REPORT NO.
COMPANY Wabash Alloys
TITLE MACT Standard Testing
DATE April 6 & 7, 1995

Envisage Environmental Incorporated
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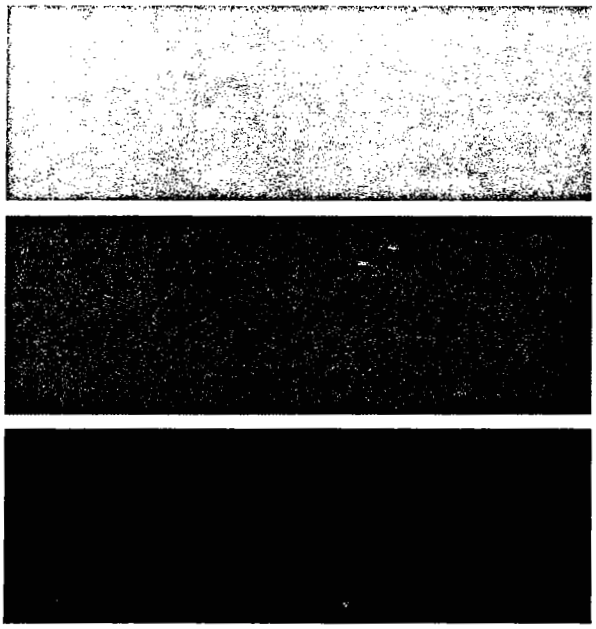
REPORT - APPENDIX H
FURNACE AUXILIARY HEAT - INLET TO BAGHOUSE

WABASH ALLOYS
Wabash, Indiana

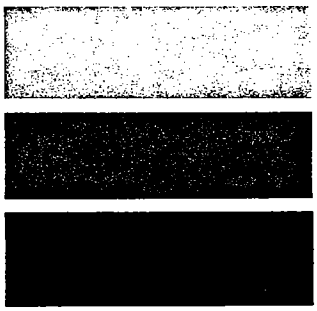
Emission Evaluation for MACT Standard Development
Secondary Aluminum Smelting Industry

Conducted - April 6 & 7, 1995



SOURCE EVALUATION RESULTS

PREPARED BY



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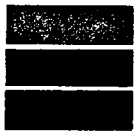

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SAMPLING LOCATIONS

FURNACE SAMPLING LOCATIONS

Emission sampling at the furnace was conducted at four locations: at the inlet to the baghouse, at the exit of the baghouse, at the flue stack and at the auxiliary heat inlet to the baghouse. The following report is the result from the auxiliary heat inlet to the baghouse, (Report - Appendix H). It is one (1) of four (4) reports for the furnace location. Also accompanying the reports is the Test Result Summary Report For The Development of MACT Standards for the Secondary Aluminum Smelting Industry which summarizes the test program and results.

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SAMPLING AND ANALYTIC PROCEDURES

All sampling and analytical procedures were those recommended by the United States Environmental Protection Agency. This section describes the sampling and analytical procedures used during the test program at Wabash Alloys in Wabash, Indiana.

PRELIMINARY MEASUREMENTS

Preliminary measurements were conducted at each test location. These included exact measurement of the diameter of the ducts and port nipples, as well as, distances to the nearest upstream and downstream flow disturbances. The appropriate number of traverse points for the test locations were chosen according to EPA Method 1. Section 4.0 discusses the traverse point locations based on the pre-site survey. Preliminary traverses were conducted to determine the average gas velocities and suitability of the flow conditions. The measured gas velocities, the moisture contents and the flue gas temperatures were used to set the sampling rates for the isokinetic sampling trains.

HYDROCHLORIC ACID, CHLORINE, AND HYDROGEN FLUORIDE TESTING

Hydrochloric acid (HCL), chlorine (CL2), and hydrogen fluoride (HF) testing was conducted following Method 26A. The HCL, CL2, and HF were determined using chromatography by the laboratory.

Method 26A Sampling Equipment and Preparation

The Method 26A testing used the sampling train shown in the sampling train section of this report. All sampling glassware was washed in soapy water, rinsed with tap water, and rinsed with distilled (DI) water prior to the testing.

The remaining preparations involved calibration and leak-checking of the appropriate sampling equipment, including meter boxes, temperature sensors, nozzles, pitot tubes and umbilicals. These procedures were performed according to the requirements specified in EPA's "Quality Assurance Handbook, Volume III" (600/4-77-027b). The results of these preparations are documented and included in the calibration section of this report.

Method 26A On-site Sampling Procedures

The impinger trains were assembled in the sample recovery area. The pre-cleaned impingers were assembled with the first two impingers being standard type Greenburg-Smith impingers, each containing 100 ml of O.1N H2SO4 reagent. The third and fourth impingers were modified Greenburg Smith impingers, each containing 100 ml of O.1N NAOH reagent. The fifth impinger contained 200 grams of blue indicating silica gel. An untared quartz filter was placed in the filter holder.

The sampling train was leak-checked at the beginning and end of each run. An acceptable leak rate is less than 0.02 acfm at the highest vacuum measured plus 1-inch of Hg or less than 1.5% of the sampling rate. After a successful pre-test leak-check, the train assembly was placed in the duct and the sampling began. Sample was collected for a total of 2 hours per run. Sampling train data was recorded on standard field data forms.

Method 26A Sample Recovery

Liquid reagents were placed in their original polyethylene sample containers and weighed. The silica gel was returned to its original container and weighed, and the filter was placed in pre-cleaned 250 ml glass jar.

Special care was taken when cleaning the train components. The front-half components (nozzle, probe, and front-half of the filter holder) was rinsed with acetone into a 500 ml glass jar. The back-half of the filter holder through the second impinger was rinsed with DI water into the jar containing the O.1N H2SO4 reagent. The third and fourth impingers and the connecting glassware were rinsed with DI water into the jar containing the O.1N NAOH reagent. All liquid levels were marked and the reagents were sealed for transport to the laboratory.

Blank samples of the acetone, 0.1N H2SO4 reagent, 0.1N NAOH reagent, and DI water were collected. The liquid level and sample identification number were marked on each sample container and the samples were locked and sealed in boxes for return to the laboratory.

Method 26A Sample Analysis

The filter, in container 1, and the front-half acetone rinse, in container 2, will be archived.

The 0.1N H2SO4 reagent, catch, and DI rinse (container 3) was analyzed for HCL and HF by Ion chromatography (IC).

The 0.1N NAOH reagent, catch, and DI rinse (container 4) was analyzed for CL2 by Ion chromatography (IC).

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FILTERABLE PARTICULATE AND HAP'S METALS

Flue gas sampling for particulate matter and the HAP's metals Sb, As, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, and Se was conducted following the combined procedures of Method 5 and draft Method 29. When these two methods are combined within one sampling train, it can be expected that the Hg results will be biased low.

Method 29 Sampling Equipment and Preparation

The Method 29 sampling used the train shown in the sampling train section of this report. The equipment is similar to Method 5 sampling equipment with the following differences:

- Low metals background quartz fiber filter (QFF)
- Teflon filter support
- HN03/H202 and KMnO4/H2SO4 instead of H20 in the impingers
- Additional impingers.

Method 29 sampling preparation included several key items. Glassware and sample containers were cleaned prior to the testing program. The remaining preparations involved calibrations and leak checking of the appropriate sampling equipment including meter boxes, temperature sensors, nozzles, pitot tubes, and umbilicals. These procedures were performed according to the requirements specified in the EPA's "Quality Assurance Handbook, Volume III" (600/4-77-027b). Documentation of these results can be found in the calibration section of the report.

Method 29 Sampling Preparations

The sampling train including the probe were assembled in the sample recovery area. Solutions of 5% HN03/10% H202, 8N HCL, and 0.1N HN03 were prepared daily and stored in vented glass bottles. The sampling train is comprised of seven impingers. The first impinger serves as a moisture knockout and was a modified Greenburg-Smith type. A pre weighed charge of 200 ml of 5% HN03/10% H202 was divided between the 2nd and 3rd impingers. The fourth impinger remained empty. A pre-weighed charge of 300 ml of 4% KMnO4/10% H2SO4 was divided among the fifth and sixth impingers. The seventh impinger contained 200 grams of indicating silica gel. The 3rd impinger was a Greenburg-Smith type tip. All other impingers were modified Greenburg-Smith type tips. A tared, low metals quartz filter was loaded into the front-half filter holder and leak checked. All openings on the probe assembly and the impinger train was capped for transfer from the sample train/recovery laboratory to the sampling location.

The sampling train was operated isokinetically according to Method 5. All Method 29 sampling was conducted for a total of 2 hours per run.

Following each sampling run, the probe was capped and the sampling train was returned to the sample recovery area.

During the third run of the first day of sampling, a Method 29 field blank train was assembled with glassware previously used during one of the Method 29 runs. This train will be charged exactly as the other Method 29 trains and left at a sampling location during the test run. The field blank train will be recovered with the other Method 29 trains for that run. The purpose of a field blank train is to measure the level of contamination that occurs from handling, charging, transporting, and recovering the sampling train.

Method 29 Sample Recovery

In the recovery area, the Method 29 sampling train, including the field blank train, was recovered. Liquid samples were stored in pre-cleaned glass sample jars with Teflon lid liners. Filters were placed in pre-cleaned petri dishes.

Reagent blank samples of the acetone, HN03, HCL and KMnO4 solutions were collected. The liquid level and sample identification number were marked on each sample container and the samples were stored in locked boxes for return to the laboratory.

Method 29 Sample Analyses

The Method 29 samples were analyzed by Envisage and the laboratory for particulate and HAP's metals, respectively. For the particulate determination, the front half acetone rinse and the filter were desiccated and analyzed gravimetrically before acid digestion and combination with the front half HN03 rinse.

TOTAL HYDROCARBONS TESTING

Sampling and analysis for total hydrocarbons was conducted using the sampling equipment and procedures of Method 25A. As requested by the Aluminum Association, the sample line was heated to 248 Deg.F. $\pm$ 25 Deg.F. An extractive sampling system and a THC analyzer was used to continuously analyze flue gas samples for the determination of THC concentration expressed as total hydrocarbons measured as propane. Acceptable THC analyzer principles specified by Method 25A are flame ionization detection (FID) or equivalent.

Method 25A Sampling System Description

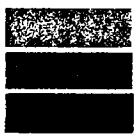
The THC extractive monitors require that the flue gas sample be conditioned to eliminate particulate interference before being transported and injected into each analyzer. All components of the sampling system that contact the gas sample were stainless steel, glass, and Teflon. A sample probe with an in-stack particulate filter, a secondary out-of-stack particulate filter, stainless steel or Teflon sample lines, sample pump and gas flow distribution manifold are used to deliver representative flue gas samples to the THC gas analyzer. The components upstream of the manifold were heated electrically to maintain the sample temperature above the dew point. The sampling system includes a calibration gas injection point immediately upstream of the analyzer for the calibration error checks and also at the outlet of the probe for sampling system bias and calibration drift checks. A computer-based data acquisition system was used to provide an instantaneous display of the analyzer responses, as well as compile the measurement data collected each second, calculate data averages over selected time periods, calculate emission rates, and document the measurement system calibrations.

Measurement System Performance Test Procedures

Method 25A requires that the tester: (1) select appropriate apparatus meeting the applicable equipment specifications of the methods, and (2) conduct various measurements during the testing program to demonstrate conformance with the measurement System performance specifications. All pre-test and field checks Of the CEMS, as well as all measurements made throughout the test program will be conducted according to the procedures specified in this EPA test method. A four-point linearity check (i.e., zero, low, mid, and high levels) was conducted prior to initiating the test. Zero and upscale calibration drift checks were performed before and after each test period to quantify the amount of drift in the analyzer calibration. Each final zero and upscale calibration value also served as the initial zero and calibration value for the following run. The analyzer flue gas measurement average for each test run is adjusted based on the drift check result at the zero level. The gas analyzer responses was recorded by the data acquisition system (DAS).

Data Calculation

The test run value is determined from the average concentration measurements displayed by the gas analyzer during the run.



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OXYGEN AND CARBON DIOXIDE TESTING

The oxygen (02) and carbon dioxide (CO_2) was determined at the test locations following Method 3 procedures. An integrated sample was extracted during each sample run. The sampling system consisted of a stainless steel probe, followed by a Teflon sample line attached to a polyethylene squeeze pump. The squeeze pump was coupled with a leak free Tedlar bag. Concentration of oxygen and carbon dioxide in the sample was determined by using a Hays Republic Model 621A "Orsat" Portable Gas Analyzer. Orsat analysis provides for the selective absorption of oxygen in Burrell Oxysorbent and carbon dioxide in potassium hydroxide solutions. The difference in gas volume before and after the absorption represents the amount of constituent gas in the sample. Each sample was analyzed three (3) times, and the average of the readings for each run were used in calculating the emission rate for the respective test run.

MOISTURE DETERMINATION

The moisture determination was determined in conjunction with the Method 26A and Method 29 sampling trains according to Method 4.

OPACITY DETERMINATIONS

Baghouse Exit Stacks

The opacity from the baghouse exit stack was determined following the procedures of Method 9. A certified experienced visible emission (VE) reader recorded the plume opacity every 15 seconds during the testing period for one hour.

Process Units

The visible emissions from the dryer were determined following the procedures of Method 22. An observer recorded the duration of any visible emissions during the testing period.

DIOXIN TESTING

PCDD's and PCDF's testing was conducted following Method 23. The analytes will be extracted from the sample and their quantities determined using high resolution gas chromatography and high resolution mass spectrometry (GCMS) by the laboratory.

Method 23 Sampling Equipment and Preparation

The Method 23 testing used the sampling train shown in the Sampling Train section of the report. All glass components of the train upstream of and including the adsorbent module, were cleaned according to section 3A of the "Manual of Analytical Methods for the Analysis of Pesticides in Human and Environmental Samples" No silicone grease sealants was used for this sampling method. glass fiber filters were precleaned in the laboratory in a Soxhlet apparatus. Adsorbent modules were cleaned in the same manner as the filters and treated with the appropriate amount of the surrogate solution.

The remaining preparations involved calibration and leak checking of the appropriate sampling equipment, including meter boxes, temperature sensors, nozzles, pitot tubes and umbilicals. The procedures were performed according to the requirements specified in EPA's "Quality Assurance Handbook, Volume III" (600/4-77-027b). The results of these preparations can be found in the Calibration Section of the report.

Method 23 On-site Sampling Procedures

The sampling train was assembled in the sample recovery area. The train was assembled and operated as a Method 5 sampling train with the following changes: immediately following the heated filter will be a non-contact, recirculating cold water condenser leading to the XAD-2 Adsorbent trap: the trap was attach to the empty modified Greenburg-Smith impinger: the next two impingers each contained 100 ml of HPLC water, the contents of the final two impingers were empty and 200 g. of silica gel respectively.

The sampling train was leak checked immediately prior to and after each sampling run. Sampling runs were conducted for a 2 hour period and recorded on standard field data forms.

Method 23 Sample Recovery

The filter holder was removed, its open ends sealed, and was labeled and packaged for laboratory shipment in container #1. The adsorbent module was treated in the same manner and packaged on ice for shipment. Container #2 contained the material deposited in the nozzle, probe and front half of the filter holder recovered by rinsing and brushing three times with acetone and rinsing three times with toluene. The back half of the filter and the connections leading to the adsorbent module were rinsed with acetone and soaked and rinsed with toluene and collected. The impinger water was volumetrically measured and recorded and then discarded. The silica gel impinger content was gravimetrically measured and recorded.

Blanks for all of the above were measured and recorded appropriately and analyzed concurrently with the samples.

Method 23 Analyses

The above samples were analyzed by an independent laboratory according to the requirements listed in Method 23, Section 5.

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QA/QC ACTIVITIES

Quality control (QC) is defined as the overall system of activities whose purpose is to provide a quality product or service. This may include routine procedures for obtaining prescribed standards of performance in the monitoring and measurement process. Quality assurance (QA) is defined as a system of activities whose purpose is to provide assurance that the overall quality control is in fact being done effectively. It is the total integrated program for assuring the reliability of monitoring and measurement data. It is the system for integrating the quality planning, quality assessment, and quality improvement efforts of an organization to enable operations to meet user requirements at an economical level. In other words, quality assurance is the system of activities to provide assurance that the quality control system is performing adequately.

The specific internal quality assurance and quality control procedures which were used during this test program to facilitate the production of useful and valid data are described in this section. These procedures were an integral part of the test program activities. Section 6.1 addresses the data quality objectives. Section 6.2 covers method-specific QC procedures for the manual flue gas sampling. Section 6.3 discusses QC procedures for the instrumental testing. QC checks of data reduction, validation and reporting procedures are covered in Section 6.4, and corrective actions are discussed in Section 6.5. Section 6.6 discusses sample identification and custody.

QC PROCEDURES FOR MANUAL FLUE GAS TEST METHODS

This section details the QC procedures to be followed during the manual testing activities.

Velocity/Volumetric Flow Rate QC Procedures

The QC procedures for velocity/volumetric flow rate determinations followed the guidelines set forth by EPA Method 2. Incorporated into this method are sample point determinations by EPA Method 1 and gas moisture determination by EPA Method 4.

Volumetric flow rates were determined using isokinetic sampling methods and procedures designed specifically for this testing program. These methods include Method M26A and Method 29. An initial traverse was performed and delta P and temperature were measured at a point of average velocity at each test location. The following QC steps were followed during these tests:

- The S-type pitot tube was visually inspected before sampling.

- Both legs of the pitot tube were leak checked before and after sampling.

- Orientation of the S-type pitot tube was maintained while making measurements. The yaw and pitch axis of the S-type pitot tube will be maintained at 90 degrees to the flow.

- The pitot tube/magnehelic umbilical lines were inspected before and after sampling for moisture condensate.

- Cyclonic or turbulent flow checks were performed prior to testing the source.

- An average velocity pressure reading was recorded at each point instead of recording extreme high or low values.

- Pitot tube coefficients were determined based on physical measurement techniques as delineated in Method 2.

- Reported duct dimensions and cross-sectional duct area were verified by on-site measurements.

- Negative static pressure at sampling ports, were sealed to correct for air in-leakage which could result in possible flow and temperature errors.

- The stack gas temperature measuring system was checked by observing ambient temperatures prior to placement in the stack.

Flue gas moisture was determined according to EPA Method 4 using the Method 26A and Method 29 sampling trains. Flue gas moisture content was determined by dividing the volume (mass) of moisture collected by the impingers by the standardized volume of gas sampled. The following QC procedures were followed in determining the volume of moisture collected:

- Preliminary reagent tare weights will be to the nearest 0.1 g.

- The balance zero is checked and re-zeroed if necessary before each weighing.

- The balance is leveled and placed in a clean, motionless environment for weighing.

- The indicating silica gel is fresh for each run and periodically inspected and replaced during if needed.

- The silica gel impinger gas temperature is maintained below 68 degrees F.

The QC procedures that were followed to ensure accurate sample gas volume determinations were made are:

- The dry gas meter was fully calibrated prior to and after this test program.

- Pre-test, and post-test leak checks were completed.

- The gas meter is read to a thousandth of a cubic foot for the initial and final readings.
- The meter thermocouples were compared with ambient prior to the test run as a check on operation.

- Readings of the dry gas meter, meter orifice pressure, and meter temperatures are taken at every sampling point.

- Accurate barometric pressures were recorded on-site once per day.

- Post-test dry gas meter checks were completed to verify the accuracy of the meter full calibration constant.

Method 26A and Method 29 QC Procedures

Quality control procedures for PM/HCL, CL2, HF and HAP's metals sampling are followed to ensure high quality flue gas concentrations and emissions data. Flue gas concentrations are determined by dividing the mass of analyte collected by the standardized volume of gas sampled. Sampling QC procedures which ensure that a representative amount of the analytes are collected by the sampling system will be:

- The sampling rate is within 10 percent of isokinetic (100 percent) at the test locations.

- The probe and filter temperature are maintained at 248 F and 250 F.

- Only properly prepared glassware is used.

- All sampling nozzles will be manufactured and calibrated according to EPA standards.

- Filters are weighed, handled and stored in a manner to prevent any contamination.

- Recovery procedures are completed in a clean environment.

- Field reagent blanks are collected.

Accurate standardized sample volume determinations are ensured by following the respective QC procedures.

Manual Sampling Equipment Calibration Procedures

Type-S Pitot Tube Calibration

EPA has specified guidelines concerning the construction and geometry of an acceptable Type-S pitot tube. If the specified design and construction guidelines are met, a pitot tube coefficient of 0.84 is used. Information pertaining to the design and construction of the Type-S pitot tube is presented in detail in Section 3.1.1 of EPA document 600/4-77-027b. Only Type-S pitot tubes meeting the required EPA specifications were used. Pitot tubes were inspected and documented as meeting EPA specifications prior to field sampling.

Sampling Nozzle Calibration

Glass nozzles are used for the Method 5/29(draft) and stainless steel nozzles are used for the Method 26A isokinetic sampling. Calculation of the isokinetic sampling rate requires that the cross sectional area of the sampling nozzle be accurately determined. All nozzles are thoroughly cleaned, visually inspected and calibrated according to the procedure outlined in Section 3.4.2 of EPA document 600/4-77-027b.

Temperature Measuring Device Calibration

Accurate temperature measurements are required during source sampling. Bimetallic stem thermometers and thermocouple temperature sensors are calibrated using the procedure described in Section 3.4.2 of EPA document 600/4-77-027b. Each temperature sensor is calibrated at a minimum of three points over the anticipated range of use against a NIST-traceable mercury-in-glass thermometer. All sensors are calibrated prior to field sampling.

Dry Gas Meter Calibration

Dry gas meters (DGM's) are used to monitor the sampling rate and to measure the sample volume. All DGM's were fully calibrated to determine the volume correction factor prior to their use in the field. Post-test calibration checks were performed soon after the testing program. Pre- and post-test calibrations agreed within 5 percent. The calibration procedure is documented in Section 3.3.2 of EPA document 600/4-77-237b.

Prior to calibration, a positive pressure leak check of the system is performed using the procedure outlined in Section 3.3.2 of EPA document 600/4-77-237b. The system is placed under approximately 10 inches of water pressure and a gauge oil manometer is used to determine if a pressure decrease can be detected over a one-minute period. If leaks are detected, they are eliminated before actual calibrations are performed.

After the sampling console is assembled and leak checked, the pump is allowed to run for 15 minutes to allow the pump and DGM to warm-up. The valve is then adjusted to obtain the desired flow rate. For the pre-test calibrations, data are collected at orifice manometer settings (AH) of 0.5, 1.0, 1.5, 2.0, 3.0 and 4.0 inches H20. Gas volumes of 5 cubic feet are used for the two lower orifice settings, and volumes of 10 cubic feet are used for the higher settings. The individual gas meter correction factors (YI) are calculated and averaged for each orifice setting. The method requires that each of the individual correction factors fall within 2% percent of the average correction factor or the meter must be cleaned, adjusted, and recalibrated. For the post-test calibration, the meter is calibrated three times at the average orifice setting and vacuum used during the actual test.

QC PROCEDURES FOR INSTRUMENTAL METHODS

Flue gas was analyzed for total hydrocarbons following EPA Method 25A procedures. Internal QA/QC checks for the CEM system are presented below.

Multi-point Linearity Checks

All analyzers will be calibrated on a multi-point basis each day during on-site testing. Multi-point calibrations were performed with three certified gases: zero gas, a low range gas concentration and a high range concentration. For the calibration error check, each gas concentration measured agreed with the certified cylinder concentration to within 2 percent of span.

Daily calibrations and Drift Checks

The instrument was calibrated daily with zero gas and a high range calibration gas. Calibrations were performed before and after each test run. Drift requirements between calibrations for both zero and span was within 3% percent for each run of full scale as required by EPA Method 25A. Approved drift correction methods and appropriate maintenance actions are implemented in the event of excessive drift.

System Bias Checks

During the course of the testing program, bias checks of the CEM sampling systems were performed for the analyzers. The checks are used to assess the potential measurement bias. This check assesses the bias imparted to the sample by the sample lines and gas conditioning system.

Response Times

Response times for the analyzers was determined as part of the QC procedures. Response times were evaluated to see if any lag time in responding to changes in gas concentration will have a significant effect on instrumental data quality.

SAMPLE IDENTIFICATION AND CUSTODY

Envisage follows procedures which ensure the integrity of samples from the time of acquisition through analysis. This policy is necessary to allow valid conclusions to be drawn from analytical results separated in time and space from the sampling operation.

Samples were collected, transported, and stored in clean containers with airtight seals. All sample containers were labeled with the following information:

unique source identifier
sample run identifier
analyte identifier
sample matrix identifier
sample analyst identifier

For transport from the field to the laboratory, samples were stored in sealed boxes and secured to prevent breakage. Boxes which contain glass containers were packed with foam.

Samples remain in the custody of the field laboratory technician from clean-up until transportation to Envisage. Sample chain-of-custody records were initiated during packing for the field test. All custody transfers are documented on the chain-of-custody forms, which remain with the samples at all times.

Analytical data was identified in a manner similar to that of the sampling data. All data generated from the analyses was documented with the following information:

source identifier
sample run identifier
analyte identifier
sample matrix identifier
analyst identifier
analysis date

APPENDIX H
SECTION 1 - TEST RESULTS

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TEST RESULTS

Wabash Alloys

Auxiliary Heater Exhaust

Hydrochloric Acid, Chlorine, Hydrogen Fluoride and Volatile Organic Compounds Emission Evaluation

	DATE April 6 - 7, 1995	Symbol	Units	Run 1	Run 2	Run 3
	Time of Day			12:18 14:19	17:15 19:39	08:18 11:10
1	Gas Volume - dry,std.	Vmstd	cu. ft	49.02	39.39	43.31
2	Condensate Vapor Vol.	Vwstd	cu. ft.	1.07	2.10	1.13
3	Gas Stream Moisture	Bws	vol.dec	0.0213	0.0507	0.0254
4	Mol.Wt - flue gas (dry)	Msd	lb/lb mo	28.96	28.96	28.98
5	Mol.Wt - flue gas (wet)	Ms	lb/lb mo	28.72	28.41	28.70
6	Flue Gas Velocity	Vs	ft/sec	102.10	92.76	105.95
7	Flue Gas Volume - Actual	Qs	ACFM	43,304	39,341	44,933
8	Flue Gas Volume - Std.	Qs (Std)	DSCFM	30,547	23,498	24,944
9	CONCENTRATIONS	Cs				
	- HCl		gr/dscf	0.0054	5.09E - 03	0.0249
	- Cl		gr/dscf	2.52E - 05	3.13E - 05	5.20E - 04
	- HF		gr/dscf	4.09E - 03	5.09E - 03	4.63E - 03
	- VOC's as propane		lb/dscf	3.14E - 06	3.67E - 07	1.56E - 05
10	EMISSION RATE	E				
	- HCl		lb/hr	1.40	1.03	5.33
	- Cl		lb/hr	0.0066	0.0063	0.1112
	- HF		lb/hr	1.07	1.03	0.9902
	- VOC's as propane		lb/hr	5.75	0.5168	23.32
11	Isokinetic Rate	I	%	93.1	97.3	100.8

Single Line rectangle surrounding data signifies the Estimated Quantitation Level (EQL) value is used.

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TEST RESULTS

Wabash Alloys

Auxillary Heater Exhaust

Particulate and Metals Emission Evaluation

	DATE. April 6 - 7. 1995	Symbol	Units	Run 1	Run 2	Run 3
	Time of Day			12:18 14:19	17:15 19:39	08:18 11:10
1	Gas Volume - dry.std.	Vmstd	cu. ft.	50.37	43.24	43.51
2	Condensate Vapor Vol.	Vwstd	cu. ft.	0.62	0.19	0.23
3	Gas Stream Moisture	Bws	vol.dec	0.0121	0.0043	0.0052
4	Mol.Wt - flue gas (dry)	Msd	lb/lb mo	28.96	28.96	28.98
5	Mol.Wt - flue gas (wet)	Ms	lb/lb mo	28.82	28.92	28.92
6	Flue Gas Velocity	Vs	ft/sec	102.73	91.18	105.53
7	Flue Gas Volume - Actual	Qs	ACFM	43,571	38,670	44,757
8	Flue Gas Volume - Std.	Qs (Std)	DSCFM	30,936	24,256	25,330
9	CONCENTRATION	Cs				
	- Total Particulate		gr/dscf	0.0342	0.0439	0.0460
	Antimony		gr/dscf	3.03E - 05	1.21E - 05	9.93E - 06
	Beryllium		gr/dscf	1.75E - 07	1.62E - 06	1.55E - 06
	Cadmium		gr/dscf	1.30E - 05	6.96E - 06	7.09E - 06
	Chromium		gr/dscf	1.57E - 05	1.05E - 05	3.01E - 06
	Cobalt		gr/dscf	4.63E - 07	8.92E - 07	8.86E - 07
	Lead		gr/dscf	8.25E - 05	3.86E - 05	2.72E - 05
	Manganese		gr/dscf	4.15E - 05	3.12E - 05	1.54E - 05
	Nickel		gr/dscf	1.56E - 05	8.14E - 06	2.45E - 06
	Arsenic		gr/dscf	3.83E - 06	9.03E - 06	6.95E - 06
	Mercury		gr/dscf	2.02E - 06	1.53E - 06	1.77E - 07
	Selenium		gr/dscf	3.83E - 06	4.46E - 06	4.43E - 06
10	EMISSION RATE	E				
	- Total Particulate		lb/hr	9.08	9.13	9.99
	Antimony		lb/hr	0.0080	0.0025	0.0022
	Beryllium		lb/hr	4.63E - 05	3.37E - 04	3.37E - 04
	Cadmium		lb/hr	0.0034	0.0014	0.0015
	Chromium		lb/hr	0.0042	0.0022	0.0007
	Cobalt		lb/hr	1.23E - 04	1.85E - 04	1.92E - 04
	Lead		lb/hr	0.0219	0.0080	0.0059
	Manganese		lb/hr	0.0110	0.0065	0.0033
	Nickel		lb/hr	0.0041	0.0017	0.0005
	Arsenic		lb/hr	0.0010	0.0019	0.0015
	Mercury		lb/hr	5.36E - 04	3.19E - 04	3.85E - 05
	Selenium		lb/hr	0.0010	9.27E - 04	9.62E - 04
11	Isokinetic Rate	I	%	90.5	99.0	95.5

Single Line rectangle surrounding data signifies the Estimated Quantitation Level (EQL) value is used.
Note - Data corrected for blanks

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TEST RESULTS

Wabash Alloys

Auxiliary Heater Exhaust

Dioxins/Furans Emission Evaluation

	DATE: April 6 - 7, 1995	Symbol	Units	Run 1	Run 2	Run 3
	Time of Day			12:18 14:19	17:15 19:39	08:18 11:10
1	Gas Volume - dry,std.	Vmstd	cu. ft	55.80	40.96	45.01
2	Condensate Vapor Vol.	Vwstd	cu. ft.	0.44	0.27	0.44
3	Gas Stream Moisture	Bws	vol.dec	0.0079	0.0065	0.0096
4	Mol.Wt - flue gas (dry)	Msd	lb/lb mo	28.96	28.96	28.98
5	Mol.Wt - flue gas (wet)	Ms	lb/lb mo	28.87	28.89	28.87
6	Flue Gas Velocity	Vs	ft/sec	104.11	91.76	107.80
7	Flue Gas Volume - Actual	Qs	ACFM	44,156	38,919	45,722
8	Flue Gas Volume - Std.	Qs (Std)	DSCFM	31,563	24,443	25,747
9	CONCENTRATION	Cs				
	- 2378 TCDD		gr/dscf	1.16E - 10	3.01E - 11	2.06E - 11
	- 12378 PeCDD		gr/dscf	3.87E - 10	1.13E - 10	1.03E - 10
	- 123478 HxCDD		gr/dscf	4.98E - 10	1.62E - 10	1.65E - 10
	- 123678 HxCDD		gr/dscf	8.30E - 10	3.28E - 10	3.33E - 10
	- 123789 HxCDD		gr/dscf	1.13E - 09	4.14E - 10	4.11E - 10
	- 1234678 HpCDD		gr/dscf	3.57E - 09	1.54E - 09	1.41E - 09
	- 2378 TCDF		gr/dscf	5.25E - 09	8.29E - 10	4.46E - 10
	- 12378 PeCDF		gr/dscf	2.63E - 09	5.65E - 10	3.26E - 10
	- 23478 PeCDF		gr/dscf	4.04E - 09	9.04E - 10	7.54E - 10
	- 123478 HxCDF		gr/dscf	1.05E - 08	2.79E - 09	1.82E - 09
	- 123678 HxCDF		gr/dscf	3.12E - 09	8.67E - 10	6.17E - 10
	- 234678 HxCDF		gr/dscf	4.31E - 09	1.21E - 09	1.13E - 09
	- 123789 HxCDF		gr/dscf	2.21E - 10	6.03E - 11	4.80E - 11
	- 1234678 HpCDF		gr/dscf	1.04E - 08	3.01E - 09	1.95E - 09
	- 1234789 HpCDF		gr/dscf	1.44E - 09	4.14E - 10	3.05E - 10
	- OCDF		gr/dscf	6.53E - 09	1.58E - 09	1.20E - 09
10	EMISSION RATE	E				
	- 2378 TCDD		lb/hr	3.14E - 08	6.31E - 09	4.54E - 09
	- 12378 PeCDD		lb/hr	1.05E - 07	2.37E - 08	2.27E - 08
	- 123478 HxCDD		lb/hr	1.35E - 07	3.39E - 08	3.63E - 08
	- 123678 HxCDD		lb/hr	2.24E - 07	6.87E - 08	7.34E - 08
	- 123789 HxCDD		lb/hr	3.07E - 07	8.68E - 08	9.08E - 08
	- 1234678 HpCDD		lb/hr	9.65E - 07	3.24E - 07	3.10E - 07
	- 2378 TCDF		lb/hr	1.42E - 06	1.74E - 07	9.84E - 08
	- 12378 PeCDF		lb/hr	7.11E - 07	1.18E - 07	7.19E - 08
	- 23478 PeCDF		lb/hr	1.09E - 06	1.89E - 07	1.66E - 07
	- 123478 HxCDF		lb/hr	2.85E - 06	5.84E - 07	4.01E - 07
	- 123678 HxCDF		lb/hr	8.45E - 07	1.82E - 07	1.36E - 07
	- 234678 HxCDF		lb/hr	1.17E - 06	2.53E - 07	2.50E - 07
	- 123789 HxCDF		lb/hr	5.98E - 08	1.26E - 08	1.06E - 08
	- 1234678 HpCDF		lb/hr	2.81E - 06	6.31E - 07	4.31E - 07
	- 1234789 HpCDF		lb/hr	3.89E - 07	8.68E - 08	6.73E - 08
	- OCDF		lb/hr	1.77E - 06	3.32E - 07	2.65E - 07
11	Isokinetic Rate	I	%	103.0	97.6	101.9

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APPENDIX H
SECTION 2 - SAMPLE POINT LOCATION DIAGRAM

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REVERBERATORY FURNACE
PROCESS FLOW DIAGRAM

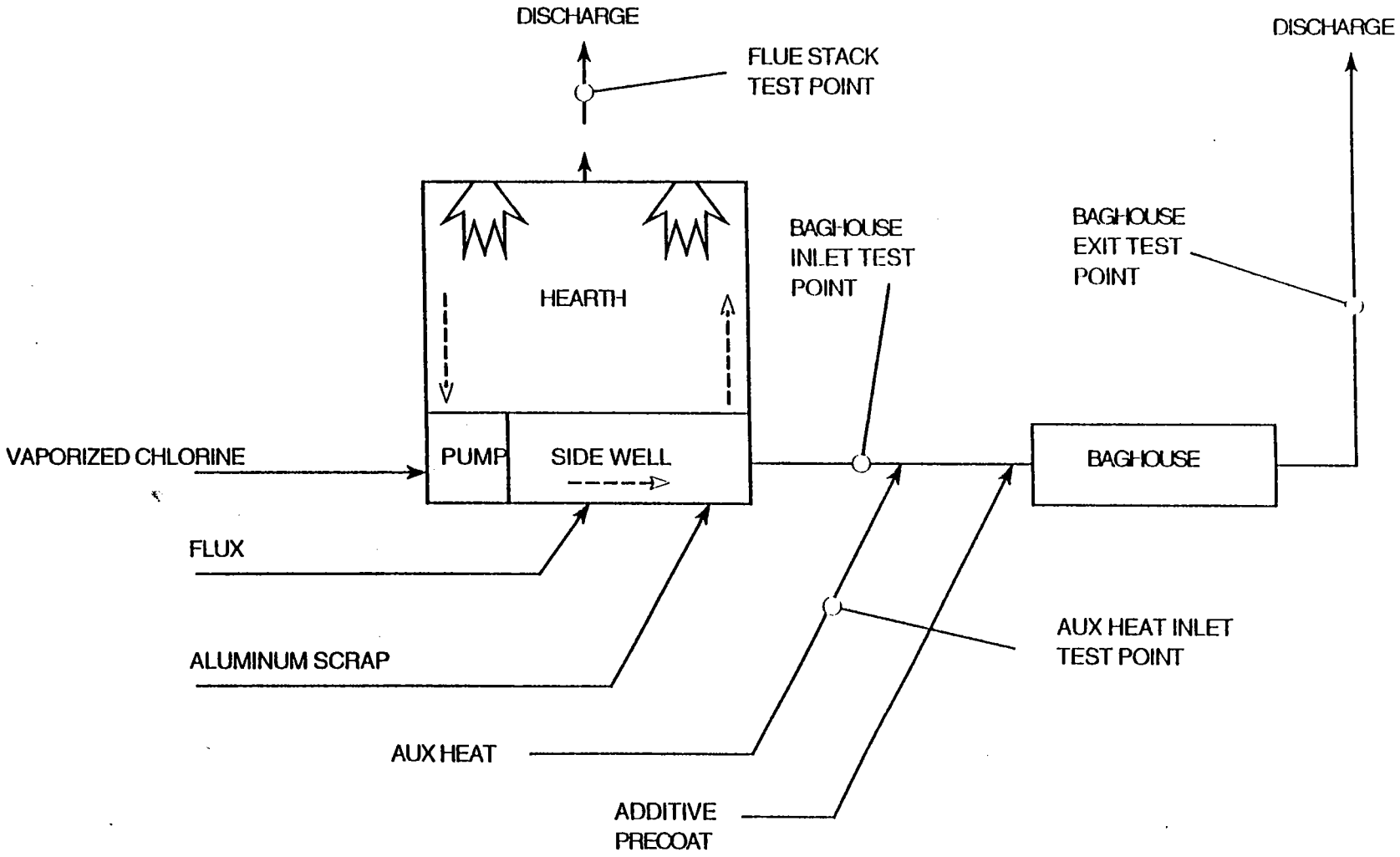
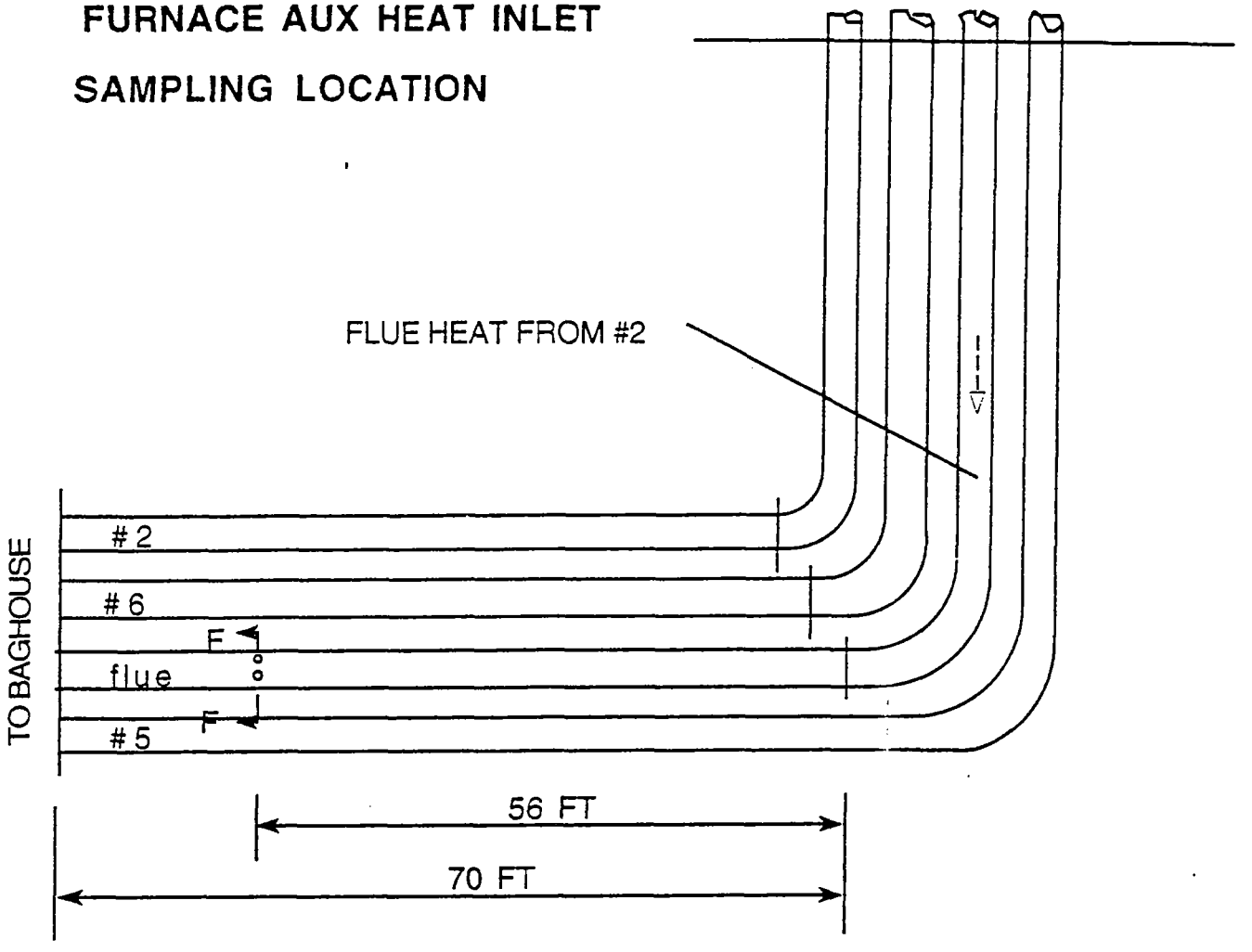
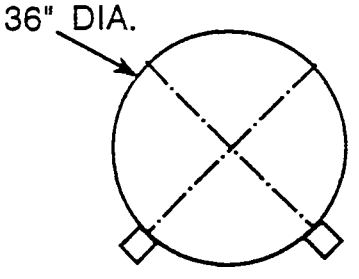


FIGURE 2 - 3

WHL
10/4/94

FURNACE AUX HEAT INLET SAMPLING LOCATION





SECTION F-F

TRAVERSE POINTS

2 AXES
12 POINTS/ AXIS
24 TOTAL POINTS

FIGURE 4-6

APPENDIX H
SECTION 3 - SAMPLING TRAIN DIAGRAM

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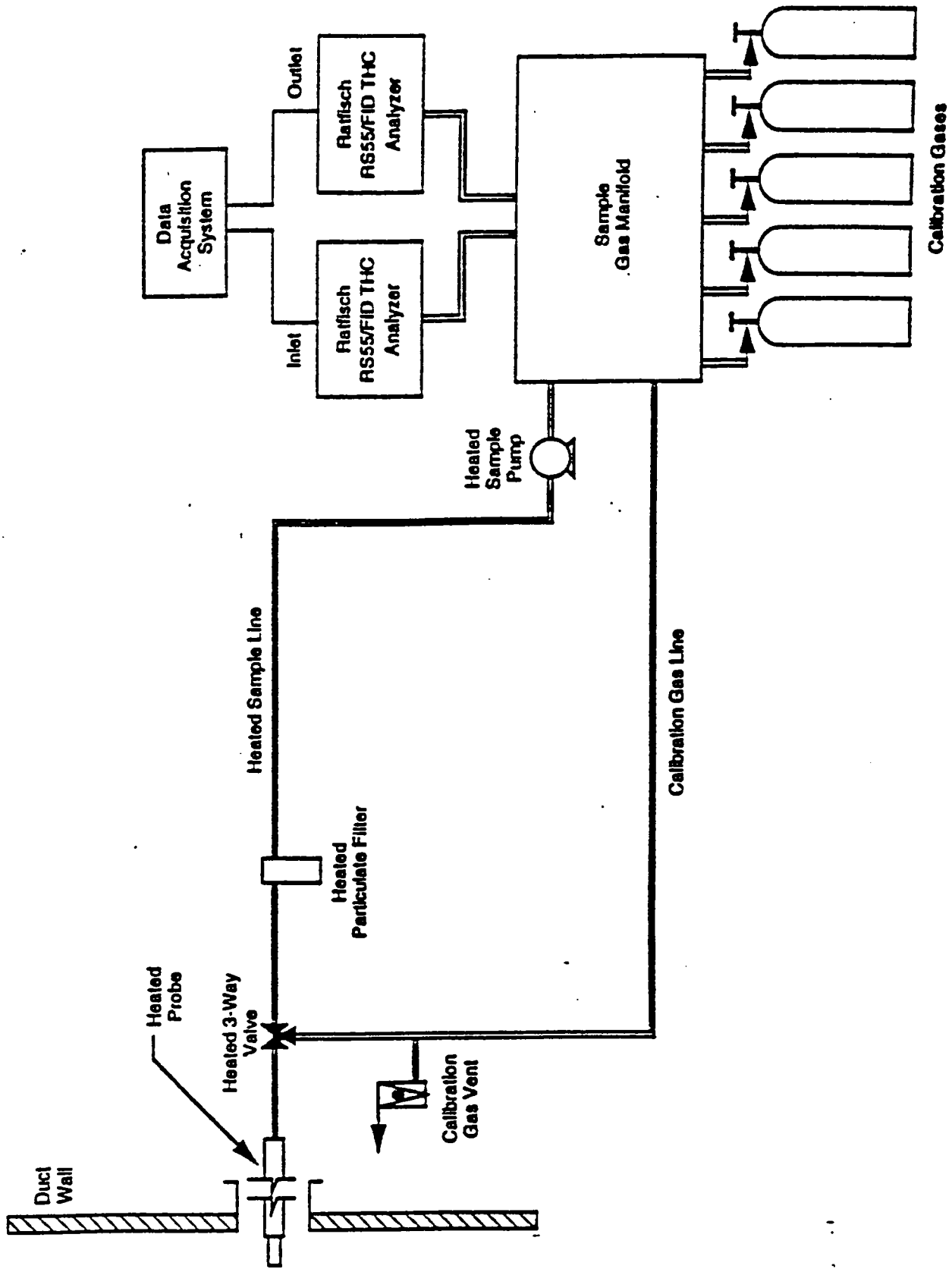

Figure 5-5. Method 25A sampling system.

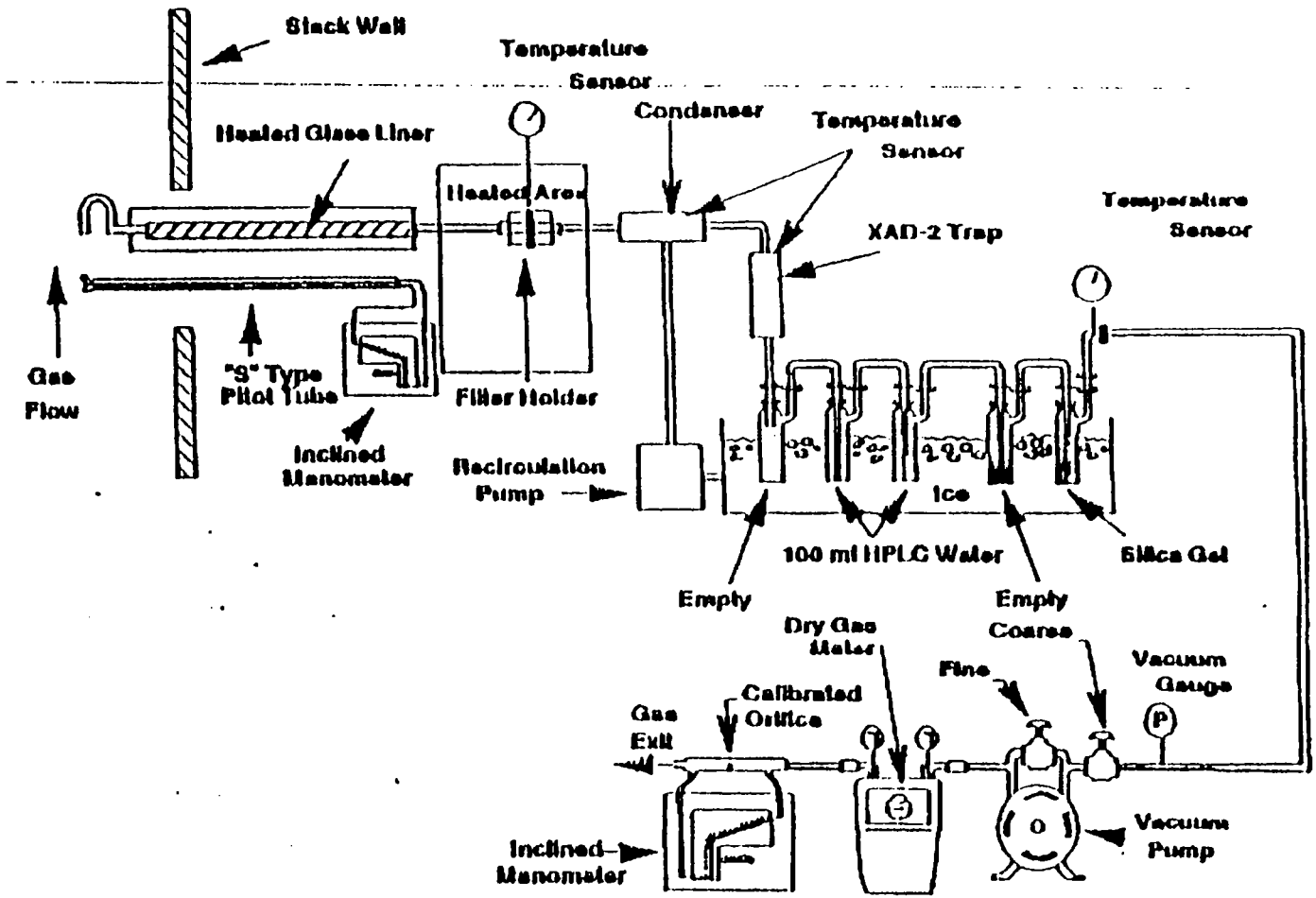

Figure 5-6 Method 23 Sampling Train

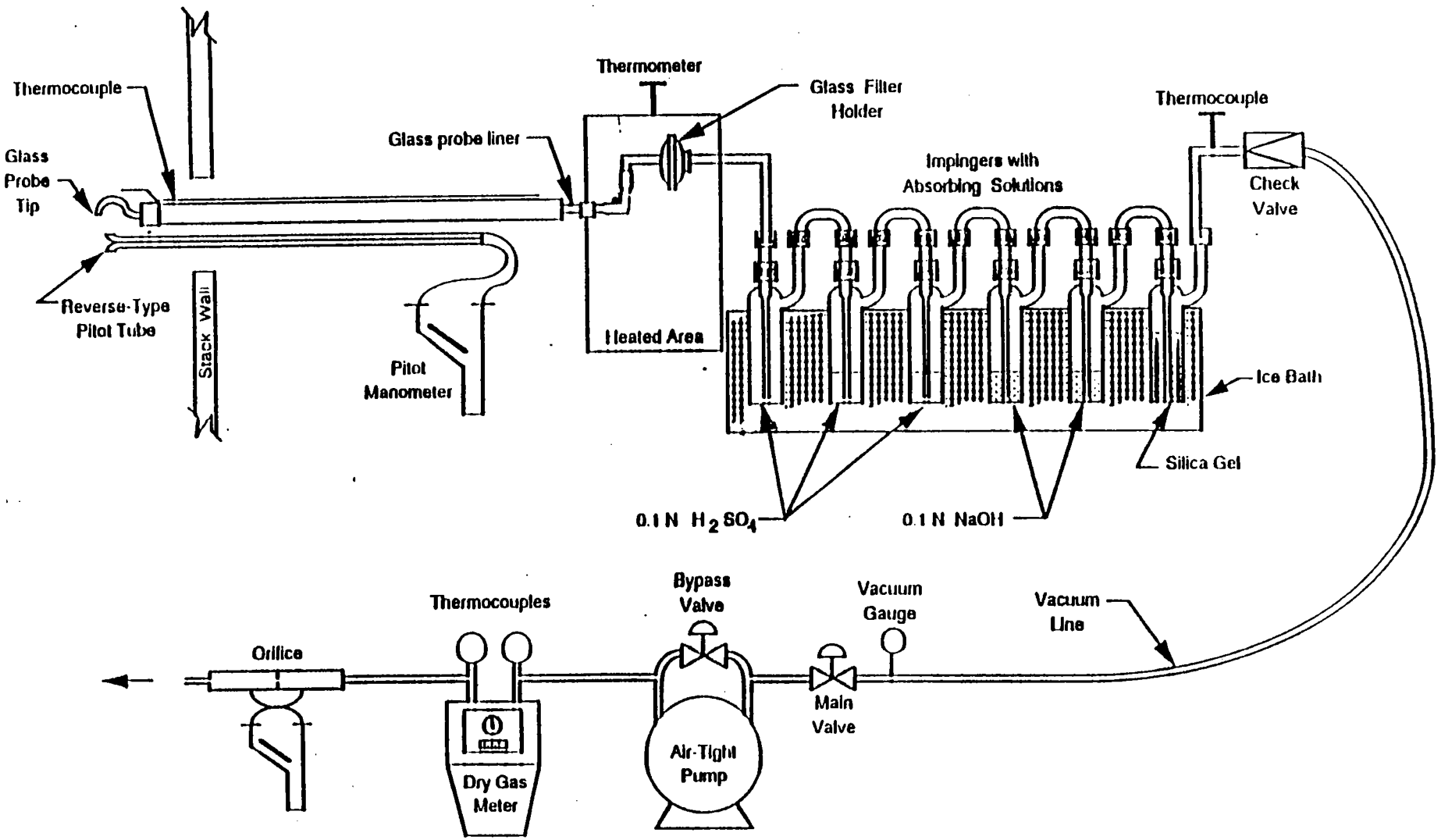

Figure 5-1. Method 26A sampling train.

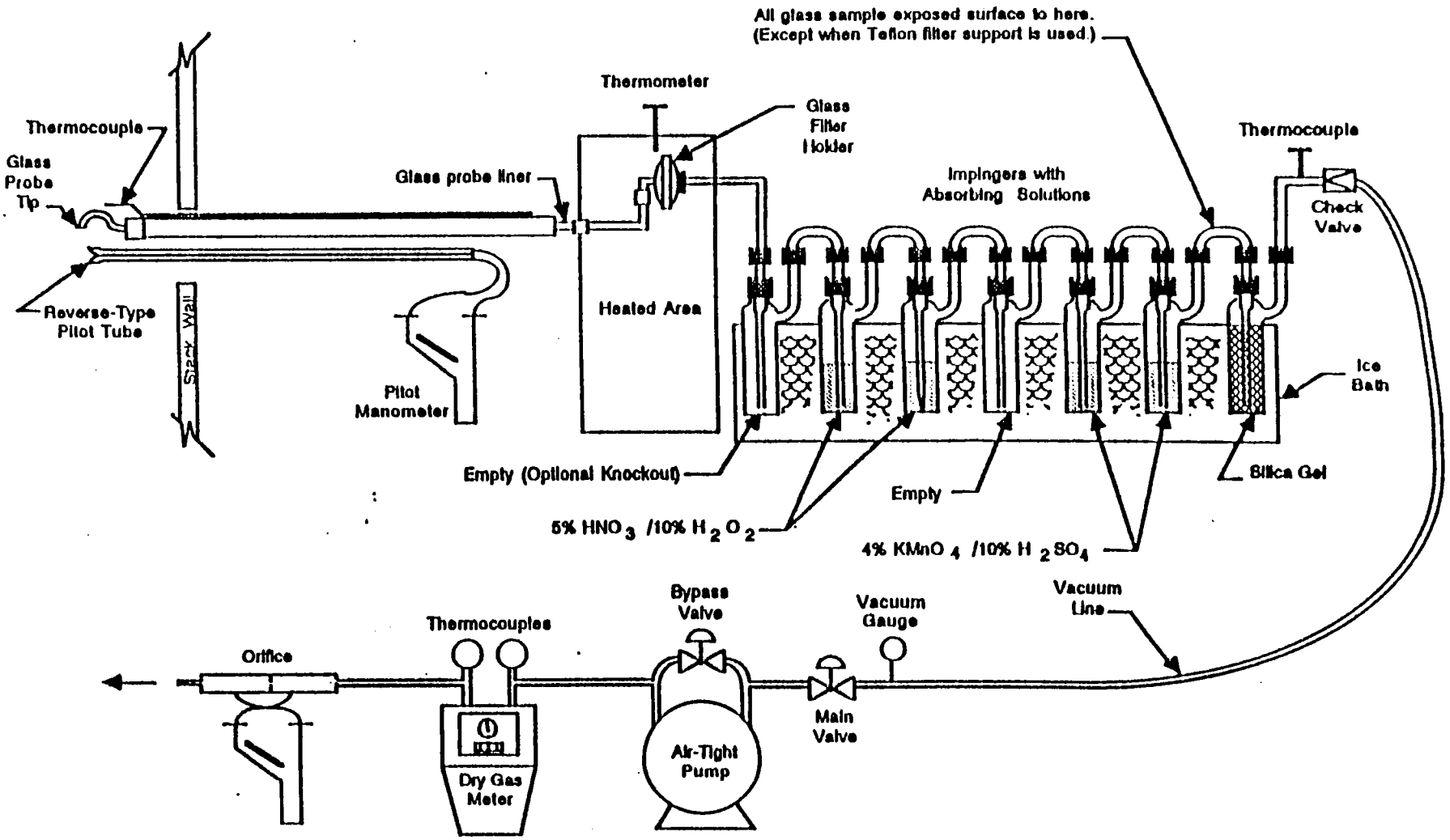

Figure 5-3. Method 29 sampling train.

APPENDIX H
SECTION 4 - LABORATORY SECTION

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LABORATORY – FIELD DATA SUMMARY SHEET

Wabash Alloys

Auxiliary Heater Exhaust

Hydrochloric Acid, Chlorine, Hydrogen Fluoride and Volatile Organic Compounds Emission Evaluation

	DATE: April 6 – 7, 1995	Symbol	Units	Run 1	Run 2	Run 3
1	Sampling Time	t	minutes	120.0	120.0	120.0
2	Barometric Pressure	Pb	in. Hg	29.89	29.89	29.40
3	Static Pressure	Pg	in. H2O	-6.00	-6.00	-6.00
	Stack Pressure	Ps	in Hg	29.45	29.45	28.96
4	Gas Meter Volume	Vm	cu. ft	49.81	41.25	44.68
5	Stack Area	A	sq. ft	7.07	7.07	7.07
6	Nozzle Diameter	Dn	dec. in	0.136	0.136	0.136
7	"Y" Factor			0.99	0.99	0.99
8	Meter Temperature	Tm	degrees F	76.6	92.8	75.7
			degrees R	536.6	552.8	535.7
9	Stack Temperature	Ts	degrees F	261.0	365.9	437.2
			degrees R	721.0	825.9	897.2
10	Velocity Head (SQRT)	^P	in H2O	1.540	1.300	1.420
11	Orifice Pressure	^H	in. H2O	0.464	0.287	0.347
12	Carbon dioxide	CO2	%	1.3	1.4	1.5
13	Oxygen	O2	%	18.7	18.6	18.5
14	Carbon monoxide	CO	%	0.0	0.0	0.0
15	Nitrogen	N2	%	80.0	80.0	80.0
16	Pitot Coefficient	Cp		0.84	0.84	0.84
17	Water Collected	Vlc	ml	22.7	44.7	24.0
18	Sample Weight:	Mn				
	- HCl		mg	17.0	13.0	70.0
	- Cl		mg	0.08	0.08	1.46
	- HF		mg	13.0	13.0	13.0
	- VOC's as propane		PPM	27.4	3.2	136.0

Single Line rectangle surrounding data signifies the Estimated Quantitation Level (EQL) value is used.

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LABORATORY – FIELD DATA SUMMARY SHEET

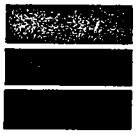
Wabash Alloys

Auxiliary Heater Exhaust

Particulate and Metals Emission Evaluation

	DATE: April 6 – 7, 1995	Symbol	Units	Run 1	Run 2	Run 3
1	Sampling Time	t	minutes	120.0	120.0	120.0
2	Barometric Pressure	Pb	in. Hg	29.89	29.89	29.40
3	Static Pressure	Pg	in H2O	-6.00	-6.00	-6.00
	Stack Pressure	Ps	in Hg	29.45	29.45	28.96
4	Gas Meter Volume	Vm	cu. ft.	52.41	45.46	45.23
5	Stack Area	A	sq. ft	7.07	7.07	7.07
6	Nozzle Diameter	Dn	dec in	0.139	0.139	0.139
7	"Y" Factor			0.994	0.994	0.994
8	Meter Temperature	Tm	degrees F	89.5	95.0	79.8
			degrees R	549.5	555.0	539.8
9	Stack Temperature	Ts	degrees F	263.1	364.9	438.3
			degrees R	723.1	824.9	898.3
10	Velocity Head (SQRT)	^P	in H2O	1.550	1.290	1.419
11	Orifice Pressure	^H	in. H2O	0.480	0.291	0.356
12	Carbon dioxide	CO2	%	1.3	1.4	1.5
13	Oxygen	O2	%	18.7	18.6	18.5
14	Carbon monoxide	CO	%	0.0	0.0	0.0
15	Nitrogen	N2	%	80.0	80.0	80.0
16	Pitot Coefficient	Cp		0.84	0.84	0.84
17	Water Collected	Vlc	ml	13.1	4.0	4.8
18	Sample Weight:	Mn				
	– Probe		g	0.0104	0.0208	0.0206
	– Filter		g	0.1014	0.1022	0.1092
	Antimony		ug	99.0	34.0	28.0
	Beryllium		ug	0.6	4.5	4.4
	Cadmium		ug	42.4	19.5	20.0
	Chromium		ug	51.1	29.3	8.5
	Cobalt		ug	1.5	2.5	2.5
	Lead		ug	269.3	108.3	76.8
	Manganese		ug	135.5	87.5	43.3
	Nickel		ug	50.9	22.8	6.9
	Arsenic		ug	12.5	25.3	19.6
	Mercury		ug	6.6	4.3	0.5
	Selenium		ug	12.5	12.5	12.5

Single Line rectangle surrounding data signifies the Estimated Quantitation Level (EQL) value is used.
Note – Data corrected for blanks



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LABORATORY – FIELD DATA SUMMARY SHEET

Wabash Alloys

Auxiliary Heater Exhaust

Dioxins/Furans Emission Evaluation

	DATE April 6 - 7, 1995	Symbol	Units	Run 1	Run 2	Run 3
1	Sampling Time	t	minutes	120.0	120.0	120.0
2	Barometric Pressure	Pb	in. Hg	29.89	29.89	29.40
3	Static Pressure	Pg	in. H2O	- 6.00	- 6.00	- 6.00
	Stack Pressure	Ps	in. Hg	29.45	29.45	28.96
4	Gas Meter Volume	Vm	cu. ft	58.36	42.97	47.59
5	Stack Area	A	sq. ft	7.07	7.07	7.07
6	Nozzle Diameter	Dn	decimal	0.136	0.136	0.136
7	"Y" Factor			0.998	0.998	0.998
8	Meter Temperature	Tm	degrees F	92.5	93.9	89.2
			degrees R	552.5	553.9	549.2
9	Stack Temperature	Ts	degrees F	261.3	362.1	438.8
			degrees R	721.3	822.1	898.8
10	Velocity Head (SQRT)	^P	in. H2O	1.574	1.300	1.448
11	Orifice Pressure	^H	in. H2O	0.606	0.338	0.422
12	Carbon dioxide	CO2	%	1.3	1.4	1.5
13	Oxygen	O2	%	18.7	18.6	18.5
14	Carbon monoxide	CO	%	0.0	0.0	0.0
15	Nitrogen	N2	%	80.0	80.0	80.0
16	Pitot Coefficient	Cp		0.84	0.84	0.84
17	Water Collected	Vlc	ml	9.4	5.7	9.3
18	Dioxins	Mn				
	- 2378 TCDD		ng	0.42	0.08	0.06
	- 12378 PeCDD		ng	1.4	0.30	0.30
	- 123478 HxCDD		ng	1.8	0.43	0.48
	- 123678 HxCDD		ng	3.0	0.87	0.97
	- 123789 HxCDD		ng	4.1	1.1	1.2
	- 1234678 HpCDD		ng	12.9	4.1	4.1
	- 2378 TCDF		ng	19.0	2.2	1.3
	- 12378 PeCDF		ng	9.5	1.5	0.95
	- 23478 PeCDF		ng	14.6	2.4	2.2
	- 123478 HxCDF		ng	38.1	7.4	5.3
	- 123678 HxCDF		ng	11.3	2.3	1.8
	- 234678 HxCDF		ng	15.6	3.2	3.3
	- 123789 HxCDF		ng	0.80	0.16	0.14
	- 1234678 HpCDF		ng	37.6	8.0	5.7
	- 1234789 HpCDF		ng	5.2	1.1	0.89
	- OCDF		ng	23.6	4.2	3.5

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ORSAT ANALYSIS WORK SHEET

DATE: 4-6-95 & 4-7-95

LOCATION: AUX HT INLET

OPERATOR: BRZYGOT

RUN # _____

	1		2		3		
	ACTUAL	NET	ACTUAL	NET	ACTUAL	NET	AVERAGE
CO_2		1.3		1.3		1.3	1.3
O_2	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%
CO							

RUN # _____

	1		2		3		
	ACTUAL	NET	ACTUAL	NET	ACTUAL	NET	AVERAGE
CO_2		1.4		1.4		1.3	1.37
O_2	18.6%	18.6%	18.6%	18.6%	18.6%	18.6%	18.6%
CO							

RUN # _____

	1		2		3		
	ACTUAL	NET	ACTUAL	NET	ACTUAL	NET	AVERAGE
CO_2		1.5		1.5		1.5	1.5
O_2	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%
CO							

COMMENTS: _____

FE-3-92

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Phone (216) 523-0990

Sample Date 10/5/10

Client Name WABASH ALLOYS

Facility Name

Location AUX HT IN

Tare Weights SB

Sample Turnaround SB

Final Weights SB

USEPA Reference Method 26

Run #	1		2		3		Field Blanks
Case #							4th case
Moisture Collected	H_2SO_4	NaOH	H_2SO_4	NaOH	H_2SO_4	NaOH	
Impinger #'s	1-2	3	1-2	3	1-2	3	
Final vol	215 ml	100 ml	228 ml	108 ml	215	100 ml	
- Initial vol	200 ml	100 ml	200 ml	100 ml	200 ml	100 ml	
Net vol	15 ml	0 ml	28 ml	8 ml	15 ml	0 ml	
Silica Gel							
Impinger #	4		4		4		
Final wt	237.9 g		338.9 g		239.2 g		
- Initial wt	230.2 g		230.2 g		230.2 g		
Net wt	7.7 g		8.7 g		9.0 g		
Particulate							
Probe Wash	Beaker #		#		#		#
NONE	volume, ml						
	Final wt						
	- Initial wt						
	Net wt						
Filter #	#		#		#		#
NONE KEPT	Final wt						
	- Initial wt						
	Net wt						
Impingers	Beaker #		#		#		#
	Final wt						
	- Initial wt						
	Net wt						

Sample Date

Client Name: WABASH ALLOYS

Facility Name

Location: AUX HT IN

Tare Weights — Initials: ~~SB~~

Sample Turnaround: SB

Final Weights: SB

USEPA Reference Method # 29

Run #	1		2		3		Field Blanks
Case #							4th case
Moisture Collected	HNO_3 / H_2O_2	$KMnO_4$ / H_2SO_4	HNO_3 / H_2O_2	$KMnO_4$ / H_2SO_4	HNO_3 / H_2O_2	$KMnO_4$ / H_2SO_4	
Impinger #'s	1-2	3-4	1-2	3-4	1-2	3-4	
Final vol	208 ml	200 ml	200 ml	200 ml	210 ml	190 ml	
- Initial vol	200 ml	200 ml	200 ml	200 ml	200 ml	200 ml	
Net vol	8 ml	0 ml	0 ml	0 ml	10 ml	-10 ml	
Silica Gel							
Impinger #	5		5		5		
Final wt	235.3 g		234.2 g		235.0 g		
- Initial wt	230.2 g		230.2 g		230.2 g		
Net wt	5.1 g		4.0 g		4.8 g		
Particulate	ACETONE		ACETONE		ACETONE		
Probe Wash — Beaker #	#		#		#		#
volume, ml	65 ml		70 ml		50 ml		
Final wt	100.3402 g		101.4505 g		97.4777 g		
- Initial wt	100.3298 g		101.4297 g		97.4571 g		
Net wt	.0104 g		.0208 g		.0206 g		
Filter #	# 468		# 986		# 992		#
Final wt	.6996 g		1.4376 g		1.4409 g		
- Initial wt	.5982 g		1.3354 g		1.3317 g		
Net wt	.1014 g		.1022 g		.1092 g		
Impingers — Beaker #	#		#		#		#
Final wt							
- Initial wt							
Net wt							

Sample Date 7-6-95 & 7-7-95

Client Name WABASH ALLOYS

Facility Name

Location AUX HT IN

Tare Weights SB

Sample Turnaround SB

Final Weights SB

USEPA Reference Method # 23

Run #	1	2	3	Field Blanks
Case #				4th case
Moisture Collected				
Impinger #'s	1-3	1-3	1-3	
Final vol	205 ml	202 ml	205 ml	
- Initial vol	200 ml	200 ml	200 ml	
Net vol	5 ml	2 ml	5 ml	
Silica Gel				
Impinger #	4	4	4	
Final wt	234.6 g	233.9 g	234.5 g	
- Initial wt	230.2 g	230.2 g	230.2 g	
Net wt	4.4 g	3.7 g	4.3 g	
Particulate				
Probe Wash	ACETONE/ METH. CHL. / TOLUENE	ACETONE/ METH. CHL. / TOLUENE	ACETONE/ METH. CHL. / TOLUENE	
Beaker #	# / #	# / #	# / #	# / #
volume, ml	40 ml / 20 ml	100 ml / 30 ml	[redacted] ml / [redacted] ml	
			40 ml / 50 ml	
Final wt				
- Initial wt				
Net wt				
Filter #	# [redacted]16	# 21	# 24	#
Final wt				
- Initial wt				
Net wt				
Impingers Beaker #	#	#	#	#
Final wt				
- Initial wt				
Net wt				

AUX HEATER Run 1		Result	EQL	Blank	Corrected
DAY 3 4/6/95	Antimony	99	25	EQL	99
	Beryllium	0.57	0.5	EQL	0.57
	Cadmium	42.4	1.25	EQL	42.4
	Chromium	83.6	2.5	32.5	51.1
	Cobalt	4.21	2.5	2.7	1.51
	Lead	277	12.5	7.75	269.25
	Manganese	162	1.25	26.5	135.5
	Nickel	58.2	5	7.3	50.9
	Arsenic	EQL	12.5	EQL	12.5
	Mercury	6.6	0.5	EQL	6.6
	Selenium	EQL	12.5	EQL	12.5

AUX HEATER Run 1		Result	EQL	Blank	Corrected
DAY 3 4/6/95	Antimony	34	25	EQL	34
	Beryllium	4.54	0.5	EQL	4.54
	Cadmium	19.5	1.25	EQL	19.5
	Chromium	61.8	2.5	32.5	29.3
	Cobalt	EQL	2.5	2.7	2.5
	Lead	116	12.5	7.75	108.25
	Manganese	114	1.25	26.5	87.5
	Nickel	30.1	5	7.3	22.8
	Arsenic	25.3	12.5	EQL	25.3
	Mercury	4.3	0.5	EQL	4.3
	Selenium	EQL	12.5	EQL	12.5

AUX HEATER Run 1		Result	EQL	Blank	Corrected
DAY 4 4/7/95	Antimony	28	25	EQL	28
	Beryllium	4.38	0.5	EQL	4.38
	Cadmium	20	1.25	EQL	20
	Chromium	42.1	2.5	33.6	8.5
	Cobalt	EQL	2.5	2.6	2.5
	Lead	85.4	12.5	8.65	76.75
	Manganese	78.7	1.25	35.4	43.3
	Nickel	14.8	5	7.9	6.9
	Arsenic	19.6	12.5	EQL	19.6
	Mercury	EQL	0.5	EQL	0.5
	Selenium	EQL	12.5	EQL	12.5

Single line rectangle surrounding data signifies the Estimated Quantitation Level (EQL) value is used.

Double line rectangle surroungding data signifies Estimated Quantitation Level (EQL) value was used due to blank subtraction from data result indicating a negative number.

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

ROSS Ross Analytical Services, Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Envisage Environmental, Inc.
P.O. Box 152
Richfield, OH 44286

Attn: Frank Hezoucky

Work Order #: 95-04-194
Client Code: ENVISAGE
Report Date: 05/16/95
Work ID: Samples for HCl,Cl2,HF, and F
Date Received: 04/18/95

Purchase Order: 1118

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	H2SO4, AB Exit 1, Run # 1	02	H2SO4, AB Exit 1, Run # 2
03	H2SO4, AB Exit 1, Run # 3	04	H2SO4, AB Exit 2, Run # 1
05	H2SO4, AB Exit 2, Run # 2	06	H2SO4, AB Exit 2, Run # 3
07	H2SO4, BH Inlet(4/5),Run 1	08	H2SO4, BH Inlet(4/5),Run 2
09	H2SO4, BH Inlet(4/5),Run 3	10	H2SO4, BH Exit (4/5),Run 1
11	H2SO4, BH Exit (4/5),Run 2	12	H2SO4, BH Exit (4/5),Run 3
13	H2SO4, FLUE, Run # 1	14	H2SO4, FLUE, Run # 2
15	H2SO4, FLUE, Run # 3	16	H2SO4, AUX HT IN, Run # 1
17	H2SO4, AUX HT IN, Run # 2	18	H2SO4, AUX HT IN, Run # 3
19	H2SO4, BH inlet(4/6) Run 1	20	H2SO4, BH inlet(4/6) Run 2
21	H2SO4, BH inlet(4/7) Run 3	22	H2SO4, BH Exit (4/6) Run 1
23	H2SO4, BH Exit (4/6) Run 2	24	H2SO4, BH Exit (4/7) Run 3
25	NaOH, FLUE, Run 1	26	NaOH, FLUE, Run 2
27	NaOH, FLUE, Run 3	28	NaOH, Aux HT IN, Run 1
29	NaOH, Aux HT IN, Run 2	30	NaOH, Aux HT IN, Run 3
31	NaOH, BH Inlet, Run 1	32	NaOH, BH Inlet, Run 2
33	NaOH, BH Inlet, Run 3	34	NaOH, BH Exit, Run 1
35	NaOH, BH Exit, Run 2	36	NaOH, BH Exit, Run 3

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Amy E. Nasr

Certificate approved by
Amy E. Nasr

TEST METHODOLOGIES

Chlorine was determined as chloride by ion chromatography as in EPA Method 26. The result reported is the mean of duplicate analyses.

Hydrogen chloride was determined as chloride by ion chromatography as in EPA Method 26.

Hydrogen fluoride was determined as fluoride by ion chromatography as in EPA Method 26.

Work Order # 95-04-194 Ross Analytical Services, Inc Reported: 05/16/95

Sample volume Method(s):

Lab No.	Sample Description	Result	Units	EQL
01A	H2SO4, AB Exit 1, Run # 1	174	Total mL	5
02A	H2SO4, AB Exit 1, Run # 2	230	Total mL	5
03A	H2SO4, AB Exit 1, Run # 3	244	Total mL	5
04A	H2SO4, AB Exit 2, Run # 1	268	Total mL	5
05A	H2SO4, AB Exit 2, Run # 2	283	Total mL	5
06A	H2SO4, AB Exit 2, Run # 3	286	Total mL	5
07A	H2SO4, BH Inlet(4/5),Run 1	202	Total mL	5
08A	H2SO4, BH Inlet(4/5),Run 2	210	Total mL	5
09A	H2SO4, BH Inlet(4/5),Run 3	224	Total mL	5
10A	H2SO4, BH Exit (4/5),Run 1	212	Total mL	5
11A	H2SO4, BH Exit (4/5),Run 2	206	Total mL	5
12A	H2SO4, BH Exit (4/5),Run 3	207	Total mL	5
13A	H2SO4, FLUE, Run # 1	210	Total mL	5
14A	H2SO4, FLUE, Run # 2	185	Total mL	5
15A	H2SO4, FLUE, Run # 3	240	Total mL	5
16A	H2SO4, AUX HT IN, Run # 1	215	Total mL	5
17A	H2SO4, AUX HT IN, Run # 2	230	Total mL	5
18A	H2SO4, AUX HT IN, Run # 3	215	Total mL	5
19A	H2SO4, BH inlet(4/6) Run 1	210	Total mL	5
20A	H2SO4, BH inlet(4/6) Run 2	200	Total mL	5
21A	H2SO4, BH inlet(4/7) Run 3	205	Total mL	5
22A	H2SO4, BH Exit (4/6) Run 1	200	Total mL	5
23A	H2SO4, BH Exit (4/6) Run 2	170	Total mL	5
24A	H2SO4, BH Exit (4/7) Run 3	205	Total mL	5
25A	NaOH, FLUE, Run 1	100	Total mL	5
26A	NaOH, FLUE, Run 2	97	Total mL	5
27A	NaOH, FLUE, Run 3	112	Total mL	5
28A	NaOH, Aux HT IN, Run 1	104	Total mL	5
29A	NaOH, Aux HT IN, Run 2	104	Total mL	5
30A	NaOH, Aux HT IN, Run 3	102	Total mL	5
31A	NaOH, BH Inlet, Run 1	104	Total mL	5
32A	NaOH, BH Inlet, Run 2	100	Total mL	5
33A	NaOH, BH Inlet, Run 3	102	Total mL	5
34A	NaOH, BH Exit, Run 1	106	Total mL	5
35A	NaOH, BH Exit, Run 2	102	Total mL	5
36A	NaOH, BH Exit, Run 3	104	Total mL	5

HF by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
13A	H2SO4, FLUE, Run # 1	<EQL	Total mg HF	13
14A	H2SO4, FLUE, Run # 2	<EQL	Total mg HF	13
15A	H2SO4, FLUE, Run # 3	<EQL	Total mg HF	13
16A	H2SO4, AUX HT IN, Run # 1	<EQL	Total mg HF	13
17A	H2SO4, AUX HT IN, Run # 2	<EQL	Total mg HF	13
18A	H2SO4, AUX HT IN, Run # 3	<EQL	Total mg HF	13
19A	H2SO4, BH inlet(4/6) Run 1	<EQL	Total mg HF	13
20A	H2SO4, BH inlet(4/6) Run 2	<EQL	Total mg HF	13
21A	H2SO4, BH inlet(4/7) Run 3	<EQL	Total mg HF	13
22A	H2SO4, BH Exit (4/6) Run 1	<EQL	Total mg HF	13
23A	H2SO4, BH Exit (4/6) Run 2	<EQL	Total mg HF	13
24A	H2SO4, BH Exit (4/7) Run 3	<EQL	Total mg HF	13

HCl by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
01A	H2SO4, AB Exit 1, Run # 1	<EQL	Total mg HCl	1.3
02A	H2SO4, AB Exit 1, Run # 2	73.1	Total mg HCl	1.3
03A	H2SO4, AB Exit 1, Run # 3	106	Total mg HCl	1.3
04A	H2SO4, AB Exit 2, Run # 1	214	Total mg HCl	1.3
05A	H2SO4, AB Exit 2, Run # 2	438	Total mg HCl	1.3
06A	H2SO4, AB Exit 2, Run # 3	350	Total mg HCl	1.3
07A	H2SO4, BH Inlet(4/5),Run 1	<EQL	Total mg HCl	1.3
08A	H2SO4, BH Inlet(4/5),Run 2	22.9	Total mg HCl	1.3
09A	H2SO4, BH Inlet(4/5),Run 3	12.0	Total mg HCl	1.3
10A	H2SO4, BH Exit (4/5),Run 1	42.4	Total mg HCl	1.3
11A	H2SO4, BH Exit (4/5),Run 2	113	Total mg HCl	1.3
12A	H2SO4, BH Exit (4/5),Run 3	86.0	Total mg HCl	1.3
13A	H2SO4, FLUE, Run # 1	<EQL	Total mg HCl	13
14A	H2SO4, FLUE, Run # 2	<EQL	Total mg HCl	13
15A	H2SO4, FLUE, Run # 3	226	Total mg HCl	13
16A	H2SO4, AUX HT IN, Run # 1	17	Total mg HCl	13
17A	H2SO4, AUX HT IN, Run # 2	<EQL	Total mg HCl	13
18A	H2SO4, AUX HT IN, Run # 3	70	Total mg HCl	13
19A	H2SO4, BH inlet(4/6) Run 1	108	Total mg HCl	13
20A	H2SO4, BH inlet(4/6) Run 2	<EQL	Total mg HCl	13
21A	H2SO4, BH inlet(4/7) Run 3	20	Total mg HCl	13
22A	H2SO4, BH Exit (4/6) Run 1	76	Total mg HCl	13
23A	H2SO4, BH Exit (4/6) Run 2	41	Total mg HCl	13
24A	H2SO4, BH Exit (4/7) Run 3	38	Total mg HCl	13

Work Order # 95-04-194 Ross Analytical Services, Inc Reported: 05/16/95

CL2 by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
25A	NaOH, FLUE, Run 1	<EQL	Total mg Cl2	0.08
26A	NaOH, FLUE, Run 2	<EQL	Total mg Cl2	0.08
27A	NaOH, FLUE, Run 3	<EQL	Total mg Cl2	0.08
28A	NaOH, Aux HT IN, Run 1	0.08	Total mg Cl2	0.08
29A	NaOH, Aux HT IN, Run 2	<EQL	Total mg Cl2	0.08
30A	NaOH, Aux HT IN, Run 3	1.46	Total mg Cl2	0.08
31A	NaOH, BH Inlet, Run 1	0.79	Total mg Cl2	0.08
32A	NaOH, BH Inlet, Run 2	<EQL	Total mg Cl2	0.08
33A	NaOH, BH Inlet, Run 3	<EQL	Total mg Cl2	0.08
34A	NaOH, BH Exit, Run 1	0.29	Total mg Cl2	0.08
35A	NaOH, BH Exit, Run 2	0.11	Total mg Cl2	0.08
36A	NaOH, BH Exit, Run 3	0.21	Total mg Cl2	0.08

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

REPORT RESULTS TO: Frank Hrezovky

EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1

SAMPLES DELIVERED TO:

NUMBER OF SAMPLES:

TYPE OF SAMPLES:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
① H_2SO_4 .1N RUN #1 4-4-95 ABEXIT1	170 ml	HCL	
② H_2SO_4 .1N RUN#2 4-4-95 ABEXIT1	225 ml		
③ H_2SO_4 .1N RUN #3 4-4-95 ABEXIT1	240 ml	ANALYZE ①-⑫ for HCL Method 26	
④ H_2SO_4 .1N RUN#1 4-5-95 ABEXIT2	265 ml		
⑤ H_2SO_4 .1N RUN#2 4-5-95 ABEXIT2	280 ml	⑬-㉔ HCl HF method 26	
⑥ H_2SO_4 .1N RUN#3 4-5-95 ABEXIT2	286 ml		
⑦ H_2SO_4 .1N RUN#1 4-5-95 BHINLET	190 ml	㉕-㉜ Cl_2 Method 26.	Need to add Sodium thiosulfate to NaOH impingers.
⑧ H_2SO_4 .1N RUN#2 4-5-95 BHINLET	210 ml		
⑨ H_2SO_4 .1N RUN#3 4-5-95 BHINLET	225 ml		

		Date	Time
Samples Relinquished by Sampler (Signature) [signature] 4-11-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/18/95	12p
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 Working days
date

FAX: (216) 526-8555

[signature]
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL
ADDRESS:
EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1
NUMBER OF SAMPLES: TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezoucky
SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
(10) 1N H_2SO_4 RUN#1 4-5-95 BHEXIT	200 ml	HCL	
(11) 1N H_2SO_4 RUN#2 4-5-95 BHEXIT	208 ml	(10)-(12) METHOD 26 HCl	
(12) 1N H_2SO_4 RUN#3 4-5-95 BHEXIT	220 ml		
1N H_2SO_4 (13) 4-6-95 FLUE RUN 1	210 ml	These last 12 (13-24) get analyzed for ~~H_2~~, (HF) also	
(14) 4-6-95 FLUE RUN 2	185 ml		
(15) 4-7-95 FLUE RUN 3	240 ml	4/18 amp.	
(16) 4-6-95 AUX HT IN RUN 1	215 ml		
(17) 4-6-95 AUX HT IN RUN 2	228 ml		
(18) 4-7-95 AUX HT IN RUN 3	215 ml		
(19) 4-6-95 BH INLET RUN 1	208 ml		
(20) 4-6-95 BH INLET " 2	200 ml		
(21) 4-7-95 BH INLET " 3	207 ml		
(22) 4-6-95 BH EXIT " 1	200 ml		
(23) 4-6-95 BH EXIT " 2	170 ml		
(24) 4-7-95 BH EXIT " 3	204 ml		

		Date	Time
Samples Relinquished by Sampler (Signature)	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Schnelle	4/18/95	12p
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 working days
date
FAX: (216) 526-8555
SB
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL
ADDRESS:
EEI JOB NUMBER: 95-1253 EEI SECTION ID: 1
NUMBER OF SAMPLES: TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezdecky
SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
1N NaOH		[redacted] Cl_2 ~~HF~~ 4/18/95 amp. Cl_2, F Method 26	need to Add Sodium Thiosulfate to the NaOH impingers amp 4/18/95
25 4-6-95 FLUE RUN #1	100 ml		
26 4-6-95 FLUE RUN #2	100 ml		
27 4-6-95 FLUE RUN #3	111 ml		
28 4-6-95 AUX HT IN RUN 1	100 ml		
29 4-6-95 AUX HT IN RUN 2	108 ml		
30 4-7-95 AUX HT IN RUN 3	100 ml		
31 4-6-95 BH INLET RUN 1	100 ml		
32 4-6-95 BH INLET RUN 2	100 ml		
33 4-6-95 BH INLET RUN 3	104 ml		
34 4-6-95 BH EXIT RUN 1	106 ml		
35 4-6-95 BH EXIT RUN 2	105 ml		
36 4-6-95 BH EXIT RUN 3	100 ml		

		Date	Time
Samples Relinquished by Sampler (Signature) SD Bagdat 4-11-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/18/95	12p
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)	Date	Time

NOTES:

I request that results be submitted by:
10 working days
date
FAX: (216) 526-8555
SR
Initial for approval

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16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Envisage Environmental, Inc.
P.O. Box 152
Richfield, OH 44286

Attn: Frank Hezoucky

Work Order #: 95-04-224
Client Code: ENVISAGE
Report Date: 05/16/95
Work ID: Samples for Cl2,HCl, and HF
Date Received: 04/20/95

Purchase Order: 1118

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	0.1 N H2SO4 Blank, Day 1	02	0.1 N H2SO4 Blank, Day 2
03	0.1 N H2SO4 Blank, Day 3	04	0.1 N H2SO4 Blank, Day 4
05	0.1 N HaOH Blank, Day 3	06	0.1 N HaOH Blank, Day 4

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Amy E. Nasr

Certificate approved by
Amy E. Nasr

TEST METHODOLOGIES

Chlorine was determined as chloride by ion chromatography as in EPA Method 26. The result reported is the mean of duplicate analyses.

