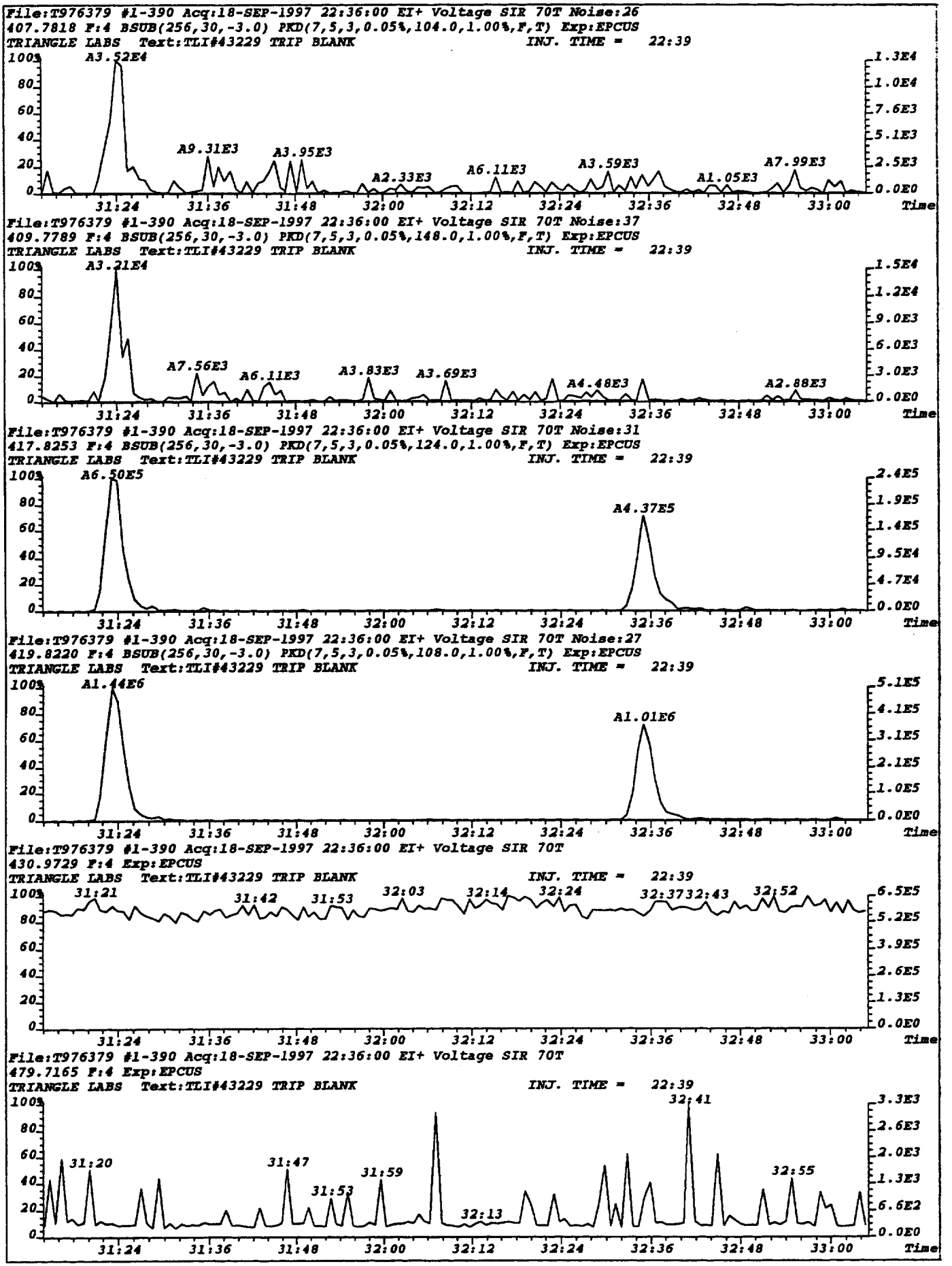
389.8156 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.65E4
A2.69E4
A6.27E3
A4.98E3
A2.47E3
A7.81E3
A1.07E4
A1.61E3
A3.17E3
A507.01
A1.69E3
A731.25
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:40
391.8127 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,160.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.10E4
A2.07E4
A9.89E3
A1.21E4
A7.13E3
A3.21E3
A3.69E3
A2.47E3
A2.96E3
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:199
401.8558 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,796.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.40E6
A1.69E6
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:39
403.8529 F:3 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.04E6
A1.36E6
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
392.9760 F:3 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
28:17
28:32
28:55
29:08
29:18
29:31
29:44
30:01
Time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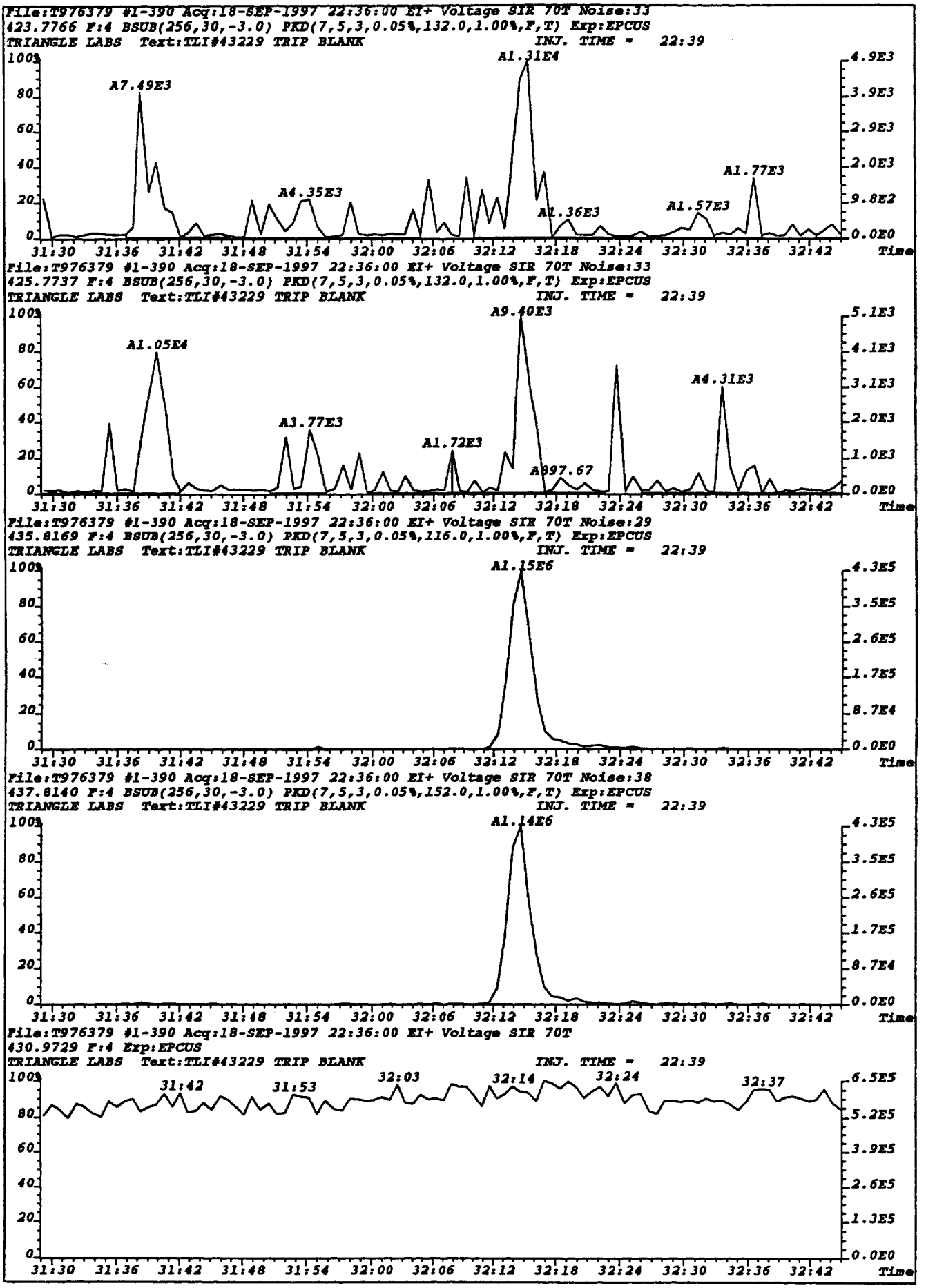
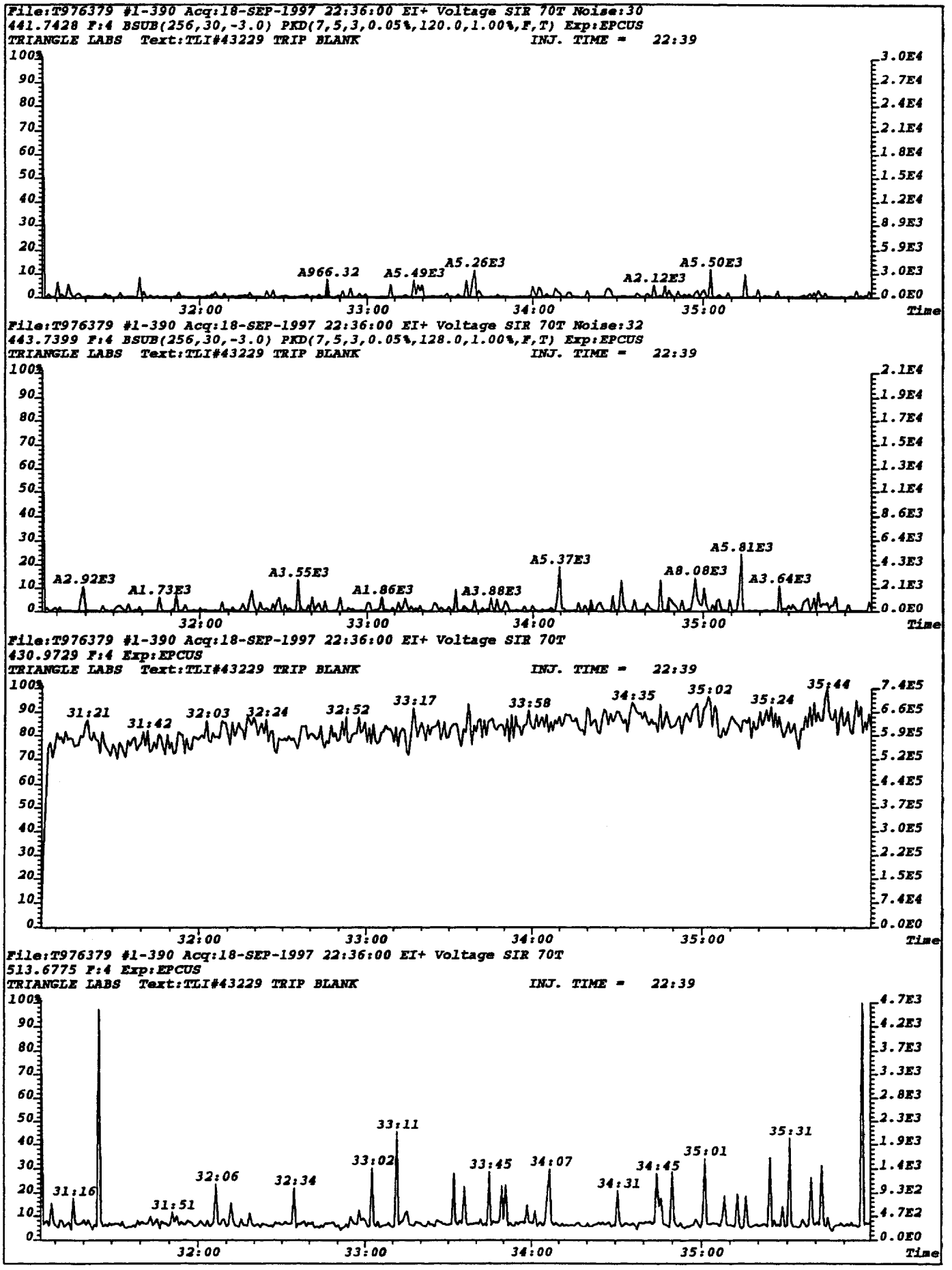
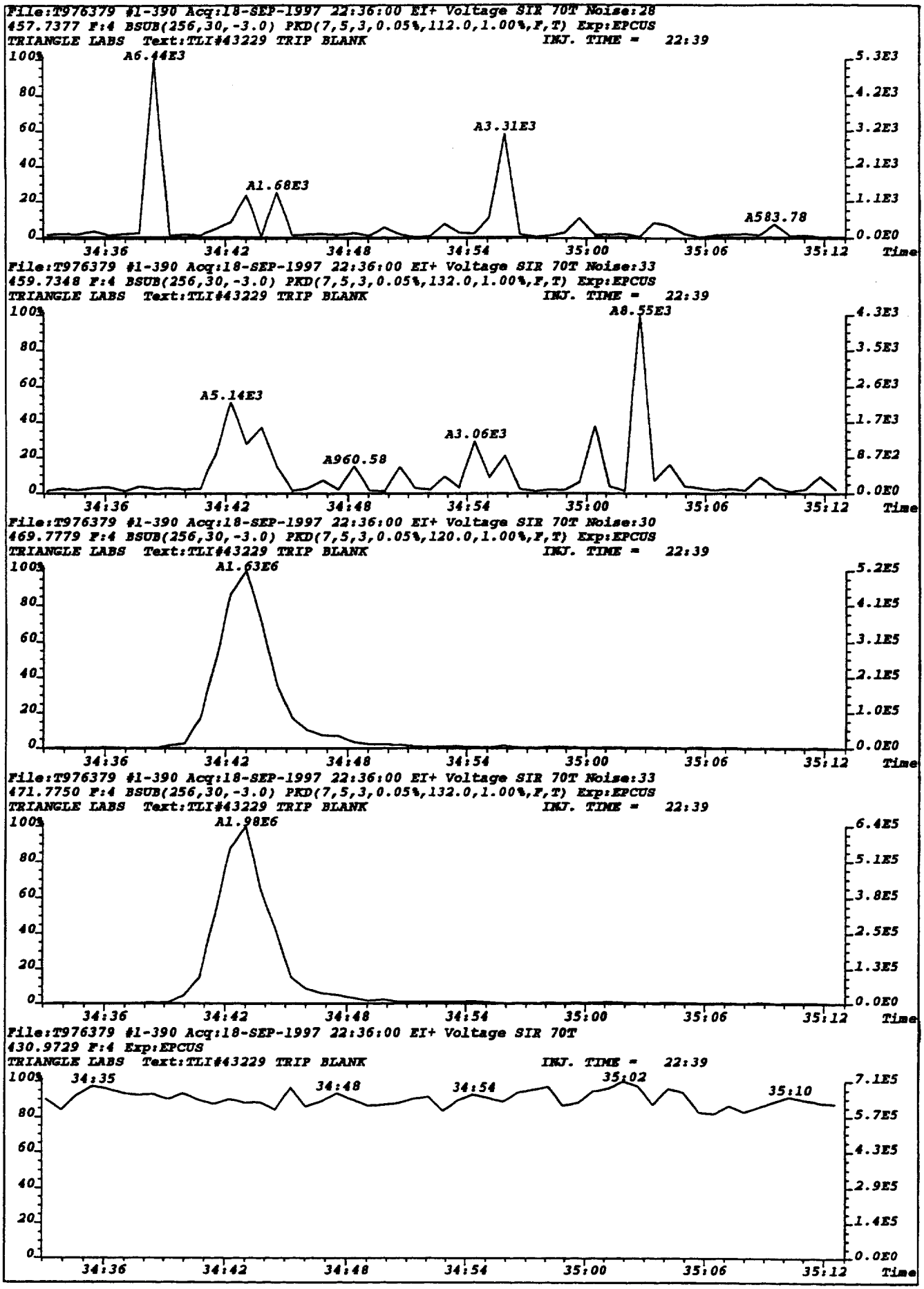
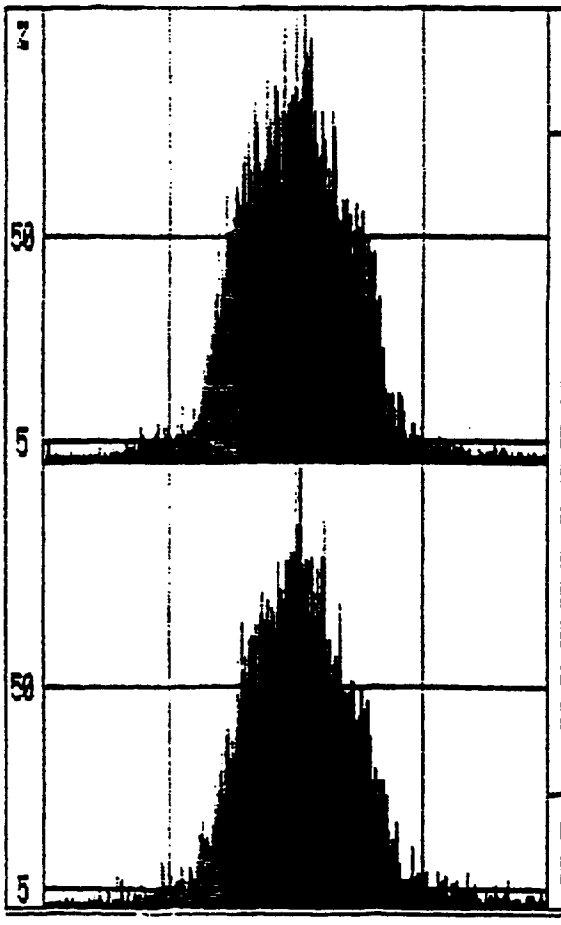
407.7818 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,104.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A3.52E4
A9.31E3
A3.95E3
A2.33E3
A6.11E3
A3.59E3
A1.05E3
A7.99E3
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:37
409.7789 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,148.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A3.21E4
A7.56E3
A6.11E3
A3.83E3
A3.69E3
A4.48E3
A2.88E3
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:31
417.8253 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A6.50E5
A4.37E5
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:27
419.8220 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,108.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.44E6
A1.01E6
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
31:21
31:42
31:53
32:03
32:14
32:24
32:37
32:43
32:52
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
479.7165 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
31:20
31:47
31:53
31:59
32:13
32:41
32:55
31:24
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
Time


File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:33
423.7766 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#43229 TRIP BLANK
INJ. TIME = 22:39
A7.49E3
A4.35E3
A1.31E4
A1.36E3
A1.57E3
A1.77E3
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.05E4
A3.77E3
A1.72E3
A9.40E3
A897.67
A4.31E3
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:29
435.8169 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.15E6
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:38
437.8140 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.14E6
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
31:42
31:53
32:03
32:14
32:24
32:37
Time


File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:30
441.7428 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A966.32
A5.49E3
A5.26E3
A2.12E3
A5.50E3
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:32
443.7399 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A2.92E3
A1.73E3
A3.55E3
A1.86E3
A3.88E3
A5.37E3
A8.08E3
A5.81E3
A3.64E3
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
31:21
31:42
32:03
32:24
32:52
33:17
33:58
34:35
35:02
35:24
35:44
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
513.6775 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
31:16
31:51
32:06
32:34
33:02
33:11
33:45
34:07
34:31
34:45
35:01
35:31
32:00
33:00
34:00
35:00
Time


File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A6.44E3
A1.68E3
A3.31E3
A583.78
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T 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:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A8.55E3
A5.14E3
A960.58
A3.06E3
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:30
469.7779 F:4 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
A1.63E6
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T Noise:33
471.7750 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#43229 TRIP BLANK
INJ. TIME = 22:39
A1.98E6
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
430.9729 F:4 Exp:EPCUS
TRIANGLE LABS Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39
34:35
34:48
34:54
35:02
35:10
34:36
34:42
34:48
34:54
35:00
35:06
35:12
Time

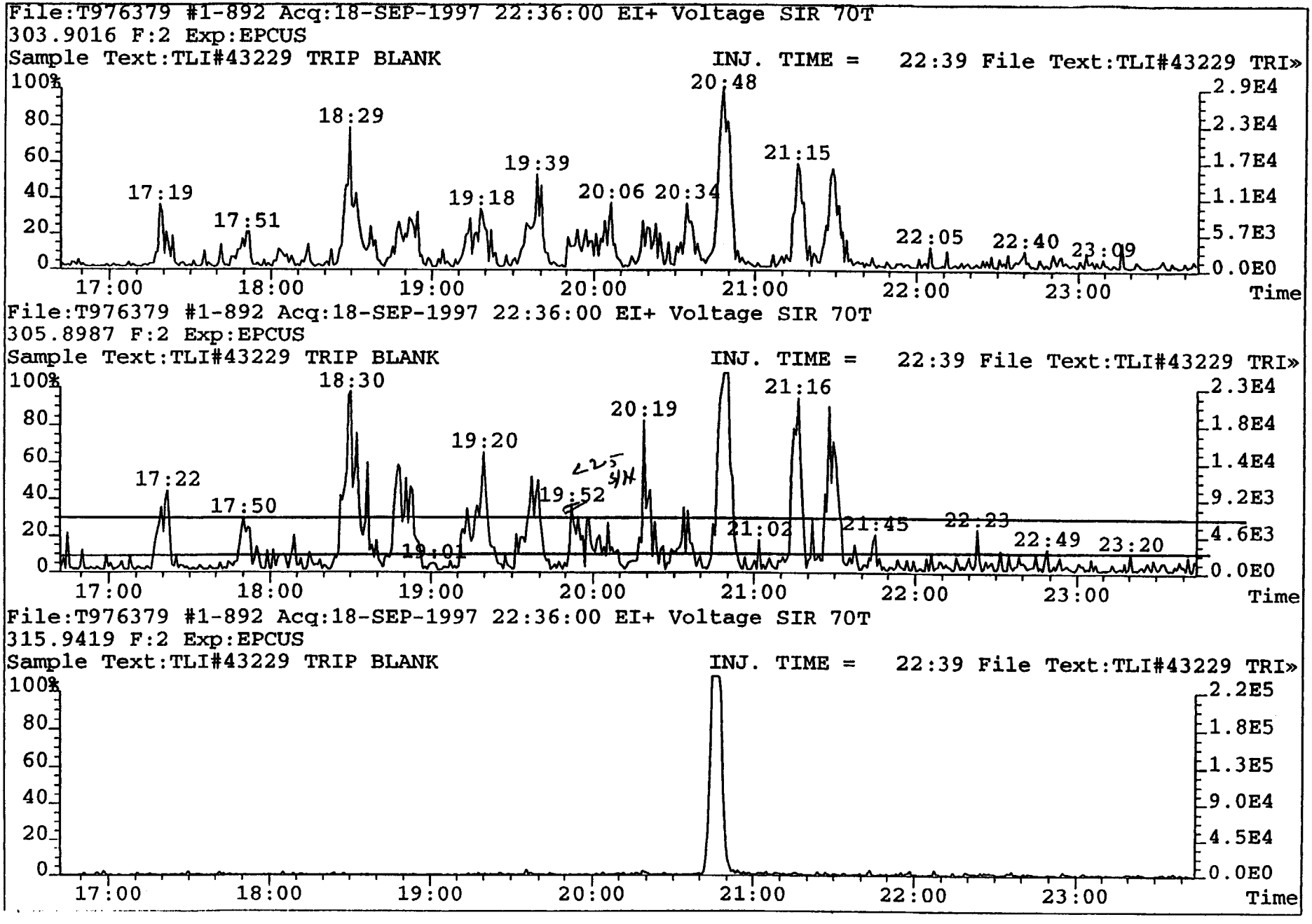


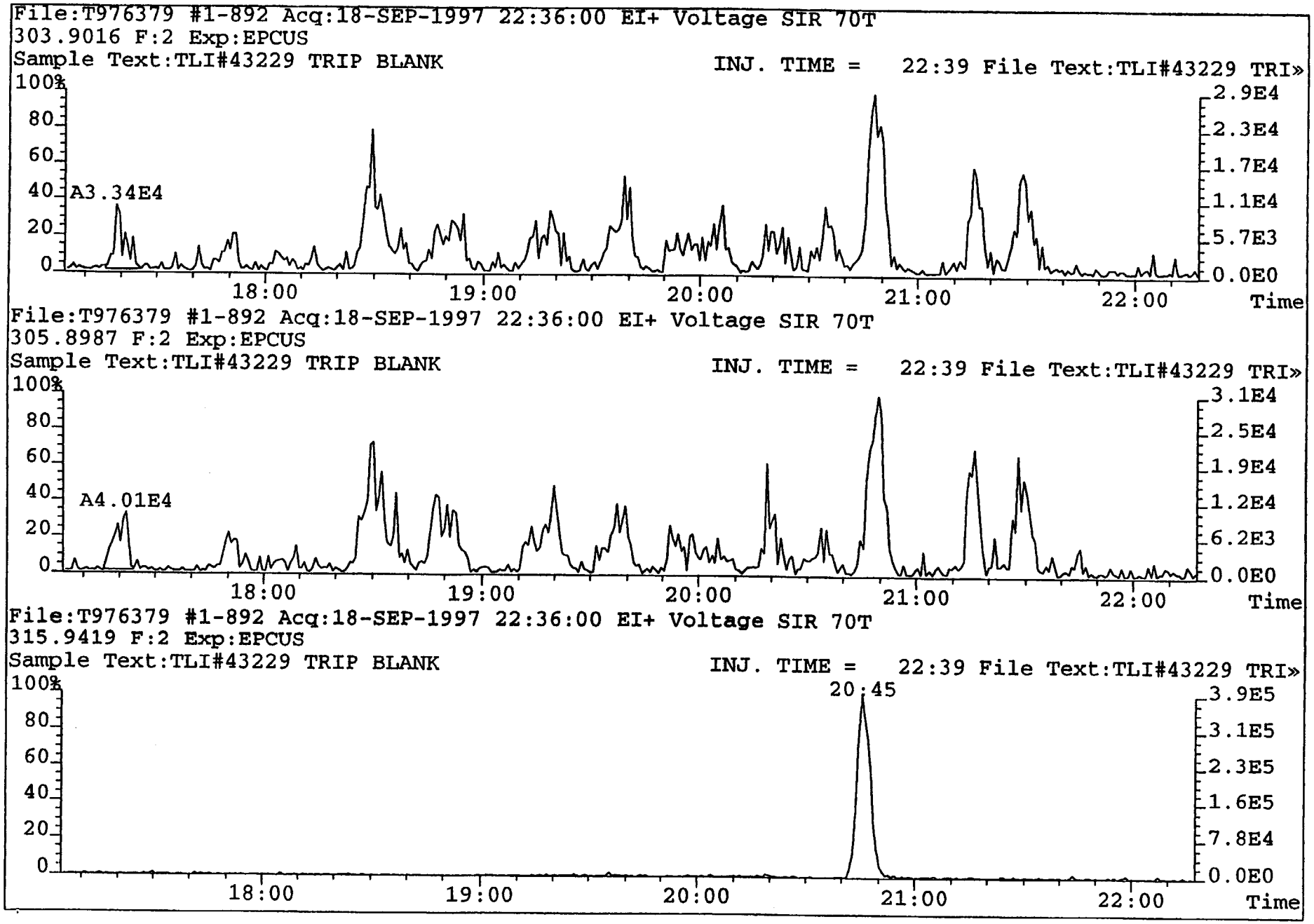
Ref. mass	292.3825	Peak top	
Height	.99 volts	Span	200 ppm

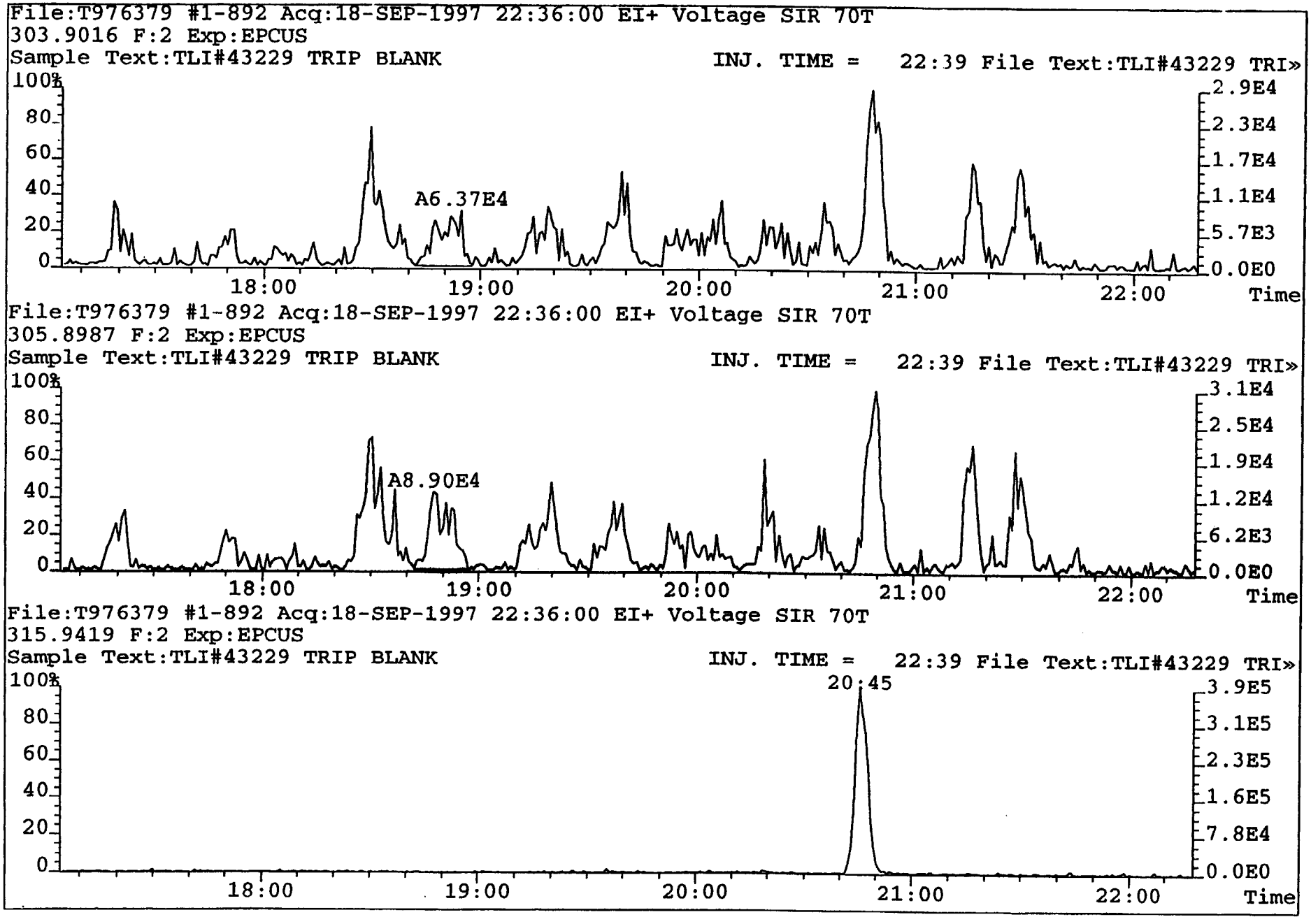
System file name	EPCUS
Data file name	A:T9706374
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

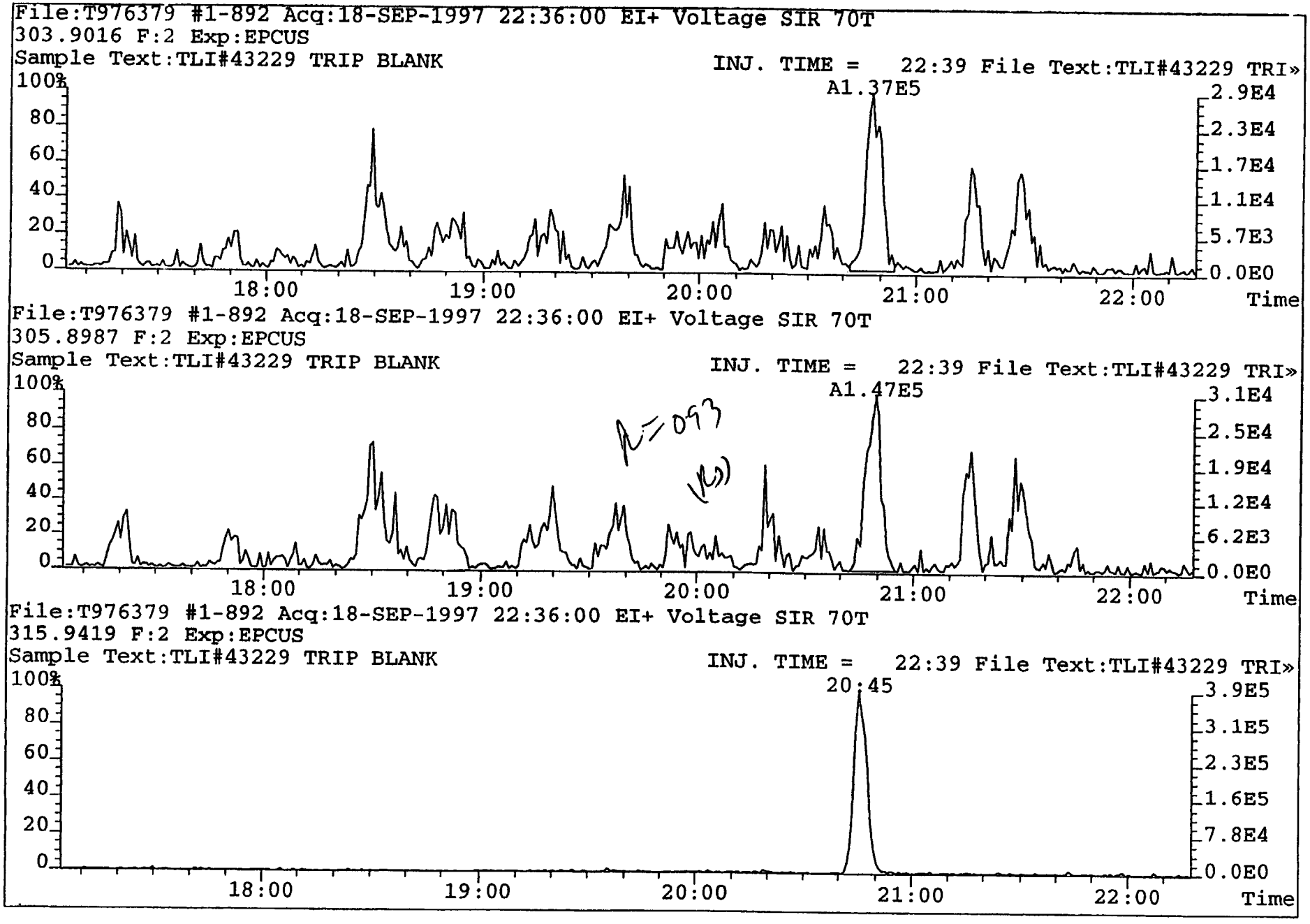
A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

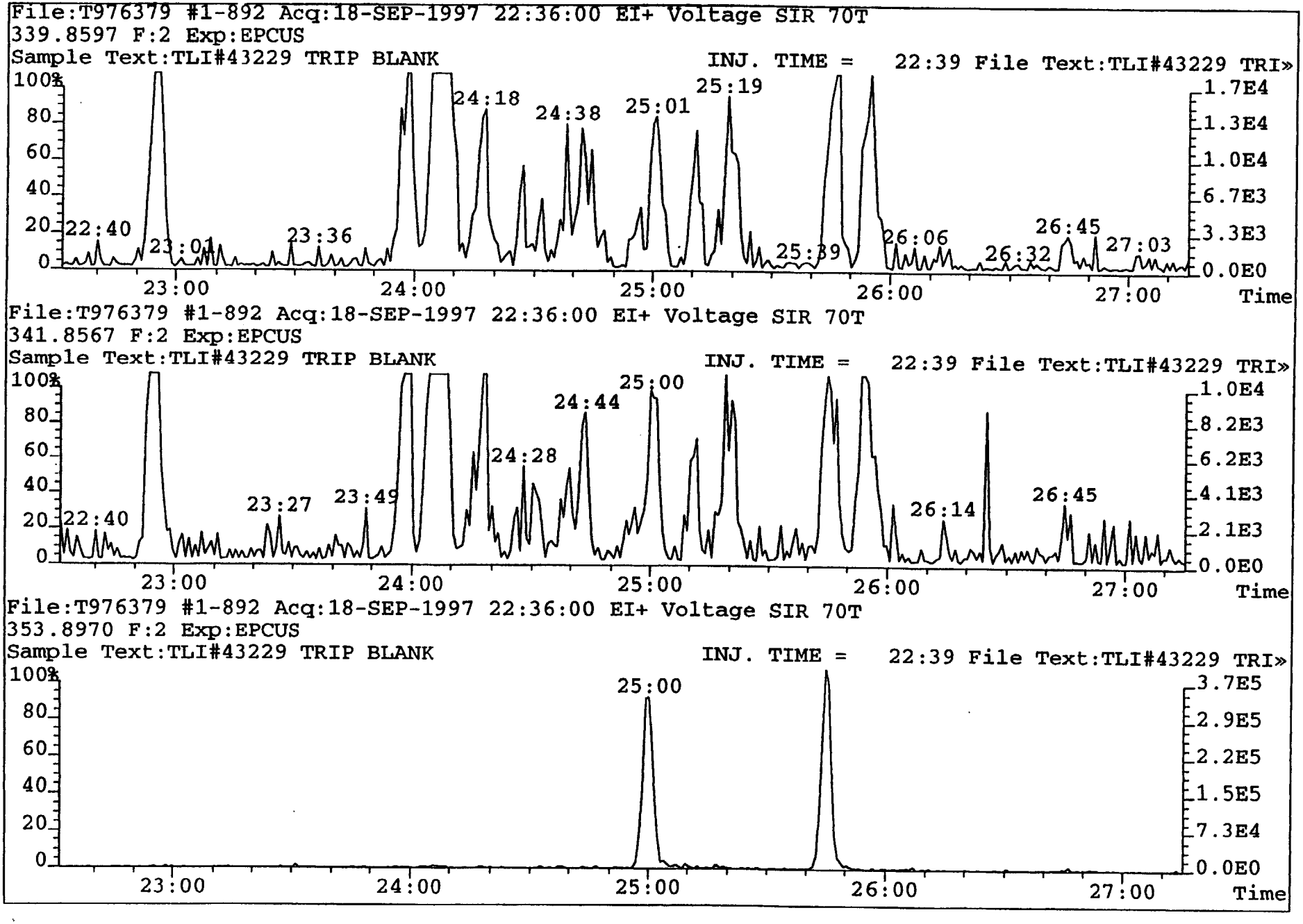
Channel	I 330.9792	Peak top	
Height	.56 volts	Span	200 ppm

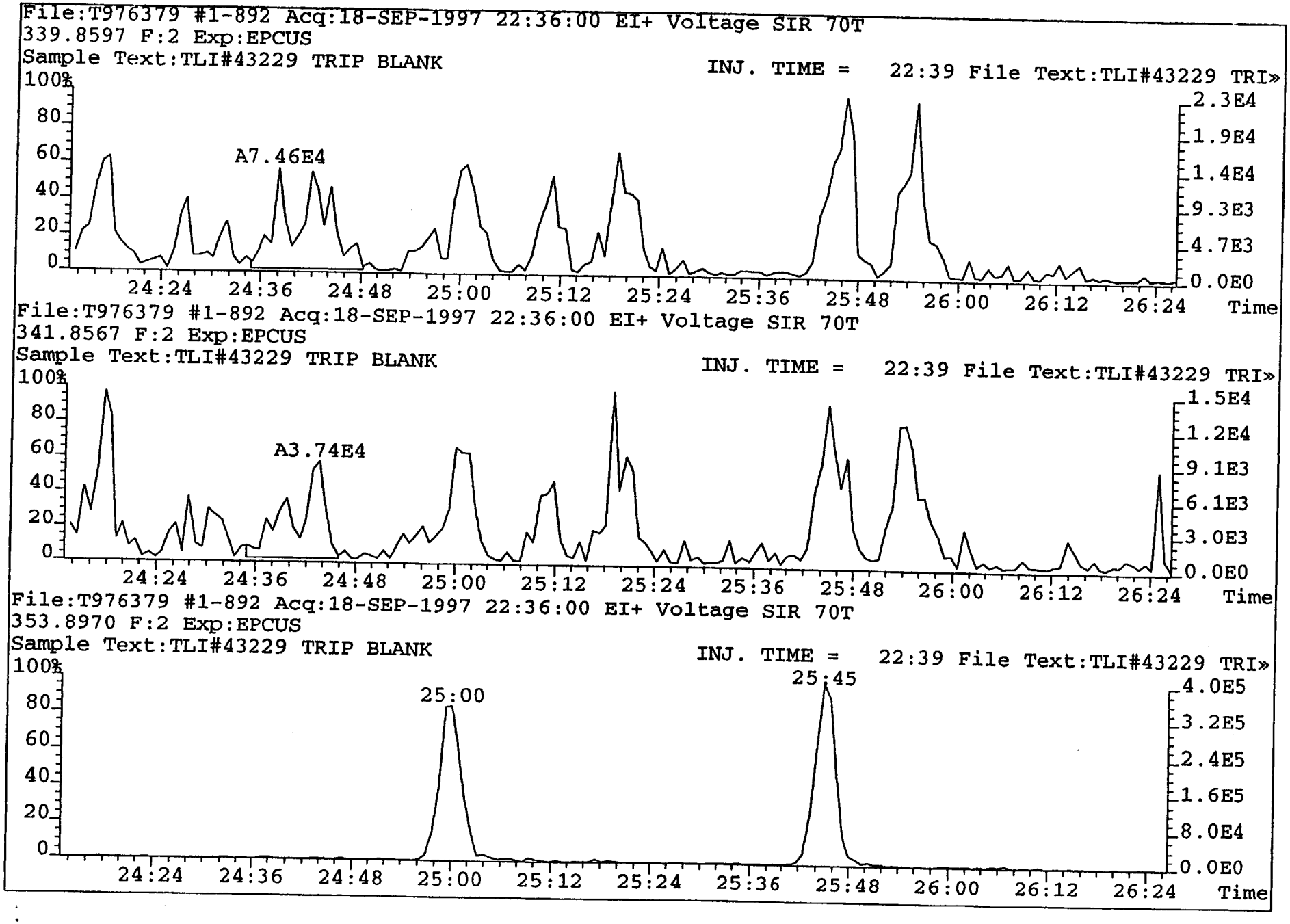

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
303.9016 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
17:19
17:51
18:29
19:18
19:39
20:06
20:34
20:48
21:15
22:05
22:40
23:09
2.9E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
305.8987 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
17:22
17:50
18:30
19:01
19:20
19:52
20:19
21:02
21:16
21:45
22:23
22:49
23:20
2.3E4
1.8E4
1.4E4
9.2E3
4.6E3
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
315.9419 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
2.2E5
1.8E5
1.3E5
9.0E4
4.5E4
0.0E0
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time

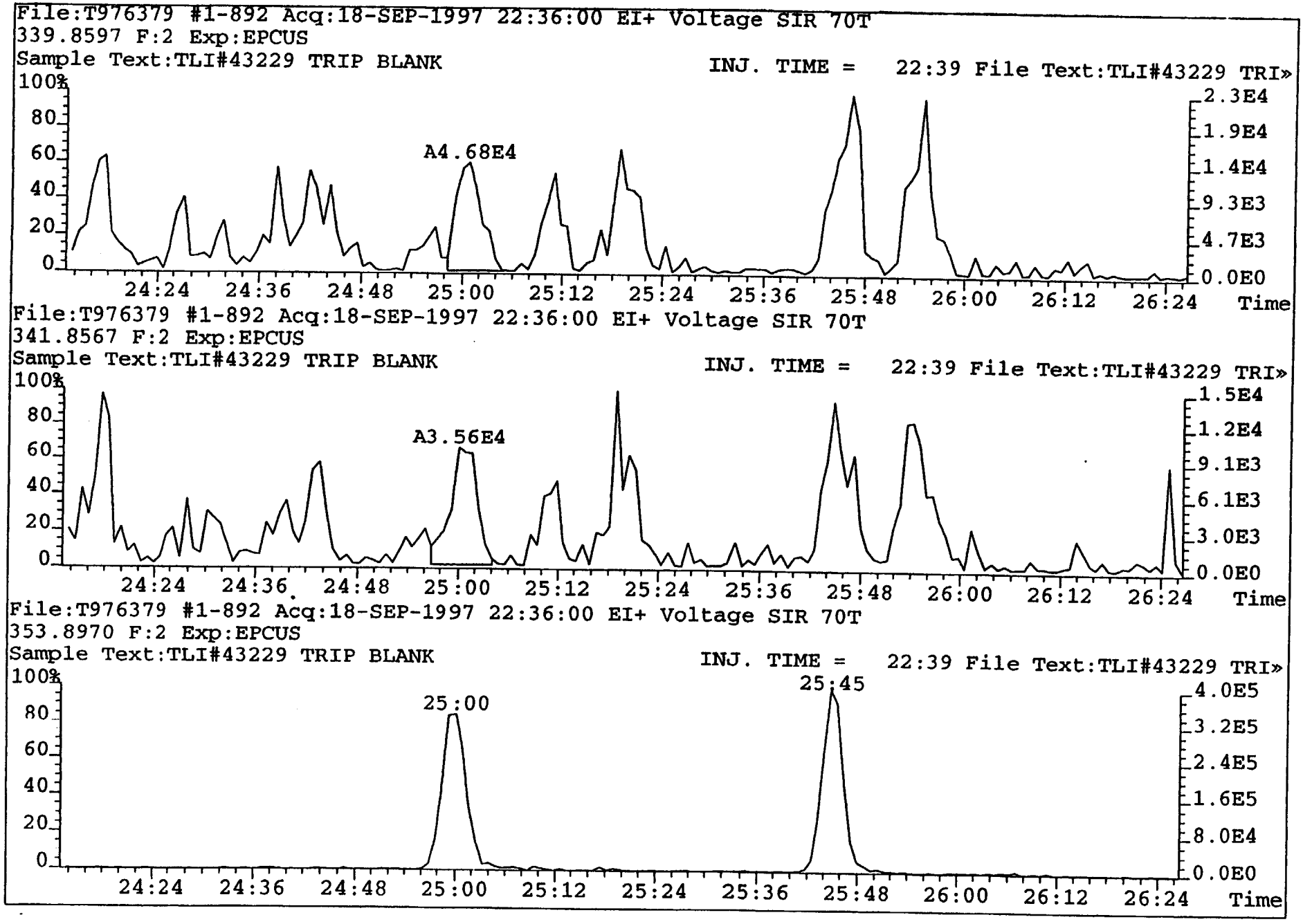

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
303.9016 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
A3.34E4
2.9E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
305.8987 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
A4.01E4
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
315.9419 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
20:45
3.9E5
3.1E5
2.3E5
1.6E5
7.8E4
0.0E0
18:00
19:00
20:00
21:00
22:00
Time

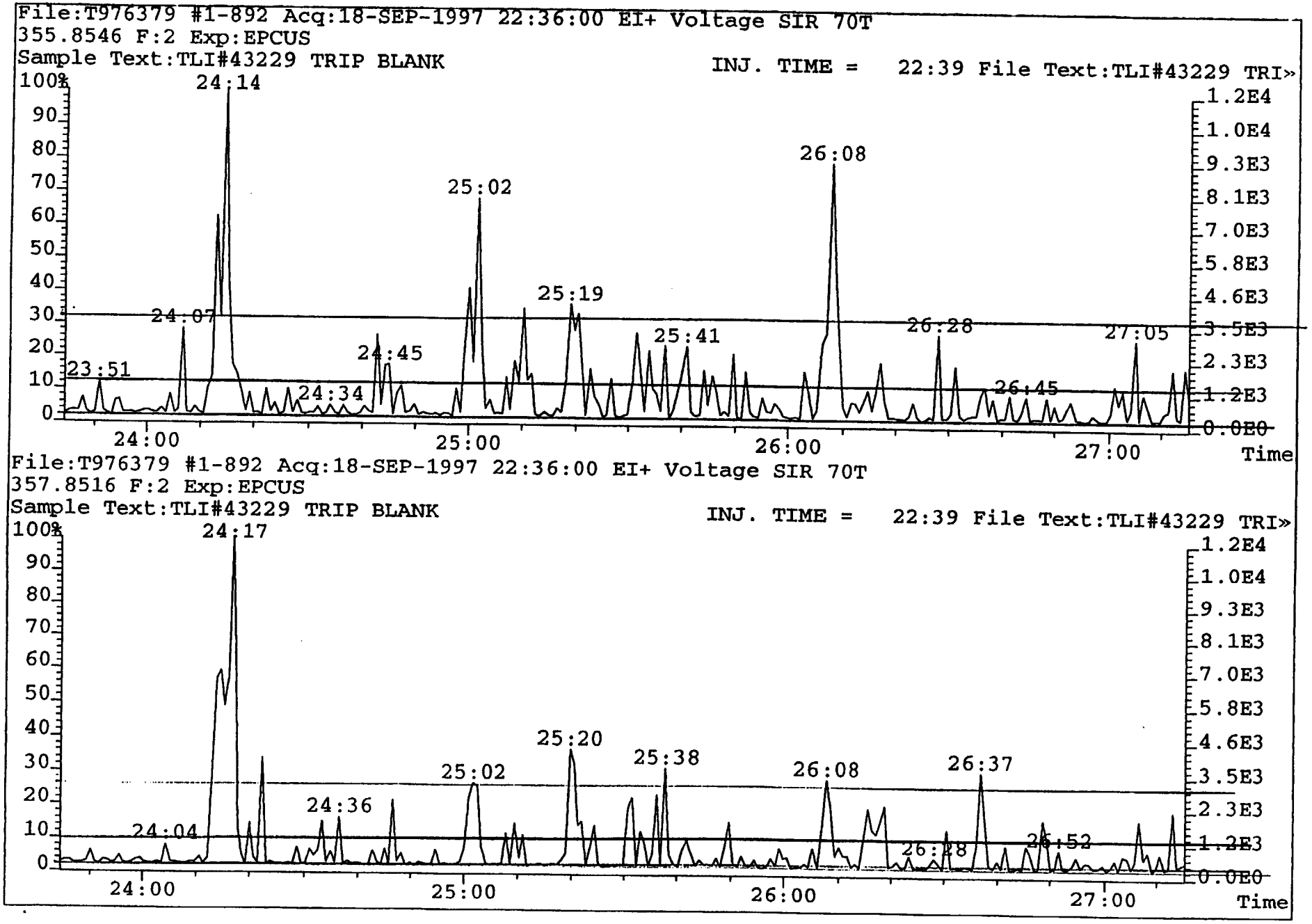

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
303.9016 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
A6.37E4
2.9E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
305.8987 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
A8.90E4
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
315.9419 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
20:45
3.9E5
3.1E5
2.3E5
1.6E5
7.8E4
0.0E0
18:00
19:00
20:00
21:00
22:00
Time

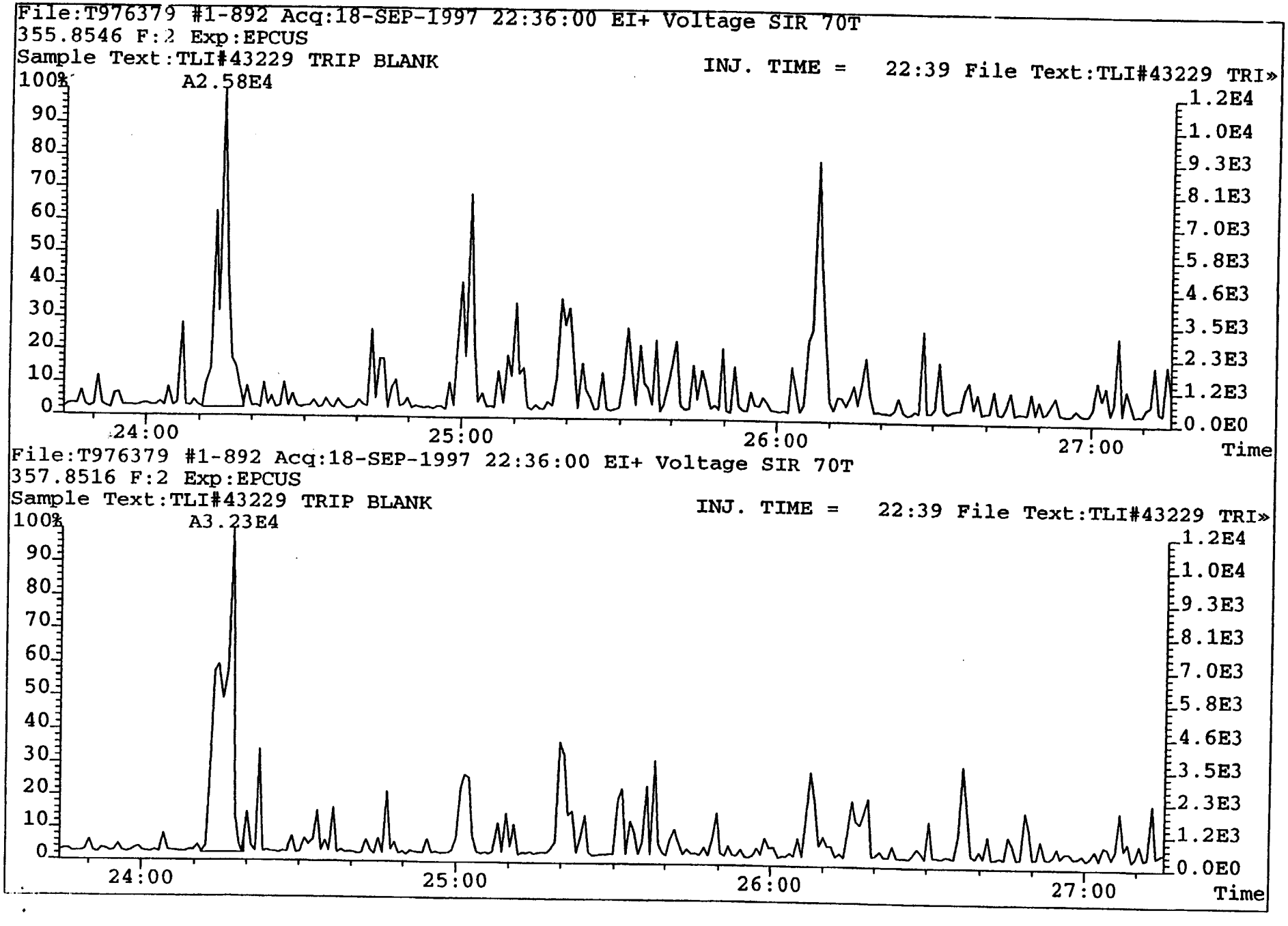

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
303.9016 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A1.37E5
100%
80
60
40
20
0
2.9E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
305.8987 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A1.47E5
100%
80
60
40
20
0
3.1E4
2.5E4
1.9E4
1.2E4
6.2E3
0.0E0
18:00
19:00
20:00
21:00
22:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
315.9419 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
20:45
100%
80
60
40
20
0
3.9E5
3.1E5
2.3E5
1.6E5
7.8E4
0.0E0
18:00
19:00
20:00
21:00
22:00
Time

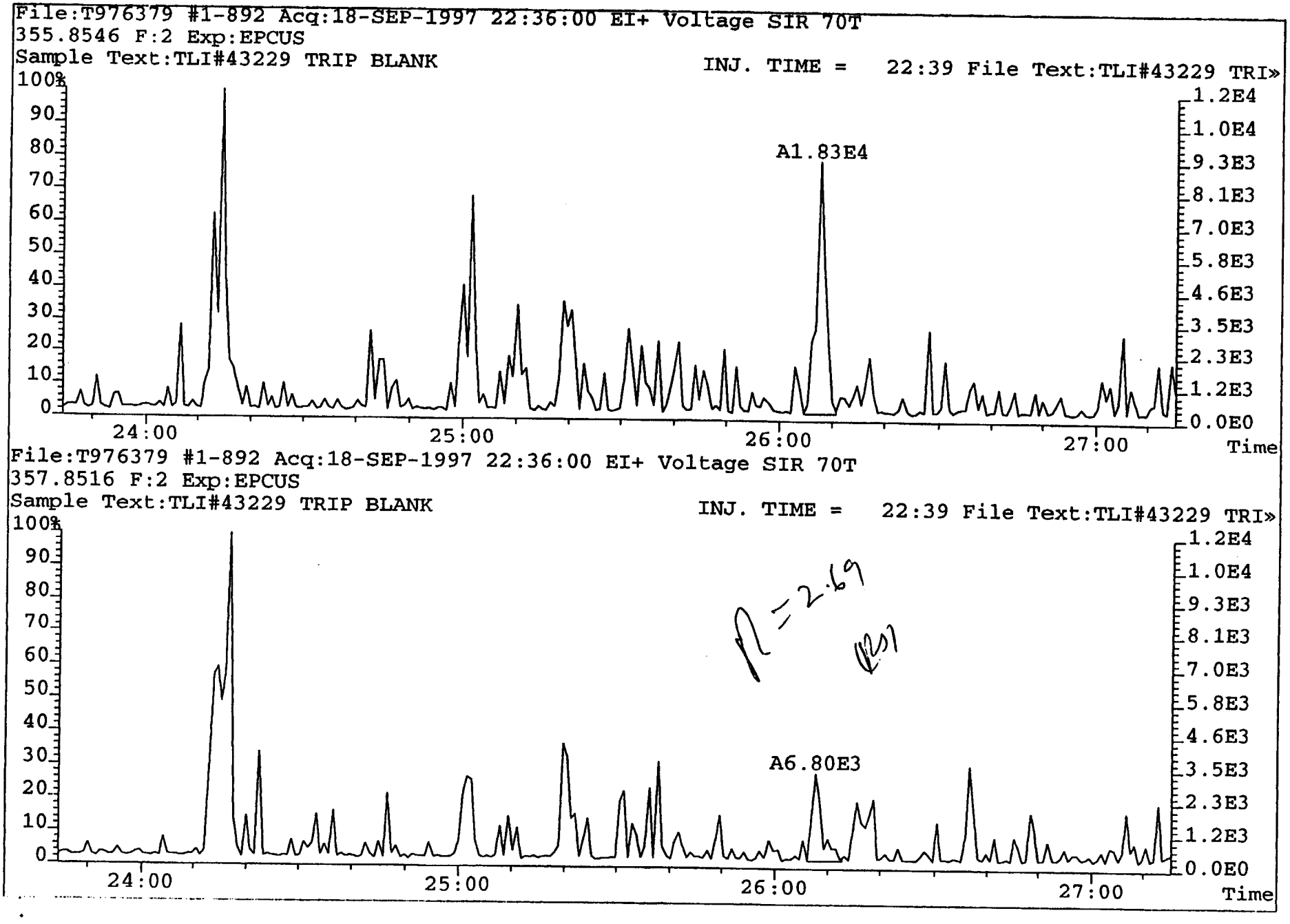

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
22:40
23:01
23:36
24:18
24:38
25:01
25:19
25:39
26:06
26:32
26:45
27:03
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
22:40
23:27
23:49
24:28
24:44
25:00
26:14
26:45
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
353.8970 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
25:00
Time

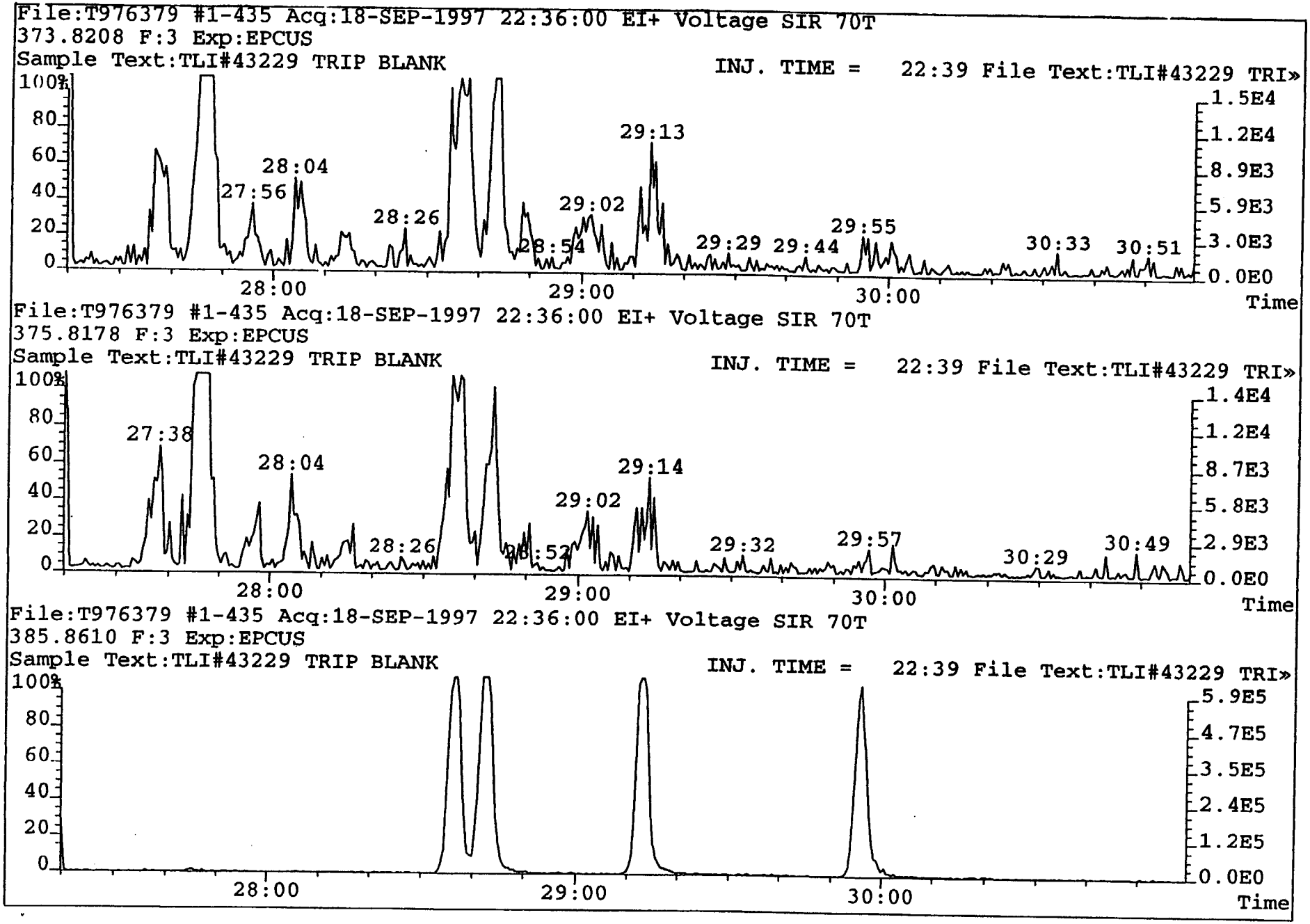

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A7.46E4
2.3E4
1.9E4
1.4E4
9.3E3
4.7E3
0.0E0
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A3.74E4
1.5E4
1.2E4
9.1E3
6.1E3
3.0E3
0.0E0
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
353.8970 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
25:00
25:45
4.0E5
3.2E5
2.4E5
1.6E5
8.0E4
0.0E0
Time

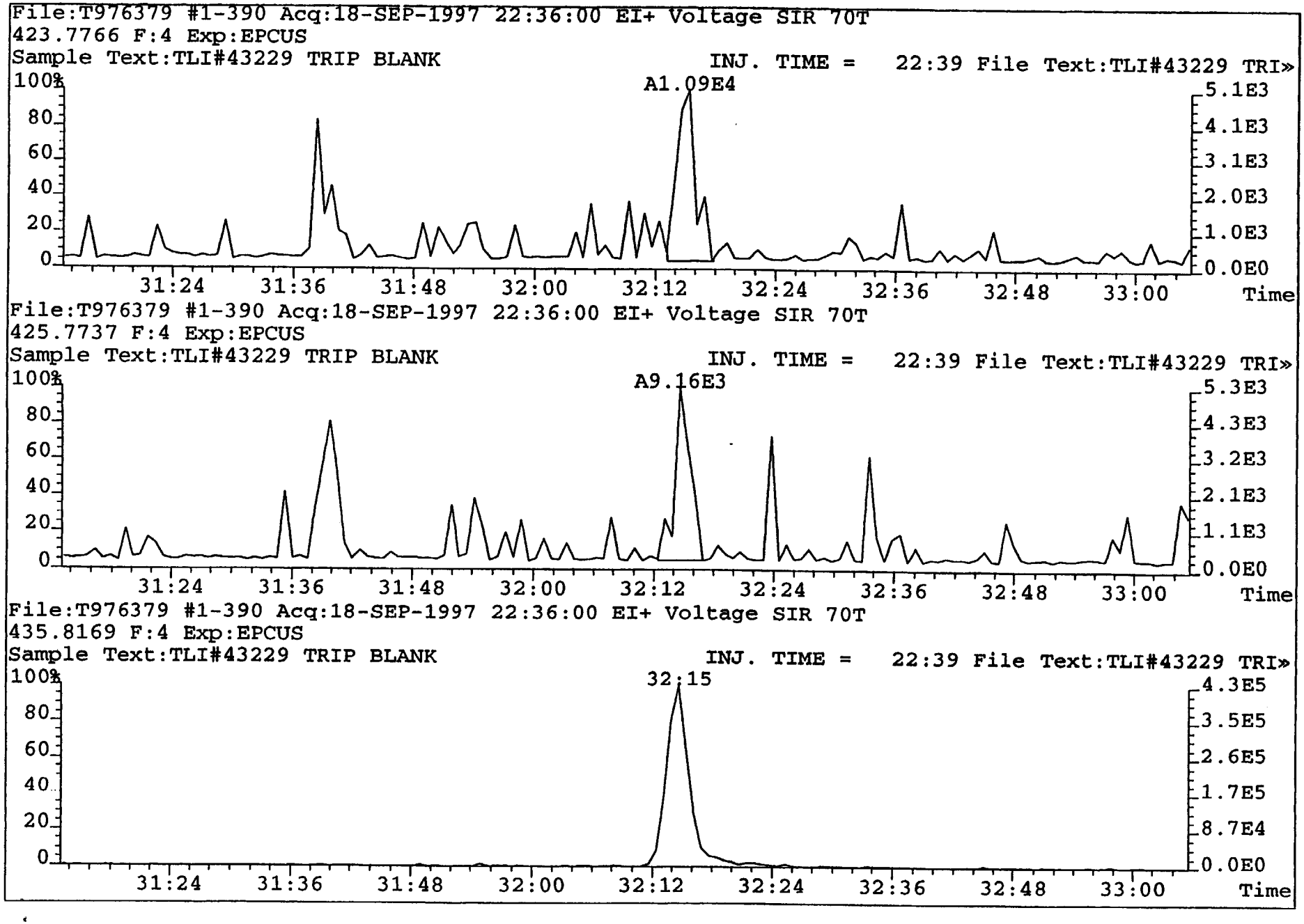

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
339.8597 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A4.68E4
2.3E4
1.9E4
1.4E4
9.3E3
4.7E3
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
341.8567 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A3.56E4
1.5E4
1.2E4
9.1E3
6.1E3
3.0E3
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
353.8970 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
25:00
25:45
4.0E5
3.2E5
2.4E5
1.6E5
8.0E4
0.0E0
24:24 24:36 24:48 25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 Time

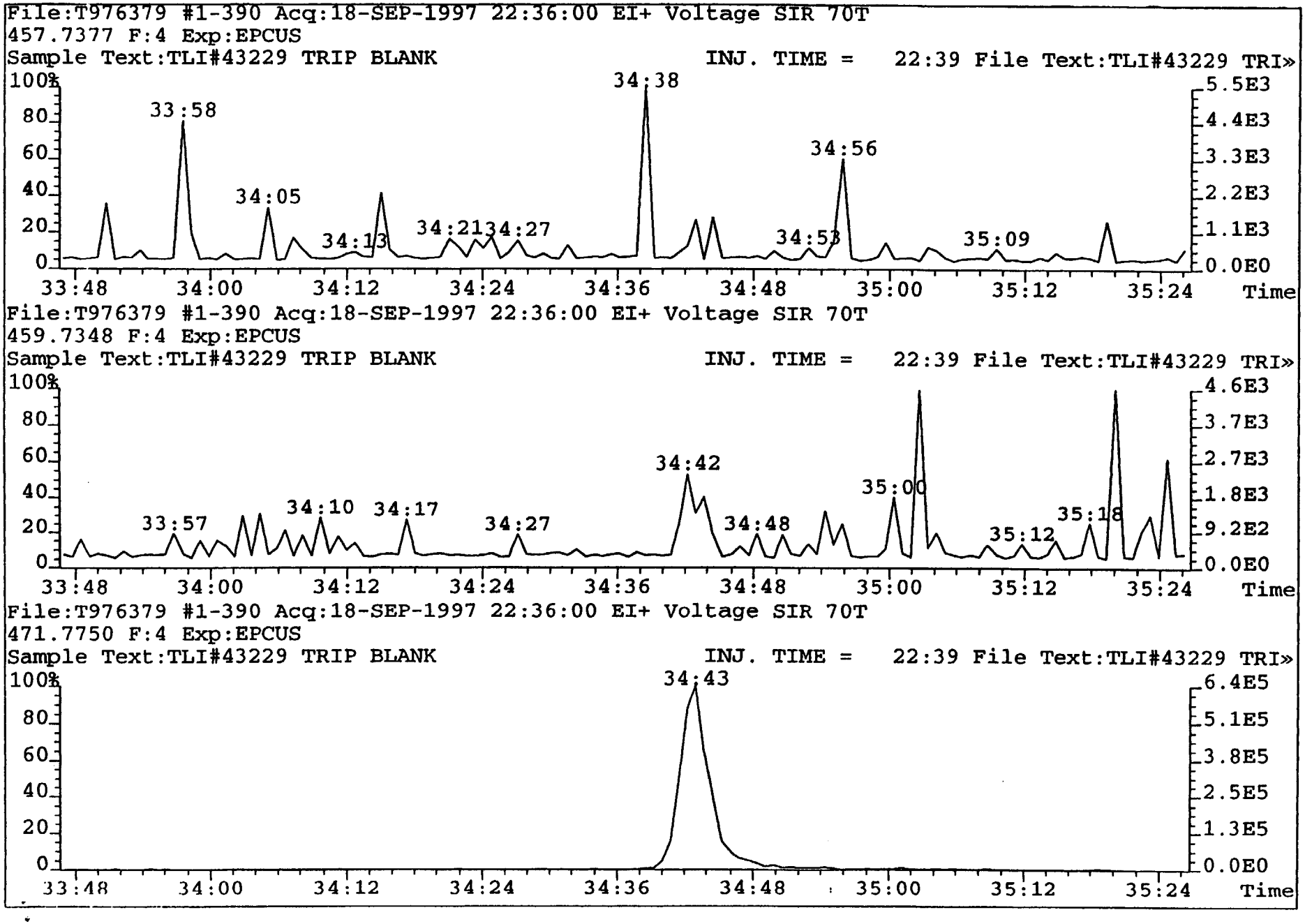

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
90
80
70
60
50
40
30
20
10
0
24:14
25:02
26:08
25:19
24:07
25:41
26:28
27:05
24:45
23:51
24:34
26:45
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
90
80
70
60
50
40
30
20
10
0
24:17
25:20
25:38
25:02
26:08
26:37
24:36
24:04
26:52
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time

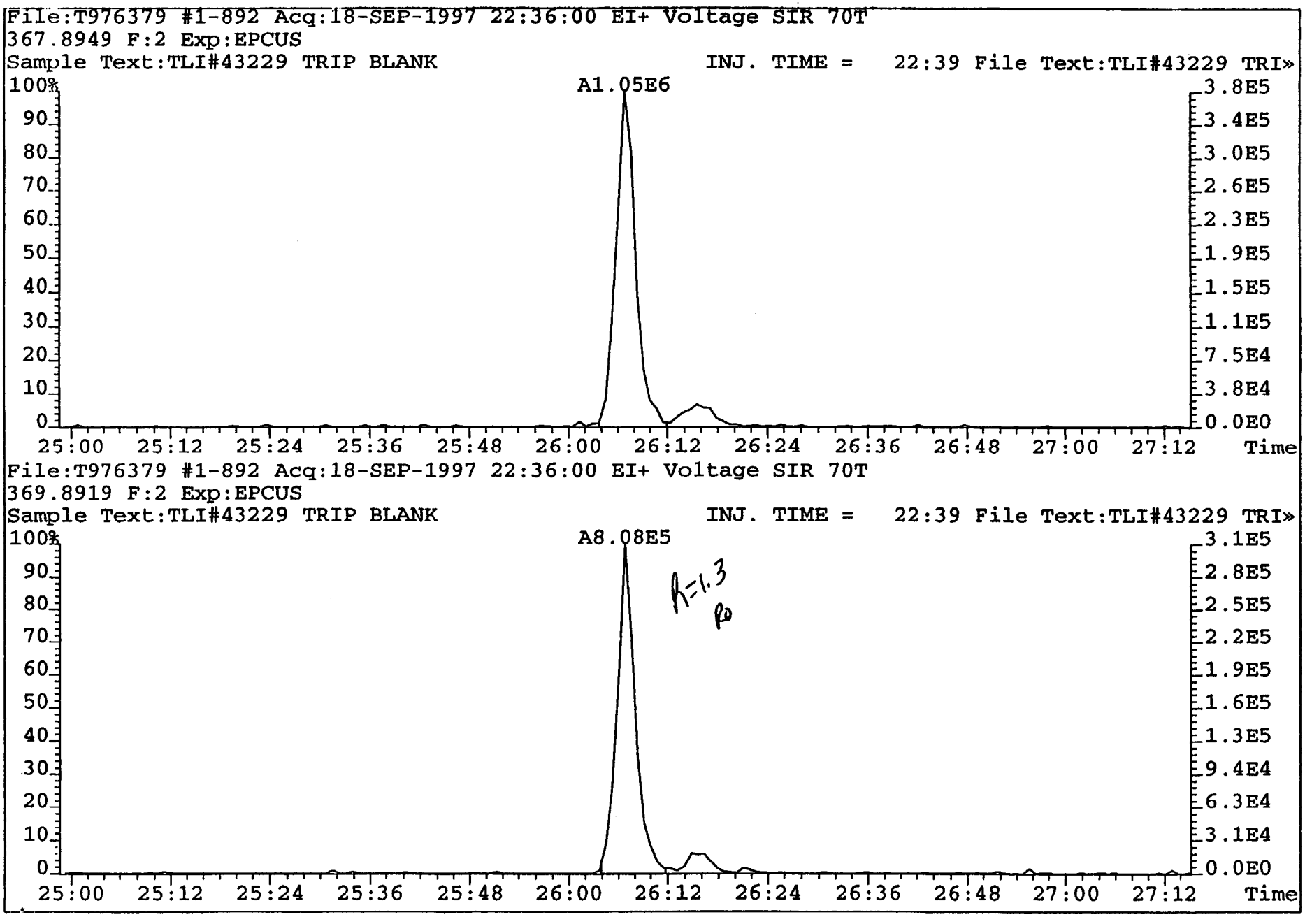

File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
A2.58E4
90
80
70
60
50
40
30
20
10
0
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
A3.23E4
90
80
70
60
50
40
30
20
10
0
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time


File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
355.8546 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
90
80
70
60
50
40
30
20
10
0
A1.83E4
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
357.8516 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
90
80
70
60
50
40
30
20
10
0
A6.80E3
1.2E4
1.0E4
9.3E3
8.1E3
7.0E3
5.8E3
4.6E3
3.5E3
2.3E3
1.2E3
0.0E0
24:00
25:00
26:00
27:00
Time


File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
373.8208 F:3 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
27:56
28:04
28:26
28:54
29:02
29:13
29:29
29:44
29:55
30:33
30:51
28:00
29:00
30:00
Time
1.5E4
1.2E4
8.9E3
5.9E3
3.0E3
0.0E0
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
375.8178 F:3 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
27:38
28:04
28:26
28:52
29:02
29:14
29:32
29:57
30:29
30:49
28:00
29:00
30:00
Time
1.4E4
1.2E4
8.7E3
5.8E3
2.9E3
0.0E0
File:T976379 #1-435 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
385.8610 F:3 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
100%
80
60
40
20
0
28:00
29:00
30:00
Time
5.9E5
4.7E5
3.5E5
2.4E5
1.2E5
0.0E0


File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
423.7766 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A1.09E4
100%
80
60
40
20
0
5.1E3
4.1E3
3.1E3
2.0E3
1.0E3
0.0E0
31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
425.7737 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A9.16E3
100%
80
60
40
20
0
5.3E3
4.3E3
3.2E3
2.1E3
1.1E3
0.0E0
31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
435.8169 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
32:15
100%
80
60
40
20
0
4.3E5
3.5E5
2.6E5
1.7E5
8.7E4
0.0E0
31:24 31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 Time


File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
457.7377 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
33:58
34:05
34:13
34:21
34:27
34:38
34:53
34:56
35:09
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
459.7348 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
33:57
34:10
34:17
34:27
34:42
34:48
35:00
35:12
35:18
Time
File:T976379 #1-390 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
471.7750 F:4 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
34:43
Time


File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
367.8949 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A1.05E6
100%
90
80
70
60
50
40
30
20
10
0
3.8E5
3.4E5
3.0E5
2.6E5
2.3E5
1.9E5
1.5E5
1.1E5
7.5E4
3.8E4
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 Time
File:T976379 #1-892 Acq:18-SEP-1997 22:36:00 EI+ Voltage SIR 70T
369.8919 F:2 Exp:EPCUS
Sample Text:TLI#43229 TRIP BLANK
INJ. TIME = 22:39 File Text:TLI#43229 TRI»
A8.08E5
R=1.3
100%
90
80
70
60
50
40
30
20
10
0
3.1E5
2.8E5
2.5E5
2.2E5
1.9E5
1.6E5
1.3E5
9.4E4
6.3E4
3.1E4
0.0E0
25:00 25:12 25:24 25:36 25:48 26:00 26:12 26:24 26:36 26:48 27:00 27:12 Time

Pacific Environmental Services

TLI Project: 43229 — Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: Trip Blank — Analysis File: P973987

Client Project:	S414.003/WAUPACA Foundry				
Sample Matrix:	M23TRAIN	Date Received:	09/12/97	Spike File:	SPC2NF04
TLI ID:	183-1-6A-D	Date Extracted:	09/14/97	ICal:	PF22206
		Date Analyzed:	09/19/97	ConCal:	P973982
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T976373	% Lipid:	n/a
GC Column:	DB-225	Analyst:	ML	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	0.06			0.83	20:32	—

Internal Standard	Amt. (ng)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.0	48.9	40%-130%	0.76	20:30	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	19:33	—

Data Reviewer: VC 09/22/97

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: 02:11 09/22/97

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.

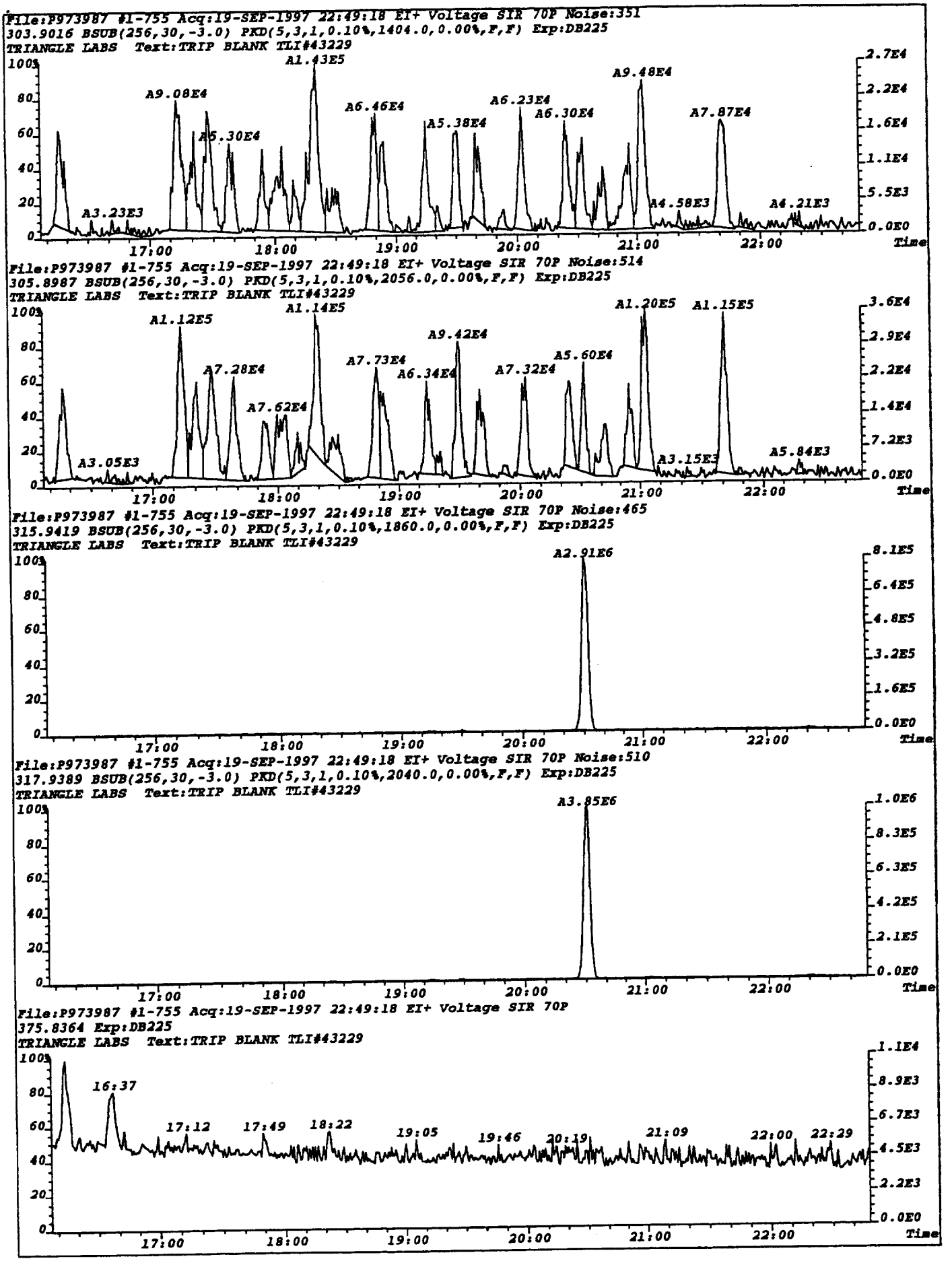
Page No. 1 Listing of P973987B.dbf
09/22/97 Matched GC Peaks / Ratio / Ret. Time

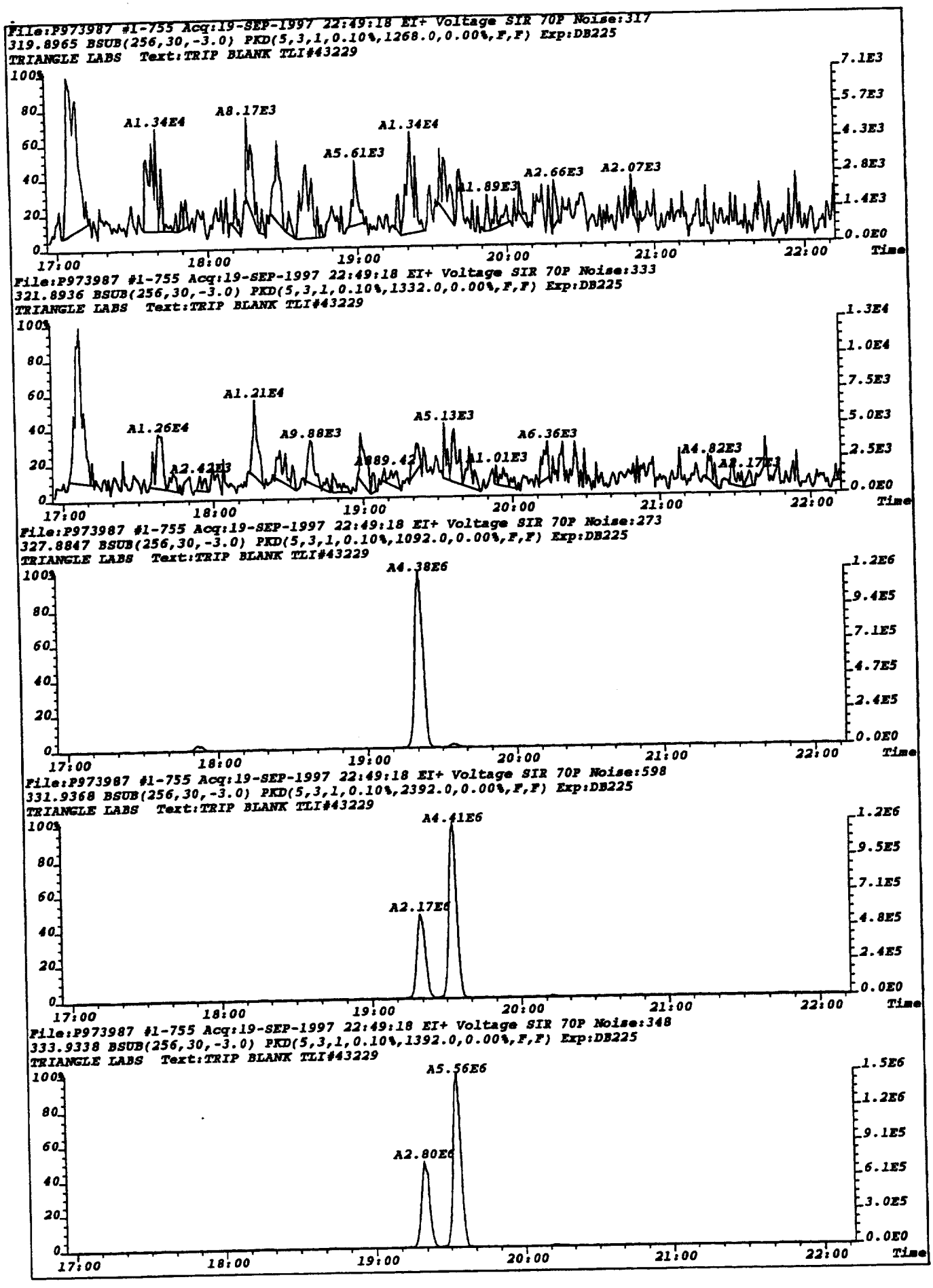
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
TCDF				0.65-0.89						0.786-1.095			
304-306	DC	NL		0:00		0.68	1.73			0.000			
				16:16		0.78	13.28	5.80	7.48	0.793			
	DC	SN		16:42		0.73	0.76			0.815			
	DC	SN		16:49	RO	0.96	0.44			0.820			
				17:13		0.81	20.28	9.08	11.20	0.840			
				17:21	RO	0.64	11.95	5.20	8.09	0.846			
				17:27		0.71	17.96	7.44	10.52	0.851			
				17:38		0.73	12.58	5.30	7.28	0.860			
				17:54		0.70	8.81	3.64	5.17	0.873			
				18:09	RO	0.99	4.18	2.34	2.36	0.885			
				18:20	RO	1.25	20.12	14.25	11.37	0.894			
				18:28	RO	0.90	7.88	4.01	4.45	0.901			
				18:50		0.80	14.54	6.46	8.08	0.919			
				19:15	RO	1.00	11.22	6.36	6.34	0.939			
	DC	SN		19:21		0.75	1.86			0.944			
				19:31	RO	0.57	12.37	5.38	9.42	0.952			
				19:40		0.68	11.27	4.56	6.71	0.959			
	DC	SN		19:54	RO	1.82	0.89			0.971			
				20:02		0.85	13.55	6.23	7.32	0.977			
				20:24	RO	0.99	11.24	6.30	6.35	0.995			
M				20:32		0.83	11.19	5.06	6.13	1.002	2378-TCDF		AN
				20:42		0.80	8.95	3.97	4.98	1.010			
				20:56	RO	1.11	9.59	6.01	5.42	1.021			
				21:03		0.79	21.50	9.48	12.02	1.027			
				21:41		0.69	19.33	7.87	11.46	1.058			
	DC	SN		21:50	RO	1.04	0.41			1.065			
	DC	SN		22:19		0.72	1.00			1.089			
304-306			20	Peaks			261.79						
13C12-TCDF				0.65-0.89						0.951-1.049			
316-318	DC	NL		0:00	RO	0.91	1.81			0.000			
	DC	WL		17:57	RO	0.58	0.74			0.876			
				19:30	RO	0.99	4.04	2.26	2.28	0.951			
	DC	SN		20:11	RO	4.25	0.14			0.985			
				20:30		0.76	676.34	291.38	384.96	1.000	13C12-2378-TCDF		ISO
	DC	SN		21:02	RO	1.09	1.52			1.026			
	DC	WH		22:20	RO	0.60	3.38			1.089			
316-318			2	Peaks			680.38						
---------- Above: TCDF / TCDD Follows ----------													
13C12-TCDD				0.65-0.89						0.897-1.103			
332-334	DC	NL		0:00	RO	1.71	1.24			0.000			

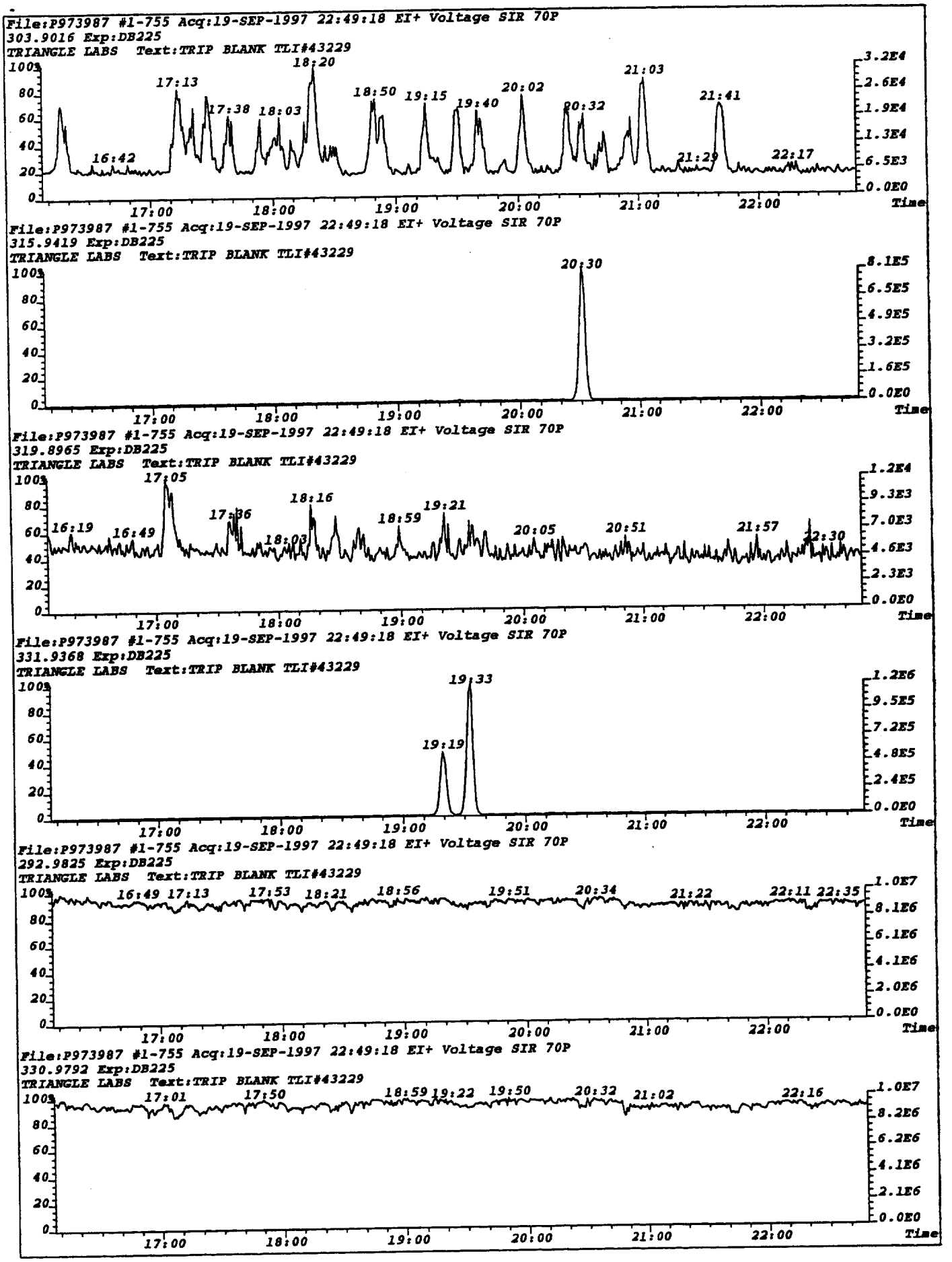
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..	Flags.
				18:16	RO	1.38	2.32	1.81	1.31	0.946			
				19:19		0.77	496.91	216.91	280.00	1.000	13C12-2378-TCDD	IS1	
				19:33		0.79	997.06	441.36	555.70	1.012	13C12-1234-TCDD	RS1	
				20:12		0.87	7.96	3.71	4.25	1.046			
		DC	WH	21:45	RO	1.68	0.71			1.126			
332-334				4 Peaks			1,504.25						

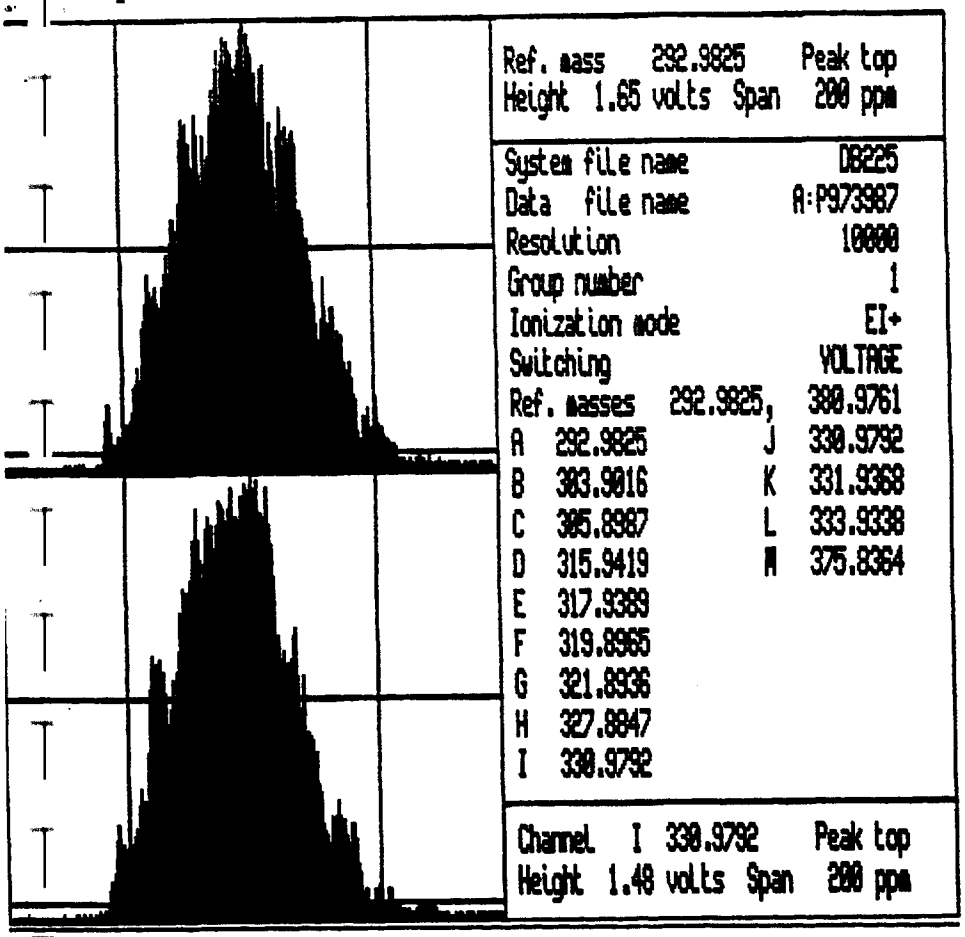
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside 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:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:351
303.9016 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1404.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A1.43E5
A9.08E4
A6.46E4
A6.23E4
A9.48E4
A5.38E4
A6.30E4
A7.87E4
A5.30E4
A3.23E3
A4.58E3
A4.21E3
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:514
305.8987 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2056.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A1.14E5
A1.12E5
A1.20E5
A1.15E5
A9.42E4
A7.73E4
A5.60E4
A7.28E4
A6.34E4
A7.32E4
A7.62E4
A3.05E3
A3.15E3
A5.84E3
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:465
315.9419 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1860.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A2.91E6
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:510
317.9389 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2040.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A3.85E6
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
375.8364 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
16:37
17:12
17:49
18:22
19:05
19:46
20:19
21:09
22:00
22:29
17:00
18:00
19:00
20:00
21:00
22:00
Time


File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:317
319.8965 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1268.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A1.34E4
A8.17E3
A5.61E3
A1.34E4
A1.89E3
A2.66E3
A2.07E3
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:333
321.8936 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1332.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A1.21E4
A1.26E4
A9.88E3
A5.13E3
A6.36E3
A4.82E3
A2.42E3
A1.01E3
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:273
327.8847 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1092.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A4.38E6
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:598
331.9368 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,2392.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A4.41E6
A2.17E6
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P Noise:348
333.9338 BSUB(256,30,-3.0) PKD(5,3,1,0.10%,1392.0,0.00%,F,F) Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
A5.56E6
A2.80E6
Time


File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
303.9016 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
16:42
17:13
17:38
18:03
18:20
18:50
19:15
19:40
20:02
20:32
21:03
21:29
21:41
22:17
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
315.9419 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
20:30
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
319.8965 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
16:19
16:49
17:05
17:36
18:03
18:16
18:59
19:21
20:05
20:51
21:57
22:30
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
331.9368 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
19:19
19:33
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
292.9825 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
16:49
17:13
17:53
18:21
18:56
19:51
20:34
21:22
22:11
22:35
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
330.9792 Exp:DB225
TRIANGLE LABS Text:TRIP BLANK TLI#43229
17:01
17:50
18:59
19:22
19:50
20:32
21:02
22:16
Time

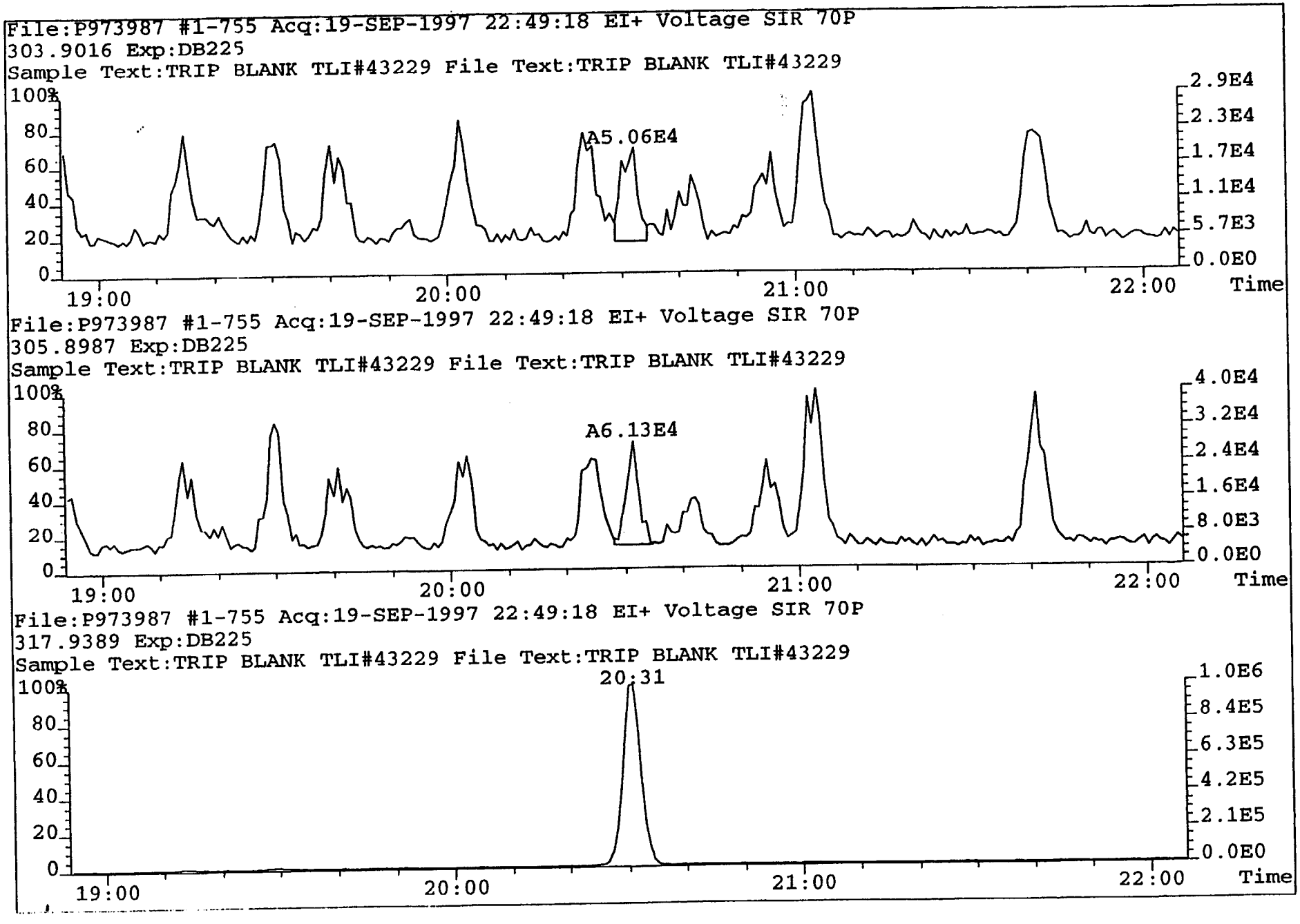


Ref. mass 292.9825 Peak top
Height 1.65 volts Span 200 ppm

System file name	D8225
Data file name	A:P973987
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 1.48 volts Span 200 ppm


File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
303.9016 Exp:DB225
Sample Text:TRIP BLANK TLI#43229 File Text:TRIP BLANK TLI#43229
100%
80
60
40
20
0
A5.06E4
2.9E4
2.3E4
1.7E4
1.1E4
5.7E3
0.0E0
19:00
20:00
21:00
22:00
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
305.8987 Exp:DB225
Sample Text:TRIP BLANK TLI#43229 File Text:TRIP BLANK TLI#43229
100%
80
60
40
20
0
A6.13E4
4.0E4
3.2E4
2.4E4
1.6E4
8.0E3
0.0E0
19:00
20:00
21:00
22:00
Time
File:P973987 #1-755 Acq:19-SEP-1997 22:49:18 EI+ Voltage SIR 70P
317.9389 Exp:DB225
Sample Text:TRIP BLANK TLI#43229 File Text:TRIP BLANK TLI#43229
20:31
100%
80
60
40
20
0
1.0E6
8.4E5
6.3E5
4.2E5
2.1E5
0.0E0
19:00
20:00
21:00
22:00
Time

TRIANGLE LABS

CALIBRATION DATA

Triangle Laboratories, Inc.
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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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Printed: 23:10 02/20/96

Initial Calibration Summary for TF53286

Analysis Date....: 03/28/96 Method.....: M237
Instrument.....: T

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
Total MCDF	1.365	0.000	0%	8:41	0:39	14:39	2.731		1
Total MCDD	1.558	0.000	0%	9:09	1:27	15:27	2.930		1
Total DCDF	0.598	0.000	0%	11:10	7:39	15:39	6.138		1
Total DCDD	1.067	0.000	0%	11:42	8:27	16:27	1.530		1
Total TriCDF	0.594	0.000	0%	14:42	11:39	18:39	1.051		1
Total TriCDD	0.260	0.000	0%	14:46	13:27	19:27	1.122		1
2378-TCDF	1.090	0.079	7%	20:40	16:39	24:39	0.780		5
TOTAL TCDF	1.090	0.079	7%				0.780		5
2378-TCDD	1.182	0.130	11%	21:28	17:27	25:27	0.725		5
TOTAL TCDD	1.182	0.130	11%				0.725		5
12378-PeCDF	1.086	0.072	7%	24:55	20:54	28:54	1.512		5
23478-PeCDF	1.122	0.048	4%	25:39			1.514		5
TOTAL PeCDF	1.104	0.059	5%				1.513		5
12378-PeCDD	1.251	0.052	4%	26:02	22:01	30:01	1.573		5
TOTAL PeCDD	1.251	0.052	4%				1.573		5
123478-HxCDF	1.088	0.050	5%	28:31	24:36	32:36	1.246		5
123678-HxCDF	1.353	0.080	6%	28:37			1.252		5
234678-HxCDF	1.094	0.092	8%	29:07			1.238		5
123789-HxCDF	0.985	0.051	5%	29:50			1.242		5
TOTAL HxCDF	1.130	0.067	6%				1.245		5
123478-HxCDD	0.914	0.060	7%	29:15	25:19	33:19	1.221		5
123678-HxCDD	1.000	0.051	5%	29:20			1.230		5
123789-HxCDD	1.036	0.068	7%	29:37			1.216		5
TOTAL HxCDD	0.983	0.058	6%				1.223		5
1234678-HpCDF	1.764	0.090	5%	31:17	27:17	35:17	1.058		5
1234789-HpCDF	1.132	0.033	3%	32:28			1.030		5
TOTAL HpCDF	1.448	0.057	4%				1.047		5
1234678-HpCDD	0.961	0.028	3%	32:08	28:08	36:08	1.025		5
TOTAL HpCDD	0.961	0.028	3%				1.025		5
OCDF	1.180	0.036	3%	34:42	30:36	38:36	0.894		5
OCDD	1.017	0.027	3%	34:36	30:36	38:36	0.834		5

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37Cl-TCDD	0.913	0.018	2%	21:28	19:27	23:27			5
13C12-PeCDF 234	1.018	0.016	2%	25:39	22:54	26:54	1.475		5
13C12-HxCDF 478	0.933	0.040	4%	28:30			0.513		5
13C12-HxCDF 234	0.949	0.042	4%	29:07			0.501		5
13C12-HxCDF 789	0.772	0.037	5%	29:49			0.507		5
13C12-HxCDD 478	0.899	0.067	7%	29:15			1.213		5
13C12-HpCDF 789	0.789	0.027	3%	32:28	29:17	35:17	0.433		5

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.292	0.017	1%	20:39	19:39	21:39	0.736		5
13C12-2378-TCDD	1.092	0.015	1%	21:27	19:27	23:27	0.791		5
13C12-PeCDF 123	1.233	0.063	5%	24:54	20:54	28:54	1.473		5

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Printed: 13:47 04/03/96

Initial Calibration Summary for TFS3286

13C12-PeCDD 123	0.724	0.039	5%	26:01	22:01	30:01	1.488	5
13C12-HxCDF 678	1.207	0.058	5%	28:36	24:36	32:36	0.515	5
13C12-HxCDD 678	0.943	0.047	5%	29:19	28:19	30:19	1.206	5
13C12-HpCDF 678	0.821	0.015	2%	31:17	29:17	35:17	0.431	5
13C12-HpCDD 678	0.770	0.032	4%	32:08	31:08	33:08	1.019	5
13C12-OCDD	0.602	0.028	5%	34:36	32:36	36:36	0.864	5

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	21:15			0.797		5
13C12-HxCDD 789	1.000	0.000	0%	29:37			1.207		5

*** End of Report ***

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Date: 09/18/97 TRIANGLE LABORATORIES, INC.

Continuing Calibration for T976372

Analysis Date....: 09/18/97 Method.....: M237

Operator.....: KAS Instrument..: T

Init Calibration.: TF53286 Std.Conc....: 50.00

ICal Date.....: 03/28/96

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		0:48 14:48			1.365	-1.365	100.0%
Total MCDD	0.000		1:36 15:36			1.558	-1.558	100.0%
Total DCDF	0.000		7:48 15:48			0.598	-0.598	100.0%
Total DCDD	0.000		8:36 16:36			1.067	-1.067	100.0%
Total TriCDF	0.000		11:48 18:48			0.594	-0.594	100.0%
Total TriCDD	0.000		13:36 19:36			0.260	-0.260	100.0%
2378-TCDF	1.156	0.84	17:11 22:49	20:49	1.0008	1.090	0.066	6.1%
TOTAL TCDF	1.156	0.84				1.090	0.066	6.1%
2378-TCDD	1.216	0.78	18:36 22:49	21:37	1.0008	1.182	0.034	2.9%
TOTAL TCDD	1.216	0.78				1.182	0.034	2.9%
12378-PeCDF	1.122	1.53	22:45 26:55	25:02	1.0000	1.086	0.036	3.3%
23478-PeCDF	1.187	1.53		25:47	1.0300	1.122	0.065	5.8%
TOTAL PeCDF	1.154	1.53				1.104	0.050	4.6%
12378-PeCDD	1.276	1.58	24:05 26:47	26:09	1.0006	1.251	0.025	2.0%
TOTAL PeCDD	1.276	1.58				1.251	0.025	2.0%
123478-HxCDF	1.186	1.30	27:28 30:11	28:38	0.9965	1.088	0.098	9.0%
123678-HxCDF	1.510	1.29		28:45	1.0006	1.353	0.157	11.6%
234678-HxCDF	1.176	1.28		29:15	1.0180	1.094	0.082	7.5%
123789-HxCDF	1.143	1.30		29:57	1.0423	0.985	0.158	16.0%
TOTAL HxCDF	1.254	1.29				1.130	0.124	10.9%
123478-HxCDD	0.893	1.21	28:00 29:52	29:22	0.9972	0.914	-0.021	-2.3%
123678-HxCDD	1.056	1.22		29:28	1.0006	1.000	0.056	5.6%

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Printed: 20:56 09/18/97

123789-HxCDD	1.038	1.24		29:45	1.0102	1.036	0.002	0.2%
TOTAL HxCDD	0.996	1.22				0.983	0.013	1.3%
1234678-HpCDF	1.461	1.09	31:14 32:45	31:25	1.0000	1.764	-0.303	-17.2%
1234789-HpCDF	1.284	1.08		32:37	1.0382	1.132	0.152	13.4%
TOTAL HpCDF	1.373	1.09				1.448	-0.075	-5.2%
1234678-HpCDD	0.975	1.01	31:29 32:25	32:15	1.0000	0.961	0.014	1.5%
TOTAL HpCDD	0.975	1.01				0.961	0.014	1.5%
OCDF	1.249	0.91	30:44 38:44	34:51	1.0034	1.180	0.069	5.9%
OCDD	1.011	0.83	30:44 38:44	34:44	1.0000	1.017	-0.006	-0.6%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.982		19:36 23:36	21:37	1.0008	0.913	0.069	7.6%
13C12-PeCDF 234	1.047	1.49	21:02 29:02	25:46	1.0293	1.018	0.029	2.8%
13C12-HxCDF 478	0.939	0.51		28:37	0.9959	0.933	0.006	0.6%
13C12-HxCDF 234	0.920	0.50		29:14	1.0174	0.949	-0.029	-3.1%
13C12-HxCDF 789	0.861	0.51		29:57	1.0423	0.772	0.089	11.6%
13C12-HxCDD 478	0.948	1.24		29:22	0.9972	0.899	0.049	5.5%
13C12-HpCDF 789	0.901	0.41	29:25 35:25	32:36	1.0377	0.789	0.112	14.2%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.562	0.73	19:48 21:48	20:48	1.0000	1.292	0.270	20.9%
13C12-2378-TCDD	1.067	0.84	19:36 23:36	21:36	1.0000	1.092	-0.025	-2.3%
13C12-PeCDF 123	1.271	1.46	21:02 29:02	25:02	1.0000	1.233	0.038	3.1%
13C12-PeCDD 123	0.720	1.43	22:08 30:08	26:08	1.0000	0.724	-0.004	-0.6%
13C12-HxCDF 678	1.191	0.50	24:44 32:44	28:44	1.0000	1.207	-0.016	-1.3%
13C12-HxCDD 678	0.979	1.15	28:27 30:27	29:27	1.0000	0.943	0.036	3.8%

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Continuing Calibration for T976372

13C12-HpCDF 678	0.871	0.41	29:25 35:25	31:25	1.0000	0.821	0.050	6.1%
13C12-HpCDD 678	0.887	1.02	31:15 33:15	32:15	1.0000	0.770	0.117	15.2%
13C12-OCDD	0.762	0.81	34:33 34:53	34:44	1.0000	0.602	0.160	26.6%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.83		21:24	0.9907	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.18		29:44	1.0096	1.000	0.000	0.0%

QC Front End Check: 0.7030

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Date: 09/19/97 TRIANGLE LABORATORIES OF RTP, INC.

Continuing Calibration for P973982

Analysis Date....: 09/19/97 Method.....: C2NF

Operator.....: ML Instrument..: P

Init Calibration.: PF22206 Std.Conc....: 5.00

ICal Date.....: 02/20/96

Analysis Time....: 18:18 GC Column...: DB-225

Analyte Summary						ICal	Delta	
Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	RF	RF	%D
2378-TCDF	0.959	0.77	16:07 22:28	20:31	1.0000	1.040	-0.081	-7.8%
TOTAL TCDF	0.959	0.77				1.040	-0.081	-7.8%
2378-TCDD	1.120	0.78	16:56 21:52	19:21	1.0009	0.992	0.128	12.9%
TOTAL TCDD	1.120	0.78				0.992	0.128	12.9%

Other Standard Summary						ICal	Delta	
Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	RF	RF	%D
37Cl-TCDD	0.982		17:20 21:20	19:21	1.0009	1.014	-0.032	-3.2%

Internal Standard Summary						ICal	Delta	
Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	RF	RF	%D
13C12-2378-TCDF	1.354	0.78	19:31 21:31	20:31	1.0000	1.388	-0.034	-2.5%
13C12-2378-TCDD	1.002	0.77	17:20 21:20	19:20	1.0000	1.067	-0.065	-6.1%

Recovery Standard Summary						ICal	Delta	
Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	RF	RF	%D
13C12-1234-TCDD	1.000	0.79		19:33	1.0112	1.000	0.000	0.0%

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Appendix C.2

Analytical Data - Semivolatile Organic Hazardous Air Pollutants

TRIANGLE LABS

CASE NARRATIVE

Analysis of Samples for the Presence of

Semivolatile Analytes by

High-Resolution Gas Chromatography / Low-Resolution Mass Spectrometry

METHOD 8270A Rev. 1 (7/92)

Date : September 22, 1997

Client ID : Pacific Environmental Services

TLI Project Number : 43230

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TRIANGLE LABORATORIES, INC.
CASE NARRATIVE

September 22, 1997
43230

Objective: Analysis of five MM5 train samples for Method 8270 polynuclear aromatic hydrocarbon (PAH) semivolatile compounds and Clean Air Act (CAA) semivolatile compounds.

Method:

Five MM5 train samples were received by Triangle Laboratories, Inc. on ice at 5°C in good condition on September 12, 1997. The samples were stored in a cooler at 4°C prior to extraction. The XAD traps used for sampling were pre-spiked with 100 micrograms (ug) of terphenyl-d_{14} prior to sampling. Prior to extraction, the XAD, filter, and rinses were spiked with 100 ug of phenol-d_5, 2,4,6-tribromophenol, 1,4-dibromobenzene-d_4, and pyrene-d_{10}. These portions of the MM5 trains were Soxhlet extracted with methylene chloride for 16 hours. The impinger condensates, when present, were spiked with 100 ug of the surrogate standards anthracene-d10, 2-fluorobiphenyl, nitrobenzene-d_5 and 1,3,5-trichlorobenzene-d_3 before being extracted with methylene chloride using a separatory funnel. The extracts were combined and brought to a final volume of 1.0 mL for the semivolatile analysis. The analysis is based on the guidelines of Method 8270A Rev. 1 (7/92). The results reported relate only to the items tested.

The internal standards, 1,4-dichlorobenzene-d_4, naphthalene-d_8, acenaphthene-d_{10}, phenanthrene-d_{10}, chrysene-d_{12}, and perylene-d_{12}, were added to the extracts such that the final internal standard concentration was 40 ug/mL immediately prior to analysis by GC/MS.

The GC/MS analysis conditions are listed below:

GC Conditions:	
Column:	J&W DB5-625, 30m x .32mm x 1*u*m
Program:	35C, ramp at 12C/min to 285C, hold for 2 min. ramp at 8.5C/min to 315 C, hold for 6.5 min.
Carrier Gas:	Helium
MS Conditions:	
Instrument:	HP MSD, Chemsystem and Target data systems
Scan:	35-550 amu at 1.67 scan/sec
Interface:	Capillary, Injector: 250C, Detector: 275C

Report:

Enclosed with the case narrative are the sample identification index, project summary sheets, client and TLI chain of custody sheets, wet laboratory extraction information sheets, GC/MS tracking forms, and analytical run logs. The sample identification index correlates the client sample name, TLI sample number and the analytical file name for the each sample. The project summary sheets list the amounts of analytes detected in gray and list the estimated detection limits in parentheses for analytes which were not detected.