Hydrogen chloride was determined as chloride by ion chromatography as in EPA Method 26.

Hydrogen fluoride was determined as fluoride by ion chromatography as in EPA Method 26.

Sample volume Method(s):

Lab No.	Sample Description	Result	Units	EQL
01A	0.1 N H2SO4 Blank, Day 1	200	Total mL	5
02A	0.1 N H2SO4 Blank, Day 2	200	Total mL	5
03A	0.1 N H2SO4 Blank, Day 3	200	Total mL	5
04A	0.1 N H2SO4 Blank, Day 4	200	Total mL	5
05A	0.1 N HaOH Blank, Day 3	102	Total mL	5
06A	0.1 N HaOH Blank, Day 4	102	Total mL	5

HF by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
01A	0.1 N H2SO4 Blank, Day 1	<EQL	Total mg HF	0.26
02A	0.1 N H2SO4 Blank, Day 2	<EQL	Total mg HF	0.26
03A	0.1 N H2SO4 Blank, Day 3	<EQL	Total mg HF	0.26
04A	0.1 N H2SO4 Blank, Day 4	<EQL	Total mg HF	0.26

HCl by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
01A	0.1 N H2SO4 Blank, Day 1	<EQL	Total mg HCl	0.26
02A	0.1 N H2SO4 Blank, Day 2	<EQL	Total mg HCl	0.26
03A	0.1 N H2SO4 Blank, Day 3	<EQL	Total mg HCl	0.26
04A	0.1 N H2SO4 Blank, Day 4	<EQL	Total mg HCl	0.26

CL2 by EPA Method 26 Method(s): EPA 26

Lab No.	Sample Description	Result	Units	EQL
05A	0.1 N HaOH Blank, Day 3	<EQL	Total mg Cl2	0.08
06A	0.1 N HaOH Blank, Day 4	<EQL	Total mg Cl2	0.08

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: HHT 1118 amp

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

REPORT RESULTS TO: FRANK HEZOUKY

EEI JOB NUMBER: 95-1253

EEI SECTION ID.: 1

SAMPLES DELIVERED TO: pick up by Ross

NUMBER OF SAMPLES: 18

TYPE OF SAMPLES: BLANKS

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
ALL BLANKS		4/20/95 per John Krisak	* DAY1 → 4-4-95
(1) .1N NaOH DAY3	100 ml	$NaOH - Cl_2$	DAY2 → 4-5-95
(2) .1N NaOH DAY4	↓	$H_2SO_4 - HCl, HF$	DAY3 → 4-6-95
(3) .1N H_2SO_4 DAY1	200 ml		DAY4 → 4-7-95
(4) .1N H_2SO_4 DAY2	↓	$KMnO_4$/10% H_2SO_4	
(5) .1N H_2SO_4 DAY3		Hg	
(6) .1N H_2SO_4 DAY4	↓		
(7) ACETONE DAY1	100 ml	Acetone } per AMP	
(8) ACETONE DAY2	↓	HNO_3/H_2O_2 } 4/20/95 Combine front+Backs for Blanks per AMP	
(9) ACETONE DAY3		Sb, As, Pb, Se - GFAA	
(10) ACETONE DAY4	↓	Be, Cd, Cr, Cu, Mn, Ni - ICP	
(11) 4% $KMnO_4$/10% H_2SO_4 DAY1	200 ml	Hg - CVAA	
(12) 4% $KMnO_4$/10% H_2SO_4 DAY2	↓		
(13) 4% $KMnO_4$/10% H_2SO_4 DAY3			
(14) 4% $KMnO_4$/10% H_2SO_4 DAY4	↓		
(15) 5% HNO_3/H_2O_2 DAY1			
(16) " " DAY2			
(17) " " DAY3			
(18) " " DAY4			

Samples Relinquished by Sampler (Signature) S. Bzyot	Samples Rec'd. by Courier (Signature)	Date 4/19/95	Time 3:05pm
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature)	Date	Time
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)	Date	Time

NOTES: Blanks for recent metals & HCl trains.
Call if any Q's

John Krisak

I request that results be submitted by:
with other samples
date
FAX: (216) 526-8555
JK
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

ROSS Ross Analytical Services, Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Envisage Environmental, Inc.
P.O. Box 152
Richfield, OH 44286

Attn: Frank Hezoucky

Work Order #: 95-04-177
Client Code: ENVISAGE
Report Date: 05/09/95
Work ID: Multi-metals train
Date Received: 04/17/95

Purchase Order: 1118/Job #95-1253

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	Composite-Flue-Run 3	02	Composite-Aux Ht IN-Run 1
03	Composite-Aux Ht IN-Run 2	04	Composite-Aux Ht IN-Run 3
05	Composite-BH Inlet-Run 1	06	Composite-BH Inlet-Run 2
07	Composite-BH Inlet-Run 3	08	Composite-BH Exit-Run 1
09	Composite-BH Exit-Run 2	10	Composite-BH Exit-Run 3

4/6 -4/7

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

This report was revised 05/08/95 to add the results for Mercury and Selenium for sample 95-04-177-07 which were inadvertantly deleted from the original.

Amy E. Nasr

Certificate approved by
Amy E. Nasr

REPORT COMMENTS

Samples lab numbers 01A, 07A, 08A, 09A, and 10A analyzed for Antimony had to be diluted and analyzed by Method of Standard Addition by Graphite Furnace per the method due to heavy matrix interferences. The remaining samples were analyzed by ICP. All samples were analyzed by Graphite Furnace for Arsenic and results were also determined by Method of Standard Addition due to matrix interferences. Selenium data has been reported from 1 to 10 dilutions on the samples. EQLs have been elevated accordingly when warranted.

TEST METHODOLOGIES

Mercury was determined in aqueous samples and leachates by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.1 and 7470. A single analysis was performed unless otherwise noted.

"Multi-metals train" samples were prepared for analysis according to "Methodology for the Determination of Metals Emissions in Exhaust Gases from Hazardous Waste Incineration and Similar Combustion Processes", 40 CFR 266, Appendix IX, Section 3.1. Prepared samples were analyzed by Inductively Coupled Plasma Emission Spectroscopy (ICP) as in EPA Method 6010A, unless otherwise noted.

Antimony was determined by graphite furnace AA as in EPA Methods 204.2 and 7041.

Arsenic was determined by graphite furnace AA as in EPA Methods 206.2 and 7060.

Selenium was determined by graphite furnace AA as in EPA Methods 270.2 and 7740.

Sample Description: Composite-Flue-Run 1 **Lab No.:** 13

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.5	Total ug	0.5
Cadmium by ICP	7.78	Total ug	1.25
Chromium by ICP	35.8	Total ug	2.5
Cobalt by ICP	<EQL	Total ug	2.5
Lead by ICP	68.7	Total ug	12.5
Manganese by ICP	41.2	Total ug	1.25
Nickel by ICP	8.3	Total ug	5.0
Antimony by GFAA	9.9	Total ug	25
Arsenic by GFAA	23.8	Total ug	12.5
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	3.75

Sample Description: Composite-Flue-Run 2 **Lab No.:** 14

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.7	Total ug	0.5
Cadmium by ICP	9.82	Total ug	1.25
Chromium by ICP	37.7	Total ug	2.5
Cobalt by ICP	<EQL	Total ug	2.5
Lead by ICP	87.8	Total ug	12.5
Manganese by ICP	93.2	Total ug	1.25
Nickel by ICP	8.90	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	25
Arsenic by GFAA	<EQL	Total ug	25
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	5.0

Sample Description: Composite-Flue-Run 3 **Lab No.:** 01

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.53	Total ug	0.50
Cadmium by ICP	10.4	Total ug	1.25
Chromium by ICP	32.9	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	69.9	Total ug	12.5
Manganese by ICP	203	Total ug	1.25
Nickel by ICP	6.6	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	12.5
Arsenic by GFAA	12.6	Total ug	12.5
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Sample Description: Composite-Aux Ht IN-Run 1 **Lab No.:** 02

Analyte Description	Result	Units	EQL
Antimony by ICP	99	Total ug	25
Beryllium by ICP	0.57	Total ug	0.50
Cadmium by ICP	42.4	Total ug	1.25
Chromium by ICP	83.6	Total ug	2.50
Cobalt by ICP	4.21	Total ug	2.50
Lead by ICP	277	Total ug	12.5
Manganese by ICP	162	Total ug	1.25
Nickel by ICP	58.2	Total ug	5.0
Arsenic by GFAA	<EQL	Total ug	12.5
Mercury by CVAA	1.5	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Sample Description: Composite-Aux Ht IN-Run 2 **Lab No.:** 03

Analyte Description	Result	Units	EQL
Antimony by ICP	34	Total ug	25
Beryllium by ICP	4.54	Total ug	0.50
Cadmium by ICP	19.5	Total ug	1.25
Chromium by ICP	61.8	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	116	Total ug	12.5
Manganese by ICP	114	Total ug	1.25
Nickel by ICP	30.1	Total ug	5.0
Arsenic by GFAA	25.3	Total ug	12.5
Mercury by CVAA	1.5	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Sample Description: Composite-Aux Ht IN-Run 3 **Lab No.:** 04

Analyte Description	Result	Units	EQL
Antimony by ICP	28	Total ug	25
Beryllium by ICP	4.38	Total ug	0.50
Cadmium by ICP	20	Total ug	1.25
Chromium by ICP	42.1	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	85.4	Total ug	12.5
Manganese by ICP	78.7	Total ug	1.25
Nickel by ICP	14.8	Total ug	5.0
Arsenic by GFAA	19.6	Total ug	12.5
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Sample Description: Composite-BH Inlet-Run 1 **Lab No.:** 05

Analyte Description	Result	Units	EQL
Antimony by ICP	428	Total ug	125
Beryllium by ICP	8.78	Total ug	0.50
Cadmium by ICP	128	Total ug	1.25
Chromium by ICP	164	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	865	Total ug	62.5
Manganese by ICP	409	Total ug	1.25
Nickel by ICP	94.8	Total ug	5.0
Arsenic by GFAA	52.8	Total ug	12.5
Mercury by CVAA	9.4	Total ug	0.5
Selenium by GFAA	44.5	Total ug	12.5

Sample Description: Composite-BH Inlet-Run 2 **Lab No.:** 06

Analyte Description	Result	Units	EQL
Antimony by ICP	129	Total ug	25
Beryllium by ICP	4.8	Total ug	2.5
Cadmium by ICP	67.0	Total ug	6.25
Chromium by ICP	96.0	Total ug	12.5
Cobalt by ICP	<EQL	Total ug	12.5
Lead by ICP	397	Total ug	12.5
Manganese by ICP	265	Total ug	6.25
Nickel by ICP	73	Total ug	25
Arsenic by GFAA	43.4	Total ug	12.5
Mercury by CVAA	2.3	Total ug	0.5
Selenium by GFAA	20.0	Total ug	12.5

Sample Description: Composite-BH Inlet-Run 3 **Lab No.:** 07

Analyte Description	Result	Units	EQL
Beryllium by ICP	9.89	Total ug	2.50
Cadmium by ICP	33.7	Total ug	6.25
Chromium by ICP	101	Total ug	12.50
Cobalt by ICP	<EQL	Total ug	12.50
Lead by ICP	286	Total ug	62.5
Manganese by ICP	188	Total ug	6.25
Nickel by ICP	32.1	Total ug	25.0
Antimony by GFAA	75.3	Total ug	25
Arsenic by GFAA	64.4	Total ug	12.5
Mercury by CVAA	1.2	Total ug	0.5
Selenium by GFAA	17.8	Total ug	12.5

Sample Description: Composite-BH Exit-Run 1 **Lab No.:** 08

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.51	Total ug	0.50
Cadmium by ICP	5.45	Total ug	1.25
Chromium by ICP	34.6	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	225	Total ug	12.5
Manganese by ICP	29.7	Total ug	1.25
Nickel by ICP	9.9	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	13.4	Total ug	12.5
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Sample Description: Composite-BH Exit-Run 2 **Lab No.:** 09

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.44	Total ug	0.50
Cadmium by ICP	5.27	Total ug	1.25
Chromium by ICP	36.6	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	54.2	Total ug	12.5
Manganese by ICP	172	Total ug	1.25
Nickel by ICP	9.9	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	18.8	Total ug	12.5
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Work Order # 95-04-177 Ross Analytical Services, Inc Reported: 05/02/95

Sample Description: Composite-BH Exit-Run 3 **Lab No.:** 10

Analyte Description	Result	Units	EQL
Beryllium by ICP	4.05	Total ug	0.50
Cadmium by ICP	4.97	Total ug	1.25
Chromium by ICP	34.2	Total ug	2.50
Cobalt by ICP	<EQL	Total ug	2.50
Lead by ICP	36.1	Total ug	12.5
Manganese by ICP - BH Exit	298	Total ug	1.25
Nickel by ICP	11.9	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	2.5
Arsenic by GFAA	<EQL	Total ug	12.5
Mercury by CVAA	2.6	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	12.5

Work Order # 95-04-177 Ross Analytical Services, Inc Reported: 05/02/95

Sample volume Method(s):

Lab No.	Sample Description	Result	Units	EQL
01C	HNO3/H2O2-Flue-Run 3	245	Total mL	5
01D	Acetone-Flue-Run 3	52	Total mL	5
02C	HNO3/H2O2-Aux Ht IN-Run 1	208	Total mL	5
02D	Acetone-Aux Ht IN-Run 1	65	Total mL	5
03C	HNO3/H2O2-Aux Ht IN-Run 2	200	Total mL	5
03D	Acetone-Aux Ht IN-Run 2	66	Total mL	5
04C	HNO3/H2O2-Aux Ht In-Run 3	224	Total mL	5
04D	Acetone-Aux Ht IN-Run 3	55	Total mL	5
05C	HNO3/H2O2-BH Inlet-Run 1	200	Total mL	5
05D	Acetone-BH Inlet-Run 1	95	Total mL	5
06C	HNO3/H2O2-BH Inlet-Run 2	195	Total mL	5
06D	Acetone-BH Inlet-Run 2	125	Total mL	5
07C	HNO3/H2O2-BH Inlet-Run 3	200	Total mL	5
07D	Acetone-BH Inlet-Run 3	165	Total mL	5
08C	HNO3/H2O2-BH Exit-Run 1	200	Total mL	5
08D	Acetone-BH Exit-Run 1	50	Total mL	5
09C	HNO3/H2O2-BH Exit-Run 2	180	Total mL	5
09D	Acetone-BH Exit-Run 2	85	Total mL	5
10C	HNO3/H2O2-BH Exit-Run 3	210	Total mL	5
10D	Acetone-BH Exit-Run 3	65	Total mL	5

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

EEI JOB NUMBER: 95-1253 EEI SECTION ID: 1

NUMBER OF SAMPLES:

TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezoupy

SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
FILTERS 109 - 135 * each filter gets matched w/ respecting date, location, run # and analyzed for metals and Hg w/ Mtd. 29 impinger liquid	N/A	Same as the metals & Hg use filters appropriately w/ Mtd. 29 impinger liquids * BH inlet dates 4-6 & 4-7 runs 1-3 have 2 filters per run	* ~~signature~~ do not report each sample separately (please match date, run # and location and report as 1 sample for each Mtd. 26 & 29) * the dates are 4-4, 4-5, 4-6, 4-7 * 4-6 & 4-7 are considered same date runs #1-2 & 3

		Date	Time
Samples Relinquished by Sampler (Signature) SDBrzyot	Samples Rec'd. by Courier (Signature)	4-1295	
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Schalle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)	Date	Time

NOTES:
per AMP Co, Be, Cd, Mn, Cr, Ni by ICP + Pb, Se, Sb, As by GFAA + Hg by CVAA combine filters, Acetone + HNO_3/H_2O_2. Log in $KMnO_4$ separately + report separately. 4/17/95 KS

I request that results be submitted by:
10 working days
date

FAX: (216) 526-8555

SB
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

REPORT RESULTS TO: FRANK Hezoucky

EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1

SAMPLES DELIVERED TO:

NUMBER OF SAMPLES: | TYPE OF SAMPLES: ICP

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
HNO_3/H_2O_2 5% 10%		Co, Pb, Se, Sb, As (by Atomic Absorption) Be, Cd, Mn, Cr, Ni (by ICAP) Hg (by Covapor)	
(37) 4-4-95 AB EXIT1 RUN 1	250 ml		
(38) 4-4-95 AB EXIT1 RUN 2	243 ml		
(39) 4-4-95 AB EXIT1 RUN 3	248 ml		
(40) 4-5-95 AB EXIT2 RUN 1	275 ml		
(41) 4-5-95 AB EXIT 2 RUN 2	272 ml		
(42) 4-5-95 AB EXIT 2 RUN 3	280 ml		
(43) 4-5-95 BH INLET RUN 1	200 ml		
(44) 4-5-95 BH INLET RUN 2	213 ml		
(45) 4-5-95 BH INLET RUN 3	200 ml		
(46) 4-5-95 BH EXIT RUN 1	210 ml		
(47) 4-5-95 BH EXIT RUN 2	210 ml		
(48) 4-5-95 BH EXIT RUN 3	200 ml		
(49) 4-6-95 FLUE RUN 1	215 ml		
(50) 4-6-95 FLUE RUN 2	230 ml		
(51) 4-7-95 FLUE RUN 3	240 ml		

		Date	Time
Samples Relinquished by Sampler (Signature) SDB 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	1Cq
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 Working days
date

FAX: (216) 526-8555

SB
Initial for approval

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Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER 60
1118

LABORATORY NAME: ROSS ANALYTICAL
ADDRESS:
EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1
NUMBER OF SAMPLES:
TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezouky
SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
(52) 4-6-95 ALL HT IN RUN 1	208 ml	Co, Pb, Se, Sb, As (by Atomic Absorbsion) Be, Cd, Mn, Cr, Ni (by ICAP) Ag (by Covapor)	
(53) 4-6-95 ALL HT IN RUN 2	200 ml		
(54) 4-7-95 ALL HT IN RUN 3	210 ml		
(55) 4-6-95 [redacted] RUN 1 BH INLET	200 ml		
(56) 4-6-95 [redacted] RUN 2 BH INLET	200 ml		
(57) 4-7-95 [redacted] RUN 3 BH INLET	200 ml		
(58) 4-6-95 BH EXIT RUN 1	200 ml		
(59) 4-6-95 BH EXIT RUN 2	168 ml		
(60) 4-7-95 BH EXIT RUN 3	210 ml		

HNO_3 / H_2O_2

		Date	Time
Samples Relinquished by Sampler (Signature) SDBrzyot 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Schelle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 working days
date
FAX: (216) 526-8555
Initial for approval

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Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL
ADDRESS:
EEI JOB NUMBER: 95-1253 EEI SECTION ID: 1
NUMBER OF SAMPLES: TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezoudy
SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
4:1. $KMnO_4$ / 10% H_2SO_4		Hg (covapor)	
(61) 4-4-95 ABEXIT1 RUN1	180 ml		
(62) 4-4-95 ABEXIT1 RUN2	180 ml		
(63) 4-4-95 ABEXIT1 RUN3	190 ml		
(64) 4-5-95 ABEXIT2 RUN1	200 ml		
(65) 4-5-95 ABEXIT2 RUN2	200 ml		
(66) 4-5-95 ABEXIT2 RUN3	205 ml		
(67) 4-5-95 BHINLET RUN1	200 ml		
(68) 4-5-95 BHINLET RUN2	190 ml		
(69) 4-5-95 BHINLET RUN3	205 ml		
(70) 4-5-95 BHEXIT RUN1	190 ml		
(71) 4-5-95 BHEXIT RUN2	200 ml		
(72) 4-5-95 BHEXIT RUN3	210 ml		
(73) 4-6-95 FLUE RUN1	205 ml		
(74) 4-6-95 FLUE RUN2	200 ml		
(75) 4-6-95 FLUE RUN3	200 ml		

		Date	Time
Samples Relinquished by Sampler (Signature) SDBrzyski 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 working days
date
FAX: (216) 526-8555
Initial for approval

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Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

62

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

EEI JOB NUMBER: 95-1253 EEI SECTION ID: 1

NUMBER OF SAMPLES: TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Tezoufey

SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
4% $KMnO_4$/10% H_2SO_4		Hg (cvaapor)	* (85) → (108) Should be reconstituted w/ 1N HNO_3 and added to (37) → (60) matching up the date location, and run # and analyzed with them
(76) 4-6-95 AUXHT IN RUN 1	200 ml		
(77) 4-6-95 AUXHT IN RUN 2	200 ml		
(78) 4-7-95 AUX HT IN RUN 3	190 ml		
(79) 4-6-95 BH INLET RUN 1	200 ml		
(80) 4-6-95 BH INLET RUN 2	200 ml		
(81) 4-7-95 BH INLET RUN 3	180 ml		
(82) 4-6-95 BH EXIT RUN 1	190 ml		
(83) 4-6-95 BH EXIT RUN 2	215 ml		
(84) 4-7-95 BH EXIT RUN 3	190 ml		
(85) → (108) All the same as (61) → (84) but ACETONE			

		Date	Time
Samples Relinquished by Sampler (Signature) SBrzyot 4-17-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 working days
date
FAX: (216) 526-8555
Initial for approval

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HNO_3/H_2O_2 impingers	$KMnO_4/H_2SO_4$	Acetone
AB EXIT 1	AB EXIT 1	→
AB EXIT 2	EXIT 2	→
BH Inlet	BH Inlet	→
BH EXIT	BH EXIT	→
Flue	Flue	→
AUX HT IN	AUX HT IN	→
BH Inlet	BH Inlet	→
BH EXIT	BH EXIT	→

FILTERS
FOR ALL LOCATIONS

Combine Filters, Acetone, HNO_3/H_2O_2
FOR: Run #'s, location (such as AB EXIT 1)
& Date
4/6 : 4/7 are one date.

ROSS Ross Analytical Services, Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Envisage Environmental, Inc.
P.O. Box 152
Richfield, OH 44286

Attn: Frank Hezoucky

Work Order #: 95-04-178
Client Code: ENVISAGE
Report Date: 04/27/95
Work ID: Multi-metals train
Date Received: 04/17/95

Purchase Order: 1118/Job #95-1253

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	KMnO4-AB Exit 1-Run 1	02	KMnO4-AB Exit 1-Run 2
03	KMnO4-AB Exit 1-Run 3	04	KMnO4-AB Exit 2-Run 1
05	KMnO4-AB Exit 2-Run 2	06	KMnO4-AB Exit 2-Run 3
07	KMnO4-BH Inlet-Run 1	08	KMnO4-BH Inlet-Run 2
09	KMnO4-BH Inlet-Run 3	10	KMnO4-BH Exit-Run 1
11	KMnO4-BH Exit-Run 2	12	KMnO4-BH Exit-Run 3
13	KMnO4-Flue-Run 1	14	KMnO4-Flue-Run 2
15	KMnO4-Flue-Run 3	16	KMnO4-Aux Ht In-Run 1
17	KMnO4-Aux Ht In-Run 2	18	KMnO4-Aux Ht In-Run 3
19	KMnO4-BH Inlet-Run 1	20	KMnO4-BH Inlet-Run 2
21	KMnO4-BH Inlet-Run 3	22	KMnO4-BH Exit-Run 1
23	KMnO4-BH Exit-Run 2	24	KMnO4-BH Exit-Run 3

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Amy E. Nasr

Certificate approved by
Amy E. Nasr

TEST METHODOLOGIES

Mercury was determined in aqueous samples and leachates by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.1 and 7470. A single analysis was performed unless otherwise noted.

Work Order # 95-04-178 Ross Analytical Services, Inc Reported: 04/27/95

Sample volume Method(s):

Lab No.	Sample Description	Result	Units	EQL
01A	KMnO4-AB Exit 1-Run 1	190	Total mL	5
02A	KMnO4-AB Exit 1-Run 2	190	Total mL	5
03A	KMnO4-AB Exit 1-Run 3	185	Total mL	5
04A	KMnO4-AB Exit 2-Run 1	195	Total mL	5
05A	KMnO4-AB Exit 2-Run 2	200	Total mL	5
06A	KMnO4-AB Exit 2-Run 3	198	Total mL	5
07A	KMnO4-BH Inlet-Run 1	210	Total mL	5
08A	KMnO4-BH Inlet-Run 2	200	Total mL	5
09A	KMnO4-BH Inlet-Run 3	210	Total mL	5
10A	KMnO4-BH Exit-Run 1	210	Total mL	5
11A	KMnO4-BH Exit-Run 2	190	Total mL	5
12A	KMnO4-BH Exit-Run 3	210	Total mL	5
13A	KMnO4-Flue-Run 1	205	Total mL	5
14A	KMnO4-Flue-Run 2	210	Total mL	5
15A	KMnO4-Flue-Run 3	215	Total mL	5
16A	KMnO4-Aux Ht In-Run 1	190	Total mL	5
17A	KMnO4-Aux Ht In-Run 2	208	Total mL	5
18A	KMnO4-Aux Ht In-Run 3	180	Total mL	5
19A	KMnO4-BH Inlet-Run 1	190	Total mL	5
20A	KMnO4-BH Inlet-Run 2	200	Total mL	5
21A	KMnO4-BH Inlet-Run 3	185	Total mL	5
22A	KMnO4-BH Exit-Run 1	190	Total mL	5
23A	KMnO4-BH Exit-Run 2	210	Total mL	5
24A	KMnO4-BH Exit-Run 3	195	Total mL	5

Mercury by CVAA Method(s): 245.1, 7470

Lab No.	Sample Description	Result	Units	EQL
01A	KMnO4-AB Exit 1-Run 1	6.8	Total ug	1.0
02A	KMnO4-AB Exit 1-Run 2	5.1	Total ug	1.0
03A	KMnO4-AB Exit 1-Run 3	5.6	Total ug	1.0
04A	KMnO4-AB Exit 2-Run 1	7.4	Total ug	1.0
05A	KMnO4-AB Exit 2-Run 2	3.3	Total ug	1.0
06A	KMnO4-AB Exit 2-Run 3	3.3	Total ug	1.0
07A	KMnO4-BH Inlet-Run 1	2.4	Total ug	1.0
08A	KMnO4-BH Inlet-Run 2	4.9	Total ug	1.0
09A	KMnO4-BH Inlet-Run 3	2.6	Total ug	1.0
10A	KMnO4-BH Exit-Run 1	<EQL	Total ug	1.0
11A	KMnO4-BH Exit-Run 2	<EQL	Total ug	1.0
12A	KMnO4-BH Exit-Run 3	<EQL	Total ug	1.0
13A	KMnO4-Flue-Run 1	<EQL	Total ug	1.0
14A	KMnO4-Flue-Run 2	<EQL	Total ug	1.0
15A	KMnO4-Flue-Run 3	<EQL	Total ug	1.0
16A	KMnO4-Aux Ht In-Run 1	5.1	Total ug	1.0
17A	KMnO4-Aux Ht In-Run 2	2.8	Total ug	1.0
18A	KMnO4-Aux Ht In-Run 3	<EQL	Total ug	1.0
19A	KMnO4-BH Inlet-Run 1	36.5	Total ug	1.0
20A	KMnO4-BH Inlet-Run 2	7.1	Total ug	1.0
21A	KMnO4-BH Inlet-Run 3	5.8	Total ug	1.0
22A	KMnO4-BH Exit-Run 1	<EQL	Total ug	1.0
23A	KMnO4-BH Exit-Run 2	1.1	Total ug	1.0
24A	KMnO4-BH Exit-Run 3	2.8	Total ug	1.0

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL
ADDRESS:
EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1
NUMBER OF SAMPLES: TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezoupy
SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
FILTERS (109)-(135) * each filter gets matched w/respecting date, location, run # and analyzed for metals and Hg w/ Mtd. 29 impinger liquid	N/A	Same as the metals & Hg use filters appropriately w/ Mtd. 29 impinger liquids * BH inlet dates 4-6 & 4-7 Runs 1-3 have 2 filters per run	* ~~Impact~~ do not report each sample separately (please match date, run # and location and report as 1 sample for each Mtd. 26 & 29) * the dates are 4-4, 4-5, 4-6, 4-7 * 4-6 & 4-7 are considered same date ~~Since~~ runs #1-2 & 3

		Date	Time
Samples Relinquished by Sampler (Signature) SDBrzyqot 4-1295	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:
per AMP Co, Be, Cd, Mn, Cr, Ni by ICP & Pb, Se, Sb, As by GFAA & Hg by CVAA
Combine filters, Acetone & HNO_3/H_2O_2. Log in $KMnO_4$ separately & report separately. 4/17/95 KS

I request that results be submitted by: 10 working days
date
FAX: (216) 526-8555
SB
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

REPORT RESULTS TO: FRANK Hezoukey

EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1

SAMPLES DELIVERED TO:

NUMBER OF SAMPLES:

TYPE OF SAMPLES: soil

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
HNO_3/H_2O_2 5% 10%		Co, Pb, Se, Sb, As (by Atomic Absorbsion) Be, Cd, Mn, Cr, Ni (by ICAP) Hg (by covapor)	
(37) 4-4-95 AB EXIT1 RUN 1	250 ml		
(38) 4-4-95 AB EXIT1 RUN 2	243 ml		
(39) 4-4-95 AB EXIT1 RUN 3	248 ml		
(40) 4-5-95 AB EXIT2 RUN 1	275 ml		
(41) 4-5-95 AB EXIT2 RUN 2	272 ml		
(42) 4-5-95 AB EXIT2 RUN 3	280 ml		
(43) 4-5-95 BH INLET RUN 1	200 ml		
(44) 4-5-95 BH INLET RUN 2	213 ml		
(45) 4-5-95 BH INLET RUN 3	200 ml		
(46) 4-5-95 BH EXIT RUN 1	210 ml		
(47) 4-5-95 BH EXIT RUN 2	210 ml		
(48) 4-5-95 BH EXIT RUN 3	200 ml		
(49) 4-6-95 FLUE RUN 1	215 ml		
(50) 4-6-95 FLUE RUN 2	230 ml		
(51) 4-7-95 FLUE RUN 3	240 ml		

		Date	Time
Samples Relinquished by Sampler (Signature) SDBrzyot 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	1Dg
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 Working days
date
FAX: (216) 526-8555
SB
Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

EEI JOB NUMBER: 95-1253 EEI SECTION ID.: 1

NUMBER OF SAMPLES:

TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Hezouky

SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
(52) 4-6-95 AUX HT IN RUN1	208 ml	Co, Pb, Se, Sb, As (by Atomic Absorbsion) Be, Cd, Mn, Cr, Ni (by ICAP) Ag (by Covapor)	
(53) 4-6-95 AUX HT IN RUN2	200 ml		
(54) 4-7-95 AUX HT IN RUN3	210 ml		
(55) 4-6-95 [redacted] RUN1 BH INLET	200 ml		
(56) 4-6-95 [redacted] RUN2 BH INLET	200 ml		
(57) 4-7-95 [redacted] RUN3 BH INLET	200 ml		
(58) 4-6-95 BH EXIT RUN1	200 ml		
(59) 4-6-95 BH EXIT RUN2	168 ml		
(60) 4-7-95 BH EXIT ~~RUN3~~	210 ml		

HNO_3 / H_2O_2

		Date	Time
Samples Relinquished by Sampler (Signature) SD Brzezgot 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Schelle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by: 10 working days

date

FAX: (216) 526-8555

Initial for approval

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Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

PURCHASE ORDER NUMBER: 1118

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

EEI JOB NUMBER: 95-1253 EEI SECTION ID: 1

NUMBER OF SAMPLES: | TYPE OF SAMPLES:

REPORT RESULTS TO: Frank Ferzoufey

SAMPLES DELIVERED TO:

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
4% $KMnO_4$/10% H_2SO_4		Hg (covapor)	* (85) → (108) Should be reconstituted w/ 1 ml HNO_3 and added to (37) → (60) matching up the date, location, and run # and analyzed with them
(76) 4-6-95 AUXHT IN RUN1	200 ml		
(77) 4-6-95 AUXHT IN RUN2	200 ml		
(78) 4-7-95 AUXHT IN RUN3	190 ml		
(79) 4-6-95 BH INLET RUN1	200 ml		
(80) 4-6-95 BH INLET RUN2	200 ml		
(81) 4-7-95 BH INLET RUN3	180 ml		
(82) 4-6-95 BH EXIT RUN1	190 ml		
(83) 4-6-95 BH EXIT RUN2	215 ml		
(84) 4-7-95 BH EXIT RUN3	190 ml		
(85) → (108) All the same as (61) → (84) but ACETONE			

		Date	Time
Samples Relinquished by Sampler (Signature) SBrzyot 4-12-95	Samples Rec'd. by Courier (Signature)		
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature) Kendra Scholle	4/17/95	10a
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)		

NOTES:

I request that results be submitted by:
10 working days
date

FAX: (216) 526-8555

Initial for approval

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

HNO_3/H_2O_2 impingers	$KMnO_4/H_2SO_4$	Acetone
AB EXIT 1	AB EXIT 1	→
AB EXIT 2	EXIT 2	→
BH Inlet	BH Inlet	→
BH EXIT	BH EXIT	→
Flue	Flue	→
AUX HT IN	AUX HT IN	→
BH Inlet	BH Inlet	→
BH EXIT	BH EXIT	→

FILTERS
FOR ALL LOCATIONS

Combine Filters, Acetone, HNO_3/H_2O_2
FOR: Run #'s, location (such as AB EXIT 1)
& Date
4/6 : 4/7 are one date.

ROSS Ross Analytical Services, Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Envisage Environmental, Inc.
P.O. Box 152
Richfield, OH 44286

Attn: Frank Hezoucky

Work Order #: 95-04-256
Client Code: ENVISAGE
Report Date: 05/02/95
Work ID: Multi-metals trains
Date Received: 04/21/95

Purchase Order: 1118

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	Composite Blank Day 1	02	Composite Blank Day 2
03	Composite Blank Day 3	04	Composite Blank Day 4
05	KMnO4 Blank, Day 1	06	KMnO4 Blank, Day 2
07	KMnO4 Blank, Day 3	08	KMnO4 Blank, Day 4

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Amy E. Nasr

Certificate approved by
Amy E. Nasr

REPORT COMMENTS

Samples for Arsenic were diluted by 1 to 10 due to matrix interferences. The EQLs have been elevated accordingly.

TEST METHODOLOGIES

Mercury was determined in aqueous samples and leachates by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.1 and 7470. A single analysis was performed unless otherwise noted.

"Multi-metals train" samples were prepared for analysis according to "Methodology for the Determination of Metals Emissions in Exhaust Gases from Hazardous Waste Incineration and Similar Combustion Processes", 40 CFR 266, Appendix IX, Section 3.1. Prepared samples were analyzed by Inductively Coupled Plasma Emission Spectroscopy (ICP) as in EPA Method 6010A, unless otherwise noted.

Antimony was determined by graphite furnace AA as in EPA Methods 204.2 and 7041.

Arsenic was determined by graphite furnace AA as in EPA Methods 206.2 and 7060.

Lead was determined by graphite furnace AA as in EPA Methods 239.2 and 7421.

Selenium was determined by graphite furnace AA as in EPA Methods 270.2 and 7740.

Sample volume Method(s):

Lab No.	Sample Description	Result	Units	EQL
01C	Acetone Blank Day 1	105	Total mL	5
01D	HNO3/H2O2 Blank Day 1	205	Total mL	5
02C	Acetone Blank Day 2	105	Total mL	5
02D	HNO3/H2O2 Blank Day 2	200	Total mL	5
03C	Acetone Blank Day 3	105	Total mL	5
03D	HNO3/H2O2 Blank Day 3	205	Total mL	5
04C	Acetone Blank Day 4	115	Total mL	5
04D	HNO3/H2O2 Blank Day 4	195	Total mL	5
05A	KMnO4 Blank, Day 1	215	Total mL	5
06A	KMnO4 Blank, Day 2	215	Total mL	5
07A	KMnO4 Blank, Day 3	220	Total mL	5
08A	KMnO4 Blank, Day 4	220	Total mL	5

Work Order # 95-04-256 Ross Analytical Services, Inc Reported: 05/02/95

Sample Description: Composite Blank Day 1 **Lab No.:** 01

Analyte Description	Result	Units	EQL
Beryllium by ICP	<EQL	Total ug	0.5
Cadmium by ICP	<EQL	Total ug	1.25
Chromium by ICP	31.3	Total ug	2.5
Cobalt by ICP	2.7	Total ug	2.5
Manganese by ICP	26.2	Total ug	1.25
Nickel by ICP	6.9	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	<EQL	Total ug	12.5
Lead by GFAA	8.7	Total ug	1.25
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	1.25

Sample Description: Composite Blank Day 2 **Lab No.:** 02

Analyte Description	Result	Units	EQL
Beryllium by ICP	<EQL	Total ug	0.5
Cadmium by ICP	<EQL	Total ug	1.25
Chromium by ICP	32.4	Total ug	2.5
Cobalt by ICP	3.0	Total ug	2.5
Manganese by ICP	26.5	Total ug	1.25
Nickel by ICP	7.4	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	<EQL	Total ug	12.5
Lead by GFAA	8.88	Total ug	1.25
Mercury by CVAA	2.2	Total ug	0.5
Selenium by GFAA	9.38	Total ug	1.25

Sample Description: Composite Blank Day 3 **Lab No.:** 03

Analyte Description	Result	Units	EQL
Beryllium by ICP	<EQL	Total ug	0.5
Cadmium by ICP	<EQL	Total ug	1.25
Chromium by ICP	32.5	Total ug	2.5
Cobalt by ICP	2.7	Total ug	2.5
Manganese by ICP	26.5	Total ug	1.25
Nickel by ICP	7.3	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	<EQL	Total ug	12.5
Lead by GFAA	7.75	Total ug	1.25
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	1.25

Work Order # 95-04-256 Ross Analytical Services, Inc Reported: 05/02/95

Sample Description: Composite Blank Day 4 **Lab No.:** 04

Analyte Description	Result	Units	EQL
Beryllium by ICP	<EQL	Total ug	0.5
Cadmium by ICP	<EQL	Total ug	1.25
Chromium by ICP	33.6	Total ug	2.5
Cobalt by ICP	2.6	Total ug	2.5
Manganese by ICP	35.4	Total ug	1.25
Nickel by ICP	7.9	Total ug	5.0
Antimony by GFAA	<EQL	Total ug	1.25
Arsenic by GFAA	<EQL	Total ug	12.5
Lead by GFAA	8.65	Total ug	1.25
Mercury by CVAA	<EQL	Total ug	0.5
Selenium by GFAA	<EQL	Total ug	1.25

Mercury by CVAA **Method(s):** 245.1, 7470

Lab No.	Sample Description	Result	Units	EQL
05A	KMnO4 Blank, Day 1	<EQL	Total ug	1.0
06A	KMnO4 Blank, Day 2	<EQL	Total ug	1.0
07A	KMnO4 Blank, Day 3	<EQL	Total ug	1.0
08A	KMnO4 Blank, Day 4	<EQL	Total ug	1.0

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone: (216) 526-0990/Fax: 526-8555

SAMPLE ANALYSIS REQUEST FORM

80

PURCHASE ORDER NUMBER: HHT 1118 amp

LABORATORY NAME: ROSS ANALYTICAL

ADDRESS:

REPORT RESULTS TO: FRANK HEZOUKY

EEI JOB NUMBER: 95-1253

EEI SECTION ID.: 1

SAMPLES DELIVERED TO: pick up by Ross

NUMBER OF SAMPLES: 18

TYPE OF SAMPLES: BLANKS

SAMPLE ID	SAMPLE VOLUME	ANALYSIS REQUESTED	SPECIAL INSTRUCTIONS
ALL BLANKS		4/20/95 per John Krisak	* DAY1 → 4-4-95
(1) .1N NaOH DAY3	100 ml	$NaOH - Cl_2$	DAY2 → 4-5-95
(2) .1N NaOH DAY4	↓	$H_2SO_4 - HCl, HF$	DAY3 → 4-6-95
(3) .1N H_2SO_4 DAY1	200 ml		DAY4 → 4-7-95
(4) .1N H_2SO_4 DAY2	↓	$KMnO_4$/10% H_2SO_4	
(5) .1N H_2SO_4 DAY3	↓	Hg	
(6) .1N H_2SO_4 DAY4	↓		
(7) ACETONE DAY1	100 ml	Acetone } per AMP	
(8) ACETONE DAY2	↓	HNO_3/H_2O_2 } 4/20/95 Combine front + Backs for Blanks per AMP	
(9) ACETONE DAY3	↓	Sb, As, Pb, Se - GFAA	
(10) ACETONE DAY4	↓	Be, Cd, Cr, Cu, Mn, Ni - ICP	
(11) 4% $KMnO_4$/10% H_2SO_4 DAY1	200 ml	Hg - CVAA	
(12) 4% $KMnO_4$/10% H_2SO_4 DAY2	↓		
(13) 4% $KMnO_4$/10% H_2SO_4 DAY3	↓		
(14) 4% $KMnO_4$/10% H_2SO_4 DAY4	↓		
(15) 5% HNO_3/H_2O_2 DAY1	↓		
(16) " " DAY2	↓		
(17) " " DAY3	↓		
(18) " " DAY4	↓		

Samples Relinquished by Sampler (Signature) SDBrzyski	Samples Rec'd. by Courier (Signature)	Date 4/19/95	Time 3:05pm
Samples Relinquished by Courier (Signature)	Samples Rec'd. by Laboratory (Signature)	Date	Time
Samples Relinquished for Analysis (Signature)	Samples Rec'd. for Analysis (Signature)	Date	Time

NOTES: Blanks for recent metals & HCl trains.
Call if any Q's

John Krisak

I request that results be submitted by:
with other samples
date
FAX: (216) 526-8555
JK
Initial for approval

95-04-224

WHITE — REMAINS WITH SAMPLE/S YELLOW — LOG COPY PINK — FILE COPY GOLDENROD — LAB COPY

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

Date: May 9, 1995

Client ID: Envisage Environmental, Inc.

P.O. Number:

TLI Project Number: 32311 A & B

Rev. 03/02/95

Analytical Services Division
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729
P.O. Box 13485
Research Triangle Park, NC 27709-3485
Fax # 919-544-5491

Overview

Twenty-four M23 samples were received from Envisage Environmental, Inc. at 10 °C in good condition, except as noted below, on April 14, 1995 and were stored in a refrigerator at 4°C. The petri dish for samples Run 1 Aux HT inlet 4-6-95, Run 1 BH inlet 4-5-95 , Run 2 BH inlet 4-5-95, and Run 1 BH inlet 4-6-95 arrived broken. It appears that no filters were exposed to other filters. 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 each batch of samples.

Quality Control Remarks

This release of this particular set of Envisage Environmental, Inc. 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: The sample identifications (IDs) on the sample labels did not exactly match those on the client's chain of custody. The IDs on page two of the Sample Analysis Request form were used for all reports. The IDs on this page all have the additional date on the end of the identification. Neither the samples or page one of the Sample Analysis Request form consistently included this date component. We do not feel that the identification of the samples was compromised by this discrepancy.

All the samples in project have been processed through an additional clean-up silica gel/H_2SO_4 column.

Mass Spectrometry: Sample Run 1 AB Exit 1 4-4-95 has been diluted twenty fold due to saturated analyte signals . Samples Run 2 AB Exit 1 4-4-95, Run 3 AB Exit 1 4-4-95, Run 1 AB Exit 2 4-5-95, Run 2 AB Exit 2 4-5-95, Run 3 AB Exit 2 4-5-95, Run 1 BH inlet 4-5-95, Run 2 BH inlet 4-5-95 , and Run 3 BH inlet 4-5-95 have been diluted 10

fold due to saturated analyte signals. All the above samples were reanalyzed on the DB-5 column and in some cases the DB-225 column . Only the results from the diluted analyses for these samples are reported except as noted below. Samples Run 1 BH inlet 4-5-95, Run 2 BH inlet 4-5-95 , and Run 3 BH inlet 4-5-95 were run on the DB-225 column first and did not require dilution. Only the results from undiluted samples have been reported for the DB-225 column reports for these three samples.

Data Review: The method blank for the B part of this project appears to have been slightly contaminated prior to injection on the DB-5 column. The DB-225 column analysis, analyzed first, showed no contamination. All analytes detected on the DB-5 column analysis are below the target detection limit except for 2,3,7,8-TCDF. A reanalysis of this sample showed similar results. The 2,3,7,8-TCDF concentration should be taken from the DB-225 column analysis.

2,3,7,8-TCDF is slightly saturated on the DB-5 column analysis of sample Run 3 BH Exit 4-6-95 and has been flagged "S". As this isomer is not saturated in the analysis from 2,3,7,8-TCDF specific DB-225 column the sample was not diluted. The results for 2,3,7,8-TCDF should be taken from the DB-225 column analysis.

Other Comments: Any analytes found in the TLI Blank are detected at a level equal to or less than the Target Detection Limit except as noted above. This level of contamination is acceptable as per TLI guidelines. OCDD is not subject to blank contamination criteria 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 5 for the DB-5 GC column and 3.5 for 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 of RTP guidelines, a laboratory blank is acceptable if one of the following conditions is satisfied: 1) the tetra- through hepta-CDD/CDF levels are all below the target detection limits (TDLS), 2) the analyte levels found are all below 1/3 the theoretical method detection limit (TMQL) or 3) 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 estimated 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 sample 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 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 affect on the data. Should Envisage Environmental, Inc. have any questions or comments regarding this data package, please feel free to contact our Client Services Manager Hani Karam, at 919/544-8351.

For Triangle Laboratories of RTP, Inc.,

Report Preparation

Kenneth Varley
Report Preparation Chemist

Quality Control

5/9/95

For VIJAY S. CHHABRA
Saroj Parikh
Report Preparation Chemist

The total number of pages in the data package is : 322.

TRIANGLE LABORATORIES OF RTP, INC.

SAMPLE DATA

Data File	W951805	W951837	W951838	W951839
Sample ID	TLI M23 Outlet& Flue Blank	RUN 1 BH EXIT 4 -5-95	RUN 2 BH EXIT 4 -5-95	RUN 3 BH EXIT 4 -5-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	(0.003)	0.62	0.48	0.92
12378-PeCDD	(0.004)	0.63	0.52	1.0
123478-HxCDD	(0.005)	0.28	0.19	0.43
123678-HxCDD	(0.005)	0.41	0.31	0.72
123789-HxCDD	(0.004)	0.69	0.49	1.0
1234678-HpCDD	(0.005)	0.87	0.60	1.1
2378-TCDF	(0.002)	53.9	51.4	81.5
12378-PeCDF	(0.003)	3.2	3.0	5.6
23478-PeCDF	(0.003)	4.4	4.0	8.1
123478-HxCDF	(0.003)	5.1	4.9	10.8
123678-HxCDF	(0.002)	1.5	1.4	3.1
234678-HxCDF	0.007	1.5	1.3	3.0
123789-HxCDF	(0.003)	0.54	0.03	0.10
1234678-HpCDF	(0.003)	1.9	2.0	4.0
1234789-HpCDF	(0.004)	{0.13}	0.14	0.25
OCDF	(0.006)	0.32	0.48	0.35
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	90.7	97.2	97.0	92.6
13C12-PeCDF 234	96.4	76.0	93.9	95.6
13C12-HxCDF 478	81.0	72.1	103	101
13C12-HxCDD 478	101	97.7	99.9	102
13C12-HpCDF 789	91.2	46.6	85.3	87.3
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	76.8	96.2	93.9	93.4
13C12-HxCDF 234	81.8	98.4	99.3	95.2
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	60.2	95.1	93.3	91.0
13C12-2378-TCDD	54.0	73.4	73.0	78.7
13C12-PeCDF 123	63.7	91.7	84.9	90.5
13C12-PeCDD 123	86.3	105	94.6	106
13C12-HxCDF 678	71.8	97.6	95.7	97.3
13C12-HxCDD 678	72.2	88.6	88.9	89.8
13C12-HpCDF 678	67.9	84.1	80.0	85.4
13C12-HpCDD 678	81.3	74.8	72.5	76.2
13C12-OCDD	75.7	51.9	44.7	53.2

Data File	W951840	W951841	W951842	W951870
Sample ID	RUN 1 BH EXIT 4 -6-95	RUN 2 BH EXIT 4 -6-95	RUN 3 BH EXIT 4 -6-95	RUN 1 AB EXIT 1 4-4-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	0.43	0.25	0.24	17.3
12378-PeCDD	0.54	0.65	0.78	43.2
123478-HxCDD	0.23	0.45	0.48	43.8
123678-HxCDD	0.38	0.85	0.96	63.8
123789-HxCDD	0.54	1.0	1.2	111
1234678-HpCDD	0.72	1.7	1.8	226
2378-TCDF	46.5	36.1	38.5	1230
12378-PeCDF	3.0	4.2	4.5	164
23478-PeCDF	4.2	6.0	6.9	329
123478-HxCDF	5.7	11.1	11.6	625
123678-HxCDF	1.6	3.1	3.4	194
234678-HxCDF	1.7	3.7	3.9	231
123789-HxCDF	0.04	0.17	0.15	(1.8)
1234678-HpCDF	2.4	6.3	6.5	389
1234789-HpCDF	0.19	0.47	0.49	37.3
OCDF	0.50	1.4	1.4	116
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	94.3	93.1	92.0	97.0
13C12-PeCDF 234	93.2	93.3	98.8	116
13C12-HxCDF 478	101	97.3	98.4	114
13C12-HxCDD 478	100	97.1	93.9	103
13C12-HpCDF 789	87.7	78.6	84.8	82.4
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	91.7	89.4	95.6	97.3
13C12-HxCDF 234	97.2	96.4	93.9	88.8
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	92.6	79.9	81.2	102
13C12-2378-TCDD	80.4	73.9	77.4	80.7
13C12-PeCDF 123	93.0	86.8	90.4	86.9
13C12-PeCDD 123	106	98.9	106	94.4
13C12-HxCDF 678	93.8	91.3	92.0	88.2
13C12-HxCDD 678	89.1	87.5	90.5	80.4
13C12-HpCDF 678	83.0	80.2	82.3	94.0
13C12-HpCDD 678	77.4	71.7	73.9	81.8
13C12-OCDD	57.2	50.0	48.6	60.4

Data File	W951872	W951873	W951874	W951875
Sample ID	RUN 2 AB EXIT 1 4-4-95	RUN 3 AB EXIT 1 4-4-95	RUN 1 AB EXIT 2 4-5-95	RUN 2 AB EXIT 2 4-5-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	3.9	5.8	3.9	4.9
12378-PeCDD	10.0	17.2	14.1	15.5
123478-HxCDD	9.8	20.1	12.6	14.2
123678-HxCDD	14.7	27.5	20.1	22.9
123789-HxCDD	25.9	47.1	28.7	34.0
1234678-HpCDD	54.6	104	52.4	60.0
2378-TCDF	267	572	398	527
12378-PeCDF	53.5	64.4	53.2	72.4
23478-PeCDF	102	134	111	175
123478-HxCDF	126	281	148	197
123678-HxCDF	38.7	78.4	49.5	58.2
234678-HxCDF	48.0	94.9	70.1	101
123789-HxCDF	(0.4)	(0.09)	2.7	24.6
1234678-HpCDF	87.6	193	76.7	102
1234789-HpCDF	8.2	18.0	10.2	17.2
OCDF	22.1	75.9	24.6	51.5
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	97.8	103	93.5	97.0
13C12-PeCDF 234	97.9	119	93.4	96.7
13C12-HxCDF 478	107	126	111	112
13C12-HxCDD 478	100	122	105	113
13C12-HpCDF 789	89.4	93.0	92.7	92.4
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	99.4	96.6	98.0	97.1
13C12-HxCDF 234	93.2	89.4	94.9	99.3
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	97.5	79.4	97.7	110
13C12-2378-TCDD	85.6	68.7	73.9	70.0
13C12-PeCDF 123	58.4	77.2	85.4	77.6
13C12-PeCDD 123	58.9	79.9	94.4	87.4
13C12-HxCDF 678	97.2	83.9	88.5	93.3
13C12-HxCDD 678	87.8	75.8	88.5	86.7
13C12-HpCDF 678	93.2	82.7	99.2	94.3
13C12-HpCDD 678	85.5	68.6	91.9	85.5
13C12-OCDD	66.4	44.6	78.6	65.1

Data File	W951876	W951877	W951878	W951879
Sample ID	RUN 3 AB EXIT 2 4-5-95	RUN 1 FLUE 4-6-95	RUN 2 FLUE 4-6-95	RUN 3 FLUE 4-7-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	2.7	0.67	0.20	0.07
12378-PeCDD	9.3	2.2	1.6	0.71
123478-HxCDD	9.1	3.3	2.4	0.99
123678-HxCDD	14.0	5.9	5.1	2.0
123789-HxCDD	26.3	8.8	6.4	2.6
1234678-HpCDD	48.9	35.3	21.4	7.8
2378-TCDF	284	44.3	38.6	11.9
12378-PeCDF	38.9	7.4	6.0	2.4
23478-PeCDF	76.4	16.9	13.6	4.8
123478-HxCDF	170	36.6	30.3	11.4
123678-HxCDF	53.9	12.4	12.1	4.0
234678-HxCDF	83.2	27.0	22.5	7.4
123789-HxCDF	5.4	1.3	0.93	0.26
1234678-HpCDF	142	46.3	32.0	10.2
1234789-HpCDF	24.8	11.7	6.4	1.6
OCDF	64.1	50.5	23.1	5.3
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	94.2	94.9	96.4	92.5
13C12-PeCDF 234	89.8	91.3	91.4	89.6
13C12-HxCDF 478	105	104	104	103
13C12-HxCDD 478	101	111	102	102
13C12-HpCDF 789	93.0	97.0	86.6	81.4
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	88.7	98.2	94.2	90.6
13C12-HxCDF 234	88.2	102	105	105
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	90.1	88.0	89.1	81.9
13C12-2378-TCDD	68.4	72.5	73.8	70.5
13C12-PeCDF 123	75.4	87.2	76.7	73.2
13C12-PeCDD 123	78.2	98.7	86.3	81.4
13C12-HxCDF 678	91.3	90.6	96.6	93.3
13C12-HxCDD 678	81.4	82.2	87.7	84.8
13C12-HpCDF 678	86.3	94.0	79.2	79.0
13C12-HpCDD 678	79.5	94.5	74.3	72.5
13C12-OCDD	64.5	78.6	42.4	45.1

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

Data File	W951882	W951883	W951885	W951886
Sample ID	TLI Inlet M23 B lank	RUN 1 AUX HT IN LET 4-6-95	RUN 2 AUX HT IN LET 4-6-95	RUN 3 AUX HT IN LET 4-7-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	(0.009)	0.42	0.08	0.06
12378-PeCDD	(0.01)	1.4	0.30	0.30
123478-HxCDD	(0.02)	1.8	0.43	0.48
123678-HxCDD	(0.02)	3.0	0.87	0.97
123789-HxCDD	(0.02)	4.1	1.1	1.2
1234678-HpCDD	0.11	12.9	4.1	4.1
2378-TCDF	0.06	52.2	8.1	6.2
12378-PeCDF	(0.01)	9.5	1.5	0.95 B
23478-PeCDF	{0.02}	14.6	2.4	2.2
123478-HxCDF	0.04	38.1	7.4	5.3
123678-HxCDF	0.01	11.3	2.3	1.8
234678-HxCDF	0.04	15.6	3.2	3.3
123789-HxCDF	(0.01)	0.80	0.16	0.14
1234678-HpCDF	0.07	37.6	8.0	5.7
1234789-HpCDF	(0.02)	5.2	1.1	0.89
OCDF	{0.08}	23.6	4.2	3.5
TOTAL TCDD				4.3
TOTAL TCDF				36.8
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	90.3	91.1	86.5	87.1
13C12-PeCDF 234	93.7	90.3	80.6	94.4
13C12-HxCDF 478	83.1	98.2	88.0	93.2
13C12-HxCDD 478	92.7	103	93.3	97.2
13C12-HpCDF 789	81.4	90.2	79.3	90.3
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	89.6	93.0	98.1	109
13C12-HxCDF 234	99.6	93.4	94.8	108
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	75.6	102	103	108
13C12-2378-TCDD	72.3	89.0	88.8	92.5
13C12-PeCDF 123	66.2	95.0	86.2	90.0
13C12-PeCDD 123	99.3	114	96.0	108
13C12-HxCDF 678	93.4	95.4	105	109
13C12-HxCDD 678	91.9	89.0	95.5	99.3
13C12-HpCDF 678	78.2	102	99.6	105
13C12-HpCDD 678	85.5	99.4	95.7	101
13C12-OCDD	70.0	87.2	78.7	79.8

Data File	W951889	W951890	W951892	W951893
Sample ID	RUN 1 BH INLET 4-5-95	RUN 2 BH INLET 4-5-95	RUN 1 BH INLET 4-6-95	RUN 2 BH INLET 4-6-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDD	3.2	3.9	1.5	0.35
12378-PeCDD	7.8	8.9	5.5	1.8
123478-HxCDD	5.4	5.1	6.5	2.9
123678-HxCDD	8.4	9.0	11.2	5.1
123789-HxCDD	13.1	12.9	14.2	6.7
1234678-HpCDD	27.4	23.7	48.5	23.9
2378-TCDF	184	195	178	54.9
12378-PeCDF	29.0	33.9	31.7	10.1
23478-PeCDF	62.3	64.2	51.2	17.3
123478-HxCDF	110	104	150	54.7
123678-HxCDF	34.2	33.5	43.5	16.3
234678-HxCDF	43.5	44.0	55.4	22.6
123789-HxCDF	{1.5}	1.2	3.1	1.1
1234678-HpCDF	75.5	65.5	146	55.5
1234789-HpCDF	7.2	5.7	19.7	7.3
OCDF	18.7	16.2	105	27.9
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	92.0	86.1	112	93.9
13C12-PeCDF 234	99.4	87.9	90.5	88.2
13C12-HxCDF 478	103	102	107	97.3
13C12-HxCDD 478	92.3	91.0	101	103
13C12-HpCDF 789	92.2	89.3	90.7	86.0
Other Standards Percent Recovery Summary (% Rec)				
13C12-HxCDF 789	88.4	98.6	90.0	88.9
13C12-HxCDF 234	80.6	95.4	87.9	92.2
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	131	56.8	95.7	88.2
13C12-2378-TCDD	114	50.0	80.0	76.7
13C12-PeCDF 123	125	50.8	76.8	69.7
13C12-PeCDD 123	142	54.3	81.7	75.0
13C12-HxCDF 678	118	58.7	89.1	93.3
13C12-HxCDD 678	120	56.7	88.8	84.0
13C12-HpCDF 678	133	64.8	88.5	86.2
13C12-HpCDD 678	129	64.4	81.4	82.4
13C12-OCDD	118	50.7	60.0	60.9

Data File	W951896	W951897
Sample ID	RUN 3 BH INLET 4-6-95	RUN 3 BH INLET 4-5-95
Units	ng	ng
Analytes		
2378-TCDD	0.13	4.8
12378-PeCDD	0.63	11.6
123478-HxCDD	0.85	9.2
123678-HxCDD	1.8	15.8
123789-HxCDD	2.3	24.0
1234678-HpCDD	8.7	45.2
2378-TCDF	15.6	303
12378-PeCDF	3.0	42.4
23478-PeCDF	5.3	69.4
123478-HxCDF	18.9	154
123678-HxCDF	5.4	44.7
234678-HxCDF	7.4	51.0
123789-HxCDF	0.49	1.6
1234678-HpCDF	19.7	114
1234789-HpCDF	2.8	7.7
OCDF	11.5	23.6
Other Standards Percent Recovery Summary (% Rec)		
37Cl-TCDD	91.4	86.2
13C12-PeCDF 234	83.1	91.1
13C12-HxCDF 478	104	97.6
13C12-HxCDD 478	92.1	106
13C12-HpCDF 789	85.9	97.9
Other Standards Percent Recovery Summary (% Rec)		
13C12-HxCDF 789	83.7	97.2
13C12-HxCDF 234	83.7	86.6
Internal Standards Percent Recovery Summary (% Rec)		
13C12-2378-TCDF	83.9	95.2
13C12-2378-TCDD	74.3	84.3
13C12-PeCDF 123	70.6	86.6
13C12-PeCDD 123	73.6	97.3
13C12-HxCDF 678	83.5	92.9
13C12-HxCDD 678	82.1	82.4
13C12-HpCDF 678	77.2	95.6
13C12-HpCDD 678	75.7	95.1
13C12-OCDD	49.4	69.9

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

Data File	P951896	P951897	P951898	P951902
Sample ID	RUN 1 BH EXIT 4 -5-95	RUN 2 BH EXIT 4 -5-95	RUN 3 BH EXIT 4 -5-95	RUN 1 BH EXIT 4 -6-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDF	8.4	8.2	13.5	8.7
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	86.0	82.1	84.9	77.0

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Data File	P951903	P951904	P951905	P951906
Sample ID	RUN 2 BH EXIT 4 -6-95	RUN 3 BH EXIT 4 -6-95	RUN 1 AB EXIT 1 4-4-95	RUN 2 AB EXIT 1 4-4-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDF	10.8	12.8	205	44.2
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	75.3	73.9	82.7	79.0

Data File	P951907	P951908	P951909	P951910
Sample ID	RUN 3 AB EXIT 1 4-4-95	RUN 1 AB EXIT 2 4-5-95	RUN 2 AB EXIT 2 4-5-95	RUN 3 AB EXIT 2 4-5-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDF	98.1	94.9	158	36.0
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	74.1	77.3	72.8	72.9

Data File	P951911	P951912	P951913
Sample ID	RUN 1 FLUE 4-6-96	RUN 2 FLUE 4-6-95	RUN 3 FLUE 4-7-95
Units	ng	ng	ng
Analytes			
2378-TCDF	10.2	3.5	1.5
Internal Standards Percent Recovery Summary (% Rec)			
13C12-2378-TCDF	71.1	72.5	69.4

Data File	P951842	P951844	P951845	P951848
Sample ID	TLI Inlet M23 Blank	RUN 2 AUX HT INLET 4-6-95	RUN 3 AUX HT INLET 4-7-95	RUN 1 BH INLET 4-5-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDF	{0.004}	2.2	1.3	43.2
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	59.9	75.1	95.9	114

Data File	P951851	P951867	P951869	P951870
Sample ID	RUN 1 AUX HT IN LET 4-6-95	RUN 2 BH INLET 4-5-95	RUN 3 BH INLET 4-5-95	RUN 1 BH INLET 4-6-95
Units	ng	ng	ng	ng
Analytes				
2378-TCDF	19.0	52.6	55.4	60.1
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDF	78.0	57.2	79.1	72.1

Data File	P951871	P951872
Sample ID	RUN 2 BH INLET 4-6-95	RUN 3 BH INLET 4-6-95
Units	ng	ng
Analytes		
2378-TCDF	13.5	3.9
Internal Standards Percent Recovery Summary (% Rec)		
13C12-2378-TCDF	78.3	78.1

{Estimated Maximum Possible Concentration}.

TL-RTP Project: 32311A — Method 23 PCDD/PCDF Analysis (a)

Client Sample: TLI M23 Outlet&Flue Blank — Analysis File: W951805

Client Project:	n/a				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLRTP ID:	TLI Blank	Date Extracted:	04/19/95	ICAL:	WF54275
		Date Analyzed:	04/30/95	CONCAL:	W951794
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	W951805	% Lipid:	n/a
GC Column:	DB-5	Analyst:	WK	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.003				—
1,2,3,7,8-PeCDD	ND	0.004				—
1,2,3,4,7,8-HxCDD	ND	0.005				—
1,2,3,6,7,8-HxCDD	ND	0.005				—
1,2,3,7,8,9-HxCDD	ND	0.004				—
1,2,3,4,6,7,8-HpCDD	ND	0.005				—
2,3,7,8-TCDF	ND	0.002				—
1,2,3,7,8-PeCDF	ND	0.003				—
2,3,4,7,8-PeCDF	ND	0.003				—
1,2,3,4,7,8-HxCDF	ND	0.003				—
1,2,3,6,7,8-HxCDF	ND	0.002				—
2,3,4,6,7,8-HxCDF	0.007			1.23	33:05	—
1,2,3,7,8,9-HxCDF	ND	0.003				—
1,2,3,4,6,7,8-HpCDF	ND	0.003				—
1,2,3,4,7,8,9-HpCDF	ND	0.004				—
1,2,3,4,6,7,8,9-OCDF	ND	0.006				—

Internal Standards	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.4	60.2	0.76	25:01	—
$^{13}C_{12}$-2,3,7,8-TCDD	2.2	54.0	0.78	25:45	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.5	63.7	1.50	29:00	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3.5	86.3	1.56	30:02	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2.9	71.8	0.52	32:36	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2.9	72.2	1.24	33:16	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2.7	67.9	0.43	35:16	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.3	81.3	1.04	36:10	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	6.1	75.7	0.88	39:09	—

Triangle Laboratories of RTP, Inc.
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Printed: 17:46 05/09/95

TL-RTP Project: **32311A** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **TLI M23 Outlet&Flue Blank** Analysis File: **W951805**

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.6	90.7		25:46	
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.9	96.4	1.50	29:43	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.2	81.0	0.51	32:30	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	4.0	101	1.21	33:11	
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.6	91.2	0.45	36:36	

Alternate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.1	76.8	0.51	33:48	
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.3	81.8	0.51	33:05	

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	25:34	
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.24	33:34	

Data Reviewer: _____ 05/09/95

X237_PSR v:1.10, LARS 5.14.12

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	Initial	Date
B-File/Header Changes	KV	5/4/95
Manual Integrations		/ /
Transcription		/ /
dBASE Corrections		/ /

Calculated Noise Area: 300 6.4

Channel: 320

Initials: KV

Date: 5/5/95

Page No. 1
04/30/95

Listing of W951805B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
									21:39-26:57	
TCDF										
304-306	DC	0.84	22:59	10.82	T	F	0.919	SN		
	DN	0.35	23:36	14.02	F	F	0.943	FR		
	D	0.57	23:41	32.75	F	F	0.947	FR		
	DN	0.46	23:58	10.46	F	F	0.958	SN		
	D	0.49	24:02	18.60	F	F	0.961	FR		
	D	0.99	24:24	38.82	F	F	0.975	FR		
	DN	2.53	24:36	9.82	F	F	0.983	FR		
	D	0.64	25:02	53.73	F	T	1.001	FR	2378-TCDF	AN
	DN	0.53	25:09	8.42	F	F	1.005	SN		
	D	1.36	25:30	25.73	F	F	1.019	FR		
	D	1.99	25:56	16.62	F	F	1.037	FR		
304-306		Peaks	6	186.25	*** Total ***					
									24:01-26:01	
13C12-TCDF										
316-318	DC	0.75	23:58	1,088.45	T	F	0.958	WL		
		0.71	24:15	55.49	T	F	0.969			
		0.81	24:35	198.57	T	F	0.983			
		0.76	25:01	25,119.15	T	T	1.000		13C12-2378-TCDF	IS0
		0.90	25:28	191.50	F	F	1.018	FR		
	DC	1.58	26:46	25.60	F	F	1.070	WH		
316-318		Peaks	4	25,564.71	*** Total ***					
									23:02-26:56	
TCDD										
320-322	DN	1.09	25:32	9.50	F	F	0.992	SN		
320-322		Peaks	0	0.00	*** Total ***					
									23:44-27:44	
37Cl-TCDD										
328		0.00	25:46	15,852.19	T	T	1.001		37Cl-TCDD	SUR1
328		Peaks	1	15,852.19	*** Total ***					
									23:44-27:44	
13C12-TCDD										
332-334		0.93	24:34	94.16	F	F	0.954	FR		
		0.80	25:34	29,198.57	T	T	0.993		13C12-1234-TCDD	RS1
		0.78	25:45	16,830.01	T	T	1.000		13C12-2378-TCDD	IS1
		0.33	25:54	32.97	F	F	1.006	FR		
		0.63	26:04	274.02	F	F	1.012	FR		
332-334		Peaks	5	46,429.73	*** Total ***					

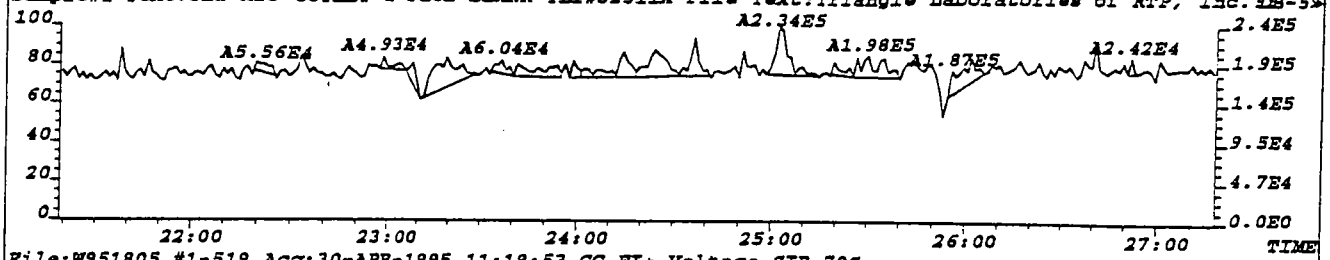
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
PeCDF									26:51-30:52	
340-342	DN	2.29	28:09	11.01	F	F	0.971	SN		
	DN	0.70	29:18	5.13	F	F	1.010	SN		
	DN	0.70	29:23	5.60	F	F	1.013	SN		
	DN	1.31	29:57	2.88	F	F	1.033	SN		
	DN	0.64	30:10	5.26	F	F	1.040	SN		
	DN	0.49	30:13	4.73	F	F	1.042	SN		
	DN	1.85	30:24	6.42	F	F	1.048	SN		
	DN	0.68	30:28	4.77	F	F	1.051	SN		
340-342		Peaks	0	0.00	*** Total ***					
13C12-PeCDF									25:01-33:01	
352-354		1.50	28:09	1,472.71	T	F	0.971			
		1.36	28:37	170.61	T	F	0.987			
		1.50	29:00	21,508.76	T	T	1.000		13C12-PeCDF 123	IS2
		1.43	29:17	340.72	T	F	1.010			
		1.50	29:43	20,510.71	T	T	1.025		13C12-PeCDF 234	SUR2
		1.28	30:40	46.36	F	F	1.057	FR		
352-354		Peaks	6	44,049.87	*** Total ***					
13C12-PeCDD									26:03-34:03	
368-370		1.60	28:58	41.32	T	F	0.964			
		1.46	29:06	64.47	T	F	0.969			
		1.56	30:02	13,829.88	T	T	1.000		13C12-PeCDD 123	IS3
		1.40	30:11	1,432.65	T	F	1.005			
		0.46	30:32	23.27	F	F	1.017	FR		
368-370		Peaks	5	15,391.59	*** Total ***					
HxCDF									31:23-34:03	
374-376	DN	0.33	31:26	2.32	F	F	0.964	SN		
	DN	3.34	31:41	3.58	F	F	0.972	SN		
	DN	2.76	32:31	10.67	F	T	0.997	FR		
	DN	1.68	32:36	7.00	F	T	1.000	SN		
		1.23	33:05	48.13	T	T	1.015		234678-HxCDF	AN
374-376		Peaks	1	48.13	*** Total ***					
13C12-HxCDF									28:36-36:36	
384-386		0.50	31:32	287.15	T	F	0.967			
		0.53	31:40	610.26	T	F	0.971			
		0.51	32:30	15,657.11	T	T	0.997		13C12-HxCDF 478	SUR3
		0.52	32:36	21,533.64	T	T	1.000		13C12-HxCDF 678	IS4
		0.51	33:05	24,040.20	T	T	1.015		13C12-HxCDF 234	ALT2
		0.51	33:48	16,641.25	T	T	1.037		13C12-HxCDF 789	ALT1
384-386		Peaks	6	78,769.61	*** Total ***					
HxCDD									31:52-33:42	
390-392	DN	0.35	31:46	2.06	F	F	0.955	SN		
	DN	5.35	32:36	4.19	F	F	0.980	SN		
	DN	2.56	33:06	11.80	F	F	0.995	FR		
	DN	7.22	33:48	2.46	F	F	1.016	SN		
	DN	0.98	33:52	3.54	F	F	1.018	SN		
390-392		Peaks	0	0.00	*** Total ***					

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
13C12-HxCDD									32:16-34:16	
402-404		1.38	32:40	114.54	T	F	0.982			
		1.21	33:11	12,887.46	T	T	0.997		13C12-HxCDD 478	SUR4
		1.24	33:16	13,332.09	T	T	1.000		13C12-HxCDD 678	IS5
		1.24	33:34	20,190.90	T	T	1.009		13C12-HxCDD 789	RS2
402-404		Peaks	4	46,524.99	*** Total ***					
HpCDF									35:07-36:47	
408-410	D	2.16	35:17	18.60	F	T	1.000	FR	1234678-HpCDF	AN
	DN	1.67	35:24	5.17	F	F	1.004	SN		
	DN	1.53	35:30	8.25	F	F	1.007	SN		
	DN	0.42	35:39	8.66	F	F	1.011	SN		
	DN	1.27	36:36	9.48	F	T	1.038	SN		
408-410		Peaks	1	18.60	*** Total ***					
13C12-HpCDF									33:16-39:16	
418-420		0.43	35:16	12,946.83	T	T	1.000		13C12-HpCDF 678	IS6
		0.45	36:36	9,220.41	T	T	1.038		13C12-HpCDF 789	SUR5
418-420		Peaks	2	22,167.24	*** Total ***					
HpCDD									35:22-36:21	
424-426	DN	1.39	36:09	14.72	F	T	1.000	FR		
424-426		Peaks	0	0.00	*** Total ***					
13C12-HpCDD									35:09-37:09	
436-438		1.12	35:31	210.23	T	F	0.982			
		1.04	36:10	12,310.17	T	T	1.000		13C12-HpCDD 678	IS7
436-438		Peaks	2	12,520.40	*** Total ***					
OCDF									35:08-43:08	
442-444	DN	1.58	39:19	13.38	F	T	1.004	FR		
442-444		Peaks	0	0.00	*** Total ***					
OCDD									35:08-43:08	
458-460		0.98	39:08	68.42	T	T	1.000		OCDD	AN
458-460		Peaks	1	68.42	*** Total ***					
13C12-OCDD									38:59-39:19	
470-472		0.88	39:09	17,572.74	T	T	1.000		13C12-OCDD	IS8

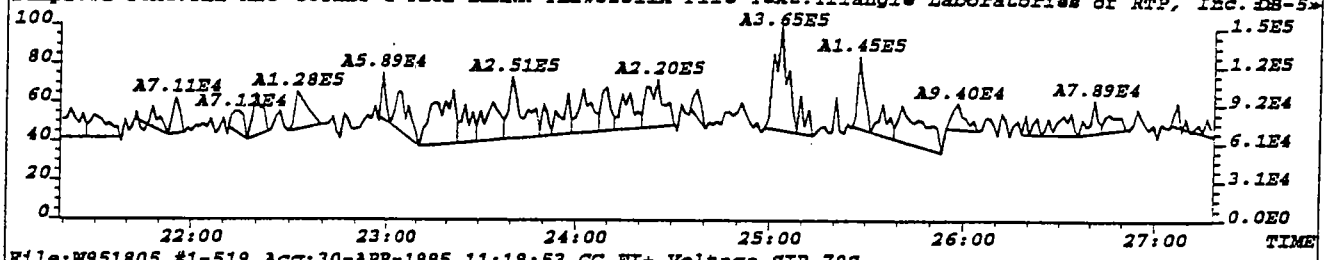
Column...	Description.....	"Why" Code	Description
M_Z	- Nominal Ion Mass(es)	WL	- Below Retention Time Window
RT.	- Retention Time	WH	- Above Retention Time Window
Match Rat	- Ratio Match True/False	SN	- Below Signal to Noise Level
Match RT	- Time Match True/False	<M	- Below Method Detection Limit
Rel RT	- Relative Retention Time	FR	- Calc based on theoretical ratio

*** End of Report ***

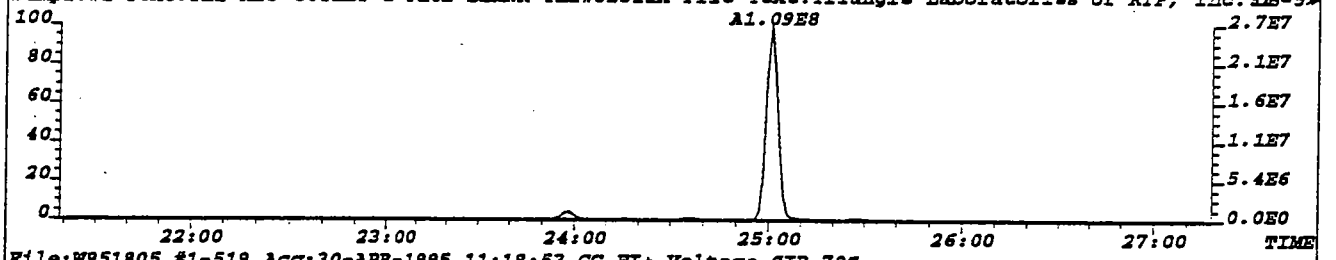
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
303.9016 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
305.8987 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
315.9419 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
317.9389 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
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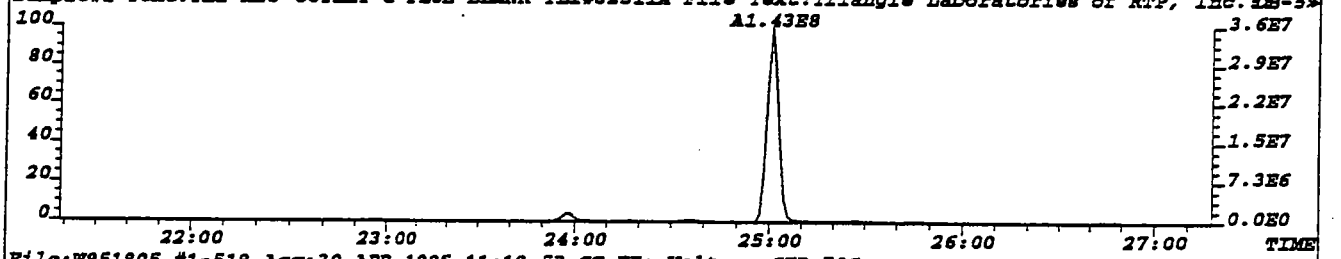
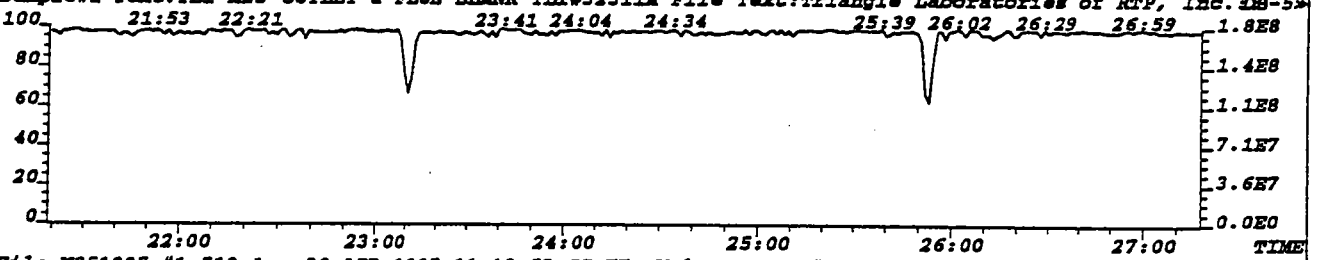
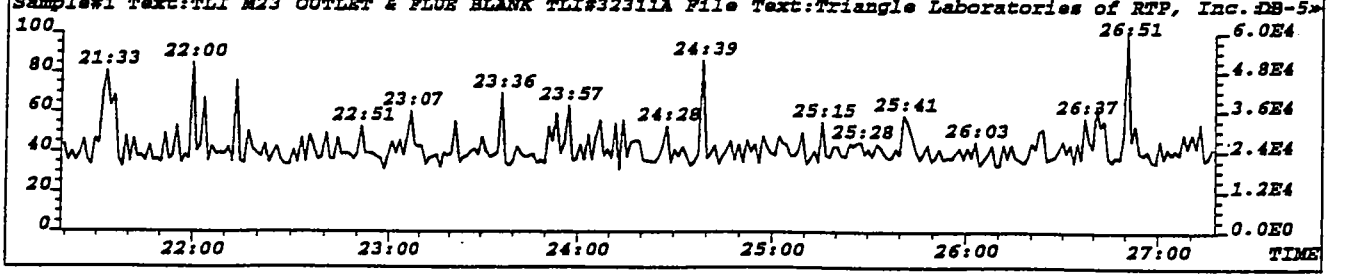
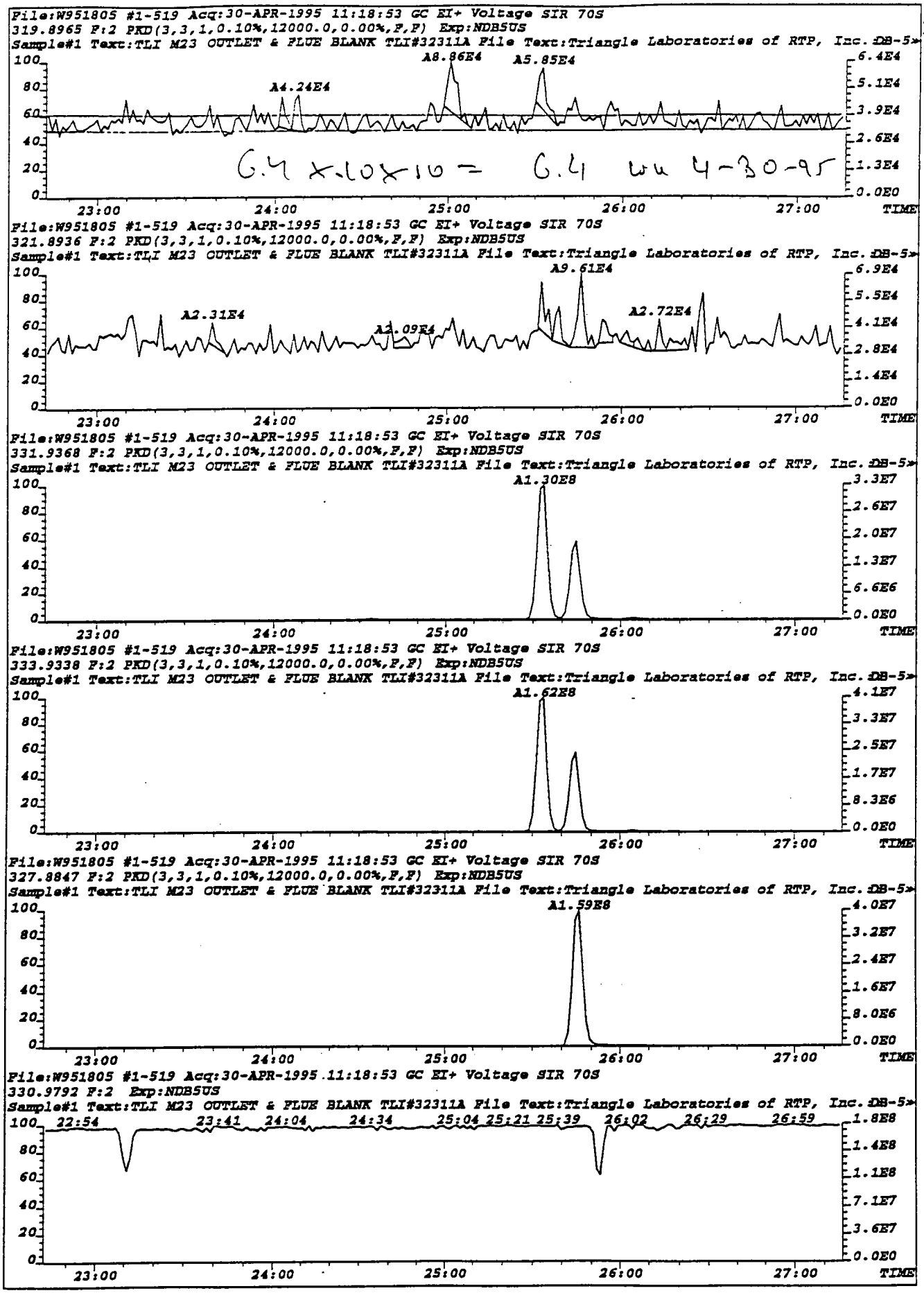


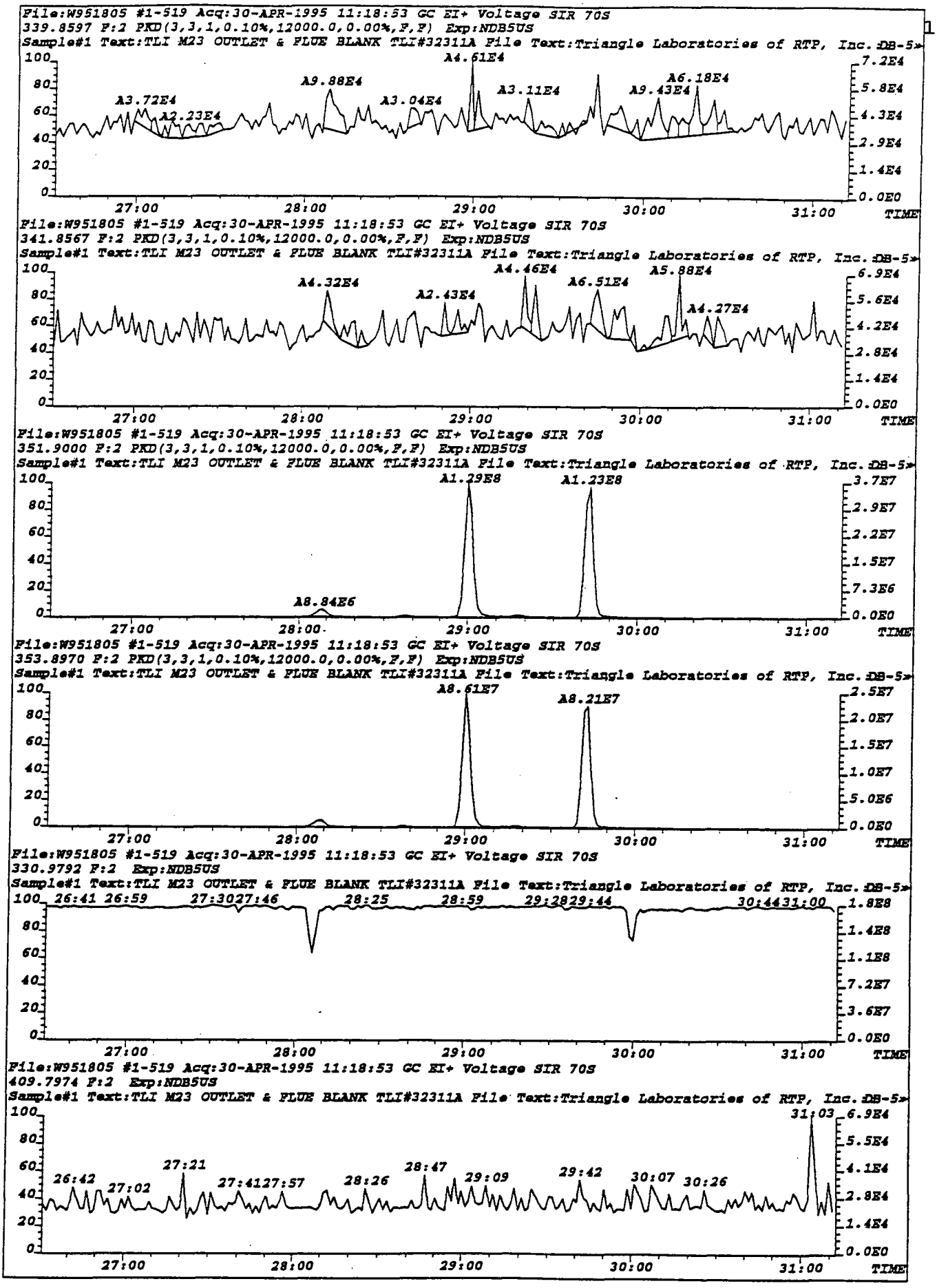
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5

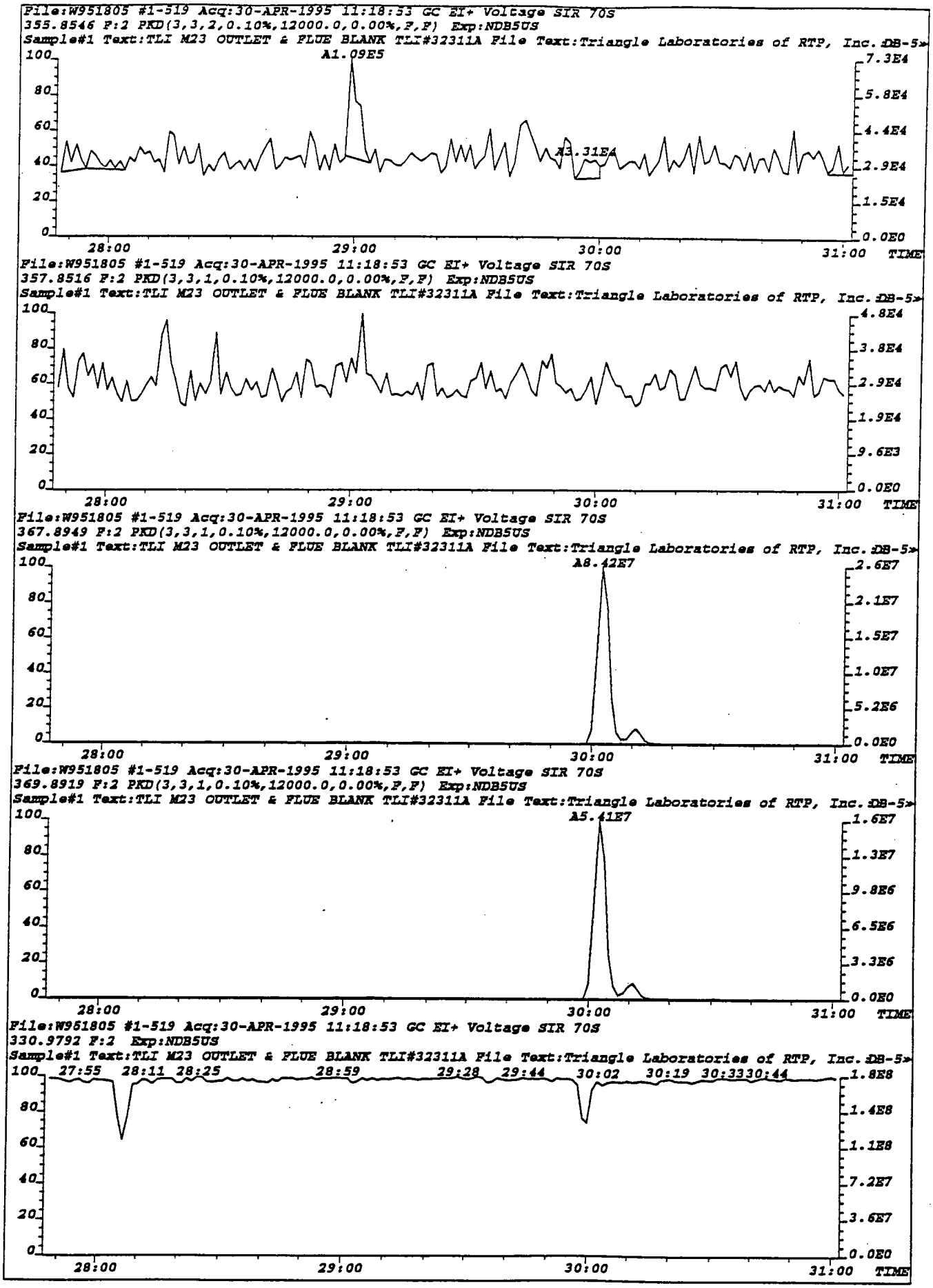


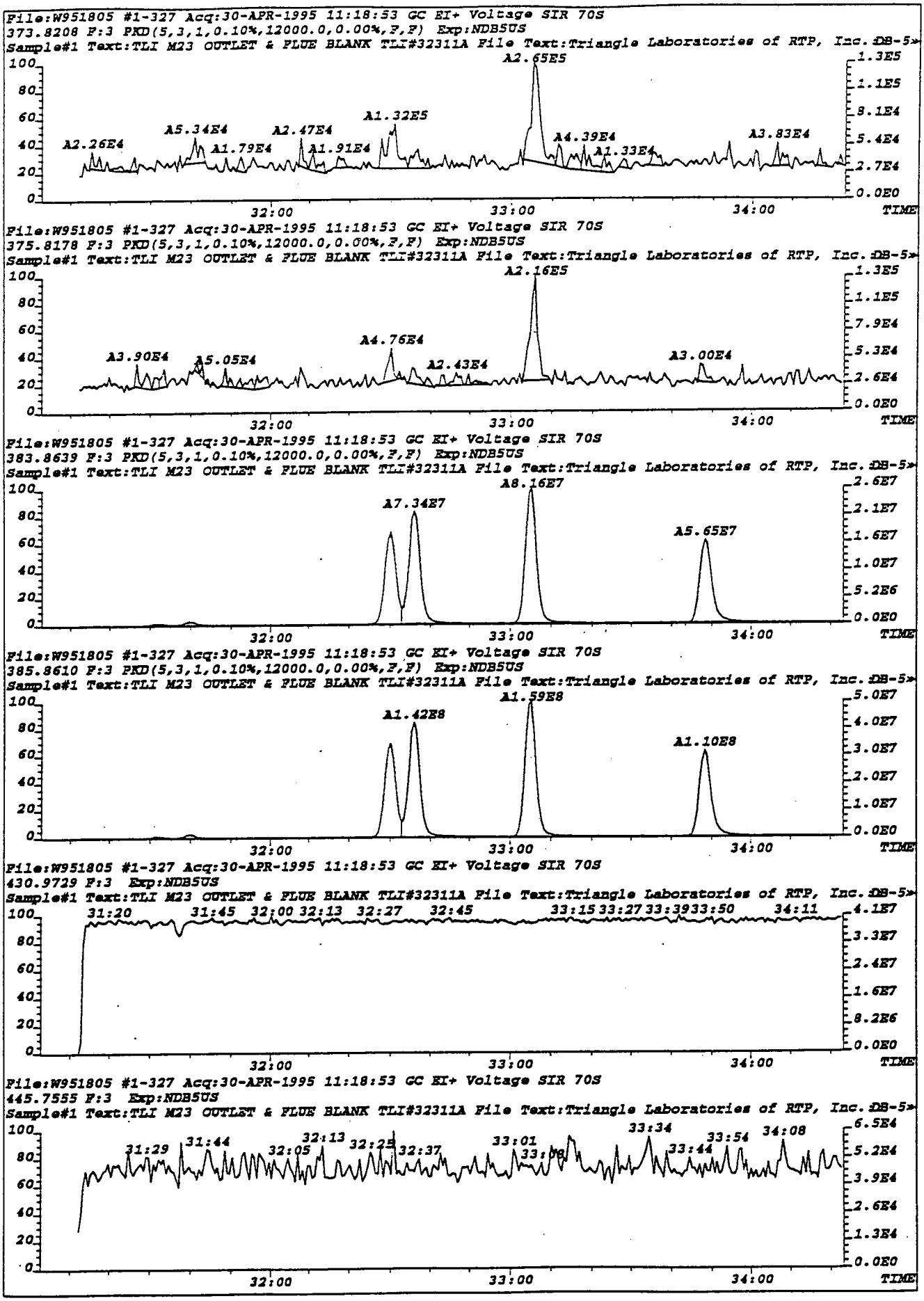
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
375.8364 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5

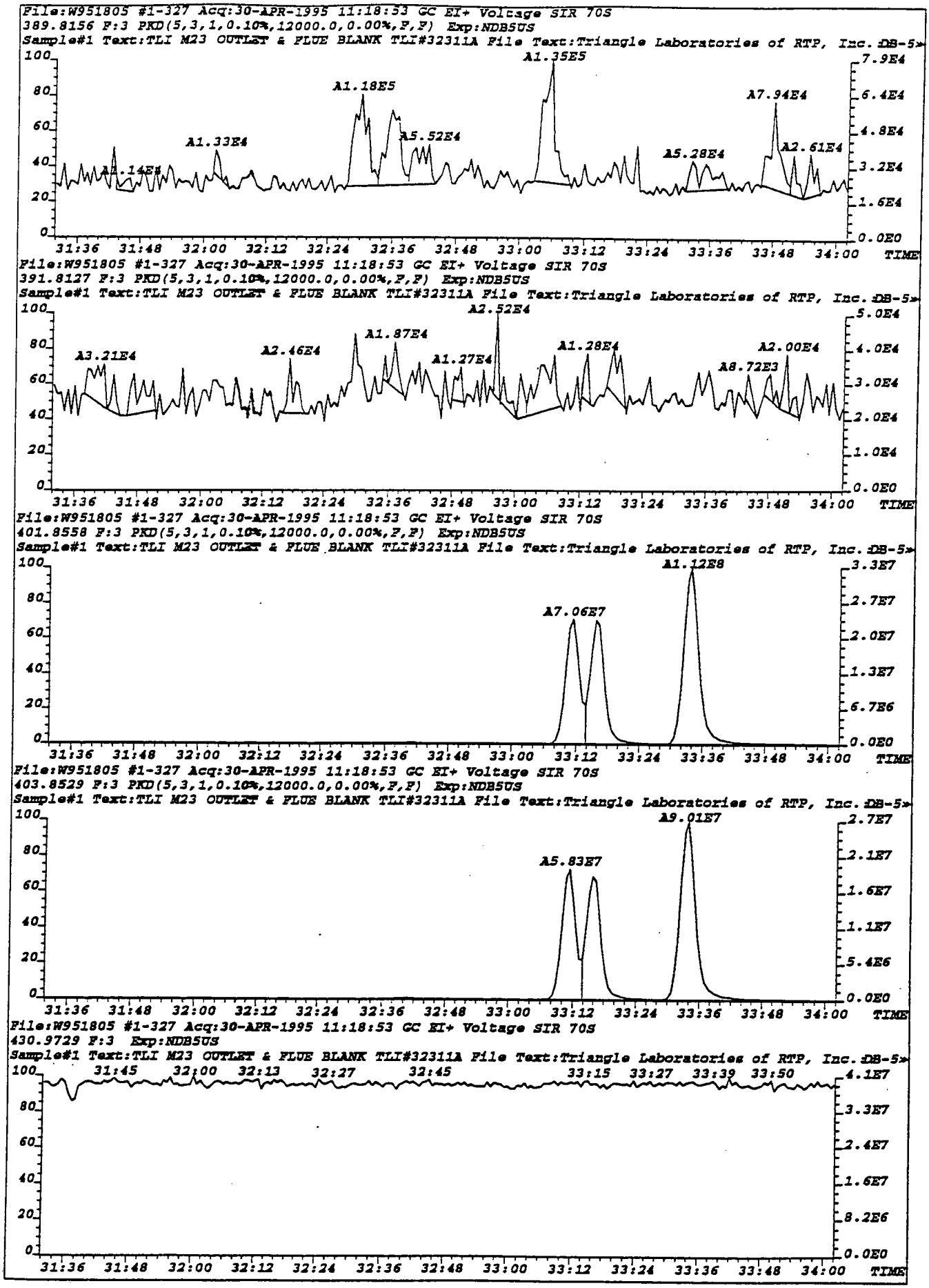


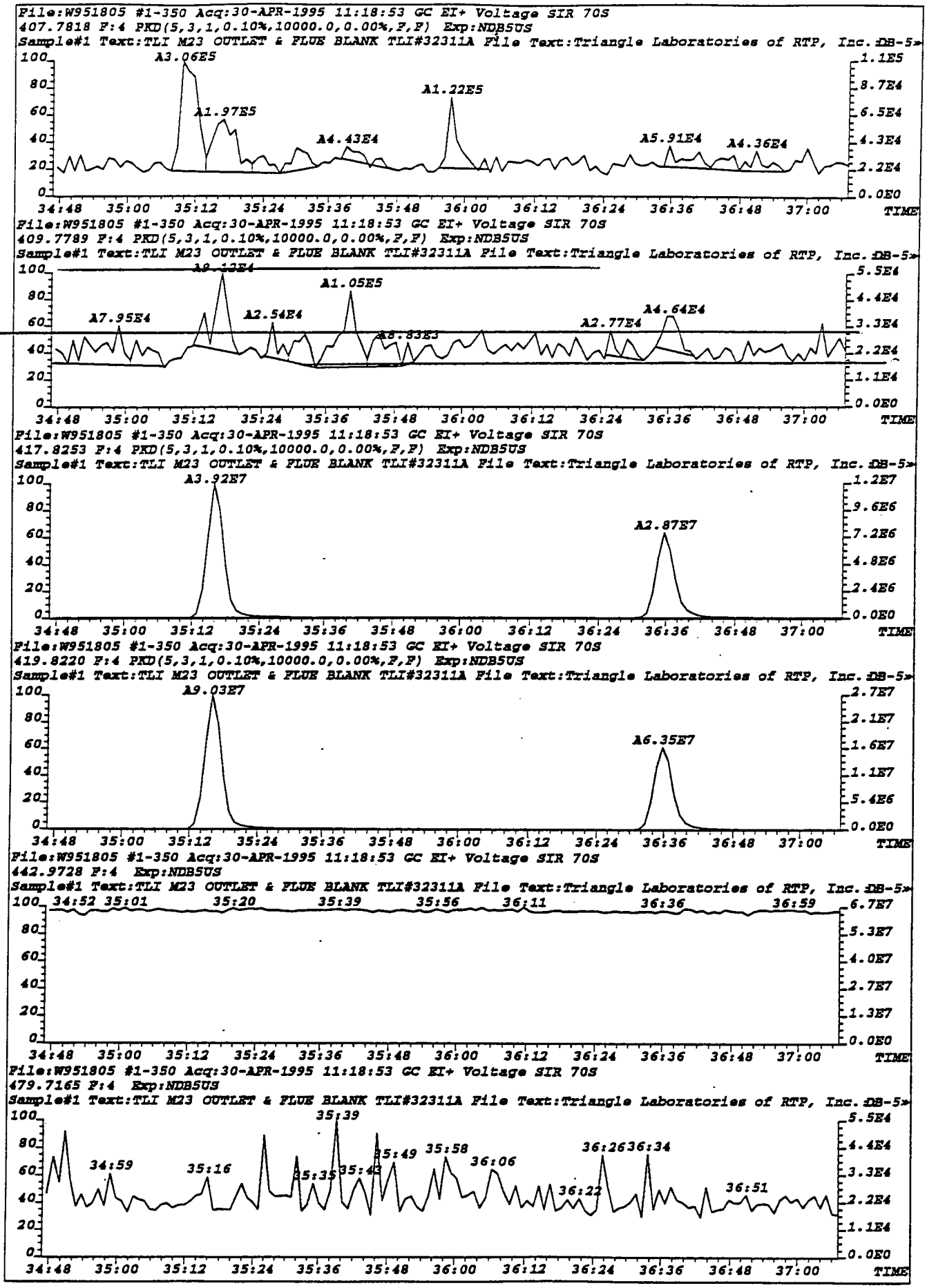

File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
319.8965 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A8.86E4
A5.85E4
A4.24E4
6.4 x.10x10 = 6.4 ug 4-30-95
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
321.8936 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A9.61E4
A2.31E4
A2.09E4
A2.72E4
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
331.9368 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.30E8
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
333.9338 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.62E8
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
327.8847 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.59E8
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
22:54
23:41
24:04
24:34
25:04
25:21
25:39
26:02
26:29
26:59
23:00
24:00
25:00
26:00
27:00
TIME

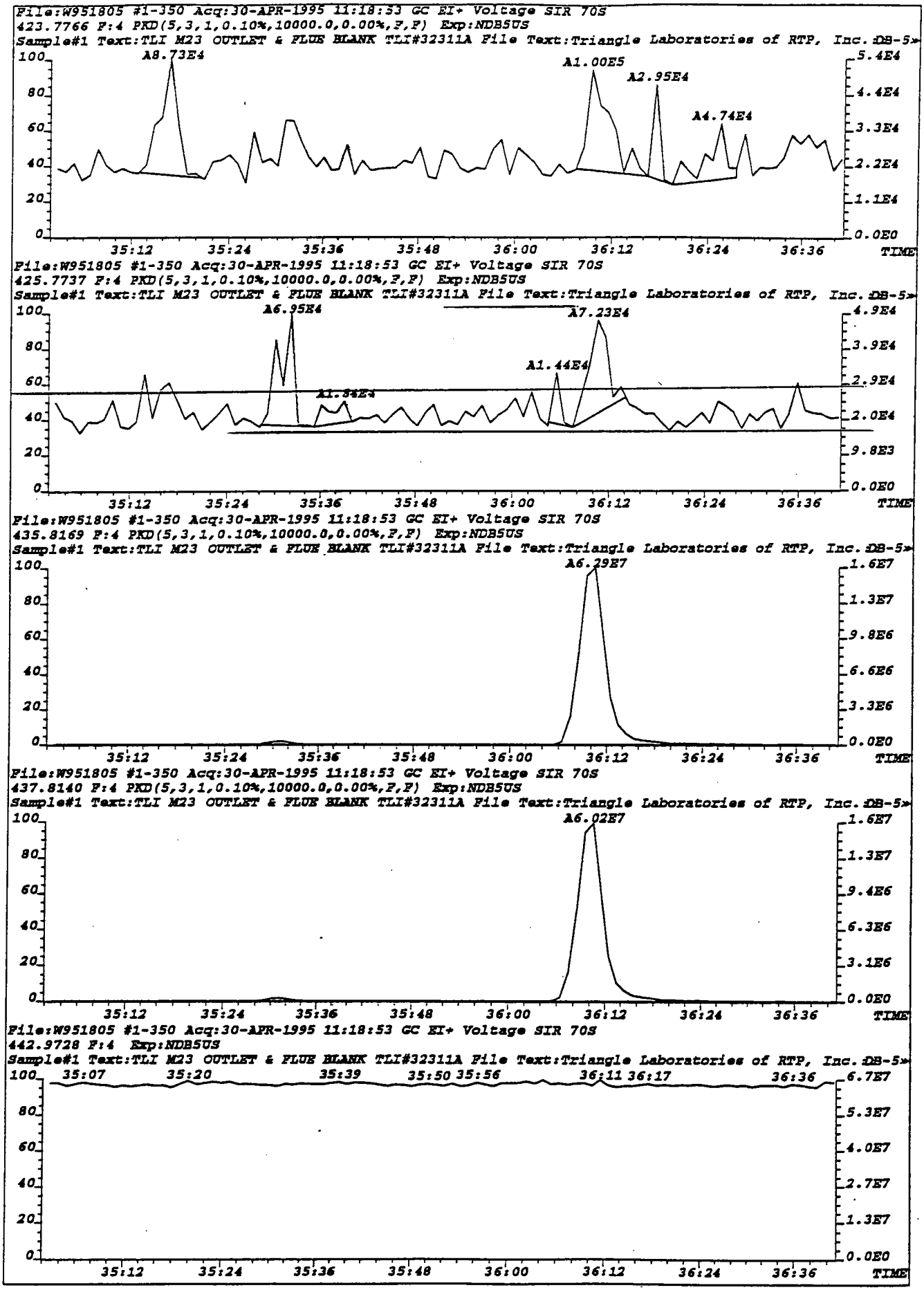

File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
339.8597 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A4.61E4
A9.88E4
A6.18E4
A3.72E4
A2.23E4
A3.04E4
A3.11E4
A9.43E4
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
341.8567 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A4.46E4
A5.88E4
A4.32E4
A6.51E4
A2.43E4
A4.27E4
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
351.9000 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.29E8
A1.23E8
A8.84E6
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
353.8970 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A8.61E7
A8.21E7
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
26:41 26:59 27:30 27:46 28:25 28:59 29:28 29:44 30:44 31:00
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
409.7974 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
31:03
26:42 27:02 27:21 27:41 27:57 28:26 28:47 29:09 29:42 30:07 30:26
27:00 28:00 29:00 30:00 31:00 TIME


File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
355.8546 F:2 PKD(3,3,2,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.09E5
A3.31E4
28:00
29:00
30:00
31:00
TIME
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
357.8516 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
367.8949 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A8.42E7
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
369.8919 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A5.41E7
File:W951805 #1-519 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
27:55
28:11
28:25
28:59
29:28
29:44
30:02
30:19
30:33
30:44

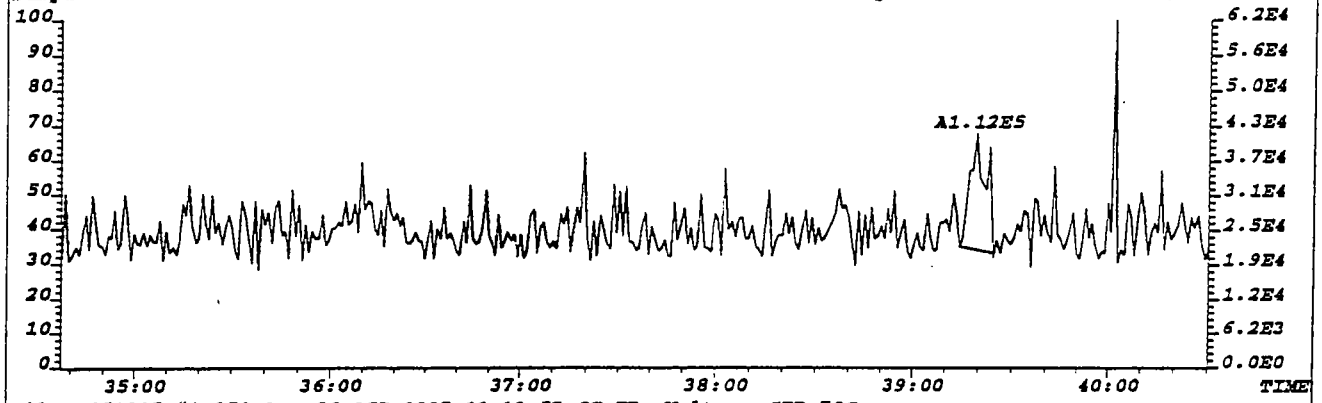

File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
373.8208 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A2.65E5
A5.34E4
A2.47E4
A1.32E5
A2.26E4
A1.79E4
A1.91E4
A4.39E4
A1.33E4
A3.83E4
32:00
33:00
34:00
TIME
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
375.8178 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A2.16E5
A4.76E4
A3.90E4
A5.05E4
A2.43E4
A3.00E4
32:00
33:00
34:00
TIME
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
383.8639 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A8.16E7
A7.34E7
A5.65E7
32:00
33:00
34:00
TIME
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
385.8610 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.59E8
A1.42E8
A1.10E8
32:00
33:00
34:00
TIME
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
31:20
31:45
32:00
32:13
32:27
32:45
33:15
33:27
33:39
33:50
34:11
32:00
33:00
34:00
TIME
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
445.7555 F:3 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
31:29
31:44
32:05
32:13
32:25
32:37
33:01
33:08
33:34
33:44
33:54
34:08
32:00
33:00
34:00
TIME


File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
389.8156 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.35E5
A1.18E5
A7.94E4
A1.33E4
A5.52E4
A5.28E4
A2.61E4
A2.14E4
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
391.8127 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A2.52E4
A1.87E4
A3.21E4
A2.46E4
A1.27E4
A1.28E4
A2.00E4
A8.72E3
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
401.8558 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A1.12E8
A7.06E7
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
403.8529 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A9.01E7
A5.83E7
File:W951805 #1-327 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
31:36 31:48 32:00 32:12 32:24 32:36 32:48 33:00 33:12 33:24 33:36 33:48 34:00 TIME

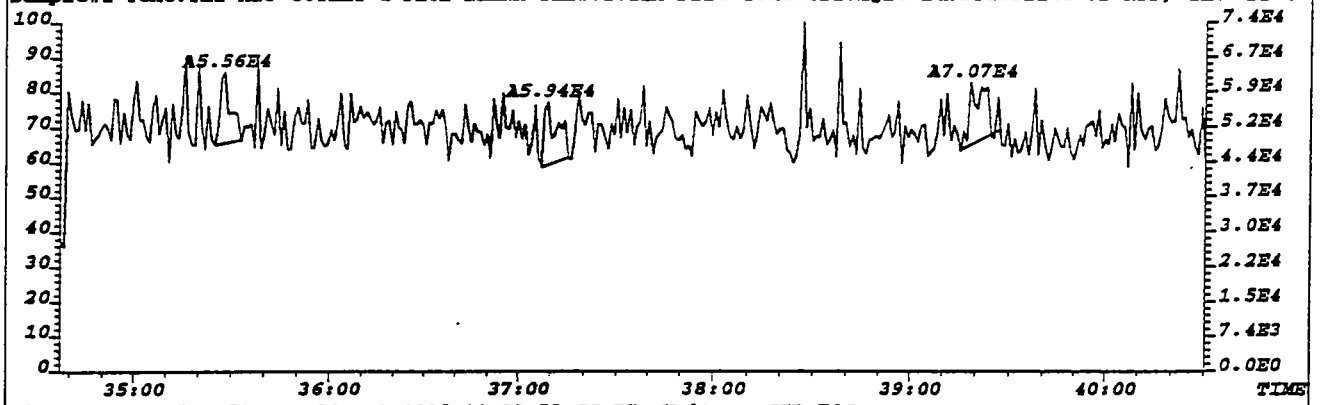

File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
407.7818 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A3.06E5
A1.97E5
A4.43E4
A1.22E5
A5.91E4
A4.36E4
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
409.7789 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A7.95E4
A2.54E4
A1.05E5
A2.77E4
A4.64E4
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
417.8253 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A3.92E7
A2.87E7
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
419.8220 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A9.03E7
A6.35E7
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
479.7165 F:4 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
34:59
35:16
35:39
35:49
35:58
36:06
36:26
36:34
36:22
36:51
TIME


File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A8.73E4
A1.00E5
A2.95E4
A4.74E4
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A6.95E4
A7.23E4
A1.44E4
A1.34E4
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A6.29E7
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
A6.02E7
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5
35:07
35:20
35:39
35:50
35:56
36:11
36:17
36:36
TIME

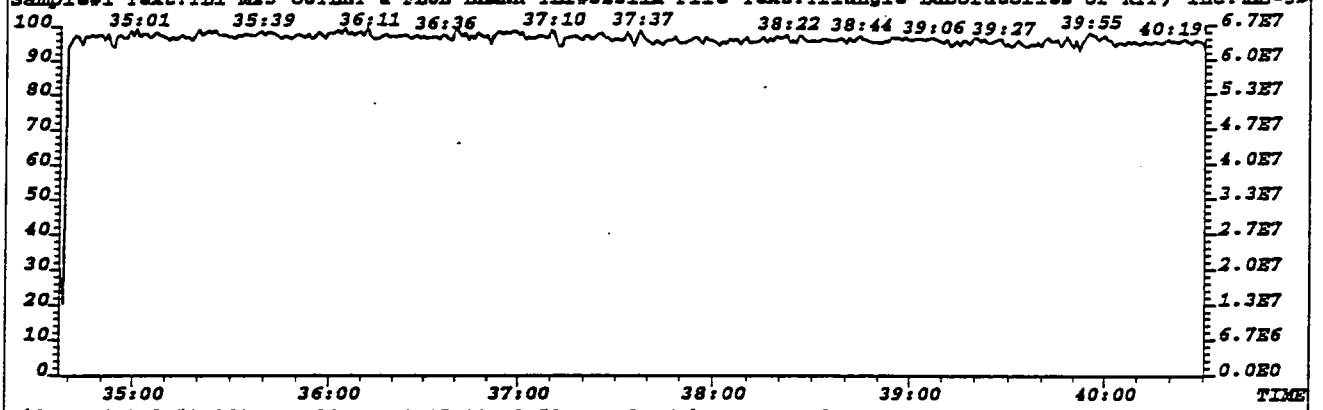
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
441.7428 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



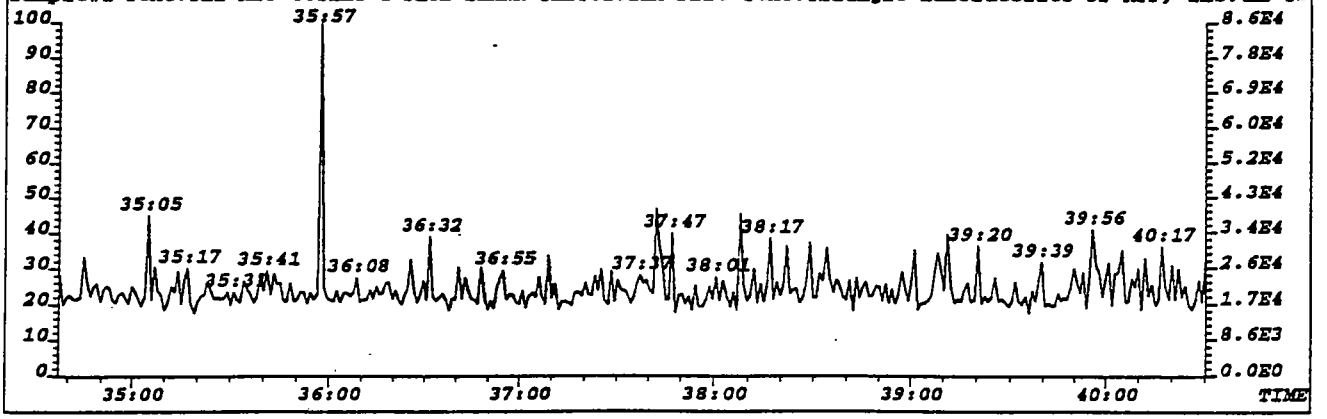
File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
443.7399 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



File:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
513.6775 F:4 Exp:NDB5US
Sample#1 Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc. DB-5



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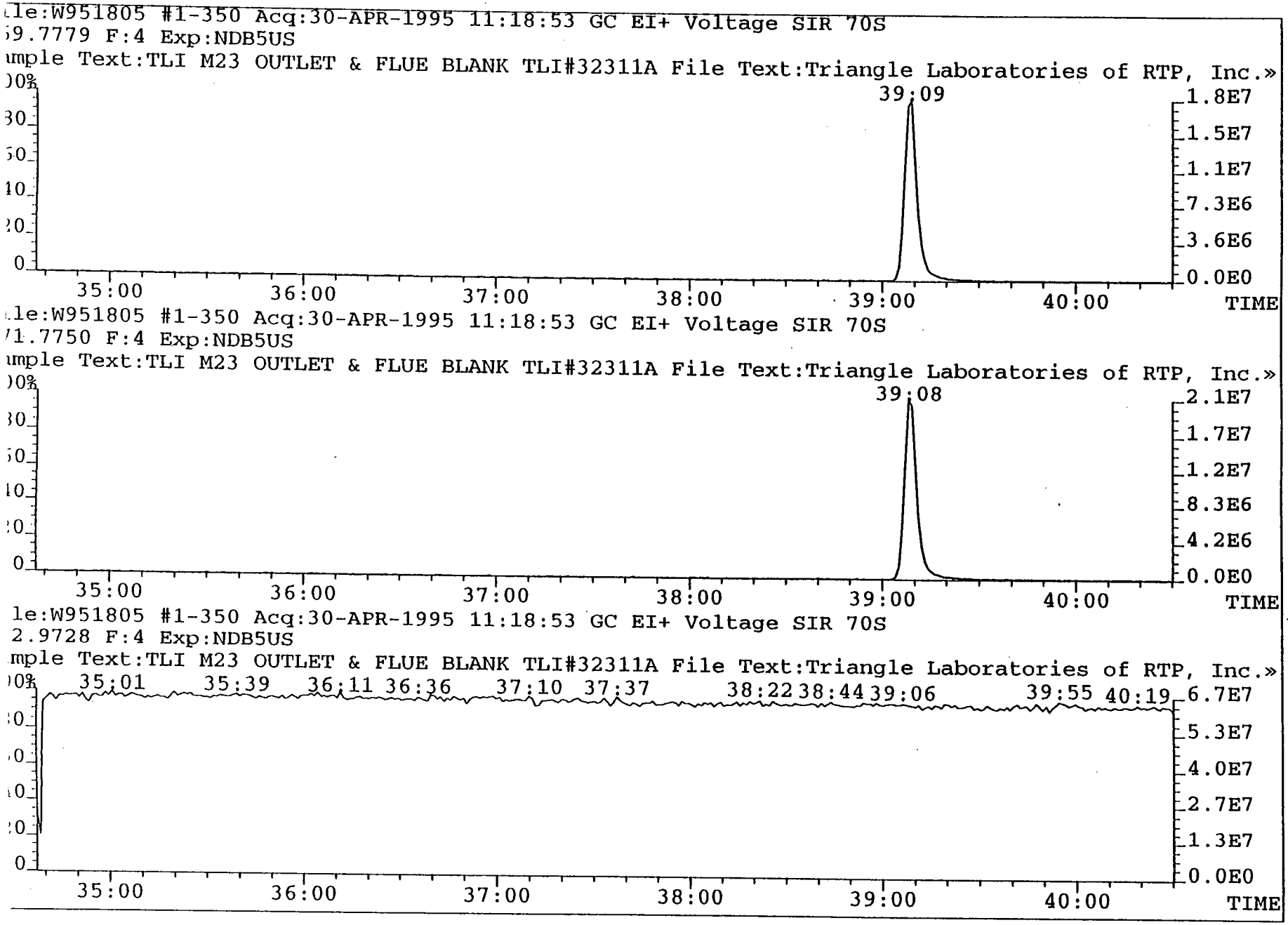
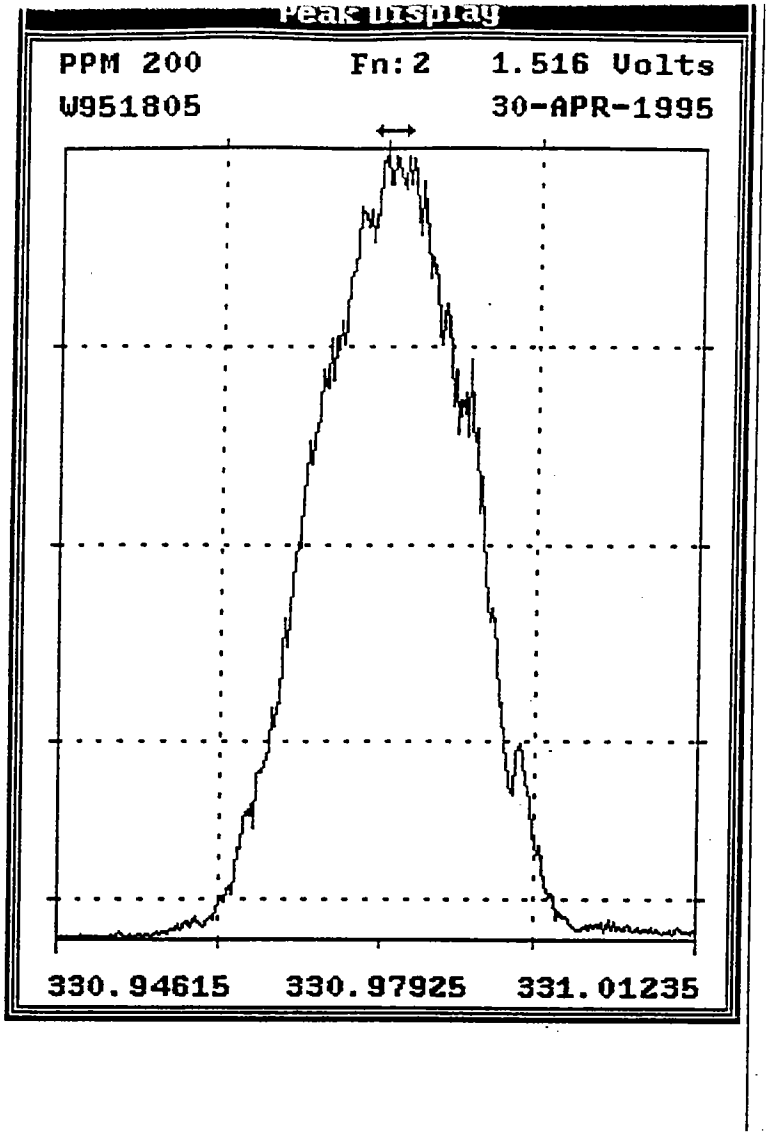

le:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
9.7779 F:4 Exp:NDB5US
mple Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc.»
39:09
1.8E7
1.5E7
1.1E7
7.3E6
3.6E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
le:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
1.7750 F:4 Exp:NDB5US
mple Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc.»
39:08
2.1E7
1.7E7
1.2E7
8.3E6
4.2E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
le:W951805 #1-350 Acq:30-APR-1995 11:18:53 GC EI+ Voltage SIR 70S
2.9728 F:4 Exp:NDB5US
mple Text:TLI M23 OUTLET & FLUE BLANK TLI#32311A File Text:Triangle Laboratories of RTP, Inc.»
35:01
35:39
36:11
36:36
37:10
37:37
38:22
38:44
39:06
39:55
40:19
6.7E7
5.3E7
4.0E7
2.7E7
1.3E7
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME


Peak Display
PPM 200
Fn:2
1.516 Volts
W951805
30-APR-1995
330.94615
330.97925
331.01235

TL-RTP Project: 32311B
Client Sample: TLI Inlet M23 Blank

Method 23 PCDD/PCDF Analysis (a)
Analysis File: W951882

Client Project:	n/a				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPX23704
TLRTP ID:	TLI Blank	Date Extracted:	04/20/95	ICAL:	WF54275
		Date Analyzed:	05/04/95	CONCAL:	W951880
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	W951882	% Lipid:	n/a
GC Column:	DB-5	Analyst:	GM	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.009				—
1,2,3,7,8-PeCDD	ND	0.01				—
1,2,3,4,7,8-HxCDD	ND	0.02				—
1,2,3,6,7,8-HxCDD	ND	0.02				—
1,2,3,7,8,9-HxCDD	ND	0.02				—
1,2,3,4,6,7,8-HpCDD	0.11			1.00	36:05	—
2,3,7,8-TCDF	0.06			0.73	24:55	—
1,2,3,7,8-PeCDF	ND	0.01				—
2,3,4,7,8-PeCDF	EMPC		0.02			—
1,2,3,4,7,8-HxCDF	0.04			1.26	32:24	—
1,2,3,6,7,8-HxCDF	0.01			1.20	32:31	—
2,3,4,6,7,8-HxCDF	0.04			1.31	33:00	—
1,2,3,7,8,9-HxCDF	ND	0.01				—
1,2,3,4,6,7,8-HpCDF	0.07			0.98	35:11	—
1,2,3,4,7,8,9-HpCDF	ND	0.02				—
1,2,3,4,6,7,8,9-OCDF	EMPC		0.08			—

Internal Standards	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.0	75.6	0.77	24:52	—
$^{13}C_{12}$-2,3,7,8-TCDD	2.9	72.3	0.80	25:36	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2.6	66.2	1.51	28:53	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.0	99.3	1.54	29:56	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	3.7	93.4	0.52	32:30	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.7	91.9	1.25	33:11	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.1	78.2	0.44	35:11	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.4	85.5	1.04	36:04	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	5.6	70.0	0.89	39:02	—

X237_PSR v:1.10. LARS 5.14.12

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

Printed: 17:51 05/09/95

TL-RTP Project: 32311B
Client Sample: TLI Inlet M23 Blank

Method 23 PCDD/PCDF Analysis (a)
Analysis File: W951882

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.6	90.3		25:38	
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.7	93.7	1.44	29:36	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.3	83.1	0.51	32:24	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.7	92.7	1.23	33:06	
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.3	81.4	0.45	36:29	

Alternate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.6	89.6	0.51	33:43	
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	4.0	99.6	0.52	32:59	

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	25:24	
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.23	33:28	

Data Reviewer: _____ 05/09/95

X237_PSR v:1.10, LARS 5.14.12

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Printed: 17:51 05/09/95

	Initial	....Date...		
B-File/Header Changes	KV	5/5/95	Calculated Noise Area:	11.25
Manual Integrations		/ /	Channel:	310
Transcription		/ /	Initials:	KV
dBASE Corrections		/ /	Date:	5/5/95

Page No. 1 Listing of W951882B.dbf
05/04/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									21:30-26:50	
304-306	DN	1.05	22:25	20.81	F	F	0.901	SN		
		0.78	22:49	52.94	T	F	0.918			
		0.32	23:07	33.70	F	F	0.930	FR		
		0.95	23:33	70.51	F	F	0.947	FR		
		0.60	23:50	64.09	F	F	0.958	FR		
		0.80	24:05	167.42	T	F	0.968			
		0.79	24:16	107.21	T	F	0.976			
		0.86	24:23	113.26	T	F	0.981			
		0.65	24:41	58.71	T	F	0.993			
		0.73	24:55	247.11	T	T	1.002		2378-TCDF	AN
		0.58	25:19	60.85	F	F	1.018	FR		
	DN	1.20	25:49	14.29	F	F	1.038	SN		
		0.81	26:01	56.93	T	F	1.046			
	DN	0.44	26:20	14.62	F	F	1.059	SN		
304-306		Peaks	11	1,032.73	*** Total ***					
13C12-TCDF									23:54-25:54	
316-318	DN	1.39	22:47	13.54	F	F	0.916	SN		
	DC	0.72	23:49	502.03	T	F	0.958	WL		
		0.75	24:07	32.68	T	F	0.970			
		0.96	24:27	91.68	F	F	0.983	FR		
		0.77	24:52	14,891.49	T	T	1.000		13C12-2378-TCDF	IS0
		1.18	25:19	150.45	F	F	1.018	FR		
316-318		Peaks	4	15,166.30	*** Total ***					
TCDD									22:53-26:48	
320-322	DN	0.44	23:03	10.75	F	F	0.900	SN		
	DN	0.28	25:40	4.68	F	T	1.003	SN		
320-322		Peaks	0	0.00	*** Total ***					
37Cl-TCDD									23:38-27:38	
328	DC	0.00	22:32	1,103.87	T	F	0.880	WL		
	DC	0.00	23:18	46.01	T	F	0.910	WL		
	DC	0.00	23:24	17.23	T	F	0.914	SN		
	DC	0.00	23:45	10.91	T	F	0.928	SN		
		0.00	24:12	607.40	T	F	0.945			
		0.00	25:38	9,968.41	T	T	1.001		37Cl-TCDD	SUR1
	DC	0.00	26:03	11.35	T	F	1.018	SN		
328		Peaks	2	10,575.81	*** Total ***					

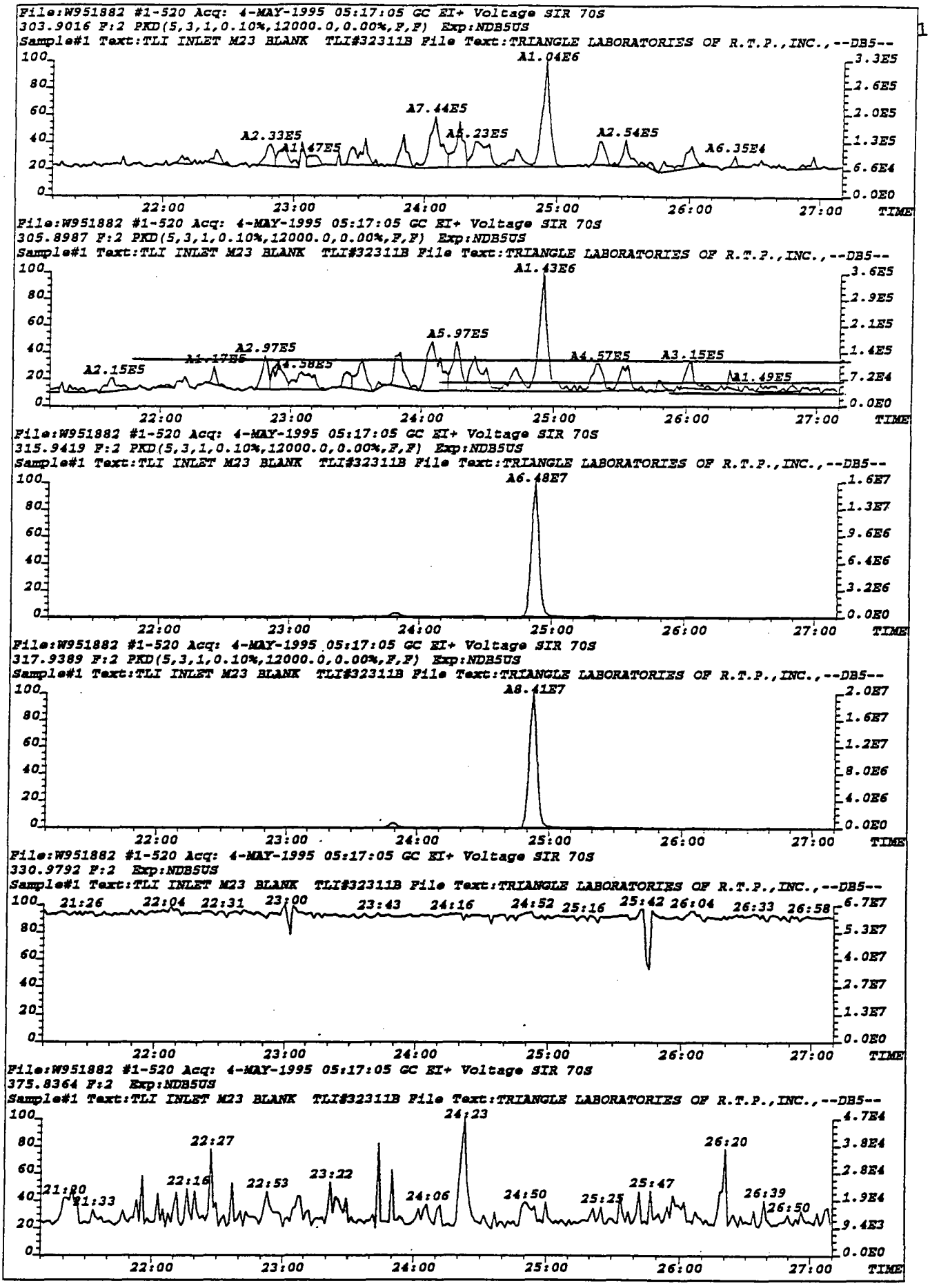
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
13C12-TCDD									23:38-27:38	
332-334		1.04	24:26	62.24	F	F	0.954	FR		
		0.78	25:24	13,779.47	T	T	0.992		13C12-1234-TCDD	RS1
		0.80	25:36	10,628.93	T	T	1.000		13C12-2378-TCDD	IS1
		1.10	25:56	157.83	F	F	1.013	FR		
	DN	0.94	26:07	24.21	F	F	1.020	FR		
332-334		Peaks	4	24,628.47	*** Total ***					
PeCDF									26:44-30:46	
340-342		1.19	26:53	51.54	F	F	0.931	FR		
		1.46	28:02	169.97	T	F	0.971			
	DC	1.48	28:13	20.44	T	F	0.977	SN		
		1.64	28:18	28.90	T	F	0.980			
		2.55	28:31	41.27	F	F	0.987	FR		
		1.56	28:37	53.15	T	F	0.991			
	DN	1.94	28:49	15.26	F	F	0.998	SN		
		1.51	28:59	143.72	T	T	1.003		12378-PeCDF	AN
		1.45	29:13	310.23	T	F	1.012			
	DN	1.14	29:24	4.25	F	F	1.018	SN		
		1.81	29:37	66.40	F	T	1.025	FR	23478-PeCDF	AN
		1.97	29:46	100.79	F	F	1.031	FR		
	DC	1.33	30:20	18.73	T	F	1.050	SN		
	DC	1.51	31:05	7.29	T	F	1.076	SN		
340-342		Peaks	9	965.97	*** Total ***					
13C12-PeCDF									24:54-32:54	
352-354		1.54	28:02	510.62	T	F	0.971			
		1.64	28:30	60.14	T	F	0.987			
		1.51	28:53	10,545.08	T	T	1.000		13C12-PeCDF 123	IS2
		1.47	29:10	170.49	T	F	1.010			
		1.44	29:36	9,773.90	T	T	1.025		13C12-PeCDF 234	SUR2
	DN	3.17	30:11	7.49	F	F	1.045	SN		
	DN	0.78	30:34	16.29	F	F	1.058	SN		
352-354		Peaks	5	21,060.23	*** Total ***					
PeCDD									28:00-30:36	
356-358	DN	0.17	28:09	19.12	F	F	0.940	FR		
	DN	11.77	28:09	2.58	F	F	0.940	SN		
	DC	1.62	28:14	2.65	T	F	0.943	SN		
	DN	0.14	28:22	3.02	F	F	0.948	SN		
	~~DN~~	0.88	28:53	20.22	F	F	0.965	~~FR~~		
356-358		Peaks	0	0.00	*** Total ***					
13C12-PeCDD									25:56-33:56	
368-370	DN	1.31	28:59	15.65	F	F	0.968	SN		
		1.54	29:56	7,513.39	T	T	1.000		13C12-PeCDD 123	IS3
		1.53	30:04	759.19	T	F	1.004			
	DN	3.17	30:25	23.21	F	F	1.016	FR		
368-370		Peaks	2	8,272.58	*** Total ***					
HxCDF									31:17-33:58	
374-376		1.23	31:27	52.52	T	F	0.968			

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.43	31:35	163.66	T	F	0.972			
		1.15	31:48	158.69	T	F	0.978			
		1.35	32:02	207.93	T	F	0.986			
		1.42	32:18	30.63	T	F	0.994			
		1.26	32:24	112.24	T	T	0.997		123478-HxCDF	AN
		1.20	32:31	53.01	T	T	1.001		123678-HxCDF	AN
		1.30	32:41	615.53	T	F	1.006			
	DN	2.87	32:48	8.53	F	F	1.009	SN		
		1.31	33:00	116.55	T	T	1.015		234678-HxCDF	AN
	DC	1.33	33:47	13.22	T	T	1.039	SN		
374-376		Peaks	9	1,510.76	*** Total ***					
13C12-HxCDF									28:31-36:31	
384-386		0.51	31:26	108.48	T	F	0.967			
		0.47	31:34	186.75	T	F	0.971			
		0.51	32:24	7,307.16	T	T	0.997		13C12-HxCDF 478	SUR3
		0.52	32:30	9,794.90	T	T	1.000		13C12-HxCDF 678	IS4
		0.52	32:59	10,226.87	T	T	1.015		13C12-HxCDF 234	ALT2
		0.51	33:43	6,789.00	T	T	1.037		13C12-HxCDF 789	ALT1
384-386		Peaks	6	34,413.16	*** Total ***					
HxCDD									31:47-33:37	
390-392	DN	1.50	31:56	18.09	F	F	0.962	SN		
		1.11	32:23	45.17	T	F	0.976			
	DN	1.75	32:29	3.45	F	F	0.979	SN		
		0.80	32:36	34.23	F	F	0.982	FR		
	DC	1.17	33:12	16.28	T	T	1.001	SN		
	DC	1.34	33:30	13.04	T	T	1.010	SN		
390-392		Peaks	2	79.40	*** Total ***					
13C12-HxCDD									32:11-34:11	
402-404		1.36	32:34	38.80	T	F	0.981			
		1.23	33:06	5,255.77	T	T	0.997		13C12-HxCDD 478	SUR4
		1.25	33:11	5,928.49	T	T	1.000		13C12-HxCDD 678	IS5
		1.23	33:28	7,058.77	T	T	1.009		13C12-HxCDD 789	RS2
402-404		Peaks	4	18,281.83	*** Total ***					
HpCDF									35:02-36:41	
408-410	DC	1.07	34:53	448.41	T	F	0.991	WL		
		0.98	35:11	169.86	T	T	1.000		1234678-HpCDF	AN
		1.07	35:25	235.80	T	F	1.007			
		1.14	35:33	168.85	T	F	1.010			
	DC	0.96	36:30	13.72	T	T	1.037	SN		
408-410		Peaks	3	574.51	*** Total ***					
13C12-HpCDF									33:11-39:11	
418-420		0.44	35:11	5,218.74	T	T	1.000		13C12-HpCDF 678	IS6
		0.45	36:29	3,317.83	T	T	1.037		13C12-HpCDF 789	SUR5
418-420		Peaks	2	8,536.57	*** Total ***					
HpCDD									35:17-36:15	
424-426		0.98	35:26	192.08	T	F	0.982			

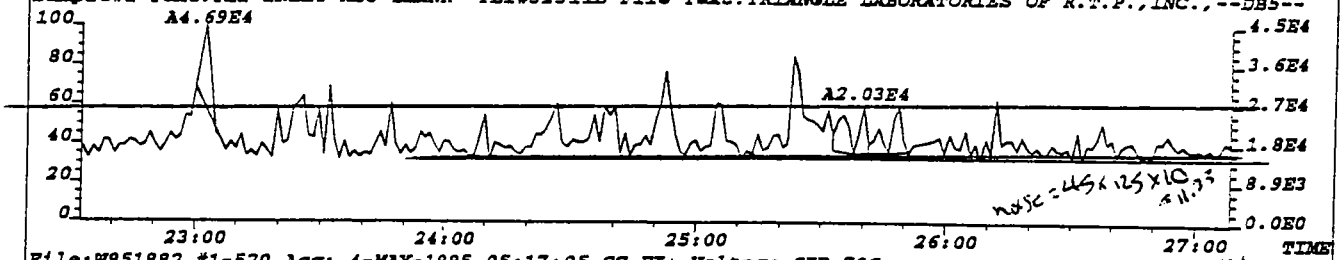
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.00	36:05	129.92	T	T	1.000		1234678-HpCDD	AN
424-426		Peaks	2	322.00	*** Total ***					
13C12-HpCDD									35:04-37:04	
436-438		0.93	35:25	64.50	T	F	0.982			
		1.04	36:04	4,524.41	T	T	1.000		13C12-HpCDD 678	IS7
436-438		Peaks	2	4,588.91	*** Total ***					
OCDF									35:02-43:02	
442-444		0.73	37:40	43.65	F	F	0.965	FR		
		1.06	39:12	74.54	F	T	1.004	FR	OCDF pk 0 OK	AN
442-444		Peaks	2	118.19	*** Total ***					
OCDD									35:02-43:02	
458-460		0.85	39:03	356.27	T	T	1.000		OCDD	AN
458-460		Peaks	1	356.27	*** Total ***					
13C12-OCDD									38:53-39:13	
470-472		0.89	39:02	5,682.51	T	T	1.000		13C12-OCDD	IS8

Column...	Description.....	"Why" Code	Description
M_Z	- Nominal Ion Mass(es)	WL	- Below Retention Time Window
RT.	- Retention Time	WH	- Above Retention Time Window
Match Rat	- Ratio Match True/False	SN	- Below Signal to Noise Level
Match RT	- Time Match True/False	<M	- Below Method Detection Limit
Rel RT	- Relative Retention Time	FR	- Calc based on theoretical ratio

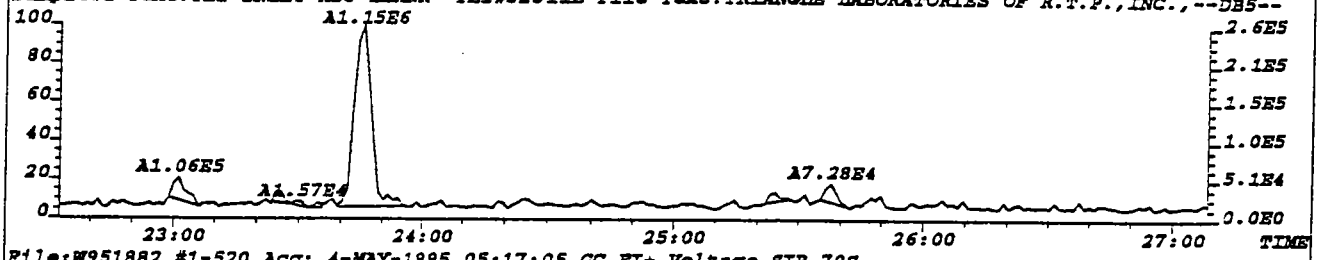
*** End of Report ***


File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
303.9016 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.04E6
A7.44E5
A2.33E5
A1.47E5
A5.23E5
A2.54E5
A6.35E4
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
305.8987 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.43E6
A5.97E5
A2.97E5
A1.17E5
A4.58E5
A2.15E5
A4.57E5
A3.15E5
A1.49E5
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
315.9419 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.48E7
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
317.9389 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.41E7
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
21:26
22:04
22:31
23:00
23:43
24:16
24:52
25:16
25:42
26:04
26:33
26:58
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
375.8364 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
24:23
22:27
26:20
22:16
22:53
23:22
21:33
24:06
24:50
25:25
25:47
26:39
26:50
22:00
23:00
24:00
25:00
26:00
27:00
TIME

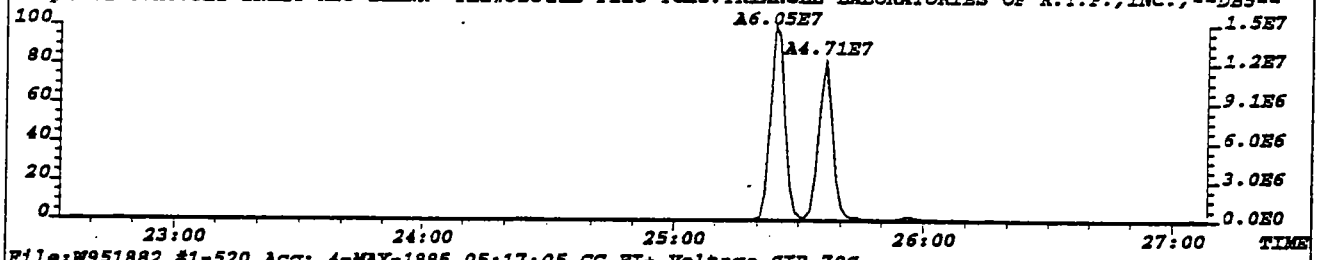
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
319.8965 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



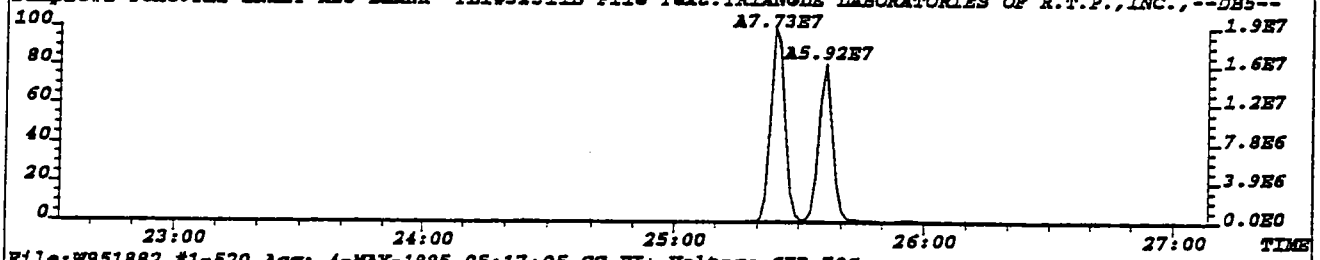
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
321.8936 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



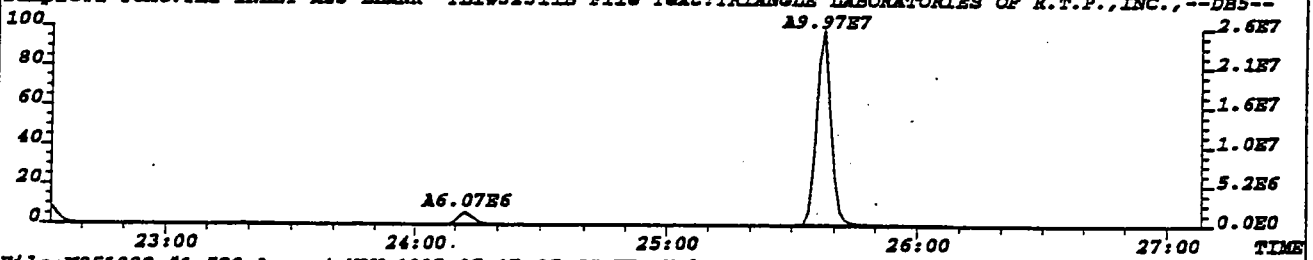
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
331.9368 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



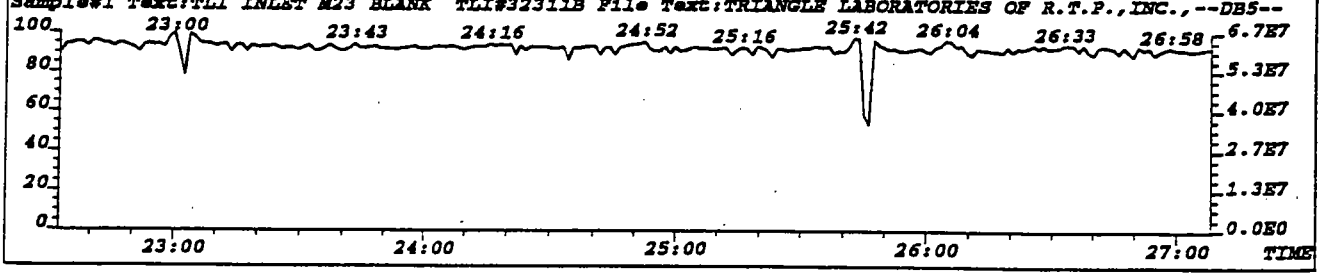
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
333.9338 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

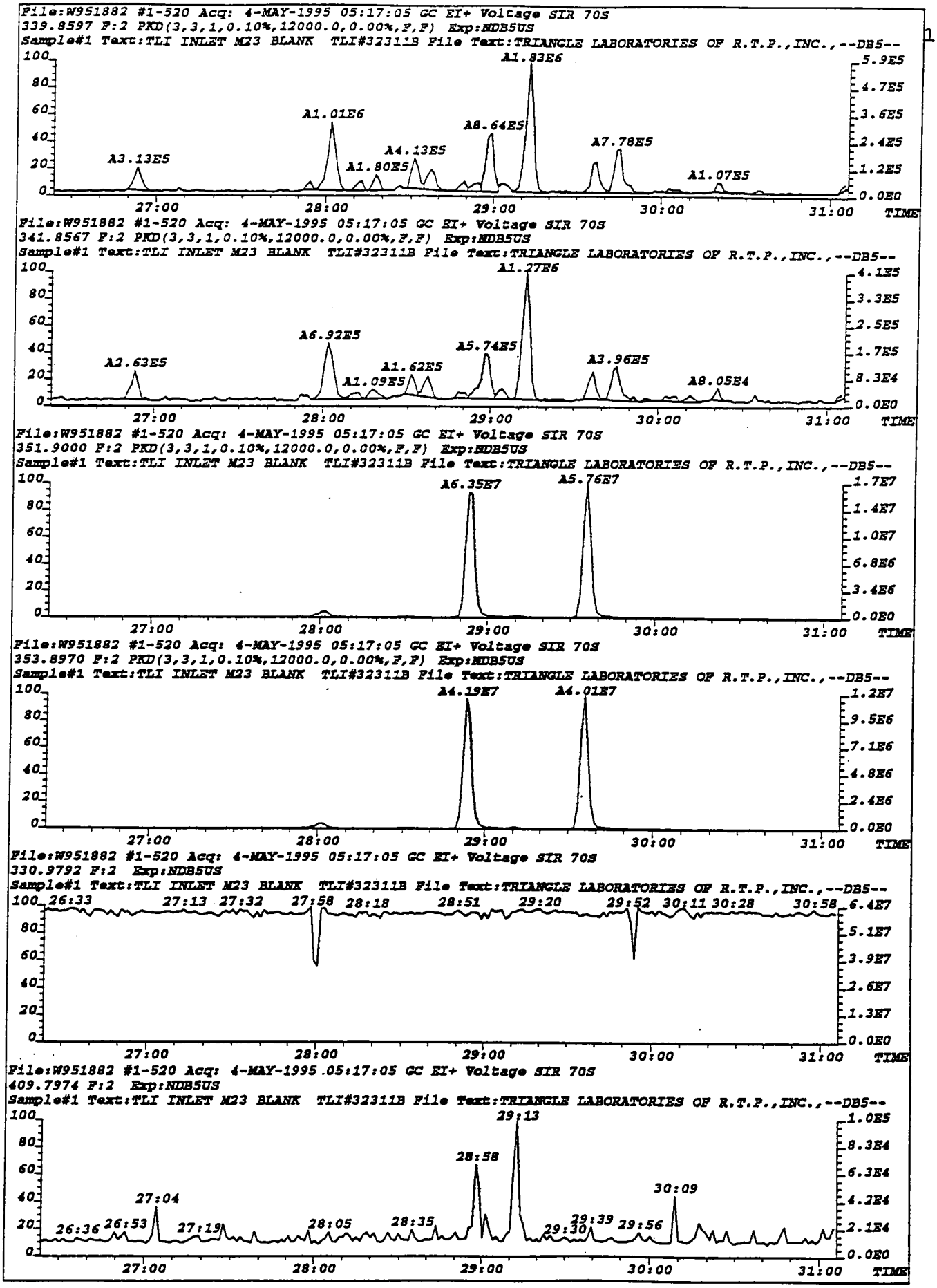


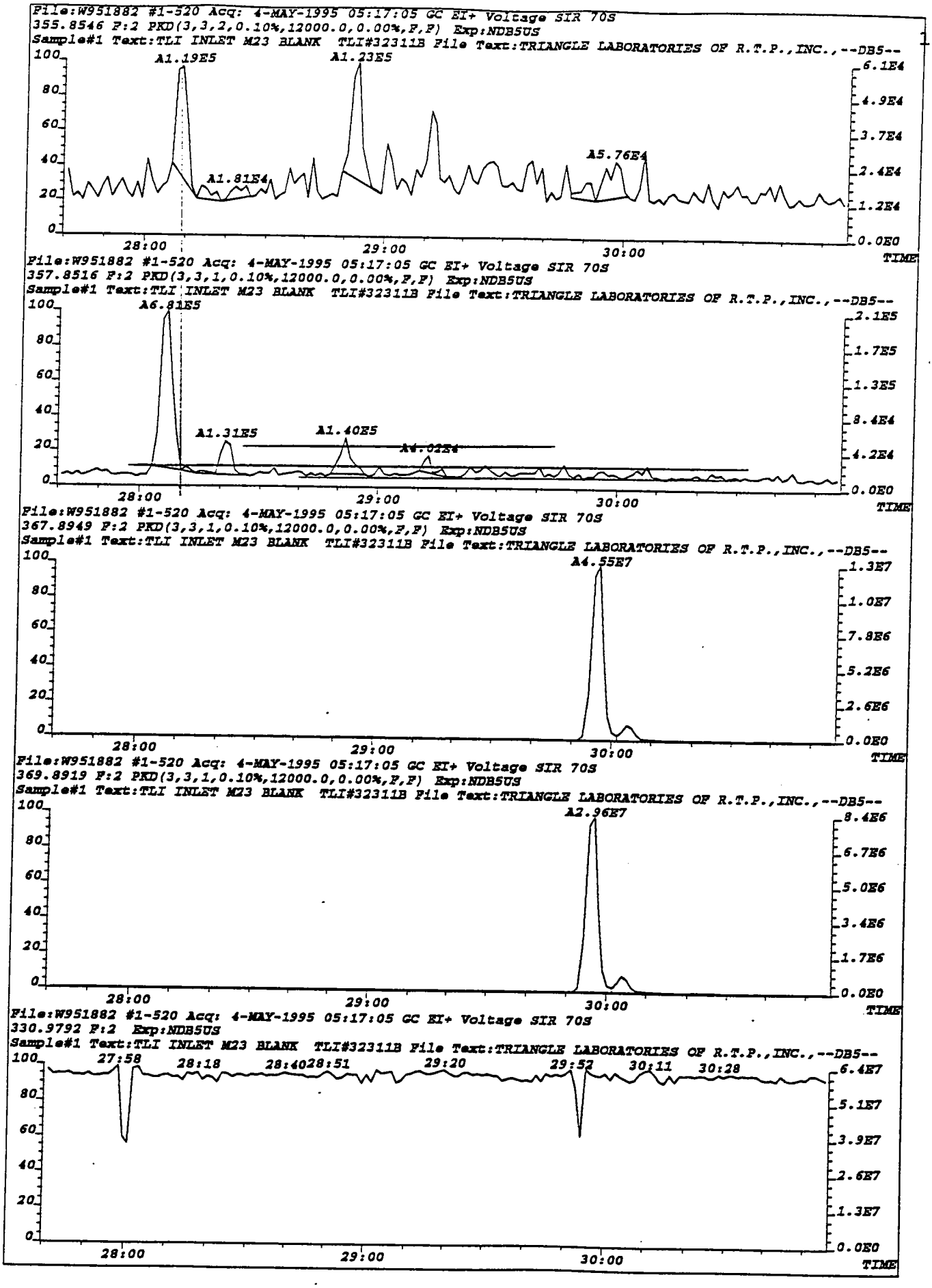
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
327.8847 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