The data are reported as quantitation reports, chromatograms, interim reports, and spectra of detected target analytes. The quantitation report header lists the TLI project number, analysis

method, instrument sample file name, and client sample name. The client project number, TLI sample number, calibration file, dilution factor, and date received, extracted, and analyzed are also listed in the quantitation report header. The response factors used for all calculations are from the continuing calibration listed in the header. All initial and continuing calibration data are located in the back of the data package. The amount reported for each target analyte detected in the samples is reported in total ug. The retention time (RT) will be listed for all internal standards and analytes which are detected. If a target analyte is not detected, it will be flagged with a "U" and a detection limit will be listed. Estimated detection limits are calculated using an area of 10,000 for all analytes which were not found in the samples. The estimated detection limits reported are the average detection limits achievable over time on an instrument type. The actual detection limit for a given compound on a given day may vary from the estimate reported. The quantitation limit for all analytes is half of the low point of the initial calibration adjusted for dilution when appropriate. Below this point the calibration cannot be considered to be linear. Any amounts reported at a level below the quantitation limit will be flagged with a "J" and should be considered estimated. If a target analyte is found at a level exceeding the upper calibration limit, it will be flagged with an "E" and should also be considered estimated. Any analytes flagged with a "B" on the sample topsheets were detected in the associated laboratory blank. All target analytes are quantitated against the internal standard preceding them on the target analyte list. Surrogate standards are quantitated against the internal standard with the matching internal standard reference number. For example, phenol-d_5 has 1 in the IS Ref column and would be quantitated against the internal standard which has IS1 listed in the flag column. If an internal standard area is above or below the quality control limits as defined by the continuing calibration, it will be flagged with "High" or "Low" in the flag column.

Immediately following the quantitation report are two pages which comprise the total ion chromatograms. Labeled internal and surrogate standards present in the sample have their identifications and retention time printed above their peak on the chromatogram. The chromatogram is followed by the interim report. On the interim report a $ is indicative of a surrogate standard and a * represents an internal standard. The interim report from the instrument is followed by the target spectra of detected compounds. Four spectral plots are included for each compound: a raw spectrum of the peak, a background subtracted version of the same spectrum, a library spectrum of the compound, and a plot showing the percent difference between the library spectrum and the background subtracted spectrum. Extracted ion current profiles are plotted on the right-hand side of the page showing the quantitation mass and one or two other prominent ions known to be present in target compound as they appear in the sample peak.

Results:

All samples were extracted and analyzed within the Method 8270 holding times.

Please note that several target analytes were found at levels below the quantitation limit in the laboratory blank. These analytes should not be considered truly present in the native samples unless detected at a level at least five times the level in the blank. If the analyte level in the sample is twenty times the level in the blank, the blank contribution can be considered statistically insignificant.

Each sample was processed twice, once against the calibrations containing PAH compounds and once against the calibrations containing CAA compounds. Therefore, each sample reported contains topsheets and interim reports for both the PAH and CAA analyses as well as a chromatogram and spectra for all analytes. Please note that the surrogate standards have been reported from the PAH analyses only.

All internal standard areas were within Method 8270 quality control criteria.

With the exception of terphenyl-d14 in all the samples and 1,3,5-trichlorobenzene-d3 in sample BO-0010-2 , all surrogate standard percent recoveries were within in-house quality control limits as defined by the following 95 percent confidence intervals:

Surrogate Standards	**Mean**	**95% confidence interval**
1,3,5-trichlorobenzene-d_3	55	22.19 - 87.75
1,4-dibromobenzene-d_4	69	34.65 - 103.19
2,4,6-tribromophenol	78	32.43 - 123.81
2-fluorobiphenyl	77	37.70 - 115.87
anthracene-d_{10}	77	37.45 - 116.75
nitrobenzene-d_5	68	30.52 - 105.65
phenol-d_5	70	28.39 - 112.40
pyrene-d_{10}	80	33.65 - 126.15
terphenyl-d_{14}	77	18.86 - 135.64

Sample Calculations:

Response Factor, RF = $\frac{\text{Area analyte x Amt Is}}{\text{Area IS x Amt analyte in the ccal}}$

Amount ug = $\frac{\text{Area analyte x Amt IS x DF}}{\text{Area IS x RF}}$

Where:

Amt IS = amount of internal standard = 40 ug
Amt analyte in the ccal = amount of analyte in the continuing calibration = 50 ug
DF = dilution factor

The data reported has been judged to be valid and in compliance with the guidelines of Method 8270A Rev. 1 (7/92) except as noted above. Should you have any questions about this project, please feel free to contact our Project Scientist, Amy Boehm, at (919) 544-5729, extension 268.

For Triangle Laboratories, Inc.,

Report Preparation:

Sarah A Hubbard

Sarah A. Hubbard
Report Preparation Chemist

Quality Control:

Tracy Wardell

Tracy Wardell
Report Preparation Chemist

The total number of pages in this data package is 184.

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

State of North Carolina, Department of 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, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

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

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

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

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

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

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

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

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

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

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

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

PHARMACEUTICAL

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

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

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

OTHER

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

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

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

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

Triangle Laboratories of RTP
Sample Identification Index for Project: 43230

Client Id:	TLI Id:	File Name:
BO-0010-1	183-2-2A-E	VG290
BO-0010-2	183-2-3A-E	VG291
BO-0010-3	183-2-4A-E	VG292
FB1-0010	183-2-1A-C	VG287
M0010 Blank	183-2-5A-C	VG286
SBLK091497	SBLK091497	VG284

Triangle Laboratories of RTP

Project Summary for Project 43230

Client ID:	BO-0010-1	BO-0010-2	BO-0010-3	FB1-0010	M0010 Blank
Filename :	VG290	VG291	VG292	VG287	VG286
TLI Id :	183-2-2A-E	183-2-3A-E	183-2-4A-E	183-2-1A-C	183-2-5A-C
Matrix :	MM5	MM5	MM5	MM5	MM5
Units :	ug	ug	ug	ug	ug
Naphthalene	20.76	4.83	21.60	1.84	1.64
2-Methylnaphthalene	5.89	1.31	5.33	0.36	(0.25)
2-Chloronaphthalene	(0.29)	(0.38)	(0.27)	(0.27)	(0.26)
Acenaphthylene	0.54	(0.25)	0.45	(0.18)	(0.18)
Acenaphthene	(0.31)	(0.41)	(0.29)	(0.29)	(0.28)
Fluorene	0.86	(0.36)	1.14	(0.26)	(0.25)
Phenanthrene	3.25	0.39	5.65	(0.22)	(0.21)
Anthracene	(0.25)	(0.31)	(0.23)	(0.23)	(0.22)
Fluoranthene	0.55	(0.28)	1.09	(0.21)	(0.20)
Pyrene	(0.31)	(0.42)	(0.30)	(0.26)	(0.25)
Benzo(a)anthracene	(0.40)	(0.53)	(0.38)	(0.33)	(0.32)
Chrysene	(0.43)	(0.57)	(0.41)	(0.35)	(0.35)
Benzo(b)fluoranthene	(0.54)	(0.89)	(0.54)	(0.45)	(0.45)
Benzo(k)fluoranthene	(0.52)	(0.87)	(0.52)	(0.44)	(0.44)
Benzo(e)pyrene	(0.53)	(0.88)	(0.53)	(0.44)	(0.44)
Benzo(a)pyrene	(0.60)	(1.00)	(0.60)	(0.50)	(0.50)
Perylene	(0.60)	(1.00)	(0.60)	(0.50)	(0.50)
Indeno(1,2,3-cd)pyrene	(0.72)	(1.20)	(0.72)	(0.60)	(0.60)
Dibenz(a,h)anthracene	(0.98)	(1.62)	(0.97)	(0.82)	(0.81)
Benzo(g,h,i)perylene	(0.82)	(1.37)	(0.82)	(0.69)	(0.69)

( )-Estimated Detection Limit

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

Client ID: SBLK091497

Filename : VG284
TLI Id : SBLK091497
Matrix : XAD
Units : ug

Naphthalene	1.61
2-Methylnaphthalene	(0.28)
2-Chloronaphthalene	(0.28)
Acenaphthylene	(0.19)
Acenaphthene	(0.30)
Fluorene	(0.27)
Phenanthrene	(0.24)
Anthracene	(0.25)
Fluoranthene	(0.23)
Pyrene	(0.26)
Benzo(a)anthracene	(0.33)
Chrysene	(0.35)
Benzo(b)fluoranthene	(0.44)
Benzo(k)fluoranthene	(0.43)
Benzo(e)pyrene	(0.43)
Benzo(a)pyrene	(0.49)
Perylene	(0.49)
Indeno(1,2,3-cd)pyrene	(0.58)
Dibenz(a,h)anthracene	(0.79)
Benzo(g,h,i)perylene	(0.67)

( )-Estimated Detection Limit Page 2

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

Triangle Laboratories of RTP
Project Summary for Project 43230

Client ID:	BO-0010-1	BO-0010-2	BO-0010-3	FB1-0010	M0010 Blank
Filename :	VG290	VG291	VG292	VG287	VG286
TLI Id :	183-2-2A-E	183-2-3A-E	183-2-4A-E	183-2-1A-C	183-2-5A-C
Matrix :	MM5	MM5	MM5	MM5	MM5
Units :	ug	ug	ug	ug	ug
n-Nitrosodimethylamine	(0.79)	(0.91)	(0.68)	(0.72)	(0.71)
Cumene	2.17	0.26	2.36	(0.19)	(0.18)
Phenol	15.73	3.14	8.70	1.44	0.49
Aniline	(0.30)	(0.34)	(0.26)	(0.27)	(0.26)
Benzyl Chloride	(0.17)	(0.20)	(0.15)	(0.16)	(0.16)
1,4-Dichlorobenzene	2.04	1.52	2.62	(0.36)	(0.35)
2-Methylphenol	(0.52)	(0.60)	(0.45)	(0.48)	(0.47)
Acetophenone	27.92	13.92	25.63	5.09	4.77
n-Nitrosomorpholine	(0.73)	(0.84)	(0.63)	(0.66)	(0.65)
o-Toluidine	(0.34)	(0.39)	(0.29)	(0.31)	(0.30)
Hexachloroethane	(0.74)	(0.86)	(0.64)	(0.68)	(0.66)
1,2-Dibromo-3-chloropropane	(0.87)	(1.00)	(0.75)	(0.79)	(0.77)
bis-(2-Chloroethyl)ether	(0.71)	(0.82)	(0.62)	(0.65)	(0.63)
N,N-Diethylaniline	(0.28)	(0.32)	(0.24)	(0.25)	(0.25)
3/4-Methylphenol	(0.46)	(0.58)	(0.41)	(0.42)	(0.42)
Nitrobenzene	(0.24)	(0.31)	(0.22)	(0.22)	(0.22)
N,N-Dimethylaniline	(0.26)	(0.32)	(0.23)	(0.23)	(0.23)
Isophorone	(0.23)	(0.29)	(0.21)	(0.21)	(0.21)
o-Anisidine	(0.56)	(0.72)	(0.51)	(0.52)	(0.52)
1,4-Phenylenediamine	(0.42)	(0.53)	(0.37)	(0.38)	(0.38)
1,2,4-Trichlorobenzene	2.88	4.00	4.96	(0.41)	(0.41)
Hexachlorobutadiene	(0.57)	(0.73)	(0.52)	(0.53)	(0.53)
a,a,a-Trichlorotoluene	(0.28)	(0.35)	(0.25)	(0.25)	(0.25)
Hydroquinone	3.01	(0.69)	(0.49)	(0.50)	(0.49)
2-Chloroacetophenone	(0.24)	(0.30)	(0.21)	(0.22)	(0.22)
Hexachlorocyclopentadiene	(0.56)	(0.73)	(0.52)	(0.52)	(0.51)
2,4,6-Trichlorophenol	21.86	2.13	24.61	(0.65)	(0.63)
2,4,5-Trichlorophenol	(0.68)	(0.88)	(0.63)	(0.64)	(0.62)
Biphenyl	5.23	0.32	6.54	(0.20)	(0.20)
Dimethylphthalate	3.63	2.62	1.62	3.19	(0.25)
4-Nitrophenol	(1.45)	(1.89)	(1.36)	(1.36)	(1.32)
2,4-Dinitrotoluene	(0.83)	(1.09)	(0.78)	(0.78)	(0.76)
Dibenzofuran	2.63	(0.27)	4.62	(0.19)	(0.19)
4,6-Dinitro-2-methylphenol	(2.05)	(2.68)	(1.92)	(1.93)	(1.87)
Trifluralin	(0.98)	(1.29)	(0.92)	(0.93)	(0.90)

( )-Estimated Detection Limit

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

Client ID:	BO-0010-1	BO-0010-2	BO-0010-3	FB1-0010	M0010 Blank
Filename :	VG290	VG291	VG292	VG287	VG286
TLI Id :	183-2-2A-E	183-2-3A-E	183-2-4A-E	183-2-1A-C	183-2-5A-C
Matrix :	MM5	MM5	MM5	MM5	MM5
Units :	ug	ug	ug	ug	ug
2,4-Dinitrophenol	(3.47)	(4.54)	(3.26)	(3.27)	(3.16)
Di-n-butylphthalate	5.65	3.50	2.10	3.06	1.21
Hexachlorobenzene	(0.65)	0.54	0.57	(0.61)	(0.59)
4-Aminobiphenyl	(0.26)	(0.31)	(0.24)	(0.24)	(0.23)
Pentachlorophenol	(1.00)	1.64	2.48	(0.93)	(0.90)
Pentachloronitrobenzene	(1.54)	(1.89)	(1.43)	(1.43)	(1.39)
4-Nitrobiphenyl	(0.69)	(0.85)	(0.64)	(0.64)	(0.62)
Benzidine	(0.53)	(0.69)	(0.50)	(0.43)	(0.42)
4,4'-Methylenedianiline	(1.29)	(1.71)	(1.23)	(1.05)	(1.04)
Dimethylaminoazobenzene	(0.99)	(1.31)	(0.94)	(0.80)	(0.80)
3,3'-Dimethylbenzidine	(0.77)	(1.01)	(0.73)	(0.62)	(0.61)
3,3'-Dimethoxybenzidine	(1.58)	(2.08)	(1.50)	(1.28)	(1.27)
3,3'-Dichlorobenzidine	(1.30)	(1.72)	(1.24)	(1.06)	(1.05)
Methylene bis-chloroaniline	(2.26)	(2.99)	(2.16)	(1.83)	(1.82)
bis(2-Ethylhexyl)phthalate	15.94	5.98	19.37	8.95	1.11

( )-Estimated Detection Limit

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

Client ID: SBLK091497

Filename : VG284
TLI Id : SBLK091497
Matrix : XAD
Units : ug

n-Nitrosodimethylamine		(0.85)
Cumene	-	(0.22)
Phenol		0.51
Aniline		(0.32)
Benzyl Chloride		(0.19)
1,4-Dichlorobenzene		(0.42)
2-Methylphenol		(0.56)
Acetophenone		5.03
n-Nitrosomorpholine		(0.78)
o-Toluidine		(0.36)
Hexachloroethane		(0.80)
1,2-Dibromo-3-chloropropane		(0.93)
bis-(2-Chloroethyl)ether		(0.77)
N,N-Diethylaniline		(0.30)
3/4-Methylphenol		(0.47)
Nitrobenzene		(0.25)
N,N-Dimethylaniline		(0.26)
Isophorone		(0.24)
o-Anisidine		(0.58)
1,4-Phenylenediamine		(0.43)
1,2,4-Trichlorobenzene		(0.46)
Hexachlorobutadiene		(0.59)
a,a,a-Trichlorotoluene		(0.28)
Hydroquinone		(0.56)
2-Chloroacetophenone		(0.24)
Hexachlorocyclopentadiene		(0.55)
2,4,6-Trichlorophenol		(0.68)
2,4,5-Trichlorophenol		(0.66)
Biphenyl		(0.21)
Dimethylphthalate		(0.27)
4-Nitrophenol		(1.42)
2,4-Dinitrotoluene		(0.82)
Dibenzofuran		(0.20)
4,6-Dinitro-2-methylphenol		(2.02)
Trifluralin		(0.97)

( )-Estimated Detection Limit

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

Client ID: SBLK091497

Filename : VG284
TLI Id : SBLK091497
Matrix : XAD
Units : ug

2,4-Dinitrophenol	(3.41)
Di-n-butylphthalate	3.61
Hexachlorobenzene	(0.65)
4-Aminobiphenyl	(0.26)
Pentachlorophenol	(1.00)
Pentachloronitrobenzene	(1.54)
4-Nitrobiphenyl	(0.69)
Benzidine	(0.43)
4,4'-Methylenedianiline	(1.05)
Dimethylaminoazobenzene	(0.80)
3,3'-Dimethylbenzidine	(0.62)
3,3'-Dimethoxybenzidine	(1.28)
3,3'-Dichlorobenzidine	(1.06)
Methylene bis-chloroaniline	(1.84)
bis(2-Ethylhexyl)phthalate	0.95

( )-Estimated Detection Limit

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

COPY mm 9/13/97

CLIENT CHAIN OF CUSTODY **SAMPLER'S SIGNATURE** Robert J Kelly **P/Q 03897/0700003270**

From: Pacific Environmental Services
5001 S. Miami Blvd. Suite 300
RTP, NC 27709
Project: Tell City, IN

Contact: Frank Meadows
Phone: 919-941-0333
Fax: 919-941-0234
P.O.#: _____

(PES03 /AJB) If the data will be reported to a state agency, which one? ____

Analysis Wanted: EPA Method 0010 Train Semi Volatile Organics

Total Number of Containers: 21 Sample fractions

Sample Name	Date	Time	Comp	Grab	Matrix	Sample Amt.						Remarks
FB1-0010	9/8/97				Filter, XAD, Rinse	3 fractions	X					See PES
BO-0010-1	9/9/97				Filter, XAD, Front & rinse, Back & rinse, Condensate	5 fractions	X					Master log
BO-0010-2	9/10/97				Filter, XAD, Front & rinse, Back & rinse, Condensate	5 fractions	X					Sheet - attached
BO-0010-3	9/10/97				Filter, XAD, Front & rinse, Back & rinse, Condensate	5 fractions	X					
Method 0010 Blanks	9/11/97				Filter, XAD, Rinse	3 Fractions	X					

Relinquished By/Sign.	Date/Time	Received By/Sign.	Relinquished By/Sign.	Date/Time	Received By/Sign.
Robert J Kelly	9/11/97 1030	Arthur Daugherty	Arthur Daugherty	9/12/97 1432	Michael J Tellburn
Relinquished By/Sign.	Date/Time	Received By/Sign.	Relinquished By/Sign.	Date/Time	Received By/Sign.
Michael J Tellburn	9/12/97 1629				

Received for Laboratory By/Signature Kelly M. Lynch **Date/Time** 9/12/97 1628

Send Samples to: **Triangle Laboratories, Inc.**
Attn: Sample Custodian
801 Capitola Drive
Durham, NC 27713 USA
Phone: (919) 544-5729 • Fax: (919) 544-5491

17

DEECO

COPY

ANALYTICAL REQUEST AND CHAIN OF CUSTODY

PLANT: WAUPACA Foundry | PROJECT #: 5414.003

RECOVERY PERSON: R Kolde / Ben Elsass

SAMPLE TECHNICIAN: T. Abernathy / G. Gay

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	SAMPLE NAME	NUMBER OF CONTAINERS	ANALYTICAL REQUEST: EPA Method 23	for PCDDs/PCDFs	EPA Method 0010	for Semi Volatile Organics							COMMENTS (Type of container, special preparation, special handling, etc.)
FB1-23	9/8/97	1600	FB1-23 (Field Blank)	3 XAD Filter Rinse	X										Yellow tape
FB1-0010	9/8/97	1600	(Field Blank) FB1-0010	3 XAD Filter Rinse			X								Samples = Method 23
BO-23-1	9/9/97	1600	Run No.1 BO-23-1	4 Filter, Front & Rinse, XAD Condensate	X										
BO-0010-1	9/9/97	1700	BO-0010-1 Run No.1	5 Filter, Front & Rinse, XAD, Back & Rinse Cond			X								Green Tape
BO-23-2	9/10/97		BO-23-2 Run No. 2	4 Filter, Front & Rinse, XAD condensate	X										Samples = Method 0010
BO-0010-2	9/10/97		BO-0010-2 Run No. 2	5 Filter, Front & rinse XAD, Condensate Back & rinse			X								
BO-23-3	9/10/97		BO-23-3 Run No. 3	4 Filter, XAD, Front & rinse Condensate	X										
BO-0010-3	9/10/97		BO-0010-3 Run No. 3	5 Filter, XAD, Front & rinse, Back & Rinse, Condensate			X								
Method 23															
FB2-23	9/11/97		FB2-23 Field Blank No. 2	3 XAD, Filter, Acetone/Toluene Rinse	X										
Method 23 Blank	9/11/97		Method 23 Blanks	5 XAD, Filter, Acetone, Toluene, Type E H2O	X										
Method 0010 Blanks	9/11/97		Method 0010 Blanks	3 Filter, XAD, Rinse			X								

RELINQUISHER'S NAME	DATE/TIME	RELINQUISHER'S SIGNATURE	SHIPPER'S NAME AND ID NUMBER
Ronald J. Kolde	9/11/97 - 1030	Ronald J Kolde	DEECO
RECEIVER'S NAME	DATE/TIME	RECEIVER'S SIGNATURE	
Arthur Daugherty	9/11/97 - 1030		Mike Milbourn 9/12/97 1628 Michael J Milbourn
Arthur Daugherty	9/11/97 - 1432		Merlin M. Lynch 9/12/97 1628
Mike Milbourn	9/11/97 - 1432	Michael J Milbourn	

9/10/97

METHOD 23 ~~CDD/CDF~~ SAMPLE RECOVERY DATA
0010

Plant: WALIPACA FOUNDRY		Run No.: FB-0010-1
Sample Date: 9/8/97	Filter No.(s): FB-0010-1	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/8/97	XAD-2 Trap No.(s): FB-0010-1	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	—	474.8	743.5	725.1	619.5	889.9	g
Initial wt.	—	474.8	743.5	725.1	619.5	889.9	g
Net wt.	—	0.0	0.0	0.0	0.0	0.0	g

Description

Train System: MM5 TRAIN / M0010 / BOX ID: N-10

Probe: 6' Glass

Filter: Color - Clear/White Loading - None

Impinger Contents: Clear

Silica Gel: @Grams Used - 300 Color - Blue % Spent - 0.0

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 4	marked/sealed: RK
XAD Module Container No.: 5	marked/sealed: RK
Probe (FH) & Back Half Rinse (~~Acetone~~ MeCl2/Methanol) Container No.: 6	Liquid level — marked/sealed: RK
Probe (FH) & Back Half Rinse (~~Toluene~~ MeCl2/Methanol) Container No.: —	Liquid level marked/sealed: —
Impinger Contents Container No.: —	Liquid level marked/sealed: —
Impinger Rinse (~~Acetone~~/MeCl2 Methanol) Container No.: —	Liquid level marked/sealed: —

COPY 9/17/97

METHOD ~~23 CDD/CDF~~ SAMPLE RECOVERY DATA

0010

Plant: WAUPACA FOUNDRY		Run No.: BD-0010-1
Sample Date: 9/9/97	Filter No.(s): BD-0010-1	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/9/97	XAD-2 Trap No.(s): BD-0010-1	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	—	530.8	743.5	723.3	622.4	916.0	g
Initial wt.	—	474.8	743.5	725.1	619.5	889.9	g
Net wt.	—	56.0	0.0	-1.8	2.9	26.1	g

Description

Train System: EPA METHOD 23 TRAIN / BOX ID: N-10

Probe: 6' Glass

Filter: Color - LIGHT TAN Loading - LIGHT

Impinger Contents: DI TYPE II H_2O

Silica Gel: @Grams Used - 300 Color - LT. BLUE % Spent - 80

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 11	marked/sealed: BR
XAD Module Container No.: 12	marked/sealed: RK
Probe (FH) & Back Half Rinse (~~Acetone~~ MeCl2/Methane) Container No.: 13	Liquid level marked/sealed: RK
Probe (FH) & Back Half Rinse (~~Toluene~~ MeCl2/Methane) Container No.: 14	Liquid level marked/sealed: BE
Impinger Contents Container No.: 15	Liquid level marked/sealed: RJL
Impinger Rinse (~~Acetone~~ Methane/MeCl2) Container No.: 14	Liquid level marked/sealed: RJL

9/3/97

METHOD ~~23/CDDF/CDF~~ 0010 SAMPLE RECOVERY DATA

Plant: WALPACA FOUNDRY		Run No.: BO-0010-2
Sample Date: 9/10/97	Filter No.(s): BO-0010-2	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/10/97	XAD-2 Trap No.(s): BO-0010-2	
Sample Recovery Person: RK/BE		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	–	554.5	715.0	730.8	620.0	878.7	g
Initial wt.	–	495.4	715.7	732.7	617.1	849.2	g
Net wt.	–						g

Description

Train System:	MM5 TRAIN / BOX ID: N-10
Probe:	6' GLASS
Filter: Color - Lt. Brown	Loading - Light
Impinger Contents:	Clear
Silica Gel: @Grams Used - 300	Color - H. blue % Spent - 50
Condensate Observed In Front Half:	NONE

Recovered Sample Fractions

Filter Container No. 20	marked/sealed: BE
XAD Module Container No.: 21	marked/sealed: BE
Probe (FH) & Back Half Rinse (~~Acetone~~ MeCl2/Methane) Container No.: 22	Liquid level – marked/sealed: BE
Probe (FH) & Back Half Rinse (~~Toluene~~ MeCl2/Methane) Container No.: 23	Liquid level – marked/sealed: BE
Impinger Contents Container No.: 24	Liquid level – marked/sealed: BE
Impinger Rinse (~~Acetone~~/MeCl2 Methane) Container No.: 23	Liquid level – marked/sealed: BE

9/13/97

METHOD ~~23 CDD/CDF~~ 0010 SAMPLE RECOVERY DATA

Plant: WAUPACA FOUNDRY		Run No.: BO-0010-3
Sample Date: 9/10/97	Filter No.(s): BO-0010-3	Job No.: 5414.003
Sample Location: BAGHOUSE OUTLET		
Recovery Date: 9/11/97	XAD-2 Trap No.(s): BO-0010-3	
Sample Recovery Person: BE/RK		

Moisture Data

Impingers	XAD - 2 Trap	1 (knockout)	2 (100 ml H2O) (untipped)	3 (100 ml H2O) (tipped)	4 (knockout) (untipped)	Silica gel (untipped)	
Final wt.	=	538.0	744.0	722.9	624.7	930.5	g
Initial wt.	-	475.0	748.4	723.7	BE 622.6	896.0	g
Net wt.	=						g

Description

Train System: EPA METHOD 0010 / TRAIN ID: N-10

Probe: 6' GLASS

Filter: Color - lt brown Loading - light

Impinger Contents: Clear

Silica Gel: @Grams Used - 300 Color - lt. blue % Spent - 60

Condensate Observed In Front Half: NONE

Recovered Sample Fractions

Filter Container No. 29	marked/sealed BE
XAD Module Container No.: 30	marked/sealed BE
Probe (FH) & Back Half Rinse (~~Acetone~~ MeCl2/Methane) Container No.: 31	Liquid level marked/sealed BE
Probe (FH) & Back Half Rinse (~~Toluene~~ MeCl2/Methane) Container No.: 32	Liquid level marked/sealed BE
Impinger Contents Container No.: 33	Liquid level marked/sealed BE
Impinger Rinse (~~Acetone~~/MeCl2 Methane) Container No.: 32	Liquid level marked/sealed BE

PACIFIC ENVIRONMENTAL SERVICES, INC.

Project No.	Page of
9414.003	
Client: U.S. EPA WAUPACA FOUNDRY	
Location	

Prepared By	Date	Checked By	Date	Sheet Title
R Kelde	9/11/97			Master Sample Log

⑦ BO-23-3 #25 Filter Baghouse Outlet 9/10/97
#26 XAD trap
Tare: 353.7 Final: 696.8 #27 Acetone/Toluene Rinse
Tare: 269.8 Final: 323.7 #28 1st impinger condensate

⑧ BO-0010-3 #29 Filter Baghouse Outlet 9/10/97
#30 XAD trap
Tare: 352.8 Final: 718.5 #31 Methylene Chloride/Methanol Rinse - Front ½
Tare: 267.8 Final: 434.9 #32 Methylene Chloride/Methanol Rinse Back ½
Tare: 354.0 Final: 415.9 #33 1st impinger Condensate

⑨ FB2-23 #34 Filter Roof 9/11/97
#35 XAD trap
Tare: 267.3 Final: 636.1 #36 Acetone/Toluene Rinse

⑩ Method 23 Blanks #37 Filter Blank Lab area 9/11/97
#38 XAD trap Blank
Tare: 267.2 Final: 574.0 #39 Acetone Blank
Tare: 266.7 Final: 664.1 #40 Toluene Blank
Tare: 266.9 Final: 764.9 #41 Type II Water Blank

⑪ Method 0010 Blanks #42 Filter Blank Lab area 9/11/97
#43 XAD trap Blank
Tare: 358.6 Final: 890.5 #44 Methylene Chloride/Methanol Blank
#

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PACIFIC ENVIRONMENTAL SERVICES, INC.

Project No.	Page of
5414.003	
Client: U.S. EPA - WAUPACA Foundry	
Location:	

Prepared By	Date	Checked By	Date	Sheet Title
R Kolb	9/9/97			Master Sample Log

① FB1-23 #1 Filter — Roof / Baghouse Outlet — 9/8/97
~~TARE: BE FINAL: BE~~ #2 XAD trap
TARE: 352.6 FINAL: 641.0 #3 Acetone / Toluene Rinse

② FB1-0010 #4 Filter — Roof / Baghouse Outlet — 9/8/97
~~TARE: BE FINAL: BE~~ #5 XAD trap
TARE: 353.0 FINAL: 743.6 #6 Methylene Chloride / Methanol Rinse

③ BO-23-1 #7 Filter — Baghouse Outlet — 9/9/97
#8 XAD trap
TARE: 356.9 FINAL: 682.3 #9 Acetone / Toluene Rinse
TARE: 166.4 FINAL: 227.2 #10 1st impinger Condensate

④ BO-0010-1 #11 Filter — Baghouse Outlet — 9/9/97
#12 XAD trap
TARE: 357.8 FINAL: 717.9 #13 Methylene Chloride / Methanol Rinse - Front ½
TARE: 166.2 FINAL: 332.7 #14 Methylene Chloride / Methanol Rinse - Back ½
TARE: 189.8 FINAL: 244.9 #15 1st impinger condensate

⑤ BO-23-2 #16 Filter — Baghouse Outlet — 9/10/97
#17 XAD trap
TARE: 357.0 FINAL: 729.4 #18 Methylene Acetone / Toluene Rinse
TARE: 191.3 FINAL: 248.1 #19 1st impinger condensate

⑥ BO-0010-2 #20 Filter — Baghouse Outlet — 9/10/97
#21 XAD trap
TARE: 352.8 FINAL: 759.9 #22 Methylene Chloride / Methanol Rinse - Front ½
TARES 172.9 FINAL: 320.4 #23 Methylene chloride / Methanol Rinse - Back ½
TARE: 192.6 FINAL: 249.2 #24 1st. impinger Condensate

COPY Kolb 9/11/97

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

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

Sample Seals: Absent
Container...: Intact

TLI Project Number 43230
Client: PES03 - Pacific Environmental Services

Date Received 09/12/97 By [signature]

Carrier and Number MICHAEL MELBORNE

Book 183 Page 2

Ice Chest ICE Temp 5.0 C

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
183-2-1A	FB1-0010 #4 FB1-0010 *	FILTER C01	ES 9/14/97	9-14-97 USED							
183-2-1B	FB1-0010 #5 FB1-0010 *	XAD C01									
183-2-1C	FB1-0010 #6 FB1-0010 *	CH2CL2/CH3OH RINSE C01		Used							
183-2-2A	BO-0010-1 #11 BO-0010 *	FILTER C01		USED							
183-2-2B	BO-0010-1 #12 BO-0010 *	XAD C01									
183-2-2C	BO-0010-1 #13 BO-0010 *	FH/RINSE C01		Used							
183-2-2D	BO-0010-1 #14 BO-0010 *	BH/RINSE C01									
183-2-2E	BO-0010-1 #15 BO-0010 *	1ST IMP CONDENSATE C01									
183-2-3A	BO-0010-2 #20 BO-0010 *	FILTER C01		USED							
183-2-3B	BO-0010-2 #21 BO-0010 *	XAD C01									
183-2-3C	BO-0010-2 #22 BO-0010 *	FH/RINSE C01		Used							
183-2-3D	BO-0010-2 #23 BO-0010 *	BH/RINSE C01									
183-2-3E	BO-0010-2 #24 BO-0010 *	1ST IMP CONDENSATE C01									
183-2-4A	BO-0010-3 #29 BO-0010 *	FILTER C01		USED							

Receiving Remarks:

Archive Remarks:

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

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

Sample Seals: Absent
Container...: Intact

TLI Project Number 43230
Client: PES03 - Pacific Environmental Services

Book 183

Date Received 09/12/97 By [signature]

Page 2

Ice Chest ICE Temp 5.0 C

Carrier and Number MICHAEL MELBORNE

LI Number.. R/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
83-2-4B	BO-0010-3 #30 BO-0010 *	XAD C01	E 9/14/97	USED							
83-2-4C	BO-0010-3 #31 BO-0010 *	FH/RINSE C01									
83-2-4D	BO-0010-3 #32 BO-0010 *	BH/RINSE C01		Used							
83-2-4E	BO-0010-3 #33 BO-0010 *	1ST IMP CONDENSATE C01									
83-2-5A	FILTER BLANK #42 METHOD 0010 BLANKS *	FILTER BLANK C01									
83-2-5B	XAD TRAP BLANK #43 METHOD 0010 BLANKS *	XAD TRAP BLANK C01		USED							
83-2-5C	CH2CL2/CH3OH BLANK METHOD 0010 BLANKS *	CH2CL2/CH3OH BLANK C01		Used							
				[initials] 9-14-97							

Receiving Remarks:

Archive Remarks:

Form Revised 05/27/1997 -- Page 2 OF 2

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TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Project: 43230

Client: Pacific Environmental Services (PES03)

Sample Information

Method: 8270

Solvent/Acids(): MeCl2

Extraction Date: 9/14/97

Lot: 973188

Sample #	TLI / CLIENT SAMPLE ID	Wgt / Vol g / ml	Final Volume ml	SURROGATE SPIKE X EXP 12-17-97 5187A 09/14/97 100ng/mL 1000µL	SURROGATE SPIKE W EXP 02-26-98 5383A 09/14/97 100ng/mL 1000µL	8270A/625/8270B/BNQC CHECK SOLUTION EXP 01-26-98 5249 09/14/97 100ng/mL 1000µL	8270A/625/8270B/BNQC CHECK SOLUTION D EXP 09-30-97 5247 09/14/97 100ng/mL 1000µL	___/___/___	___/___/___
000	TLI Blank / TLI SBlank			BSP	BSP ES				
001	183-2-1A-C / FB1-0010			BSP	BSP TOXAD				
002	183-2-2A-E / BO-0010-1			BSP	BSP ES				
003	183-2-3A-E / BO-0010-2			BSP	BSP ES				
004	183-2-4A-E / BO-0010-3			BSP	BSP ES				
005	183-2-5A-C / M0010 Blank			BSP	BSP TOXAD				
006	TLI LCS / TLI LCS			BSP	BSP TOXAD	BSP	BSP		
007	TLI LCSD / TLI LCSD	↓	↓	BSP	BSP TOXAD	BSP	BSP		

Comments: _____

REV 07/26/93 (PSIMF 7)

TLI Project Number: 4335D

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			
	~~CH~~	FILTER	XAD	GLASSWOOL	ALL TRAPS CAME FROM
	9.14.97	(1) WHITE	DRY WHITE	WHITE DRY	PREP PROJECT 03898,
		(2) BEIGE	MOIST	MOIST	30.0 GRAMS SUPELCO XAD LOT
		(3) BEIGE			P-1 DIDA WAS USED FOR THE
		(4) BEIGE			LCS AND LCSD
		(5) WHITE	DRY	DRY	

Triangle Laboratories, Inc.
TLI PROJECT# 03898
DATE 9/5/97 TLI BLANK
SPIKE 100ug TERPHENYL-D14
SPIKER GS
~~PREPARER G.L.~~
PACIFIC ENV.

1 - BLANK

OWL SAMPLE EXTRACTION AND CLEANUP TRACKING FORM
MM5 SINGLE ANALYSIS

S.NO.	SOP#	STEP DESCRIPTION	
11	OWL-118	Prep glassware	ES 9/11
"	OWL-111	K/D front half and back half rinses to 1 ml	KH
"	OWL-118	Place filter in thimble and empty XAD into thimble	KH
"	OWL-118	Add FH and BH rinses to thimble	KH/BW
"	DSP-128	Spike appropriate surrogates	KH
"	DSP-128	Spike appropriate QC spikes, if needed	
"	OWL-118	Extract for 16 hours with CH2Cl2 on Sox	
"	OWL-111	K/D down impinger rinses, if any NA	
"	OWL-118	Pour impinger water in separatory funnel, measure and record pH and volume	
"	OWL-118	Add impinger rinses to the water	
"	DSP-128	Add appropriate surrogates to the water	BSP 9/15
"	OWL-118	Adjust pH of H2O to <2 and extract 3 X 60 ml CH2Cl2	
"	OWL-118	Adjust pH of H2O to >11 and extract 3 X 60 mL CH2Cl2	
"	OWL-111	Filter both Sox and impinger extracts through Na2SO4	
"	OWL-111	K/D both extracts to about 5 mL, combining upon K/D'ing	
"	OWL-111	N2 extract to 1 mL, vialize, and rinse with 2 X 0.5 mL CH2Cl2	MK 9/16/96
"	OWL-111	N2 to 1 mL	
"	---	Relinquish to GC/MS	

TRIANGLE LABORATORIES, INC.
Wet Lab Extraction and Observations
Project: 43230

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Sample #	crd	TLI_Number..	Customer.Sample.Id.....	Init. pH...	NaOH mL..	Adj. pH.1.	H2SO4 mL...	Adj. pH.2.	Appearance.	Color.....	Odor...	Vol.	Entered.By.....	Date....	Time....	S
000		TLI Blank	TLI SBlank	7.00	0.2	11.00	0.1	2.00	HPLC WATER	COLORLESS	NONE	65	PORTERB	09/15/97	14:08:40	F
002		183-2-2A-E	BO-0010-1	2.00	0.2	12.00	0.1	2.00	CLEAR	COLORLESS	NONE	57	PORTERB	09/15/97	14:08:40	F
003		183-2-3A-E	BO-0010-2	2.00	0.4	12.00	0.1	2.00	CLEAR	COLORLESS	NONE	58	PORTERB	09/15/97	14:08:40	F
004		183-2-4A-E	BO-0010-3	2.00	0.3	12.00	0.1	2.00	CLEAR	COLORLESS	NONE	64	PORTERB	09/15/97	14:08:41	F
006		TLI LCS	TLI LCS	<Results not entered>												
006		<no FINAL results found>														

*** End of Report ***

TRIANGLE LABORATORIES, INC.
Wet Lab MM5/PUF Observations
Project: 43230

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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 SBlank	0	WHITE	NA	NA	NA	NA	03898	HILLKT	09/15	09:32	F
001		183-2-1A-C	FB1-0010	1	WHITE	WHITE	WHITE	NA	NONE	03898	HILLKT	09/15	09:32	F
002		183-2-2A-E	BO-0010-1	1	WHITE	BEIGE	WHITE	NA	NONE	03898	HILLKT	09/15	09:32	F
003		183-2-3A-E	BO-0010-2	1	WHITE	BEIGE	WHITE	NA	NONE	03898	HILLKT	09/15	09:32	F
004		183-2-4A-E	BO-0010-3	1	WHITE	BEIGE	WHITE	NA	NONE	03898	HILLKT	09/15	09:32	F
005		183-2-5A-C	M0010 Blank	1	WHITE	WHITE	WHITE	NA	NONE	03898	HILLKT	09/15	09:32	F
006		TLI LCS	TLI LCS	0	LOTP-1010A						HILLKT	09/15	09:32	F
007		TLI LCSD	TLI LCSD	0	LOTP-1010A						HILLKT	09/15	09:32	F

*** End of Report ***

AIR QUALITY PREPARATION WORK ORDER FORM
TRIANGLE LABORATORIES, INC.

TLI Project Number: 03898 Due Date: 9/5/97

ORDER INFORMATION

Client/Company Name: Pacific Environmental Order Date: 9/3/97
Project Manager: Amy Buchan Client Project #: Iron+Steel
Client MILES Code: PE803 Client P.O. #: _____
Quote Number: 07/3270

MATERIALS NEEDED

____Filters	6 XAD traps	___PUFs	
____3½"/9.0 cm	✓ Ball and Socket	Sandwich PUF:	yes no
____4"/10.16 cm	____Socket and Socket	Ship PUFs in :	jars sleeves
____4½"/11.0 cm	____Screw cap		
____5"/12.5 cm	____Other clamps caps		
____Other_____			

Filter Material: ____ Quartz ____ glass fiber other_____
Ship filter in: ____ one petri dish ____ separate petri dishes

SAMPLE PREPARATION INFORMATION

Preparer: [signature] Date: 9/5/97
# of Laboratory Blanks: 1
XAD Resin Batch #: P.10 Supplier: Supelco
Pre-spike required: (yes) no
Intended Analysis: PCDD/PCDF HR-PAH HR-PCB (LR-PAH) (SV Table 2)
(Circle all applicable) Other: _____

	Dioxin	Organics
Spiker/Observer Initials:	____/____	GS / GS
Spiking Date:	____/____/____	9/5/97
Spiking Solution ID:	USF-C, -S ____	52176
Volumn Spiked (µL):	____	1000
Nominal Concentration:	____ µg/mL	100 µg/mL
Expiration Date:	____/____/____	9/26/97 12/24/97

PCDD/PCDF Surrogates		PAH-HRMS Surrogates		PCB-HRMS Surrogates	
$^{37}Cl_4$-2,3,7,8-TCDD	____ng	Terphenyl-d_{14}	____ng	$^{13}C_{12}$-3,3',5,5'-TetraCB	____ng
$^{13}C_{12}$-2,3,4,7,8-PeCDF	____ng	Fluorene-d_{10}	____ng	$^{13}C_{12}$-2,2',4,5,5'-PentaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	____ng			$^{13}C_{12}$-2,2',3,4,4',5'-HexaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	____ng	PAH-LRMS Surrogates		$^{13}C_{12}$-2,2',3,3',5,5',6,6'-OctaCB	____ng
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	____ng	Terphenyl-d_{14}	100µg		

SHIPPING INSTRUCTIONS

Ship to the Attention of Mike Marot.
Mailing Address Pacific Environmental
Street Address Will pick up
Phone Number (____) 941-0333
Special Instructions: _____

Form Prepared by Deborah E Hage 9/3/97
Signature Date

Please return this form to Triangle Laboratories, Inc. with the samples.

SRVR1\QA\FORMS\AQUQO.FRM (4/11/96)

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 43230

Transfer From: OWLS5 To: OMSSV

	Initials..	Date.....	Time...
Released by:	MK	09/16/97	1:30 PM
Accepted by:	DD	9/16/97	13:30

MILES.ID.....		TLI_No.....	Cust.Id.....
43230-	-000	TLI Blank	TLI SBlank
43230-	-001	183-2-1A-C	FB1-0010
43230-	-002	183-2-2A-E	BO-0010-1
43230-	-003	183-2-3A-E	BO-0010-2
43230-	-004	183-2-4A-E	BO-0010-3
43230-	-005	183-2-5A-C	M0010 Blank
43230-	-006	TLI LCS	TLI LCS
43230-	-007	TLI LCSD	TLI LCSD

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

SEMIVOLATILE GC/MS TRACKING FORM

TL-RTP Project #: 43230

MATRIX: (MM5) PUF Water Soil Other _____

METHOD: (8270) 625 CLP

ANALYTE LIST: Table 2 TCLP 625 CLP (CAA) PAR (PAH) CB/CP Other _____

ICAL Name: ICAL V912 (TB12) ICAL V915 (CAA)

Date	Time	TLRTP ID	Sample ID	File Name	Comments
9/18/97	0920	3488	DFTPP	VG276	
	1043	5379	SSTD050 TB12	VG279	
	1132	4980	SSTD050 CAA	VG280	
	1221	N/A	LCS	VG281	
	1259	N/A	LCS DUP	VG282	
	1348	N/A	SOLVENT BLANK	VG283	
	1435	N/A	SBLK091497	VG284	
	1614	183-2-5A-C	MOOIC-BLANK	VG286	
	1703	183-2-1A-C	FB1-0010	VG287	
	1929	183-2-2A-E	BD-0010-1	VG290	
	2018	183-2-3A-E	BD-0010-2	VG291	
	2108	183-2-4A-E	BD-0010-3	VG292	

TRIANGLE LABORATORIES OF RTP, INC.

Triangle Laboratories, Inc.
Run Log

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB-5/624	4581947	—	calist-pr	—	—	—

Standards		
(Internal) / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A exp 12/31/97	N/A	N/A
5pt @ 34 ug/ml		

Extract / Sample volume 100 (µL) mL — Circle unit

DD 9/12/97
Signature — Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/11/97	1245	N/A	3908	OFTPP	VG208		DD 9/11/97		DD	failed DD 9/11/97 air leak - vent system
9/11/97	1345	N/A	3908	OFTPP	VG209		DD 9/11/97		DD	failed DD 9/11/97
9/12/97	0036	N/A	3988	OFTPP	VG210		DD 9/12/97		DD	passed DD 9/12/97
9/12/97	0059	N/A	5376	SSTD160	VG211		DD 9/12/97		DD	subd - + multiplier & reanalyze. DD 9/12/97
9/12/97	0151	N/A	5376	SSTD160 DD 9/12/97	VG212		DD 9/12/97		DD	
9/12/97	0310	N/A	5377	SSTD120 DD 9/12/97	VG213		DD 9/12/97		DD	
9/12/97	0347	N/A	5378	SSTD080 DD 9/12/97	VG214		DD 9/12/97		DD	
9/12/97	0436	N/A	5379	SSTD050 DD 9/12/97	VG215		DD 9/12/97		DD	
9/12/97	0525	N/A	5380	SSTD020 DD 9/12/97	VG216		DD 9/12/97		DD	curve passed DD 9/12/97
9/12/97	0705	N/A	5420	SSTD160 DD 9/12/97	VG217		DD 9/12/97		DD	

* Volatile Data Only
** Transcribed Data
*** Dated Signature/Initials Required

Triangle Laboratories, Inc.
Run Log

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5625	4581947	—	cclust.m	—	✓	✓

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A Exp 12/31/97 5 µl @ 834 µg/ml	N/A	N/A

Extract / Sample volume 100 / (1) Single unit mL

DO 9/12/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/12/97	1516	N/A	5438	n,n-dibutylformamide	VG228		DO 9/12/97		DO	
9/12/97	1606	N/A	5439	hexadecane	VG229		DO 9/12/97		DO	
9/12/97	1655	N/A	5440	Octadecanamide	VG230		DO 9/12/97		DO	
9/12/97	1744	N/A	5441	Triphenylphosphine Oxide	VG231		DO 9/12/97		DO	
9/12 DO 9/15/97 9/15/97	1833	N/A	5442	SSTD100 GER SPEC.	VG232		DO 9/12/97		DO	
9/15/97	0752	N/A	3988	DFTPP	VG233		DO 9/15/97		DO	failed DO 9/15/97
9/15/97	0815	N/A	3988	DFTPP	VG234		DO 9/15/97		DO	failed DO 9/15/97
9/15/97	0832	N/A	3988	DFTPP	VG235		DO 9/15/97		DO	failed DO 9/15/97
9/15/97	0858	N/A	3988	DFTPP	VG236		DO 9/15/97		DO	failed DO 9/15/97
9/15/97	0955	N/A	3988	DFTPP	VG237		DO 9/15/97		DO	passed DO 9/15/97

* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

Triangle Laboratories, Inc.
Run Log

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5 625	45019477	—	cclist.m	—	—	—

Standards		
(Internal) / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A EXP 12/31/97 5 µl @ 834 ng/ml	N/A	N/A

Extract / Sample volume 1.0 (µL) mL (Circle unit)

DD 9/15/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/15/97	1014	N/A	5379	SSTD05D	VG238		DD 9/15/97		DD	passed DD 9/19/97
9/15/97	1110	N/A	4977	SSTD160 CAA	VG239		DD 9/15/97		DD	
9/15/97	1146	N/A	4978	SSTD120 CAA	VG240		DD 9/15/97		DD	
9/15/97	1234	N/A	4979	SSTD080 CAA	VG241		DD 9/15/97		DD	
9/15/97	1324	N/A	4980	SSTD050 CAA	VG242		DD 9/15/97		DD	
9/15/97	1413	N/A	4981	SSTD020 CAA	VG243		DD 9/15/97		DD	curve passed DD 9/19/97
9/15/97	1503	N/A	5342 IC DD 9/15/97	SSTD160 RUBICON	VG244		DD 9/15/97		DD	
9/15/97	1553	N/A	5343	SSTD120 RUBICON	VG245		DD 9/15/97		DD	
9/15/97	1643	N/A	5344	SSTD080 RUBICON	VG246		DD 9/15/97		DD	
9/15/97	1734	N/A	5345	SSTD050 RUBICON	VG247		DD 9/15/97		DD	

* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

Triangle Laboratories, Inc.
Run Log

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5625	4581947	/	ccliat.m	/	/	/

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A Exp 12/31/97 5µl @ 834µg/ml	N/A	N/A

Extract / Sample volume 1000 (µL) mL (Circle unit)

DD 9/15/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/15/97	1824	N/A	5346	SSTD020 RUBICON	VG248		DD 9/15/97		DD	curve passed DD 9/16/97
9/15/97	1914	N/A	3988	DFTPP	VG249		DD 9/15/97		DD	failed DD 9/16/97
9/15/97	1931	N/A	5415	SSTD160 WALSH	VG250		DD 9/15/97		DD	rerun on valid tune DD 9/16/97
9/15/97	2019	N/A	5416	SSTD120 WALSH	VG251		DD 9/15/97		DD	
9/15/97	2109	N/A	5417	SSTD080 WALSH	VG252		DD 9/15/97		DD	
9/15/97	2158	N/A	5418	SSTD050 WALSH	VG253		DD 9/15/97		DD	
9/15/97	2247	N/A	5419	SSTD020 WALSH	VG254		DD 9/15/97		DD	
9/16/97	1229	N/A	3988	DFTPP	VG255		DD 9/16/97		DD	failed DD 9/16/97
9/16/97	1305	N/A	3988	DFTPP	VG256		DD 9/16/97		DD	failed DD 9/16/97
9/16/97	1331	N/A	3988	DFTPP	VG257		DD 9/16/97		DD	failed DD 9/16/97

* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5 1625	4581947	✓	cclist.m	✓	✓	✓

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A Exp 12/31/97 5 uL @ 854 ug/mL	N/A	N/A

Extract / Sample volume 100 (µL) mL (Circle unit)

DO 9/16/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/16/97	1413	N/A	3988	OFTPP	VG2258		DO 9/16/97		DO	failed DO 9/16/97
9/17/97	0623	N/A	3988	OFTPP	VG2259		DO 9/17/97		DO	Bake @ 250c overnight failed DO 9/17/97
9/17/97	0641	N/A	3988	OFTPP	VG2260		DO 9/17/97		DO	failed DO 9/17/97
9/17/97	0706	N/A	3988	OFTPP	VG2261		DO 9/17/97		DO	passed DO 9/17/97
9/17/97	0726	N/A	5379	SSTDOSD	VG2262		DO 9/17/97		DO	passed DO 9/17/97
9/17/97	0818	N/A	4980	SSTDOSD CAA	VG2263		DO 9/17/97		DO	failed DO 9/17/97
9/17/97	0902	N/A	5345	SSTDOSD RUBICON	VG2264		DO 9/17/97		DO	passed DO 9/17/97
9/17/97	0943	430706	N/A	LCS	VG2265		DO 9/17/97		DO	
9/17/97	1031	430706	N/A	LCS DUP	VG2266		DO 9/17/97		DO	
9/17/97	1119	N/A	N/A	SOLVENT BLANK	VG2267		DO 9/17/97		DO	

* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

Triangle Laboratories, Inc.
Run Log

Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5-1625	4581947	—	ccluot.m	—	—	—

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
8260A Exp 12/31/97 5µl @ 83µg/ml	N/A	N/A

Extract / Sample volume 10 (µL) mL (Circle unit)

DD 9/17/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/17/97	1205	43070C	N/A	SBLK 090497	VG288		DD 9/17/97		DD	
9/17/97	1253	43070C	181-40 2B6	AN-T3-RD-0023M-BL	VG289		DD 9/17/97		DD	
9/17/97	1340	43070C	181-40-1ABDE	AN-T3-RD-0023M-BT	VG290		DD 9/17/97		DD	
9/17/97	1428	43070C	181-40-3ABD's	AN-T3-RAB-0023M	VG291		DD 9/17/97		DD	
9/17/97	1515	43070C	181-40-1ABD's	AN-T3-R2B-0023M	VG292		DD 9/17/97		DD	
9/17/97	1602	43070C	181-40-SABD's	AN-T3-R3B-0023M	VG293		DD 9/17/97		DD	
9/17/97	1650	43062B	N/A	LCS	VG294		DD 9/17/97		DD	
9/17/97	1737	43062B	N/A	LCS DUP	VG295		DD 9/17/97		DD	
9/18/97	0920	N/A	3988	DFTPP	VG276		DD 9/18/97		DD	passed DD 9/18/97
9/18/97	0947	N/A	5379 FC DD 9/18/97	SSTD050	VG277		DD 9/18/97		DD	failed DD 9/18/97

* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

Triangle Laboratories, Inc.
Run Log

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Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DBS 625	4581947	—	celiot.m	—	—	—

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A Exp 12/31/97 5µl @ 834 µg/ml	N/A	N/A

Extract / Sample volume 100 µL mL (Circle unit)

DD 9/18/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/18/97	—	N/A	5379	SSTD050	VG278		DD 9/18/97	DD 9/18/97	~~DD~~	did not acquire DD 9/18/97
9/18/97	1043	N/A	5379	SSTD050	VG279		DD 9/18/97		DD	cut off 1 ft column passed DD 9/18/97
9/18/97	1132	N/A	4980	SSTD050 CAA	VG280		DD 9/18/97		DD	passed DD 9/18/97
9/18/97	1221	43230	N/A	LCS	VG281		DD 9/18/97		DD	
9/18/97	1259	43230	N/A	LCS DUP	VG282		DD 9/18/97		DD	
9/18/97	1348	N/A	N/A	SOLVENT BLANK	VG283		DD 9/18/97		DD	
9/18/97	1436	43230	N/A	SBLK 091497	VG284		DD 9/18/97		DD	
9/18/97	1525	430628	N/A	SBLK 090597	VG285		DD 9/18/97		DD	
9/18/97	1614	43230	183.2.5A-C	~~FB1-0010~~ M0010 BLANK ~~B~~ FE DD 9/18/97	VG286		DD 9/18/97		DD	
9/18/97	1703	43230	183.2.1A-C	FB1-0010 ~~M0010 BLANK~~ TC DD 9/18/97	VG287		DD 9/18/97		DD	

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* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

SRVR1\\QA\FORMS\LRRUNLOG.DOC (1/23/97)

Triangle Laboratories
Run Log

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Column Type	Column #	Analysis*	Acquisition Method	GC Method*	Find DBs*	Other*
DB5 625	4581947	/	cclist.m	/	/	/

Standards		
Internal / Surrogate / Recovery	Internal / Surrogate / Recovery	Analyte
5402A exp 12/31/97 5ml @ 834 µg/ml	N/A	N/A

Extract / Sample volume (OZ) µL mL (Circle unit)

DD 9/18/97
Signature Date

Date**	Time**	Project	Sample#	Client ID	Filename	pH*	Operator/Date	Backup*	Proc	Comments***
9/18/97	1752	430628	181.32.1A-DF	GGC-TC2-M23/0010-101	VG288		DD 9/18/97		DD	
9/18/97	1841	430628	181.32.2A-DF	GGC-TC2-M23/0010-102	VG289		DD 9/18/97		DD	
9/18/97	1929	43230	183.2.2A-E ~~183.2.2A-E~~	FE DD 9/18/97 BO-0010-1	VG290		DD 9/18/97		DD	
9/18/97	2018	43230	183.2.3A-E ~~183.3A-E~~	FE DD 9/18/97 BO-0010-2	VG291		DD 9/18/97		DD	
9/18/97	2108	43230	183.2.4A-E ~~138~~	FE DD 9/18/97 BO-0010-3	VG292		DD 9/18/97		DD	

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* Volatile Data Only ** Transcribed Data *** Dated Signature/Initials Required

SRVR11\QA\FORMS\LRRUNLOG.DOC (1/23/97)

Pacific Environmental Services

Project Number: 43230
Sample File: VG290

Method 8270A MM5
Sample ID: BO-0010-1

Client Project: S414.003/WAUPAC
TLI ID: 183-2-2A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
Naphthalene-d_8		IS 2	13.01		
Naphthalene	20.76	B	13.05		10
2-Methylnaphthalene	5.88	J	14.48		10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.29	10
Acenaphthylene	0.54	J	16.37		10
Acenaphthene		U		0.31	10
Fluorene	0.86	J	17.82		10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene	3.25	J	19.85		10
Anthracene		U		0.25	10
Fluoranthene	0.55	J	22.35		10
Chrysene-d_{12}		IS 5	25.61		
Pyrene		U		0.31	10
Benzo(a)anthracene		U		0.40	10
Chrysene		U		0.43	10
Perylene-d_{12}		IS 6	29.76		
Benzo(b)fluoranthene		U		0.54	10
Benzo(k)fluoranthene		U		0.52	10
Benzo(e)pyrene		U		0.53	10
Benzo(a)pyrene		U		0.60	10
Perylene		U		0.60	10
Indeno(1,2,3-cd)pyrene		U		0.72	10
Dibenz(a,h)anthracene		U		0.98	10
Benzo(g,h,i)perylene		U		0.82	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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

Pacific Environmental Services

Project Number: 43230
Sample File: VG290

Method 8270A MM5
Sample ID: BO-0010-1-

Client Project: 5414.003/WAUPAC
TLI ID: 183-2-2A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Surrogate Summary	Amount (ug)	RT	IS Ref	%REC
Phenol-d_5	80.04	9.69	1	80
Nitrobenzene-d_5	75.65	11.54	2	76
1,3,5-Trichlorobenzene-d_3	74.40	12.22	2	74
1,4-Dibromobenzene-d_4	81.66	13.12	1	82
2-Fluorobiphenyl	83.41	15.25	3	83
2,4,6-Tribromophenol	110.30	18.32	3	110
Anthracene-d_{10}	101.00	19.92	4	101
Pyrene-d_{10}	117.19	22.79	5	117
Terphenyl-d_{14}	148.66	23.14	5	149

Reviewed by SAH Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG290

Method 8270A MM5
Sample ID: BO-0010-1

Client Project: S414.003/WAUPAC
TLI ID: 183-2-2A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
n-Nitrosodimethylamine		U		0.79	10
Cumene	2.17	J	8.94		10
Phenol	15.73	B	9.71		10
Aniline		U		0.30	10
bis-(2-Chloroethyl)ether		U		0.71	10
Benzyl Chloride		U		0.17	10
1,4-Dichlorobenzene	2.04	J	10.49		10
2-Methylphenol		U		0.52	10
Acetophenone	27.92	B	11.23		10
n-Nitrosomorpholine		U		0.73	10
o-Toluidine		U		0.34	10
Hexachloroethane		U		0.74	10
1,2-Dibromo-3-chloropropane		U		0.87	10
N,N-Diethylaniline		U		0.28	10
Naphthalene-d_8		IS 2	13.01		
3/4-Methylphenol		U		0.46	10
Nitrobenzene		U		0.24	10
N,N-Dimethylaniline		U		0.26	10
Isophorone		U		0.23	10
o-Anisidine		U		0.56	10
1,4-Phenylenediamine		U		0.42	10
1,2,4-Trichlorobenzene	2.88	J	12.89		10
Hexachlorobutadiene		U		0.57	10
a,a,a-Trichlorotoluene		U		0.28	10
Hydroquinone	3.01	J	13.78		10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Project Number: 43230 **Method 8270A MM5**
Sample File: VG290 **Sample ID: BO-0010-1**

Client Project: 5414.003/WAUPAC **Date Received: 09/12/97** **Response File: VG290**
TLI ID: 183-2-2A-E **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.24	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.56	10
2,4,6-Trichlorophenol	21.86		15.05		10
2,4,5-Trichlorophenol		U		0.68	10
Biphenyl	5.23	J	15.46		10
Dimethylphthalate	3.63	J	16.08		10
2,4-Dinitrophenol		U		3.47	25
4-Nitrophenol		U		1.45	25
2,4-Dinitrotoluene		U		0.83	10
Dibenzofuran	2.63	J	17.10		10
4,6-Dinitro-2-methylphenol		U		2.05	25
Trifluralin		U		0.98	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	5.65	BJ	21.00		10
Hexachlorobenzene		U		0.65	10
4-Aminobiphenyl		U		0.26	10
Pentachlorophenol		U		1.00	25
Pentachloronitrobenzene		U		1.54	10
4-Nitrobiphenyl		U		0.69	10
Chrysene-d_{12}		IS 5	25.61		
Benzidine		U		0.53	10
4,4'-Methylenedianiline		U		1.29	10
Dimethylaminoazobenzene		U		0.99	10
3,3'-Dimethylbenzidine		U		0.77	10
3,3'-Dimethoxybenzidine		U		1.58	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG290

Method 8270A MM5
Sample ID: BO-0010-1

Client Project: S414.003/WAUPAC
TLI ID: 183-2-2A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.30	10
Methylene bis-chloroaniline		U		2.26	10
bis(2-Ethylhexyl)phthalate	15.94	B	25.64		10

Reviewed by Batt Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

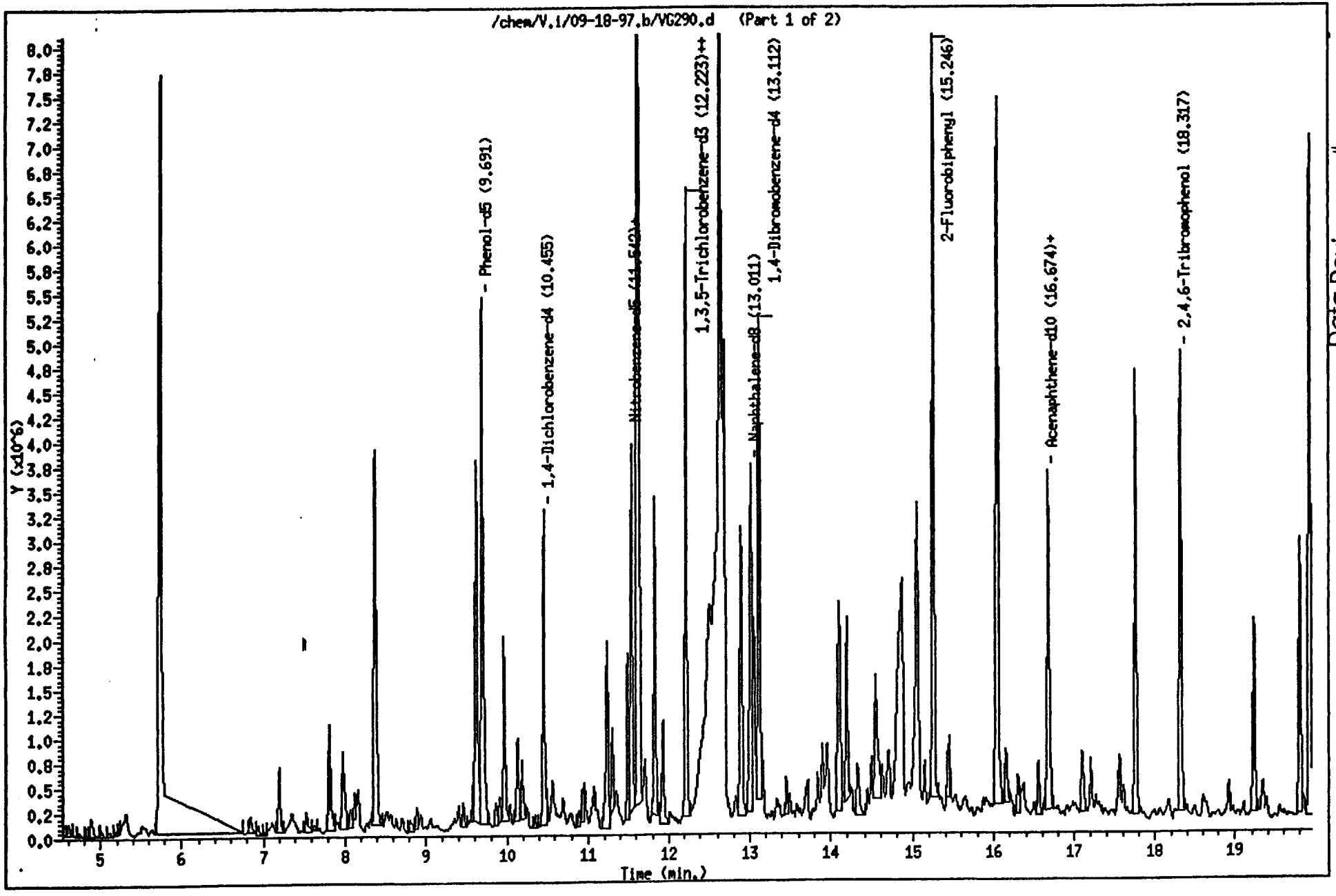
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32

48

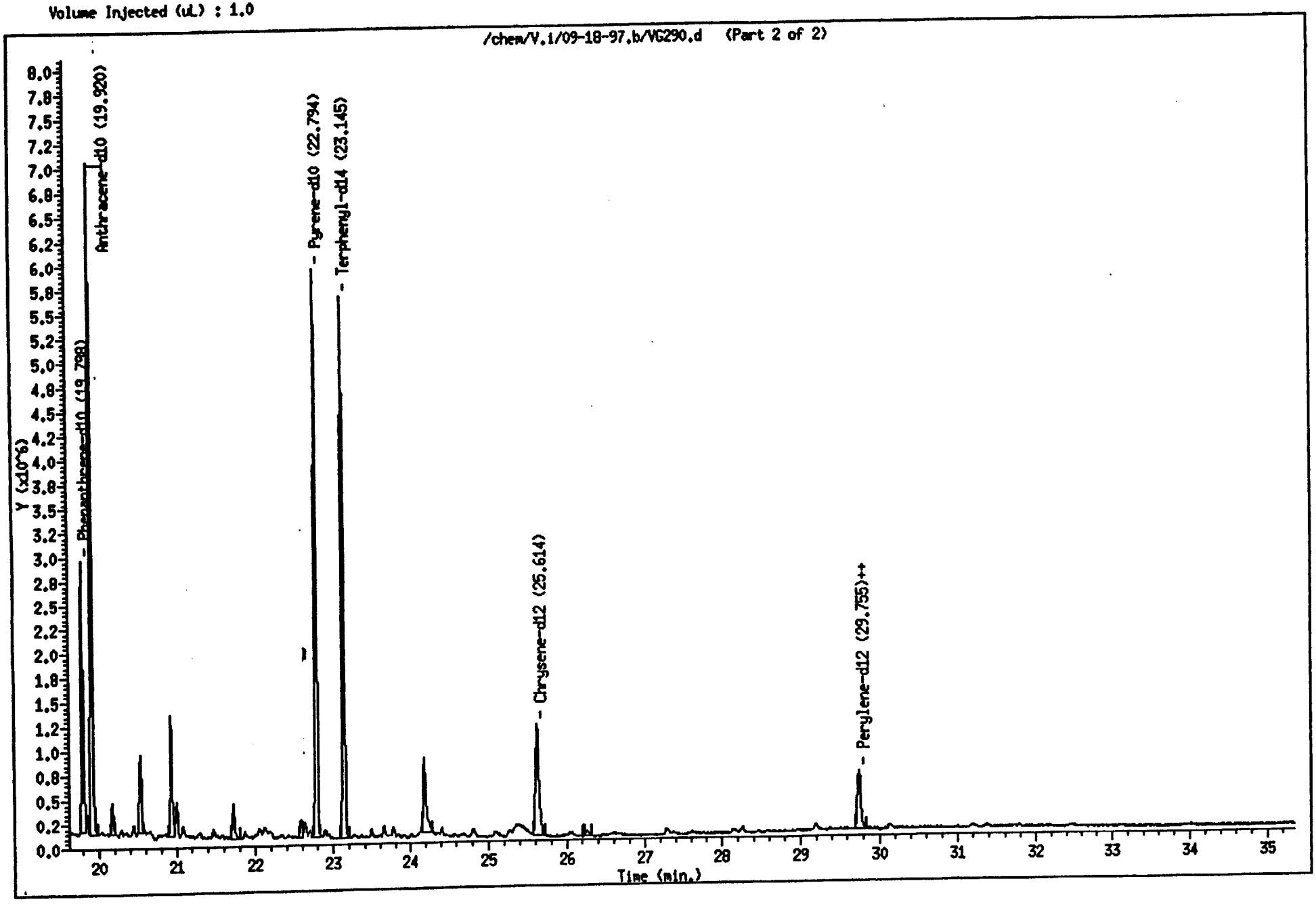


Data Review: SCH
Date: 9/19/97

Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5
Volume Injected (uL) : 1.0

of RTP, Inc.

Column diameter : 0.32



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG290.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 19:29 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : BO-0010-1
Misc Info : 183-2-2A-E
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 10
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4-Dichlorobenzene-d4	152.00	10.455(1.000)	763020	40.00		
*	2 Naphthalene-d8	136.00	13.011(1.000)	2520609	40.00		
*	3 Acenaphthene-d10	164.00	16.674(1.000)	1265600	40.00		
*	4 Phenanthrene-d10	188.00	19.798(1.000)	1823769	40.00		
*	5 Chrysene-d12	240.00	25.614(1.000)	854146	40.00		
*	6 Perylene-d12	264.00	29.755(1.000)	735866	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.691(0.927)	2372560	80.06	80.06	
$	9 2-Chlorophenol-d4	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.542(0.887)	2030893	75.58	75.58	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.223(0.939)	1762865	74.44	74.44	
$	13 1,4-Dibromobenzene-d4	240.00	13.119(1.255)	1601256	81.66	81.66	
$	14 2-Fluorobiphenyl	172.00	15.246(0.914)	3481141	83.39	83.39	
$	15 2,4,6-Tribromophenol	329.80	18.317(1.098)	879457	110.16	110.16	
$	16 Anthracene-d10	188.00	19.920(1.006)	4545269	100.97	100.97	
$	17 Pyrene-d10	212.00	22.794(0.890)	3808751	117.18	117.18	
$	18 Terphenyl-d14	244.00	23.145(0.904)	2777654	148.62	148.62(R)	
	42 Naphthalene	128.00	13.054(1.003)	1259598	20.76	20.76	
	46 2-Methylnaphthalene	142.00	14.482(1.113)	217711	5.88	5.88(a)	
	50 2-Chloronaphthalene	162.00	~~15.556(0.933)~~	~~7807~~	~~0.22~~	~~0.22(a)~~	FP salt
	56 Acenaphthylene	152.00	16.372(0.982)	27533	0.54	0.54(a)	
	58 Acenaphthene	154.00	~~16.674(1.000)~~	~~7356~~	~~0.23~~	~~0.23(a)~~	FP salt
	65 Fluorene	166.00	17.820(1.069)	31573	0.86	0.86(a)	
	73 Phenanthrene	178.00	19.848(1.003)	137271	3.26	3.26(a)	
	74 Anthracene	178.00	~~19.848(1.005)~~	~~137271~~	~~3.42~~	~~3.42(a)~~	FP salt
	77 Fluoranthene	Compound ~~Not Detected.~~ 22,350 24300					M salt 9/22/97
	78 Pyrene	Compound Not Detected.					
	83 Benzo(a)anthracene	Compound Not Detected.					
	84 Chrysene	Compound Not Detected.					
	86 Benzo(b)fluoranthene	Compound Not Detected.					

Data Review: salt
Date: 9/19/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	252.00	~~29.755(1.000)~~	~~1080~~	~~0.06~~	~~0.06(a)~~ FP 8/4
90 Perylene	252.00	~~29.755(1.000)~~	~~1080~~	~~0.07~~	~~0.07(a)~~
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG290.d
Lab. Id. : 43230
Inj Date : 18-SEP-97 19:29 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : BO-0010-1
Misc Info : 183-2-2A-E
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32 Cal File: VG280.d
Als bottle: 10
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: CAA1.sub
Sample Type: mm5

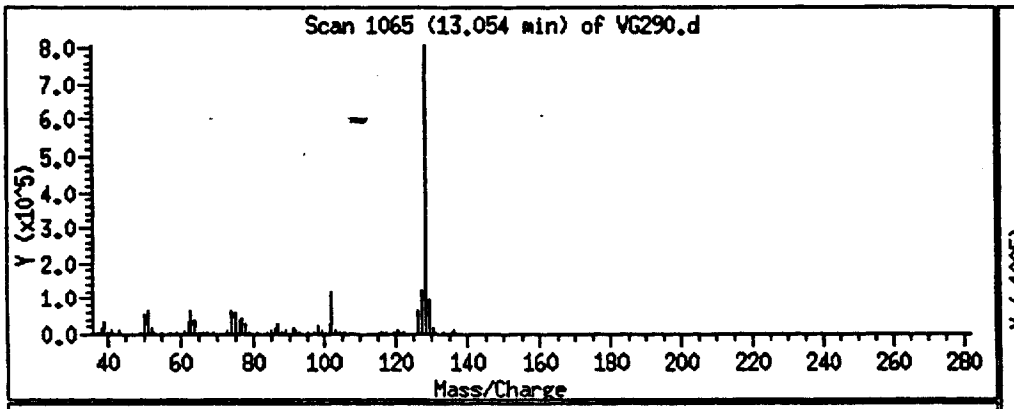
	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4 Dichlorobenzene-d4	152.00	10.455(1.000)	763020	40.00		
*	2 Naphthalene-d8	136.00	13.011(1.000)	2520609	40.00		
*	3 Acenaphthene-d10	164.00	16.674(1.000)	1265600	40.00		
*	4 Phenanthrene-d10	188.00	19.798(1.000)	1823769	40.00		
*	5 Chrysene-d12	240.00	25.614(1.000)	854146	40.00		
*	6 Perylene-d12	264.00	29.755(1.000)	735866	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.691(0.927)	2372560	88.64	88.64	
$	9 2-Chlorophenol-d4	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.542(0.887)	2030893	72.64	72.64	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.223(0.939)	1762865	72.85	72.85	
$	13 1,4-Dibromobenzene-d4	240.00	13.119(1.255)	1601256	84.74	84.74	
$	14 2-Fluorobiphenyl	172.00	15.246(0.914)	3481141	82.44	82.44	
$	15 2,4,6-Tribromophenol	329.80	18.317(1.098)	879457	110.05	110.05	
$	16 Anthracene-d10	188.00	19.920(1.006)	4545269	94.31	94.31	
$	17 Pyrene-d10	212.00	22.794(0.890)	3808751	117.73	117.73	
$	18 Terphenyl-d14	244.00	23.145(0.904)	2777654	133.67	133.67	
	19 n-Nitrosodimethylamine	74.00	~~4.891(0.468)~~	~~81608~~	~~6.45~~	~~6.45~~	FP Soil
	20 Cumene	105.00	8.943(0.855)	105235	2.17	2.17	
	22 Phenol	94.00	9.713(0.929)	419956	15.72	15.72	
	23 Aniline	93.00	~~9.734(0.931)~~	~~1152~~	~~0.03~~	~~0.03~~	FP Soil
	26 bis-(2-Chloroethyl)ether	63.00	~~9.906(0.947)~~	~~10722~~	~~0.76~~	~~0.76~~	
	27 Benzyl Chloride	91.00	~~10.441(0.999)~~	~~31171~~	~~0.54~~	~~0.54~~	
	28 1,4-Dichlorobenzene	146.00	10.491(1.003)	51876	2.03	2.03	
	30 2-Methylphenol	108.00	~~11.191(1.070)~~	~~5947~~	~~0.31~~	~~0.31~~	FP Soil
	31 3/4-Methylphenol	108.00	~~11.191(0.860)~~	~~5947~~	~~0.27~~	~~0.27~~	
	32 Acetophenone	105.00	11.227(1.074)	847497	27.92	27.92	
	33 n-Nitrosomorpholine	56.00	~~11.621(1.111)~~	~~1013930~~	~~73.88~~	~~73.88~~	FP Soil
	34 o-Toluidine	106.00	~~11.335(1.084)~~	~~12181~~	~~0.41~~	~~0.41~~	
	35 Hexachloroethane	Compound Not Detected.					

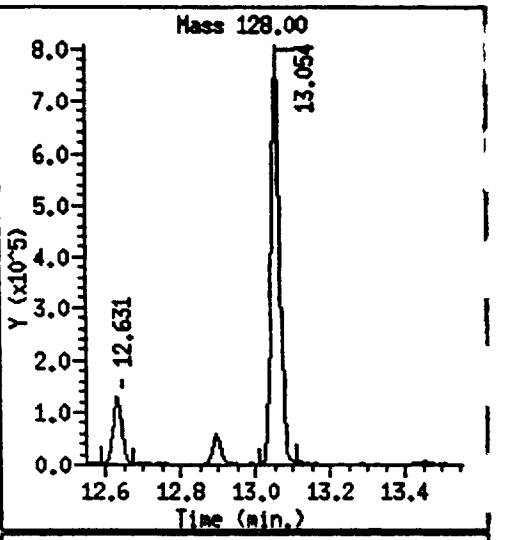
Data Review: Soil
Date: 9/22/97

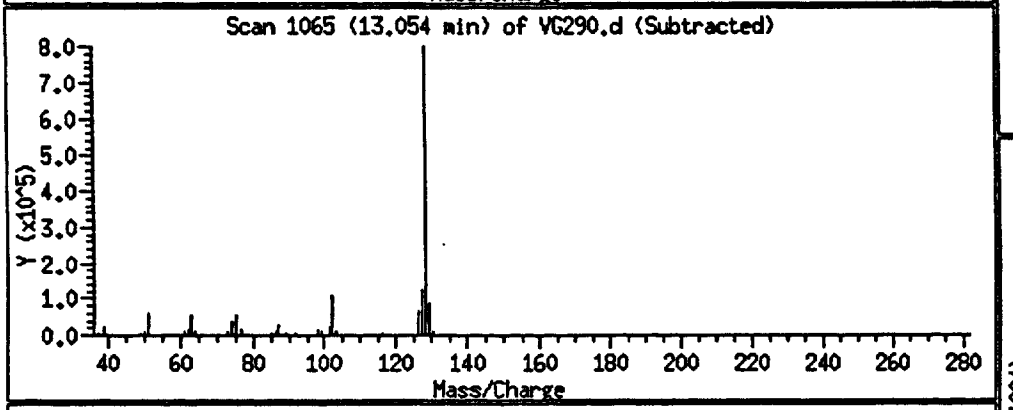
Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
36 Nitrobenzene	77.00	~~11.635(0.896)~~	~~730974~~	~~17.67~~	~~17.67~~	FP salt
37 N,N-Dimethylaniline	120.00	~~11.514(0.885)~~	~~87064~~	~~2.22~~	~~2.22~~	
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.					
39 Isophorone	82.00	~~11.621(0.893)~~	~~60958~~	1.41	1.41	FP salt
40 o-Anisidine	Compound Not Detected.					
41 1,4-Phenylenediamine	108.00	~~13.828(1.063)~~	~~1797~~	0.07	0.07	FP salt
42 1,2,4-Trichlorobenzene	180.00	12.889(0.991)	64263	2.88	2.88	
43 Naphthalene	128.00	13.054(1.003)	1259595	16.88	16.88	
45 Hexachlorobutadiene	Compound Not Detected.					
46 N,N-Diethylaniline	134.00	~~13.535(1.294)~~	~~19474~~	~~0.54~~	~~0.54~~	FP salt
47 a,a,a-Trichlorotoluene	159.00	~~13.112(1.008)~~	~~580057~~	~~16.01~~	~~16.01~~	
48 Hydroquinone	110.00	~~13.778(1.059)~~	~~55625~~	~~3.01~~	~~3.01~~	Resp salt 9/22/97
50 2-Chloroacetophenone	105.00	~~14.195(1.091)~~	~~170991~~	~~4.07~~	~~4.07~~	FP salt
51 Hexachlorocyclopentadiene	Compound Not Detected.					
52 2,4,6-Trichlorophenol	196.00	15.052(0.903)	317406	21.84	21.84	
53 2,4,5-Trichlorophenol	196.00	~~15.052(0.903)~~	~~317406~~	~~21.42~~	~~21.42~~	FP salt
59 Biphenyl	154.00	15.455(0.927)	243084	5.23	5.23	
60 Dimethylphthalate	163.00	16.076(0.964)	132321	3.63	3.63	
71 2,4-Dinitrophenol	Compound Not Detected.					
61 4-Nitrophenol	139.00	~~16.862(1.011)~~	~~5420~~	~~0.78~~	~~0.78~~	FP salt
62 2,4-Dinitrotoluene	165.00	~~17.121(1.027)~~	~~15469~~	~~1.28~~	~~1.28~~	
63 Dibenzofuran	168.00	17.099(1.025)	128239	2.63	2.63	
64 Di-n-butylphthalate	149.00	20.997(1.061)	285844	5.64	5.64	
65 4,6-Dinitro-2-methylphenol	198.00	~~17.640(1.058)~~	~~1655~~	~~0.33~~	~~0.33~~	FP salt
66 Trifluralin	Compound Not Detected.					
67 Hexachlorobenzene	283.80	~~18.978(0.959)~~	~~4235~~	~~0.27~~	~~0.27~~	FP salt
68 4-Aminobiphenyl	Compound Not Detected.					
69 Pentachlorophenol	266.00	~~19.367(0.978)~~	~~8574~~	~~0.85~~	~~0.85~~	FP salt
70 Pentachloronitrobenzene	142.00	~~19.259(0.973)~~	~~1486~~	~~0.22~~	~~0.22~~	
72 4-Nitrobiphenyl	152.00	~~20.308(1.026)~~	~~952~~	~~0.06~~	~~0.06~~	
73 Benzidine	184.00	~~22.794(0.890)~~	~~45709~~	~~2.40~~	~~2.40~~	
74 4,4'-Methylenedianiline	Compound Not Detected.					
76 Dimethylaminoazobenzene	120.00	~~23.145(0.904)~~	~~29819~~	~~2.95~~	~~2.95~~	FP salt
77 3,3'-Dimethylbenzidine	Compound Not Detected.					
79 3,3'-Dimethoxybenzidine	Compound Not Detected.					
80 3,3'-Dichlorobenzidine	Compound Not Detected.					
81 Methylene bis-chloroaniline	Compound Not Detected.					
82 bis(2-Ethylhexyl)phthalate	149.00	25.636(1.001)	247060	15.94	15.94	

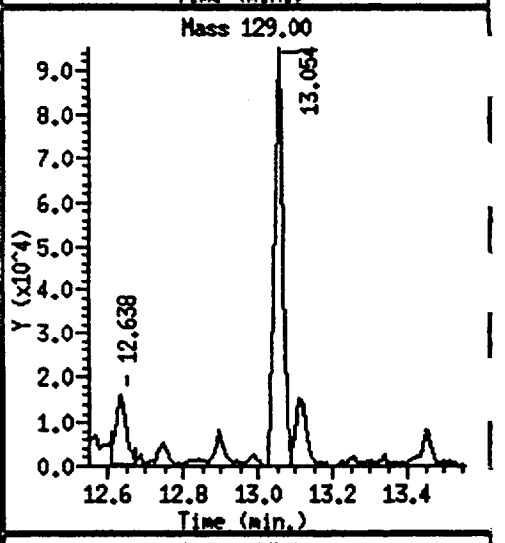
Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

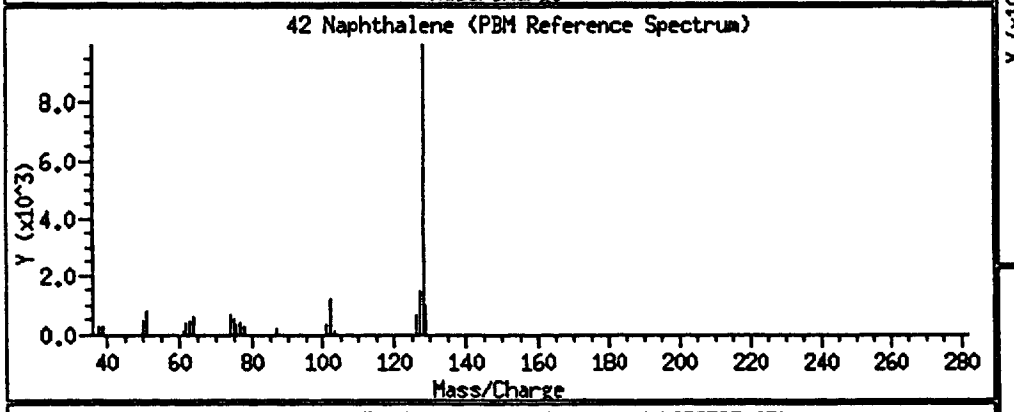
42 Naphthalene

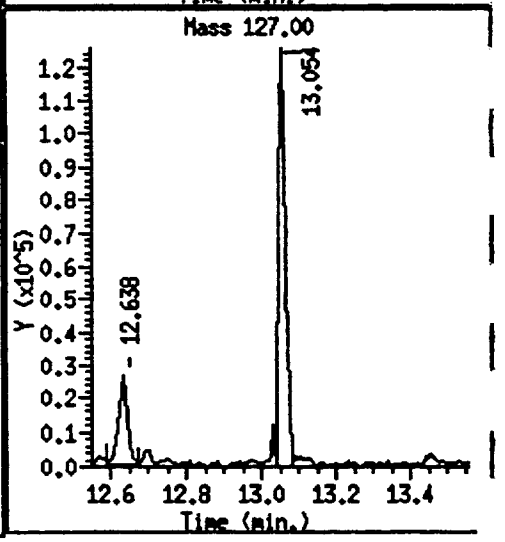


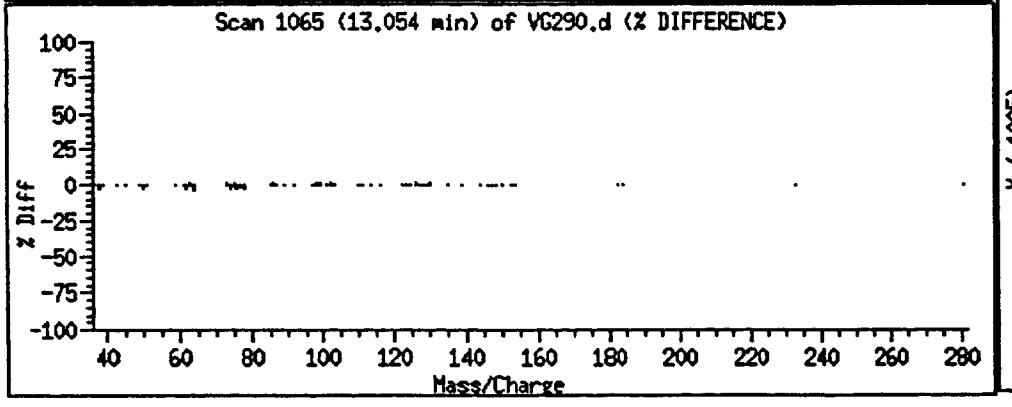






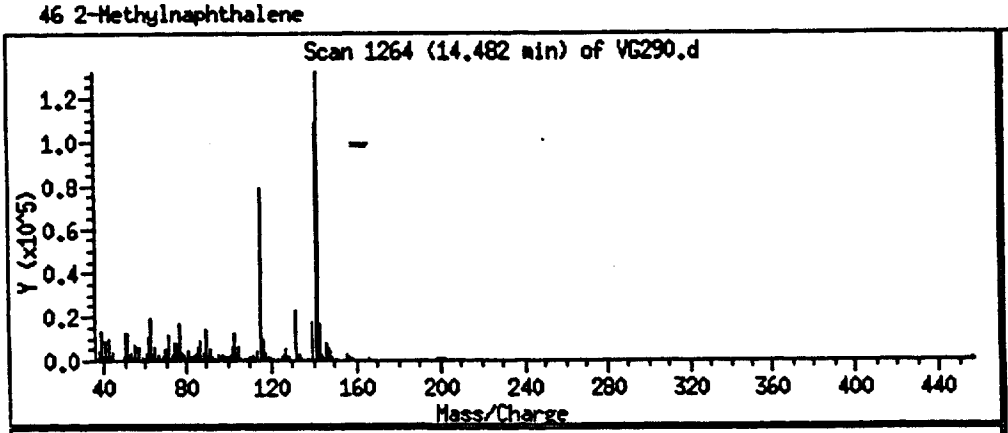


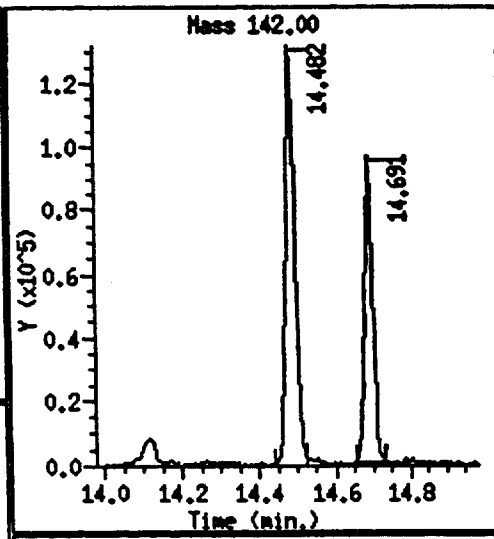


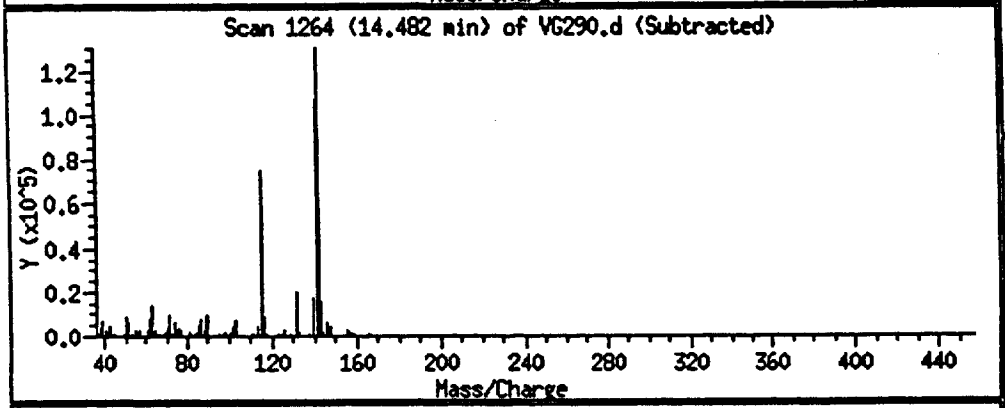


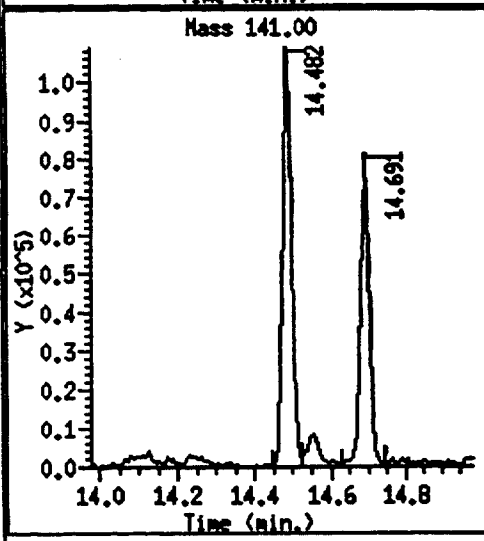
Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

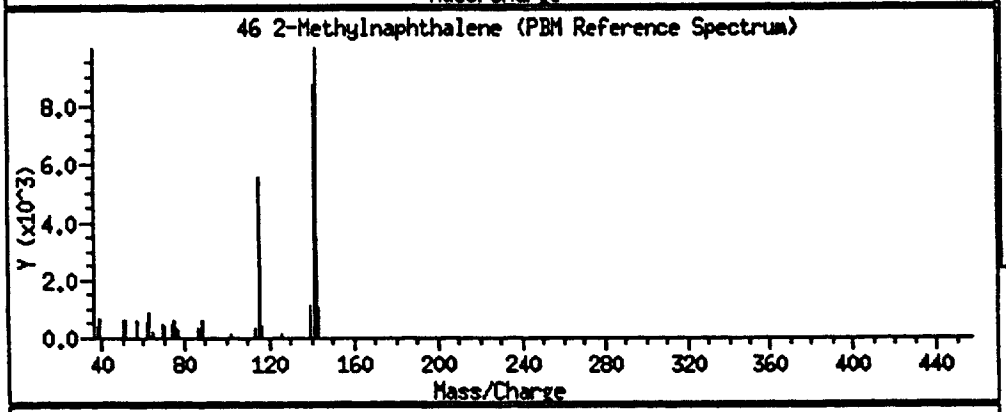
46 2-Methylnaphthalene

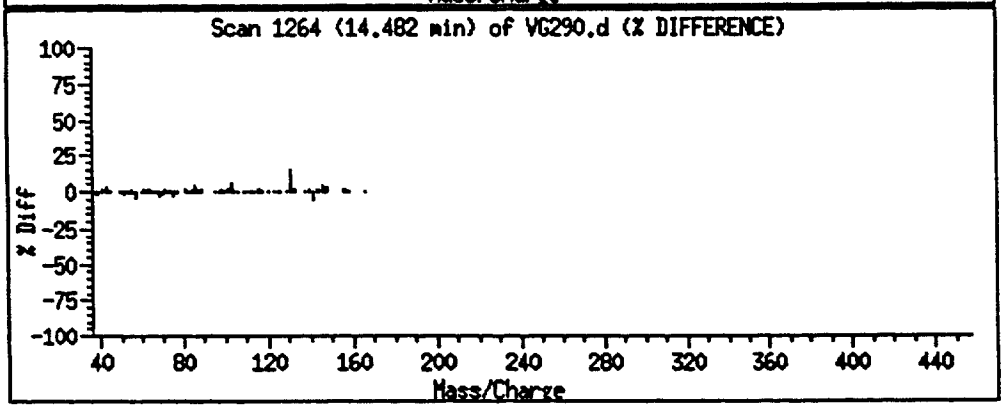












Data File: /chem/V.i/09-18-97.b/VG290.d

Date : 18-SEP-1997 19:29

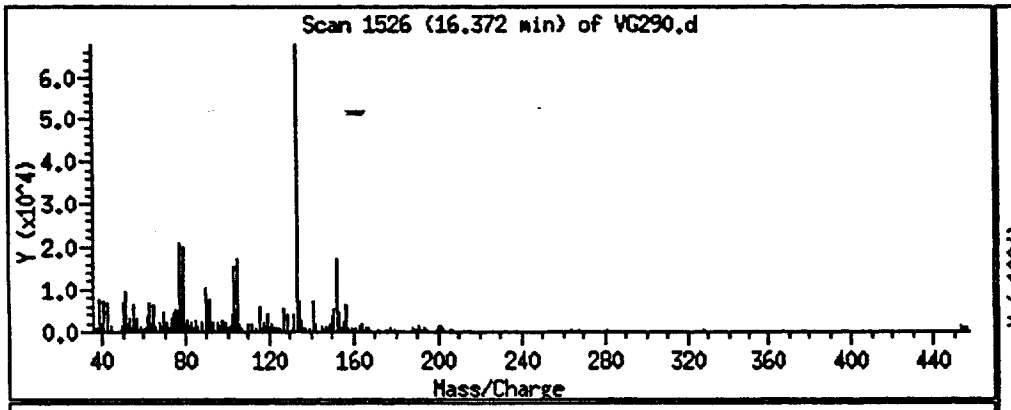
Instrument : V.i

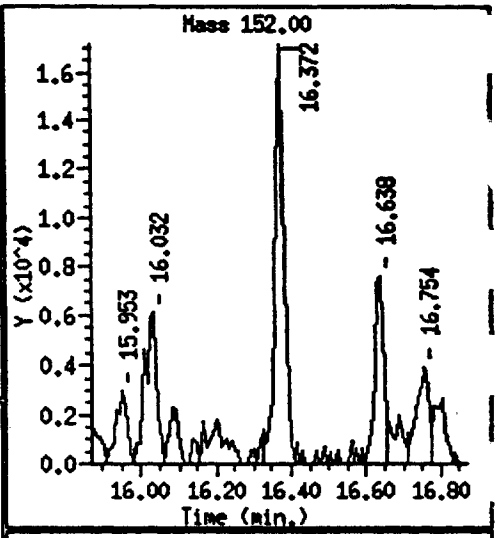
Sample ID : BO-0010-1

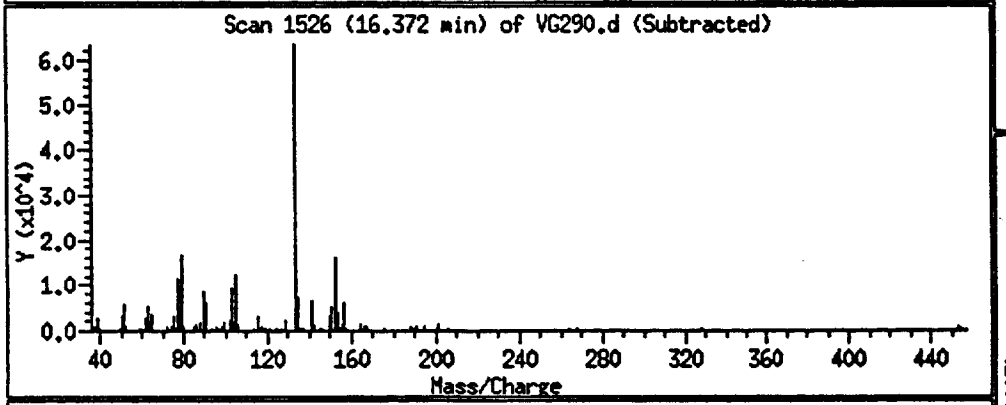
Column phase : DB-5 Column diameter : 0.32

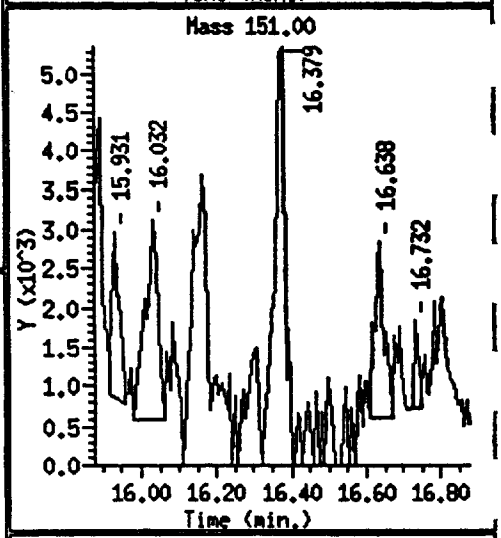
Volume Injected (uL) : 1.0

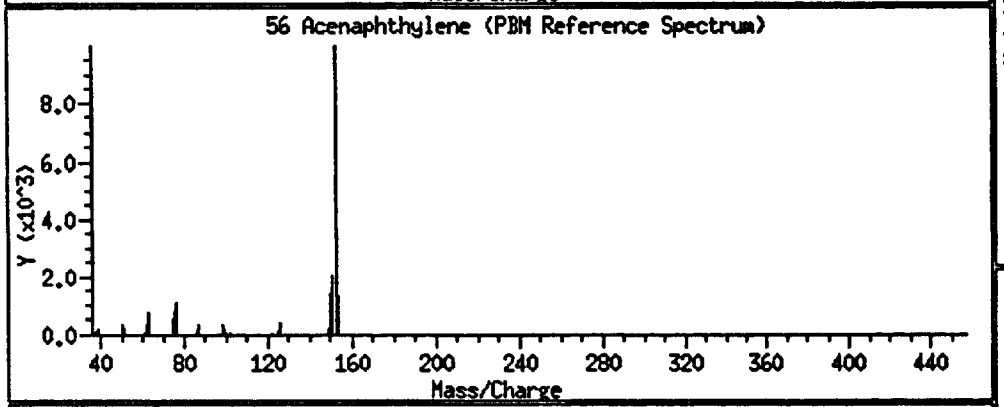
56 Acenaphthylene

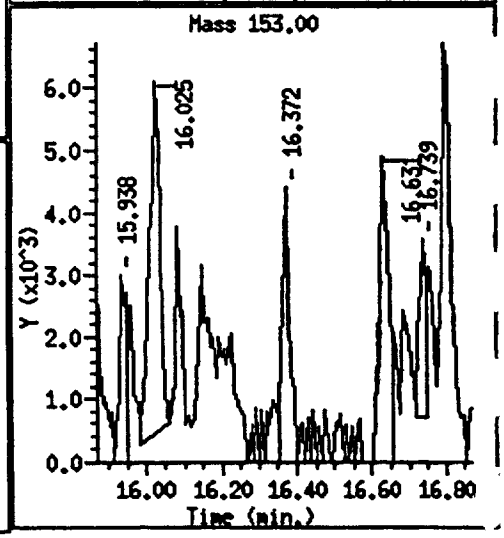


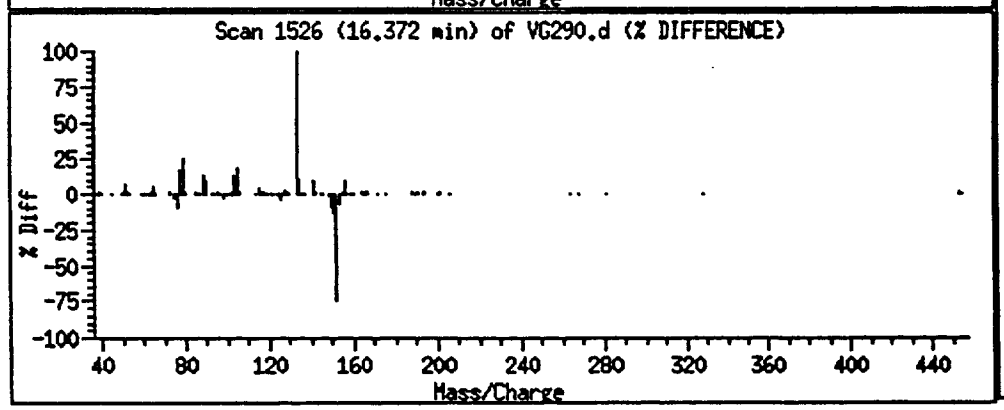






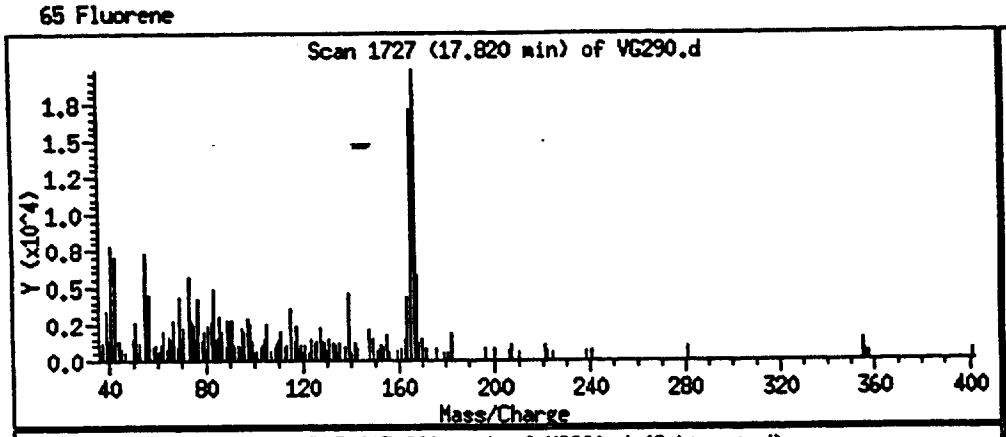


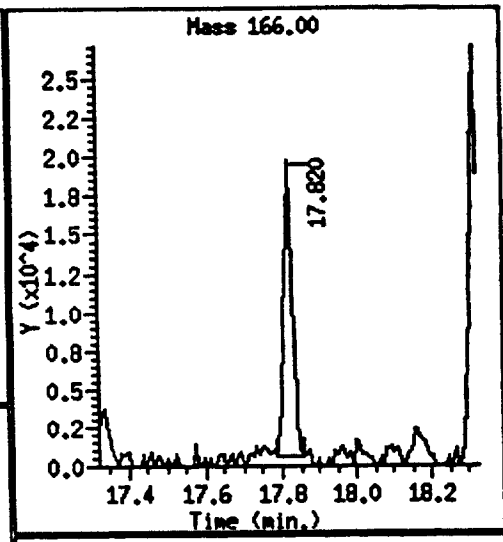


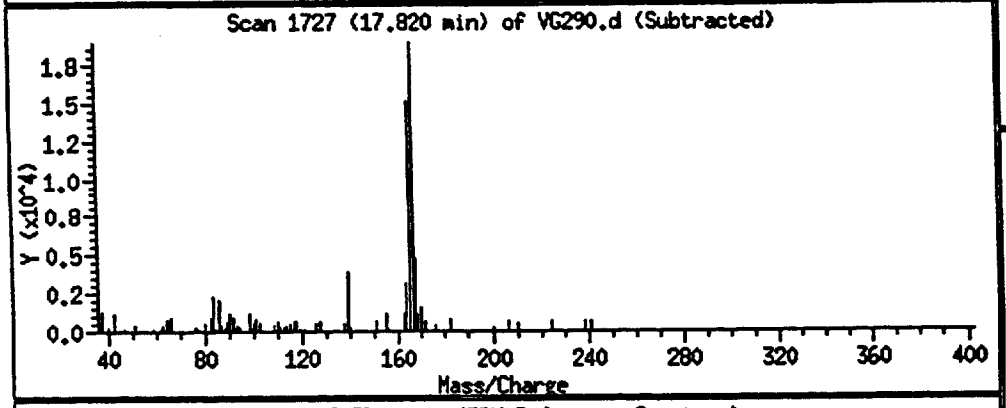


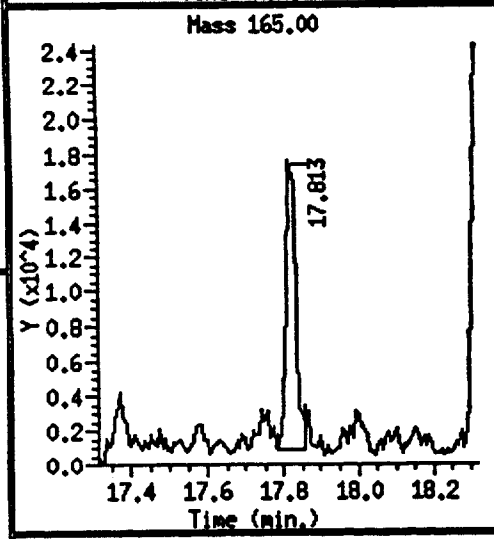
Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

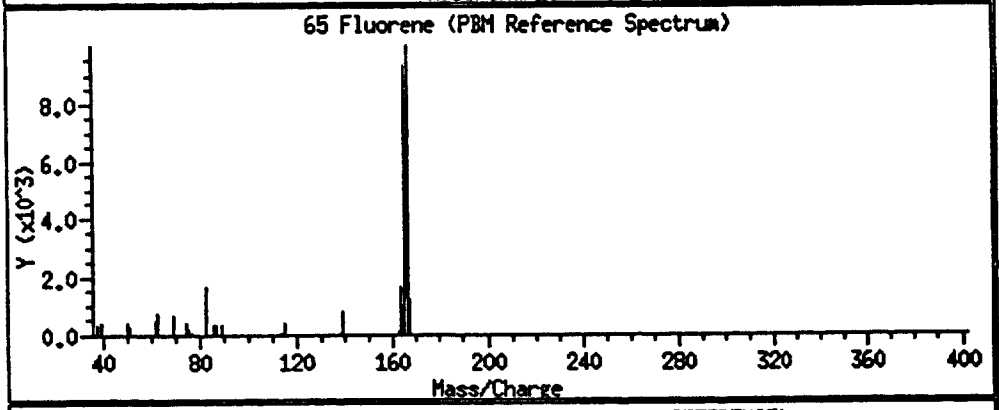
65 Fluorene

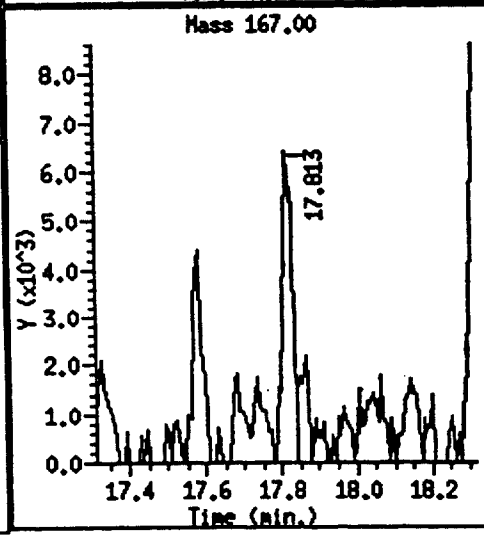


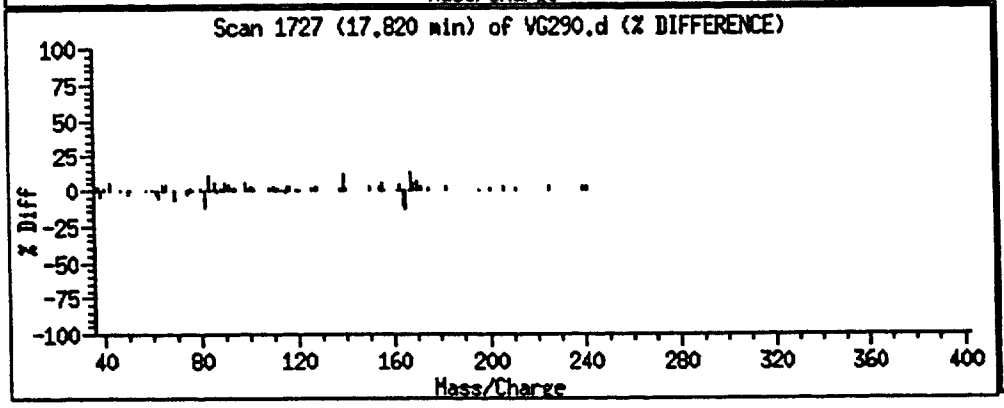






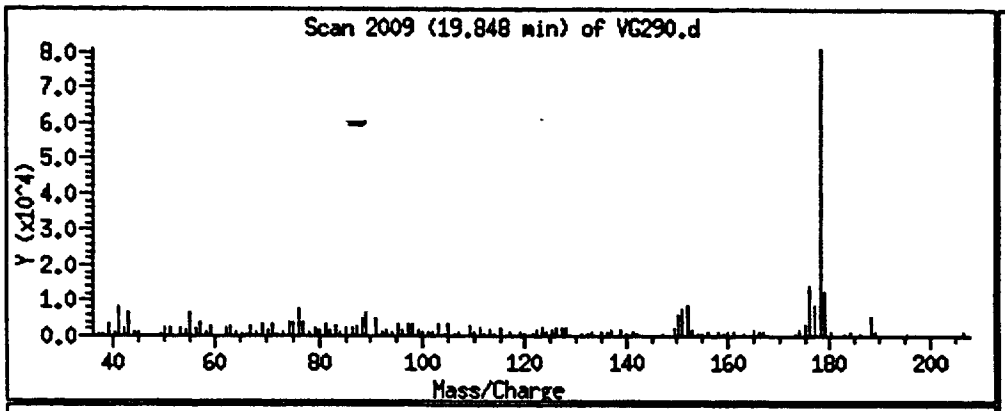


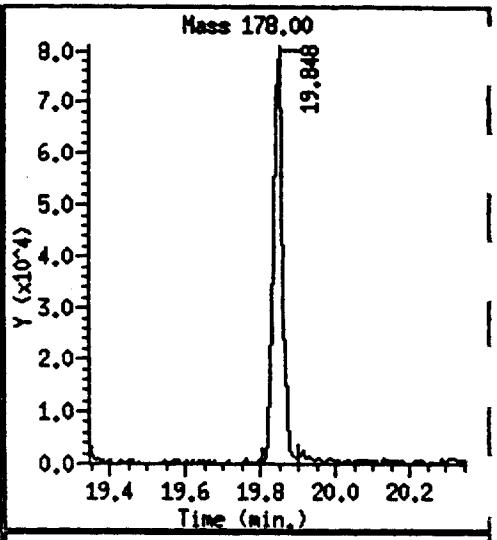


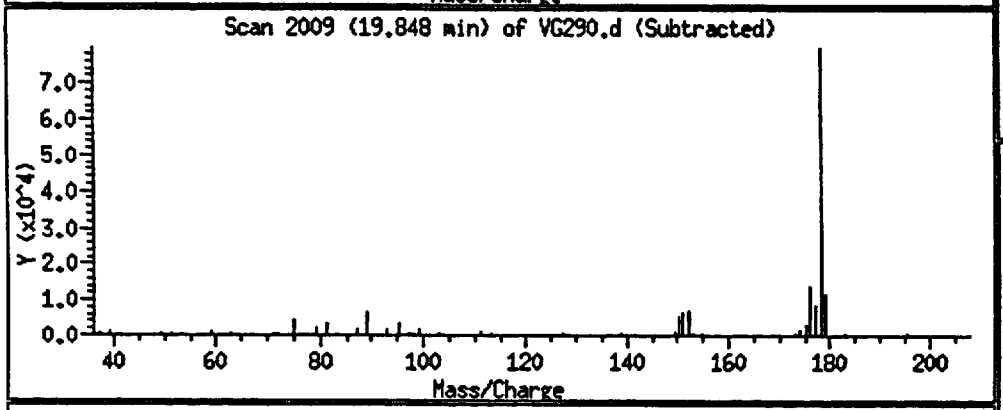


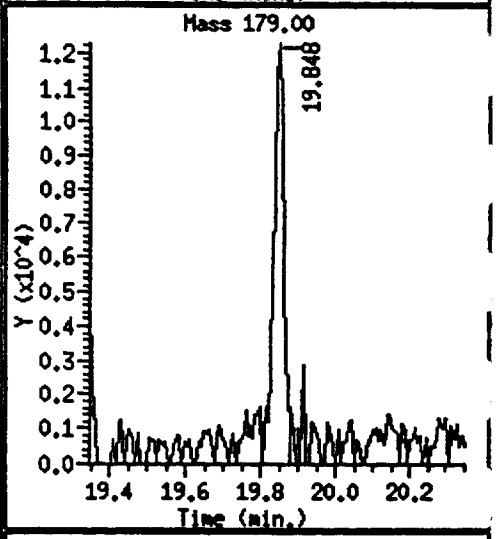
Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