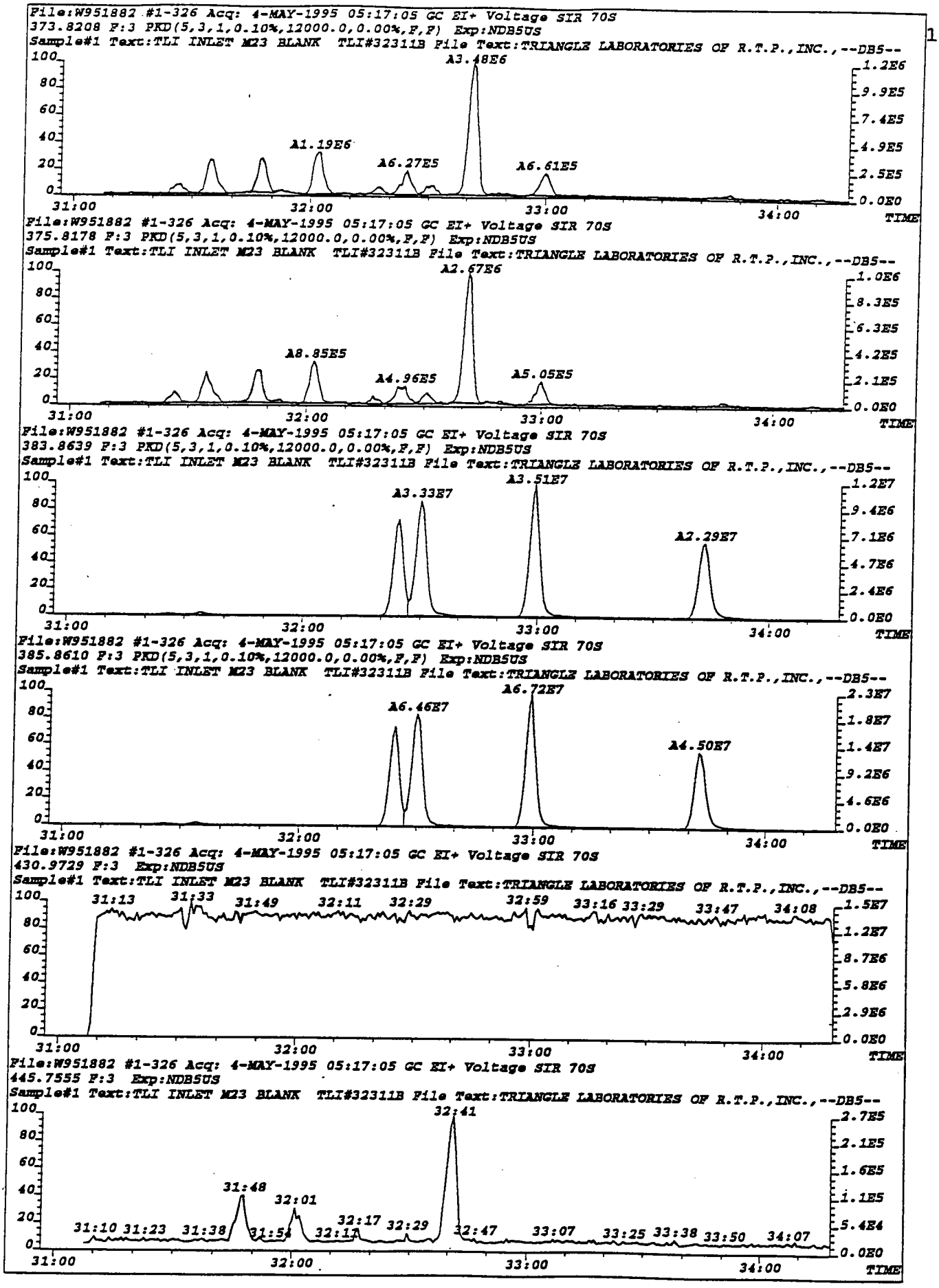


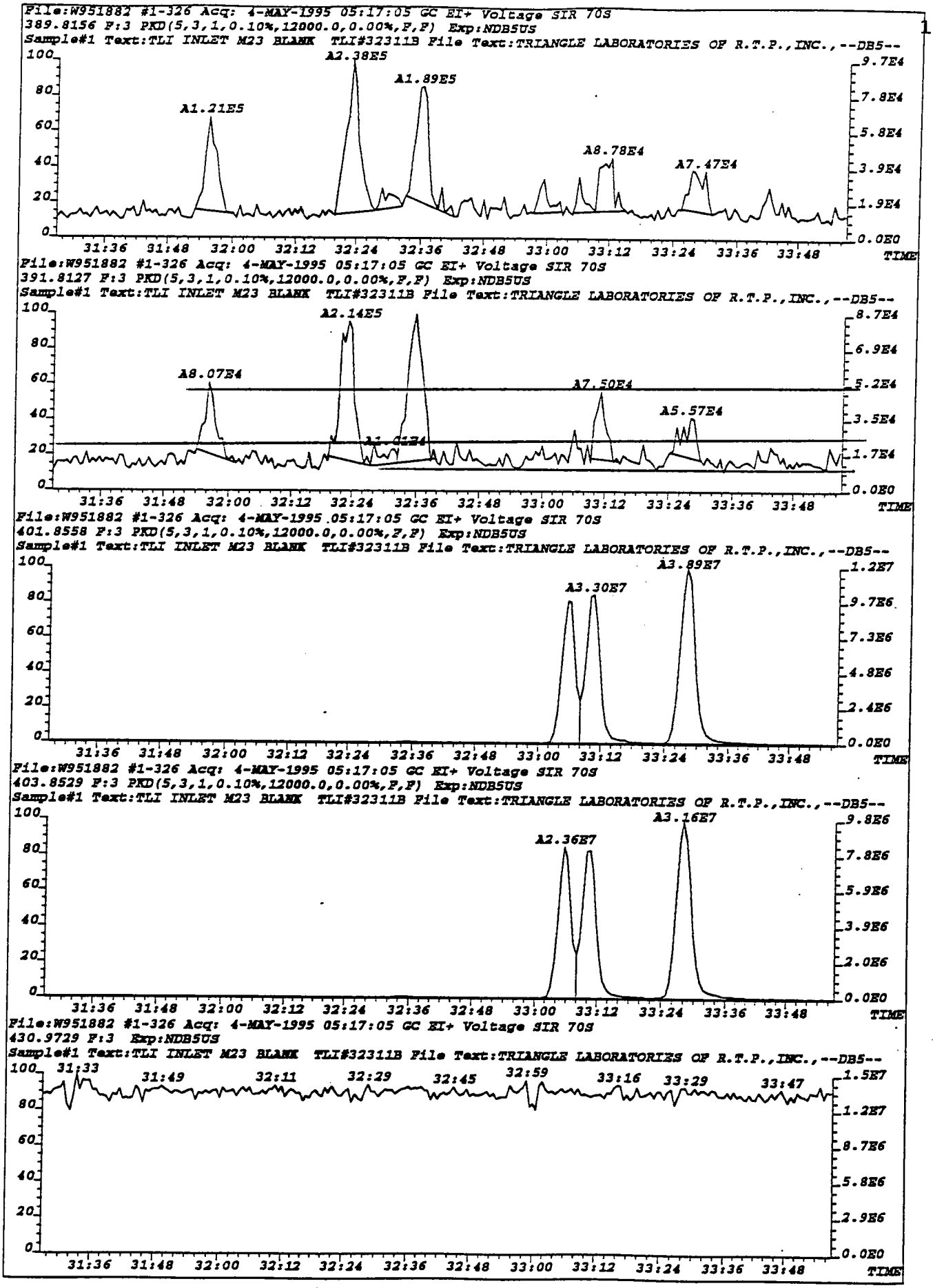
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

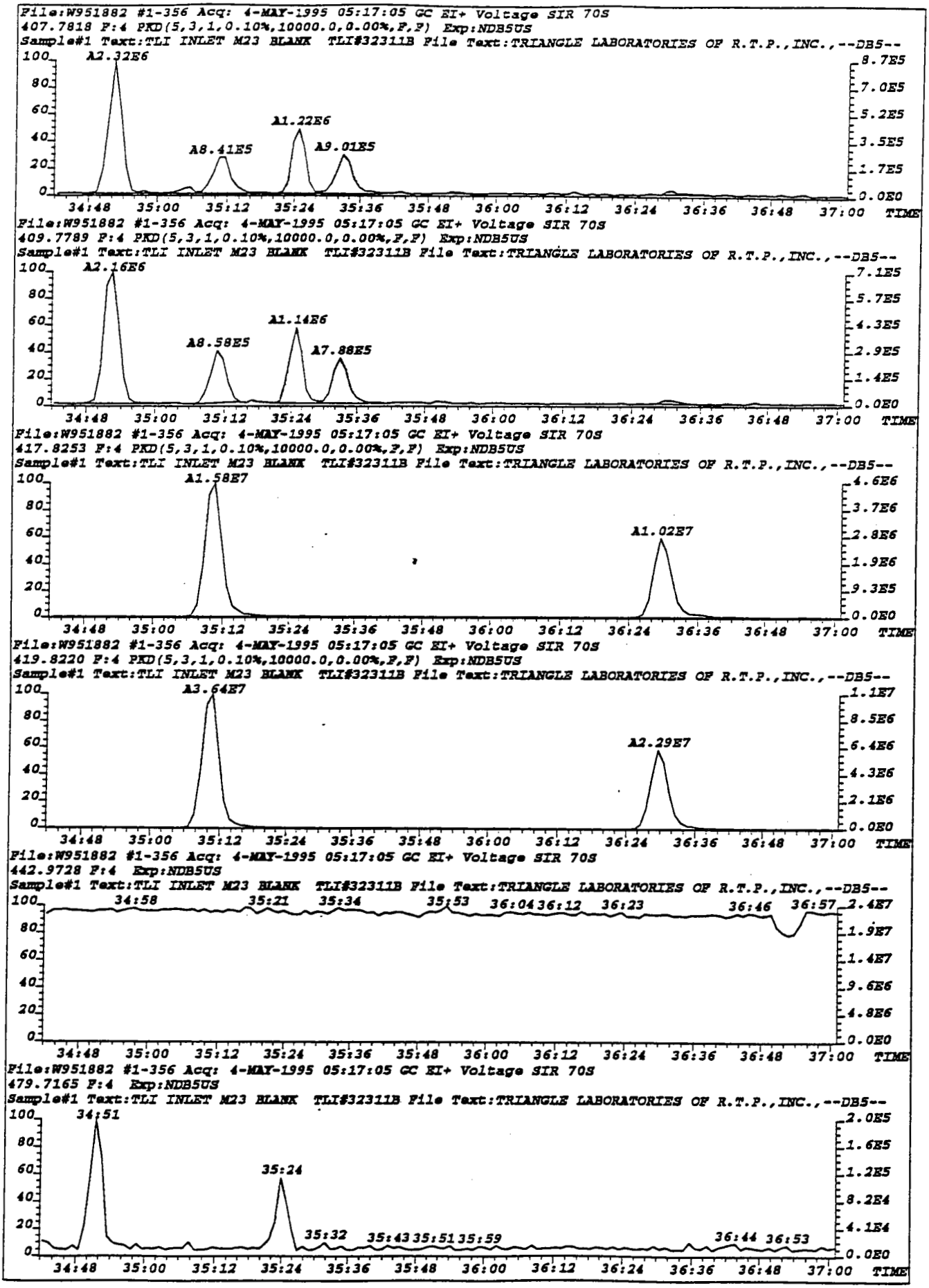



File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
339.8597 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.83E6
A1.01E6
A8.64E5
A4.13E5
A7.78E5
A3.13E5
A1.80E5
A1.07E5
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
341.8567 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.27E6
A6.92E5
A5.74E5
A2.63E5
A1.62E5
A3.96E5
A1.09E5
A8.05E4
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
351.9000 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.35E7
A5.76E7
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
353.8970 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.19E7
A4.01E7
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
26:33
27:13
27:32
27:58
28:18
28:51
29:20
29:52
30:11
30:28
30:58
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
409.7974 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
29:13
28:58
27:04
30:09
26:36
26:53
27:19
28:05
28:35
29:30
29:39
29:56
27:00
28:00
29:00
30:00
31:00
TIME

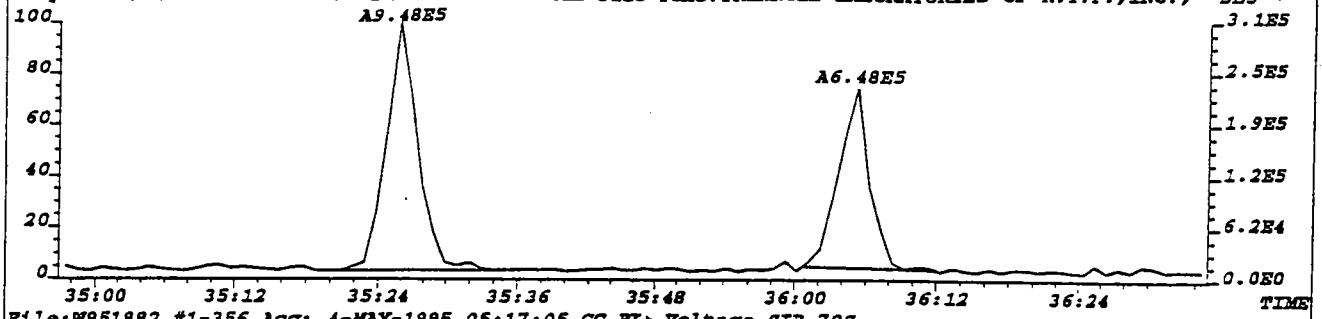

File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
355.8546 F:2 PKD(3,3,2,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.19E5
A1.23E5
A1.81E4
A5.76E4
28:00
29:00
30:00
TIME
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
357.8516 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.81E5
A1.31E5
A1.40E5
A4.02E4
28:00
29:00
30:00
TIME
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
367.8949 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.55E7
28:00
29:00
30:00
TIME
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
369.8919 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.96E7
28:00
29:00
30:00
TIME
File:W951882 #1-520 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
27:58
28:18
28:40
28:51
29:20
29:52
30:11
30:28
28:00
29:00
30:00
TIME


File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
373.8208 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.48E6
A1.19E6
A6.27E5
A6.61E5
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
375.8178 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.67E6
A8.85E5
A4.96E5
A5.05E5
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
383.8639 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.51E7
A3.33E7
A2.29E7
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
385.8610 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.72E7
A6.46E7
A4.50E7
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
31:13 31:33 31:49 32:11 32:29 32:59 33:16 33:29 33:47 34:08
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
445.7555 F:3 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
32:41
31:48
32:01
31:10 31:23 31:38 31:54 32:17 32:17 32:29 32:47 33:07 33:25 33:38 33:50 34:07
31:00 32:00 33:00 34:00 TIME

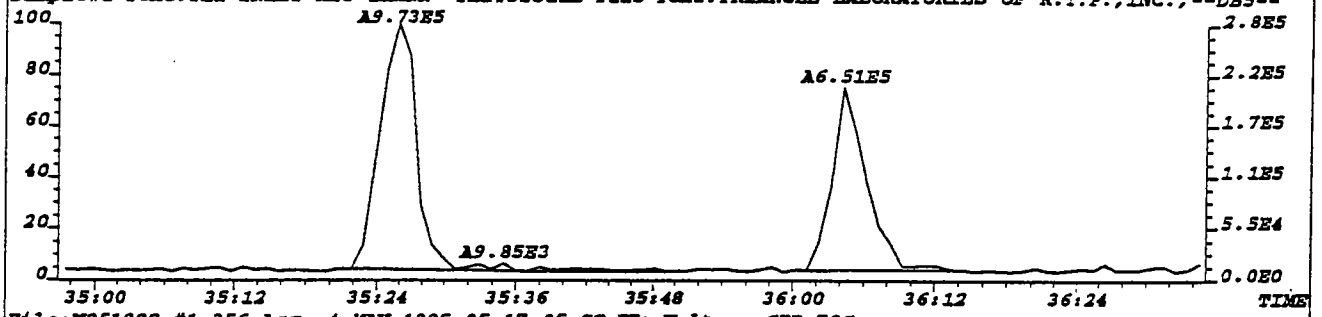

File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
389.8156 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.21E5
A2.38E5
A1.89E5
A8.78E4
A7.47E4
TIME
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
391.8127 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.14E5
A8.07E4
A7.50E4
A5.57E4
TIME
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
401.8558 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.89E7
A3.30E7
TIME
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
403.8529 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.16E7
A2.36E7
TIME
File:W951882 #1-326 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
TIME


File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
407.7818 P:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.32E6
A8.41E5
A1.22E6
A9.01E5
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
409.7789 P:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.16E6
A8.58E5
A1.14E6
A7.88E5
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
417.8253 P:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.58E7
A1.02E7
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
419.8220 P:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.64E7
A2.29E7
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 P:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:58
35:21
35:34
35:53
36:04
36:12
36:23
36:46
36:57
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
479.7165 P:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:51
35:24
35:32
35:43
35:51
35:59
36:44
36:53
34:48 35:00 35:12 35:24 35:36 35:48 36:00 36:12 36:24 36:36 36:48 37:00 TIME

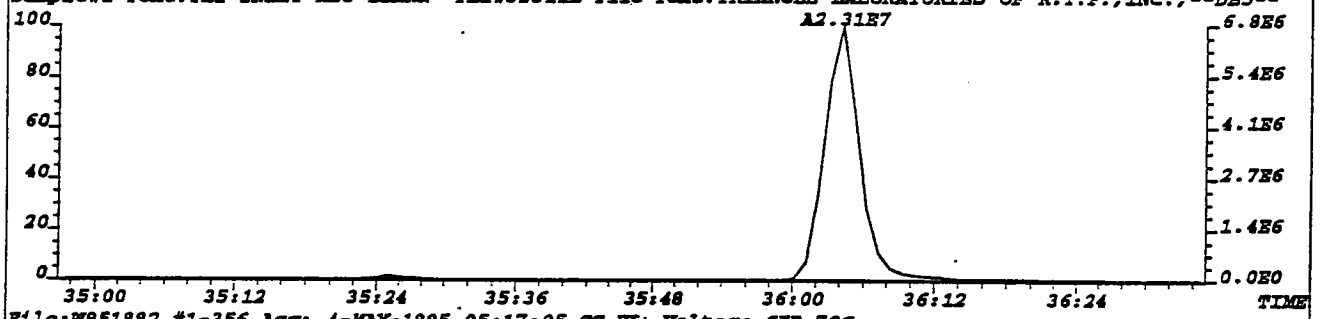
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



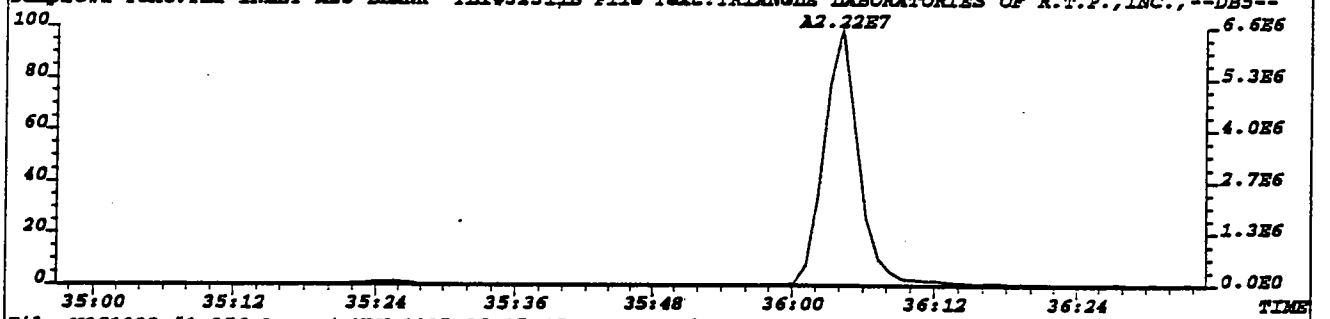
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



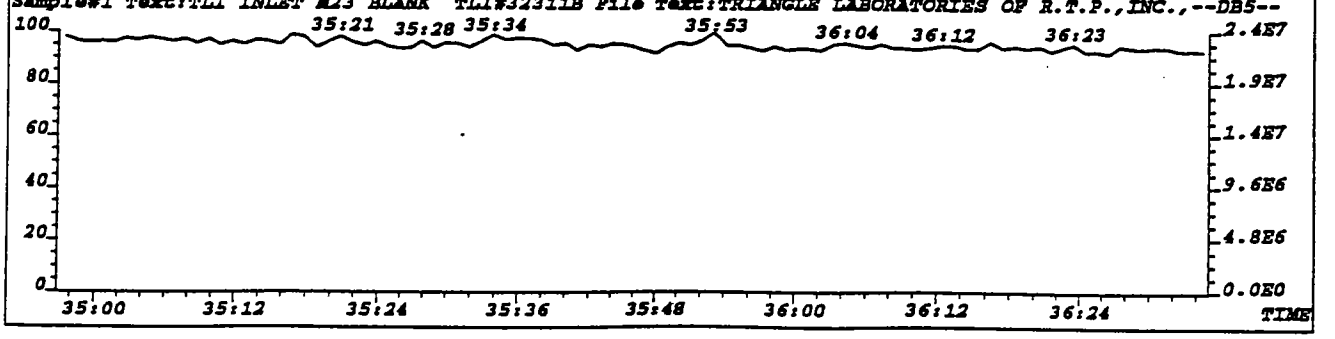
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

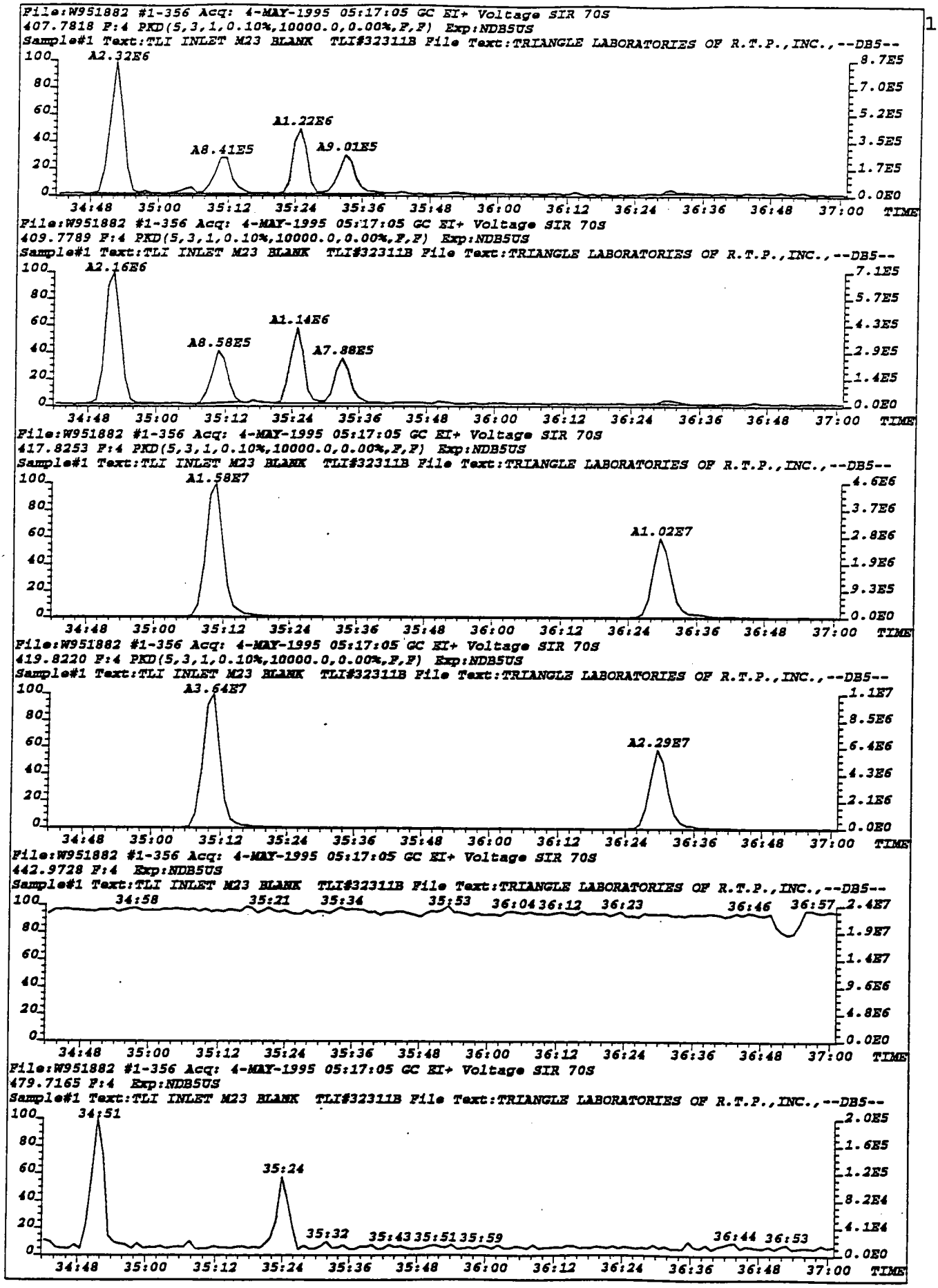


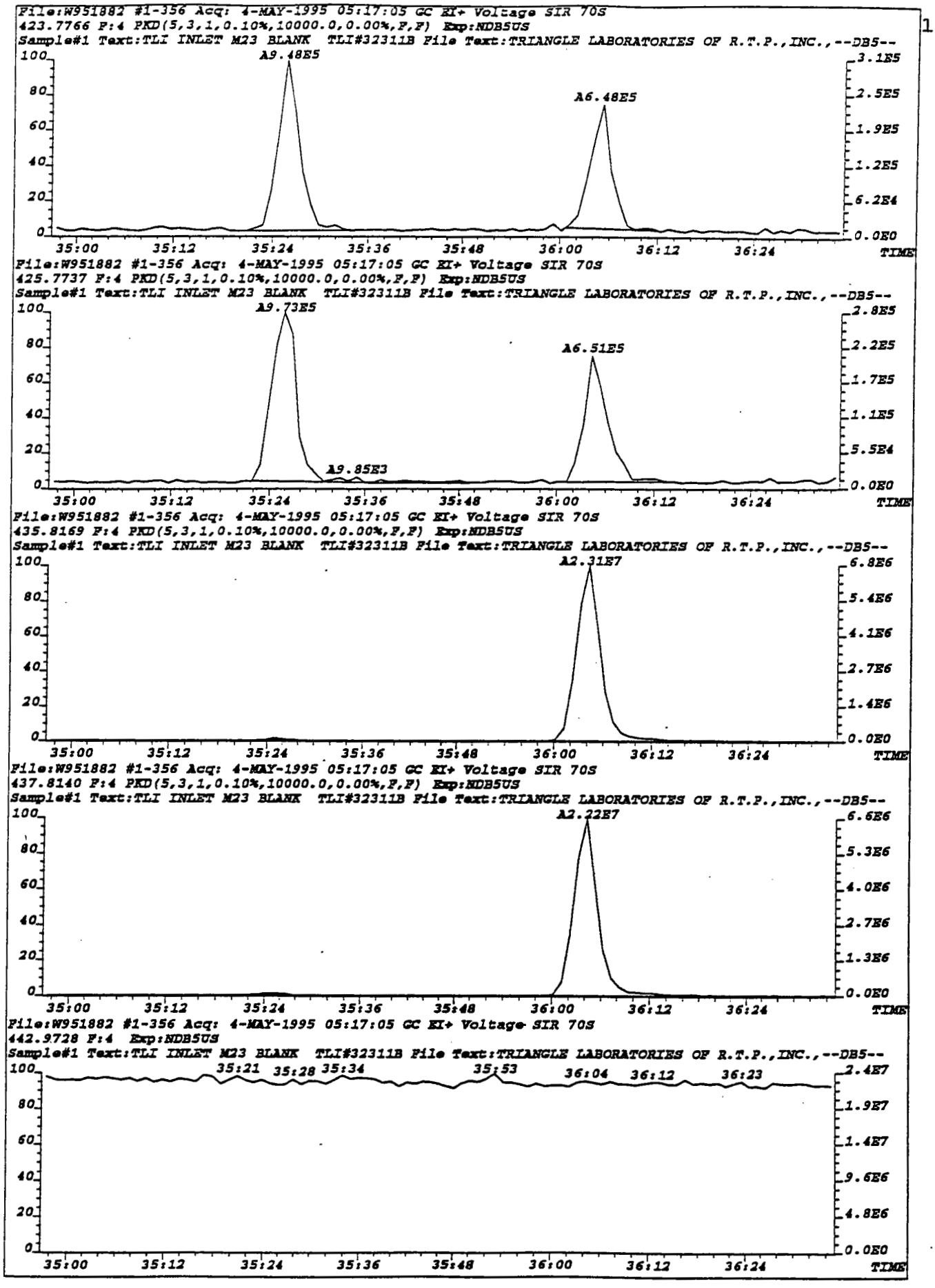
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

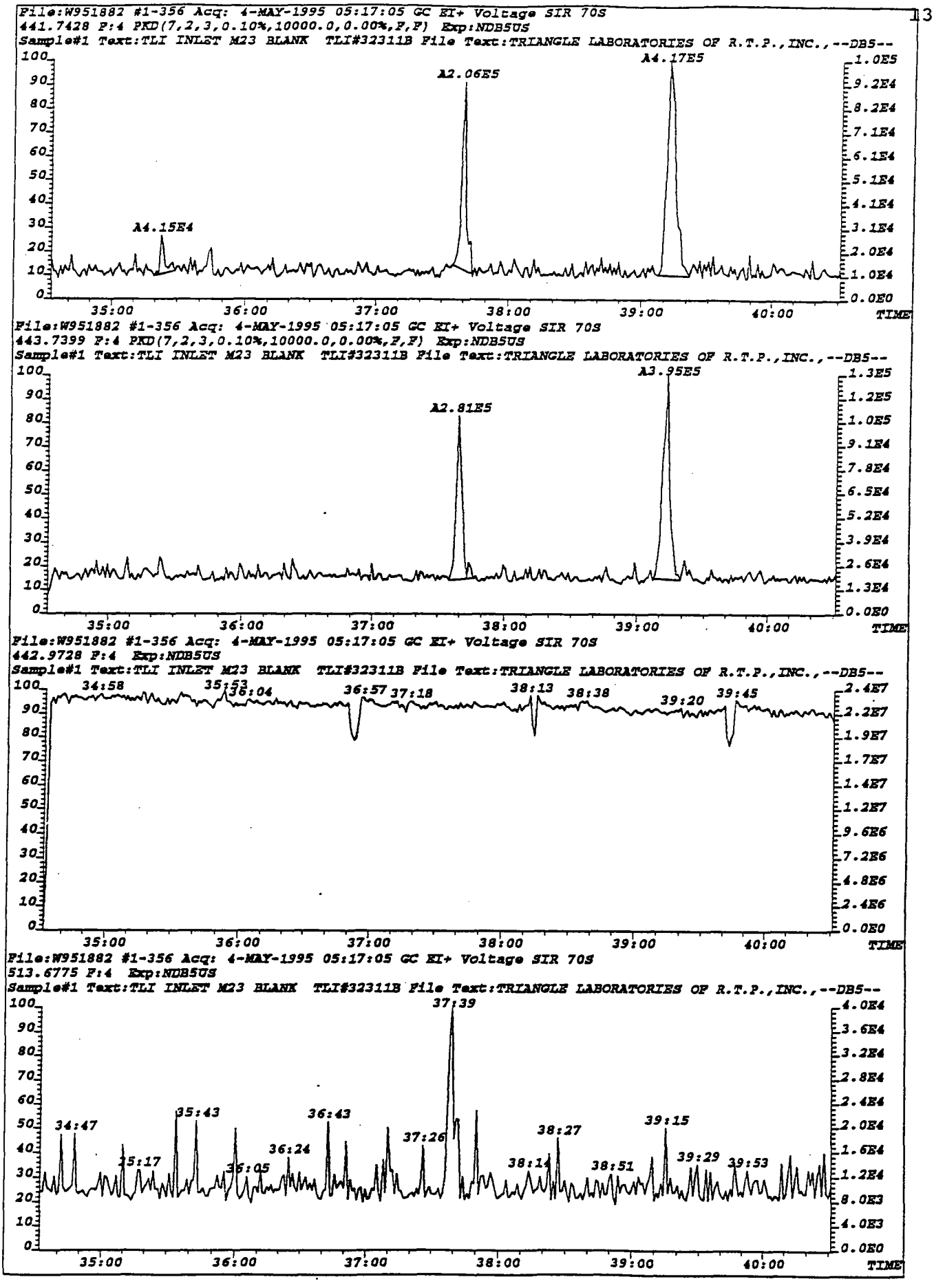


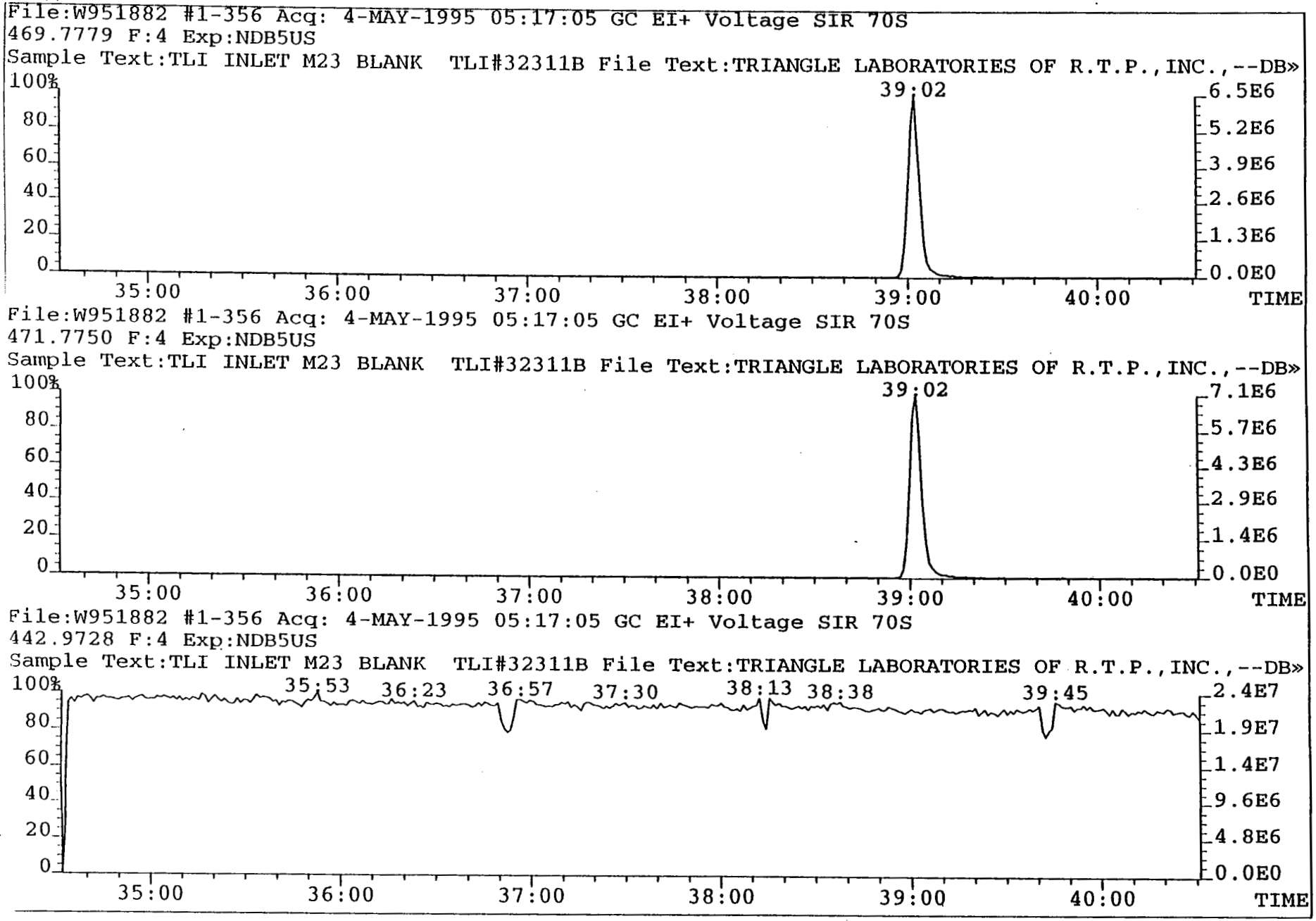
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--




File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
407.7818 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.32E6
A1.22E6
A8.41E5
A9.01E5
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
409.7789 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.16E6
A1.14E6
A8.58E5
A7.88E5
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
417.8253 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.58E7
A1.02E7
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
419.8220 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.64E7
A2.29E7
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:58
35:21
35:34
35:53
36:04
36:12
36:23
36:46
36:57
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
479.7165 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:51
35:24
35:32
35:43
35:51
35:59
36:44
36:53
34:48 35:00 35:12 35:24 35:36 35:48 36:00 36:12 36:24 36:36 36:48 37:00 TIME


File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.48E5
A6.48E5
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.73E5
A6.51E5
A9.85E3
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.31E7
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.22E7
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
35:21
35:28
35:34
35:53
36:04
36:12
36:23
TIME


File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
441.7428 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.17E5
A2.06E5
A4.15E4
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
443.7399 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.95E5
A2.81E5
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:58
35:53
36:04
36:57
37:18
38:13
38:38
39:20
39:45
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
513.6775 F:4 Exp:NDB5US
Sample#1 Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
37:39
34:47
35:43
36:43
25:17
36:24
36:05
37:26
38:27
38:14
38:51
39:15
39:29
39:53
TIME


File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
469.7779 F:4 Exp:NDB5US
Sample Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB»
100%
80
60
40
20
0
39:02
6.5E6
5.2E6
3.9E6
2.6E6
1.3E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
471.7750 F:4 Exp:NDB5US
Sample Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB»
100%
80
60
40
20
0
39:02
7.1E6
5.7E6
4.3E6
2.9E6
1.4E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951882 #1-356 Acq: 4-MAY-1995 05:17:05 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample Text:TLI INLET M23 BLANK TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB»
100%
80
60
40
20
0
35:53
36:23
36:57
37:30
38:13
38:38
39:45
2.4E7
1.9E7
1.4E7
9.6E6
4.8E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME

TL-RTP Project: **32311B** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **TLI Inlet M23 Blank** Analysis File: **P951842**

Client Project:	n/a				
Sample Matrix:	XAD	Date Received:	/ /	Spike File:	SPC2NF04
TLRTP ID:	TLI Blank	Date Extracted:	04/20/95	ICAL:	PF2N144
		Date Analyzed:	05/02/95	CONCAL:	P951834
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P951842	% Lipid:	n/a
GC Column:	DB-225	Analyst:	VCA	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	EMPC		0.004			—

Internal Standard	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	2.4	59.9	0.75	22:00	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	20:56	—

Data Reviewer: KU 05/06/95

C2NF_PSR v:1.10, LARS 5.14.12

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Printed: 15:06 05/06/95

	Initial	....Date...	
B-File/Header Changes	KU	5/6/95	Calculated Noise Area: ~~6.5E~~ FE 11.9 KU 5/6/95
Manual Integrations			Channel: 30
Transcription			Initials: KU 5/6/95
dBASE Corrections			Date:

Page No. 1 Listing of P951842B.dbf
05/02/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									17:09-24:06	
304-306	DN	1.81	16:40	12.80	F	F	0.758	WL		
		2.16	17:17	40.03	F	F	0.786	FR		
		1.40	17:49	158.94	F	F	0.810	FR		
		0.60	18:14	301.62	F	F	0.829	FR		
		0.71	18:37	33.43	T	F	0.846			
		0.86	19:11	32.46	T	F	0.872			
		1.02	19:23	59.11	F	F	0.881	FR		
		0.58	19:34	18.91	F	F	0.889	FR		
		0.66	19:48	90.04	T	F	0.900			
		0.77	20:36	15.11	T	F	0.936			
		1.66	21:05	15.82	F	F	0.958	FR		
		1.48	21:30	31.29	F	F	0.977	FR		
		0.70	21:48	75.51	T	F	0.991			
	CK	0.54	22:00	40.61	F	T	1.000	FR	2378-TCDF CTD	AN
	DC	1.01	24:20	18.24	F	F	1.106	WH		
	DN	1.66	25:45	10.95	F	F	1.170	WH		
304-306		Peaks	13	912.88	*** Total ***					
13C12-TCDF									21:51-22:11	
316-318	DC	0.85	17:38	162.63	T	F	0.802	WL		
	DC	0.78	20:34	248.85	T	F	0.935	WL		
	DC	0.71	20:52	1,379.03	T	F	0.948	WL		
		0.75	22:00	39,319.99	T	T	1.000		13C12-2378-TCDF	IS0
	DC	0.75	22:12	217.30	T	F	1.009	WH		
	DC	0.75	22:35	397.89	T	F	1.027	WH		
	DC	0.77	23:58	414.41	T	F	1.089	WH		
316-318		Peaks	1	39,319.99	*** Total ***					
TCDD									18:04-23:28	
320-322		0.48	21:06	15.28	F	F	1.020	FR		
	DN	1.05	22:00	12.87	F	F	1.064	SN		
	DC	0.60	23:57	69.49	F	F	1.158	WH		
320-322		Peaks	1	15.28	*** Total ***					
37Cl-TCDD									18:04-23:28	
328	DC	0.00	15:24	2,096.00	T	F	0.736	WL		
	DC	0.00	15:31	371.51	T	F	0.741	WL		
	DC	0.00	15:38	502.36	T	F	0.747	WL		

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.00	15:51	4,317.20	T	F	0.757	WL		
	DC	0.00	16:13	68.39	T	F	0.775	WL		
	DC	0.00	16:46	31.40	T	F	0.801	WL		
	DC	0.00	16:54	502.17	T	F	0.807	WL		
	DC	0.00	17:04	408.55	T	F	0.815	WL		
	DC	0.00	17:18	718.32	T	F	0.826	WL		
	DC	0.00	17:43	1,533.21	T	F	0.846	WL		
		0.00	18:19	2,981.49	T	F	0.875			
		0.00	18:40	208.76	T	F	0.892			
		0.00	18:50	268.07	T	F	0.900			
		0.00	19:05	3,566.03	T	F	0.912			
		0.00	19:14	344.22	T	F	0.919			
		0.00	19:31	140.93	T	F	0.932			
		0.00	20:06	69.43	T	F	0.960			
		0.00	20:21	34.22	T	F	0.972			
		0.00	20:42	26,896.25	T	T	0.989		37Cl-TCDD	SUR1
		0.00	20:59	1,999.54	T	F	1.002			
328		Peaks	10	36,508.94	*** Total ***					
13C12-TCDD									20:32-21:06	
332-334	DC	0.77	19:30	169.33	T	F	0.943	WL		
		0.79	20:41	26,104.36	T	T	1.000		13C12-2378-TCDD	IS1
		0.78	20:56	35,101.23	T	T	1.012		13C12-1234-TCDD	RS1
	DC	0.79	21:40	372.18	T	F	1.048	WH		
	DC	0.98	25:07	182.30	F	F	1.214	WH		

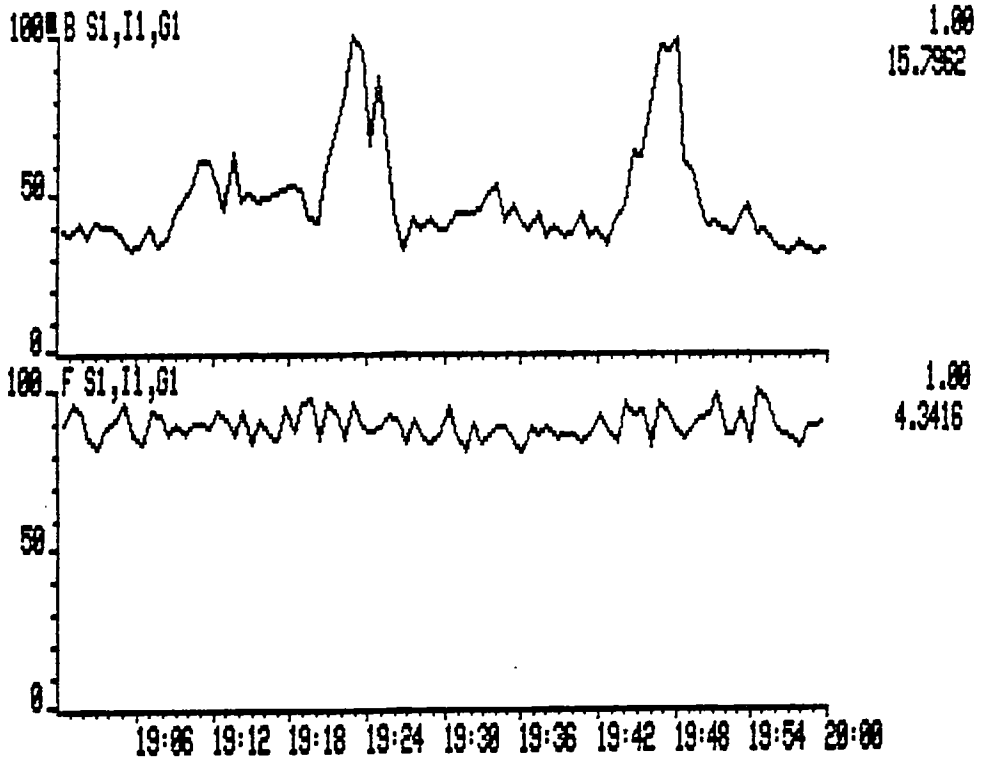
Column...	Description.....
M_Z	- Nominal Ion Mass(es)
RT.	- Retention Time
Match Rat	- Ratio Match True/False
Match RT	- Time Match True/False
Rel RT	- Relative Retention Time

"Why" Code Description

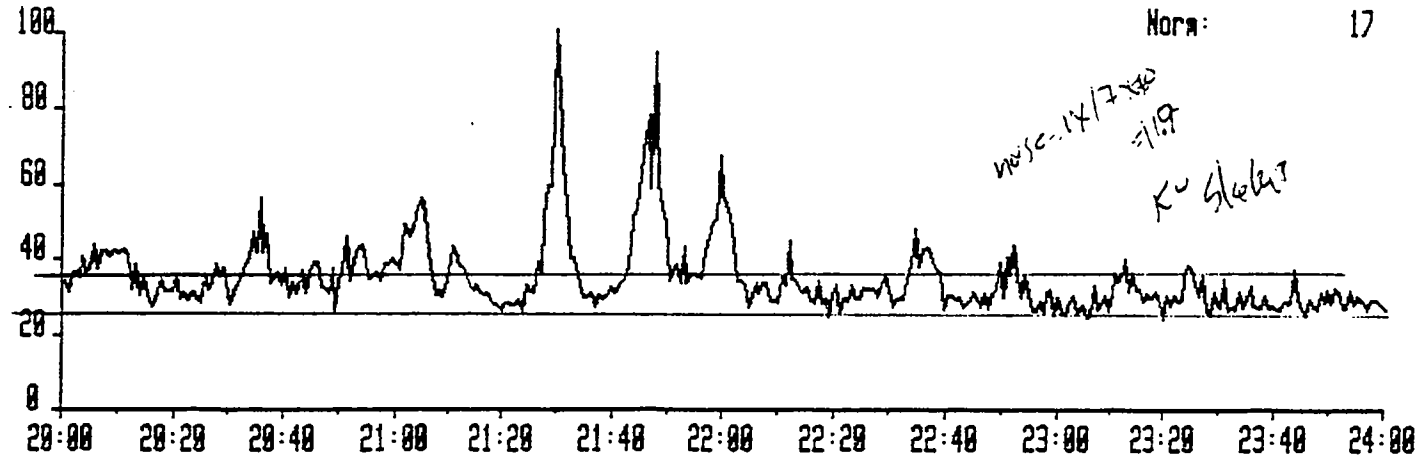
WL - Below Retention Time Window
WH - Above Retention Time Window
SN - Below Signal to Noise Level
<M - Below Method Detection Limit
FR - Calc based on theoretical ratio

*** End of Report ***

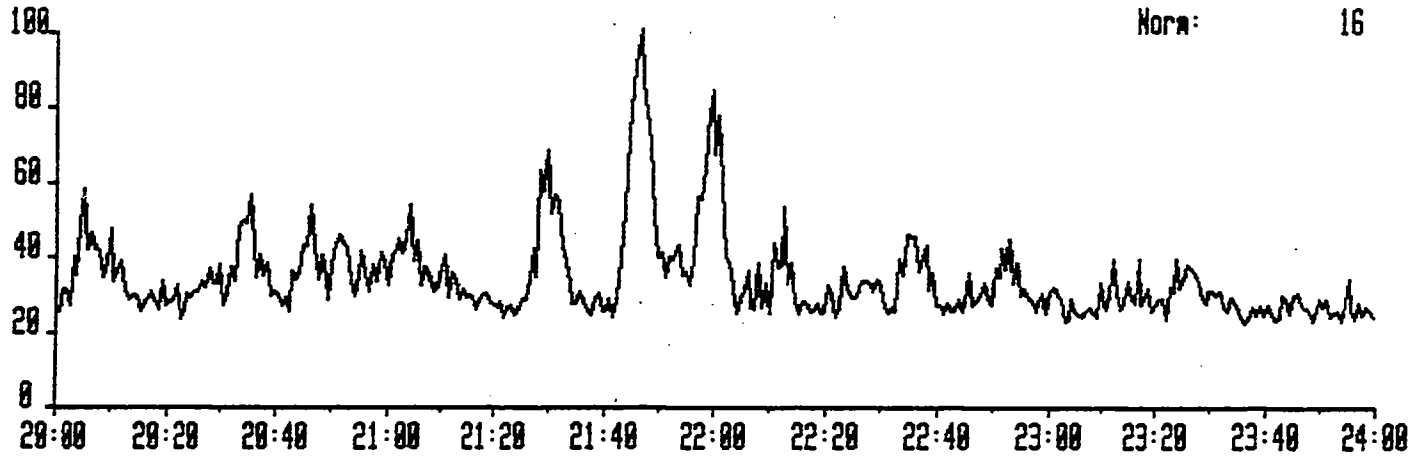
P951842 2-MAY-95 15:47 70-SE (EI+) Sus:D8225
GR 1 D: 315.9419 E: 317.9389 F: 319.8965 G: 321.8936 H: 327.8847
Text:TLI INLET M23 BLANK TLI #32311B



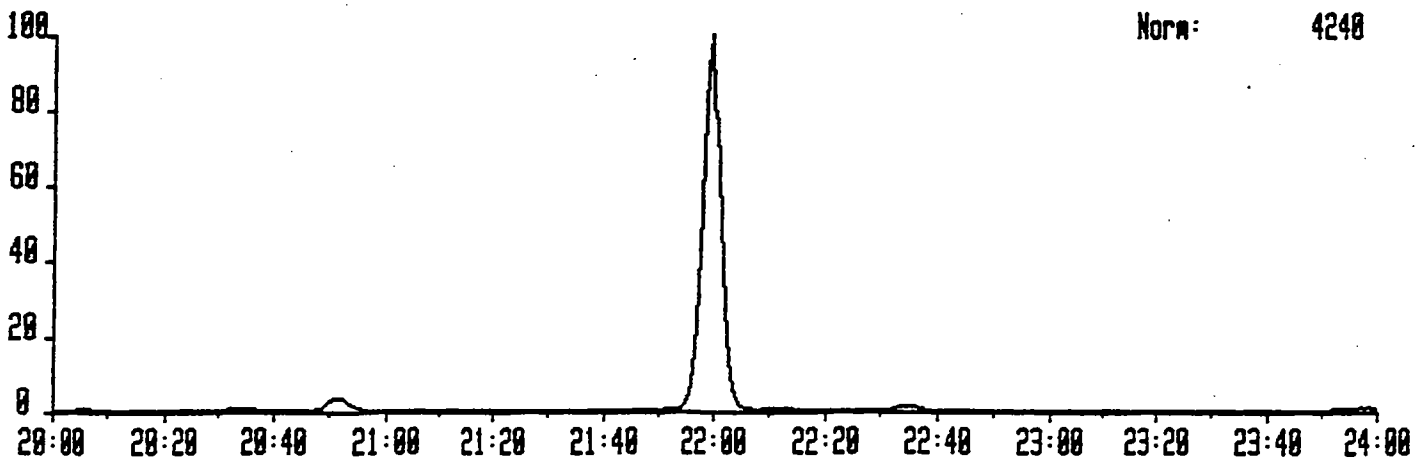
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:TLI INLET M23 BLANK TLI #32311B



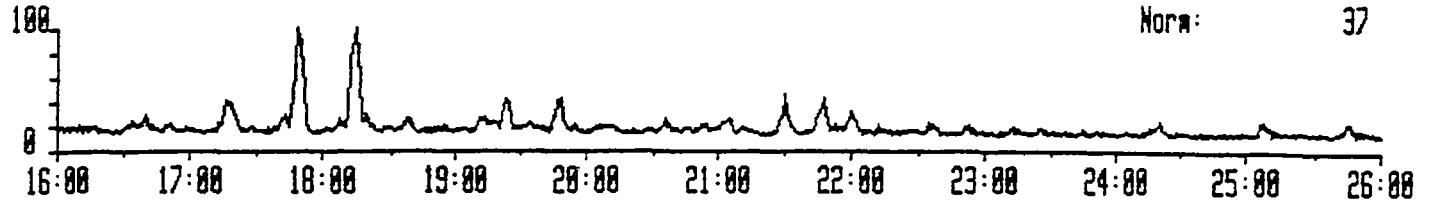
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:TLI INLET M23 BLANK TLI #32311B



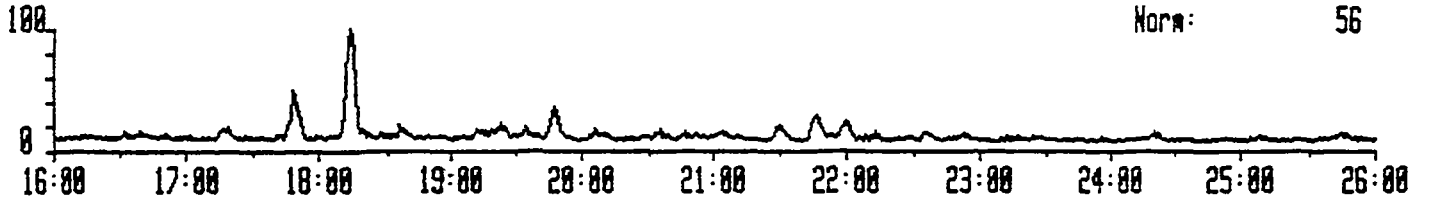
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:TLI INLET M23 BLANK TLI #32311B



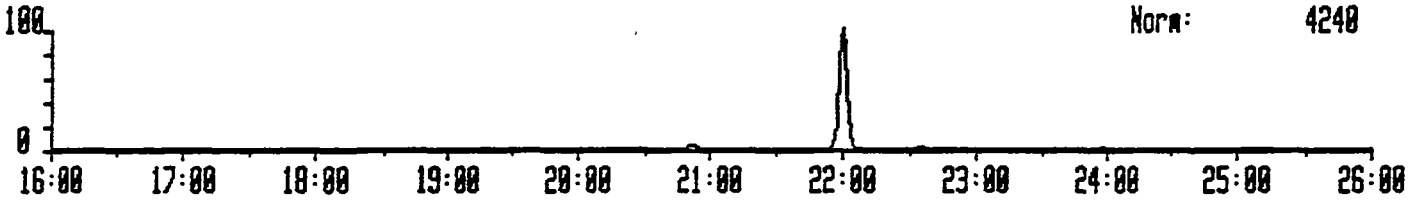
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:TLI INLET M23 BLANK TLI #323118



P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:TLI INLET M23 BLANK TLI #323118



P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:TLI INLET M23 BLANK TLI #323118



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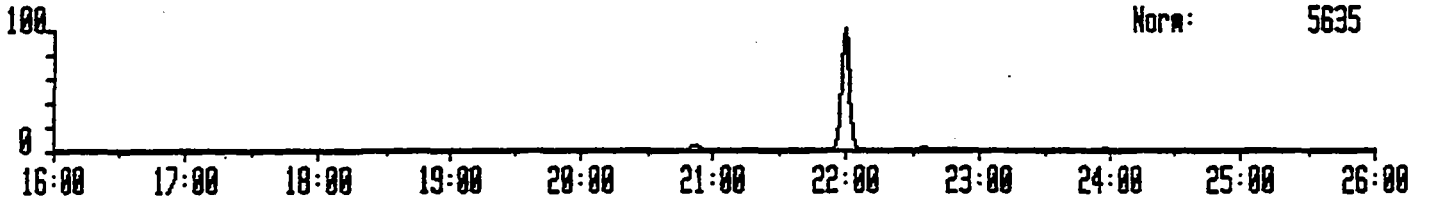
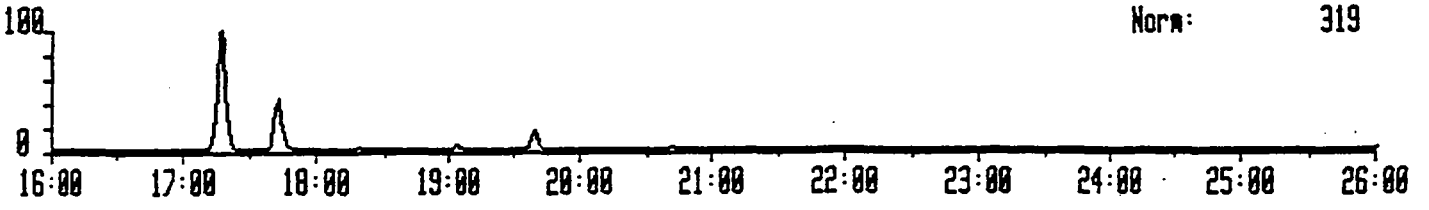
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:TLI INLET M23 BLANK TLI #323118

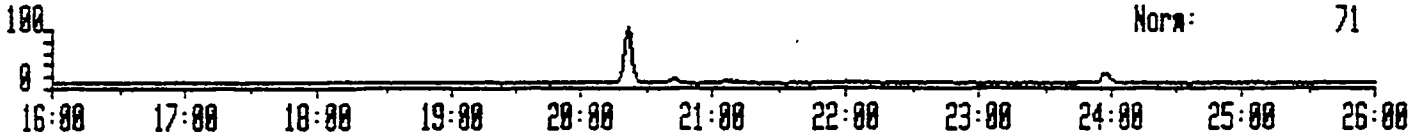


P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 375.8364
Text:TLI INLET M23 BLANK TLI #323118



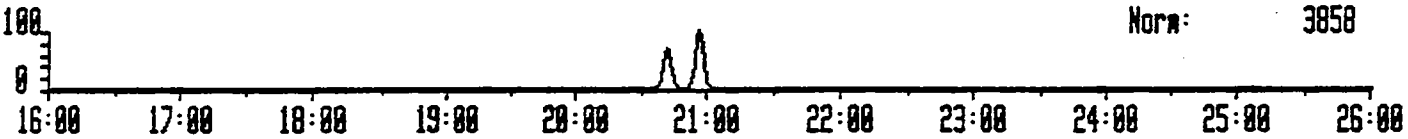
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:TLI INLET M23 BLANK TLI #32311B

P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:TLI INLET M23 BLANK TLI #32311B

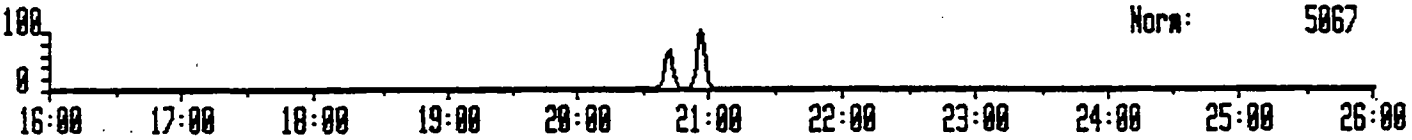


P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:TLI INLET M23 BLANK TLI #32311B

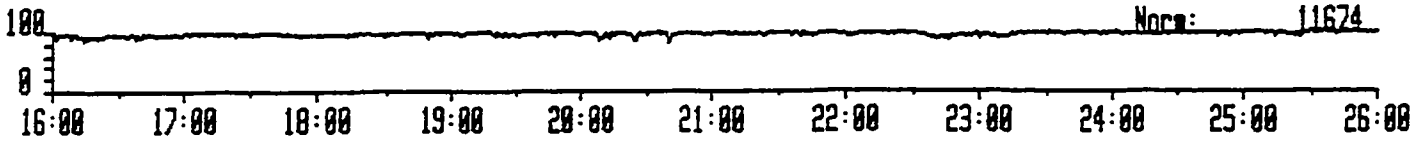
P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:TLI INLET M23 BLANK TLI #32311B

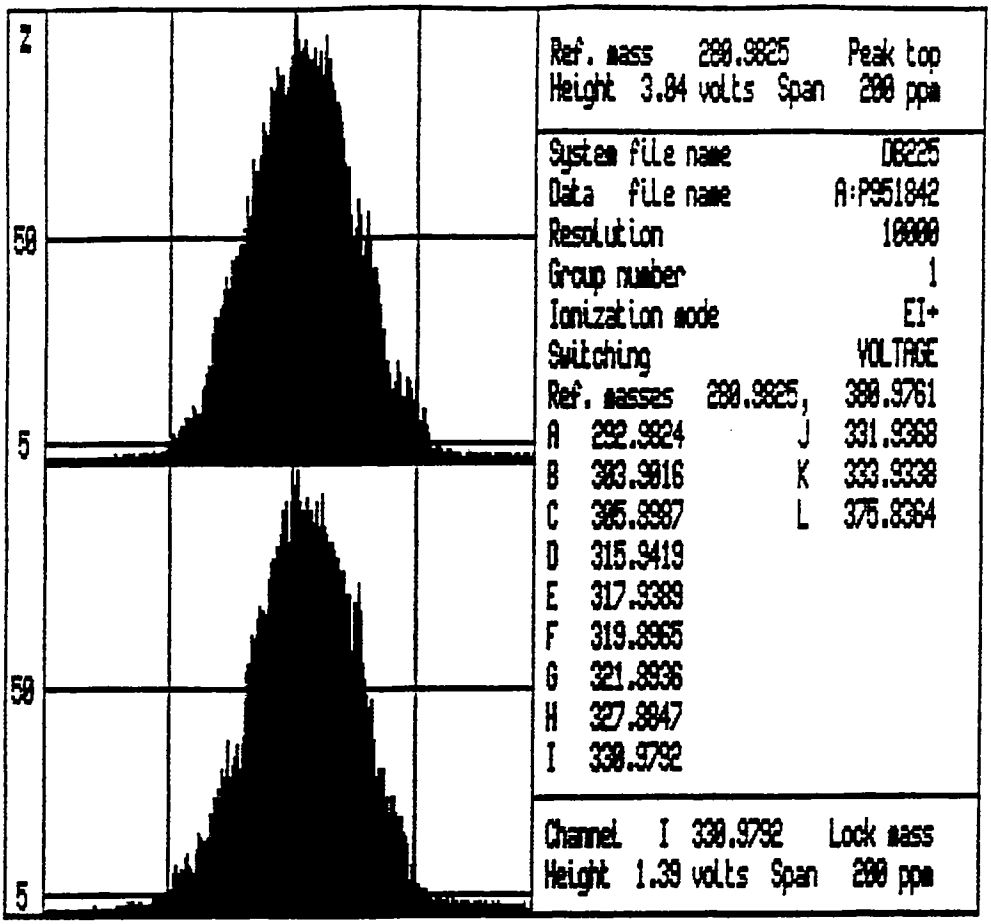


P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:TLI INLET M23 BLANK TLI #32311B



P951842 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 292.9824
Text:TLI INLET M23 BLANK TLI #32311B




Z
50
5
50
5
Ref. mass 280.9825 Peak top
Height 3.84 volts Span 200 ppm
System file name D8225
Data file name A:P951842
Resolution 10000
Group number 1
Ionization mode EI+
Switching VOLTAGE
Ref. masses 280.9825, 380.9761
A 282.9824
B 303.9816
C 305.8987
D 315.9419
E 317.9389
F 319.8965
G 321.8936
H 327.8847
I 330.9792
J 331.9368
K 333.9338
L 375.8364
Channel I 330.9792 Lock mass
Height 1.39 volts Span 200 ppm

TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)
Client Sample: **RUN 1 AUX HT INLET 4-6-95** Analysis File: **W951883**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPX23704
TLRTP ID:	98-238-1A-D	Date Extracted:	04/20/95	ICAL:	WF54275
		Date Analyzed:	05/04/95	CONCAL:	W951880
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	W951882	% Lipid:	n/a
GC Column:	DB-5	Analyst:	GM	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.42			0.77	25:38	—
1,2,3,7,8-PeCDD	1.4			1.54	29:57	—
1,2,3,4,7,8-HxCDD	1.8			1.24	33:06	—
1,2,3,6,7,8-HxCDD	3.0			1.25	33:11	
1,2,3,7,8,9-HxCDD	4.1			1.27	33:27	PK
1,2,3,4,6,7,8-HpCDD	12.9			1.03	36:05	—
2,3,7,8-TCDF	52.2			0.75	24:55	—
1,2,3,7,8-PeCDF	9.5			1.62	28:54	—
2,3,4,7,8-PeCDF	14.6			1.59	29:37	—
1,2,3,4,7,8-HxCDF	38.1			1.25	32:24	—
1,2,3,6,7,8-HxCDF	11.3			1.26	32:31	—
2,3,4,6,7,8-HxCDF	15.6			1.26	33:00	
1,2,3,7,8,9-HxCDF	0.80			1.28	33:43	PR
1,2,3,4,6,7,8-HpCDF	37.6			1.06	35:11	—
1,2,3,4,7,8,9-HpCDF	5.2			1.01	36:31	—
1,2,3,4,6,7,8,9-OCDF	23.6			0.87	39:12	—

Internal Standards	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.1	102	0.81	24:54	—
$^{13}C_{12}$-2,3,7,8-TCDD	3.6	89.0	0.78	25:37	—
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.8	95.0	1.48	28:54	—
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.5	114	1.56	29:57	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	3.8	95.4	0.51	32:30	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.6	89.0	1.23	33:11	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	4.1	102	0.46	35:11	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	4.0	99.4	1.04	36:04	—
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	7.0	87.2	0.88	39:02	—

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TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **RUN 1 AUX HT INLET 4-6-95** Analysis File: **W951883**

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.6	91.1		25:38	—
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.6	90.3	1.56	29:36	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.9	98.2	0.54	32:25	—
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	4.1	103	1.23	33:06	—
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.6	90.2	0.43	36:30	—

Alternate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.7	93.0	0.51	33:43	—
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.7	93.4	0.52	33:00	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	25:26	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.24	33:28	—

Data Reviewer: _____ 05/09/95

X237_PSR v:1.10, LARS 5.14.12

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Printed: 17:51 05/09/95

	Initial	....Date...	
B-File/Header Changes	KC	5/5/0	Calculated Noise Area:
Manual Integrations		/ /	Channel:
Transcription		/ /	Initials:
dBASE Corrections		/ /	Date:

Page No. 1 Listing of W951883B.dbf
05/04/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									21:30-26:50	
304-306		0.76	21:40	49,909.65	T	F	0.870			
		0.77	22:10	58,229.80	T	F	0.890			
		0.76	22:26	48,690.07	T	F	0.901			
		0.75	22:49	307,983.90	T	F	0.916			
		0.76	23:08	202,917.28	T	F	0.929			
		0.77	23:34	310,745.00	T	F	0.946			
		0.76	23:50	162,028.72	T	F	0.957			
		0.76	24:04	199,144.64	T	F	0.967			
		0.76	24:17	188,217.79	T	F	0.975			
		0.75	24:28	147,818.01	T	F	0.983			
		0.77	24:43	121,966.26	T	F	0.993			
		0.75	24:55	441,256.20	T	T	1.001		2378-TCDF	AN
		0.75	25:21	166,885.01	T	F	1.018			
		0.77	25:33	97,753.43	T	F	1.026			
		0.75	25:49	13,255.23	T	F	1.037			
		0.78	26:40	14,857.06	T	F	1.071			
	DC	0.76	26:55	2,597.42	T	F	1.081	WH		
304-306		Peaks	16	2,531,658.05	*** Total ***					
13C12-TCDF									23:54-25:54	
316-318	DC	3.62	23:08	36.16	F	F	0.929	WL		
	DN	10.08	23:34	21.27	F	F	0.946	WL		
	DC	1.41	23:50	211.42	F	F	0.957	WL		
		1.73	24:05	58.40	F	F	0.967	FR		
		2.05	24:17	31.87	F	F	0.975	FR		
		0.92	24:28	281.49	F	F	0.983	FR		
		0.81	24:54	28,366.57	T	T	1.000		13C12-2378-TCDF	IS0
		1.14	25:19	276.06	F	F	1.017	FR		
	DC	0.90	26:29	284.53	F	F	1.064	WH		
	DC	0.80	26:40	88.21	T	F	1.071	WH		
	DN	0.21	27:03	13.78	F	F	1.086	WH		
316-318		Peaks	5	29,014.39	*** Total ***					
TCDD									22:53-26:48	
320-322		0.75	23:01	23,934.66	T	F	0.899			
		0.74	23:26	12,423.04	T	F	0.915			
		0.73	23:44	5,066.82	T	F	0.926			
		0.77	24:26	17,574.88	T	F	0.954			

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		0.36	24:42	5,254.90	F	F	0.964	FR		
		0.74	25:05	5,240.63	T	F	0.979			
		0.75	25:26	6,831.46	T	F	0.993			
		0.75	25:32	9,249.34	T	F	0.997			
		0.77	25:38	2,320.25	T	T	1.001		2378-TCDD	AN
		0.79	25:48	2,356.28	T	F	1.007			
		0.74	25:59	4,239.52	T	F	1.014			
		0.79	26:11	1,311.93	T	F	1.022			
		0.78	26:38	1,573.78	T	F	1.040			
320-322		Peaks	13	97,377.49	*** Total ***					
37Cl-TCDD									23:38-27:38	
328	DC	0.00	22:32	130.99	T	F	0.880	WL		
	DC	0.00	23:01	93.70	T	F	0.899	WL		
	DC	0.00	23:26	90.22	T	F	0.915	WL		
		0.00	24:10	2,591.11	T	F	0.943			
		0.00	24:26	62.43	T	F	0.954			
		0.00	24:58	162.19	T	F	0.975			
		0.00	25:06	123.34	T	F	0.980			
		0.00	25:26	60.16	T	F	0.993			
		0.00	25:38	17,397.87	T	T	1.001		37Cl-TCDD	SUR1
		0.00	26:02	22,250.10	T	F	1.016			
		0.00	26:38	41.39	T	F	1.040			
		0.00	26:52	36.81	T	F	1.049			
		0.00	27:01	49.66	T	F	1.055			
		0.00	27:06	195.30	T	F	1.058			
328		Peaks	11	42,970.36	*** Total ***					
13C12-TCDD									23:38-27:38	
332-334		1.14	24:25	85.35	F	F	0.953	FR		
		0.79	25:26	19,367.11	T	T	0.993		13C12-1234-TCDD	RS1
		0.78	25:37	18,382.49	T	T	1.000		13C12-2378-TCDD	IS1
		0.68	25:57	242.62	T	F	1.013			
332-334		Peaks	4	38,077.57	*** Total ***					
PeCDF									26:44-30:46	
340-342	DC	1.48	26:38	352.61	T	F	0.922	WL		
		1.55	26:54	107,070.52	T	F	0.931			
		1.59	27:22	666.05	T	F	0.947			
		2.22	27:33	1,388.00	F	F	0.953	FR		
		1.91	27:40	997.85	F	F	0.957	FR		
		1.59	27:55	34,324.54	T	F	0.966			
		1.60	28:02	306,301.50	T	F	0.970			
		1.61	28:13	53,113.35	T	F	0.976			
		1.56	28:26	20,591.11	T	F	0.984			
		1.58	28:32	68,845.61	T	F	0.987			
		1.58	28:39	109,318.04	T	F	0.991			
		1.58	28:50	41,259.77	T	F	0.998			
		1.62	28:54	57,187.24	T	T	1.000		12378-PeCDF	AN
		1.60	29:04	44,244.25	T	F	1.006			
		1.59	29:12	69,054.12	T	F	1.010			
		1.59	29:37	91,575.84	T	T	1.025		23478-PeCDF	AN

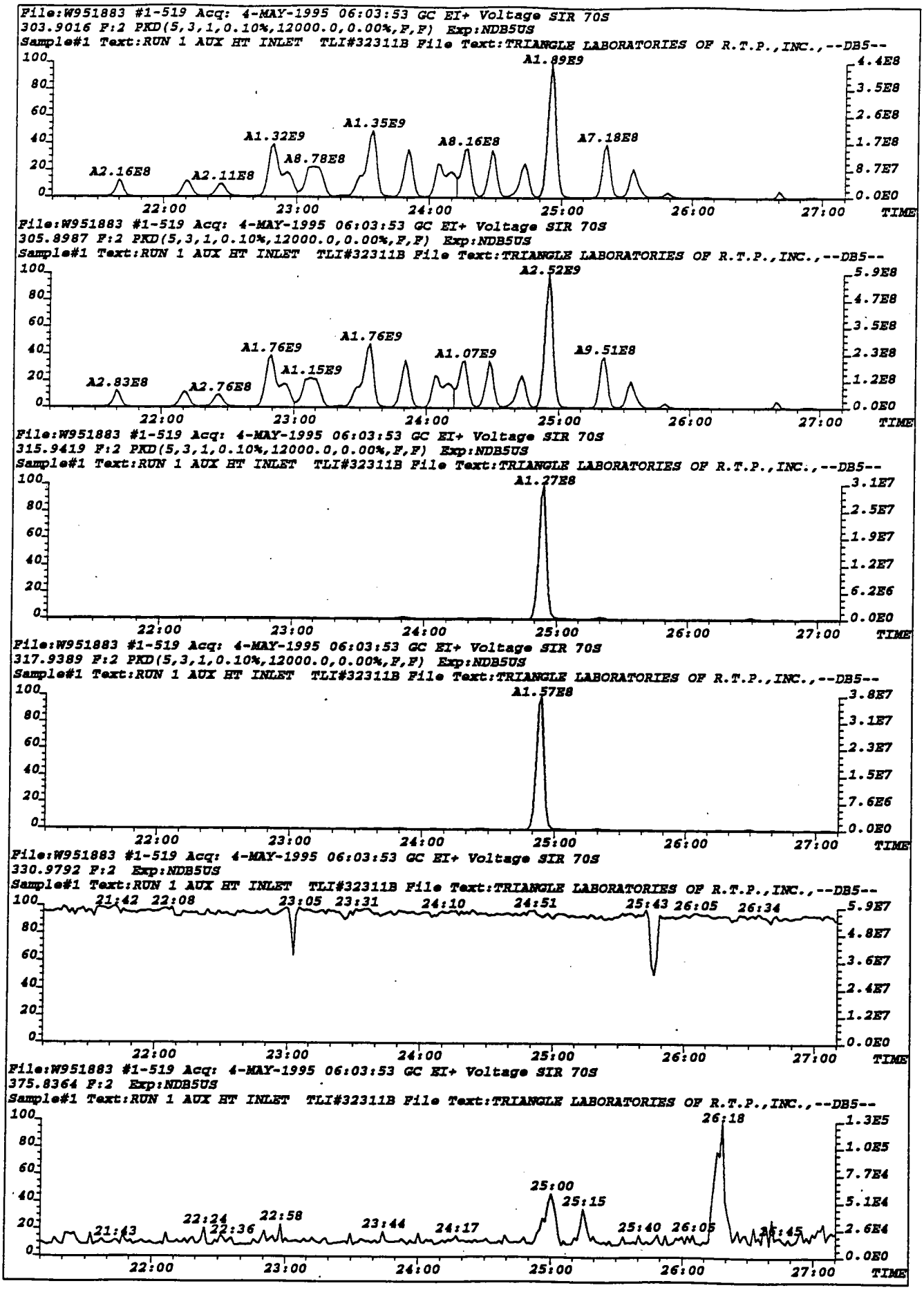
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.53	29:46	104,768.57	T	F	1.030			
		1.60	30:04	13,650.87	T	F	1.040			
		1.56	30:35	8,284.68	T	F	1.058			
340-342		Peaks	18	1,132,641.91	*** Total ***					
13C12-PeCDF									24:54-32:54	
352-354		1.69	26:54	40.07	T	F	0.931			
	DN	2.52	27:37	21.03	F	F	0.956	FR		
		2.11	28:02	154.18	F	F	0.970	FR		
		1.41	28:15	83.45	T	F	0.978			
		1.04	28:31	78.08	F	F	0.987	FR		
		1.59	28:39	56.31	T	F	0.991			
		1.48	28:54	21,273.99	T	T	1.000		13C12-PeCDF 123	IS2
		1.20	29:12	228.91	F	F	1.010	FR		
		1.56	29:36	19,003.54	T	T	1.024		13C12-PeCDF 234	SUR2
		1.97	29:55	55.04	F	F	1.035	FR		
		1.01	30:14	101.12	F	F	1.046	FR		
		2.51	30:36	58.32	F	F	1.059	FR		
352-354		Peaks	11	41,133.01	*** Total ***					
PeCDD									28:00-30:36	
356-358		1.53	28:09	32,224.55	T	F	0.940			
		1.44	28:39	3,440.26	T	F	0.957			
		1.54	28:53	19,943.79	T	F	0.964			
		1.51	29:01	5,462.88	T	F	0.969			
		1.53	29:12	13,067.87	T	F	0.975			
		1.51	29:21	3,084.37	T	F	0.980			
		1.48	29:27	7,175.93	T	F	0.983			
		1.49	29:38	5,518.59	T	F	0.989			
		0.36	29:47	2,792.85	F	F	0.994	FR		
		1.54	29:57	5,891.91	T	T	1.000		12378-PeCDD	AN
		1.45	30:05	3,602.81	T	F	1.004			
		1.48	30:26	3,783.95	T	F	1.016			
356-358		Peaks	12	105,989.76	*** Total ***					
13C12-PeCDD									25:56-33:56	
368-370	DN	1.16	28:03	12.60	F	F	0.937	SN		
		1.56	29:57	12,069.05	T	T	1.000		13C12-PeCDD 123	IS3
		1.47	30:04	1,179.41	T	F	1.004			
	DN	5.34	30:25	14.13	F	F	1.016	FR		
368-370		Peaks	2	13,248.46	*** Total ***					
HxCDF									31:17-33:58	
374-376	DC	1.45	31:15	341.09	F	F	0.962	WL		
		1.26	31:27	84,469.90	T	F	0.968			
		1.27	31:35	219,443.00	T	F	0.972			
		1.25	31:45	11,055.14	T	F	0.977			
		1.26	31:53	22,125.74	T	F	0.981			
		1.27	32:03	12,733.80	T	F	0.986			
		1.33	32:13	894.46	T	F	0.991			
		1.25	32:24	182,324.82	T	T	0.997		123478-HxCDF	AN
		1.26	32:31	73,557.15	T	T	1.001		123678-HxCDF	AN

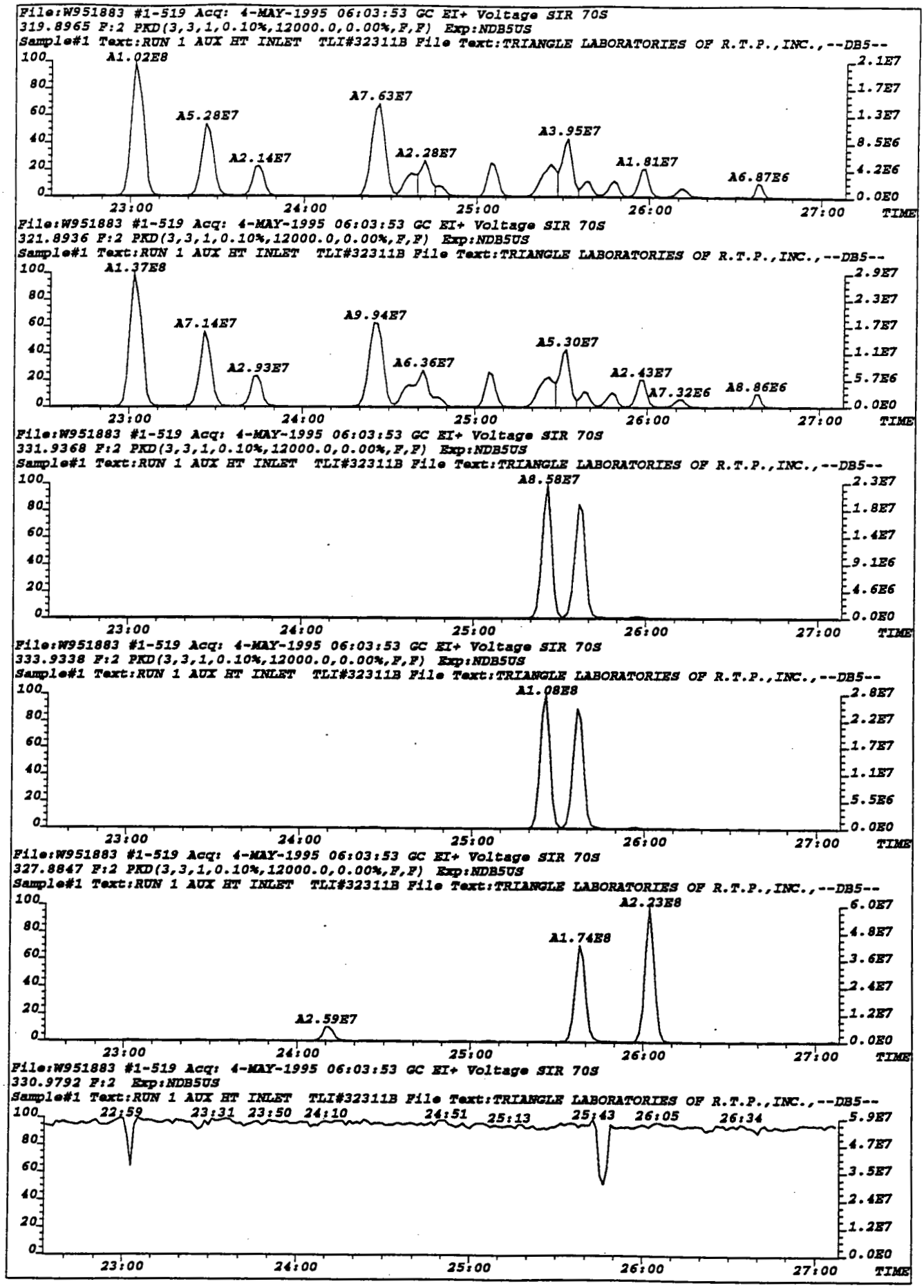
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.19	32:38	11,982.84	T	F	1.004			
		1.25	32:48	28,225.91	T	F	1.009			
		1.26	33:00	82,921.26	T	T	1.015		234678-HxCDF	AN
	Spk	1.25	33:43	~~20,516.~~17	T	T	1.037		123789-HxCDF	AN
374-376		Peaks	12	750,250.19	*** Total ***					
13C12-HxCDF									28:31-36:31	
384-386		0.81	31:27	91.19	F	F	0.968	FR		
		0.88	31:34	265.51	F	F	0.971	FR		
		0.60	32:15	48.23	F	F	0.992	FR		
		0.54	32:25	15,280.98	T	T	0.997		13C12-HxCDF 478	SUR3
		0.51	32:30	17,322.37	T	T	1.000		13C12-HxCDF 678	IS4
		0.78	32:47	136.73	F	F	1.009	FR		
		0.52	33:00	16,620.92	T	T	1.015		13C12-HxCDF 234	ALT2
		0.51	33:43	12,206.60	T	T	1.037		13C12-HxCDF 789	ALT1
	DN	1.03	34:02	13.62	F	F	1.047	SN		
384-386		Peaks	8	61,972.53	*** Total ***					
HxCDD									31:47-33:37	
390-392		1.24	31:57	14,174.77	T	F	0.963			
		1.24	32:23	42,356.92	T	F	0.976			
		1.22	32:36	28,585.50	T	F	0.982			
		1.22	32:45	3,350.61	T	F	0.987			
		1.24	33:06	4,809.97	T	T	0.997		123478-HxCDD	AN
		1.25	33:11	7,693.39	T	T	1.000		123678-HxCDD	AN
		1.27	33:27	11,635.50	T	T	1.008		123789-HxCDD	AN
390-392		Peaks	7	112,606.66	*** Total ***					
13C12-HxCDD									32:11-34:11	
402-404	DN	0.59	32:35	20.10	F	F	0.982	FR		
		1.23	33:06	9,746.52	T	T	0.997		13C12-HxCDD 478	SUR4
		1.23	33:11	9,946.08	T	T	1.000		13C12-HxCDD 678	IS5
		1.24	33:28	12,224.18	T	T	1.009		13C12-HxCDD 789	RS2
402-404		Peaks	3	31,916.78	*** Total ***					
HpCDF									35:02-36:41	
408-410		1.06	35:11	206,665.60	T	T	1.000		1234678-HpCDF	AN
		1.03	35:25	36,377.89	T	F	1.007			
		1.06	35:33	39,194.30	T	F	1.010			
		1.01	36:31	18,587.06	T	T	1.038		1234789-HpCDF	AN
408-410		Peaks	4	300,824.85	*** Total ***					
13C12-HpCDF									33:11-39:11	
418-420	DN	1.07	34:47	16.58	F	F	0.989	SN		
		0.46	35:11	11,744.58	T	T	1.000		13C12-HpCDF 678	IS6
	DN	2.19	35:25	13.10	F	F	1.007	FR		
		0.43	36:30	8,272.83	T	T	1.037		13C12-HpCDF 789	SUR5
	DN	1.85	37:03	9.47	F	F	1.053	SN		
418-420		Peaks	2	20,017.41	*** Total ***					
HpCDD									35:17-36:15	
424-426	DC	0.60	35:11	29.65	F	F	0.976	WL		

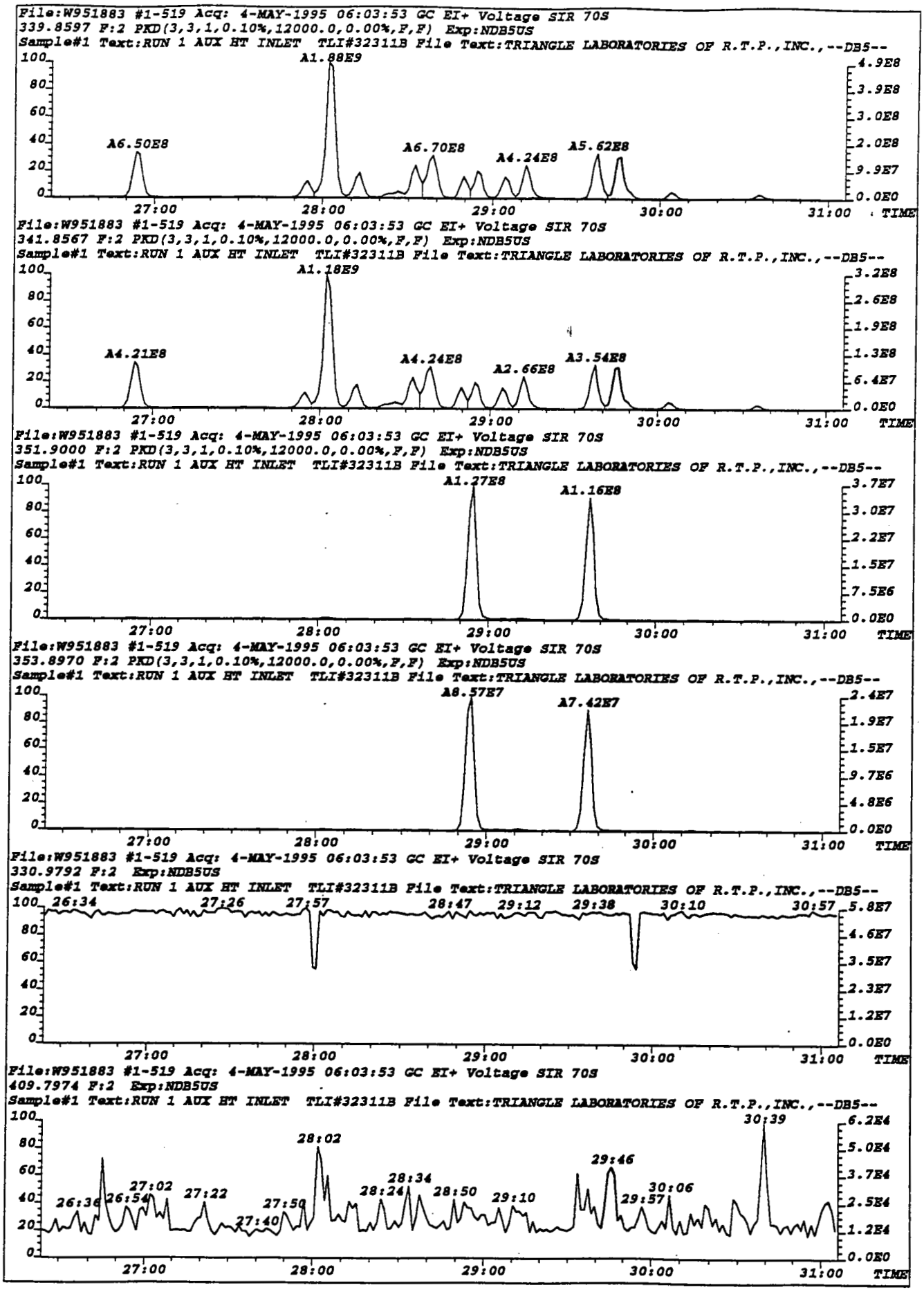
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.04	35:26	36,962.95	T	F	0.982			
		1.03	36:05	31,410.21	T	T	1.000		1234678-HpCDD	AN
424-426		Peaks	2	68,373.16	*** Total ***					
13C12-HpCDD									35:04-37:04	
436-438	DC	1.16	35:09	9.32	T	F	0.975	SN		
		0.81	35:25	29.78	F	F	0.982	FR		
		1.04	36:04	9,112.66	T	T	1.000		13C12-HpCDD 678	IS7
436-438		Peaks	2	9,142.44	*** Total ***					
OCDF									35:02-43:02	
442-444		0.87	39:12	46,359.06	T	T	1.004		OCDF	AN
442-444		Peaks	1	46,359.06	*** Total ***					
OCDD									35:02-43:02	
458-460		0.85	39:02	22,477.83	T	T	1.000		OCDD	AN
458-460		Peaks	1	22,477.83	*** Total ***					
13C12-OCDD									38:53-39:13	
470-472		0.88	39:02	12,261.68	T	T	1.000		13C12-OCDD	IS8

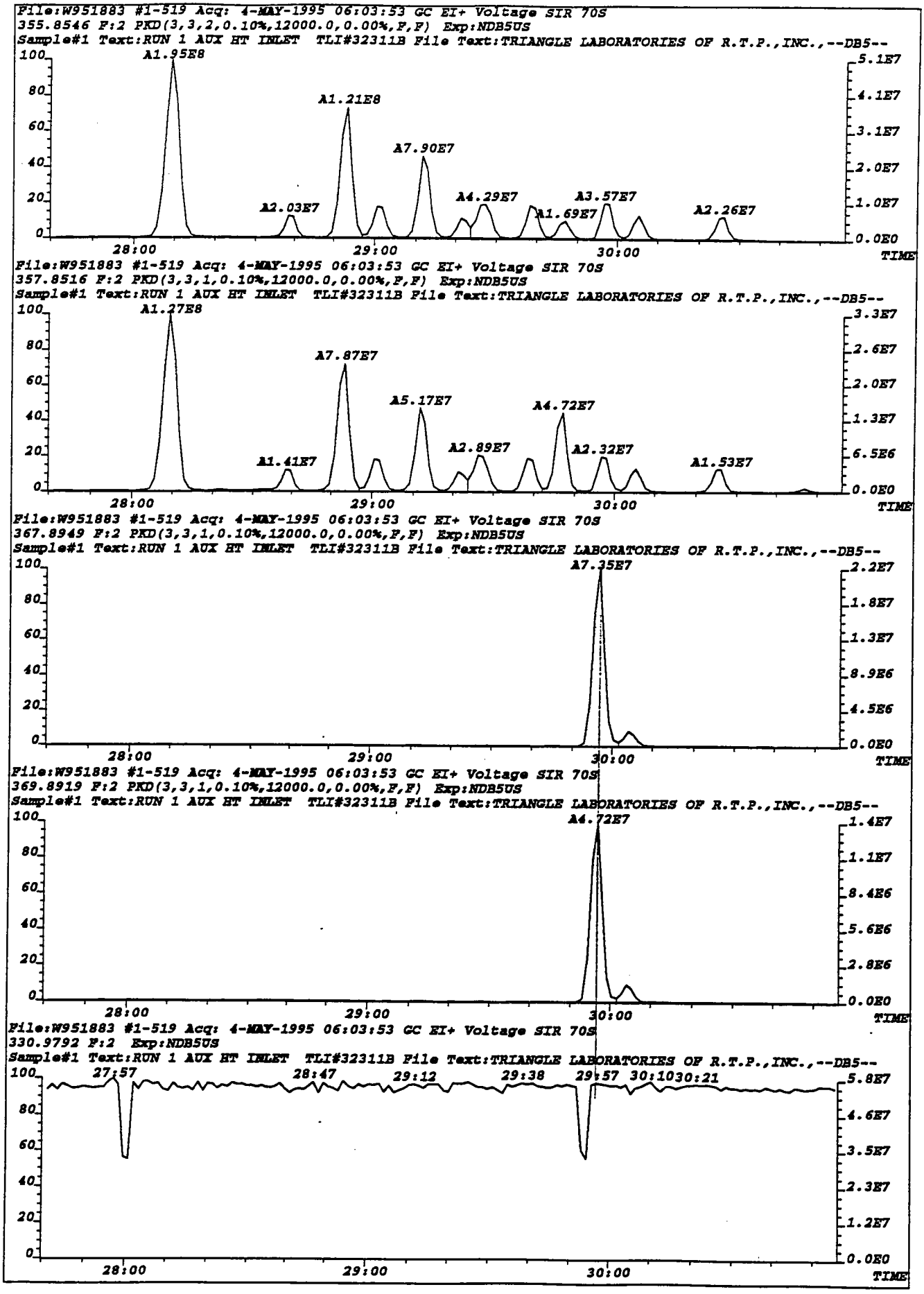
Column...	Description.....	"Why" Code Description
M_Z	- Nominal Ion Mass(es)	WL - Below Retention Time Window
RT.	- Retention Time	WH - Above Retention Time Window
Match Rat	- Ratio Match True/False	SN - Below Signal to Noise Level
Match RT	- Time Match True/False	<M - Below Method Detection Limit
Rel RT	- Relative Retention Time	FR - Calc based on theoretical ratio

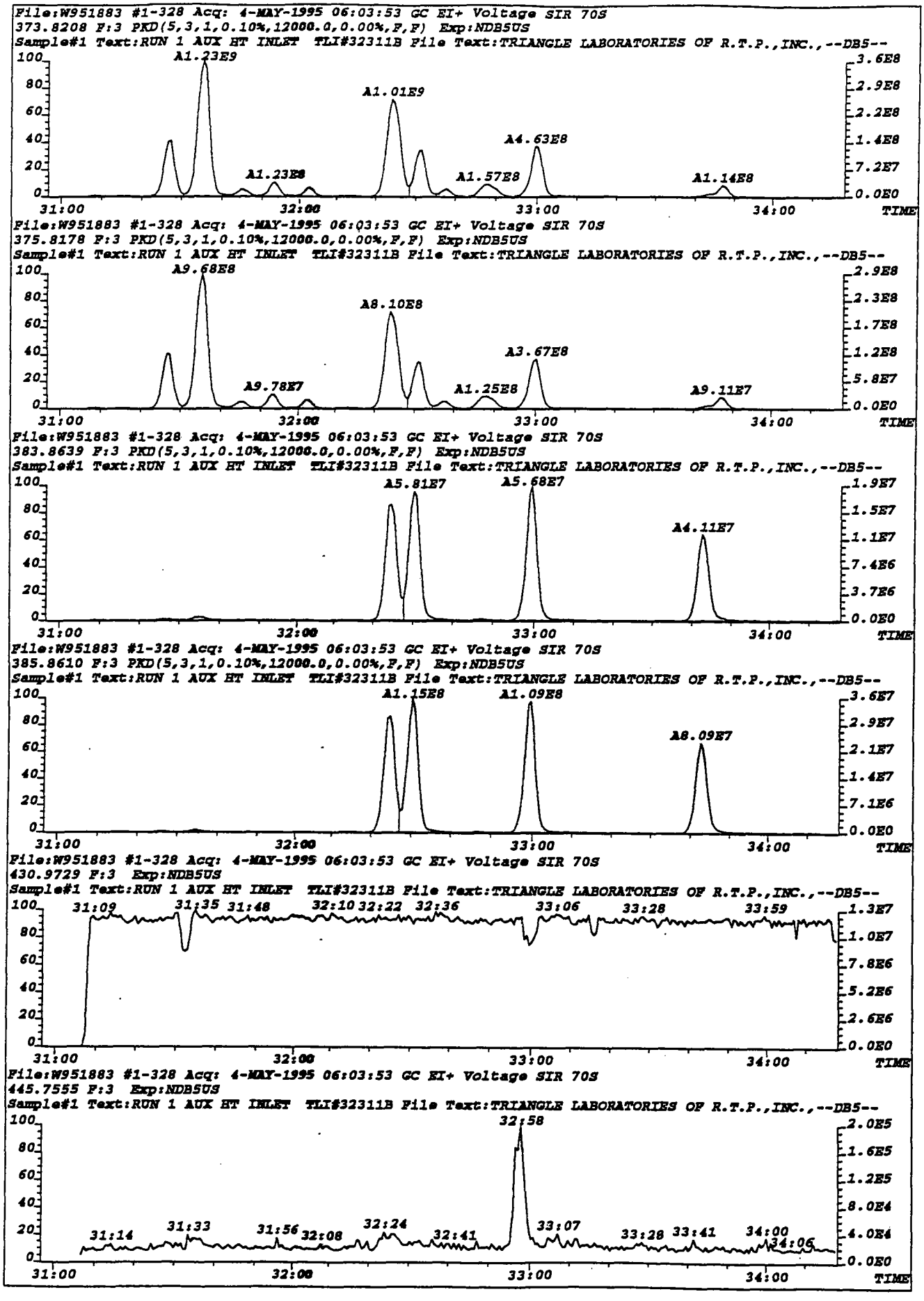
*** End of Report ***

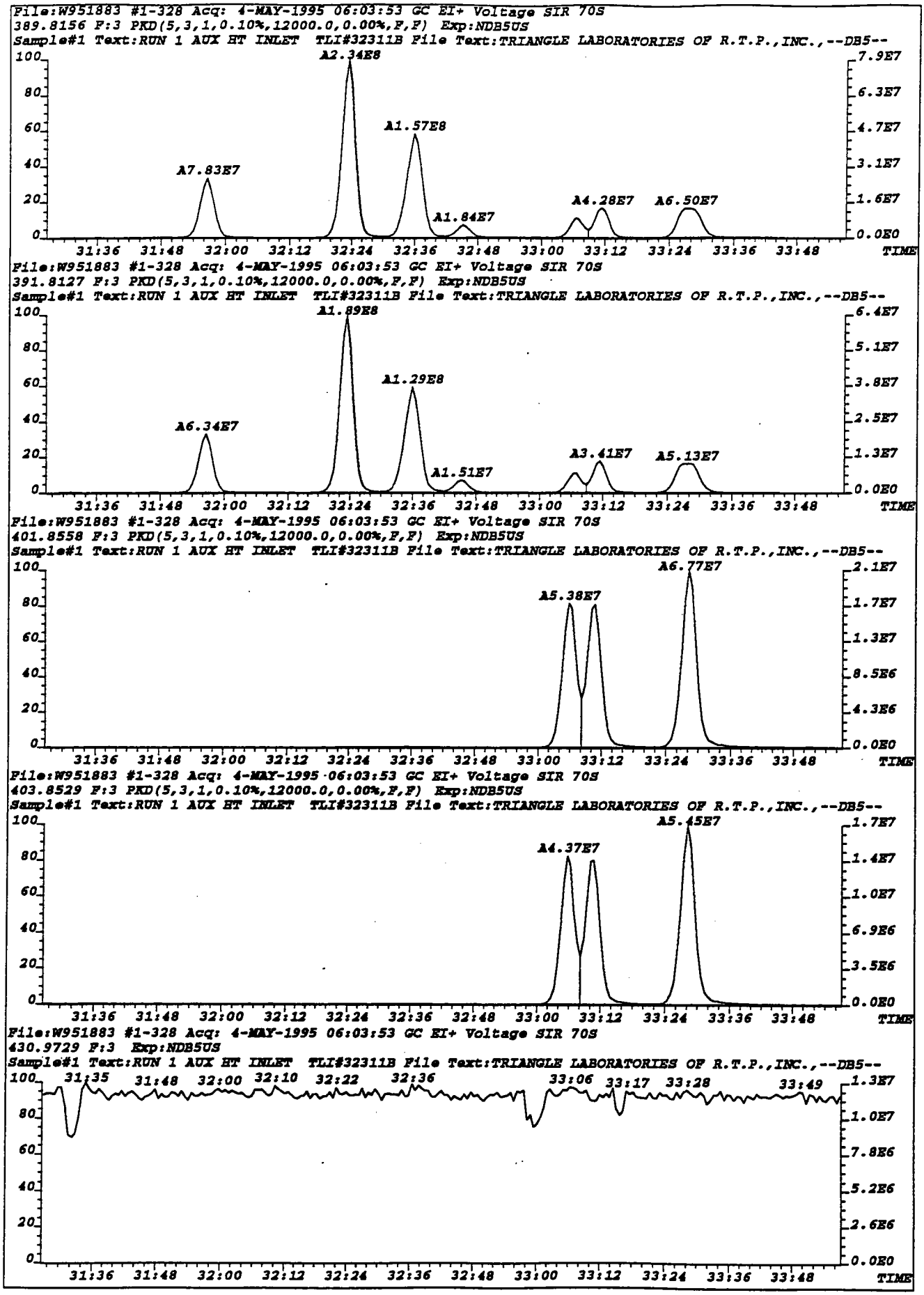

File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
303.9016 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.89E9
A1.35E9
A1.32E9
A8.16E8
A8.78E8
A7.18E8
A2.16E8
A2.11E8
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
305.8987 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.52E9
A1.76E9
A1.76E9
A1.07E9
A1.15E9
A9.51E8
A2.83E8
A2.76E8
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
315.9419 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.27E8
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
317.9389 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.57E8
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
21:42 22:08 23:05 23:31 24:10 24:51 25:43 26:05 26:34
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
375.8364 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
26:18
25:00
25:15
21:43
22:24
22:36
22:58
23:44
24:17
25:40
26:05
26:45
22:00
23:00
24:00
25:00
26:00
27:00
TIME

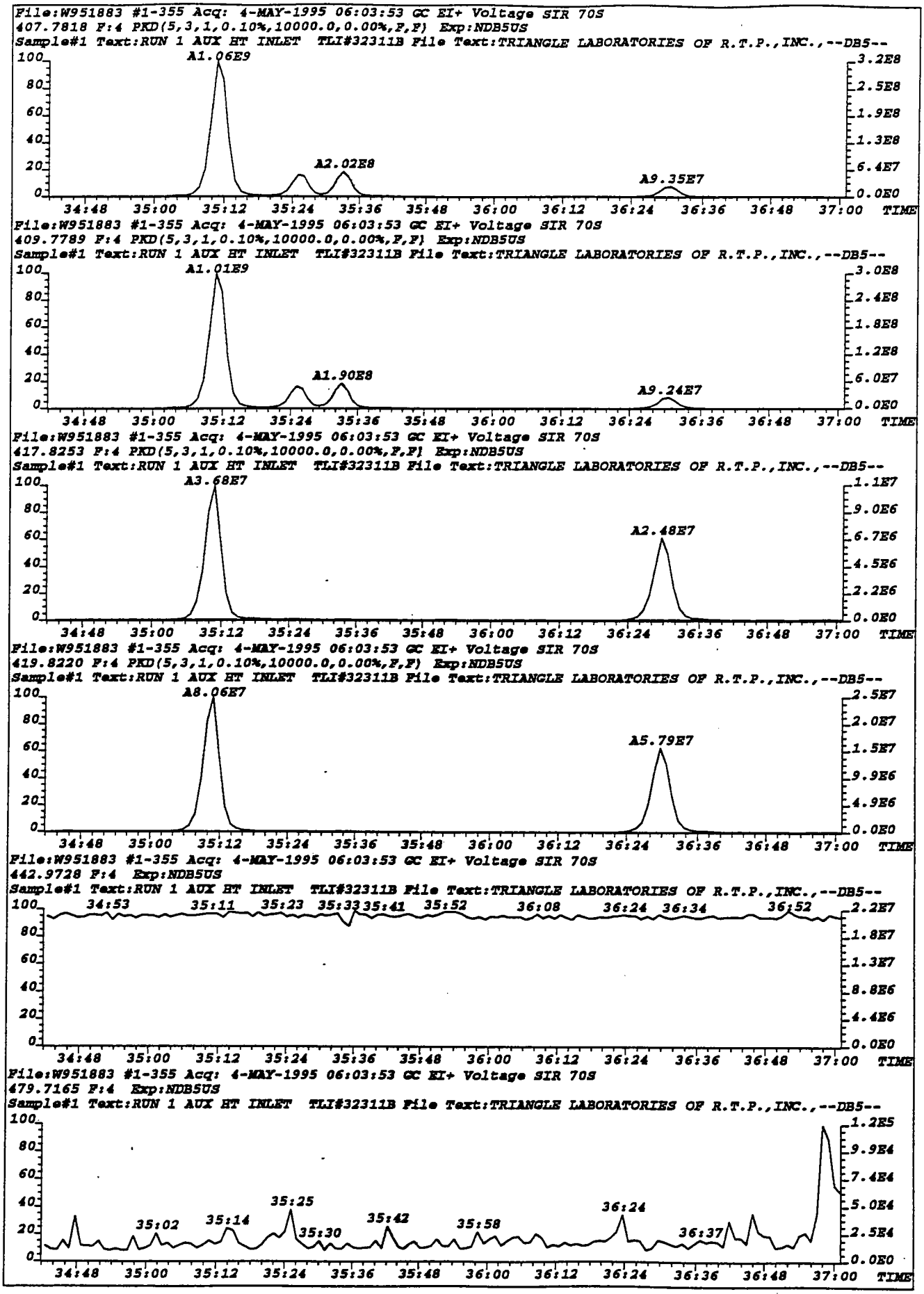

File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
319.8965 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.02E8
A5.28E7
A2.14E7
A7.63E7
A2.28E7
A3.95E7
A1.81E7
A6.87E6
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
321.8936 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.37E8
A7.14E7
A2.93E7
A9.94E7
A6.36E7
A5.30E7
A2.43E7
A7.32E6
A8.86E6
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
331.9368 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.58E7
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
333.9338 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.08E8
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
327.8847 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.23E8
A1.74E8
A2.59E7
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
22:59
23:31
23:50
24:10
24:51
25:13
25:43
26:05
26:34
23:00
24:00
25:00
26:00
27:00
TIME

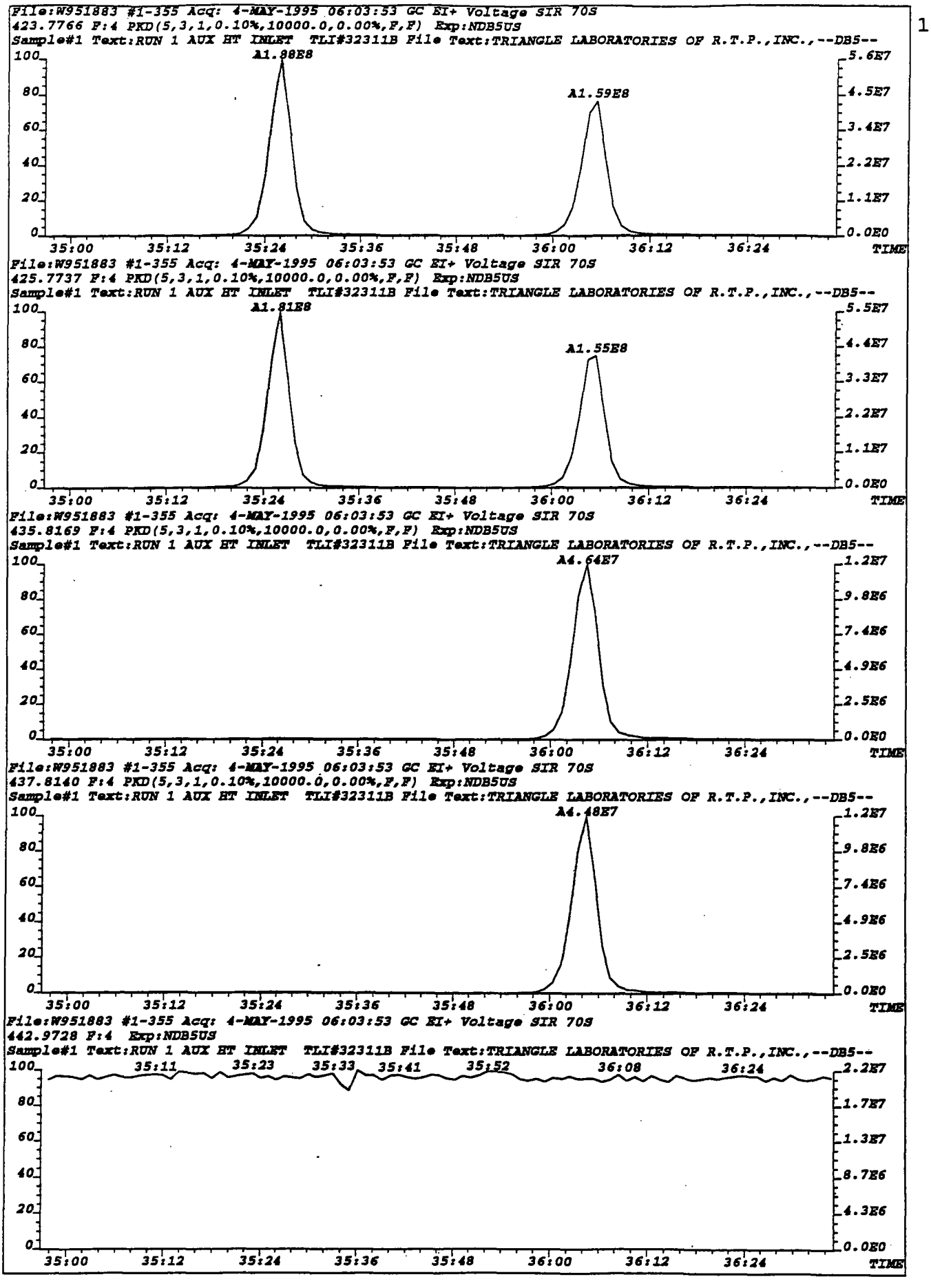

File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
339.8597 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.88E9
A6.50E8
A6.70E8
A4.24E8
A5.62E8
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
341.8567 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.18E9
A4.21E8
A4.24E8
A2.66E8
A3.54E8
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
351.9000 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.27E8
A1.16E8
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
353.8970 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.57E7
A7.42E7
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
26:34
27:26
27:57
28:47
29:12
29:38
30:10
30:57
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
409.7974 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
28:02
30:39
29:46
26:36
26:54
27:02
27:22
27:40
27:50
28:24
28:34
28:50
29:10
29:57
30:06
TIME

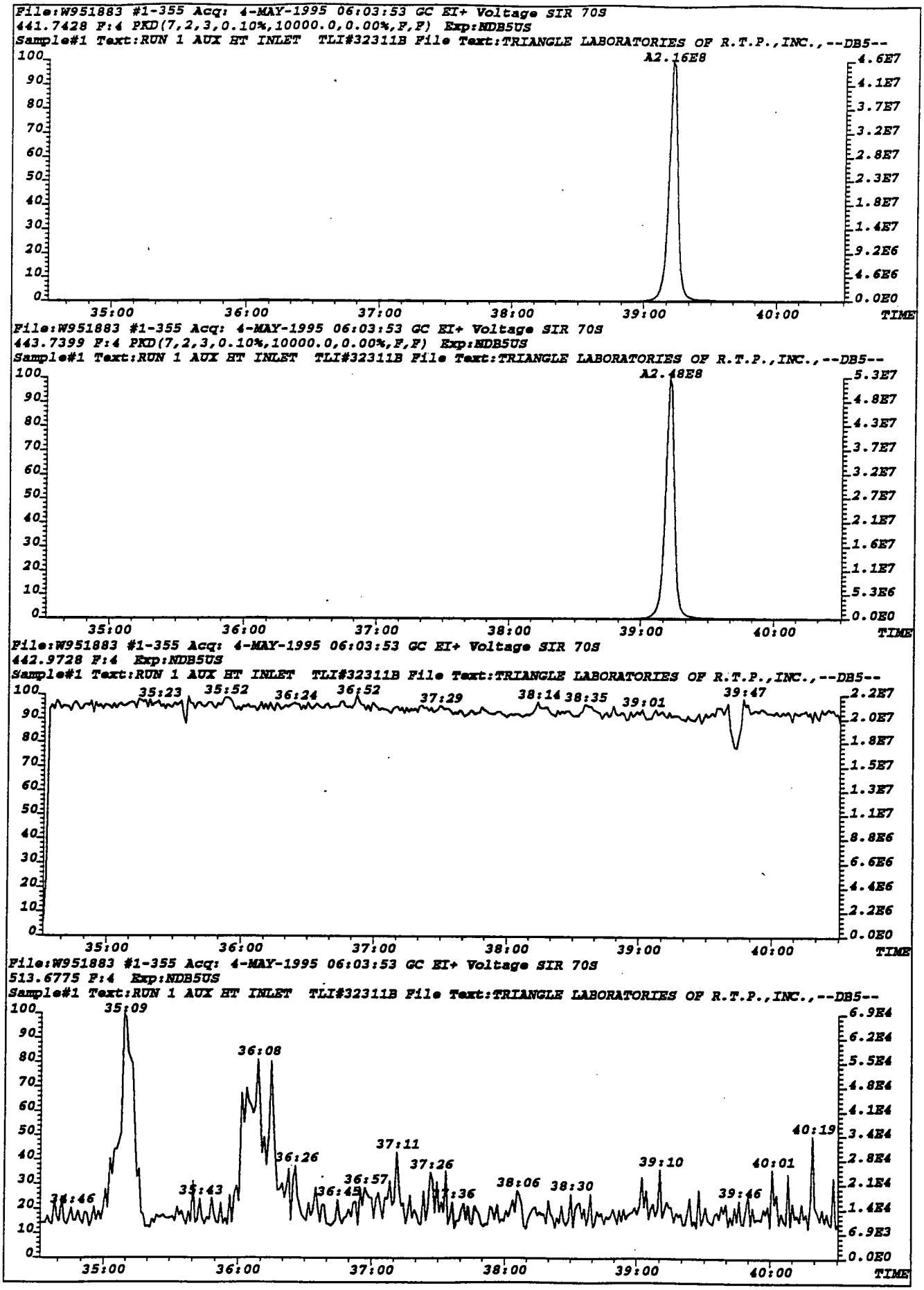

File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
355.8546 F:2 PKD(3,3,2,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.95E8
A1.21E8
A7.90E7
A2.03E7
A4.29E7
A3.57E7
A1.69E7
A2.26E7
28:00
29:00
30:00
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
357.8516 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.27E8
A7.87E7
A5.17E7
A4.72E7
A2.89E7
A2.32E7
A1.41E7
A1.53E7
28:00
29:00
30:00
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
367.8949 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A7.35E7
28:00
29:00
30:00
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
369.8919 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.72E7
28:00
29:00
30:00
TIME
File:W951883 #1-519 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
27:57
28:47
29:12
29:38
29:57
30:10
30:21
28:00
29:00
30:00
TIME

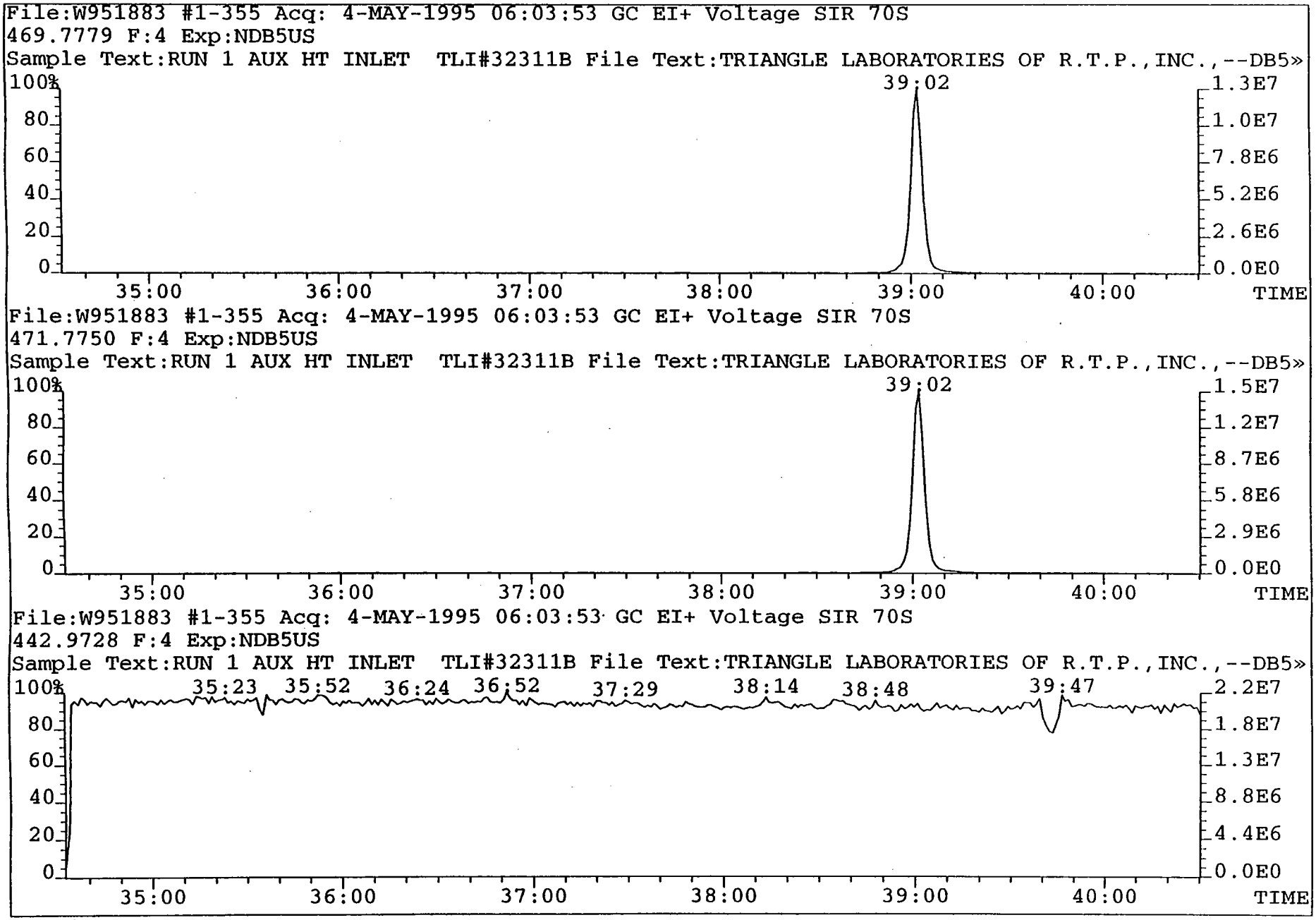

File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
373.8208 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.23E9
A1.01E9
A4.63E8
A1.23E8
A1.57E8
A1.14E8
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
375.8178 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.68E8
A8.10E8
A3.67E8
A9.78E7
A1.25E8
A9.11E7
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
383.8639 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.81E7
A5.68E7
A4.11E7
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
385.8610 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.15E8
A1.09E8
A8.09E7
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
31:09
31:35
31:48
32:10
32:22
32:36
33:06
33:28
33:59
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
445.7555 F:3 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
32:58
31:14
31:33
31:56
32:08
32:24
32:41
33:07
33:28
33:41
34:00
34:06
TIME

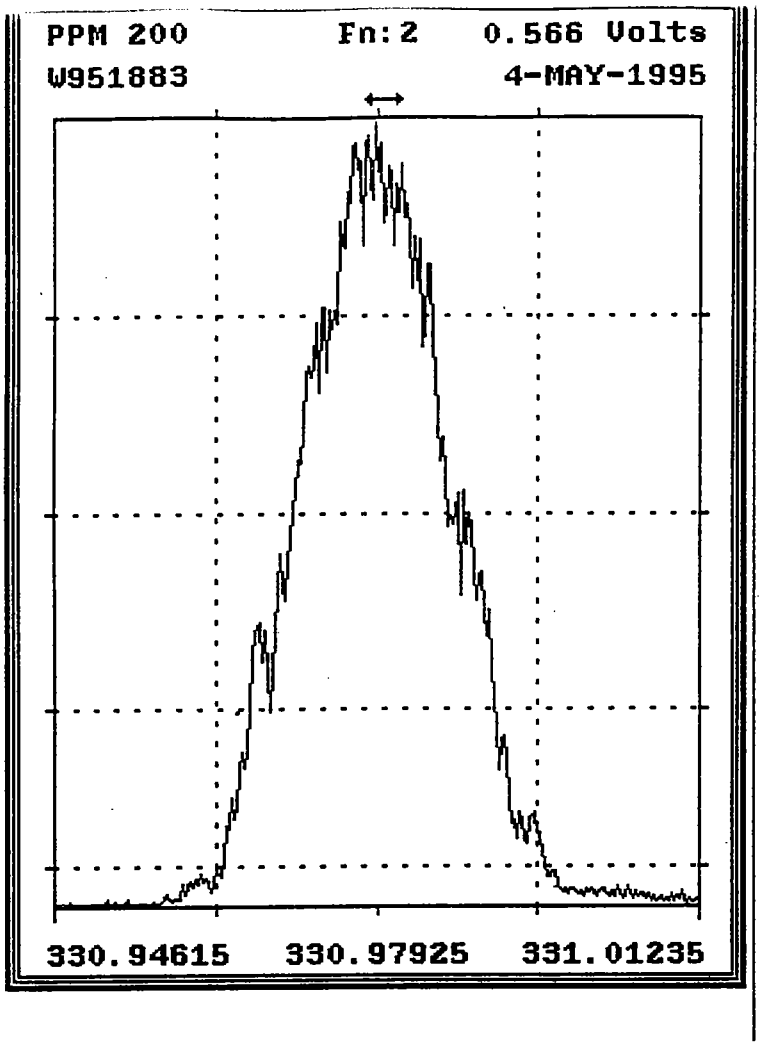

File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
389.8156 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.34E8
A1.57E8
A7.83E7
A1.84E7
A4.28E7
A6.50E7
TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
391.8127 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.89E8
A1.29E8
A6.34E7
A1.51E7
A3.41E7
A5.13E7
TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
401.8558 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.77E7
A5.38E7
TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
403.8529 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.45E7
A4.37E7
TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
TIME

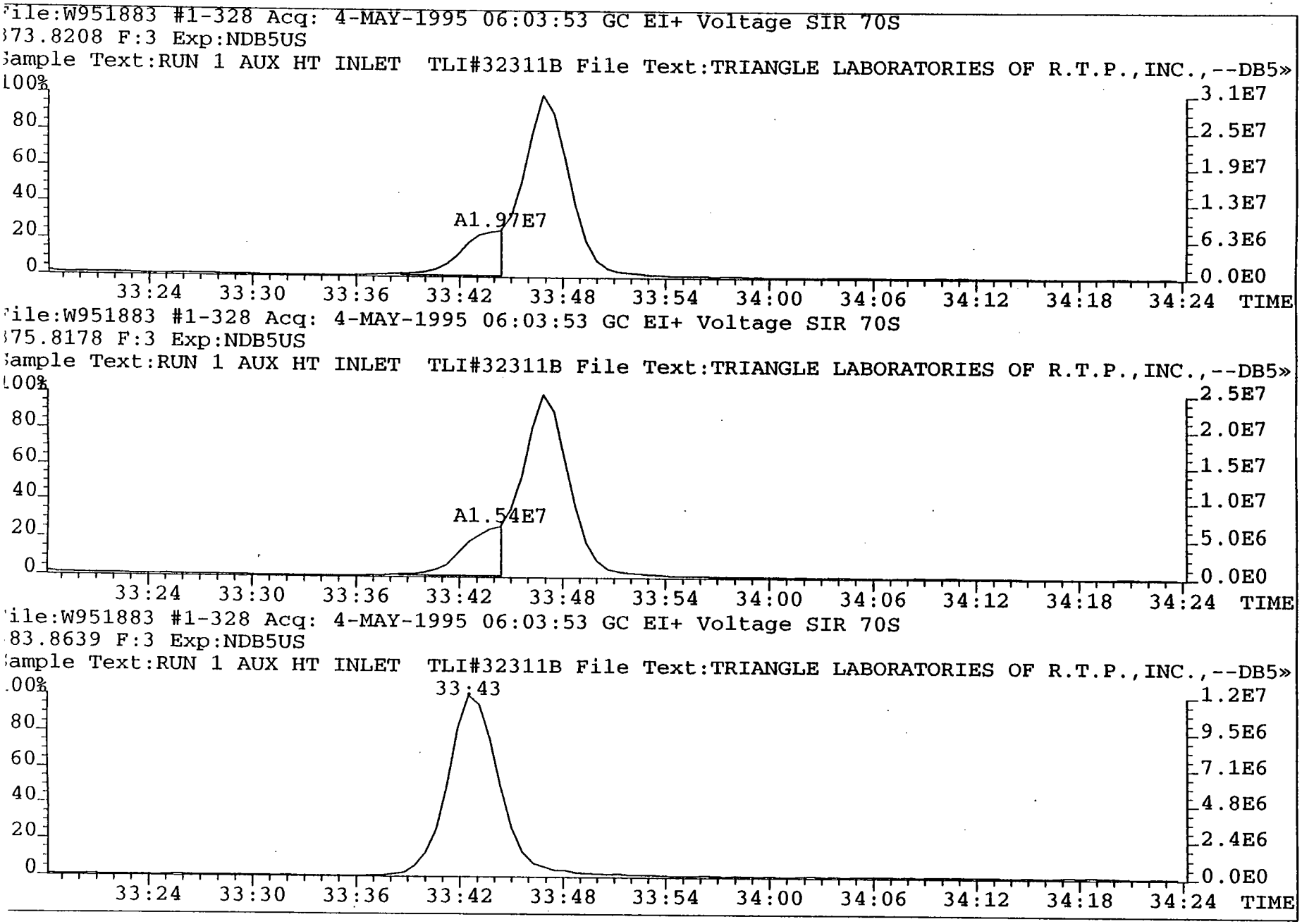

File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
407.7818 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.06E9
A2.02E8
A9.35E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
409.7789 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.01E9
A1.90E8
A9.24E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
417.8253 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.68E7
A2.48E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
419.8220 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.06E7
A5.79E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:53
35:11
35:23
35:33
35:41
35:52
36:08
36:24
36:34
36:52
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
479.7165 F:4 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
35:02
35:14
35:25
35:30
35:42
35:58
36:24
36:37
34:48 35:00 35:12 35:24 35:36 35:48 36:00 36:12 36:24 36:36 36:48 37:00 TIME


File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.88E8
A1.59E8
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.81E8
A1.55E8
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.64E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.48E7
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
TIME


File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
441.7428 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.16E8
TIME
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
443.7399 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.48E8
TIME
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
35:23 35:52 36:24 36:52 37:29 38:14 38:35 39:01 39:47
TIME
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
513.6775 F:4 Exp:NDB5US
Sample#1 Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
35:09 36:08 36:26 37:11 37:26 39:10 40:01 40:19
34:46 35:43 36:45 36:57 37:36 38:06 38:30 39:46
TIME


File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
469.7779 F:4 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
39:02
1.3E7
1.0E7
7.8E6
5.2E6
2.6E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
471.7750 F:4 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
39:02
1.5E7
1.2E7
8.7E6
5.8E6
2.9E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951883 #1-355 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
35:23
35:52
36:24
36:52
37:29
38:14
38:48
39:47
2.2E7
1.8E7
1.3E7
8.8E6
4.4E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME


PPM 200
Fn:2
0.566 Volts
W951883
4-MAY-1995
330.94615
330.97925
331.01235


File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
373.8208 F:3 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
A1.97E7
3.1E7
2.5E7
1.9E7
1.3E7
6.3E6
0.0E0
33:24 33:30 33:36 33:42 33:48 33:54 34:00 34:06 34:12 34:18 34:24 TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
375.8178 F:3 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
A1.54E7
2.5E7
2.0E7
1.5E7
1.0E7
5.0E6
0.0E0
33:24 33:30 33:36 33:42 33:48 33:54 34:00 34:06 34:12 34:18 34:24 TIME
File:W951883 #1-328 Acq: 4-MAY-1995 06:03:53 GC EI+ Voltage SIR 70S
383.8639 F:3 Exp:NDB5US
Sample Text:RUN 1 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
33:43
1.2E7
9.5E6
7.1E6
4.8E6
2.4E6
0.0E0
33:24 33:30 33:36 33:42 33:48 33:54 34:00 34:06 34:12 34:18 34:24 TIME

TL-RTP Project: **32311B** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **RUN 1 AUX HT INLET 4-6-95** Analysis File: **P951851**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPC2NF04
TLRTP ID:	98-238-1A-D	Date Extracted:	04/20/95	ICAL:	PF2N144
		Date Analyzed:	05/02/95	CONCAL:	P951850
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P951842	% Lipid:	n/a
GC Column:	DB-225	Analyst:	PR	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	19.0			0.75	22:01	—

Internal Standard	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.1	78.0	0.76	22:00	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	20:56	—

Data Reviewer: KU 05/06/95

C2NF_PSR v:1.10. LARS 5.14.12

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Printed: 15:07 05/06/95

	Initial	....Date...	
B-File/Header Changes	KU	5/6/95	Calculated Noise Area:
Manual Integrations		/ /	Channel:
Transcription		/ /	Initials:
dBASE Corrections		/ /	Date:

Page No. 1 Listing of P951851B.dbf
05/03/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									17:07-24:04	
304-306	DN	9.70	15:41	12.48	F	F	0.713	WL		
	DC	0.45	16:38	183.12	F	F	0.756	WL		
		0.78	17:25	20,899.71	T	F	0.792			
		1.36	17:37	112.82	F	F	0.801	FR		
		0.50	17:42	263.29	F	F	0.805	FR		
		1.04	17:53	590.43	F	F	0.813	FR		
		1.06	17:58	297.88	F	F	0.817	FR		
		0.60	18:05	1,004.91	F	F	0.822	FR		
		0.71	18:27	11,914.02	T	F	0.839			
		0.74	18:32	8,570.40	T	F	0.842			
		0.73	18:38	48,443.22	T	F	0.847			
		0.75	18:49	27,203.59	T	F	0.855			
		0.74	19:06	27,613.07	T	F	0.868			
		0.75	19:17	55,438.25	T	F	0.877			
		0.74	19:25	31,697.80	T	F	0.883			
		0.74	19:35	125,669.56	T	F	0.890			
		0.74	19:47	24,144.37	T	F	0.899			
		0.75	20:08	187,795.40	T	F	0.915			
		0.73	20:26	331.02	T	F	0.929			
		0.75	20:36	84,487.93	T	F	0.936			
		0.75	20:53	50,912.20	T	F	0.949			
		0.73	21:04	68,395.50	T	F	0.958			
		0.74	21:18	7,969.11	T	F	0.968			
		0.75	21:29	55,702.01	T	F	0.977			
		0.92	21:43	404.22	F	F	0.987	FR		
		0.76	21:53	43,546.82	T	F	0.995			
		0.75	22:01	73,509.93	T	T	1.001		2378-TCDF	AN
		0.72	22:14	49,066.50	T	F	1.011			
		0.74	22:27	55,847.64	T	F	1.020			
		0.74	22:36	97,450.58	T	F	1.027			
		0.66	22:46	654.69	T	F	1.035			
		0.88	22:53	366.65	T	F	1.040			
		0.73	23:17	43,833.27	T	F	1.058			
		0.55	23:31	330.08	F	F	1.069	FR		
		0.72	23:55	6,640.45	T	F	1.087			
	DC	0.59	24:07	376.96	F	F	1.096	WH		
	DC	0.43	24:27	218.60	F	F	1.111	WH		
	DC	0.54	24:50	236.61	F	F	1.129	WH		

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.56	25:20	296.83	F	F	1.152	WH		
	DC	1.14	25:45	379.80	F	F	1.170	WH		
304-306		Peaks	33	1,211,107.32	*** Total ***					
13C12-TCDF									21:48-22:08	
316-318	DC	0.82	20:37	155.32	T	F	0.937	WL		
	DC	0.70	20:53	147.59	T	F	0.949	WL		
		0.76	22:00	15,789.93	T	T	1.000		13C12-2378-TCDF	IS0
	DC	0.81	22:35	138.57	T	F	1.027	WH		
	DC	0.72	23:00	187.89	T	F	1.045	WH		
	DC	0.82	23:59	142.68	T	F	1.090	WH		
	DC	0.65	24:21	156.46	T	F	1.107	WH		
	DC	0.89	24:30	95.16	T	F	1.114	WH		
316-318		Peaks	1	15,789.93	*** Total ***					
TCDD									18:02-23:26	
320-322		0.79	18:19	11,103.04	T	F	0.886			
		0.78	18:50	6,287.20	T	F	0.911			
		0.77	18:53	275.90	T	F	0.913			
		0.78	19:33	5,042.41	T	F	0.945			
		0.79	19:45	2,621.47	T	F	0.955			
		0.79	19:57	4,500.49	T	F	0.965			
		0.80	20:19	3,003.08	T	F	0.982			
		0.81	20:31	810.32	T	F	0.992			
		0.79	20:43	3,914.55	T	T	1.002		2378-TCDD	AN
		0.81	20:52	2,166.59	T	F	1.009			
		0.79	20:58	8,664.80	T	F	1.014			
		0.83	21:07	1,413.28	T	F	1.021			
		0.98	21:19	148.61	F	F	1.031	FR		
		0.78	21:41	2,638.20	T	F	1.048			
		0.78	21:49	1,536.70	T	F	1.055			
		0.80	21:54	973.80	T	F	1.059			
		0.81	22:24	708.76	T	F	1.083			
		0.81	22:56	375.50	T	F	1.109			
		0.82	23:18	800.95	T	F	1.127			
		0.62	23:27	44.75	F	F	1.134			
	DC	0.98	23:31	218.79	F	F	1.137	WH		
	DC	1.00	23:46	52.59	F	F	1.149	WH		
	DC	1.18	23:56	70.82	F	F	1.157	WH		
	DC	1.07	24:06	53.17	F	F	1.165	WH		
	DC	1.48	24:11	57.15	F	F	1.169	WH		
	DC	0.76	24:27	144.63	T	F	1.182	WH		
	DC	1.39	24:29	30.09	F	F	1.184	WH		
	DC	1.33	24:46	132.86	F	F	1.197	WH		
	DC	0.81	24:46	223.60	T	F	1.197	WH		
	DC	1.21	24:55	59.97	F	F	1.205	WH		
	DC	0.92	25:02	40.54	F	F	1.210	WH		
	DC	1.13	25:09	71.79	F	F	1.216	WH		
	DC	1.43	25:18	71.29	F	F	1.223	WH		
	DC	0.20	25:30	25.39	F	F	1.233	WH		
	DC	1.10	25:35	61.17	F	F	1.237	WH		
	DC	0.94	25:40	60.09	F	F	1.241	WH		

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.49	25:55	73.61	F	F	1.253	WH		
320-322		Peaks	20	57,030.40	*** Total ***					
37Cl-TCDD									18:02-23:26	
328	DC	0.00	15:48	78.26	T	F	0.755	WL		
	DC	0.00	15:52	26.71	T	F	0.758	WL		
	DC	0.00	16:44	176.20	T	F	0.799	WL		
	DC	0.00	17:10	207.64	T	F	0.820	WL		
	DC	0.00	17:20	216.08	T	F	0.828	WL		
	DC	0.00	17:47	400.92	T	F	0.850	WL		
	DC	0.00	18:00	118.30	T	F	0.860	WL		
		0.00	18:19	210.74	T	F	0.875			
		0.00	18:33	187.92	T	F	0.886			
		0.00	18:43	180.41	T	F	0.894			
		0.00	19:02	391.06	T	F	0.909			
		0.00	19:19	264.39	T	F	0.923			
		0.00	19:29	118.46	T	F	0.931			
		0.00	19:52	33.47	T	F	0.949			
		0.00	20:06	79.42	T	F	0.960			
		0.00	20:34	1,392.87	T	F	0.982			
		0.00	20:43	9,790.74	T	T	0.990		37Cl-TCDD	SUR1
		0.00	20:59	615.18	T	F	1.002			
		0.00	21:21	95.46	T	F	1.020			
		0.00	21:31	87.52	T	F	1.028			
		0.00	22:48	18,396.31	T	F	1.089			
		0.00	22:58	39.34	T	F	1.097			
		0.00	23:16	148.47	T	F	1.111			
	DC	0.00	23:28	92.32	T	F	1.121	WH		
	DC	0.00	23:59	53.68	T	F	1.146	WH		
	DC	0.00	24:58	57.83	T	F	1.193	WH		
328		Peaks	16	32,031.76	*** Total ***					
13C12-TCDD									20:30-21:04	
332-334		0.80	20:41	10,033.43	T	T	1.000		13C12-2378-TCDD	IS1
		0.81	20:56	10,820.54	T	T	1.012		13C12-1234-TCDD	RS1
	DC	0.79	21:41	133.80	T	F	1.048	WH		

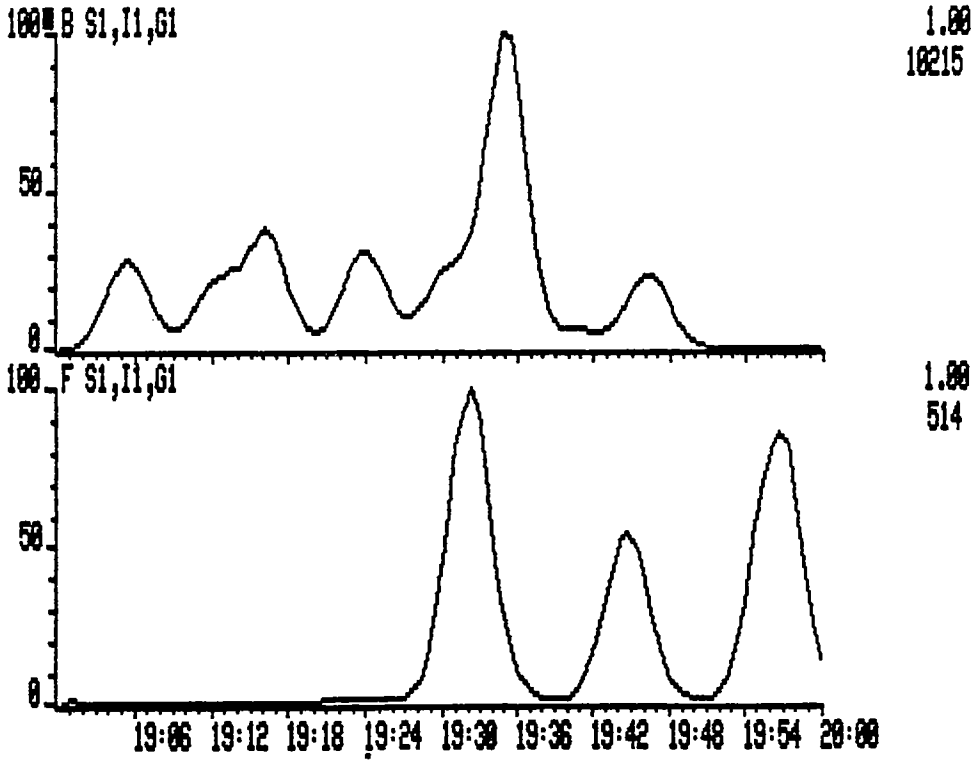
Column...	Description.....
M_Z	- Nominal Ion Mass(es)
RT.	- Retention Time
Match Rat	- Ratio Match True/False
Match RT	- Time Match True/False
Rel RT	- Relative Retention Time

"Why" Code Description

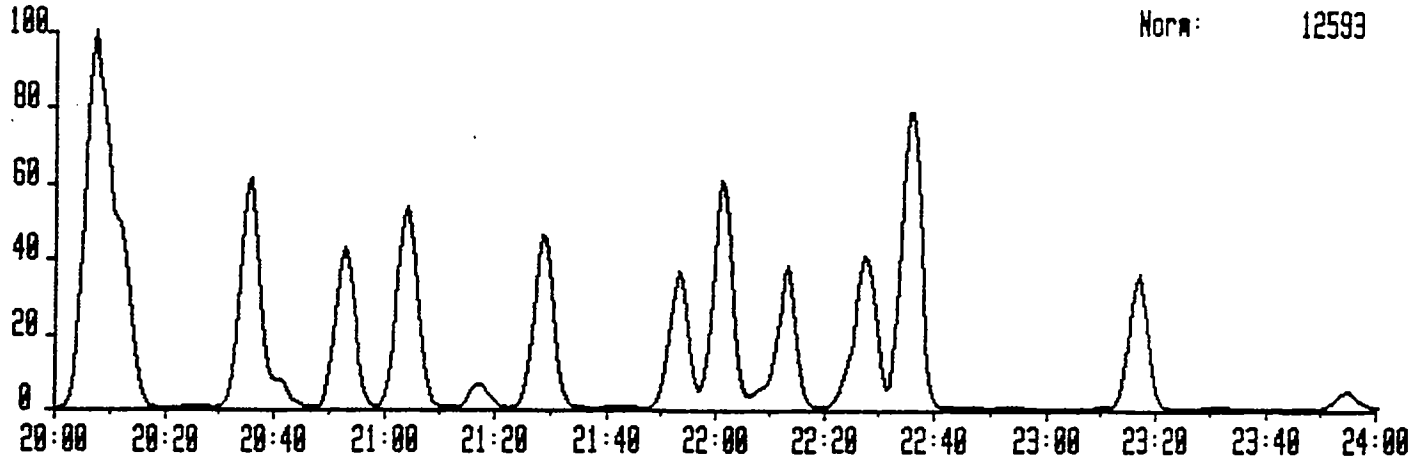
WL - Below Retention Time Window
WH - Above Retention Time Window
SN - Below Signal to Noise Level
<M - Below Method Detection Limit
FR - Calc based on theoretical ratio

*** End of Report ***

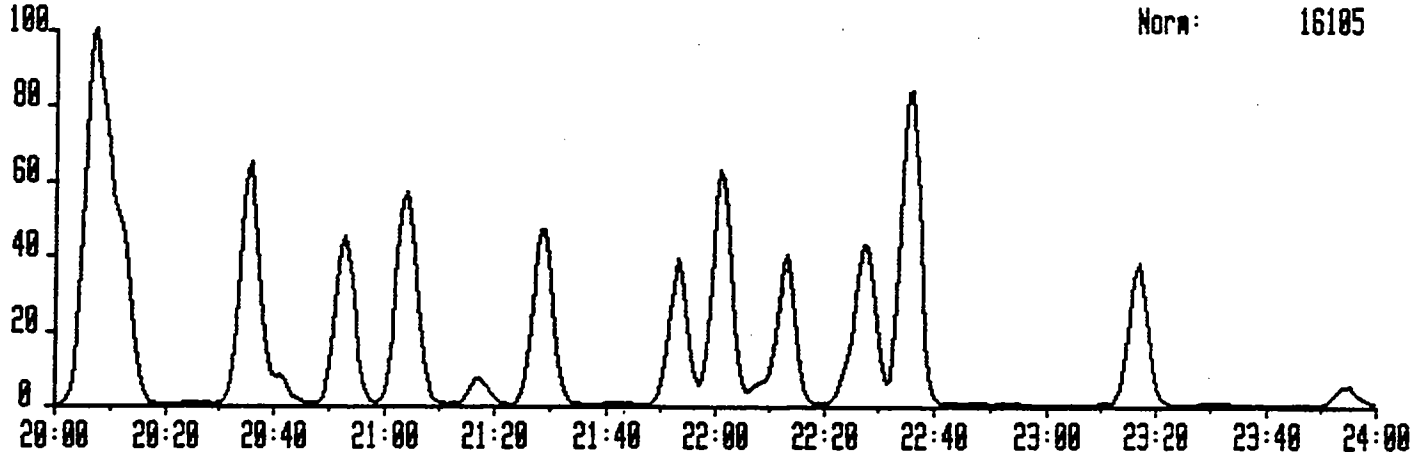
GR 1 D: 315.9419 E: 317.9389 F: 319.8965 G: 321.8936 H: 327.8847
Text:RUN 1 AUX HT INLET TLI#32311B



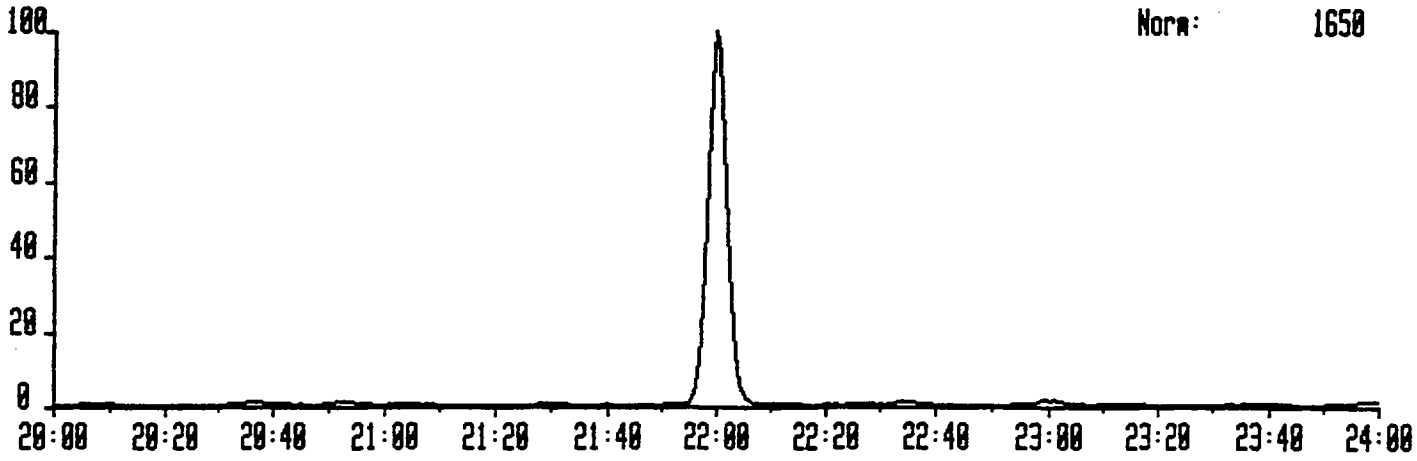
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:RUN 1 AUX HT INLET TLI#32311B



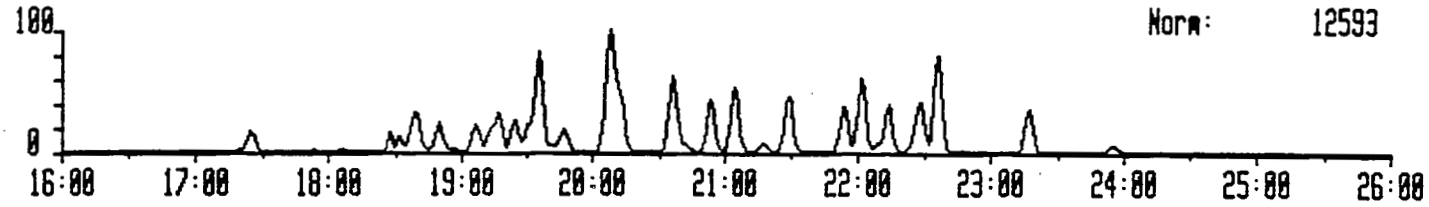
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:RUN 1 AUX HT INLET TLI#32311B



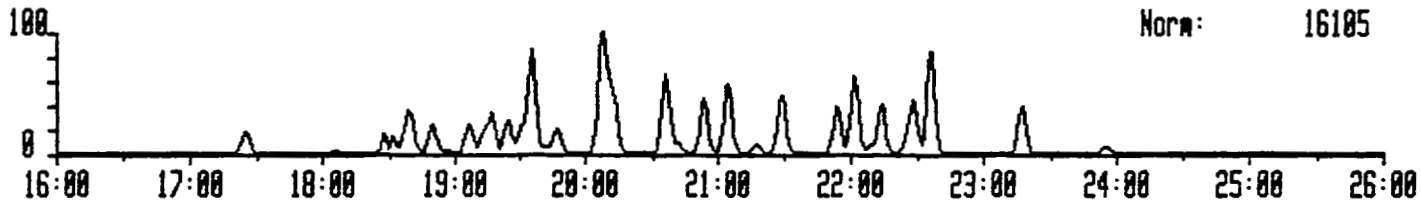
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:RUN 1 AUX HT INLET TLI#32311B



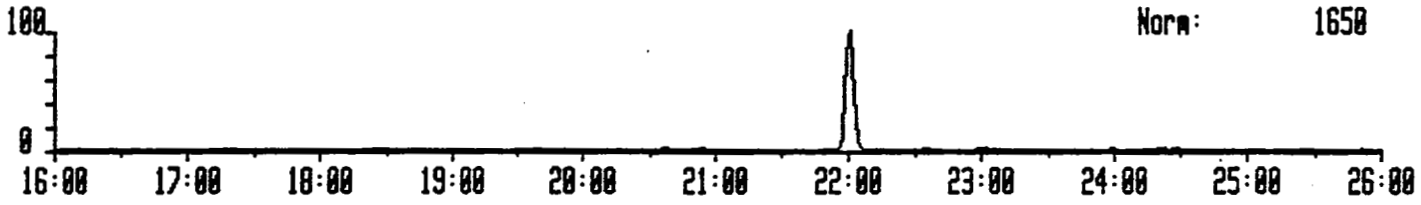
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:RUN 1 AUX HT INLET TLI#32311B



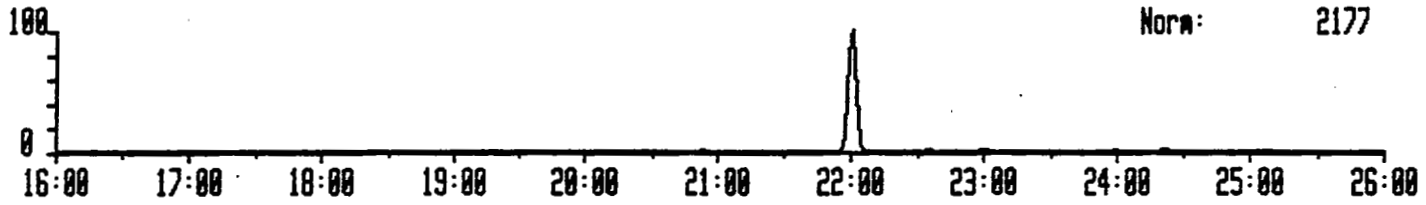
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:RUN 1 AUX HT INLET TLI#32311B



P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:RUN 1 AUX HT INLET TLI#32311B



P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:RUN 1 AUX HT INLET TLI#32311B



P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 375.8364
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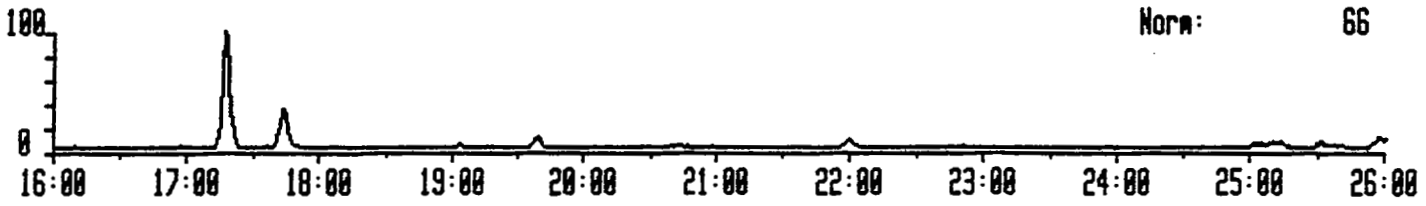
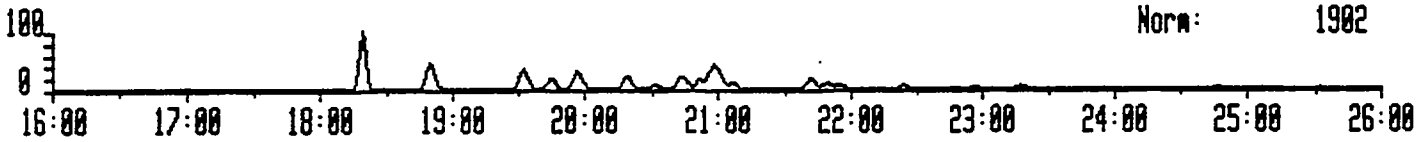


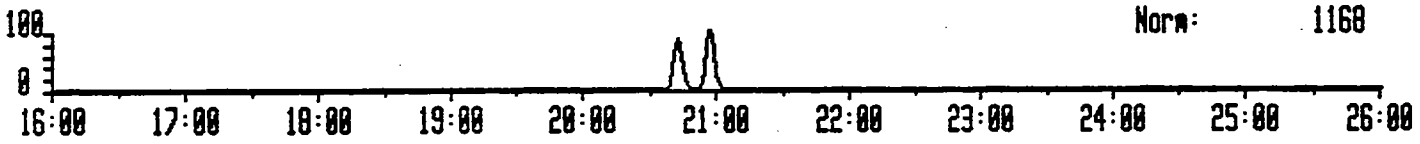
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:RUN 1 AUX HT INLET TLI#32311B

P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:RUN 1 AUX HT INLET TLI#32311B

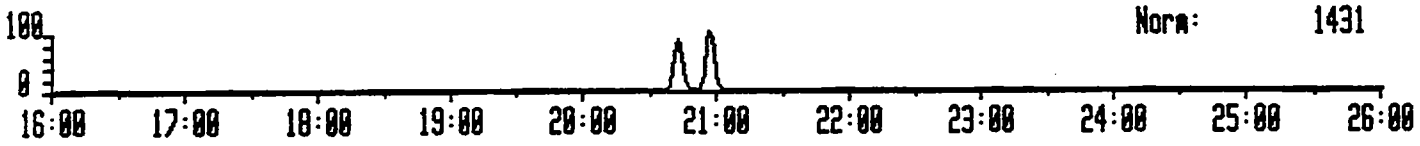


P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:RUN 1 AUX HT INLET TLI#32311B

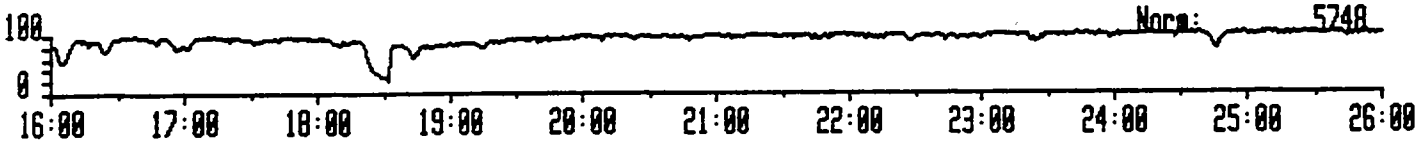
P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:RUN 1 AUX HT INLET TLI#32311B

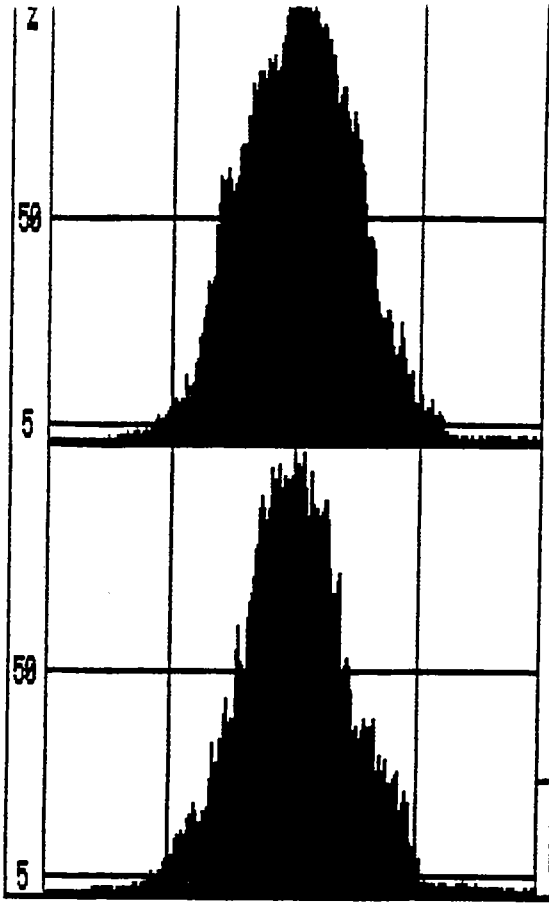


P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:RUN 1 AUX HT INLET TLI#32311B



P951851 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 292.9824
Text:RUN 1 AUX HT INLET TLI#32311B





Ref. mass	280.9825 Peak top
Height	1.74 volts Span 200 ppm
System file name	08225
Data file name	A:P951851
Resolution	10000
Group number	1
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	280.9825, 380.9761
A 292.9824	J 331.9368
B 303.9016	K 333.9338
C 305.8987	L 375.8364
D 315.9419	
E 317.9389	
F 319.8965	
G 321.8936	
H 327.8847	
I 330.9792	

Channel	I 330.9792 Lock mass
Height	.71 volts Span 200 ppm

TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **RUN 2 AUX HT INLET 4-6-95** Analysis File: **W951885**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPX23704
TLRTP ID:	98-238-2A-D	Date Extracted:	04/20/95	ICAL:	WF54275
		Date Analyzed:	05/04/95	CONCAL:	W951880
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	W951882	% Lipid:	n/a
GC Column:	DB-5	Analyst:	MM	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.08			0.70	25:39	
1,2,3,7,8-PeCDD	0.30			1.62	29:58	
1,2,3,4,7,8-HxCDD	0.43			1.20	33:07	
1,2,3,6,7,8-HxCDD	0.87			1.29	33:12	
1,2,3,7,8,9-HxCDD	1.1			1.25	33:28	PR
1,2,3,4,6,7,8-HpCDD	4.1			1.02	36:05	
2,3,7,8-TCDF	8.1			0.77	24:56	
1,2,3,7,8-PeCDF	1.5			1.54	28:55	
2,3,4,7,8-PeCDF	2.4			1.61	29:37	
1,2,3,4,7,8-HxCDF	7.4			1.26	32:24	
1,2,3,6,7,8-HxCDF	2.3			1.28	32:31	
2,3,4,6,7,8-HxCDF	3.2			1.28	33:01	Q
1,2,3,7,8,9-HxCDF	0.16			1.33	33:43	PR
1,2,3,4,6,7,8-HpCDF	8.0			1.04	35:12	
1,2,3,4,7,8,9-HpCDF	1.1			1.08	36:30	
1,2,3,4,6,7,8,9-OCDF	4.2			0.89	39:13	

Internal Standards	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.1	103	0.77	24:54	
$^{13}C_{12}$-2,3,7,8-TCDD	3.6	88.8	0.80	25:38	
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.4	86.2	1.51	28:54	
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3.8	96.0	1.50	29:56	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	4.2	105	0.52	32:31	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	3.8	95.5	1.22	33:11	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	4.0	99.6	0.44	35:11	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3.8	95.7	1.03	36:04	
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	6.3	78.7	0.86	39:02	

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Printed: 17:51 05/09/95

TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)

Client Sample: RUN 2 AUX HT INLET 4-6-95 Analysis File: **W951885**

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.5	86.5		25:39	
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.2	80.6	1.45	29:37	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.5	88.0	0.51	32:25	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.7	93.3	1.24	33:06	
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.2	79.3	0.43	36:30	

Alternate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	3.9	98.1	0.52	33:43	
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	3.8	94.8	0.53	33:00	Q

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	25:27	
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.24	33:29	

Data Reviewer: _____ 05/09/95

X237_PSR v:1.10, LARS 5.14.12

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Printed: 17:51 05/09/95

	Initial	....Date...	
B-File/Header Changes	KV	5/5/95	Calculated Noise Area:
Manual Integrations		/ /	Channel:
Transcription		/ /	Initials:
dBASE Corrections		/ /	Date:

Page No. 1 Listing of W951885B.dbf
05/04/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									21:30-26:50	
304-306		0.75	21:42	7,972.06	T	F	0.871			
		0.76	22:12	10,756.72	T	F	0.892			
		0.77	22:27	10,184.56	T	F	0.902			
		0.76	22:50	47,936.41	T	F	0.917			
		0.76	23:09	28,738.48	T	F	0.930			
		0.77	23:34	39,568.31	T	F	0.946			
		0.76	23:53	23,719.19	T	F	0.959			
		0.77	24:06	31,457.00	T	F	0.968			
		0.76	24:18	33,523.71	T	F	0.976			
		0.77	24:30	16,752.50	T	F	0.984			
		0.78	24:44	15,080.33	T	F	0.993			
		0.77	24:56	56,879.22	T	T	1.001		2378-TCDF	AN
		0.76	25:22	17,479.28	T	F	1.019			
		0.78	25:34	12,498.30	T	F	1.027			
		0.77	25:51	1,757.82	T	F	1.038			
		0.78	26:41	1,574.23	T	F	1.072			
	DC	0.77	26:56	517.76	T	F	1.082	WH		
304-306		Peaks	16	355,878.12	*** Total ***					
13C12-TCDF									23:54-25:54	
316-318	DC	0.89	23:51	235.68	T	F	0.958	WL		
		0.70	24:29	125.13	T	F	0.983			
		0.77	24:54	23,499.47	T	T	1.000		13C12-2378-TCDF	IS0
		0.79	25:21	237.29	T	F	1.018			
	DC	1.37	26:30	37.10	F	F	1.064	WH		
	DC	1.22	26:41	54.73	F	F	1.072	WH		
316-318		Peaks	3	23,861.89	*** Total ***					
TCDD									22:53-26:48	
320-322		0.78	23:03	7,247.36	T	F	0.899			
		0.75	23:27	3,885.11	T	F	0.915			
		0.81	23:45	1,590.54	T	F	0.927			
		0.78	24:26	3,737.64	T	F	0.953			
		0.73	24:43	2,484.19	T	F	0.964			
		0.72	25:07	1,207.99	T	F	0.980			
		0.80	25:33	1,807.72	T	F	0.997			
		0.70	25:39	344.08	T	T	1.001		2378-TCDD	AN
		0.73	25:49	376.45	T	F	1.007			

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		0.79	25:58	626.16	T	F	1.013			
		0.88	26:12	201.12	T	F	1.022			
		0.70	26:39	242.01	T	F	1.040			
320-322		Peaks	12	23,750.37	*** Total ***					
37Cl-TCDD									23:38-27:38	
328	DC	0.00	22:34	45.52	T	F	0.880	WL		
	DC	0.00	23:03	21.78	T	F	0.899	SN		
	DC	0.00	23:27	17.89	T	F	0.915	SN		
		0.00	24:13	850.32	T	F	0.945			
		0.00	24:26	34.72	T	F	0.953			
		0.00	25:39	13,536.81	T	T	1.001		37Cl-TCDD	SUR1
		0.00	26:03	3,834.87	T	F	1.016			
	DC	0.00	26:18	6.67	T	F	1.026	SN		
	DC	0.00	27:07	21.38	T	F	1.058	SN		
328		Peaks	4	18,256.72	*** Total ***					
13C12-TCDD									23:38-27:38	
332-334		1.39	24:26	69.76	F	F	0.953	FR		
		0.78	25:27	15,896.72	T	T	0.993		13C12-1234-TCDD	RS1
		0.80	25:38	15,058.99	T	T	1.000		13C12-2378-TCDD	IS1
		0.82	25:58	272.67	T	F	1.013			
332-334		Peaks	4	31,298.14	*** Total ***					
PeCDF									26:44-30:46	
340-342		1.57	26:55	18,328.72	T	F	0.931			
		1.75	27:24	148.42	T	F	0.948			
		3.08	27:34	99.79	F	F	0.954	FR		
		1.95	27:40	118.59	F	F	0.957	FR		
		1.55	27:56	4,972.37	T	F	0.967			
		1.59	28:04	32,828.85	T	F	0.971			
		1.52	28:13	7,549.04	T	F	0.976			
		1.56	28:27	2,537.77	T	F	0.984			
		1.59	28:33	12,713.27	T	F	0.988			
		1.51	28:38	15,229.99	T	F	0.991			
		1.52	28:51	6,394.74	T	F	0.998			
		1.54	28:55	6,513.37	T	T	1.001		12378-PeCDF	AN
		1.60	29:05	5,733.67	T	F	1.006			
		1.54	29:13	9,452.33	T	F	1.011			
		1.61	29:37	11,414.36	T	T	1.025		23478-PeCDF	AN
		1.61	29:46	14,867.85	T	F	1.030			
		1.60	30:05	2,131.78	T	F	1.041			
		1.52	30:36	1,054.78	T	F	1.059			
340-342		Peaks	18	152,089.69	*** Total ***					
13C12-PeCDF									24:54-32:54	
352-354		1.93	28:04	105.93	F	F	0.971	FR		
		0.99	28:15	27.94	F	F	0.978	FR		
		1.06	28:33	59.25	F	F	0.988	FR		
		1.51	28:54	15,844.45	T	T	1.000		13C12-PeCDF 123	IS2
		1.27	29:11	175.12	F	F	1.010	FR		
		1.45	29:37	12,628.78	T	T	1.025		13C12-PeCDF 234	SUR2

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DN	0.94	30:00	15.27	F	F	1.038	SN		
		0.98	30:14	29.09	F	F	1.046	FR		
	DN	0.94	30:36	23.16	F	F	1.059	FR		
352-354		Peaks	7	28,870.56	*** Total ***					
PeCDD									28:00-30:36	
356-358		1.58	28:10	8,541.98	T	F	0.941			
		1.43	28:40	728.51	T	F	0.958			
		1.55	28:54	4,790.09	T	F	0.965			
		1.58	29:02	907.35	T	F	0.970			
		1.55	29:13	3,027.88	T	F	0.976			
		1.51	29:22	682.92	T	F	0.981			
		1.51	29:27	1,262.29	T	F	0.984			
		1.43	29:39	1,158.14	T	F	0.991			
		0.34	29:48	586.20	F	F	0.996	FR		
		1.62	29:58	870.81	T	T	1.001		12378-PeCDD	AN
		1.46	30:06	578.91	T	F	1.006			
		1.35	30:26	607.63	T	F	1.017			
356-358		Peaks	12	23,742.71	*** Total ***					
13C12-PeCDD									25:56-33:56	
368-370		1.50	29:56	8,377.52	T	T	1.000		13C12-PeCDD 123	IS3
		1.70	30:05	893.11	T	F	1.005			
	DN	2.13	30:15	15.15	F	F	1.011	SN		
368-370		Peaks	2	9,270.63	*** Total ***					
HxCDF									31:17-33:58	
374-376	DC	1.07	31:16	55.45	T	F	0.962	WL		
		1.30	31:27	13,691.77	T	F	0.967			
		1.26	31:36	29,925.18	T	F	0.972			
		1.24	31:45	1,477.45	T	F	0.976			
		1.27	31:54	3,062.69	T	F	0.981			
		1.23	32:03	1,710.11	T	F	0.986			
		1.36	32:14	120.97	T	F	0.991			
		1.26	32:24	24,132.90	T	T	0.996		123478-HxCDF	AN
		1.28	32:31	10,229.98	T	T	1.000		123678-HxCDF	AN
		1.31	32:38	1,528.44	T	F	1.004			
		1.29	32:47	3,658.33	T	F	1.008			
		1.28	33:01	11,468.01	T	T	1.015		234678-HxCDF	AN
		~~1.36~~ Spk 1.33	~~33:47~~ 33:43	~~2,788.22~~ 463	T	T	1.~~039~~ 037		123789-HxCDF	AN
374-376		Peaks	12	103,794.05	*** Total ***					
13C12-HxCDF									28:31-36:31	
384-386		0.59	31:27	65.67	T	F	0.967			
		0.51	31:35	129.24	T	F	0.971			
		0.51	32:25	9,340.22	T	T	0.997		13C12-HxCDF 478	SUR3
		0.52	32:31	11,813.46	T	T	1.000		13C12-HxCDF 678	IS4
		0.53	33:00	10,422.48	T	T	1.015		13C12-HxCDF 234	ALT2
		0.52	33:43	7,955.32	T	T	1.037		13C12-HxCDF 789	ALT1
384-386		Peaks	6	39,726.39	*** Total ***					