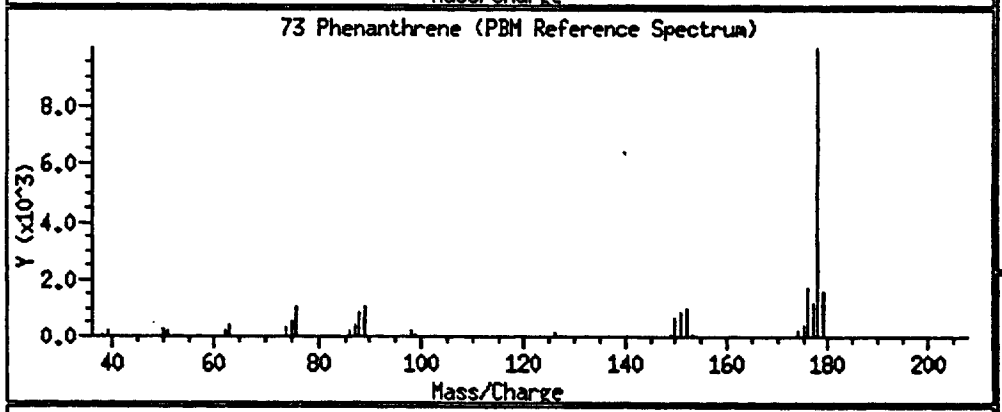
73 Phenanthrene

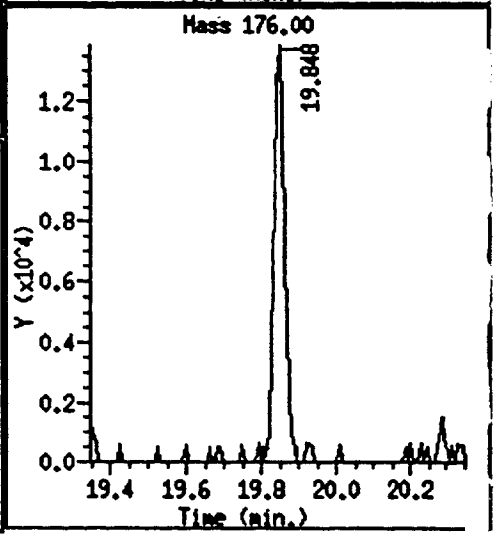


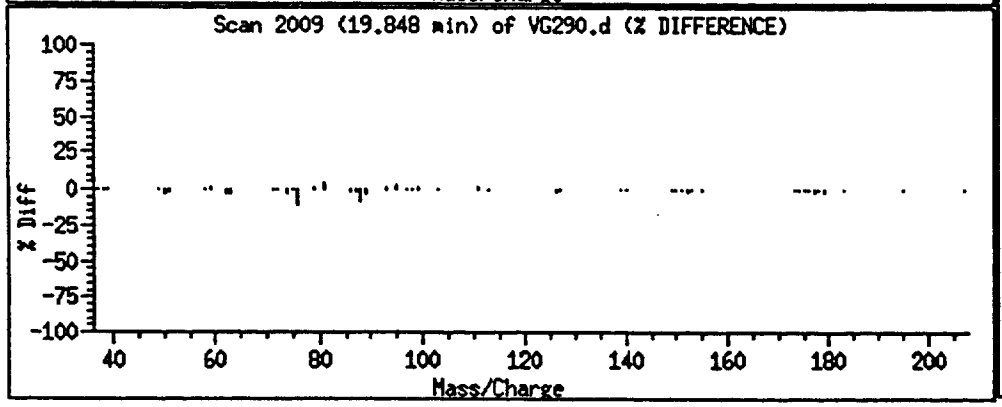






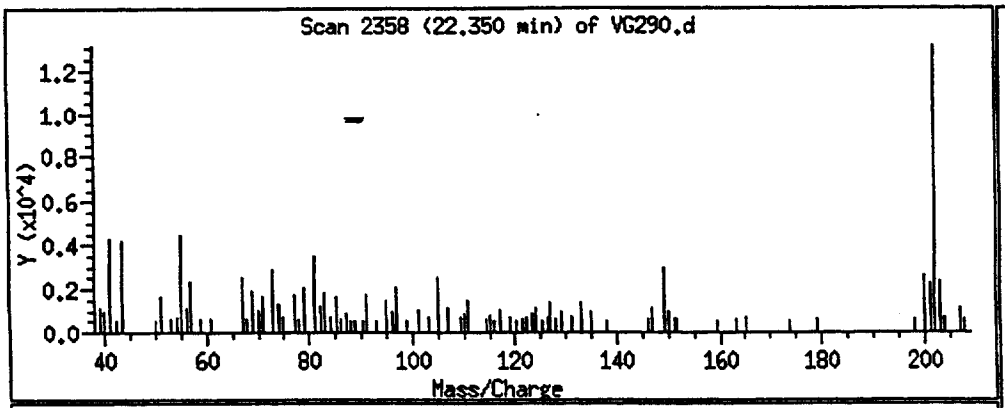


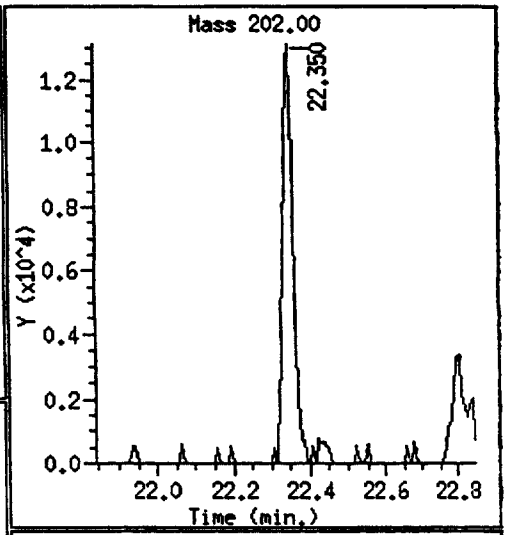


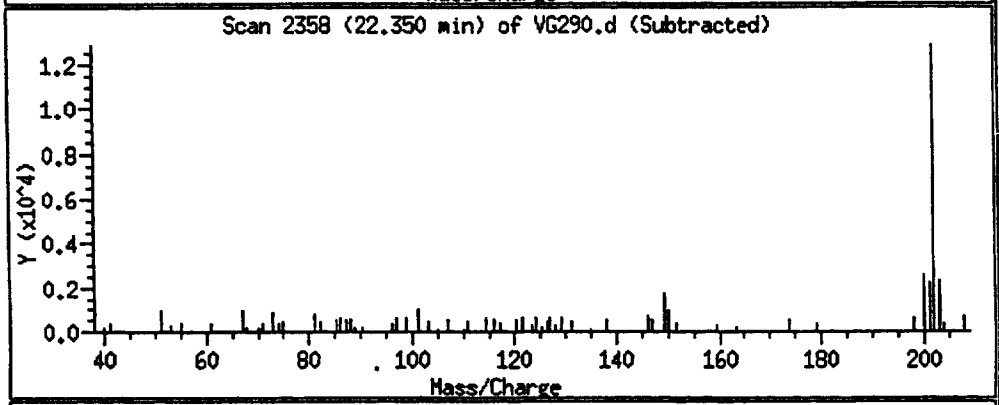


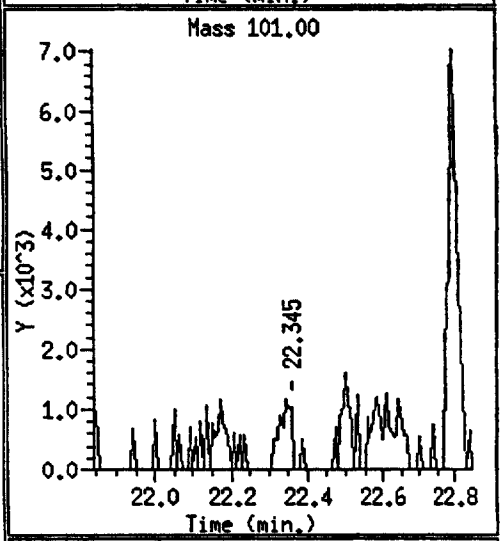
Data File: /chem/V.i/09-18-97.b/VG290.d
Date : 18-SEP-1997 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

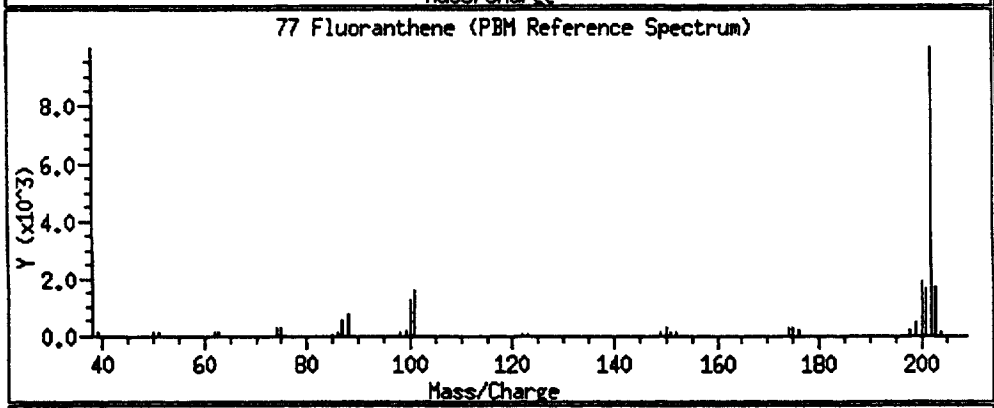
77 Fluoranthene

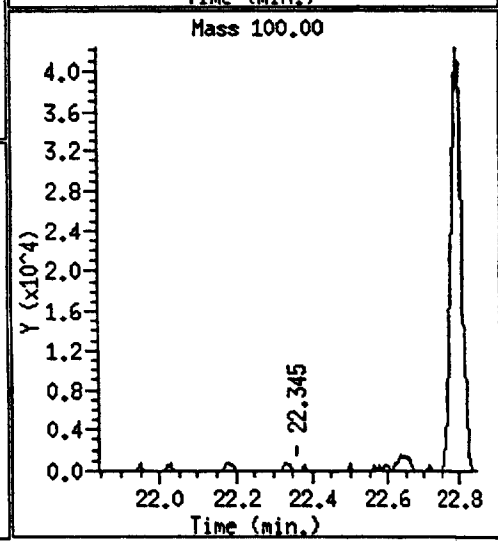


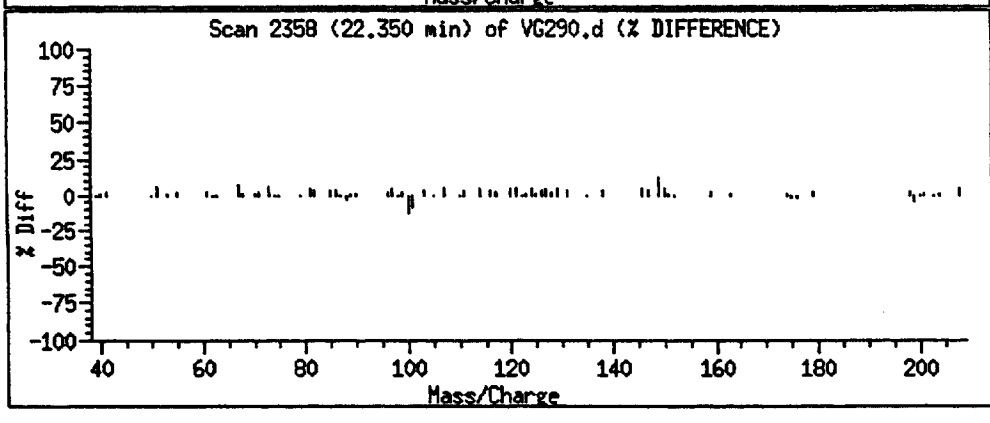






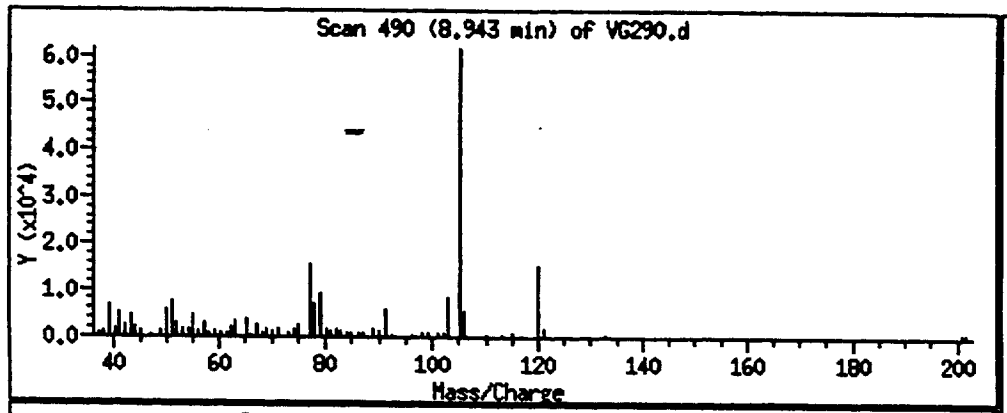


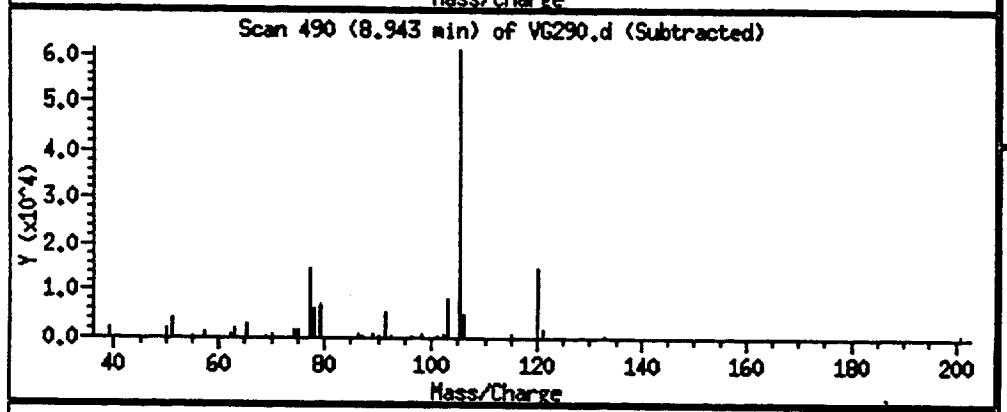


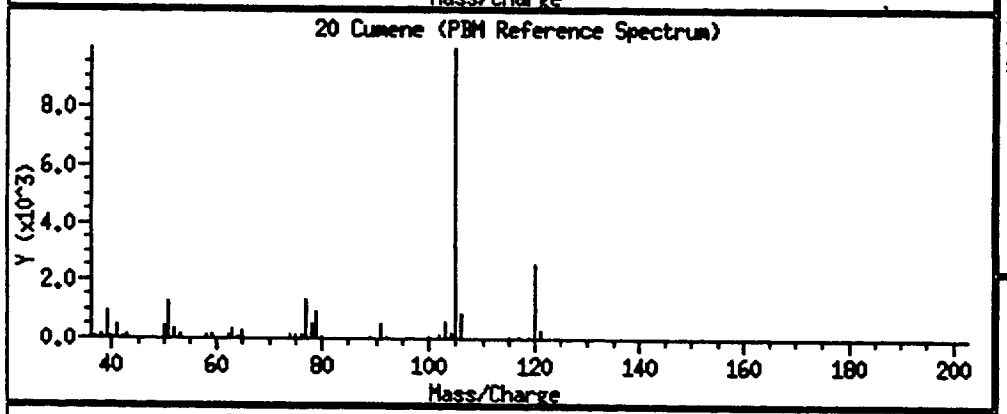


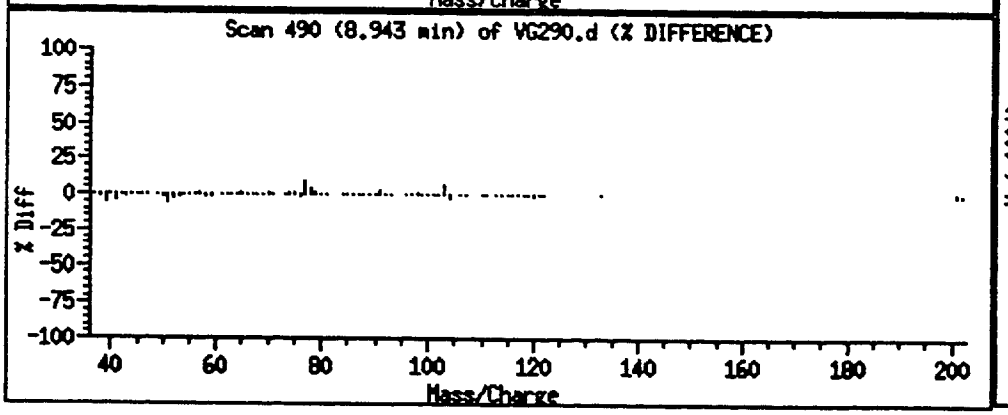
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

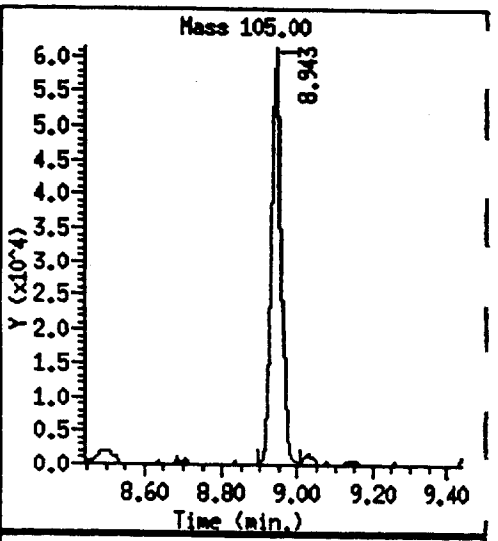
20 Cumene

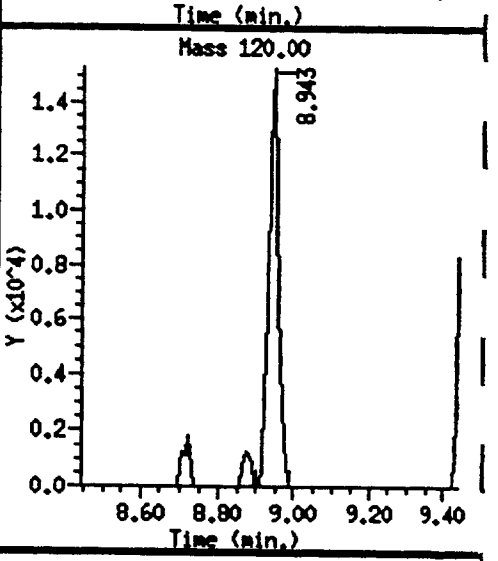


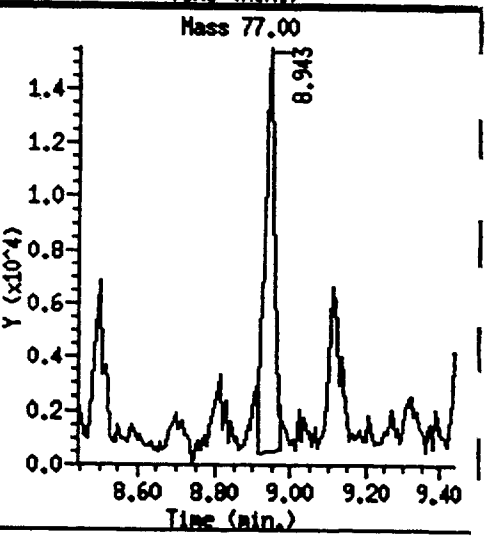






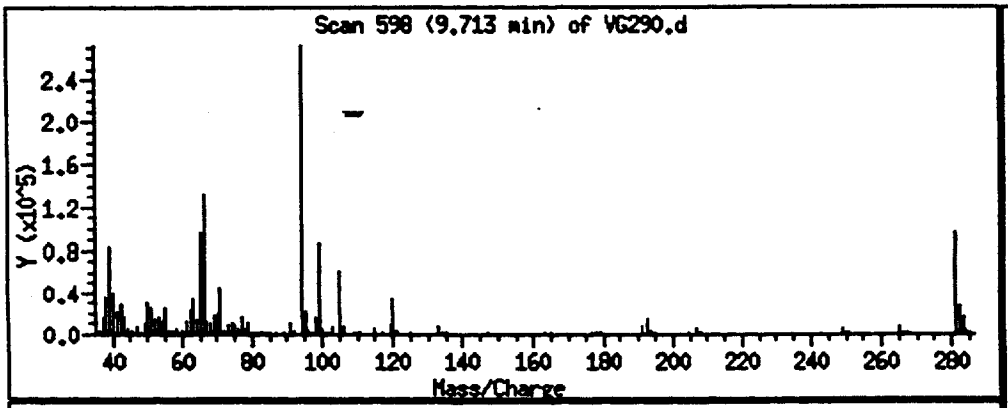


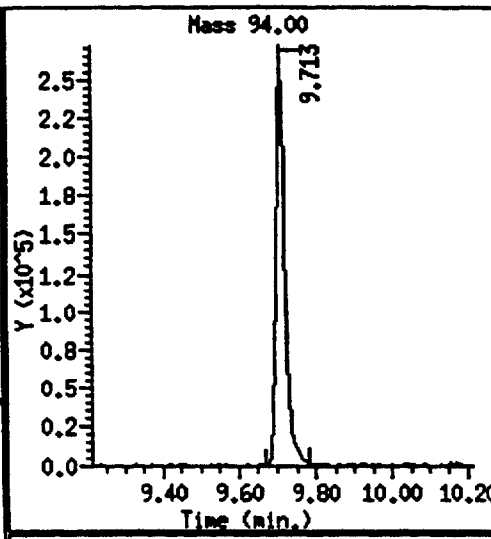


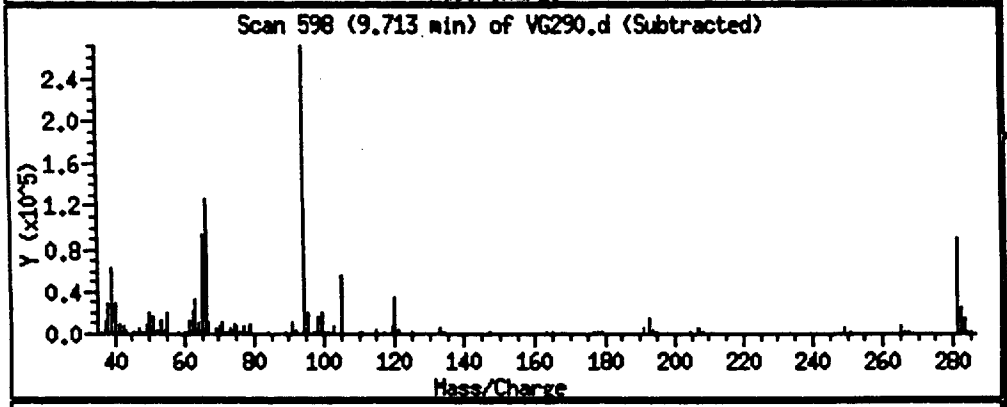


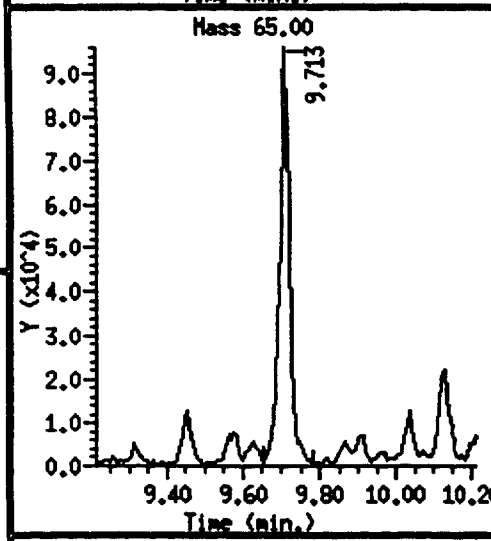
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

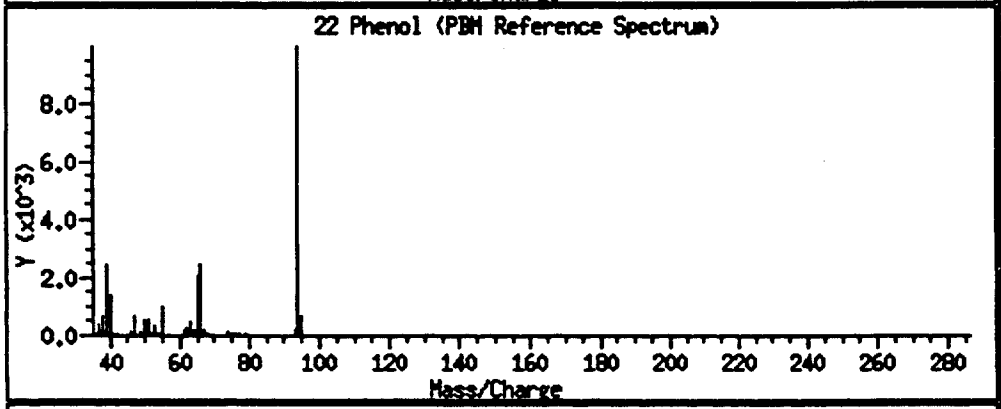
22 Phenol

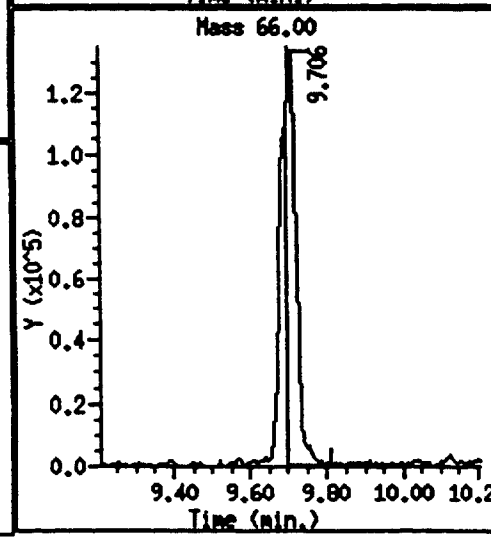


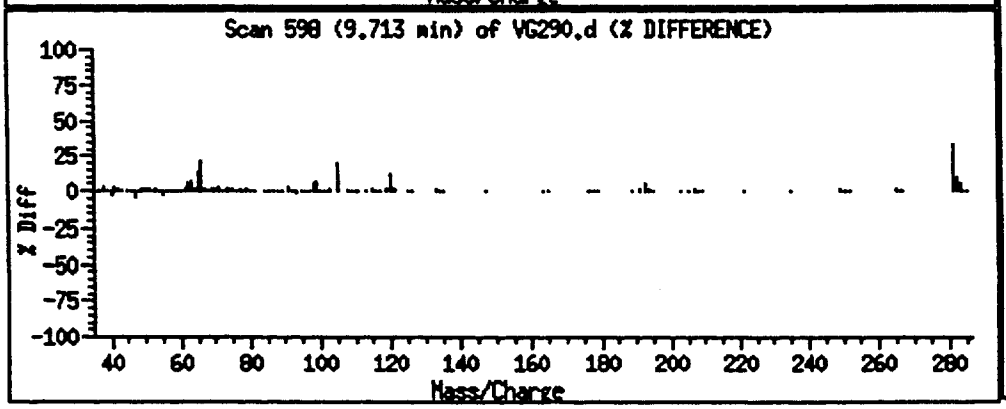






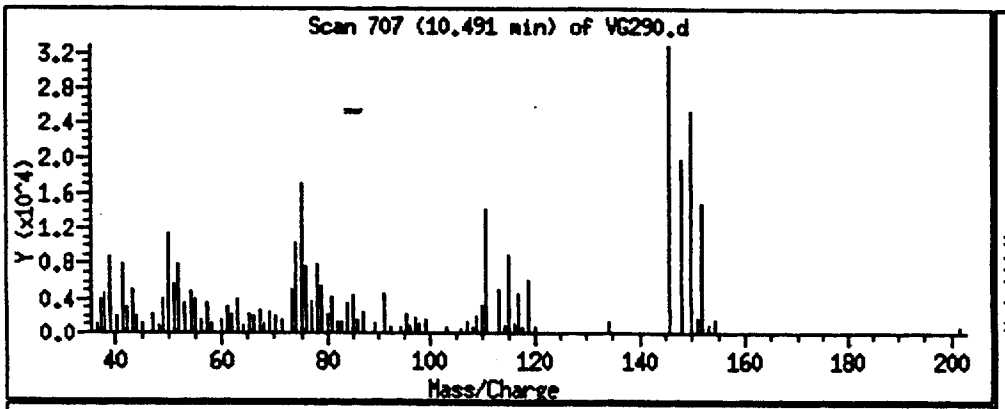


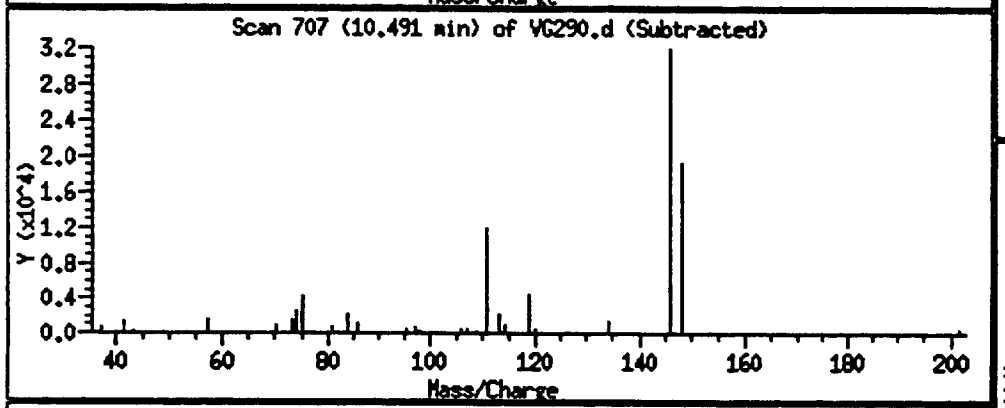


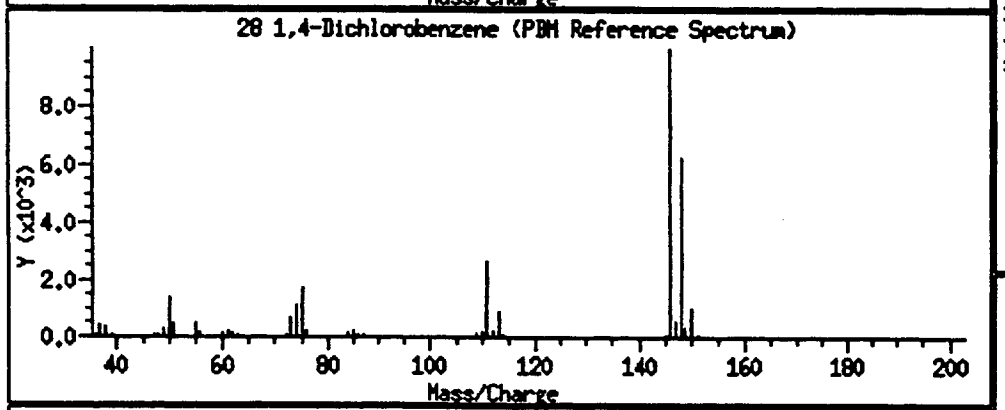


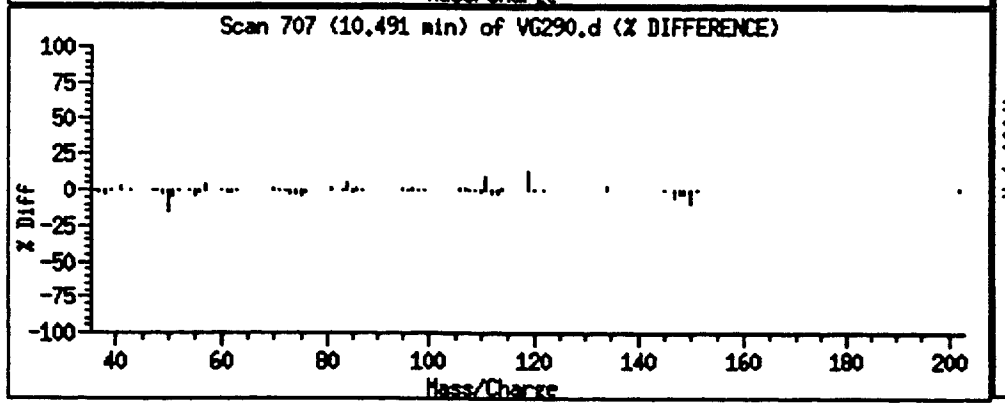
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

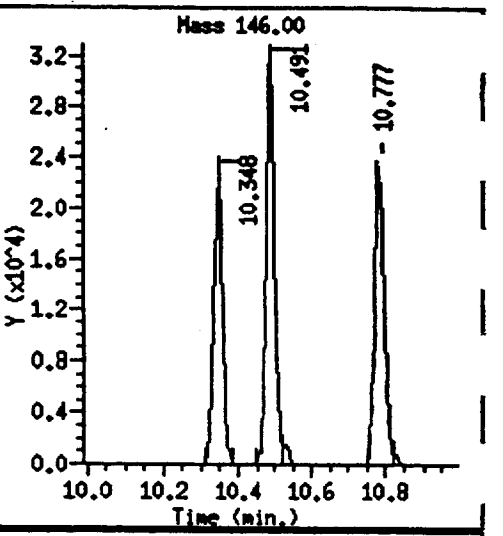
28 1,4-Dichlorobenzene

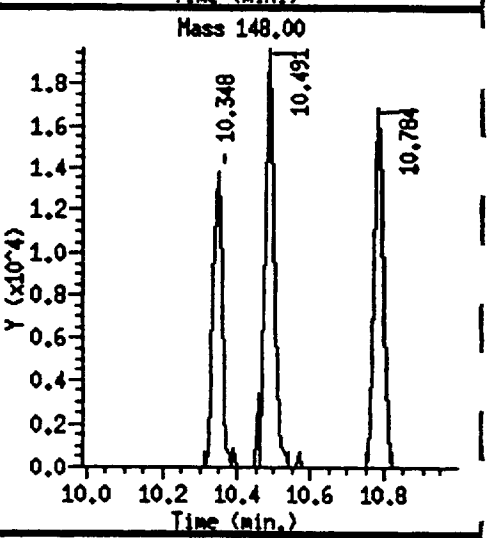


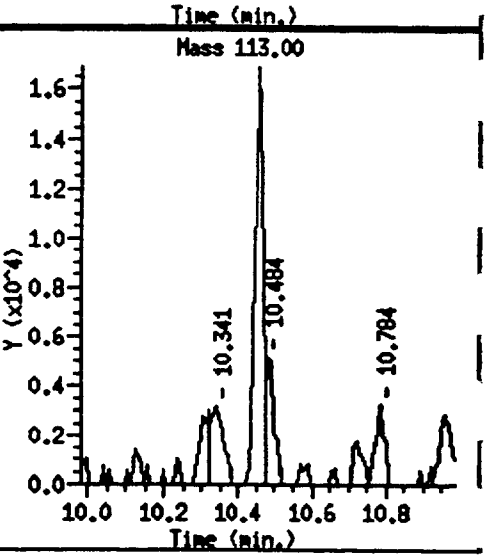






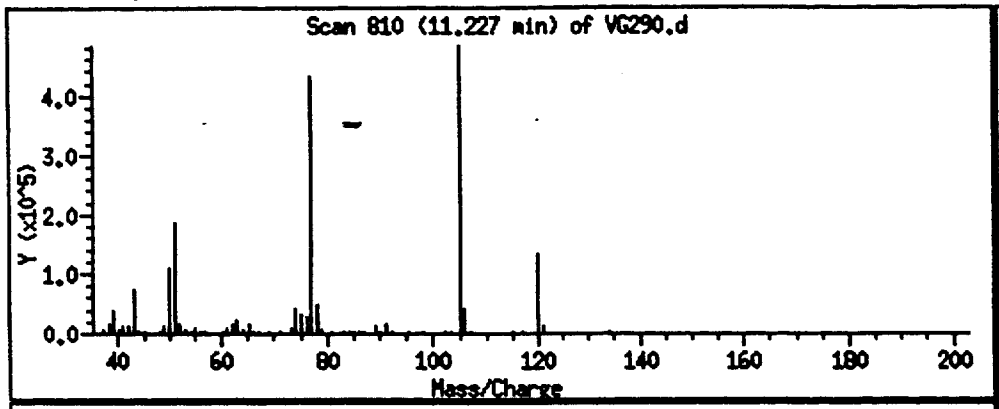


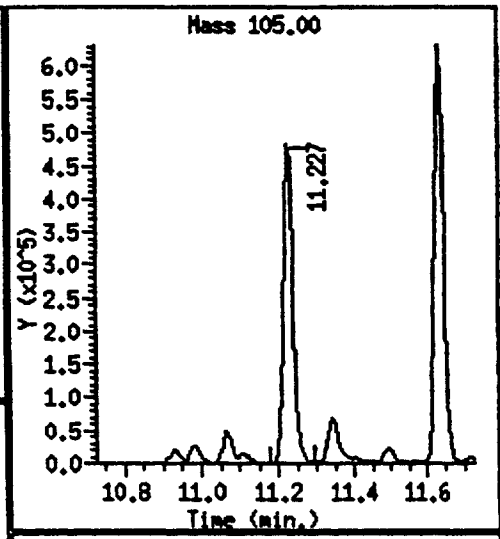


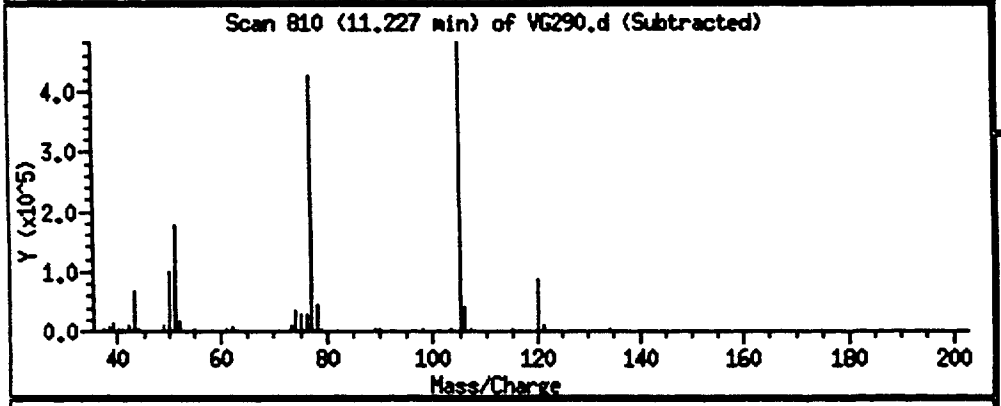


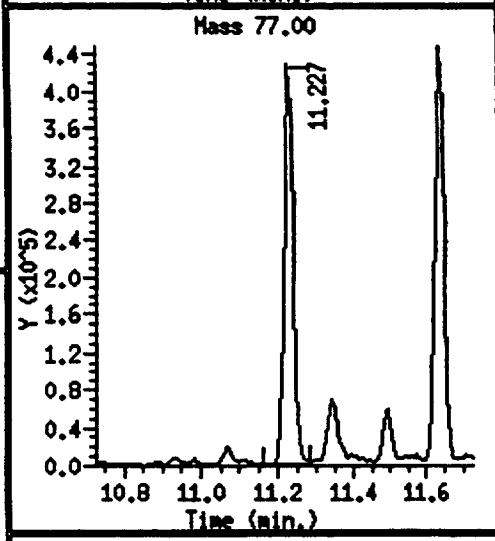
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

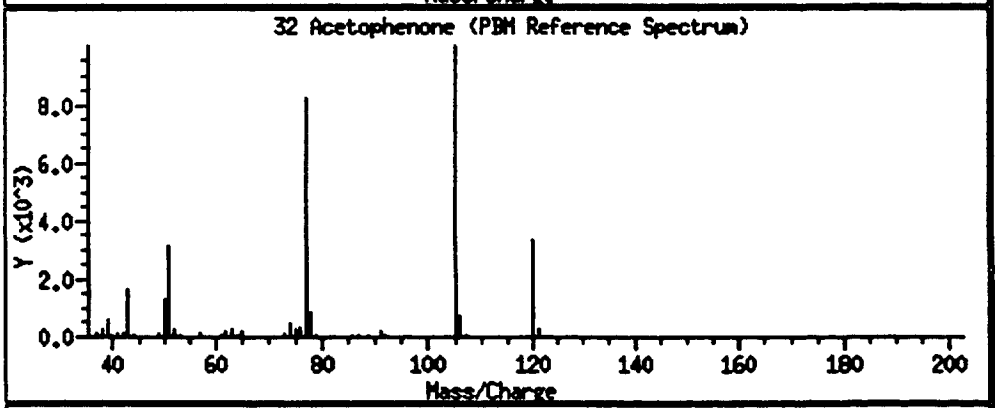
32 Acetophenone

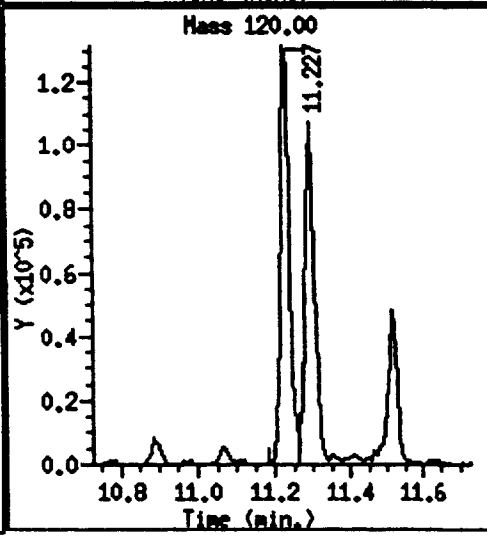


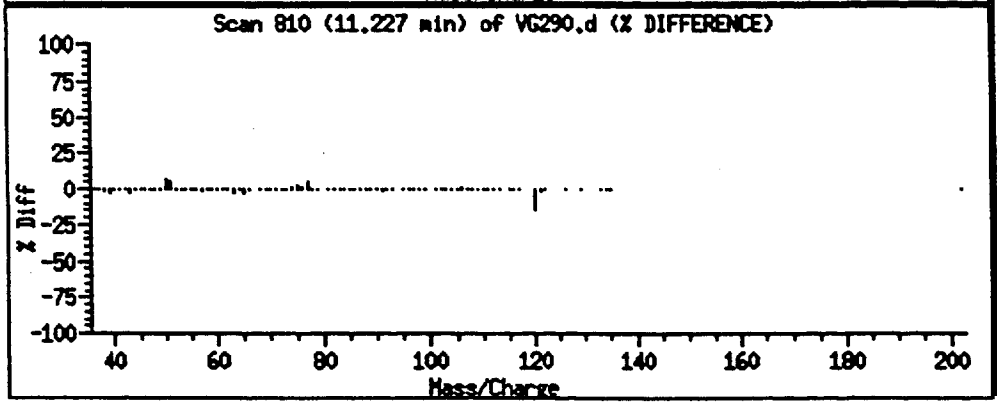






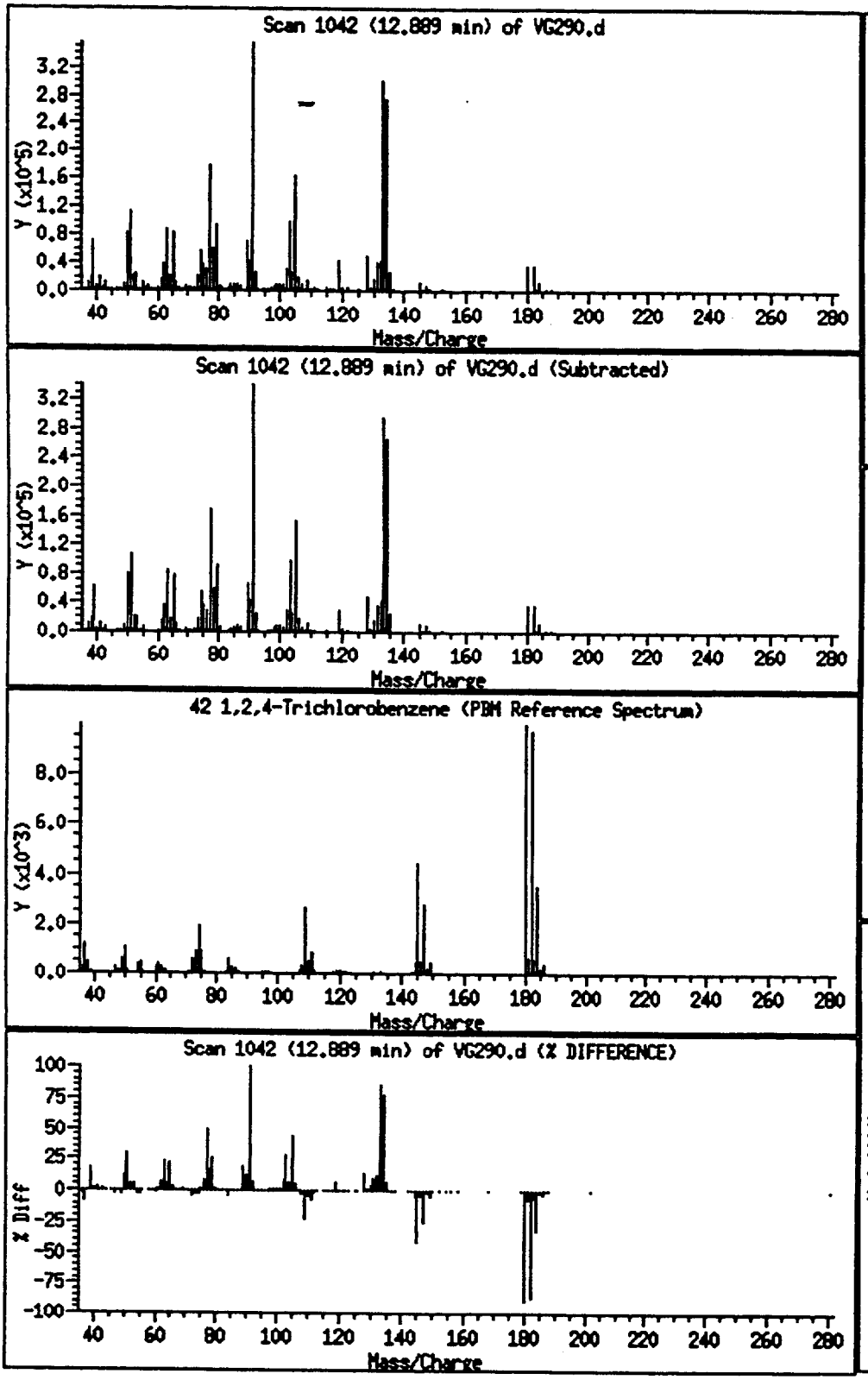


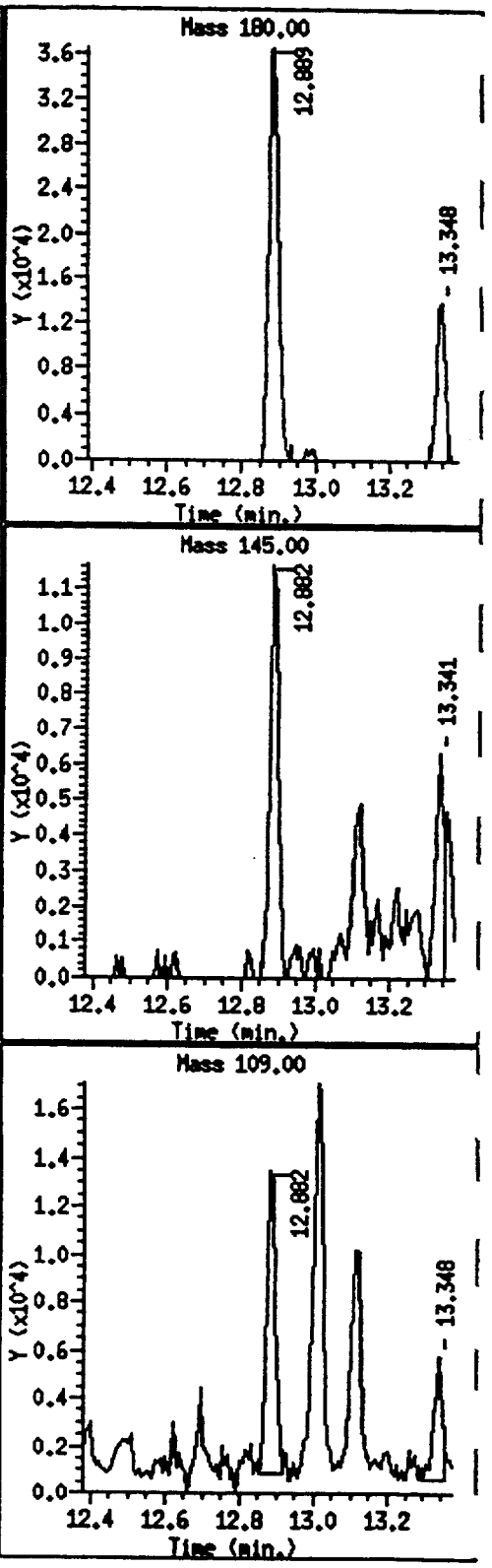




Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

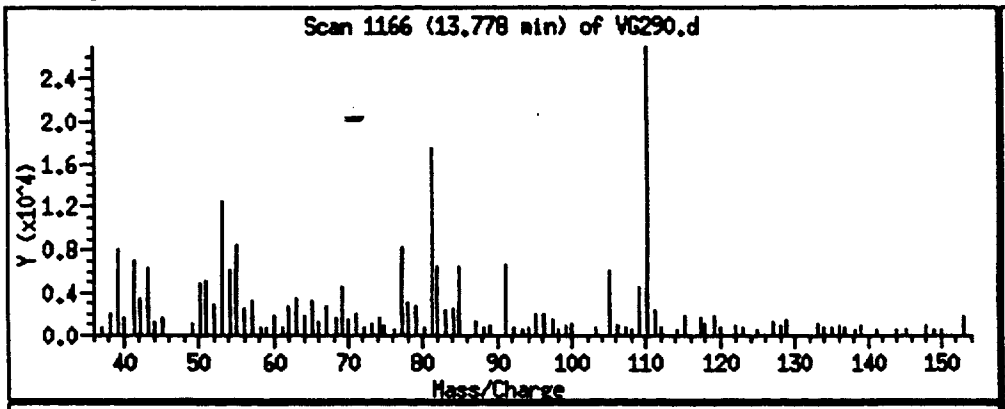
42 1,2,4-Trichlorobenzene

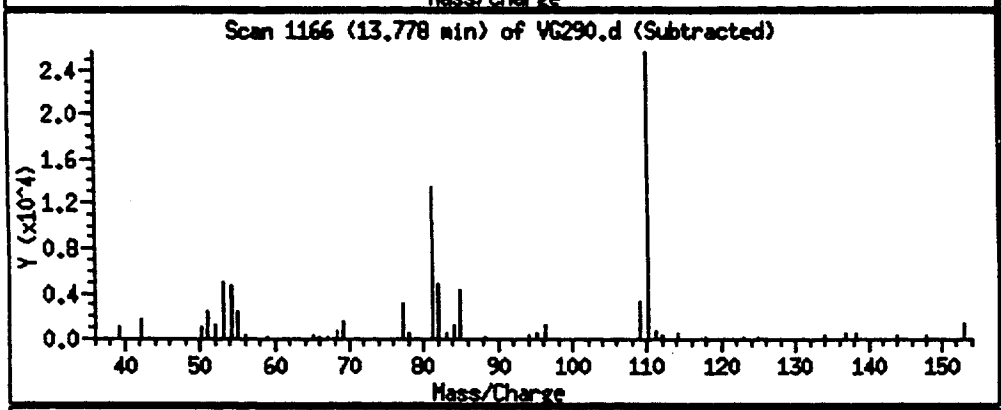


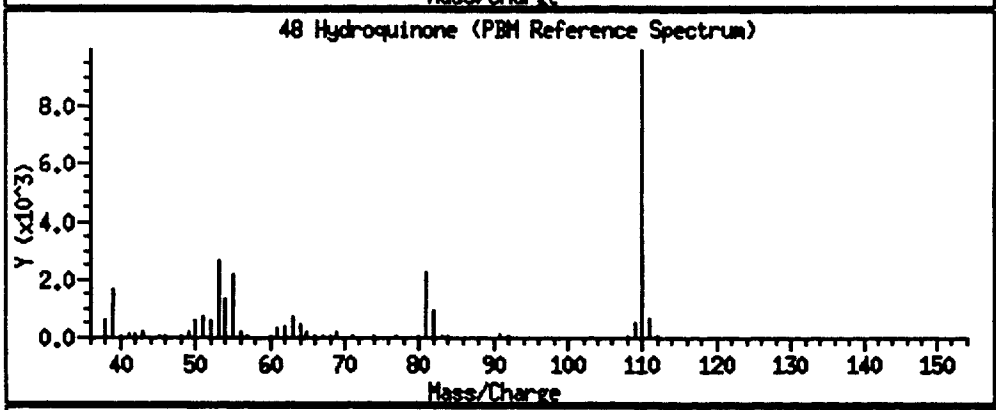


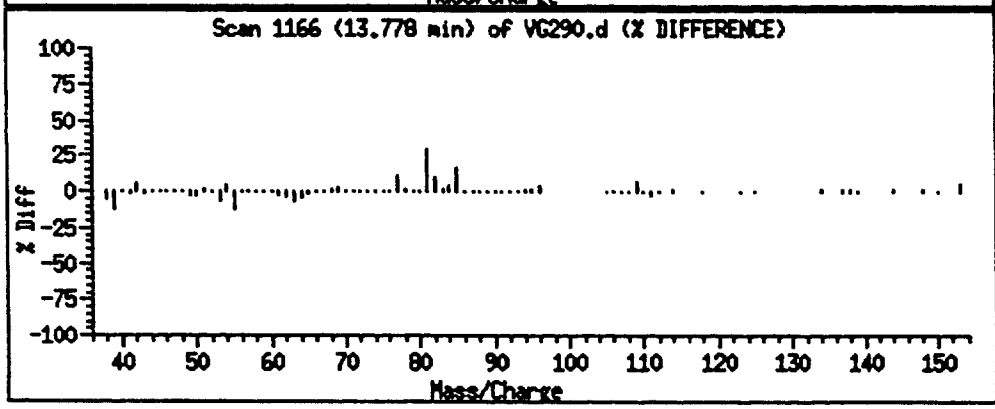
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BO-0010-1
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

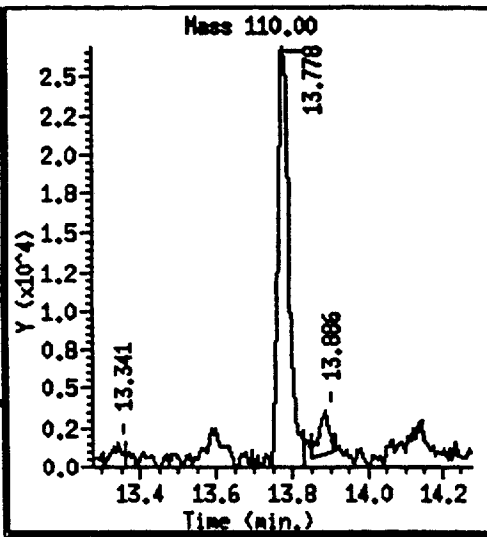
48 Hydroquinone

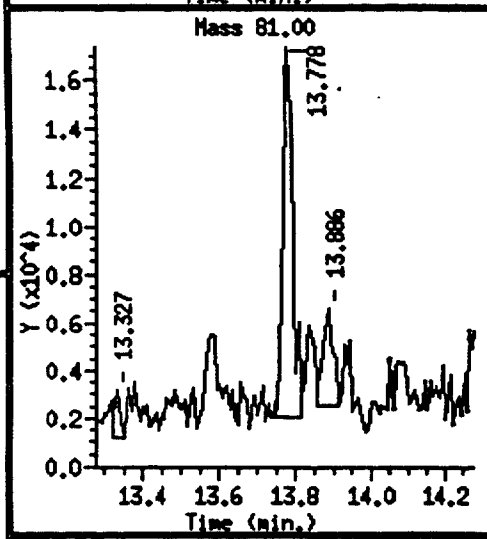


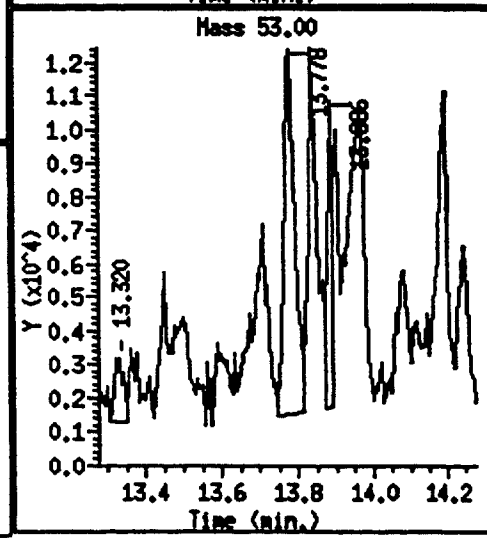






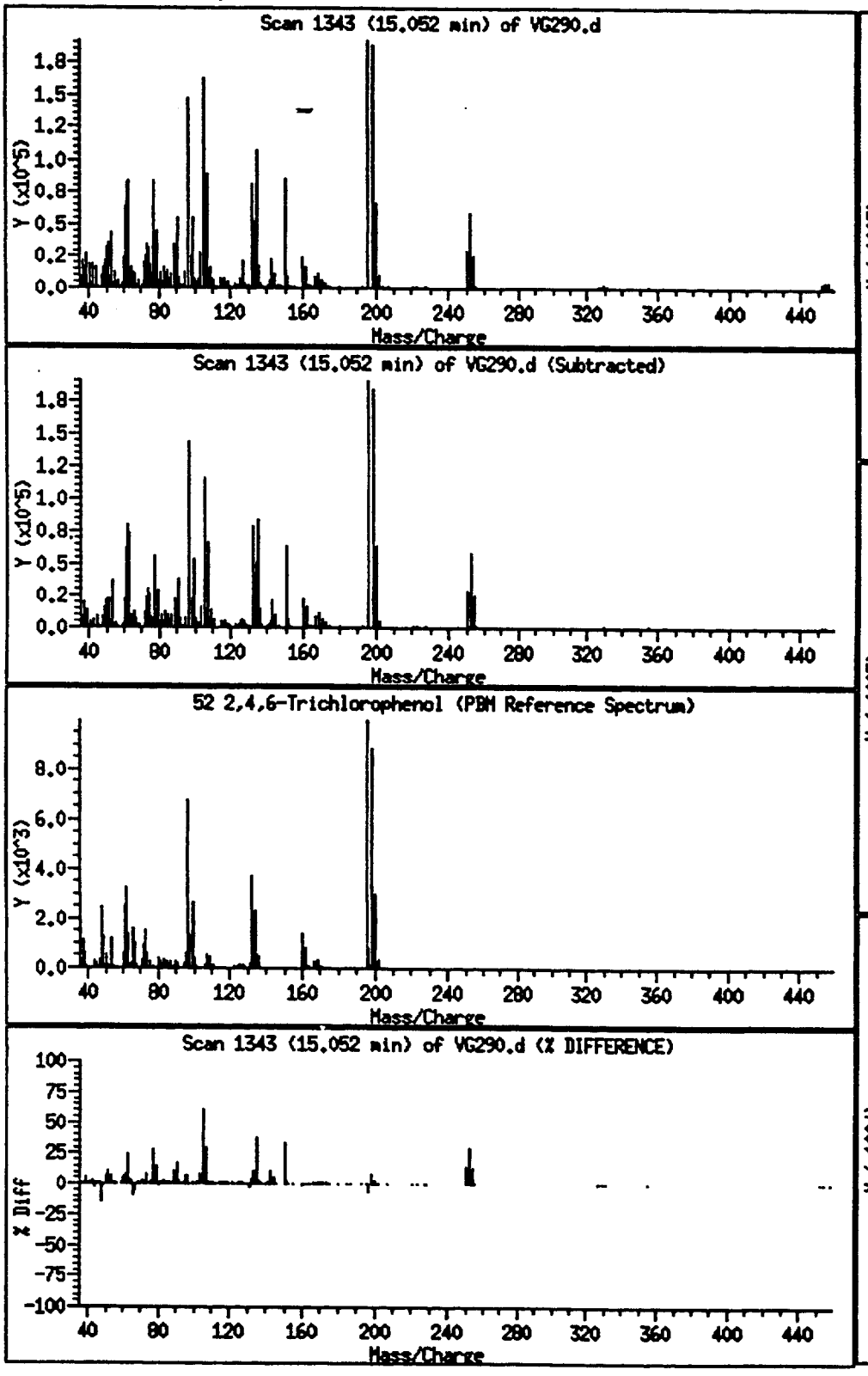


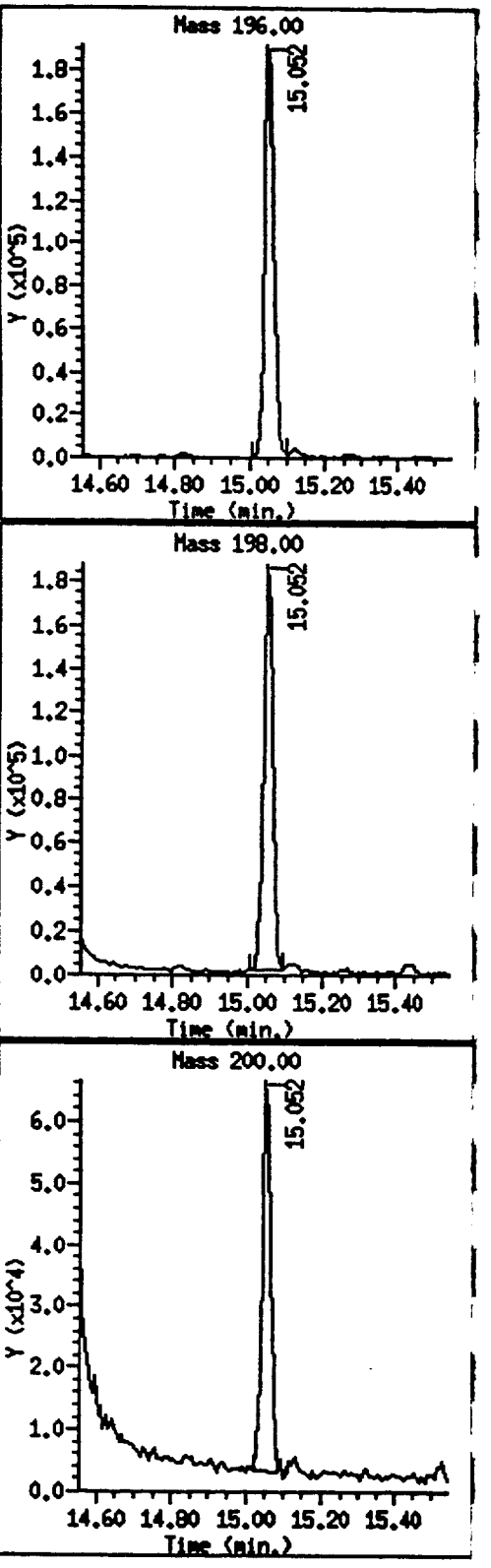




Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

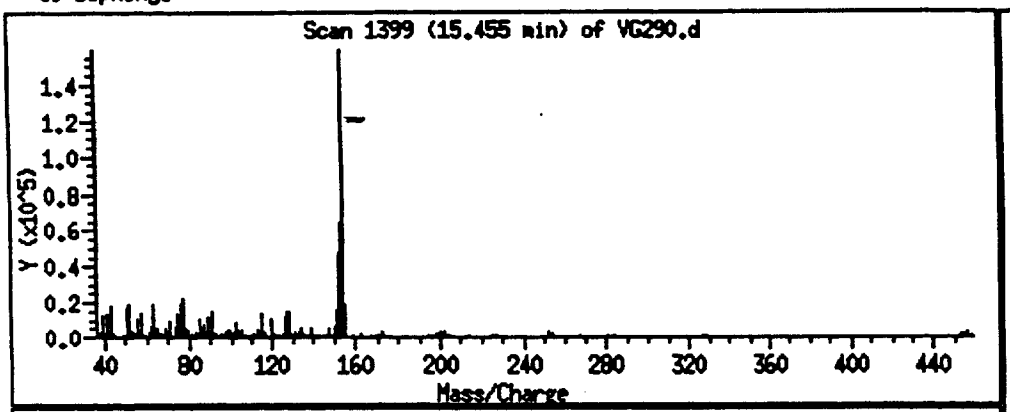
52 2,4,6-Trichlorophenol

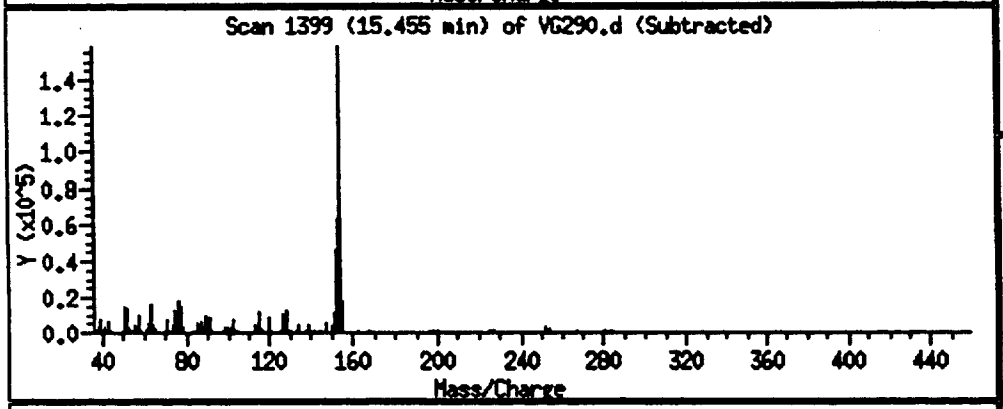


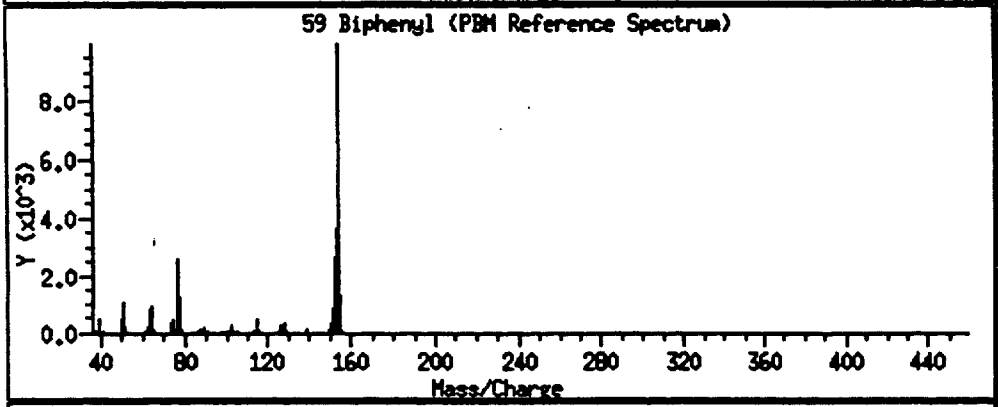


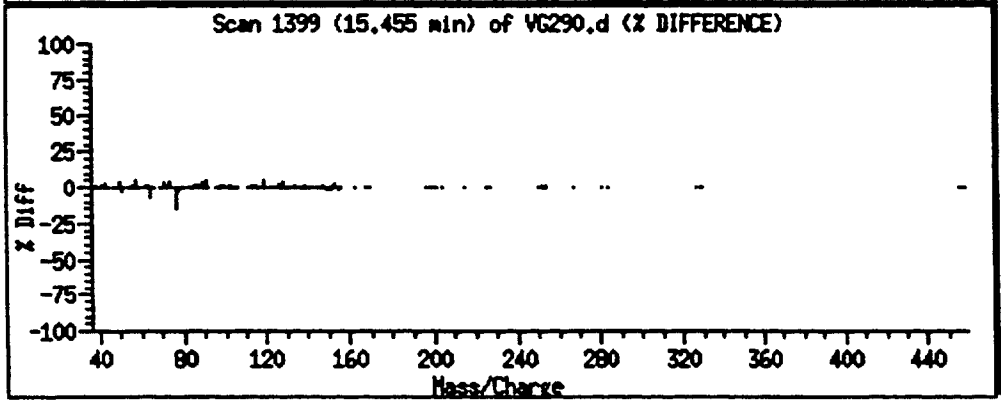
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

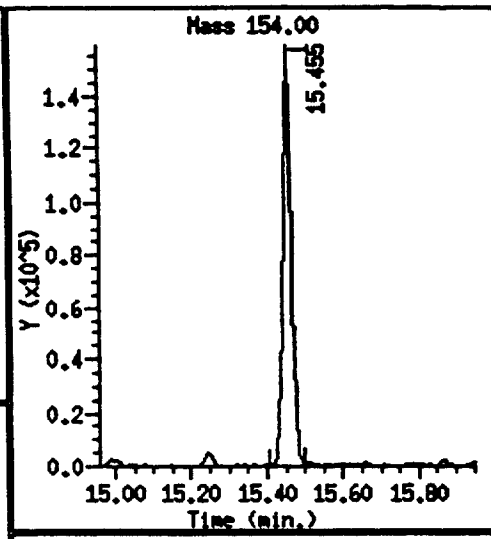
59 Biphenyl

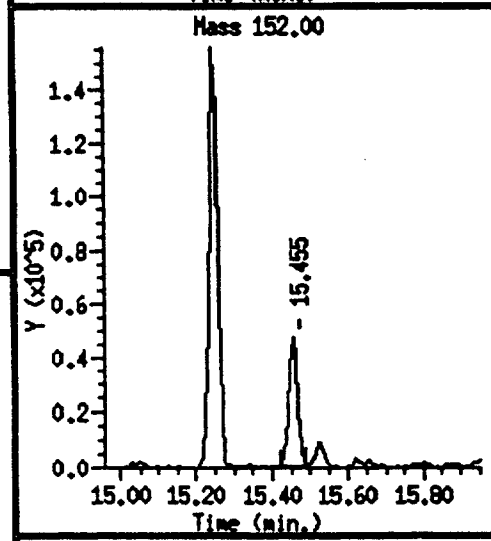


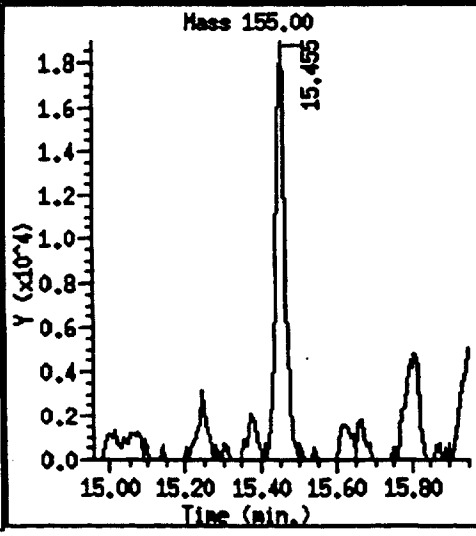












Data File: /chem/V.i/09-18-97.b/CAA/VG290.d

Date : 18-SEP-97 19:29

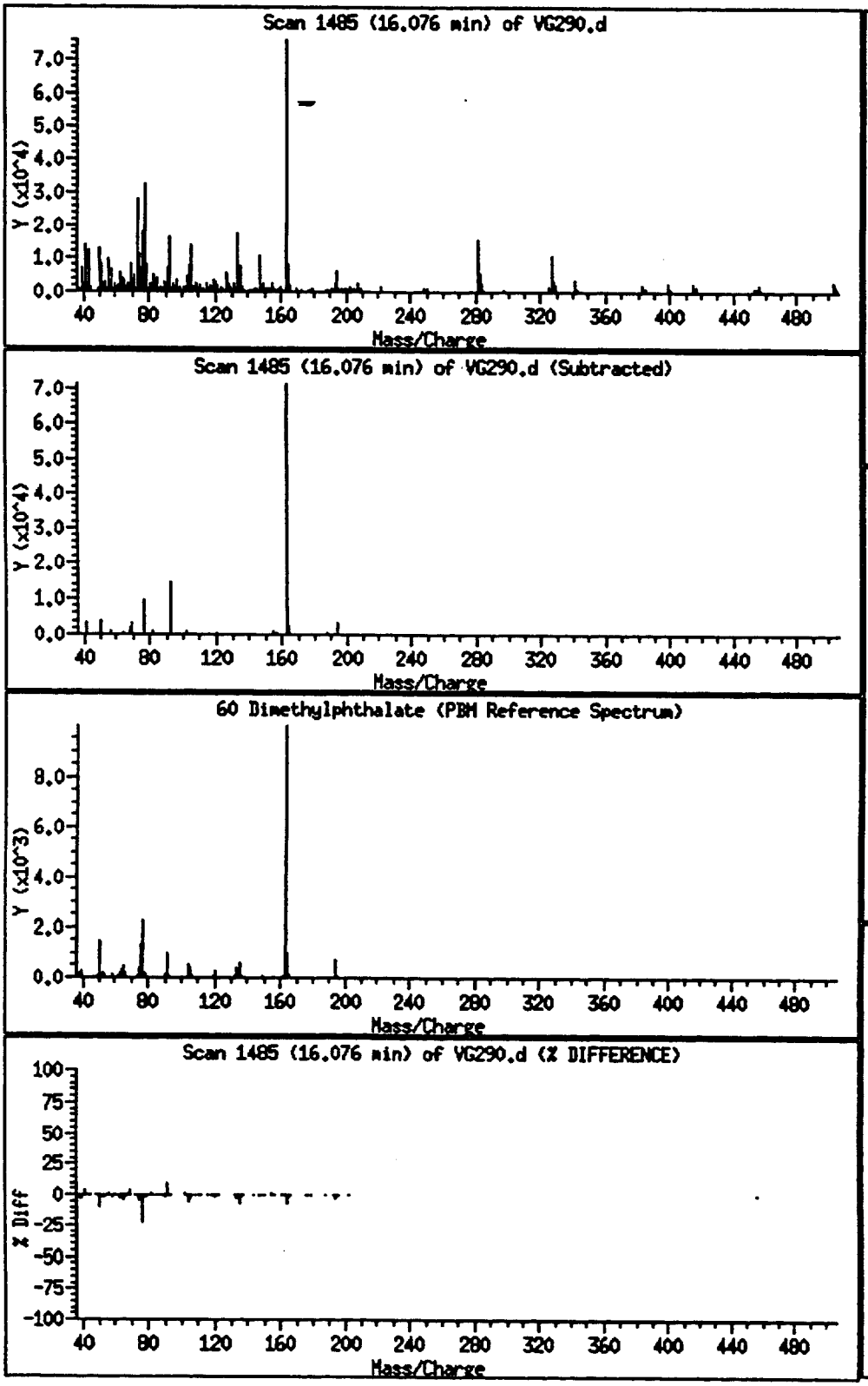
Instrument : V.i

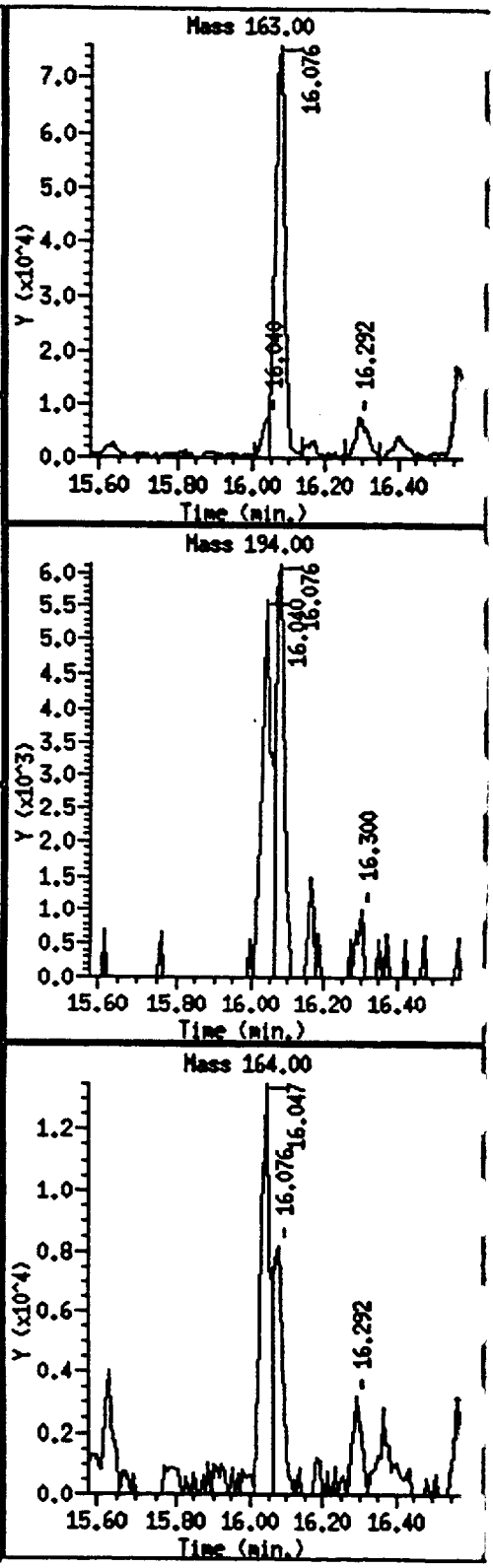
Sample ID : BO-0010-1

Column phase : DB.5-625 Column diameter : 0.32

Volume Injected (uL) : 1.0

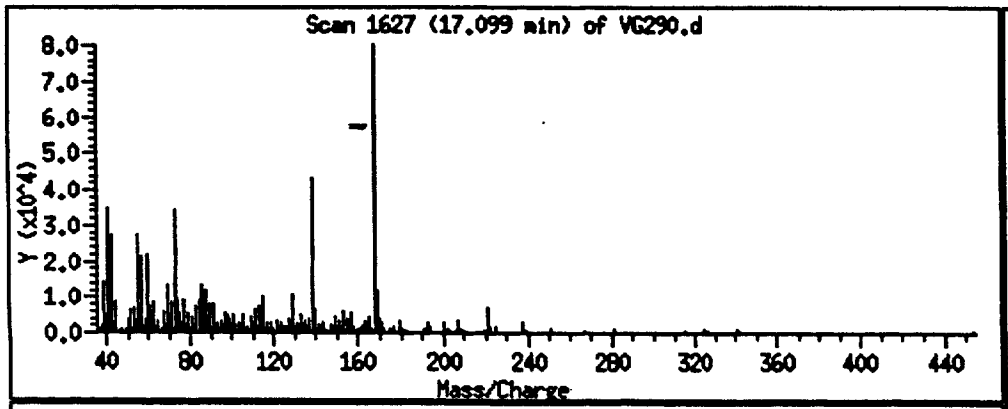
60 Dimethylphthalate

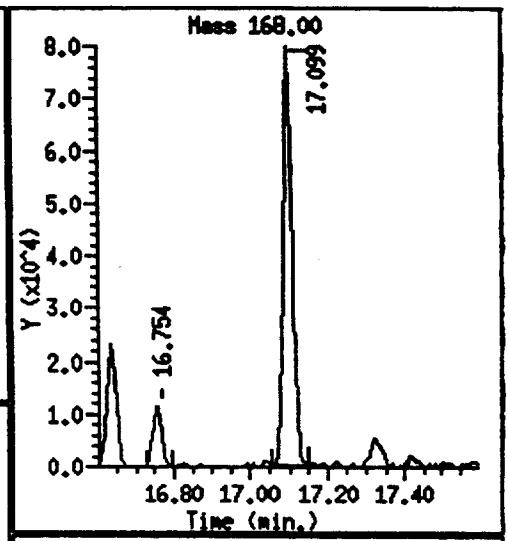


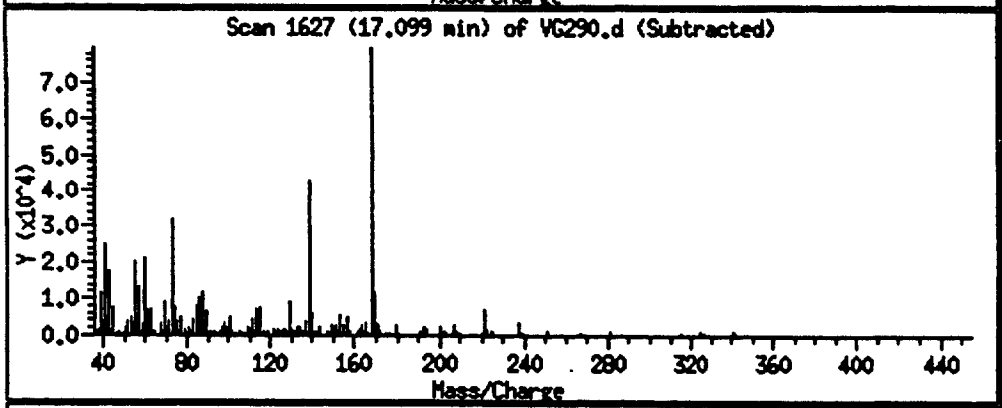


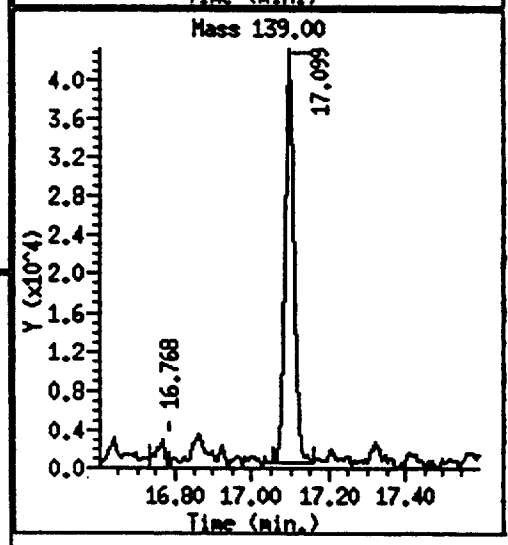
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

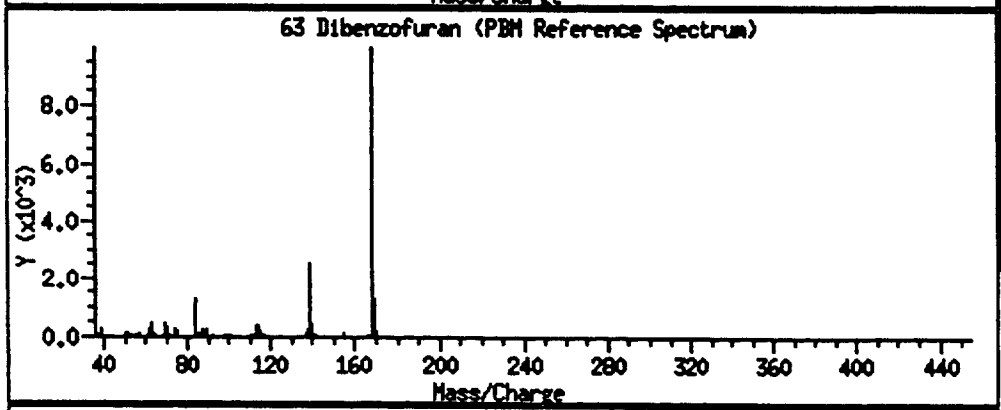
63 Dibenzofuran

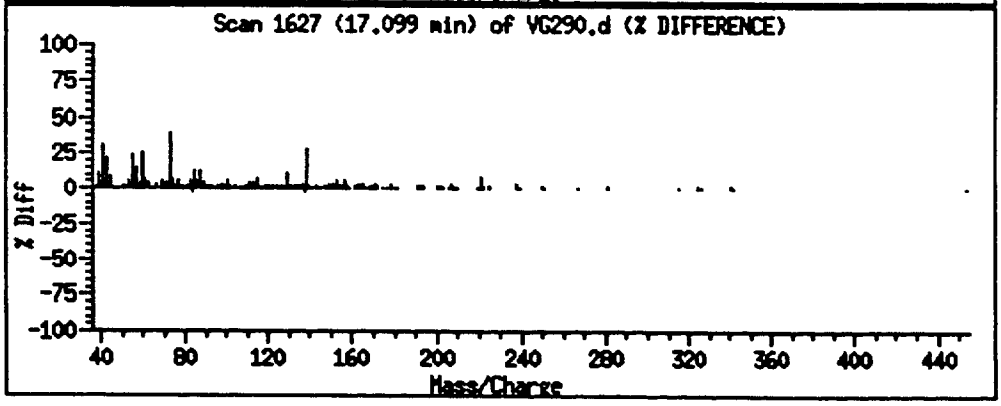






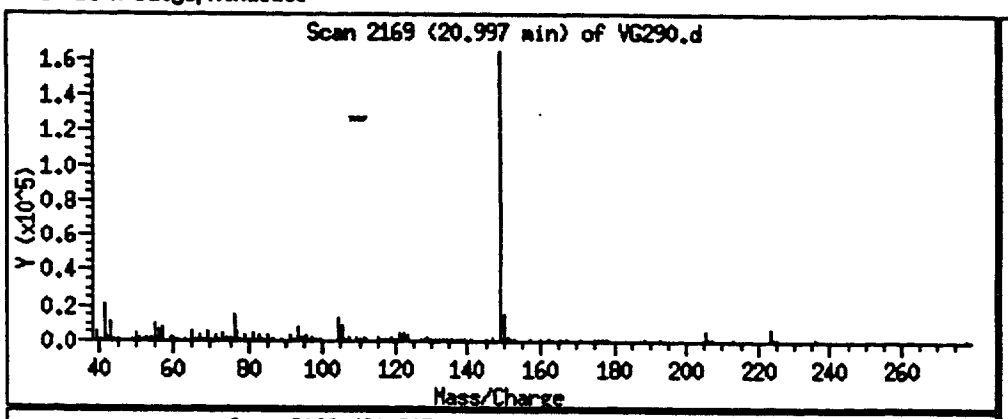


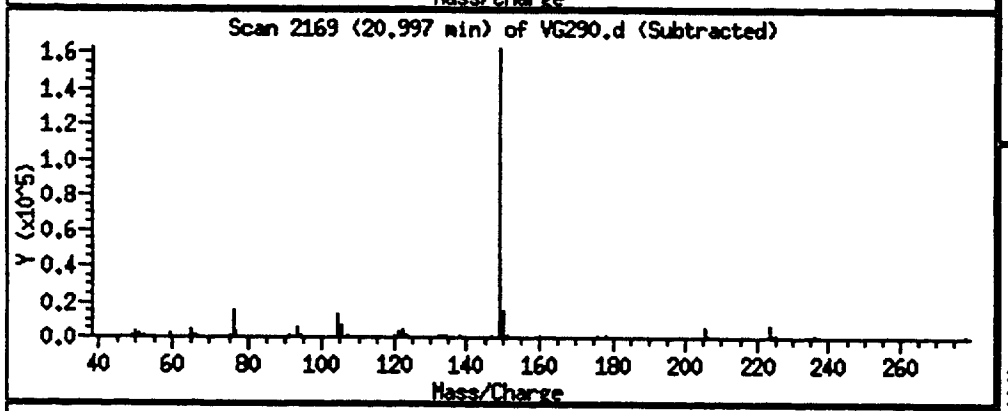


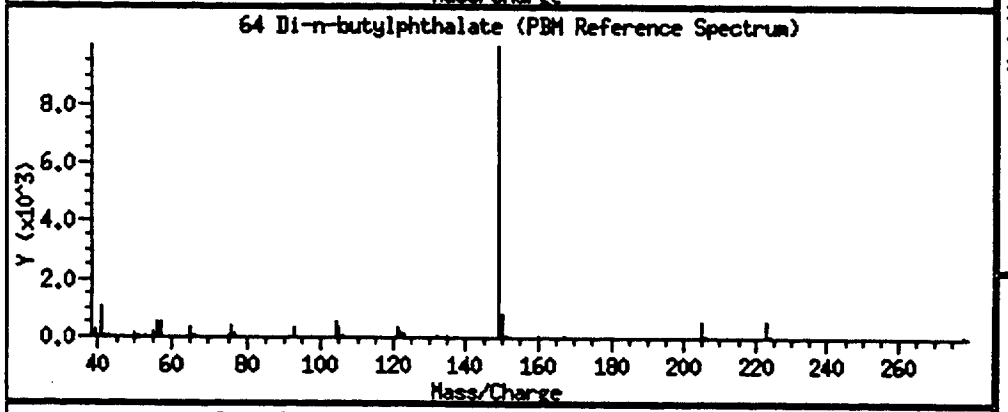


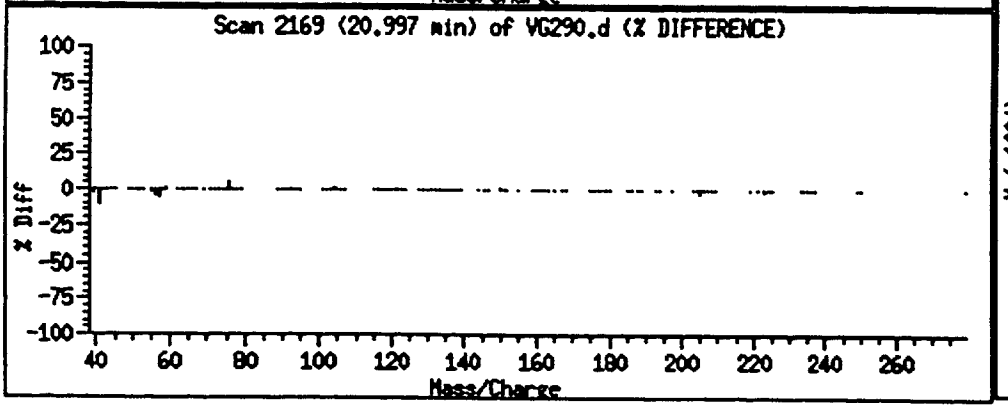
Data File: /chem/V.i/09-18-97.b/CAA/VG290.d
Date : 18-SEP-97 19:29
Instrument : V.i
Sample ID : BD-0010-1
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

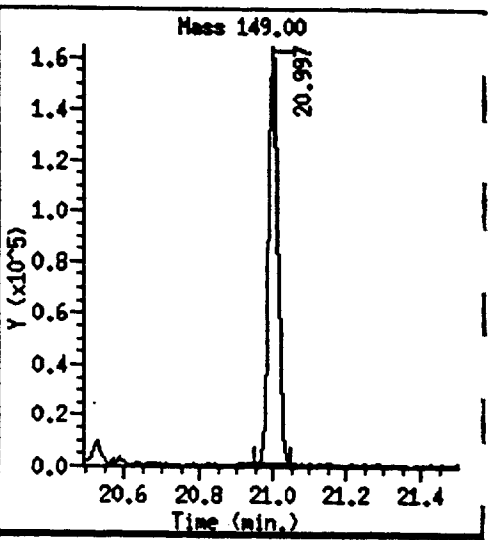
64 Di-n-butylphthalate

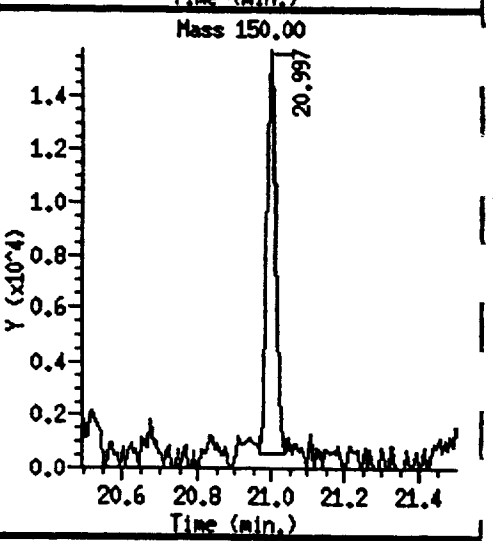


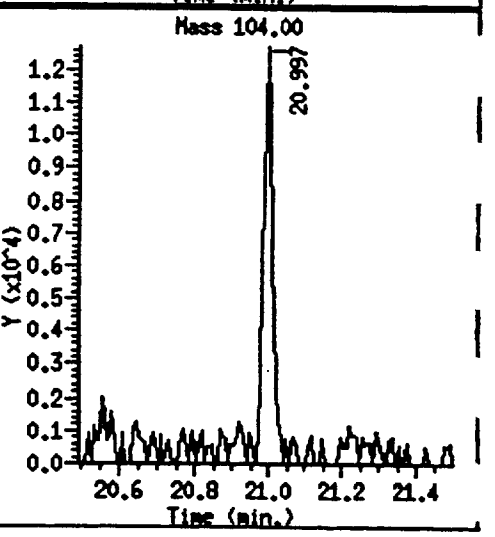












Data File: /chem/V.i/09-18-97.b/CAA/VG290.d

Date : 18-SEP-97 19:29

Instrument : V.i

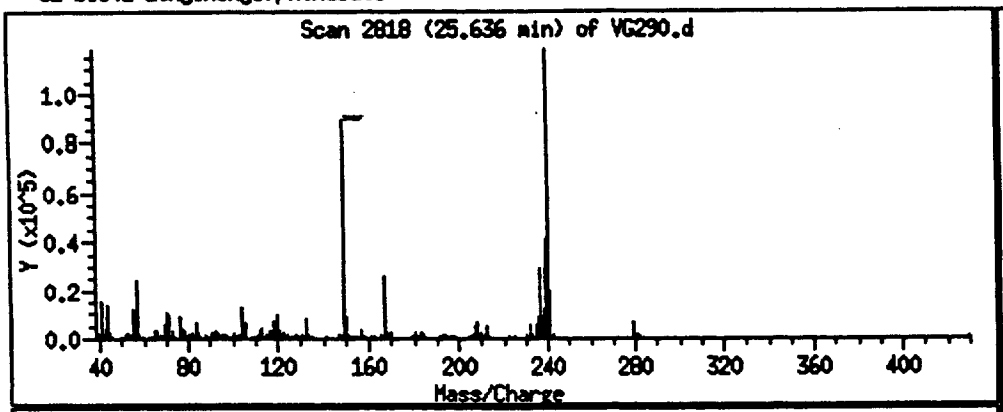
Sample ID : BO-0010-1

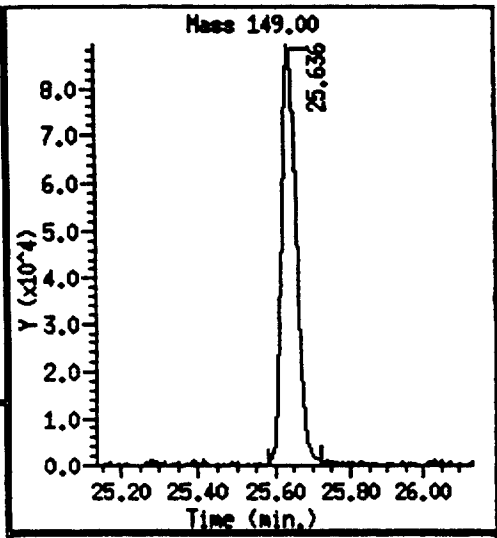
Column phase : DB.5-625

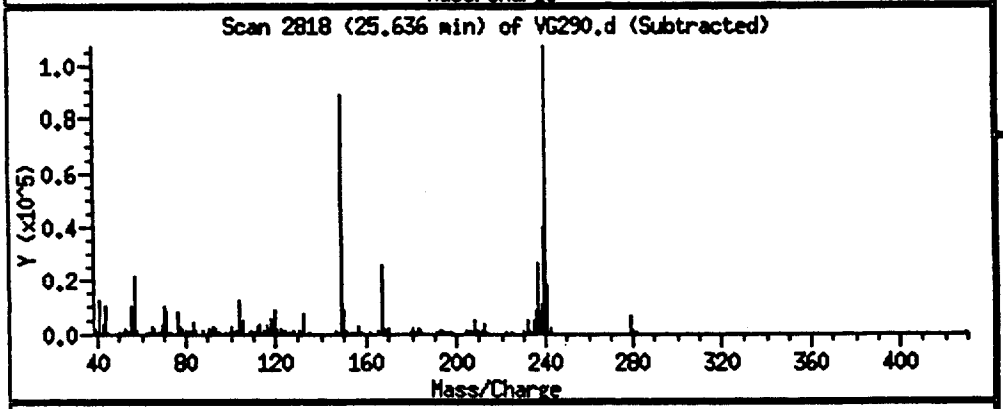
Column diameter : 0.32

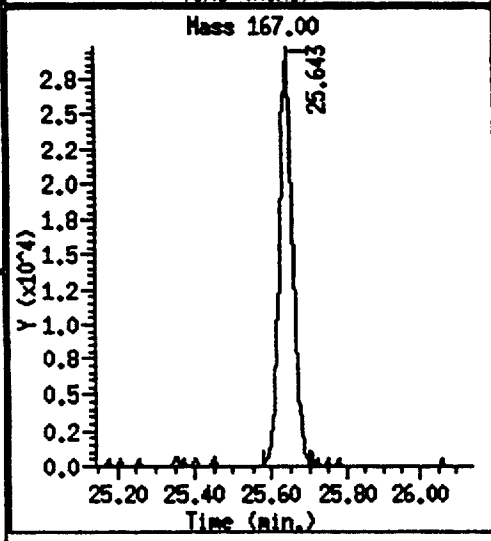
Volume Injected (uL) : 1.0

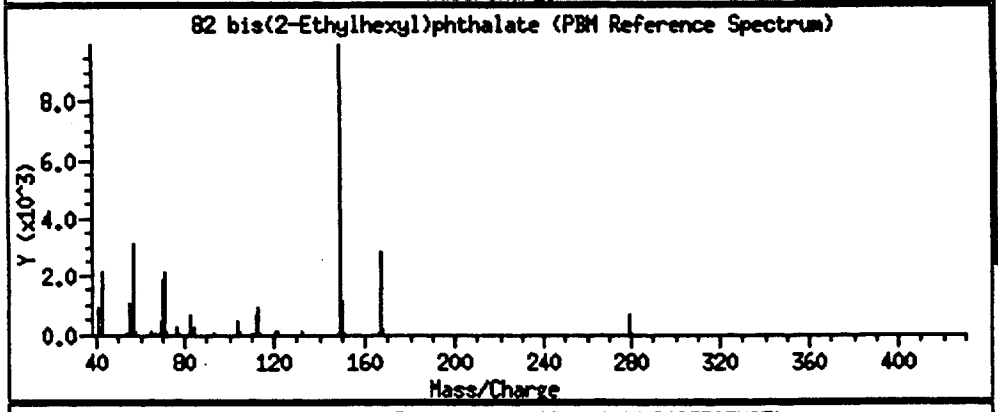
82 bis(2-Ethylhexyl)phthalate

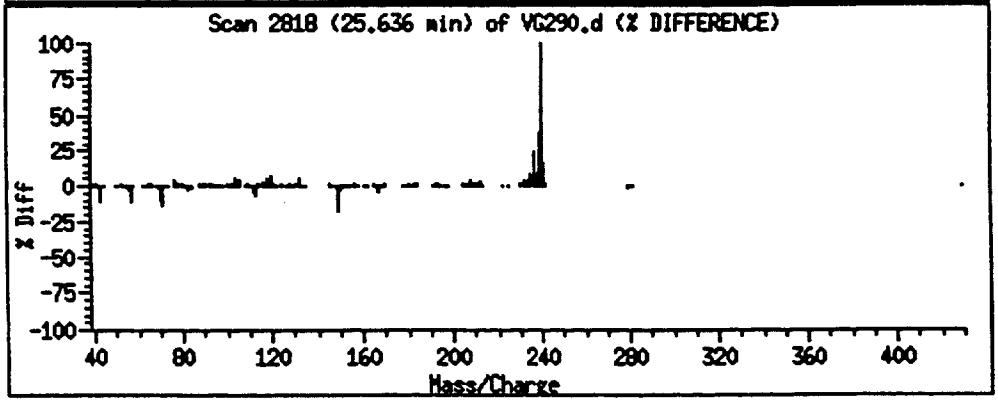












Pacific Environmental Services

Project Number: 43230
Sample File: VG291

Method 8270A MM5
Sample ID: BO-0010-2

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG279**
TLI ID: 183-2-3A-E | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
Naphthalene-d_8		IS 2	13.01		
Naphthalene	4.83	BJ	13.06		10
2-Methylnaphthalene	1.31	J	14.49		10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.38	10
Acenaphthylene		U		0.25	10
Acenaphthene		U		0.41	10
Fluorene		U		0.36	10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene	0.39	J	19.85		10
Anthracene		U		0.31	10
Fluoranthene		U		0.28	10
Chrysene-d_{12}		IS 5	25.61		
Pyrene		U		0.42	10
Benzo(a)anthracene		U		0.53	10
Chrysene		U		0.57	10
Perylene-d_{12}		IS 6	29.75		
Benzo(b)fluoranthene		U		0.89	10
Benzo(k)fluoranthene		U		0.87	10
Benzo(e)pyrene		U		0.88	10
Benzo(a)pyrene		U		1.00	10
Perylene		U		1.00	10
Indeno(1,2,3-cd)pyrene		U		1.20	10
Dibenz(a,h)anthracene		U		1.62	10
Benzo(g,h,i)perylene		U		1.37	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230 | **Method 8270A MM5**
Sample File: VG291 | **Sample ID: BO-0010-2**

Client Project: S414.003/WAUPAC	**Date Received: 09/12/97**	**Response File: VG279**
TLI ID: 183-2-3A-E	**Date Extracted: 09/14/97**	
	Date Analyzed : 09/18/97	

Dilution Factor: 1.00

Surrogate Summary	Amount (ng)	RT	IS Ref	%REC
Phenol-d_5	65.75	9.69	1	66
Nitrobenzene-d_5	92.21	11.54	2	92
1,3,5-Trichlorobenzene-d_3	90.36	12.22	2	90
1,4-Dibromobenzene-d_4	89.16	13.12	1	89
2-Fluorobiphenyl	91.61	15.25	3	92
2,4,6-Tribromophenol	101.87	18.32	3	102
Anthracene-d_{10}	87.68	19.92	4	88
Pyrene-d_{10}	120.28	22.80	5	120
Terphenyl-d_{14}	150.83	23.14	5	151

Reviewed by sgh Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG291

Method 8270A MM5
Sample ID: BO-0010-2

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG280**
TLI ID: 183-2-3A-E | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
n-Nitrosodimethylamine		U		0.91	10
Cumene	0.26	J	8.97		10
Phenol	3.14	BJ	9.71		10
Aniline		U		0.34	10
bis-(2-Chloroethyl)ether		U		0.82	10
Benzyl Chloride		U		0.20	10
1,4-Dichlorobenzene	1.52	J	10.50		10
2-Methylphenol		U		0.60	10
Acetophenone	13.92	B	11.23		10
n-Nitrosomorpholine		U		0.84	10
o-Toluidine		U		0.39	10
Hexachloroethane		U		0.86	10
1,2-Dibromo-3-chloropropane		U		1.00	10
N,N-Diethylaniline		U		0.32	10
Naphthalene-d_8		IS 2	13.01		
3/4-Methylphenol		U		0.58	10
Nitrobenzene		U		0.31	10
N,N-Dimethylaniline		U		0.32	10
Isophorone		U		0.29	10
o-Anisidine		U		0.72	10
1,4-Phenylenediamine		U		0.53	10
1,2,4-Trichlorobenzene	4.00	J	12.89		10
Hexachlorobutadiene		U		0.73	10
a,a,a-Trichlorotoluene		U		0.35	10
Hydroquinone		U		0.69	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG291

Method 8270A MM5
Sample ID: BO-0010-2

Client Project: S414.003/WAUPAC
TLI ID: 183-2-3A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.30	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.73	10
2,4,6-Trichlorophenol	2.13	J	15.06		10
2,4,5-Trichlorophenol		U		0.88	10
Biphenyl	0.32	J	15.46		10
Dimethylphthalate	2.62	J	16.07		10
2,4-Dinitrophenol		U		4.54	25
4-Nitrophenol		U		1.89	25
2,4-Dinitrotoluene		U		1.09	10
Dibenzofuran		U		0.27	10
4,6-Dinitro-2-methylphenol		U		2.68	25
Trifluralin		U		1.29	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	3.50	BJ	21.00		10
Hexachlorobenzene	0.54	J	18.97		10
4-Aminobiphenyl		U		0.31	10
Pentachlorophenol	1.64	J	19.38		25
Pentachloronitrobenzene		U		1.89	10
4-Nitrobiphenyl		U		0.85	10
Chrysene-d_{12}		IS 5	25.61		
Benzidine		U		0.69	10
4,4'-Methylenedianiline		U		1.71	10
Dimethylaminoazobenzene		U		1.31	10
3,3'-Dimethylbenzidine		U		1.01	10
3,3'-Dimethoxybenzidine		U		2.08	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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

Pacific Environmental Services

Project Number: 43230
Sample File: VG291

Method 8270A MM5
Sample ID: BO-0010-2

Client Project: 5414.003/WAUPAC
TLI ID: 183-2-3A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.72	10
Methylene bis-chloroaniline		U		2.99	10
bis(2-Ethylhexyl)phthalate	5.98	BJ	25.64		10

Reviewed by _____ Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

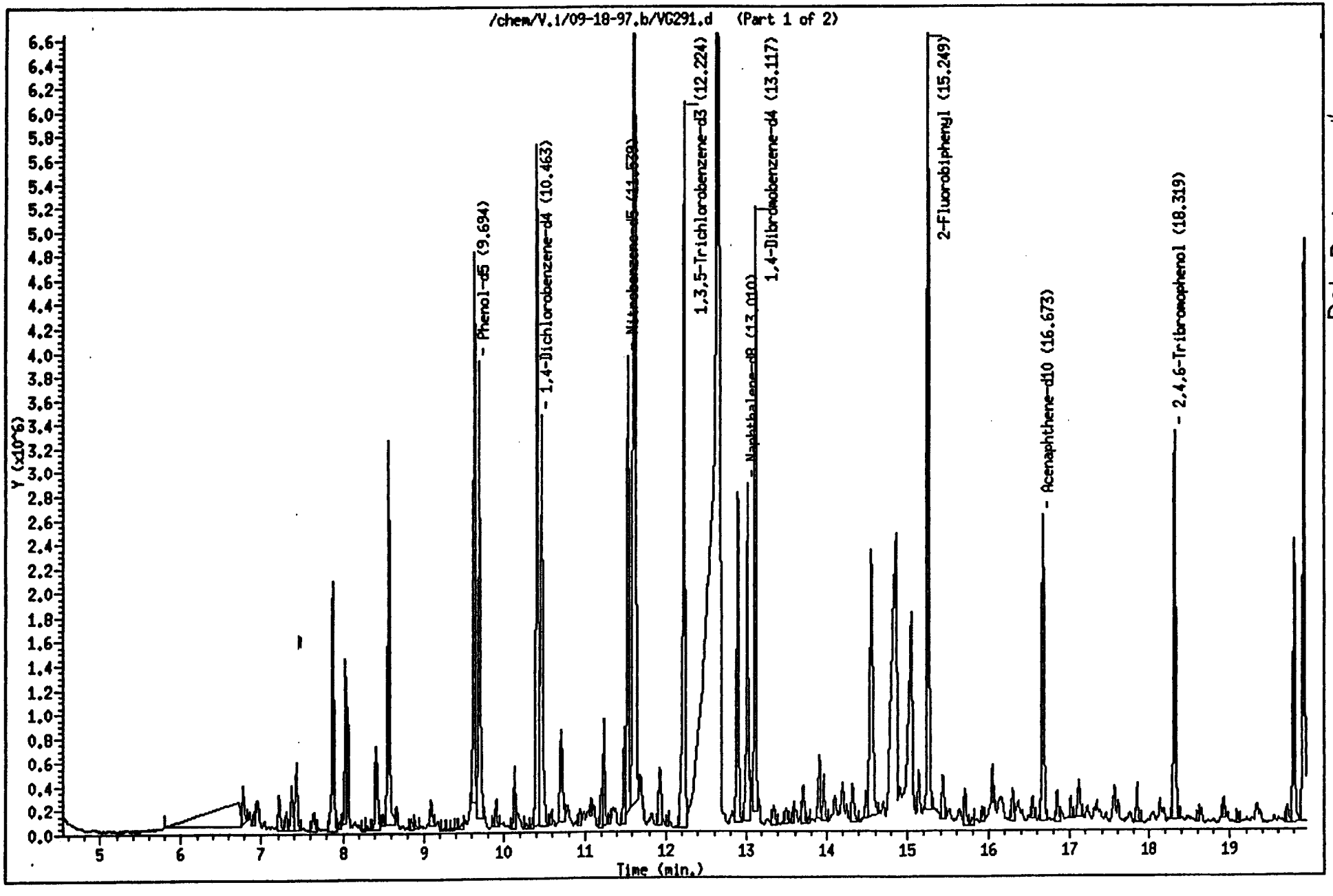
Triangle Laboratories of RTP, Inc.
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Data File: /chem/V.1/09-18-97.b/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.1
Sample ID : BO-0010-2
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories
of RTP, Inc.

Column diameter : 0.32

77

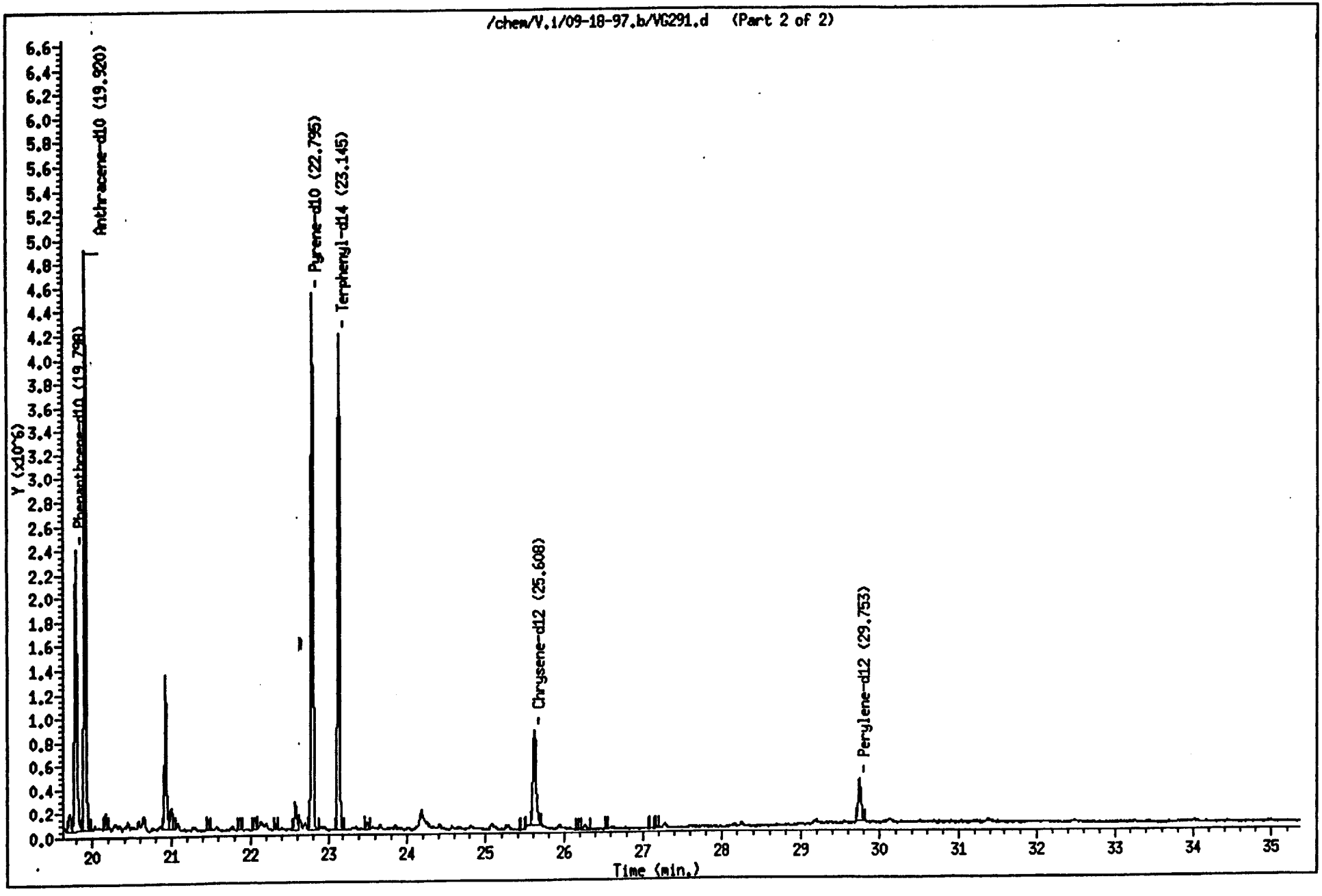


Data Review: BCH
Date: 9/12/97

Data File: /chem/V.i/09-18-97.b/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories
of RTP, Inc.

Column diameter : 0.32



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG291.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 20:18 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : BO-0010-2
Misc Info : 183-2-3A-E
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 11
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

		Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1	1,4-Dichlorobenzene-d4	152.00	10.463(1.000)	662077	40.00		
*	2	Naphthalene-d8	136.00	13.010(1.000)	1983476	40.00		
*	3	Acenaphthene-d10	164.00	16.673(1.000)	968342	40.00		
*	4	Phenanthrene-d10	188.00	19.798(1.000)	1487145	40.00		
*	5	Chrysene-d12	240.00	25.608(1.000)	647242	40.00		
*	6	Perylene-d12	264.00	29.753(1.000)	442582	40.00		
$	7	2-Fluorophenol	Compound Not Detected.					
$	8	Phenol-d5	99.00	9.694(0.926)	1691097	65.76	65.76	
$	9	2-Chlorophenol-d4	Compound Not Detected.					
$	10	1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11	Nitrobenzene-d5	82.00	11.539(0.887)	1947949	92.12	92.12	
$	12	1,3,5-Trichlorobenzene-d3	185.00	12.224(0.940)	1684676	90.41	90.41	
$	13	1,4-Dibromobenzene-d4	240.00	13.117(1.254)	1517140	89.16	89.16	
$	14	2-Fluorobiphenyl	172.00	15.249(0.915)	2925271	91.59	91.59	
$	15	2,4,6-Tribromophenol	329.80	18.319(1.099)	621490	101.74	101.74	
$	16	Anthracene-d10	188.00	19.920(1.006)	3217480	87.65	87.65	
$	17	Pyrene-d10	212.00	22.795(0.890)	2962300	120.27	120.27	
$	18	Terphenyl-d14	244.00	23.138(0.904)	2135557	150.80	150.80(R)	
	42	Naphthalene	128.00	13.060(1.004)	230531	4.83	4.83(a)	
	46	2-Methylnaphthalene	142.00	14.489(1.114)	38273	1.31	1.31(a)	
	50	2-Chloronaphthalene	162.00	~~15.658(0.939)~~	~~1239~~	~~0.05~~	~~0.05(a)~~	
	56	Acenaphthylene	152.00	~~16.001(0.960)~~	~~2061~~	~~0.05~~	~~0.05(a)~~	
	58	Acenaphthene	154.00	~~16.738(1.004)~~	~~1684~~	~~0.07~~	~~0.07(a)~~	FP salt
	65	Fluorene	Compound Not Detected.					
	73	Phenanthrene	178.00	19.848(1.003)	13350	0.39	0.39(a)	
	74	Anthracene	178.00	~~19.848(1.003)~~	~~13350~~	~~0.41~~	~~0.41(a)~~	FP salt
	77	Fluoranthene	Compound Not Detected.					
	78	Pyrene	Compound Not Detected.					
	83	Benzo(a)anthracene	Compound Not Detected.					
	84	Chrysene	Compound Not Detected.					
	86	Benzo(b)fluoranthene	Compound Not Detected.					

Data Review: [signature]
Date: 9/19/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	Compound Not Detected.				
90 Perylene	Compound Not Detected.				
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG291.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 20:18 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : BO-0010-2
Misc Info : 183-2-3A-E
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32 Cal File: VG280.d
Als bottle: 11
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: CAA1.sub
Sample Type: mm5

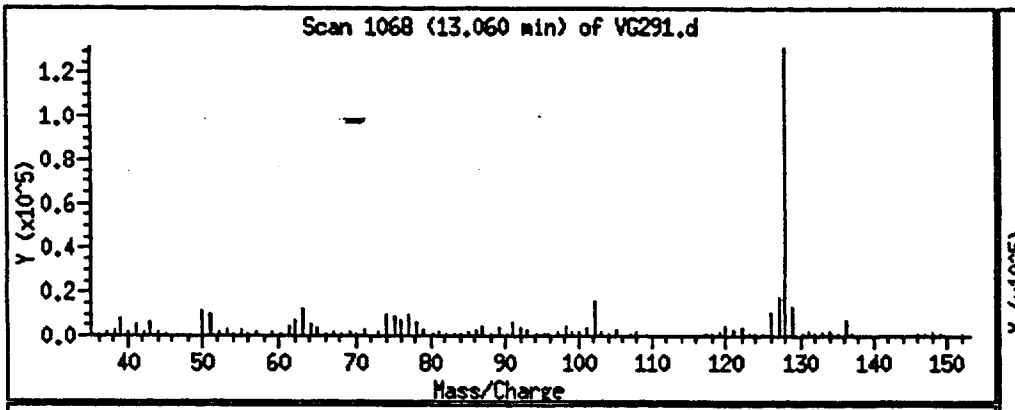
	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4 Dichlorobenzene-d4	152.00	10.463(1.000)	662077	40.00		
*	2 Naphthalene-d8	136.00	13.010(1.000)	1983476	40.00		
*	3 Acenaphthene-d10	164.00	16.673(1.000)	968342	40.00		
*	4 Phenanthrene-d10	188.00	19.798(1.000)	1487145	40.00		
*	5 Chrysene-d12	240.00	25.608(1.000)	647242	40.00		
*	6 Perylene-d12	264.00	29.753(1.000)	442582	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.694(0.926)	1691097	72.82	72.82	
$	9 2-Chlorophenol-d4	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.539(0.887)	1947949	88.54	88.54	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.224(0.940)	1684676	88.47	88.47	
$	13 1,4-Dibromobenzene-d4	240.00	13.117(1.254)	1517140	92.53	92.53	
$	14 2-Fluorobiphenyl	172.00	15.249(0.915)	2925271	90.54	90.54	
$	15 2,4,6-Tribromophenol	329.80	18.319(1.099)	621490	101.65	101.65	
$	16 Anthracene-d10	188.00	19.920(1.006)	3215539	81.82	81.82	
$	17 Pyrene-d10	212.00	22.795(0.890)	2962297	120.84	120.84	
$	18 Terphenyl-d14	244.00	23.138(0.904)	2135557	135.62	135.62	
	19 n-Nitrosodimethylamine	74.00	~~5.238(0.501)~~	~~1579~~	~~0.14~~	~~0.14~~	FP salt
	20 Cumene	105.00	8.968(0.857)	11124	0.26	0.26	
	22 Phenol	94.00	9.715(0.929)	72752	3.13	3.13	
	23 Aniline	Compound Not Detected.					
	26 bis-(2-Chloroethyl)ether	63.00	~~10.135(0.969)~~	~~8999~~	~~0.74~~	~~0.74~~	FP salt
	27 Benzyl Chloride	91.00	~~10.577(1.011)~~	~~9779~~	~~0.19~~	~~0.19~~	
	28 1,4-Dichlorobenzene	146.00	10.498(1.003)	33482	1.51	1.51	
	30 2-Methylphenol	108.00	~~10.712(1.024)~~	~~159414~~	~~9.62~~	~~9.62~~	FP salt
	31 3/4-Methylphenol	108.00	~~11.196(0.861)~~	~~8995~~	~~0.52~~	~~0.52~~	
	32 Acetophenone	105.00	11.232(1.074)	366645	13.92	13.92	
	33 n-Nitrosomorpholine	56.00	~~11.625(1.111)~~	~~992677~~	~~83.36~~	~~83.36~~	FP salt
	34 o-Toluidine	106.00	~~11.232(1.074)~~	~~28425~~	~~1.10~~	~~1.10~~	
	35 Hexachloroethane	Compound Not Detected.					

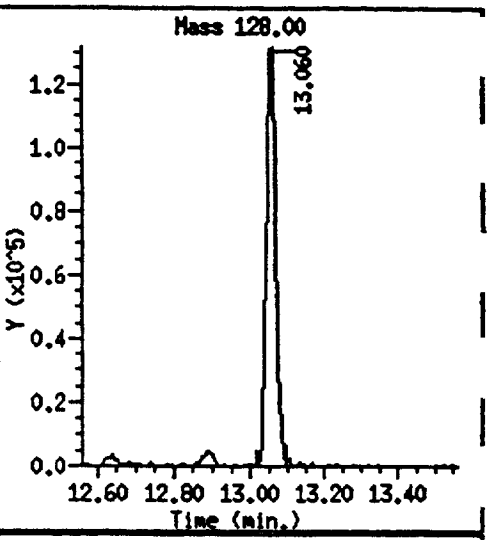
Data Review: salt
Date: 9/22/97

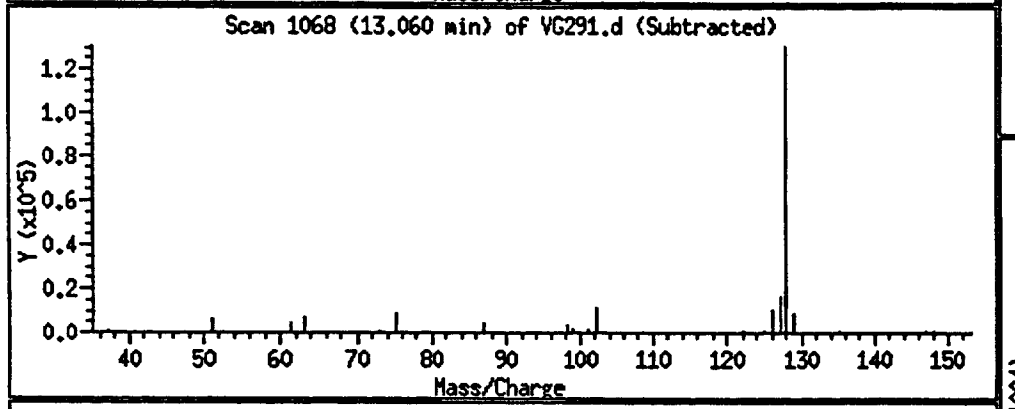
Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
36 Nitrobenzene	77.00	~~11.496(0.884)~~	~~50429~~	~~1.55~~	~~1.55~~	FP satt
37 N,N-Dimethylaniline	120.00	~~11.510(0.885)~~	~~8290~~	~~0.26~~	~~0.26~~	
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.					
39 Isophorone	82.00	~~11.625(0.893)~~	~~55849~~	~~1.64~~	~~1.64~~	FP satt
40 o-Anisidine	Compound Not Detected.					
41 1,4-Phenylenediamine	108.00	~~13.574(1.043)~~	~~24364~~	~~1.28~~	~~1.28~~	FP satt
42 1,2,4-Trichlorobenzene	180.00	12.889(0.991)	70159	3.99	3.99	
43 Naphthalene	128.00	13.060(1.004)	230531	3.92	3.92	
45 Hexachlorobutadiene	Compound Not Detected.					
46 N,N-Diethylaniline	134.00	~~13.617(1.301)~~	~~20039~~	~~0.64~~	~~0.64~~	
47 a,a,a-Trichlorotoluene	159.00	~~13.117(1.008)~~	~~540212~~	~~18.94~~	~~18.94~~	FP satt
48 Hydroquinone	110.00	~~13.781(1.059)~~	~~1321~~	~~0.09~~	~~0.09~~	
50 2-Chloroacetophenone	105.00	~~14.203(1.092)~~	~~37581~~	~~1.13~~	~~1.13~~	
51 Hexachlorocyclopentadiene	Compound Not Detected.					
52 2,4,6-Trichlorophenol	196.00	15.056(0.903)	23707	2.13	2.13	
53 2,4,5-Trichlorophenol	196.00	~~15.120(0.907)~~	~~10229~~	~~0.90~~	~~0.90~~	FP satt
59 Biphenyl	154.00	15.457 ~~15.242(0.914)~~	1198 ~~6146~~	~~0.17~~	~~0.17~~	satt 9/22/97
60 Dimethylphthalate	163.00	16.072(0.964)	73100	2.62	2.62	
71 2,4-Dinitrophenol	Compound Not Detected.					
61 4-Nitrophenol	139.00	~~16.859(1.011)~~	~~5029~~	~~0.95~~	~~0.95~~	
62 2,4-Dinitrotoluene	165.00	~~17.117(1.027)~~	~~13049~~	~~1.42~~	~~1.42~~	FP satt
63 Dibenzofuran	168.00	~~17.103(1.026)~~	~~6335~~	~~0.17~~	~~0.17~~	
64 Di-n-butylphthalate	149.00	20.999(1.061)	144407	3.49	3.49	
65 4,6-Dinitro-2-methylphenol	198.00	~~17.883(1.073)~~	~~505~~	~~0.13~~	~~0.13~~	FP satt
66 Trifluralin	Compound Not Detected.					
67 Hexachlorobenzene	283.80	18.970(0.958)	6695	0.53	0.53	
68 4-Aminobiphenyl	Compound Not Detected.					
69 Pentachlorophenol	266.00	19.377(0.979)	13371	1.64	1.64	
70 Pentachloronitrobenzene	Compound Not Detected.					
72 4-Nitrobiphenyl	Compound Not Detected.					
73 Benzidine	184.00	~~22.795(0.890)~~	~~34307~~	~~2.38~~	~~2.38~~	FP satt
74 4,4'-Methylenedianiline	Compound Not Detected.					
76 Dimethylaminoazobenzene	120.00	~~23.138(0.904)~~	~~22226~~	~~2.90~~	~~2.90~~	FP satt
77 3,3'-Dimethylbenzidine	Compound Not Detected.					
79 3,3'-Dimethoxybenzidine	Compound Not Detected.					
80 3,3'-Dichlorobenzidine	Compound Not Detected.					
81 Methylene bis-chloroaniline	Compound Not Detected.					
82 bis(2-Ethylhexyl)phthalate	149.00	25.644(1.001)	70235	5.98	5.98	

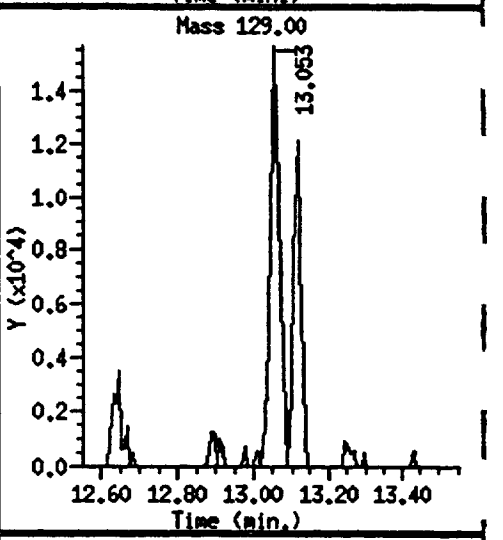
Data File: /chem/V.i/09-18-97.b/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

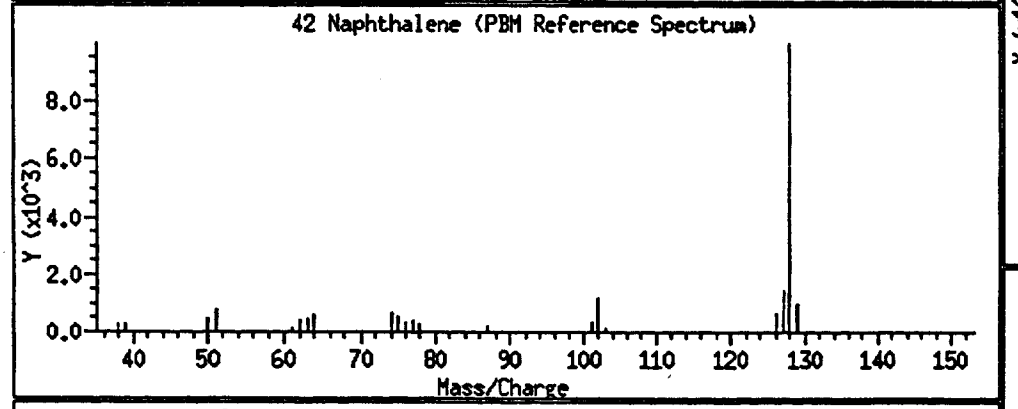
42 Naphthalene

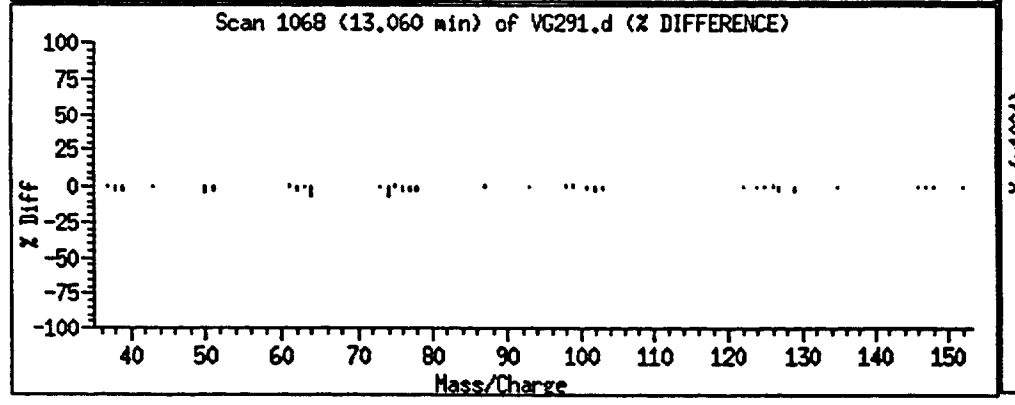


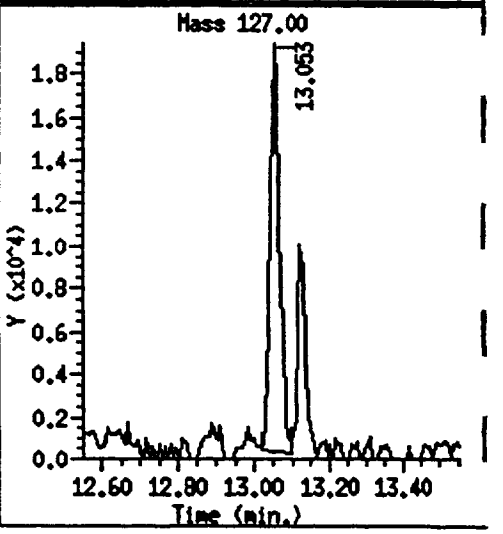






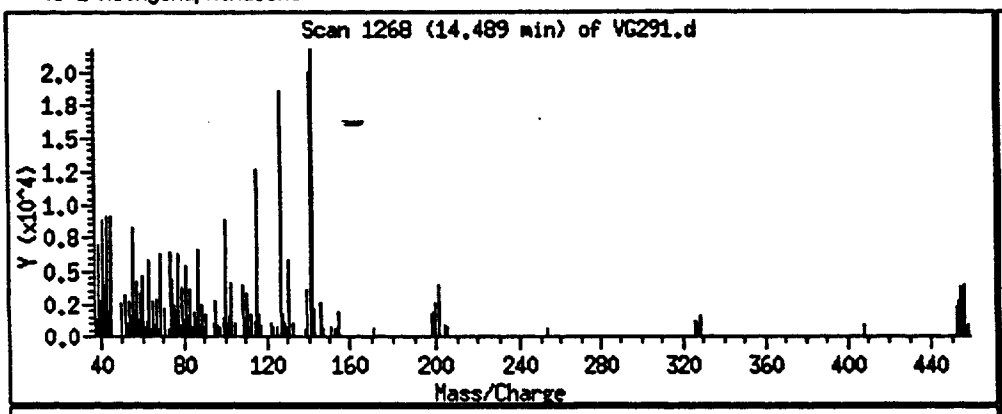


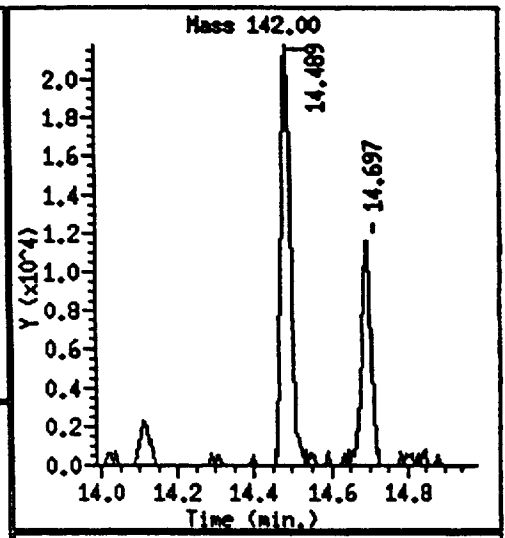


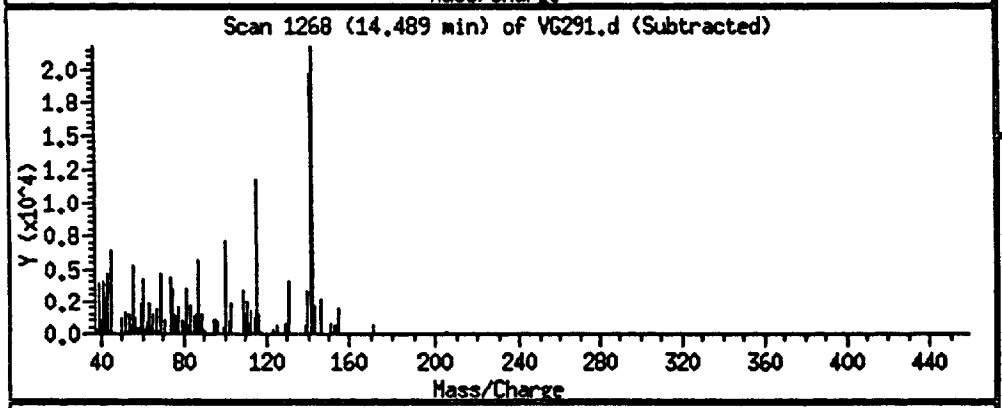


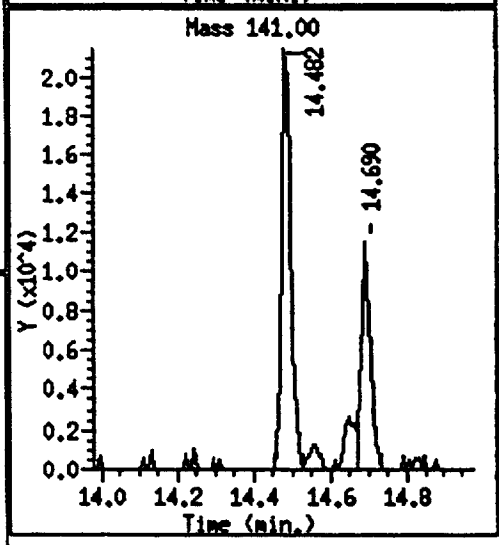
Data File: /chem/V.i/09-18-97.b/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

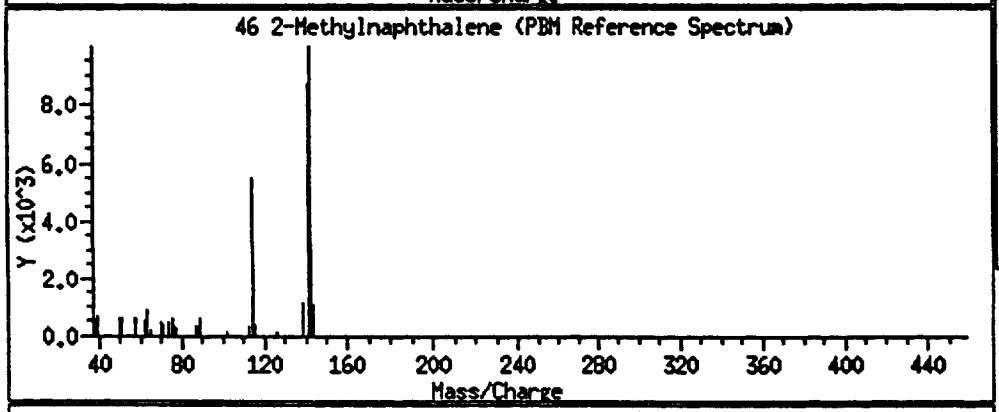
46 2-Methylnaphthalene

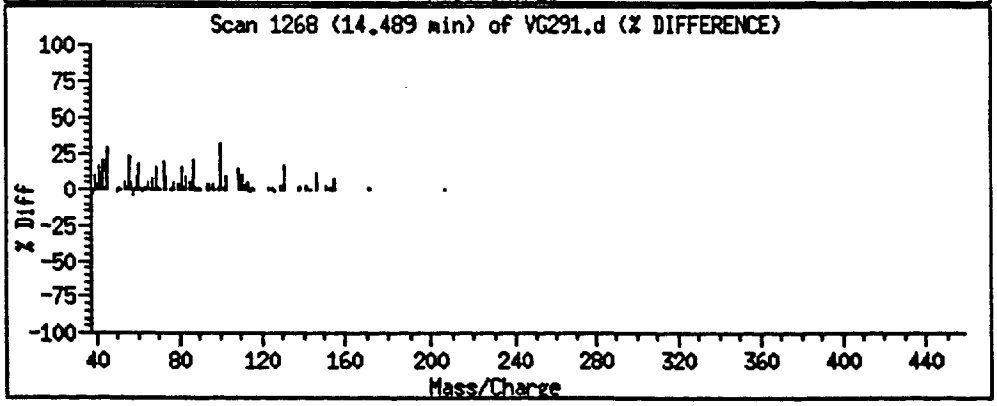






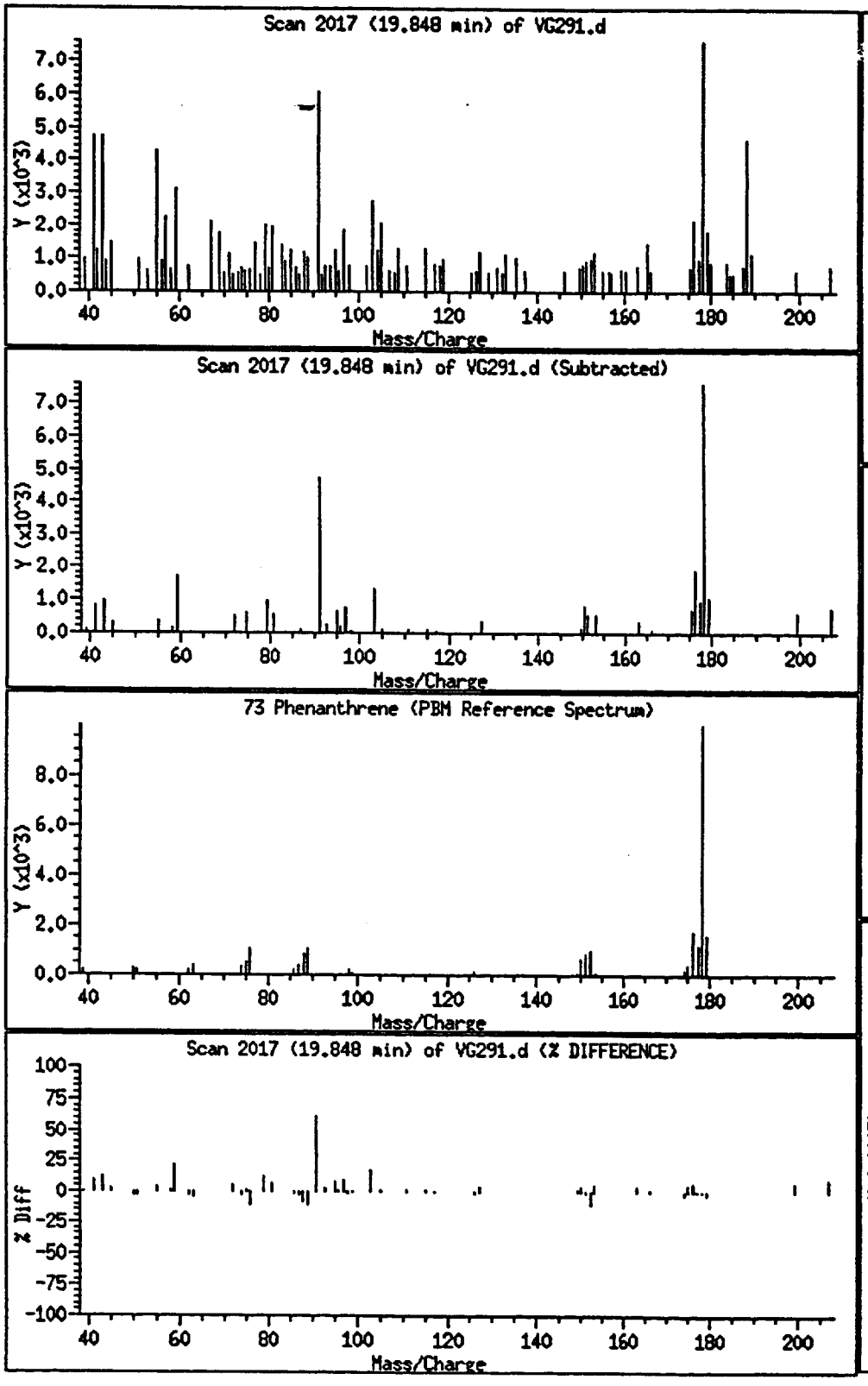


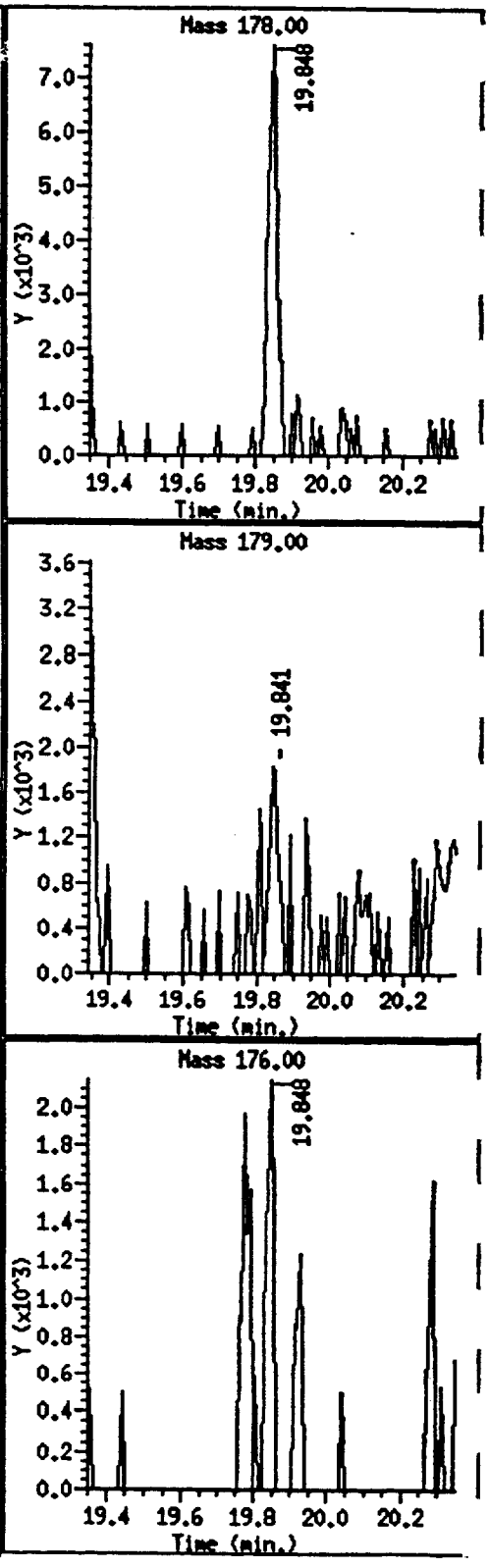




Data File: /chem/V.i/09-18-97.b/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

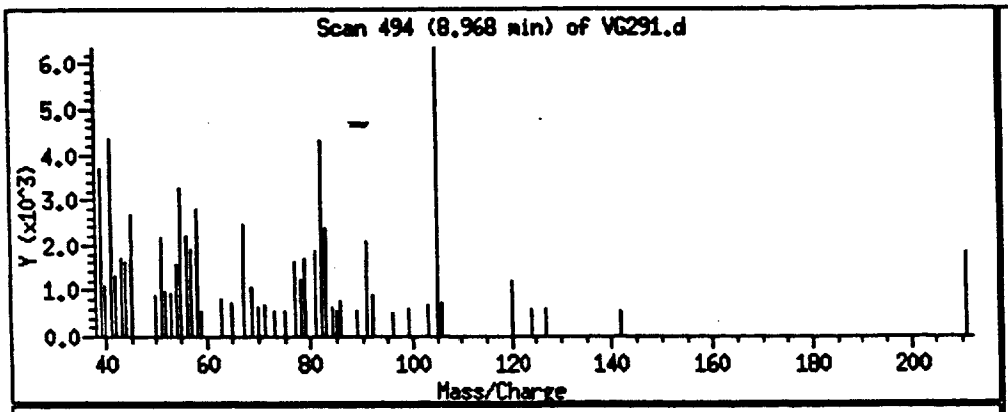
73 Phenanthrene

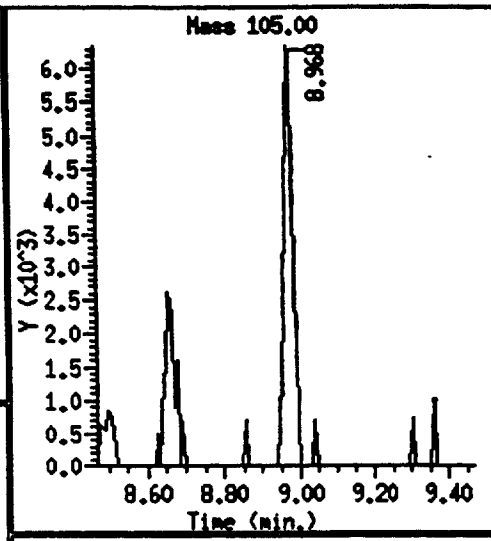


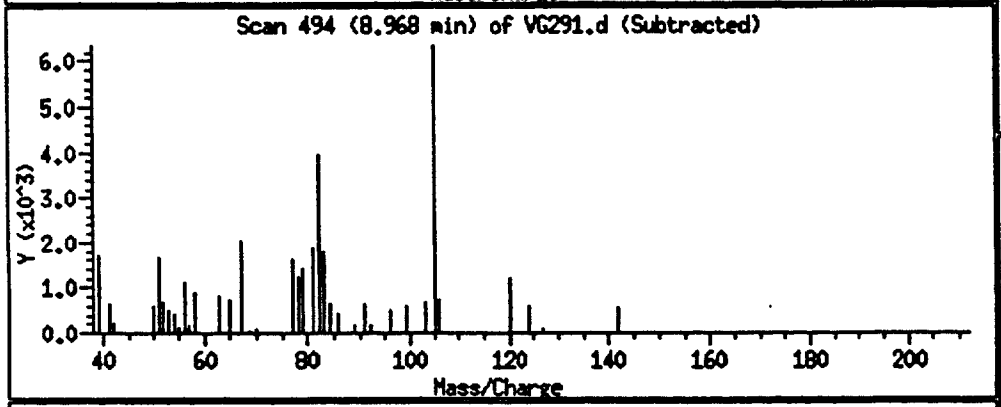


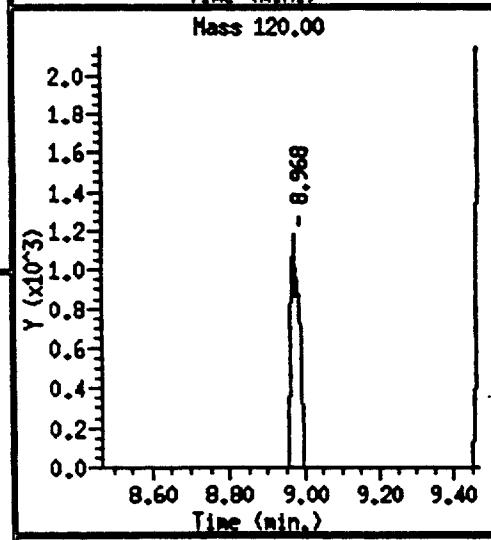
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

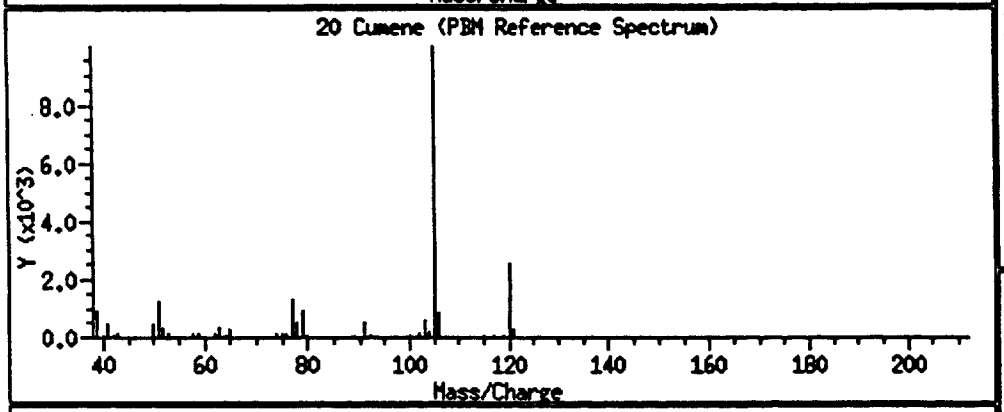
20 Cumene

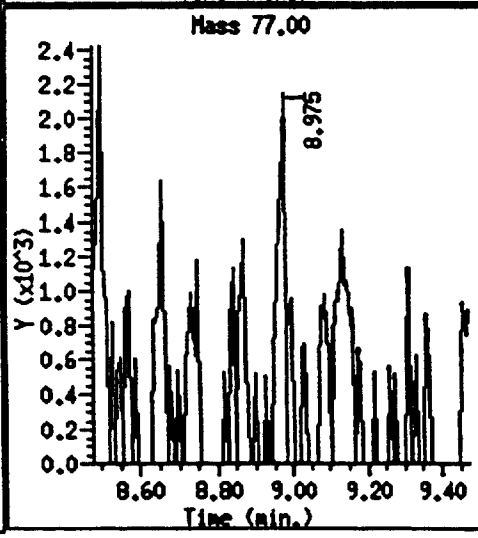


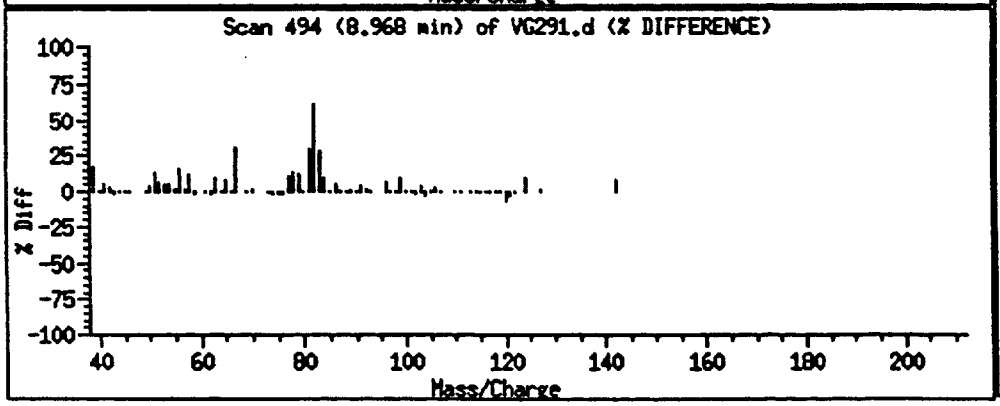






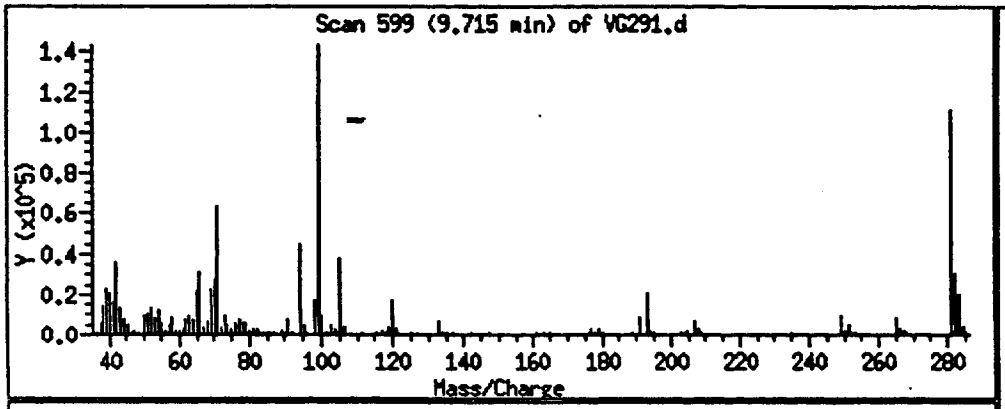


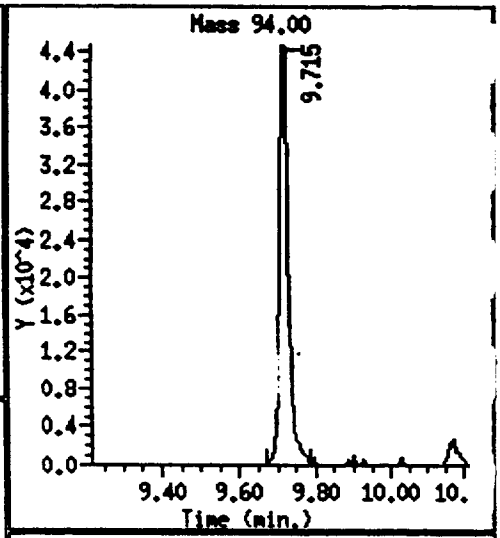


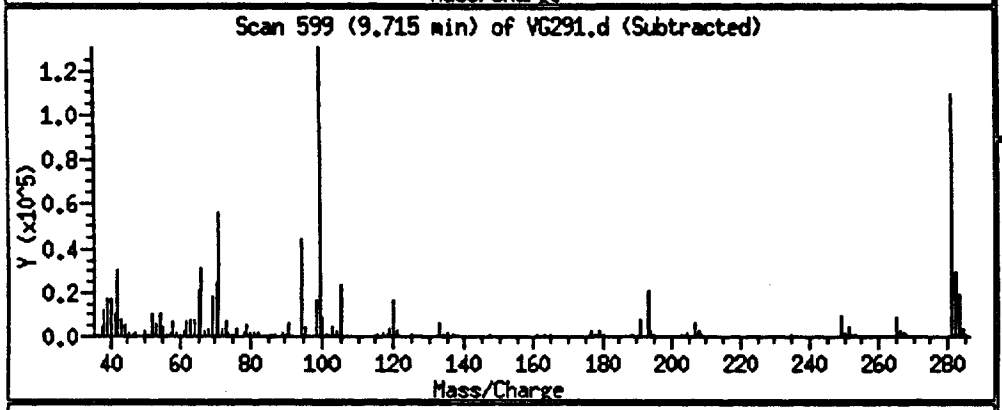


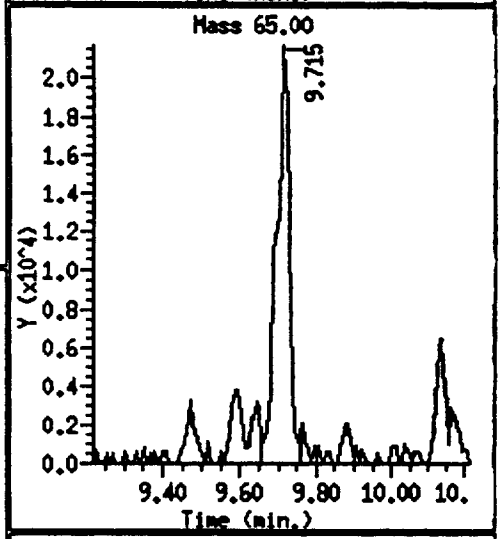
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

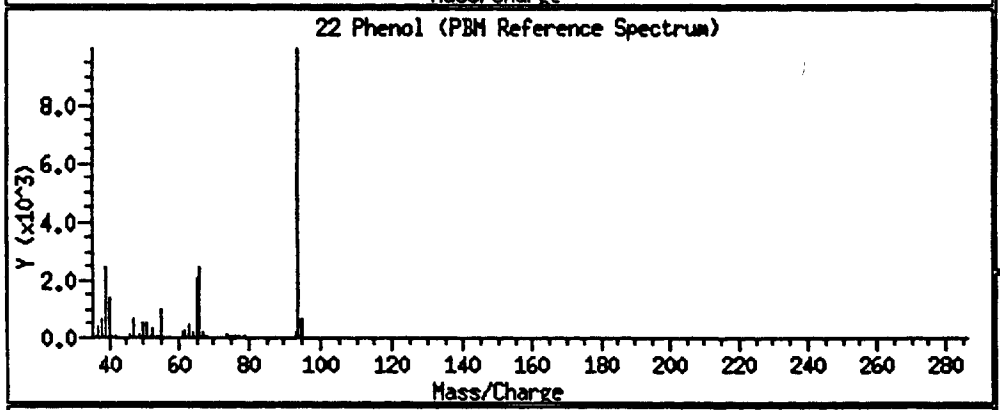
22 Phenol

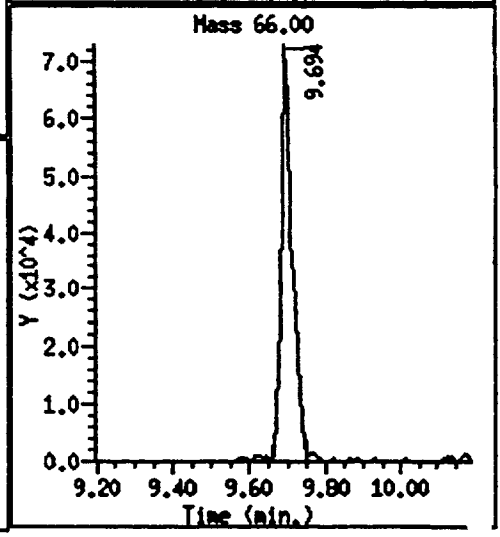


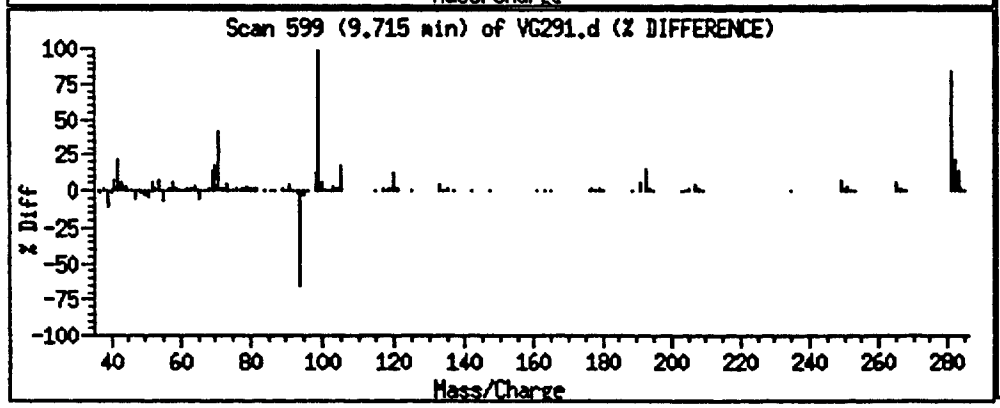






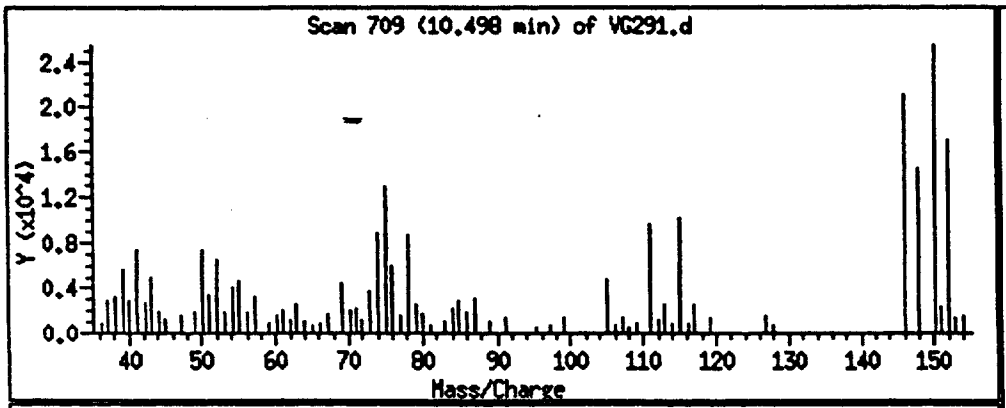


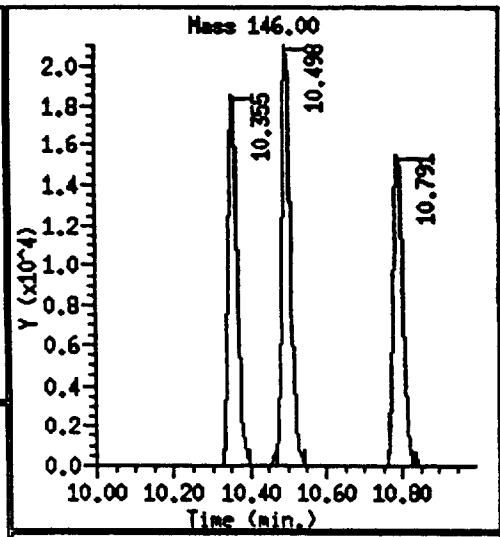


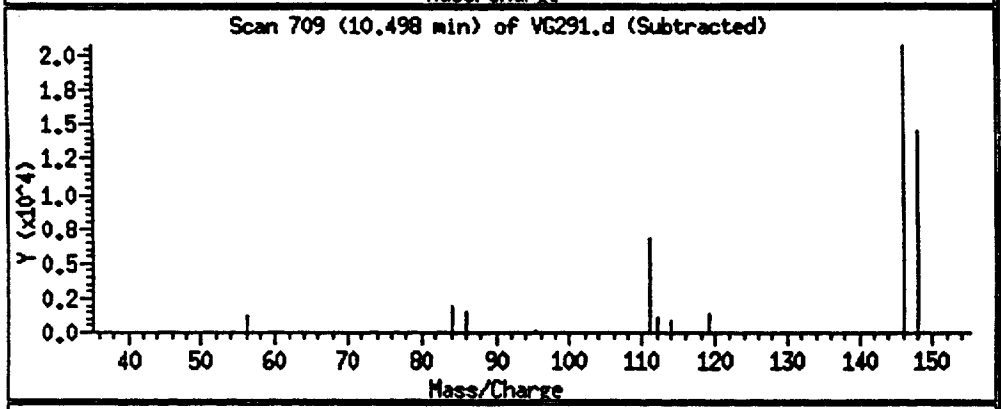


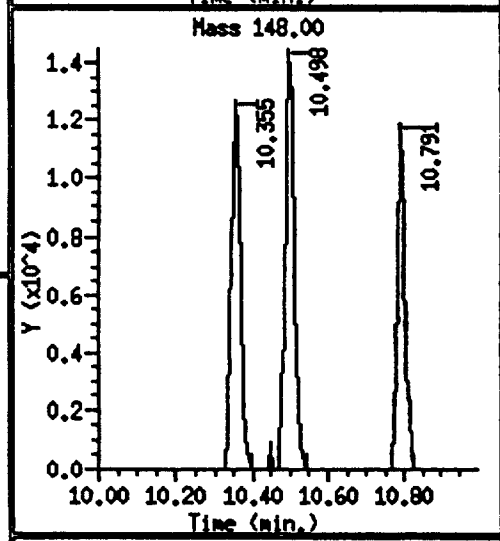
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

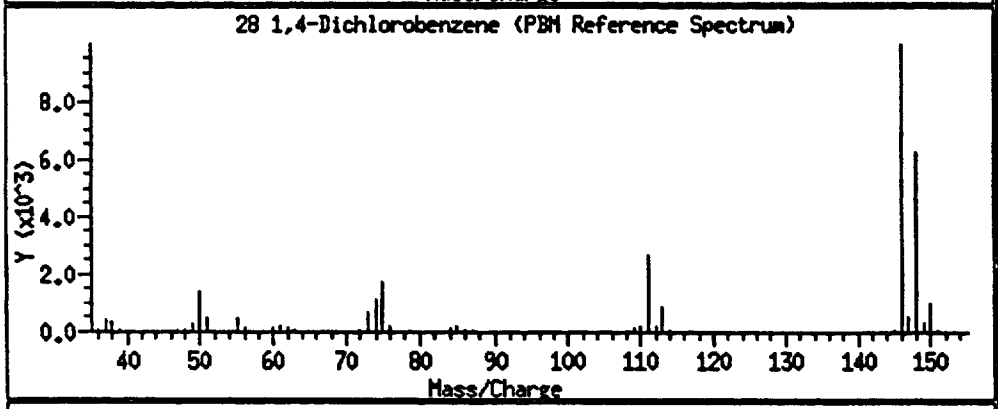
28 1,4-Dichlorobenzene

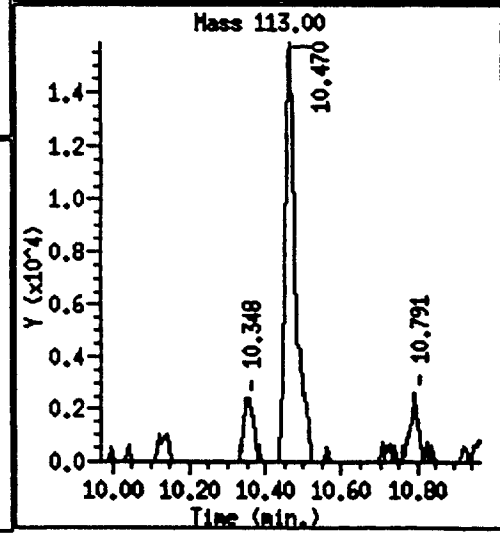


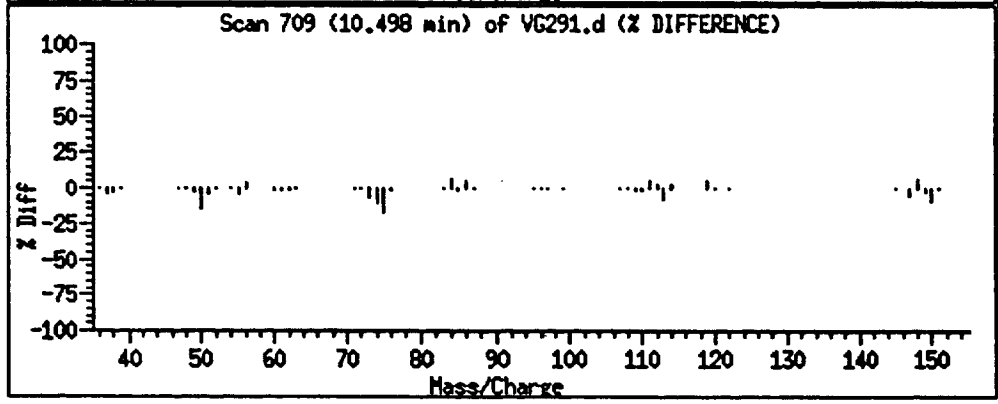






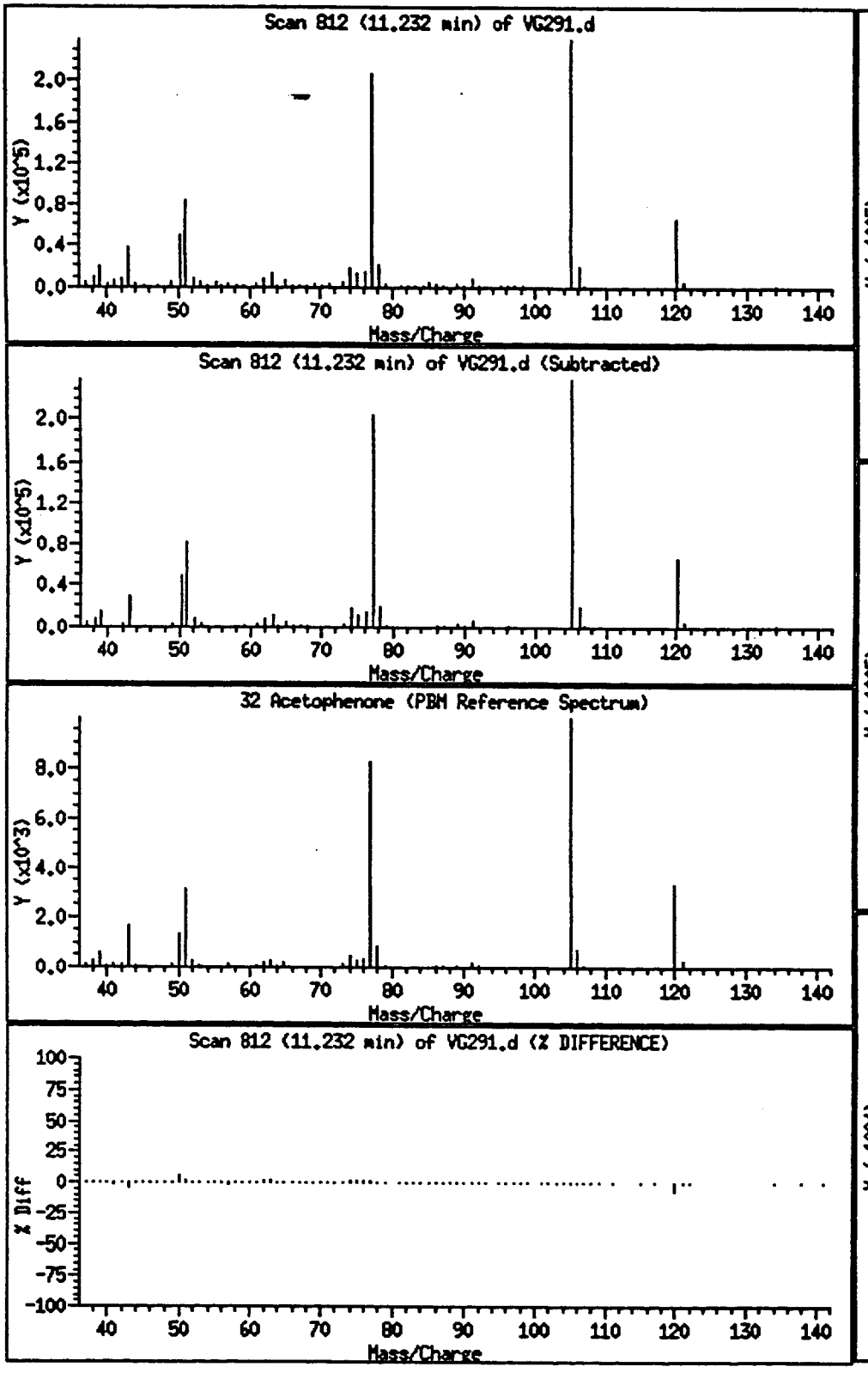


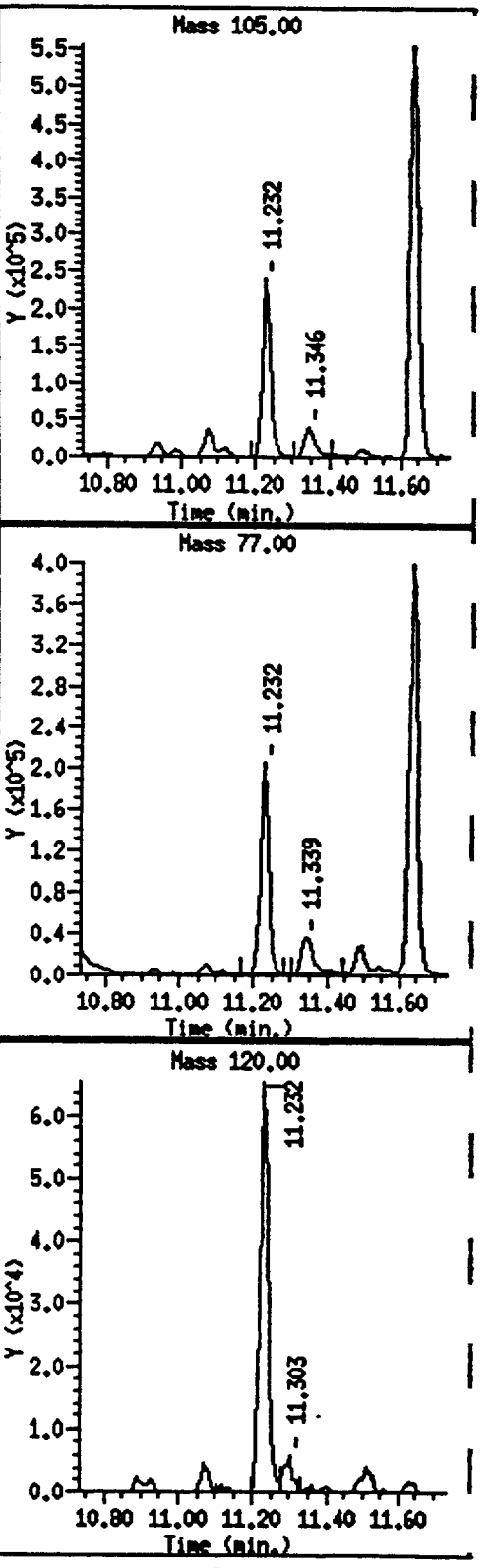




Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-97 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

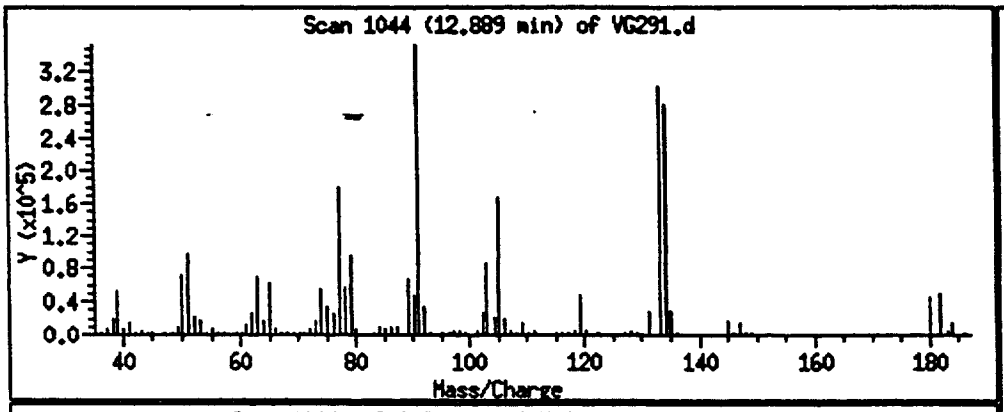
32 Acetophenone

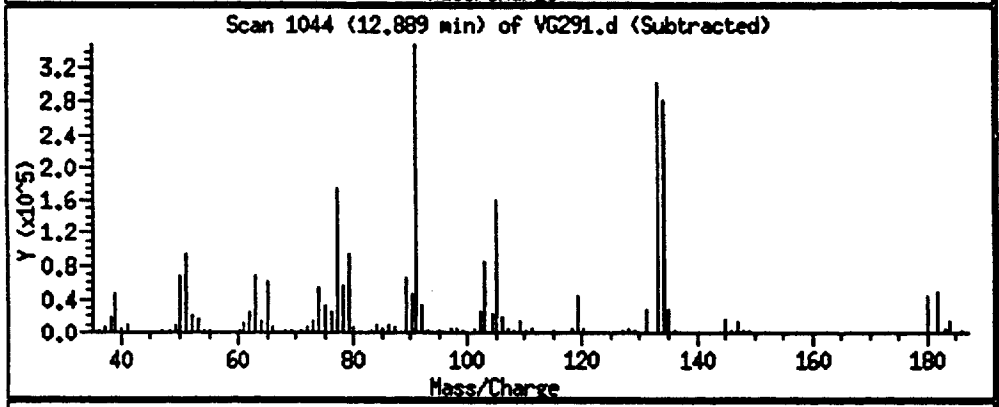


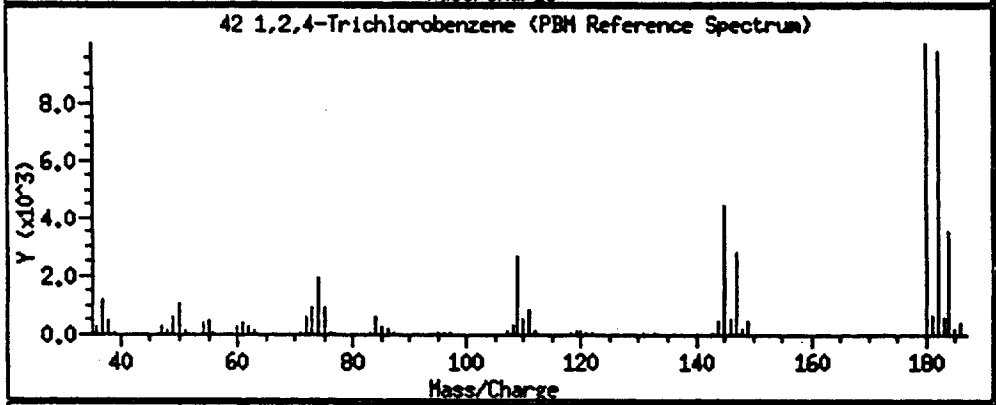


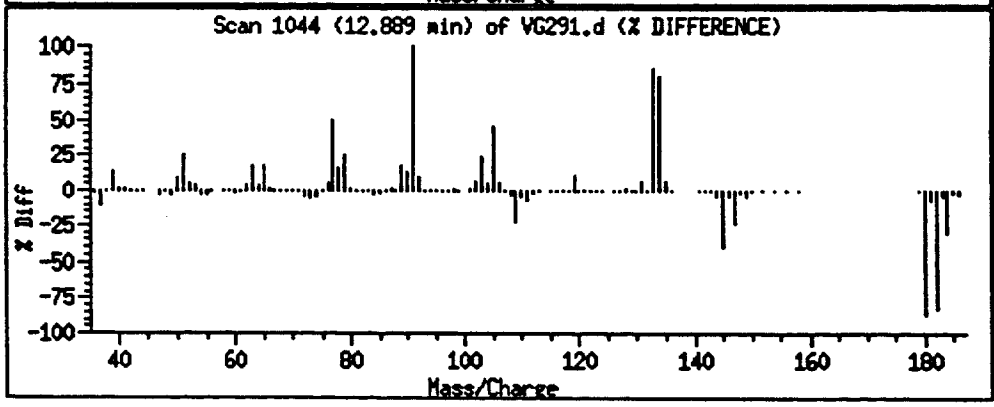
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-97 20:18
Instrument : V.i
Sample ID : BD-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

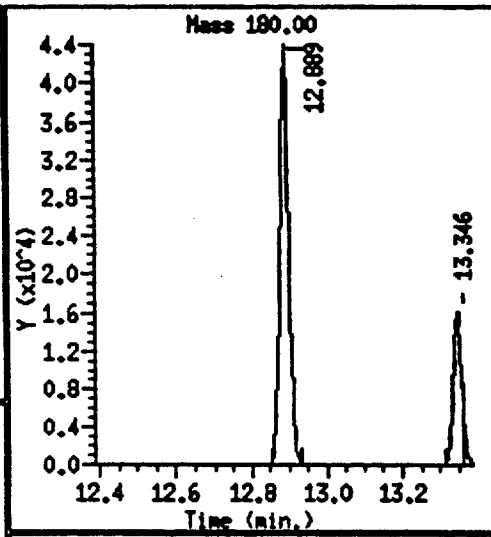
42 1,2,4-Trichlorobenzene

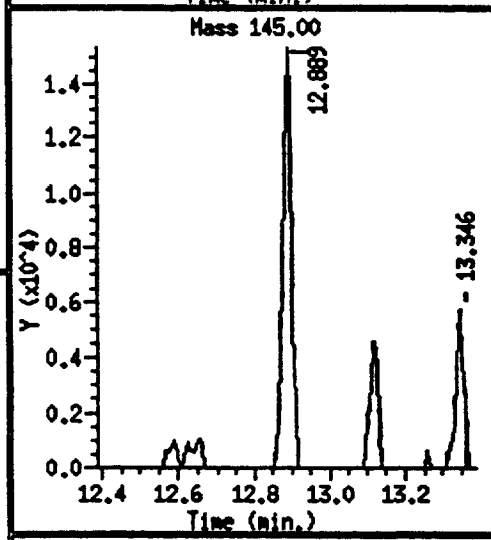


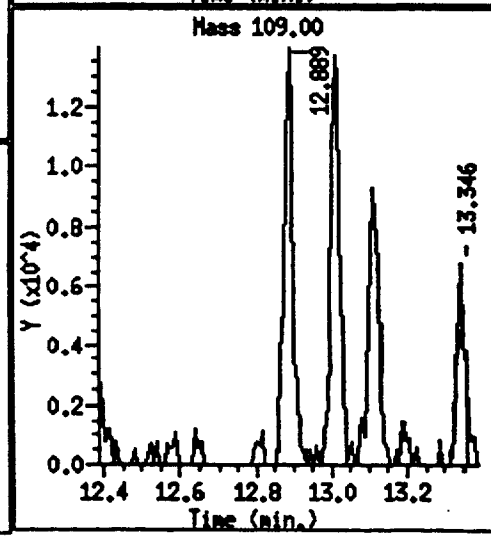






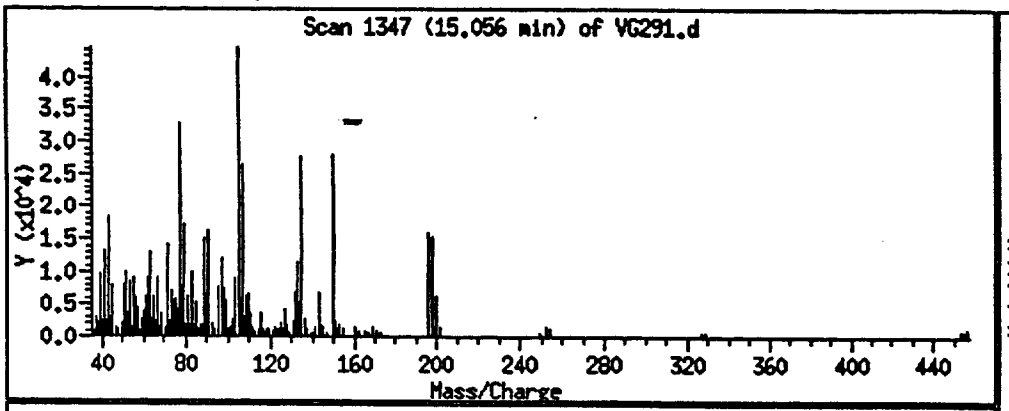


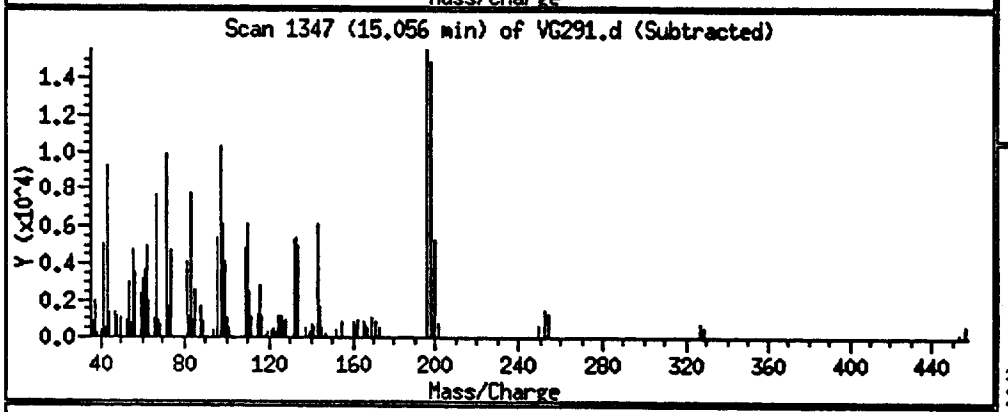


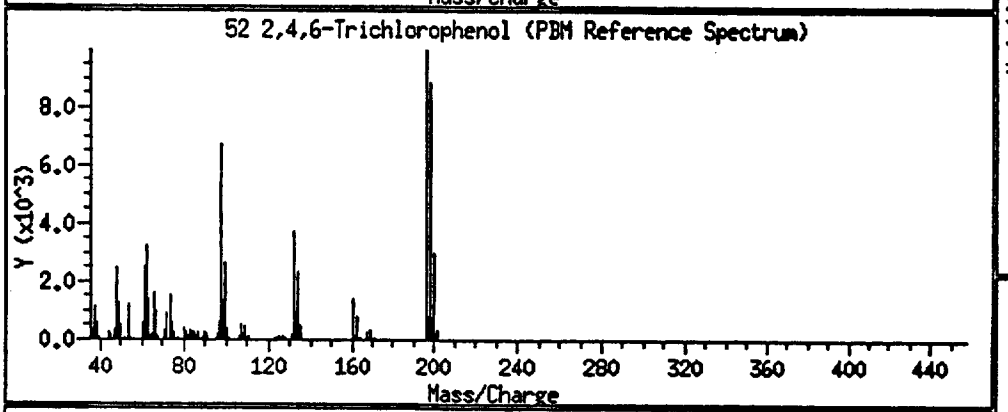


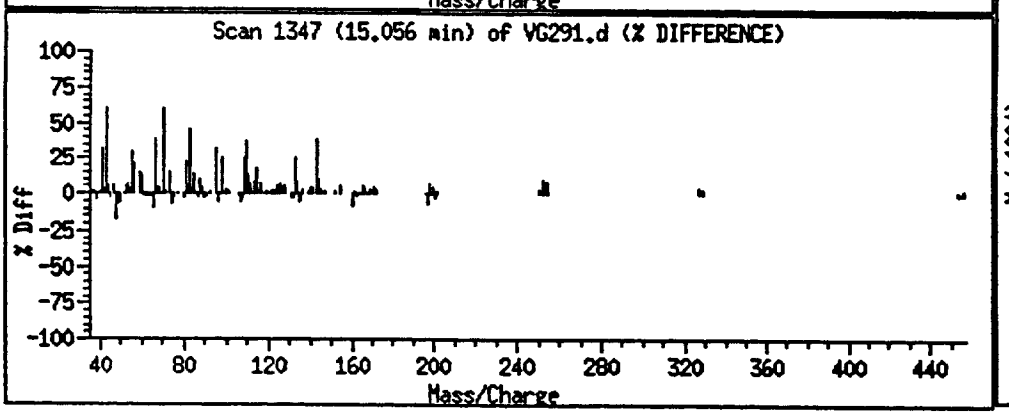
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-97 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

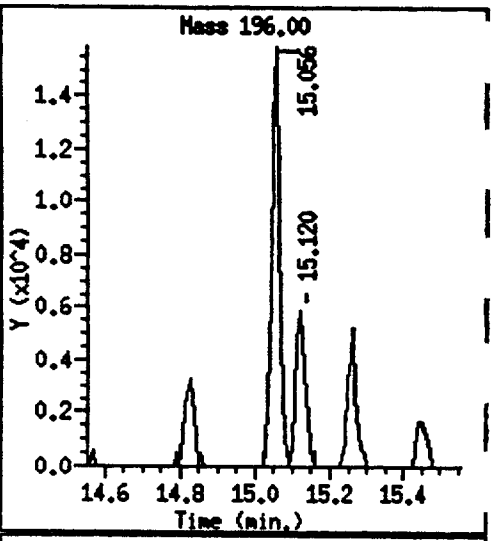
52 2,4,6-Trichlorophenol

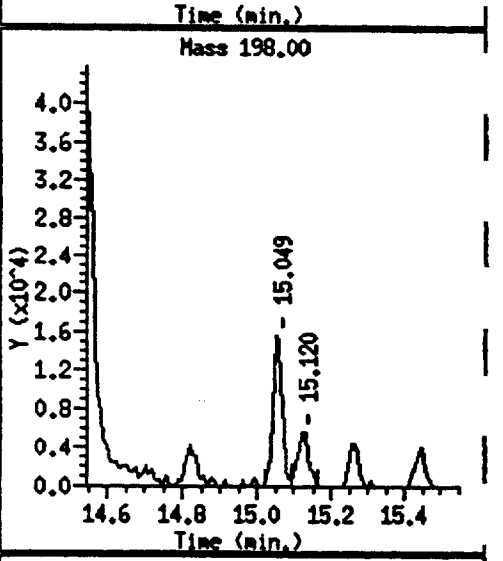


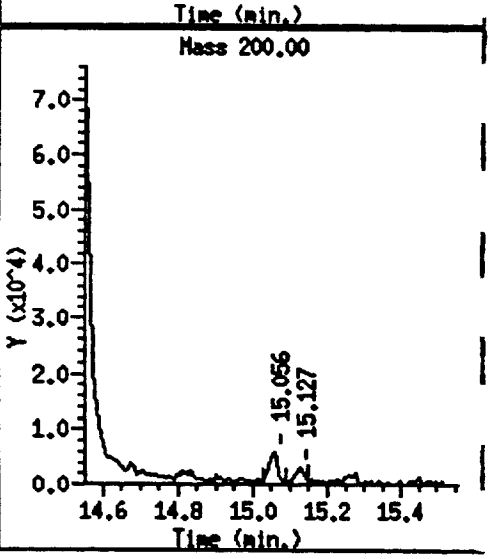






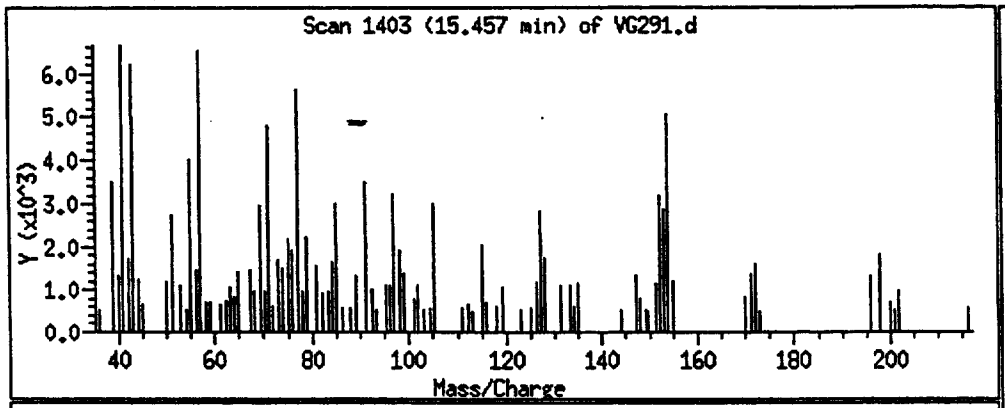


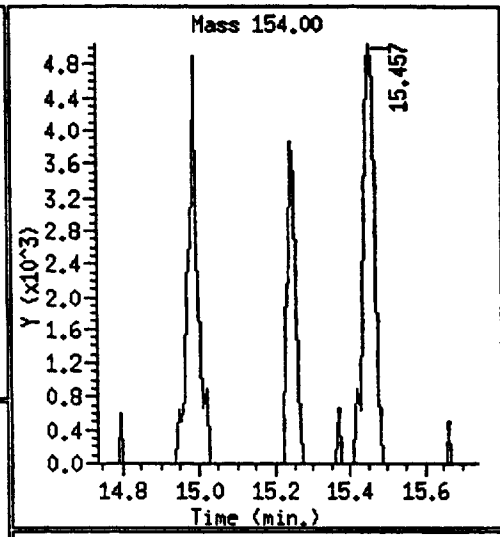


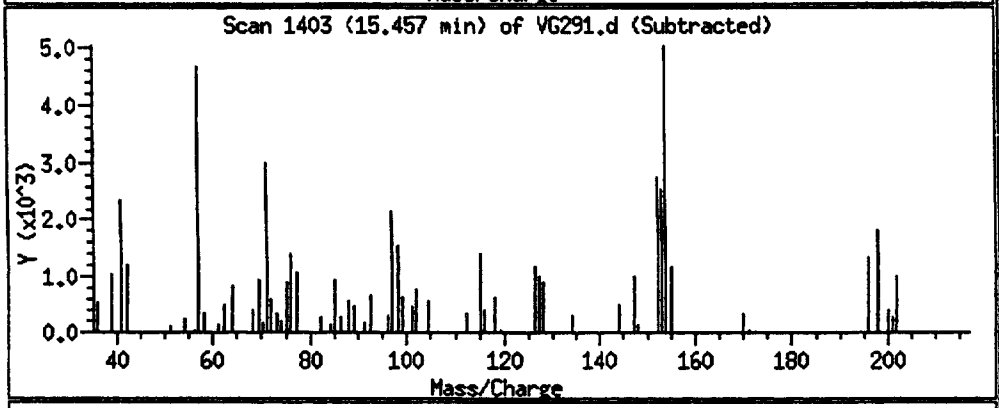


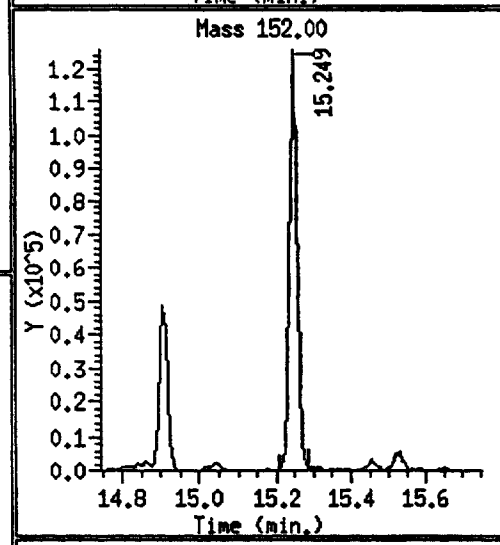
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

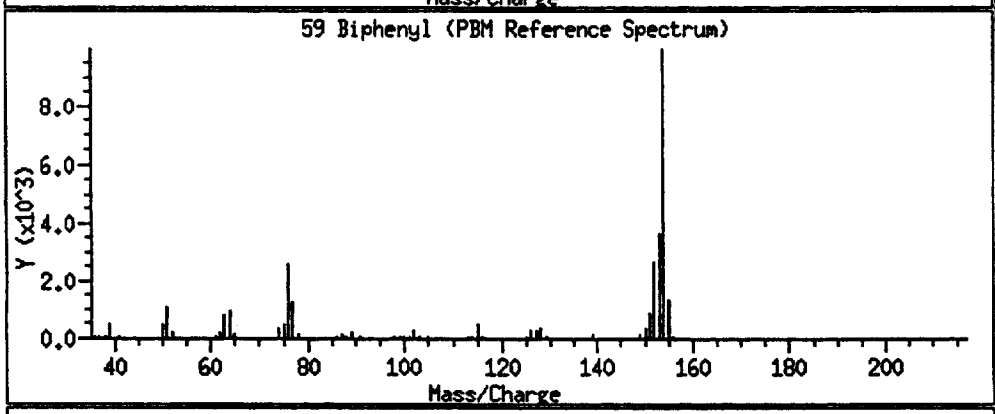
59 Biphenyl

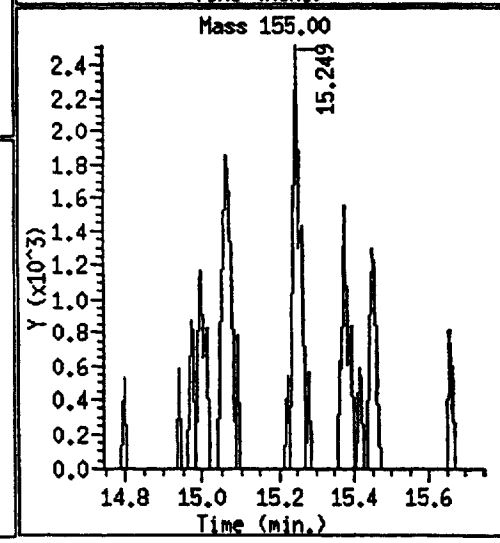


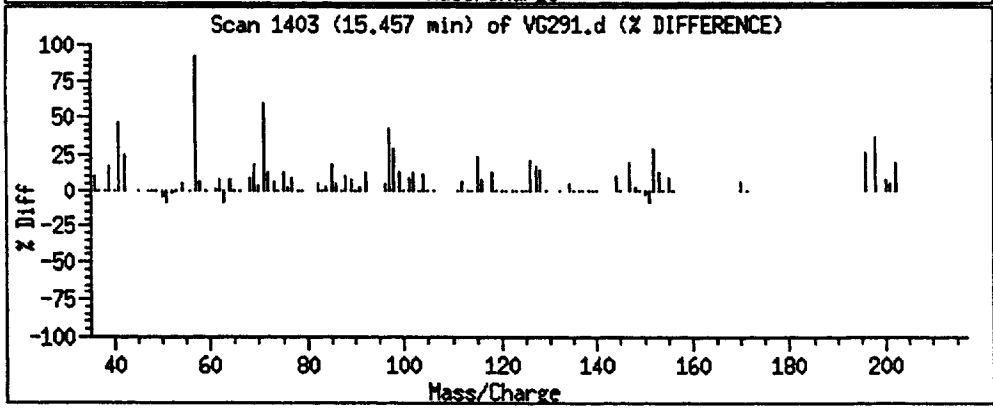












Data File: /chem/V.i/09-18-97.b/CAA/VG291.d

Date : 18-SEP-1997 20:18

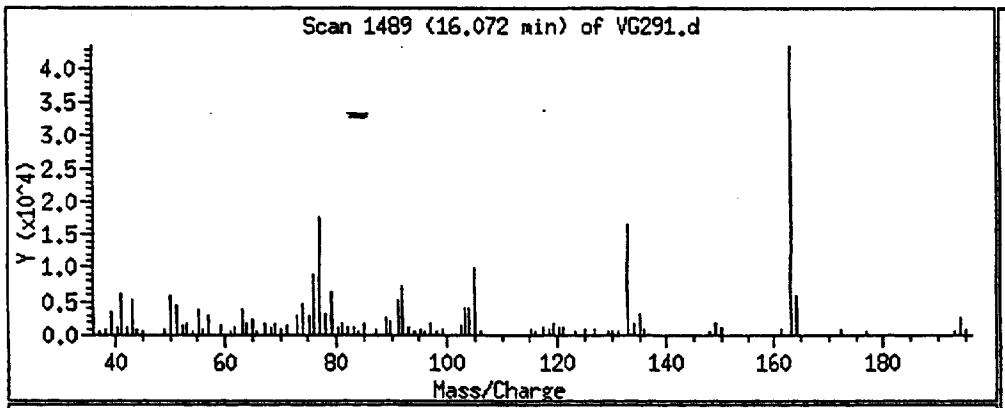
Instrument : V.i

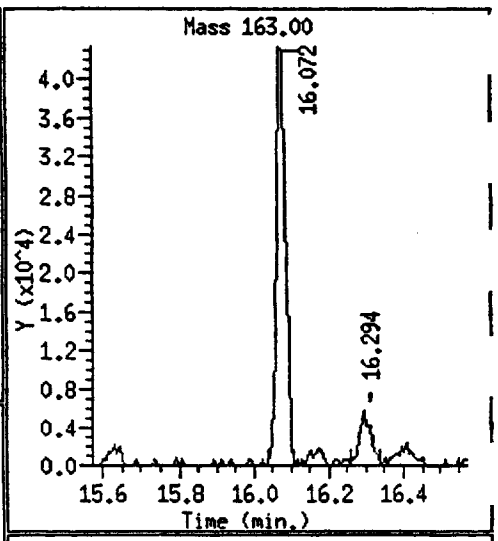
Sample ID : BO-0010-2

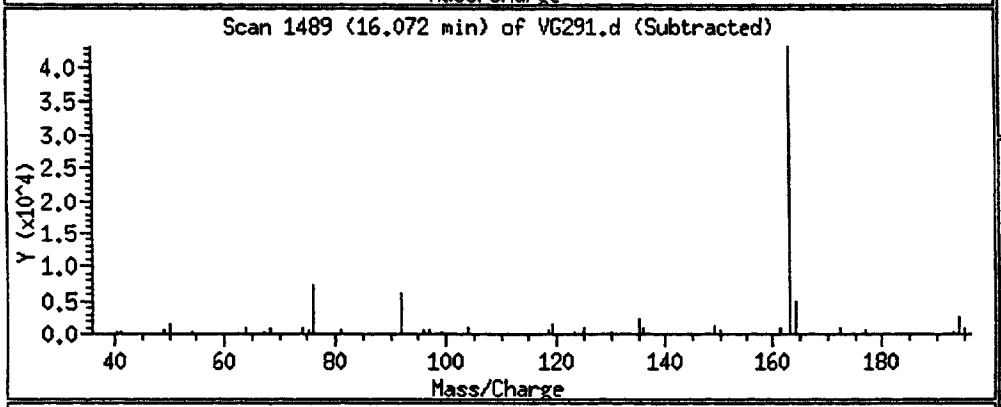
Column phase : DB.5-625 Column diameter : 0.32

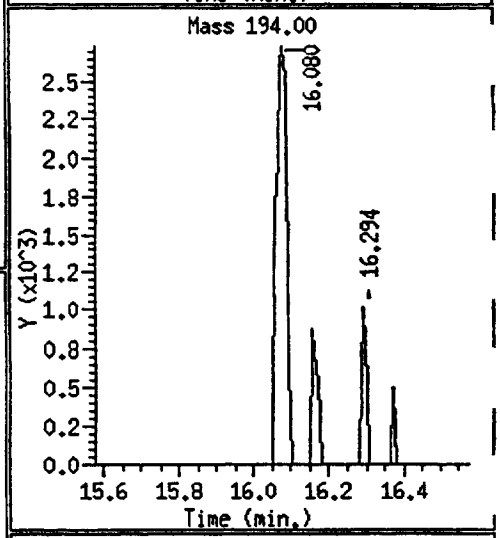
Volume Injected (uL) : 1.0

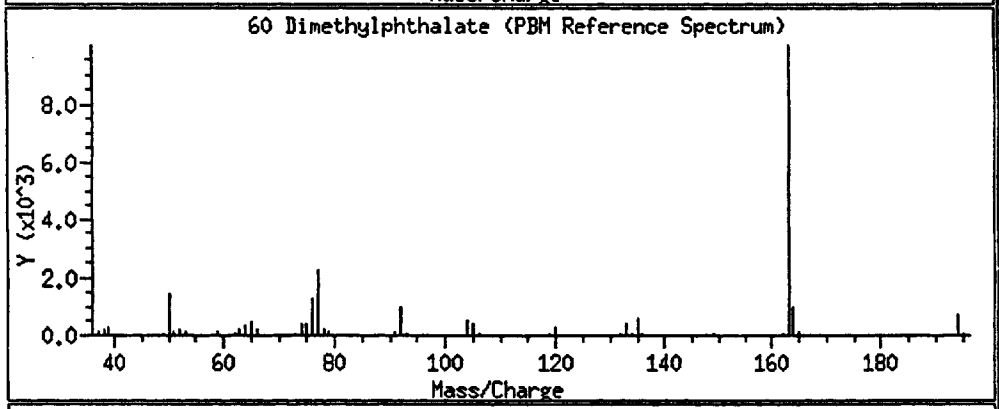
60 Dimethylphthalate

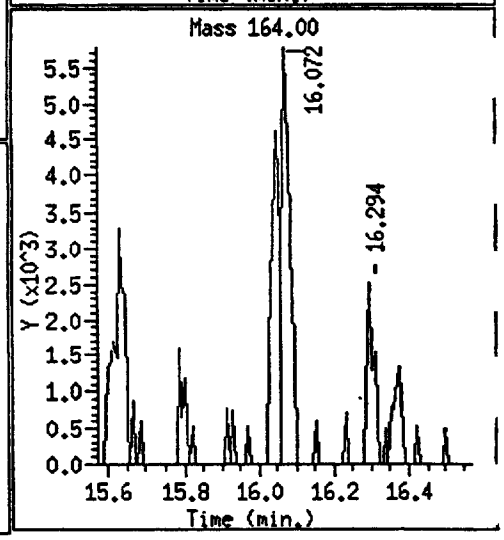


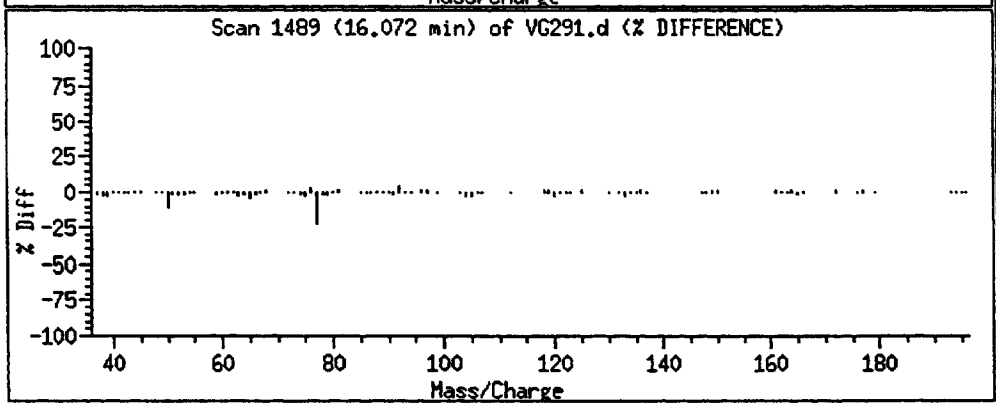






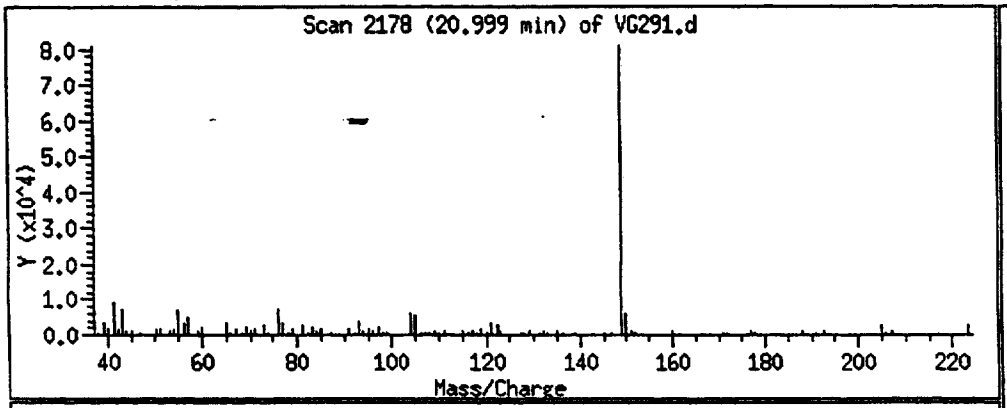


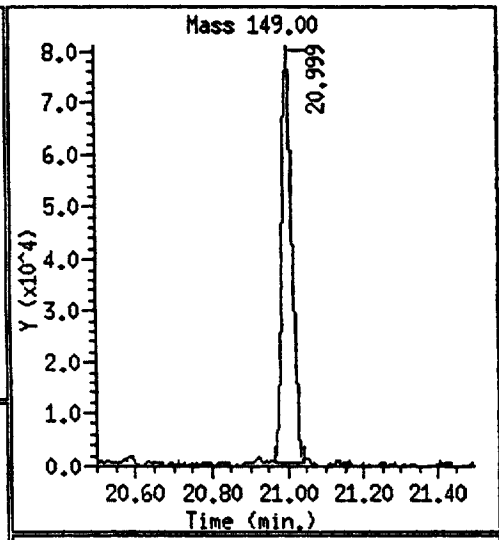


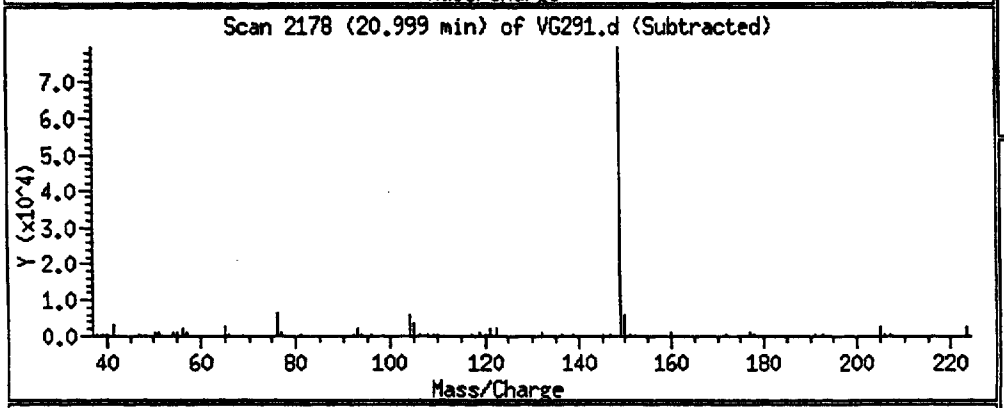


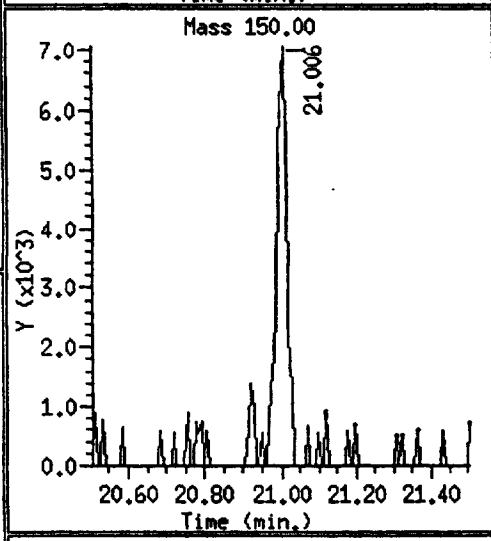
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

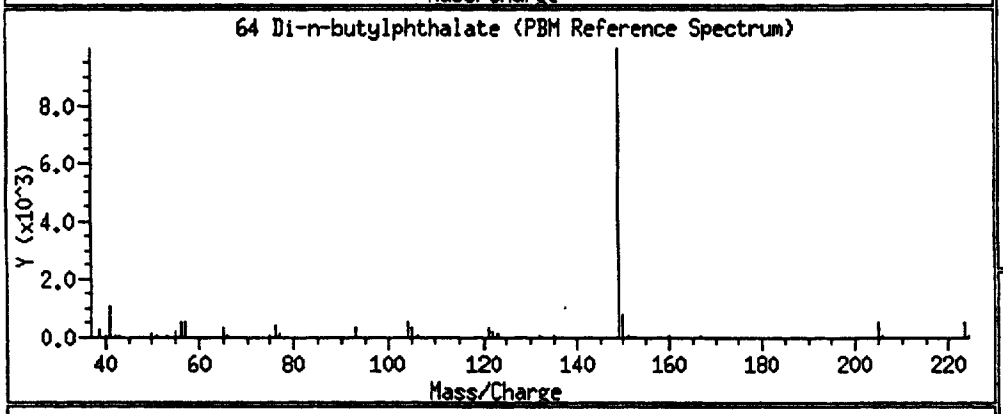
64 Di-n-butylphthalate

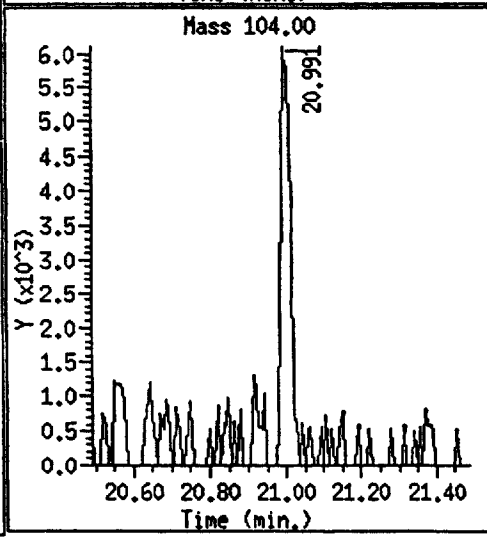


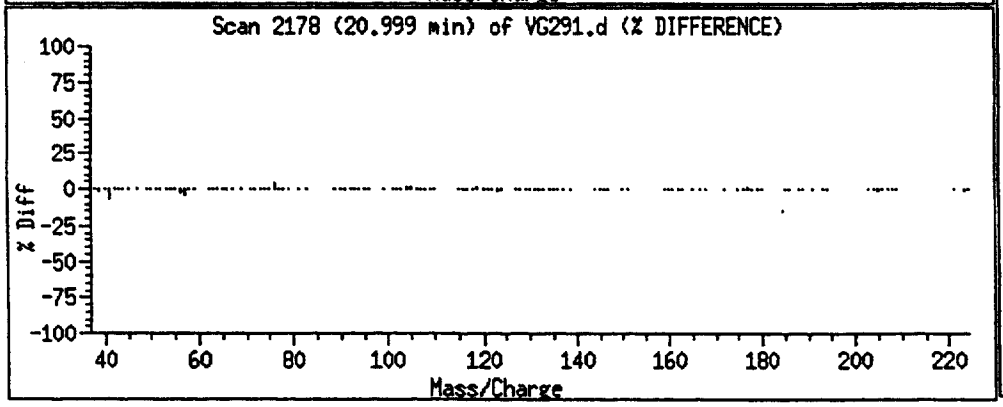






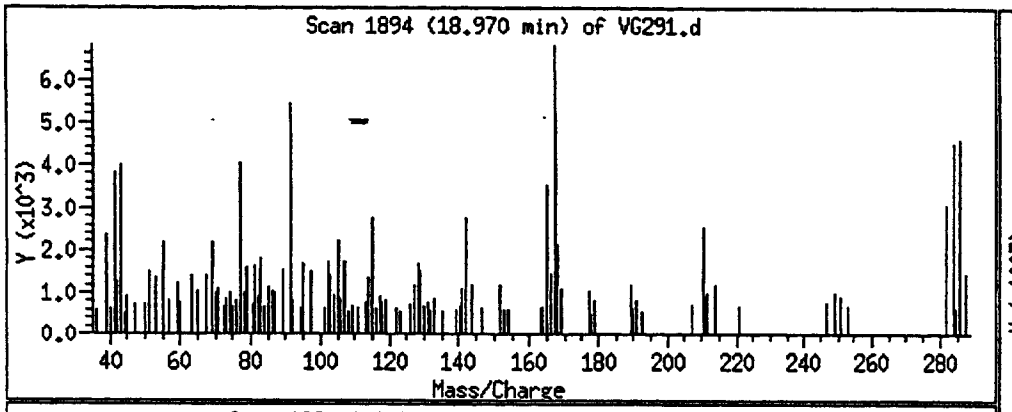


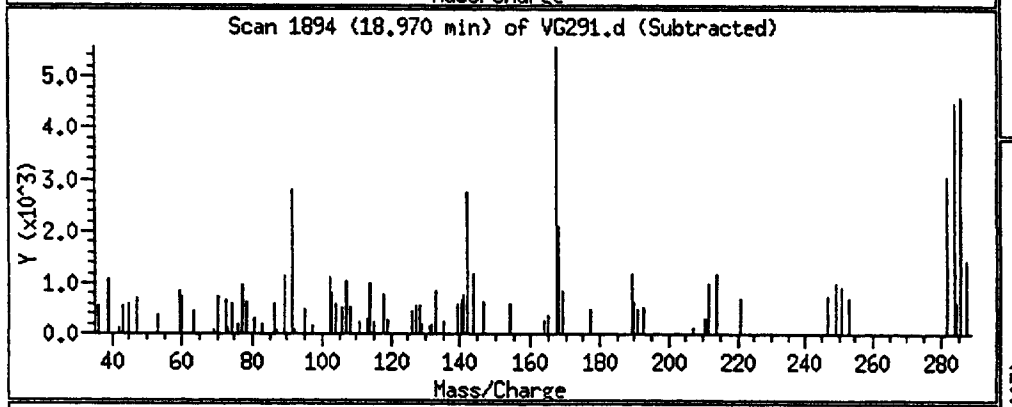


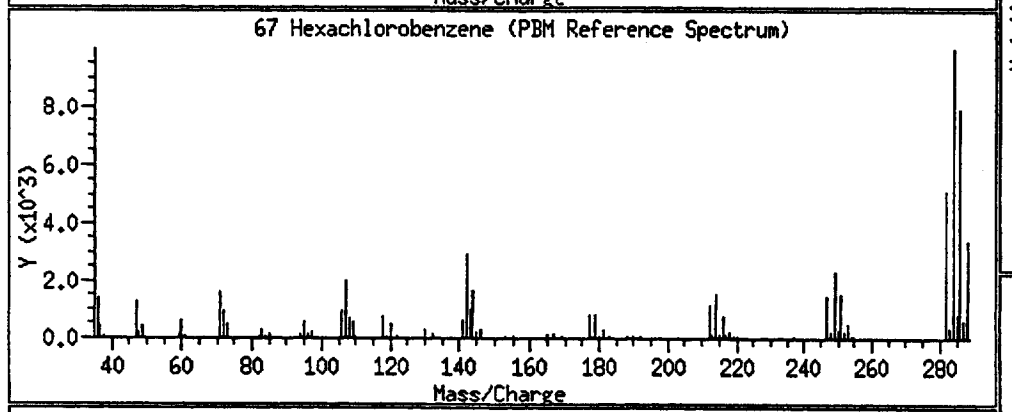


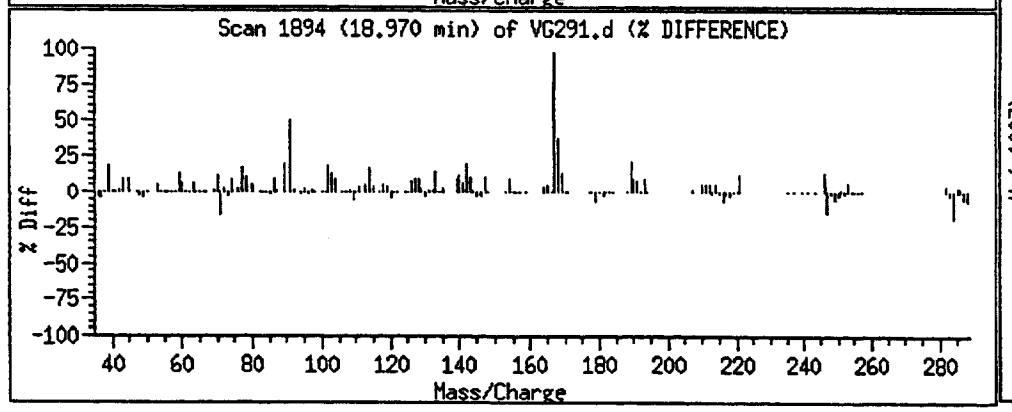
Data File: /chem/V.i/09-18-97.b/CAA/VG291.d
Date : 18-SEP-1997 20:18
Instrument : V.i
Sample ID : BO-0010-2
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

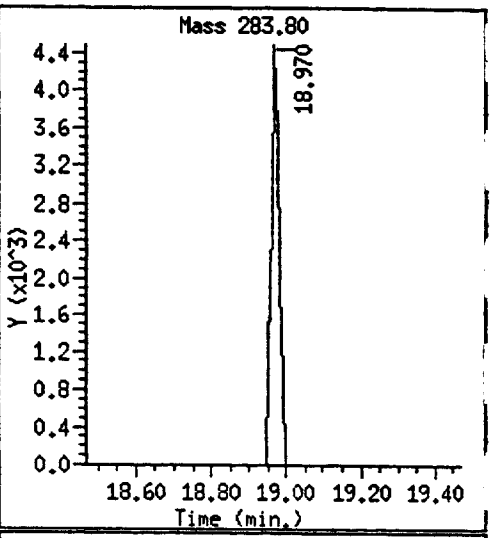
67 Hexachlorobenzene

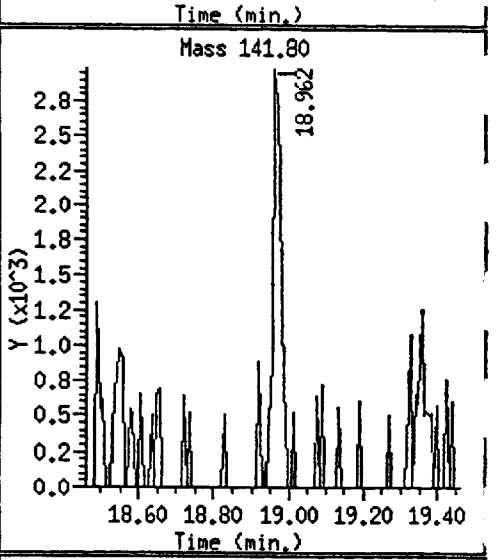


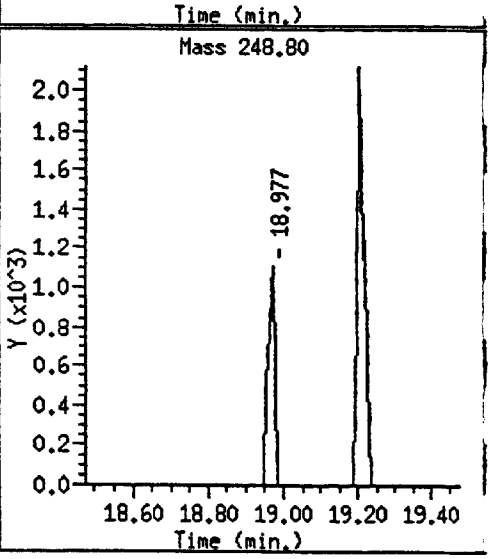












Data File: /chem/V.i/09-18-97.b/CAA/VG291.d

Date : 18-SEP-1997 20:18

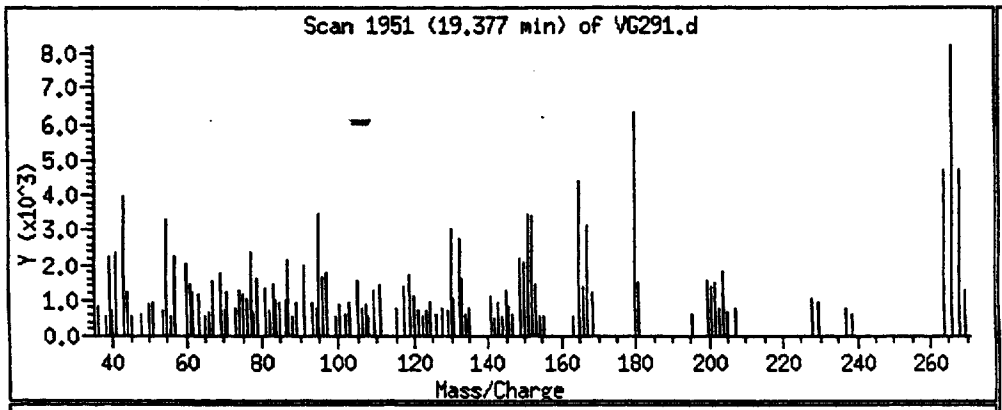
Instrument : V.i

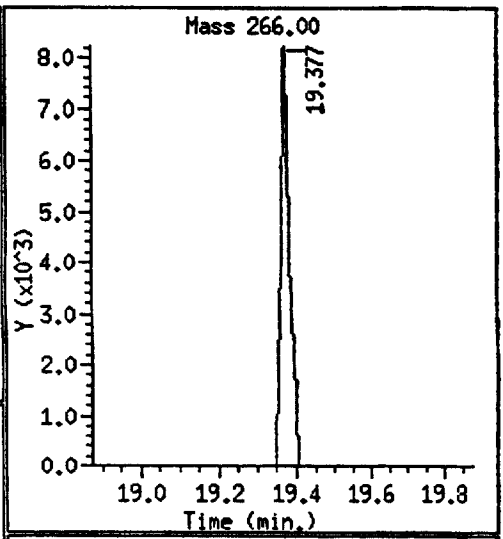
Sample ID : BO-0010-2

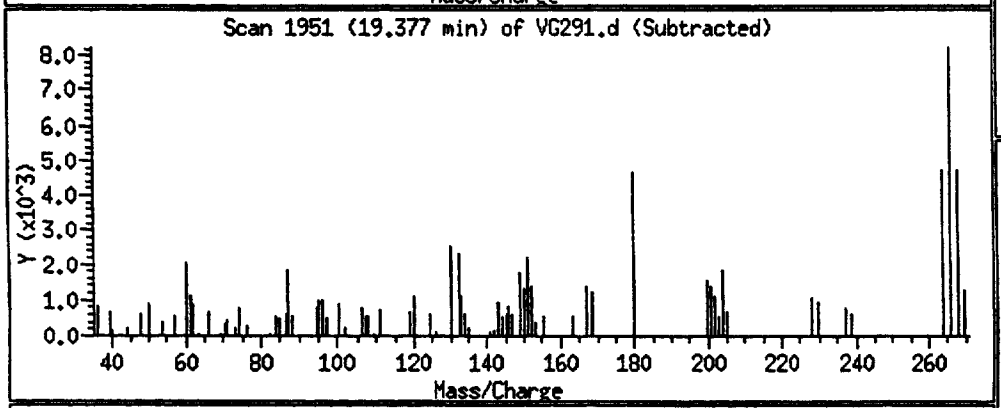
Column phase : DB.5-625 Column diameter : 0.32

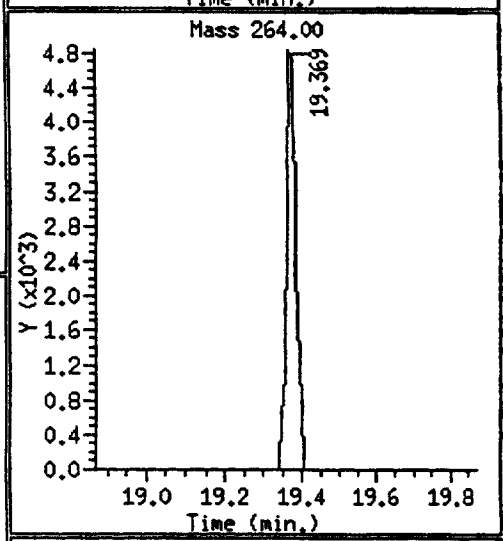
Volume Injected (uL) : 1.0

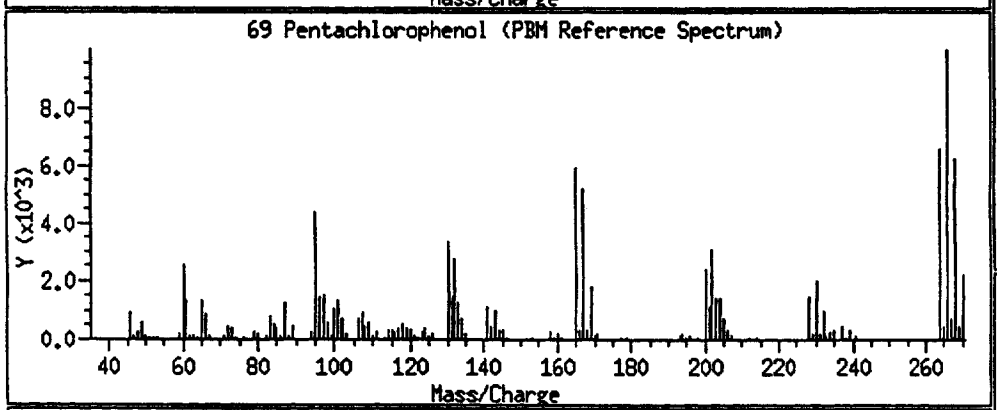
69 Pentachlorophenol

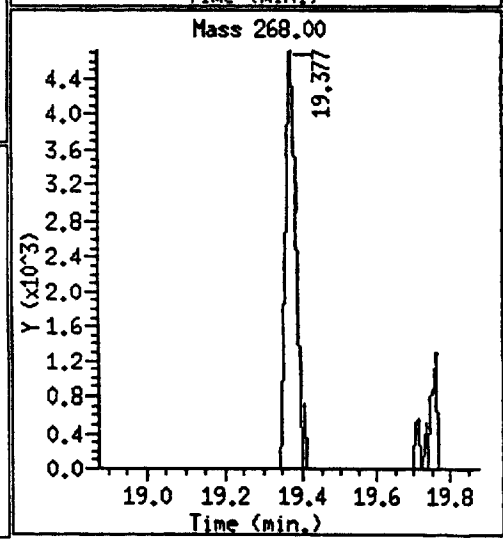


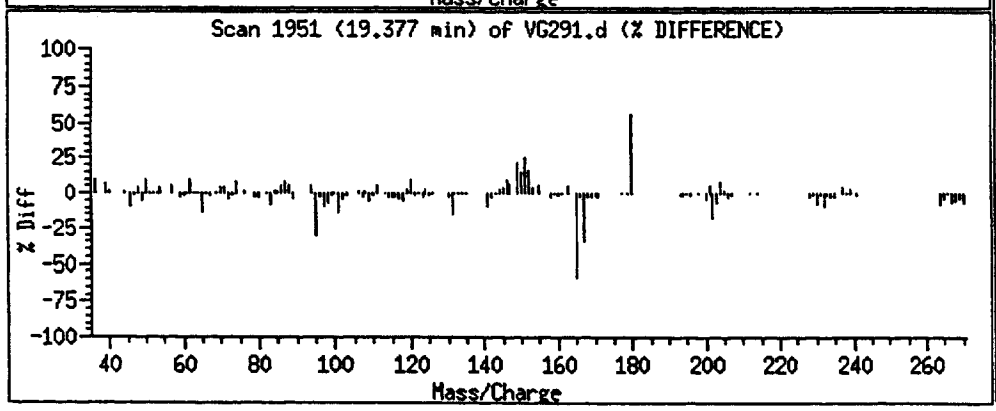












Data File: /chem/V.i/09-18-97.b/CAA/VG291.d

Date : 18-SEP-1997 20:18

Instrument : V.i

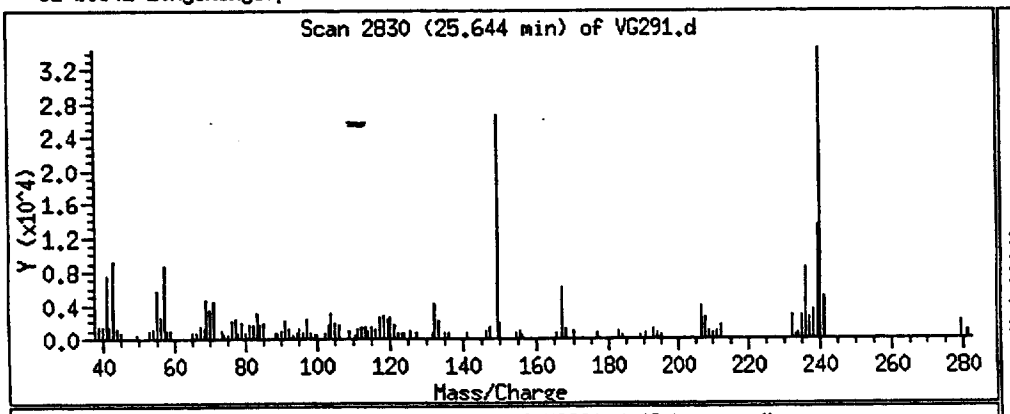
Sample ID : BO-0010-2

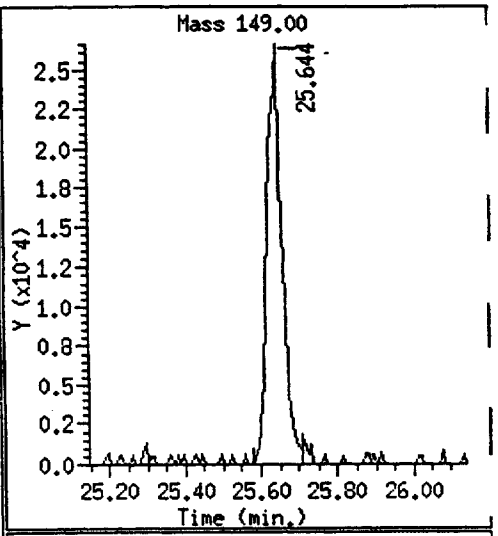
Column phase : DB.5-625

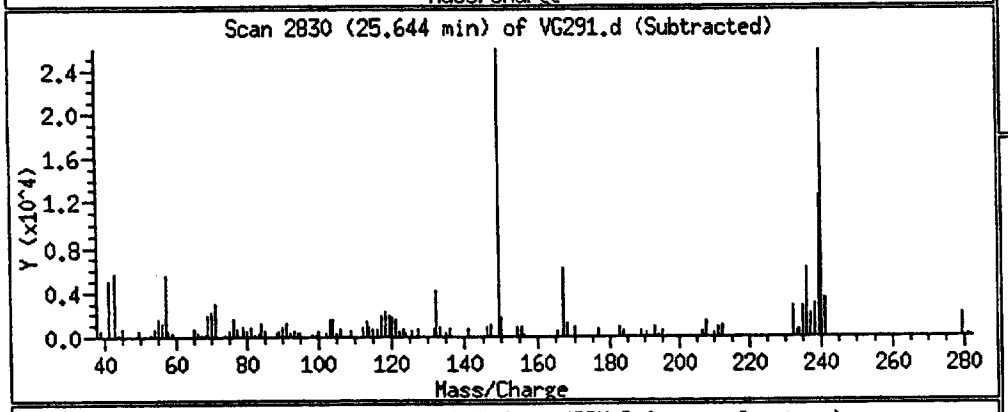
Column diameter : 0.32

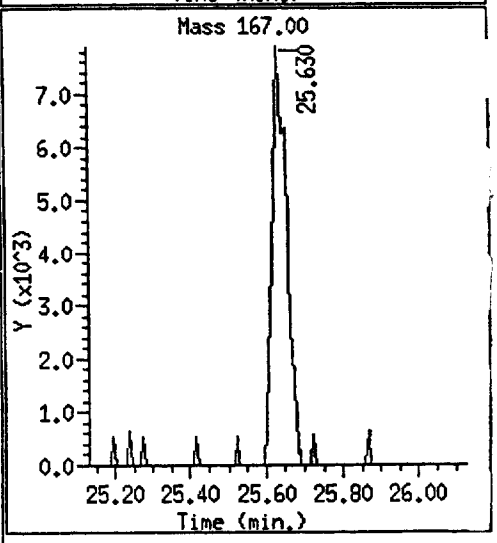
Volume Injected (uL) : 1.0

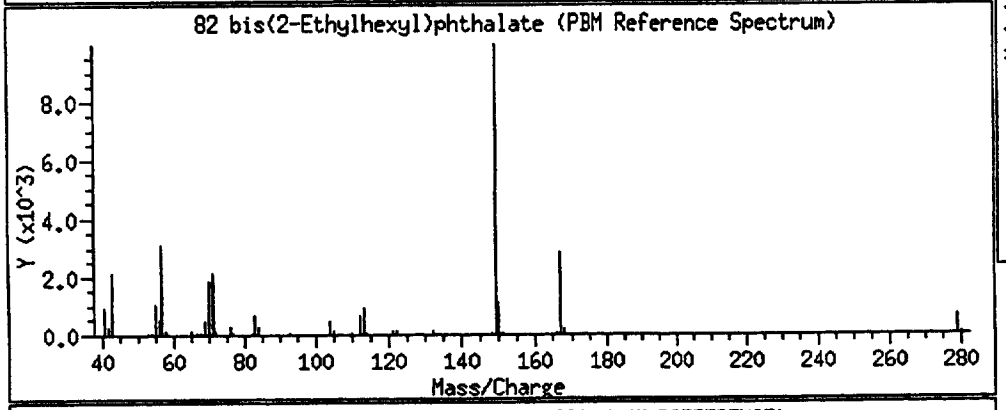
82 bis(2-Ethylhexyl)phthalate

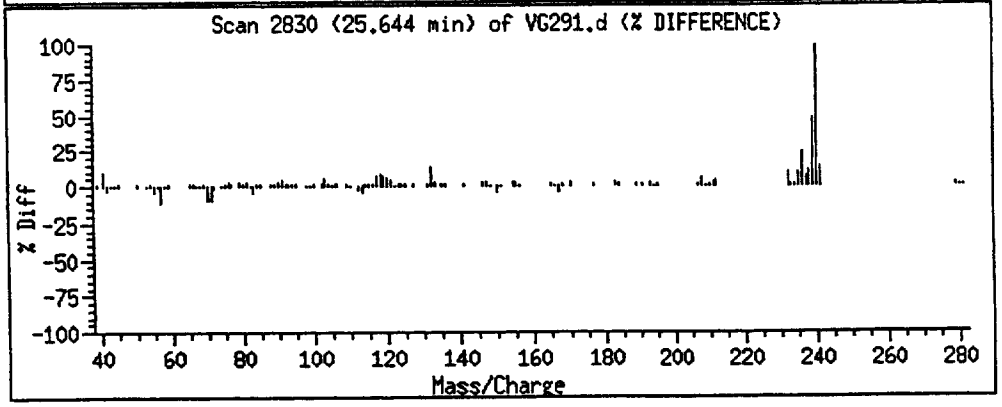












Pacific Environmental Services

Project Number: 43230 | **Method 8270A MM5**
Sample File: VG292 | **Sample ID: BO-0010-3**

Client Project: 5414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG279**
TLI ID: 183-2-4A-E | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug/L	FLAG	RT	Det. Limit ug/L	Quan. Limit ug/L
1,4-Dichlorobenzene-d_4		IS 1	10.46		
Naphthalene-d_8		IS 2	13.02		
Naphthalene	21.60	B	13.06		10
2-Methylnaphthalene	5.33	J	14.49		10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.27	10
Acenaphthylene	0.45	J	16.38		10
Acenaphthene		U		0.29	10
Fluorene	1.14	J	17.82		10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene	5.65	J	19.85		10
Anthracene		U		0.23	10
Fluoranthene	1.09	J	22.34		10
Chrysene-d_{12}		IS 5	25.61		
Pyrene		U		0.30	10
Benzo(a)anthracene		U		0.38	10
Chrysene		U		0.41	10
Perylene-d_{12}		IS 6	29.75		
Benzo(b)fluoranthene		U		0.54	10
Benzo(k)fluoranthene		U		0.52	10
Benzo(e)pyrene		U		0.53	10
Benzo(a)pyrene		U		0.60	10
Perylene		U		0.60	10
Indeno(1,2,3-cd)pyrene		U		0.72	10
Dibenz(a,h)anthracene		U		0.97	10
Benzo(g,h,i)perylene		U		0.82	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG292

Method 8270A MM5
Sample ID: BO-0010-3

Client Project: S414.003/WAUPAC
TLI ID: 183-2-4A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Surrogate Summary	Amount (ug)	RT	IS Ref	%REC
Phenol-d_5	57.55	9.69	1	58
Nitrobenzene-d_5	76.69	11.54	2	77
1,3,5-Trichlorobenzene-d_3	74.33	12.23	2	74
1,4-Dibromobenzene-d_4	80.57	13.12	1	81
2-Fluorobiphenyl	87.70	15.25	3	88
2,4,6-Tribromophenol	81.13	18.32	3	81
Anthracene-d_{10}	86.36	19.92	4	86
Pyrene-d_{10}	114.00	22.80	5	114
Terphenyl-d_{14}	146.11	23.14	5	146

Reviewed by Bath Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230 | **Method 8270A MM5**
Sample File: VG292 | **Sample ID: BO-0010-3**

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG280**
TLI ID: 183-2-4A-E | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
n-Nitrosodimethylamine		U		0.68	10
Cumene	2.36	J	8.94		10
Phenol	8.70	BJ	9.72		10
Aniline		U		0.26	10
bis-(2-Chloroethyl)ether		U		0.62	10
Benzyl Chloride		U		0.15	10
1,4-Dichlorobenzene	2.62	J	10.49		10
2-Methylphenol		U		0.45	10
Acetophenone	25.63	B	11.23		10
n-Nitrosomorpholine		U		0.63	10
o-Toluidine		U		0.29	10
Hexachloroethane		U		0.64	10
1,2-Dibromo-3-chloropropane		U		0.75	10
N,N-Diethylaniline		U		0.24	10
Naphthalene-d_8		IS 2	13.02		
3/4-Methylphenol		U		0.41	10
Nitrobenzene		U		0.22	10
N,N-Dimethylaniline		U		0.23	10
Isophorone		U		0.21	10
o-Anisidine		U		0.51	10
1,4-Phenylenediamine		U		0.37	10
1,2,4-Trichlorobenzene	4.96	J	12.89		10
Hexachlorobutadiene		U		0.52	10
a,a,a-Trichlorotoluene		U		0.25	10
Hydroquinone		U		0.49	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG292

Method 8270A MM5
Sample ID: BO-0010-5

Client Project: S414.003/WAUPAC
TLI ID: 183-2-4A-E

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.21	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.52	10
2,4,6-Trichlorophenol	24.61		15.06		10
2,4,5-Trichlorophenol		U		0.63	10
Biphenyl	6.54	J	15.45		10
Dimethylphthalate	1.62	J	16.08		10
2,4-Dinitrophenol		U		3.26	25
4-Nitrophenol		U		1.36	25
2,4-Dinitrotoluene		U		0.78	10
Dibenzofuran	4.62	J	17.10		10
4,6-Dinitro-2-methylphenol		U		1.92	25
Trifluralin		U		0.92	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	2.10	BJ	21.00		10
Hexachlorobenzene	0.57	J	18.96		10
4-Aminobiphenyl		U		0.24	10
Pentachlorophenol	2.48	J	19.38		25
Pentachloronitrobenzene		U		1.43	10
4-Nitrobiphenyl		U		0.64	10
Chrysene-d_{12}		IS 5	25.61		
Benzidine		U		0.50	10
4,4'-Methylenedianiline		U		1.23	10
Dimethylaminoazobenzene		U		0.94	10
3,3'-Dimethylbenzidine		U		0.73	10
3,3'-Dimethoxybenzidine		U		1.50	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230 | **Method 8270A MM5**
Sample File: VG292 | **Sample ID: BO-0010-5**

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG280**
TLI ID: 183-2-4A-E | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.24	10
Methylene bis-chloroaniline		U		2.16	10
bis(2-Ethylhexyl)phthalate	19.37	B	25.64		10

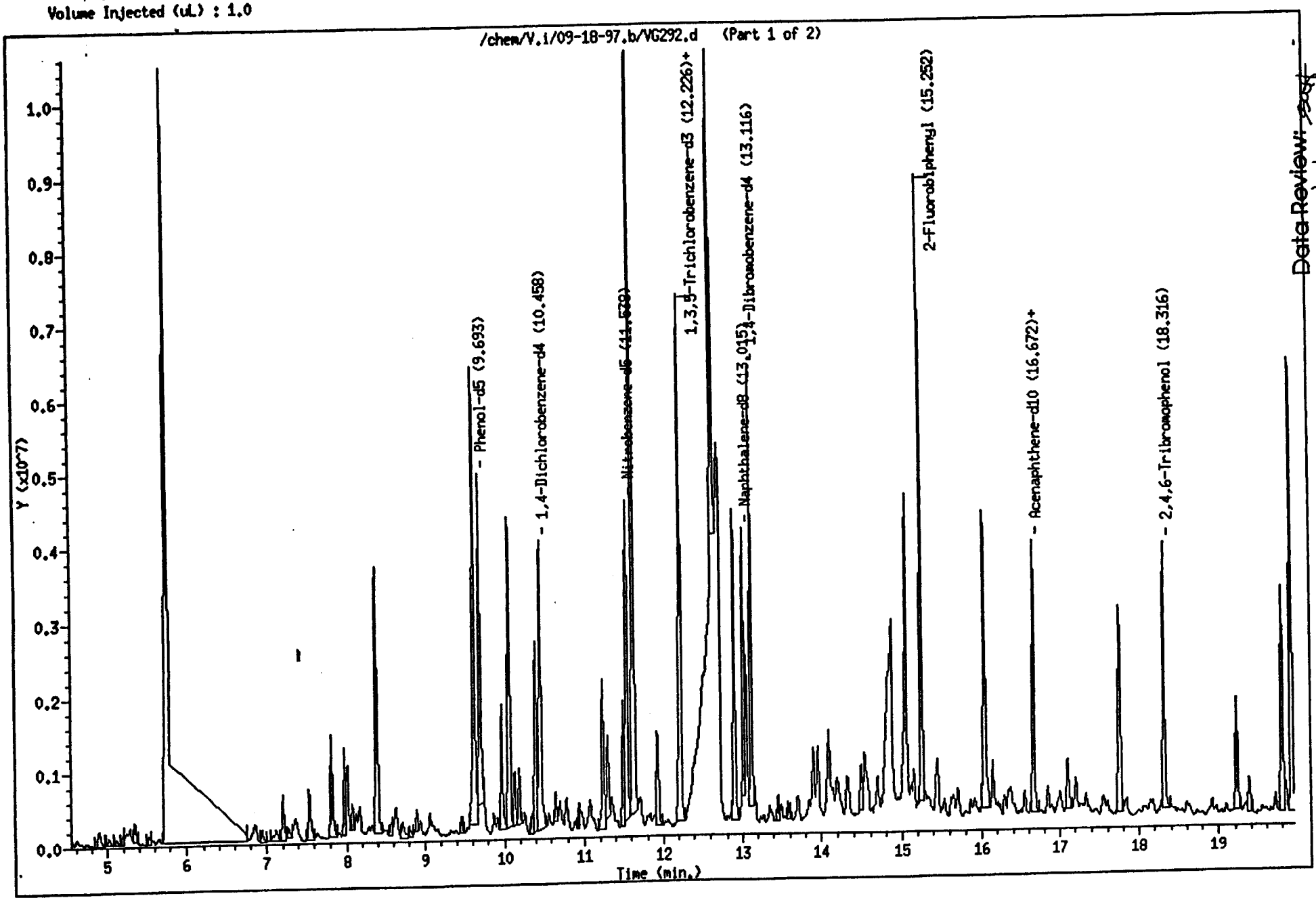
Reviewed by _____ Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories
of RTP, Inc.