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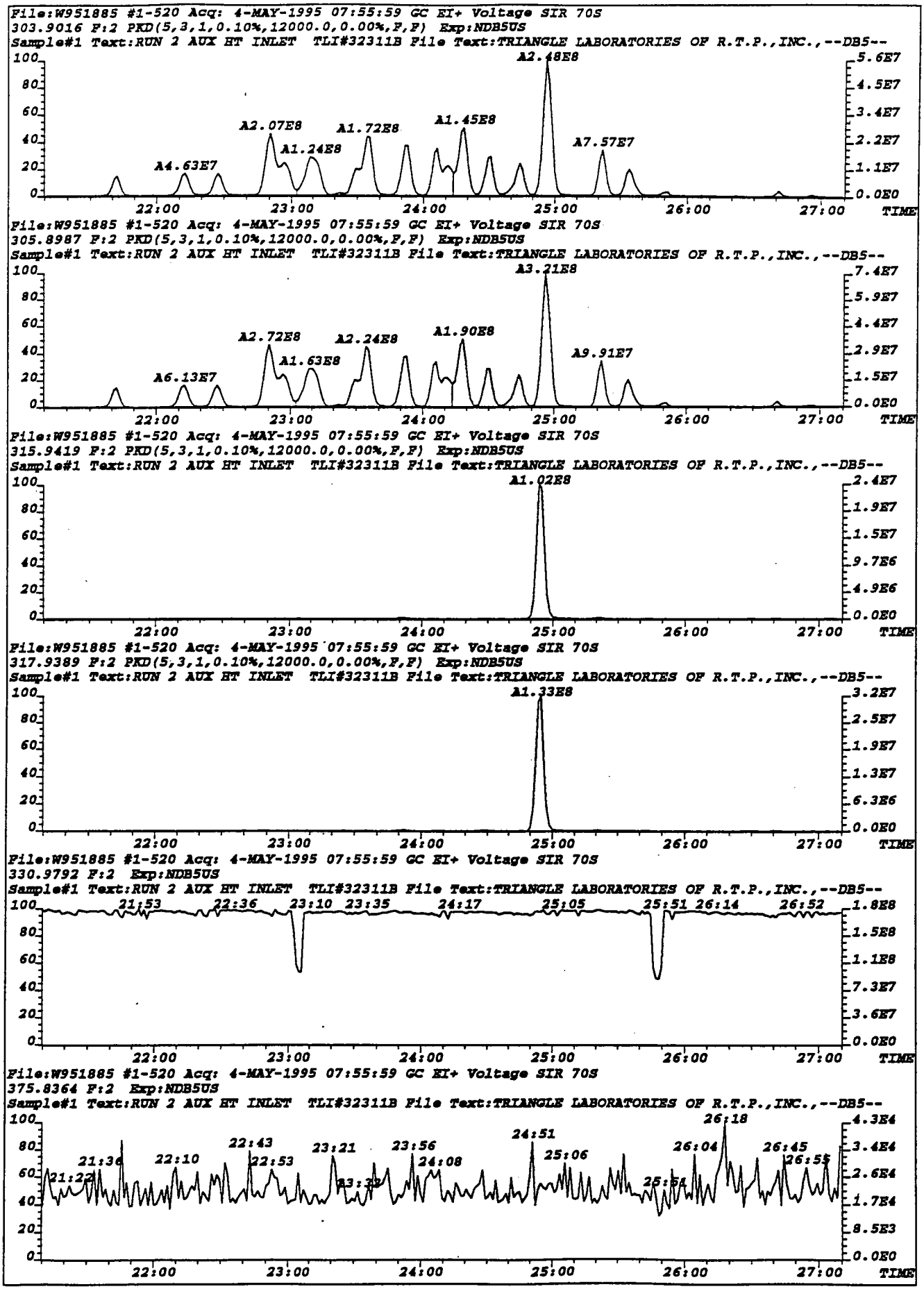
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
HxCDD									31:47-33:37	
390-392		1.19	31:57	3,000.42	T	F	0.963			
		1.25	32:24	10,478.18	T	F	0.976			
		1.25	32:36	5,678.76	T	F	0.982			
		1.20	32:46	724.76	T	F	0.987			
		1.20	33:07	746.29	T	T	0.998		123478-HxCDD	AN
		1.29	33:12	1,501.42	T	T	1.001		123678-HxCDD	AN
		1.25	33:28	2,059.54	T	T	1.009		123789-HxCDD	AN
390-392		Peaks	7	24,189.37	*** Total ***					
13C12-HxCDD									32:11-34:11	
402-404	DC	1.38	32:36	20.29	T	F	0.982	SN		
		1.24	33:06	5,879.03	T	T	0.997		13C12-HxCDD 478	SUR4
		1.22	33:11	6,591.96	T	T	1.000		13C12-HxCDD 678	IS5
		1.24	33:29	7,552.28	T	T	1.009		13C12-HxCDD 789	RS2
402-404		Peaks	3	20,023.27	*** Total ***					
HpCDF									35:02-36:41	
408-410		1.04	35:12	26,630.12	T	T	1.000		1234678-HpCDF	AN
		1.08	35:26	4,390.60	T	F	1.007			
		0.99	35:33	4,797.63	T	F	1.010			
		1.08	36:30	2,352.63	T	T	1.037		1234789-HpCDF	AN
408-410		Peaks	4	38,170.98	*** Total ***					
13C12-HpCDF									33:11-39:11	
418-420		0.44	35:11	7,107.66	T	T	1.000		13C12-HpCDF 678	IS6
	DN	1.89	35:33	4.80	F	F	1.010	SN		
		0.43	36:30	4,403.68	T	T	1.037		13C12-HpCDF 789	SUR5
	DN	0.57	36:47	20.75	F	F	1.045	SN		
418-420		Peaks	2	11,511.34	*** Total ***					
HpCDD									35:17-36:15	
424-426		1.02	35:26	7,112.73	T	F	0.982			
		1.02	36:05	5,976.43	T	T	1.000		1234678-HpCDD	AN
	DN	3.15	36:30	5.19	F	F	1.012	SN		
424-426		Peaks	2	13,089.16	*** Total ***					
13C12-HpCDD									35:04-37:04	
436-438	DN	1.58	35:26	19.68	F	F	0.982	SN		
		1.03	36:04	5,419.13	T	T	1.000		13C12-HpCDD 678	IS7
436-438		Peaks	1	5,419.13	*** Total ***					
OCDF									35:02-43:02	
442-444		0.89	39:13	4,622.11	T	T	1.005		OCDF	AN
442-444		Peaks	1	4,622.11	*** Total ***					
OCDD									35:02-43:02	
458-460		0.85	39:03	3,816.44	T	T	1.000		OCDD	AN
458-460		Peaks	1	3,816.44	*** Total ***					
13C12-OCDD									38:53-39:13	
470-472		0.86	39:02	6,836.30	T	T	1.000		13C12-OCDD	IS8

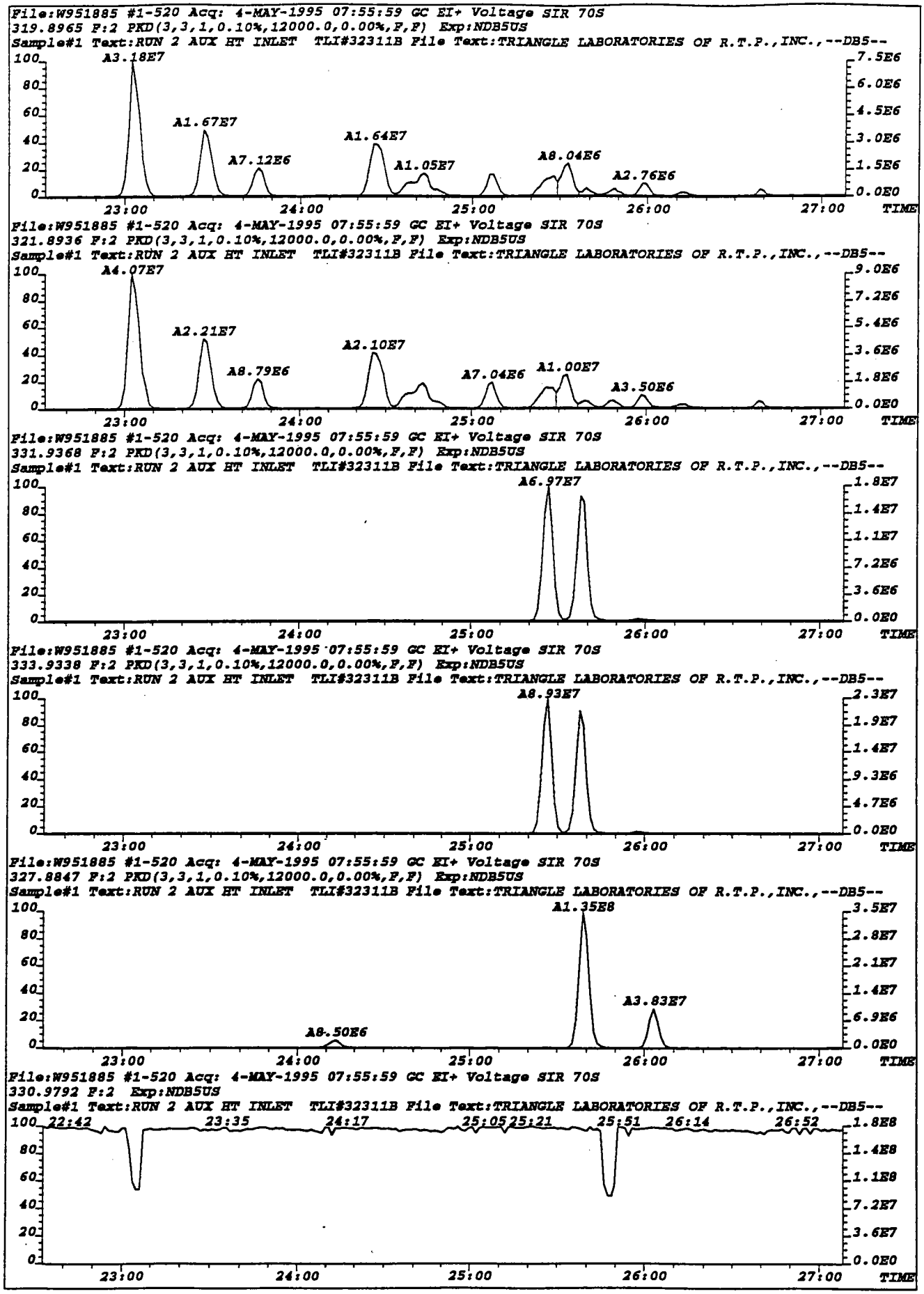
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code

Column...	Description.....
M_Z	- Nominal Ion Mass(es)
RT.	- Retention Time
Match Rat	- Ratio Match True/False
Match RT	- Time Match True/False
Rel RT	- Relative Retention Time

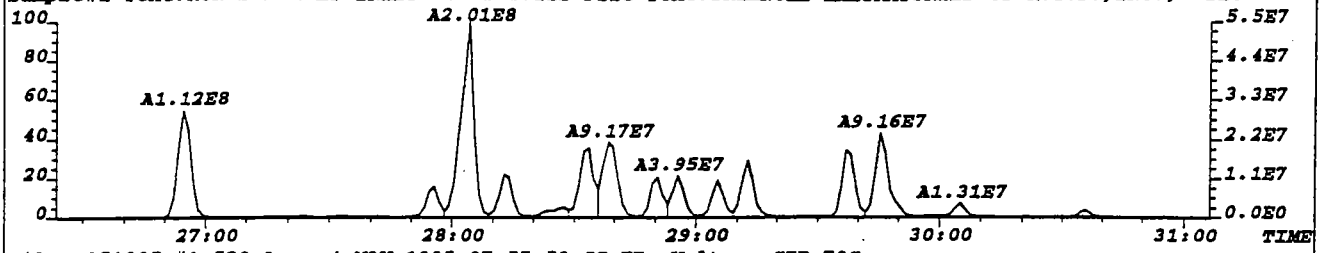
"Why" Code	Description
WL	- Below Retention Time Window
WH	- Above Retention Time Window
SN	- Below Signal to Noise Level
<M	- Below Method Detection Limit
FR	- Calc based on theoretical ratio

*** End of Report ***

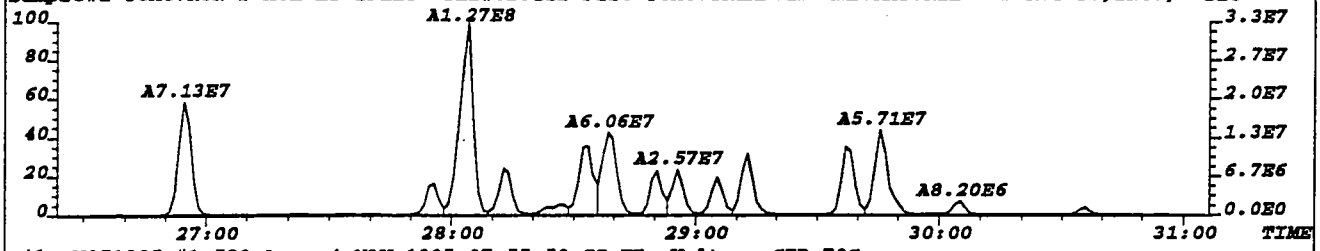

File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
303.9016 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.48E8
A2.07E8
A1.72E8
A1.45E8
A1.24E8
A7.57E7
A4.63E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
305.8987 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.21E8
A2.72E8
A2.24E8
A1.90E8
A1.63E8
A9.91E7
A6.13E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
315.9419 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.02E8
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
317.9389 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.33E8
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
21:53
22:36
23:10
23:35
24:17
25:05
25:51
26:14
26:52
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
375.8364 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
21:36
21:22
22:10
22:43
22:53
23:21
23:56
24:08
24:51
25:06
26:04
26:18
26:45
26:55
22:00
23:00
24:00
25:00
26:00
27:00
TIME


File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
319.8965 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.18E7
A1.67E7
A7.12E6
A1.64E7
A1.05E7
A8.04E6
A2.76E6
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
321.8936 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.07E7
A2.21E7
A8.79E6
A2.10E7
A7.04E6
A1.00E7
A3.50E6
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
331.9368 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.97E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
333.9338 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.93E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
327.8847 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.35E8
A3.83E7
A8.50E6
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
22:42
23:35
24:17
25:05
25:21
25:51
26:14
26:52
23:00
24:00
25:00
26:00
27:00
TIME

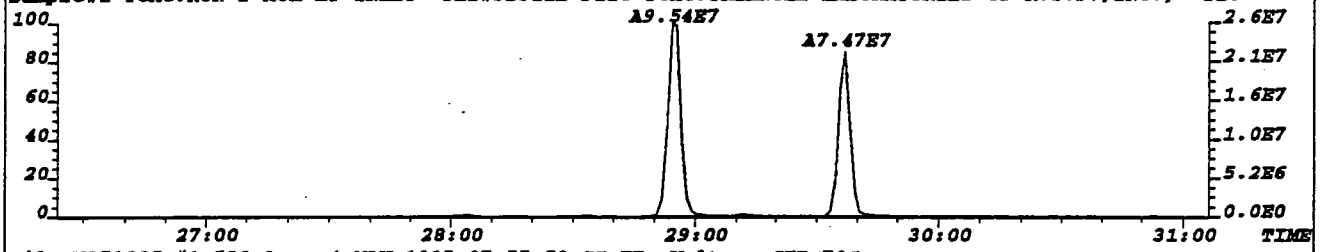
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
339.8597 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



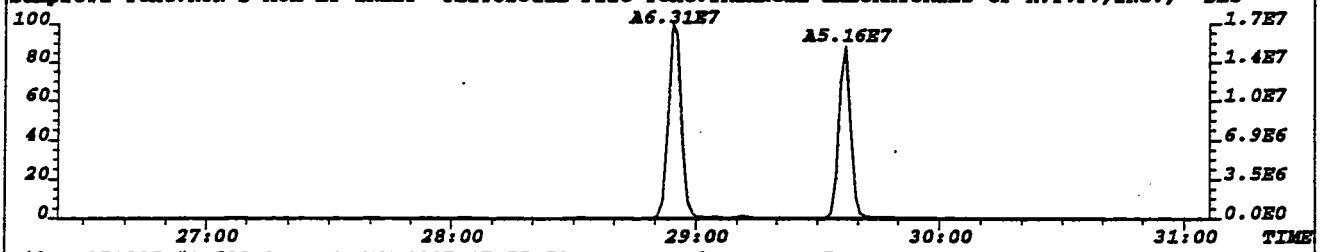
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
341.8567 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



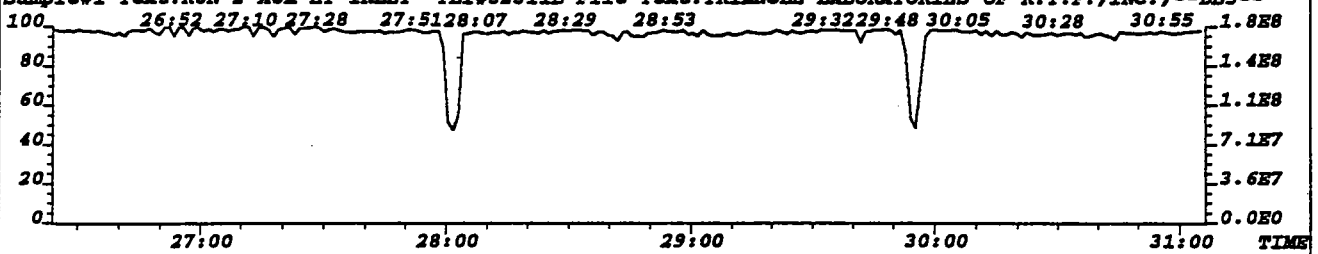
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
351.9000 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



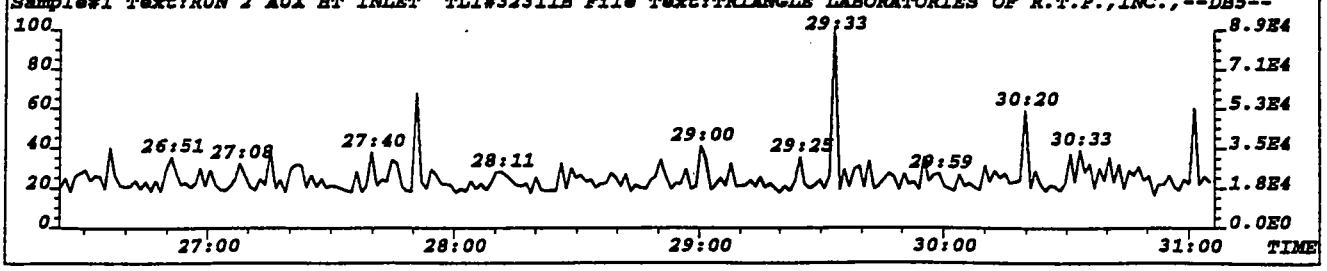
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
353.8970 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

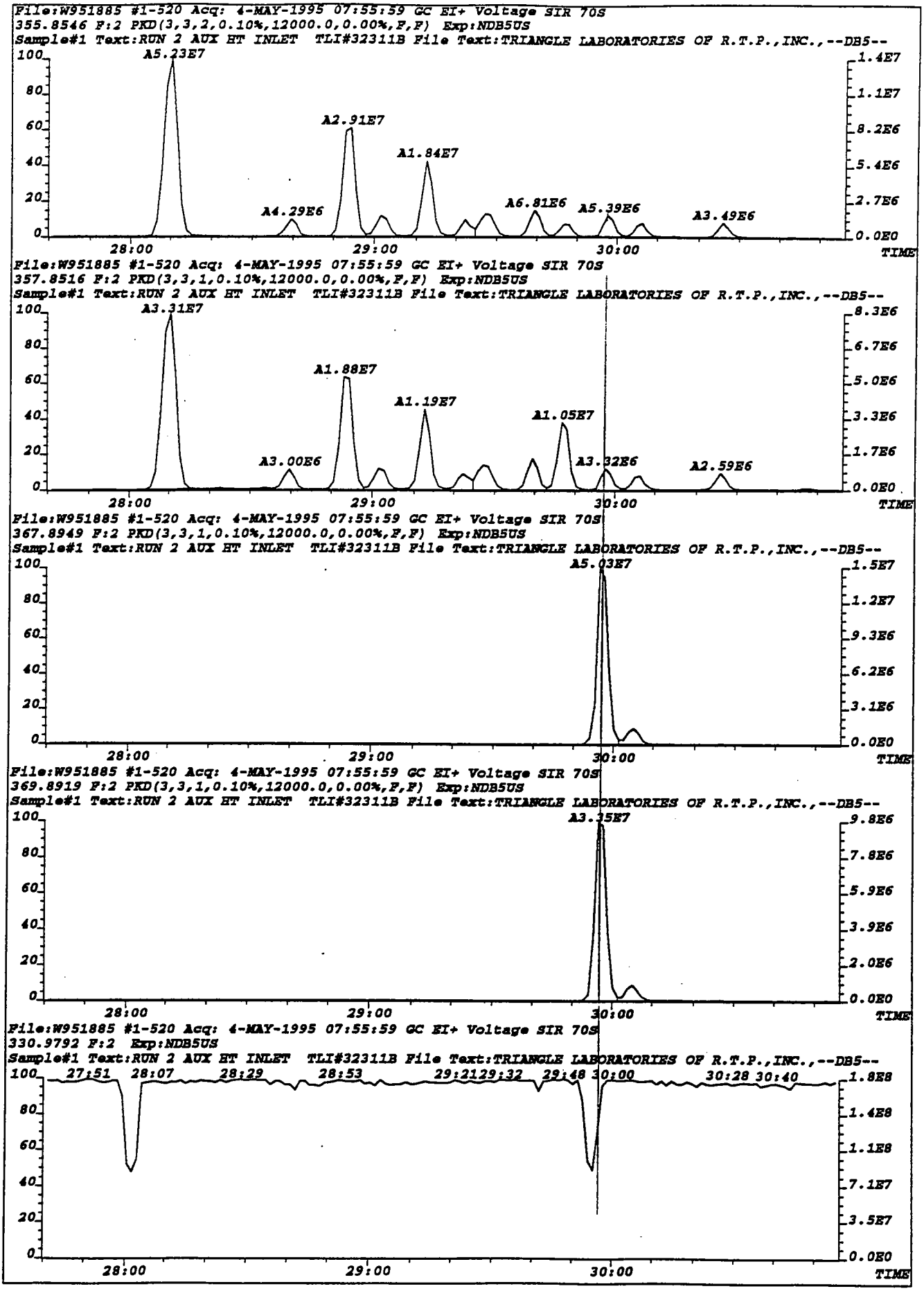


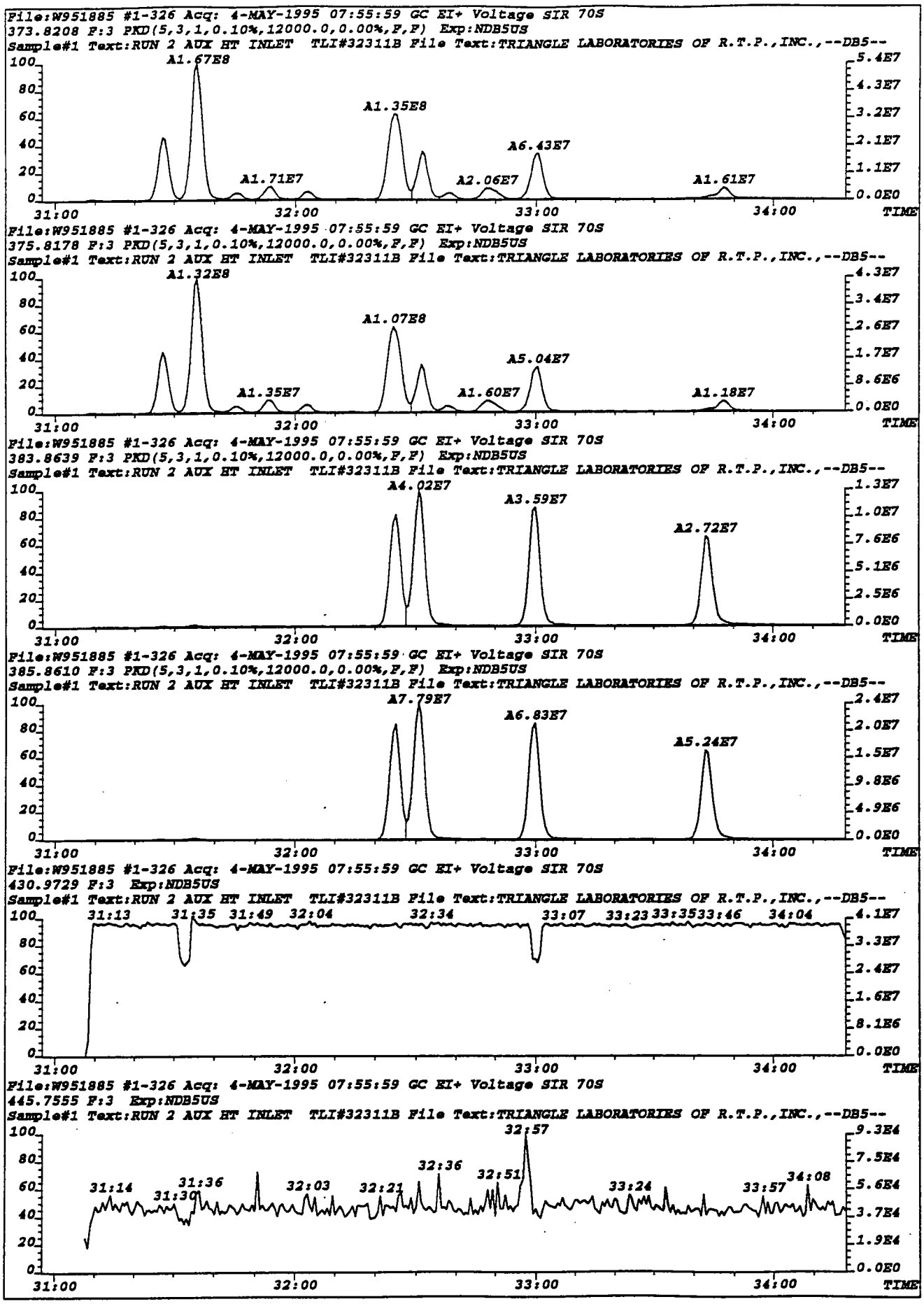
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

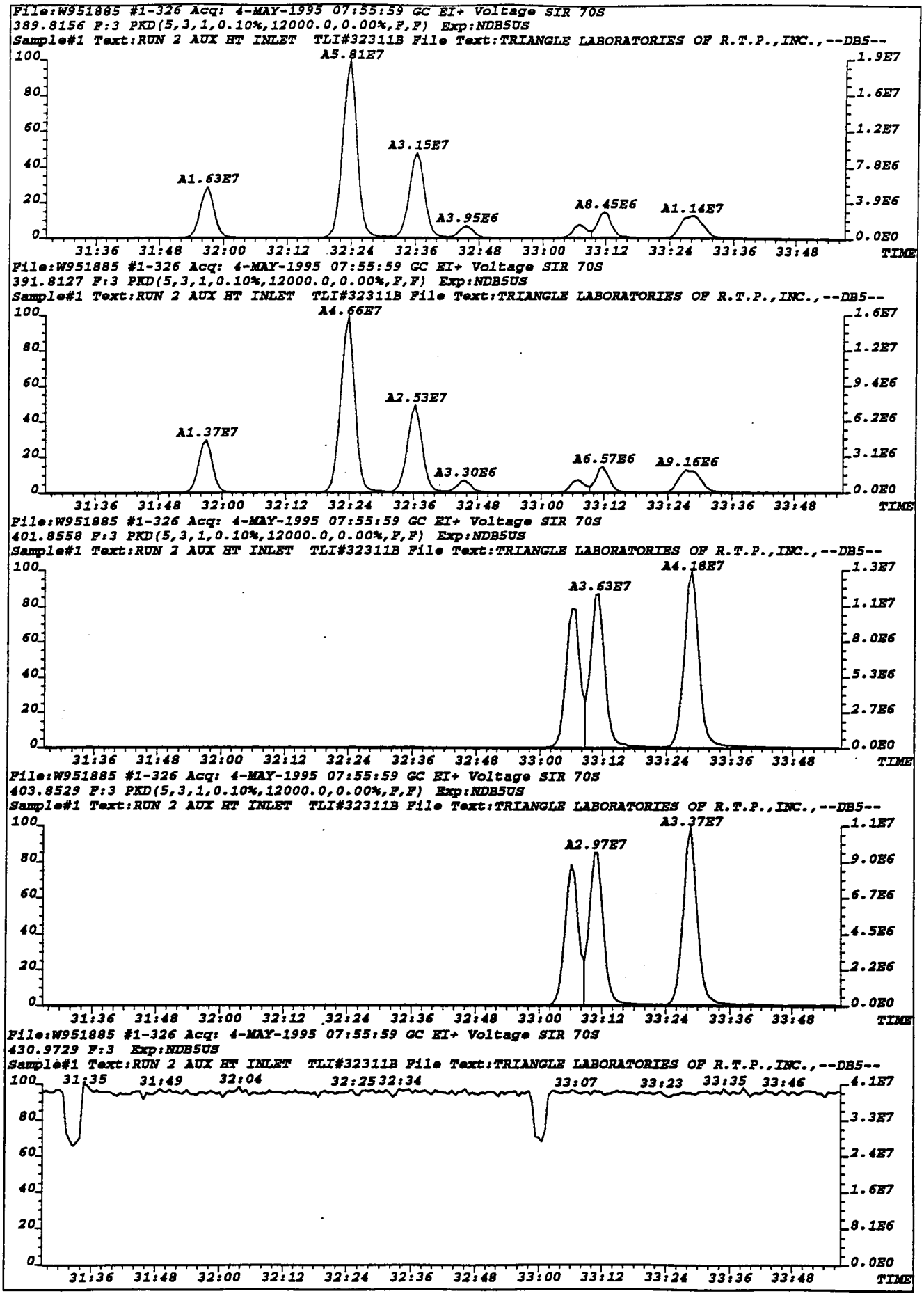


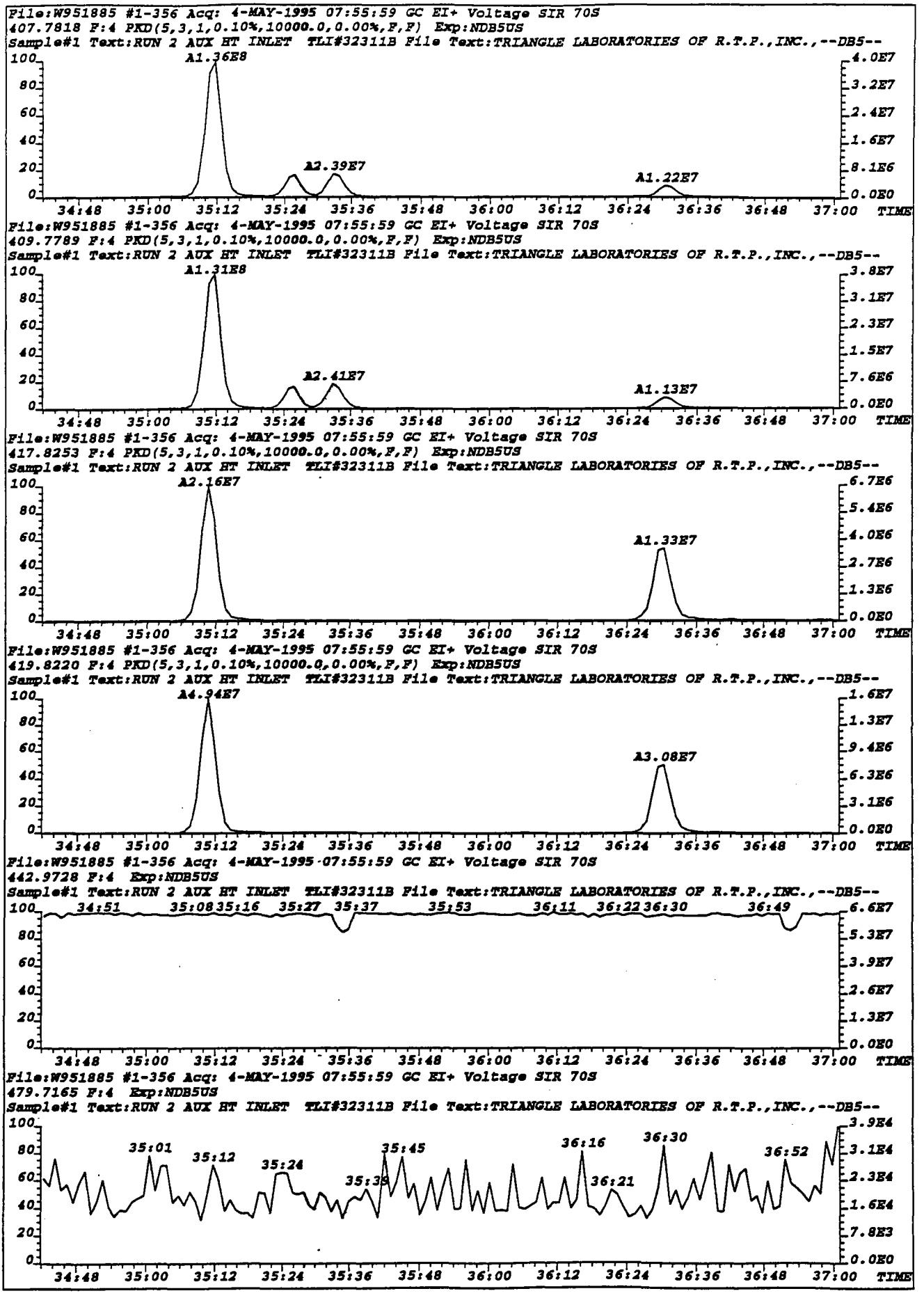
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
409.7974 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

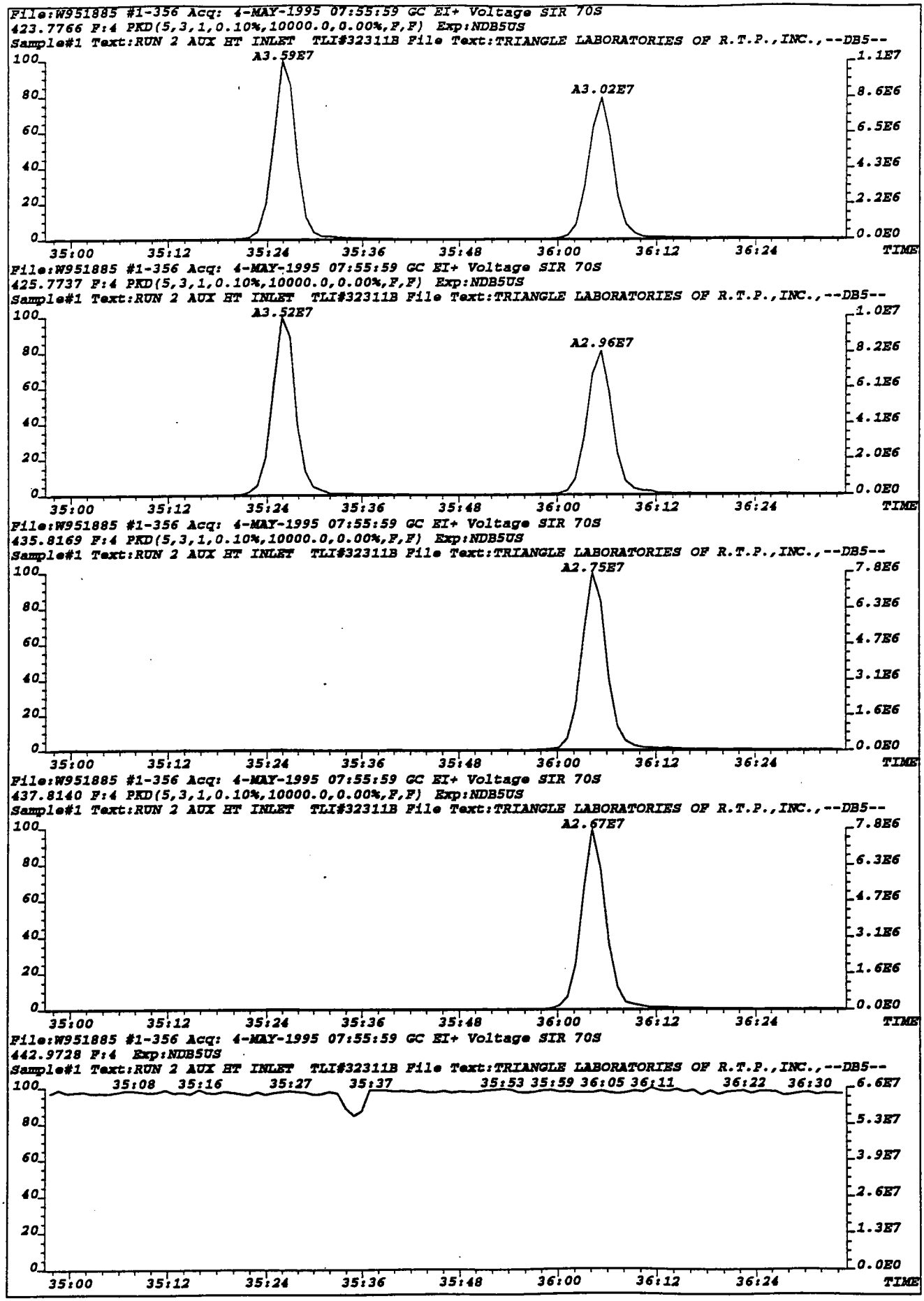



File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
355.8546 F:2 PKD(3,3,2,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.23E7
A2.91E7
A1.84E7
A4.29E6
A6.81E6
A5.39E6
A3.49E6
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
357.8516 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.31E7
A1.88E7
A1.19E7
A1.05E7
A3.00E6
A3.32E6
A2.59E6
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
367.8949 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.03E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
369.8919 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.35E7
File:W951885 #1-520 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
27:51 28:07 28:29 28:53 29:21 29:32 29:48 30:00 30:28 30:40
28:00
29:00
30:00
TIME

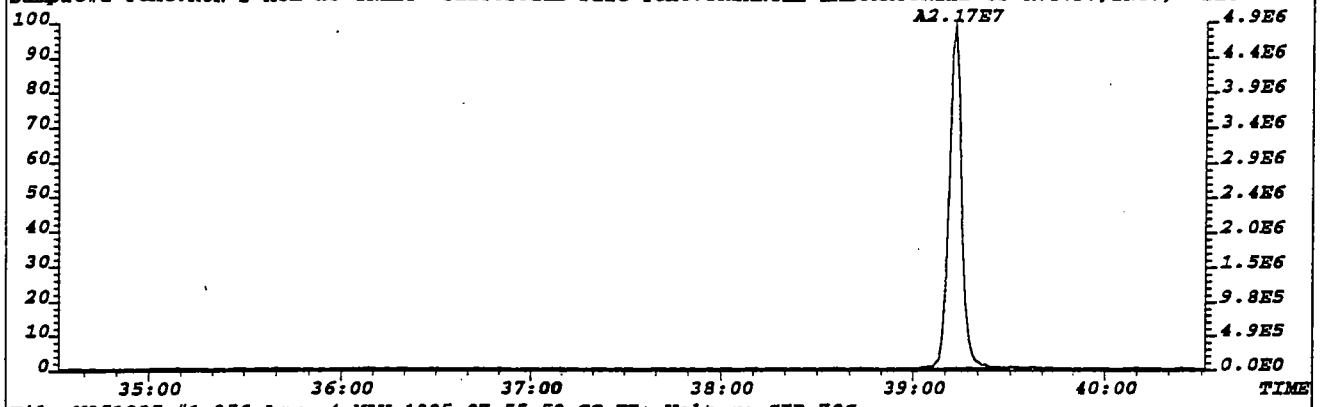

File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
373.8208 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.67E8
A1.35E8
A6.43E7
A1.71E7
A2.06E7
A1.61E7
31:00
32:00
33:00
34:00
TIME
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
375.8178 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.32E8
A1.07E8
A5.04E7
A1.35E7
A1.60E7
A1.18E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
383.8639 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.02E7
A3.59E7
A2.72E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
385.8610 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A7.79E7
A6.83E7
A5.24E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
31:13
31:35
31:49
32:04
32:34
33:07
33:23
33:35
33:46
34:04
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
445.7555 F:3 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
32:57
32:36
32:51
31:14
31:36
31:39
32:03
32:21
33:24
33:57
34:08


File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
389.8156 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.81E7
A3.15E7
A1.63E7
A3.95E6
A8.45E6
A1.14E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
391.8127 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.66E7
A2.53E7
A1.37E7
A3.30E6
A6.57E6
A9.16E6
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
401.8558 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.18E7
A3.63E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
403.8529 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.37E7
A2.97E7
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
31:35
31:49
32:04
32:25
32:34
33:07
33:23
33:35
33:46
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
33:12
33:24
33:36
33:48
TIME

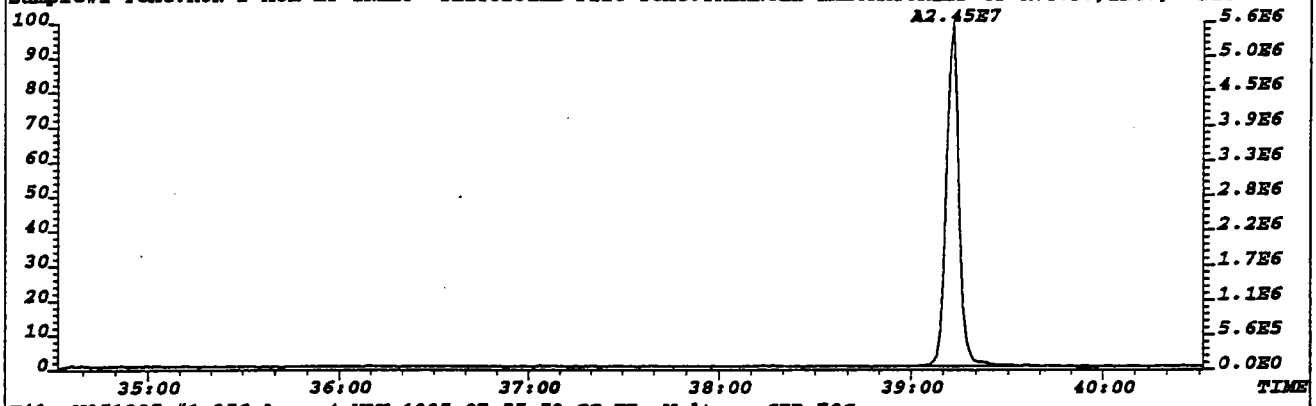

File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
407.7818 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.36E8
A2.39E7
A1.22E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
409.7789 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.31E8
A2.41E7
A1.13E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
417.8253 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.16E7
A1.33E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
419.8220 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.94E7
A3.08E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
479.7165 F:4 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
TIME


File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.59E7
A3.02E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.52E7
A2.96E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.75E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.67E7
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
35:08 35:16 35:27 35:37 35:53 35:59 36:05 36:11 36:22 36:30
TIME

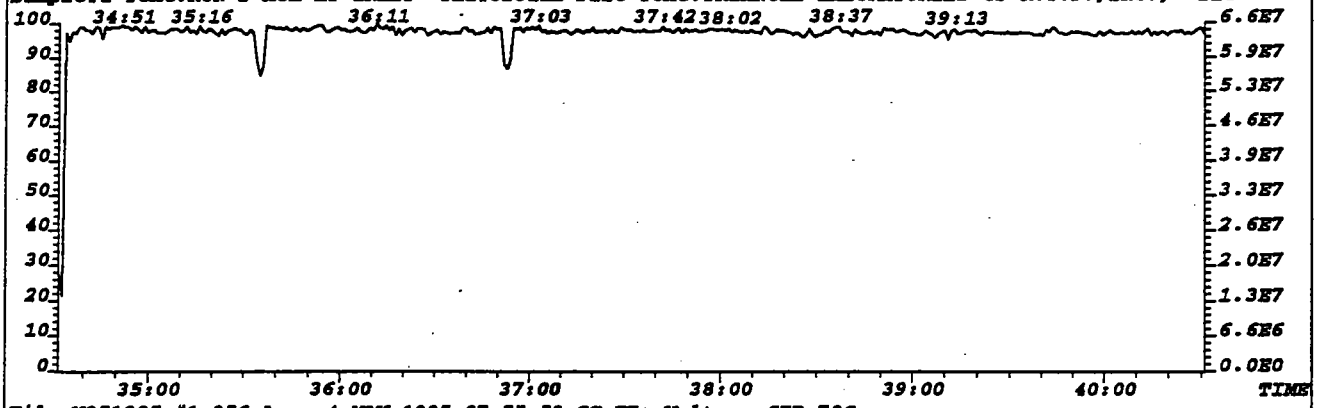
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
441.7428 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



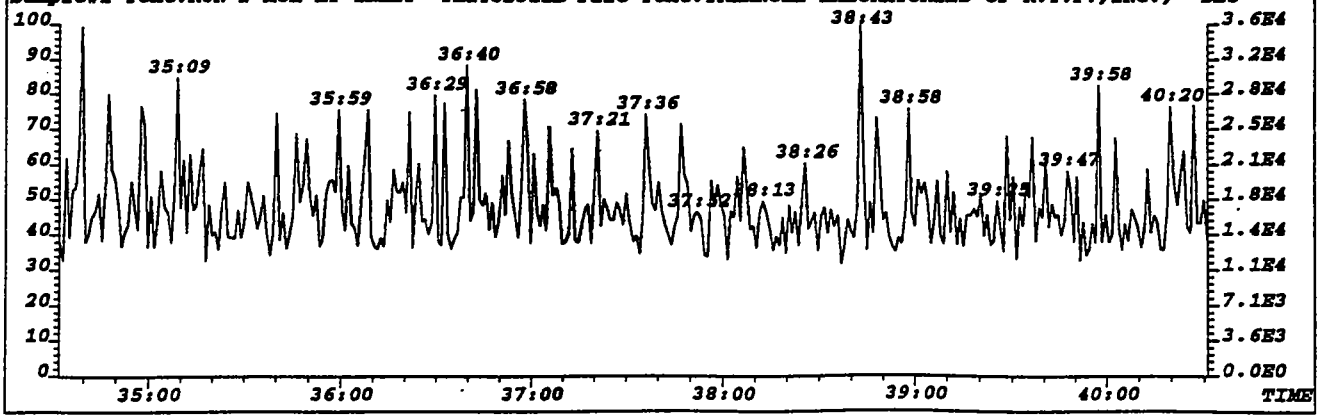
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
443.7399 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

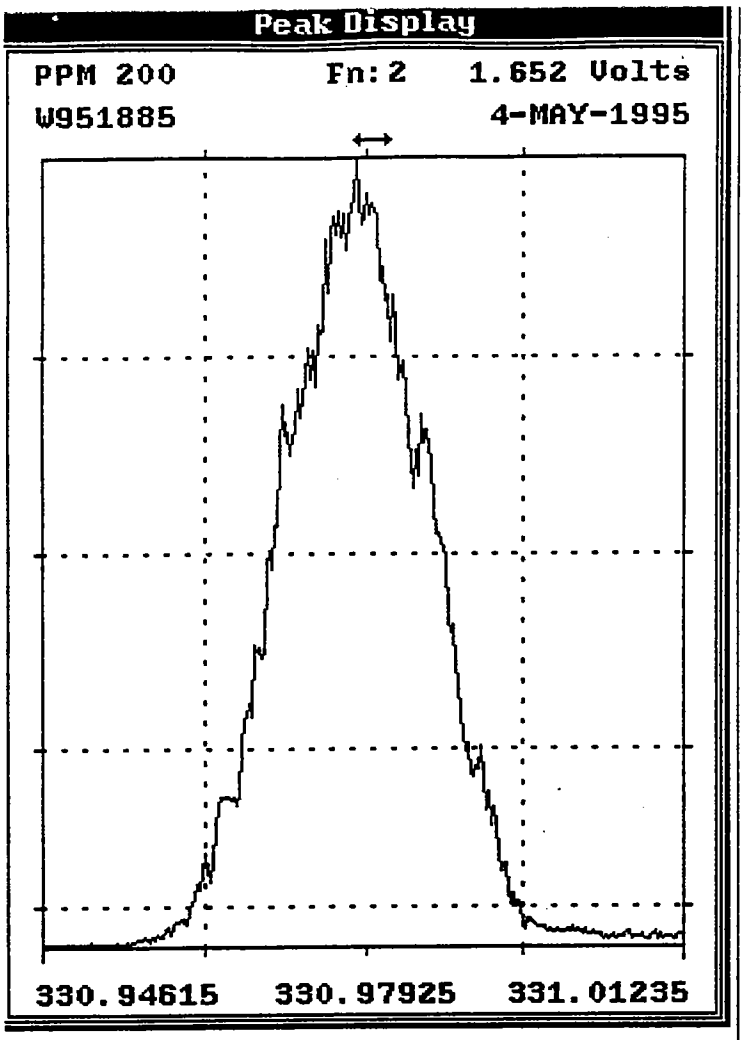


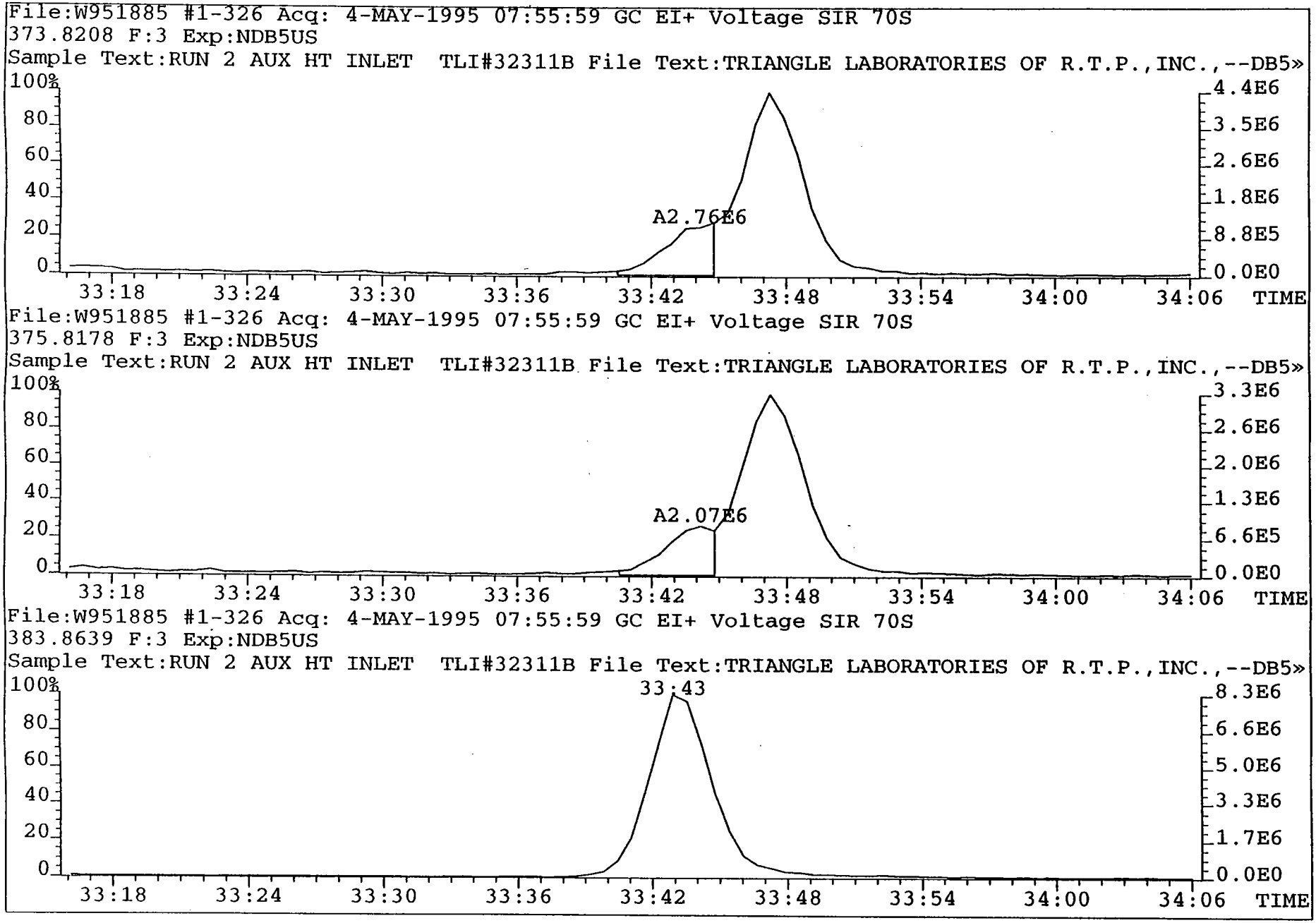
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

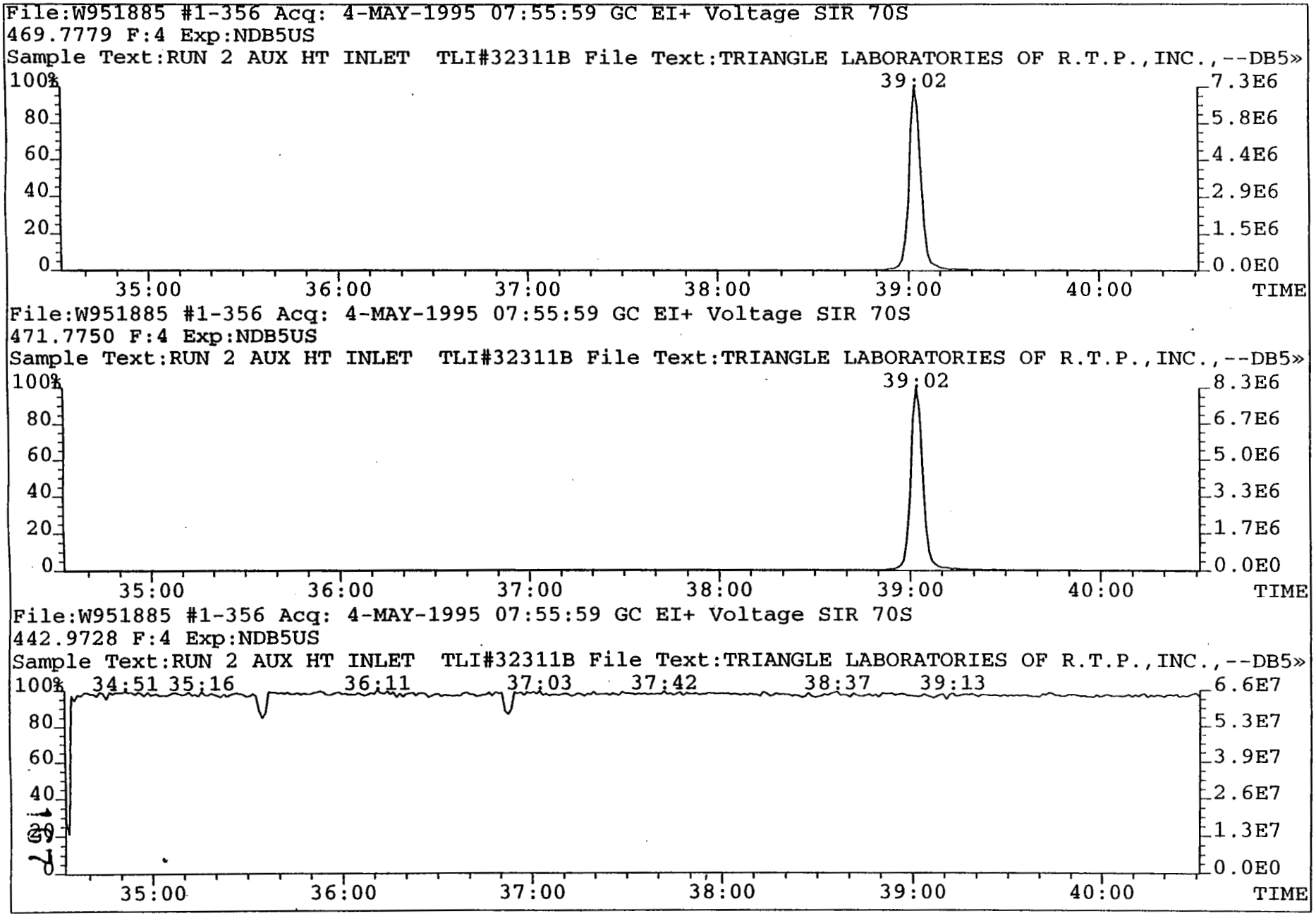


File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
513.6775 F:4 Exp:NDB5US
Sample#1 Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--




Peak Display
PPM 200
Fn: 2
1.652 Volts
W951885
4-MAY-1995
330.94615
330.97925
331.01235


File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
373.8208 F:3 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
A2.76E6
4.4E6
3.5E6
2.6E6
1.8E6
8.8E5
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
375.8178 F:3 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
A2.07E6
3.3E6
2.6E6
2.0E6
1.3E6
6.6E5
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME
File:W951885 #1-326 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
383.8639 F:3 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
33:43
8.3E6
6.6E6
5.0E6
3.3E6
1.7E6
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME


File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
469.7779 F:4 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
39:02
7.3E6
5.8E6
4.4E6
2.9E6
1.5E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
471.7750 F:4 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
80
60
40
20
0
39:02
8.3E6
6.7E6
5.0E6
3.3E6
1.7E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951885 #1-356 Acq: 4-MAY-1995 07:55:59 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample Text:RUN 2 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5»
100%
34:51
35:16
36:11
37:03
37:42
38:37
39:13
80
60
40
20
0
6.6E7
5.3E7
3.9E7
2.6E7
1.3E7
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME

TL-RTP Project: **32311B** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **RUN 2 AUX HT INLET 4-6-95** Analysis File: **P951844**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPC2NF04
TLRTP ID:	98-238-2A-D	Date Extracted:	04/20/95	ICAL:	PF2N144
		Date Analyzed:	05/02/95	CONCAL:	P951834
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P951842	% Lipid:	n/a
GC Column:	DB-225	Analyst:	VCA	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	2.2			0.76	22:02	—

Internal Standard	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.0	75.1	0.74	22:00	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	20:56	—

Data Reviewer: KC 05/06/95

C2NF_PSR v:1.10, LARS 5.14.12

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

Printed: 15:06 05/06/95

	Initial	....Date...	
B-File/Header Changes	KJ	5/6/95	Calculated Noise Area:
Manual Integrations		___/___/___	Channel:
Transcription		___/___/___	Initials:
dBASE Corrections		___/___/___	Date:

Page No. 1 Listing of P951844B.dbf
05/02/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									17:09-24:06	
304-306	DC	0.39	16:36	36.20	F	F	0.755	WL		
		0.80	17:23	8,940.01	T	F	0.790			
		2.22	17:35	71.75	F	F	0.799	FR		
		0.42	17:39	94.05	F	F	0.802	FR		
		0.88	17:50	388.82	T	F	0.811			
		0.94	17:55	121.04	F	F	0.814	FR		
		0.66	18:02	612.81	T	F	0.820			
		0.73	18:25	6,401.71	T	F	0.837			
		0.74	18:31	6,251.12	T	F	0.842			
		0.74	18:38	21,772.70	T	F	0.847			
		0.75	18:49	11,303.80	T	F	0.855			
		0.73	19:06	11,158.54	T	F	0.868			
		0.74	19:16	24,666.08	T	F	0.876			
		0.75	19:25	13,271.60	T	F	0.883			
		0.75	19:36	42,037.12	T	F	0.891			
		0.74	19:47	13,056.89	T	F	0.899			
		0.75	20:08	74,481.62	T	F	0.915			
		1.31	20:27	50.45	F	F	0.930	FR		
		0.74	20:36	24,975.37	T	F	0.936			
		0.74	20:54	19,489.82	T	F	0.950			
		0.75	21:05	20,731.86	T	F	0.958			
		0.74	21:18	3,079.43	T	F	0.968			
		0.75	21:29	24,340.79	T	F	0.977			
		0.95	21:43	129.26	F	F	0.987	FR		
		0.75	21:54	16,607.77	T	F	0.995			
		0.76	22:02	18,006.64	T	T	1.002		2378-TCDF	AN
		0.76	22:14	18,840.64	T	F	1.011			
		0.74	22:28	23,291.01	T	F	1.021			
		0.76	22:36	25,964.46	T	F	1.027			
		0.81	22:46	249.06	T	F	1.035			
		0.97	22:54	108.95	F	F	1.041	FR		
		0.74	23:18	14,391.40	T	F	1.059			
		0.63	23:32	150.05	F	F	1.070	FR		
		0.80	23:56	2,009.44	T	F	1.088			
	DC	0.80	24:07	199.55	T	F	1.096	WH		
	DC	0.81	24:26	92.29	T	F	1.111	WH		
	DC	0.79	24:50	139.77	T	F	1.129	WH		
	DC	0.76	25:20	226.94	T	F	1.152	WH		

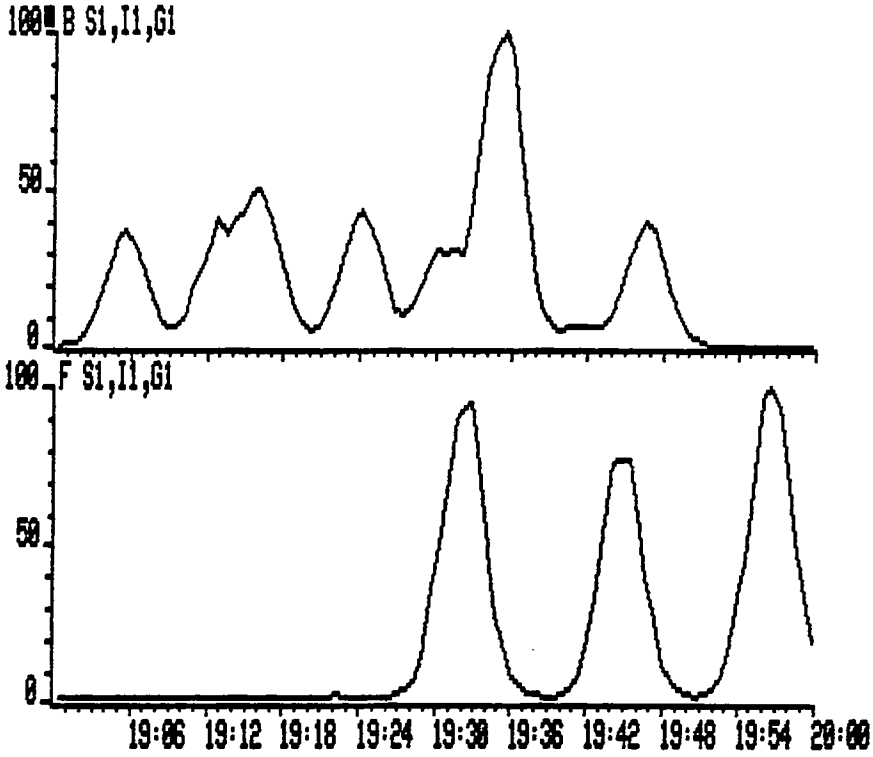
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.24	25:34	27.69	F	F	1.162	WH		
	DC	1.77	25:46	86.65	F	F	1.171	WH		
304-306		Peaks	33	447,046.06	*** Total ***					
13C12-TCDF									21:51-22:11	
316-318	DC	0.84	17:41	76.14	T	F	0.804	WL		
	DC	0.70	20:35	167.75	T	F	0.936	WL		
	DC	0.77	20:52	323.81	T	F	0.948	WL		
		0.74	22:00	32,915.17	T	T	1.000		13C12-2378-TCDF	IS0
	DC	0.80	22:12	159.25	T	F	1.009	WH		
	DC	0.72	22:35	346.19	T	F	1.027	WH		
	DC	0.95	23:01	71.73	F	F	1.046	WH		
	DC	0.71	23:59	381.27	T	F	1.090	WH		
316-318		Peaks	1	32,915.17	*** Total ***					
TCDD									18:04-23:28	
320-322		0.79	18:17	10,595.85	T	F	0.883			
		0.84	18:50	5,932.99	T	F	0.910			
		0.83	19:33	2,551.08	T	F	0.944			
		0.77	19:45	2,118.35	T	F	0.954			
		0.81	19:57	2,748.56	T	F	0.964			
		0.79	20:19	1,890.45	T	F	0.981			
		0.86	20:32	409.19	T	F	0.992			
		0.81	20:44	1,991.00	T	T	1.002		2378-TCDD	AN
		0.82	20:52	1,304.27	T	F	1.008			
		0.82	20:58	4,739.81	T	F	1.013			
		0.73	21:07	797.69	T	F	1.020			
		0.87	21:20	114.03	T	F	1.031			
		0.82	21:42	932.21	T	F	1.048			
		0.85	21:49	709.24	T	F	1.054			
		0.78	21:55	452.42	T	F	1.059			
		0.78	22:24	300.26	T	F	1.082			
		0.83	22:57	282.40	T	F	1.109			
		0.74	23:18	356.67	T	F	1.126			
	DC	0.83	23:31	207.40	T	F	1.136	WH		
	DN	0.42	23:46	17.01	F	F	1.148	WH		
	DC	0.87	23:58	86.54	T	F	1.158	WH		
	DC	2.56	23:58	27.88	F	F	1.158	WH		
	DC	1.22	24:11	60.77	F	F	1.168	WH		
	DN	2.99	24:11	24.76	F	F	1.168	WH		
	DN	0.39	24:29	21.39	F	F	1.183	WH		
	DC	0.19	24:47	32.97	F	F	1.197	WH		
	DC	1.02	24:54	51.43	F	F	1.203	WH		
	DC	0.70	25:10	39.80	T	F	1.216	WH		
	DC	0.60	25:18	51.55	F	F	1.222	WH		
	DC	0.45	25:34	58.10	F	F	1.235	WH		
	DC	0.81	25:42	35.09	T	F	1.242	WH		
	DC	0.73	25:42	37.06	T	F	1.242	WH		
	DN	1.21	25:55	11.96	F	F	1.252	SN		
	DN	0.24	25:55	18.87	F	F	1.252	WH		
320-322		Peaks	18	38,226.47	*** Total ***					

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
37Cl-TCDD									18:04-23:28	
328	DC	0.00	15:26	56.21	T	F	0.737	WL		
	DC	0.00	15:53	96.17	T	F	0.758	WL		
	DC	0.00	16:44	59.60	T	F	0.799	WL		
	DC	0.00	17:10	99.26	T	F	0.820	WL		
	DC	0.00	17:20	131.33	T	F	0.828	WL		
	DC	0.00	17:45	236.60	T	F	0.848	WL		
		0.00	18:17	216.92	T	F	0.873			
		0.00	18:33	139.70	T	F	0.886			
		0.00	18:42	96.31	T	F	0.893			
		0.00	18:49	28.19	T	F	0.899			
		0.00	19:01	318.87	T	F	0.908			
		0.00	19:19	158.34	T	F	0.922			
		0.00	19:31	38.83	T	F	0.932			
		0.00	20:07	28.60	T	F	0.961			
		0.00	20:34	882.88	T	F	0.982			
		0.00	20:43	20,768.98	T	T	0.989		37Cl-TCDD	SUR1
		0.00	21:00	926.72	T	F	1.003			
		0.00	21:22	40.13	T	F	1.020			
		0.00	21:30	66.39	T	F	1.027			
		0.00	22:49	7,747.64	T	F	1.090			
		0.00	23:16	86.16	T	F	1.111			
		0.00	23:28	57.03	T	F	1.121			
328		Peaks	16	31,601.69	*** Total ***					
13C12-TCDD									20:32-21:06	
332-334	DC	0.83	19:31	83.77	T	F	0.943	WL		
		0.80	20:42	23,025.93	T	T	1.000		13C12-2378-TCDD	IS1
		0.82	20:56	23,434.06	T	T	1.011		13C12-1234-TCDD	RS1
	DC	0.84	21:41	296.81	T	F	1.048	WH		
	DC	1.03	25:09	116.88	F	F	1.215	WH		

Column...	Description.....	"Why" Code	Description
M_Z	- Nominal Ion Mass(es)	WL	- Below Retention Time Window
RT.	- Retention Time	WH	- Above Retention Time Window
Match Rat	- Ratio Match True/False	SN	- Below Signal to Noise Level
Match RT	- Time Match True/False	<M	- Below Method Detection Limit
Rel RT	- Relative Retention Time	FR	- Calc based on theoretical ratio

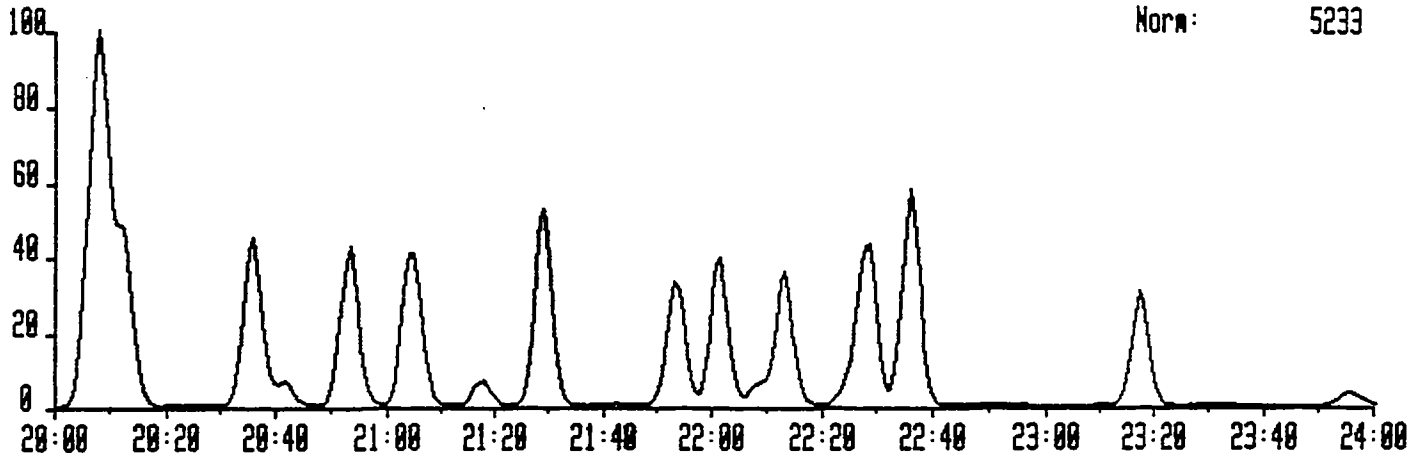
*** End of Report ***

P951844 2-MAY-95 17:21 70-SE (EI+) Sus:08225
GR 1 D: 315.9419 E: 317.9389 F: 319.8965 G: 321.8936 H: 327.8847
Text:TXT RUN 2 AUX HT INLET TLI#32311B

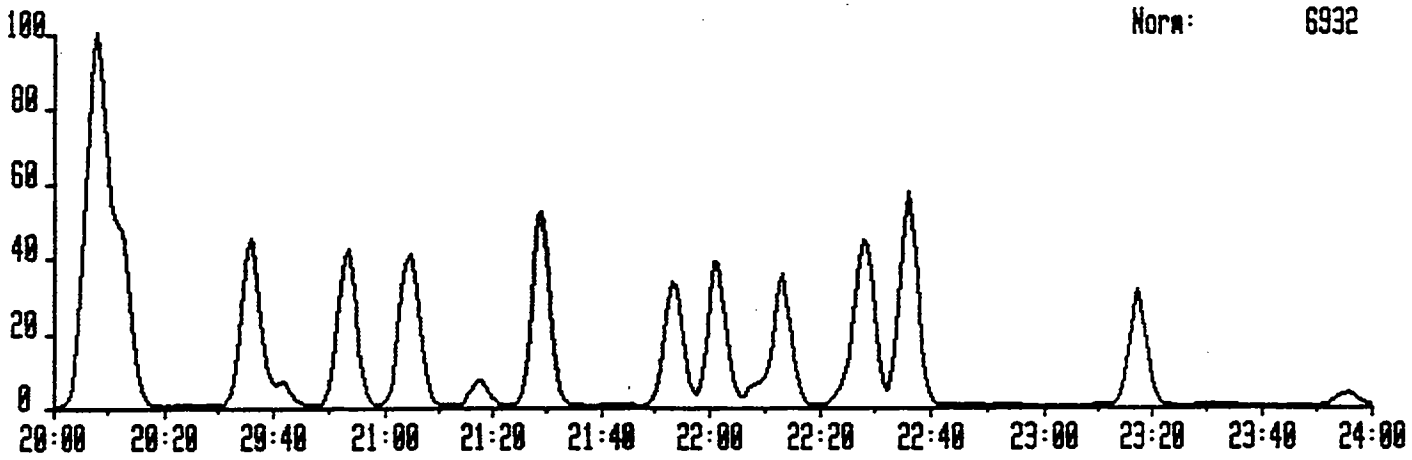


N=10.00
CGJ
05.2/95

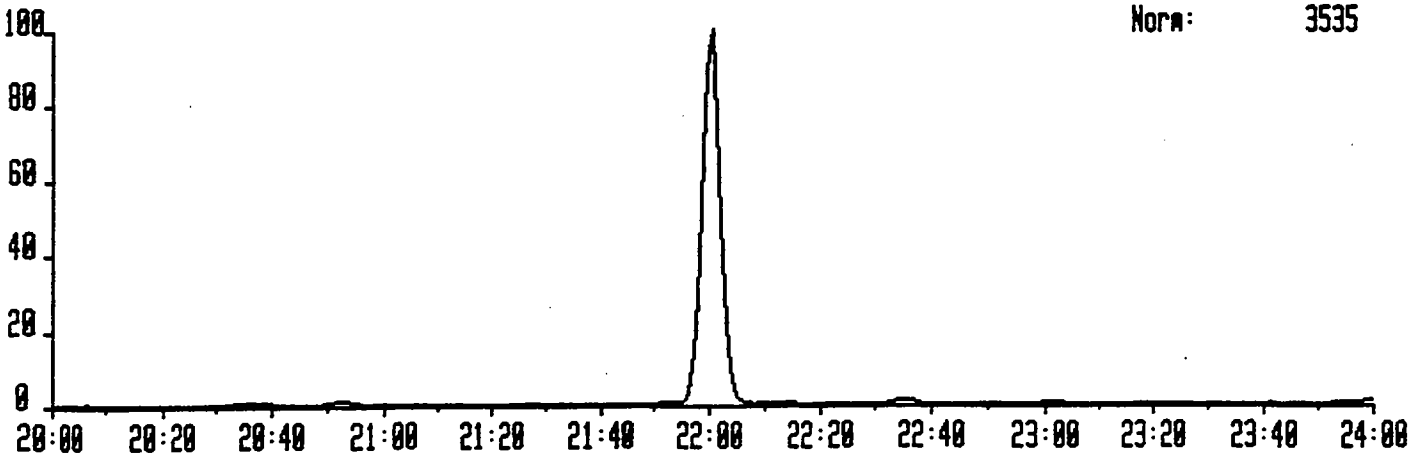
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:TXT RUN 2 AUX HT INLET TLI#32311B



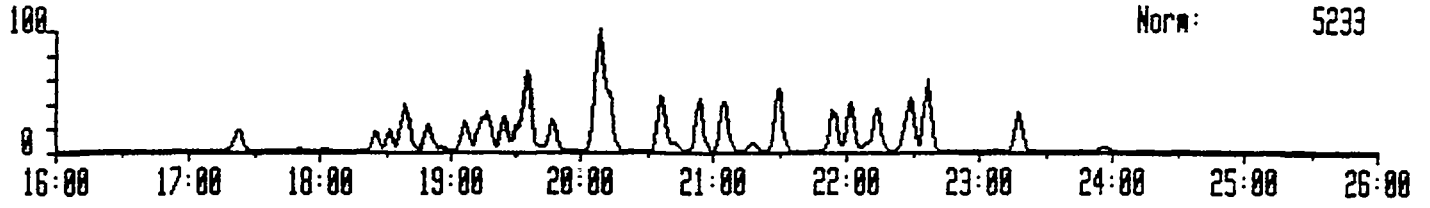
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:TXT RUN 2 AUX HT INLET TLI#32311B



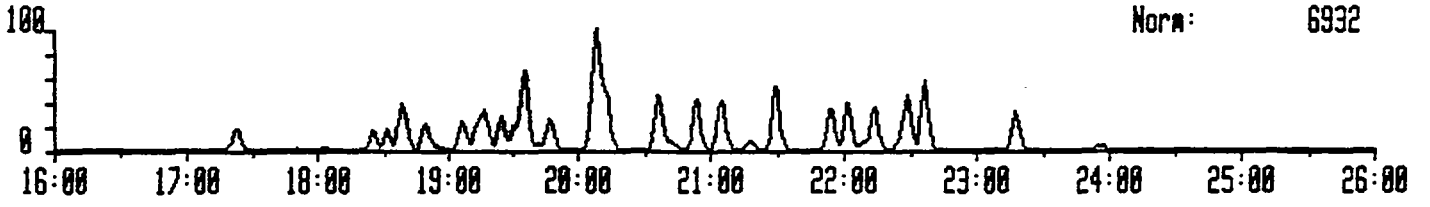
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:TXT RUN 2 AUX HT INLET TLI#32311B



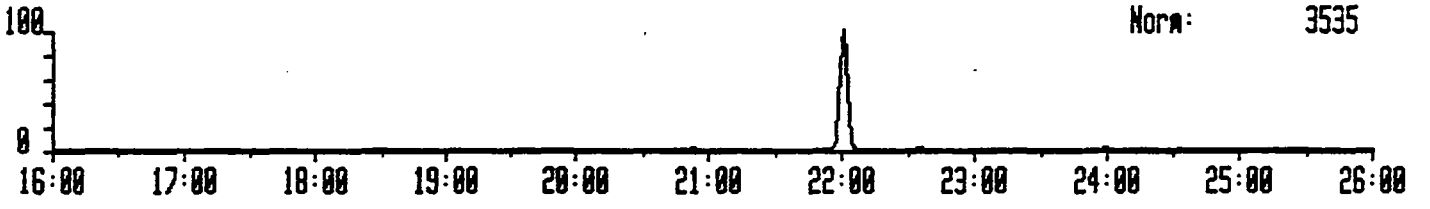
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:TXT RUN 2 AUX HT INLET TLI#323118



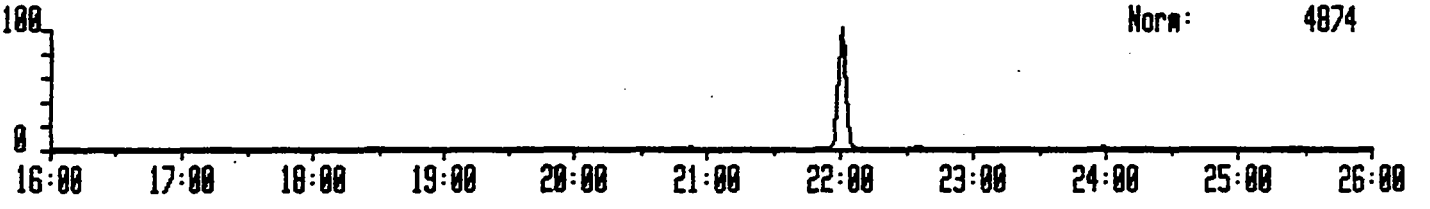
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:TXT RUN 2 AUX HT INLET TLI#323118



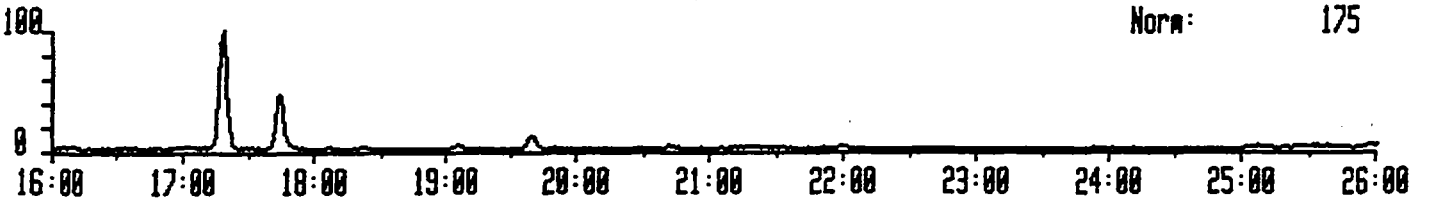
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:TXT RUN 2 AUX HT INLET TLI#323118



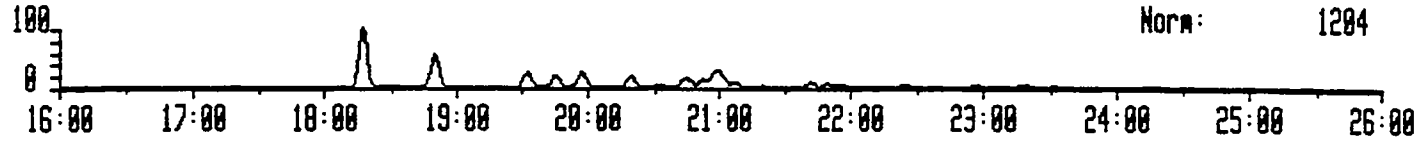
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:TXT RUN 2 AUX HT INLET TLI#323118



P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 375.8364
Text:TXT RUN 2 AUX HT INLET TLI#323118

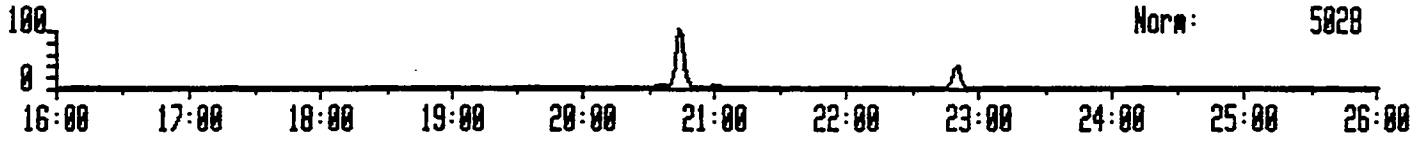


P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:TXT RUN 2 AUX HT INLET TLI#32311B