Column diameter : 0.32



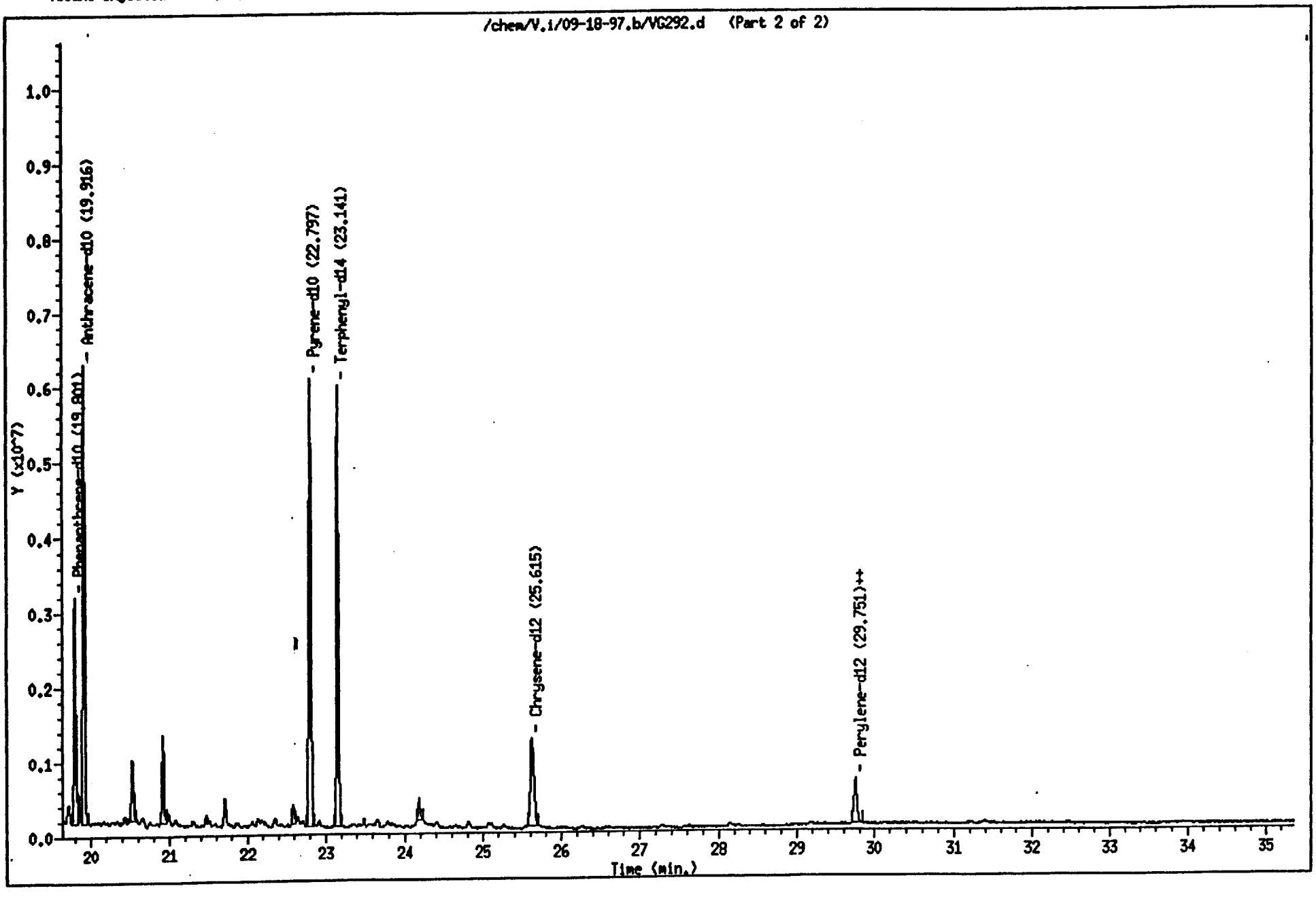
Data Review: [illegible]
Date: 9/19/97

Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories
of RTP, Inc.

Column diameter : 0.32

104



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG292.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 21:08 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : BO-0010-3
Misc Info : 183-2-4A-E
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 12
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4-Dichlorobenzene-d4	152.00	10.458(1.000)	882359	40.00		
*	2 Naphthalene-d8	136.00	13.015(1.000)	2796755	40.00		
*	3 Acenaphthene-d10	164.00	16.672(1.000)	1349692	40.00		
*	4 Phenanthrene-d10	188.00	19.801(1.000)	1966594	40.00		
*	5 Chrysene-d12	240.00	25.615(1.000)	895915	40.00		
*	6 Perylene-d12	264.00	29.751(1.000)	738068	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.686(0.926)	1972931	57.57	57.57	
$	9 2-Chlorophenol-d4	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.538(0.887)	2284264	76.61	76.61	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.226(0.939)	1953987	74.37	74.37	
$	13 1,4-Dibromobenzene-d4	240.00	13.116(1.254)	1827140	80.58	80.58	
$	14 2-Fluorobiphenyl	172.00	15.252(0.915)	3903324	87.68	87.68	
$	15 2,4,6-Tribromophenol	329.80	18.316(1.099)	689812	81.02	81.02	
$	16 Anthracene-d10	188.00	19.916(1.006)	4190775	86.33	86.33	
$	17 Pyrene-d10	212.00	22.797(0.890)	3886110	113.98	113.98	
$	18 Terphenyl-d14	244.00	23.141(0.903)	2863394	146.07	146.07(R)	
	42 Naphthalene	128.00	13.058(1.003)	1454132	21.60	21.60	
	46 2-Methylnaphthalene	142.00	14.488(1.113)	218978	5.33	5.33(a)	
	50 2-Chloronaphthalene	162.00	15.505(0.930)	~~11475~~	~~0.31~~	~~0.31(a)~~	FP SAH
	56 Acenaphthylene	152.00	16.377(0.982)	24376	0.45	0.45(a)	
	58 Acenaphthene	154.00	16.730(1.003)	~~7982~~	~~0.23~~	~~0.23(a)~~	FP SAH
	65 Fluorene	166.00	17.819(1.069)	44811	1.14	1.14(a)	
	73 Phenanthrene	178.00	19.852(1.003)	256875	5.65	5.65(a)	
	74 Anthracene	178.00	19.852(1.003)	~~256875~~	~~5.94~~	~~5.94(a)~~	FP SAH
	77 Fluoranthene	202.00	22.345(1.128)	52036	1.09	1.09(a)	
	78 Pyrene	Compound Not Detected.					
	83 Benzo(a)anthracene	Compound Not Detected.					
	84 Chrysene	Compound Not Detected.					
	86 Benzo(b)fluoranthene	Compound Not Detected.					

Data Review: SAH
Date: 9/19/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	252.00	29.751(1.000)	2030	0.12	0.12(a)
90 Perylene	252.00	29.751(1.000)	2030	0.12	0.12(a)
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

FP South

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG292.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 21:08
Operator : DD
Smp Info : BO-0010-3
Misc Info : 183-2-4A-E
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32
Als bottle: 12
Dil Factor: 1.000
Integrator: HP RTE
Sample Type: mm5

Autotune Date: 17-Sep-97 07:05:4
Inst ID: V.i

Cal File: VG280.d

Target Version: Target 2.20
Compound Sublist: CAA1.sub

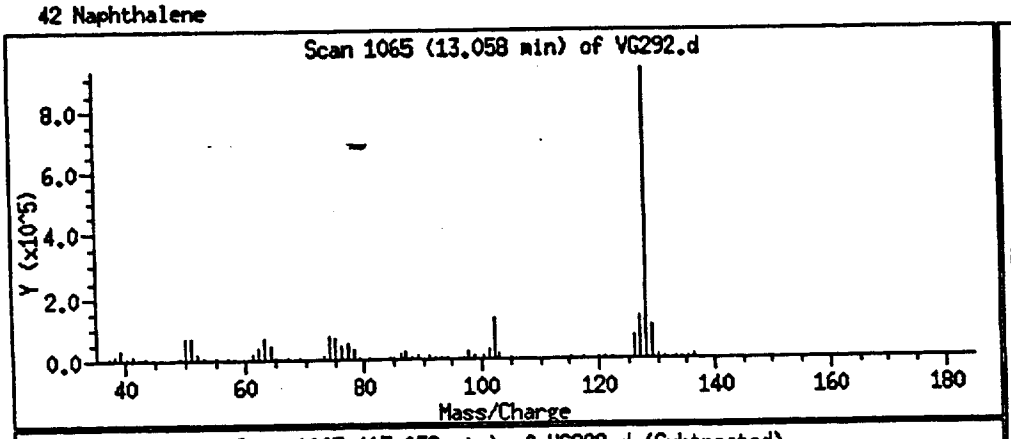
	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4 Dichlorobenzene-d4	152.00	10.458(1.000)	882359	40.00		
*	2 Naphthalene-d8	136.00	13.015(1.000)	2796755	40.00		
*	3 Acenaphthene-d10	164.00	16.672(1.000)	1349692	40.00		
*	4 Phenanthrene-d10	188.00	19.801(1.000)	1966594	40.00		
*	5 Chrysene-d12	240.00	25.615(1.000)	895915	40.00		
*	6 Perylene-d12	264.00	29.751(1.000)	738068	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.686(0.926)	1972931	63.74	63.74	
$	9 2-Chlorophenol-d4	132.00	9.715(0.929)	667	0.02	0.02	
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.538(0.887)	2284264	73.63	73.63	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.226(0.939)	1953987	72.78	72.78	
$	13 1,4-Dibromobenzene-d4	240.00	13.116(1.254)	1827140	83.62	83.62	
$	14 2-Fluorobiphenyl	172.00	15.252(0.915)	3903324	86.68	86.68	
$	15 2,4,6-Tribromophenol	329.80	18.316(1.099)	689812	80.94	80.94	
$	16 Anthracene-d10	188.00	19.916(1.006)	4190775	80.64	80.64	
$	17 Pyrene-d10	212.00	22.797(0.890)	3886110	114.52	114.52	
$	18 Terphenyl-d14	244.00	23.141(0.903)	2863394	131.37	131.37	
	19 n-Nitrosodimethylamine	74.00	~~5.253(0.502)~~	~~14355~~	~~0.98~~	~~0.98~~	FP Ball
	20 Cumene	105.00	8.945(0.855)	132553	2.36	2.36	
	22 Phenol	94.00	9.715(0.929)	268611	8.69	8.69	
	23 Aniline	93.00	~~9.693(0.927)~~	~~2447~~	~~0.06~~	~~0.06~~	FP Ball
	26 bis-(2-Chloroethyl)ether	63.00	~~9.908(0.947)~~	~~7305~~	~~0.45~~	~~0.45~~	
	27 Benzyl Chloride	91.00	~~10.573(1.011)~~	~~15234~~	~~0.23~~	~~0.23~~	
	28 1,4-Dichlorobenzene	146.00	10.487(1.003)	77043	2.61	2.61	
	30 2-Methylphenol	108.00	~~10.494(1.003)~~	~~1857~~	~~0.08~~	~~0.08~~	FP Ball
	31 3/4-Methylphenol	108.00	~~10.780(0.828)~~	~~6045~~	~~0.24~~	~~0.24~~	
	32 Acetophenone	105.00	11.230(1.074)	899340	25.62	25.62	
	33 n-Nitrosomorpholine	56.00	~~11.617(1.111)~~	~~643374~~	~~40.54~~	~~40.54~~	FP Ball
	34 o-Toluidine	106.00	~~11.345(1.085)~~	~~12625~~	~~0.36~~	~~0.36~~	
	35 Hexachloroethane	Compound Not Detected.					

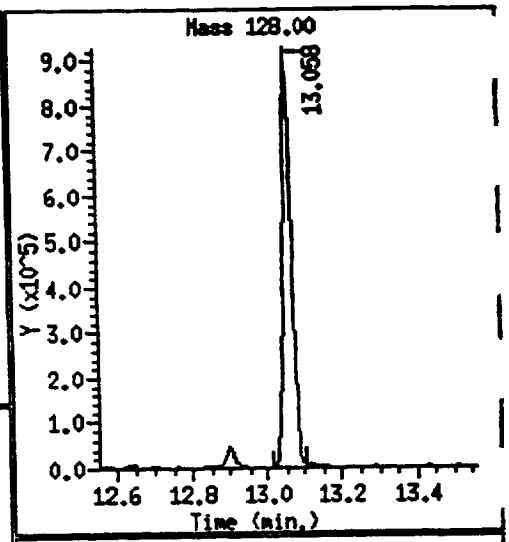
Data Review: Ball
Date: 9/22/97

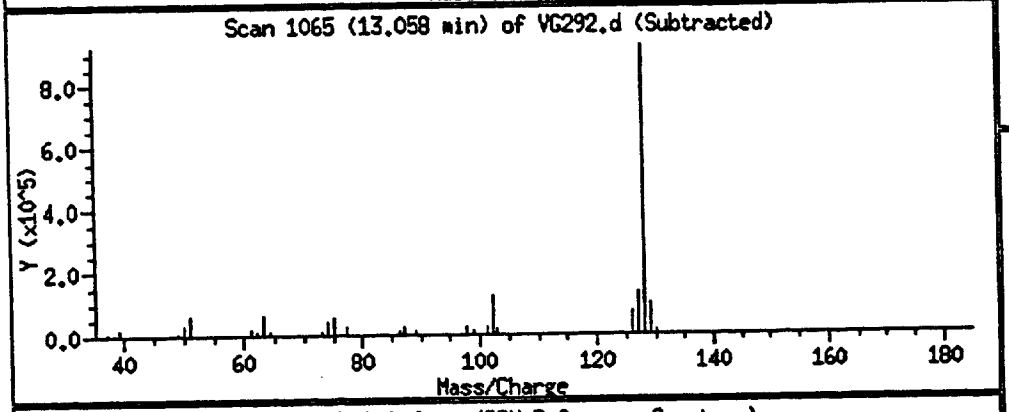
Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)
36 Nitrobenzene	77.00	~~11.639(0.896)~~	~~772463~~	~~16.83~~	~~16.83~~ FP salt
37 N,N-Dimethylaniline	120.00	~~11.517(0.885)~~	~~86552~~	~~1.98~~	~~1.98~~
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.				
39 Isophorone	82.00	~~12.190(0.937)~~	~~26992~~	~~0.56~~	~~0.56~~ FP salt
40 o-Anisidine	Compound Not Detected.				
41 1,4-Phenylenediamine	108.00	~~14.099(1.083)~~	~~2164~~	~~0.08~~	~~0.08~~ FP salt
42 1,2,4-Trichlorobenzene	180.00	12.893(0.991)	122825	4.96	4.96
43 Naphthalene	128.00	13.058(1.003)	1454132	17.56	17.56
45 Hexachlorobutadiene	Compound Not Detected.				
46 N,N-Diethylaniline	134.00	~~13.618(1.302)~~	~~33615~~	~~0.81~~	~~0.81~~ FP salt
47 a,a,a-Trichlorotoluene	Compound Not Detected.				
48 Hydroquinone	110.00	~~13.783(1.059)~~	~~10025~~	~~0.49~~	~~0.49~~ FP salt
50 2-Chloroacetophenone	105.00	~~14.200(1.091)~~	~~82011~~	~~1.76~~	~~1.76~~
51 Hexachlorocyclopentadiene	Compound Not Detected.				
52 2,4,6-Trichlorophenol	196.00	15.058(0.903)	381189	24.60	24.60
53 2,4,5-Trichlorophenol	196.00	~~15.058(0.903)~~	~~381189~~	~~24.12~~	~~24.12~~ FP salt
59 Biphenyl	154.00	15.454(0.927)	323888	6.53	6.53
60 Dimethylphthalate	163.00	16.081(0.965)	62964	1.62	1.62
71 2,4-Dinitrophenol	184.00	~~16.766(1.006)~~	~~727~~	~~0.23~~	~~0.23~~
61 4-Nitrophenol	139.00	~~16.859(1.011)~~	~~20065~~	~~2.73~~	~~2.73~~ FP salt
62 2,4-Dinitrotoluene	165.00	~~17.119(1.027)~~	~~21245~~	~~1.66~~	~~1.66~~
63 Dibenzofuran	168.00	17.105(1.026)	240248	4.62	4.62
64 Di-n-butylphthalate	149.00	20.996(1.060)	114360	2.09	2.09
65 4,6-Dinitro-2-methylphenol	198.00	~~17.834(1.070)~~	~~1129~~	~~0.21~~	~~0.21~~ FP salt
66 Trifluralin	Compound Not Detected.				
67 Hexachlorobenzene	283.80	~~18.965(0.958)~~	~~9356~~	~~0.56~~	~~0.56~~ Recap salt 9/22/97
68 4-Aminobiphenyl	169.00	~~19.541(0.987)~~	~~838~~	~~0.02~~	~~0.02~~
69 Pentachlorophenol	266.00	~~19.576(0.979)~~	~~26721~~ Recap	~~2.48~~ salt 2.48	~~2.48~~ FP salt
70 Pentachloronitrobenzene	142.00	~~19.232(0.971)~~	~~1025~~	~~0.14~~	~~0.14~~
72 4-Nitrobiphenyl	152.00	~~20.499(1.035)~~	~~1959~~	0.12	0.12
73 Benzidine	184.00	~~22.797(0.890)~~	~~42686~~	~~2.13~~	2.13
74 4,4'-Methylenedianiline	Compound Not Detected.				
76 Dimethylaminoazobenzene	120.00	~~23.141(0.903)~~	~~32406~~	~~3.05~~	~~3.05~~ FP salt
77 3,3'-Dimethylbenzidine	212.00	~~24.007(0.937)~~	~~315~~	~~0.02~~	~~0.02~~
79 3,3'-Dimethoxybenzidine	Compound Not Detected.				
80 3,3'-Dichlorobenzidine	Compound Not Detected.				
81 Methylene bis-chloroaniline	Compound Not Detected.				
82 bis(2-Ethylhexyl)phthalate	149.00	25.636(1.001)	315046	19.38	19.38

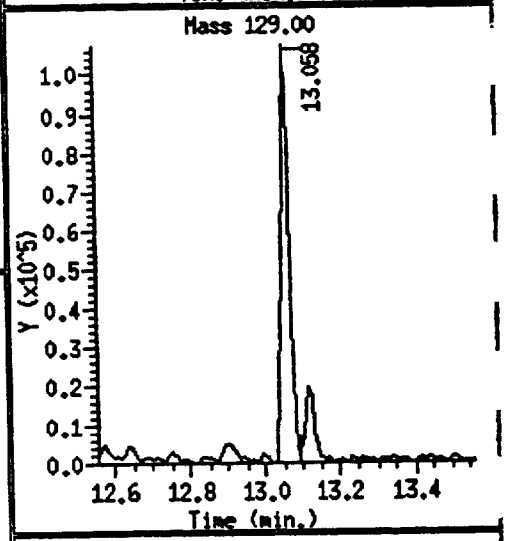
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BD-0010-3
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

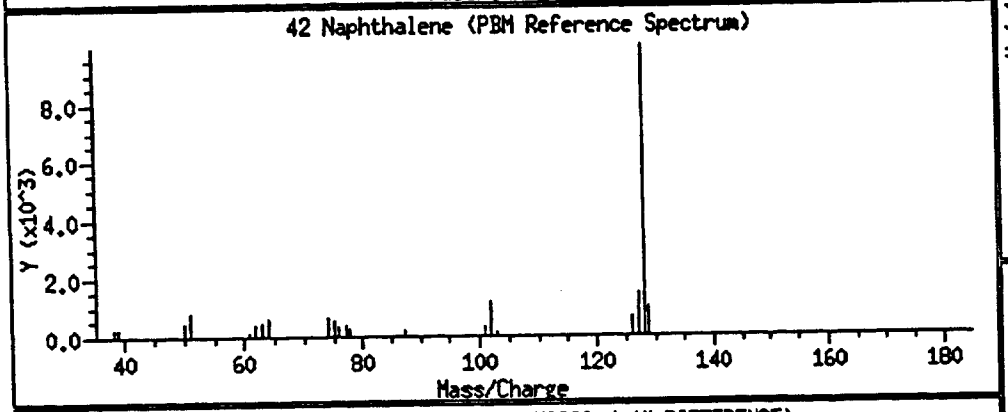
42 Naphthalene

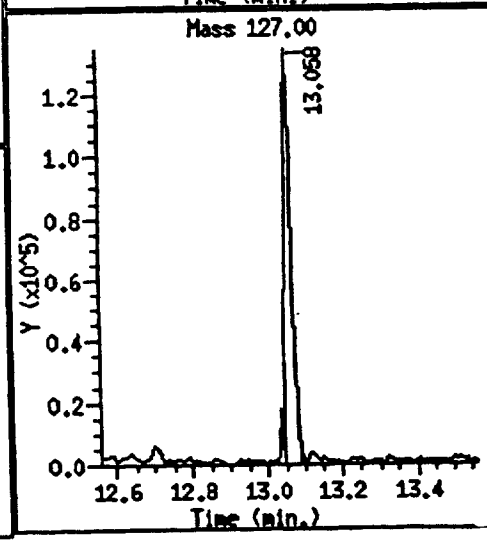


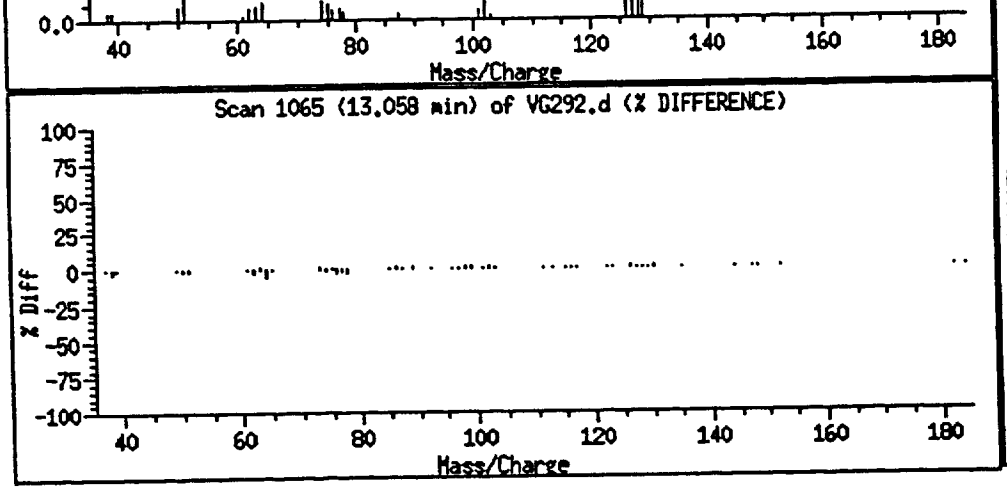






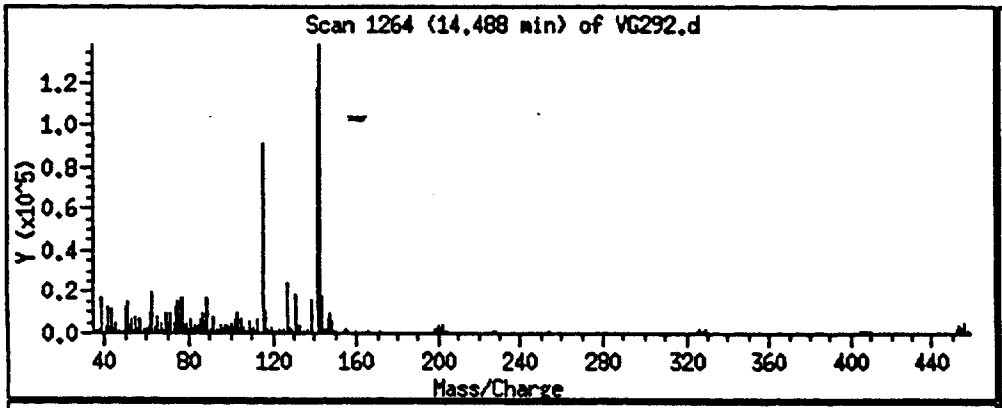


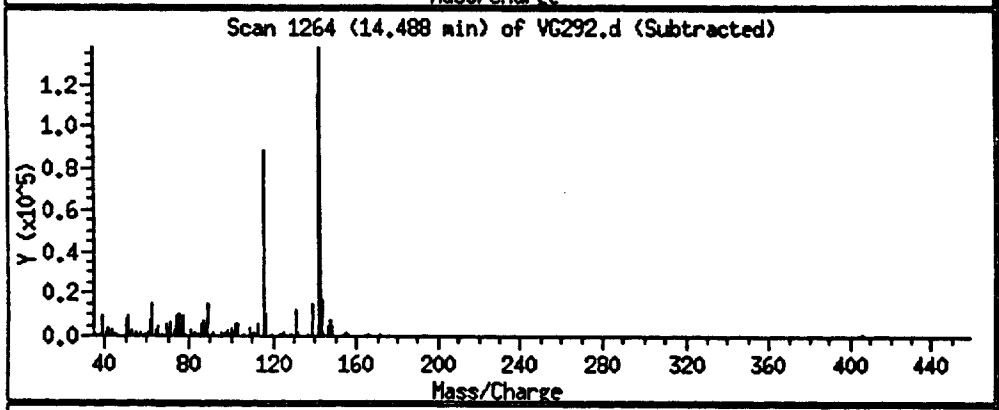


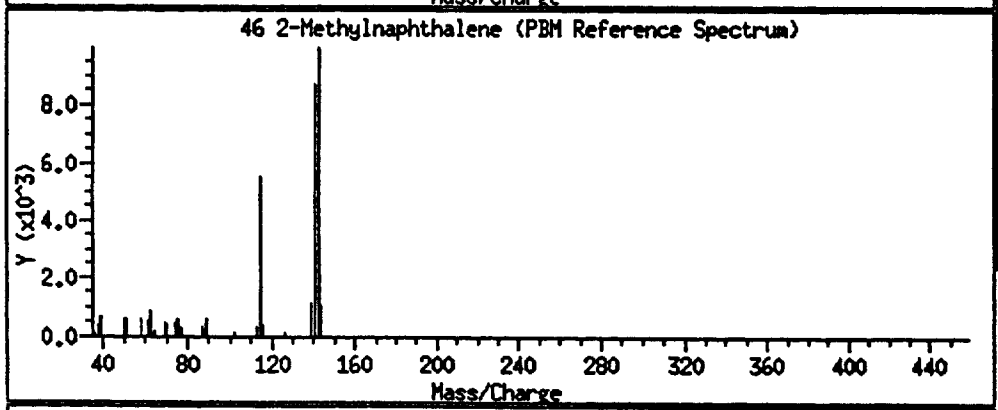


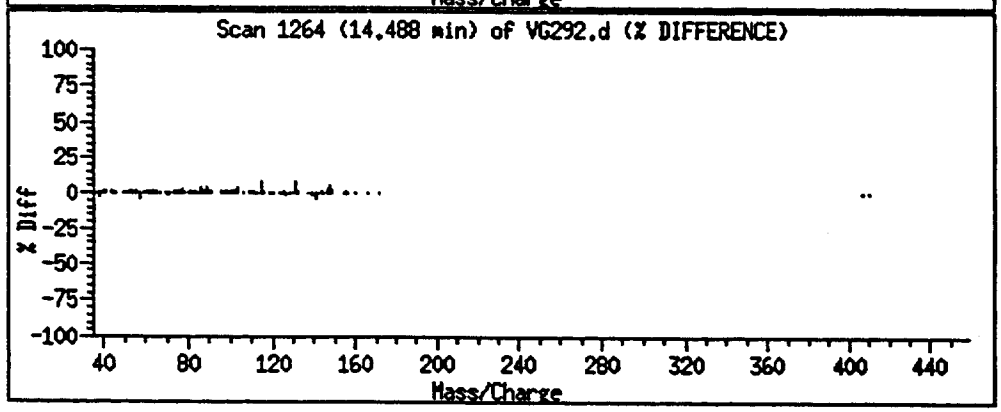
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

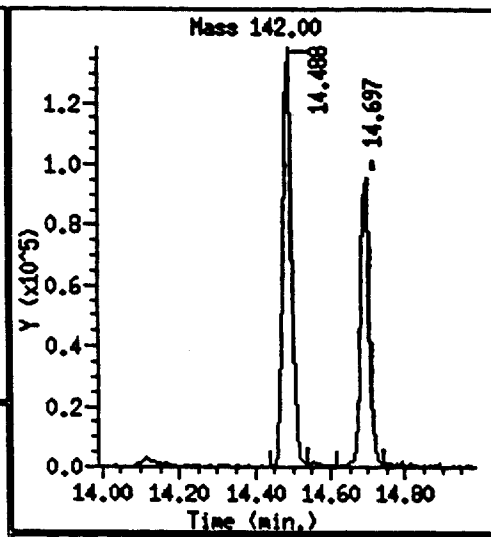
46 2-Methylnaphthalene

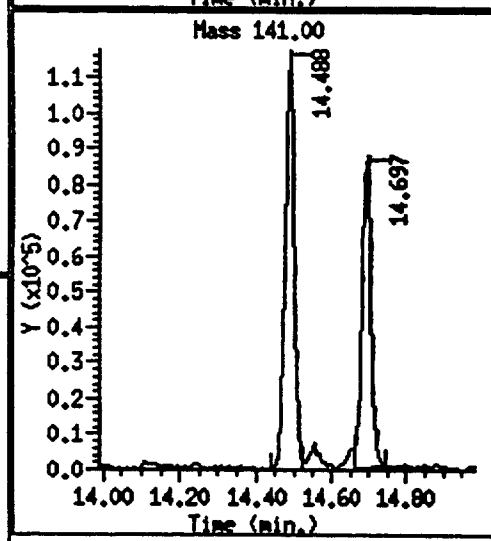






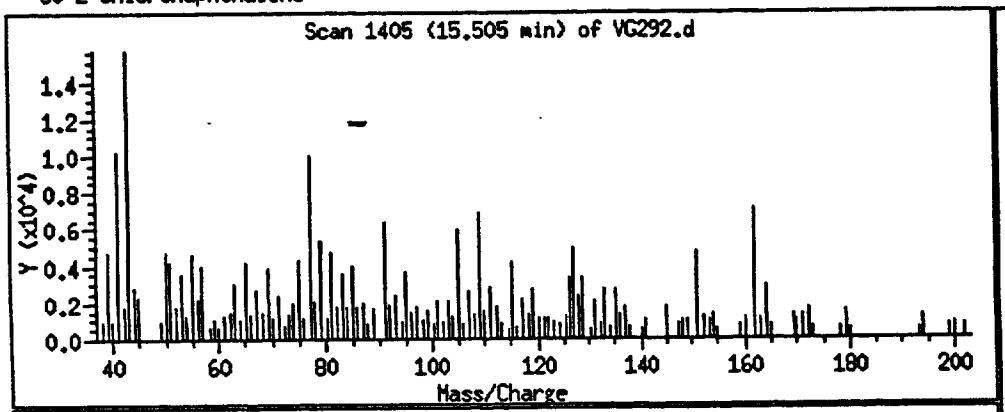


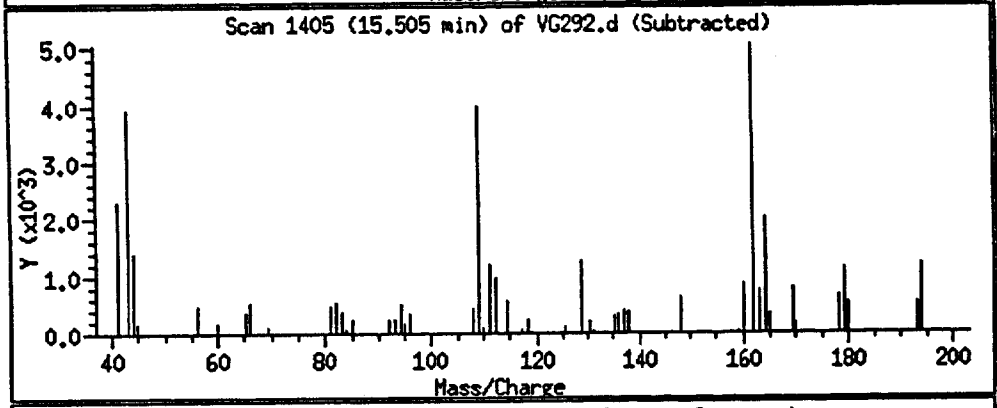


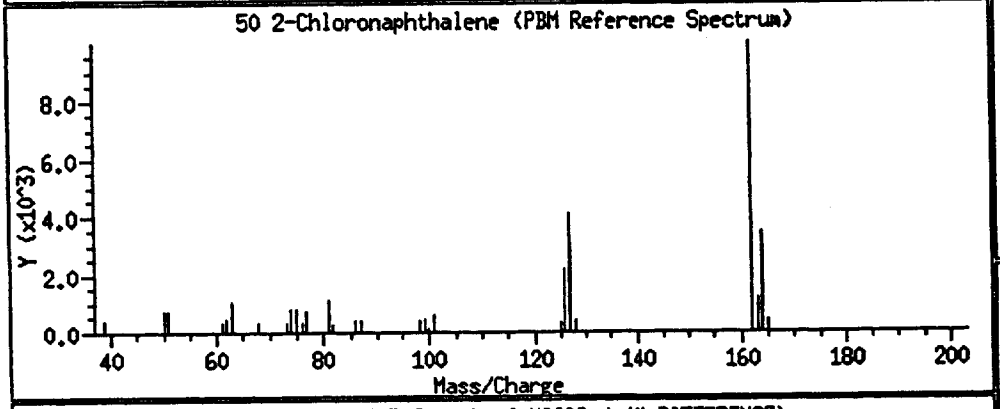


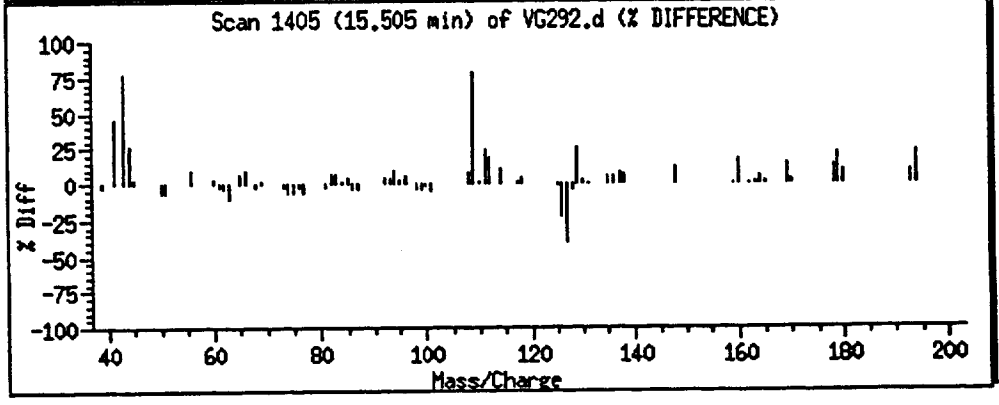
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

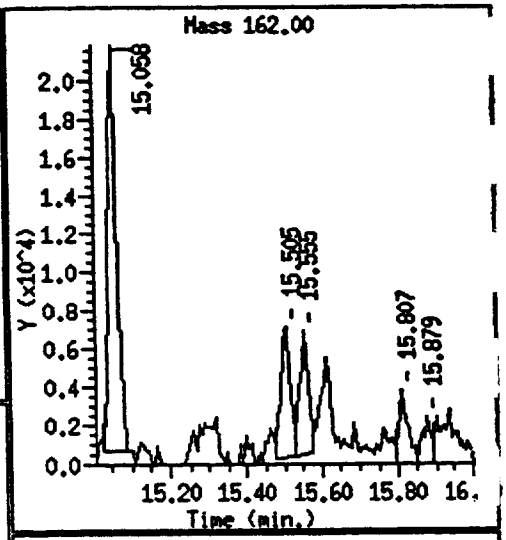
50 2-Chloronaphthalene

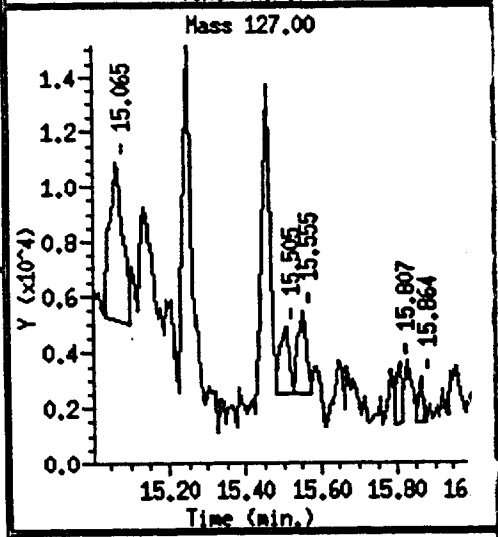


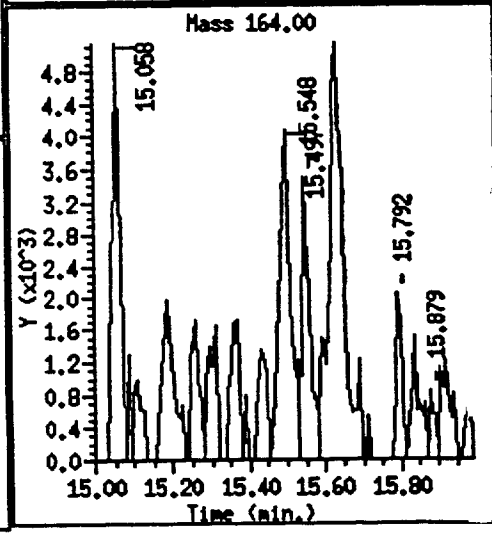






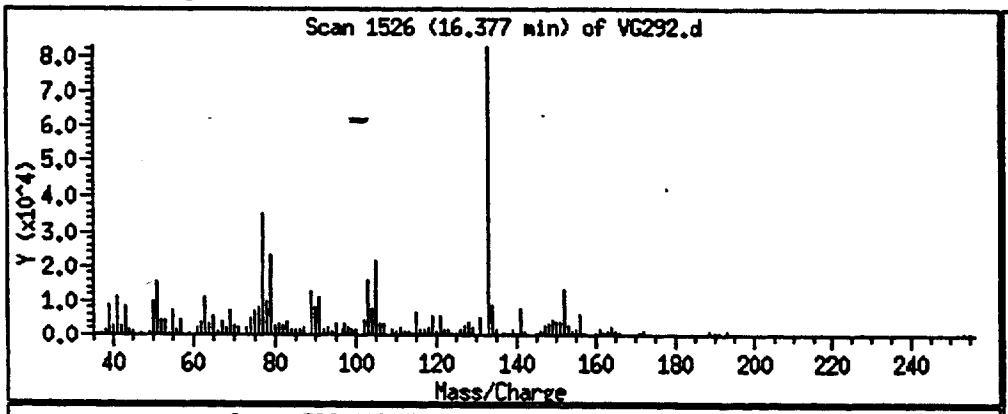


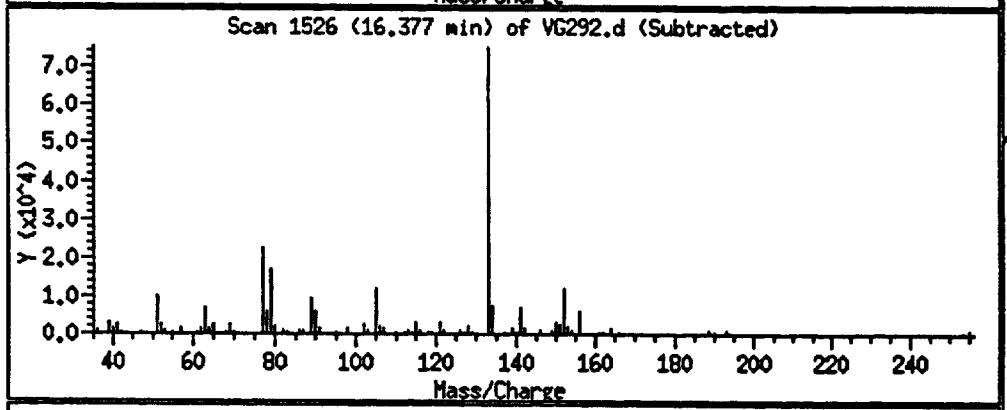


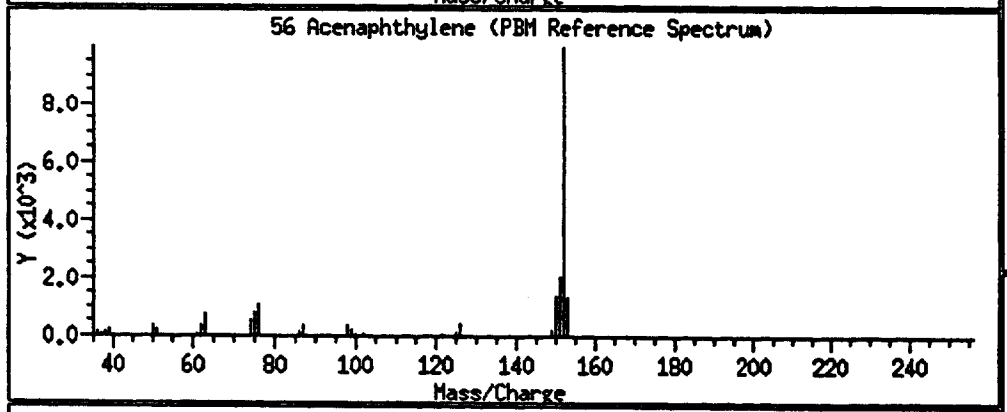


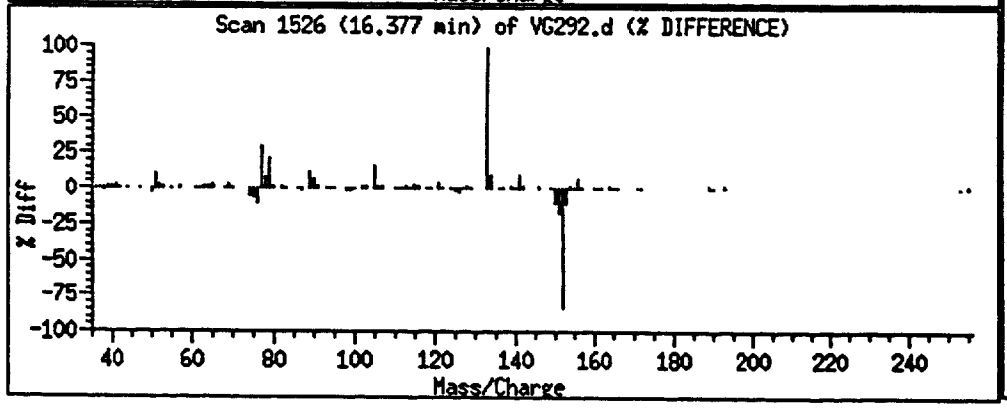
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BD-0010-3
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

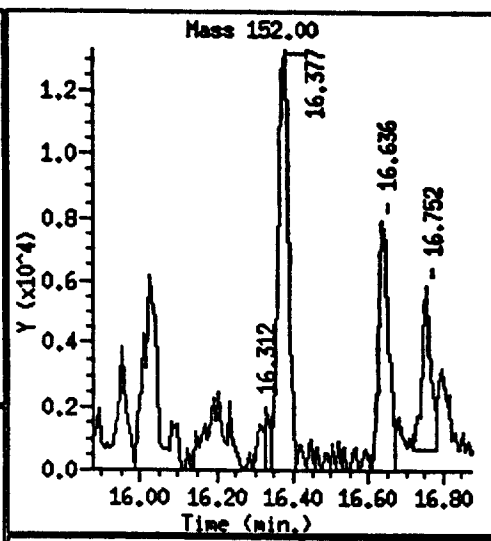
56 Acenaphthylene

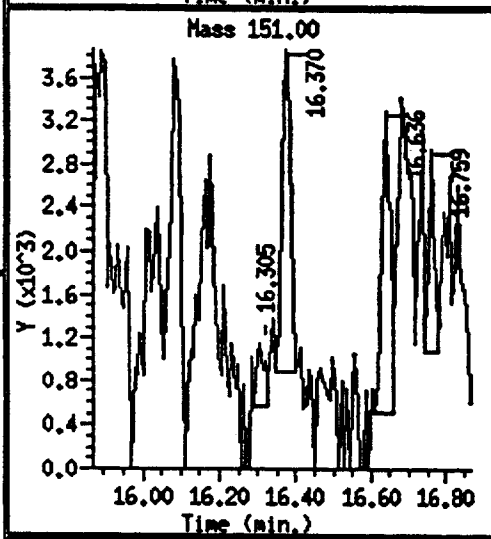


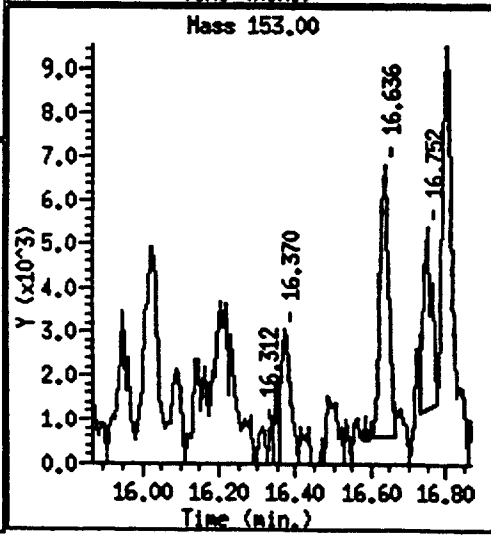






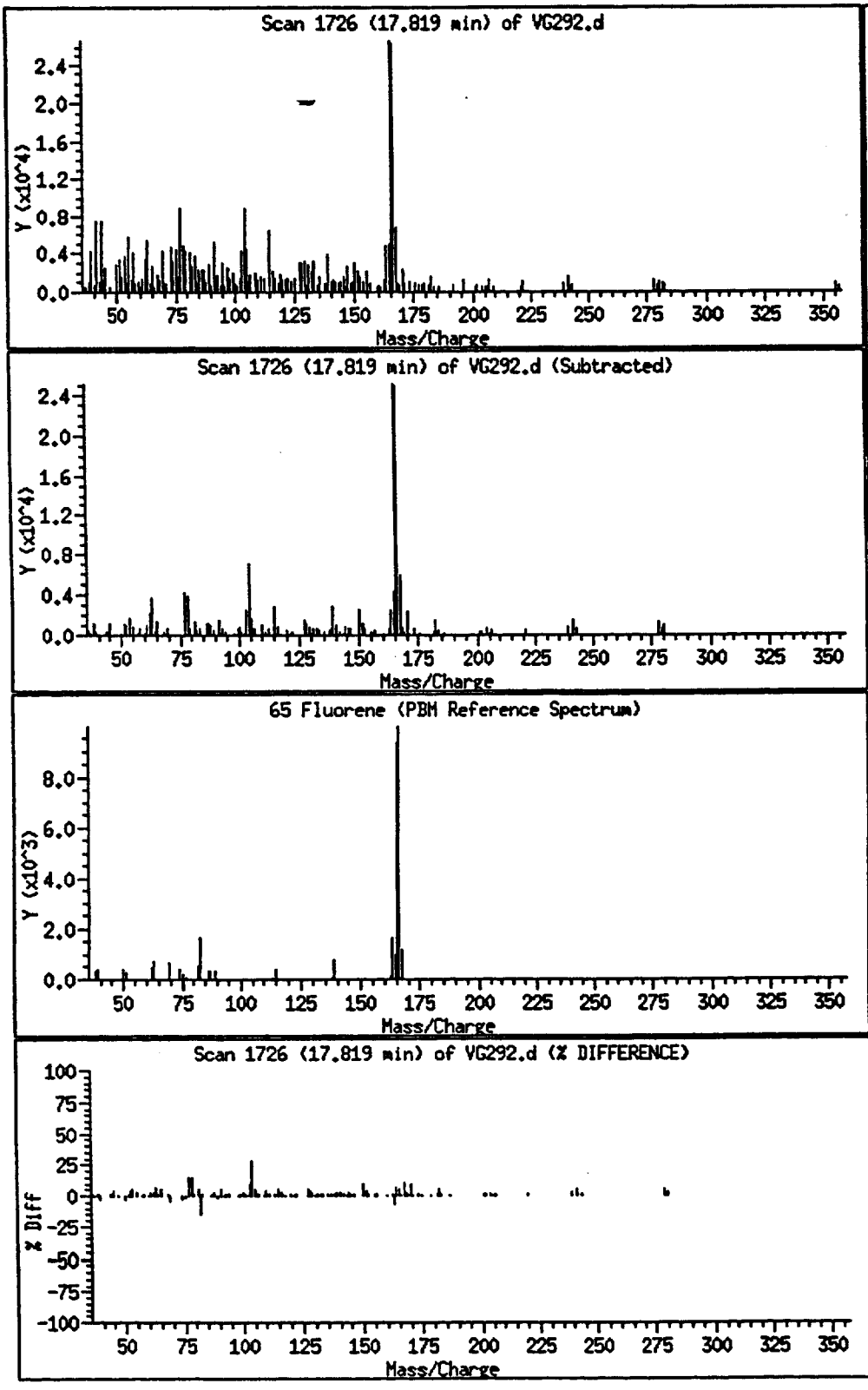


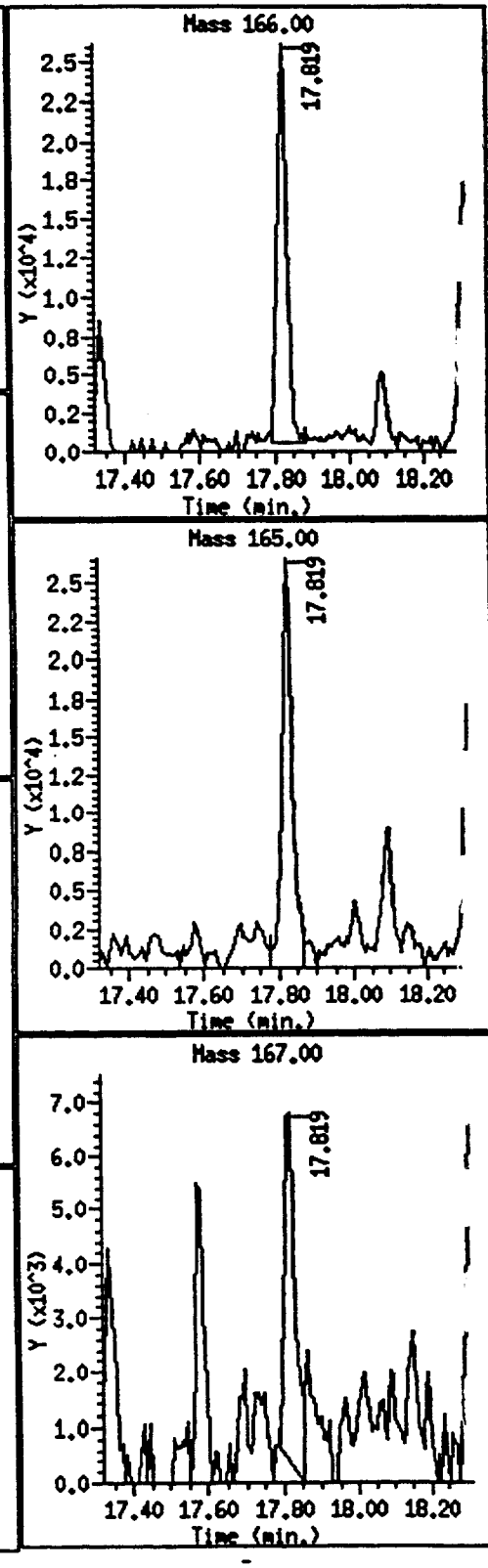




Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

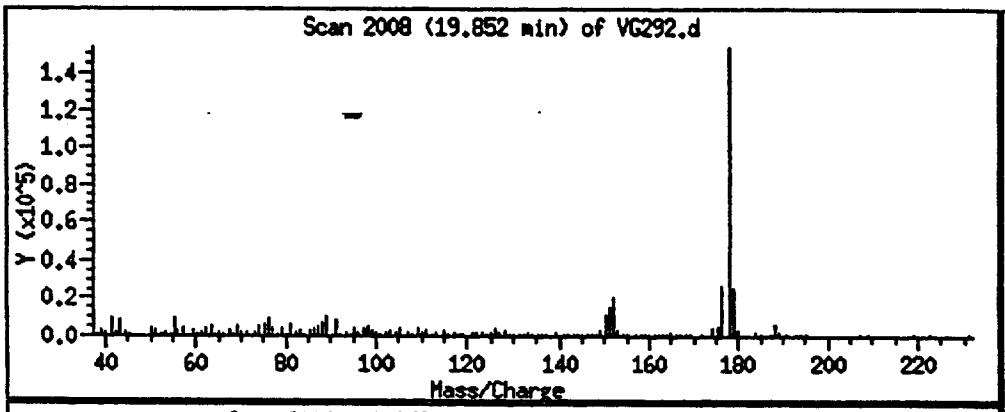
65 Fluorene

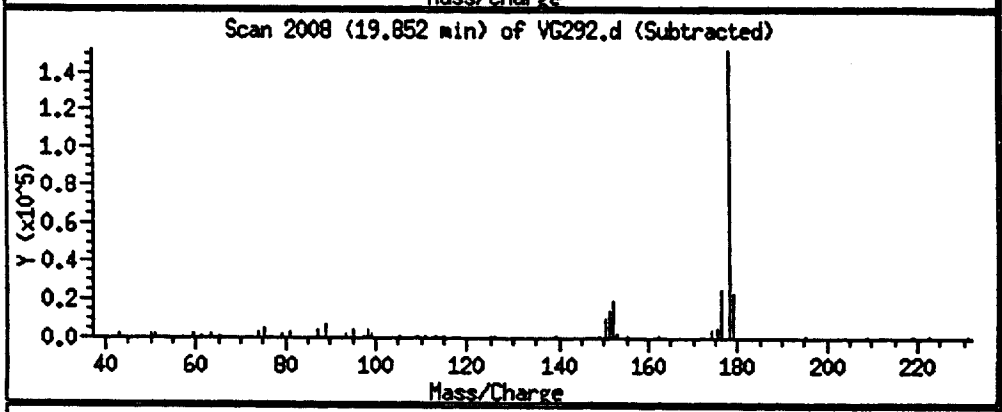


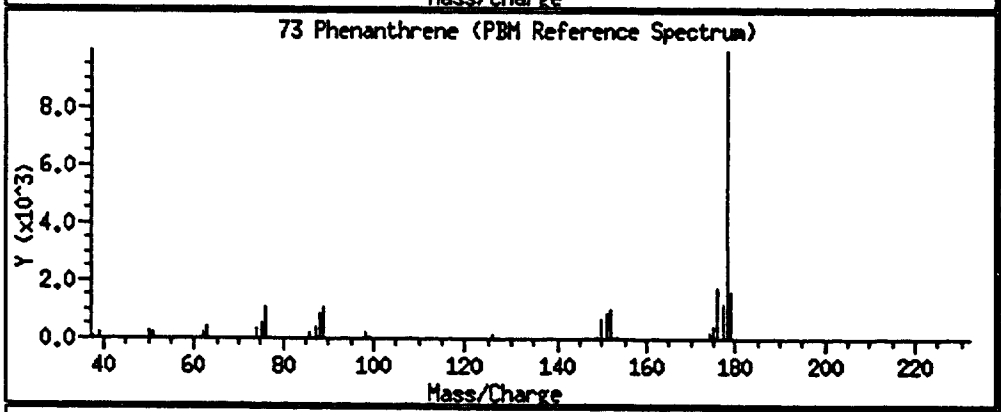


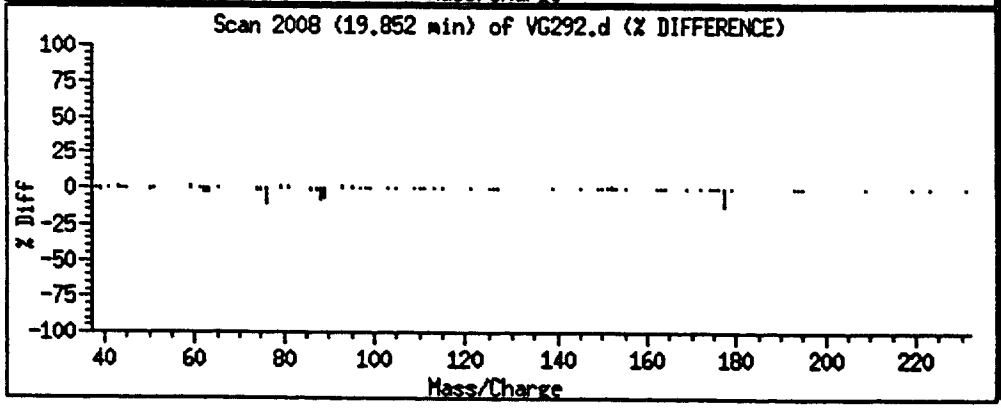
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

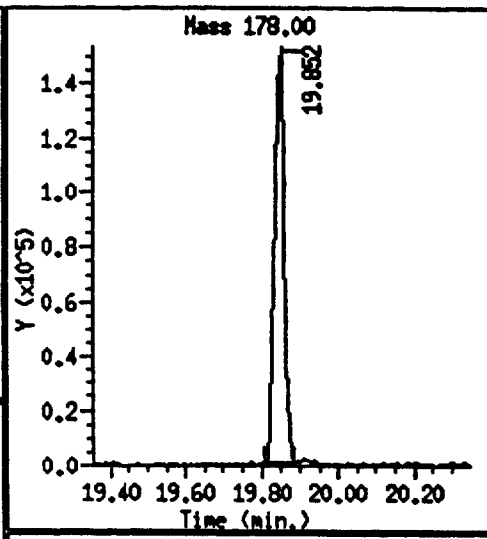
73 Phenanthrene

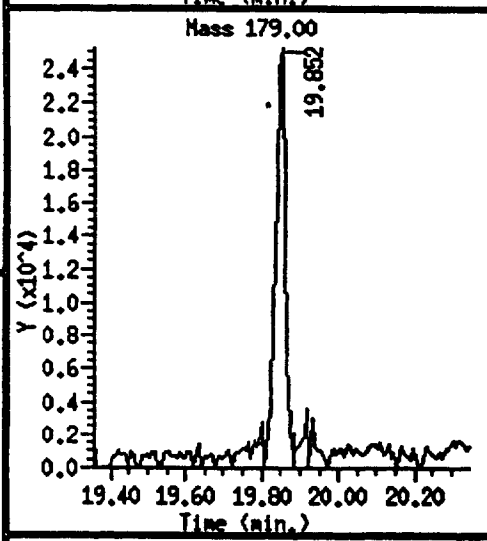


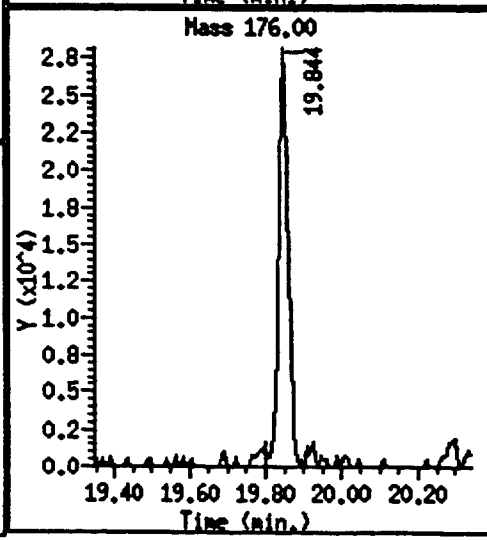






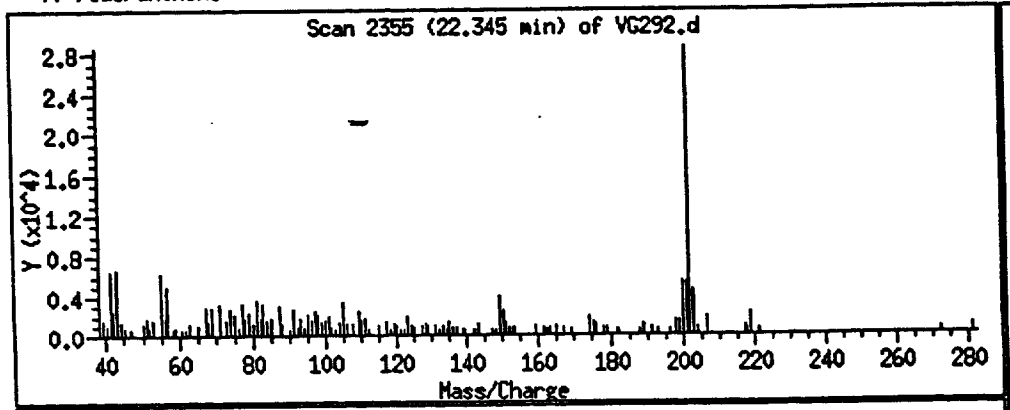


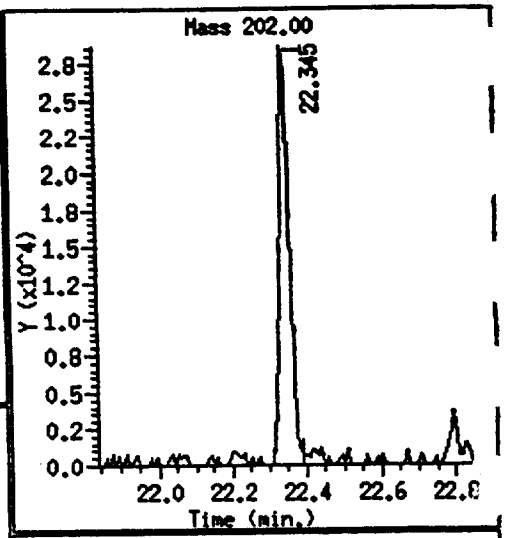


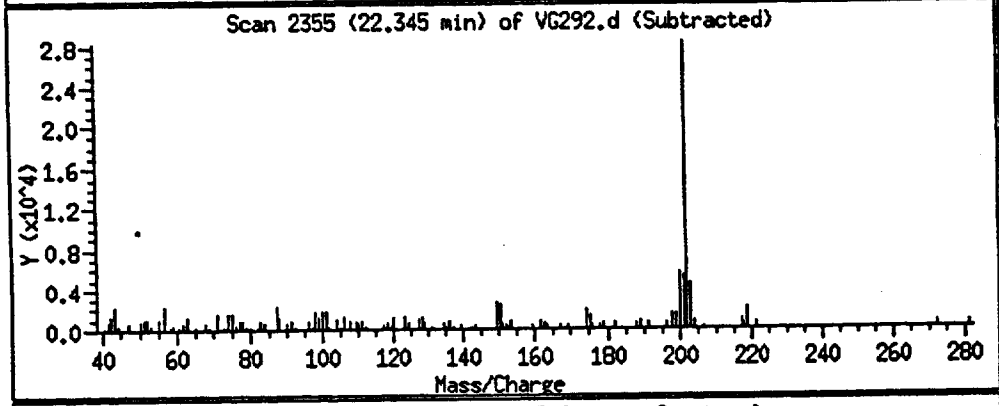


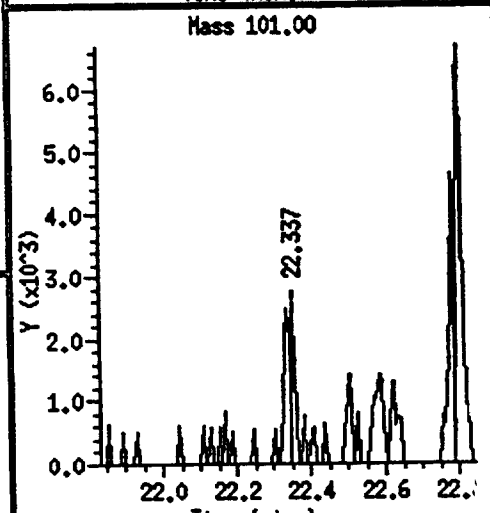
Data File: /chem/V.i/09-18-97.b/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

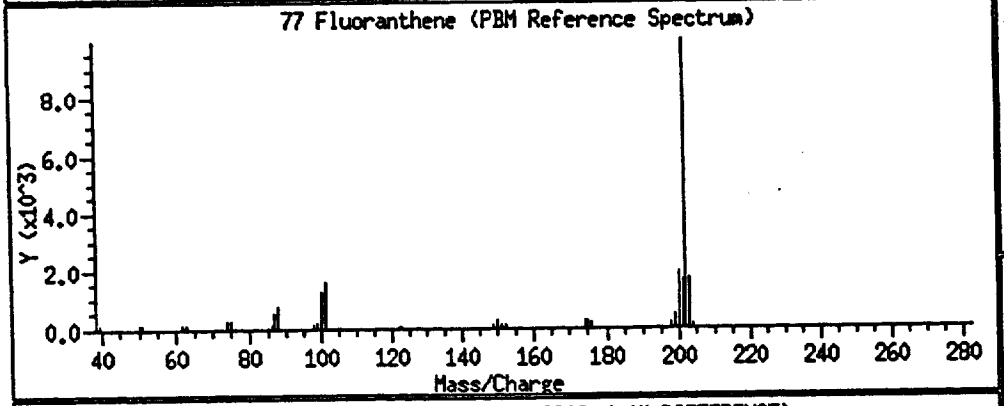
77 Fluoranthene

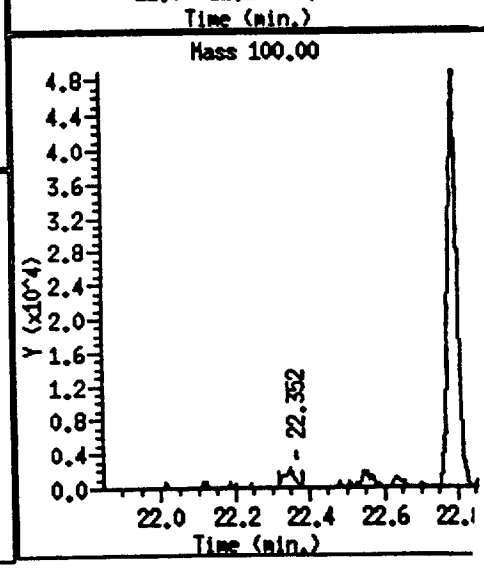


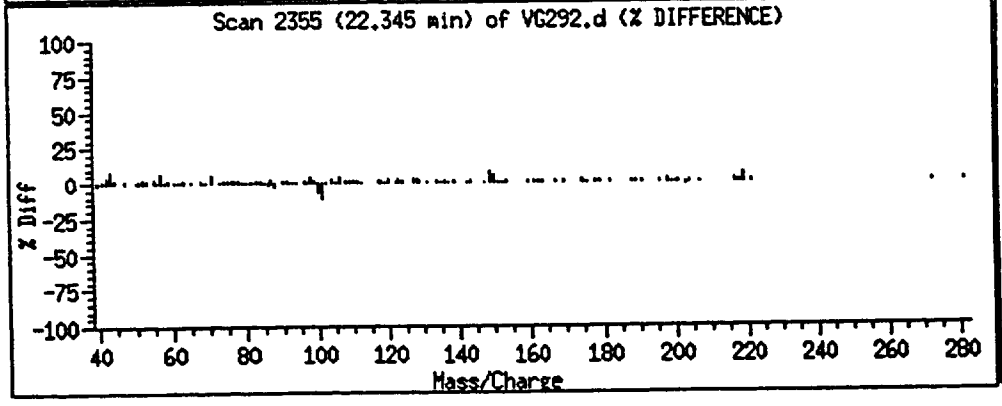






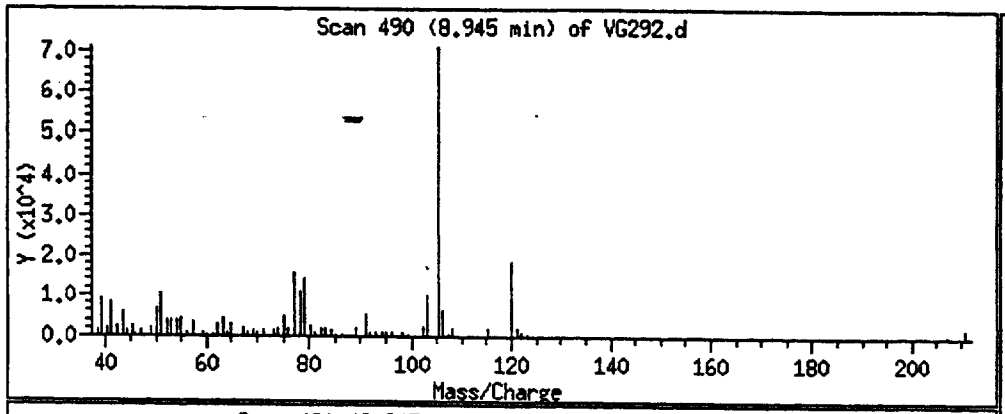


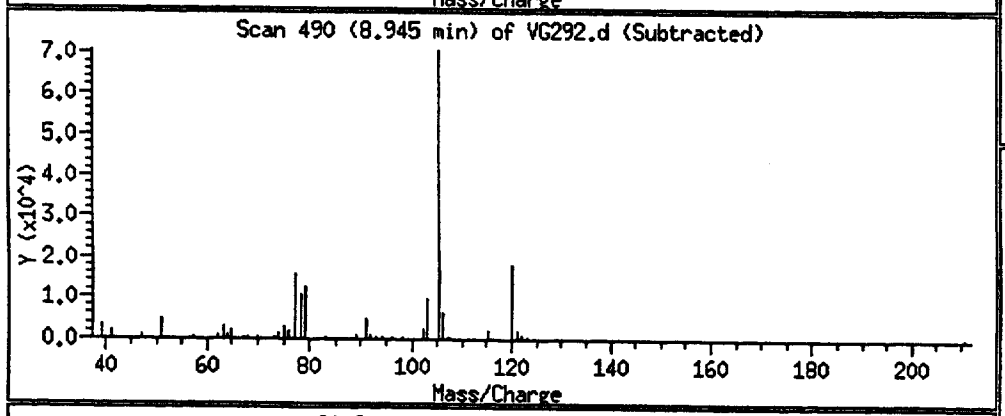


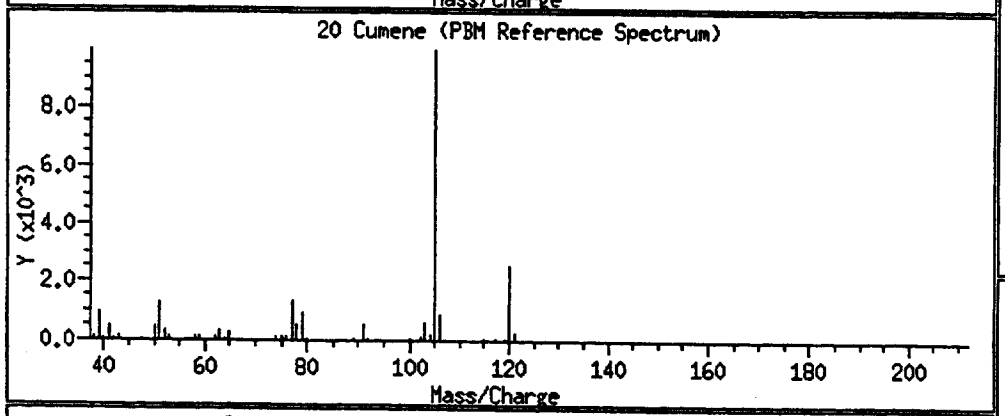


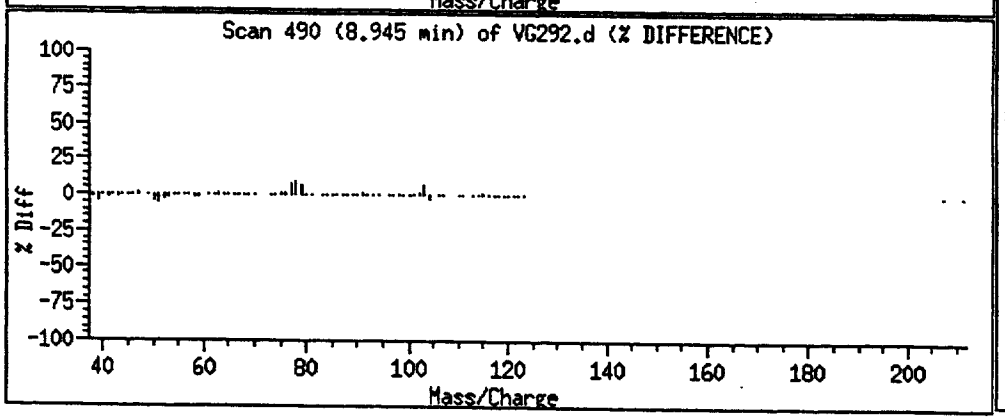
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

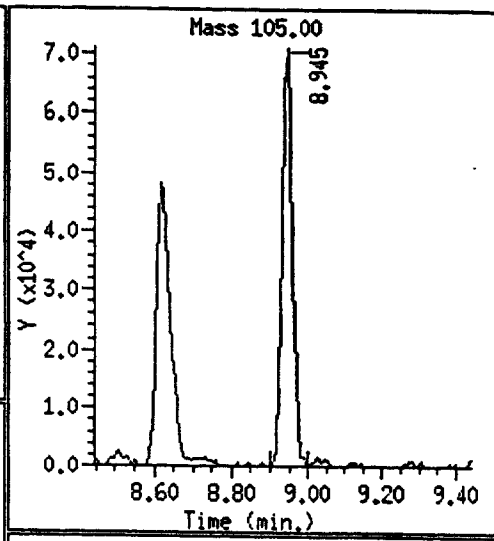
20 Cumene

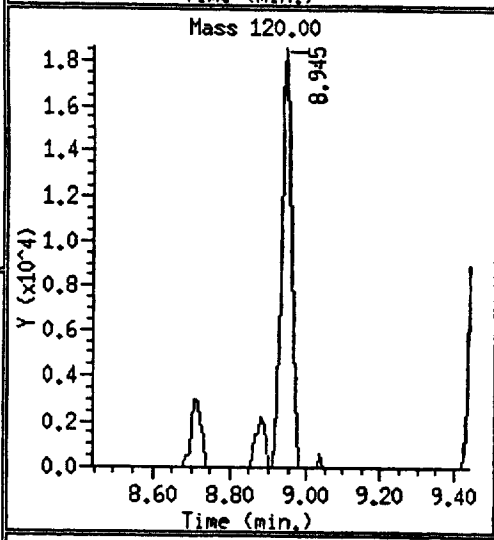


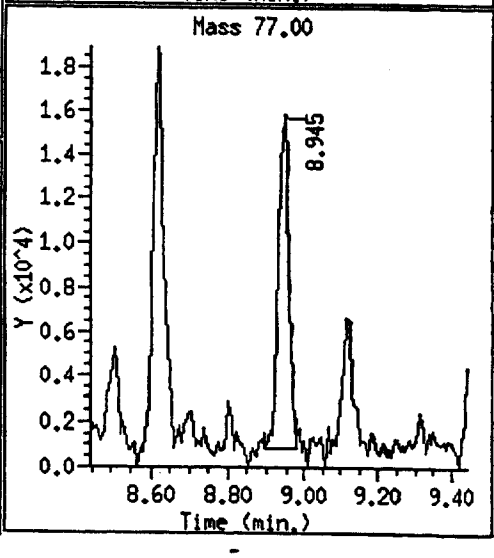






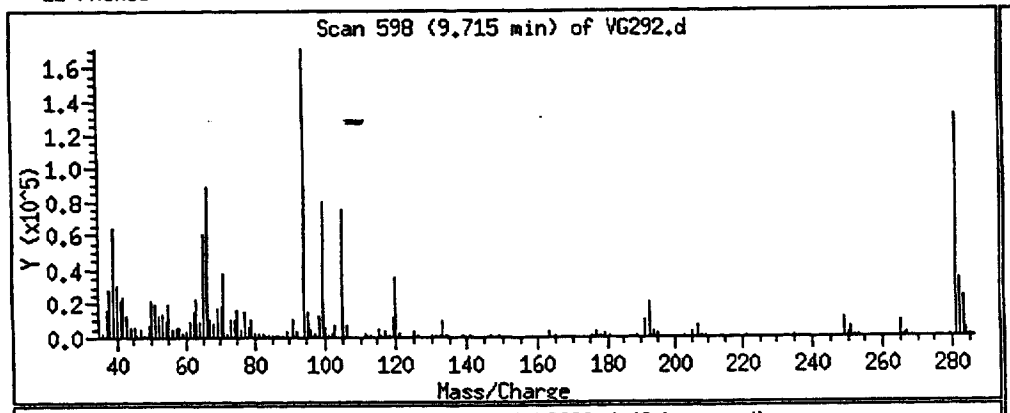


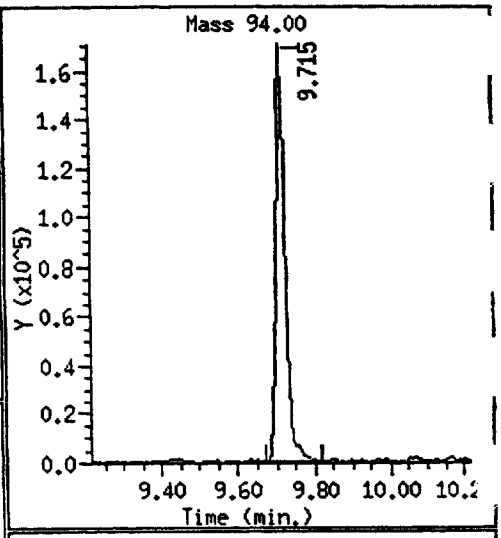


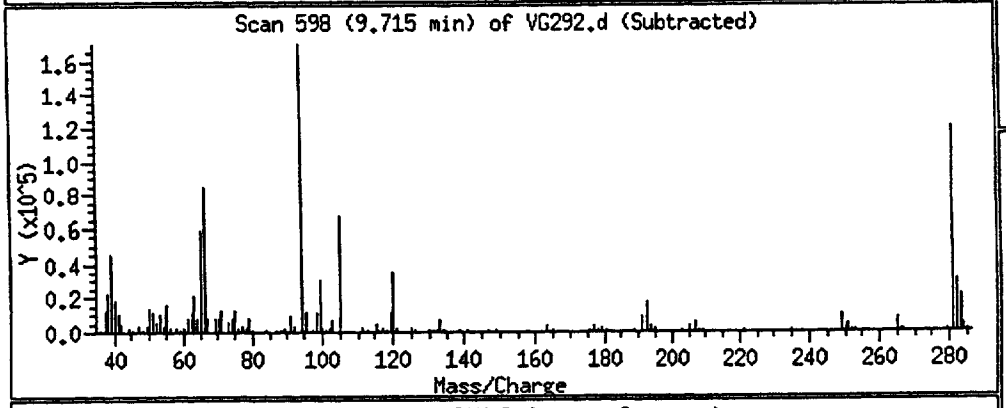


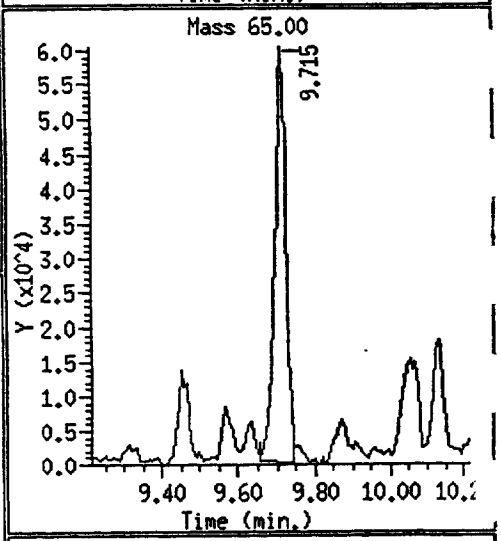
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

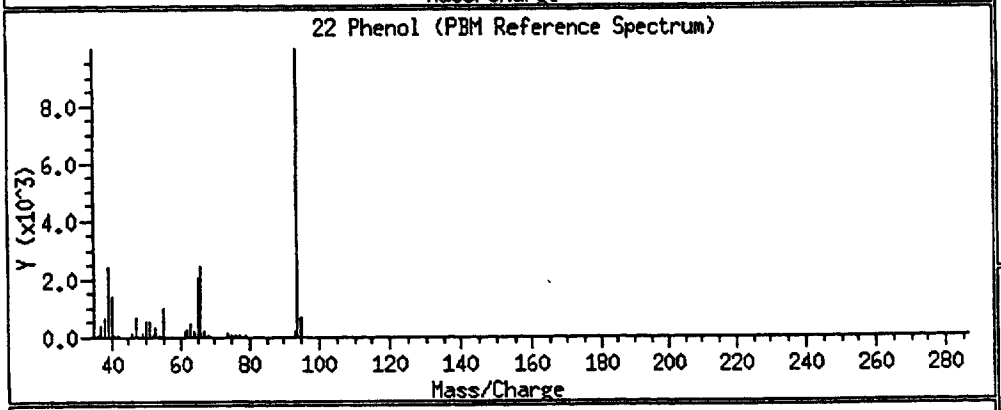
22 Phenol

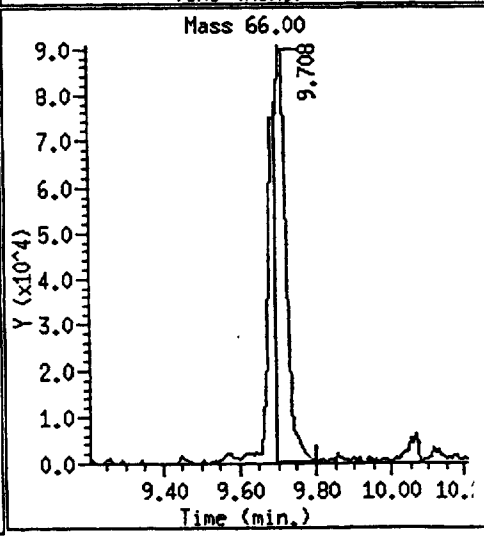


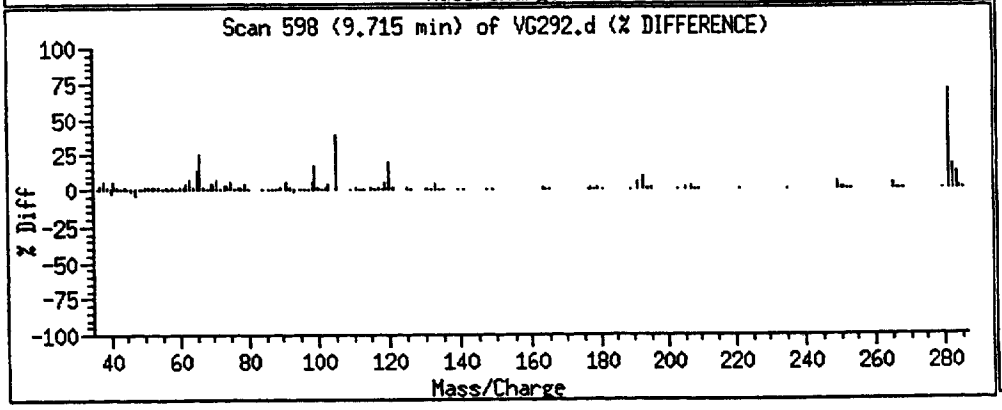






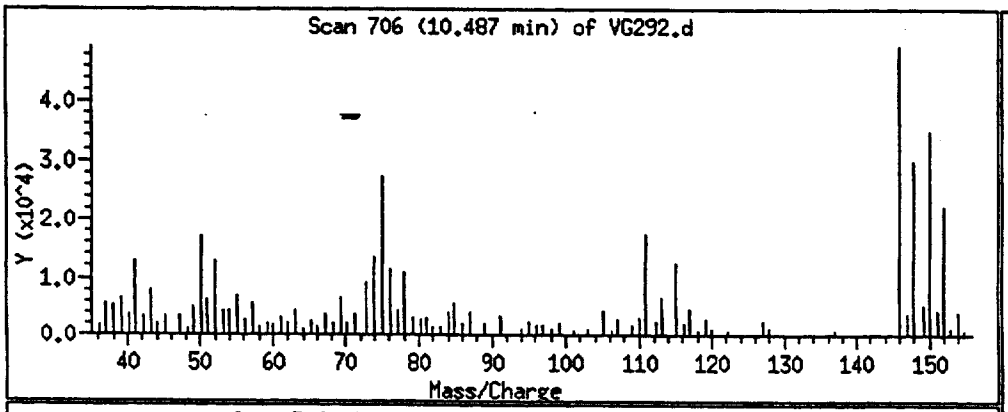


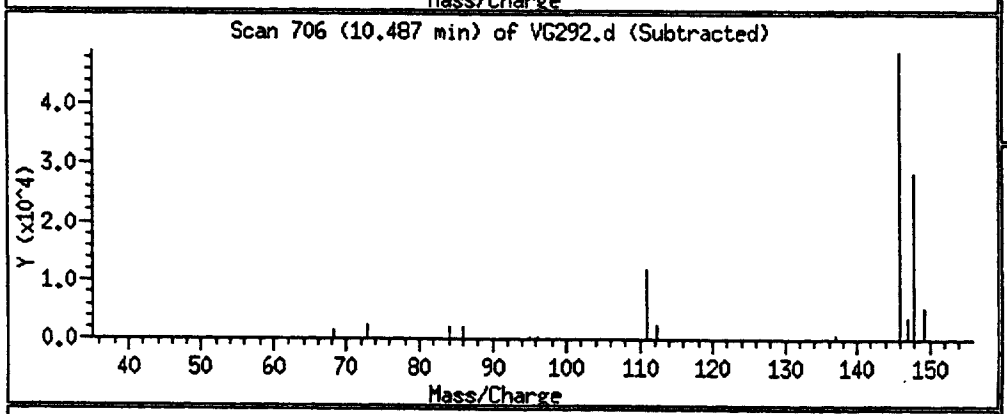


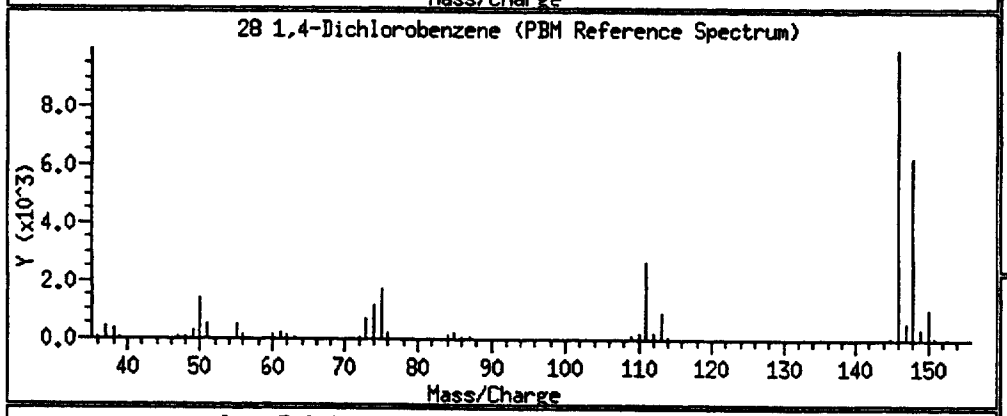


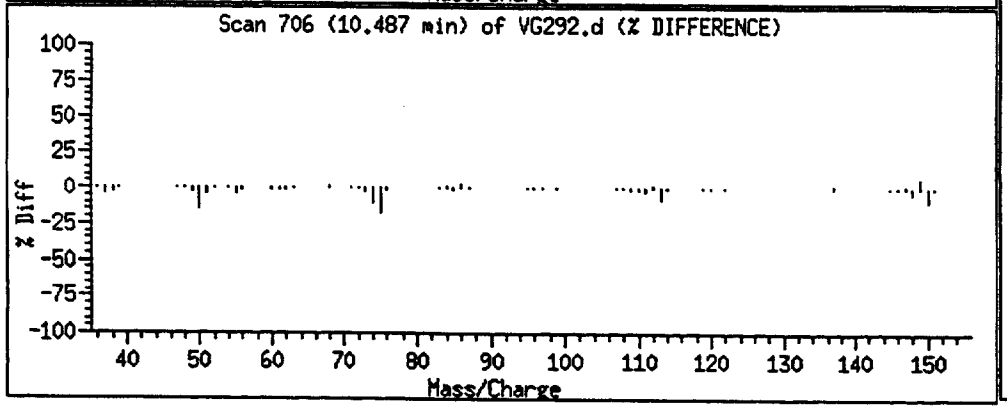
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

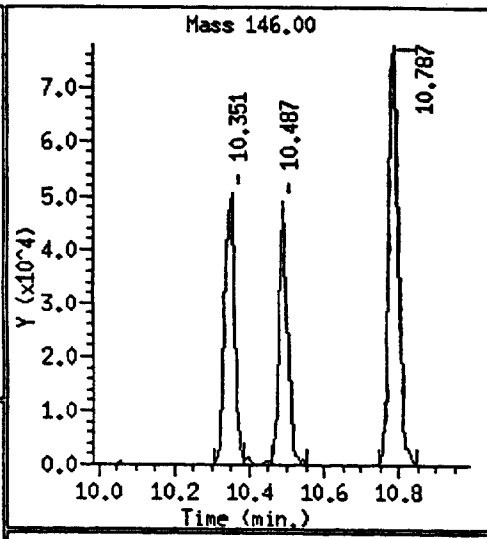
28 1,4-Dichlorobenzene

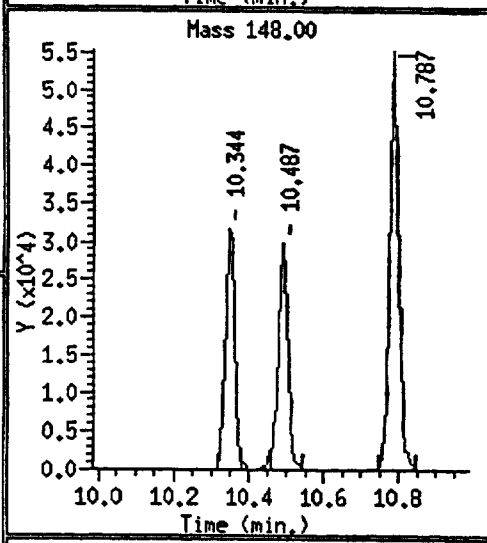


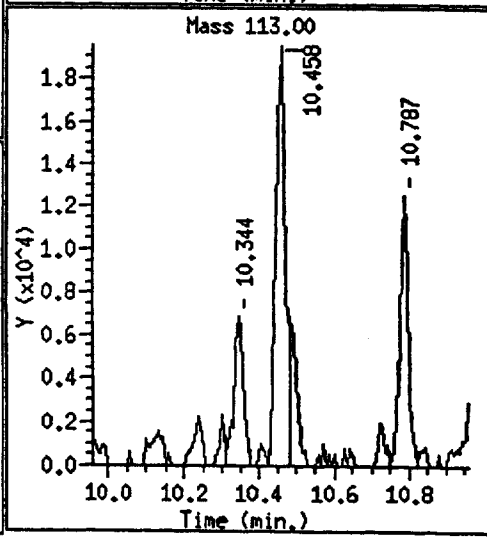












Data File: /chem/V.i/09-18-97.b/CAA/VG292.d

Date : 18-SEP-1997 21:08

Instrument : V.i

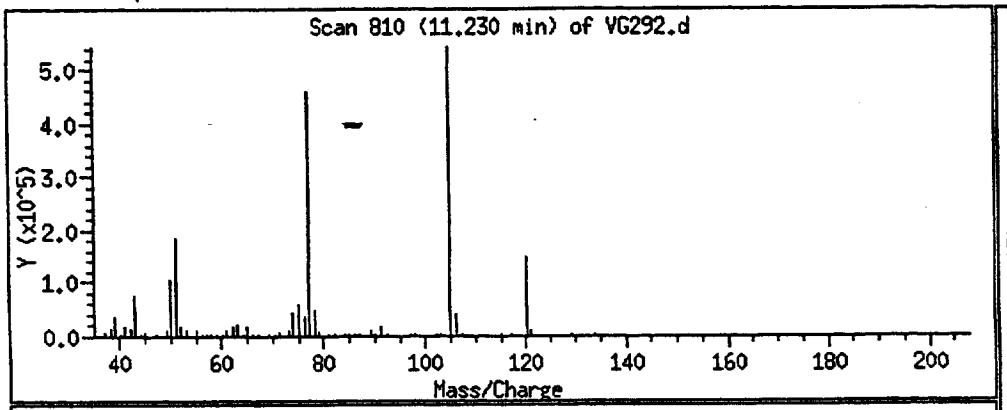
Sample ID : BO-0010-3

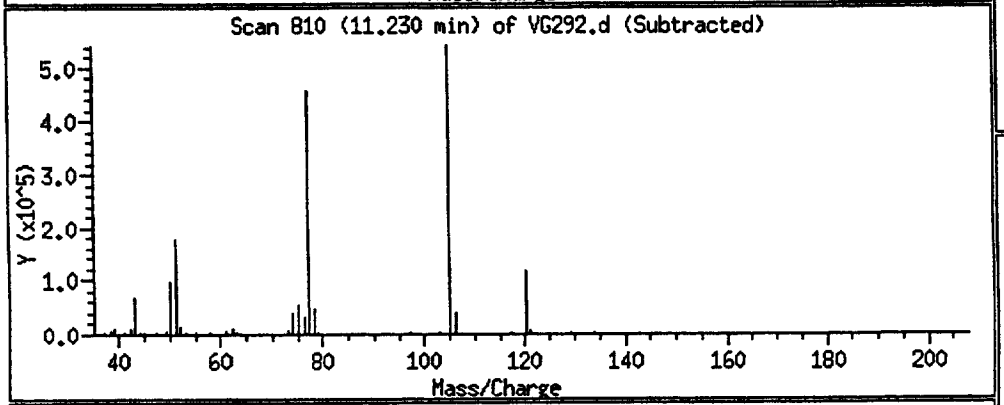
Column phase : DB.5-625

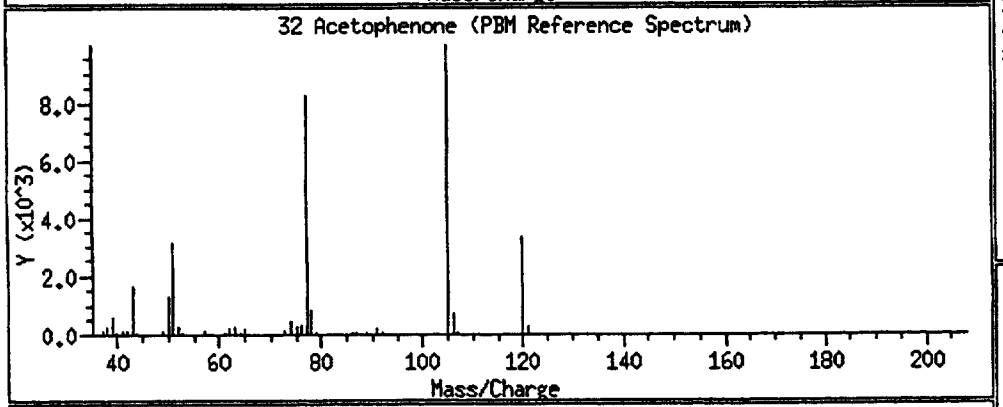
Column diameter : 0.32

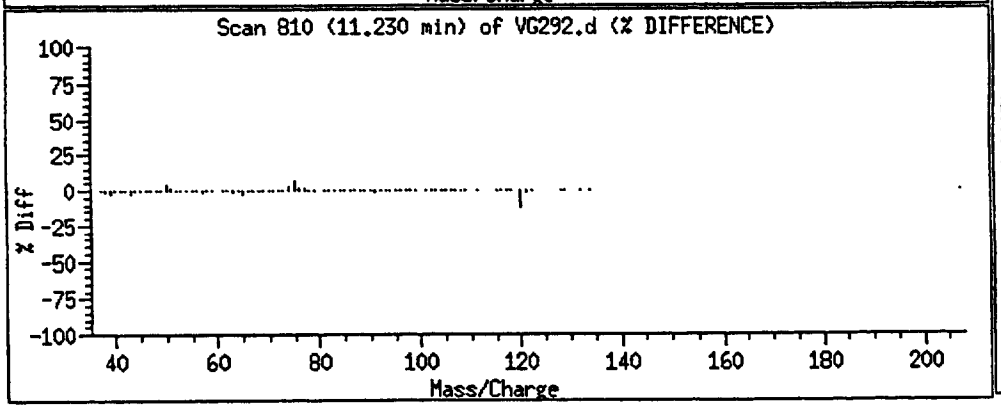
Volume Injected (uL) : 1.0

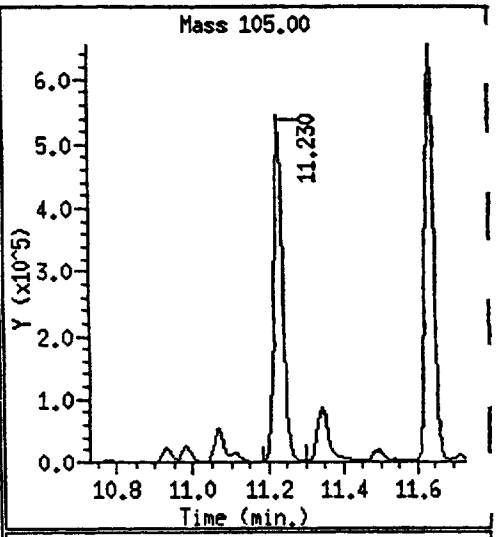
32 Acetophenone

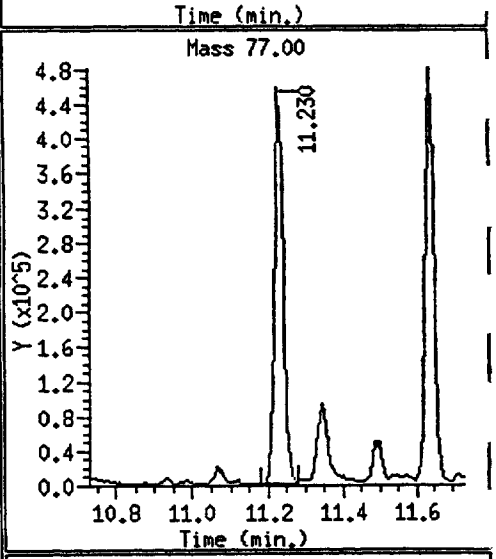


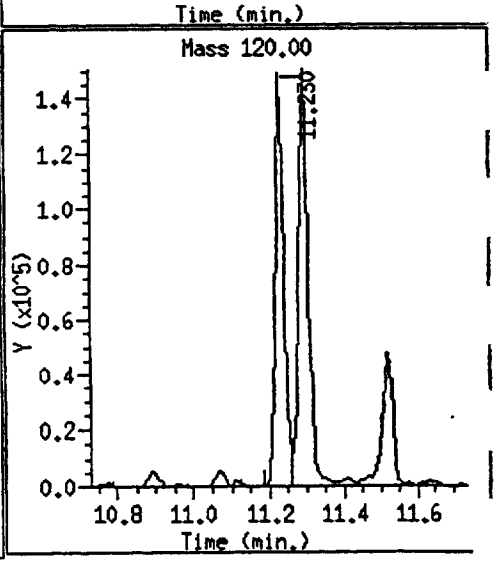






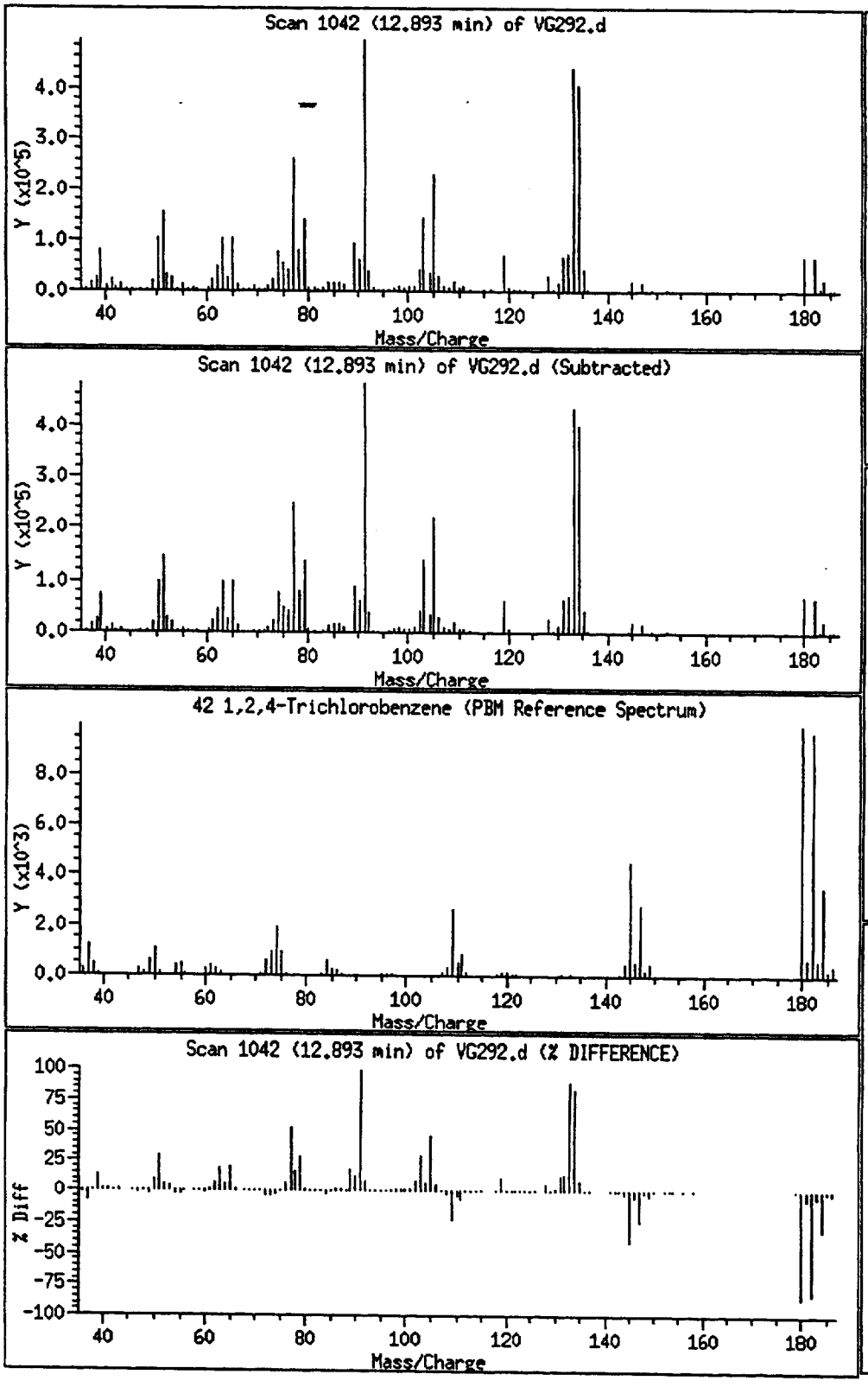


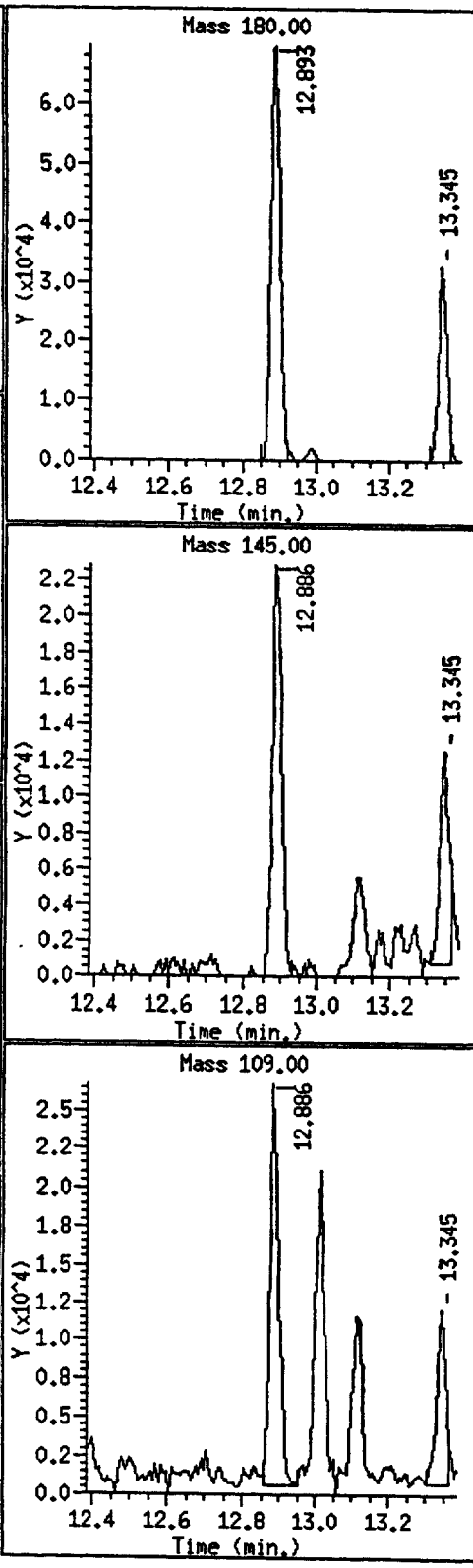




Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

42 1,2,4-Trichlorobenzene





Data File: /chem/V.i/09-18-97.b/CAA/VG292.d

Date : 18-SEP-1997 21:08

Instrument : V.i

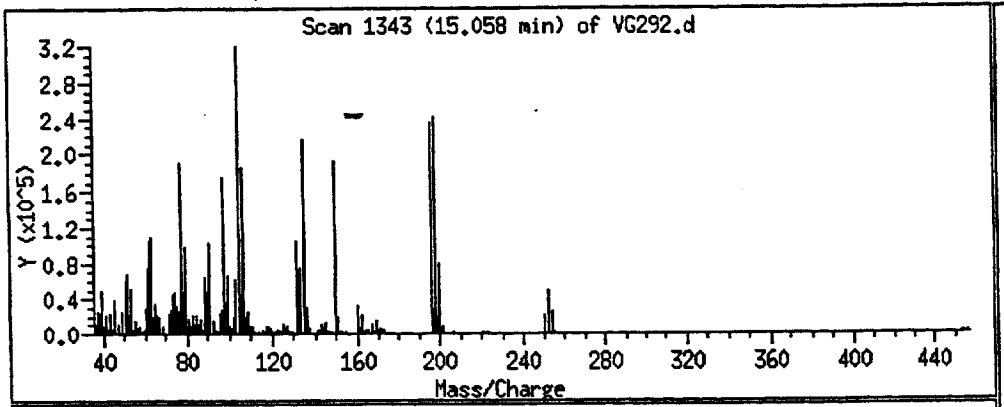
Sample ID : BO-0010-3

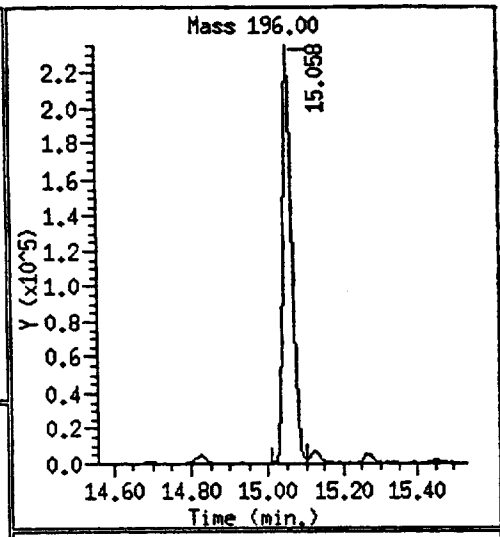
Column phase : DB.5-625

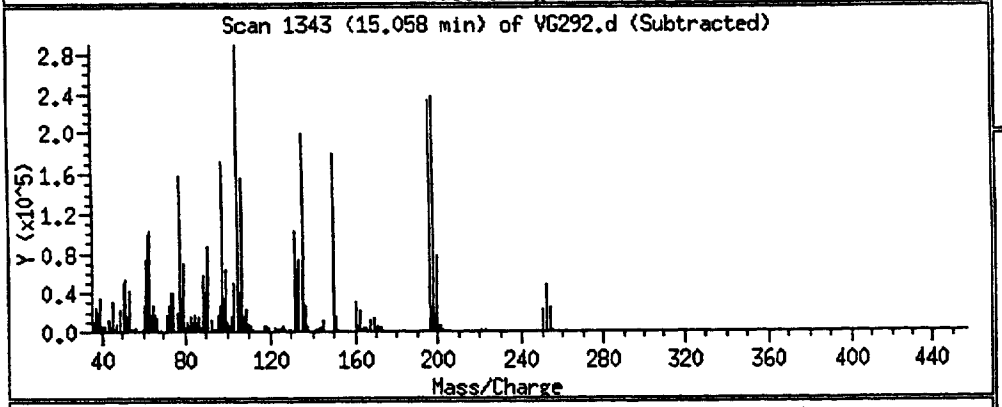
Column diameter : 0.32

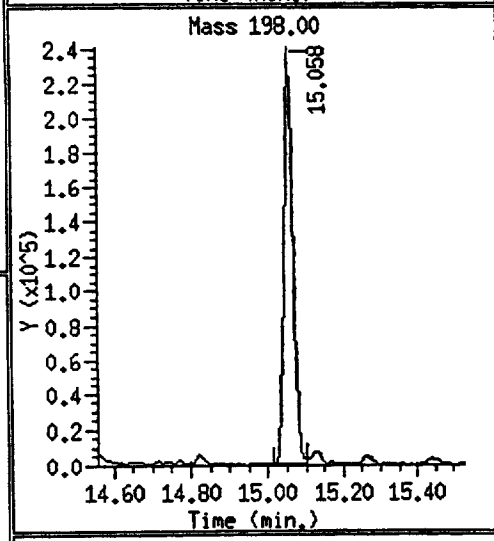
Volume Injected (uL) : 1.0

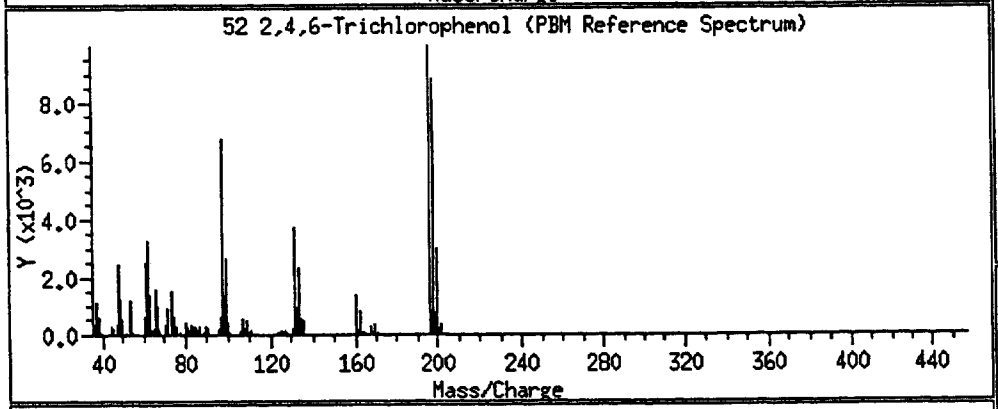
52 2,4,6-Trichlorophenol

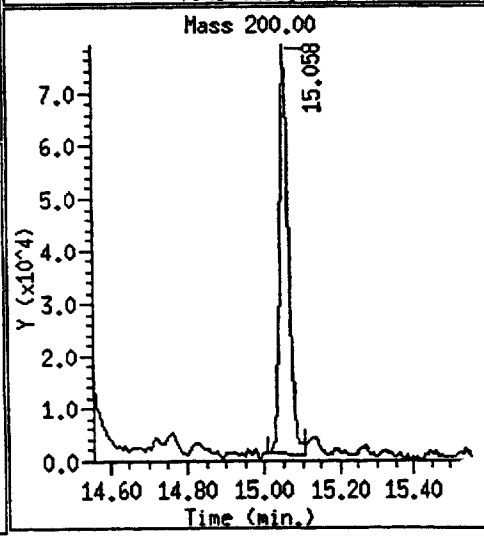


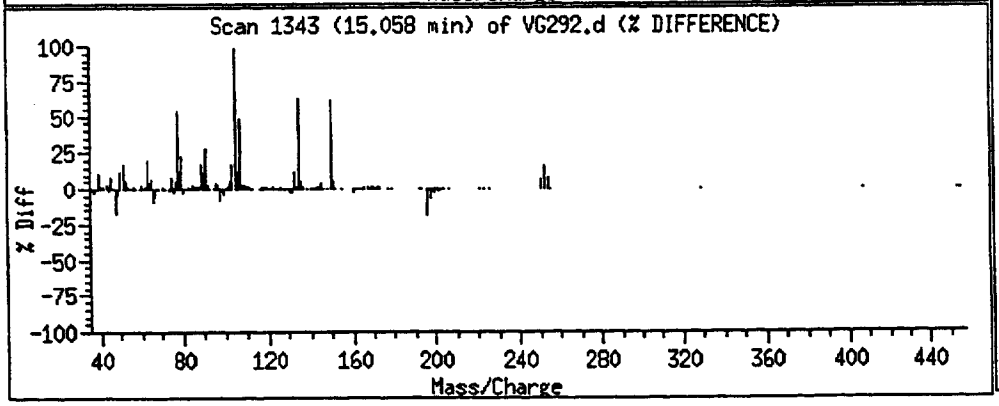






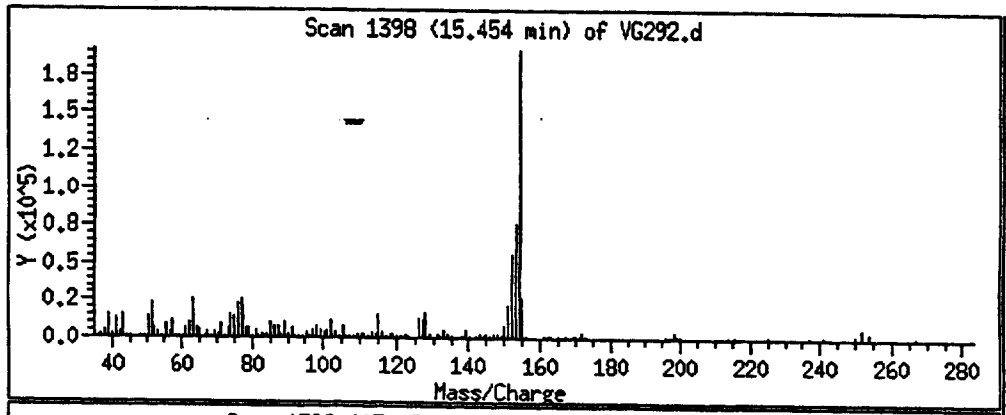


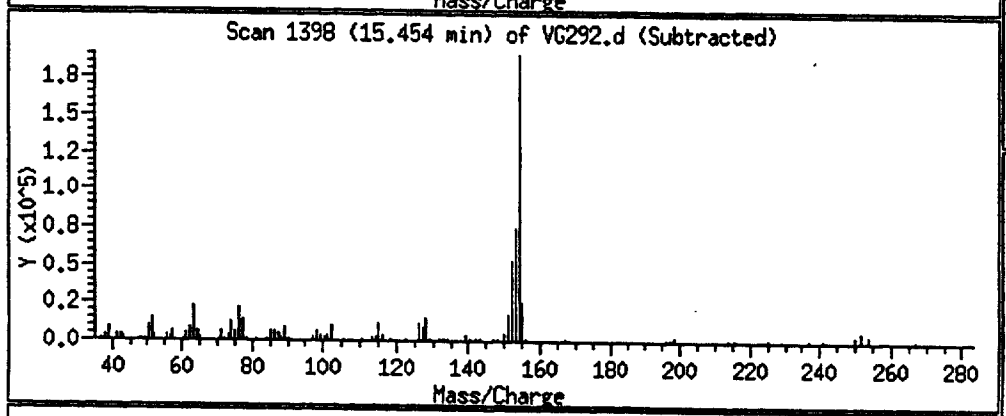


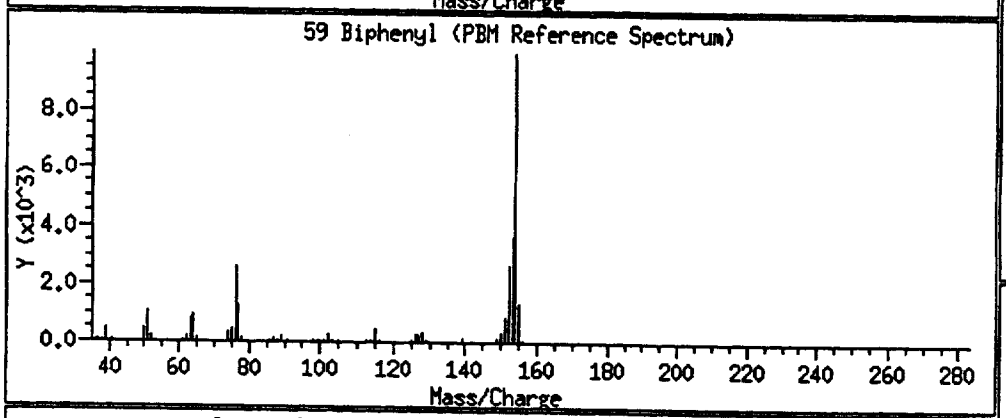


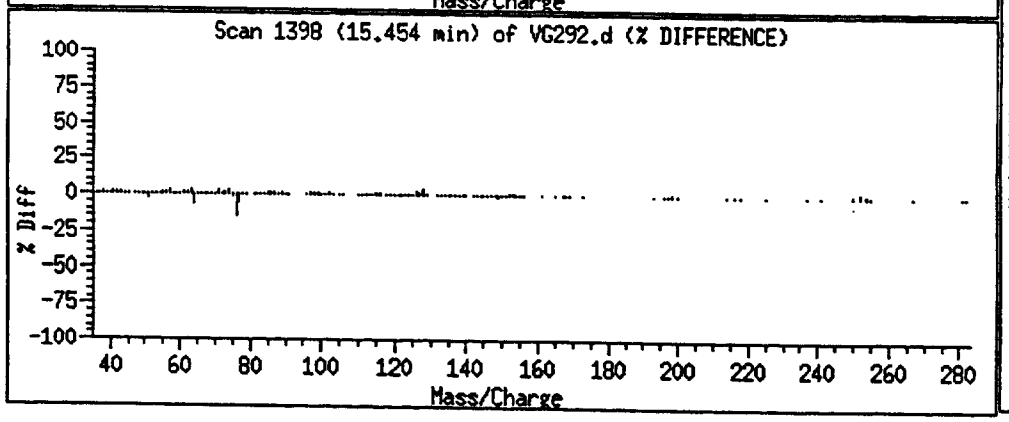
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

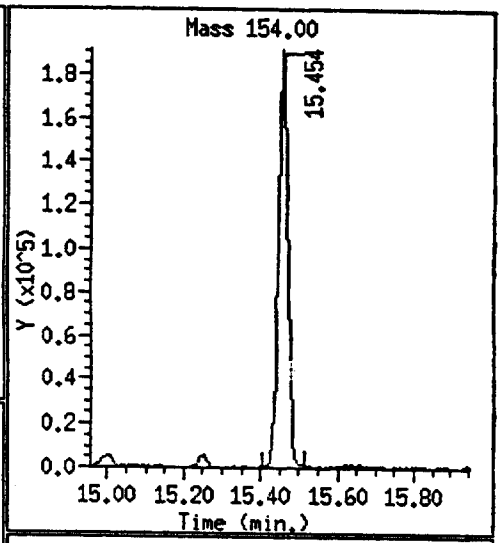
59 Biphenyl

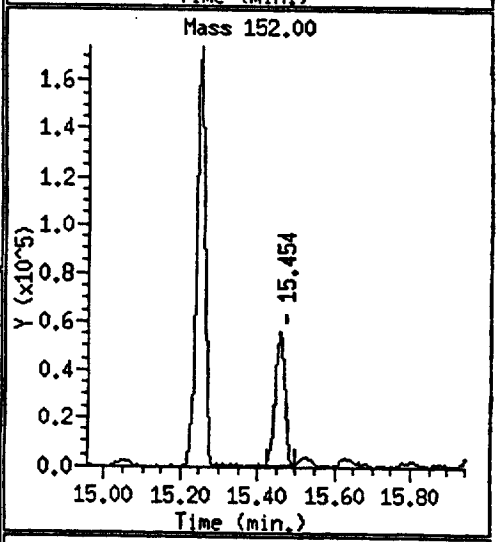


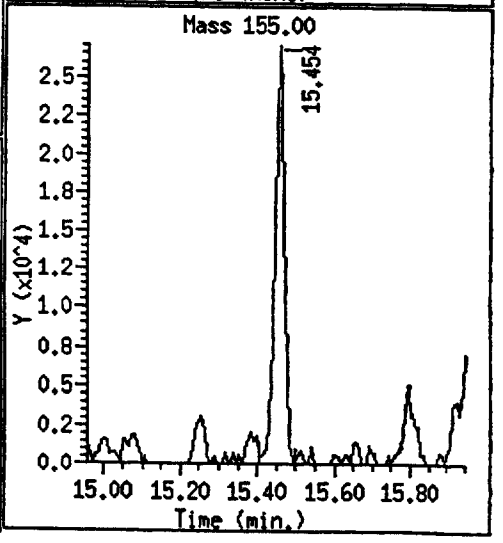












Data File: /chem/V.i/09-18-97.b/CAA/VG292.d

Date : 18-SEP-1997 21:08

Instrument : V.i

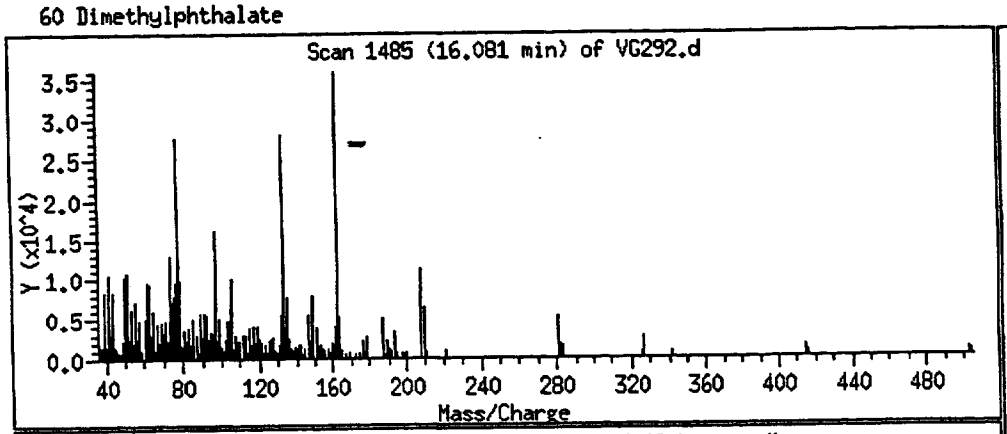
Sample ID : BO-0010-3

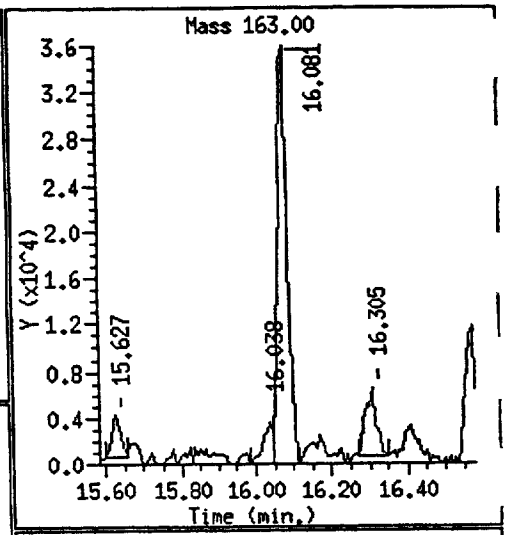
Column phase : DB.5-625

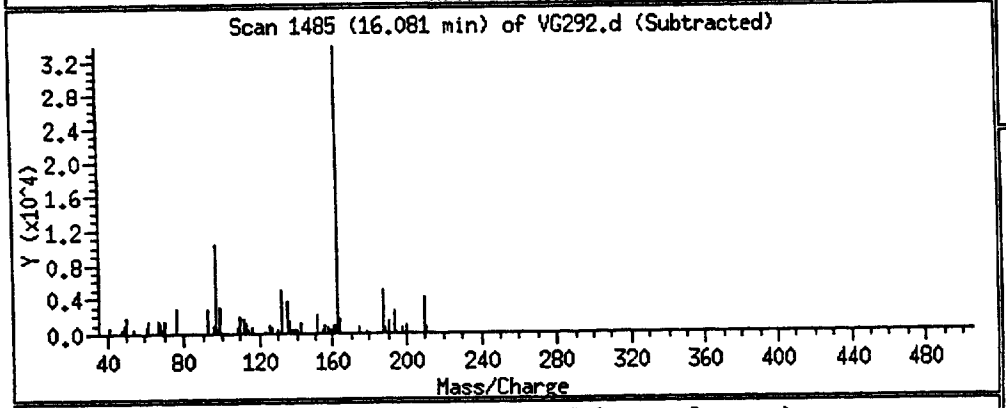
Column diameter : 0.32

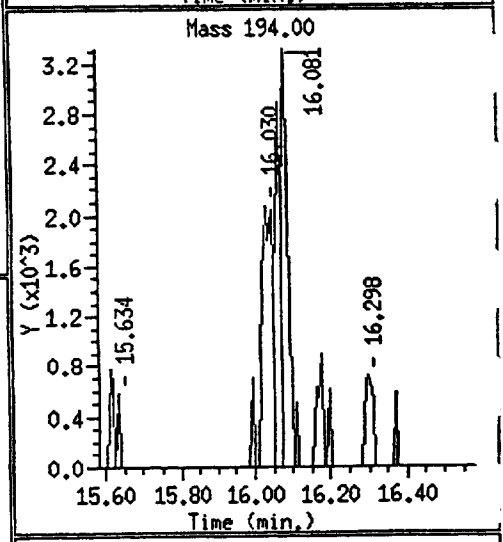
Volume Injected (uL) : 1.0

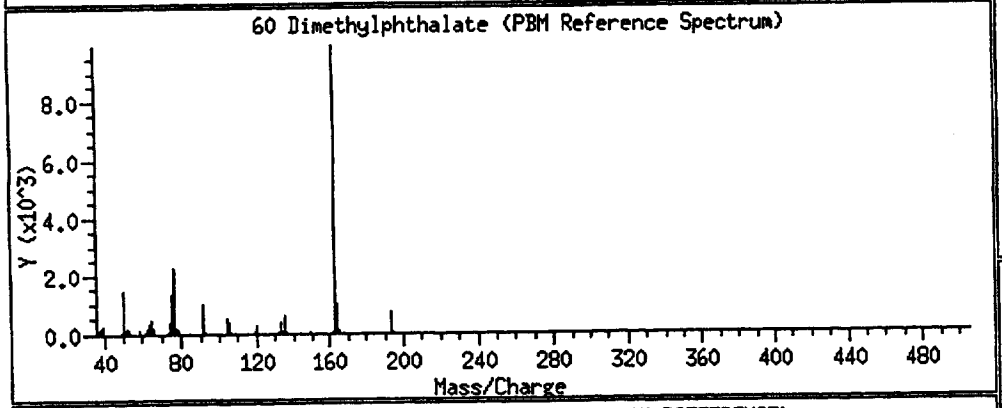
60 Dimethylphthalate

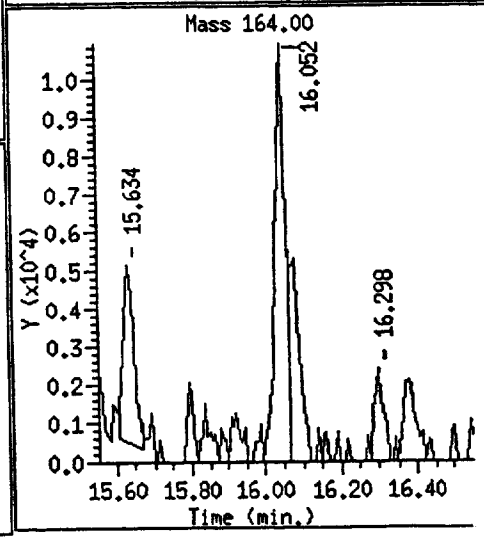


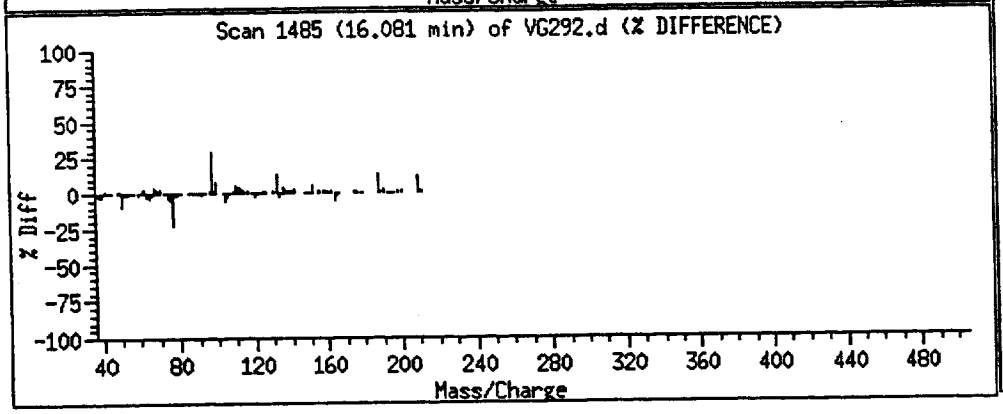






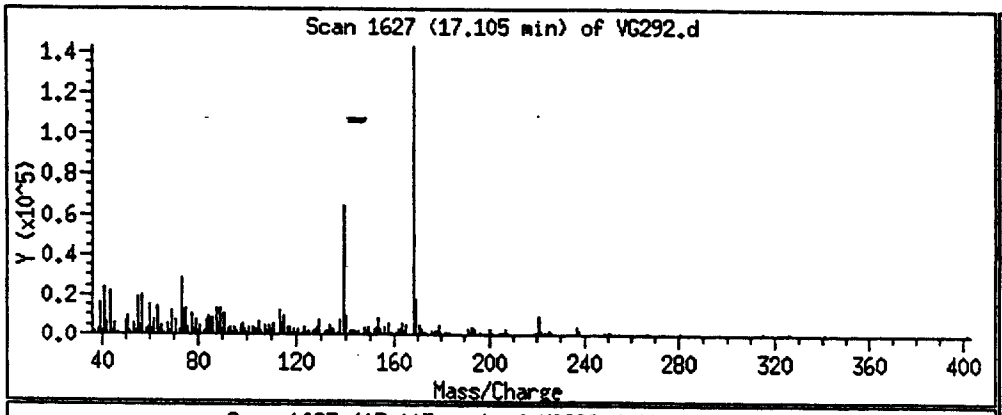


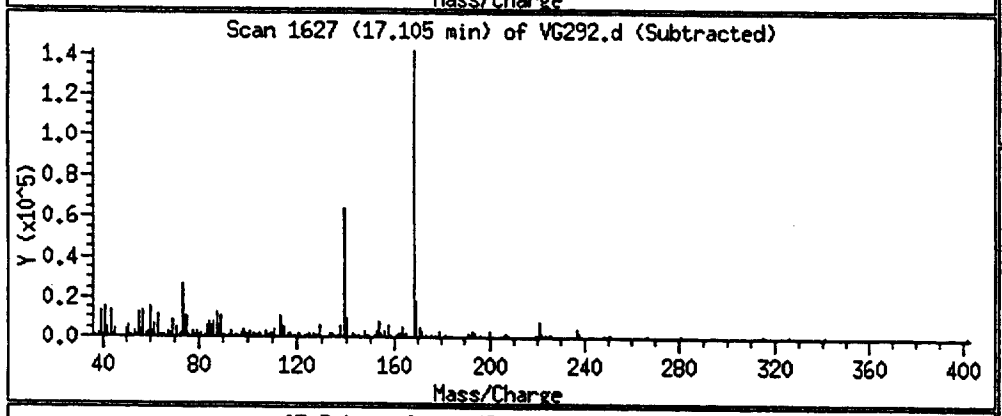


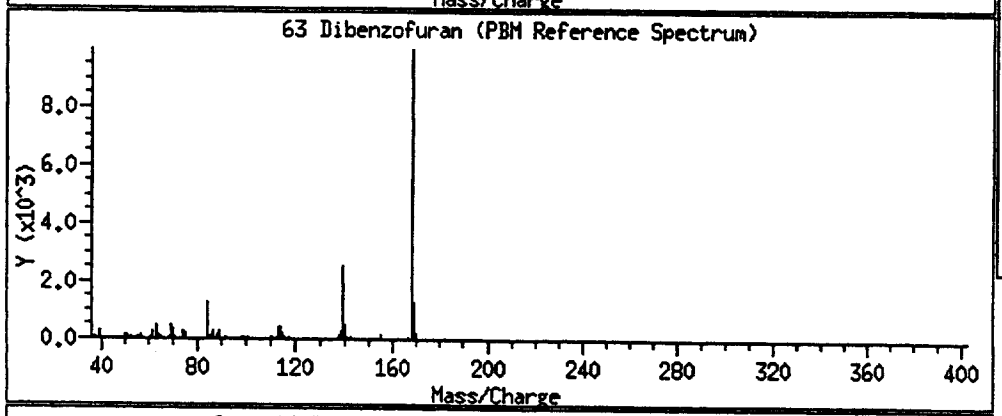


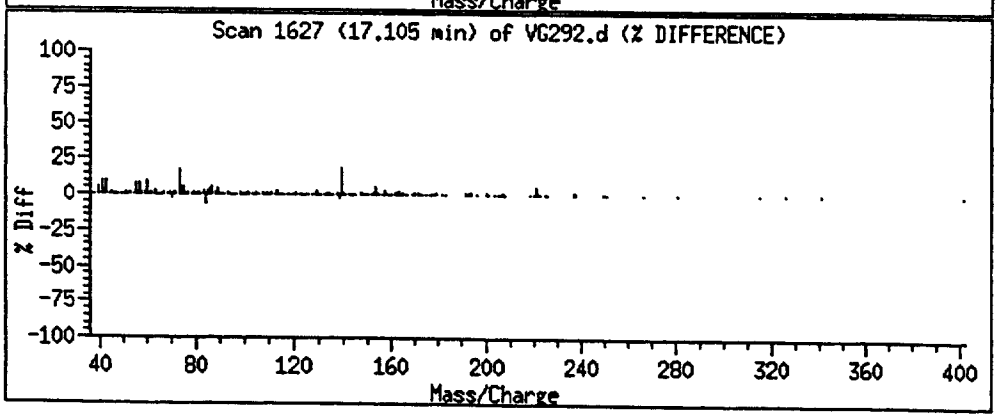
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

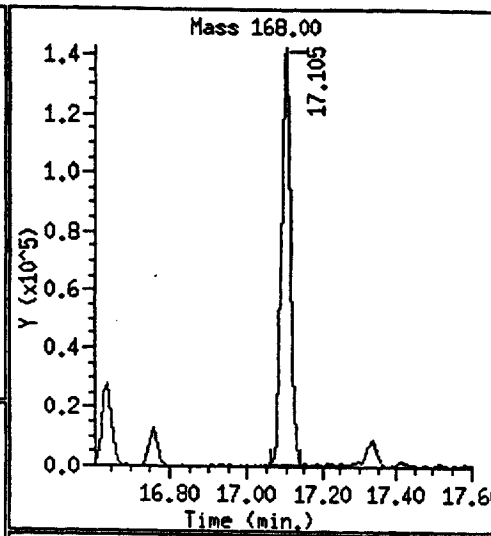
63 Dibenzofuran

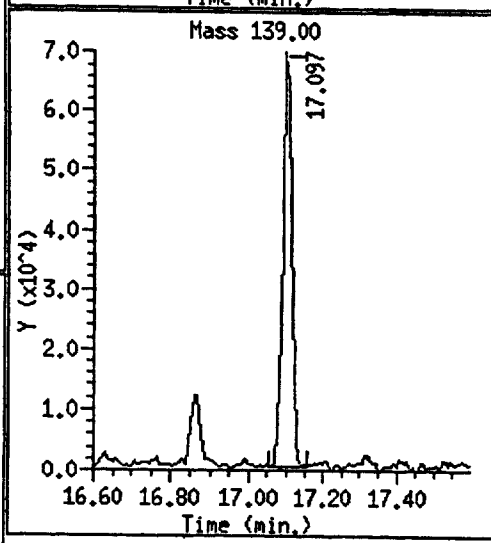






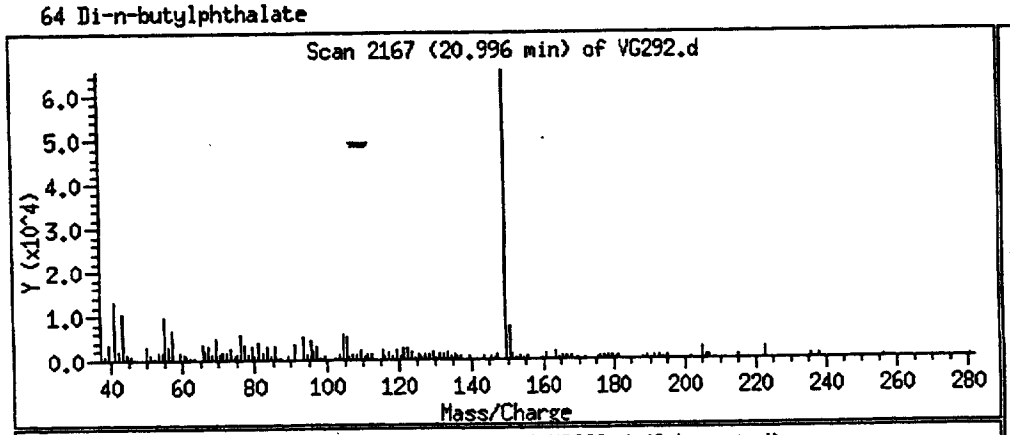


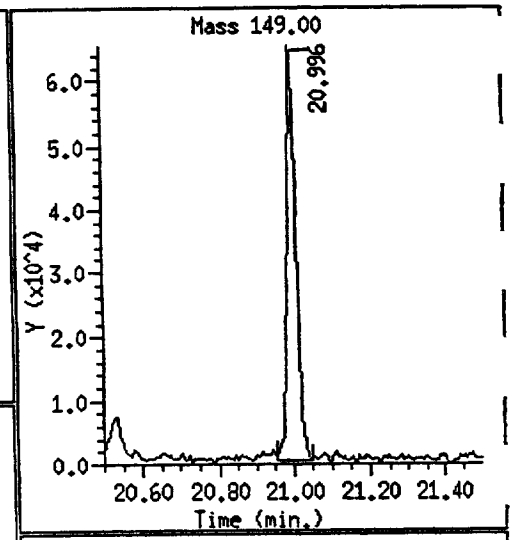


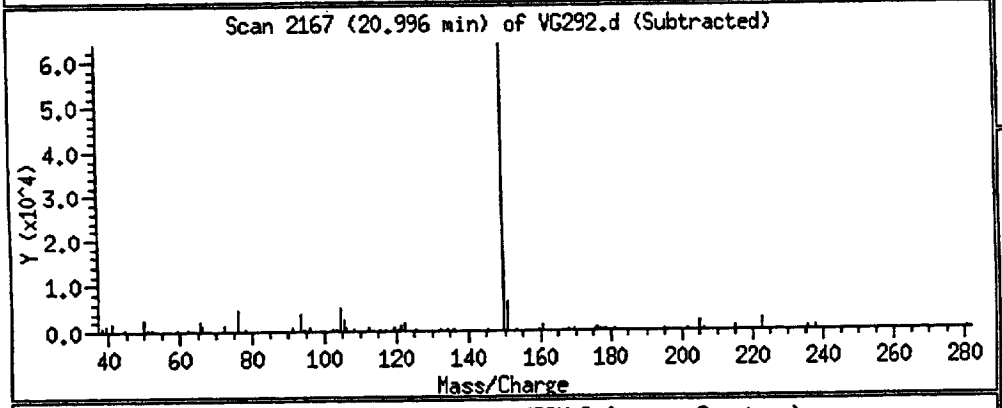


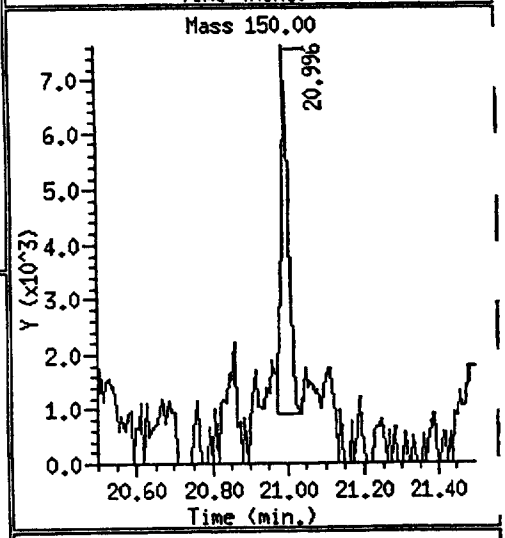
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

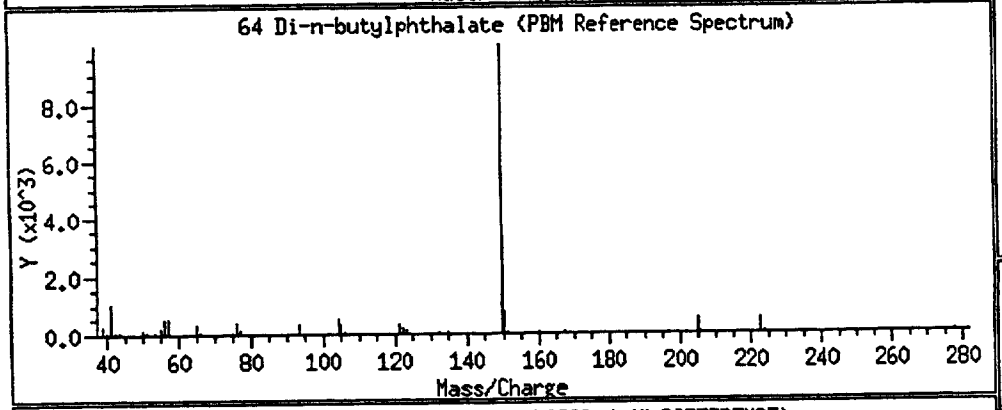
64 Di-n-butylphthalate

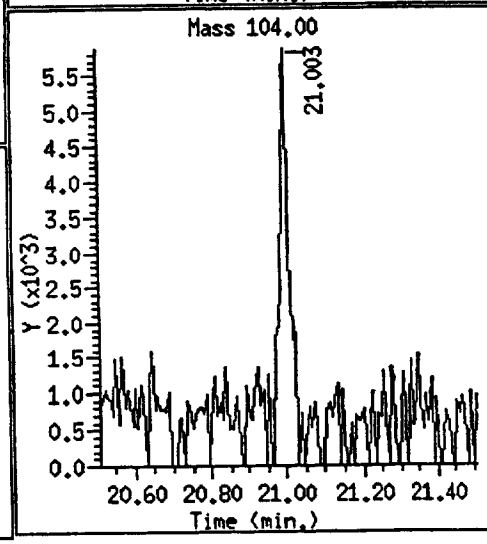


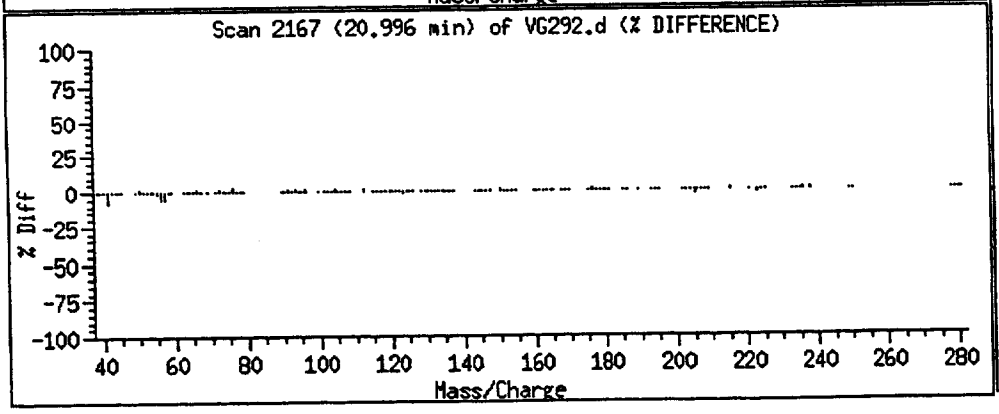






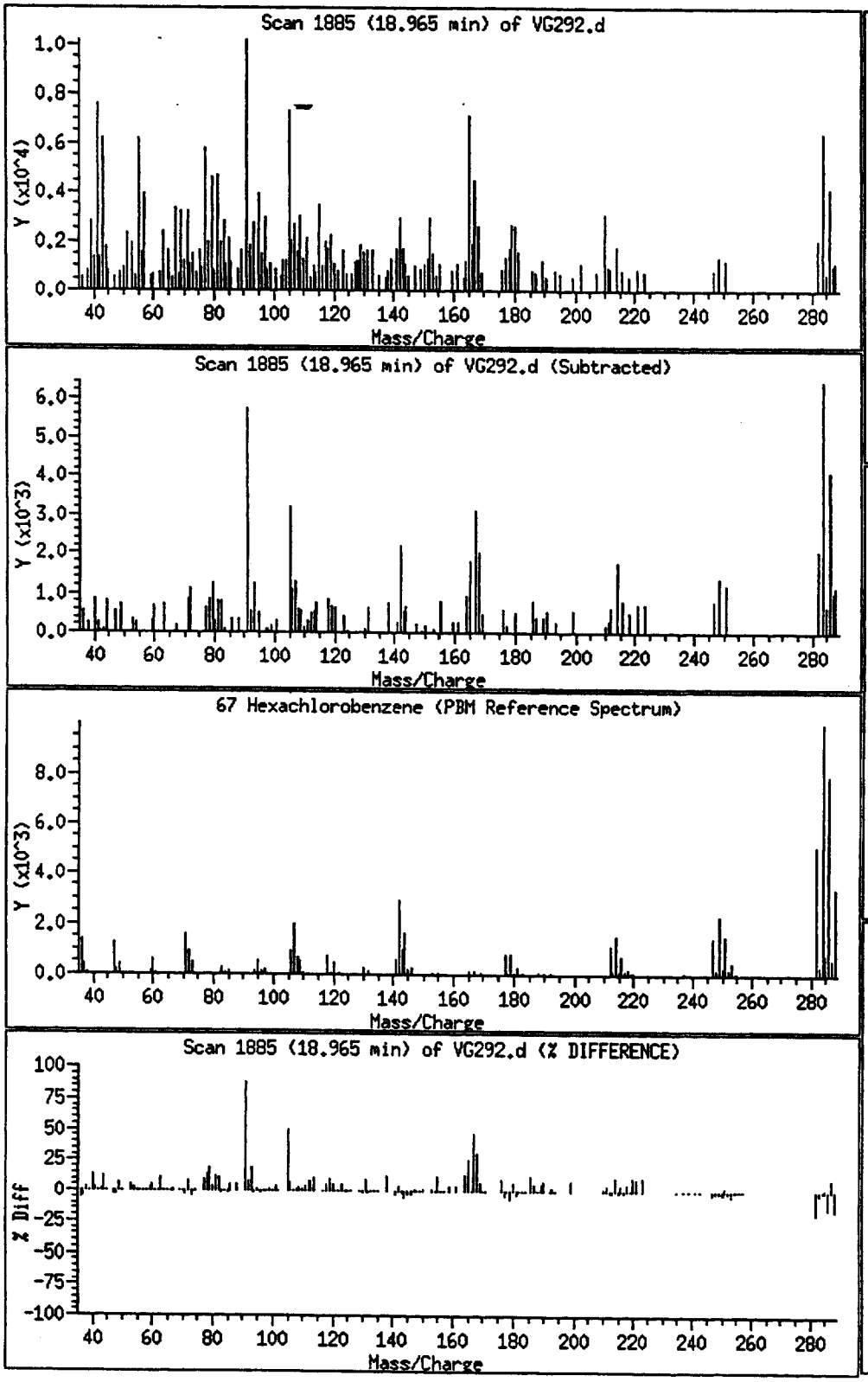


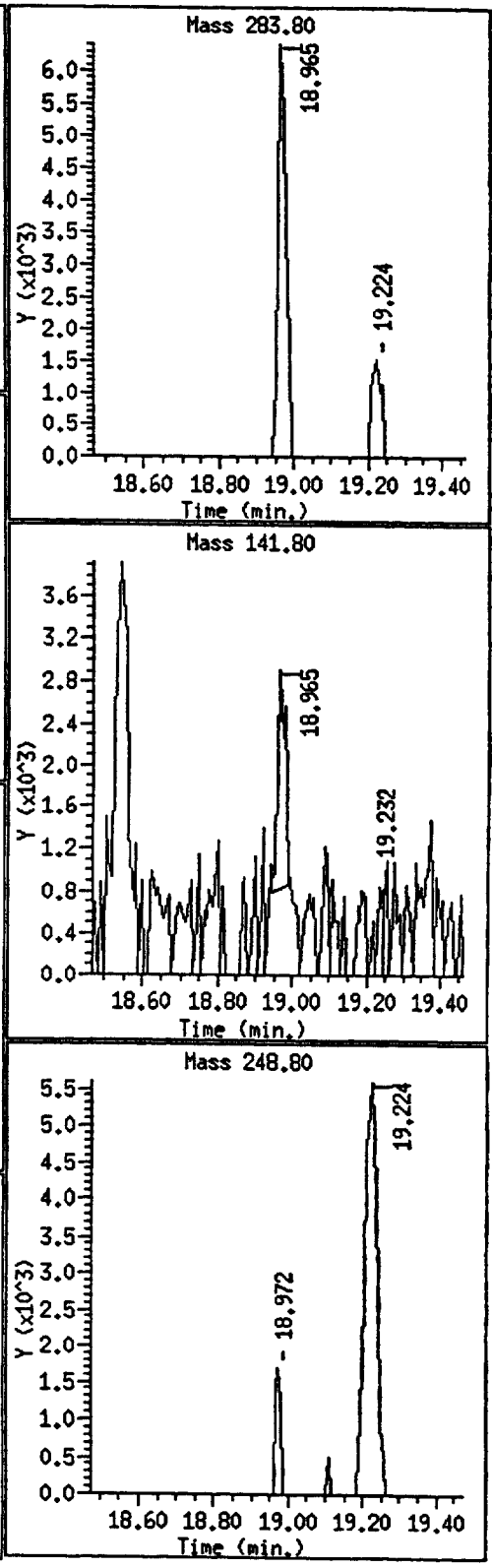




Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

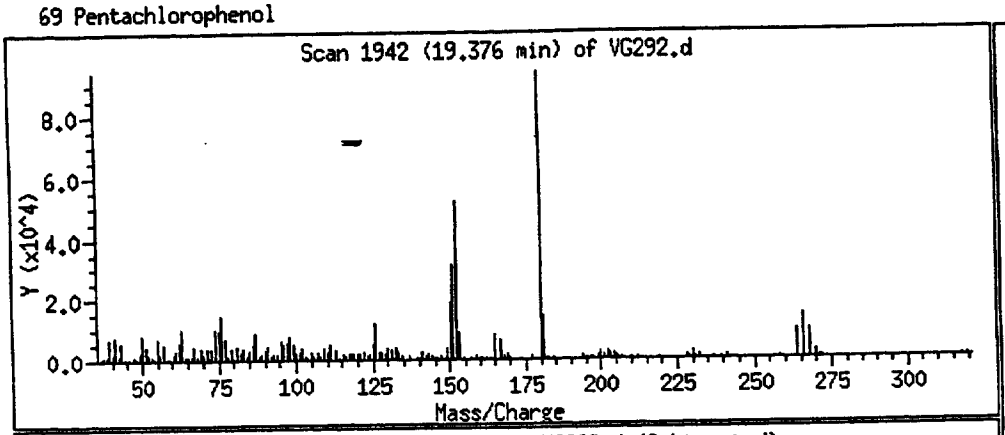
67 Hexachlorobenzene

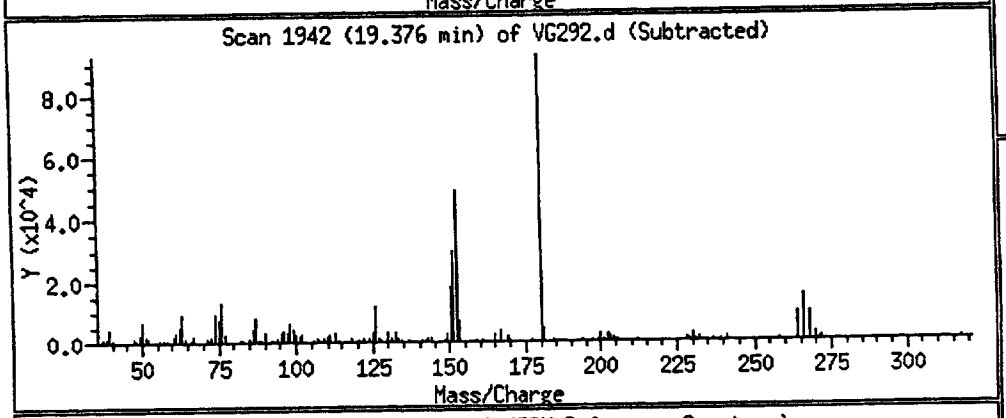


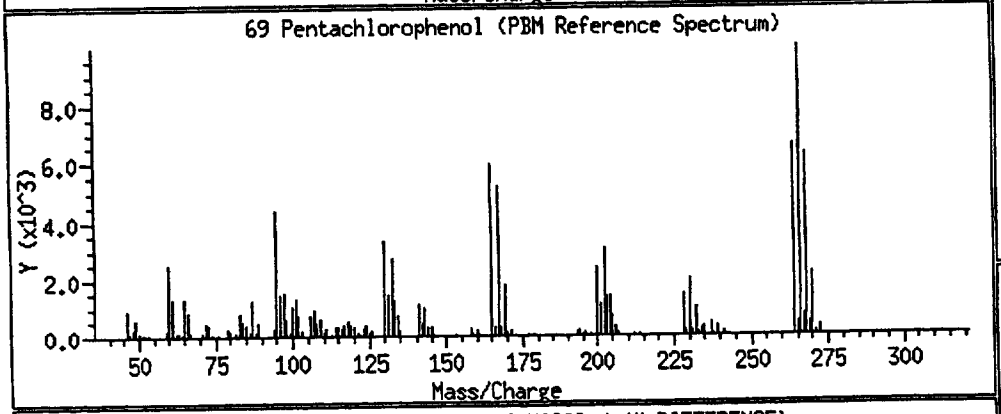


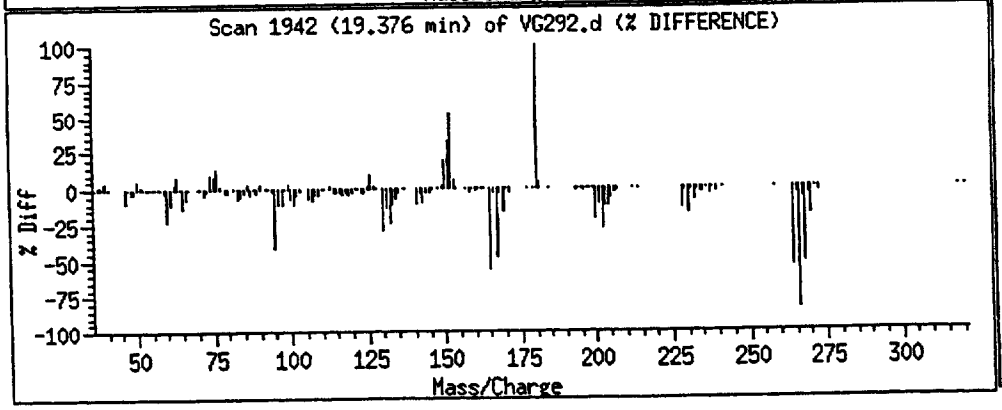
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

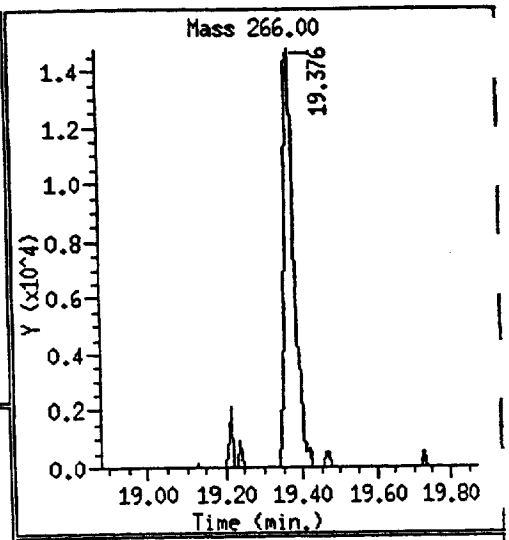
69 Pentachlorophenol

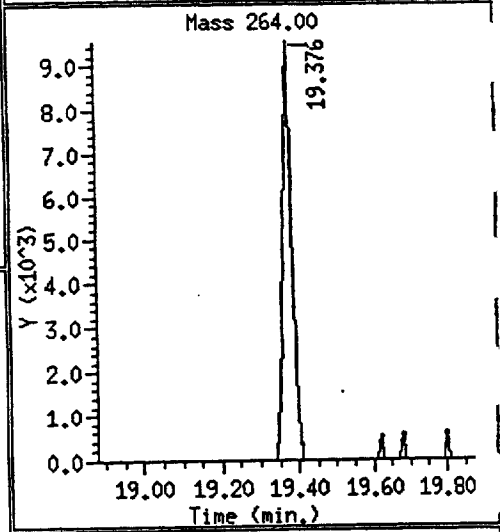


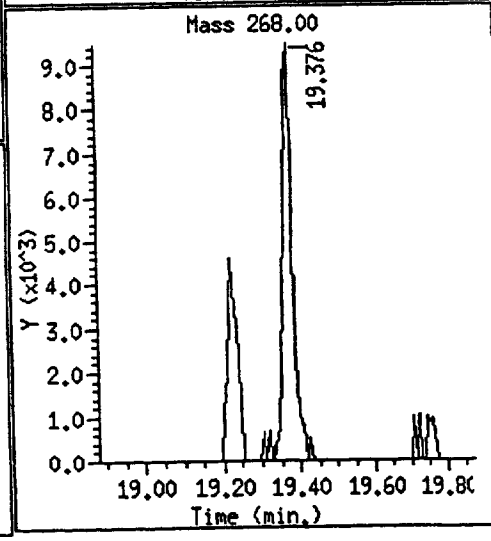






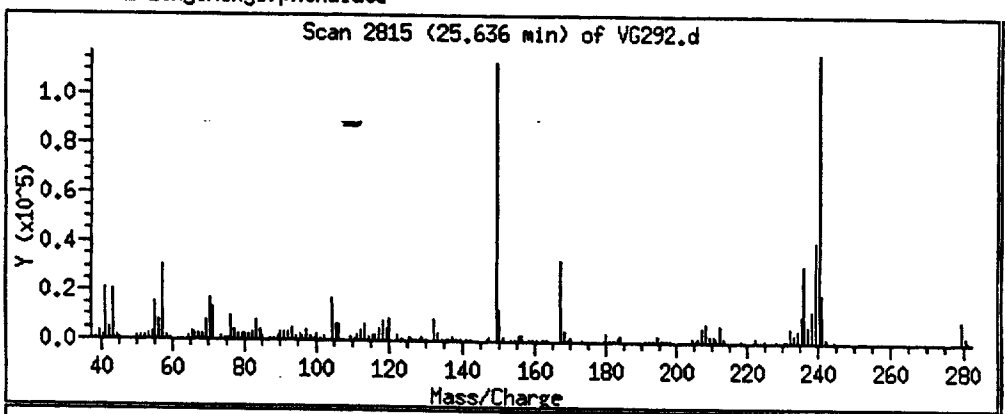


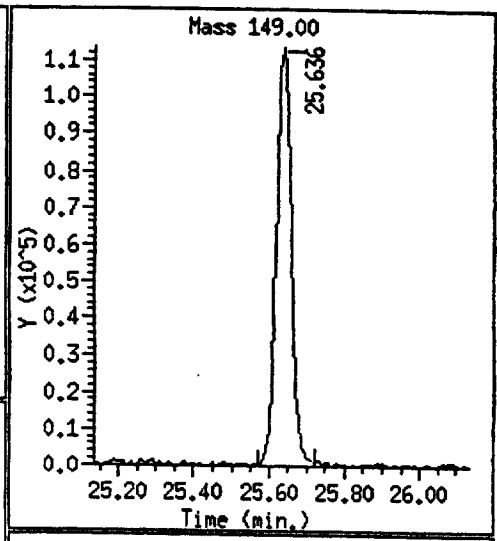


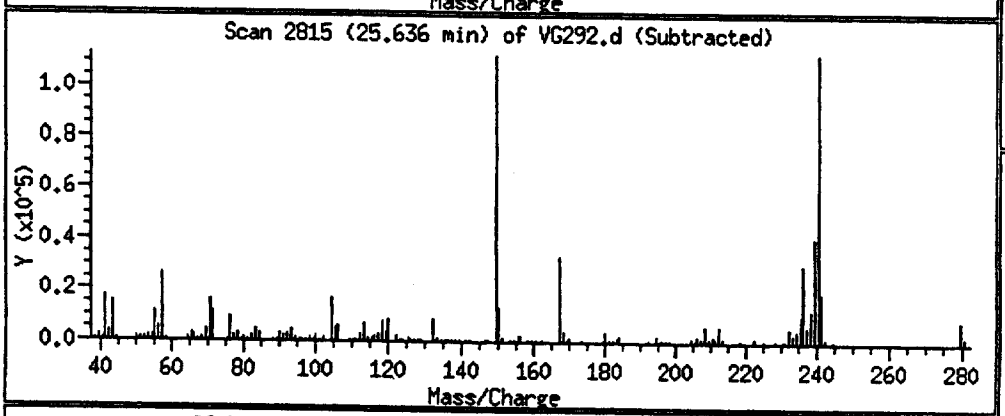


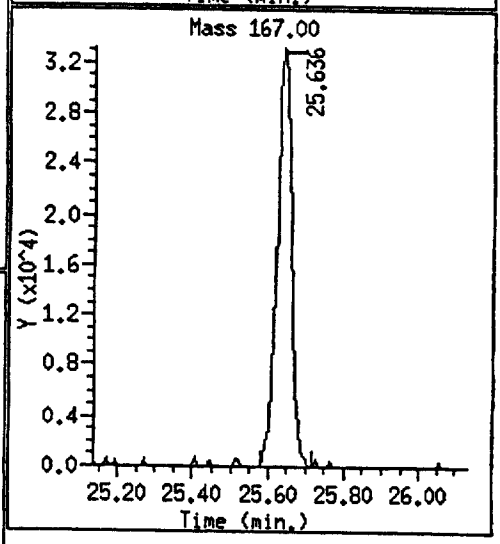
Data File: /chem/V.i/09-18-97.b/CAA/VG292.d
Date : 18-SEP-1997 21:08
Instrument : V.i
Sample ID : BO-0010-3
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

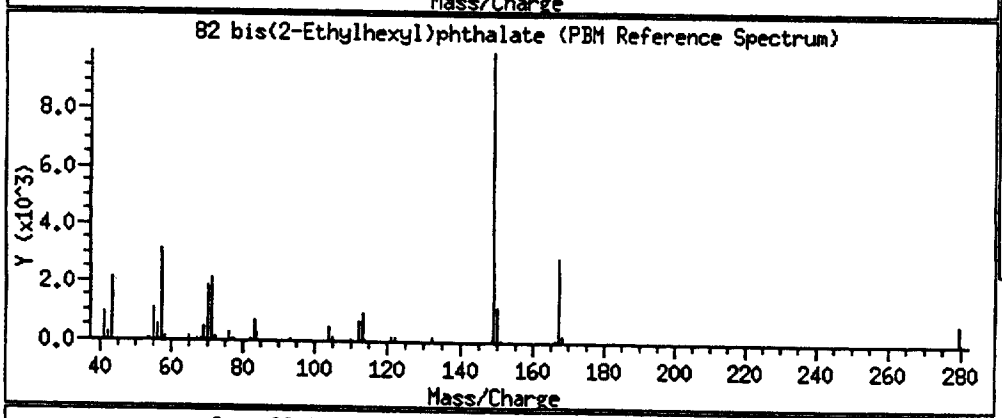
82 bis(2-Ethylhexyl)phthalate

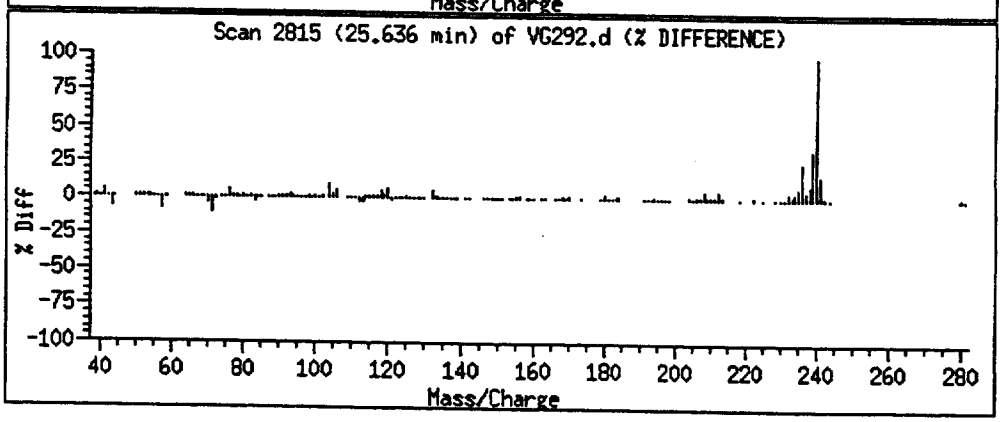












Project Number: 43230
Sample File: VG287

Method 8270A MM5
Sample ID: FB1-0010

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG279**
TLI ID: 183-2-1A-C | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
Naphthalene-d_8		IS 2	13.01		
Naphthalene	1.84	BJ	13.05		10
2-Methylnaphthalene	0.36	J	14.49		10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.27	10
Acenaphthylene		U		0.18	10
Acenaphthene		U		0.29	10
Fluorene		U		0.26	10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene		U		0.22	10
Anthracene		U		0.23	10
Fluoranthene		U		0.21	10
Chrysene-d_{12}		IS 5	25.62		
Pyrene		U		0.26	10
Benzo(a)anthracene		U		0.33	10
Chrysene		U		0.35	10
Perylene-d_{12}		IS 6	29.76		
Benzo(b)fluoranthene		U		0.45	10
Benzo(k)fluoranthene		U		0.44	10
Benzo(e)pyrene		U		0.44	10
Benzo(a)pyrene		U		0.50	10
Perylene		U		0.50	10
Indeno(1,2,3-cd)pyrene		U		0.60	10
Dibenz(a,h)anthracene		U		0.82	10
Benzo(g,h,i)perylene		U		0.69	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG287

Method 8270A MM5
Sample ID: FB1-0010

Client Project: S414.003/WAUPAC
TLI ID: 183-2-1A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Surrogate Summary	Amount (ug)	RT	IS Ref	%REC
Phenol-d_5	65.19	9.68	1	65
Nitrobenzene-d_5	53.74	11.54	2	54
1,3,5-Trichlorobenzene-d_3	51.69	12.23	2	52
1,4-Dibromobenzene-d_4	58.14	13.12	1	58
2-Fluorobiphenyl	68.57	15.25	3	69
2,4,6-Tribromophenol	94.98	18.32	3	95
Anthracene-d_{10}	104.10	19.92	4	104
Pyrene-d_{10}	117.91	22.80	5	118
Terphenyl-d_{14}	146.81	23.15	5	147

Reviewed by _____ Date 9/22/97

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

Pacific Environmental Services

Project Number: 43230
Sample File: VG287

Method 8270A MM5
Sample ID: FB1-0010

Client Project: S414.003/WAUPAC
TLI ID: 183-2-1A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
n-Nitrosodimethylamine		U		0.72	10
Cumene		U		0.19	10
Phenol	1.44	BJ	9.71		10
Aniline		U		0.27	10
bis-(2-Chloroethyl)ether		U		0.65	10
Benzyl Chloride		U		0.16	10
1,4-Dichlorobenzene		U		0.36	10
2-Methylphenol		U		0.48	10
Acetophenone	5.09	BJ	11.23		10
n-Nitrosomorpholine		U		0.66	10
o-Toluidine		U		0.31	10
Hexachloroethane		U		0.68	10
1,2-Dibromo-3-chloropropane		U		0.79	10
N,N-Diethylaniline		U		0.25	10
Naphthalene-d_8		IS 2	13.01		
3/4-Methylphenol		U		0.42	10
Nitrobenzene		U		0.22	10
N,N-Dimethylaniline		U		0.23	10
Isophorone		U		0.21	10
o-Anisidine		U		0.52	10
1,4-Phenylenediamine		U		0.38	10
1,2,4-Trichlorobenzene		U		0.41	10
Hexachlorobutadiene		U		0.53	10
a,a,a-Trichlorotoluene		U		0.25	10
Hydroquinone		U		0.50	10

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Pacific Environmental Services

Project Number: 43230
Sample File: VG287

Method 8270A MM5
Sample ID: FB1-0010

Client Project: 5414.003/WAUPAC
TLI ID: 183-2-1A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.22	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.52	10
2,4,6-Trichlorophenol		U		0.65	10
2,4,5-Trichlorophenol		U		0.64	10
Biphenyl		U		0.20	10
Dimethylphthalate	3.19	J	16.08		10
2,4-Dinitrophenol		U		3.27	25
4-Nitrophenol		U		1.36	25
2,4-Dinitrotoluene		U		0.78	10
Dibenzofuran		U		0.19	10
4,6-Dinitro-2-methylphenol		U		1.93	25
Trifluralin		U		0.93	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	3.06	BJ	21.00		10
Hexachlorobenzene		U		0.61	10
4-Aminobiphenyl		U		0.24	10
Pentachlorophenol		U		0.93	25
Pentachloronitrobenzene		U		1.43	10
4-Nitrobiphenyl		U		0.64	10
Chrysene-d_{12}		IS 5	25.62		
Benzidine		U		0.43	10
4,4'-Methylenedianiline		U		1.05	10
Dimethylaminoazobenzene		U		0.80	10
3,3'-Dimethylbenzidine		U		0.62	10
3,3'-Dimethoxybenzidine		U		1.28	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG287

Method 8270A MM5
Sample ID: FB1-0016

Client Project: 5414.003/WAUPAC
TLI ID: 183-2-1A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.06	10
Methylene bis-chloroaniline		U		1.83	10
bis(2-Ethylhexyl)phthalate	8.95	BJ	25.65		10

Reviewed by Sah Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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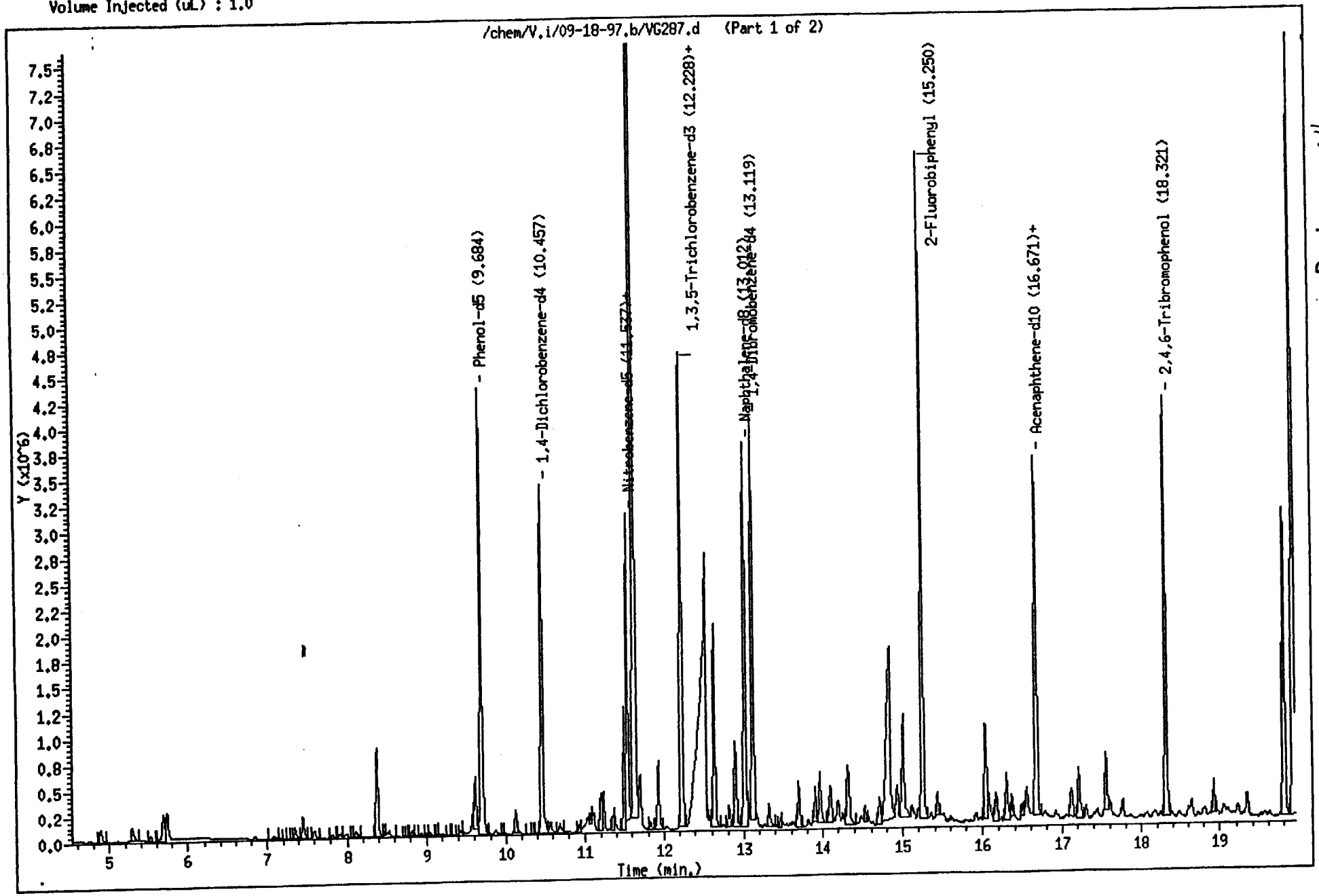
Phone: (919) 544-5729 • Fax: (919) 544-5491

Data File: /chem/V.i/09-18-97.b/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32

134



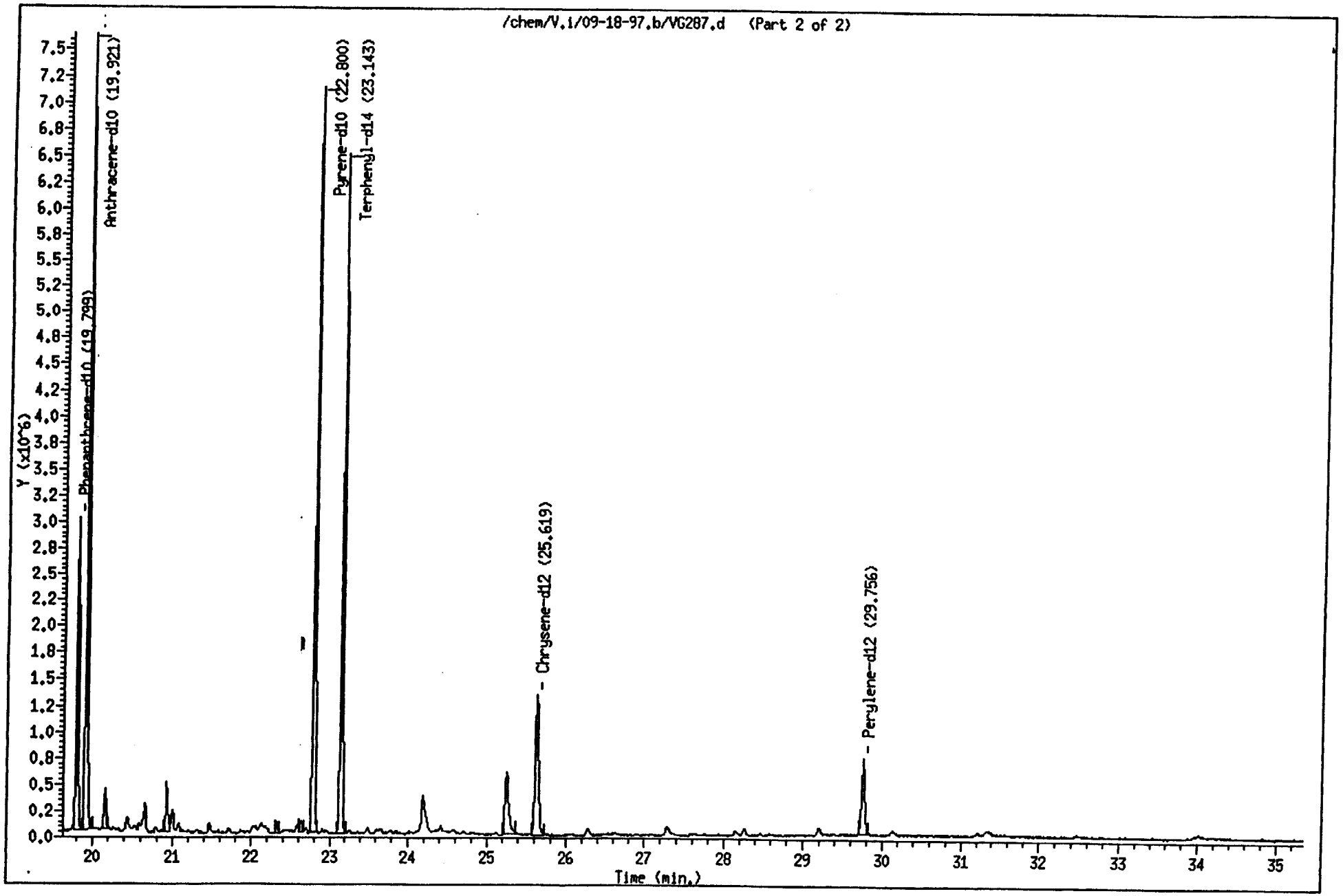
Data Review: ZDH
Date: 9/19/97

Data File: /chem/V.i/09-18-97.b/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32

135



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG287.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 17:03 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : FB1-0010
Misc Info : 183-2-1A-C
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 7
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
*	1 1,4-Dichlorobenzene-d4	152.00	10.457(1.000)	839173	40.00	
*	2 Naphthalene-d8	136.00	13.012(1.000)	2740370	40.00	
*	3 Acenaphthene-d10	164.00	16.671(1.000)	1345543	40.00	
*	4 Phenanthrene-d10	188.00	19.799(1.000)	1965993	40.00	
*	5 Chrysene-d12	240.00	25.619(1.000)	1053756	40.00	
*	6 Perylene-d12	264.00	29.763(1.000)	878741	40.00	
$	7 2-Fluorophenol	Compound Not Detected.				
$	8 Phenol-d5	99.00	9.684(0.926)	2125361	65.21	65.21
$	9 2-Chlorophenol-d4	Compound Not Detected.				
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.				
$	11 Nitrobenzene-d5	82.00	11.537(0.887)	1568469	53.69	53.69
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.228(0.940)	1331394	51.71	51.71
$	13 1,4-Dibromobenzene-d4	240.00	13.119(1.255)	1253971	58.14	58.14
$	14 2-Fluorobiphenyl	172.00	15.250(0.915)	3042567	68.56	68.56
$	15 2,4,6-Tribromophenol	329.80	18.321(1.099)	805140	94.86	94.86
$	16 Anthracene-d10	188.00	19.921(1.006)	5049776	104.06	104.06
$	17 Pyrene-d10	212.00	22.800(0.890)	4727687	117.89	117.89
$	18 Terphenyl-d14	244.00	23.150(0.904)	3384167	146.78	146.78(R)
	42 Naphthalene	128.00	13.055(1.003)	121673	1.84	1.84(a)
	46 2-Methylnaphthalene	142.00	14.486(1.113)	14377	0.36	0.36(a)
	50 2-Chloronaphthalene	Compound Not Detected.				
	56 Acenaphthylene	152.00	~~16.686(1.001)~~	~~1859~~	~~0.03~~	~~0.03(a)~~
	58 Acenaphthene	154.00	~~17.208(1.032)~~	~~1244~~	~~0.04~~	~~0.04(a)~~
	65 Fluorene	166.00	~~18.171(1.090)~~	~~1998~~	~~0.05~~	~~0.05(a)~~
	73 Phenanthrene	178.00	~~19.856(1.003)~~	~~5450~~	~~0.12~~	~~0.12(a)~~
	74 Anthracene	178.00	~~19.856(1.003)~~	~~5450~~	~~0.13~~	0.13(a)
	77 Fluoranthene	Compound Not Detected.				
	78 Pyrene	Compound Not Detected.				
	83 Benzo(a)anthracene	Compound Not Detected.				
	84 Chrysene	Compound Not Detected.				
	86 Benzo(b)fluoranthene	Compound Not Detected.				

FP

Data Review: [illegible]
Date: 9/27

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	Compound Not Detected.				
90 Perylene	Compound Not Detected.				
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG287.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 17:03 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : FB1-0010
Misc Info : 183-2-1A-C
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32 Cal File: VG280.d
Als bottle: 7
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: CAA1.sub
Sample Type: mm5

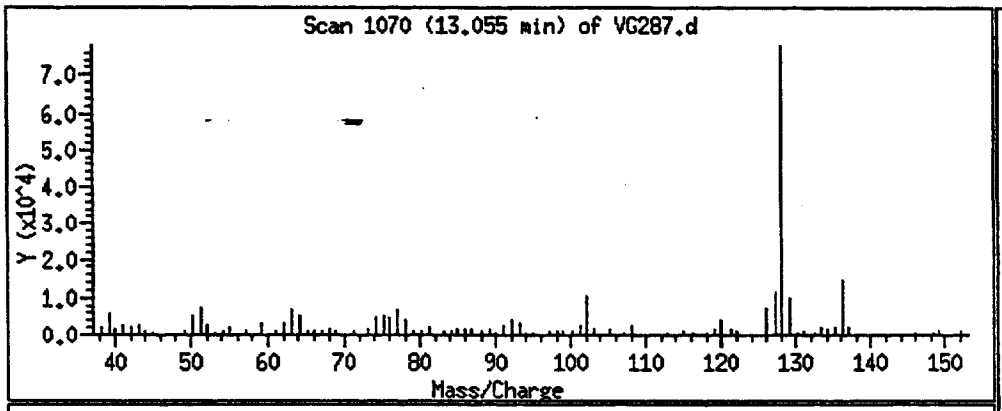
	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
*	1 1,4 Dichlorobenzene-d4	152.00	10.457(1.000)	839173	40.00		
*	2 Naphthalene-d8	136.00	13.012(1.000)	2740375	40.00		
*	3 Acenaphthene-d10	164.00	16.671(1.000)	1345543	40.00		
*	4 Phenanthrene-d10	188.00	19.799(1.000)	1965993	40.00		
*	5 Chrysene-d12	240.00	25.619(1.000)	1053756	40.00		
*	6 Perylene-d12	264.00	29.763(1.000)	878741	40.00		
$	7 2-Fluorophenol	Compound Not Detected.					
$	8 Phenol-d5	99.00	9.684(0.926)	2125361	72.20	72.20	
$	9 2-Chlorophenol-d4	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.					
$	11 Nitrobenzene-d5	82.00	11.537(0.887)	1568472	51.60	51.60	
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.228(0.940)	1331394	50.61	50.61	
$	13 1,4-Dibromobenzene-d4	240.00	13.119(1.255)	1253971	60.34	60.34	
$	14 2-Fluorobiphenyl	172.00	15.250(0.915)	3042567	67.77	67.77	
$	15 2,4,6-Tribromophenol	329.80	18.321(1.099)	805140	94.77	94.77	
$	16 Anthracene-d10	188.00	19.921(1.006)	5046488	97.13	97.13	
$	17 Pyrene-d10	212.00	22.800(0.890)	4727687	118.46	118.46	
$	18 Terphenyl-d14	244.00	23.150(0.904)	3384167	132.01	132.01	
	19 n-Nitrosodimethylamine	74.00	~~4.890(0.468)~~	~~54814~~	~~3.94~~	~~3.94~~	FP Soil
	20 Cumene	105.00	~~8.946(0.856)~~	~~4847~~	~~0.09~~	~~0.09~~	
	22 Phenol	94.00	9.705(0.928)	42335	1.44	1.44	
	23 Aniline	93.00	~~9.705(0.928)~~	~~387~~	~~0.01~~	~~0.01~~	FP Soil
	26 bis-(2-Chloroethyl)ether	63.00	~~9.691(0.927)~~	~~9220~~	~~0.59~~	~~0.59~~	
	27 Benzyl Chloride	Compound Not Detected.					
	28 1,4-Dichlorobenzene	146.00	~~10.493(1.003)~~	~~4463~~	~~0.15~~	~~0.15~~	
	30 2-Methylphenol	108.00	~~11.203(1.071)~~	~~932~~	~~0.04~~	~~0.04~~	FP Soil
	31 3/4-Methylphenol	108.00	~~11.203(0.861)~~	~~932~~	~~0.03~~	~~0.03~~	
	32 Acetophenone	105.00	11.231(1.074)	169868	5.09	5.09	
	33 n-Nitrosomorpholine	56.00	~~11.623(1.111)~~	~~1207735~~	~~80.02~~	~~80.02~~	FP Soil
	34 o-Toluidine	106.00	~~11.231(1.074)~~	~~11943~~	~~0.36~~	~~0.36~~	
	35 Hexachloroethane	Compound Not Detected.					

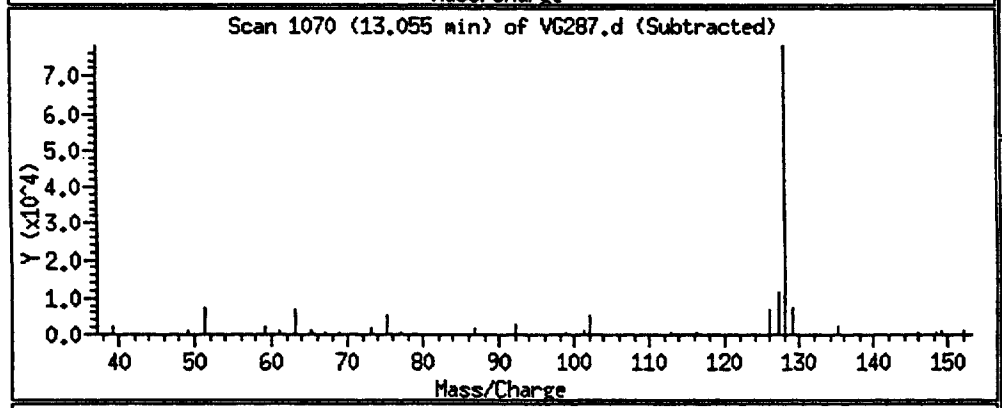
Data Review: [illegible]
Date: 9/22/97

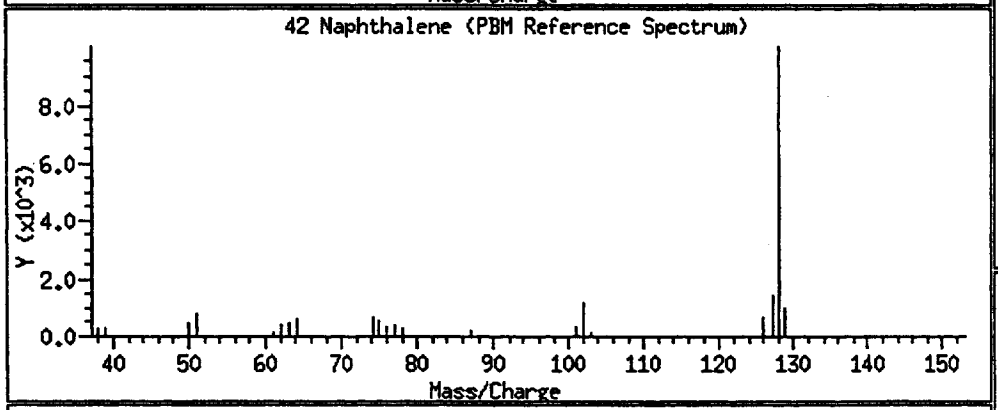
Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
36 Nitrobenzene	77.00	~~11.637(0.894)~~	~~806070~~	~~17.92~~	~~17.92~~	FP salt
37 N,N-Dimethylaniline	Compound Not Detected.					
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.					
39 Isophorone	82.00	~~11.623(0.893)~~	~~40768~~	~~0.86~~	~~0.86~~	FP salt
40 o-Anisidine	Compound Not Detected.					
41 1,4-Phenylenediamine	108.00	~~14.116(1.085)~~	1067	0.04	~~0.04~~	FP Salt
42 1,2,4-Trichlorobenzene	Compound Not Detected.					
43 Naphthalene	128.00	13.055(1.003)	121673	1.50	1.50	
45 Hexachlorobutadiene	Compound Not Detected.					
46 N,N-Diethylaniline	134.00	~~13.012(1.244)~~	~~241810~~	~~6.15~~	~~6.15~~	FP salt
47 a,a,a-Trichlorotoluene	Compound Not Detected.					
48 Hydroquinone	110.00	~~13.880(1.067)~~	~~3405~~	~~0.17~~	0.17	FP salt
50 2-Chloroacetophenone	105.00	~~14.194(1.091)~~	~~22159~~	~~0.48~~	~~0.48~~	
51 Hexachlorocyclopentadiene	Compound Not Detected.					
52 2,4,6-Trichlorophenol	Compound Not Detected.					
53 2,4,5-Trichlorophenol	Compound Not Detected.					
59 Biphenyl	154.00	~~15.250(0.915)~~	~~4681~~	0.09	0.09	FP salt
60 Dimethylphthalate	163.00	16.078(0.964)	123774	3.19	3.19	
71 2,4-Dinitrophenol	Compound Not Detected.					
61 4-Nitrophenol	139.00	~~16.857(1.011)~~	~~219~~	~~0.03~~	0.03	FP salt
62 2,4-Dinitrotoluene	165.00	~~17.114(1.027)~~	~~12438~~	~~0.97~~	0.97	
63 Dibenzofuran	168.00	~~17.198(1.026)~~	~~2060~~	~~0.04~~	~~0.04~~	
64 Di-n-butylphthalate	149.00	20.998(1.061)	166888	3.05	3.05	
65 4,6-Dinitro-2-methylphenol	Compound Not Detected.					
66 Trifluralin	Compound Not Detected.					
67 Hexachlorobenzene	Compound Not Detected.					
68 4-Aminobiphenyl	Compound Not Detected.					
69 Pentachlorophenol	Compound Not Detected.					
70 Pentachloronitrobenzene	Compound Not Detected.					
72 4-Nitrobiphenyl	Compound Not Detected.					
73 Benzidine	184.00	~~22.800(0.890)~~	~~52281~~	~~2.22~~	~~2.22~~	FP salt
74 4,4'-Methylenedianiline	Compound Not Detected.					
76 Dimethylaminoazobenzene	120.00	~~23.150(0.904)~~	~~36785~~	~~2.95~~	~~2.95~~	FP salt
77 3,3'-Dimethylbenzidine	Compound Not Detected.					
79 3,3'-Dimethoxybenzidine	Compound Not Detected.					
80 3,3'-Dichlorobenzidine	Compound Not Detected.					
81 Methylene bis-chloroaniline	Compound Not Detected.					
82 bis(2-Ethylhexyl)phthalate	149.00	25.648(1.001)	171192	8.95	8.95	

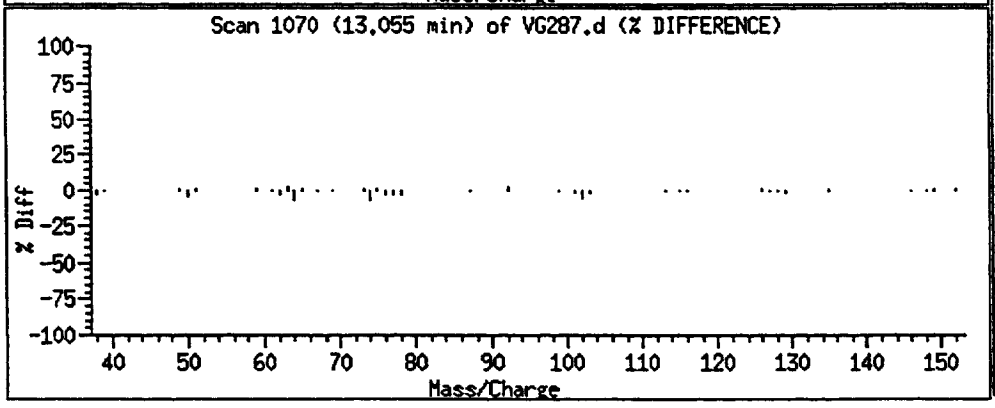
Data File: /chem/V.i/09-18-97.b/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB-5 Column diameter : 0.32
Volume Injected (uL) : 1.0

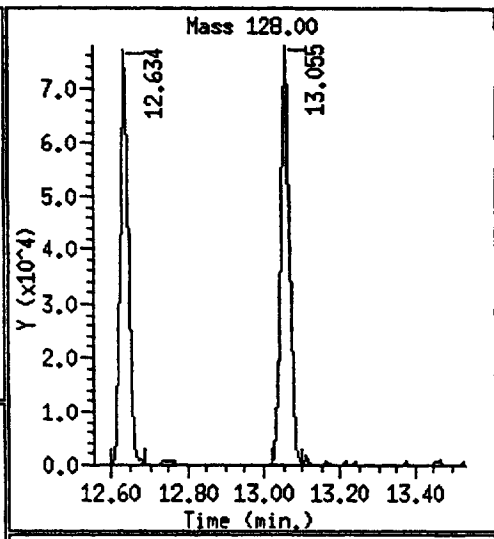
42 Naphthalene

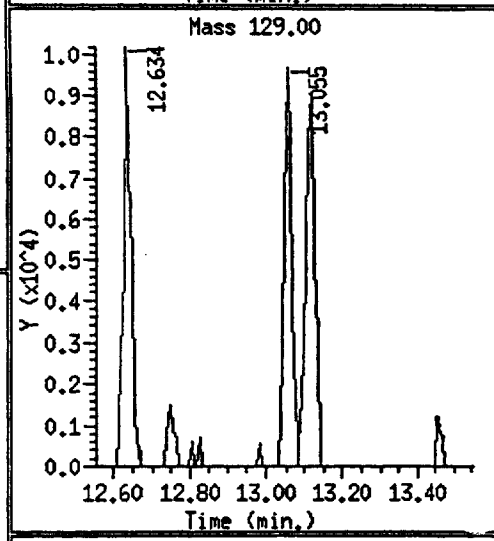


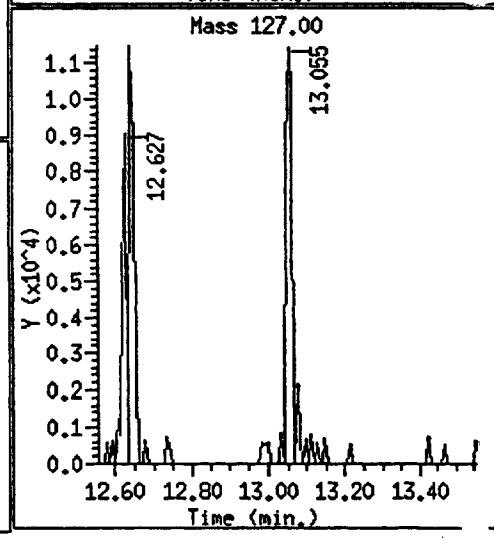












Data File: /chem/V.i/09-18-97.b/VG287.d

Date : 18-SEP-1997 17:03

Instrument : V.i

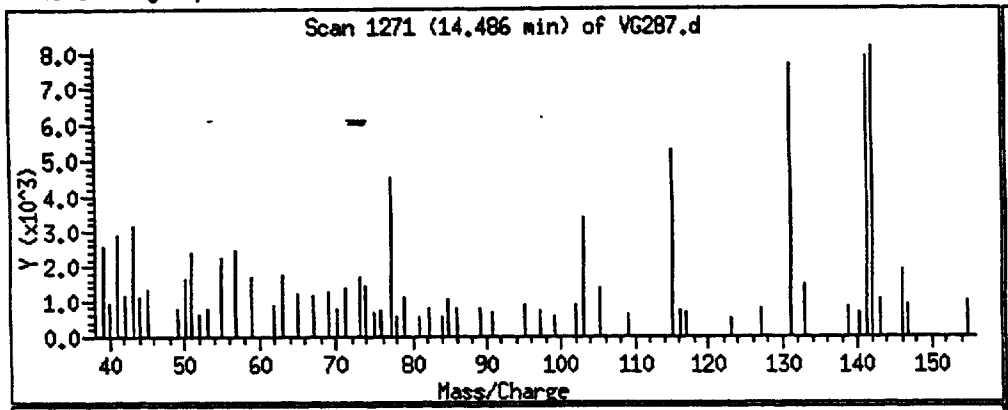
Sample ID : FB1-0010

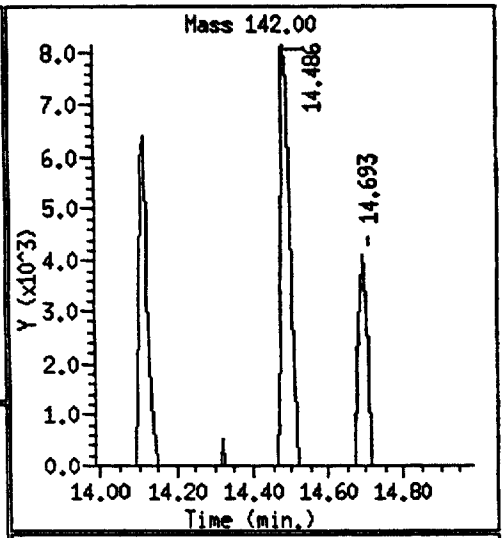
Column phase : DB-5

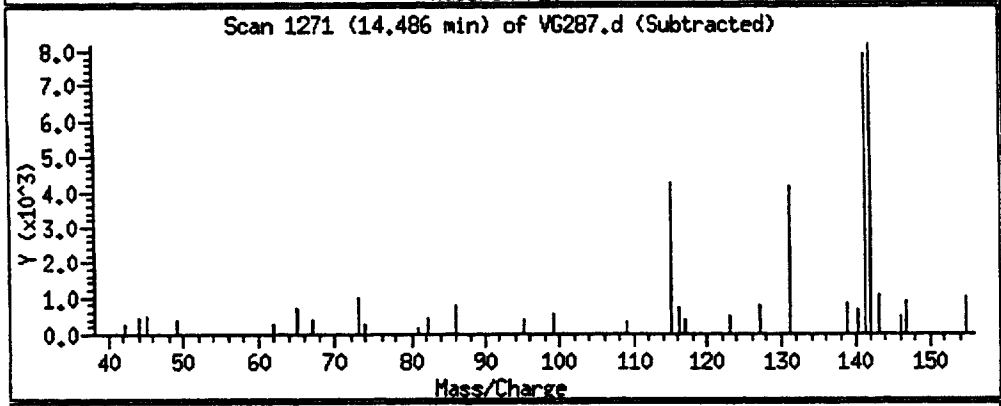
Column diameter : 0.32

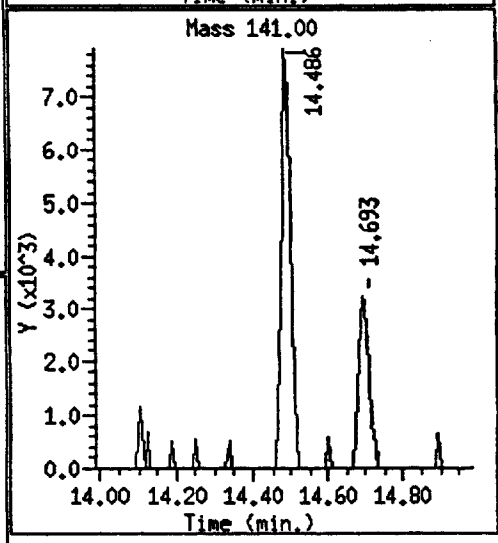
Volume Injected (uL) : 1.0

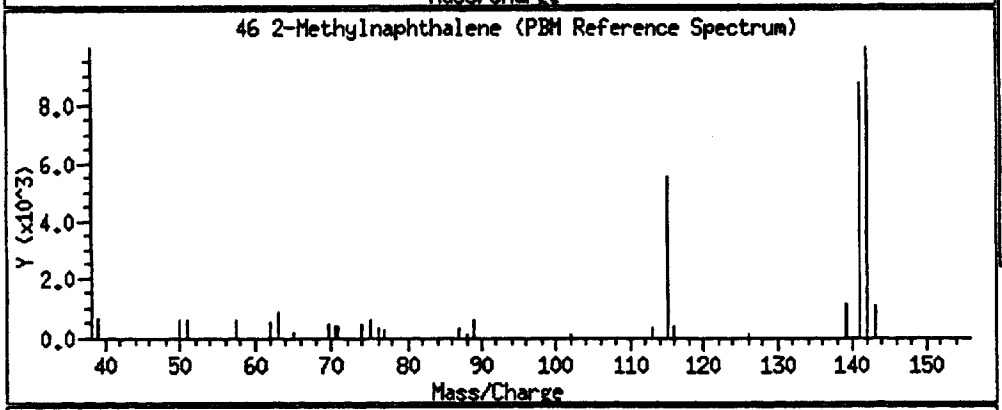
46 2-Methylnaphthalene

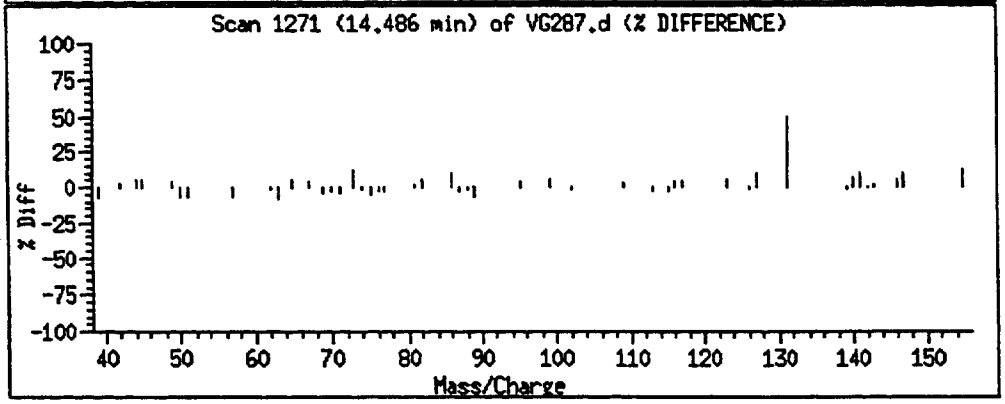






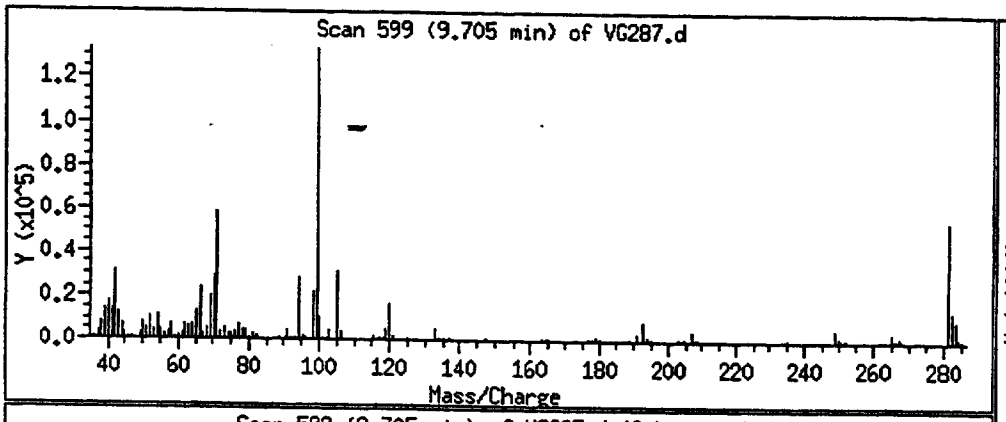


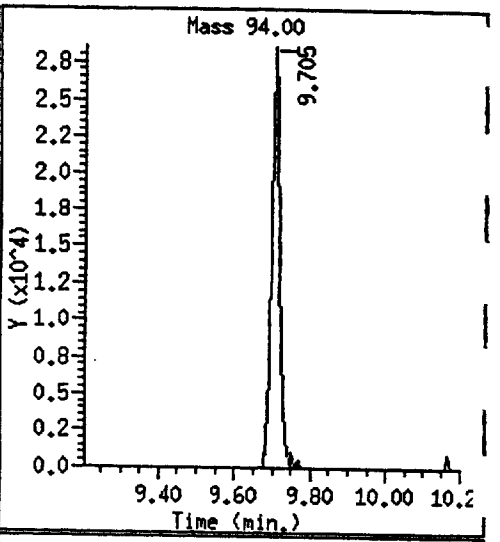


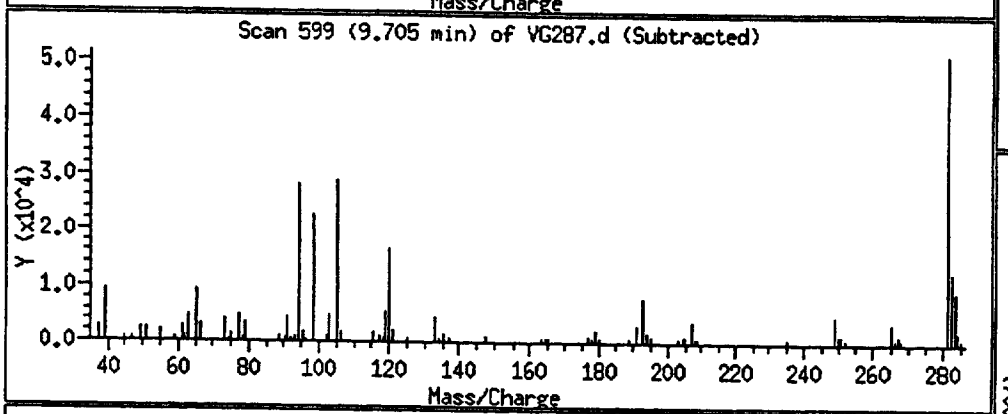


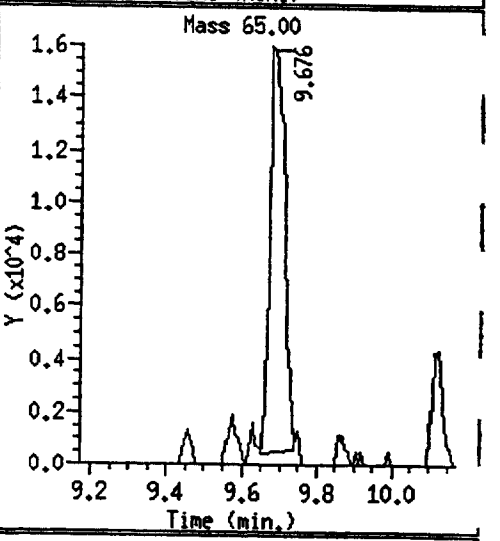
Data File: /chem/V.i/09-18-97.b/CAA/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

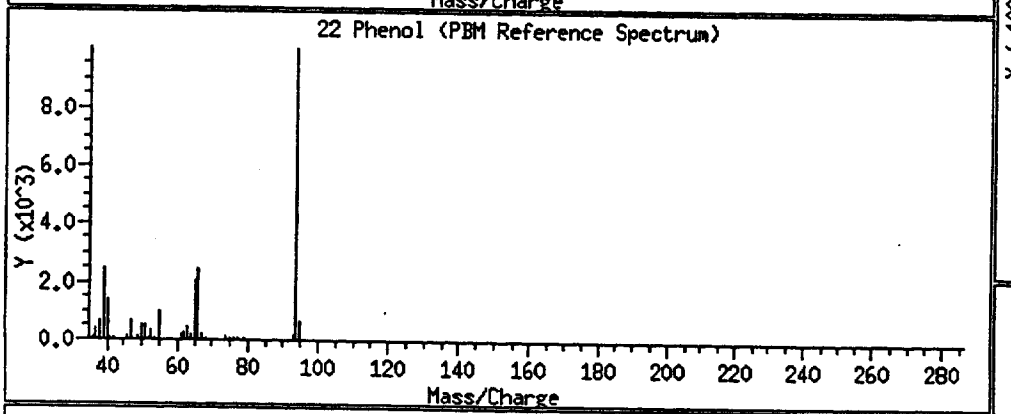
22 Phenol

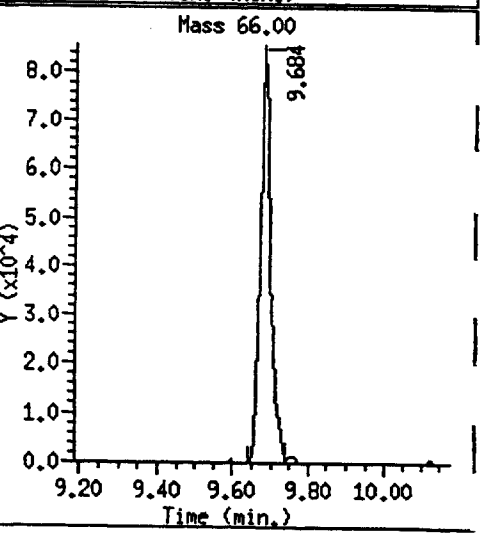


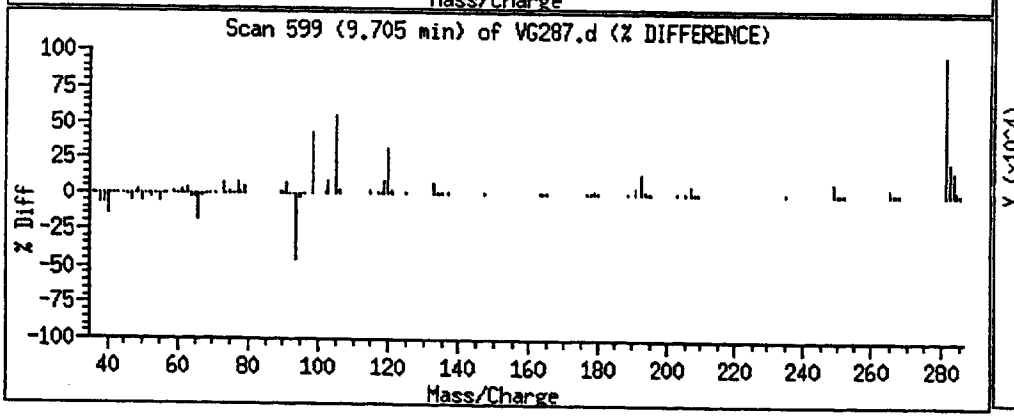






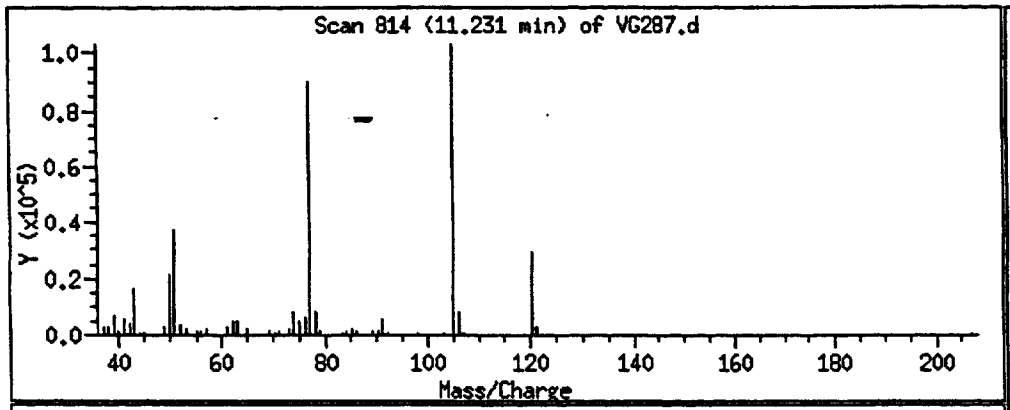


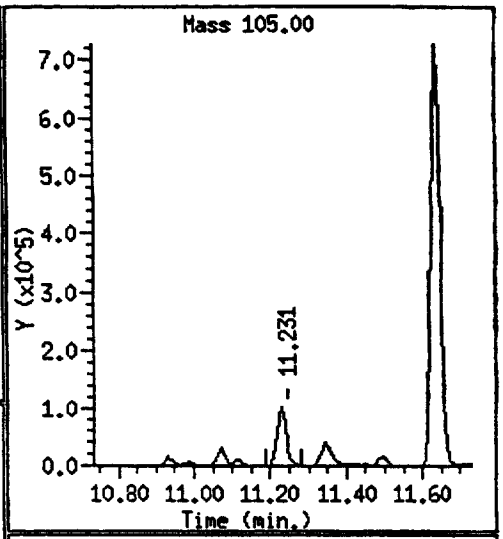


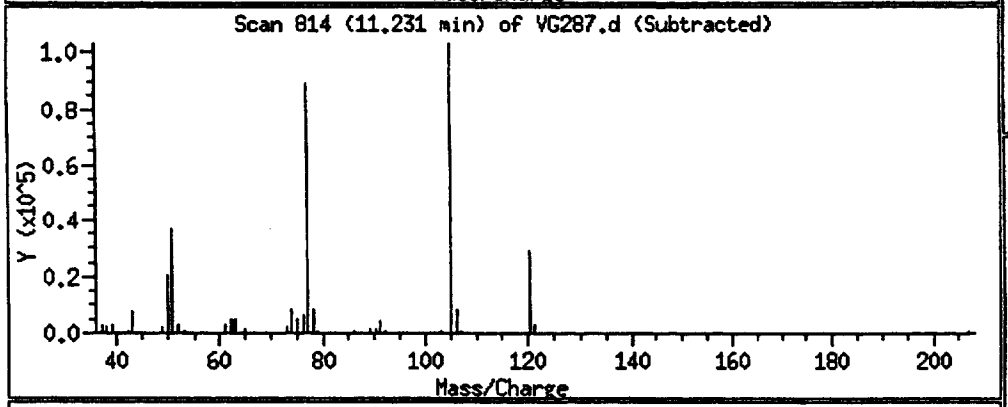


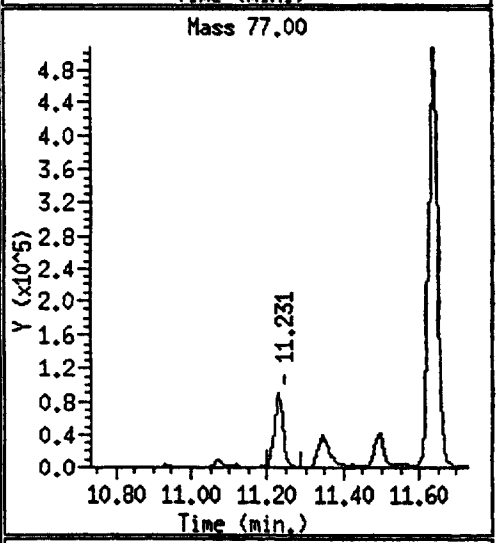
Data File: /chem/V.i/09-18-97.b/CAA/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

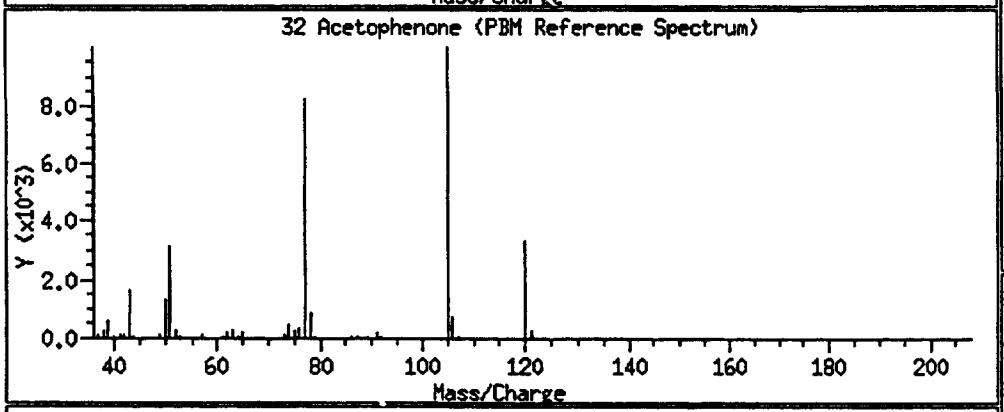
32 Acetophenone

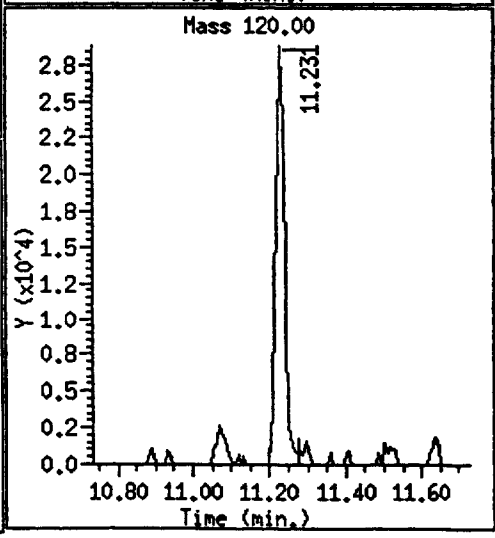


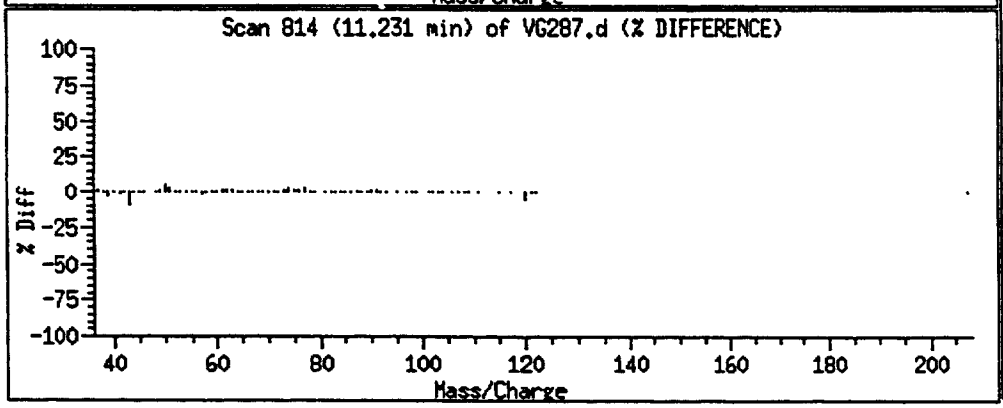






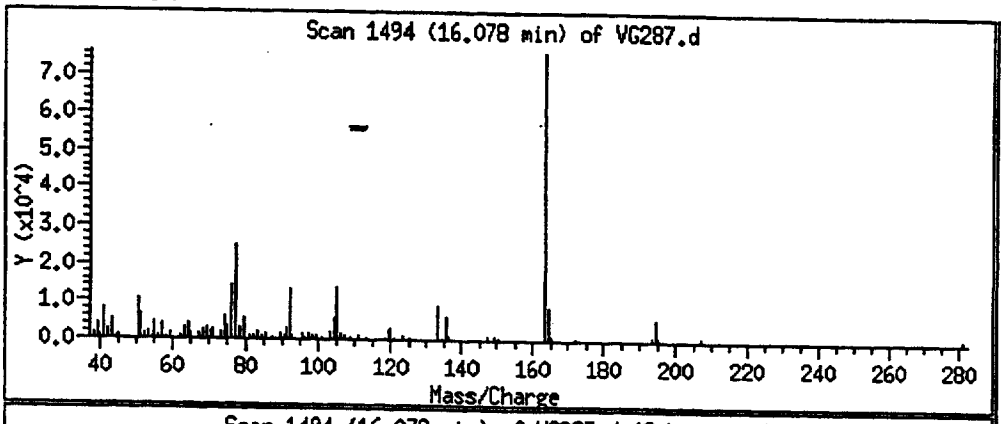


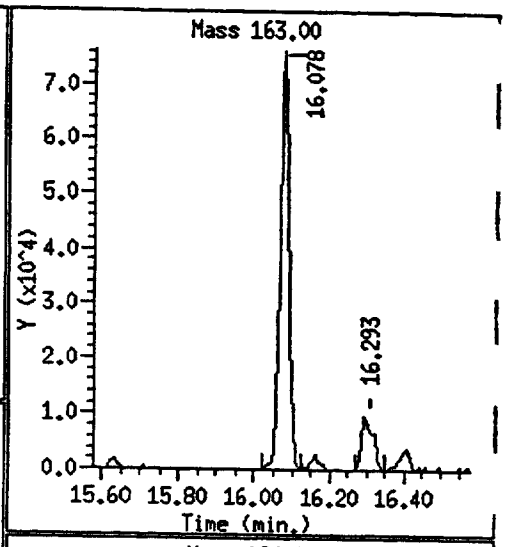


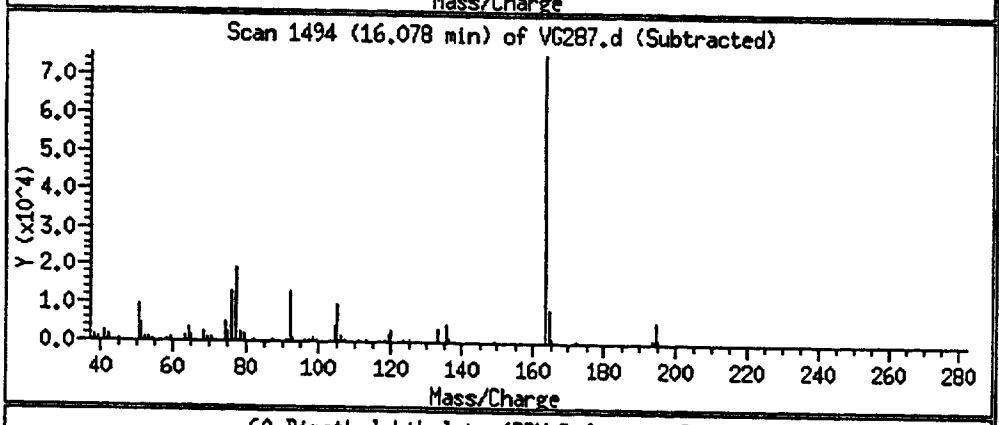


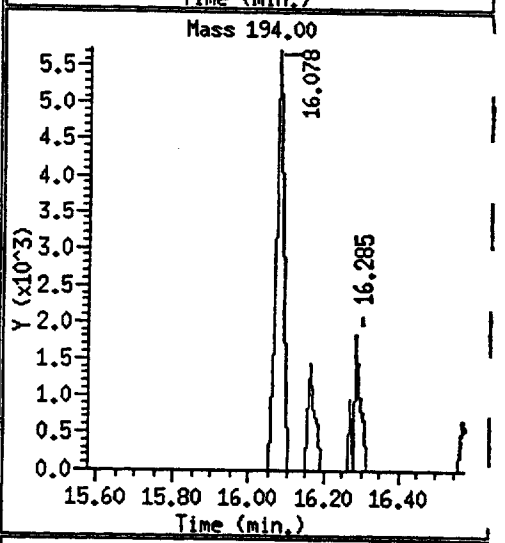
Data File: /chem/V.i/09-18-97.b/CAA/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