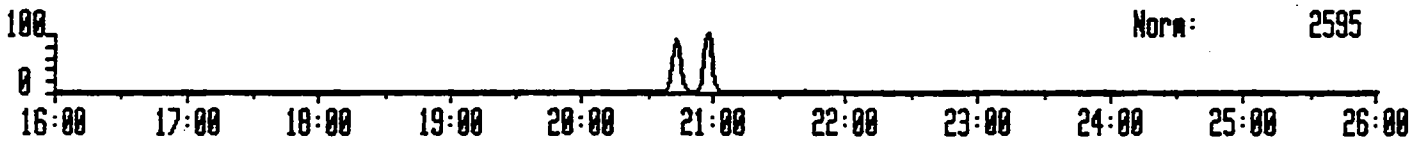


P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:TXT RUN 2 AUX HT INLET TLI#32311B

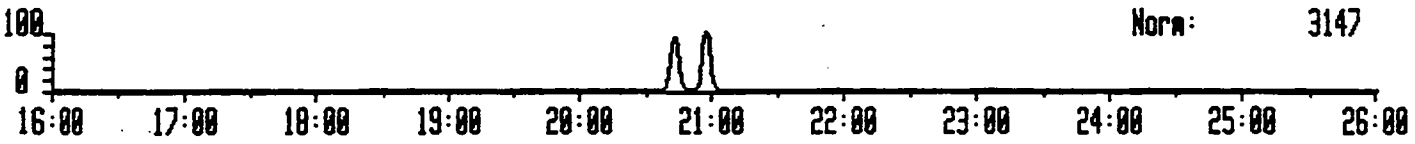
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:TXT RUN 2 AUX HT INLET TLI#32311B



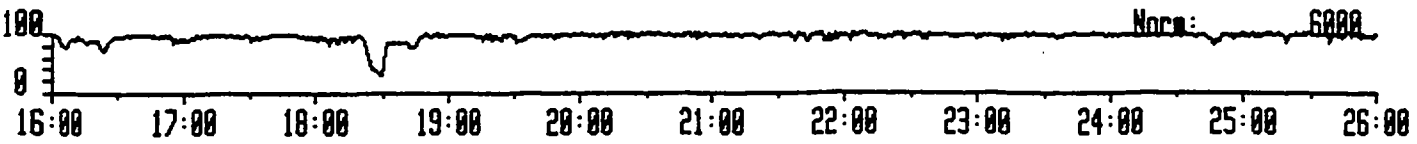
P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:TXT RUN 2 AUX HT INLET TLI#32311B

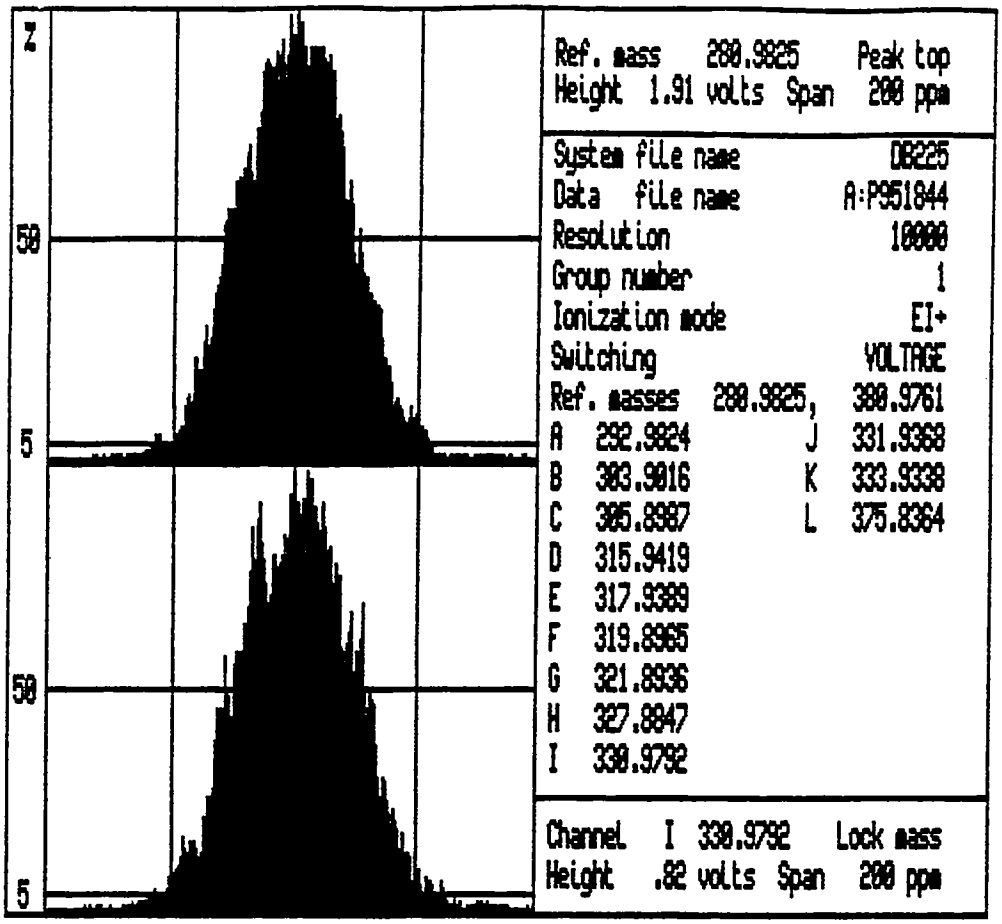


P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:TXT RUN 2 AUX HT INLET TLI#32311B



P951844 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 292.9824
Text:TXT RUN 2 AUX HT INLET TLI#32311B




Z
50
5
50
5
Ref. mass 280.9825 Peak top
Height 1.91 volts Span 200 ppm
System file name D0225
Data file name A:P951844
Resolution 10000
Group number 1
Ionization mode EI+
Switching VOLTAGE
Ref. masses 280.9825, 380.9761
A 292.9824
B 303.9816
C 305.8987
D 315.9419
E 317.9389
F 319.8965
G 321.8936
H 327.8847
I 330.9792
J 331.9368
K 333.9338
L 375.8364
Channel I 330.9792 Lock mass
Height .82 volts Span 200 ppm

TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **RUN 3 AUX HT INLET 4-7-95** Analysis File: **W951886**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPX23704
TLRTP ID:	98-238-3A-D	Date Extracted:	04/20/95	ICAL:	WF54275
		Date Analyzed:	05/04/95	CONCAL:	W951880
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	W951882	% Lipid:	n/a
GC Column:	DB-5	Analyst:	VA	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.06			0.73	25:39	
1,2,3,7,8-PeCDD	0.30			1.46	29:58	
1,2,3,4,7,8-HxCDD	0.48			1.21	33:07	
1,2,3,6,7,8-HxCDD	0.97			1.24	33:11	
1,2,3,7,8,9-HxCDD	1.2			1.22	33:29	PR
1,2,3,4,6,7,8-HpCDD	4.1			1.02	36:05	
2,3,7,8-TCDF	6.2			0.75	24:56	
1,2,3,7,8-PeCDF	0.95			1.55	28:56	B
2,3,4,7,8-PeCDF	2.2			1.60	29:37	
1,2,3,4,7,8-HxCDF	5.3			1.26	32:25	
1,2,3,6,7,8-HxCDF	1.8			1.24	32:31	
2,3,4,6,7,8-HxCDF	3.3			1.27	33:01	Q
1,2,3,7,8,9-HxCDF	0.14			1.38	33:43	PR
1,2,3,4,6,7,8-HpCDF	5.7			1.03	35:12	
1,2,3,4,7,8,9-HpCDF	0.89			1.06	36:31	
1,2,3,4,6,7,8,9-OCDF	3.5			0.87	39:13	

Totals	Amt. (ng)	Number	DL	EMPC	Flags
Total TCDD	4.3	12		4.3	
Total TCDF	36.8	16		36.8	

X237_PSR v:1.10. LARS 5.14.12

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Printed: 17:51 05/09/95

TL-RTP Project: **32311B** Method 23 PCDD/PCDF Analysis (a)

Client Sample: **RUN 3 AUX HT INLET 4-7-95** Analysis File: **W951886**

Internal Standards	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.3	108	0.78	24:54	
$^{13}C_{12}$-2,3,7,8-TCDD	3.7	92.5	0.81	25:38	
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3.6	90.0	1.53	28:54	
$^{13}C_{12}$-1,2,3,7,8-PeCDD	4.3	108	1.52	29:57	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	4.4	109	0.51	32:31	
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	4.0	99.3	1.25	33:11	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	4.2	105	0.44	35:11	
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	4.0	101	1.05	36:04	
$^{13}C_{12}$-1,2,3,4,6,7,8,9-OCDD	6.4	79.8	0.89	39:02	

Surrogate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	3.5	87.1		25:39	
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3.8	94.4	1.50	29:37	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	3.7	93.2	0.51	32:25	
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	3.9	97.2	1.23	33:06	
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	3.6	90.3	0.43	36:31	

Alternate Standards (Type A)	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	4.4	109	0.52	33:43	
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	4.3	108	0.51	33:00	Q

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	25:25	
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.23	33:29	

Data Reviewer: _____ 05/09/95

X237_PSR v:1.10, LARS 5.14.12

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	Initial	....Date...	
B-File/Header Changes	KV	5/5/95	Calculated Noise Area:
Manual Integrations		/ /	Channel:
Transcription		/ /	Initials:
dBASE Corrections		/ /	Date:

Page No. 1 Listing of W951886B.dbf
05/04/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									21:30-26:50	
304-306	DC	0.75	21:08	118.20	T	F	0.849	WL		
		0.77	21:42	7,355.64	T	F	0.871			
		1.78	21:59	32.66	F	F	0.883	FR		
		0.78	22:11	6,758.48	T	F	0.891			
		0.74	22:27	8,231.93	T	F	0.902			
		0.76	22:50	32,586.88	T	F	0.917			
		0.76	23:10	18,851.08	T	F	0.930			
		0.76	23:34	24,297.79	T	F	0.946			
		0.75	23:51	17,211.82	T	F	0.958			
		0.75	24:05	25,132.70	T	F	0.967			
		0.77	24:17	21,803.19	T	F	0.975			
		0.77	24:29	10,512.15	T	F	0.983			
		0.75	24:44	10,261.48	T	F	0.993			
		0.75	24:56	41,751.69	T	T	1.001		2378-TCDF	AN
		0.75	25:22	11,179.50	T	F	1.019			
		0.75	25:33	10,880.40	T	F	1.026			
		0.78	25:50	1,503.30	T	F	1.037			
		0.83	26:40	1,160.89	T	F	1.071			
304-306		Peaks	17	249,511.58	*** Total ***					
13C12-TCDF									23:54-25:54	
316-318	DC	0.96	23:51	138.11	F	F	0.958	WL		
		1.09	24:27	97.16	F	F	0.982	FR		
		0.78	24:54	22,735.64	T	T	1.000		13C12-2378-TCDF	IS0
		0.66	25:19	229.25	T	F	1.017			
	DC	0.89	26:40	64.09	T	F	1.071	WH		
316-318		Peaks	3	23,062.05	*** Total ***					
TCDD									22:53-26:48	
320-322		0.77	23:04	5,660.14	T	F	0.900			
	DN	1.16	23:15	7.61	F	F	0.907	SN		
		0.78	23:27	2,909.56	T	F	0.915			
		0.79	23:44	1,063.18	T	F	0.926			
		0.76	24:27	2,982.92	T	F	0.954			
	OK	0.84	24:42	1,295.93	T	F	0.964			
	DN	2.18	24:55	16.69	F	F	0.972	FR		
		0.76	25:06	995.74	T	F	0.979			
		0.74	25:25	1,191.27	T	F	0.992			

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Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		0.74	25:32	1,391.68	T	F	0.996			
		0.73	25:39	243.63	T	T	1.001		2378-TCDD	AN
		0.76	25:49	313.64	T	F	1.007			
		0.82	25:58	479.05	T	F	1.013			
		0.81	26:12	158.73	T	F	1.022			
		0.95	26:39	191.68	F	F	1.040	FR		
320-322		Peaks	13	18,877.15	*** Total ***					
37Cl-TCDD									23:38-27:38	
328	DC	0.00	22:35	46.12	T	F	0.881	WL		
	DC	0.00	23:01	25.85	T	F	0.898	WL		
		0.00	24:11	420.36	T	F	0.943			
		0.00	25:39	13,170.53	T	T	1.001		37Cl-TCDD	SUR1
		0.00	26:03	2,617.08	T	F	1.016			
328		Peaks	3	16,207.97	*** Total ***					
13C12-TCDD									23:38-27:38	
332-334		1.45	24:26	63.86	F	F	0.953	FR		
		0.83	25:25	14,747.16	T	T	0.992		13C12-1234-TCDD	RS1
		0.81	25:38	14,551.83	T	T	1.000		13C12-2378-TCDD	IS1
		1.14	25:57	178.70	F	F	1.012	FR		
332-334		Peaks	4	29,541.55	*** Total ***					
PeCDF									26:44-30:46	
340-342	DC	1.33	26:38	61.06	T	F	0.922	WL		
		1.51	26:55	12,577.41	T	F	0.931			
		0.34	27:11	42.89	F	F	0.941	FR		
		1.13	27:14	84.47	F	F	0.942	FR		
		0.90	27:23	151.91	F	F	0.948	FR		
		1.26	27:34	292.31	F	F	0.954	FR		
		1.40	27:40	179.63	T	F	0.957			
		1.52	27:54	3,782.14	T	F	0.965			
		1.56	28:03	24,884.78	T	F	0.971			
		1.54	28:13	5,072.13	T	F	0.976			
		3.23	28:26	1,051.09	F	F	0.984	FR	Repeat	
		2.81	28:26	1,208.06	F	F	0.984	FR		
		1.55	28:32	10,412.21	T	F	0.987			
		1.52	28:38	10,461.89	T	F	0.991			
		1.54	28:51	4,066.53	T	F	0.998			
		1.55	28:56	4,102.25	T	T	1.001		12378-PeCDF	AN
		1.52	29:05	4,065.25	T	F	1.006			
		1.50	29:13	6,511.63	T	F	1.011			
		1.60	29:37	10,095.64	T	T	1.025		23478-PeCDF	AN
		1.62	29:46	16,407.24	T	F	1.030			
		1.64	30:05	1,730.81	T	F	1.041			
		1.53	30:36	883.68	T	F	1.059			
340-342		Peaks	21	118,063.95	*** Total ***					
13C12-PeCDF									24:54-32:54	
352-354		1.19	28:32	57.11	F	F	0.987	FR		
		1.53	28:54	15,350.50	T	T	1.000		13C12-PeCDF 123	IS2
		1.69	29:11	181.73	T	F	1.010			

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.50	29:37	14,329.91	T	T	1.025		13C12-PeCDF 234	SUR2
		0.92	30:34	30.78	F	F	1.058	FR		
352-354		Peaks	5	29,950.03	*** Total ***					
PeCDD									28:00-30:36	
356-358		1.53	28:10	6,895.22	T	F	0.940			
		1.55	28:40	678.83	T	F	0.957			
		1.53	28:53	4,256.63	T	F	0.964			
		1.47	29:02	891.70	T	F	0.969			
		1.51	29:13	2,438.51	T	F	0.976			
		1.57	29:22	727.28	T	F	0.981			
		1.61	29:27	1,267.30	T	F	0.983			
		1.57	29:40	1,004.49	T	F	0.991			
		0.42	29:47	516.78	F	F	0.994	FR		
		1.46	29:58	882.71	T	T	1.001		12378-PeCDD	AN
		1.44	30:06	606.69	T	F	1.005			
		1.73	30:26	639.45	T	F	1.016			
356-358		Peaks	12	20,805.59	*** Total ***					
13C12-PeCDD									25:56-33:56	
368-370		1.52	29:57	8,742.49	T	T	1.000		13C12-PeCDD 123	IS3
		1.43	30:05	877.64	T	F	1.004			
368-370		Peaks	2	9,620.13	*** Total ***					
HxCDF									31:17-33:58	
374-376	DC	1.36	31:15	77.18	T	F	0.961	WL		
		1.27	31:27	8,764.87	T	F	0.967			
		1.26	31:35	21,019.70	T	F	0.971			
		1.26	31:45	1,403.32	T	F	0.976			
		1.30	31:53	2,679.82	T	F	0.981			
		1.33	32:03	1,426.76	T	F	0.986			
		1.26	32:14	157.21	T	F	0.991			
		1.26	32:25	16,180.30	T	T	0.997		123478-HxCDF	AN
		1.24	32:31	7,588.24	T	T	1.000		123678-HxCDF	AN
		1.23	32:38	1,195.63	T	F	1.004			
		1.26	32:48	3,131.14	T	F	1.009			
		1.27	33:01	11,250.53	T	T	1.015		234678-HxCDF	AN
		1.~~27~~	33:4~~7~~3	~~2,325~~.59	T	T	1.03~~9~~7		123789-HxCDF	AN
374-376		Peaks	12	77,123.11	*** Total ***					
13C12-HxCDF									28:31-36:31	
384-386		0.54	31:27	58.61	T	F	0.967			
		0.79	31:35	66.79	F	F	0.971	FR		
		0.51	32:25	9,334.23	T	T	0.997		13C12-HxCDF 478	SUR3
		0.51	32:31	11,155.90	T	T	1.000		13C12-HxCDF 678	IS4
		0.51	33:00	10,846.57	T	T	1.015		13C12-HxCDF 234	ALT2
	DN	0.98	33:11	22.73	F	F	1.021	FR		
		0.52	33:43	8,077.56	T	T	1.037		13C12-HxCDF 789	ALT1
384-386		Peaks	6	39,539.66	*** Total ***					
HxCDD									31:47-33:37	
390-392		1.21	31:57	3,045.26	T	F	0.963			

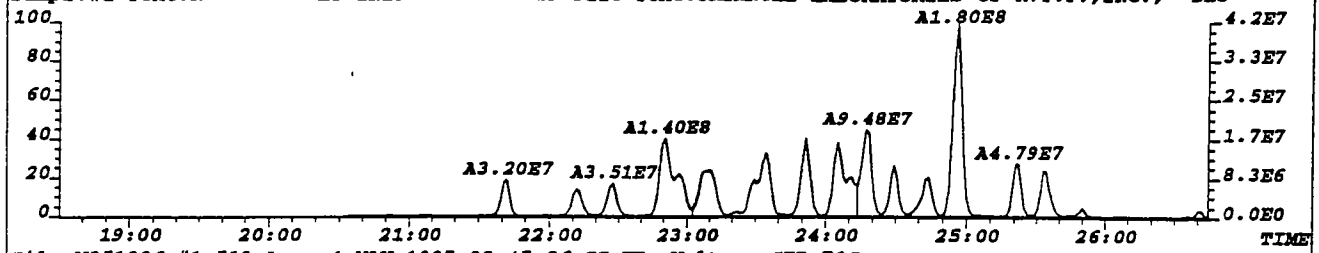
Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
		1.21	32:24	8,250.43	T	F	0.976			
		1.24	32:36	6,327.83	T	F	0.982			
		1.10	32:46	677.58	T	F	0.987			
	DC	1.28	32:59	6.11	T	F	0.994	SN		
		1.21	33:07	787.60	T	T	0.998		123478-HxCDD	AN
		1.24	33:11	1,586.30	T	T	1.000		123678-HxCDD	AN
		1.22	33:29	2,122.96	T	T	1.009		123789-HxCDD	AN
	DN	1.92	33:46	5.71	F	F	1.018	SN		
	DN	2.10	33:46	5.22	F	F	1.018	SN		
390-392		Peaks	7	22,797.96	*** Total ***					
13C12-HxCDD									32:11-34:11	
402-404	DN	4.72	32:36	6.36	F	F	0.982	SN		
		1.23	33:06	5,804.00	T	T	0.997		13C12-HxCDD 478	SUR4
		1.25	33:11	6,246.19	T	T	1.000		13C12-HxCDD 678	IS5
		1.23	33:29	6,879.14	T	T	1.009		13C12-HxCDD 789	RS2
402-404		Peaks	3	18,929.33	*** Total ***					
HpCDF									35:02-36:41	
408-410		1.03	35:12	18,116.86	T	T	1.000		1234678-HpCDF	AN
		1.06	35:26	3,927.69	T	F	1.007			
		1.00	35:33	3,860.50	T	F	1.010			
		1.06	36:31	1,843.57	T	T	1.038		1234789-HpCDF	AN
408-410		Peaks	4	27,748.62	*** Total ***					
13C12-HpCDF									33:11-39:11	
418-420		0.44	35:11	6,808.09	T	T	1.000		13C12-HpCDF 678	IS6
		0.43	36:31	4,799.37	T	T	1.038		13C12-HpCDF 789	SUR5
	DN	1.09	36:42	12.66	F	F	1.043	SN		
	DC	0.41	36:47	14.38	T	F	1.045	SN		
418-420		Peaks	2	11,607.46	*** Total ***					
HpCDD									35:17-36:15	
424-426		1.02	35:26	6,963.96	T	F	0.982			
		1.02	36:05	5,720.89	T	T	1.000		1234678-HpCDD	AN
	DN	3.49	36:24	8.16	F	F	1.009	SN		
424-426		Peaks	2	12,684.85	*** Total ***					
13C12-HpCDD									35:04-37:04	
436-438	DN	0.86	35:26	11.07	F	F	0.982	SN		
		1.05	36:04	5,204.22	T	T	1.000		13C12-HpCDD 678	IS7
	DN	3.41	36:25	2.72	F	F	1.010	SN		
436-438		Peaks	1	5,204.22	*** Total ***					
OCDF									35:02-43:02	
442-444		0.87	39:13	3,526.50	T	T	1.005		OCDF	AN
442-444		Peaks	1	3,526.50	*** Total ***					
OCDD									35:02-43:02	
458-460		0.86	39:03	3,775.38	T	T	1.000		OCDD	AN
458-460		Peaks	1	3,775.38	*** Total ***					

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
13C12-OCDD									38:53-39:13	
470-472		0.89	39:02	6,310.53	T	T	1.000		13C12-OCDD	IS8

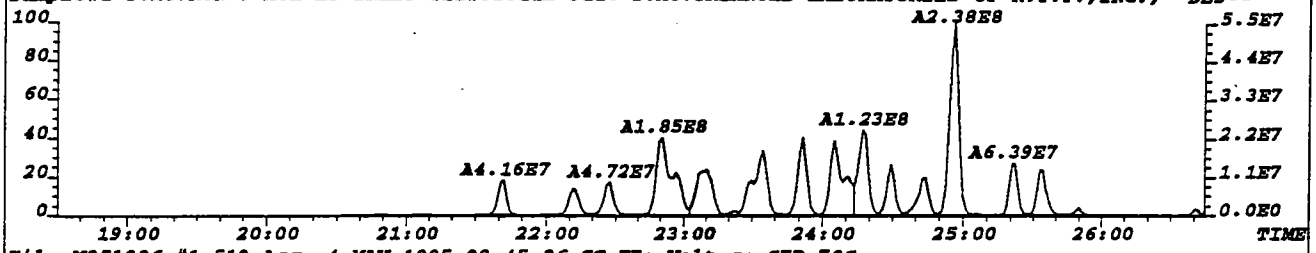
Column...	Description.....	"Why" Code	Description
M_Z	- Nominal Ion Mass(es)	WL	- Below Retention Time Window
RT.	- Retention Time	WH	- Above Retention Time Window
Match Rat	- Ratio Match True/False	SN	- Below Signal to Noise Level
Match RT	- Time Match True/False	<M	- Below Method Detection Limit
Rel RT	- Relative Retention Time	FR	- Calc based on theoretical ratio

*** End of Report ***

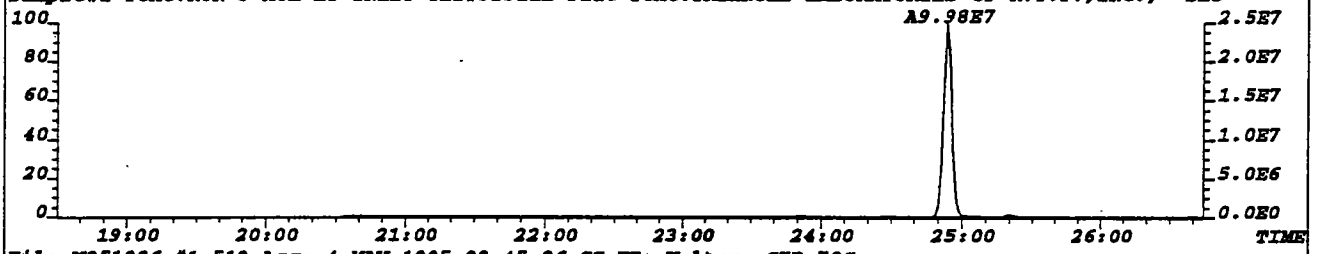
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
303.9016 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



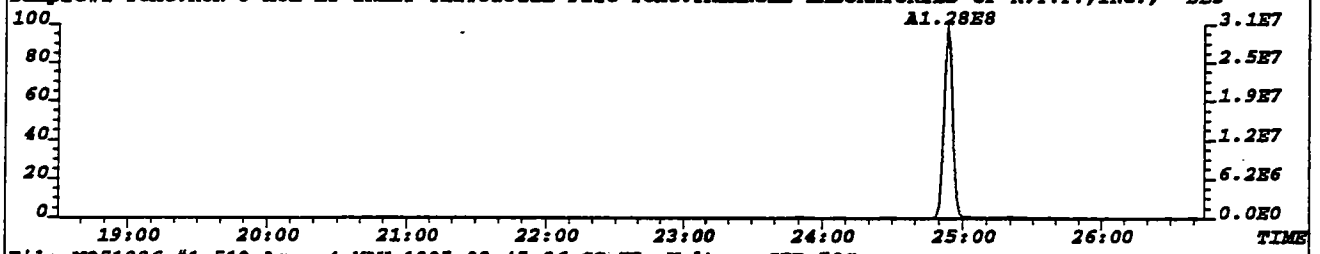
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
305.8987 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



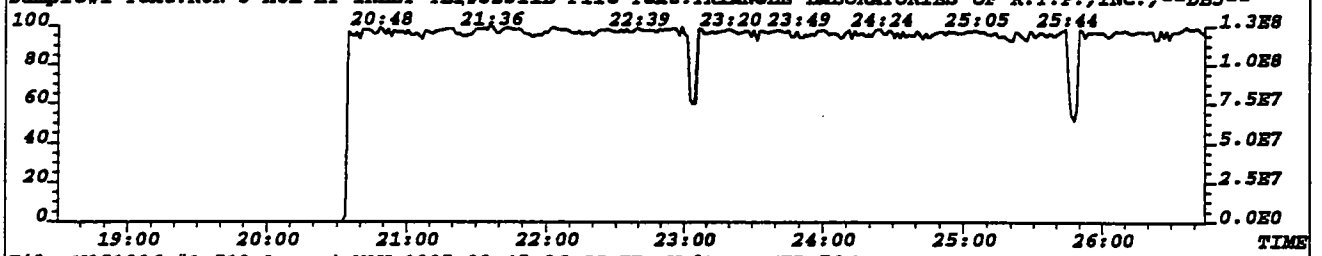
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
315.9419 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



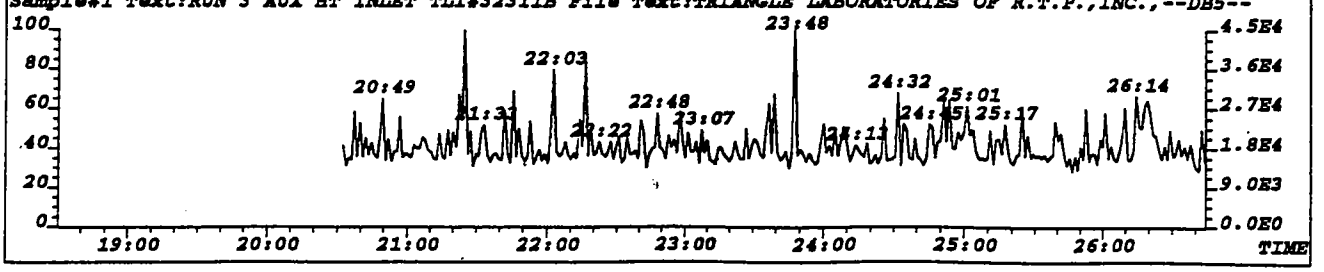
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
317.9389 F:2 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

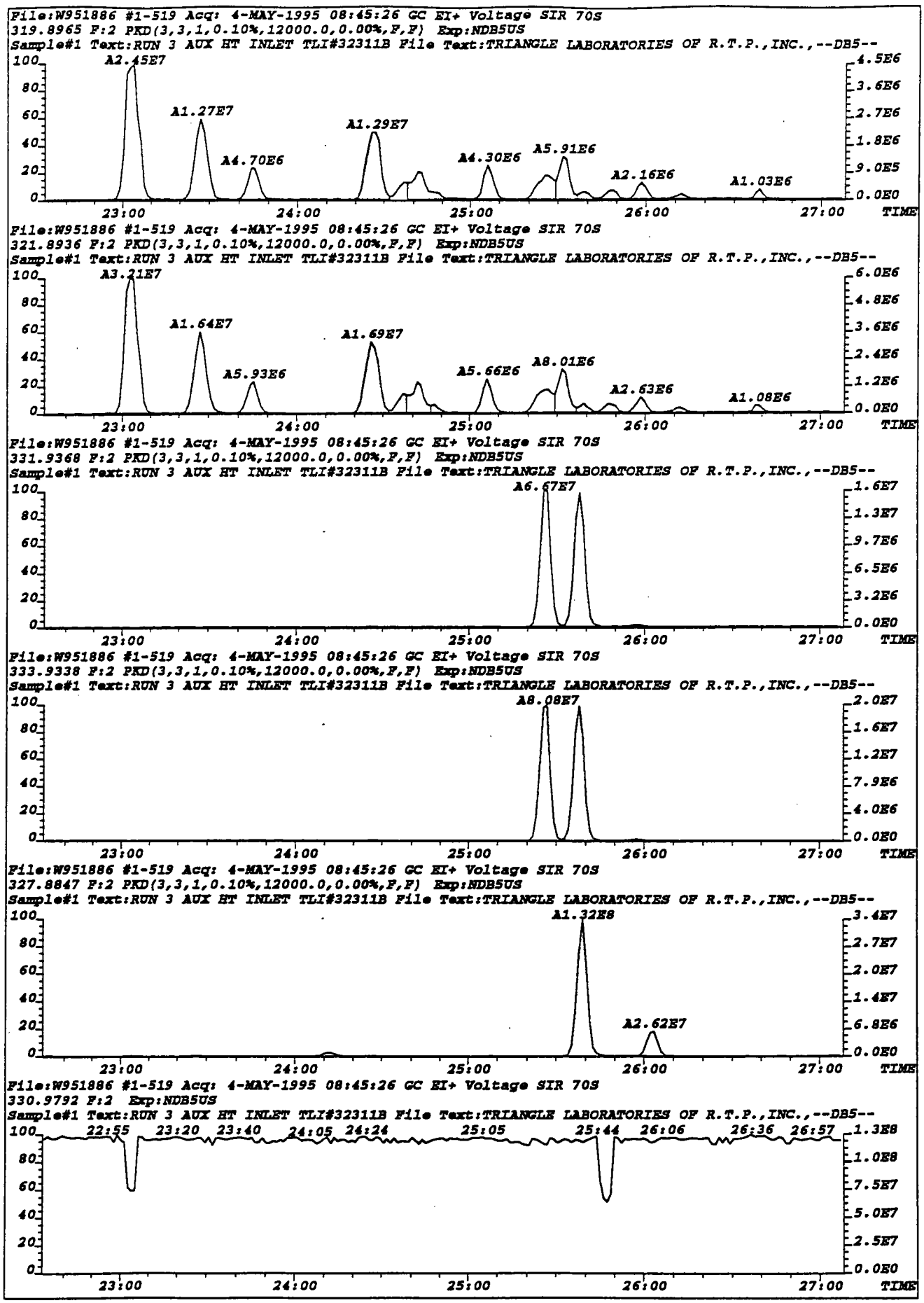


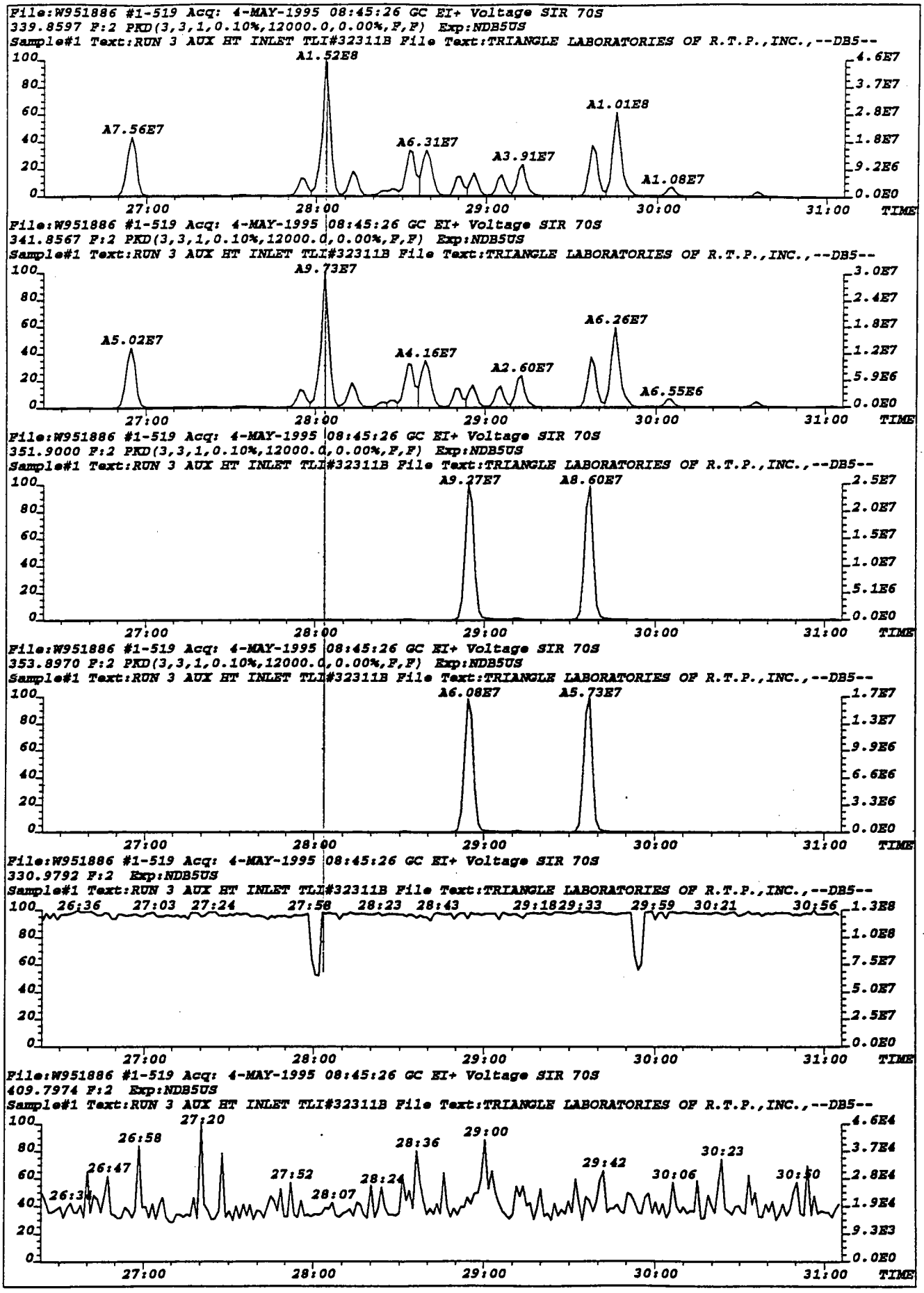
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

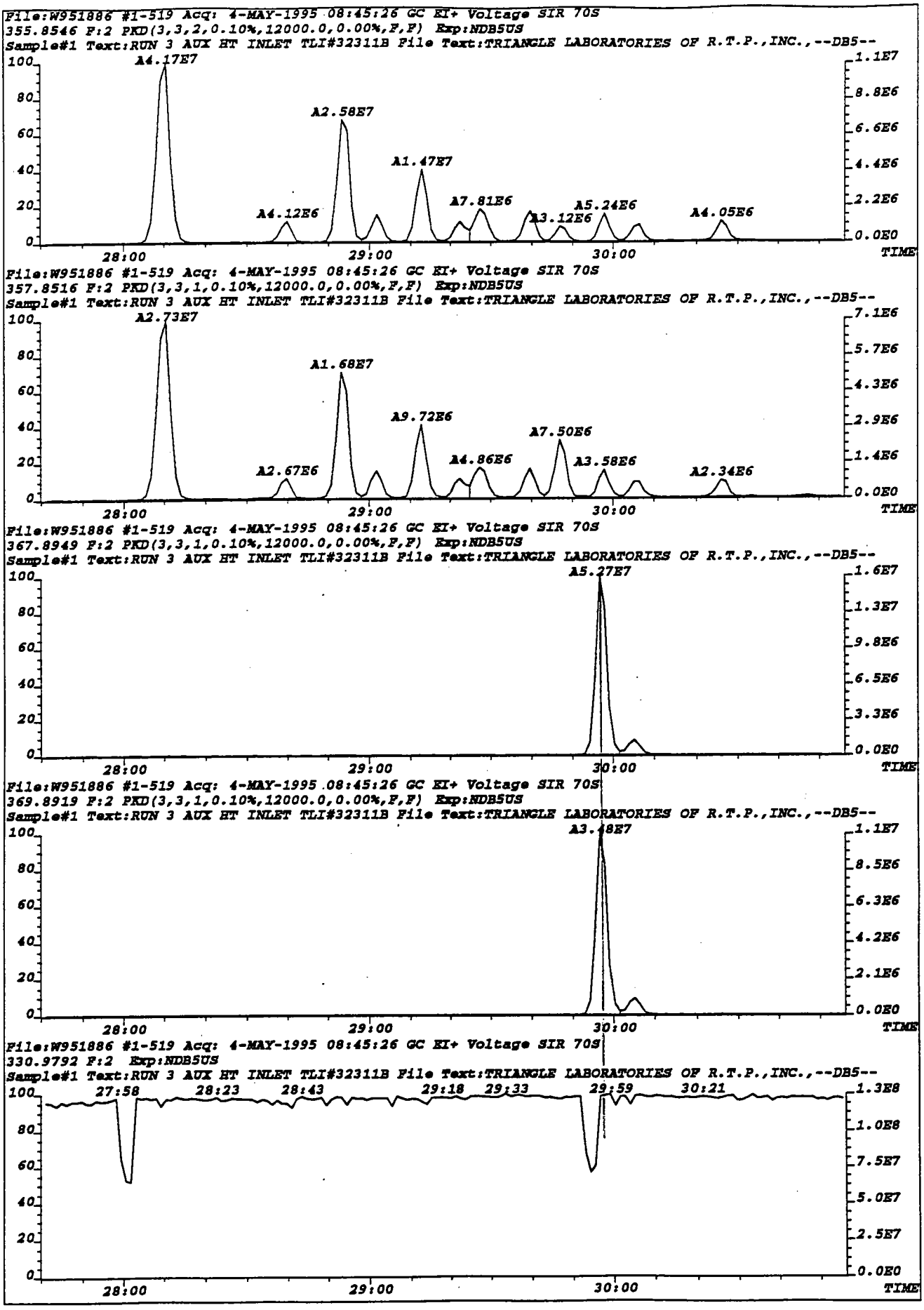


File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
375.8364 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

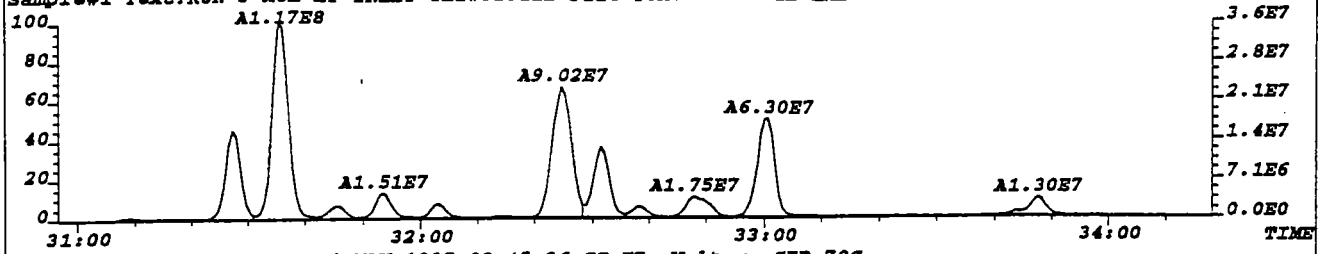



File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
319.8965 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.45E7
A1.27E7
A4.70E6
A1.29E7
A4.30E6
A5.91E6
A2.16E6
A1.03E6
23:00
24:00
25:00
26:00
27:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
321.8936 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.21E7
A1.64E7
A5.93E6
A1.69E7
A5.66E6
A8.01E6
A2.63E6
A1.08E6
23:00
24:00
25:00
26:00
27:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
331.9368 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.67E7
23:00
24:00
25:00
26:00
27:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
333.9338 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.08E7
23:00
24:00
25:00
26:00
27:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
327.8847 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.32E8
A2.62E7
23:00
24:00
25:00
26:00
27:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
22:55
23:20
23:40
24:05
24:24
25:05
25:44
26:06
26:36
26:57
23:00
24:00
25:00
26:00
27:00
TIME

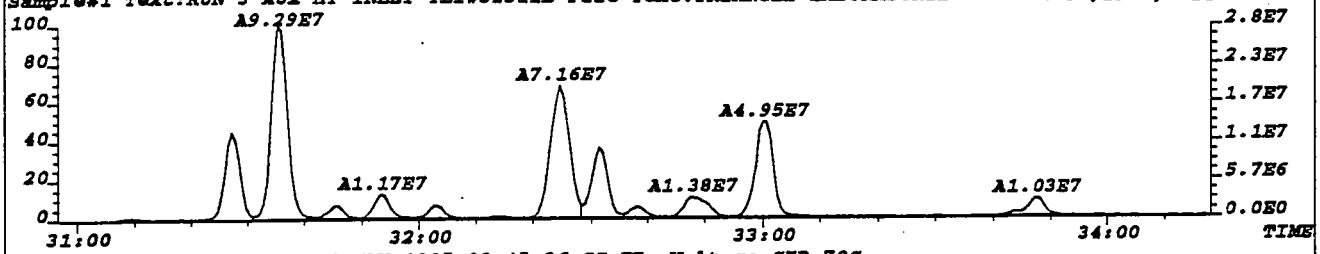

File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
339.8597 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.52E8
A7.56E7
A6.31E7
A3.91E7
A1.01E8
A1.08E7
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
341.8567 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.73E7
A5.02E7
A4.16E7
A2.60E7
A6.26E7
A6.55E6
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
351.9000 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.27E7
A8.60E7
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
353.8970 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A6.08E7
A5.73E7
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
26:36 27:03 27:24 27:58 28:23 28:43 29:18 29:33 29:59 30:21 30:56
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
409.7974 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
27:20
26:58
26:47
26:3
27:52
28:07
28:24
28:36
29:00
29:42
30:06
30:23
30:50
TIME


File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
355.8546 F:2 PKD(3,3,2,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.17E7
A2.58E7
A1.47E7
A7.81E6
A5.24E6
A4.12E6
A3.12E6
A4.05E6
28:00
29:00
30:00
TIME
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
357.8516 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.73E7
A1.68E7
A9.72E6
A7.50E6
A4.86E6
A3.58E6
A2.67E6
A2.34E6
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
367.8949 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A5.27E7
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
369.8919 F:2 PKD(3,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.48E7
File:W951886 #1-519 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
27:58
28:23
28:43
29:18
29:33
29:59
30:21

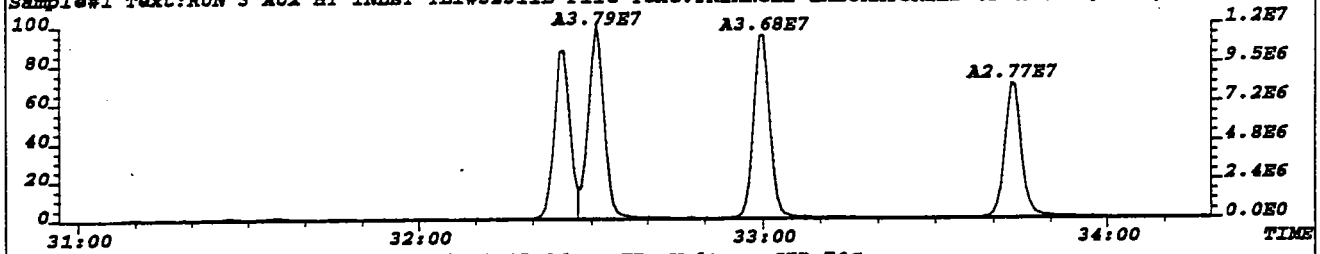
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
373.8208 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



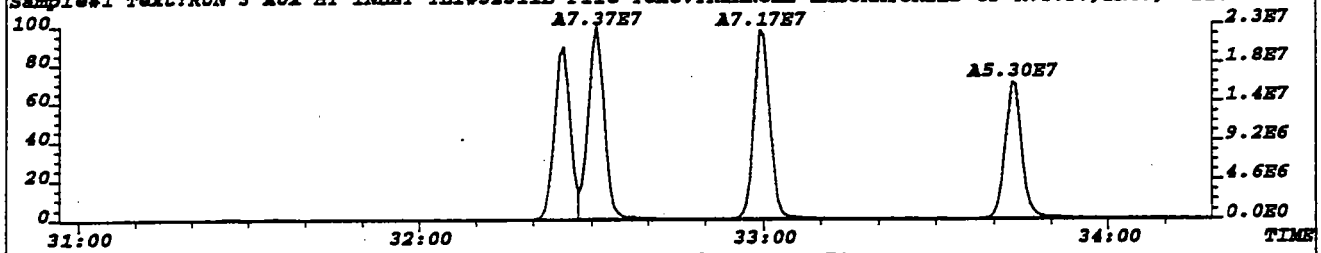
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
375.8178 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



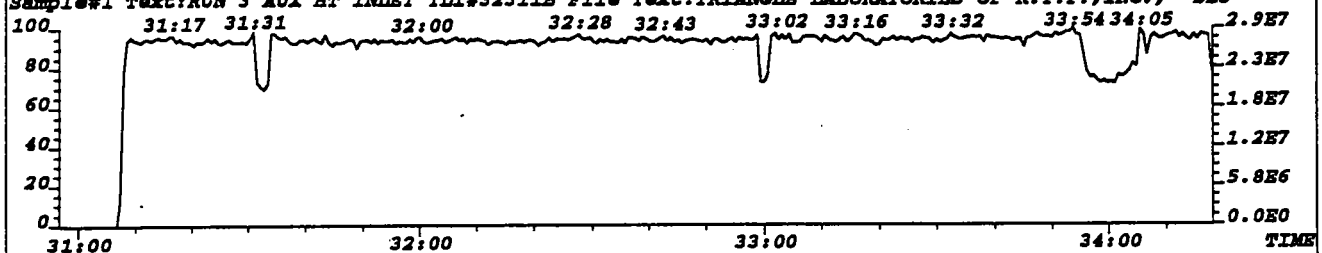
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
383.8639 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



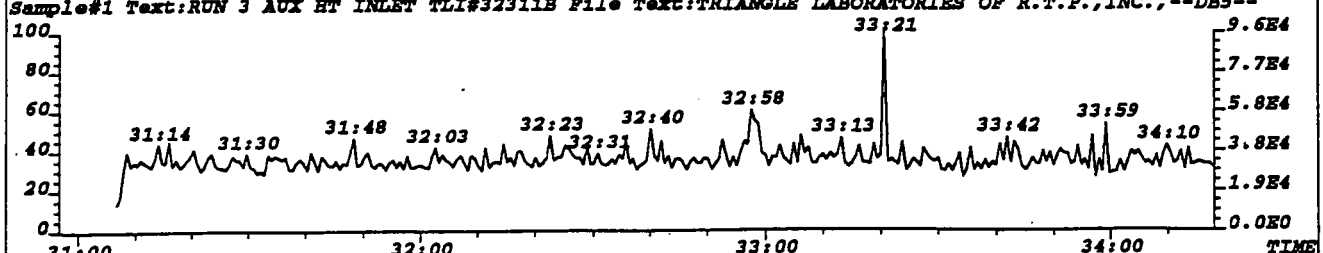
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
385.8610 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

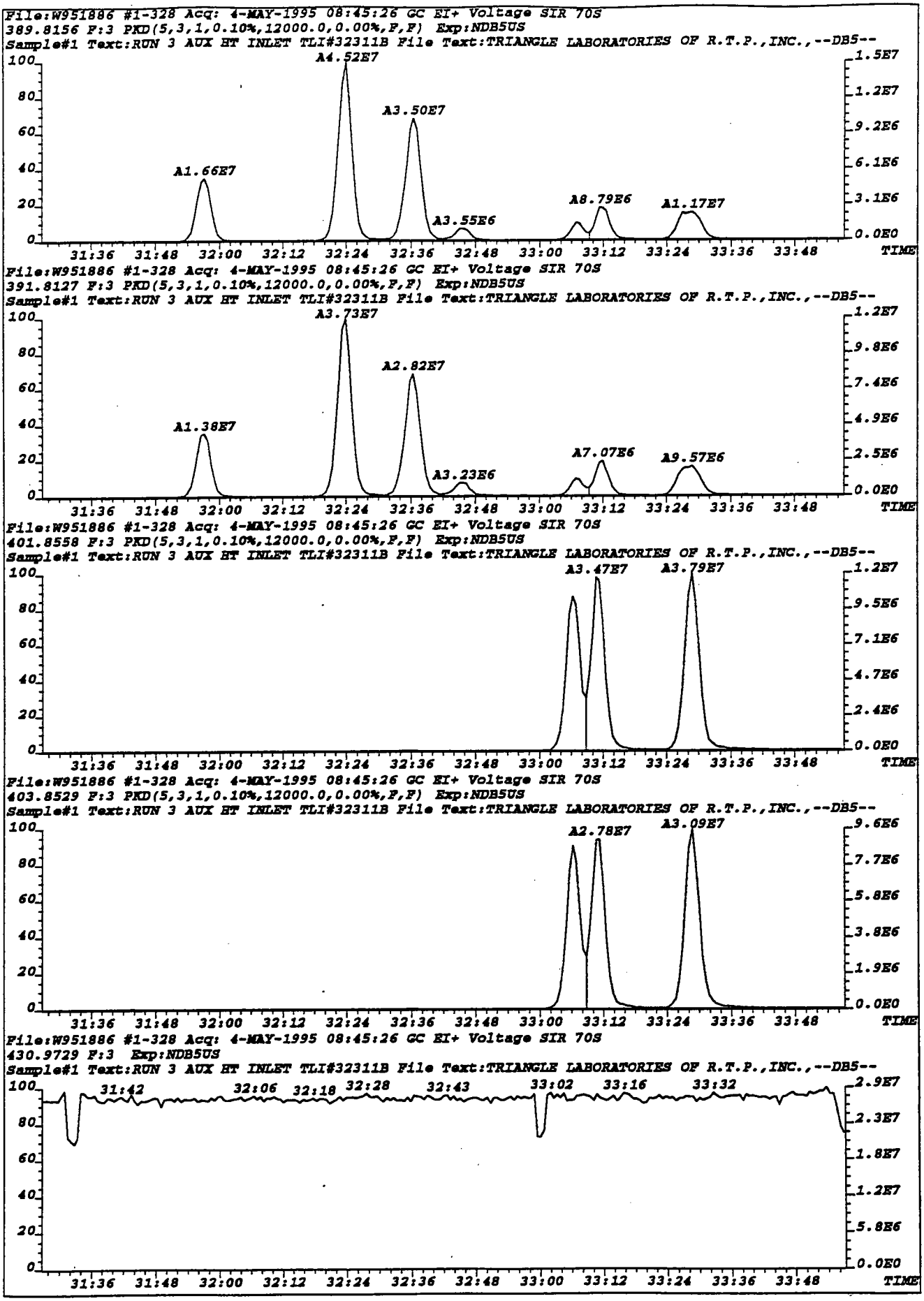


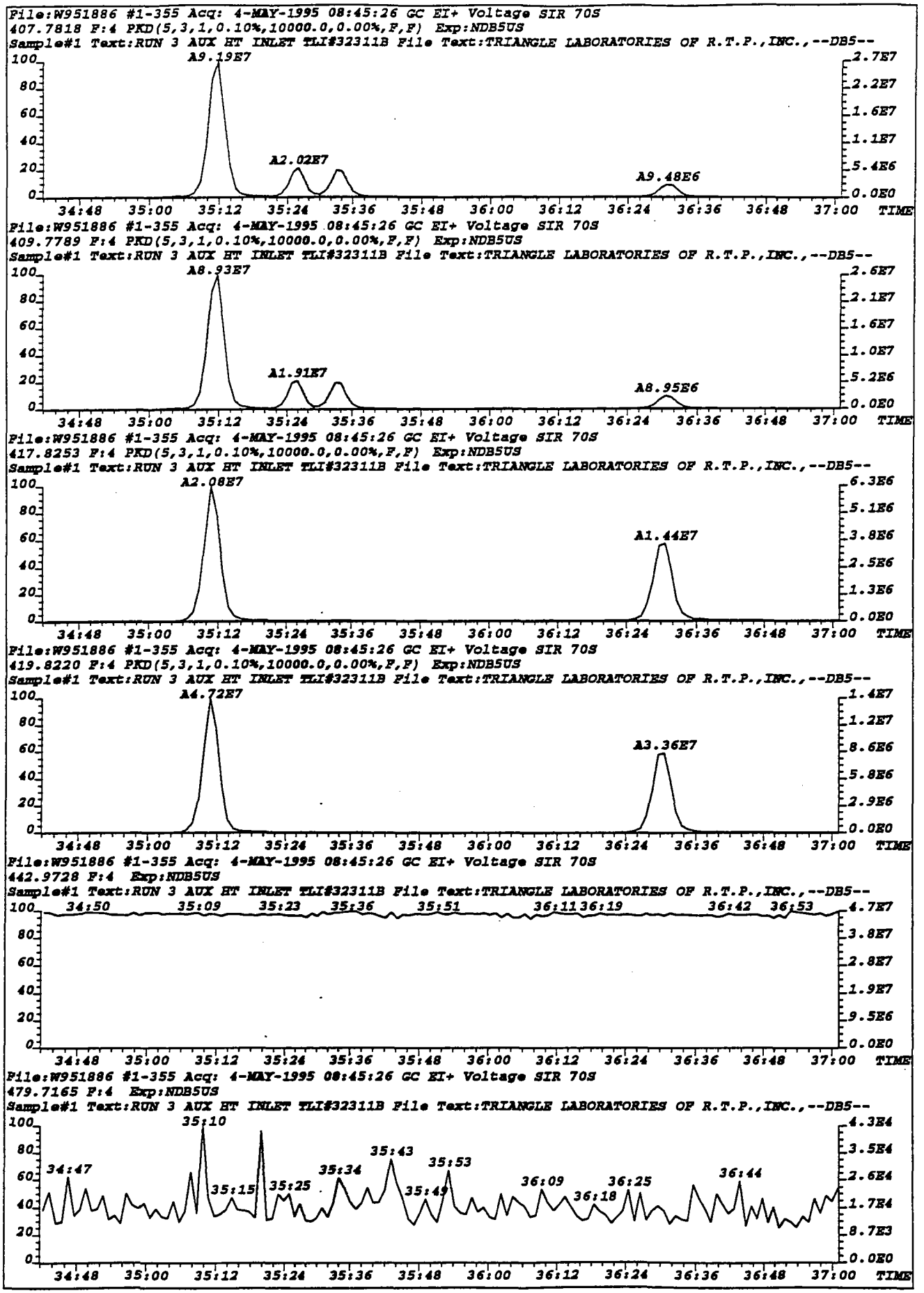
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



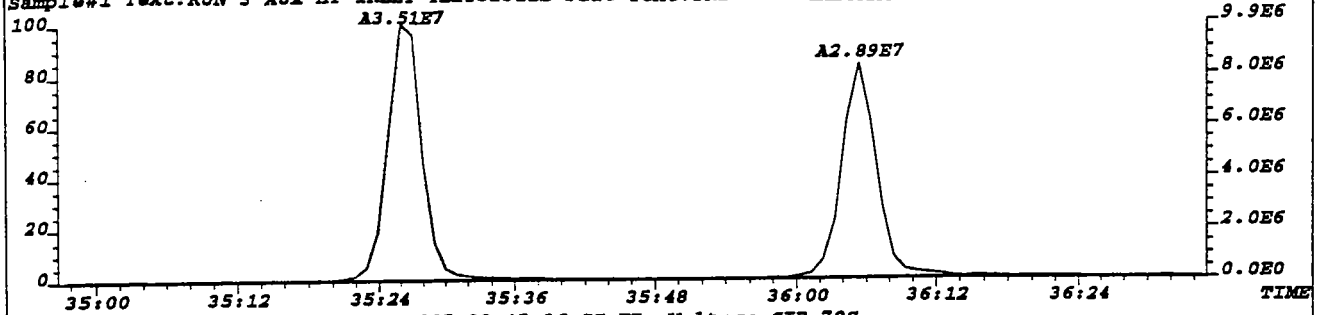
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
445.7555 F:3 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



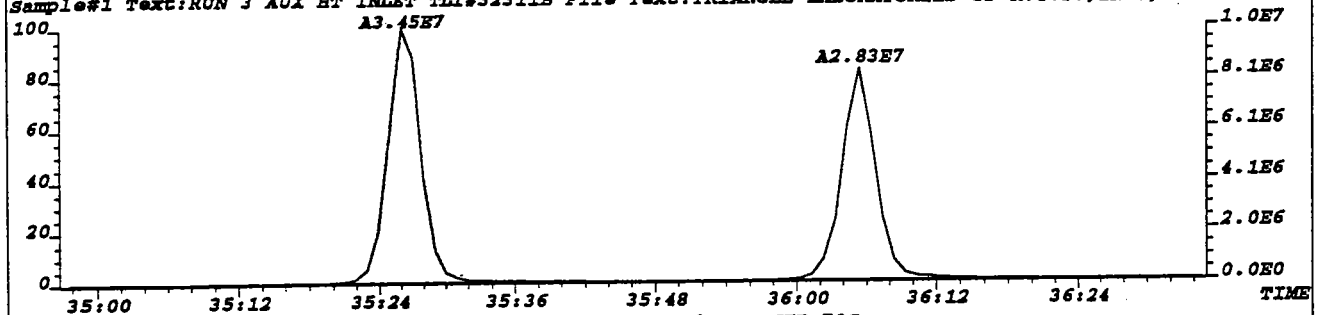

File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
389.8156 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.52E7
A3.50E7
A1.66E7
A8.79E6
A1.17E7
A3.55E6
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
391.8127 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.73E7
A2.82E7
A1.38E7
A7.07E6
A9.57E6
A3.23E6
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
401.8558 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A3.47E7
A3.79E7
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
403.8529 F:3 PKD(5,3,1,0.10%,12000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.78E7
A3.09E7
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
430.9729 F:3 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
31:42
32:06
32:18
32:28
32:43
33:02
33:16
33:32
31:36
31:48
32:00
32:12
32:24
32:36
32:48
33:00
33:12
33:24
33:36
33:48
TIME


File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
407.7818 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A9.19E7
A2.02E7
A9.48E6
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
409.7789 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A8.93E7
A1.91E7
A8.95E6
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
417.8253 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A2.08E7
A1.44E7
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
419.8220 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A4.72E7
A3.36E7
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
479.7165 F:4 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:47
35:10
35:15
35:25
35:34
35:43
35:49
35:53
36:09
36:18
36:25
36:44
TIME

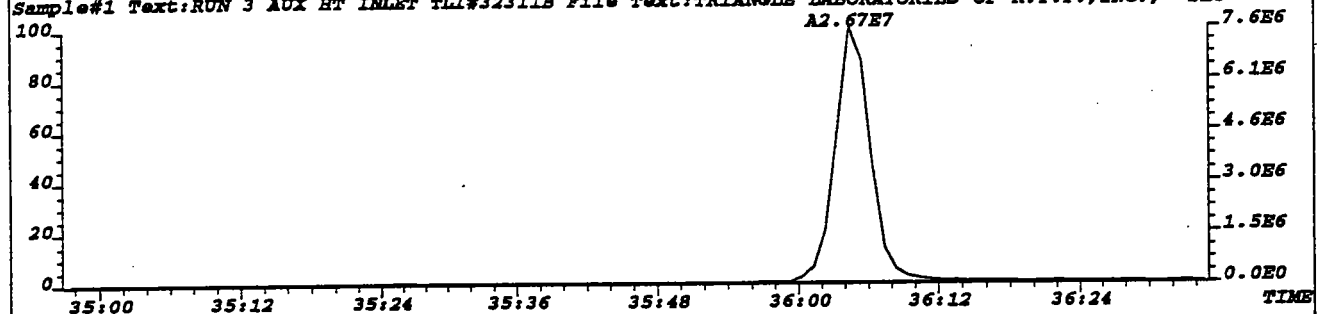
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
423.7766 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



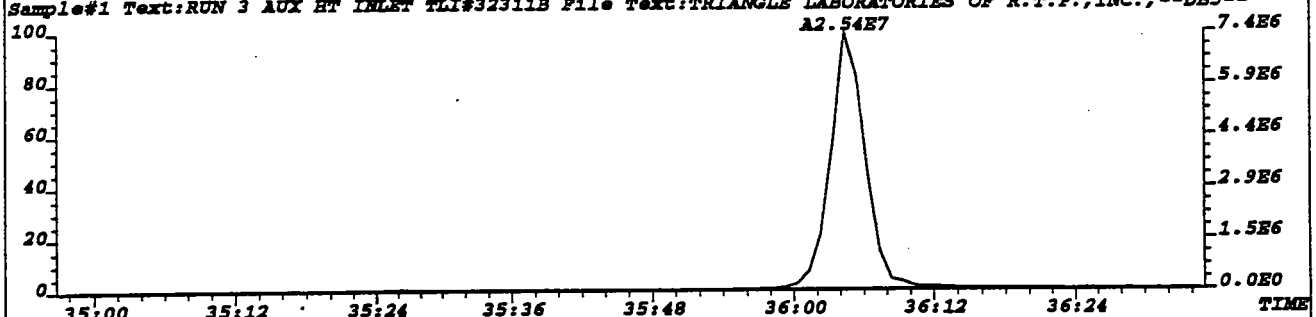
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
425.7737 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--



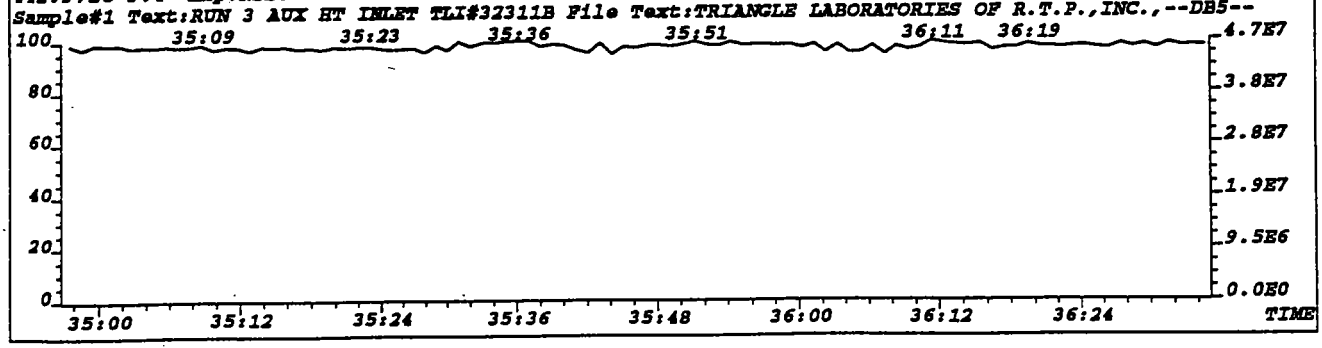
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
435.8169 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

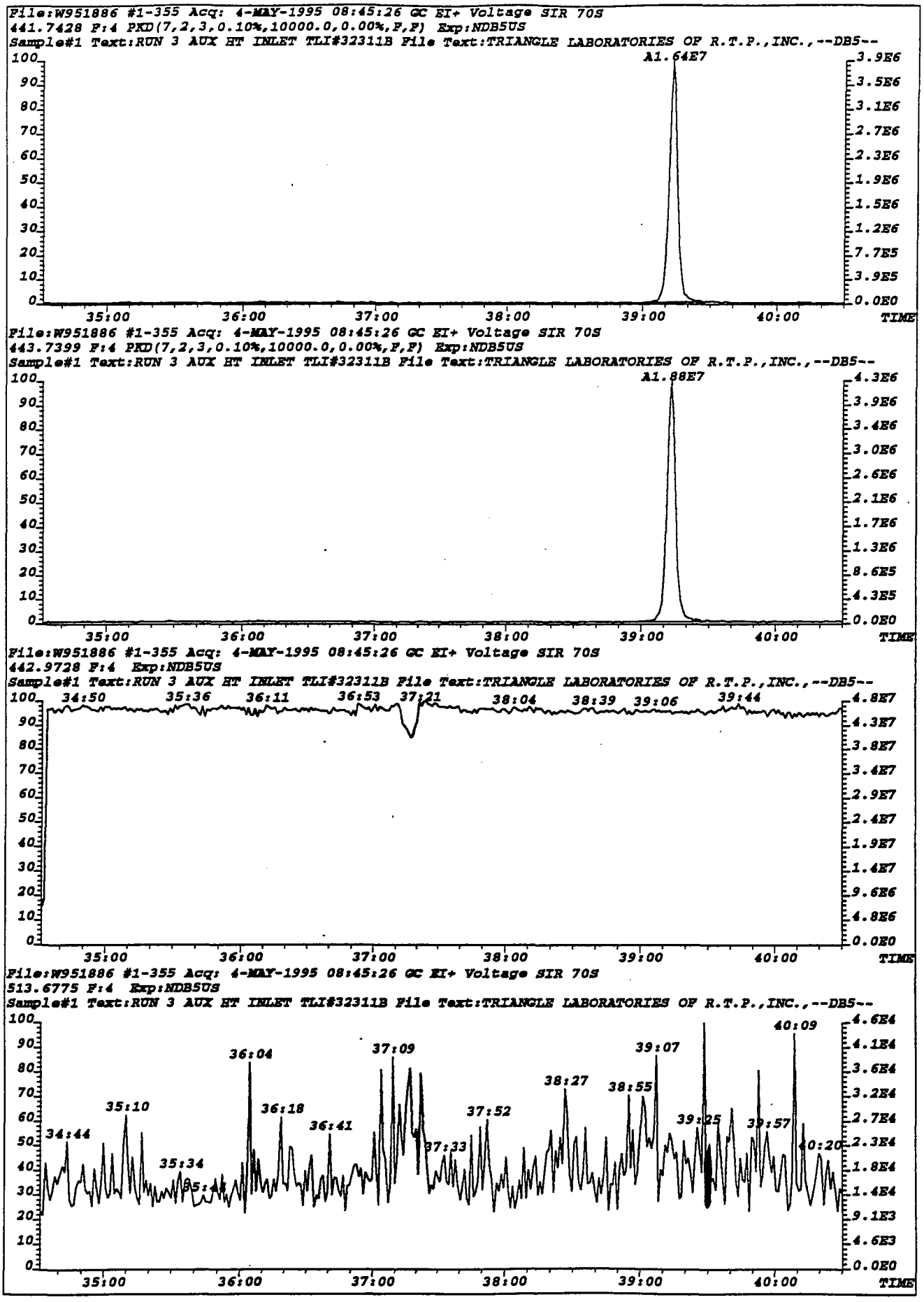


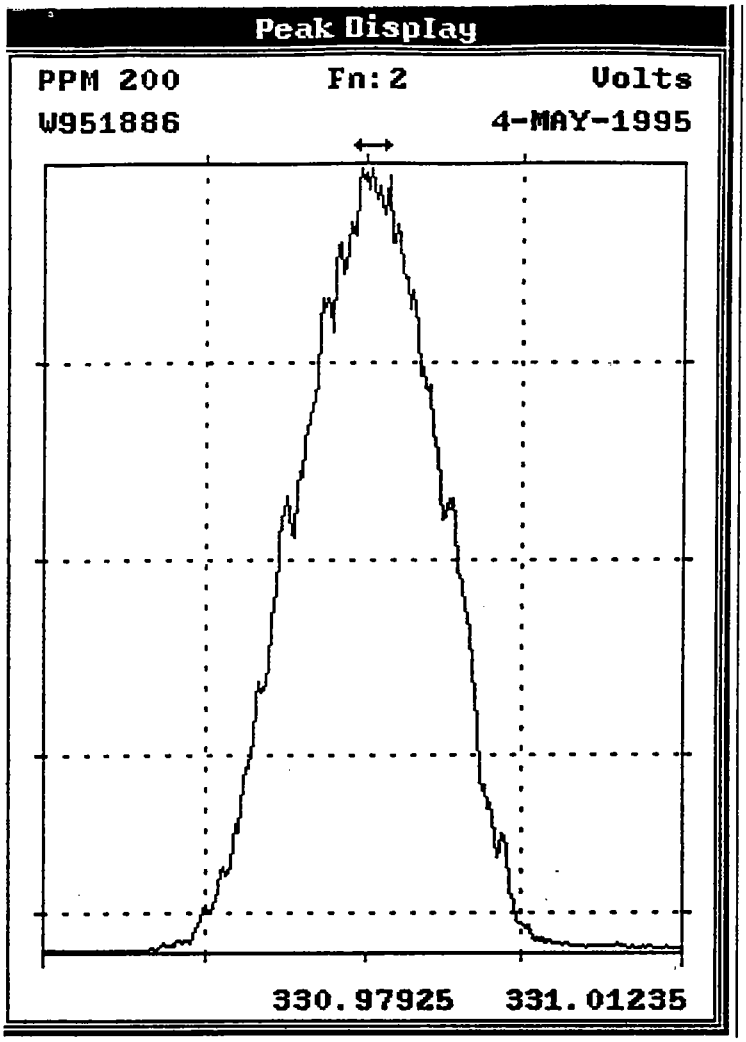
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
437.8140 F:4 PKD(5,3,1,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--

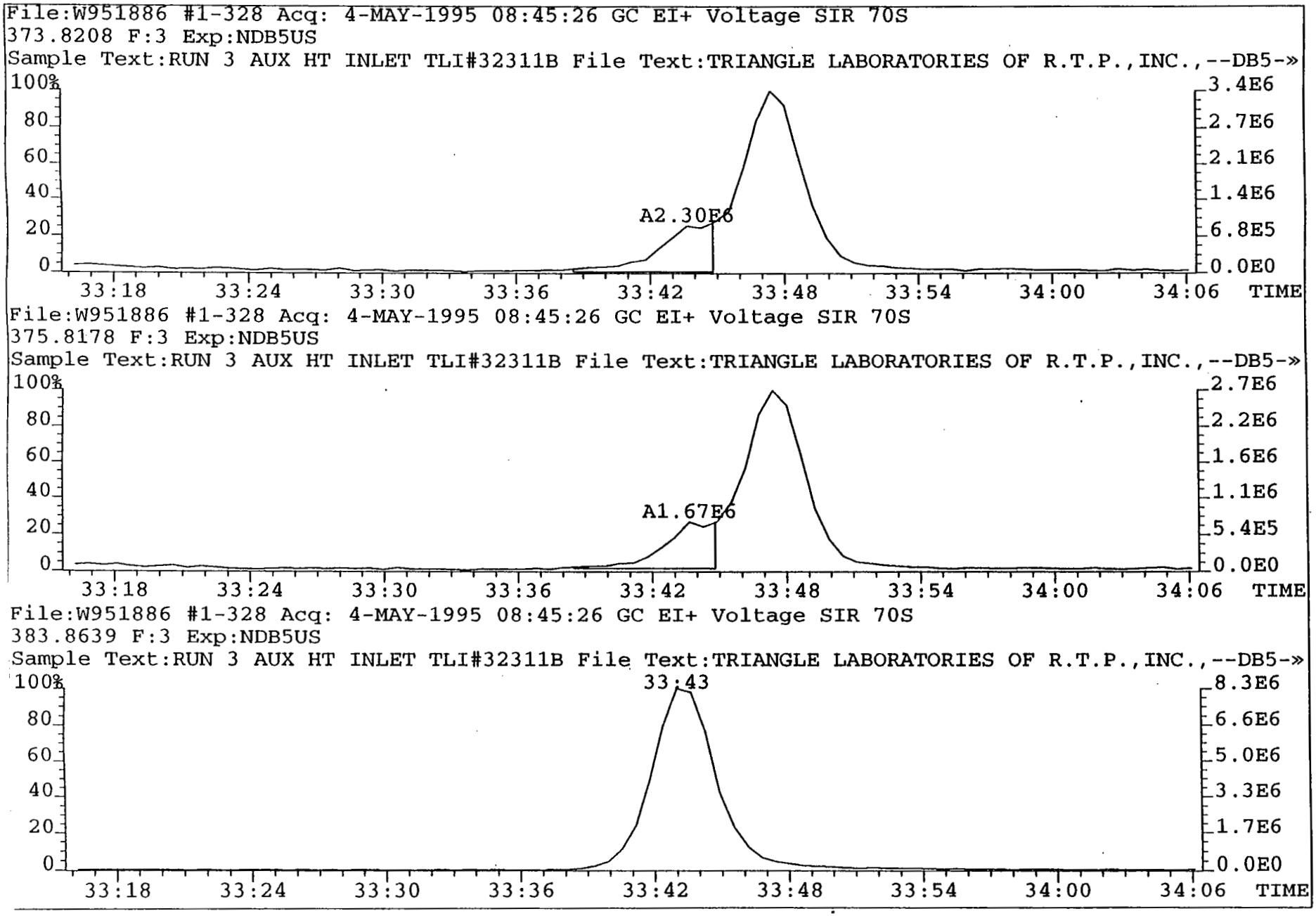


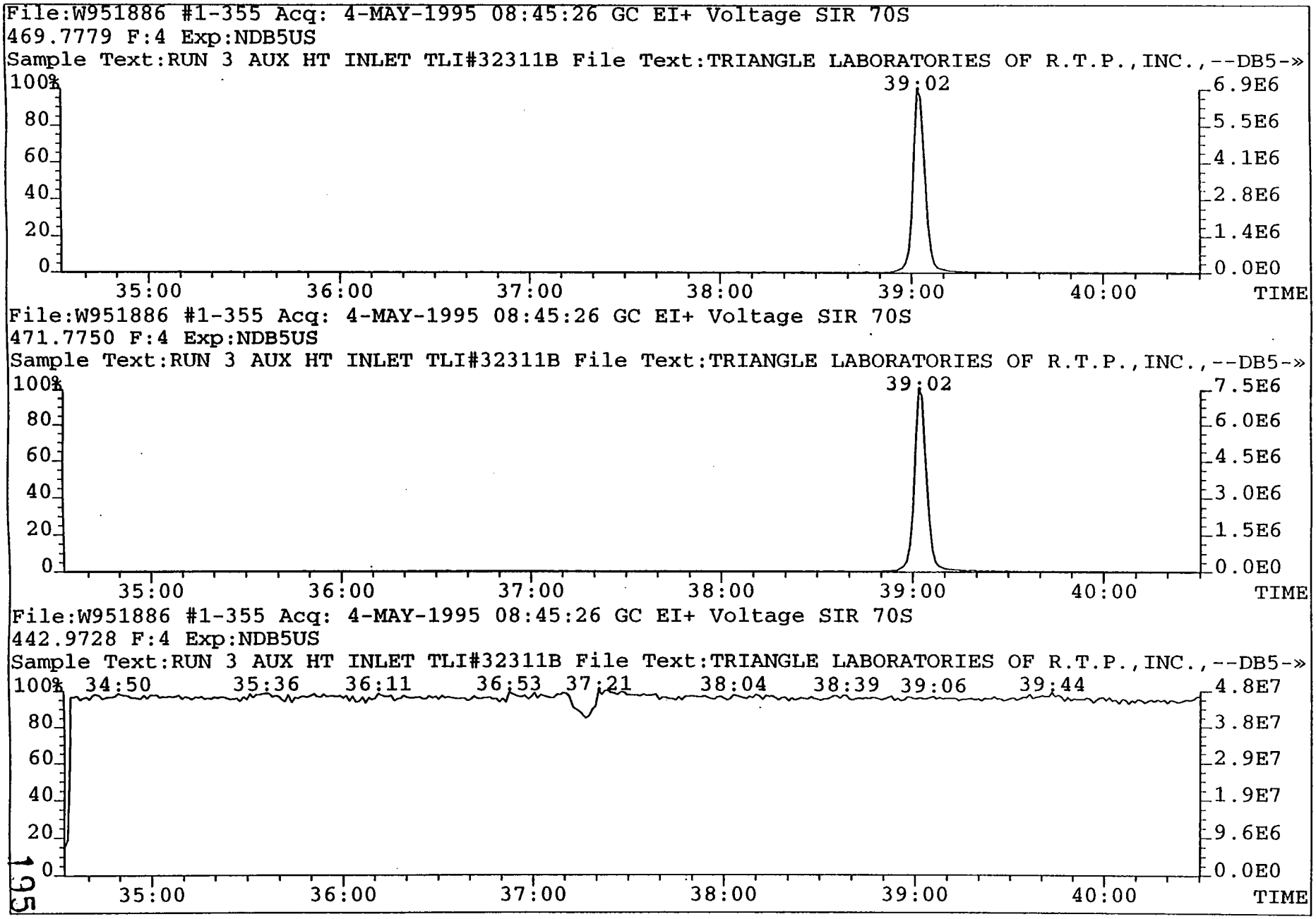
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--




File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
441.7428 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.64E7
TIME
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
443.7399 F:4 PKD(7,2,3,0.10%,10000.0,0.00%,F,F) Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
A1.88E7
TIME
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:50
35:36
36:11
36:53
37:21
38:04
38:39
39:06
39:44
TIME
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
513.6775 F:4 Exp:NDB5US
Sample#1 Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5--
34:44
35:10
35:34
36:04
36:18
36:41
37:09
37:33
37:52
38:27
38:55
39:07
39:25
39:57
40:09
40:20
TIME


Peak Display
PPM 200
Fn: 2
Volts
W951886
4-MAY-1995
330.97925
331.01235


File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
373.8208 F:3 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5-»
100%
80
60
40
20
0
A2.30E6
3.4E6
2.7E6
2.1E6
1.4E6
6.8E5
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
375.8178 F:3 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5-»
100%
80
60
40
20
0
A1.67E6
2.7E6
2.2E6
1.6E6
1.1E6
5.4E5
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME
File:W951886 #1-328 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
383.8639 F:3 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5-»
100%
33:43
80
60
40
20
0
8.3E6
6.6E6
5.0E6
3.3E6
1.7E6
0.0E0
33:18
33:24
33:30
33:36
33:42
33:48
33:54
34:00
34:06
TIME


File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
469.7779 F:4 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5->
100%
80
60
40
20
0
39:02
6.9E6
5.5E6
4.1E6
2.8E6
1.4E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
471.7750 F:4 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5->
100%
80
60
40
20
0
39:02
7.5E6
6.0E6
4.5E6
3.0E6
1.5E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME
File:W951886 #1-355 Acq: 4-MAY-1995 08:45:26 GC EI+ Voltage SIR 70S
442.9728 F:4 Exp:NDB5US
Sample Text:RUN 3 AUX HT INLET TLI#32311B File Text:TRIANGLE LABORATORIES OF R.T.P.,INC.,--DB5->
100%
34:50
35:36
36:11
36:53
37:21
38:04
38:39
39:06
39:44
80
60
40
20
0
4.8E7
3.8E7
2.9E7
1.9E7
9.6E6
0.0E0
35:00
36:00
37:00
38:00
39:00
40:00
TIME

TL-RTP Project: **32311B** Method 23 TCDD/TCDF Analysis (DB-225)
Client Sample: **RUN 3 AUX HT INLET 4-7-95** Analysis File: **P951845**

Client Project:	95-1253				
Sample Matrix:	M23TRAIN	Date Received:	04/14/95	Spike File:	SPC2NF04
TLRTP ID:	98-238-3A-D	Date Extracted:	04/20/95	ICAL:	PF2N144
		Date Analyzed:	05/02/95	CONCAL:	P951834
Sample Size:	1.000	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	P951842	% Lipid:	n/a
GC Column:	DB-225	Analyst:	PR	% Solids:	n/a

Analytes	Amt. (ng)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDF	1.3			0.75	22:02	___

Internal Standard	Amt. (ng)	% Recovery	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	3.8	95.9	0.77	22:02	___

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	20:58	___

Data Reviewer: _____ 05/06/95

C2NF_PSR v:1.10, LARS 5.14.12

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

Printed: 15:06 05/06/95

	Initial	....Date...	
B-File/Header Changes	KV	5/6/95	Calculated Noise Area:
Manual Integrations		___/___/___	Channel:
Transcription		___/___/___	Initials:
dBASE Corrections	N	___/___/___	Date:

Page No. 1 Listing of P951845B.dbf
05/02/95 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
TCDF									17:09-24:06	
304-306	DN	0.20	16:17	15.36	F	F	0.739	WL		
	DC	0.56	16:40	133.41	F	F	0.756	WL		
		0.79	17:25	10,970.17	T	F	0.790			
		2.74	17:37	40.00	F	F	0.800	FR		
		0.54	17:42	144.85	F	F	0.803	FR		
		0.94	17:52	472.24	F	F	0.811	FR		
		0.71	17:58	107.27	T	F	0.815			
		0.70	18:05	513.74	T	F	0.821			
		0.16	18:19	57.10	F	F	0.831	FR		
		0.75	18:27	5,217.55	T	F	0.837			
		0.73	18:33	6,980.03	T	F	0.842			
		0.75	18:40	19,391.61	T	F	0.847			
		0.73	18:51	9,268.43	T	F	0.856			
		0.78	18:57	1,094.66	T	F	0.860			
		0.74	19:07	11,420.59	T	F	0.868			
		0.75	19:18	24,958.58	T	F	0.876			
		0.75	19:26	14,887.48	T	F	0.882			
		0.75	19:37	42,267.01	T	F	0.890			
		0.74	19:48	16,031.84	T	F	0.899			
		0.75	20:10	80,481.42	T	F	0.915			
		1.06	20:28	133.24	F	F	0.929	FR		
		0.75	20:37	26,386.90	T	F	0.936			
		0.75	20:55	23,993.06	T	F	0.949			
		0.75	21:06	22,300.55	T	F	0.958			
		0.77	21:19	4,232.91	T	F	0.967			
		0.74	21:30	33,912.67	T	F	0.976			
		1.10	21:44	166.44	F	F	0.986	FR		
		0.74	21:54	22,167.75	T	F	0.994			
		0.75	22:02	18,373.26	T	T	1.000		2378-TCDF	AN
		0.75	22:14	22,822.40	T	F	1.009			
		0.75	22:29	31,179.05	T	F	1.020			
		0.74	22:37	28,179.79	T	F	1.026			
		0.84	22:47	224.33	T	F	1.034			
		1.18	22:55	79.88	F	F	1.040	FR		
		0.75	23:18	22,775.55	T	F	1.057			
		0.78	23:33	78.89	T	F	1.069			
		0.74	23:57	2,306.81	T	F	1.087			
	DC	0.78	24:10	159.87	T	F	1.097	WH		