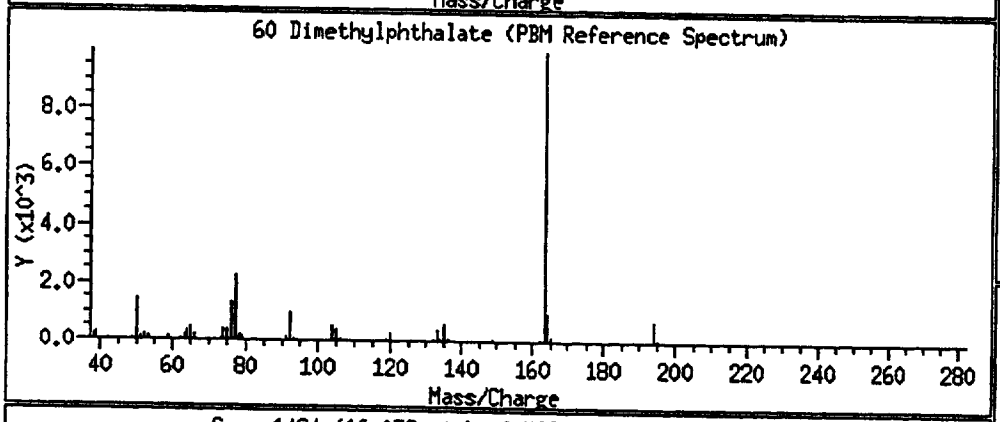
60 Dimethylphthalate

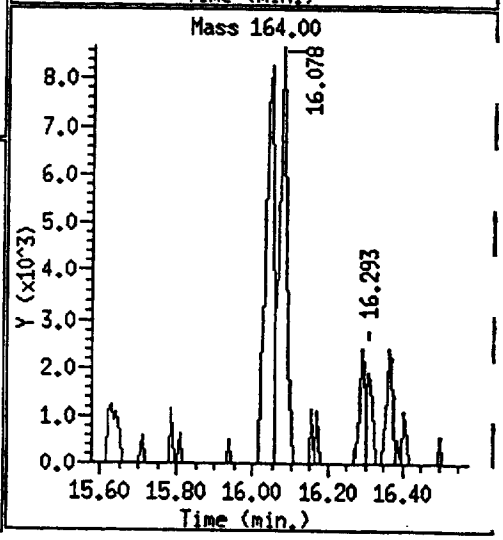


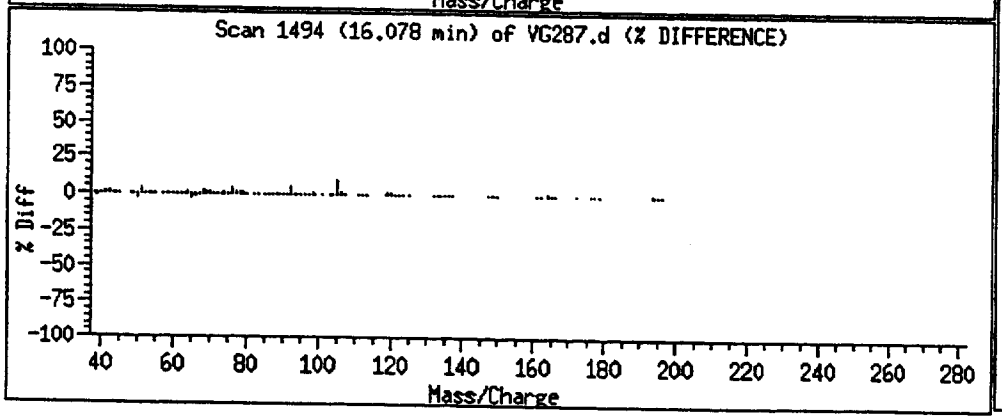






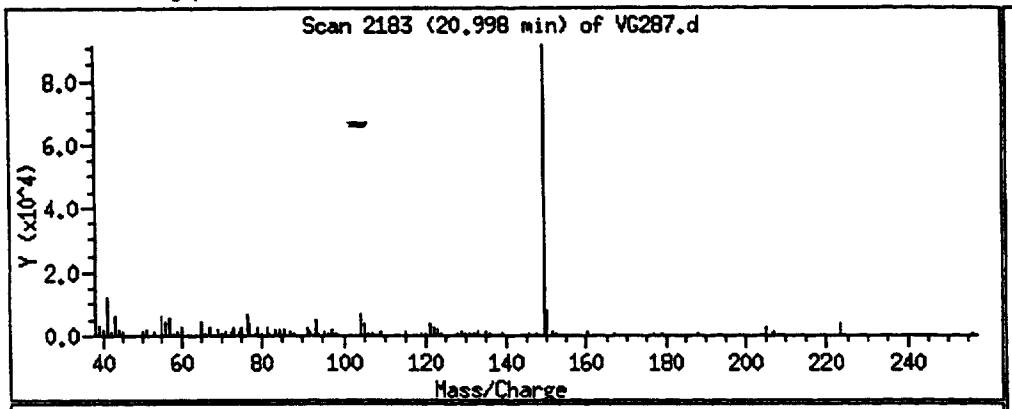


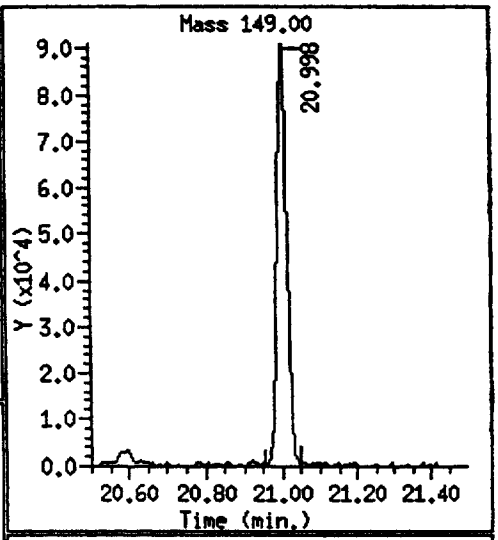


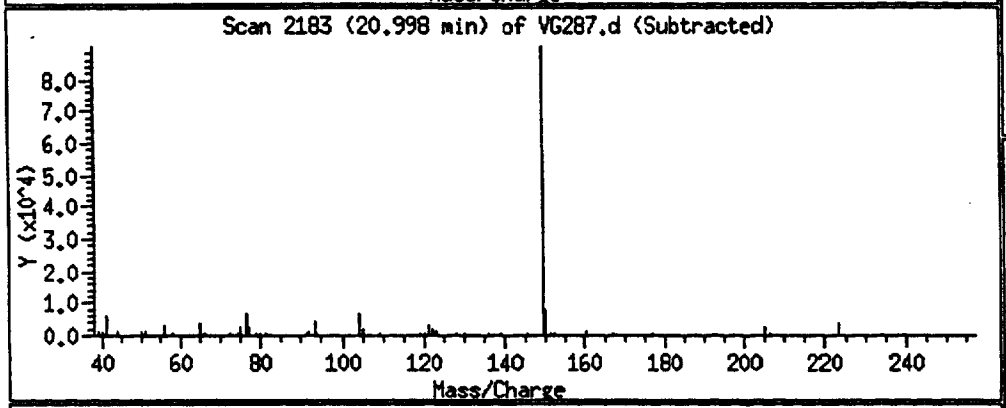


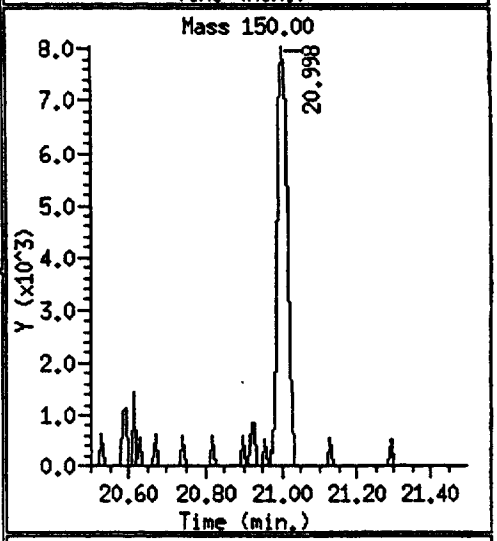
Data File: /chem/V.i/09-18-97.b/CAA/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

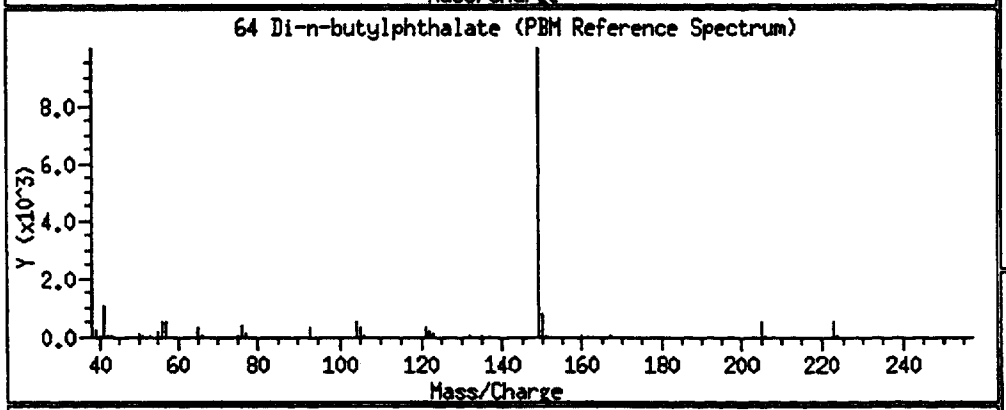
64 Di-n-butylphthalate

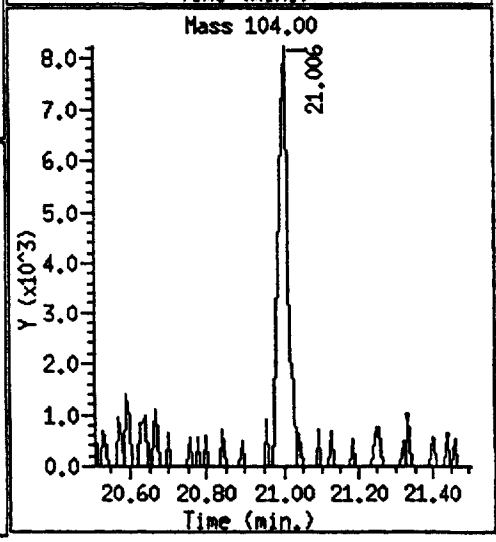


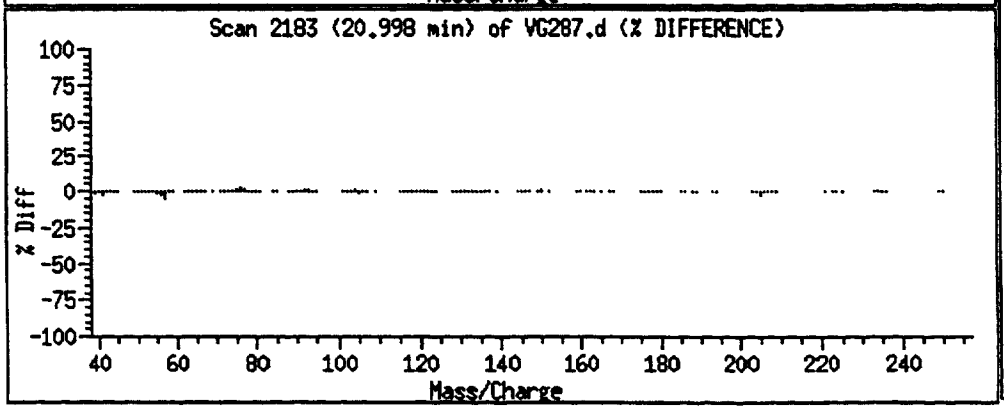






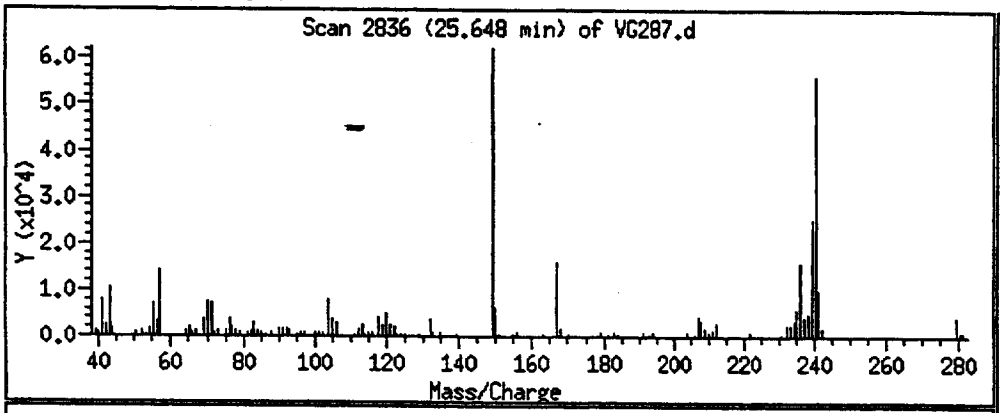


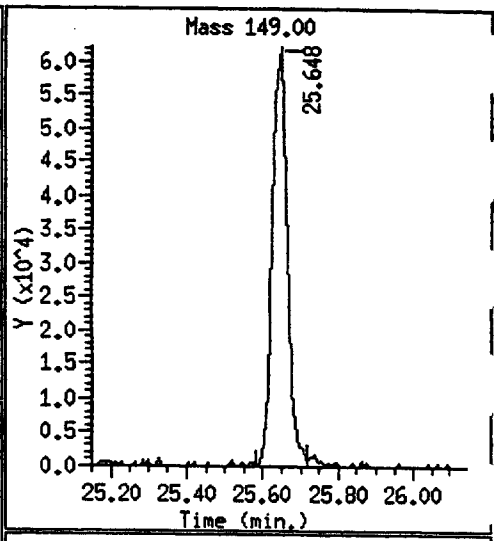


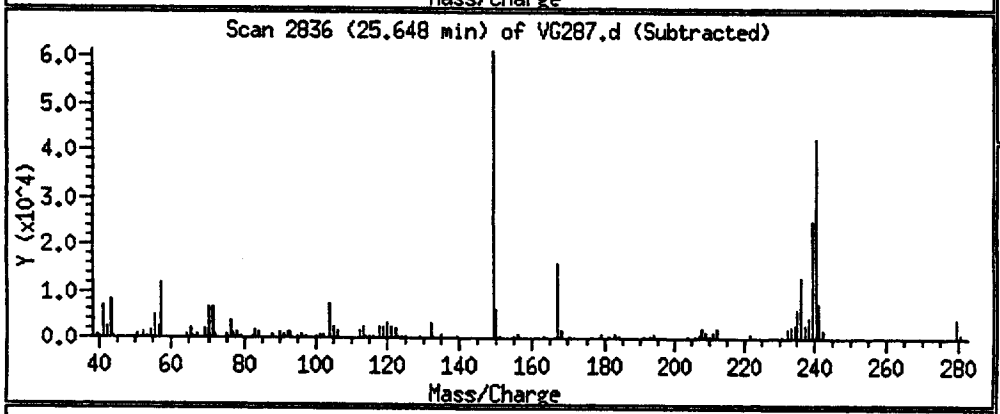


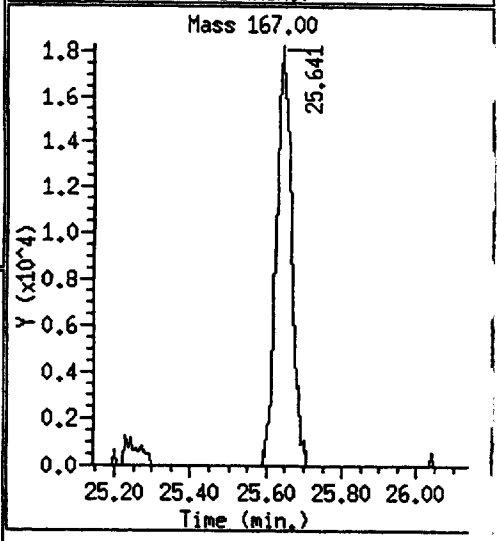
Data File: /chem/V.i/09-18-97.b/CAA/VG287.d
Date : 18-SEP-1997 17:03
Instrument : V.i
Sample ID : FB1-0010
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

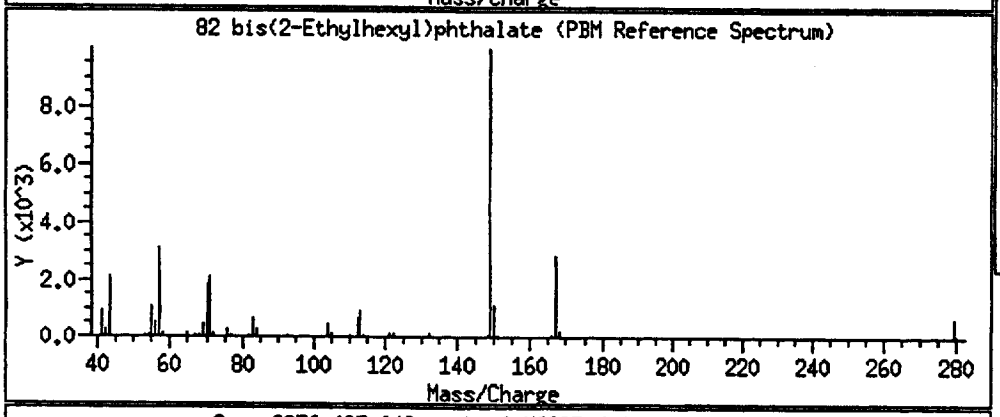
82 bis(2-Ethylhexyl)phthalate

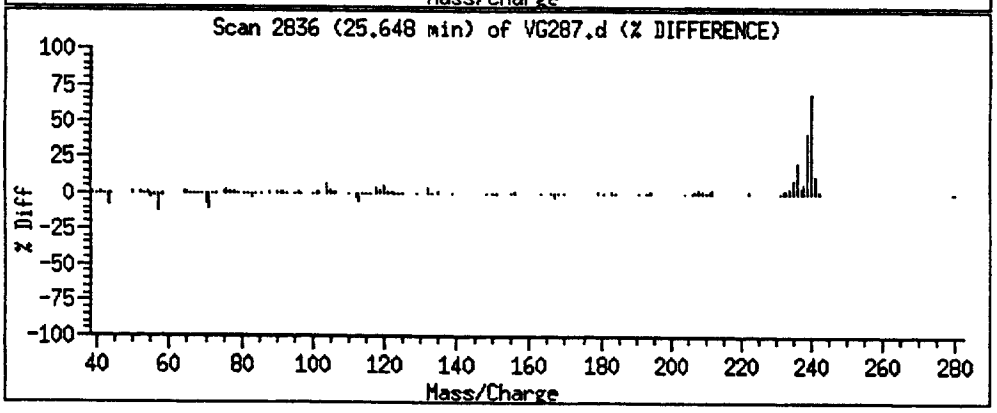












Project Number: 43230
Sample File: VG286

Method 8270A MM5
Sample ID: M0010 Blank

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG279**
TLI ID: 183-2-5A-C | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
Naphthalene-d_8		IS 2	13.01		
Naphthalene	1.64	BJ	13.06		10
2-Methylnaphthalene		U		0.25	10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.26	10
Acenaphthylene		U		0.18	10
Acenaphthene		U		0.28	10
Fluorene		U		0.25	10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene		U		0.21	10
Anthracene		U		0.22	10
Fluoranthene		U		0.20	10
Chrysene-d_{12}		IS 5	25.61		
Pyrene		U		0.25	10
Benzo(a)anthracene		U		0.32	10
Chrysene		U		0.35	10
Perylene-d_{12}		IS 6	29.75		
Benzo(b)fluoranthene		U		0.45	10
Benzo(k)fluoranthene		U		0.44	10
Benzo(e)pyrene		U		0.44	10
Benzo(a)pyrene		U		0.50	10
Perylene		U		0.50	10
Indeno(1,2,3-cd)pyrene		U		0.60	10
Dibenz(a,h)anthracene		U		0.81	10
Benzo(g,h,i)perylene		U		0.69	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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

Pacific Environmental Services

Project Number: 43230
Sample File: VG286

Method 8270A MM5
Sample ID: M0010 Blank

Client Project: S414.003/WAUPAC
TLI ID: 183-2-5A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Surrogate Summary	Amount (ug)	RT	IS Ref	%REC
Phenol-d_5	68.18	9.68	1	68
Nitrobenzene-d_5	60.70	11.53	2	61
1,3,5-Trichlorobenzene-d_3	58.67	12.22	2	59
1,4-Dibromobenzene-d_4	63.70	13.11	1	64
2-Fluorobiphenyl	74.61	15.25	3	75
2,4,6-Tribromophenol	50.25	18.31	3	50
Anthracene-d_{10}	96.10	19.92	4	96
Pyrene-d_{10}	109.02	22.80	5	109
Terphenyl-d_{14}	136.86	23.14	5	137

Reviewed by _____ Date 9/22/97

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Pacific Environmental Services

Project Number: 43230
Sample File: VG286

Method 8270A MM5
Sample ID: M0010 Blank

Client Project: S414.003/WAUPAC
TLI ID: 183-2-5A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.46		
n-Nitrosodimethylamine		U		0.71	10
Cumene		U		0.18	10
Phenol	0.49	BJ	9.70		10
Aniline		U		0.26	10
bis-(2-Chloroethyl)ether		U		0.63	10
Benzyl Chloride		U		0.16	10
1,4-Dichlorobenzene		U		0.35	10
2-Methylphenol		U		0.47	10
Acetophenone	4.77	BJ	11.23		10
n-Nitrosomorpholine		U		0.65	10
o-Toluidine		U		0.30	10
Hexachloroethane		U		0.66	10
1,2-Dibromo-3-chloropropane		U		0.77	10
N,N-Diethylaniline		U		0.25	10
Naphthalene-d_8		IS 2	13.01		
3/4-Methylphenol		U		0.42	10
Nitrobenzene		U		0.22	10
N,N-Dimethylaniline		U		0.23	10
Isophorone		U		0.21	10
o-Anisidine		U		0.52	10
1,4-Phenylenediamine		U		0.38	10
1,2,4-Trichlorobenzene		U		0.41	10
Hexachlorobutadiene		U		0.53	10
a,a,a-Trichlorotoluene		U		0.25	10
Hydroquinone		U		0.49	10

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Pacific Environmental Services

Project Number: 43230
Sample File: VG286

Method 8270A MM5
Sample ID: M0010 Blank

Client Project: S414.003/WAUPAC
TLI ID: 183-2-5A-C

Date Received: 09/12/97
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.22	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.51	10
2,4,6-Trichlorophenol		U		0.63	10
2,4,5-Trichlorophenol		U		0.62	10
Biphenyl		U		0.20	10
Dimethylphthalate		U		0.25	10
2,4-Dinitrophenol		U		3.16	25
4-Nitrophenol		U		1.32	25
2,4-Dinitrotoluene		U		0.76	10
Dibenzofuran		U		0.19	10
4,6-Dinitro-2-methylphenol		U		1.87	25
Trifluralin		U		0.90	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	1.21	BJ	21.00		10
Hexachlorobenzene		U		0.59	10
4-Aminobiphenyl		U		0.23	10
Pentachlorophenol		U		0.90	25
Pentachloronitrobenzene		U		1.39	10
4-Nitrobiphenyl		U		0.62	10
Chrysene-d_{12}		IS 5	25.61		
Benzidine		U		0.42	10
4,4'-Methylenedianiline		U		1.04	10
Dimethylaminoazobenzene		U		0.80	10
3,3'-Dimethylbenzidine		U		0.61	10
3,3'-Dimethoxybenzidine		U		1.27	10

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Pacific Environmental Services

Project Number: 43230 | **Method 8270A MM5**
Sample File: VG286 | **Sample ID: M0010 Blank**

Client Project: S414.003/WAUPAC | **Date Received: 09/12/97** | **Response File: VG280**
TLI ID: 183-2-5A-C | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.05	10
Methylene bis-chloroaniline		U		1.82	10
bis(2-Ethylhexyl)phthalate	1.11	BJ	25.63		10

Reviewed by Satt Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Triangle Laboratories of RTP, Inc.
801 Capitola Drive • Durham, North Carolina 27713
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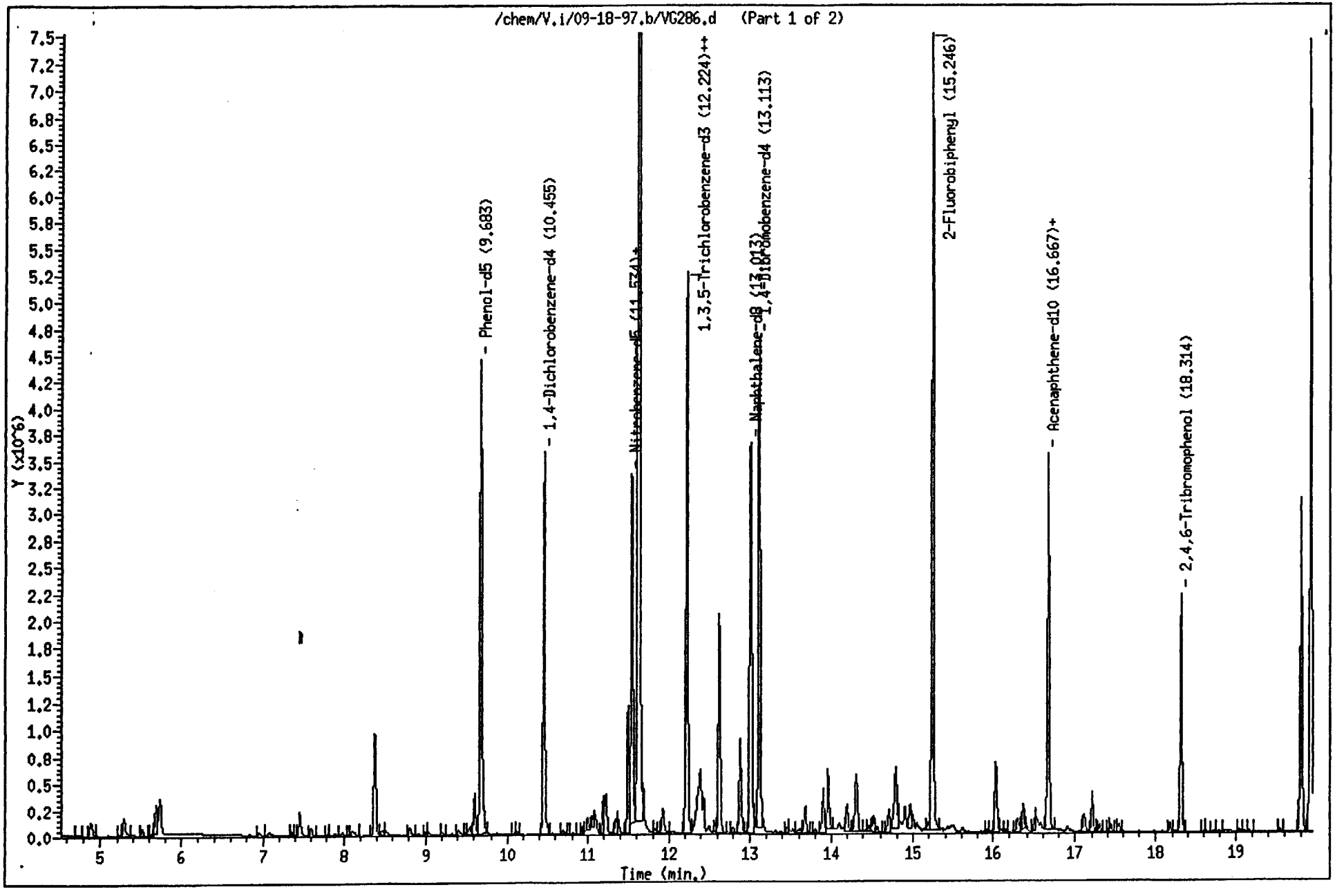
Data File: /chem/V.i/09-18-97.b/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32

152



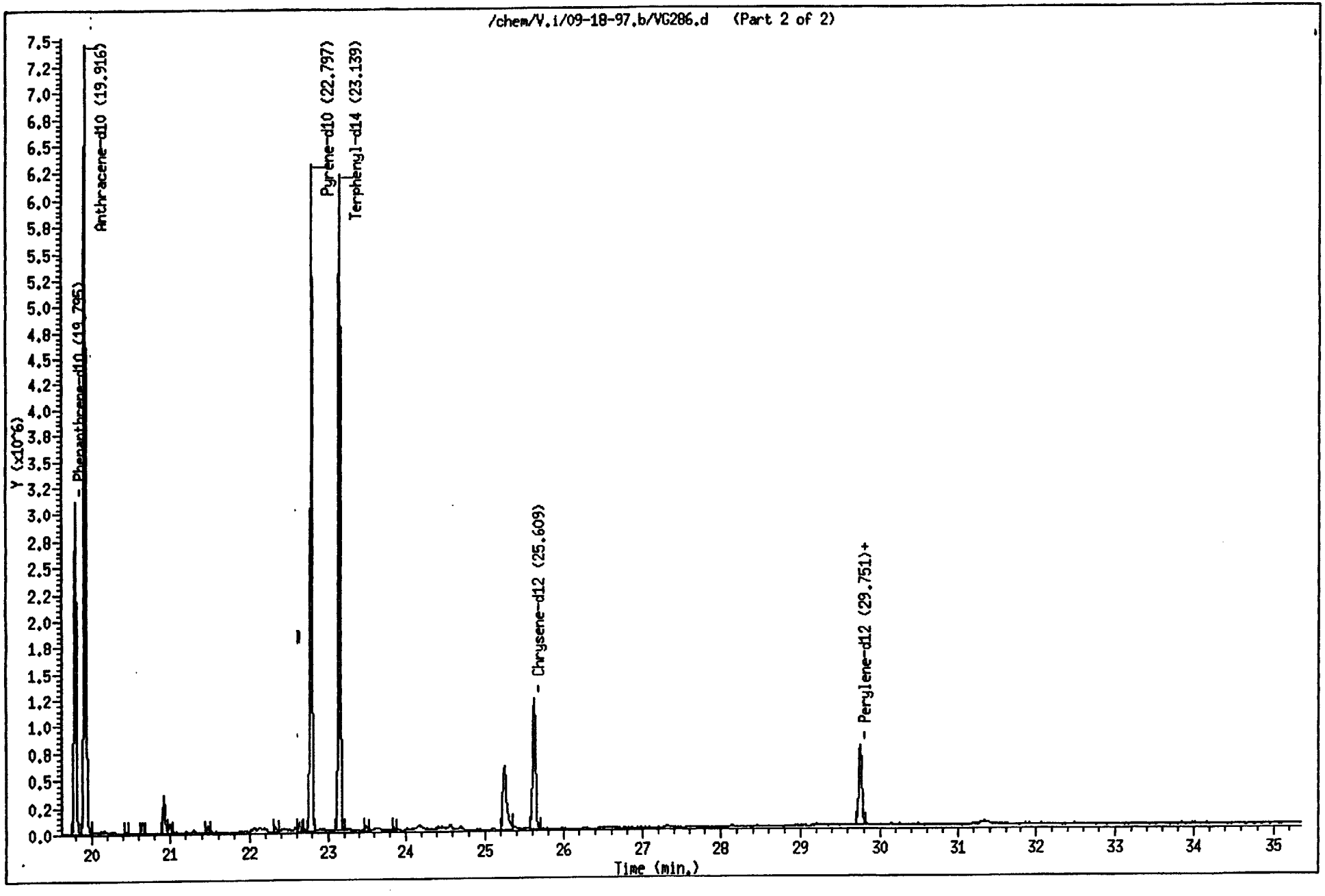
Data Review: Scott
Date: 9/19/97

153

Data File: /chem/V.i/09-18-97.b/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG286.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 16:14 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : M0010-BLANK
Misc Info : 183-2-5A-C
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 6
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

		Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
*	1	1,4-Dichlorobenzene-d4	152.00	10.455(1.000)	857054	40.00	
*	2	Naphthalene-d8	136.00	13.013(1.000)	2759179	40.00	
*	3	Acenaphthene-d10	164.00	16.667(1.000)	1389566	40.00	
*	4	Phenanthrene-d10	188.00	19.795(1.000)	2031849	40.00	
*	5	Chrysene-d12	240.00	25.609(1.000)	1062779	40.00	
*	6	Perylene-d12	264.00	29.751(1.000)	883589	40.00	
$	7	2-Fluorophenol	Compound Not Detected.				
$	8	Phenol-d5	99.00	9.683(0.926)	2270120	68.20	68.20
$	9	2-Chlorophenol-d4	Compound Not Detected.				
$	10	1,2-Dichlorobenzene-d4	Compound Not Detected.				
$	11	Nitrobenzene-d5	82.00	11.534(0.886)	1783692	60.64	60.64
$	12	1,3,5-Trichlorobenzene-d3	185.00	12.224(0.939)	1521674	58.70	58.70
$	13	1,4-Dibromobenzene-d4	240.00	13.113(1.254)	1403096	63.70	63.70
$	14	2-Fluorobiphenyl	172.00	15.246(0.915)	3418609	74.59	74.59
$	15	2,4,6-Tribromophenol	329.80	18.314(1.099)	439936	50.19	50.19
$	16	Anthracene-d10	188.00	19.916(1.006)	4817921	96.06	96.06
$	17	Pyrene-d10	212.00	22.797(0.890)	4408632	109.01	109.01
$	18	Terphenyl-d14	244.00	23.139(0.904)	3181703	136.82	136.82
	42	Naphthalene	128.00	13.056(1.003)	109063	1.64	1.64(a)
	46	2-Methylnaphthalene	Compound Not Detected.				
	50	2-Chloronaphthalene	Compound Not Detected.				
	56	Acenaphthylene	Compound Not Detected.				
	58	Acenaphthene	Compound Not Detected.				
	65	Fluorene	Compound Not Detected.				
	73	Phenanthrene	Compound Not Detected.				
	74	Anthracene	Compound Not Detected.				
	77	Fluoranthene	Compound Not Detected.				
	78	Pyrene	Compound Not Detected.				
	83	Benzo(a)anthracene	Compound Not Detected.				
	84	Chrysene	Compound Not Detected.				
	86	Benzo(b)fluoranthene	Compound Not Detected.				

Data Review: ~~salt~~
Date: 9/19/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	252.00	29.758(1.000)	2603	0.13	~~0.13(a)~~ > FP spkd
90 Perylene	252.00	29.787(1.001)	478	0.02	~~0.02(a)~~
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG286.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 16:14 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : M0010-BLANK
Misc Info : 183-2-5A-C
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32 Cal File: VG280.d
Als bottle: 6
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: CAA1.sub
Sample Type: mm5

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
*	1 1,4 Dichlorobenzene-d4	152.00	10.455(1.000)	857054	40.00	
*	2 Naphthalene-d8	136.00	13.013(1.000)	2759179	40.00	
*	3 Acenaphthene-d10	164.00	16.667(1.000)	1389566	40.00	
*	4 Phenanthrene-d10	188.00	19.795(1.000)	2031849	40.00	
*	5 Chrysene-d12	240.00	25.609(1.000)	1062779	40.00	
*	6 Perylene-d12	264.00	29.751(1.000)	883589	40.00	
$	7 2-Fluorophenol	Compound Not Detected.				
$	8 Phenol-d5	99.00	9.683(0.926)	2270120	75.51	75.51
$	9 2-Chlorophenol-d4	Compound Not Detected.				
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.				
$	11 Nitrobenzene-d5	82.00	11.534(0.886)	1783692	58.28	58.28
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.224(0.939)	1521674	57.44	57.44
$	13 1,4-Dibromobenzene-d4	240.00	13.113(1.254)	1403096	66.11	66.11
$	14 2-Fluorobiphenyl	172.00	15.246(0.915)	3418609	73.73	73.73
$	15 2,4,6-Tribromophenol	329.80	18.314(1.099)	439936	50.14	50.14
$	16 Anthracene-d10	188.00	19.916(1.006)	4817921	89.73	89.73
$	17 Pyrene-d10	212.00	22.797(0.890)	4408632	109.52	109.52
$	18 Terphenyl-d14	244.00	23.139(0.904)	3181703	123.06	123.06
	19 n-Nitrosodimethylamine	74.00	~~4.890(0.468)~~	~~58442~~	~~4.11~~	~~4.11~~
	20 Cumene	Compound Not Detected.				
	22 Phenol	94.00	9.704(0.928)	14797	0.49	0.49
	23 Aniline	Compound Not Detected.				
	26 bis-(2-Chloroethyl)ether	Compound Not Detected.				
	27 Benzyl Chloride	Compound Not Detected.				
	28 1,4-Dichlorobenzene	146.00	~~10.491(1.003)~~	~~1656~~	~~0.05~~	~~0.05~~
	30 2-Methylphenol	108.00	~~10.455(1.000)~~	~~5956~~	~~0.27~~	~~0.27~~
	31 3/4-Methylphenol	108.00	~~11.627(0.895)~~	~~1513~~	~~0.06~~	~~0.06~~
	32 Acetophenone	105.00	11.229(1.074)	162729	4.77	4.77
	33 n-Nitrosomorpholine	56.00	~~11.620(1.111)~~	~~1242283~~	~~80.59~~	~~80.59~~
	34 o-Toluidine	106.00	~~11.654(1.113)~~	~~104844~~	~~3.14~~	~~3.14~~
	35 Hexachloroethane	Compound Not Detected.				

FP satt

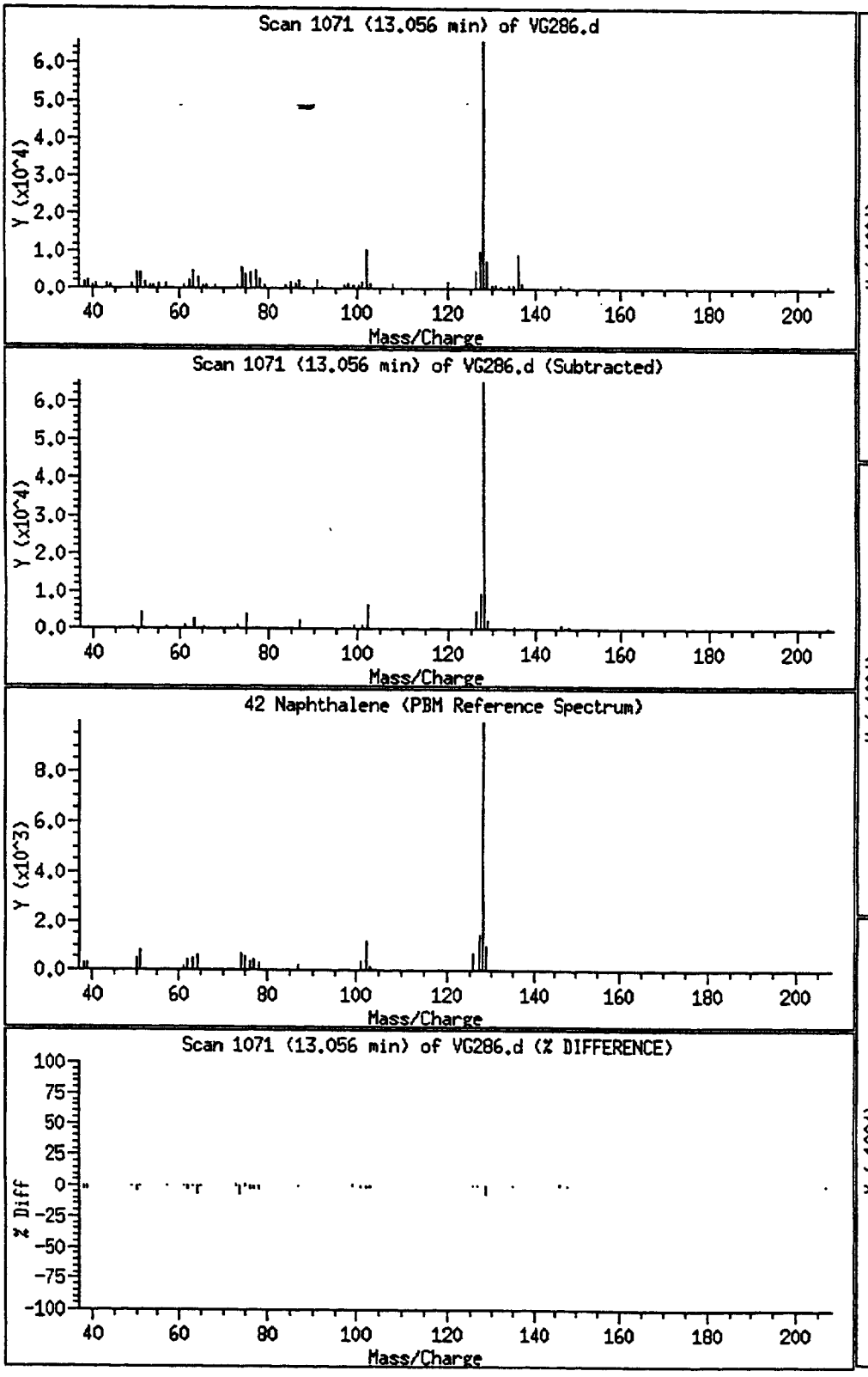
FP satt

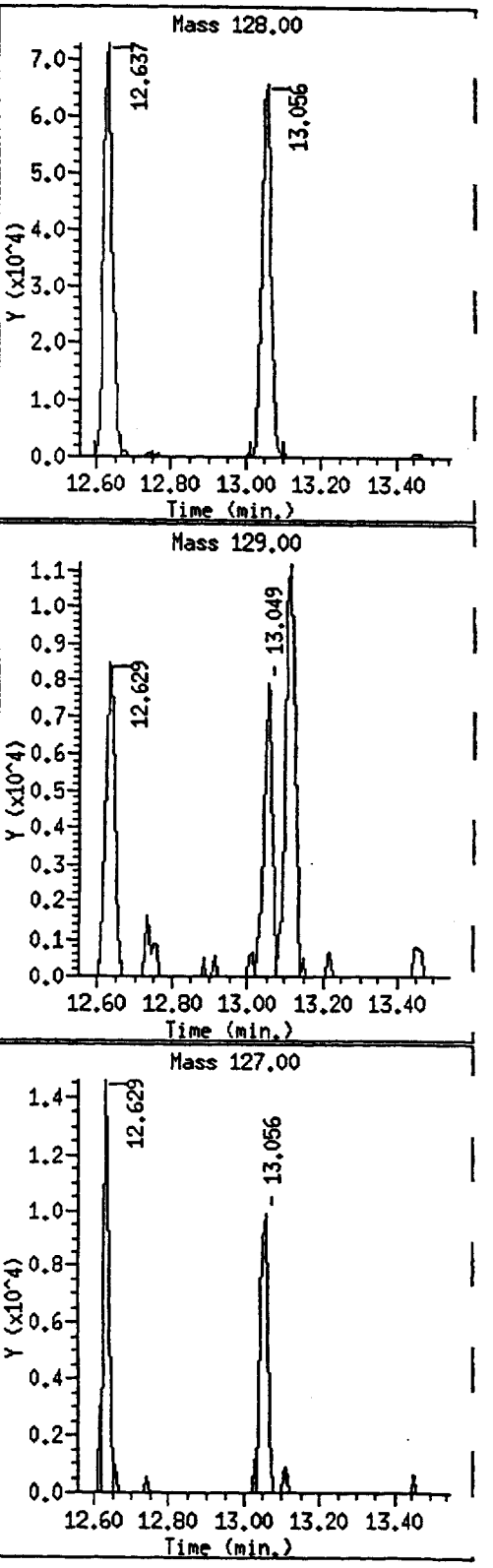
Data Review: satt
Date: 9/22/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
36 Nitrobenzene	Compound Not Detected.					
37 N,N-Dimethylaniline	Compound Not Detected.					
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.					
39 Isophorone	82.00	~~12.224(0.939)~~	~~10773~~	~~0.22~~	~~0.22~~	FP salt
40 o-Anisidine	Compound Not Detected.					
41 1,4-Phenylenediamine	Compound Not Detected.					
42 1,2,4-Trichlorobenzene	Compound Not Detected.					
43 Naphthalene	128.00	13.056(1.003)	109063	1.33	1.33	
45 Hexachlorobutadiene	Compound Not Detected.					
46 N,N-Diethylaniline	134.00	~~13.013(1.245)~~	~~245473~~	~~6.12~~	~~6.12~~	FP salt
47 a,a,a-Trichlorotoluene	Compound Not Detected.					
48 Hydroquinone	110.00	~~13.873(1.066)~~	~~2785~~	~~0.13~~	~~0.13~~	FP salt
50 2-Chloroacetophenone	105.00	~~14.193(1.091)~~	~~18971~~	~~0.41~~	~~0.41~~	
51 Hexachlorocyclopentadiene	Compound Not Detected.					
52 2,4,6-Trichlorophenol	Compound Not Detected.					
53 2,4,5-Trichlorophenol	Compound Not Detected.					
59 Biphenyl	154.00	~~15.246(0.915)~~	~~5927~~	~~0.11~~	~~0.11~~	FP salt
60 Dimethylphthalate	163.00	~~16.311(0.979)~~	~~7594~~	~~0.19~~	~~0.19~~	
71 2,4-Dinitrophenol	Compound Not Detected.					
61 4-Nitrophenol	139.00	~~17.122(1.027)~~	~~459~~	~~0.06~~	~~0.06~~	FP salt
62 2,4-Dinitrotoluene	165.00	~~16.667(1.000)~~	~~191641~~	~~14.56~~	~~14.56~~	
63 Dibenzofuran	Compound Not Detected.					
64 Di-n-butylphthalate	149.00	21.002(1.061)	68381	1.21	1.21	
65 4,6-Dinitro-2-methylphenol	198.00	~~18.314(1.099)~~	~~1541~~	~~0.28~~	~~0.28~~	FP salt
66 Trifluralin	Compound Not Detected.					
67 Hexachlorobenzene	Compound Not Detected.					
68 4-Aminobiphenyl	Compound Not Detected.					
69 Pentachlorophenol	Compound Not Detected.					
70 Pentachloronitrobenzene	Compound Not Detected.					
72 4-Nitrobiphenyl	Compound Not Detected.					
73 Benzidine	184.00	~~22.797(0.890)~~	~~50633~~	~~2.13~~	~~2.13~~	FP salt
74 4,4'-Methylenedianiline	Compound Not Detected.					
76 Dimethylaminoazobenzene	120.00	~~23.139(0.904)~~	~~32301~~	~~2.56~~	~~2.56~~	FP salt
77 3,3'-Dimethylbenzidine	Compound Not Detected.					
79 3,3'-Dimethoxybenzidine	Compound Not Detected.					
80 3,3'-Dichlorobenzidine	Compound Not Detected.					
81 Methylene bis-chloroaniline	Compound Not Detected.					
82 bis(2-Ethylhexyl)phthalate	149.00	25.631(1.001)	21483	1.11	1.11	

Data File: /chem/V.i/09-18-97.b/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

42 Naphthalene





Data File: /chem/V.i/09-18-97.b/CAA/VG286.d

Date : 18-SEP-1997 16:14

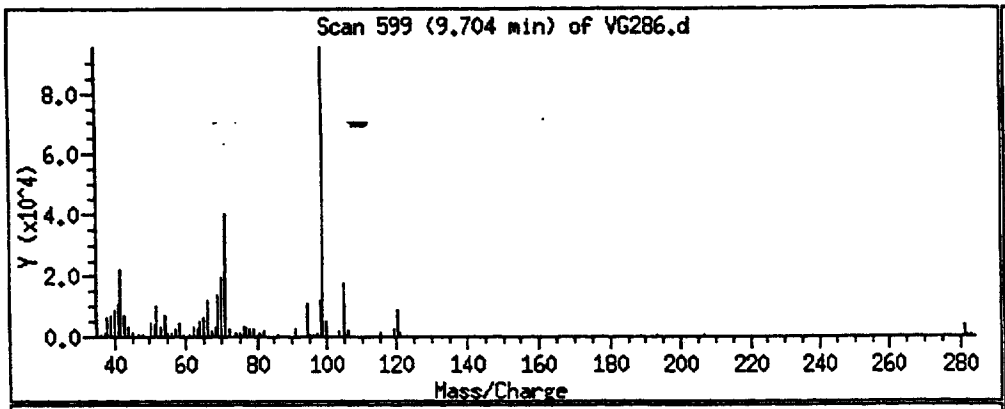
Instrument : V.i

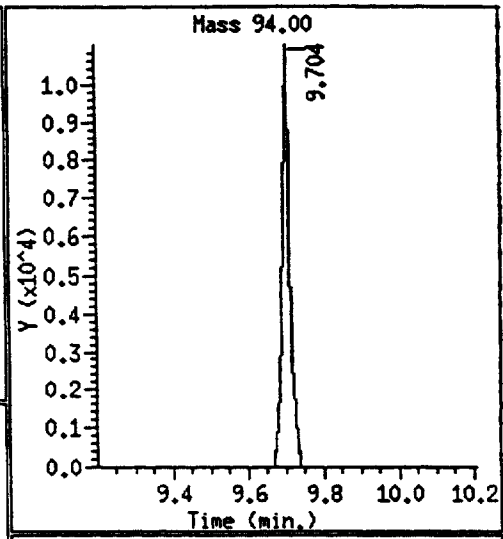
Sample ID : M0010-BLANK

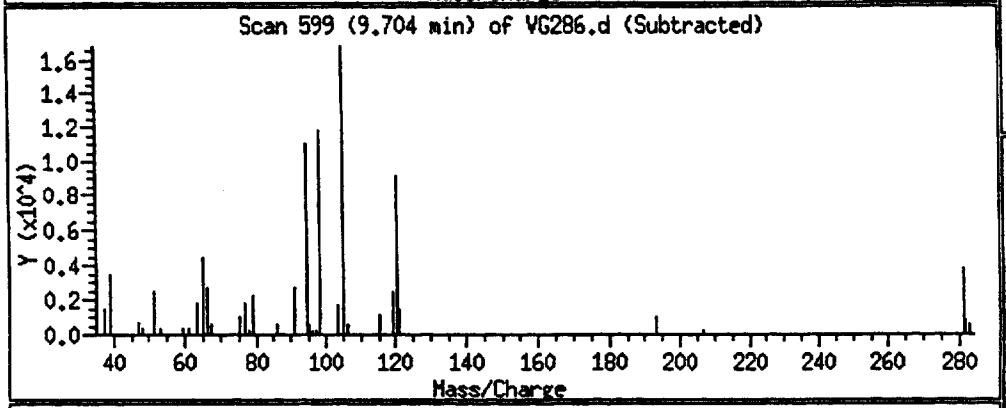
Column phase : DB.5-625 Column diameter : 0.32

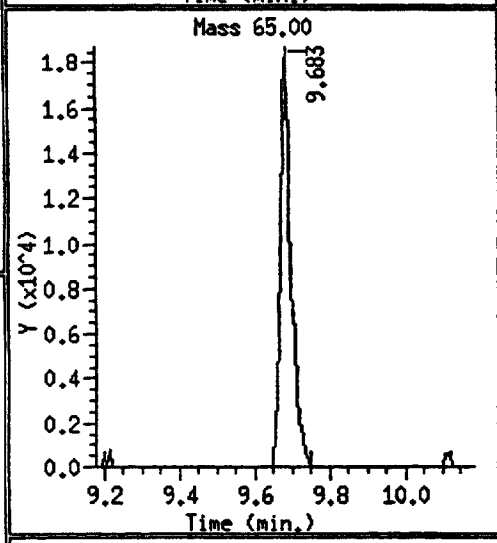
Volume Injected (uL) : 1.0

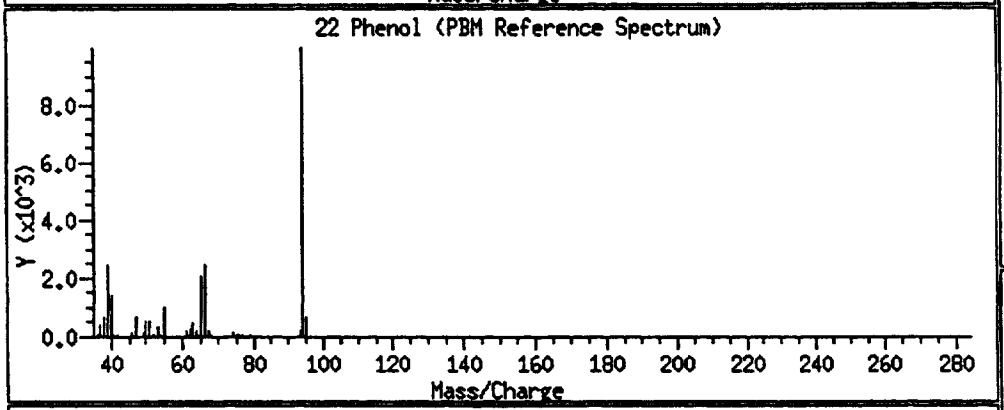
22 Phenol

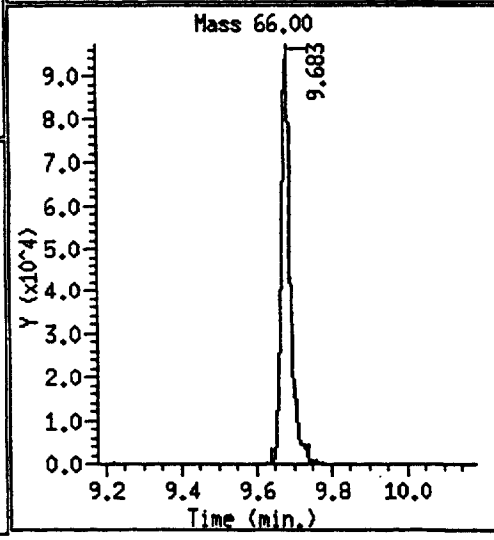


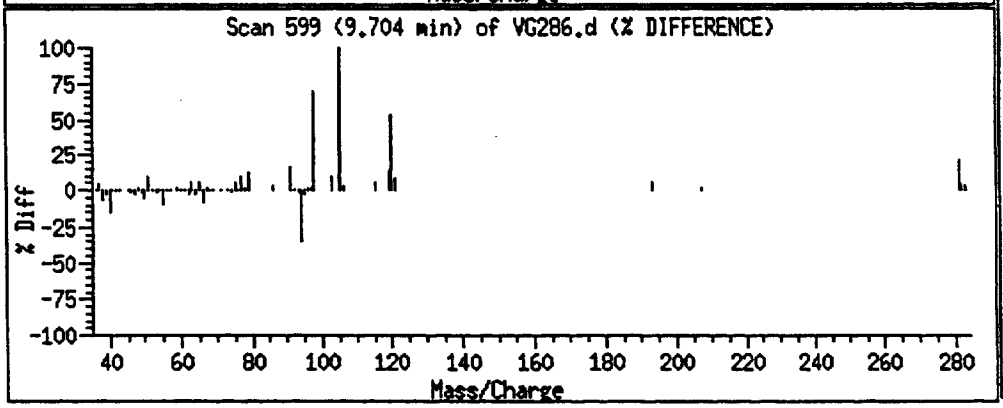






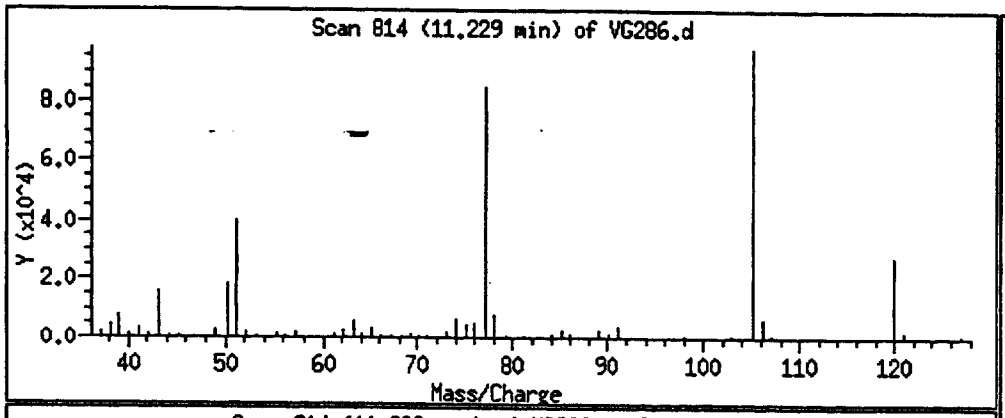


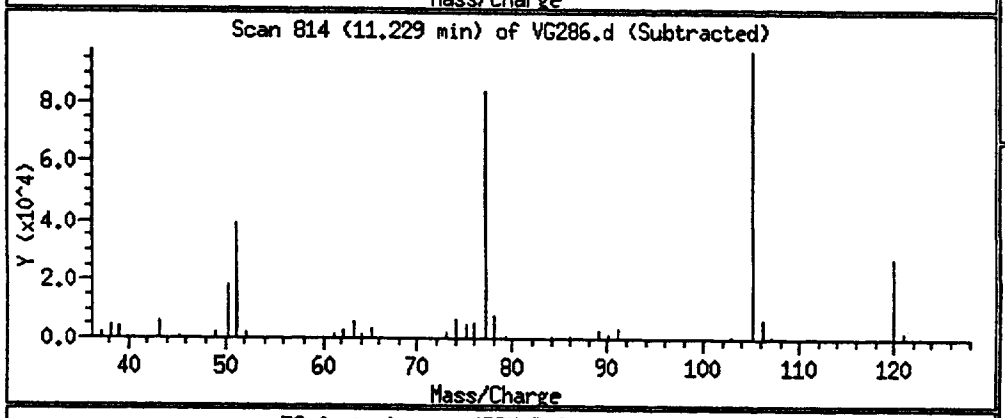


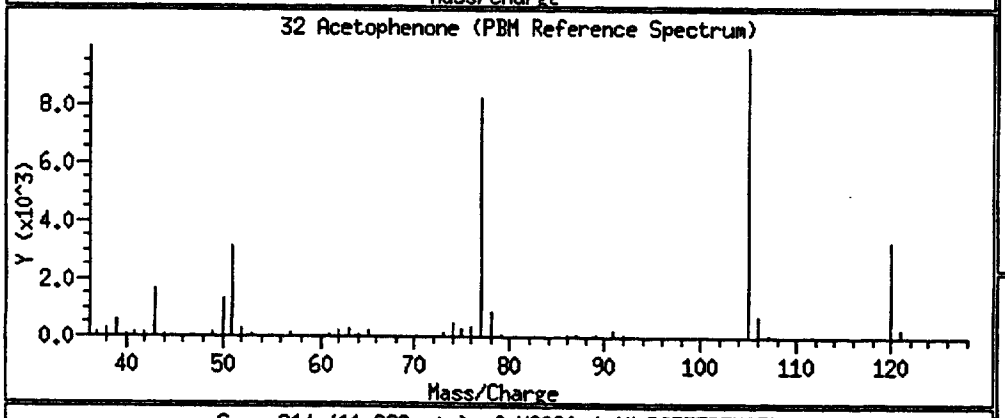


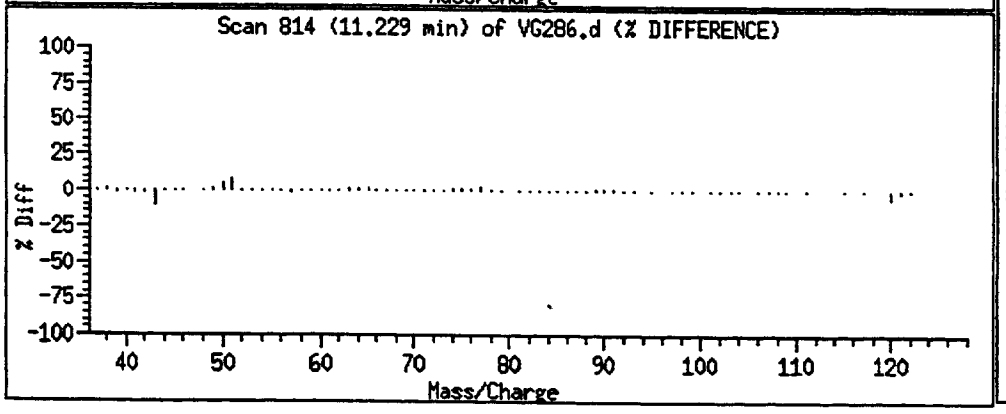
Data File: /chem/V.i/09-18-97.b/CAA/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

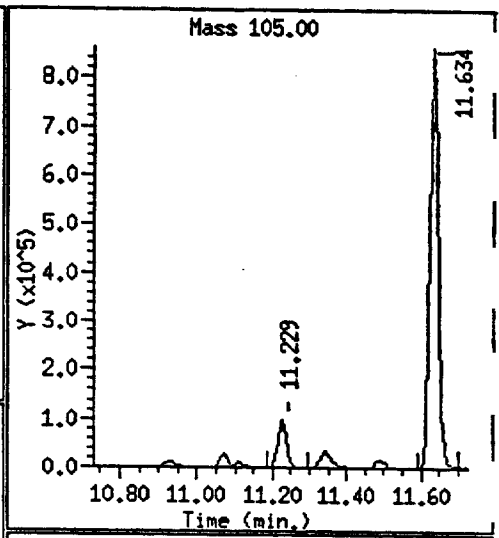
32 Acetophenone

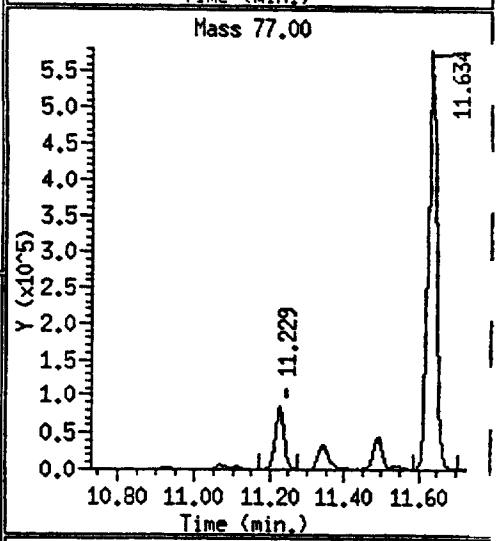


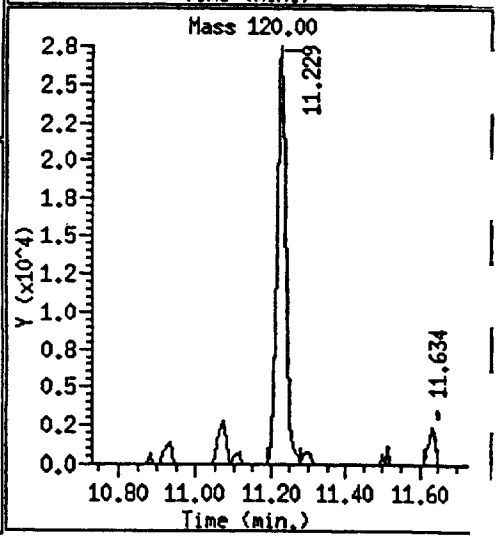






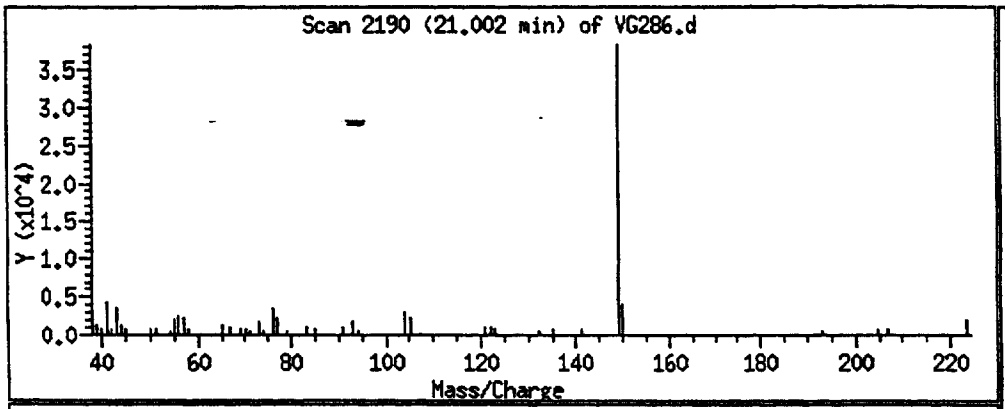


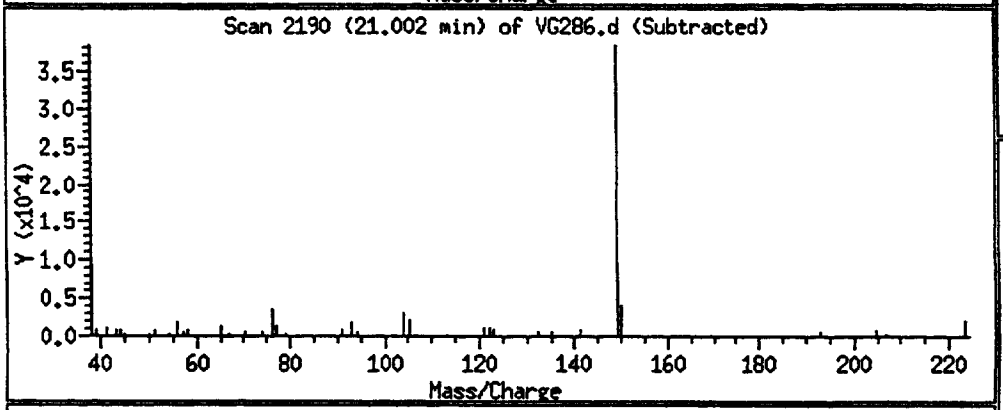


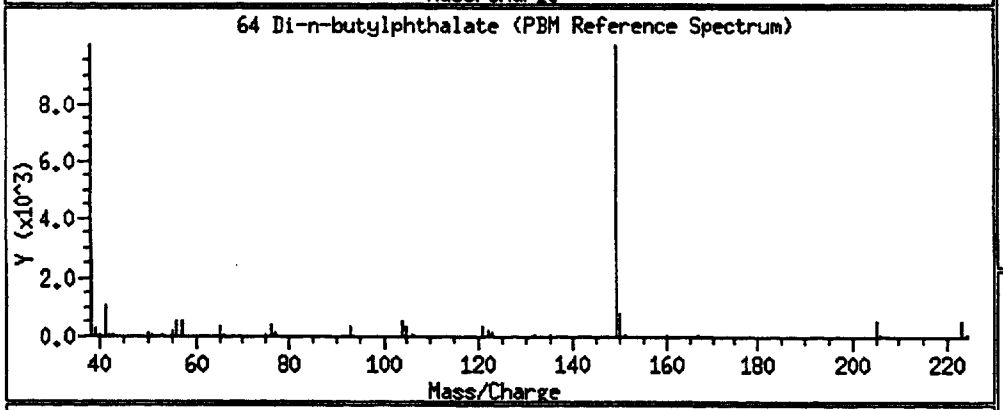


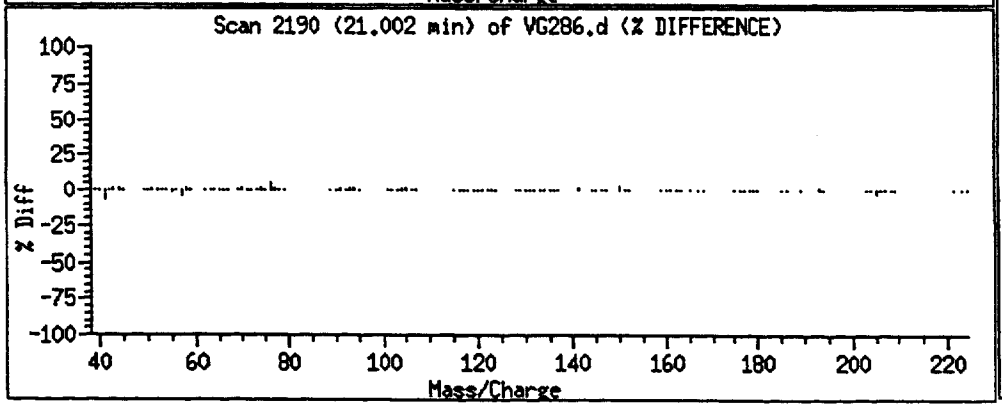
Data File: /chem/V.i/09-18-97.b/CAA/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

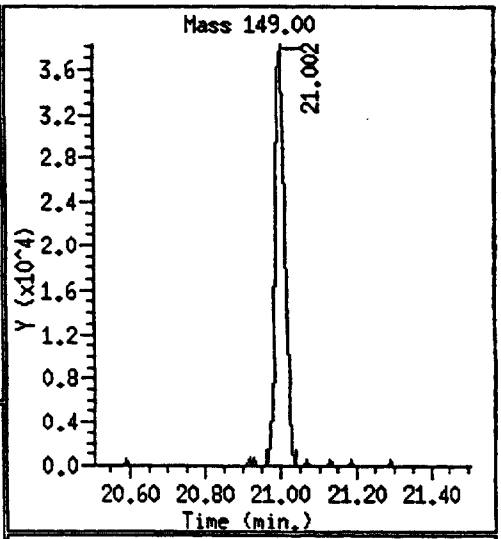
64 Di-n-butylphthalate

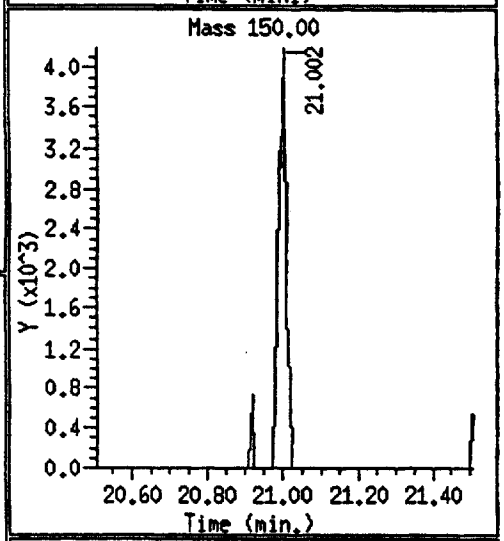


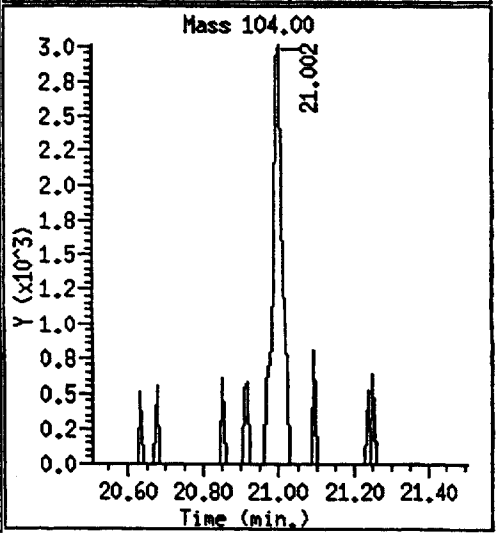






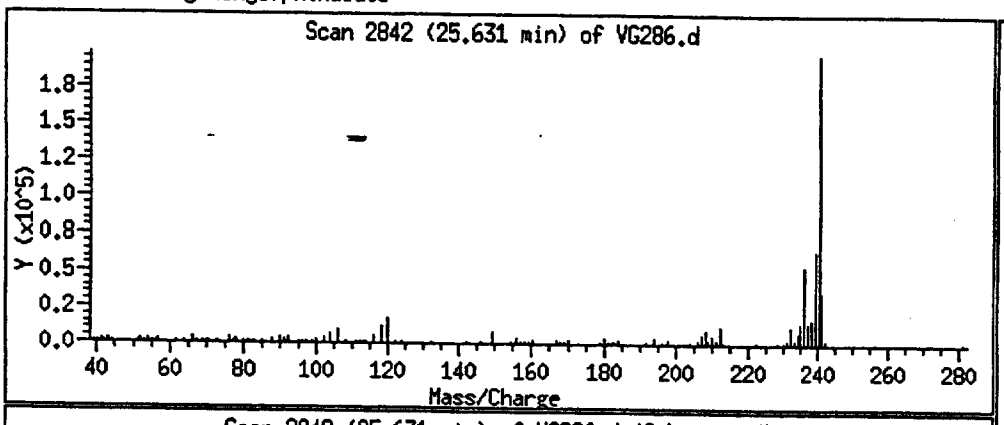


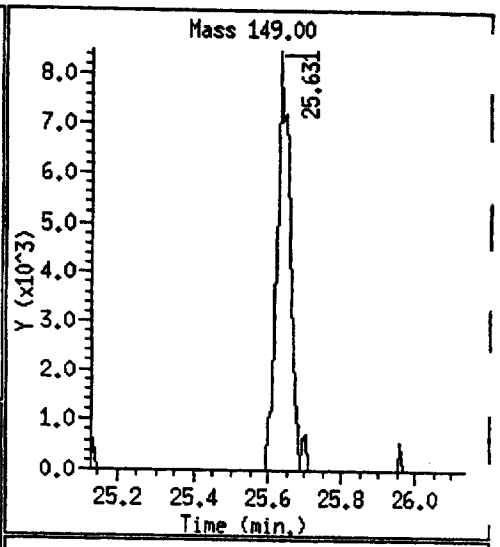


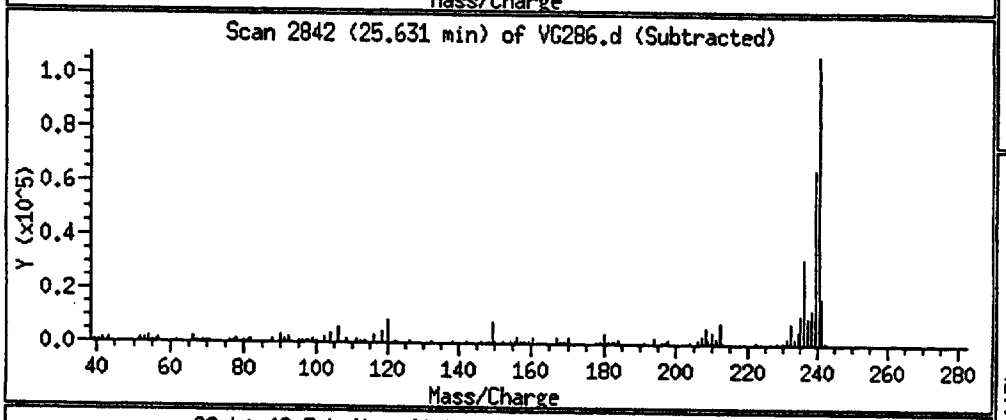


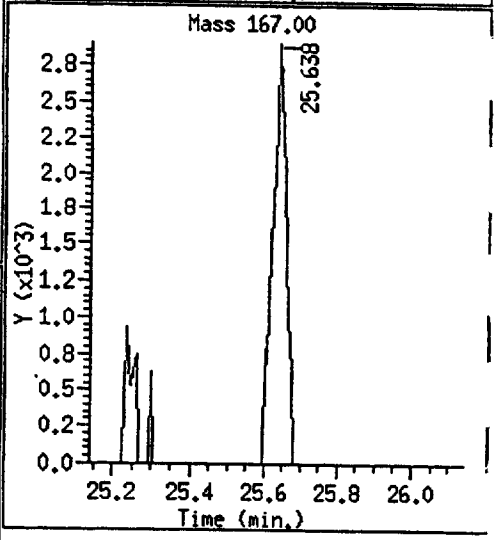
Data File: /chem/V.i/09-18-97.b/CAA/VG286.d
Date : 18-SEP-1997 16:14
Instrument : V.i
Sample ID : M0010-BLANK
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

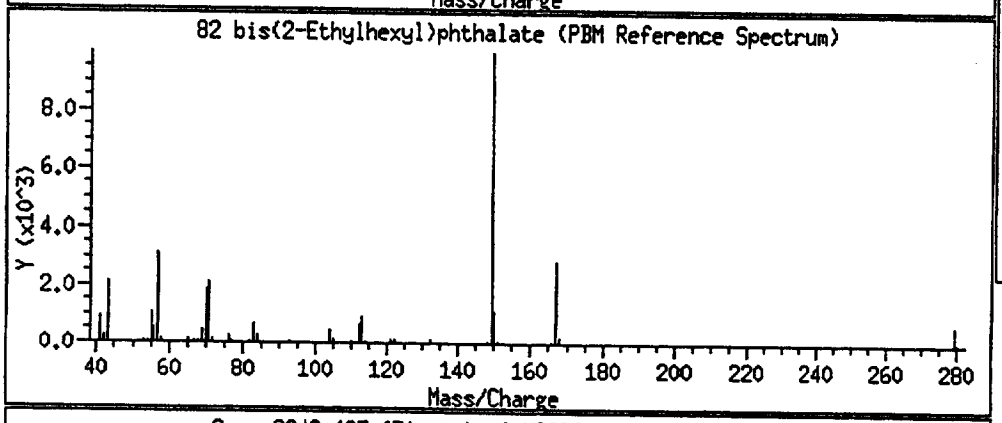
82 bis(2-Ethylhexyl)phthalate

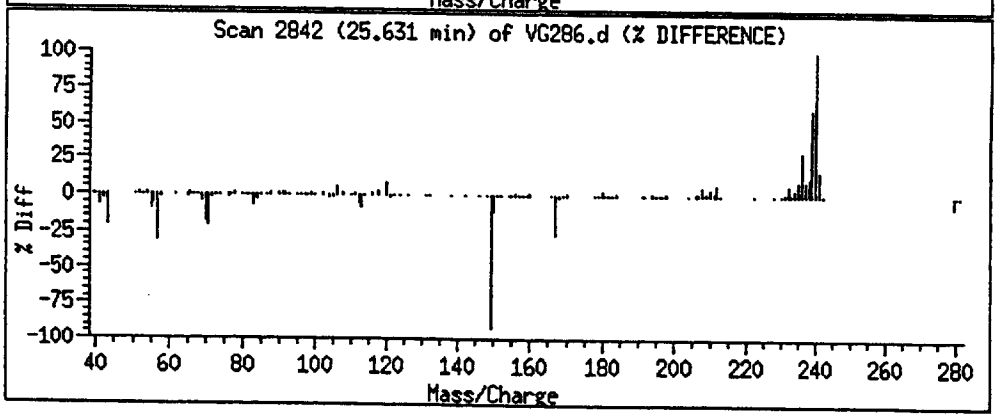












Project Number: 43230
Sample File: VG284

Method 8270A.XAD
Sample ID: SBLK091497

Client Project: S414.003/WAUPAC | **Date Received: / /** | **Response File: VG279**
TLI ID: SBLK091497 | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.45		
Naphthalene-d_8		IS 2	13.01		
Naphthalene	1.61	J	13.06		10
2-Methylnaphthalene		U		0.28	10
Acenaphthene-d_{10}		IS 3	16.67		
2-Chloronaphthalene		U		0.28	10
Acenaphthylene		U		0.19	10
Acenaphthene		U		0.30	10
Fluorene		U		0.27	10
Phenanthrene-d_{10}		IS 4	19.80		
Phenanthrene		U		0.24	10
Anthracene		U		0.25	10
Fluoranthene		U		0.23	10
Chrysene-d_{12}		IS 5	25.61		
Pyrene		U		0.26	10
Benzo(a)anthracene		U		0.33	10
Chrysene		U		0.35	10
Perylene-d_{12}		IS 6	29.75		
Benzo(b)fluoranthene		U		0.44	10
Benzo(k)fluoranthene		U		0.43	10
Benzo(e)pyrene		U		0.43	10
Benzo(a)pyrene		U		0.49	10
Perylene		U		0.49	10
Indeno(1,2,3-cd)pyrene		U		0.58	10
Dibenz(a,h)anthracene		U		0.79	10
Benzo(g,h,i)perylene		U		0.67	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG284

Method 8270A XAD
Sample ID: SBLK091497

Client Project: 5414.003/WAUPAC
TLI ID: SBLK091497

Date Received: / /
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG279

Dilution Factor: 1.00

Surrogate Summary	Amount (ng)	RT	IS Ref	%REC
Phenol-d_5	69.77	9.68	1	70
Nitrobenzene-d_5	61.11	11.54	2	61
1,3,5-Trichlorobenzene-d_3	46.38	12.22	2	46
1,4-Dibromobenzene-d_4	72.28	13.12	1	72
2-Fluorobiphenyl	65.35	15.25	3	65
2,4,6-Tribromophenol	92.97	18.32	3	93
Anthracene-d_{10}	94.45	19.92	4	94
Pyrene-d_{10}	103.35	22.80	5	103
Terphenyl-d_{14}	129.83	23.15	5	130

Reviewed by _____ Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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

Pacific Environmental Services

Project Number: 43230 — **Method 8270A XAD**
Sample File: VG284 — **Sample ID: SBLK091497**

Client Project: S414.003/WAUPAC — **Date Received: / /** — **Response File: VG280**
TLI ID: SBLK091497 — **Date Extracted: 09/14/97**
Date Analyzed: 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
1,4-Dichlorobenzene-d_4		IS 1	10.45		
n-Nitrosodimethylamine		U		0.85	10
Cumene		U		0.22	10
Phenol	0.51	J	9.70		10
Aniline		U		0.32	10
bis-(2-Chloroethyl)ether		U		0.77	10
Benzyl Chloride		U		0.19	10
1,4-Dichlorobenzene		U		0.42	10
2-Methylphenol		U		0.56	10
Acetophenone	5.03	J	11.23		10
n-Nitrosomorpholine		U		0.78	10
o-Toluidine		U		0.36	10
Hexachloroethane		U		0.80	10
1,2-Dibromo-3-chloropropane		U		0.93	10
N,N-Diethylaniline		U		0.30	10
Naphthalene-d_8		IS 2	13.01		
3/4-Methylphenol		U		0.47	10
Nitrobenzene		U		0.25	10
N,N-Dimethylaniline		U		0.26	10
Isophorone		U		0.24	10
o-Anisidine		U		0.58	10
1,4-Phenylenediamine		U		0.43	10
1,2,4-Trichlorobenzene		U		0.46	10
Hexachlorobutadiene		U		0.59	10
a,a,a-Trichlorotoluene		U		0.28	10
Hydroquinone		U		0.56	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230
Sample File: VG284

Method 8270A XAD
Sample ID: SBLK091497

Client Project: S414.003/WAUPAC
TLI ID: SBLK091497

Date Received: / /
Date Extracted: 09/14/97
Date Analyzed : 09/18/97

Response File: VG280

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
2-Chloroacetophenone		U		0.24	10
Acenaphthene-d_{10}		IS 3	16.67		
Hexachlorocyclopentadiene		U		0.55	10
2,4,6-Trichlorophenol		U		0.68	10
2,4,5-Trichlorophenol		U		0.66	10
Biphenyl		U		0.21	10
Dimethylphthalate		U		0.27	10
2,4-Dinitrophenol		U		3.41	25
4-Nitrophenol		U		1.42	25
2,4-Dinitrotoluene		U		0.82	10
Dibenzofuran		U		0.20	10
4,6-Dinitro-2-methylphenol		U		2.02	25
Trifluralin		U		0.97	10
Phenanthrene-d_{10}		IS 4	19.80		
Di-n-butylphthalate	3.61	J	21.00		10
Hexachlorobenzene		U		0.65	10
4-Aminobiphenyl		U		0.26	10
Pentachlorophenol		U		1.00	25
Pentachloronitrobenzene		U		1.54	10
4-Nitrobiphenyl		U		0.69	10
Chrysene-d_{12}		IS 5	25.61		
Benzidine		U		0.43	10
4,4'-Methylenedianiline		U		1.05	10
Dimethylaminoazobenzene		U		0.80	10
3,3'-Dimethylbenzidine		U		0.62	10
3,3'-Dimethoxybenzidine		U		1.28	10

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit
IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

Pacific Environmental Services

Project Number: 43230 | **Method 8270A XAD**
Sample File: VG284 | **Sample ID: SBLK091497**

Client Project: 5414.003/WAUPAC | **Date Received: / /** | **Response File: VG280**
TLI ID: SBLK091497 | **Date Extracted: 09/14/97**
Date Analyzed : 09/18/97

Dilution Factor: 1.00

Analyte	Amount ug	FLAG	RT	Det. Limit ug	Quan. Limit ug
3,3'-Dichlorobenzidine		U		1.06	10
Methylene bis-chloroaniline		U		1.84	10
bis(2-Ethylhexyl)phthalate	0.95	J	25.64		10

Reviewed by _____ Date 9/22/97

NA- Not Applicable; Det. Limit: Detection Limit; Quan. Limit: Quantitation Limit

IS: Internal Standard; U: Undetected; B: Present In Blank; J: Estimated- Below Quantitation Limit; E: Estimated- Above Calibration Range

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

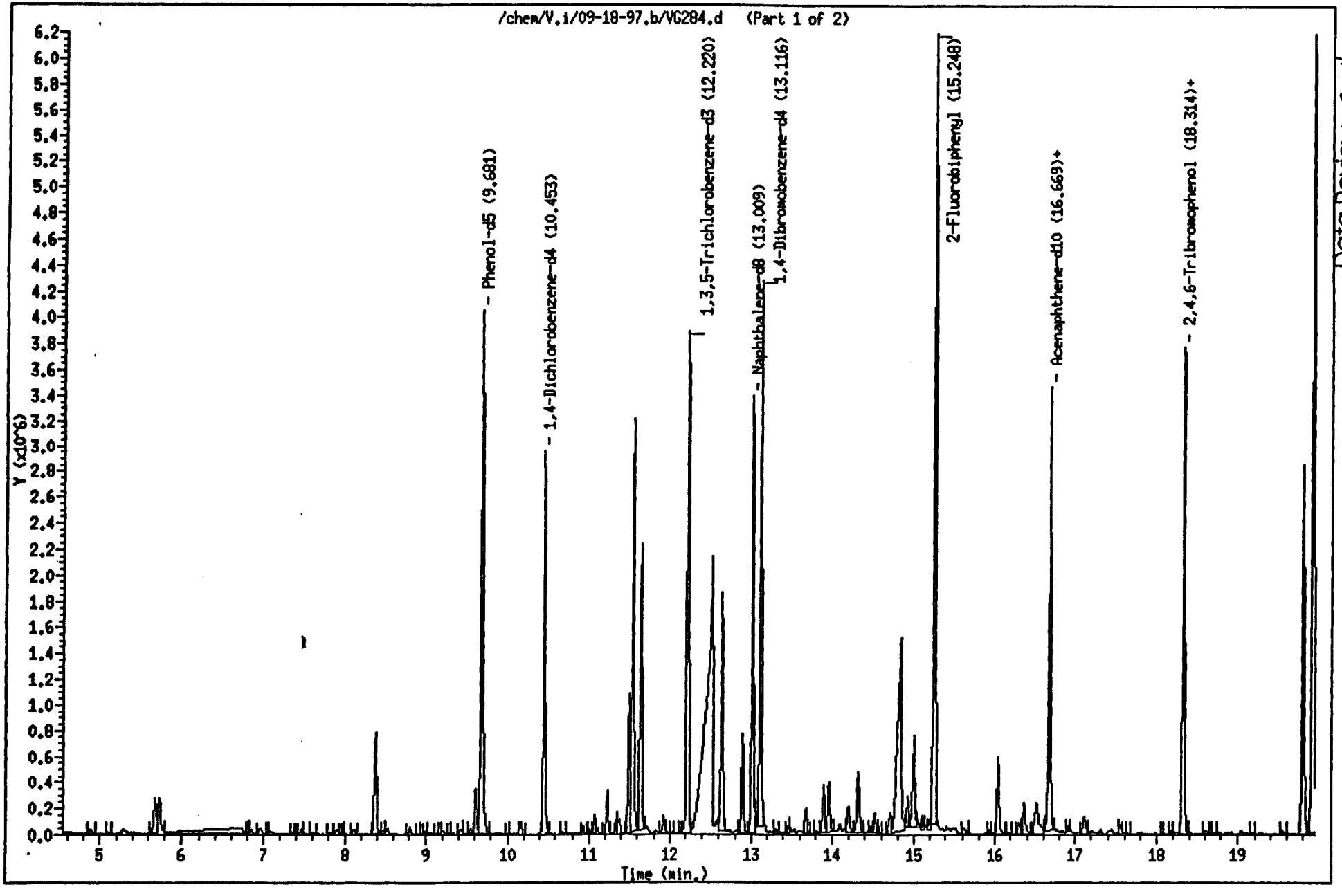
Savar v3.5
Printed: 12:34 09/22/1997

Data File: /chem/V.i/09-18-97.b/VG284.d
Date : 18-SEP-1997 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32

168

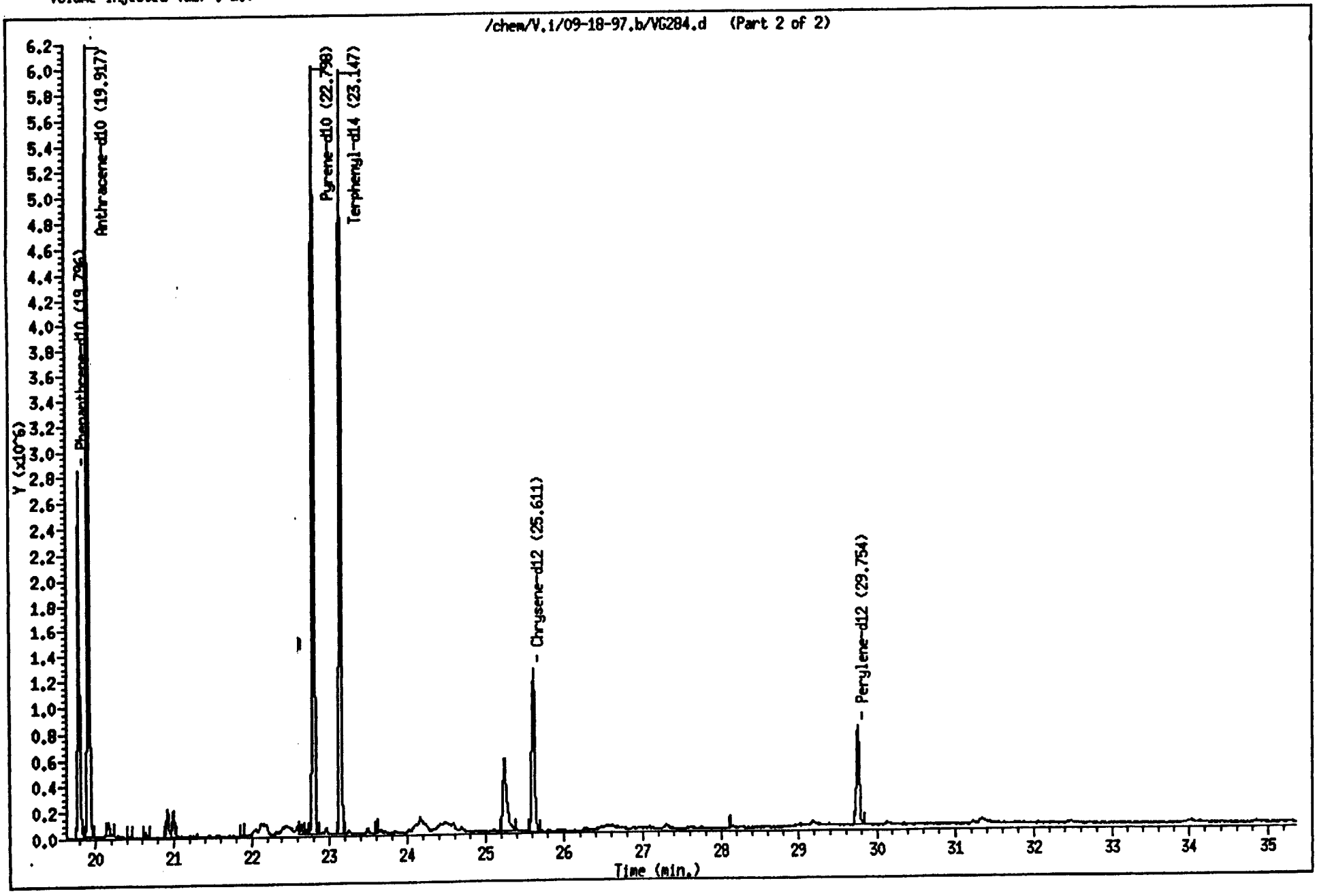


Data Review: SAK
Date: 9/19/97

Data File: /chem/V.1/09-18-97.b/VG284.d
Date : 18-SEP-1997 14:35
Instrument : V.1
Sample ID : SBLK 091497
Column phase : DB-5
Volume Injected (uL) : 1.0

Triangle Laboratories of RTP, Inc.

Column diameter : 0.32



TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/VG284.d
Lab. Id. : 43230
Inj Date : 18-SEP-1997 14:35 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : SBLK 091497
Misc Info :
Comment :
Method : /chem/V.i/09-18-97.b/cclist.m
Meth Date : 18-Sep-1997 11:31 target
Cal Date : 18-SEP-1997 10:43 Cal File: VG279.d
Als bottle: 4
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: pah.sub
Sample Type: AIR

	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
*	1 1,4-Dichlorobenzene-d4	152.00	10.453(1.000)	711217	40.00	
*	2 Naphthalene-d8	136.00	13.009(1.000)	2454678	40.00	
*	3 Acenaphthene-d10	164.00	16.669(1.000)	1288295	40.00	
*	4 Phenanthrene-d10	188.00	19.796(1.000)	1832132	40.00	
*	5 Chrysene-d12	240.00	25.611(1.000)	1052070	40.00	
*	6 Perylene-d12	264.00	29.754(1.000)	907533	40.00	
$	7 2-Fluorophenol	Compound Not Detected.				
$	8 Phenol-d5	99.00	9.681(0.926)	1927693	69.78	69.78
$	9 2-Chlorophenol-d4	Compound Not Detected.				
$	10 1,2-Dichlorobenzene-d4	Compound Not Detected.				
$	11 Nitrobenzene-d5	~~Compound Not Detected:~~	11.538	157638		M satt 9/22/97
$	12 1,3,5-Trichlorobenzene-d3	185.00	12.220(0.939)	1070152	46.40	46.40
$	13 1,4-Dibromobenzene-d4	240.00	13.116(1.255)	1321067	72.28	72.28
$	14 2-Fluorobiphenyl	172.00	15.248(0.915)	2776374	65.34	65.34
$	15 2,4,6-Tribromophenol	329.80	18.322(1.099)	754546	92.85	92.85
$	16 Anthracene-d10	188.00	19.917(1.006)	4269835	94.42	94.42
$	17 Pyrene-d10	212.00	22.798(0.890)	4137366	103.34	103.34
$	18 Terphenyl-d14	244.00	23.147(0.904)	2988004	129.80	129.80 Reap satt 9/19/97
	42 Naphthalene	128.00	~~13.059(1.004)~~	95207	1.61	~~1.61(a)~~ FP satt
	46 2-Methylnaphthalene	Compound Not Detected.				
	50 2-Chloronaphthalene	Compound Not Detected.				
	56 Acenaphthylene	Compound Not Detected.				
	58 Acenaphthene	Compound Not Detected.				
	65 Fluorene	Compound Not Detected.				
	73 Phenanthrene	Compound Not Detected.				
	74 Anthracene	Compound Not Detected.				
	77 Fluoranthene	Compound Not Detected.				
	78 Pyrene	Compound Not Detected.				
	83 Benzo(a)anthracene	Compound Not Detected.				
	84 Chrysene	Compound Not Detected.				
	86 Benzo(b)fluoranthene	Compound Not Detected.				

Data Review: satt
Date: 9/19/97

Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)
87 Benzo(k)fluoranthene	Compound Not Detected.				
88 Benzo(e)pyrene	Compound Not Detected.				
89 Benzo(a)pyrene	Compound Not Detected.				
90 Perylene	Compound Not Detected.				
91 Indeno(1,2,3-cd)pyrene	Compound Not Detected.				
92 Dibenz(a,h)anthracene	Compound Not Detected.				
93 Benzo(g,h,i)perylene	Compound Not Detected.				

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

TRIANGLE LABORATORIES, INC.

SEMI-VOLATILE QUANTITATION REPORT

Data file : /chem/V.i/09-18-97.b/CAA/VG284.d
Lab. Id. : 43230
Inj Date : 18-SEP-97 14:35 Autotune Date: 17-Sep-97 07:05:4
Operator : DD Inst ID: V.i
Smp Info : SBLK 091497
Misc Info :
Comment :
Method : /chem/V.i/09-18-97.b/tlicaa.m
Meth Date : 18-Sep-1997 12:15 target
Cal Date : 18-SEP-1997 11:32 Cal File: VG280.d
Als bottle: 4
Dil Factor: 1.000 Target Version: Target 2.20
Integrator: HP RTE Compound Sublist: CAA1.sub
Sample Type: mm5

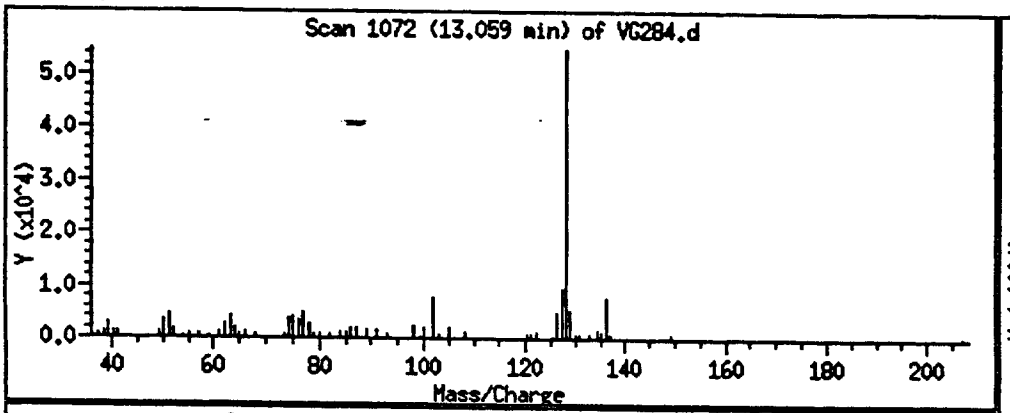
	Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	FINAL (ug)	
* 1	1,4 Dichlorobenzene-d4	152.00	10.453(1.000)	711217	40.00		
* 2	Naphthalene-d8	136.00	13.009(1.000)	2454678	40.00		
* 3	Acenaphthene-d10	164.00	16.669(1.000)	1288295	40.00		
* 4	Phenanthrene-d10	188.00	19.796(1.000)	1832132	40.00		
* 5	Chrysene-d12	240.00	25.611(1.000)	1052070	40.00		
* 6	Perylene-d12	264.00	29.754(1.000)	907533	40.00		
$ 7	2-Fluorophenol	Compound Not Detected.					
$ 8	Phenol-d5	99.00	9.681(0.926)	1927693	77.27	77.27	
$ 9	2-Chlorophenol-d4	Compound Not Detected.					
$ 10	1,2-Dichlorobenzene-d4	Compound Not Detected.					
$ 11	Nitrobenzene-d5	Compound Not Detected.					
$ 12	1,3,5-Trichlorobenzene-d3	185.00	12.220(0.939)	1070152	45.41	45.41	
$ 13	1,4-Dibromobenzene-d4	240.00	13.116(1.255)	1321067	75.00	75.00	
$ 14	2-Fluorobiphenyl	172.00	15.248(0.915)	2776374	64.59	64.59	
$ 15	2,4,6-Tribromophenol	329.80	18.322(1.099)	754546	92.76	92.76	
$ 16	Anthracene-d10	188.00	19.917(1.006)	4269835	88.19	88.19	
$ 17	Pyrene-d10	212.00	22.798(0.890)	4137366	103.83	103.83	
$ 18	Terphenyl-d14	244.00	23.147(0.904)	2988004	116.74	116.74	
19	n-Nitrosodimethylamine	74.00	~~4.890(0.468)~~	~~17136~~	~~1.45~~	~~1.45~~	FP salt
20	Cumene	Compound Not Detected.					
22	Phenol	94.00	9.703(0.928)	12804	0.51	0.51	
23	Aniline	93.00	~~9.710(0.929)~~	~~313~~	~~0.01~~	~~0.01~~	> FP salt
26	bis-(2-Chloroethyl)ether	63.00	~~9.681(0.926)~~	~~12176~~	~~0.93~~	~~0.93~~	
27	Benzyl Chloride	Compound Not Detected.					
28	1,4-Dichlorobenzene	146.00	~~10.489(1.003)~~	~~1859~~	~~0.07~~	~~0.07~~	FP salt
30	2-Methylphenol	Compound Not Detected.					
31	3/4-Methylphenol	108.00	~~11.631(0.894)~~	~~2021~~	~~0.09~~	~~0.09~~	FP salt
32	Acetophenone	105.00	11.226(1.074)	142370	5.03	5.03	
33	n-Nitrosomorpholine	56.00	~~11.495(1.100)~~	~~5553~~	~~0.43~~	~~0.43~~	> FP salt
34	o-Toluidine	106.00	~~11.226(1.074)~~	9540	0.34	0.34	
35	Hexachloroethane	Compound Not Detected.					

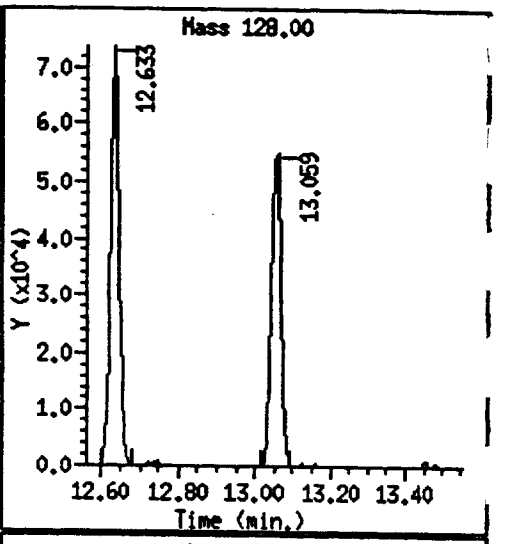
Data Review: salt
Date: 9/19/97

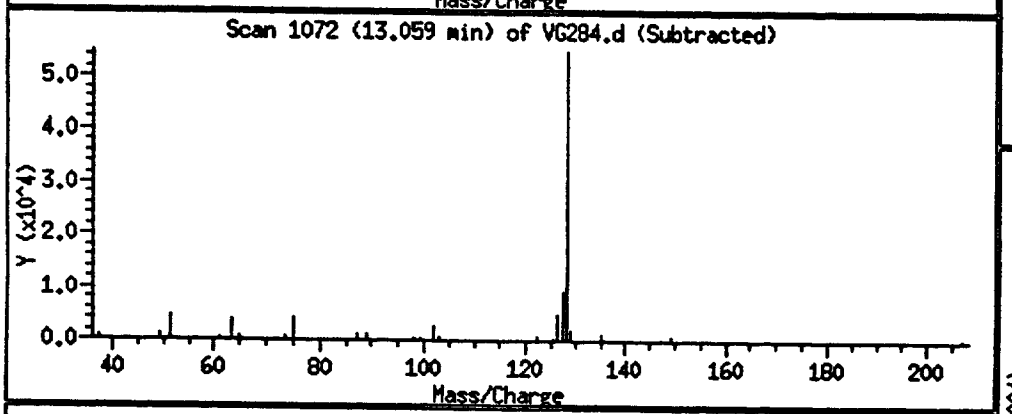
Compounds	QUANT SIG MASS	RT (REL RT)	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug)	
36 Nitrobenzene	Compound Not Detected.					
37 N,N-Dimethylaniline	Compound Not Detected.					
38 1,2-Dibromo-3-chloropropane	Compound Not Detected.					
39 Isophorone	Compound Not Detected.					
40 o-Anisidine	Compound Not Detected.					
41 1,4-Phenylenediamine	Compound Not Detected.					
42 1,2,4-Trichlorobenzene	Compound Not Detected.					
43 Naphthalene	128.00	13.059(1.004)	95207	1.31	1.31	
45 Hexachlorobutadiene	225.00	~~13.308(1.023)~~	~~4567~~	~~0.26~~	~~0.26~~	FP salt
46 N,N-Diethylaniline	134.00	~~13.009(1.244)~~	~~214635~~	~~6.44~~	~~6.44~~	
47 a,a,a-Trichlorotoluene	Compound Not Detected.					
48 Hydroquinone	110.00	~~13.883(1.067)~~	~~2814~~	~~0.15~~	~~0.15~~	FP salt
50 2-Chloroacetophenone	105.00	~~14.195(1.091)~~	~~21106~~	~~0.51~~	~~0.51~~	
51 Hexachlorocyclopentadiene	Compound Not Detected.					
52 2,4,6-Trichlorophenol	Compound Not Detected.					
53 2,4,5-Trichlorophenol	Compound Not Detected.					
59 Biphenyl	154.00	~~15.248(0.915)~~	~~4312~~	~~0.09~~	~~0.09~~	FP salt
60 Dimethylphthalate	Compound Not Detected.					
71 2,4-Dinitrophenol	Compound Not Detected.					
61 4-Nitrophenol	139.00	~~17.095(1.026)~~	~~549~~	~~0.07~~	~~0.07~~	FP salt
62 2,4-Dinitrotoluene	165.00	~~16.669(1.000)~~	~~179085~~	~~14.68~~	~~14.68~~	
63 Dibenzofuran	Compound Not Detected.					
64 Di-n-butylphthalate	149.00	21.003(1.061)	183303	3.60	3.60	
65 4,6-Dinitro-2-methylphenol	198.00	~~18.322(1.099)~~	~~3180~~	~~0.64~~	~~0.64~~	FP salt
66 Trifluralin	Compound Not Detected.					
67 Hexachlorobenzene	Compound Not Detected.					
68 4-Aminobiphenyl	Compound Not Detected.					
69 Pentachlorophenol	Compound Not Detected.					
70 Pentachloronitrobenzene	Compound Not Detected.					
72 4-Nitrobiphenyl	152.00	~~19.946(1.008)~~	~~569~~	~~0.03~~	~~0.03~~	FP salt
73 Benzidine	184.00	~~22.798(0.890)~~	~~46442~~	~~1.98~~	~~1.98~~	
74 4,4'-Methylenedianiline	Compound Not Detected.					
76 Dimethylaminoazobenzene	120.00	~~23.147(0.904)~~	~~31376~~	~~2.52~~	~~2.52~~	FP salt
77 3,3'-Dimethylbenzidine	Compound Not Detected.					
79 3,3'-Dimethoxybenzidine	Compound Not Detected.					
80 3,3'-Dichlorobenzidine	Compound Not Detected.					
81 Methylene bis-chloroaniline	Compound Not Detected.					
82 bis(2-Ethylhexyl)phthalate	149.00	25.640(1.001)	18050	0.94	0.94	

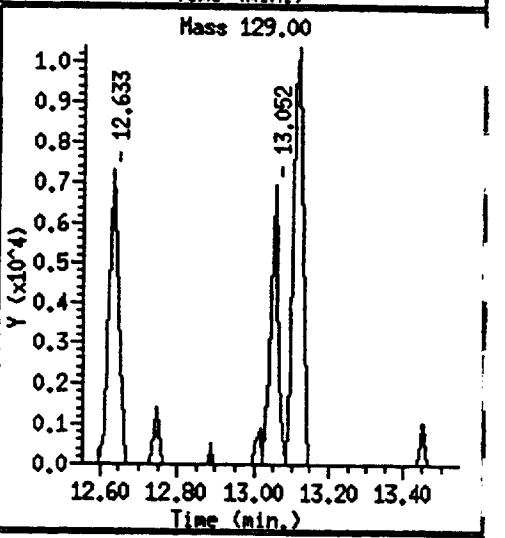
Data File: /chem/V.i/09-18-97.b/VG284.d
Date : 18-SEP-1997 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB-5
Column diameter : 0.32
Volume Injected (uL) : 1.0

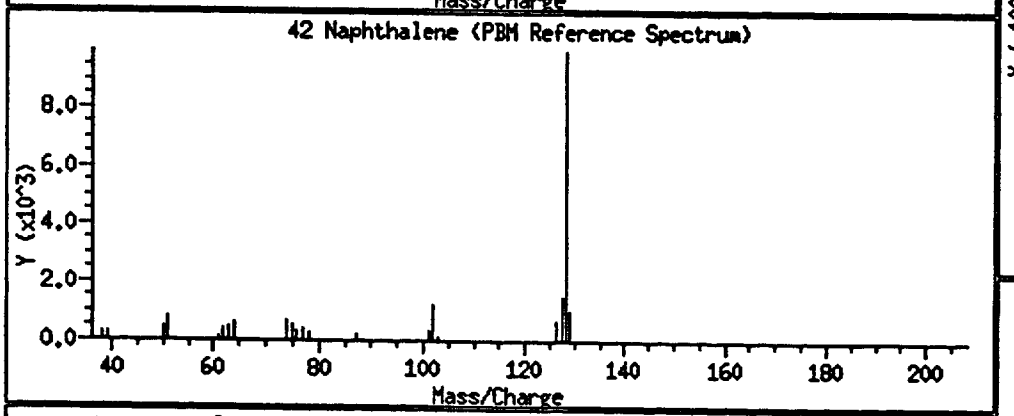
42 Naphthalene

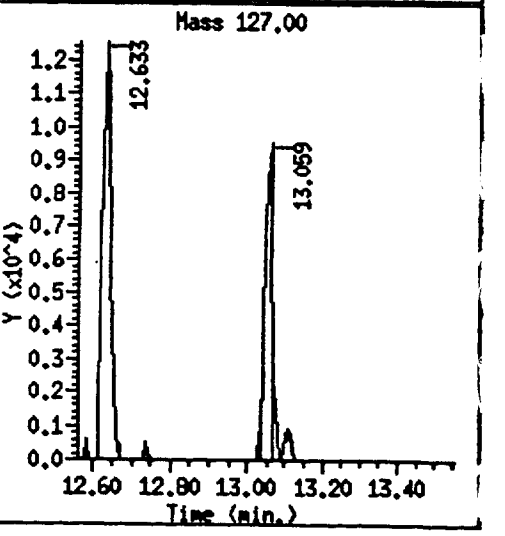


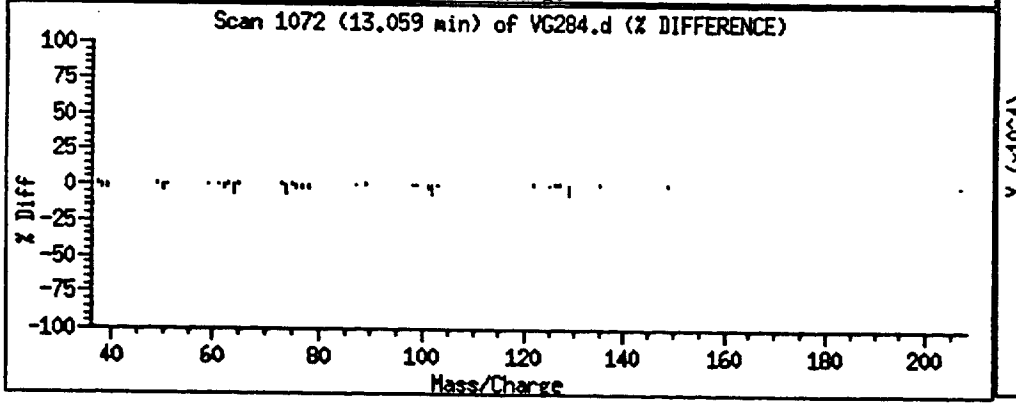






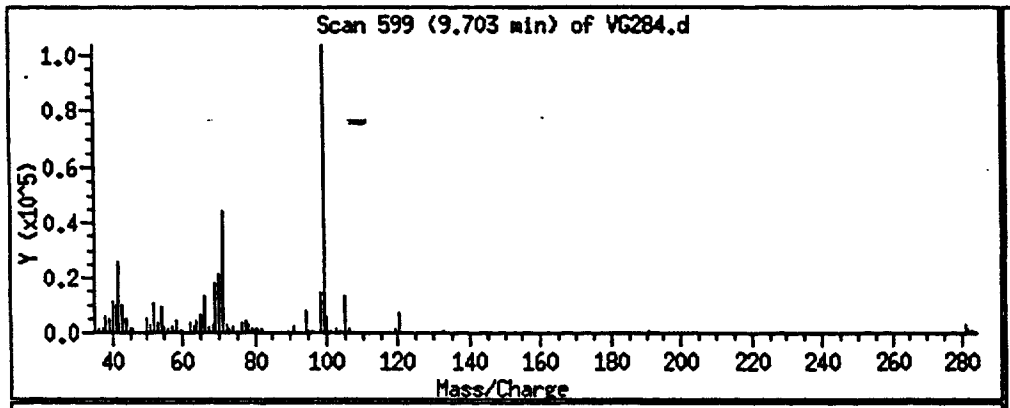


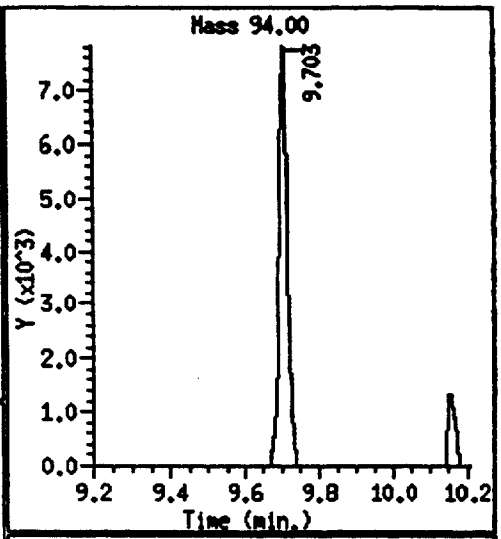


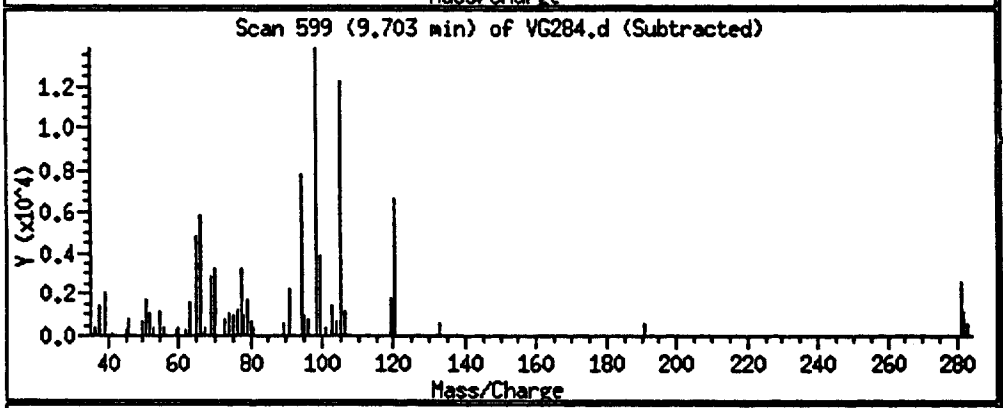


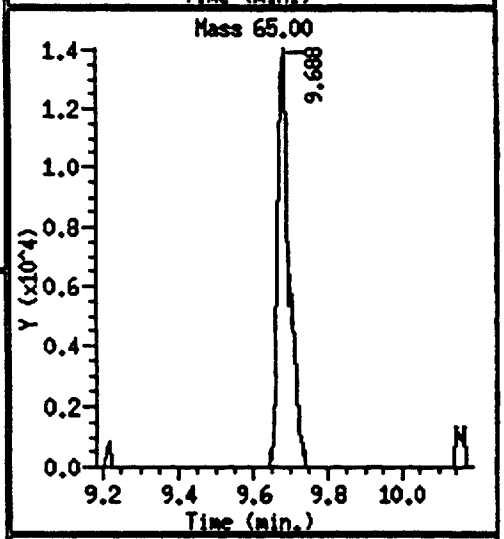
Data File: /chem/V.i/09-18-97.b/CAA/VG284.d
Date : 18-SEP-97 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

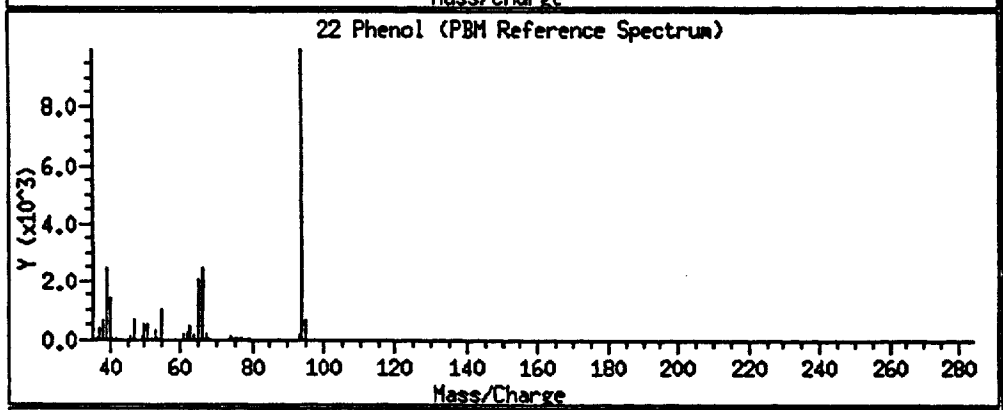
22 Phenol

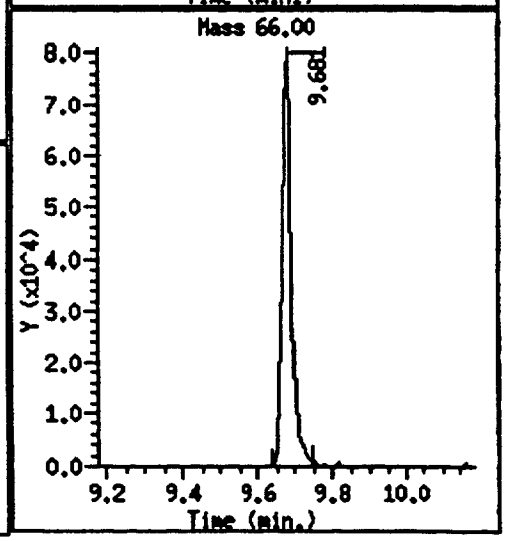


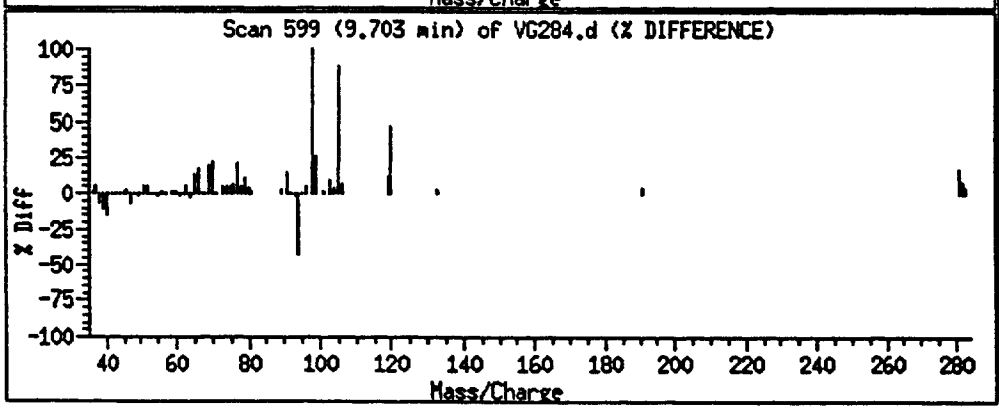






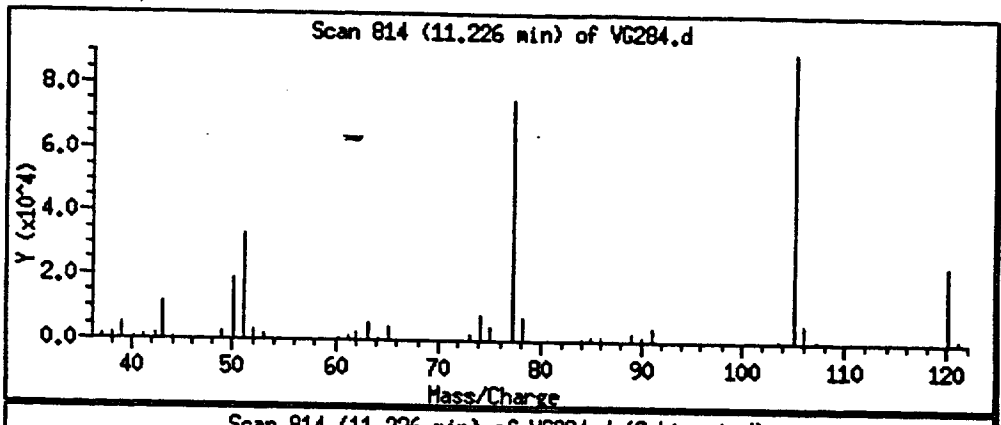


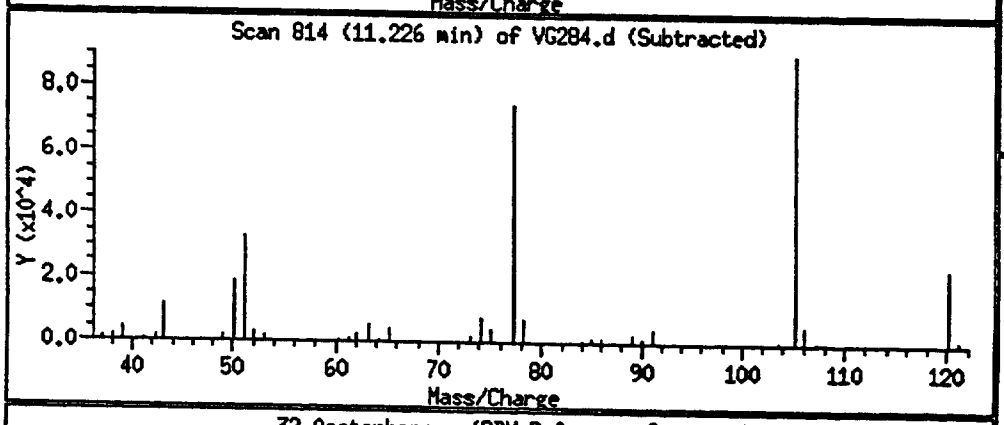


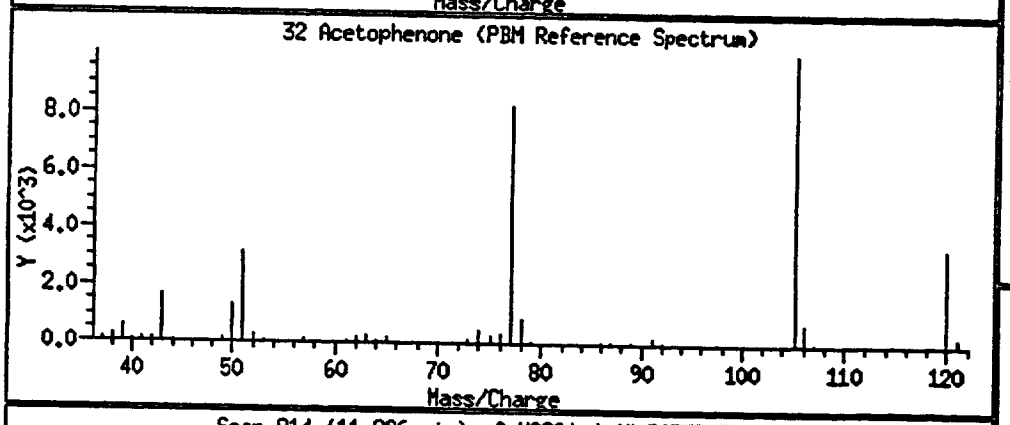


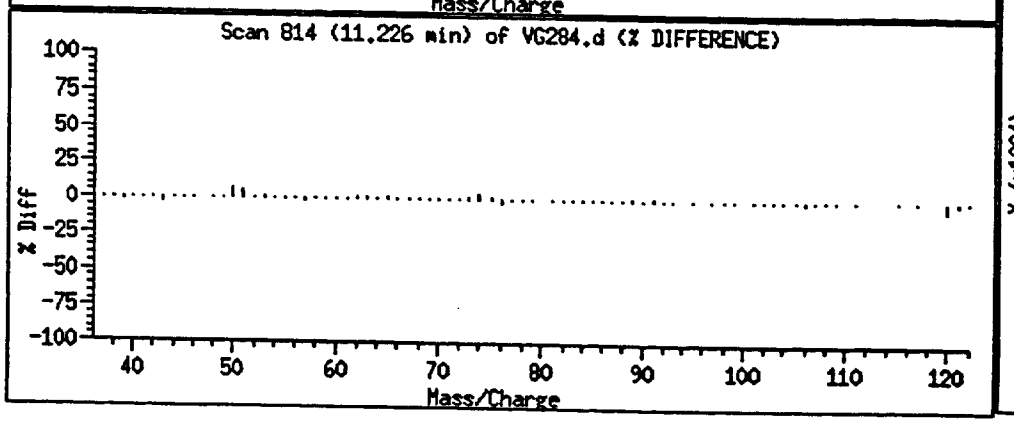
Data File: /chem/V.i/09-18-97.b/CAA/VG284.d
Date : 18-SEP-97 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB.5-625
Column diameter : 0.32
Volume Injected (uL) : 1.0

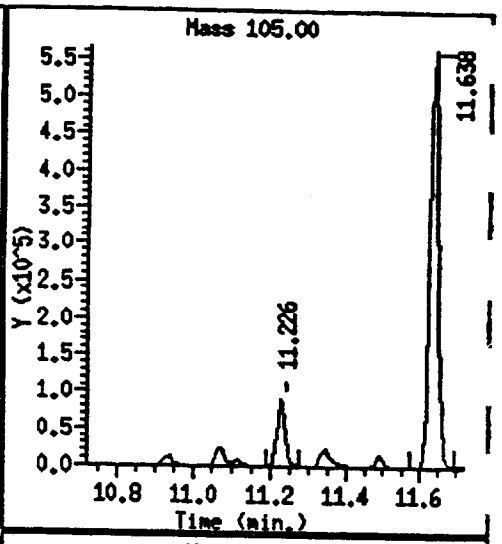
32 Acetophenone

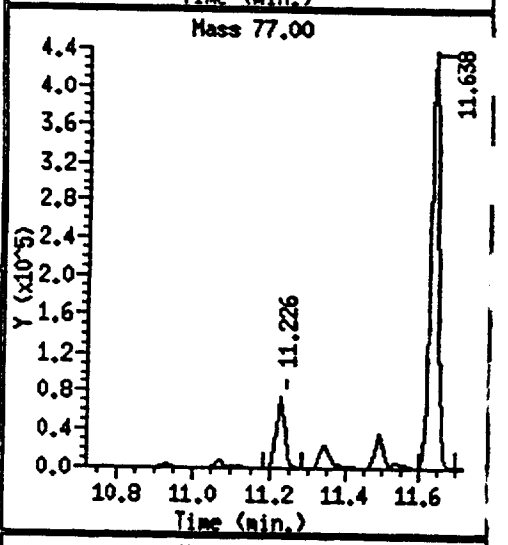


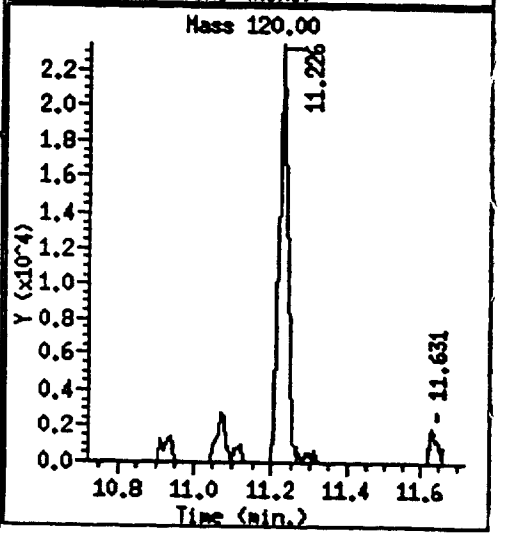






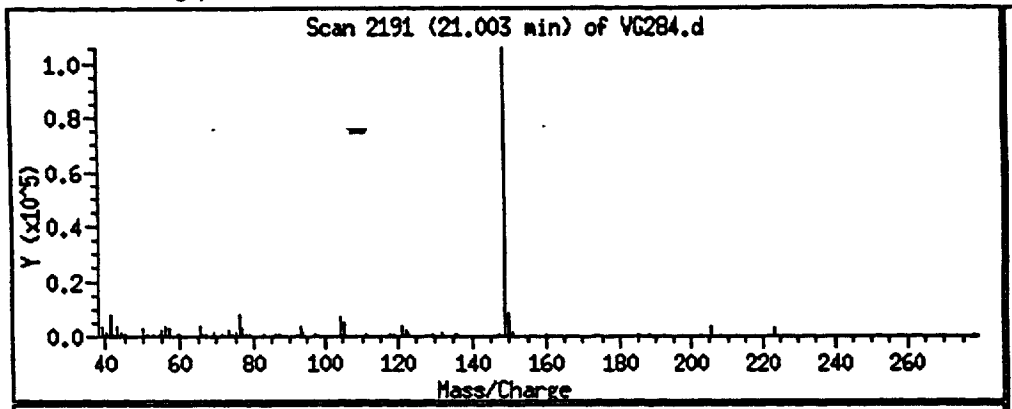


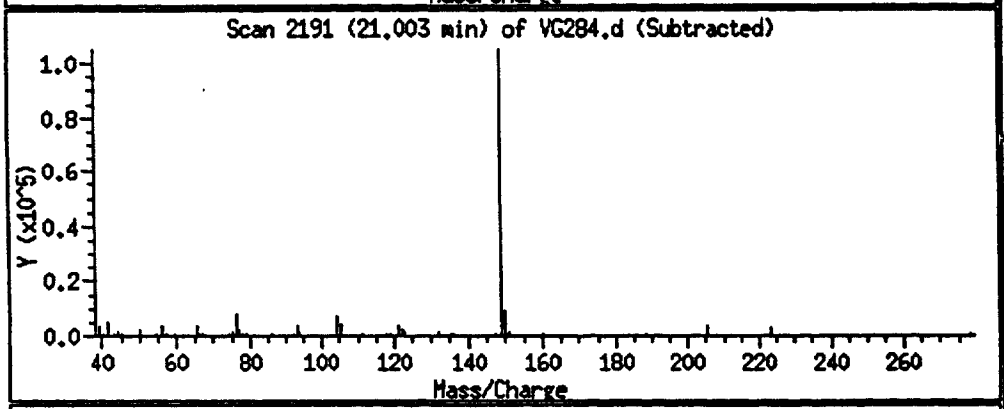


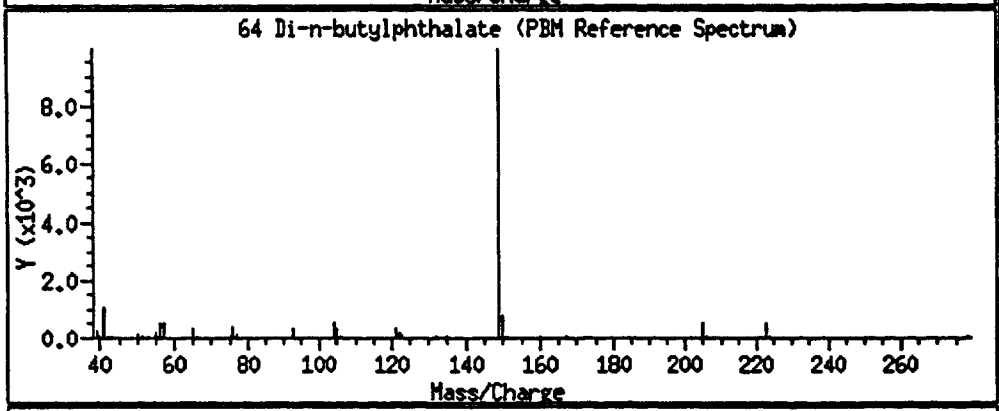


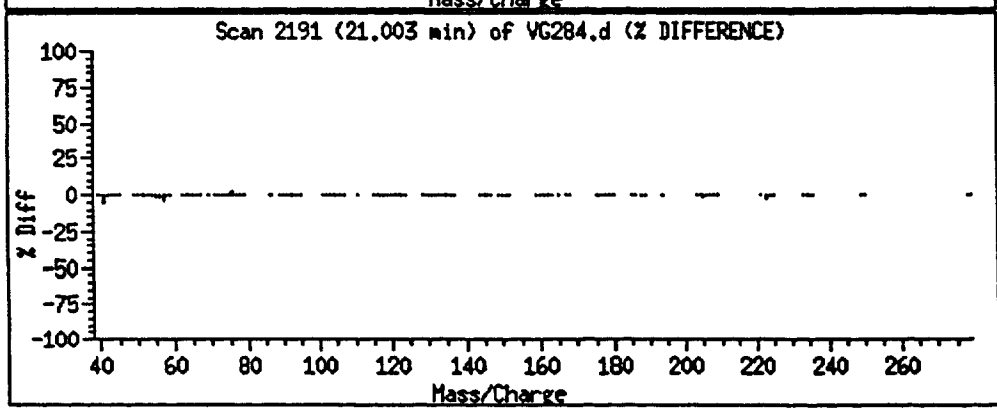
Data File: /chem/V.i/09-18-97.b/CAA/VG284.d
Date : 18-SEP-97 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

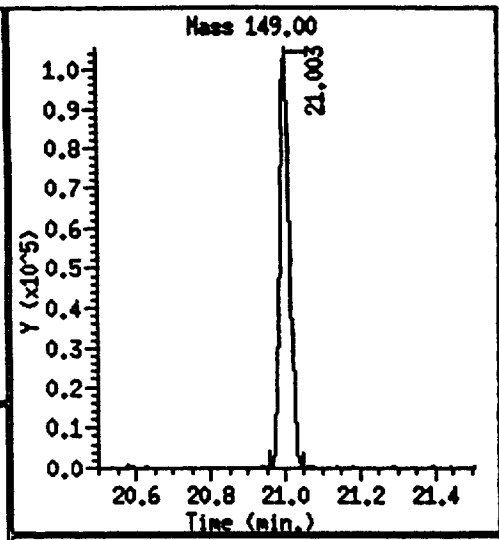
64 Di-n-butylphthalate

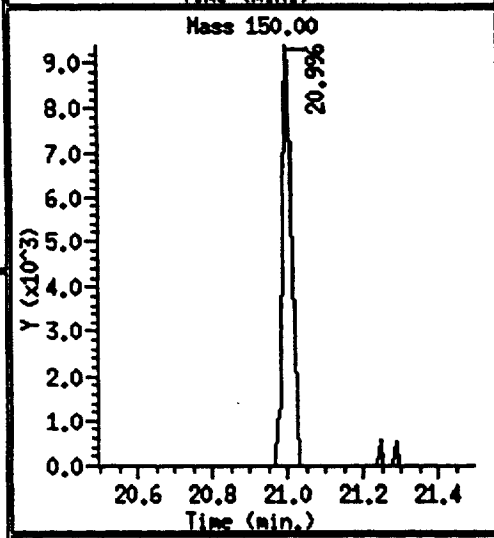


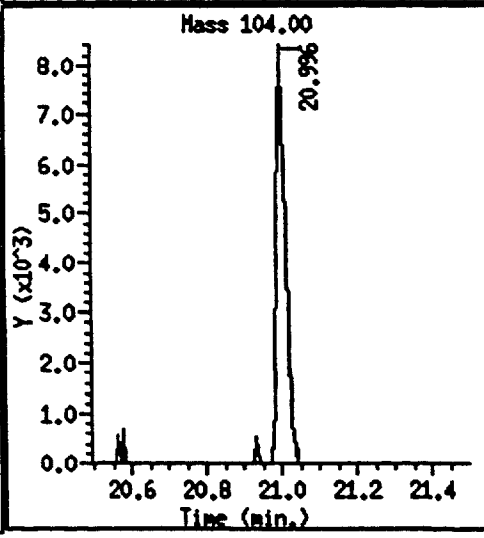






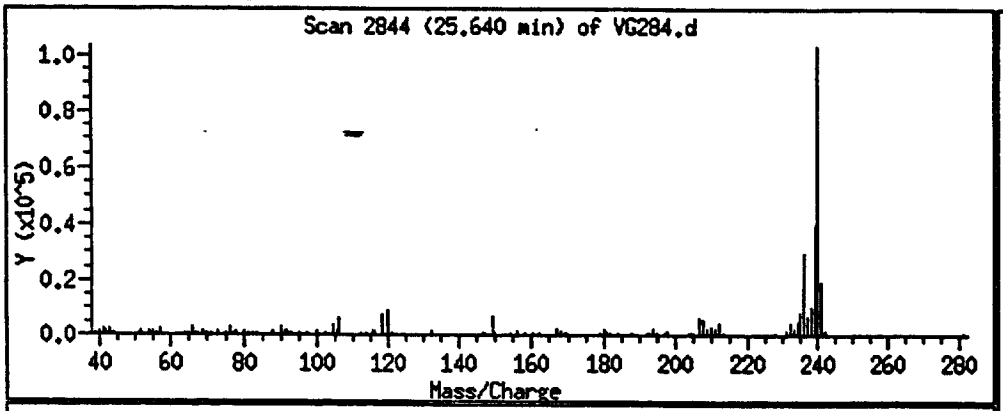


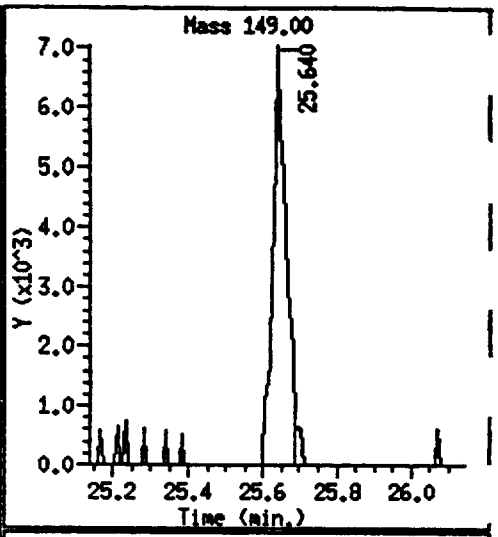


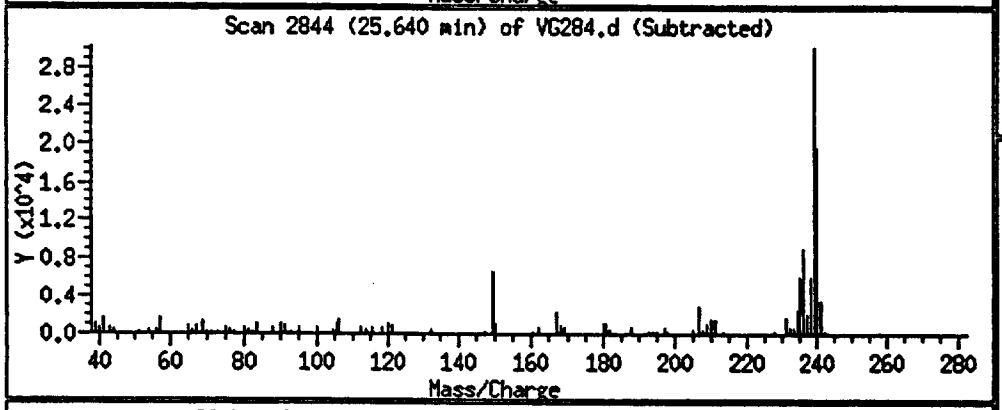


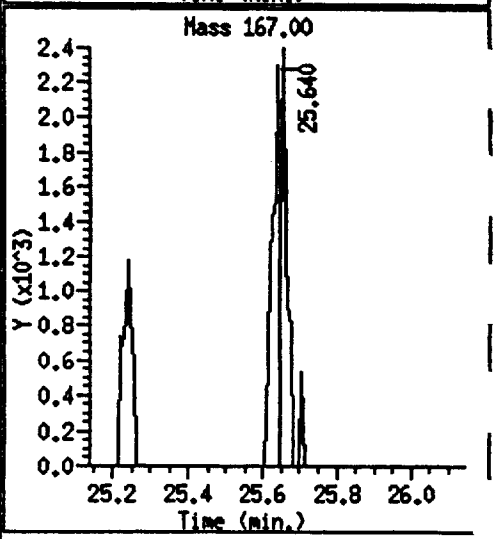
Data File: /chem/V.i/09-18-97.b/CAA/VG284.d
Date : 18-SEP-97 14:35
Instrument : V.i
Sample ID : SBLK 091497
Column phase : DB.5-625 Column diameter : 0.32
Volume Injected (uL) : 1.0

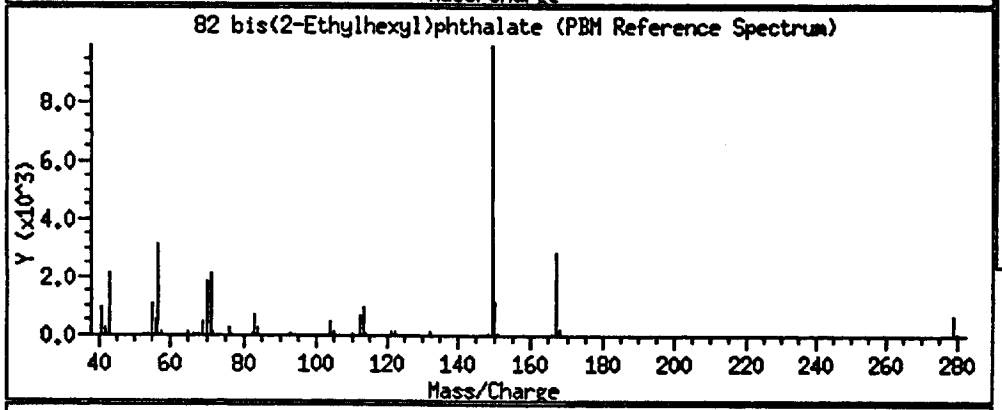
82 bis(2-Ethylhexyl)phthalate

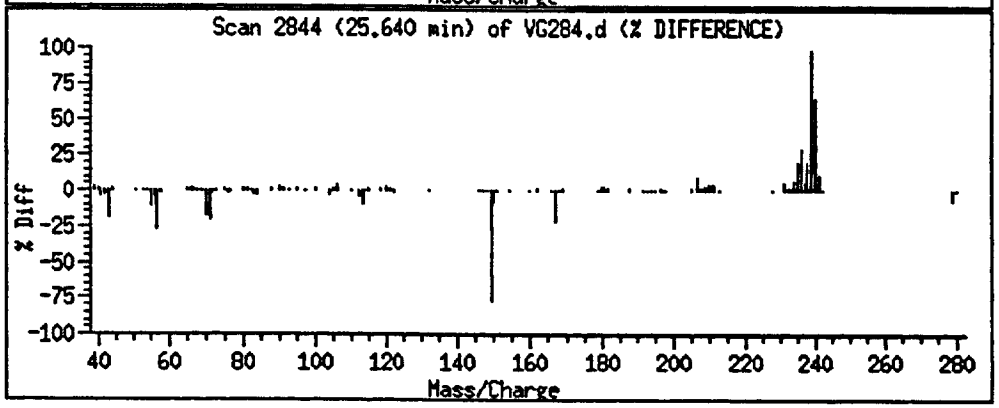












Triangle Laboratories of RTP, Inc.
Continuing Calibration Curve

CCAL File: VG279 Date of Analysis :09/18/97 Analyte List: 8270A
ICAL File: ICALV912

Analyte	Flag	RF50	RFMEAN	%D
1,4-Dichlorobenzene-d4	I			
Naphthalene-d8	I			
Naphthalene		0.963	1.035	7.0
2-Methylnaphthalene		0.588	0.650	9.5
Acenaphthene-d10	I			
2-Chloronaphthalene		1.099	1.092	-0.6
Acenaphthylene		1.623	1.606	-1.1
Acenaphthene	C	1.019	1.072	4.9
Fluorene		1.162	1.156	-0.5
Phenanthrene-d10	I			
Phenanthrene		0.925	0.919	-0.7
Anthracene		0.879	0.857	-2.6
Fluoranthene	C	0.968	1.040	6.9
Chrysene-d12	I			
Pyrene		1.487	1.730	14.0
Benzo(a)anthracene		1.160	1.168	0.7
Chrysene		1.087	1.097	0.9
Perylene-d12	I			
Benzo(b)fluoranthene		1.013	1.047	3.2
Benzo(k)fluoranthene		1.037	1.018	-1.9
Benzo(e)pyrene		1.028	1.054	2.5
Benzo(a)pyrene	C	0.908	0.920	1.3
Perylene		0.902	0.962	6.2
Indeno(1,2,3-cd)pyrene		0.756	0.902	16.2
Dibenz(a,h)anthracene		0.557	0.709	21.4
Benzo(g,h,i)perylene		0.660	0.819	19.4

Surrogate	Flag	RF50	RFMEAN	%D
Phenol-d5	S	1.554	1.478	-5.1
Nitrobenzene-d5	S	0.426	0.335	-27.2
1,3,5-Trichlorobenzene-d3	S	0.376	0.396	5.1
1,4-Dibromobenzene-d4	S	1.028	1.029	0.1
2-Fluorobiphenyl	S	1.319	1.260	-4.7
2,4,6-Tribromophenol	S	0.252	0.306	17.6
Anthracene-d10	S	0.987	0.989	0.2
Pyrene-d10	S	1.522	1.714	11.2
Terphenyl-d14	S	0.875	1.023	14.5

Approved by: _____ Date 9/22/97

*- Fails QC Criteria for %D; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF

Triangle Laboratories of RTP, Inc.
Initial Calibration Curve

ICAL File: ICALV912	Date of Analysis :09/12/97	Analyte List: 8270A
RF20 VG216	RF50 VG215	RF80 VG214
RF120 VG213	RF160 VG212	

Analyte	Flag	RF20	RF50	RF80	RF120	RF160	MEAN	%RSD
1,4-Dichlorobenzene-d4	I							
Naphthalene-d8	I							
Naphthalene		1.064	1.016	1.037	1.011	1.045	1.035	2.1
2-Methylnaphthalene		0.674	0.633	0.643	0.622	0.676	0.650	3.8
Acenaphthene-d10	I							
2-Chloronaphthalene		1.145	1.091	1.104	1.016	1.106	1.092	4.3
Acenaphthylene		1.672	1.593	1.608	1.532	1.627	1.606	3.2
Acenaphthene	C	1.051	1.047	1.085	1.048	1.131	1.072	3.4
Fluorene		1.128	1.101	1.148	1.154	1.250	1.156	4.9
Phenanthrene-d10	I							
Phenanthrene		0.981	0.951	0.915	0.857	0.888	0.919	5.4
Anthracene		0.922	0.886	0.865	0.801	0.812	0.857	5.9
Fluoranthene	C	1.133	1.120	1.077	0.930	0.940	1.040	9.4
Chrysene-d12	I							
Pyrene		1.624	1.618	1.758	1.788	1.865	1.730	6.2
Benzo(a)anthracene		1.178	1.143	1.173	1.145	1.201	1.168	2.1
Chrysene		1.108	1.080	1.091	1.079	1.127	1.097	1.8
Perylene-d12	I							
Benzo(b)fluoranthene		1.064	1.051	1.064	1.010	1.046	1.047	2.1
Benzo(k)fluoranthene		1.055	1.005	1.039	1.000	0.993	1.018	2.7
Benzo(e)pyrene		1.092	1.037	1.069	1.029	1.043	1.054	2.5
Benzo(a)pyrene	C	0.913	0.911	0.949	0.903	0.924	0.920	2.0
Perylene		0.979	0.932	0.978	0.952	0.970	0.962	2.1
Indeno(1,2,3-cd)pyrene		0.832	0.893	0.923	0.923	0.939	0.902	4.7
Dibenz(a,h)anthracene		0.654	0.700	0.730	0.719	0.743	0.709	4.9
Benzo(g,h,i)perylene		0.751	0.808	0.835	0.838	0.861	0.819	5.2

Surrogate	Flag	RF20	RF50	RF80	RF120	RF160	Mean	%RSD
Phenol-d5	S	1.497	1.418	1.494	1.449	1.530	1.478	3.0
Nitrobenzene-d5	S	0.342	0.328	0.336	0.326	0.345	0.335	2.4
1,3,5-Trichlorobenzene-d3	S	0.420	0.391	0.394	0.375	0.398	0.396	4.1
1,4-Dibromobenzene-d4	S	1.091	1.021	1.032	0.969	1.030	1.029	4.2
2-Fluorobiphenyl	S	1.346	1.268	1.277	1.173	1.235	1.260	5.0
2,4,6-Tribromophenol	S	0.295	0.296	0.312	0.303	0.326	0.306	4.2
Anthracene-d10	S	1.050	1.035	1.006	0.911	0.945	0.989	6.0
Pyrene-d10	S	1.588	1.579	1.727	1.772	1.903	1.714	7.9
Terphenyl-d14	S	0.906	0.942	1.025	1.078	1.165	1.023	10.2

Approved by: Scott Date 9/12/97

*- Fails QC Criteria for %RSD; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF

Triangle Laboratories of RTP, Inc.
Continuing Calibration Curve

CCAL File: VG280 Date of Analysis :09/18/97 Analyte List: 8270A
ICAL File: ICALV915

Analyte	Flag	RF50	RFMEAN	%D
1,4 Dichlorobenzene-d4	I			
n-Nitrosodimethylamine		0.662	0.561	-18.0
Cumene		2.543	2.463	-3.2
Phenol	C	1.400	1.346	-4.0
Aniline		1.762	1.649	-6.9
bis-(2-Chloroethyl)ether		0.735	0.683	-7.6
Benzyl Chloride		2.999	2.325	-29.0
1,4-Dichlorobenzene	C	1.335	1.315	-1.5
2-Methylphenol		1.001	1.069	6.4
Acetophenone		1.591	1.580	-0.7
n-Nitrosomorpholine		0.719	0.620	-16.0
o-Toluidine		1.556	1.569	0.8
Hexachloroethane		0.704	0.655	-7.5
1,2-Dibromo-3-chloropropane		0.605	0.612	1.1
N,N-Diethylaniline		1.872	1.859	-0.7
Naphthalene-d8	I			
3/4-Methylphenol		0.348	0.373	6.7
Nitrobenzene		0.656	0.566	-15.9
N,N-Dimethylaniline		0.622	0.593	-4.9
Isophorone		0.685	0.598	-14.5
o-Anisidine		0.281	0.282	0.4
1,4-Phenylenediamine		0.382	0.343	-11.4
1,2,4-Trichlorobenzene		0.354	0.398	11.1
Hexachlorobutadiene	C	0.276	0.253	-9.1
a,a,a-Trichlorotoluene		0.575	0.529	-8.7
Hydroquinone		0.293	0.218	-34.4
2-Chloroacetophenone		0.666	0.670	0.6
Acenaphthene-d10	I			
Hexachlorocyclopentadiene	P	0.567	0.396	-43.2
2,4,6-Trichlorophenol	C	0.459	0.412	-11.4
2,4,5-Trichlorophenol		0.468	0.428	-9.3
Biphenyl		1.468	1.303	-12.7
Dimethylphthalate		1.152	1.183	2.6
2,4-Dinitrophenol	P	0.091	0.180	49.4
4-Nitrophenol	P	0.218	0.275	20.7
2,4-Dinitrotoluene		0.379	0.433	12.5
Dibenzofuran		1.541	1.518	-1.5
4,6-Dinitro-2-methylphenol		0.154	0.279	44.8

*- Fails QC Criteria for %D; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF

Triangle Laboratories of RTP, Inc.
Continuing Calibration Curve

CCAL File: VG280	Date of Analysis :09/18/97	Analyte List: 8270A
ICAL File: ICALV915		

Analyte	Flag	RF50	RFMEAN	%D
Trifluralin		0.321	0.338	5.0
Phenanthrene-d10	I			
Di-n-butylphthalate		1.110	1.179	5.9
Hexachlorobenzene		0.335	0.281	-19.2
4-Aminobiphenyl		0.855	0.811	-5.4
Pentachlorophenol	C	0.219	0.215	-1.9
Pentachloronitrobenzene		0.142	0.100	-42.0
4-Nitrobiphenyl		0.318	0.306	-3.9
Chrysene-d12	I			
Benzidine		0.891	0.608	-46.5
4,4'-Methylenedianiline		0.362	0.400	9.5
Dimethylaminoazobenzene		0.473	0.430	-10.0
3,3'-Dimethylbenzidine		0.612	0.562	-8.9
3,3'-Dimethoxybenzidine		0.297	0.307	3.3
3,3'-Dichlorobenzidine		0.359	0.351	-2.3
Methylene bis-chloroaniline		0.207	0.187	-10.7
bis(2-Ethylhexyl)phthalate		0.726	0.836	13.2

Approved by: Satt Date 9/22/97

*- Fails QC Criteria for %D; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF

Triangle Laboratories of RTP, Inc.
Initial Calibration Curve

ICAL File: ICALV915	Date of Analysis :09/15/97	Analyte List: 8270A
RF20 VG243	RF50 VG242	RF80 VG241
RF120 VG240	RF160 VG239	

Analyte	Flag	RF20	RF50	RF80	RF120	RF160	MEAN	%RSD
1,4 Dichlorobenzene-d4	I							
n-Nitrosodimethylamine		0.543	0.602	0.562	0.561	0.538	0.561	4.5
Cumene		2.392	2.641	2.422	2.433	2.426	2.463	4.1
Phenol	C	1.271	1.402	1.326	1.361	1.373	1.346	3.7
Aniline		1.595	1.754	1.648	1.621	1.624	1.649	3.8
bis-(2-Chloroethyl)ether		0.632	0.704	0.676	0.700	0.705	0.683	4.6
Benzyl Chloride		2.325	2.446	2.310	2.284	2.261	2.325	3.1
1,4-Dichlorobenzene	C	1.333	1.384	1.264	1.291	1.302	1.315	3.5
2-Methylphenol		1.059	1.132	1.051	1.046	1.059	1.069	3.3
Acetophenone		1.548	1.678	1.567	1.536	1.569	1.580	3.6
n-Nitrosomorpholine		0.590	0.654	0.623	0.590	0.644	0.620	4.8
o-Toluidine		1.477	1.624	1.553	1.563	1.627	1.569	3.9
Hexachloroethane		0.647	0.698	0.640	0.646	0.641	0.655	3.7
1,2-Dibromo-3-chloropropane		0.637	0.660	0.612	0.568	0.581	0.612	6.2
N,N-Diethylaniline		1.775	1.961	1.859	1.807	1.895	1.859	3.9
Naphthalene-d8	I							
3/4-Methylphenol		0.341	0.381	0.356	0.379	0.407	0.373	6.8
Nitrobenzene		0.508	0.568	0.543	0.589	0.622	0.566	7.7
N,N-Dimethylaniline		0.504	0.598	0.572	0.621	0.672	0.593	10.5
Isophorone		0.564	0.625	0.589	0.589	0.622	0.598	4.2
o-Anisidine		0.261	0.287	0.275	0.280	0.308	0.282	6.2
1,4-Phenylenediamine		0.251	0.361	0.391	0.369	0.342	0.343	15.9
1,2,4-Trichlorobenzene		0.384	0.412	0.380	0.396	0.419	0.398	4.2
Hexachlorobutadiene	C	0.246	0.261	0.244	0.250	0.267	0.253	3.9
a,a,a-Trichlorotoluene		0.521	0.560	0.514	0.513	0.538	0.529	3.7
Hydroquinone		0.100	0.186	0.294	0.321	0.188	0.218	41.2
2-Chloroacetophenone		0.599	0.700	0.658	0.668	0.725	0.670	7.1
Acenaphthene-d10	I							
Hexachlorocyclopentadiene	P	0.321	0.410	0.423	0.407	0.418	0.396	10.7
2,4,6-Trichlorophenol	C	0.378	0.427	0.403	0.415	0.438	0.412	5.6
2,4,5-Trichlorophenol		0.381	0.446	0.425	0.431	0.455	0.428	6.7
Biphenyl		1.220	1.359	1.294	1.289	1.353	1.303	4.4
Dimethylphthalate		1.106	1.238	1.163	1.176	1.229	1.183	4.5
2,4-Dinitrophenol	P		0.163	0.165	0.194	0.200	0.180	10.6
4-Nitrophenol	P		0.268	0.256	0.285	0.290	0.275	5.6
2,4-Dinitrotoluene		0.369	0.445	0.424	0.455	0.472	0.433	9.1
Dibenzofuran		1.410	1.594	1.492	1.511	1.581	1.518	4.9
4,6-Dinitro-2-methylphenol			0.269	0.263	0.291	0.295	0.279	5.7

***- Fails QC Criteria for %RSD; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF**

Triangle Laboratories of RTP, Inc.
Initial Calibration Curve

ICAL File: ICALV915	Date of Analysis :09/15/97	Analyte List: 8270A
RF20 VG243	RF50 VG242	RF80 VG241
RF120 VG240	RF160 VG239	

Analyte	Flag	RF20	RF50	RF80	RF120	RF160	MEAN	%RSD
Trifluralin		0.296	0.347	0.327	0.342	0.377	0.338	8.8
Phenanthrene-d10	I							
Di-n-butylphthalate		1.162	1.291	1.191	1.139	1.116	1.179	5.8
Hexachlorobenzene		0.278	0.296	0.270	0.267	0.292	0.281	4.7
4-Aminobiphenyl		0.733	0.850	0.826	0.856	0.789	0.811	6.3
Pentachlorophenol	C		0.211	0.201	0.214	0.232	0.215	6.1
Pentachloronitrobenzene		0.096	0.109	0.098	0.097	0.098	0.100	5.4
4-Nitrobiphenyl		0.269	0.328	0.302	0.311	0.322	0.306	7.6
Chrysene-d12	I							
Benzidine		0.301	0.549	0.770	0.922	0.500	0.608	39.7
4,4'-Methylenedianiline		0.317	0.424	0.417	0.434	0.406	0.400	11.8
Dimethylaminoazobenzene		0.375	0.432	0.421	0.448	0.472	0.430	8.4
3,3'-Dimethylbenzidine		0.549	0.638	0.569	0.552	0.501	0.562	8.8
3,3'-Dimethoxybenzidine		0.260	0.346	0.314	0.307	0.310	0.307	10.1
3,3'-Dichlorobenzidine		0.325	0.377	0.349	0.344	0.361	0.351	5.5
Methylene bis-chloroaniline		0.168	0.203	0.187	0.184	0.192	0.187	6.7
bis(2-Ethylhexyl)phthalate		0.779	0.878	0.844	0.824	0.852	0.836	4.4

Approved by: _____ Date 9/22/97

*- Fails QC Criteria for %RSD; << - Rf less than minimum QC RF; >>- RF greater than maximum QC RF

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APPENDIX D

CALCULATIONS

Appendix D.1

Calculations - Baghouse Inlet

Summary of Flue Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Inlet

	RUN NUMBER	***I-M29-1***	***I-M29-2***	***I-M29-3***	
	RUN DATE	***9/9/97***	***9/10/97***	***9/10/97***	***Average***
	RUN TIME	***1025-1501***	***0758-1233***	***1515-2021***	
	MEASURED DATA				
P_{static}	Stack Static Pressure, inches H_2O	-11.25	-11.25	-11.25	-11.25
γ	Meter Box Correction Factor	1.021	1.021	1.021	1.021
P_{bar}	Barometric Pressure, inches Hg	29.50	29.58	29.58	29.55
V_m	Sample Volume, ft^3	84.498	118.332	122.005	108.278
$\Delta p^{1/2}$	Average Square Root Δp, $(in.\ H_2O)^{1/}$	0.598	0.869	0.876	0.7810
ΔH	Avg Meter Orifice Pressure, in. H_2O	0.36	0.77	0.78	0.64
T_m	Average Meter Temperature, °F	86.6	87	90	88
T_s	Average Stack Temperature, °F	275	301	302	293
V_{lc}	Condensate Collected, ml	44.4	71.2	60.7	58.8
CO_2	Carbon Dioxide content, % by volum	10.75	11.60	12.40	11.6
O_2	Oxygen content, % by volume	10.88	9.45	8.75	9.7
N_2	Nitrogen content, % by volume	78.4	79.0	78.9	78.7
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
Θ	Sample Run Duration, minutes	240.5	240	240	240
D_n	Nozzle Diameter, inches	0.194	0.194	0.192	0.193
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000205	0.000205	0.000201	0.000204
$V_{m(std)}$	Standard Meter Volume, ft^3	82.208	115.471	118.408	105.362
$V_{m(std)}$	Standard Meter Volume, m^3	2.328	3.270	3.353	2.984
Q_m	Average Sampling Rate, dscfm	0.342	0.481	0.493	0.439
P_s	Stack Pressure, inches Hg	28.67	28.75	28.75	28.73
B_{ws}	Moisture, % by volume	2.5	2.8	2.4	2.6
V_{wstd}	Standard Water Vapor Volume, ft^3	2.090	3.351	2.857	2.766
$1-B_{ws}$	Dry Mole Fraction	0.975	0.972	0.976	0.974
M_d	Molecular Weight (d.b.), lb/lb•mole	30.16	30.23	30.33	30.24
M_s	Molecular Weight (w.b.), lb/lb•mole	29.85	29.89	30.04	29.93
V_s	Stack Gas Velocity, ft/s	39.8	58.7	59.1	52.5
A	Stack Area, ft^2	16.72	16.72	16.72	16.72
Q_a	Stack Gas Volumetric flow, acfm	39,931	58,927	59,288	52,716
Q_s	Stack Gas Volumetric flow, dscfm	26,797	38,167	38,533	34,499
Q_s	Stack Gas Volumetric flow, dscmm	759	1,081	1,091	977
I	Isokinetic Sampling Ratio, %	104.0	102.7	106.5	104.4

Summary of Flue Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Inlet

	RUN NUMBER	*I-M29-1*	*I-M29-2*	*I-M29-3*	
	RUN DATE	*9/9/97*	*9/10/97*	*9/10/97*	*Average*
	RUN TIME	*1025-1501*	*0758-1233*	*1515-2021*	
	EMISSIONS DATA				
	Particulate Matter				
PM	Filter Weight Gain, mg	1176.9	4606.4	2730.6	2,837.97
PM	Beaker Weight Gain, mg	2137.2	6183	5483.7	4,601.30
PM	Total Catch, g	3.3141	10.7894	8.2143	7.4393
C_{PM} @ 7% O_2	Concentration, gr/dscf @ 7% O_2	0.863	1.75	1.22	1.28
C_{PM}	Concentration, g/dscm	1.42	3.30	2.45	2.39
C_{PM} @ 7% O_2	Concentration, g/dscm @ 7% O_2	1.97	4.01	2.80	2.93
E_{PM}	Emission Rate, kg/hr	64.8	214	160	146
C_{PM}	Concentration, gr/dscf	0.622	1.44	1.07	1.04
E_{PM}	Emission Rate, lb/hr	143	472	354	323
	Antimony (Sb)				
Sb	Target Catch, µg	875	1,400	1,290	1,188
C_{Sb}	Concentration, µg/dscm	376	428	385	396
C_{Sb} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	521	520	440	494
E_{Sb}	Emission Rate, lb/hr	0.0377	0.0612	0.0555	0.0515
	Arsenic (As)				
Ar	Target Catch, µg	192	249	314	252
C_{Ar}	Concentration, µg/dscm	82.5	76.2	93.6	84.1
C_{Ar} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	114	92.4	107	105
E_{Ar}	Emission Rate, lb/hr	0.00828	0.0109	0.0135	0.0109
	Barium (Ba)				
Ba	Target Catch, µg	1,450.0	2,871.5	2,500.6	2,274.0
C_{Ba}	Concentration, µg/dscm	623	878	746	749
C_{Ba} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	864	1,066	853	928
E_{Ba}	Emission Rate, lb/hr	0.0625	0.126	0.108	0.0986
	Beryllium (Be)				
Be	Target Catch, µg	2.98	15.3	9.11	9.13
C_{Be}	Concentration, µg/dscm	1.28	4.68	2.72	2.89
C_{Be} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	1.78	5.68	3.11	3.52
E_{Be}	Emission Rate, lb/hr	0.000128	0.000669	0.000392	0.000397
	Cadmium (Cd)				
Cd	Target Catch, µg	1,410.4	3,790.2	3,011.9	2,737.5
C_{Cd}	Concentration, µg/dscm	606	1,159	898	888
C_{Cd} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	840	1,407	1,028	1,092
E_{Cd}	Emission Rate, lb/hr	0.0608	0.166	0.130	0.119

Note - No front half reagent blank correction was made.

Summary of Flue Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Inlet

	RUN NUMBER	*I-M29-1*	*I-M29-2*	*I-M29-3*	
	RUN DATE	*9/9/97*	*9/10/97*	*9/10/97*	*Average*
	RUN TIME	*1025-1501*	*0758-1233*	*1515-2021*	
	EMISSIONS DATA - Continued				
	Chromium (Cr)				
Cr	Target Catch, µg	1,271.5	2,451.4	2,040.9	1,921.2
C_{Cr}	Concentration, µg/dscm	546	750	609	635
C_{Cr} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	758	910	696	788
E_{Cr}	Emission Rate, lb/hr	0.0548	0.107	0.0879	0.0833
	Colbalt (Co)				
Co	Target Catch, µg	34.2	43.5	47.3	41.67
C_{Co}	Concentration, µg/dscm	14.7	13.3	14.1	14.0
C_{Co} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	20.4	16.2	16.1	17.6
E_{Co}	Emission Rate, lb/hr	0.00147	0.00190	0.00204	0.00180
	Lead (Pb)				
Pb	Target Catch, µg	81,402	200,111	147,967	143,160
C_{Pb}	Concentration, µg/dscm	34,969	61,200	44,131	46,767
C_{Pb} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	48,509	74,296	50,487	57,764
E_{Pb}	Emission Rate, lb/hr	3.51	8.75	6.37	6.21
	Manganese (Mn)				
Mn	Target Catch, µg	85,101	209,609	165,990	153,567
C_{Mn}	Concentration, µg/dscm	36,557	64,105	49,506	50,056
C_{Mn} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	50,713	77,822	56,636	61,724
E_{Mn}	Emission Rate, lb/hr	3.67	9.16	7.15	6.66
	Mercury (Hg)				
Hg	Target Catch, µg	47.68	186.66	59.32	97.89
C_{Hg}	Concentration, µg/dscm	20.5	57.1	17.7	31.8
C_{Hg} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	28.4	69.3	20.2	39.3
E_{Hg}	Emission Rate, lb/hr	0.00206	0.00816	0.00255	0.00426
	Nickel (Ni)				
Ni	Target Catch, µg	317.3	450.0	500.0	422.4
C_{Ni}	Concentration, µg/dscm	136	138	149	141
C_{Ni} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	189	167	171	176
E_{Ni}	Emission Rate, lb/hr	0.0137	0.0197	0.0215	0.0183

Note - No front half reagent blank correction was made.

Summary of Flue Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Inlet

	RUN NUMBER	***I-M29-1***	***I-M29-2***	***I-M29-3***	
	RUN DATE	***9/9/97***	***9/10/97***	***9/10/97***	***Average***
	RUN TIME	***1025-1501***	***0758-1233***	***1515-2021***	
	EMISSIONS DATA - Continued				
	<u>Phosphorus (P)</u>				
P	Target Catch, µg	1,863.6	2,755.1	61,217.6	21,945.4
C_P	Concentration, µg/dscm	801	843	18,258	6,634
C_P @ 7% O_2	Concentration, µg/dscm @ 7% O_2	1,111	1,023	20,888	7,674
E_P	Emission Rate, lb/hr	0.0804	0.120	2.64	0.945
	<u>Selenium (Se)</u>				
Se	Target Catch, µg	73.16	129.1	116.0	106.1
C_{Se}	Concentration, µg/dscm	31.4	39.5	34.6	35.2
C_{Se} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	43.6	47.9	39.6	43.7
E_{Se}	Emission Rate, lb/hr	0.00315	0.00564	0.00499	0.00460
	<u>Silver (Ag)</u>				
Ag	Target Catch, µg	14.02	55.37	19.90	29.76
C_{Ag}	Concentration, µg/dscm	6.02	16.9	5.94	9.63
C_{Ag} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	8.36	20.6	6.79	11.9
E_{Ag}	Emission Rate, lb/hr	0.000605	0.00242	0.000857	0.00129
	<u>Thallium (Tl)</u>				
Tl	Target Catch, µg	72.8	168.0	131.3	124.0
C_{Tl}	Concentration, µg/dscm	31.3	51.4	39.2	40.6
C_{Tl} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	43.4	62.4	44.8	50.2
E_{Tl}	Emission Rate, lb/hr	0.00314	0.00735	0.00565	0.00538
	<u>Zinc (Zn)</u>				
Zn	Target Catch, µg	393,019	1,119,156	775,428	762,534
C_{Zn}	Concentration, µg/dscm	168,832	342,274	231,268	247,458
C_{Zn} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	234,209	415,511	264,578	304,766
E_{Zn}	Emission Rate, lb/hr	16.9	48.9	33.4	33.1

Note - No front half reagent blank correction was made.

Appendix D.2

Calculations - Baghouse outlet

Summary of Stack Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Outlet

	RUN NUMBER	O-M29-1	O-M29-2	O-M29-3	Average
	RUN DATE	9/9/97	9/10/97	9/10/97	
	RUN TIME	1029-1503	0810-1315	1520-2021	
	MEASURED DATA				
P_{static}	Stack Static Pressure, inches H_2O	0.20	0.20	0.20	0.20
γ	Meter Box Correction Factor	1.028	1.028	1.028	1.028
P_{bar}	Barometric Pressure, inches Hg	29.50	29.58	29.58	29.55
V_m	Sample Volume, ft^3	92.040	142.003	135.043	123.029
$\Delta p^{1/2}$	Average Square Root Δp, $(in. H_2O)^{1/2}$	0.2530	0.3890	0.3806	0.3409
ΔH	Avg Meter Orifice Pressure, in. H_2O	0.55	1.21	1.10	0.95
T_m	Average Meter Temperature, °F	84	89	88	87
T_s	Average Stack Temperature, °F	231	253	254	246
V_{lc}	Condensate Collected, ml	111.8	79.1	80.8	90.6
CO_2	Carbon Dioxide content, % by volume	8.79	10.13	9.98	9.6
O_2	Oxygen content, % by volume	12.74	11.0	11.03	11.6
N_2	Nitrogen content, % by volume	78.5	78.9	79.0	78.8
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
Θ	Sample Run Duration, minutes	240	240	240	240
D_n	Nozzle Diameter, inches	0.311	0.311	0.311	0.311
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000528	0.000528	0.000528	0.000528
$V_{m(std)}$	Standard Meter Volume, ft^3	90.633	139.162	132.547	120.781
$V_{m(std)}$	Standard Meter Volume, m^3	2.566	3.941	3.753	3.420
Q_m	Average Sampling Rate, dscfm	0.378	0.580	0.552	0.503
P_s	Stack Pressure, inches Hg	29.51	29.59	29.59	29.57
B_{ws}	Moisture, % by volume	5.5	2.6	2.8	3.6
V_{wstd}	Standard Water Vapor Volume, ft^3	5.262	3.723	3.803	4.263
$1-B_{ws}$	Dry Mole Fraction	0.945	0.974	0.972	0.964
M_d	Molecular Weight (d.b.), lb/lb•mole	29.92	30.06	30.04	30.00
M_s	Molecular Weight (w.b.), lb/lb•mole	29.26	29.75	29.70	29.57
V_s	Stack Gas Velocity, ft/s	16.3	25.1	24.6	22.0
A	Stack Area, ft^2	46.16	46.16	46.16	46.16
Q_a	Stack Gas Volumetric flow, acfm	45,013	69,633	68,228	60,958
Q_s	Stack Gas Volumetric flow, dscfm	32,054	49,656	48,495	43,402
Q_s	Stack Gas Volumetric flow, dscmm	908	1,406	1,373	1,229
I	Isokinetic Sampling Ratio, %	103.1	102.2	99.7	101.7

Summary of Stack Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Outlet

	RUN NUMBER	O-M29-1	O-M29-2	O-M29-3	
	RUN DATE	9/9/97	9/10/97	9/10/97	Average
	RUN TIME	1029-1503	0810-1315	1520-2021	
	EMISSIONS DATA				
	Particulate Matter				
PM	Filter Weight Gain, mg	0.9	-1.6	1.2	0.17
PM	Beaker Weight Gain, mg	14.3	1.9	8.2	8.13
PM	Total Catch, g	0.0152	0.0003	0.0094	0.0083
C_{PM} @ 7% O_2	Concentration, gr/dscf @ 7% O_2	0.00441	0.0000467	0.00154	0.00200
C_{PM}	Concentration, g/dscm	0.00592	0.0000761	0.00250	0.00283
C_{PM} @ 7% O_2	Concentration, g/dscm @ 7% O_2	0.0101	0.000107	0.00353	0.00457
E_{PM}	Emission Rate, kg/hr	0.323	0.00642	0.206	0.178
C_{PM}	Concentration, gr/dscf	0.00259	0.0000333	0.00109	0.00124
E_{PM}	Emission Rate, lb/hr	0.711	0.0142	0.455	0.393
	Antimony (Sb)				
Sb	Target Catch, µg	5.47	5.99	6.91	6.12
C_{Sb}	Concentration, µg/dscm	2.13	1.52	1.84	1.83
C_{Sb} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	3.63	2.13	2.59	2.79
E_{Sb}	Emission Rate, lb/hr	0.000256	0.000283	0.000334	0.000291
	Arsenic (As)				
Ar	Target Catch, µg	0.912	1.37	1.53	1.27
C_{Ar}	Concentration, µg/dscm	0.355	0.348	0.408	0.370
C_{Ar} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	0.605	0.488	0.574	0.556
E_{Ar}	Emission Rate, lb/hr	4.27 E-05	6.47 E-05	7.40 E-05	6.05 E-05
	Barium (Ba)				
Ba	Target Catch, µg	64.9	64.8	68.6	66.1
C_{Ba}	Concentration, µg/dscm	25.3	16.5	18.3	20.0
C_{Ba} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	43.1	23.1	25.7	30.6
E_{Ba}	Emission Rate, lb/hr	0.00304	0.00306	0.00332	0.00314
	Beryllium (Be)				
Be	Target Catch, µg	ND	ND	ND	ND
C_{Be}	Concentration, µg/dscm	ND	ND	ND	ND
C_{Be} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	ND	ND	ND	ND
E_{Be}	Emission Rate, lb/hr	ND	ND	ND	ND
	Cadmium (Cd)				
Cd	Target Catch, µg	36.7	2.88	10.6	16.7
C_{Cd}	Concentration, µg/dscm	14.3	0.731	2.82	5.96
C_{Cd} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	24.4	1.03	3.98	9.80
E_{Cd}	Emission Rate, lb/hr	0.00172	0.000136	0.000513	0.000789

ND - Not Detected
Note - No front half reagent blank correction has been made.

Summary of Stack Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Outlet

	RUN NUMBER	O-M29-1	O-M29-2	O-M29-3	Average
	RUN DATE	9/9/97	9/10/97	9/10/97	
	RUN TIME	1029-1503	0810-1315	1520-2021	
	EMISSIONS DATA - Continued				
	Chromium (Cr)				
Cr	Target Catch, µg	11.0	10.8	12.9	11.6
C_{Cr}	Concentration, µg/dscm	4.28	2.73	3.45	3.49
C_{Cr} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	7.29	3.83	4.86	5.33
E_{Cr}	Emission Rate, lb/hr	0.000514	0.000508	0.000626	0.000549
	Colbalt (Co)				
Co	Target Catch, µg	ND	ND	ND	ND
C_{Co}	Concentration, µg/dscm	ND	ND	ND	ND
C_{Co} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	ND	ND	ND	ND
E_{Co}	Emission Rate, lb/hr	ND	ND	ND	ND
	Lead (Pb)				
Pb	Target Catch, µg	204.4	59	115.4	126.3
C_{Pb}	Concentration, µg/dscm	79.6	15.0	30.7	41.8
C_{Pb} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	136	21.1	43.3	66.7
E_{Pb}	Emission Rate, lb/hr	0.00956	0.00279	0.00558	0.00598
	Manganese (Mn)				
Mn	Target Catch, µg	42.8	61.30	110.64	71.6
C_{Mn}	Concentration, µg/dscm	16.7	15.6	29.5	20.6
C_{Mn} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	28.4	21.8	41.5	30.6
E_{Mn}	Emission Rate, lb/hr	0.00200	0.00289	0.00535	0.00342
	Mercury (Hg)				
Hg	Target Catch, µg	259.4	182.0	111.7	184.4
C_{Hg}	Concentration, µg/dscm	101	46.2	29.8	59.0
C_{Hg} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	172	64.9	41.9	93.0
E_{Hg}	Emission Rate, lb/hr	0.0121	0.00859	0.00541	0.00871
	Nickel (Ni)				
Ni	Target Catch, µg	7.62	7.09	8.30	7.7
C_{Ni}	Concentration, µg/dscm	2.97	1.80	2.21	2.33
C_{Ni} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	5.06	2.53	3.11	3.57
E_{Ni}	Emission Rate, lb/hr	0.000356	0.000335	0.000402	0.000364

ND - Not Detected
Note - No front half reagent blank correction has been made.

Summary of Stack Gas Parameters and Test Results
Iron and Steel Foundries Manual Emission Test
The Waupaca Foundry - Tell City, Indiana
US EPA Test Method 29 - Multiple Metals
Cupola Baghouse Outlet

	RUN NUMBER	***O-M29-1***	***O-M29-2***	***O-M29-3***	
	RUN DATE	***9/9/97***	***9/10/97***	***9/10/97***	***Average***
	RUN TIME	***1029-1503***	***0810-1315***	***1520-2021***	
	EMISSIONS DATA - Continued				
	<u>Phosphorus (P)</u>				
P	Target Catch, µg	102	98.0	85	94.9
C_P	Concentration, µg/dscm	39.6	24.9	22.7	29.1
C_P @ 7% O_2	Concentration, µg/dscm @ 7% O_2	67.5	34.9	31.9	44.8
E_P	Emission Rate, lb/hr	0.00476	0.00463	0.00412	0.00450
	<u>Selenium (Se)</u>				
Se	Target Catch, µg	5.20	6.61	6.08	6.0
C_{Se}	Concentration, µg/dscm	2.03	1.68	1.62	1.77
C_{Se} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	3.45	2.36	2.28	2.70
E_{Se}	Emission Rate, lb/hr	0.000243	0.000312	0.000294	0.000283
	<u>Silver (Ag)</u>				
Ag	Target Catch, µg	0.37	0.35	1.87	0.9
C_{Ag}	Concentration, µg/dscm	0.144	0.089	0.498	0.244
C_{Ag} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	0.246	0.125	0.702	0.357
E_{Ag}	Emission Rate, lb/hr	1.73E-05	1.65E-05	9.05E-05	4.14E-05
	<u>Thallium (Tl)</u>				
Tl	Target Catch, µg	ND	ND	ND	ND
C_{Tl}	Concentration, µg/dscm	ND	ND	ND	ND
C_{Tl} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	ND	ND	ND	ND
E_{Tl}	Emission Rate, lb/hr	ND	ND	ND	ND
	<u>Zinc (Zn)</u>				
Zn	Target Catch, µg	177.7	285.3	762.7	408.6
C_{Zn}	Concentration, µg/dscm	69.2	72.4	203.2	115.0
C_{Zn} @ 7% O_2	Concentration, µg/dscm @ 7% O_2	117.9	101.7	286.2	168.6
E_{Zn}	Emission Rate, lb/hr	0.00831	0.0135	0.0369	0.0196

ND - Not Detected
Note - No front half reagent blank correction has been made.

Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	***BO-23-1***	***BO-23-2***	***BO-23-3***	
	RUN DATE	***9/9/97***	***9/10/97***	***9/10/97***	***Average***
	RUN TIME	***1029-1501***	***0810-1315***	***1520-2008***	
	MEASURED DATA				
γ	Meter Box Correction Factor	1.010	1.010	1.010	1.010
ΔH	Avg. Meter Orifice Pressure, in. H_2O	0.83	1.77	1.74	1.45
P_{bar}	Barometric Pressure, inches Hg	29.50	29.58	29.58	29.55
V_m	Sample Volume, ft^3	122.060	168.152	166.708	152.307
T_m	Average Meter Temperature, °F	91	94	97	94
P_{static}	Stack Static Pressure, inches H_2O	0.20	0.25	0.22	0.22
T_s	Average Stack Temperature, °F	230	258	254	247.3
V_{lc}	Condensate Collected, ml	86.5	92.3	84.1	87.63
CO_2	Carbon Dioxide content, % by volume	8.79	10.13	9.98	9.63
O_2	Oxygen content, % by volume	12.74	11.0	11.03	11.59
N_2	Nitrogen content, % by volume	78.47	78.87	78.99	78.78
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
$\Delta p^{1/2}$	Average Square Root Dp, $(in. H_2O)^{1/2}$	0.2788	0.3867	0.3841	0.3499
Θ	Sample Run Duration, minutes	240.00	240.00	240.00	240.00
D_n	Nozzle Diameter, inches	0.340	0.340	0.340	0.340
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000631	0.000631	0.000631	0.000631
$V_{m(std)}$	Standard Meter Volume, dscf	116.671	160.663	158.414	145.249
$V_{m(std)}$	Standard Meter Volume, dscm	3.304	4.549	4.486	4.113
P_s	Stack Pressure, inches Hg	29.51	29.60	29.60	29.57
B_{ws}	Moisture, % by volume	3.4	2.6	2.4	2.81
V_{wstd}	Standard Water Vapor Volume, ft^3	4.072	4.345	3.959	4.12
$1-B_{ws}$	Dry Mole Fraction	0.966	0.974	0.976	0.972
M_d	Molecular Weight (d.b.), lb/lb-mole	29.92	30.06	30.04	30.00
M_s	Molecular Weight (w.b.), lb/lb-mole	29.51	29.74	29.74	29.67
V_s	Stack Gas Velocity, ft/s	17.8	25.1	24.8	22.58
A	Stack Area, ft^2	46.16	46.16	46.16	46.16
Q_a	Stack Gas Volumetric flow, acfm	49,351	69,458	68,799	62,536
Q_s	Stack Gas Volumetric flow, dscfm	35,982	49,178	49,080	44,747
$Q_{s(cmm)}$	Stack Gas Volumetric flow, dscmm	1,019	1,393	1,390	1,267
I	Isokinetic Sampling Ratio, %	98.9	99.7	98.5	99.0

Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	*BO-23-1*	*BO-23-2*	*BO-23-3*	
	RUN DATE	*9/9/97*	*9/10/97*	*9/10/97*	*Average*
	RUN TIME	*1029-1501*	*0810-1315*	*1520-2008*	
	EMISSIONS DATA				
	DIOXINS:				
	2378 TCDD				
ng	Catch, ng	0.23	0.54	0.73	0.50
ng/dscm	Concentration, ng/dscm, as measured	0.0696	0.119	0.163	0.117
µg/hr	Emission Rate, µg/hr	4.26	9.92	13.6	9.25
	Total TCDD				
ng	Catch, ng	7.0	20.1	33.2	20.1
ng/dscm	Concentration, ng/dscm, as measured	2.12	4.42	7.40	4.65
µg/hr	Emission Rate, µg/hr	130	369	617	372
	12378 PeCDD				
ng	Catch, ng	0.44	1.7	2.5	1.55
ng/dscm	Concentration, ng/dscm, as measured	0.133	0.374	0.557	0.355
µg/hr	Emission Rate, µg/hr	8.14	31.2	46.5	28.6
	Total PeCDD				
ng	Catch, ng	3.4	14.4	30.2	16.0
ng/dscm	Concentration, ng/dscm, as measured	1.03	3.17	6.73	3.64
µg/hr	Emission Rate, µg/hr	62.9	264	561	296
	123478 HxCDD				
ng	Catch, ng	{0.15}	0.74	1.1	{0.66}
ng/dscm	Concentration, ng/dscm, as measured	{0.0454}	0.163	0.245	{0.151}
µg/hr	Emission Rate, µg/hr	{2.78}	13.6	20.4	{12.3}
	123678 HxCDD				
ng	Catch, ng	0.24	1.4	2.2	1.28
ng/dscm	Concentration, ng/dscm, as measured	0.0726	0.308	0.490	0.290
µg/hr	Emission Rate, µg/hr	4.44	25.7	40.9	23.7

{ } Estimated Maximum Possible Concentration. EMPC values are included in totals and averages, which are also in brackets.

Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	BO-23-1	BO-23-2	BO-23-3	Average
	RUN DATE	9/9/97	9/10/97	9/10/97	
	RUN TIME	1029-1501	0810-1315	1520-2008	
	EMISSIONS DATA -Continued				
	DIOXINS - Continued				
	123789 HxCDD				
ng	Catch, ng	0.32	1.9	2.5	1.57
ng/dscm	Concentration, ng/dscm, as measured	0.0969	0.418	0.557	0.357
µg/hr	Emission Rate, µg/hr	5.92	34.9	46.5	29.1
	Total HxCDD				
ng	Catch, ng	2.8	15.2	22.6	13.5
ng/dscm	Concentration, ng/dscm, as measured	0.848	3.34	5.04	3.08
µg/hr	Emission Rate, µg/hr	51.8	279	420	250
	1234678 HpCDD				
ng	Catch, ng	0.38	2.1	3.2	1.89
ng/dscm	Concentration, ng/dscm, as measured	0.115	0.462	0.713	0.430
µg/hr	Emission Rate, µg/hr	7.03	38.6	59.5	35.0
	Total HpCDD				
ng	Catch, ng	0.67	4.0	6.0	3.56
ng/dscm	Concentration, ng/dscm, as measured	0.203	0.879	1.34	0.807
µg/hr	Emission Rate, µg/hr	12.4	73.5	112	65.8
	12346789 OCDD				
ng	Catch, ng	{0.11}	0.59	{0.57}	{0.42}
ng/dscm	Concentration, ng/dscm, as measured	{0.0333}	0.130	{0.127}	{0.0967}
µg/hr	Emission Rate, µg/hr	{2.04}	10.8	{10.6}	{7.82}
	Total PCDD				
ng	Catch, ng	{13.98}	54.29	{92.57}	{53.61}
ng/dscm	Concentration, ng/dscm, as measured	{4.23}	11.9	{20.6}	{12.3}
µg/hr	Emission Rate, µg/hr	{259}	997	{1,721}	{992}

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Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	BO-23-1	BO-23-2	BO-23-3	
	RUN DATE	9/9/97	9/10/97	9/10/97	Average
	RUN TIME	1029-1501	0810-1315	1520-2008	
	EMISSIONS DATA - Continued				
	FURANS				
	2378 TCDF				
ng	Catch, ng	3.5	6.8	11.2	7.17
ng/dscm	Concentration, ng/dscm, as measured	1.06	1.49	2.50	1.68
µg/hr	Emission Rate, µg/hr	64.8	125	208	133
	Total TCDF				
ng	Catch, ng	131	262	336	243
ng/dscm	Concentration, ng/dscm, as measured	39.7	57.6	74.9	57.4
µg/hr	Emission Rate, µg/hr	2,424	4,812	6,246	4,494
	12378 PeCDF				
ng	Catch, ng	3.1	9.5	13.8	8.80
ng/dscm	Concentration, ng/dscm, as measured	0.938	2.09	3.08	2.03
µg/hr	Emission Rate, µg/hr	57.4	174	257	163
	23478 PeCDF				
ng	Catch, ng	3.9	12.5	18.8	11.7
ng/dscm	Concentration, ng/dscm, as measured	1.18	2.75	4.19	2.71
µg/hr	Emission Rate, µg/hr	72.2	230	349	217
	Total PeCDF				
ng	Catch, ng	57.6	175	260	164
ng/dscm	Concentration, ng/dscm, as measured	17.4	38.5	58.0	38.0
µg/hr	Emission Rate, µg/hr	1,066	3,214	4,833	3,038
	123478 HxCDF				
ng	Catch, ng	2.9	13.2	18.6	11.6
ng/dscm	Concentration, ng/dscm, as measured	0.878	2.90	4.15	2.64
µg/hr	Emission Rate, µg/hr	53.7	242	346	214

{ } Estimated Maximum Possible Concentration. EMPC values are included in totals and averages, which are also in brackets.

Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	BO-23-1	BO-23-2	BO-23-3	Average
	RUN DATE	9/9/97	9/10/97	9/10/97	
	RUN TIME	1029-1501	0810-1315	1520-2008	
	EMISSIONS DATA - Continued				
	Furans - Continued				
	123678 HxCDF				
ng	Catch, ng	1.5	6.9	9.0	5.8
ng/dscm	Concentration, ng/dscm, as measured	0.454	1.52	2.01	1.33
µg/hr	Emission Rate, µg/hr	27.8	127	167	107
	234678 HxCDF				
ng	Catch, ng	0.93	4.8	7.0	4.24
ng/dscm	Concentration, ng/dscm, as measured	0.281	1.06	1.56	0.97
µg/hr	Emission Rate, µg/hr	17.2	88.2	130	78.5
	123789 HxCDF				
ng	Catch, ng	0.10	0.50	0.75	0.45
ng/dscm	Concentration, ng/dscm, as measured	0.0303	0.110	0.167	0.102
µg/hr	Emission Rate, µg/hr	1.85	9.18	13.9	8.33
	Total HxCDF				
ng	Catch, ng	15.0	65.7	94.4	58.4
ng/dscm	Concentration, ng/dscm, as measured	4.54	14.4	21.0	13.3
µg/hr	Emission Rate, µg/hr	278	1,207	1,755	1,080
	1234678 HpCDF				
ng	Catch, ng	0.97	5.6	7.3	4.62
ng/dscm	Concentration, ng/dscm, as measured	0.294	1.23	1.63	1.05
µg/hr	Emission Rate, µg/hr	17.9	103	136	85.5
	1234789 HpCDF				
ng	Catch, ng	0.17	0.94	1.3	0.80
ng/dscm	Concentration, ng/dscm, as measured	0.0515	0.207	0.290	0.183
µg/hr	Emission Rate, µg/hr	3.15	17.3	24.2	14.9

( ) Estimated Maximum Possible Concentration. EMPC values are included in totals and averages, which are also in brackets.

Summary of Stack Gas Parameters and Test Results
THE WAUPACA FOUNDRY - TELL CITY, INDIANA
US EPA Test Method 23 - PCDDs / PCDFs
Cupola Baghouse Outlet

	RUN NUMBER	BO-23-1	BO-23-2	BO-23-3	
	RUN DATE	9/9/97	9/10/97	9/10/97	Average
	RUN TIME	1029-1501	0810-1315	1520-2008	
	EMISSIONS DATA - Continued				
	Furans - Continued				
	Total HpCDF				
ng	Catch, ng	1.6	9.3	12.7	7.87
ng/dscm	Concentration, ng/dscm, as measured	0.484	2.04	2.83	1.79
µg/hr	Emission Rate, µg/hr	29.6	171	236	145
	12346789 OCDF				
ng	Catch, ng	{0.080}	0.41	0.65	{0.38}
ng/dscm	Concentration, ng/dscm, as measured	{0.0242}	0.0901	0.145	{0.0864}
µg/hr	Emission Rate, µg/hr	{1.48}	7.53	12.1	{7.03}
	Total PCDF				
ng	Catch, ng	{205.28}	512.41	703.75	{473.81}
ng/dscm	Concentration, ng/dscm, as measured	{62.1}	113	157	{111}
µg/hr	Emission Rate, µg/hr	{3,799}	9,411	13,082	{8,764}
	Total PCDD + PCDF				
ng	Catch, ng	{219.26}	566.70	{796.32}	{527.43}
ng/dscm	Concentration, ng/dscm, as measured	{66.4}	125	{178}	{123}
µg/hr	Emission Rate, µg/hr	{4,057}	10,408	{14,803}	{9,756}

{ } Estimated Maximum Possible Concentration. EMPC values are included in totals and averages, which are also in brackets.

Summary of Stack Gas Parameters and Test Results
The Waupaca Foundry - Tell City, Indiana
SW-846 Method 0010 - Modified Method 5 - Semivolatile Organics
Cupola Baghouse Outlet

		BO-0010-1	BO-0010-2	BO-0010-3	
	RUN NUMBER				
	RUN DATE	9/9/97	9/10/97	9/10/97	Average
	RUN TIME	1029-1503	0810-1315	1520-2008	
	MEASURED DATA				
γ	Meter Box Correction Factor	0.947	0.947	0.947	0.947
ΔH	Avg Meter Orifice Pressure, in. H_2O	0.775	1.48	1.66	1.31
P_{bar}	Barometric Pressure, inches Hg	29.50	29.58	29.58	29.55
V_m	Sample Volume, ft^3	123.671	169.311	186.455	159.812
T_m	Average Meter Temperature, °F	95	98	99	97
P_{static}	Stack Static Pressure, inches H_2O	0.20	0.21	0.22	0.21
T_s	Average Stack Temperature, °F	234	258	256	249
V_{lc}	Condensate Collected, ml	83.2	88.9	94.4	88.8
CO_2	Carbon Dioxide content, % by volum	8.79	10.13	9.98	9.63
O_2	Oxygen content, % by volume	12.74	11.0	11.03	11.59
N_2	Nitrogen content, % by volume	78.47	78.87	78.99	78.78
C_p	Pitot Tube Coefficient	0.84	0.84	0.84	0.84
$\Delta p^{1/2}$	Average Square Root Δp, $(in. H_2O)^{1/2}$	0.2627	0.3714	0.3862	0.3401
Θ	Sample Run Duration, minutes	240	240	240	240
D_n	Nozzle Diameter, inches	0.340	0.340	0.340	0.340
	CALCULATED DATA				
A_n	Nozzle Area, ft^2	0.000631	0.000631	0.000631	0.000631
$V_{m(std)}$	Standard Meter Volume, dscf	110.023	150.485	165.500	142.003
$V_{m(std)}$	Standard Meter Volume, dscm	3.116	4.261	4.686	4.021
P_s	Stack Pressure, inches Hg	29.51	29.60	29.60	29.57
B_{ws}	Moisture, % by volume	3.4	2.7	2.6	2.9
V_{wstd}	Standard Water Vapor Volume, ft^3	3.916	4.185	4.443	4.181
$1-B_{ws}$	Dry Mole Fraction	0.966	0.973	0.974	0.971
M_d	Molecular Weight (d.b.), lb/lb•mole	29.92	30.06	30.04	30.00
M_s	Molecular Weight (w.b.), lb/lb•mole	29.51	29.73	29.72	29.65
V_s	Stack Gas Velocity, ft/s	16.8	24.1	25.0	22.0
A	Stack Area, ft^2	46.16	46.16	46.16	46.16
Q_a	Stack Gas Volumetric flow, acfm	46,642	66,723	69,297	60,887
Q_s	Stack Gas Volumetric flow, dscfm	33,788	47,202	49,207	43,399
$Q_{s(cmm)}$	Stack Gas Volumetric flow, dscmm	957	1,337	1,393	1,229
I	Isokinetic Sampling Ratio, %	99.4	97.3	102.6	99.7

Summary of Stack Gas Parameters and Test Results
The Waupaca Foundry - Tell City, Indiana
SW-846 Method 0010 - Modified Method 5 - Semivolatile Organics
Cupola Baghouse Outlet

	BO-0010-1	BO-0010-2	BO-0010-3	Average
Acenaphthene				
Molecular Weight, g/g-mole	154.21	154.21	154.21	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Acenaphthylene				
Molecular Weight, g/g-mole	154.21	154.21	154.21	
Target Catch, µg	{0.54}	ND	{0.45}	{0.33}
Concentration, mg/dscm [a]	{1.73E-04}	ND	{9.60E-05}	{8.98E-05}
Concentration, ppbvd [b]	{2.70E-02}	ND	{1.50E-02}	{1.40E-02}
Emission Rate, lb/hr [c]	{2.19E-05}	ND	{1.77E-05}	{1.32E-05}
Acetophenone				
Molecular Weight, g/g-mole	120.15	120.15	120.15	
Target Catch, µg	27.92	13.92	25.63	22.49
Concentration, mg/dscm [a]	8.96E-03	3.27E-03	5.47E-03	5.90E-03
Concentration, ppbvd [b]	1.79E+00	6.54E-01	1.09E+00	1.18E+00
Emission Rate, lb/hr [c]	1.13E-03	5.78E-04	1.01E-03	9.07E-04
4-Aminobiphenyl				
Molecular Weight, g/g-mole	169.22	169.22	169.22	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Aniline				
Molecular Weight, g/g-mole	93.12	93.12	93.12	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
o-Anisidine				
Molecular Weight, g/g-mole	123.15	123.15	123.15	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

Summary of Stack Gas Parameters and Test Results
The Waupaca Foundry - Tell City, Indiana
SW-846 Method 0010 - Modified Method 5 - Semivolatile Organics
Cupola Baghouse Outlet

	BO-0010-1	BO-0010-2	BO-0010-3	Average
Anthracene				
Molecular Weight, g/g-mole	178.22	178.22	178.22	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzidine				
Molecular Weight, g/g-mole	184.23	184.23	184.23	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzo(a)anthracene				
Molecular Weight, g/g-mole	228.29	228.29	228.29	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzo(b)fluoranthene				
Molecular Weight, g/g-mole	252.32	252.32	252.32	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzo(k)fluoranthene				
Molecular Weight, g/g-mole	252.32	252.32	252.32	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzo(ghi)perylene				
Molecular Weight, g/g-mole	276.34	276.34	276.34	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
Benzo(a)pyrene				
Molecular Weight, g/g-mole	252.30	252.30	252.30	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzo(e)pyrene				
Molecular Weight, g/g-mole	252.30	252.30	252.30	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Benzyl Chloride				
Molecular Weight, g/g-mole	126.58	126.58	126.58	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Biphenyl				
Molecular Weight, g/g-mole	154.20	154.20	154.20	
Target Catch, µg	{5.23}	{0.32}	{6.54}	{4.03}
Concentration, mg/dscm [a]	{1.68E-03}	{7.51E-05}	{1.40E-03}	{1.05E-03}
Concentration, ppbvd [b]	{2.62E-01}	{1.17E-02}	{2.18E-01}	{1.64E-01}
Emission Rate, lb/hr [c]	{2.12E-04}	{1.33E-05}	{2.57E-04}	{1.61E-04}
2-Chloroacetophenone				
Molecular Weight, g/g-mole	154.59	154.59	154.59	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
bis-(2-Chloroethyl)ether				
Molecular Weight, g/g-mole	143.02	143.02	143.02	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
2-Chloronaphthalene				
Molecular Weight, g/g-mole	162.61	162.61	162.61	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Chrysene				
Molecular Weight, g/g-mole	228.28	228.28	228.28	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Cumene				
Molecular Weight, g/g-mole	120.19	120.19	120.19	
Target Catch, µg	{2.17}	{0.26}	{2.36}	{1.60}
Concentration, mg/dscm [a]	{6.96E-04}	{6.10E-05}	{5.04E-04}	{4.20E-04}
Concentration, ppbvd [b]	{1.39E-01}	{1.22E-02}	{1.01E-01}	{8.41E-02}
Emission Rate, lb/hr [c]	{8.82E-05}	{1.08E-05}	{9.28E-05}	{6.39E-05}
Dibenz(a,h)anthracene				
Molecular Weight, g/g-mole	278.33	278.33	278.33	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Dibenzofuran				
Molecular Weight, g/g-mole	168.20	168.20	168.20	
Target Catch, µg	{2.63}	ND	{4.62}	{2.42}
Concentration, mg/dscm [a]	{8.44E-04}	ND	{9.86E-04}	{6.10E-04}
Concentration, ppbvd [b]	{1.21E-01}	ND	{1.41E-01}	{8.72E-02}
Emission Rate, lb/hr [c]	{1.07E-04}	ND	{1.82E-04}	{9.62E-05}
1,2-Dibromo-3-chloropropane				
Molecular Weight, g/g-mole	236.36	236.36	236.36	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
Di-n-butylphthalate				
Molecular Weight, g/g-mole	278.34	278.34	278.34	
Target Catch, µg	{5.65}	{3.50}	{2.10}	{3.75}
Concentration, mg/dscm [a]	{1.81E-03}	{8.21E-04}	{4.48E-04}	{1.03E-03}
Concentration, ppbvd [b]	{1.57E-01}	{7.10E-02}	{3.87E-02}	{8.88E-02}
Emission Rate, lb/hr [c]	{2.30E-04}	{1.45E-04}	{8.26E-05}	{1.52E-04}
1,4-Dichlorobenzene				
Molecular Weight, g/g-mole	147.01	147.01	147.01	
Target Catch, µg	{2.04}	{1.52}	{2.62}	{2.06}
Concentration, mg/dscm [a]	{6.55E-04}	{3.57E-04}	{5.59E-04}	{5.23E-04}
Concentration, ppbvd [b]	{1.07E-01}	{5.84E-02}	{9.15E-02}	{8.57E-02}
Emission Rate, lb/hr [c]	{8.29E-05}	{6.31E-05}	{1.03E-04}	{8.30E-05}
3,3'-Dichlorobenzidine				
Molecular Weight, g/g-mole	253.13	253.13	253.13	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
N,N-Diethylaniline				
Molecular Weight, g/g-mole	149.23	149.23	149.23	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
3,3'-Dimethoxybenzidine				
Molecular Weight, g/g-mole	244.28	244.28	244.28	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Dimethylaminoazobenzene				
Molecular Weight, g/g-mole	225.28	225.28	225.28	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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N,N-Dimethylaniline				
Molecular Weight, g/g-mole	121.18	121.18	121.18	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
3,3'-Dimethylbenzidine				
Molecular Weight, g/g-mole	212.28	212.28	212.28	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Dimethylphthalate				
Molecular Weight, g/g-mole	194.19	194.19	194.19	
Target Catch, µg	{3.63}	{2.62}	{1.62}	{2.62}
Concentration, mg/dscm [a]	{1.17E-03}	{6.15E-04}	{3.46E-04}	{7.08E-04}
Concentration, ppbvd [b]	{1.44E-01}	{7.62E-02}	{4.28E-02}	{8.78E-02}
Emission Rate, lb/hr [c]	{1.47E-04}	{1.09E-04}	{6.37E-05}	{1.07E-04}
4,6-Dinitro-2-methylphenol				
Molecular Weight, g/g-mole	198.13	198.13	198.13	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
2,4-Dinitrophenol				
Molecular Weight, g/g-mole	184.11	184.11	184.11	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
2,4-Dinitrotoluene				
Molecular Weight, g/g-mole	182.14	182.14	182.14	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
bis(2-Ethylhexyl)phthalate				
Molecular Weight, g/g-mole	390.54	390.54	390.54	
Target Catch, µg	15.94	{5.98}	19.37	{13.76}
Concentration, mg/dscm [a]	5.12E-03	{1.40E-03}	4.13E-03	{3.55E-03}
Concentration, ppbvd [b]	3.15E-01	{8.64E-02}	2.55E-01	{2.19E-01}
Emission Rate, lb/hr [c]	6.48E-04	{2.48E-04}	7.62E-04	{5.52E-04}
Fluoranthene				
Molecular Weight, g/g-mole	202.26	202.26	202.26	
Target Catch, µg	{0.55}	ND	{1.09}	{0.82}
Concentration, mg/dscm [a]	{1.77E-04}	ND	{2.33E-04}	{2.05E-04}
Concentration, ppbvd [b]	{2.10E-02}	ND	{2.77E-02}	{2.43E-02}
Emission Rate, lb/hr [c]	{2.23E-05}	ND	{4.29E-05}	{3.26E-05}
Fluorene				
Molecular Weight, g/g-mole	166.21	166.21	166.21	
Target Catch, µg	{0.86}	ND	{1.14}	{0.67}
Concentration, mg/dscm [a]	{2.76E-04}	ND	{2.43E-04}	{1.73E-04}
Concentration, ppbvd [b]	{3.99E-02}	ND	{3.52E-02}	{2.51E-02}
Emission Rate, lb/hr [c]	{3.49E-05}	ND	{4.48E-05}	{2.66E-05}
Hexachlorobenzene				
Molecular Weight, g/g-mole	284.80	284.80	284.80	
Target Catch, µg	ND	{0.54}	{0.57}	{0.37}
Concentration, mg/dscm [a]	ND	{1.27E-04}	{1.22E-04}	{8.28E-05}
Concentration, ppbvd [b]	ND	{1.07E-02}	{1.03E-02}	{6.99E-03}
Emission Rate, lb/hr [c]	ND	{2.24E-05}	{2.24E-05}	{1.49E-05}
Hexachlorobutadiene				
Molecular Weight, g/g-mole	260.76	260.76	260.76	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Hexachlorocyclopentadiene				
Molecular Weight, g/g-mole	272.77	272.77	272.77	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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Hexachloroethane				
Molecular Weight, g/g-mole	236.74	236.74	236.74	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Hydroquinone				
Molecular Weight, g/g-mole	110.11	110.11	110.11	
Target Catch, µg	{3.01}	ND	ND	{1.00}
Concentration, mg/dscm [a]	{9.66E-04}	ND	ND	{3.22E-04}
Concentration, ppbvd [b]	{2.11E-01}	ND	ND	{7.04E-02}
Emission Rate, lb/hr [c]	{1.22E-04}	ND	ND	{4.08E-05}
Indeno(1,2,3-cd)pyrene				
Molecular Weight, g/g-mole	290.34	290.34	290.34	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Isophorone				
Molecular Weight, g/g-mole	138.20	138.20	138.20	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Methylene bis-chloroaniline				
Molecular Weight, g/g-mole	267.15	267.15	267.15	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
4,4'-Methylenedianiline				
Molecular Weight, g/g-mole	198.26	198.26	198.26	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
2-Methylnaphthalene				
Molecular Weight, g/g-mole	142.20	142.20	142.20	
Target Catch, µg	{5.88}	{1.31}	{5.33}	{4.17}
Concentration, mg/dscm [a]	{1.89E-03}	{3.07E-04}	{1.14E-03}	{1.11E-03}
Concentration, ppbvd [b]	{3.19E-01}	{5.20E-02}	{1.92E-01}	{1.88E-01}
Emission Rate, lb/hr [c]	{2.39E-04}	{5.44E-05}	{2.10E-04}	{1.68E-04}
2-Methylphenol				
Molecular Weight, g/g-mole	108.13	108.13	108.13	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
3/4-Methylphenol				
Molecular Weight, g/g-mole	108.13	108.13	108.13	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Naphthalene				
Molecular Weight, g/g-mole	128.16	128.16	128.16	
Target Catch, µg	20.76	{4.83}	21.60	{15.73}
Concentration, mg/dscm [a]	6.66E-03	{1.13E-03}	4.61E-03	{4.13E-03}
Concentration, ppbvd [b]	1.25E+00	{2.13E-01}	8.65E-01	{7.76E-01}
Emission Rate, lb/hr [c]	8.43E-04	{2.00E-04}	8.50E-04	{6.31E-04}
Nitrobenzene				
Molecular Weight, g/g-mole	123.11	123.11	123.11	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
4-Nitrobiphenyl				
Molecular Weight, g/g-mole	199.20	154.21	154.21	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
4-Nitrophenol				
Molecular Weight, g/g-mole	139.11	139.11	139.11	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
n-Nitrosodimethylamine				
Molecular Weight, g/g-mole	74.08	74.08	74.08	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
n-Nitrosomorpholine				
Molecular Weight, g/g-mole	116.11	116.11	116.11	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Pentachloronitrobenzene				
Molecular Weight, g/g-mole	295.30	295.30	295.30	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Pentachlorophenol				
Molecular Weight, g/g-mole	266.35	266.35	266.35	
Target Catch, µg	ND	{1.64}	{2.48}	{1.37}
Concentration, mg/dscm [a]	ND	{3.85E-04}	{5.29E-04}	{3.05E-04}
Concentration, ppbvd [b]	ND	{3.48E-02}	{4.78E-02}	{2.75E-02}
Emission Rate, lb/hr [c]	ND	{6.80E-05}	{9.75E-05}	{5.52E-05}
Perylene				
Molecular Weight, g/g-mole	252.30	252.30	252.30	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
Phenanthrene				
Molecular Weight, g/g-mole	178.22	178.22	178.22	
Target Catch, µg	{3.25}	{0.39}	{5.65}	{3.10}
Concentration, mg/dscm [a]	{1.04E-03}	{9.15E-05}	{1.21E-03}	{7.80E-04}
Concentration, ppbvd [b]	{1.41E-01}	{1.24E-02}	{1.63E-01}	{1.05E-01}
Emission Rate, lb/hr [c]	{1.32E-04}	{1.62E-05}	{2.22E-04}	{1.23E-04}
Phenol				
Molecular Weight, g/g-mole	94.11	94.11	94.11	
Target Catch, µg	15.73	{3.14}	{8.70}	{9.19}
Concentration, mg/dscm [a]	5.05E-03	{7.37E-04}	{1.86E-03}	{2.55E-03}
Concentration, ppbvd [b]	1.29E+00	{1.88E-01}	{4.74E-01}	{6.51E-01}
Emission Rate, lb/hr [c]	6.39E-04	{1.30E-04}	{3.42E-04}	{3.70E-04}
1,4-Phenylenediamine				
Molecular Weight, g/g-mole	108.14	108.14	108.14	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Pyrene				
Molecular Weight, g/g-mole	202.24	202.24	202.24	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
o-Toluidine				
Molecular Weight, g/g-mole	107.15	107.15	107.15	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
1,2,4-Trichlorobenzene				
Molecular Weight, g/g-mole	181.46	181.46	181.46	
Target Catch, µg	{2.88}	{4.00}	{4.96}	{3.95}
Concentration, mg/dscm [a]	{9.24E-04}	{9.39E-04}	{1.06E-03}	{9.74E-04}
Concentration, ppbvd [b]	{1.23E-01}	{1.24E-01}	{1.40E-01}	{1.29E-01}
Emission Rate, lb/hr [c]	{1.17E-04}	{1.66E-04}	{1.95E-04}	{1.59E-04}

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	BO-0010-1	BO-0010-2	BO-0010-3	Average
2,4,5-Trichlorophenol				
Molecular Weight, g/g-mole	197.46	197.46	197.46	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
2,4,6-Trichlorophenol				
Molecular Weight, g/g-mole	197.46	197.46	197.46	
Target Catch, µg	21.86	{2.13}	24.61	{16.20}
Concentration, mg/dscm [a]	7.02E-03	{5.00E-04}	5.25E-03	{4.26E-03}
Concentration, ppbvd [b]	8.55E-01	{6.09E-02}	6.40E-01	{5.18E-01}
Emission Rate, lb/hr [c]	8.88E-04	{8.84E-05}	9.68E-04	{6.48E-04}
a,a,a-Trichlorotoluene				
Molecular Weight, g/g-mole	195.48	195.48	195.48	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND
Trifluralin				
Molecular Weight, g/g-mole	335.29	335.29	335.29	
Target Catch, µg	ND	ND	ND	ND
Concentration, mg/dscm [a]	ND	ND	ND	ND
Concentration, ppbvd [b]	ND	ND	ND	ND
Emission Rate, lb/hr [c]	ND	ND	ND	ND

[a] Milligrams per dry standard cubic meter at 68° F (20° C) and 1 atm.

[b] Parts per billion by volume.

[c] Pounds per hour.

ND Not Detectable - Results are below target analyte detection limit. Values are counted as zero (0) in averages.

{ } Estimate - Analyte results are below the quantitation limit and above the detection limit. Values are counted in the averages.

APPENDIX E

QA/QC DATA

PACIFIC ENVIRONMENTAL SERVICES,INC.

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR STACK THERMOCOUPLES

DATE: 10-Dec-96

THERMOCOUPLE NUMBER: 4C

AMBIENT TEMPERATURE: 70

BAROMETRIC PRES.(In.Hg): 29.09

CALIBRATOR: B.FISHER

REFERENCE:
Mercury-in-glass: ASTM 3F

Other:

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature,°F	Thermocouple Potentiometer Temperature,°F	Temperature Difference,[b] %
1	Ambient Air	73	71	0.38
2	Cold Bath	32	34	-0.41
3	Hot Bath	191	190	0.15
4	Hot Oil	434	430	0.45

[a]Type of calibration used.

[b]$\frac{\text{(ref. temp,°F+460)-(test thermometer temp,°F+460)}}{\text{ref temp,°F+460}}$ X100 $\leq 1.5\%$

Comments:

PACIFIC ENVIRONMENTAL SERVICES,INC.

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR STACK THERMOCOUPLES

DATE: 10-Dec-96

THERMOCOUPLE NUMBER: 4B

AMBIENT TEMPERATURE: 70

BAROMETRIC PRES.(In.Hg): 29.09

CALIBRATOR: B.FISHER

REFERENCE:
Mercury-in-glass: ASTM 3F

Other:

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature,°F	Thermocouple Potentiometer Temperature,°F	Temperature Difference,[b] %
1	Ambient Air	70	72	-0.38
2	Cold Bath	32	31	0.20
3	Hot Bath	203	204	-0.15
4	Hot Oil	440	438	0.22

[a]Type of calibration used.

[b]$\frac{\text{(ref. temp.°F+460)-(test thermometer temp.°F+460)}}{\text{ref temp,°F+460}} \times 100$ $100 \leq 1.5\%$

Comments:

PACIFIC ENVIRONMENTAL SERVICES,INC.

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR STACK THERMOCOUPLES

DATE: 10-Dec-96

AMBIENT TEMPERATURE: 70

CALIBRATOR: B.FISHER

THERMOCOUPLE NUMBER: T5B

BAROMETRIC PRES.(In.Hg): 29.09

REFERENCE:
Mercury-in-glass: ASTM 3F

Other:

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature,°F	Thermocouple Potentiometer Temperature,°F	Temperature Difference,[b] %
1	Ambient Air	72	71	0.19
2	Cold Bath	32	32	0.00
3	Hot Bath	199	201	-0.30
4	Hot Oil	408	412	-0.46

[a]Type of calibration used.

[b] $\frac{\text{(ref. temp.,°F+460)-(test thermometer temp.,°F+460)}}{\text{ref temp,°F+460}}$ X100 $\leq 1.5\%$

Comments:

PACIFIC ENVIRONMENTAL SERVICES, INC.

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR METER BOX

DATE: 27-Dec-96

AMBIENT TEMPERATURE: 70 °F

CALIBRATOR: B.FISHER

THERMOCOUPLE NUMBER: MB-13

BAROMETRIC PRES.(In.Hg): 29.4

REFERENCE:
Mercury-in-glass: ASTM 3F

Other: _____

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature, °F	Thermocouple Potentiometer Temperature, °F	Temperature Difference,[b] °F
INLET 1	Ambient Air	70	70	0
2	Cold Bath	31	32	1
3	Hot Bath	145	147	2
OUTLET 1	Ambient Air	70	70	0
2	Cold Bath	32	31	-1
3	Hot Bath	150	151	1

[a]Type of calibration used.

[b]Allowable tolerance ±5°F

Comments:

PACIFIC ENVIRONMENTAL SERVICES, INC.

TEMPERATURE SENSOR CALIBRATION DATA FORM FOR METER BOX

DATE: 30May97

AMBIENT TEMPERATURE: 76 °F

CALIBRATOR: R.Kolde

THERMOCOUPLE NUMBER: RMB-13

BAROMETRIC PRES.(In.Hg): 29.35

REFERENCE:

Mercury-in-glass: ASTM_3F

Other:

Reference point number	Source[a] (Specify)	Reference Thermometer Temperature, °F	Thermocouple Potentiometer Temperature, °F	Temperature Difference,[b] °F
INLET				
1	Ambient Air	76	76	0
2	Cold Bath	34	35	1
3	Hot Bath	150	149	1
OUTLET				
1	Ambient Air	76	75	1
2	Cold Bath	34	35	1
3	Hot Bath	150	151	1

[a]Type of calibration used.

[b]Allowable tolerance ±5°F

Comments:

PACIFIC ENVIRONMENTAL SERVICES, INC.

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA SHEET

DATE: 6-1-97 INDICATOR NO.: RMB-13

OPERATOR: R.Kolde SERIAL NO.: 207

CALIBRATION DEVICE Digital Indicator MANUFACTURER: OMEGA

TEST POINT NO.	MILLIVOLT SIGINAL	EQUIVALENT TEMP °F	DIGITAL INDICATOR TEMP READING °F	DIFFERENCE %
1	-0.692	0	0	0
2	1.520	100	99	0.18
3	3.819	200	201	-0.15
4	6.092	300	301	-0.13
5	8.314	400	398	0.23
6	10.560	500	499	0.10
7	22.251	1000	1001	-0.07
8	29.315	1300	1300	0.00
9	36.166	1600	1600	0.00
10	42.732	1900	1901	-0.04

Percent difference must be less than or equal to 0.5 %

Percent difference: $\frac{(\text{Equivalent temp,.}^{\circ}\text{R} - \text{Digital indicator tem, }^{\circ}\text{R}) * (100\%)}{(\text{Equivalent temp, }^{\circ}\text{R})}$

Where $^{\circ}R = {}^{\circ}F + 460$

PACIFIC ENVIRONMENTAL SERVICES, INC.

THERMOCOUPLE DIGITAL INDICATOR
CALIBRATION DATA SHEET

DATE: 27-Dec-96 INDICATOR NO.: MB-13

OPERATOR: B.FISHER SERIAL NO.:

CALIBRATION DEVICE: MANUFACTURER:

TEST POINT NO.	MILLIVOLT SIGINAL	EQUIVALENT TEMP °F	DIGITAL INDICATOR TEMP READING °F	DIFFERENCE %
1	-0.692	0	0	0
2	1.520	100	101	-0.18
3	3.819	200	200	0
4	6.092	300	300	0
5	8.314	400	399	0.12
6	10.560	500	502	-0.21
7	22.251	1000	1000	0
8	29.315	1300	1301	-0.06
9	36.166	1600	1603	-0.15
10	42.732	1900	1899	0.04

Percent difference must be less than or equal to 0.5 %

Percent difference: $\frac{\text{(Equivalent temp,.°R - Digital indicator tem, °R) * (100\%)}}{\text{(Equivalent temp, °R)}}$

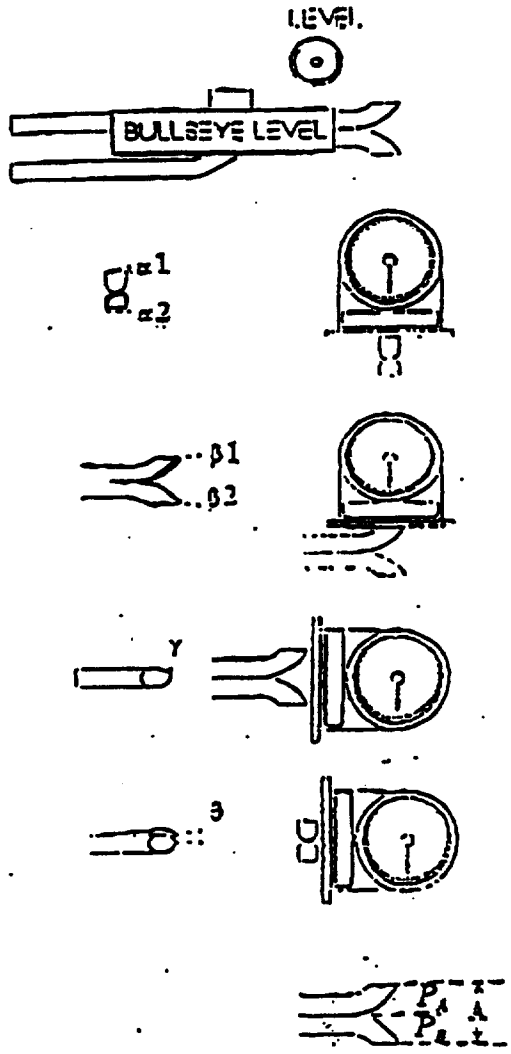
Where °R = °F + 460

DIGITAL INDICATOR

DEECO

Probe or Pitot No. Deeco 5C

Pitot Tube Inspection



Date	8/16/97
Tube Assembly Level?	Yes
Ports Damaged?	No
$-10° < \alpha 1 < +10°$	2½°
$-10° < \alpha 2 < +10°$	-2½°
$-5° < \beta 1 < +5°$	1°
$-5° < \beta 2 < +5°$	-1°
γ	2½°
θ	0°
A	1.013
$Z = A \sin\gamma \leq 0.125"$	.044
$W = A \sin\theta \leq 0.031"$	0
$P_A =$	.55
$P_B =$	.58
Tube Diameter (D_T) =	.370
$P_A = P_B \pm (0.063)$	.55+.02=.58
$1.05 \times D_T \leq P \leq 1.50 \times D_T$	.365 ≤ .55 ≤ .555

Thermocouple Calibration

Type of Reference Thermometer Mercury in Glass

Date 8/16/97

Barometric Pressure 29.84 inHg

Ambient Temperature 102 °F

Source	Reference Temperature	Thermocouple Temperature	Absolute Temperature Difference[1]
Hot Wtr	168	169	-.002
Ambient	102	101	.002
Ice Wtr	38	38	0

Pitot Tube Calibration Sheet

Calibrated By: B.FISHER Date: 12DEC96

Pitot Tube Number 5E

Effective Length: 5'

Pitot Tube Openings Damaged? YES [NO]

Pitot Tube Assembly Level? [YES] NO

α_1 = 0 °(< 10°) α_2 = 1 °(< 10°)

β_1 = 2 °(< 5°) β_2 = 3 °(< 5°)

Y= 1 θ = 0 A = 1.104

z = A sin γ 0.019 cm (in.) 0.32 cm (< 1/8 in.)

w = A sin θ 0 cm (in.) 0.08 cm (< 1/32 in.)

P_A = 0.552 cm (in.)

P_β = 0.552 cm (in.)

D_t = 0.375 cm (in.)

Pitot Tube Calibration Sheet

Calibrated By: B.FISHER Date: 12DEC96

Pitot Tube Number 4B

Effective Length: 4'

Pitot Tube Openings Damaged? YES [NO]

Pitot Tube Assembly Level? [YES] NO

α_1 = 2 °(< 10°) α_2 = 1 °(< 10°)

β_1 = 0 °(< 5°) β_2 = 1 °(< 5°)

Y= 0 θ = 1 A = 0.947

z = A sin γ 0 cm (in.) 0.32 cm (< 1/8 in.)

w = A sin θ 0.017 cm (in.) 0.08 cm (< 1/32 in.)

P_A = 0.473 cm (in.)

P_β = 0.474 cm (in.)

D_t = 0.375 cm (in.)

Pitot Tube Calibration Sheet

Calibrated By: B.FISHER Date: 12DEC96

Pitot Tube Number 4C

Effective Length: 4'

Pitot Tube Openings Damaged? YES [NO]

Pitot Tube Assembly Level? [YES] NO

α_1 = 4 °(< 10°) α_2 = 4 °(< 10°)

β_1 = 1 °(< 5°) β_2 = 0 °(< 5°)

Y= 0 θ = 0 A = 0.956

z = A sin γ 0 cm (in.) 0.32 cm (< 1/8 in.)

w = A sin θ 0 cm (in.) 0.08 cm (< 1/32 in.)

P_A = 0.478 cm (in.)

P_β = 0.478 cm (in.)

D_t = 0.375 cm (in.)

ZECO

Date 10/25/97 Metering System ID No. MS-3

Barometric pressure, P_b = 29.8 $\gamma = 1.028$

Orifice manometer setting ΔH in ~~H_2O~~	~~Reference Meter~~ Spirometer (wet-test) gas volume (Vw) ft3	Dry gas meter volume (Vm) ft3	Temperatures: ~~Reference Meter~~ Spirometer (wet meter) (tw) °F	Dry Gas Meter: Inlet (ti) °F	Outlet (to) °F	Avg (tm) °F	Time (θ) min
.5	541.179 / 549.162	586.358 / 594.101	78/77	80/89	75/79		19:10
1.0	549.162 / 556.241	594.101 / 600.988	77/77	88/94	79/81		12:00
1.5	556.241 / 566.289	600.988 / 611.417	77/77	93/97	82/83		15:00
2.0	566.289 / 574.244	611.417 / 618.623	77/77	92/98	83/84		9:00
3.0	574.244 / 581.298	618623 / 625.557	77/77	96/102	84/85		7:00

Y = Reference Meter Gamma

Calculations

ΔH in H2O	Yi: $\frac{Y V_w P_b (t_m + 460)}{V_m [P_b + \frac{\Delta H}{13.6}] (t_w + 460)}$	ΔH@i: $\frac{0.0317 \Delta H}{P_b (t_m + 460)} [\frac{(t_w + 460)\theta}{Y V_w}]^2$
Average		

Y = Ratio of reading of wet-test meter to dry gas meter; tolerance for individual values ±0.02 from average.

ΔH@ = Orifice pressure differential that equates to 0.75 cfm of air @ 68 °F and 29.92 in of Hg, in H_2O; tolerance for individual values ±0.20 for average.

Date	10/25/97	Meter Box Number	MS-3
Calibrated By	M MILBOURNE	Initials	
Number of Runs	5		

REFERENCE TEST METER

Meter Y 1.021

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5
Vw, init	541.179	549.162	556.241	566.889	574.244
Vw, fin	549.162	556.241	566.889	574.244	581.298
Vw, total	7.983	7.079	10.648	7.355	7.054
Pb	29.80	29.80	29.80	29.80	29.80
tw	77.5	77	77	77	77
Tw+460	537.5	537	537	537	537

DRY GAS METER

Previous Y 1.028

Vm, init	586.358	594.101	600.988	611.417	618.623
Vm, fin	594.101	600.988	611.417	618.623	625.557
Vm, total	7.743	6.887	10.429	7.206	6.934
Tdi	80	88	93	92	96
Tdf	89	94	95	96	102
Tdoi	75	79	82	83	84
Tdof	78	81	83	84	85
Td,avg	80.75	85.5	88.25	89.25	91.75
Td+460	540.75	545.5	548.25	549.25	551.75
Time, min	19	12	15	9	7
Time, sec	0	0	0	0	0
Time Total	19.00	12.00	15.00	9.00	7.00
dH	0.50	1.00	1.50	2.00	3.00

CALIBRATION RESULTS

Y	1.058	1.063	1.060	1.061	1.059
dH@	1.555	1.566	1.615	1.621	1.597
Y tolerance from avg *	0.00	-0.00	-0.00	-0.00	0.00
dH@ tol. from avg **	0.04	0.02	-0.02	-0.03	-0.01

AVERAGE Y 1.060
AVERAGE dH@ 1.591

Y error (vs prior Y) *** 3.1%

* 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	M5-4
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	918.894	924.567	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
Tdil	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@	1.784	1.740	1.861	1.869	1.854	0.000
Y tolerance 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	10-31-97	Meter Box Number	M5-4
Calibrated By	Richard	Initials	RWJ
Number of Runs	3		

REFERENCE TEST METER

Meter Y 1.016

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
Vw, init	714.413	733.564	745.329	0	0	0
Vw, fin	733.564	745.329	754.574	0	0	0
Vw, total	19.151	11.765	9.245	0	0	0
Pb	29.87	29.87	29.87	29.87	29.87	29.87
tw	66	66	66	0	0	0
Tw+460	526	526	526	460	460	460

DRY GAS METER

Previous Y 1.021

Vm, init	859.976	878.986	890.66	0	0	0
Vm, fin	878.986	890.666	899.837	0	0	0
Vm, total	19.01	11.68	9.177	0	0	0
Tdil	80	80	82	0	0	0
Tdif	87	87	87	0	0	0
Tdol	73	87	87	0	0	0
Tdof	74	74	75	0	0	0
Td,avg	78.5	82	82.75	0	0	0
Td+460	538.5	542	542.75	460	460	460
Time, min	26	16	12	0	0	0
Time, sec	26	14	47	0	0	0
Time Total	26.42	16.23	12.78	0.00	0.00	0.00
dH	1.65	1.65	1.65	2.00	3.00	4.00

CALIBRATION RESULTS

Y	1.044	1.050	1.052	0.000	0.000	0.000
dH@	1.674	1.653	1.659	0.000	0.000	0.000
Y tolerance from avg *	0.00	-0.00	-0.00	1.05	1.05	1.05
dH@ tol. from avg **	-0.01	0.01	0.00	1.66	1.66	1.66

AVERAGE Y 1.049

AVERAGE dH@ 1.662

Y error (vs prior Y) *** 2.7%

* 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 AND ORFICE CALIBRATION

CONTROL BOX N RMB-13 BAROMETRIC PRESS 29.35 IN.HG.

DATE : 30May97 PERFORMED BY : R.Kolde

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
dHd ("H2O)	0.50	0.75	1.00	1.50	2.00	4.00
VACUUM ("HG)	10	10	10	10	10	10
INITIAL WTM	874.488	885.102	896.200	904.898	915.154	925.719
FINAL WTM	884.476	895.866	904.595	915.004	925.266	936.622
INITIAL DGM	977.800	988.200	999.200	1007.900	1018.200	1028.800
FINAL DGM	987.585	998.870	1007.595	1018.047	1028.363	1039.750
TEMP. WTM (F)	76.000	77.000	78.000	78.000	78.000	78.000
TEMP. DGM (F)	78.500	82.000	83.500	85.000	85.500	86.500
TEST TIME (MIN.)	25.000	22.000	15.0	15.0	13.0	10.0
NET VOLUME WT	9.988	10.764	8.395	10.106	10.112	10.903
NET VOLUME DG	9.785	10.670	8.395	10.147	10.163	10.950
Y	1.024	1.016	1.008	1.005	1.004	1.001
dH@	1.805	1.800	1.836	1.896	1.894	1.925

AVERAGE Y = 1.010

ACCEPTABLE Y RANGE = 0.990 TO 1.030

AVERAGE dH@ = 1.859

ACCRPTABLE dH@ RANGE = 1.659 TO 2.059

$Y = (Vw * Pb * (Td + 460)) / (Vd * (Pb + (dHd / 13.6)) * (Tw + 460))$

$dH@ = 0.0317 * dHd / (Pb (Td + 460)) * (((Tw + 460) * time) / Vw)^2$

POSTTEST DRY GAS METER CALIBRATION

MB #:	RMB-13	BAROMETRIC PRE	29.33 (in. hg.)
DATE:	9-12-97	PERFORMED BY:	S SIMON
PLANT:	WAUPACU	PRETEST Y :	1.010
		PRETEST H@:	1.859

	RUN 1	RUN 2	RUN 3
VACUUM ("Hg)	15.00	15.00	15.00
H ("H2O)	1.50	1.50	1.50
INITIAL RTM	54.533	64.601	74.757
FINAL RTM	64.601	74.757	88.120
INITIAL DGM	42.916	53.222	63.659
FINAL DGM	53.222	63.659	77.491
TEMP. RTM (F)	72.0	71.0	72.0
TEMP. DGM (F)	85.0	86.0	86.0
TEST TIME (MIN.)	15.1	15.2	20.0
NET VOLUME RT	10.068	10.156	13.363
NET VOLUME DG	10.306	10.437	13.832
Y	0.997	0.997	0.988
H@	1.894	1.875	1.882

PRIOR Y =	1.010
RECHECK Y =	0.994
% DIFFERENCE =	-1.596
AVERAGE H@ =	1.884

$Y = (Vw \times Pb \times (Td + 460)) / (Vd\ (Pb + (dHd / 13.6)) \times (Tw + 460)$

$H@ = 0.0317 \times H / (Pb\ (Td + 460)) \times ((Tw + 460) \times time) / Vw)^2$

DRY GAS AND ORFICE CALIBRATION

CONTROL BOX N MB-13 BAROMETRIC PRESS 29.43 IN.HG.

DATE: 27DEC96 PERFORMED BY : B.FISHER

	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	RUN 6
dHd ("H2O)	0.50	0.75	1.00	1.50	2.00	4.00
VACUUM ("HG)	10	10	10	10	10	10
INITIAL WTM	574.079	586.320	598.208	609.755	620.600	639.501
FINAL WTM	585.831	597.745	609.467	620.342	639.244	651.115
INITIAL DGM	443.819	457.078	469.953	482.468	494.192	514.761
FINAL DGM	456.538	469.460	482.139	493.909	514.382	527.315
TEMP. WTM (F)	74.0	75.0	77.0	76.0	76.0	77.0
TEMP. DGM (F)	86.0	89.0	91.0	92.0	94.0	95.0
TEST TIME (MIN.)	30.0	23.5	20.0	15.5	23.9	10.5
NET VOLUME WT	11.752	11.425	11.259	10.587	18.644	11.614
NET VOLUME DG	12.719	12.382	12.186	11.441	20.190	12.554
Y	0.944	0.945	0.946	0.949	0.950	0.947
dH@	1.833	1.782	1.779	1.802	1.836	1.830

AVERAGE Y = 0.947

ACCEPTABLE Y RANGE = 0.927 TO 0.967

AVERAGE dH@ = 1.810

ACCRPTABLE dH@ RANGE = 1.790 TO 1.830

$Y = (Vw * Pb * (Td + 460)) / (Vd * (Pb + (dHd / 13.6)) * (Tw + 460))$

$dH@ = 0.0317 * dHd / (Pb (Td + 460)) * (((Tw + 460) * time) / Vw)^2$

POSTTEST DRY GAS METER CALIBRATION

MB #:	MB-13	BAROMETRIC PRE	29.37	(in. hg.)
DATE:	9-14-97	PERFORMED BY:	S SIMON	
PLANT:	WAUPACA	PRETEST Y :	0.947	
		PRETEST H@:	1.810	

	RUN 1	RUN 2	RUN 3
VACUUM ("Hg)	15.00	15.00	15.00
H ("H2O)	1.50	1.50	1.50
INITIAL RTM	90.626	101.125	111.610
FINAL RTM	101.125	111.610	122.083
INITIAL DGM	207.840	219.092	230.125
FINAL DGM	219.092	230.125	241.278
TEMP. RTM (F)	76.0	76.0	76.0
TEMP. DGM (F)	78.0	81.0	82.0
TEST TIME (MIN.)	15.0	15.0	15.0
NET VOLUME RT	10.499	10.485	10.473
NET VOLUME DG	11.252	11.033	11.153
Y	0.933	0.956	0.946
H@	1.765	1.760	1.760

PRIOR Y =	0.947
RECHECK Y =	0.945
% DIFFERENCE =	-0.223
AVERAGE H@ =	1.762

$Y = (Vw \times Pb \times (Td + 460)) / (Vd (Pb + (dHd / 13.6)) \times (Tw + 460)$

$H@ = 0.0317 \times H / (Pb (Td + 460)) \times ((Tw + 460) \times time) / Vw)^2$

APPENDIX F

PARTICIPANTS

PROJECT PARTICIPANTS

Name	Affiliation	Responsibility
Michael Ciolek	USEPA, Emission Measurement Center	Work Assignment Manager
John Chehaske	Pacific Environmental Services, Inc.	Program Manager
Franklin Meadows	Pacific Environmental Services, Inc.	Project Manager
Dennis Holzschuh	Pacific Environmental Services, Inc.	On-site QA/QC Officer
Dan Scheffel	Pacific Environmental Services, Inc.	Field Team Leader
Troy Abernathy	Pacific Environmental Services, Inc.	Site Leader/Console Operator
Gary Gay	Pacific Environmental Services, Inc.	Site Leader/Console Operator
Ben Elsass	Pacific Environmental Services, Inc.	Sample Recovery
Ron Kolde	Pacific Environmental Services, Inc.	Sample Recovery
Arthur Daughtery	DEECO[a]	Site Leader/Console Operator
John Malone	DEECO[a]	Site Leader/Console Operator
Marc Hamilton	DEECO[a]	Sample Recovery

[a] Subcontractor to Pacific Environmental Services, Inc.

TECHNICAL REPORT DATA

Please read instructions on the reverse before completing

1. REPORT NO. EPA-454/R-99-017B	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Final Report - Iron and Steel Foundries Manual Emissions Testing of Cupola Baghouse at Waupaca Foundry in Tell City, Indiana Volume II of II		5. REPORT DATE June 1999 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Franklin Meadows Daniel F. Scheffel		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pacific Environmental Services, Inc. Post Office Box 12077 Research Triangle Park, North Carolina 27709-2077		10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO. 68-D-70069
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15. SUPPLEMENTARY NOTES		

16. ABSTRACT

The United States Environmental Protection Agency (EPA) is investigating iron and steel foundries to identify and quantify hazardous air pollutants (HAPs) emitted from cupolas; electric arc furnaces; and pouring, cooling and shakedown operations of sand mold casting processes. The Waupaca Foundry in Tell City, Indiana was selected by the EPA as the host facility at which to 1) characterize HAP emissions from cupolas that are controlled by baghouses, and 2) assess baghouse performance in controlling HAP emissions from cupolas. The Waupaca Foundry was selected because EPA deemed this facility to be representative of a large segment of the sand casting foundry industry. Waupaca Foundry operates a large cupola (50 standard tons per hour melting capacity) that is controlled by a negative pressure baghouse. The new facility recently began production and the modern design of the cupola baghouse was expected to be as effective as any used in this type of application.

This report presents the results of a manual emissions testing program to characterize emissions from a cupola and assess the performance of the baghouse in controlling HAP emissions. Testing was conducted at the cupola baghouse inlet and outlet to determine air emissions of particulate matter (PM) and metal HAPs; and at the cupola baghouse outlet to determine organic HAPs consisting of dibenzo-*p*-dioxins and polychlorinated dibenzodurans (PCDDs/PCDFs), and semi-volatile organic hazardous air pollutnats (SVOHAPs). The data may be used by the EPA as potential Maximum Achievable Control Technology (MACT) floor technology for cupolas.

During the testing program, Research Triangle Institute (RTI), another EPA contractor, monitored and recorded process and emission control system operating parameters, and prepared Section 3.0, Process and Control Equipment Operation, of this report.

This volume (Volume II) is comprised of 497 pages and consists of Appendices: C (Analytical Data - Dioxins/Furans and Semi-volatile Organic Hazardous Air Pollutants), D (Calculations), E (QA/QC Data) and F (Participants).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTIONS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COASTI Field/Group
Baghouse Cupola Dioxins/Furans Emission Measurements Hazardous Air Pollutants Metals Particulate Matter Semi-volatile Organic Hazardous Pollutants		

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