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.62	24:29	58.49	F	F	1.111	WH		
	DC	0.70	24:52	120.59	T	F	1.129	WH		
	DC	0.74	25:22	273.22	T	F	1.151	WH		
	DC	0.91	25:37	67.04	F	F	1.163	WH		
	DC	1.43	25:47	118.37	F	F	1.170	WH		
304-306		Peaks	35	503,618.05	*** Total ***					
13C12-TCDF									21:51-22:11	
316-318	DC	0.63	17:42	60.17	F	F	0.803	WL		
	DC	0.98	20:09	49.87	F	F	0.915	WL		
	DC	0.84	20:36	242.54	T	F	0.935	WL		
	DC	0.87	20:54	395.29	T	F	0.949	WL		
		0.77	22:02	57,945.94	T	T	1.000		13C12-2378-TCDF	IS0
	DC	0.85	22:14	232.94	T	F	1.009	WH		
	DC	0.76	22:36	550.02	T	F	1.026	WH		
	DC	0.87	24:01	533.70	T	F	1.090	WH		
316-318		Peaks	1	57,945.94	*** Total ***					
TCDD									18:04-23:28	
320-322		0.79	18:19	11,705.28	T	F	0.884			
		0.81	18:52	6,140.64	T	F	0.911			
		0.78	19:35	3,342.31	T	F	0.945			
		0.78	19:46	2,353.20	T	F	0.954			
		0.82	19:58	3,351.92	T	F	0.964			
		0.82	20:21	2,215.85	T	F	0.982			
		0.84	20:33	543.48	T	F	0.992			
		0.79	20:45	2,558.13	T	T	1.002		2378-TCDD	AN
		0.80	20:54	1,757.80	T	F	1.009			
		0.83	21:00	5,807.01	T	F	1.014			
		0.73	21:08	967.43	T	F	1.020			
		0.83	21:21	193.56	T	F	1.031			
		0.79	21:43	1,364.20	T	F	1.048			
		0.87	21:51	1,108.60	T	F	1.055			
		0.71	21:56	707.48	T	F	1.059			
		0.86	21:59	51.60	T	F	1.061			
		0.73	22:25	414.68	T	F	1.082			
		0.71	22:58	368.58	T	F	1.109			
		0.81	23:19	490.01	T	F	1.126			
	DN	0.48	23:27	18.06	F	F	1.132	SN		
	DC	0.75	23:33	268.24	T	F	1.137	WH		
	DC	0.88	23:49	30.36	T	F	1.150	WH		
	DC	0.47	24:00	102.68	F	F	1.158	WH		
	DC	0.29	24:04	27.33	F	F	1.162	WH		
	DC	0.31	24:11	40.93	F	F	1.167	WH		
	DC	0.48	24:26	44.79	F	F	1.179	WH		
	DC	1.17	24:28	33.74	F	F	1.181	WH		
	DC	0.63	24:47	35.32	F	F	1.196	WH		
	DC	0.44	24:53	43.39	F	F	1.201	WH		
	DC	0.74	25:11	65.92	T	F	1.216	WH		
	DC	0.80	25:20	74.06	T	F	1.223	WH		
	DN	2.10	25:34	23.43	F	F	1.234	WH		
	DC	0.51	25:34	63.98	F	F	1.234	WH		

Compound/ M_Z....	Omit	Ratio	..RT.	Total.Peak.Area..	Match Rat	Match RT.	Rel.RT	Who/ Why	Identification..	ID Code
	DC	0.67	25:42	24.14	T	F	1.241	SN		
	DC	0.68	25:42	24.01	T	F	1.241	SN		
	DC	0.36	25:57	32.46	F	F	1.253	WH		
320-322		Peaks	19	45,441.76	*** Total ***					
37Cl-TCDD									18:04-23:28	
328	DC	0.00	15:28	58.58	T	F	0.738	WL		
	DC	0.00	15:49	85.71	T	F	0.754	WL		
	DC	0.00	15:54	101.95	T	F	0.758	WL		
	DC	0.00	16:45	177.34	T	F	0.799	WL		
	DC	0.00	17:11	299.78	T	F	0.820	WL		
	DC	0.00	17:21	309.56	T	F	0.828	WL		
	DC	0.00	17:46	609.29	T	F	0.847	WL		
	DC	0.00	18:00	82.50	T	F	0.859	WL		
		0.00	18:20	247.43	T	F	0.874			
		0.00	18:34	323.60	T	F	0.886			
		0.00	18:44	221.25	T	F	0.894			
		0.00	18:52	27.40	T	F	0.900			
		0.00	19:02	570.14	T	F	0.908			
		0.00	19:21	370.76	T	F	0.923			
		0.00	19:31	132.74	T	F	0.931			
		0.00	20:35	996.49	T	F	0.982			
		0.00	20:45	33,638.78	T	T	0.990		37Cl-TCDD	SUR1
		0.00	21:00	407.04	T	F	1.002			
		0.00	22:50	8,573.40	T	F	1.089			
		0.00	23:18	36.75	T	F	1.111			
	DC	0.00	25:13	73.29	T	F	1.203	WH		
328		Peaks	12	45,545.78	*** Total ***					
13C12-TCDD									20:32-21:06	
332-334	DC	0.70	19:33	140.57	T	F	0.944	WL		
		0.81	20:43	35,369.29	T	T	1.000		13C12-2378-TCDD	IS1
		0.82	20:58	32,318.44	T	T	1.012		13C12-1234-TCDD	RS1
	DC	0.82	21:42	476.86	T	F	1.047	WH		
	DC	0.97	25:11	205.11	F	F	1.216	WH		

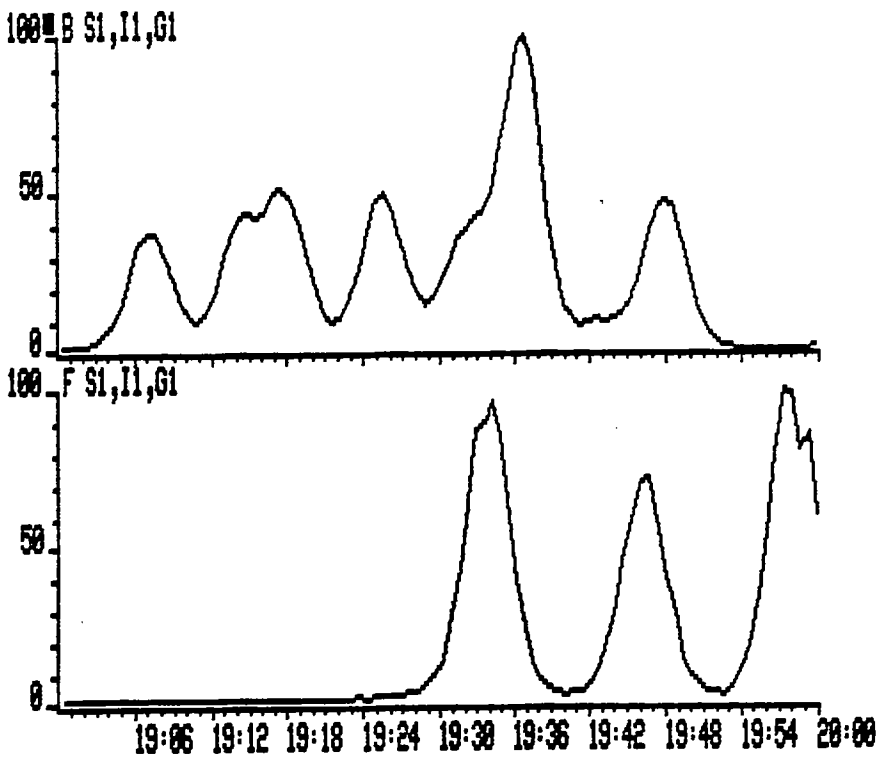
Column...	Description.....
M_Z	- Nominal Ion Mass(es)
RT.	- Retention Time
Match Rat	- Ratio Match True/False
Match RT	- Time Match True/False
Rel RT	- Relative Retention Time

"Why" Code Description

WL - Below Retention Time Window
WH - Above Retention Time Window
SN - Below Signal to Noise Level
<M - Below Method Detection Limit
FR - Calc based on theoretical ratio

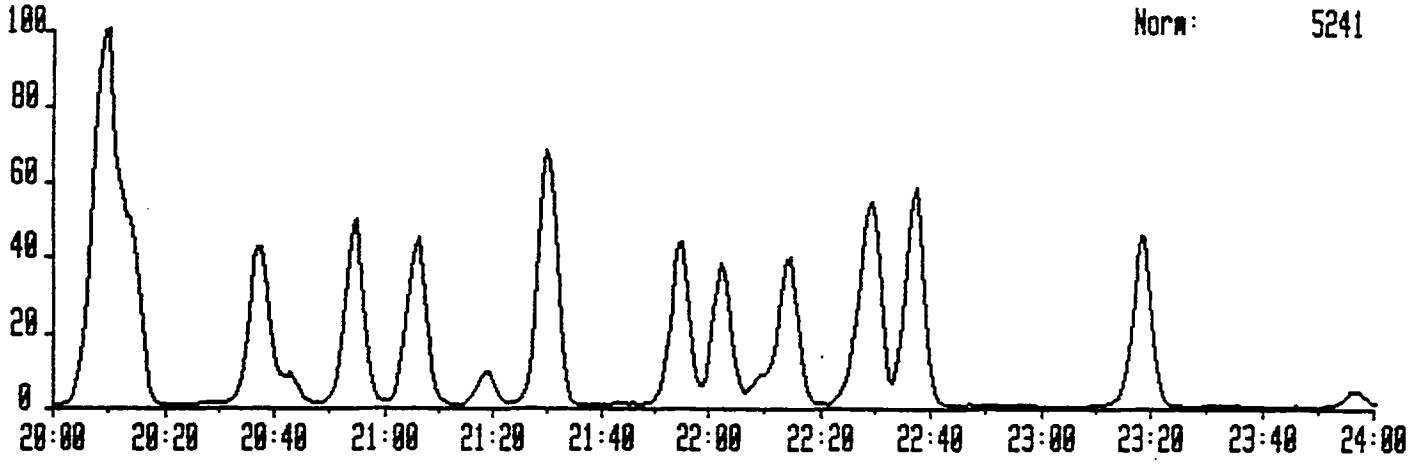
*** End of Report ***

P951845 2-MAY-95 18:12 70-SE (EI+) Sys:DB225
GR 1 D: 315.9419 E: 317.9389 F: 319.8965 G: 321.8936 H: 327.8847
Text:RUN 3 AUX HT INLET TLI#32311B

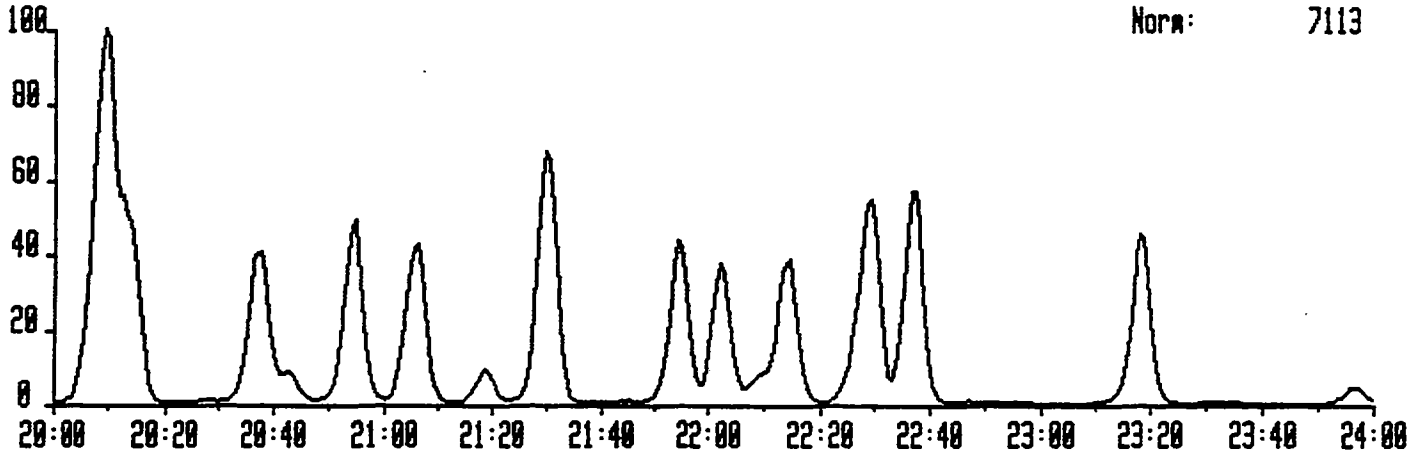


N=10.0
PR
512.195

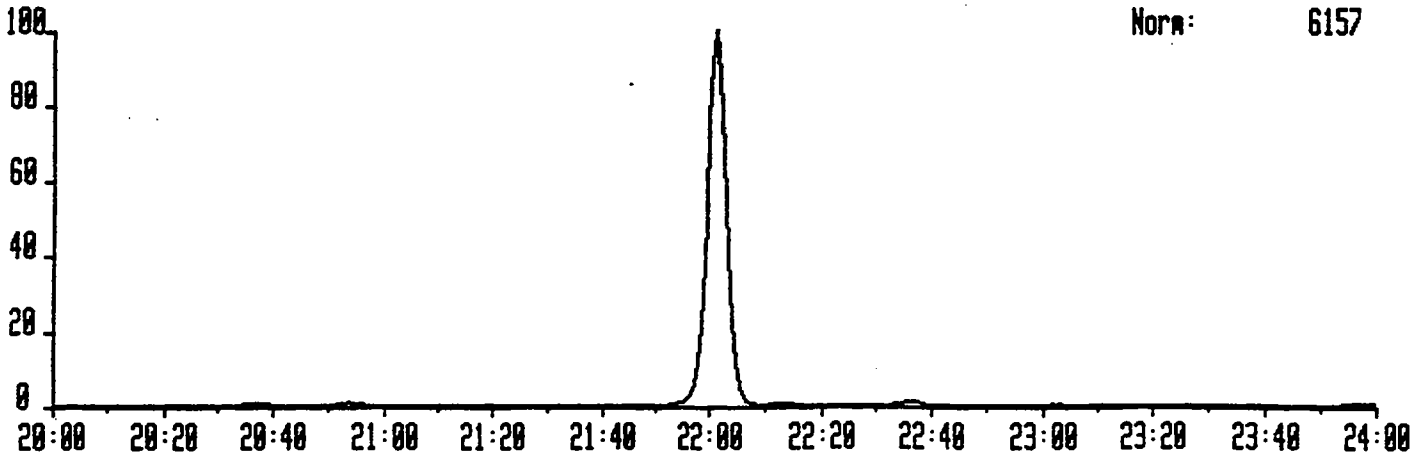
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9016
Text:RUN 3 AUX HT INLET TLI#32311B



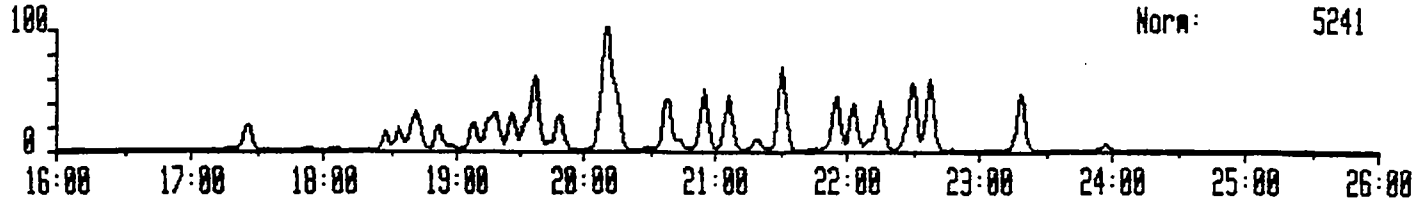
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:RUN 3 AUX HT INLET TLI#32311B



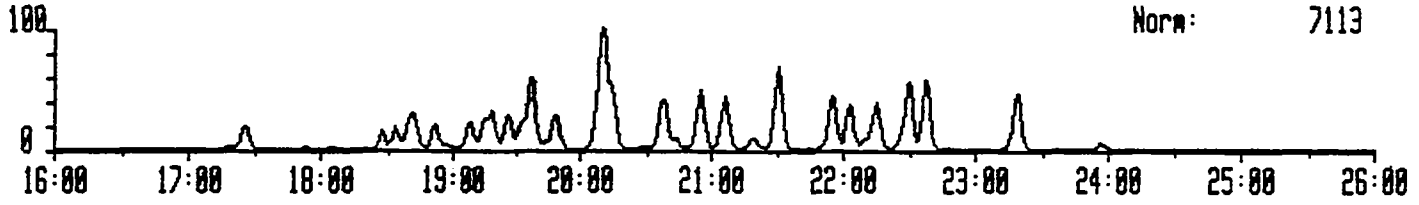
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:RUN 3 AUX HT INLET TLI#32311B



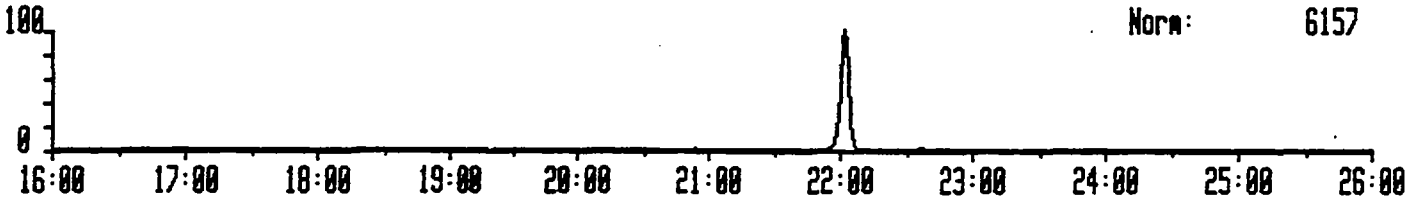
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 303.9816
Text:RUN 3 AUX HT INLET TLI#323118



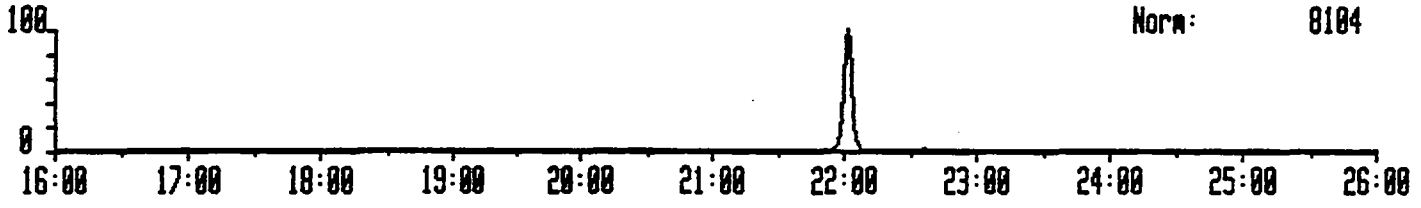
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 305.8987
Text:RUN 3 AUX HT INLET TLI#323118



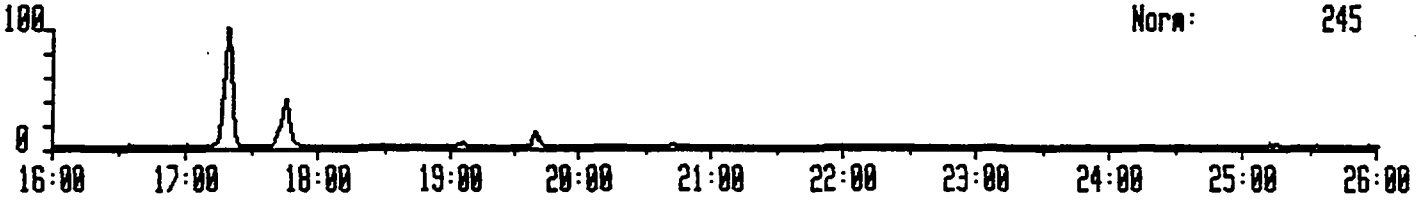
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 315.9419
Text:RUN 3 AUX HT INLET TLI#323118



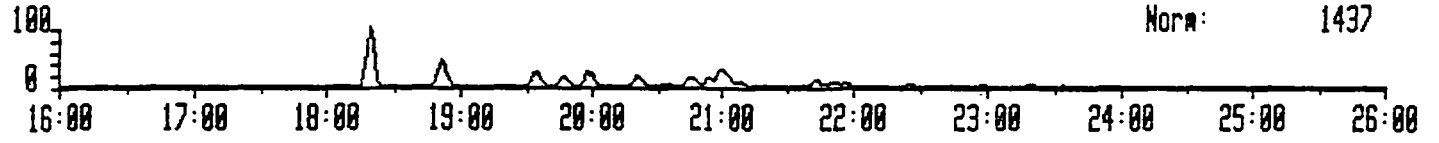
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 317.9389
Text:RUN 3 AUX HT INLET TLI#323118



P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 375.8364
Text:RUN 3 AUX HT INLET TLI#323118

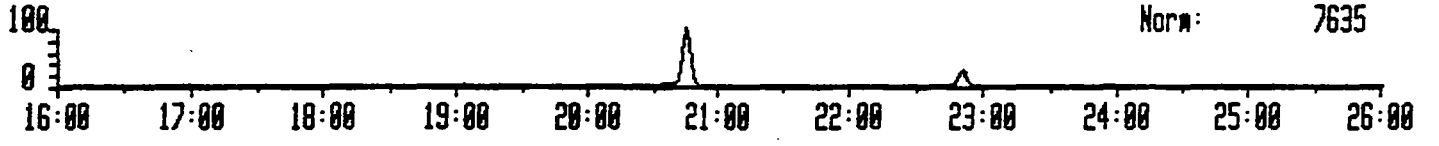


P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:RUN 3 AUX HT INLET TLI#32311B

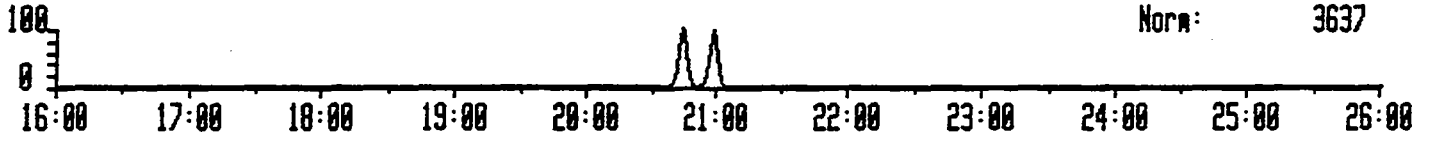


P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:RUN 3 AUX HT INLET TLI#32311B

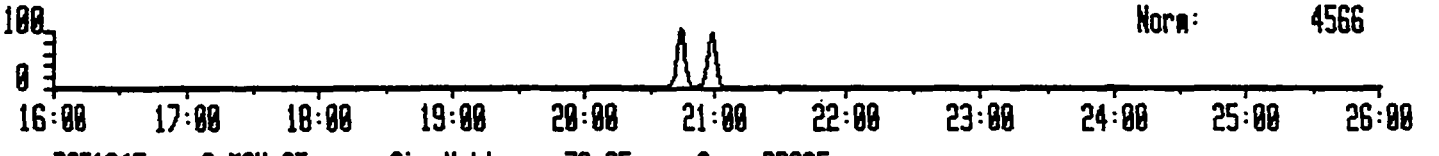
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:RUN 3 AUX HT INLET TLI#32311B



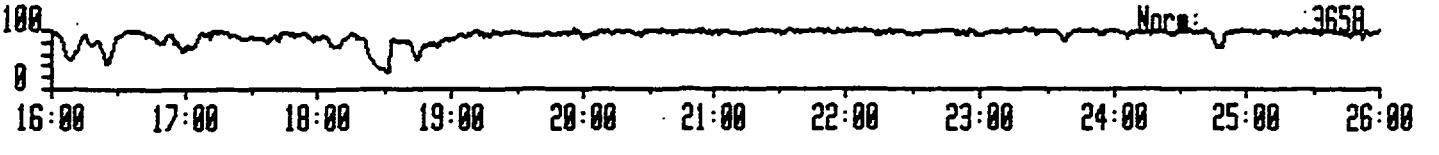
P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:RUN 3 AUX HT INLET TLI#32311B

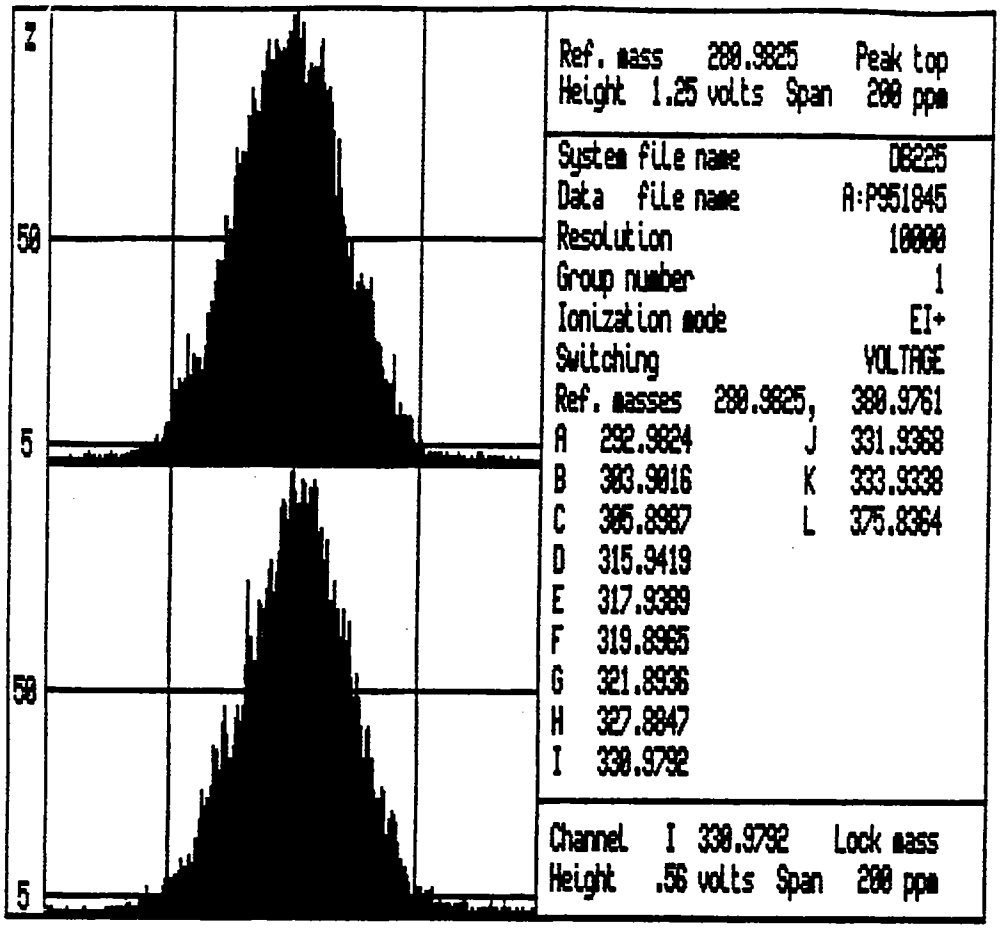


P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:RUN 3 AUX HT INLET TLI#32311B



P951845 2-MAY-95 Sir:Voltage 70-SE Sys: DB225
Sample 1 Injection 1 Group 1 Mass 292.9824
Text:RUN 3 AUX HT INLET TLI#32311B




Z
50
5
50
5
Ref. mass 280.9825 Peak top
Height 1.25 volts Span 200 ppm
System file name D8225
Data file name A:P951845
Resolution 10000
Group number 1
Ionization mode EI+
Switching VOLTAGE
Ref. masses 280.9825, 380.9761
A 292.9824
B 303.9816
C 305.8987
D 315.9419
E 317.9389
F 319.8965
G 321.8936
H 327.8847
I 330.9792
J 331.9368
K 333.9338
L 375.8364
Channel I 330.9792 Lock mass
Height .56 volts Span 200 ppm

APPENDIX H
SECTION 5 - FIELD DATA SHEETS

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

Method 26

Field Data Cover Sheet

Facility Dabosk	Probe Length 5'p
Date 4/6/95	Probe ID# 525
Source Name Aux Boiler Heater	Pitot Correction Factor .84
Sampling Location	Nozzle Diameter .1360
Operator FH	Assumed Moisture 2
Ambient Temperature 60	Meter Box ID # MB13
Barometric Pressure 29.89	Meter ^H 1.13
Static Pressure -6.0	Meter Yc Factor .994
Heater Box Setting 248	Sample Train ID# 18
Probe Setting 248	Thermocouple ID# 1,6,8
Test Method ~~26~~ 23	Cyclonic Flow Check ✓

Traverse Point Locations

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

Upstream Distance	<2
Downstream Distance	<8
Stack Dimensions	36"
Nozzle Calibration	Diameter 1 .1360 Diameter 2 .1360 Diameter 3 .1360

Sampling Location Diagram

Test Team Members _____

EEI Team Leader _____

Facility Contact _____

EPA Representative _____

Notes:

Facility Wabash Alloys Date 4/16/95 Run # 1 Case # 49 Location Auxiliary Heater Page 1 of 4

Point Number 12:18	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure "p ("H2O)	sqrt "p	Orifice Pressure ("H2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Imp. Temp (°F)	Cond Temp (°F)
1	0	490.0	5.5	2.35	1.0	260	60	65	2.0	240	241	61	60
2	10	495.9	5.0	2.24	.91	264	72	78	2.0	241	247	61	60
3	20	501.5	4.8	2.19	.874	263	72	79	2.0	243	240	60	60
4	30	507.1	1.9	1.38	.35	249	74	79	2.0	240	243	60	60
5	40	511.2	1.5	1.22	.273	251	75	77	2.0	242	248	60	58
6	50	514.4	1.5	1.22	.273	262	76	77	2.0	243	249	60	59
1	60	517.4	1.7	1.30	.309	267	77	78	2.0	251	242	60	59
2	70	521.5	1.6	1.26	.291	270	78	78	2.0	248	240	60	59
3	80	524.4	1.9	1.38	.346	253	79	78	2.0	240	243	60	59
4	90	528.4	1.8	1.34	.328	249	80	78	2.0	236	244	61	59
5	100	532.3	1.7	1.3	.309	238	82	79	2.0	243	246	61	59
6	110	536.4	1.7	1.3	.309	306	82	79	2.0	244	241	61	59
	120	539.81											
				METHOD	26								
		49.81		1.54	.464	261.00		76.58					

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 10 "Hg

Pilot Tube Leak Checks
Pre-Test 0 @ 4 "H2O 0 @ 5 "H2O
Post-Test 0 @ 4.4 "H2O 0 @ 4.0 "H2O

Method 26

Facility Wabash Alloys Date 4/6/95 Run # 2 Case # Location Auxiliary Heater Page 2 of

Point Number 17:15	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure "p ("H_2O)	sqrt "p	Orifice Pressure ("H_2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Imp. Temp (°F)	Cond Temp (°F)
1	0	591.10	1.5	1.22	.255	264	90	82	1.0	249	250	63	58
2	10	~~602.7~~ 592.7	1.7	1.30	.289	265	94	83	1.0	250	248	63	59
3	20	567.3	1.7	1.30	.289	272	96	84	1.0	255	259	63	59
4	30	571.8	1.6	1.26	.272	247	98	85	1.0	261	243	63	59
5	40	574.2	1.6	1.26	.272	355	99	86	1.0	260	249	63	59
6	50	578.1	1.8	1.34	.306	409	99	86	1.0	260	249	62	58
1	60	581.9	1.8	1.34	.306	421	99	87	1.0	263	246	63	58
2	70	585.4	1.8	1.34	.306	420	99	89	1.0	260	241	64	59
3	80	588.9	1.7	1.30	.289	419	101	90	1.0	263	253	64	59
4	90	592.7	1.7	1.30	.289	423	102	91	1.0	256	249	64	59
5	100	596.0	1.6	1.26	.272	433	103	92	1.0	248	253	65	59
6	110	598.9	1.8	1.34	.306	463	100	93	1.0	249	254	65	59
	120	602.85											
9:42													
		4.125		1.30	.287	365.94		92.83					

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 8 "Hg

Pilot Tube Leak Checks

Pre-Test ○ @3.1"H20 ○ @3.1"H20
Post-Test ○ @3.5"H20 ○ @3.5"H20

Method 26

Facility Wabash Alloys Date 4/7/95 Run # 3 Case # 1 Location Auxiliary Heater Page 4 of 4

Point Number 08:18	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure "p ("H_2O)	sqrt "p	Orifice Pressure ("H_2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Imp. Temp (°F)	Cond Temp (°F)
1	6	885.6	1.4	1.18	.238	407	75	68	1.0	251	248	60	54
2	10	888.8	2.1	1.45	.357	446	75	69	1.0	243	248	60	56
3	26	892.3	2.1	1.45	.357	443	76	70	1.0	244	247	60	57
4	30	895.9	2.0	1.41	.34	444	77	71	1.0	246	247	60	57
5	40	899.5	2.0	1.41	.34	439	76	72	1.0	246	249	60	57
6	50	903.2	2.1	1.45	.36	438	77	73	1.0	249	246	61	58
1	60	907.1	2.2	1.48	.374	436	78	74	1.0	252	249	61	59
2	70	910.9	2.2	1.48	.374	437	79	74	1.0	253	252	61	59
3	80	914.8	2.0	1.41	.34	430	80	75	1.0	256	254	61	59
4	90	918.4	2.2	1.48	.374	441	82	76	1.0	257	250	61	60
5	100	922.7	2.2	1.48	.374	441	83	76	1.0	254	242	61	60
6	110	926.3	2.0	1.41	.34	448	84	76	1.0	256	249	61	59
/	120	930.28											
11:18													
		44.68		1.42	.347	437.17	75.67						

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 15 "Hg

Pilot Tube Leak Checks

Pre-Test @3.8"H20 @3.9"H20
Post-Test @3.1"H20 @3.6"H20

Field Data Cover Sheet

Facility Wabash	Probe Length 5'p
Date 4/6/95	Probe ID# 516
Source Name Auxiliary Heater	Pitot Correction Factor .84
Sampling Location	Nozzle Diameter .139 G
Operator FH	Assumed Moisture 2
Ambient Temperature 60	Meter Box ID # MBK
Barometric Pressure 29.89	Meter ^H 1.41
Static Pressure -6.0	Meter Yc Factor .998
Heater Box Setting 248	Sample Train ID#
Probe Setting 248	Thermocouple ID#
Test Method 29	Cyclonic Flow Check

Traverse Point Locations

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

Upstream Distance	27
Downstream Distance	28
Stack Dimensions	36"
Nozzle Calibration	Diameter 1 .139 Diameter 2 .139 Diameter 3 .139

Sampling Location Diagram

Test Team Members

EEI Team Leader

Facility Contact

EPA Representative

Notes:

Method 29

Facility Wabash Alloys Date 4/6/95 Run # 1 Case # 87 Location Auxiliary Heater Page 1 of 4

Point Number 12:18	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure ^p ("H_2O)	sqrt ^p	Orifice Pressure ("H_2O)	Stack Temp. (°F)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Impinger Temp (°F)
1	0	~~402.1~~ ~~403.8~~	~~5.0~~	2.24	~~1.0~~	267	101	91	4.0	237	254	60
2	10	407.4	5.2	2.28	.90	259	88	86	4.0	242	261	57
3	20	415.3	5.0	2.24	1.0	264	89	87	4.0	245	260	56
4	30	422.4	1.8	1.34	.32	254	89	88	1.0	246	259	54
5	40	426.0	1.8	1.34	.32	260	89	88	1.0	246	262	54
6	50	430.4	1.5	1.22	.273	262	89	88	1.0	253	260	54
1	60	433.3	1.7	1.30	.309	267	88	88	1.0	250	248	55
2	70	436.9	1.8	1.34	.328	268	89	88	1.5	248	249	56
3	80	440.9	1.9	1.38	.346	254	90	88	1.5	240	251	57
4	90	444.9	1.9	1.38	.346	246	91	89	1.5	243	250	58
5	100	448.9	1.7	1.30	.309	240	92	90	1.0	240	255	57
6	110	452.8	1.7	1.30	.309	315	93	90	1.0	246	259	58
	120	456.21										
			Method 29									
		52.41		1.55	.480	263.1		89.5				

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 15 "Hg

Pilot Tube Leak Checks

Pre-Test 0 @3.1 "H20 0 @3.6 "H20
Post-Test 0 @4.6 "H20 0 @4.9 "H20

Method 29

Facility Wabash Alloys Date 4/6/95 Run # 2 Case # Location Auxiliary Heater Page of

Point Number 17:15	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure ΔP ("H2O)	sqrt ΔP	Orifice Pressure ("H2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Impinger Temp (°F)
1	0	494.4	1.5	1.22	.255	260	92	88	1.0	249	254	60
2	10	497.8	1.8	1.34	.306	264	93	89	1.0	249	256	60
3	20	501.4	1.5	1.22	.255	272	95	89	1.0	246	250	60
4	30	504.2	1.6	1.26	.272	274	96	90	1.0	243	240	60
Stop 4 5	40	508.6	1.5	1.22	.255	356	95	90	1.0	242	249	60
6	50	512.5	1.8	1.34	.306	409	96	91	1.0	243	246	60
1	60	516.4	1.8	1.34	.306	423	98	92	1.0	244	243	60
2	70	520.2	1.7	1.30	.309	420	99	93	1.0	246	241	59
3	80	524.0	1.7	1.30	.309	419	100	94	1.0	246	243	59
4	90	527.7	1.9	1.34	.306	428	103	95	1.0	249	247	59
5	100	531.4	1.7	1.30	.309	433	105	96	1.0	257	249	59
6	110	534.8	1.7	1.30	.303	419	104	97	1.0	258	250	59
	120	539.86										
19:42												
		45.46		1.290	.291	364.92	95.00					

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 16 "Hg

Pilot Tube Leak Checks

Pre-Test 0 @3.8"H20 0 @3.0"H20
Post-Test 0 @3.0"H20 0 @3.0"H20

Method 29

Facility Wabash Alloys Date 4/7/95 Run # 3 Case # 80 Location Auxiliary Heater Page 4 of 4

Point Number 08:18	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure Δp ("H_2O)	sqrt Δp	Orifice Pressure ("H_2O)	Stack Temp (°F)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Impinger Temp (°F)
1	0	708.70	1.5	1.22	.263	403	77	76	1.0	237	243	56
2	10	711.60	2.2	1.48	.374	445	78	76	1.0	240	249	54
3	20	715.5	2.2	1.48	.374	442	79	76	1.0	249	240	55
4	30	719.2	2.0	1.41	.364	447	79	76	1.0	253	241	55
5	40	722.9	2.0	1.41	.364	439	80	77	1.0	250	242	55
6	50	726.8	2.1	1.45	.357	439	81	77	1.0	252	243	56
1	60	730.5	2.1	1.45	.357	436	82	77	1.0	250	244	57
2	70	734.3	2.1	1.45	.357	438	82	78	1.0	250	249	56
3	80	737.9	2.0	1.41	.364	443	84	79	1.0	256	248	59
4	90	741.9	2.0	1.41	.364	444	85	80	1.0	257	249	59
5	100	745.9	2.0	1.41	.364	441	86	81	1.0	250	253	59
6	110	749.60	2.1	1.45	.357	443	87	81	1.0	253	256	59
	120	753.43										
11:10												
				1.419	.							
		45.23		1.188	.356	438.33	79.75					

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg Post-Test 0 CFM@ 7 "Hg

Pilot Tube Leak Checks Pre-Test 0 @3.2 "H2O 0 @4.9 "H2O Post-Test 0 @4.1 "H2O 0 @3.6 "H2O

Method 23
Field Data Cover Sheet

Facility Wabash	Probe Length 5'
Date 4/6/95	Probe ID# 514
Source Name Aux. Boiler Heater	Pitot Correction Factor .84
Sampling Location	Nozzle Diameter .136 g
Operator FH	Assumed Moisture 2
Ambient Temperature 60°	Meter Box ID # MBH
Barometric Pressure 29.89	Meter ^H 1.7
Static Pressure -6.0	Meter Yc Factor .995
Heater Box Setting 248	Sample Train ID#
Probe Setting 248	Thermocouple ID#
Test Method 23	Cyclonic Flow Check ✓

Traverse Point Locations

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

Upstream Distance	<2
Downstream Distance	28
Stack Dimensions	36"
Nozzle Calibration	Diameter 1 .136 Diameter 2 .136 Diameter 3 .136

Sampling Location Diagram

Test Team Members

EEI Team Leader

Facility Contact

EPA Representative

Notes:

Method 23

Facility Wabash Alloys Date 4/6/95 Run # 1 Case # 10 Location Auxiliary Heater Page 1 of 4

Point Number 12:18	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure ΔP ("H2O)	sqrt ΔP	Orifice Pressure ("H2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Impinger Temp (°F)
1	0	561.6	5.2	2.28	1.2	264	100	66	4.0	237	249	68
2	10	569.4	5.0	2.23	1.13	263	96	85	3.5	240	248	60
3	20	575.5	5.1	2.26	1.17	266	99	84	3.5	244	249	60
4	30	583.0	2.0	1.41	.146	254	95	85	1.0	250	248	60
5	40	586.9	2.1	1.45	.48	251	96	86	2.0	248	251	60
6	50	591.5	1.6	1.26	.368	256	96	88	1.0	252	251	60
1	60	595.3	1.7	1.30	.391	266	97	89	1.5	250	246	61
2	70	599.4	1.8	1.34	.1414	268	99	89	2.0	246	251	60
3	80	603.8	1.9	1.38	.1437	256	100	90	2.0	245	246	60
4	90	608.1	1.9	1.38	.1437	248	101	91	2.0	248	242	60
5	100	612.5	1.7	1.30	.391	240	102	91	2.0	251	243	61
6	110	616.4	1.7	1.30	.391	304	103	92	2.0	253	244	61
	120	619.96										
		58.36										
		58.36		1.574	.1600	261.3		92.5				

Leak Checks Pre-Test 0 CFM @ 15 "Hg
Post-Test 0 CFM @ 5 "Hg

Pilot Tube Leak Checks
Pre-Test 0 @ 5.1 "H2O 0 @ 6.3 "H2O
Post-Test 0 @ 5.0 "H2O 0 @ 5.9 "H2O

Method 23

Facility Wabash Alloys Date 4/6/95 Run # 2 Case # Location Auxiliary Heater Page 2 of

Point Number 17:15	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure "p ("H,O)	sqrt "p	Orifice Pressure ("H,O)	Stack Temp. (°F)	Gas Meter Temp Inlet (°F)	Gas Meter Temp Outlet (°F)	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Impinger Temp (°F)
1	0	599.61	1.5	1.22	.30	260	93	82	1.0	249	236	54
2	10	603.2	1.7	1.30	.34	265	94	85	1.0	254	242	55
3	20	606.31	1.8	1.34	.36	276	96	86	1.0	260	249	56
4	30	610.2	1.7	1.30	.34	246	98	87	1.0	253	245	57
5	40	613.9	1.5	1.22	.30	355	99	88	1.0	260	242	58
6	50	618.1	1.6	1.26	.32	409	99	88	1.0	255	236	58
1	60	621.6	1.8	~~1.34~~	.36	420	100	89	1.0	256	233	58
2	70	625.0	1.8	1.34	.36	419	101	89	1.0	254	236	58
3	80	628.1	1.8	1.34	.36	421	101	91	1.0	256	248	58
4	90	631.6	1.6	1.26	.32	423	102	93	1.0	255	250	58
5	100	635.2	1.7	1.30	.34	433	103	94	1.0	256	257	59
6	110	638.7	1.8	1.34	.36	418	100	95	1.0	254	250	59
	120	~~642.58~~										
19.47												
		42.97		1.30	.338	362.08		93.875				

stop min 47

Sample Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 2 "Hg

Pilot Tube Leak Checks Pre-Test 0 @3.8"H20 0 @3.2"H20
Post-Test 0 @4.0"H20 0 @4.0"H20

Method 23

Facility Wabash Alloys Date 4/7/95 Run # 3 Case # 10 Location Auxiliary Heater Page 4 of 4

Point Number	Sample Time (minutes)	Gas Meter Volume (cubic ft)	Velocity Head Pressure ΔP ("H2O)	sqrt ΔP	Orifice Pressure ("H2O)	Stack Temp. (°F)	Gas Meter Temp (°F) Inlet	Outlet	Pump Vacuum ("Hg)	Filter Holder Temp (°F)	Probe Temp (°F)	Imp. Temp (°F)	Cond Temp (°F)
08:18													
2 16:45	0	669.7	1.5	1.22	.30	408	90	84	1.0	259	250	60	58
2	10	673.0	2.2	1.48	.44	447	90	85	1.0	256	249	60	59
3	20	676.9	2.2	1.48	.44	442	93	86	1.0	257	249	61	59
4	30	681.1	2.2	1.48	.44	447	96	86	1.0	255	240	61	59
5	40	685.8	2.1	1.45	.42	439	97	87	1.0	245	242	62	59
6	50	689.1	2.1	1.45	.42	438	98	88	1.0	246	243	62	59
1	60	692.9	2.2	1.46	.44	445	99	87	1.0	253	244	62	59
2	70	696.9	2.2	1.48	.44	438	99	88	1.0	255	240	62	59
3	80	700.9	2.0	1.41	.40	431	100	89	1.0	256	242	63	59
4	90	704.9	2.2	1.48	.44	445	101	89	1.0	257	246	64	60
5	100	708.9	2.2	1.48	.44	442	102	91	1.0	249	249	64	66
6	110	713.2	2.2	1.48	.44	443	103	92	1.0	256	243	64	61
/	120	717.1											
11:10													
		47.59		1.448	.422	438.75		89.17					

Train Leak Checks Pre-Test 0 CFM@ 15 "Hg
Post-Test 0 CFM@ 2 "Hg

Pilot Tube Leak Checks
Pre-Test 0 @3.1"H2O 0 @3.1"H2O
Post-Test 0 @3.1"H2O 0 @3.9"H2O

.2

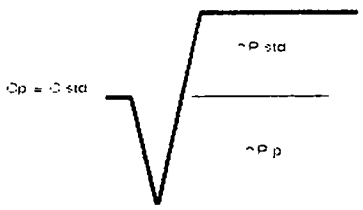
APPENDIX H
SECTION 6 - CALIBRATION SECTION

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

"S" TYPE PITOT TUBE CALIBRATION

"S" Type Pitot Tube (Probe) # SP 525 5 ft Probe

Calibration Date: March 26,1995



(EPA Eq. 2-2)

where:

Cp = Coefficient of "S" Type Pitot Tube

Cstd = Coefficient of Standard Pitot Tube (0.99), dimensionless

^Pstd = Velocity head measured by standard pitot tube, inches H20

^Pp = Velocity head measured by Type S pitot tube, inches water

	^Pstd	^Pp	Cp
Side A	0.30	0.42	0.837
Side B	0.30	0.42	0.837
Side A	0.59	0.82	0.840
Side B	0.59	0.82	0.840
Side A	0.91	1.26	0.841
Side B	0.91	1.26	0.841

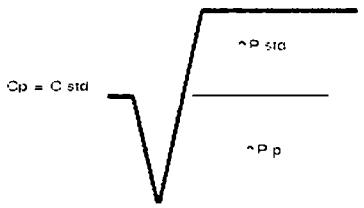
Average =	0.84

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

"S" TYPE PITOT TUBE CALIBRATION

"S" Type Pitot Tube (Probe) # SP 510 5 ft Probe

Calibration Date: March 26,1995



(EPA Eq. 2-2)

where:

Cp = Coefficient of "S" Type Pitot Tube

Cstd = Coefficient of Standard Pitot Tube (0.99), dimensionless

^Pstd = Velocity head measured by standard pitot tube, inches H20

^Pp = Velocity head measured by Type S pitot tube, inches water

	^Pstd	^Pp	Cp
Side A	0.20	0.28	0.837
Side B	0.20	0.28	0.837
Side A	0.41	0.57	0.840
Side B	0.41	0.57	0.840
Side A	0.93	1.29	0.841
Side B	0.93	1.29	0.841

Average =	0.84

Envisage Environmental Incorporated
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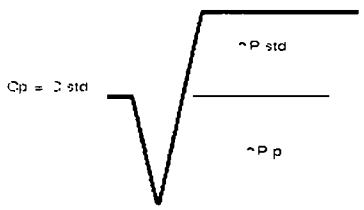
Phone (216) 526-0990

"S" TYPE PITOT TUBE CALIBRATION

"S" Type Pitot Tube (Probe) # SP 514 5 ft Probe

Calibration Date: March 26,1995



(EPA Eq. 2-2)

where:

Cp = Coefficient of "S" Type Pitot Tube

Cstd = Coefficient of Standard Pitot Tube (0.99), dimensionless

^Pstd = Velocity head measured by standard pitot tube, inches H20

^Pp = Velocity head measured by Type S pitot tube, inches water

	^Pstd	^Pp	Cp
Side A	0.25	0.35	0.837
Side B	0.25	0.35	0.837
Side A	0.51	0.71	0.839
Side B	0.51	0.71	0.839
Side A	0.88	1.21	0.844
Side B	0.88	1.21	0.844

Average =	0.84

Envisage Environmental Incorporated
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DRY GAS METER CALIBRATION

Post Test

Using Wet Test Meter

Meter Box Number	MB 1A		65	deg F, Ambient Temp.
Calibration Date		04/10/95	28.75	"Hg, Baro. Press.
Technician	Houchin			

Dry Gas Meter

Orifice Differential	*"H2O*	0.5	0.5	0.5
Meter Temperature	*deg F*	88.5	91.0	93.0
Volume	*cu ft*	5.250	5.300	5.380
Vacuum	*"Hg*	25.0	25.0	25.0

Wet Test Meter

Orifice Differential	*"H2O*	1.0	1.0	1.0
Volume	*cu ft*	5.002	5.064	5.087
Temperature	*deg F*	66.0	66.0	66.0
Time of Test	*minutes*	6.70	6.78	6.84

Totals

Delta H@	*.75 cfm*	0.50	0.50	0.50
Y Factor		0.992	1.000	0.993

Dry Gas Meter	MB 1A	
	Average Delta H@	0.50
	Average Y Factor	0.995

CALCULATIONS

$$Y = \frac{Vw * Pbar * (Tm)}{Vm * [\, Pbar + (\Delta H / 13.6)\,] * (Tw)}$$

$$\Delta H@ = \frac{.0317 * \Delta H * Tmo * min}{Pbar * (Tm) * Vw}$$

NOMENCLATURE

Orifice Differential	= ^H	Dry Gas Meter	= sub m
Temperature	= T	Wet Test Meter	= sub w
Volume	= cu ft	Barometric Pressure	= Pbar
Time of Test	= min		

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

DRY GAS METER CALIBRATION

Post Test

Using Wet Test Meter

Meter Box Number	MB 10		65	deg F, Ambient Temp.
Calibration Date		04/10/95	28.75	"Hg, Baro. Press.
Technician	Houchin			

Dry Gas Meter

Orifice Differential	*"H2O*	0.6	0.6	0.6
Meter Temperature	*deg F*	89.0	92.8	96.0
Volume	*cu ft*	5.650	5.680	5.700
Vacuum	*"Hg*	25.0	25.0	25.0

Wet Test Meter

Orifice Differential	*"H2O*	1.0	1.0	1.0
Volume	*cu ft*	5.403	5.397	5.409
Temperature	*deg F*	66.0	66.0	66.0
Time of Test	*minutes*	7.25	7.30	7.25

Totals

Delta H@	*.75 cfm*	0.60	0.61	0.59
Y Factor		0.997	0.997	1.002

Dry Gas Meter	MB 10	
	Average Delta H@	0.60
	Average Y Factor	0.998

CALCULATIONS

$$Y = \frac{Vw * Pbar * (Tm)}{Vm * [\, Pbar + (\wedge H / 13.6)\,] * (Tw)}$$

$$\wedge H@ = \frac{.0317 * \wedge H * Tmo * min}{Pbar * (Tm) * Vw}$$

NOMENCLATURE

Orifice Differential	= ^H	Dry Gas Meter	= sub m
Temperature	= T	Wet Test Meter	= sub w
Volume	= cu ft	Barometric Pressure	= Pbar
Time of Test	= min		

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DRY GAS METER CALIBRATION

Post Test

Using Wet Test Meter

Meter Box Number	MB 13		65	deg F, Ambient Temp.
Calibration Date		04/10/95	28.75	"Hg, Baro. Press.
Technician	Houchin			

Dry Gas Meter

Orifice Differential	*"H2O*	0.5	0.5	0.5
Meter Temperature	*deg F*	89.5	92.0	94.0
Volume	*cu ft*	5.670	5.675	5.700
Vacuum	*"Hg*	25.0	25.0	25.0

Wet Test Meter

Orifice Differential	*"H2O*	1.0	1.0	1.0
Volume	*cu ft*	5.391	5.402	5.387
Temperature	*deg F*	66.0	66.0	66.0
Time of Test	*minutes*	7.21	7.25	7.20

Totals

Delta H@	*.75 cfm*	0.50	0.50	0.50
Y Factor		0.992	0.998	0.994

Dry Gas Meter	MB 13	
	Average Delta H@	0.50
	Average Y Factor	0.995

CALCULATIONS

$$Y = \frac{Vw * Pbar * (Tm)}{Vm * [\, Pbar + (\wedge H / 13.6)\,] * (Tw)}$$

$$\wedge H@ = \frac{.0317 * \wedge H * Tmo * min}{Pbar * (Tm) * Vw}$$

NOMENCLATURE

Orifice Differential	= ^ H	Dry Gas Meter	= sub m
Temperature	= T	Wet Test Meter	= sub w
Volume	= cu ft	Barometric Pressure	= Pbar
Time of Test	= min		

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Thermocouple/ Thermometer Calibration

Calibration Date: 03/26/95
Technician: Krisak

ID	#	Low Reading	Reference	Medium Reading	Reference	High Reading	Reference	Average Deviation
TC	1	43	43	88	89	213	215	1.00
	2	43	42	89	90	212	214	1.33
	3	46	44	90	90	213	214	1.00
	4	45	44	94	93	213	213	0.67
	5	44	44	88	89	214	213	0.67
	6	43	44	92	92	214	213	0.67
	7	41	42	92	91	214	214	0.67
	8	40	42	91	91	213	215	1.33
	9	43	42	90	92	216	215	1.33
	10	44	44	91	91	217	216	0.33
	11	42	41	92	91	215	214	1.00
	12	42	43	91	91	214	214	0.33
	13	44	43	93	92	215	214	1.00
	14	42	43	94	93	213	215	1.33
	15	42	42	94	93	215	215	0.33
	16	41	42	92	93	215	216	1.00
	17	44	43	94	94	216	215	0.67
	18	44	44	93	92	215	214	0.67
	19	44	45	94	92	214	213	1.33
	20	43	44	94	94	212	212	0.33
	21	41	41	93	93	211	213	0.67

Envisage Environmental Incorporated
P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

610-691-2474
FAX# 610-758-8384

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER *STOCK TRANSFER CANTON* P.O NUMBER *37934*

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE 48.3 ppm GMIS VS	*1667B*	*CLM-004693*	*47.3 PPM*

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT *PROPANE 48.3 ppm GMIS VS* ANALYZER MAKE-MODEL-S/N *VARIAN 3300 FID 6570*

ANALYTICAL PRINCIPLE *GAS CHROMATOGRAPHY* LAST CALIBRATION DATE

FIRST ANALYSIS DATE *01/10/95* SECOND ANALYSIS DATE

Z	*0.0*	R	*490737*	C	*319327*	CONC.	*31.4*	Z	R	C	CONC.
R	*483697*	Z	*0.0*	C	*316213*	CONC.	*31.6*	R	Z	C	CONC.
Z	*0.0*	C	*314467*	R	*481403*	CONC.	*31.6*	Z	C	R	CONC.

U/M *ppm* MEAN TEST ASSAY *31.5* U/M *ppm* MEAN TEST ASSAY

2. COMPONENT ANALYZER MAKE-MODEL-S/N

ANALYTICAL PRINCIPLE LAST CALIBRATION DATE

FIRST ANALYSIS DATE SECOND ANALYSIS DATE

Z		R		C		CONC.		Z	R	C	CONC.
R		Z		C		CONC.		R	Z	C	CONC.
Z		C		R		CONC.		Z	C	R	CONC.

U/M MEAN TEST ASSAY U/M MEAN TEST ASSAY

THIS CYLINDER NO. *SA16377*
HAS BEEN CERTIFIED ACCORDING TO SECTION *EPA-600/R93/224*
OF TRACEABILITY PROTOCOL NO. *REV9/93*
PROCEDURE *G1*
CERTIFIED ACCURACY *± 1* % NIST TRACEABLE
CYLINDER PRESSURE *2000* PSIG
CERTIFICATION DATE *01/10/95*
EXPIRATION DATE *01/10/98*

CERTIFIED CONCENTRATION

PROPANE	*31.5 ppm*
NITROGEN	*BALANCE*
SHOULD NOT BE USED BELOW	*150 psig*

ANALYZED BY *BILL REIGHTLER*

CERTIFIED BY *STAN LECK*

610-691-2474
FAX# 610-758-8384

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER *STOCK TRANSFER CANTON* P.O NUMBER *37934*

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE 48.3 ppm GMIS VS	*1667B*	*CLM-004693*	*47.3 PPM*

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT *PROPANE 48.3 ppm GMIS VS* ANALYZER MAKE-MODEL-S/N *VARIAN 3300 FID 6570*

ANALYTICAL PRINCIPLE *GAS CHROMATOGRAPHY* LAST CALIBRATION DATE

FIRST ANALYSIS DATE *01/10/95* SECOND ANALYSIS DATE

Z	*0.0*	R	*47679*	C	*50119*	CONC.	*50.8*	Z	R	C	CONC.
R	*47853*	Z	*0.0*	C	*49856*	CONC.	*50.3*	R	Z	C	CONC.
Z	*0.0*	C	*49969*	R	*47563*	CONC.	*50.7*	Z	C	R	CONC.

U/M *ppm* MEAN TEST ASSAY *50.6* U/M *ppm* MEAN TEST ASSAY

2. COMPONENT ANALYZER MAKE-MODEL-S/N

ANALYTICAL PRINCIPLE LAST CALIBRATION DATE

FIRST ANALYSIS DATE SECOND ANALYSIS DATE

Z	R	C	CONC.	Z	R	C	CONC.
R	Z	C	CONC.	R	Z	C	CONC.
Z	C	R	CONC.	Z	C	R	CONC.

U/M MEAN TEST ASSAY U/M MEAN TEST ASSAY

THIS CYLINDER NO. *SA16472*
HAS BEEN CERTIFIED ACCORDING TO SECTION *EPA-600/R93/224*
OF TRACEABILITY PROTOCOL NO. *REV9/93*
PROCEDURE *G1*
CERTIFIED ACCURACY *± 1* % NIST TRACEABLE
CYLINDER PRESSURE *2000* PSIG
CERTIFICATION DATE *01/10/95*
EXPIRATION DATE *01/10/98*

CERTIFIED CONCENTRATION

PROPANE	*50.6 ppm*
NITROGEN	*BALANCE*
SHOULD NOT BE USED BELOW	*150 psig*

ANALYZED BY *BILL REIGHTLER*

CERTIFIED BY *STAN LECK*

610-691-2474
FAX# 610-758-3384

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER *STOCK TRANSFER CANTON* P.O NUMBER *37934*

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE 48.3 ppm GMIS VS	*1667B*	*CLM-004693*	*47.3 PPM*

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT *PROPANE 48.3 ppm GMIS VS* ANALYZER MAKE-MODEL-S/N *VARIAN 3300 FID 6570*

ANALYTICAL PRINCIPLE *GAS CHROMATOGRAPHY* LAST CALIBRATION DATE

FIRST ANALYSIS DATE *01/10/95* SECOND ANALYSIS DATE

Z	*0.0*	R	*47628*	C	*83321*	CONC.	*84.5*	Z	R	C	CONC.
R	*47703*	Z	*0.0*	C	*83202*	CONC.	*84.2*	R	Z	C	CONC.
Z	*0.0*	C	*84169*	R	*48968*	CONC.	*83.0*	Z	C	R	CONC.

U/M *ppm* MEAN TEST ASSAY *83.9* U/M *ppm* MEAN TEST ASSAY

2. COMPONENT ANALYZER MAKE-MODEL-S/N

ANALYTICAL PRINCIPLE LAST CALIBRATION DATE

FIRST ANALYSIS DATE SECOND ANALYSIS DATE

Z		R		C		CONC.		Z	R	C	CONC.
R		Z		C		CONC.		R	Z	C	CONC.
Z		C		R		CONC.		Z	C	R	CONC.

U/M MEAN TEST ASSAY U/M MEAN TEST ASSAY

THIS CYLINDER NO. *SA8276*
HAS BEEN CERTIFIED ACCORDING TO SECTION *EPA-600/R93/224*
OF TRACEABILITY PROTOCOL NO. *REV9/93*
PROCEDURE *G1*
CERTIFIED ACCURACY ± *1* % NIST TRACEABLE
CYLINDER PRESSURE *2000* PSIG
CERTIFICATION DATE *01/10/95*
EXPIRATION DATE *01/10/98*

CERTIFIED CONCENTRATION

PROPANE	*83.9 ppm*
NITROGEN	*BALANCE*
SHOULD NOT BE USED BELOW	*150 psig*

ANALYZED BY *BILL BEIGHTLER*

CERTIFIED BY *STAN LECK*

213-585-2154
FAX# 213-585-0582

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CALIFORNIA 90058

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER ENVISAGE ENVIRON. P.O NUMBER 94-GS-154

REFERENCE STANDARD

COMPONENT		NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE	GMIS	vs 2645a	SA 5908	491 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT PROPANE GMIS ANALYZER MAKE-MODEL-S/N HP 5890 SERIES II S/N 3310A48533

ANALYTICAL PRINCIPLE GC/ FLAME IONIZATION LAST CALIBRATION DATE 03/11/94

FIRST ANALYSIS DATE 04/05/94						SECOND ANALYSIS DATE			
Z 0	R 513631	C 314271	CONC.	300 ppm		Z	R	C	CONC.
R 511374	Z 0	C 312836	CONC.	300 ppm		R	Z	C	CONC.
Z 0	C 311846	R 509081	CONC.	301 ppm		Z	C	R	CONC.
U/M uV		MEAN TEST ASSAY		300 ppm		U/M uV		MEAN TEST ASSAY	

THIS CYLINDER NO. SGAL 3379
HAS BEEN CERTIFIED ACCORDING TO SECTION 3.0.4
OF TRACEABILITY PROTOCOL NO. 1
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 04/05/94
EXPIRATION DATE 04/05/97 TERM 36 MONTHS

CERTIFIED CONCENTRATION

PROPANE	300 ppm
NITROGEN	BALANCE

ANALYZED BY MARIA L. ROCHON

CERTIFIED BY KELLY A. GALLAGHER

610-691-2474
FAX # 610-758-8384

LIQUID CARBONIC

CYLINDER GAS PRODUCTS

EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER LC CANTON P.O NUMBER 37934

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE 492.4PPM GMIS VS.	1669B	CLM-000368	464.0 PPM

ANALYZER READINGS

R=REFERENCE STANDARD Z=ZERO GAS C=GAS CANDIDATE

1. COMPONENT PROPANE 492.4PPM GMIS VS. ANALYZER MAKE-MODEL-S/N VARIAN 3300 FID 6570
   ANALYTICAL PRINCIPLE GAS CHROMATOGRAPHY
   FIRST ANALYSIS DATE ➤ 01-17-95
   LAST CALIBRATION DATE
   SECOND ANALYSIS DATE

Z	0.0	R	486050	C	304620	CONC.	308.6	Z	R	C	CONC.
R	484410	Z	0.0	C	304540	CONC.	309.6	R	Z	C	CONC.
Z	0.0	C	303923	R	483723	CONC.	309.4	Z	C	R	CONC.
U/M	PPM				MEAN TEST ASSAY		309.2	U/M	PPM		MEAN TEST ASSAY

2. COMPONENT ANALYZER MAKE-MODEL-S/N
   ANALYTICAL PRINCIPLE
   FIRST ANALYSIS DATE
   LAST CALIBRATION DATE
   SECOND ANALYSIS DATE

Z		R		C		CONC.		Z	R	C	CONC.
R		Z		C		CONC.		R	Z	C	CONC.
Z		C		R		CONC.		Z	C	R	CONC.
U/M					MEAN TEST ASSAY			U/M			MEAN TEST ASSAY

THIS CYLINDER NO. SA 16437
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R93-224
OF TRACEABILITY PROTOCOL NO. REV. 9/93
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 1/17/95
EXPIRATION DATE 1/17/98

CERTIFIED CONCENTRATION

PROPANE	309.2PPM
NITROGEN	BALANCE
SHOULD NOT BE USED BELOW	150PSIG

ANALYZED BY BILL REIGHTLER

CERTIFIED BY STAN LECK

213-585-2154
FAX# 213-585-0582

LIQUID CARBONIC

CYLINDER GAS PRODUCTS
5700 SOUTH ALAMEDA STREET • LOS ANGELES, CALIFORNIA 90058

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER ENVISAGE ENVIRON. P.O NUMBER 94-GS-154

REFERENCE STANDARD

COMPONENT		NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE	GMIS	vs 2645a	SA 5908	491 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT PROPANE GMIS ANALYZER MAKE-MODEL-S/N HP 5890 SERIES II S/N 3310A48533
ANALYTICAL PRINCIPLE GC/ FLAME IONIZATION LAST CALIBRATION DATE 03/11/94
FIRST ANALYSIS DATE 04/05/94 SECOND ANALYSIS DATE

Z	0	R	517025	C	526130	CONC. 500 ppm	Z		R	C	CONC.
R	518014	Z	0	C	525519	CONC. 498 ppm	R		Z	C	CONC.
Z	0	C	522920	R	515531	CONC. 498 ppm	Z		C	R	CONC.
U/M	uV			MEAN TEST ASSAY		499 ppm	U/M	uV		MEAN TEST ASSAY	

THIS CYLINDER NO. SGAL 3739
HAS BEEN CERTIFIED ACCORDING TO SECTION 3.0.4
OF TRACEABILITY PROTOCOL NO. 1
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 04/05/94
EXPIRATION DATE 04/05/97 TERM 36 MONTHS

CERTIFIED CONCENTRATION
PROPANE 499 ppm
NITROGEN BALANCE

ANALYZED BY [signature] MARIA ROCHIN

CERTIFIED BY [signature] KELLY M. GALLAGHER

610-691-2474
FAX # 610-758-8384

LIQUID CARBONIC
CYLINDER GAS PRODUCTS
EAST COAST REGION
145 SHIMERSVILLE RD., BETHLEHEM, PA 18015

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER *LC CANTON* P.O NUMBER *37934*

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE 492.4PPM GMIS.VS	*2645A*	*FF-27106*	*497.7 PPM*

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT *PROPANE 492.4PPM GMIS.VS* ANALYZER MAKE-MODEL-S/N *VARIAN 3300 FID 5570*
ANALYTICAL PRINCIPLE *GAS CHROMATOGRAPHY* LAST CALIBRATION DATE *02/16/95*
FIRST ANALYSIS DATE *02/16/95* SECOND ANALYSIS DATE

Z	*0.0*	R	*46456*	C	*48655*	CONC.	*515.7*	Z		R	C	CONC.
R	*46292*	Z	*0.0*	C	*48488*	CONC.	*515.7*	R		Z	C	CONC.
Z	*0.0*	C	*48385*	R	*45923*	CONC.	*518.8*	Z		C	R	CONC.
U/M	*PPM*			MEAN TEST ASSAY			*516.7*	U/M	*PPM*		MEAN TEST ASSAY	

2. COMPONENT ANALYZER MAKE-MODEL-S/N
ANALYTICAL PRINCIPLE LAST CALIBRATION DATE
FIRST ANALYSIS DATE SECOND ANALYSIS DATE

Z		R		C		CONC.		Z		R	C	CONC.
R		Z		C		CONC.		R		Z	C	CONC.
Z		C		R		CONC.		Z		C	R	CONC.
U/M				MEAN TEST ASSAY				U/M			MEAN TEST ASSAY	

3. COMPONENT ANALYZER MAKE-MODEL-S/N
ANALYTICAL PRINCIPLE LAST CALIBRATION DATE
FIRST ANALYSIS DATE SECOND ANALYSIS DATE

Z		R		C		CONC.		Z		R	C	CONC.
R		Z		C		CONC.		R		Z	C	CONC.
Z		C		R		CONC.		Z		C	R	CONC.
U/M				MEAN TEST ASSAY				U/M			MEAN TEST ASSAY	

THIS CYLINDER NO. *SA 16361*
HAS BEEN CERTIFIED ACCORDING TO SECTION *EPA-600/R93/224*
OF TRACEABILITY PROTOCOL NO. *REV. 9/93*
PROCEDURE *G1*
CERTIFIED ACCURACY ± *1* % NIST TRACEABLE
CYLINDER PRESSURE *2000* PSIG
CERTIFICATION DATE *2/16/95*
EXPIRATION DATE *2/16/98*

CERTIFIED CONCENTRATION

PROPANE	*516.7PPM*
NITROGEN	*BALANCE*
[SHOULD NOT BE USED BELOW	*150PSIG]*

ANALYZED BY *BILL REIGHTLER*

CERTIFIED BY *STAN LECK*

213-585-2154
FAX# 213-585-0582

LIQUID CARBONIC

CYLINDER GAS PRODUCTS
5700 SOUTH ALAMEDA STREET • LOS ANGELES, CALIFORNIA 90058

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER ENVISAGE ENVIRON. P.O NUMBER 94-GS-154

REFERENCE STANDARD

COMPONENT		NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE	GMIS	vs 2646	SA 4285	973 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. COMPONENT PROPANE GMIS ANALYZER MAKE-MODEL-S/N HP 5890 SERIES II S/N 3310A48533
ANALYTICAL PRINCIPLE GC/ FLAME IONIZATION LAST CALIBRATION DATE 03/11/94
FIRST ANALYSIS DATE 04/06/94 SECOND ANALYSIS DATE

Z 0	R 1013311	C 881106	CONC. 846 ppm	Z	R	C	CONC.
R 1014295	Z 0	C 884776	CONC. 849 ppm	R	Z	C	CONC.
Z 0	C 886033	R 1014804	CONC. 850 ppm	Z	C	R	CONC.
U/M uV		MEAN TEST ASSAY	848 ppm	U/M uV		MEAN TEST ASSAY	

THIS CYLINDER NO. SGAL 3272
HAS BEEN CERTIFIED ACCORDING TO SECTION 3.0.4
OF TRACEABILITY PROTOCOL NO. 1
PROCEDURE G1
CERTIFIED ACCURACY ± 1 % NIST TRACEABLE
CYLINDER PRESSURE 2000 PSIG
CERTIFICATION DATE 04/06/94
EXPIRATION DATE 04/06/97 TERM 36 MONTHS

CERTIFIED CONCENTRATION

PROPANE	848 ppm
NITROGEN	BALANCE

ANALYZED BY MARIA E. ROCHON

CERTIFIED BY TY TRIPLETT

APPENDIX H
SECTION 7 - EMISSION SAMPLING NOMENCLATURE

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P.O. Box 152 Richfield, Ohio 44286
Phone (216) 526-0990

SAMPLING NOMENCLATURE

A	=	Cross sectional area of stack or duct, $ft.^2$.
A_n	=	Cross sectional area of nozzle entry plane, $ft.^2$.
B_{ws}	=	Water vapor in gas stream, proportion by volume.
C	=	Nomograph correction factor, dimensionless.
C_p	=	Pitot tube coefficent
C_s	=	Concentration of particulate matter in gas stream, dry basis-corrected to standard conditions, gr/dscf.
D_n	=	Nominal diameter of probe nozzle entry plane, in.
E	=	Emission Rate, lb./hr.
^H	=	Average pressure differential across orifice, in. of H_2O.
$^H_@$	=	Orifice meter calibration factor, in. of H_2O.
I	=	Percent of isokinetic sampling, %.
K_p	=	Pitot tube constant, 85.49 ft./sec.
K_3	=	Constant, 0.002669 in. Hg-ft^3 per ml - Rankin
M_d	=	Molecular weight of gas, dry basis, lb./lb.-mole.
M_n	=	Total amount of particulate matter collected, g.
M_s	=	Molecular weight of gas, wet basis, lb./lb.-mole.
M_w	=	Molecular weight of water, 18 lb./lb.-mole.
P_{bar}	=	Barometric pressure, in. of H_g.
PCDD	=	Polychlorinated Dibenzo-*p*-Dioxins
PCDF	=	Polychlorinated Dibenzofurans

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SAMPLING NOMENCLATURE - continued

P_g	=	Pressure differential from gas stream to atmosphere, (static pressure) in. of H_2O.
P_s	=	Absolute gas stream pressure, $(P_{bar} + P_g/13.6)$ in. of H_g.
P_{std}	=	Absolute pressure at standard conditions, 29.92 in. of H_g.
P_w	=	Density of water, 0.0022 lb./ml.
ppm	=	Parts per Million
$\hat{P}_{avg}$	=	Average of the square roots of the velocity head readings, in. of H_2O.
Q	=	Volumetric flow rate at gas stream conditions, A.C.F.M.
Q_{std}	=	Dry volumetric gas flow rate corrected to standard conditions, D.S.C.F.M.
R	=	Ideal gas constant, 21.85 in. of H_g-ft^3/ °R-lb.-mole.
t	=	Total sampling time, minutes.
T_m	=	Average dry gas meter temperature, °R.
T_s	=	Average absolute gas stream temperature, °R.
T_{std}	=	Standard absolute temperature, 528° rankine.
V_{lc}	=	Volume of water collected in impingers and silica gel, ml.
V_m	=	Volume of gas sample measured at meter box (meter conditions), $ft.^3$.
$V_{m(std)}$	=	Volume of gas sample measured at meter box (corrected to standard conditions), $ft.^3$.
VOC	=	"Volatile Organic Compound"
V_s	=	Average gas stream velocity, ft./sec.
$V_{w(std)}$	=	Volume of water vapor in gas sample (standard conditions), $ft.^3$.

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SAMPLING NOMENCLATURE - continued

13.6	=	Specific gravity of mercury (H_g).
$12\%CO_2$	=	Particulate concentration corrected to 12% Carbon Dioxide (dry basis).
$\%CO_2$	=	Percent by volume of Carbon Dioxide in gas stream (dry basis).
$\%O_2$	=	Percent by volume of Oxygen in gas stream (dry basis).
%CO	=	Percent by volume of Carbon Monoxide in gas stream (dry basis).
$\%N_2$	=	Percent by volume of Nitrogen in gas stream (dry basis).
VOC	=	Volatile Organic Compounds
CEM	=	Constant Emission Monitor

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APPENDIX H
SECTION 8 - EMISSION SAMPLING CALCULATIONS

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EXAMPLE CALCULATIONS – ARBITRARY

Sample Time (t)	=	120.00 minutes	Pitot Factor (Cp)	=	0.84
Barometric Pressure (Pb)	=	29.92 in. Hg	Gas Analysis	=	2.86 % CO2
Stack Pressure (Ps)	=	29.91 in. H2O			16.00 % O2
Stack Area (As)	=	15.90 sq.ft.			0.00 % CO
Stack Temp. (Ts)	=	325.00 Degrees F			81.10 % N2
Nozzle Diameter (Dn)	=	0.26 dec. in.	Sample Weights (Mn)		
Velocity Head (^P)	=	0.27 in. H2O	Sample Weight	=	0.0921 grams
Orifice Pressure (^H)	=	0.24 in. H2O	VOC's as Propane	=	120.00 ppm
Meter Y Factor (Y)	=	0.985	Molecular Weight of Compound	=	44.1100 Mw
Volume of H2O Collected (Vlc)	=	37.00 ml			

Vm std. = Vm x [Tstd/(Tm + 460)] x [Pb + (^H / 13.6) / Pstd)]	=	33.75
Vw(std) = 0.04707 x Vlc	=	1.74
Bws = Vw(std) / [Vm(std) + Vw(std)]	=	0.0491
Md = (.44 x %CO2) + (.32 x %O2) + [.28 x (%N2 + %CO)	=	29.10
Ms = [Md x (1 – Bws)] + (18.0 x Bws)	=	28.55
Vs = 85.49 x Cp x SQRT[dP]) x [SQRT{(Ts + 460) / (Ms x Ps}]	=	18.31
Qs = Vs x As x 60	=	17,476
Qs(std) = Qs x (1 – Bws) x [Tstd / (Ts + 460)] x (Pb + Ps/13 6) / 29 92	=	11,174
Cs = 15.43 x (Mn / Vm (std))	=	0.0421
E = Qstd x Cs x (1 lb / 7000 grains) x (60 minutes / 1 hour)	=	4.03
I = {[100 x Ts x ((K3 x Vlc) + (Vm / Tm)) x (Pbar + (^H / 13.6))] / 60 x An x Vs x Ps x t]} x Y	=	108.60
Csvoc = PPM x (Mw / 453.59 / 0.84895) / 10000	=	1.37E – 05
Evoc = Qstd x CsVOC x (60 minutes / 1 hour)	=	9.22

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APPENDIX H
SECTION 9 - DATA ACQUISITION RECORDINGS

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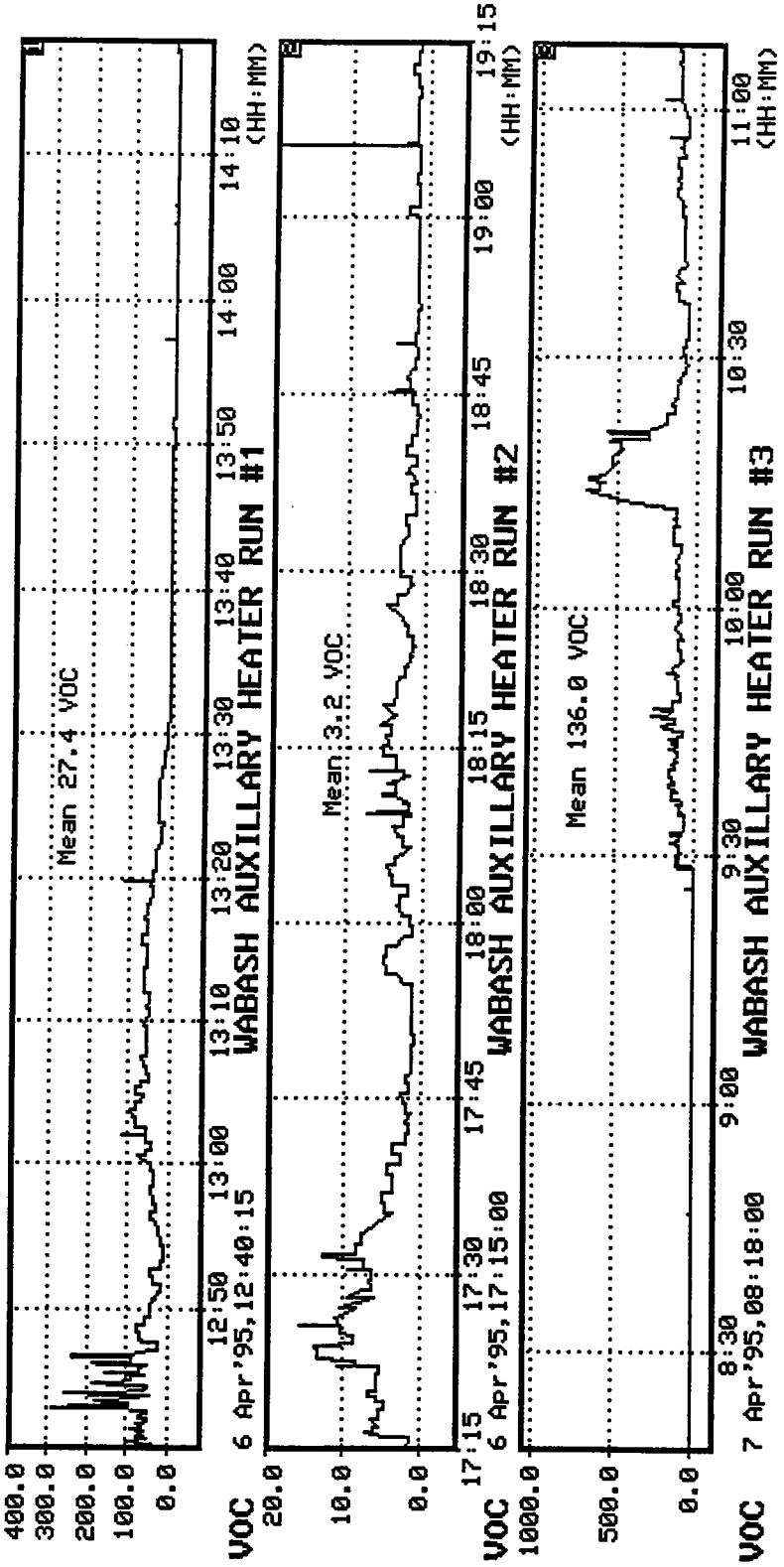
WABASH AUXILLARY HEATER RUN #1
6 Apr'95,12:40:15
12:50
13:00
13:10
13:20
13:30
13:40
13:50
14:00
14:10
(HH:MM)
VOC
PPM
400.0
300.0
200.0
100.0
0.0
Mean 27.4 VOC
WABASH AUXILLARY HEATER RUN #2
6 Apr'95,17:15:00
17:15
17:30
17:45
18:00
18:15
18:30
18:45
19:00
19:15
(HH:MM)
VOC
PPM
20.0
10.0
0.0
Mean 3.2 VOC
WABASH AUXILLARY HEATER RUN #3
7 Apr'95,08:18:00
8:30
9:00
9:30
10:00
10:30
11:00
(HH:MM)
VOC
PPM
1000.0
500.0
0.0
Mean 136.0 VOC